Digital Video Recorder

User's Manual

ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD. V1.5.0

Foreword

General

This user's manual (hereinafter referred to be "the Manual") introduces the functions and operations of the DVR devices (hereinafter referred to be "the Device").

Models

Series	Models
XVR Cooper series	DH-XVR1B04; DH-XVR1B04H; DH-XVR1B08; DH-XVR1B08H; DH-XVR1B16; DH-XVR1B16H; DH-XVR1B04-V2; DH-XVR1B08-V2
XVR4 series	DH-XVR4104C-X; DH-XVR4108C-X; DH-XVR4116HS-X; DH-XVR4104HS-X; DH-XVR4108HS-X; DH-XVR4104HS-X1; DH-XVR4108HS-X1; DH-XVR4104C-X1; DH-XVR4108C-X1; DH-XVR4216AN-X; DH-XVR4232AN-X
XVR5 series	DH-XVR5108C-X; DH-XVR5104C-4KL-X; DH-XVR5104C-X; DH-XVR5108H-X; DH-XVR5116H-X; DH-XVR5104H-4KL-X; DH-XVR5108H-4KL-X; DH-XVR5116H-4KL-X; DH-XVR5108HE-X; DH-XVR5116HE-X; DH-XVR5108HS-X; DH-XVR5116HS-X; DH-XVR5104HS-4KL-X; DH-XVR5108HS-4KL-X; DH-XVR5104HS-X; DH-XVR5104H-X; DH-XVR5104HE-X; DH-XVR5104HS-X1; DH-XVR5104C-X1; DH-XVR5216AN-X; DH-XVR5232AN-X; DH-XVR5104H-X1; DH-XVR5104HE-X1; DH-XVR5208AN-4KL-X; DH-XVR5216AN-4KL-X; DH-XVR5216A-X; DH-XVR5432L-X; DH-XVR5832S-X; DH-XVR5108H-4KL-X-8P; DH-XVR5208AN-4KL-X-8P; DH-XVR5216AN-4KL-X-16P; DH-XVR5416L-X; DH-XVR5408L-X; DH-XVR5816S-X; DH-XVR5808S-X; DH-XVR5104H-X-4P; DH-XVR5108H-X-8P; DH-XVR5216AN-X-16P
XVR7 series	DH-XVR7104E-4KL-X; DH-XVR7108E-4KL-X; DH-XVR7104E-4KL-B-X; DH-XVR7108E-4KL-B-X; DH-XVR7104HE-4KL-X; DH-XVR7108HE-4KL-X; DH-XVR7116HE-4KL-X; DH-XVR7108HE-4K-X; DH-XVR7108HE-4K-X2; DH-XVR7208A-4K-X2; DH-XVR7208A-4KL-X; DH-XVR7216A-4KL-X; DH-XVR7208A-4K-X; DH-XVR7416L-4KL-X; DH-XVR7816S-4KL-X; DH-XVR7816S-4KL-X-LP

Safety Instructions

The following signal words might appear in the manual.

Signal Words	Meaning
DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.

Signal Words	Meaning
CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, reductions in performance, or unpredictable results.
TIPS	Provides methods to help you solve a problem or save time.
NOTE	Provides additional information as a supplement to the text.

Revision History

Version	Revision Content	Release Time
V1.5.0	Updated format and added DH-XVR1B04-V2 and DH-XVR1B08-V2.	September 2021
V1.4.2	Updated to 4.0 UI version.	February 2020
V1.4.1	Added two models.	November 2019
V1.4.0	1. Added three models. 2. Replaced two PoC images and updated some descriptions.	July 2019
V1.3.0	Updated safety baseline functions. 1. Match language automatically during initialization; change GMT time zone to UTC time zone; match PAL and NTSC automatically. 2. Password on the local login interface is displayed with plaintext. 3. Reboot is not required after service port number is changed. 4. Added record control tab. 5. Added encoding enhancement function. 6. Added 802.1x access certification and firewall function. 7. Added TV adjustment function. 8. Added POS function at web. 9. Battery status of E model can be pushed to mobile phone. 10. Combine the channel info and POC info interface.	January 2019
V1.2.2	1. Added four models. 2. Added SMD.	November 2018
V1.2.1	Added one model	September 2018

Version	Revision Content	Release Time
V1.2.0	1. Added fourteen models. 2. Updated following sections: ◇ Important Safeguards and Warnings ◇ Initialize the Device ◇ Configure POS Settings	July 2018
V1.1.0	1. Added four models. 2. Added following sections: ◇ Regulatory Information ◇ Privacy Protection Notice ◇ Use Reset Button on the Mainboard ◇ Configure White Light ◇ Configure Siren ◇ View PoC Information 3. Updated following sections: ◇ About the Manual ◇ Important Safeguards and Warnings ◇ Configure IVS Function ◇ Configure Face Detection	June 2018
V1.0.1	Added eight models.	March 2018
V1.0.0	First Release.	February 2018

Privacy Protection Notice

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

About the Manual

- The manual is for reference only. Slight differences might be found between the manual and the product.
- We are not liable for losses incurred due to operating the product in ways that are not in compliance with the manual.
- The manual will be updated according to the latest laws and regulations of related jurisdictions. For detailed information, see the paper user's manual, use our CD-ROM, scan the QR code or visit our official website. The manual is for reference only. Slight differences might be found between the electronic version and the paper version.
- All designs and software are subject to change without prior written notice. Product updates might result in some differences appearing between the actual product and the manual. Please contact customer service for the latest program and supplementary documentation.

- There might be errors in the print or deviations in the description of the functions, operations and technical data. If there is any doubt or dispute, we reserve the right of final explanation.
- Upgrade the reader software or try other mainstream reader software if the manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and company names in the manual are properties of their respective owners.
- Please visit our website, contact the supplier or customer service if any problems occur while using the device.
- If there is any uncertainty or controversy, we reserve the right of final explanation.

Important Safeguards and Warnings

This section introduces content covering the proper handling of the Device, hazard prevention, and prevention of property damage. Read carefully before using the Device, comply with the guidelines when using it, and keep the manual safe for future reference.

Operation Requirements

- Do not place or install the Device in a place exposed to sunlight or near the heat source.
- Keep the Device away from dampness, dust or soot.
- Keep the Device installed horizontally on the stable place to prevent it from falling.
- Wall-mounting is not supported.
- Do not drop or splash liquid onto the Device, and make sure there is no object filled with liquid on the Device to prevent liquid from flowing into the Device.
- Install the Device in a well-ventilated place, and do not block the ventilation of the Device.
- Operate the device within the rated range of power input and output.
- Do not dissemble the Device.
- Transport, use and store the Device under the allowed humidity and temperature conditions.

Electrical Safety

- Use the battery of specified manufacturer; otherwise there might result in explosion. When replacing battery, make sure the same type is used. Improper battery use might result in fire, explosion, or inflammation.
- Follow the instructions to dispose of the used battery.
- Use the recommended power cables in the region and conform to the rated power specification.
- Use the power adapter provided with the Device; otherwise, it might result in people injury and device damage.
- The power supply must conform to the requirements of ES1 in IEC 62368-1 standard and be no higher than PS2. Note that the power supply requirements are subject to the device label.
- Connect the device (I-type structure) to the power socket with protective earthing.
- The appliance coupler is a disconnection device. When using the coupler, keep the angle for easy operation.

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1 Introduction

1.1 Overview

The Device is an excellent digital monitor product for security industry. The embedded LINUX OS assures the stable operation. The H.265 and G.711 technologies assure the high quality image and low bit stream. The frame-by-frame play function displays more details for analysis, and provides the functions such as record, playback, and monitor and assures the synchronization for audio and video. The Device also adopts the advanced control technology and great network data transmission capability.

The Device adopts embedded design to achieve high security and reliability. It can work in the local end and, with strong networking capability it can get connected to the professional surveillance software (Smart PSS) to form a security network to show its powerful remote monitoring function.

The Device is applicable to the areas such as bank, telecom, electricity, traffic, intelligent residential district, factory, warehouse, resources, and water conservancy facilities.

1.2 Functions

The functions might be different depending on the software and hardware version of the model you purchased.

Smart Detection

- Smart detection: Effectively detect persons and motor vehicles in the video.
- Face detection: Effectively recognize faces in the video, analyze and carry out structured storage of faces, and search faces quickly.
- Analyze IVS, carry out tripwire and zone intrusion analysis of persons and vehicles, and effectively filter false report caused by tree leaves, rain and brightness changes.

Real-time Surveillance

- Support VGA port and HDMI port to realize the surveillance through monitors.
- Support HDMI, VGA, and TV output at the same time.

IoT Management

Provide specific management module for IoT features including humidity and temperature data reports and alarms linkage.

Sensor Integration

Integrate coaxial cameras with diverse array of sensors such as temperature, humidity and wireless alarm devices.

Storage Management

- Special data format to guarantee data security and avoid the risk of modifying data viciously.
- Support digital watermark.

Compression Format

Support multiple-channel audio and video signal. An independent hardware decodes the audio and video signal from each channel to maintain video and audio synchronization.

Backup Function

- Support backup operation through USB port (such as USB storage disk, portable HDD, and burner).
- Client-end user can download the file from local HDD through network to backup.

Record & Playback

- Support each channel real-time record independently, and simultaneously support the functions such as search, backward play, network monitor, record search, and download.
- Support various playback modes: slow play, fast play, backward play and frame by frame play.
- Support time title overlay so that you can view event accurate occurred time.
- Support zooming in the selected area in the live view.

Network Operation

Support network remote real-time monitor, remote record search and remote PTZ control.

Alarm Activation

- Several relay alarm outputs to realize alarm activation and on-site light control.
- The alarm input port and output port have the protection circuit to guarantee the Device safety.

Communication Port

- RS-485 port can realize alarm input and PTZ control.
- RS-232 port can connect to keyboard, COM port of PC or the matrix control.
- Standard Ethernet port can realize network remote access function.
- The dual-network port has the multi-address, fault tolerance, load balance setup mode.

PTZ Control

Support PTZ decoder through RS-485 port.

Intelligent Operation

- Support mouse operation function.
- Support "copy and paste" function for the same settings.

UPnP (Universal Plug and Play)

Establish mapping connection between LAN and WAN through UPnP protocol.

Camera Self-adaptive

Auto-recognize and work with the PAL or NTSC camera and HD camera.

2 Getting Started

2.1 Checking the Components

The actual appearance, component, or quantity might be different depending on the model you purchased.

When you receive the Device, check the package according to the following checking list. If any of the items are missing or damaged, contact the local retailer or after-sales engineer immediately.

Table 2-1 Checking list

Sequence	Checking items		Requirement
1	Package	Appearance	No obvious damage.
		Packing materials	No broken or distorted positions that could be caused by hit.
2	Labels	Labels on the device	Not torn up. Do not tear up or throw away the labels; otherwise the warranty services are not ensured. You need to provide the serial number of the product when you call the after-sales service.
3	Device	Appearance	No obvious damage.
		Data cables, power cables, fan cables, mainboard	No connection loose.

2.2 Installing HDD

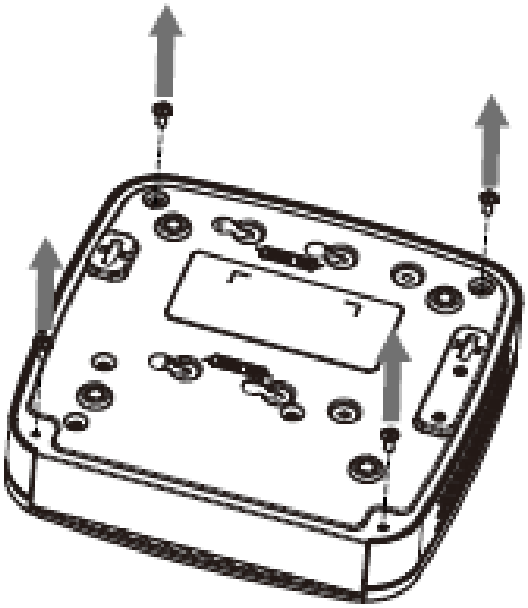
Check whether the HDD is already installed in the Device when you first time using the Device. It is suggested to use the HDD recommended officially. Do not use the PC HDD.

Shut down the device and then unplug the power cable before you open the case to replace the HDD.

2.2.1 DH-XVR5108C-X/DH-XVR5104C-4KL-X/DH-XVR5104C-X/DH-XVR4104C-X/DH-XVR4108C-X/DH-XVR5104C-X1/DH-XVR4104C-X1/DH-XVR4108C-X1

Step 1 Loosen the screws of the bottom of the chassis.

Figure 2-1 Loosen screws

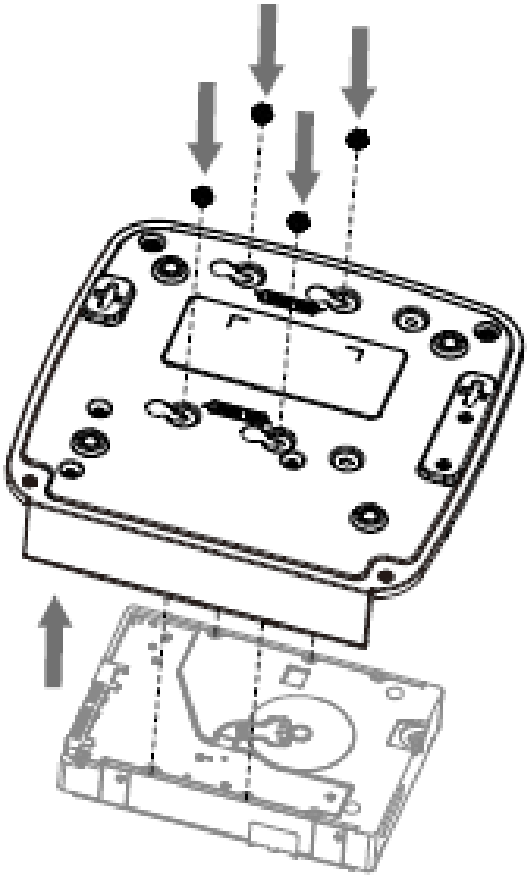


Step 2 Place the HDD in accordance with the four holes in the bottom.

Figure 2-2 Align HDD

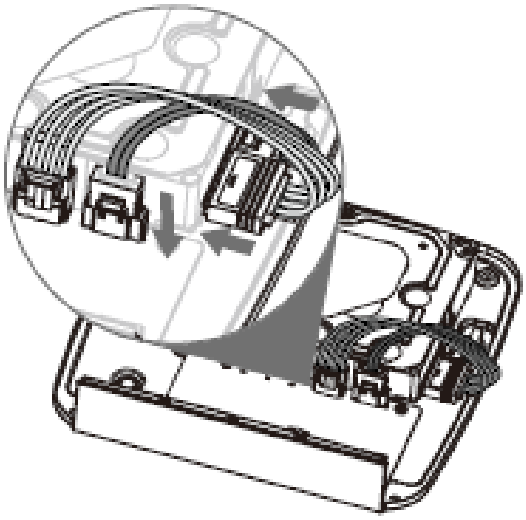
Step 3 Turn the device upside down and then secure the screws firmly.

Figure 2-3 Secure screws



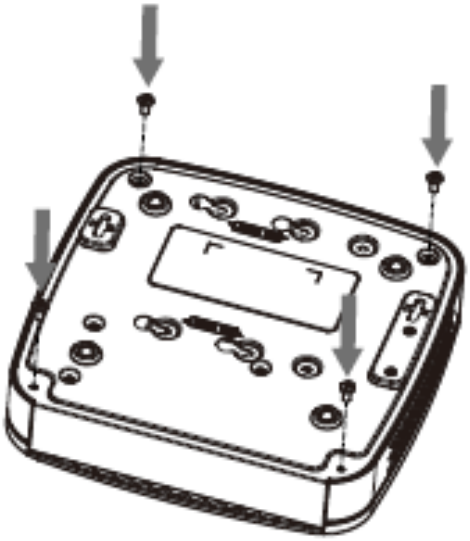
Step 4 Connect the HDD cable and power cable to the HDD and the mainboard respectively.

Figure 2-4 Connect cables



Step 5 Put the cover back and then fix the screws of the rear panel. The installation is complete.

Figure 2-5 Fix screws



2.2.2 DH-XVR7104E-4KL-X/DH-XVR7108E-4KL-X/DH-XVR7104E-4KL-B-X/DH-XVR7108E-4KL-B-X

2.2.2.1 Installing Battery

The battery is only provided with some models.

Step 1 Pull the battery cable through the hole.

Figure 2-6 Pull battery cable through hole

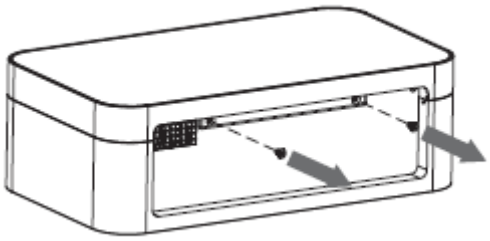
Step 2 Connect the cable into the port.

Figure 2-7 Connect to port

2.2.2.2 Installing HDD

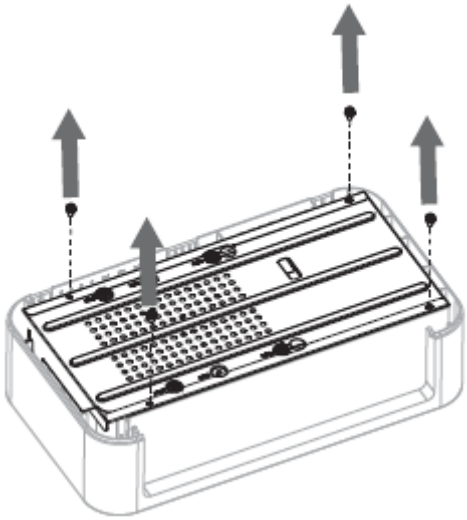
Step 1 Loosen the screws to take off the cover.

Figure 2-8 Loosen screws



Step 2 Remove the screws to take off the bracket.

Figure 2-9 Take off bracket



Step 3 Fix the HDD to the bracket and then connect power cable and data cable.

Figure 2-10 Fix HDD

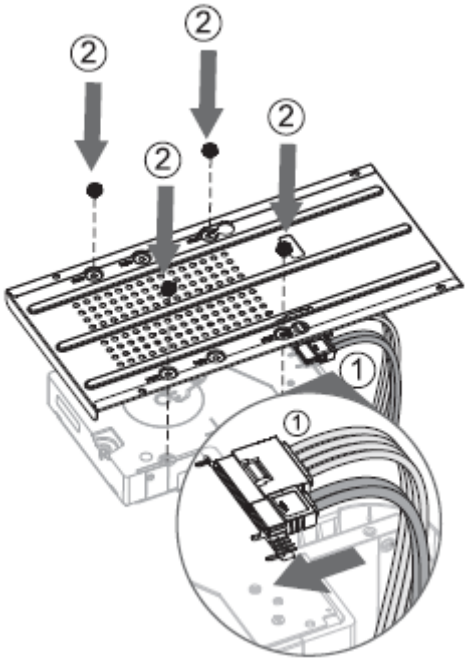
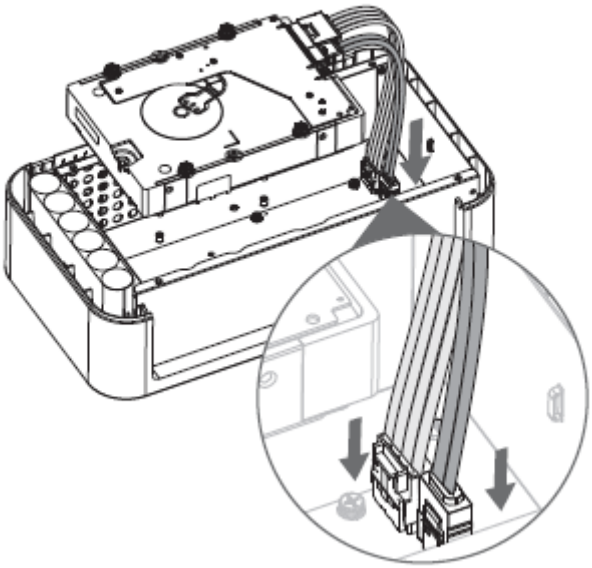
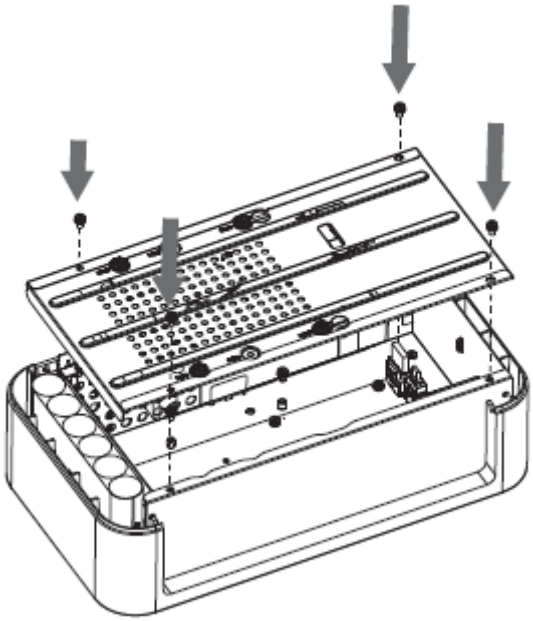


Figure 2-11 Connect cables



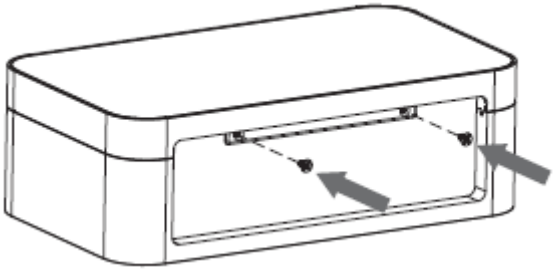
Step 4 Install the bracket and then fasten the screws.

Figure 2-12 Install bracket



Step 5 Put back the cover and then fasten the screws.

Figure 2-13 Fasten screws

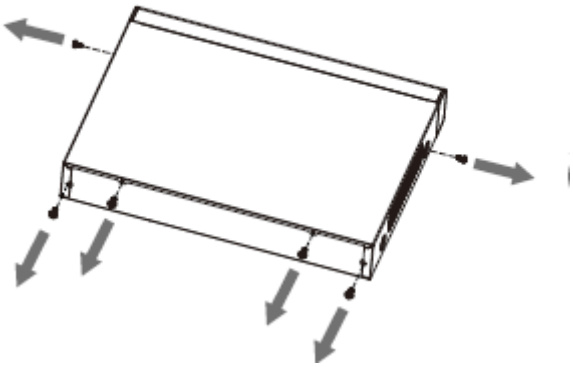


2.2.3 DH-XVR4116HS-X/DH-XVR5108HS-X/DH-XVR5116HS-X/DH-XVR5104HS-4KL-X/DH-XVR5108HS-4KL-X/DH-XVR5108H-X/DH-XVR5116H-X/DH-XVR5104H-4KL-X/DH-XVR5108H-4KL-X/DH-XVR5116H-4KL-X/DH-XVR5108HE-X/DH-XVR5116HE-X/DH-XVR7104HE-4KL-X/DH-XVR7108HE-4KL-X/DH-XVR7116HE-4KL-X/DH-XVR7108HE-4K-X/DH-XVR5104HS-X/DH-XVR4104HS-X/DH-XVR5104H-X/DH-XVR5104HE-X/DH-XVR4108HS-X/DH-XVR5104HS-X1/DH-XVR4104HS-X1/DH-XVR4108HS-X1/DH-XVR5104H-X1/DH-

XVR5104HE-X1/DH-XVR5104H-X-4P/DH-XVR5108H-X-8P/DH-XVR7108HE-4K-X2

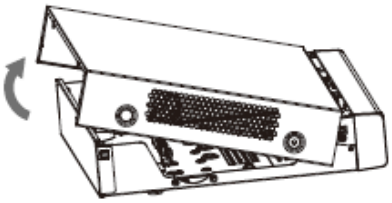
Step 1 Loosen the screws of the upper cover and side panel.

Figure 2-14 Loosen screws



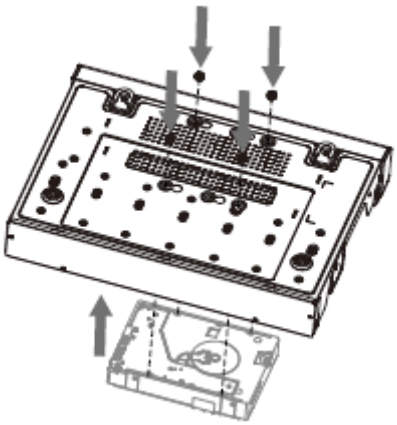
Step 2 Remove the cover in the direction of the arrow as shown in the figure below.

Figure 2-15 Remove cover



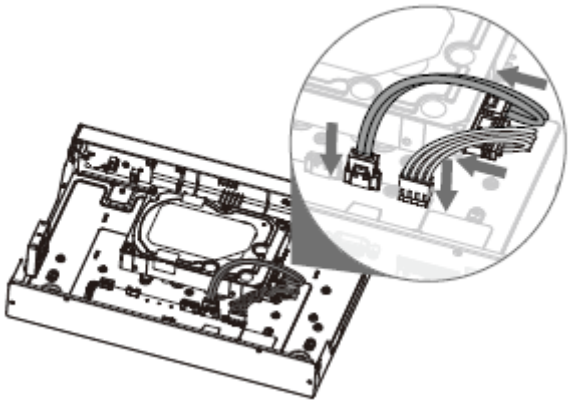
Step 3 Turn over the device, and align the HDD to the four holes of bottom panel, and then fix the HDD with screws.

Figure 2-16 Fix HDD



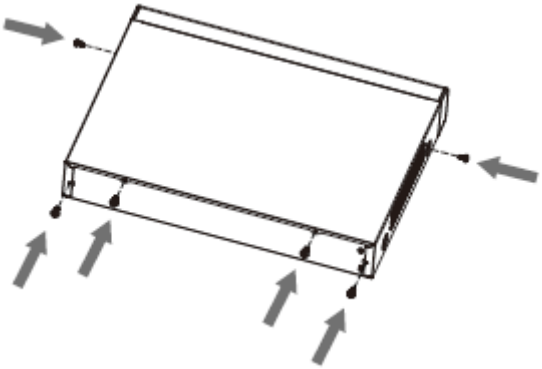
Step 4 Connect HDD to the device using data cable and power cable.

Figure 2-17 Connect cables



Step 5 Put the cover in accordance with the clip and then fix the screws on the rear panel and side panel.

Figure 2-18 Fix screws



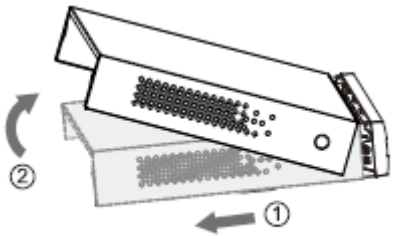
2.2.4 DH-XVR1B04/DH-XVR1B04H/DH-XVR1B08/DH-XVR1B08H/DH-XVR1B16/DH-XVR1B16H/DH-XVR1B04-V2/DH-XVR1B08-V2

Step 1 Loosen the screws of the upper cover.

Figure 2-19 Loosen screws

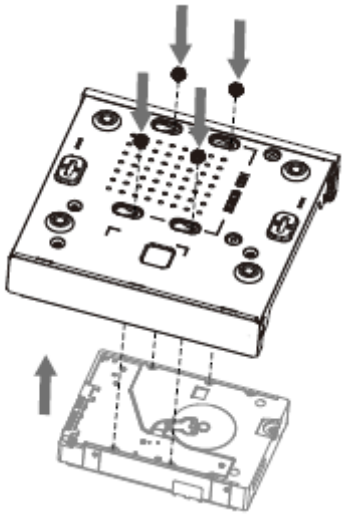
Step 2 Remove the cover in the direction of the arrow as shown in the figure below.

Figure 2-20 Remove cover



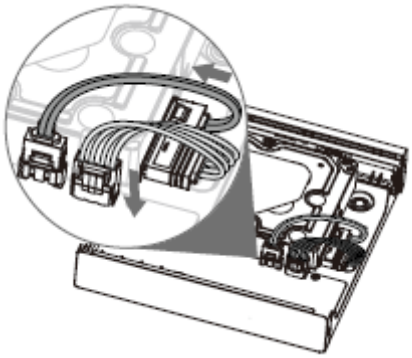
Step 3 Turn over the device, and align the HDD to the four holes of bottom panel, and then fix the HDD with screws.

Figure 2-21 Align HDD



Step 4 Connect HDD to the device using data cable and power cable.

Figure 2-22 Connect cables



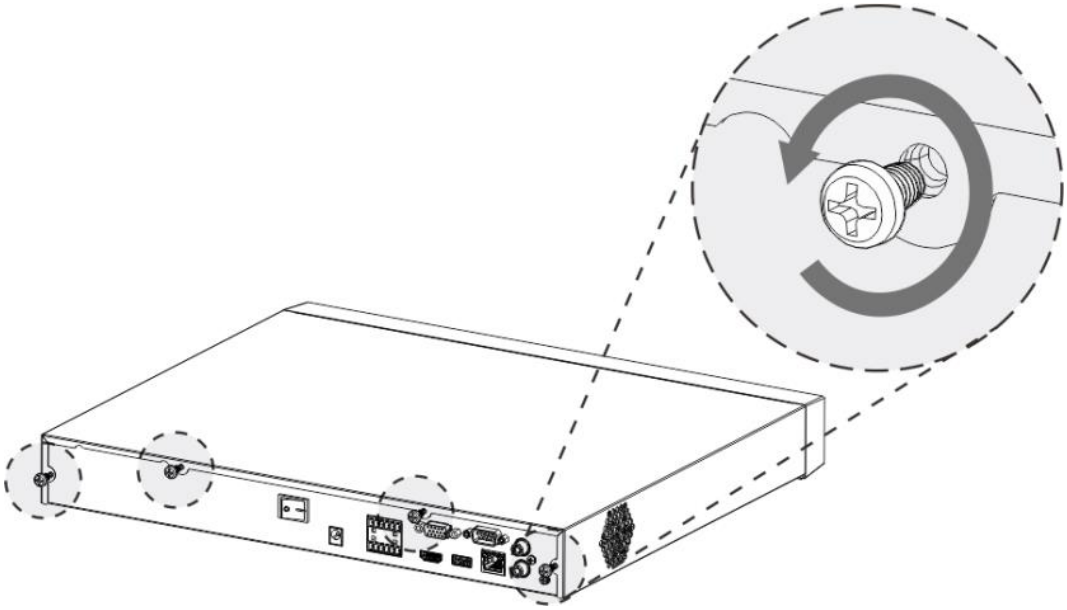
Step 5 Put back and fix the cover with the screws.

Figure 2-23 Fix screws

2.2.5 DH-XVR4216AN-X/DH-XVR4232AN-X/DH-XVR5216AN-X/DH-XVR5232AN-X/DH-XVR5208AN-4KL-X/DH-XVR5216AN-4KL-X/DH-XVR5216A-X/DH-XVR7208A-4KL-X/DH-XVR7216A-4KL-X/DH-XVR7208A-4K-X/DH-XVR5108H-4KL-X-8P/DH-XVR5208AN-4KL-X-8P/DH-XVR5216AN-4KL-X-16P/DH-XVR5216AN-X-16P/DH-XVR7208A-4K-X2

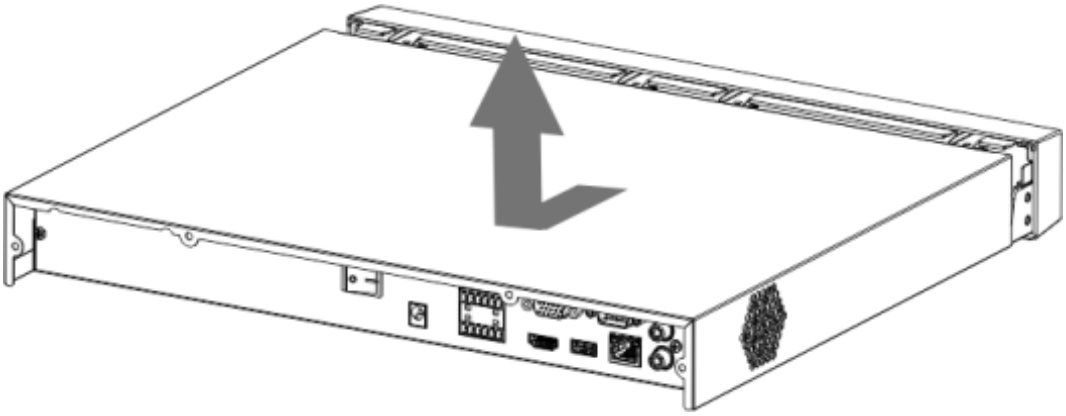
Step 1 Remove the four fixing screws on the rear panel.

Figure 2-24 Remove screws



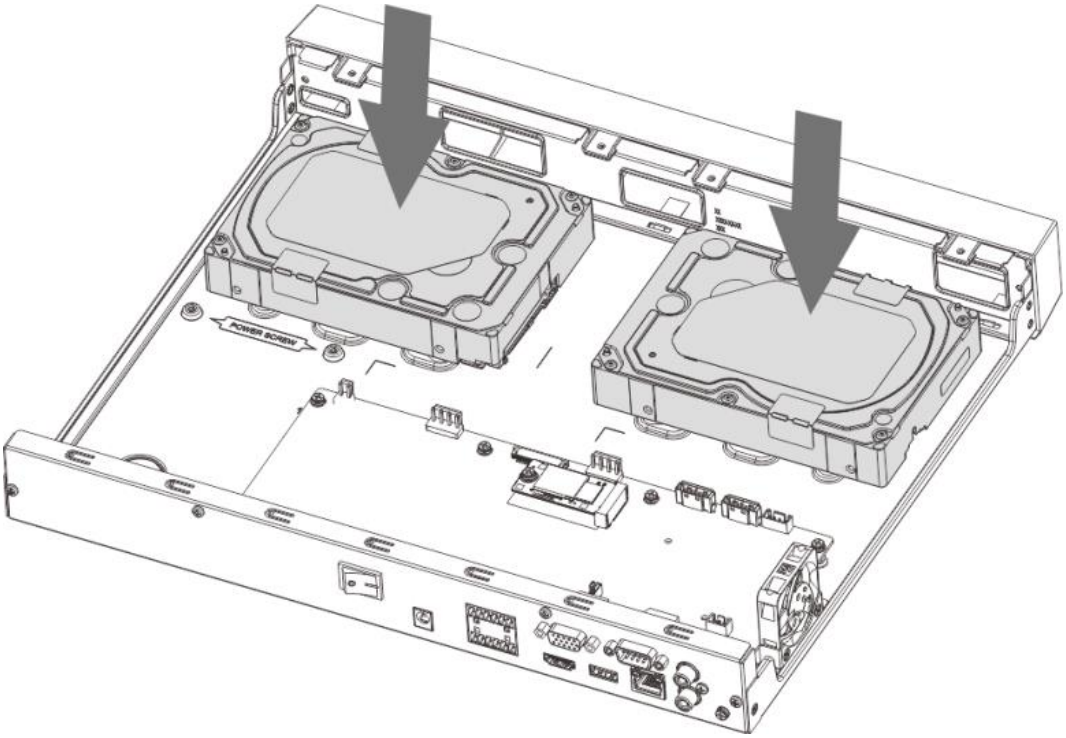
Step 2 Remove the case cover along the direction shown in the following arrow.

Figure 2-25 Remove cover



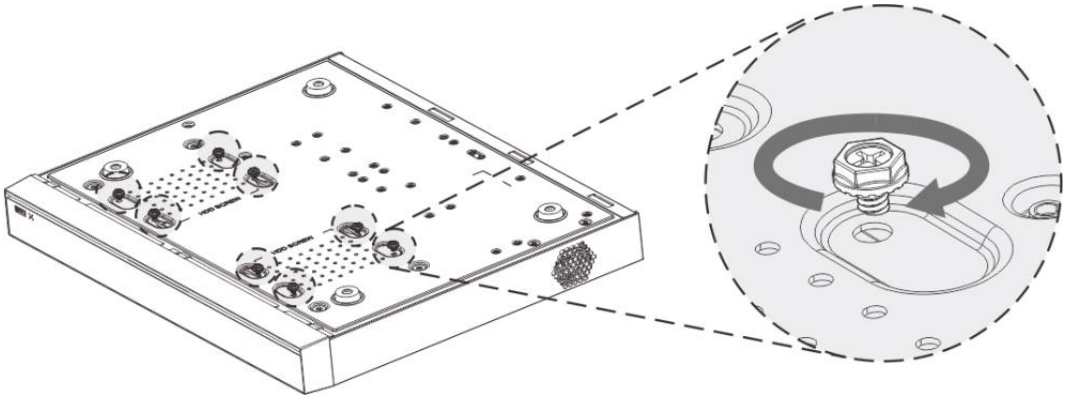
Step 3 Match the four holes on the baseboard to place the HDD.

Figure 2-26 Place HDD



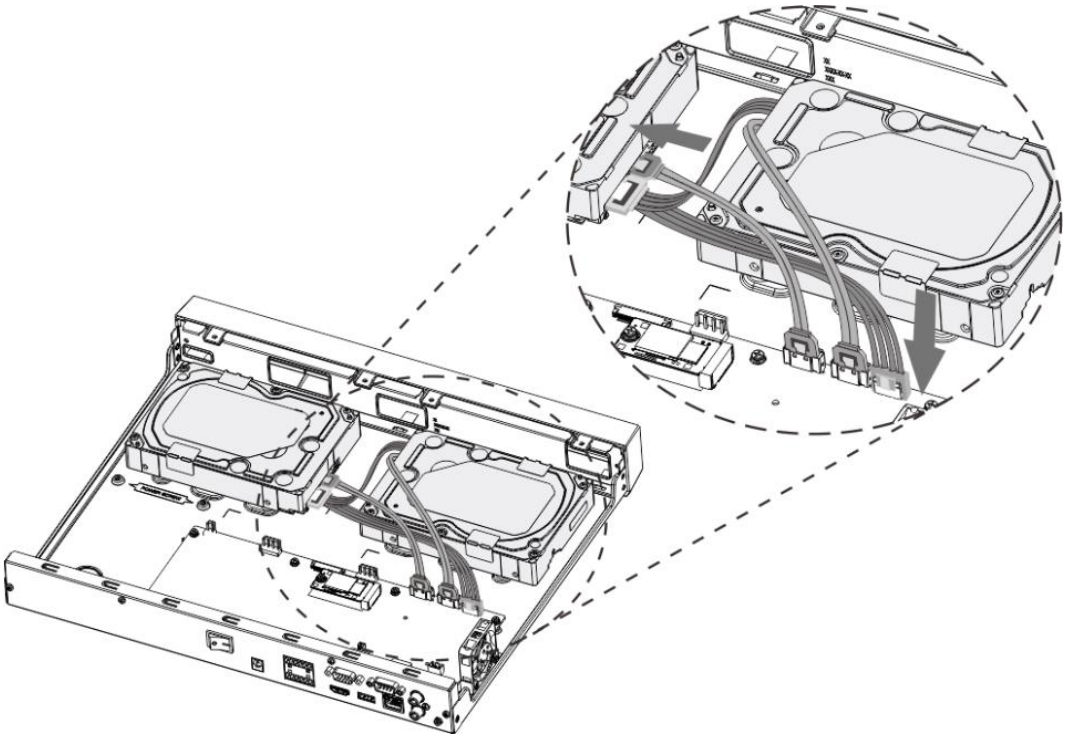
Step 4 Turn the device upside down, match the screws with the holes on the HDD and then fasten them. The HDD is fixed to the baseboard.

Figure 2-27 Fix HDD



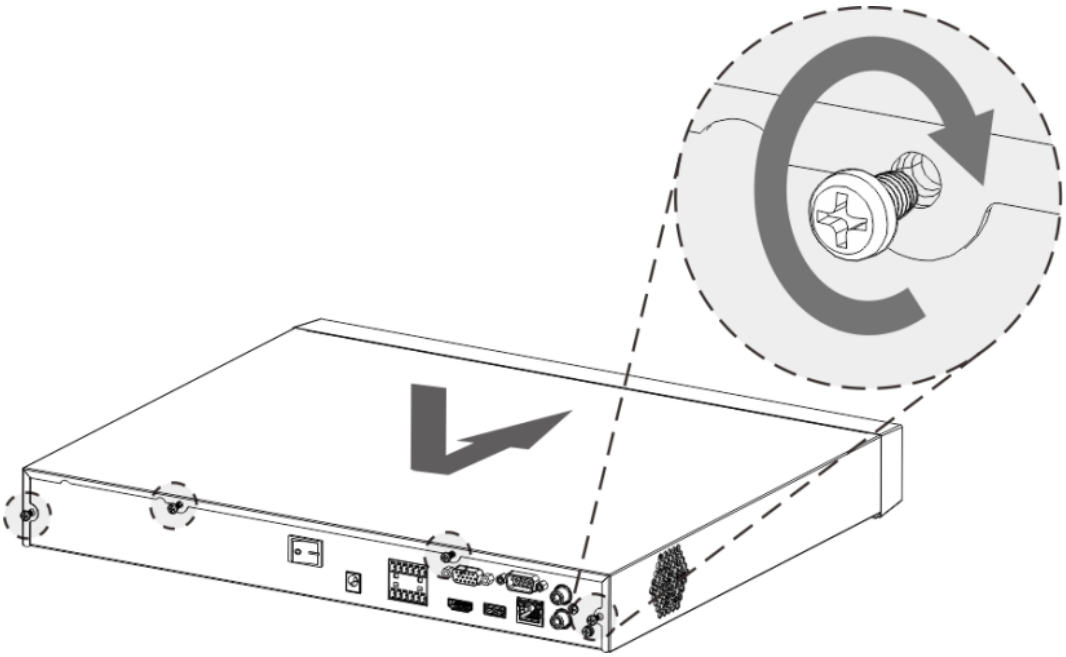
Step 5 Connect the HDD data cable and power cable to the device.

Figure 2-28 Connect cables



Step 6 Put back the cover and fasten the four screws on the rear panel to complete the installation.

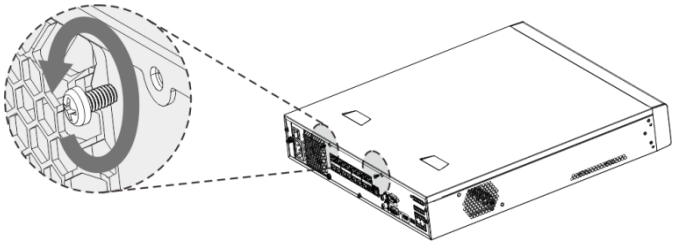
Figure 2-29 Fasten screws



2.2.6 DH-XVR7416L-4KL-X/DH-XVR5432L-X

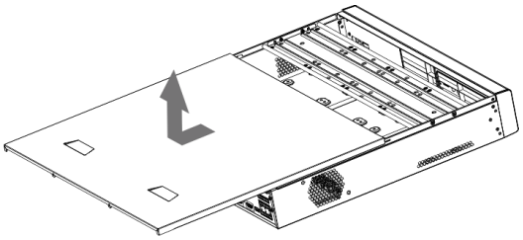
Step 1 Remove the fixing screws on the rear panel.

Figure 2-30 Remove screws



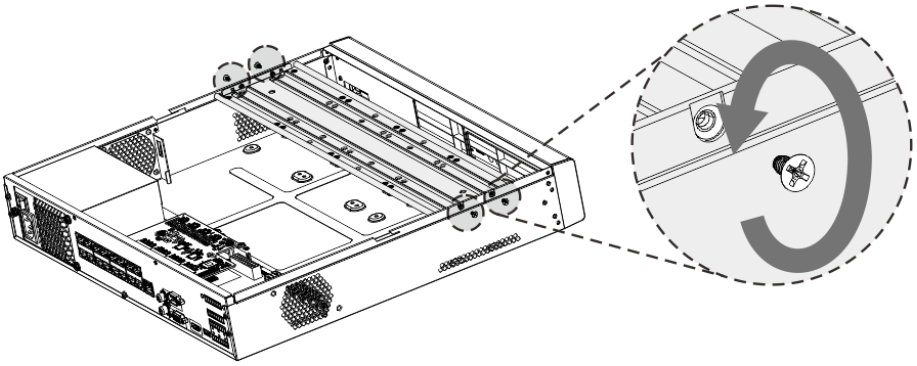
Step 2 Remove the cover along the direction shown in the following arrow.

Figure 2-31 Remove cover



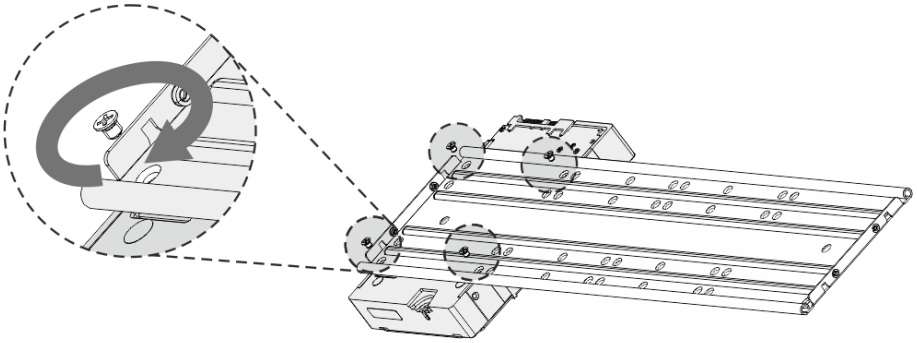
Step 3 Remove the screws on the sides of HDD bracket to take out the bracket.

Figure 2-32 Remove bracket



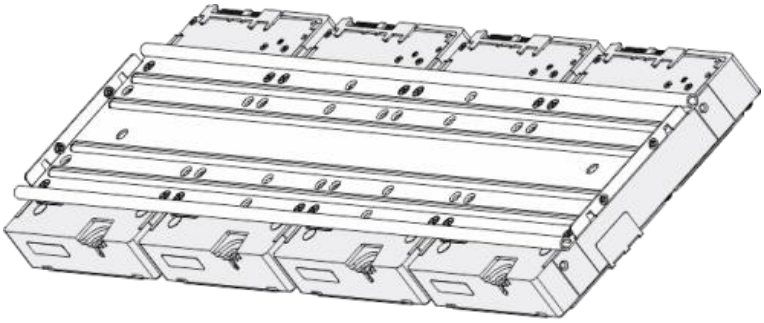
Step 4 Match the four screw holes on the HDD with the four holes on the bracket and then fasten the screws. The HDD is fixed to the bracket.

Figure 2-33 Fix HDD



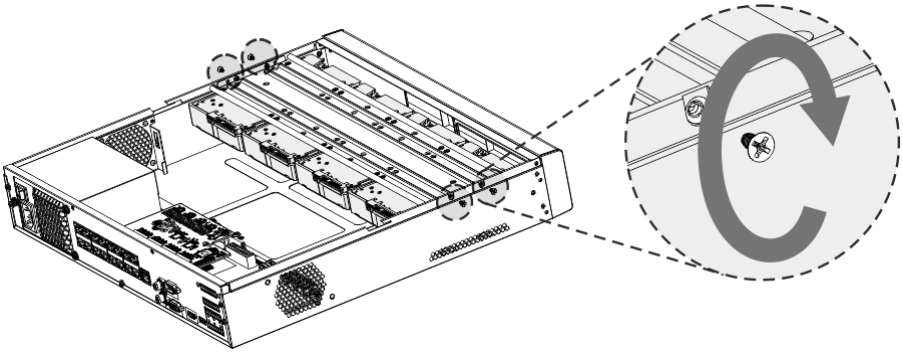
Step 5 Install the other HDDs.

Figure 2-34 Install other HDDs



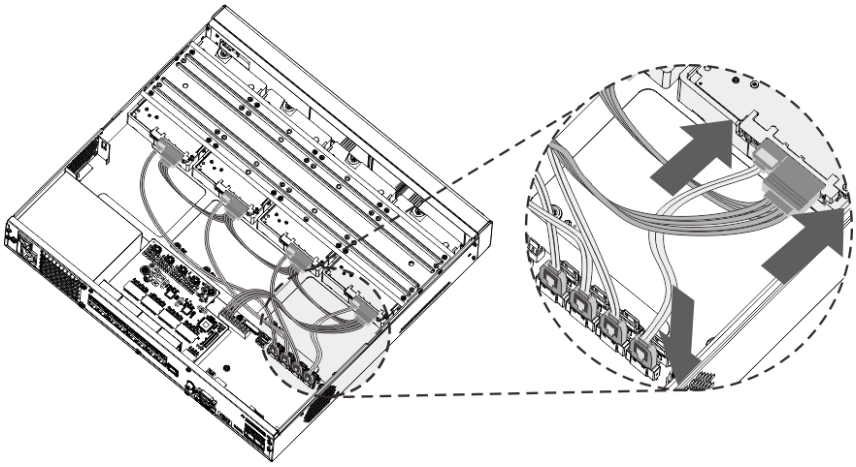
Step 6 Place the bracket to the device and then fasten the screws on the sides of the bracket.

Figure 2-35 Fasten screws



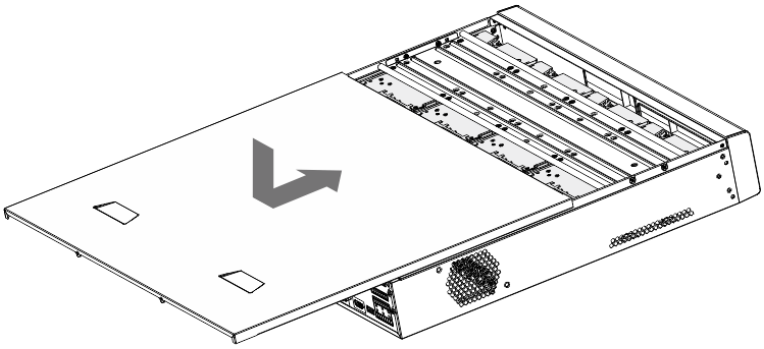
Step 7 Connect the HDD data cable and power cable to the device.

Figure 2-36 Connect cables



Step 8 Put back the cover and fasten the screws on the rear panel to complete the installation.

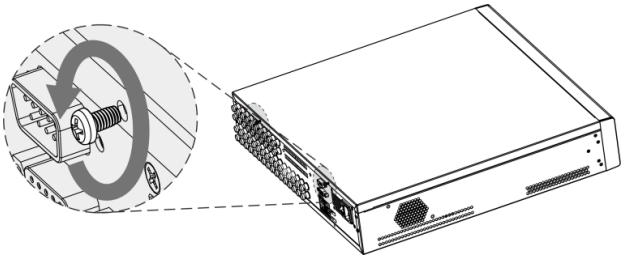
Figure 2-37 Put back cover



2.2.7 DH-XVR7816S-4KL-X/DH-XVR5832S-X/DH-XVR7816S-4KL-X-LP

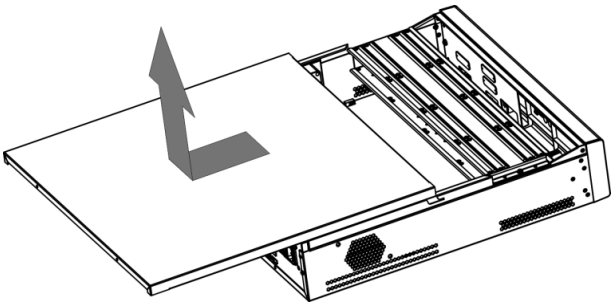
Step 1 Remove the screws from the chassis.

Figure 2-38 Remove screws



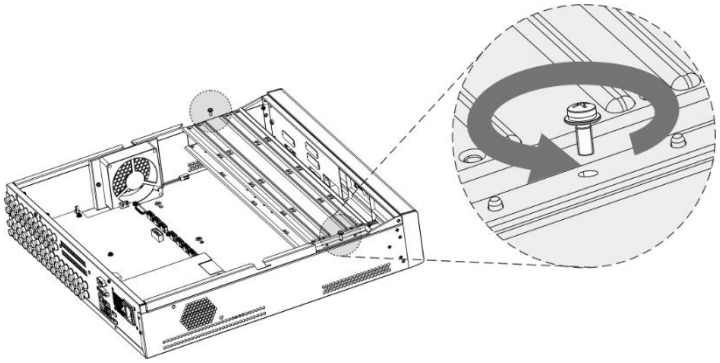
Step 2 Take off the cover of the chassis.

Figure 2-39 Take off cover



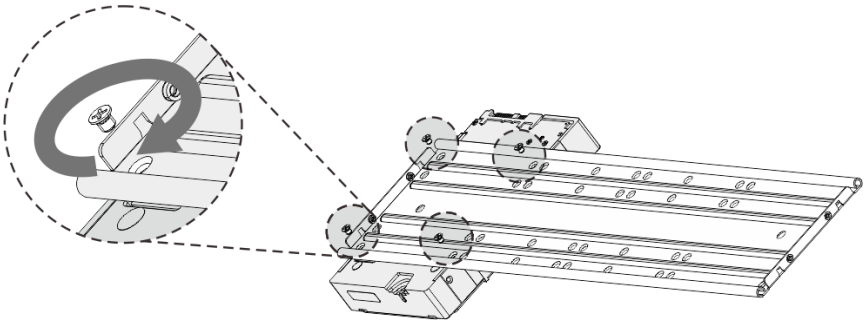
Step 3 Remove the screws from the drive bracket to take it off.

Figure 2-40 Take off drive bracket



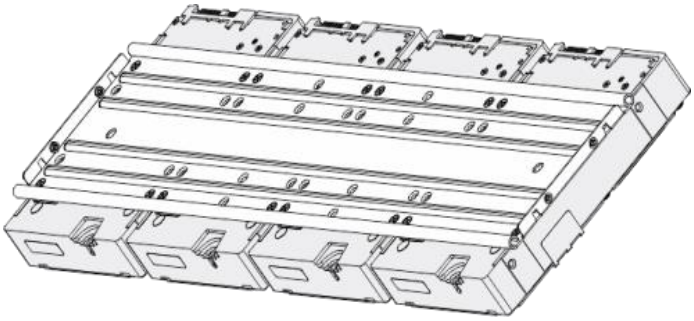
Step 4 Align the four screw holes on the disk to those on the drive bracket and fix the disk on the bracket.

Figure 2-41 Fix disk



Step 5 Fix other disks on the bracket as needed.

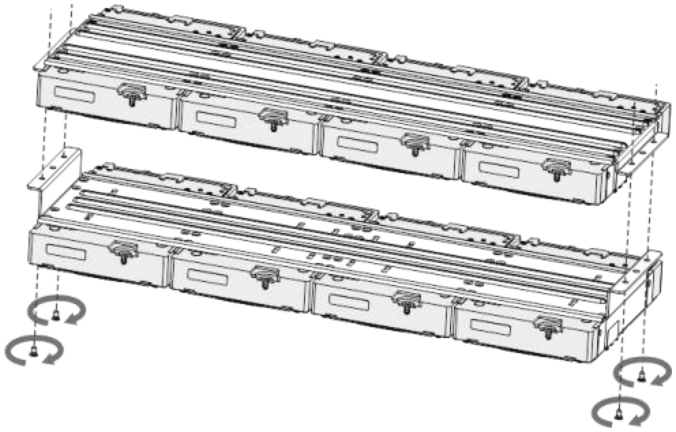
Figure 2-42 Fix other disks



Step 6 Fix the two drive brackets.

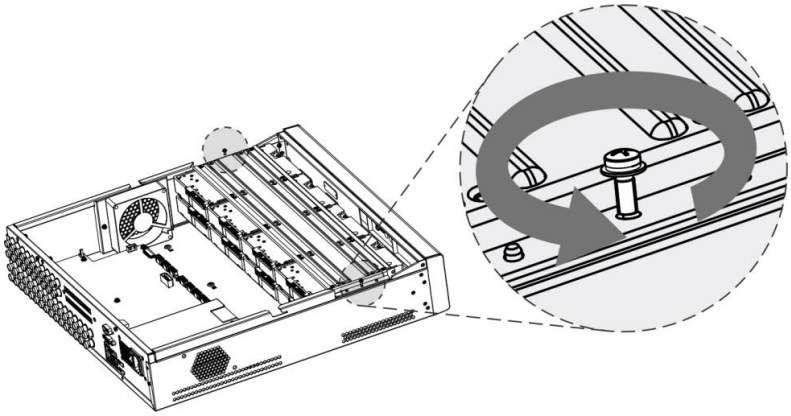
This is only needed on models with 8 bays.

Figure 2-43 Fix drive brackets



Step 7 Put the drive brackets back and fix them in the DVR.

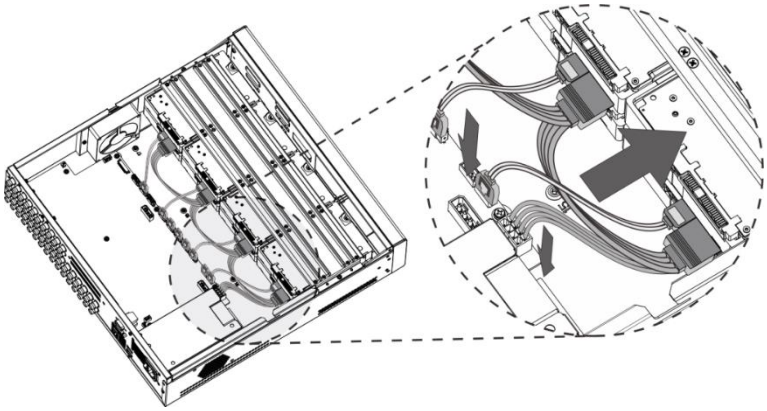
Figure 2-44 Put back drive bracket



Step 8 Connect the disks and the DVR with power cable and data cable.

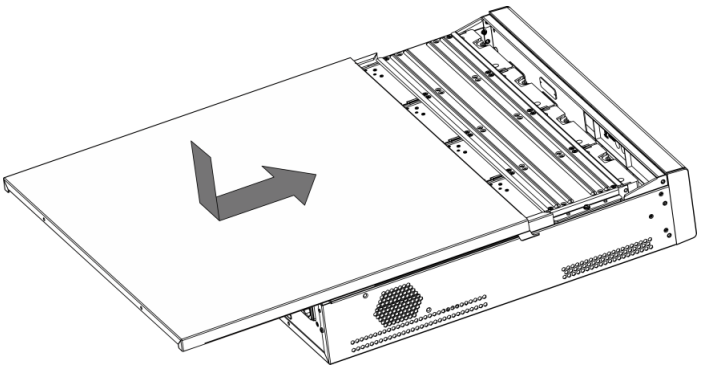
The following figure shows the connection of 4-bay model for example.

Figure 2-45 Connect cables



Step 9 Put the cover back and fasten the screws.

Figure 2-46 Put back cover



2.3 Installing Device into Rack

Only DH-XVR7416L-4KL-X/DH-XVR5432L-X/DH-XVR7816S-4KL-X/DH-XVR5832S-X models support this installation.

To install the DVR into rack, do the following:

Step 1 Check whether the in-house temperature is lower than 35 °C (95 °F) and make sure the 15 cm (6 inches) spacing around the Device for ventilation.

Step 2 Use six screws to fix the DVR on each side.

Step 3 Install from the bottom up.

If you want to install more accessories to the rack, take preventive measures to avoid power socket overload.

Step 4 (Optional) Install more accessories to the rack if needed.

3 The Grand Tour

This chapter introduces various components of the Device, remote control and mouse operations.

3.1 Front Panel

3.1.1 DH-XVR5108C-X/DH-XVR5104C-4KL-X/DH-XVR5104C-X/DH-XVR4104C-X/DH-XVR4108C-X/DH-XVR5104C-X1/DH-XVR4104C-X1/DH-XVR4108C-X1

Figure 3-1 Front panel

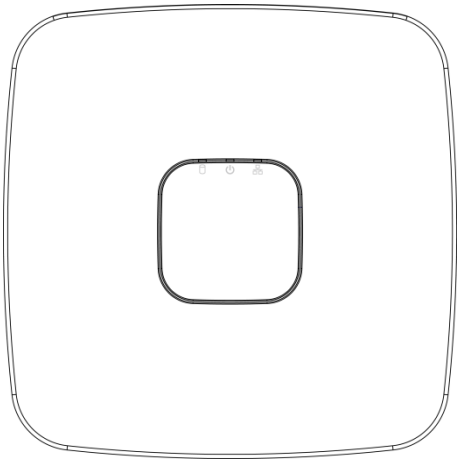


Table 3-1 Front panel description

Icon	Name	Function
	HDD status indicator	● The indicator is off when the HDD is running normally. ● The indicator glows blue when the HDD is in malfunction.
	Power status indicator	● The indicator is off when the power is connected abnormally. ● The indicator glows blue when the power is connected normally.
	Network status indicator	● The indicator is off when the network connection is correct. ● The indicator glows blue when the network connection is abnormal.

3.1.2 DH-XVR7104E-4KL-X/DH-XVR7108E-4KL-X/DH-XVR7104E-4KL-B-X/DH-XVR7108E-4KL-B-X

Figure 3-2 Front panel

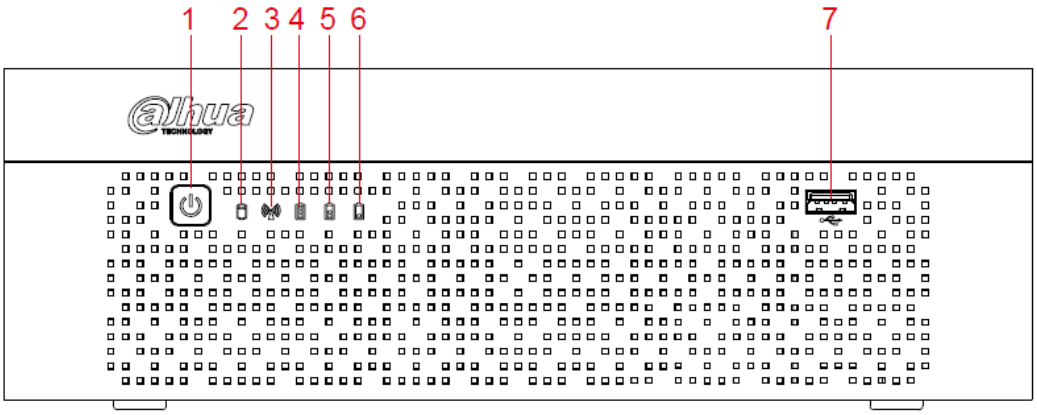


Table 3-2 Front panel description

No.	Button/Icon	Function
1	Power	Turns on/off the DVR. The indicator glows blue when the DVR is turned on.
2	HDD status indicator	The indicator glows blue when the HDD is in malfunction.
3	Network status indicator	The indicator glows blue when the network connection is abnormal.
4, 5, 6	Battery status indicator	● When the battery remains full or no less than sixty percent, the No.4 indicator is on, and the No.5 and No.6 are out. ● When the battery remains between thirty percent and sixty percent, the No.5 indicator is on and the others are out. ● When the battery remains between one percent and thirty percent, the No.6 indicator is on and the others are out. ● When the battery is exhausted, the DVR is turned off, or there is no battery attached to the DVR, all the three indicators are out.
7	USB port	Connects to external devices such as USB storage device, keyboard, and mouse.

3.1.3 DH-XVR5108H-X/DH-XVR5116H-X/DH-XVR5104H-4KL-X/DH-XVR5108H-4KL-X/DH-XVR5116H-4KL-X/DH-XVR5108HE-X/DH-XVR5116HE-X/DH-XVR4116HS-X/DH-XVR5108HS-X/DH-XVR5116HS-X/DH-XVR5104HS-4KL-X/DH-XVR5108HS-4KL-X/DH-XVR5104HS-X/DH-XVR4104HS-X/DH-XVR4108HS-X/DH-XVR5104H-X/DH-XVR5104HE-X/DH-XVR5108H-4KL-X-8P/DH-XVR5104HS-X1/DH-XVR4104HS-X1/DH-XVR4108HS-X1/DH-XVR5104H-X1/DH-

XVR5104HE-X1/DH-XVR5104H-X-4P/DH-XVR5108H-X-8P

Figure 3-3 Front panel

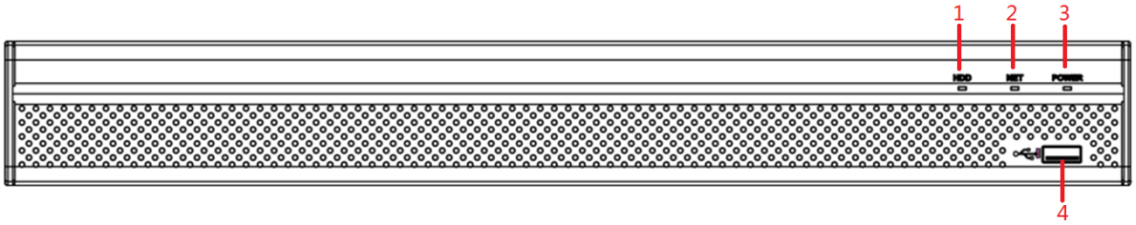


Table 3-3 Front panel description

No.	Port Name	Function
1	HDD	Glows blue when HDD status is abnormal.
2	NET	Glows blue when network status is abnormal.
3	POWER	Glows blue when the power is connected properly.
4	USB port	Connects to peripheral devices such as USB storage device, keyboard, and mouse.

3.1.4 DH-XVR7104HE-4KL-X/DH-XVR7108HE-4KL-X/DH-XVR7116HE-4KL-X/DH-XVR7108HE-4K-X/DH-XVR7108HE-4K-X2

Figure 3-4 Front panel

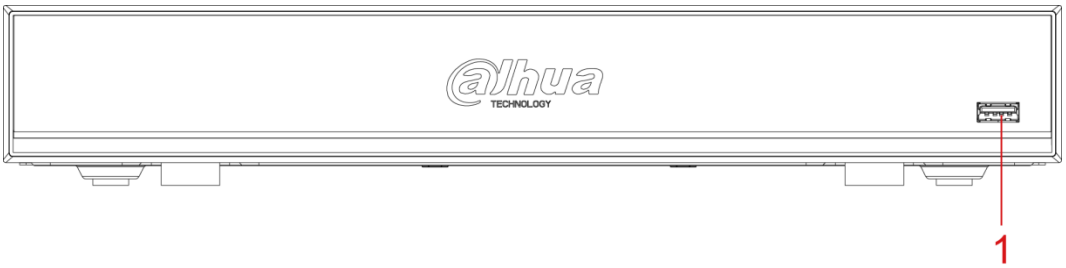


Table 3-4 Front panel description

No.	Port Name	Function
1	USB port	Connects to peripheral devices such as USB storage device, keyboard and mouse.

3.1.5 DH-XVR4216AN-X/DH-XVR4232AN-X/DH-XVR5216AN-X/DH-XVR5232AN-X/DH-XVR5208AN-4KL-X/DH-XVR5216AN-4KL-X/DH-XVR5216A-X/DH-XVR5208AN-4KL-X-8P/DH-XVR5216AN-4KL-X-16P/DH-XVR5216AN-X-16P/DH-XVR7208A-4K-X2

Figure 3-5 Front panel

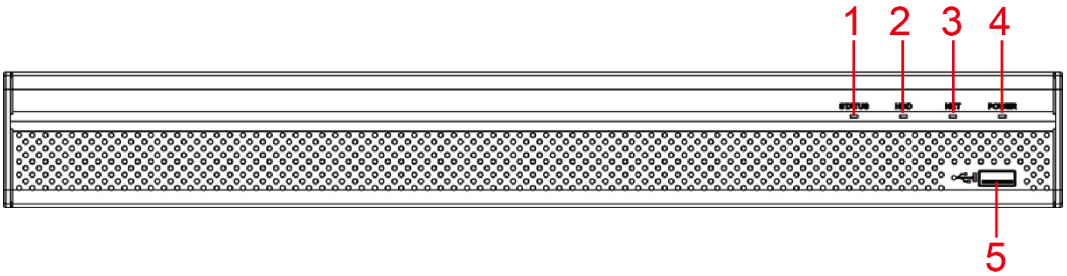
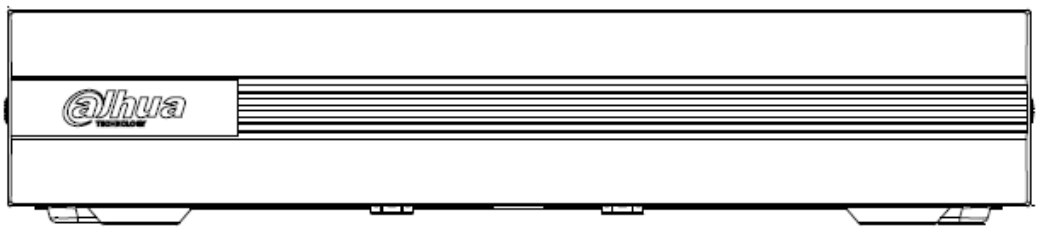


Table 3-5 Front panel description

No.	Port Name	Function
1	Status indicator light	Glows blue when the device is working properly.
2	HDD	Glows blue when HDD status is abnormal.
3	NET	Glows blue when network status is abnormal.
4	POWER	Glows blue when the power is connected properly.
5	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.

3.1.6 DH-XVR1B04/DH-XVR1B04H/DH-XVR1B08/DH-XVR1B08H/DH-XVR1B16/DH-XVR1B16H/DH-XVR1B04-V2/DH-XVR1B08-V2

Figure 3-6 Front panel



3.1.7 DH-XVR7208A-4KL-X/DH-XVR7216A-4KL-X/DH-XVR7208A-4K-X

Figure 3-7 Front panel

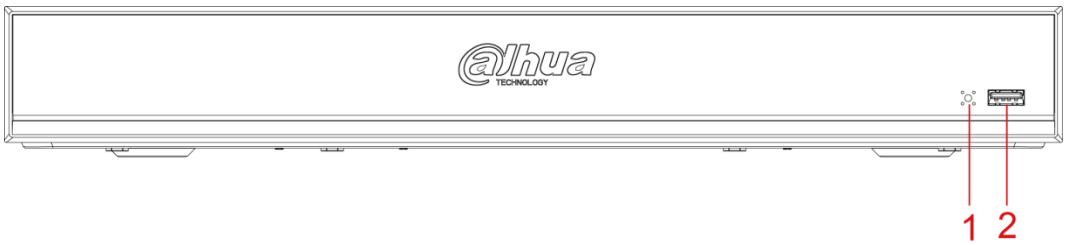


Table 3-6 Front panel description

No.	Port Name	Function
1	Status indicator light	Glows blue when the device is working properly.
2	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.

3.1.8 DH-XVR7416L-4KL-X

Figure 3-8 Front panel

Table 3-7 Front panel description

No.	Port Name	Function
1	IR receiver	Receives infrared signal from remote control.
2	USB port	Connects to peripheral devices such as USB storage device, keyboard, and mouse.

3.1.9 DH-XVR7816S-4KL-X/DH-XVR7816S-4KL-X-LP

Figure 3-9 Front panel

Table 3-8 Front panel description

No.	Port Name	Function
1	IR receiver	Receives infrared signal from remote control.
2	USB port	Connects to peripheral devices such as USB storage device, keyboard, and mouse.

3.1.10 DH-XVR5432L-X/DH-XVR5408L-X/DH-XVR5416L-X

Figure 3-10 Front panel

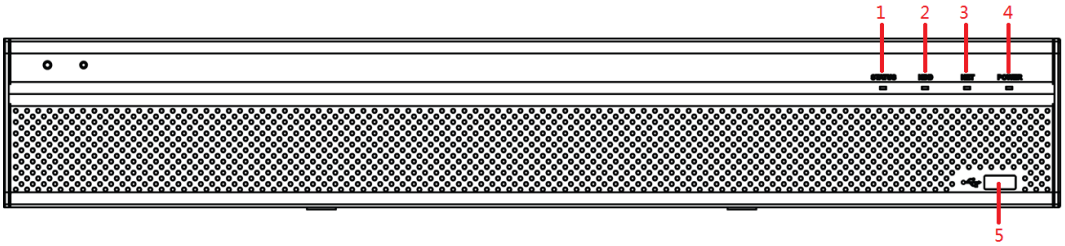


Table 3-9 Front panel description

No.	Port Name	Function
1	Status indicator light	Glows blue when the device is working properly.
2	HDD	Glows blue when HDD status is abnormal.
3	NET	Glows blue when network status is abnormal.
4	POWER	Glows blue when the power is connected properly.
5	USB port	Connects to peripheral devices such as USB storage device, keyboard, and mouse.

3.1.11 DH-XVR5832S-X/DH-XVR5808S-X/DH-XVR5816S-X

Figure 3-11 Front panel

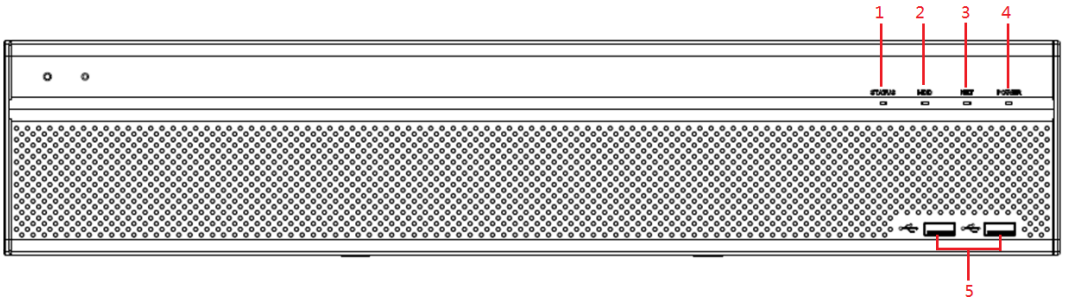


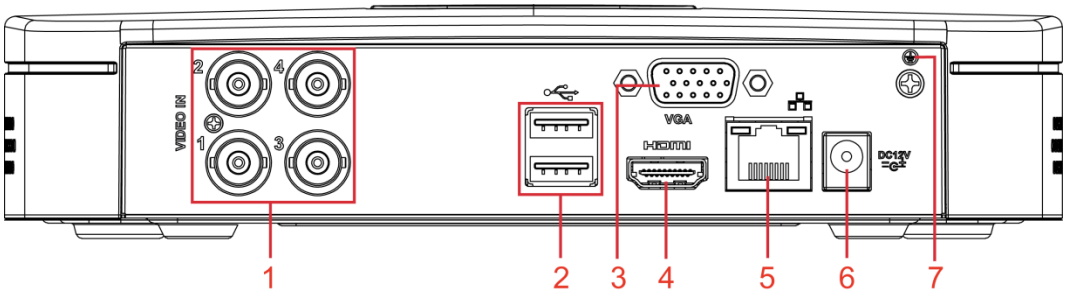
Table 3-10 Front panel description

No.	Port Name	Function
1	Status indicator light	Glows blue when the device is working properly.
2	HDD	Glows blue when HDD status is abnormal.
3	NET	Glows blue when network status is abnormal.
4	POWER	Glows blue when the power is connected properly.
5	USB port	Connects to peripheral devices such as USB storage device, keyboard, and mouse.

3.2 Rear Panel

3.2.1 DH-XVR5108C-X/DH-XVR5104C-4KL-X/DH-XVR5104C-X/DH-XVR4104C-X/DH-XVR4108C-X/DH-XVR5104C-X1/DH-XVR4104C-X1/DH-XVR4108C-X1

Figure 3-12 Rear panel



No.	Port Name	Function
1	Video input port	Connects to analog camera to input video signal.
2	USB port	Connects to external devices such as USB storage device, keyboard and mouse.
3	VGA port	Outputs analog video data to the connected display with VGA port.
4	HDMI port	High definition audio and video signal output port. The port outputs the uncompressed high definition video and multi-channel audio data to the connected display with HDMI port.
5	Network port	Connects to Ethernet port.
6	Power input port	Inputs 12 VDC power.
7	⏚	Ground terminal.

3.2.2 DH-XVR7104E-4KL-X/DH-XVR7108E-4KL-X/DH-XVR7104E-4KL-B-X/DH-XVR7108E-4KL-B-X

Figure 3-13 Rear panel (4-channel)

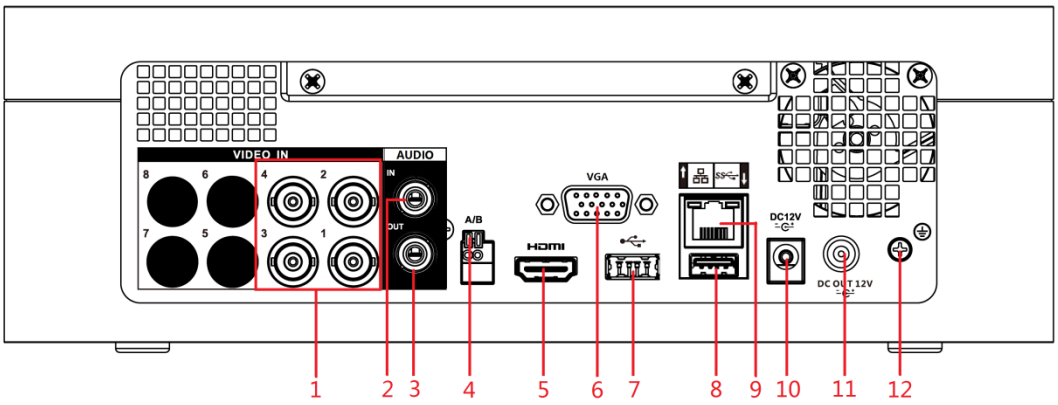


Figure 3-14 Rear panel (8-channel)

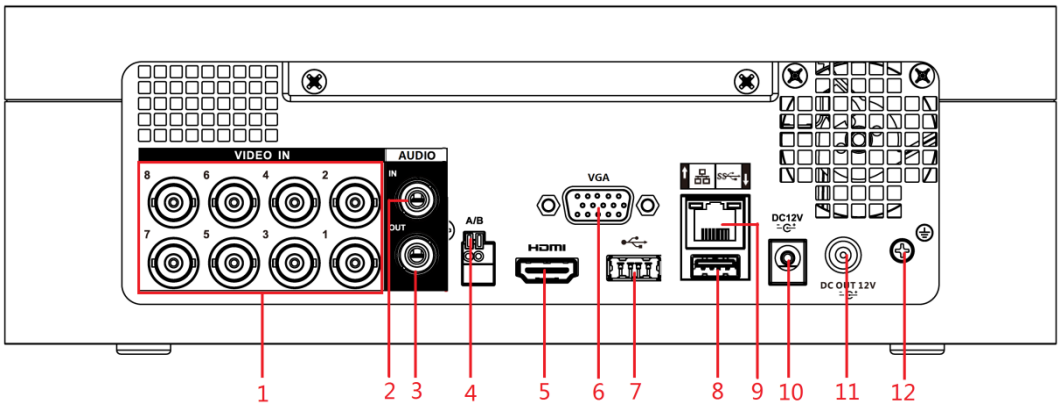


Table 3-11 Rear panel description

No.	Port Name	Function
1	Video input port	Connects to analog camera to input video signal.
2	Audio input port	Receives audio signal output from the devices such as microphone.
3	Audio output port	Outputs audio signal to the devices such as the sound box.
4	RS-485 communication port	Connects to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
5	HDMI port	High definition audio and video signal output port. The port outputs the uncompressed high definition video and multi-channel audio data to the connected display with HDMI port.
6	VGA port	Outputs analog video data to the connected display with VGA port.
7, 8	USB port	Connects to external devices such as USB storage device, keyboard and mouse.
9	Network port	Connects to Ethernet port.
10	Power input port	Inputs12 VDC power.
11	Power output port	Outputs 12 VDC power.
12	Ground	Ground terminal.

3.2.3 DH-XVR4116HS-X/DH-XVR5108HS-X/DH-XVR5116HS-X/DH-XVR5104HS-4KL-X/DH-XVR5108HS-4KL-X/DH-XVR5104HS-X/DH-XVR4104HS-X/DH-XVR4108HS-X/DH-XVR5104HS-X1/DH-XVR4104HS-X1/DH-XVR4108HS-X1

Figure 3-15 Rear panel

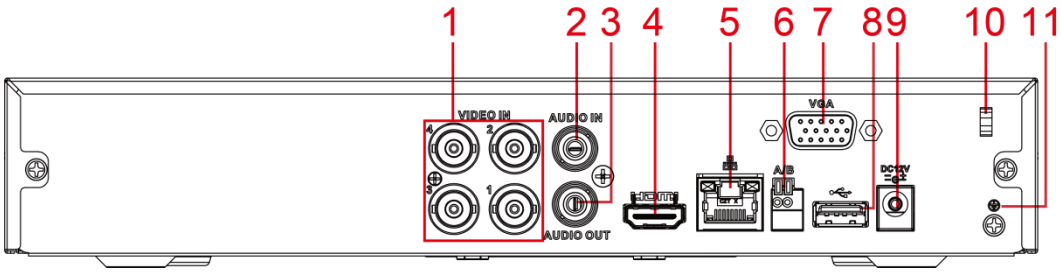


Table 3-12 Rear panel description

No.	Port Name	Function
1	Video input port	Connects to analog camera to input video signal.
2	Audio input port	Receives audio signal output from the devices such as microphone.
3	Audio output port	Outputs audio signal to the devices such as the sound box.
4	HDMI port	High definition audio and video signal output port. The port outputs the uncompressed high definition video and multi-channel audio data to the connected display with HDMI port.
5	Network port	Connects to Ethernet port.
6	RS-485 communication port	Connects to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
7	VGA port	Outputs analog video data to the connected display with VGA port.
8	USB port	Connects to external devices such as USB storage device, keyboard and mouse.
9	Power input port	Inputs 12 VDC power.
10	Power cable fastener	Use clamp to secure the power cable on the DVR in case there is any loss.
11	⏚	Ground terminal.

3.2.4 DH-XVR5108H-X/DH-XVR5116H-X/DH-XVR5104H-4KL-X/DH-XVR5108H-4KL-X/DH-XVR5116H-4KL-X/DH-XVR5108HE-X/DH-

XVR5116HE-X/DH-XVR7104HE-4KL-X/DH-XVR7108HE-4KL-X/DH-XVR7116HE-4KL-X/DH-XVR7108HE-4K-X/DH-XVR5104H-X/DH-XVR5104HE-X/DH-XVR5104H-X1/DH-XVR5104HE-X1/DH-XVR7108HE-4K-X2

Figure 3-16 Rear panel

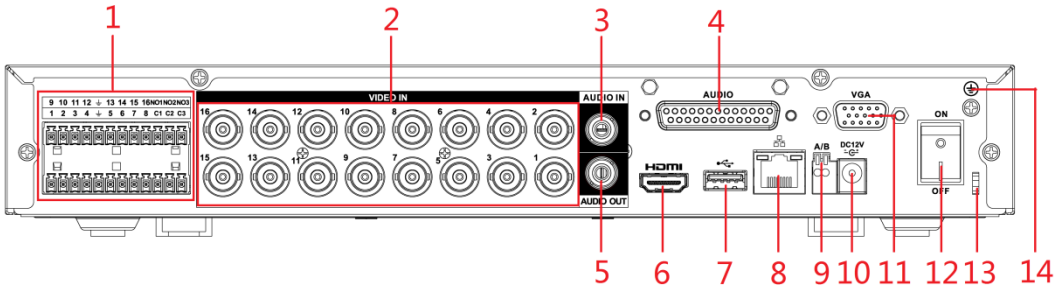


Table 3-13 Rear panel description

No.	Port Name	Function
1	Alarm input port 1–16	Four groups of alarm input ports (Group 1: port 1 to port 4; Group 2: port 5 to port 8; Group 3: port 9 to port 12; Group 4: port 13 to port 16). These ports receive the signal from the external alarm source. There are two types: NO (Normally Open) and NC (Normally Closed). When your alarm input device is using external power, make sure that the alarm input device and the Device have the same ground.
	Alarm output port 1–3 (NO1–NO3; C1–C3)	● Three groups of alarm output ports (Group 1: port NO1–C1, Group 2: port NO2–C2, Group 3: port NO3–C3). These ports output alarm signal to the alarm device. Make sure that power supply to the external alarm device. ● NO: Normally open alarm output port. ● C: Alarm output public end.
	⏚	Ground.
2	Video input port	Connects to analog camera to input video signal.
3	Audio input port	Receives audio signal output from the devices such as microphone. It corresponds to video input port 1.
4	DB25 port	Connects to the audio splitter taken from the package to convert to audio input port which receives the audio signal from devices such as microphone. It corresponds to video input ports 2–16.
5	Audio output port	Outputs audio signal to the devices such as the sound box.

No.	Port Name	Function
6	HDMI port	High definition audio and video signal output port. The port outputs the uncompressed high definition video and multi-channel audio data to the connected display with HDMI port.
7	USB port	Connects to external devices such as USB storage device, keyboard and mouse.
8	Network port	Connects to Ethernet port.
9	RS-485 communication port	Connects to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
10	Power input port	Inputs 12 VDC power.
11	VGA port	Outputs analog video data to the connected display with VGA port.
12	Power button	Turns on/off the DVR.
13	Power cable fastener	Use a cable tie to secure the power cable on the DVR to prevent loss.
14	⏚	Ground terminal.

3.2.5 DH-XVR1B04/DH-XVR1B04H/DH-XVR1B08/DH-XVR1B08H/DH-XVR1B04-V2/DH-XVR1B08-V2

Figure 3-17 Rear panel

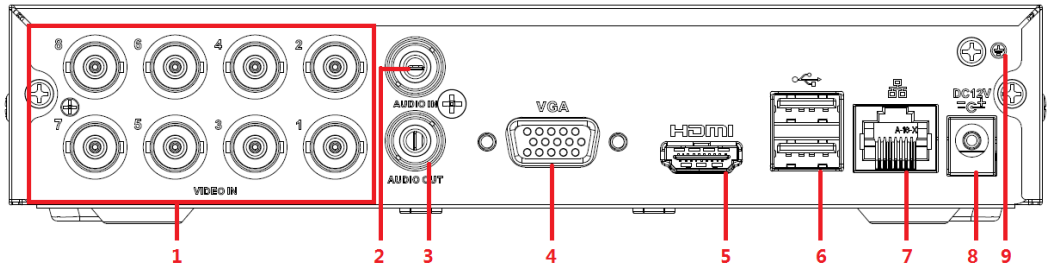


Table 3-14 Rear panel description

No.	Port Name	Function
1	Video input port	Connect to analog camera to input video signal.
2	Audio input port	Receives the analog audio signal output from the devices such as microphone.
3	Audio output port	Outputs the analog audio signal to the devices such as the sound box.
4	VGA video output	Outputs analog video signal. It can connect to the monitor to view analog video.

No.	Port Name	Function
5	HDMI port	High definition audio and video signal output port. It outputs the same video source as VGA. It supports 4K resolution output and supports mouse operation and control. Note when the HDMI output resolution is 4K, the VGA output stops.
6	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.
7	Network port	Connects to Ethernet port.
8	Power input port	Inputs power.
9	GND	Ground.

3.2.6 DH-XVR4216AN-X/DH-XVR4232AN-X/DH-XVR5216AN-X/DH-XVR5232AN-X/DH-XVR5208AN-4KL-X/DH-XVR5216AN-4KL-X/DH-XVR5216A-X/DH-XVR7208A-4KL-X/DH-XVR7216A-4KL-X/DH-XVR7208A-4K-X/DH-XVR5216AN-X-16P/DH-XVR7208A-4K-X2

Figure 3-18 Rear panel

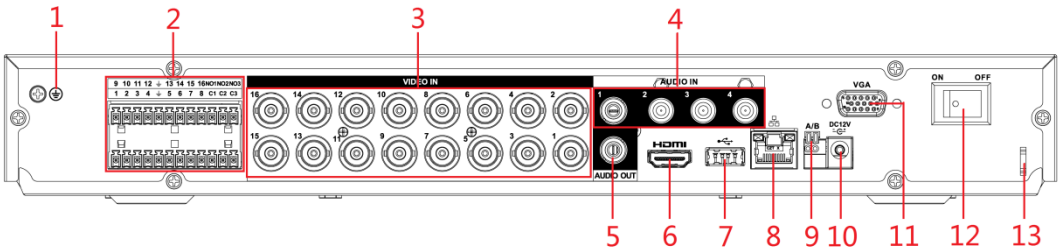


Table 3-15 Rear panel description

No.	Port Name	Function
1	⏚	Ground terminal.
2	Alarm input port 1–16	Four groups of alarm input ports (Group 1: port 1 to port 4; Group 2: port 5 to port 8; Group 3: port 9 to port 12; Group 4: port 13 to port 16). These ports receive the signal from the external alarm source. There are two types: NO (Normally Open) and NC (Normally Closed). When your alarm input device is using external power, make sure that the alarm input device and the DVR connect to the same ground.

No.	Port Name	Function
	Alarm output port 1–3 (NO1–NO3; C1–C3)	● Three groups of alarm output ports. (Group 1: port NO1–C1,Group 2:port NO2–C2,Group 3:port NO3–C3）). These ports output alarm signal to the alarm device. Make sure that power supply to the external alarm device. ● NO：Normally open alarm output port. ● C：Alarm output public end.
	⏚	Ground.
3	Video input port	Connects to analog camera to input video signal.
4	Audio input port	Receives audio signal output from the devices such as microphone.
5	Audio output port	Outputs audio signal to the devices such as the sound box.
6	HDMI port	High definition audio and video signal output port. The port outputs the uncompressed high definition video and multi-channel audio data to the connected display with HDMI port.
7	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.
8	Network port	Connects to Ethernet port.
9	RS-485 communication port	Connects to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
10	Power input port	Inputs 12 VDC power.
11	VGA port	Outputs analog video data to the connected display with VGA port.
12	Power button	Turns on/off the DVR.
13	Power cable fastener	Use clamp to secure the power cable on the DVR in case there is any loss.

3.2.7 DH-XVR5108H-4KL-X-8P/DH-XVR5208AN-4KL-X-8P/DH-XVR5216AN-4KL-X-16P

Figure 3-19 Rear panel

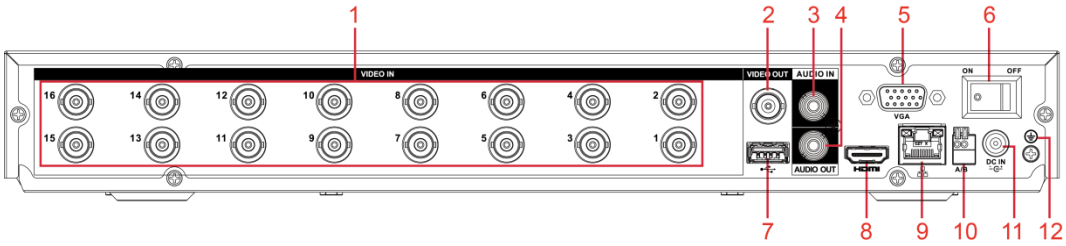


Table 3-16 Rear panel description

No.	Port Name	Function
1	Video input port	Connects to analog camera to input video signal.
2	Video output port	Connects to video output devices such as TV.
3	Audio input port	Receives audio signal output from the devices such as microphone.
4	Audio output port	Outputs audio signal to the devices such as the sound box.
5	VGA port	Outputs analog video data to the connected display with VGA port.
6	Power button	Turns on/off the DVR.
7	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.
8	HDMI port	High definition audio and video signal output port. The port outputs the uncompressed high definition video and multi-channel audio data to the connected display with HDMI port.
9	Network port	Connects to Ethernet port.
10	RS-485 communication port	Connects to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
11	Power input port	Inputs power.
12	⏚	Ground terminal.

3.2.8 DH-XVR7416L-4KL-X/DH-XVR5432L-X/DH-XVR5416L-X

Figure 3-20 Rear panel

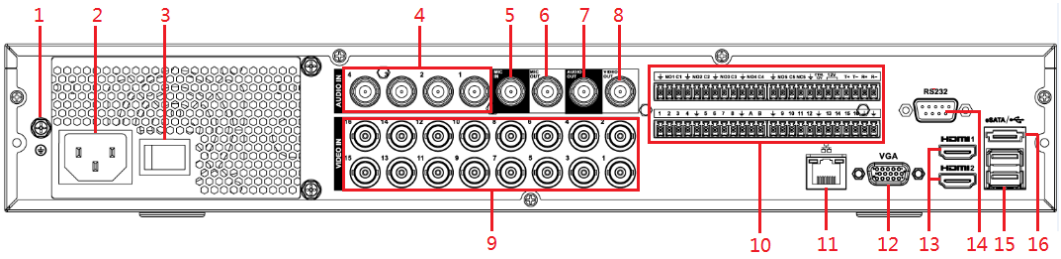


Table 3-17 Rear panel description

No.	Port Name	Function
1	⏚	Ground terminal.
2	Power input port	Inputs power.
3	Power button	Turns on/off the DVR.
4	Audio input port	Receives audio signal output from the devices such as microphone.

No.	Port Name	Function
5	Audio input port (MIC IN)	Tow-way talk input port which receives analog audio signal output from the devices such as microphone and pickup.
6	Audio output port (MIC OUT)	Tow-way talk output port which outputs the analog audio signal to the devices such as the sound box.
7	Audio output port	Outputs audio signal to the devices such as the sound box.
8	Video output port	Connects to video output devices such as TV.
9	Video input port	Connects to analog camera to input video signal.
10	Alarm input port 1–16	Four groups of alarm input ports (Group 1: port 1 to port 4; Group 2: port 5 to port 8; Group 3: port 9 to port 12; Group 4: port 13 to port 16). These ports receive the signal from the external alarm source. There are two types: NO (Normally Open) and NC (Normally Closed). When your alarm input device is using external power, make sure that the input device and the DVR connect to the same ground.
	Alarm output port 1–5 (NO1–NO5; C1–C5; NC5)	● Five groups of alarm output ports (Group 1: port NO1–C1, Group 2: port NO2–C2, Group 3: port NO3–C3, Group 4; port NO4–C4, Group 5: port NO5, C5, NC5). These ports output alarm signal to the alarm device. Make sure that power supply to the external alarm device. ● NO: Normally open alarm output port. ● C: Alarm output public end. ● NC: Normally closed alarm output port.
	RS-485 communication port	Connects to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
	Four-wire full-duplex RS-485 port (T+, T-, R+, R-)	Four-wire full-duplex 485 port. T+ and T- is the output wire; R+ and R- is the input wire.
	Power output control for alarm (CTRL 12V)	Controls the 6th channel power output for alarm. ● Turns off power output when there is alarm output. ● Turns on power output when the alarm is cleared.
	12V power output port	Provides power to external devices such as camera and alarm device. Note that the power supply shall be below 1 A.
	⏚	Ground.
10	Network port	Connects to Ethernet port.
12	VGA port	Outputs analog video data to the connected display with VGA port.
13	HDMI port	High definition audio and video signal output port. The port outputs the uncompressed high definition video and multi-channel audio data to the connected display with HDMI port.

No.	Port Name	Function
14	RS-232 debug COM	The port is used for general COM debug to configure IP address or transfer transparent COM data.
15	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.
16	eSATA port	External SATA port which connects to the device with SATA port. Perform the jumper configuration when connecting HDD.

3.2.9 DH-XVR5808S-X

Figure 3-21 Rear panel

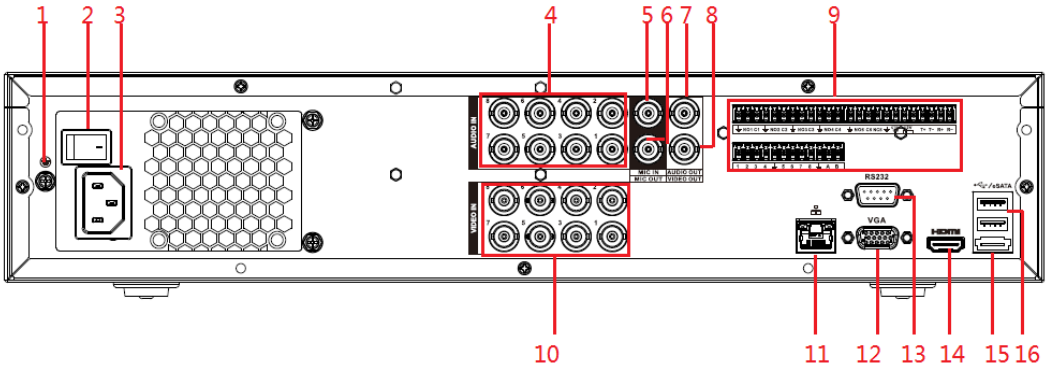


Table 3-18 Rear panel description

No.	Port Name	Function
1	GND	Ground.
2	Power button	Turns on/off the Device.
3	Power input port	Inputs power.
4	Audio input port	Receives the analog audio signal output from the devices such as microphone.
5	Audio input port (MIC IN)	Tow-way talk input port which receives the analog audio signal output from the devices such as microphone, pickup.
6	Audio output port (MIC OUT)	Tow-way talk output port which outputs the analog audio signal to the devices such as the sound box.
7	Audio output port	Outputs the analog audio signal to the devices such as the sound box.
8	Video output port	Connect to video output devices such as TV.

No.	Port Name	Function
9	Alarm input port 1–16	● Four groups of alarm output ports (Group 1: port 1 to port 4; Group 2: port 5 to port 8; Group 3: port 9 to port 12; Group 4: port 13 to port 16). These ports receive the signal from the external alarm source. There are two types; NO (Normally Open) and NC (Normally Closed). ● When your alarm input device is using external power, make sure that the device and the NVR have the same ground.
	Alarm output port 1–5 (NO1–NO5; C1–C5; NC5)	● Five groups of alarm output ports. (Group 1: port NO1–C1,Group 2:port NO2–C2,Group 3:port NO3–C3, Group 4： port NO4–C4, Group 5: port NO5, C5, NC5). These ports output alarm signal to the alarm device. Make sure that power supply to the external alarm device. ● NO: Normally open alarm output port. ● C: Alarm output public end. ● NC: Normally closed alarm output port.
	RS-485 communication port	You can connect to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
	Four-wire full-duplex RS-485 port (T+, T-, R+, R-)	Four-wire full-duplex 485 port. T+ and T- is the output wire; R+ and R- is the input wire.
	Control power output (CTRL 12V)	Controls the 6th channel power output for alarm. ● Turns off power output when there is alarm output. ● Turns on power output when the alarm is cleared.
	12V power output port	Provides power to external devices such as camera and alarm device. Note that the supplying power shall be below 1 A.
	⏚	Ground.
10	Video input port	Connect to analog camera to input video signal.
11	Network port	Connects to Ethernet port.
12	VGA video output	Outputs analog video signal. It can connect to the monitor to view analog video.
13	RS-232 debug COM.	It is for general COM debug to configure IP address or transfer transparent COM data.
14	HDMI port	High definition audio and video signal output port. It outputs the same video source as VGA. It supports 1080P resolution output and supports mouse operation and control. Note when the HDMI output resolution is 4K, the VGA output stops.
15	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.
16	eSATA port	External SATA port which connects to the device with SATA port. Perform the jumper configuration when connecting HDD.

3.2.10 DH-XVR5408L-X

Figure 3-22 Rear panel

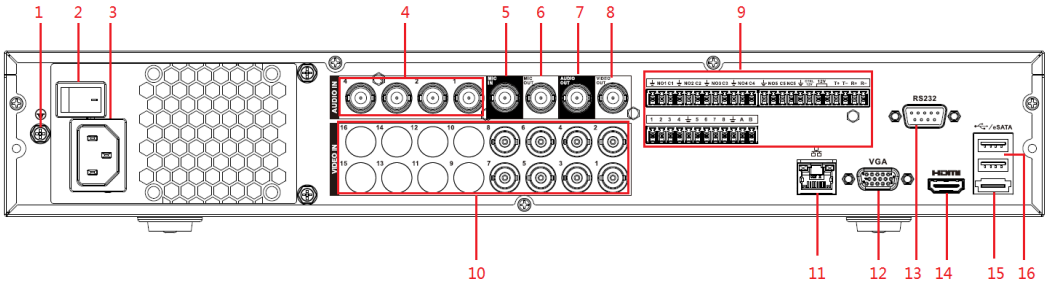


Table 3-19 Rear panel description

No.	Port Name	Function
1	GND	Ground.
2	Power button	Turns on/off the Device.
3	Power input port	Inputs power.
4	Audio input port	Receives the analog audio signal output from the devices such as microphone.
5	Audio input port (MIC IN)	Tow-way talk input port which receives the analog audio signal output from the devices such as microphone, pickup.
6	Audio output port (MIC OUT)	Tow-way talk output port which outputs the analog audio signal to the devices such as the sound box.
7	Audio output port	Outputs the analog audio signal to the devices such as the sound box.
8	Video output port	Connect to video output devices such as TV.
9	Alarm input port 1–16	● Four groups of alarm output ports (Group 1: port 1 to port 4; Group 2: port 5 to port 8; Group 3: port 9 to port 12; Group 4: port 13 to port 16). These ports receive the signal from the external alarm source. There are two types; NO (Normally Open) and NC (Normally Closed). ● When your alarm input device is using external power, make sure that the device and the NVR have the same ground.
	Alarm output port 1–5 (NO1–NO5; C1–C5; NC5)	● Five groups of alarm output ports. (Group 1: port NO1–C1,Group 2:port NO2–C2,Group 3:port NO3–C3, Group 4： port NO4–C4, Group 5: port NO5, C5, NC5). These ports output alarm signal to the alarm device. Make sure that power supply to the external alarm device. ● NO: Normally open alarm output port. ● C: Alarm output public end. ● NC: Normally closed alarm output port.

No.	Port Name	Function
	RS-485 communication port	You can connect to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
	Four-wire full-duplex RS-485 port (T+, T-, R+, R-)	Four-wire full-duplex 485 port. T+ and T- is the output wire; R+ and R- is the input wire.
	Control power output (CTRL 12V)	Controls the 6th channel power output for alarm. ● Turns off power output when there is alarm output. ● Turns on power output when the alarm is cleared.
	12V power output port	Provides power to external devices such as camera and alarm device. Note that the supplying power shall be below 1 A.
	⏚	Ground.
10	Video input port	Connect to analog camera to input video signal.
11	Network port	Connects to Ethernet port.
12	VGA video output	Outputs analog video signal. It can connect to the monitor to view analog video.
13	RS-232 debug COM.	It is for general COM debug to configure IP address or transfer transparent COM data.
14	HDMI port	High definition audio and video signal output port. It outputs the same video source as VGA. It supports 1080P resolution output and supports mouse operation and control. Note when the HDMI output resolution is 4K, the VGA output stops.
15	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.
16	eSATA port	External SATA port which connects to the device with SATA port. Perform the jumper configuration when connecting HDD.

3.2.11 DH-XVR7816S-4KL-X/DH-XVR5832S-X/DH-XVR5816S-X

Figure 3-23 Rear panel

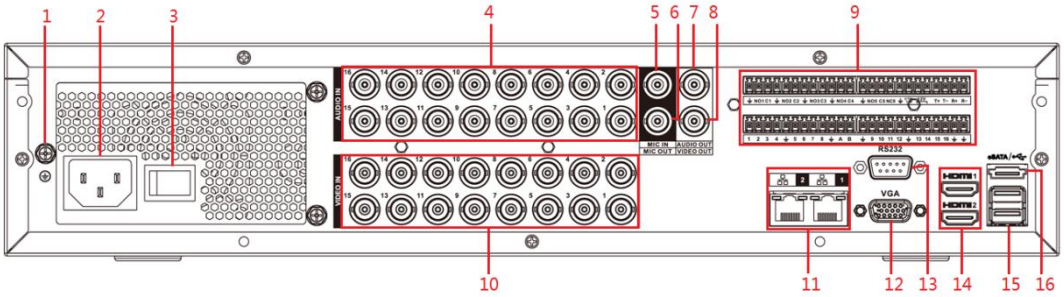


Table 3-20 Rear panel description

No.	Port Name	Function
1	GND	Ground.
2	Power input port	Inputs power.
3	Power button	Turns on/off the Device.
4	Audio input port	Receives the analog audio signal output from the devices such as microphone.
5	Audio input port (MIC IN)	Tow-way talk input port which receives the analog audio signal output from the devices such as microphone, pickup.
6	Audio output port (MIC OUT)	Tow-way talk output port which outputs the analog audio signal to the devices such as the sound box.
7	Audio output port	Outputs the analog audio signal to the devices such as the sound box.
8	Video output port	Connect to video output devices such as TV.
9	Alarm input port 1–16	● Four groups of alarm output ports (Group 1: port 1 to port 4; Group 2: port 5 to port 8; Group 3: port 9 to port 12; Group 4: port 13 to port 16). These ports receive the signal from the external alarm source. There are two types; NO (Normally Open) and NC (Normally Closed). ● When your alarm input device is using external power, make sure that the device and the NVR have the same ground.
	Alarm output port 1–5 (NO1–NO5; C1–C5; NC5)	● Five groups of alarm output ports. (Group 1: port NO1–C1,Group 2:port NO2–C2,Group 3:port NO3–C3, Group 4： port NO4–C4, Group 5: port NO5, C5, NC5). These ports output alarm signal to the alarm device. Make sure that power supply to the external alarm device. ● NO: Normally open alarm output port. ● C: Alarm output public end. ● NC: Normally closed alarm output port.
	RS-485 communication port	You can connect to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
	Four-wire full-duplex RS-485 port (T+, T-, R+, R-)	Four-wire full-duplex 485 port. T+ and T- is the output wire; R+ and R- is the input wire.
	Control power output (CTRL 12V)	Controls the 6th channel power output for alarm. ● Turns off power output when there is alarm output. ● Turns on power output when the alarm is cleared.
	12V power output port	Provides power to external devices such as camera and alarm device. Please note the supplying power shall be below 1 A.
	⏚	Ground.

No.	Port Name	Function
10	Video input port	Connect to analog camera to input video signal.
11	Network port	Connects to Ethernet port.
12	VGA video output	Outputs analog video signal. It can connect to the monitor to view analog video.
13	RS-232 debug COM.	It is for general COM debug to configure IP address or transfer transparent COM data.
14	HDMI port	High definition audio and video signal output port. It outputs the same video source as VGA. It supports 4K resolution output and supports mouse operation and control. Note when the HDMI output resolution is 4K, the VGA output stops.
15	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.
16	eSATA port	External SATA port which connects to the device with SATA port. Perform the jumper configuration when connecting HDD.

3.2.12 DH-XVR7816S-4KL-X-LP

Figure 3-24 Rear panel

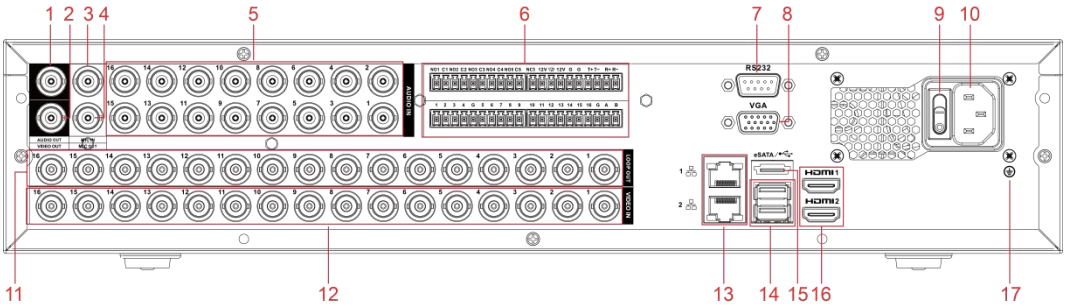


Table 3-21 Rear panel description

No.	Port Name	Function
1	Audio output port	Outputs the analog audio signal to the devices such as the sound box.
2	Video output port	Connect to video output devices such as TV.
3	Audio input port (MIC IN)	Tow-way talk input port which receives the analog audio signal output from the devices such as microphone, pickup.
4	Audio output port (MIC OUT)	Tow-way talk output port which outputs the analog audio signal to the devices such as the sound box.
5	Audio input port	Receives the analog audio signal output from the devices such as microphone.

No.	Port Name	Function
6	Alarm input port 1–16	● Four groups of alarm output ports (Group 1: port 1 to port 4; Group 2: port 5 to port 8; Group 3: port 9 to port 12; Group 4: port 13 to port 16). These ports receive the signal from the external alarm source. There are two types; NO (Normally Open) and NC (Normally Closed). ● When your alarm input device is using external power, make sure that the device and the NVR have the same ground.
	Alarm output port 1–5 (NO1–NO5; C1–C5; NC5)	● Five groups of alarm output ports. (Group 1: port NO1–C1,Group 2:port NO2–C2,Group 3:port NO3–C3, Group 4： port NO4–C4, Group 5: port NO5, C5, NC5). These ports output alarm signal to the alarm device. Make sure that power supply to the external alarm device. ● NO: Normally open alarm output port. ● C: Alarm output public end. ● NC: Normally closed alarm output port.
	RS-485 communication port	You can connect to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
	Four-wire full-duplex RS-485 port (T+, T-, R+, R-)	Four-wire full-duplex 485 port. T+ and T- is the output wire; R+ and R- is the input wire.
	Control power output (CTRL 12V)	Controls the 6th channel power output for alarm. ● Turns off power output when there is alarm output. ● Turns on power output when the alarm is cleared.
	12V power output port	Provides power to external devices such as camera and alarm device. Note the supplying power shall be below 1 A.
	G	Ground.
7	RS-232 debug COM.	It is for general COM debug to configure IP address or transfer transparent COM data.
8	VGA video output	Outputs analog video signal. It can connect to the monitor to view analog video.
9	Power button	Turns on/off the Device.
10	Power input port	Inputs power.
11	Loop out	Outputs the video signal of the corresponding video input port.
12	Video input port	Connect to analog camera to input video signal.
13	Network port	Connects to Ethernet port.
14	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.
15	eSATA port	External SATA port which connects to the device with SATA port. Perform the jumper configuration when connecting HDD.

No.	Port Name	Function
16	HDMI port	High definition audio and video signal output port. It outputs the same video source as VGA. It supports 4K resolution output and supports mouse operation and control. Note when the HDMI output resolution is 4K, the VGA output stops.
17	GND	Ground.

3.2.13 DH-XVR1B08H/DH-XVR1B16/DH-XVR1B16H

Figure 3-25 Rear panel

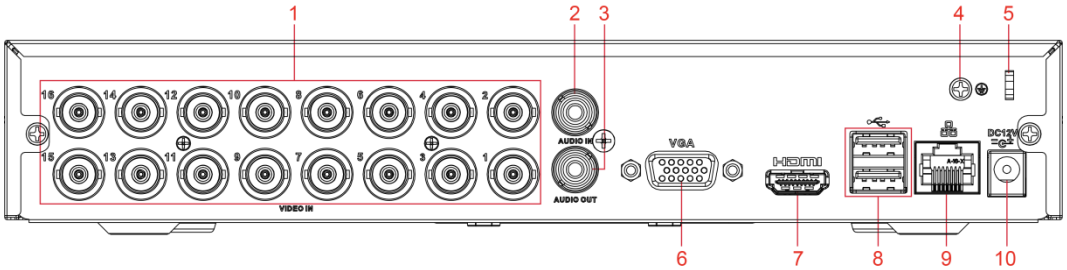


Table 3-22 Rear panel description

No.	Port Name	Function
1	Video input port	Connect to analog camera to input video signal.
2	Audio input port	Receives the analog audio signal output from the devices such as microphone.
3	Audio output port	Outputs the analog audio signal to the devices such as the sound box.
4	GND	Ground.
5	Power cable fastener	Use clamp to secure the power cable on the DVR in case there is any loss.
6	VGA video output	Outputs analog video signal. It can connect to the monitor to view analog video.
7	HDMI port	High definition audio and video signal output port. It outputs the same video source as VGA. It supports 4K resolution output and supports mouse operation and control. Note when the HDMI output resolution is 4K, the VGA output stops.
8	USB port	Connects to the external devices such as keyboard, mouse, and USB storage device.
9	Network port	Connects to Ethernet port.
10	Power input port	Inputs power.

3.2.14 DH-XVR5104H-X-4P/DH-XVR5108H-X-8P

Figure 3-26 Rear panel (4-channel)

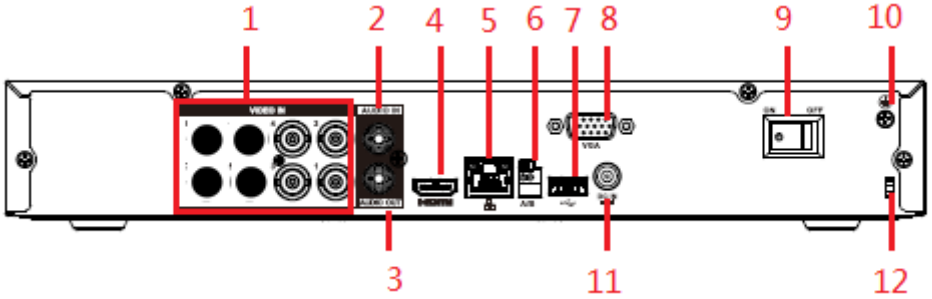


Figure 3-27 Rear panel (8-channel)

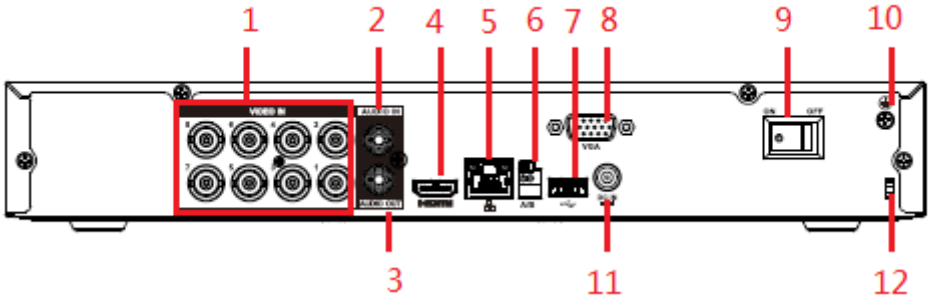


Table 3-23 Rear panel description

No.	Port Name	Function
1	Video input port	Connect to general analog camera/PoC camera to input video signal.
2	Audio input port	Receives the analog audio signal output from the devices such as microphone.
3	Audio output port	Outputs the analog audio signal to the devices such as the sound box.
4	HDMI port	High definition audio and video signal output port. It outputs the same video source as VGA. It supports 4K resolution output and supports mouse operation and control. Note when the HDMI output resolution is 4K, the VGA output stops.
5	Network port	Connects to Ethernet port.
6	RS-485 communication port	Connects to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
7	USB port	Connects to external devices such as USB storage device, keyboard and mouse.
8	VGA port	Outputs analog video data to the connected display with VGA port.
9	Network port	Connects to Ethernet port.
10	⏚	Ground terminal.
11	Power input port	Inputs 12 VDC power.
12	Power cable fastener	Use clamp to secure the power cable on the DVR in case there is any loss.

3.2.15 DH-XVR5216AN-X-16P

Figure 3-28 Rear panel

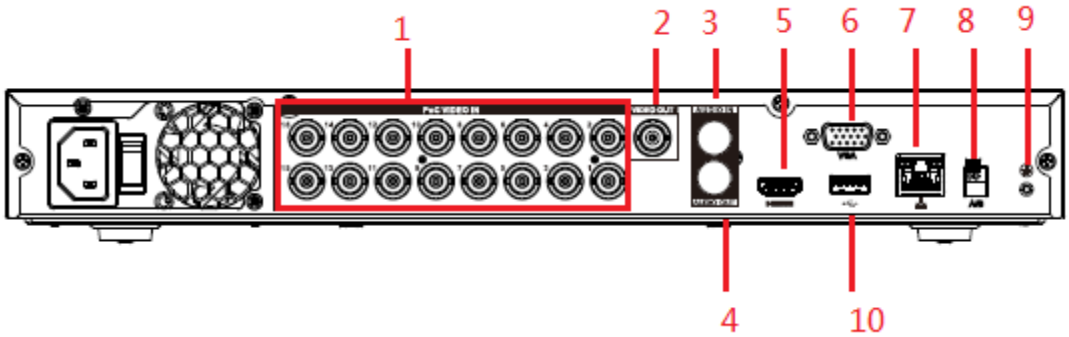


Table 3-24 Rear panel description

No.	Port Name	Function
1	Video input port	Connect to general analog camera/PoC camera to input video signal.
2	Video output port	Connects to video output devices such as TV.
3	Audio input port	Receives the analog audio signal output from the devices such as microphone.
4	Audio output port	Outputs the analog audio signal to the devices such as the sound box.
5	HDMI port	High definition audio and video signal output port. It outputs the same video source as VGA. It supports 4K resolution output and supports mouse operation and control. Note when the HDMI output resolution is 4K, the VGA output stops.
6	VGA video output	Outputs analog video signal. It can connect to the monitor to view analog video.
7	Network port	Connects to Ethernet port.
8	RS-485 communication port	Connects to the control devices such as speed dome PTZ. RS-485_A port is connected by the cable A and RS-485_B is connected to the cable B.
9	⏚	Ground terminal.
10	USB port	Connects to external devices such as USB storage device, keyboard and mouse.

3.3 Remote Control Operations

Please note the remote control is not our standard accessory and might not be included in the accessary bag. It is supplied dependent on the model you purchased.

Figure 3-29 Remote control

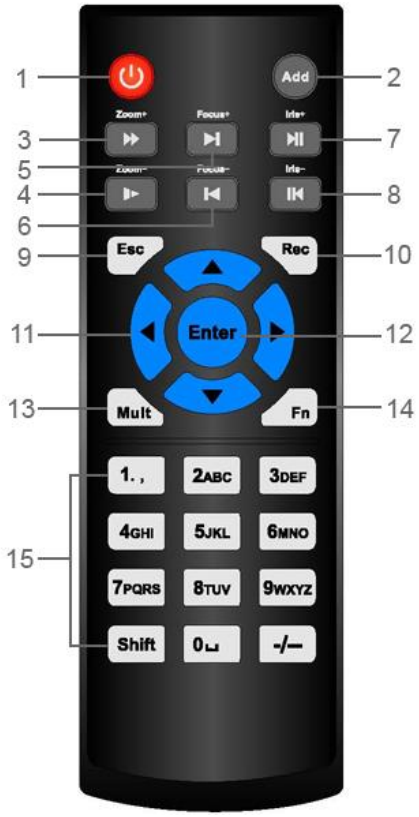


Table 3-25 Remote control description

No.	Name	Function
1	Power button	Press this button to boot up or shut down the device.
2	Address	Press this button to input device serial number, so that you can control the Device.
3	Forward	Multi-step forward speed and normal speed playback.
4	Slow motion	Multi-step slow motion speed or normal playback.
5	Next record	In playback state, press this button to play back the next video.
6	Previous record	In playback state, press this button to play back the previous video.
7	Play/Pause	• In normal playback state, press this button to pause playback. • In pause state, press this button to resume to normal playback. • In live view window interface, press this button to enter video search menu.
8	Reverse/pause	In the reverse playback state, press this button to pause reverse playback.
		In the reverse playback pause state, press this button to resume to playback reversing state.
9	Esc.	Go back to previous menu or cancel current operation (close front interface or control).

No.	Name	Function
10	Record	● Start or stop record manually. ● In record interface, use the direction buttons to select the channel that you want to record. ● Press this button for at least 1.5 seconds, and the manual record interface will be displayed.
11	Direction keys	Switch between current activated controls by going left or right. In playback state, the keys control the playback progress bar. Aux function (such as operating the PTZ menu).
12	Enter/menu key	● Confirms an operation. ● Go to the **OK** button. ● Go to the menu.
13	Multiple-window switch	Switch between multiple-window and one-window.
14	Fn	● In single-channel monitoring mode, press this button to display the PTZ control and color setting functions. ● Switch the PTZ control menu in PTZ control interface. ● In motion detection interface, press this button with direction keys to complete setup. ● In text mode, press and hold this button to delete the last character. To use the clearing function: Long press this button for 1.5 seconds. ● In HDD menu, switch HDD recording time and other information (as indicated in the pop-up message.
15	Alphanumeric keys	● Input password, numbers. ● Switch channel. ● Press Shift to switch the input method.

3.4 Mouse Operations

The operations are based on the considerations for right-handed users.

Table 3-26 Mouse operations

Operation	Function
Click left mouse button	Password input dialogue box pops up if you have not logged in yet. In live view window interface, you can go to the main menu.
	When you have selected one menu item, click it to view menu content.
	Implement the control operation.
	Modify check box or motion detection status.
	Click combo box to pop up drop-down list.

Operation	Function
	In text box, click the corresponding button on the panel to enter a numeral or English character (small/capitalized). ● In English input mode: Click ␣ to enter a backspace and click ⟵ to delete the previous character. ● In numeral input mode: Click ␣ to clear and click ⟵ to delete the previous character.
Double-click left mouse button	Implement special control operations such as double-click one item in the file list to play back the video.
	In multiple-window mode, double-click one channel to view in full-window. Double-click current video again to go back to previous multiple-window mode.
Right-click	Right-click in live view window interface, the shortcut menu is displayed. For different series product, the shortcut menu may vary.
	Exit current menu without saving the modification.
Click scroll wheel button	In numeral input box: Increase or decrease numeral value.
	Switch the items in the combo box.
	Page up or page down.
Point to select and move	Select current control and move it.
Dragging a selection box with left mouse button	Select motion detection zone.
	Select privacy mask zone.

4 Connecting Basics

This chapter introduces the typical connection diagrams and ports connections.

4.1 Typical Connection Diagram

The following figure is for reference only. The actual product shall prevail.

Figure 4-1 Typical connection (1)

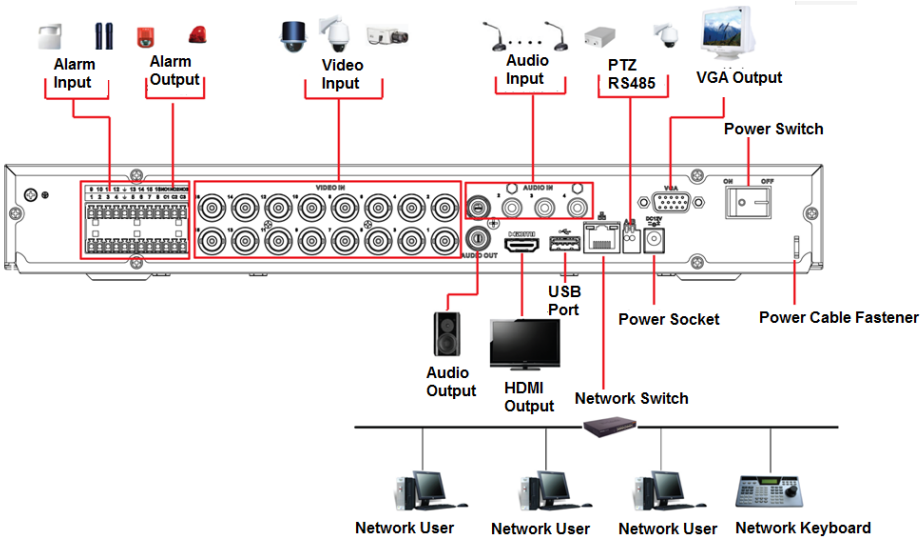
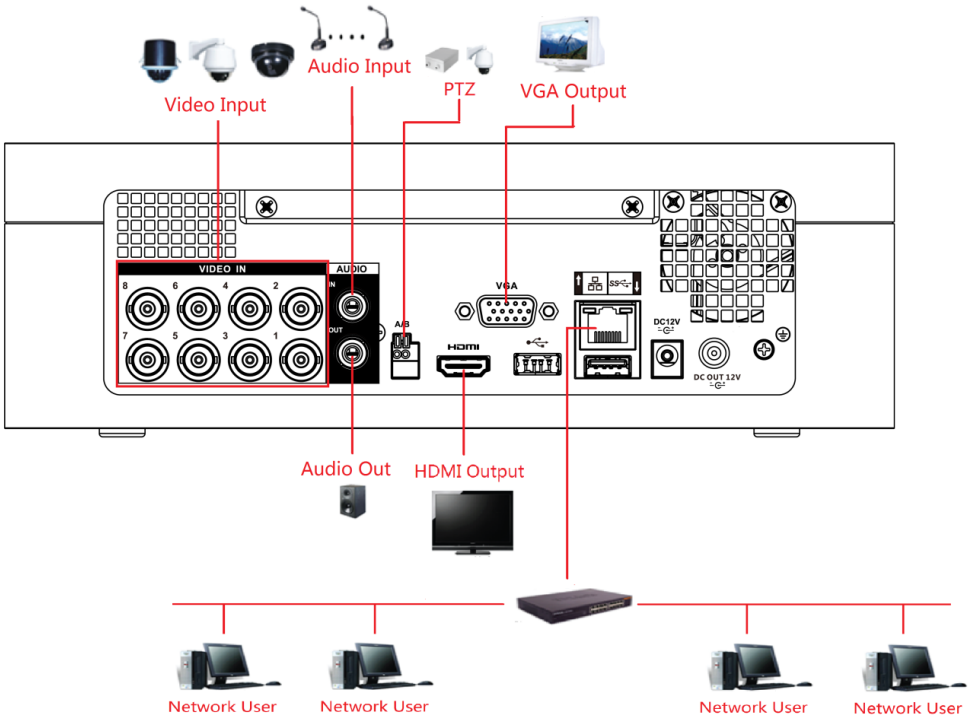


Figure 4-2 Typical connection (2)



4.2 Connecting to Video and Audio Input and Output

4.2.1 Video Input

The video input interface is BNC. The input video format includes: PAL/NTSC BNC (1.0 V_{P-P}, 75 Ω).

The video signal should comply with your national standards.

The input video signal shall have high SNR, low distortion; low interference, natural color, and suitable lightness.

Guaranteeing the stability and reliability of the camera signal

The camera shall be installed in a cool, dry place away from the conditions such as direct sunlight, inflammable, and explosive substances.

The camera and the DVR should have the same grounding to ensure the normal operation of the camera.

Guaranteeing stability and reliability of the transmission line

Use high quality, sound shielded BNC. Select suitable BNC model according to the transmission distance.

If the distance is too long, you should use twisted pair cable, and you can add video compensation devices or use optical fiber to ensure video quality.

You should keep the video signal away from the strong electromagnetic interference, especially the high tension current.

Keeping connection lugs in well contact

The signal line and shielded wire should be fixed firmly and in well connection. Avoid dry joint, lap welding, and oxidation.

4.2.2 Video Output

Video output includes a BNC (PAL/NTSC1.0 V_{P-P}, 75 Ω) output, a VGA output, and HDMI output. System supports BNC, VGA and HDMI output at the same time.

When you are using pc-type monitor to replace the monitor, pay attention to the following points:

- To defer aging, do not allow the pc monitor to run for a long time.
- Regular demagnetization will keep device maintain proper status.
- Keep it away from strong electromagnetic interference devices.

Using TV as video output device is not a reliable substitution method. You also need to reduce the working hour and control the interference from power supply and other devices. The low quality TV may result in device damage.

4.2.3 Audio Input

This series of products audio input port adopt BNC port.

Due to high impedance of audio input, use active sound pick-up.

Audio transmission is similar to video transmission. Try to avoid interference, dry joint, loose contact and it shall be away from high tension current.

4.2.4 Audio Output

The audio output signal parameter is usually over 200mv 1KΩ (BNC or RCA). It can directly connect to low impedance earphone, active sound box or amplifier-drive audio output device.

If the sound box and the pick-up cannot be separated spatially, it is easy to arouse squeaking. In this case you can adopt the following measures:

- Use better sound pick-up with better directing property.
- Reduce the volume of the sound box.
- Using more sound-absorbing materials in decoration can reduce voice echo and improve acoustics environment.
- Adjust the layout of speaker and pickup to reduce squeaking.

4.3 Connecting to Alarm Input and Output

Read the followings before connecting.

Alarm input

- Make sure alarm input mode is grounding alarm input.
- Grounding signal is needed for alarm input.
- Alarm input needs the low level voltage signal.
- Alarm input mode can be either NC (Normally Closed) or NO (Normally Open).
- When you are connecting two DVRs or you are connecting one DVR and one other device, use a relay to separate them.

Alarm output

The alarm output port should not be connected to high power load directly (It shall be less than 1 A) to avoid high current which might result in relay damage. Use the contactor to realize the connection between the alarm output port and the load.

How to connect PTZ decoder

- Ensure the decoder has the same grounding with DVR; otherwise the PTZ might not be controlled. Shielded twisted wire is recommended and the shielded layer is used to connect to the grounding.
- Avoid high voltage. Ensure proper wiring and some thunder protection measures.
- For too long signal wires, 120 Ω should be parallel connected between A, B lines on the far end to reduce reflection and guarantee the signal quality.
- "485 A, B" of DVR cannot parallel connect with"485 port" of other device.
- The voltage between of A, B lines of the decoder should be less than 5 V.

Making sure the front-end device has soundly earthed

Improper grounding might result in chip damage.

4.3.1 Introducing Alarm Port

The alarm input ports are dependent on the model you purchased.

Figure 4-3 Alarm ports

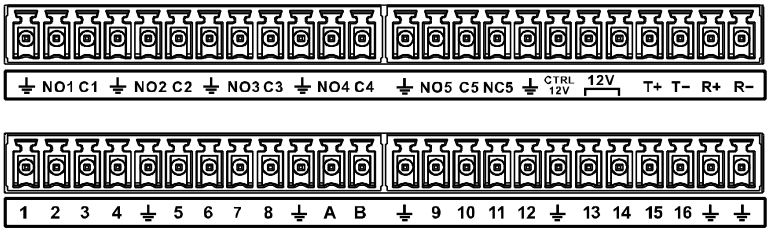


Table 4-1 Alarm port description

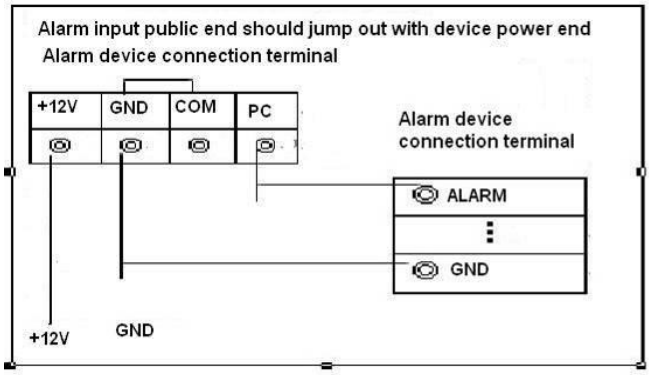
Icon	Description
1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16	ALARM 1 to ALARM 16. The alarm becomes active in low voltage.
NO1 C1, NO2 C2, NO3 C3, NO4 C4	There are four groups of normal open activation output (on/off button).
NO5 C5 NC5	There is one group of normal open activation output (on/off button).
CTRL 12V	Control power output of the 6th alarm output channel. Voltage current: 500 mA. ● When there is an alarm output, close the power output. ● When the alarm is cancelled, open the power output.
+12V	Rated current. Voltage current: 500 mA.
⏚	Ground cable.
485 A/B	485 communication port. They are used to control devices such as decoder. 120 Ω should be parallel connected between A, B lines if there are too many PTZ decoders.
T+, T-, R+, R-	Four-wire full-duplex RS-485 port. T+ T-: output wire. R+ R-: input wire.

4.3.2 Alarm Input

Refer to the following figure for more information.

- Grounding alarm inputs which includes NO (Normally Open) and NC (Normally Closed) type.
- Parallel connect COM end and GND end of the alarm detector (Provide external power to the alarm detector).
- Parallel connect the Ground of the DVR and the ground of the alarm detector.
- Connect the NC port of the alarm sensor to the DVR alarm input (ALARM).
- Use the same ground with that of DVR if you use external power to the alarm device.

Figure 4-4 Alarm input



4.3.3 Alarm Output

- Provide external power to external alarm device.
- To avoid overloading, read the following relay parameters table carefully.
- RS-485 A/B cable is for the A/B cable of the PTZ decoder.

4.3.4 Alarm Output Relay Parameters

Refer to the actual product for relay model information.

Table 4-2 Alarm output relay parameters

Model		**HFD23/005-1ZS**	**HRB1-S-DC5V**
Material of the touch		AgNi+ gold-plating	AuAg10/AgNi10/CuNi30
Rating (Resistance Load)	Rated switch capacity	30 VDC 1 A/125 VAC 0.5 A	24 VDC 1 A/125 VAC 2 A
	Maximum switch power	62.5 VA/30 W	250 VA/48 W
	Maximum switch voltage	125 VAC/60 VDC	125 VAC/60 VDC
	Maximum switch currency	2 A	2 A
Insulation	Between touches	400 VAC 1 minute	500 VAC 1 minute
	Between touch and winding	1000 VAC 1 minute	1000 VAC 1 minute
Turn-on Time		5 ms max	5 ms max
Turn-off Time		5 ms max	5 ms max
Longevity	Mechanical	1×10^7 times (300 times/min)	5×10^6 times (300 times/min)
	Electrical	1×10^5 times (30 times/min)	2.5×10^4 times (30 times/min)
Working Temperature		-30 °C to +70 °C	-40 °C to +70 °C

4.4 Connecting to RS-485 Port

Step 1 Connect the RS-485 cable of the PTZ camera to the RS-485 port on the Device. Ensure the match of A and B interfaces.

Step 2 Connect the video out cable of the PTZ camera to the video input port on the Device.

Step 3 Turn on the PTZ camera.

5 Local Configurations

Read the following notes prior to using the Device.

- The interfaces in the Manual are used for introducing the operations and only for reference. The actual interface might be different dependent on the model you purchased. If there is inconsistency between the Manual and the actual product, the actual product shall prevail.
- The Manual is a general document for introducing the product, so there might be some functions described for the Device in the Manual not apply to the model you purchased.
- Conventions for mouse operations on a menu.
  - ◇ Click: On the menu, left-click the mouse once on an option to enter the option setting.
  - ◇ Right-click: On any interface, right-click the mouse once to return to the previous level.

5.1 Initial Settings

5.1.1 Booting up

- Ensure the input voltage corresponds to the power requirement of the Device. Power on the Device after the power cable is properly connected.
- To protect the Device, please connect the Device with the power cable first, and then connect to the power source.
- To ensure the stable work of the Device and the external devices connected to the Device and to prolong the batter life, it is recommended to refer to the national related standard to use the power source that provides stable voltage with less interference from ripples. USP power source is recommended.

Step 1 Connect the Device to the monitor.

Step 2 Plug in the power cable to the Device.

Step 3 Press the power button to turn on the Device. The power indicator light is on.

On the connected monitor, the live view screen is displayed by default. If you turn on the Device during the time period that is configured for recording, the system starts recording after it is turned on, and you will see the icon indicating recording status is working in the specific channels.

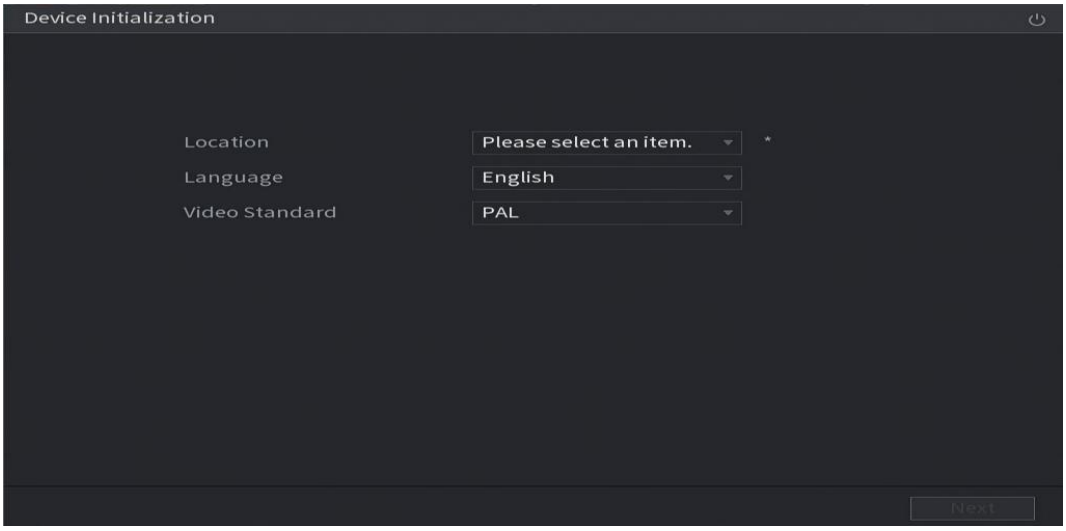
5.1.2 Initializing the Device

When booting up for the first time, you need to configure the password information for **admin** (by default).

To secure the Device, it is strongly recommended for you to properly keep the password for admin and modify it regularly.

Step 1 Turn on the Device.

Figure 5-1 Turn on device

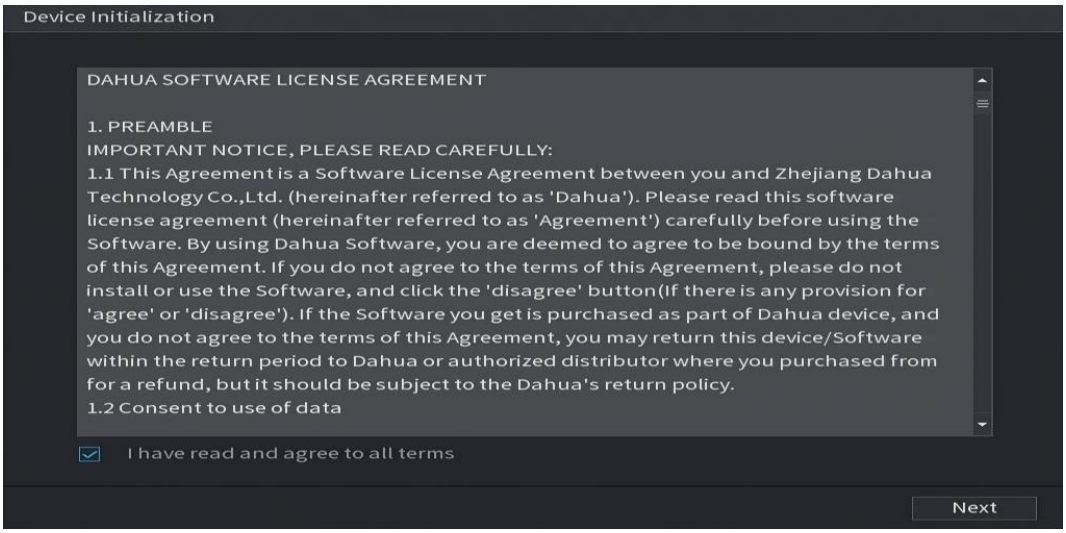


Step 2 Select your location from the drop-down list, then language and video standard will match your location automatically. You can change the language and video standard manually.

Step 3 Click **Next**.

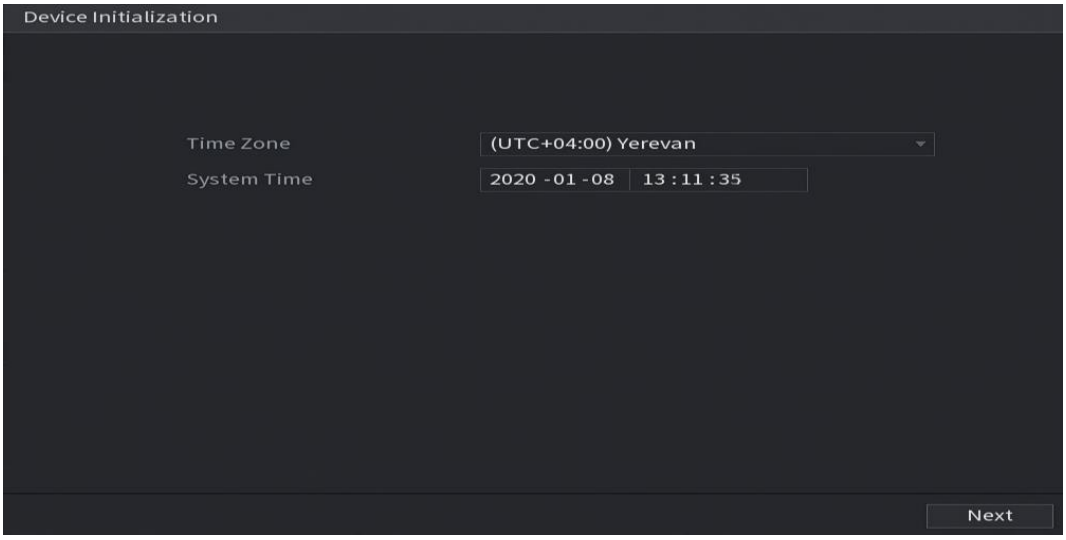
The **Dahua Software License Agreement** interface is displayed.

Figure 5-2 License agreement



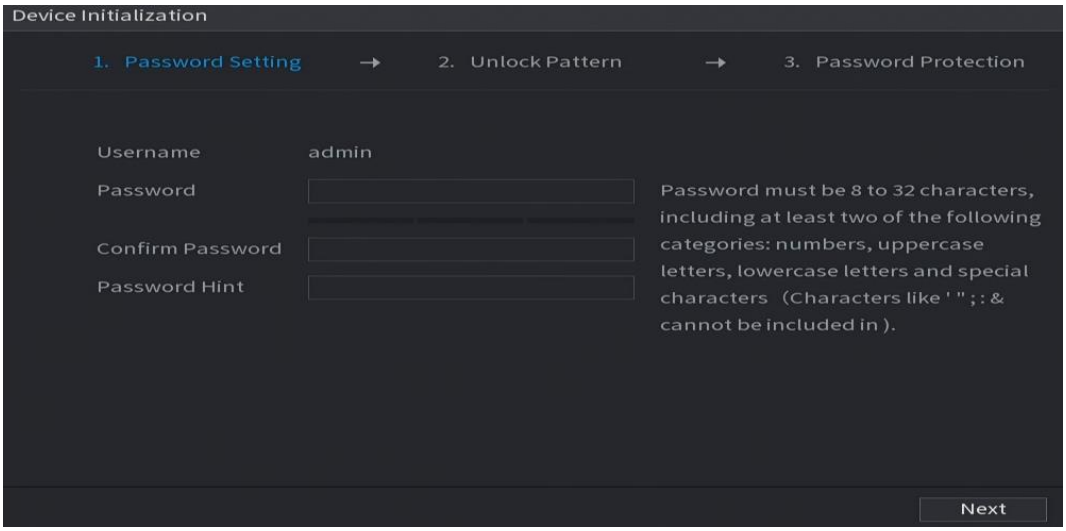
Step 4 Select **I have read and agree to all terms**, and then click **Next**.

Figure 5-3 Time



Step 5 Select system zone, configure system time, and then click **Next**.

Figure 5-4 Enter password



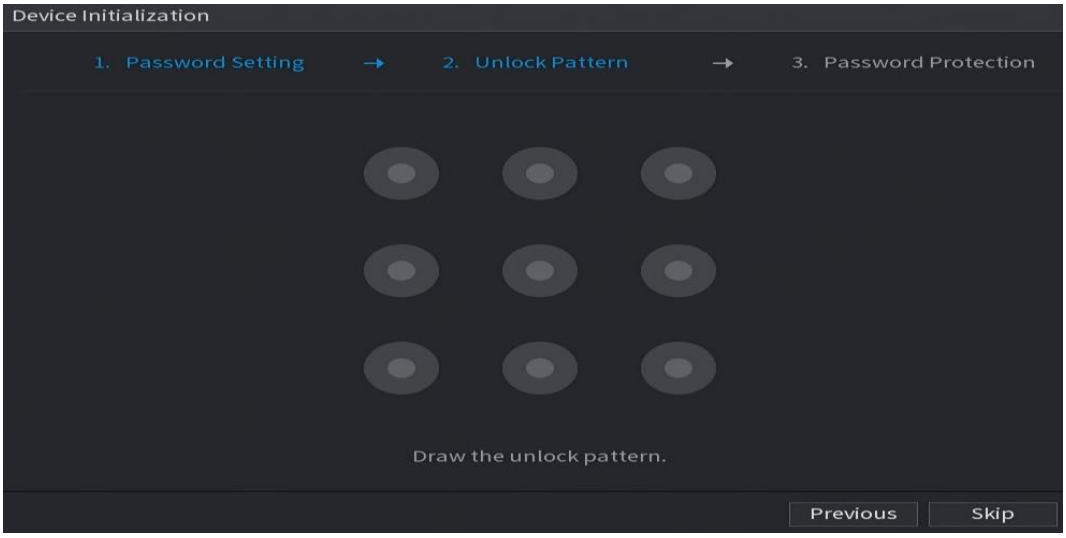
Step 6 Configure the password information for admin.

Table 5-1 Password setting parameters

Parameter	Description
User	By default, the user is **admin**.
Password	In the **Password** box, enter the password for admin.
Confirm Password	
Prompt Hint	In the **Prompt Hint** box, enter the information that can remind you of the password. On the login interface, click , the prompt will display to help you find back the password.

Step 7 Click **Next**.

Figure 5-5 Unlock pattern

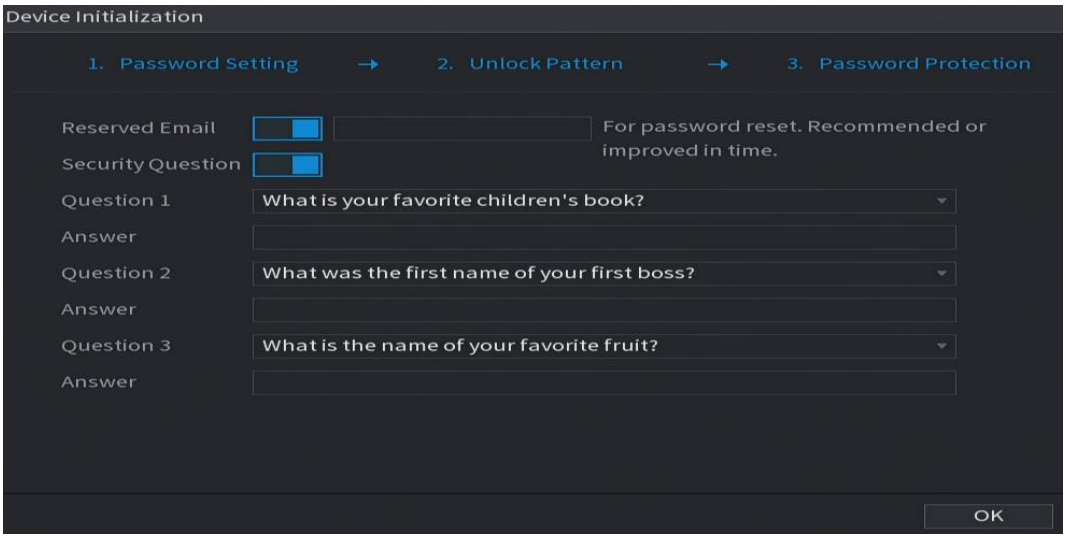


Step 8 Draw an unlock pattern.

After the setting is completed, the **Password Protection** interface is displayed.

- The pattern that you want to set must cross at least four points.
- If you do not want to configure the unlock pattern, click **Skip**.
- Once you have configured the unlock pattern, the system will require the unlock pattern as the default login method. If you skip this setting, enter the password for login.

Figure 5-6 Password protection



Step 9 Configure the protection parameters for password.

After configuration, if you forget the password for admin user, you can reset the password through the reserved email address or security questions. For details about resetting the password, see 5.1.3.

If you do not want to configure the settings, disable the email address and security questions functions on the interface.

Table 5-2 Password protection parameters

Password Protection Mode	Description
Reserved Email	Enter the reserved email address. In the **Reserved Email** box, enter an email address for password reset. If you forget the password, enter the security code that you will get from this reserved email address to reset the password of admin.
Security Questions	Configure the security questions and answers. If you forget the password, enter the answers to the questions can make you reset the password.
If you want to configure the email or security questions fucntion later or you want to change the configurations, select **Main Menu** > **ACCOUNT** > **Password Reset**.	

Step 10 Click **OK** to complete the settings.

The **End-User License Agreement** interface is displayed.

Step 11 Select **I have read and agree to all terms** check box.

Step 12 Click **Next**.

The **Startup Wizard** interface is displayed. For details about quick settings during startup, see "5.1.4 Setting Up with the Startup Wizard".

5.1.3 Resetting Password

You can reset the password by the following methods when you forget the password for admin account.

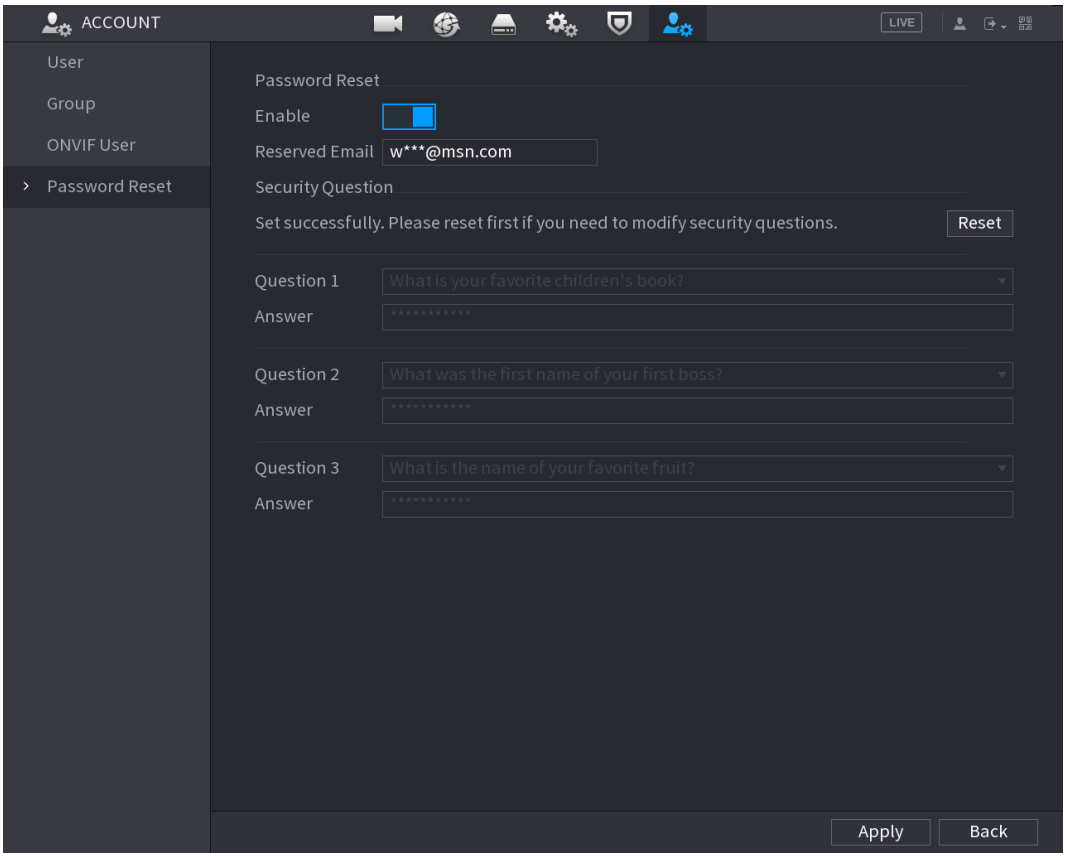
- If the password reset function is enabled, you can use mobile phone to scan the QR code to reset the password. For details, see "5.1.3.2 Resetting Password on Local Interface."
- If the password reset function is disabled, there are two situations:
  - ◇ If you configured security questions, you can find back the password by the security questions.
  - ◇ If you did not configure the security questions, you can only use the reset button on the mainboard to restore the Device to factory default. For details, see "5.1.3.3 Using Reset Button on the Mainboard."

    Not all models are provided with reset button.

5.1.3.1 Enabling Password Reset Function

Step 1 Select **Main Menu** > **Account** > **Password Reset**.

Figure 5-7 Enable password reset



Step 2 Enable the Password Reset function.

This function is enabled by default.

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

When Password reset function is disabled, you can retrieve password through following ways:

- You can retrieve password through resetting password on local interface or using Reset button on the mainboard when the device supports Reset button.
- You can only retrieve password through resetting password on local interface (make sure that security questions are preset) when the device does not support Reset button.

5.1.3.2 Resetting Password on Local Interface

Step 1 Enter the login interface.

- If you have configured unlock pattern, the unlock pattern login interface is displayed. Click **Forgot Pattern**, the password login interface is displayed.
- If you did not configure unlock pattern, the password login interface is displayed. Click to display the password with plaintext.

To login from other user account, on the unlock pattern login interface, click **Switch User**; or on the password login interface, in the **User Name** list, select other users to login.

Figure 5-8 Unlock pattern

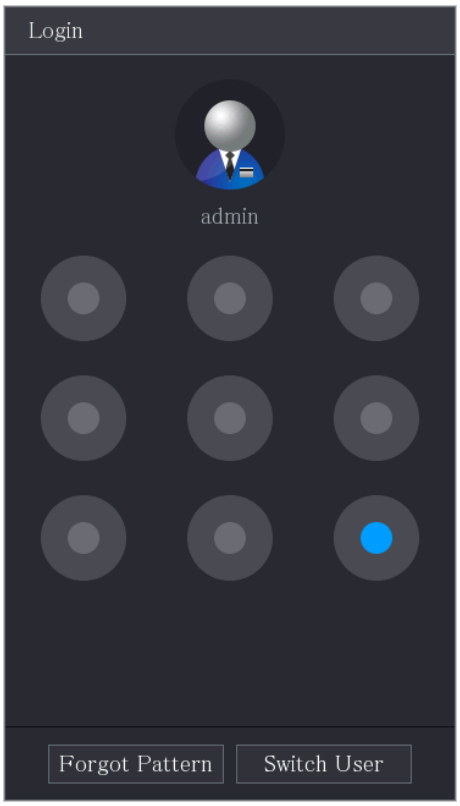
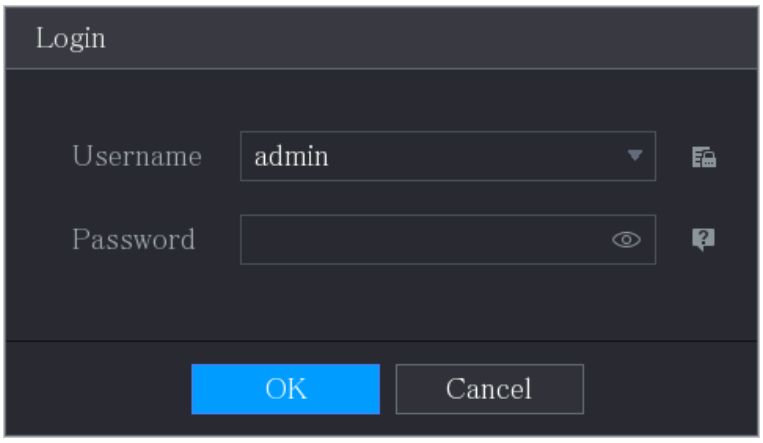


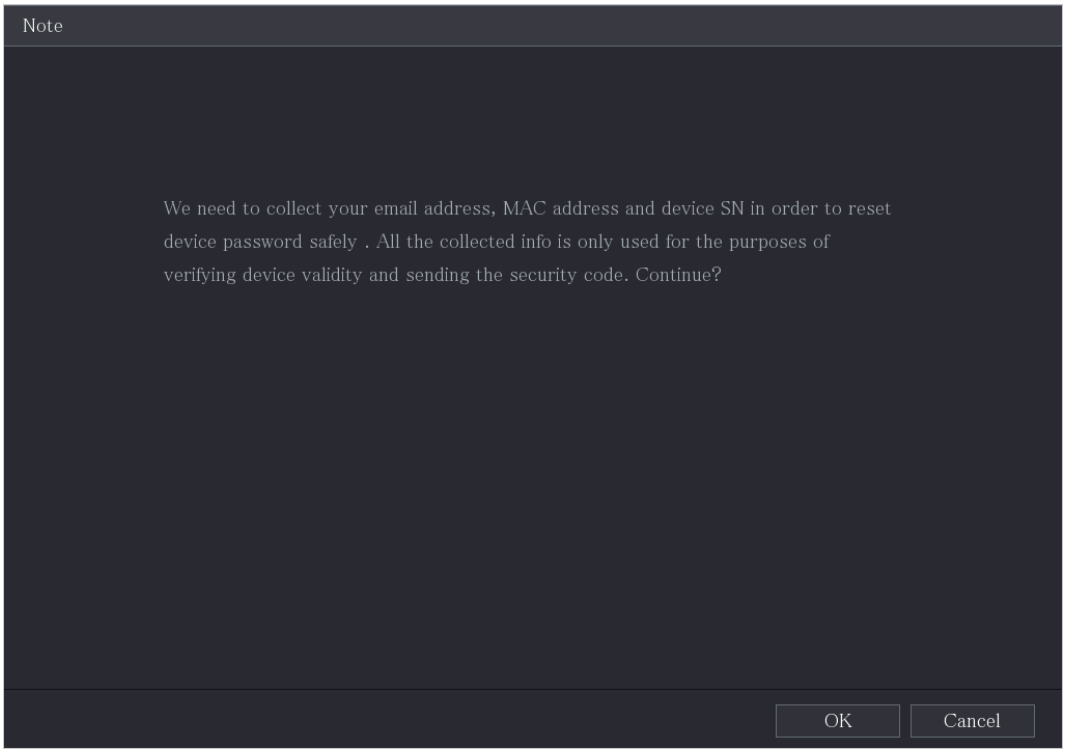
Figure 5-9 Password login



Step 2 Click .

- If you have set the reserved email address, the **Prompt** message interface is displayed.
- If you did not set the reserved email address, the email entering interface is displayed. Enter the email address, and then click **Next**, the **Prompt** message interface is displayed.

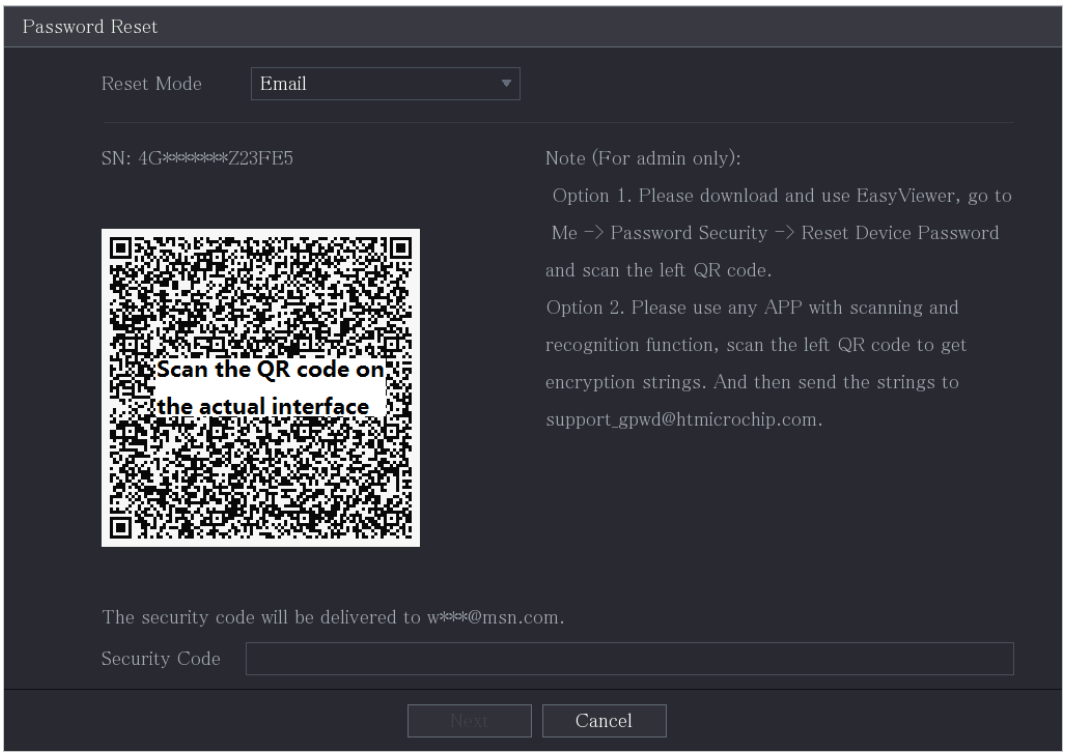
Figure 5-10 Note



Step 3 Click **OK**.

After clicking **OK**, the system will collect your information for password reset, and the information includes but not limited to email address, MAC address, and device serial number. Read the prompt carefully before clicking **OK**.

Figure 5-11 Password reset (1)



Step 4 Reset the password.

- QR code

Follow the onscreen instructions to get the security code in your reserved email address. In the **Security code** box, enter the security code.

- You can get the security code twice by scanning the same QR code. If you need to get the security code once again, refresh the interface.
- Use the security code received in your email box to reset the password within 24 hours; otherwise the security code becomes invalid.

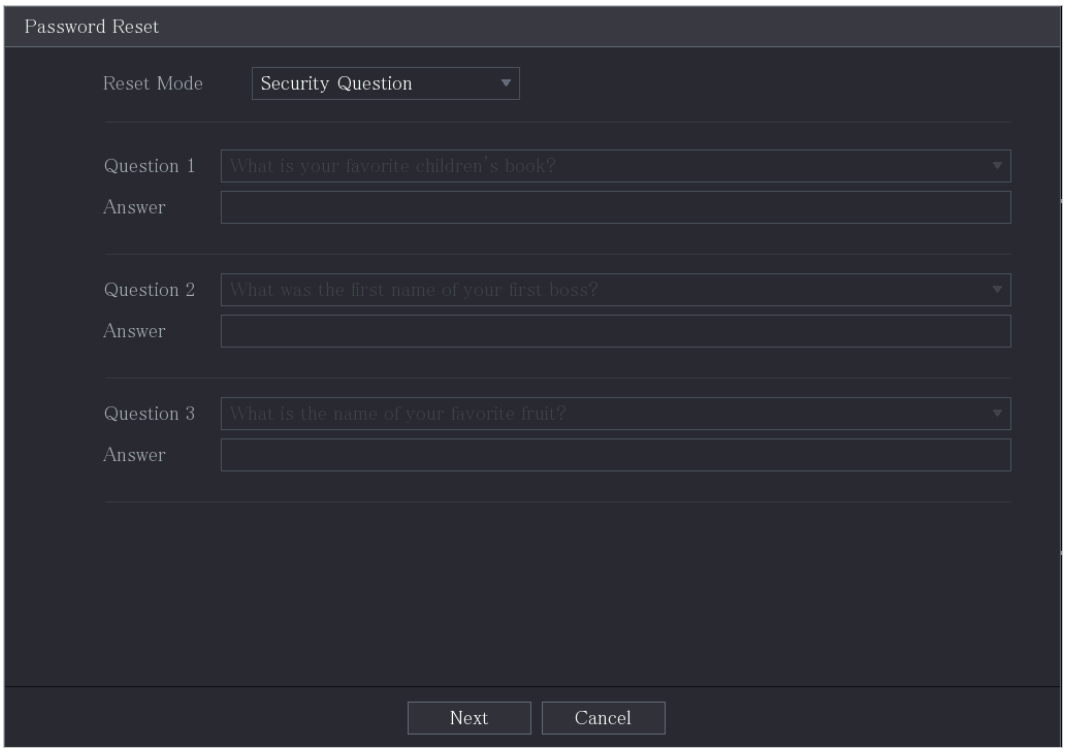
- Security questions

1) On the **Reset password** interface as shown in Step 3, in the **Reset Type** list, select **Security Questions**, the **Security Questions** interface is displayed.

If you did not configure the security questions before, in the **Reset Type** list, there will be no **Security Questions**.

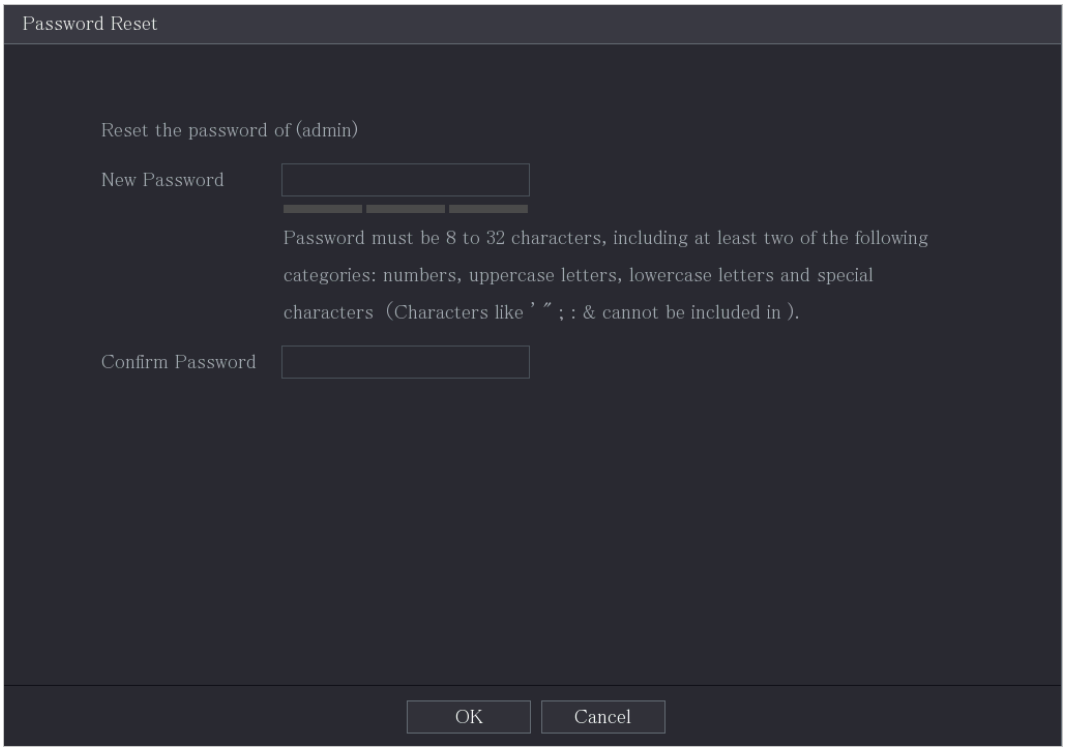
2) In the **Answer** box, enter the correct answers.

Figure 5-12 Password reset (2)



Step 5 Click **Next**.

Figure 5-13 Password reset (3)



Step 6 In the **New Password** box, enter the new password and enter it again in the **Confirm Password** box.

Step 7 Click **Save**. The password resetting is started.

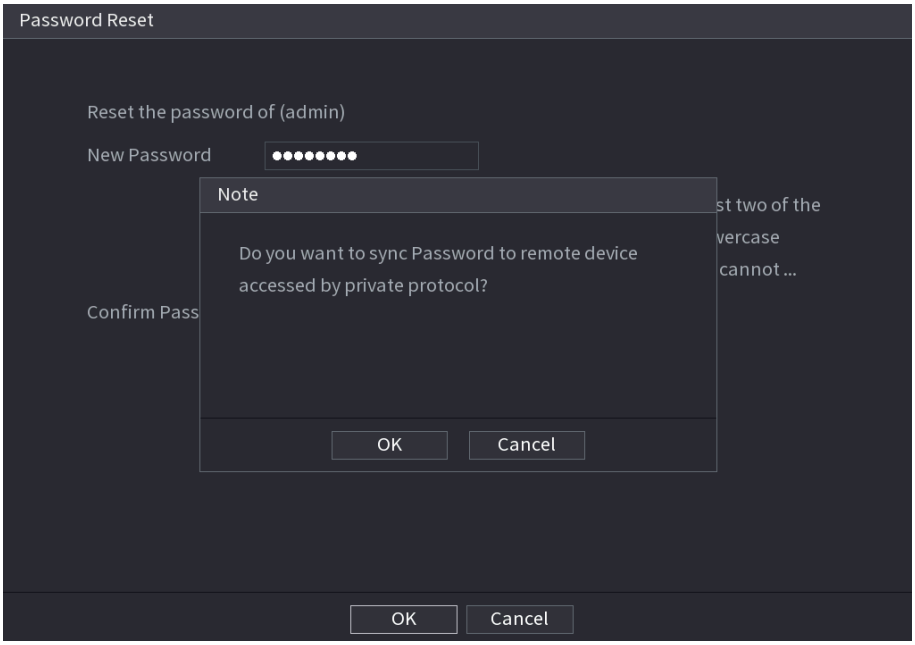
After resetting is completed, a pop-up message is displayed.

Step 8 Click **OK**.

A pop-up message is displayed asking if you want to sync the password with the remote devices.

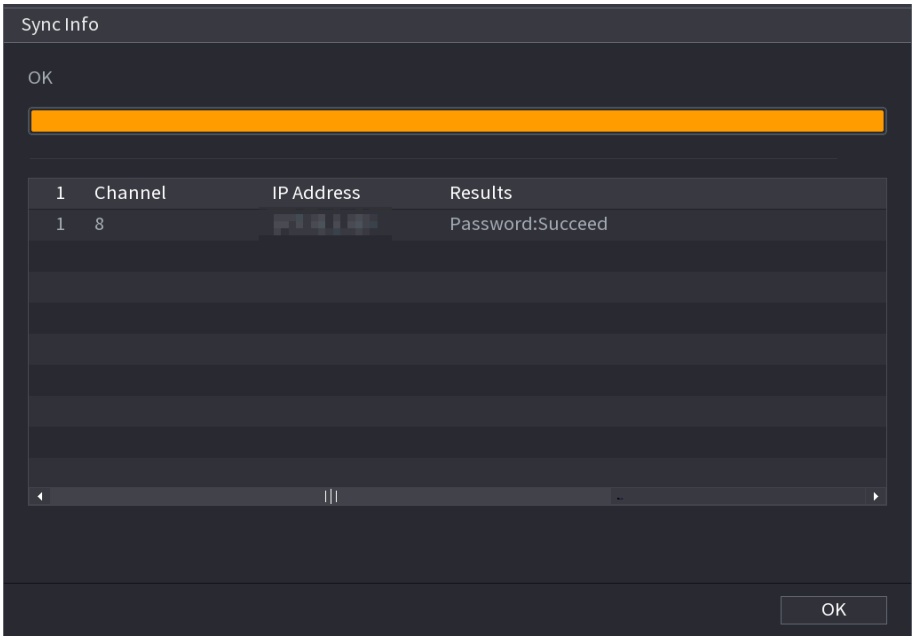
- Click **Cancel**, the resetting is finished.
- Click **OK**, the **Sync Info** interface is displayed.

Figure 5-14 Password reset (4)



This message appears only when there are digital channels instead of only analog channels.

Figure 5-15 Sync info



5.1.3.3 Using Reset Button on the Mainboard

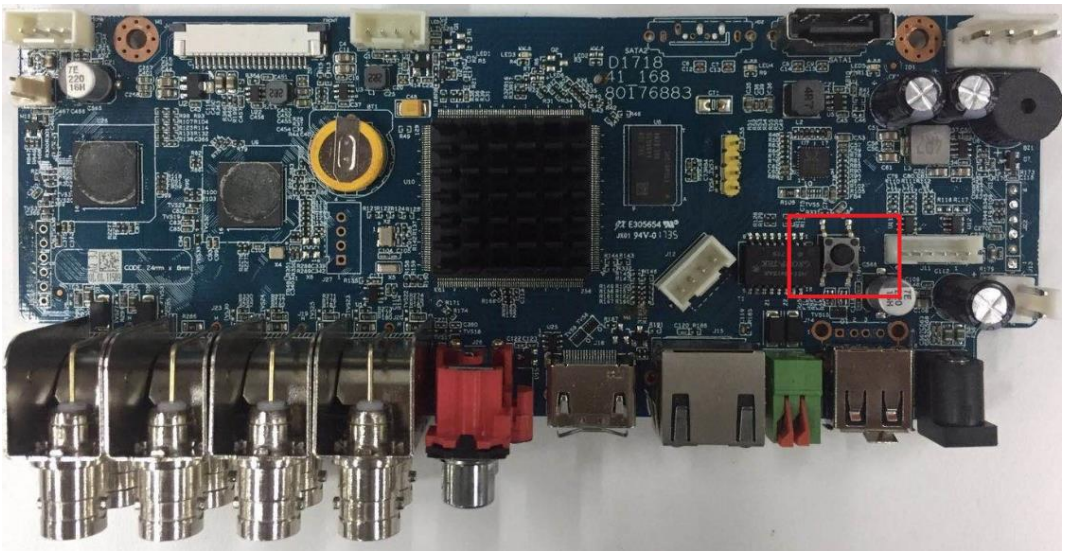
You can always use the reset button on the mainboard to reset the Device to the factory default.

Not all models are provided with reset button.

Step 1 Disconnect the Device from power source, and then remove the cover panel. For details about removing the cover panel, see "2.2 Installing HDD."

Step 2 Find the reset button on the mainboard, and then press and hold the reset button for 5 seconds to 10 seconds.

Figure 5-16 Reset button



Step 3 Restart the Device.

After the Device is rebooted, the settings have been restored to the factory default. You can start resetting the password.

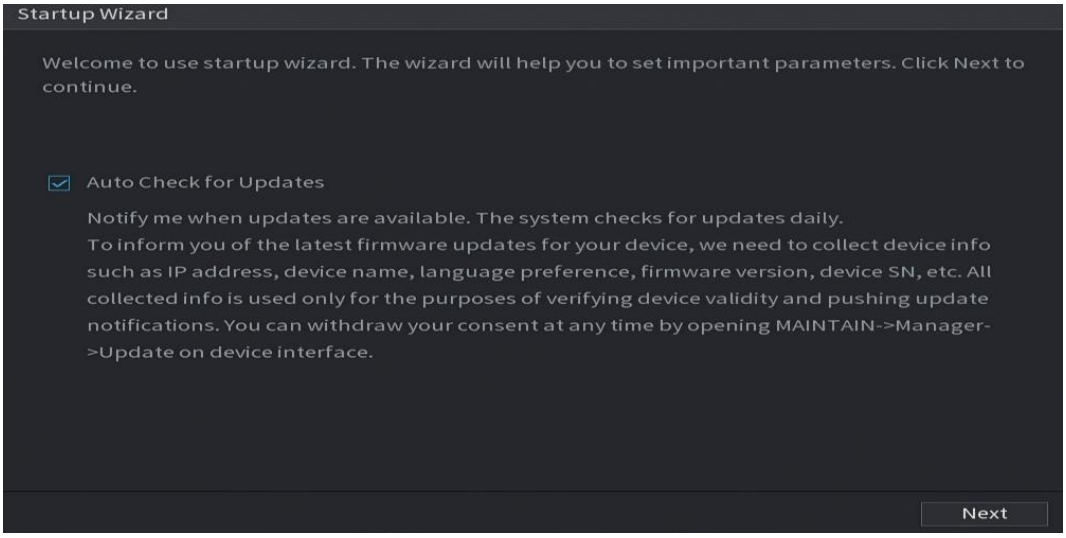
5.1.4 Setting Up with the Startup Wizard

5.1.4.1 Entering Startup Wizard

The Startup Wizard helps you configure the basic settings to set up the Device.

After you have initialized the Device, the **Startup Wizard** interface is displayed.

Figure 5-17 Startup wizard



- If you select the **Auto-check for updates** check box, the system will notify you automatically when updates are available.
- After the auto-check function is enabled, to notify you to update timely, the system will collect the information such as IP address, device name, firmware version, and device serial number. The collected information is only used to verify the legality of the Device and push upgrade notices.
- If you clear the **Auto-check for updates** check box, the system will not perform automatic checks.

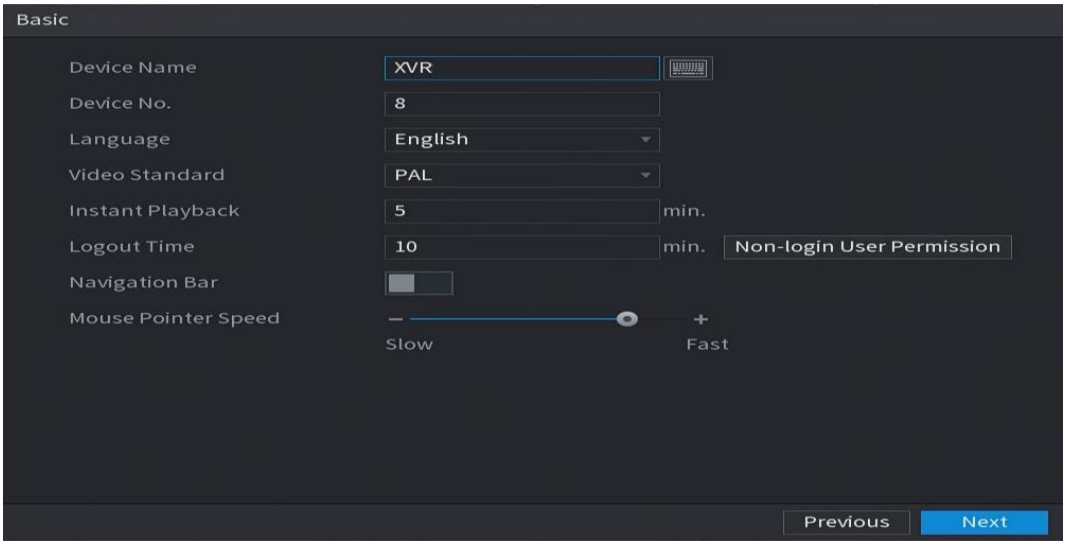
5.1.4.2 Configuring General Settings

You can configure the general settings for the Device such as Device name, language, and settings for instant playback.

You can also configure general settings by selecting **Main Menu** > **SYSTEM** > **General** > **Basic**.

Step 1 On the **Startup Wizard** interface, click **Next**.

Figure 5-18 Basic



Step 2 Configure the basic settings parameters.

Parameter	Description
Device Name	In the **Device Name** box, enter the Device name.
Device No.	In the **Device No.** box, enter a number for the Device.
Language	In the **Language** list, select a language for the Device system.
Video Standard	In the **Video Standard** list, select **PAL** or **NTSC** according to your actual situation.
Instant Playback	In the **Instant Playback** box, enter the time length for playing back the recoded video. The value ranges from 5 to 60. On the live view control bar, click the instant playback button to play back the recorded video within the configured time.
Logout Time	In the **Logout Time** box, enter the standby time for the Device. The Device automatically logs out when it is not working for the configured time period. You need to log in to the Device again. The value ranges from 0 to 60. 0 indicates there is not standby time for the Device. Click **Monitor Channel(s) when logout**. You can select the channels that you want to continue monitoring when you logged out.
Navigation Bar	Enable the navigation bar. When you click on the live view screen, the navigation bar is displayed.
Mouse Pointer Speed	Adjust the speed of double-click by moving the slider. The bigger the value is, the faster the double-clicking speed must be.

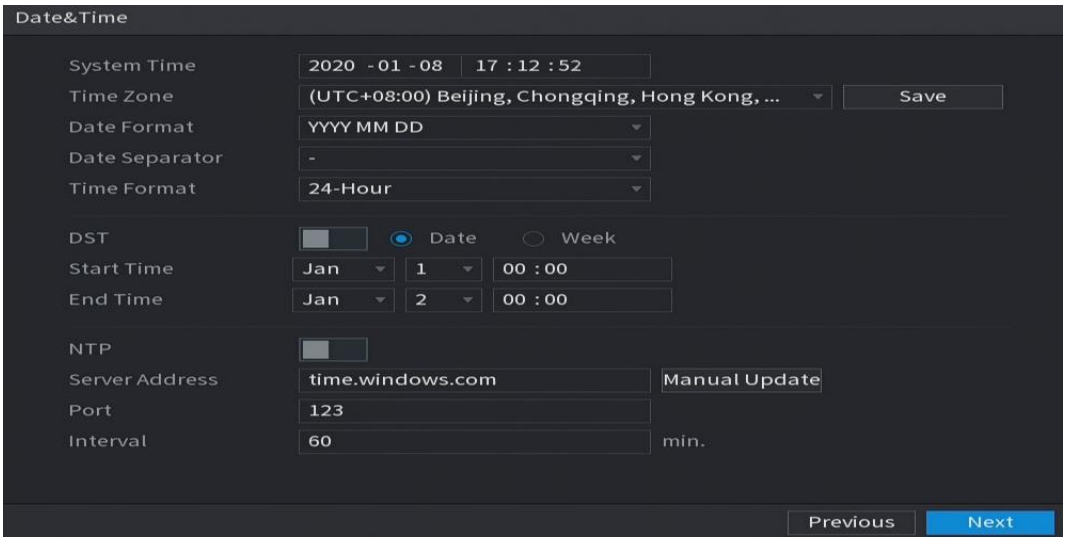
5.1.4.3 Configuring Date and Time Settings

You can configure the system time, choose the time zone, set the daylight saving time, and enable the NTP server.

You can also configure date and time settings by selecting **Main Menu > SYSTEM > General > Date &Time**.

Step 1 After you have configured the general settings, on the **General** interface, click **Next**.

Figure 5-19 Date and time



Step 2 Configure the settings for date and time parameters.

Table 5-3 Date and time parameters

Parameter	Description
System Time	In the **System Time** box, enter time for the system. Click the time zone list, you can select a time zone for the system, and the time in adjust automatically. ⚠ Do not change the system time randomly; otherwise the recorded video cannot be searched. It is recommended to avoid the recoding period or stop recording first before you change the system time.
Time Zone	In the **Time Zone** list, select a time zone for the system.
Date Format	In the **Date Format** list, select a date format for the system.
Date Separator	In the **Date Separator** list, select a separator style for the date.
Time Format	In the **Time Format** list, select **12-HOUR** or **24-HOUR** for the time display style.
DST	Enable the Daylight Saving Time function. Click **Week** or click **Date**.
Start Time	Configure the start time and end time for the DST.
End Time	
NTP	Enable the NTP function to sync the Device time with the NTP server. 📖 If NTP is enabled, device time will be automatically synchronized with server.

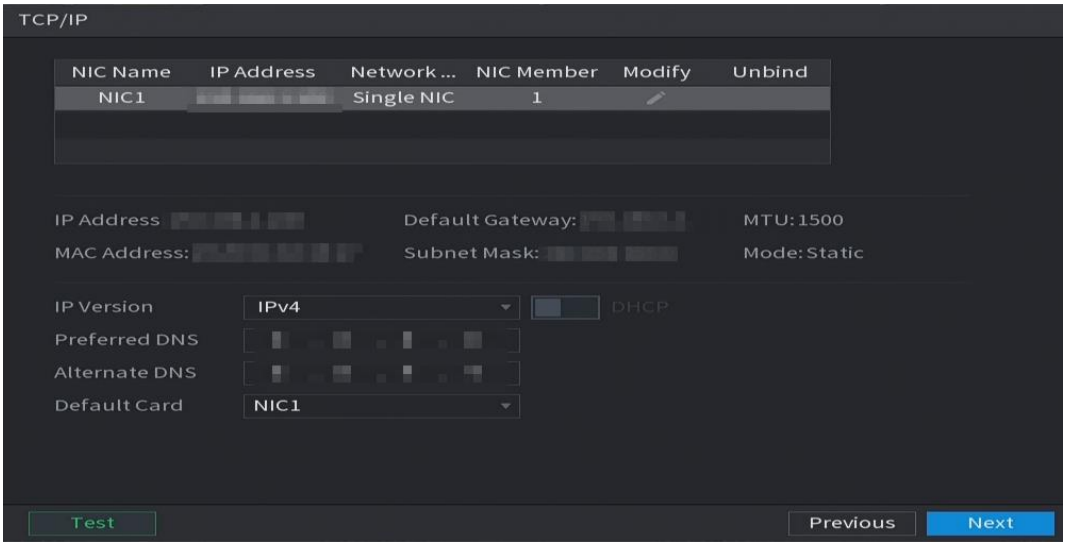
Parameter	Description
Serve Address	In the **Server Address** box, enter the IP address or domain name of the corresponding NTP server. Click **Manual Update**, the Device starts syncing with the server immediately.
Port	The system supports TCP protocol only and the default setting is 123.
Interval	In the **Interval** box, enter the amount of time that you want the Device to sync time with the NTP server. The value ranges from 0 to 65535.

5.1.4.4 Configuring Network Settings

You can configure the basic network settings such as net mode, IP version, and IP address of the Device.

You can also configure network settings by selecting **Main Menu > NETWORK > TCP/IP**.

Step 1 After you have configured the date and time settings, on the **Date &Time** interface, click **Next**.



Step 2 Configure the settings for network parameters.

Table 5-4 Network parameters

Parameter	Description
IP Version	In the **IP Version** list, you can select **IPv4** or **IPv6**. Both versions are supported for access.
MAC Address	Displays the MAC address of the Device.
DHCP	Enable the DHCP function. The IP address, subnet mask and default gateway are not available for configuration once DHCP is enabled. ● If DHCP is effective, the obtained information will display in the **IP Address** box, **Subnet Mask** box and **Default Gateway** box. If not, all values show 0.0.0.0. ● If you want manually configure the IP information, disable the DHCP function first. ● If PPPoE connection is successful, the IP address, subnet mask, default gateway, and DHCP are not available for configuration.

Parameter	Description
IP Address	Enter the IP address and configure the corresponding subnet mask and default gateway. IP address and default gateway must be in the same network segment.
Subnet Mask	
Default Gateway	
DNS DHCP	Enable the DHCP function to get the DNS address from router.
Preferred DNS	In the **Preferred DNS** box, enter the IP address of DNS.
Alternate DNS	In the **Alternate DNS** box, enter the IP address of alternate DNS.
MTU	In the **MTU** box, enter a value for network card. The value ranges from 1280 byte through 1500 byte. The default is 1500. The suggested MTU values are as below. ● 1500: The biggest value of Ethernet information package. This value is typically selected if there is no PPPoE or VPN connection, and it is also the default value of some routers, network adapters and switches. ● 1492: Optimized value for PPPoE. ● 1468: Optimized value for DHCP. ● 1450: Optimized value for VPN.
Test	Click **Test** to test if the entered IP address and gateway are interworking.

5.1.4.5 Configuring P2P Settings

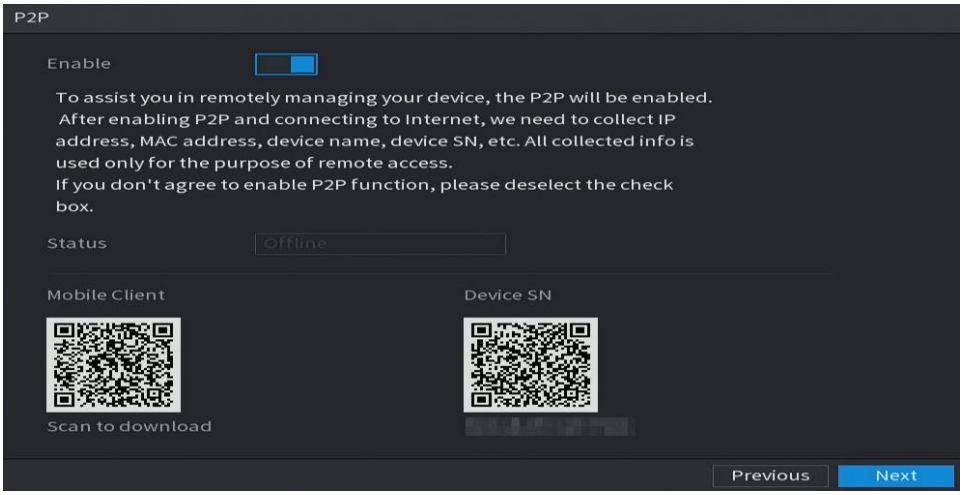
You can add the Device into your cell phone client or the platform to manage.

You can also configure P2P function by selecting **Main Menu** > **Network** > **P2P**.

Make sure the DVR is connected into the Internet, and if yes, in the **Status** box of the P2P interface, it shows **Online**.

Step 1 After you have configured the network settings, on the **Network** interface, click **Next**.

Figure 5-20 P2P



Step 2 Enable the P2P function.

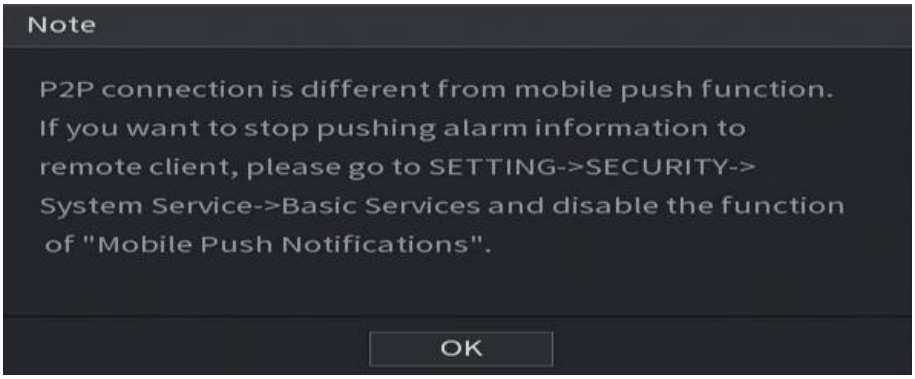
After the P2P function is enabled and connected to the Internet, the system will collect your information for remote access, and the information includes but not limited to email address, MAC address, and device serial number.

You can start adding the device.

- Cell Phone Client: Use your mobile phone to scan the QR code to add the device into the Cell Phone Client, and then you can start accessing the Device.
- Platform: Obtain the Device SN by scanning the QR code. Go to the P2P management platform and add the Device SN into the platform. Then you can access and manage the device in the WAN. For details, refer to the P2P operation manual.

- You can also enter the QR code of Cell Phone Client and Device SN by clicking on the top right of the interfaces after you have entered the Main Menu.
- If selection of this function is canceled, the **Note** interface is displayed. See Figure 5-21. Choose to enable it or not according to your actual need.

Figure 5-21 P2P note



To use this function, take adding device into Cell Phone Client as an example.

Adding Device into Cell Phone Client

Step 1 Use your cell phone to scan the QR code under Cell Phone Client to download the application.

Step 2 On your cell phone, open the application, and then tap .

The menu is displayed. You can start adding the device.

1) Tap **Device Manager**.

Figure 5-22 Device manager

2) Tap on the top right corner.

The interface requiring device initialization is displayed. A pop-up message reminding you to make sure the Device is initialized is displayed.

3) Tap **OK**.

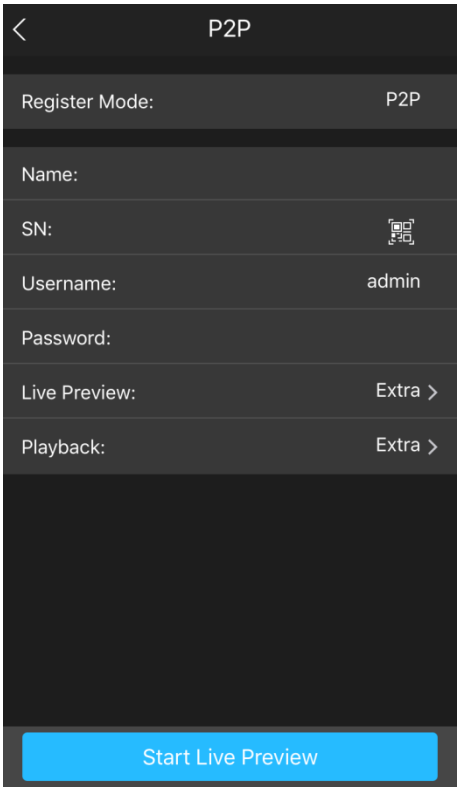
◇ If the Device has not been initialized, Tap **Device Initialization** to perform initializing by following the onscreen instructions.

◇ If the Device has been initialized, you can start adding it directly.

4) Tap **Add Device**.

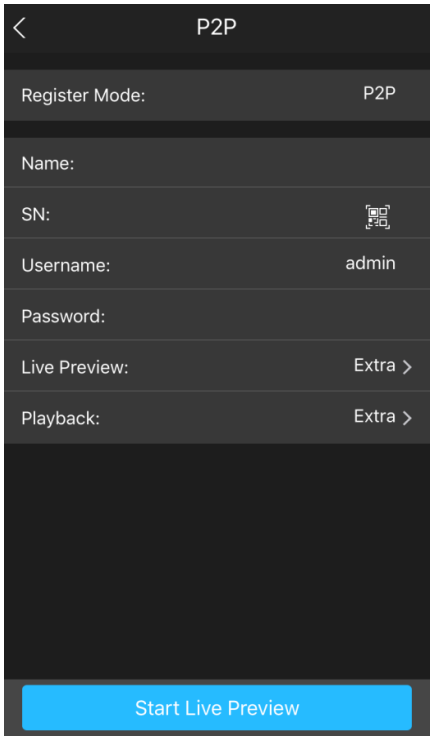
You can add wireless device or wired device. The Manual takes adding wired device as an example.

Figure 5-23 Add device



5) Tap **P2P**.

Figure 5-24 P2P

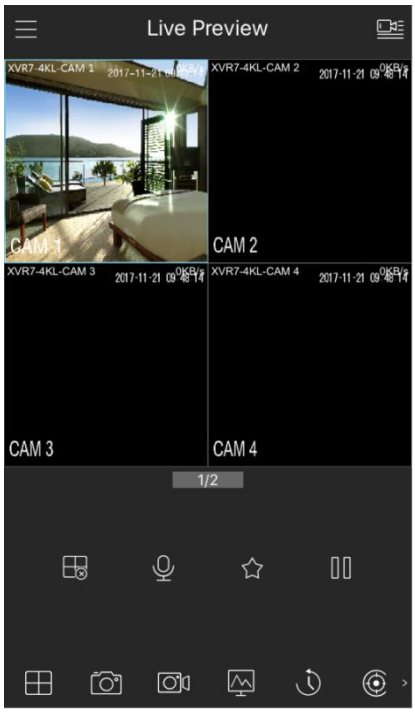


6) Enter a name for the DVR, the username and password, scan the QR code under **Device SN**.

7) Tap **Start Live Preview**.

The Device is added and displayed on the live view interface of the cell phone.

Figure 5-25 Live preview



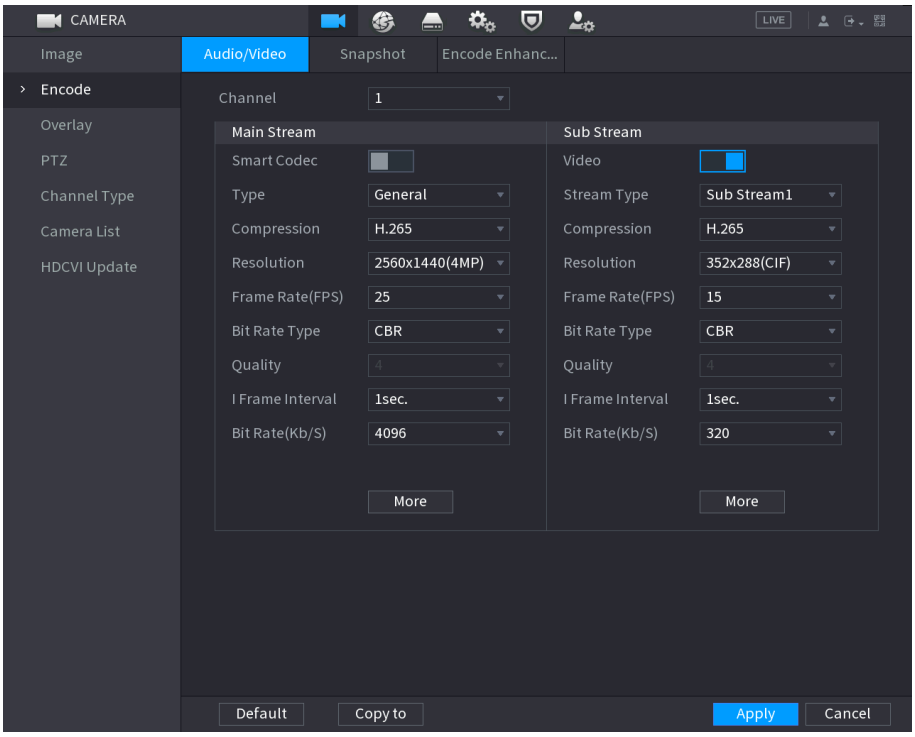
5.1.4.6 Configuring Encode Settings

You can configure the settings of main stream and sub stream for the Device.

You can also configure encode settings by selecting **Main Menu > CAMERA > Encode > Audio/Video**.

Step 1 After you have configured the P2P settings, on the **Audio/Video** interface, click **Next**.

Figure 5-26 Encode



Step 2 Configure the settings for the main/sub streams parameters.

Table 5-5 Main and sub streams parameters

Parameter	Description
Channel	In the **Channel** list, select the channel that you want to configure the settings for.
Smart Codec	Enable the smart codec function. This function can reduce the video bit stream for non-important recorded video to maximize the storage space.
Type	● Main Stream: In the **Type** list, select **General**, **MD** (Motion Detect), or **Alarm**. ● Sub Stream: This setting is not configurable.
Compression	In the **Compression** list, select the encode mode. ● H.265: Main profile encoding. This setting is recommended. ● H.264H: High profile encoding. Low bit stream with high definition. ● H.264: Main profile encoding. ● H.264B: Baseline profile encoding. This setting requires higher bit stream compared with other settings for the same definition.
Resolution	In the Resolution list, select resolution for the video. The maximum video resolution might be different dependent on your device model.
Frame Rate (FPS)	Configure the frames per second for the video. The higher the value is, the clearer and smoother the image will become. Frame rate changes along with the resolution. Generally, in PAL format, you can select the value from 1 through 25; in NTSC format, you can select the value from 1 through 30. However, the actual range of frame rate that you can select depends on the capability of the Device.
Bit Rate Type	In the **Bit Rate Type** list, select **CBR** (Constant Bit Rate) or **VBR** (Variable Bit Rate). If you select **CBR**, the image quality cannot be configured; if you select **VBR**, the image quality can be configured.
Quality	This function is available if you select **VBR** in the **Bit Rate** List. The bigger the value is, the better the image will become.
I Frame Interval	The interval between two reference frames.
Bit Rate (Kb/S)	In the **Bit Rate** list, select a value or enter a customized value to change the image quality. The bigger the value is, the better the image will become.
Video	Enable the function for sub stream.
Audio	Click **More**, the **More** interface is displayed. ● Audio: This function is enabled by default for main stream. You need to manually enable it for sub stream 1. Once this function is enabled, the recorded video file is composite audio and video stream. ● Audio Source: In the **Audio Source** list, you can select **Local** and **HDCVI**. ◇ Local: The audio signal is input from Audio In port. ◇ HDCVI: The audio signal is input from HDCVI camera. ● Compression: In the **Compression** list, select a format that you need.
Audio Source	
Compression	

5.1.4.7 Configuring Snapshot Settings

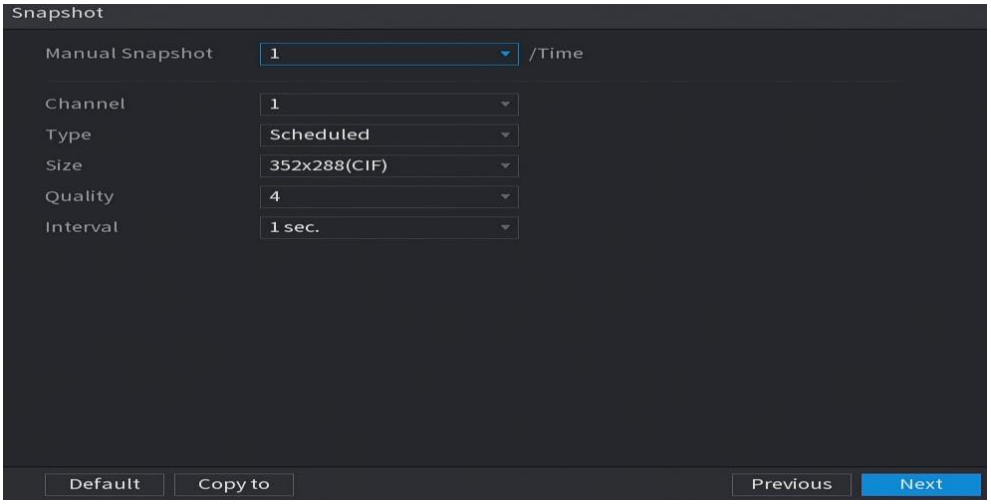
You can configure the basic snapshot settings such as quantity of snapshot each time, channel(s) to take snapshot, and image size and quality of snapshot.

You can also configure general settings by selecting **Main Menu > CAMERA > Encode > Snapshot**.

For more information about snapshot settings, see "5.8 Configuring Snapshot Settings."

Step 1 After you have configured the encode settings, on the **Encode** interface, click **Next**.

Figure 5-27 Snapshot



Step 2 Configure the settings for the snapshot parameters.

Table 5-6 Snapshot parameters

Parameter	Description
Manual Snapshot	In the **Manual Snapshot** list, select how many snapshots you want to take each time.
Channel	In the **Channel** list, select the channel that you want to configure the settings for.
Type	In the **Mode** list, you can select **Human Face**, **Event**, or **General** as the event type for which you want to take a snapshot. ● **Scheduled**: The snapshot is taken during the scheduled period. ● **Event**: The snapshot is taken when there is an alarm event occurs, such as motion detection event, video loss, and local alarms. ● **Face Snapshot:** The snapshot is taken when the face is detected. The face detection function is support only with the Channel 1.
Size	In the **Size** list, select a value for the image. The bigger the value is, the better the image will become.
Quality	Configure the image quality by 6 levels. The higher the level is, the better the image will become.
Interval	Configure or customize the snapshot frequency.

5.1.4.8 Configuring Basic Storage Settings

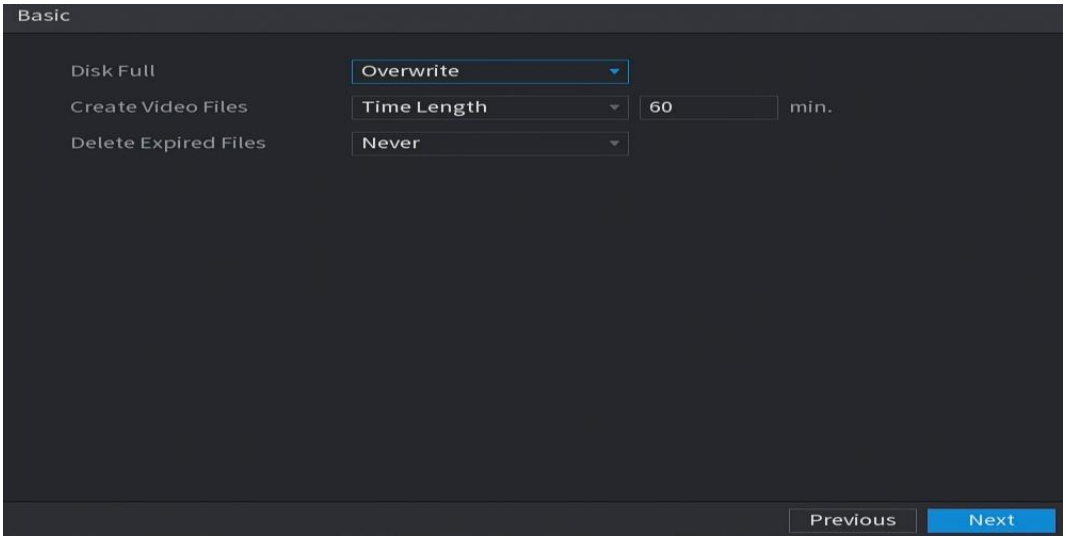
You can configure the settings for the situations when HDD is full, file length and time length of

recorded video, and the settings if to auto-delete the old files.

You can also configure basic storage settings by selecting **Main Menu** > **STORAGE** > **Basic**.

Step 1 After you have configured the encode settings, on the **Snapshot** interface, click **Next**.

Figure 5-28 Basic settings



Step 2 Configure the basic storage settings parameters.

Table 5-7 Storage settings

Parameter	Description
Disk Full	Configure the settings for the situation when all the read/write discs are full, and there are no more free discs. ● Select **Stop** to stop recording ● Select **Overwrite** to overwrite the recorded video files always from the earliest time. The locked recorded video files will not be overwritten.
Create Video Files	Configure the time length and file length for each recorded video.
Delete Expired Files	Configure whether to delete the old files and if yes, in the **Delete Expired Files** list, select **Custom** to configure the time length for how long you want to keep the old files.

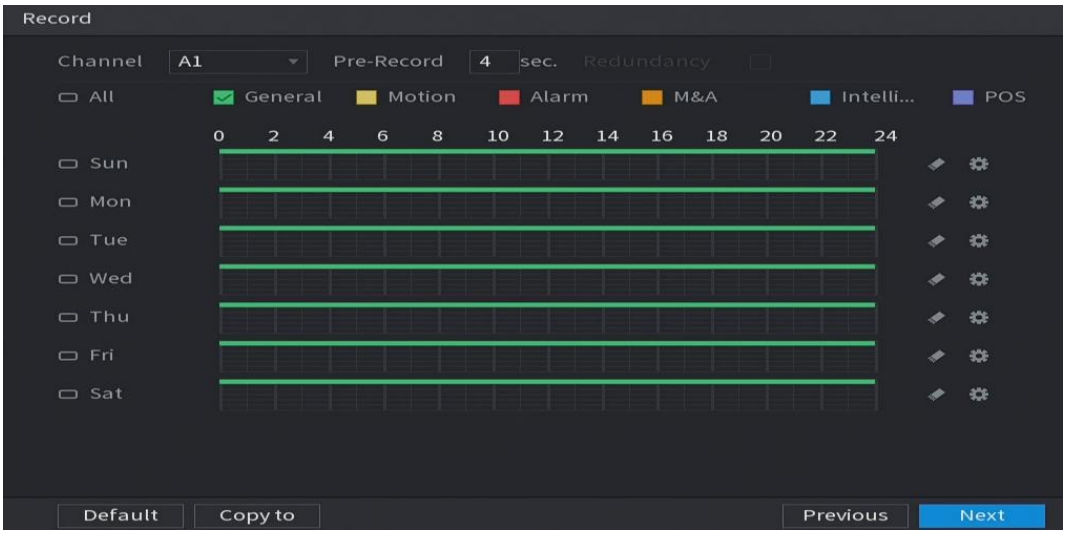
5.1.4.9 Configuring Recorded Video Storage Schedule

You can configure the schedule for the recorded video such as channels to record, alarm settings, and the armed period.

You can also configure recorded video storage settings by selecting **Main Menu** > **STORAGE** > **Schedule** > **Record**.

Step 1 After you have configured the basic storage settings, on the **Basic** interface, click **Next**.

Figure 5-29 Record



Step 2 Configure the record settings parameters.

Table 5-8 Record settings

Parameter	Description
Channel	In the **Channel** list, select a channel to record the video.
Pre-record	In the **Pre-record** list, enter the amount of time that you want to start the recording in advance.
Redundancy	If there are several HDDs installed to the Device, you can set one of the HDDs as the redundant HDD to save the recorded files into different HDDs. In case one of the HDDs is damaged, you can find the backup in the other HDD. ● Select **Main Menu** > **STORAGE** > **Disk Manager**, and then set a HDD as redundant HDD. ● Select **Main Menu** > **STORAGE** > **Schedule** > **Record**, and then select the **Redundancy** check box. ◇ If the selected channel is not recording, the redundancy function takes effect next time you record no matter you select the check box or not. ◇ If the selected channel is recording, the current recorded files will be packed, and then start recording according to the new schedule. ● Not all models support this function. ● The redundant HDD only back up the recorded videos but not snapshots.
Event type	Select the check box of the event type which includes **General**, **Motion** (motion detect, video loss, tempering, diagnosis), **Alarm** (IoT alarms, local alarms, alarms from alarm box, IPC external alarms, IPC Offline alarms), **M&A**, **Intelligent** (IVS events, face detection), and **POS**.

Parameter	Description
Period	Define a period during which the configured recording setting is active. The system only activates the alarm in the defined period.
Copy	Click **Copy to** to copy the settings to other channels.

Step 3 Define the video recording period by drawing or editing. By default, it is active all the time.

- Define the period by drawing.

1) Select the check box of event type.

Figure 5-30 Event type

2) Define a period. The system supports maximum six periods.

◇ Define for the whole week: Click next to **All**, all the icon switches to , you can define the period for all the days simultaneously.

◇ Define for several days of a week: Click before each day one by one, the icon switches to . You can define the period for the selected days simultaneously.

3) On the timeline, drag to define a period. The Device starts recoding the selected event type in the defined period.

Figure 5-31 Timeline

The color bar indicates the event type that is effective in a defined period:

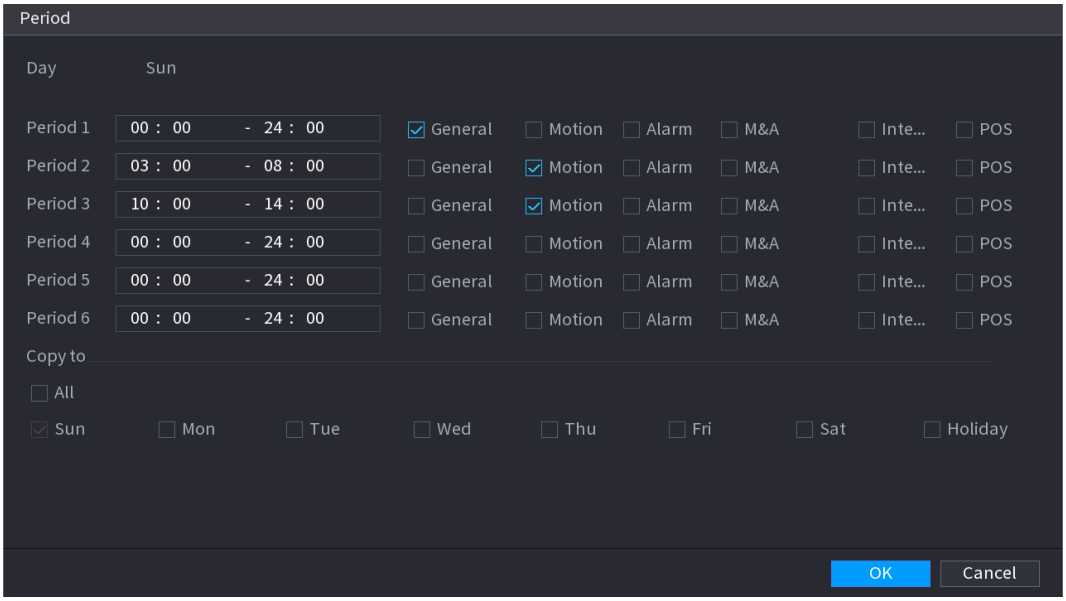
- Recording priority in case of event types are overlapped: **M&A** > **Alarm** > **Intelligent** > **Motion** > **General**.
- Select the check box of event type, and then click to clear the defined period.

- When selecting MD&Alarm, the MD and Alarm check boxes will be cleared respectively.

- Define the period by editing. Take Sunday as an example.

1) Click .

Figure 5-32 Period



2) Enter the time frame for the period and select the event check box.
   - ◇ There are six periods for you to set for each day.
   - ◇ Under **Copy to**, select **All** to apply the settings to all the days of a week, or select specific day(s) that you want to apply the settings to.
3) Click **OK** to save the settings.

Step 4 Click **OK** to complete the settings.

- Click **Copy** to copy the settings to other channels.
- After configuring the recording schedule settings, you need to perform the following operations to start recording according to the defined schedule.
  - ◇ Enable the alarm event and cofigure the settings for the recording channel. For details, see "5.10 Alarm Events Settings."
  - ◇ You need to enable the recording function, see "5.9.1 Enabling Record Control."

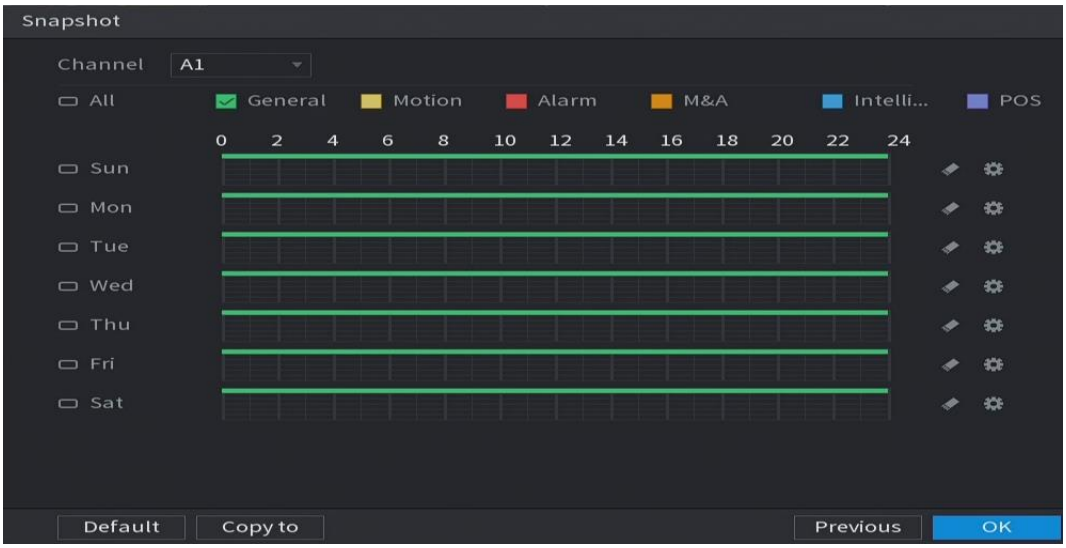
5.1.4.10 Configuring Snapshot Storage Schedule

You can configure the storage schedule for the snapshot such as channels to take snapshot, alarm settings, and the armed period.

You can also configure snapshot storage settings by selecting **Main Menu** > **STORAGE** > **Schedule** > **Snapshot**.

Step 1 After you have configured the video recording settings, on the **Record** interface, click **Next**.

Figure 5-33 Snapshot



Step 2 Configure the snapshot settings parameters.

Table 5-9 Snapshot settings

Parameter	Description
Channel	In the **Channel** list, select a channel to take a snapshot.
Event type	Select the check box of the event type which includes **General**, **Motion**, **Alarm**, **M&A**, **Intelligent**, and **POS**.
Period	Define a period during which the configured snapshot setting is active. For details about defining a period, see "5.1.4.9 Configuring Recorded Video Storage Schedule."
Copy	Click **Copy to** to copy the settings to other channels.

Step 3 Click **OK**.

A pop-up message is displayed.

Step 4 Click **OK**.

The live view screen is displayed. The setting up with startup wizard is completed. You can start using the Device.

Step 5 (Optional) After the setting with startup wizard is completed, if the connected HDMI display resolution is inconsistent with default resolution (1280*1024), a dialog box will pop up. See Figure 5-34. Choose to switch the resolution or not.

Figure 5-34 Change resolution

5.2 Live View

After you logged in the Device, the live view is displayed. The number of channels displayed depends on your model.

To enter the live view screen from other interfaces, click LIVE on the top right of the screen.

Figure 5-35 Live view

5.2.1 Live View Screen

You can view the live video from the connected cameras through each channel on the screen.

- By default, the system time, channel name and channel number are displayed on each channel window. This setting can be configured by selecting **Main Menu > CAMERA > Overlay > Overlay.**
- The figure in the bottom right corner represents channel number. If the channel position is changed or the channel name is modified, you can recognize the channel number by this figure and then perform the operations such as record query and playback.

For the icons displayed on each channel, see Table 5-10.

Table 5-10 Icons description

Icon	Function
	Indicates recording status. This icon displays when the video is being recorded.
	This icon displays when the motion detection occurs in the scene.
	This icon displays when the video loss is detected.
	This icon displays when the channel monitoring is locked.

To switch the position of two channels, point to one of the two channels, and then drag the window to the other channel.

5.2.2 Live View Control Bar

The live view control bar provides you access to perform the operations such as playback, zoom, real-time backup, manual snapshot, voice talk, adding remote devices, and streams switch.

When you move the pointer to the top middle position of a channel window, the live view control bar is displayed.

If there is no operation for six seconds after the control bar is displayed, the control bar hides automatically.

Figure 5-36 Analog channel

Figure 5-37 Digital channel

Table 5-11 Live control bar description

No.	Function	No.	Function	No.	Function
1	Instant Playback	4	Manual Snapshot	7	Camera Registration
2	Digital Zoom	5	Mute	/	/
3	Instant Record	6	Audio Talk	/	/

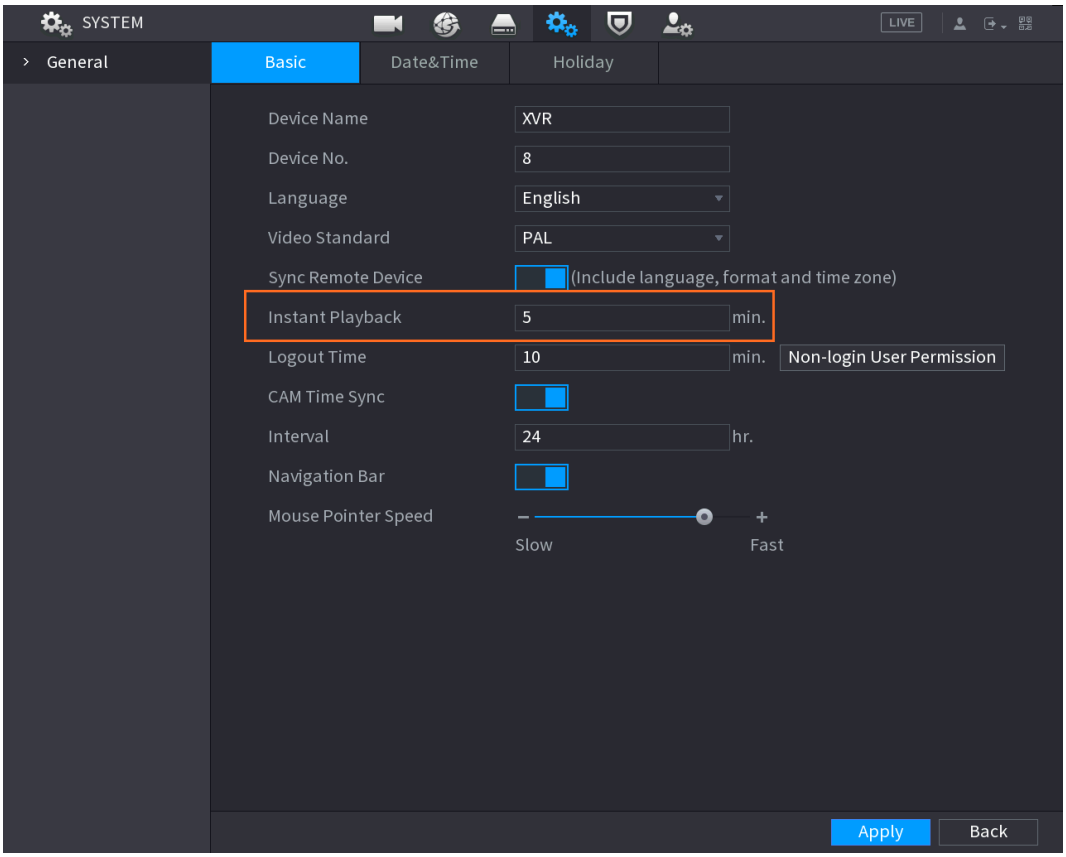
5.2.2.1 Instant Playback

You can play back the previous five minutes to sixty minutes of the recorded video.

By clicking , the instant playback interface is displayed. The instant playback has the following features:

- Move the slider to choose the time you want to start playing.
- Play, pause and close playback.
- The information such as channel name and recording status icon are shielded during instant playback and will not display until exited.
- During playback, screen split layout switch is not allowed.
- To change the playback time, select **Main Menu** > **SYSTEM** > **General** > **Basic**, in the **Instant Play** box, enter the time you want to play back.

Figure 5-38 General



5.2.2.2 Digital Zoom

You can enlarge a specific area of the image to view the details by either of the following two ways.

- Click , the icon switches to . Hold down the left mouse button to select the area you want to enlarge. The area is enlarged after the left mouse button is released.
- Point to the center that you want to enlarge, rotate the wheel button to enlarge the area.

- For some models, when the image is enlarged in the first way described previously, the selected area is zoomed proportionally according to the window.
- When the image is in the enlarged status, you can drag the image toward any direction to view the other enlarged areas.
- Right-click on the enlarged image to return the original status.

5.2.2.3 Instant Record

You can record the video of any channel and save the clip into a USB storage device.

By clicking , the recording is started. To stop recording, click this icon again. The clip is automatically saved into the connected USB storage device.

5.2.2.4 Manual Snapshot

You can take one to five snapshots of the video and save into a USB storage device.

By clicking , you can take snapshots. The snapshots are automatically saved into the connected USB storage device. You can view the snapshots on your PC.

To change the quantity of snapshots, select **Main Menu** > **CAMERA** > **Encode** > **Snapshot**, in the **Manual Snapshot** list, select the snapshot quantity.

5.2.2.5 Mute (Analog channel only)

You can mute the video sound by clicking . This function is supported in single-channel view.

5.2.2.6 White Light (Supported on camera with white light function)

Click to manually control the camera to turn on the white light function.

5.2.2.7 Siren (Supported on camera with siren function)

Click to manually control the camera to generate alarm sound.

5.2.2.8 Two-way Talk (Digital channel only)

You can perform the voice interaction between the Device and the remote device to improve efficiency of emergency. This function is supported only when the remotely connected IPC device

supports two-way talk.

- Click , the icon switches to , the two-way talk of the remote device is turned on. The two-way talk of other digital channels is disabled.
- Click to cancel the two-way talk. The two-way talk of other digital channels is resumed.

5.2.2.9 Adding Camera (Digital channel only)

You can view the information of remote devices and add new remote devices to replace the current connected devices.

By clicking , the **Camera List** interface is displayed. For details about adding the remote devices, see "5.6 Configuring Remote Devices."

5.2.3 Navigation Bar

You can access the functions to perform operations through the function icons on the navigation bar. For example, you can access Main Menu and switch window split mode. See Figure 5-39.

The navigation bar is disabled by default. It does not appear in the live view screen until it is enabled. To enable it, select **Main Menu** > **SYSTEM** > **General** > **Basic**, enable the Navigation Bar, and then click **Apply**.

Figure 5-39 Navigation bar

Table 5-12 Navigation bar description

Icon	Function
	Open Main Menu.
	Expand or condense the navigation bar.
	Select view layout.
	Go to the previous screen.
	Go to the next screen.
	Enable tour function. The icon switches to .
	Open the PTZ control panel. For details, see "5.4 Controlling PTZ Cameras."

Icon	Function
	Open the **Image** interface. This function is supported only in single-channel layout.
	Open the record search interface. For detail, see "5.9 Playing Back Video."
	Open the **Alarm Status** interface to view the device alarm status. For details, see "5.21.3 Viewing Alarm Status Information."
	Open the **CHANNEL INFO** interface to display the information of each channel.
	Open the **Camera List** interface. For details, see "5.6.1 Adding Remote Devices."
	Open the **Network** interface. For details, see "5.15.1 Configuring Network Settings."
	Open the **Disk Manager** interface. For details, see "5.18.3 Configuring Disk Manager."
	Open the **USB Management** interface. For details about USB operations, see "5.14.2 Backing up Files", "5.21.2 Viewing Log Information", "5.20.4 Exporting and Importing System Settings", "5.20.6 Updating the Device."

5.2.4 Shortcut Menu

You can quickly access some function interfaces such as main menu, record search, PTZ setting, color setting and select the view split mode.

Right-click on the live view screen, the shortcut menu is displayed.

After you access any interface through shortcut menu, you can return to the previous screen by right-clicking on the current screen.

Figure 5-40 Shortcut menu

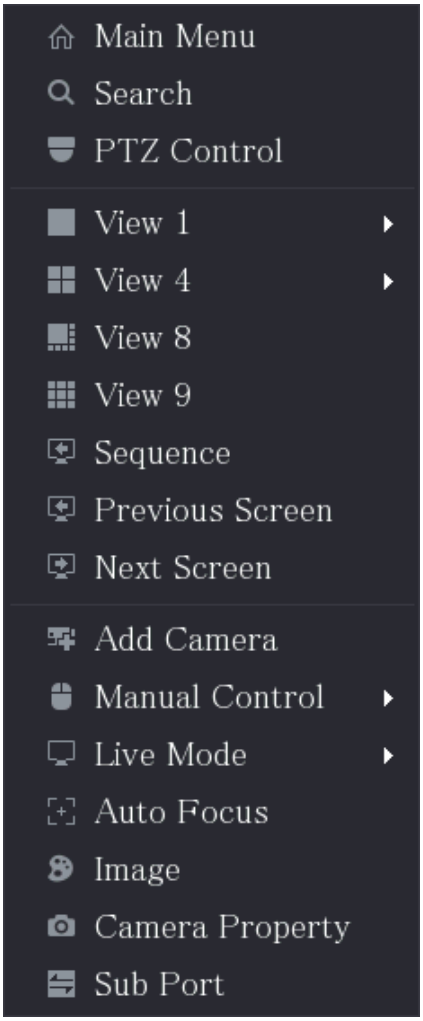


Table 5-13 Shortcut menu description

Function	Description
Main Menu	Open **Main Menu** interface.
Search	Open the **PLAYBACK** interface where you can search and play back record files.
PTZ	Open the **PTZ** interface.
View Layout	Configure the live view screen as a single-channel layout or multi-channel layout.
Previous Screen	Click **Previous Screen** to go to the previous screen. For example, if you are using 4-split mode, the first screen is displaying the channel 1-4, click **Next screen**, you can view channel 5-8.
Next Screen	
Add Camera	Open the **Camera List** interface. This parameter displays on the right-click menu only after setting at least one channel to **IP** type in **Main Menu** > **CAMERA** > **Channel Type**.

Function	Description
Manual Control	• Select **Record Mode**, you can configure the recording mode as **Auto** or **Manual**, or stop the recording. You can also enable or disable snapshot function • Select **Alarm Mode**, you can configure alarm output settings.
Live Mode	• Select **General**, the layout of live view screen is as default. • Select **Face**, the detected face snapshots are displayed in the bottom of the live view screen.
Auto Focus	Point to the channel window and right-click on it to open the shortcut menu, and then click **Auto Focus**. Not all cameras support this function.
Image	Open the **Image** interface where you can adjust the video image color.
Camera Property	Click to modify the camera properties.
Sub Port	Click to switch to extra screen control.

5.2.5 Channel Sequence

You can adjust the channel sequence displayed on live interface on actual needs.

The live view interface displays the default channel sequence after restoring factory defaults.

Step 1 Right-click on the live view interface and select **Sequence**.

The **Sequence** interface is displayed.

- The system displays the maximum number of window splits supported by the DVR after **selecting** Sequence.
- The **Sequence** interface displays only the channel name and channel number of added remote devices. represents the remote device is online, and represents the remote device is offline.

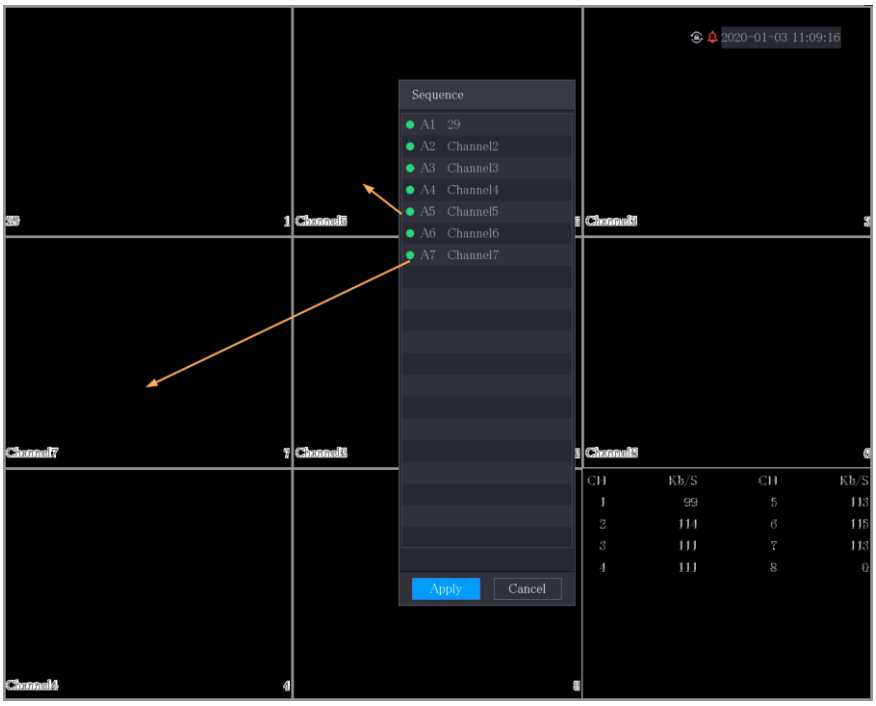
Figure 5-41 Sequence

Step 2 Adjust channel sequence.

- Drag a channel to the target window split.
- Drag a window split to another to change the sequence.

You can view the channel sequence according to the channel number on the lower-right corner of the window split.

Figure 5-42 Adjust sequence



5.2.6 Color Setting

You can adjust the video image color effect such as sharpness, brightness, and contrast. The parameters are different according to the connected camera type. Take analog channel as an example.

Parameters displayed on the interface vary from different cameras, the actual interface shall prevail.

In the live view screen, right-click on the analog channel to see the shortcut menu, and then select **Image**, the **Image** interface is displayed.

For details, see "5.5.1 Configuring Image Settings."

Figure 5-43 Image

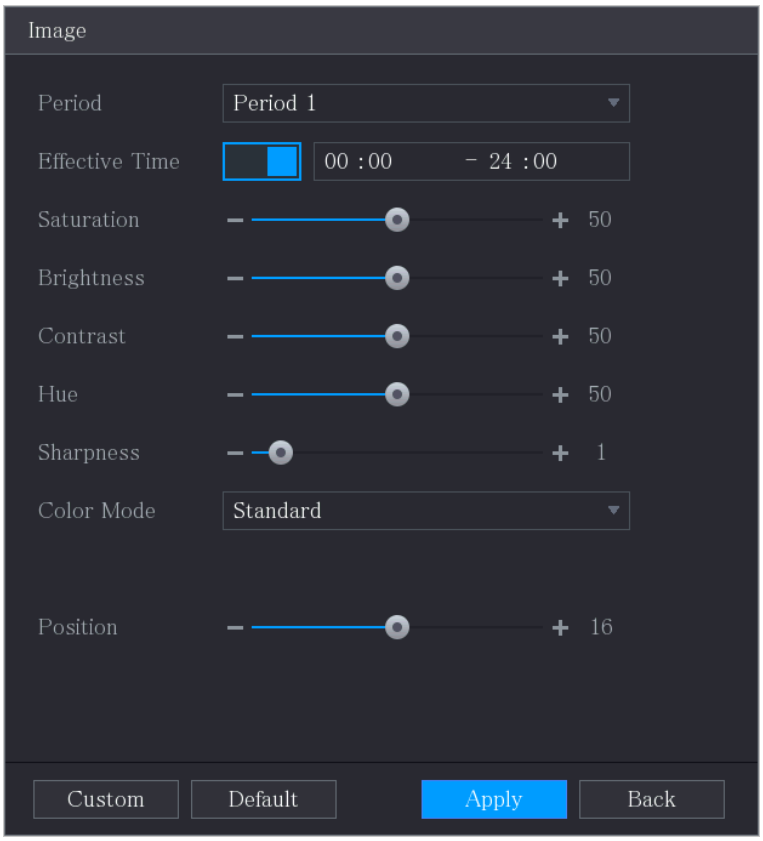


Table 5-14 Image settings

Parameter	Description
Period	Divide 24 hours into two periods and configure the corresponding color settings.
Effective Time	Enable the function and then set the effective time for each period.
Sharpness	Adjust the sharpness of image edge. The bigger the value is, the more obvious the image edge, and the noise is also greater. The value ranges from 1 to 15. The default value is 1.
Hue	Adjust the hue of image. The value ranges from 0 to 100. The default value is 50.

Parameter	Description
Brightness	Adjust the image brightness. The value ranges from 0 to 100. The default value is 50. The bigger the value is, the brighter the image will become. You can adjust this value when the image as a whole looks dark or bright. However, the image is likely to become dim if the value is too big. The recommended range is between 40 and 60.
Contrast	Adjust the image contrast. The bigger the value is, the more obvious the contrast between the light area and dark area will become. You can adjust this value when the contrast is not obvious. However, if the value is too big, the dark area is likely to become darker and the light area over exposed. If the value is too small, the image is likely to become dim. The value ranges from 0 to 100. The default value is 50. The recommended range is between 40 and 60.
Saturation	Adjust the color shades. The bigger the value, the lighter the color will become. This value does not influence the general image lightness. The value ranges from 0 to 100. The default value is 50. The recommended range is between 40 and 60.
Color Mode	In the **Color Mode** list, you can select **Standard**, **Soft**, **Bright**, **Vivid**, **Bank**, **Customized 1**, **Customized 2**, **Customized 3**, and **Customized 4**. The sharpness, hue, brightness, contrast and saturation will adjust automatically according to the selected color mode.
EQ	Enhance the image effect. Adjust the effect value. ● Click , image is adjusted to the optimized effect automatically. ● Click , the current effect setting will be locked. Only HD analog channel supports this function.
Position	Adjust the display position of the image in the channel window. The value indicates pixel. The default value is 16. This function is only supported by analog channel.

Parameter	Description
Custom	You can customize four color modes. 1. Click **Custom**. The **Custom Color** interface is displayed. 2. In the **Color Mode** list, select **Customized 1**, for example. Then configure the settings for sharpness, hue, brightness, contrast and saturation. If you select **All**, the configuration will apply to all four customized color modes. 3. Click **OK**. 4. On the **Image** interface, in the **Color Mode** list, you can select the customized color mode.

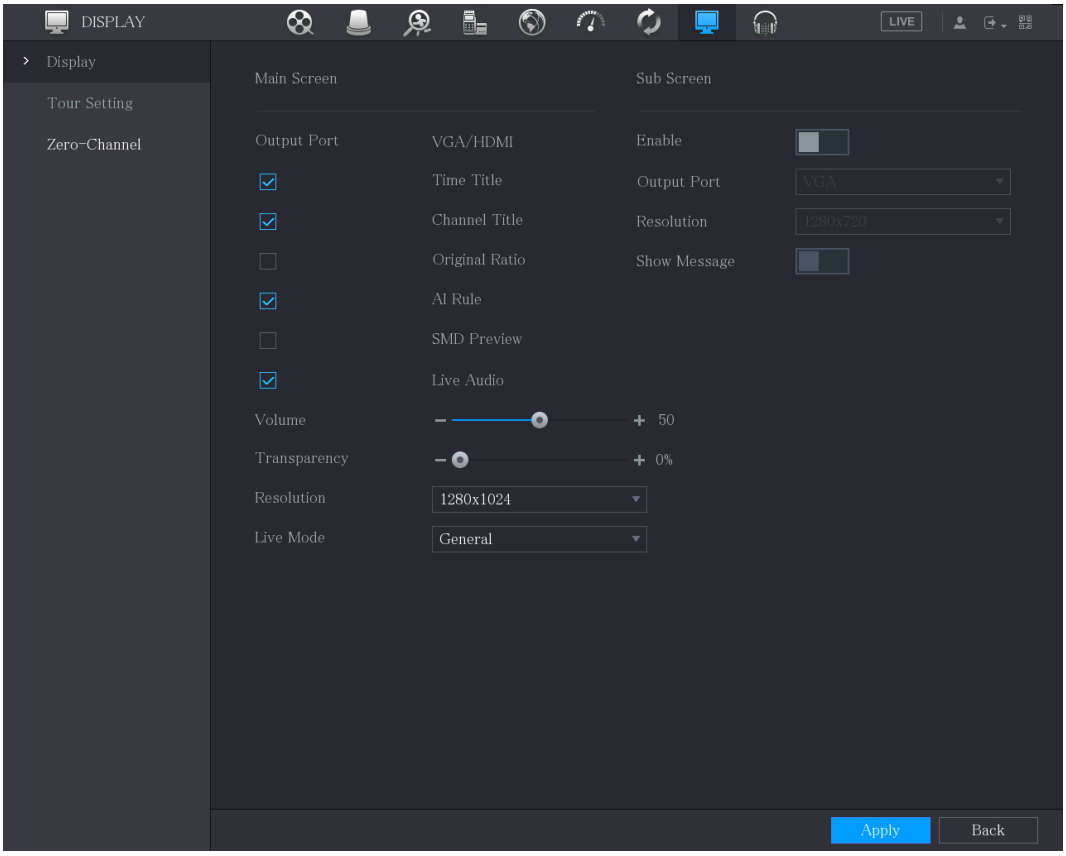
5.2.7 Live View Display

5.2.7.1 Configuring Display Settings

You can configure the display effect such as displaying time title and channel title, adjusting image transparency, and selecting the resolution.

Step 1 Select **Main Menu** > **DISPLAY** > **Display**.

Figure 5-44 Display



Step 2 Configure the settings for the display parameters.

Table 5-15 Display parameters

Parameter		Description
Main Screen	Output Port	Indicates the main screen port.
	Time Title	Select the **Time Title** check box, the current system time displays in each channel window in live view screen. To hide the time, clear the check box.
	Channel Title	Select the **Channel Title** check box, the channel name, channel number and recording status display in each channel window in live view screen. To hide the time, clear the check box.
	Original Ratio	Select the **Original Ratio** check box, the video image displays in its actual size in the channel window.
	AI Rule	Select the **AI Rule** check box to enable AI rule function.
	SMD Preview	Select the **SMD Preview** check box to enable SMD preview function. Maximum three SMD boxes can be displayed at the same time.
	Live Audio	Select the **Live Audio** check box to enable the audio adjustment function in the channel window on the live view screen. Move the slider to adjust the volume of live audio.
	Volume	
	Transparency	Configure the transparency of the graphical user interface (GUI). The higher the value, the more transparent the GUI becomes.
	Resolution	Select resolution for the video. The default resolution for VGA port and HDMI port is 1280×1024. Some of the resolution options might not be supported on the HDMI port.
	Live Mode	● General: No information is displayed on the channel window. ● Face: Displays the detected face snapshots taken as a result of face detection on the bottom of the live view screen. Not all models support this function.
Sub Screen	Enable	Enable extra screen function. After this function is enabled, you can select which port as extra screen port, and the other port automatically becomes the main screen port.
	Output Port	Select the VGA port or HDMI port as the port connected by a secondary monitor. For example, if you select HDMI port as the extra screen port, the VGA port automatically becomes the main screen port. A device that supports HDMI2 can only select HDMI2.
	Resolution	Select resolution for the video. The default resolution for VGA port and HDMI port is 1280×720. Some of the resolution options might not be supported on the HDMI port.
	Show Message	After it is enabled, the sub screen will display alarm message when

Parameter		Description
		an alarm is triggered.

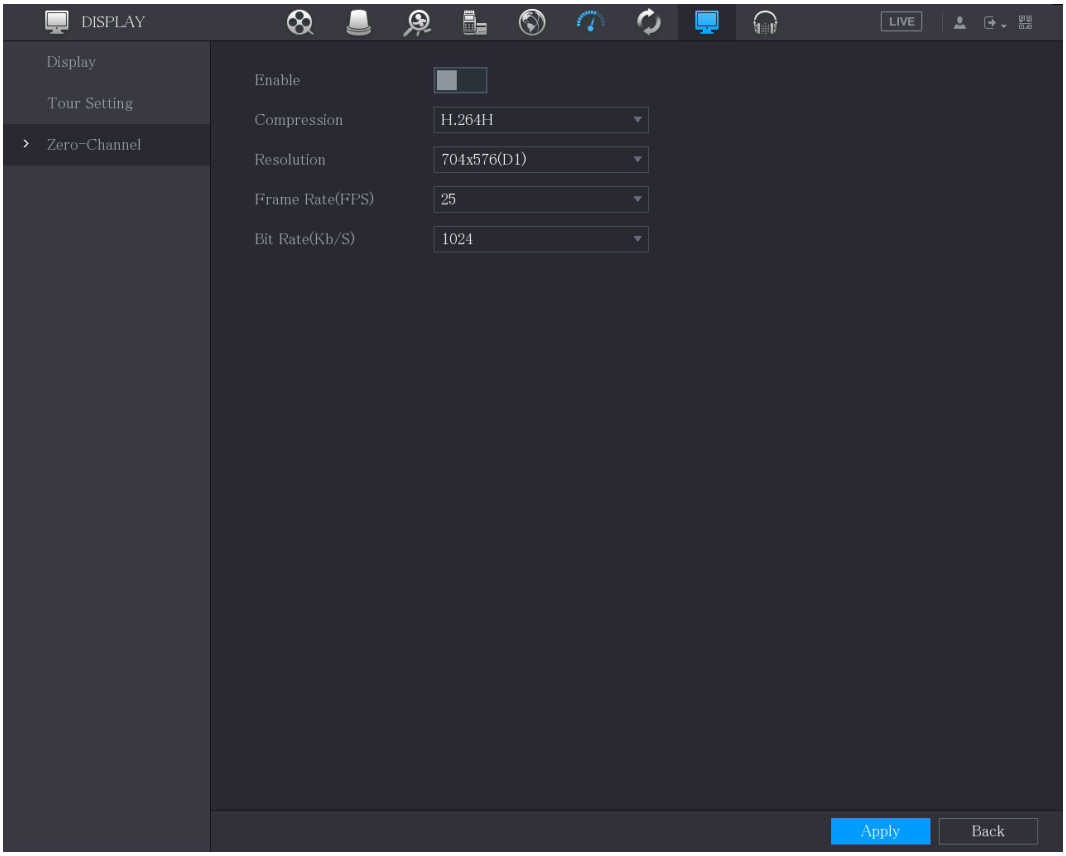
- The main menu does not display on the extra screen.
- If you do not enable the extra screen function, both the VGA port and HDMI port display the same image.

5.2.7.2 Configuring Zero-Channel Settings

You can view several video sources on one channel on the web end.

Step 1 Select **Main Menu** > **DISPLAY** > **Zero-Channel**.

Figure 5-45 Zero channel



Step 2 Configure the settings for the zero-channel parameters.

Table 5-16 Zero-channel parameters

Parameter	Description
Enable	Enable zero-channel function.
Compression	In the **Compression** list, select the video compression standard according to the device capability. The default is H.264.
Resolution	In the **Resolution** list, select the video resolution. The default is 704×576 (D1).
Frame Rate (FPS)	Select a value between 1 and 25 for PAL standard, and between 1 and 30 for NTSC standard. The actual arrange is decided and selected dependent on the Device capability.

Parameter	Description
Bit Rate (Kb/S)	The default value is 1024. The actual arrange is decided and selected dependent on the Device capability and frame rate.

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

In the live interface on the web, click to select one of the multi-channel modes, and then you can view the local video image.

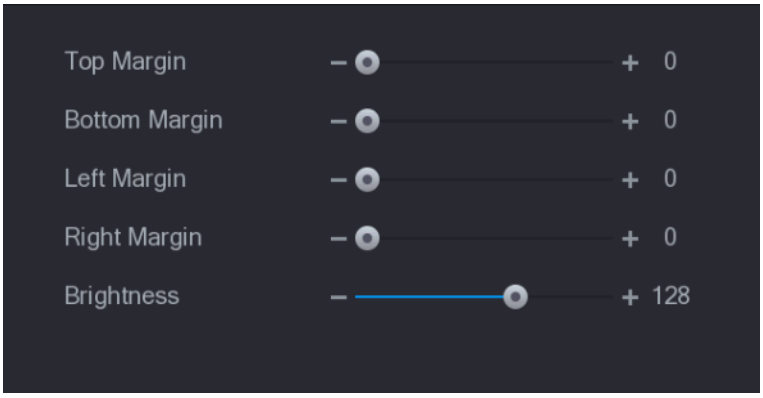
5.2.7.3 Configuring TV

Not all models support this function.

You can adjust the border margins in top, bottom, left and right directions as well as the brightness of the monitor connected to the Video out port of the Device.

Step 1 Select **Main Menu** > **DISPLAY** > **TV Adjust**.

Figure 5-46 TV adjustment



Step 2 Configure the parameters according to your actual situation.

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

5.2.8 Configuring Tour Settings

You can configure a tour of selected channels to repeat playing videos. The videos display in turn according to the channel group configured in tour settings. The system displays one channel group for a certain period and then automatically changes to the next channel group.

Step 1 Select **Main Menu** > **DISPLAY** > **Tour Setting**.

Figure 5-47 Main screen

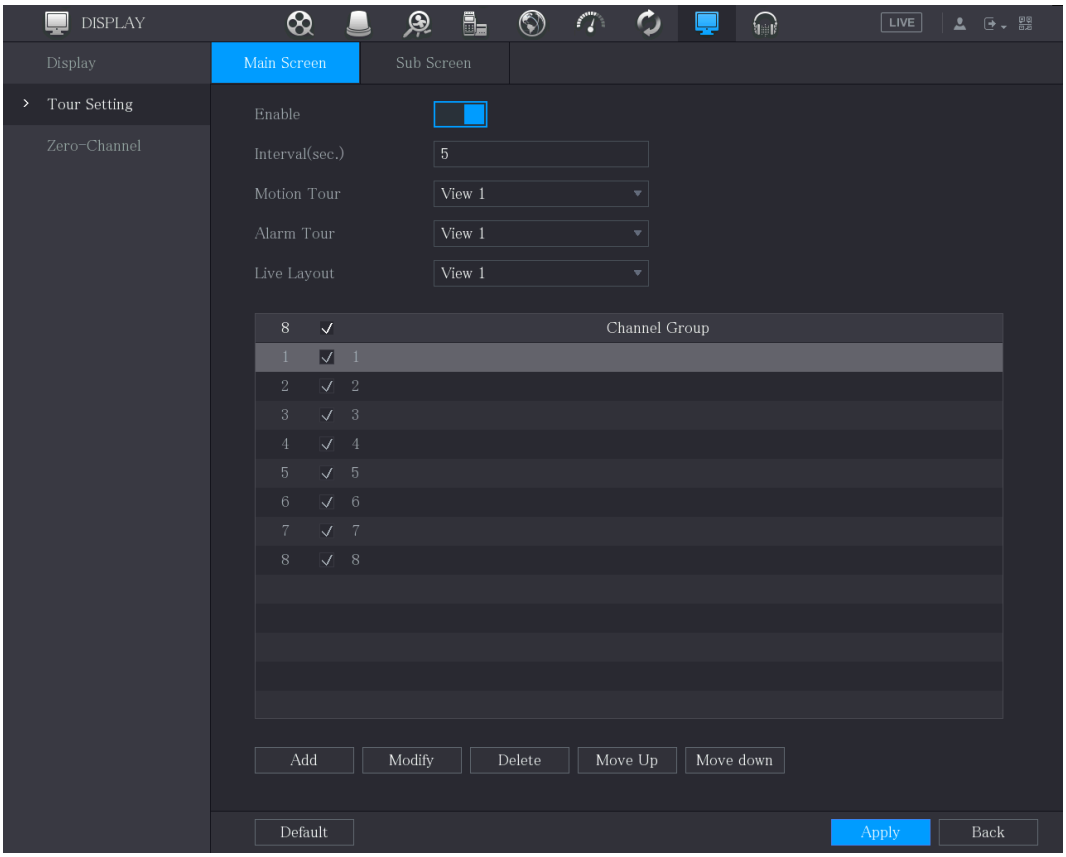
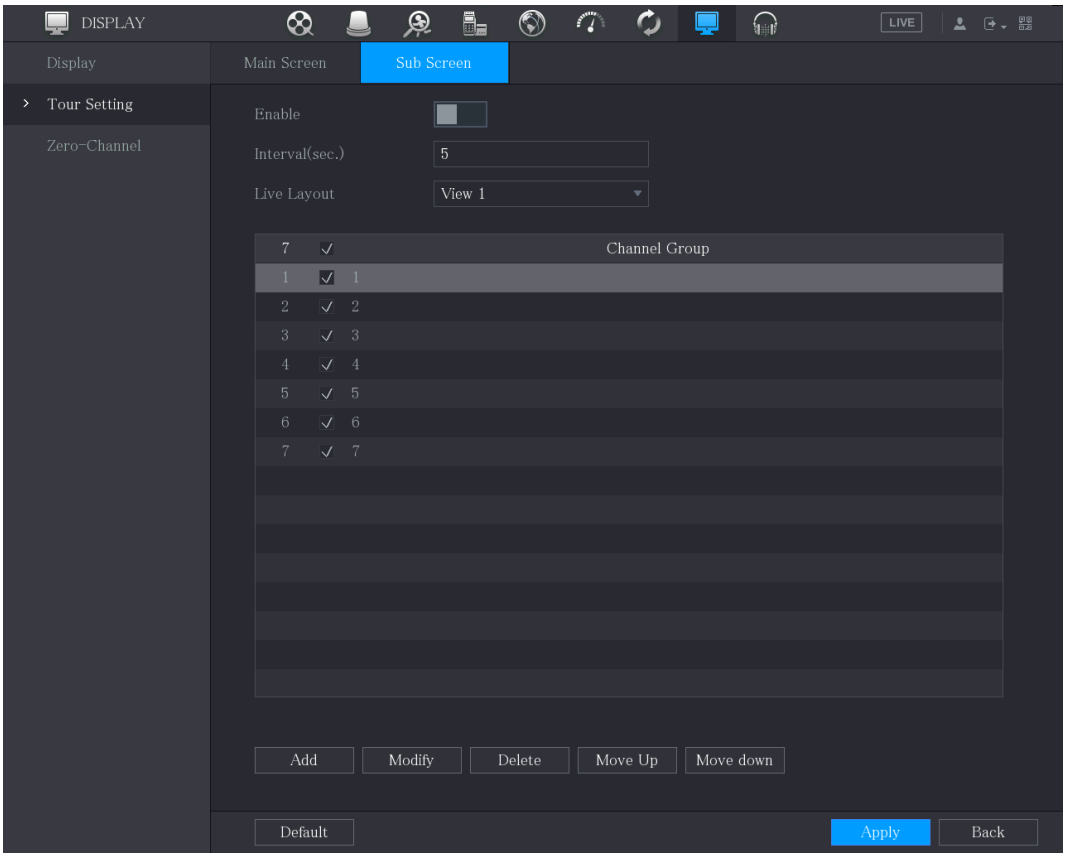


Figure 5-48 Sub screen



Step 2 Configure the settings for the tour parameters for both Main Screen and Extra Screen.

Table 5-17 Screen parameters

Parameter	Description
Enable	Enable tour function.
Interval (Sec.)	Enter the amount of time that you want each channel group displays on the screen. The value ranges from 5 seconds to 120 seconds, and the default value is 5 seconds.
Motion Tour, Alarm Tour	Select the View 1 or View 8 for **Motion Tour** and **Alarm Tour** (system alarm events).
Live Layout	In the **Live Layout** list, select **View 1**, **View 4**, **View 8**, or other modes that are supported by the Device.
Channel Group	Display all channel groups under the current Window Split setting. ● Add a channel group: Click **Add**, in the pop-up **Add Group** channel, select the channels to form a group, and then click **Save**. ● Delete a channel group: Select the check box of any channel group, and then click **Delete**. ● Edit a channel group: Select the check box of any channel group and then click **Modify**, or double-click on the group. The **Modify Channel Group** dialog box is displayed. You can regroup the channels. ● Click **Move up** or **Move down** to adjust the position of channel group.

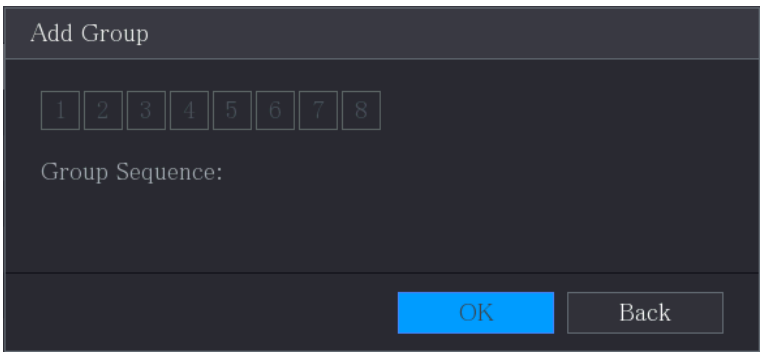
Step 3 Click **Apply**.

- On the top right of the live view screen, use the left mouse button or press Shift to switch between (image switching is allowed) and (image switching is not allowed) to turn on/off the tour function.
- On the navigation bar, click to enable the tour and click to disable it.

Adding a Channel Group

Step 1 Click **Add**.

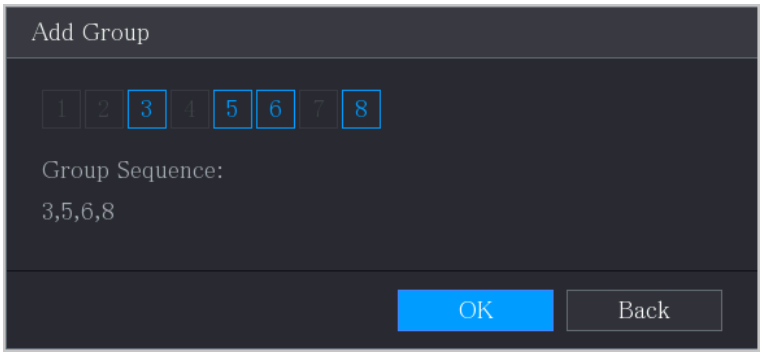
Figure 5-49 Add group



Step 2 Select the channels that you want to group for tour.

If you want to select more than one channel, in the **Live Layout** list, do not select **View 1**.

Figure 5-50 Select channels



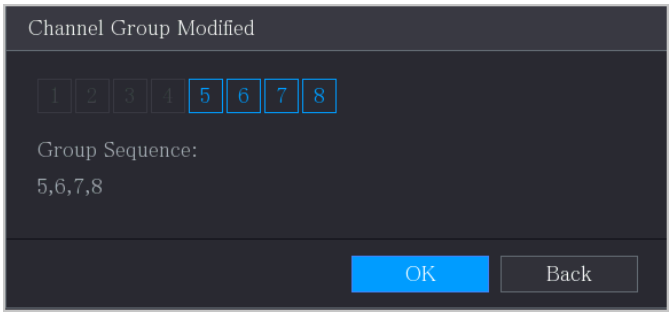
Step 3 Click **OK**.

Modifying a Channel Group

Double-click on a channel group, the **Channel Group Modified** interface is displayed.

You can modify channel group and click **OK** to complete the settings.

Figure 5-51 Modify channel group



5.2.9 Quick Operation Bar

You can quickly access to the function modules on function titles and setting menu through shortcut icons on quick operation bar.

This topic uses **ALARM** and **CAMERA** an example to show you how to quickly access other modules.

Shortcut Icons on Function Titles

Click **ALARM** to enter the **ALARM** interface.

Figure 5-52 Function titles

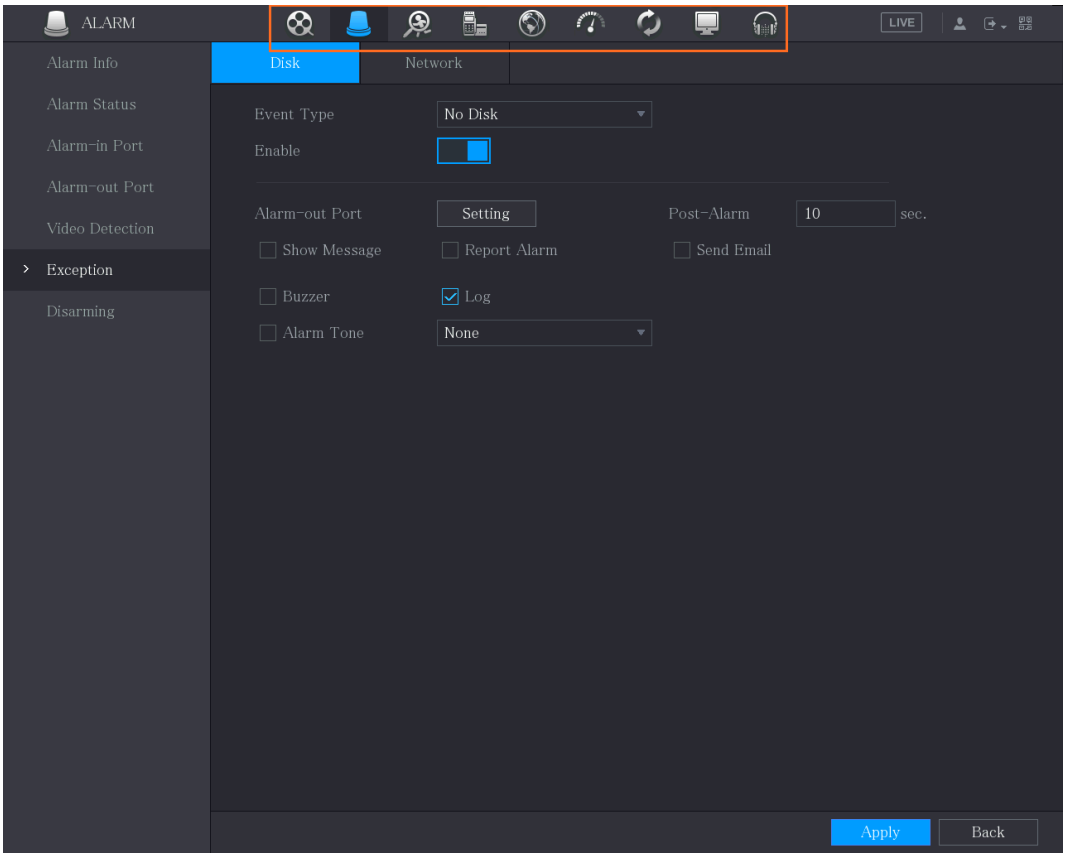


Table 5-18 Function title description

Icon	Description
	Click to jump to **SEARCH** interface.
	Click to jump to **ALARM** interface.
	Click to jump to **SMART DETECTION** interface.
	Click to jump to **POS** interface.
	Click to jump to **NETWORK** interface.
	Click to jump to **MAINTAIN** interface.
	Click to jump to **BACKUP** interface.
	Click to jump to **DISPLAY** interface.
	Click to jump to **AUDIO** interface.

Shortcut Icons on Setting Menu

Click **CAMERA** to enter the **CAMERA** interface.

Figure 5-53 Setting menu

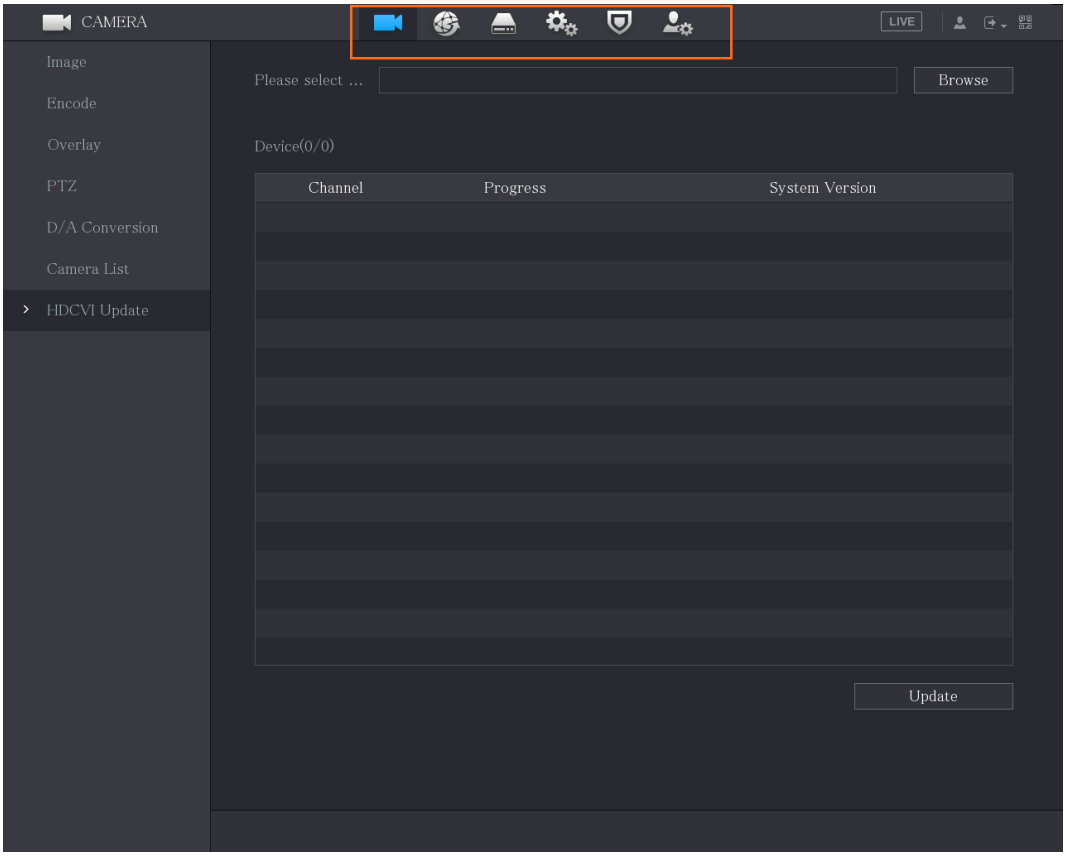


Table 5-19 Setting menu description

Icon	Description
	Click to jump to **CAMERA** interface.
	Click to jump to **NETWORK** interface.
	Click to jump to **STORAGE** interface.
	Click to jump to **SYSTEM** interface.
	Click to jump to **SECURITY** interface.
	Click to jump to **ACCOUNT** interface.

5.3 Entering Main Menu

Right-click on the live view screen, the shortcut menu is displayed. Click **Main Menu** and then log in to the system. The Main Menu is displayed.

Figure 5-54 Main menu

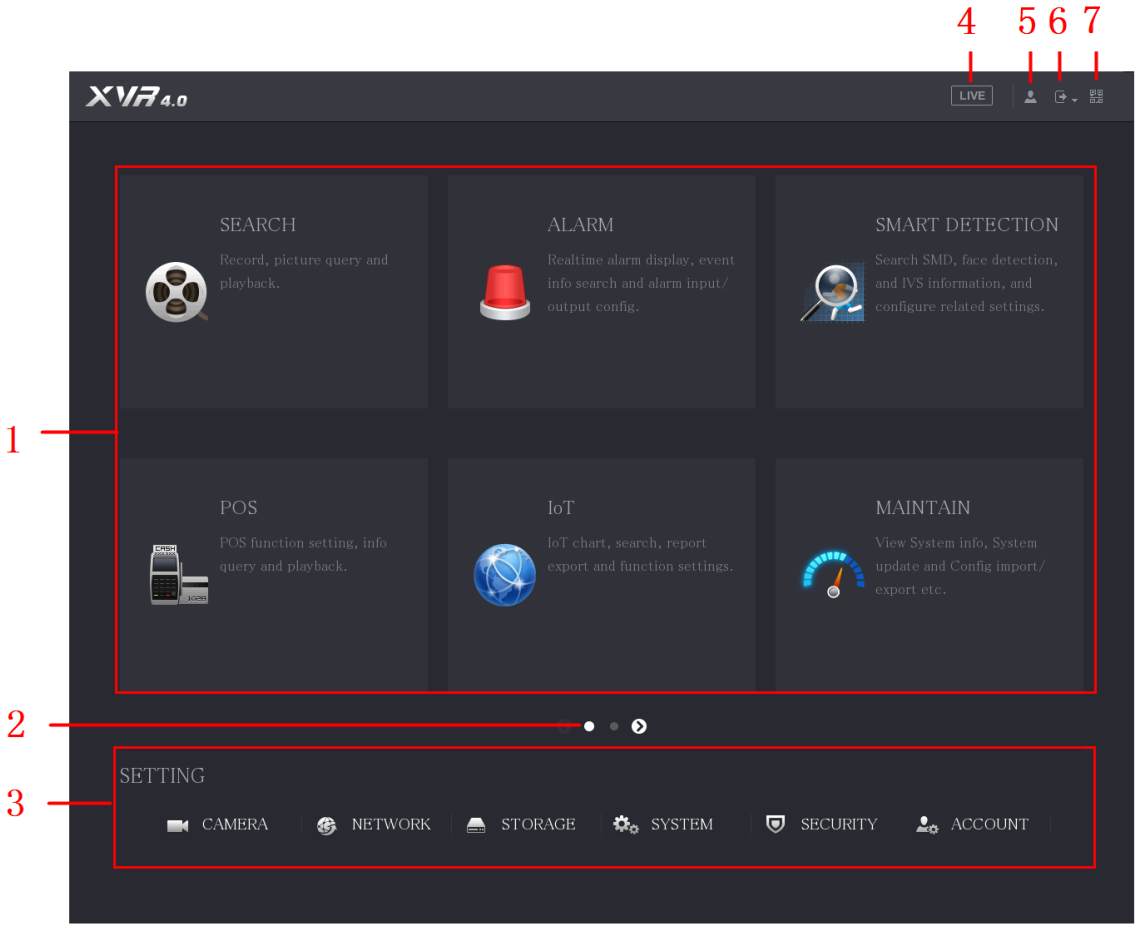


Table 5-20 Main menu description

No.	Icon	Description
1	Function titles	Includes nine function titles: **SEARCH**, **ALARM**, **SMART DETECTION**, **POS**, **IoT**, **MAINTAIN**, **BACKUP, DISPLAY** and **AUDIO**. Click each title to open the configuration interface of the title. ● **SEARCH**: Search for and play back the recorded video saved on the Device. ● **ALARM**: Search for alarm information and configure alarm event actions. ● **SMART DETECTION**: Search SMD, face detection, and IVS information, and configure related settings. ● **POS**: You can connect the Device to the POS (Point of Sale) machine and receive the information from it. ● **IoT:** IoT live video preview, search, export reports, and configure function settings. ● **MAINTAIN**: You can view log and system information, test network and do other maintenance work. ● **BACKUP**: Search and back up the video files to the external storage device such as USB storage device. ● **DISPLAY**: Configure the display effect such as displaying content, image transparency, and resolution, and enable the zero-channel function. ● **AUDIO**: Manage audio files and configure the playing schedule. The audio file can be played in response to an alarm event if the voice prompts function is enabled.
2	Switch icon	indicates the current page of main menu. Click to switch to the next page or click or to turn page.
3	Setting menu	Includes six configurations through which you can configure camera settings, network settings, storage settings, system settings, account settings, and view information.
4	Live	**Click** LIVE to go to the live view screen.
5		When you point to , the current user account is displayed.
6		Click , select **Logout**, **Reboot**, or **Shutdown** according to your actual situation.
7		Displays **Mobile Client** and **Device SN** QR Code. ● Mobile Client: Use your mobile phone to scan the QR code to add the device into the Cell Phone Client, and then you can start accessing the Device from your cell phone. ● Device SN: Obtain the Device SN by scanning the QR code. Go to the P2P management platform and add the Device SN into the platform. Then you can access and manage the device in the WAN. For details, refer to the P2P operation manual. You can also configure P2P function in the local configurations. See "5.1.4.5 Configuring P2P Settings."

5.4 Controlling PTZ Cameras

PTZ is a mechanical platform that carries a camera and a protective cover and performs overall control remotely. A PTZ can move in both horizontal and vertical direction to provide all-around view to the camera.

Before operating PTZ, ensure the network connection between PTZ and the Device.

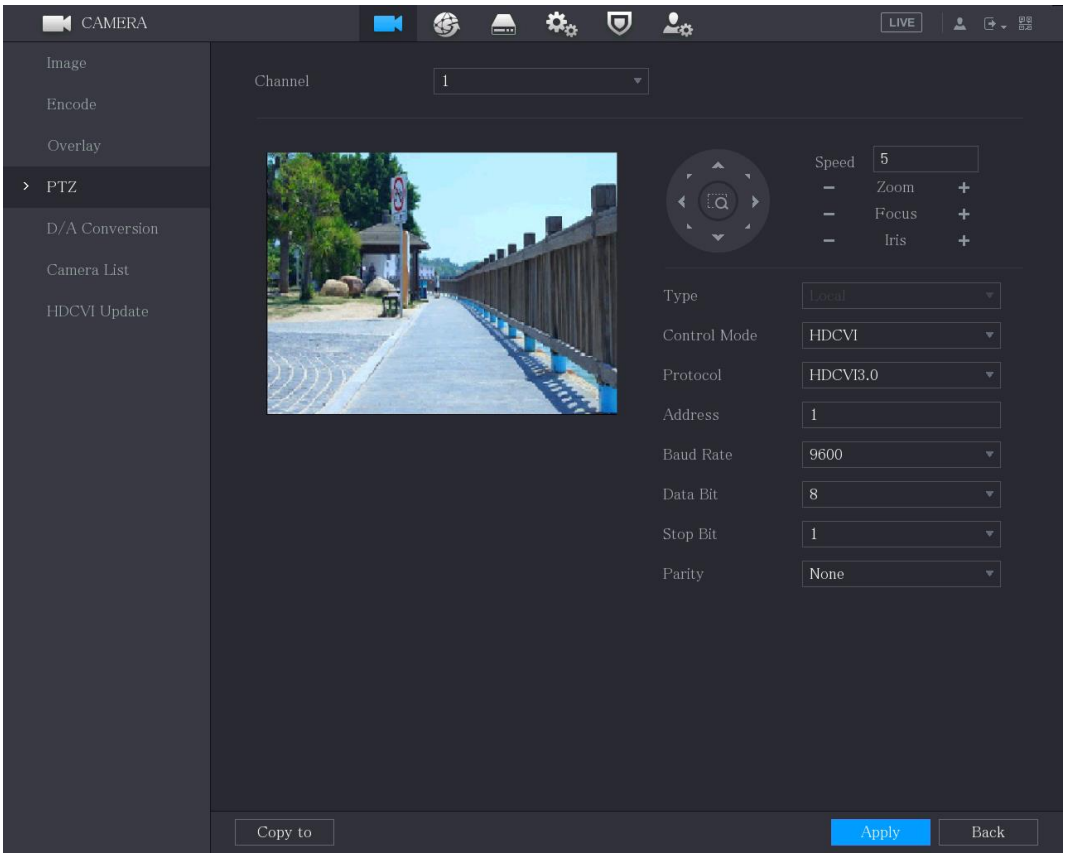
5.4.1 Configuring PTZ Connection Settings

You need to configure the PTZ connection settings before use.

- Local connection: RS-485 Port for connecting speed dome or coaxial cable for connecting coaxial camera.
- Remote connection: local area network.

Step 1 Select **Main Menu** > **CAMERA** > **PTZ**.

Figure 5-55 PTZ



Step 2 Configure the settings for the PTZ connection parameters.

Table 5-21 PTZ parameters

Parameter	Description
Channel	In the **Channel** list, select the channel that you want to connect the PTZ camera to.
Type	● Local: Connect through RS-485 port or coaxial cable.

Parameter	Description
	● Remote: Connect through network by adding IP address of PTZ camera to the Device.
Control Mode	In the **Control Mode** list, select **Serial Port** or **HDCVI**. For HDCVI series product, select **HDCVI**. The control signal is sent to the PTZ through the coaxial cable. For the serial mode, the control signal is sent to the PTZ through the RS-485 port.
Protocol	In the **Protocol** list, select the protocol for the PTZ camera. For example, select **HDCVI3.0**.
Address	In the **Address** box, enter the address for PTZ camera. The default is 1. The entered address must be the same with the address configured on the PTZ camera; otherwise the PTZ camera cannot be controlled from the Device.
Baud Rate	In the **Baud Rate** list, select the baud rate for the PTZ camera. The default is 9600.
Data Bits	The default value is 8.
Stop Bits	The default value is 1.
Parity	The default value is NONE.

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

Click **Copy to** to copy the settings to other channels.

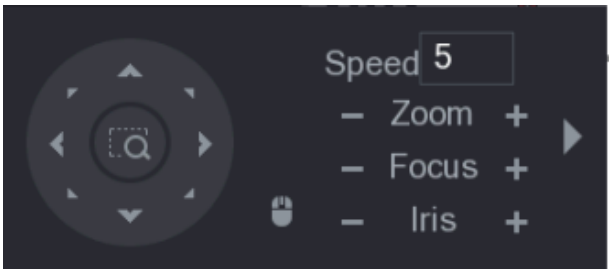
5.4.2 Working with PTZ Control Panel

PTZ control panel performs the operations such as directing camera in eight directions, adjusting zoom, focus and iris settings, and quick positioning.

Basic PTZ Control Panel

Right-click on the live view screen and then select **PTZ Control**. The PTZ control panel is displayed.

Figure 5-56 PTZ control panel



The functions with buttons in gray are not supported by the system.

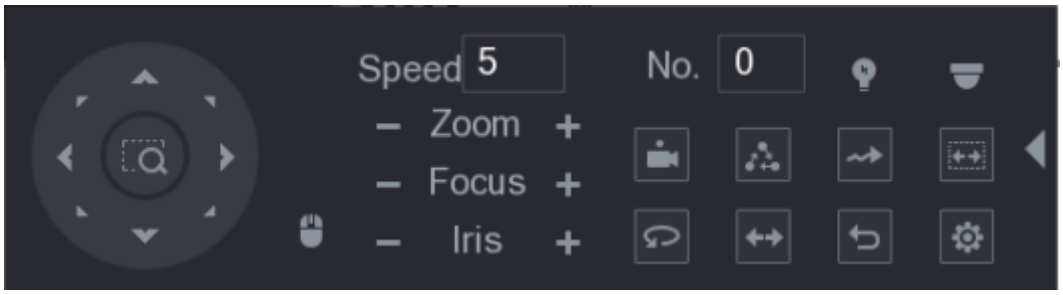
Table 5-22 PTZ control parameters

Parameter	Description
Speed	Controls the movement speed. The bigger the value is, the faster the movement will be.
Zoom	: Zoom out. : Zoom in.
Focus	: Focus far. : Focus near.
Iris	: Image darker. : Image brighter.
PTZ movement	Supports eight directions.
	Fast positioning button. ● Positioning: Click to enter the fast positioning screen, and then click anywhere on the live view screen, the PTZ will turn to this point and move it to the middle of the screen. ● Zooming: On the fast positioning screen, drag to draw a square on the view. The square supports zooming. ◇ Dragging upward is to zoom out, and dragging downward is to zoom in. ◇ The smaller the square, the larger the zoom effect. Not all models support this function and can only be controlled through mouse operations.
	Click , you can control the four directions (left, right, up, and down) PTZ movement through mouse operation.
	Click to open the expanded PTZ control panel.

Expanded PTZ Control Panel

On the basic PTZ control panel, click to open the expanded PTZ control panel to find more options.

Figure 5-57 Expanded PTZ control panel



- The functions with buttons in gray are not supported by the system.
- Right-click once to return to the interface of PTZ basic control panel.

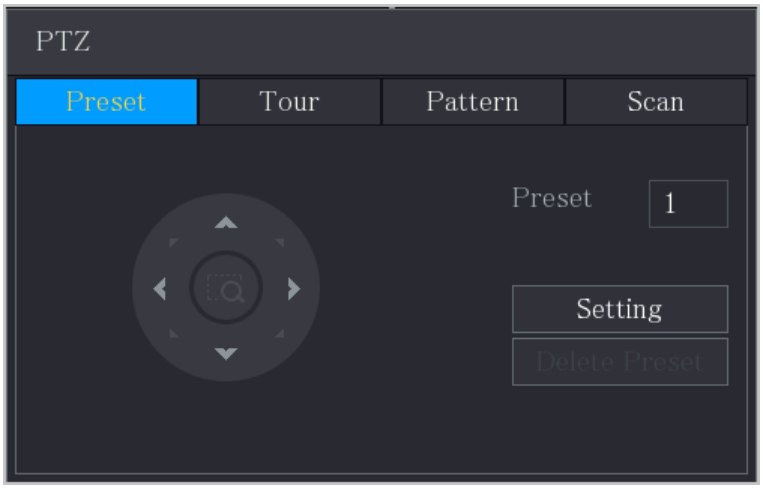
Table 5-23 PTZ control panel description

Icon	Function	Icon	Function
	Preset		Pan
	Tour		Flip
	Pattern		Reset
	Autoscan		Click the **AUX Config** icon to open the PTZ functions settings interface.
	AUX Switch		Click the **Enter Menu** icon to open the **MENU OPERATION** interface.

5.4.3 Configuring PTZ Functions

5.4.3.1 Configuring Presets

Step 1 On the expanded PTZ control panel, click .



Step 2 Click the direction arrows to the required position.

Step 3 In the **Preset** box, enter the value to represent the required position.

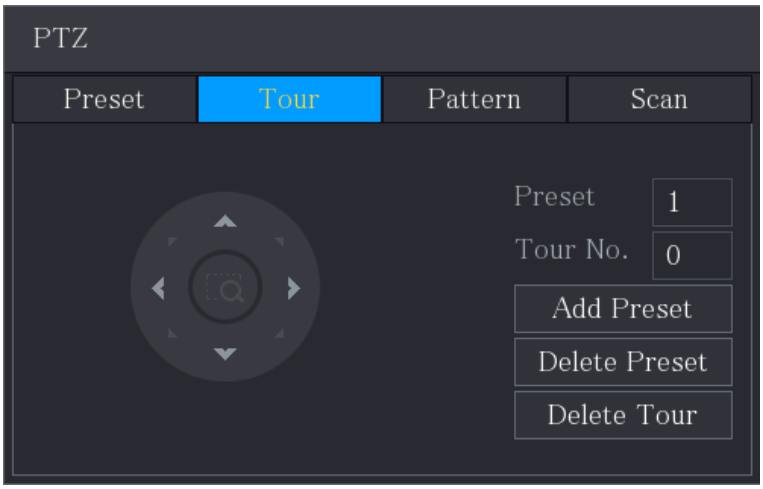
Step 4 Click **Setting** to complete the preset settings.

5.4.3.2 Configuring Tours

Step 1 On the expanded PTZ control panel, click .

Step 2 Click the **Tour** tab.

Figure 5-58 Tour



Step 3 In the **Tour No**. box, enter the value for the tour route.

Step 4 In the **Preset** box, enter the preset value.

Step 5 Click **Add Preset**.

A preset will be added for this tour.

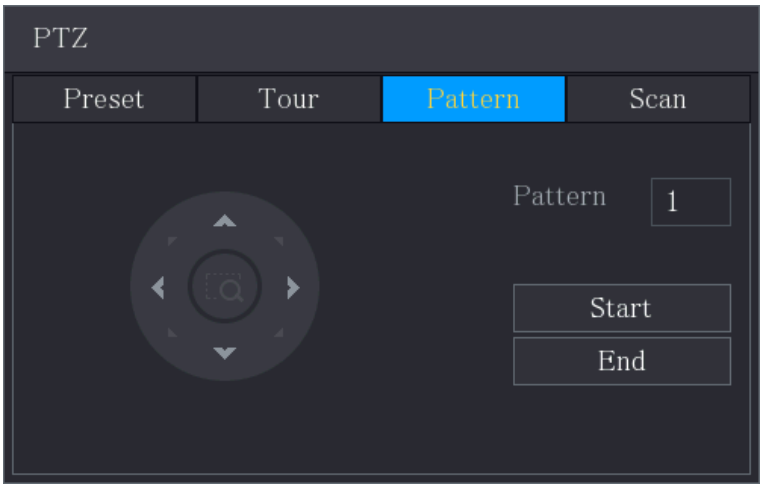
- You can repeat adding more presets.
- Click **Delete Preset** to delete the preset for this tour. This operation can be repeated to delete more presets. Some protocols do not support deleting.

5.4.3.3 Configuring Patterns

Step 1 On the expanded PTZ control panel, click .

Step 2 Click the **Pattern** tab.

Figure 5-59 Pattern



Step 3 In the **Pattern** box, enter the value for pattern.

Step 4 Click **Start** to perform the directions operations. You can also go to the PTZ Control Panel to perform the operations of adjusting zoom, focus, iris, and directions.

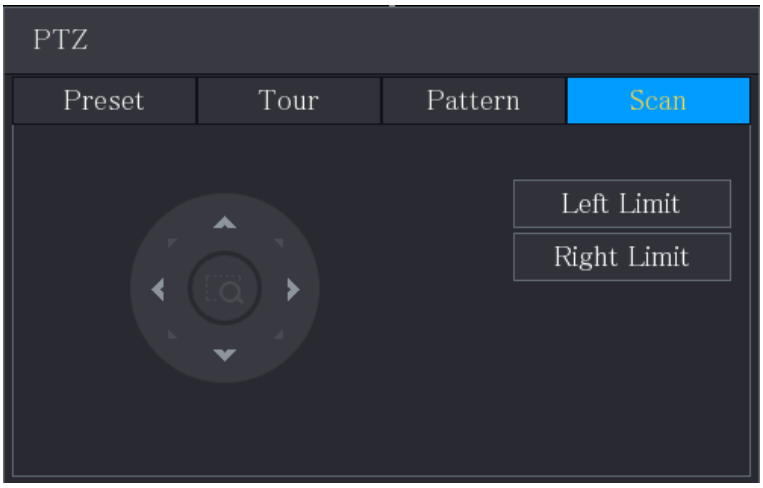
Step 5 On the **PTZ** interface, click **End** to complete the settings.

5.4.3.4 Configuring Scan

Step 1 On the expanded PTZ control panel, click .

Step 2 Click the **Scan** tab.

Figure 5-60 Scan

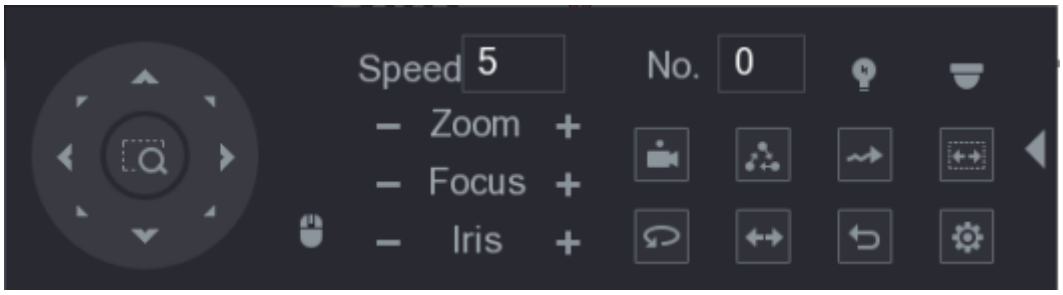


Step 3 Click the direction arrows to position the left and right limits.

5.4.4 Calling PTZ Functions

After you have configured the PTZ settings, you can call the PTZ functions for monitoring from the expanded PTZ control panel.

Figure 5-61 Expanded PTZ control panel



5.4.4.1 Calling Presets

Step 1 On the expanded PTZ control panel, in the **No.** box, enter the value of the preset that you want to call.

Step 2 Click to call the preset.

Step 3 Click again to stop calling the preset.

5.4.4.2 Calling Tours

Step 1 On the expanded PTZ control panel, in the **No.** box, enter the value of the tour that you want to call.

Step 2 Click to call the tour.

Step 3 Click again to stop calling the tour.

5.4.4.3 Calling Patterns

Step 1 On the expanded PTZ control panel, in the **No.** box, enter the value of the pattern that you want to call.

Step 2 Call to call the pattern.

The PTZ camera moves according to the configured pattern repeatedly.

Step 3 Click again to stop calling the pattern.

5.4.4.4 Calling Scan

Step 1 On the expanded PTZ control panel, in the **No.** box, enter the value of the border that you want to call.

Step 2 Click .

The PTZ camera performs scanning according to the configured borders.

Step 3 Click again to stop auto scanning.

5.4.4.5 Calling Pan

Step 1 On the expanded PTZ control panel, click to start moving in horizontal direction.

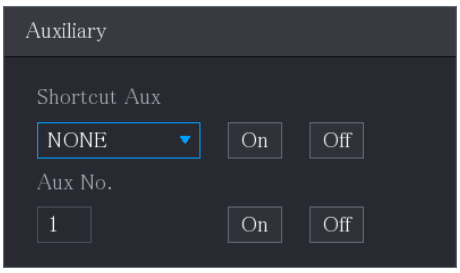
Step 2 Click again to stop moving.

5.4.4.6 Using Auxiliary Button

On the expanded PTZ control panel, click , the AUX setting interface is displayed.

- In the **Shortcut Aux** list, select the option that corresponds to the applied protocol.
- In the **Aux No.** box, enter the number that corresponds to the AUX switch on the decoder.

Figure 5-62 Auxiliary

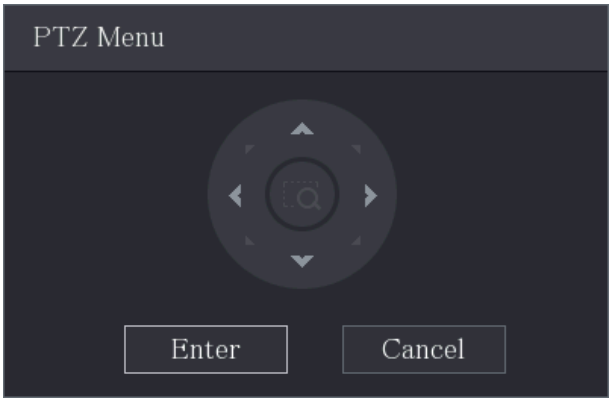


5.4.5 Calling OSD Menu

For the coaxial camera, you can call the OSD menu through the expanded PTZ control panel.

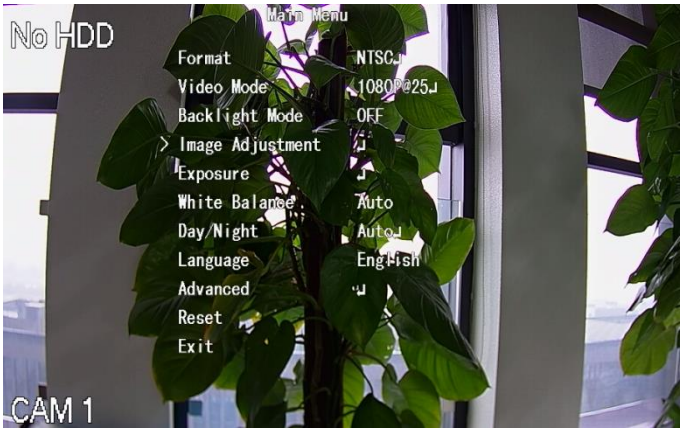
Step 1 On the expanded PTZ control panel, click .

Figure 5-63 PTZ menu



Step 2 Click **Enter**.

Figure 5-64 OSD menu



Step 3 On the **PTZ Menu** interface, click the arrow button to select the onscreen parameters.

Step 4 Click **Enter** to complete the settings.

5.5 Configuring Camera Settings

5.5.1 Configuring Image Settings

You can configure the image settings such as saturation, contrast, brightness, sharpness for each connected camera.

Step 1 Select **Main Menu** > **CAMERA** > **Image**.

Figure 5-65 Analog channel

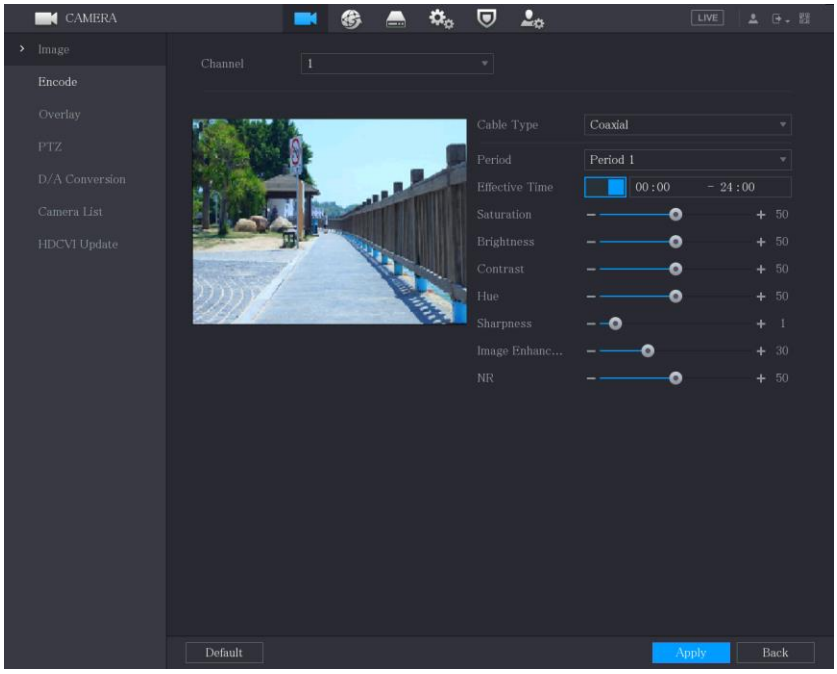
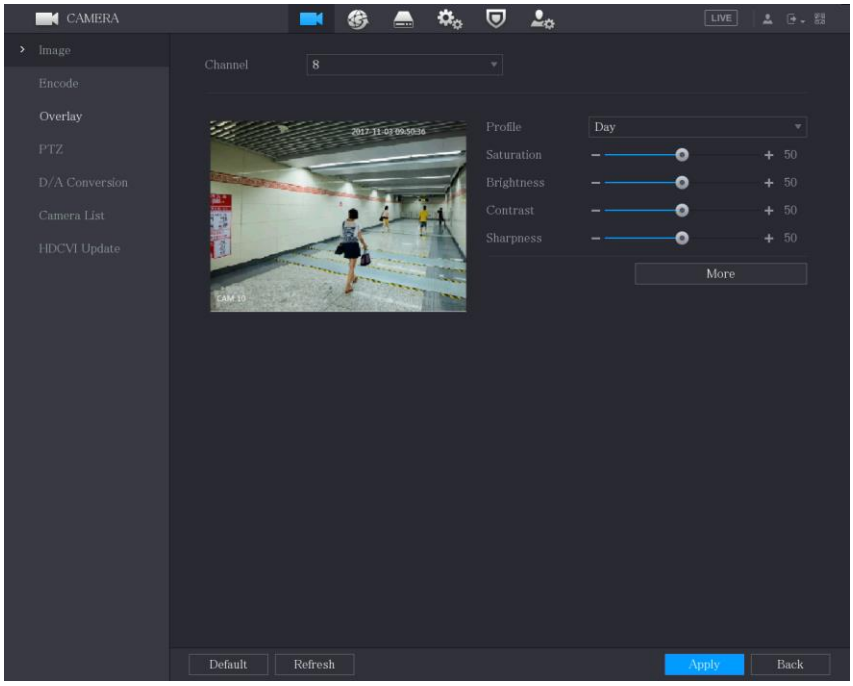


Figure 5-66 Digital channel



Step 2 Configure the settings for the image parameters.

On the digital channel interface, click **More** to display more parameters.

Table 5-24 Image parameters

Parameter	Description
Channel	In the **Channel** list, select the channel that you want to configure.
Cable Type	In the **Cable Type** list, select the cable type that the camera uses. Not all models support this function.
Period	In the **Period** list, select a time period for the image settings. The image settings will be only used during the selected period.
Effective Time	Enable the effective function. In the **Effective Time** box, enter the start time and end time for the period you selected.
Saturation	Adjusts the color shades. The bigger the value, the lighter the color will become. This value does not influence the general image lightness. The value ranges from 0 to 100. The default value is 50. The recommended range is between 40 and 60.
Contrast	Adjusts the image contrast. The bigger the value is, the more obvious the contrast between the light area and dark area will become. You can adjust this value when the contrast is not obvious. However, if the value is too big, the dark area is likely to become darker and the light area over exposed. If the value is too small, the image is likely to become dim. The value ranges from 0 to 100. The default value is 50. The recommended range is between 40 and 60.

Parameter	Description
Brightness	Adjusts the image brightness. The bigger the value is, the brighter the image will become. You can adjust this value when the image as a whole looks dark or bright. However, the image is likely to become dim if the value is too big. The value ranges from 0 to 100. The default value is 50. The recommended range is between 40 and 60.
Hue	Adjusts the hue of image. The value ranges from 0 to 100. The default value is 50.
Sharpness	Adjusts the sharpness of image edge. The bigger the value is, the more obvious the image edge, and the noise is also greater. The value ranges from 1 to 15. The default value is 1.
Image Enhancement	Adjusts the image definition. The bigger the value is, the clearer the image will become, but there will be more noises.
NR	Reduces the noises from image. The bigger the value is, the better the image will become.
Config File	In the **Config File** list, select **Day**, **Night**, **Normal**, or **Switch By Period**. The system configures the parameters correspondingly. ● Day: Apply the configuration during daytime. ● Night: Apply the configuration during nighttime. ● Normal: Apply the configuration during day and night. ● Switch by Period: If you select this option, you need to configure the sunrise time and sunset time where you are located.
Mirror	Enable the function, the left and right side of the video image will be switched. It is disabled by default.
3D NR	This function specially applies to the image which frame rate is configured as 2 at least. It reduces the noises by making use of the information between two frames. The bigger the value is, the better the effect.
Flip	In the **Flip** list, you can select **180°** to change the video image display. By default, the setting is **No Flip**.
BLC	In the **Light** list, select **Close** or **High** or **Low** to use the backlight compensation or not.
WB	Configure the white balance to adjust the general hue of the image. The default setting is **Auto**. ● Auto: Automatically apply white balance to different colors to make the image color display normally. ● Sunny: Apply the threshold value to sunny environment. ● Night: Apply the threshold value to night. ● Customized: Manually adjust the Red Gain and Blue Gain values.

Parameter	Description
Day & Night	Configure the color and black&white mode of the image. This setting is not affected by the configuration files. The default setting is **Auto**. ● Color: The camera outputs color image only. ● Auto: Depends on the camera, such as overall brightness and whether there is an IR light, either color image or black&white image is output. ● B/W: The camera outputs Black and white image only. ● By Time: The camera outputs image according to the configured sunrise time and sunset time.

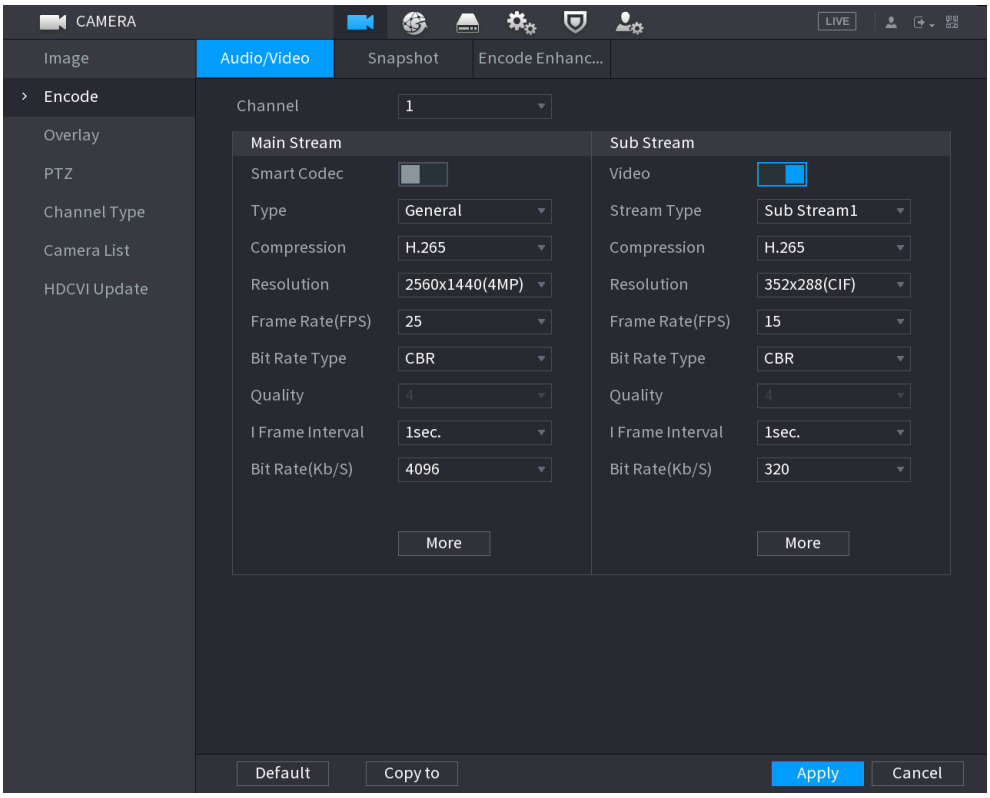
Step 3 Click **Apply** to complete the settings.

5.5.2 Configuring Encode Settings

5.5.2.1 Encode

Step 1 Select **Main Menu** > **CAMERA** > **Encode** > **Audio/Video**.

Figure 5-67 Encode



Step 2 Configure the settings for the main/sub streams parameters.

Table 5-25 Main and sub stream parameters

Parameter	Description
Channel	In the **Channel** list, select the channel that you want to configure the settings for.
Smart Codec	Enable the smart codec function. This function can reduce the video bit stream for non-important recorded video to maximize the storage space.

Parameter	Description
Type	● Main Stream: In the **Type** list, select **General**, **Motion**, or **Alarm**. ● Sub Stream: This setting is not configurable.
Compression	In the **Compression** list, select the encode mode. ● H.265: Main profile encoding. This setting is recommended. ● H.264H: High profile encoding. Low bit stream with high definition. ● H.264: General profile encoding. ● H.264B: Baseline profile encoding. This setting requires higher bit stream compared with other settings for the same definition.
Bit Rate Type	In the **Bit Rate Type** list, select resolution for the video. The maximum video resolution might be different dependent on your device model.
Frame Rate (FPS)	Configure the frames per second for the video. The higher the value, the clearer and smoother the image will become. Frame rate changes along with the resolution. Generally, in PAL format, you can select the value from 1 through 25; in NTSC format, you can select the value from 1 through 30. However, the specific range of frame rate that you can select depends on the capability of the Device.
Quality	This function is available if you select **VBR** in the **Bit Rate** List. The higher the value, the better the image will become.
I Frame Interval	The interval between two reference frames.
Bit Rate (Kb/S)	In the **Bit Rate** list, select a value or enter a customized value to change the image quality. The bigger the value is, the better the image will become.
Video	Enable the function for sub stream.
Audio	Click **More**, the **More** interface is displayed. ● Audio: This function is enabled by default for main stream. You need to manually enable it for sub stream 1. Once this function is enabled, the recorded video file is composite audio and video stream. ● Audio Source: In the **Audio Source** list, you can select **LOCAL** and **HDCVI**. ◇ LOCAL: The audio signal is input from Audio input port. ◇ HDCVI: The audio signal is input from HDCVI camera. ● Audio Format: In the **Compression** list, select a format that you need.
Audio Source	
Compression	

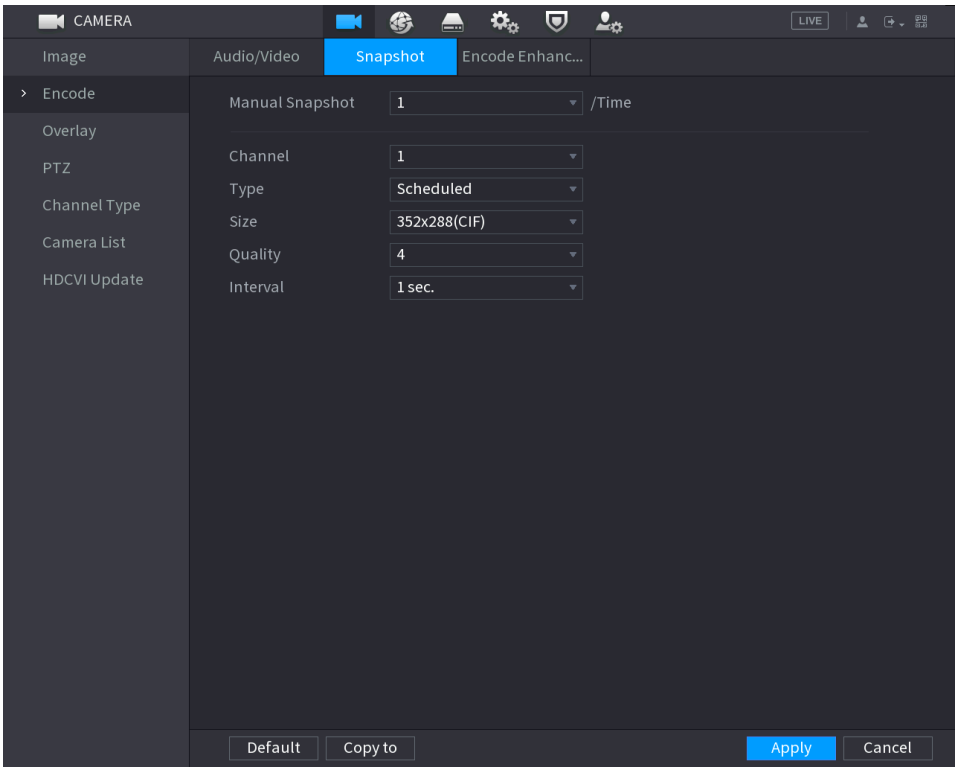
Step 3 Click **Apply** to complete the settings.

Click **Copy to** to copy the settings to other channels.

5.5.2.2 Snapshot

Step 1 Select **Main Menu** > **CAMERA** > **Encode** > **Snapshot**.

Figure 5-68 Snapshot



Step 2 Configure the settings for the snapshot parameters.

Table 5-26 Snapshot parameters

Parameter	Description
Manual Snapshot	In the **Manual Snapshot** list, select how many snapshots you want to take each time.
Channel	In the **Channel** list, select the channel that you want to configure the settings for.
Type	In the **Type** list, you can select **Scheduled**, **Event**, or **Face Snapshot** as the event type for which you want to take a snapshot. ● **Scheduled**: The snapshot is taken during the scheduled period. ● **Event**: The snapshot is taken when there is an alarm event occurs, such as motion detection event, video loss, and local alarms. ● **Face Snapshot:** The snapshot is taken when the face is detected. The face detection function is support only with the Channel 1.
Size	In the **Size** list, select a value for the image. The bigger the value is, the better the image will become.
Quality	Configures the image quality by 6 levels. The higher the level, the better the image will become.
Interval	Configures or customizes the snapshot frequency. You can select 1 second per one snapshot to 7 seconds per one snapshot. The maximum is 3600 seconds per one snapshot.

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

Click **Copy to** to copy the settings to other channels.

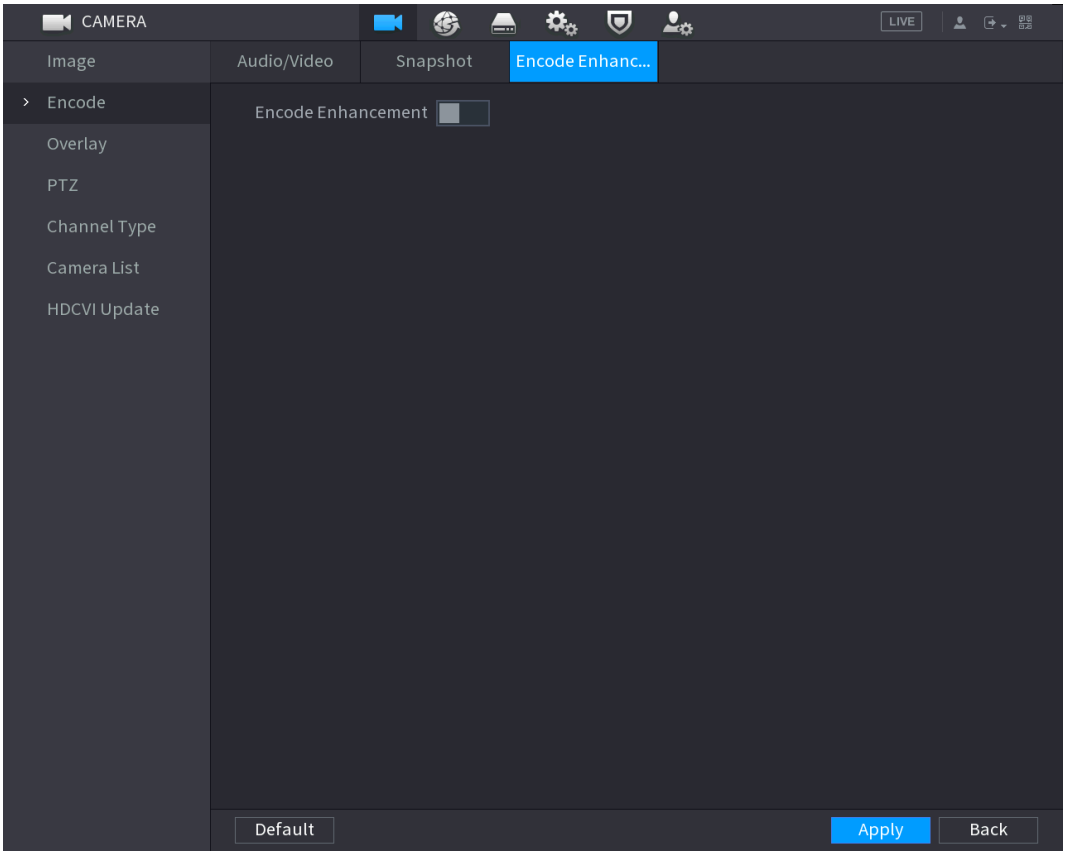
5.5.2.3 Encode Enhancement

- Only some series products support encode enhancement.
- Enabling or disabling this function will take effect after the device is rebooted.

This function is disabled by default. After it is enabled, when main stream resolution is 4K, the frame rate can be 10 fps.

Step 1 Select **Main Menu** > **CAMERA** > **Encode** > **Encode Enhancement**.

Figure 5-69 Encode enhancement



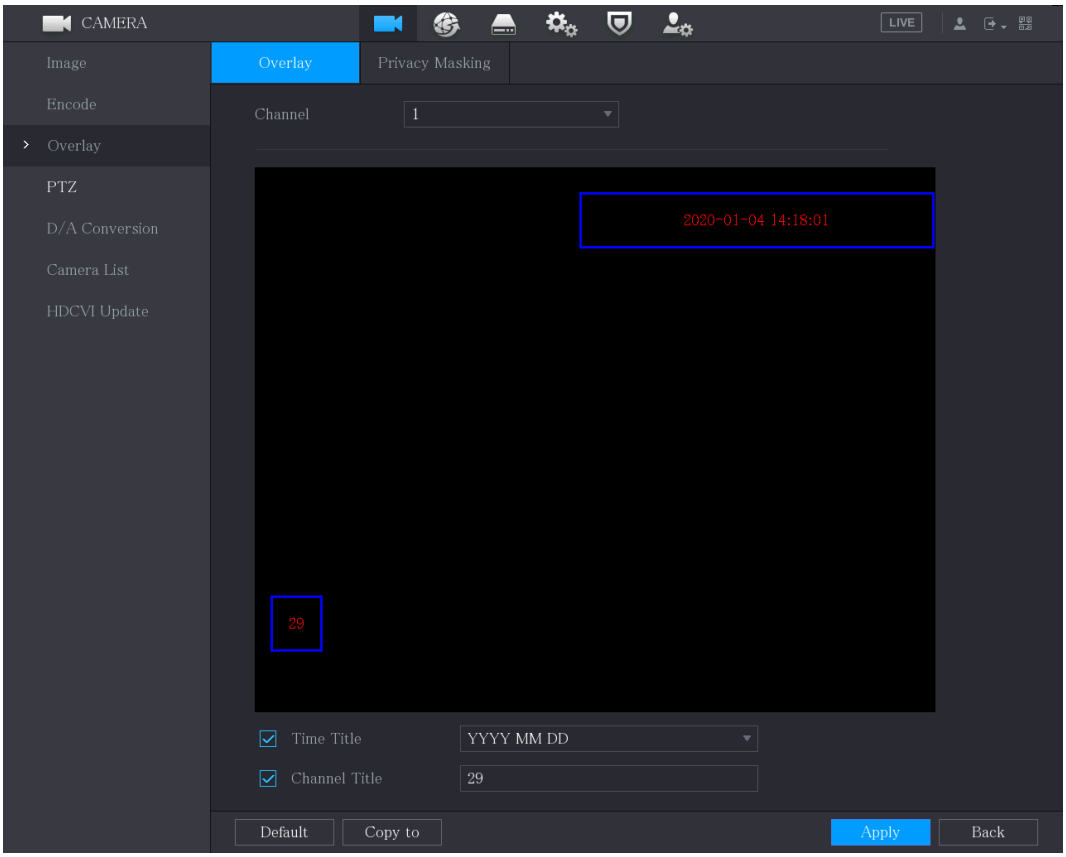
Step 2 Click behind **Encode Enhancement**, to enable this function.

5.5.3 Configuring Overlay Settings

You can configure to display system time and channel name on each channel window in the live view screen.

Step 1 Select **Main Menu** > **CAMERA** > **Overlay** > **Overlay**.

Figure 5-70 Overlay



Step 2 Configure the settings for the text overlay parameters.

Table 5-27 Overlay parameters

Parameter	Description
Channel	In the **Channel** list, select the channel that you want to configure the settings for.
Time Title	Select the **Time Title** check box to display the system time on each channel window in the live view screen. In the **Time Title** list, select time display style.
Channel Title	Select the **Channel Title** check box to display the channel name on each channel window in the live view screen. In the **Channel Title** box, enter the name for the selected channel.

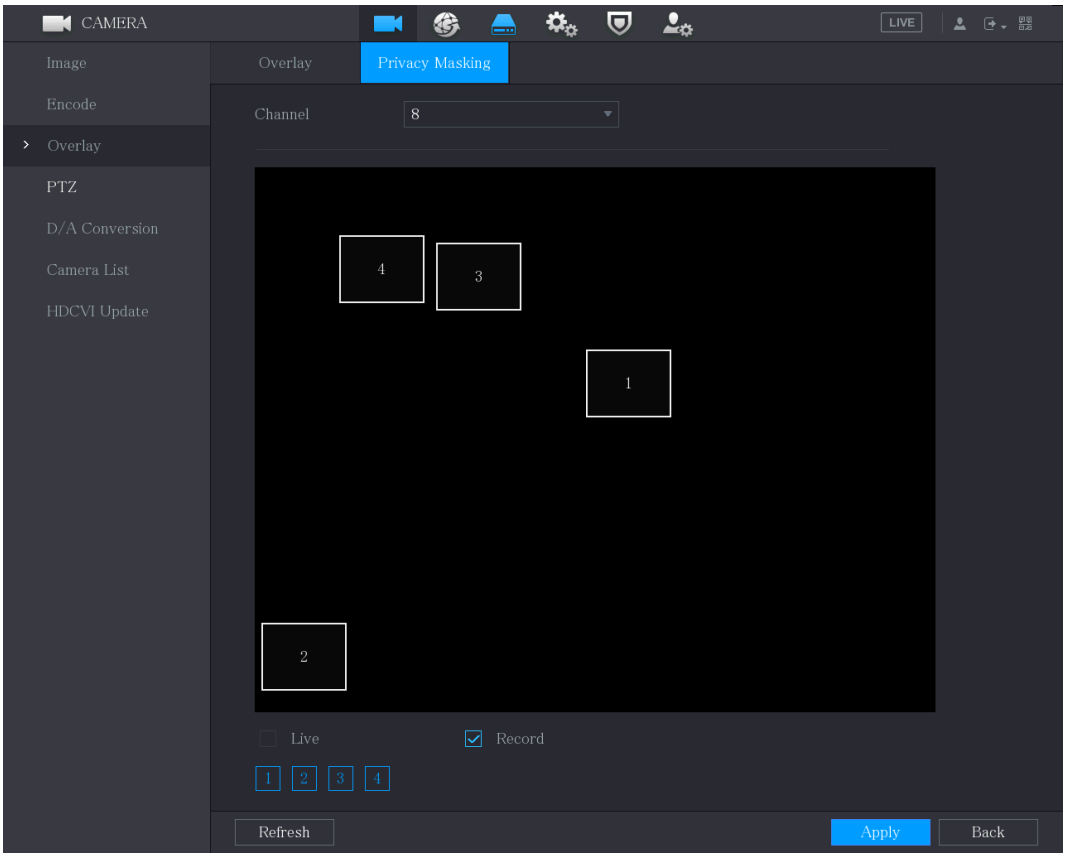
Step 3 Click **Apply** to complete the settings.

Click **Copy to** to copy the settings to other channels.

5.5.4 Configuring Covered Area Settings

Step 1 Select **Main Menu** > **CAMERA** > **Overlay** > **Privacy Masking**.

Figure 5-71 Privacy masking



Step 2 Configure the settings for the covered area parameters.

Table 5-28 Privacy masking parameters

Parameter	Description
Channel	In the **Channel** list, select the channel that you want to configure the settings for.
Live	• Preview: Select the **Live** check box to apply the configured covered block to the selected channel window in the live view screen. • Record: Select the **Record** check box to apply the configured covered block to the selected channel window during recording.
Record	To configure covering block, do the following: 1. Select the **Live** check box or the **Record** check box, or select the both. The "1, 2, 3, 4" buttons are activated. 2. Click the buttons to select blocks. A triangle solid black block is displayed. 3. Drag the block to the area that you want to cover and adjust the size of the block. You can configure total 4 covered blocks.

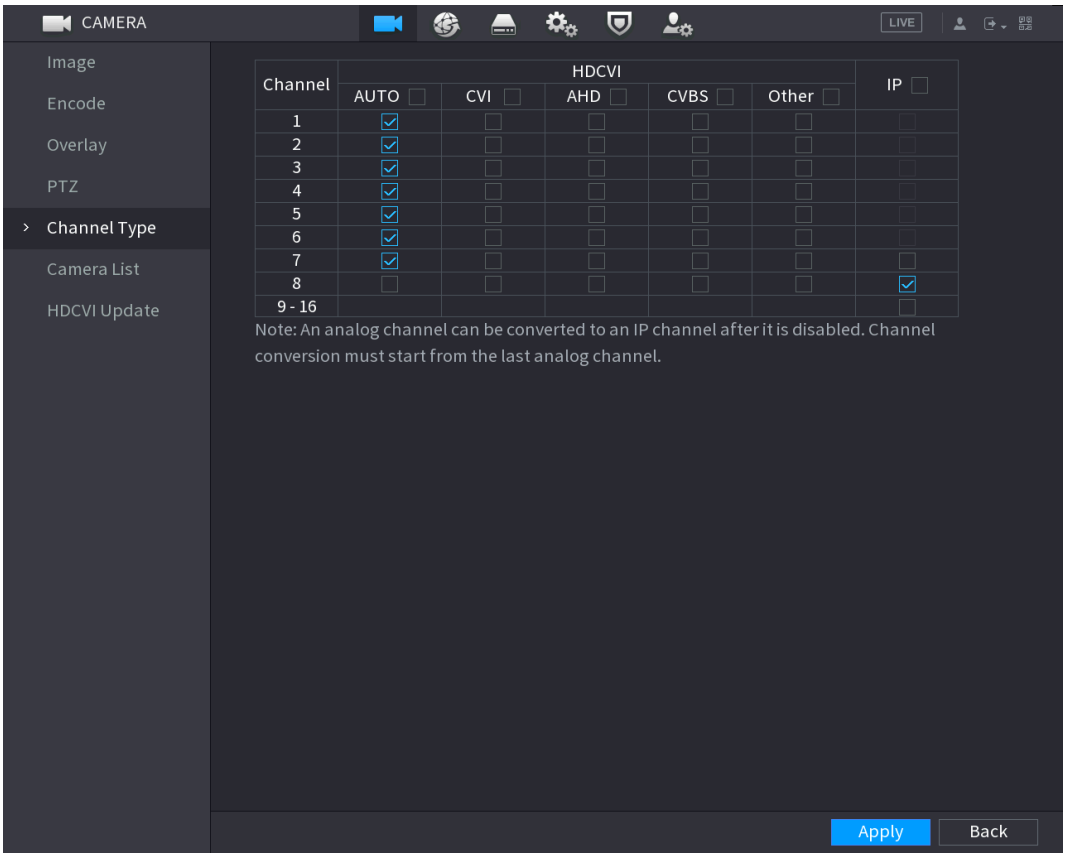
Step 3 Click **Apply** to complete the settings.

5.5.5 Configuring Channel Type

You can configure the channel type as **Analog** or **IP** channel.

Step 1 Select **Main Menu** > **CAMERA** > **Channel Type**.

Figure 5-72 Channel type



Step 2 Configure the channels.

- Analog Channel: Select the transmission medium such as CVI, AHD, CVBS, and then follow the onscreen instructions to complete the settings.
- IP Channel: You can enable the IP channels by disabling the corresponding analog channels. The Device also provides expanded IP channels for your use, such as the channel 8 in Figure 5-72.

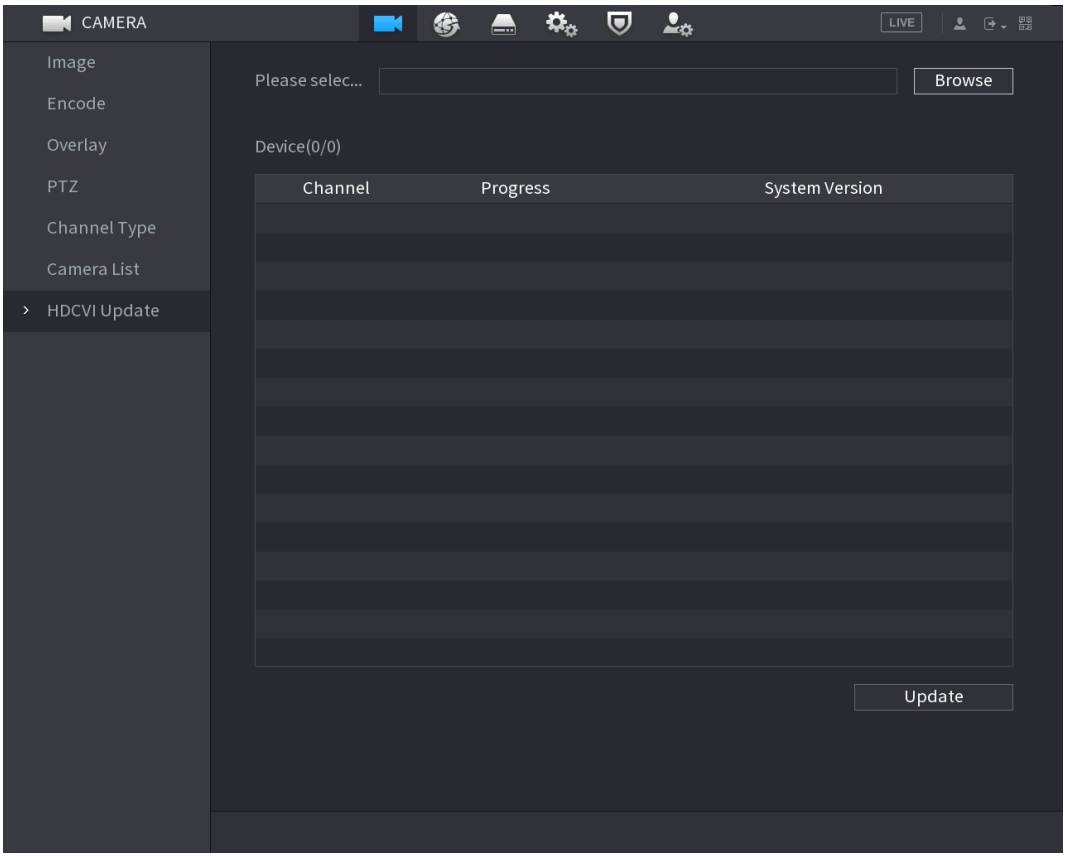
- The 17–32 channels are only for IP camera and the range changes dependent on the model you purchased.
- The channel selection for analog camera or IP camera are in sequence, for example, if you want to select channels for IP camera, you need to select from the last channel number Channel **16** first, which means, you cannot jump to select the channel **15** directly until you have selected the channel **16**.

Step 3 Click **Apply** and follow the onscreen instructions to complete the settings.

5.5.6 Upgrading Coaxial Camera

Step 1 Select **Main Menu** > **CAMERA** > **HDVCI Update**.

Figure 5-73 HDCVI update



Step 2 Click **Browse**.

Step 3 Select the upgrade file and then click **OK**.

The **HDVCI Update** interface is displayed.

You need to insert the USB storage device that contains the upgrading files.

Step 4 Select the check box of the channel that you want to upgrade.

Step 5 Click **Update**.

If the upgrading is successful, the system pops up a message indicating the upgrading is completed.

5.6 Configuring Remote Devices

5.6.1 Adding Remote Devices

This function is available after you have configured the channel type as IP channel as described in previous section, see "5.5.5 Configuring Channel Type."

You can add remote devices by IP address.

Select **Main Menu** > **CAMERA** > **Camera List** > **Add Camera**.

Figure 5-74 Add camera

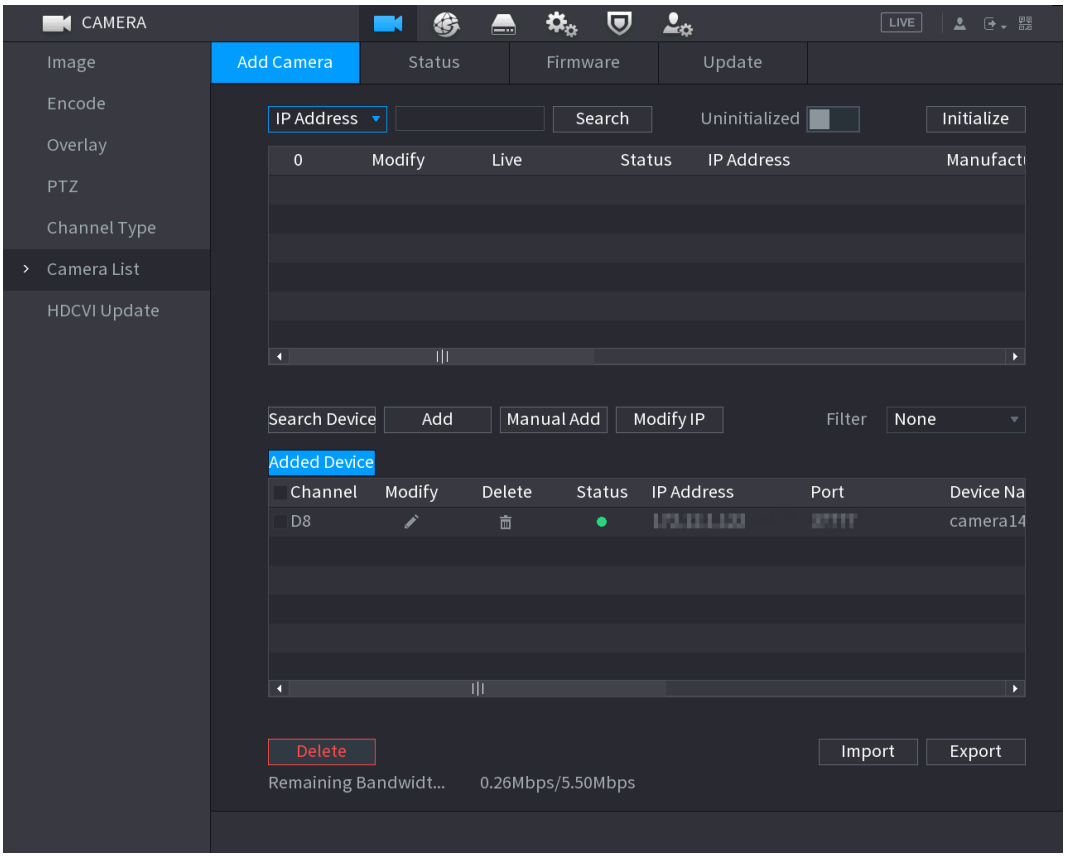


Table 5-29 Parameters of adding camera

Parameter	Description
Uninitialized	Enable the **Uninitialized** function, the uninitialized devices out of the searched devices are displayed in the searched device list.
Initialize	Select the uninitialized device from the uninitialized device list, and the click **Initialize** to start initializing device.
Filter	In the **Filter** list, select the remote device type that you want to display in the searched device list. ● None: Display all types of devices. ● IPC: Display the front-end devices. ● DVR: Display all storage devices such as NVR, DVR and HCVR. ● OTHER: Display the devices that do not belong to IPC or DVR type.
Searched Device List	Displays the searched devices. You can view the device information such as status, IP address.
Search	Click **Search**, the searched devices display in the searched device list. To adjust the display sequence, in the title line, you can click the IP address, Type or Device Name text. For example, click the IP address text, the sequence icon IP Address is displayed. "*" is displayed next to the added device.
Add	In the Searched Device List area, select the device that you want to add.

Parameter	Description
Manual Add	Add the device by manually configuring settings such as IP address, channel selection. For details, see "5.6.1.3 Adding Remote Devices Manually."
Added Device List	Displays the added devices. You can edit and delete the device, and view the device information.
Delete	Select the check box of the added device, and then click **Delete** to delete the added device.
Import	Select the searched devices and then click **Import** to import the devices in batches.
Export	Select the added devices and then click **Export**. The exported devices information is saved into the USB storage device.

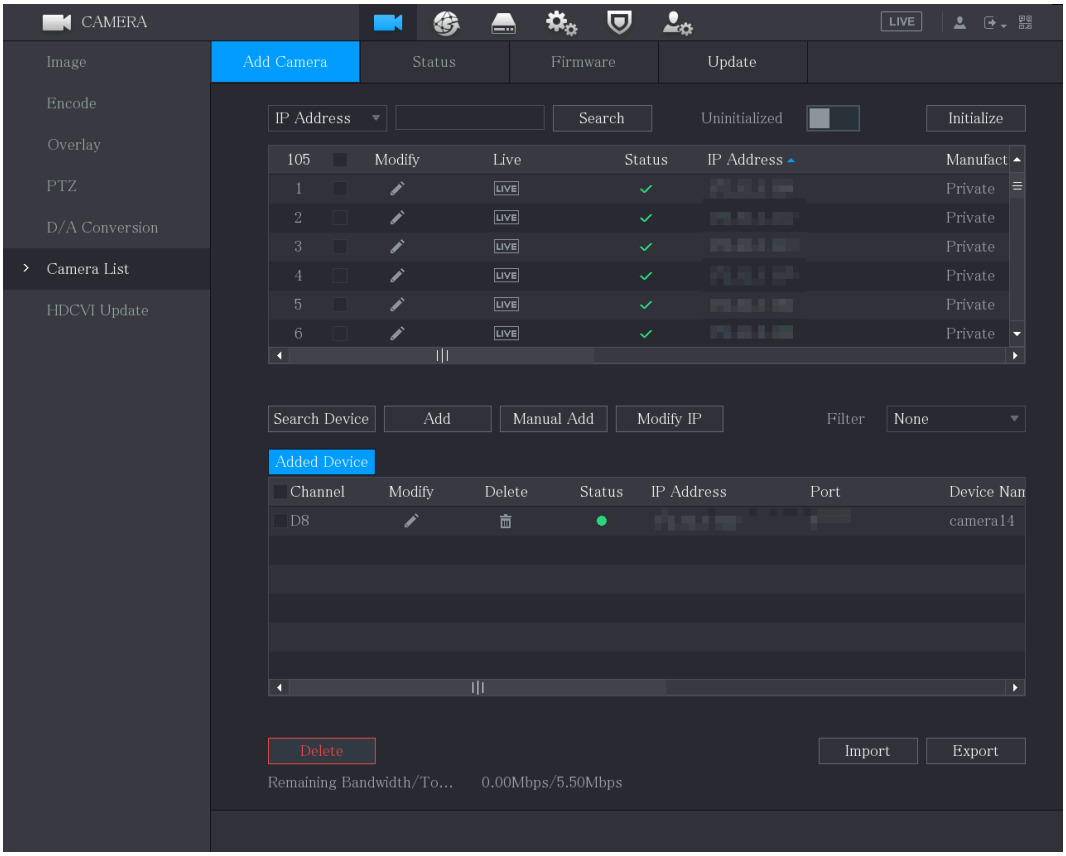
5.6.1.1 Initializing Remote Devices

You can reset the password and IP address of the remote devices through initializing.

Step 1 Click **Search Device**.

The devices found are displayed in the table.

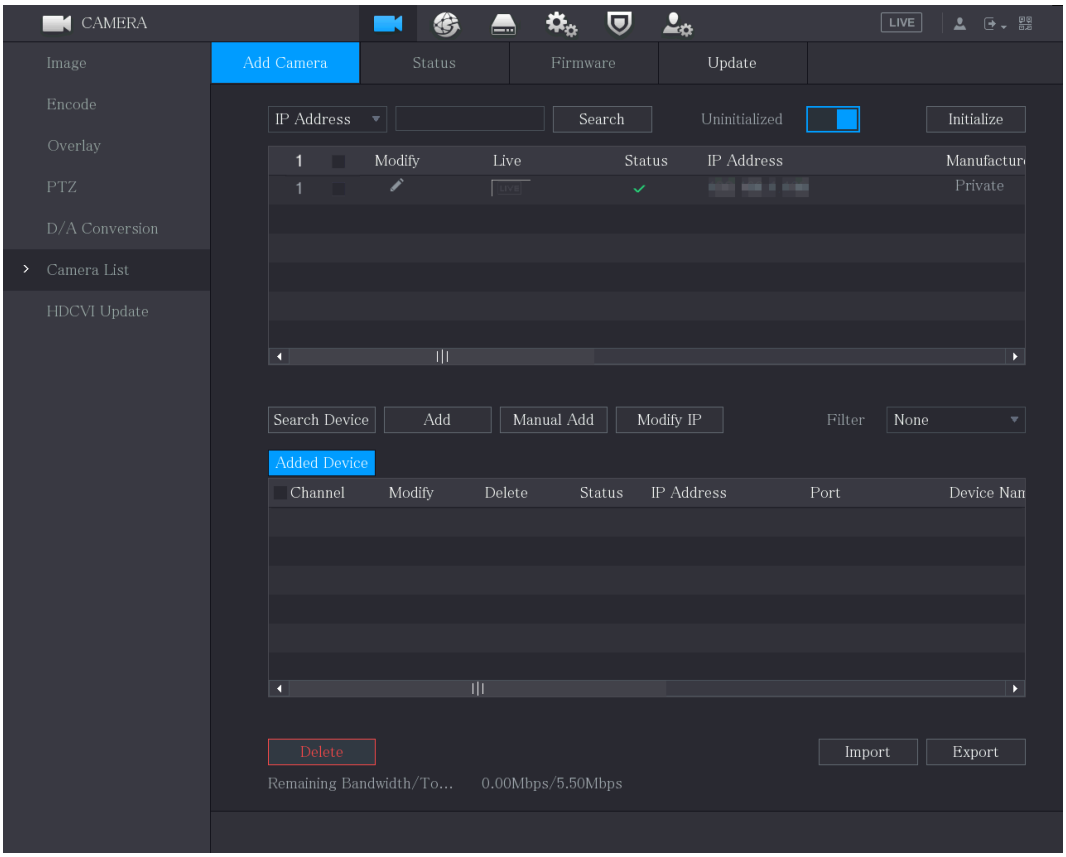
Figure 5-75 Search device



Step 2 Enable the uninitialized function.

The uninitialized devices are displayed.

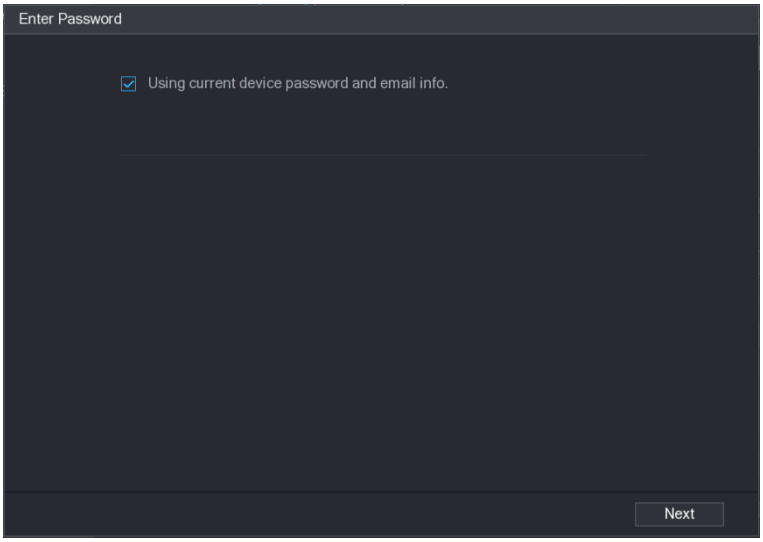
Figure 5-76 Uninitialized devices



Step 3 Select the uninitialized device that you want to initialize.

Step 4 Click **Initialize**.

Figure 5-77 Enter password (1)

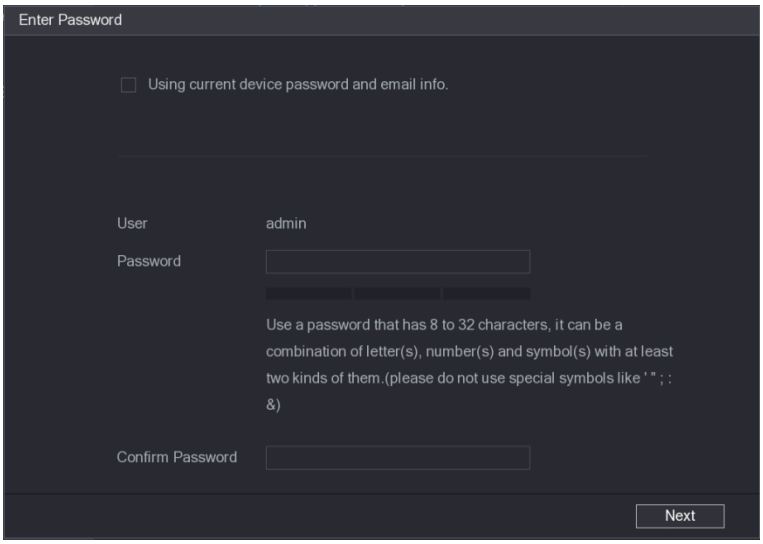


Step 5 Configure the password and email information.

If you select the **Using current device password and email info** check box, the remote device automatically uses the current password and email information, so you do not need to set the password and email address again and can go to Step 6.

1) Clear the **Using current device password and email info** check box.

Figure 5-78 Enter password (2)



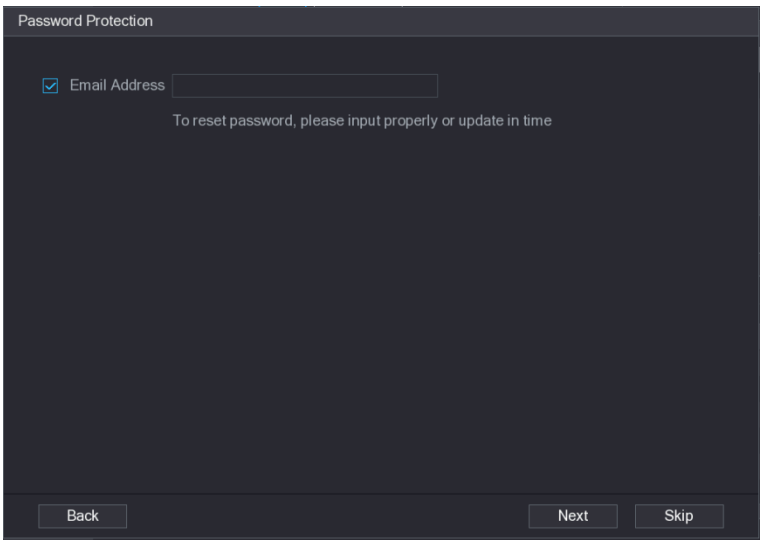
2) Configure the settings for the password setting parameters.

Table 5-30 Password setting parameters

Parameter	Description
User	The default is admin.
Password	The password must consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special character (excluding"'", """", ";", ":" and "&"). Enter a strong password according to the password strength bar indication.
Confirm Password	

3) Click **Next**.

Figure 5-79 Password protection

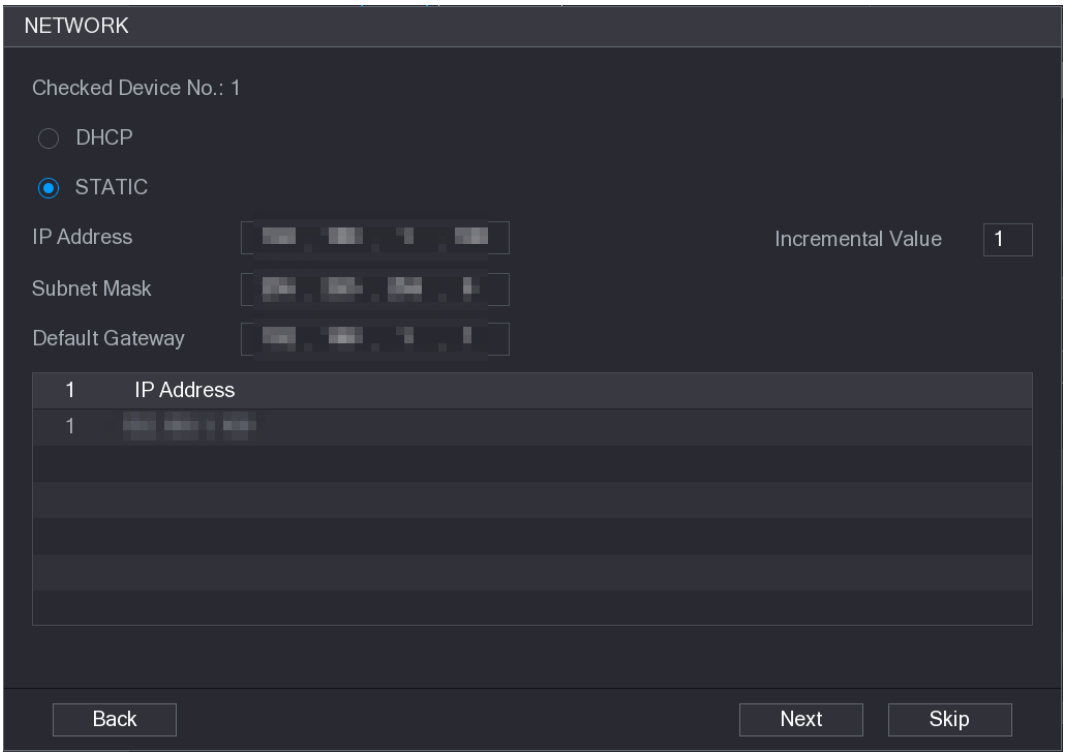


4) Select the **Email Address** box and enter the email address that you want to reserve for password reset in the future.

If you do not want to set the reserved email address, click **Skip**.

Step 6 Click **Next**.

Figure 5-80 Network



Step 7 Configure the IP address.

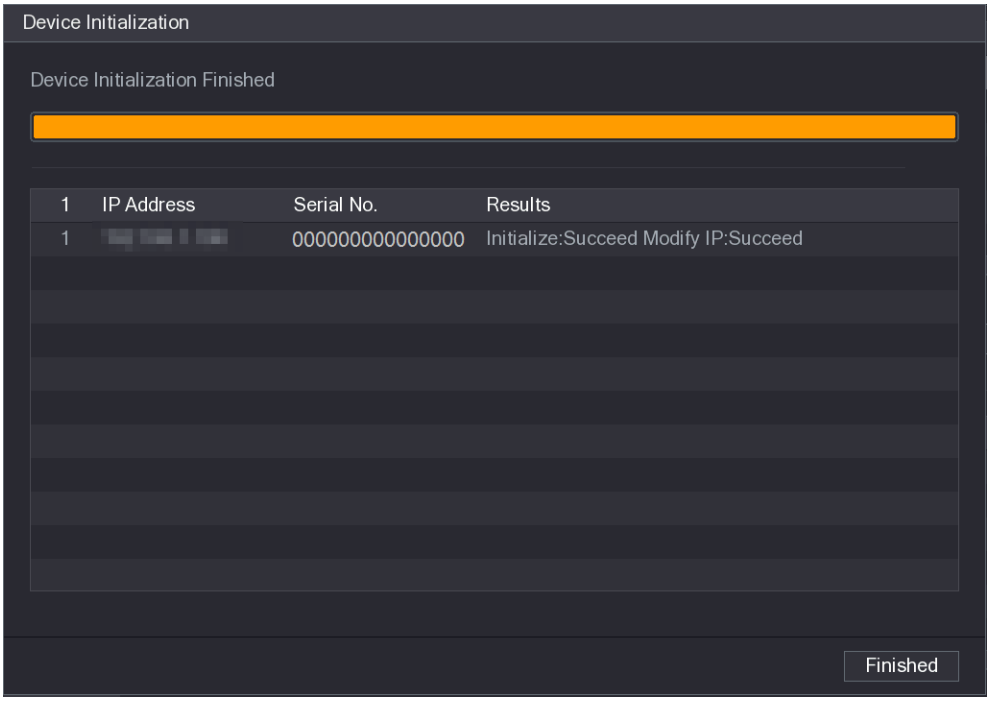
- Select the **DHCP** check box, you do not need to enter the IP address information, because the system will allocate one IP address to the remote device.
- Select the **STATIC** check box, you need to enter the IP address, subnet mast, default gateway, and incremental value. The system will allocate the IP address to the remote devices by progressively increasing the last part of the IP address when initializing devices in batches.

When configuring IP address for multiple remote devices which were not in the same network segment, these remote devices will belong to the same network segment after configuration.

Step 8 Click **Next**.

The initialization is started. After the process is completed.

Figure 5-81 Device initialization



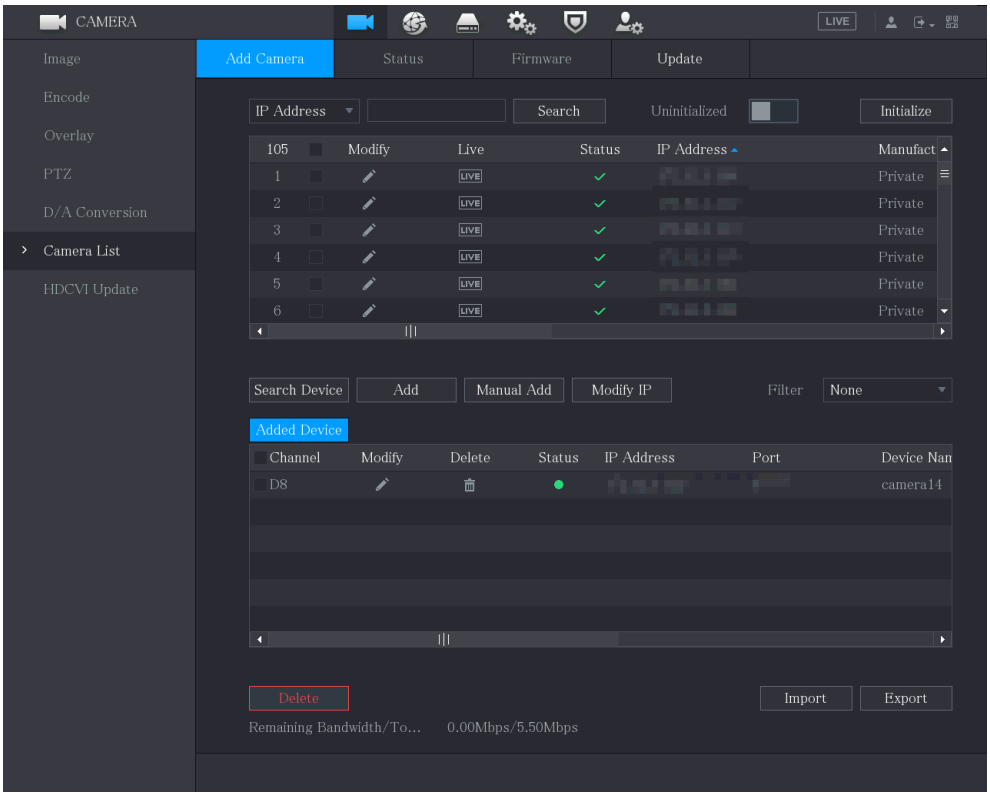
Step 9 Click **Finished**.

5.6.1.2 Adding Remote Devices Automatically

Step 1 On the **Add Camera** interface, click **Search Device**.

The devices found are displayed.

Figure 5-82 Search device



Step 2 Select the check box of the device.

Step 3 Click **Add**.

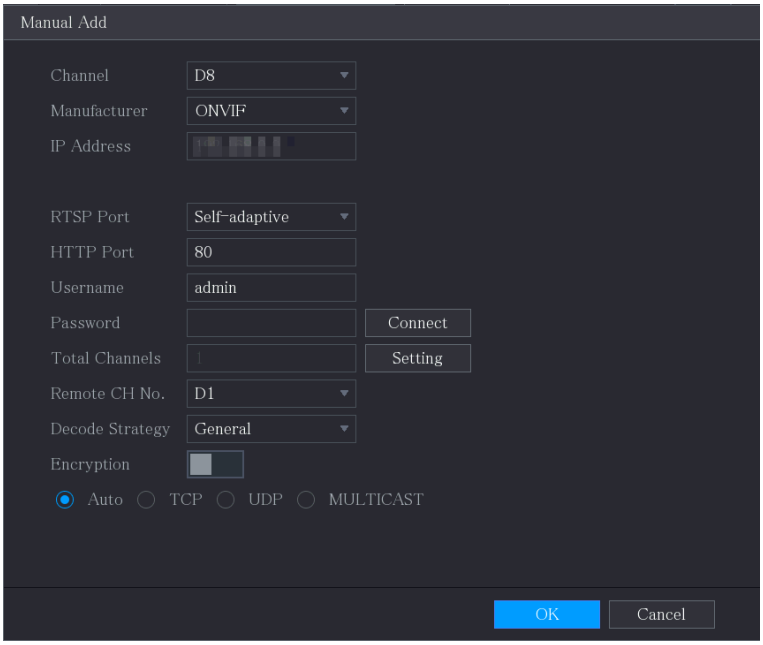
The device is added into the **Added Device** area.

- You can also double-click the device to add it into the **Added Device** area.
- You can add devices in batches.

5.6.1.3 Adding Remote Devices Manually

Step 1 On the **Add Camera** interface, click **Manual Add**.

Figure 5-83 Manual add



Step 2 Configure the settings for the manual adding device parameters.

Table 5-31 Parameters for manually adding device

Parameter	Description
Channel	In the **Channel** list, select the channel that you want use on the Device to connect the remote device.
Manufacturer	In the **Manufacturer** list, select the manufacturer of the remote device.
IP Address	In the **IP Address** box, enter the IP address of remote device. The default is 192.168.0.0 which the system cannot connect to.
RTSP Port	The default value setting is 554. You can enter the value according to your actual situation.
HTTP Port	The default value setting is 80. You can enter the value according to your actual situation. If you enter other value, for example, 70, and then you should enter 70 after the IP address when logging in to the Device by browser.
TCP Port	The default value setting is 37777. You can enter the value according to your actual situation.
User Name	Enter the user name of the remote device.

Parameter	Description
Password	Enter the password of the user for the remote device.
Remote CH No.	Enter the remote channel number of the remote device that you want to add.
Decoder Strategy	In the **Decoder** Strategy list, select **Default**, **Realtime**, or **Fluent**.
Protocol Type	● If the remote device is added through private protocol, the default type is **TCP**. ● If the remote device is added through ONVIF protocol, the system supports **Auto**, **TCP**, **UDP**, or **MULTICAST**. ● If the remote device is added through other manufacturers, the system supports **TCP** and **UDP**.
Encryption	If the remote device is added through ONVIF protocol, enabling the **Encryption** check box will provide encryption protection to the data being transmitted. To use this function, the HTTPS function should be enabled for the remote IP camera.

Step 3 Click **OK** to save the settings.

- Only one device can be added manually at one time.
- indicates successful connection and indicates connection failed.

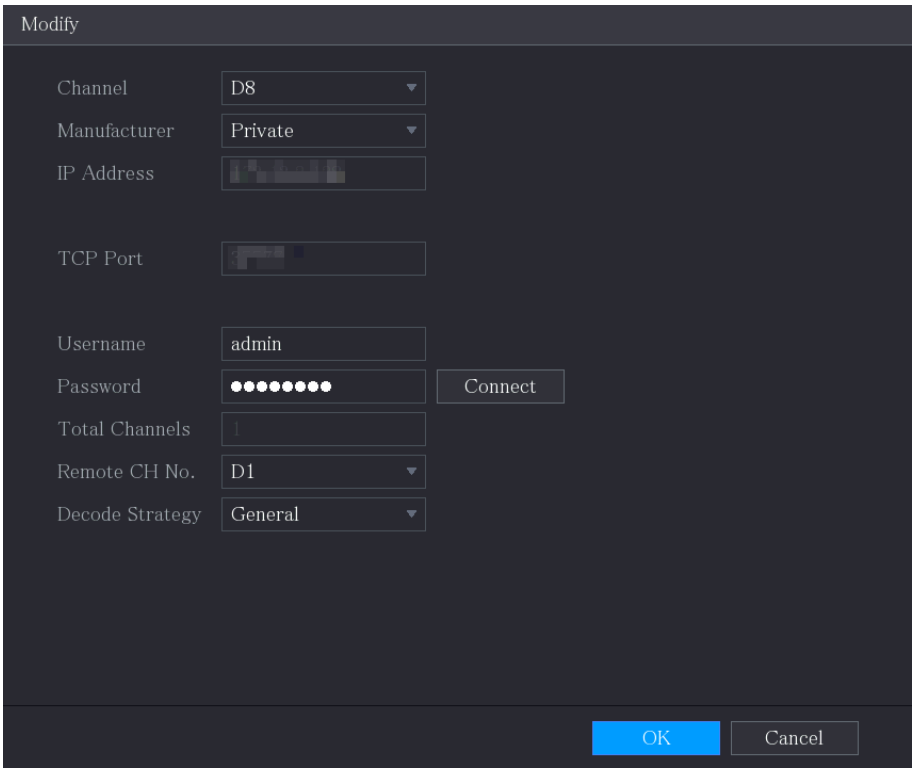
5.6.1.4 Modifying or Deleting Remote Devices

You can modify and delete the added devices.

- To modify the remote devices:

Step 1 Click or double-click a device.

Figure 5-84 Modify



Step 2 In the **Channel** list, select the channel that you want to modify settings for.

Step 3 Click **OK** to save the settings.

- To delete one or more added devices:
  - ◇ Click to delete one device.
  - ◇ Select the check box of the devices that you want to delete, and then click **Delete**.

5.6.1.5 Modifying IP Address

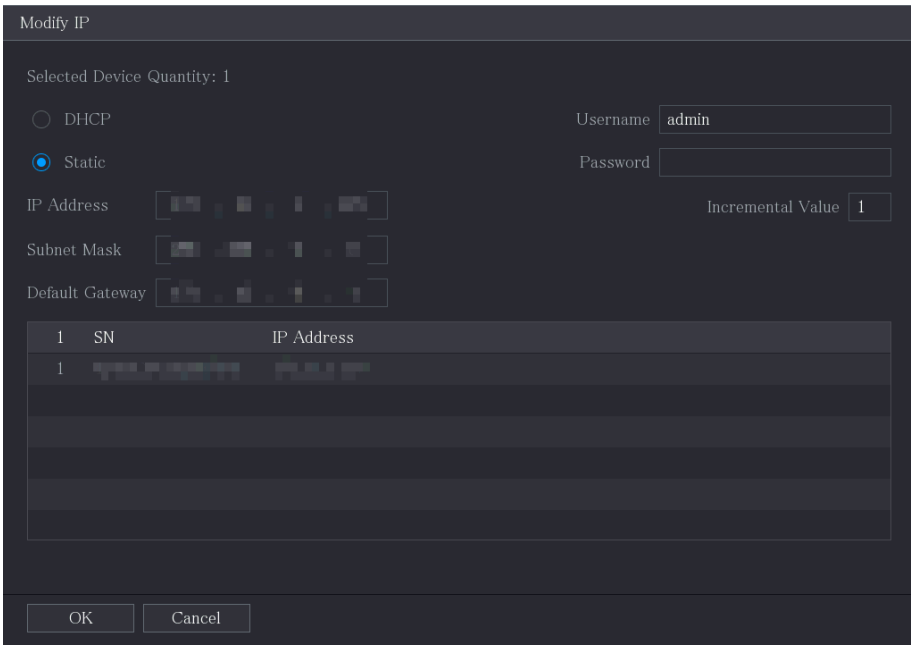
You can modify a single IP address or multiple IP addresses of remote devices at one time.

You can only modify the IP address of initialized cameras.

- To modify a single IP address, do the following:

Step 1 In the **Searched Device** list area, click for the device that you want to modify IP.

Figure 5-85 Modify IP



Step 2 Configure the settings for IP address, subnet mask, default gateway, user name, and password.

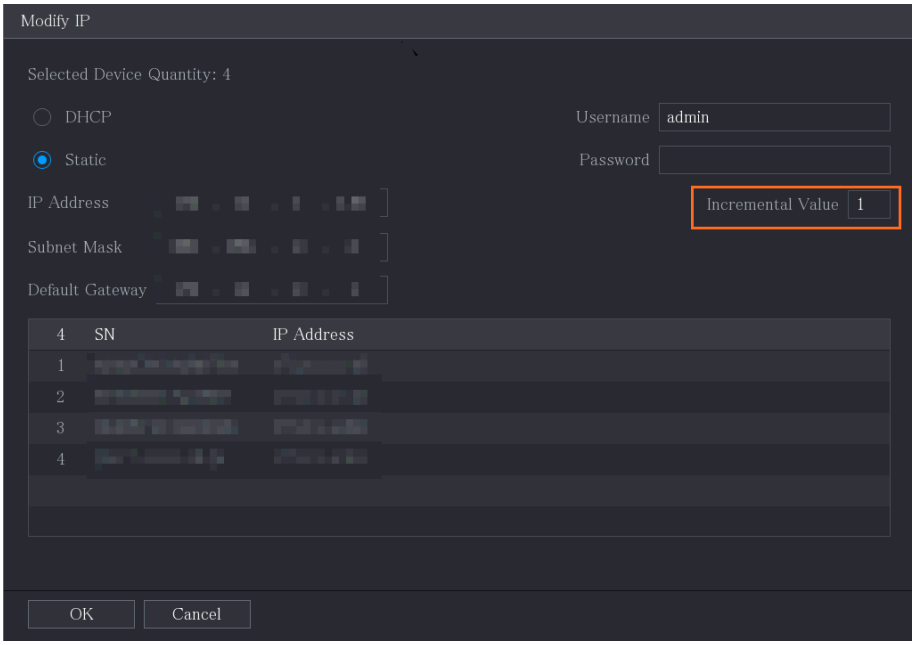
Step 3 Click **OK**.

- To modify IP address in batches, do the following:

Step 1 In the **Searched Device** list area, select the devices that you want to modify IP address in batches.

Step 2 Click .

Figure 5-86 Incremental value



Step 3 Set incremental value.

The system will add the incremental value to the fourth segment of IP addresses of selected devices.

Step 4 Configure the settings for start IP address (the IP address is allocated in sequence), subnet mask, default gateway, user name, and password.

Step 5 Click **OK** to save the settings.

5.6.1.6 Exporting IP Address

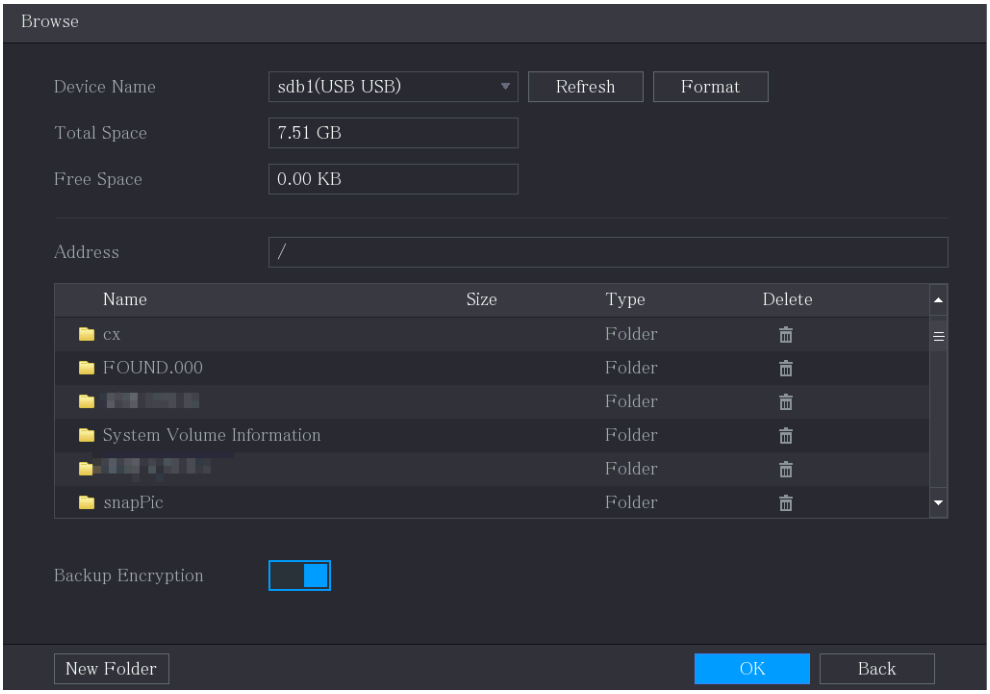
You can export the added IP address to the USB storage device.

The exported information is saved in .csv file, which includes IP address, port number, channel number, manufacturer, user name, and password.

Step 1 Insert the USB storage device to the USB port of the Device.

Step 2 Click **Export**.

Figure 5-87 Browse



Step 3 Configure the save path.

Step 4 Click **OK** to save the settings.

A pop-up message indicating "Successfully exported" is displayed.

Step 5 Click **OK**.

When exporting IP address, the **Backup Encryption** check box is selected by default. The file information includes IP address, port, channel number, manufacturer, user name, and password.

- If you select the **Backup Encryption** check box, the file format is .backup.
- If you clear the **Backup Encryption** check box, the file format is .csv. In this case, there might be a risk of data leakage.

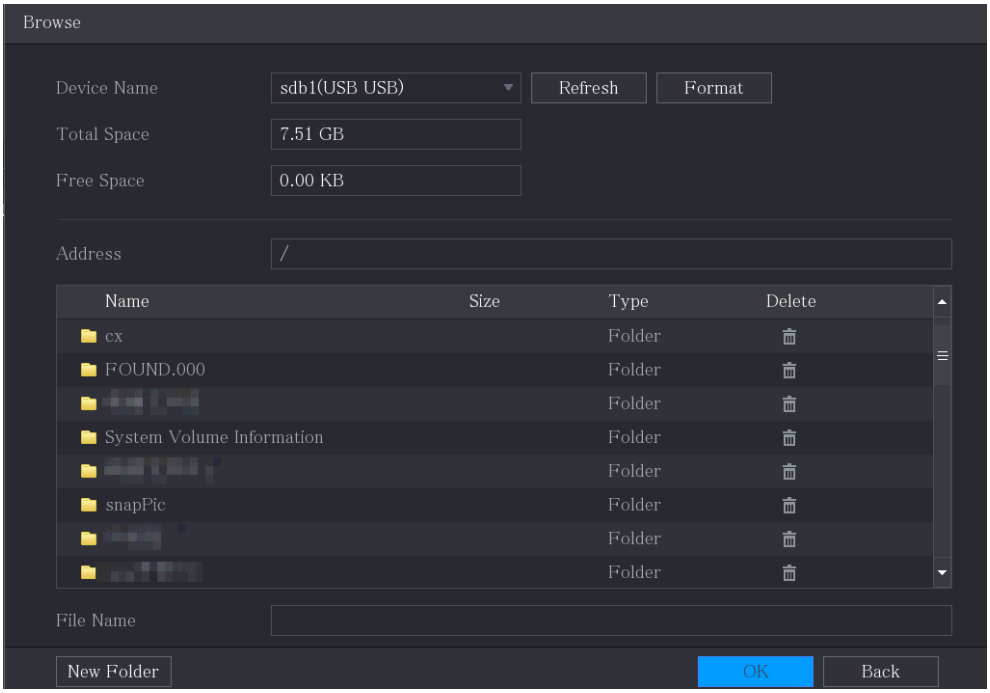
5.6.1.7 Importing IP Address

You can add remote devices by importing IP address information.

Step 1 Insert the USB storage device to the USB port of the Device.

Step 2 Click **Import**.

Figure 5-88 Browse



Step 3 Select the file that you want to import.

Step 4 Click **OK** to start importing.

After importing is completed, a pop-up message indicating "The import succeeded" is displayed.

If the IP address that you want to import already exists in the Device, the system will pop up a message to ask you whether to overwrite the existing content.

- Click **OK** to replace the existing one.
- Click **Cancel** to add it as a separate device in the **Added Device** area.

- You can edit the exported .csv file and be cautious not to change the file format; otherwise the file cannot be imported as it will be judged as invalid.
- The language of .csv file must match the Device language.
- The import and export through customized protocol is not supported.

5.6.2 Managing Remote Devices

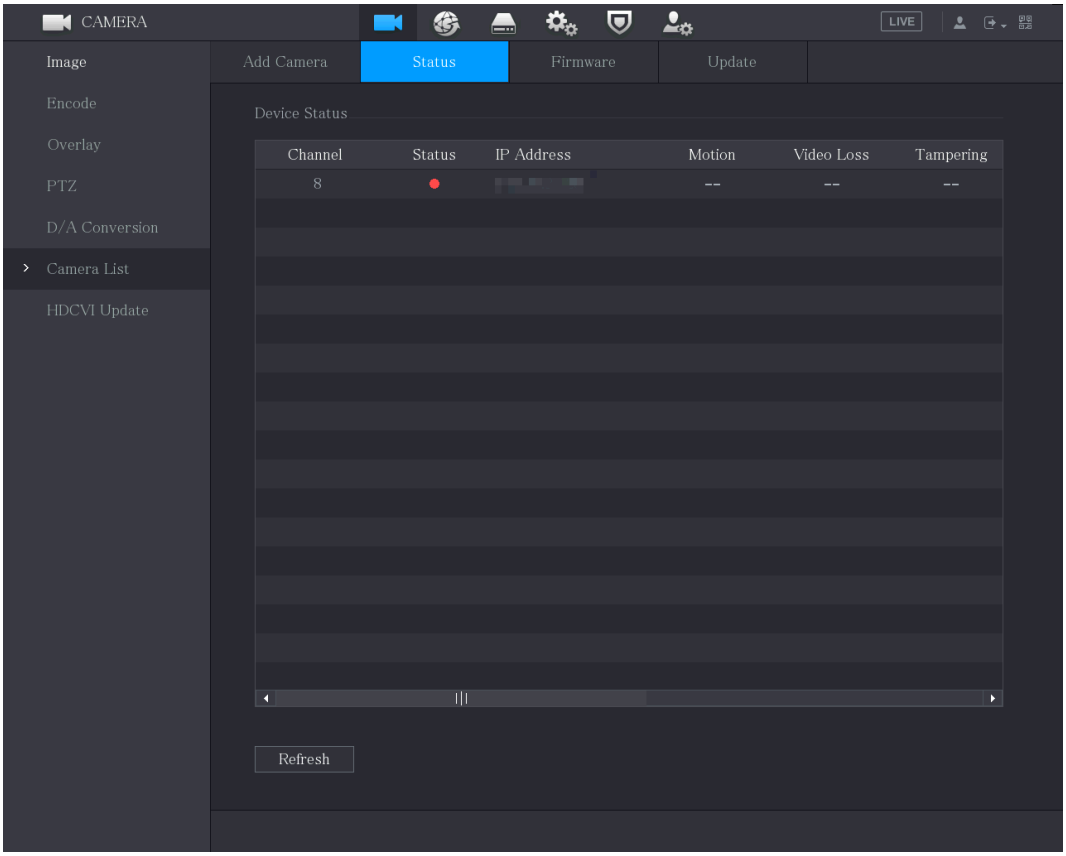
You can view the status of remote devices and upgrade.

5.6.2.1 Viewing Status

You can view the device information such as connection status, IP address, motion detection, video loss detection, camera name, and manufacturer.

Select **Main Menu > CAMERA > Camera List > Status.**

Figure 5-89 Status

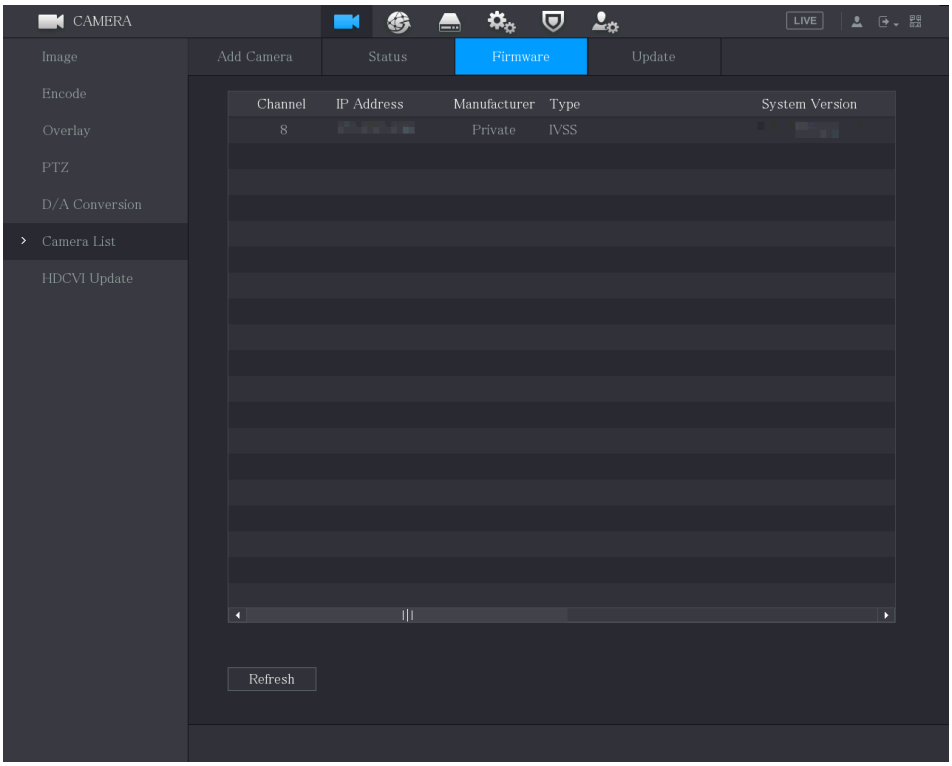


5.6.2.2 Viewing Firmware Information

You can view the device firmware information such as channel number, IP address, manufacturer, system version, video input, audio input, and alarm in.

Select **Main Menu > CAMERA > Camera List > Firmware.**

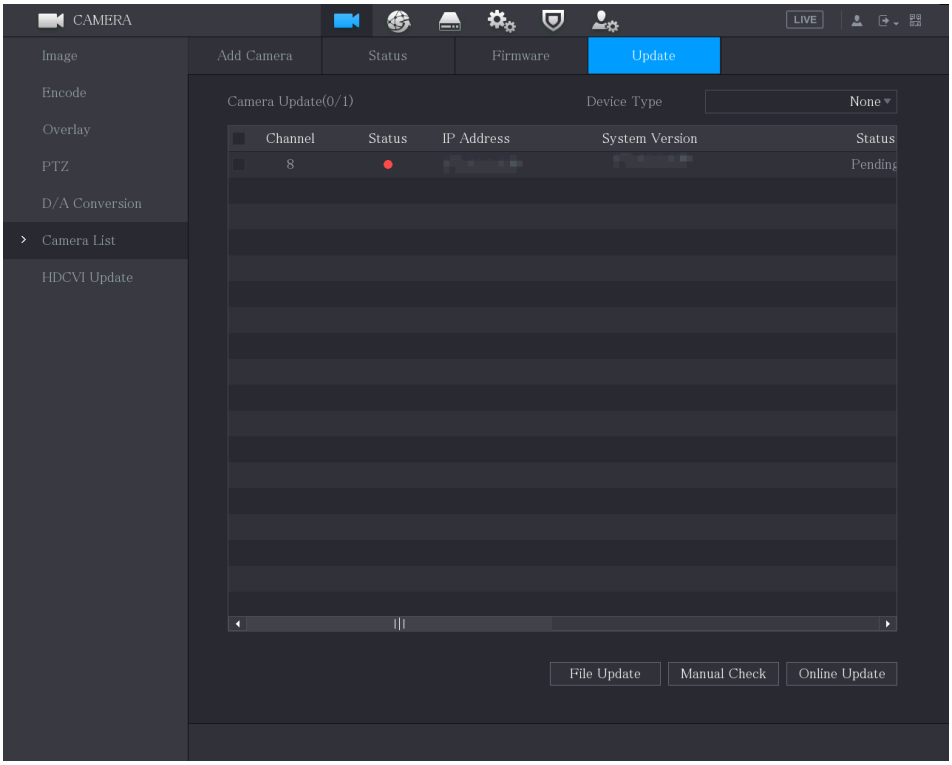
Figure 5-90 Firmware



5.6.2.3 Upgrading Remote Devices

Step 1 Select **Main Menu > CAMERA > Camera List > Update**.

Figure 5-91 Update



Step 2 Upgrade the device.

- File Update

1) Insert a USB storage device containing the upgrade files into the USB port of the Device.
2) Select the devices that you want to upgrade.
3) Click **File Update**.
4) Select the upgrading files and click **Apply**.

- Online Update

1) Click **Detect** or select the check box the device that you want to upgrade and click **Manual Check**.
   The system starts detecting if there is a new version on the online server.
2) Select the check box of all the devices that have new version.
3) Click **Online Update**.

- The system will pop up a message to indicate if the upgrading is successful.
- You can use the Type list to filter the devices so that you can find the devices quickly.

5.7 Configuring Record Settings

You can record video manually or automatically and configure the recording settings to main stream and sub stream respectively.

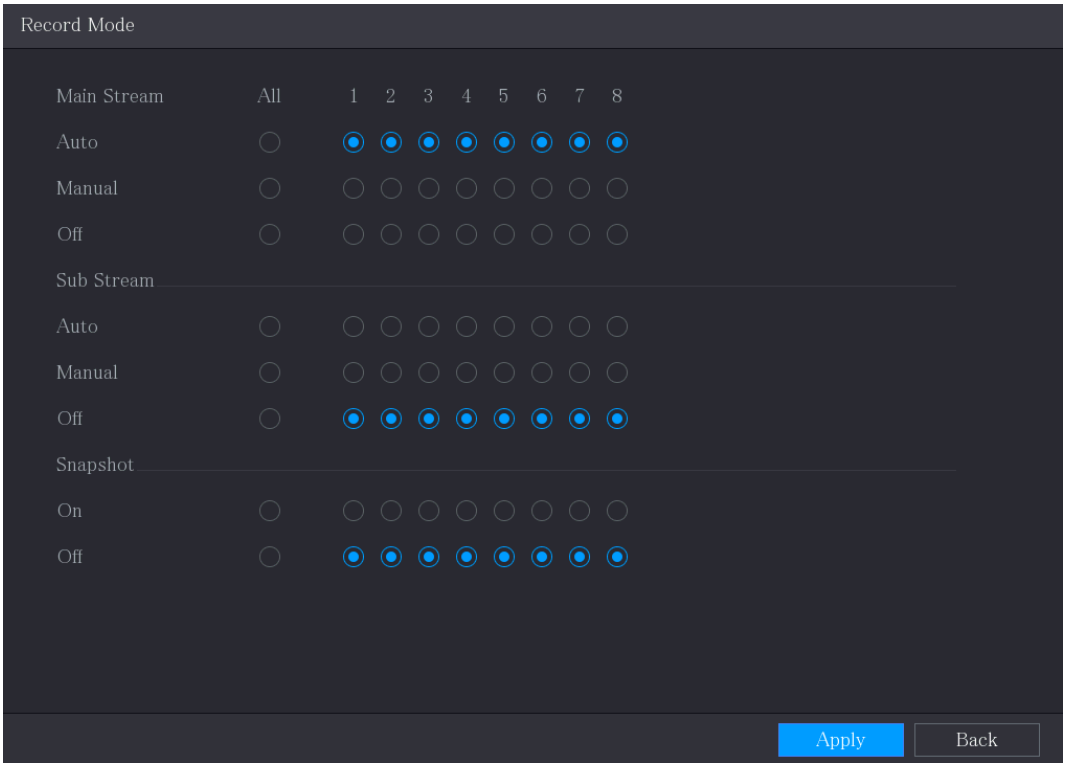
5.7.1 Enabling Record Control

- Manual recording operation requires the user have the permission to access **STORAGE** settings.
- Check to ensure the HDD installed in the Device has been formatted properly.

To enter the record control interface, do the following:

Step 1 Right-click on the live view screen, the shortcut menu is displayed. On the shortcut menu, select **Manual Control** > **Record Control**.

Figure 5-92 Record mode



Step 2 Configure the settings for the record control parameters.

Table 5-32 Record control parameters

Parameter	Description
Channel	Displays all the analog channels and the connected digital channels. You can select a single channel or select **All**.
Main Stream/Sub Stream	• **Auto**: Automatically record according to the record type and recording time as configured in the recording schedule. • **Manual**: Keep general recording for 24 hours for the selected channel. • **Stop**: Do not record.
Snapshot	Enable or disable the scheduled snapshot for the corresponding channels.

Step 3 Click **Apply**.

5.7.2 Configuring Recorded Video Storage Schedule

You need to configure the storage schedule for the recorded video so that the recorded video can be saved. For details, see "5.1.4.9 Configuring Recorded Video Storage Schedule."

5.8 Configuring Snapshot Settings

5.8.1 Configuring Snapshot Trigger

The snapshot is divided into scheduled snapshot, event triggered snapshot, and face detection triggered snapshot. When the both are enabled, the event triggered snapshot has the priority.

- If there is no alarm event, the system performs scheduled snapshot.
- If there is any alarm event, the system performs event triggered snapshot.

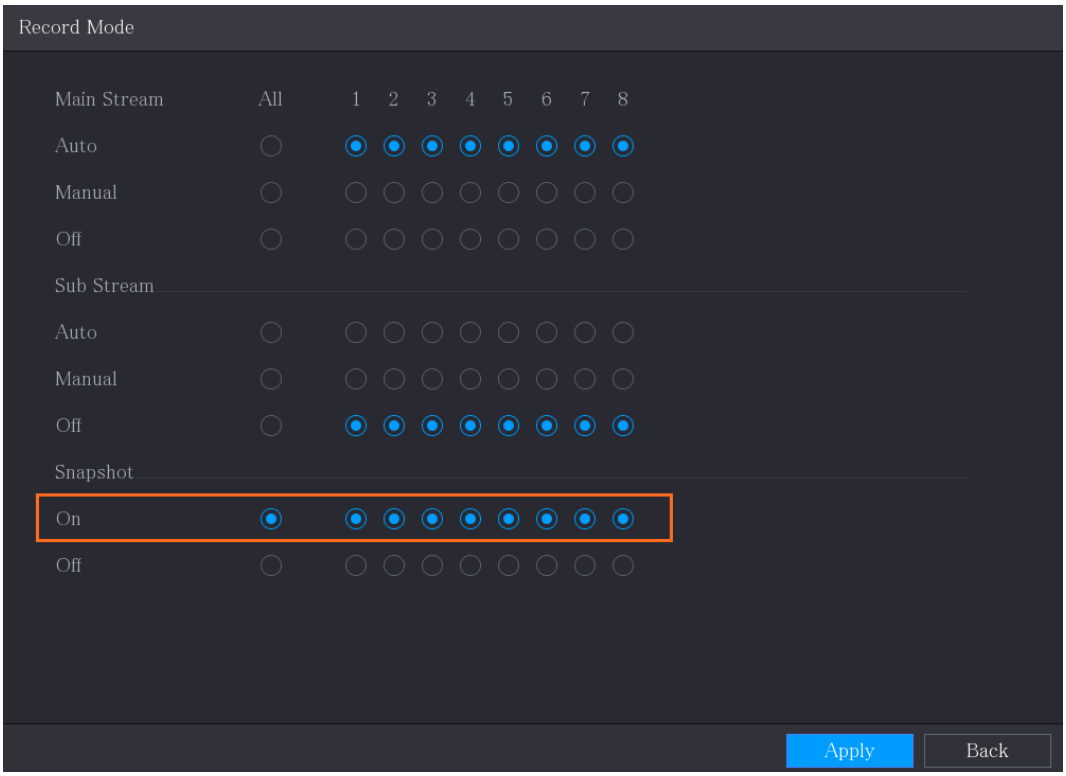
5.8.1.1 Configuring Scheduled Snapshot

Step 1 Right-click on the live view screen, the shortcut menu is displayed.

Step 2 On the shortcut menu, select **Manual Control** > **Record Control**.

Step 3 In the **Snapshot** area, enable the snapshot for the channels if needed.

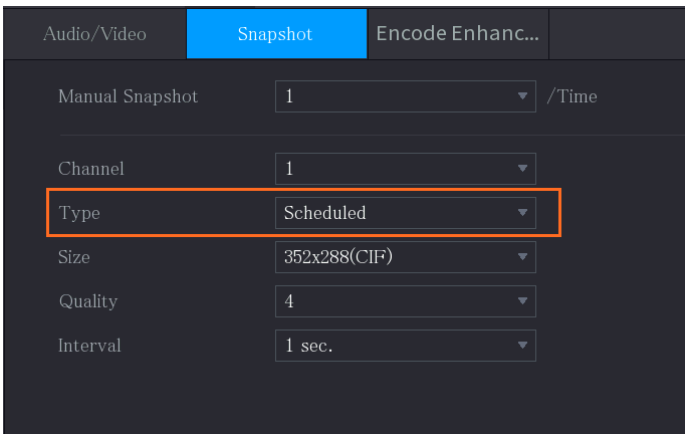
Figure 5-93 Snapshot



Step 4 Select **Main Menu** > **CAMERA** > **Encode** > **Snapshot**.

Step 5 In the **Type** list, select **Scheduled**, and then configure other parameters.

Figure 5-94 Scheduled



Step 6 Click **Apply** to save the settings.

- If you have configured the snapshot schedule, the configuration has been completed.
- If you have not configured the snapshot schedule, see "5.1.4.10 Configuring Snapshot

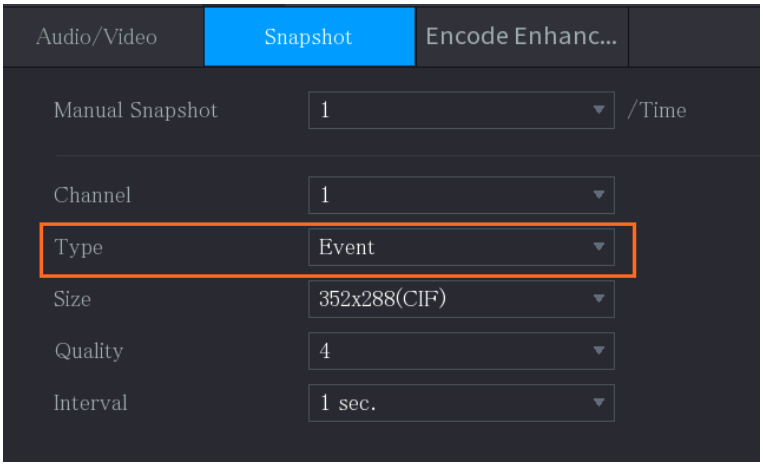
Storage Schedule."

5.8.1.2 Configuring Event Triggered Snapshot

Step 1 Select **Main Menu > CAMERA > Encode > Snapshot**.

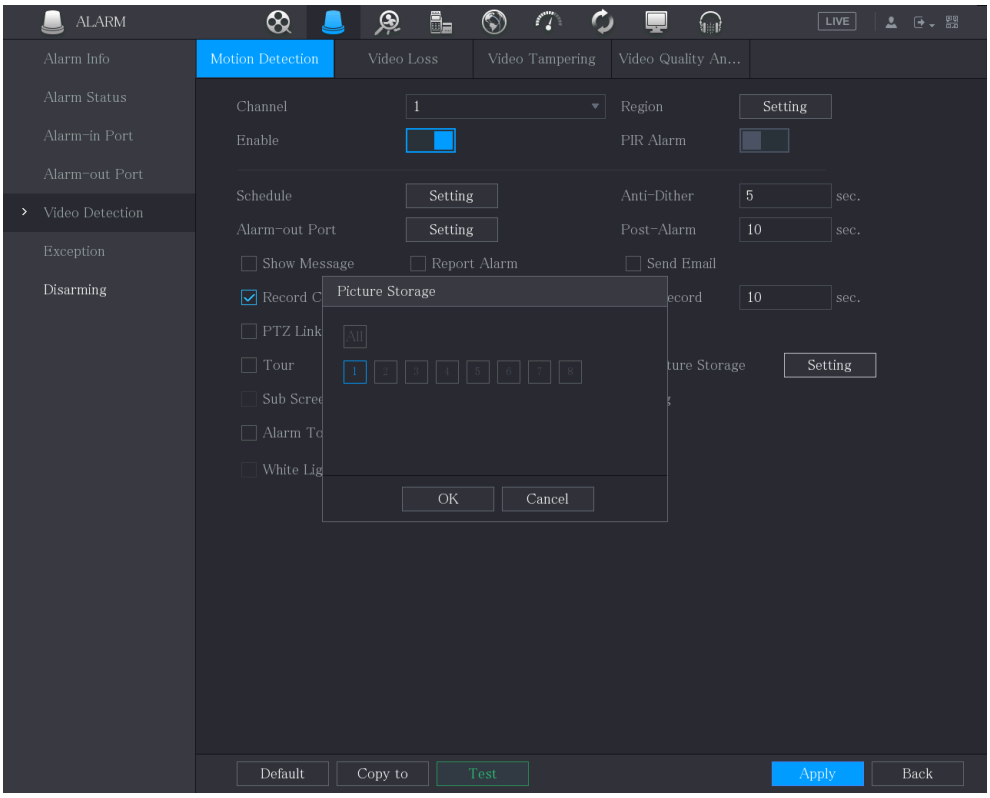
Step 2 In the **Type** list, select **Event**, and then configure other parameters.

Figure 5-95 Event



Step 3 Select **Main Menu > ALARM > Video Detection**, and select the event type to configure, for example, select the **Motion Detection** tab.

Figure 5-96 Motion detection



Step 4 Click **Setting** next to **Picture Storage** check box and select the corresponding channel.

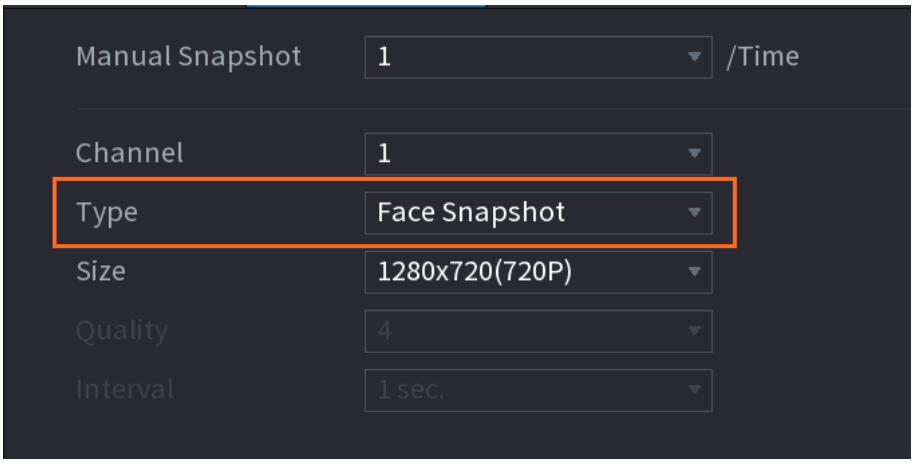
Step 5 Click **Apply**.

5.8.1.3 Configuring Face Detection Triggered Snapshot

Step 1 Select **Main Menu** > **CAMERA** > **Encode** > **Snapshot**.

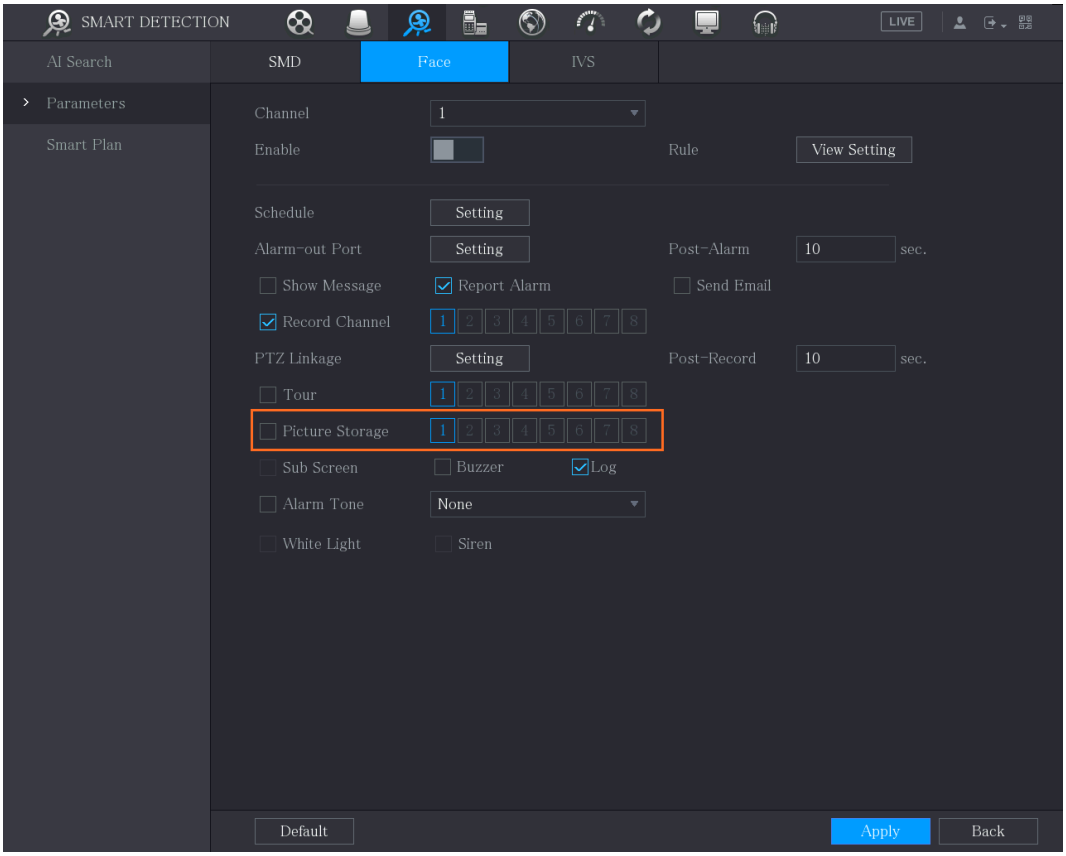
Step 2 In the **Type** list, select **Face Snapshot**, and then configure other parameters.

Figure 5-97 Face snapshot



Step 3 Select **Main Menu** > **SMART DETECTION** > **Parameters** > **Face**.

Figure 5-98 Picture storage



Step 4 Select the **Picture Storage** check box and select the corresponding channel.

Step 5 Click **Apply**.

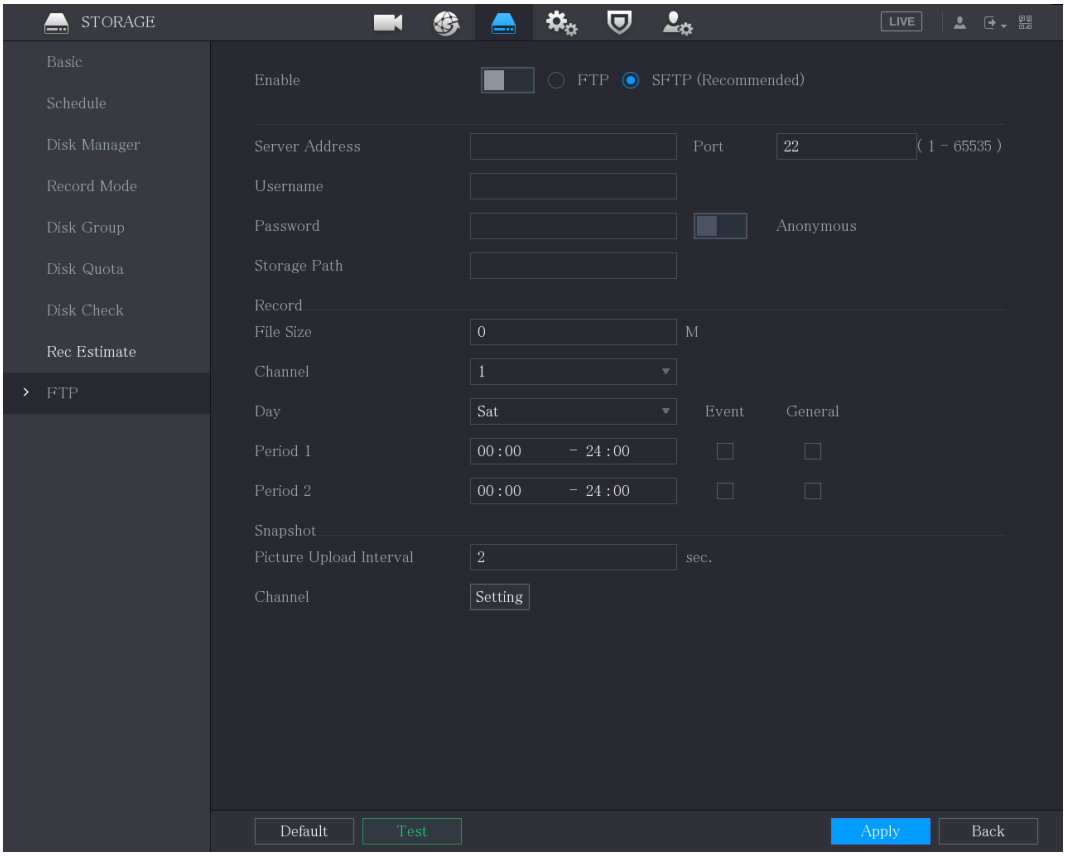
5.8.2 Configuring Snapshot Storage Schedule

You need to configure the storage schedule for the snapshot so that the snapshot can be saved. For details, see "5.1.4.10 Configuring Snapshot Storage Schedule."

5.8.3 Backing up Snapshots to FTP

Step 1 Select **Main Menu > STORAGE > FTP**.

Figure 5-99 FTP



Step 2 Enable the FTP function and configure the parameters. For details, see "5.18.9 Configuring FTP Storage Settings."

The snapshots will be uploaded to FTP for backup.

5.9 Playing Back Video

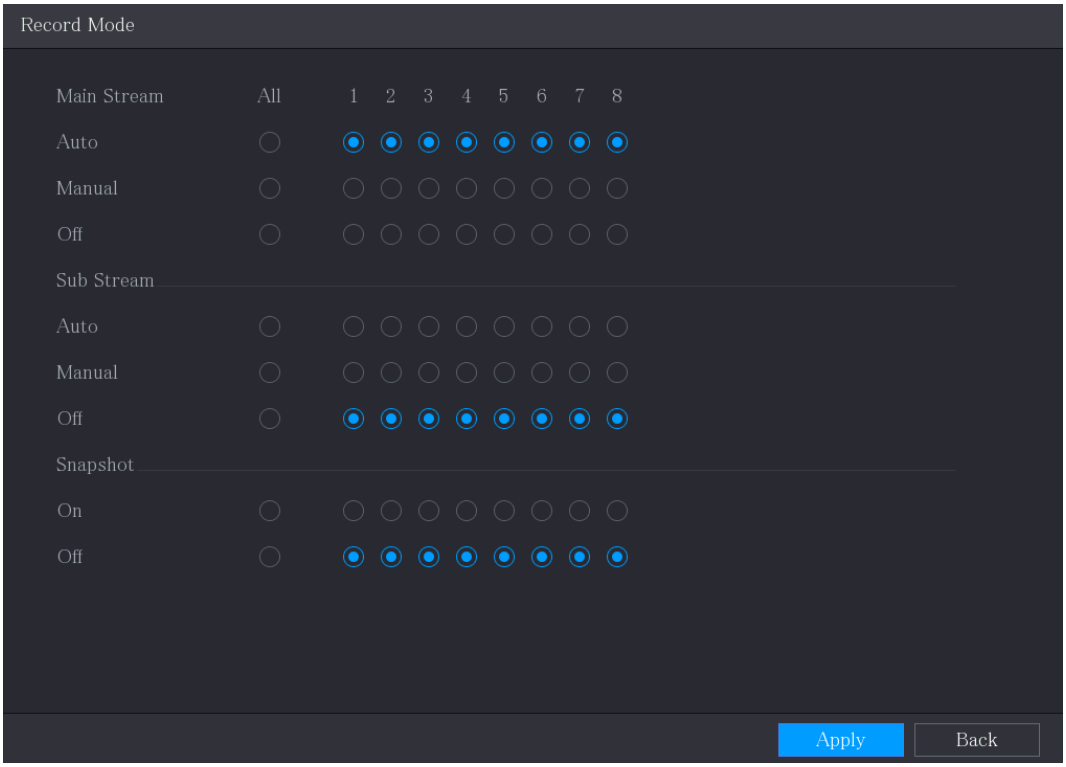
5.9.1 Enabling Record Control

- Manual recording operation requires the user have the permission to access **STORAGE** settings.
- Check to ensure the HDD installed in the Device has been formatted properly.

To enter the record control interface, do the following:

Step 1 Right-click on the live view screen. The shortcut menu is displayed. On the shortcut menu, select **Manual Control > Record Mode**.

Figure 5-100 Record mode



Step 2 Configure the settings for the record control parameters.

Table 5-33 Record control parameters

Parameter	Description
Channel	Displays all the analog channels and the connected digital channels. You can select a single channel or select **All**.
Main Stream/Sub Stream	● **Auto**: Automatically record according to the record type and recording time as configured in the recording schedule. ● **Manual**: Keep general recording for 24 hours for the selected channel. ● **Stop**: Do not record.
Snapshot	Enable or disable the scheduled snapshot for the corresponding channels.

5.9.2 Instant Playback

You can use the instant playback function to play back the previous five minutes to sixty minutes of the recorded video in any channel. For details about instant playback function, see "5.2.2.1 Instant Playback."

5.9.3 Main Interface of Video Playback

You can search for and play back the recorded video saved on the Device.

Select **Main Menu** > **Search**.

Figure 5-101 Video playback

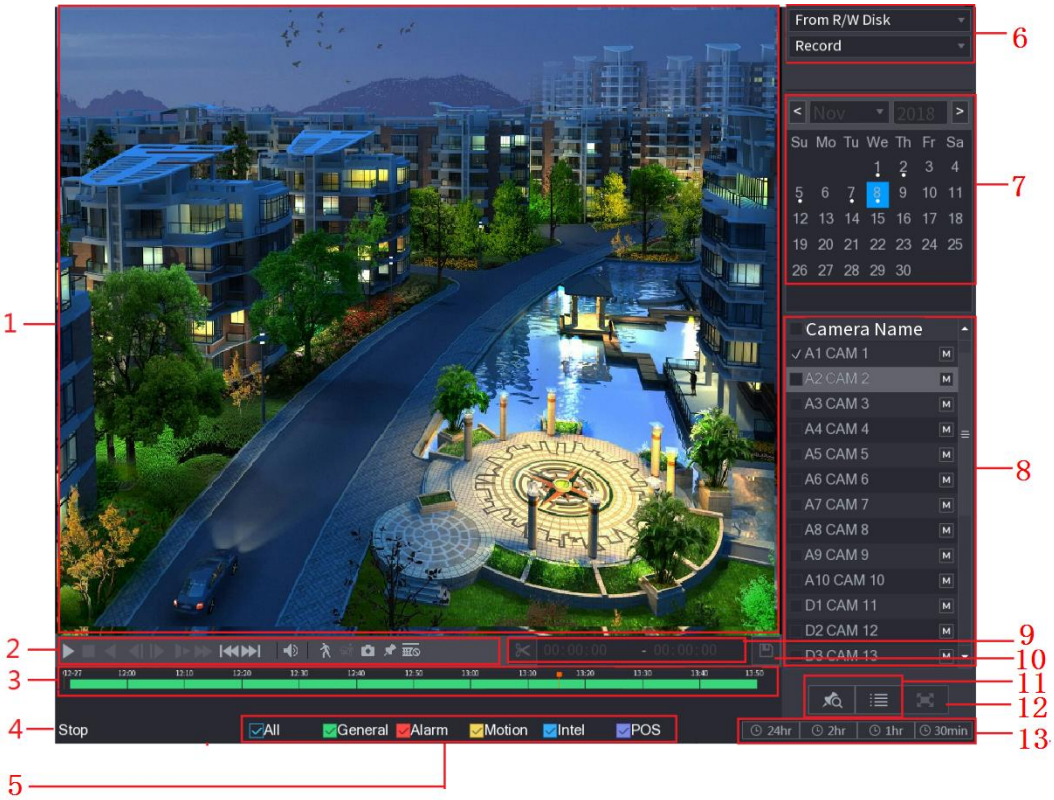


Table 5-34 Video playback description

No.	Function	Description
1	Display Window	Display the searched recorded video or picture. Supports simultaneously playing in single-channel, 4-channel, 9-channel, and 16-channel. When playing back in a single channel, click and hold to select the area that you want to enlarge. The area is enlarged after the left mouse button is released. To exit the enlarged status, right-click on the image.
2	Playback Controls Bar	Playback control buttons. For details about the control buttons, see "5.9.3.1 Introducing Playback Controls."

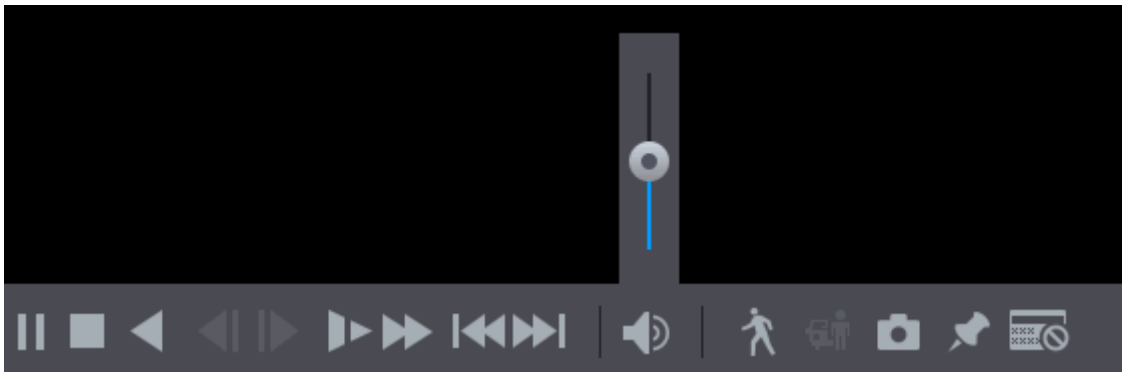
No.	Function	Description
3	Time Bar	Display the type and time period of the current recorded video. ● In the 4-channel layout, there are four time bars are displayed; in the other view layouts, only one time bar is displayed. ● Click on the colored area to start playback from a certain time. ● In the situation when you are configuring the settings, rotate the wheel button on the time bar, the time bar is zooming in from 0. In the situation when playback is ongoing, rotate the wheel button on the time bar, the time bar is zooming from the time point where the playback is located. ● Time bar colors: Green indicates general type; Red indicates external alarm; Yellow indicates motion detection; Blue indicates intelligent events; Purple indicates POS events. ● For some models, when you are clicking on the blank area in the time bar, the system automatically jumps to the next time point where there is a recorded video located. ● Click and hold the time bar, and the mouse pointer shall change to a hand icon, and then you can drag to view the playback of the target time. ● You can drag the vertical orange line on the time bar to rapidly view the playback in iframe format. ● When playing back video in one channel mode, you can move mouse pointer to time bar to display thumbnail pictures for the video of target time. ● When playing back video, you can select other channels as needed. The time bar of newly added channels will be added up to the time bar of earlier base channels. The type and time period of newly added channels are the same with early base channels.
4	Play Status	Includes two playback status: **Play** and **Stop**.
5	Record type	Select the check box to define the recording type to search for.
6	Search type	Select the content to play back: **Record**, **Picture**, **Subperiod**. For details about the selecting search type, see "5.9.3.2 Selecting Search Type."
7	Calendar	Click the date that you want to search, the time bar displays the corresponding record. The dates with record or snapshot have a small solid circle under the date.

No.	Function	Description
8	View Layout and Channel Selection	In the **Camera Name** list, select the channel(s) that you want to play back. ● The window split is decided by how you select the channel(s). For example, if you select one channel, the playback is displayed in the single-channel view; if you select two to four channels, the playback is displayed in the four-channel view. The maximum is eight channels. ● Click M to switch the streams. M indicates main stream, and S indicates sub stream.
9	Video Splice	Splice a section of recorded video and save it. For details about splicing a recorded video, see "5.9.3.3 Clipping Recorded Video."
10	Backup	Back up the recorded video files. For details, see "5.9.3.4 Backing up Recorded Video."
11	List Display	This area includes **Tag List** and **File List**. ● : Click the **Tag List** button, the marked recorded video list is displayed. Double-click the file to start playing. ● : Click the **File List** button, the searched recorded video list is displayed. You can lock the files. For details, see "5.9.8 Using the File List."
12	Full Screen	Click to display in full screen. In the full screen mode, point to the bottom of the screen, the time bar is displayed. Right-click on the screen to exit full screen mode.
13	Time Bar Unit	You can select 24hr, 2hr, 1hr, or 30min as the unit of time bar. The time bar display changes with the setting.

5.9.3.1 Introducing Playback Controls Bar

You can perform the operations such as control the speed of playback, add mark, and take snapshots through the playback controls bar.

Figure 5-102 Playback control bar



The play backward function and playback speed are dependent on the product version. The actual product shall prevail. You can also contact the technical support to consult the hardware version information.

Table 5-35 Playback control bar description

Icon	Function
,	Play/Pause. During playing back, you can switch between play and pause.
	Stop. During playing back, you can click the **Stop** button to stop playback.
,	Play Backward. ● During playing back, click the **Play Backward** button to backward play the recorded video, the button switches to ; click to stop playing backward. ● During playing back, click to start playing forward.
,	Previous Frame/Next Frame. ● When the playback is paused, click or click to play single-frame recorded video. ● When playing back single-frame recorded video, click to start playing forward.
	Slow Playback. ● During playing back, click to set the speed of slow playback as SlowX1/2, SlowX1/4, SlowX1/8, or SlowX1/16. ● During fast playback, click to slow down the speed of fast playback.
	Fast Playback. ● During playing back, click to set the speed of fast playback as FastX2, FastX4, FastX8, or FastX16. ● During slow playback, click to speed up slow playback.
,	Previous Day/Next Day. Click or click to play the previous day or next day of the current recorded video.

Icon	Function
	Adjust volume of playback.
	Smart Search. For details about using the smart search, see "5.9.4 Smart Search."
	Smart detection. Click to select person or vehicle. The system plays the detected person or vehicle videos. Person and vehicle can be selected simultaneously.
	In the full screen mode, click to take a snapshot and save into the USB storage device or mobile HDD.
	Add Mark for the recorded view. For details about adding mark, see "5.9.5 Marking and Playing Back Video."
	Hide POS Hide. During single-channel playback, click to display or hide POS information on the screen.

5.9.3.2 Selecting Search Type

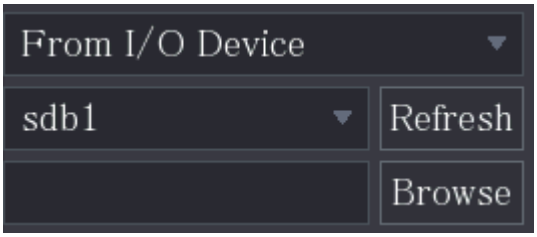
You can search the recorded videos, splice, or snapshots from HDD or external storage device.

- **From R/W Disk**: Recorded videos or snapshots playback from HDD of the Device.

Figure 5-103 R/W HDD

- **From I/O Device**: Recorded videos playback from external storage device.
  Click **Browse**, select the save path of recorded video file that you want to play. Double-click the video file or click to start playing.

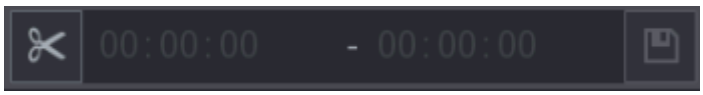
Figure 5-104 Browse



5.9.3.3 Clipping Recorded Video

During playback, clip sections of recorded video and save to the USB storage device. For the video clip interface.

Figure 5-105 Video clip



Step 1 Select a recorded video that you want to play.

- Click to start playing from the beginning.
- Double-click anywhere in the time bar colored area to start playback.

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

Step 3 Click on the time bar to select the end time, and then click to stop clipping.

Step 4 Click .

The **BACKUP** dialog box is displayed. You can back up the files.

- You can clip the video of a single-channel or multiple channels.
- Maximum 1024 files can be backed up at one time.
- The files that are selected in the **File List** cannot be clipped.

5.9.3.4 Backing up Recorded Video

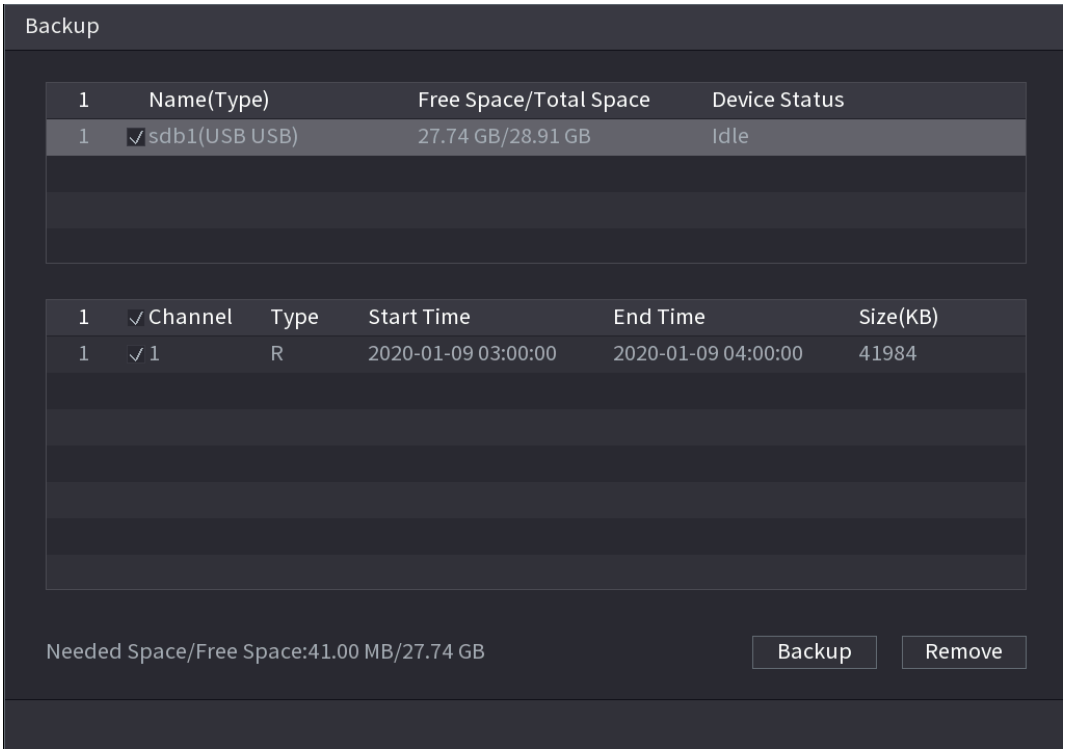
You can back up the recorded video file or splice video file into the USB storage device.

Step 1 Select the recorded video file that you want to back up. You can select the following two types of files:

- Recorded video file: Click , the **File List** area is displayed. Select the file(s) that you want to back up.
- Splice video file. For details about splicing video file, see "5.9.3.3 Clipping Recorded Video."

Step 2 Click .

Figure 5-106 Backup



Step 3 Click **Backup**.

If you do not want to back the file, clear the check box.

5.9.4 Smart Search

During playback, you can analyze a certain area to find if there was any motion detection event occurred. The system will display the images with motion events of the recorded video.

Not all models support this function.

To use the Smart Search function, you need to enable the motion detection for the channel by selecting **Main Menu > ALARM > Video Detection > Motion Detection**.

To use the Smart Search function, do the following:

Step 1 Select **Main Menu > SEARCH**, the video search interface is displayed.

Step 2 In the **Camera Name** list, select the channel(s) that you want to play.

Step 3 Click or double-click anywhere in the time bar colored area to start playback.

Step 4 Click .

The grid is displayed on the screen.

- Only single-channel supports smart search.
- If multi-channels are selected, double-click on the channel window to display this channel only on the screen, and then you can start using smart search function.

Step 5 Drag the pointer to select the searching area.

The grid area supports 22×18(PAL) and 22×15(NTSC).

Step 6 Click .

The screen starts playing back the motional splices of recorded video for the selected searching area.

Step 7 Click to exit the playback.

5.9.5 Marking and Playing Back Video

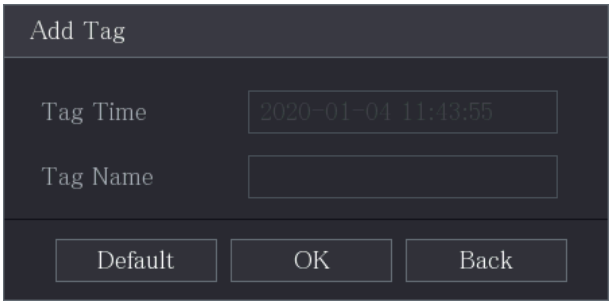
You can mark the recording for somewhere important. Then you can easily find the marked recording by searching time and mark name.

Marking a Video

Step 1 Select **Main Menu** > **SEARCH**.

Step 2 In the playback mode, click .

Figure 5-107 Add tag



Step 3 In the **Tag Name** box, enter a name.

Step 4 Click **OK**.

This marked video file displays in the **Tag List**.

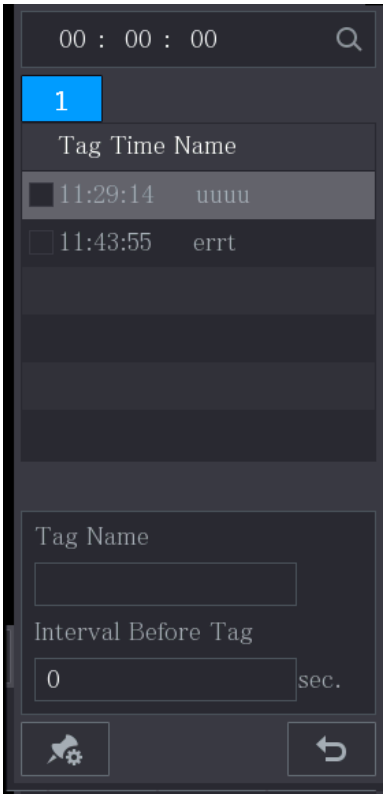
Playing Back Marked Video

This function is supported on single-channel playback.

Step 1 In the **Camera Name** list, select one channel.

Step 2 Click .

Figure 5-108 Tag list



Step 3 Double-click the file that you want to play back.

To search the marked video by time, in the **search** box on the top-right of the interface, enter the time, and then click .

Playing Back Time before the Tag

You can configure to play N seconds of the tagged video before the tagged time.

Step 1 In the **Tag Name** box, enter the name of a tagged video.

Step 2 In the **Interval Before Tag** box, enter N seconds.

Step 3 Click .

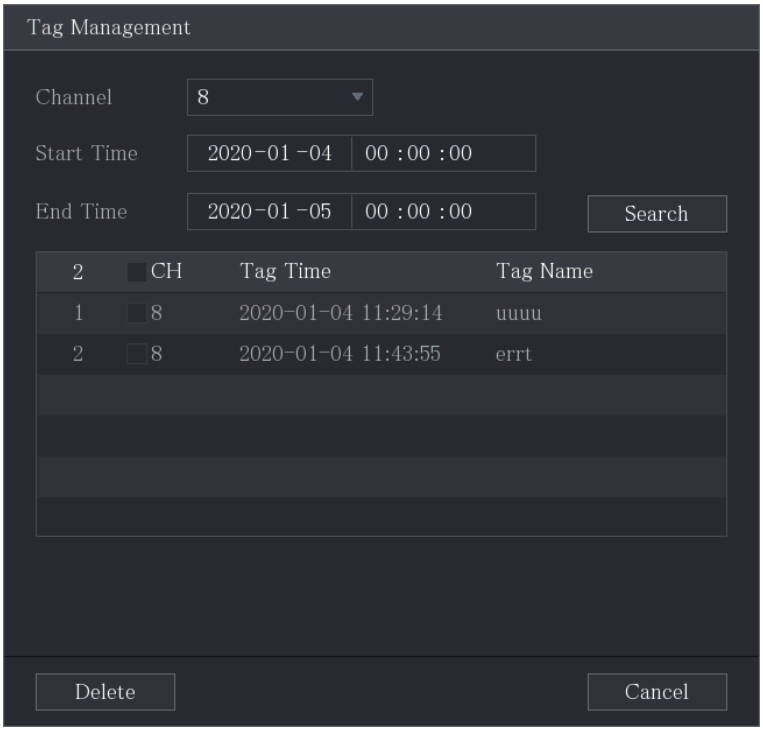
The playback starts from N seconds before the tagged time.

If there is N seconds exist before the marked time, the playback starts from N seconds before the tagged time. If there is not, it plays back as much as there is.

Managing Tagged Video

In the **Tag List** interface, click , the **Tag Management** interface is displayed.

Figure 5-109 Tag management



- Be default, it manages all the tagged videos of the selected channel.
- To search the tagged video, select channel number from the **Channel** list, enter time in **Start Time** box and **End Time** box, and then click **Search**.
- All the tagged videos display in time order.
- To modify the name of tagged video, double-click a tagged video, the **Modify Tag** dialog box is displayed.
- To delete the marked video, select the tagged video, and then click **Delete**.

After opening the **Tag Management** interface, the playback will pause until exiting this interface. If the marked video that was in playing back is deleted, the playback will start from the first tagged video in the **Tag List**.

5.9.6 Playing Back Snapshots

You can search and play back the snapshots.

Step 1 Select **Main Menu > SEARCH**, the video search interface is displayed.

Step 2 In the **Search Type** list, select **Picture**.

Step 3 In the **Channel** list, select a channel number.

Step 4 In the **Calendar** area, select a date.

Step 5 Click .

The system starts playing snapshots according to the configured intervals.

5.9.7 Playing Back Splices

You can clip the recorded video files into splices and then play back at the same time to save your time.

Not all models support this function.

Step 1 Select **Main Menu** > **SEARCH**.

Step 2 In the **Search Type** list, select **Subperiod**; In the Split Mode list, select **4**, **9**, or **16**.

Figure 5-110 Subperiod

Step 3 In the **Calendar** area, select a date.

Step 4 In the **Camera Name** list, select a channel.

Only single-channel supports this function.

Step 5 Start playing back splices.

- Click , the playback starts from the beginning.
- Double-click anywhere on the time bar, the playback starts from where you click.

Figure 5-111 Time bar

Every recorded video file must be at least five minutes. If a recorded video file is less than 20 minutes but still choose to split into four windows, the system will automatically adjust the windows quantity to ensure every splice is more than five minutes, and in this case it is possible that there are no images are displaying in some windows.

5.9.8 Using the File List

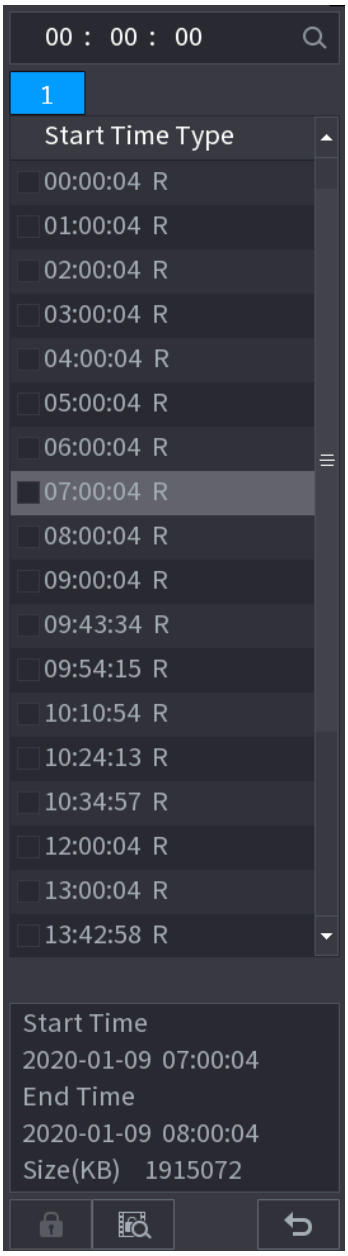
You can view all the recorded videos within a certain period from any channel in the **File List**.

Step 1 Select **Main Menu** > **SEARCH**.

Step 2 Select a channel(s).

Step 3 Click .

Figure 5-112 File list



Step 4 Start playback.

- Click , the playback starts from the first file by default.
- Click any file, the system plays back this file.

- In the time box on the top of the file list interface, you can enter the specific time to search the file that you want to view.
- In the File List area, there are 128 files can be displayed.
- File type: **R** indicates general recorded video; **A** indicates recorded video with external alarms; **M** indicates recorded video with motion detection events; **I** indicates recorded video with intelligent vents.
- Click to return to the interface with calendar and **CAM NAME** list.

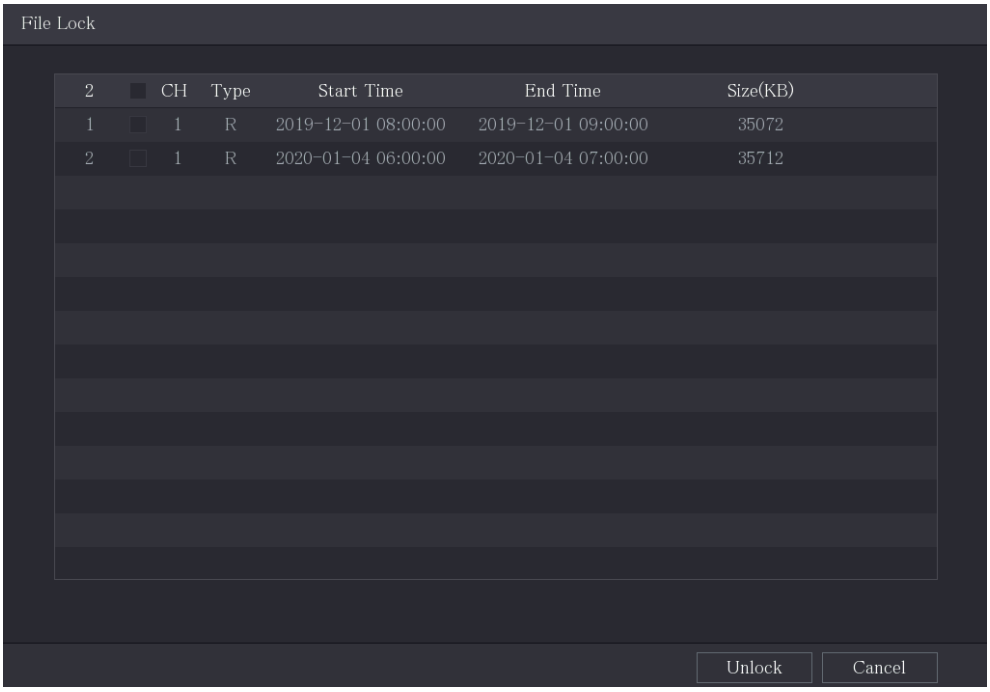
Locking and Unlocking the Recorded Video

- To lock the recorded video, on the **File List** interface, select the check box of the recorded video, and then click . The locked video will not be covered.
- To view the locked information, click , the **File Lock** interface is displayed.

The recorded video that is under writing or overwriting cannot be locked.

- To unlock the recorded video, in the **File Lock** interface, select the video, and then click **Unlock**.

Figure 5-113 File lock



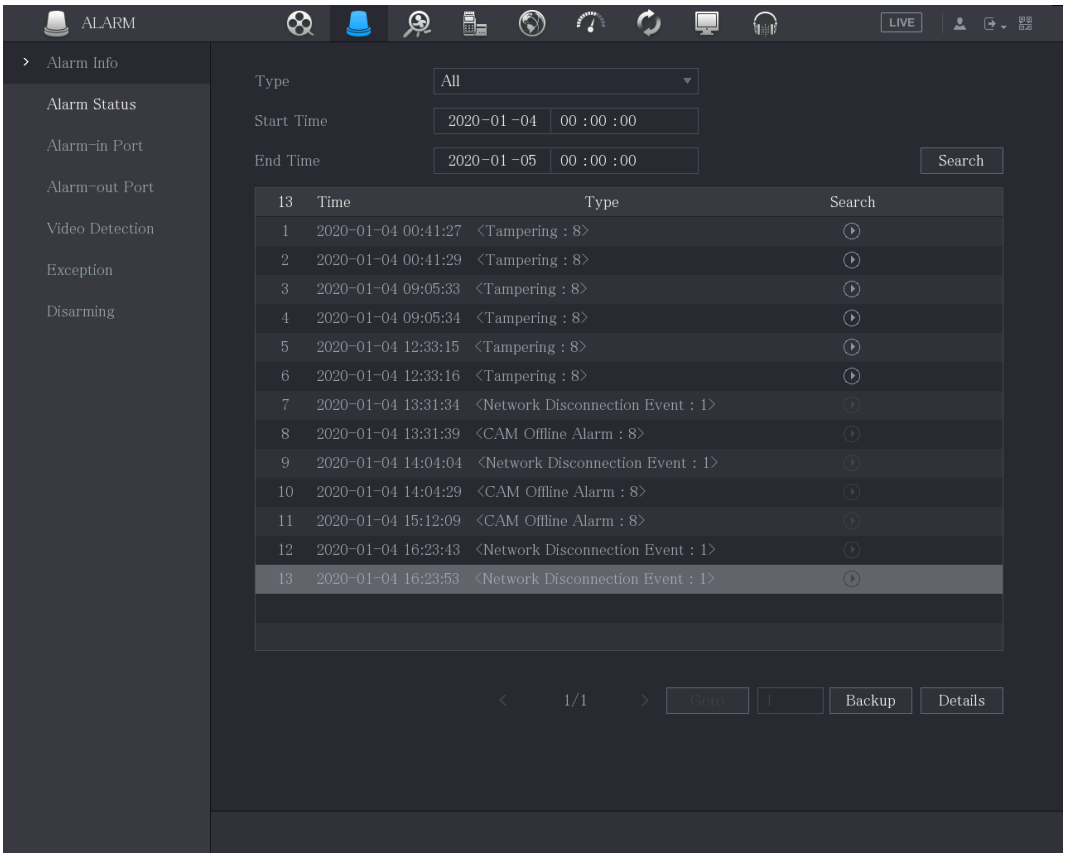
5.10 Alarm Events Settings

5.10.1 Alarm Information

You can search, view and back up the alarm information.

Step 1 Select **Main Menu > ALARM > Alarm Info**.

Figure 5-114 Alarm information



Step 2 In the **Type** list, select the event type; In the **Start Time** box and **End Time** box, enter the specific time.

Step 3 Click **Search**.

The search results are displayed.

Step 4 Click **Backup** to back up the search results into the external storage device.

- Click to play the recorded video of alarm event.
- Select an event and click **Details** to view the detailed information of the event.

5.10.2 Alarm Input Settings

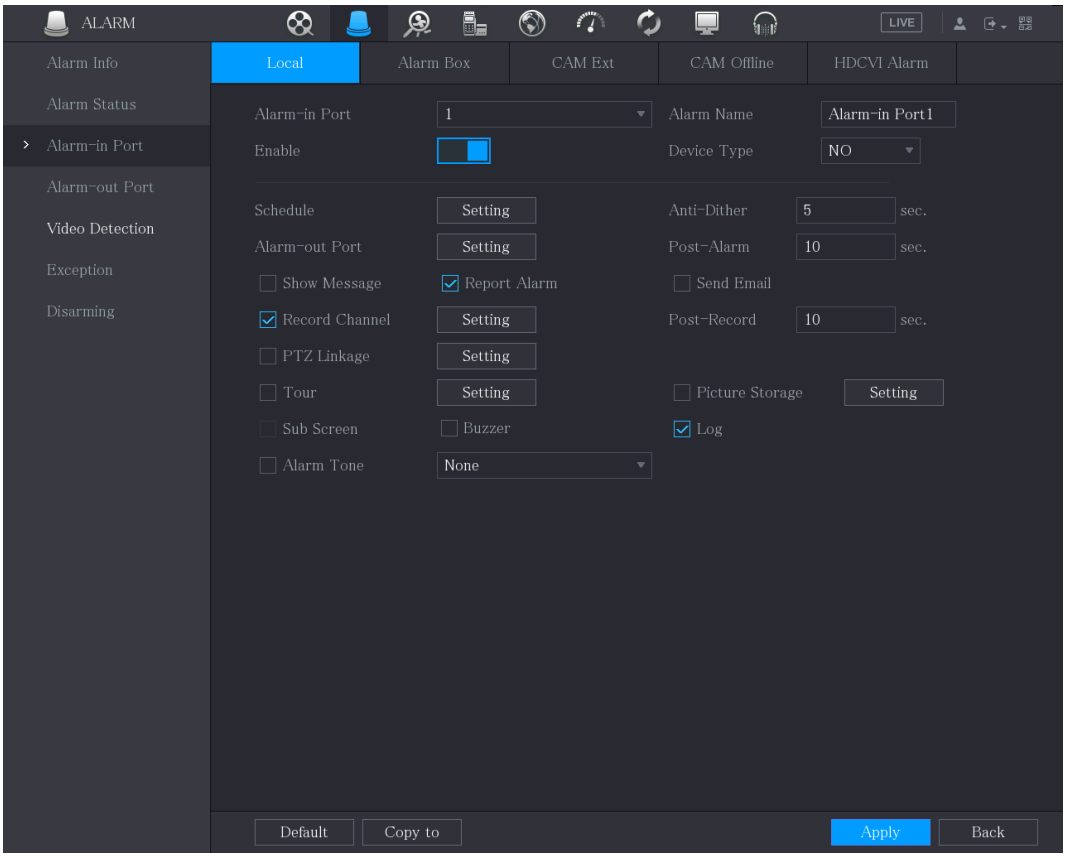
Connect the alarm input and output ports by referring to "4.3 Connecting to Alarm Input and Output." You can configure the alarm settings for each channel individually or apply the settings to all channels and then save the settings.

5.10.2.1 Configuring Local Alarms

You can connect the alarm device to the alarm input port of the Device. When the alarm is activated on the alarm device, the alarm information will be uploaded to the Device, and then the Device outputs the local alarms in the way that you configure in this section.

Step 1 Select **Main Menu > ALARM > Alarm-in Port > Local**.

Figure 5-115 Local



Step 2 Configure the settings for the local alarms.

Table 5-36 Local alarm parameters

Parameter	Description
Alarm-in Port	Select the channel number.
Alarm Name	Enter the customized alarm name.
Enable	Enable or disable the local alarm function.
Device Type	In the **Device Type** list, select **NO** or select **NC** as the voltage output type.
Schedule	Click **Setting** to display setting interface. Define a period during which the motion detection is active. For details, see "Setting Motion Detection Period" section in "5.10.4.1 Configuring Motion Detection Settings."
Anti-Dither	Configure the time period from end of event detection to the stop of alarm.
Alarm-out Port	Click **Setting** to display setting interface. ● Local Alarm: Enable alarm activation through the alarm devices connected to the selected output port. ● Extension Alarm: Enable alarm activation through the connected alarm box. ● Wireless Siren: Enable alarm activation through devices connected by USB gateway or camera gateway.
Post-Alarm	Set a length of time for the Device to delay turning off alarm after the external alarm is cancelled. The value ranges from 0 seconds to 300 seconds, and the default value is 10 seconds.

Parameter	Description
Show Message	Select the **Show Message** check box to enable a pop-up message in your local host PC.
Report Alarm	Select the **Report Alarm** check box to enable the system to upload the alarm signal to the network (including alarm center) when an alarm event occurs.
Send Email	Select the **Send Email** check box to enable the system to send an email notification when an alarm event occurs. To use this function, make sure the email function is enabled in **Main Menu** > **NETWORK** > **Email**.
Record Channel	Select the channel(s) that you want to record. The selected channel(s) starts recording after an alarm event occurs. The recording for local alarm recording and auto recording must be enabled. For details, see "5.1.4.9 Configuring Recorded Video Storage Schedule" and "5.9.1 Enabling Record Control."
PTZ Linkage	Click **Setting** to display the PTZ interface. Enable PTZ linkage actions, such as selecting the preset that you want to be called when an alarm event occurs.
Post Record	Set a length of time for the Device to delay turning off recording after the alarm is cancelled. The value ranges from 10 seconds to 300 seconds, and the default value is 10 seconds.
Tour	Select the **Tour** check box to enable a tour of the selected channels.
Picture Storage	Select the **Snapshot** check box to take a snapshot of the selected channel. To use this function, select **Main Menu** > **CAMERA** > **Encode** > **Snapshot**, in the **Type** list, select **Event**.
Sub Screen	Select the check box to enable the function. When an alarm event occurs, the extra screen outputs the settings configured in **Main Menu** > **DISPLAY** > **Tour Setting** > **Sub Screen.** Not all models support this function. To use this function, extra screen shall be enabled.
Video Matrix	Select the check box to enable the function. When an alarm event occurs, the video output port outputs the settings configured in **Main Menu** > **DISPLAY** > **Tour Setting**. Not all models support this function.
Buzzer	Select the check box to activate a buzzer noise at the Device.
Log	Select the check box to enable the Device to record a local alarm log.
Alarm Tone	Select to enable audio broadcast/alarm tones in response to a local alarm event.

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

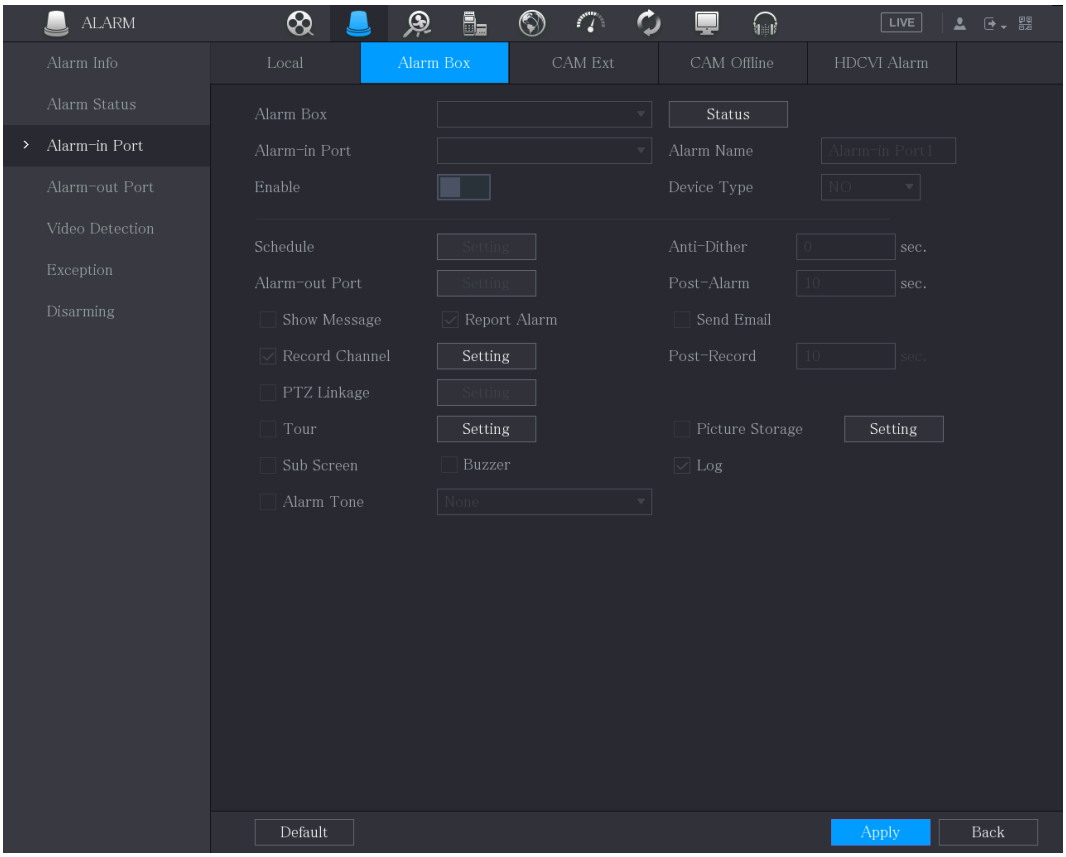
- Click **Default** to restore the default setting.
- Click **Copy to**, in the **Copy to** dialog box, select the additional channel(s) that you want to copy the local alarm settings to, and then click **Apply**.

5.10.2.2 Configuring Alarms from Alarm Box

You can connect the alarm box to the RS-485 port of the Device. When the alarm is detected by the alarm box, the alarm information will be uploaded to the Device, and then the Device outputs the alarms in the way that you configure in this section.

Step 1 Select **Main Menu > ALARM > Alarm-in Port > Alarm Box**.

Figure 5-116 Alarm box



Step 2 In the **Alarm Box** list, select the alarm box number corresponding to the address number configured by the DIP switch on the Alarm Box.

Step 3 In the **Alarm-in Port** list, select the alarm input port on the Alarm Box.

Step 4 Configure the settings for other parameters of the Alarm Box. For details, see Table 5-36.

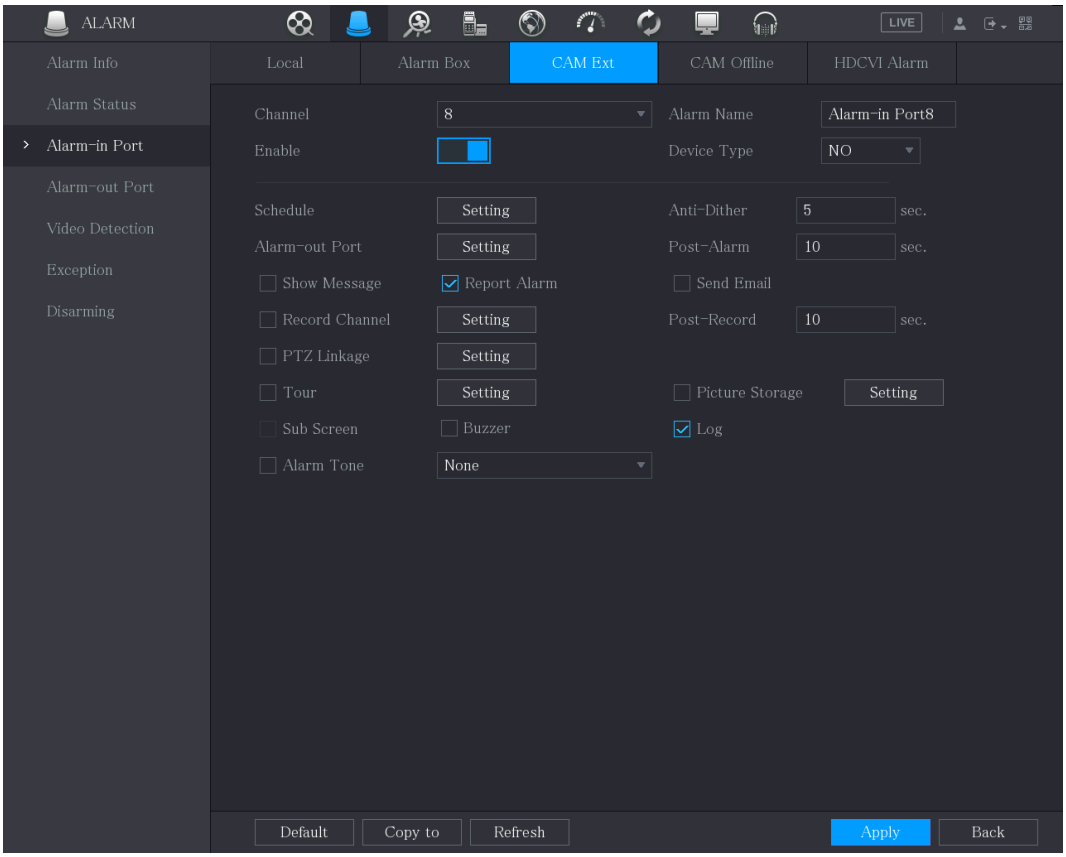
Step 5 Click **Apply** to complete the settings.

Click **Default** to restore the default setting.

5.10.2.3 Configuring Alarms from External IP Cameras

Step 1 Select **Main Menu > ALARM > Alarm-in Port > CAM Ext**.

Figure 5-117 CAM ext



Step 2 Configure the alarm input settings from the external IPC. For details, see Table 5-36.

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

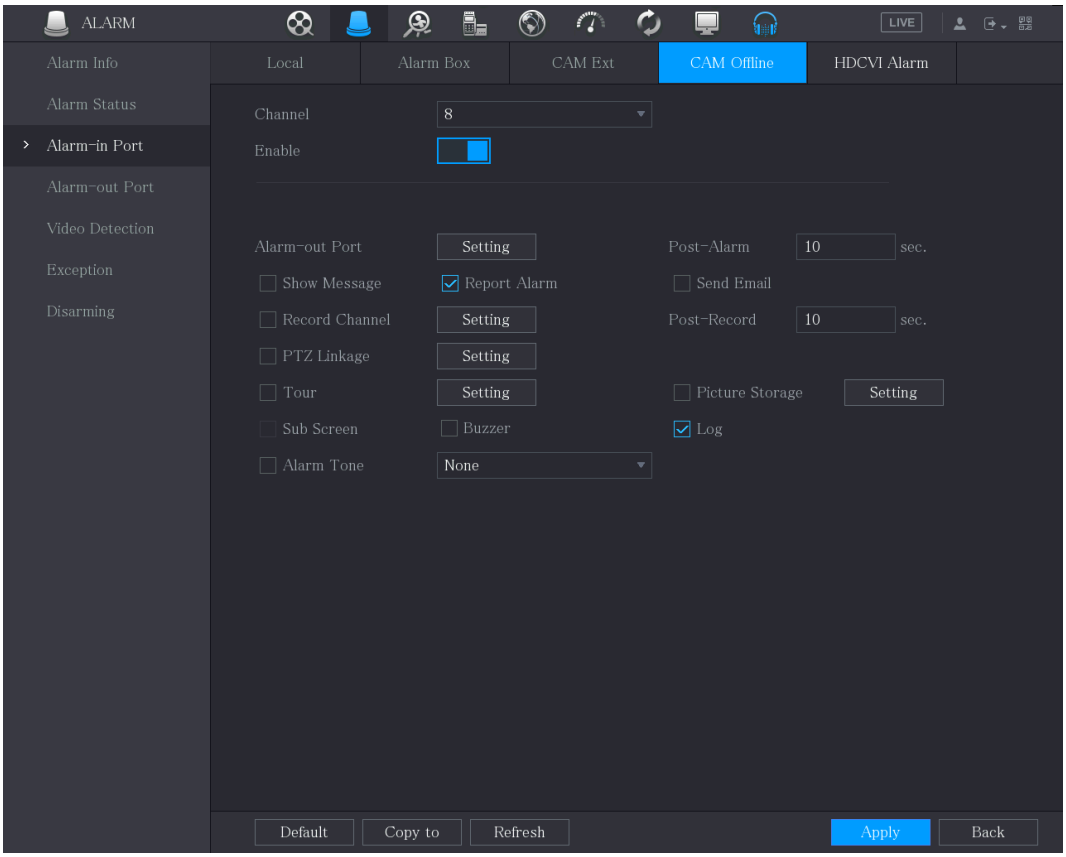
- Click **Default** to restore the default setting.
- Click **Copy to** to copy the settings to other channels.
- Click **Refresh** to refresh configured settings.

5.10.2.4 Configuring Alarms for IP Camera Offline

You can configure the alarm settings for the situation when the IP camera is offline.

Step 1 Select **Main Menu > ALARM > Alarm-in Port > CAM Offline**.

Figure 5-118 CAM offline



Step 2 Configure the alarm input settings from the offline IPC.

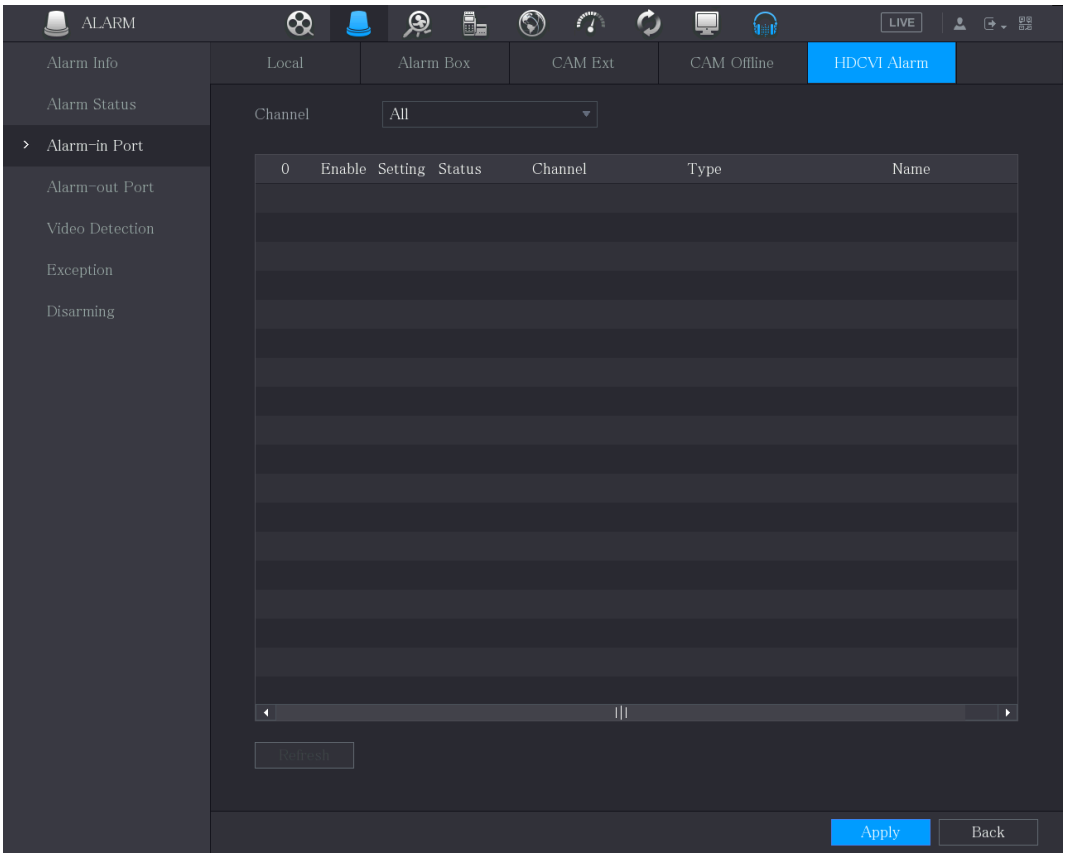
Step 3 Click **Apply** to complete the settings.

- Click **Default** to restore the default setting.
- Click **Copy to** to copy the settings to other channels.

5.10.2.5 Configuring Alarms from HDCVI Devices

Step 1 Select **Main Menu > ALARM > Alarm-in Port > HDCVI Alarm**.

Figure 5-119 HDCIV alarm



Step 2 In the **Channel** list, select a channel or **All**.

Step 3 Click .

Step 4 Configure the settings for other parameters of the Alarm Box.

Step 5 Click **OK** to save the settings.

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

5.10.3 Alarm Output Settings

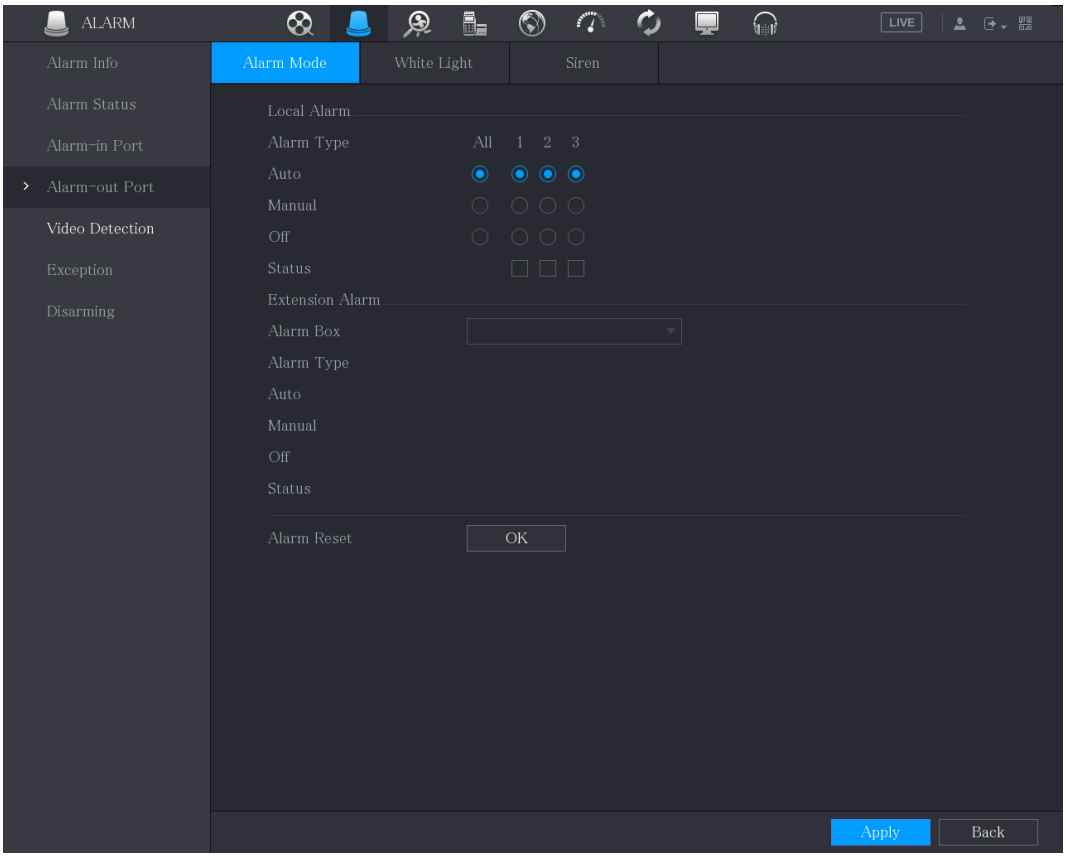
5.10.3.1 Configuring Alarm Output

When the Device activates alarms, the connected alarm device generates alarms in the way that you can configure in this section. You can connect to the output port of the Device or connect wirelessly.

- **Auto**: When an alarm event is triggered on the Device, the connected alarm device generates alarms.
- **Manual**: The alarm device is forced to keep generating alarms.
- **Stop**: The alarm output function is not enabled.

Step 1 Select **Main Menu > ALARM > Alarm-out Port > Alarm Mode**.

Figure 5-120 Alarm mode



Step 2 Configure the settings for the alarm output.

Table 5-37 Alarm output parameters

Parameter		Description
Local Alarm	Alarm Type	Select alarm type for each alarm output port.
	Status	Indicates the status of each alarm output port.
Extension Alarm	Alarm Box	Select the alarm box number corresponding to the address number configured by the DIP switch on the Alarm Box.
	Alarm Type	Select the alarm type for each alarm output ports.
	Status	Indicates the status of each alarm output port.
Alarm Reset		Click **OK** to clear all alarm output status.

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

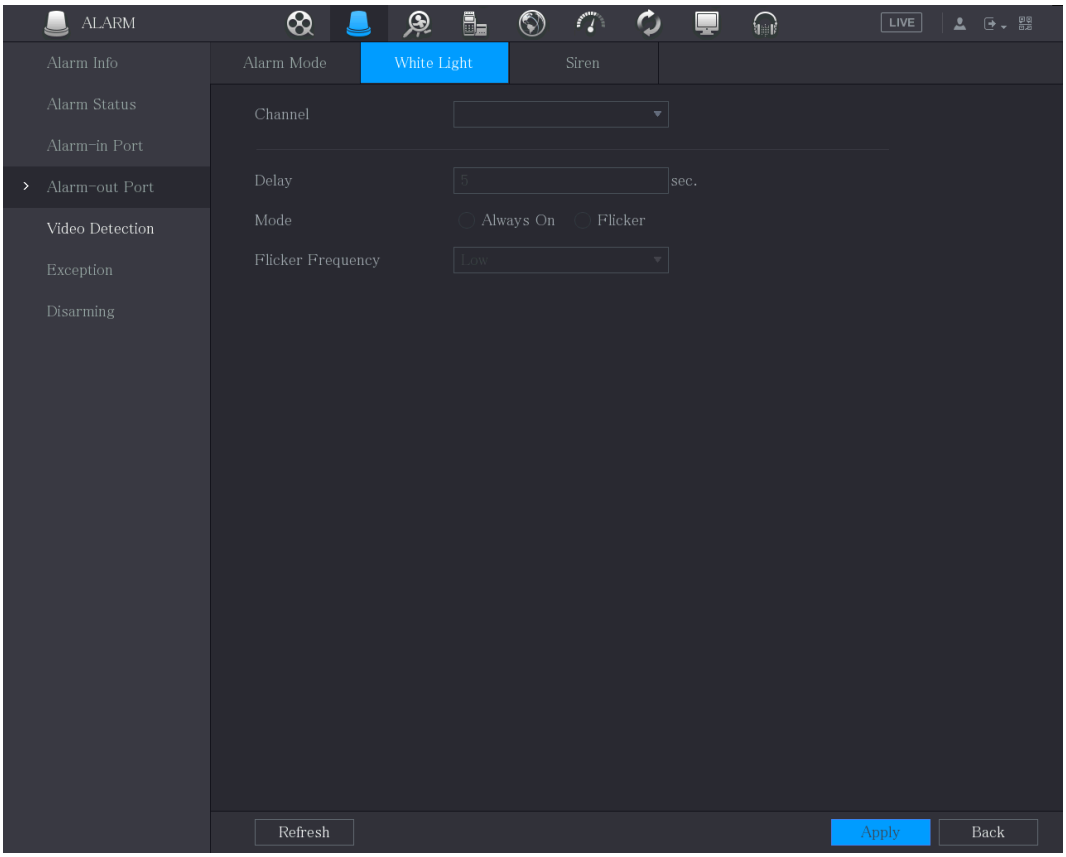
5.10.3.2 Configuring White Light

When the motion detection alarm is activated, the system links the camera to generate white light alarm.

To use this function, connect at least one white light camera to your Device.

Step 1 Select **Main Menu > ALARM > Alarm-out Port > White Light**.

Figure 5-121 White light



Step 2 Configure the settings for the white light parameters.

Table 5-38 White light parameters

Parameter	Description
Channel	In the **Channel** list, select a channel that is connected to a white light camera.
Delay	Set a length of time for the Device to delay turning off alarm after the alarm is cancelled. The value ranges from 5 seconds to 30 seconds, and the default value is 5 seconds.
Mode	Set the alarm mode of white light to be **Always on** or **Flicker**.
Flicker Frequency	When setting the alarm mode of white light to be **Flash**, you can select the flash frequency from **Low**, **Middle**, and **High**.

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

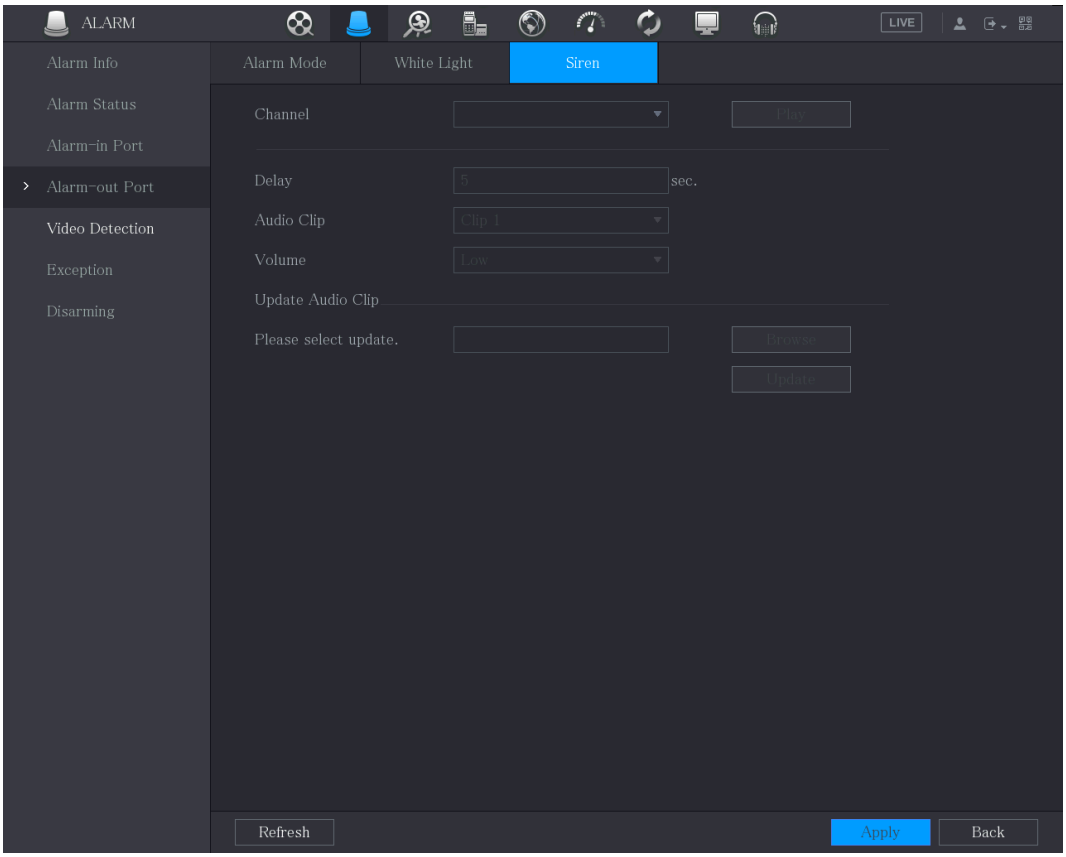
5.10.3.3 Configuring Siren

When the motion detection alarm is activated, the system links the camera to generate sound alarm.

To use this function, connect at least one camera that supports audio function.

Step 1 Select **Main Menu** > **ALARM** > **Alarm-out Port** > **Siren**.

Figure 5-122 Siren



Step 2 Configure the settings for the siren parameters.

Table 5-39 Siren parameters

Parameter	Description
Channel	In the **Channel** list, select a channel that is connected to a camera that supports audio function.
Play	Click **Play** to manually trigger the IP camera to play audio file.
Delay	Set a length of time for the Device to delay turning off alarm after the alarm is cancelled. The value ranges from 5 seconds to 30 seconds, and the default value is 5 seconds.
Audio Clip	Select the audio clip for the siren sound. The default setting is **Clip 1**.
Volume	Select the volume for the audio clip. You can select the flash frequency from **Low**, **Middle**, and **High**.
Update Audio Clip	Import the upgrade audio file (.bin) to upgrade the alarm audio file of the camera.

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

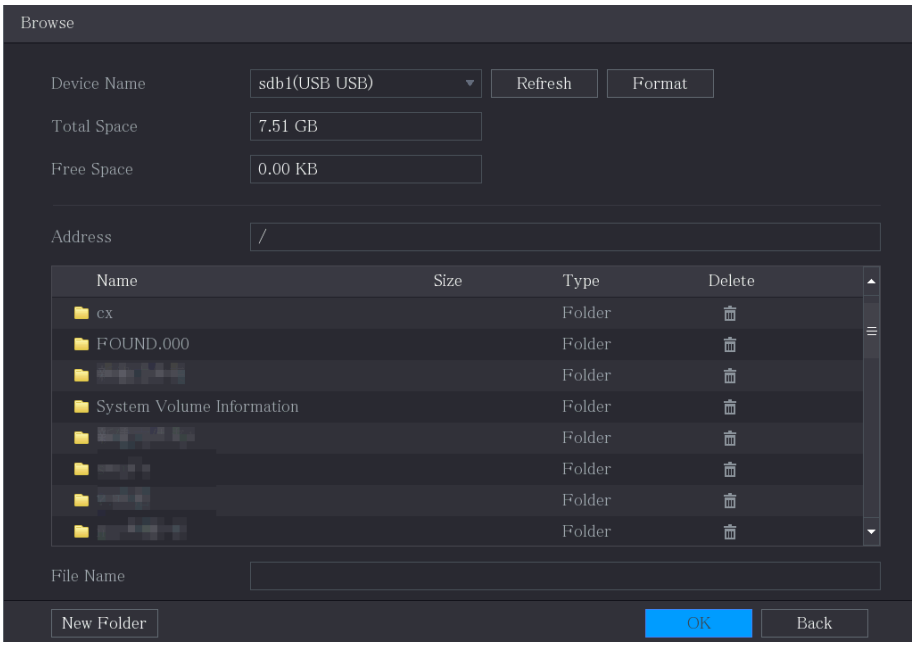
Updating Audio File of Camera

This function is supported only on the local interface.

Step 1 Prepare a USB device or other external storage device and plug it into the Device.

Step 2 Click **Browse**.

Figure 5-123 Browse



Step 3 Select the upgrade audio file (.bin).

Step 4 Click **OK** to return to the **Siren** interface.

Step 5 Click **Upgrade** to upgrade the alarm audio file of the camera.

5.10.4 Video Detection

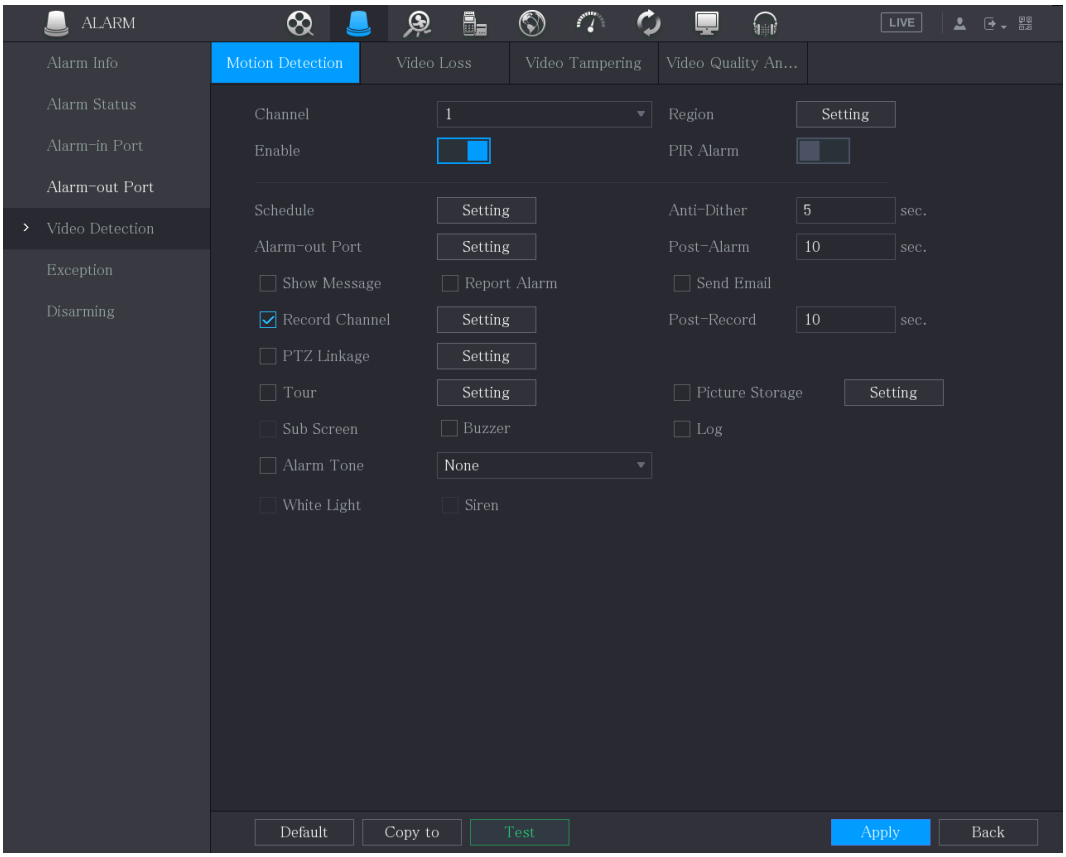
Video detection adopts computer vision and image processing technology. The technology analyzes the video images to detect the obvious changes such as moving objects and blurriness. The system activates alarms when such changes are detected.

5.10.4.1 Configuring Motion Detection Settings

When the moving object appears and moves fast enough to reach the preset sensitivity value, the system activates the alarm.

Step 1 Select **Main Menu > ALARM > Video Detection > Motion Detection**.

Figure 5-124 Motion detection



Step 2 Configure the settings for the motion detection parameters.

Table 5-40 Motion detection parameters

Parameter	Description
Channel	In the **Channel** list, select a channel to set the motion detection.
Region	Click **Setting** to define the motion detection region.
Enable	Enable or disable the motion detection function.
PIR Alarm	PIR function helps enhancing the accuracy and validity of motion detect. It can filter the meaningless alarms that are activated by the objects such as falling leaves, flies. The detection range by PIR is smaller than the field angle. PIR function is enabled by default if it is supported by the cameras. Enabling PIR function will get the motion detect to be enabled automatically to generate motion detection alarms; if the PIR function is not enabled, the motion detect just has the general effect. ● Only when the channel type is CVI, the PIR function can be enabled. ● If the camera does not support PIR function, it will be unusable. ● If the Device does not support PIR function, it will not be displayed on the interface.
Schedule	Define a period during which the motion detection is active.
Anti-Dither	Configure the time period from end of event detection to the stop of alarm.

Parameter	Description
Alarm-out Port	Click **Setting** to display setting interface. ● General Alarm: Enable alarm activation through the alarm devices connected to the selected output port. ● External Alarm: Enable alarm activation through the connected alarm box. ● Wireless Siren: Enable alarm activation through devices connected by USB gateway or camera gateway.
Post-Alarm	Set a length of time for the Device to delay turning off alarm after the external alarm is cancelled. The value ranges from 0 seconds to 300 seconds, and the default value is 10 seconds. If you enter 0, there will be no delay.
Show Message	Select the **Show Message** check box to enable a pop-up message in your local host PC.
Report Alarm	Select the **Report Alarm** check box to enable the system to upload the alarm signal to the network (including alarm center) when an alarm event occurs.
Send Email	Select the **Send Email** check box to enable the system to send an email notification when an alarm event occurs. To use this function, make sure the email function is enabled in **Main Menu > NETWORK > Email**.
Record Channel	Select the channel(s) that you want to record. The selected channel(s) starts recording after an alarm event occurs. The recording for motion detection and auto recording function must be enabled. For details, see "5.1.4.9 Configuring Recorded Video Storage Schedule" and "5.9.1 Enabling Record Control."
PTZ Linkage	Click **Setting** to display the PTZ interface. Enable PTZ linkage actions, such as selecting the preset that you want to be called when an alarm event occurs. Motion Detect can only activate PTZ preset.
Post Record	Set a length of time for the Device to delay turning off recording after the alarm is cancelled. The value ranges from 10 seconds to 300 seconds, and the default value is 10 seconds.
Tour	Select the **Tour** check box to enable a tour of the selected channels.
Picture Storage	Select the **Snapshot** check box to take a snapshot of the selected channel. To use this function, select **Main Menu > CAMERA > Encode > Snapshot**, in the **Type** list, select **Event**.

Parameter	Description
Sub Screen	Select the check box to enable the function. When an alarm event occurs, the extra screen outputs the settings configured in **Main Menu > DISPLAY > Tour > Sub Screen.** ● Not all models support this function. ● To use this function, extra screen shall be enabled.
Video Matrix	Select the check box to enable the function. When an alarm event occurs, the video output port outputs the settings configured in **Main Menu > DISPLAY > Tour**. Not all models support this function.
Buzzer	Select the check box to activate a buzzer noise at the Device.
Log	Select the check box to enable the Device to record a local alarm log.
Alarm Tone	Select to enable audio broadcast/alarm tones in response to a motion detection event.
White Light	Select the check box to enable white light alarm of the camera.
Siren	Select the check box to enable sound alarm of the camera.

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

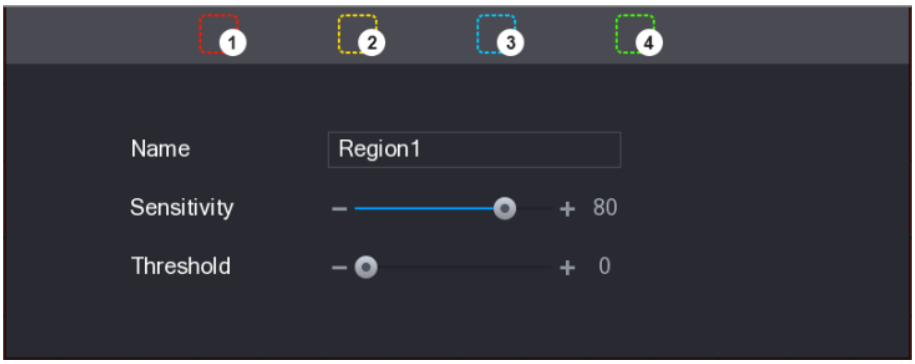
- Click **Default** to restore the default setting.
- Click **Copy to**, in the **Copy to** dialog box, select the additional channel(s) that you want to copy the motion detection settings to, and then click **Apply**.
- Click **Test** to test the settings.

Setting the Motion Detection Region

Step 1 Next to **Region**, click **Setting**.

Step 2 Point to the middle top of the interface.

Figure 5-125 Region setting



Step 3 Configure the regions settings. You can configure totally four regions.

1) Select one region, for example, click 1.
2) Drag on the screen to select the region that you want to detect.
   The selected area shows the color that represents the region.
3) Configure the parameters.

Figure 5-126 Region parameters

Parameter	Description
Name	Enter a name for the region.
Sensitivity	Every region of every channel has an individual sensitivity value. The bigger the value is, the easier the alarms can be activated.
Threshold	Adjust the threshold for motion detect. Every region of every channel has an individual threshold.

When anyone of the four regions activates motion detect alarm, the channel where this region belongs to will activate motion detect alarm.

Step 4 Right-click on the screen to exit the region setting interface.

Step 5 On the **Motion Detection** interface, click **Apply** to complete the settings.

Setting Motion Detection Period

The system only activates the alarm in the defined period.

Step 1 Next to **Schedule**, click **Setting**.

Figure 5-127 Schedule setting

Step 2 Define the motion detection period. By default, it is active all the time.

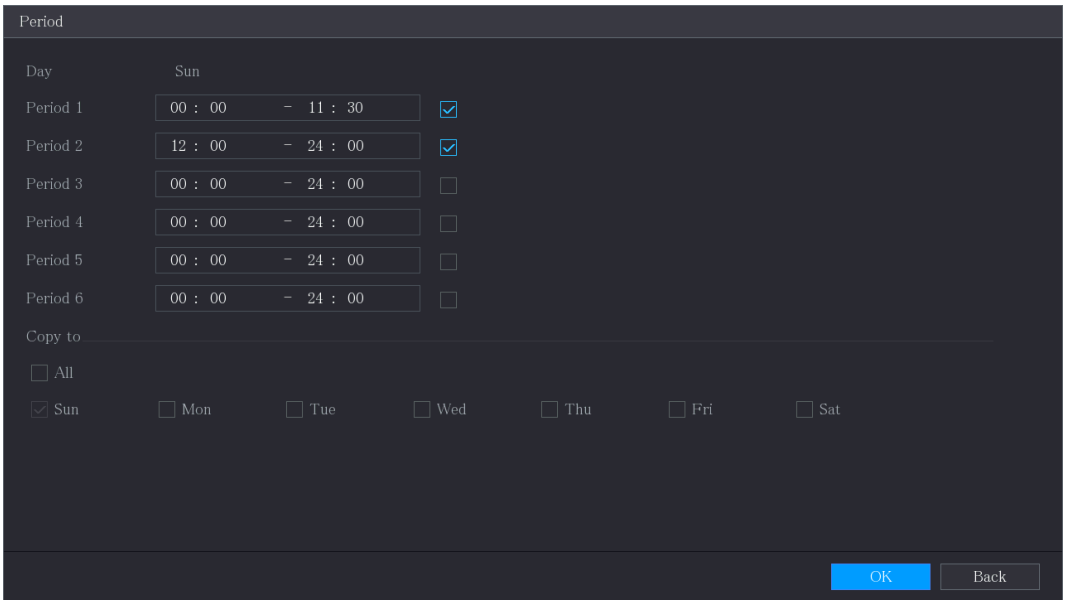
- Define the period by drawing.
  - ◇ Define for a specified day of a week: On the timeline, click the half-hour blocks to select the active period.
  - ◇ Define for several days of a week: Click before each day, the icon switches to . On the timeline of any selected day, click the half-hour blocks to select the active periods, all the days with will take the same settings.
  - ◇ Define for all days of a week: Click **All**, all switches to . On the timeline of

any day, click the half-hour blocks to select the active periods, all the days will take the same settings.

- Define the period by editing. Take Sunday as an example.

1) Click .

Figure 5-128 Period



2) Enter the time frame for the period, and then select the check box to enable the settings.
   - ◇ There are six periods for you to set for each day.
   - ◇ Under **Copy to**, select **All** to apply the settings to all the days of a week, or select specific day(s) that you want to apply the settings to.
3) Click **OK** to save the settings.

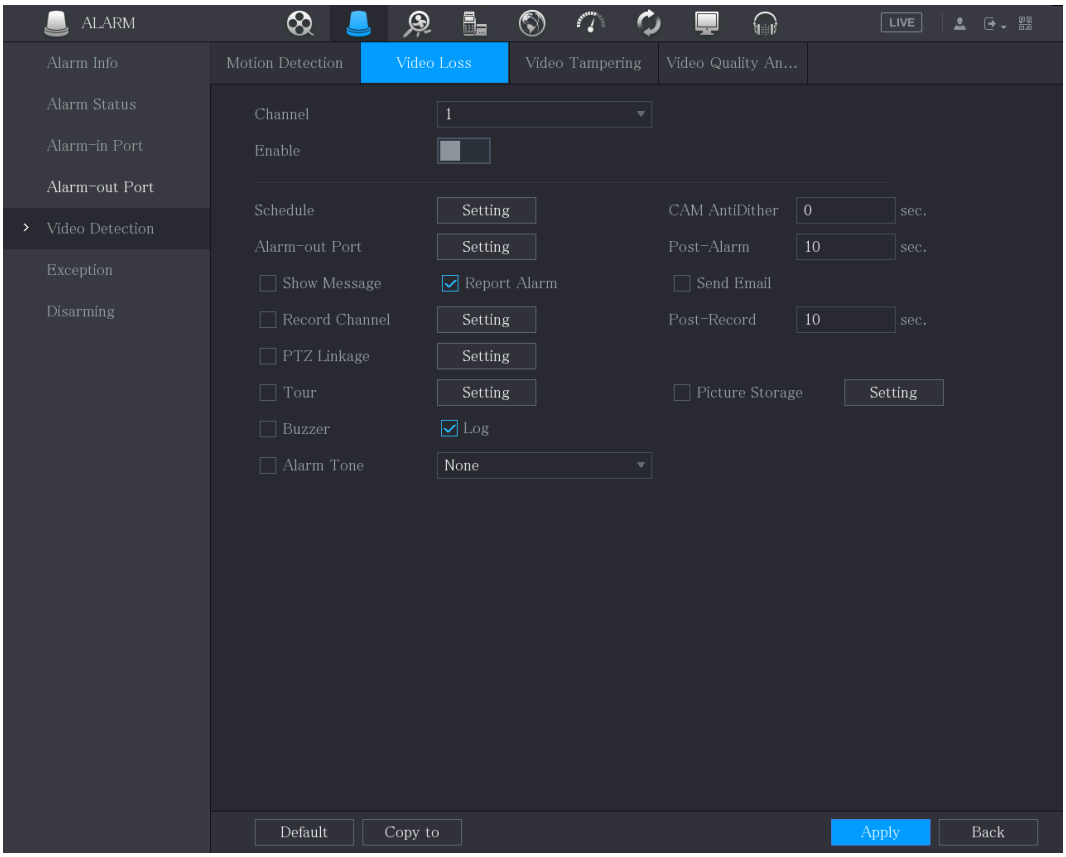
Step 3 On the **Motion Detection** interface, click **Apply** to complete the settings.

5.10.4.2 Configuring Video Loss Settings

When the video loss occurs, the system activates the alarm.

Step 1 Select **Main Menu > ALARM > Video Detection > Video Loss**.

Figure 5-129 Video loss



Step 2 To configure the settings for the video loss detection parameters, see"5.10.4.1 Configuring Motion Detection Settings."

For PTZ activation, different from motion detection, the video loss detection can activate PTZ preset, tour, and pattern.

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

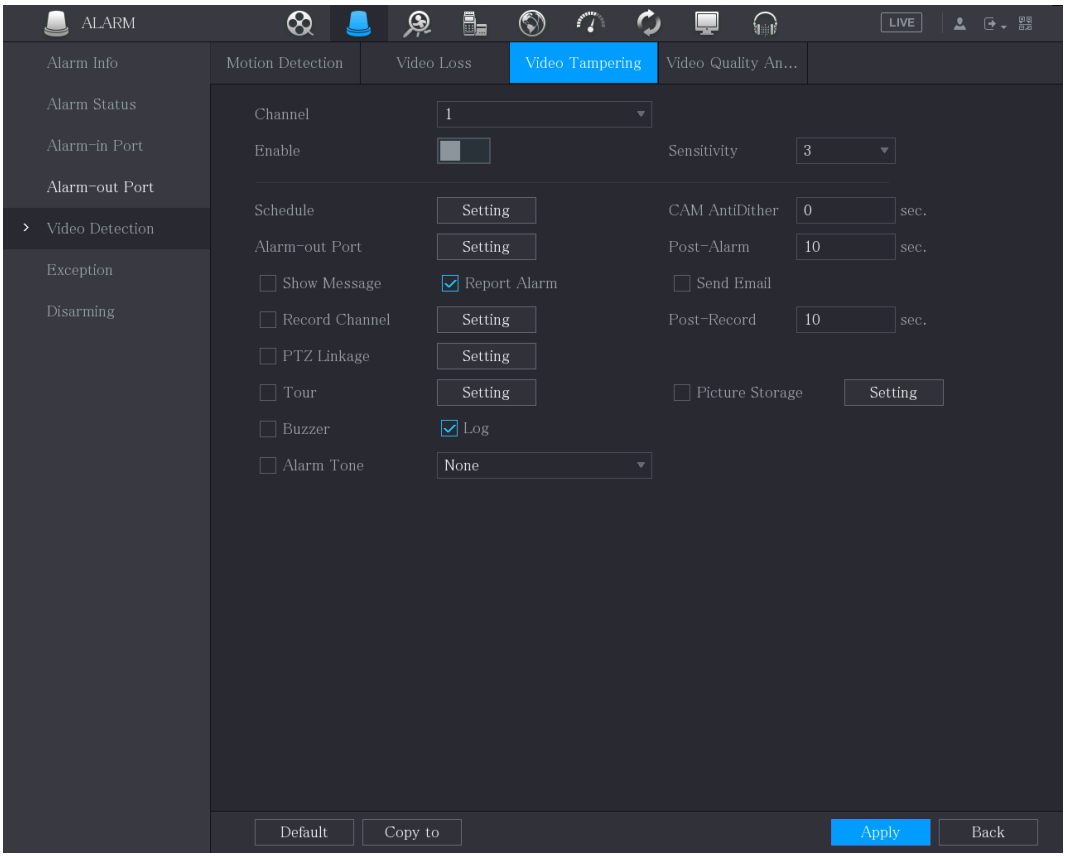
- Click **Default** to restore the default setting.
- Click **Copy to**, in the **Copy to** dialog box, select the additional channel(s) that you want to copy the motion detection settings to, and then click **Apply**.

5.10.4.3 Configuring Tampering Settings

When the camera lens is covered, or the video is displayed in a single color because of the causes such as sunlight status, the monitoring cannot be continued normally. To avoid such situations, you can configure the tampering alarm settings.

Step 1 Select **Main Menu > ALARM > Video Detection > Video Tampering**.

Figure 5-130 Video tampering



Step 2 To configure the settings for the tampering detection parameters, see"5.10.4.1 Configuring Motion Detection Settings."

For PTZ activation, different from motion detection, the video loss detection can activate PTZ preset, tour, and pattern.

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

- Click **Default** to restore the default setting.
- Click **Copy to**, in the **Copy to** dialog box, select the additional channel(s) that you want to copy the motion detection settings to, and then click **Apply**.

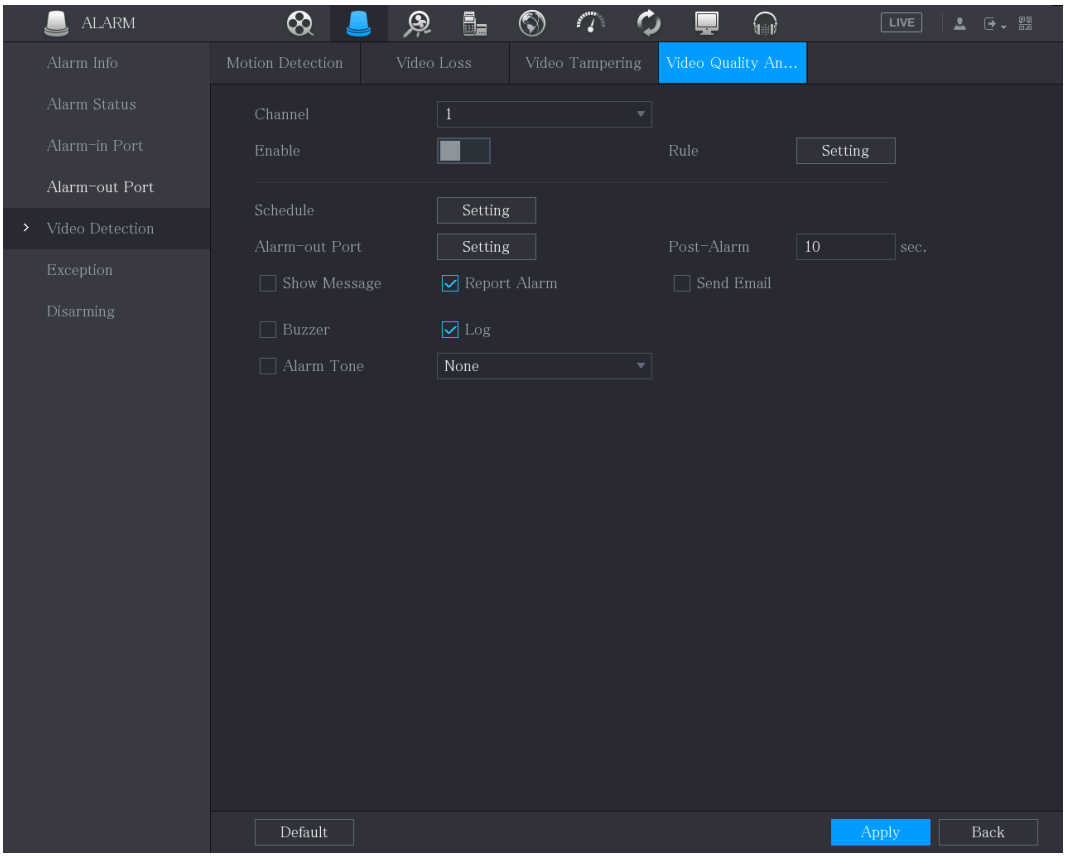
5.10.4.4 Configuring Video Quality Analytics

This function can be used only when it is supported by the camera.

When the video appears the conditions such as blurry, overexposed, or the color changes, the system activates the alarm.

Step 1 Select **Main Menu > ALARM > Video Detection > Video Quality Analytics**.

Figure 5-131 Video quality analytics



Step 2 To configure the settings for the diagnosis parameters, see "5.10.4.1 Configuring Motion Detection Settings."

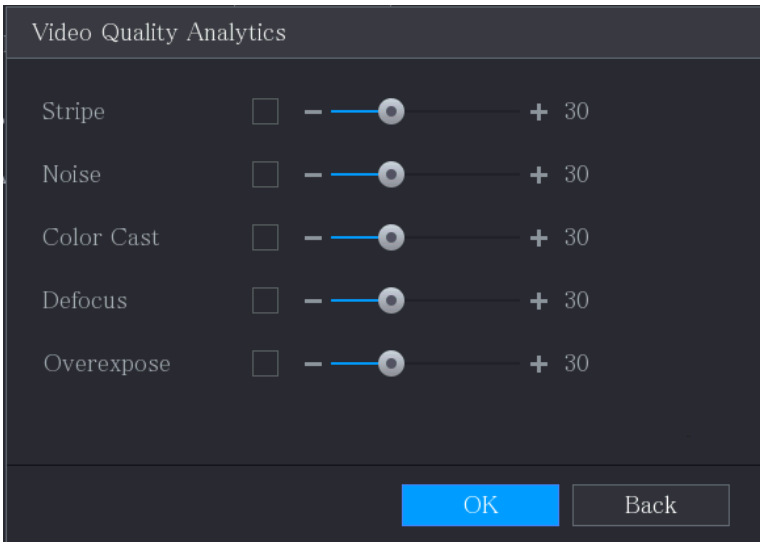
Step 3 Click **Apply** to complete the settings.

Click **Default** to restore the default setting.

Setting the Types for Diagnosing Targets

Step 1 Next to **Rule**, click **Setting**.

Figure 5-132 Video quality analytics



Step 2 Select the items that you want to diagnose and set the threshold (30 by default).

Table 5-41 Video quality analytics parameters

Parameter	Description
Stripe	A horizontal, vertical or diagonal stripe that might appear in the video because of device aging or electronic interruption. Such stripe brings visual interruption.
Noise	Video noises such as blurriness or quality reduction that is caused by optical distortion or device problem during camera shooting.
Color Cast	Variances in the normal proportions of RGB colors.
Defocus	Blurry video is caused during camera shooting, transferring and processing. Such condition is a common image quality reduction problem and defined as out of focus.
Overexposure	The video brightness refers to the intensity of image pixel. The range is between 0 (the darkest black) and 255 (the brightest white). If the brightness exceeds the threshold, the image is over exposed.

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

The system returns to the **Video Quality Analytics** interface.

Step 4 Click **Apply** to complete the settings.

Click **Default** to restore the default setting.

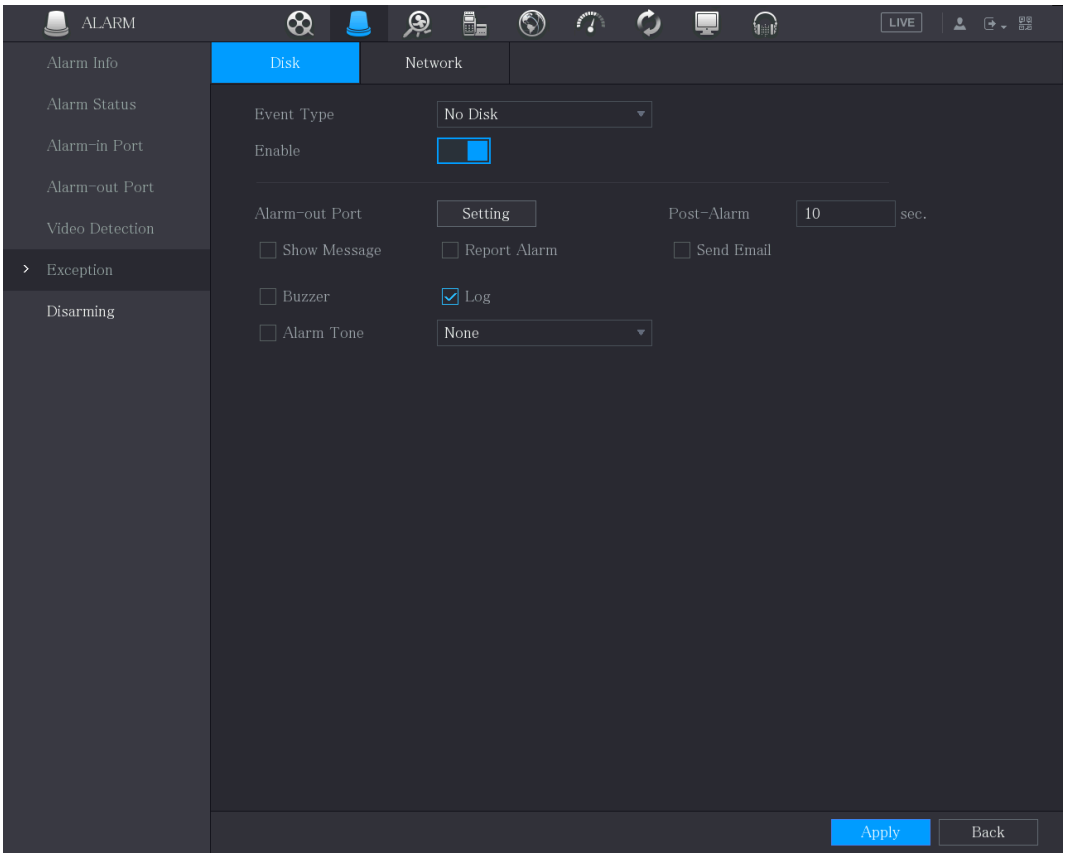
5.10.5 System Events

You can configure the alarm output for three types of system event (HDD, Network, and User). When there is an abnormal system event occurs, the system activates alarms in the way that you configure in this section.

5.10.5.1 Configuring HDD Event Settings

Step 1 Select **Main Menu** > **ALARM** > **Exception** > **Disk**.

Figure 5-133 Disk



Step 2 Configure the settings for the HDD event.

Table 5-42 HDD event parameters

Parameter	Description
Event Type	In the **Event Type** list, select **No Disk**, **Disk Error**, or **Low Space** as the event type.
Enable	Enable or disable the HDD event detection function.
Alarm-out Port	Click **Setting** to display setting interface. ● Local Alarm: Enable alarm activation through the alarm devices connected to the selected output port. ● Extension Alarm: Enable alarm activation through the connected alarm box. ● Wireless Siren: Enable alarm activation through devices connected by USB gateway or camera gateway.
Post-Alarm	Set a length of time for the Device to delay turning off alarm after the external alarm is cancelled. The value ranges from 10 seconds to 300 seconds, and the default value is 10 seconds.
Show Message	Select the **Show Message** check box to enable a pop-up message in your local host PC.
Report Alarm	Select the **Report Alarm** check box to enable the system to upload the alarm signal to the network (including alarm center) when an alarm event occurs.

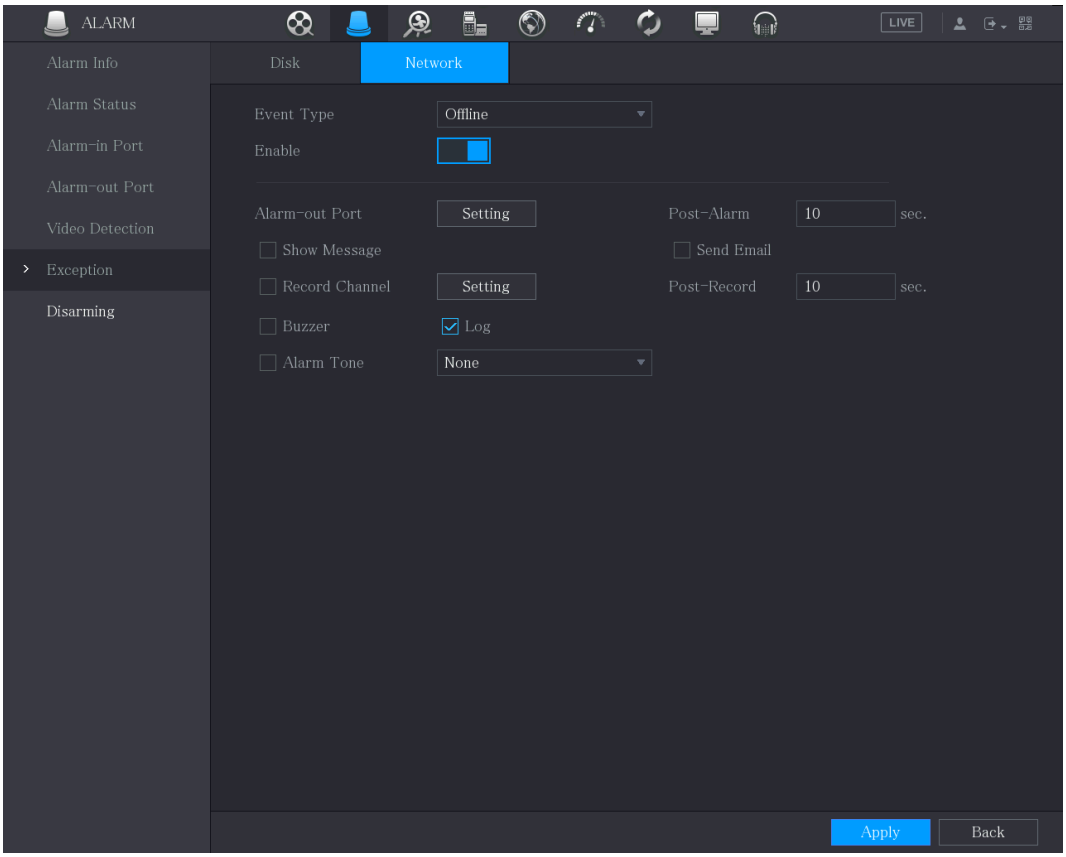
Parameter	Description
Send Email	Select the **Send Email** check box to enable the system to send an email notification when an alarm event occurs. To use this function, make sure the email function is enabled in **Main Menu > NETWORK > Email**.
Buzzer	Select the check box to activate a buzzer noise at the Device.
Log	Select the check box to enable the Device to record a local alarm log.
Alarm Tone	Select to enable audio broadcast/alarm tone in response to a HDD alarm event.

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

5.10.5.2 Configuring Network Event Settings

Step 1 Select **Main Menu > ALARM > Exception > Network.**

Figure 5-134 Network



Step 2 Configure the settings for the Network event.

Table 5-43 Network event parameters

Parameter	Description
Event Type	In the **Event Type** list, select **Offlice**, **IP Conflict**, or **MAC Conflict** as the event type.
Enable	Enable or disable the Network event detection function.

Parameter	Description
Alarm-out Port	Click **Setting** to display setting interface. ● General Alarm: Enable alarm activation through the alarm devices connected to the selected output port. ● External Alarm: Enable alarm activation through the connected alarm box. ● Wireless Siren: Enable alarm activation through devices connected by USB gateway or camera gateway.
Post-Alarm	Set a length of time for the Device to delay turning off alarm after the external alarm is cancelled. The value ranges from 10 seconds to 300 seconds, and the default value is 10 seconds.
Show Message	Select the **Show Message** check box to enable a pop-up message in your local host PC.
Send Email	Select the **Send Email** check box to enable the system to send an email notification when an alarm event occurs. To use this function, make sure the email function is enabled in **Main Menu** > **NETWORK** > **Email**.
Buzzer	Select the check box to activate a buzzer noise at the Device.
Log	Select the check box to enable the Device to record a local alarm log.
Post Record	Continue to record for some time after the alarm is ended. The value ranges from 10 seconds to 300 seconds.
Alarm Tone	Select to enable audio broadcast/alarm tones in response to a network alarm event.

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

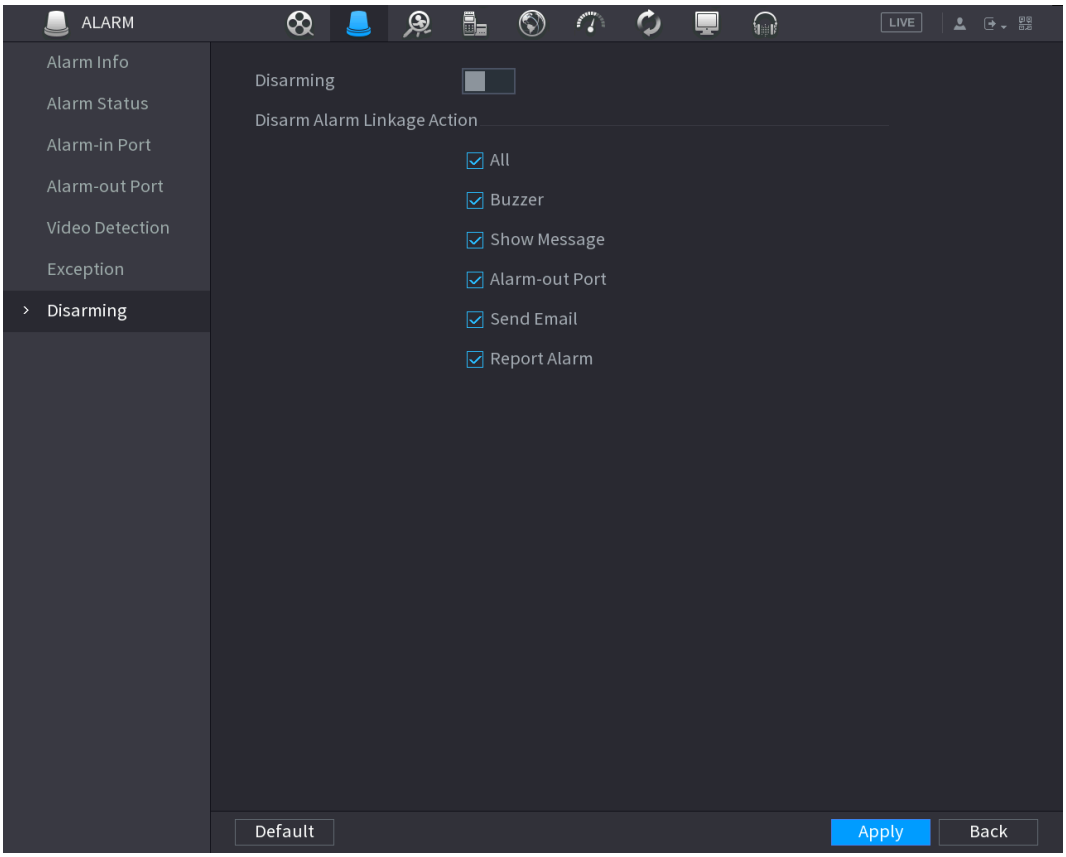
5.10.6 Configuring Disarming

You can disarm all alarm linkage actions as needed.

Step 1 Select **Main Menu** > **ALARM** > **Disarming**.

Step 2 Click to enable disarming.

Figure 5-135 Disarming



Step 3 Select alarm linkage actions to disarm.

All alarm linkage actions will be disarmed when you select **All**.

Step 4 Click **Apply**.

5.11 Smart Detection

Smart detection includes SMD, human face and IVS.

The system processes and analyzes video images, abstracts key information from the video, and activates alarms when it detects that person, vehicle, face or behavior matches the detection rule.

- Not all models support this function.
- Only the analog channel 1 supports this function. The IP channel does not support this function.
- SMD, face detection function, and IVS function cannot be enabled at the same time.

5.11.1 SMD

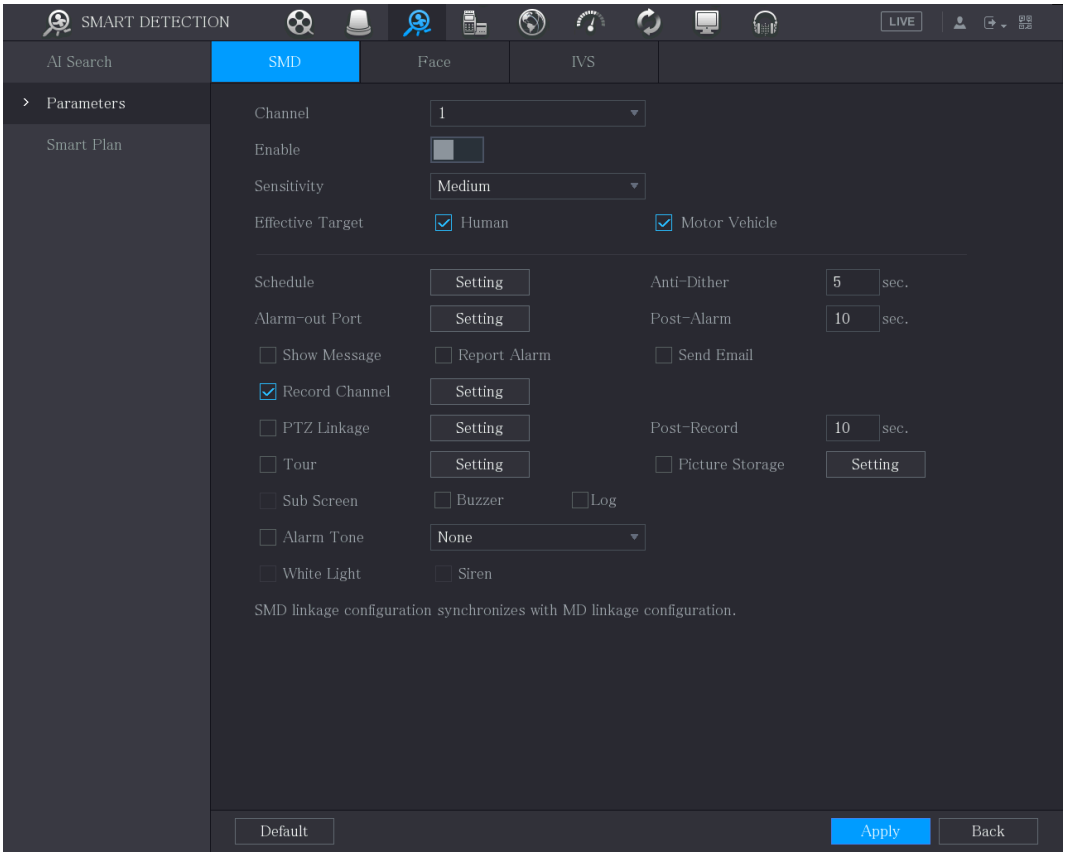
The system processes and analyzes video images, effectively detects persons and vehicles in the video, and activates alarms. Meanwhile, the system carries out structured storage of the detection result, to search it quickly in the future.

5.11.1.1 Configuring SMD Settings

Set SMD parameters. When the Device detects information, the system activates alarms.

Step 1 Select **Main Menu > SMART DETECTION > Parameters > SMD**.

Figure 5-136 SMD



Step 2 Select the channel and enable.

Step 3 Set parameters.

Table 5-44 SMD parameters

Parameter	Description
Channel	In the **Channel** list, select a channel to set the motion detection.
Enable	Enable or disable SMD function.
Sensitivity	Set sensitivity, including high, middle, and low. The higher the sensitivity is, the bigger alarm probability will be, the bigger false alarm rate will be. The system selects middle by default.
Effective Target	Select alarm object, including person and vehicle.
Schedule	Define a period during which the motion detection is active.
Anti-Dither	Configure the time period from end of event detection to the stop of alarm.
Alarm-out Port	Click **Setting** to display setting interface. ● General Alarm: Enable alarm activation through the alarm devices connected to the selected output port. ● External Alarm: Enable alarm activation through the connected alarm box.

Parameter	Description
	• Wireless Siren: Enable alarm activation through devices connected by USB gateway or camera gateway.
Post-Alarm	Set a length of time for the Device to delay turning off alarm after the external alarm is cancelled. The value ranges from 0 seconds to 300 seconds, and the default value is 10 seconds. If you enter 0, there will be no delay.
Show Message	Select the **Show Message** check box to enable a pop-up message in your local host PC.
Report Alarm	Select the **Report Alarm** check box to enable the system to upload the alarm signal to the network (including alarm center) when an alarm event occurs.
Send Email	Select the **Send Email** check box to enable the system to send an email notification when an alarm event occurs. To use this function, make sure the email function is enabled in **Main Menu > NETWORK > EMAIL**.
Record Channel	Select the channel(s) that you want to record. The selected channel(s) starts recording after an alarm event occurs. The recording for motion detection and auto recording function must be enabled. For details, see "5.1.4.9 Configuring Recorded Video Storage Schedule" and "5.9.1 Enabling Record Control."
PTZ Linkage	Click **Setting** to display the PTZ interface. Enable PTZ linkage actions, such as selecting the preset that you want to be called when an alarm event occurs. Motion Detect can only activate PTZ preset.
Post Record	Set a length of time for the Device to delay turning off recording after the alarm is cancelled. The value ranges from 10 seconds to 300 seconds, and the default value is 10 seconds.
Tour	Select the **Tour** check box to enable a tour of the selected channels.
Picture Storage	Select the **Snapshot** check box to take a snapshot of the selected channel. To use this function, select **Main Menu > CAMERA > Encode > Snapshot**, in the **Type** list, select **Event**.
Sub Screen	Select the check box to enable the function. When an alarm event occurs, the extra screen outputs the settings configured in **Main Menu > DISPLAY > Tour > Sub Screen.** Not all models support this function. To use this function, extra screen shall be enabled.
Buzzer	Select the check box to activate a buzzer noise at the Device.

Parameter	Description
Log	Select the check box to enable the Device to record a local alarm log.
Alarm Tone	Select to enable audio broadcast/alarm tones in response to a motion detection event.
White Light	Select the check box to enable the white light alarm of the camera.
Siren	Select the check box to enable the sound alarm of the camera.

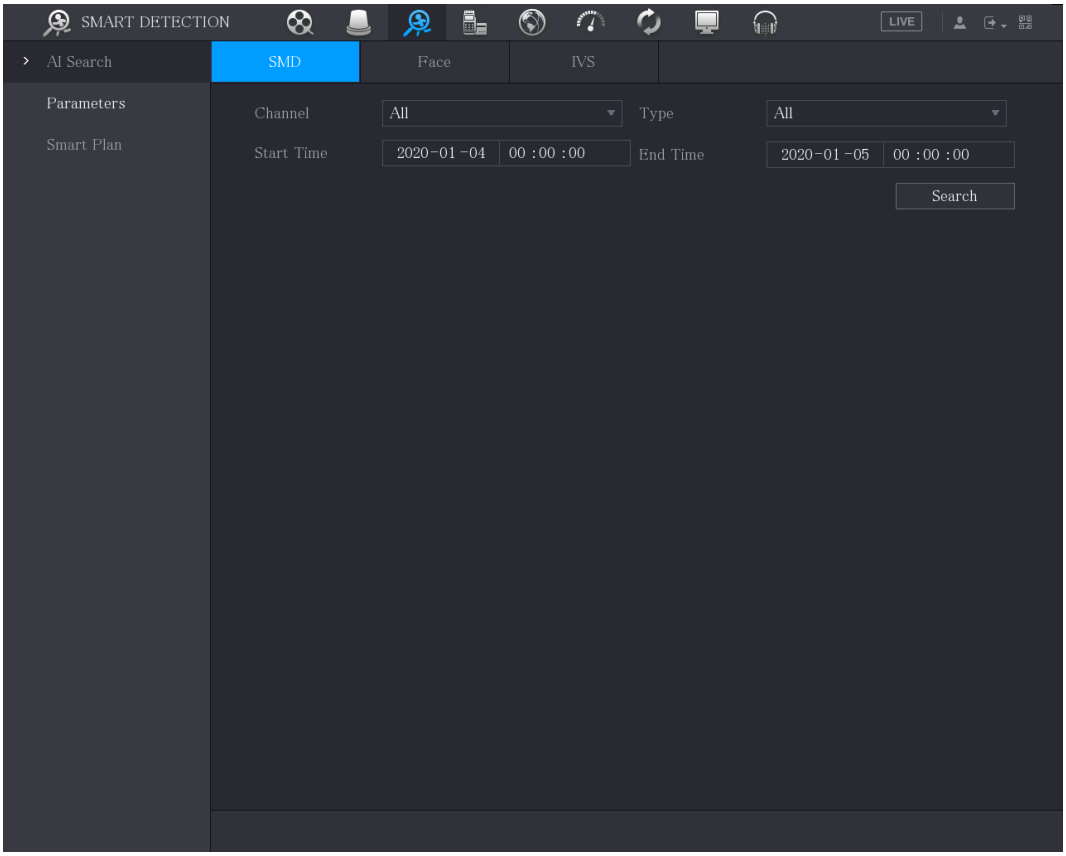
Step 4 Click **Apply** to save configuration.

5.11.1.2 Smart Search

Filter SMD videos that meet criteria and play back the videos.

Step 1 Select **Main Menu > SMART DETECTION > AI Search > SMD**.

Figure 5-137 SMD

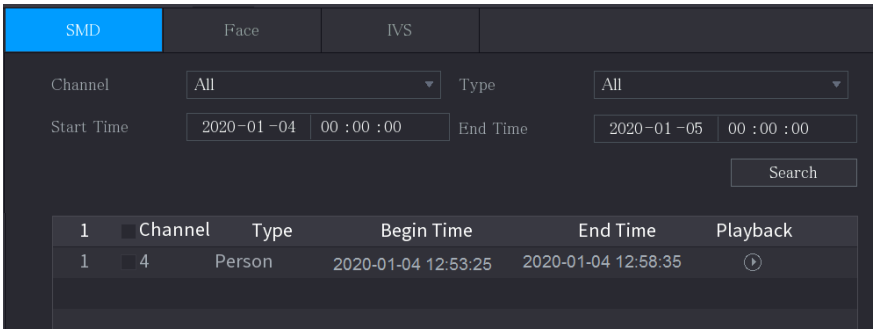


Step 2 Select channel, type, begin time and end time, and then click **Search**.

The search result is displayed.

- Click to play back the video.
- Tick the check box before the video, and then click **Backup** to export the video to external USB. DAV and MP4 format are supported.

Figure 5-138 Search result



5.11.2 Configuring Face Detection

You can configure the face detection settings and search the detected faces in the defined time period.

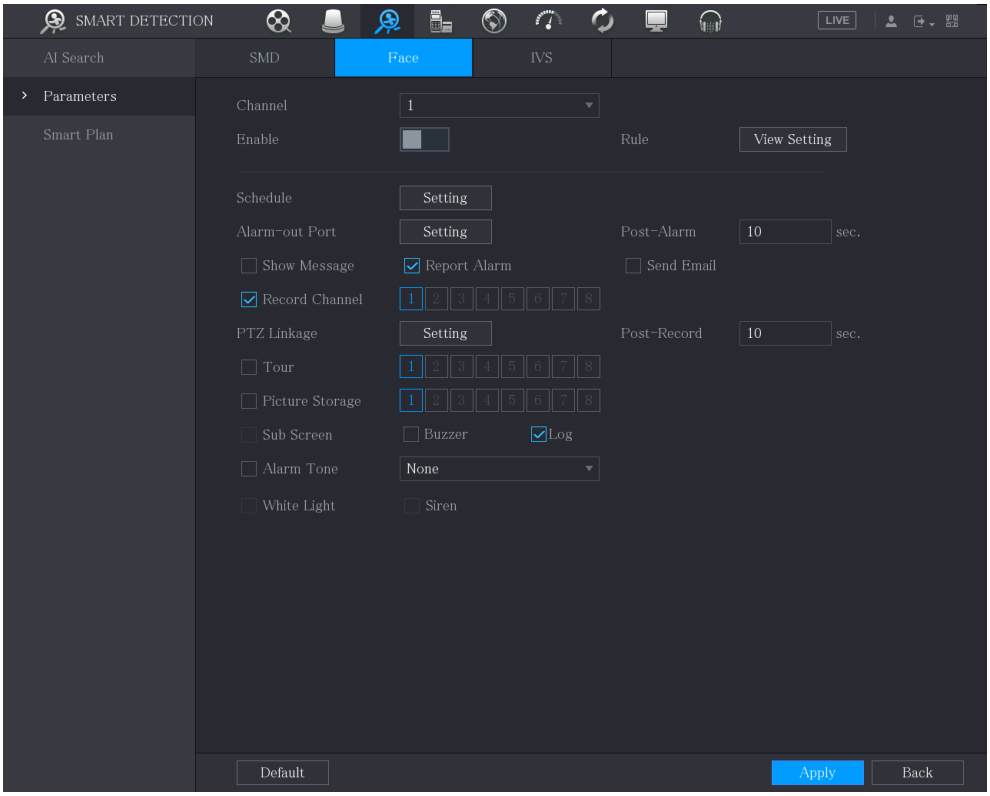
- Not all models support this function.
- Only the analog channel 1 supports this function. The IP channel does not support this function.
- SMD, face detection function, and IVS function cannot be enabled at the same time.

5.11.2.1 Configuring Face Detection Settings

When the Device detects the human faces, the system activates alarms.

Step 1 Select **Main Menu > SMART DETECTION > Parameter > Face**.

Figure 5-139 Face



Step 2 Configure the settings for the face detection parameters.

Table 5-45 Face detection parameters

Parameter	Description
Channel	In the **Channel** list, select the channel that you want to configure the face detection settings. Only the analog channel 1 supports this function.
Enable	Enable or disable the face detection function.
Rule	Click **View Setting** to draw areas to filter the target. You can configure two filtering targets (maximum size and minimum size). When the target is smaller than the minimum size or larger than the maximum size, no alarms will be activated. The maximum size should be larger than the minimum size.
Schedule	Define a period during which the detection is active. For details, see "Setting Motion Detection Period" section in "5.10.4.1 Configuring Motion Detection Settings."
Alarm-out Port	Click **Setting** to display setting interface. Enable alarm activation function. Select the alarm output port(s) to which the peripheral alarm devices are connected. When an alarm event occurs, the system links the peripheral alarm devices connected to the selected output port.
Post-Alarm	Set a length of time for the Device to delay turning off alarm after the external alarm is cancelled. The value ranges from 0 seconds to 300 seconds. If you enter 0, there will be no delay.
Show Message	Select the **Show Message** check box to enable a pop-up message in your local host PC.
Report Alarm	Select the **Report Alarm** check box to enable the system to upload the alarm signal to the network (including alarm center) when an alarm event occurs.
Send Email	Select the **Send Email** check box to enable the system to send an email notification when an alarm event occurs. To use this function, make sure the email function is enabled in **Main Menu** > **NETWORK** > **Email**.
Record Channel	Select the channel(s) that you want to record. The selected channel(s) starts recording after an alarm event occurs. The recording for intelligence event and auto recording function must be enabled. For details, see "5.1.4.9 Configuring Recorded Video Storage Schedule" and "5.9.1 Enabling Record Control."

Parameter	Description
PTZ Linkage	Click **Setting** to display the PTZ interface. Enable PTZ linkage actions, such as selecting the preset that you want to be called when an alarm event occurs. Face Detect can only link PTZ preset.
Post Record	Set a length of time for the Device to delay turning off recording after the alarm is cancelled. The value ranges from 10 seconds to 300 seconds.
Tour	Select the **Tour** check box to enable a tour of the selected channels.
Picture Storage	Select the **Picture Storage** check box to take a snapshot of the selected channel. To use this function, make sure the following settings are configured: ● The snapshot function is enabled for motion detect alarms in **Main Menu > STORAGE > Schedule > Snapshot**. ● Select **Main Menu > CAMERA > Encode > Snapshot**, in the Type list, select **Human Face**.
Sub Screen	Select the check box to enable the function. When an alarm event occurs, the extra screen outputs the settings configured in **Main Menu > DISPLAY > Tour > Sub Screen.** Not all models support this function. To use this function, extra screen shall be enabled.
Buzzer	Select the check box to activate a buzzer noise at the Device.
Log	Select the check box to enable the Device to record a local alarm log.
Alarm Tone	Select to enable audio broadcast in response to a human face detection event.
White Light	Select the check box to activate a white light camera to trigger white light alarm.
Siren	Select the check box to activate an audio camera to trigger audio alert.

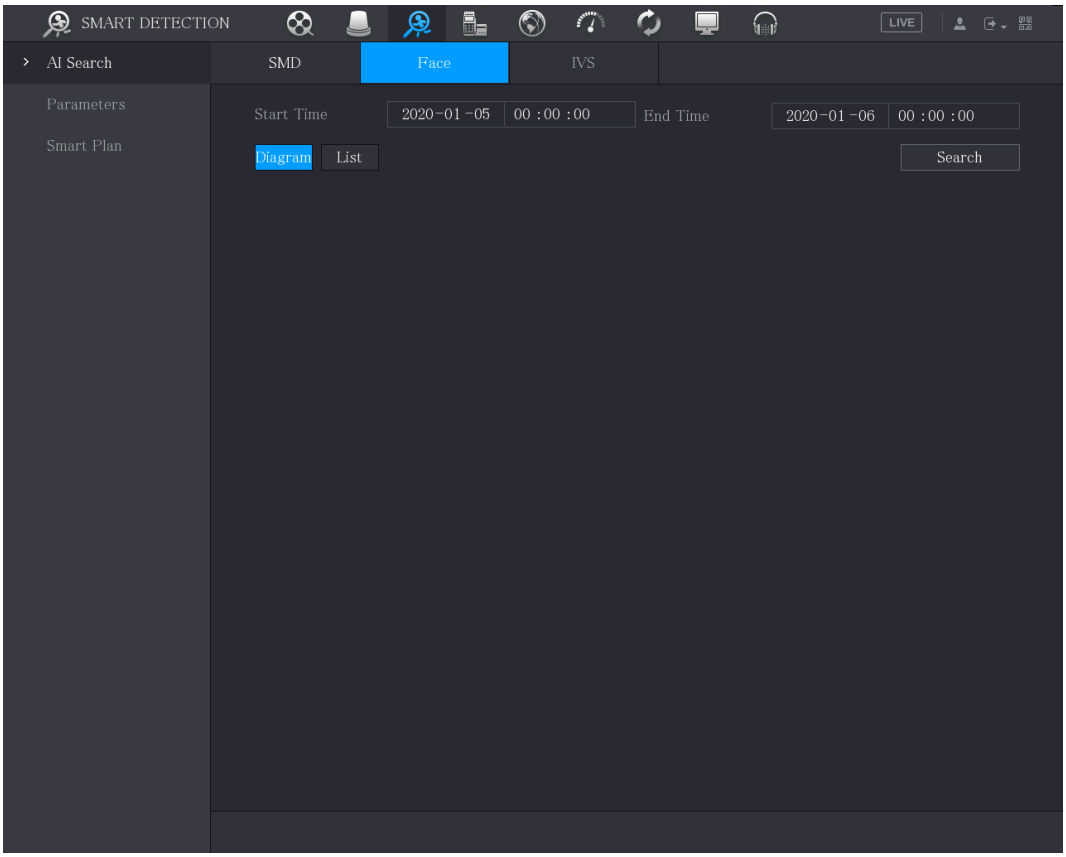
Step 3 Click **Apply** to complete the settings.

5.11.2.2 Searching for Detected Faces

To comply with relevant regulations, the faces have received fuzzy processing.

Step 1 Select **Main Menu > SMART DETECTION > AI Search > Face**.

Figure 5-140 Face



Step 2 In the **Start Time** box and **End Time** box, enter the time.

Step 3 Select the display by clicking **Diagram** or clicking **List**.

Step 4 Click **Search**.

The faces searched in the defined period are displayed.

Click **Export** to export the search results to the connected USB device. DAV and MP4 format are supported.

Figure 5-141 Search result (diagram)

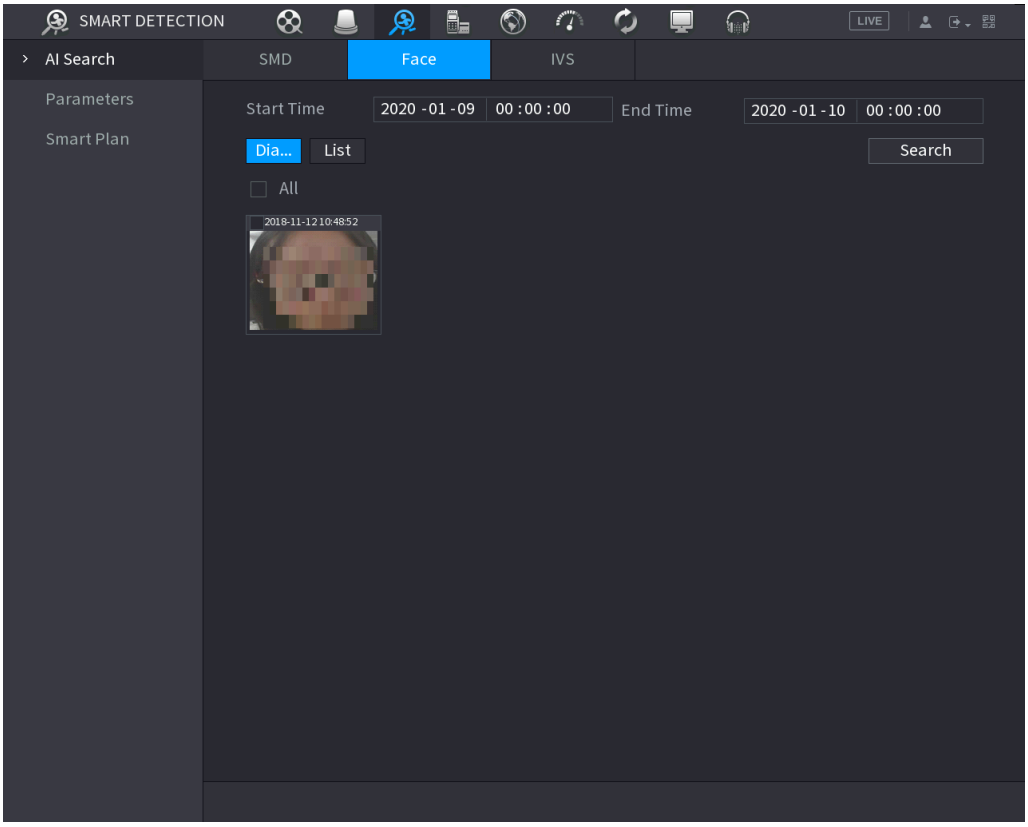
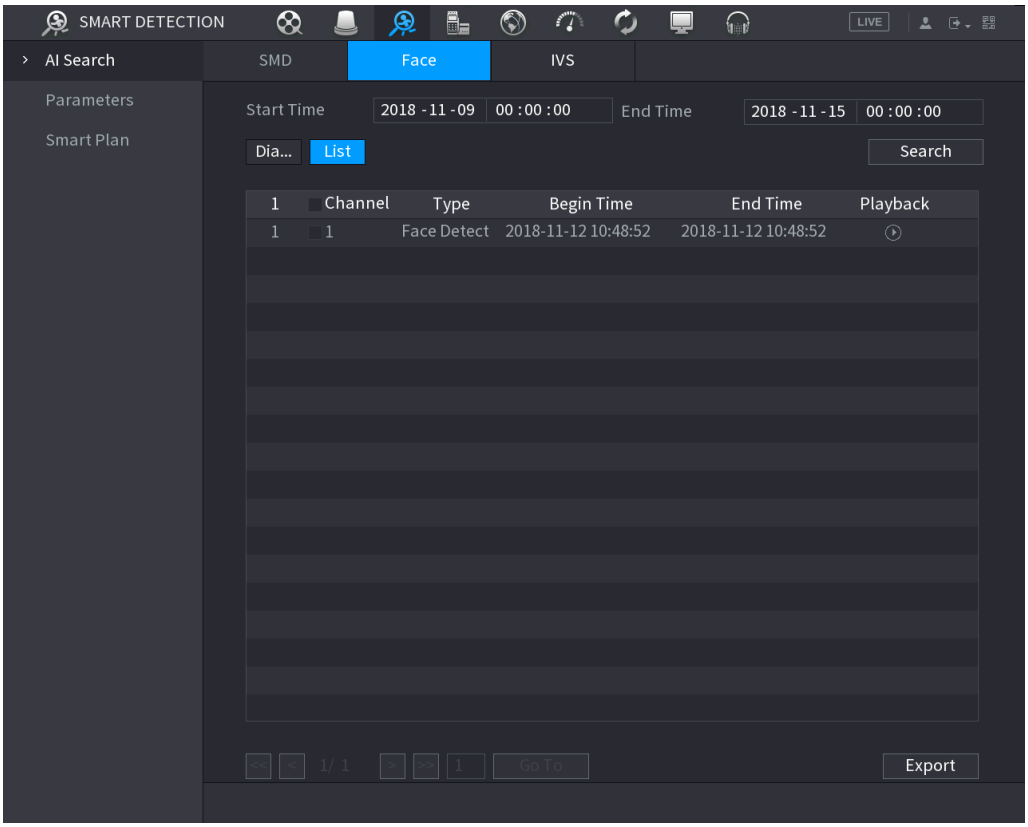


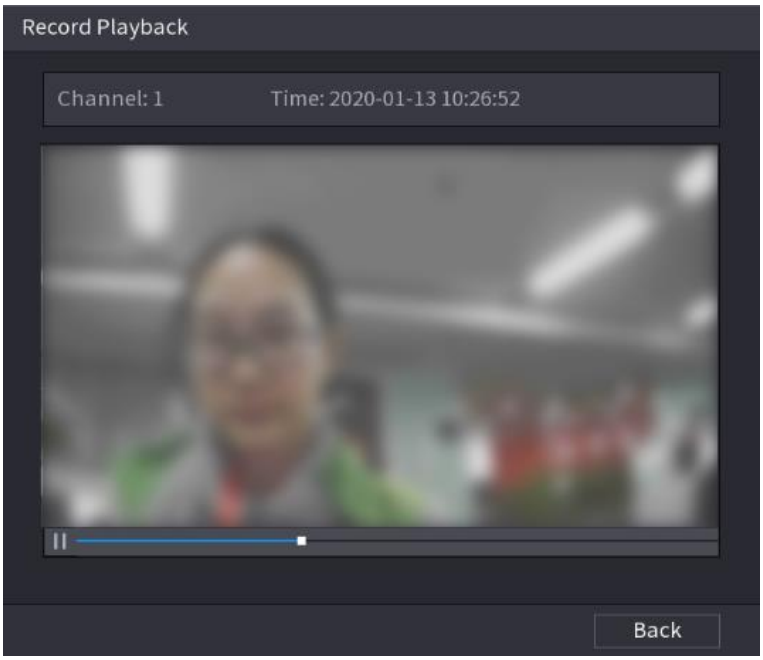
Figure 5-142 Search result (list)



5.11.2.3 Playing the Detected Faces

Step 1 On the displayed faces as shown in Figure 5-141, double-click on the face.

Figure 5-143 Record playback



Step 2 Click ▶ to start playing the recorded detected face.

Step 3 Click **Back** to exit the playing interface and return to the faces displaying interface.

5.11.3 Configuring IVS Function

The IVS function processes and analyzes the images to extract the key information to match with the preset rules. When the detected behaviors match with the rules, the system activates alarms.

The IVS function and face detection function cannot be enabled at the same time.

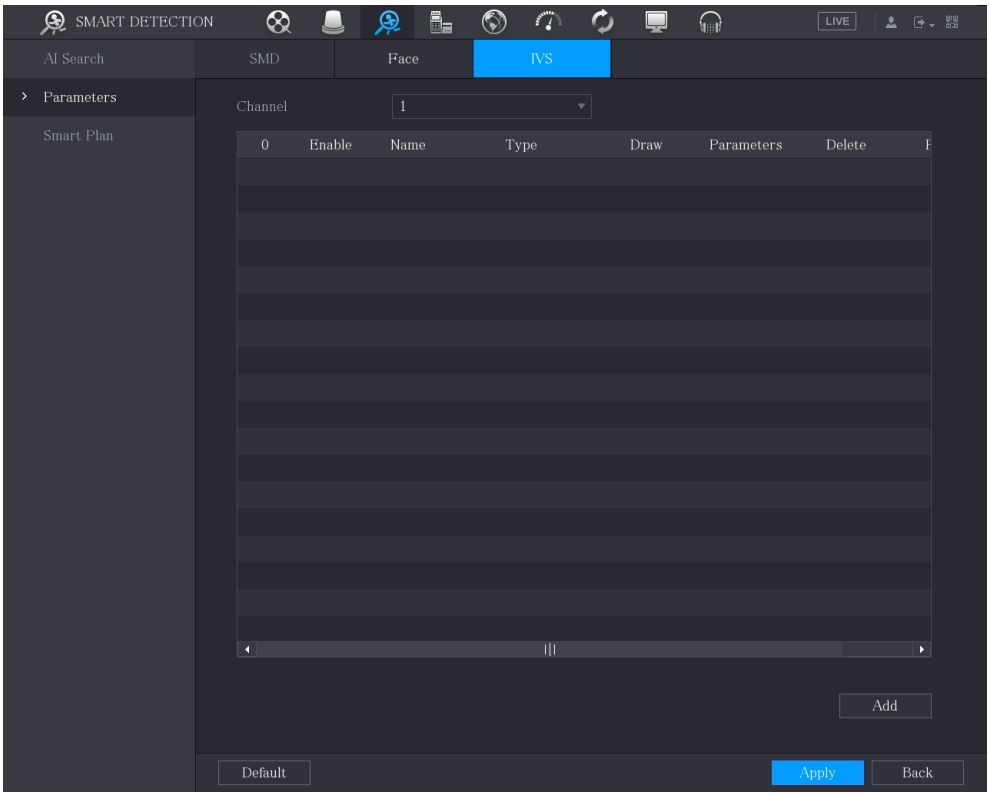
5.11.3.1 Configuring Intelligent Settings

You can configure the intelligent settings for both analog cameras and IP cameras.

- Not all models support this function.
- Disable the expanded IP channels first before using this function for analog cameras.

Step 1 Select **Main Menu** > **SMART DETECTION** > **Parameters** > **IVS**.

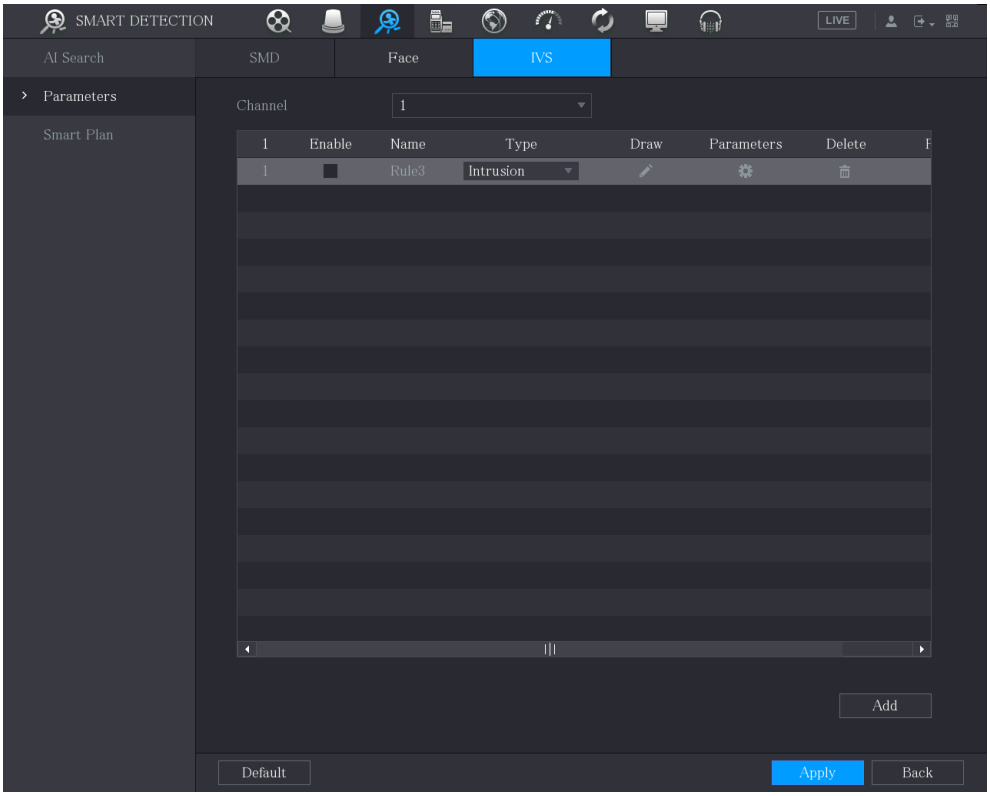
Figure 5-144 IVS



Step 2 In the **Channel** list, select the channel number that you want to configure the IVS function.

Step 3 Click **Add**.

Figure 5-145 Add rule



Step 4 Configure the parameters for the rule that you selected.

Step 5 Select the check box of the rule to enable it.

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

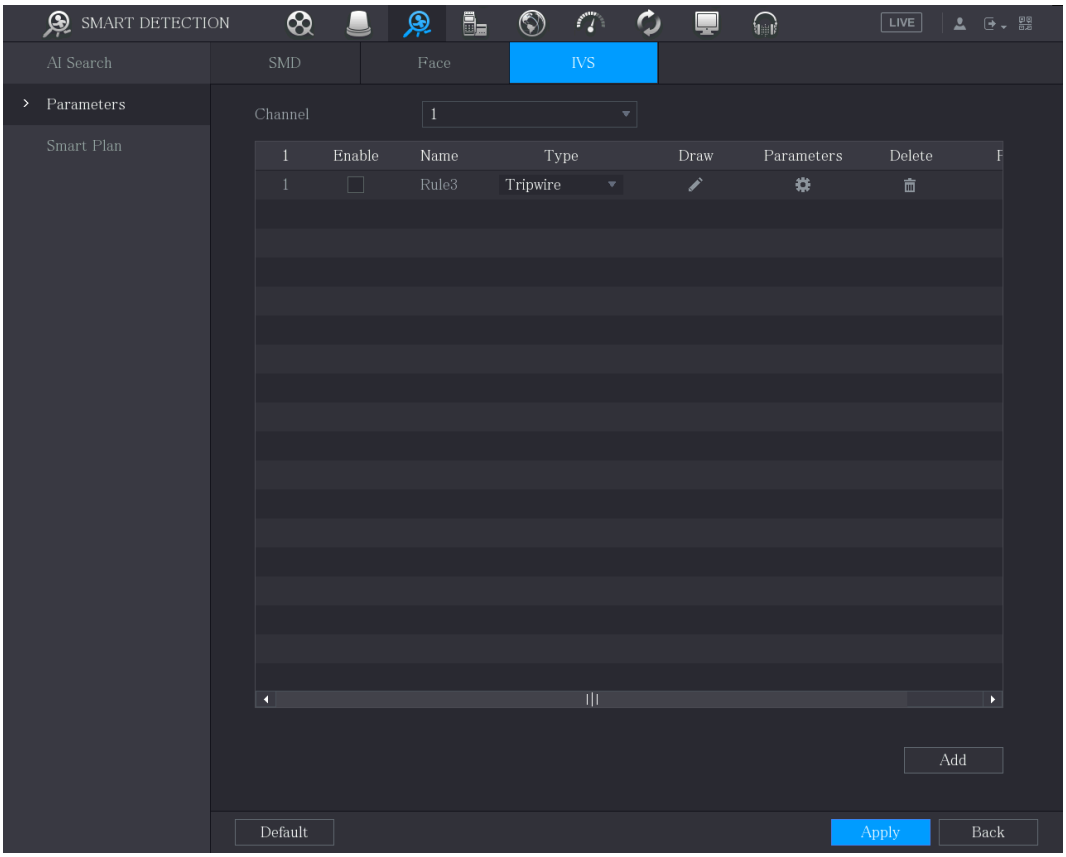
5.11.3.1.2 Configuring Tripwire Rules

When the target object crosses the tripwire in the defined direction, the system activates alarms.

- The tripwire can be configured as a straight line or broken line.
- Supports detecting one-way or two-way tripwire crossing.
- Supports multiple tripwires in the same scenario to meet the complexity.
- Supports size filtering for target.

Step 1 On the rule line that you added, in the **Type** list, select **Tripwire**.

Figure 5-146 Tripwire



Step 2 Draw a tripwire.

1) In the **Channel** list, select the channel that you want to configure the rules for.

2) Click .

The monitoring screen to configure the tripwire rules is displayed. See Figure 5-147 for analog camera and the IP camera without preset, and see Figure 5-148 for IP camera with preset.

Figure 5-147 Tripwire rule

Figure 5-148 Tripwire rule (preset)

3) Configure the settings for the parameters of drawing rules.

Table 5-46 Rule parameters

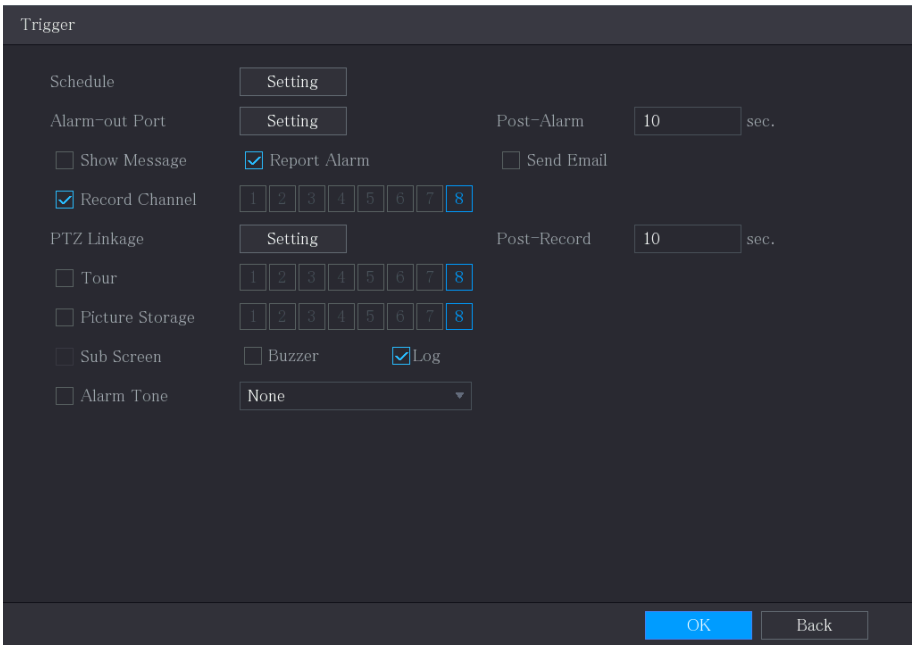
Parameter	Description
Name	Enter the customized rule name.
Direction	Set the direction of the tripwire. You can choose **A to B** (left to right), **B to**

Parameter	Description
	A (right to left), and **Both**.
Target Filter	Click to draw areas to filter the target. You can configure two filtering targets (maximum size and minimum size). When the target that is crossing the tripwire is smaller than the minimum size or larger than the maximum size, no alarms will be activated. The maximum size should be larger than the minimum size.
Preset	In the **Preset** list, select the preset that you want to configure the rule for.

4) Drag to draw a tripwire. The tripwire can be a straight line, broken line or polygon.
5) Click **OK** to save the settings.

Step 3 Click to set the actions to be triggered.

Figure 5-149 Trigger



Step 4 Configure the triggering parameters.

Table 5-47 Trigger parameters

Parameter	Description
Schedule	Click **Setting** to display set interface. Define a period during which the alarm linkage is active. For details, see "Setting Motion Detection Period" section in "5.10.4.1 Configuring Motion Detection Settings."

Parameter	Description
Alarm-out Port	Click **Setting** to display setting interface. ● Local Alarm: Enable alarm activation through the alarm devices connected to the selected output port. ● Extension Alarm: Enable alarm activation through the connected alarm box. ● Wireless Siren: Enable alarm activation through devices connected by USB gateway or camera gateway.
Post-Alarm	Set a length of time for the Device to delay turning off alarm after the external alarm is cancelled. The value ranges from 0 seconds to 300 seconds, and the default value is 10 seconds.
Show Message	Select the **Show Message** check box to enable a pop-up message in your local host PC.
Report Alarm	Select the **Report Alarm** check box to enable the system to upload the alarm signal to the network (including alarm center) when an alarm event occurs.
Send Email	Select the **Send Email** check box to enable the system to send an email notification when an alarm event occurs. To use this function, make sure the email function is enabled in **Main Menu > NETWORK > Email**.
Record Channel	Select the channel(s) that you want to record. The selected channel(s) starts recording after an alarm event occurs. The recording for intelligence event and auto recording function must be enabled. For details, see "5.1.4.9 Configuring Recorded Video Storage Schedule" and "5.9.1 Enabling Record Control."
PTZ Linkage	Click **Setting** to display the PTZ interface. Enable PTZ linkage actions, such as selecting the preset that you want to be called when an alarm event occurs.
Post Record	Set a length of time for the Device to delay turning off recording after the alarm is cancelled. The value ranges from 10 seconds to 300 seconds.
Tour	Select the **Tour** check box and the channels to enable a tour of the selected channels when an alarm event occurs.
Snapshot	Select the **Snapshot** check box to take a snapshot of the selected channel when an alarm event occurs. To use this function, select **Main Menu > CAMERA > Encode > Snapshot**, in the **Type** list, select **Event**.

Parameter	Description
Sub Screen	Select the check box to enable the function. When an alarm event occurs, the extra screen outputs the settings configured in **Main Menu > DISPLAY > Tour > Extra Screen.** Not all models support this function. To use this function, extra screen shall be enabled.
Video Matrix	Select the check box to enable the function. When an alarm event occurs, the video output port outputs the settings configured in "**Main Menu > Display > Tour**." Not all models support this function.
Buzzer	Select the check box to activate a buzzer noise at the Device when an alarm event occurs.
Log	Select the check box to enable the Device to record a local alarm log when an alarm event occurs.
Alarm Tone	Select the check box to enable audio broadcast in response to an alarm event.
White Light	Select the check box to activate a white light camera to trigger white light alarm.
Siren	Select the check box to activate an audio camera to trigger audio alert

Step 5 Click **OK** to save the settings.

Step 6 Select the **Enable** check box, and then click **Apply**.

The tripwire detecting function is active. When the target object crosses the tripwire in the defined direction, the system activates alarms.

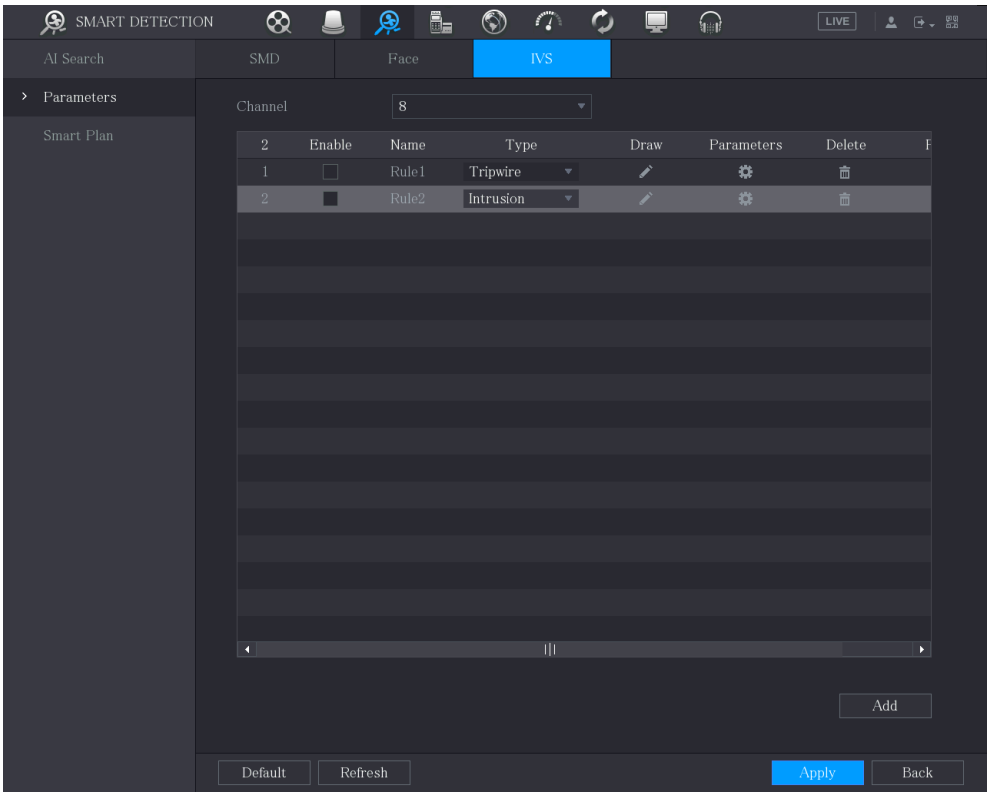
5.11.3.1.3 Configuring Intrusion Rules

When the target enters and leaves the defined detection area, or the target appears in the defined area, the system activates alarms.

- You can define the shape and quantity of intrusion areas.
- Supports detecting the behaviors that enter and leave the intrusion areas.
- Supports detecting the behaviors that are moving in the intrusion areas. The quantity of areas and lasting time can be configured.
- Supports size filtering for target.

Step 1 On the rule line that you added, in the **Type** list, select **Intrusion**.

Figure 5-150 Intrusion



Step 2 Draw an area.

1) In the **Channel** list, select the channel that you want to configure the rules for.

2) Click .

The monitoring screen to configure the intrusion rules is displayed. See Figure 5-151 for analog camera and the IP camera without preset, and see Figure 5-152 for IP camera with preset.

Figure 5-151 Intrusion rule

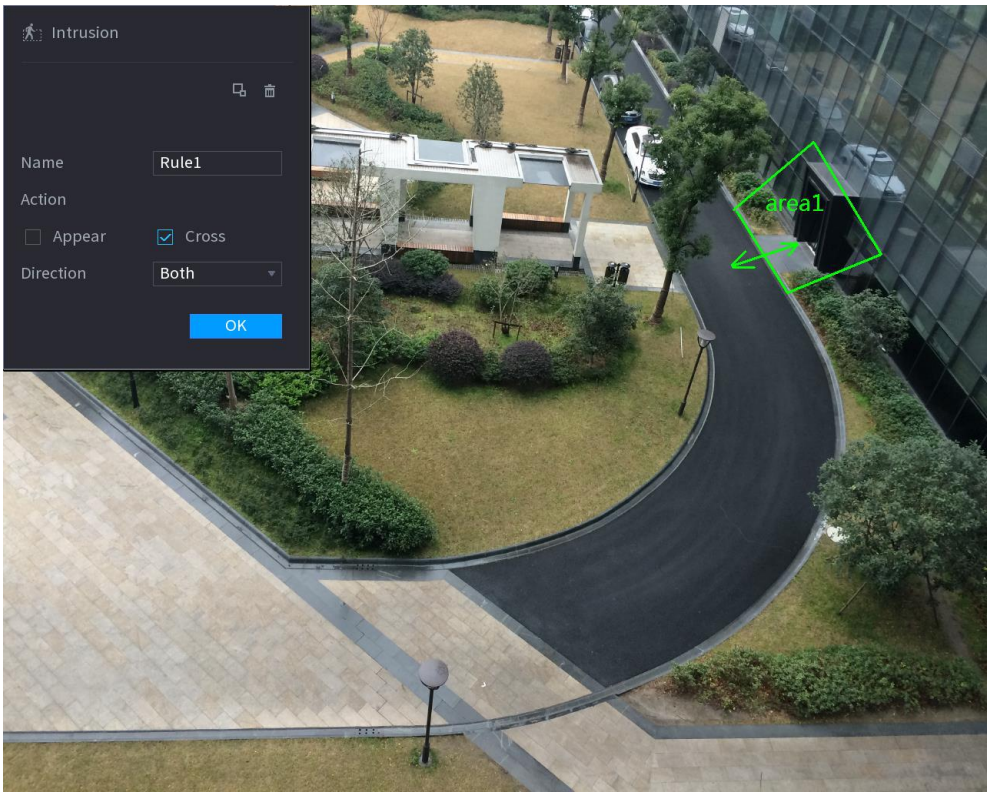


Figure 5-152 Intrusion rule (preset)

3) Configure the settings for the parameters of drawing rules.

Table 5-48 Intrusion parameters

Parameter	Description
Name	Enter the customized rule name.
Action	Configure the actions that are defined as intrusion. You can select the

Parameter	Description
	Appear check box and the **Cross** check box.
Direction	In the **Direction** list, select the direction of crossing the configured area. You can select **Both**, **Enter**, and **Exit**.
Target Filter	Click to draw areas to filter the target. You can configure two filtering targets (maximum size and minimum size). When the target that is crossing the tripwire is smaller than the minimum size or larger than the maximum size, no alarms will be activated. The maximum size should be larger than the minimum size.
Preset	In the **Preset** list, select the preset that you want to configure the rule for.

4) Drag to draw an area.
5) Click **OK** to save the settings.

Step 3 Click to set the actions to be triggered. For details, see "5.11.3.1.2 Configuring Tripwire Rules."

Step 4 Select the **Enable** check box, and then click **Apply**.

The intrusion detecting function is active. When the target enters and leaves the area, or the target appears in the defined area, the system activates alarms.

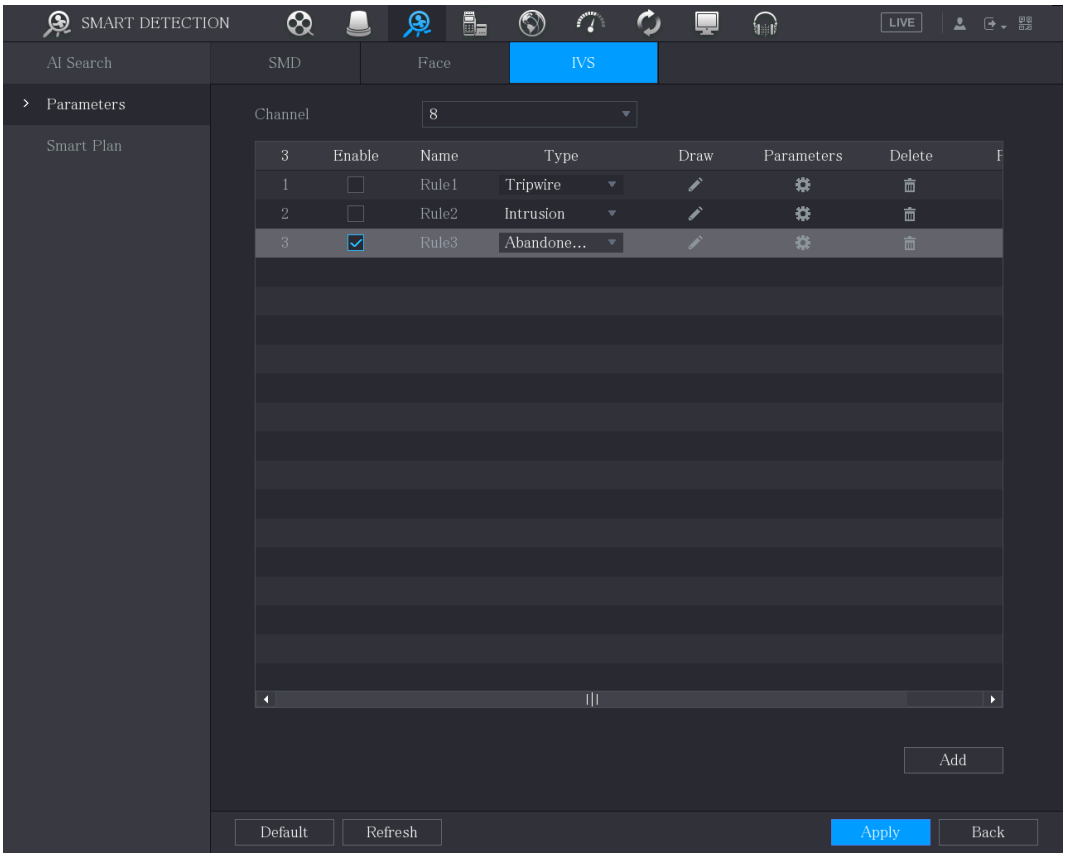
5.11.3.1.4 Configuring Abandoned Rules

When the object is placed in the defined detection area for more than the set time, the system activates alarms.

- You can define the shape and quantity of detecting areas.
- Period value can be configured.
- Supports size filtering for target.

Step 1 On the rule line that you added, in the **Type** list, select **Abandoned Object**.

Figure 5-153 Abandoned object



Step 2 Draw an area.

1) In the **Channel** list, select the channel that you want to configure the rules for.

2) Click .

The monitoring screen to configure the abandoned rules is displayed. See Figure 5-154 for analog camera and see Figure 5-155 for IP camera.

Figure 5-154 Abandoned object rule

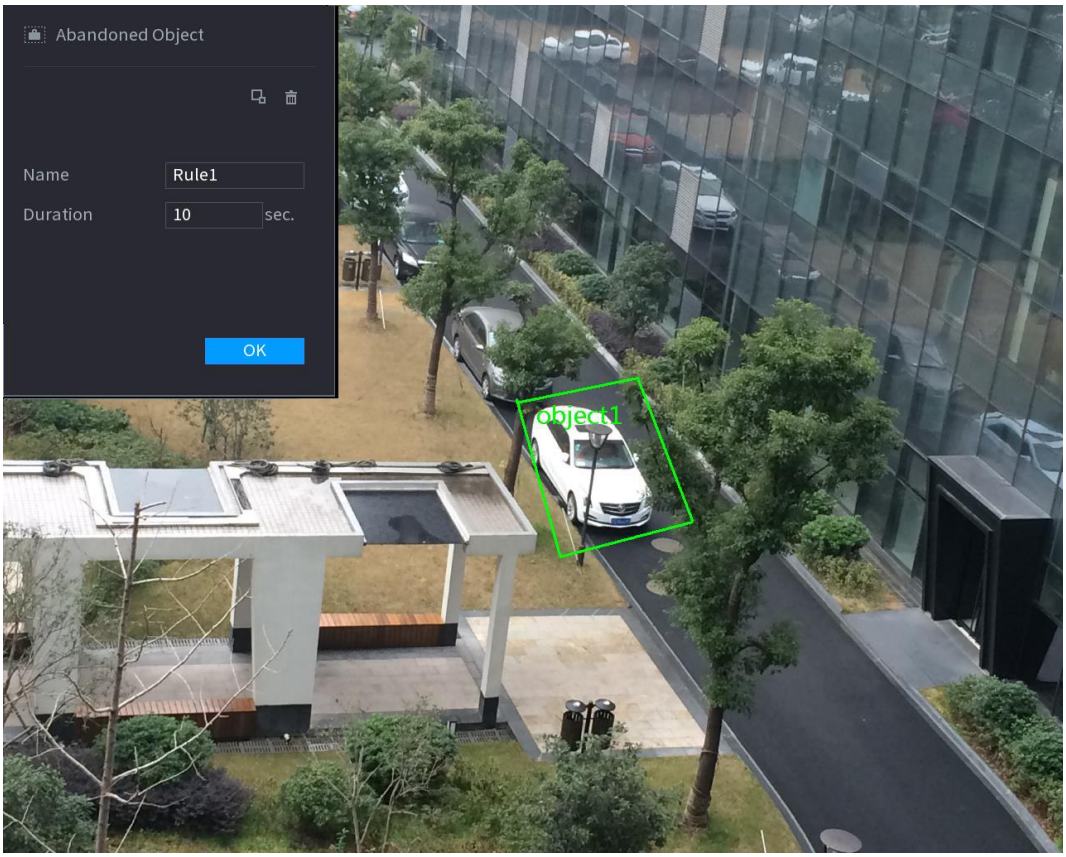
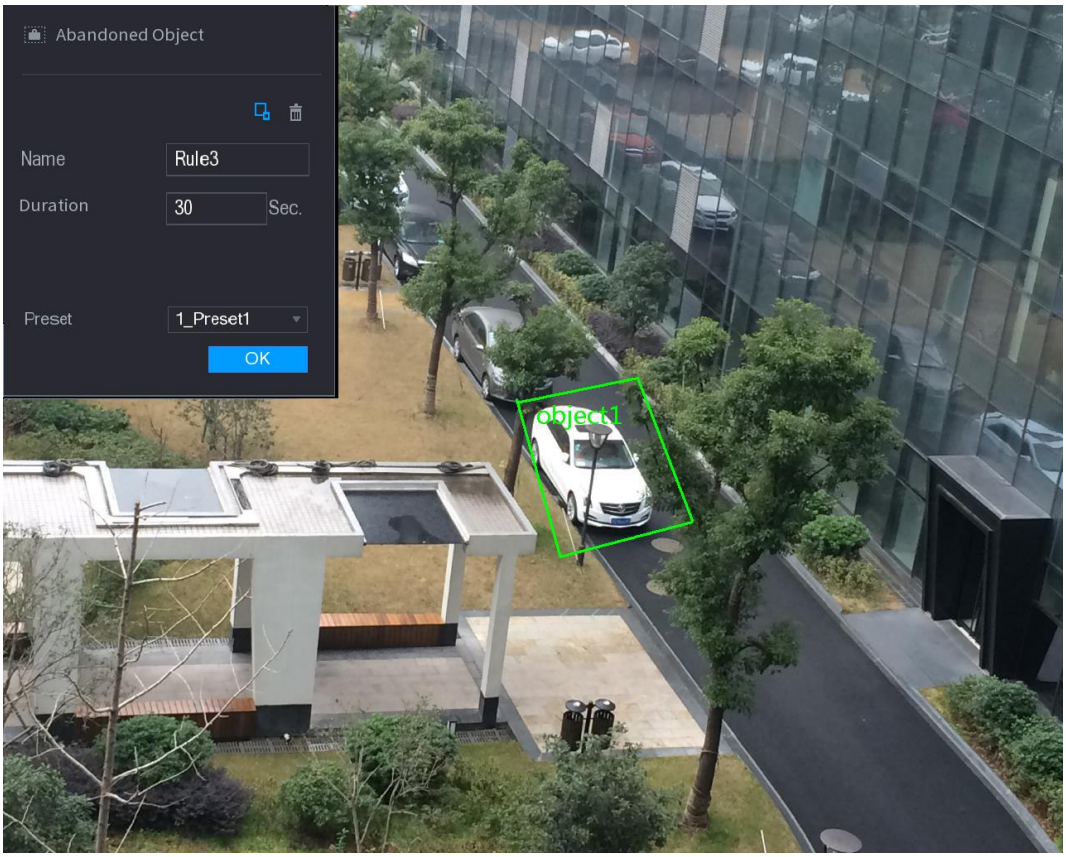


Figure 5-155 Abandoned object rule (preset)



3) Configure the settings for the parameters of drawing rules.

Table 5-49 Abandoned object parameters

Parameter	Description
Name	Enter the customized rule name.
Duration	Configure the minimum time period for activating alarms by detecting the abandoned objects.
Filtering Target	Click to draw areas to filter the target. You can configure two filtering targets (maximum size and minimum size). When the target that is crossing the tripwire is smaller than the minimum size or larger than the maximum size, no alarms will be activated. The maximum size should be larger than the minimum size.
Preset	In the **Preset** list, select the preset that you want to configure the rule for.

4) Drag to draw an area.
5) Click **OK** to save the settings.

Step 3 Click to set the actions to be triggered. For details, see "5.11.3.1.2 Configuring Tripwire Rules."

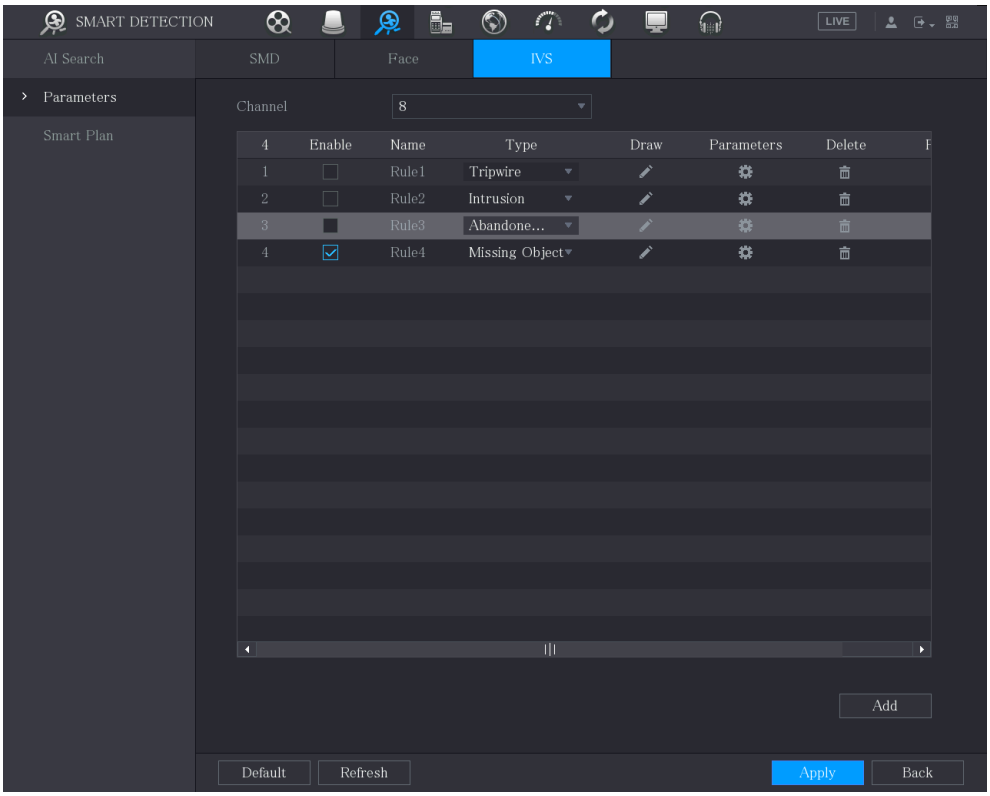
Step 4 Select the **Enable** check box, and then click **Apply**.
The abandoned object detecting function is active.

5.11.3.1.5 Configuring Missing Rules

When the target is taken away from the defined detection area exceeds the set time, the system activates alarms.

Step 1 On the rule line that you added, in the **Type** list, select **Missing Object**.

Figure 5-156 Missing object



Step 2 Draw an area.

1) In the **Channel** list, select the channel that you want to configure the rules for.

2) Click .

The monitoring screen to configure the missing rules is displayed. See Figure 5-157 for analog camera and the IP camera without preset, and see Figure 5-158 for IP camera with preset.

Figure 5-157 Missing object

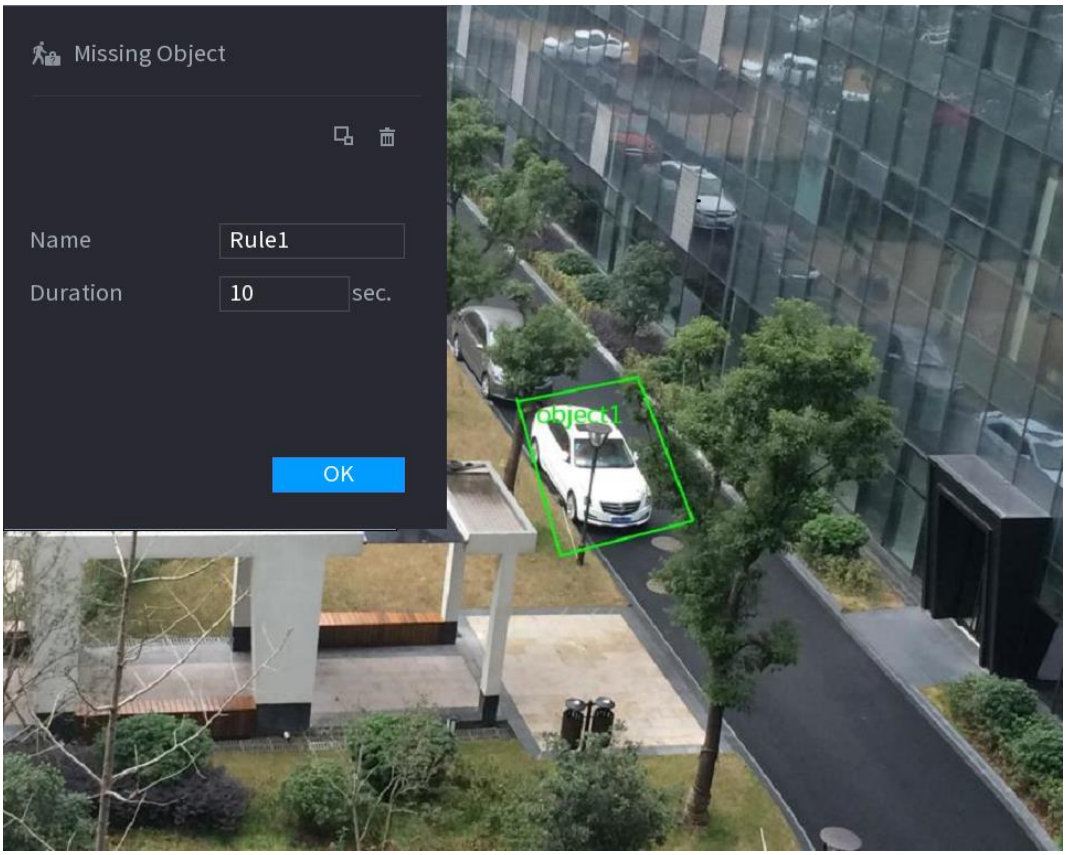
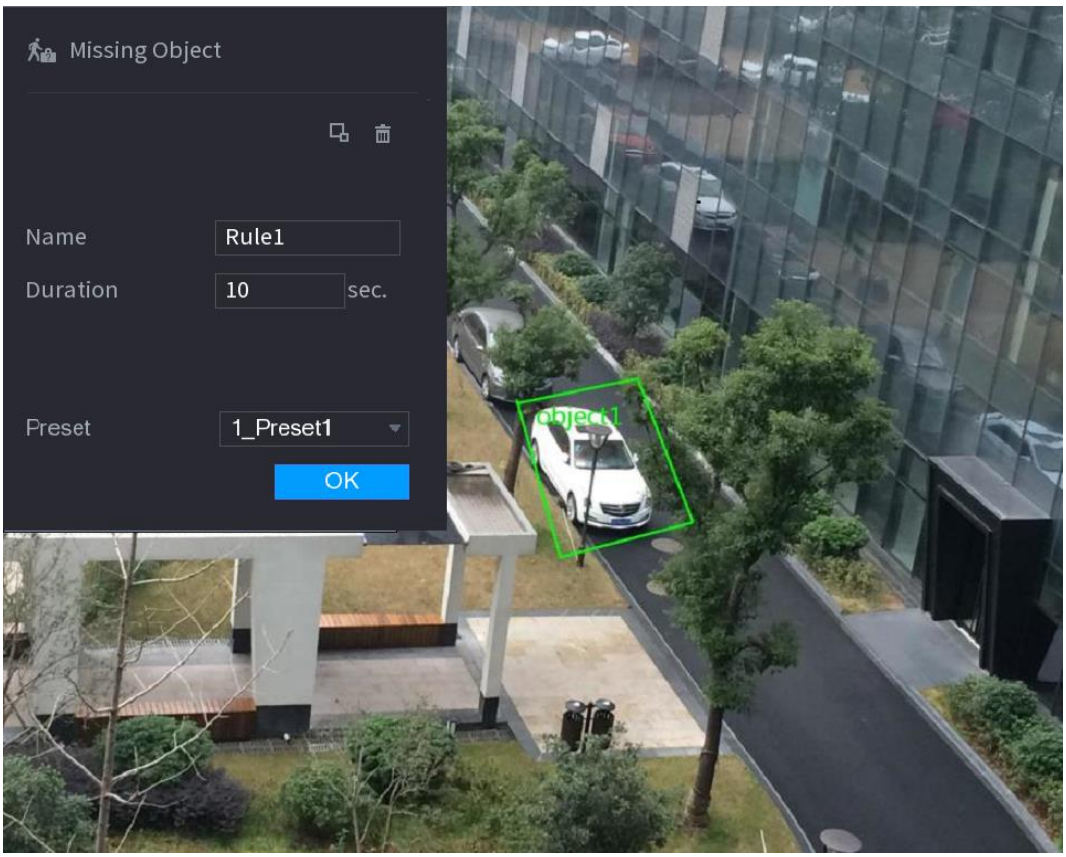


Figure 5-158 Missing object (preset)



3) Configure the settings for the parameters of drawing rules.

Table 5-50 Missing object parameters

Parameter	Description
Name	Enter the customized rule name.
Duration	Configure the minimum time period for activating alarms by detecting the missing objects.
Target Filter	Click to draw areas to filter the target. You can configure two filtering targets (maximum size and minimum size). When the target that is crossing the tripwire is smaller than the minimum size or larger than the maximum size, no alarms will be activated. The maximum size should be larger than the minimum size.
Preset	In the **Preset** list, select the preset that you want to configure the rule for.

4) Drag to draw an area.
5) Click **OK** to save the settings.

Step 3 Click to set the actions to be triggered. For details, see "5.11.3.1.2 Configuring Tripwire Rules."

Step 4 Select the **Enable** check box, and then click **Apply**.

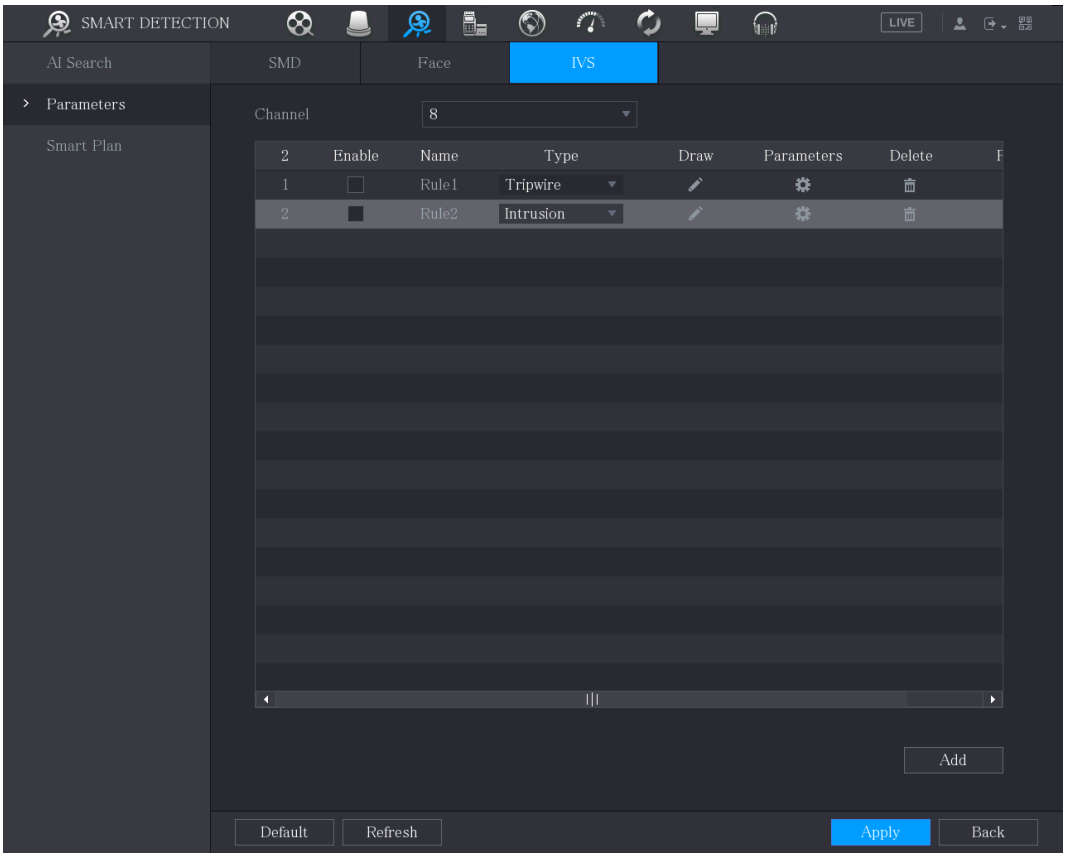
The missing object detecting function is active. When the target is taken away from the defined area exceeds the set time, the system activates alarms.

5.11.3.2 Enabling the Intelligent Settings for IP Camera

- Not all IP cameras support this function.
- The interface might be different depending on the connected IP camera.

After configuring the intelligent settings for IP cameras (refer to 5.11.3.1 "Configuring Intelligent Settings"), you still need to enable to apply the configurations. For example, you have configured the intelligent settings for IP camera as displayed in Figure 5-159, and then click **Apply** to save the settings.

Figure 5-159 IVS



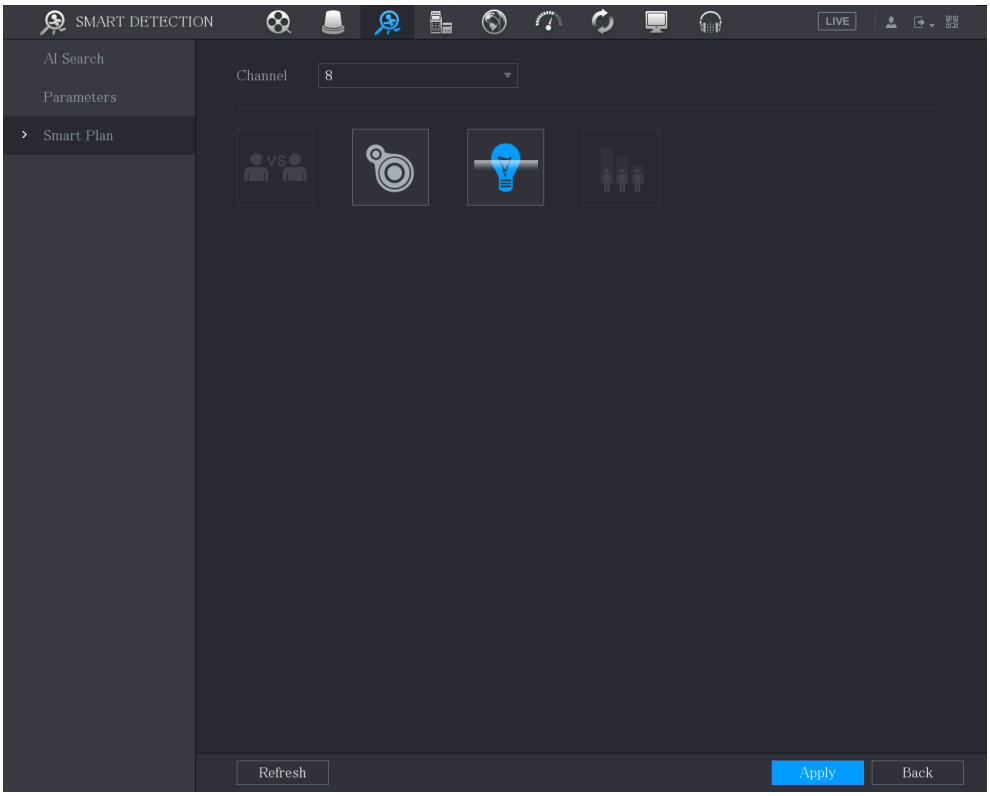
Step 1 Click **Smart Plan**.

Step 2 In the **Channel** list, select the IP camera channel that you have configured the intelligent settings.

- For the IP camera with preset, see Figure 5-160.

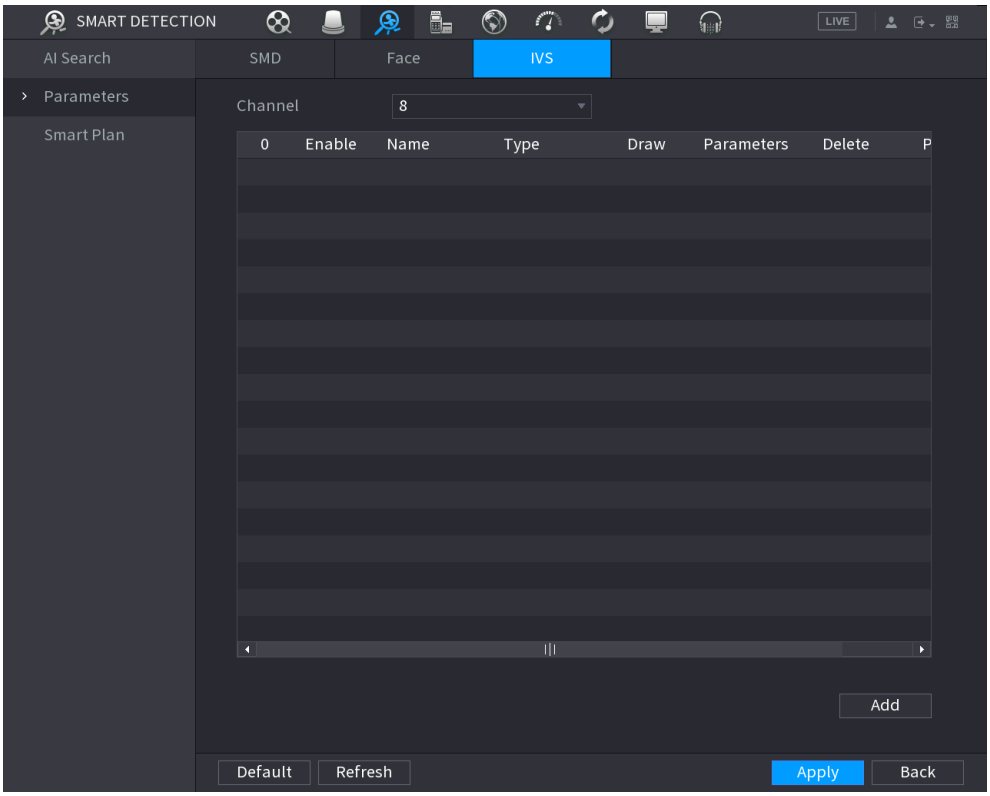
The IP camera with preset means the speed dome. The displayed preset information has been configured before on the speed dome from front-end intelligence settings.

Figure 5-160 Smart plan



- For the IP camera without preset, see Figure 5-161.

Figure 5-161 IVS (without preset)



Step 3 Enable the IVS function.

- For the IP camera with preset, do the following:

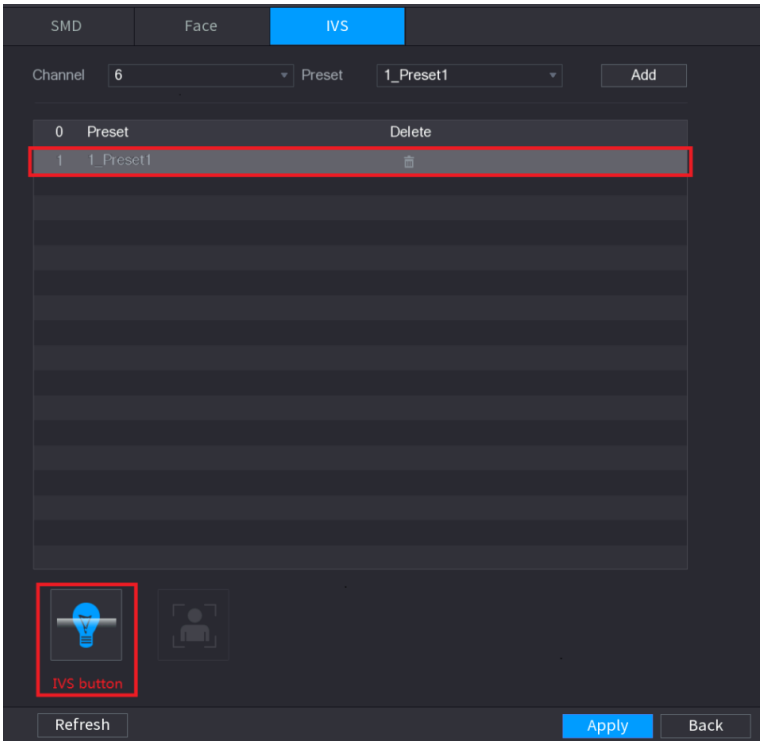
1) In the **Preset** list, select **1_Preset1**.

All the presets that the IP camera has are displayed in the **Preset** list, and you just need to select the preset that you have configured the intelligent settings as shown in Figure 5-159.

2) Click **Add**.

The selected preset is displayed in the table and the IVS button and Face Detect button are displayed.

Figure 5-162 Add IVS



3) Select the line of **1_Preset1**.
4) Click **IVS button** to enable the intelligent settings to preset 1. The button is displayed in blue.
5) Click **Apply** to complete the settings.

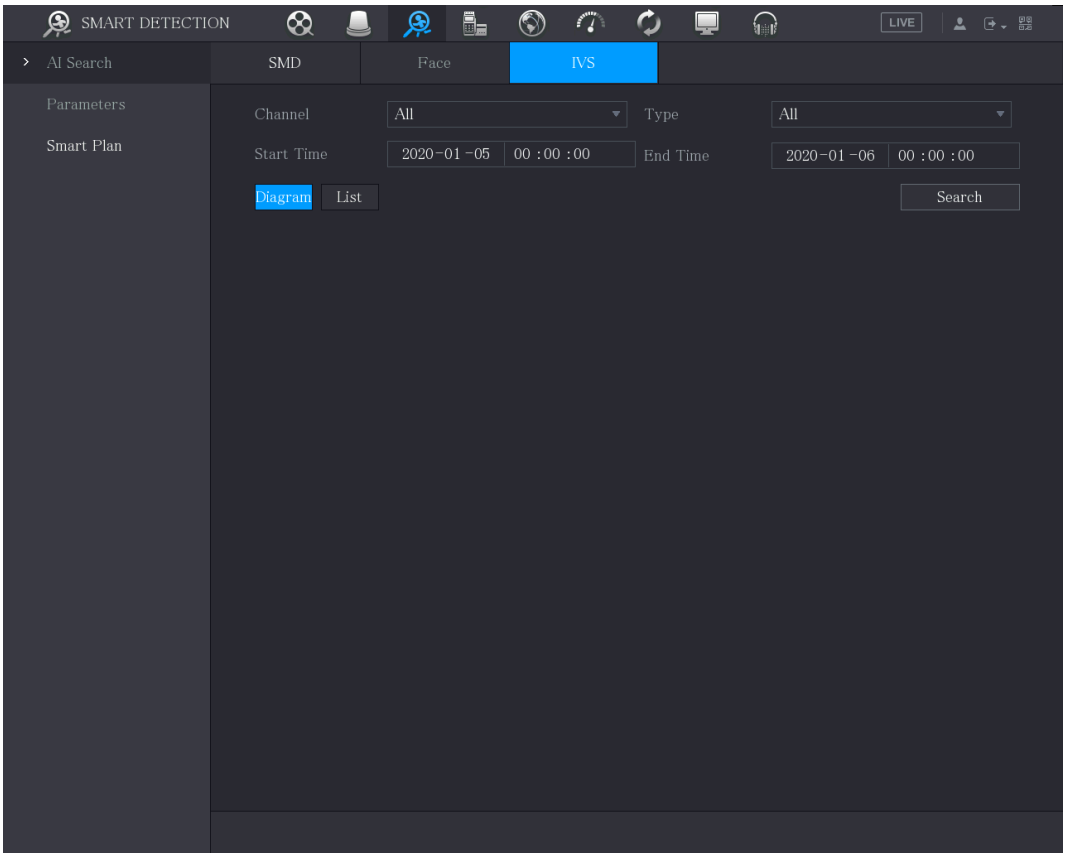
- For the IP camera without preset, click the IVS button and then click **Apply** to complete the settings.

5.11.3.3 Using Smart Search

You can search for the intelligent events and display in graph or list.

Step 1 Select **Main Menu** > **SMART DETECTION** > **AI Search**.

Figure 5-163 AI search



Step 2 In the **Channel** list, select the channel that you want to search for the events.

Step 3 In the **Type** list, select the event type that you want to search.

Step 4 In the **Start Time** box and **End Time** box, enter the date and time.

Step 5 Select the display mode of the search results by clicking **Diagram** or **List**.

Step 6 Click **Search**.

The results that satisfy the searching conditions are displayed.

Figure 5-164 Search results (diagram)

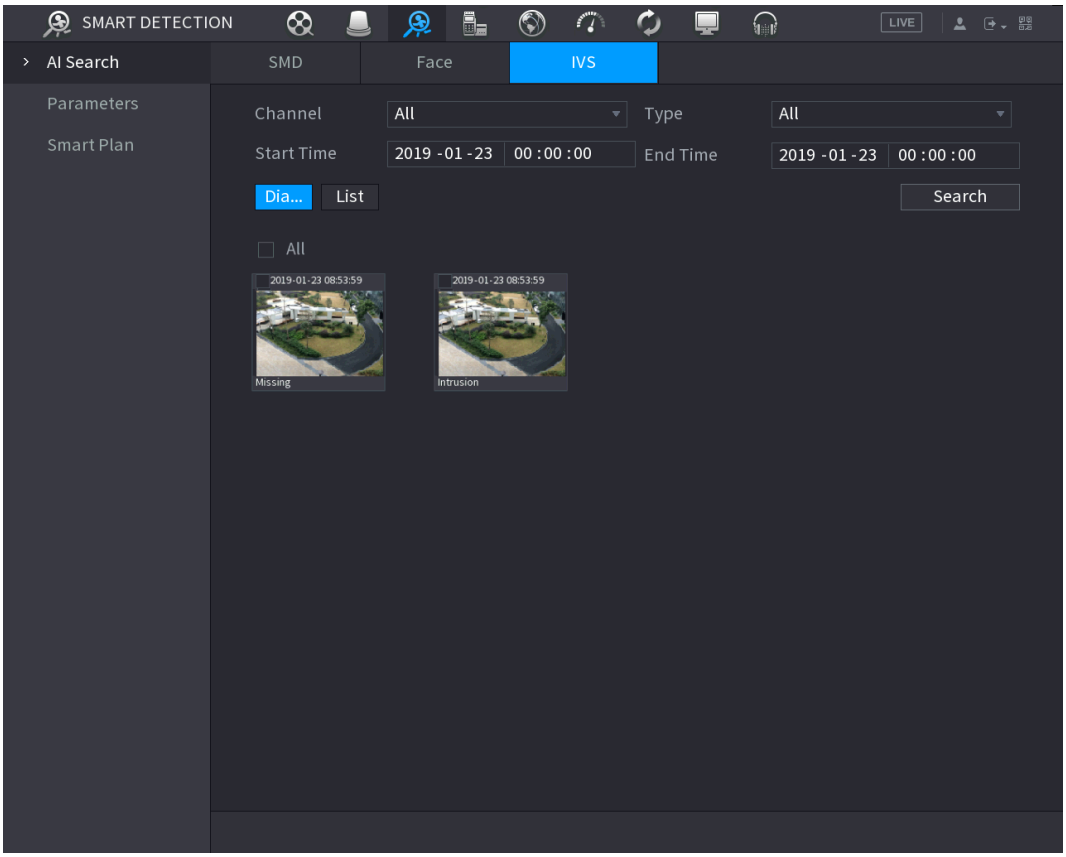
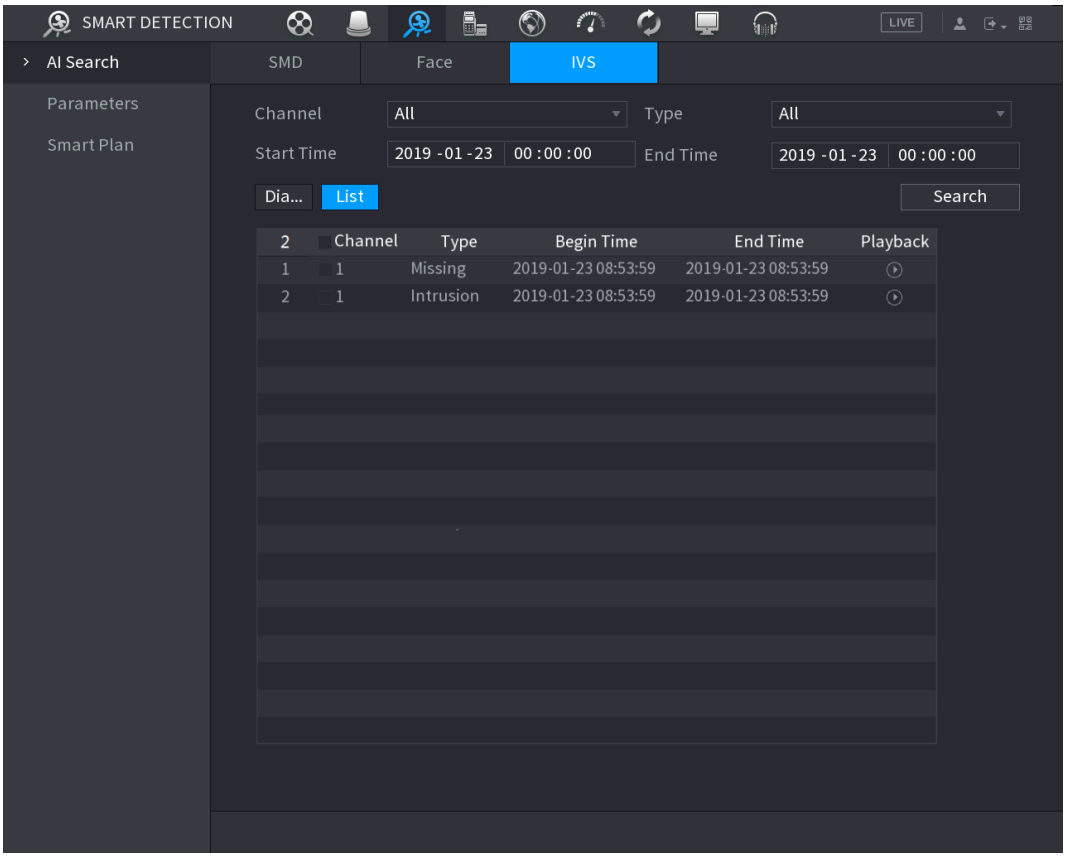
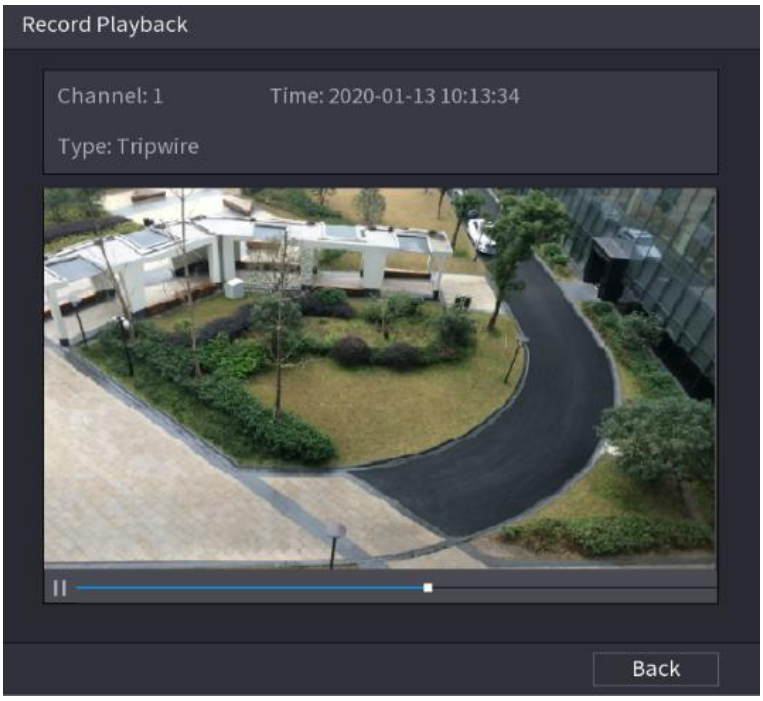


Figure 5-165 Search results (list)



Step 7 Double-click the video or click .

Figure 5-166 Record playback



Step 8 Click to play back the recorded video.

Step 9 Click **Back** to stop the playback and return to the **SMART SEARCH** interface.

Click **Backup** to export the recorded video files. DAV and MP4 format are supported.

5.12 IoT Function

5.12.1 Configuring Sensor Settings

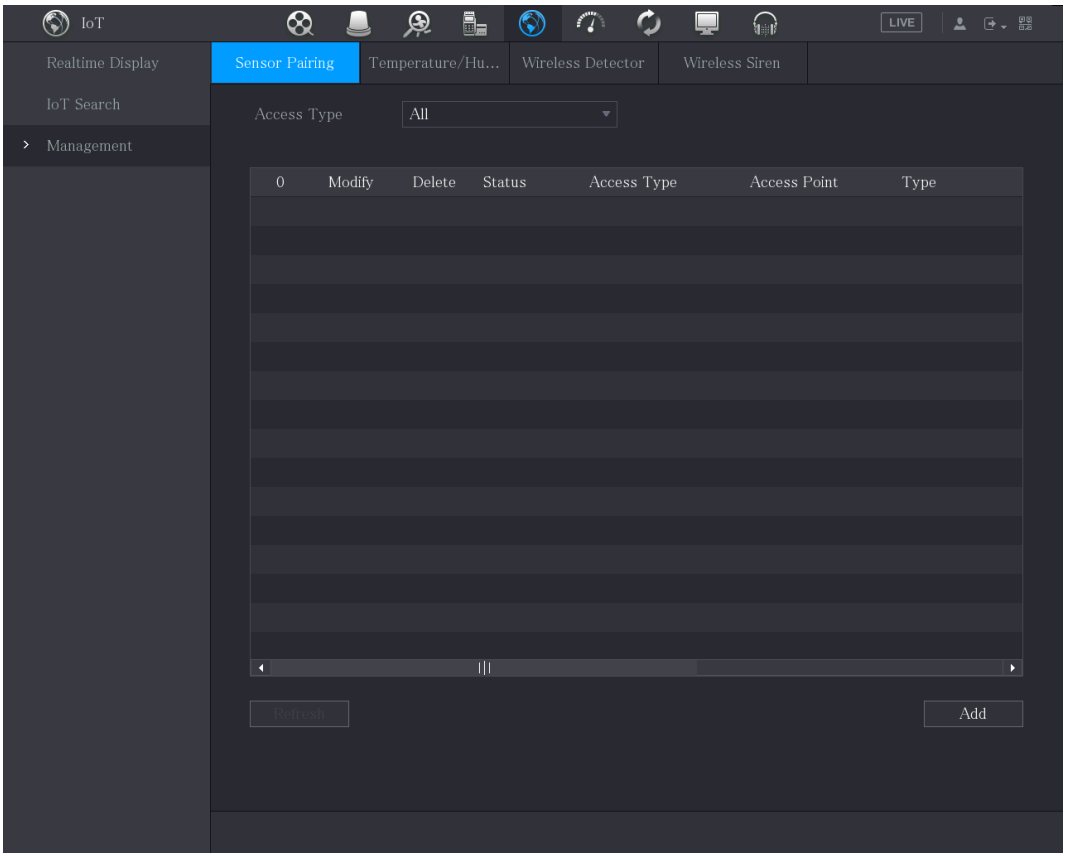
You can connect external sensors wirelessly through the Device with USB gateway or through connecting to a camera gateway. After connection, you can activate alarm events through external sensors.

5.12.1.1 Connecting Sensor through Device

Only the Device with USB gateway supports this function.

Step 1 Select **Main Menu** > **IoT** > **Management** > **Sensor Pairing**.

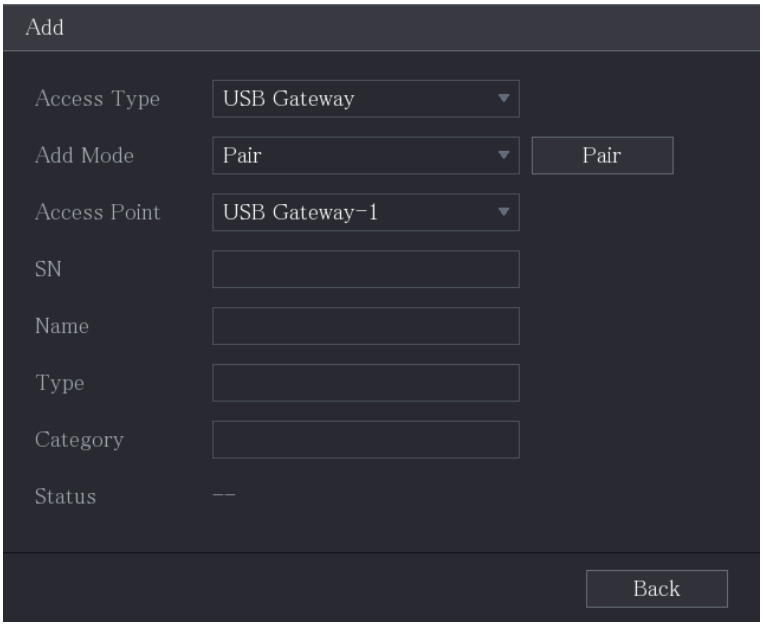
Figure 5-167 Sensor pairing



Step 2 In the **Access Type** list, select **USB Gateway**.

Step 3 Click **Add**.

Figure 5-168 Add gateway

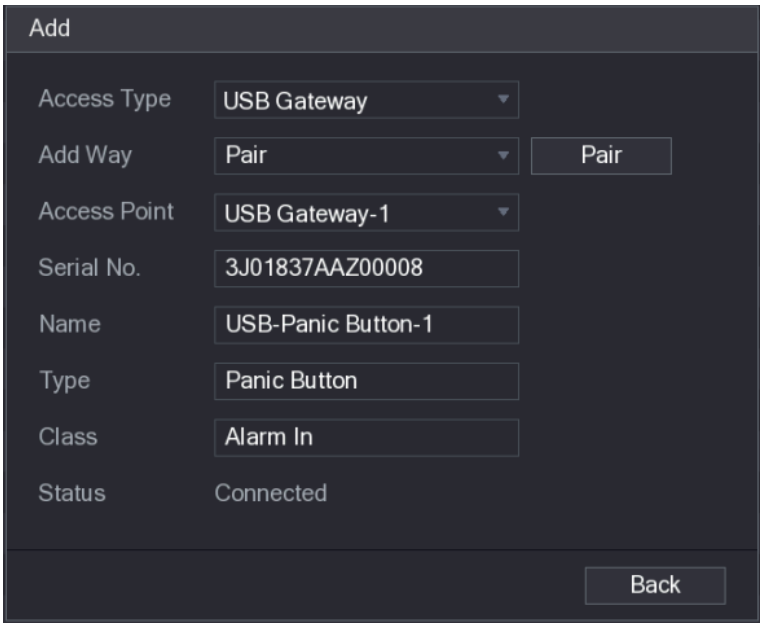


Step 4 Click **Pair**.

The Device starts pairing with the sensor.

After pairing is completed, see Figure 5-169.

Figure 5-169 Paired

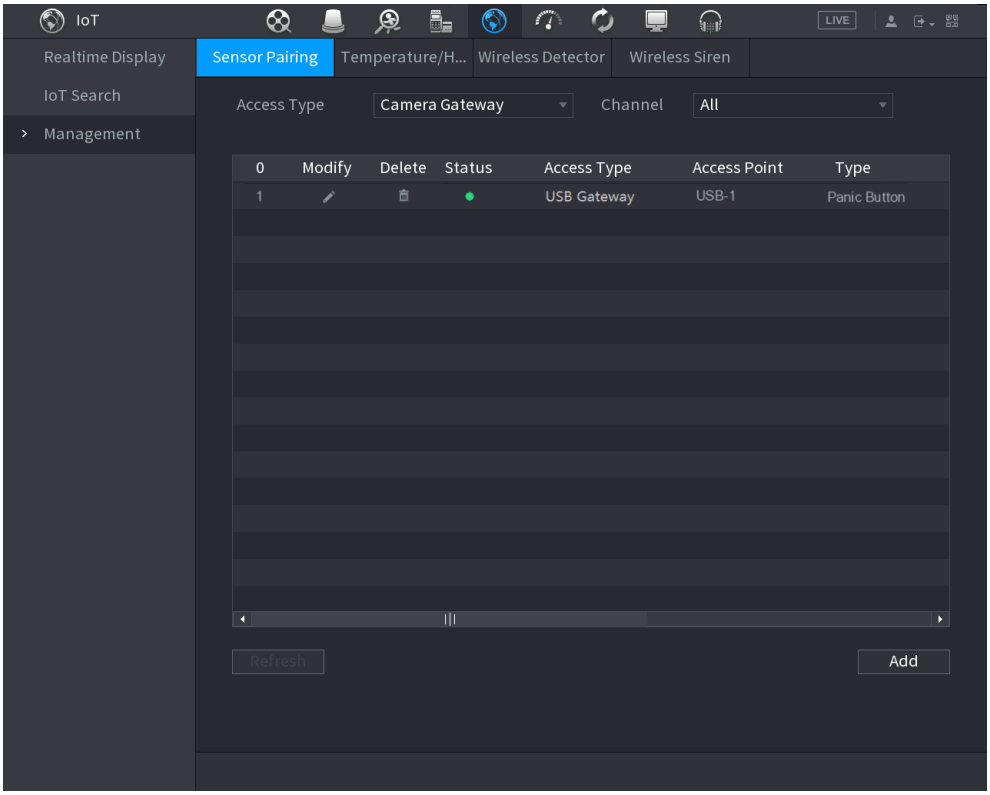


Step 5 Click **Back** to exit the pairing interface.

The added sensor information is displayed.

Click to modify the sensor name; click to delete sensor information.

Figure 5-170 Sensor pairing

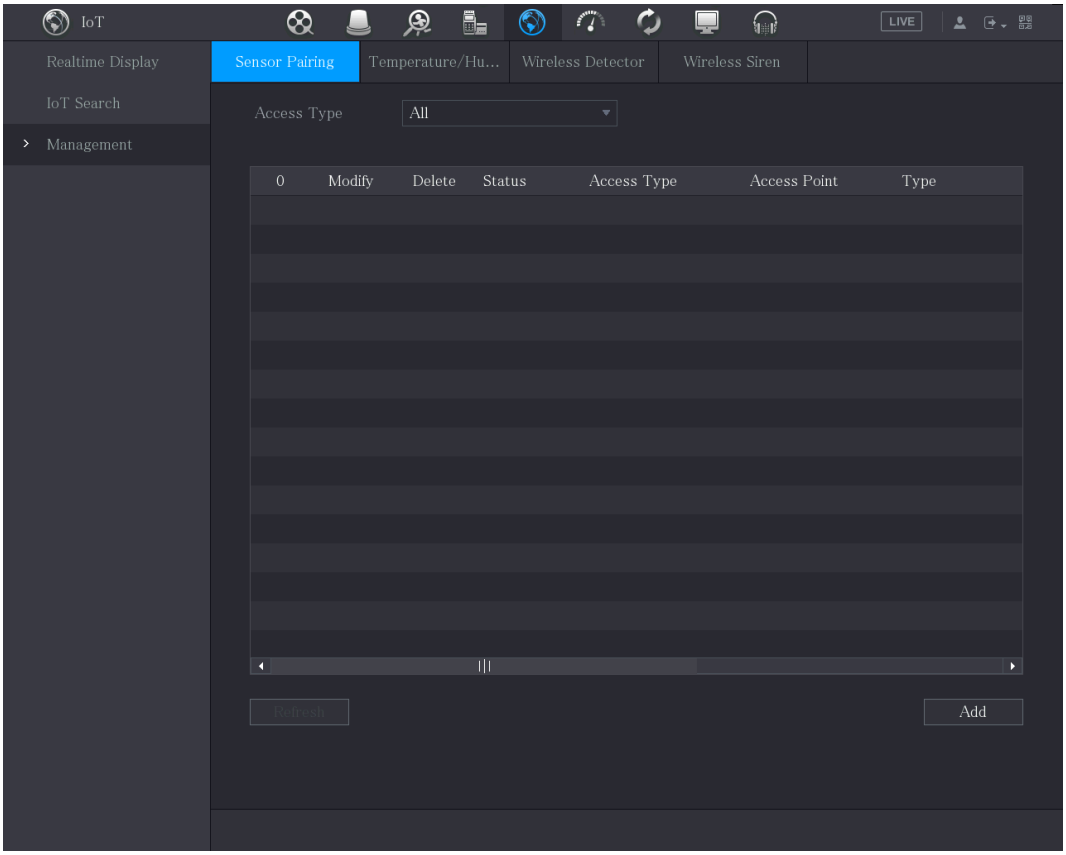


5.12.1.2 Connecting Sensor through Camera with Gateway

Only the camera with gateway supports this function.

Step 1 Select **Main Menu > IoT > Management > Sensor Pairing**.

Figure 5-171 Sensor pairing

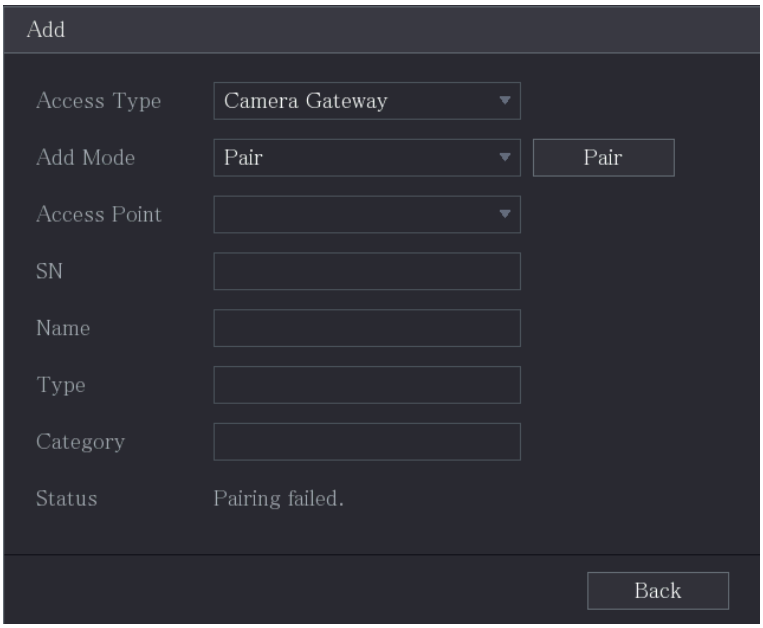


Step 2 In the **Access Type** list, select **Camera Gateway**.

Step 3 In the **Channel** list, select the channel that is connected to the camera.

Step 4 Click **Add**.

Figure 5-172 Add gateway

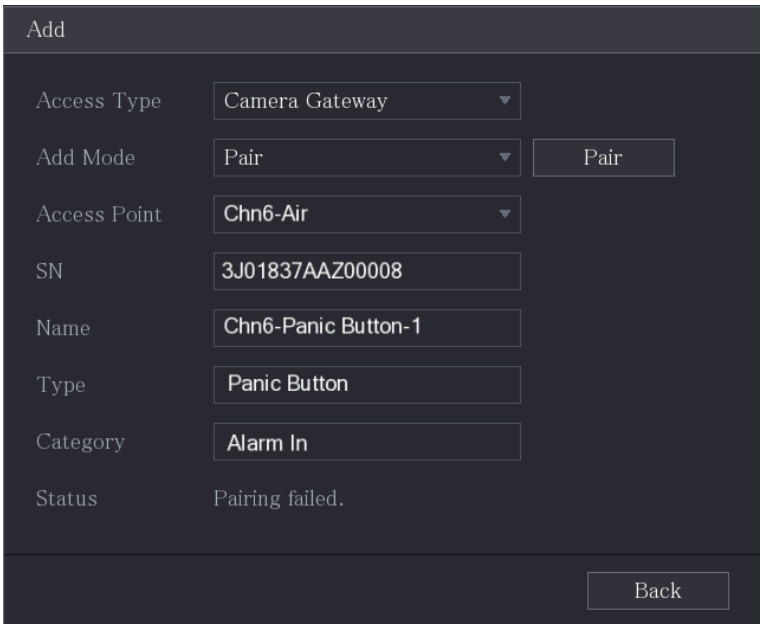


Step 5 Click **Pair**.

The Device starts pairing with the sensor.

After pairing is completed, see Figure 5-173.

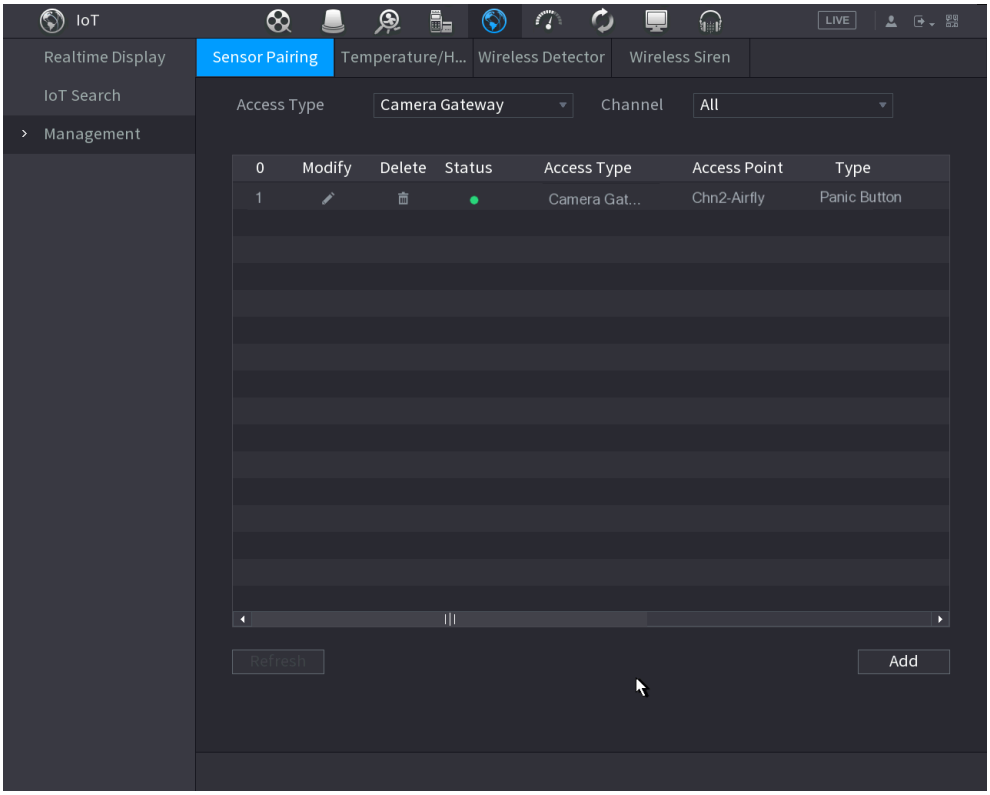
Figure 5-173 Paired



Step 6 Click **Back** to exit the pairing interface.

Click to modify the sensor name; click to delete sensor information.

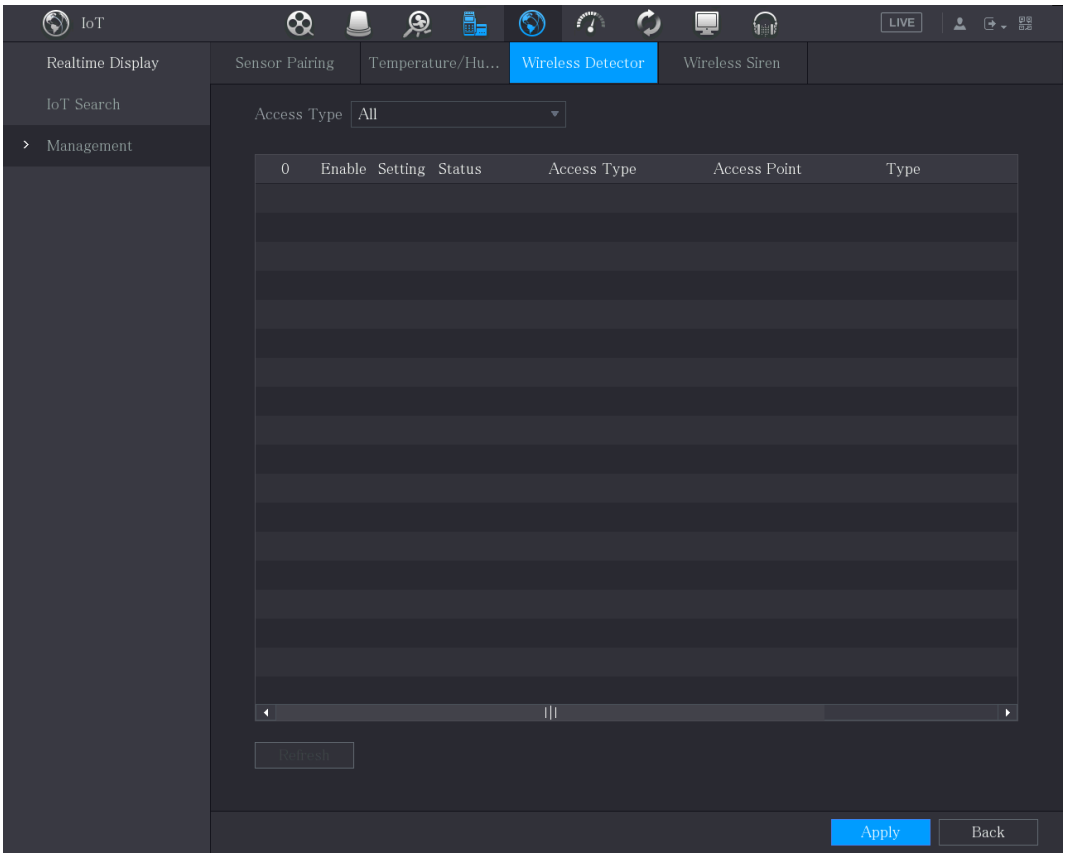
Figure 5-174 Sensor pairing



5.12.1.3 Configuring Alarm Linkage

Step 1 Select **Main Menu** > **IoT** > **Management** > **Wireless Detector**.

Figure 5-175 Wireless detector

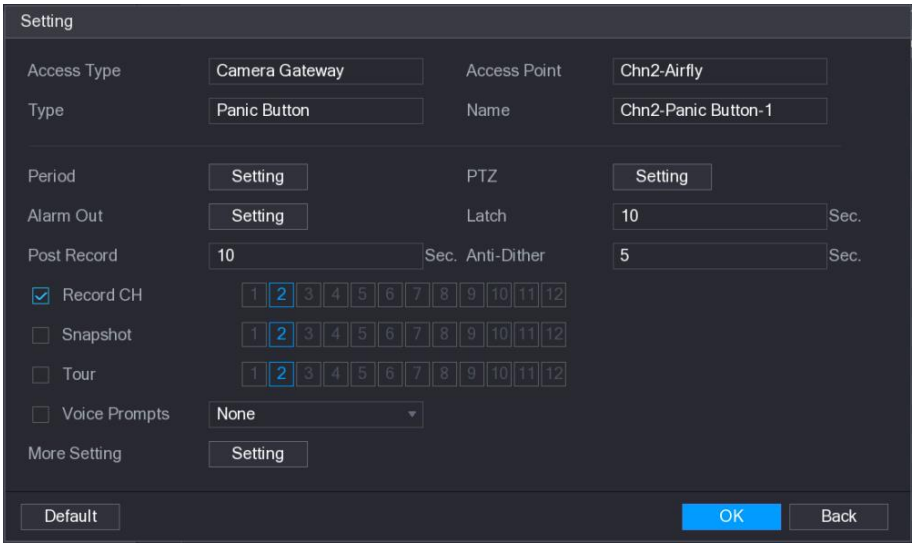


Step 2 In the **Access Type** list, select **USB Gateway**, **Camera Gateway**, or **All**.

When **Access Type** is **Camera Gateway**, you can select **Channel** to filter the status of present wireless detector.

Step 3 Click .

Figure 5-176 Alarm linkage settings



Step 4 Configure the settings for alarm linkage.

Table 5-51 Alarm linkage parameters

Parameter	Description
Name	Enter the customized alarm name.
Schedule	Click **Setting** to display setting interface. Define a period during which the motion detection is active. For details, see "Setting Motion Detection Period" section in "5.10.4.1 Configuring Motion Detection Settings."
PTZ Linkage	Click **Setting** to display the PTZ interface. Enable PTZ linkage actions, such as selecting the preset that you want to be called when an alarm event occurs.
Alarm-out Port	Click **Setting** to display setting interface. ● Local Alarm: Enable alarm activation through the alarm devices connected to the selected output port. ● Extension Alarm: Enable alarm activation through the connected alarm box. ● Wireless Siren: Enable alarm activation through devices connected by USB gateway or camera gateway.
Post-Alarm	Set a length of time for the Device to delay turning off alarm after the external alarm is cancelled. The value ranges from 0 seconds to 300 seconds, and the default value is 10 seconds.
Post Record	Set a length of time for the Device to delay turning off recording after the alarm is cancelled. The value ranges from 10 seconds to 300 seconds, and the default value is 10 seconds.
Anti-Dither	Configure the time period from end of event detection to the stop of alarm.
Record Channel	Select the channel(s) that you want to record. The selected channel(s) starts recording after an alarm event occurs. The recording for alarm and auto recording must be enabled. For details, see "5.1.4.9 Configuring Recorded Video Storage Schedule" and "5.9.1 Enabling Record Control."
Snapshot	Select the **Snapshot** check box to take a snapshot of the selected channel. To use this function, select **Main Menu** > **CAMERA** > **Encode** > **Snapshot**, in the **Type** list, select **Event**.
Tour	Select the **Tour** check box to enable a tour of the selected channels.
Alarm Tone	Select to enable audio broadcast/voice prompts in response to a local alarm event.

Parameter	Description
More Setting	● Show Message: Select the **Show Message** check box to enable a pop-up message in your local host PC. ● Buzzer: Select the check box to activate a buzzer noise at the Device. ● Video Matrix: Select the check box to enable the function. When an alarm event occurs, the video output port outputs the settings configured in "**Main Menu > DISPLAY > Tour**." Not all models support this function. ● Send Email: Enable the system to send an email notification when an alarm event occurs. To use this function, make sure the email function is enabled in **Main Menu > NETWORK > Email**. ● Log: Select the check box to enable the Device to record a local alarm log. ● Extra screen: Select the check box to enable the function. When an alarm event occurs, the extra screen outputs the settings configured in **Main Menu > DISPLAY > Tour > Sub Screen.** ● Not all models support this function. ● To use this function, extra screen shall be enabled.

Step 5 Click **OK** to save the settings.

Step 6 On the **Wireless Detector** interface, click **Apply** to complete the settings.

5.12.2 Configuring Temperature and Humidity Camera

You can view, search and export the temperature and humidity data of camera with such sensors and configure the alarm event settings.

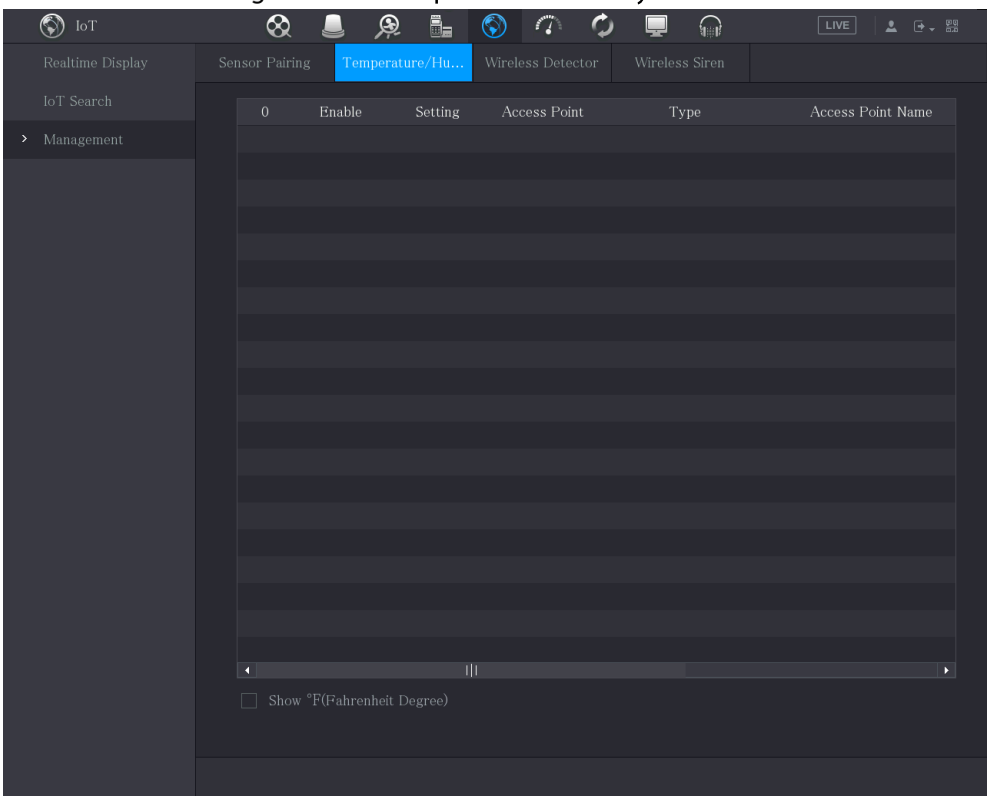
To use this function, make sure there is at least one camera with temperature and humidity sensor has been connected to the Device.

5.12.2.1 Enabling Detecting Function

You should enable the IoT function the first time when you enter this interface.

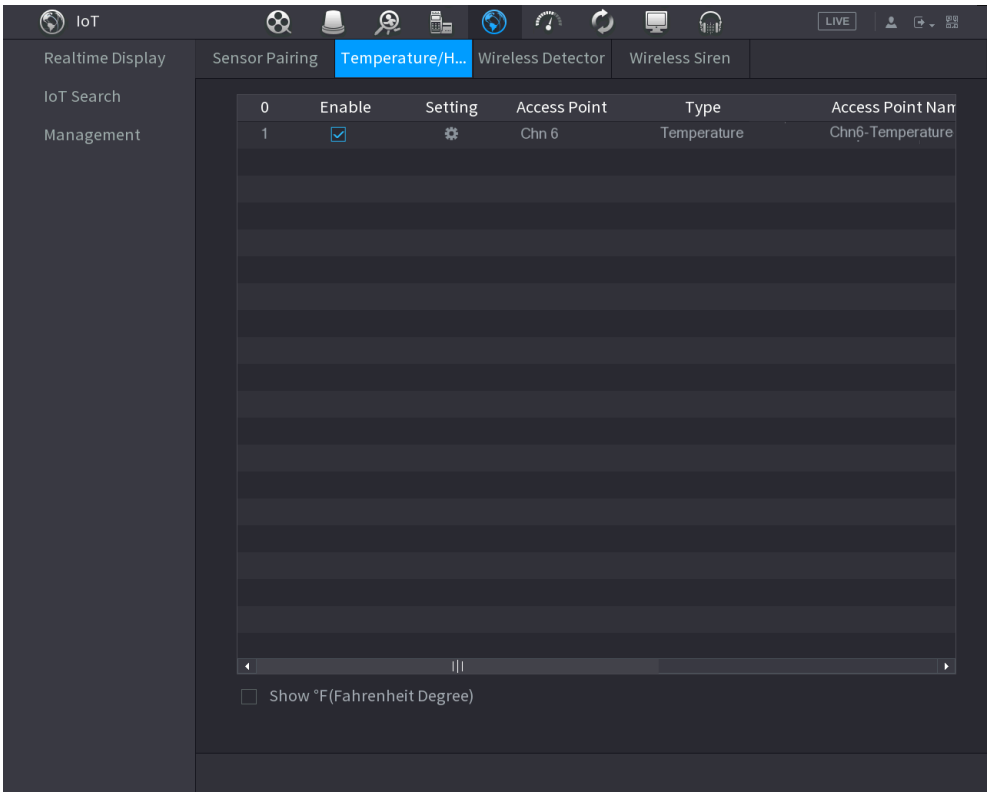
Step 1 On the main menu, select **IoT > Management > Temperature/Humidity**.

Figure 5-177 Temperature/humidity



Step 2 Select the **Enable** check boxes to enable IoT function.

Figure 5-178 Enable IoT



The Device starts detecting the temperature and humidity data from the camera and display on the **Realtime Display** interface.

Step 3 (Optional) Set temperature displaying mode.

When **Show°F (Fahrenheit Degree)** is selected, the temperature will be displayed by

Fahrenheit degree in **Realtime Display** tab.

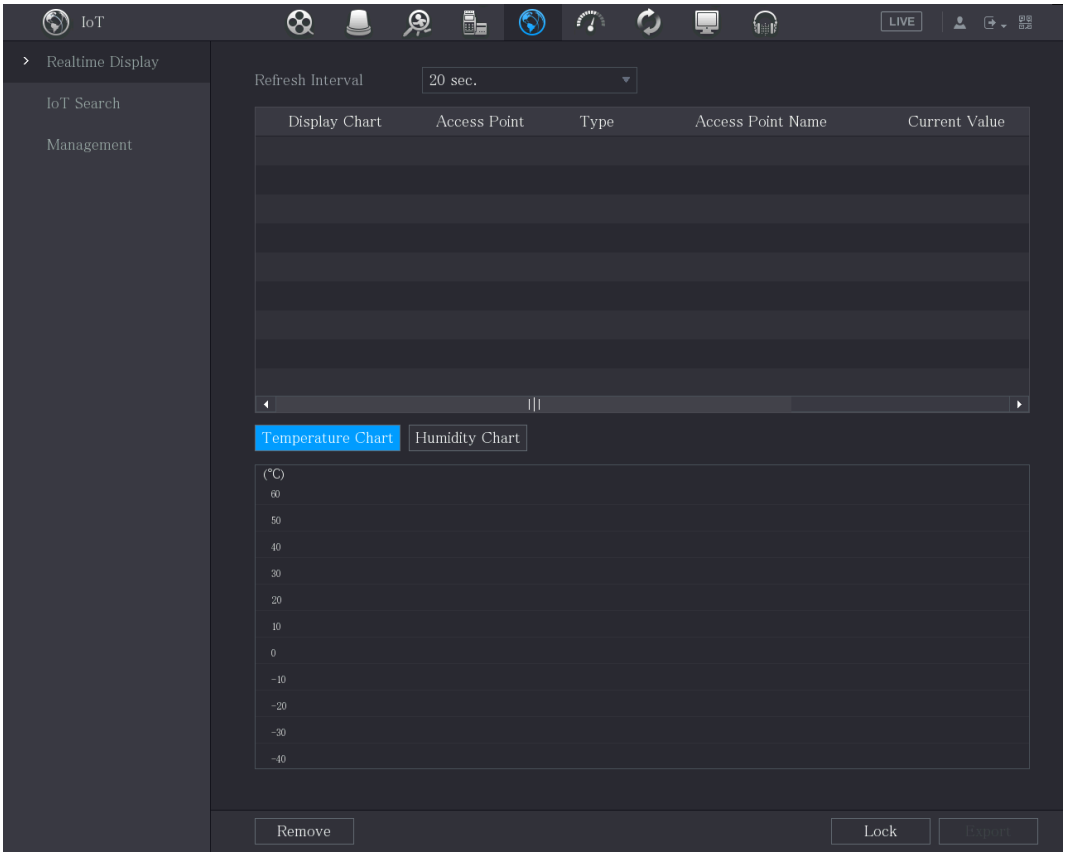
5.12.2.2 Viewing Temperature and Humidity Data

You can view the temperature and humidity data on the **Realtime Display** interface after the IoT function is enabled.

In the **Refresh Interval** box, select data refresh interval. For example, you can select **5 Sec**.

You can also display the temperature and humidity data in graphical way by selecting the **Display Chart** check box to. See Figure 5-179 for humidity data in graphical way.

Figure 5-179 Temperature chart



Click **Remove** to delete the data.

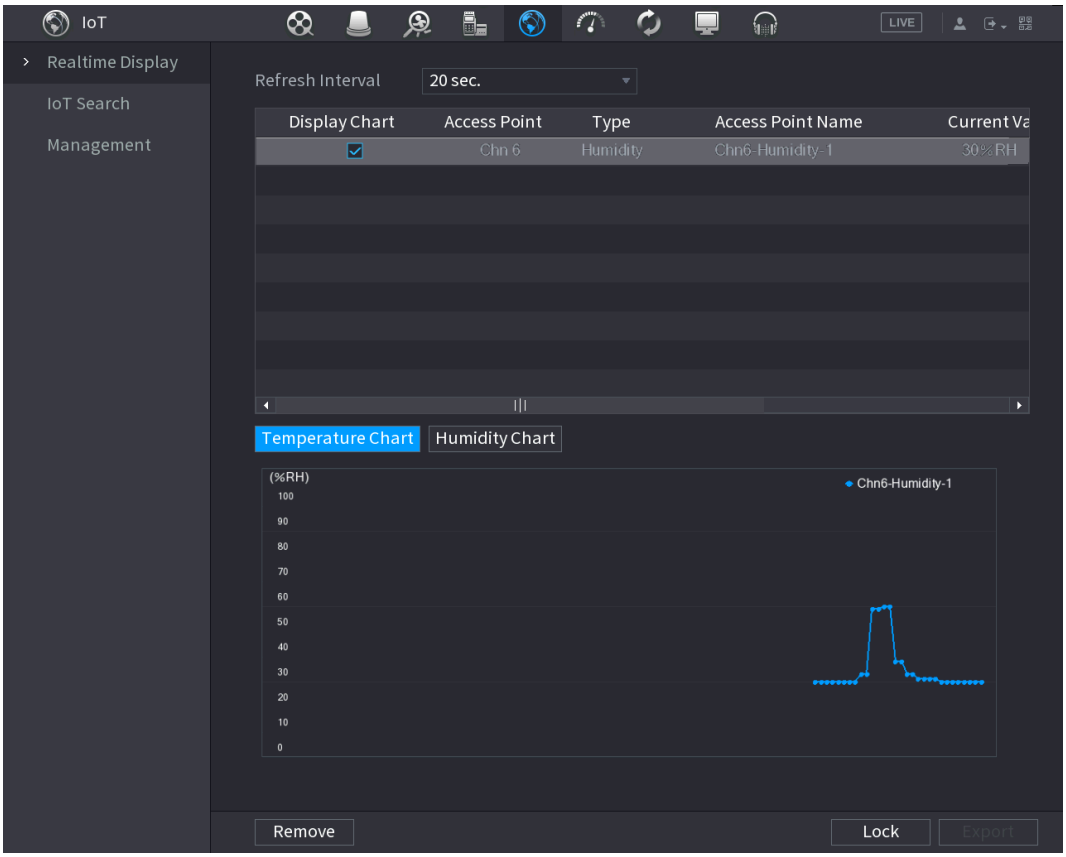
5.12.2.3 Exporting Temperature and Humidity Data

You can export the temperature and humidity data in .BMP format. Take exporting humidity data as an example.

Step 1 Prepare a USB device and plug it into the Device.

Step 2 On the **Realtime Display** interface, click the **Humidity** tab.

Figure 5-180 Realtime display



Step 3 Click **Lock** to lock the data.

The export button is enabled.

Step 4 Click **Export**. The system starts exporting the data.

After exporting is finished, a **Message** dialog box is displayed.

Step 5 Click **OK**.

You can find the exported data on your USB device.

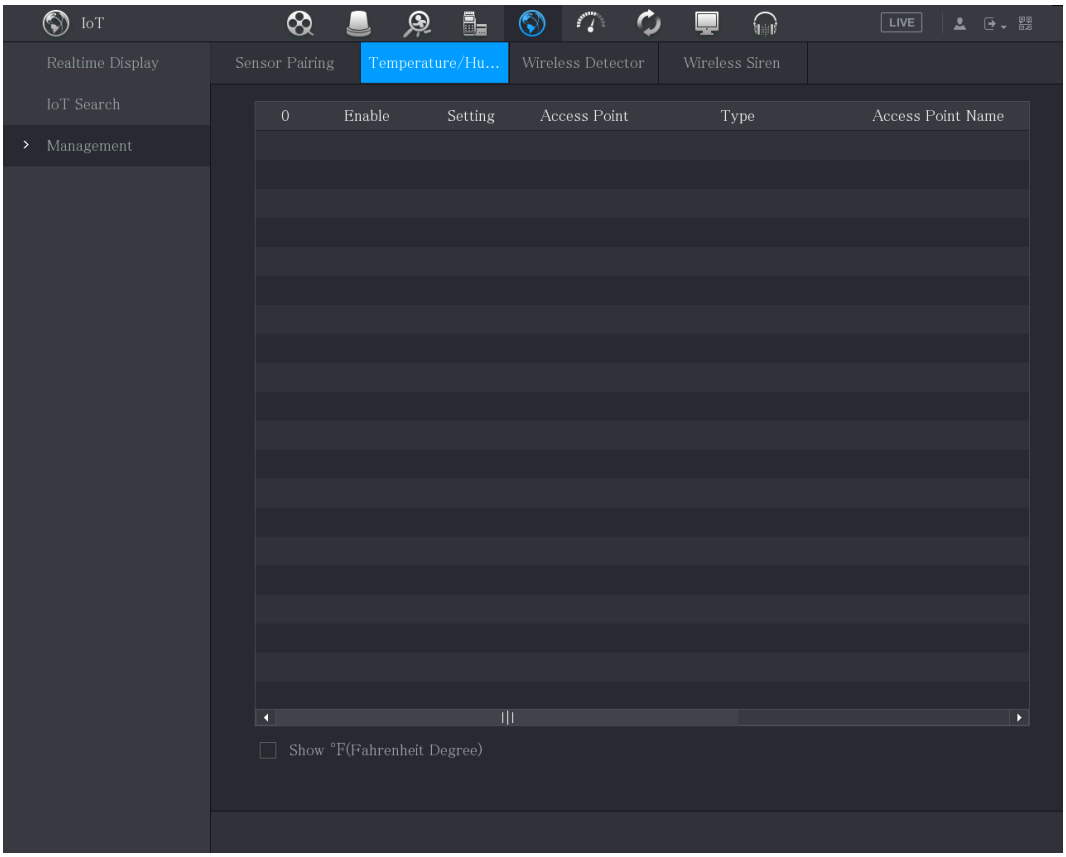
5.12.2.4 Configuring Alarm Linkage

You can configure alarm linkage settings for temperature and humidity data.

5.12.2.4.1 Configuring Alarm Linkage for Temperature Data

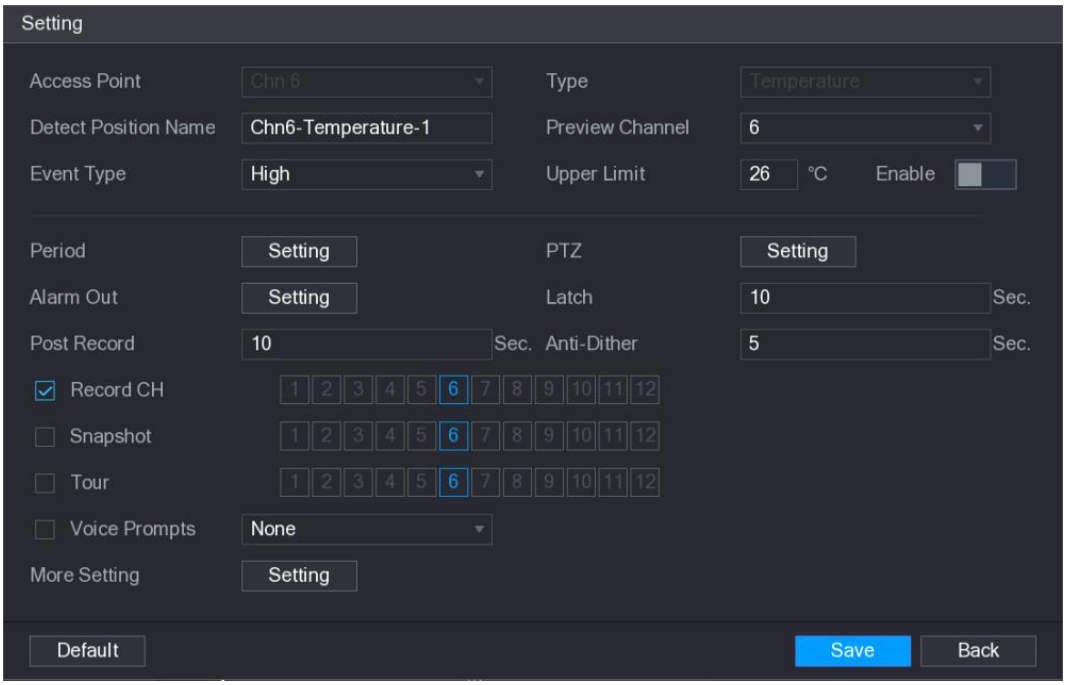
Step 1 On the main interface, select **IoT** > **Management** > **Temperature/Humidity**.

Figure 5-181 Temperature/humidity



Step 2 On the temperature information line, click .

Figure 5-182 Temperature setting



Step 3 Configure the settings for alarm linkage.

Table 5-52 Alarm linkage settings

Parameter	Description
Access Point	Indicates the channel that the camera is connected to.
Type	**Temperature** by default.
Detect Position Name	Set the detect position name.
Preview Channel	Select the channel that you want to preview to help monitor the channel of access point. This channel could be the channel of access point or any other channels according to your actual situation.
Event Type	Select event type as **High** or **Low**, and set the upper and low temperature limit respectively. For example, select event type as **High** and set upper limit as **28**, the alarm occurs when the temperature reaches 28℃.
Upper Limit	
Enable	Enable the alarm function.
Schedule	Define a period during which the alarm setting is active. For more information about setting the period, see "5.10.4.1 Configuring Motion Detection Settings."
Alarm-out Port	Click **Setting** to display setting interface. ● General Alarm: Enable alarm activation through the alarm devices connected to the selected output port. ● External Alarm: Enable alarm activation through the connected alarm box. ● Wireless Siren: Enable alarm activation through devices connected by USB gateway or camera gateway.
PTZ Linkage	Click **Setting** to display the PTZ interface. Enable PTZ linkage actions, such as selecting the preset that you want to be called when an alarm event occurs.
Post-Alarm	Set a length of time for the Device to delay turning off alarm after the external alarm is cancelled. The value ranges from 0 seconds to 300 seconds, and the default value is 10 seconds. If you enter 0, there will be no delay.
Post Record	Set a length of time for the Device to delay turning off recording after the alarm is cancelled. The value ranges from 10 seconds to 300 seconds, and the default value is 10 seconds.
Anti-Dither	Configure the time period from end of event detection to the stop of alarm.
Snapshot	Select the check box to take a snapshot of the selected channel. To use this function, make sure the snapshot is enabled motion detect alarms in **Main Menu** > **STORAGE** > **Schedule** > **Snapshot**.

Parameter	Description
Record Channel	Select the channel(s) that you want to record. The selected channel(s) starts recording after an alarm occurs. The recording for IoT alarms and auto recording function must be enabled. For details, see "5.1.4.9 Configuring Recorded Video Storage Schedule" and "5.9.1 Enabling Record Control."
Tour	Select the check box to enable a tour of the selected channels. To use this function, make sure the tour is enabled and configured in **Main Menu > DISPLAY > Tour**.
Alarm Tone	Select to enable audio broadcast/alarm tones in response to a temperature alarm event.
More Setting	● Show Message: Select the **Show Message** check box to enable a pop-up message in your local host PC. ● Buzzer: Select the check box to activate a buzzer noise at the Device. ● Video Matrix: Select the check box to enable the function. When an alarm event occurs, the video output port outputs the settings configured in "**Main Menu > DISPLAY > Tour**." Not all models support this function. ● Send Email: Enable the system to send an email notification when an alarm event occurs. To use this function, make sure the email function is enabled in **Main Menu > NETWORK > Email**. ● Log: Select the check box to enable the Device to record a local alarm log. ● Extra screen: Select the check box to enable the function. When an alarm event occurs, the extra screen outputs the settings configured in **Main Menu > DISPLAY > Tour > Sub Screen.** ● Not all models support this function. ● To use this function, extra screen shall be enabled.

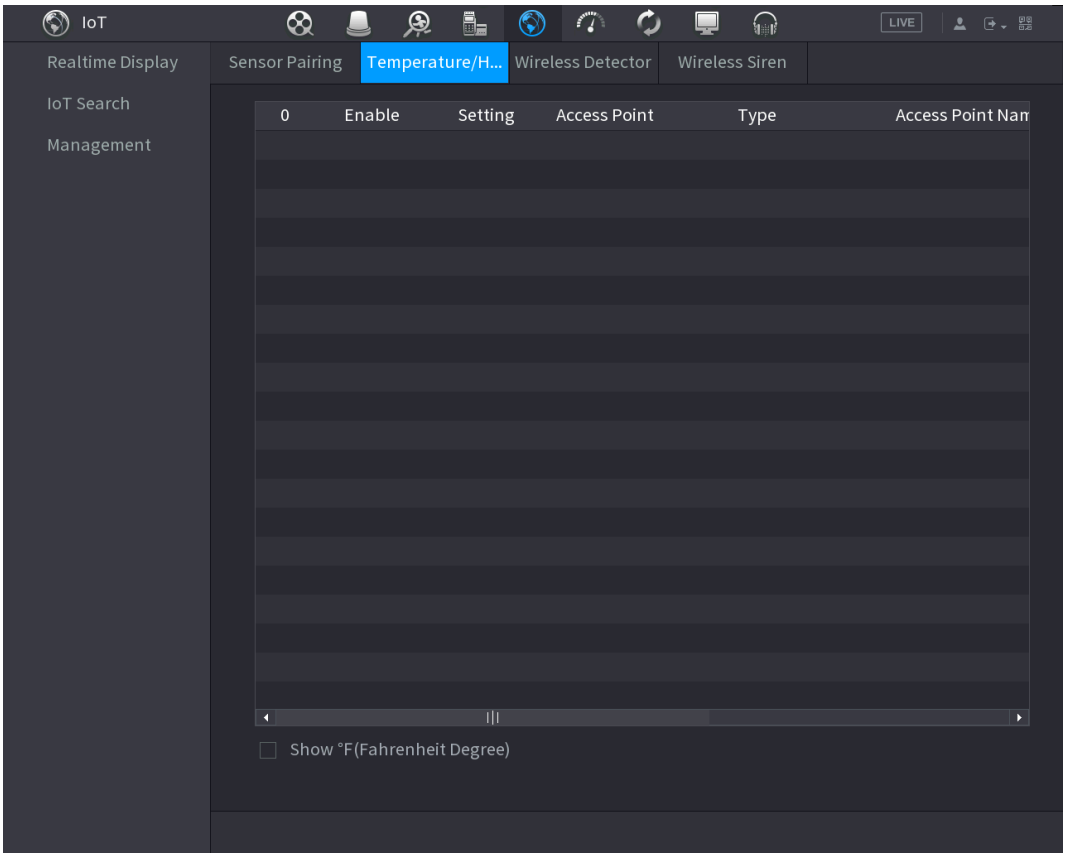
Step 4 Click **Save** to save the settings.

5.12.2.4.2 Configuring Alarm Settings for Humidity Data

You can configure the alarm event by setting the humidity data.

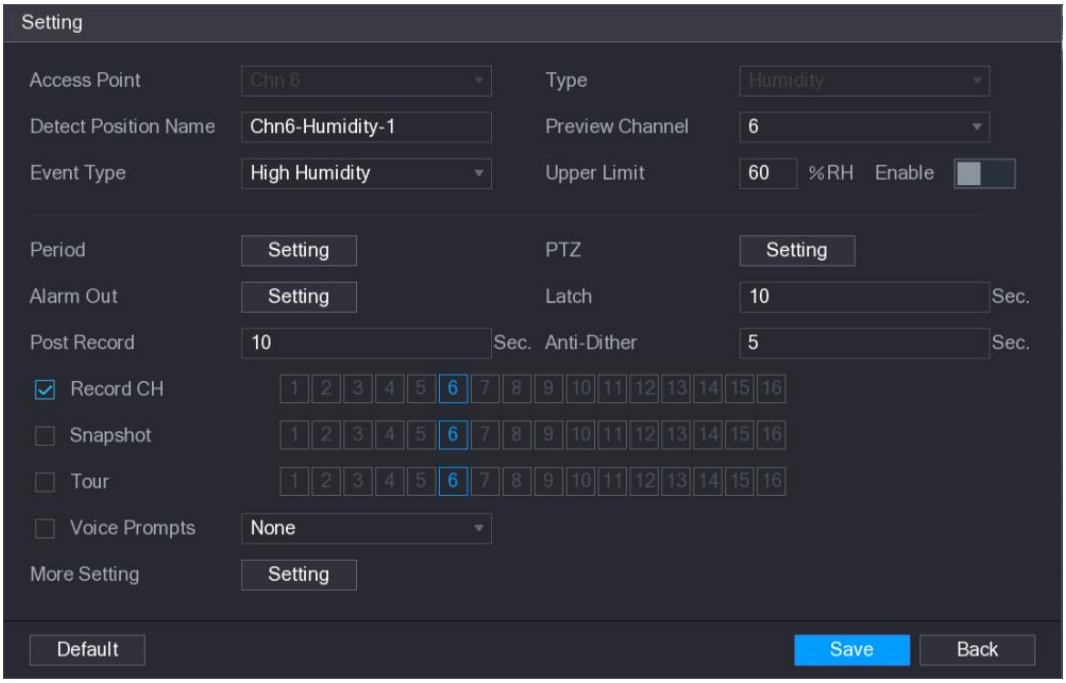
Step 1 On the main interface, select **IoT > Management > Temperature/Humidity**.

Figure 5-183 Temperature/humidity



Step 2 On the humidity information line, click .

Figure 5-184 Humidity setting



Step 3 Configure the settings for the following parameters.

Table 5-53 Alarm linkage settings

Parameter	Description
Access Point	Indicates the channel that the camera is connected to.
Type	**Humidity** by default.
Detect Position Name	Set the detect position name.
Preview Channel	Select the channel that you want to preview to help monitor the channel of access point. This channel could be the channel of access point or any other channels according to your actual situation.
Event Type	Select event type as **High Humidity** or **Low Humidity**, and set the upper and low humidity limit respectively. For example, select event type as **High Humidity** and set upper limit as **60**, the alarm occurs when the humidity reaches 60%RH.
Upper Limit	
Enable	Enable the alarm function.
Schedule	Define a period during which the alarm setting is active. For more information about setting the period, see "5.10.4.1 Configuring Motion Detection Settings."
Alarm-out Port	Click **Setting** to display setting interface. ● General Alarm: Enable alarm activation through the alarm devices connected to the selected output port. ● External Alarm: Enable alarm activation through the connected alarm box. ● Wireless Siren: Enable alarm activation through devices connected by USB gateway or camera gateway.
PTZ Linkage	Click **Setting** to display the PTZ interface. Enable PTZ linkage actions, such as selecting the preset that you want to be called when an alarm event occurs.
Post-Alarm	Set a length of time for the Device to delay turning off alarm after the external alarm is cancelled. The value ranges from 0 seconds to 300 seconds, and the default value is 10 seconds. If you enter 0, there will be no delay.
Post Record	Set a length of time for the Device to delay turning off recording after the alarm is cancelled. The value ranges from 10 seconds to 300 seconds, and the default value is 10 seconds.
Anti-Dither	Configure the time period from end of event detection to the stop of alarm.
Snapshot	Select the check box to take a snapshot of the selected channel. To use this function, make sure the snapshot is enabled motion detect alarms in **Main Menu** > **STORAGE** > **Schedule** > **Snapshot**.
Record CH	Select the channel(s) that you want to record. The selected channel(s) starts recording after an alarm occurs. The recording for IoT alarms and auto recording function must be enabled. For details, see "5.1.4.9 Configuring Recorded Video Storage Schedule" and "5.9.1 Enabling Record Control."

Parameter	Description
Tour	Select the check box to enable a tour of the selected channels. To use this function, make sure the tour is enabled and configured in **Main Menu > DISPLAY > Tour**.
Alarm Tone	Select to enable audio broadcast/voice prompts in response to a temperature alarm event.
More Setting	● Show Message: Select the **Show Message** check box to enable a pop-up message in your local host PC. ● Buzzer: Select the check box to activate a buzzer noise at the Device. ● Video Matrix: Select the check box to enable the function. When an alarm event occurs, the video output port outputs the settings configured in "**Main Menu > DISPLAY > Tour**." Not all models support this function. ● Send Email: Enable the system to send an email notification when an alarm event occurs. To use this function, make sure the email function is enabled in **Main Menu > NETWORK > Email**. ● Log: Select the check box to enable the Device to record a local alarm log.

Step 4 Click **Save** to save the settings.

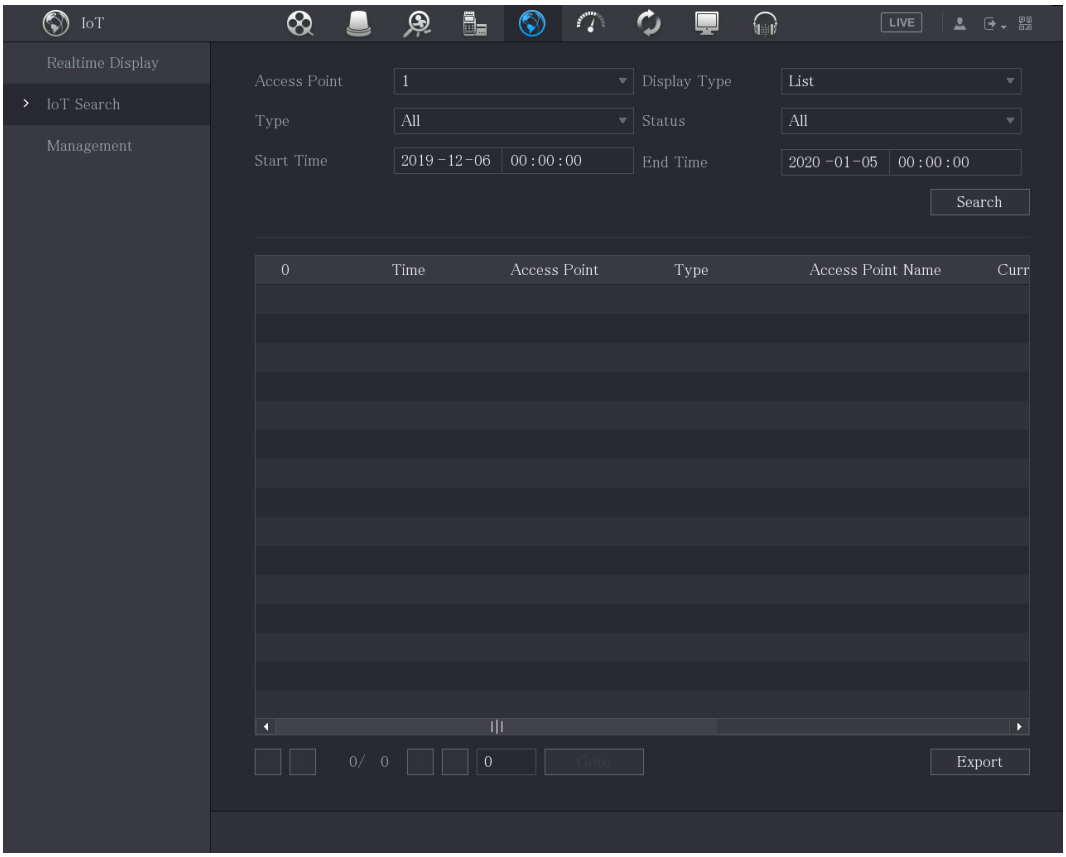
5.12.2.5 Searching IoT Information

You can search and backup all your IoT data.

To back up the data, you should prepare a USB device and plug it into the Device.

Step 1 On the main interface, select **IoT > IOT Search**.

Figure 5-185 IOT search



Step 2 Configure the parameters settings.

Table 5-54 IOT parameters

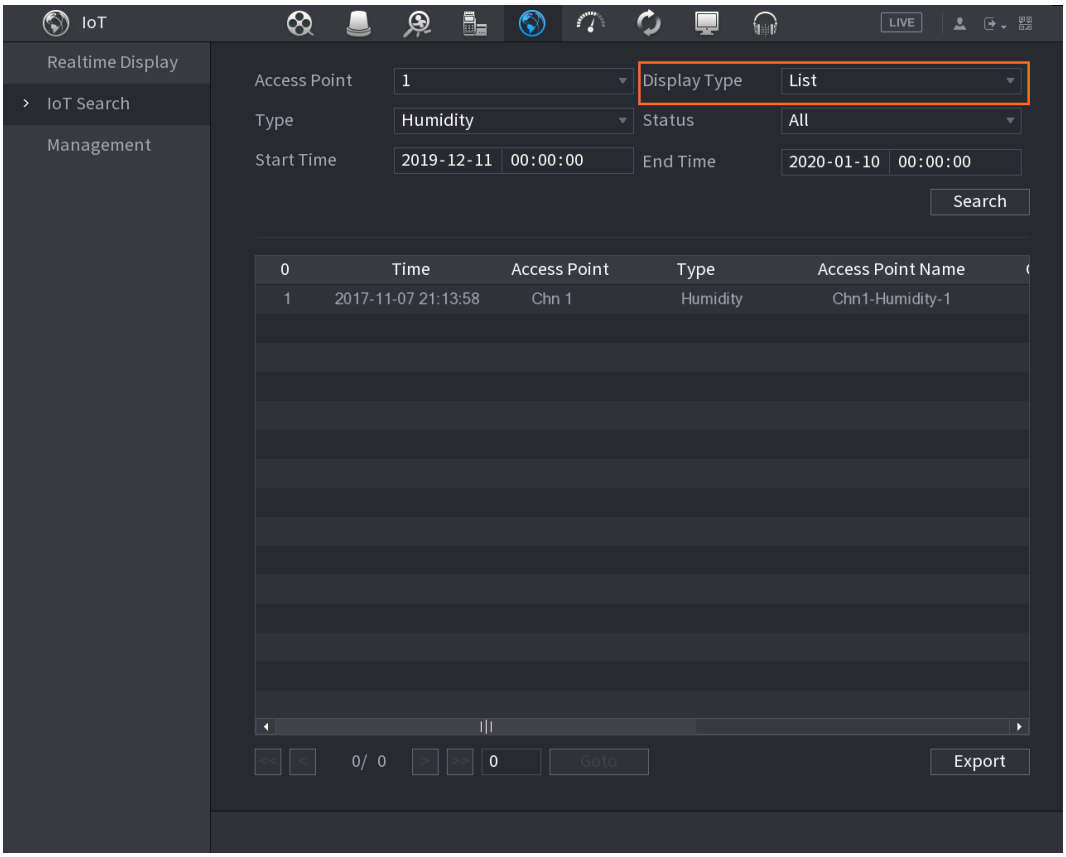
Parameter	Description
Access Point	Indicates the channel that the camera is connected to.
Display Type	In the **Display Type** list, select **List** or **Diagram**.
Type	Select the information type that you want to search. You can select **Humidity** or **Temperature**.
Status	Select the information state that you want to search. This option is available when you select **List** in the **Display Type** list.
Start Time	Enter the start time and end time for the information that you want to search.
End Time	

Step 3 Click **Search**.

The system starts search according to your parameters settings. After searching is finished, the result displays. For the data displayed in list, see Figure 5-186.

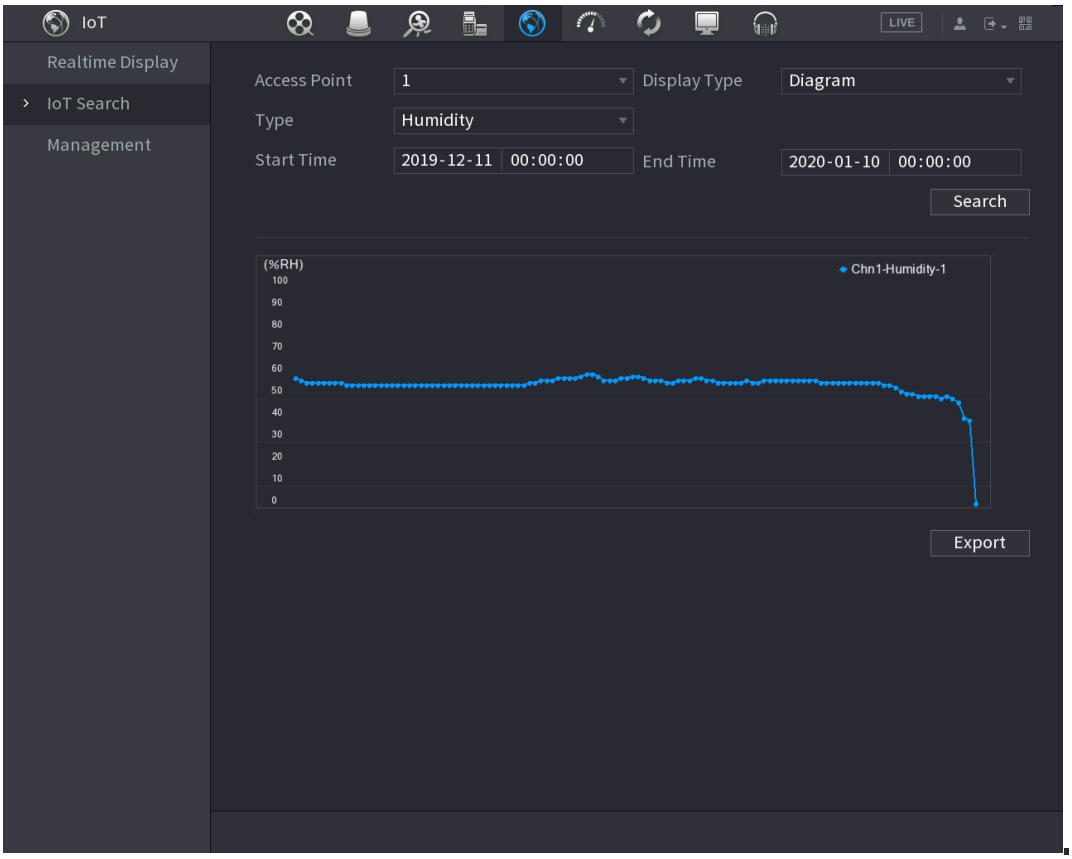
Click **Goto** to switch result pages.

Figure 5-186 List



- For the data displayed in graph, see Figure 5-187.

Figure 5-187 Graph



Step 4 Click **Export.** The system starts exporting the data.
After exporting is finished, a **Message** dialog box is displayed.

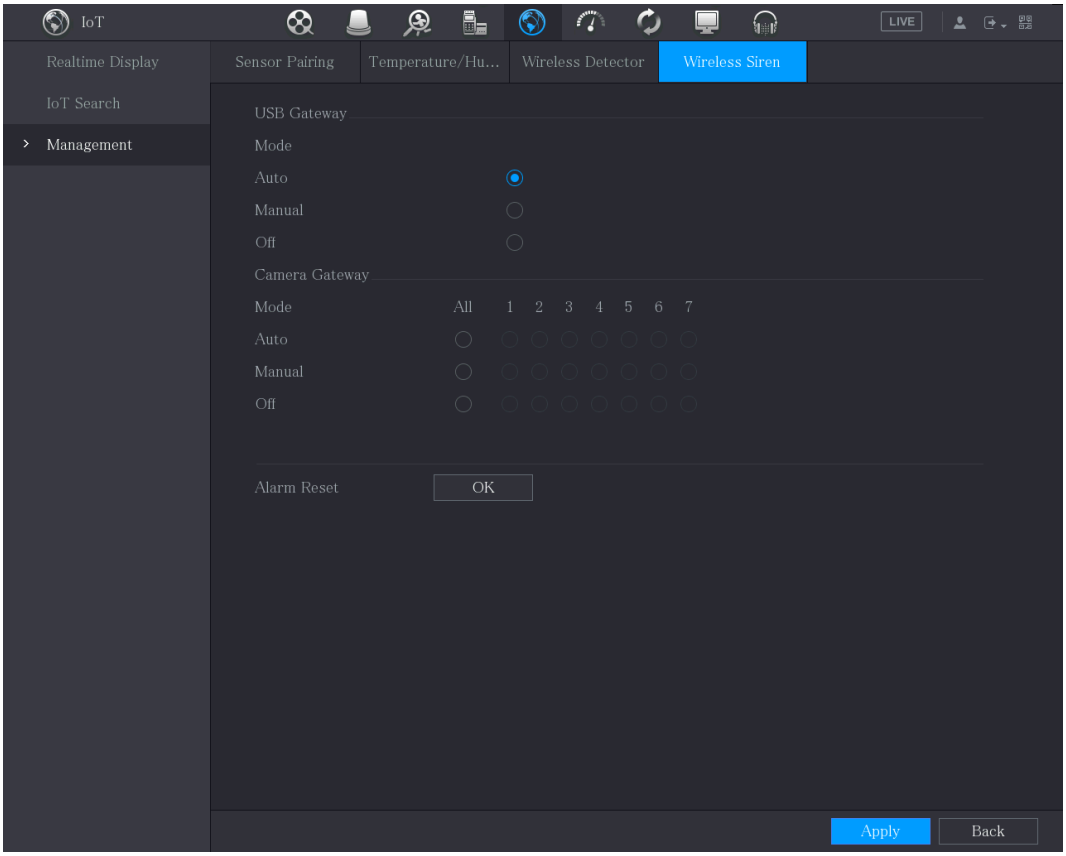
Step 5 Click **OK**.
You can find the exported data on your USB device.

5.12.3 Configuring Wireless Siren

You can connect the wireless siren to the Device, when there is an alarm event activated on the Device, the wireless siren generates alarms.

Step 1 Select **Main Menu** > **IoT** > **Management** > **Wireless Siren**.

Figure 5-188 Wireless siren



Step 2 Configure the settings for the wireless alarm output.

Table 5-55 Wireless alarm output

Parameter	Description
USB Gateway, Camera Gateway	• **Auto**: Automatically activate alarm if the alarm output function for wireless siren is enabled for specific events. For example, if you want to enable the alarm output through wireless siren for motion detection, see "Alarm Output" parameter in Table 5-40. • **Manual**: Activate alarm immediately. • **Off**: Do not activate alarm.
Alarm Release	Click **OK** to clear all alarm output status of wireless siren.

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

5.13 Configuring POS Settings

You can connect the Device to the POS (Point of Sale) machine and receive the information from it. This function applies to the scenarios such as supermarket POS machine. After connection is established, the Device can access the POS information and display the overlaid text in the channel window.

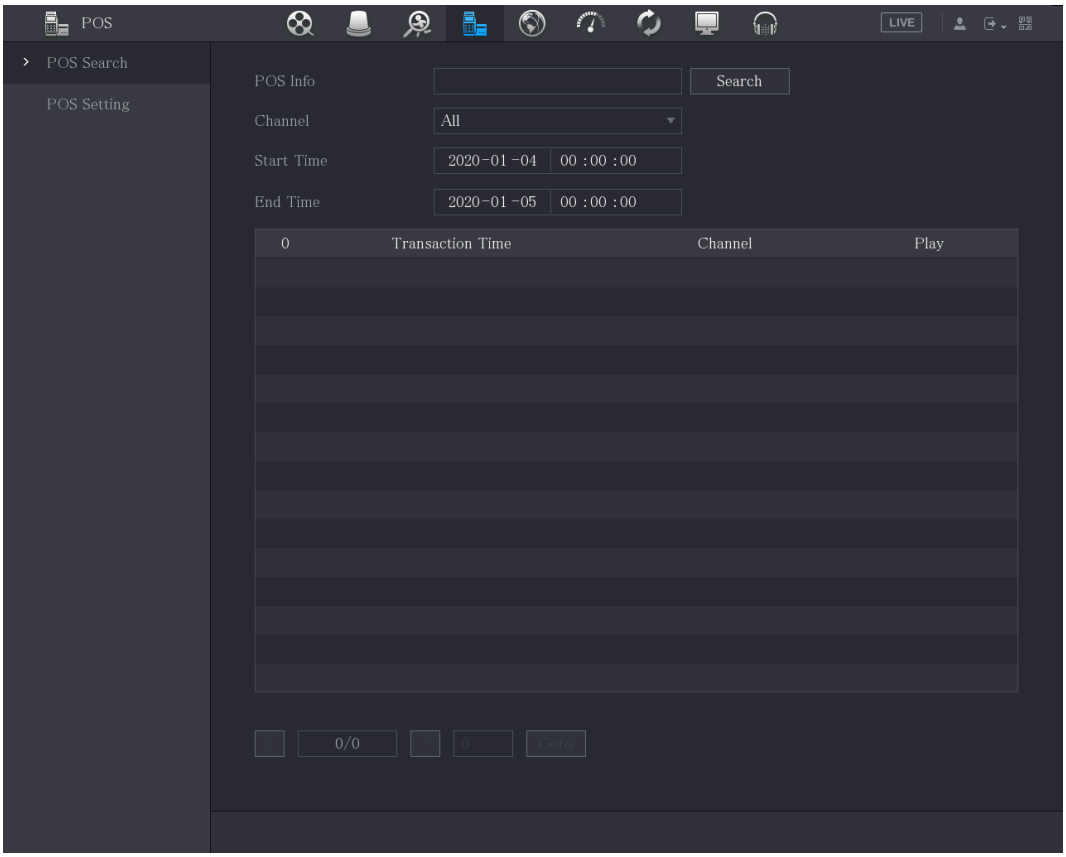
Playing POS information in the local playback and viewing the POS information in the live view screen only support single-channel mode and four-channel mode. Displaying monitoring screen and playing back in the web support multi-channel mode.

5.13.1 Searching the Transaction Records

The system supports fuzzy search.

Step 1 Select **Main Menu** > **POS** > **POS Search**.

Figure 5-189 POS search



Step 2 In the **POS Search** box, enter the information such as transaction number on your receipt, amount, or product name.

Step 3 In the **Start Time** box and **End Time** box, enter the time period that you want to search the POS transaction information.

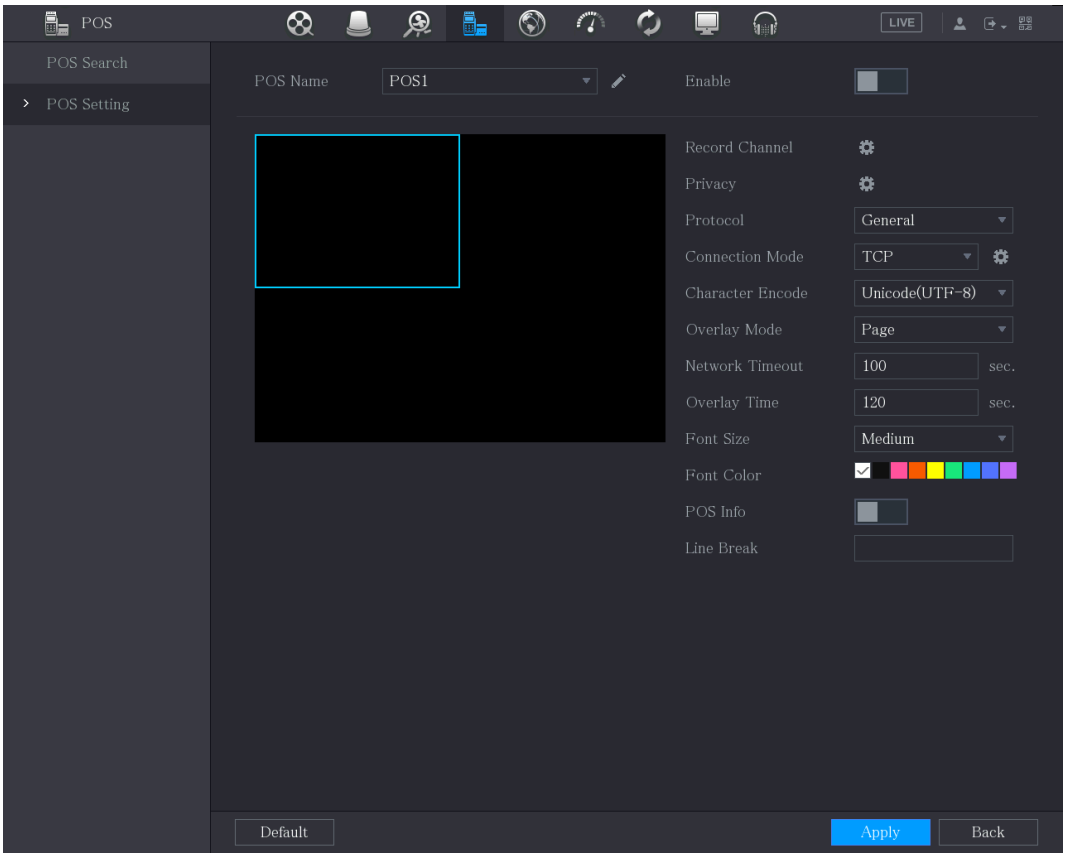
Step 4 Click **Search**.

The searched transaction results display in the table.

5.13.2 Configuring POS Settings

Step 1 Select **Main Menu** > **POS** > **POS Setting**.

Figure 5-190 POS setting



Step 2 Configure the settings for the POS parameters.

Table 5-56 POS parameters

Parameter	Description
POS Name	In the **POS Name** list, select the POS machine that you want to configures settings for. Click to modify the POS name. The POS name supports 21 Chinese characters or 63 English characters.
Enable	Enable the POS function.
Record Channel	Select the channel(s) that you want to record. The selected channel(s) starts recording after an alarm occurs. The recording for POS alarms and auto recording function must be enabled. For details, see "5.1.4.9 Configuring Recorded Video Storage Schedule" and "5.9.1 Enabling Record Control."
Privacy	Enter the privacy content.
Protocol	Select **POS** by default. Different machine corresponds to different protocol.

Parameter	Description
Connecttion Mode	In the **Connect Type** list, select the connection protocol type. Click , the **IP Address** interface is displayed. In the **Source IP** box, enter the IP address (the machine that is connected to the Device) that sends messages.
Character Encode	Select a character encoding mode.
Overlay Mode	In the **Overlay Mode** list, Select **Page** or **ROLL**. ● **Page** means to turn a page when there are 16 lines of overlay information. ● **ROLL** means to roll up the interface when there are 16 lines of overlay information. The first line disappears each time. When local preview mode is 4-split, overlay information is substituted when there are 8 lines.
Network Timeout	When the network is not working correctly and cannot be recovered after the entered timeout limit, the POS information will not display normally. After the network is recovered, the latest POS information will be displayed.
Overlay Time	Enter the time that how long you want to keep the POS information displaying. For example, enter 5, the POS information disappear from the screen after 5 seconds.
Font Size	In the Font Size list, select **Small**, **Medium**, or **Large** as the text size of POS information
Font Color	In the color bar, click to select the color for the text size of POS information.
POS Info	Enable the POS Info function, the POS information displays in the live view screen.
Line Break	It does not need to configure. The system goes to a new line 1s after no data is received. If you enter a line delimiter, the system goes to a new line when overlay information identifies the line delimiter (hexadecimal). For example, if line delimiter is F and overlay information is 123156789, the local preview and web overlay information is displayed as: 123 6789

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

5.14 Configuring Backup Settings

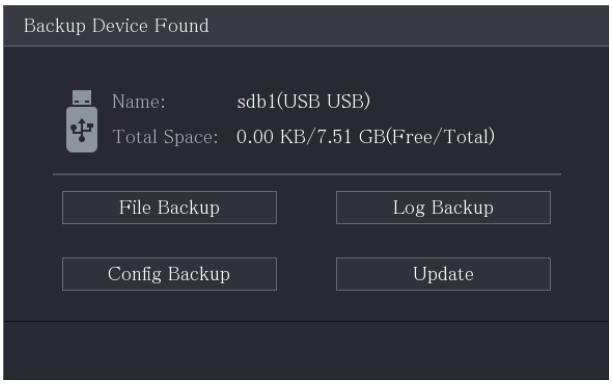
5.14.1 Finding USB Device

When you inset a USB storage device into the USB port of the Device, the Device detects the USB storage device and pops up **Find USB device** interface, which provides you a shortcut to perform

backup and upgrading operations. See Figure 5-191.

For details, see "5.14.2 Backing up Files", "5.21.2 Viewing Log Information", "5.20.4 Exporting and Importing System Settings", and "5.20.6 Updating the Device."

Figure 5-191 Find USB device

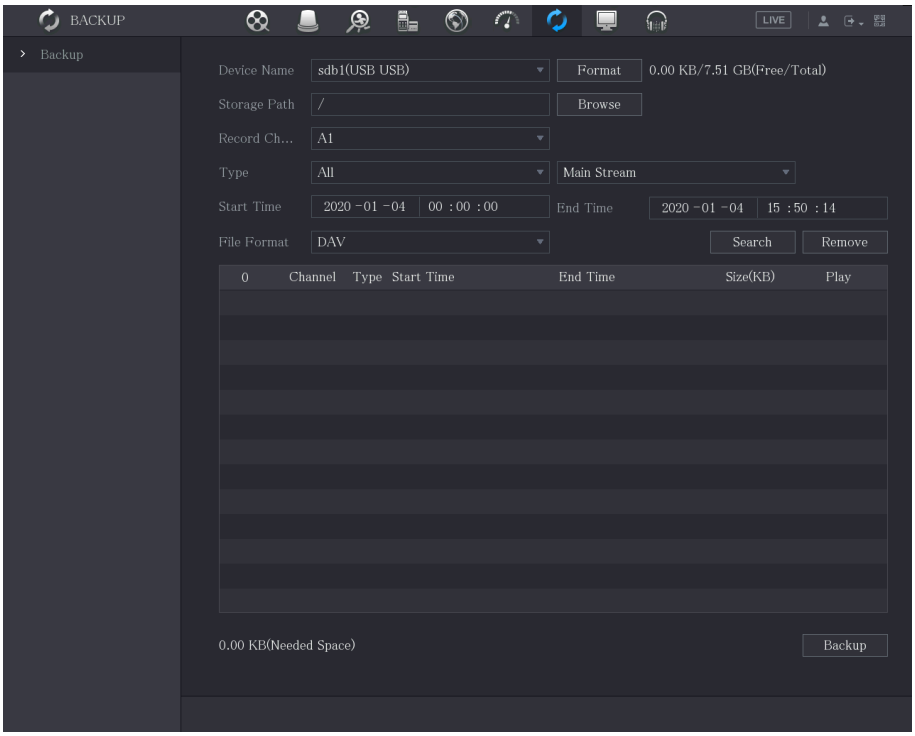


5.14.2 Backing up Files

You can back up the recorded videos and snapshots.

Step 1 Select **Main Menu > Backup**.

Figure 5-192 Backup



Step 2 Configure the settings for the backup parameters.

Table 5-57 Backup parameters

Parameter	Description
Device Name	In the **Device Name** list, select the device that you want to back up the files to.

Parameter	Description
Format	Click **Format**, the **Format** interface is displayed. ● If the capacity of external storage device is less than 2TB, you can select **FAT32** or **NTFS** to format it. ● If the capacity of external storage device is equal to or more than 2TB, you can only select **NTFS** to format it.
Path	Click **Browse**, the **Browse** interface is displayed. Select the route where you want to search for the files.
Record Channel	In the **Record Channel** list, select the channel where you want to search for the files.
Type	In the **Type** list, select the file type that you want to search.
Start Time	Enter the start time and end time for the files that you want to search.
End Time	
File Format	In the **File Format** list, select the file format as **DAV** or **MP4** that you want to search.

Step 3 Click **Search** to search the files that meet the configured settings.

The searched results will display in the table.

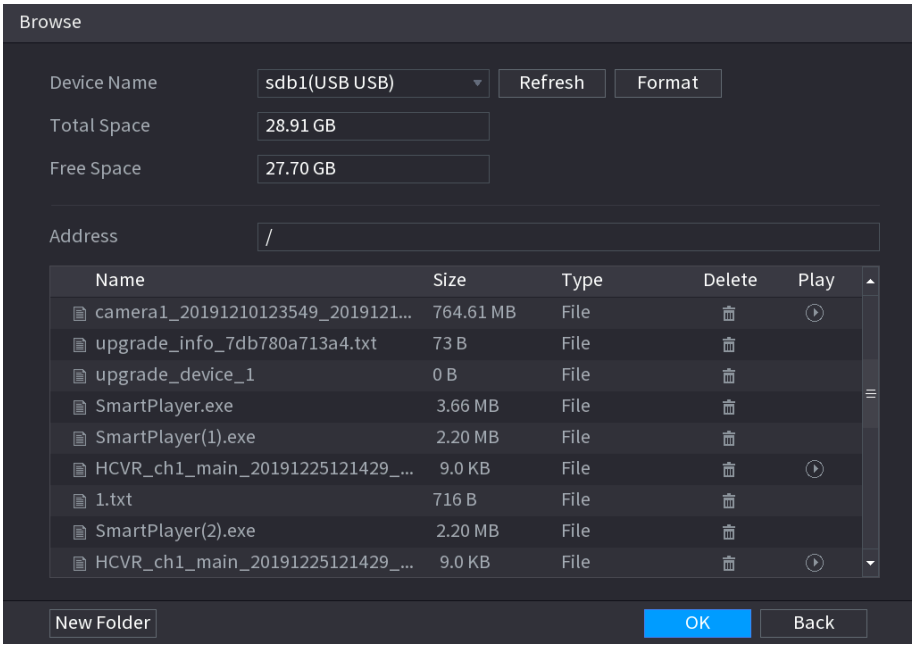
Step 4 Select the files that you want to back up.

Step 5 Click **Backup** to back up the selected files to the configured path.

Click **Remove** to remove all the searched results.

The system will display a backup progress bar. A dialog box will be prompted when backup is completed.

Figure 5-193 Browse



Step 6 Click **OK**.

5.15 Network Management

5.15.1 Configuring Network Settings

You can ensure the network interworking between the Device and other devices through configuring the network settings.

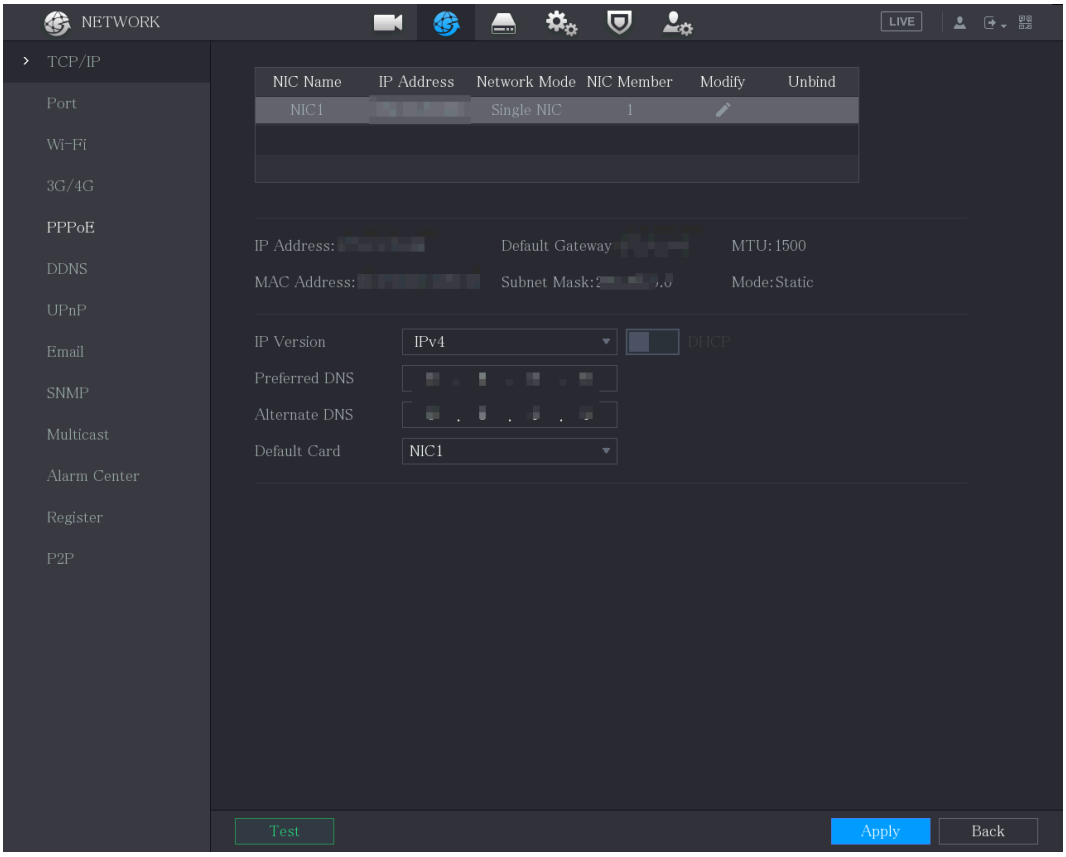
5.15.1.1 Configuring TCP/IP Settings

You can configure the settings for the Device such as IP address, DNS according to the networking plan.

Select **Main Menu > NETWORK > TCP/IP**, the **TCP/IP** interface is displayed.

For details about parameter settings, see "5.1.4.4 Configuring Network Settings."

Figure 5-194 TCP/IP

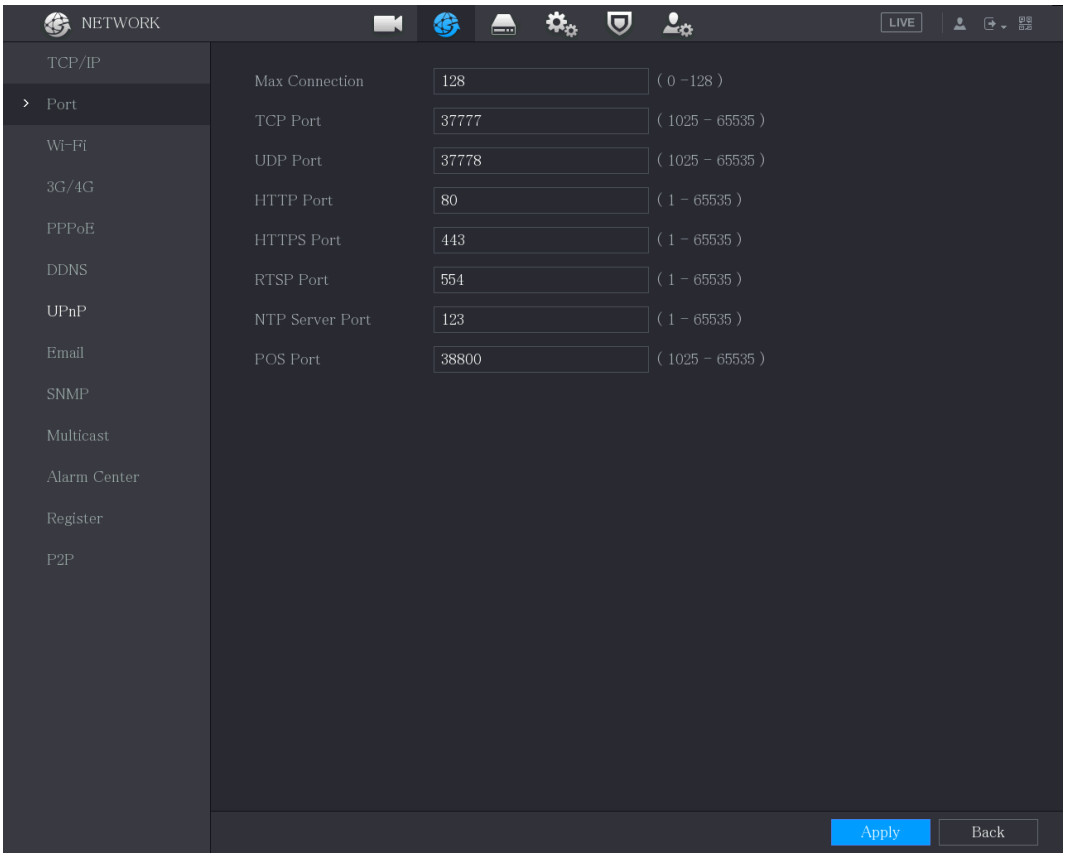


5.15.1.2 Configuring Port Settings

You can configure the maximum connection accessing the Device from Client such as WEB, Platform, and Mobile Phone and configure each port settings.

Step 1 Select **Main Menu > NETWORK > Port**.

Figure 5-195 Port



Step 2 Configure the settings for the connection parameters.

The parameter setting can take effect without need to reboot the device.

Table 5-58 Port parameters

Parameter	Description
Max Connection	The allowable maximum clients accessing the Device at the same time, such as WEB, Platform, and Mobile Phone. Select a value between 1 and 128. The default value setting is 128.
TCP Port	The default value setting is 37777. You can enter the value according to your actual situation.
UDP Port	The default value setting is 37778. You can enter the value according to your actual situation.
HTTP Port	The default value setting is 80. You can enter the value according to your actual situation. If you enter other value, for example, 70, and then you should enter 70 after the IP address when logging in to the Device by browser.
RTSP Port	The default value setting is 554. You can enter the value according to your actual situation.
POS Port	Data transmission. The value range is from 1 through 65535. The default value is 38800.
NTP Server Port	The default value setting is 123. You can enter the value according to your actual situation.

Parameter	Description
HTTPS Port	HTTPS communication port. The default value setting is 443. You can enter the value according to your actual situation.

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

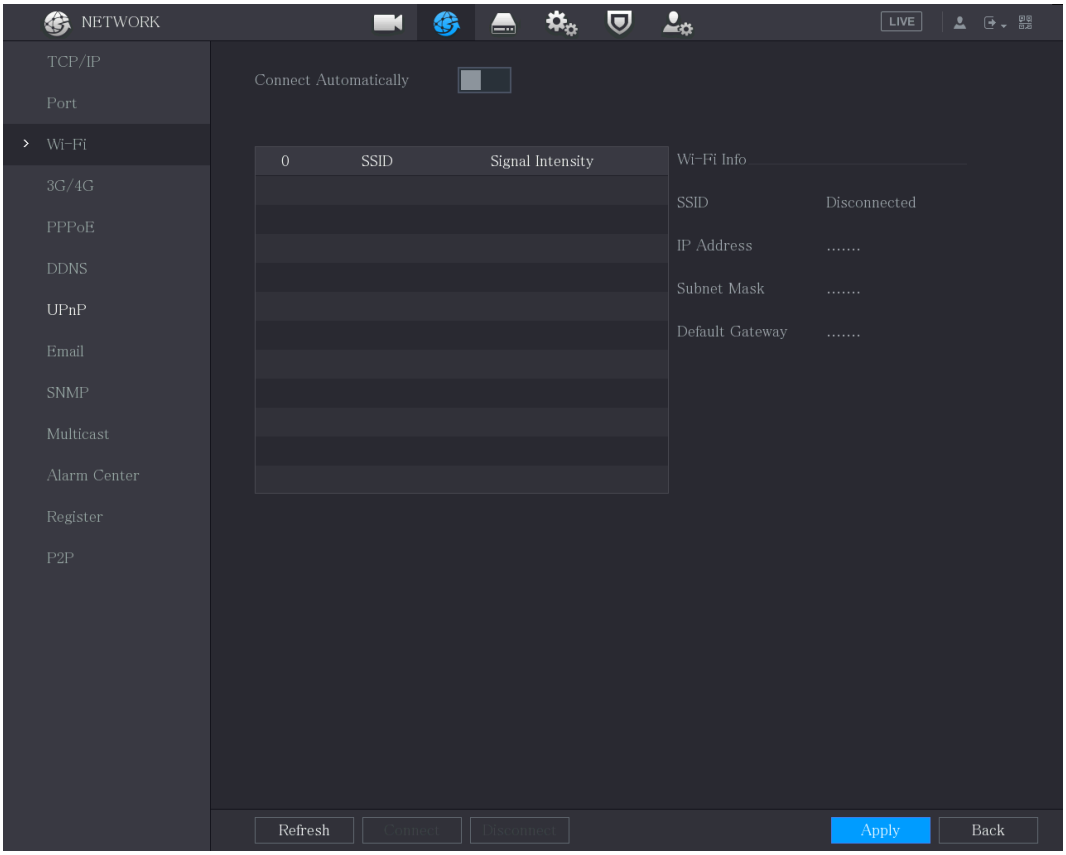
5.15.1.3 Configuring Wi-Fi Connection Settings

You can make wireless connection between the Device and the other devices in the same network through Wi-Fi settings, facilitating the devices connection and mobility.

Only the Device with Wi-Fi module supports this function.

Step 1 Select **Main Menu** > **NETWORK** > **Wi-Fi**.

Figure 5-196 Wi-Fi



Step 2 Configure the settings for the Wi-Fi connection parameters.

Table 5-59 Wi-Fi connection parameters

Parameter	Description
Connect Automatically	Enable Connect Automatically. After the Device is restarted, it will automatically connect to the nearest hotspot that had been connected successfully.
Refresh	Refresh the hotspot list. The self-adaption function such as adding password is supported if such setting was once configured.
Connect	In the hotpots list, select a hotspot, and then click **Connect**. ● To reconnect the same hotspot, disconnect first and then reconnect. ● To connect to other hotspot, disconnect from the current connected hotspot first, and then connect to the other hotspot.
Disconnect	To disconnect from a hotspot, click **Disconnect**.

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

After the Device is connected to a Wi-Fi hotspot, in the **Wi-Fi Info** area, the current hotspot, IP address, subnet mask, and default gateway are displayed.

5.15.1.4 Configuring 3G/4G Settings

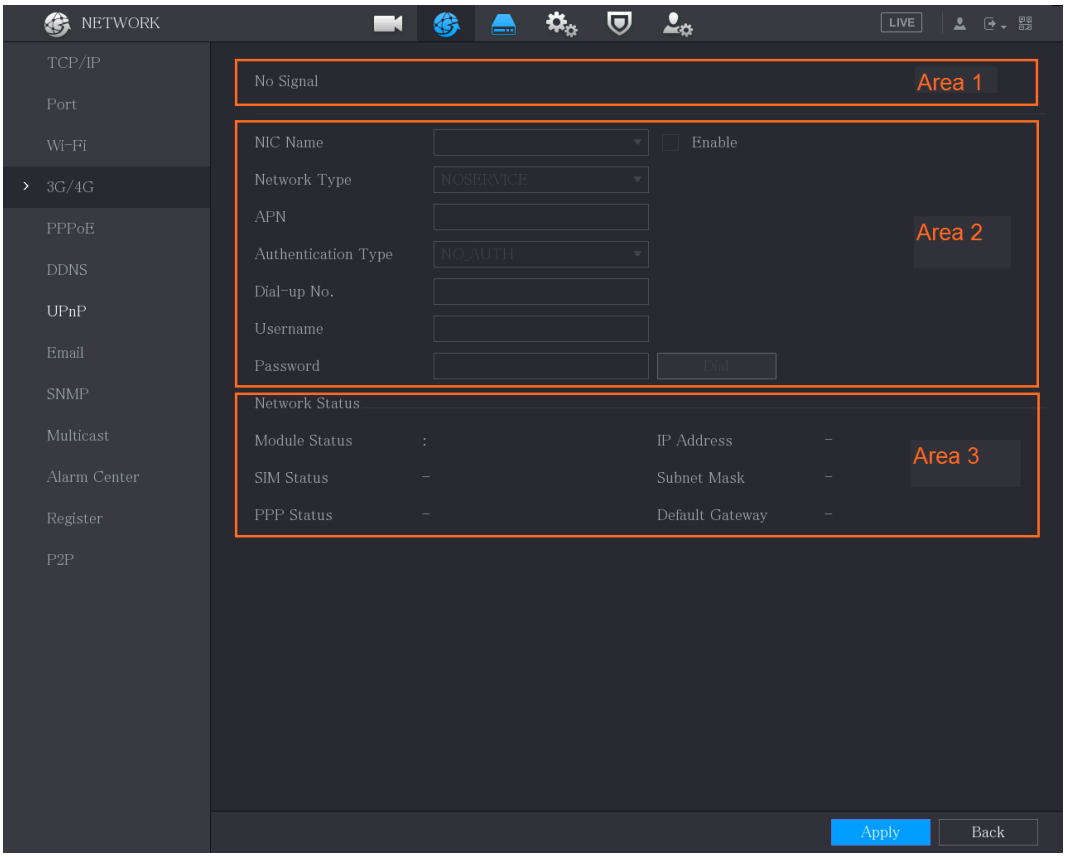
You can connect a wireless 3G/4G module to the USB port of the Device and then access the Device with the IP address provided by the module.

Not all models support this function.

Step 1 Connect the wireless 3G/4G module to the USB port of the Device.

Step 2 Select **Main Menu** > **NETWORK** > **3G/4G**.

Figure 5-197 3G/4G



The 3G/4G interface is consisted of three areas:

- Area 1: Displays the signal strength.
- Area 2: Displays the module configurations.
- Area 3: Displays the connection state.

The information of Area 2 will display after the 3G/4G module is connected; while the information of Area 1 and Area 3 will display only after the 3G/4G function is enabled.

Step 3 The Device starts identifying the wireless module and displays the recognized information for the parameters in Area 2.

Table 5-60 3G/4G parameters

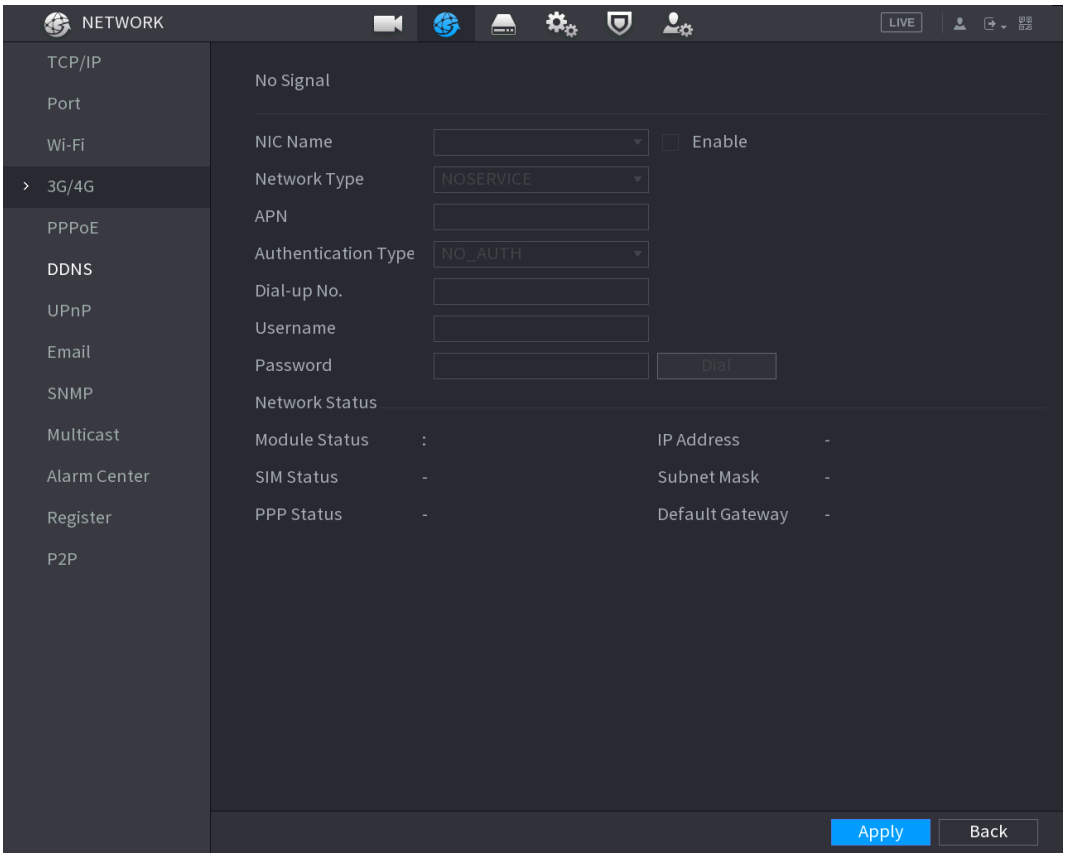
Parameter	Description
NIC Name	Displays the name of Ethernet card.
Network Type	Displays the network type. Different type represents different supplier.
APN	Displays the default APN number.
Dial-up No.	Displays the default dial No.
Authentication Type	Authentication mode. You can select **PAP**, **CHAP**, or **NO_AUTH**.
Username, Password	Enter the username and password for authentication.

Step 4 Select the **Enable** check box.

Step 5 Click **Dial** to start connecting.

After the connection is established, the result is displayed in the **Wireless Network** area.

Figure 5-198 Wireless network



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

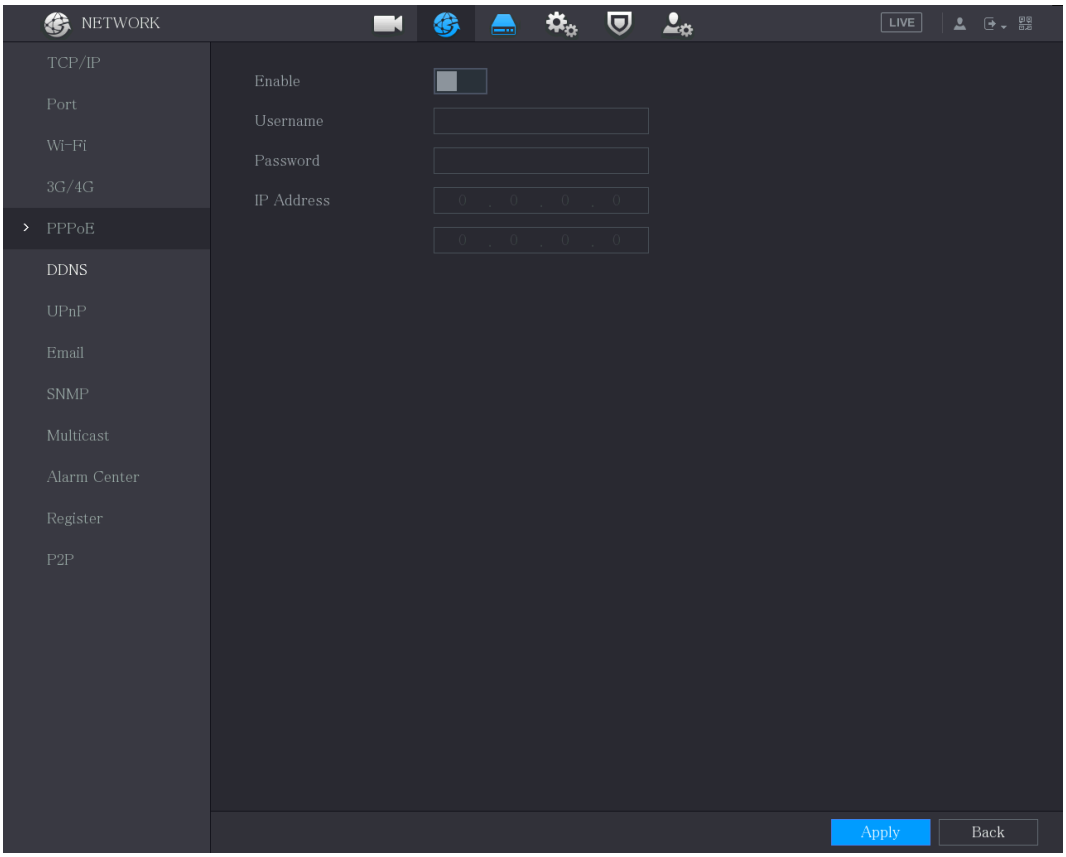
- If the Device is connected to China Telecom 3G/4G network, you can log in to the Device with the public IP address through the PC of public internet (The HTTP port is not configured as 80). If the Device is connected to China Unicom or China Mobile 3G network, which are defined as private network, therefore you cannot log in to the Device through PC that is connected to public internet.
- The Ethernet card names that are displayed on the 3G/4G interface are not constant, and they could be ppp5, ppp6, ppp7 or ppp8 and are different depending on the USB2.0 port on the Device that is connected to the 3G module.
- If you dial to connect to 3G/4G network, you have to keep trying till succeeded. The default gateway could be switched depending on the priority of Ethernet cards.
- The China Unicom and China Mobile 3G/4G modules in USB flash disk style do not support EDGE mode for the moment.

5.15.1.5 Configuring PPPoE Settings

PPPoE is another way for the Device to access the network. You can establish network connection by configuring PPPoE settings to give the Device a dynamic IP address in the WAN. To use this function, firstly you need to obtain the user name and password from the Internet Service Provider.

Step 1 Select **Main Menu** > **NETWORK** > **PPPoE**.

Figure 5-199 PPPoE



Step 2 Enable the PPPoE function.

Step 3 In the **Username** box and **Password** box, enter the user name and password accordingly provided by the Internet Service Provider.

Step 4 Click **Apply** to complete the settings.

The system pops up a message to indicate the successfully saved. The IP address appears on the **PPPoE** interface. You can use this IP address to access the Device.

When the PPPoE function is enabled, the IP address on the **TCP/IP** interface cannot be modified.

5.15.1.6 Configuring DDNS Settings

When the IP address of the Device changes frequently, the DDNS function can dynamically refresh the correspondence between the domain on DNS and the IP address, ensuring you access the Device by using the domain.

Preparing for Configuration

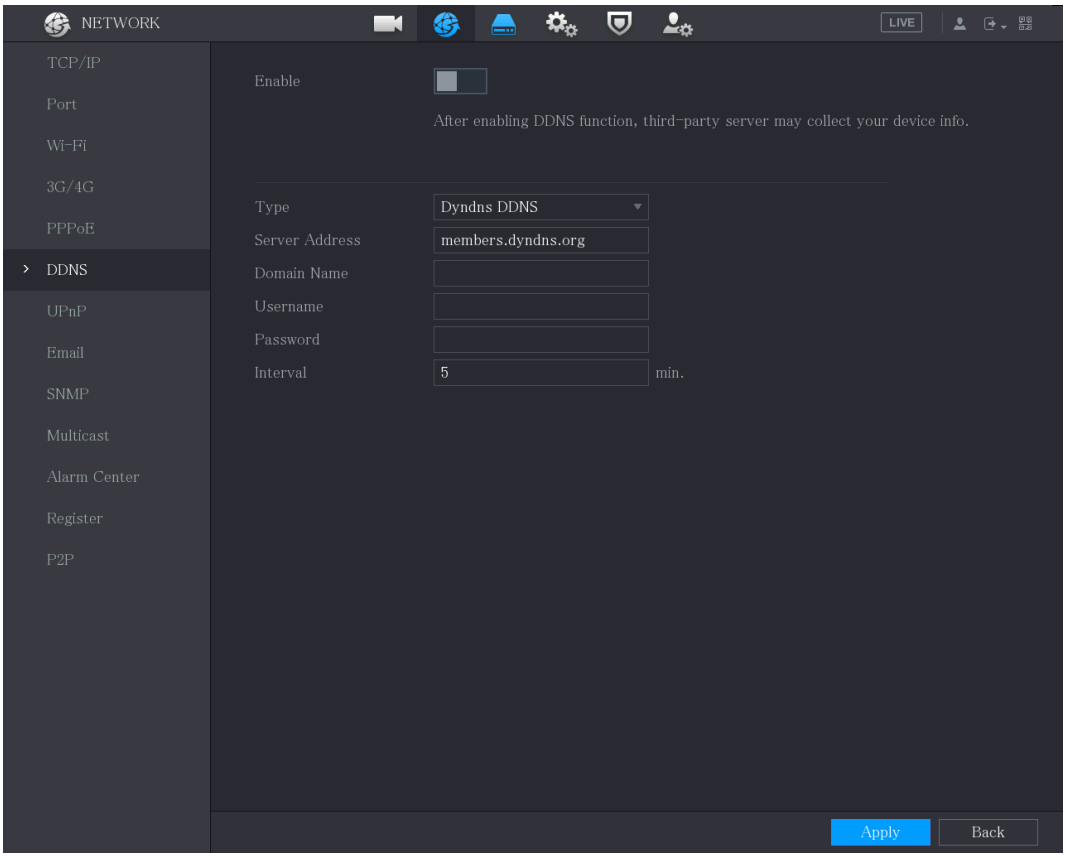
Confirm if the Device supports the DDNS Type and log in to the website provided by the DDNS service provider to register the information such as domain from PC located in the WAN.

After you have registered and logged in the DDNS website successfully, you can view the information of all the connected devices under this user name.

Configuring Steps

Step 1 Select **Main Menu** > **NETWORK** > **DDNS**.

Figure 5-200 DDNS



Step 2 Configure the settings for the DDNS parameters.

Table 5-61 DDNS parameters

Parameter	Description
Enable	Enable the DDNS function. After enabling DDNS function, the third-party might collect your Device information.
Type	Type and address of DDNS service provider. ● Type: Dyndns DDNS; address: members.dyndns.org ● Type: NO-IP DDNS; address: dynupdate.no-ip.com ● Type: CN99 DDNS; address: members.3322.org
Server Address	
Domain Name	The domain name for registering on the website of DDNS service provider.
User Name	Enter the user name and password obtained from DDNS service provider. You need to register (including user name and password) on the website of DDNS service provider.
Password	
Interval	Enter the amount of time that you want to update the DDNS.

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

Enter the domain name in the browser on your PC, and then press **Enter**.

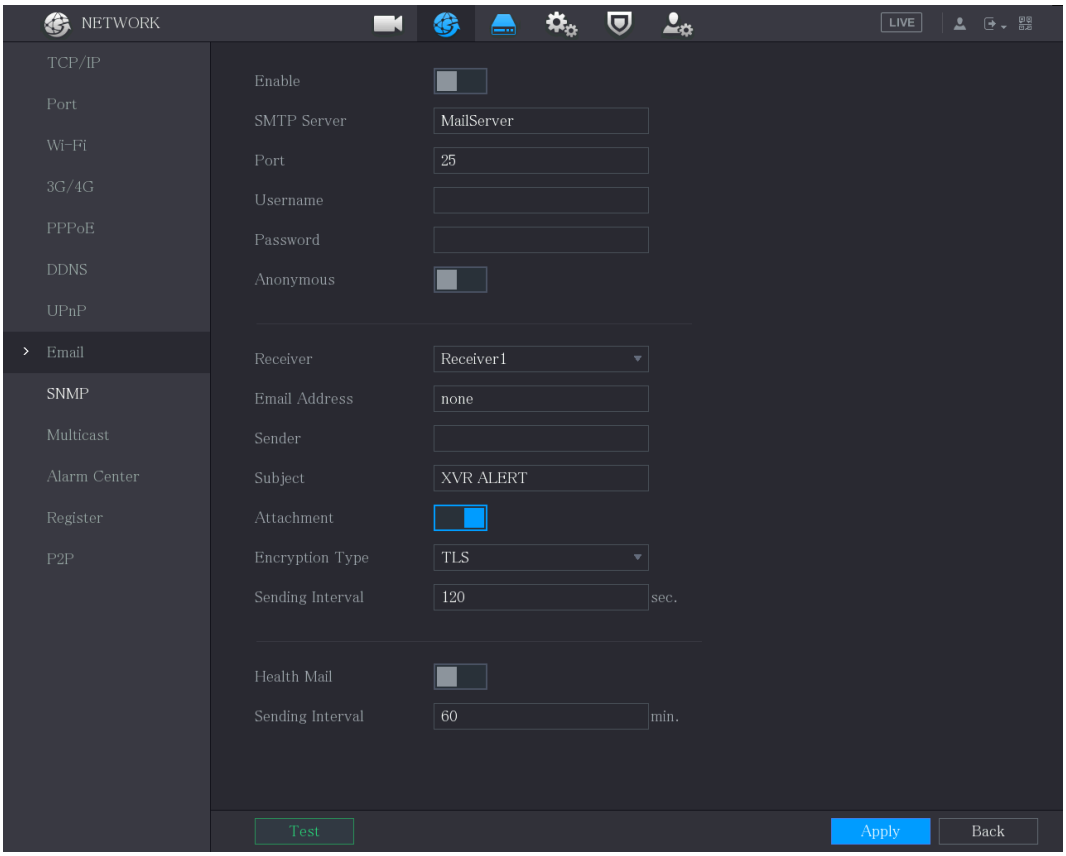
If the web interface of the Device is displayed, the configuration is successful. If not, the configuration is failed.

5.15.1.7 Configuring EMAIL Settings

You can configure the email settings to enable the system to send the email as a notification when there is an alarm event occurs.

Step 1 Select **Main Menu > NETWORK > Email**.

Figure 5-201 Email



Step 2 Configure the settings for the email parameters.

Table 5-62 Email parameters

Parameter	Description
Enable	Enable the email function. There might be risk of sending data to specified email address after it is enabled.
SMTP Server	Enter the address of SMTP server of sender's email account.
Port	Enter the port value of SMTP server. The default value setting is 25. You can enter the value according to your actual situation.
Username	Enter the user name and password of sender's email account.
Password	
Anonymous	If enable the anonymity function, you can login as anonymity.

Parameter	Description
Receiver	In the **Receiver** list, select the number of receiver that you want to receive the notification. The Device supports up to three mail receivers.
Email Address	Enter the email address of mail receiver(s).
Sender	Enter the sender's email address. It supports maximum three senders separated by comma.
Subject	Enter the email subject. Supports Chinese, English and Arabic numerals. It supports maximum 64 characters.
Attachment	Enable the attachment function. When there is an alarm event, the system can attach snapshots as an attachment to the email.
Encryption Type	Select the encryption type: **NONE**, **SSL**, or **TLS**. For SMTP server, the default encryption type is **TLS**.
Sending Interval (sec.)	This is the interval that the system sends an email for the same type of alarm event, which means, the system does not send an email upon any alarm event. This setting helps to avoid the large amount of emails caused by frequent alarm events. The value ranges from 0 to 3600. 0 means that there is no interval.
Health Mail	Enable the health test function. The system can send a test email to check the connection.
Sending Interval (Min.)	This is the interval that the system sends a health test email. The value ranges from 30 to 1440. 0 means that there is no interval.
Test	Click **Test** to test the email sending function. If the configuration is correct, the receiver's email account will receive the email. Before testing, click **Apply** to save the settings.

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

5.15.1.8 Configuring UPnP Settings

You can map the relationship between the LAN and the WAN to access the Device on the LAN through the IP address on the WAN.

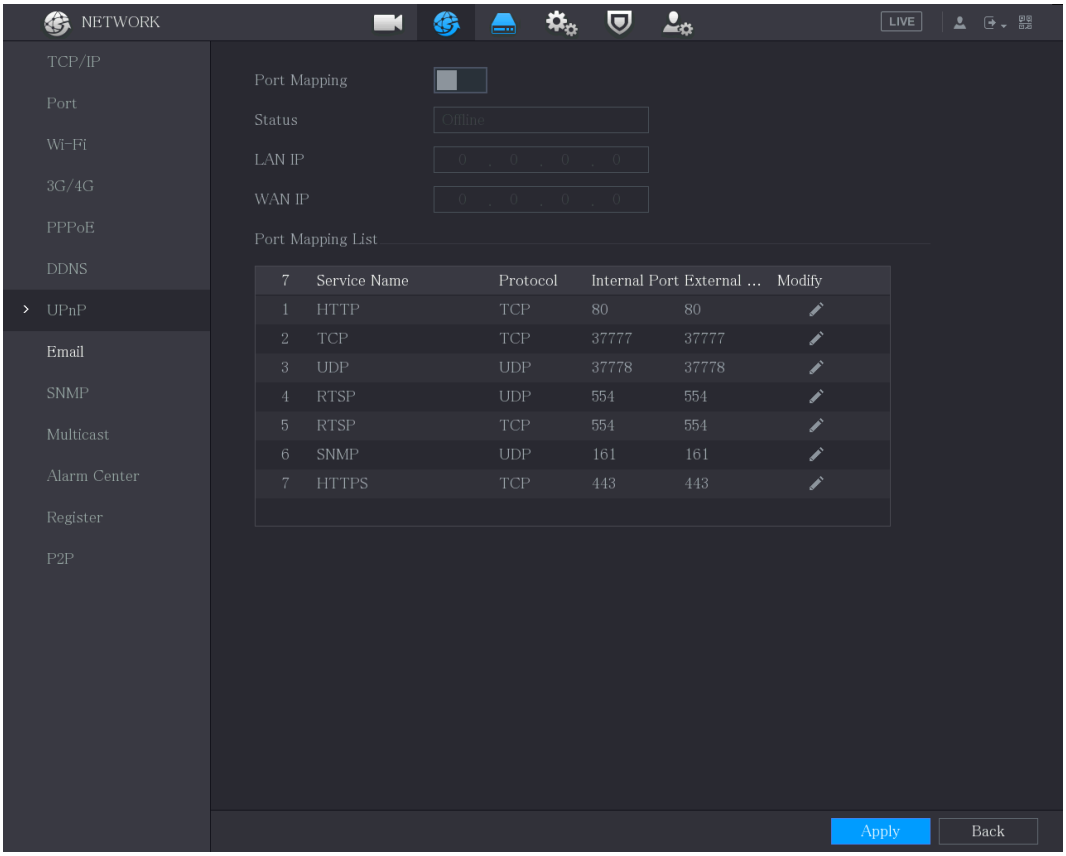
Preparation for Configuration

- Log in to the router to set the WAN port to enable the IP address to connect into the WAN.
- Enable the UPnP function at the router.
- Connect the Device with the LAN port on the router to connect into the LAN.
- Select **Main Menu** > **NETWORK** > **TCP/IP**, configure the IP address into the router IP address range, or enable the DHCP function to obtain an IP address automatically.

Configuration Steps

Step 1 Select **Main Menu > NETWORK > UPnP**.

Figure 5-202 UPnP



Step 2 Configure the settings for the UPnP parameters.

Table 5-63 UPnP parameters

Parameter	Description
Port Mapping	Enable the UPnP function. After it is enabled, the intranet services and ports shall be mapped to extranet, proceed with caution.
Status	Indicates the status of UPnP function. ● Offline: Failed. ● Online: Succeeded.
LAN IP	Enter IP address of router on the LAN. After mapping succeeded, the system obtains IP address automatically without performing any configurations.
WAN IP	Enter IP address of router on the WAN. After mapping succeeded, the system obtains IP address automatically without performing any configurations.

Parameter	Description
Port Mapping List	The settings in PAT table correspond to the UPnP PAT table on the router. ● Service Name: Name of network server. ● Protocol: Type of protocol. ● Int. Port: Internal port that is mapped on the Device. ● Ext. Port: External port that is mapped on the router. ● To avoid the conflict, when setting the external port, try to use the ports from 1024 through 5000 and avoid popular ports from 1 through 255 and system ports from 256 through 1023. ● When there are several devices in the LAN, reasonably arrange the ports mapping to avoid mapping to the same external port. ● When establishing a mapping relationship, ensure the mapping ports are not occupied or limited. ● The internal and external ports of TCP and UDP must be the same and cannot be modified. ● Click to modify the external port.

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

In the browser, enter http://WAN IP: External IP port. You can visit the LAN Device.

5.15.1.9 Configuring SNMP Settings

Not all models support this function.

You can connect the Device with some software such as MIB Builder and MG-SOFT MIB Browser to manage and control the Device from the software.

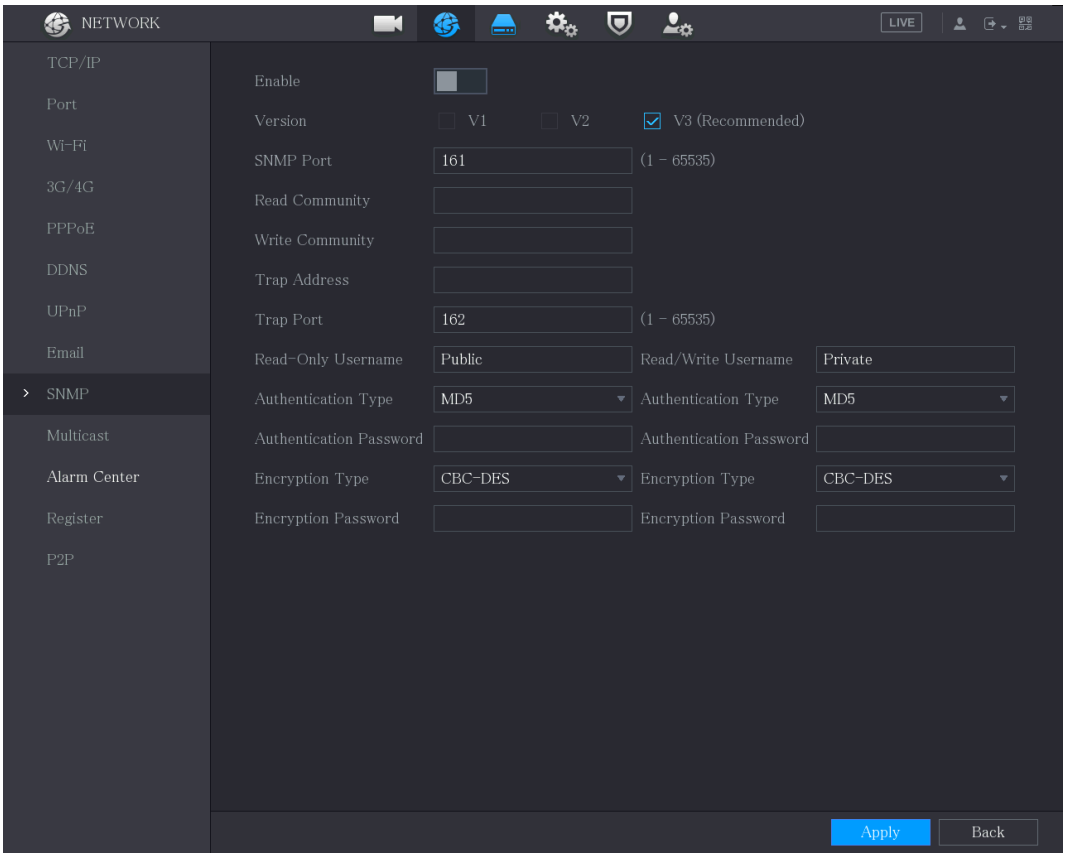
Preparation for Configuration

- Install the software that can manage and control the SNMP, such as MIB Builder and MG-SOFT MIB Browser
- Obtain the MIB files that correspond to the current version from the technical support.

Configuration Steps

Step 1 Select **Main Menu** > **NETWORK** > **SNMP**.

Figure 5-203 SNMP



Step 2 Configure the settings for the SNMP parameters.

Table 5-64 SNMP parameters

Parameter	Description
Enable	Enable the SNMP function.
Version	Select the check box of SNMP version(s) that you are using. The default version is **V3**. There is a risk of select V1 or V2.
SNMP Port	Indicates the monitoring port on the agent program.
Read Community	Indicates the read/write strings supported by the agent program.
Write Community	
Trap Address	Indicates the destination address for the agent program to send the Trap information.
Trap Port	Indicates the destination port for the agent program to send the Trap information.
Read-Only Username	Enter the user name that is allowed to access the Device and has the "Read Only" permission.
Read/Write Username	Enter the user name that is allowed to access the Device and has the "Read and Write" permission.
Authentication Type	Includes MD5 and SHA. The system recognizes automatically.
Authentication Password	Enter the password for authentication type and encryption type. The password should be no less than eight characters.
Encryption Password	

Parameter	Description
Encryption Type	In the **Encryption Type** list, select an encryption type. The default setting is CBC-DES.

Step 3 Compile the two MIB files by MIB Builder.

Step 4 Run MG-SOFT MIB Browser to load in the module from compilation.

Step 5 On the MG-SOFT MIB Browser, enter the Device IP that you want to manage, and then select the version number to query.

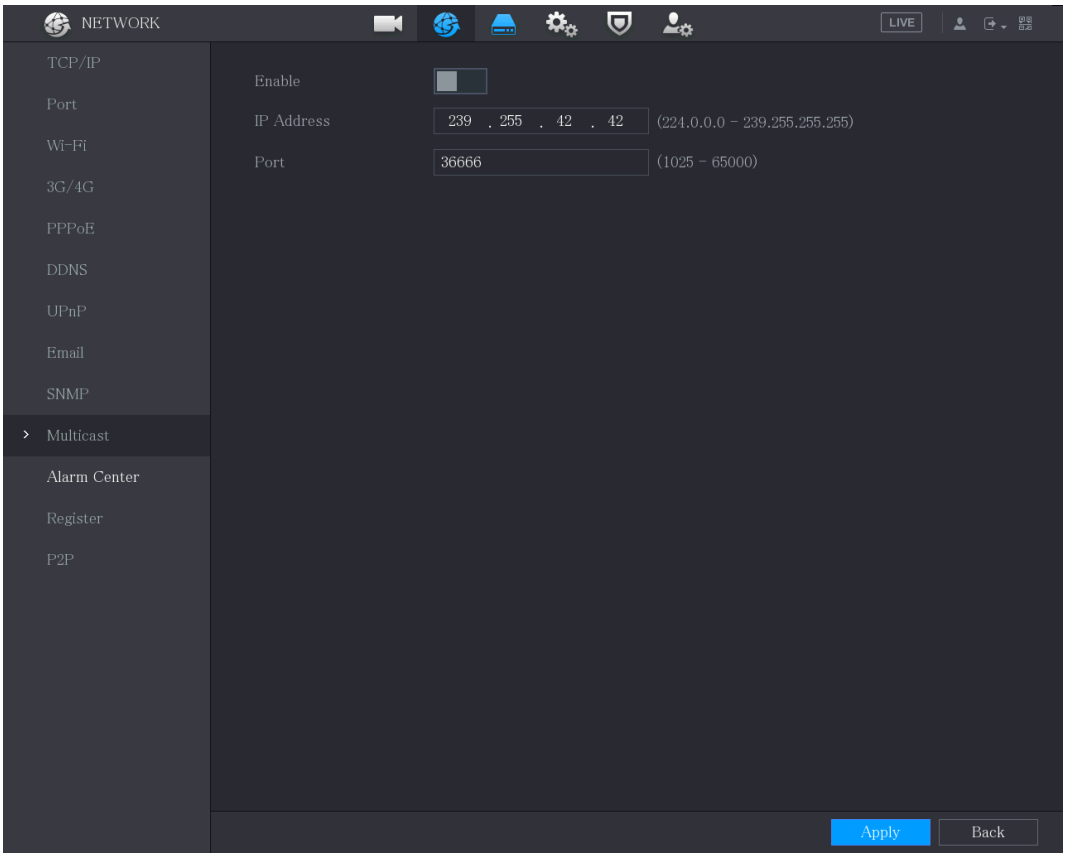
Step 6 On the MG-SOFT MIB Browser, unfold the tree-structured directory to obtain the configurations of the Device, such as the channels quantity and software version.

5.15.1.10 Configuring Multicast Settings

When you access the Device from the network to view the video, if the access is exceeded, the video will not display. You can use the multicast function to group the IP to solve the problem.

Step 1 Select **Main Menu** > **NETWORK** > **Multicast**.

Figure 5-204 Multicast



Step 2 Configure the settings for the multicast parameters.

Table 5-65 Multicast parameters

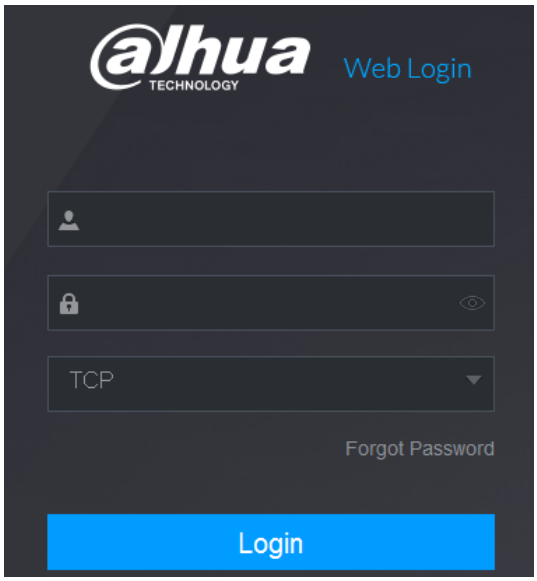
Parameter	Description
Enable	Enable the multicast function.
IP Address	Enter the IP address that you want to use as the multicast IP. The IP address ranges from 224.0.0.0 through 239.255.255.255.
Port	Enter the port for the multicast. The port ranges from 1025 through 65000.

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

You can use the multicast IP address to log in to the web.

On the web login dialog box, in the **Type** list, select **MULTICAST**. The web will automatically obtain the multicast IP address and join. Then you can view the video through multicast function.

Figure 5-205 Login

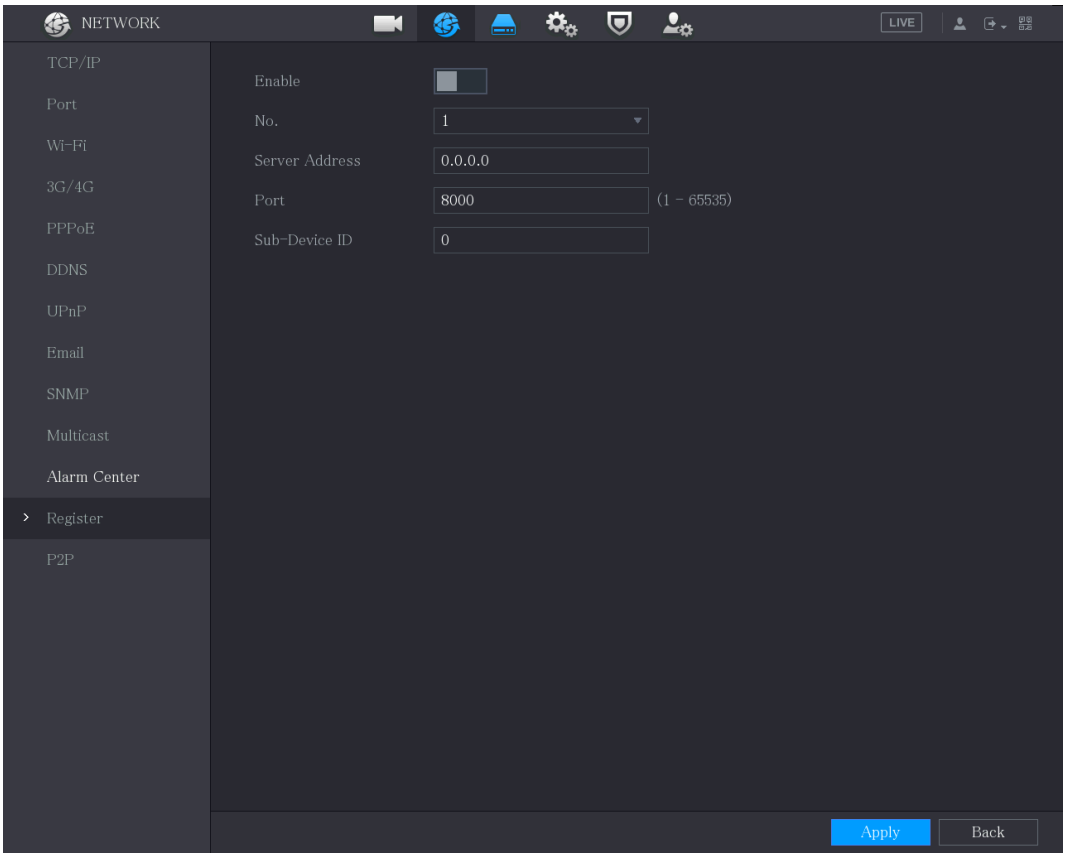


5.15.1.11 Configuring Register Settings

You can register the Device into the specified proxy server which acts as the transit to make it easier for the client software to access the Device.

Step 1 Select **Main Menu** > **NETWORK** > **Register**.

Figure 5-206 Register



Step 2 Configure the settings for the register parameters.

Table 5-66 Register parameters

Parameter	Description
Enable	Enable the register function.
No.	The default value is 1.
Server IP Address	Enter the server IP address or the server domain that you want to register to.
Port	Enter the port of the server.
Sub Service ID	This ID is allocated by the server and used for the Device.

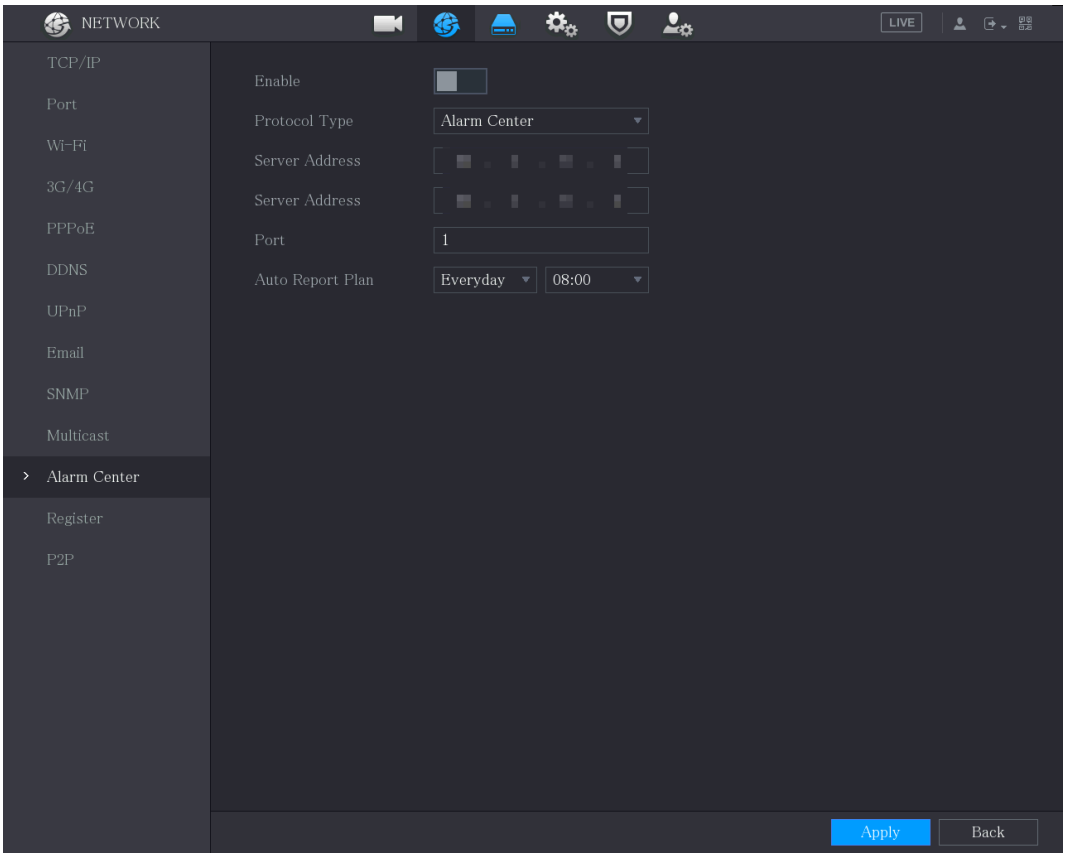
Step 3 Click **Apply** to complete the settings.

5.15.1.12 Configuring Alarm Center Settings

You can configure the alarm center server to receive the uploaded alarm information. To use this function, the **Report Alarm** check box must be selected. For details about alarm event settings, see "5.10 Alarm Events Settings."

Step 1 Select **Main Menu > NETWORK > Alarm Center**.

Figure 5-207 Alarm center



Step 2 Configure the settings for the alarm center parameters.

Table 5-67 Alarm center parameters

Parameter	Description
Enable	Enable the alarm center function.
Protocol Type	In the **Protocol Type** list, select protocol type. The default is **ALARM CENTER**.
Server Address	The IP address and communication port of the PC installed with alarm client.
Port	
Auto Report Plan	In the Auto Report Plan list, select time cycle and specific time for uploading alarm.

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

5.15.1.13 Configuring P2P Settings

You can manage the devices by using P2P technology to download the application and register the devices. For details, see "5.1.4.5 Configuring P2P Settings."

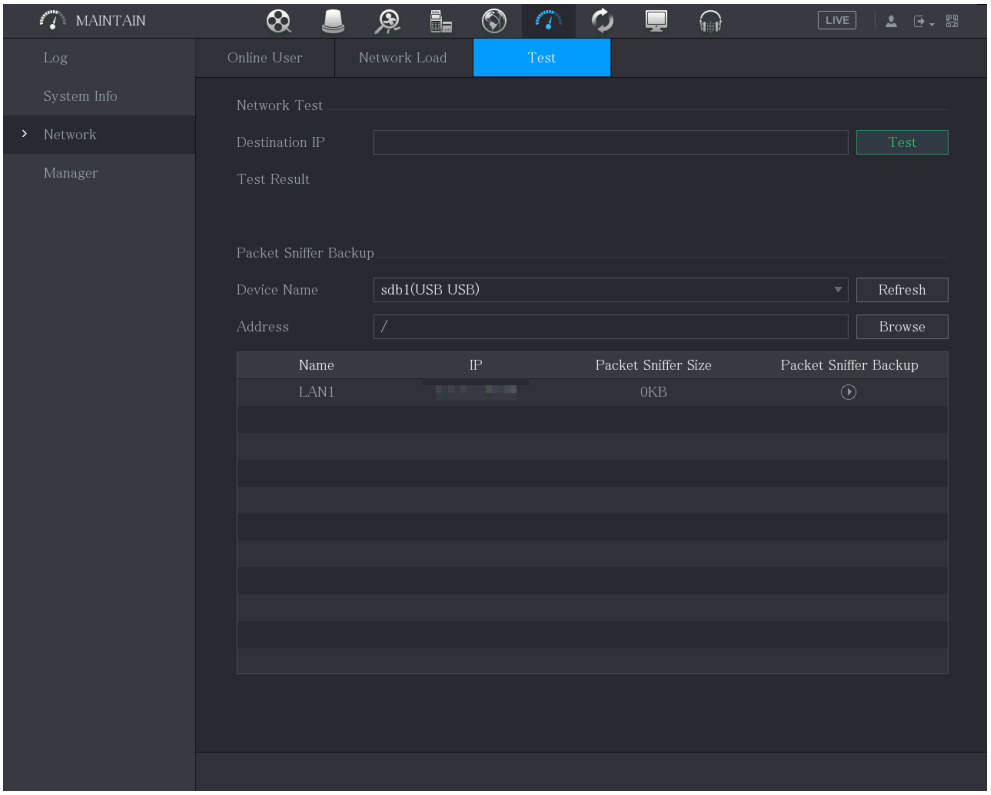
5.15.2 Configuring Network Testing Settings

5.15.2.1 Testing the Network

You can test the network connection status between the Device and other devices.

Step 1 Select **Main Menu > MAINTAIN > Network > Test**.

Figure 5-208 Network test

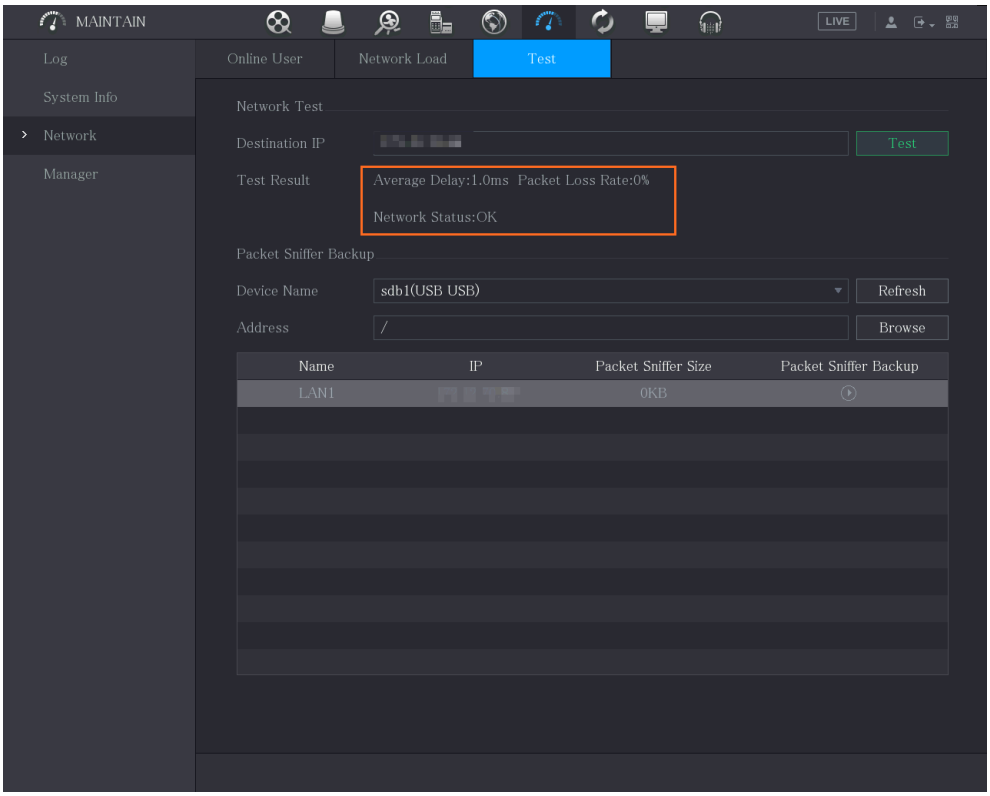


Step 2 In the **Destination IP** box, enter the IP address.

Step 3 Click **Test**.

After testing is completed, the test result is displayed. You can check the evaluation for average delay, packet loss, and network status.

Figure 5-209 Test result

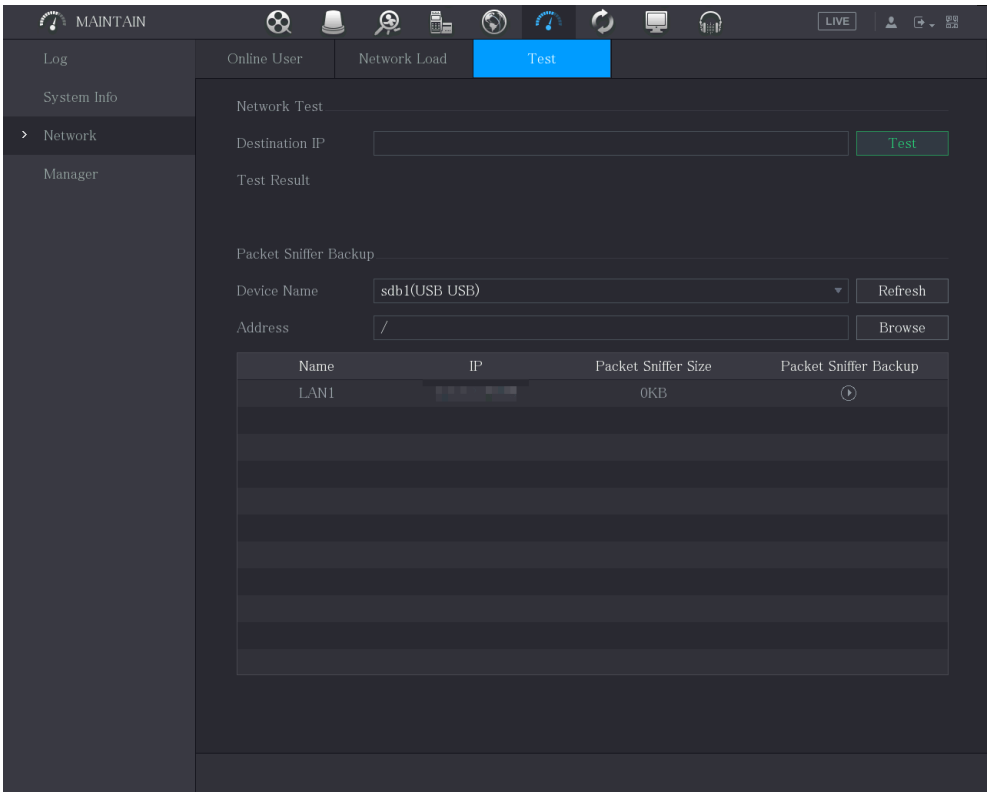


5.15.2.2 Capturing Packet and Backing up

Packet capture means the operations such as capturing, resending, and editing data that are sent and received during network transmission. When there is network abnormality, you can perform packet capturing and back up into the USB storage device. This date can be provided to the technical support for analyzing the network condition.

Step 1 Select **Main Menu > MAINTAIN > Network > Test**.

Figure 5-210 Test



Step 2 Connect a USB storage device to the Device.

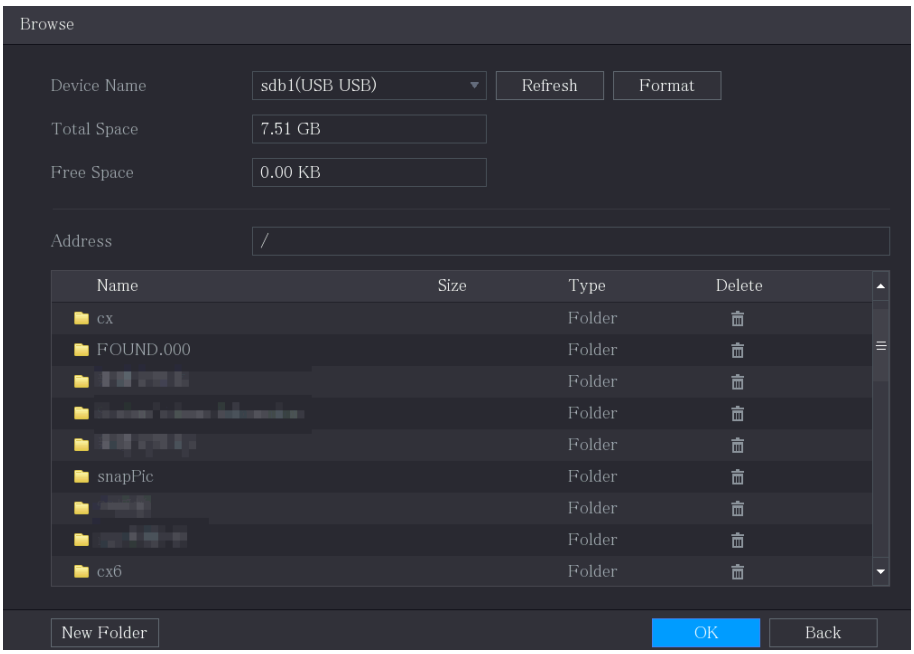
Step 3 Click **Refresh**.

The Device starts detecting the USB storage device and displays its name in the **Device Name** box.

Step 4 Select the route of the data that you want to capture and back up.

1) In the **Packet Sniffer Backup** area, click **Browse**.

Figure 5-211 Browse



2) Select the route.

- If there are several USB storage devices are connected to the Device, you can select from the **Device Name** list.
- Click **Refresh** to total space, free space and the file list in the selected USB storage device.
- In the case of insufficient capacity, click to delete the needless files.
- Click **New Folder** to create a new folder in the USB storage device.

3) Click **OK** to save the route selection settings.

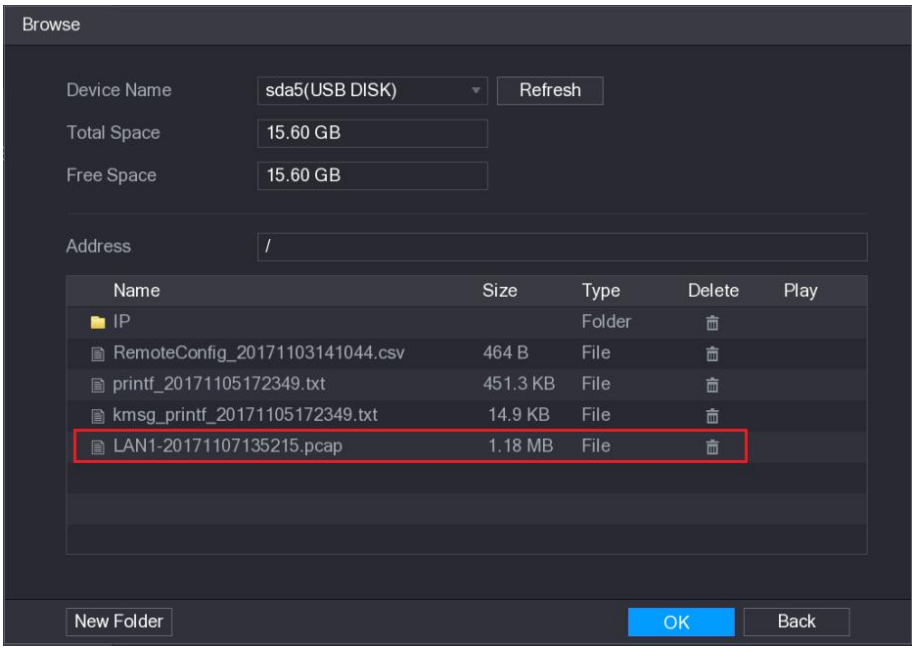
Step 5 Click to start packet capturing and backing up.

- Only the data packet of one LAN can be captured at one time.
- After capturing starts, you can exit the **Test** interface to perform other operations such as web login and monitoring.

Step 6 Click to stop capturing.

The backup data is saved in the selected route under the naming style "LAN name-time.pcap." You can open it by using Wireshark software.

Figure 5-212 Backup data



5.16 Configuring Account Settings

You can add, modify and delete user accounts, groups, and ONVIF users, and set security questions for admin account.

- The user name supports 31 characters and group name supports 15 characters. The user name can be consisted of letter, number, "_", "@", ".".
- You can set maximum 64 users and 20 groups. The group name by "User" and "Admin" cannot be deleted. You can set other groups and define the relevant permissions. However, the admin

account cannot be set randomly.

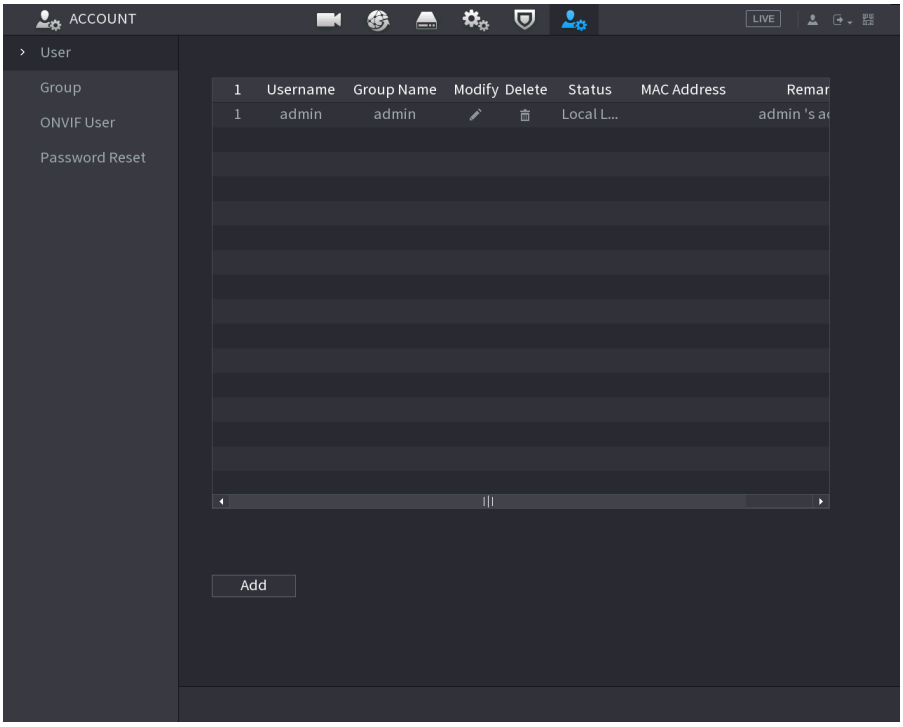
- You can manage the account by user and group and the name cannot be repeated. Every user must belong to a group, and one user only belongs to one group.

5.16.1 Configuring User Account

5.16.1.1 Adding a User Account

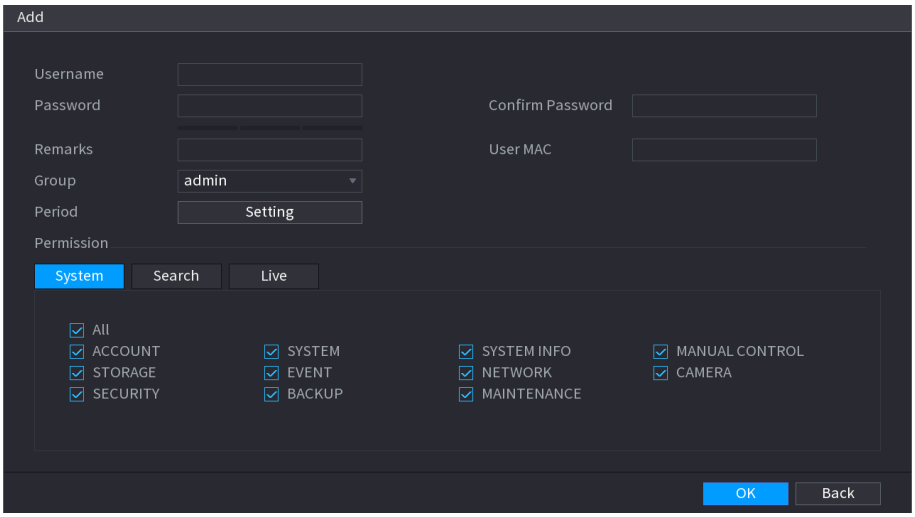
Step 1 Select **Main Menu > ACCOUNT > User**.

Figure 5-213 User



Step 2 Click **Add**.

Figure 5-214 Add user



Step 3 Configure the settings for the parameters of adding a user account.

Table 5-68 Parameters of adding user

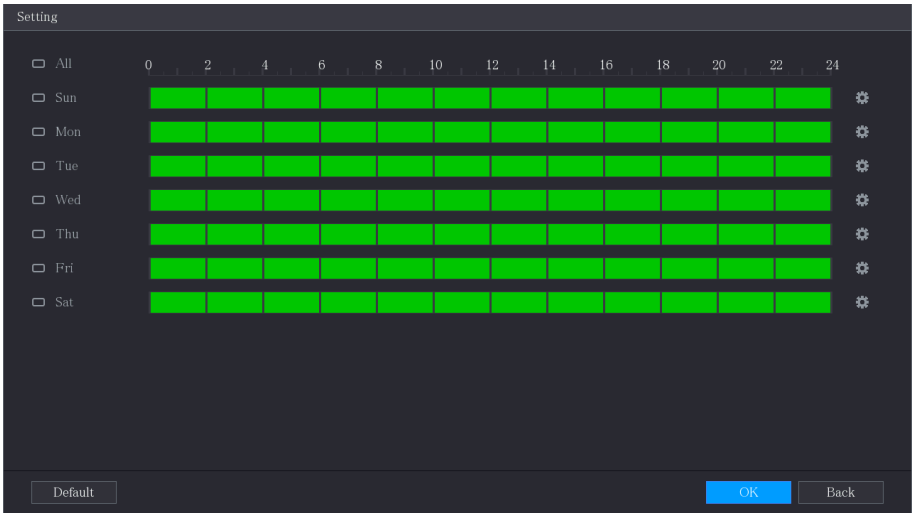
Parameter	Description
Username	Enter a user name and password for the account.
Password	
Confirm Password	Re-enter the password.
Remarks	Optional. Enter a description of the account.
User MAC	Enter user MAC address
Group	Select a group for the account. The user rights must be within the group permission.
Period	Click **Setting** to display **Setting** interface. Define a period during which the new account can log in to the device. The new account cannot log in to the device during the time beyond the set period.
Permission	In the **Permission** area, select the check boxes in the **System** tab, **Playback** tab, and **Monitor** tab. To manage the user account easily, when defining the user account authority, it is recommended not to give the authority to the common user account higher that the advanced user account.

Step 4 Click **OK** to complete the settings.

Setting Permitted Period

Step 1 Next to **Period**, click **Setting**.

Figure 5-215 Period setting



Step 2 Define the permitted period. By default, it is active all the time.

- Define the period by drawing.
  - ◇ Define for a specified day of a week: On the timeline, click the half-hour blocks to select the active period.

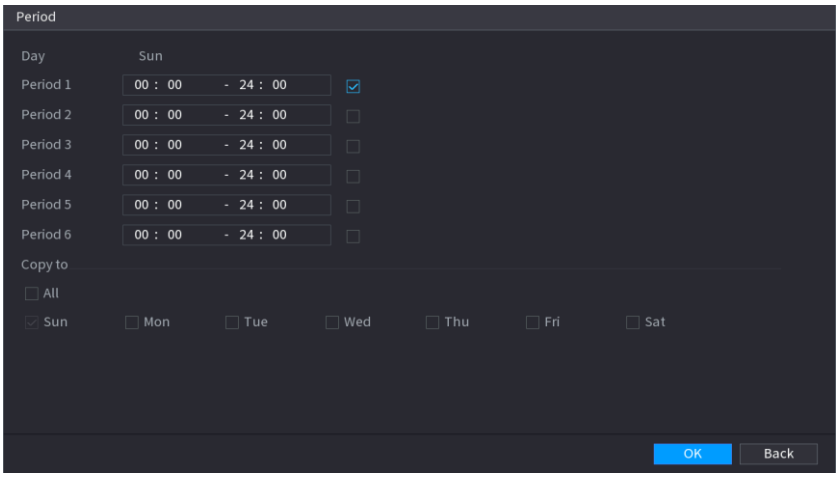
◇ Define for several days of a week: Click before each day, the icon switches to . On the timeline of any selected day, click the half-hour blocks to select the active periods, all the days with will take the same settings.

◇ Define for all days of a week: Click **All**, all the switches to . On the timeline of any day, click the half-hour blocks to select the active periods, all the days will take the same settings.

- Define the period by editing. Take Sunday as an example.

1) Click .

Figure 5-216 Period



2) Enter the time frame for the period and select the check box to enable the settings.

◇ There are six periods for you to set for each day.

◇ Under **Copy**, select **All** to apply the settings to all the days of a week, or select specific day(s) that you want to apply the settings to.

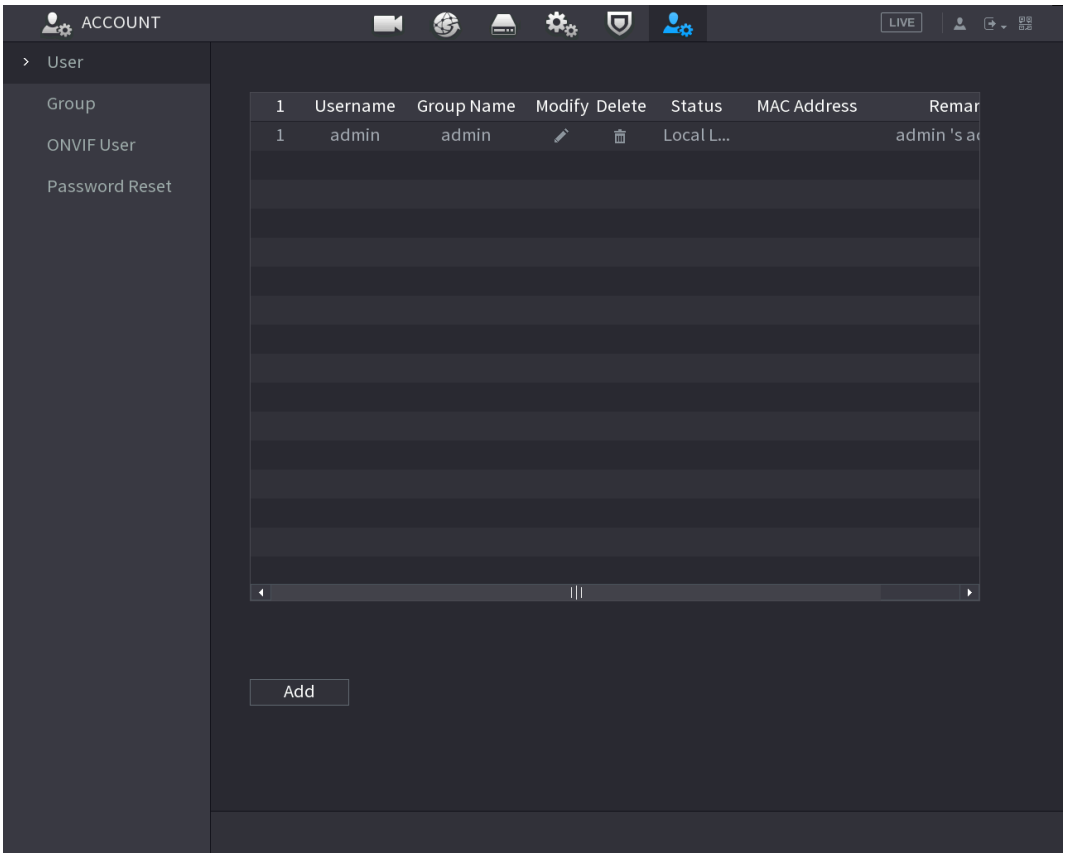
3) Click **OK** to save the settings.

Step 3 Click **OK**.

5.16.1.2 Modify a User Account

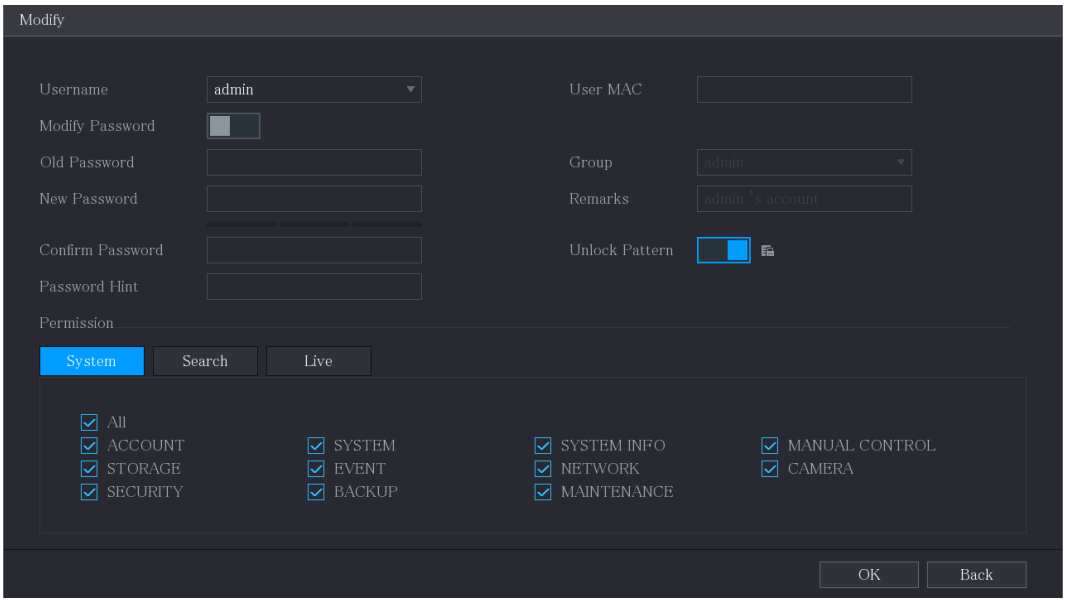
Step 1 Select **Main Menu** > **ACCOUNT** > **User**.

Figure 5-217 User



Step 2 Click for the user account that you want to modify.

Figure 5-218 Modify



Step 3 Change the settings for password, user name, user group, user MAC, memo, period, and authority.

The new password can be set from 8 digits through 32 digits and contains at least two types from number, letter and special characters (excluding"", """, ";", ":" and "&").

For the admin account, you enable/disable the unlock pattern and modify password hint.

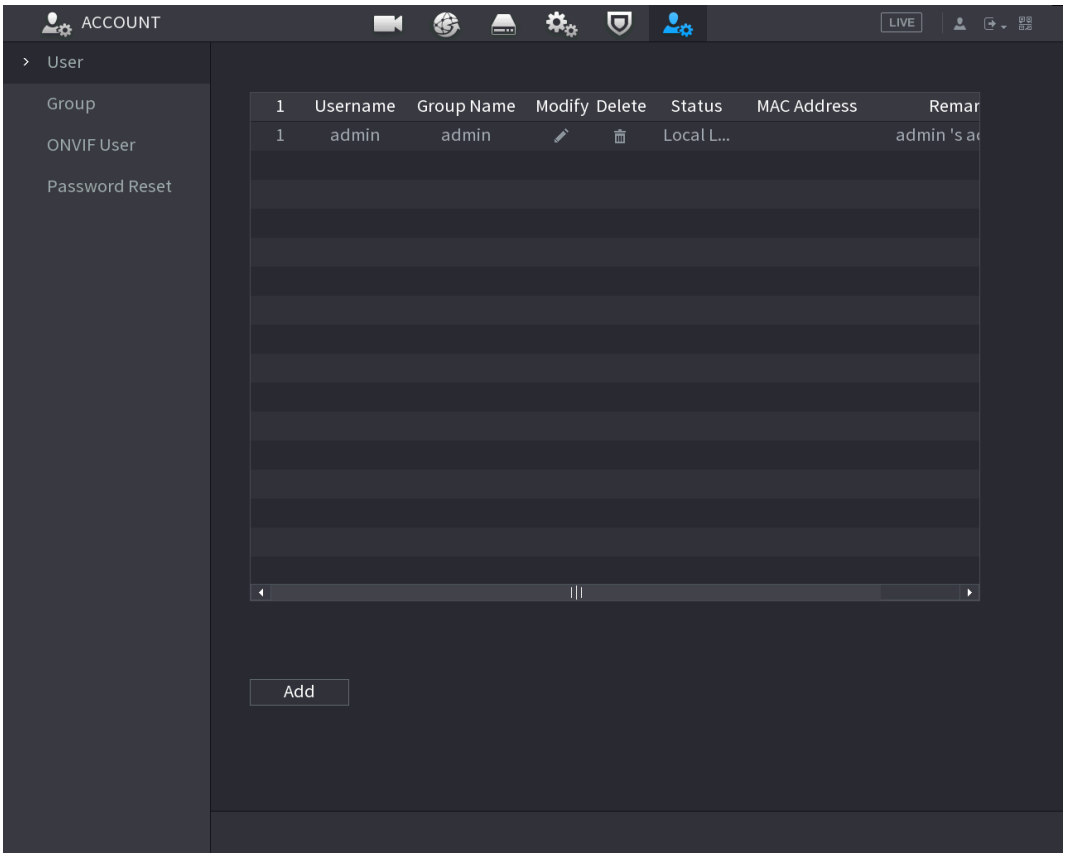
- To use the unlock pattern, enable **Unlock Pattern**, click , draw a pattern in the **Unlock Pattern** interface, and then click **Save** to save the setting.
- Enter password hint text in **Password Hint** box.

Step 4 Click **OK** to complete the settings.

5.16.1.3 Deleting a User Account

Step 1 Select **Main Menu** > **ACCOUNT** > **User**.

Figure 5-219 User



Step 2 Click for the user account that you want to delete.

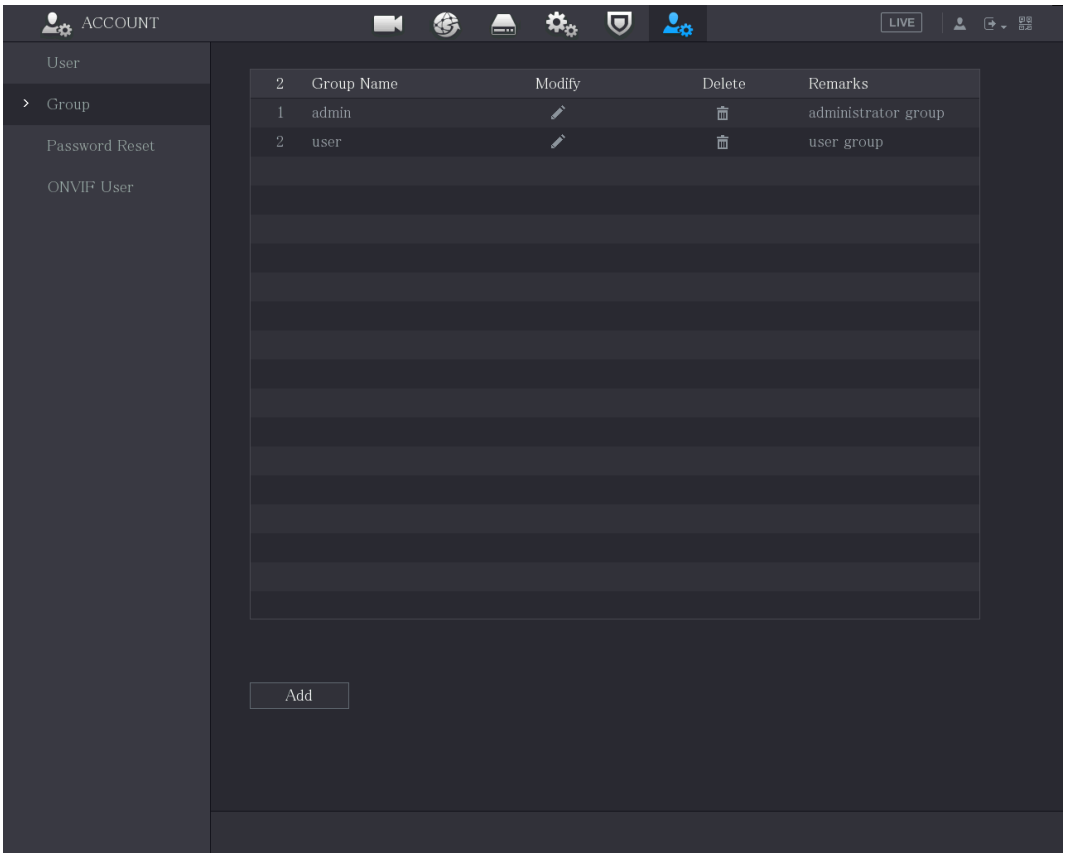
Step 3 Click **OK** to delete a user account.

5.16.2 Configuring Group Account

5.16.2.1 Adding a Group

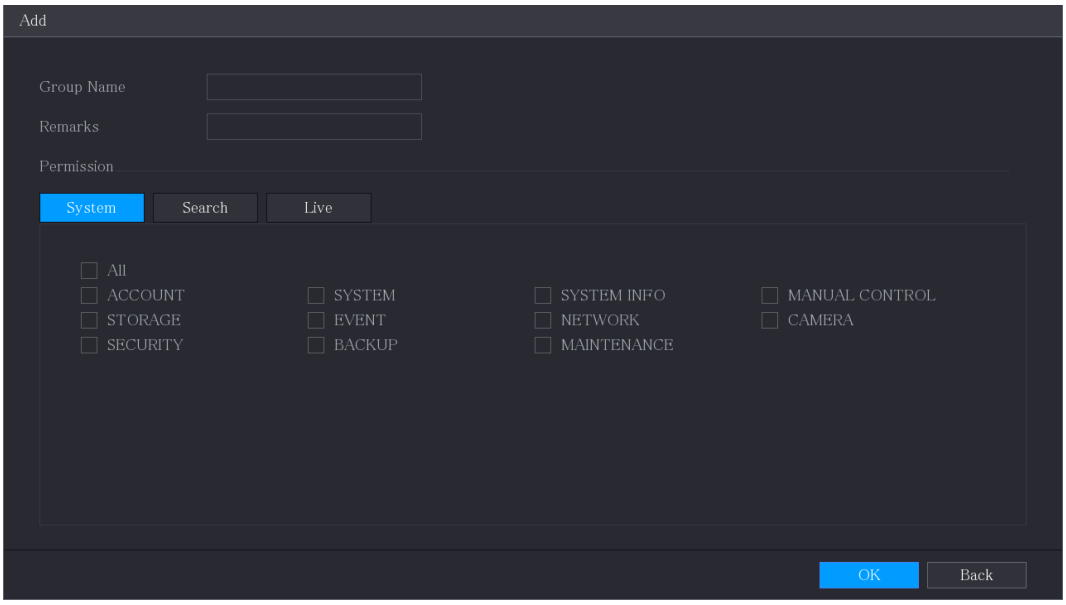
Step 1 Select **Main Menu** > **ACCOUNT** > **Group**.

Figure 5-220 Group



Step 2 Click **Add**.

Figure 5-221 Add group



Step 3 Configure the settings for the parameters of adding a group.

Table 5-69 Parameters of adding a group

Parameter	Description
Group Name	Enter a name for the group.
Remarks	Optional. Enter a description of the account.

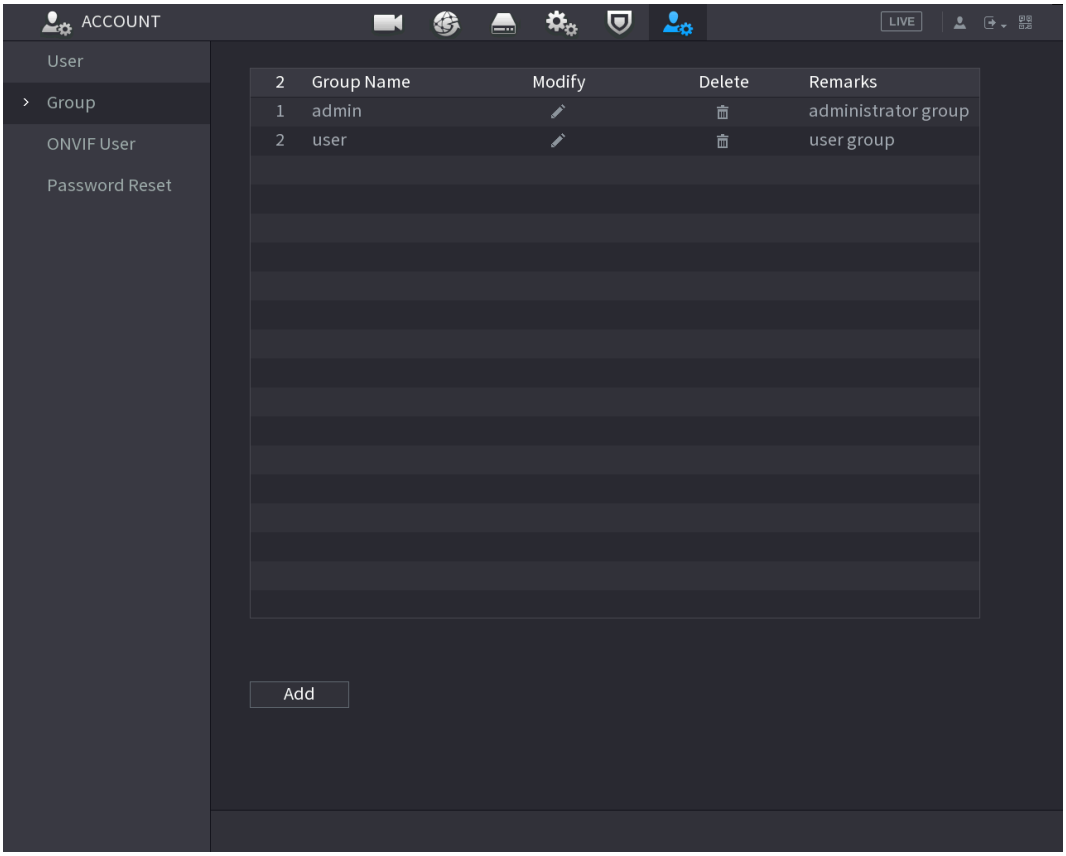
Parameter	Description
Permission	In the **Permission** area, select the check boxes in the **System** tab, **Playback** tab, and **Monitor** tab.

Step 4 Click **OK** to complete the settings.

5.16.2.2 Modifying a Group

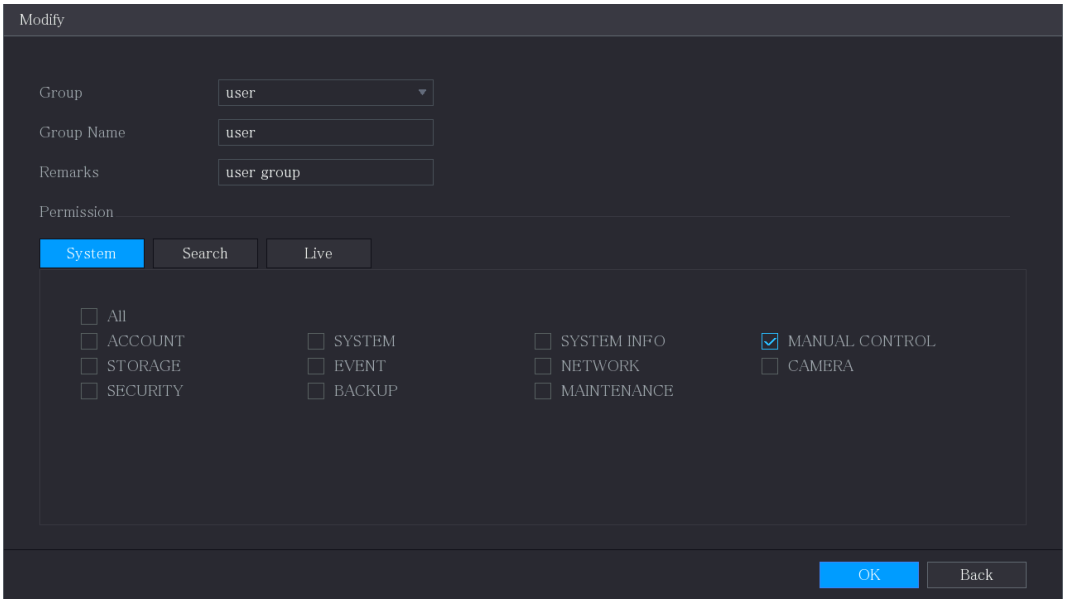
Step 1 Select **Main Menu** > **ACCOUNT** > **Group**.

Figure 5-222 Group



Step 2 Click for the group account that you want to modify.

Figure 5-223 Modify



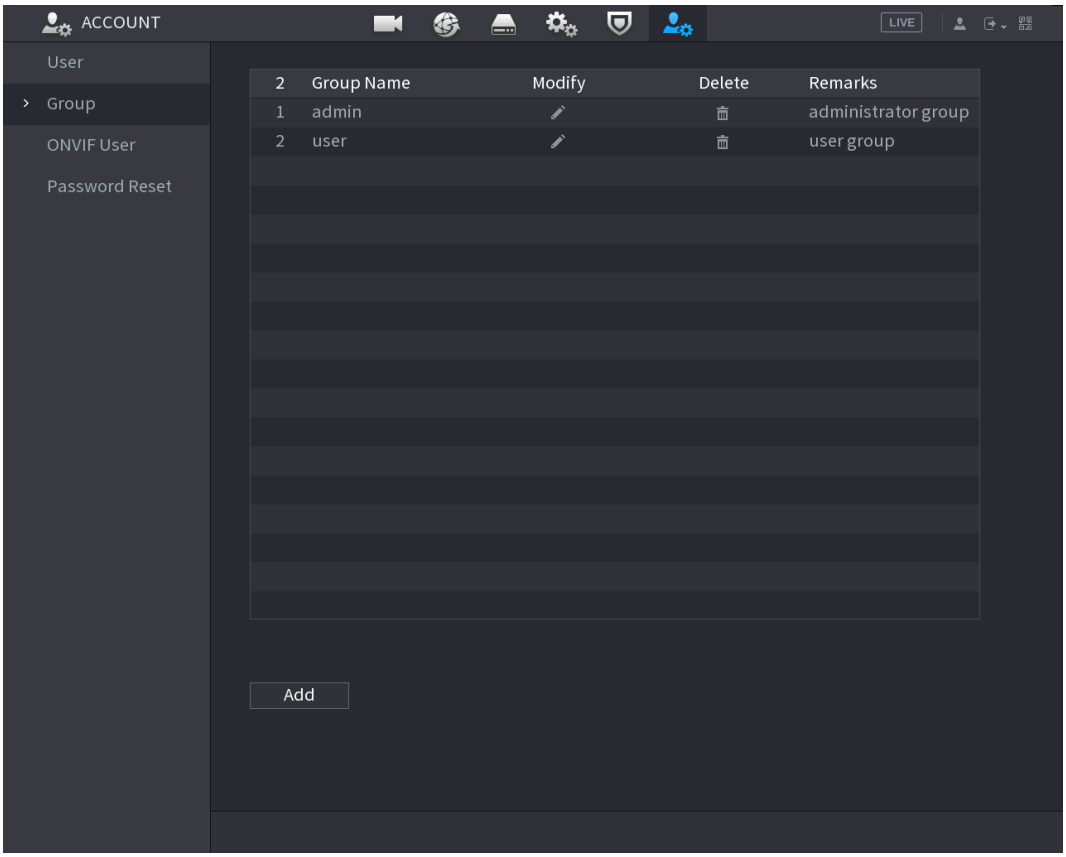
Step 3 Change the settings for group name, memo, and authority.

Step 4 Click **OK** to complete the settings.

5.16.2.3 Deleting a Group

Step 1 Select **Main Menu** > **ACCOUNT** > **Group**.

Figure 5-224 Group



Step 2 Click for the user account that you want to delete.

Step 3 Click **OK** to delete a group.

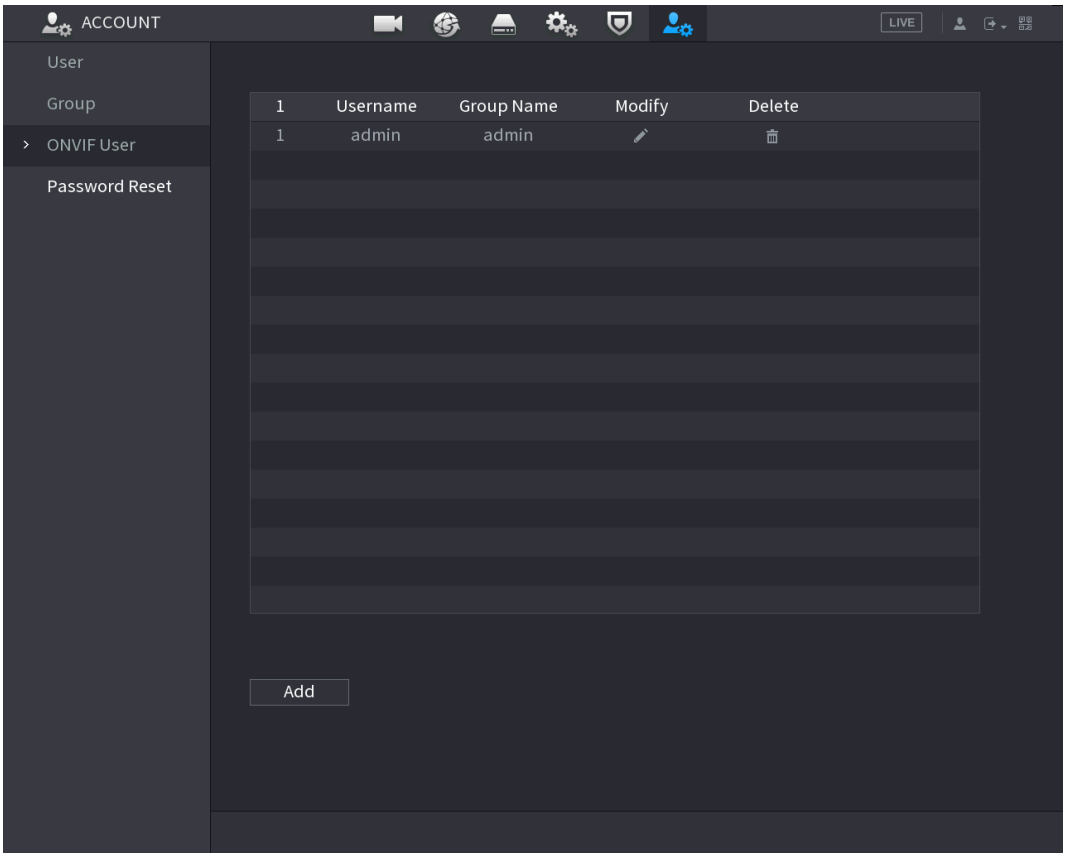
5.16.3 Configuring ONVIF Users

The device manufactured by other company can connect to the Device through ONVIF protocol by an authorized ONVIF account.

The admin account is created for ONVIF users right after the Device has been initialized

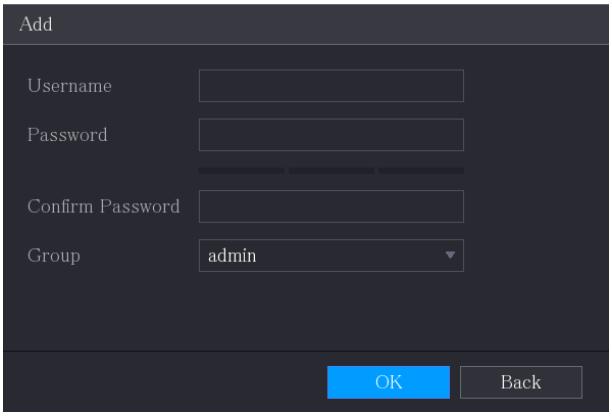
Step 1 Select **Main Menu** > **ACCOUNT** > **ONVIF User**.

Figure 5-225 ONVIF user



Step 2 Click **Add**.

Figure 5-226 Add ONVIF user



Step 3 Enter user name, password, and select the group that you want this account to belong to.

Step 4 Click **OK** to save the settings.

Click to modify the account; Click to delete the account.

5.17 Audio Management

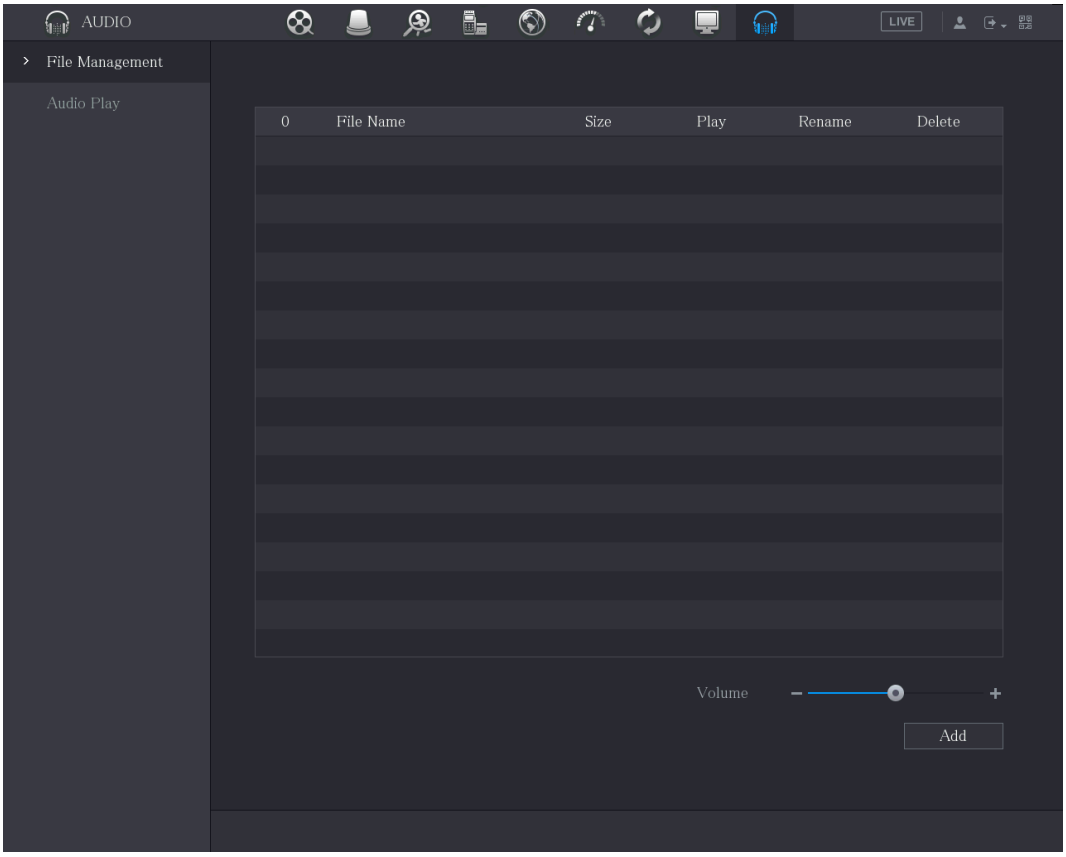
Audio management function manages audio files and configures the playing schedule. When there is an alarm event, the audio file can be activated.

5.17.1 Configuring Audio Files

You can add audio files, listen to audio files, rename and delete audio files, and configure the audio volume.

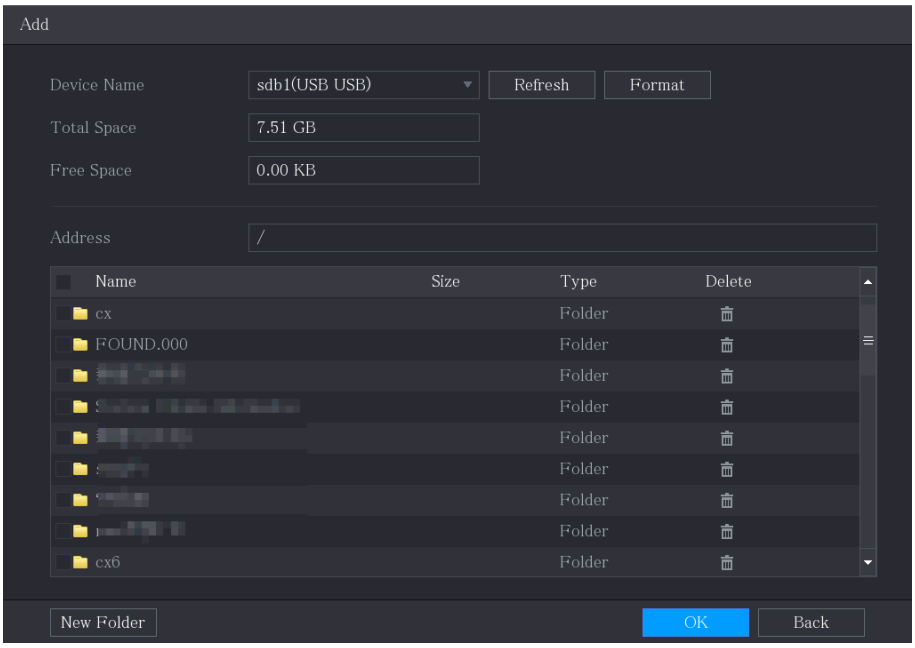
Step 1 Select **Main Menu > AUDIO > File Management**.

Figure 5-227 File management



Step 2 Click **Add**.

Figure 5-228 Add file

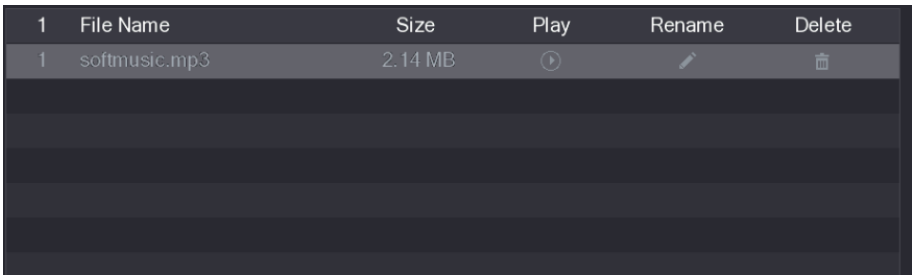


Step 3 Select the audio files that you want to import.

Step 4 Click **OK** to start importing audio files from the USB storage device.

If the importing is successful, the audio files will display in the **File Management** interface.

Figure 5-229 Imported file



The imported audio files are automatically saved into the HDD, so you do not need to connect to the USB storage device to get the file next time.

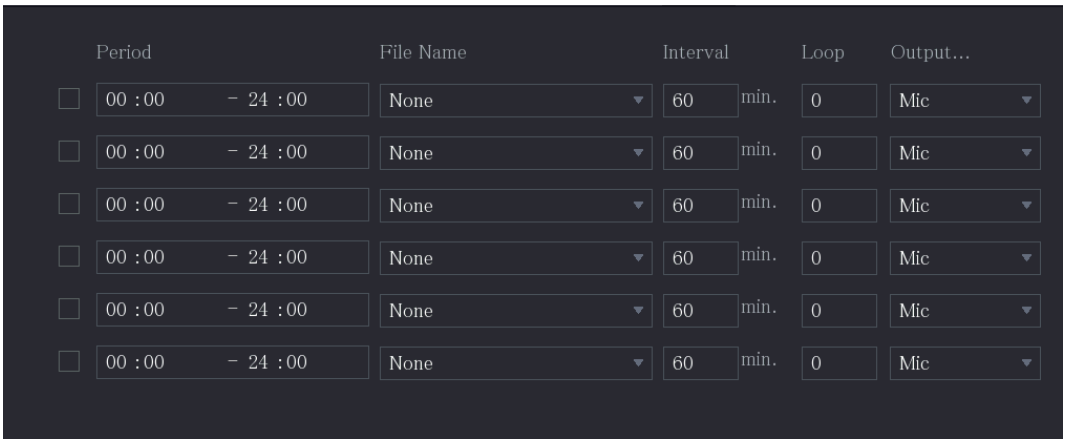
- Click to play the audio file.
- Click to rename the audio file.
- Click to delete the audio file.
- To decrease or increase the playing volume, move the slider to the left or to the right.

5.17.2 Configuring Playing Schedule for Audio Files

You can configure the settings to play the audio files during the defined time period.

Step 1 Select **Main Menu > AUDIO > Audio Play**.

Figure 5-230 Audio play



Step 2 Configure the settings for the schedule parameters.

Table 5-70 Schedule parameters

Parameter	Description
Period	In the **Period** box, enter the time. Select the check box to enable the settings. You can configure up to six periods.
File Name	In the **File Name** list, select the audio file that you want to play for this configured period.
Interval	In the **Interval** box, enter the time in minutes for how often you want to repeat the playing.
Repeat	Configure how many times you want to repeat the playing in the defined period.
Output Port	Includes two options: MIC and Audio. It is MIC by default. The MIC function shares the same port with talkback function and the latter has the priority.

- The finish time for audio playing is decided by audio file size and the configured interval.
- Playing priority: **Alarm event > Talkback > Trial listening > Audio file**.

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

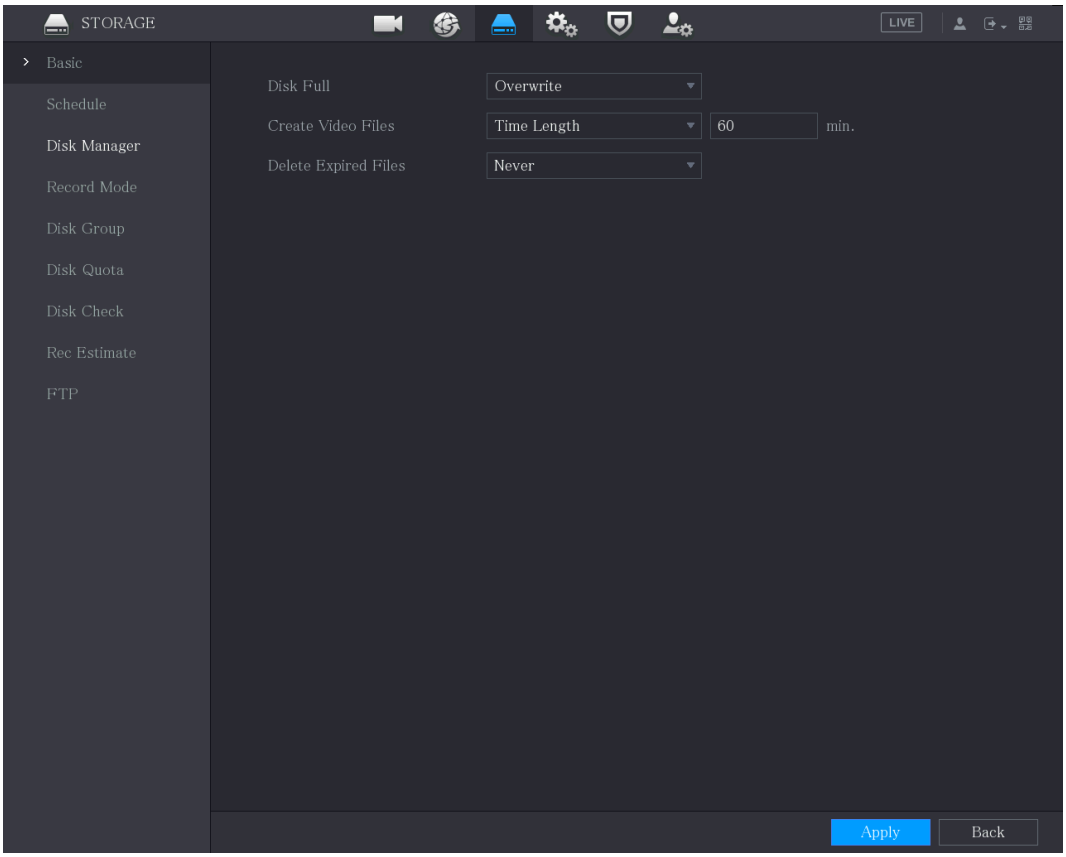
5.18 Storage Management

Storage management function manages the stored resources such as recorded video files and storage space. The function aims at providing easier operation and improving the storage efficiency.

5.18.1 Configuring Basic Settings

Step 1 Select **Main Menu > STORAGE > Basic**.

Figure 5-231 Basic



Step 2 Configure the settings for the basic settings parameters.

Table 5-71 Basic settings

Parameter	Description
Disk Full	Configure the settings for the situation all the read/write discs are full. ● Select **Stop** to stop recording ● Select **Overwrite** to overwrite the recorded video files always from the earliest time.
Create Video Files	Configure the time length and file length for each recorded video.
Delete Expired Files	Configure whether to delete the old files and if yes, configure the days.

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

5.18.2 Configuring the Recording and Snapshot Schedule

The system starts recording and taking snapshot according to the configured schedule. For details, see "5.1.4.9 Configuring Recorded Video Storage Schedule" and "5.1.4.10 Configuring Snapshot Storage Schedule."

5.18.3 Configuring Disk Manager

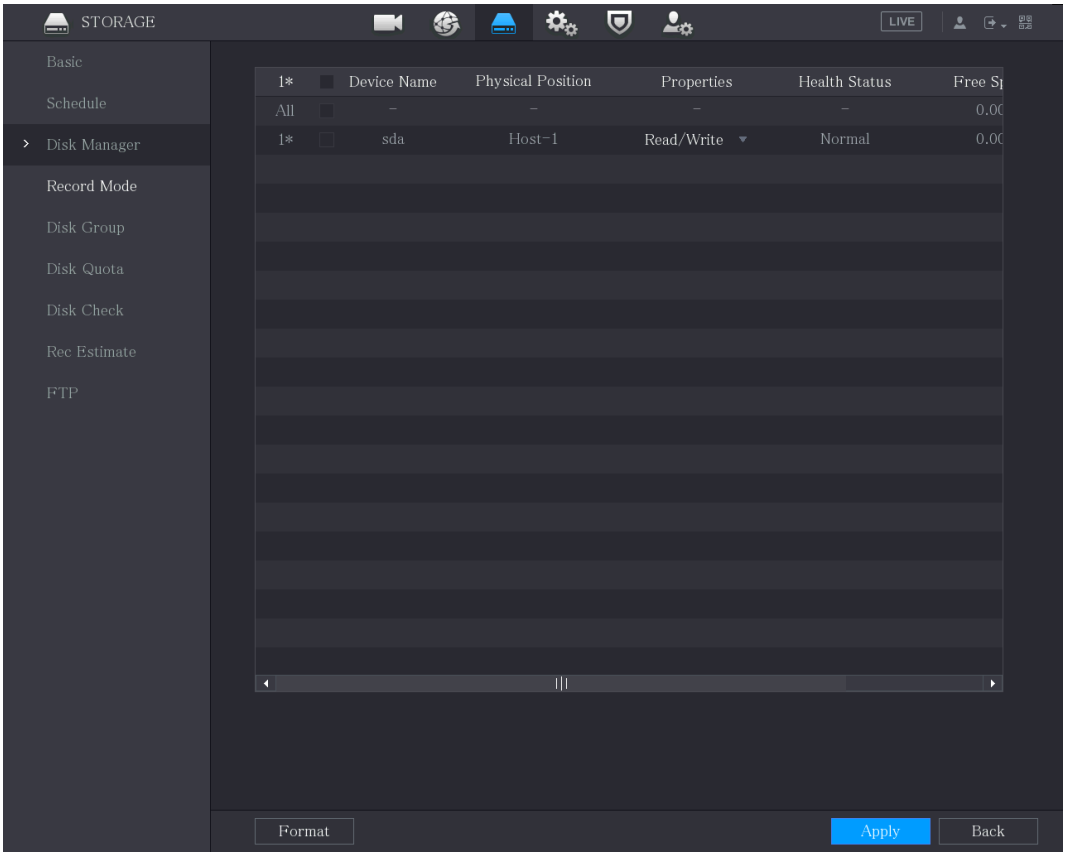
You can view the HDD information, format HDD, and configure the HDD type through HDD manager.

Step 1 Select **Main Menu > STORAGE > Disk Manager**.

In the table, you can view the information of current HDD, such as device name, HDD type,

status, total space and free space, and serial number of the HDD port.

Figure 5-232 Disk manager

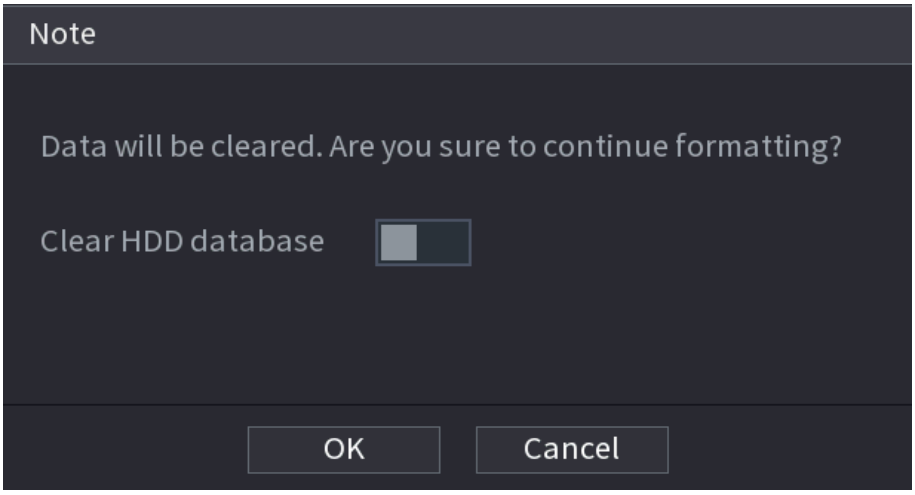


Step 2 Configuring the settings for the HDD manager.

- HDD type setting: In the **Properties** list, select **Read/Write**, **Read Only**, and then click **Apply** to save the settings.
- HDD format: Select the HDD that you want to format, click **Format**, and enable **Clear HDD database** in the pop-up message, click **OK** and enter the password of admin user in the prompted dialog box, click **OK** and then following the on-screen instructions to complete formatting.

Formatting HDD will erase all data on the disk, proceed with caution.

Figure 5-233 Note



5.18.4 Configuring Record

Record type includes auto and manual record. You can configure record type of main stream and sub stream. See "5.7 Configuring Record Settings".

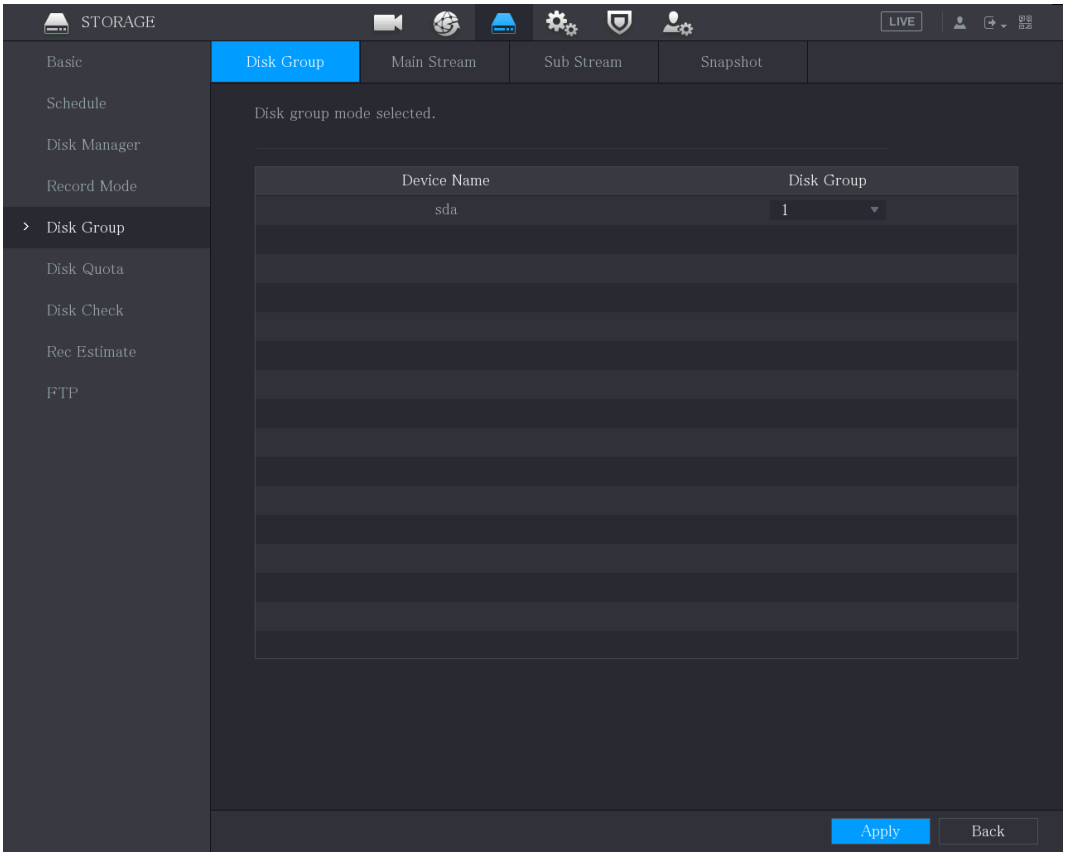
5.18.5 Configuring Advance Settings

Create HDD group, and save main stream, sub stream and snapshot of designated channels to the HDD group.

- If the interface displays that "Current HDD Mode is Quota Group", click **Change to HDD Group Mode**, and then configure HDD group.
- You can enable either HDD Group Mode or Quota Group. The system prompts to reboot the device each time when you switch the mode.

Step 1 Select **Main Menu > STORAGE > Disk Group > Disk Group**.

Figure 5-234 Disk group



Step 2 Select group for each HDD, and then click **Apply** to complete the settings.

Step 3 After configuring HDD group, click **Main Stream**, **Sub Stream** and **Snapshot** tabs respectively, to configure the saving of main stream, sub stream and snapshot information of different channels to different HDD groups.

Figure 5-235 Main stream

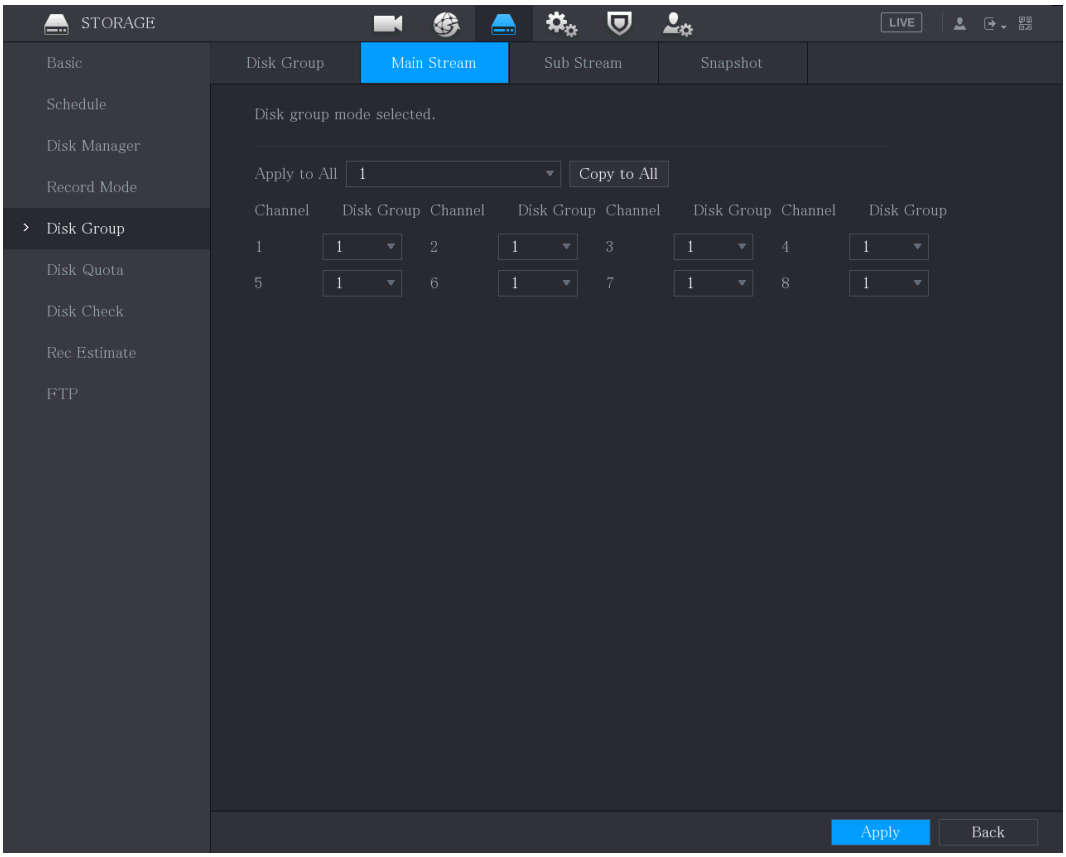


Figure 5-236 Sub stream

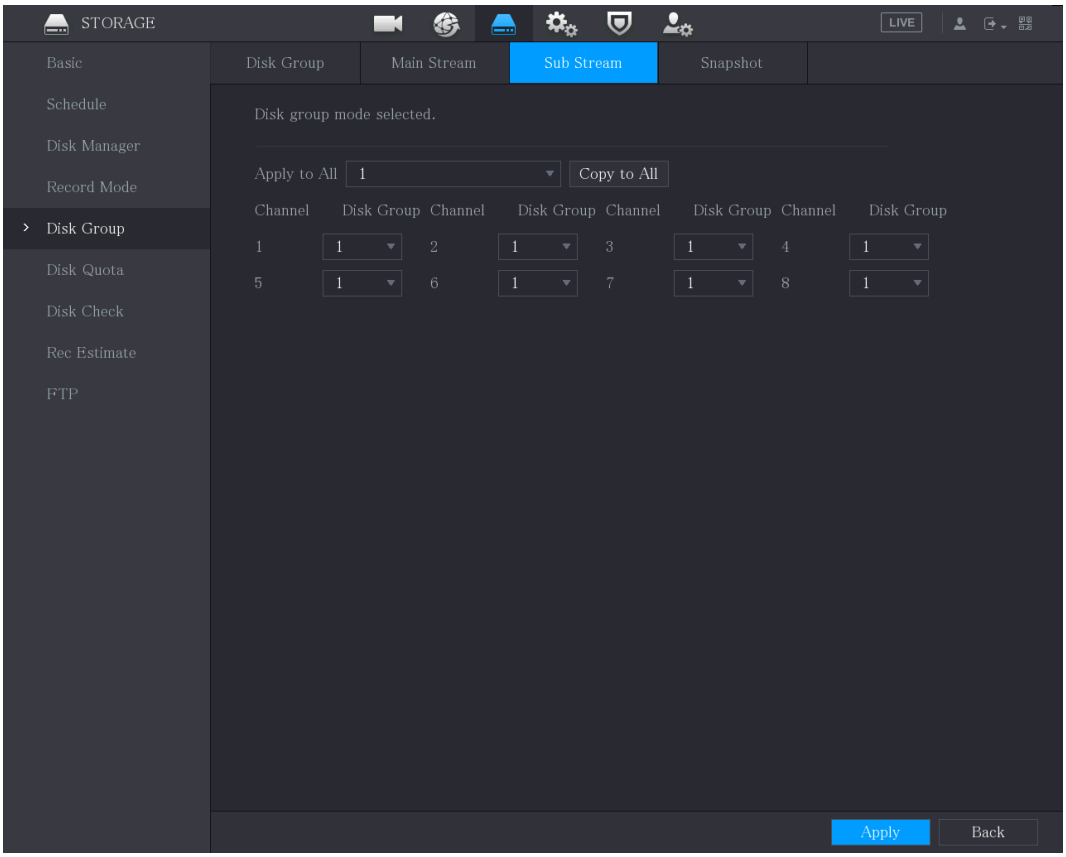
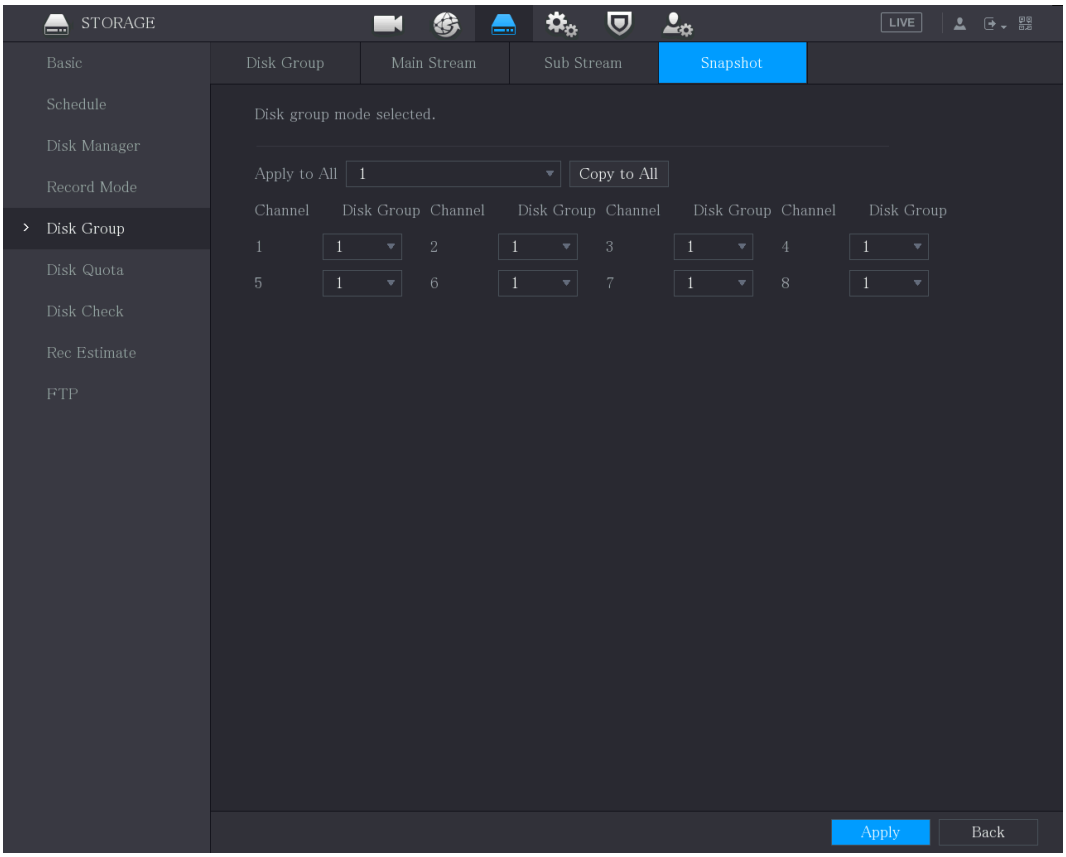


Figure 5-237 Snapshot



Step 4 Click **Apply** to complete the settings.

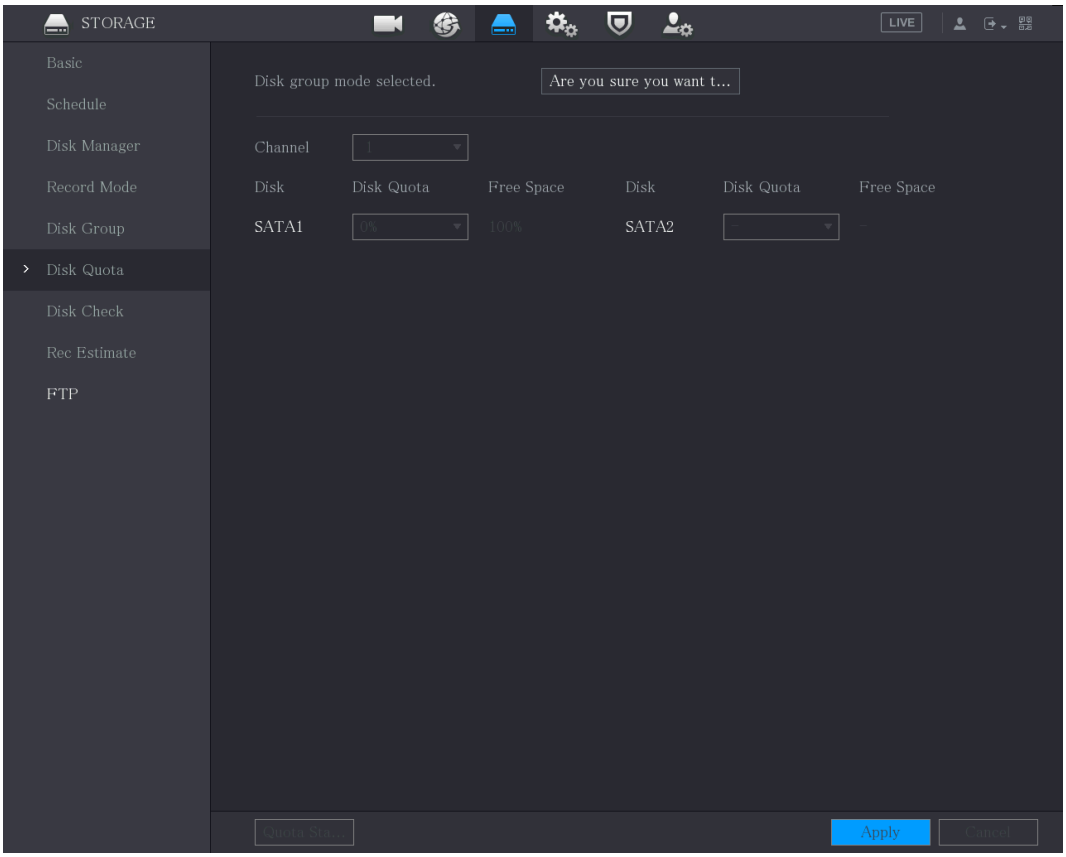
5.18.6 Configuring Disk Quota

By configuring quota, allocate fixed storage capacity to each channel, and distribute the storage space of each channel reasonably.

- If the interface displays that "Current HDD Mode is HDD Group", click **Change to Quota Mode**, and then configure quota.
- You can enable either HDD Group Mode or Quota Group. The system prompts to reboot the device each time when you switch the mode.

Step 1 Select **Main Menu > STORAGE > Disk Quota**.

Figure 5-238 Disk quota

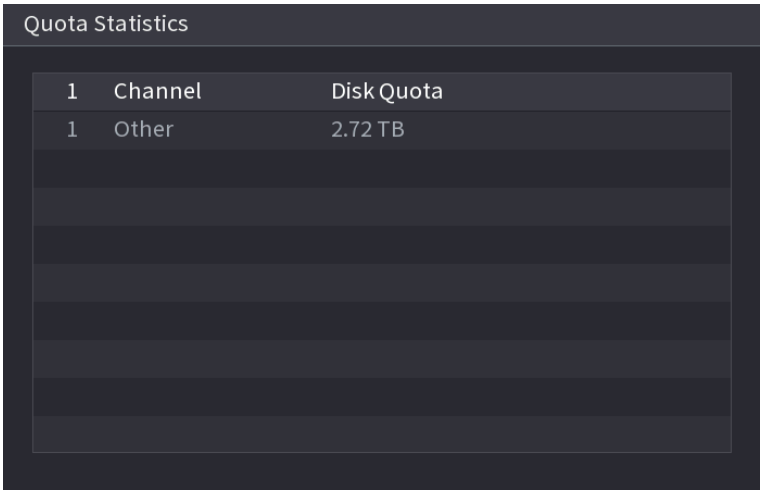


Step 2 Select the channels you want to configure, and select quota from the drop-down list of corresponding HDD.

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

Click **Quota Statistics** to view the quota of each channel in HDD. See Figure 5-239.

Figure 5-239 Quota statistics



5.18.7 Configuring HDD Detecting Settings

Not all models support this function.

HDD detecting function detects the current status of HDD to let you know the HDD performance and replace the defective HDD.

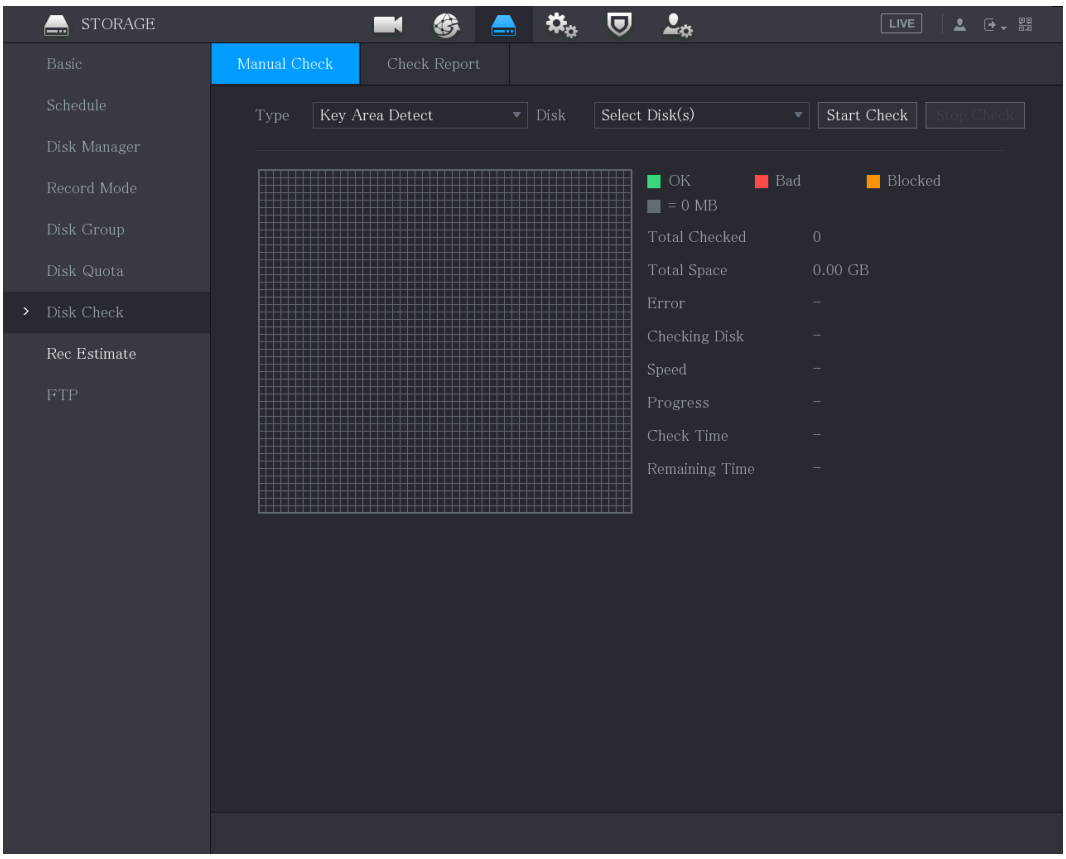
5.18.7.1 Checking HDD

You can detect HDD by key area detect and global detect.

- Key area detect: Detect the files saved in HDD. The detected bad track can be repaired by formatting. If there are no files in HDD, the system cannot detect the bad track.
- Global detect: Detect the whole HDD through Windows, which takes time and might affect the HDD that is recording the video.

Step 1 Select **Main Menu** > **STORAGE** > **Disk Check** > **Manual Check**.

Figure 5-240 Manual check



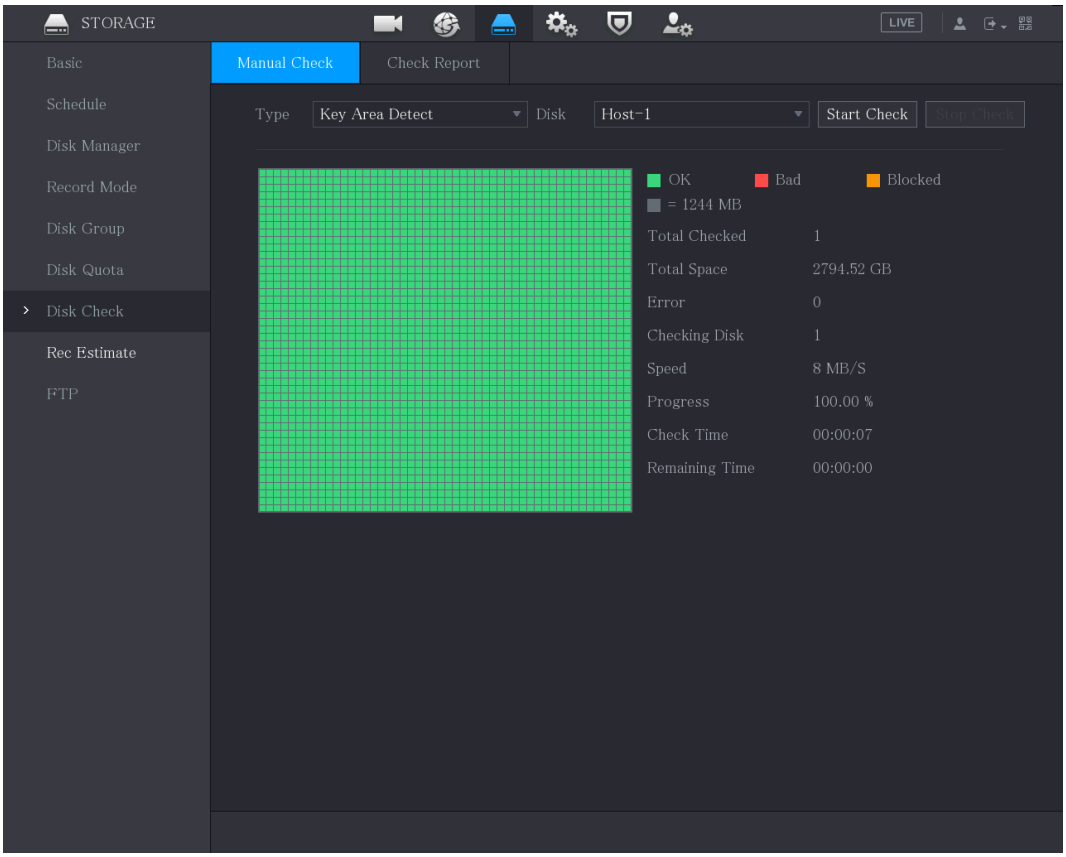
Step 2 In the **Type** list, select **Key Area Detect** or **Global Check**; and in the **Disk** list, select the HDD that you want to detect.

Step 3 Click **Start Check**.

The system starts detecting the HDD.

During detecting, click **Pause** to pause detecting, click **Continue** to restart detecting, and click **Stop Detect** to stop detecting.

Figure 5-241 Detection result

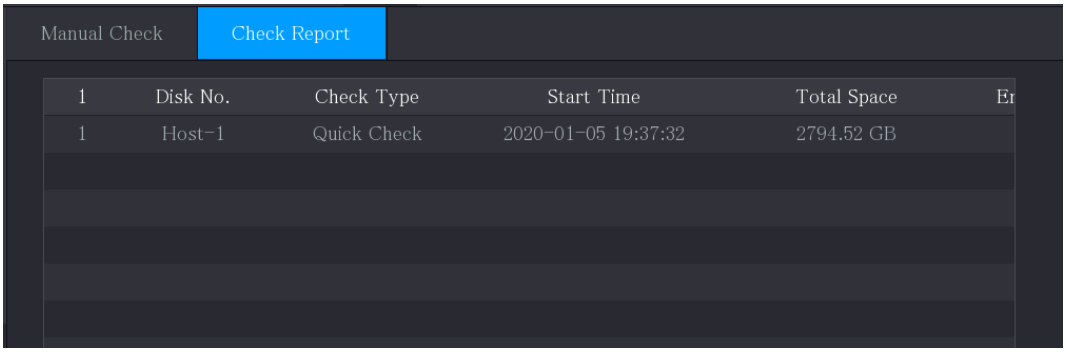


5.18.7.2 View Detecting Results

After the detecting is completed, you can view the detecting reports to find out the problem and replace the defective HDD to avoid data loss.

Step 1 Select **Main Menu > STORAGE > Disk Check > Check Report**.

Figure 5-242 Report



Step 2 Click .

You can view detecting results and S.M.A.R.T reports.

Figure 5-243 Details

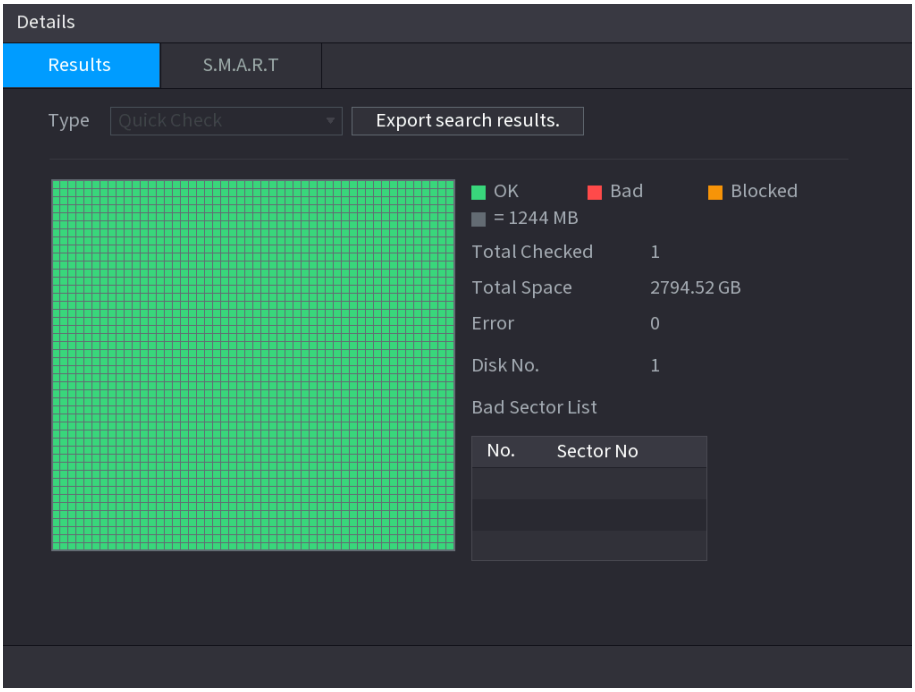
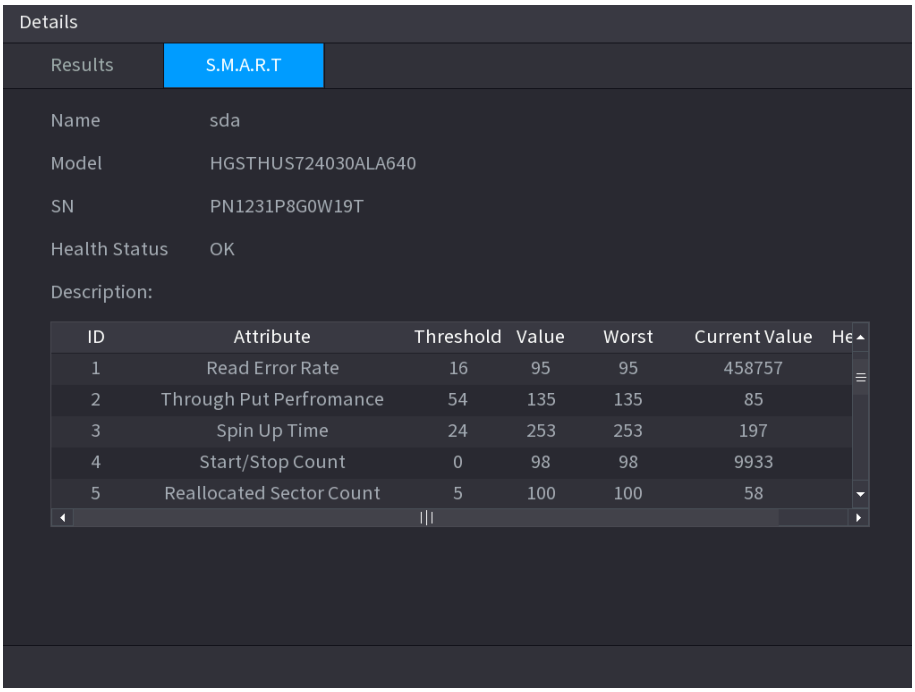


Figure 5-244 S.M.A.R.T

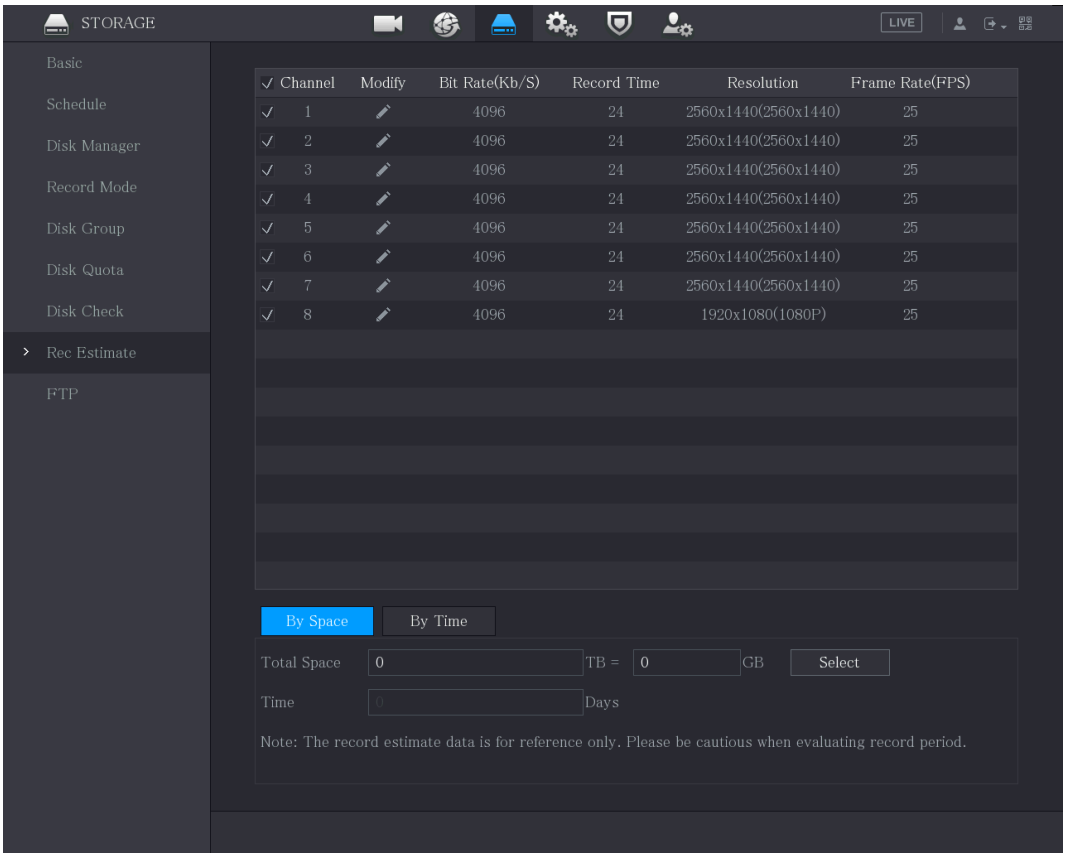


5.18.8 Configuring Record Estimate

Record estimate function can calculate how long you can record video according to the HDD capacity, and calculate the required HDD capacity according to the record period.

Step 1 Select **Main Menu > STORAGE > Rec Estimate**.

Figure 5-245 Rec estimate



Step 2 Click .

You can configure the resolution, frame rate, bit rate and record time for the selected channel.

Step 3 Click **OK** to save the settings.

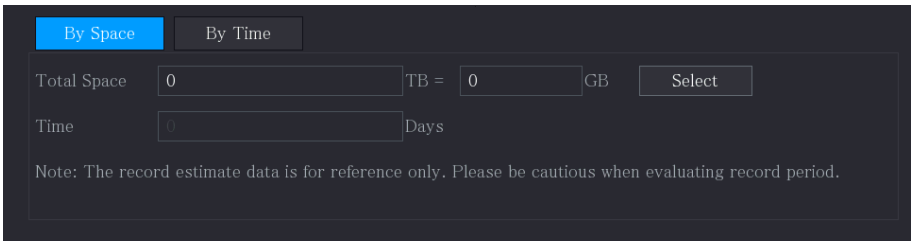
Then the system will calculate the time period that can be used for storage according to the channels settings and HDD capacity.

Click **Copy to** to copy the settings to other channels.

Calculating Recording Time

Step 1 On the **Rec Estimate** interface, click the **By Space** tab.

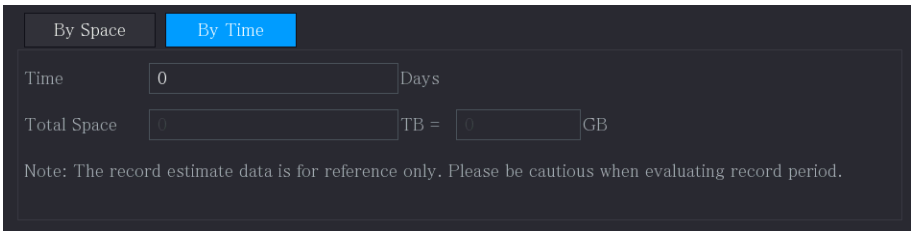
Figure 5-246 By space



Step 2 Click **Select**.

Step 3 Select the check box of the HDD that you want to calculate.

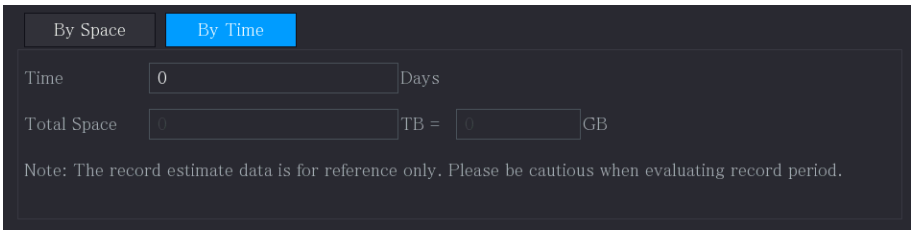
Figure 5-247 By time



Calculating HDD Capacity for Storage

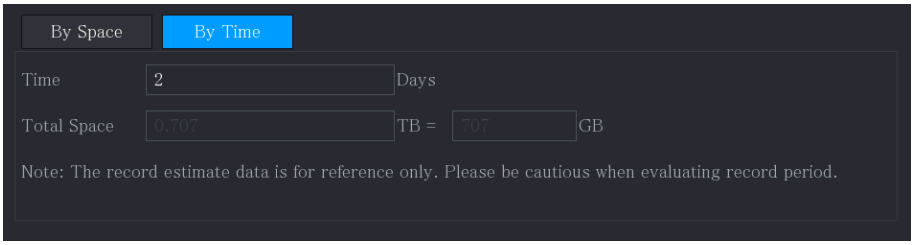
Step 1 On the **Rec Estimate** interface, click the **By Time** tab.

Figure 5-248 By time



Step 2 In the **Time** box, enter the time period that you want to record.

Figure 5-249 Total space



5.18.9 Configuring FTP Storage Settings

You can store and view the recorded videos and snapshots on the FTP server.

Preparation for Configuration

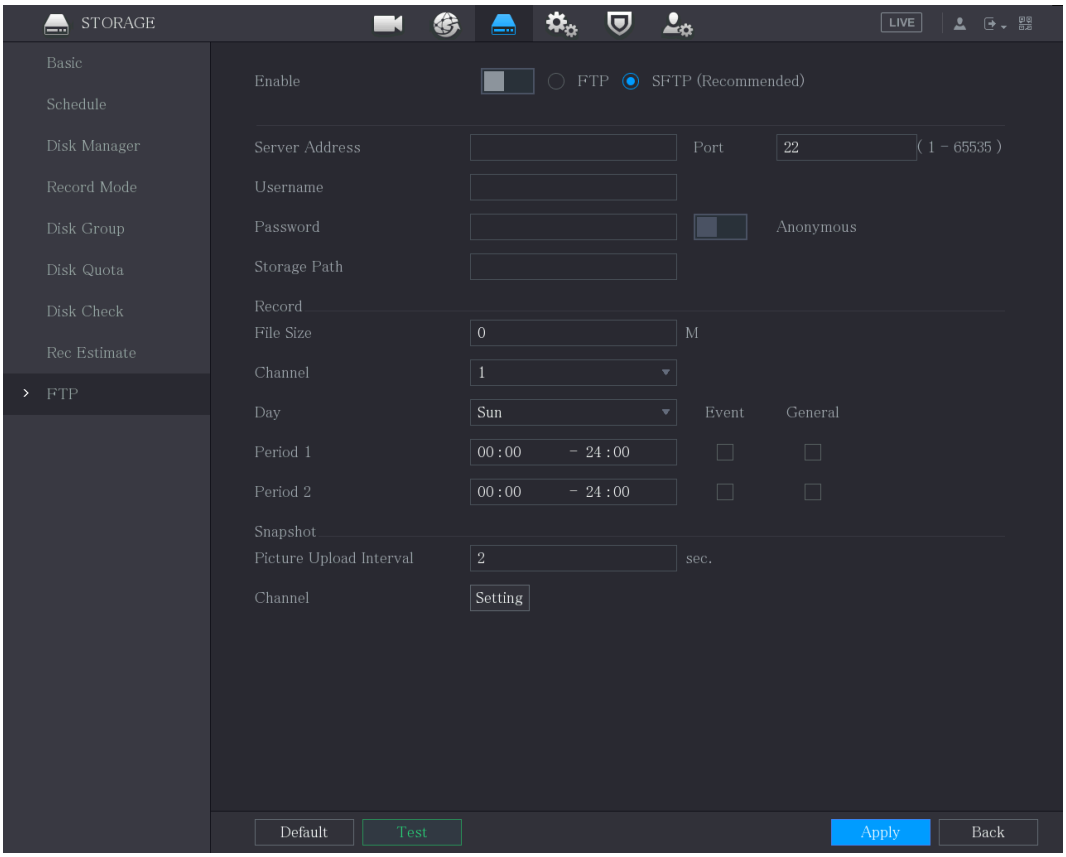
Purchase or download a FTP server and install it on your PC.

For the created FTP user, you need to set the write permission; otherwise the upload of recorded videos and snapshots might be failed.

Configuration Steps

Step 1 Select **Main Menu** > **STORAGE** > **FTP**.

Figure 5-250 FTP



Step 2 Configure the settings for the FTP settings parameters.

Table 5-72 FTP parameters

Parameter	Description
Enable	Enable the FTP upload function.
FTP type	● FTP: Plaintext transmission. ● SFTP: Encrypted transmission (recommended)
Server Address	IP address of FTP server.
Port	● FTP: The default is 21. ● SFTP: The default is 22.
Anonymous	Enter the user name and password to log in to the FTP server. Enable the anonymity function, and then you can login anonymously without entering the user name and password.
Username	
Password	
Storage Path	Create folder on FTP server. ● If you do not enter the name of remote directory, system automatically creates the folders according to the IP and time. ● If you enter the name of remote directory, the system creates the folder with the entered name under the FTP root directory first, and then automatically creates the folders according to the IP and time.

Parameter	Description
File Size	Enter the length of the uploaded recorded video. ● If the entered length is less than the recorded video length, only a section of the recorded video can be uploaded. ● If the entered length is more than the recorded video length, the whole recorded video can be uploaded. ● If the entered length is 0, the whole recorded video will be uploaded.
Picture Upload Interval (Sec.)	● If this interval is longer than snapshot interval, the system takes the recent snapshot to upload. For example, the interval is 5 seconds, and snapshot interval is 2 seconds per snapshot, the system uploads the recent snapshot every 5 seconds. ● If this interval is shorter than snapshot interval, the system uploads the snapshot per the snapshot interval. For example, the interval is 5 seconds, and snapshot interval is 10 seconds per snapshot, the system uploads the snapshot every 10 seconds. ● To configure the snapshot interval, select **Main Menu** > **CAMERA** > **Encode** > **Snapshot**.
Channel	Select the channel that you want to apply the FTP settings.
Day	Select the week day and set the time period that you want to upload the recorded files. You can set two periods for each week day.
Period 1, Period 2	
Record type	Select the record type (Alarm, Intel, MD, and General) that you want to upload. The selected record type will be uploaded during the configured time period.

Step 3 Click **Test**.

The system pops up a message to indicate success or failure. If failed, check the network connection or configurations.

Step 4 Click **Apply** to complete the settings.

5.19 Security Center

You can set security options to strengthen device security and use the device in a much safer way.

5.19.1 Security Status

Security scanning helps get a whole picture of device security status. You can scan user, service and security module status for detailed information about the security status of the device.

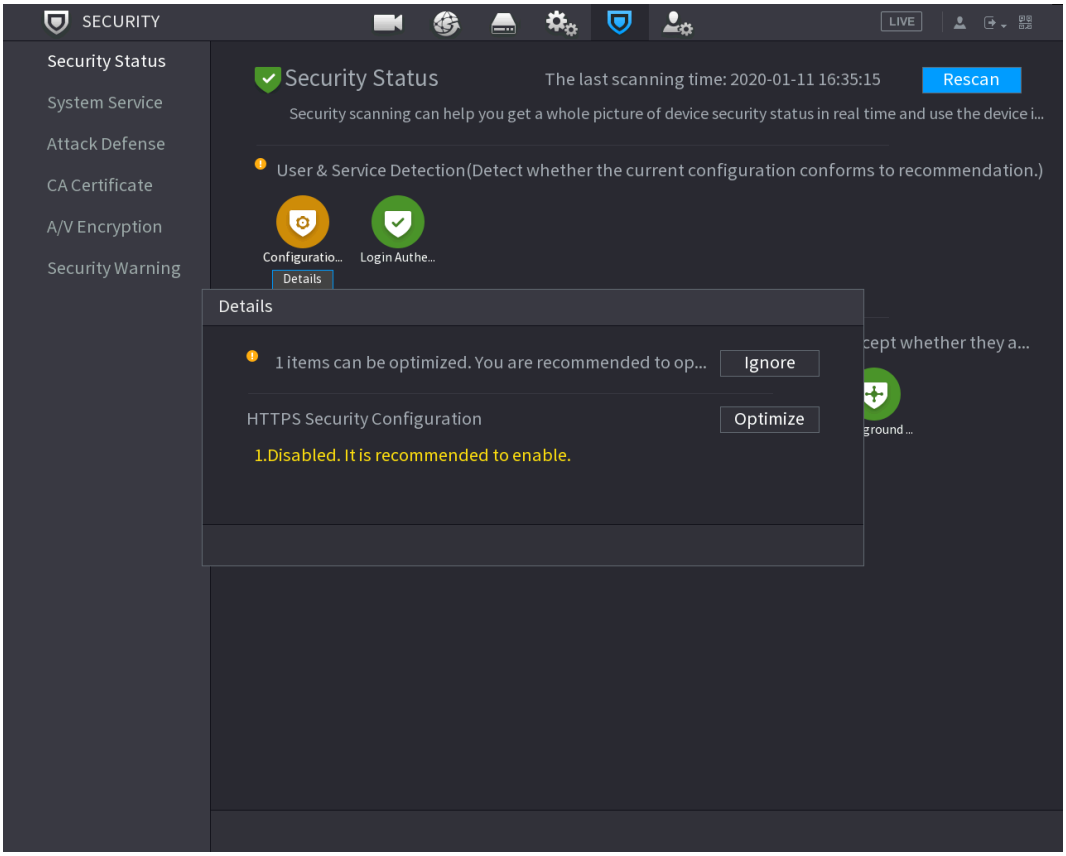
Detecting User and Service

Green icon represents a healthy status of the scanned item, and orange icon represents a risky status.

- Login authentication: When there's a risk in the login authentication, the icon will be in orange to warn risk. You can click **Details** to see the detailed risk description.

- Configuration Security: When there's a risk in the device configuration, the icon will be in orange to warn risk. You can click **Details** to see the detailed risk description.

Figure 5-251 Security risk



Scanning Security Modules

This area shows the running status of security modules. For details about the security modules, move mouse pointer on the icon to see the on-screen instructions.

Scanning Security Status

You can click **Rescan** to scan security status.

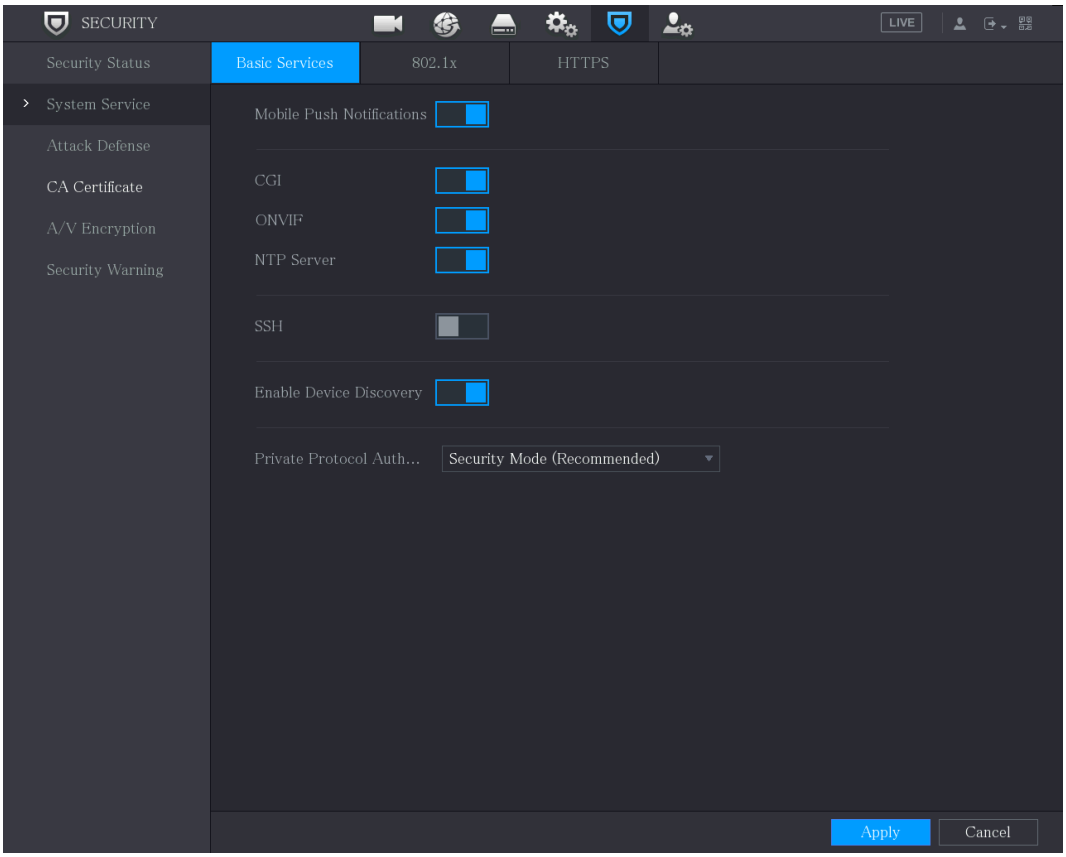
5.19.2 System Service

You can set DVR basic information such as basic services, 802.1x and HTTPS.

5.19.2.1 Basic Services

Step 1 Select **Main Menu** > **SECURITY** > **System Service** > **Basic Services**.

Figure 5-252 Basic services



Step 2 Select **Basic Services** and configure parameters.

There might be safety risk when **Mobile Push Notifications**, **CGI**, **ONVIF**, **SSH** and **NTP Server** is enabled.

Table 5-73 Basic services parameters

Parameter	Description
Mobile Push Notifications	After enabling this function, the alarm triggered by the NVR can be pushed to a mobile phone. This function is enabled by default. There might be safety risk if this service is enabled. Disable this function when it is not in use.
CGI	If this function is enabled, the remote devices can be added through the CGI protocol. This function is enabled by default. There might be safety risk if this service is enabled. Disable this function when it is not in use.

Parameter	Description
ONVIF	If this function is enabled, the remote devices can be added through the ONVIF protocol. This function is enabled by default. There might be safety risk if this service is enabled. Disable this function when it is not in use.
NTP Server	After enabling this function, a NTP server can be used to synchronize the device. This function is enabled by default.
SSH	After enabling this function, you can use SSH service. This function is disabled by default. There might be safety risk if this service is enabled. Disable this function when it is not in use.
Enable Device Discovery	After enabling this function, the device can be searched by other devices.
Private Protocol Authentication Mode	• Security Mode (Recommended): Uses Digest access authentication when connecting to DVR. • Compatible Mode: Select this mode when the client does not support Digest access authentication.

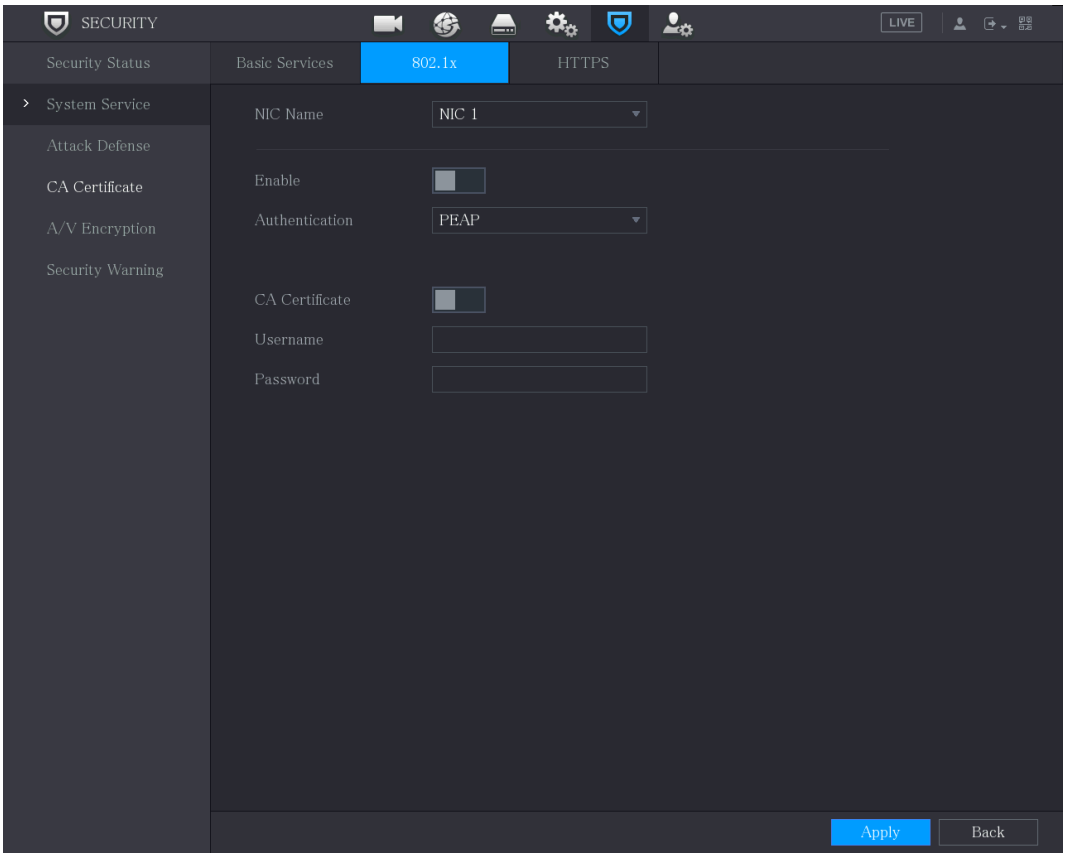
Step 3 Click **Apply** to complete the settings.

5.19.2.2 802.1x

The device needs to pass 802.1x certification to enter the LAN.

Step 1 Select **Main Menu** > **SECURITY** > **System Service** > **802.1x**.

Figure 5-253 802.1x



Step 2 Select the Ethernet card you want to certify.

Step 3 Select **Enable** and configure parameters.

Table 5-74 802.1x parameters

Parameter	Description
NIC Name	Select a NIC.
Authentication	• PEAP: protected EAP protocol. • TLS: Transport Layer Security. Provide privacy and data integrity between two communications application programs.
CA Certificate	Enable it and click **Browse** to import CA certificate from flash drive. For details about importing and creating a certificate, see "5.19.4 CA Certificate".
Username	The username shall be authorized at server.
Password	Password of the corresponding username.

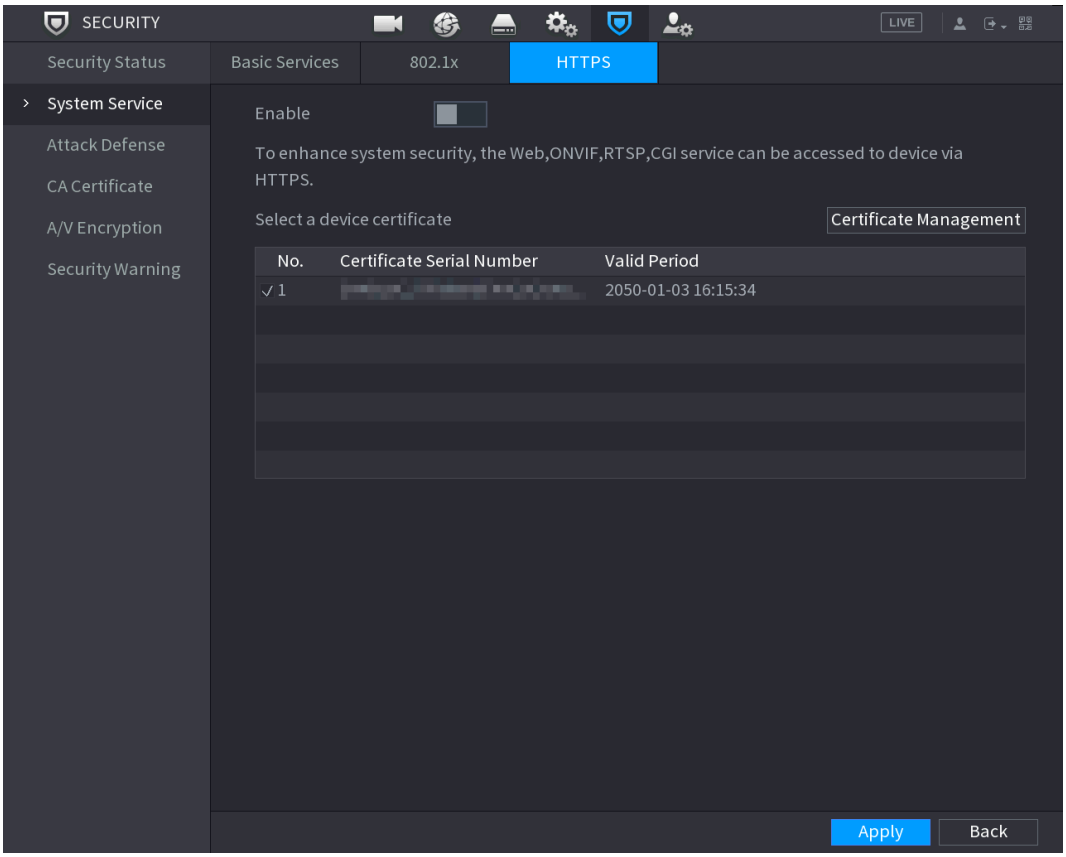
Step 4 Click **Apply** to complete the settings.

5.19.2.3 HTTPS

We recommend that you enable HTTPS function to enhance system security.

Step 1 Select **Main Menu** > **SECURITY** > **System Service** > **HTTPS**.

Figure 5-254 HTTPS



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

Step 3 Click **Certificate Management** to create or import a HTTPS certificate from USB drive. For details about importing or creating a CA certificate, see 5.19.4.

Step 4 Select a HTTPS certificate.

Step 5 Click **Apply** to complete the settings.

5.19.3 Attack Defense

5.19.3.1 Firewall

Step 1 Select **Main Menu** > **SECURITY** > **Attack Defense** > **Firewall**.

Step 2 Select **Enable** to enable firewall.

Step 3 Configure the parameters.

Table 5-75 Firewall parameters

Parameter	Description
Mode	Mode can be configured when Type is Network Access. ● If **Allowlist** is enabled, you can visit device port successfully with IP/MAC hosts in the allowlist. ● If **Blocklist** is enabled, you cannot visit device port with IP/MAC hosts in blocklist.
Add	When Type is Network Access, you can configure IP Address, IP Segment and MAC Address.
Type	You can select IP address, IP segment and MAC address.
IP Address	Enter IP Address, Start Port and End Port that is allowed or forbidden. When Type is IP Address, they can be configured. Start Port and End Port can be configured only in Network Access Type.
Start Port	
End Port	
Start Address/End Address	Enter Start Address and End Address of IP Segment. When Type is IP Segment, they can be configured.
MAC Address	Enter MAC Address that is allowed or forbidden When Type is MAC Address, it can be configured.

Step 4 Click **Apply** to complete the settings.

5.19.3.2 Account Lockout

Step 1 Select **Main Menu** > **SECURITY** > **Attack Defense** > **Account Lockout**.

Step 2 Set parameters.

Table 5-76 Lockout parameters

Parameter	Description
Attempt(s)	Set the maximum number of allowable wrong password entries. The account will be locked after your entries exceed the maximum number. Value range: 5–30. Default value: 5.
Lock Time	Set how long the account is locked for. Value range: 5–120 minutes. Default value: 5 minutes.

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

5.19.3.3 Anti-Dos Attack

You can enable **SYN Flood Attack Defense** and **ICMP Flood Attack Defense** to defend the device against Dos attack.

5.19.3.4 Sync Time-Allowlist

The synchronization is only allowed with hosts in the trusted list.

Step 1 Select **Main Menu** > **SECURITY** > **Attack Defense** > **Sync Time-Allowlist**.

Step 2 Select **Enable** to enable **Sync Time-Allowlist** function.

Step 3 Configure the parameters.

Table 5-77 Allowlist parameters

Parameter	Description
Add	You can add trusted hosts for time synchronization.
Type	Select IP address or IP segment for hosts to be added.
IP Address	Input the IP address of a trusted host. When Type is IP Address, it can be configured
Start Address	Input the start IP address of trusted hosts. When Type is IP Segment, it can be configured
End Address	Input the end IP address of trusted hosts. When Type is IP Segment, it can be configured

Step 4 Click **Apply** to complete the settings.

5.19.4 CA Certificate

You can create or import device certificate and install trusted CA Certificate.

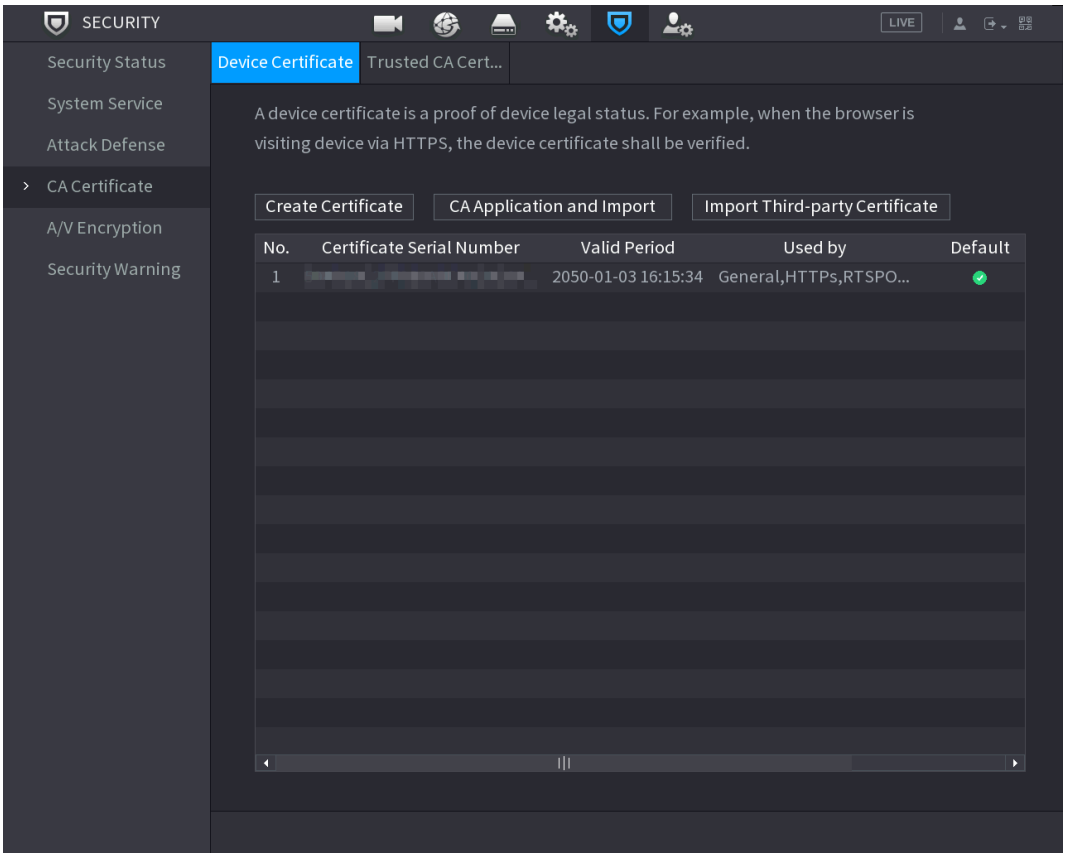
5.19.4.1 Device Certificate

Create Certificate

Step 1 Select **Main Menu** > **SECURITY** > **CA Certificate** > **Device Certificate**.

- Click to download the certificate to local storage.
- Click to delete the certificate. The deleted certificate cannot be restored, proceed with caution.

Figure 5-255 Device certificate



Step 2 Configure parameters.

Table 5-78 Certificate parameters

Parameter	Description
County	This parameter is user defined.
State	This parameter is user defined.
City Name	This parameter is user defined.
Valid Period	Input a valid period for the certificate.
Organization	This parameter is user defined.
Organization Unit	This parameter is user defined.
Domain Name	Input the IP address of the certificate.

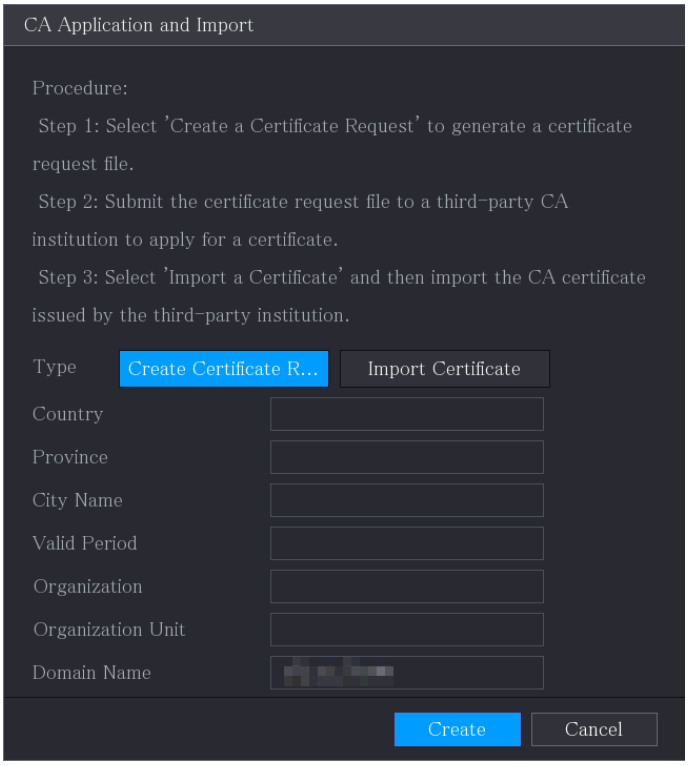
Step 3 Click **Create**.

CA Application and Import

Follow the on-screen instructions to finish CA application and import.

Insert a USB flash drive before operating.

Figure 5-256 CA application and import

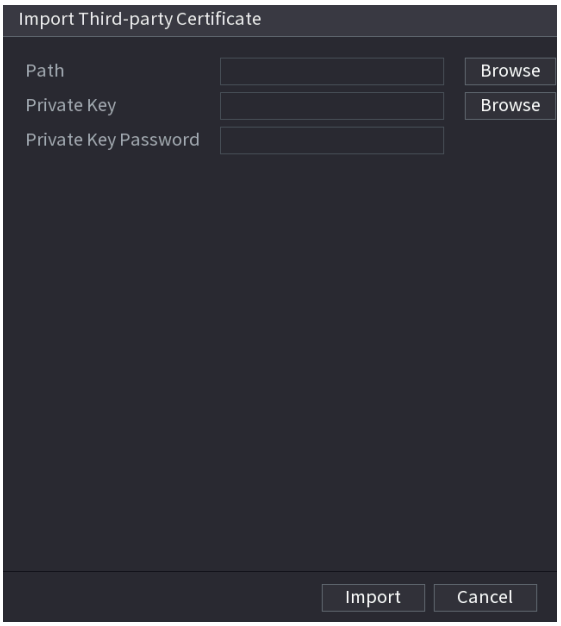


Import Third-Party Certificate

Insert the USB flash drive with third-party certificate before importing.

Step 1 Select **Import Third-party Certificate**.

Figure 5-257 Import third-party certificate



2. Configure Parameters.

Table 5-1 Importing third-party certificate

Parameter	Description
Path	Click **Browse** to find the third-party certificate path on the USB drive.
Private Key	Click **Browse** to find the third-party certificate private key on the USB drive.
Private Key Password	Input the password of encrypted private key. When the private key is not encrypted, you don't need to this parameter.

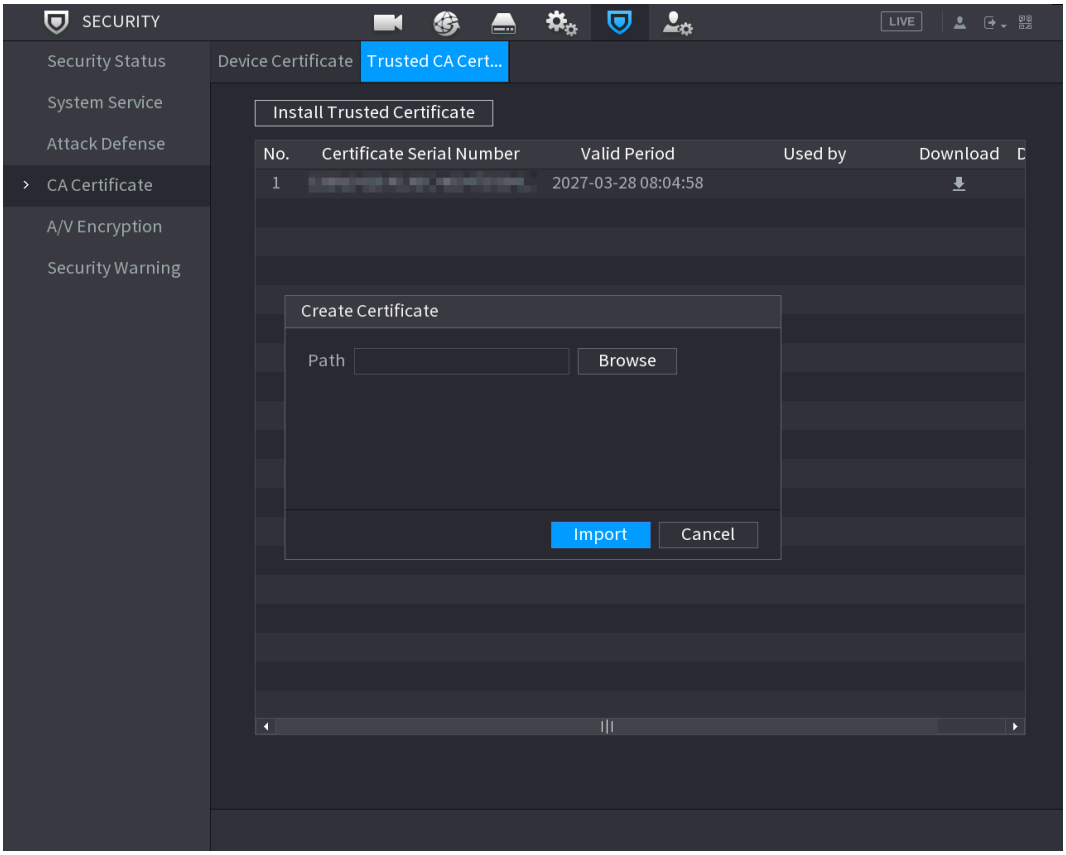
3. Click **Create**.

5.19.4.2 Trusted CA Certificate

Step 1 Select **Main Menu** > **SECURITY** > **CA Certificate** > **Trusted CA Certificate**.

Step 2 Click **Install Trusted Certificate**.

Figure 5-258 Trusted CA certificate



Step 3 Click **Browse** to select the certificate that you want to install.

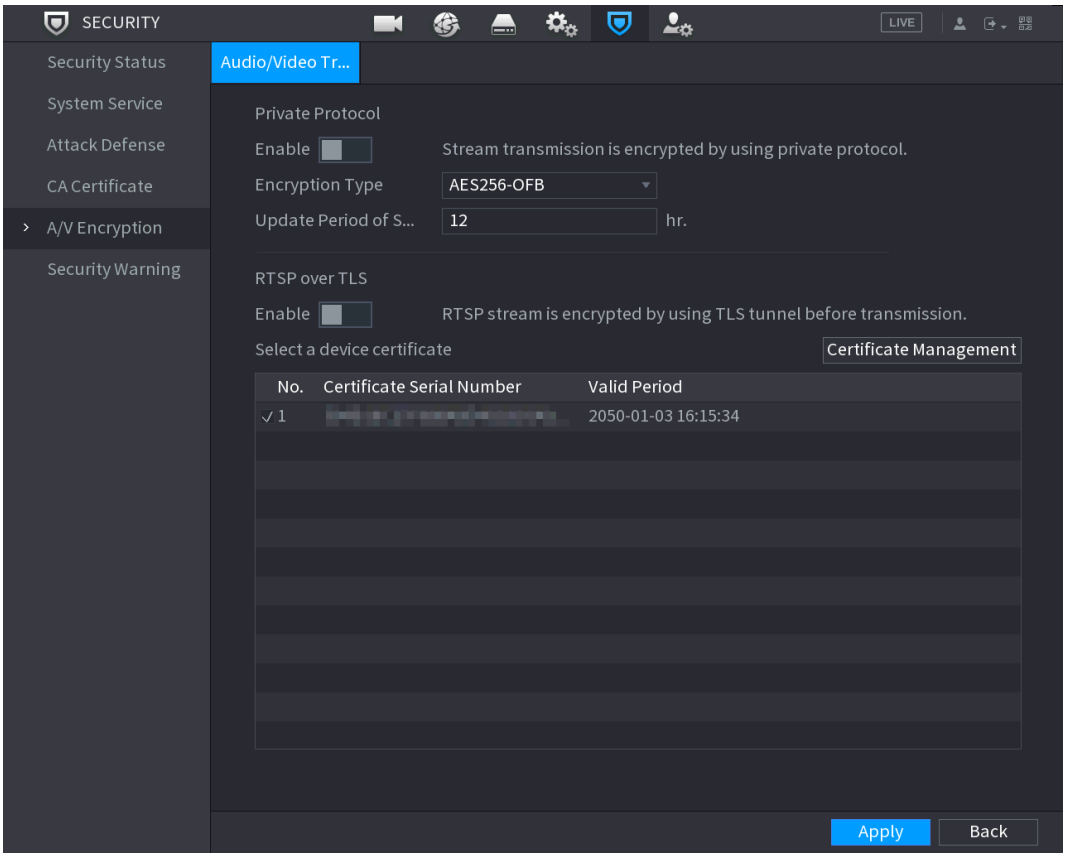
Step 4 Click **Import.**

5.19.5 Audio/Video Encryption

The device supports audio and video encryption during data transmission.

Step 1 Select **Main Menu** > **SECURITY** > **A/V Encryption** > **Audio/Video Transmission**.

Figure 5-259 Audio/video transmission



Step 2 Configure parameters.

Table 5-79 Transmission parameters

Area	Parameter	Description
Private Protocol	Enable	Enables stream frame encryption by using private protocol. There might be safety vulnerability if this service is disabled.
	Encryption Type	Use the default setting.
	Update Period of Secret Key	Secret key update period. Value range: 0–720 hours. 0 means never update the secret key. Default value: 12.
RTSP over TLS	Enable	Enables RTSP stream encryption by using TLS. There might be data breach if this service is disabled. We recommend that you enable this function.
	Select a device certificate	Select a device certificate for RTSP over TLS.

Area	Parameter	Description
	Certificate Management	For details about certificate management, see 5.19.4.1.

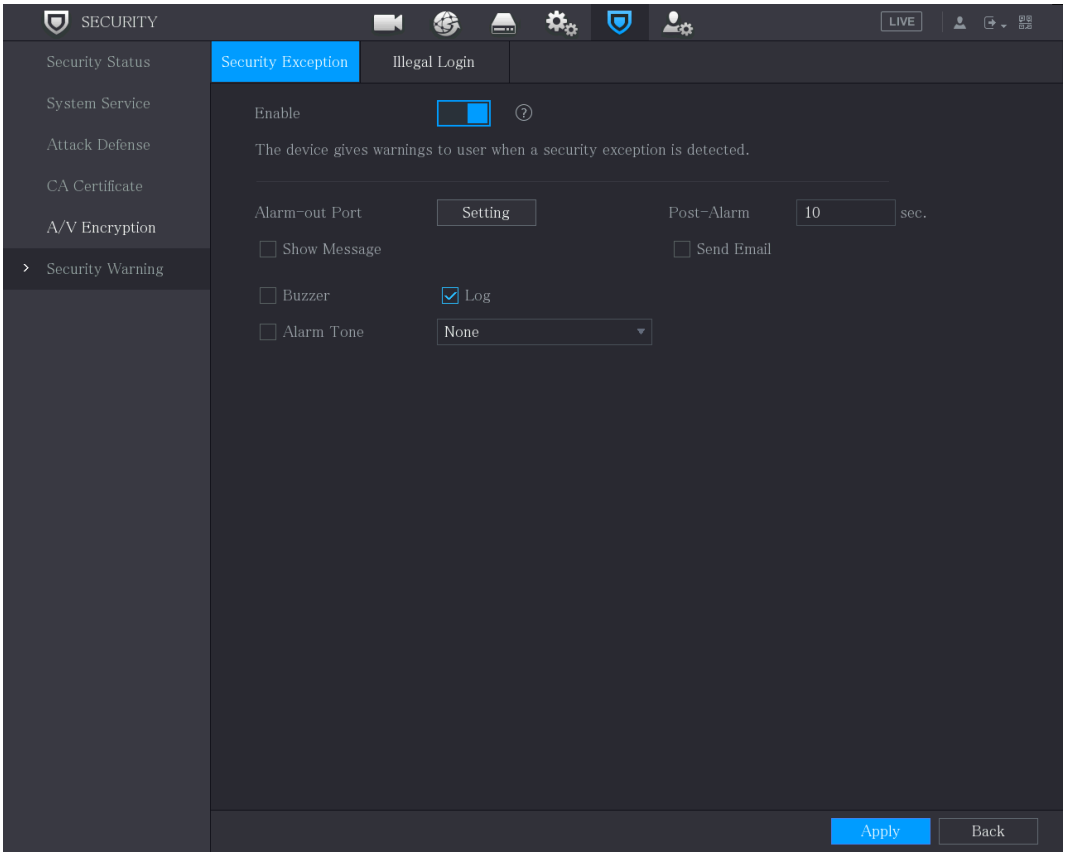
Step 3 Click **Apply** to complete the settings.

5.19.6 Security Warning

5.19.6.1 Security Exception

Step 1 Select **Main Menu** > **SECURITY** > **Security Warning** > **Security Exception**.

Figure 5-260 Security exception



Step 2 Select **Enable** and configure parameters.

Table 5-80 Exception parameters

Parameter	Description
Alarm-out Port	The alarm device (such as lights, sirens, etc.) is connected to the alarm output port. When an alarm occurs, the NVR device transmits the alarm information to the alarm device.
Post-Alarm	When the alarm ends, the alarm extended for a period of time. The time range is from 0 seconds to 300 seconds.

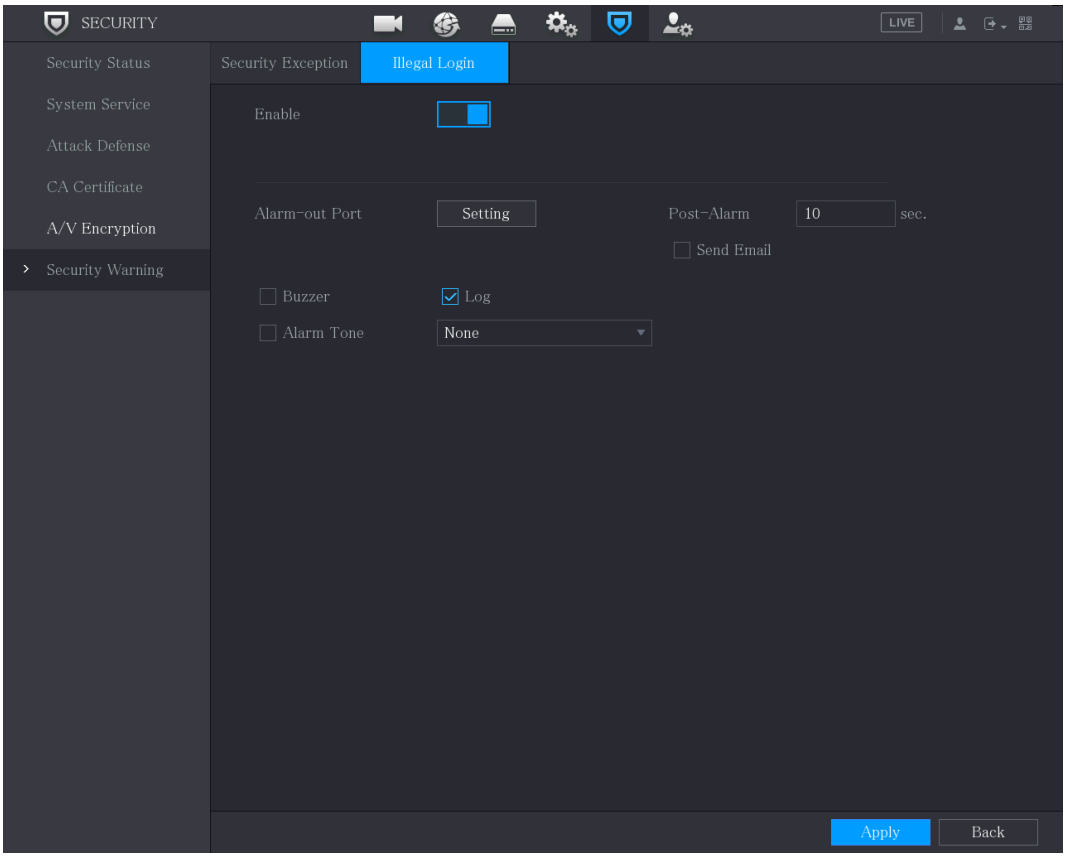
Parameter	Description
Show Message	Check box to enable a pop-up message in your local host PC.
Buzzer	Select the check box to activate the buzzer when an alarm occurs.
Alarm Tone	Check the box and then select the corresponding audio file from the dropdown list. System plays the audio file when the alarm occurs. See 5.17 to add audio file first.
Log	Select the check box, the NVR device records the alarm information in the log when an alarm occurs.
Send Email	Select the check box. When an alarm occurs, the NVR device sends an email to the set mailbox to notify the user. To use this function, make sure the email function is enabled in **Main Menu** > **NETWORK** > **Email**.
	Security Event monitoring explanation. It indicates the type of attacks that can trigger security exception. ● Unauthorized executable program trying to run ● Web URL brute-force attack ● Session connection overload ● Session ID brute-force attack

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

5.19.6.2 Illegal Login

Step 1 Select **Main Menu** > **SECURITY** > **Security Warning** > **Illegal Login**.

Figure 5-261 Illegal login



Step 2 Select **Enable** and configure parameters.

Table 5-81 Illegal login parameters

Parameter	Description
Alarm-out Port	The alarm device (such as lights, sirens) is connected to the alarm output port. When an alarm occurs, the NVR device transmits the alarm information to the alarm device.
Post-Alarm	When the alarm ends, the alarm extended for a period of time. The time range is from 0 seconds through 300 seconds.
Buzzer	Select the check box to activate the buzzer when an alarm occurs.
Alarm Tone	Check the box and then select the corresponding audio file from the dropdown list. System plays the audio file when the alarm occurs. See 5.17 to add audio file first.
Log	Select the check box, the NVR device records the alarm information in the log when an alarm occurs.

Parameter	Description
Send Email	Select the check box. When an alarm occurs, the NVR device sends an email to the set mailbox to notify the user. To use this function, make sure the email function is enabled in **Main Menu > NETWORK > Email**.

5.20 Configuring System Settings

5.20.1 Configuring General System Settings

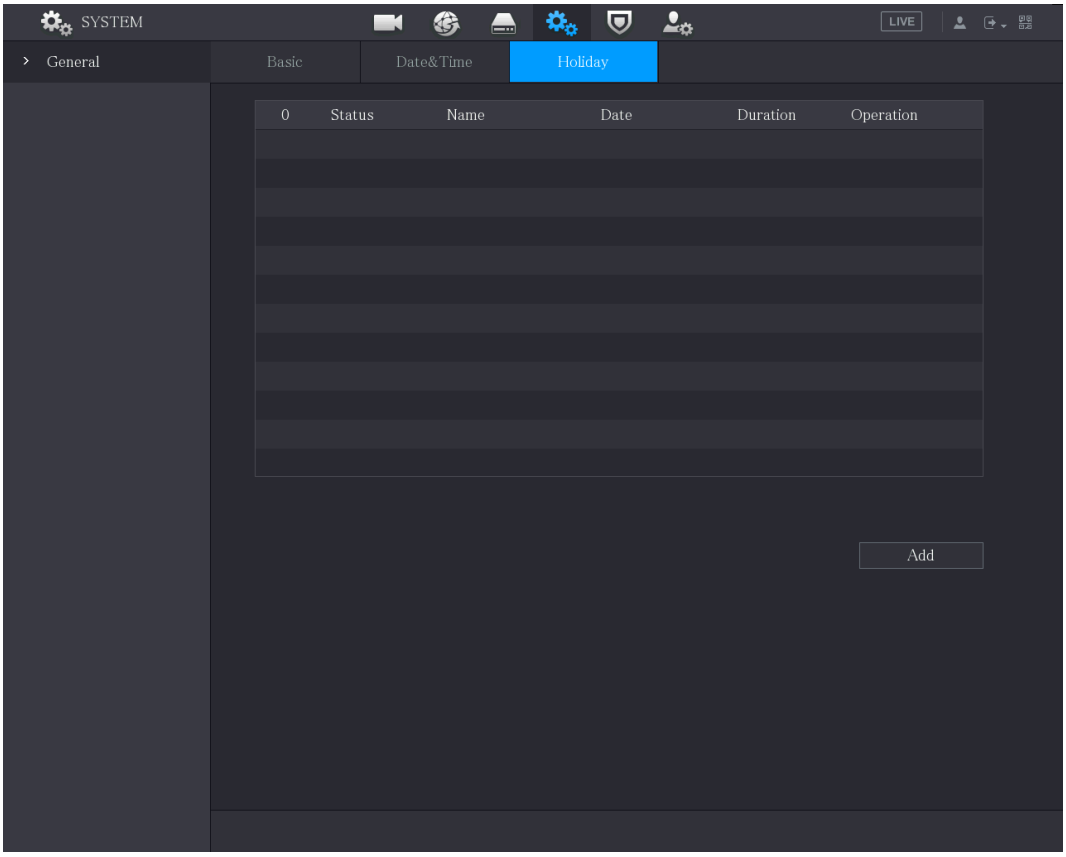
You can configure the device basic settings, time settings, and holiday settings.

For details about basic and time settings, see "5.1.4.2 Configuring General Settings" and "5.1.4.3 Configuring Date and Time Settings."

To configure the holiday settings, do the following:

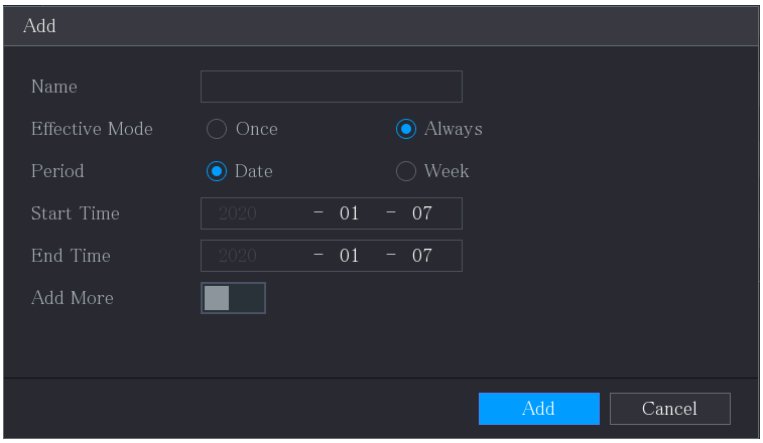
Step 1 Select **Main Menu > SYSTEM > General > Holiday**.

Figure 5-262 Holiday



Step 2 Click **Add**.

Figure 5-263 Add holiday

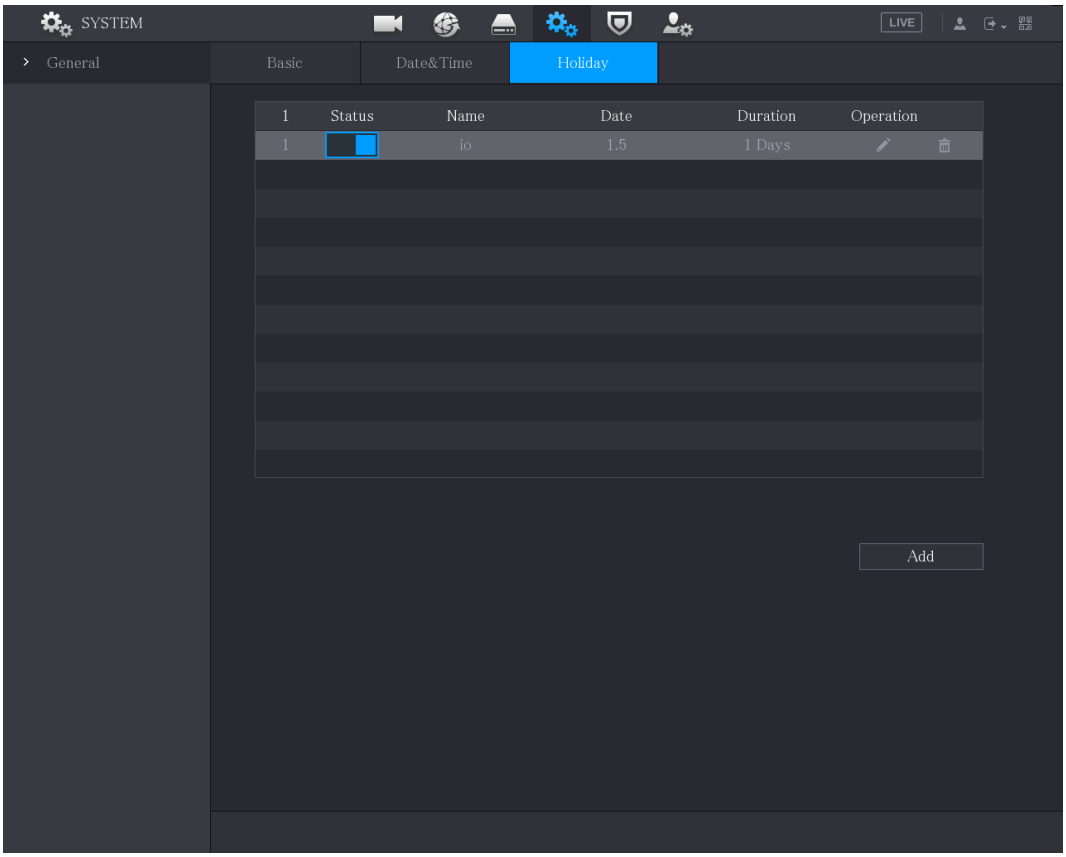


Step 3 Configure the holiday name, repeat mode, time range according to your actual situation.

Step 4 Click **Add**.

Enable the **Add More** function, so you can continue adding holiday information.

Figure 5-264 Added holiday



5.20.2 Configuring RS-232 Settings

You can configure serial port function, Baud rate and other parameters.

Only some series products support this RS-232.

Select **Main Menu** > **SYSTEM** > **RS232**.

Figure 5-265 RS-232

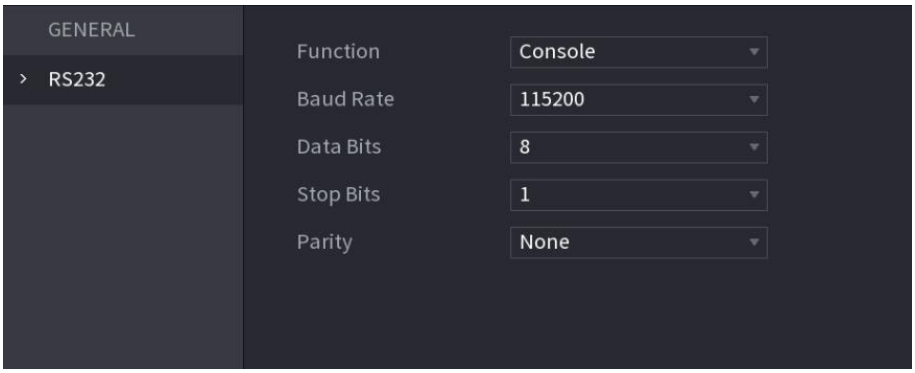


Table 5-82 RS-232 parameters

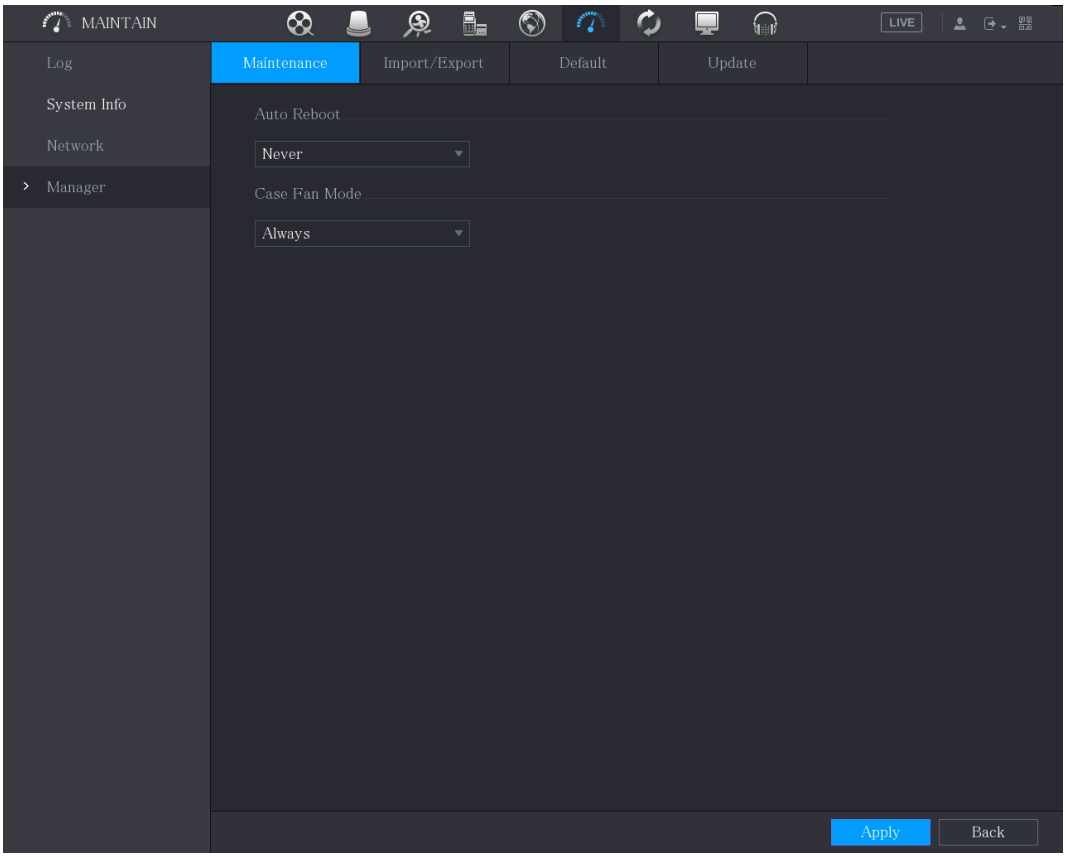
Parameter	Description
Function	Select serial port control protocol. ● Console: Upgrade the program and debug with the console and mini terminal software. ● Keyboard: Control this Device with special keyboard. ● Adapter: Connect with PC directly for transparent transmission of data. ● Protocol COM: Configure the function to protocol COM, in order to overlay card number. ● PTZ Matrix: Connect matrix control. It is **Console** by default.
Baud Rate	Select Baud rate, which is 115200 by default.
Data Bits	It ranges from 5 to 8, which is 8 by default.
Stop Bits	It includes 1 and 2.
Parity	It includes none, odd, even, mark and null. It is none by default.

5.20.3 Configuring System Maintenance Settings

When the Device has been running for a long time, you can configure the auto reboot when the Device is not working. You can also configure the case fan mode to reduce noise and extend the service life.

Step 1 Select **Main Menu** > **MAINTAIN** > **Manager** > **Maintenance**.

Figure 5-266 Maintenance



Step 2 Configure the settings for the system maintenance parameters.

Table 5-83 Maintenance parameters

Parameter	Description
Auto Reboot	In the **Auto Reboot** list, select the reboot time.
Case Fan Mode	In the **Case Fan Mode** list, you can select **Always** or **Auto**. If you select **Auto**, the case fan will stop or start according to the external conditions such as the Device temperature. Not all models support this function, and it is only supported on the local configuration interface.

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

5.20.4 Exporting and Importing System Settings

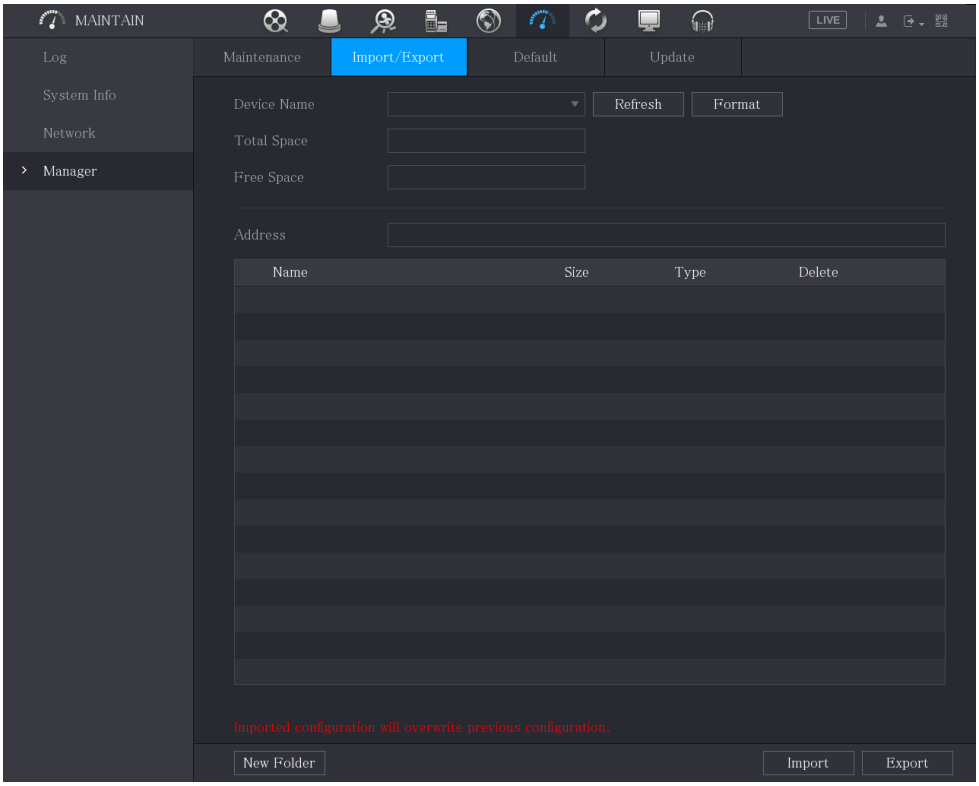
You can export or import the Device system settings if there are several Devices that require the same setup.

- The **IMP/EXP** interface cannot be opened if the backup operation is ongoing on the other interfaces.
- When you open the **IMP/EXP** interface, the system refreshes the devices and sets the current directory as the first root directory.
- Click **Format** to format the USB storage device.

Exporting System Settings

Step 1 Select **Main Menu > MAINTAIN > Manager > Import/Export**.

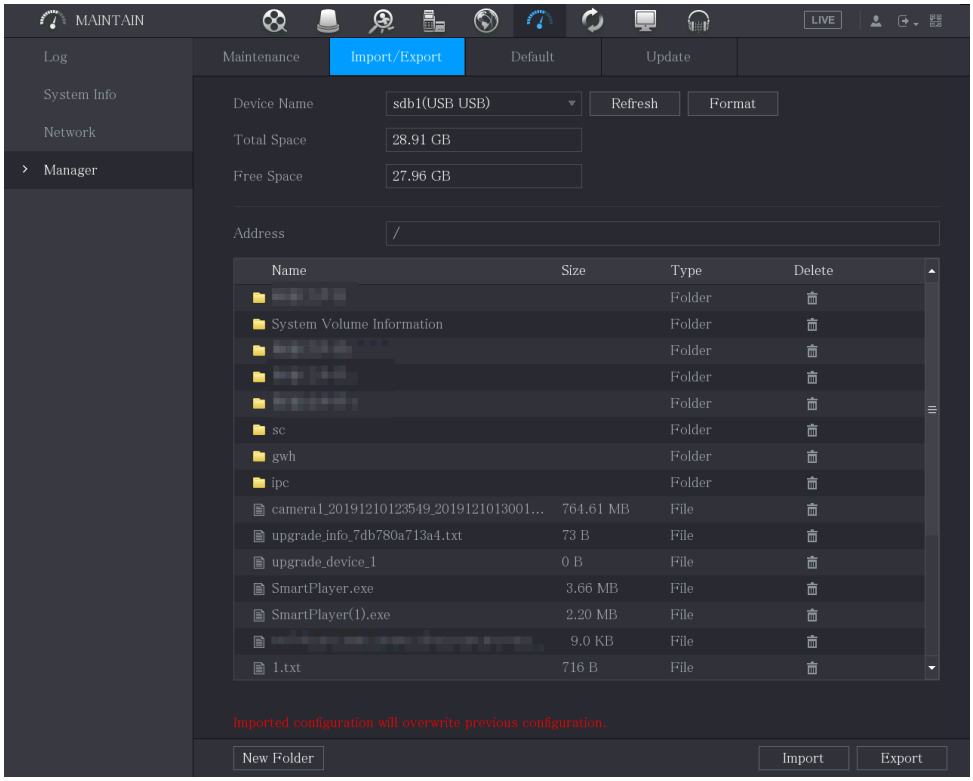
Figure 5-267 Import/export



Step 2 Insert a USB storage device into one of the USB ports on the Device.

Step 3 Click **Refresh** to refresh the interface.

Figure 5-268 Connected USB device



Step 4 Click **Export**.

There is a folder under the name style of "Config_[YYYYMMDDhhmmss]". Double-click this folder to view the backup files.

Importing System Settings

Step 1 Insert a USB storage device containing the exported configuration files from another Device) into one of the USB ports on the Device.

Step 2 Select **Main Menu > SYSTEM > Import/Export**.

Step 3 Click **Refresh** to refresh the interface.

The connected USB storage device is displayed.

Step 4 Click on the configuration folder (under the name style of "Config_[YYYYMMDDhhmmss]") that you want to import.

Step 5 Click **Import**.

The Device will reboot after the imported is succeeded.

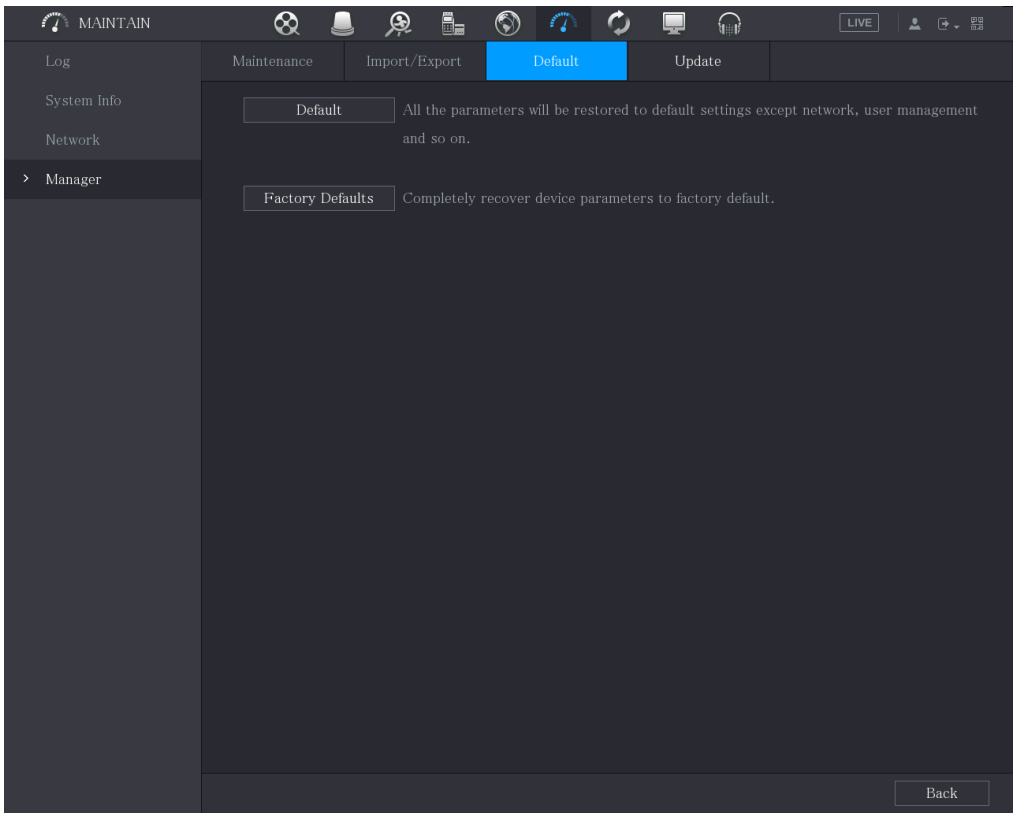
5.20.5 Restoring Default Settings

Only Admin account supports this function.

You can select the settings that you want to restore to the factory default.

Step 1 Select **Main Menu > MAINTAIN > Manager > Default**.

Figure 5-269 Default



Step 2 Restore the settings.

- Click **Default** to restore all parameters to default settings except parameters such as

network, user management.

- Click **Factory Default**, select **OK** and then enter the password of admin user in the prompted dialog box to completely recover device parameters to factory default.

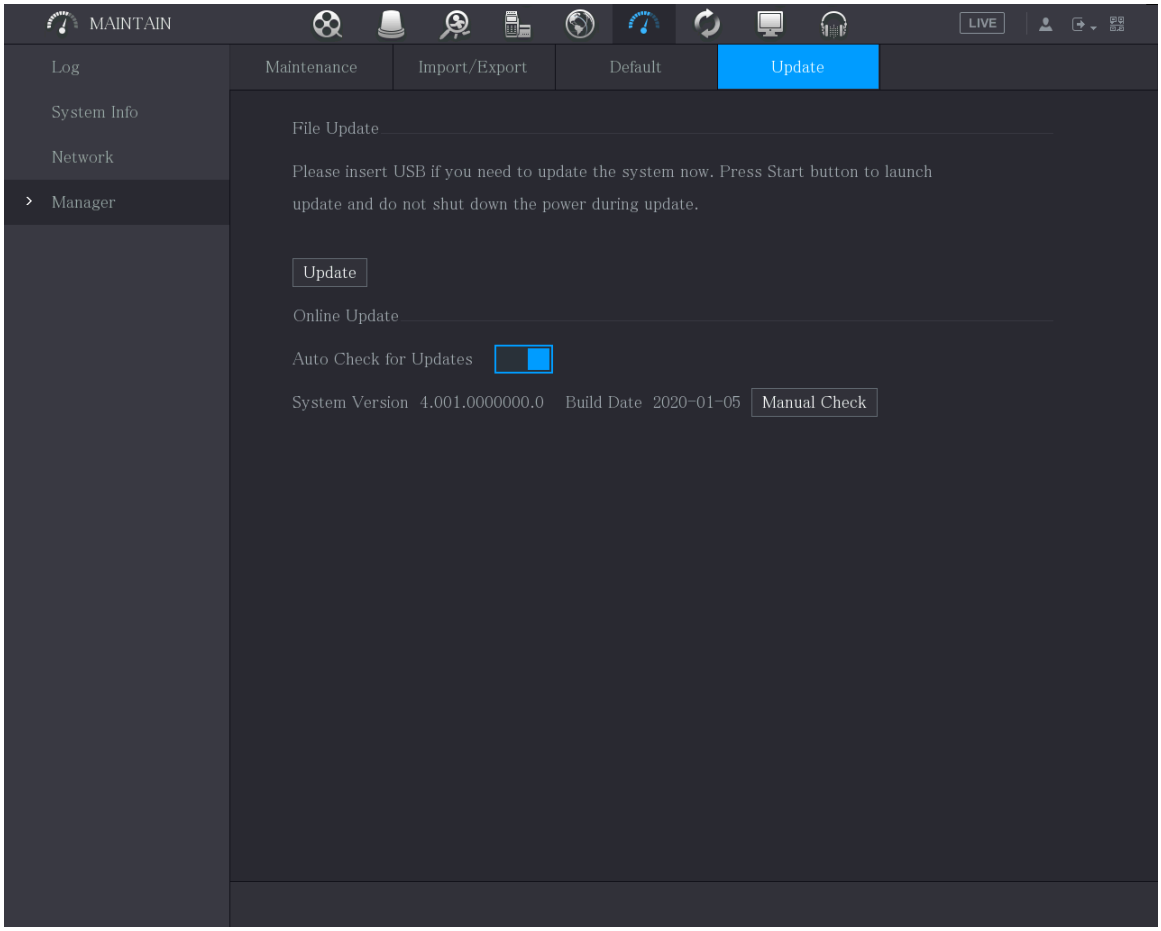
5.20.6 Updating the Device

5.20.6.1 Updating File

Step 1 Insert a USB storage device containing the upgrade files into the USB port of the Device.

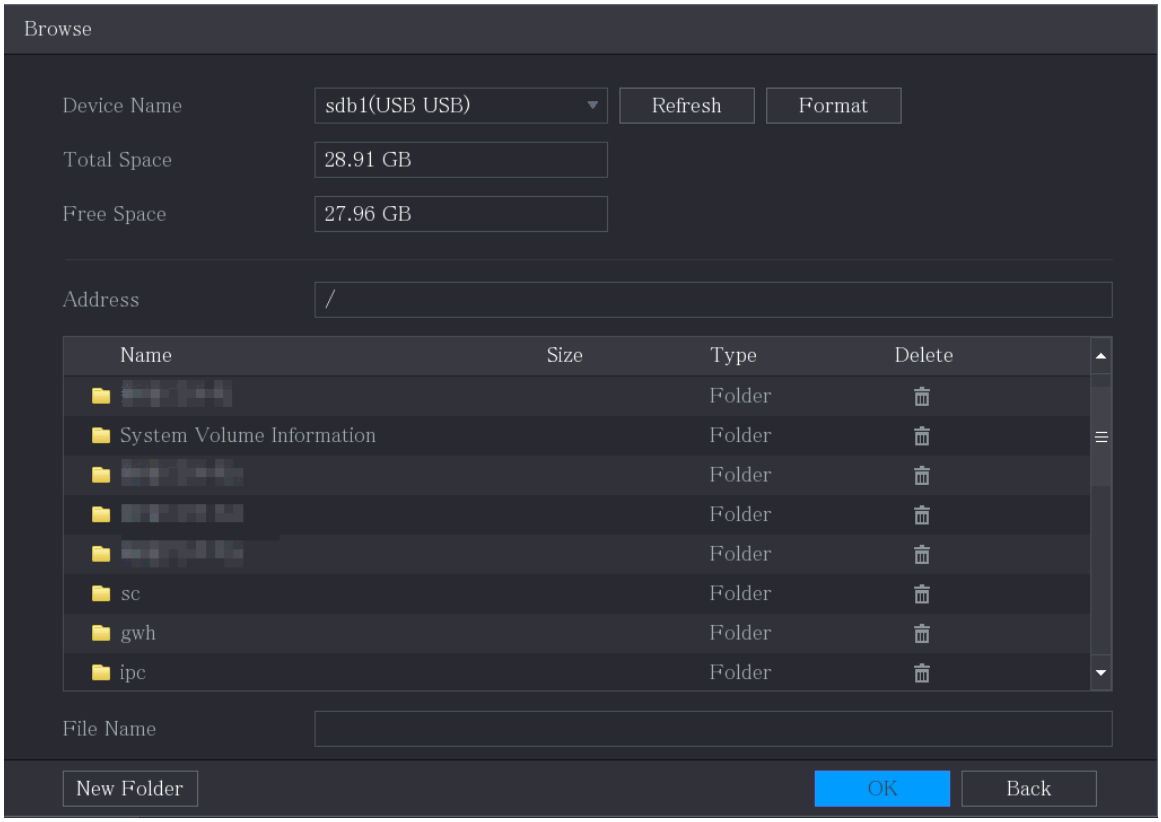
Step 2 Select **Main Menu** > **MAINTAIN** > **Manager** > **Update**.

Figure 5-270 Update



Step 3 Click **Upgrade**.

Figure 5-271 Browse



Step 4 Click the file that you want to upgrade.

The selected file is displayed in the **Address** box.

Step 5 Click **OK**.

5.20.6.2 Performing Online Upgrade

When the Device is connected to Internet, you can use online upgrade function to upgrade the system.

Before using this function, you need to check whether there is any new version by auto check or manual check.

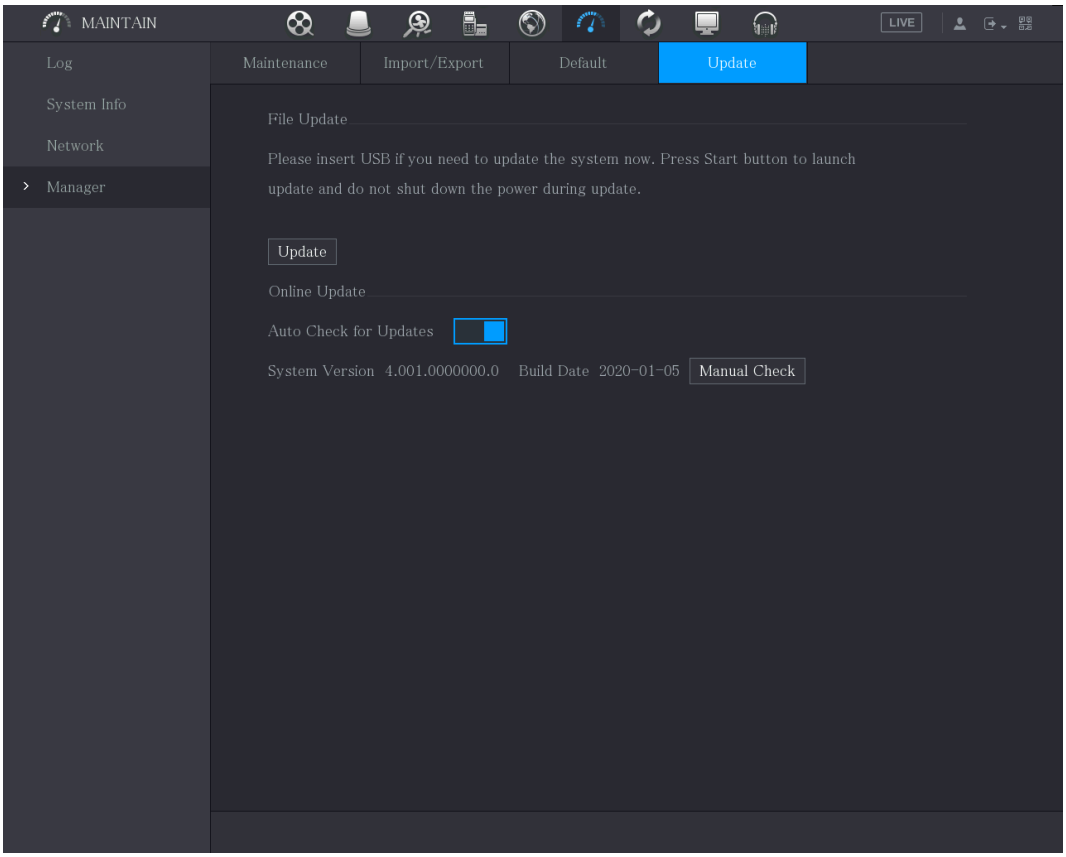
- Auto check: The Device checks if there is any new version available at intervals.
- Manual check: Perform real-time check whether there is any new version available.

⚠

Ensure the correct power supply and network connection during upgrading; otherwise the upgrading might be failed.

Step 1 Select **Main Menu** > **MAINTAIN** > **Manager** > **Update**.

Figure 5-272 Update



Step 2 Check whether there is any new version available.

- Auto check: Enable Auto-check for updates.
- Manual check: Click **Manual Check**.

The system starts checking the new versions. After checking is completed, the check result is displayed.

- If the "It is the latest version" text is displayed, you do not need to upgrade.
- If the text indicating there is a new version, go the step 3.

Step 3 Click **Upgrade now**.

5.20.6.3 Uboot Upgrading

- Under the root directory in the USB storage device, there must be "u-boot.bin.img" file and "update.img" file saved, and the USB storage device must be in FAT32 format.
- Make sure the USB storage device is inserted; otherwise the upgrading cannot be performed.

When starting the Device, the system automatically checks whether there is a USB storage device connected and if there is any upgrade file, and if yes and the check result of the upgrade file is correct, the system will upgrade automatically. The Uboot upgrade can avoid the situation that you have to upgrade through +TFTP when the Device is halted.

5.21 Viewing Information

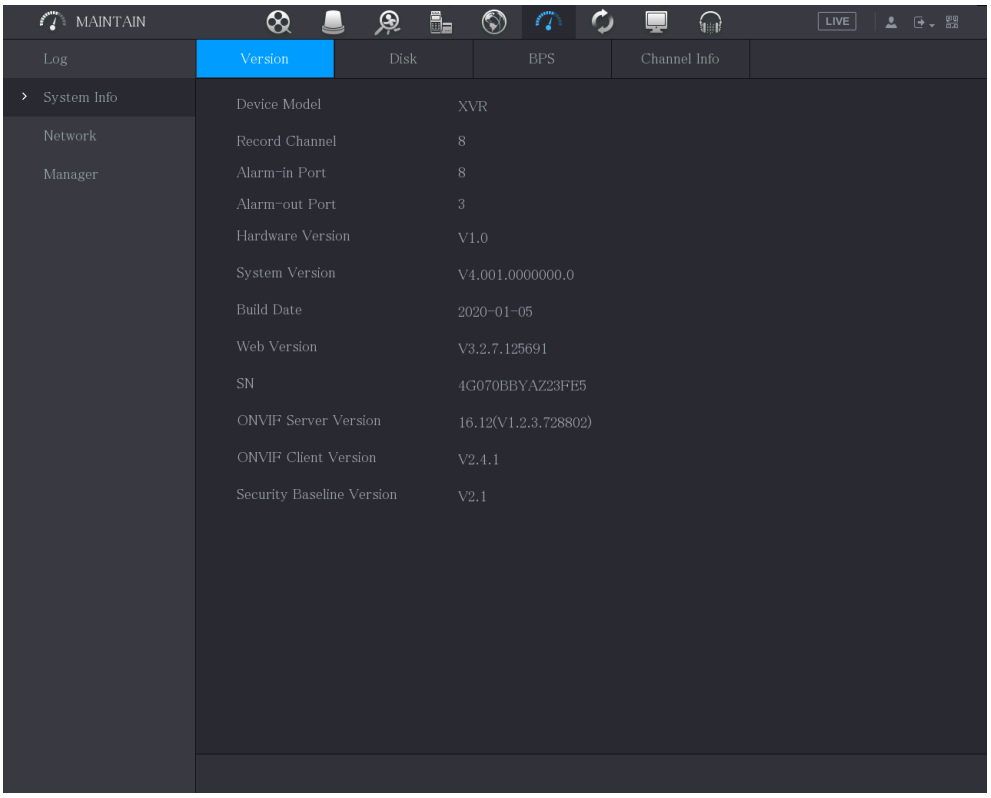
You can view the information such as log information, HDD information, and version details.

5.21.1 Viewing Version Details

You can view the version details such as device model, system version, and build date.

Select **Main Menu > MAINTAIN > System Info > Version**.

Figure 5-273 Version



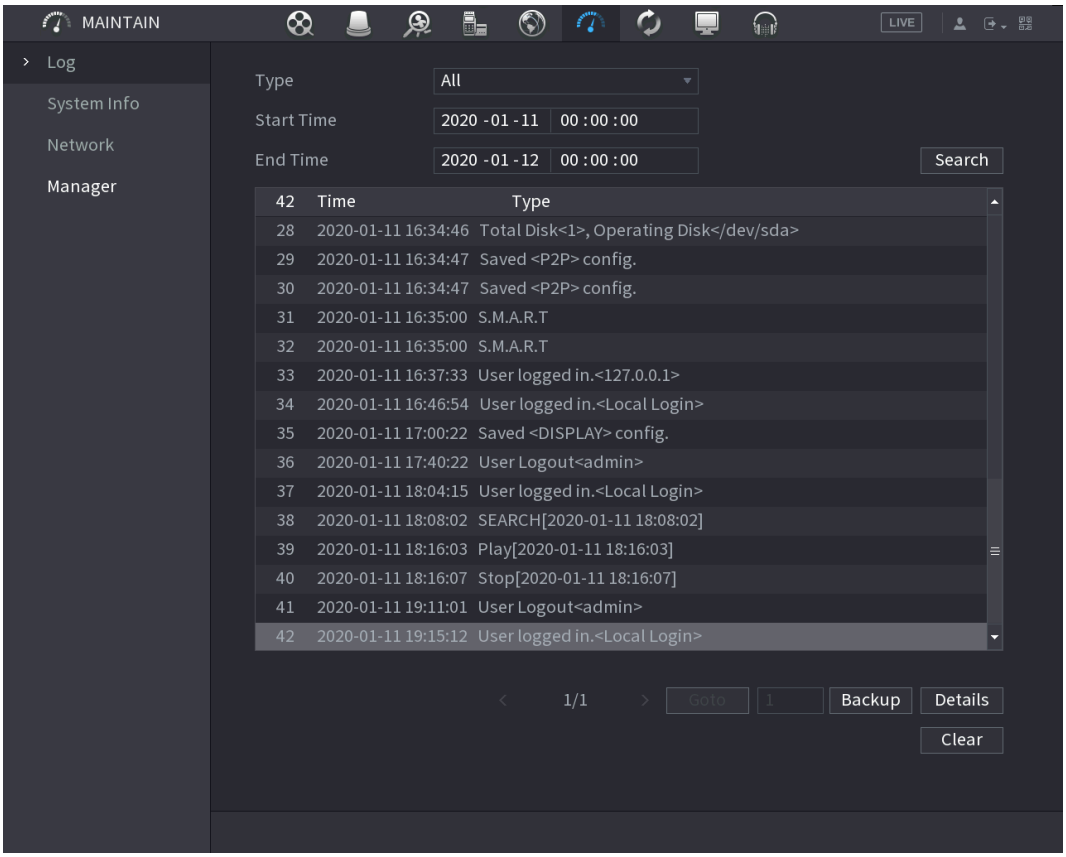
5.21.2 Viewing Log Information

You can view and search the log information.

- If there is no HDD installed, the system can save up to 10,000 logs.
- If there is HDD installed and has been formatted, the system can save up to 500,000 logs.
- If there is HDD installed, the logs about system operations are saved in the memory of the Device and other types of logs are saved into the HDD. If there is no HDD installed, the other types of logs are also saved in the memory of the Device.
- When formatting the HDD, the logs will not be lost. However, if you take out the HDD from the Device, the logs might be lost.

Step 1 Select **Main Menu > MAINTAIN > Log**.

Figure 5-274 Log



Step 2 In the **Type** list, select the log type that you want to view (**System**, **Config**, **Storage**, **Record**, **Account**, **Clear Log**, **Playback**, and **Connection**) or select **All** to view all logs.

Step 3 In the **Start Time** box and **End Time** box, enter the time period to search, and then click **Search**.

The search results are displayed.

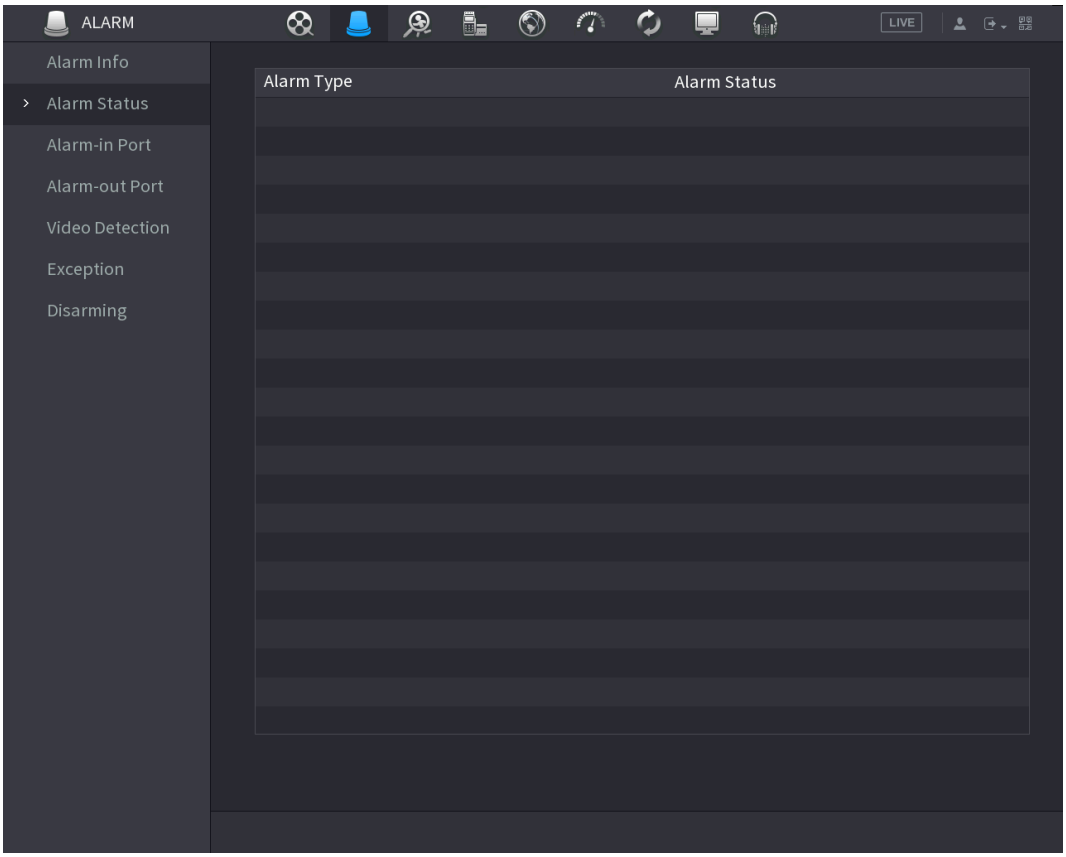
- Click **Details** or double-click the log that you want to view, the **Detailed Information** interface is displayed. Click **Next** or **Previous** to view more log information.
- Click **Backup** to back up the logs into the USB storage device.
- Click **Clear** to remove all logs.

5.21.3 Viewing Alarm Status Information

You can view the event information of the Device and channel.

Select **Main Menu** > **Alarm** > **Alarm Status**.

Figure 5-275 Alarm status



5.21.4 Viewing Network Information

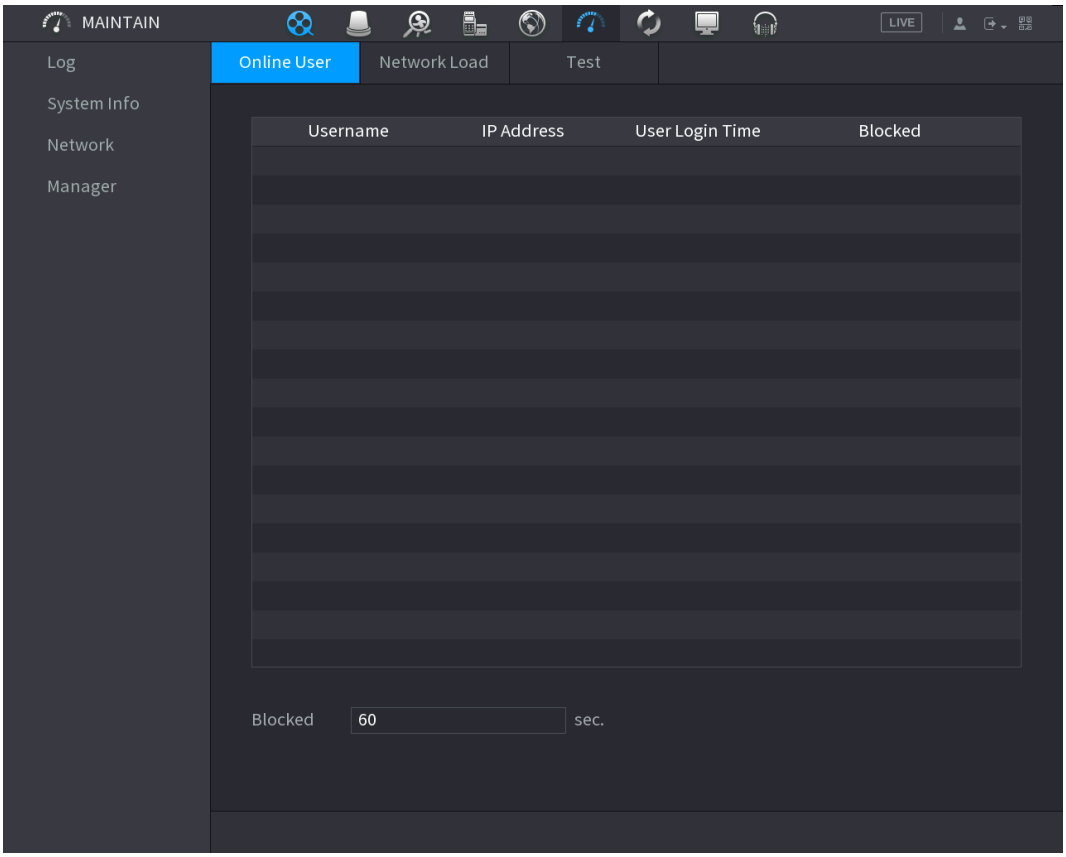
You can view the online users, network data transmission details, and test network. For details about testing network, see "5.15.2.1 Testing the Network."

5.21.4.1 Viewing Online Users

You can view the online user information and block any user for a period of time.

Select **Main Menu** > **MAINTAIN** > **Network** > **Online User**.

Figure 5-276 Online user



To block an online user, click and then enter the time that you want to block this user. The maximum value you can set is 65535.

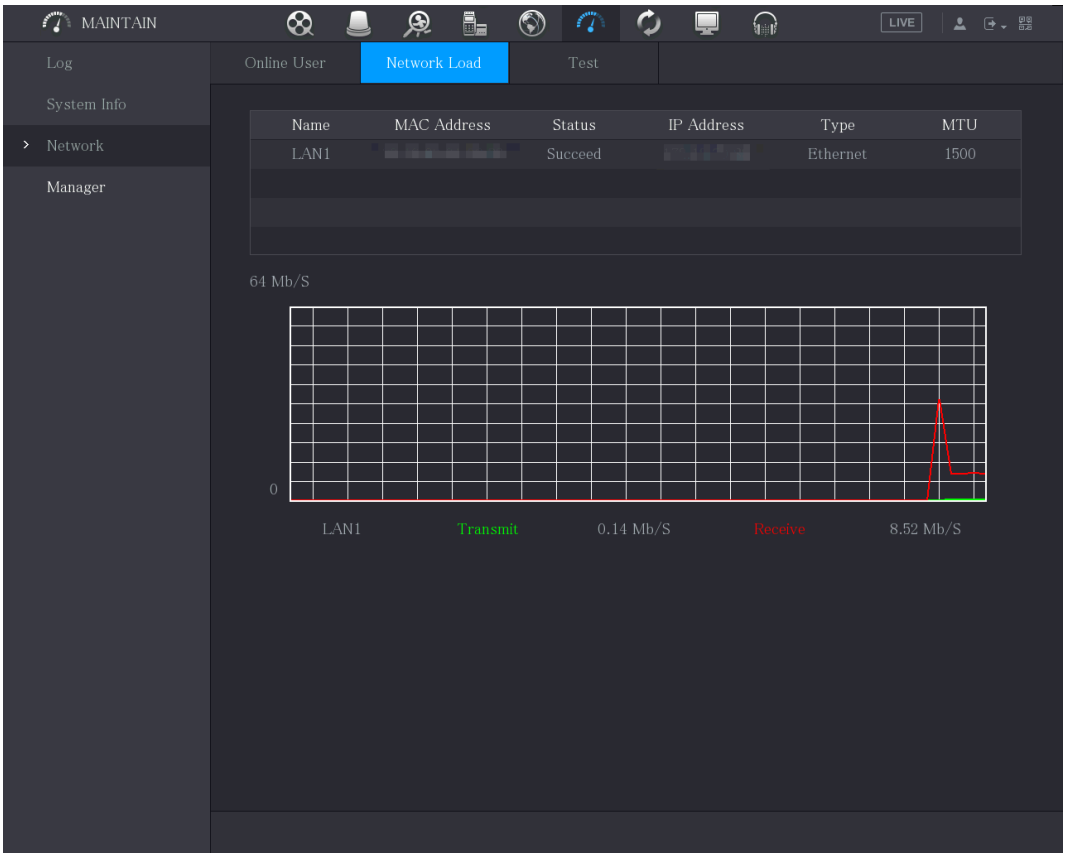
The system detects every 5 seconds to check whether there is any user added or deleted, and update the user list timely.

5.21.4.2 Viewing the Network Load

Network load means the data flow which measures the transmission capability. You can view the information such as data receiving speed and sending speed.

Step 1 Select **Main Menu > MAINTAIN > Network > Network Load**.

Figure 5-277 Network load



Step 2 Click the LAN name that you want to view, for example, LAN1.

The system displays the information of data sending speed and receiving speed.

- The default display is LAN1 load.
- Only one LAN load can be displayed at one time.

5.21.5 Viewing HDD Information

You can view the HDD quantity, HDD type, total space, free space, status, and S.M.A.R.T information.

Select **Main Menu** > **MAINTAIN** > **System Info** > **Disk**.

Figure 5-278 Disk

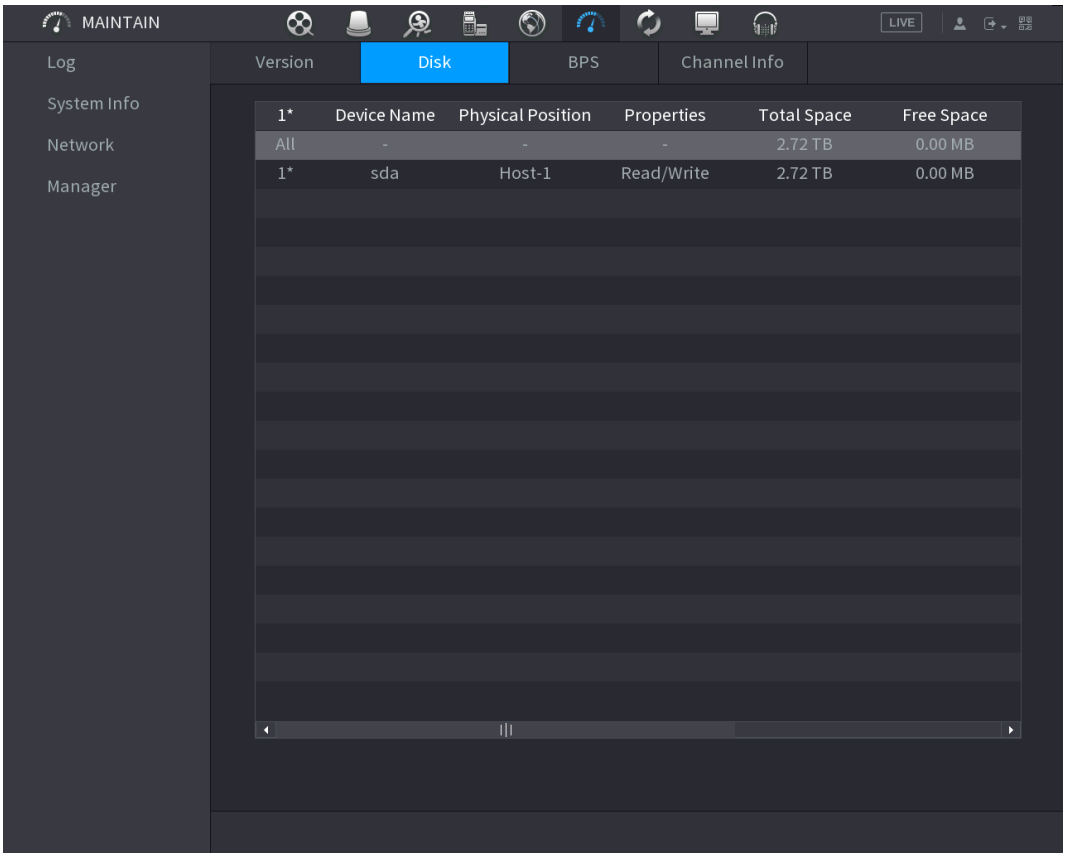


Table 5-84 Disk parameters

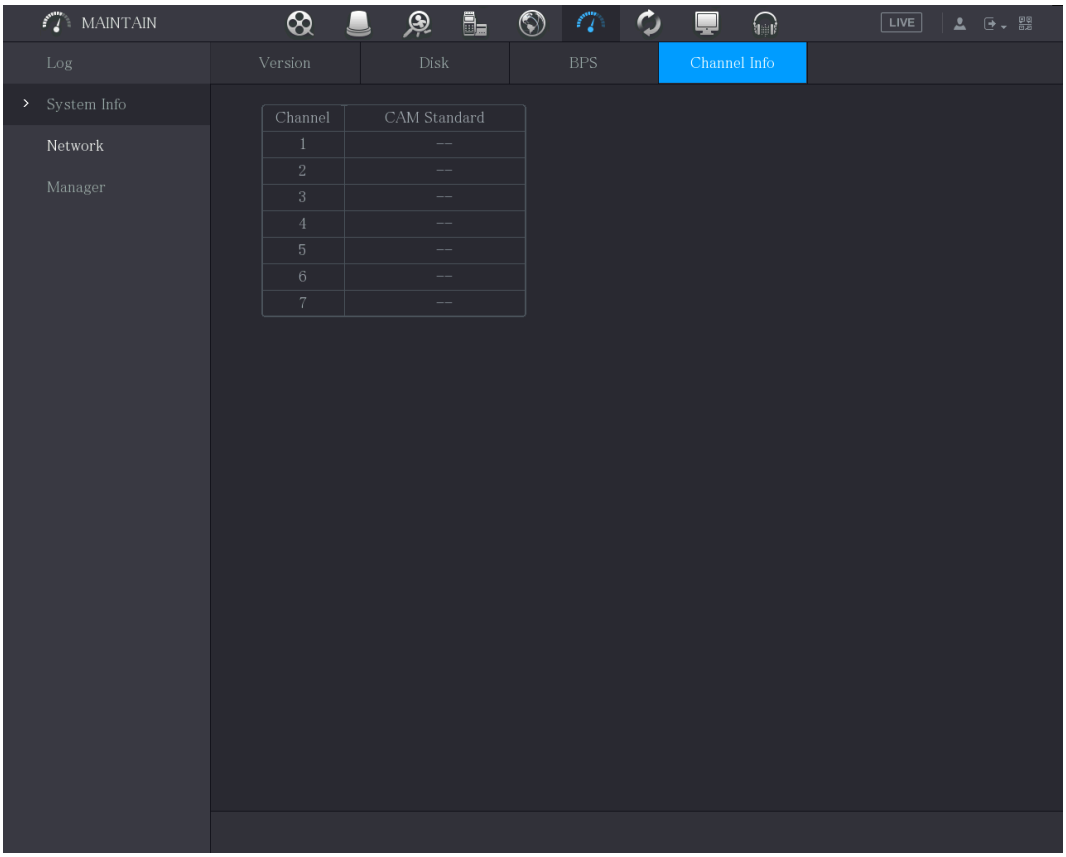
Parameter	Description
No.	Indicates the number of the currently connected HDD. The asterisk (*) means the current working HDD.
Device Name	Indicates name of HDD.
Physical Position	Indicates installation position of HDD.
Type	Indicates HDD type.
Total Space	Indicates the total capacity of HDD.
Free Space	Indicates the usable capacity of HDD.
Health Status	Indicates the health status of HDD.
Status	Indicates the status of the HDD to show if it is working normally.
S.M.A.R.T	View the S.M.A.R.T reports from HDD detecting.

5.21.6 Viewing Channel Information

You can view the camera information connected to each channel.

Select **Main Menu** > **MAINTAIN** > **System Info** > **Channel Info**.

Figure 5-279 Channel information

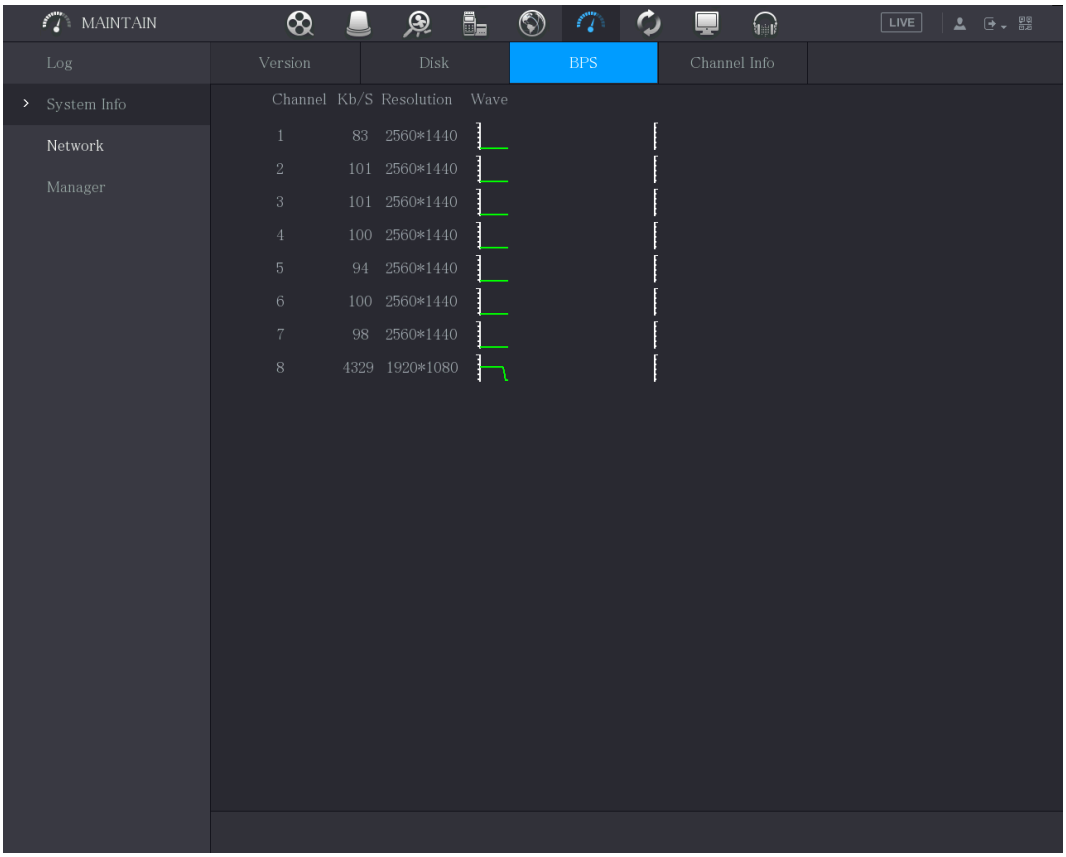


5.21.7 Viewing Data Stream Information

You can view the real-time data stream rate and resolution of each channel.

Select **Main Menu > MAINTAIN > System Info > BPS**.

Figure 5-280 BPS



5.21.8 Viewing PoC Information

Not all models support this function.

You can view the information about PoC camera, such as quantity, mode, and power consumption.

Select **Main Menu > MAINTAIN > System Info > PoC INFO**.

Figure 5-281 PoC information

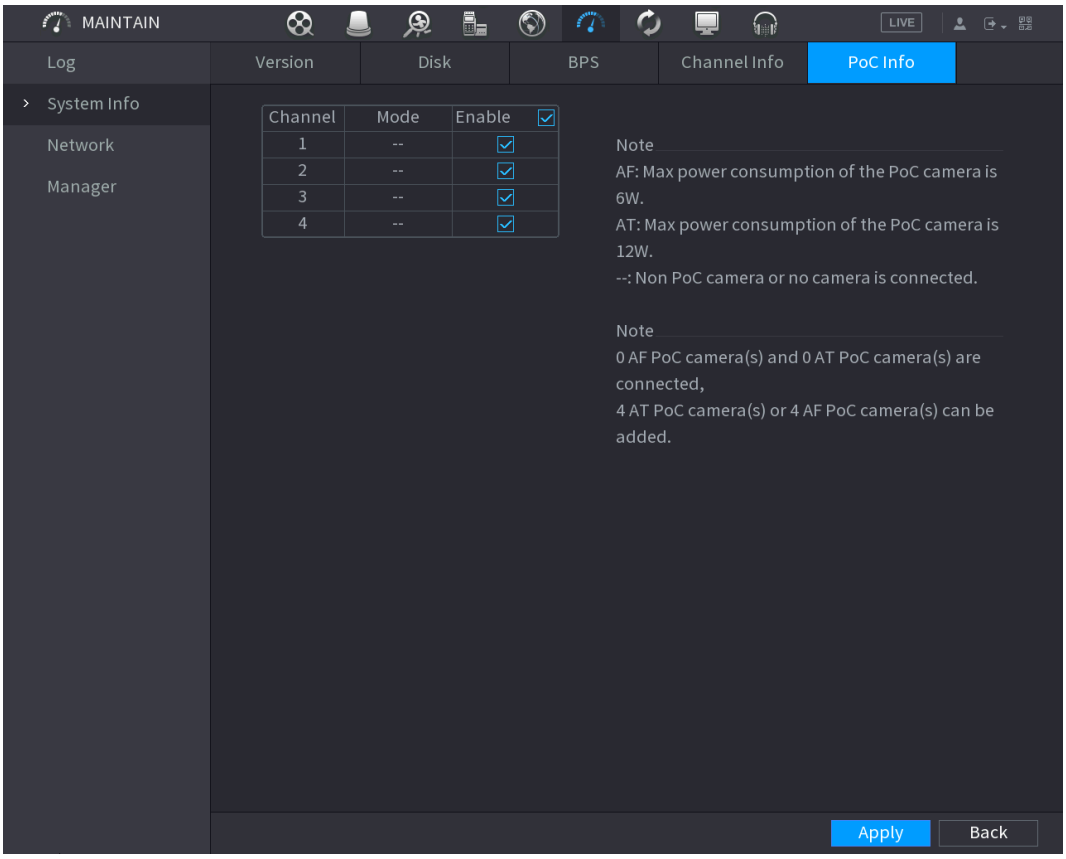


Table 5-85 PoC parameters

Parameter	Description
AF	The maximum power of PoC camera is 6 W.
AT	The maximum power of PoC camera is 12 W.
--	Non PoC camera or no camera is connected.

5.22 Logging out the Device

On the top right of the **Main Menu** interface or on any interface after you have entered the Main Menu, click .

- Select **Logout**, you will log out the device.
- Select **Reboot**, the Device will be rebooted.
- Select **Shutdown**, the Device will be turned off.
  If you do not have shutdown authority, enter gesture or password first.

6 Web Operations

- The interfaces in the Manual are used for introducing the operations and only for reference. The actual interface might be different dependent on the model you purchased. If there is inconsistency between the Manual and the actual product, the actual product shall prevail.
- The Manual is a general document for introducing the product, so there might be some functions described for the Device in the Manual not apply to the model you purchased.
- Besides Web, you can use our Smart PSS to log in to the device. For detailed information, refer to Smart PSS user's manual.

6.1 Connecting to Network

- The factory default IP of the Device is 192.168.1.108.
- The Device supports monitoring on different browsers such as Safari, Firefox, Google to perform the functions such as multi-channel monitoring, PTZ control, and device parameters configurations.

Step 1 Check to make sure the Device has connected to the network.

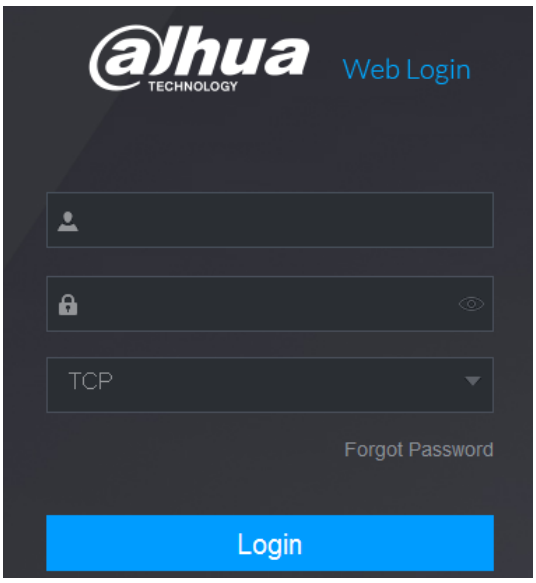
Step 2 Configure the IP address, subnet mask and gateway for the PC and the Device. For details about network configuration of the Device, see "5.1.4.4 Configuring Network Settings."

Step 3 On your PC, check the network connection of the Device by using "ping ***.***.***.***". Usually the return value of TTL is 255.

6.2 Logging in to the Web

Step 1 Open the IE browser, enter the IP address of the Device, and then press Enter.

Figure 6-1 Login



Step 2 Enter the user name and password.

- The default administrator account is **admin**. The password is the one that was configured during initial settings. To security your account, it is recommended to keep the password properly and change it regularly.
- Click to display the password.
- If you forget the password, click **Forgot Password** to reset the password. For details about resetting the password, see "6.3 Resetting Password."

Step 3 Click **Login**.

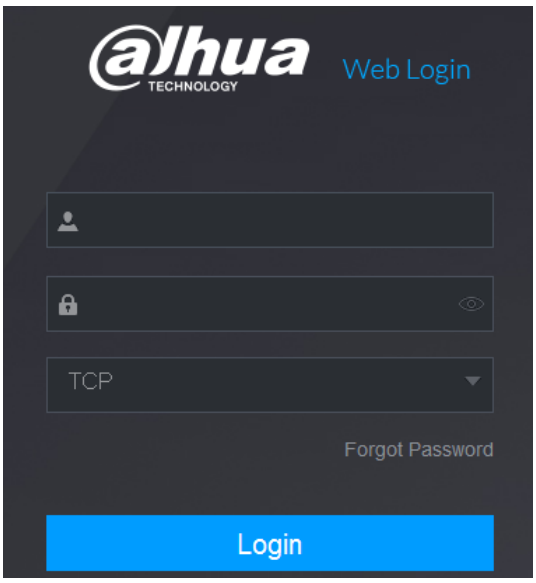
6.3 Resetting Password

You can reset the password by the following methods when you forget the password for admin account.

- If the password reset function is enabled, you can use mobile phone to scan the QR code on the local interface or web interface to reset the password.
- If the password reset function is disabled, the system prompts indicating password resetting function is disabled. To reset the password, try either of the following ways:
  - ◇ Log in to the web with other user account to enable the password reset function.
  - ◇ Go to local interface to reset the password. For details, see "5.1.3 Resetting Password. "

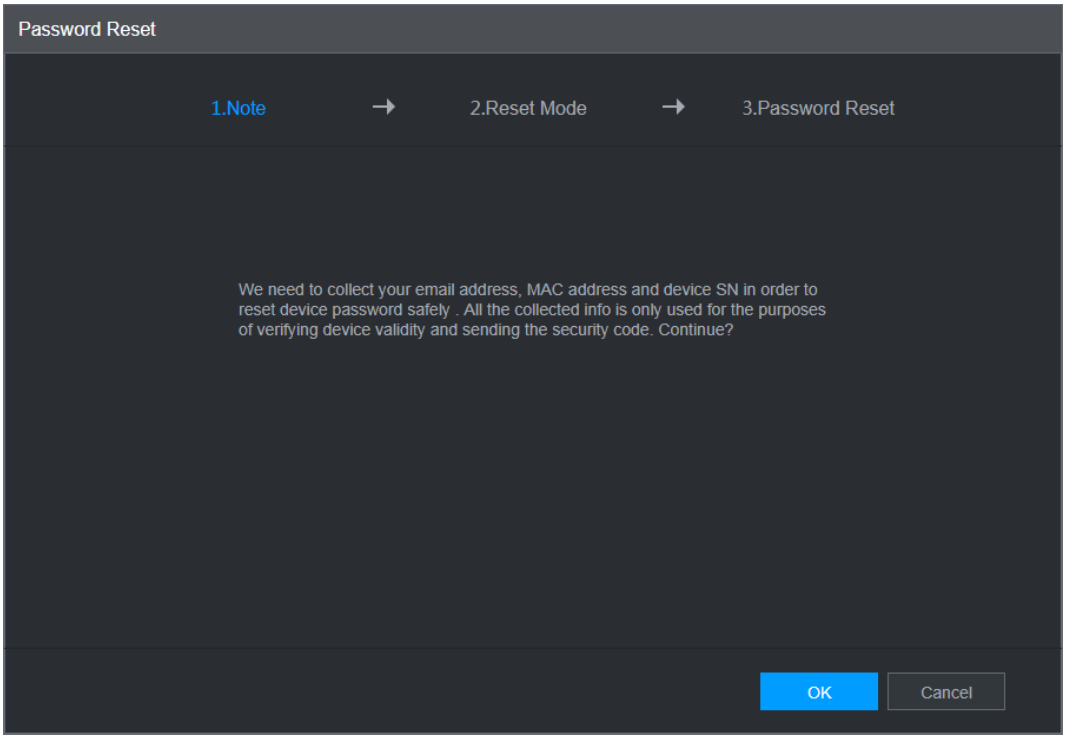
Step 1 Log in to the web of the Device.

Figure 6-2 Login



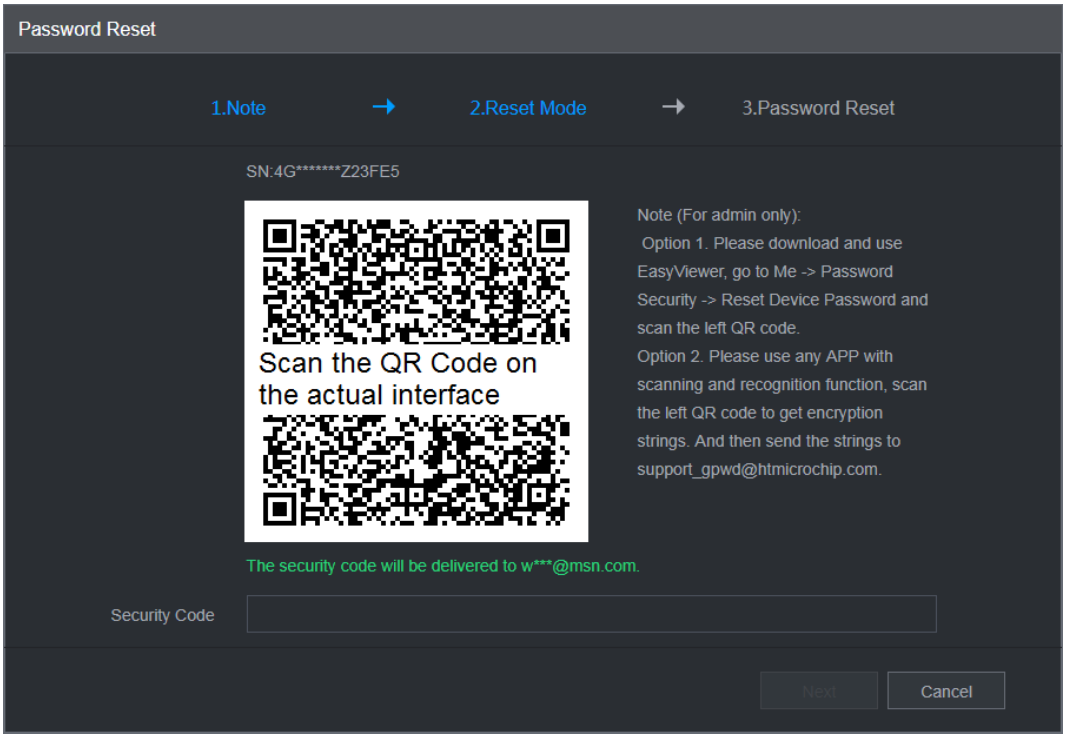
Step 2 Click **Forgot Password**.

Figure 6-3 Reset password



Step 3 Click **OK**.

Figure 6-4 Reset type

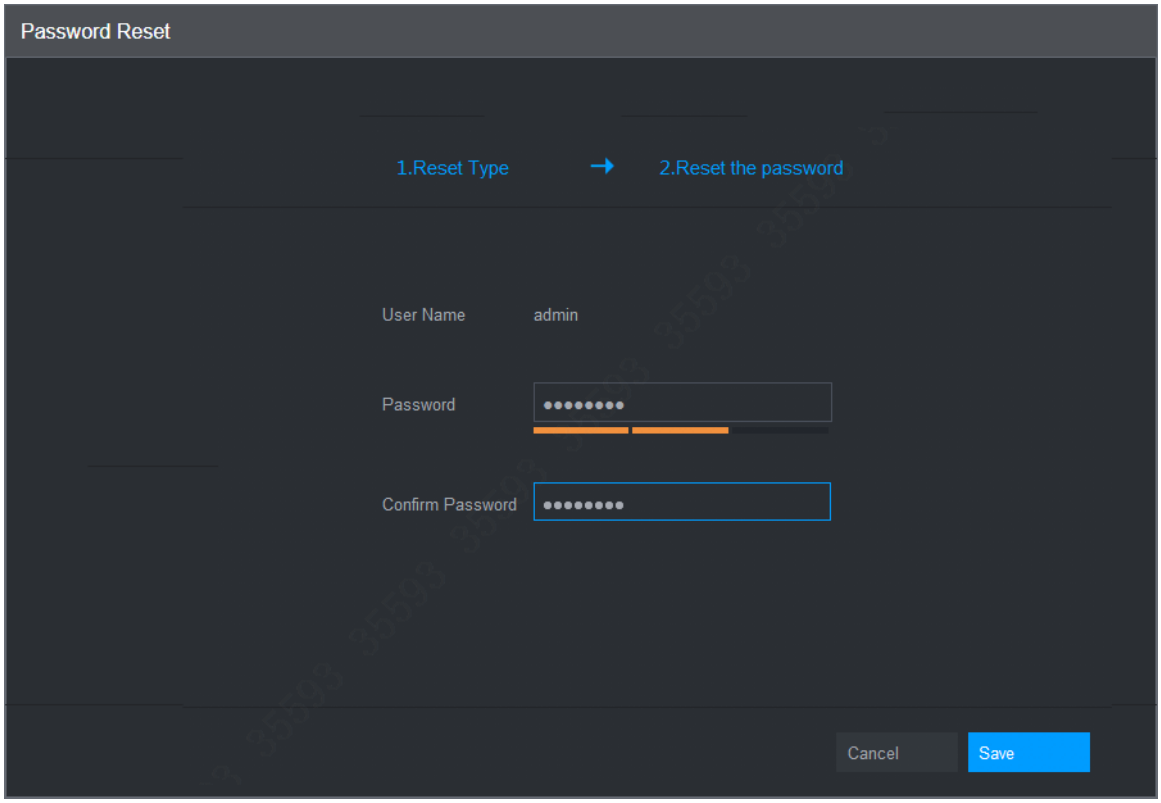


Step 4 Follow the onscreen instructions to scan the QR code and get the security code.

- You can get the security code twice by scanning the same QR code. If you need to get the security code once again, refresh the interface.
- Use the security code received in your email box to reset the password within 24 hours; otherwise the security code becomes invalid.
- Wrong security code entrance up to five times will cause the security code locked for five minutes. After five minutes, you can continue to use this security code.
- In the **Security code** box, enter the security code received in your reserved email box.

Step 5 Click **Next**.

Figure 6-5 New password



Step 6 In the **Password** box, enter the new password and enter it again in the **Confirm Password** box.

The new password can be set from 8 characters through 32 characters and contains at least two types from number, letter and special characters (excluding"'", "'", ";", ":" and "&").

Step 7 Click **Save**. The password resetting is started.

After resetting is completed, a pop-up message is displayed to indicate the result and you will see the login interface is displayed. Then you can use the new password to log in to the web.

6.4 Web Main Menu

After you have logged in the web, the main menu is displayed.

For detailed operations, you can refer to "5 Local Configurations."

Figure 6-6 Main menu

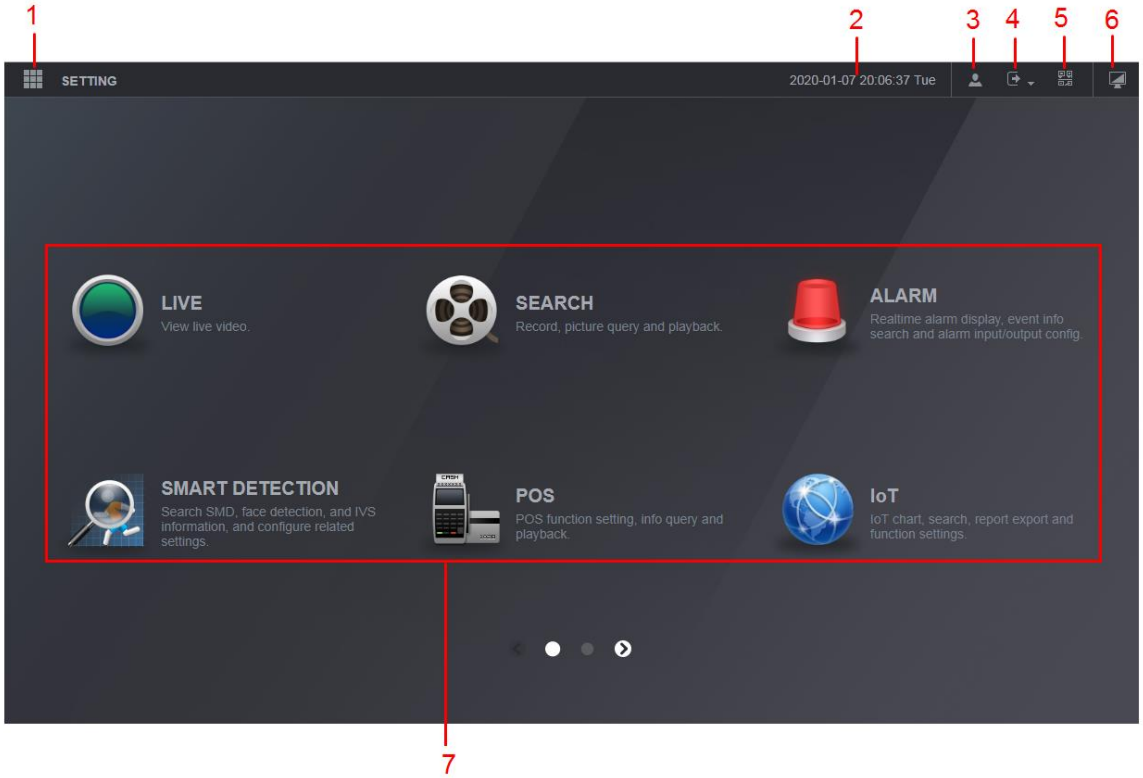


Table 6-1 Main menu parameters

No.	Icon	Description
1		Includes configuration menu through which you can configure camera settings, network settings, storage settings, system settings, account settings, and view information.
2	None	Displays system date and time.
3		When you point to , the current user account is displayed.
4		Click , select **Logout**, **Reboot**, or **Shutdown** according to your actual situation.
5		Displays Cell Phone Client and Device SN QR Code. ● Cell Phone Client: Use your mobile phone to scan the QR code to add the device into the Cell Phone Client, and then you can start accessing the Device from your cell phone. ● Device SN: Obtain the Device SN by scanning the QR code. Go to the P2P management platform and add the Device SN into the platform. Then you can access and manage the device in the WAN. For details, refer to the P2P operation manual. You can also configure P2P function in the local configurations. See "5.1.4.5 Configuring P2P Settings."
6		Displays the web main menu.

No.	Icon	Description
7	None	Includes eight function titles: **LIVE**, **VIDEO**, **ALARM**, **IVS**, **IoT**, **BACKUP**, **MAINTAIN**, **DISPLAY**, and **AUDIO**. Click each title to open the configuration interface of the title. ● **LIVE**: You can perform the operations such as viewing real-time video, configuring channel layout, setting PTZ controls, and using smart talk and instant record functions if needed. ● **VIDEO**: Search for and play back the recorded video saved on the Device. ● **ALARM**: Search for alarm information and configure alarm event actions. ● **IVS**: Configure the behavior detections by drawing rules for detecting tripwire, intrusion, abandoned objects, and missing objects. ● **IoT**: You can view, search and export the temperature and humidity data of camera and configure the alarm event settings. ● **BACKUP**: Search and back up the video files to the local PC or external storage device such as USB storage device. ● **MAINTAIN**: You can view log and system information, test network and do other maintenance work. ● **DISPLAY**: Configure the display effect such as displaying content, image transparency, and resolution, and enable the zero-channel function. ● **AUDIO**: Manage audio files and configure the playing schedule. The audio file can be played in response to an alarm event if the voice prompts function is enabled.

7 FAQ

1. DVR cannot boot up properly.

There are following possibilities:

- Input power is not correct.
- Power connection is not correct.
- Power switch button is damaged.
- Program upgrade is wrong.
- HDD malfunction or something wrong with HDD jumper configuration.
- Seagate DB35.1，DB35.2，SV35 or Maxtor 17-g has compatibility problem. Upgrade to the latest version to solve this problem.
- Front panel error.
- Main board is damaged.

2. DVR frequently shuts down or stops running.

There are following possibilities:

- Input voltage is not stable or it is too low.
- HDD malfunction or something wrong with jumper configuration.
- Button power is not enough.
- Front video signal is not stable.
- Working environment is too harsh, too much dust.
- Hardware malfunction.

3. Hard disk cannot be detected.

There are following possibilities:

- HDD is broken.
- HDD jumper is damaged.
- HDD cable connection is loose.
- Main board SATA port is broken.

4. There is no video output whether it is one-channel, multiple-channel or all-channel output.

There are following possibilities:

- Program is not compatible. Upgrade to the latest version.
- Brightness is 0. Restore factory default setup.
- There is no video input signal or it is too weak.
- Check privacy mask setup or your screen saver.
- DVR hardware malfunctions.

5. Real-time video color is distorted.

There are following possibilities:

- When using BNC output, NTSC and PAL setup is not correct. The real-time video becomes black and white.
- DVR and monitor resistance is not compatible.
- Video transmission is too long or degrading is too huge.
- DVR color or brightness setup is not correct.

6. Cannot search local records.

There are following possibilities:

- HDD jumper is damaged.
- HDD is broken.
- Upgraded program is not compatible.
- The recorded file has been overwritten.
- Record function has been disabled.

7. Video is distorted when searching local records.

There are following possibilities:

- Video quality setup is too low.
- Program read error, bit data is too small. There is mosaic in the full screen. Restart the DVR to solve this problem.
- HDD data jumper error.
- HDD malfunction.
- DVR hardware malfunctions.

8. No audio under monitor state.

There are following possibilities:

- It is not a power picker.
- It is not a power acoustics.
- Audio cable is damaged.
- DVR hardware malfunctions.

9. There is audio under monitor state but no audio under playback state.

There are following possibilities:

- Setup is not correct. Enable audio function.
- Corresponding channel has no video input. Playback is not continuous when the screen is blue.

10. System time is not correct.

There are following possibilities:

- Setup is not correct.
- Battery contact is not correct or voltage is too low.
- Crystal oscillator is broken.

11. Cannot control PTZ on DVR.

There are following possibilities:

- Front panel PTZ error.
- PTZ decoder setup, connection or installation is not correct.
- Cable connection is not correct.
- PTZ setup is not correct.
- PTZ decoder and DVR protocol is not compatible.
- PTZ decoder and DVR address is not compatible.
- When there are several decoders, add 120 Ohm between the PTZ decoder A/B cables furthest end to delete the reverberation or impedance matching. Otherwise the PTZ control is not stable.
- The distance is too far.

12. Motion detection function does not work.

There are following possibilities:

- Period setup is not correct.
- Motion detection zone setup is not correct.
- Sensitivity is too low.

- For some versions, there is hardware limit.

13. Cannot log in client-end or web.

There are following possibilities:

- For Windows 98 or Windows ME user, update your system to Windows 2000 sp4. Or you can install client-end software of lower version. Note that our DVR is not compatible with Windows VISTA control.
- ActiveX control has been disabled.
- No dx8.1 or higher. Upgrade display card driver.
- Network connection error.
- Network setup error.
- Password or user name is invalid.
- Client-end is not compatible with DVR program.

14. There is only mosaic no video when preview or playback video file remotely.

There are following possibilities:

- Network fluency is not good.
- Client-end resources are limit.
- There is multiple-cast group setup in DVR. This mode can result in mosaic. Usually we do not recommend this mode.
- There is privacy mask or channel protection setup.
- Current user has no right to monitor.
- DVR local video output quality is not good.

15. Network connection is not stable.

There are following possibilities:

- Network is not stable.
- IP address conflict.
- MAC address conflict.
- PC or DVR network card is not good.

16. Burn error /USB back error.

There are following possibilities:

- Burner and DVR are in the same data cable.
- System uses too much CPU resources. Stop record first and then begin backup.
- Data amount exceeds backup device capacity. It might result in burner error.
- Backup device is not compatible.
- Backup device is damaged.

17. Keyboard cannot control DVR

There are following possibilities:

- DVR serial port setup is not correct.
- Address is not correct.
- When there are several switchers, power supply is not enough.
- Transmission distance is too far.

18. Alarm signal cannot be disarmed.

There are following possibilities:

- Alarm setup is not correct.
- Alarm output has been open manually.

- Input device error or connection is not correct.
- Some program versions might have this problem. Upgrade your system.

19. Alarm function is null.

There are following possibilities:

- Alarm setup is not correct.
- Alarm cable connection is not correct.
- Alarm input signal is not correct.
- There are two loops connect to one alarm device.

20. Remote control does not work.

There are following possibilities:

- Remote control address is not correct.
- Distance is too far or control angle is too small.
- Remote control battery power is low.
- Remote control is damaged or DVR front panel is damaged.

21. Record storage period is not enough.

There are following possibilities:

- Camera quality is too low. Lens is dirty. Camera is installed against the light. Camera aperture setup is not correct.
- HDD capacity is not enough.
- HDD is damaged.

22. Cannot playback the downloaded file.

There are following possibilities:

- There is no media player.
- No DXB8.1 or higher graphic acceleration software.
- There is no DivX503Bundle.exe control when you play the file transformed to AVI via media player.
- No DivX503Bundle.exe or ffdshow-2004 1012 .exe in Windows XP OS.

23. Forgot local menu operation password or network password

Contact your local service engineer or our sales person for help. We can guide you to solve this problem.

24. When I login via HTTPS, a dialogue says the certificate for this website is for other address.

Create server certificate again.

25. When I login via HTTPS, a dialogue says the certificate is not trusted.

Download root certificate again.

26. When I login via HTTPS, a dialogue says the certificate has expired or is not valid yet.

Make sure that your PC time is the same as the device time.

27. I connect the general analog camera to the device, there is no video output.

There are following possibilities:

- Check camera power supplying, data cable connection and other items.
- This series device does not support the analog camera of all brands. Make sure that the device supports general standard definition analog camera.

28. I connect the standard definition analog camera or the coaxial camera to the device, there is no video output.

There are following possibilities:

- Check camera power supplying, or camera data cable connection.

- For the product supports analog standard definition camera/HD camera, you need to go to the **Main Menu > CAMERA > CHANNEL TYPE** to select corresponding channel type and then restart the DVR.

29. I cannot connect to the IP channel.

There are following possibilities:

- Check the camera is online or not.
- Check IP channel setup is right or not (such as IP address, user name, password, connection protocol, and port number).
- The camera has set the allowlist (Only the specified devices can connect to the camera).

30. After I connected to the IP channel, the one-window output is OK, but there is no multiple-window output.

There are following possibilities:

- Check the sub stream of the camera has been enabled or not.
- Check the sub stream type of the camera is H.264 or not.
- Check the device supports camera sub stream resolution or not (such as 960H, D1, and HD1).

31. After I connected to the IP channel, the multiple-window output is OK, but there is no one-window output.

There are following possibilities:

- Check there is video from the IP channel or not. Go to the **Main Menu > MAINTAIN > System Info > BPS** to view bit stream real-time information.
- Check the main stream of the camera has been enabled or not.
- Check the main stream type of the camera is H.264 or not.
- Check the device supports camera main stream resolution or not (such as 960H, D1, and HD1).
- Check camera network transmission has reached the threshold or not. Check the online user of the camera.

32. After I connected to the IP channel, there is no video output in the one-window or the multiple-window mode. But I can see there is bit stream.

There are following possibilities:

- Check the main stream/sub stream type of the camera is H.264 or not.
- Check the device supports camera main stream/sub stream resolution or not (such as 1080P, 720P, 960H, D1, and HD1).
- Check the camera setup. Make sure that it supports the products of other manufacturers.

33. DDNS registration failed or cannot access the device domain name.

There are following possibilities:

- Check the device is connected to the WAN. Check the device has got the IP address if the PPPoE can dial. If there is a router, check the router to make sure the device IP is online.
- Check the corresponding protocol of the DDNS is enabled. Check the DDNS function is OK or not.
- Check DNS setup is right or not. Default Google DNS server is 8.8.8.8, 8.8.5.5. You can use different DNS provided by your ISP.

34. I cannot use the P2P function on my cell phone or the WEB.

There are following possibilities:

- Check the device P2P function is enabled or not. (Main menu->Setting->Network->P2P)
- Check the device is in the WAN or not.
- Check cell phone P2P login mode is right or not.

- It is the specified device P2P login port or not when you are using P2P client.
- Check user name or password is right or not.
- Check P2P SN is right or not. You can use the cell phone to scan the QR code on the device P2P interface (**Main Menu > Network > P2P**), or you can use the version information of the WEB to confirm. (For some previous series products, the device SN is the main board SN, it might result in error.)

35. I connect the standard definition camera to the device, there is no video output.

There are following possibilities:

- Check the DVR supports standard definition signal or not. Only some series products support analog standard definition signal, coaxial signal input.
- Check channel type is right or not. For the product supports analog standard definition camera/HD camera, you need to go to the **Main Menu > CAMERA > Channel Type** to select corresponding channel type (such as analog) and then restart the DVR. In this way, the DVR can recognize the analog standard definition.
- Check camera power supplying, or camera data cable connection.

36. I cannot connect to the IP camera.

There are following possibilities:

- Check DVR supports IP channel or not. Only some series products support A/D switch function, it can switch analog channel to the IP channel to connect to the IP camera. From **Main Menu > CAMERA > Channel Type**, select the last channel to switch to the IP channel. Some series product products support IP channel extension, it supports N+N mode.
- Check the IPC and the DVR is connected or not. Go to the **Main Menu > CAMERA > Camera List** to search to view the IP camera is online or not. Or you can go to the **Main Menu > MAINTAIN > Network > Test**, you can input IP camera IP address and then click the **Test** button to check you can connect to the IP camera or not.
- Check IP channel setup is right or not (such as IP address, manufacturer, port, user name, password, and remote channel number).

Daily Maintenance

- Use the brush to clean the board, socket connector and the chassis regularly.
- The device shall be soundly earthed in case there is audio/video disturbance. Keep the device away from the static voltage or induced voltage.
- Unplug the power cable before you remove the audio/video signal cable, RS-232 or RS-485 cable.
- Do not connect the TV to the local video output port (VOUT).It might result in video output circuit.
- Always shut down the device properly. Use the shutdown function in the menu, or you can press the power button in the front panel for at least three seconds to shut down the device. Otherwise it might result in HDD malfunction.
- Make sure the device is away from the direct sunlight or other heating sources. Keep the sound ventilation.
- Check and maintain the device regularly.

Appendix 1 Glossary

The abbreviations in this glossary are related to the Manual.

Appendix Table 1-1 Glossary

Abbreviations	Full term
BNC	Bayonet Nut Connector
CBR	Constant Bit Rate
CIF	Common Intermediate Format
DDNS	Dynamic Domain Name Service
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
DST	Daylight Saving Time
DVR	Digital Video Recorder
FTP	File Transfer Protocol
HDD	Hard Disk Drive
HDMI	High Definition Multimedia Interface
HTTP	Hyper Text Transfer Protocol
IoT	Internet of Things
IP	Internet Protocol
IVS	Intelligent Video System
LAN	Local Area Network
MAC	Media Access Control
MTU	Maximum Transmission Unit
NTP	Network Time Protocol
NTSC	National Television Standards Committee
ONVIF	Open Network Video Interface Forum
PAL	Phase Alteration Line
PAT	Port Address Translation
POS	Point of Sale
PPPoE	Point-to-Point Protocol over Ethernet
PSS	Professional Surveillance Software
PTZ	Pan Tilt Zoom
RCA	Radio Corporation of American
RTSP	Real Time Streaming Protocol
S.M.A.R.T	Self-Monitoring-Analysis and Reporting Technology
SATA	Serial Advanced Technology Attachment
SMTP	Simple Mail Transfer Protocol
SNMP	Simple Network Management Protocol
TCP	Transmission Control Protocol
TFTP	Trivial File Transfer Protocol
UDP	User Datagram Protocol
UPnP	Universal Plug and Play

Abbreviations	Full term
VBR	Variable Bit Rate
VGA	Video Graphics Array
WAN	Wide Area Network

Appendix 2 HDD Capacity Calculation

Calculate total capacity needed by each DVR according to video recording (video recording type and video file storage time).

Step 1 According to Formula (1) to calculate storage capacity q_i that is the capacity of each channel needed for each hour, unit MB.

Formula (1): $q_i = d_i \div 8 \times 3600 \div 1024$

In the formula: d_i means the bit rate, unit Kbit/s

Step 2 After video time requirement is confirmed, according to Formula (2) to calculate the storage capacity m_i, which is storage of each channel needed unit MB.

Formula (2): $m_i = q_i \times h_i \times D_i$

In the formula:

- h_i means the recording time for each day (hour)
- D_i means number of days for which the video shall be kept

Step 3 According to Formula (3) to calculate total capacity (accumulation) q_T that is needed for all channels in the DVR during **scheduled video recording**.

Formula (3): $q_T = \sum_{i=1}^{c} m_i$

In the formula: c means total number of channels in one DVR

Step 4 According to Formula (4) to calculate total capacity (accumulation) q_T that is needed for all channels in DVR during **alarm video recording (including motion detection)**.

Formula (4): $q_T = \sum_{i=1}^{c} m_i \times a\%$

In the formula, % means alarm occurrence rate

You can refer to the following table for the file size in one hour per channel. (All the data listed below are for reference only.)

Appendix Table 2-1 File size

Bit Stream Size (max)	File Size	Bit Stream Size (max)	File Size
96 Kbps	42 MB	128 Kbps	56 MB
160 Kbps	70 MB	192 Kbps	84 MB
224 Kbps	98 MB	256 Kbps	112 MB
320 Kbps	140 MB	384 Kbps	168 MB

Bit Stream Size (max)	File Size	Bit Stream Size (max)	File Size
448 Kbps	196 MB	512 Kbps	225 MB
640 Kbps	281 MB	768 Kbps	337 MB
896 Kbps	393 MB	1024 Kbps	450 MB
1280 Kbps	562 MB	1536 Kbps	675 MB
1792 Kbps	787 MB	2048 Kbps	900 MB

Appendix 3 Compatible Backup Devices

Appendix 3.1 Compatible USB List

Appendix Table 3-1 Compatible USB list

Manufacturer	Model	Capacity
Sandisk	Cruzer Micro	512 MB
Sandisk	Cruzer Micro	1 GB
Sandisk	Cruzer Micro	2 GB
Sandisk	Cruzer Freedom	256 MB
Sandisk	Cruzer Freedom	512 MB
Sandisk	Cruzer Freedom	1 GB
Sandisk	Cruzer Freedom	2 GB
Kingston	DataTraveler II	1 GB
Kingston	DataTraveler II	2 GB
Kingston	DataTraveler	1 GB
Kingston	DataTraveler	2 GB
Maxell	USB Flash Stick	128 MB
Maxell	USB Flash Stick	256 MB
Maxell	USB Flash Stick	512 MB
Maxell	USB Flash Stick	1 GB
Maxell	USB Flash Stick	2 GB
Kingax	Super Stick	128 MB
Kingax	Super Stick	256 MB
Kingax	Super Stick	512 MB
Kingax	Super Stick	1 GB
Kingax	Super Stick	2 GB
Netac	U210	128 MB
Netac	U210	256 MB
Netac	U210	512 MB
Netac	U210	1 GB
Netac	U210	2 GB
Netac	U208	4 GB
Teclast	Ti Cool	128 MB
Teclast	Ti Cool	256 MB
Teclast	Ti Cool	512 MB
Teclast	Ti Cool	1 GB
Sandisk	Cruzer Micro	2 GB
Sandisk	Cruzer Micro	8 GB
Sandisk	Ti Cool	2 GB
Sandisk	Hongjiao	4 GB

Manufacturer	Model	Capacity
Lexar	Lexar	256 MB
Kingston	Data Traveler	1 GB
Kingston	Data Traveler	16 GB
Kingston	Data Traveler	32 GB
Aigo	L8315	16 GB
Sandisk	250	16 GB
Kingston	Data Traveler Locker+	32 GB
Netac	U228	8 GB

Appendix 3.2 Compatible SD Card List

Appendix Table 3-2 Compatible SD card list

Manufacturer	Standard	Capacity	Card type
Transcend	SDHC6	16 GB	Big
Kingston	SDHC4	4 GB	Big
Kingston	SD	2 GB	Big
Kingston	SD	1 GB	Big
Sandisk	SDHC2	8 GB	Small
Sandisk	SD	1 GB	Small

Appendix 3.3 Compatible Portable HDD List

Appendix Table 3-3 Compatible portable HDD list

Manufacturer	Model	Capacity
YDStar	YDstar HDD box	40 GB
Netac	Netac	80 GB
Iomega	Iomega RPHD-CG" RNAJ50U287	250 GB
WD Elements	WCAVY1205901	1.5 TB
Newsmy	Liangjian	320 GB
WD Elements	WDBAAR5000ABK-00	500 GB
WD Elements	WDBAAU0015HBK-00	1.5 TB
Seagate	FreeAgent Go(ST905003F)	500 GB
Aigo	H8169	500 GB

Appendix 3.4 Compatible USB DVD List

Appendix Table 3-4 Compatible USB DVD list

Manufacturer	Model
Samsung	SE-S084
BenQ	LD2000-2K4

Appendix 3.5 Compatible SATA DVD List

Appendix Table 3-5 Compatible SATA DVD list

Manufacturer	Model
LG	GH22NS30
Samsung	TS-H653 Ver.A
Samsung	TS-H653 Ver.F
Samsung	SH-224BB/CHXH
SONY	DRU-V200S
SONY	DRU-845S
SONY	AW-G170S
Pioneer	DVR-217CH

Appendix 3.6 Compatible SATA HDD List

Please upgrade the DVR firmware to latest version to ensure the accuracy of the table below. Here we recommend HDD of 500GB to 4TB capacity.

Appendix Table 3-6 Compatible SATA HDD list

Manufacturer	Series	Model	Capacity	Port Mode
Seagate	Video 3.5	ST1000VM002	1 TB	SATA
Seagate	Video 3.5	ST2000VM003	2 TB	SATA
Seagate	Video 3.5	ST3000VM002	3 TB	SATA
Seagate	Video 3.5	ST4000VM000	4 TB	SATA
Seagate	SV35	ST1000VX000	1 TB	SATA
Seagate	SV35	ST2000VX000	2 TB	SATA
Seagate	SV35	ST3000VX000	3 TB	SATA
Seagate	SV35 (Support HDD data recovery offered by Seagate)	ST1000VX002	1 TB	SATA
Seagate	SV35 (Support HDD data recovery offered by Seagate)	ST2000VX004	2 TB	SATA
Seagate	SV35 (Support HDD data recovery offered by Seagate)	ST3000VX004	3 TB	SATA

Manufacturer	Series	Model	Capacity	Port Mode
Seagate	SkyHawk HDD	ST1000VX001	1 TB	SATA
Seagate	SkyHawk HDD	ST1000VX005	1 TB	SATA
Seagate	SkyHawk HDD	ST2000VX003	2 TB	SATA
Seagate	SkyHawk HDD	ST2000VX008	2 TB	SATA
Seagate	SkyHawk HDD	ST3000VX006	3 TB	SATA
Seagate	SkyHawk HDD	ST3000VX010	3 TB	SATA
Seagate	SkyHawk HDD	ST4000VX000	4 TB	SATA
Seagate	SkyHawk HDD	ST4000VX007	4 TB	SATA
Seagate	SkyHawk HDD	ST5000VX0001	5 TB	SATA
Seagate	SkyHawk HDD	ST6000VX0001	6 TB	SATA
Seagate	SkyHawk HDD	ST6000VX0023	6 TB	SATA
Seagate	SkyHawk HDD	ST6000VX0003	6 TB	SATA
Seagate	SkyHawk HDD	ST8000VX0002	8 TB	SATA
Seagate	SkyHawk HDD	ST8000VX0022	8 TB	SATA
Seagate	SkyHawk HDD	ST100000VX0004	10 TB	SATA
Seagate	SkyHawk HDD (Support HDD data recovery offered by Seagate)	ST1000VX003	1 TB	SATA
Seagate	SkyHawk HDD (Support HDD data recovery offered by Seagate)	ST2000VX005	2 TB	SATA
Seagate	SkyHawk HDD (Support HDD data recovery offered by Seagate)	ST3000VX005	3 TB	SATA
Seagate	SkyHawk HDD (Support HDD data recovery offered by Seagate)	ST4000VX002	4 TB	SATA
Seagate	SkyHawk HDD (Support HDD data recovery offered by Seagate)	ST5000VX0011	5 TB	SATA
Seagate	SkyHawk HDD (Support HDD data recovery offered by Seagate)	ST6000VX0011	6 TB	SATA
Seagate	SkyHawk HDD (Support HDD data recovery offered by Seagate)	ST8000VX0012	8 TB	SATA
WD	WD Green	WD10EURX (EOL)	1 TB	SATA
WD	WD Green	WD20EURX (EOL)	2 TB	SATA
WD	WD Green	WD30EURX (EOL)	3 TB	SATA
WD	WD Green	WD40EURX (EOL)	4 TB	SATA
WD	WD Purple	WD10PURX	1 TB	SATA
WD	WD Purple	WD20PURX	2 TB	SATA
WD	WD Purple	WD30PURX	3 TB	SATA

Manufacturer	Series	Model	Capacity	Port Mode
WD	WD Purple	WD40PURX	4 TB	SATA
WD	WD Purple	WD50PURX	5 TB	SATA
WD	WD Purple	WD60PURX	6 TB	SATA
WD	WD Purple	WD80PUZX	8 TB	SATA
WD	WD Purple	WD10PURZ	1 TB	SATA
WD	WD Purple	WD20PURZ	2 TB	SATA
WD	WD Purple	WD30PURZ	3 TB	SATA
WD	WD Purple	WD40PURZ	4 TB	SATA
WD	WD Purple	WD50PURZ	5 TB	SATA
WD	WD Purple	WD60PURZ	6 TB	SATA
WD	WD Purple	WD80PURZ	8 TB	SATA
WD	WD Purple	WD4NPURX	4 TB	SATA
WD	WD Purple	WD6NPURX	6 TB	SATA
TOSHIBA	Mars	DT01ABA100V	1 TB	SATA
TOSHIBA	Mars	DT01ABA200V	2 TB	SATA
TOSHIBA	Mars	DT01ABA300V	3 TB	SATA
TOSHIBA	Sonance	MD03ACA200V	2 TB	SATA
TOSHIBA	Sonance	MD03ACA300V	3 TB	SATA
TOSHIBA	Sonance	MD03ACA400V	4 TB	SATA
TOSHIBA	Sonance	MD04ABA400V	4 TB	SATA
TOSHIBA	Sonance	MD04ABA500V	5 TB	SATA
Seagate	Constellation ES series (SATA interface)	ST1000NM0033	1 TB	SATA
Seagate	Constellation ES series (SATA interface)	ST2000NM0033	2 TB	SATA
Seagate	Constellation ES series (SATA interface)	ST3000NM0033	3 TB	SATA
Seagate	Constellation ES series (SATA interface)	ST4000NM0033	4 TB	SATA
Seagate	Constellation ES series (SATA interface)	ST1000NM0055	1 TB	SATA
Seagate	Constellation ES series (SATA interface)	ST2000NM0055	2 TB	SATA
Seagate	Constellation ES series (SATA interface)	ST3000NM0005	3 TB	SATA
Seagate	Constellation ES series (SATA interface)	ST4000NM0035	4 TB	SATA
Seagate	Constellation ES series (SATA interface)	ST6000NM0115	6 TB	SATA
Seagate	Constellation ES series (SATA interface)	ST8000NM0055	8 TB	SATA
Seagate	Constellation ES series (SATA interface)	ST10000NM0016	10 TB	SATA

Manufacturer	Series	Model	Capacity	Port Mode
Seagate	Constellation ES series (SATA interface)	ST4000NM0024	4 TB	SATA
Seagate	Constellation ES series (SATA interface)	ST6000NM0024	6 TB	SATA
Seagate	Constellation ES series (SAS interface)	ST1000NM0023	1 TB	SATA
Seagate	Constellation ES series (SAS interface)	ST2000NM0023	2 TB	SATA
Seagate	Constellation ES series (SAS interface)	ST3000NM0023	3 TB	SATA
Seagate	Constellation ES series (SAS interface)	ST4000NM0023	4 TB	SATA
Seagate	Constellation ES series (SAS interface)	ST6000NM0014	6 TB	SATA
Seagate	Constellation ES series (SAS interface)	ST1000NM0045	1 TB	SATA
Seagate	Constellation ES series (SAS interface)	ST2000NM0045	2 TB	SATA
Seagate	Constellation ES series (SAS interface)	ST3000NM0025	3 TB	SATA
Seagate	Constellation ES series (SAS interface)	ST4000NM0025	4 TB	SATA
Seagate	Constellation ES series (SAS interface)	ST6000NM0095	6 TB	SATA
Seagate	Constellation ES series (SAS interface)	ST6000NM0034	6 TB	SATA
Seagate	Constellation ES series (SAS interface)	ST8000NM0075	8 TB	SATA
WD	WD RE series (SATA interface)	WD1003FBYZ	1 TB	SATA
WD	WD RE series (SATA interface)	WD1004FBYZ (replace WD1003FBYZ)	1 TB	SATA
WD	WD RE series (SATA interface)	WD2000FYYZ	2 TB	SATA
WD	WD RE series (SATA interface)	WD2004FBYZ (replace WD2000FYYZ)	2 TB	SATA
WD	WD RE series (SATA interface)	WD3000FYYZ	3 TB	SATA
WD	WD RE series (SATA interface)	WD4000FYYZ	4 TB	SATA
WD	WD (SATA interface)	WD2000F9YZ	2 TB	SATA
WD	WD (SATA interface)	WD3000F9YZ	3 TB	SATA
WD	WD (SATA interface)	WD4000F9YZ	4 TB	SATA
WD	WD (SATA interface)	WD4002FYYZ	4 TB	SATA

Manufacturer	Series	Model	Capacity	Port Mode
WD	WD (SATA interface)	WD6001FSYZ	6 TB	SATA
WD	WD (SATA interface)	WD6002FRYZ	6 TB	SATA
WD	WD (SATA interface)	WD8002FRYZ	8 TB	SATA
HITACHI	Ultrastar series (SATA interface)	HUS724030ALA640	3 TB	SATA
HITACHI	Ultrastar series (SATA interface)	HUS726060ALE610	6 TB	SATA
HITACHI	Ultrastar series (SATA interface)	HUH728060ALE600	6 TB	SATA
HITACHI	Ultrastar series (SATA interface)	HUH728080ALE600	8 TB	SATA
HITACHI	Ultrastar series (SAS interface)	HUS726020AL5210	2 TB	SATA
HITACHI	Ultrastar series (SAS interface)	HUS726040AL5210	4 TB	SATA
HITACHI	Ultrastar series (SAS interface)	HUS726060AL5210	6 TB	SATA
Seagate	Pipeline HD Mini	ST320VT000	320 GB	SATA
Seagate	Pipeline HD Mini	ST500VT000	500 GB	SATA
Seagate	Pipeline HD Mini	ST2000LM003 (EOL)	2 TB	SATA
TOSHIBA	2.5-inch PC series	MQ01ABD050V	500 GB	SATA
TOSHIBA	2.5-inch PC series	MQ01ABD100V	1 TB	SATA
SAMSUNG	HN-M101MBB	HN-M101MBB (EOL)	1 TB	SATA
Seagate	2.5-inch enterprise series	ST1000NX0313	1 TB	SATA
Seagate	2.5-inch enterprise series	ST2000NX0253	2 TB	SATA

Appendix 4 Compatible CD/DVD Burner List

Please upgrade the DVR firmware to latest version to ensure the accuracy of the table below. And you can use the USB cable with the model recommended to set USB burner.

Appendix Table 4-1 Compatible CD/DVD burner list

Manufacturer	Model	Port Type	Type
Sony	DRX-S50U	USB	DVD-RW
Sony	DRX-S70U	USB	DVD-RW
Sony	AW-G170S	SATA	DVD-RW
Samsung	TS-H653A	SATA	DVD-RW
Panasonic	SW-9588-C	SATA	DVD-RW
Sony	DRX-S50U	USB	DVD-RW
BenQ	5232WI	USB	DVD-RW

Appendix 5 Compatible Displayer List

Please refer to the following table form compatible displayer list.

Appendix Table 5-1 Compatible displayer list

Brand	Model	Dimension (Unit: inch)
BENQ (LCD)	ET-0007-TA	19-inch (wide screen)
DELL (LCD)	E178FPc	17-inch
BENQ (LCD)	Q7T4	17-inch
BENQ (LCD)	Q7T3	17-inch
HFNOVO (LCD)	LXB-L17C	17-inch
SANGSUNG (LCD)	225BW	22-inch (wide screen)
HFNOVO (CRT)	LXB-FD17069HB	17-inch
HFNOVO (CRT)	LXB-HF769A	17-inch
HFNOVO(CRT)	LX-GJ556D	17-inch
Samsung (LCD)	2494HS	24-inch
Samsung (LCD)	P2350	23-inch
Samsung (LCD)	P2250	22-inch
Samsung (LCD)	P2370G	23-inch
Samsung (LCD)	2043	20-inch
Samsung (LCD)	2243EW	22-inch
Samsung (LCD)	SMT-1922P	19-inch
Samsung (LCD)	T190	19-inch
Samsung (LCD)	T240	24-inch
LG (LCD)	W1942SP	19-inch
LG (LCD)	W2243S	22-inch
LG (LCD)	W2343T	23-inch
BENQ (LCD)	G900HD	18.5-inch
BENQ (LCD)	G2220HD	22-inch
PHILIPS (LCD)	230E	23-inch
PHILIPS (LCD)	220CW9	23-inch
PHILIPS (LCD)	220BW9	24-inch
PHILIPS (LCD)	220EW9	25-inch

Appendix 6 Compatible Switcher

Appendix Table 6-1 Compatible switcher

Brand	Model	Network Working Mode
D-LinK	DES-1016D	10/100 M self-adaptive
D-LinK	DES-1008D	10/100 M self-adaptive
Ruijie	RG-S1926S	Five network modes: ● AUTO ● HALF-10M ● FULL-10M ● HALF-100M ● FULL-100M
H3C	H3C-S1024	10/100 M self-adaptive
TP-LINK	TL-SF1016	10/100 M self-adaptive
TP-LINK	TL-SF1008+	10/100 M self-adaptive

Appendix 7 Earthing

Appendix 7.1 What Is the Surge

Surge is a short current or voltage change during a very short time. In the circuit, it lasts for microsecond. In a 220 V circuit, the 5 KV or 10 KV voltage change during a very short time (about microseconds) can be called a surge. The surge comes from two ways: external surge and internal surge.

- The external surge: The external surge mainly comes from the thunder lightning. Or it comes from the voltage change during the on/off operation in the electric power cable.
- The internal surge: The research finds 88% of the surge from the low voltage comes from the internal of the building such as the air conditioning, elevator, electric welding, air compressor, water pump, power button, duplicating machine and other device of inductive load.

The lightning surge is far above the load level the PC or the micro devices can support. In most cases, the surge can result in electric device chip damage, PC error code, accelerating the part aging, data loss and etc. Even when a small 20 horsepower inductive engine boots up or stops, the surge can reach 3000 V to 5000 V, which can adversely affect the electronic devices that use the same distribution box.

To protect the device, you need to evaluate its environment, the lighting affection degree objectively. Because surge has close relationship with the voltage amplitude, frequency, network structure, device voltage-resistance, protection level, ground and etc. The thunder proof work shall be a systematic project, emphasizing the all-round protection (including building, transmission cable, device, ground and etc.). There shall be comprehensive management and the measures shall be scientific, reliable, practical and economic. Considering the high voltage during the inductive thundering, the International Electrotechnical Commission (IEC) standard on the energy absorbing step by step theory and magnitude classification in the protection zone, you need to prepare multiple precaution levels.

You can use the lightning rod, lightning strap or the lightning net to reduce the damage to the building, personal injury or the property.

The lightning protection device can be divided into three types:

- Power lightning arrester: There are 220 V single-phrase lightning arrester and 380 V three-phrase lightening arrester (mainly in parallel connection, sometimes use series connection) You can parallel connect the power lightning arrester in the electric cable to reduce the short-time voltage change and release the surge current. From the BUS to the device, there are usually three levels so that system can reduce the voltage and release the current step by step to remove the thunderstorm energy and guarantee the device safety. You can select the replaceable module type, the terminal connection type and portable socket according to your requirement.
- Signal lightning arrester: This device is mainly used in the PC network, communication system. The connection type is serial connection. Once you connected the signal lightning arrestor with the signal port, it can cut the channel of the thunderstorm to the device, and on the other hand, it can discharge the current to the ground to guarantee the device proper work. The signal lightning arrester has many specifications, and widely used in many devices such as telephone, network, analog communication, digital communication, cable TV and satellite antenna. For all the input port, especially those from the outdoor, you need to install the signal lightning arrester.

- Antenna feed cable lightning arrester: It is suitable for antenna system of the transmitter or the device system to receive the wireless signal. It uses the serial connection too.

Please note, when you select the lighting arrester, please pay attention to the port type and the earthing reliability. In some important environment, you need to use special shielded cable. Do not parallel connect the thunder proof ground cable with the ground cable of the lightning rod. Please make sure they are far enough and grounded respectively.

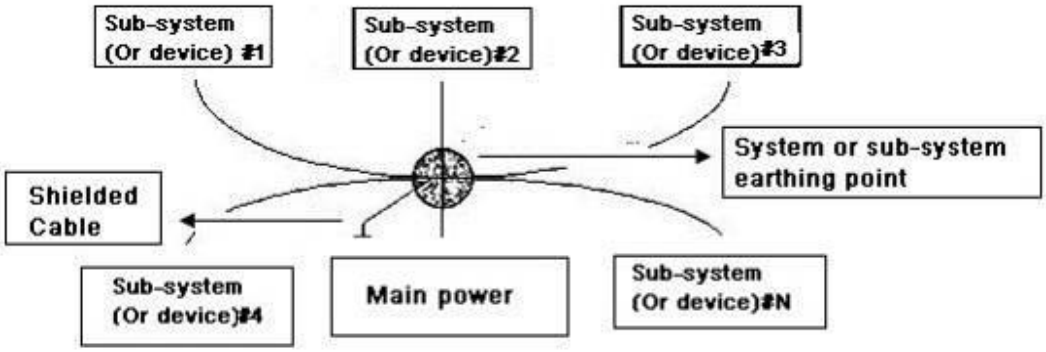
Appendix 7.2 The Earthing Modes

We all know the earthing is the most complicated technology in the electromagnetism compatibility design since there is no systematic theory or module. The earthing has many modes, but the selection depends on the system structure and performance.

The following are some successfully experience from our past work.

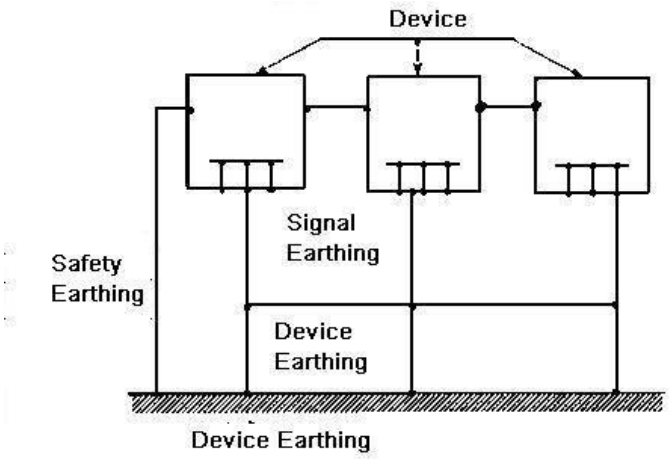
- **One-point ground:** In the following figure you can see there is a one-point ground. This connection provides common point to allow signal to be transmitted in many circuits. If there is no common point, the error signal transmission occurred. In the one-point ground mode, each circuit is just grounded only and they are connected at the same point. Since there is only one common point, there is no circuit and so, there is no interference.

Appendix Figure 7-1 One-point ground



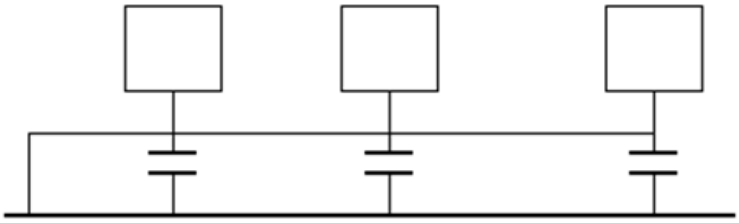
- **Multiple-point ground:** In the following figure, you can see the internal circuit uses the chassis as the common point. While at the same time, all devices chassis use the earthing as the common point. In this connection, the ground structure can provide the lower ground resistance because when there are multiple-point grounds; each ground cable is as short as possible. And the parallel cable connection can reduce the total conductance of the ground conductor. In the high-frequency circuit, you need to use the multiple-point ground mode and each cable needs to connect to the ground. The length shall be less than the 1/20 of the signal wavelength.

Appendix Figure 7-2 Multiple-point ground



- **Mixed ground:** The mix ground consists of the feature of the one-point ground and multiple-point ground. For example, the power in the system needs to use the one-point ground mode while the radio frequency signal requires the multiple-point ground. So, you can use the following figure to earth. For the direct current (DC), the capacitance is open circuit and the circuit is one-point ground. For the radio frequency signal, the capacitance is conducive and the circuit adopts multiple-point ground.

Appendix Figure 7-3 Mixed ground



When connecting devices of huge size (the device physical dimension and connection cable is big comparing with the wave path of existed interference), then there are possibility of interference when the current goes through the chassis and cable. In this situation, the interference circuit path usually lies in the system ground circuit.

When considering the earthing, you need to think about two aspects: One is the system compatibility, and the other is the external interference coupling into the earth circuit, which results in system error. For the external interference is not regular, it is not easy to resolve.

Appendix 7.3 Thunder Proof Ground Method in the Monitor System

- The monitor system shall have sound thunder proof earthing to guarantee personnel safety and device safety.
- The monitor system working ground resistance shall be less than 1 Ω.
- The thunder proof ground shall adopt the special ground cable from the monitor control room to the ground object. The ground cable adopts copper insulation cable or wire and its ground

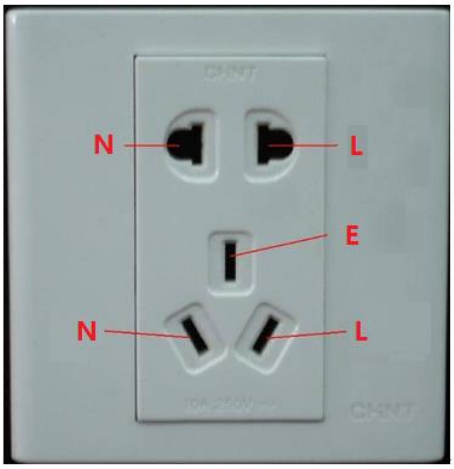
section shall be more than 20mm^2.

- The ground cable of the monitor system cannot short circuit or mixed connected with the strong alternative current cable.
- For all the ground cables from the control room to the monitor system or ground cable of other monitor devices, please use the copper resistance soft cable and its section shall be more than 4mm^2.
- The monitor system usually can adopt the one-point ground.
- Please connect the ground end of 3-pin socket in the monitor system to the ground port of the system (protection ground cable)

Appendix 7.4 The Shortcut Way to Check the Electric System by Digital Multimeter

For 220VAC socket, from the top to the bottom, E (ground cable), N (neutral cable), L(live cable). Please refer to the following figure.

Appendix Figure 7-4 AC socket



There is a shortcut way to check whether the connection of these cables is standard or not (not the accurate check).

⚠

In the following operations, the multimeter range shall be at 750V.

For E (earth cable)

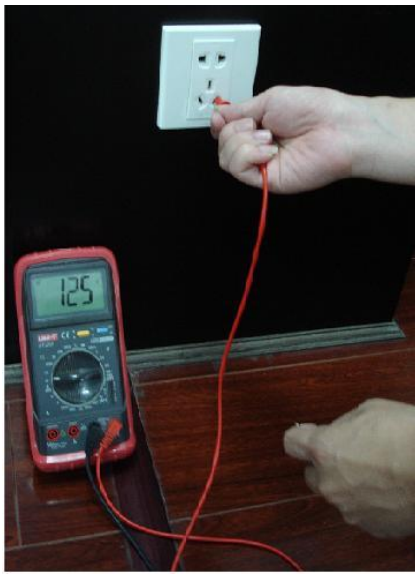
Turn the digital multimeter to 750 VAC, use your one hand to hold the metal end, and then use the other hand to insert the pen to the E port of the socket. See the following figure. If the multimeter shows 0, then you can see current earth cable connection is standard. If the value is more than 10, then you can know there is inductive current and the earth cable connection is not proper.

Appendix Figure 7-5 Earth cable

For L (live cable)

Turn the digital multimeter to 750 VAC, use your one hand to hold the metal end, and then use the other hand to insert the pen to the L port of the socket. See the following figure. If the multimeter shows 125, then you can see current live cable connection is standard. If the value is less than 60, then you can know current live cable connection is not proper or it is not the live cable at all.

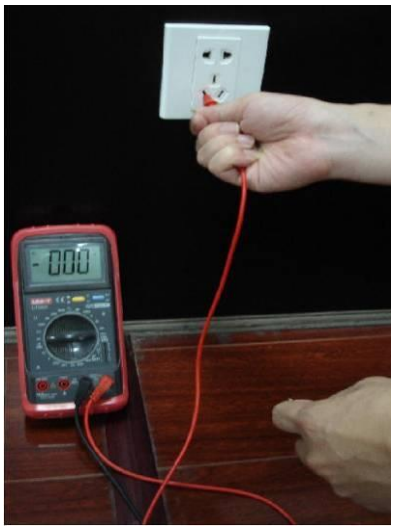
Appendix Figure 7-6 Live cable



For N (Neutral cable)

Turn the digital multimeter to 750 VAC, use your one hand to hold the metal end, and then use the other hand to insert the pen to the N port of the socket. See the following figure. If the multimeter shows 0, then you can see current N cable connection is standard. If the value is more than 10, then you can see there is inductive current and the neutral cable connection is not proper. If the value is 120, then you can know that you have misconnected the neutral cable to the live cable.

Appendix Figure 7-7 Neutral cable

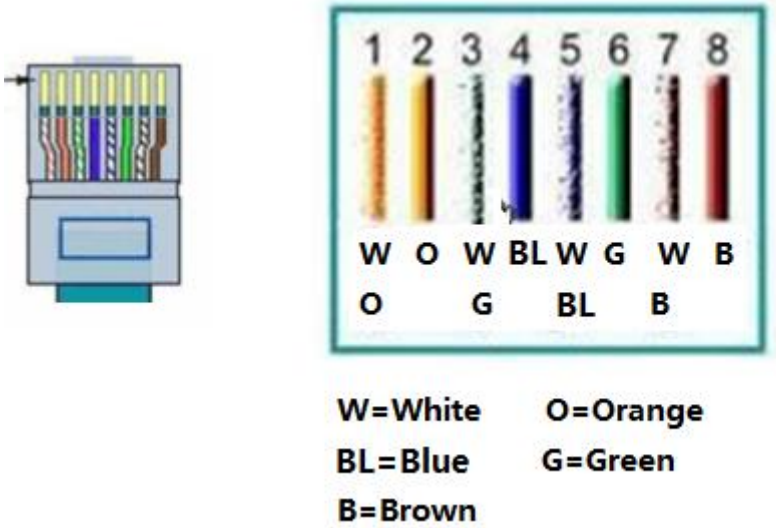


Appendix 8 RJ45-RS-232 Connection Cable Definition

Here we are going to make standard RS-232 port and standard RJ-45 (T568B).

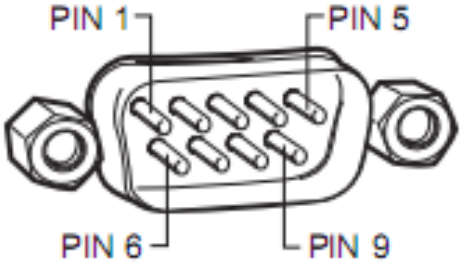
Please refer to the following figure for RJ-45 cable definition.

Appendix Figure 8-1 RJ-45 definition



Please refer to the following figure for RS-232 pin definition.

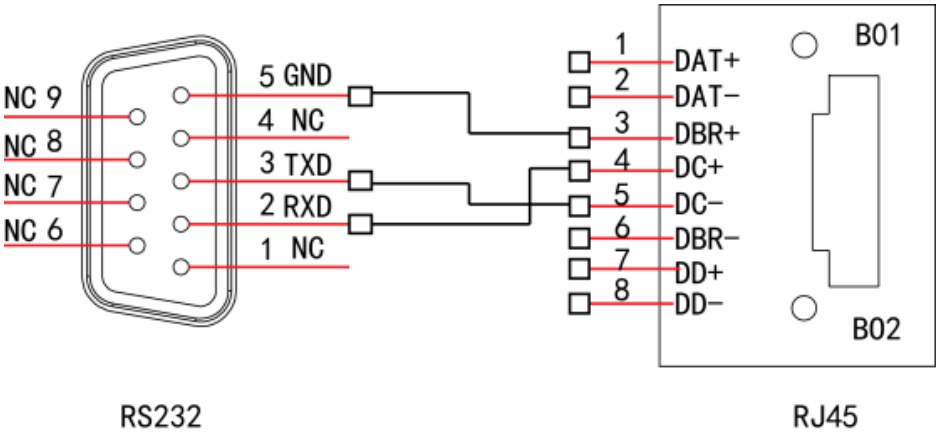
Appendix Figure 8-2 RS-232 pin definition



Cross Connection

Please refer to the following figure for connection information.

Appendix Figure 8-3 Cross connection



Please refer to the following table for detailed crossover cable connection information.

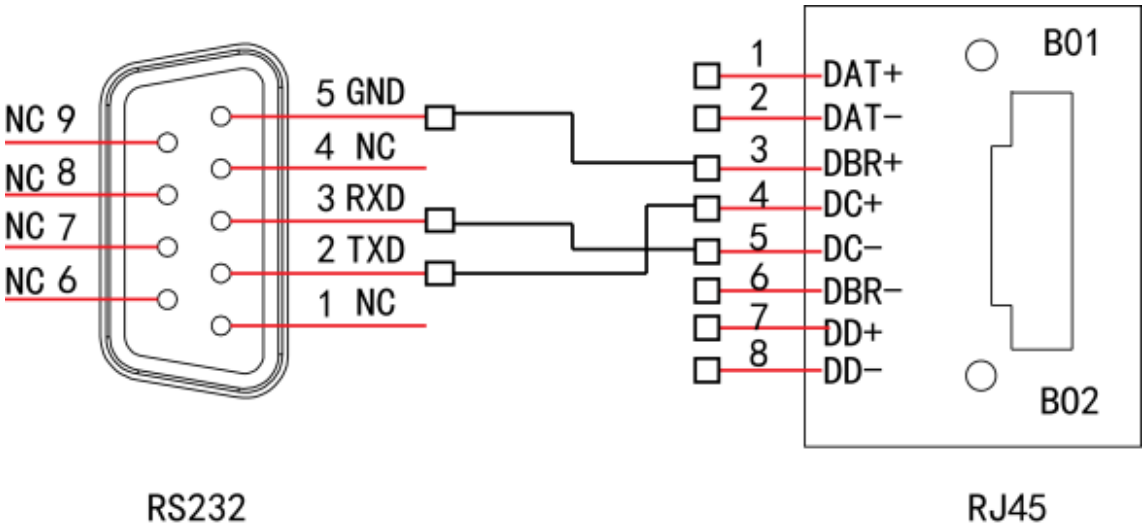
Appendix Table 8-1 Crossover cable connection

RJ-45 (T568B)	RJ-45 (Network cable)	RS-232	Signal Description
4	Blue	2	RXD
5	White and blue	3	TXD
3	White and green	5	GND

Straight Connection

Please refer to the following figure for straight cable connection information.

Appendix Figure 8-4 Straight connection



Please refer to the following table for straight connection information.

Appendix Table 8-2 Straight connection information

RJ-45 (T568B)	RJ-45 (Network cable)	RS-232	Signal Description
4	Blue	3	RXD
5	White and blue	2	TXD
3	White and green	5	GND

Appendix 9 Cybersecurity Recommendations

Cybersecurity is more than just a buzzword: it's something that pertains to every device that is connected to the internet. IP video surveillance is not immune to cyber risks, but taking basic steps toward protecting and strengthening networks and networked appliances will make them less susceptible to attacks. Below are some tips and recommendations on how to create a more secured security system.

Mandatory actions to be taken for basic device network security:

1. **Use Strong Passwords**

   Please refer to the following suggestions to set passwords:

   - The length should not be less than 8 characters;
   - Include at least two types of characters; character types include upper and lower case letters, numbers and symbols;
   - Do not contain the account name or the account name in reverse order;
   - Do not use continuous characters, such as 123, abc, etc.;
   - Do not use overlapped characters, such as 111, aaa, etc.;

2. **Update Firmware and Client Software in Time**

   - According to the standard procedure in Tech-industry, we recommend to keep your device (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the device is connected to the public network, it is recommended to enable the"auto-check for updates" function to obtain timely information of firmware updates released by the manufacturer.
   - We suggest that you download and use the latest version of client software.

"Nice to have" recommendations to improve your device network security:

1. **Physical Protection**

   We suggest that you perform physical protection to device, especially storage devices. For example, place the device in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable device (such as USB flash disk, serial port), etc.

2. **Change Passwords Regularly**

   We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.

3. **Set and Update Passwords Reset Information Timely**

   The device supports password reset function. Please set up related information for password reset in time, including the end user's mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

4. **Enable Account Lock**

   The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

5. **Change Default HTTP and Other Service Ports**

   We suggest you to change default HTTP and other service ports into any set of numbers

between 1024~65535, reducing the risk of outsiders being able to guess which ports you are using.

6. **Enable HTTPS**

   We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.

7. **MAC Address Binding**

   We recommend you to bind the IP and MAC address of the gateway to the device, thus reducing the risk of ARP spoofing.

8. **Assign Accounts and Privileges Reasonably**

   According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.

9. **Disable Unnecessary Services and Choose Secure Modes**

   If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.

   If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:

   - SNMP: Choose SNMP v3, and set up strong encryption passwords and authentication passwords.
   - SMTP: Choose TLS to access mailbox server.
   - FTP: Choose SFTP, and set up strong passwords.
   - AP hotspot: Choose WPA2-PSK encryption mode, and set up strong passwords.

10. **Audio and Video Encrypted Transmission**

    If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.

    Reminder: encrypted transmission will cause some loss in transmission efficiency.

11. **Secure Auditing**

    - Check online users: we suggest that you check online users regularly to see if the device is logged in without authorization.
    - Check device log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.

12. **Network Log**

    Due to the limited storage capacity of the device, the stored log is limited. If you need to save the log for a long time, it is recommended that you enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

13. **Construct a Safe Network Environment**

    In order to better ensure the safety of device and reduce potential cyber risks, we recommend:

    - Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.
    - The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
    - Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.

- Enable IP/MAC address filtering function to limit the range of hosts allowed to access the device.

ENABLING A SAFER SOCIETY AND SMARTER LIVING

ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD.
Address: No. 1399, Binxing Road, Binjiang District, Hangzhou, P. R. China | Website: www.dahuasecurity.com | Postcode: 310053
Email: dhoverseas@dhvisiontech.com | Tel: +86-571-87688888 28933188