HD Analog Recorder
User's Manual

Model No.   CJ-HDR104B

CJ-HDR108B

CJ-HDR216B

CJ-HDR416B

Version 1.1.0

Table of Contents

Welcome

Thank you for purchasing our HD Analog Recorder (DVR)!

This user's manual is designed to be a reference tool for the installation and operation of your system.

Here you can find information about this series standalone DVR features and functions, as well as a detailed menu tree.

Before installation and operation please read the following safeguards and warnings carefully!

Cybersecurity Recommendations

Mandatory actions to be taken towards cybersecurity

1. Change Passwords and Use Strong Passwords:
The number one reason systems get "hacked" is due to having weak or default passwords. It is recommended to choose a strong password whenever possible. A strong password should be made up of at least 8 characters and a combination of special characters, numbers, and letters.

2. Update Firmware:
As is standard procedure in the tech-industry, we recommend keeping DVR firmware up-to-date to ensure the system is current with the latest security patches and fixes.

"Nice to have" recommendations to improve your network security

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

2. Change Default HTTP and TCP Ports:
- Change default HTTP and TCP ports for systems. These are the two ports used to communicate and to view video feeds remotely.
- These ports can be changed to any set of numbers between 1025-65535. Avoiding the default ports reduces the risk of outsiders being able to guess which ports you are using.

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

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

5. Forward Only Ports You Need:
Only forward the HTTP and TCP ports that you need to use. Do not forward a huge range of numbers to the device. Do not DMZ the device's IP address.

6. Limit Features of Guest Accounts:
If your system is set up for multiple users, ensure that each user only has rights to

features and functions they need to use to perform their job.

7. UPnP:
- UPnP will automatically try to forward ports in your router or modem. Normally this would be a good thing. However, if your system automatically forwards the ports and you leave the credentials defaulted, you may end up with unwanted visitors.
- If you manually forwarded the HTTP and TCP ports in your router/modem, this feature should be turned off regardless. Disabling UPnP is recommended when the function is not used in real applications.

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

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

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

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

12. Security Cautions:
Take appropriate measures to avoid the following security breaches when using this product.
- Leaks of private information
- Unauthorized use of this product
- Unauthorized interference or suspension of the use of this product

Take the following measures to avoid security breaches:
- Configure the access point that connects your mobile device to this product to use encryption for all wireless communication.
- Do not use passwords that could be easily guessed by a third party. If you keep a record of your passwords, protect that record. Change passwords regularly.
- If you lose your mobile device, change the password used to access this product.
- Take care when performing important security related operations such as initializing

settings, etc.

- To prevent disclosure of personal information, enable the screen lock or similar security feature on your mobile device.
- When submitting the product for repair, make a note of any important information stored in the product, as this information may be erased or changed as part of the repair process.
- Before handing the product over to a third party for repair or other purposes, make a backup of your HDD files, perform a factory data reset to erase any data stored in the product and erase the HDD memory. Use only trusted repair services authorized by Panasonic.
- This product can store your private/confidential information. To protect your privacy/confidentiality, we recommend that you erase information from the memory before you dispose of, transfer, or return the product.
- If your mobile device will no longer be used with the product, delete your mobile device's registration from the product and delete the corresponding app from your mobile device.

Additionally, note the following:

- Communications may be interrupted depending on network conditions and wireless signal quality.
- This product may be used in ways that violate the privacy or publicity rights of others. You are responsible for the ways in which this product is used.

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").

Safety Instructions

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

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

Privacy Protection Notice

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

About the Manual

- The Manual is for reference only. If there is inconsistency between the Manual and the actual product, the actual product shall prevail.
- All pictured model is CJ-HDR416B, unless otherwise stated.
- We are not liable for any loss caused by the operations that do not comply with the Manual.
- The Manual would be updated according to the latest laws and regulations of related regions. For detailed information, see our official website.
- All the designs and software are subject to change without prior written notice. The product updates might cause some differences between the actual product and the Manual. Please contact the customer service for the latest program and supplementary documentation.
- There still might be deviation in technical data, functions and operations description, or errors in print. If there is any doubt or dispute, please refer to our final explanation.

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

Important Safeguards and Warnings

This chapter describes the contents covering proper handling of the Device, hazard prevention, and prevention of property damage. Read these contents carefully before using the Device, comply with them when using, and keep it well for future reference.

Operation Requirement

- 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 or explosion.
- 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 source shall conform to the requirement of the Safety Extra Low Voltage (SELV) standard, and supply power with rated voltage which conforms to Limited power Source requirement according to IEC62368-1. Please note that the power supply requirement is subjected to the device label.
- Connect the device to the power socket with protective earthing.
- The appliance coupler is a disconnection device. When using the coupler, keep the angle for easy operation.

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

1.2 Functions

NOTE

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

Video Motion Detection (VMD)
- Analyze VMD, 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.

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 (CJ-HDR416B only)

- Several relay alarm outputs to realize alarm activation.
- 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 (CJ-HDR416B only) 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.

1.3 Specifications

CJ-HDR104B/CJ-HDR108B

Model		CJ-HDR104B	CJ-HDR108B
Video/Audio IF			
Video Input		4 CH, BNC	8 CH, BNC
Type	HDCVI	720P/1080P	
	Analog	PAL/NTSC	
Video Output		1 HDMI, 1 VGA	
Audio Input		1 CH, RCA	
Audio Output		1 CH, RCA	
Two-way Talk		Reuse audio input/output CH 1	
Display			
Output Resolution		1920×1080, 1280×1024, 1280×720	
Multiscreen Mode		1/4	1/4/8/9
Privacy Masking		4 rectangular zones (each camera)	
OSD		Camera Title, Time, Video Loss, Camera Lock, Motion Detection (MD), Recording	
Video/Audio Format			
Video/Audio Compression		Video: H.264, H.265 Audio: AAC (only for the 1st channel), G.711A, G.711U, PCM	
Record Rate*	Main Stream	1st channel 5M-N (1~20fps), other channels 5M-N (1~10fps); 4M-N/1080P (1~15fps)	1st & 5th channels 5M-N (1~20fps), other channels 5M-N (1~10fps); 4M-N/1080P (1~15fps)
		1080N/720P/960H/D1/CIF (1~25/30fps)	
	Sub Stream	D1/CIF (1~15fps)	
Bit Rate		32Kbps~6144Kbps per channel	
Record Mode		Manual, Schedule (General, Continuous), MD, Alarm, Stop	
Record Interval		1~60 min (default: 60 min), Pre-record: 0~30 sec, Post-record: 10~300 sec	
Alarm/Event			
Trigger Events		Recording, PTZ, Tour, Video Push, Email, FTP, Snapshot, Buzzer and Screen Tips	
Video Detection		MD, MD Zones: 396 (22×18), Video Loss and Tampering	
Playback & Backup			

Playback	1/4	1/4/9
Search Mode	Time/Date, Alarm, MD and Exact Search (accurate to second)	
Playback Functions	Play, Pause, Stop, Rewind, Fast Play, Slow Play, Next File, Previous File, Next Camera, Previous Camera, Full Screen, Repeat, Backup Selection, Digital Zoom, Customized Playback, Splice Playback	
Backup Mode	USB Device/Network	
Network		
Network Interface	RJ-45 port (100M)	
Network Functions	HTTP, HTTPS, TCP/IP, IPv4/IPv6, SNMP, UPnP, RTSP, UDP, SMTP, NTP, DHCP, DNS, IP Filter, DDNS, FTP, EZ Remote	
Max. User Access	128 users	
Mobile Device	iPhone, iPad, Android	
HDD		
Type	1 SATA port, up to 6TB	1 SATA port, up to 10TB
External Interface		
USB	2 ports (1 rear), USB2.0	
RS485	1 port, for PTZ Control	
General Specifications		
Power Supply	DC12V/1.5A	DC12V/2A
Power Consumption	<10W (without HDD)	
Working Environment	-10°C ~ +45°C, 10%~90% RH	-10°C ~ +55°C, 10%~90% RH
Dimension (W×D×H)	Mini 1U, 325mm × 255mm × 55mm	
Weight	1.0kg (without HDD)	1.2kg (without HDD)

- For channel 1 and channel 5 (CJ-HDR108B only), the change of the frame rate to 16fps or more at 1080P and above, will update the frame rate settings of other channels to 7fps.

- Recommended to schedule a weekly reboot.

CJ-HDR216B

Model	CJ-HDR216B	
Video/Audio IF		
Video Input	16 CH, BNC	
Type	HDCVI	720P/1080P
	Analog	PAL/NTSC
Video Output	1 HDMI, 1 VGA	
Audio Input	1 CH, RCA	

Audio Output	1 CH, RCA
Two-way Talk	Reuse audio input/output CH 1
Display	
Output Resolution	HDMI: 3840×2160, 2560×1440, 1920×1080, 1280×1024, 1280×720 VGA: 1920×1080, 1280×1024, 1280×720
Multiscreen Mode	1/4/8/9/16
Privacy Masking	4 rectangular zones (each camera)
OSD	Camera Title, Time, Video Loss, Camera Lock, Motion Detection (MD), Recording
Video/Audio Format	
Video/Audio Compression	Video: H.264, H.265 Audio: AAC (only for the 1st channel), G.711A, G.711U, PCM

Record Rate*	Main Stream	1st, 5th, 9th and 13th channels 5M-N (1~20fps), other channels 5M-N (1~10fps); 4M-N/1080P (1~15fps); 1080N/720P/960H/D1/CIF (1~25/30fps)
	Sub Stream	D1/CIF (1~15fps)

Bit Rate	32Kbps~6144Kbps per channel
Record Mode	Manual, Schedule (General, Continuous), MD, Alarm, Stop
Record Interval	1~60 min (default: 60 min), Pre-record: 0~30 sec, Post-record: 10~300 sec
Alarm/Event	
Trigger Events	Recording, PTZ, Tour, Video Push, Email, FTP, Snapshot, Buzzer and Screen Tips
Video Detection	MD, MD Zones: 396 (22×18), Video Loss and Tampering
Playback & Backup	
Playback	1/4/9/16
Search Mode	Time/Date, Alarm, MD and Exact Search (accurate to second)
Playback Functions	Play, Pause, Stop, Rewind, Fast Play, Slow Play, Next File, Previous File, Next Camera, Previous Camera, Full Screen, Repeat, Backup Selection, Digital Zoom, Customized Playback, Splice Playback
Backup Mode	USB Device/Network
Network	
Network Interface	RJ-45 port (1000M)
Network Functions	HTTP, HTTPS, TCP/IP, IPv4/IPv6, SNMP, UPnP, RTSP, UDP,

	SMTP, NTP, DHCP, DNS, IP Filter, DDNS, FTP, EZ Remote
Max. User Access	128 users
Mobile Device	iPhone, iPad, Android
HDD	
Type	2 SATA ports, up to 10TB for each disk
External Interface	
USB Interface	2 ports (1 rear), 1 USB2.0, 1 USB3.0
RS485	1 port, for PTZ Control
General Specifications	
Power Supply	DC12V/4A
Power Consumption	<15W (without HDD)
Working Environment	-10°C ~ +55°C, 10% ~ 90% RH
Dimension (W×D×H)	1U, 375mm × 287mm × 53mm
Weight	1.6kg (without HDD)

- For channel 1, channel 5, channel 9 and channel 13, the change of the frame rate to 16fps or more at 1080P and above, will update the frame rate settings of other channels to 7fps.

- Recommended to schedule a weekly reboot.

CJ-HDR416B

Model	CJ-HDR416B	
Video/Audio IF		
Video Input	16 CH, BNC	
Type	HDCVI	720P/1080P
	Analog	PAL/NTSC
Video Output	2 HDMI, 1 VGA, 1 TV	
Audio Input	4 CH, BNC	
Audio Output	1 CH, BNC	
Two-way Talk	1 Mic In, 1 Mic Out, BNC	
Display		
Output Resolution	HDMI 1: 3840×2160, 2560×1440, 1920×1080, 1280×1024, 1280×720; HDMI 2/VGA: 1920×1080, 1280×1024, 1280×720	
Multiscreen Mode	1/4/8/9/16	
Privacy Masking	4 rectangular zones (each camera)	

OSD	Camera Title, Time, Video Loss, Camera Lock, Motion Detection (MD), Recording
Video/Audio Format	
Video/Audio Compression	Video: H.264, H.265 Audio: AAC (only for the 1st channel), G.711A, G.711U, PCM

Record Rate*	Main Stream	1st, 5th, 9th and 13th channels 5M-N (1~20fps), other channels 5M-N (1~10fps); 4M-N/1080P (1~15fps); 1080N/720P/960H/D1/CIF (1~25/30fps)
	Sub Stream	D1/CIF (1~15fps)

Bit Rate	32Kbps~6144Kbps per channel
Record Mode	Manual, Schedule (General, Continuous), MD, Alarm, Stop
Record Interval	1~60 min (default: 60 min), Pre-record: 0~30 sec, Post-record: 10~300 sec
Alarm/Event	
Alarm Input	16 CH
Relay Output	6 CH
Trigger Events	Recording, PTZ, Tour, Video Push, Email, FTP, Snapshot, Buzzer and Screen Tips
Video Detection	MD, MD Zones: 396 (22×18), Video Loss and Tampering
Playback & Backup	
Playback	1/4/9/16
Search Mode	Time/Date, Alarm, MD and Exact Search (accurate to second)
Playback Functions	Play, Pause, Stop, Rewind, Fast Play, Slow Play, Next File, Previous File, Next Camera, Previous Camera, Full Screen, Repeat, Backup Selection, Digital Zoom, Customized Playback, Splice Playback
Backup Mode	USB Device/Network
Network	
Network Interface	RJ-45 port (1000M)
Network Functions	HTTP, HTTPS, TCP/IP, IPv4/IPv6, SNMP, UPnP, RTSP, UDP, SMTP, NTP, DHCP, DNS, IP Filter, DDNS, FTP, EZ Remote
Max. User Access	128 users

Mobile Phone	iPhone, iPad, Android
HDD	
Type	4 SATA ports, up to 10TB for each disk
External Interface	
USB Interface	3 ports (2 rear), 1 USB2.0, 2 USB3.0
RS232	1 port, for PC communication & keyboard
RS485	1 port, for PTZ control
RS422	1 port, for PTZ control
General Specifications	
Power Supply	AC100V~240V, 50/60Hz
Power Consumption	<35W (without HDD)
Working Environment	-10°C ~ +55°C, 10% ~ 90% RH
Dimension (W×D×H)	1.5U, 440mm × 417mm × 76mm
Weight	5kg (without HDD)

- For channel 1, channel 5, channel 9 and channel 13, the change of the frame rate to 16fps or more at 1080P and above, will update the frame rate settings of other channels to 7fps.
- Recommended to schedule a weekly reboot.

2 GETTING STARTED

NOTE

All the installation and operations here should conform to your local electric safety rules.

2.1 Checking the Components

NOTE

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

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

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. **NOTE** 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 loose connection.

2.2 Installing HDD

Please check whether the HDD is already installed in the Device when you first use the Device. It is suggested to use the HDD recommended. Do not use PC HDD.

CAUTION

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

2.2.1 CJ-HDR104B/CJ-HDR108B

This DVR has one SATA HDD.

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

2. Fix four screws in the HDD (Turn just three rounds).

3. Place the HDD in accordance with the four holes at the bottom.

4. Turn the device upside down and then turn the screws in firmly.

5. Fix the HDD firmly.

6. Connect the HDD cable and power cable.

7. Put the cover in accordance with the clip and then place the upper cover back.

8. Secure the screws in the rear panel and the side panel.

2.2.2   CJ-HDR216B

This DVR can install up to two SATA HDD.

1. Loosen the screws of the upper cover.

2. Fix four screws in the HDD (Turn just three rounds).

3. Place the HDD in accordance with the four holes at the bottom.

4. Turn the device upside down and then turn the screws in firmly.
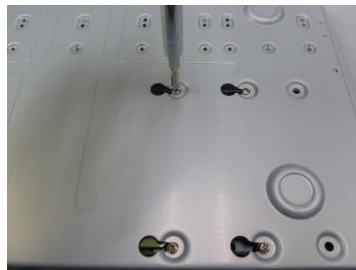
5. Fix the HDD firmly.

6. Connect the HDD cable and power cable.

7. Put the cover in accordance with the clip and then place the upper cover back.

8. Secure the screws in the rear panel.

2.2.3   CJ-HDR416B

This DVR can install up to four SATA HDD.
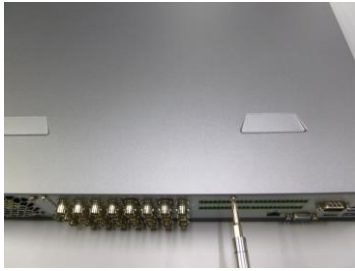
1. Loosen the screws of the upper cover.

2. Line up the HDD to the four holes of the HDD bracket.

3. Use four screws to fix HDD.
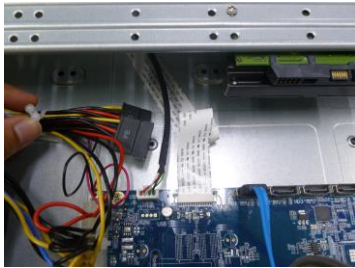
4. Unfasten the HDD power cable.

5. Use the special data cable to connect the HDD and the SATA port.
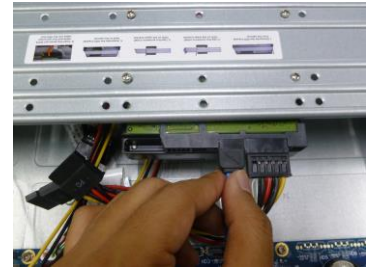
6. Insert the HDD power cable. Close the chassis and fix the screws to secure firmly.

Important

- You can connect the HDD data cable and the power cable first and then fix the HDD in the device.
- Please pay attention to the front cover. It adopts the vertical sliding design. You need to push the clip first and then put down.

2.2.4 Installing Device into Rack (CJ-HDR416B only)

To install the DVR into rack, do the following:

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.
2. Use six screws to fix the DVR on each side.
3. Install from the bottom up.

CAUTION

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

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

3   OVERVIEW AND CONTROLS

This section provides information about front panel, rear panel and mouse operations. When you install this series DVR for the first time, please refer to this part first.

3.1   Front Panel

3.1.1   CJ-HDR104B/CJ-HDR108B
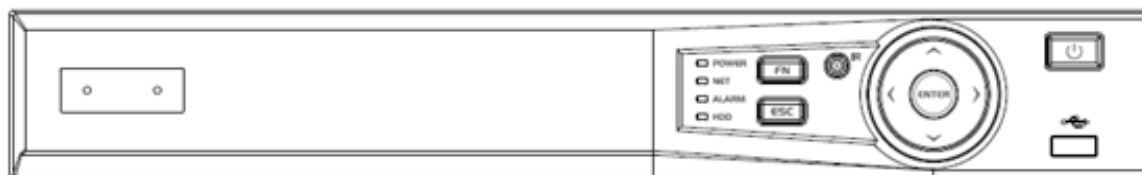
Figure 3-1

Name	Icon	Function
Power button	⏻	Press this button to boot up or shut down the Device.
USB port (USB2.0)	⛛	Connects to the external devices such as keyboard, mouse, and USB storage device.
Up Down	▲/▼	• Activate current controls, and then move up, move down or jump. • Change setup, increase/decrease numeral. • Assistant function such as PTZ menu. • Switch channel when playback.
Left Right	◀/▶	• Switch current activated controls. • When device is in 1-channel playback mode, use it to control playback control bar process.
Cancel	ESC	• Go to previous menu, or cancel current operation (Close the top interface or controls). • When playback, click it to restore real-time monitor mode.
Confirm	ENTER	• Confirm current operation. • Go to the menu.
Assistant	FN	• One-window monitor mode, click this button to display assistant function: PTZ control and image color. • In menu control interface click to switch PTZ control menu. • In motion detection setup, working with FN and direction keys to realize setup. • Backspace function: in numeral control or text control, press it to delete the previous character before the cursor. • Realize other special functions.
Power indicator	POWER	Light turns on when power connection is OK.
Network indicator	NET	Light turns on when network connection is abnormal.

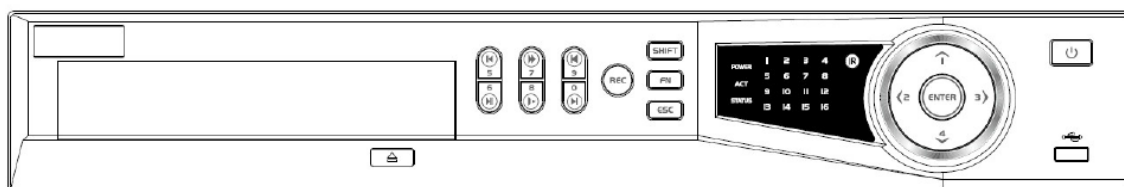| Name	Icon	Function
Alarm indicator	ALARM	Light turns on when alarm occurs.
HDD indicator	HDD	HDD error occurs or HDD capacity is below specified threshold value or HDD being overwritten. The light turns on to alert you, please check HDD status at the GUI.

3.1.2 CJ-HDR216B
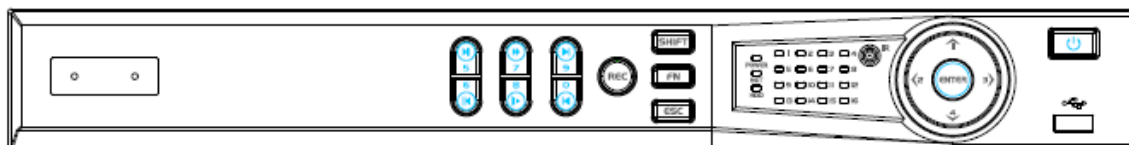
Figure 3-2

Name	Icon	Function
Power button	⏻	Press this button to boot up or shut down the Device.
USB port (USB2.0)	⛦	Connects to the external devices such as keyboard, mouse, and USB storage device.
Up/1 Down/4	▲/▼	• Activate current controls, and then move up, move down or jump. • Change setup, increase/decrease numeral. • Assistant function such as PTZ menu. • Switch channel when playback.
Left/2 Right/3	◄/►	• Switch current activated controls. • When device is in 1-channel playback mode, use it to control playback control bar process.
Play/Pause/5	► ‖	When playback, click it to pause, click it again to play again.
Reverse/ Pause/6	‖ ◄	When playback, click it to begin reverse play.
Fast forward/7	▶▶	When playback, it supports various fast forward speeds and normal playback.
Slow playback/8	▶▶	When playback, it supports various slow playback speeds and normal playback.
Play next/9	►|	When playback, click it to view the next record.
Play previous/0	|◄	When playback, click it to view the previous record.
Record indicator	1～16	• It is to display system is recording or not. • The light becomes on when system is recording.
Cancel	ESC	• Go to previous menu, or cancel current operation (Close the top interface or controls). • When playback, click it to restore real-time monitor mode.

Name	Icon	Function
Confirm	ENTER	• Confirm current operation. • Go to the menu.
Assistant	FN	• One-window monitor mode, click this button to display assistant function: PTZ control and image color. • In menu control interface click to switch PTZ control menu. • In motion detection setup, working with FN and direction keys to realize setup. • Backspace function: in numeral control or text control, press it to delete the previous character before the cursor. • Realize other special functions.
Shift	SHIFT	In textbox, click it to switch between numeral, English character (small/capitalized) and etc.
Record	REC	• It is to start/stop record manually. • In record control interface, working with the direction buttons to select the record channel.
Power indicator	POWER	Light turns on when power connection is OK.
Network indicator	NET	Light turns on when network connection is abnormal.
HDD indicator	HDD	HDD error occurs or HDD capacity is below specified threshold value or HDD being overwritten. The light turns on to alert you, please check HDD status at the GUI.

3.1.3   CJ-HDR416B

Figure 3-3

Name	Icon	Function
Power button	⏻	Press this button to boot up or shut down the Device.
USB port (USB2.0)	⇔	Connects to the external devices such as keyboard, mouse, and USB storage device.
Up/1 Down/4	▲/▼	• Activate current controls, and then move up, move down or jump. • Change setup, increase/decrease numeral. • Assistant function such as PTZ menu. • Switch channel when playback.

Name	Icon	Function
Left/2 Right/3	◀/▶	• Switch current activated controls. • When device is in 1-channel playback mode, use it to control playback control bar process.
Play/Pause/6	▶ ❙❙	When playback, click it to pause, click it again to play again.
Reverse/Pause/5	❙❙ ◀	When playback, click it to begin reverse play.
Fast forward/7	▶▶	When playback, it support various fast forward speeds and normal playback.
Slow playback/8	▶▶	When playback, it support various slow playback speeds and normal playback.
Play next/0	▶❙	When playback, click it to view the next record.
Play previous/9	❙◀	When playback, click it to view the previous record.
Record indicator light	1 ~ 16	It is to display system is recording or not. The light becomes on when system is recording.
Cancel	ESC	• Go to previous menu, or cancel current operation (Close the top interface or controls). • When playback, click it to restore real-time monitor mode.
Confirm	ENTER	• Confirm current operation. • Go to the menu.
Assistant	FN	• One-window monitor mode, click this button to display assistant function: PTZ control and image color. • In menu control interface, click to switch PTZ control menu. • In motion detection setup, working with FN and direction keys to realize setup. • Backspace function: in numeral control or text control, press it to delete the previous character before the cursor. • Realize other special functions.
Shift	SHIFT	• In text mode, click it to switch between numeral, English character (small/capitalized) and etc. • During tour process, click it to enable/disable tour function. • Click it to auto adjust resolution when device boots up.
Record	REC	• It is to start/stop record manually. • In record control interface, working with the direction buttons to select the record channel.
CDROM	⏏	This button is inapplicable. Please do not press it with too much force.

3.2 Rear Panel

3.2.1 CJ-HDR104B / CJ-HDR108B

The 4-channel series rear panel is shown as below. See Figure 3-4.
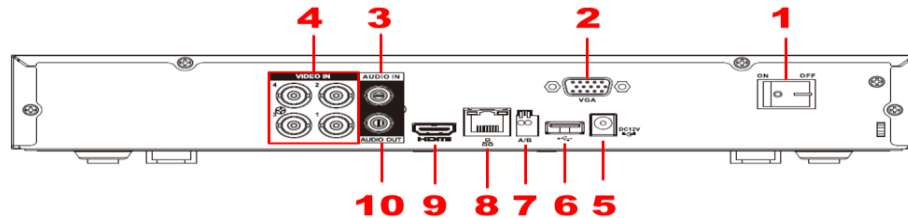
Figure 3-4

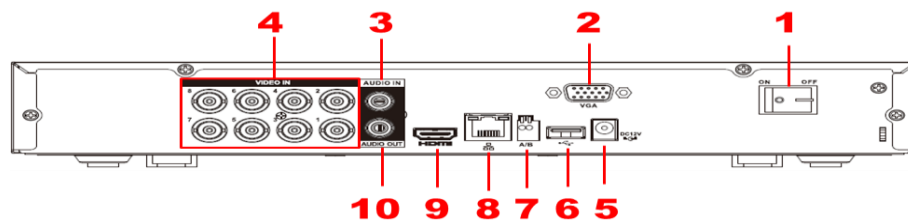The 8-channel series rear panel is shown as below. See Figure 3-5

Figure 3-5

SN	Icon	Name	Note
1		Power on-off button	Turns on/off the DVR.
2	VGA	VGA port	Outputs analog video data to the connected display with VGA port.
3	AUDIO IN	Audio input port	Receives audio signal input from the devices such as microphone. It corresponds to video input port 1.
4	VIDEO IN	Video input port	Connects to analog camera to input video signal.
5	DC 12V	Power input port	Inputs 12V DC power.
6		USB port	Connects to external devices such as USB storage device, keyboard and mouse.
7	A/B	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.
8		Network port	Connects to Ethernet port.

9	HDMI	High definition media interface	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.
10	AUDIO OUT	Audio output port	Outputs audio signal to the devices such as the sound box.

3.2.2　　　CJ-HDR216B
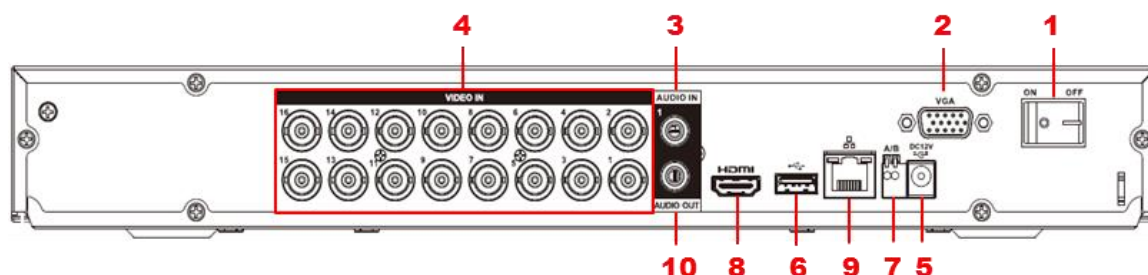
Figure 3-6

SN	Icon	Name	Note
1		Power switch	Turns on/off the DVR.
2	VGA	VGA port	Outputs analog video data to the connected display with VGA port.
3	AUDIO IN	Audio input port	Receives audio signal input from the devices such as microphone.
4	VIDEO IN	Video input port	Connects to analog camera to input video signal.
5	DC 12V	Power input port	Inputs 12V DC power.
6		USB port (USB3.0)	Connects to the external devices such as keyboard, mouse, and USB storage device.
7	A/B	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.
8	HDMI	High Definition Media Interface	High definition audio and video signal output port. It transmits uncompressed high definition video and multiple-channel data to the HDMI port of the display device.
9		Network port	Connects to Ethernet port.
10	AUDIO OUT	Audio output port	Outputs audio signal to the devices such as the sound box.

3.2.3   CJ-HDR416B
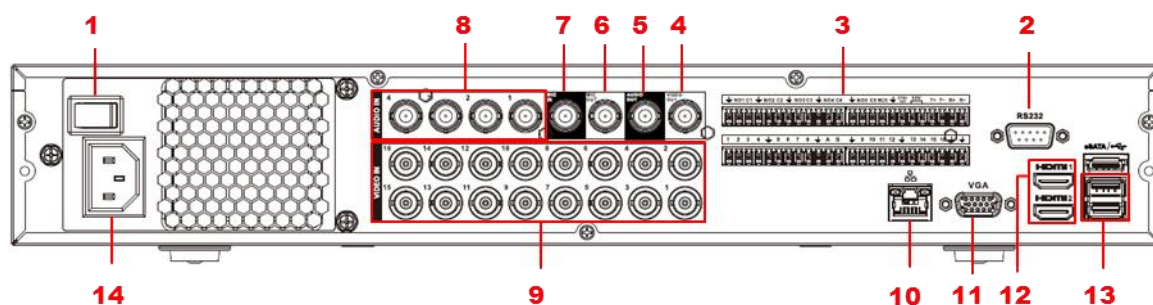
Figure 3-7

SN	Icon	Name	Note
1	⊟	Power switch	Turns on/off the DVR.
2	RS-232	RS-232 debug COM	The port is used for general COM debug to configure IP address or transfer transparent COM data.
3	1～16	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). **NOTE** When your alarm input device is using external power, please make sure the input device and the DVR connect to the same ground.
	NO1～NO5 C1～C5 NC5	Alarm output port 1～5	• 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. Please make sure power supply to the external alarm device. • NO: Normally open alarm output port. • C: Alarm output public end. • NC: Normally close alarm output port.
	A/B	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.
	T+, T-, R+,	Four-wire	Four-wire full-duplex 485 port. T+ and T- is the

SN	Icon	Name	Note
	R-	full-duplex RS-485 port	output wire; R+ and R- is the input wire.
	CTRL 12V	Power output control for alarm	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	12V power output port	Provides power to external devices such as camera and alarm device. Please note the power supply shall be below 1A.
	⏚	Ground	Ground.
4	VIDEO OUT	Video output port	Connects to video output devices such as TV.
5	AUDIO OUT	Audio output port	Outputs audio signal to the devices such as the sound box.
6	MIC OUT	Audio output port	Two-way talk output port which outputs the analog audio signal to the devices such as the sound box.
7	MIC IN	Audio input port	Two-way talk input port which receives analog audio signal output from the devices such as microphone and pickup.
8	AUDIO IN	Audio input port	Receives audio signal input from the devices such as microphone.
9	VIDEO IN	Video input port	Connects to analog camera to input video signal.
10	品	Network port	Connects to Ethernet port.
11	VGA	VGA port	Outputs analog video data to the connected display with VGA port.
12	HDMI	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.
13	⟶⟨	USB port (USB3.0)	Connects to the external devices such as keyboard, mouse, and USB storage device.
14	▢	Power socket	Inputs power.

3.3　Mouse Operations

NOTE

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

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.
	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 space 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	In numeral input box: Increase or decrease numeral value.
	Switch the items in the combo box.

button	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.
Mouse rolling	In live view • Rolling forward to zoom in. • Rolling backward to zoom out.

3.4 Virtual Keyboard & Front Panel

3.4.1 Virtual Keyboard

The system supports two input methods: numeral input and English character (small and capitalized) input.

Move the cursor to the text column, input button pops up on the right. Click that button to switch between numeral input and English input (capitalized and small), use SHIFT to shift between small character and capitalized character.

3.4.2 Front Panel

Move the cursor to the text column. Click FN key to delete the previous character before the cursor and use direction keys to select number you wanted. Please click ENTER button to confirm current input.

4 CONNECTING BASICS

This chapter introduces the typical connection diagrams and ports connections.

4.1 Typical Connection Diagram

4.1.1 CJ-HDR104B/CJ-HDR108B
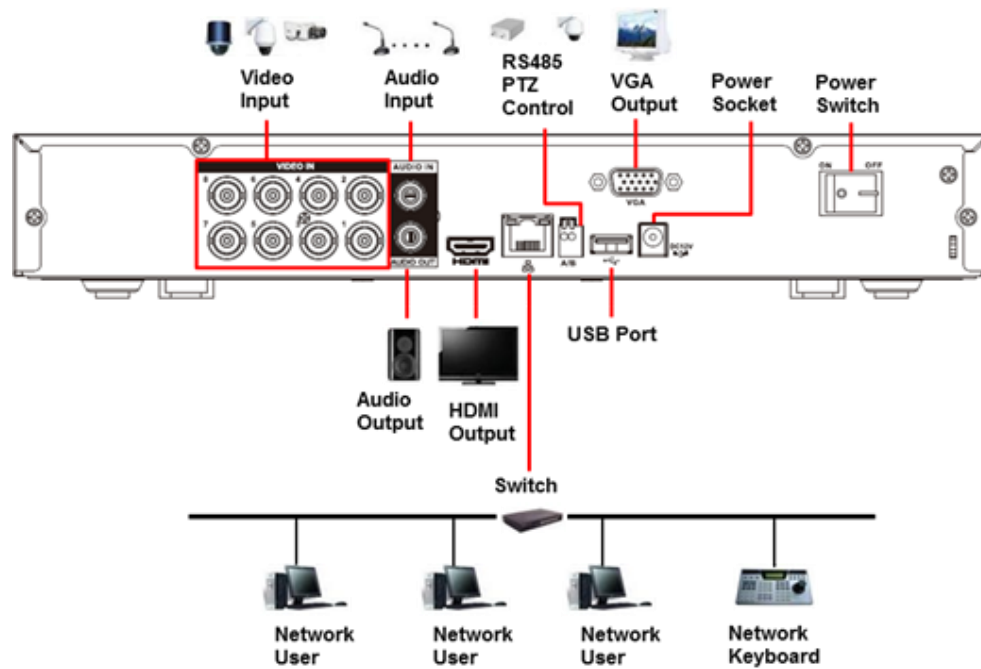
Figure 4-1

4.1.2　CJ-HDR216B
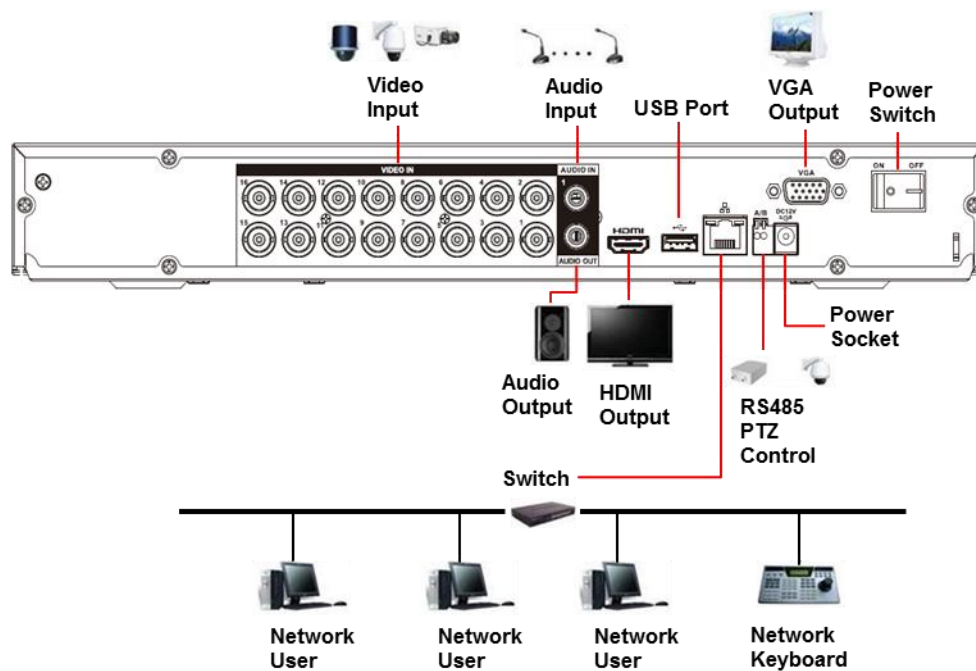
Figure 4-2

4.1.3　CJ-HDR416B
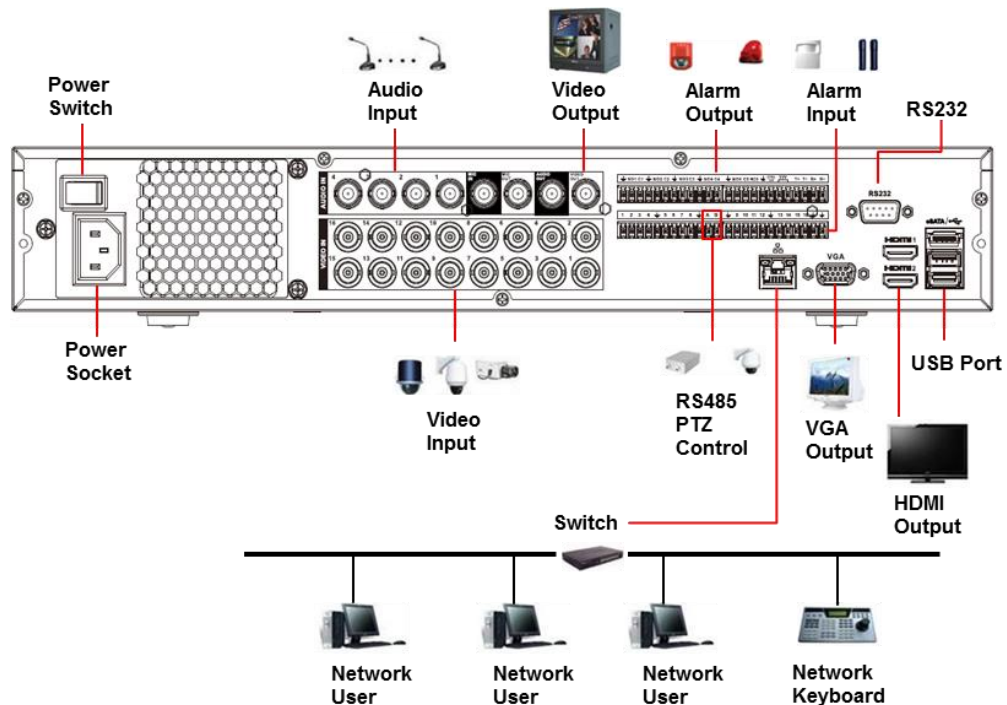
Figure 4-3

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 (1.0V$_{P-P,}$ 75Ω).
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.

Guarantee 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.

Guarantee stability and reliability of the transmission line:
Please use high quality, sound shielded BNC. Please 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.

Keep 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/NTSC 1.0V$_{P-P,}$ 75Ω) 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, please 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. A low quality TV may result in device damage.

4.2.3　　Audio Input

This series adopts BNC port as audio input port.
Due to high impedance of audio input, please 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). 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 to reduce happening of the squeaking.

4.3　　Connecting to Alarm Input and Output (CJ-HDR416B only)

Please 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 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 1A) to avoid high current which may 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, 120Ω 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 A, B lines of the decoder should be less than 5V.

Make sure the front-end device is soundly earthed
Improper grounding may result in chip damage.

4.3.1　　Introducing Alarm Port
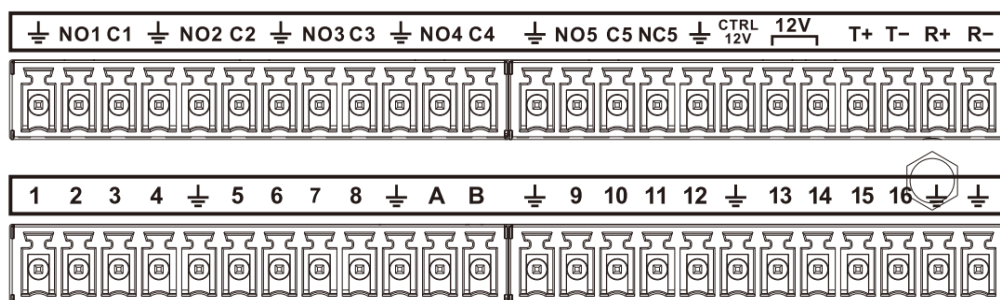
Figure 4-4

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 normally open activation output (on/off button).
NO5 C5 NC5	There is one group of normally open activation output (on/off button).
CTRL 12V	Control power output of the alarm output channel 6. Electric current: 500mA. ● When there is an alarm output, close the power output. ● When the alarm is cancelled, open the power output.
12V	Rated power supply. Electric current: 500mA.
⏚	Ground cable.
A/B	RS-485 communication port. They are used to control devices such as decoder. 120Ω 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.
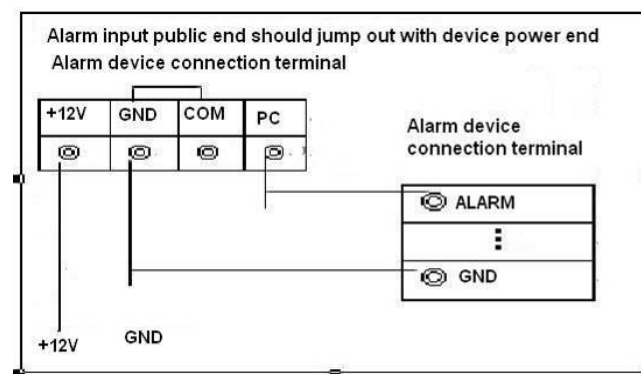
Figure 4-5

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

Model: HFD23/005-1ZS		
Material of the touch		AgNi+ gold-plating
Rating (Resistance Load)	Rated switch capacity	30V DC 1A/125V AC 0.5A
	Maximum switch power	62.5VA/30W
	Maximum switch voltage	125V AC/60V DC
	Maximum switch currency	2A
Insulation	Between touches	400VAC 1 minute
	Between touch and winding	1000VAC 1 minute
Turn-on Time		5ms maximum
Turn-off Time		5ms maximum
Longevity	Mechanical	1×10^7 times (300 times/MIN)
	Electrical	1×10^5 times

		(30 times/MIN)
Working Temperature		-30°C - 70°C

4.4　　　Connecting to RS-485 Port

1. Connect the RS-485 cable of the PTZ camera Step 1 to the RS-485 port on the Device. Ensure the match of A and B interfaces.
2. Connect the video out cable of the PTZ camera to the video input port on the Device.
3. Turn on the PTZ camera.

5 LOCAL CONFIGURATIONS

Read the following notes prior to using the Device.

NOTE

- 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 govern.
- 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. For details about mouse operations, see "3.3 Mouse Operations."

5.1 Initial Settings

5.1.1 Booting up

CAUTION

- 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, 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 HDD 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. UPS power source is recommended.

1. Connect the Device to the monitor.
2. Plug in the power cable to the Device.
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.

NOTE

After start up, there is black screen for a while. This is due to HDD file scanning function while monitor search for display source. After file scanning is done, information of "System is initializing, please wait..." will display.

5.1.2   Initializing the Device

When booting up for the first time, you need to configure the password information for
admin (by default).
NOTE
To secure the Device, it is strongly recommended for you to properly keep the password
for admin and modify it regularly.

1. Turn on the Device.
    The **Enter Password** interface is displayed. See Figure 5-1.

<p align="center">Figure 5-1</p>

2. Configure the password information for **admin**.

Function	Description
User	By default, the user is **admin**.
Password	In the **Password** box, enter the password for admin. The new password can be set from 8 characters through 32
Confirm Password	characters and contains at least two types from number, letter and special characters (excluding "''", "'''", ";", ":" and "&").
Prompt Question	In the **Prompt Question** box, enter the information that can remind you of the password. **NOTE** On the login interface, click [icon], the prompt will display to help you find back the password.

WARNING
STRONG PASSWORD RECOMMENDED - For your device own safety, please
create a strong password of your own choosing. We also recommend you to change

your password periodically especially in a high security system.

3. Click **Next**.

The **Unlock Pattern** interface is displayed. See Figure 5-2.
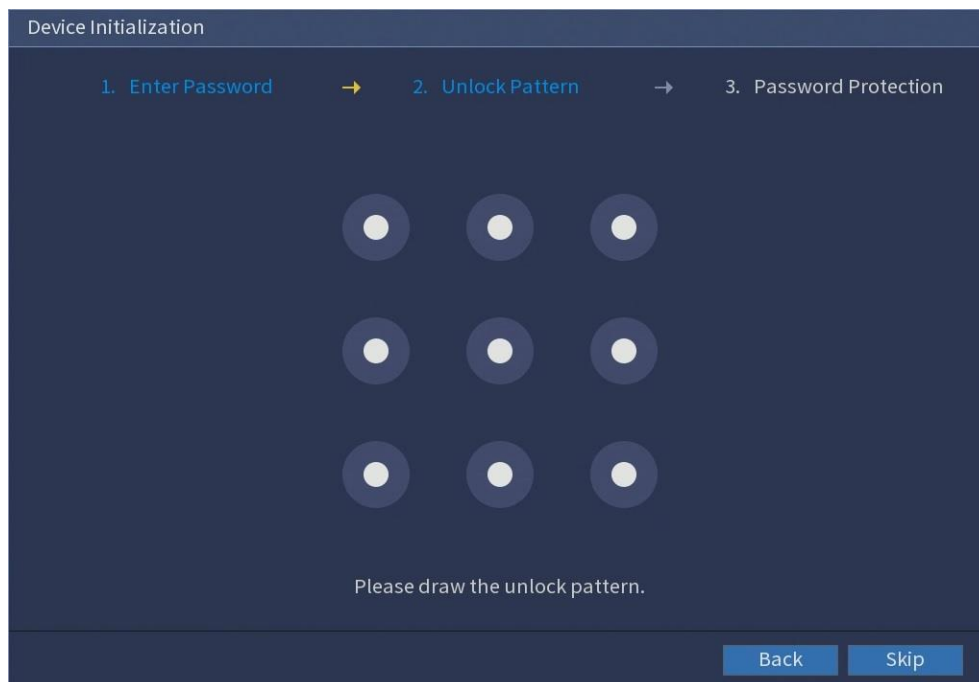
Figure 5-2

4. Draw an unlock pattern.

After the setting is completed, the **Password Protection** interface is displayed. See Figure 5-3.

NOTE

- 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 5-3

5. Configure the protection parameters for password.

After configuration, if you forget the password for admin user, you can reset the password through security questions. For details about resetting the password, see "5.1.3 Resetting Password."

If you forget the password, enter the answers to the questions can make you reset the password.

NOTE

If you want to configure the security questions function later or you want to change the configurations, select **MAIN MENU** > **ACCOUNT** > **USER**.

6. Click **Save** to complete the settings.

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 forgot the password for admin account.

- See "5.1.3.1 Resetting Password on Local Interface."
- If you configured security questions, you can reset 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 "5.1.3.2 Using Reset Button on the Mainboard."

5.1.3.1 Resetting Password on Local Interface

1. Enter the login interface.

- If you have configured unlock pattern, the unlock pattern login interface is displayed. See Figure 5-4. Click **Forgot Pattern**, the password login interface is displayed. See Figure 5-5.
- If you did not configure unlock pattern, the password login interface is displayed.

  See Figure 5-5. Click [👁] to display the password with plaintext.

NOTE

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.
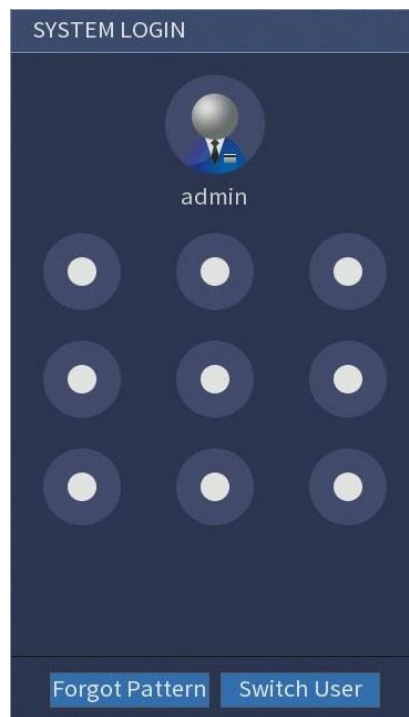
Figure 5-4
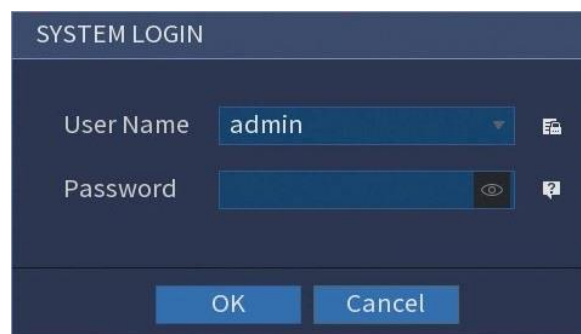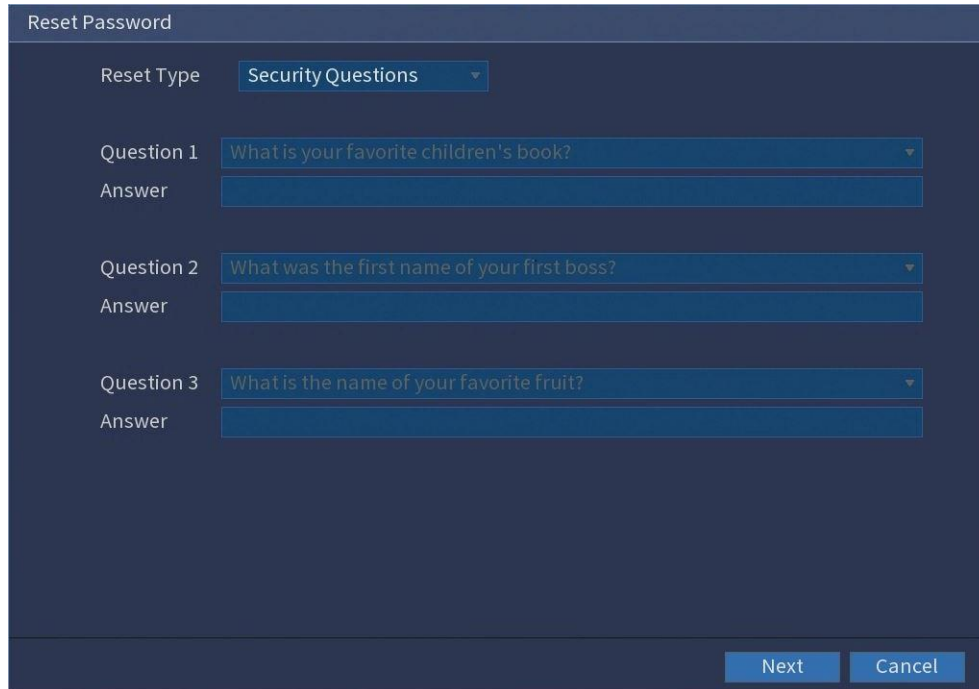
Figure 5-5

2. Click [🄟].

3. Reset the password.
   Security questions:
   1) The Security Questions interface is displayed, see Figure 5-6.

NOTE

2) In the **Answer** box, enter the correct answers.
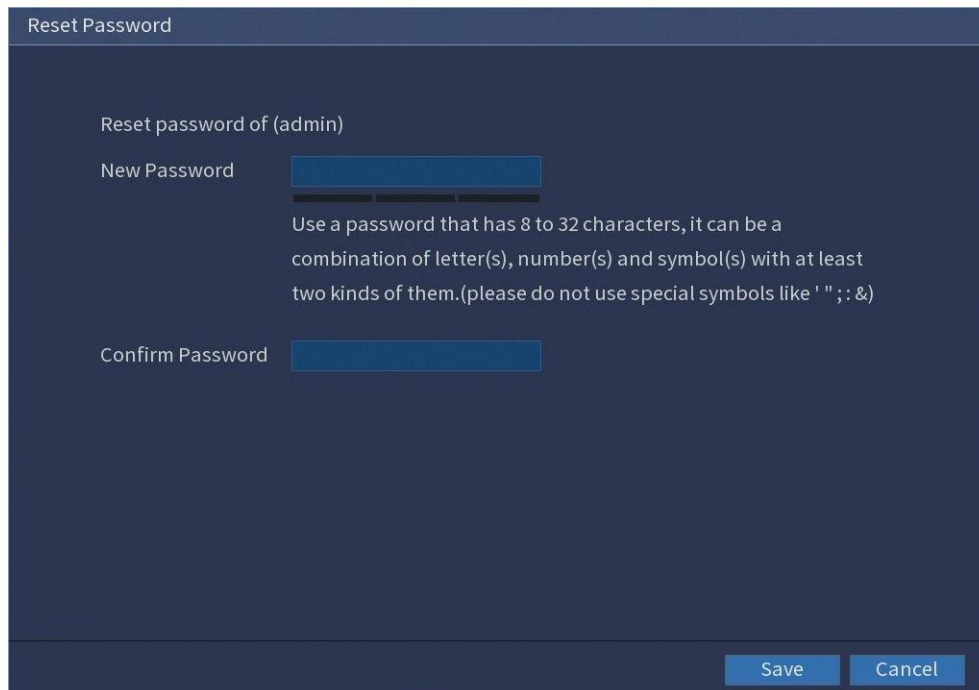
Figure 5-6

4. Click **Next**.

The new password resetting interface is displayed. See Figure 5-7.

Figure 5-7

5. In the **New Password** box, enter the new password and enter it again in the **Confirm Password** box.
6. Click **Save**. The password resetting is started.
   After resetting is completed, a pop-up message is displayed.
7. Click **OK**.

5.1.3.2   Using Reset Button on the Mainboard

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

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."
2. Find the reset button on the mainboard, and then press and hold the reset button for 5 seconds to 15 seconds. At the same time, turn on the power switch. See Figure 5-8 for the location of the reset button.
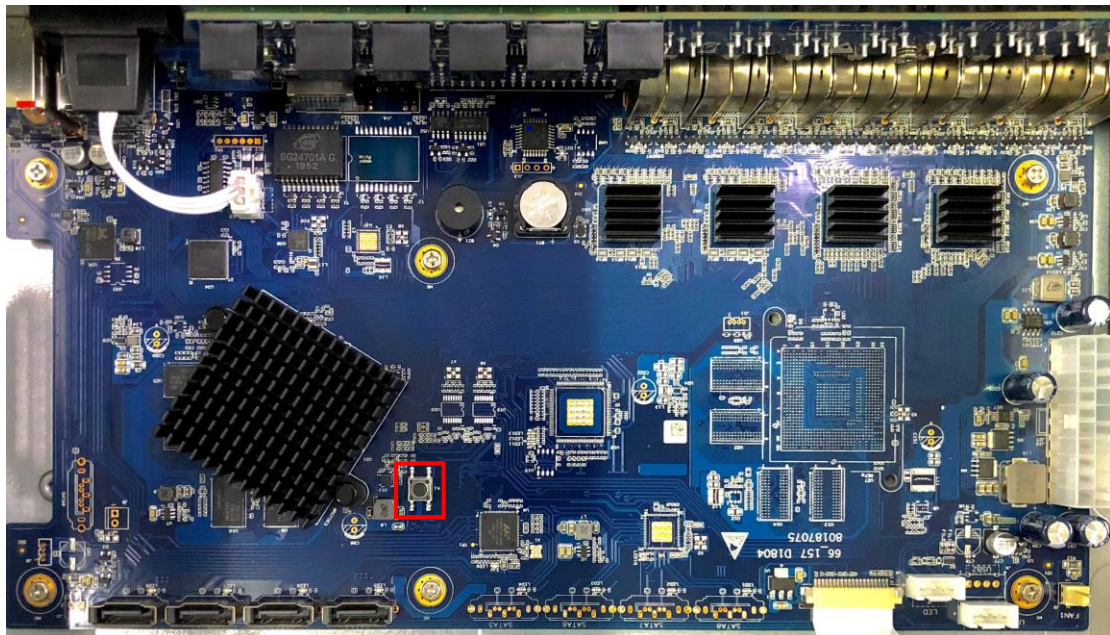
Figure 5-8

3. 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. See Figure 5-9.
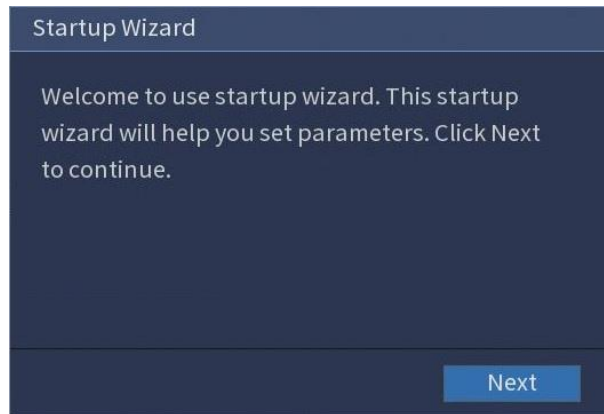
Figure 5-9

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** > **General**.

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

    The **General** interface is displayed. See Figure 5-10.

Figure 5-10

2. Configure the general 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 Play(min.)	In the **Instant Play** 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.
Auto Logout(min.)	In the **Auto Logout** 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 login 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 Sensitivity	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**.

1. After you have configured the general settings, on the **General** interface, click **Next**.
   The **Date&Time** interface is displayed. See Figure 5-11.

Figure 5-11

2. Configure the settings for 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 is adjusted automatically. **CAUTION** 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.
System Zone	In the **System 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.
Server	In the **Server** 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(min.)	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**.

1. After you have configured the date and time settings, on the **Date&Time** interface, click **Next**.
    The **NETWORK** interface is displayed. See Figure 5-12.

Figure 5-12

2. Configure the settings for 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.
IP Address	Enter the IP address and configure the corresponding subnet mask and default gateway.
Subnet Mask	**NOTE**
Default Gateway	IP address and default gateway must be in the same network segment.
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 VPN connection, and it is also the default value of some routers, network adapters and switches. • 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 EZ Remote Settings

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

You can also configure EZ Remote function by selecting **MAIN MENU** > **NETWORK** > **EZ REMOTE**.

NOTE

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

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

   The **EZ REMOTE** interface is displayed. See Figure 5-13.
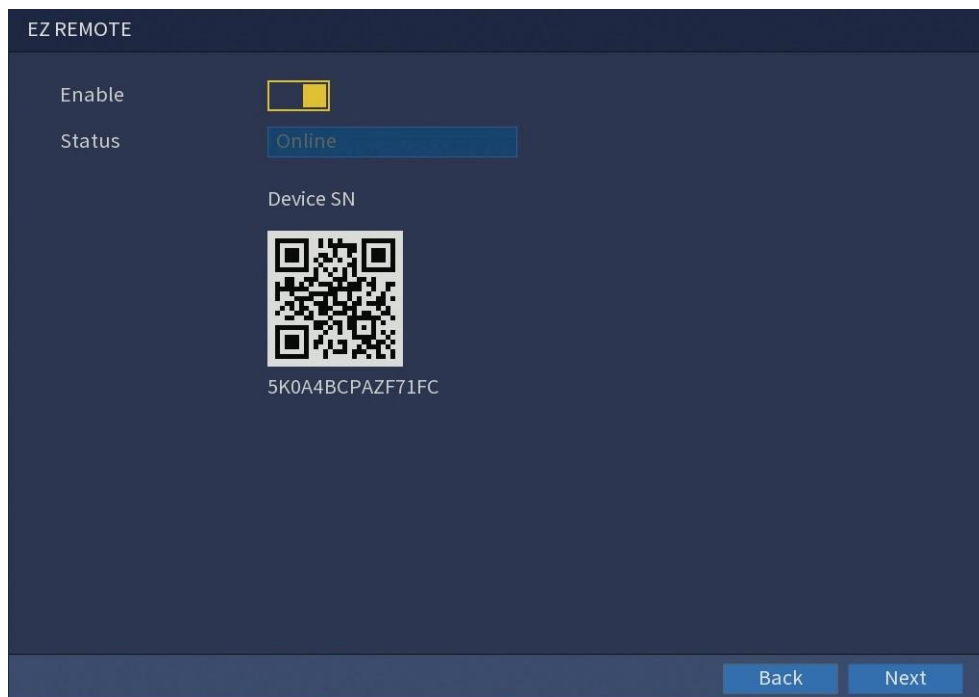
Figure 5-13

2. Enable the EZ Remote function.
   NOTE
   After the EZ Remote 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.

   - 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.

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** > **Encode**.

1. After you have configured the EZ Remote settings, on the **EZ Remote** interface, click **Next**.
   The **Encode** interface is displayed. See Figure 5-14.

Figure 5-14

2. Configure the settings for the main/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**, **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.264: Main profile encoding.
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 Encode	Click More Setting, the More Setting interface is displayed. • Audio Encode: Once this function is enabled, the recorded video file is composite audio and video stream.
Audio Source	• 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	• Audio Format: In the Audio Format list, select a format that you need.

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 "5.7 Configuring Snapshot Settings."

1. After you have configured the encode settings, on the Encode interface, click Next. The SNAPSHOT interface is displayed. See Figure 5-15.

Figure 5-15

2. Configure the settings for the snapshot parameters.

Parameter	Description
Manual Snap	In the **Manual Snap** 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.
Mode	In the **Mode** list, you can select **Event**, or **General** as the event type for which you want to take a snapshot. • **General**: 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.
Image Size	In the **Image Size** list, select a value for the image. The bigger the value is, the better the image will become.
Image 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**.

1. After you have configured the encode settings, on the **SNAPSHOT** interface, click
   Next.
   The **BASIC** interface is displayed. See Figure 5-16.

Figure 5-16

2. Configure the basic storage settings parameters.

Parameter	Description
HDD Full	Configure the settings for the situation when all the read/write discs are full, and there are no more free discs. • Select **Stop Record** to stop recording. • Select **Overwrite** to overwrite the recorded video files always from the earliest time. **NOTE** The locked recorded video files will not be overwritten.
Pack Mode	Configure the time length and file length for each recorded video.
Auto Delete Old files	Configure whether to delete the old files and if yes, in the **Auto Delete Old Files** list, select **Customized** 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**.

1. After you have configured the basic storage settings, on the **BASIC** interface, click **Next**.
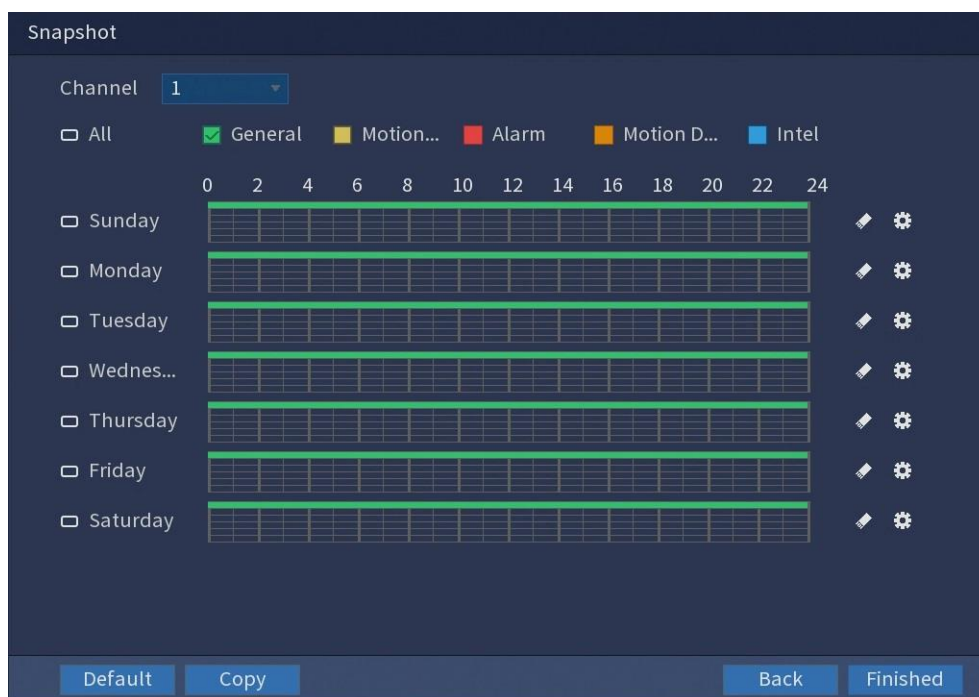   The **Record** interface is displayed. See Figure 5-17.
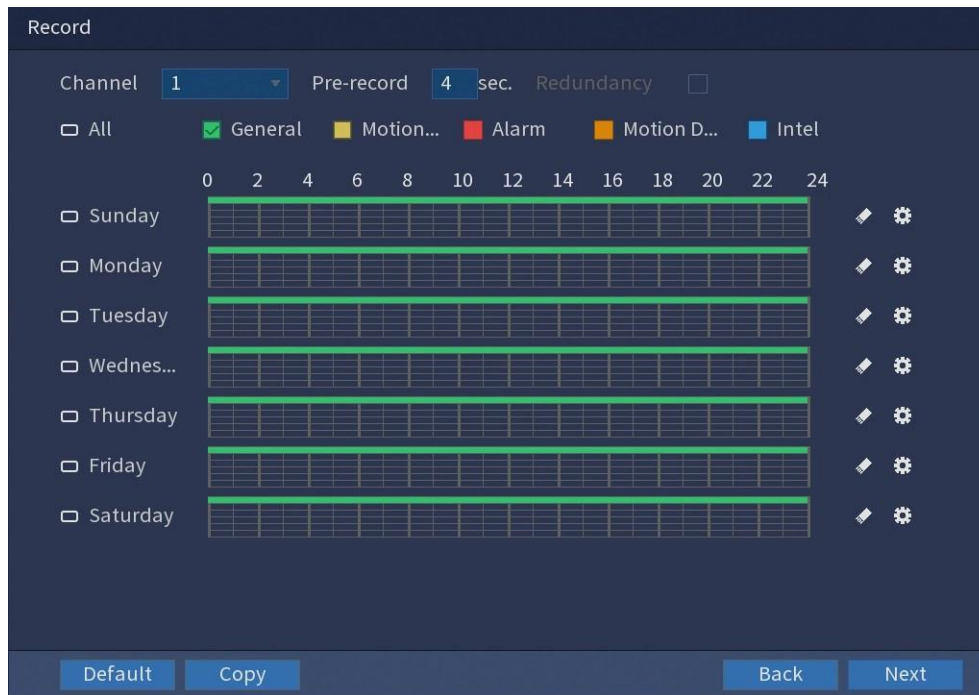
Figure 5-17

2. Configure the record settings parameters.

Parameter	Description
Channel	In the **Channel** list, select a channel to record the video.
Pre-record	In the **Pre-record** box, 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** > **HDD MANAGER**, and then set a HDD as redundant HDD. • Select **MAIN MENU** > **STORAGE** > **SCHEDULE** > **Record**, and then select the **Redundancy** check box. 1. 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. 2. If the selected channel is recording, the current recorded files will be packed, and then start recording according to the new schedule. **NOTE** 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 Detect** (motion detect, video loss, tempering, diagnosis), **Alarm** (local alarms), **Motion Detect&Alarm** (CJ-HDR416B only) and **Intel** (VMD events).
Period	Define a period during which the configured recording setting is active. **NOTE** The system only activates the alarm in the defined period.
Copy	Click **Copy** to copy the settings to other channels.

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. See Figure 5-18.
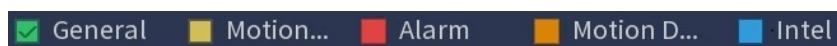
Figure 5-18

        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 recording the selected event type in the defined period. See Figure 5-19.
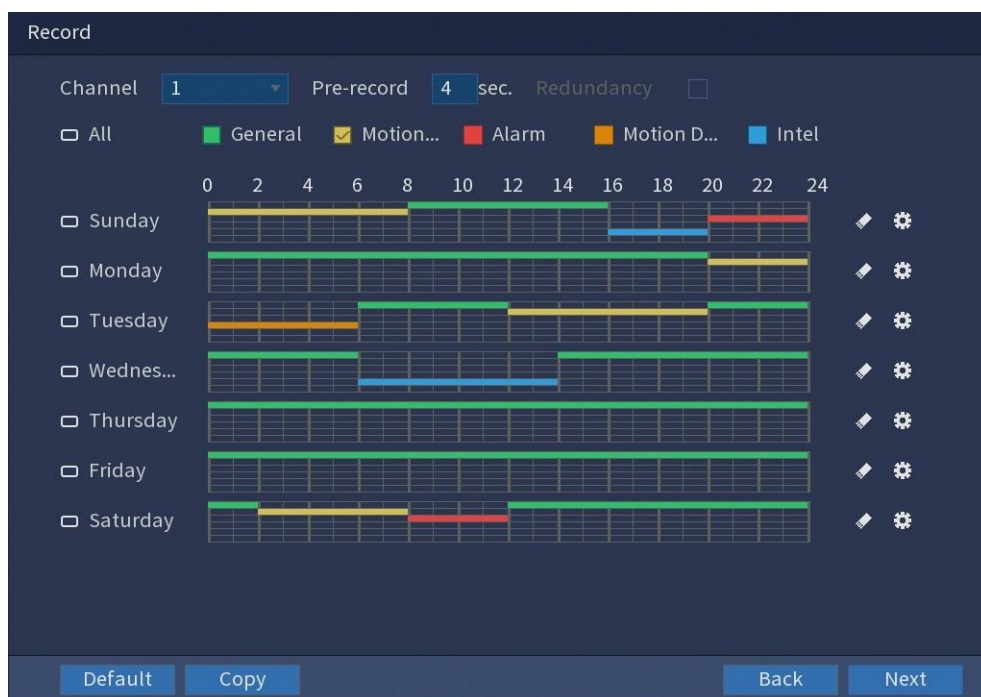
Figure 5-19

The color bar indicates the event type that is effective in a defined period.
NOTE
- Recording priority in case of event types are overlapped: **Motion Detect&Alarm** > **Alarm** > **Intel** > **Motion Detect** > **General**.

- Select the check box of event type, and then click [icon] to clear the defined period.

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

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

1) Click [icon].

The **Period** interface is displayed. See Figure 5-20.

Figure 5-20

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**, 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.
4. Click **Next** to complete the settings.
   NOTE
   - 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 configure the settings for the recording channel.
       For details, see "5.9 Alarm Events Settings."
     ▪ You need to enable the recording function, see "5.6.1 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**.

1. After you have configured the video recording settings, on the **Record** interface, click
   Next.
   The **Snapshot** interface is displayed. See Figure 5-21.

Figure 5-21

2. Configure the snapshot settings parameters.

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 Detect**, **Alarm, Intel** and **Motion Detect&Alarm** (CJ-HDR416B only).
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 copy the settings to other channels

3. Click **Finished**.
   A pop-up message is displayed.
4. Click **OK**.
   The live view screen is displayed. The setting with startup wizard is completed. You can start using the Device.
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 5-22. Choose to switch the resolution or not.

Figure 5-22

5.2 Live View

After you logged in the Device, the live view is displayed. See Figure 5-23. The number of channels displayed depends on your model.
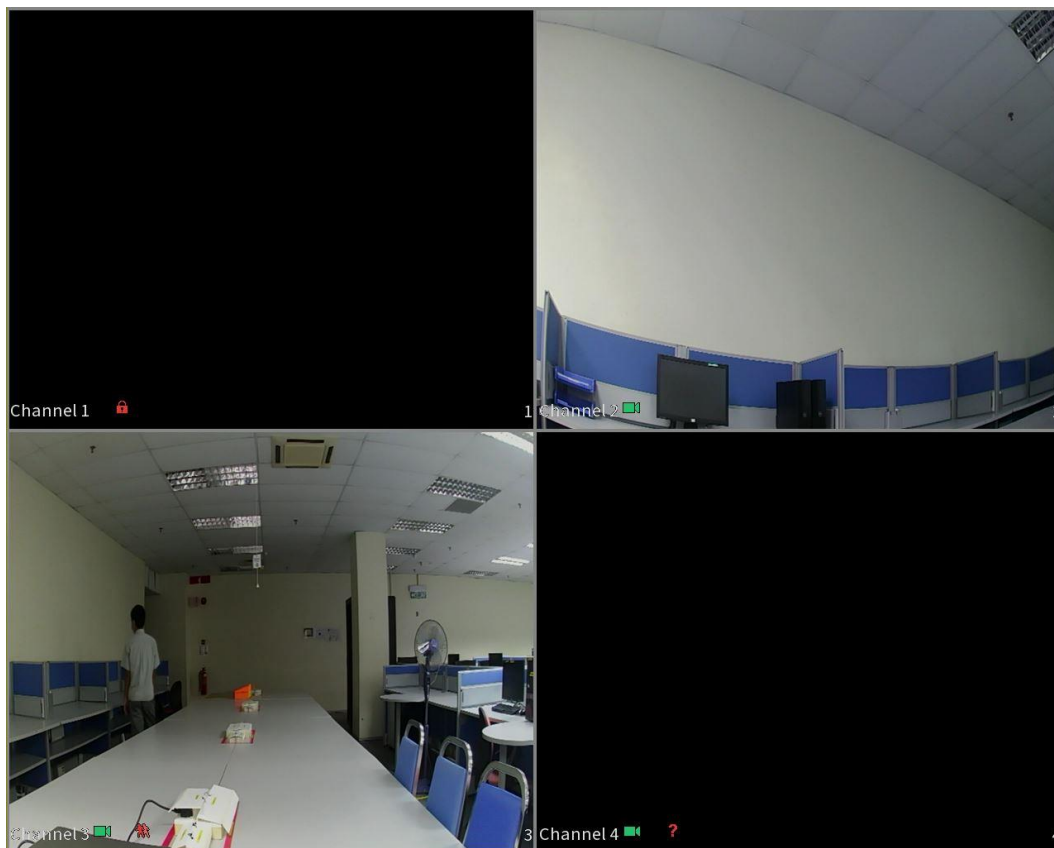
Figure 5-23

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 channel name and channel number are displayed on each channel window. This setting can be configured by selecting **MAIN MENU** > **CAMERA** > **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 on displayed on each channel, see the table below.

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.

TIPS

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 and manual snapshot.
When you move the pointer to the top middle position of a channel window, the live view control bar is displayed. See Figure 5-24.
NOTE

If there is not operation for six seconds after the control bar is displayed, the control bar hides automatically.

Figure 5-24

No.	Function	No.	Function
1	Instant Play	4	Manual Snap
2	Digital Zoom	5	Mute

3	Realtime Backup		

5.2.2.1   Instant Playback

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

By clicking [icon], 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** > **General**, in the **Instant Play** box, enter the time you want to play back. See Figure 5-25.
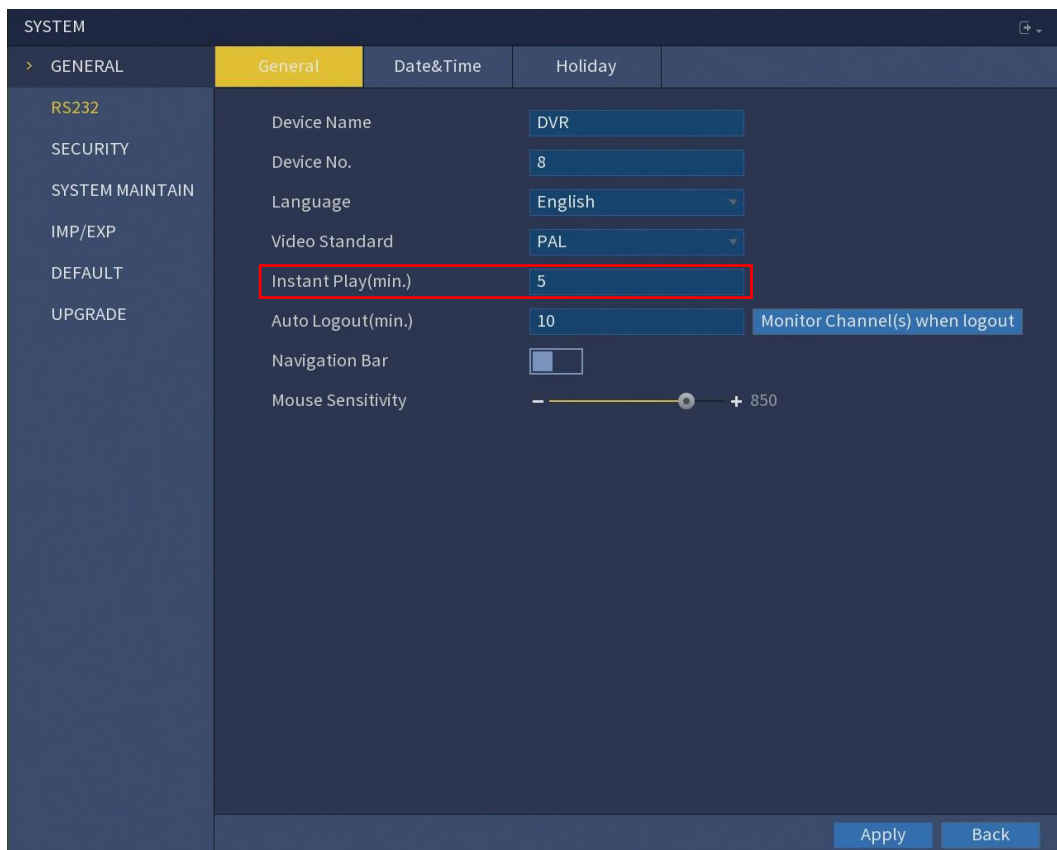
Figure 5-25

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 [icon], the icon switches to [icon]. 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.

NOTE

- 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 Real-time Backup

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.

NOTE

To change the quantity of snapshots, select **MAIN MENU** > **CAMERA** > **ENCODE** > **Snapshot**, in the **Manual Snap** list, select the snapshot quantity.

5.2.2.5 Mute

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

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 5-26.

NOTE

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**, enable the Navigation Bar, and then click **Apply**.

Figure 5-26

Icon	Function
	Open **MAIN MENU**.
	Expand or condense the navigation bar.
	Select view layout.
	Go to the previous screen.
	Go to the next screen.
	Enter tour function. The icon switches to .
	Open the PTZ control panel. For details, see "5.4 Controlling PTZ Cameras".
	Open the **Color Setting** interface. For details, see "5.2.5 Color Setting". **NOTE** This function is supported only in single-channel layout.
	Open the record search interface. For detail, see "5.8 Playing Back Video".
	Open the **EVENT** interface to view the device alarm status. For details, see "5.16.3 Viewing Event Information".
	Open the **CHANNEL INFO** interface to display the information of each channel.
	Open the **NETWORK** interface. For details, see "5.12.1 Configuring Network Settings".
	Open the **HDD MANAGER** interface. For details, see "5.14.3 Configuring HDD Manager".
	Open the **USB MANAGER** interface. For details about USB operations, see "5.11.2 Backing up Files", "5.16.2 Viewing Log Information", "5.15.5 Exporting and Importing System Settings", "5.15.7 Upgrading 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. See Figure 5-27. For details about the functions of shortcut menu, see the table that follows.
NOTE
After you access any interface through shortcut menu, you can return to the previous screen by right-clicking on the current screen.

Main Menu
Playback
Pan/Tilt/Zoom
View 1 ▸
View 4 ▸
View 8 ▸
View 9 ▸
View 16
Previous Screen
Next Screen
Manual ▸
Color Setting
Image
Sub Port
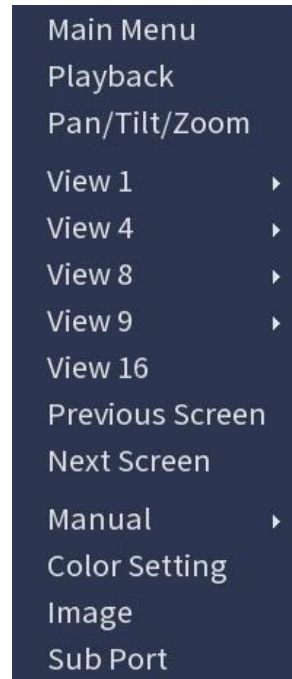
Figure 5-27

Function	Description
Main Menu	Open **MAIN MENU** interface.
Playback	Open the **PLAYBACK** interface where you can search and play back record files.
Pan/Tilt/Zoom	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	
Manual	Select **Record**, you can configure the recording mode as **Auto** or **Manual**, or stop the recording. You can also enable or disable snapshot function. Select **Alarm Out** (CJ-HDR416B only), you can configure alarm output settings.
Color Setting	Open the **COLOR** interface where you can adjust the video image color.
Image	Click to modify the camera properties.
Sub Port	Click to switch to extra screen control.

(CJ-HDR416B only)	

5.2.5 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.

In the live view screen, right-click on the analog channel to see the shortcut menu, and then select **Color Setting**, the **COLOR** interface is displayed. See Figure 5-28. For details, see "5.5.1 Configuring Image Settings".
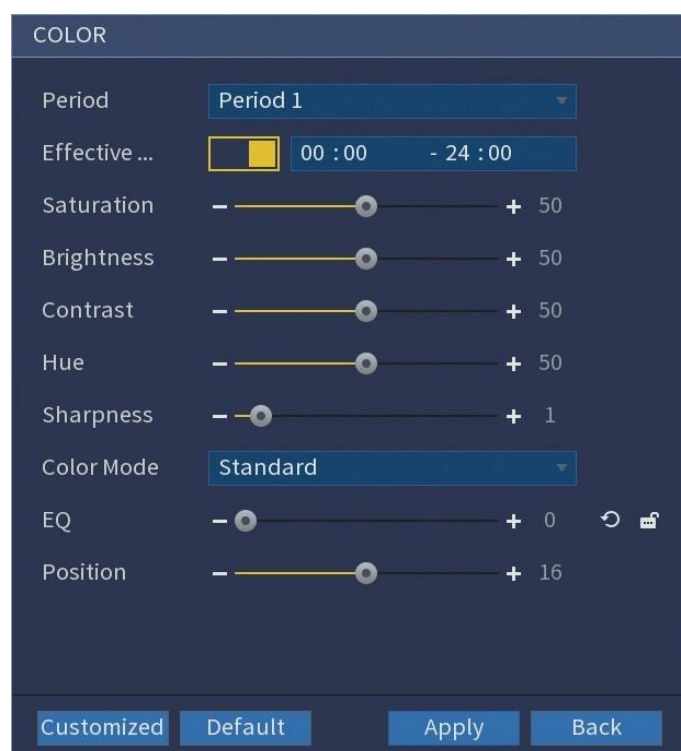
Figure 5-28

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.
Saturation	Adjust the color shades. The smaller 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.
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 small. 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.
Hue	Adjust the hue of image. The value ranges from 0 to 100. The default value is 50.
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.
Color Mode	In the **Color Mode** list, you can select **Standard**, **Soft**, **Bright**, **Colorful**, **Bank**, **Customized1**, **Customized2**, **Customized3**, and **Customized4**. 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.
Position	Adjust the display position of the image in the channel window. The value indicates pixel. The default value is 16.
Customized	You can customize four color modes. 1. Click **Customized**. The **Customized Color** interface is displayed. 2. In the **Color Mode** list, select **Customized1**, for example. Then configure the settings for sharpness, hue, brightness, contrast and saturation. If you select **All**, the configuration will applies to all four customized color modes. 3. Click **Save**. 4. On the **COLOR** interface, in the **Color Mode** list, you can select the customized color mode.

5.2.6 Live View Display

5.2.6.1 Configuring Display Settings

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

1. Select **MAIN MENU** > **DISPLAY** > **DISPLAY**.

   The **DISPLAY** interface is displayed. See Figure 5-29.
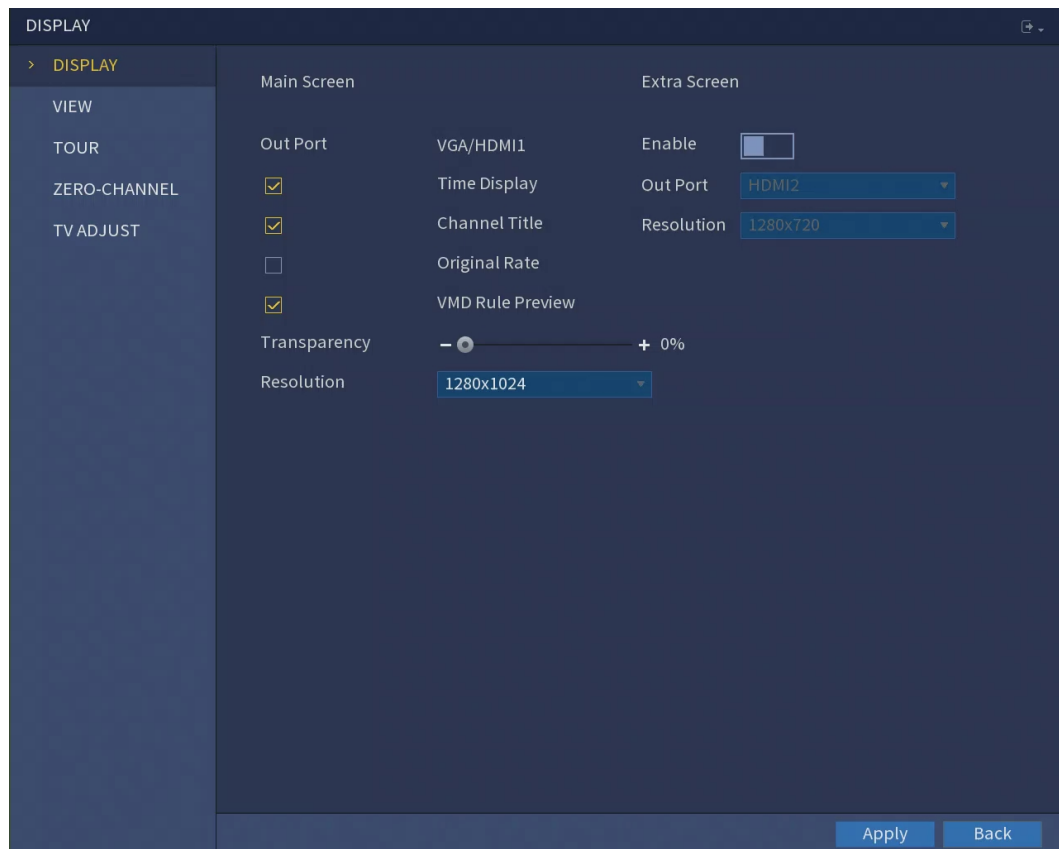
Figure 5-29

2. Configure the settings for the display parameters.

Parameter		Description
Main Screen	Out Port	Indicates the main screen port.
	Time Display	Select the **Time Display** 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 channel, clear the check box.
	Original Rate	Select the **Original Rate** check box, the video image displays in its actual size in the channel window.

	VMD Rule Preview	Select the **VMD Rule Preview** check box to enable VMD rule preview function.
	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. **NOTE** Some of the resolution options might not be supported on the HDMI port.
Extra Screen (CJ-HDR416B only)	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.
	Out Port	Only HDMI2 can be selected.
	Resolution	Select resolution for the video. The default resolution for HDMI port is 1280×720. **NOTE** Some of the resolution options might not be supported on the HDMI port.
NOTE 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.		

5.2.6.2   Configuring Viewing Layout

You can configure the view layout in the live view screen.

1. Select **MAIN MENU** > **DISPLAY** > **VIEW**.

    The **View Setting** interface is displayed. See Figure 5-30.
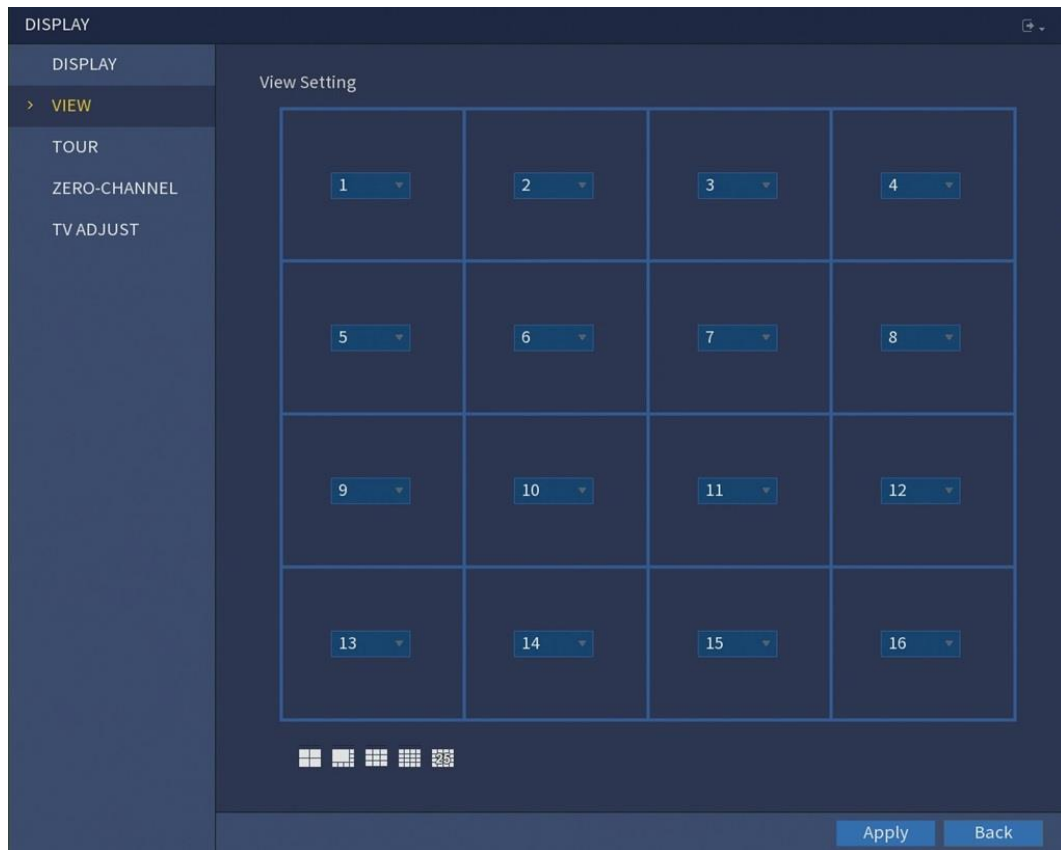
Figure 5-30

2. Configure the view layout by clicking the layout buttons on the bottom. See Figure 5-31.

Figure 5-31

For example, click and select **9-16**, the view layout changes immediately, see Figure 5-32.
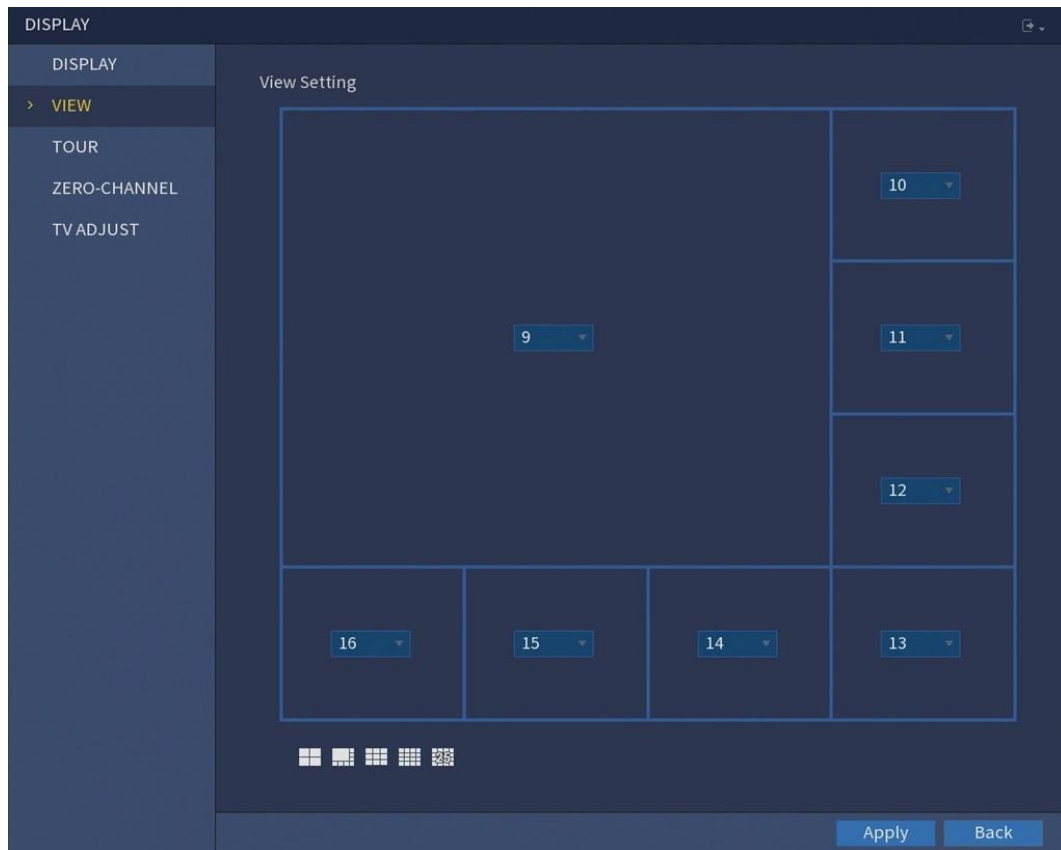
Figure 5-32

3. Adjust the position of channels if needed.

   In the channel list, for example, in the channel 9 list, you can select 10, and then the channel 9 and channel 10 exchange positions.

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

   The live view screen displays the same layout as configured in this section.

5.2.6.3   Configuring Zero-Channel Settings

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

1. Select **MAIN MENU** > **DISPLAY** > **ZERO-CHANNEL**.

   The **ZERO-CHANNEL** interface is displayed. See Figure 5-33.
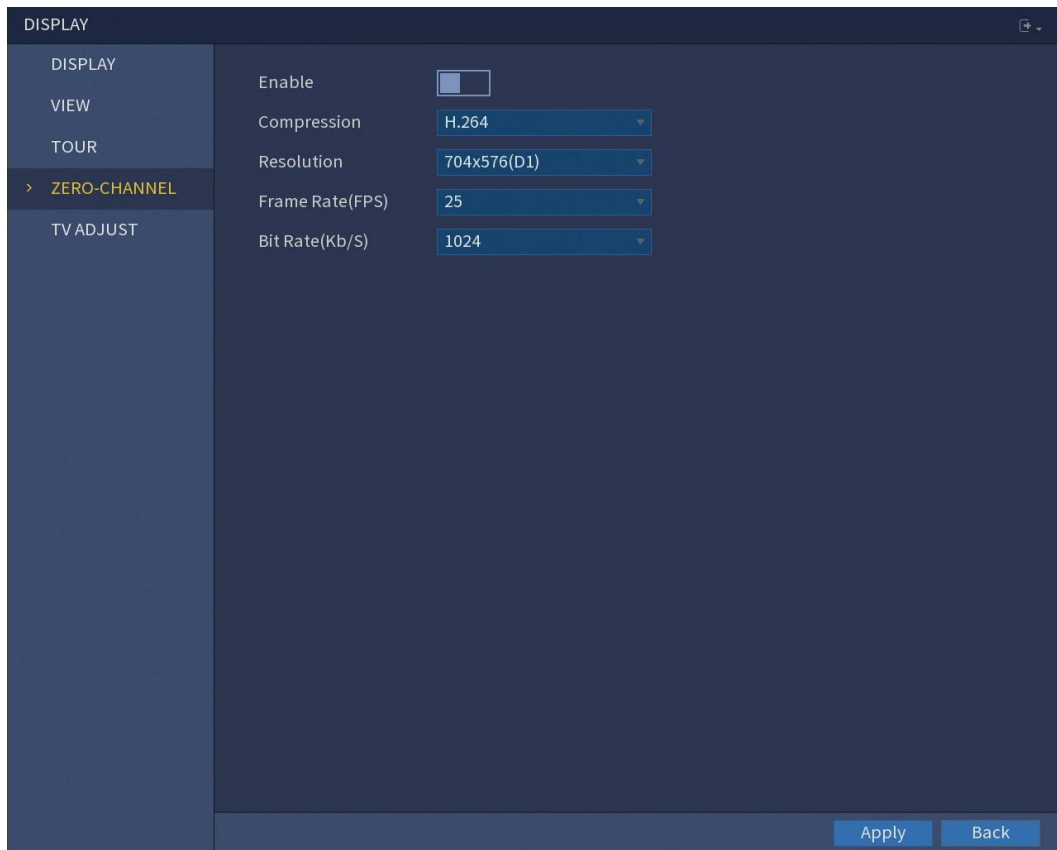
Figure 5-33

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

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.

5.2.6.4 Configuring TV (CJ-HDR416B only)

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.

1. Select **MAIN MENU** > **DISPLAY** > **TV ADJUST**.

    The **TV ADJUST** interface is displayed. See Figure 5-34.
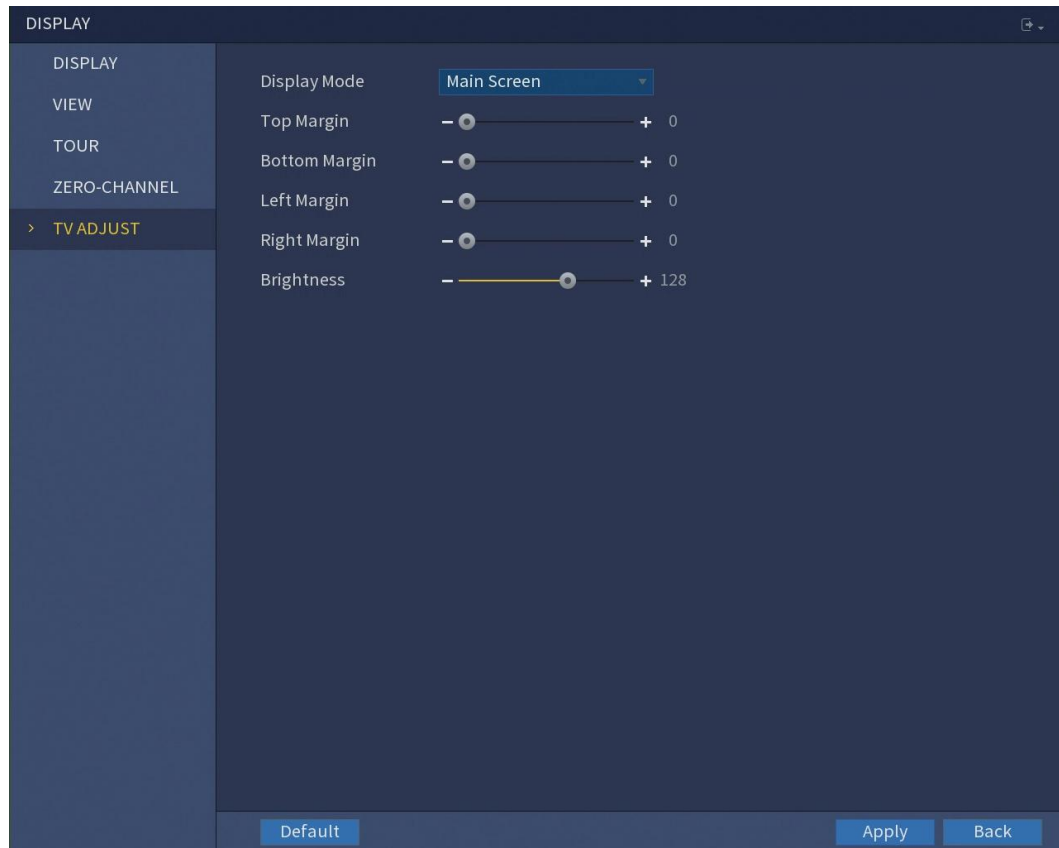
Figure 5-34

2. Configure the parameters according to your actual situation. Display mode can be **Main Screen** or **Extra Screen**.
3. Click **Apply** to complete the settings.

5.2.7 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.

1. Select **MAIN MENU** > **DISPLAY** > **TOUR**.

    The **TOUR** interface is displayed. There are Main Screen tab and Extra Screen tab, see Figure 5-35 and Figure 5-36.
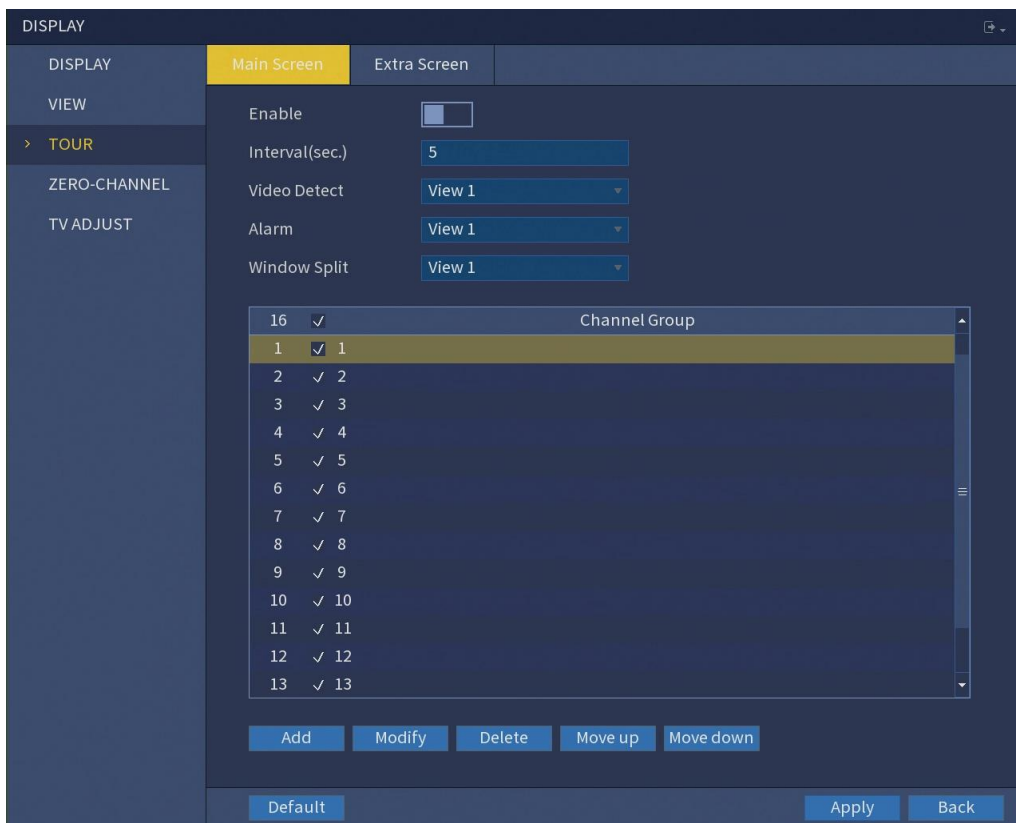
Figure 5-35
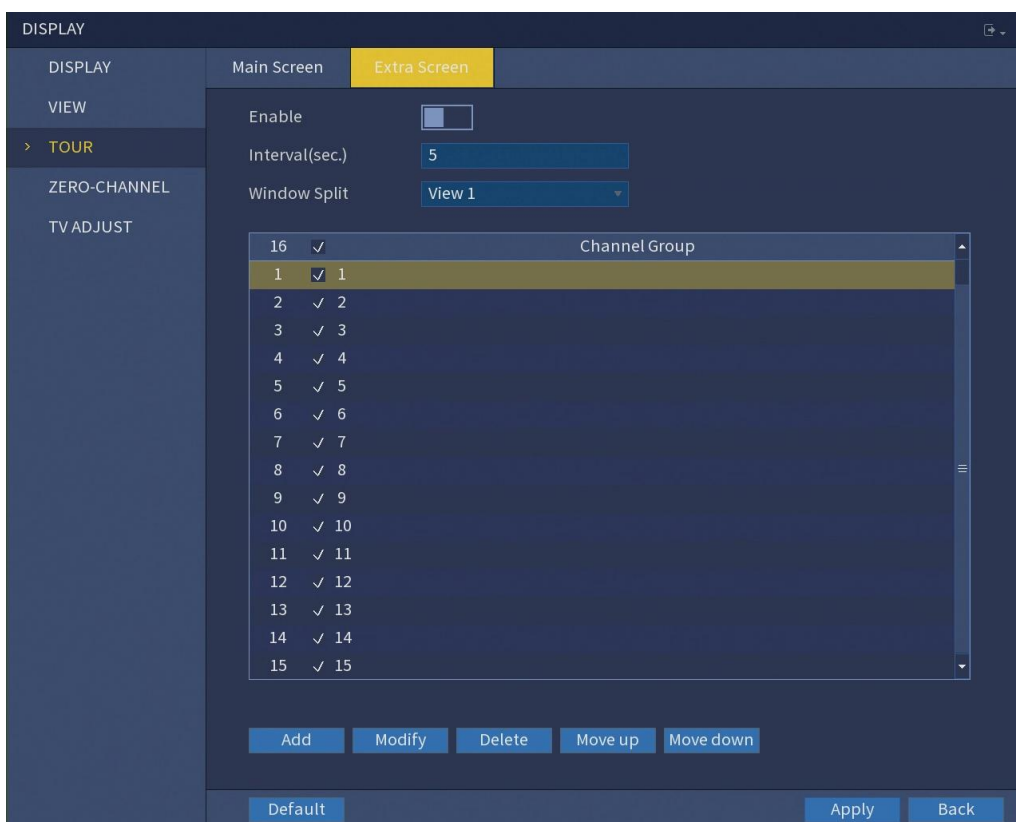
Figure 5-36

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

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.
Video Detect, Alarm	Select the View 1 or View 8 for **Motion Detect** tour and **Alarm** tour (system alarm events).
Window Split	In the **Window Split** 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 **OK**. • 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.

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

   TIPS

   • 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

1. Click **Add**. The Add Group interface is displayed. See Figure 5-37.
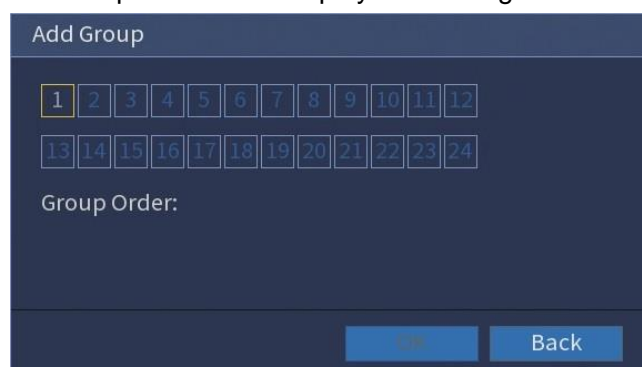
Figure 5-37

2. Select the channels that you want to group for tour. See Figure 5-38.
   NOTE
   If you want to select more than one channel, in the Window Split list, do not select
   View 1.
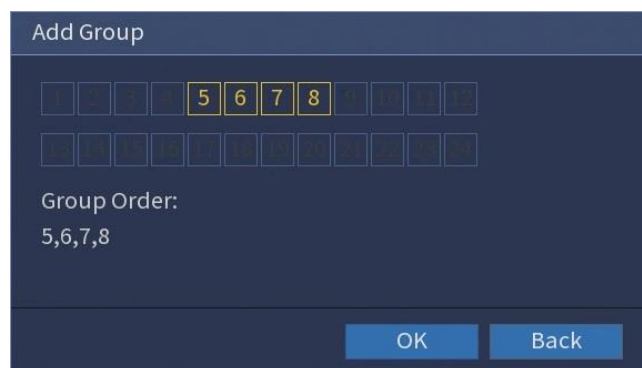
Figure 5-38

3. Click **OK** to complete the settings.

Modifying a Channel Group

Double-click on a channel group, the **Modify Channel Group** interface is displayed. See
Figure 5-39.
You can modify channel group and click **OK** to complete the settings.
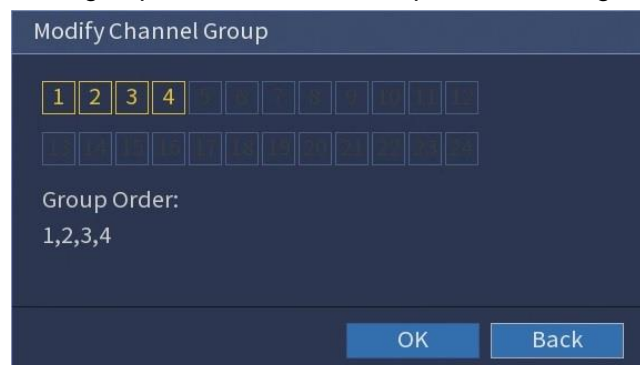
Figure 5-39

5.3   Entering Main Menu

Right-click on the live view screen, the shortcut menu is displayed. Click MAIN MENU and
then login the system. The main menu is displayed, see Figure 5-40.
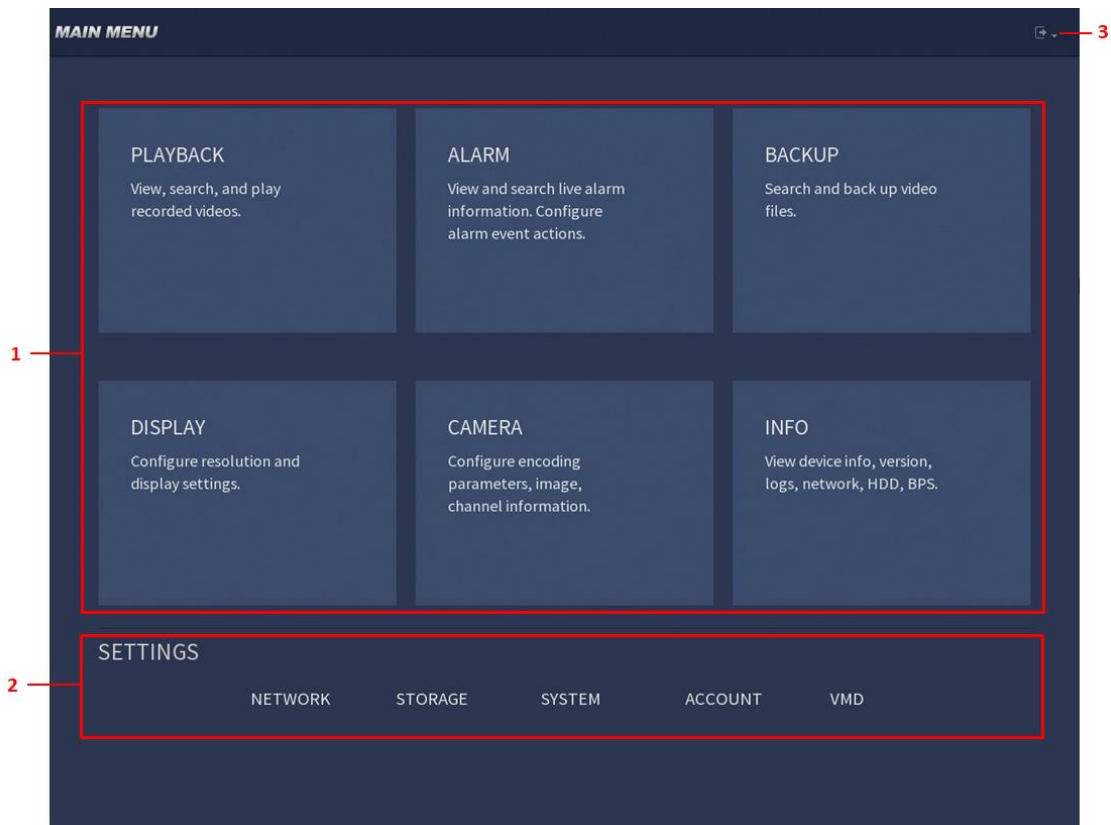
Figure 5-40

No.	Icon	Description
1	Function tiles	Includes six function tiles: **PLAYBACK**, **ALARM**, **BACKUP**, **DISPLAY**, **CAMERA** and **INFO**. Click each tile to open the configuration interface of the tile. **PLAYBACK**: Search for and play back the recorded video saved on the Device. **ALARM**: Search for alarm information and configure alarm event actions. **BACKUP**: Search and back up the video files to the external storage device such as USB storage device. **DISPLAY**: Configure resolution and display settings. **CAMERA**: Configure encoding parameters, image and channel information. **INFO**: View device info, version, logs, network, HDD and BPS.
2	Configurat-ion menu	Includes configuration menu through which you can configure network settings, storage settings, system settings, account settings and VMD settings.
3		Click , select **Logout**, **Reboot**, or **Shut down** according to your actual situation.

5.4 Controlling PTZ Cameras

Pan/Tilt/Zoom, or 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.

NOTE

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

5.4.1 Configuring PTZ Connection Strings

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.

1. Select **MAIN MENU** > **CAMERA** > **PAN/TILT/ZOOM**.
   The **PAN/TILT/ZOOM** interface is displayed. See Figure 5-41.
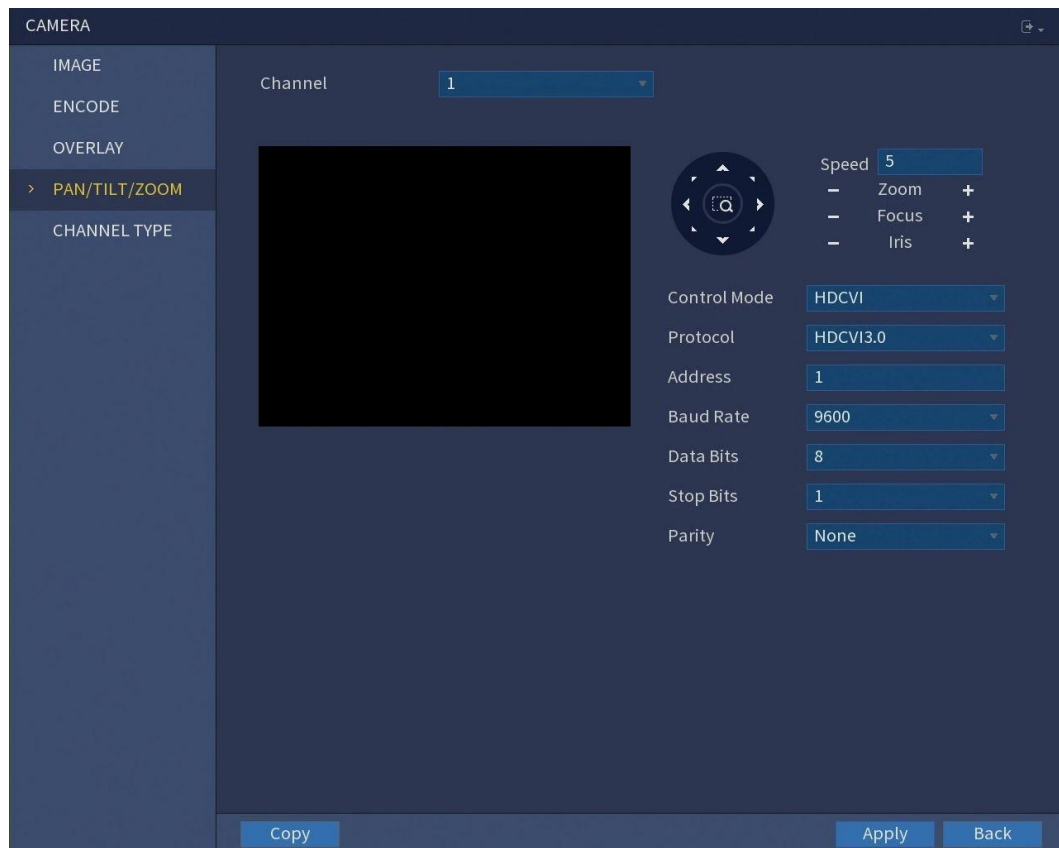
Figure 5-41

2. Configure the settings for the PTZ connection parameters.

Parameter	Description
Channel	In the **Channel** list, select the channel that you want to connect the PTZ camera to.
Control Mode	In the **Control Mode** list, select **Serial** 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. **NOTE** 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 is 8.
Stop Bits	The default is 1.
Parity	The default is None.

3. Click **Apply** to save the settings.
   NOTE
   Click **Copy** 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 **Pan/Tilt/Zoom**. The PTZ control panel is displayed. See Figure 5-42.

Figure 5-42

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

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. 1. Dragging upward is to zoom out, and dragging downward is to zoom in. 2. The smaller the square, the larger the zoom effect. **NOTE** 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. See Figure 5-43.

Figure 5-43

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

Icon	Function	Icon	Function
	Preset		Auto 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

1.   On the Expanded PTZ Control Panel, click .

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

Figure 5-44

2.   Click the direction arrows to the required position.
3.   In the **Preset** box, enter the value to represent the required position.
4.   Click **Save** to complete the preset settings.

5.4.3.2   Configuring Tours

1.   On the Expanded PTZ Control Panel, click .

The **PAN/TILT/ZOOM** interface is displayed.
2.   Click the **Tour** tab.
The **Tour** tab is displayed. See Figure 5-45.

Figure 5-45

3. In the **Patrol No.** box, enter the value for the tour route.
4. In the **Preset** box, enter the preset value.
5. Click **Add Preset**.
   A preset will be added for this tour.
   NOTE
   - You can repeat adding more presets.
   - Click **Del 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

1. On the Expanded PTZ Control Panel, click ⚙.

   The **PAN/TILT/ZOOM** interface is displayed.
2. Click the **Pattern** tab.
   The **Pattern** tab is displayed. See Figure 5-46.

Figure 5-46

3. In the **Pattern** box, enter the value for pattern.
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.
5. On the **PAN/TILT/ZOOM** interface, click **End** to complete the settings.

5.4.3.4 Configuring Border

1. On the Expanded PTZ Control Panel, click ⚙.

   The **PAN/TILT/ZOOM** interface is displayed.
2. Click the **Border** tab.
   The **Border** tab is displayed. See Figure 5-47.

Figure 5-47

3. Click the direction arrows to position the left and right borders.

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. See Figure 5-48.

Figure 5-48

5.4.4.1 Calling Presets
1. On the Expanded PTZ Control Panel, in the **No.** box, enter the value of the preset that you want to call.

2. Click ▣ to call the preset.

3. Click ▣ again to stop calling the preset.

5.4.4.2 Calling Tours
1. On the Expanded PTZ Control Panel, in the **No.** box, enter the value of the tour that you want to call.

2. Click ![icon] to call the tour.

3. Click ![icon] again to stop calling the tour.

5.4.4.3 Calling Patterns

1. On the Expanded PTZ Control Panel, in the **No.** box, enter the value of the pattern that you want to call.

2. Click ![icon] to call the pattern.

   The PTZ camera moves according to the configured pattern repeatedly.

3. Click ![icon] again to stop calling the pattern.

5.4.4.4 Calling Border

1. On the Expanded PTZ Control Panel, in the **No.** box, enter the value of the border that you want to call.

2. Click ![icon].

   The PTZ camera performs scanning according to the configured borders.

3. Click ![icon] again to stop auto scanning.

5.4.4.5 Calling Auto Pan

1. On the Expanded PTZ Control Panel, click ![icon] to start moving in horizontal direction.

2. Click ![icon] again to stop moving.

5.4.4.6 Using AUX Button

On the Expanded PTZ Control Panel, click ![icon], the AUX setting interface is displayed.
See Figure 5-49.

- In the **Direct Aux** list, select the option that corresponds to the applied protocol.
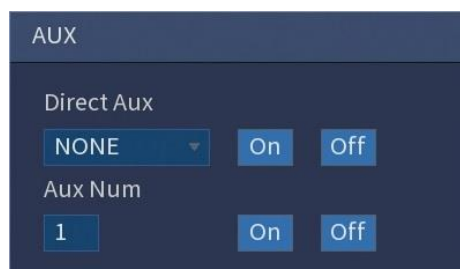- In the **Aux Num** box, enter the number that corresponds to the AUX switch on the decoder.

Figure 5-49

5.4.5 Calling OSD Menu

For the coaxial camera, you can call the OSD menu through the Expanded PTZ Control Panel. See Figure 5-51.

1. On the Expanded PTZ Control Panel, click ⬇.

   The **MENU OPERATION** interface is displayed. See Figure 5-50.

Figure 5-50
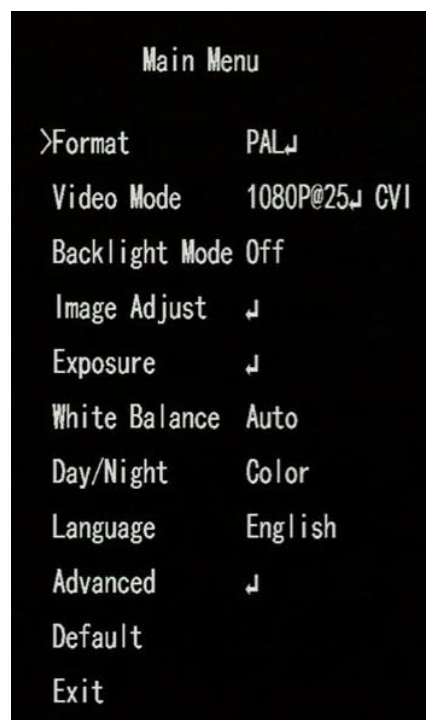
2. The OSD menu is displayed. See Figure 5-51.

Figure 5-51

3. On the **MENU OPERATION** interface, click the arrow button to select the onscreen parameters.
4. Click **Enter** to complete the settings.

5.5　Controlling Camera Settings

5.5.1　Configuring Image Settings

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

1. Select **MAIN MENU** > **CAMERA** > **IMAGE**.
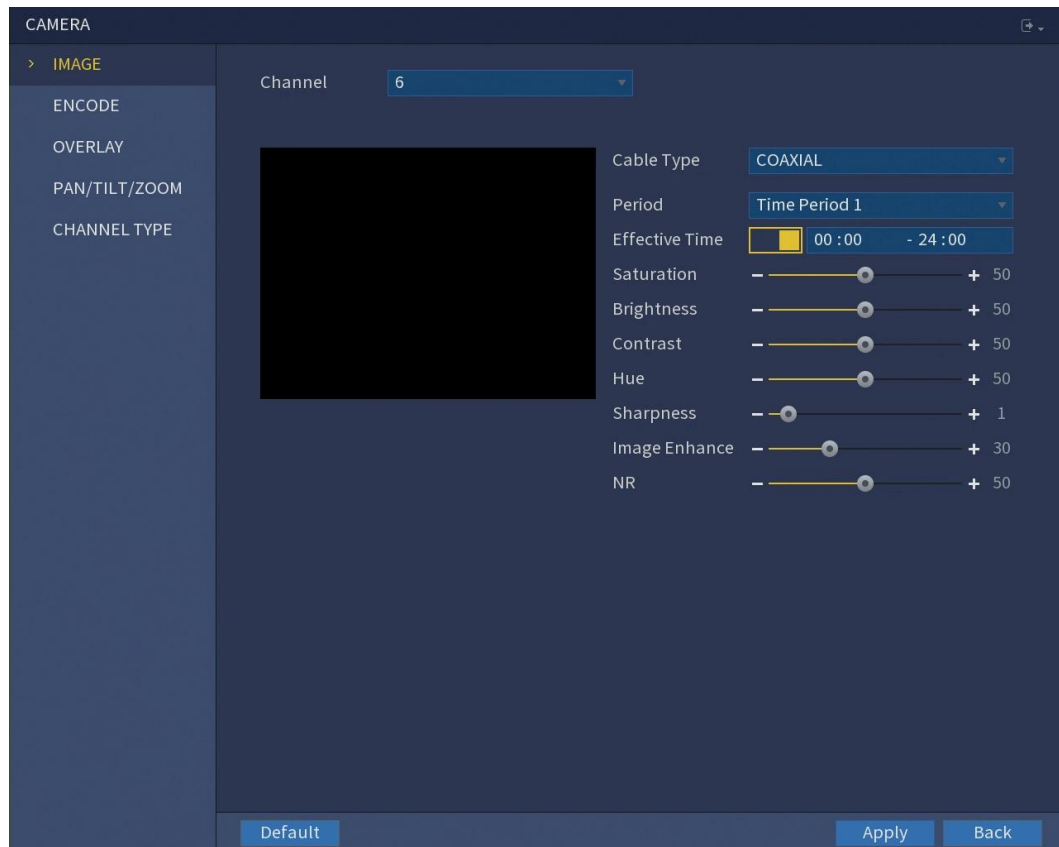   The **IMAGE** interface is displayed. See Figure 5-52.

Figure 5-52

2. Configure the settings for the 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.
Period	In the **Period** list, select a time period for the image settings. The image settings will only be 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 smaller 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.
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 small. 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.
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 0 to 15. The default value is 1.
Image Enhance	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.

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

5.5.2 Configuring Encode Strings

5.5.2.1 Encode

1. Select **MAIN MENU** > **CAMERA** > **ENCODE** > **Encode**.
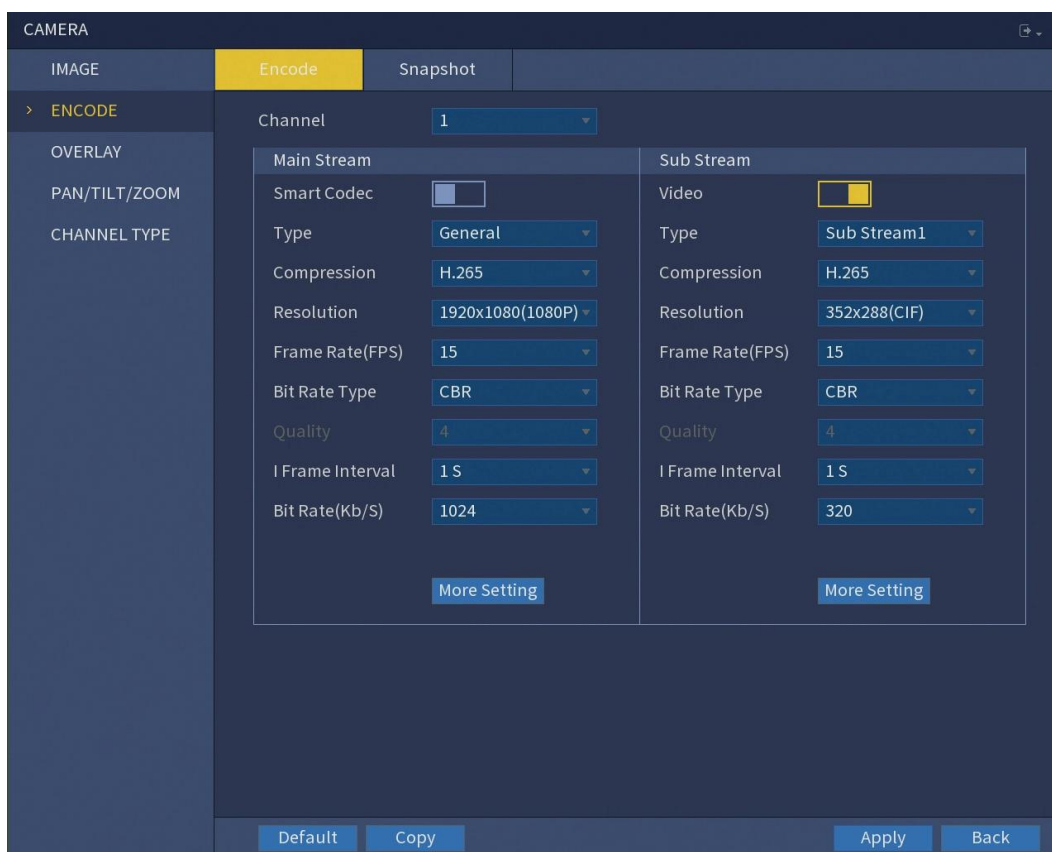   The **Encode** interface is displayed. See Figure 5-53.

Figure 5-53

2. Configure the settings for the main/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**, **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.264: General profile encoding.
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, 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 Encode	Click **More Setting**, the **More Setting** interface is displayed. - Audio Encode: 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**.
Audio Source	
	- LOCAL: The audio signal is input from Audio input port. - HDCVI: The audio signal is input from HDCVI camera.
Audio Format	Audio Format: In the **Audio Forma**t list, select a format that you need.

3. Click **Apply** to complete the settings.
   NOTE
   Click **Copy** to copy the settings to other channels.

5.5.2.2 Snapshot

1. Select **MAIN MENU** > **CAMERA** > **ENCODE** > **Snapshot**.
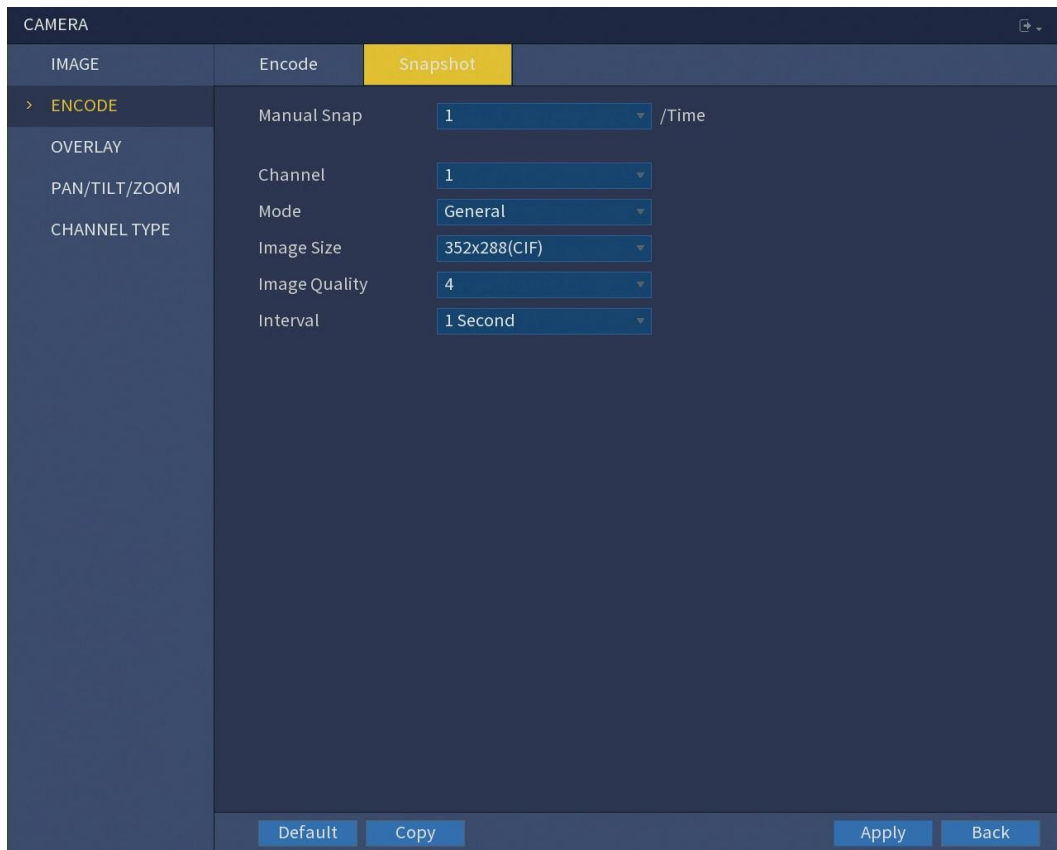   The **Snapshot** interface is displayed. See Figure 5-54.

Figure 5-54

2. Configure the settings for the snapshot parameters.

Parameter	Description
Manual Snap	In the **Manual Snap** 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.
Mode	In the **Mode** list, you can select **General** or **Event** as the event type for which you want to take a snapshot. • **General**: 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.
Image Size	In the **Image Size** list, select a value for the image. The bigger the value is, the better the image will become.
Image 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.

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

NOTE

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

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.

1. Select **MAIN MENU** > **CAMERA** > **OVERLAY** > **Overlay**.

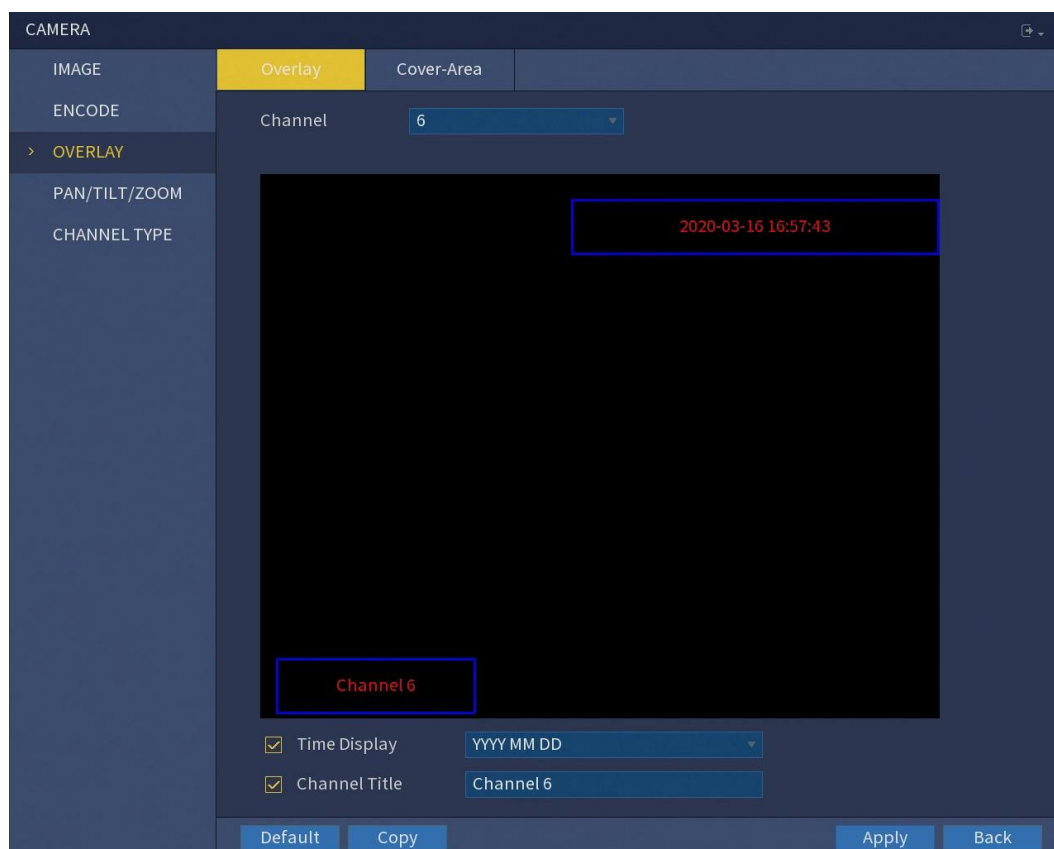   The **Overlay** interface is displayed. See Figure 5-55.

Figure 5-55

2. Configure the settings for the text overlay parameters.

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

	channel.

3. Click **Apply** to complete the settings.
   NOTE
   Click **Copy** to copy the settings to other channels.

5.5.4　　Configuring Covered Area Settings

1. Select **MAIN MENU** > **CAMERA** > **OVERLAY** > **Cover-Area**.
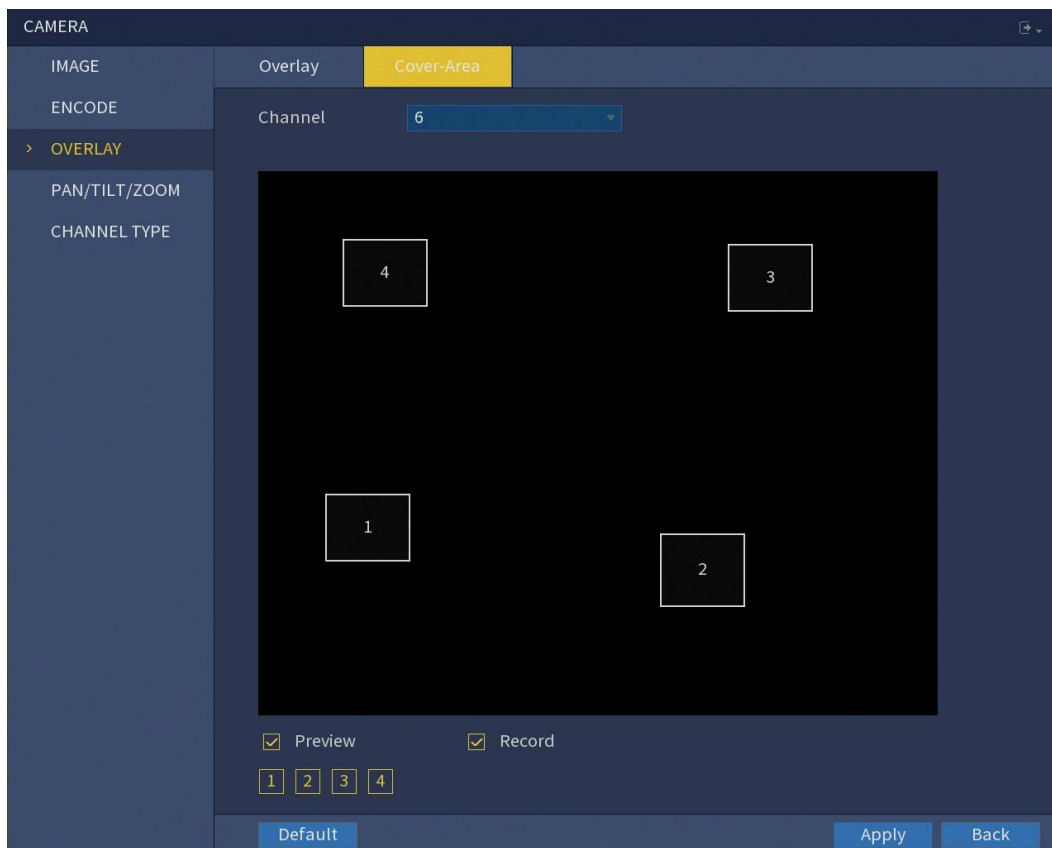   The **Cover-Area** interface is displayed. See Figure 5-56.

Figure 5-56

2. Configure the settings for the covered area parameters.

Parameter	Description
Channel	In the **Channel** list, select the channel that you want to configure the settings for.
Preview	• Preview: Select the **Preview** 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 **Preview** check box or the **Record** check box, or

	select both. The "1, 2, 3, 4" buttons are activated.
	2. Click the buttons to select blocks.
	A rectangular 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.

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

5.5.5　Configuring Channel Type

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

1. Select **MAIN MENU** > **CAMERA** > **CHANNEL TYPE**.

The **CHANNEL TYPE** interface is displayed. See Figure 5-57.

Figure 5-57

2. Configure the channels.

- Analog Channel: Select the transmission medium such as CVI 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 **17–24** channels in Figure 5-57.

NOTE

- The 17–24 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**.

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

5.6   Configuring Record Settings

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

5.6.1   Enabling Record Control

CAUTION
- 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:
1. Right-click on the live view screen, the shortcut menu is displayed. On the shortcut menu, select **Manual** > **Record**.
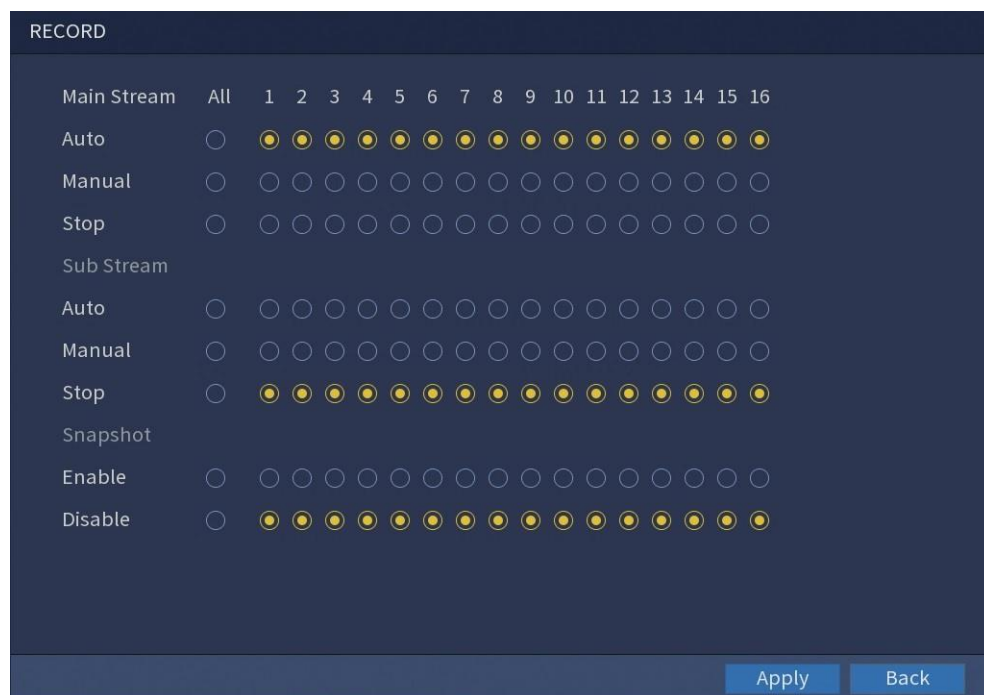   The **RECORD** interface is displayed, see Figure 5-58.

Figure 5-58

2. Configure the settings for the 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**.
Record status	**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 status	Enable or disable the scheduled snapshot for the corresponding channels.

3. Click **Apply**.

5.6.2 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."

5.7 Configuring Snapshot Settings

5.7.1 Configuring Snapshot Trigger

The snapshot is divided into scheduled snapshot and event 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.

5.7.1.1 Configuring Scheduled Snapshot
1. Right-click on the live view screen, the shortcut menu is displayed.
2. On the shortcut menu, select **Manual** > **Record**.
   The **RECORD** interface is displayed.
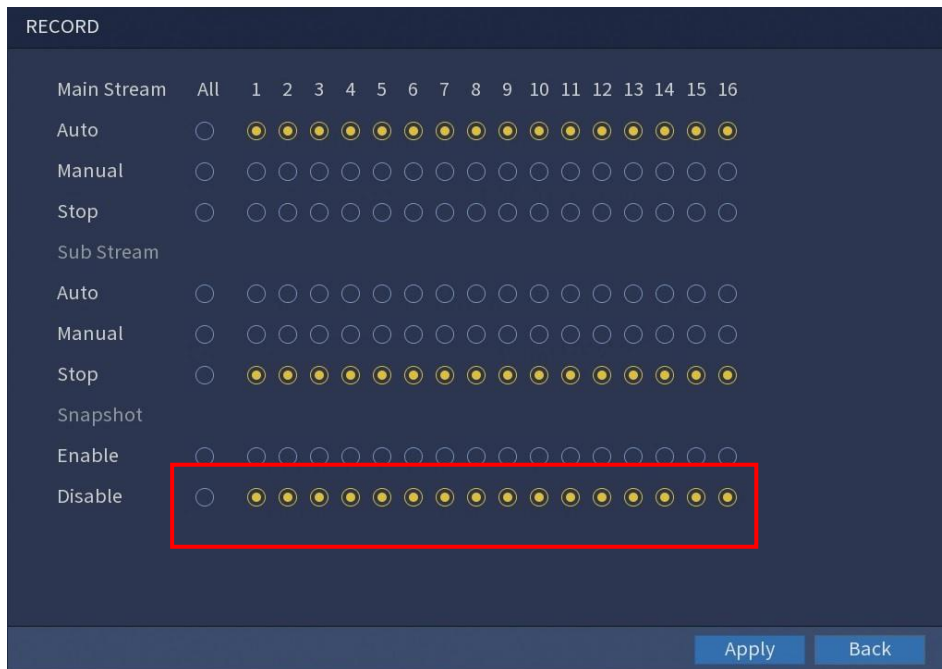3. In the **Snapshot** area, enable the snapshot for the channels if needed. See Figure 5-59.

Figure 5-59

4. Select **MAIN MENU** > **CAMERA** > **ENCODE** > **Snapshot**.
   The **Snapshot** interface is displayed.
5. In the **Mode** list, select **General**, and then configure other parameters. See Figure 5-60.
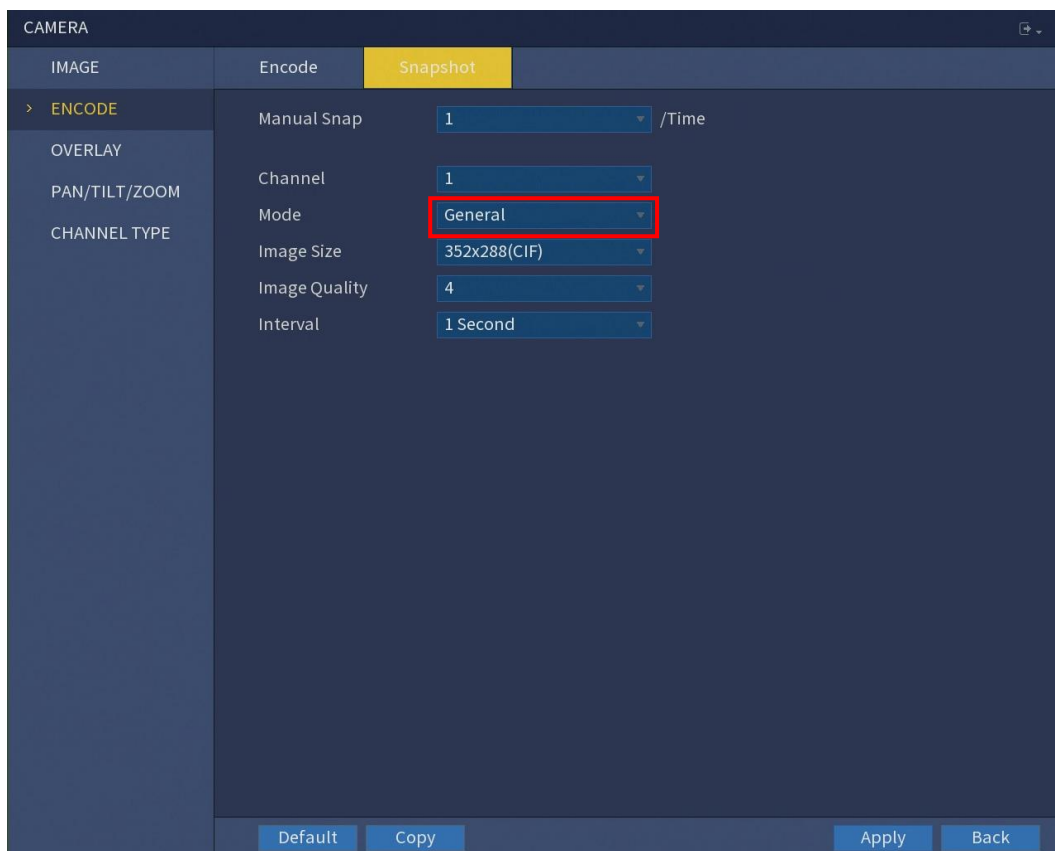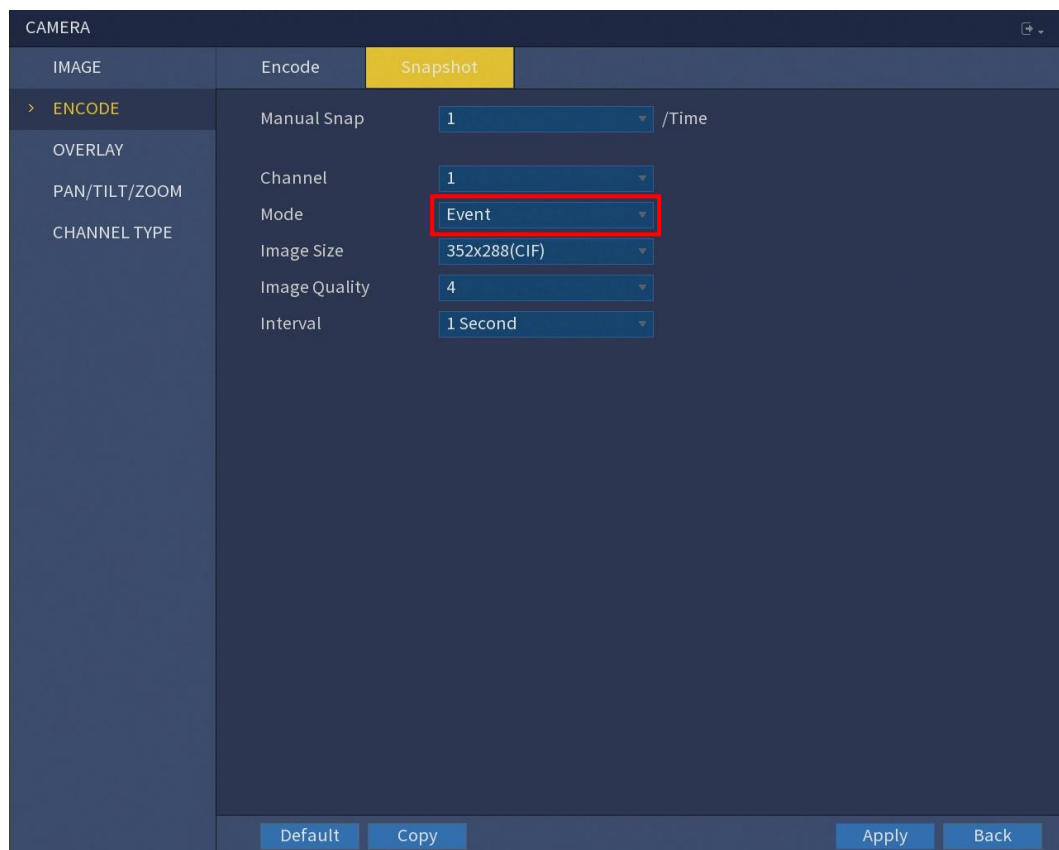

Figure 5-60

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".

5.7.1.2   Configuring Event Triggered Snapshot

1. Select **MAIN MENU** > **CAMERA** > **ENCODE** > **Snapshot**.
   The **Snapshot** interface is displayed.
2. In the **Mode** list, select **Event**, and then configure other parameters. See Figure 5-61.

Figure 5-61

3. Select **MAIN MENU** > **ALARM** > **VIDEO DETECT**, and select the event type to configure for example, select the **Motion Detect** tab. See Figure 5-62.
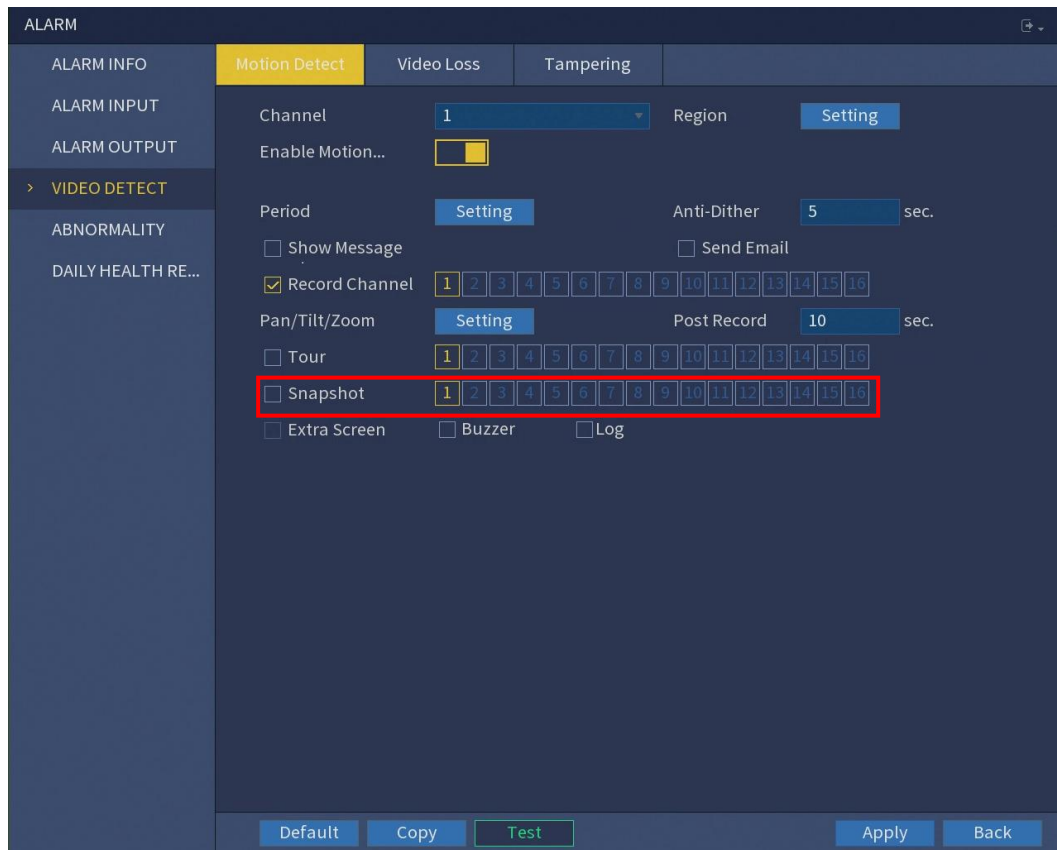
Figure 5-62

4. Select the **Snapshot** check box and select the corresponding channel.
5. Click **Apply**.

5.7.2   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."

5.7.3   Backing up Snapshots to FTP

1. Select **MAIN MENU** > **STORAGE** > **FTP**.
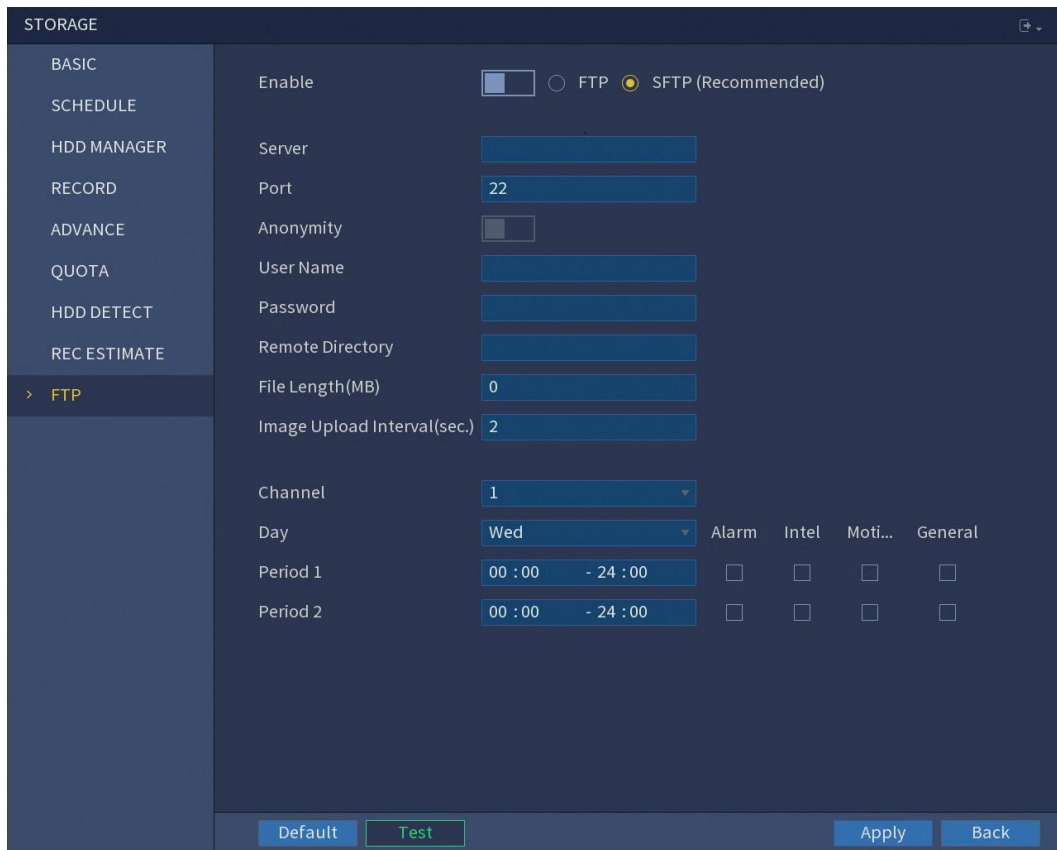   The **FTP** interface is displayed. See Figure 5-63.

Figure 5-63

2. Enable the FTP function and configure the parameters. For details, see "5.14.9 Configuring FTP Storage Settings."
   The snapshots will be uploaded to FTP for backup.

5.8   Playing Back Video

5.8.1   Enabling Record Control

CAUTION
- 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:
1. Right-click on the live view screen, the shortcut menu is displayed. On the shortcut menu, select **Manual** > **Record**. The **RECORD** interface is displayed, see Figure 5-64.

RECORD

Main Stream	All	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Auto	○	◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉
Manual	○	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○
Stop	○	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○
Sub Stream		
Auto	○	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○
Manual	○	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○
Stop	○	◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉
Snapshot		
Enable	○	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○
Disable	○	◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉ ◉

Apply   Back

Figure 5-64

2. Configure the settings for the 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**.
Record status	**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 status	Enable or disable the scheduled snapshot for the corresponding channels.

5.8.2   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."

5.8.3   Main Interface of Video Playback

You can search for and play back the recorded video saved on the Device.
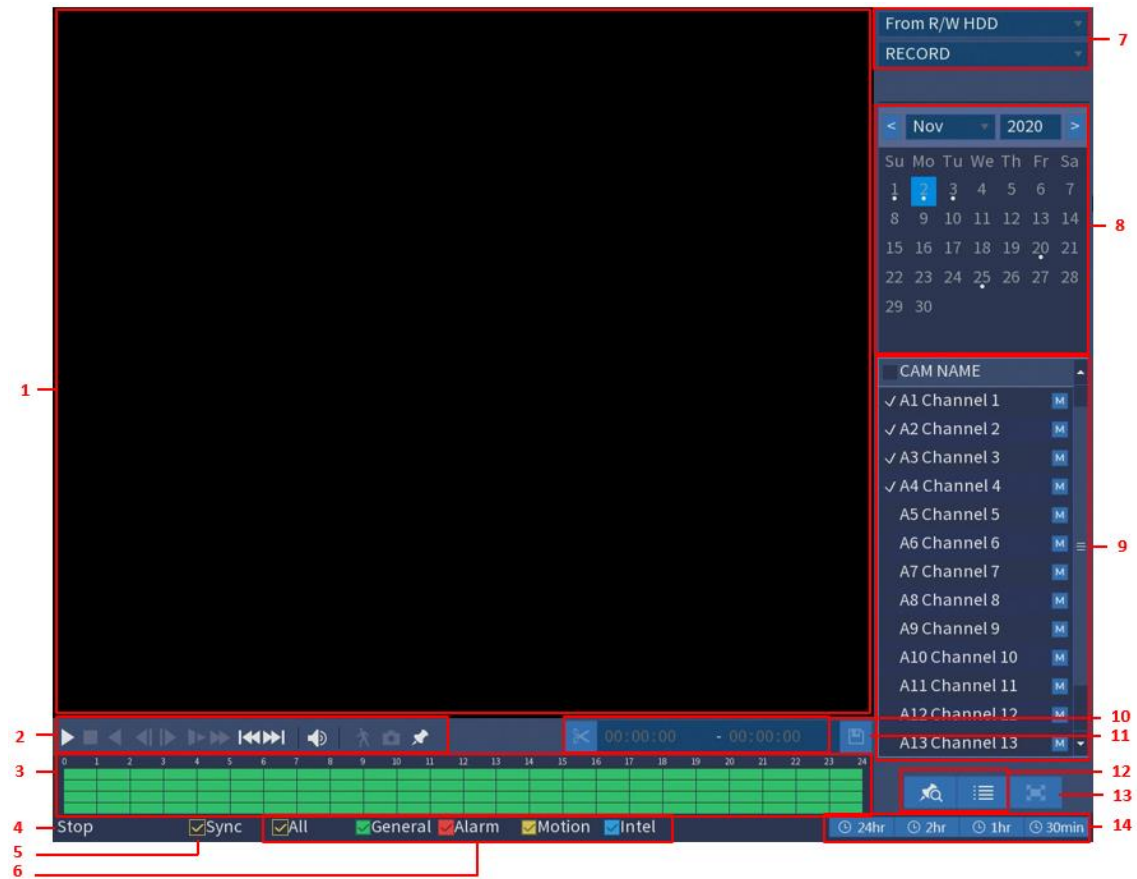Select **MAIN MENU** > **PLAYBACK**, the video search interface is displayed. See Figure 5-65.

Figure 5-65

No.	Function	Description
1	Display Window	Display the searched recorded video or picture. It supports playing in single-channel, 4-channel, 9-channel, and 16-channel simultaneously. **NOTE** When playing back in a single channel mode, hold down the left mouse button 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 "5.8.3.1 Introducing Playback Controls Bar".
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. • 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.
4	Play Status	Includes two playback status: **Play** and **Stop**.
5	Sync	Select the **Sync** check box to simultaneously play recorded videos of different channels in the same period in multi-channel view.
6	Record type	Select the check box to define the recording type to search for.
7	Search type	Select the content to play back: **Record**, **PIC**, **Splice Playback**. For details about the selecting search type, see "5.8.3.2 Selecting Search Type".
8	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.
9	View Layout and Channel Selection	In the **CAM 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 sixteen channels. • Click ▣M to switch the streams. ▣M indicates main stream, and ▣S indicates sub stream.
10	Video Splice	Splice a section of recorded video and save it. For details about splicing a recorded video, see "5.8.3.3 Clipping Recorded Video".
11	Backup	Back up the recorded video files. For details, see "5.8.3.4 Backing up Recorded Video".

12	List Display	This area includes **Mark List** and **File List**.
		• [icon]: Click the **Mark List** button, the marked recorded video list is displayed. Double-click the file to start playing.
		• [icon]: Click the **File List** button, the searched recorded video list is displayed. You can lock the files. For details, see "5.8.8 Using the File List".
13	Full Screen	Click [icon] 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.
14	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.

5.8.3.1   Introducing Playback Control Bar

You can perform the operations such as control the speed of playback, add mark, and take snapshots through the playback controls bar. See Figure 5-66.

Figure 5-66

NOTE

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

Icon	Function
[icon] , [icon]	Play/Pause. During playing back, you can switch between play and pause.
[icon]	Stop. During playing back, you can click the **Stop** button to stop playback.
[icon] , [icon]	Play Backward. • During playing back, click the **Play Backward** button to backward play the recorded video, the button switches to

	![[pause icon]]; click ![[pause icon]] to stop playing backward. • During playing back, click ![[play icon]] to start playing forward.
![[previous frame icon]] , ![[next frame icon]]	Previous Frame/Next Frame. • When the playback is paused, click ![[previous frame icon]] or click ![[next frame icon]] to play single-frame recorded video. • When playing back single-frame recorded video, click ![[play icon]] to start playing forward.
![[slow playback icon]]	Slow Playback. • During playing back, click ![[slow playback icon]] to set the speed of slow playback as SlowX1/2, SlowX1/4, SlowX1/8, or SlowX1/16. • During fast playback, click ![[slow playback icon]] to slow down the speed of fast playback.
![[fast playback icon]]	Fast Playback. • During playing back, click ![[fast playback icon]] to set the speed of fast playback as FastX2, FastX4, FastX8, or FastX16. • During slow playback, click ![[fast playback icon]] to speed up slow playback.
![[previous day icon]] , ![[next day icon]]	Previous Day/Next Day. Click ![[previous day icon]] or click ![[next day icon]] to play the previous day or next day of the current recorded video.
![[volume slider icon]]	Adjust volume of playback.
![[smart search icon]]	Smart Search. For details about using the smart search, see "5.8.4 Smart Search."
![[snapshot icon]]	In the full screen mode, click ![[snapshot icon]] to take a snapshot and save into the USB storage device or mobile HDD.
![[mark icon]]	Add Mark for the recorded view. For details about adding mark, see "5.8.5 Marking and Playing Back Video."

5.8.3.2 Selecting Search Type

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

- **From R/W HDD**: Recorded videos or snapshots playback from HDD of the Device. See Figure 5-67.
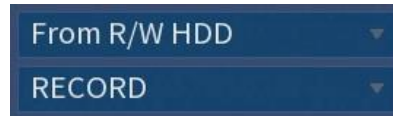
Figure 5-67

- **From I/O Device**: Recorded videos playback from external storage device. See Figure 5-68.

  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.
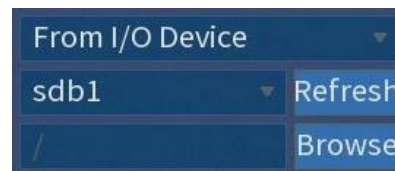
Figure 5-68

5.8.3.3 Clipping Recorded Video

During playback, clip sections of recorded video and save to the USB storage device. For the video clip interface, see Figure 5-69.

Figure 5-69

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.

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

3. Click on the time bar to select the end time, and then click ✂ to start clipping.

4. Click 💾.

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

NOTE
- 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.

5.8.3.4 Backing up Recorded Video

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

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 ![icon], 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 "5.8.3.3 Clipping Recorded Video".

2. Click ![icon].

   The **BACKUP** dialog box is displayed. See Figure 5-70.

BACKUP			
1	Name(Type)	Free Space/Total Space	Device Status
1	✓ sdb1(USB USB)	7.27 GB/7.32 GB	Ready

2	✓CH	Type	Start Time	End Time	Size(KB)
1	✓ 1	R	2020-05-11 00:02:50	2020-05-11 00:02:53	257
2	✓ 1	R	2020-05-11 00:04:06	2020-05-11 00:04:09	382

Space Required / Space Remaining:2.82 MB/7.27 GB   Backup   Clear
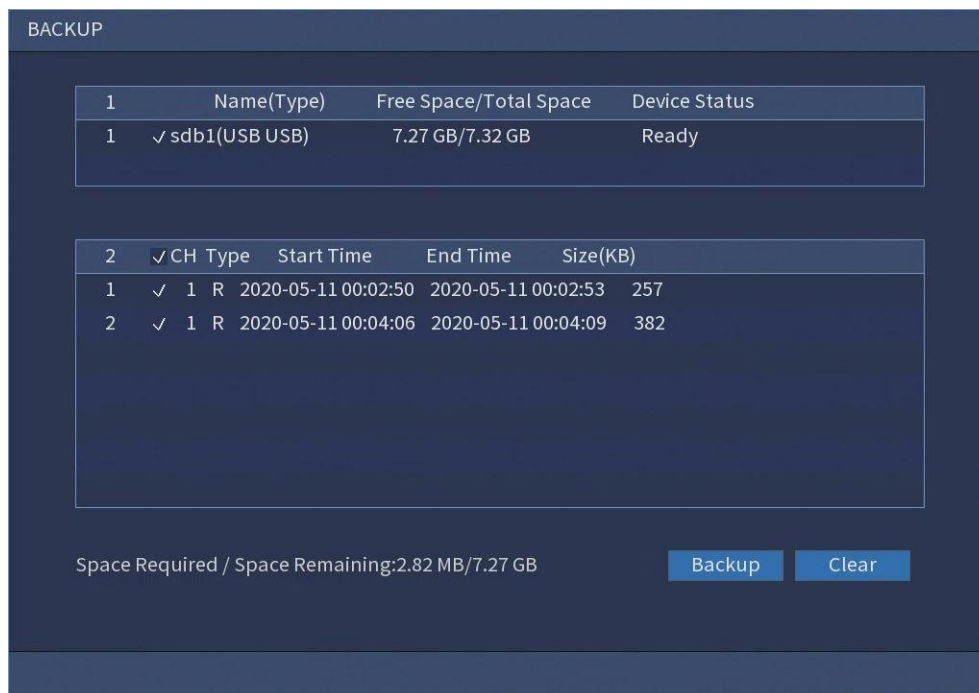
Figure 5-70

3. Click **Backup**.
   NOTE
   If you do not want to back the file, clear the check box.

5.8.4 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.

To use the Smart Search function, you need to enable the motion detection for the channel by selecting **MAIN MENU** > **ALARM** > **VIDEO DETECT** > **Motion Detect**.

To use the Smart Search function, do the following:
1. Select **MAIN MENU** > **PLAYBACK**, the video search interface is displayed.
2. In the **CAM NAME** list, select the channel(s) that you want to play.

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

4. Click [人].

   The grid is displayed on the screen.
   NOTE
   - 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.
5. Drag the pointer to select the searching area.
   NOTE
   The grid area supports 22×18(PAL) and 22×15(NTSC).

6. Click [人].

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

7. Click [人] to exit the playback.
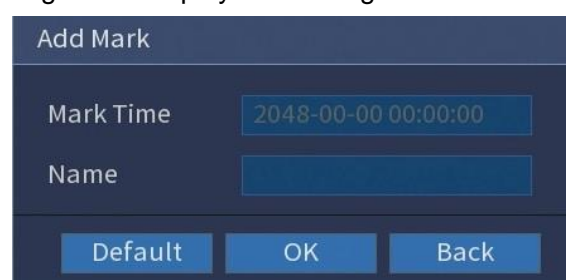
5.8.5   Marking and Playing Back Video

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
1. Select **MAIN MENU** > **PLAYBACK**, the video search interface is displayed.

2. In the playback mode, click [📌].

   The **Add Mark** dialog box is displayed. See Figure 5-71.

Add Mark

Mark Time   2048-00-00 00:00:00

Name

Default   OK   Back

Figure 5-71

3. In the **Name** box, enter a name.
4. Click **OK**.
   This marked video file displays in the **Mark List**.

Playing Back Marked Video

NOTE

This function is supported on single-channel playback.

1. In the **CAM NAME** list, select one channel.

2. Click .

   The Mark List interface is displayed. See Figure 5-72.
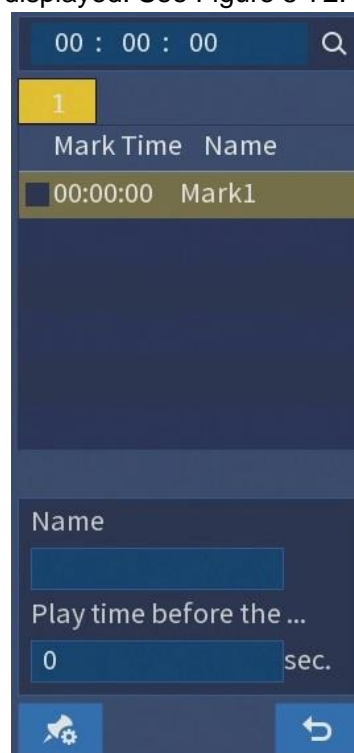
Figure 5-72

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 of the interface,

   enter the time, and then click .

Playing Back Time before the Mark

You can configure to play N seconds of the marked video before the marked time.
1. In the **Name** box, enter the name of a marked video.
2. In the **Playback time before the mark** box, enter N seconds.

3. Click .
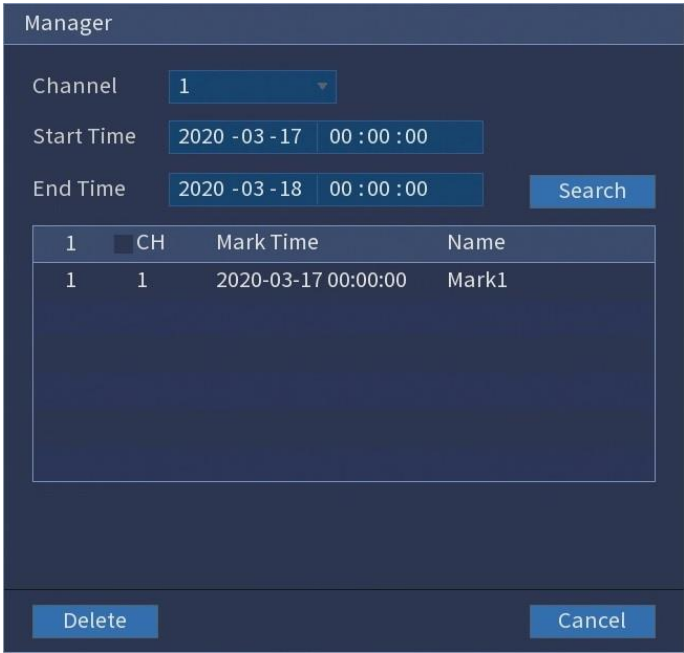
The playback starts from N seconds before the marked time.

NOTE

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

Managing Marked Video

In the **Mark List**, click ![icon], the **Manager** interface is displayed. See Figure 5-73.

Figure 5-73

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

NOTE

After opening the **Manager** 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 marked video in the **Mark List**.

5.8.6 Playing Back Snapshots

You can search and play back the snapshots.

1. Select **MAIN MENU** > **PLAYBACK**, the video search interface is displayed.
2. In the **Search Type** list, select **PIC**.
3. In the **Calendar** area, select a date.
4. In the **Channel** list, select a channel number.

5. Click ▶.

    The system starts playing snapshots according to the configured intervals.

5.8.7   Playing Back Splices

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

1. Select **MAIN MENU** > **PLAYBACK**, the video search interface is displayed.
2. In the **Search Type** list, select **Splice Playback**; In the Split Mode list, select **4**, **9**, or **16**. See Figure 5-74.
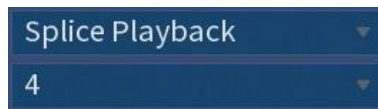
Figure 5-74

3. In the **Calendar** area, select a date.
4. In the **CAM NAME** list, select a channel.
    NOTE
    Only single-channel supports this function.
5. Start playing back splices. See Figure 5-75.

    • Click ▶, the playback starts from the beginning.

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

Figure 5-75

NOTE
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.

5.8.8   Using the File List

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

1. Select **MAIN MENU** > **PLAYBACK**, the video search interface is displayed.
2. Select a channel(s).

3. Click .

   The **File List** interface is displayed. See Figure 5-76.
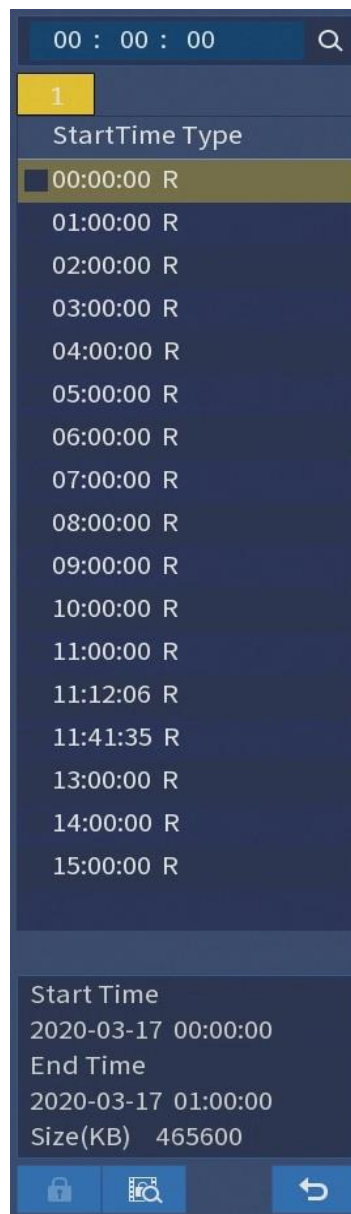
Figure 5-76

4. Start playback.

   - Click , the playback starts from the first file by default.

   - Click any file, the system plays back this file.
   NOTE

   - 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; **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 LOCKED** interface is displayed.

NOTE

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

- To unlock the recorded video, in the **FILE LOCKED** interface, select the video, and then click **Unlock**. See Figure 5-77.

FILE LOCKED					
2	☐ CH	Type	Start Time	End Time	Size(KB)
1	1	R	2020-03-17 03:00:00	2020-03-17 04:00:00	465600
2	1	R	2020-03-17 04:00:00	2020-03-17 05:00:00	465600

Unlock   Cancel
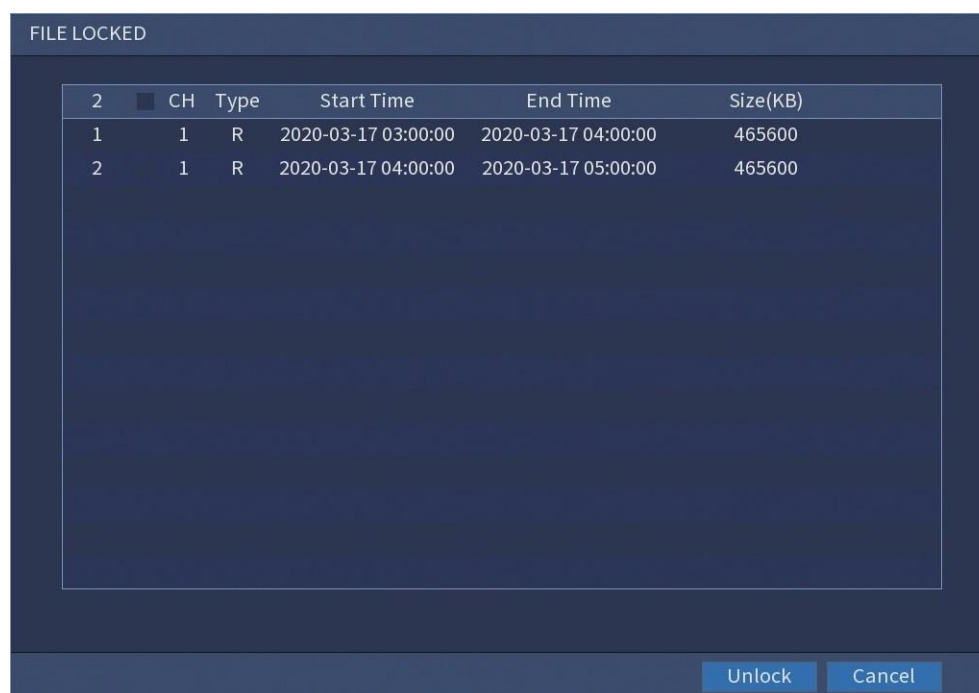
Figure 5-77

5.9 Alarm Events Settings

5.9.1 Alarm Information

You can search, view and back up the alarm information.
1. Select **MAIN MENU** > **ALARM** > **ALARM INFO**.
   The **ALARM INFO** interface is displayed. See Figure 5-78.
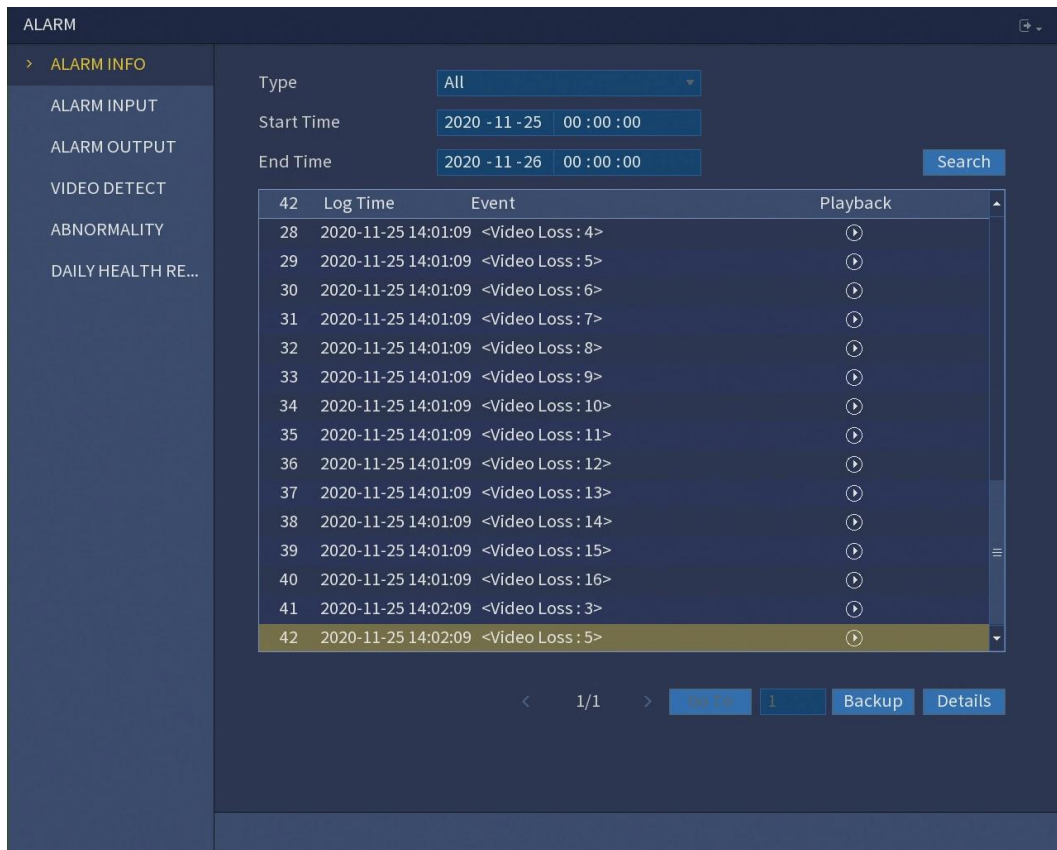
Figure 5-78

2. In the **Type** list, select the event type; In the **Start Time** box and **End Time** box, enter the specific time.
3. Click **Search**.
    The search results are displayed.
4. Click **Backup** to back up the search results into the external storage device.
    NOTE

    - Click [▶] to play the recorded video of alarm event.

    - Select an event and click **Details** to view the detailed information of the event.

5.9.2   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.

5.9.2.1   Configuring Local Alarms (CJ-HDR416B only)
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.
1. Select **MAIN MENU** > **ALARM** > **ALARM INPUT** > **Local**.

The **Local** interface is displayed. See Figure 5-79.

Figure 5-79

2. Configure the settings for the local alarms.

Parameter	Description
Alarm In	Select the channel number.
Alarm Name	Enter the customized alarm name.
Enable	Enable or disable the local alarm function.
Type	In the **Type** list, select **NO** or select **NC** as the voltage output type.
Period	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 "5.9.4.1 Configuring Motion Detect Settings."
Anti-Dither	Configure the time period from end of event detection to the stop of alarm.
Show Message	Select the **Show Message** check box to enable a pop-up message.
Send Email	Select the **Send Email** check box to enable the system to send an email notification when an alarm event occurs. **NOTE** 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. **NOTE** 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 "5.8.1 Enabling Record Control."
Pan/Tilt/Zoom	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.
Snapshot	Select the **Snapshot** check box to take a snapshot of the selected channel. **NOTE** To use this function, select **MAIN MENU** > **CAMERA** > **ENCODE** > **Snapshot**, in the **Mode** list, select **Event**.
Extra Screen (CJ-HDR416B only)	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.** **NOTE** 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.

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

5.9.3   Alarm Output Settings (CJ-HDR416B only)

5.9.3.1   Configuring Local Alarms

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.
1. Select **MAIN MENU** > **ALARM** > **ALARM OUTPUT** > **Alarm Out**.
   The **Alarm Out** interface is displayed. See Figure 5-80.
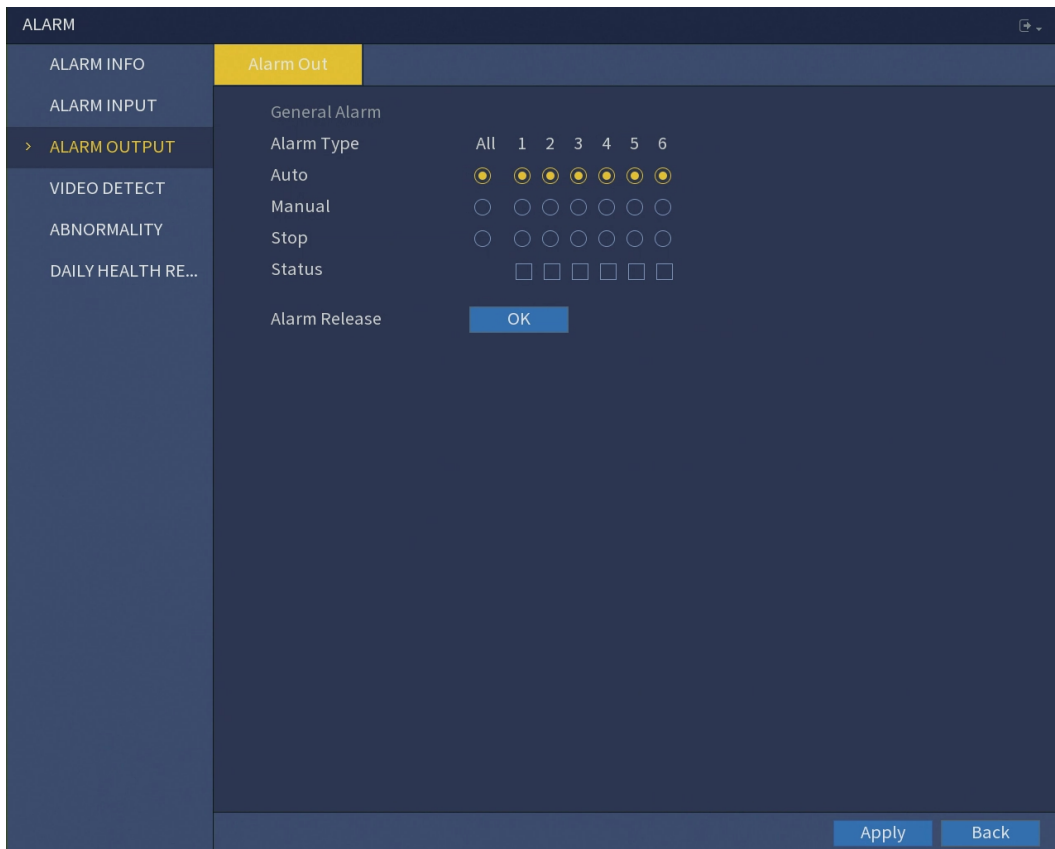
Figure 5-80

2. Configure the settings for the alarm output.

Parameter		Description
General Alarm	Alarm Type	Select alarm type for each alarm output port.
	Status	Indicates the status of each alarm output port.
Alarm Release		Click **OK** to clear all alarm output status.

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

5.9.4 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.

5.9.4.1 Configuring Motion Detect Settings

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

1. Select **MAIN MENU** > **ALARM** > **VIDEO DETECT** > **Motion Detect**.
   The **Motion Detect** interface is displayed. See Figure 5-81.
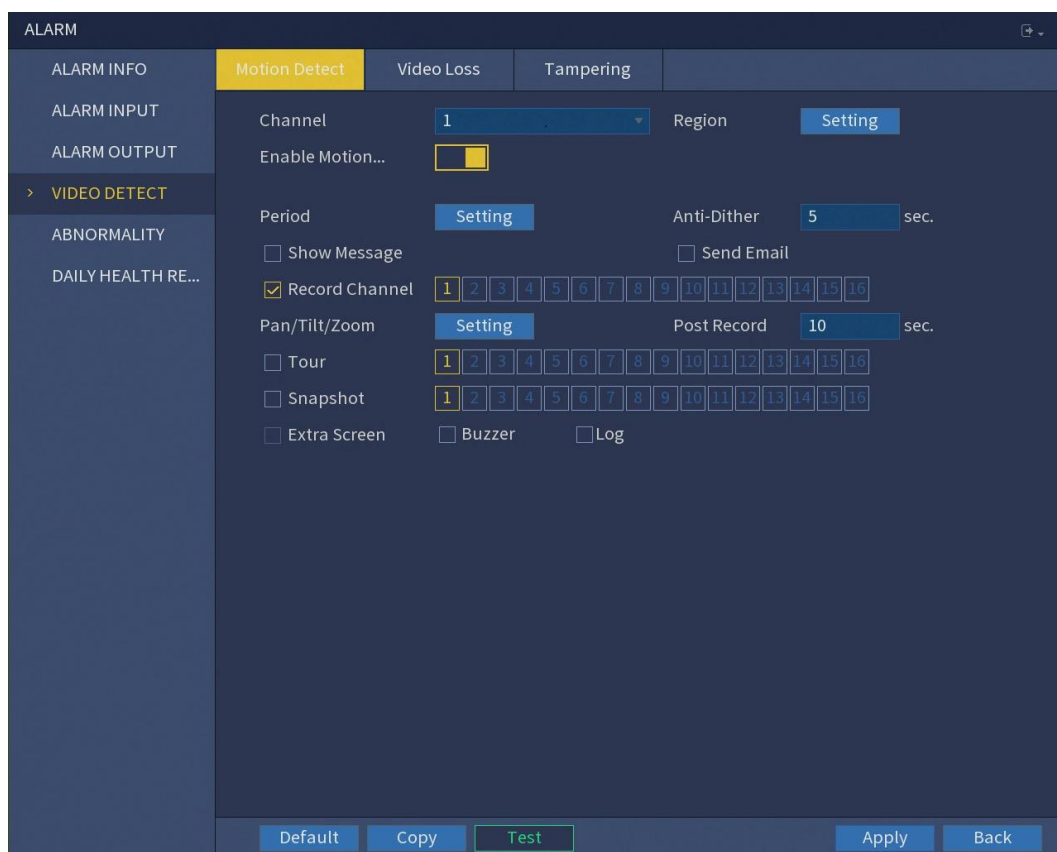
Figure 5-81

2. Configure the settings for the 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 Motion Detect	Enable or disable the motion detection function.
Period	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.
Show Message	Select the **Show Message** check box to enable a pop-up message.
Send Email	Select the **Send Email** check box to enable the system to send an email notification when an alarm event occurs. **NOTE** 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. **NOTE** 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 "5.8.1 Enabling Record Control".
Pan/Tilt/Zoom	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. **NOTE** 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.
Snapshot	Select the **Snapshot** check box to take a snapshot of the selected channel. **NOTE** To use this function, select **MAIN MENU > CAMERA** > **ENCODE** > **Snapshot**, in the **Mode** list, select **Event**.
Extra Screen (CJ-HDR416B only)	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**. **NOTE** 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.

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

Setting the Motion Detection Region
1. Next to **Region**, click **Setting**.
   The region setting screen is displayed.
2. Point to the middle top of the interface.
   The setting interface is displayed. See Figure 5-82.
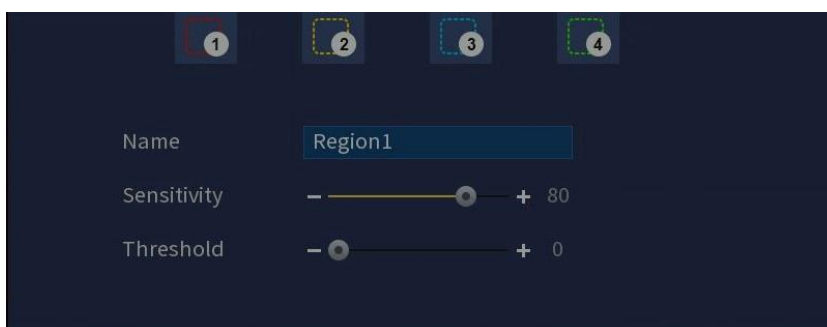
Figure 5-82

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

1) Select one region, for example, click .

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.

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.

NOTE

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

4. Right-click on the screen to exit the region setting interface.
5. On the **Motion Detect** interface, click **Apply** to complete the settings.

Setting Motion Detection Period
NOTE
The system only activates the alarm in the defined period.

1. Next to **Period**, click **Setting**.
   The **Setting** interface is displayed. See Figure 5-83.

Figure 5-83

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 [icon] before each day, the icon switches to [icon]. On the timeline of any selected day, click the half-hour blocks to select the active periods, all the days with [icon] will take the same settings.

     - Define for all days of a week: Click **All**, all [icon] switches to [icon]. 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 [icon].

   The **Period** interface is displayed. See Figure 5-84.

Figure 5-84

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

5.9.4.2   Configuring Video Loss Settings
When the video loss occurs, the system activates the alarm.
1. Select **MAIN MENU** > **ALARM** > **VIDEO DETECT** > **Video Loss**.
   The **Video Loss** interface is displayed. See Figure 5-85.
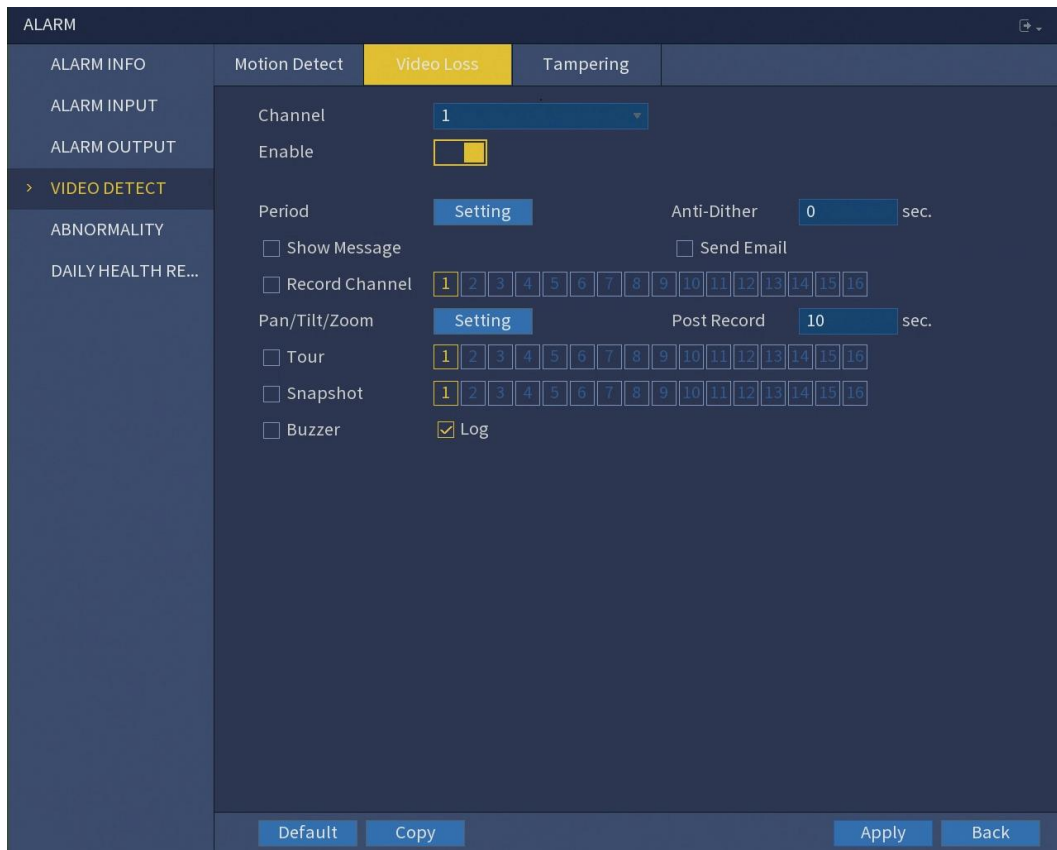
Figure 5-85

2. To configure the settings for the video loss detection parameters, see "5.9.4.1 Configuring Motion Detect Settings".

NOTE

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

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

NOTE

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

5.9.4.3   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.

1. Select **MAIN MENU** > **ALARM** > **VIDEO DETECT** > **Tampering**.

The **Tampering** interface is displayted. See Figure 5-86.
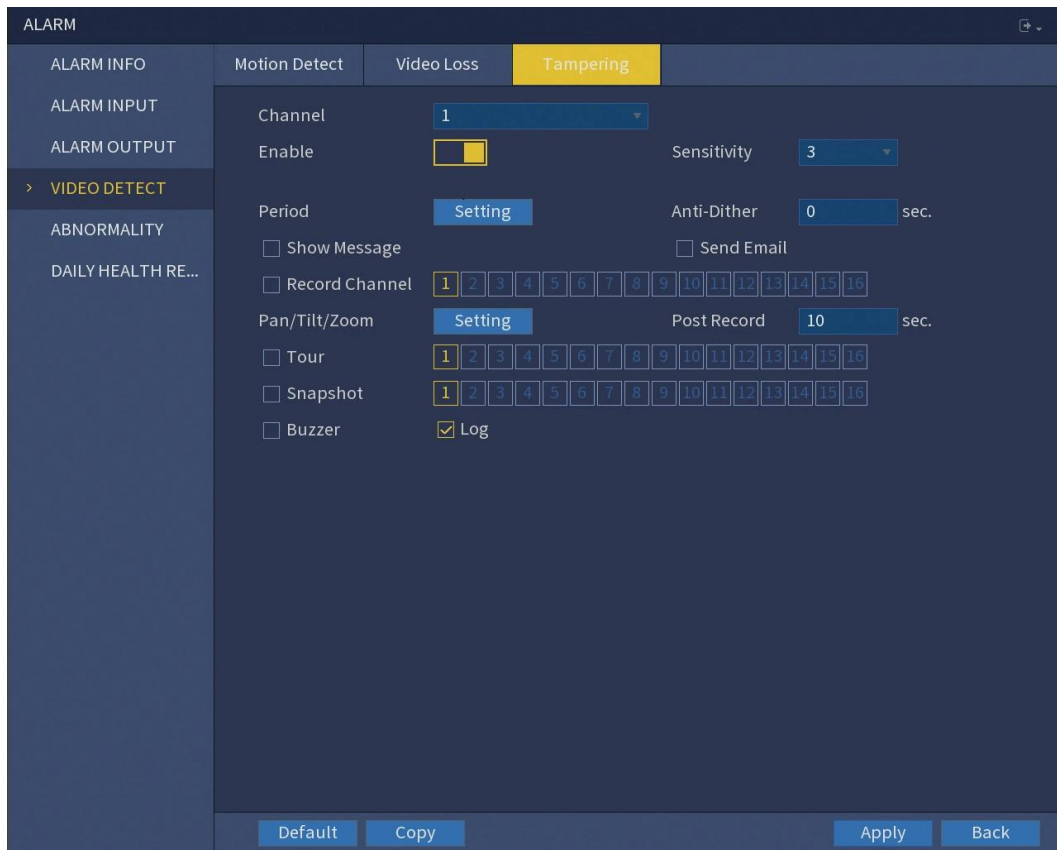
Figure 5-86

2. To configure the settings for the tampering detection parameters, see "5.9.4.1 Configuring Motion Detect Settings".
   NOTE
   For PTZ activation, different from motion detection, the tampering detection can activate PTZ preset, tour and pattern.
3. Click **Apply** to complete the settings.
   NOTE
   - Click **Default** to restore the default settings.
   - Click **Copy**, in the **Copy** dialog box, select the additional channel(s) that you want to copy the motion detection settings to, and then click **OK**.

5.9.5 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.

5.9.5.1 Configuring HDD Event Settings

1. Select **MAIN MENU** > **ALARM** > **ABNORMALITY** > **HDD**.
   The **HDD** interface is displayed. See Figure 5-87.
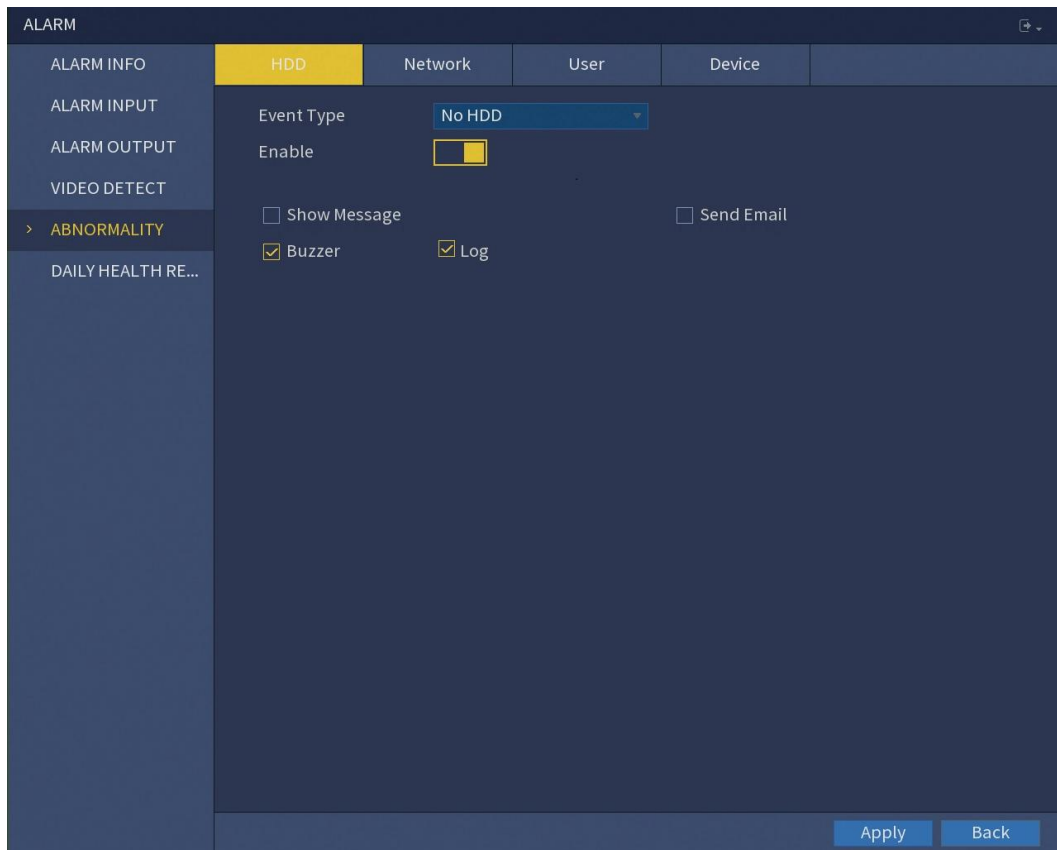
Figure 5-87

2. Configure the settings for the HDD event.

Parameter	Description
Event Type	In the **Event Type** list, select **No HDD**, **HDD Error**, or **HDD No Space** as the event type.
Enable	Enable or disable the HDD event detection function.
Show Message	Select the **Show Message** check box to enable a pop-up message.
Send Email	Select the **Send Email** check box to enable the system to send an email notification when an alarm event occurs. **NOTE** 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.

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

5.9.5.2 Configuring Network Event Settings

1. Select **MAIN MENU** > **ALARM** > **ABNORMALITY** > **Network**.
   The **Network** interface is displayed. See Figure 5-88.

Figure 5-88

2. Configure the settings for the Network event.

Parameter	Description
Event Type	In the **Event Type** list, select **Net Disconnection**, **IP Conflicted**, or **MAC Conflicted** as the event type.
Enable	Enable or disable the Network event detection function.
Show Message	Select the **Show Message** check box to enable a pop-up message.
Send Email	Select the **Send Email** check box to enable the system to send an email notification when an alarm event occurs. **NOTE** 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.

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

5.9.5.3   Configuring User Event Settings

1. Select **MAIN MENU** > **ALARM** > **ABNORMALITY** > **User**.

The **User** interface is displayed. See Figure 5-89.

Figure 5-89

2. Configure the settings for the User event.

Parameter	Description
Event Type	In the **Event Type** list, select **Illegal Login**.
Enable	Enable the user error detection function. If you do not enable this function, there will be no limit for wrong password entry and the account cannot be locked because of the wrong password.
Attempt(s)	Set the maximum number of allowable wrong password entries. The account will be locked after your entries exceed the maximum number.
Lock Time	Set how long the account is locked for. The value ranges from 1 minute to 60 minutes.
Send Email	Select the **Send Email** check box to enable the system to send an email notification when an alarm event occurs. **NOTE** 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.

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

5.9.5.4   Configuring Device Event Settings

1. Select **MAIN MENU** > **ALARM** > **ABNORMALITY** > **Device**.
   The **Device** interface is displayed.
2. In **Event Type** drop-down list, select **Network Security Exception**. See Figure 5-90.
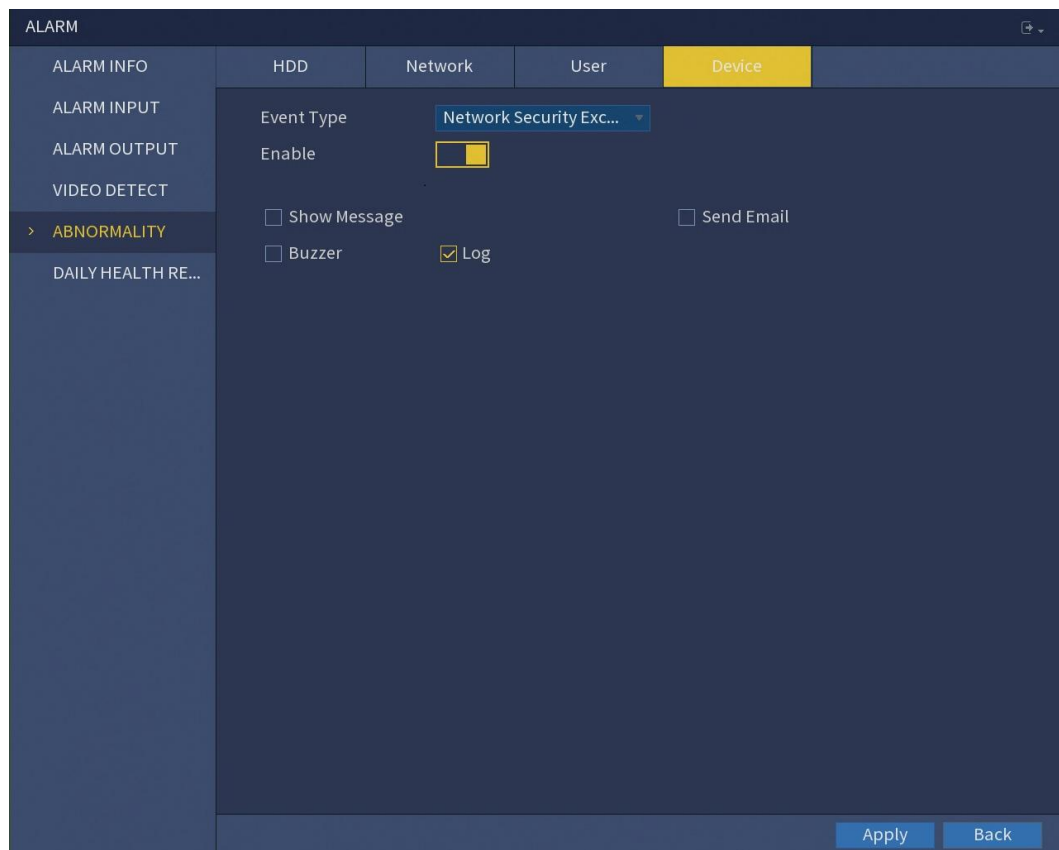
Figure 5-90

3. Configure the settings for the Device event.

Parameter	Description
Event Type	**Network Security Exception**, including brute force attack of Web path, brute force attack of session ID, session connection over-limit and abnormal program in trusted environment.
Enable	Enable the device event detection function.
Buzzer	Select the check box to activate a buzzer noise at the Device.
Send Email	Select the **Send Email** check box to enable the system to send an email notification when an alarm event occurs. **NOTE** 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 network exception log.

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

5.9.6 Daily Health Report

You can configure daily report of the HDD info and recording status to be sent daily at a set time.

NOTE

To use this function, make sure the email function is enabled in **MAIN MENU > NETWORK > EMAIL**.

5.9.6.1 Configuring Daily Health Report

1. Select **MAIN MENU** > **ALARM** > **DAILY HEALTH REPORT**.
   The **DAILY HEALTH REPORT** interface is displayed. See Figure 5-91.
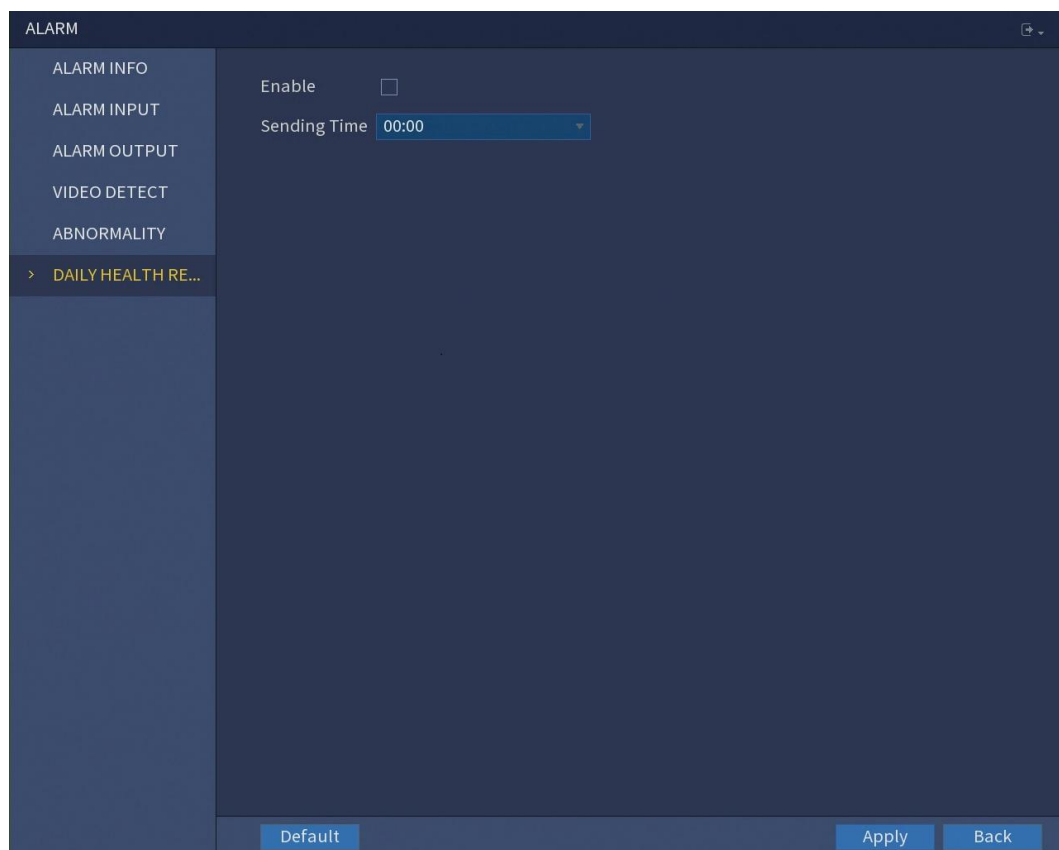
Figure 5-91

2. Check **Enable** to enble the health report to be sent daily.
3. Select **Sending Time** to set the time of report to be sent to email.
4. Click **Apply** to complete the settings.

5.10 VMD

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

5.10.1 Configuring VMD Function

The VMD 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.

5.10.1.1 Configuring Intelligent Settings

You can configure the intelligent settings for cameras.

1. Select **MAIN MENU** > **VMD** > **PARAMETERS** > **VMD**.
    The **VMD** interface is displayed. See Figure 5-92.
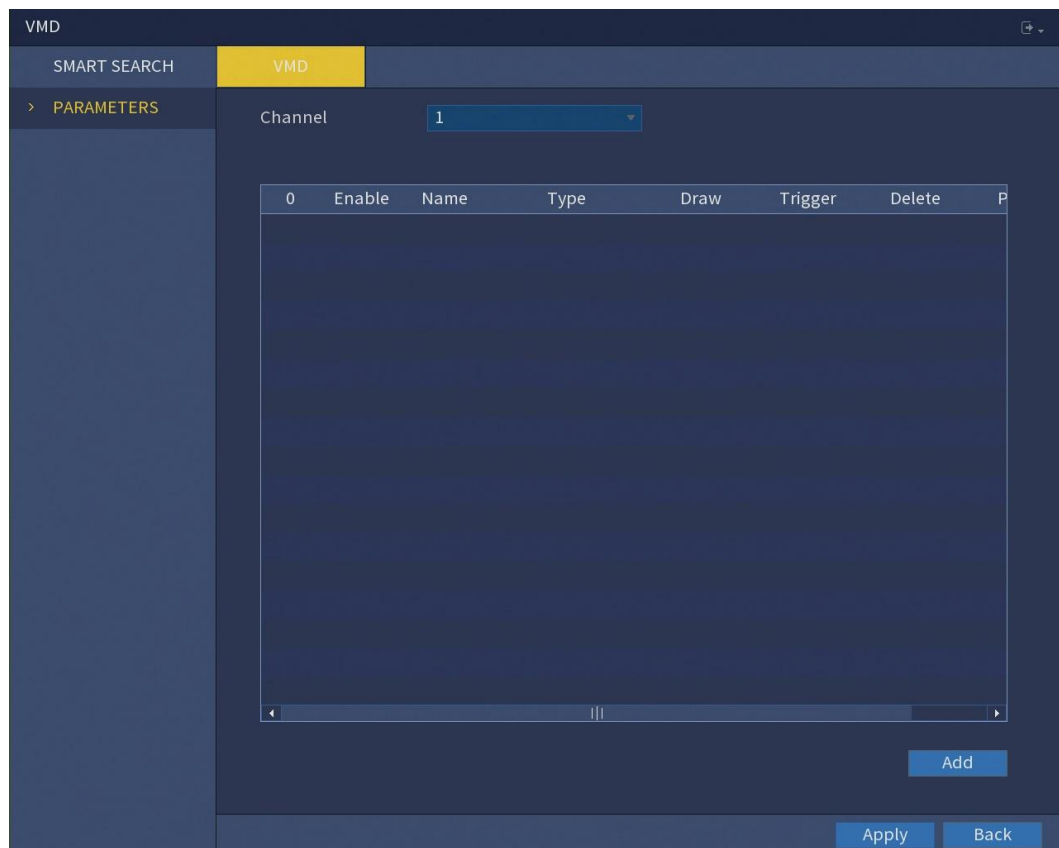
Figure 5-92

2. In the **Channel** list, select the channel number that you want to configure the VMD function.
3. Click **Add**.
    One line of rule is displayed. See Figure 5-93.
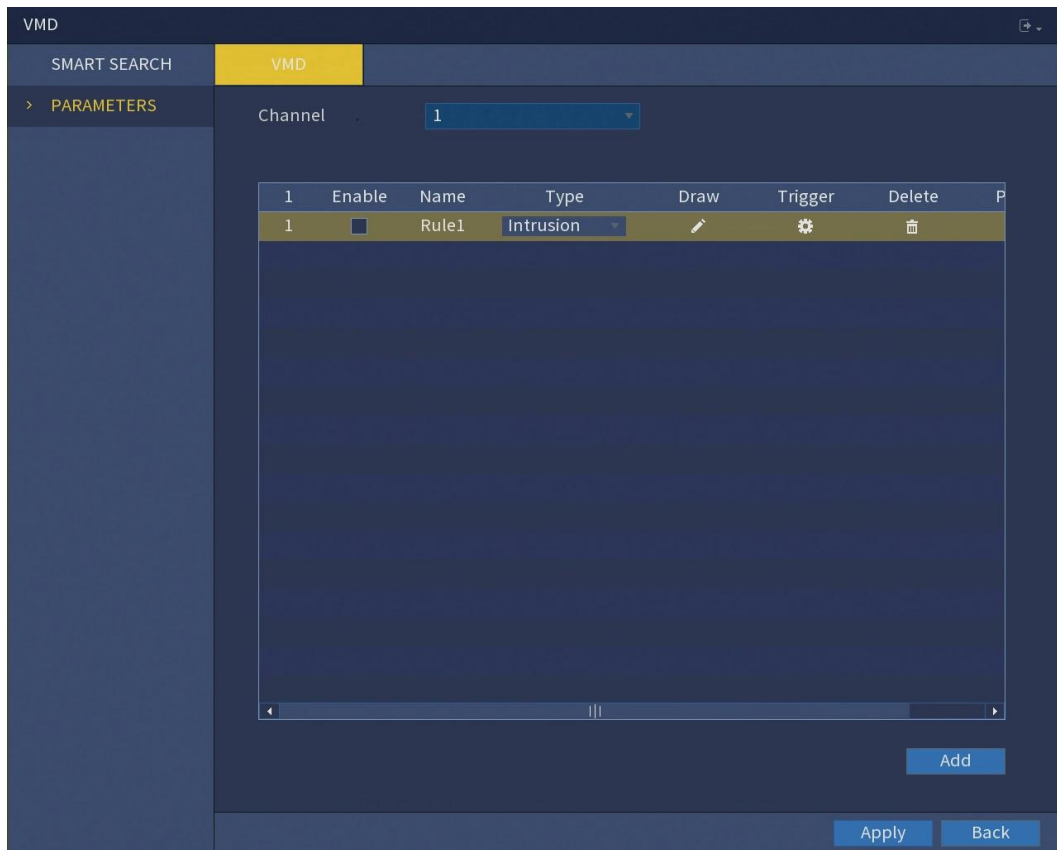
Figure 5-93

4. Configure the parameters for the rule that you selected.
5. Select the check box of the rule to enable it.
6. Click **Apply** to complete the settings.

5.10.1.1.1   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.

1. On the rule line that you added, in the **Type** list, select **Tripwire**. See Figure 5-94.
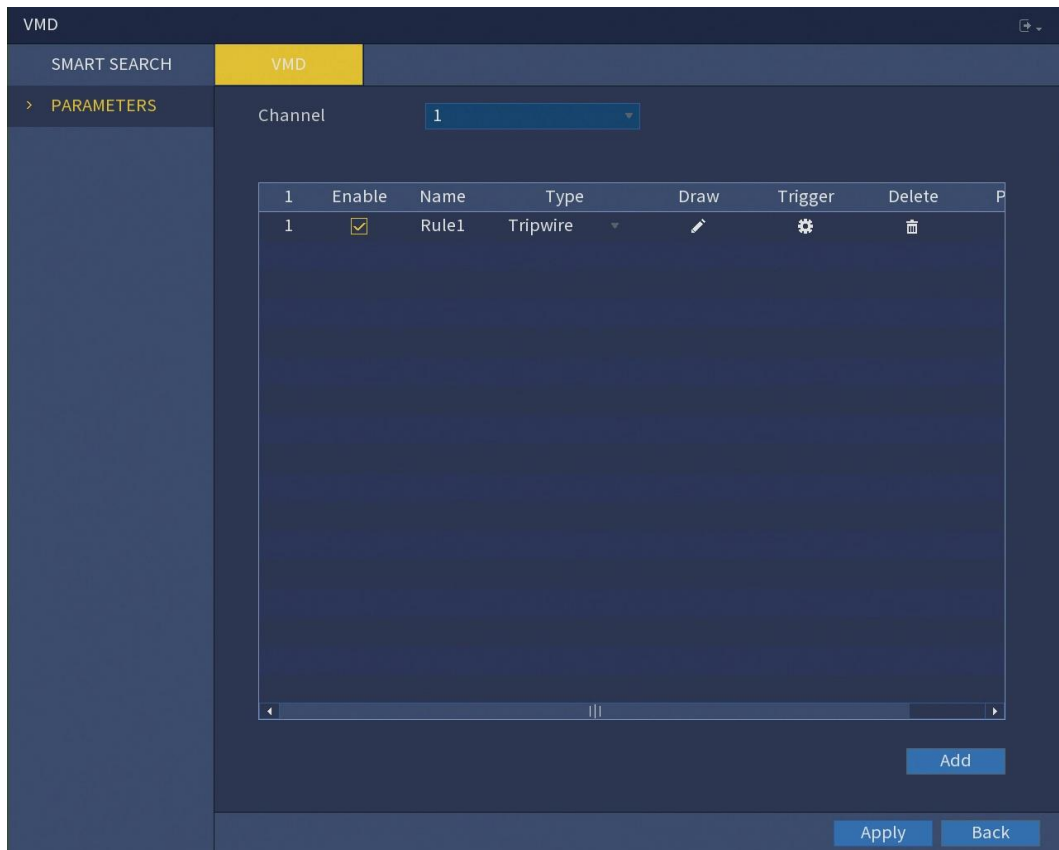
Figure 5-94

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 5-95.
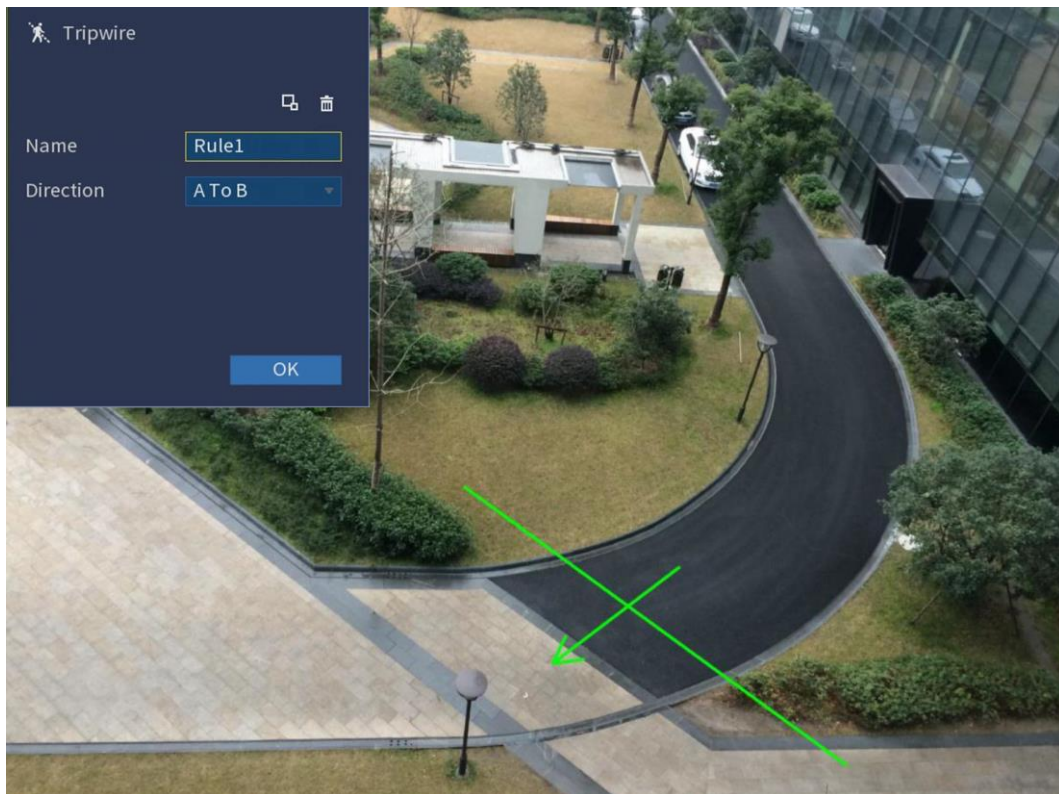
Figure 5-95

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

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 A** (right to left) and **Both**.
Target Filter	Click ▣ to draw areas to filter the target. **NOTE** 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.

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

3. Click ⚙ to set the actions to be triggered.

   The **Trigger** interface is displayed. See Figure 5-96.

Figure 5-96

4. Configure the triggering parameters.

Parameter	Description
Period	Click **Setting** to display **Setting** interface. Define a period during which the alarm linkage is active. For details, see "Setting Motion Detection Period" section in "5.9.4.1 Configuring Motion Detect Settings."
Show Message	Select the **Show Message** check box to enable a pop-up message.
Alarm Upload	Select the **Alarm Upload** 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. **NOTE** 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. **NOTE** 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 "5.8.1 Enabling Record Control."
Pan/Tilt/Zoom	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. **NOTE** To use this function, select **MAIN MENU** > **CAMERA** > **ENCODE** > **Snapshot**, in the **Mode** list, select **Event**.
Extra Screen (CJ-HDR416B only)	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**. **NOTE** To use this function, extra screen shall be enabled.
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.

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

5.10.1.1.2 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 bahaviors that are moving in the intrusion areas. The quantity of areas and lasting time can be configured.
- Supports size filtering for target.

1. On the rule line that you added, in the **Type** list, select **Intrusion**. See Figure 5-97.
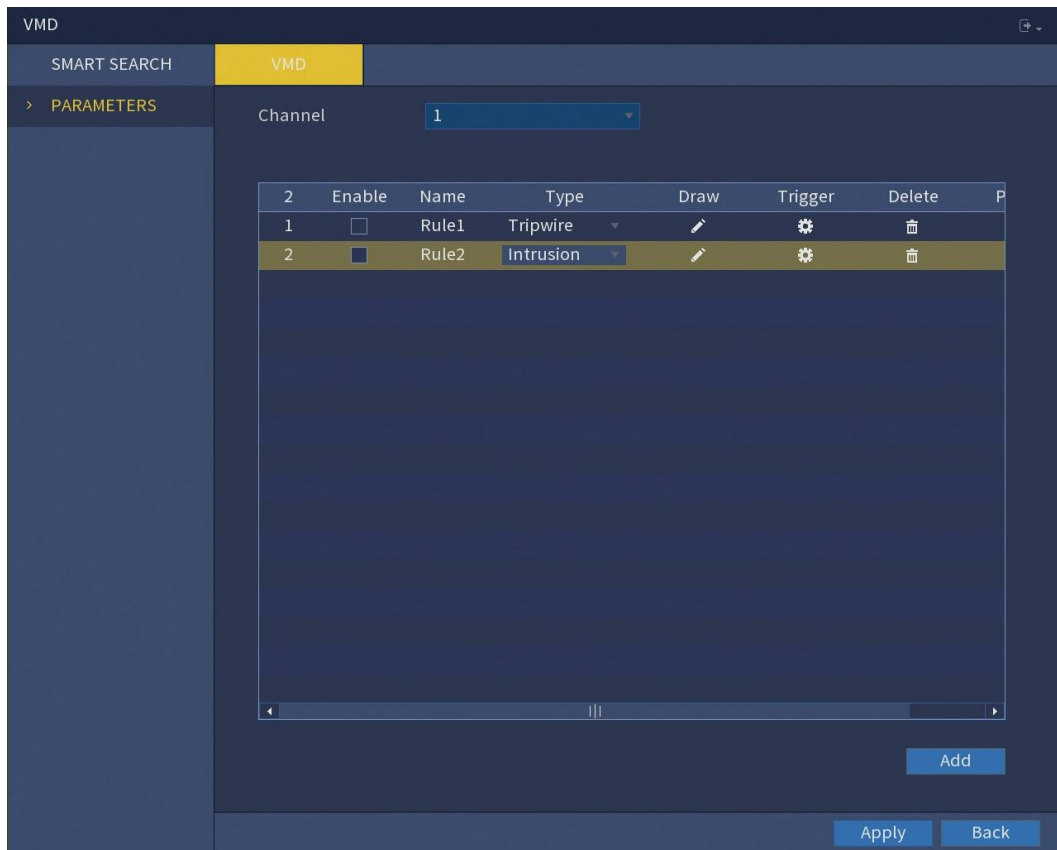
Figure 5-97

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 5-98.
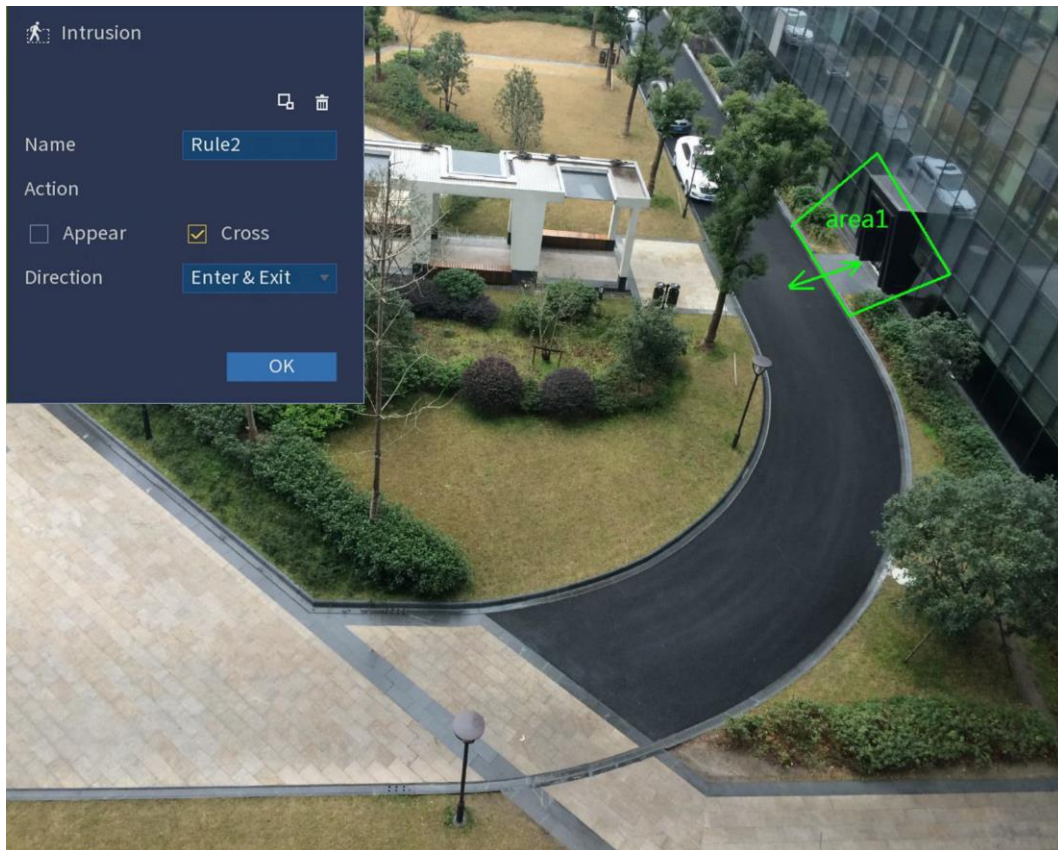
Figure 5-98

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

Parameter	Description
Name	Enter the customized rule name.
Action	Configure the actions that are defined as intrusion. You can select the **Appear** check box and the **Cross** check box.
Direction	In the **Direction** list, select the direction of crossing the configured area. You can select **Enter & Exit**, **Enter** and **Exit**.
Target Filter	Click ![icon] to draw areas to filter the target. **NOTE** 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.

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

3. Click ![icon] to set the actions to be triggered. For details, see "5.10.1.1.1 Configuring Tripwire Rules."

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

135

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.

5.10.1.1.3 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.

1. On the rule line that you added, in the **Type** list, select **Abandoned**. See Figure 5-99.

Figure 5-99

2. Draw an area.
   1) In the **Channel** list, select the channel that you want to configure the rules for.
   2) Click [pencil icon].

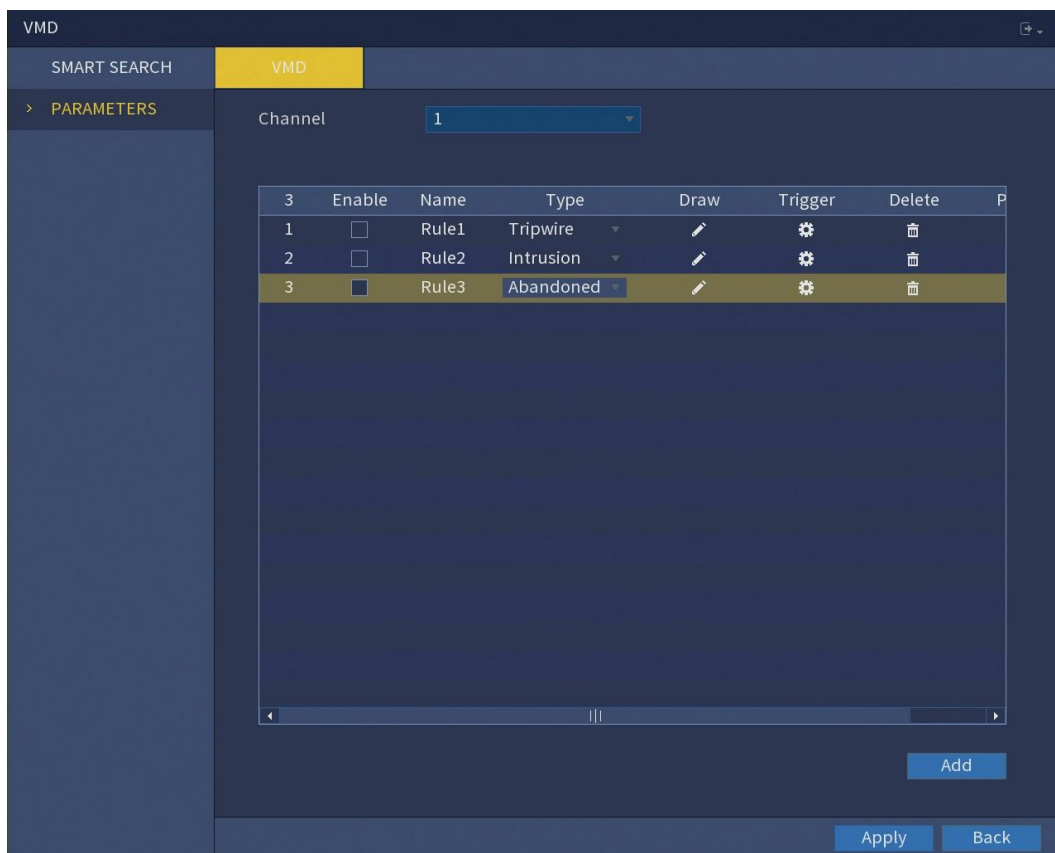   The monitoring screen to configure the abandoned rules is displayed. See Figure 5-100.
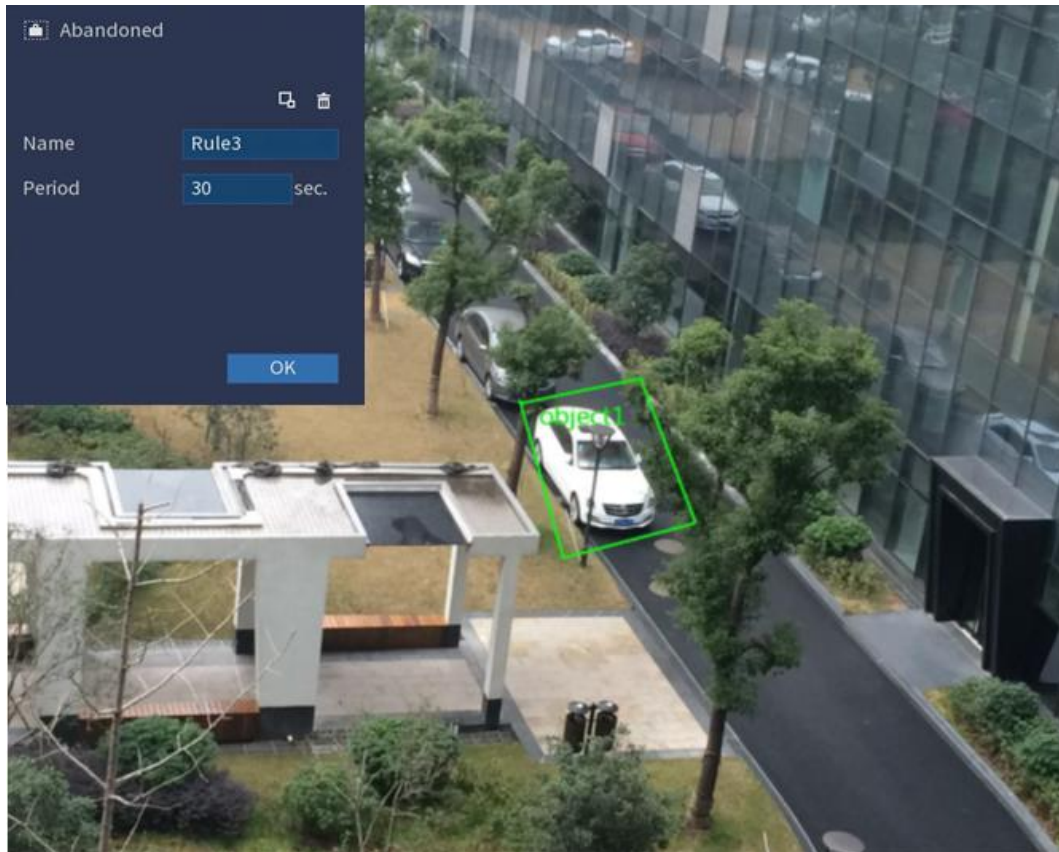
Figure 5-100

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

Parameter	Description
Name	Enter the customized rule name.
Period	Configure the minimum time period for activating alarms by detecting the abandoned objects.
Target Filter	Click ⬚ to draw areas to filter the target. **NOTE** 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.

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

3. Click ⚙ to set the actions to be triggered. For details, see "5.10.1.1.1 Configuring Tripwire Rules."

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

5.10.1.1.4   Configuring Missing Rules

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

1.   On the rule line that you added, in the **Type** list, select **Missing**. See Figure 5-101.
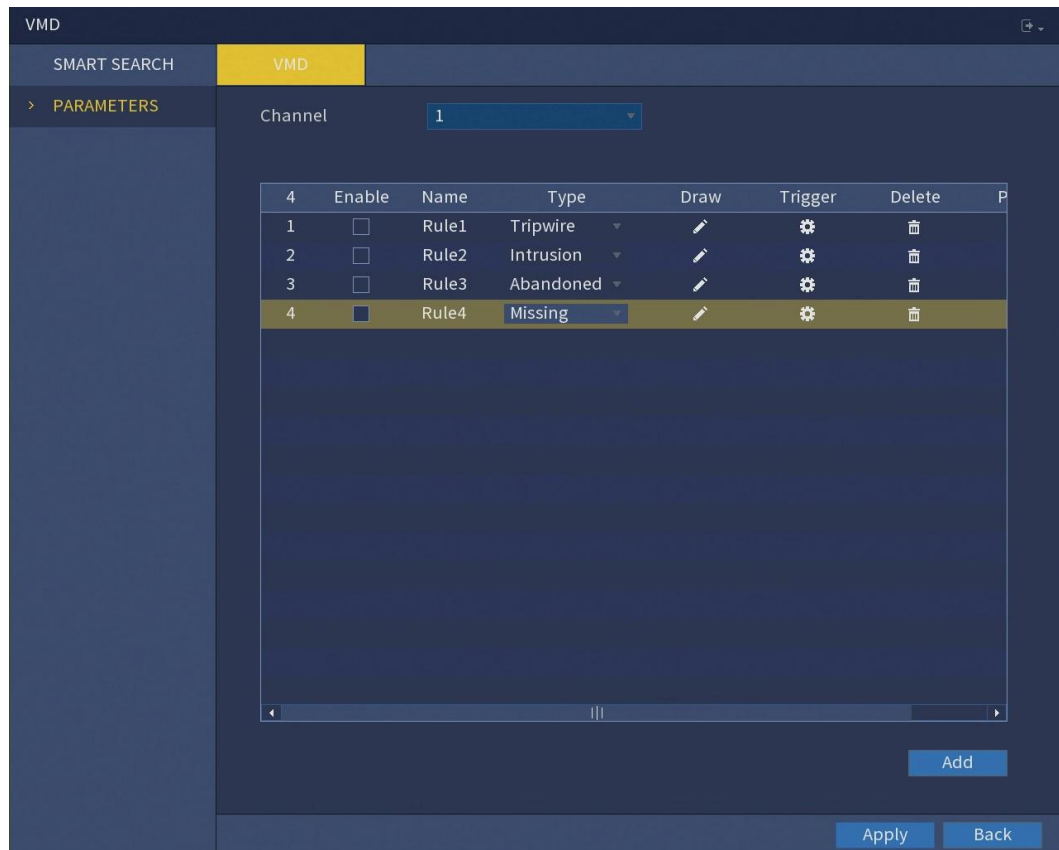
Figure 5-101

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 5-102.
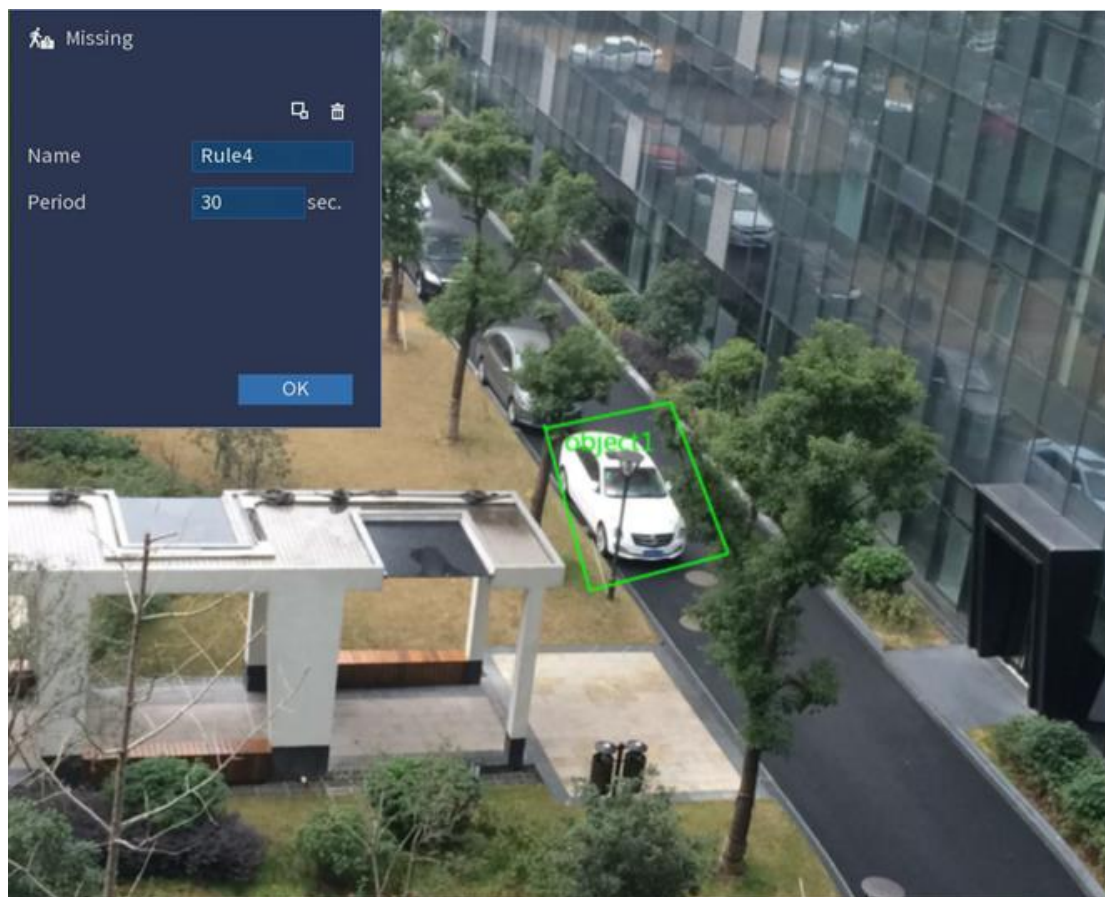
Figure 5-102

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

Parameter	Description
Name	Enter the customized rule name.
Period	Configure the minimum time period for activating alarms by detecting the missing objects.
Target Filter	Click 🔲 to draw areas to filter the target. **NOTE** 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.

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

3. Click ⚙️ to set the actions to be triggered. For details, see "5.10.1.1.1 Configuring Tripwire Rules."

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.

5.10.1.2 Using Smart Search

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

1. Select **MAIN MENU** > **VMD** > **SMART SEARCH > VMD**.
    The **VMD** interface is displayed. See Figure 5-103.

<p align="center">Figure 5-103</p>

2. In the **Channel** list, select the channel that you want to search for the events.
3. In the **Type** list, select the event type that you want to search.
4. In the **Start Time** box and **End Time** box, enter the date and time.
5. Select the display mode of the search results by clicking **Diagram** or **List**.
6. Click **Search**.
    The results that satisfy the searching conditions are displayed. See Figure 5-104 and Figure 5-105.
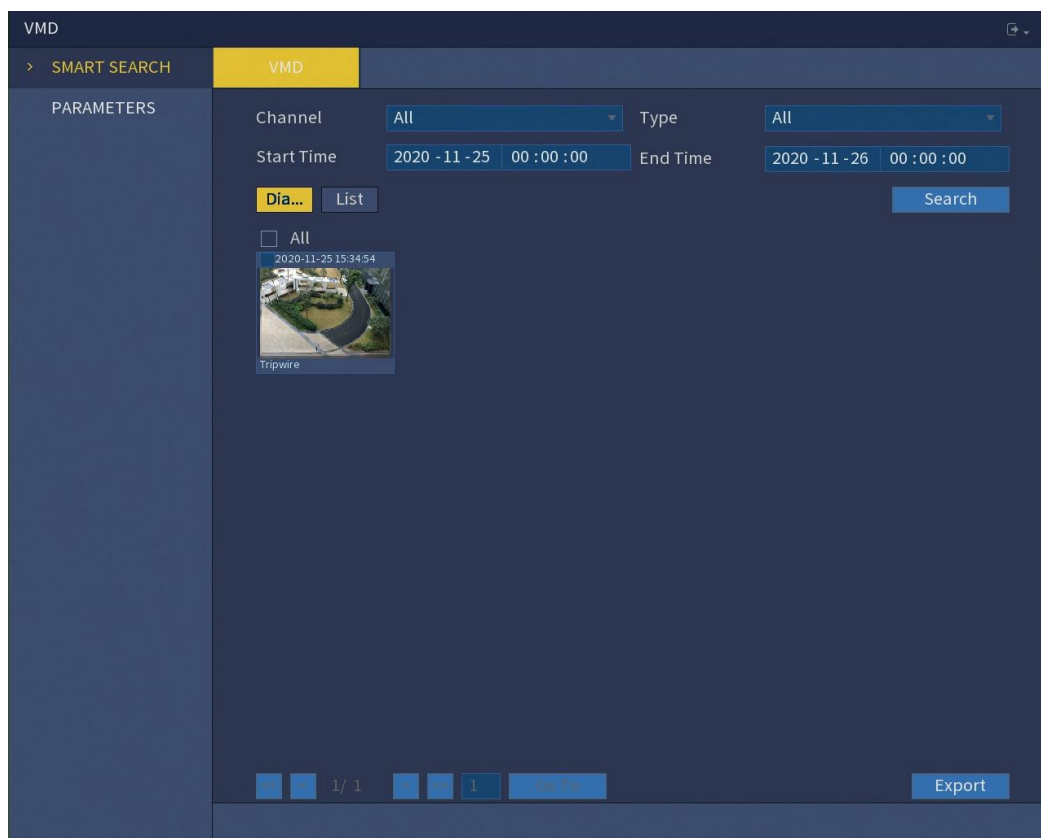
Figure 5-104
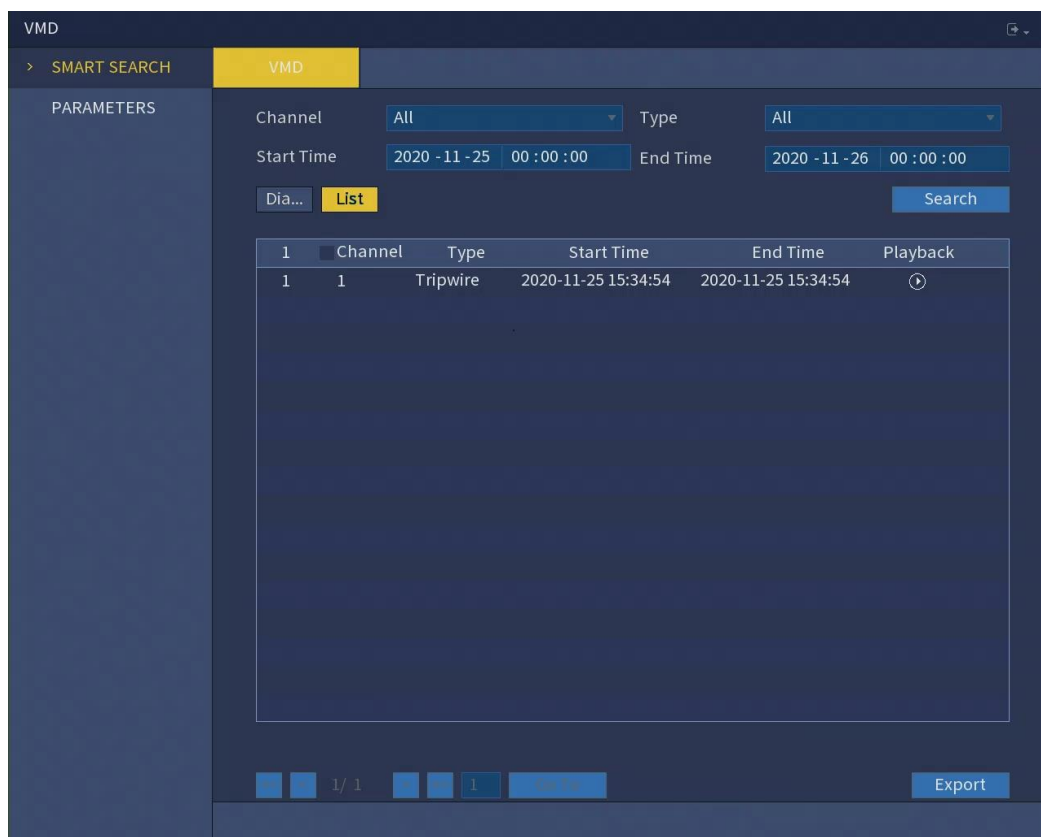
Figure 5-105

7. Double-click the video or click .

The video playback interface is displayed. See Figure 5.106.
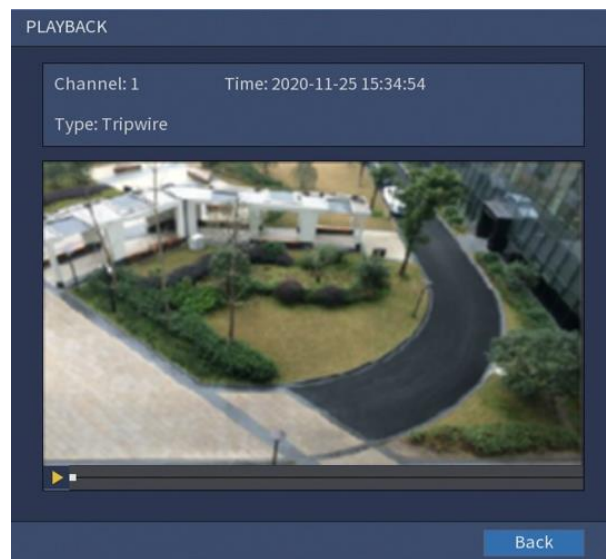
Figure 5-106

8. Click to play back the recorded video.

9. Click **Back** to stop the playback and return to the **VMD** interface.
   NOTE
   Click **Export** to export the recorded video files.

5.11 Configuring Backup Settings

5.11.1 Finding USB Device

When you insert 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 5-107.
For details, see "5.11.2 Backing Up Files", "5.16.2 Viewing Log Information", "5.15.5 Exporting and Importing System Settings", and "5.15.7 Upgrading the Device."
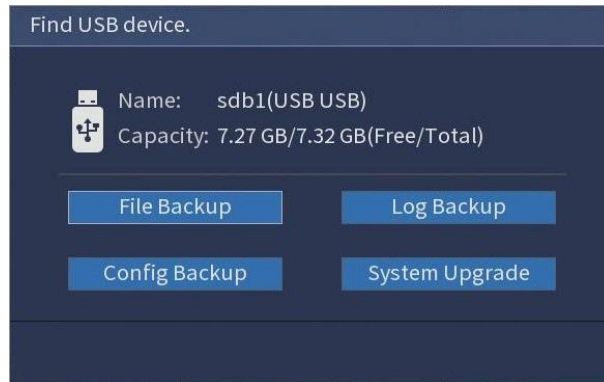
Figure 5-107

5.11.2 Backing Up Files

You can back up the recorded videos and snapshots.

1. Select **MAIN MENU** > **BACKUP**.

   The **BACKUP** interface is displayed. See Figure 5-108.
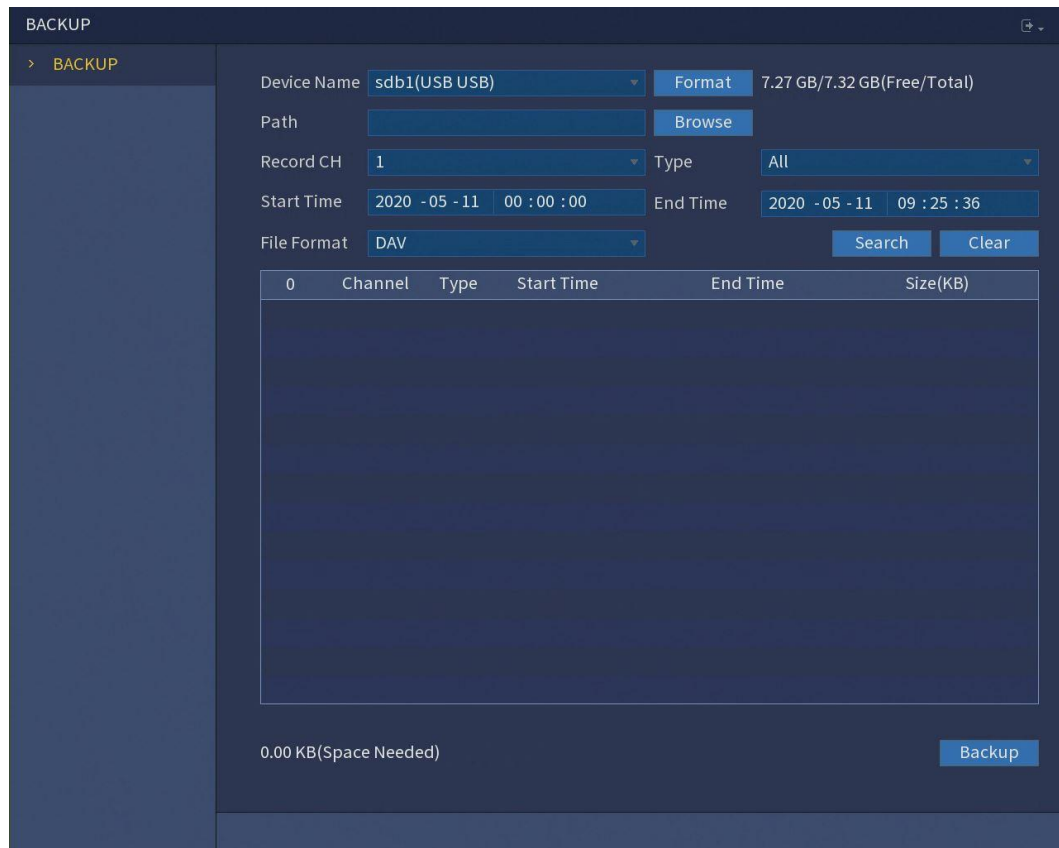
Figure 5-108

2. Configure the settings for the backup parameters.

Parameter	Description
Device Name	In the **Device Name** list, select the device that you want to back up the files to.
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 CH	In the **Record CH** 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 End Time	Enter the start time and end time for the files that you want to search.
File Format	In the **File Format** list, select the file format as **DAV** or **MP4** that you want to search.

3. Click **Search** to search the files that meet the configured settings.
   The searched results will display in the table.
4. Select the files that you want to back up.
5. Click **Backup** to back up the selected files to the configured path.
   NOTE
   Click **Clear** to remove all the searched results.

5.12   Network Management

5.12.1   Configuring Network Settings

You can ensure the network interworking between the Device and other devices through configuring the network settings.

5.12.1.1   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. See Figure 5-109. For details about parameter settings, see "5.1.4.4 Configuring Network Settings."

Figure 5-109

5.12.1.2 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.

1. Select **MAIN MENU** > **NETWORK** > **CONNECTION**.

The **CONNECTION** interface is displayed. See Figure 5-110.

Figure 5-110

2. Configure the settings for the connection parameters.
   NOTE
   The parameter setting can take effect without need to reboot the device.

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 0 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 the Device by browser.
RTSP Port	The default value setting is 554. You can enter the value according to your actual situation.
HTTPS Enable	Enable **HTTPS**.
HTTPS Port	HTTPS communication port. The default value setting is 443.

	You can enter the value according to your actual situation.
NTP Server Port	The default value setting is 123. You can enter the value according to your actual situation.

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

5.12.1.3   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

Please confirm if the Device supports the DDNS Type and log in the website provided by the DDNS service provider to register the information such as domain from PC located in the WAN.

NOTE

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

1. Select **MAIN MENU** > **NETWORK** > **DDNS**.

   The **DDNS** interface is displayed. See Figure 5-111.

Figure 5-111

2. Configure the settings for the DDNS parameters.

Parameter	Description
Enable	Enable the DDNS function. **NOTE** After enabling DDNS function, the third-party might collect your Device information.
DDNS Type	Type and address of DDNS service provider. • Type: Dyndns DDNS; address: members.dyndns.org
Host IP	• Type: NO-IP DDNS; address: dynupdate.no-ip.com • Type: CN99 DDNS; address: members.3322.org
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.

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.

5.12.1.4 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.

1. Select **MAIN MENU** > **NETWORK** > **EMAIL**.

   The **EMAIL** interface is displayed. See Figure 5-112.

Figure 5-112

2. Configure the settings for the email parameters.

Parameter	Description
Enable	Enable the email function.
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.
User Name	Enter the user name and password of sender's email account.
Password	
Anonymity	If enable the anonymity function, you can login as anonymity.
Mail Receiver	In the **Mail 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.
Title	Enter the email subject. Supports Chinese, English and Arabic numerals. It supports maximum 63 characters.
Attachment	Enable the attachment function. When there is an alarm event, the system can attach snapshots as an attachment to the

	email.
Authentication	Select the encryption type: **NONE**, **SSL**, or **TLS**. **NOTE** For SMTP server, the default encryption type is **TLS**.
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 Enable	Enable the health test function. The system can send a test email to check the connection
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. **NOTE** Before testing, click **Apply** to save the settings.

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

5.12.1.5   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

- Login 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

1. Select **MAIN MENU** > **NETWORK** > **UPnP**.
   The **UPnP** interface is displayed. See Figure 5-113.
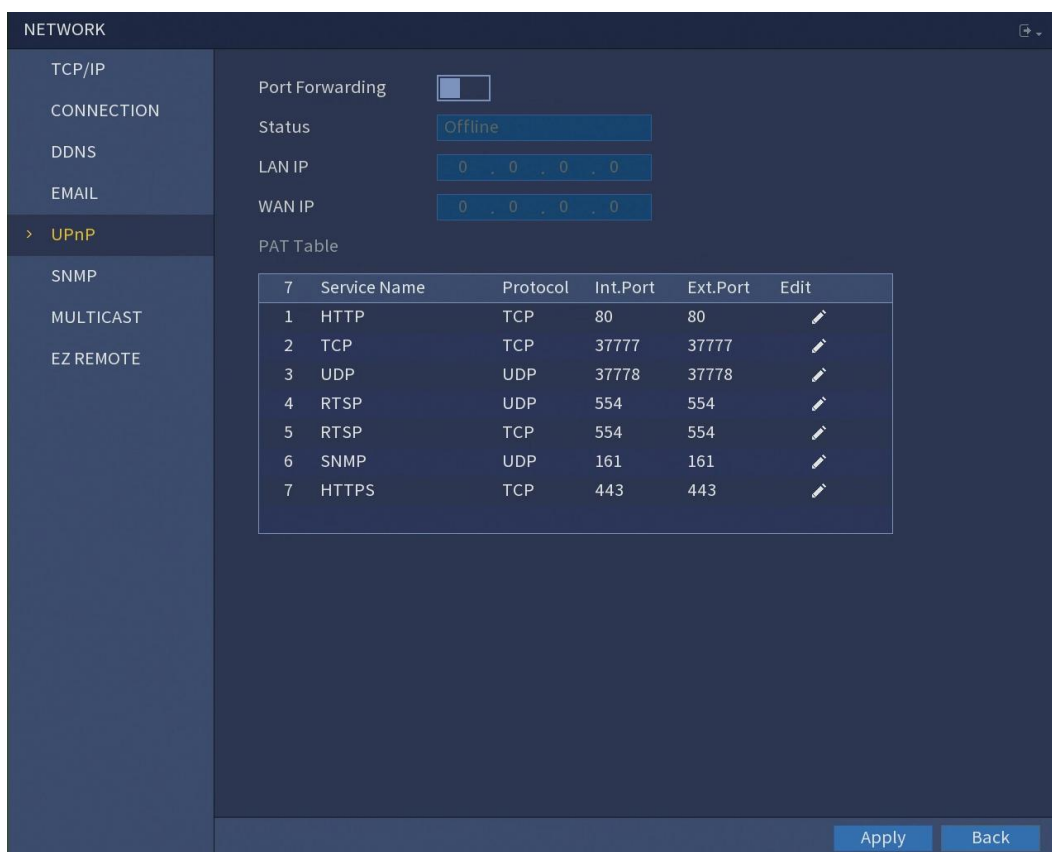
Figure 5-113

2. Configure the settings for the UPnP parameters.

Parameter	Description
Port Forwarding	Enable the UPnP function.
Status	Indicates the status of UPnP function. • Offline: Failed. • Online: Succeeded.
LAN IP	Enter IP address of router on the LAN. **NOTE** After mapping succeeded, the system obtains IP address automatically without performing any configurations.
WAN IP	Enter IP address of router on the WAN. **NOTE** After mapping succeeded, the system obtains IP address automatically without performing any configurations.
PAT Table	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. **NOTE**

	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, please reasonably arrange the ports mapping to avoid mapping to the same external port. When establishing a mapping relationship, please 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.

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

    In the browser, enter http://WAN IP: External IP port. You can visit the LAN Device.

5.12.1.6   Configuring SNMP Settings

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

1. Select **MAIN MENU** > **NETWORK** > **SNMP**.

    The **SNMP** interface is displayed. See Figure 5-114.

Figure 5-114

2. Configure the settings for the SNMP parameters.

Parameter	Description
Enable	Enable the SNMP function.
Version	Select the check box of SNMP version(s) that you are using. **NOTE** 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 User	Enter the user name that is allowed to access the Device and has the "Read Only" permission.
Read/Write User	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	
Encryption Type	In the **Encryption Type** list, select an encryption type. The default setting is CBC-DES.

3. Compile the two MIB files by MIB Builder.
4. Run MG-SOFT MIB Browser to load in the module from compilation.
5. On the MG-SOFT MIB Browser, enter the Device IP that you want to manage, and then select the version number to query.
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.

5.12.1.7 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.

1. Select **MAIN MENU** > **NETWORK** > **MULTICAST**.
   The **MULTICAST** interface is displayed. See Figure 5-115.
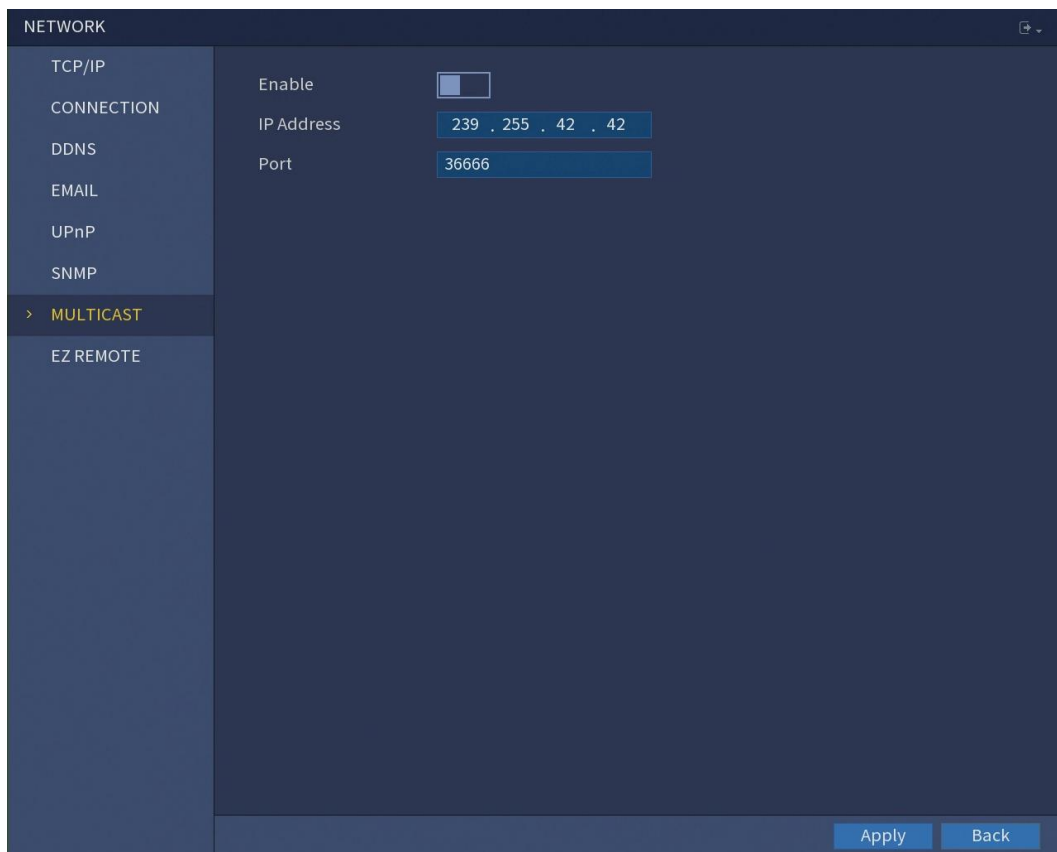
Figure 5-115

2. Configure the settings for the 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.

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

You can use the multicast IP address to login the web. See Figure 5-116.

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.
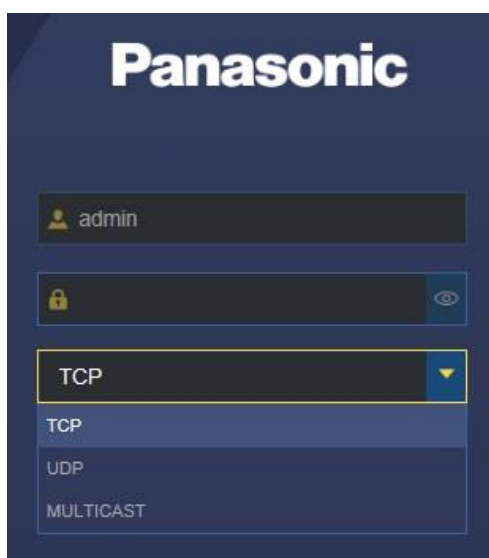
Figure 5-116

5.12.1.8   Configuring EZ Remote Settings

You can use your cell phone to scan the QR to add the device via the client on the cell phone. For details, see "5.1.4.5 Configuring EZ Remote Settings."

5.12.2   Configuring Network Testing Settings

5.12.2.1   Testing the Network

You can test the network connection status between the Device and other devices.

1.   Select **MAIN MENU** > **INFO** > **NETWORK** > **Network Test**.

The **Network Test** interface is displayed. See Figure 5-117.

Figure 5-117

2. In the **Destination IP** box, enter the IP address.
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. See Figure 5-118.
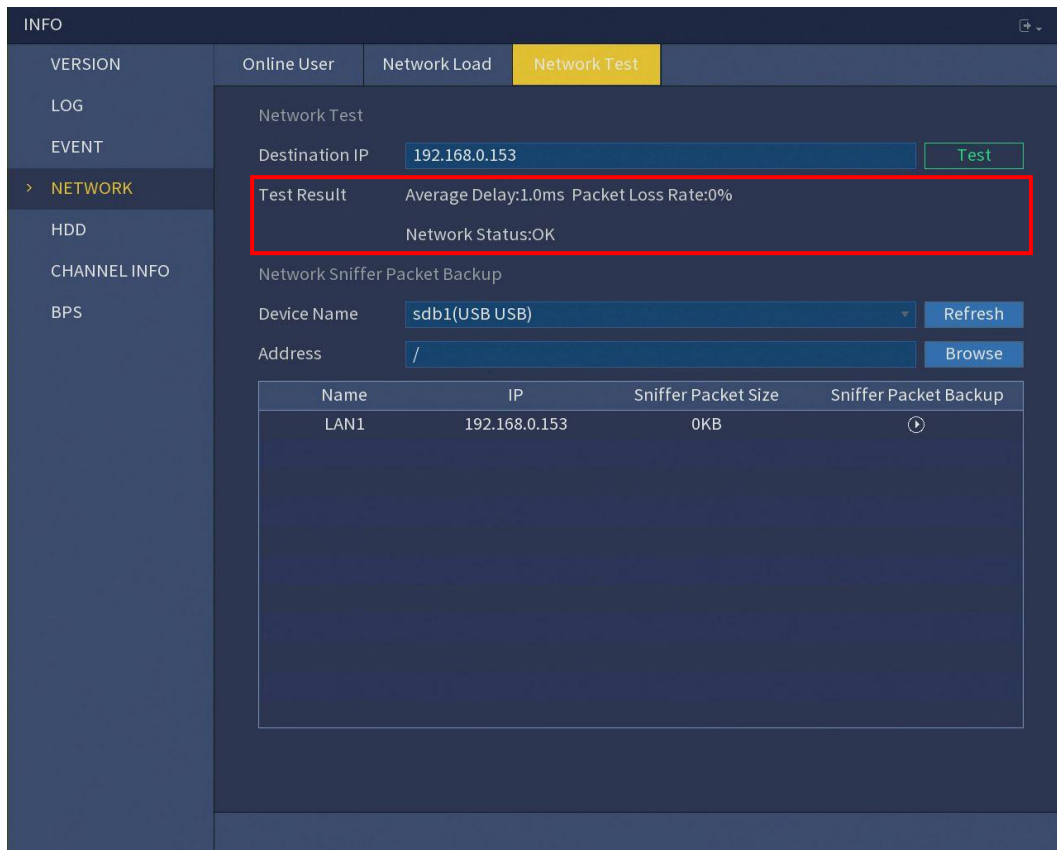
Figure 5-118

5.12.2.2 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.

1. Select **MAIN MENU** > **INFO** > **NETWORK** > **Network Test**.
    The **Network Test** interface is displayed. See Figure 5-119.

Figure 5-119

2. Connect a USB storage device to the Device.
3. Click **Refresh**.
   The Device starts detecting the USB storage device and displays its name in the
   Device Name box.
4. Select the route of the data that you want to capture and back up.
   1) In the **Network Sniffer Packet Backup** area, click **Browse**.
      The **Browse** interface is displayed. See Figure 5-120.
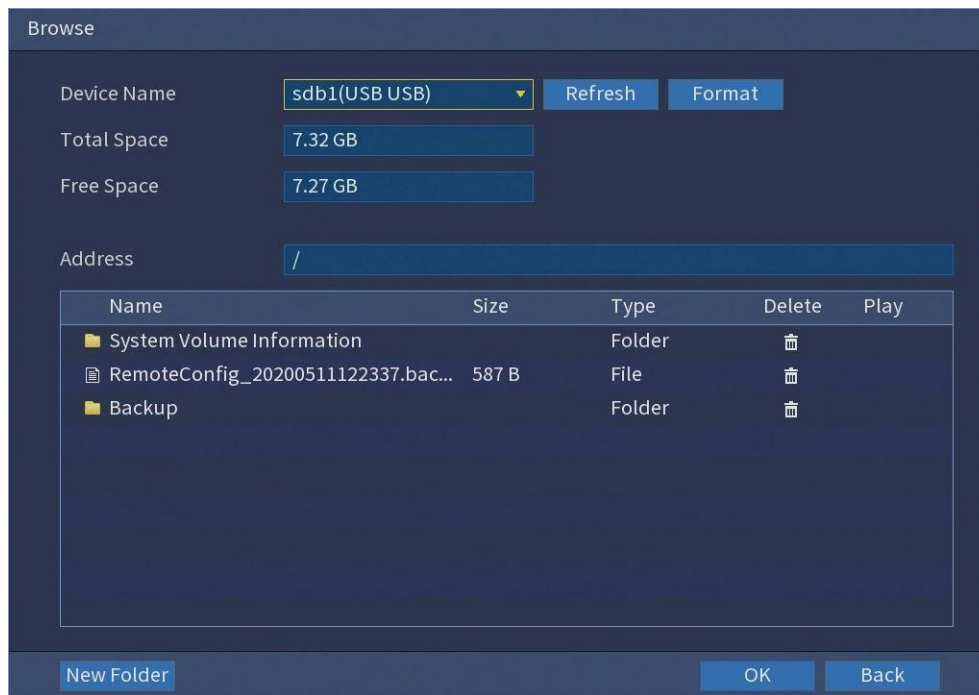
Figure 5-120

2) Select the route.

NOTE

- If there are several USB storage devices connected to the Device, you can select from the **Device Name** list.
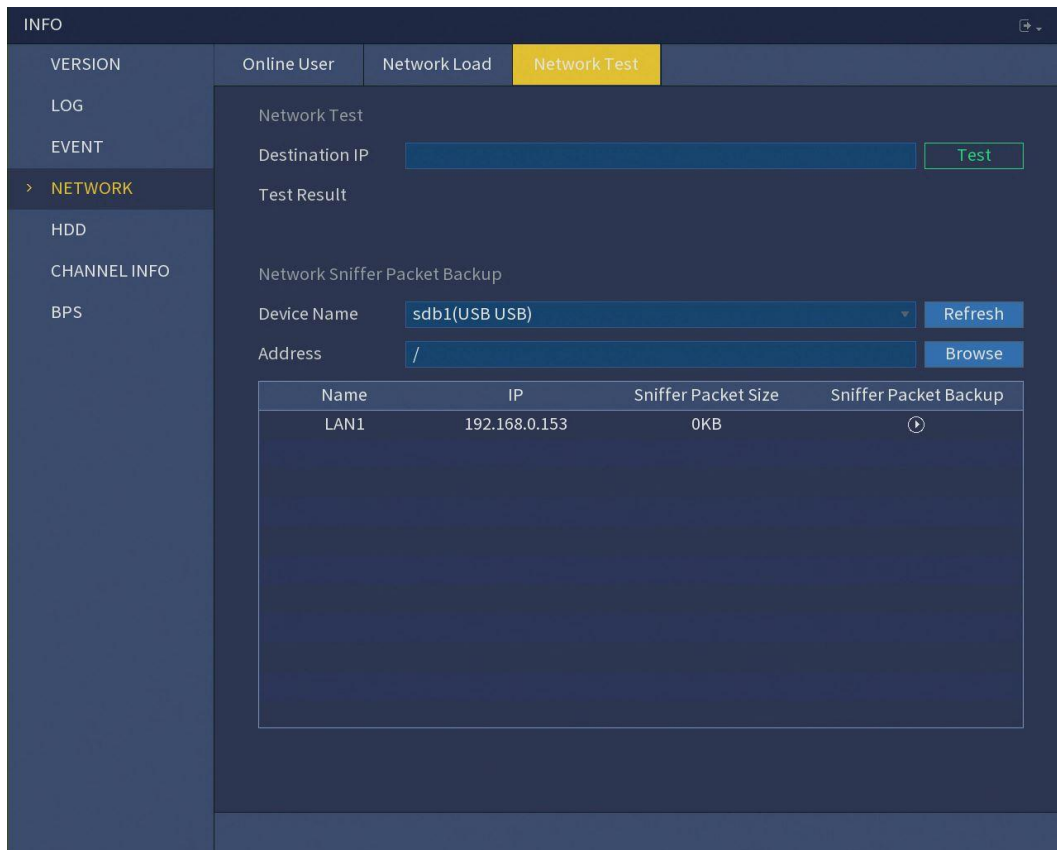- Click **Refresh** to refresh total space, free space and the file list in the selected USB storage device.
- In the case of insufficient capacity, click [trash icon] to delete the needless files.
- Click **New Folder** to create a new folder in the USB storage device.

3) Click **OK** to save the route selection settings.

The **Network Test** interface is displayed again.

5. Click [play icon] to start packet capturing and backing up.

NOTE

- Only the data packet of one LAN can be captured at one time.
- After capturing starts, you can exit the **Network Test** interface to perform other operations such as web login and monitoring.

6. Click [pause icon] to stop capturing.

The backup data is saved in the selected route under the naming style "LAN name-time.pcap." See Figure 5-121. You can open it by using Wireshark software.
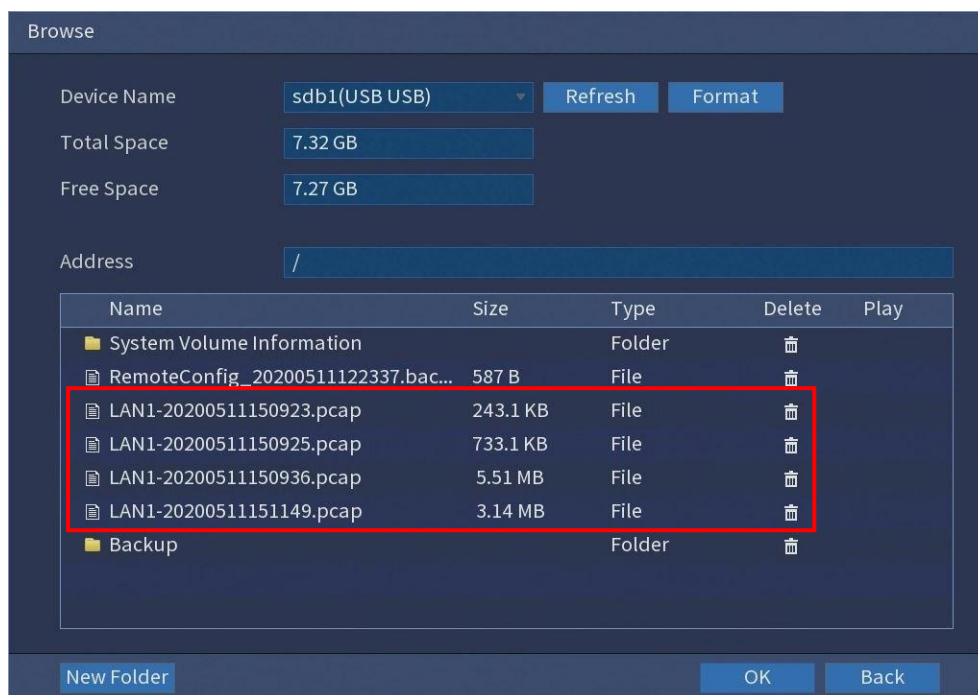
Figure 5-121

5.13 Configuring Account Settings

You can add, modify and delete user accounts, groups, and ONVIF users, and set security questions for admin account.

NOTE

- 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.

5.13.1 Configuring User Account

5.13.1.1 Adding a User Account

1. Select **MAIN MENU** > **ACCOUNT** > **USER**.
   The **USER** interface is displayed. See Figure 5-122.

Figure 5-122

2. Click **Add User**.
   The **Add User** interface is displayed. See Figure 5-123.

Figure 5-123

3. Configure the settings for the parameters of adding a user account.
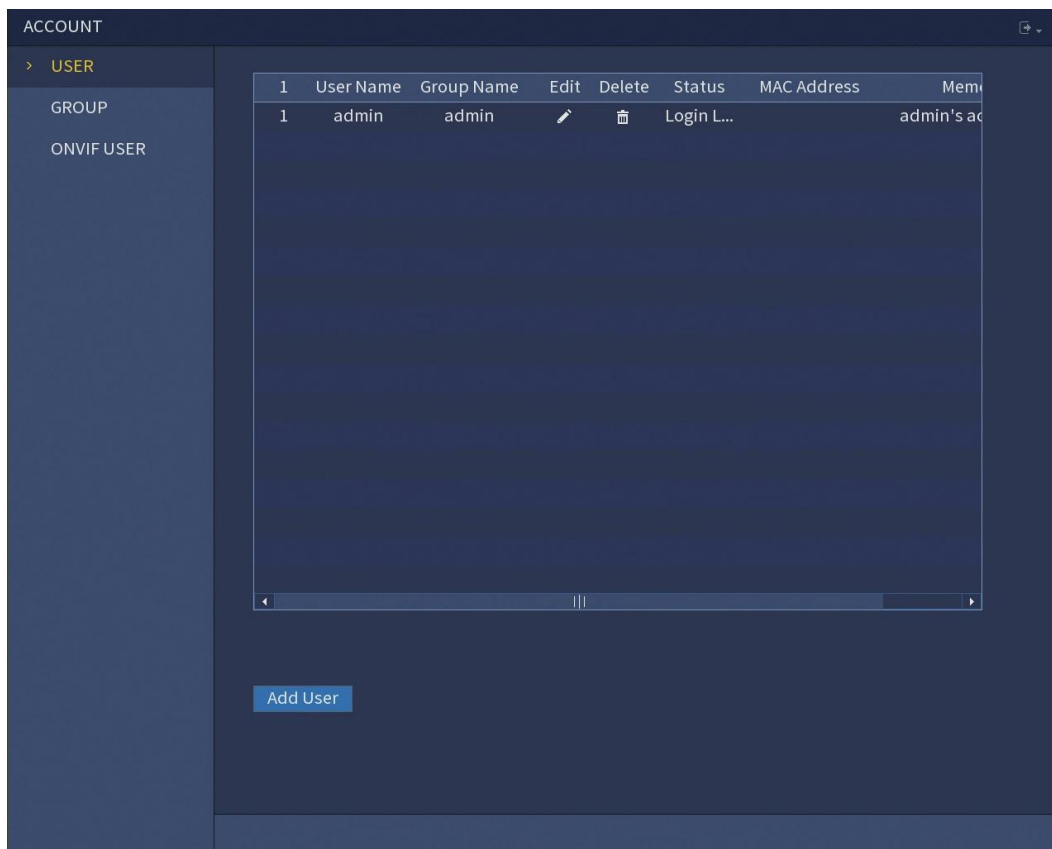
Parameter	Description
User Name	Enter a user name and password for the account.

Password	
Confirm Password	Re-enter the password.
Memo	Optional. Enter a description of the account.
User MAC	Enter user MAC address.
Group	Select a group for the account. **NOTE** 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 login the device. The new account cannot login the device during the time beyond the set period.
Authority	In the **Authority** area, select the check boxes in the **System** tab, **Playback** tab, and **Monitor** tab. **NOTE** 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.

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

Setting Permitted Period

1. Next to **Period**, click **Setting**.
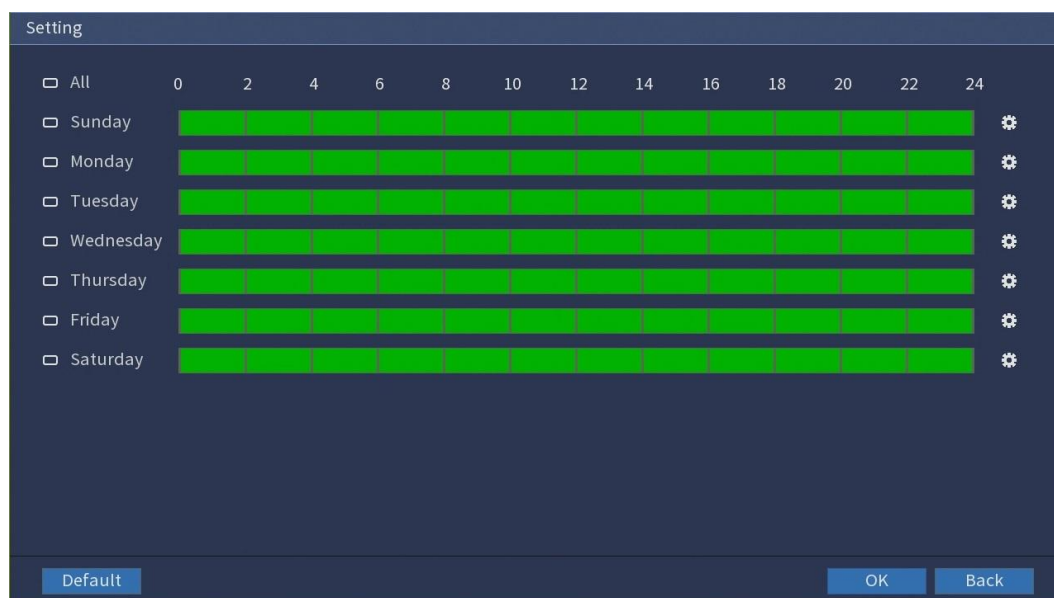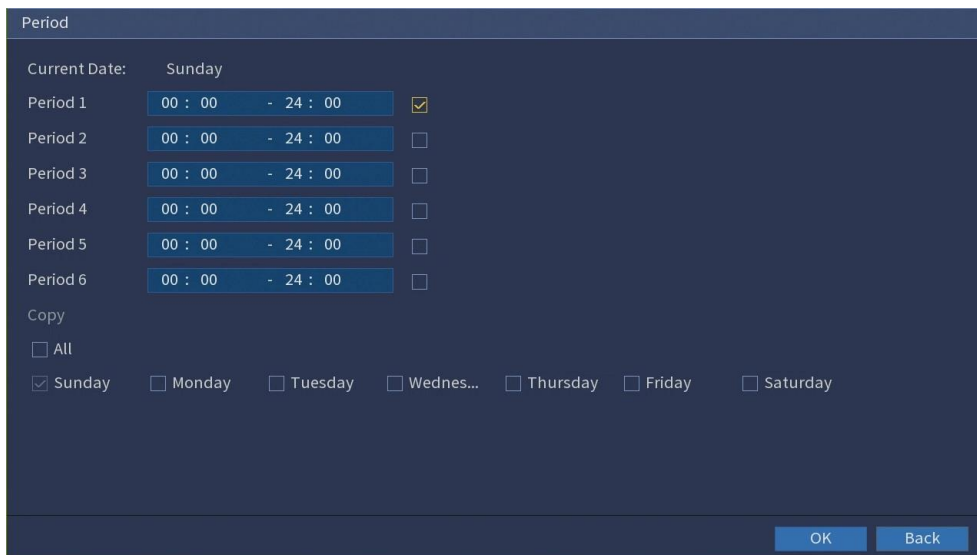   The **Set** interface is displayed. See Figure 5-124.

Figure 5-124

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 ⚙.

      The **Period** interface is displayed. See Figure 5-125.

Period		
Current Date:	Sunday	
Period 1	00 : 00 - 24 : 00	☑
Period 2	00 : 00 - 24 : 00	☐
Period 3	00 : 00 - 24 : 00	☐
Period 4	00 : 00 - 24 : 00	☐
Period 5	00 : 00 - 24 : 00	☐
Period 6	00 : 00 - 24 : 00	☐
Copy		
☐ All		
☑ Sunday ☐ Monday ☐ Tuesday ☐ Wednes… ☐ Thursday ☐ Friday ☐ Saturday		
	OK Back	

Figure 5-125

  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 days(s) that you want to apply the settings to.
  3) Click **OK** to save the settings.
3. Click **OK**.

5.13.1.2 Modify a User Account
1. Select **MAIN MENU** > **ACCOUNT** > **USER.**
   The **USER** interface is displayed. See Figure 5-126.

Figure 5-126

2. Click for the user account that you want to modify.

   The **Modify User** interface is displayed. See Figure 5-127.

Figure 5-127

3. Change the settings for password, user group, user MAC, memo, period and authority.
   NOTE

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, enable/disable the unlock pattern, modify the security questions.

- To use the unlock pattern, enable **Unlock Pattern**, click ⬛, draw a pattern in the **Unlock Pattern** interface.
- Configuring security questions.
  1) Click **Security Questions**.
     The **Security Questions** interface is displayed. See Figure 5-128.
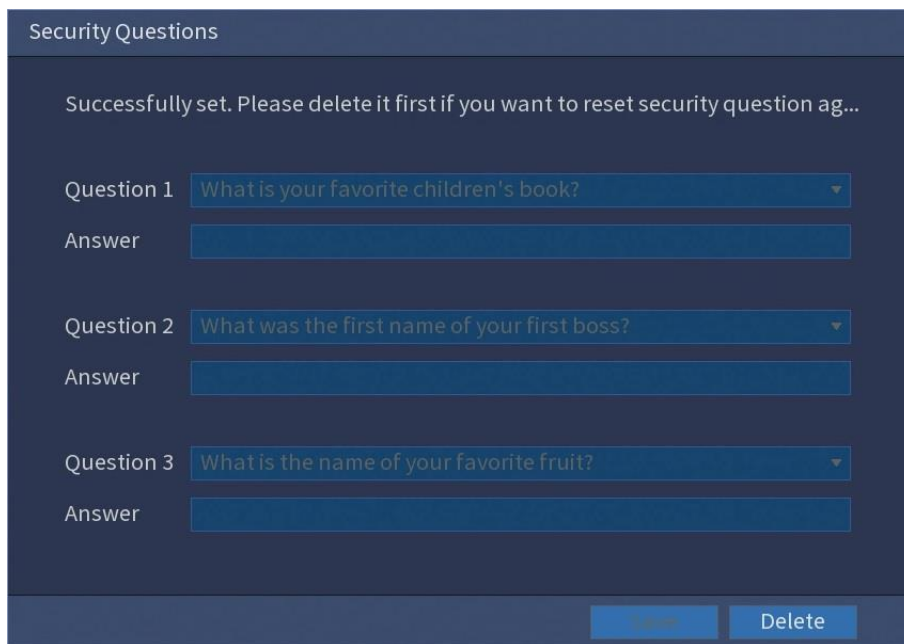
Figure 5-128

  2) In the **Question** list, select questions and enter the answers in the Answer box.
  3) Click **Save** to save the settings.
     You can use the security questions and answers to reset the password for admin account.
     NOTE
     To reset the security questions, on the **Security Questions**, enter the correct answers for each question and then click **Delete**.
4. Click **OK** to complete the settings.

5.13.1.3   Deleting a User Account

1. Select **MAIN MENU** > **ACCOUNT** > **USER.**
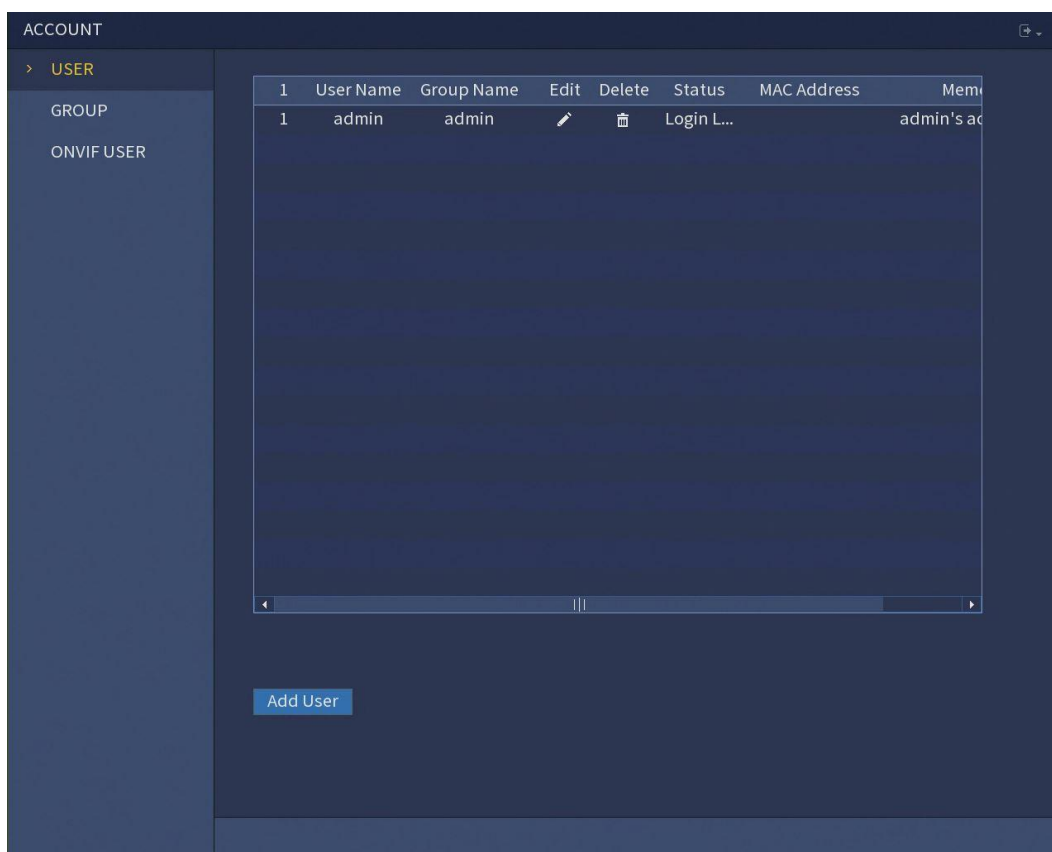   The **USER** interface is displayed. See Figure 5-129.
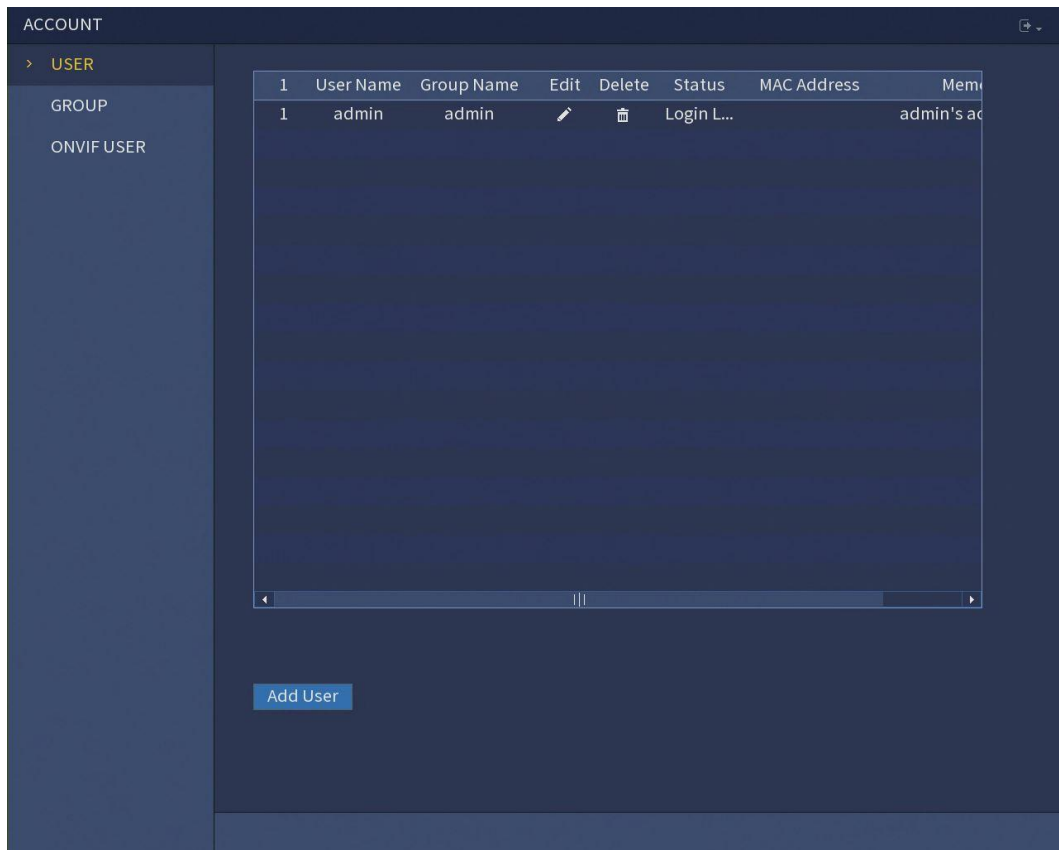
Figure 5-129

2. Click ![trash icon] for the user account that you want to deleted.

   A message is displayed.
3. Click **OK** to delete a user account.

5.13.2   Configuring Group Account

5.13.2.1   Adding a Group

1. Select **MAIN MENU** > **ACCOUNT** > **GROUP**.
   The **GROUP** interface is displayed. See Figure 5-130.
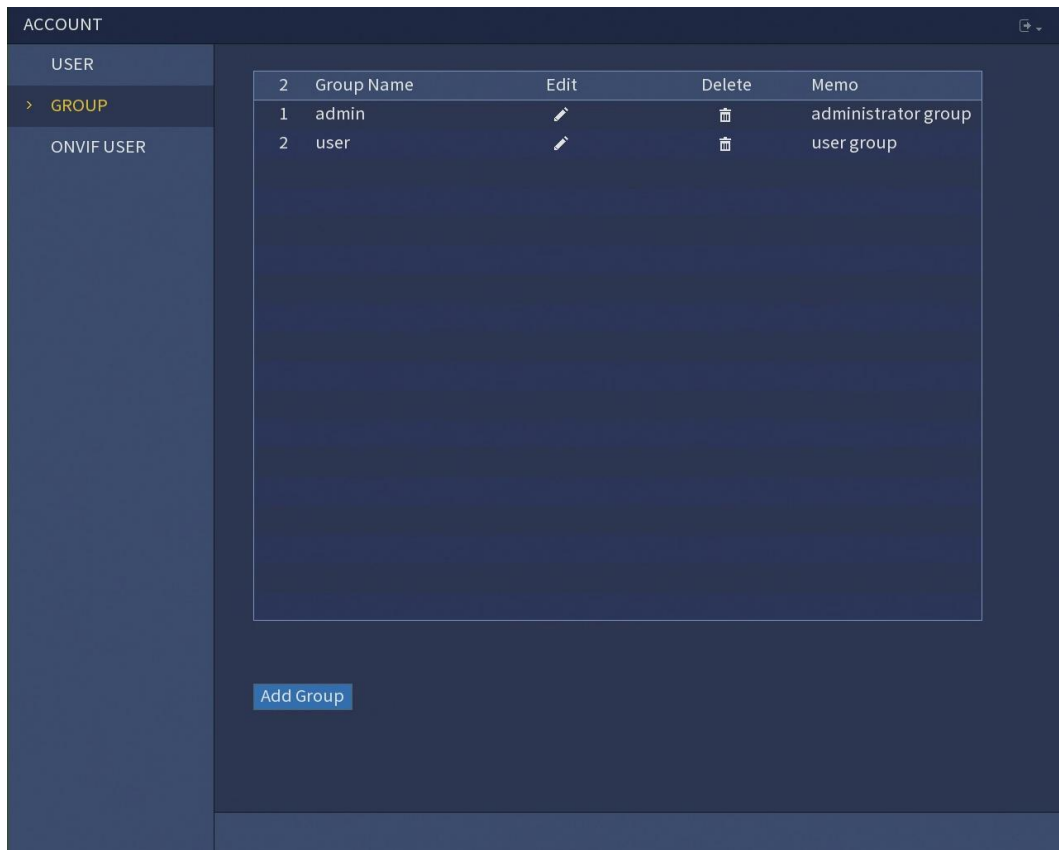
Figure 5-130

2. Click **Add Group**.
   The **Add Group** interface is displayed. See Figure 5-131.

Figure 5-131

3. Configure the settings for the parameters of adding a group.

Parameter	Description

Group Name	Enter a name for the group.
Memo	Optional. Enter a description of the account.
Authority	In the **Authority** area, select the check boxes in the **System** tab, **Playback** tab and **Monitor** tab.

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

5.13.2.2   Modifying a Group

1. Select **MAIN MENU** > **ACCOUNT** > **GROUP**.
   The **GROUP** interface is displayed. See Figure 5-132.
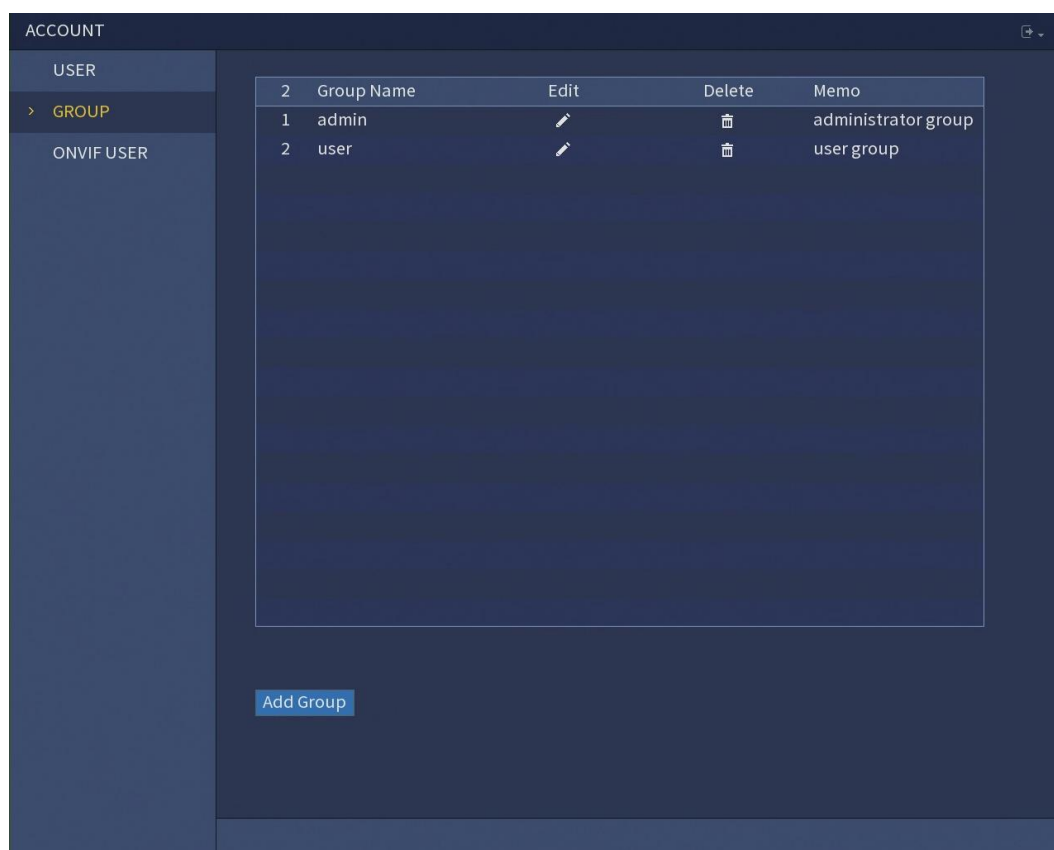
Figure 5-132

2. Click ✏ for the group account that you want to modify.

3. The **Modify Group** interface is displayed. See Figure 5-133.

Figure 5-133

4. Change the settings for group name, memo and authority.
5. Click **OK** to complete the settings.

5.13.2.3 Deleting a Group

1. Select **MAIN MENU** > **ACCOUNT** > **GROUP**.
   The **GROUP** interface is displayed. See Figure 5-134.

Figure 5-134

2. Click ![delete icon] for the user account that you want to deleted.

    A message is displayed.
3. Click **OK** to delete a user account.

5.13.3   Configuring ONVIF Account

The device manufactured by other company can connect to the Device through ONVIF protocol by an authorized ONVIF account.
NOTE
The admin account is created for ONVIF users right after the Device has been initialized.

1. Select **MAIN MENU** > **ACCOUNT** > **ONVIF USER**.
    The **ONVIF USER** interface is displayed. See Figure 5-135.
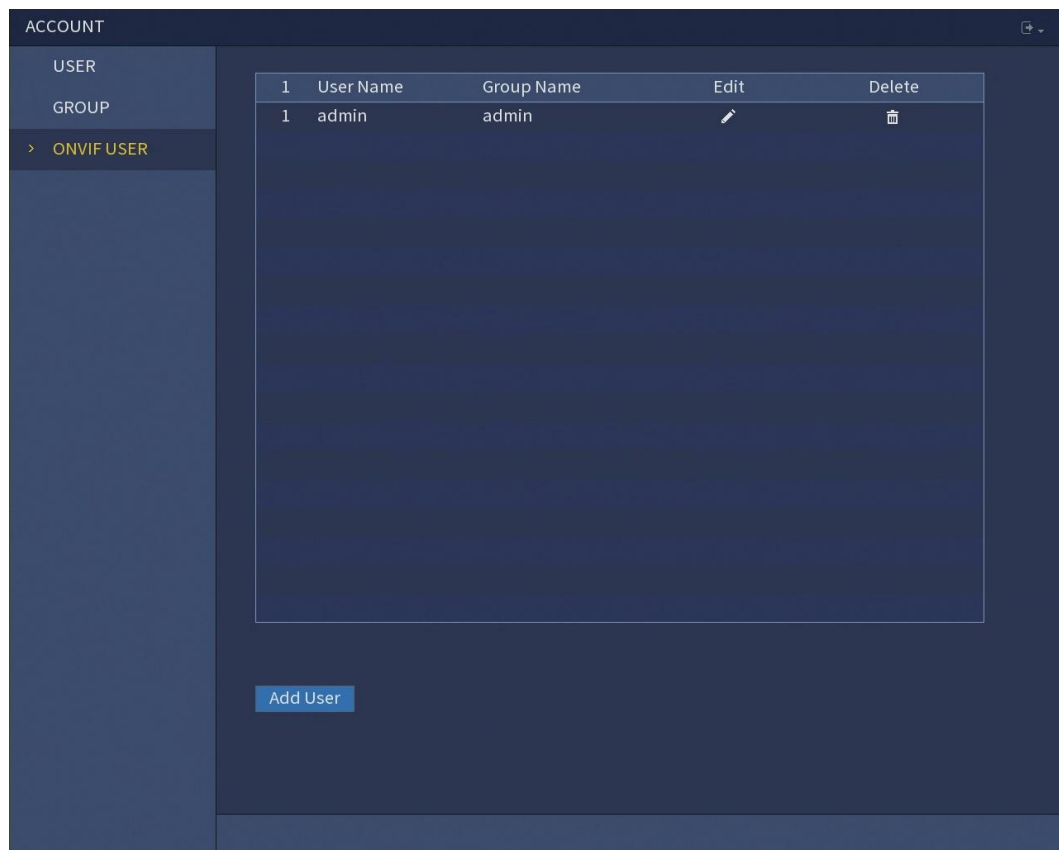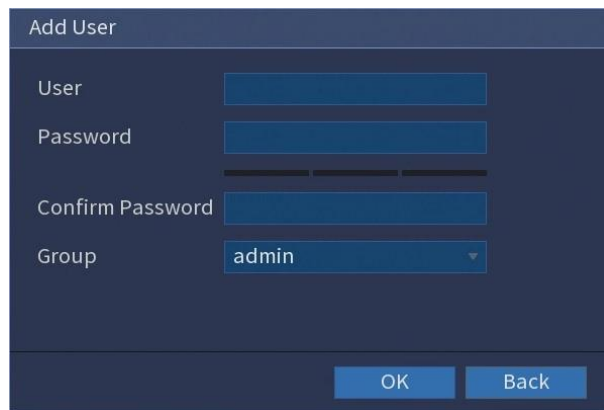
Figure 5-135

2. Click **Add User**.
    The **Add User** interface is displayed. See Figure 5-136.

Figure 5-136

3. Enter user name, password, and select the group that you want this account to belong to.
4. Click **OK** to save the settings.

   NOTE

   Click ✏ to modify the account; Click 🗑 to delete the account.

5.14 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.

5.14.1 Configuring Basic Settings

1. Select **MAIN MENU** > **STORAGE** > **BASIC**.
   The **BASIC** interface is displayed. See Figure 5-137.
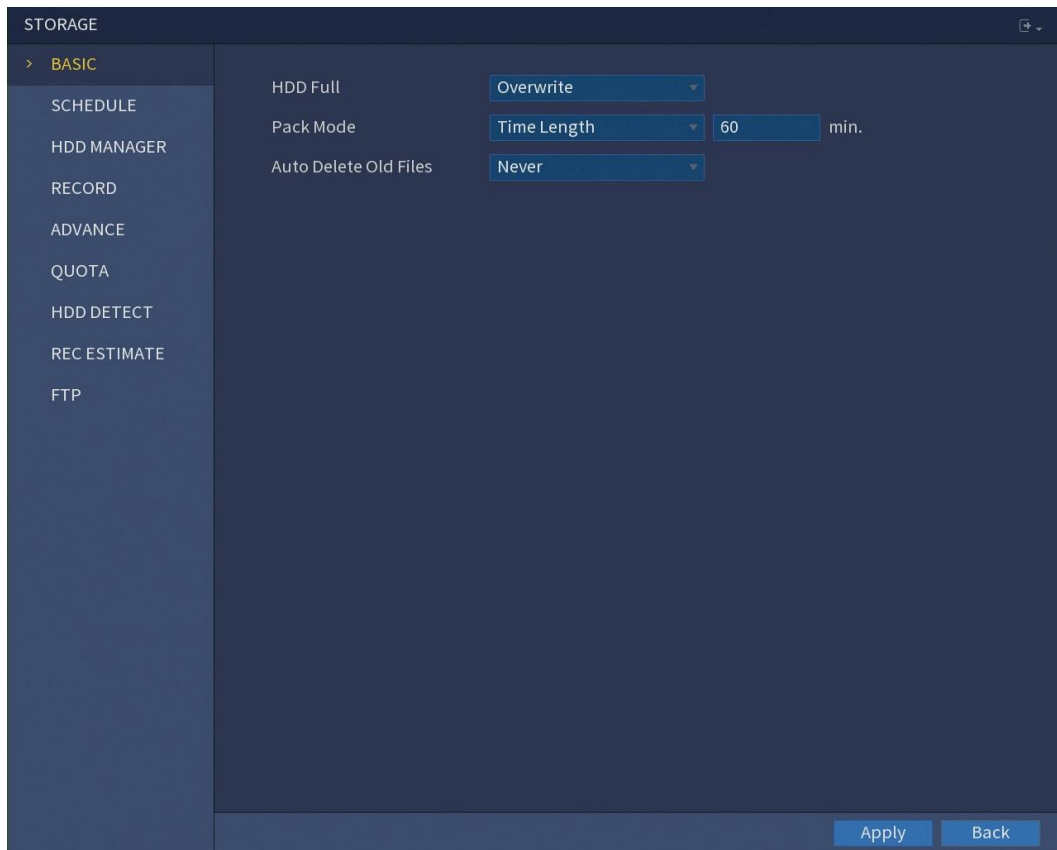
Figure 5-137

2. Configure the settings for the basic settings parameters.

Parameter	Description
HDD Full	Configure the settings for the situation all the read/write discs are full, and there is no more free disc. • Select **Stop Record** to stop recording. • Select **Overwrite** to overwrite the recorded video files always from the earliest time.
Pack Mode	Configure the time length and file length for each recorded video.
Auto Delete Old Files	Configure whether to delete the old files and if yes, configure the days.

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

5.14.2 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".

5.14.3　Configuring HDD Manager

You can view the HDD information, format HDD and configure the HDD type through HDD manager.

1. Select **MAIN MENU** > **STORAGE** > **HDD MANAGER**.

The **HDD MANAGER** interface is displayed. See Figure 5-138.

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.
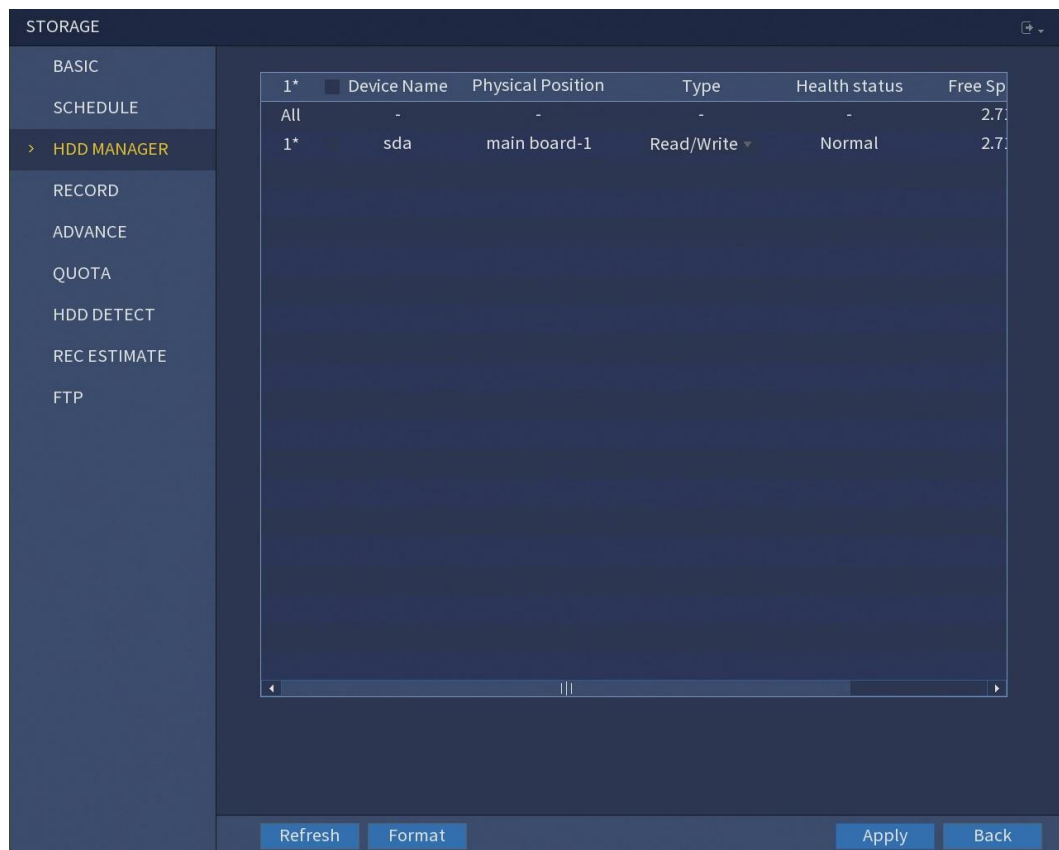
Figure 5-138

2. Configuring the settings for the HDD manager.

- HDD type setting: In the Type list, select **Read/Write**, **Read-Only** or **Redundant**, and then click **Apply** to save the settings.

- HDD format: Select the HDD that you want to format, click **Format**, in the pop-up message, click **OK** to start formatting, and then following the onscreen message to complete formatting.

5.14.4　Configuring Record

Record type includes auto and manual record. You can configure record type of main stream and sub stream. See "5.6 Configuring Record Settings".

5.14.5 Configuring Advance Settings (CJ-HDR216B & CJ-HDR416B only)

Create HDD group, and save main stream, sub stream and snapshot of designated channels to the HDD group.

CAUTION

- 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.

1. Select **MAIN MENU** > **STORAGE** > **ADVANCE** > **HDD.**
    The **HDD** interface is displayed. See Figure 5-139.
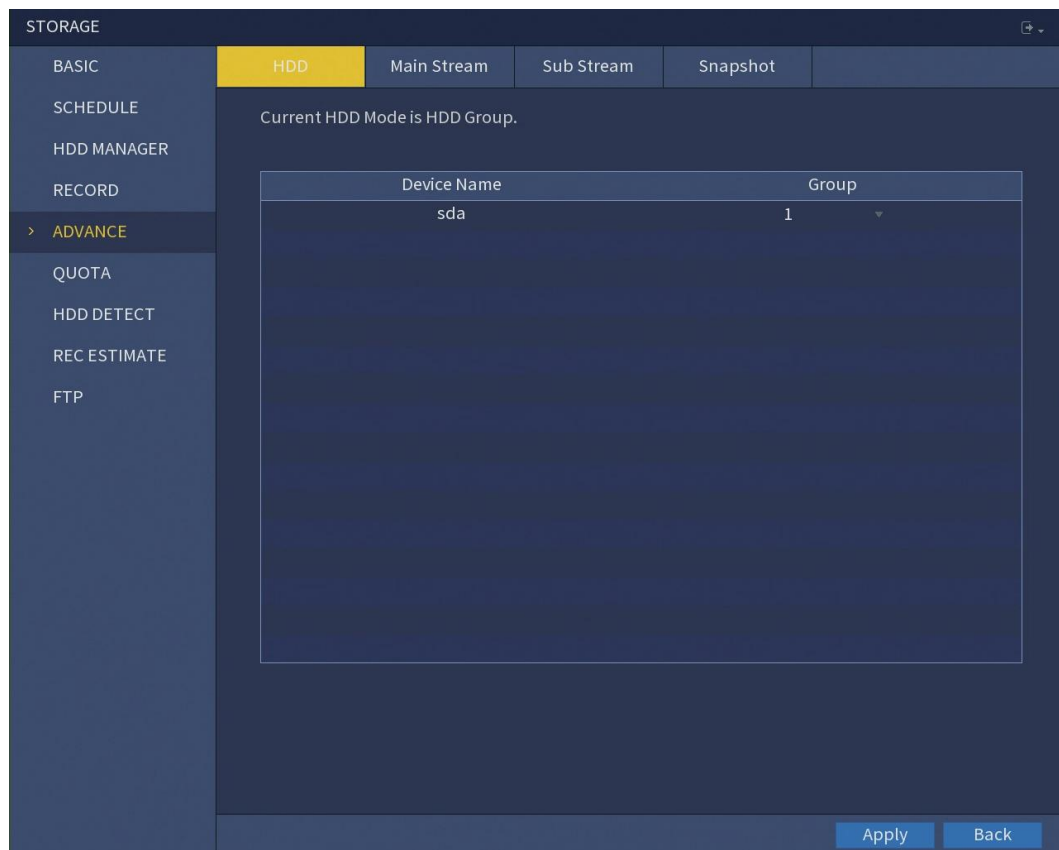
Figure 5-139

2. Select group for each HDD, and then click **Apply** to complete the settings.
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. See Figure 5-140, Figure 5-141 and Figure 5-142.

Figure 5-140

Figure 5-141

Figure 5-142

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

5.14.6   Configuring Quota (CJ-HDR216B & CJ-HDR416B only)

By configuring quota, allocate fixed storage capacity to each channel, and distribute the storage space of each channel reasonably.

CAUTION

- 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.

1. Select **MAIN MENU** > **STORAGE** > **QUOTA.**
   The **QUOTA** interface is displayed. See Figure 5-143.
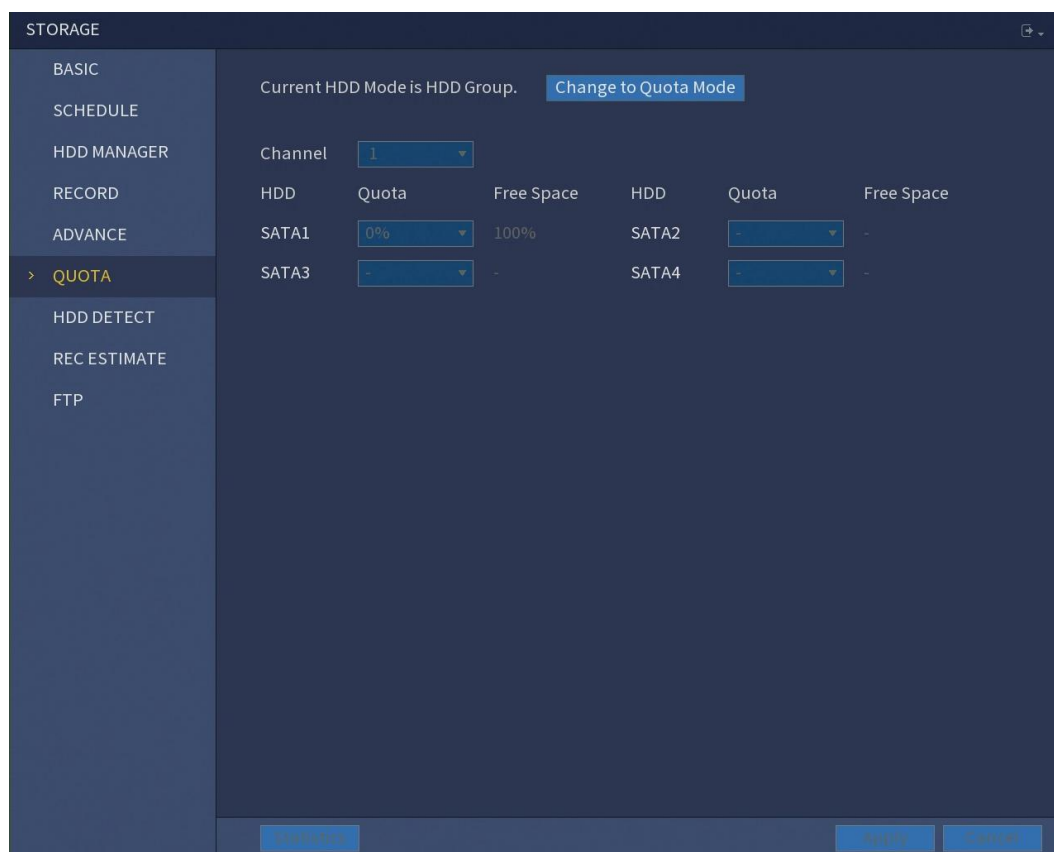
Figure 5-143

2. Select the channels you want to configure, and select quota from the drop-down list of corresponding HDD.
3. Click **Apply** to complete the settings.

NOTE

Click **Statistics** to view the quota of each channel in HDD. See Figure 5-144.

Figure 5-144

5.14.7 Configuring HDD Detecting Settings

HDD detecting function detects the current status of HDD to let you know the HDD performance and replace the defective HDD.

5.14.7.1 Detecting 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.

1. Select **MAIN MENU** > **STORAGE** > **HDD DETECT** > **Detect**.
   The **Detect** interface is displayed. See Figure 5-145.
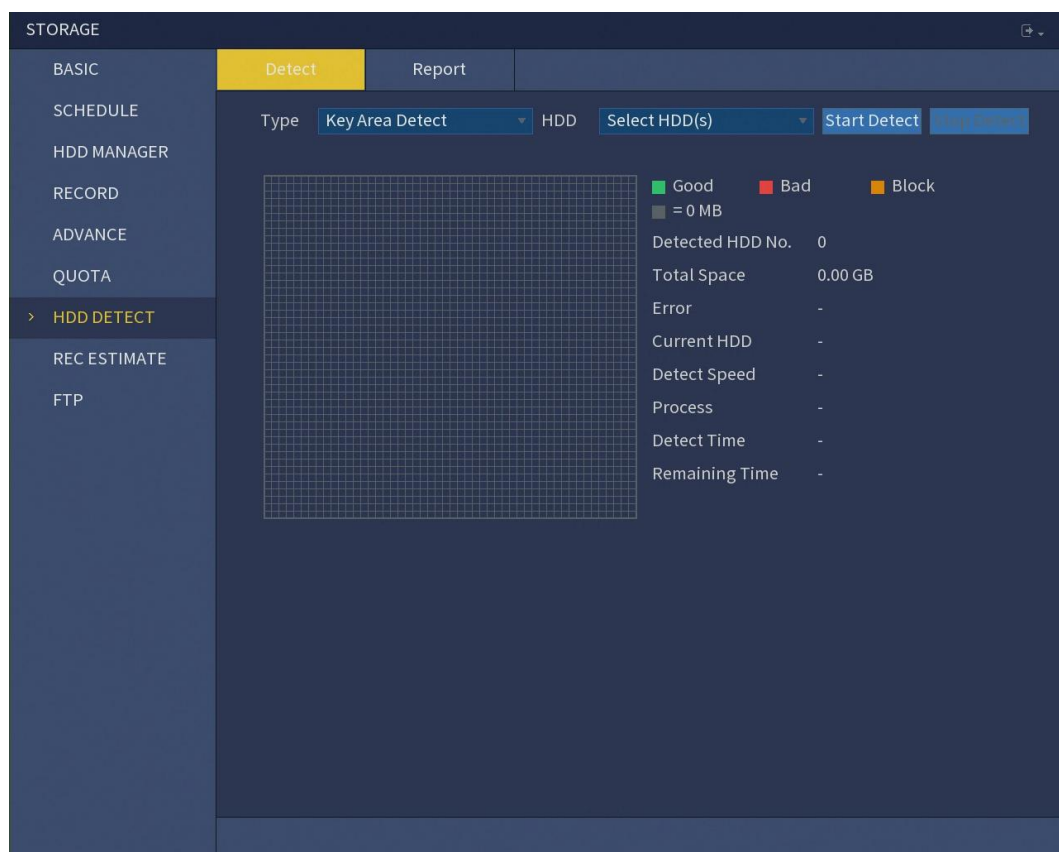
Figure 5-145

2. In the **Type** list, select **Key Area Detect** or **Global Detect**; and in the **HDD** list, select the HDD that you want to detect.
3. Click **Start Detect**.
   The system starts detecting the HDD. After detecting is completed, see Figure 5-146.
   NOTE
   During detecting, click **Pause** to pause detecting, click **Continue** to restart detecting, and click **Stop Detect** to stop detecting.
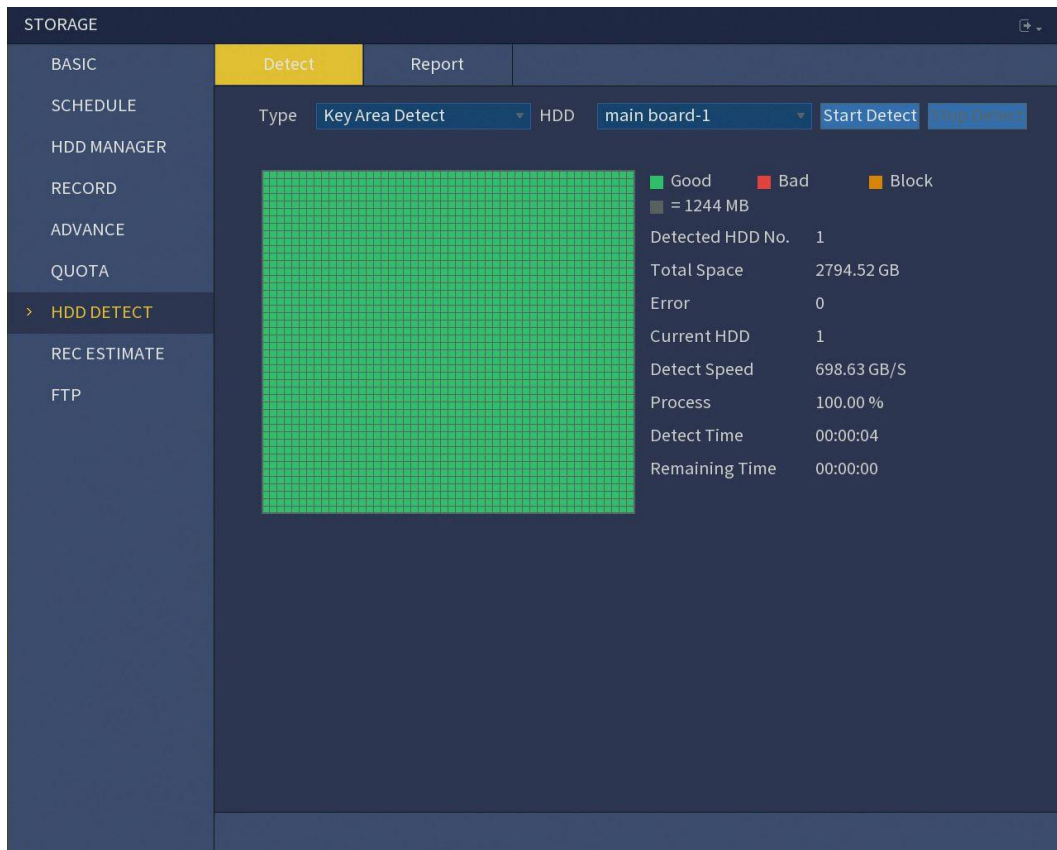
Figure 5-146

5.14.7.2 View Detecting Results

After the detection is completed, you can view the detection reports to find out the problem and replace the defective HDD to avoid data loss.

1. Select **MAIN MENU** > **STORAGE** > **HDD DETECT** > **Report**.
   The **Report** interface is displayed. See Figure 5-147.
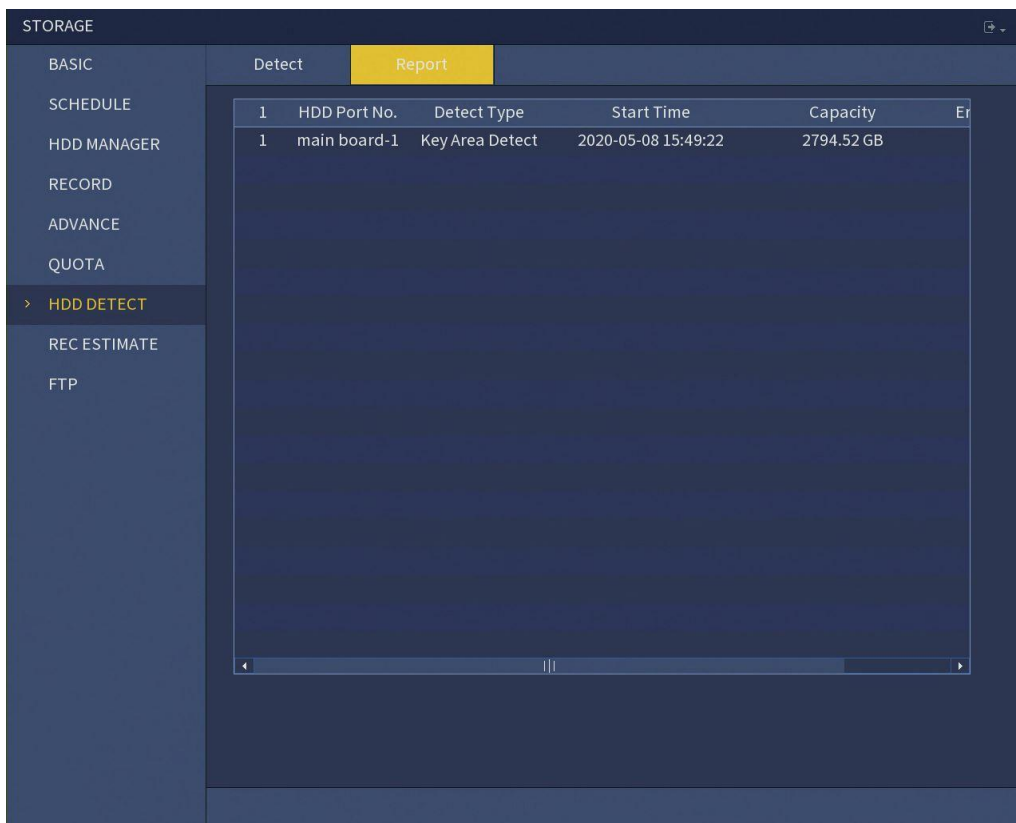
Figure 5-147

2. Click .

The **Details** interface is displayed. You can view detecting results and S.M.A.R.T reports. See Figure 5-148 and Figure 5-149.

Figure 5-148

Figure 5-149

5.14.8   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.

1.   Select **MAIN MENU** > **STORAGE** > **REC ESTIMATE**.
     The **REC ESTIMATE** interface is displayed. See Figure 5-150.
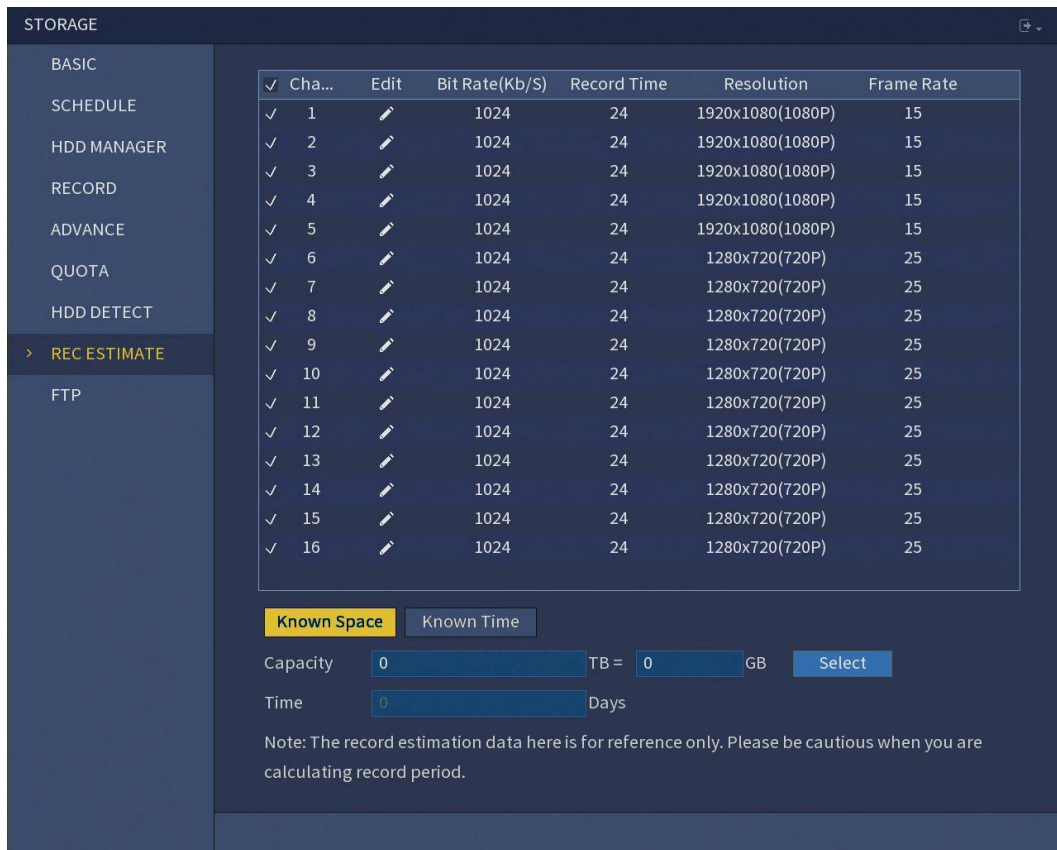
Figure 5-150

2. Click ![edit icon].

The **Edit** dialog box is displayed. See Figure 5-151.
You can configure the resolution, frame rate, bit rate and record time for the selected channel.
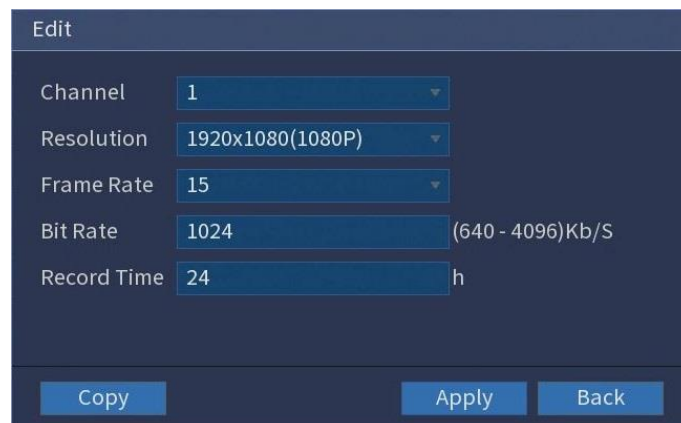
Figure 5-151

3. Click **Apply** 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.
NOTE

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

Calculating Recording Time

1. On the **REC ESTIMATE** interface, click the **Known Space** tab.
   The **Known Space** interface is displayed. See Figure 5-152.
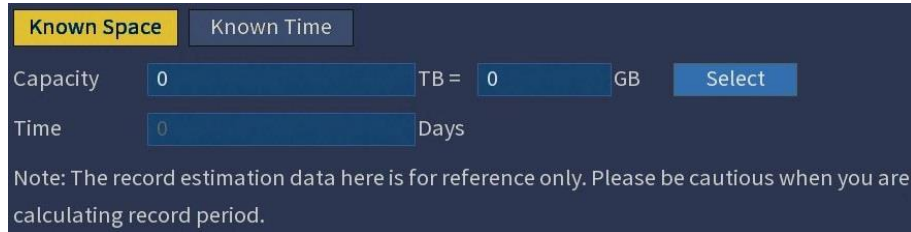
Figure 5-152

2. Click **Select**.
   The **Select HDD(s)** interface is displayed.
3. Select the check box of the HDD that you want to calculate.
   In the **Known Space** tab, in the **Time** box, the recording time is displayed. See Figure 5-153.
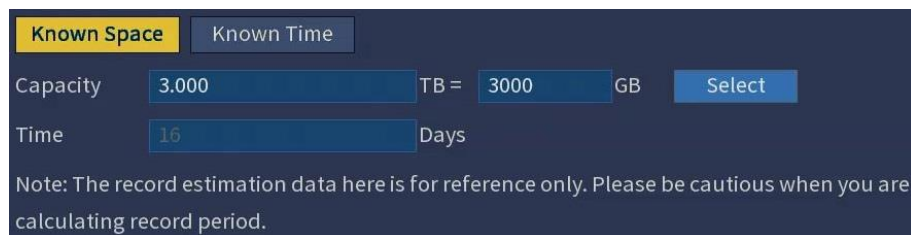
Figure 5-153

Calculating HDD Capacity for Storage

1. On the **REC ESTIMATE** interface, click the **Known Time** tab.
   The **Known Time** interface is displayed. See Figure 5-154.
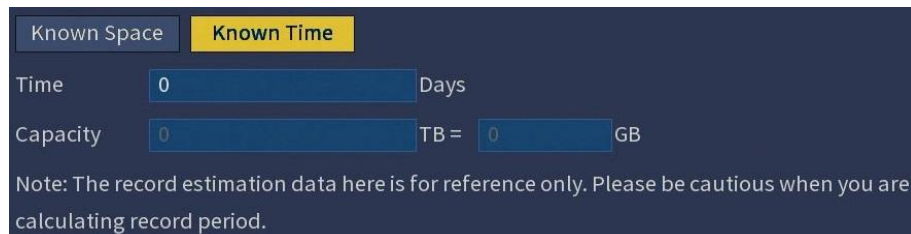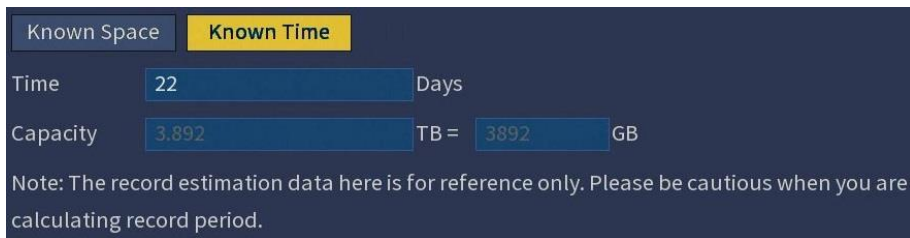
Figure 5-154

2. In the **Time** box, enter the time period that you want to record.
    In the **Capacity** box, the required HDD capacity is displayed. See Figure 5-155.

Figure 5-155

5.14.9   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.
NOTE
For the created FTP user, you need to set the write permission; otherwise the upload of recorded videos and snapshots will be failed.
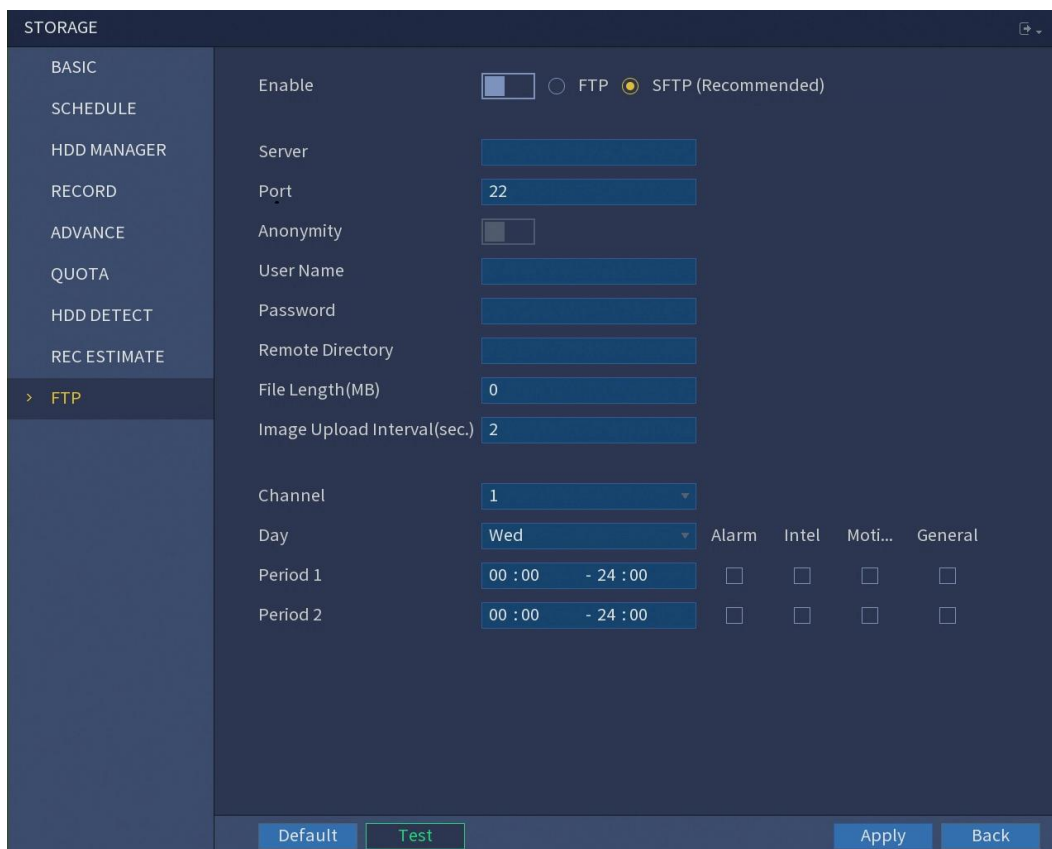
Configuration Steps
1. Select **MAIN MENU** > **STORAGE** > **FTP**.
   The **FTP** interface is displayed. See Figure 5-156.

Figure 5-156

2. Configure the settings for the FTP settings parameters.

Parameter	Description
Enable	Enable the FTP upload function.
FTP type	Select FTP type. • FTP: Plaintext transmission. • SFTP: Encrypted transmission (recommended)
Server	IP address of FTP server.
Port	• FTP: The default is 21. • SFTP: The default is 22.
Anonymity	Enter the user name and password to login the FTP server.
User Name	Enable the anonymity function, and then you can login
Password	anonymously without entering the user name and password.
Remote Directory	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.
File Length(MB)	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.
Image 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 day and set the time period that you want to upload
Period 1, Period 2	the recorded files. You can set two periods for each day.
Record type	Select the record type (Alarm, Intel, Motion Detect, and

	General) that you want to upload. The selected record type will be uploaded during the configured time period.

3. Click **Test**.

   The system pops up a message to indicate success or failure. If failed, please check the network connection or configurations.

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

5.15   Configuring System Settings

5.15.1   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:

1. Select **MAIN MENU** > **SYSTEM** > **GENERAL** > **Holiday**.

   The **Holiday** interface is displayed. See Figure 5-157.
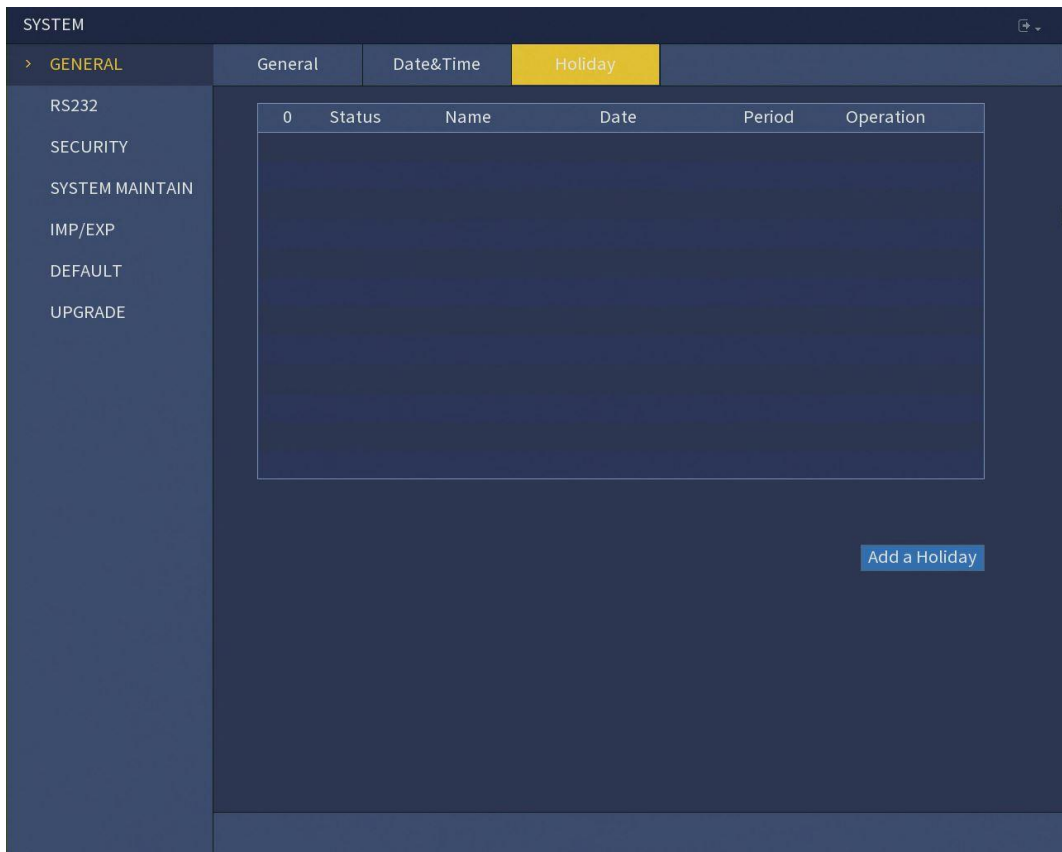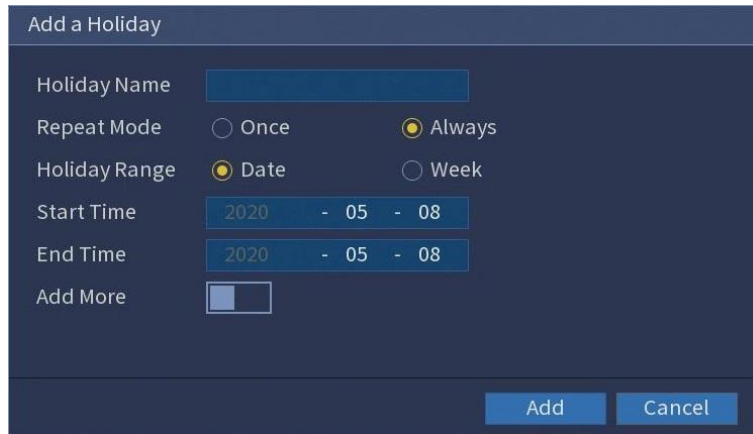
Figure 5-157

2. Click **Add a Holiday**.

   The **Add a Holiday** interface is displayed. See Figure 5-158.

Figure 5-158

3. Configure the holiday name, repeat mode, time range according to your actual situation.

4. Click **Add**.
   The added holiday information is displayed. See Figure 5-159.
   NOTE
   Enable the **Add More** function, so you can continue adding holiday information.

Figure 5-159

5.15.2 Configuring RS232 Settings (CJ-HDR416B only)

You can configure serial port function, Baud rate and so on.

Select **MAIN MENU** > **SYSTEM** > **RS232**.
The **RS232** interface is displayed. See Figure 5-160.
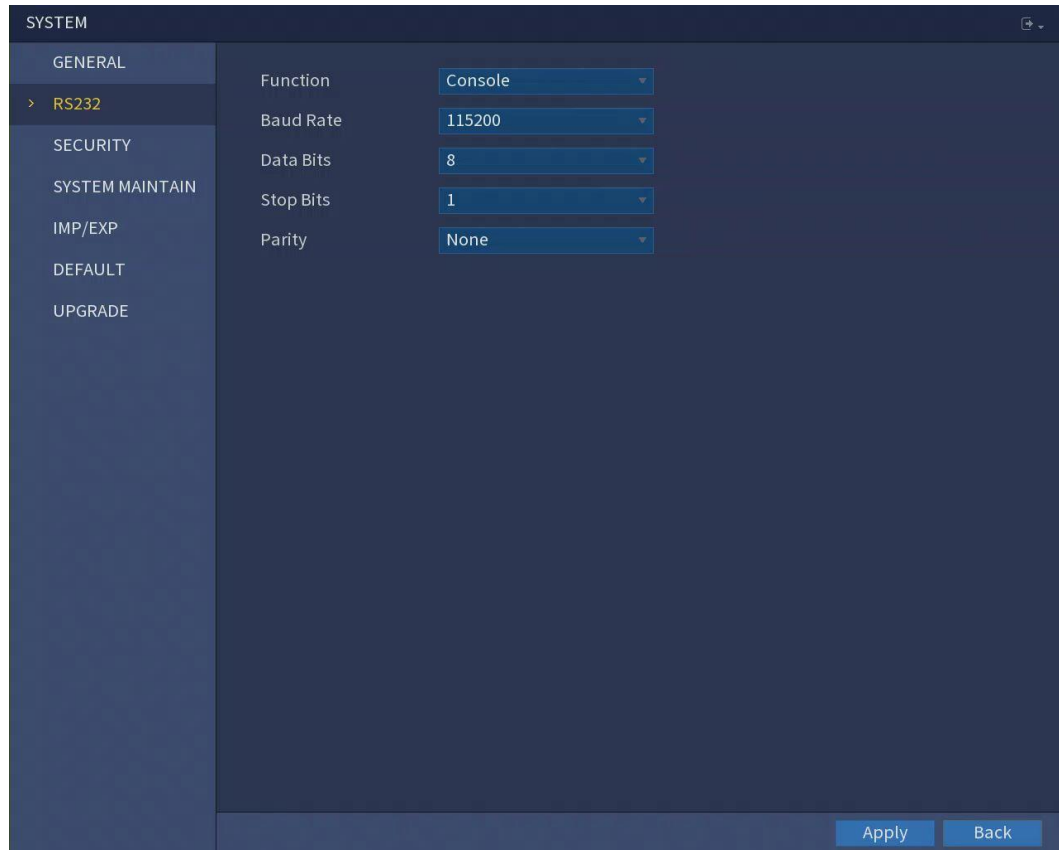
Figure 5-160

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, 1.5 and 2.
Parity	It includes none, odd, even, mark and null. It is none by default.

5.15.3 Configuring Security Settings

To ensure the network security and protect data, you can configure the access permission to the Device from host IP (host IP means the PC or server that has an IP).

- White list includes the host IP that are permitted to access the Device.
- Black list includes the host IP that are not permitted to access the Device.
- Update time white list includes the host IP that are permitted to sync the Device time.

5.15.3.1 Configuring Firewall

1. Select **MAIN MENU** > **SYSTEM** > **SECURITY** > **Firewall**.
   The **Firewall** interface is displayed. See Figure 5-161.
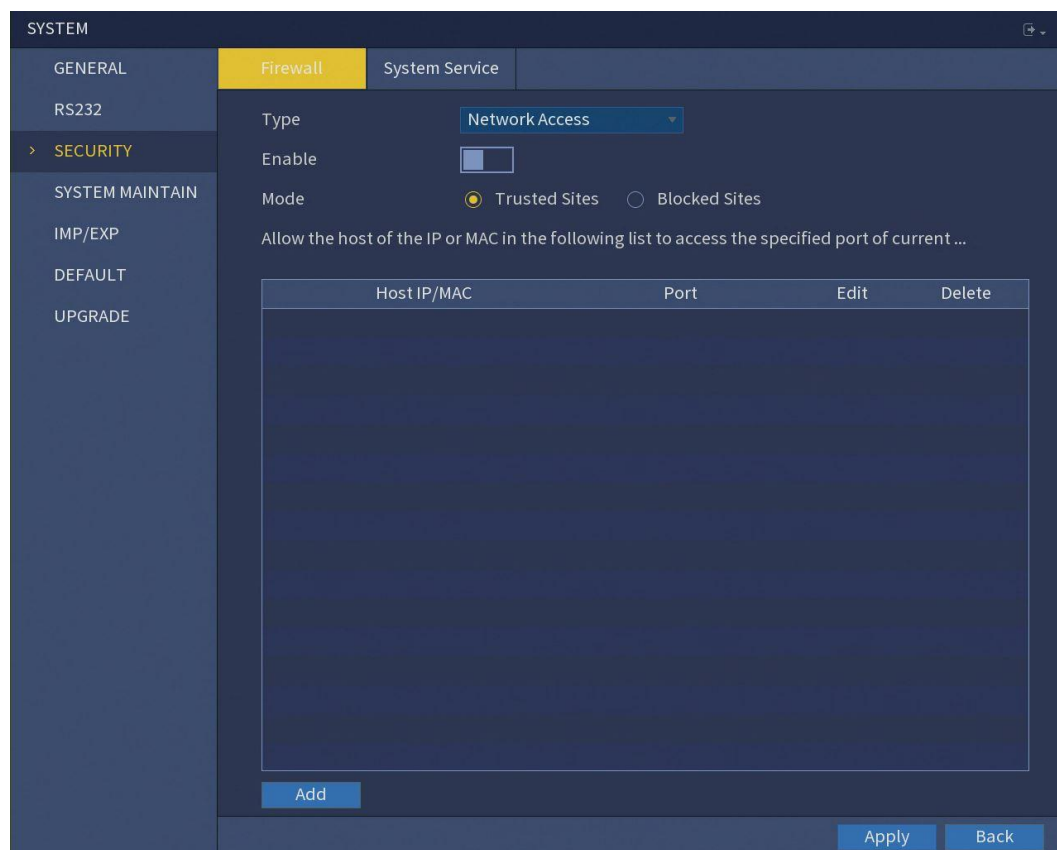
Figure 5-161

2. Select **Enable** to enable function in the **Type** list.
3. Configure the parameters.

Parameter	Description
Type	In the **Type** list, you can select Network Access, Sync Time-Whitelist, Forbid Ping and Semi Join. • Network Access: Configure access right of IP host. • Sync Time-Whitelist: Allow designated IP host to synchronize or change Device time. Prevent multiple IP hosts from synchronizing system time with one Device repeatedly.

	• Forbid Ping: The Device does not respond to Ping requests. • Semi Join: Protect Device operation from hacker attack.
Mode	Mode can be configured when Type is Network Access. • If Trusted Sites is enabled, you can visit device port successfully with IP/MAC hosts in Trusted Sites. • If Blocked Sites is enabled, you cannot visit device port with IP/MAC hosts in Blocked Sites.
Add	When Type is Network Access, you can configure IP Address, IP Segment and MAC Address.
IP Address Start Port End Port	Enter IP Address, Start Port and End Port that is allowed or Start Port forbidden. **NOTE** When Type is IP Address, they can be configured. Start Port and End Port can be configured only in Network Access Type.
Start Address End Address	Enter Start Address and End Address of IP Segment. **NOTE** When Type is IP Segment, they can be configured.
MAC Address	Enter MAC Address that is allowed or forbidden. **NOTE** When Type is MAC Address, it can be configured.

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

5.15.3.2 Configuring System Service Settings

You can enable or disable the system internal services.

1. Select **MAIN MENU** > **SYSTEM** > **SECURITY** > **System Service.**
   The **System Service** interface is displayed. See Figure 5-162.
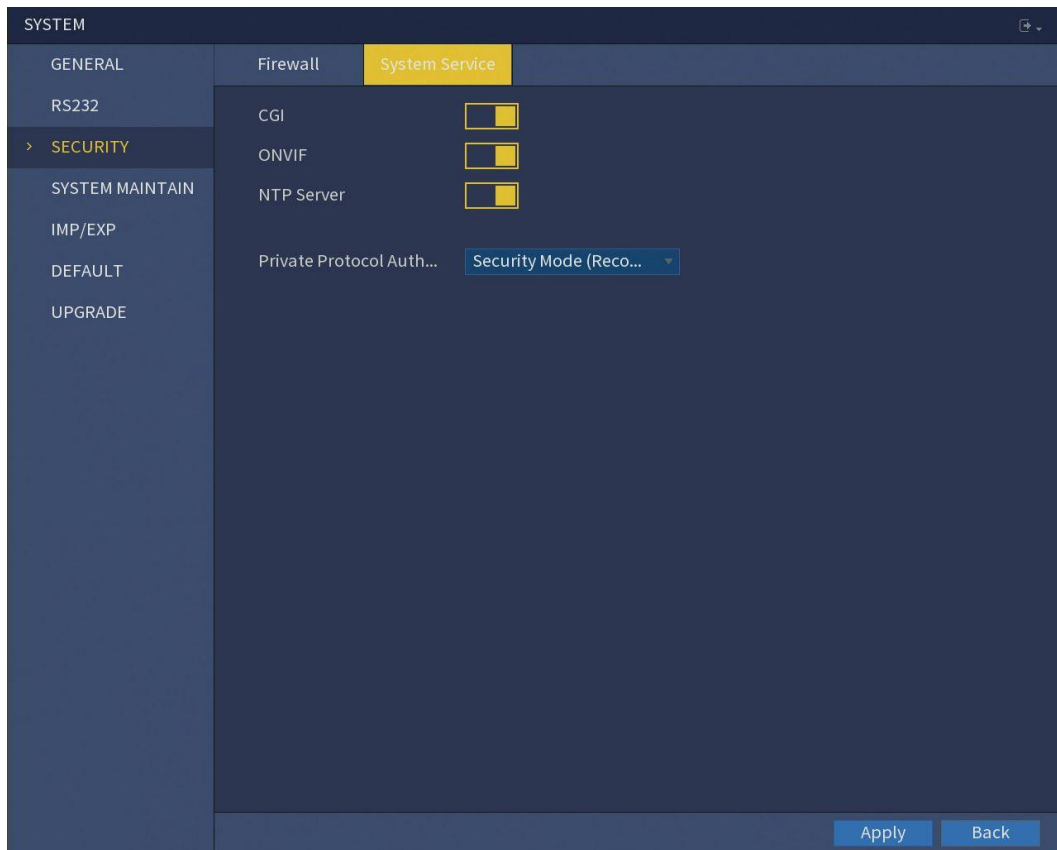
Figure 5-162

2. Configure the parameters.

Parameter	Description
CGI	If this function is enabled, the remote devices can be added through the CGI protocol. **NOTE** This function is enabled by default.
ONVIF	If this function is enabled, the remote devices can be added through the ONVIF protocol. **NOTE** This function is enabled by default.
NTP Server	After enabling this function, a NTP server can be used to synchronize the device. This function is enabled by default.
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.

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

5.15.4　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.

1. Select **MAIN MENU > SYSTEM** > **SYSTEM MAINTAIN**.
   The **SYSTEM MAINTAIN** interface is displayed. See Figure 5-163.
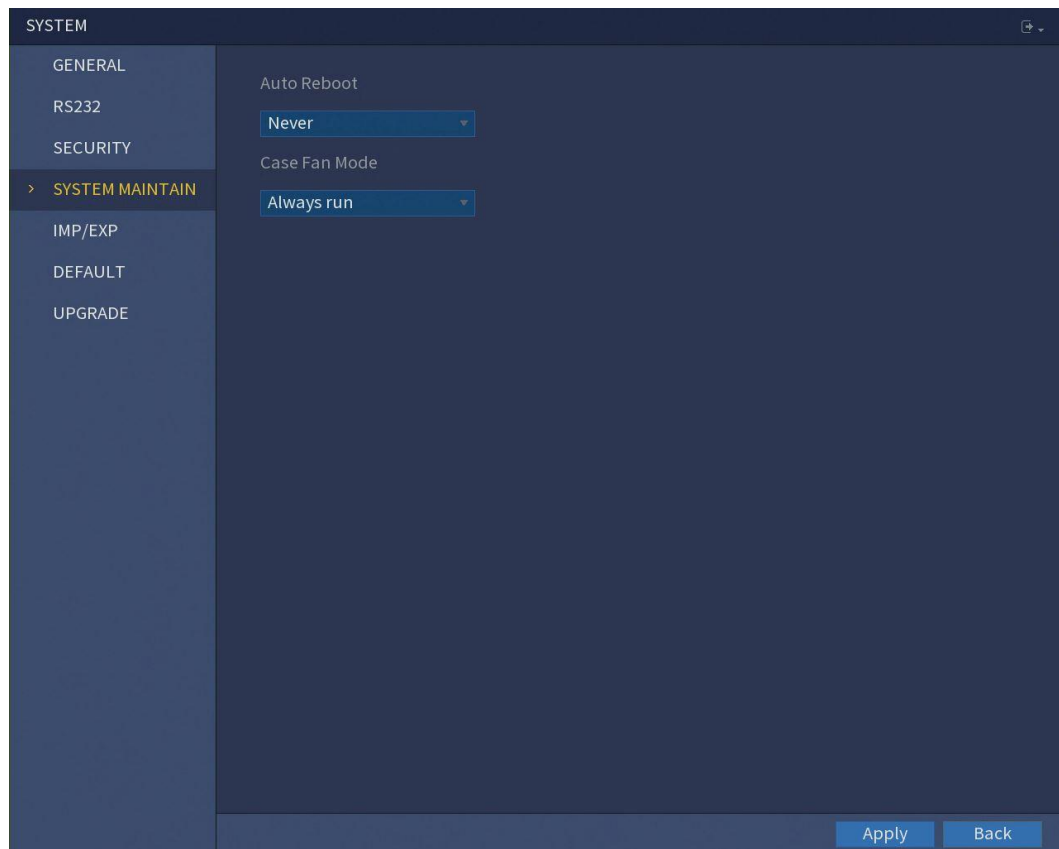
Figure 5-163

2. Configure the settings for the system 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 run** or **Auto**. If you select **Auto**, the case fan will stop or start according to the external conditions such as the Device temperature. **NOTE** Not all models support this function and it is only supported on the local configuration interface.

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

5.15.5 Exporting and Importing System Settings

You can export or import the Device system settings if there are several Devices that require the same setup.

NOTE

- 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

1. Select **MAIN MENU** > **SYSTEM** > **IMP/EXP**.
   The **IMP/EXP** interface is displayed. See Figure 5-164.
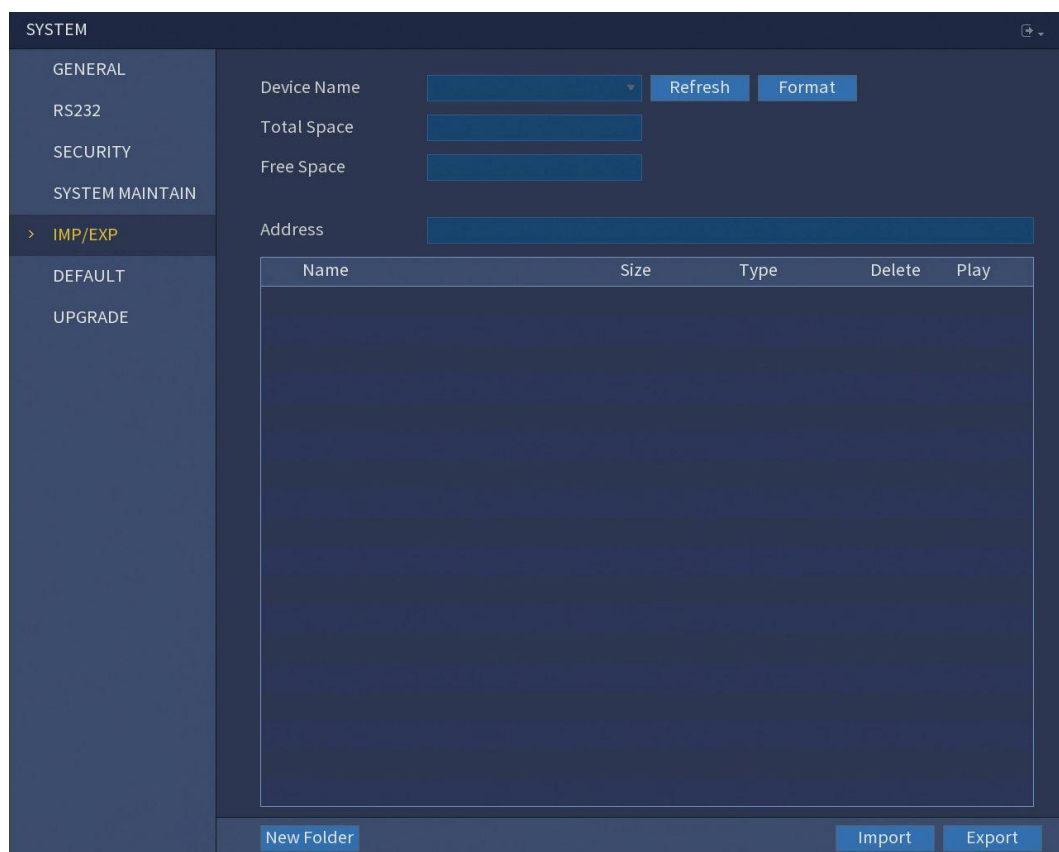
Figure 5-164

2. Insert a USB storage device into one of the USB ports on the Device.
3. Click **Refresh** to refresh the interface.
   The connected USB storage device is displayed. See Figure 5-165.
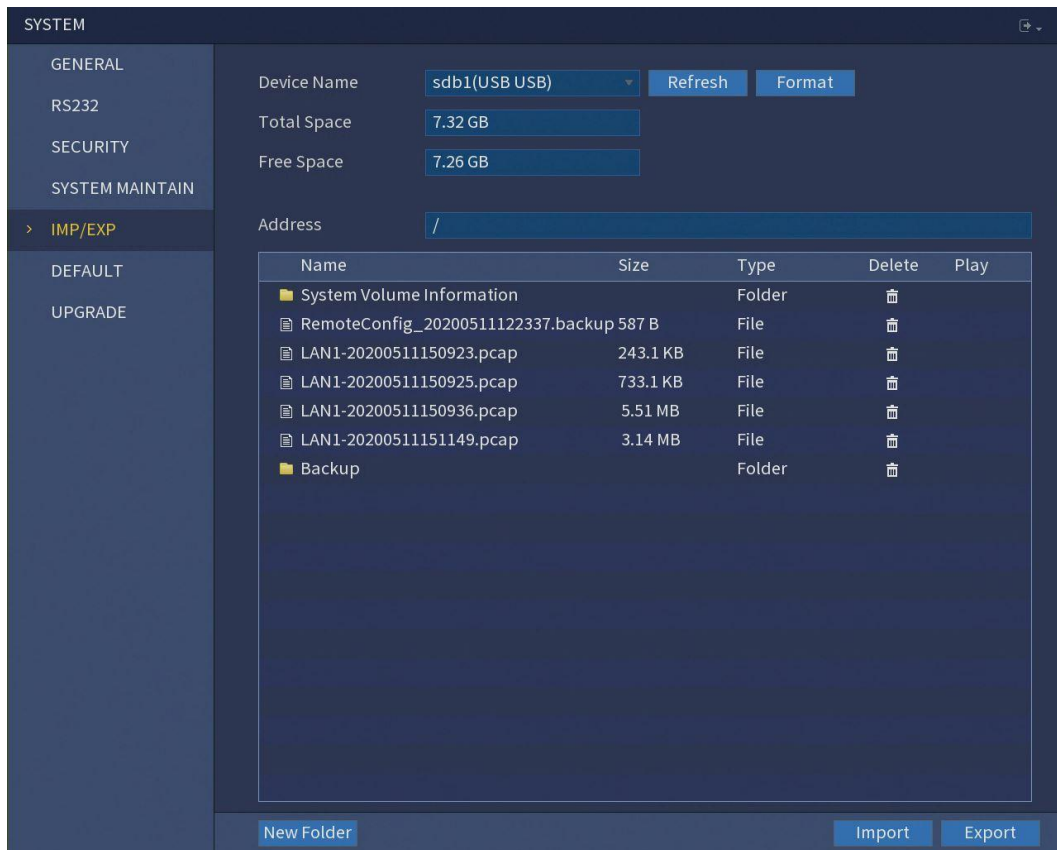
Figure 5-165

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

1. Insert a USB storage device containing the exported configuration files from another Device into one of the USB ports on the Device.
2. Select **MAIN MENU > SYSTEM** > **IMP/EXP**.
   The **IMP/EXP** interface is displayed.
3. Click **Refresh** to refresh the interface.
   The connected USB storage device is displayed.
4. Click on the configuration folder (under the name style of "Config_[YYYYMMDDhhmmss]") that you want to import.
5. Click **Import**.
   The Device will reboot after the import is successful.

5.15.6 Restoring Default Settings

NOTE
Only Admin account supports this function.

You can select the settings that you want to restore to the factory default.

1. Select **MAIN MENU > SYSTEM** > **DEFAULT**.
   The **DEFAULT** interface is displayed. See Figure 5-166.
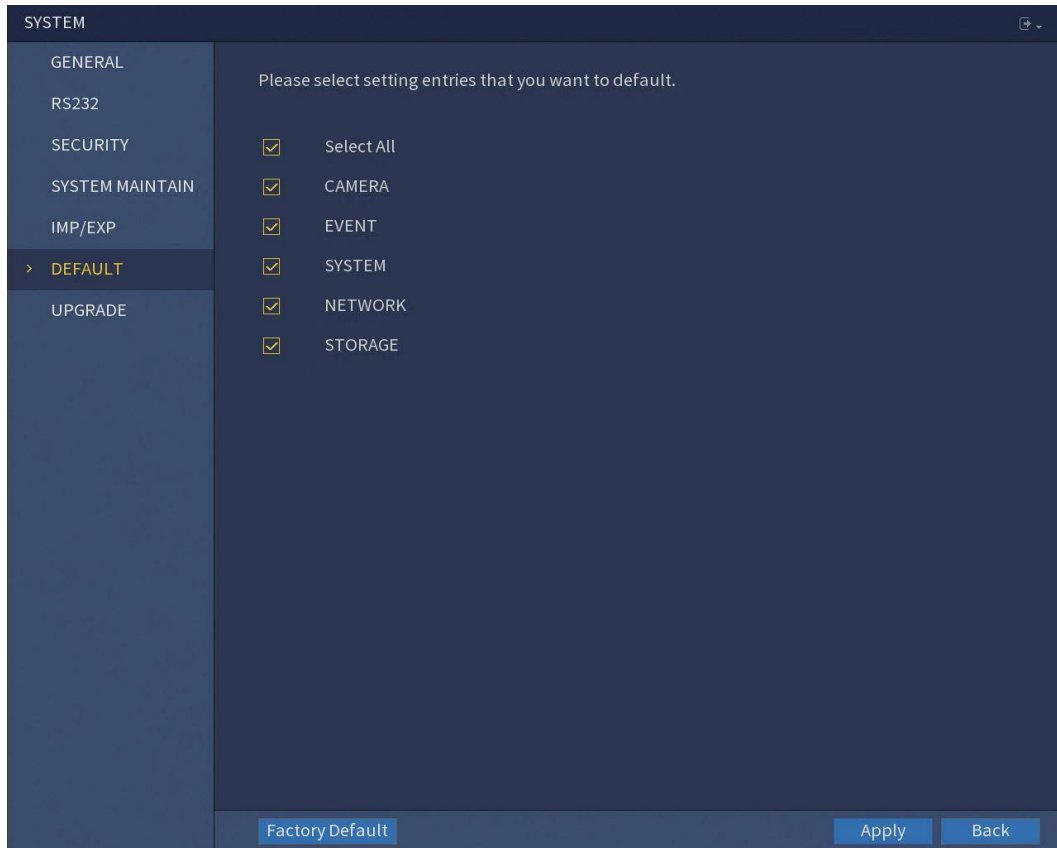
Figure 5-166

2. Restore the settings.
   - Select the settings that you want to restore, and then click **Apply**. The system starts restoring the selected settings.
   - Click **Factory Default** and then click **OK**. The system starts restoring the whole settings.

5.15.7 Upgrading the Device

5.15.7.1 Upgrading File
1. Insert a USB storage device containing the upgrade files into the USB port of the Device.
2. Select **MAIN MENU** > **SYSTEM** > **UPGRADE**.
   The **UPGRADE** interface is displayed. See Figure 5-167.
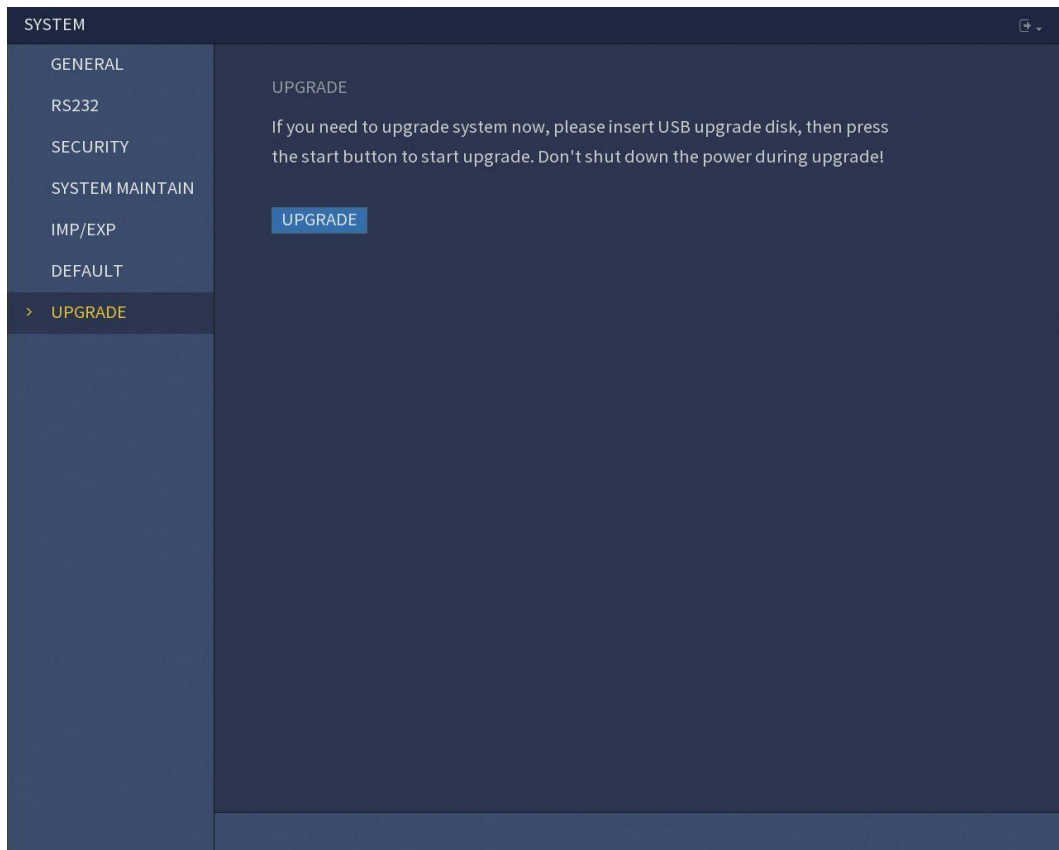
Figure 5-167

3. Click **UPGRADE**.
   The **Browse** interface is displayed. See Figure 5-168.
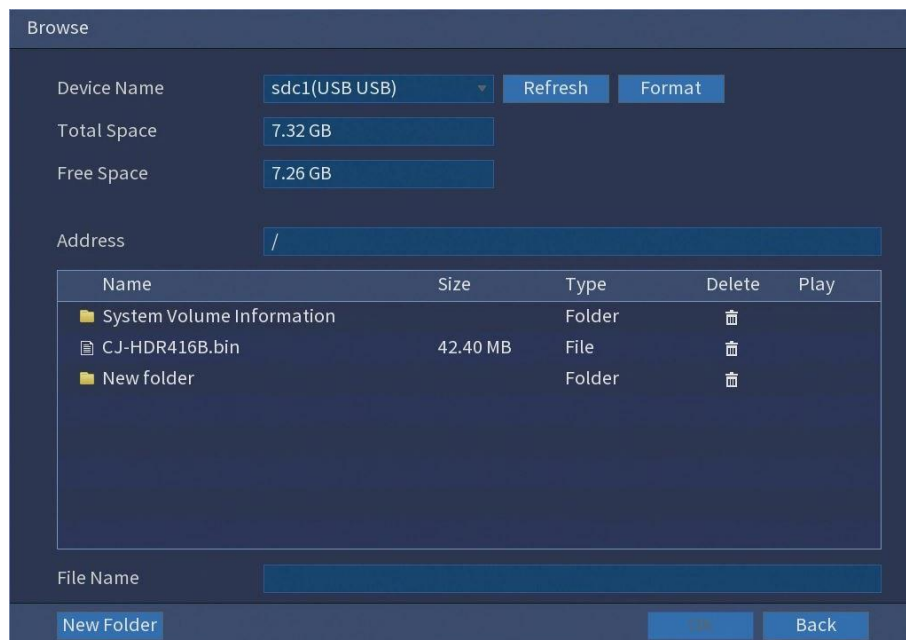
Figure 5-168

4. Click the file that you want to upgrade.
   The selected file is displayed in the **File Name** box.

5. Click **OK**.

5.15.7.2 Uboot Upgrading

CAUTION

- 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 check 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.

5.16 Viewing Information

You can view the information such as log information, HDD information and version details.

5.16.1 Viewing Version Details

You can view the version details such as device model, system version, and build date. Select **MAIN MENU > INFO > VERSION**, the **VERSION** interface is displayed. See Figure 5-169.

Figure 5-169

5.16.2 Viewing Log Information

You can view and search the log information.
NOTE
- 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.

1. Select **MAIN MENU** > **INFO** > **LOG**.
   The **LOG** interface is displayed. See Figure 5-170.
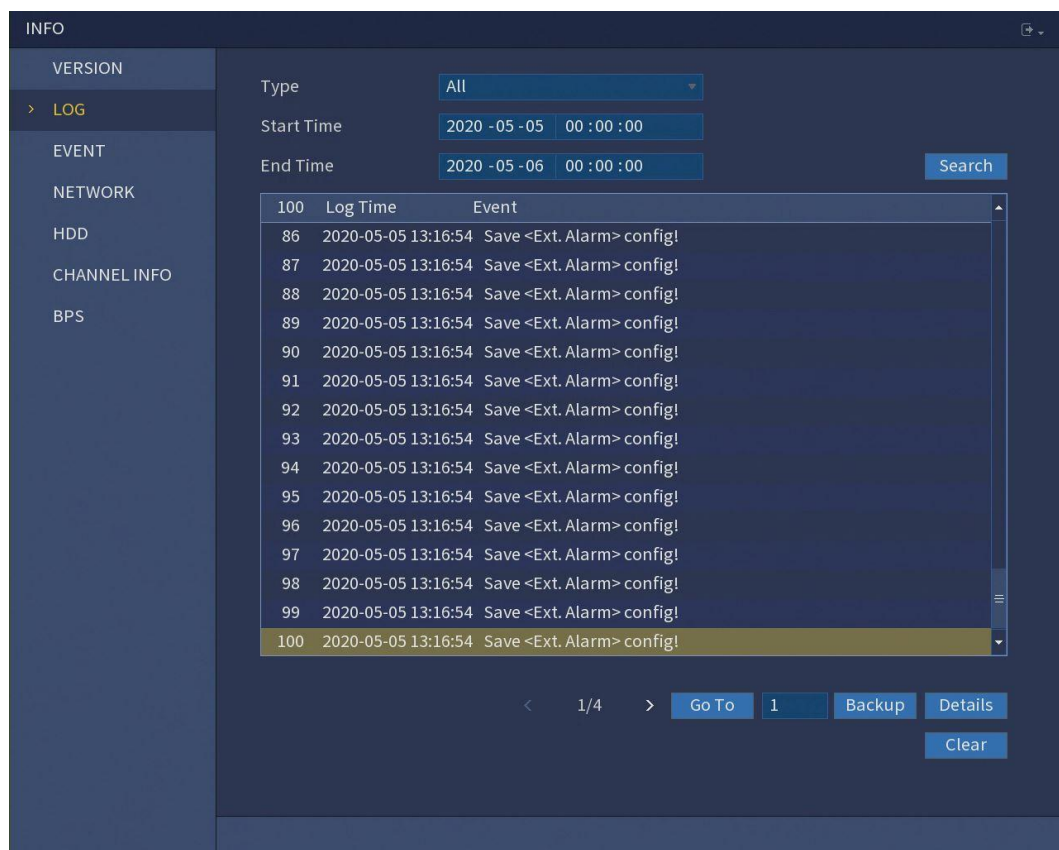
Figure 5-170

2. In the **Type** list, select the log type that you want to view (**System**, **Config**, **Storage**, **Record**, **Account**, **Clear**, and **Playback**) or select **All** to view all logs.
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. See Figure 5-171.
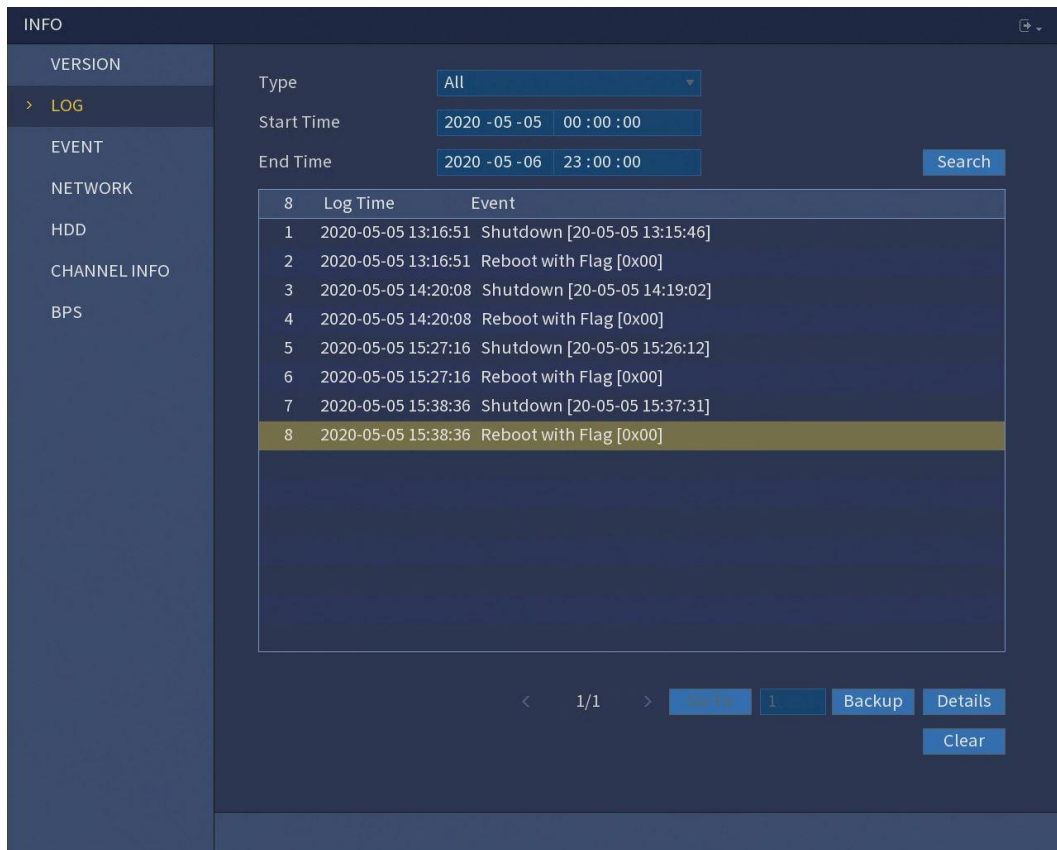
Figure 5-171

NOTE

- 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.

5.16.3 Viewing Event Information

You can view the event information of the Device and channel.

Select **MAIN MENU** > **INFO** > **EVENT**, the **EVENT** interface is displayed. See Figure 5-172.
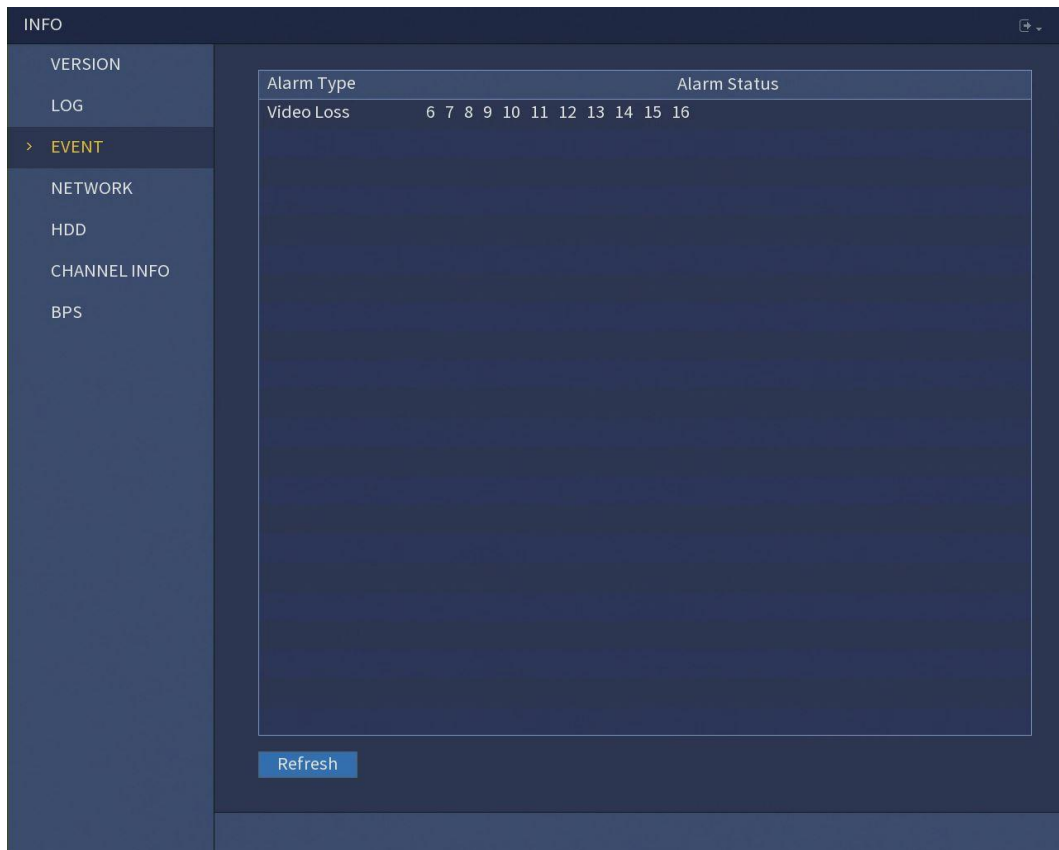
Figure 5-172

5.16.4　　　　Viewing Network Information

You can view the online users, network data transmission details, and test network. For details about testing network, see "5.12.2.1 Testing the Network."

5.16.4.1　Viewing Online Users
You can view the online user information and block any user for a period of time.
Select **MAIN MENU** > **INFO** > **NETWORK** > **Online user**, the **Online user** interface is displayed. See Figure 5-173.
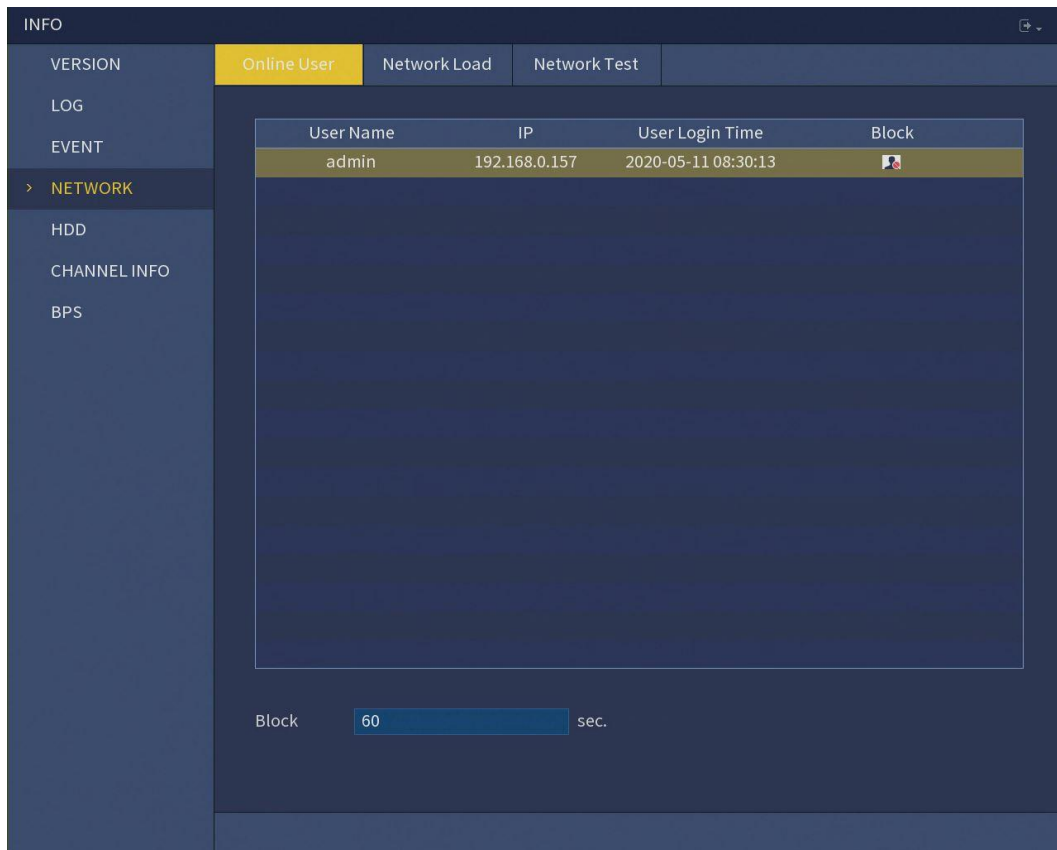
Figure 5-173

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.

5.16.4.2 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.

1. Select **MAIN MENU** > **INFO** > **NETWORK** > **Network Load**.
   The **Network Load** interface is displayed. See Figure 5-174.
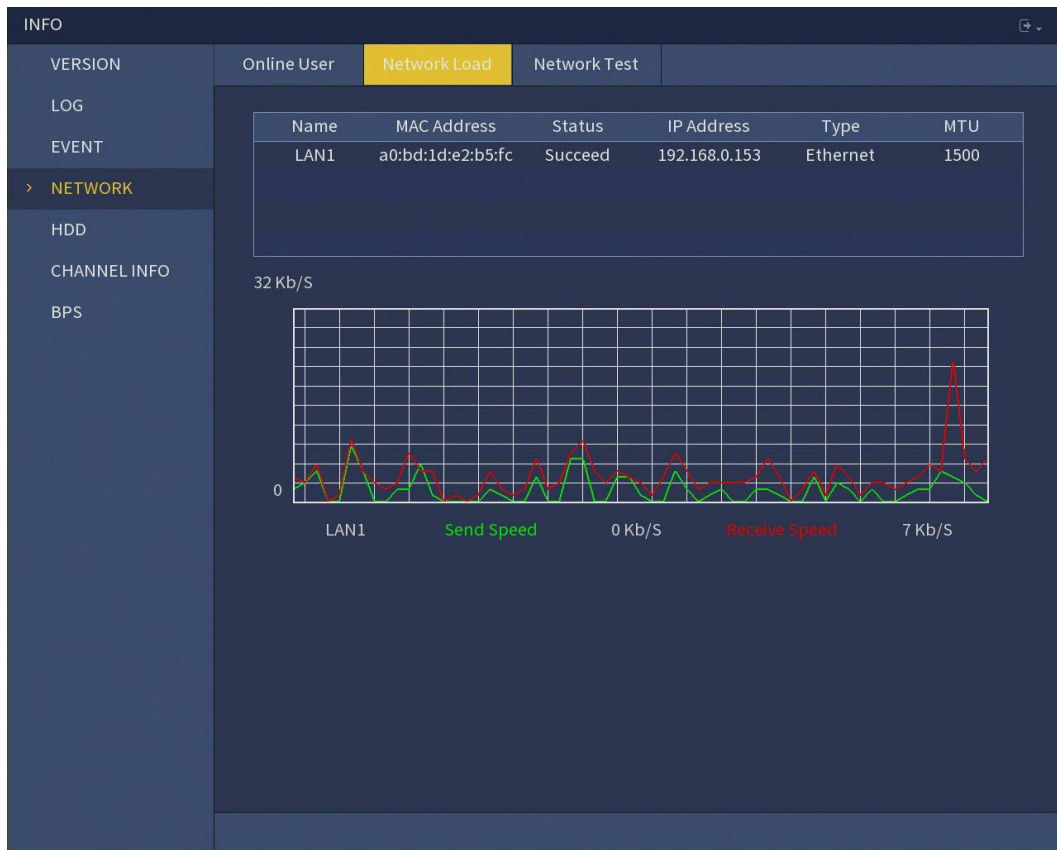
Figure 5-174

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.

NOTE

- The default display is LAN1 load.
- Only one LAN load can be displayed at one time.

5.16.5 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** > **INFO** > **HDD**, the **HDD** interface is displayed. See Figure 5-175.
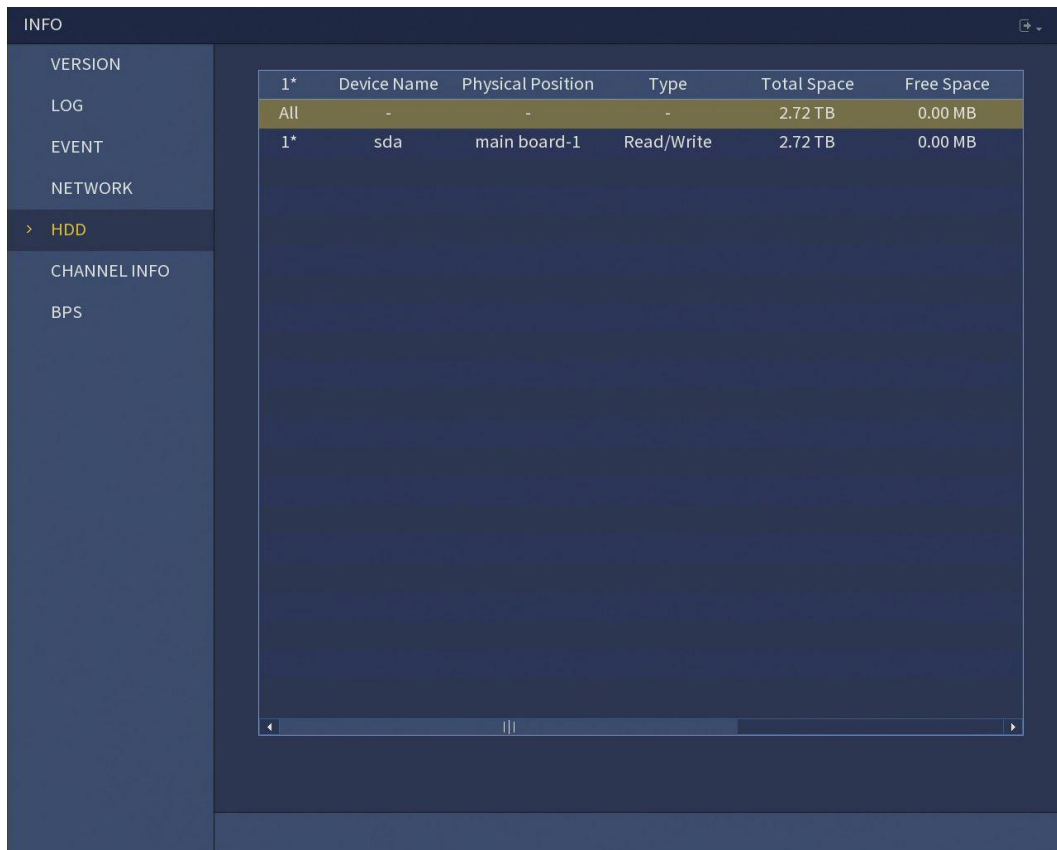
Figure 5-175

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 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.

5.16.6   Viewing Channel Information

You can view the camera information connected to each channel.
Select **MAIN MENU** > **INFO** > **CHANNEL INFO**, the **CHANNEL INFO** interface is displayed. See Figure 5-176.

VERSION

LOG

EVENT

NETWORK

HDD

> CHANNEL INFO

BPS

Channel	Format
1	1080P ●
2	1080P ●
3	1080P ●
4	1080P ●
5	1080P ●
6	--
7	--
8	--
9	--
10	--
11	--
12	--
13	--
14	--
15	--
16	--

Figure 5-176

5.16.7   Viewing Data Stream Information

You can view the real-time data stream rate and resolution of each channel.

Select **MAIN MENU** > **INFO** > **BPS**, the **BPS** interface is displayed. See Figure 5-177.

Figure 5-177

5.17 Logout the Device

On the top right of the **MAIN MENU** interface or on any interface after you have entered

the **MAIN MENU**, click [icon].

- Select **Logout**, you will log out the device.
- Select **Reboot**, the Device will be rebooted.
- Select **Shut down**, the Device will be turned off.
  If you do not have shutdown authority, enter gesture or password first.

6   WEB OPERATIONS

NOTE

- 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 govern.
- 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.

6.1   Connecting to Network

NOTE

- 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.

1. Check to make sure the Device has connected to the network.
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".
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 the Web

1. Open the IE browser, enter the IP address of the Device, and then press Enter.
   The Login in dialog box is displayed. See Figure 6-1.
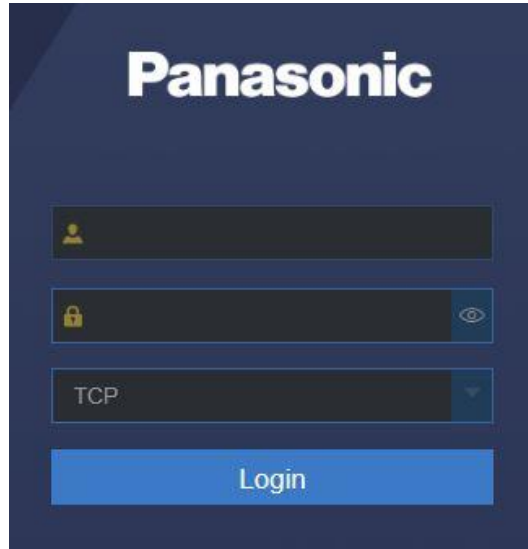
<div align="center">Figure 6-1</div>

2. Enter the user name and password.
    NOTE
    - 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.

3. Click **Login**.

6.3 Introducing Web Main Menu

After you have logged in the Web, the main menu is displayed. See Figure 6-2.
For detailed operations, you can refer to "5 Local Configurations".
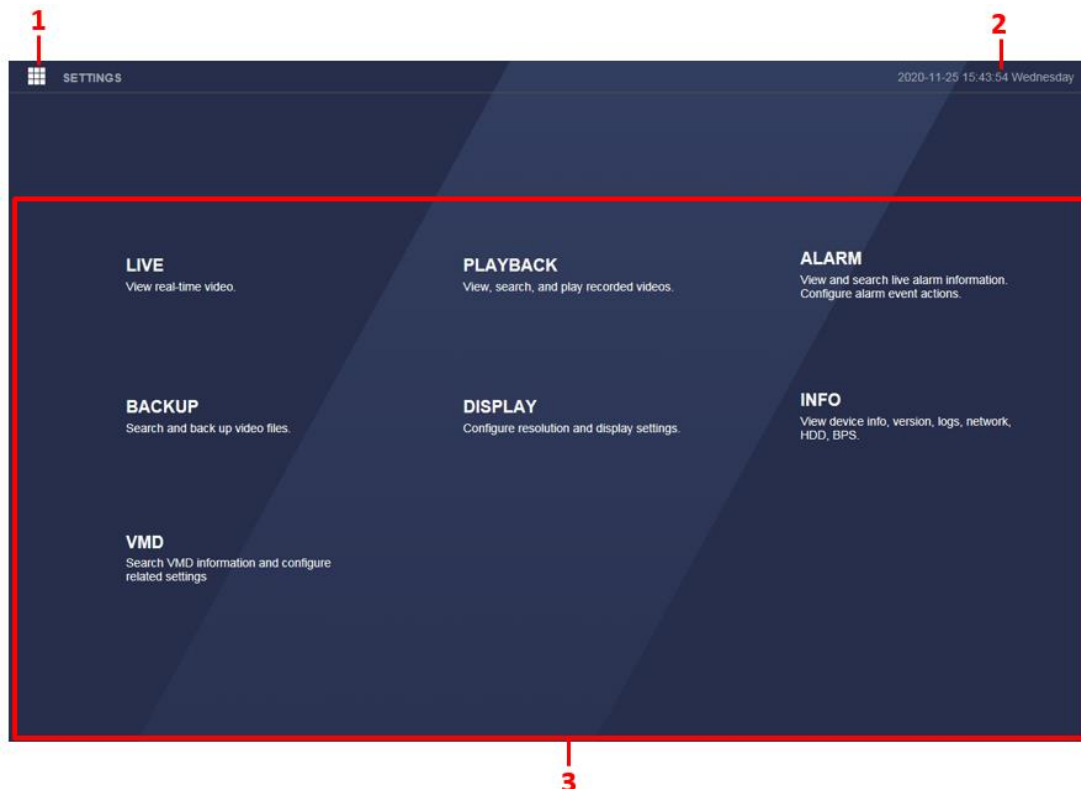
Figure 6-2

No.	Icon	Description
1		Includes configuration menu through which you can configure camera settings, network settings, storage settings, system settings, account settings, and logout, reboot, or shutdown.
2	None	Displays system date and time.
3	None	Includes six function tiles: **LIVE**, **PLAYBACK**, **ALARM**, **BACKUP**, **DISPLAY**, **INFO** and **VMD**. Click each tile to open the configuration interface of the tile. • **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. • **PLAYBACK**: Search for and play back the recorded video saved on the Device. • **ALARM**: Search for alarm information and configure alarm event actions. • **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, resolution, and enable the zero-channel function. • **INFO**: View information. • **VMD**: Search VMD information and configure related settings.

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 is wrong with the HDD jumper configuration.
    - Seagate DB35.1, DB35.2, SV35 or Maxtor 17-g has compatibility problem. Please 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 is 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. Please upgrade to the latest version.
    - Brightness is 0. Please 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.
     Please 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. Please 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, please 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, please update your system to Windows 2000 SP4. Or you can install client-end software of lower version. Please note right now, our DVR is not compatible with Windows Vista® control.
   - ActiveX control has been disabled.
   - No dx8.1 or higher. Please 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. Please 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. Please 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. **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.

21. **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.

22. **Forgot local menu operation password or network password**

Please contact your local service engineer or our sales person for help. We can guide you to solve this problem.

23. **When I login via HTTPS, a dialogue says the certificate for this website is for other address.**

Please create server certificate again.

24. **When I login via HTTPS, a dialogue says the certificate is not trusted.**

Please download root certificate again.

25. **When I login via HTTPS, a dialogue says the certificate has expired or is not valid yet.**

Please make sure your PC time is the same as the device time.

26. **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. Please make sure the device supports general standard definition analog camera.

27. **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.

28. **DDNS registration failed or cannot access the device domain name.**

There are following possibilities:
- Check the device is connected to the WAN. If there is a router, please 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.

29. 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.

Daily Maintenance

- Please 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.
- Please 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. Please 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.
- Please make sure the device is away from the direct sunlight or other heating sources. Please keep the sound ventilation.
- Please check and maintain the device regularly.

Appendix A   Glossary

The abbreviations in this glossary are related to the Manual.

Abbreviations	Full term
BNC	Bayonet Nut Connector
CBR	Constant Bit Rate
CIF	Common Intermediate Format
DDNS	Dynamic Domain Name System
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
IP	Internet Protocol
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 Alternation Line
PAT	Port Address Translation
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
VBR	Variable Bit Rate
VGA	Video Graphics Array
VMD	Video Motion Detection
WAN	Wide Area Network

Appendix B   HDD Capacity Calculation

Calculate the total capacity needed by each DVR according to video recording (video recording type and video file storage time).

Step 1: Use Formula (1) to calculate storage capacity q_i that is the capacity of each channel needed for each hour, unit MB.

$$q_i = d_i \div 8 \times 3600 \div 1024 \tag{1}$$

In the formula: d_i means the bit rate, unit Kbit/s.

Step 2: After video time requirement is confirmed, use Formula (2) to calculate the storage capacity m_i, which is storage of each channel needed, unit MB.

$$m_i = q_i \times h_i \times D_i \tag{2}$$

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: Use Formula (3) to calculate total capacity (accumulation) q_T that is needed for all channels in the DVR during **scheduled video recording**.

$$q_T = \sum_{i=1}^{c} m_i \tag{3}$$

In the formula: c means total number of channels in one DVR

Step 4: Use Formula (4) to calculate total capacity (accumulation) q_T that is needed for all channels in DVR during **alarm video recording (including motion detection)**.

$$q_T = \sum_{i=1}^{c} m_i \times a\% \tag{4}$$

In the formula：*a%* means alarm occurrence rate

You can refer to the following sheet for the file size in one hour per channel. (All the data listed below are for reference only.)

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
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 C   Earthing

1. What is surge?

Surge is a short current or voltage change during a very short time. In the circuit, it lasts for microsecond. In a 220V circuit, the 5KV or 10KV 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.

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 port to allow signal to be transmitted in many circuits. If there is no common port, the error signal transmission occurred. In the one-point ground mode, each circuit is just grounded only and they are connected at the same port. Since there is only one common port, there is no circuit and so, there is no interference.
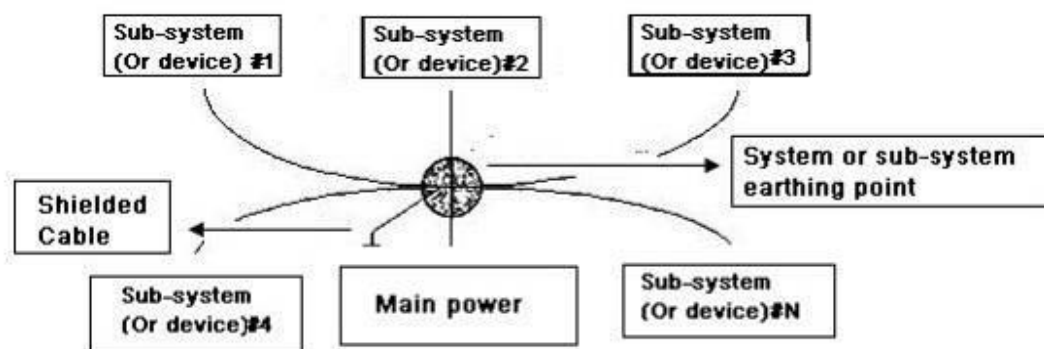
Multiple-point ground: In the following figure, you can see the internal circuit uses the chassis as the common point. While at the same time, all devices chassis use the earthing as the common port. In this connection, the ground structure can provide the lower ground resistance because when there are 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.

Device Earthing
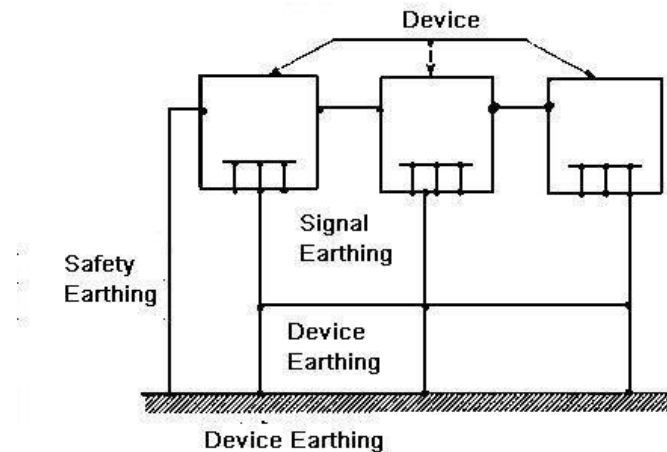
Mixed ground: The mix ground consists of the feature of the one-point ground and multiple-point ground. For example, the power in the system needs to use the one-point ground mode while the radio frequency signal requires the multiple-point ground. So, you can use the following figure to earth. For the 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.
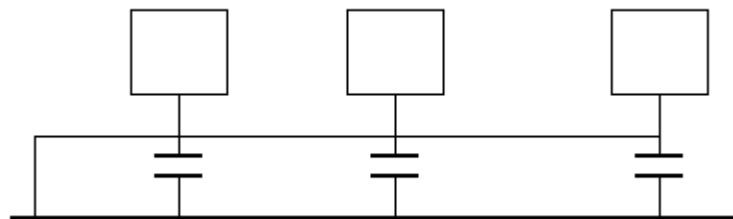
When connecting devices of huge size (the device physical dimension and connection cable is big comparing with the wave path of existed interference), then there are possibility of interference when the current goes through the chassis and cable. In this situation, the interference circuit path usually lies in the system ground circuit.

When considering the earthing, you need to think about two aspects: The first 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.

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 mix 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).

4. The shortcut way to check the electric system using the digital multimeter

For 220V AC socket, from the top to the bottom, E (ground cable), N (neutral cable), L (live cable). Please refer to the following figure.
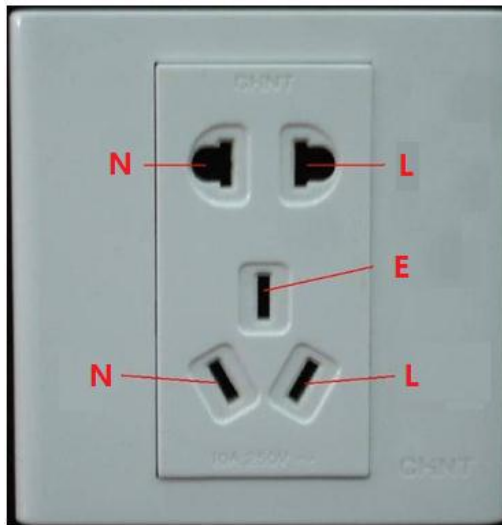

There is a shortcut way to check these thee cables connection are standard or not (not the accurate check).

CAUTION

In the following operations, the multimeter range shall be at 750 V.

E (Earth Cable)

Turn the digital multimeter to 750 V AC, use one hand to hold the metal end, and then the other hand 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 see there is inductive current and the earth cable connection is not proper.
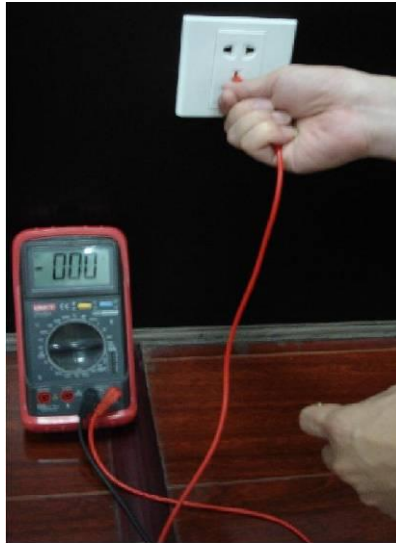
L (Live Cable)

Turn the digital multimeter to 750 V AC, use one hand to hold the metal end, and then the other hand insert the pen to the L port of the socket. See the following figure. If the multimeter shows 120, then you can see current live cable connection is standard. If the value is less than 60, then you can see current live cable connection is not proper or it is not the live cable at all.

N (Neutral Cable)

Turn the digital multimeter to 750V AC, use one hand to hold the metal end, and then the other hand 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 n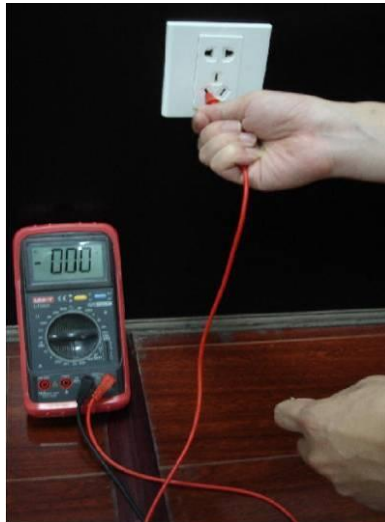eutral cable connection is not proper. If the value is 120, then you can know misconnected the neutral cable to the live cable.

NOTE
- **This manual is for reference only. Slight difference may be found in the user interface.**
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