Network Video Recorder

User Manual

Legal Information

About this Manual

The Manual includes instructions for using and managing the Product. Pictures, charts, images and all other information hereinafter are for description and explanation only. The information contained in the Manual is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version of this Manual at the company website Please use this Manual with the guidance and assistance of professionals trained in supporting the Product.

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Regulatory Information

FCC Information

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
FCC compliance: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Conditions

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

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

EU Conformity Statement

This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the EMC Directive 2014/30/EU, the RoHS Directive 2011/65/EU.

2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: ***http://www.recyclethis.info***.

2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: ***http://www.recyclethis.info***.

Industry Canada ICES-003 Compliance

This device meets the CAN ICES-3 (A)/NMB-3(A) standards requirements.

Applicable Model

This manual is applicable to the following models.

Series	Model
DS-7100NI-Q1	DS-7104NI-Q1
	DS-7108NI-Q1
DS-7100NI-Q1/P	DS-7104NI-Q1/4P
	DS-7108NI-Q1/8P
DS-7100NI-Q1/M	DS-7104NI-Q1/M
	DS-7108NI-Q1/M
DS-7100NI-Q1/P/M	DS-7104NI-Q1/4P/M
	DS-7108NI-Q1/8P/M
DS-7600NI-K1(B)	DS-7604NI-K1(B)
	DS-7608NI-K1(B)
	DS-7616NI-K1(B)
DS-7600NI-K1/P(B)	DS-7604NI-K1/4P(B)
	DS-7608NI-K1/8P(B)
DS-7600NI-Q1	DS-7604NI-Q1
	DS-7608NI-Q1
	DS-7616NI-Q1
DS-7600NI-Q1/P	DS-7604NI-Q1/4P
	DS-7608NI-Q1/8P
DS-7600NI-Q2	DS-7608NI-Q2
	DS-7616NI-Q2
DS-7600NI-Q2/P	DS-7608NI-Q2/8P
	DS-7616NI-Q2/16P
DS-7600NI-K2	DS-7608NI-K2
	DS-7616NI-K2
	DS-7632NI-K2
DS-7600NI-K2/P	DS-7608NI-K2/8P

Series	Model
	DS-7616NI-K2/16P
	DS-7632NI-K2/16P
DS-7700NI-K4	DS-7708NI-K4
	DS-7716NI-K4
	DS-7732NI-K4
DS-7700NI-K4/P	DS-7708NI-K4/8P
	DS-7716NI-K4/16P
	DS-7732NI-K4/16P

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
Danger	Indicates a hazardous situation which, if not avoided, will or could result in death or serious injury.
Caution	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
Note	Provides additional information to emphasize or supplement important points of the main text.

Safety Instruction

- Proper configuration of all passwords and other security settings is the responsibility of the installer and/or user.
- In the use of the product, you must be in strict compliance with the electrical safety regulations of the nation and region. Please refer to technical specifications for detailed information.
- Input voltage should meet both the SELV (Safety Extra Low Voltage) and the Limited Power Source with 100 VAC to 240 VAC or 12 VDC according to the IEC60950-1 standard. Please refer to technical specifications for detailed information.
- Do not connect several devices to one power adapter as adapter overload may cause over-heating or a fire hazard.
- Please make sure that the plug is firmly connected to the power socket.
- If smoke, odor or noise rises from the device, turn off the power at once and unplug the power cable, and then please contact the service center.

Preventive and Cautionary Tips

Before connecting and operating your device, please be advised of the following tips:

- The device is designed for indoor use only. Install it in a well-ventilated, dust-free environment without liquids.
- Ensure recorder is properly secured to a rack or shelf. Major shocks or jolts to the recorder as a result of dropping it may cause damage to the sensitive electronics within the recorder.
- The equipment shall not be exposed to dripping or splashing and that no objects filled with liquids shall be placed on the equipment, such as vases.
- No naked flame sources, such as lighted candles, should be placed on the equipment.
- The ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, curtains, etc. The openings shall never be blocked by placing the equipment on a bed, sofa, rug or other similar surface.
- For certain models, ensure correct wiring of the terminals for connection to an AC mains supply.
- For certain models, the equipment has been designed, when required, modified for connection to an IT power distribution system.
- identifies the battery holder itself and identifies the positioning of the cell(s) inside the battery holder.
- + identifies the positive terminal(s) of equipment which is used with, or generates direct current. + identifies the negative terminal(s) of equipment which is used with, or generates direct current.
- Keep a minimum 200 mm (7.87 inch) distance around the equipment for sufficient ventilation.
- For certain models, ensure correct wiring of the terminals for connection to an AC mains supply.
- Use only power supplies listed in the user manual or user instruction.
- The USB port of the equipment is used for connecting to a mouse, keyboard, USB flash drive, or Wi-Fi dongle only.
- Use only power supplies listed in the user manual or user instruction.
- Do not touch the sharp edges or corners.

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Chapter 1 Startup

1.1 Activate Your Device

For the first-time access, you need to activate the video recorder by setting an admin password. No operation is allowed before activation. You can also activate the video recorder via web browser, SADP or client software.

Before You Start

Power on your device.

Steps

1. Select a language.
2. Click **Apply**.
3. Input the same password in **Password** and **Confirm Password**.

Warning

Strong Password recommended-We highly recommend you create a strong password of your own choosing (Using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers, and special characters.) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.

4. Activate network camera(s) connected to the device.
   - Check **Use the Device Password** to use the device password to activate the inactive network camera(s).
   - Enter a password in **Camera Activation Password** to activate network camera(s).
5. Optional: Set an email address for password resetting. When you forget your password, you can reset it by email.
6. Click **Activate**.

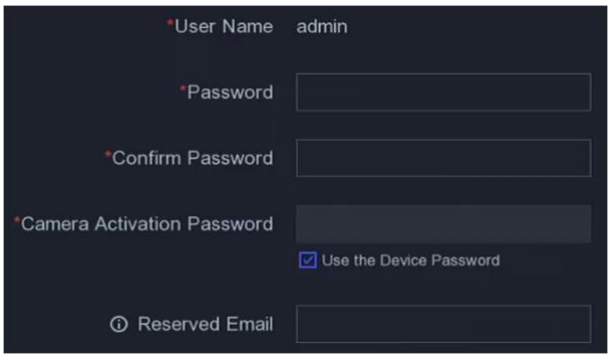


Figure 1-1 Activation

1.2 Login

1.2.1 Set Unlock Pattern

Admin user can use the unlock pattern to login. You can configure the unlock pattern after the device is activated.

Steps

1. Use the mouse to draw a pattern among the 9 dots on the screen. Release the mouse when the pattern is done.

Note

- The pattern shall have 4 dots at least.
- Each dot can be connected for once only.

2. Draw the same pattern again to confirm it. When the two patterns match, the pattern is configured successfully.

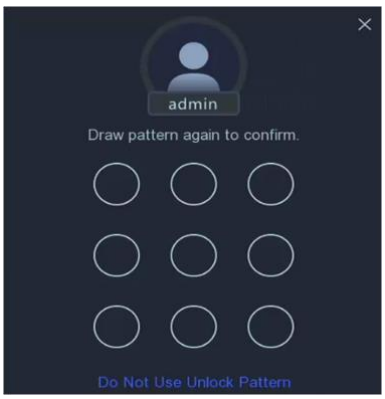


Figure 1-2 Set Unlock Pattern

1.2.2 Log in via Unlock Pattern

Steps

1. Right click the mouse on live view interface.

Figure 1-3 Draw the Unlock Pattern

2. Draw the pre-defined pattern to unlock to enter the menu operation.

Note

- If you have forgotten your pattern, you click **Forgot My Pattern** or **Switch User** to log in via password.
- If you have drawn the wrong pattern for more than 5 times, the system will switch to the normal login mode automatically.

1.2.3 Log in via Password

If your video recorder has logged out, you must login before operating the menu and other functions.

Steps

1. Select **User Name**.

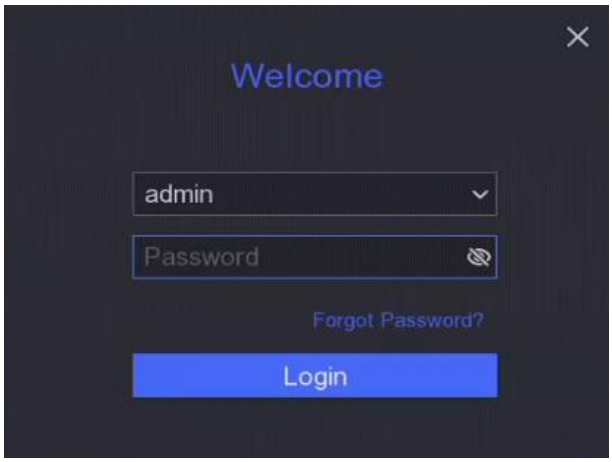


Figure 1-4 Login Interface

2. Input password.
3. Click **Login**.

Note

- When you forget the password of the admin, you can click **Forgot Password** to reset the password.
- If you enter the wrong password 7 times, the current user account will be locked for 60 seconds.

Chapter 2 Live View

2.1 GUI Introduction

- Click to start/stop auto-switch. The screen will automatically switch to the next one.
- Right click a camera, or click to enter full screen mode.
- Double click a camera to view it in single-screen mode. Double click again to exit single-screen mode.
- Change a camera live view screen by dragging it from its screen to the desired screen.
- Scroll up/down to turn to previous/next screen.
- Position the cursor on a camera to show shortcut menu.

Figure 2-1 Shortcut Menu

Table 2-1 Shortcut Menu Description

Button	Description
	Start playing videos recorded in the latest five minutes.
	Digital zoom. You can adjust zoom-in times and view the desired area.
	Click it to enter PTZ control mode.
	Turn on/off live view audio.
	Switch video stream.

- In the live view interface, there are icons at the upper-right corner of the screen for each camera, showing the camera recording and alarm status.

Table 2-2 Live View Icon Description

Icon	Description
	Alarming (normal event and smart event).
	Recording.

- Right click your mouse to display the shortcut menu.

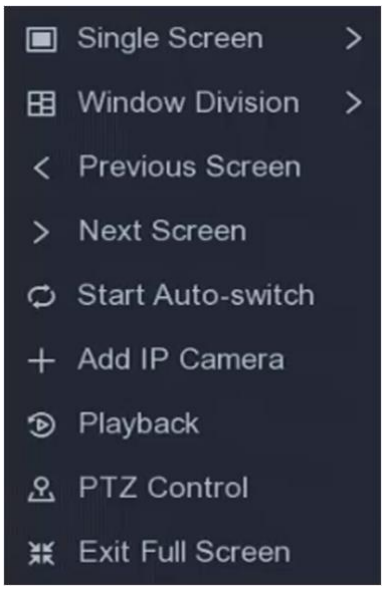


Figure 2-2 Right Click Shortcut Menu

2.2 PTZ Control

2.2.1 Configure PTZ Parameter

You shall configure PTZ parameters before controlling a PTZ camera.

Steps

1. Preview a camera in live view and click on shortcut menu.

Figure 2-3 PTZ Settings

2. Click ⚙.
3. Set the PTZ camera parameters.

Note

All parameters should be the same as the PTZ camera.

4. Click **OK**.

2.2.2 PTZ Control Panel Introduction

Table 2-3 PTZ Panel Description

Icon	Description
	Direction buttons, and the auto-cycle button.
	The speed of the PTZ movement.
/	Zoom -/+.
/	Focus -/+.
/	Iris -/+.

2.2.3 Customize Preset

Set a preset location where the PTZ camera would point to when an event occurs.

Steps

1. Preview a camera in live view and click on shortcut menu.
2. Select a desired preset in preset list.
3. Use direction buttons to wheel the camera to required locations. Adjust zoom and focus as your desire.
4. Click .

What to do next

Double click a preset in the preset list to call it.

2.2.4 Customize Patrol

Patrol refers to a path consists of a series of presets with designated sequence. It provides dynamic live image for monitoring several presets.

Steps

1. Preview a camera in live view and click on shortcut menu.
2. Click **Patrol**.

3. Select a desired patrol.
4. Click **Set**.
5. Click ＋.
6. Configure key point parameters, such as the key point No., duration of staying for one key point and speed of patrol. The key point is corresponding to the preset. The preset number determines the order at which the PTZ will follow while cycling through the patrol. **Duration** refers to the time span to stay at the corresponding key point. **Speed** defines the speed at which the PTZ will move from one key point to the next.

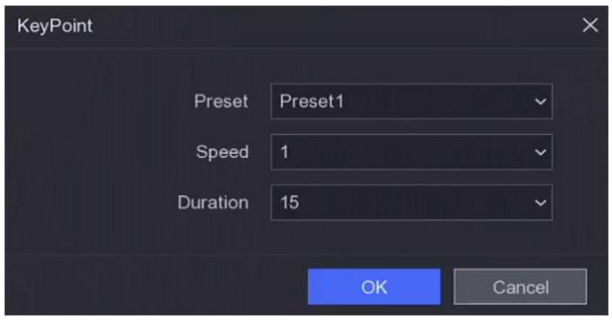


Figure 2-4 Patrol Settings

7. Click **Apply**.

What to do next

Select a patrol and click **Call** to call it. The PTZ camera will move according the predefined patrol path.

Figure 2-5 Call Patrol

2.2.5 Customize Pattern

A pattern records the movement path and dwell time in a certain position. When you call a pattern, the PTZ camera will move according to the recorded path.

Steps

1. Preview a camera in live view and click on shortcut menu.
2. Click **Pattern**.
3. Select a pattern.
4. Click **Record**.
5. Use direction buttons to wheel the camera to required locations. Adjust zoom and focus as your desire.
6. Click **Stop Recording**. The previous PTZ camera moving path is recorded as a pattern.

What to do next

Select a pattern and click **Call** to call it. The PTZ camera will move according the predefined pattern.

Chapter 3 Playback

3.1 GUI Introduction

Go to **Playback**.

Figure 3-1 Playback

Table 3-1 Playback Interface Description

Button	Operation	Button	Operation
	30 s reverse.		30 s forward.
	Reverse playback.		Start playback.
	Speed down.		Speed up.
X 1	Speed.		Full screen.

Figure 3-2 Timeline

- Position the cursor on the timeline, drag the timeline to position to a certain time.
- Period marked with blue bar contains video. Red bar indicates the video in the period is event video.
- Scroll up/down to zoom out/in timeline.

3.2 Normal Playback

Play back normal videos.

Steps

1. Go to **Playback**.
2. Select a camera from the camera list.
3. Select a date on the calendar for playback.

Note

The blue triangle at the calendar date corner indicates there are available videos. For example, 10 means video is available. 11 means no video.

4. Optional: Position the cursor on playback window to show control bar.

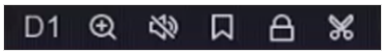


Figure 3-3 Control Bar

Table 3-2 Button Description

Button	Description	Button	Description
1 4 8 9 16	Window division, group the channels and play.		Zoom in/out playback image.
	Turn on/off audio.		Add tag.
	Lock/unlock video.		Clip video.
	Show videos that contain human.		Show videos that contain vehicle.

3.3 Event Playback

When you select the event playback mode, the system will analyze and mark videos that contain the motion detection, line crossing detection, or intrusion detection information, .

Before You Start

- Ensure the camera has enabled **Dual-VCA**. You can enable it via the camera web browser interface in **Configuration** → **Video/Audio** → **Display Info. on Stream**.

- Ensure your video recorder has enabled **Save VCA Data**. You can enable it in **Configuration** → **Record** → **Advanced**.

Steps

1. Go to **Playback**.
2. Click **Event**.
3. Select a camera.

Figure 3-4 Event Playback

4. Position the cursor on playback window to show control bar.

Table 3-3 Button Description

Button	Description	Button	Description
	Add tag.		Zoom in/out playback image.
	Clip video.		Lock/unlock video.
	Configure detection area.		

5. Click to set detection areas of line crossing detection, intrusion detection, or motion detection.
6. Click to search videos. Videos meet the detection rule requirement will be marked in red.
7. Click to configure the play strategy.

Do not Play Normal Videos

If it is enabled, videos without smart information will not be played.

Normal Video

Set normal video playback speed. The option is only valid when **Do not Play Normal Videos** is unchecked.

Play Speed of Smart/Custom Video

Set playback speed of videos with smart information. The option is only valid when **Do not Play Normal Videos** is enabled.

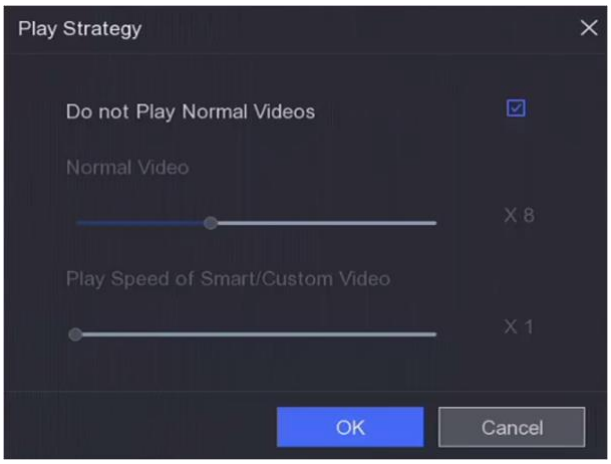


Figure 3-5 Play Strategy

3.4 Back up Clip

You can clip videos during playback. Video clips can be exported to the backup device (USB flash drive, etc.).

Before You Start

Connect a backup device to your video recorder.

Steps

1. Start playback. Refer to ***Normal Playback*** for details.
2. Click .
3. Set the start and end time.
4. Click **Save**.
5. Select the backup device and folder.
6. Click **Save** to export the clip to backup device.

Chapter 4 Search File

Steps

1. Go to **Search**.

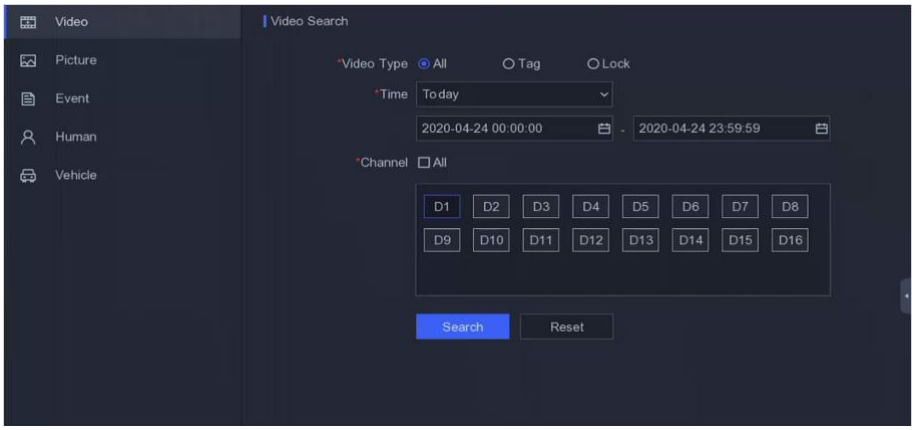


Figure 4-1 Search

2. Select a search type (video, picture, event, etc.).
3. Set search conditions.
4. Click **Search**.
   – Click to play the video.
   – Click to lock the file. Locked file will not be overwritten.
   – Select file(s), and click **Export** to export file(s) to backup device.

Chapter 5 Configuration (Easy Mode)

Easy mode contains basic configurations. Go to **Configuration**, and click **Easy Mode**.

5.1 System Configuration

5.1.1 General

You can configure the output resolution, system time, etc.

Steps

1. Go to **Configuration** → **System** → **General**.

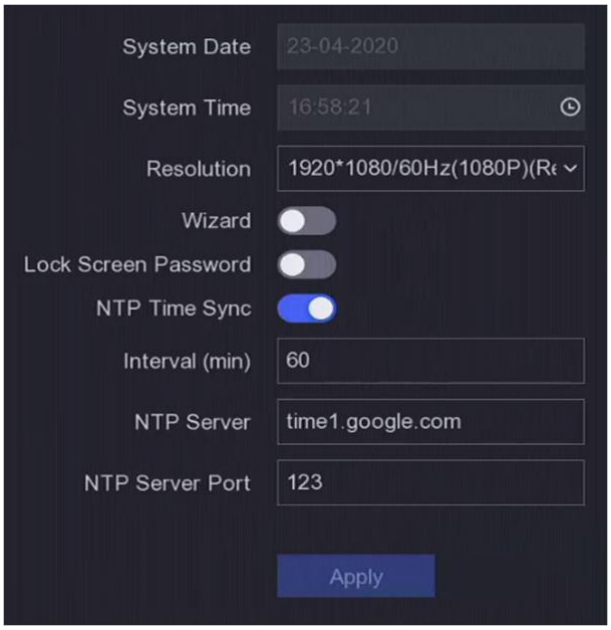


Figure 5-1 General Settings

2. Configure the parameters as your desire.

Wizard

The wizard will pop up after the device starts up.

Lock Screen Password

You need to enter your password if the screen is locked.

NTP Time Sync

Network time protocol (NTP) is a networking protocol for time synchronization. The device can connect to NTP (network time protocol) server to sync time.

Interval (min)

Time interval between two time synchronization with NTP server.

NTP Server

IP address of the NTP server.

3. Click **Apply**.

5.1.2 User

Add User

There is a default account: Administrator. The administrator user name is **admin**. Administrator has the permission to add, delete, and edit user. Guest user only has live view, playback, and log search permission.

Steps

1. Go to **Configuration** → **System** → **User**.
2. Click **Add** and confirm your admin password.

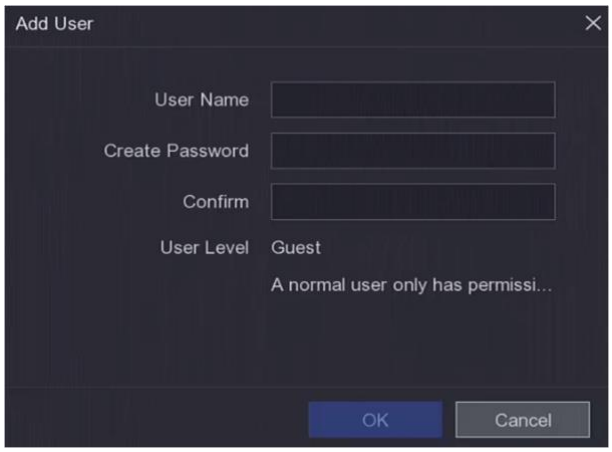


Figure 5-2 Add User

3. Enter user name.
4. Enter the same password in **Password** and **Confirm**.

Warning

We highly recommend you create a strong password of your own choosing (Using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers, and special characters.) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.

5. Click **OK**.
   – Click / to edit/delete user.

Set Password Resetting Email

When you forgot your login pattern and password, the device will send an email contains verification code to your email for password resetting.

Steps

1. Go to **Configuration** → **System** → **User**.
2. Click **Password Resetting Email**.
3. Enter admin password for authorization.
4. Enter an email address.
5. Click **OK**.

Reset Password

You can reset your password when you forgot your login pattern and password.

Steps

1. Click **Forgot Password** at the password login interface.
2. Follow the wizard to reset password.

5.1.3 Exception

You can receive exception events hint in alarm center, and set exception linkage actions.

Steps

1. Go to **Configuration** → **System** → **Exception**.
2. Optional: Configure event hint. When the set events occur, you will receive hints in alarm center.
   1) Enable **Event Hint**.
   2) Click at the upper-right corner of local menu to enter alarm center.
   3) Select an event type.
   4) Click **Set** to select events to hint.
3. Set **Exception Type**
4. Select **Normal Linkage** and **Trigger Alarm Output** type for exception linkage actions.

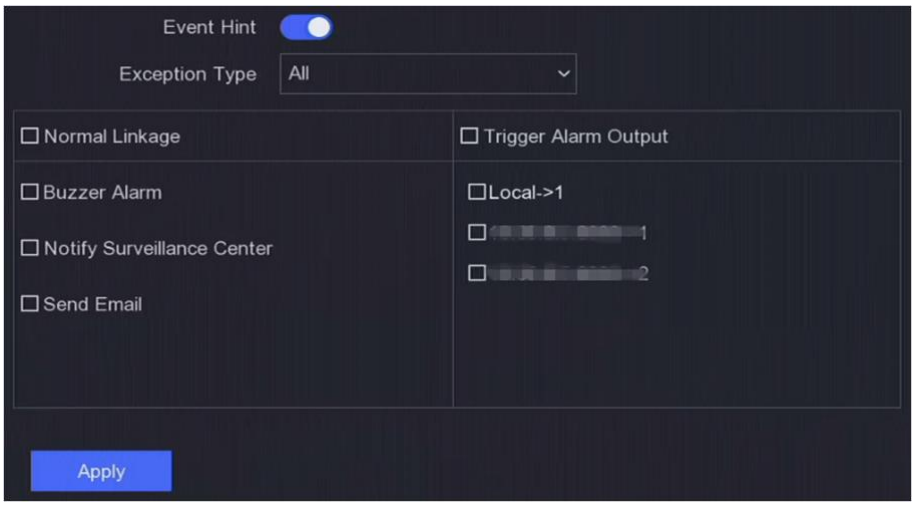


Figure 5-3 Exceptions

5. Click **Apply**.

5.2 Network Configuration

5.2.1 General

You shall properly configure the network settings before operating the device over network.

Steps

1. Go to **Configuration** → **Network** → **General**.

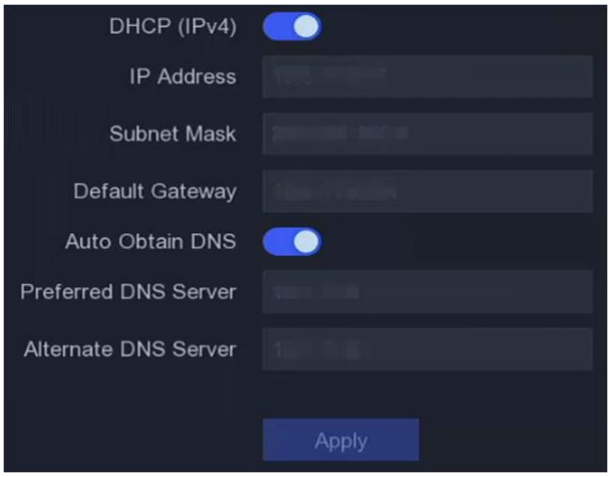


Figure 5-4 Network

2. Set network parameters.

DHCP

If the DHCP server is available, you can enable **DHCP** to automatically obtain an IP address

and other network settings from that server.

Auto Obtain DNS

If **DHCP** is enabled. You can enable **Auto Obtain DNS** to automatically obtain **Preferred DNS Server** and **Alternate DNS Server**.

3. Click **Apply**.

5.2.2 Guarding Vision

Guarding Vision provides mobile phone application and platform service to access and manage your connected devices, which enables you to get a convenient remote access to the surveillance system.

Steps

1. Go to **Configuration** → **Network** → **Guarding Vision**.
2. Turn on **Enable**. The service terms will pop up.
   1) Scan the QR code to read the service terms and privacy statement.
   2) Check **I have read and agree to Service Terms and Privacy Statement.** if you agree with the service terms and privacy statement..
   3) Click **OK**.
3. Click to set verification code.
4. Optional: Enable **Time Sync**, the device will sync time with Guarding Vision instead of NTP server.
5. Optional: Check **Stream Encryption**. It requires to enter verification code in remote access and live view after this function is enabled.
6. Optional: Edit **Server IP**.
7. Bind your device with a Guarding Vision account.
   1) Use a smart phone to scan the QR code, and download Guarding Vision app.
   2) Open Guarding Vision, and scan the QR code to add your video recorder. Refer to Guarding Vision Mobile Client User Manual for details of adding the video recorder to Guarding Vision and more operation instructions.
   - If the device is already bound with an account, you can click **Unbind** to unbind with the current account.
     You can also use the QR code in at the upper-left corner to download Guarding Vision and bind your device.
8. Click **Apply**.

Result

- If your device is connected with Guarding Vision platform, **Connection Status** will be **Online**.
- If your device is bound with a Guarding Vision account, **Bind Status** will be **Yes**.

What to do next

You can access your video recorder via Guarding Vision.

5.2.3 Email

Set an email account to receive event notification.

Before You Start

- Ensure SMTP service is available for your email.
- Configure your network parameters. Refer to ***General*** for details.

Steps

1. Go to **Configuration** → **Network** → **Email**.

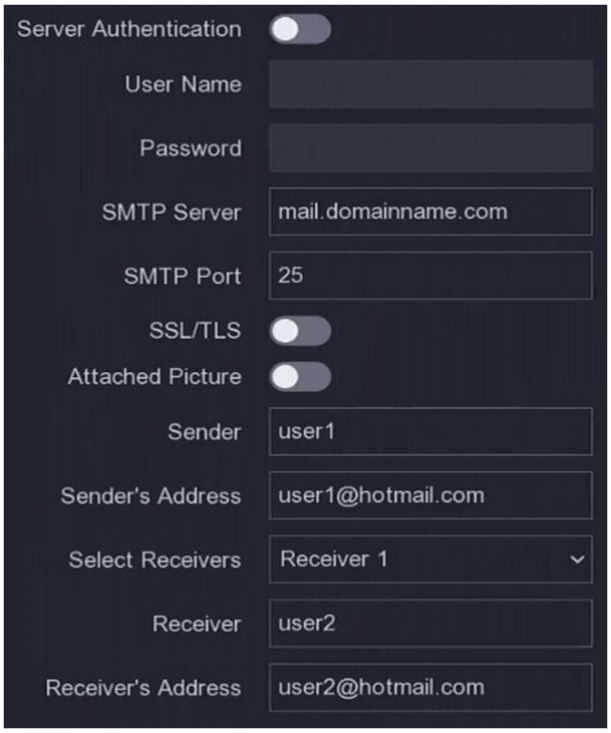


Figure 5-5 Email

2. Set email parameters

Server Authentication

Check it to enable the server authentication feature.

User Name

The user account of email sender for SMTP server authentication.

Password

The password of email sender for SMTP server authentication.

SSL/TLS

(Optional) Enable SSL/TLS if it is required by the SMTP server.

Attached Picture

(Optional) If events are triggered, it will send images as email attachment.

Sender

The sender name.

Sender's Address

The sender's email address.

Select Receiver

Select a receiver. Up to 3 receivers are available.

Receiver

The receiver name.

Receiver's Address

The receiver's email address.

Note

For network cameras, the event images are directly sent as the email attachment. One network camera only sends one picture.

3. Click **Apply**.

5.3 Camera Management

5.3.1 Network Camera

Add Network Camera by Device Password

Add network cameras which the password is the same as your video recorder.

Before You Start

- Ensure your network camera is on the same network segment with your video recorder.
- Ensure the network connection is valid and correct. Refer to ***General*** for details.
- Ensure the network camera password is the same as your video recorder.

Steps

1. Go to **Configuration** → **Camera** → **IP Camera**. The online cameras on the same network segment with your video recorder are displayed in **Online Device List**.

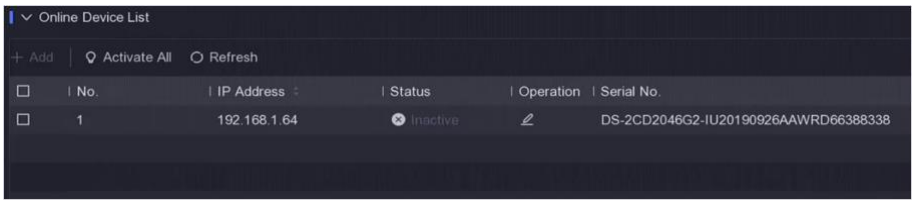


Figure 5-6 IP Camera Management Interface

2. Select a desired network camera.
3. Click ⊞ to add the camera.

Note

If the camera is inactive, the device will activate it automatically with the password you have set during device activation.

Add Network Camera Manually

Before You Start

- Ensure your network camera is on the same network segment with your video recorder.
- Ensure the network connection is valid and correct.
- Ensure the network camera is activated.

Steps

1. Go to **Configuration** → **Camera** → **IP Camera**.
2. Click ⊞ in **Added Device List**.
3. Set network camera parameters, including IP address, protocol, management port, etc. You can check **Use Camera Activation Password** to use the device password to add network camera(s).
4. Optional: Click **Add More** to add another network camera.
5. Click **OK**.

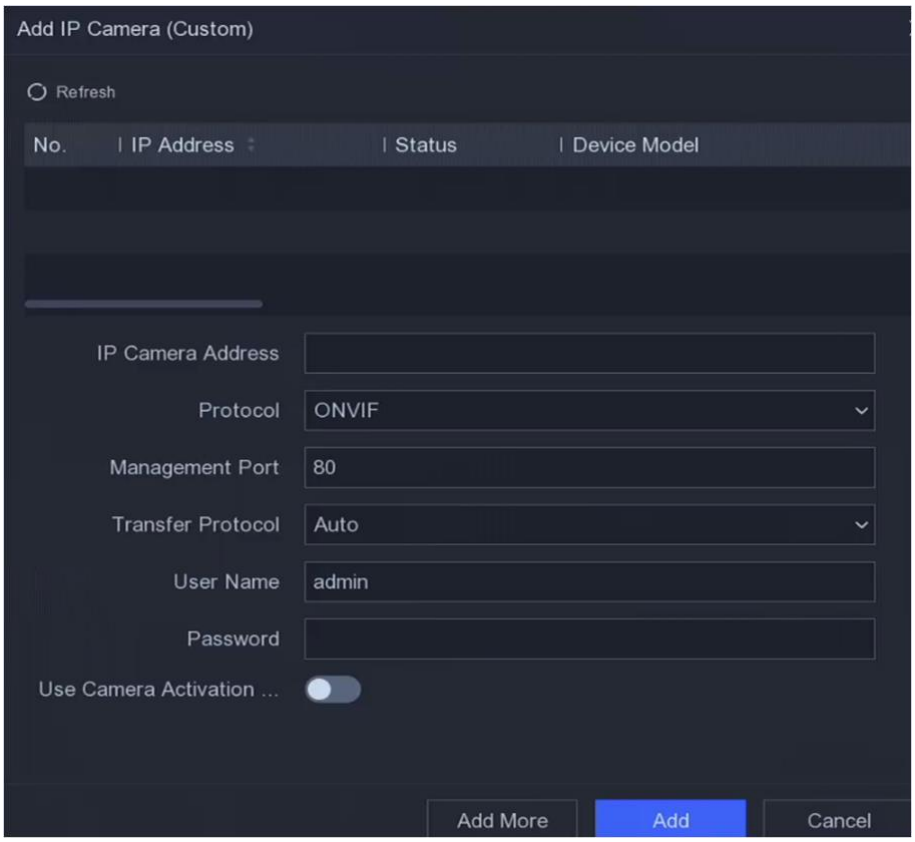


Figure 5-7 Add Network Camera

Edit Connected Network Camera

You can edit the IP address, protocol and other parameters of the added network cameras.

Steps

1. Go to **Configuration** → **Camera** → **IP Camera**.
2. Click to edit the selected camera.

   Channel Port

   If the connected device is an encoding device with multiple channels, you can select the channel port No. to choose a connecting channel.
3. Click **OK**.

5.3.2 OSD Settings

Configure OSD (On-Screen Display) settings for the camera, including date format, camera name, etc.

Steps

1. Go to **Configuration** → **Camera** → **OSD**.
2. Select a camera.

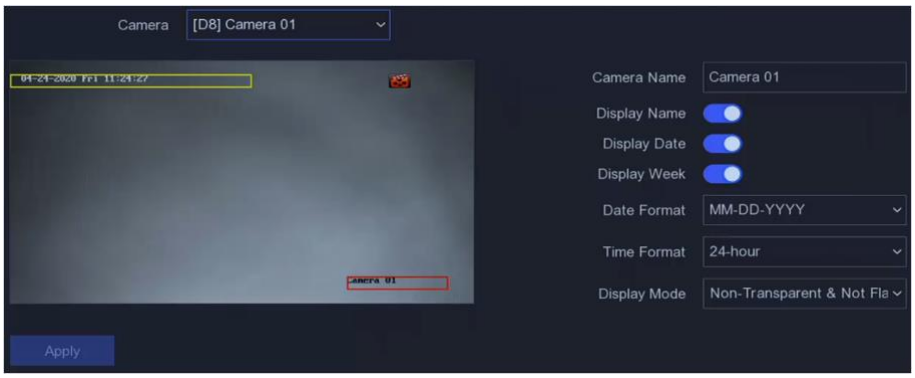


Figure 5-8 OSD

3. Set parameters as your desire.
4. Drag the text frames on the preview window to adjust the OSD position.
5. Click **Apply**.

5.3.3 Smart Event

Motion Detection

Motion detection enables the video recorder to detect the moving objects in the monitored area and trigger alarms.

Steps

1. Go to **Configuration** → **Camera** → **Event** → **Motion Detection**.

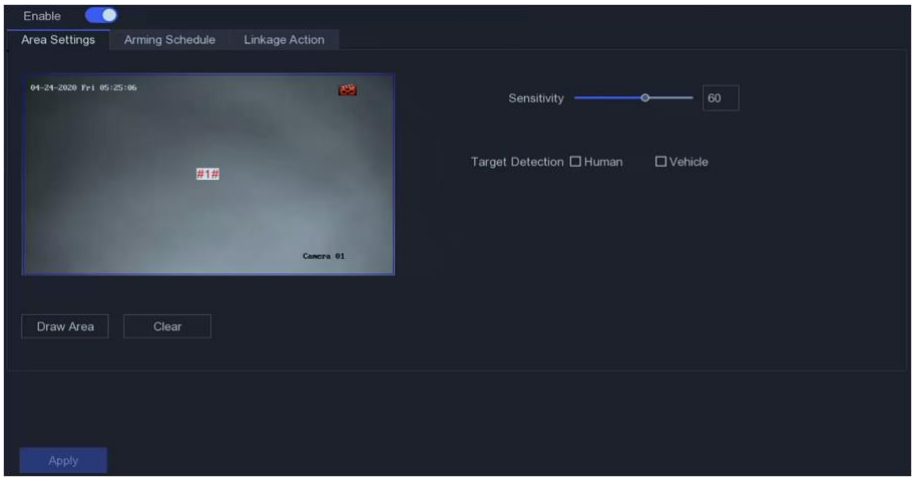


Figure 5-9 Motion Detection

2. Select a camera.
3. Turn on **Enable**.
4. Set the motion detection area.
   - Click **Draw Area** or **Clear** to draw or clear areas. The first area is set as full screen by default.
   - Click **Full Screen** to set the motion detection area as full screen. You can drag on the preview

window to draw motion detection areas.

5. Adjust **Sensitivity**. Sensitivity allows you to calibrate how easily movement could trigger the alarm. A higher value results in the more readily to triggers motion detection.
6. Optional: Set **Target Detection** as **Human** or **Vehicle** to discard alarms which are not triggered by human body or vehicle. Only certain camera models support this function.
7. Set the arming schedule. Refer to ***Configure Arming Schedule*** for details.
8. Set the linkage actions. Refer to ***Configure Alarm Linkage Action*** for details.
9. Click **Apply**.

Line Crossing Detection

Line crossing detection detects people, vehicles, and objects crossing a set virtual line. The detection direction can be set as bidirectional, from left to right or from right to left.

Steps

1. Go to **Configuration** → **Camera** → **Event** → **Line Crossing**.

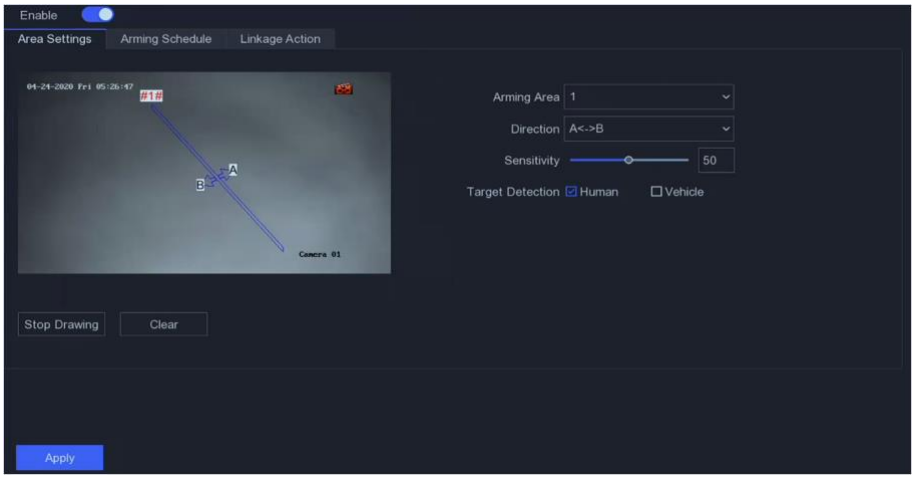


Figure 5-10 Line Crossing Detection

2. Select a camera.
3. Turn on **Enable**.
4. Set line crossing detection rules and detection areas.
   1) Set **Arming Area**. Up to 4 arming areas are selectable.
   2) Select **Direction** as **A<->B**, **A->B**, or **A<-B**.

A<->B

Only the arrow on the B side shows. An object crossing a configured line in both directions can be detected and trigger alarms.

A->B

Only an object crossing the configured line from the A side to the B side can be detected.

B->A

Only an object crossing the configured line from the B side to the A side can be detected.

3) Set **Sensitivity**. The higher the value is, the easier the detection alarm will be triggered.
4) Optional: Set **Target Detection** as **Human** or **Vehicle** to discard alarms which are not triggered by human body or vehicle.
5) Click **Draw Area**, and set two points in the preview window to draw a virtual line.

5. Set the arming schedule. Refer to for ***Configure Arming Schedule*** for details.
6. Set the linkage actions. Refer to ***Configure Alarm Linkage Action*** for details.
7. Click **Apply**.

Intrusion Detection

Intrusion detection detects people, vehicles, or objects that enter and loiter in a pre-defined virtual region.

Steps

1. Go to **Configuration** → **Camera** → **Event** → **Intrusion**.

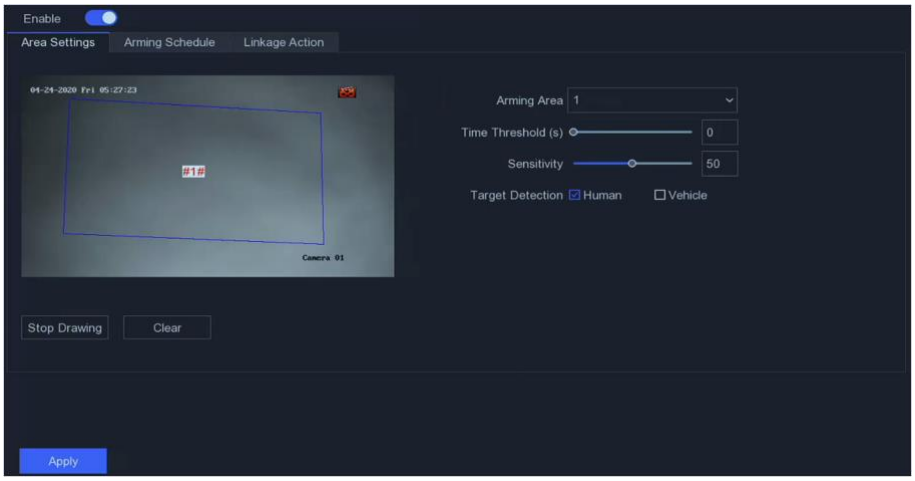


Figure 5-11 Intrusion Detection

2. Select a camera.
3. Turn on **Enable**.
4. Set detection rules and detection areas.
   1) Set **Arming Area**. Up to 4 arming areas are selectable.
   2) Set **Sensitivity**. The size of the object that can trigger the alarm. The higher the value is, the easier the detection alarm can be triggered. Its range is [1-100].
   3) Optional: Set **Target Detection** as **Human** or **Vehicle** to discard alarms which are not triggered by human body or vehicle.
   4) Click **Draw Area** to draw a quadrilateral detection region.
5. Set the arming schedule. Refer to for ***Configure Arming Schedule*** for details.
6. Set the linkage actions. Refer to ***Configure Alarm Linkage Action*** for details.
7. Click **Apply**.

Region Entrance Detection

Region entrance detection detects objects that enter a predefined virtual region.

Steps

1. Go to **Configuration** → **Camera** → **Event** → **Region Entrance**.

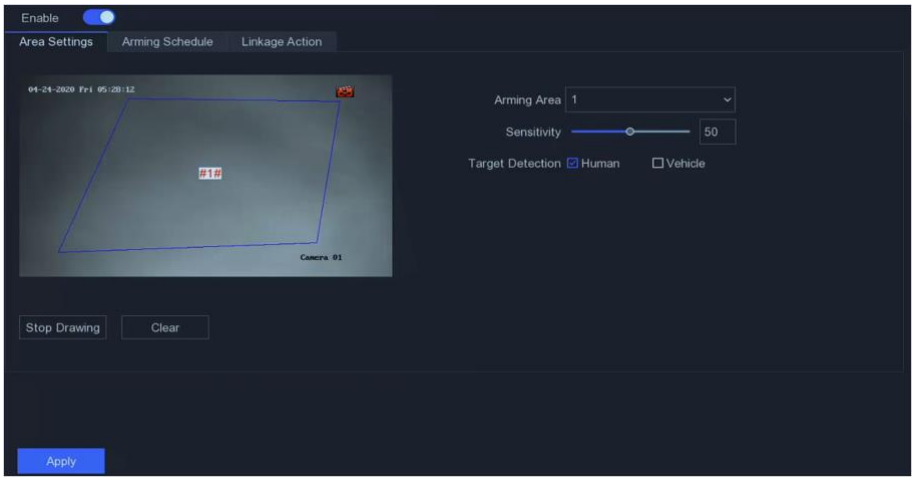


Figure 5-12 Region Entrance Detection

2. Select a camera.
3. Turn on **Enable**.
4. Set detection rules and detection areas.
   1) Set **Arming Area**. Up to 4 arming areas are selectable.
   2) Set **Sensitivity**. The higher the value is, the easier the detection alarm can be triggered. Its range is [1-100].
   3) Optional: Set **Target Detection** as **Human** or **Vehicle** to discard alarms which are not triggered by human body or vehicle.
   4) Click **Draw Area** to draw a quadrilateral detection region.
5. Set the arming schedule. Refer to for ***Configure Arming Schedule*** for details.
6. Set the linkage actions. Refer to ***Configure Alarm Linkage Action*** for details.
7. Click **Apply**.

Region Exiting Detection

Region exiting detection detects objects that exit from a predefined virtual region.

Steps

1. Go to **Configuration** → **Camera** → **Event** → **Region Exiting**.

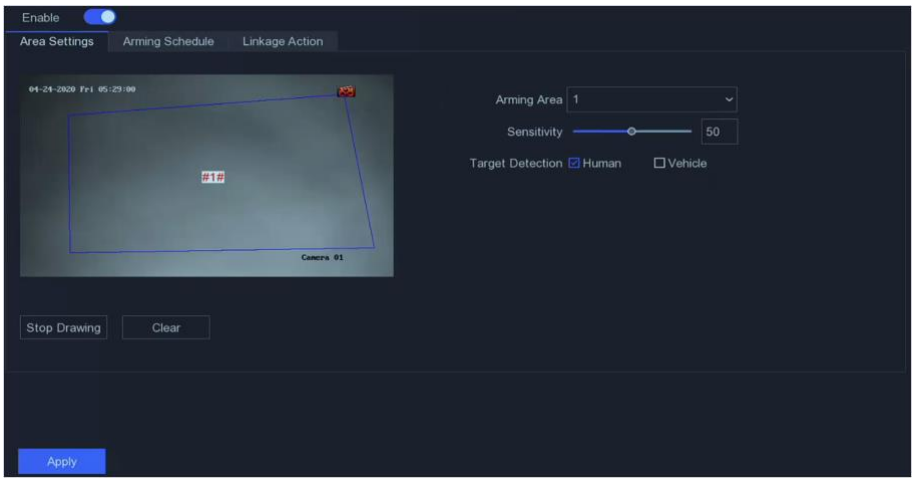


Figure 5-13 Region Exiting Detection

2. Select a camera.
3. Turn on **Enable**.
4. Set detection rules and detection areas.
   1) Set **Arming Area**. Up to 4 arming areas are selectable.
   2) Set **Sensitivity**. The higher the value is, the easier the detection alarm can be triggered. Its range is [1-100].
   3) Optional: Set **Target Detection** as **Human** or **Vehicle** to discard alarms which are not triggered by human body or vehicle.
   4) Click **Draw Area** to draw a quadrilateral detection region.
5. Set the arming schedule. Refer to for ***Configure Arming Schedule*** for details.
6. Set the linkage actions. Refer to ***Configure Alarm Linkage Action*** for details.
7. Click **Apply**.

Configure Arming Schedule

Steps

1. Select **Arming Schedule**.
2. Choose one day of a week and set the time segment. Up to eight time periods can be set within each day.

Note

Time periods shall not be repeated or overlapped.

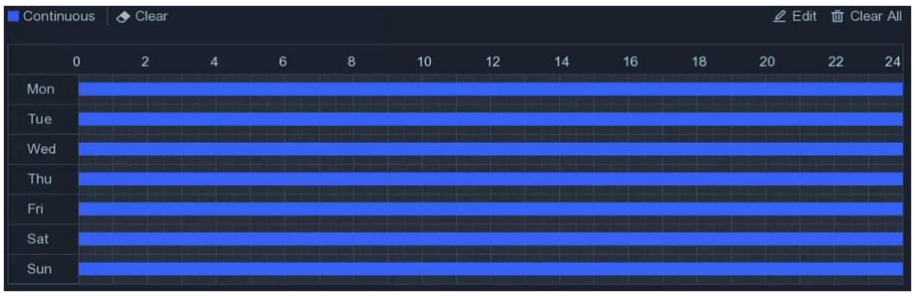


Figure 5-14 Set Arming Schedule

3. Click **Apply**.

Configure Alarm Linkage Action

Alarm linkage actions will be activated when an alarm or exception occurs.

Steps

1. Click **Linkage Action**.

Figure 5-15 Linkage Actions

2. Set normal linkage actions, alarm output linkage actions, trigger channel, etc.

Alarm Pop-up Window

The local monitor will pop up the alarming channel image when an alarm is triggered. It requires to select the alarming channel(s) in **Trigger Channel**.

Buzzer Alarm

It will trigger a buzzer beep when an alarm is triggered.

Notify Surveillance Center

The device will send an exception or alarm signal to the remote client software when an alarm is triggered.

Send Email

It will send an email with alarm information when an alarm is triggered.

PTZ Linkage

It will trigger PTZ actions (e.g., call preset/patrol/pattern) when smart events occur.

3. Click **Apply**.

5.4 Recording Management

5.4.1 Storage Device

Initialize HDD

A newly installed hard disk drive (HDD) must be initialized before it can be used to save videos and information.

Before You Start

Install at least an HDD to your video recorder. For detailed steps, refer to Quick Start Guide.

Steps

1. Go to **Configuration** → **Record** → **Storage**.
2. Select an HDD.
3. Click **Init**.

Repair Database

Repair an HDD that with error in database. Please operate it with the help of professional technical support.

Add Network Disk

You can add the allocated NAS or IP SAN disk to the video recorder, and use it as a network HDD. Up to 8 network disks can be added.

Steps

1. Go to **Configuration** → **Record** → **Storage**.
2. Click **Add**.
3. Select **NetHDD**.
4. Set **Type** as **NAS** or **IP SAN**.
5. Enter **NetHDD IP** address.
6. Click to search the available disks.

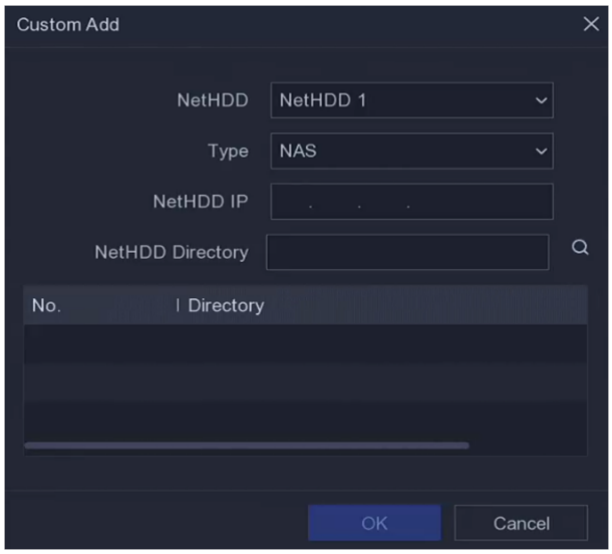


Figure 5-16 Add NetHDD

7. Select NAS disk from the list, or manually enter the directory in **NetHDD Directory**.
8. Click **OK**. The added NetHDD will be displayed in the storage device list.

5.4.2 Configure Recording Schedule

Video recorder will automatically start/stop recording according to the configured schedule.

Configure Continuous Recording

Steps

1. Go to **Configuration** → **Record** → **Parameter**.
2. Set the continuous main stream/sub-stream recording parameters for the camera. Refer to ***Configure Recording Parameter*** for details.
3. Go to **Configuration** → **Record** → **Schedule**.
4. Select recording type as **Continuous**. Refer to ***Edit Schedule*** for details.

Configure Event Recording

You can configure the recording triggered by the motion detection, line crossing detection, and intrusion detection.

Steps

1. Go to **Configuration** → **Event** → **Smart Event**.
2. Configure the event detection and select the channels to trigger the recording when an event occurs. Refer to ***Smart Event*** for details.
3. Go to **Configuration** → **Record** → **Parameter**.
4. Set the continuous main stream/sub-stream recording parameters for the camera. Refer to ***Configure Recording Parameter*** for details.

5. Go to **Configuration** → **Record** → **Schedule**.
6. Select recording type as **Event**. Refer to ***Edit Schedule*** for details.

Edit Schedule

Steps

1. Go to **Configuration** → **Record** → **Schedule**.

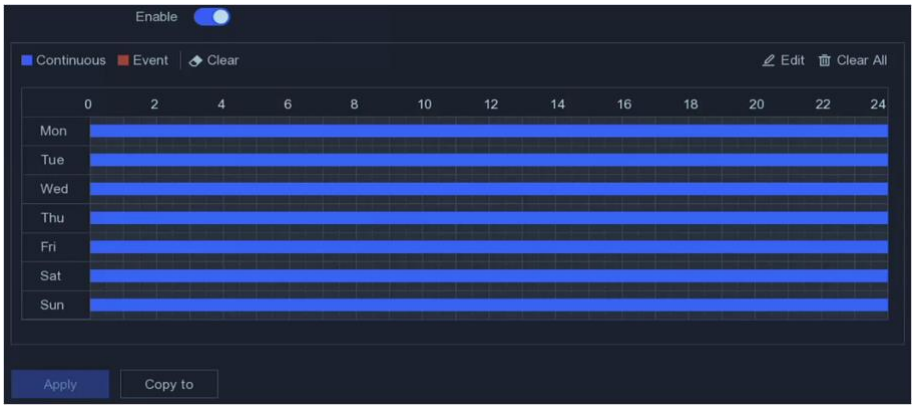


Figure 5-17 Recording Schedule

Continuous

Continuous recording.

Event

Recording is triggered by events.

2. Select a camera in **Camera No.**.
3. Turn on **Enable**.
4. Configure the recording schedule.

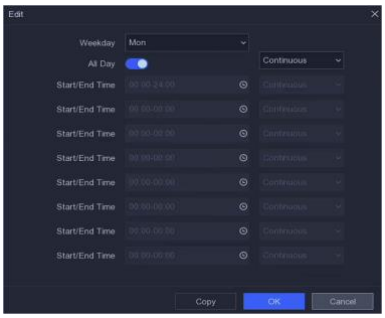
Edit Schedule

1. Click **Edit**.
2. Select a day to configure in **Weekday**.
3. To set an all-day recording schedule, check **All Day** and select schedule type.
4. To set other schedules, uncheck **All Day**, and set **Start/End Time** and schedule type.

Note

Up to 8 periods can be configured for each day. And the time periods cannot be overlapped with each other.

5. Click **OK** to save the settings and go back to upper level menu.



3 Edit Schedule

1. Click to select schedule type as **Continuous** or **Event**.
2. On the table, drag the mouse on the desired period to draw a colored bar.

5. Click **Apply**.

5.4.3 Configure Recording Parameter

Steps

1. Go to **Configuration** → **Record** → **Parameter**.
2. Configure recording parameters.

Main Stream

Main stream refers to the primary stream that affects data recorded to the hard disk drive and will directly determine your video quality and image size. Comparing with the sub-stream, the main stream provides a higher quality video with higher resolution and frame rate.

Sub-Stream

Sub-stream is a second codec that runs alongside the mainstream. It allows you to reduce the outgoing internet bandwidth without sacrificing your direct recording quality. Sub-stream is often exclusively used by smartphone applications to view live video. Users with limited internet speeds may benefit most from this setting.

Frame Rate

Frame rate refers to how many frames are captured each second. A higher frame rate is advantageous when there is movement in the video stream, as it maintains image quality throughout.

Resolution

Image resolution is a measure of how much detail a digital image can hold: the greater the resolution, the greater the level of detail. Resolution can be specified as the number of pixel-

columns (width) by the number of pixel-rows (height), e.g.,1024×768.

Bitrate

The bit rate (in kbit/s or Mbit/s) is often referred to as speed, but actually defines the number of bits/time unit and not distance/time unit.

Note

Higher resolution, frame rate, and bitrate provide you better video quality, but it also requires more internet bandwidth and uses more storage space on the hard disk drive.

3. Click **Apply**.

Chapter 6 Configuration (Expert Mode)

Go to **Configuration**, and click **Expert Mode** at the lower-left corner.

6.1 System Configuration

6.1.1 General

Configure Basic Settings

You can configure the language, system time, output resolution, mouse pointer speed, lock screen password, etc.
Go to **Configuration** → **System** → **General** → **Basic Settings**, configure the parameters as your desire, and click **Apply**.

Language

The default language is **English**.

VGA/HDMI Resolution

Select the output resolution, which must be the same with the resolution of the VGA/HDMI display.

Lock Screen Password

You need to enter password for authentication if the screen is locked.

Mouse Pointer Speed

Set the speed of mouse pointer; 4 levels are configurable.

Wizard

The wizard will pop up after the device starts up.

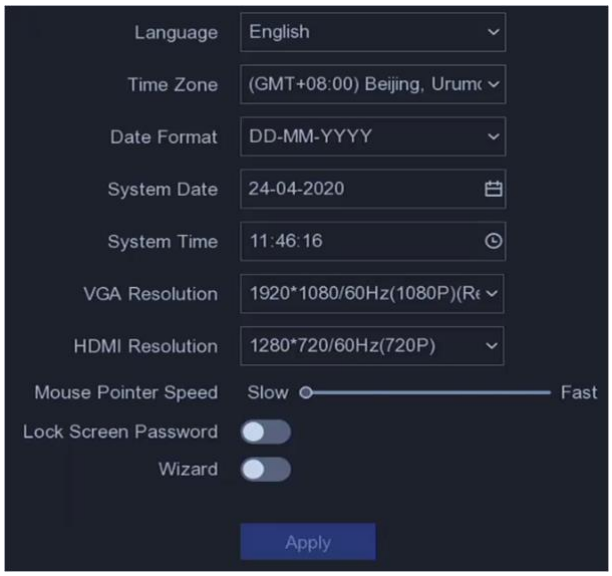


Figure 6-1 Basic Settings

Configure DST Settings

DST (Daylight Saving Time) refers to the period of the year when clocks are moved one period ahead. In some areas worldwide, this has the effect of creating more sunlit hours in the evening during months when the weather is the warmest.

Go to **Configuration** → **System** → **General** → **DST Settings**, configure the parameters as your desire, and click **Apply**.

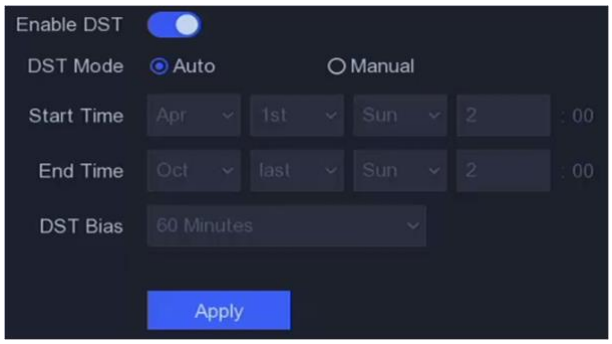


Figure 6-2 DST Settings

Configure More Settings

You can configure your device name, lock screen time, output mode, etc.

Go to **Configuration** → **System** → **General** → **More Settings**, configure the parameters as your desire, and click **Apply**.

Device Name

Edit the video recorder name.

Device No.

The number is required in the connection with remote control, network keyboard, etc. Edit the serial number of video recorder. The Device No. can be set in the range of 1~255, and the default No. is 255.

Lock Screen

Set timeout time for lock screen.

Menu Output Mode

Choose output to display local menu.

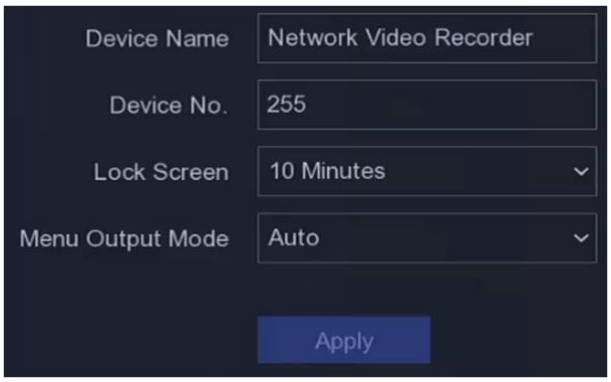


Figure 6-3 More Settings

6.1.2 Live View

Configure General Parameters

You can configure the output interface, mute or turning on the audio, event output interface, etc.

Steps

1. Go to **Configuration** → **System** → **Live View** → **General**.

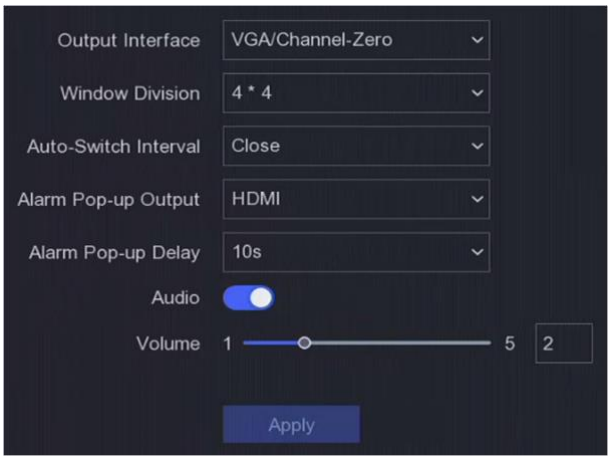


Figure 6-4 Live View-General

2. Configure the Live View parameters.

Window Division

Select the live view window division.

Auto Switch Interval

The time to dwell in a camera before switching to next camera when auto-switch in live view is enabled.

Alarm Pop-up Output

Select the output to show alarm video.

Alarm Pop-up Delay

Set the time to show alarm event image.

Audio

Turn on/off audio output for the selected video output.

Volume

Adjust the live view, playback, and two-way audio volume for the selected video output interface.

3. Click **Apply**.

Configure Live View Layout

Steps

1. Go to **Configuration** → **System** → **Live View** → **View**.
2. Set **Output Interface**.
3. Select a window, and double click a camera the list you would like to display. + means no camera is displayed on the window.
4. Optional: Click or to start or stop live view of all cameras.
5. Click **Apply**.

Configure Channel-Zero Encoding

Enable the channel-zero encoding when you need to get a remote view of many channels in real time from a web browser or CMS (Client Management System) software, in order to decrease the bandwidth requirement without affecting the image quality.

Steps

1. Go to **Configuration** → **System** → **Live View** → **General**.
2. Set **Video Output Interface** as **Channel-Zero**.
3. Go to **Configuration** → **System** → **Live View** → **Channel-Zero**.

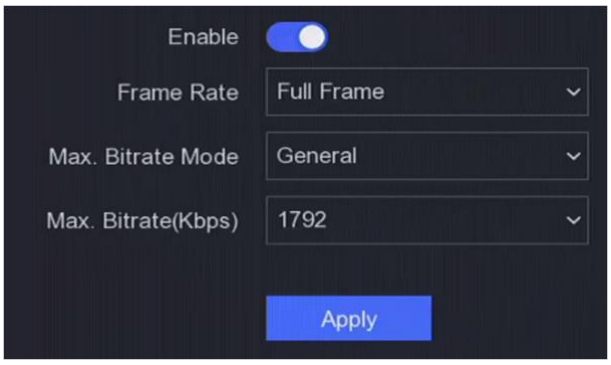


Figure 6-5 Channel-Zero

4. Turn on **Enable**.
5. Configure **Frame Rate**, **Max. Bitrate Mode**, and **Max. Bitrate**. The higher frame rate and bitrate require higher bandwidth requirement.
6. Click **Apply**.

6.1.3 User

Refer to ***User*** for details.

6.2 Network Configuration

6.2.1 TCP/IP

TCP/IP must be properly configured before you operate video recorder over network.

Steps

1. Go to **Configuration** → **Network** → **General** → **TCP/IP**.
2. Configure network parameters.

Working mode

- Multi-address Mode:
- The parameters of the two NIC cards can be configured independently. You can select LAN1 or LAN2 in the NIC type field for parameter settings. You can select one NIC card as default route. And then the system is connecting with the extranet and the data will be forwarded through the default route.
- Net-fault Tolerance Mode:
- The two NIC cards use the same IP address, and you can select the Main NIC to LAN1 or LAN2. By this way, in case of one NIC card failure, the video recorder will automatically enable the other standby NIC card so as to ensure the normal running of the whole system.
- Load Balance Mode:
- By using the same IP address and two NIC cards share the load of the total bandwidth, which enables the system to provide two Gigabit network capacity

Note

Working mode is only available for certain models.

NIC Type

Select NIC type as your desire.

DHCP

If the DHCP server is available, you can check **Enable DHCP** to automatically obtain an IP address and other network settings from that server.

MTU

The maximum transmission unit (MTU) is the size of the largest network layer protocol data unit that can be communicated in a single network transaction.

Obtain DNS Automatically

If **DHCP** is checked. You can check **Obtain DNS Automatically** to obtain **Preferred DNS Server** and **Alternate DNS Server**.

3. Click **Apply**.

6.2.2 DDNS

Dynamic domain name server (DDNS) maps dynamic user IP addresses to a fixed domain name server.

Before You Start

Register DynDNS, PeanutHull and NO-IP services with your ISP.

Steps

1. Go to **Configuration** → **Network** → **General** → **DDNS**.

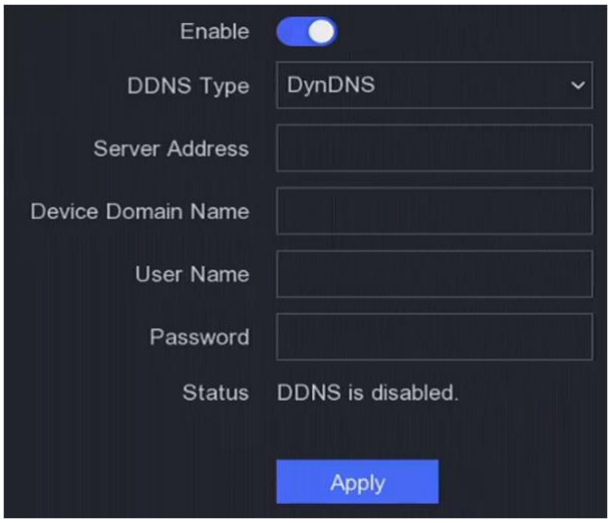


Figure 6-6 DDNS

2. Turn on **Enable**.
3. Select a DDNS type.
4. Enter parameters including service address, domain name, etc.
5. Click **Apply**.

What to do next

You can view DDNS status in **Status**.

6.2.3 NAT

Two ways are provided for port mapping to realize the remote access via the cross-segment network, UPnP™ and manual mapping.

Before You Start

Enable the UPnP™ function of your router if UPnP™ is required. When the device network working mode is multi-address, the default device route should be on the same network segment as the LAN IP address of the router.

Steps

1. Go to **Configuration** → **Network** → **General** → **NAT**.

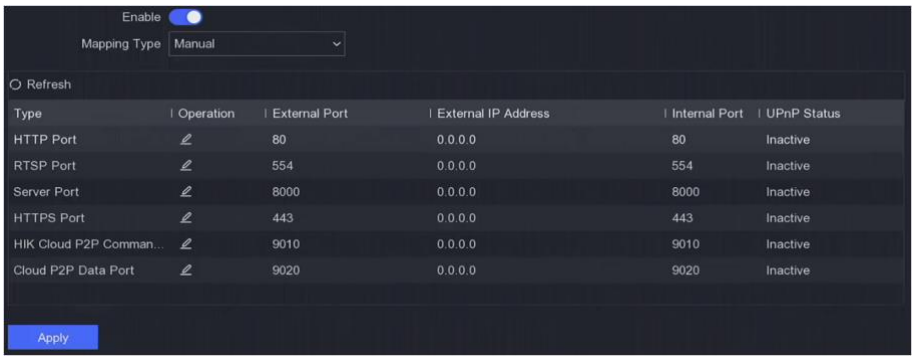


Figure 6-7 NAT

2. Turn on **Enable**.
3. Select **Mapping Type** as **Manual** or **Auto**

Auto	The port mapping items are read-only, and the external ports are set by the router automatically. You can click **Refresh** to get the latest status of the port mapping.
Manual	Select an external port type. Click to edit **External Port**. You can use the default external port No., or change it according to actual requirements. **External Port** indicates the port No. for port mapping in the router. The value of the RTSP port No. should be 554 or between 1024 and 65535, while the value of the other ports should be between 1 and 65535 and the value must be different from each other. If multiple

devices are configured for the UPnP™ settings under the same router, the value of the port No. for each device should be unique.

4. Set the virtual server of your router, including internal source port, external source port, etc. The virtual server parameters shall be corresponding with your device port.

6.2.4 Ports (More Settings)

Set different port types to enable relevant functions as your desire.
Go to **Configuration** → **Network** → **General** → **More Settings**.

Alarm Host IP/Port

The device will send the alarm event or exception message to the alarm host when an alarm is triggered. The remote alarm host must have the client management system (CMS) software installed.
Alarm Host IP refers to the IP address of the remote PC on which the CMS software (e.g., iVMS-4200) is installed, and the Alarm Host Port (7200 by default) must be the same as the alarm monitoring port configured in the software.

Server Port

For remote client software access. Ranges from 2000 to 65535. The default value is 8000.

HTTP Port

For remote web browser access. The default value is 80.

Multicast IP

Multicast can be configured to enable live view for cameras that exceed the maximum number allowed through network. A multicast IP address covers Class-D IP ranging from 224.0.0.0 to 239.255.255.255 and it is recommended to use the IP address ranging from 239.252.0.0 to 239.255.255.255.
When adding a device to the CMS software, the multicast address must be the same as that of the device.

RTSP Port

RTSP (Real Time Streaming Protocol) is a network control protocol designed for use in entertainment and communications systems to control streaming media servers. The port is 554 by default.

Output Bandwidth Limit

You can check the checkbox to enable output bandwidth limit.

Output Bandwidth

After enable the output bandwidth limit, input the output bandwidth.

Note

- The output bandwidth limit is used for the remote live view and playback.

- The default output bandwidth is the maximum limit.

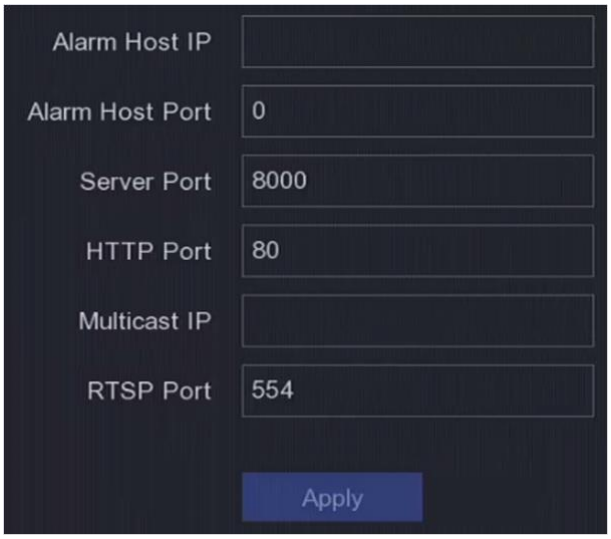


Figure 6-8 Port Settings

6.2.5 ISUP

SDK is based on Intelligent Security Uplink Protocol (ISUP). It provides APIs, library files, and commands for the third-party platform to access devices such as NVRs, speed domes, DVRs, network cameras, mobile NVRs, mobile devices, decoding devices, etc. With this protocol, the third-party platform can realize functions like live view, playback, two-way audio, PTZ control, etc.

Steps

Note

ISUP function is only available for K series and DS-7600NI-Q series.

1. Go to **Configuration** → **Network** → **Platform Access**.
2. Set **Type** as **ISUP**.

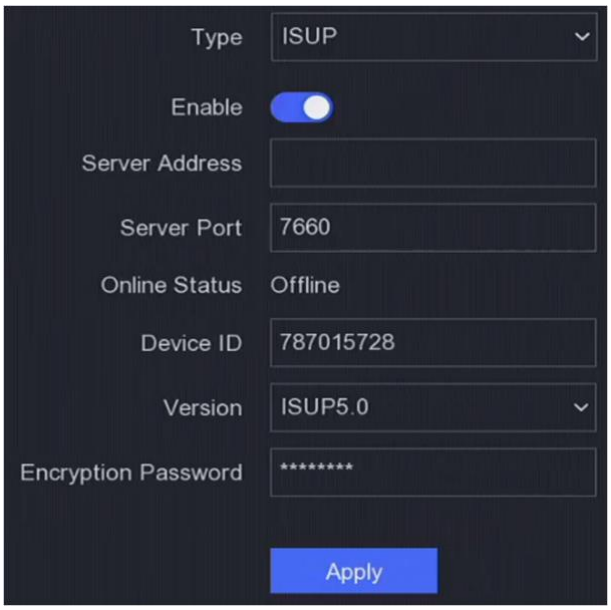


Figure 6-9 ISUP

3. Turn on **Enable**.

Note

Enabling ISUP will disable other platform access.

4. Set the related parameters.

Server Address

The platform server IP address.

Server Port

The platform server port, ranges from 1024 to 65535. The actual port shall be provided by the platform.

Device ID

The Device ID shall be provided by the platform.

Version

ISUP protocol version, only V5.0 is available.

Encryption Password

Encryption password is required when using ISUP V5.0 version, it provides more secure communication between the device and platform. Enter it for verification after the device is registered to the ISUP platform.

5. Click **Apply** to save the settings and restart the device.

What to do next

You can see the online status (online or offline) after the device is restarted.

6.2.6 Guarding Vision

Go to **Configuration** → **Network** → **Platform Access**. Refer to ***Guarding Vision*** for details.

6.3 Camera Management

6.3.1 Network Camera

Add Automatically Searched Online Network Camera

Add the network cameras to your video recorder.

Before You Start

- Ensure your network camera is on the same network segment with your video recorder.
- Ensure the network connection is valid and correct.
- Ensure the network camera password is the same as your video recorder.

Steps

1. Go to **Configuration** → **Camera** → **Camera** → **IP Channel**.
2. Click **Online Device List**. The online cameras on the same network segment will be displayed in the list.

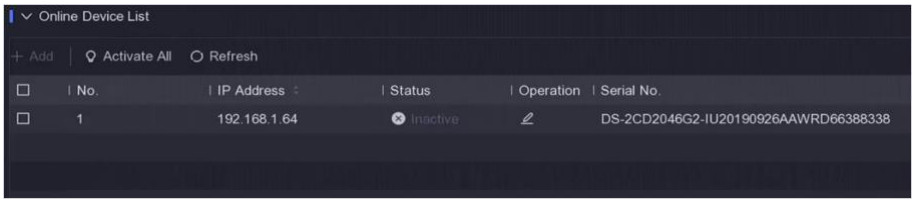


Figure 6-10 Online Device

3. Select a network camera, and click **Add** to add it.

Add Network Camera Manually

Add the network cameras to your video recorder.

Before You Start

- Ensure your network camera is on the same network segment with your video recorder.
- Ensure the network connection is valid and correct.
- Ensure the network camera is activated.

Steps

1. Go to **Configuration** → **Camera** → **Camera** → **IP Channel**.
2. Click ＋.

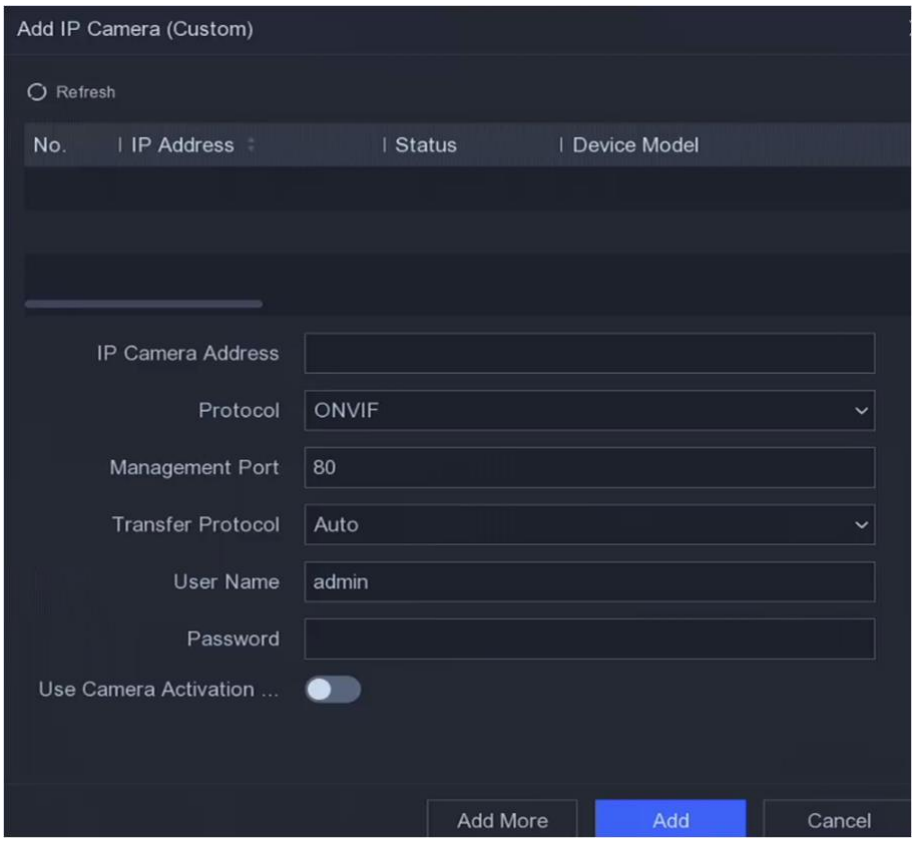


Figure 6-11 Add IP Camera

3. Enter network camera parameters.

   Use Channel Default Password

   If it is enabled, the video recorder will add the camera by the set channel default password.

4. Click **Add**.

Edit Connected Network Camera

You can edit the IP address, protocol and other parameters of the added network cameras.

Steps

1. Go to **Configuration** → **Camera** → **Camera** → **IP Channel**.
2. Click ✎ of an added network camera.

   Channel Port

   If the connected device is an encoding device with multiple channels, you can choose the channel to connect by selecting the channel port No. in the drop-down list.

3. Click **OK**.

Add Network Camera Through PoE

The PoE interfaces enable the device to transfer electrical power and data to connected PoE

cameras. And the PoE interface supports the Plug-and-Play function. Connectable PoE camera number varies with device models. If you disable a PoE interface, you can also use it to connect to an online network camera.

Add PoE Camera

Steps

1. Go to **Configuration** → **Camera** → **Camera** → **PoE Settings**.
2. Enable or disable long network cable mode by selecting **Long Distance** or **Short Distance**.

Long Distance

Long-distance (100 to 300 meters) network transmissions via PoE interface.

Short Distance

Short-distance (< 100 meters) network transmission via PoE interface.

Note

- The PoE ports are enabled with the short distance mode by default.
- The bandwidth of IP camera connected to the PoE via long network cable (100 to 300 meters) cannot exceed 6 Mbps.
- The allowed max. long network cable may be less than 300 meters depending on different IP camera models and cable materials.
- When the transmission distance reaches 100 to 250 meters, you must use the CAT5e or CAT6 network cable to connect with the PoE interface.
- When the transmission distance reaches 250 to 300 meters, you must use the CAT6 network cable to connect with the PoE interface.

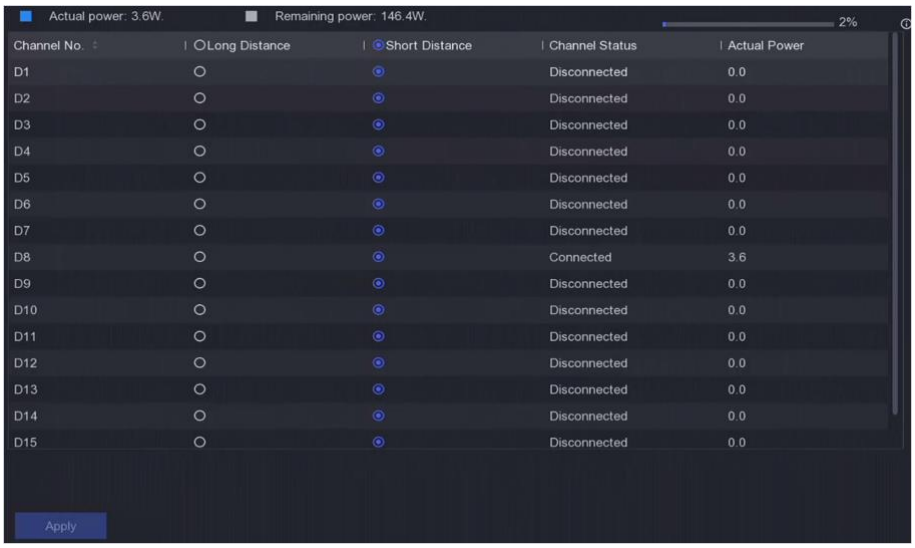


Figure 6-12 Add PoE Camera

3. Click **Apply**.
4. Connect PoE cameras to your device PoE interfaces with network cables.

What to do next

The connected PoE camera will be displayed in **Configuration** → **Camera** → **Camera** → **IP Channel**. You can click its status to view live image.

Add Non-PoE Network Camera

You can use the PoE channel resource to connect a non-PoE network camera.

Steps

1. Go to **Configuration** → **Camera** → **Camera** → **IP Channel**.
2. Click of a channel with no linked network camera.
3. Select **Adding Method** as **Manual**.

   Plug-and-Play

   The camera is physically connected to the PoE interface. You can click in the added device list to edit its parameters.

   Manual

   Add IP camera without physical connection via network cable.
4. Set other parameters, such as user name, password, and IP address.

Configure Channel Type

You can disable a PoE channel to additionally increase a normal IP channel resource.

Go to **Configuration** → **Camera** → **Camera** → **PoE Binding Configuration**, and set the PoE channel as your desire.

Figure 6-13 PoE Binding Configuration

Import/Export IP Camera Configuration File

The information of added network camera can be generated into an excel file and exported to the local device for backup, including the IP address, port, password of admin, etc. And the exported file can be edited on your computer, like adding or deleting the content, and copy the setting to

other devices by importing the excel file to it.

Before You Start

Connect a backup device, such as a USB flash drive, to your video recorder.

Steps

1. Go to **Configuration** → **Camera** → **Camera** → **IP Channel**.
2. Click **Export**/**Import** to export/import configuration files to the connected backup device.
3. Set the storage device and folder path.
4. Click **Export**/**Import**.

What to do next

After the importing process is completed, you must restart the video recorder.

Advanced Settings

Steps

1. Go to **Configuration** → **Camera** → **Camera** → **IP Channel**.
2. Click **More**.
3. Configure the parameters as your desire.

H.265 Auto Switch Configuration

If you enable the option, video recorder will automatically switch to H.265 stream for the network camera (which supports H.265 video format) for the initial access.

Upgrade

Upgrade the added network cameras.

Protocol

To connect the network cameras which are not configured with the standard protocols, you can configure the customized protocols for them. The system provides 16 customized protocols.

Camera Activation Password Settings

Change the default password for activating and adding network camera.

6.3.2 Display Settings

Configure the OSD (On-Screen Display), image settings, exposure settings, day/night switch settings, etc.

Steps

1. Go to **Configuration** → **Camera** → **Display**.
2. Set **Camera**.
3. Configure parameters as your desire.

OSD Settings

Configure the OSD (On-screen Display) settings for the camera, including date/time, camera name, etc.

Image Settings

Customize the image parameters including the brightness, contrast, and saturation for the live view and recording effect.

Exposure

Set the camera exposure time (1/10000 to 1 sec). A larger exposure value results in a brighter image.

Day/Night Switch

The camera can be set to day, night, or auto switch mode according to the surrounding illumination conditions.

Backlight

Set the camera's wide dynamic range (0 to 100). When the surrounding illumination and the object have large differences in brightness, you should set the WDR value.

Image Enhancement

For optimized image contrast enhancement.

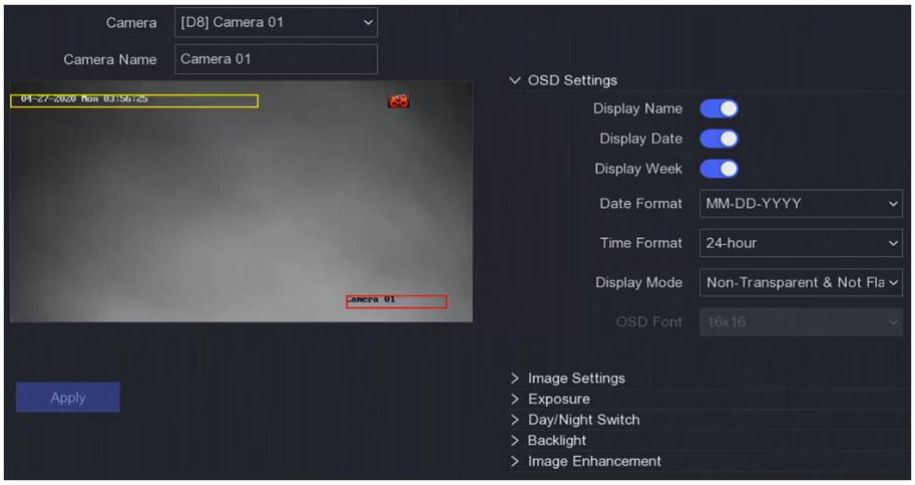


Figure 6-14 OSD

4. Drag the text frames on the preview window to adjust the OSD position.
5. Click **Apply**.

6.3.3 Privacy Mask

You are allowed to configure the privacy mask areas that cannot be viewed or recorded.

Steps

1. Go to **Configuration** → **Camera** → **Privacy Mask**.
2. Select **Camera**.
3. Turn on **Enable**.

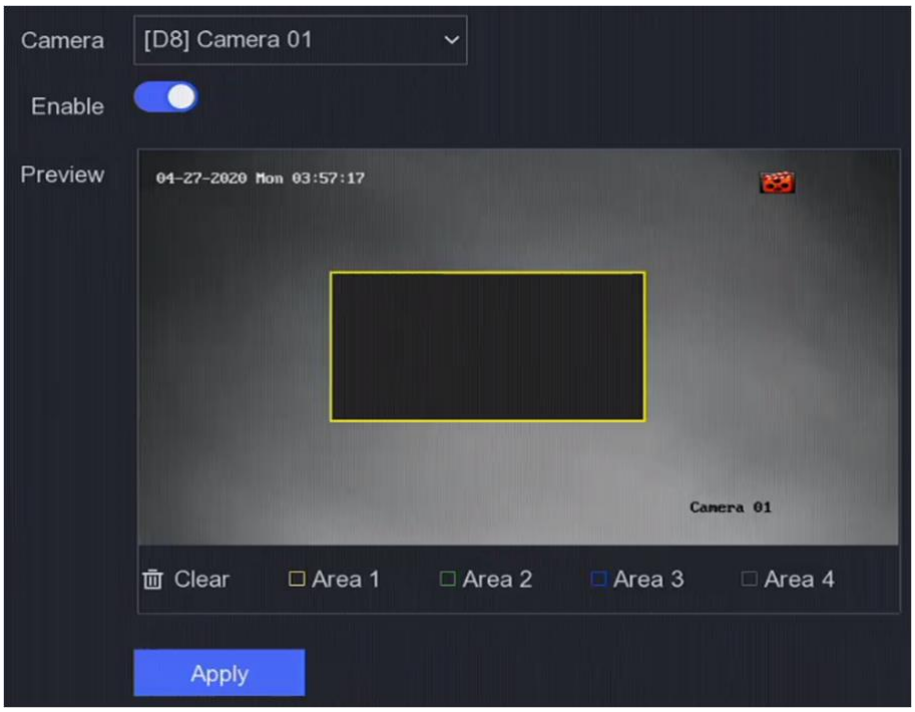


Figure 6-15 Privacy Mask

4. Drag to draw an area on the window. The frames of the areas will be marked with different colors.

Note

Up to 4 privacy mask areas can be configured. The size of each area can be adjusted.

5. Click **Apply**.

6.4 Event Configuration

6.4.1 Normal Event

Motion Detection

Motion detection enables the video recorder to detect the moving objects in the monitored area

and trigger alarms. Refer to ***Motion Detection*** for details.

Video Tampering

Trigger alarm when the lens is covered and take alarm response actions.

Steps

1. Go to **Configuration** → **Event** → **Normal Event** → **Video Tampering**.

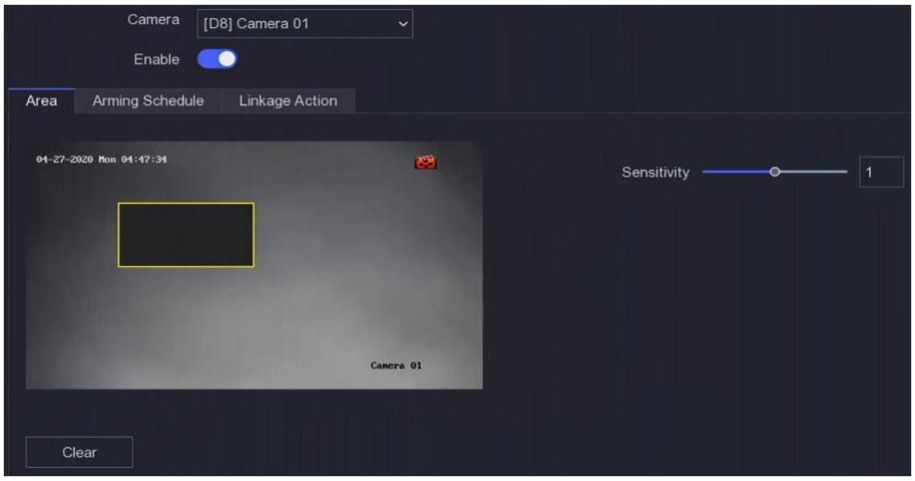


Figure 6-16 Video Tampering

2. Set **Camera**.
3. Turn on **Enable**.
4. Adjust **Sensitivity** as your desire. The higher the value is, the more easily the video tampering can be triggered.
5. Set the arming schedule. Refer to ***Configure Arming Schedule*** for details.
6. Set the linkage actions. Refer to ***Configure Alarm Linkage Action*** for details.
7. Click **Apply**.

Video Loss

Detect video loss of a camera and take alarm response actions.

Steps

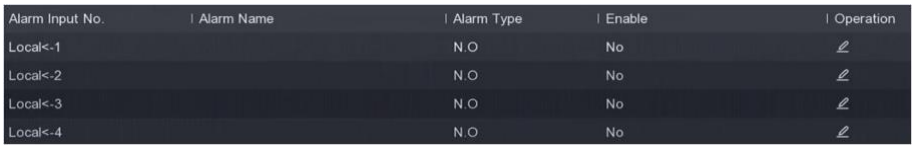
1. Go to **Configuration** → **Event** → **Normal Event** → **Video Loss**.
2. Set **Camera**.
3. Turn on **Enable**.
4. Set the arming schedule. Refer to ***Configure Arming Schedule*** for details.
5. Set the linkage actions. Refer to ***Configure Alarm Linkage Action*** for details.
6. Click **Apply**.

Alarm Input

Set linkage actions for an external sensor alarm.

Steps

1. Go to **Configuration** → **Event** → **Normal Event** → **Alarm Input**.



Alarm Input No.	Alarm Name	Alarm Type	Enable	Operation
Local<-1		N.O	No	
Local<-2		N.O	No	
Local<-3		N.O	No	
Local<-4		N.O	No	

Figure 6-17 Alarm Input

Note

Local alarm input: Local alarm input is triggered by the external device that connected to the video recorder's terminal block.

2. Click of a desired alarm input.

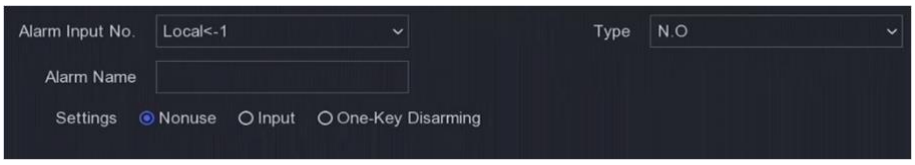


Figure 6-18 Edit Alarm Input

3. Customize **Alarm Name**.
4. Set alarm type as **N.O** (normally open) or **N.C** (normally closed).
5. Set **Settings** as **Input** to enable the function.
6. Set the arming schedule. Refer to ***Configure Arming Schedule*** for details.
7. Set the linkage actions. Refer to ***Configure Alarm Linkage Action*** for details.
8. Click **Apply**.

Alarm Output

Trigger an alarm output when an alarm is triggered.

Steps

1. Go to **Configuration** → **Event** → **Normal Event** → **Alarm Output**.

Alarm Output No.	Alarm Name	Dwell Time	Operation
Local->1		5s	

Figure 6-19 Alarm Output

2. Click of a desired alarm output.
3. Customize **Alarm Name**.
4. Select **Dwell Time**.

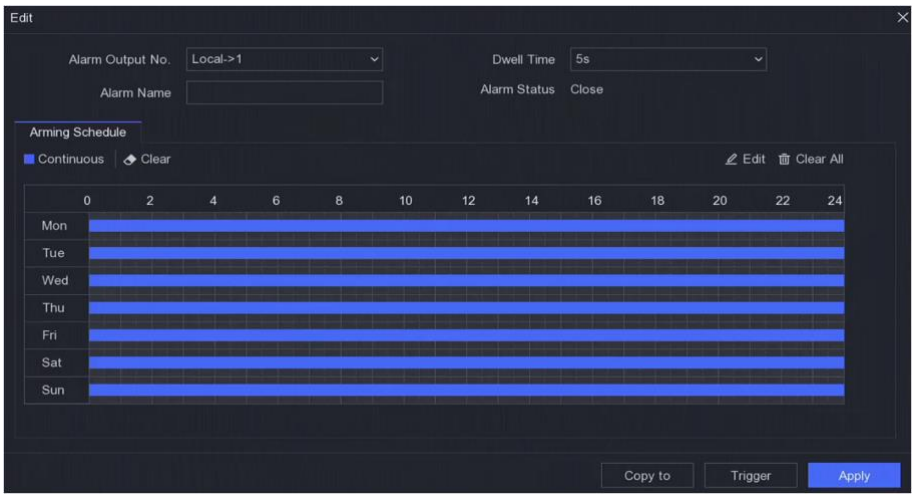


Figure 6-20 Edit Alarm Output

5. Set **Settings** as **Input** to enable the function.
6. Set the arming schedule. Refer to ***Configure Arming Schedule*** for details.
7. Click **Apply**.

Exception

Exception events can be configured to take the event hint in the live view window and trigger alarm outputs and linkage actions.

Steps

1. Go to **Configuration** → **Event** → **Normal Event** → **Exception**.
2. Configure event hint. When the set events occur, you will receive hints in alarm center.
   1) Enable **Event Hint**.
   2) Select events to hint. Choose from:
      - Click ⚙ of **Event Hint Configuration** to select events.
      - Click 🔔 in the upper-right corner of local menu to enter alarm center to select events.
3. Select **Exception Type** to set its linkage actions.

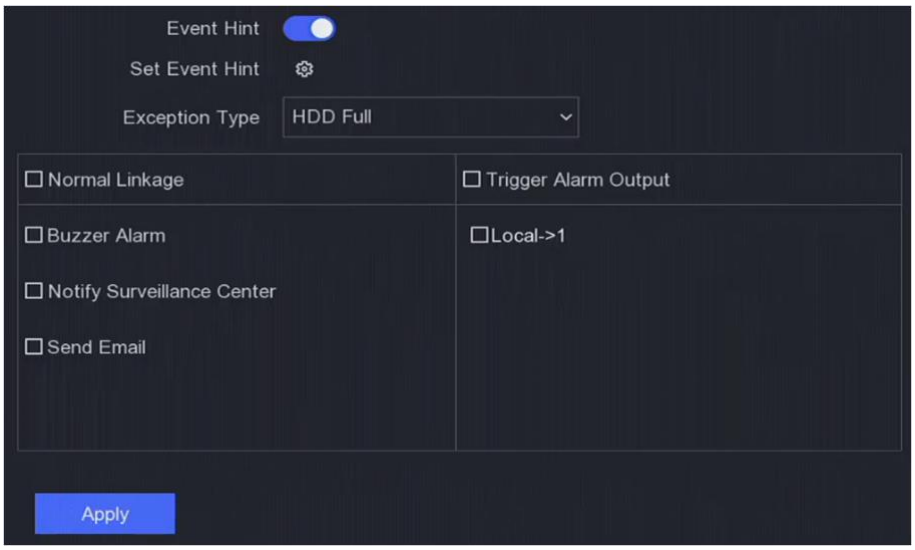


Figure 6-21 Exceptions

4. Set the arming schedule. Refer to ***Configure Arming Schedule*** for details.
5. Click **Apply**.

6.4.2 Smart Event

Line Crossing Detection

Line crossing detection detects people, vehicles, and objects crossing a set virtual line. The detection direction can be set as bidirectional, from left to right or from right to left.

Steps

1. Go to **Configuration** → **Event** → **Smart Event** → **Line Crossing**.
2. Set **Camera**.
3. Turn on **Enable**.
4. Optional: Check **Save VCA Picture** to save the captured pictures of VCA detection.
5. Set the detection rules and detection areas.
   1) Set **Arming Area**. Up to 4 arming areas are selectable.
   2) Set **Direction** as **A<->B**, **A->B**, or **A<-B**.

A<->B

Only the arrow on the B side shows. An object crossing a configured line in both directions can be detected and trigger alarms.

A->B

Only an object crossing the configured line from the A side to the B side can be detected.

B->A

Only an object crossing the configured line from the B side to the A side can be detected.

3) Optional: Set **Target Detection** as **Human** or **Vehicle** to discard alarms which are not triggered by human body or vehicle.
4) Click **Draw Area** and draw a quadrilateral in the preview window by specifying four vertexes of the detection region.

6. Set the arming schedule. Refer to ***Configure Arming Schedule*** for details.
7. Set the linkage actions. Refer to ***Configure Alarm Linkage Action*** for details.
8. Click **Apply**.

Intrusion Detection

Intrusion detection function detects people, vehicles, or objects that enter and loiter in a pre-defined virtual region.

Steps

1. Go to **Configuration** → **Event** → **Smart Event** → **Intrusion**.
2. Set **Camera**.
3. Turn on **Enable**.
4. Optional: Check **Save VCA Picture** to save the captured pictures of VCA detection.
5. Set the detection rules and detection areas.
   1) Set **Arming Area**. Up to 4 arming areas are selectable.
   2) Adjust **Time Threshold** and **Sensitivity**.

      Sensitivity

      The size of the object that can trigger the alarm. The higher the value is, the more easily the detection alarm will be triggered. Its range is [1-100].

      Time Threshold

      Range [1s-10s], the threshold for the time of the object loitering in the region. When the duration of the object in the defined detection area is longer than the set time, the alarm will be triggered.
   3) Optional: Set **Target Detection** as **Human** or **Vehicle** to discard alarms which are not triggered by human body or vehicle.
   4) Click **Draw Area** and draw a quadrilateral in the preview window by specifying four vertexes of the detection region.
6. Set the arming schedule. Refer to ***Configure Arming Schedule*** for details.
7. Set the linkage actions. Refer to ***Configure Alarm Linkage Action*** for details.
8. Click **Apply**.

Region Entrance Detection

Region entrance detection function detects people, vehicles or other objects which enter a pre-defined virtual region from the outside place, and some certain actions can be taken when the alarm is triggered.

Steps

1. Go to **Configuration** → **Event** → **Smart Event** → **Region Entrance**.

2. Set **Camera**.
3. Turn on **Enable**.
4. Optional: Check **Save VCA Picture** to save the captured pictures of VCA detection.
5. Set the detection rules and detection areas.
   1) Set **Arming Area**. Up to 4 arming areas are selectable.
   2) Adjust **Sensitivity**. **Sensitivity**: Range [0-100]. The higher the value is, the more easily the detection alarm can be triggered.
   3) Optional: Set **Target Detection** as **Human** or **Vehicle** to discard alarms which are not triggered by human body or vehicle.
   4) Click **Draw Area** and draw a quadrilateral in the preview window by specifying four vertexes of the detection region.
6. Set the arming schedule. Refer to ***Configure Arming Schedule*** for details.
7. Set the linkage actions. Refer to ***Configure Alarm Linkage Action*** for details.
8. Click **Apply**.

Region Exiting Detection

Region exiting detection function detects people, vehicles or other objects which exit from a pre-defined virtual region, and some certain actions can be taken when the alarm is triggered.

Steps

1. Go to **Configuration** → **Event** → **Smart Event** → **Region Exiting**.
2. Set **Camera**.
3. Turn on **Enable**.
4. Optional: Check **Save VCA Picture** to save the captured pictures of VCA detection.
5. Set the detection rules and detection areas.
   1) Set **Arming Area**. Up to 4 arming areas are selectable.
   2) Adjust **Sensitivity**. **Sensitivity**: Range [0-100]. The higher the value is, the more easily the detection alarm can be triggered.
   3) Optional: Set **Target Detection** as **Human** or **Vehicle** to discard alarms which are not triggered by human body or vehicle.
   4) Click **Draw Area** and draw a quadrilateral in the preview window by specifying four vertexes of the detection region.
6. Set the arming schedule. Refer to ***Configure Arming Schedule*** for details.
7. Set the linkage actions. Refer to ***Configure Alarm Linkage Action*** for details.
8. Click **Apply**.

6.4.3 Configure Arming Schedule

Steps

1. Click **Arming Schedule**.
2. Choose one day of a week and set the time segment. Up to eight time periods can be set within each day.

Note

Time periods shall not be repeated or overlapped.

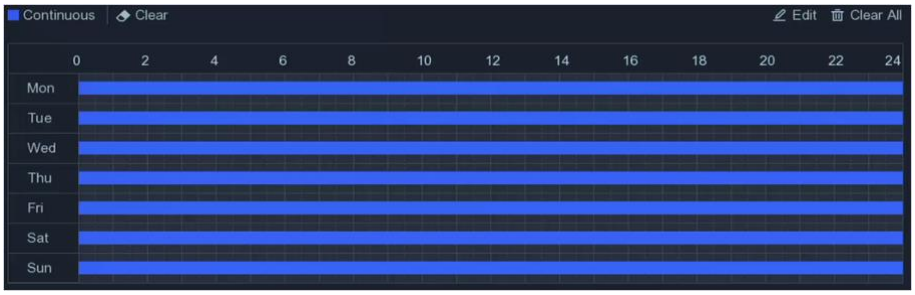


Figure 6-22 Set Arming Schedule

3. Click **Apply**.

6.4.4 Configure Alarm Linkage Action

Configure Full Screen Monitoring

When an alarm is triggered, the local monitor displays in full screen the video image from the alarming channel configured for full screen monitoring. And when the alarm is triggered simultaneously in several channels, you must configure the auto-switch dwell time.

Steps

1. Go to **Configuration** → **System** → **Live View** → **General**.
2. Set the event output and dwell time.

   Alarm Pop-up Output

   Select the output to show event video.

   Alarm Pop-up Delay

   Set the time in seconds to show alarm event image. If alarms are triggered simultaneously in several channels, their full-screen images will be switched at an interval of 10 seconds (default dwell time).
3. Go to Linkage Action interface of the alarm detection.
4. Select Full Screen Monitoring alarm linkage action.
5. Select the channel(s) in Trigger Channel settings you want to make full screen monitoring.

Note

Auto-switch will terminate once the alarm stops and back to the live view interface.

Configure Audio Warning

The audio warning enables the video recorder to trigger an audible beep when an alarm is detected.

Steps

1. Go to **Configuration** → **System** → **Live View** → **General**.
2. Turn on **Audio**, and set **Volume**.
3. Go to **Linkage Action** interface of the alarm detection.
4. Select **Audio Warning** alarm linkage action.

Notify Surveillance Center

The video recorder can send an exception or alarm signal to the remote alarm host when an event occurs. The alarm host refers to the computer installed with client software (e.g., iVMS-4200, iVMS-5200).

Steps

1. Go to **Configuration** → **Network** → **General** → **More Settings**.
2. Set **Alarm Host IP** and **Alarm Host Port**.
3. Go to Linkage Action interface of the alarm detection.
4. Select **Notify Surveillance Center**.

Configure Email Linkage

The video recorder can send an email with alarm information to a user or users when an alarm is detected.

Steps

1. Go to **Configuration** → **Network** → **Email**.
2. Configure the settings.
3. Go to Linkage Action interface of the alarm detection.
4. Select **Send Email** as alarm linkage action.

Trigger Alarm Output

The alarm output can be triggered by the normal and smart events.

Steps

1. Go to **Linkage Action** interface of the alarm input or event detection.
2. Click **Trigger Alarm Output**.
3. Select the alarm outputs to trigger.
4. Go to **Configuration** → **Event** → **Normal Event** → **Alarm Output**.
5. Select an alarm output item from the list. Refer to ***Alarm Output*** for details.

Configure PTZ Linkage

Video recorder can trigger the PTZ actions (e.g., call preset/patrol/pattern) when the alarm event, or VCA detection events occur.

Steps

1. Go to **Linkage Action** interface of the alarm input or VCA detection.
2. Select **PTZ Linkage**.
3. Select the camera to perform the PTZ actions.
4. Select the preset/patrol/pattern No. to call when the alarm events occur.

Figure 6-23 PTZ Linkage

Note

You can set one PTZ type only for the linkage action each time.

6.5 Recording Management

6.5.1 Configure Recording Schedule

Video recorder will automatically start/stop recording according to the configured schedule.

Configure Continuous Recording

Steps

1. Go to **Configuration** → **Record** → **Parameter**.
2. Set the continuous main stream/sub-stream recording parameters for the camera.
3. Go to **Configuration** → **Record** → **Schedule**.
4. Select recording type as **Continuous**.

Configure Event Recording

You can configure the recording triggered by the normal event or smart event.

Steps

1. Go to **Configuration** → **Event**.
2. Configure the event detection and select the cameras to trigger the recording when event occurs.
3. Go to **Configuration** → **Record** → **Parameter**.
4. Set the continuous main stream/sub-stream recording parameters for the camera.
5. Go to **Configuration** → **Record** → **Schedule**.
6. Select recording type as **Event**.

Edit Schedule

Steps

1. Go to **Configuration** → **Record** → **Schedule**.

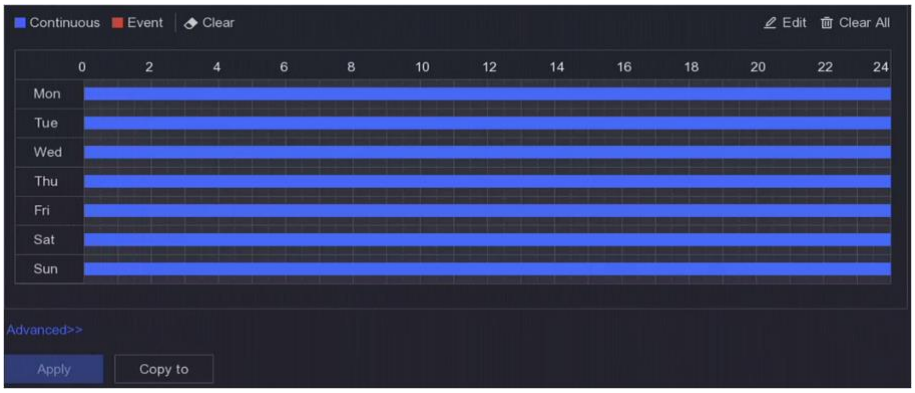


Figure 6-24 Recording Schedule

Continuous

Continuous recording.

Event

Recording triggered by all event triggered alarm.

2. Select a camera in **Camera No**.
3. Turn on **Enable**.
4. Configure the recording schedule.
   1) Click **Edit**.
   2) Select a day to configure in **Weekday**.
   3) To set an all-day recording schedule, check **All Day** and select schedule **Type**.
   4) To set other schedules, uncheck **All Day** and set **Start/End time** and schedule **Type**.

Note

Up to 8 periods can be configured for each day. And the time periods cannot be overlapped with each other.

5) Click **OK** to save the settings and go back to upper level menu.

Note

You can also select schedule type as **Continuous** or **Event**, and drag the cursor on the desired period to draw a colored bar.

5. Click **Advanced** to set advanced parameters.

Record Audio

Audio will be record to the video file.

Pre-Record

The time you set to record before the scheduled time or event. For example, when an alarm triggers the recording at 10:00, and if you set the pre-record time as 5 seconds, the camera records at 9:59:55.

Post-Record

The time you set to record after the event or the scheduled time. For example, when an alarm triggered recording ends at 11:00, and if you set the post-record time as 5 seconds, it records till 11:00:05.

Stream Type

Main stream and sub-stream are selectable for recording. When you select sub-stream, you can record for a longer time with the same storage space.

Video/Picture Expired Time

The expired time is period for a recorded file to be kept in the HDD. When the deadline is reached, the file will be deleted. If you set the expired time to 0, the file will not be deleted. The actual keeping time for the file should be determined by the capacity of the HDD.

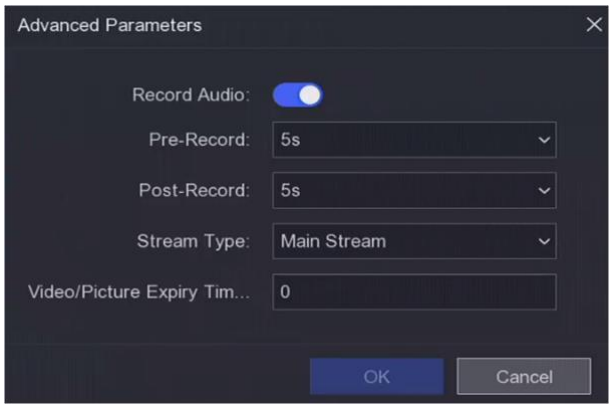


Figure 6-25 Advanced Parameters

6. Click **OK** to save the advanced settings.
7. Click **Apply**.

6.5.2 Configure Recording Parameter

Steps

1. Go to **Configuration** → **Record** → **Parameter** to configure camera main stream and sub-stream parameters.
2. Configure recording parameters.

Main Stream

Main stream refers to the primary stream that affects data recorded to the hard disk drive and will directly determine your video quality and image size. Comparing with the sub-stream, the main stream provides a higher quality video with higher resolution and frame rate.

Sub-Stream

Sub-stream is a second codec that runs alongside the mainstream. It allows you to reduce the outgoing internet bandwidth without sacrificing your direct recording quality. Sub-stream is often exclusively used by smartphone applications to view live video. Users with limited internet speeds may benefit most from this setting.

Frame Rate

Frame rate refers to how many frames are captured each second. A higher frame rate is advantageous when there is movement in the video stream, as it maintains image quality throughout.

Resolution

Image resolution is a measure of how much detail a digital image can hold: the greater the resolution, the greater the level of detail. Resolution can be specified as the number of pixel-columns (width) by the number of pixel-rows (height), e.g.,1024×768.

Bitrate

The bit rate (in kbit/s or Mbit/s) is often referred to as speed, but actually defines the number of bits/time unit and not distance/time unit.

Enable H.264+/Enable H.265+

The H.264+/H.265+ mode helps to ensure the high video quality with a lowered bitrate. It can effectively reduce the need of bandwidth and HDD storage space.

3. Click **Apply**.

6.5.3 Storage Device

Initialize HDD

If it is the first time you use your HDD, please initialize it after it is installed.

Before You Start

Install at least an HDD to your video recorder.

Steps

1. Go to **Configuration** → **Record** → **Storage**.
2. Select an HDD.
3. Click **Init**.

Add Network Disk

You can add the allocated NAS or IP SAN disk to the video recorder, and use it as a network HDD. Up to 8 network disks can be added.

Steps

1. Go to **Configuration** → **Record** → **Storage**.
2. Click **Add**.
3. Set **NetHDD**.
4. Set **Type** as **NAS** or **IPSAN**.
5. Enter NetHDD IP address.
6. Click to search the available disks.

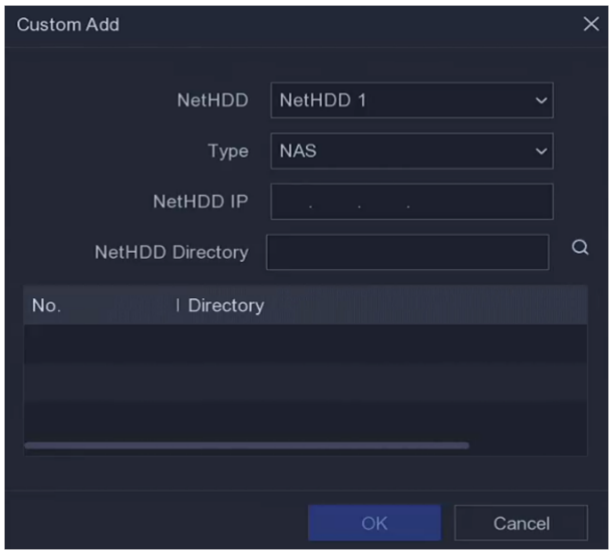


Figure 6-26 Add NetHDD

7. Select NAS disk from the list, or manually enter the directory in **NetHDD Directory**.
8. Click **OK**.

Result

The added NetHDD will be displayed in the storage device list.

6.5.4 Configure Storage Mode

Configure HDD Groups

Multiple HDDs can be managed in groups. Video from specified channels can be recorded onto a particular HDD group through HDD settings.

Steps

1. Go to **Configuration** → **Record** → **Storage Mode**.
2. Select **Mode** as **Group**.
3. Select a group number.
4. Select IP cameras to record on the HDD group.

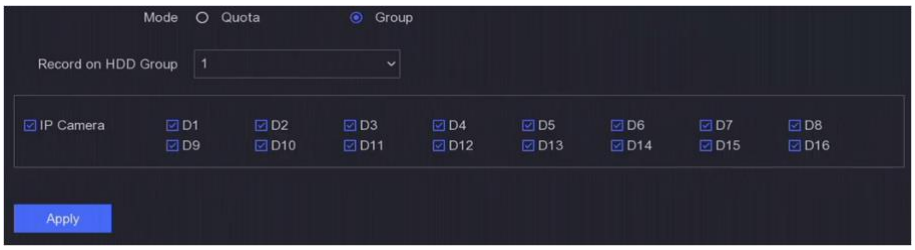


Figure 6-27 Group

5. Click **Apply**.
6. Restart the video recorder to activate the new storage mode settings.

7. After restart, go to **Configuration** → **Record** → **Storage**.
8. Click ✎ of desired HDD to set the group.
9. Select a group number for the current HDD.
10. Click **OK**.

Note

Regroup the cameras for HDD if the HDD group number is changed.

Configure HDD Quota

Each camera can be configured with an allocated quota for storing videos.

Steps

1. Go to **Configuration** → **Record** → **Storage Mode**.
2. Set **Mode** as **Quota**.
3. Select a camera to set quota in **Camera**.
4. Enter the storage capacity in **Record Capacity**.

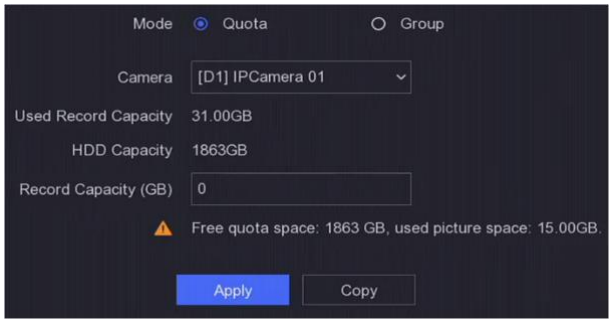


Figure 6-28 Quota

Note

When the quota capacity is set to 0, all cameras will use the total capacity of HDD for videos and pictures.

5. Click **Apply**.
6. Restart the video recorder to activate the new settings.

6.5.5 Advanced Settings

Steps

1. Go to **Configuration** → **Record** → **Advanced**.
2. Configure the parameters as your desire.

Overwrite

- Disable: When the HDD is full, video recorder will stop writing.
- Enable: When hard drive is full, video record will continue to write new files by deleting the oldest files.

Enable HDD Sleeping

HDDs which are free of working for a long time will turn into sleep status.

Save Camera VCA Data

Camera VCA data will be saved so that you can search it.

Chapter 7 Maintenance

7.1 Restore Default

Steps

1. Go to **Maintenance**.
2. Select the restoring type.

   Simple Restore

   Restore all parameters, except the network (including IP address, subnet mask, gateway, MTU, NIC working mode, default route, server port, etc.) and user account parameters, to the factory default settings.

   Factory Defaults

   Restore all parameters to the factory default settings.

   Restore to Inactive

   Restore the device to the inactive status, and leave all settings unchanged except restoring user accounts.
3. Click **Yes**. The device will reboot automatically.

7.2 Search Log

The operation, alarm, exception and information of video recorder can be stored in logs, which can be viewed and exported at any time.

Steps

1. Go to **Maintenance**.
2. Click **More**.
3. Go to **Log Information**.
4. Set the search conditions.
5. Click **Search**.

7.3 System Service

Steps

1. Go to **Maintenance**.
2. Click **More**.
3. Go to **System Service** → **System Service**.

4. Configure the parameters as your desire.

RTSP

You can specifically secure the stream data of live view by setting the RTSP authentication.

RTSP Authentication

Two authentication types are selectable, if you select **digest**, only the request with digest authentication can access the video stream by the RTSP protocol via the IP address. For security reasons, it is recommended to select **digest** as the authentication type.

ISAPI

ISAPI (Internet Server Application Programming Interface) is an open protocol based on HTTP, which can realize the communication between the system devices (e.g., network camera, NVR, etc.). The video recorder is used as a server, the system can find and connect the video recorder.

HTTP

The admin user account can disable the HTTP service from the GUI or the web browser. After the HTTP is disabled, all the related services, including ISAPI and ONVIF, will terminate as well.

HTTP Authentication

If you need to enable the HTTP service, you can set the HTTP authentication to enhance the access security. Two authentication types are selectable. For security reasons, it is recommended to select **digest** as the authentication type.

Camera Added Detection

The function detects the network camera status. If the network camera has been added by another video recorder, the network camera status will show as in **Online Device** list.

5. Click **Apply**.

7.4 Upgrade

Warning

Do not shutdown or turn off the power during upgrade.

7.4.1 Local Upgrade

Before You Start

Store the upgrade firmware to a backup device, and connect it to your device.

Steps

1. Go to **Maintenance**.

2. Click near **Firmware**.
3. Go to **Local Upgrade**.
4. Select a backup device in **Device Name**.
5. Select the upgrade firmware.
6. Click **Upgrade**. Your device will reboot automatically.

7.4.2 Online Upgrade

Upgrade the device with the latest online firmware.

Before You Start

Ensure Guarding Vision is enabled and properly configured. Refer to ***Guarding Vision*** for details.

Steps

1. Go to **Maintenance**.
2. Click .
3. Go to **Online Upgrade**.
4. Download the latest firmware.

Auto Download	The will automatically check and download the latest firmware.
Test Upgrade	Click **Test Upgrade** to manually check and download the latest firmware.

5. Upgrade your device if a new firmware version is available. The device will reboot automatically.

Chapter 8 Alarm

When events occur, you can view their details in alarm center.

8.1 Set Event Hint

Select the events to hint in alarm center.

Steps

1. Click at the upper-right corner.
2. Set **Exception**, **Basic Event**, or **Smart Event** as your desire.

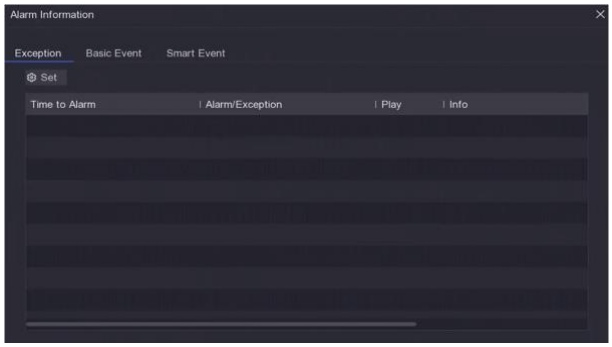


Figure 8-1 Alarm Center

3. Click and select events to hint.
4. Click **OK**.
   When the selected events occur, the alarm information will be displayed in (locating at the upper-right corner of local menu).

8.2 View Alarm in Alarm Center

Steps

1. Click at the upper-right corner of local menu.
2. Click **Exception**, **Basic Event**, or **Smart Event** to view as your desire.

Chapter 9 Web Operation

9.1 Introduction

You can get access to the video recorder via web browser.

You may use one of the following listed web browsers: Internet Explorer 6.0 to 11.0, Apple Safari, Mozilla Firefox, and Google Chrome. The supported resolutions include 1024×768 and above.

9.2 Login

You shall acknowledge that the use of the product with Internet access might be under network security risks. For avoidance of any network attacks and information leakage, please strengthen your own protection. If the product does not work properly, please contact with your dealer or the nearest service center.

Steps

1. Open web browser, input the IP address of the video recorder and then press **Enter**.

Note

If you have changed HTTP port, enter ***http://IP address:HTTP port*** in address bar. E.g., ***http: 192.168.1.64:81***.

2. Enter **user name** and **password** in the login interface.
3. Click **Login**.

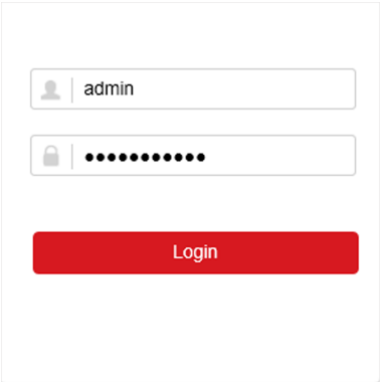


Figure 9-1 Login

4. Follow the installation prompts to install the plug-in.

Note

You may have to close the web browser to finish the installation of the plug-in.

9.3 Live View

After login, live view interface shows.

Figure 9-2 Live View

9.4 Playback

Click **Playback** to enter playback interface.

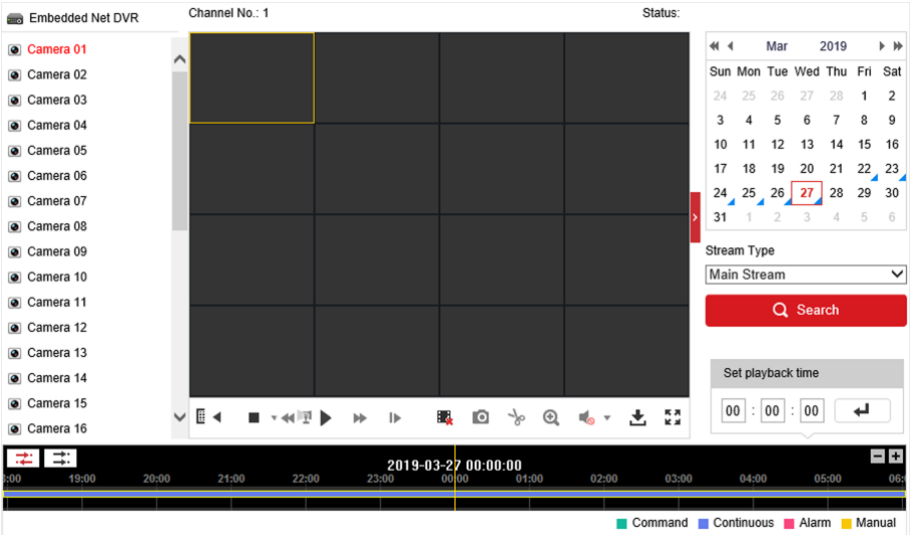


Figure 9-3 Playback

9.5 Configuration

Click **Configuration** to enter configuration interface.

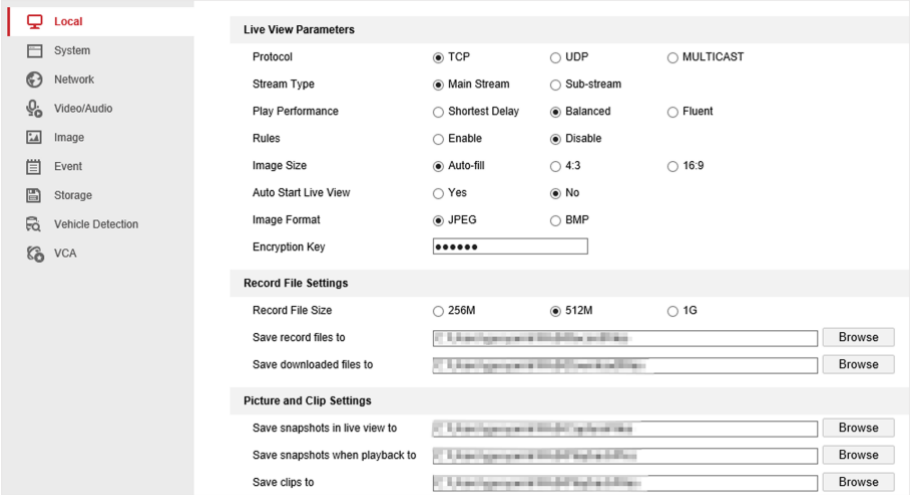


Figure 9-4 Configuration

9.6 Log

Steps

1. Go to **Maintenance** → **System** → **Maintenance** → **Log**.
2. Set the search conditions.
3. Click **Search**.

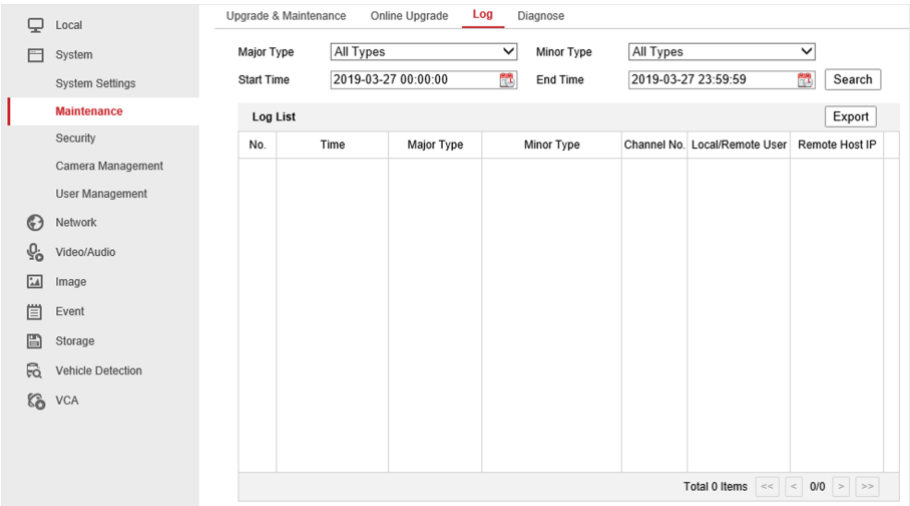


Figure 9-5 Log

Chapter 10 Appendix

10.1 Glossary

Dual-Stream

Dual-stream is a technology used to record high resolution video locally while transmitting a lower resolution stream over the network. The two streams are generated by the DVR, with the main stream having a maximum resolution of 1080P and the sub-stream having a maximum resolution of CIF.

DVR

Acronym for Digital Video Recorder. A DVR is device that is able to accept video signals from analog cameras, compress the signal and store it on its hard drives.

HDD

Acronym for Hard Disk Drive. A storage medium which stores digitally encoded data on platters with magnetic surfaces.

DHCP

Dynamic Host Configuration Protocol (DHCP) is a network application protocol used by devices (DHCP clients) to obtain configuration information for operation in an Internet Protocol network.

HTTP

Acronym for Hypertext Transfer Protocol. A protocol to transfer hypertext request and information between servers and browsers over a network.

PPPoE

PPPoE, Point-to-Point Protocol over Ethernet, is a network protocol for encapsulating Point-to-Point Protocol (PPP) frames inside Ethernet frames. It is used mainly with ADSL services where individual users connect to the ADSL transceiver (modem) over Ethernet and in plain Metro Ethernet networks.

DDNS

Dynamic DNS is a method, protocol, or network service that provides the capability for a networked device, such as a router or computer system using the Internet Protocol Suite, to notify a domain name server to change, in real time (ad-hoc) the active DNS configuration of its configured hostnames, addresses or other information stored in DNS.

Hybrid DVR

A hybrid DVR is a combination of a DVR and NVR.

NTP

Acronym for Network Time Protocol. A protocol designed to synchronize the clocks of computers over a network.

NTSC

Acronym for National Television System Committee. NTSC is an analog television standard used in such countries as the United States and Japan. Each frame of an NTSC signal contains 525 scan lines at 60Hz.

NVR

Acronym for Network Video Recorder. An NVR can be a PC-based or embedded system used for centralized management and storage for IP cameras, IP Domes and other DVRs.

PAL

Acronym for Phase Alternating Line. PAL is also another video standard used in broadcast televisions systems in large parts of the world. PAL signal contains 625 scan lines at 50Hz.

PTZ

Acronym for Pan, Tilt, Zoom. PTZ cameras are motor driven systems that allow the camera to pan left and right, tilt up and down and zoom in and out.

USB

Acronym for Universal Serial Bus. USB is a plug-and-play serial bus standard to interface devices to a host computer.