GeoVision inc
The Vision of Security

GV-TXVL1610

User's Manual

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GeoVision, Inc.
9F, No. 246, Sec. 1, Neihu Rd.,
Neihu District, Taipei, Taiwan
Tel: +886-2-8797-8377
Fax: +886-2-8797-8335
http://www.geovision.com.tw

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Copyright Statement

Thank you for purchasing our product. Contact your local dealer if you have any questions or feedback. No part of this manual may be copied, reproduced, translated, or distributed in any form or by any means without prior consent in writing from our company.

Disclaimer

Due to such reasons as product version upgrade or regulatory requirement of relevant regions, this manual will be periodically updated.

This manual is only for informational purpose, and all statements, information, and recommendations in this manual are presented without warranty.

The illustrations in this manual are for reference only and may vary depending on the version or model. The screenshots in this manual may have been customized to meet specific requirements and user preferences. As a result, some of the examples and functions featured may differ from those displayed on your monitor.

Safety Symbols

The symbols in the following table may be found in this manual. Carefully follow the instructions indicated by the symbols to avoid hazardous situations and use the product properly.

Symbol	Description
NOTE!	Indicates useful or supplemental information about the use of product.
CAUTION!	Indicates a situation which, if not avoided, could result in damage, data loss or malfunction to product.
WARNING!	Indicates a hazardous situation which, if not avoided, could result in bodily injury or death.

1 Local Operations

This chapter introduces operation methods and matters needing attention on the local interface.

You can refer to Initial Configuration and complete a quick configuration.

Note: Unless otherwise specified, all operations described in this manual are performed with a mouse by the right hand.

Before You Begin

- Please be aware that functions may vary with DVR model.
- The figures in this manual are for illustration purpose only and may vary with DVR model.
- The parameters that are grayed out on the local interface cannot be edited. The parameters and values displayed may vary with DVR model and version.

2 Initial Configuration

This chapter describes the initial configuration of the DVR.

2.1 Preparation

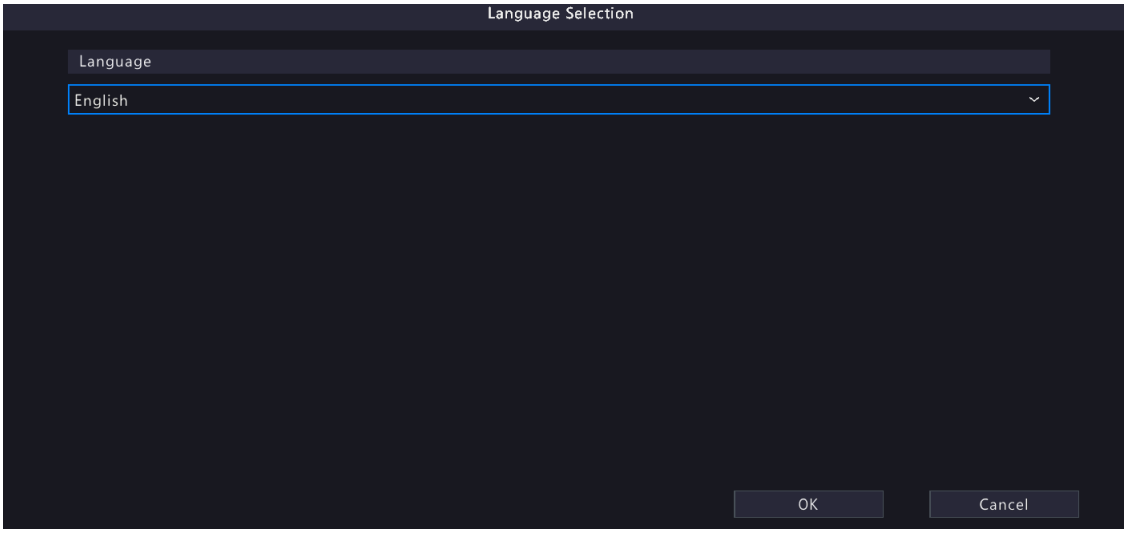
- Make sure that at least one monitor is correctly connected to the VGA or HDMI interface on the rear panel of the DVR, otherwise, you cannot view the local interface.

  Note: If no images are displayed after the DVR is powered on, it may be because the monitor does not support the current output resolution of the DVR. Please press and hold the scroll wheel of the mouse to restore to the lowest resolution.
- Make sure that the hard disk(s) are correctly installed. For detailed installation steps, please refer to the quick guide shipped with the DVR.

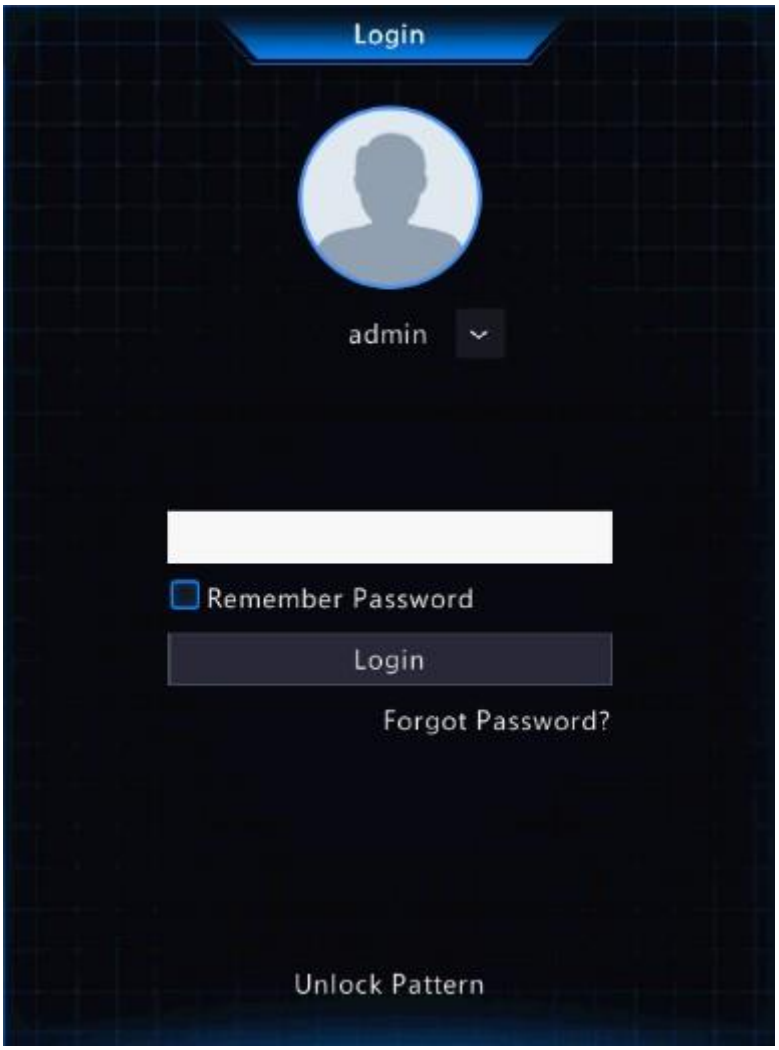
2.2 Login

Device Login

1. Select the desired language after startup.



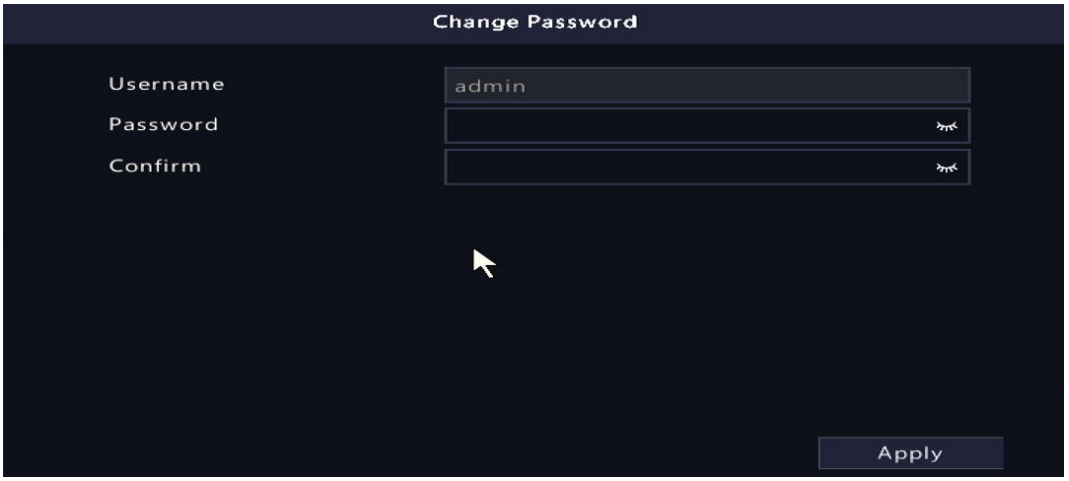
2. On the Login page, enter the default password (admin), and then click **Login**.



Note: If you enable **Remember Password**, the username and password will be automatically filled in the next time.

3. Click **Yes** in the pop-up window to change the password into a strong one.

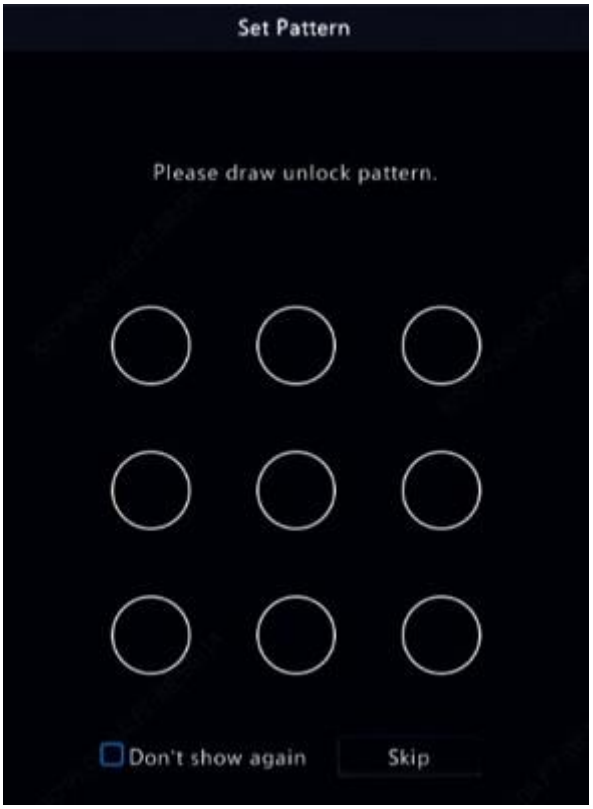
4. In the **Change Password** page, enter the new password, and confirm it. Click **Apply**.



Note:

- Use the default username and password (admin/admin) to log in for the first time. After login, you must change the password, and use the new password to log in the next time.
- For security, you are strongly recommended to set a strong password with at least 9 characters including all three elements: letter, digit, and special character.

5. (Optional) Set an unlock pattern, or click **Skip** to proceed.

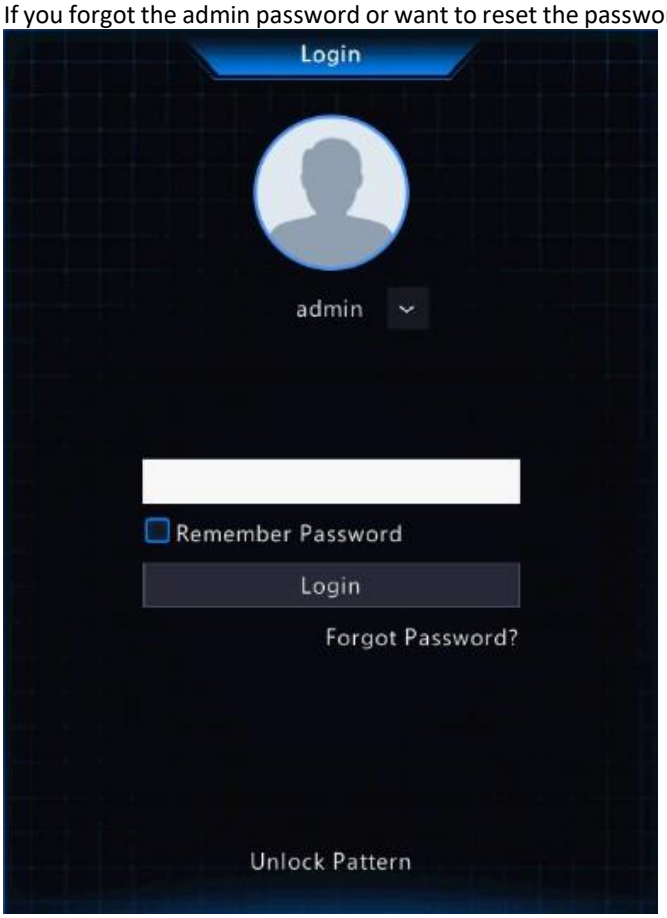


Note:

- You can set the unlock pattern later at any time or disable it under **Menu** > **System** > **User**.
- If an unlock pattern is set, it will replace the password at login.

Reset Password

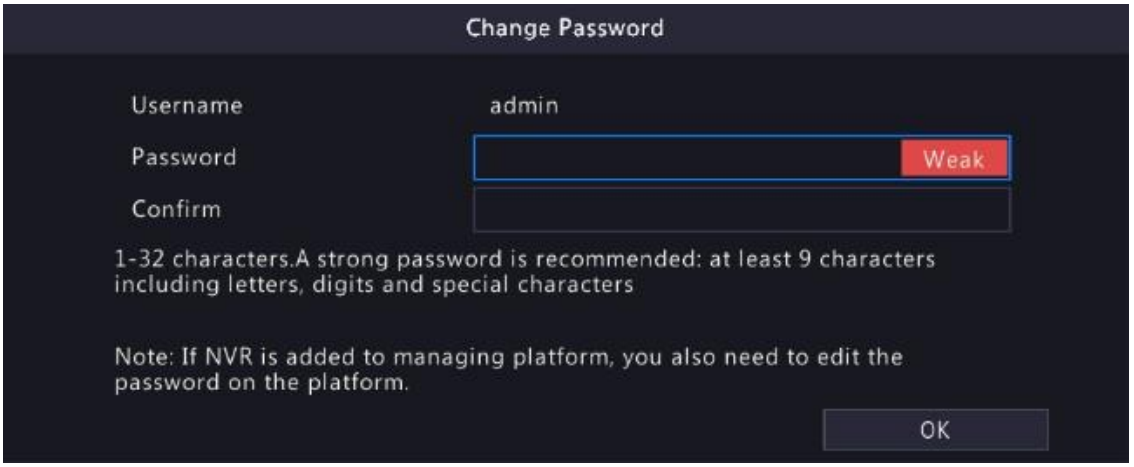
1. If you forgot the admin password or want to reset the password, click **Forgot Password** in the login page.



2. (Skip this step if you have already entered your email address) Enter your email address so as to receive the security code, that is, the temporary password.

3. Follow the instructions on the screen to obtain the security code.

4. Enter the security code received from the email address, and click **OK**.
5. Enter the password, and confirm the password, and then click **OK** to reset the password.



6. Use the new password to log in again.

2.3 Wizard

The wizard page appears after you login. Follow the wizard to complete the most basic setup, or click **Exit** to skip this step.

Note: You can also go to **Menu** > **System** > **Basic** to set the basic parameters.

1. Click **Next**.

2. Set the time parameters, including time zone, date format, time format, and system time, and then click **Next**.

3. Configure TCP/IP. Check **Enable DHCP** to automatically obtain an IP address, subnet mask and IP default gateway. You can also enter the information manually.

4. Click **OK**.

3 Live View

This chapter introduces the live view page, including window toolbar, screen toolbar, shortcut menu, digital zoom, sequence operation, etc.

Note: The operations may vary with DVR model.

3.1 Live View Status

The following icons are used to indicate alarms, recording status, and audio status in a live view window.

Table 3-1: Live View Window Icons

Icon	Description	Icon	Description
	Tampering alarm		Recording
	Motion detection alarm		Two-way audio

3.2 Window Toolbar

Click a window to display the window toolbar for quick configuration.

Table 3-2: Window Toolbar

Button	Name	Description
	PTZ Control	• Available for PTZ cameras only. Click to display the PTZ control window. • You can also configure PTZ under **Menu** > **Camera** > **PTZ**. See PTZ Configuration for details.
	Fisheye Mode	Set mount mode and display mode for fisheye cameras. This button appears only for fisheye cameras.
	Local Recording	Record live video in the window to the hard disk. Click  to stop recording. **Note:** Similar to manual recording, local recording is a scheduled recording and has a priority over other video recording schedules. You can play the local recording in normal mode.
	Instant Playback	Click to play the video recorded during the past 5 minutes.
	Digital Zoom	Zoom in on an area of interest in the window. See Digital zoom for details.
	Image Settings	• Click to set the image mode and parameters so as to get optimal images in the window. • You can also edit image settings under **Menu** > **Camera** > **Image** > **Image Settings**. See Image Settings for details.
	Take Snapshot	Click to take a snapshot. The window borders will flash white. You may view and back up snapshots under **Menu** > **Backup** > **Image**.
	OSD	• Click to set OSD. • You can also set OSD under **Menu** > **Camera** > **OSD**. See OSD Configuration for details.

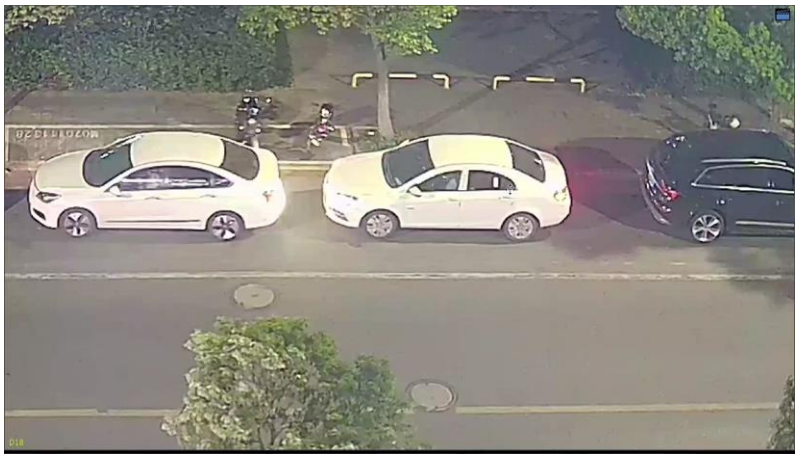
	Two-way Audio	Start two-way audio with the camera. The sound volume is adjustable. Click to stop. **Note:** Correct audio input and output (AUDIO IN/OUT) connections between DVR and IPC are required.
	Turn Audio On	Click to turn on audio. The sound volume is adjustable. Click to turn off audio. **Note:** When you turn on audio in the current window, audio of the previous window is turned off.
	Camera Info	Hover over the button to view the bit rate of the current window; click the button to modify the camera information.

Digital zoom

Zoom in on an area of images in a window for details.

1. In the preview page, click the window, and then click on the window toolbar.

2. Move your mouse to the area you want to zoom in on, then use your scroll wheel to zoom in. The enlarged image is as follows.



3. Right-click to exit zoom.

3.3 Screen Toolbar

Move your mouse to the bottom of the preview page to display the screen toolbar. Click to lock the toolbar.

Table 3-3: Screen Toolbar

Button	Description
	Click to select menu, playback, logout, restart, shutdown.
	Select the screen layout, including single window and 4/6/8/9 windows.
	Previous or next screen.
	Start or stop sequence. See Sequence for details.
	Click to go to the **Playback** page.
	Switch to multi-sensor preview mode. **Note:** This function is only available for dual-channel cameras.
	Click to view camera information, including camera status and alarm status.
	Click to view DVR alarm and camera alarm.
	Hover over the button to view the NIC information; Click to edit network settings.
	Show device time. Hover over the button to view the date; Click to edit time settings.
	Lock/hide the screen toolbar.

Sequence

Use sequence when you want to view live videos from different cameras at the same time and ensure the image clarity. The function requires you to configure the screen layout, windows, linked cameras, and the sequence interval.

The following example describes how to configure sequence for five cameras based on a 4-window screen layout.

1. In the preview page, right-click and select **Multi-Window** > **4 Windows**.

Note: The number of windows that can be displayed may vary with DVR model.

2. Click  on the screen toolbar to start sequence.

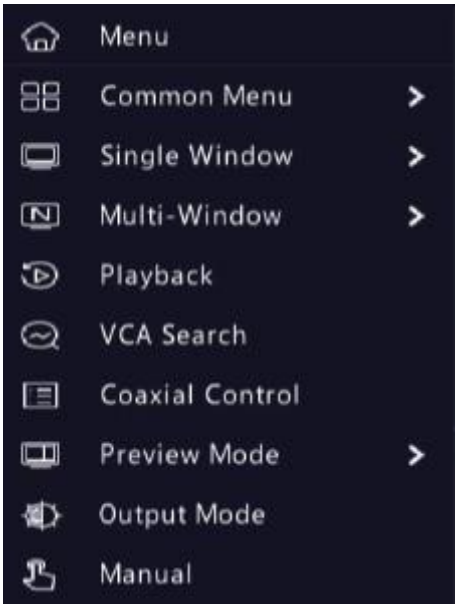
   The system starts to display images of four cameras in four windows on the first screen, and then display the fifth camera' image on the second screen after the set interval.

Note: The default sequence interval is 8 seconds. You can set it under **Menu** > **System** > **Preview**. See Preview Configuration for details.

3. Click to stop sequence.

3.4 Shortcut Menu

A shortcut menu as shown below appears when you right-click in a window.



Shortcut Menu

Table 3-4: Shortcut Menu

Item	Description
Menu	Display the main menu.
Common Menu	Go to the **Camera**, **Network**, and **Recording** page.
Single Window	Switch to single window.
Multi-Window	Select the screen layout, including 4/6/8/9 windows.
Playback	Play the video of the current day for the camera linked to the current window. You can also choose to play videos from other days as needed.
Preview Mode	Switch between **Normal Mode** and **Smart**. The default is **Normal** mode.

VCA Search	Search the VCA snapshots and recordings in the **Behavior Search** page. See Behavior Search for details.
Coaxial Control	Go to the **OSD Menu Control** Page.
Output Mode	Choose a video output mode, including standard, soft, bright, vivid, and custom. Brightness, saturation, and other parameters are also configurable.
Manual	Manual settings include manual recording, manual snapshot, and manual alarm, buzzer, let through manually. See Manual Operations for details.

Manual Operations

Manual operations include manual recording, manual alarm and buzzer.

Manual Recording

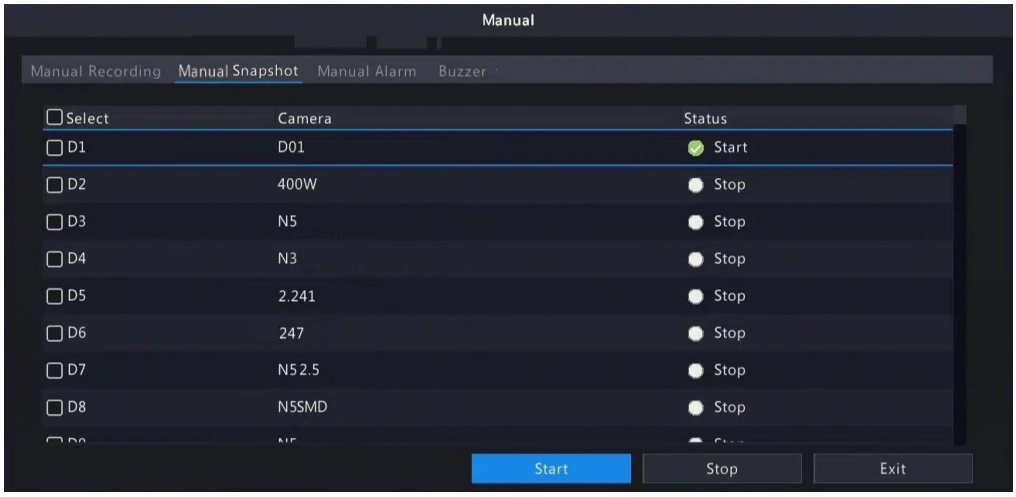
Note: Similar to local recording on the screen toolbar, manual recording is a scheduled recording and has higher priority over other recording schedules. You can play manual recordings in normal mode.

1. Right-click and select **Manual** > **Manual Recording**.

2. Start or stop manual recording.
   - Start recording: Select the desired camera(s) and then click **Start**.
   - Stop recording: Select the camera(s) being recorded and then click **Stop**.

Manual Snapshot

1. Right-click and select **Manual** > **Manual Snapshot**.



2. Start or stop manual snapshot.
   - Start snapshot: Select the desired camera(s) and then click **Start**.
   - Stop snapshot: Select the camera(s) that has enabled snapshot, and click **Stop**.

Manual Alarm

Right-click and select **Manual** > **Manual Alarm**. You can trigger or clear an alarm output manually. See Manual Alarm for details.

Buzzer

Right-click and select **Manual** > **Buzzer**. You can stop the buzzer manually. See Buzzer for details.

4 Channel Configuration

Configure IPC, encoding, audio, OSD, image and PTZ parameters.

Note: The IP devices mentioned in this manual mainly refer to IP cameras (or network cameras).

4.1 Channel Management

Add and manage IP cameras.

Note:

- Before you start, make sure the IP cameras are connected to your DVR via network.
- An IP camera should be connected to one DVR only. An IP camera managed by multiple DVRs may cause unwanted issues.

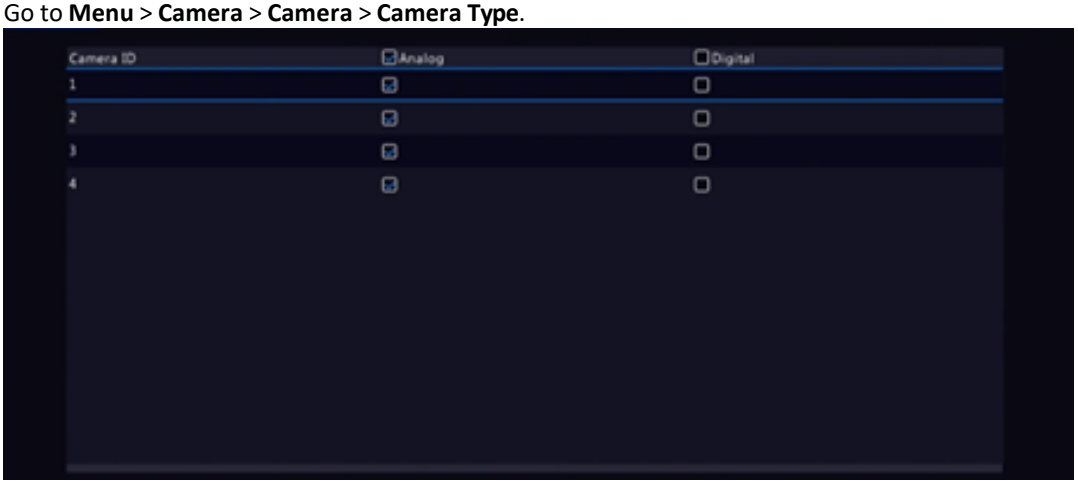
4.1.1 Camera Type

You can change the channel type to analog or digital.

Change Channel Type

Change channel type to analog or digital.

1. Go to **Menu** > **Camera** > **Camera** > **Camera Type**.



2. Select the channel you want to change and choose the desired type.
3. Click **Apply**, then a message indicating device restart appears.

4. Click **Yes**. The channel type will be changed after the DVR restarts.

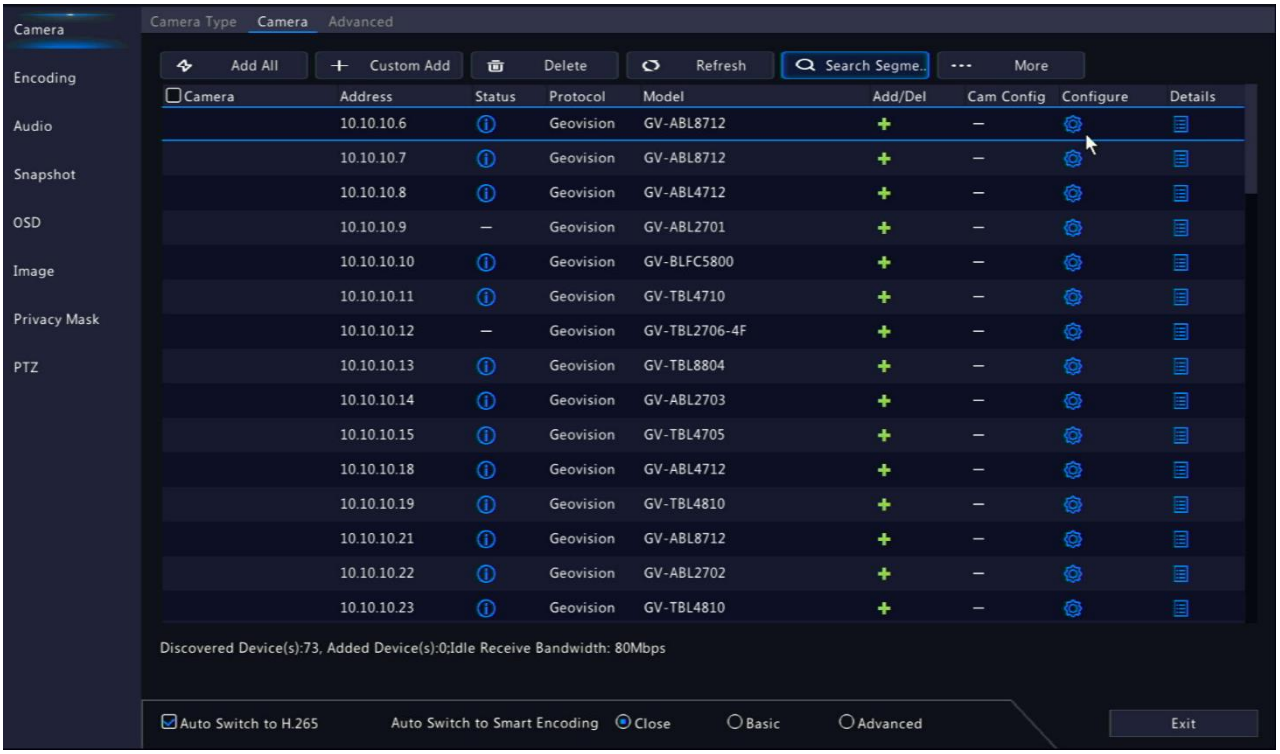
Add Analog Camera

1. Connect the camera to the video output interface of the DVR via a coaxial cable, and connect the camera to power. The camera will be added to the DVR.
2. Check the camera status in the preview page.

4.1.2 IPC Configuration

Add and manage IP cameras.

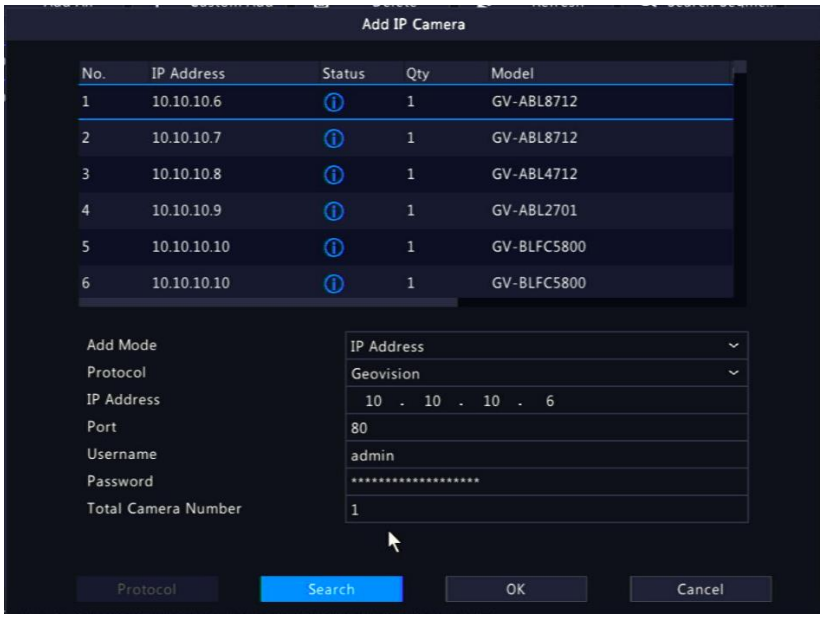
Go to **Menu** > **Camera** > **Camera** > **Camera**.



Add IPC

The system automatically searches for IP cameras and lists the discovered. Click **Refresh**, the system refreshes the list and IPC status. Choose a way to add IPCs.

- Option 1: Custom Add



1. Click **Custom Add**.
2. In the window displayed, enter the IPC's IP address and complete other settings, then click **OK**. You may check the camera's status.
   -  : Camera online.

- : Camera offline. Point to the icon to view the failure information.
- : The camera is added to another DVR.

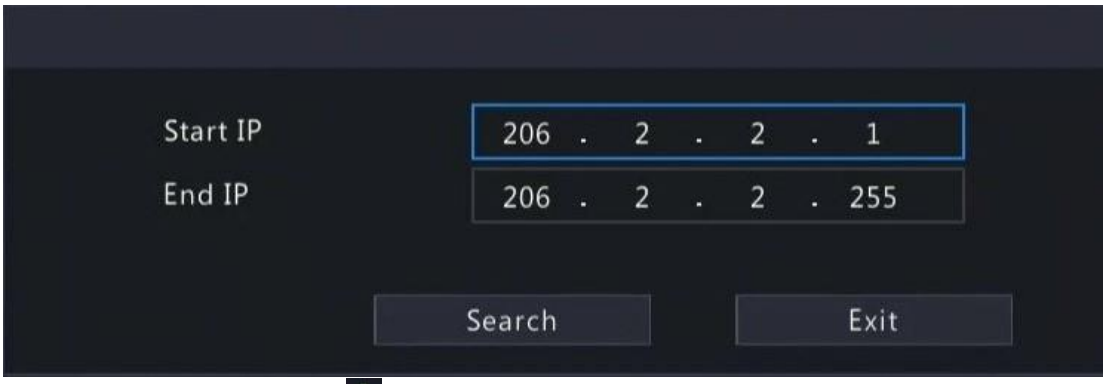
3. Repeat the above steps to add other IPCs.

Note: In the Protocol dropdown list, select **Geovision** for the following cameras, otherwise, select **ONVIF**.

- GV-BLFC5800, EBD4813, EBFC5800, TBL4810, TDR4803, TFD4800, TVD4810
- GV-EBD8813, EBD8800, TBL8804, TBL8810, TDR8805, TVD8810
- GV-SD4825-IR, SD4834-IR
- GV-PTZ5810-IR
- GV-TBL4807, TVD4810

- Option 2: Search Segment

1. Click **Search Segment**. Enter the start and end IP addresses, click **Search**. The discovered IP devices are listed.



2. Select the desired camera, click to add it to the DVR.

- Option 3: Add All

Click **Add All** to add all the discovered IPCs (if not exceeding the upper limit).

- Option 4: Click

Click to add the camera directly.

- Option 5: Add From Another Network

Use this option when the DVR and the IP camera are connected to different router. Make sure the DVR can access the camera via the camera's public IP address and mapped port number.

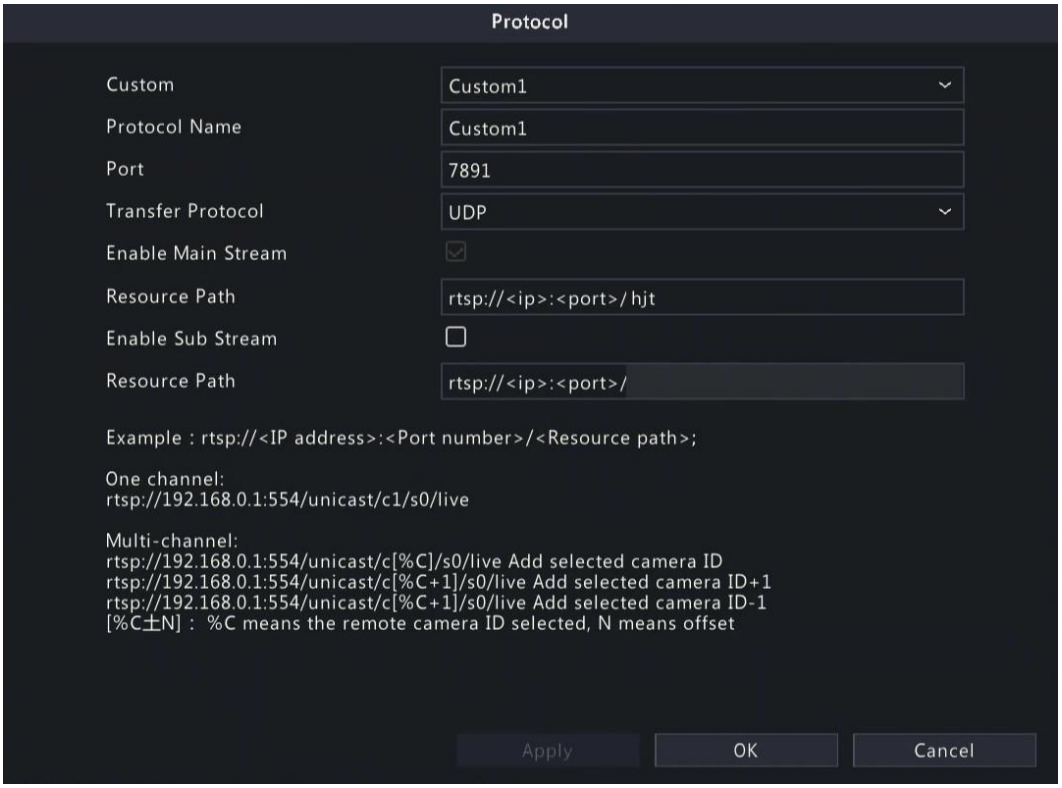
Note: First you need to enable port mapping under **Setup** > **Port** > **Port Mapping** on the IP camera's Web interface.

- Option 6: Use Custom Protocol

Note:

- Use this option when the IP camera supports the standard RTSP.
- Only live and recorded video streams are available from the camera added in this way. Configuration operations are not supported.

1. Go to **Menu** > **Camera** > **Camera** > **Camera**.
2. Click **Custom Add**. Select **Custom** from the **Protocol** drop-down list.

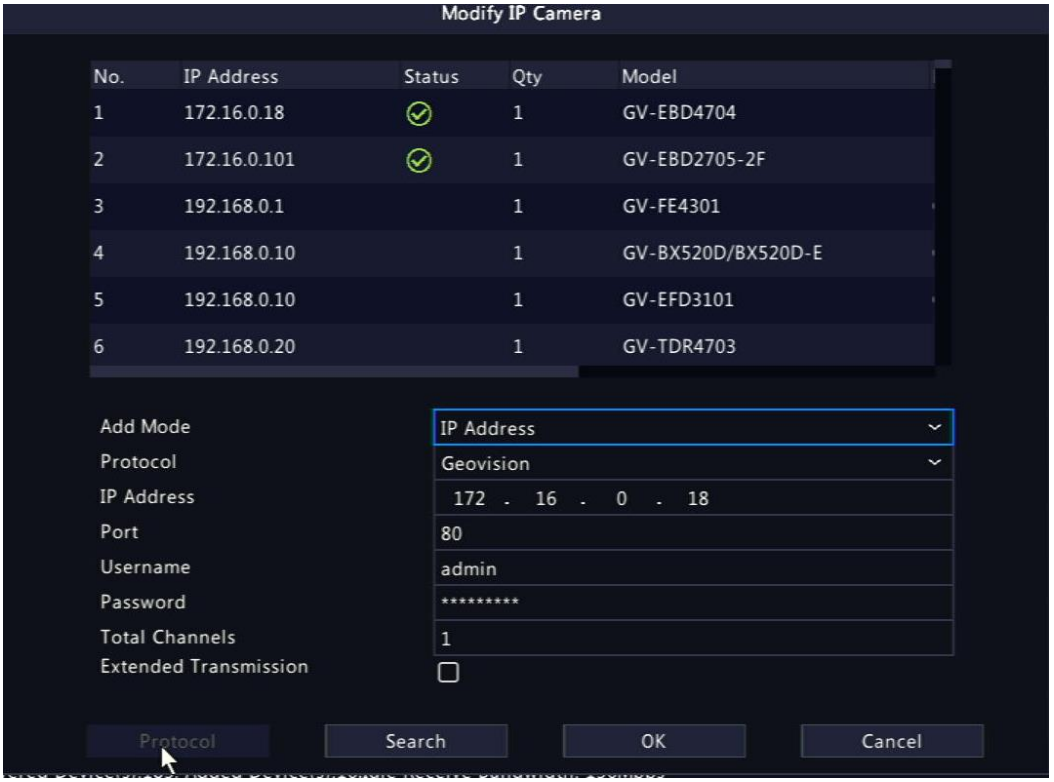


3. Click **Protocol**.
4. Set the protocol name, enter the RTSP port number, transmission protocol, resource paths, etc., and then click **OK**.

   Note: Contact the camera manufacturer for resource paths of main stream and sub stream.
5. Enter the IP address, username, and password, and then click **OK**. Check status in the camera list.

Edit IP Camera

Select the target camera and click . Edit the settings as needed, and then click **OK**.



Delete IP Camera

You can delete IP camera(s) one by one or in batches.

- Select a camera to be deleted, click , and click **OK** in the pop-up window.
- Select cameras to be deleted, click **Delete**, and click **OK** in the pop-up window.

Change Window Position

Use this function to change window position of channels in the preview page, without changing the channel ID, IP address, and display order in the channel list. Choose a way to change window position.

- In the multi-window preview page, drag a window to another window to swap their positions.
- In the **Preview Configuration** page under **Menu** > **System** > **Preview**, change window positions in the preview page. See Screen Configuration for details.

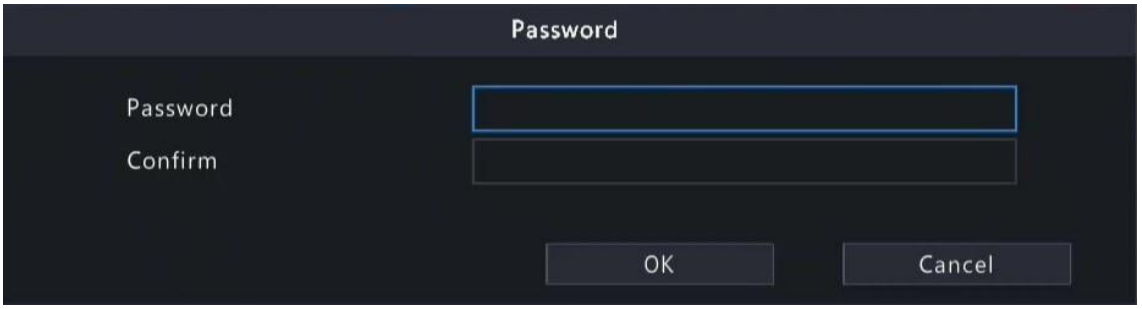
Batch Change Password

When multiple IPCs are not added successfully due to incorrect password, and if the login passwords of these cameras are the same, use this function to change the passwords in batches.

Note:

- This function only changes the password used to add cameras. It does not change the cameras' login password.
- This function is only applicable for IPCs with the same login password. If one of the cameras still fails to be added after you change the password, it means the camera's login password is different, and you need to change the password separately.

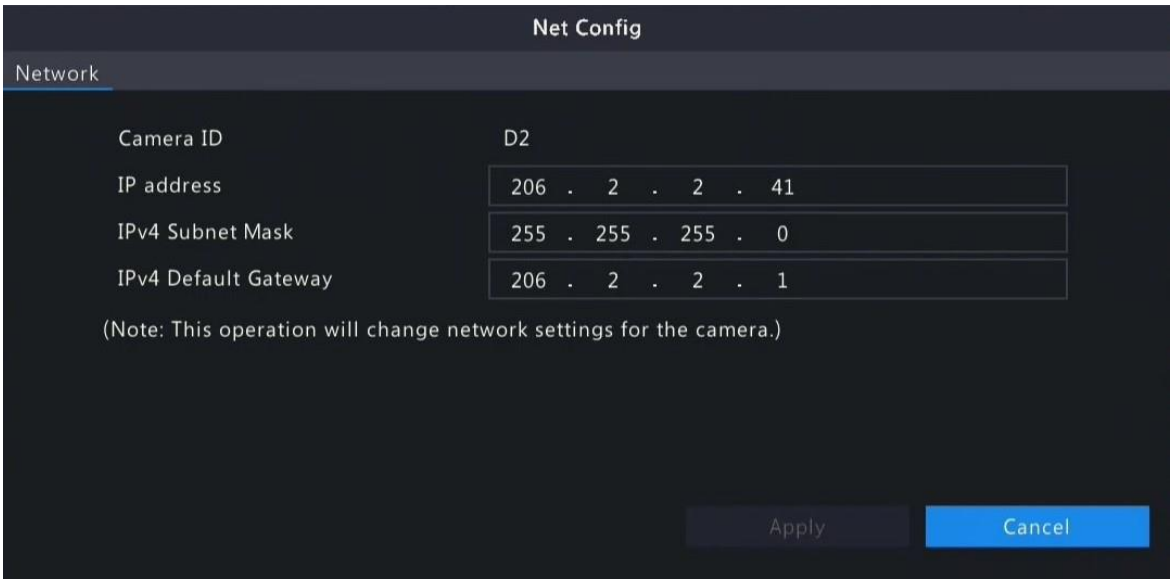
1. Select the cameras with the same password. Click More, and select **Batch Edit Password**.



2. Enter the new password and confirm the password.
3. Click **OK**.

Network Configuration

Select the camera, click under **Configure**. Edit the IP address, IPv4 subnet mask, IPv4 default gateway for the camera. Click **Apply**.



Note: — indicates the camera does not support changing network settings.

More Info

Select the channel, click under **Details** to view the detailed information, including remote camera ID, manufacturer, and port number.

Other Operations

Item	Description
Auto Switch to H.265	When enabled, the DVR automatically chooses H.265 for a newly added camera. **Note:** • Every time a camera is added to the DVR, it is considered a newly added camera. This function is not effective to cameras that are already added or added cameras that go back online after being offline. • This function is enabled by default on some DVR models.

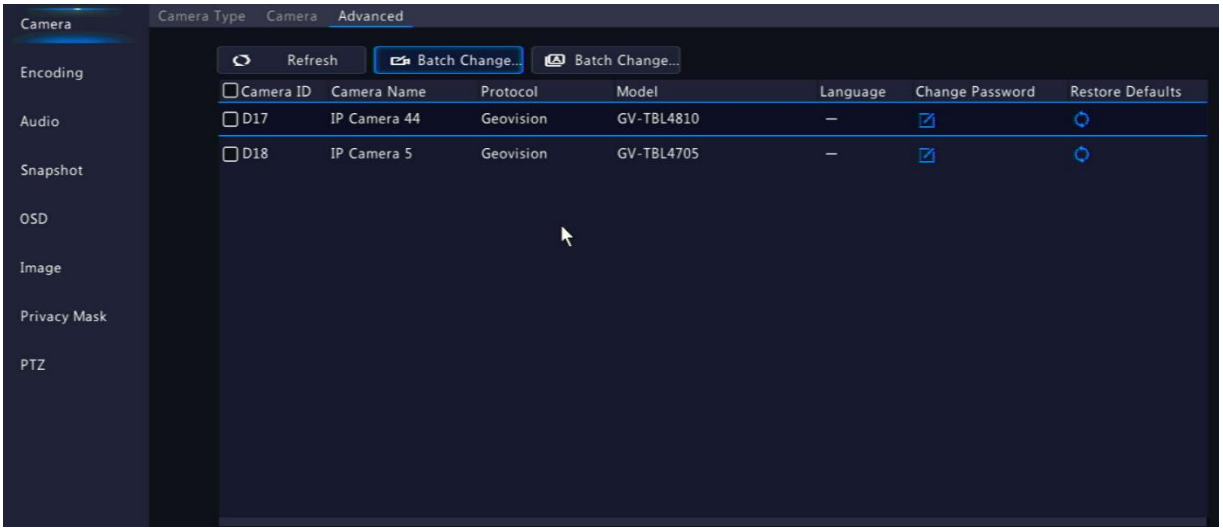
Auto Switch to Smart Encoding	Select **Basic Mode** or **Advanced Mode**, then the DVR automatically chooses basic Smart Encoding or advanced Smart Encoding mode for a newly added camera.
	Note: • Every time a camera is added to the DVR, it is considered a newly added camera. This function is not effective to cameras that are already added or added cameras that go back online after being offline. • This function is enabled by default on some DVR models.
Refresh	Click **Refresh** to check the camera status.
Live View	Click to play live video of the camera.

4.1.3 Advanced Functions

Change the password of online IP cameras or restore factory default settings for cameras.

Note: Changing camera password is available for cameras connected via the Geovision protocol.

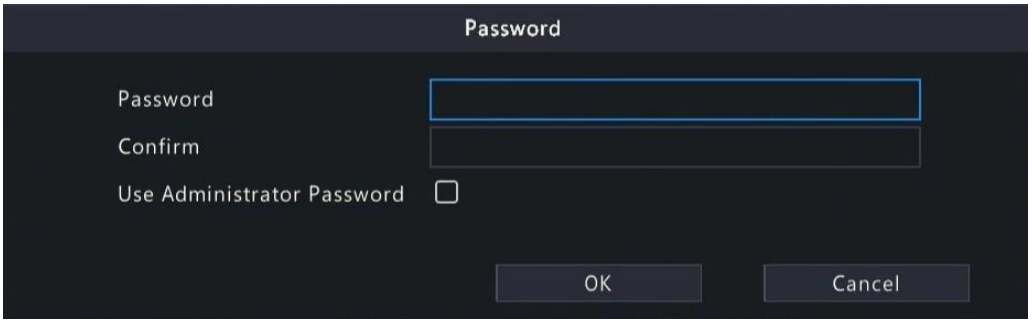
Go to **Menu** > **Camera** > **Camera** > **Advanced**.



Change Camera Password

You can change password of camera(s) one by one or in batches.

1. Select a camera and click , or select the target cameras and click **Batch Change Password**.



2. Enter the new password and confirm the password.

   Note: Select **Use Admin Password**, the camera's password is changed to the admin password of the DVR, and cannot be edited.

3. Click **OK**. Check if the password is successfully changed.

Restore Default Settings

Select the camera, click . A message indicating camera restart appears, click **OK** and then the camera's default settings will be restored.

4.1.4 Fisheye Configuration

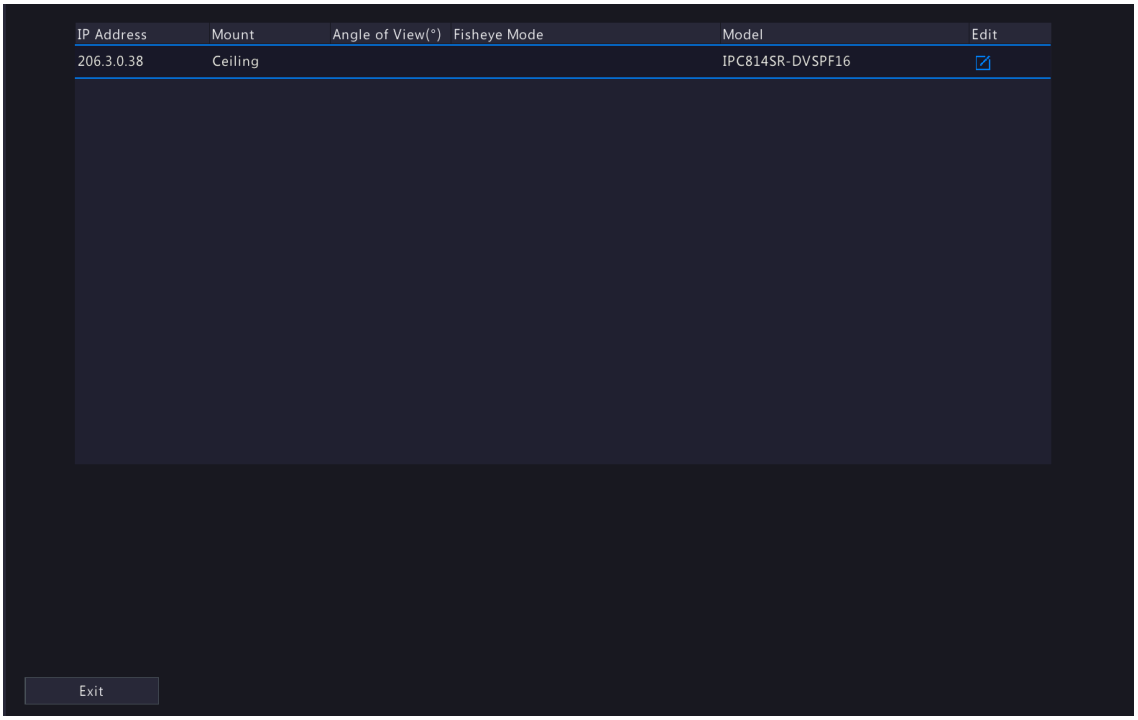
Set the mounting mode and display mode for fisheye cameras. Fisheye configuration is supported only by certain fisheye cameras.

Note: Before using this function, make sure that a fisheye camera has been mounted and that the camera has been added to your DVR.

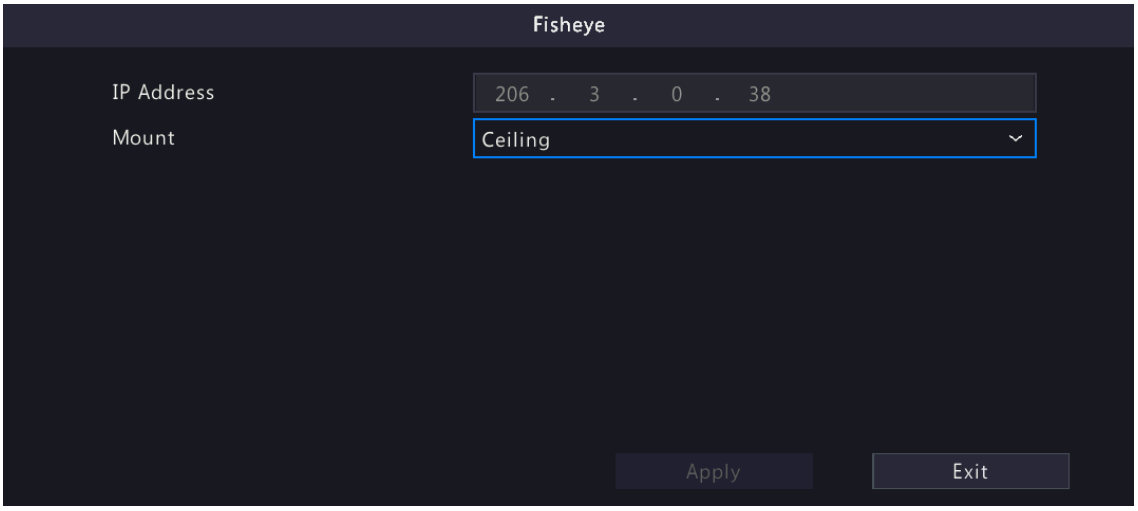
Configuration

Configure the following parameters after the fisheye camera is installed.

1. Go to **Menu** > **Camera** > **Camera** > **Fisheye**.



2. Select the fisheye camera and click .



3. Set the parameters as needed.

Item	Description
Mount	Select the mounting mode, including ceiling mount, wall mount, and desktop mount. If you change how the fisheye camera is installed, change its mounting mode so as to display proper images.

Angle of View (°)	Set the viewing angle of the fisheye camera.
Fisheye Mode	The display mode of the current camera in the live view window. Set it as needed.

4. Click **Apply**.

Dewarping

Fisheye cameras provide large wide-angle views, but the image captured is distorted. You may adjust the output image by correcting the shooting angle of the fisheye.

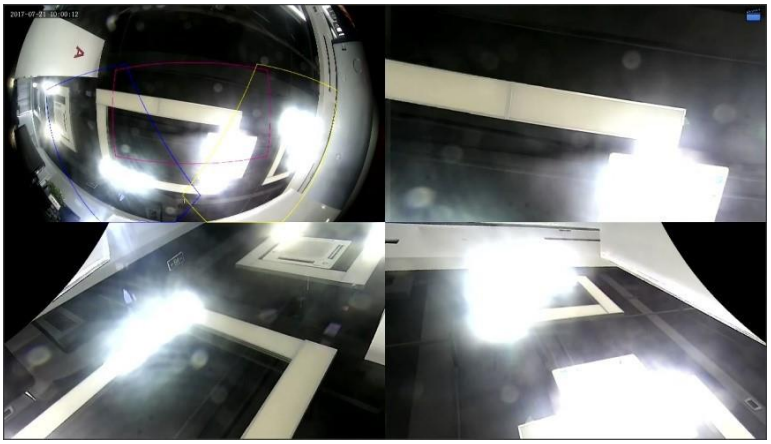
Note: Dewarping is available in live view and playback (in normal and corridor playback modes). The operations are similar. The following describes dewarping in live view.

1. In the preview page, click  on the window. The figure as shown below appears.

2. Set the mounting mode and display mode.

Mount	Display Mode	Description
Ceiling Mount 		360° panoramic original image
Desktop Mount		360° panoramic + 1PTZ
		180° panoramic
		Fisheye+3PTZ
		Fisheye+4PTZ
		360° panoramic + 6PTZ
		Fisheye+8PTZ

Mount	Display Mode	Description
Wall Mount 		360° panoramic original image
		Panoramic
		Panoramic + 3PTZ
		Panoramic + 4PTZ
		Panoramic + 8PTZ



3. Dewarping operations: Take Ceiling Mount and Fisheye+3PTZ as an example.
   - Drag the mouse to rotate the image or use the scroll wheel to zoom in or out on a PTZ image. A box appears on the fisheye image as the image rotates, and as you drag the box or move the scroll wheel on the fisheye image, the corresponding PTZ image rotates or zooms in or out as well.

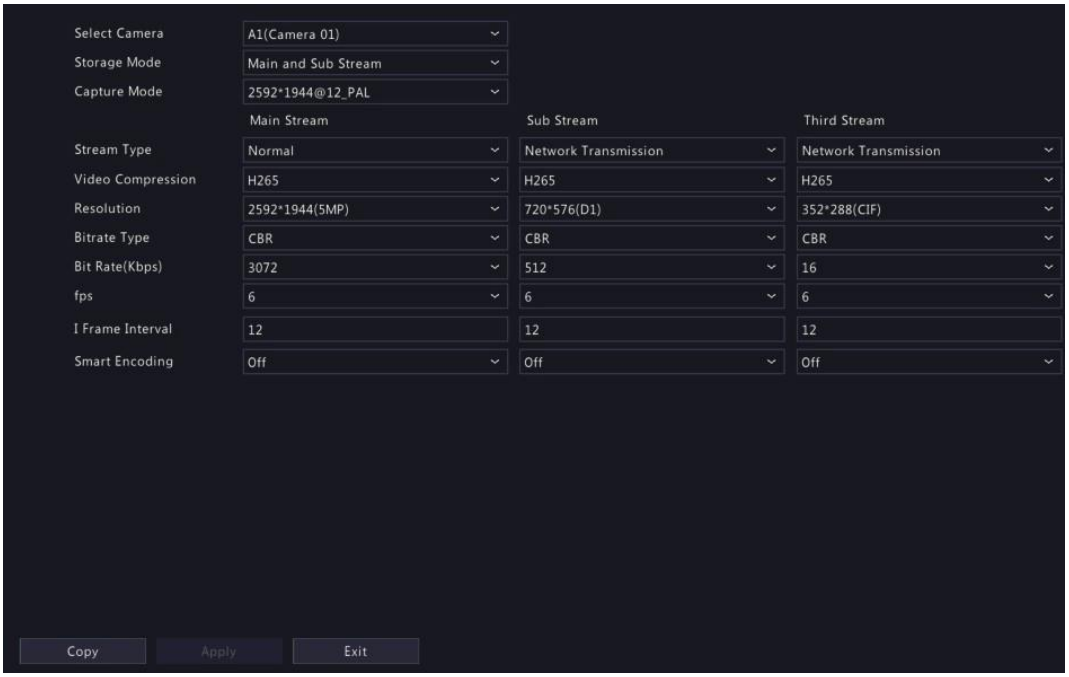
4.2 Encoding Settings

Configure stream type, resolution, etc.

Note:

- The configuration items may vary with IPC models or versions.
- Some functions may be unavailable if the IPC version is too low. In this case, you need to upgrade the IPC first.

1. Go to **Menu** > **Camera** > **Encoding**.



2. Select the camera from the drop-down list.
3. Choose a storage mode. It may affect the clarity of the recording (HD or SD). Set the storage mode based on the disk capacity and actual requirements.

Storage Mode	HD Streaming	SD Streaming
Main stream	Main stream	No video or image
Sub stream	Sub stream	No video or image
Main + sub stream	Main stream	Sub stream
Main + third stream	Main stream	Third stream
Sub + third stream	Sub stream	Third stream

4. Set the capture mode, that is, combinations of resolution and frame rate.

Note: When the analog camera supports PAL/NTSC format, the caputure mode is displayed as **resolution@fps_PAL** or **resolution@fps_NTSC**. Please choose a mode based on the actual situation.

5. Set the encoding parameters for different streams.

Item	Description
Stream Type	• Main stream: Set encoding parameters for normal recordings. • Sub stream: Set encoding parameters for low resolution video intended for network transmission.
Video Compression	Choose H264 or H265. The supported video compression may vary with IPC models.
Resolution	The number of pixels in a frame.
Bitrate Type	• VBR: Variable Bit Rate (VBR) is used to keep the quality of video streams as constant as possible by varying the bit rate. • CBR: Constant Bit Rate (CBR) is used to keep a specific bit rate by varying the quality of video streams.
Bit Rate(Kbps)	The number of bits transferred per second. Select a value from the drop-down list, or select **Custom** to set a value as needed.
fps	The number of frames per second.
I Frame Interval	The number of frames between two adjacent I frames.

Item	Description
Smart Encoding	Select the Smart Encoding mode, including basic mode and advanced mode. You can also close the Smart Encoding. The advanced mode achieves higher compression ratios.

6. (Optional) To apply the settings to other camera(s), click **Copy** and select the desired parameter(s) and camera(s), and then click **OK**.

Note:

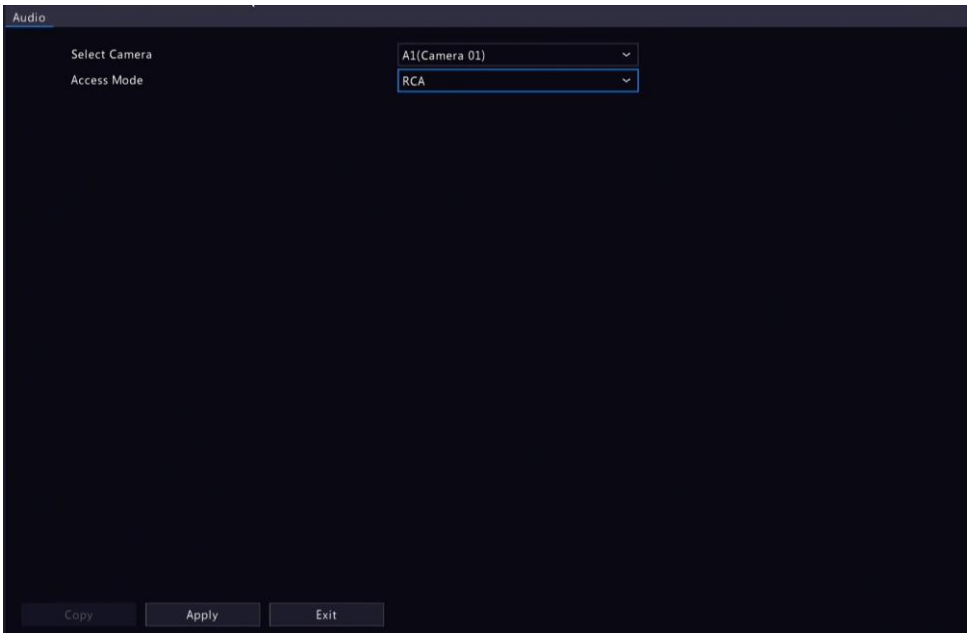
- When you copy **Capture Mode** to other camera(s), if the target camera does not support the capture mode,the operation will fail.
- When you copy **Capture Mode** to other camera(s), if the current camera and target camera support the capture mode with the same resolution and frame rate (regardless of whether it is PAL/NTSC format or not), the operation will succeed.
- When you copy **Storage Mode** to other camera(s), if the target camera does not support the storage mode,the operation will fail.
- When you copy **Video Compression** to other camera(s), **Bit Rate** will be selected automatically because video compression adjusts bit rate automatically.

7. Click **Apply**.

4.3 Audio Configuration

Configure audio input and audio output of the IPCs.

1. Go to **Menu** > **Camera** > **Audio**.

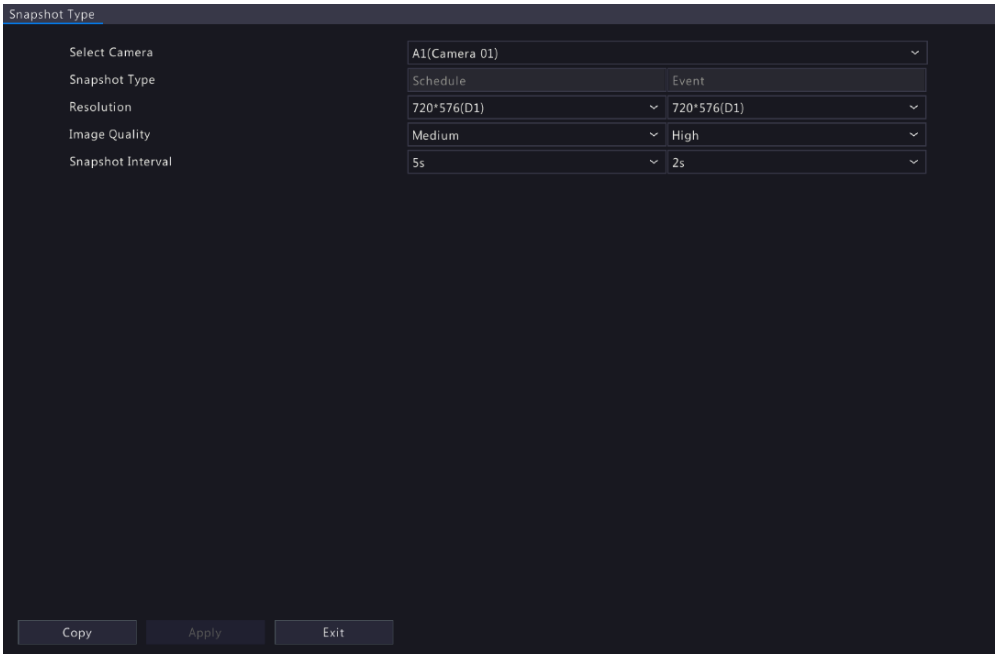


2. Select the desired camera from the drop-down list.
3. Select the access mode according to the IPC's audio interface, including **Coaxial** and **RCA**.
4. (Optional) To apply the audio settings to other camera(s), click **Copy** and select the desired parameter(s) and camera(s), and then click **OK**.
5. Click **Apply**.

4.4 Snapshot

Configure snapshot parameters.

1. Go to **Menu** > **Camera** > **Snapshot** > **Snapshot Type**.



2. Select the camera and set the parameters as needed.

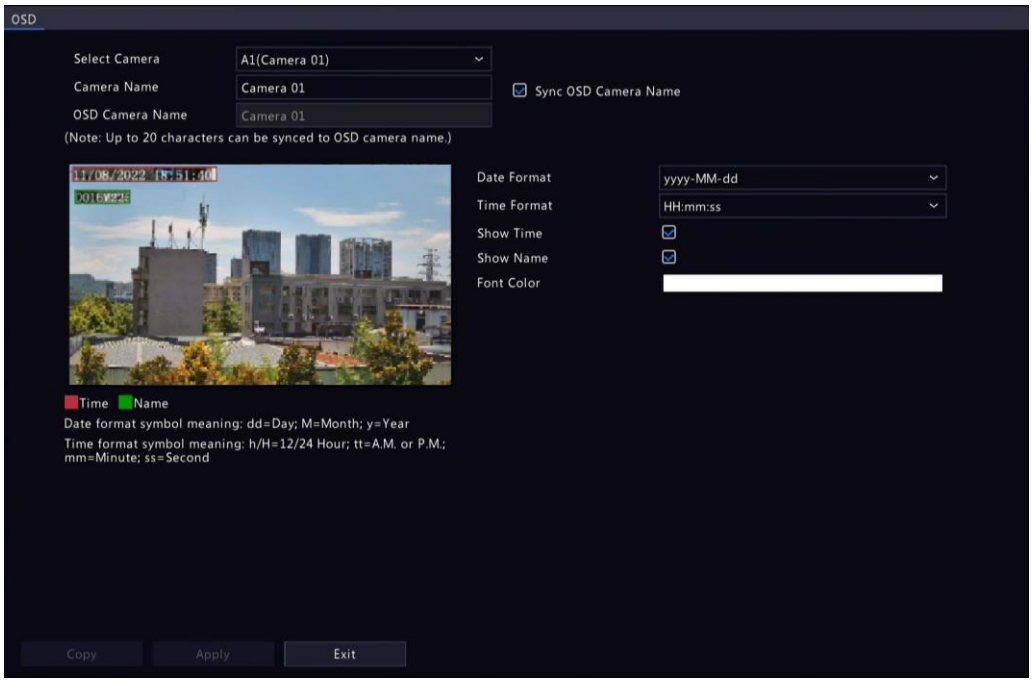
Item	Description
Snapshot Type	Supports scheduled snapshot and event-triggered snapshot. You need set image quality and snapshot interval for them respectively. • Schedule: A snapshot is taken according to the set schedule. • Event: A snapshot is triggered by an event such as alarm input and motion detection alarm. Manual snapshots are event-triggered snapshots.
Resolution	The number of pixels stored in a frame. Only certain DVRs support setting resolution.
Image Quality	Set the snapshot quality. High, medium or low are available.
Snapshot Interval	Select the time interval between two snapshots from the drop-down list.

3. (Optional) To apply the same settings to other cameras, click **Copy** and select the desired camera(s).
4. Click **Apply**.

4.5 OSD Configuration

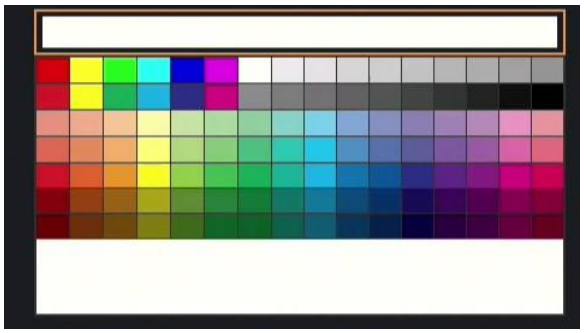
Configure the characters overlaid on the preview (live view) window. On Screen Display (OSD) are characters displayed with video images, for example, channel/camera name, date and time, and people counting statistics.

1. Go to **Menu** > **Camera** > **OSD**.



2. Select the desired camera from the drop-down list.
3. Set the OSD parameters.

Item	Description
Camera Name	The name of the selected camera. You may customize the camera name as needed.
Sync OSD Camera Name	**Sync OSD Camera Name** is enabled by default, thus the OSD camera name is synchronized with the camera name automatically. **Note:** • Up to 20 characters can be synced to OSD camera name. If camera name exceeds 20 characters, only the first 20 characters will be displayed. • If **Sync OSD Camera Name** is disabled, after the camera name is changed, the new name will not be synced to OSD camera name.

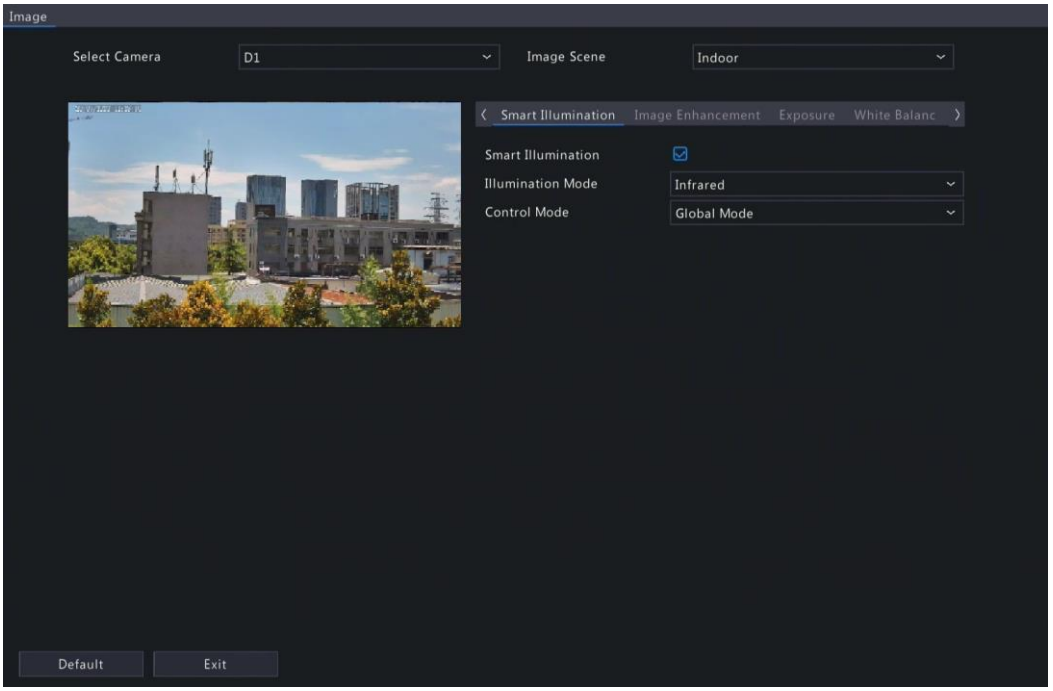
Item	Description
OSD Camera Name	The camera name displayed on the video image. OSD camera name is same as the camera name by default. You can customize the OSD camera name after disabling **Sync OSD Camera Name**. Up to 20 characters are allowed.
Date Format	Select the date format from the drop-down list.
Time Format	Select the time format from the drop-down list.
Show Time	When enabled, the camera time is displayed on the left side of video image.
Show Name	When enabled, the OSD camera name is displayed on the video image.
Font Color	Select the front color from the drop-down list. 

4. (Optional) To apply the same OSD settings to other cameras, click **Copy** and select the desired camera(s).
5. Click **Apply**.

4.6 Image Settings

Adjust image settings to get optimal images.

1. Go to **Menu** > **Camera** > **Image** > **Image**.



2. Select the desired channel.
3. Select the image scene you want to use.

   The IP camera provides several predefined scene modes for different application scenarios. When you select a scene, the parameters will be automatically set, you can also adjust the parameters as needed.

   - Indoor: Recommended for indoor scenes.
   - Common: Recommended for outdoor scenes.
   - Starlight: Recommended for low light conditions.

- Test: Recommended for test scenes.
- WDR: Recommended for scenes with high-contrast lighting, such as window, corridor, front door or other scenes that are bright outside but dim inside.
- Custom: Set a scene as needed.

4. Configure the parameters under the tabs in this page.

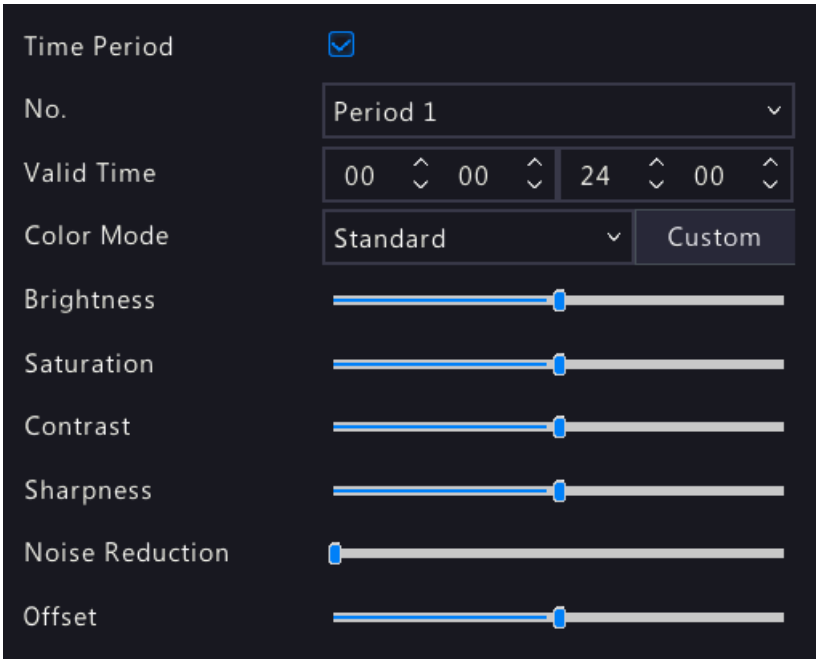
Note:

- Only certain IPCs support scene selection, and the image parameters may vary with IPC model.
- The default settings are scene-adaptive. Use default settings unless modification is necessary. To restore default settings under all the tabs, click **Default** in the lower left corner. This function is available only when the camera is connected to the DVR via the Geovision protocol.
- Image settings apply to both live and recorded videos.

Image Enhancement

Click the **Image Enhancement** tab, and set the parameters.

Analog Camera



Digital Camera

Item	Description
Time Period	Enable **Time Period** and configure parameters for different time periods respectively.
No.	Select **Period 1** or **Period 2**.
Valid Time	Set the valid time for the two time periods, and the image enhancement parameters will be effective during the corresponding period. After period 1 is set, the period

Item	Description
	2 will be generated automatically. For example, if the period 1 is 8:00 to 20:00, the period is 20:00 to 8:00.
Color Mode	9 options: 4 default modes (**Standard**, **Bright**, **Soft**, **Vivid**), 4 custom modes (**Custom 1**, **Custom 2**, **Custom 3**, **Custom 4**), and **Camera Custom**. To set the custom mode, select a custom mode from the drop-down list, click the **Custom** button, then a dialog box appears, and you can adjust the desired parameters. The noise reduction and image rotation can be set separately, which will not affect the nine color modes. **Note:** • If you adjust the parameters of default mode and custom modes, the color mode will automatically switch to the camera custom mode. • The default modes and custom modes are applicable to all channels of the DVR; while the camera custom mode is only applicable to the current channel. • If you have configured camera custom mode and then switch to other modes (such as Custom 1), the configured camera custom settings will be lost, and you need to configure again.
Brightness	The overall brightness or darkness of the image.
Saturation	The intensity or vividness of colors in the image.
Contrast	The difference between the lightest and darkest tones in the image.
Sharpness	The contrast between the edges of an object in the image.
Noise Reduction	Reduce noises in images, while it may cause image blur or smearing.
Offset	Adjust the image to the left or right.
Image Rotation	The rotation of the image. • Normal: Displays images without rotation. • Flip Horizontal: Displays images flipped horizontally. • Flip Vertical: Displays images flipped vertically. • 180°: Displays images flipped vertically and horizontally. • 90° CW: Displays images in corridor format. The camera must be installed correctly (rotated 90° clockwise). • 90° CCW: Displays images in corridor format. The camera must be installed correctly (rotated 90° counterclockwise).

Exposure

Click the **Exposure** tab, and set the parameters.

Item	Description
Exposure Mode	Select the correct exposure mode to achieve the desired exposure effect. • Automatic: The camera automatically sets the exposure parameters according to the scene. • Custom: User can set exposure parameters as needed. • Shutter Priority: The camera adjusts shutter as priority to adjust the image quality. • Indoor 50Hz: Reduce stripes by adjusting the exposure time. **Note:** • Stripe effect: The high-contrast condition in an image caused by uneven light energy received by the sensor. • Using this mode in brighter environments aids in adjusting the stripe effect in the image with linear stripe suppression. • Indoor 60Hz: Reduce stripes by adjusting the exposure time. **Note:** Using this mode in brighter environments aids in adjusting the stripe effect in the image with linear stripe suppression. • Manual: Fine-tune image quality by setting shutter, gain, and iris manually. • Low Motion Blur: Control the minimum shutter to reduce motion blur.
Shutter(s)	Shutter is used to control the amount of light that comes into the lens. A fast shutter speed is ideal for scenes in quick motion. A slow shutter speed is ideal for scenes that change slowly. This parameter is configurable when **Exposure Mode** is set to **Manual**, **Shutter Priority**, or **Custom**. **Note:** If **Slow Shutter** is disabled, the reciprocal of the shutter speed must be greater than the frame rate.
Gain(dB)	Control image signals so that the camera can output standard video signals in different light conditions. This parameter is configurable when **Exposure Mode** is set to **Manual** or **Custom**.
Slow Shutter	Select to enable slow shutter. When enabled, the camera improves image brightness in low light conditions.

Item	Description
Slowest Shutter	When enabled, you can set the slowest shutter speed for the camera during exposure.
Compensation	Adjust the compensation value as required to achieve the desired image effect.
Day/Night Mode	• Automatic: The camera automatically switches between night mode and day mode according to the ambient lighting condition to output optimum images. • Day: The camera outputs high-quality images in daylight conditions. • Night: The camera outputs high-quality images in low light conditions.
Day/Night Sensitivity	Light threshold for switching between day mode and night mode. Ultra-low, low, medium, and high are available. A higher sensitivity level means that the camera is more sensitive to the change of light and is therefore more easily to switch between day mode and night mode. This parameter is configurable when **Day/Night Mode** is set to **Automatic**.
Day/Night Switching(s)	Set the length of time before the camera switches between day mode and night mode after the switching conditions are met. This parameter is configurable when **Day/Night Mode** is set to **Automatic**.
WDR	Suitable for high-contract scenes. WDR can balance the brightness in the bright area and dark area, and provide clear image with more details. • On/Off: User needs to identify WDR scenes, and manually enable or disable WDR as needed. • Smart (Automatic): The device can automatically identify typical WDR scenes, and then enable or disable WDR. **Note:** When WDR is enabled, some other functions may not be supported. Refer to the actual interface for details.
WDR Level	Adjust the WDR level to improve image quality when WDR is enabled. **Note:** In the case of low contrast, it is recommended to disable WDR or use level 1 to 6. Level 7 or higher is recommended if there is a high contrast between the bright and dark areas in the scene.
WDR On/Off Sensitivity	When **WDR** is set to **Automatic**, adjust the parameter to change the WDR switching sensitivity.
Metering Control	Perform luminance statistics on the images captured by the device, automatically adjust the exposure value, and output properly exposed images with optimal brightness. The default is the **Center-Weighted Average Metering**, you may configure this according to the actual scene. • Center-Weighted Average Metering: Measure light mainly in the central part of the image. • Evaluative Metering: Measure light in the specified area of the image, • Face Metering: Adjust image quality in poor lighting or back lighting conditions by controlling the brightness of captured faces in face scenes. • Spot Metering: Similar to the evaluative metering. However, it cannot increase the brightness of the image. **Note:** This parameter is configurable when **Exposure Mode** is not set to **Manual**.
Linear Stripe Suppression	Adjust the linear stripes in the image. Range: 1 to 9, the default is 5. The greater the value, the more obvious the linear stripe suppression effect is, but it may cause overexposure in the image. Please configure this according to the actual scene. **Note:** This parameter is configurable when **Exposure Mode** is set to **Indoor 50Hz** or **Indoor 60Hz**.

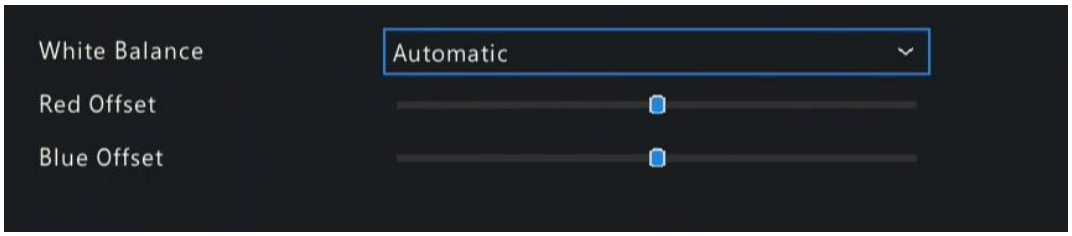
Smart Illumination

Click the **Smart Illumination** tab, and set the parameters.

Item	Description
Smart Illumination	Enable **Smart Illumination**.
Illumination Mode	Select the illumination mode from the drop-down list. • Infrared: The camera uses infrared light illumination. • White Light: The camera uses white light illumination. • Dual Light: The camera adjusts the white light or infrared automatically according to the current lighting condition.
Control Mode	Select the control mode from the drop-down list. • Global Mode: The camera automatically adjusts illumination brightness and exposure to achieve the balanced image effect. • Overexposure Restrain: The camera automatically adjusts illumination brightness and exposure to avoid regional overexposure. • Manual: Control the brightness of illumination manually.
Illumination Level	Drag the slider to adjust the illumination level. This parameter is configurable when **Control Mode** is set to **Manual**. The greater the value, the higher the intensity (0 is off).

White Balance

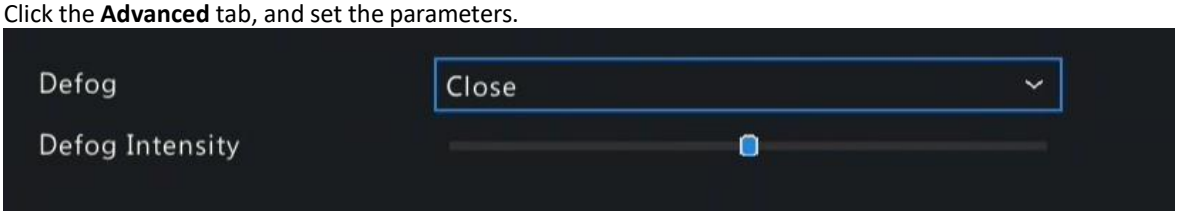
Click the **White Balance** tab, and set the parameters.



Item	Description
White Balance	Adjust the red and blue gains of the image to remove unrealistic color casts. • Auto: The camera automatically adjusts the red and blue gains according to the lighting condition (the color tends to be blue). • Fine Tune: Adjust the red or blue offsets manually. • Outdoor: Suitable for outdoor scenes where the color temperature varies widely. • Sodium Lamp: The camera automatically adjusts red and blue gains according to the lighting condition (the color tends to be red). • Locked: Lock the current color temperature to avoid change.
Red Offset	Adjust the red offset manually.
Blue Offset	Adjust the blue offset manually.

Advanced Settings

Click the **Advanced** tab, and set the parameters.



Item	Description
Defog	Enable/disable defog from the drop-down list. Defog is used to improve image visibility in foggy, hazy and other low-visibility scenes.
Defog Intensity	When defog is enabled, you can adjust the defog intensity. In a heavy-fog environment, the higher the defog level, the clearer the image. In a fog-free or light-fog environment, there is not much difference between levels 1 to 9. **Note:** Optical defog is available only for certain IPC models. When the defog intensity is set to 6 or higher, optical defog automatically turns on in thick fog, and images change to black and white.

Image Enhancement

Click the **Image Enhancement** tab, and set the parameters.

Item	Description
Brightness	The overall lightness or darkness of the image.
Saturation	The intensity or vividness of colors in the image.
Contrast	The difference between the lightest and darkest tones in the image.
Sharpness	The contrast between the edges of an object in the image.
Noise Reduction	Reduce noises in images, while it may cause image blur or smearing.
Image Rotation	The rotation of the image. • Normal: Displays images without rotation. • Flip Horizontal: Displays images flipped horizontally. • Flip Vertical: Displays images flipped vertically. • 180°: Displays images flipped vertically and horizontally. • 90° CW: Displays images in corridor format. The camera must be installed correctly (rotated 90° clockwise). • 90° CCW: Displays images in corridor format. The camera must be installed correctly (rotated 90° counterclockwise).

Splice Distance	Adjust splice distance to display splicing image for the dual-lens camera with single channel. The larger the distance, the more natural the splicing effect, thus avoiding video stuttering or image ghosting. The DVR can obtain the current splice distance automatically. Drag the slider to set it as needed. **Note:** • This item appears only for dual-lens cameras that support this function. • Configure the splice distance for the dual-lens camera according to the installation scene so as to achieve the best splicing effect.

Exposure

Click the **Exposure** tab, and set the parameters.

Item	Description
Exposure Mode	Select the correct exposure mode to achieve the desired exposure effect. • Automatic: The camera automatically sets the exposure parameters according to the scene. • Custom: User can set exposure parameters as needed. • Shutter Priority: The camera adjusts shutter as priority to adjust the image quality. • Indoor 50Hz: Reduce stripes by adjusting the exposure time. **Note:** • Stripe effect: The high-contrast condition in an image caused by uneven light energy received by the sensor. • Using this mode in brighter environments aids in adjusting the stripe effect in the image with linear stripe suppression. • Indoor 60Hz: Reduce stripes by adjusting the exposure time. **Note:** Using this mode in brighter environments aids in adjusting the stripe effect in the image with linear stripe suppression. • Manual: Fine-tune image quality by setting shutter, gain, and iris manually. • Low Motion Blur: Control the minimum shutter to reduce motion blur.
Shutter(s)	Shutter is used to control the amount of light that comes into the lens. A fast shutter speed is ideal for scenes in quick motion. A slow shutter speed is ideal for scenes that change slowly. This parameter is configurable when **Exposure Mode** is set to **Manual**, **Shutter Priority**, or **Custom**.
	Note: If **Slow Shutter** is disabled, the reciprocal of the shutter speed must be greater than the frame rate.
Gain(dB)	Control image signals so that the camera can output standard video signals in different light conditions. This parameter is configurable when **Exposure Mode** is set to **Manual** or **Custom**.
Slow Shutter	Select to enable slow shutter. When enabled, the camera improves image brightness in low light conditions.
Slowest Shutter	When enabled, you can set the slowest shutter speed for the camera during exposure.
Compensation	Adjust the compensation value as required to achieve the desired image effect.
Day/Night Mode	• Automatic: The camera automatically switches between night mode and day mode according to the ambient lighting condition to output optimum images. • Day: The camera outputs high-quality images in daylight conditions. • Night: The camera outputs high-quality images in low light conditions.
Day/Night Sensitivity	Light threshold for switching between day mode and night mode. Ultra-low, low, medium, and high are available. A higher sensitivity level means that the camera is more sensitive to the change of light and is therefore more easily to switch between day mode and night mode. This parameter is configurable when **Day/Night Mode** is set to **Automatic**.
Day/Night Switching(s)	Set the length of time before the camera switches between day mode and night mode after the switching conditions are met. This parameter is configurable when **Day/Night Mode** is set to **Automatic**.

WDR	Suitable for high-contract scenes. WDR can balance the brightness in the bright area and dark area, and provide clear image with more details. • On/Off: User needs to identify WDR scenes, and manually enable or disable WDR as needed. • Smart (Automatic): The device can automatically identify typical WDR scenes, and then enable or disable WDR. **Note:** When WDR is enabled, some other functions may not be supported. Refer to the actual interface for details.
WDR Level	Adjust the WDR level to improve image quality when WDR is enabled. **Note:** In the case of low contrast, it is recommended to disable WDR or use level 1 to 6. Level 7 or higher is recommended if there is a high contrast between the bright and dark areas in the scene.
WDR On/Off Sensitivity	When **WDR** is set to **Automatic**, adjust the parameter to change the WDR switching sensitivity.
Metering Control	Perform luminance statistics on the images captured by the device, automatically adjust the exposure value, and output properly exposed images with optimal brightness. The default is the **Center-Weighted Average Metering**, you may configure this according to the actual scene. • Center-Weighted Average Metering: Measure light mainly in the central part of the image. • Evaluative Metering: Measure light in the specified area of the image, • Face Metering: Adjust image quality in poor lighting or back lighting conditions by controlling the brightness of captured faces in face scenes. • Spot Metering: Similar to the evaluative metering. However, it cannot increase the brightness of the image. **Note:** This parameter is configurable when **Exposure Mode** is not set to **Manual**.
Linear Stripe Suppression	Adjust the linear stripes in the image. Range: 1 to 9, the default is 5. The greater the value, the more obvious the linear stripe suppression effect is, but it may cause overexposure in the image. Please configure this according to the actual scene. **Note:** This parameter is configurable when **Exposure Mode** is set to **Indoor 50Hz** or **Indoor 60Hz**.

4.7 PTZ Configuration

Configure and control PTZ cameras.

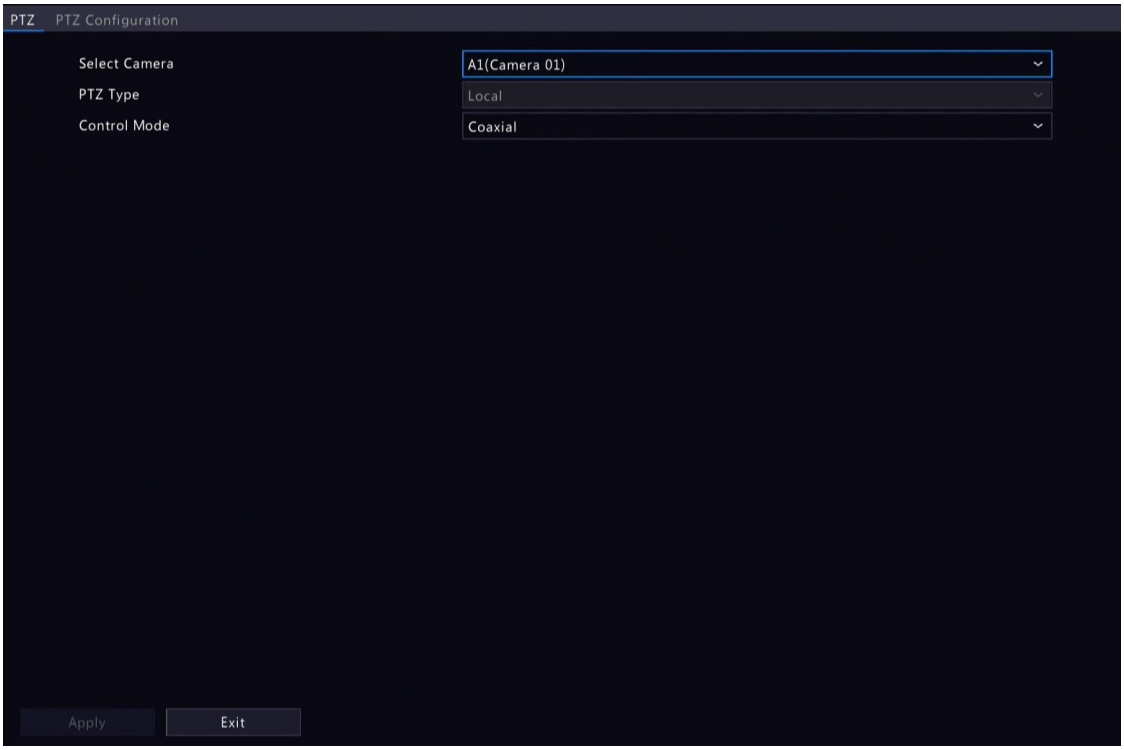
Note:

- This function is only available for PTZ cameras or cameras installed on PT mounts.
- The PTZ parameters may vary with IPC model.
- PTZ (pan, tilt and zoom) control is applicable to PTZ cameras only and may vary depending on the functions and protocols supported by the PTZ cameras. Refer to PTZ camera specifications for details.

PTZ Control Mode

DVRs support two control modes, including **Coaxial** or **Serial Port**. Choose the control mode before using PTZ function.

1. Go to **Menu** > **Camera** > **PTZ** > **PTZ**.

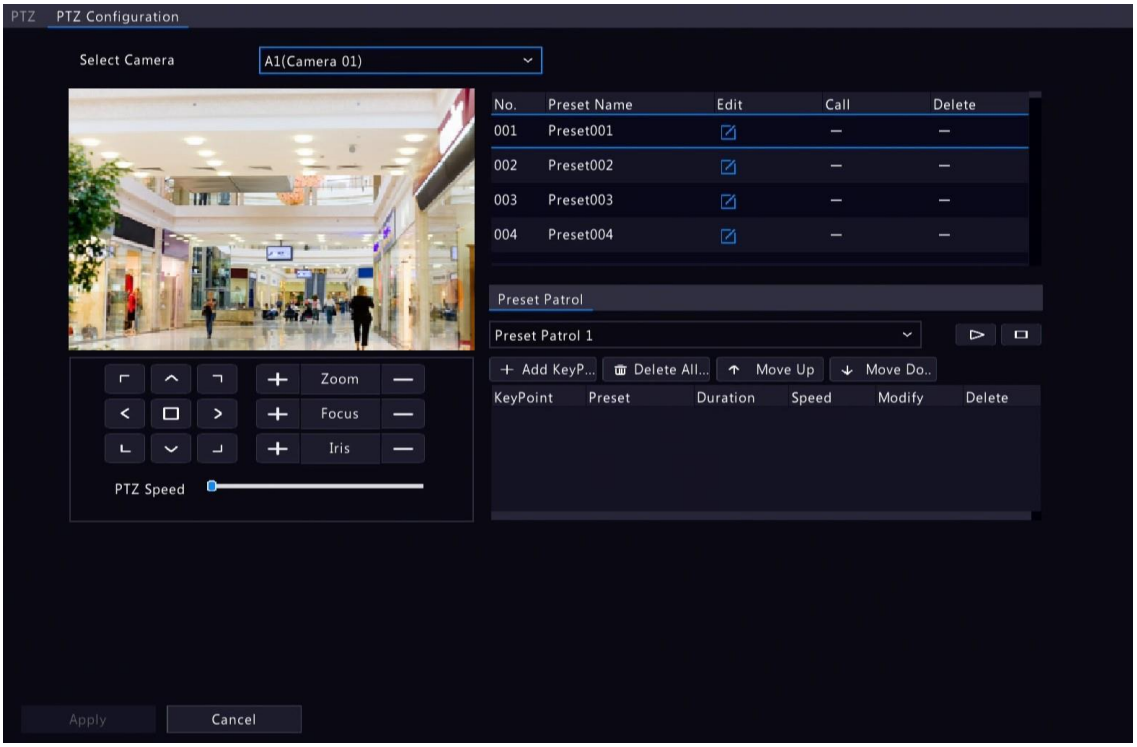


2. Choose a control mode according to camera connection method, and complete other settings.

Configure PTZ

Option 1: Enter Menu

1. Go to **Menu** > **Camera** > **PTZ** > **PTZ Configuration**.
2. Select the target PTZ camera.



3. Set the parameters. See below for details.

Option 2: Use PTZ Toolbar

1. In the preview page, select the target window, click  on the window toolbar.

2. The PTZ control window appears. You can control the PTZ camera as needed.
3. Click **PTZ Configuration**, and set the parameters.

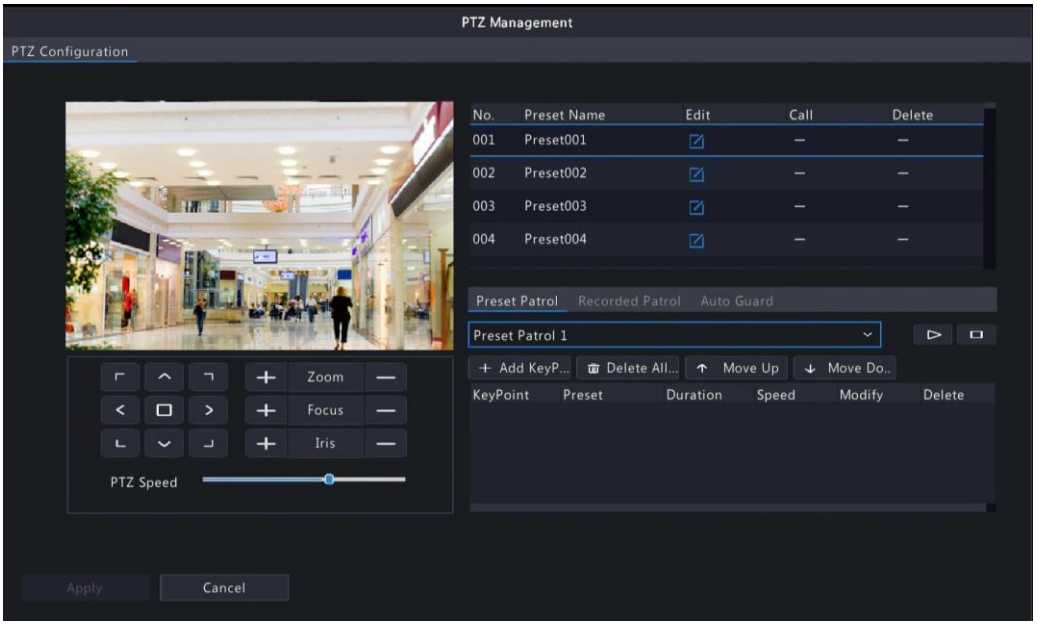
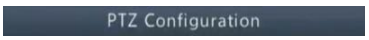
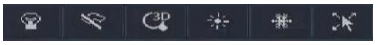


Table 4-1: PTZ Control Window Buttons

Button	Description
	Control the rotation direction of the PTZ camera; release PTZ control.
	• Zoom in or out on images. **Note:** You can also zoom in or out using the scroll wheel on your mouse. • Focus far or near for clear images. • Increase or reduce the amount of light that enters the lens of the camera.
	Control the rotation speed of the camera. 1-9 are available. 1 means the slowest, and 9 means the fastest.
	Click to display the **PTZ Configuration** page.
	• Turn on/off the light. • Turn on/off the wiper. • Turn on 3D positioning. • Turn on/off the heater. • Turn on/off the snow removal. • Turn on/off PTZ shortcut operations. **Note:** • Make sure that the 3D positioning, heater and snow removal functions are supported by the camera before using. • Use 3D positioning to zoom in or out. Dragging from top down zooms in. Dragging the other way zooms out.
Preset/ Preset Patrol/Recorded Patrol/ Auto Guard	• For detailed information, see Preset, Preset Patrol, Recorded Patrol and Auto Guard respectively.

Button	Description
/	• Call a preset: Click , the PTZ camera goes to the preset position. • Delete a preset: Click to delete the preset. **Note:** and are displayed for saved presets only.
/	Start or stop preset patrol.

OSD Menu

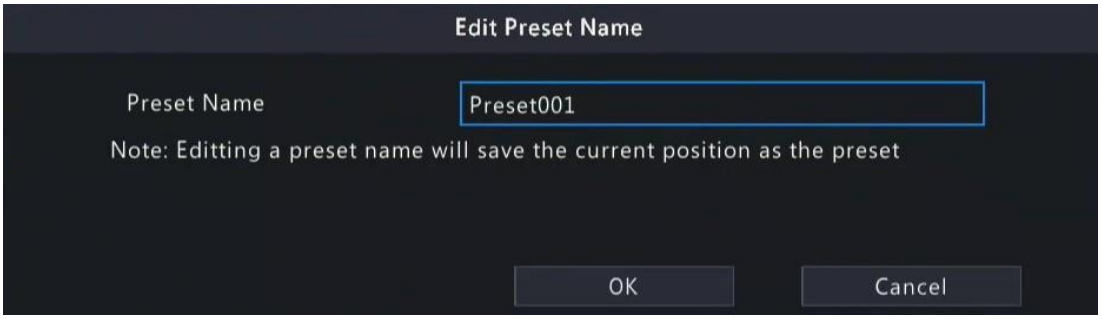
Configure analog cameras on DVRs. This function is only available for DVRs.

1. In the preview window of an analog camera, click on the window toolbar.
2. Click **OSD Menu Control**.
3. Click or to open camera settings window, and set the parameters.
4. Click to save the settings, and then choose **Exit** button to close the window.

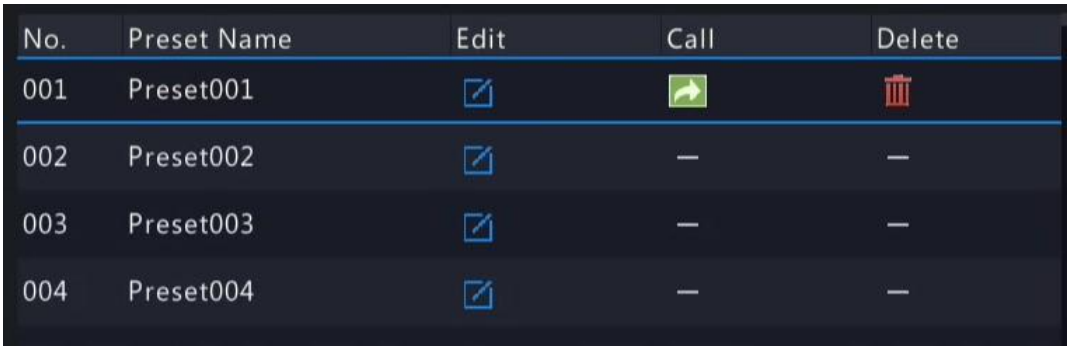
Preset

A preset position (preset for short) is a saved view used to quickly steer the PTZ camera to a specific position.

- Add a Preset
  1. Use the PTZ direction buttons to steer the PTZ camera to the desired position.
  2. Select a preset number not in use, and click to edit the preset name.



  3. Click **OK** to save. Repeat the above steps to add all the presets.



- Call a Preset

  In the preset list, select the preset to call and click . Then the camera rotates to the preset position.

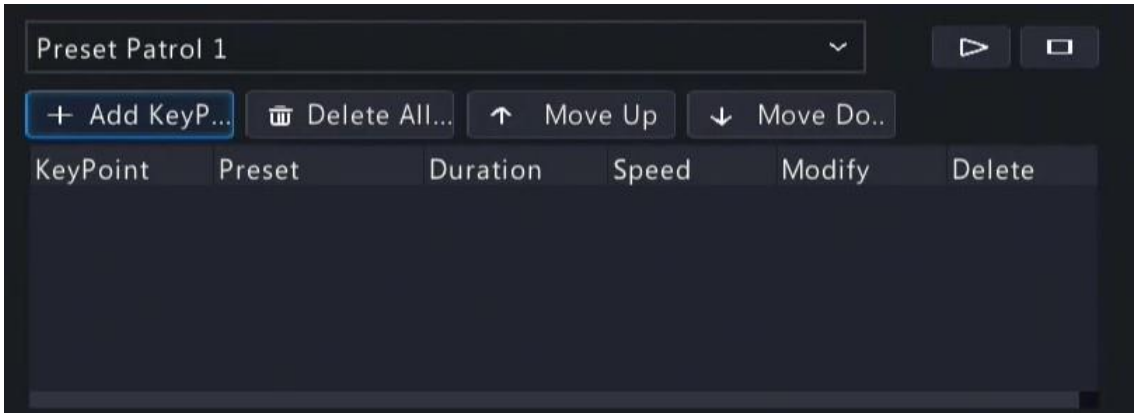
- Delete a Preset

  In the preset list, select the preset to delete, and then click .

Preset Patrol

Set a preset patrol route so the PTZ camera can patrol by presets (go from one preset to the next in specified order).

- Add Preset Route
  1. Click **Preset Patrol**, and select a patrol route.



2. Click Add KeyP... . The figure as shown below appears.

3. Complete the parameters, and click **OK**.

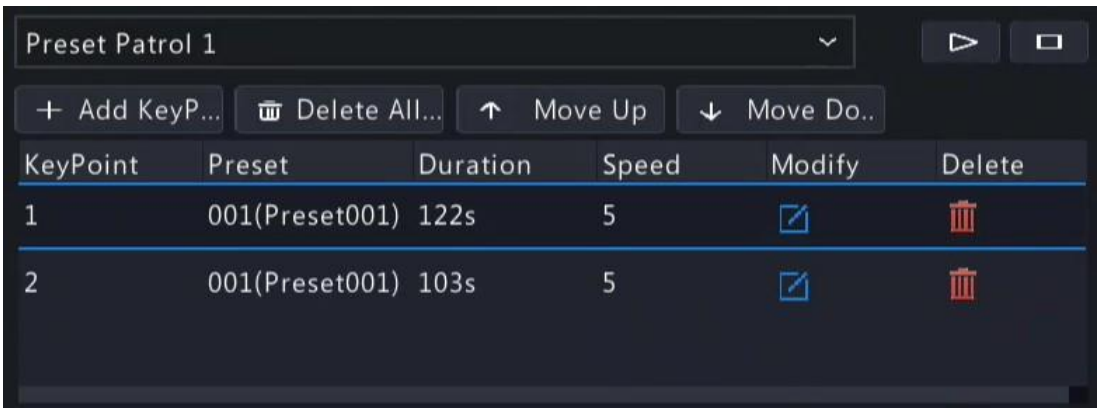
Item	Description
Preset	Set the length of time the camera stays at the preset after performing the patrol. See Preset for setting preset.
Duration(s)	Set the time the camera stays at the preset after the patrol is performed. The valid range is from 0 to 1800 seconds. The default is 10s.
Speed	Set the rotation speed. 1 means the slowest, 9 means the fastest. The default is 5.

4. Repeat the above steps to add more routes.

Note: Up to 4 patrol routes are allowed for each PTZ camera. Up to 8 presets (keypoints) are allowed for each patrol route.

- Call a Preset

  Select a preset patrol in the list, click ▷ to start the preset patrol. To stop, click ▭.

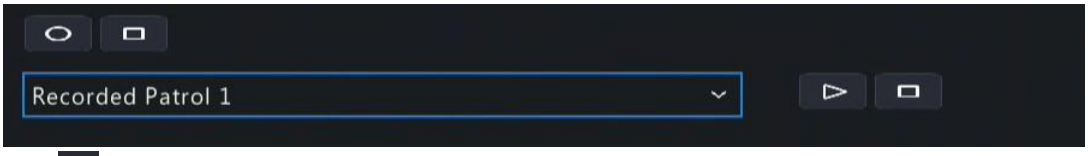


- Other Operations
  - Edit: Click to edit the preset patrol parameters.
  - Delete: Click to delete a keypoint; Click Delete All... to delete all keypoints.
  - Move Up/Move Down: Click Move Up / Move Do.. to adjust the sequence of these presets.

Recorded Patrol

Record a patrol route so the PTZ camera can patrol according to the recorded patrol.

- Add a Recorded Patrol
  1. In the **Recorded Patrol** tab, select a patrol route.
  2. Click to start recording. Steer the camera to the desired directions, adjust the zoom, focus, iris as needed during the process.



  3. Click to stop recording.
  4. Click **Apply**.
- Call a Recorded Patrol

  Click to start the recorded patrol. Click to stop the recorded patrol.

Auto Guard

Configure auto guard so the PTZ camera automatically performs the specified action (e.g., going to a preset or starting a patrol) after being idle (no user operation) for a certain length of time.

Note: Before use, you need to add a preset or a patrol route.

1. In the **Auto Guard** tab, select the **Enable** check box to enable auto guard.
2. Set the parameters.

Item	Description
Idle State(s)	Set the idle duration for the camera to start auto guard. 1 to 3600 seconds are available. The default is 60s.
Mode	Select preset or patrol route.
Preset/Patrol	Select a preset number or patrol route number.

3. Click **Apply**.

5 VCA

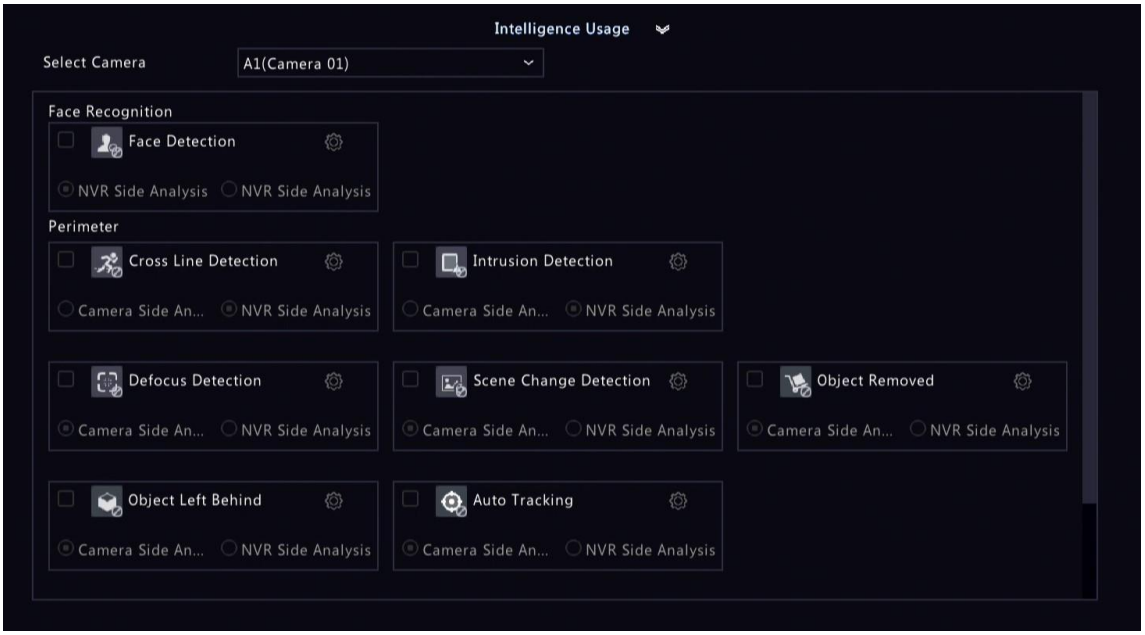
Configure VCA (Video Content Analysis), and VCA search.

5.1 VCA Configuration

VCA includes face recognition, perimeter protection, and people counting. You can monitor people flow, roads and moving objects by configuring VCA. The VCA functions and parameters may vary with DVR model.

Note: VCA functions are not available if there is no disk in slot 1.

1. Go to **Menu** > **VCA** > **VCA Config**.



2. Select a camera.
3. Select the check box of the VCA function to be enabled, and choose whether to implement this function on the camera side or the NVR (DVR) side.
   - Camera Side Analysis: The VCA function is implemented by the camera.
   - NVR (DVR) Side Analysis: The VCA function is implemented by the DVR.

Note:
- The parameters of some VCA functions supported on the camera side are more than that supported on the NVR (DVR) side.
- Before you enable camera side analysis, make sure the camera is connected via the Geovision protocol.
- VCA functions that are not supported by the camera or NVR (DVR) are grayed out.

4. Click to configure the function.

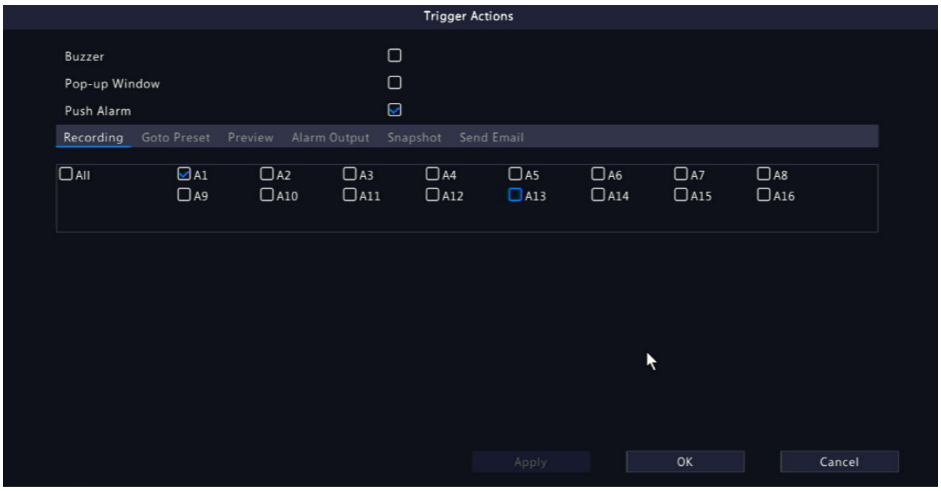
5.1.1 Alarm-triggered Actions

Configure actions to be triggered when an alarm occurs to alert you to deal with it in time.

Click right to **Trigger Actions**, set the actions, and then click **OK**.

Note: The actions supported may vary with DVR model and VCA function.

Some actions are detailed below.



Buzzer

The DVR makes a buzzing sound when an alarm occurs.

Send Email

The DVR sends an email with alarm information to the specified email address(es) when an alarm occurs.

Pop-up Window

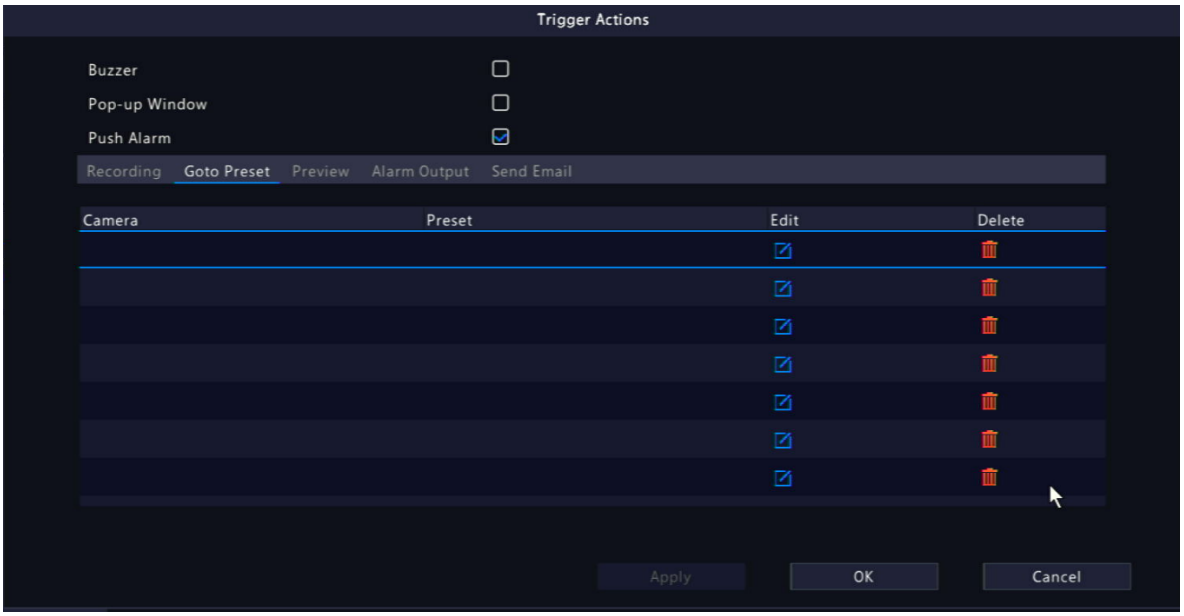
An alarm message pops up when an alarm occurs.

Recording

The DVR records video from the selected camera when an alarm occurs.

Goto Preset

A PTZ camera moves to a preset position when an alarm occurs.



Configure this action as follows:

1. Click .

2. Select the camera to perform this action and select the preset you want the camera to go to when an alarm occurs.

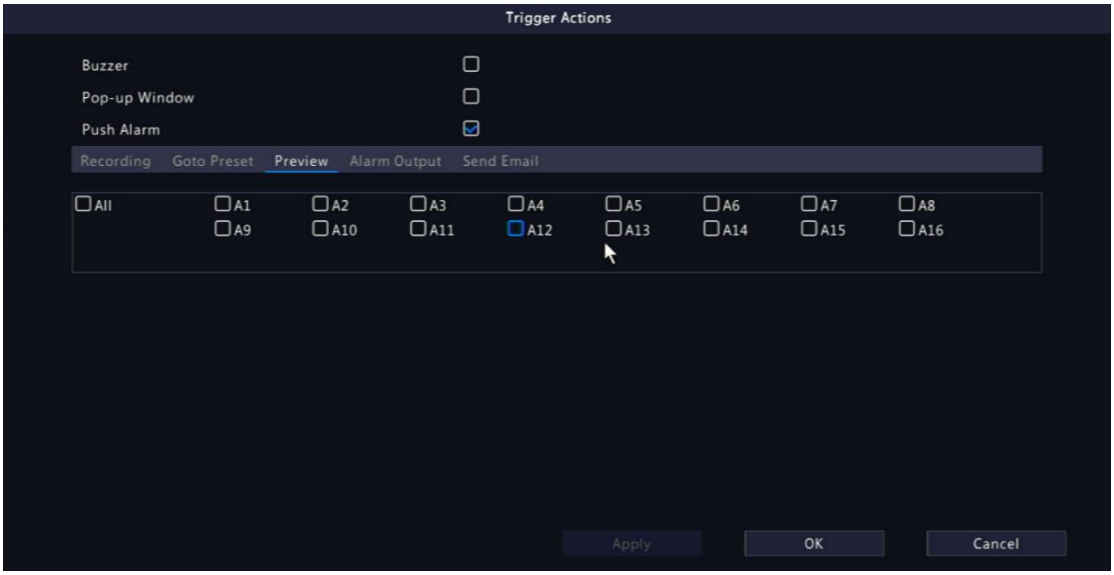
   Note: Before use, you need to configure presets on the PTZ camera.

3. Click **OK**.

   Note: To delete or unlink a preset, click .

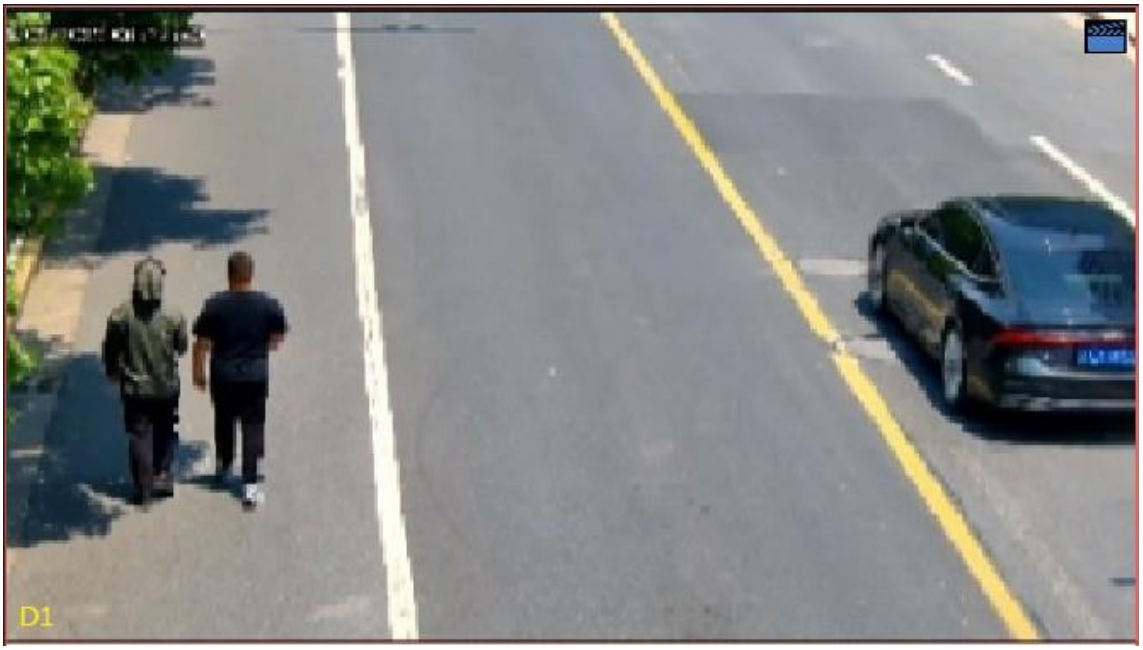
Preview

The DVR plays the live video of the specified camera(s) when an alarm occurs. To perform this action, you need to configure **Max. Alarm-Triggered Live View Windows** (1/4/9 available) under **Menu** > **System** > **Preview**.



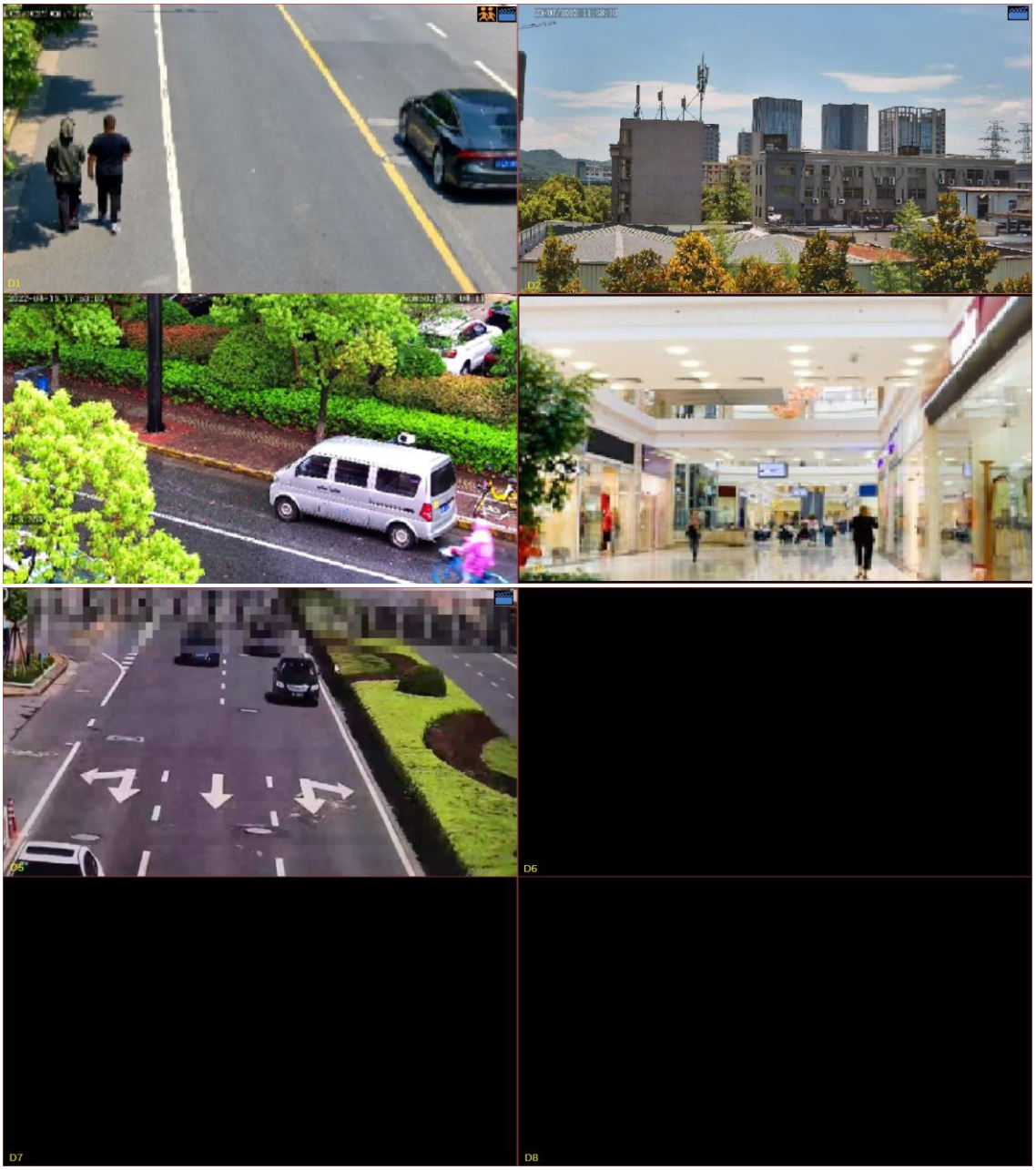
The live view page displayed in the event of alarms varies depending on the number of linked cameras and the number of alarm-triggered live view windows. When an alarm occurs, the live view page shows the live video from the linked camera(s) with a red frame; when the alarm ends, the live view page returns to the original state.

- When **Max. Alarm-Triggered Live View Windows** is set to **1 Window**, the live view page plays live video in one window. If more than one camera is linked, the live video switches at 5s.



- When **Max. Alarm-Triggered Live View Windows** is set to **4 Windows**, the live view page plays the live video of each camera in 4-split mode. If more than 4 cameras are linked, the live video switches at 5s.
  Live view page with 3 cameras linked:

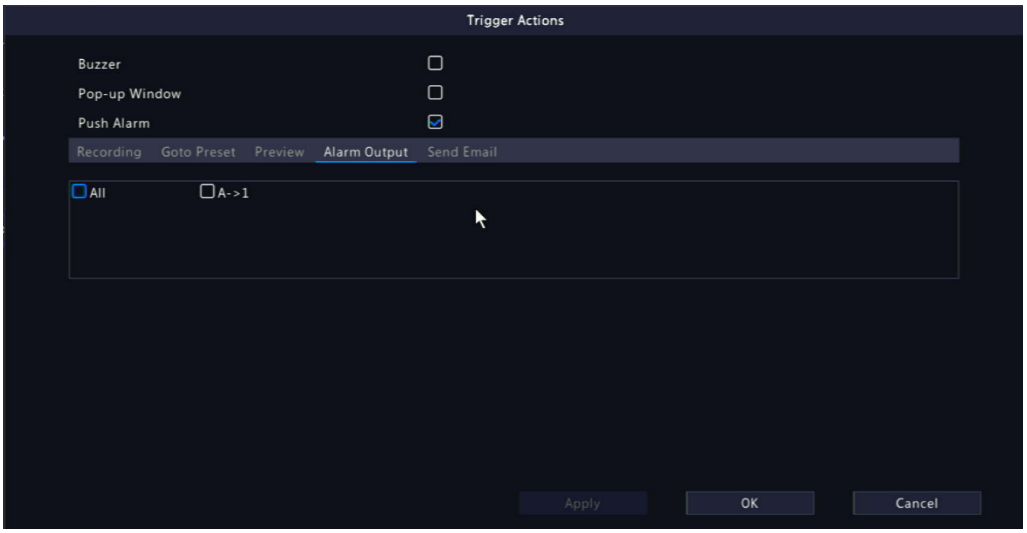
Live view page with 5 cameras linked:



- When **Max. Alarm-Triggered Live View Windows** is set to **9 Windows**, the live view page plays the live video of each camera in 9-split mode. If more than 9 cameras are linked, the live video switches at 5s.

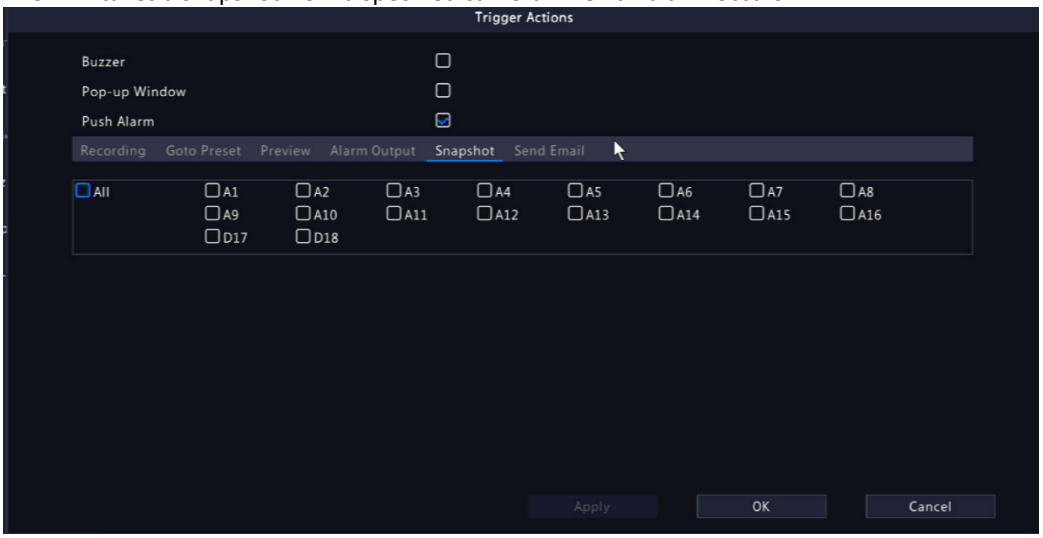
Alarm Output

A third-party device is triggered to raise an alarm when it receives an alarm output by the DVR.



Snapshot

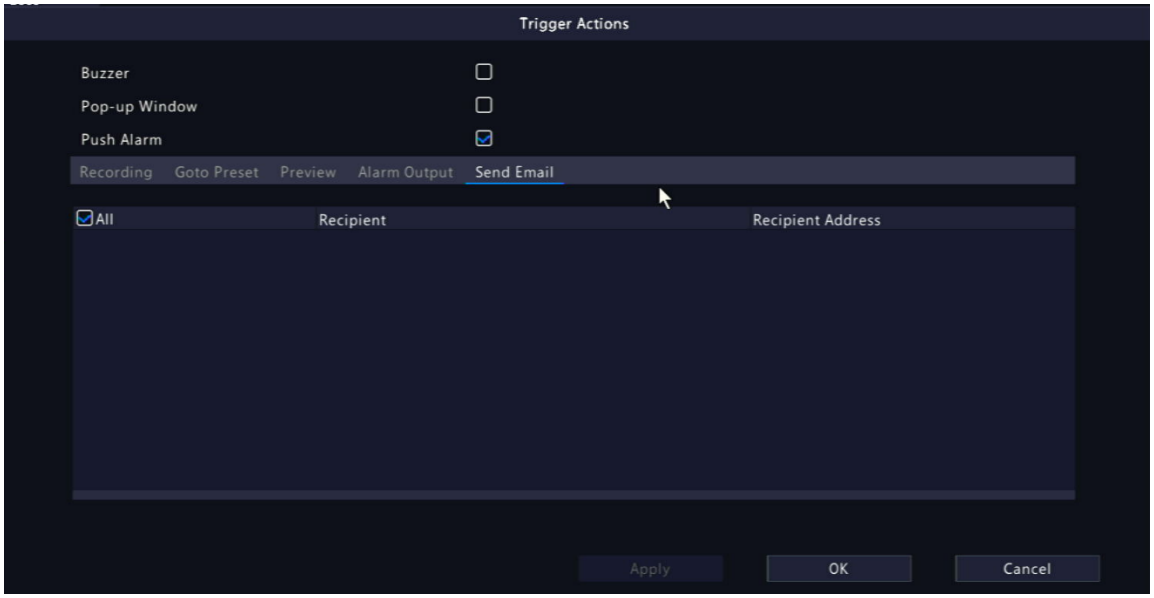
The DVR takes a snapshot from a specified camera when an alarm occurs.



Note: This action is only available to certain alarm functions such as motion detection and human body detection, and is not available to VCA functions.

Send Email

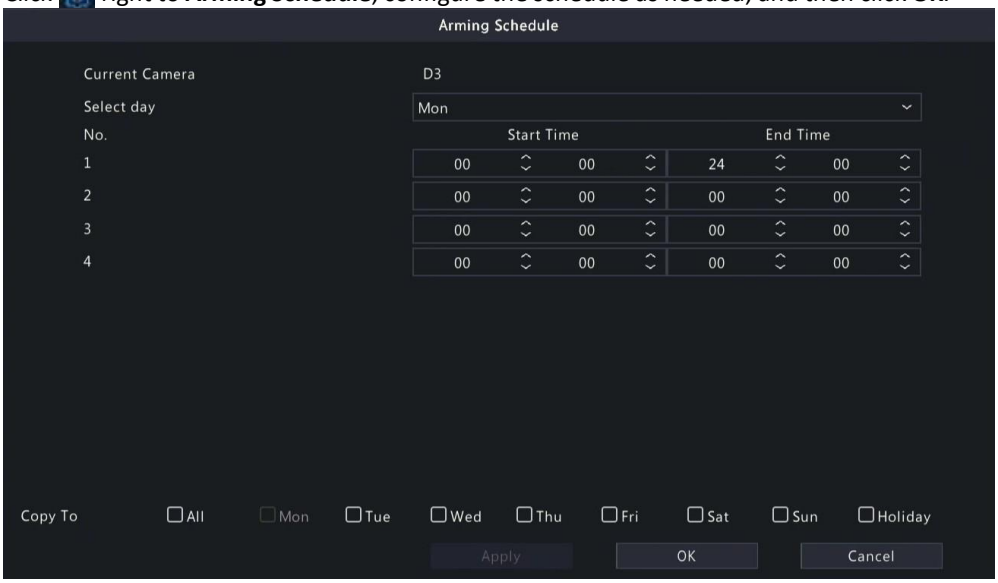
The DVR sends an email with alarm information to the specified email address(es) when an alarm occurs. Pleaseset the recipient information in Email. Up to 6 recipients are allowed.



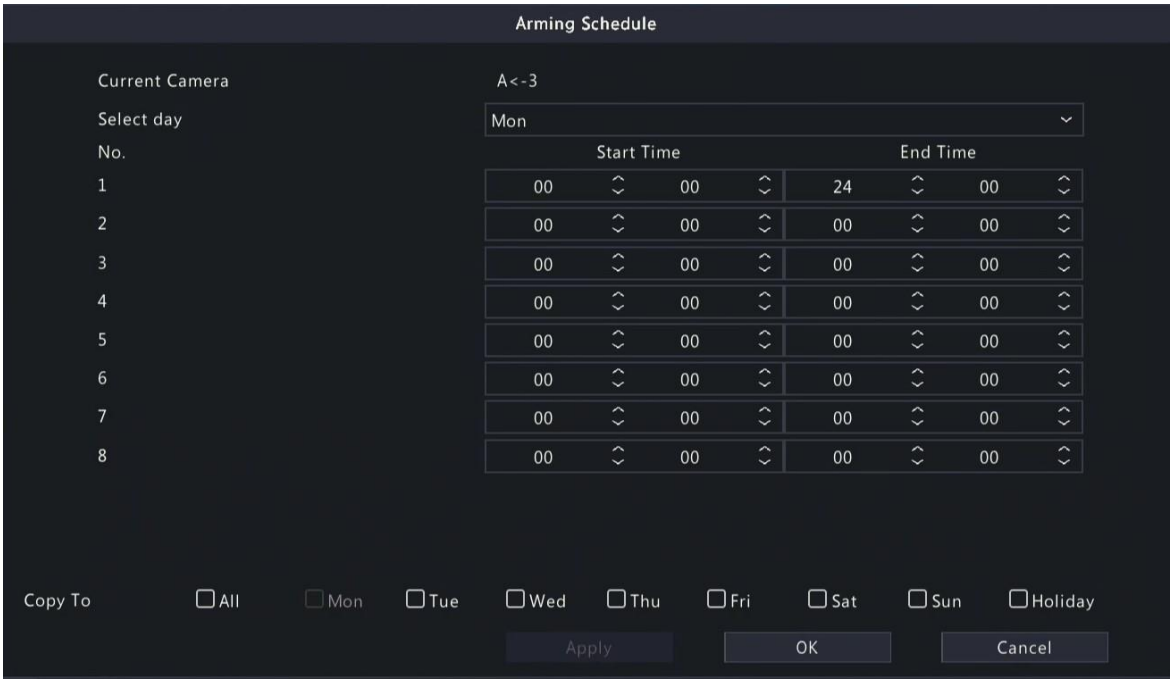
5.1.2 Arming Schedule

Configure an arming schedule to determine when the DVR receives alarms and performs predefined alarm-triggered actions.

Click right to **Arming Schedule**, configure the schedule as needed, and then click **OK**.



On certain DVRs, the **Arming Schedule** page shows as follows:



Note:

- Up to 4 or 8 time periods are allowed per day, and the time periods cannot overlap.
- (Optional) To apply the same schedule to other days, select the desired day(s) after **Copy To**.
- The number of arming time periods available varies by function.
- If a SIP camera is connected to the DVR and configured with camera side analysis of **Intrusion Detection**, **Cross Line Detection**, **Enter Area**, or **Leave Area**, the arming schedule configured for these functions on the DVR will be synchronized to the camera.

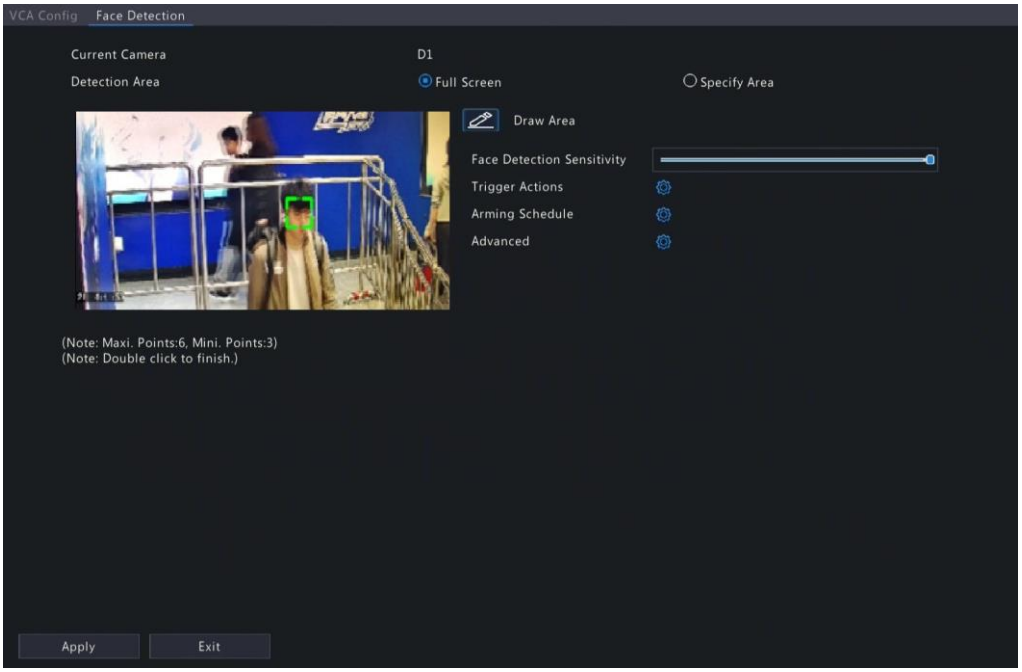
5.1.3 Face Detection

Face detection detects and captures faces in a specified detection area.

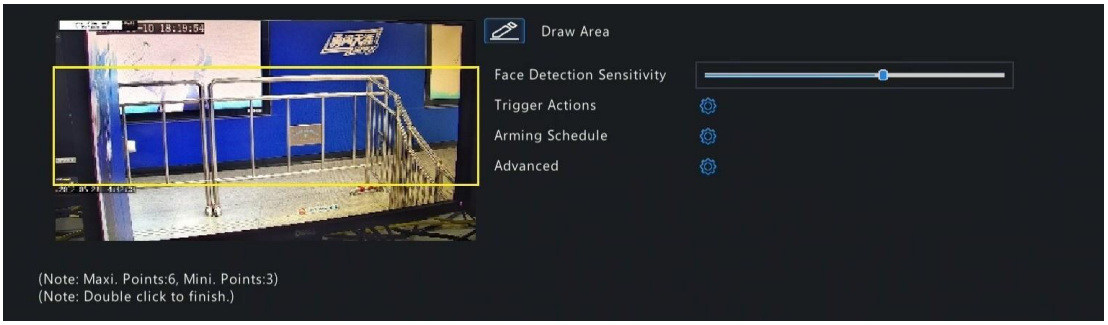
Note: The functions and parameters supported by camera side analysis and DVR side analysis are different.

- To configure cross line detection, enable the **Face Recognition** mode in Analyzer Configuration.

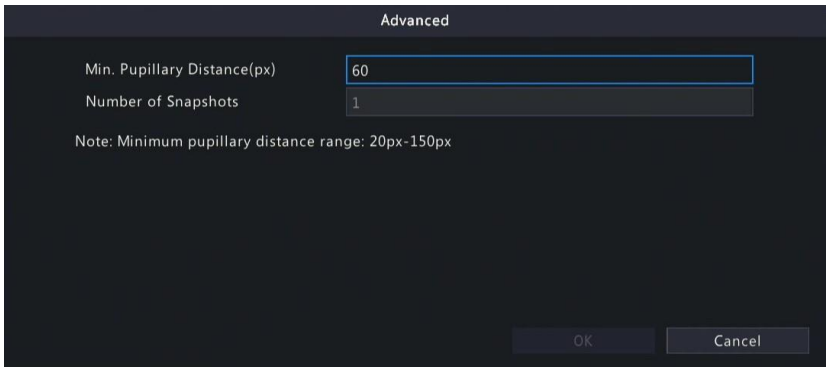
1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Face Detection** and click  to configure it.



4. Set the detection area. Only 1 detection area is allowed.
   - Full Screen: Detects all faces in the live video.
   - Specify Area: Detects faces in a specified area of the live video. Select **Specify Area** and click  , then a detection box appears in the left preview window. You can adjust the position of the area or draw an area as needed.



   - Adjust the position of the area. Point to a border of the area and drag it to the desired position.
   - Draw an area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed.
5. Set the face detection sensitivity by dragging the slider. The higher the sensitivity, the more likely a face will be detected. The lower the sensitivity, the less likely a side face or blurring face will be detected.
6. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
7. Click  right to **Advanced**, configure the parameters as needed, and then click **OK**.



Parameter	Description
Min. Pupillary Distance(px)	The minimum distance (measured in pixels) between two pupils. Faces with pupillary distance smaller than the value will not be captured. **Note:** The default value varies by image resolution, and the valid range varies by DVR model.
Number of Snapshots	The number of snapshots to be captured when the detection rule is triggered. Range: 1 to 30. Default: 5.

8. Click **Apply**.

5.1.4 Cross Line Detection

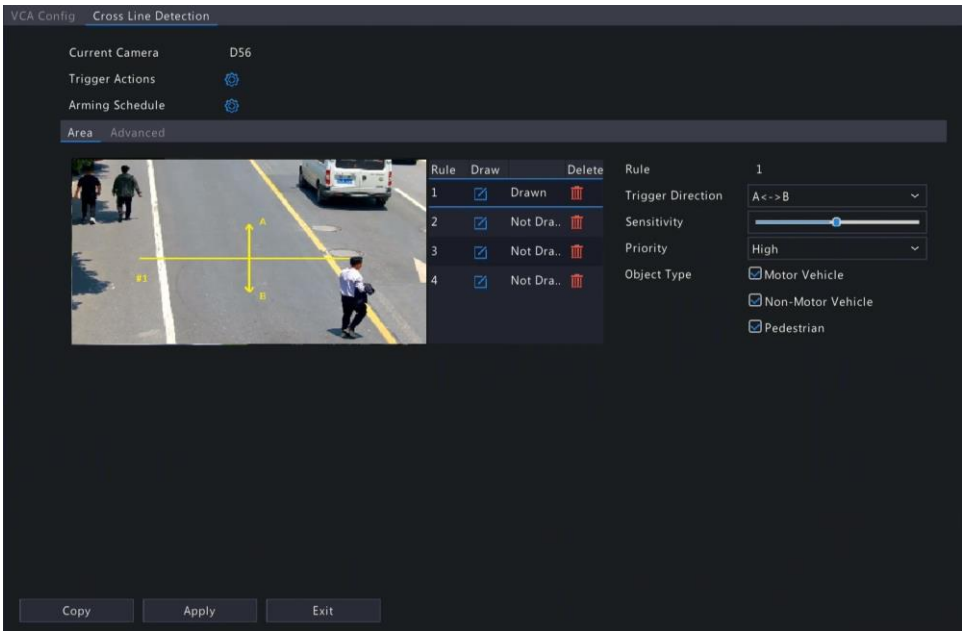
Cross line detection detects objects crossing a user-specified virtual line in a specified direction. The DVR takes snapshots and reports an alarm when the detection rule is triggered.

Note:

- The functions and parameters supported by camera side analysis and DVR side analysis are different.
- To configure cross line detection, enable the **Smart Intrusion Prevention** mode in Analyzer Configuration.

Configure Cross Line Detection

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Cross Line Detection** and click to configure it.

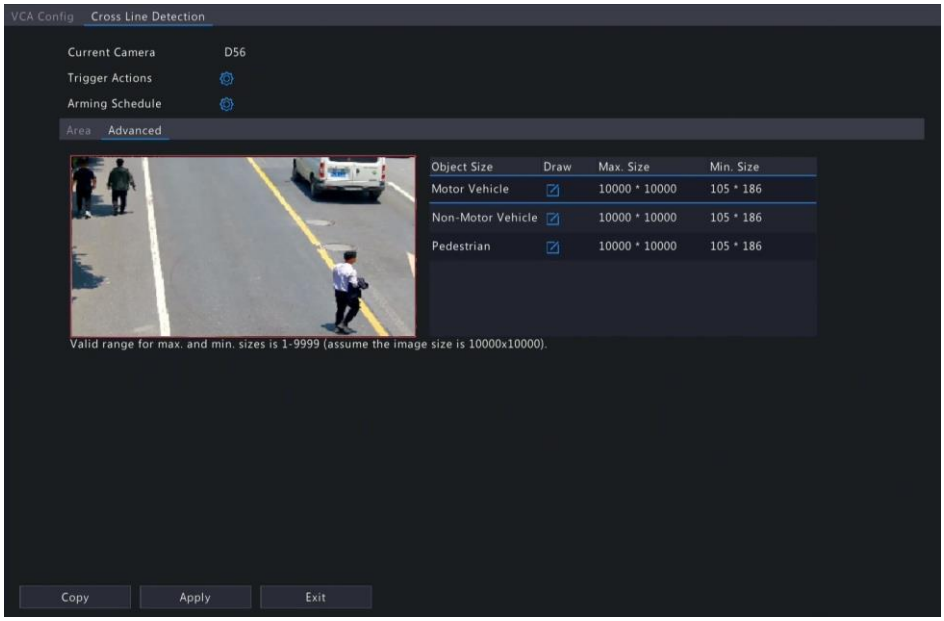


4. Set detection rules. The 4 detection rules shall be set separately. The following takes Rule 1 as an example.

Parameter	Description
Detection Line	Select Rule 1, click , then click on the left image and drag to draw a detection line. The line defaults to A<->B direction. You can modify it as needed.
Trigger Direction	Select the direction from which the object crosses the line to trigger an alarm. • A->B: A cross line alarm occurs when an object crossing the line from A to B is detected. • B->A: A cross line alarm occurs when an object crossing the line from B to A is detected. • A<->B (default): A cross line alarm occurs when an object crossing the line from A to B or from B to A is detected.

Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely cross line behaviors will be detected, but the false alarm rate will increase.
Priority	Select the priority of the detection rule, including **High**, **Medium**, and **Low**. The DVR detects the rule that is triggered first by default. If multiple rules are triggered at the same time, the DVR detects the rule with higher priority.
Object Type	Select the object(s) to be detected, including **Motor Vehicle**, **Non-Motor Vehicle**, and **Pedestrian**.

5. Under the **Advanced** tab, you can filter objects by size. For example, if you have selected **Motor Vehicle** as a detection object, after you set the **Max. Size** and **Min. Size** for it, motor vehicles larger than the max. size and smaller than the min. size will not be detected.



(1) Select an object type and click . A **Max. Size** box and a **Min. Size** box appear in the left preview window.

(2) Modify the max./min. size by adjusting the size of the box as follows: Point to a handle of the box and drag to resize it.

Note:

- The **Max. Size** and **Min. Size** settings take effect after you select the object as a detection object.
- The width and height of the maximum size must be greater than that of the minimum size.

6. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
7. (Optional) To apply the same settings to other cameras, click **Copy**, select the desired setting(s) and camera(s), and then click **OK**.
8. Click **Apply**.

View Real-time Snapshots

1. Right-click on the live view page and select **Preview Mode** > **Smart**, then the real-time snapshots are shown on the right.
2. Click a snapshot to view detailed information. See Perimeter for details.

5.1.5 Intrusion Detection

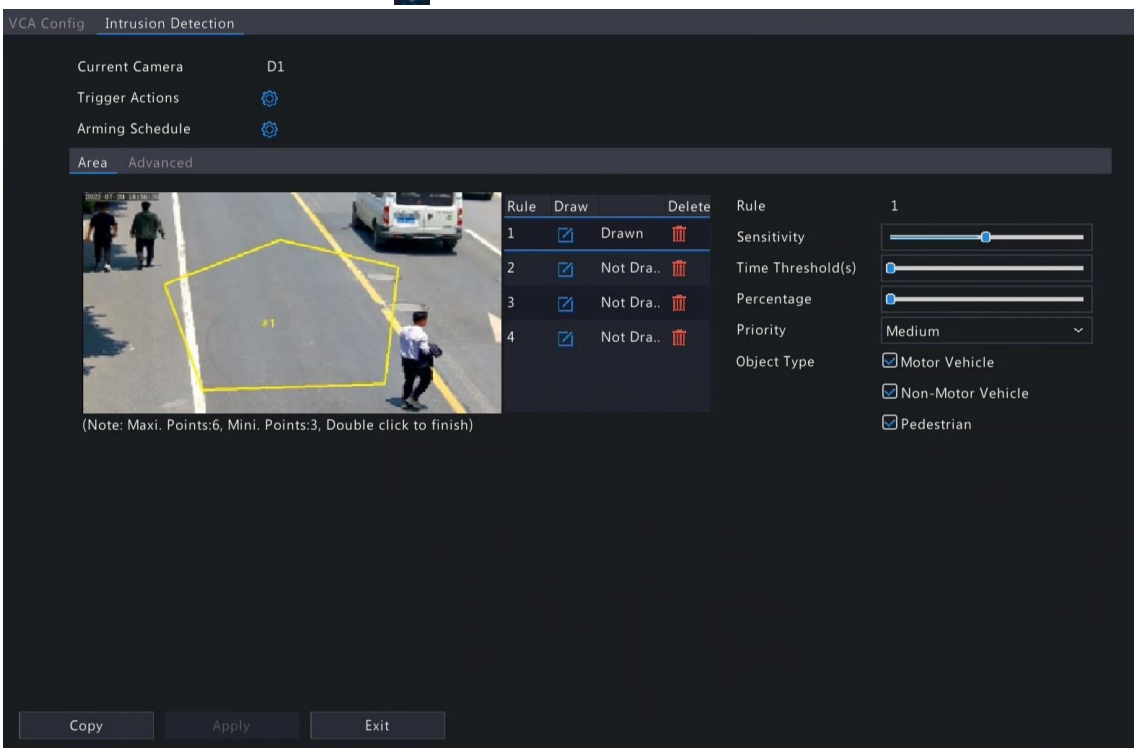
Intrusion detection detects objects entering a user-specified area and staying for a preset time. The DVR takes snapshots and reports an alarm when the detection rule is triggered.

Note:

- The functions and parameters supported by camera side analysis and DVR side analysis are different.
- To configure intrusion detection, enable the **Smart Intrusion Prevention** mode in Analyzer Configuration.

Configure Intrusion Detection

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Intrusion Detection** and click to configure it.

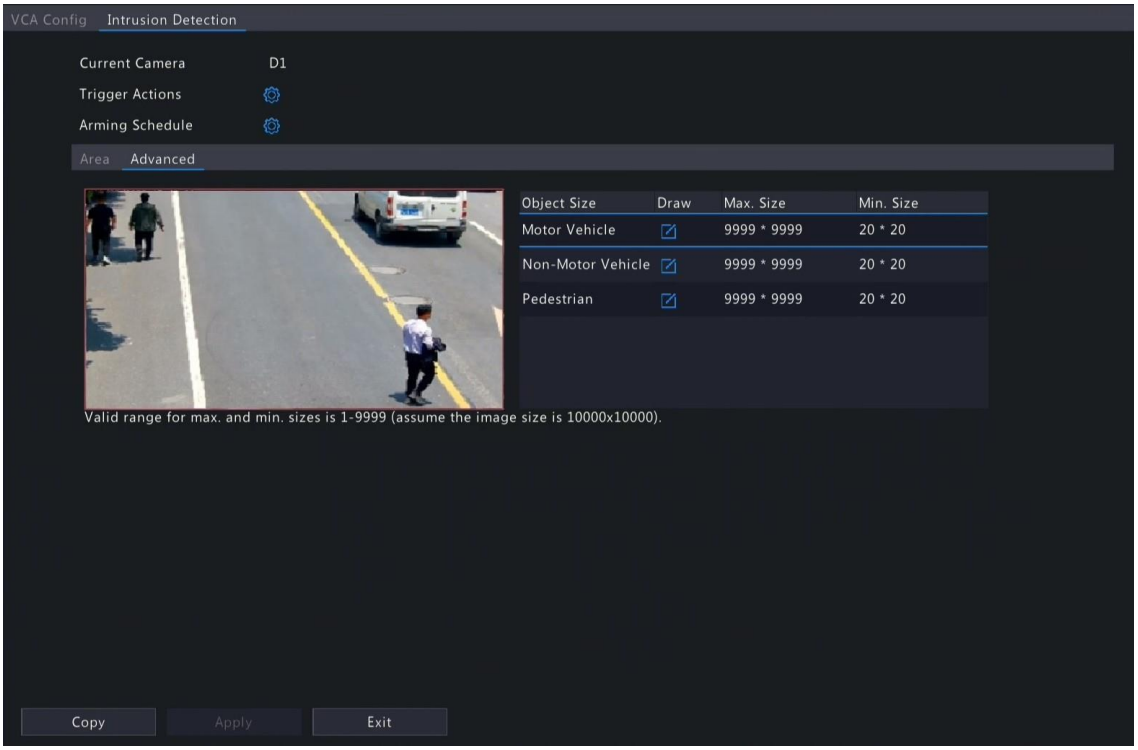


4. Set detection rules. The 4 detection rules shall be set separately. The following takes Rule 1 as an example.

Parameter	Description
Detection Area	Select Rule 1, click , and then draw a detection area in the left preview window. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely intrusion behaviors will be detected, but the false alarm rate will increase.
Time Threshold(s)	Set the time threshold by dragging the slider. If an object stays in the detection area for the set time, an intrusion alarm will be triggered.
Percentage	Set the percentage by dragging the slider. If the proportion of the object size to the detection area size reaches the set value, an intrusion alarm will be triggered.

Priority	Select the priority of the detection rule, including **High**, **Medium**, and **Low**. The DVR detects the rule that is triggered first by default. If multiple rules are triggered at the same time, the DVR detects the rule with higher priority.
Object Type	Select the object(s) to be detected, including **Motor Vehicle**, **Non-Motor Vehicle**, and **Pedestrian**.

5. Under the **Advanced** tab, you can filter objects by size. For example, if you have selected **Motor Vehicle** as a detection object, after you set the **Max. Size** and **Min. Size** for it, motor vehicles larger than the max. size and smaller than the min. size will not be detected.



(1) Select an object type and click  . A **Max. Size** box and a **Min. Size** box appear in the left preview window.

(2) Modify the max./min. size by adjusting the size of the box as follows: Point to a handle of the box and drag to resize it.

Note:

- The **Max. Size** and **Min. Size** settings take effect after you select the object as a detection object.
- The width and height of the maximum size must be greater than that of the minimum size.

6. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
7. (Optional) To apply the same settings to other cameras, click **Copy**, select the desired setting(s) and camera(s), and then click **OK**.
8. Click **Apply**.

View Real-time Snapshots

1. Right-click on the live view page and select **Preview Mode** > **Smart**, then the real-time snapshots are shown on the right.
2. Click a snapshot to view detailed information. See Perimeter for details.

5.1.6 Enter Area Detection

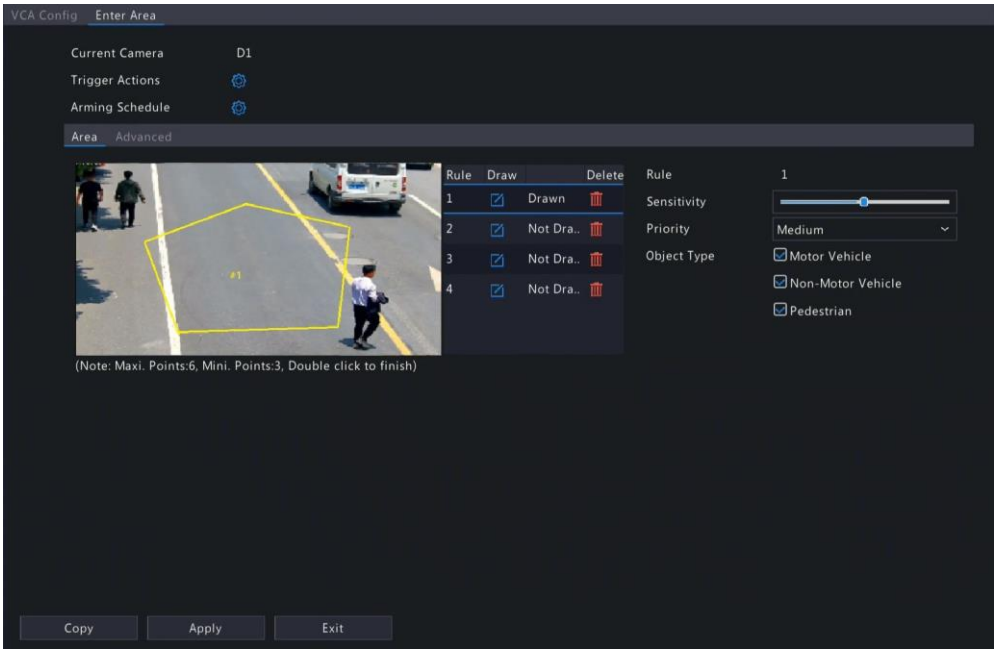
Enter area detection detects objects entering a user-specified area. The DVR takes snapshots and reports an alarm when the detection rule is triggered.

Note:

- The functions and parameters supported by camera side analysis and NVR (DVR) side analysis are different.
- To configure enter area detection, enable the **Smart Intrusion Prevention** mode in Analyzer Configuration.

Configure Enter Area Detection

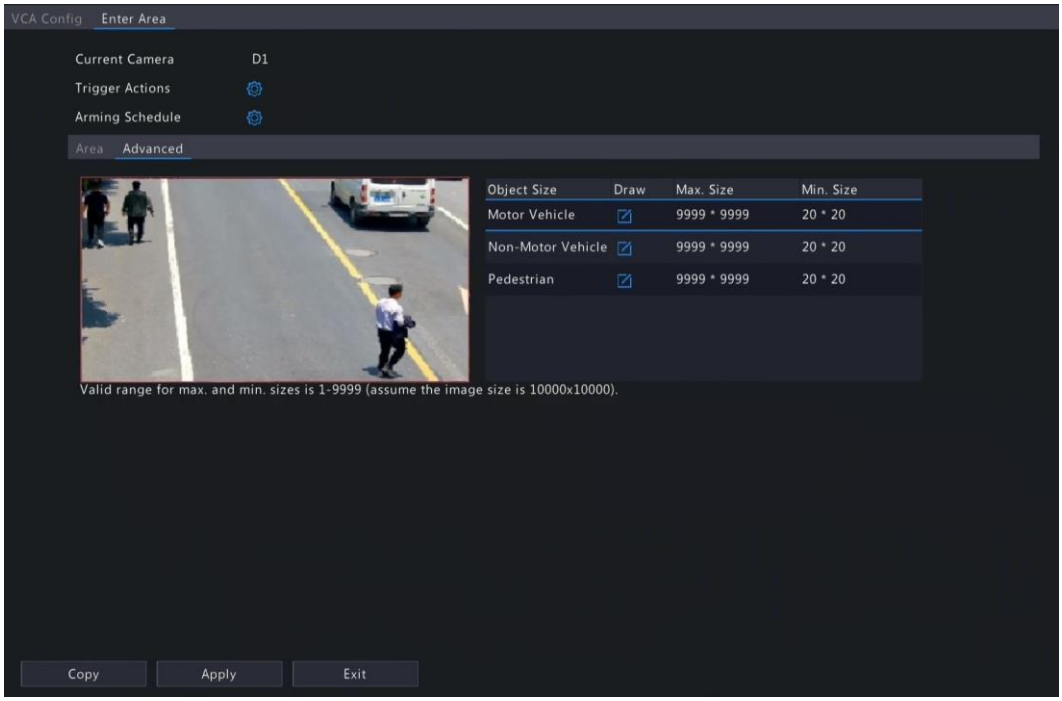
1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Enter Area** and click to configure it.



4. Set detection rules. The 4 detection rules shall be set separately. The following takes Rule 1 as an example.

Parameter	Description
Detection Area	Select Rule 1, click , and then draw a detection area in the left preview window. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely entry behaviors will be detected, but the false alarm rate will increase.
Priority	Select the priority of the detection rule, including **High**, **Medium**, and **Low**. The DVR detects the rule that is triggered first by default. If multiple rules are triggered at the same time, the DVR detects the rule with higher priority.
Object Type	Select the object(s) to be detected, including **Motor Vehicle**, **Non-Motor Vehicle**, and **Pedestrian**.

5. Under the **Advanced** tab, you can filter objects by size. For example, if you have selected **Motor Vehicle** as a detection object, after you set the **Max. Size** and **Min. Size** for it, motor vehicles larger than the max. size and smaller than the min. size will not be detected.



(1) Select an object type and click  . A **Max. Size** box and a **Min. Size** box appear in the left preview window.

(2) Modify the max./min. size by adjusting the size of the box as follows: Point to a handle of the box and drag to resize it.

Note:

- The **Max. Size** and **Min. Size** settings take effect after you select the object as a detection object.
- The width and height of the maximum size must be greater than that of the minimum size.

6. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
7. (Optional) To apply the same settings to other cameras, click **Copy**, select the desired setting(s) and camera(s), and then click **OK**.
8. Click **Apply**.

View Real-time Snapshots

1. Right-click on the live view page and select **Preview Mode** > **Smart**, then the real-time snapshots are shown on the right.
2. Click a snapshot to view detailed information. See Perimeter for details.

5.1.7 Leave Area Detection

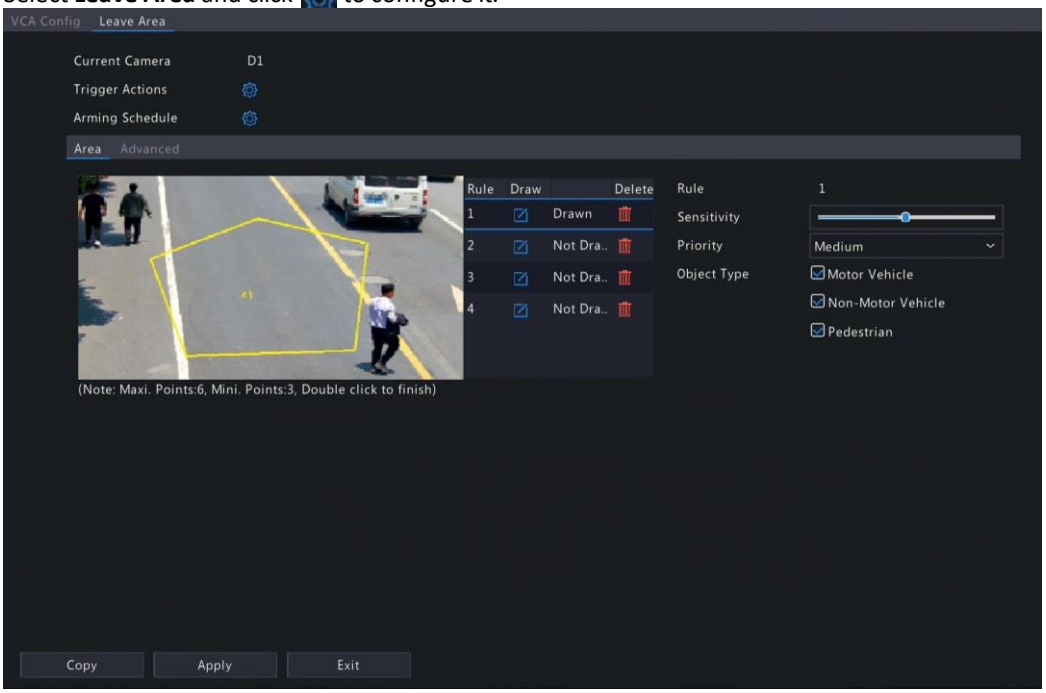
Leave area detection detects objects leaving a user-specified area. The DVR takes snapshots and reports an alarm when the detection rule is triggered.

Note:

- The functions and parameters supported by camera side analysis and NVR (DVR) side analysis are different.
- To configure leave area detection, enable the **Smart Intrusion Prevention** mode in Analyzer Configuration.

Configure Leave Area Detection

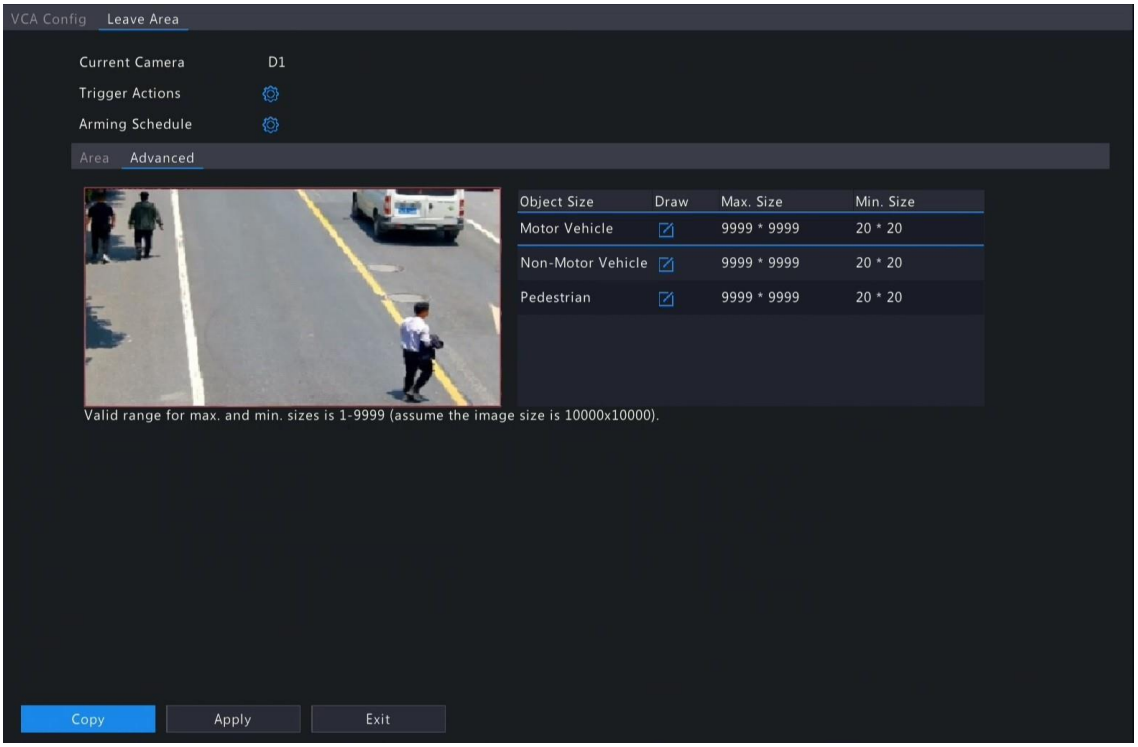
1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Leave Area** and click to configure it.



4. Set detection rules. The 4 detection rules shall be set separately. The following takes Rule 1 as an example.

Parameter	Description
Detection Area	Select Rule 1, click , and then draw a detection area in the left preview window. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely leaving behaviors will be detected, but the false alarm rate will increase.
Priority	Select the priority of the detection rule, including **High**, **Medium**, and **Low**. The DVR detects the rule that is triggered first by default. If multiple rules are triggered at the same time, the DVR detects the rule with higher priority.
Object Type	Select the object(s) to be detected, including **Motor Vehicle**, **Non-Motor Vehicle**, and **Pedestrian**.

5. Under the **Advanced** tab, you can filter objects by size. For example, if you have selected **Motor Vehicle** as a detection object, after you set the **Max. Size** and **Min. Size** for it, motor vehicles larger than the max. size and smaller than the min. size will not be detected.



(1) Select an object type and click  . A **Max. Size** box and a **Min. Size** box appear in the left preview window.

(2) Modify the max./min. size by adjusting the size of the box as follows: Point to a handle of the box and drag to resize it.

Note:

- The **Max. Size** and **Min. Size** settings take effect after you select the object as a detection object.
- The width and height of the maximum size must be greater than that of the minimum size.

6. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
7. (Optional) To apply the same settings to other cameras, click **Copy**, select the desired setting(s) and camera(s), and then click **OK**.
8. Click **Apply**.

View Real-time Snapshots

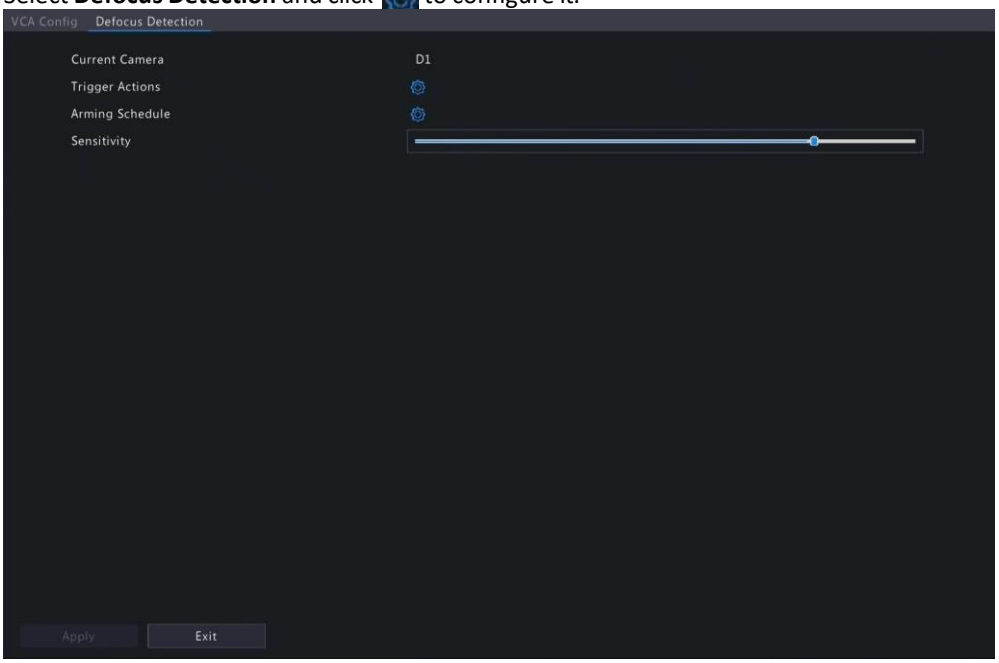
1. Right-click on the live view page and select **Preview Mode** > **Smart**, then the real-time snapshots are shown on the right.
2. Click a snapshot to view detailed information. See Perimeter for details.

5.1.8 Defocus Detection

Defocus detection detects lens defocus. The DVR takes snapshots and reports an alarm when the detection rule is triggered.

Note: Defocus Detection only works with compatible AI GV-IP Cameras that support this feature (see the datasheet for compatible AI cameras).

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Defocus Detection** and click to configure it.



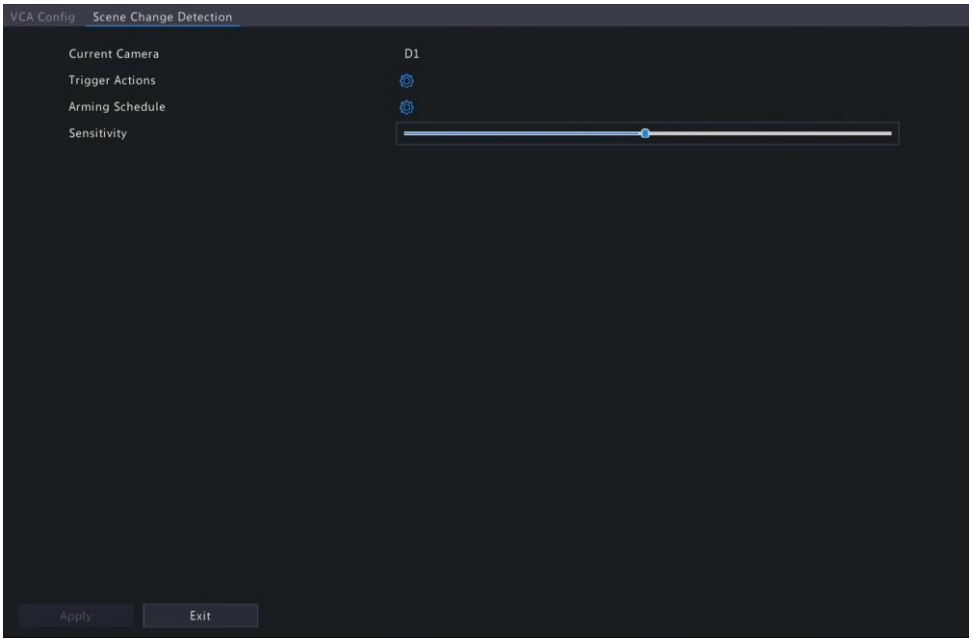
4. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
5. Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely defocus will be detected, but the false alarm rate will increase.
6. Click **Apply**.

5.1.9 Scene Change Detection

Scene change detection detects the change of surveillance scene caused by external factors such as intentional camera movement. The DVR takes snapshots and reports an alarm when the detection rule is triggered.

Note: Scene Change Detection only works with compatible AI GV-IP Cameras that support this feature (see the datasheet for compatible AI cameras).

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Scene Change Detection** and click  to configure it.



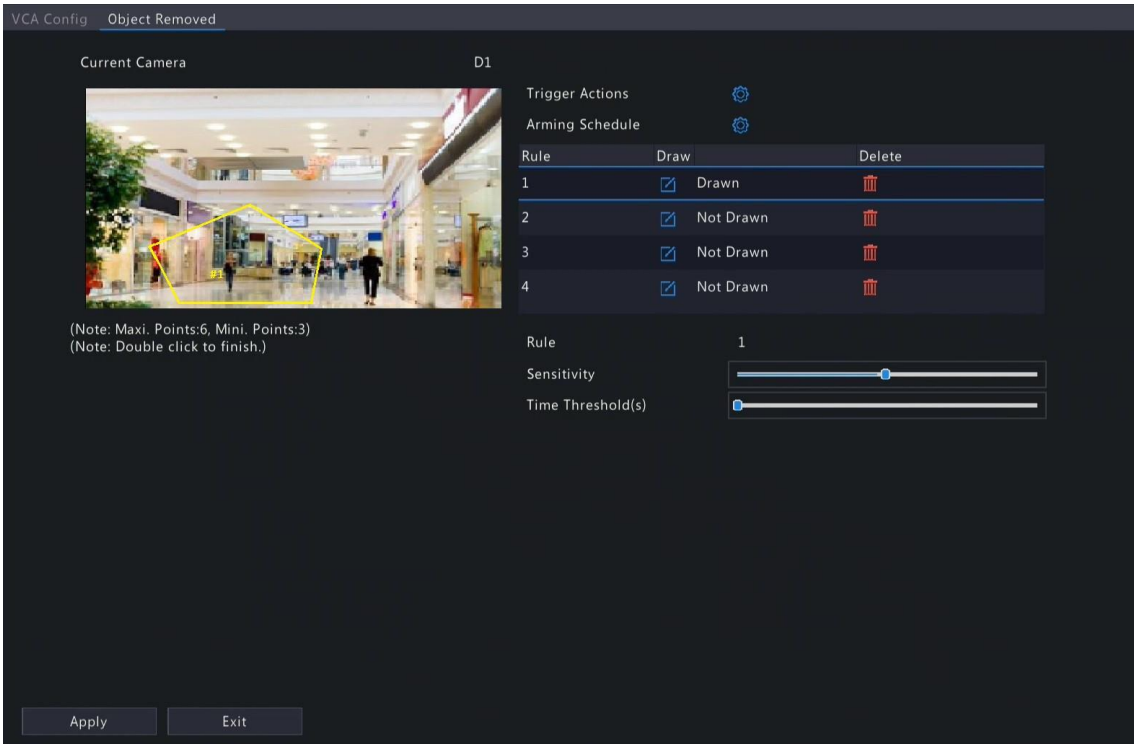
4. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
5. Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely scene change behaviors will be detected, but the false alarm rate will increase.
6. Click **Apply**.

5.1.10 Object Removed Detection

Object removed detection detects objects removed from a user-specified area for a preset time. The DVR takes snapshots and reports an alarm when the detection rule is triggered.

Note: Scene Change Detection only works with compatible AI GV-IP Cameras that support this feature (see the datasheet for compatible AI cameras).

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Object Removed** and click to configure it.



4. Set detection rules. The 4 detection rules shall be set separately. The following takes Rule 1 as an example.

Parameter	Description
Detection Area	Select Rule 1, click , and then draw a detection area in the left preview window. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely object removal behaviors will be detected, but the false alarm rate will increase.
Time Threshold(s)	Set the time threshold by dragging the slider. If an object is removed from the detection area for the set time, an alarm will be triggered.

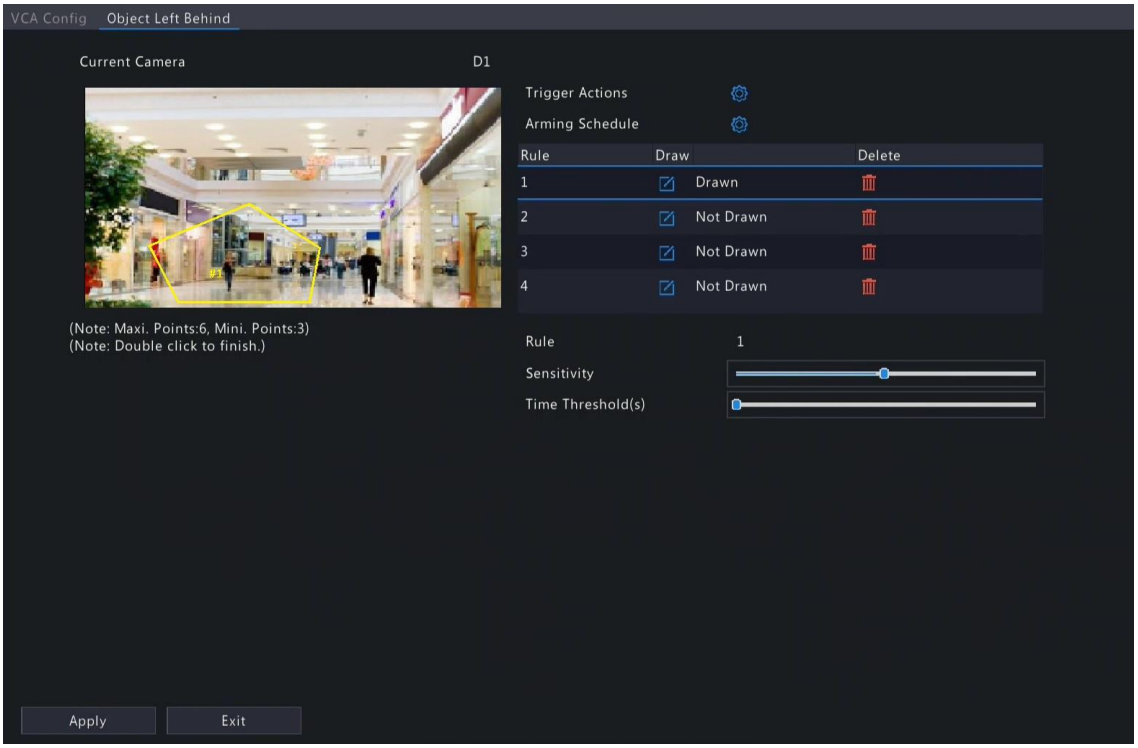
5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Apply**.

5.1.11 Object Left Behind Detection

Object left behind detection detects objects left behind in a user-specified area for a preset time. The DVR takes snapshots and reports an alarm when the detection rule is triggered.

Note: Object Left Behind Detection only works with compatible AI GV-IP Cameras that support this feature (see the datasheet for compatible AI cameras).

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Object Left Behind** and click to configure it.



4. Set detection rules. The 4 detection rules shall be set separately. The following takes Rule 1 as an example.

Parameter	Description
Detection Area	Select Rule 1, click , and then draw a detection area in the left preview window. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely object left behind behaviors will be detected, but the false alarm rate will increase.
Time Threshold(s)	Set the time threshold by dragging the slider. If an object is left behind in the detection area for the set time, an alarm will be triggered.

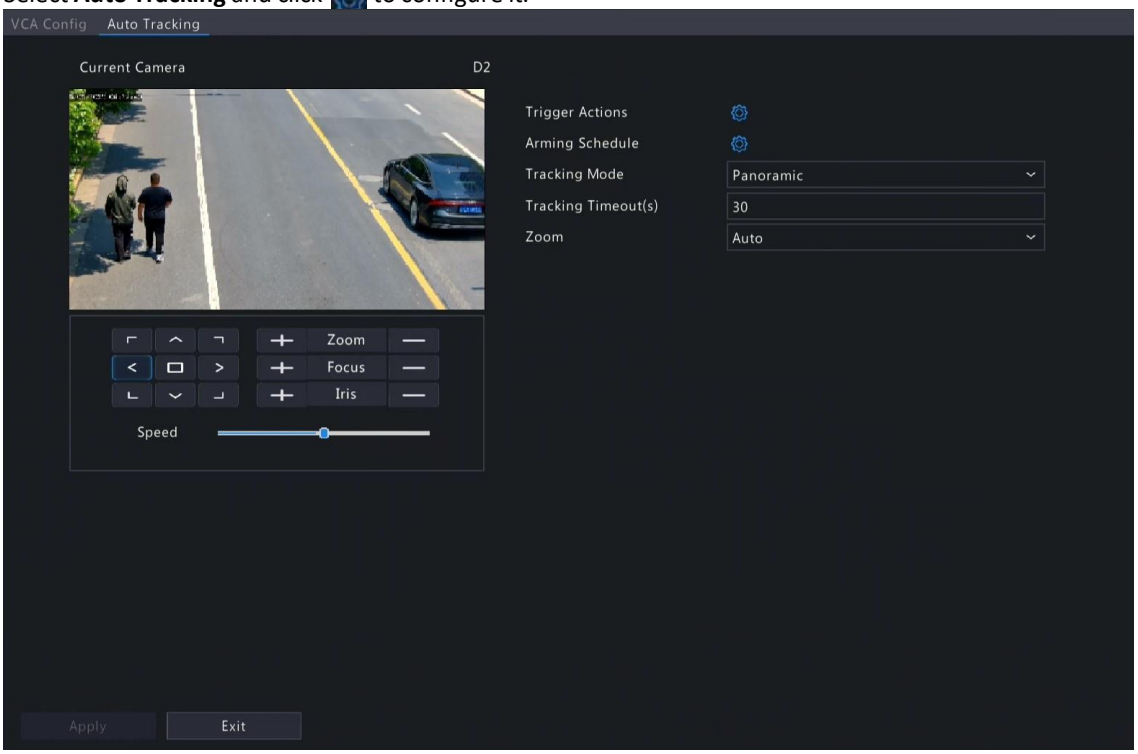
5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Apply**.

5.1.12 Auto Tracking

Auto tracking detects moving objects in the live video and tracks the first object detected.

Note: Auto Tracking only works with compatible AI GV-IP Cameras that support this feature (see the datasheet for compatible AI cameras).

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Auto Tracking** and click to configure it.



4. Set the tracking parameters.

Parameter	Description
Tracking Area	In the PTZ operation area, use the PTZ control buttons to adjust the tracking area, including shooting angle, zoom, focus, iris and rotation speed. 
Tracking Mode	Panoramic: Continuously tracks objects that appear in the tracking area until they disappear from the tracking area.
Tracking Timeout(s)	Set the maximum tracking time. The device stops tracking when the object disappears or the set time is up. Range: 1 to 300. Default: 30.
Zoom	Select the tracking zoom ratio: **Auto** or **Current Zoom**. The default is **Auto**. • Auto: Automatically adjusts the zoom ratio according to the tracking distance, focusing more on the object behavior. • Current Zoom: Keeps the zoom ratio when the object is tracked, focusing more on the whole monitoring scene.

5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Apply**.

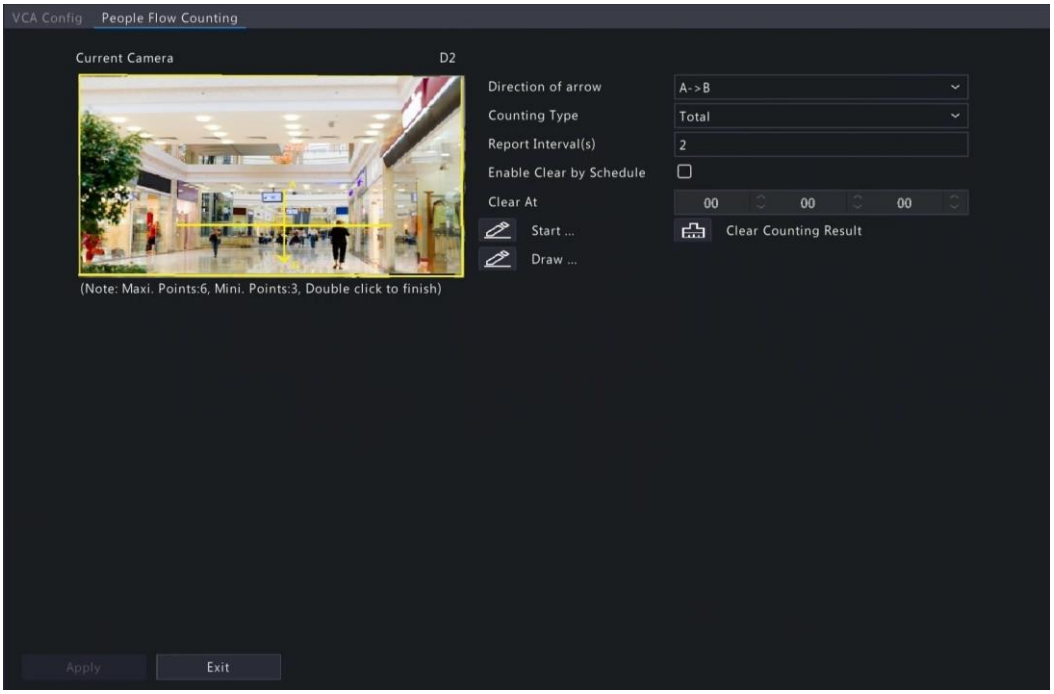
5.1.13 People Flow Counting

People flow counting counts people passing a specified tripwire in a user-defined area.

Note: People Flow Counting only works with compatible AI GV-IP Cameras that support this feature (see the datasheet for compatible AI cameras).

Configure People Flow Counting

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **People Flow Counting** and click  to configure it.



4. Set the people flow counting rule.

Parameter	Description
Draw Area	Click and draw a detection area in the left preview window. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed.
Draw Tripwire	Click and draw a tripwire in the left preview window. Only 1 tripwire is allowed.
Direction of arrow	Set the entry direction. • A- >B: A to B is entry, B to A is exit. • B- >A: B to A is entry, A to B is exit.
Counting Type	Select the counting type: **Total**, **People Entered**, or **People Exited**. **Total** is the default counting type. • Total: Displays the number of people entering and leaving the detection area. • People Entered: Displays the number of people entering the detection area. An entry is counted as a person crosses the tripwire in the direction of the arrow and passes through the detection area. • People Exited: Displays the number of people leaving the detection area. An exit is counted as an object crosses the tripwire in the opposite direction of the arrow and passes through the detection area. **Note:** • Before use, you need to enable people counting OSD under **Menu** > **Camera** > **OSD**. • People that loiter in the detection area, cross the tripwire only, or cross the detection area only are not counted.
Report Interval(s)	Set the time interval for reporting people flow statistics. Default: 60. Range: 1 to 60. The DVR reports people flow statistics to the uplink platform at set intervals. The uplink platform must subscribe to the function to receive the statistics.
Enable Clear by Schedule	Select the **Enable Clear by Schedule** check box and set the time to clear people counting statistics.

Parameter	Description
Clear At	The clearing time defaults to 00:00:00. You can modify it as needed. The DVR will clear people counting statistics on the OSD at the set time everyday. This operation does not affect statistics and data reporting.
Clear Counting Result	Click  to clear people counting statistics displayed on the live video immediately. This operation only affect the people counting OSD and does not affect statistics and data reporting.

5. To be alerted when the number of people in the detection area exceeds a certain number, you can enable and configure **People Present Alarm** under **Menu** > **Alarm** > **People Present Alarm**. See People Present Alarm for details.
6. Click **Apply**.

View Real-time Statistics

Right-click on the live view page and select **Preview Mode** > **Smart**, then the real-time people statistics are shown on the right. See People Flow Counting for details.

5.2 Analyzer Configuration

View the analyzer usage and change the analysis mode.

Analyzer is a smart chip used to process smart intrusion protection and ultra motion detection. The analyzer capacity may vary by DVR model, which requires you to allocate channels appropriately.

1. Go to **Menu** > **VCA** > **Analyzer Config**.
2. Select an analysis mode. **Ultra Motion Detection** is the default analysis mode.

   Note:
   Changing the analysis mode will disable the channel configuration in the original mode. Before you change the analysis mode, disable the functions in the current analysis mode for all channels. For example, if ultra motion detection is enabled for D1 and D2, you need to disable intrusion detection for D1 and D2 first before changing the analysis mode to smart intrusion prevention.
3. View the analyzer's capacity usage. The analyzer's capacity is divided into the number of video stream analysis channels and the number of image stream analysis channels. Video stream analysis is NVR (DVR)-side analysis, and image stream analysis is camera-side analysis.

5.3 VCA Search

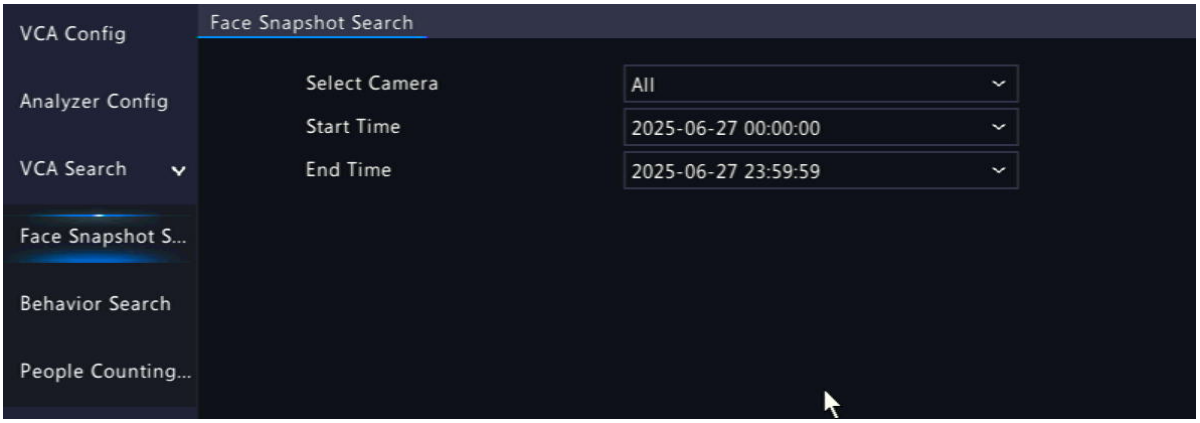
Search for face snapshots, VCA event snapshots and people counting statistics.

5.3.1 Face Snapshot Search

Search for face snapshots.

Search Face Snapshots

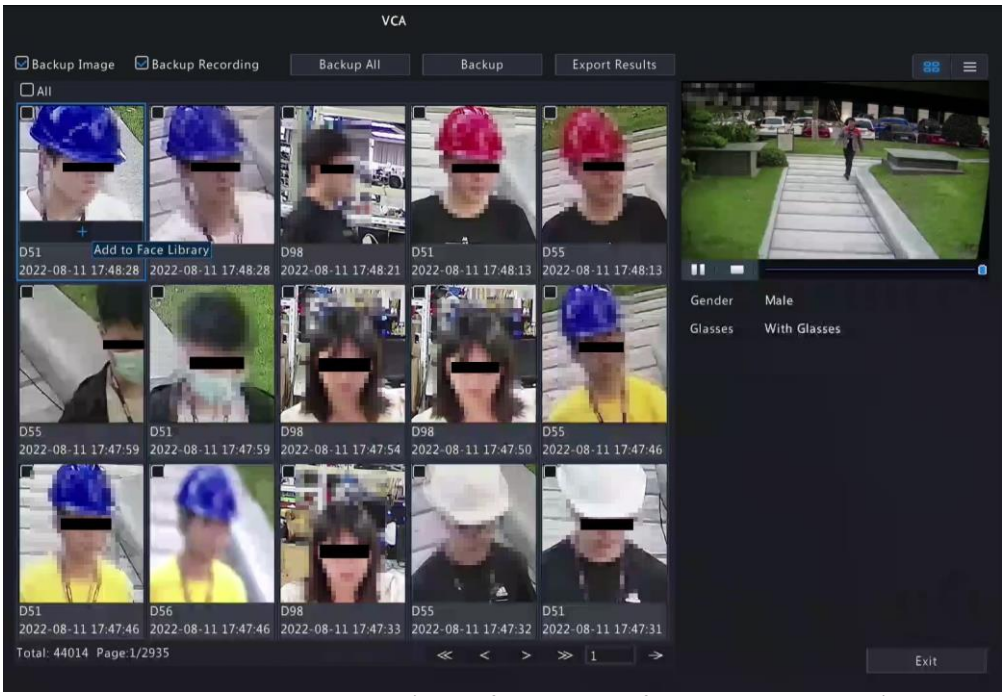
1. Go to **Menu** > **VCA** > **VCA Search** > **Face Snapshot Search**.



2. Set search conditions.

Parameter	Description
Select Camera	Select the camera(s) to search.
Gender	Select the gender: **All**, **Male**, or **Female**.
Glasses	Select the glasses status: **All**, **No Glasses**, or **With Glasses**.
Start/End Time	Specify the time period to search for face snapshots. **Note:** A search range smaller than five months is recommended, because earlier snapshots and recordings may have been overwritten due to full storage.

3. Click **Search**. The search results are shown in tile mode by default. You may click  to switch to list mode.



Click any image to view the 20s video (10s before and 10s after the snapshot time) and detailed information about it even if the object lowers his/her head or turns his/her head away, or when the head is occluded.

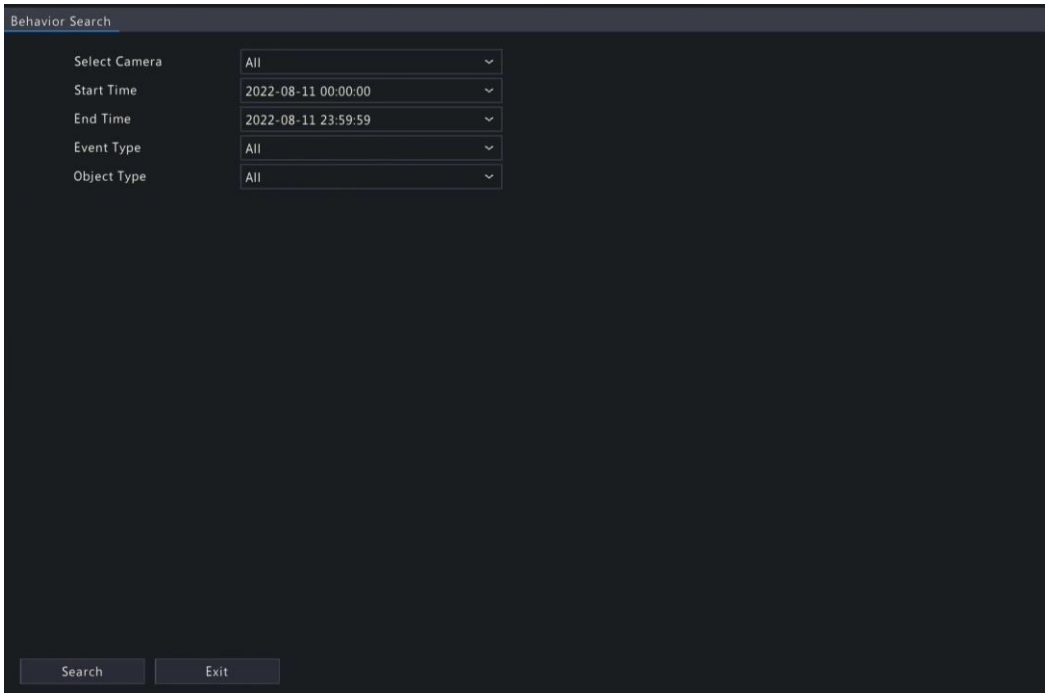
Other Operations

Operation	Description
Backup/Backup All	1. Enable **Backup Image** or/and **Backup Recording** as needed. By default, they are both enabled. • Backup Image: Back up the selected image(s) to an external device. • Backup Recording: Back up the 10s video of the selected image(s) to an external device. 2. Select **Backup** or **Backup All**. • Backup: Back up specified search results. Select the search result(s) you want to back up and click **Backup**. • Backup All: Back up all search results. Click **Backup All**.
Export Results	1. Enable **Backup Image** or/and **Backup Recording** as needed, and click **Export Results**. 2. Select the export partition and click **Export Results** to export the search results to an external storage device.

5.3.2 Behavior Search

Search for images based on VCA behaviors including cross line detection, enter area detection, leave area detection, smart motion detection, etc. Behaviors supported for search may vary with DVR model.

1. Go to **Menu** > **VCA** > **VCA Search** > **Behavior Search**.



2. Set search conditions.

Parameter	Description
Select Camera	Select the camera(s) to search.
Start/End Time	Specify the time period to search. **Note:** A search range smaller than five months is recommended, because earlier snapshots and recordings may have been overwritten due to full storage.
Event Type	Select the event type to search.
Object Type	Select the object type to search: **All**, **Pedestrian**, **Non-Motor Vehicle**, or **Motor Vehicle**.

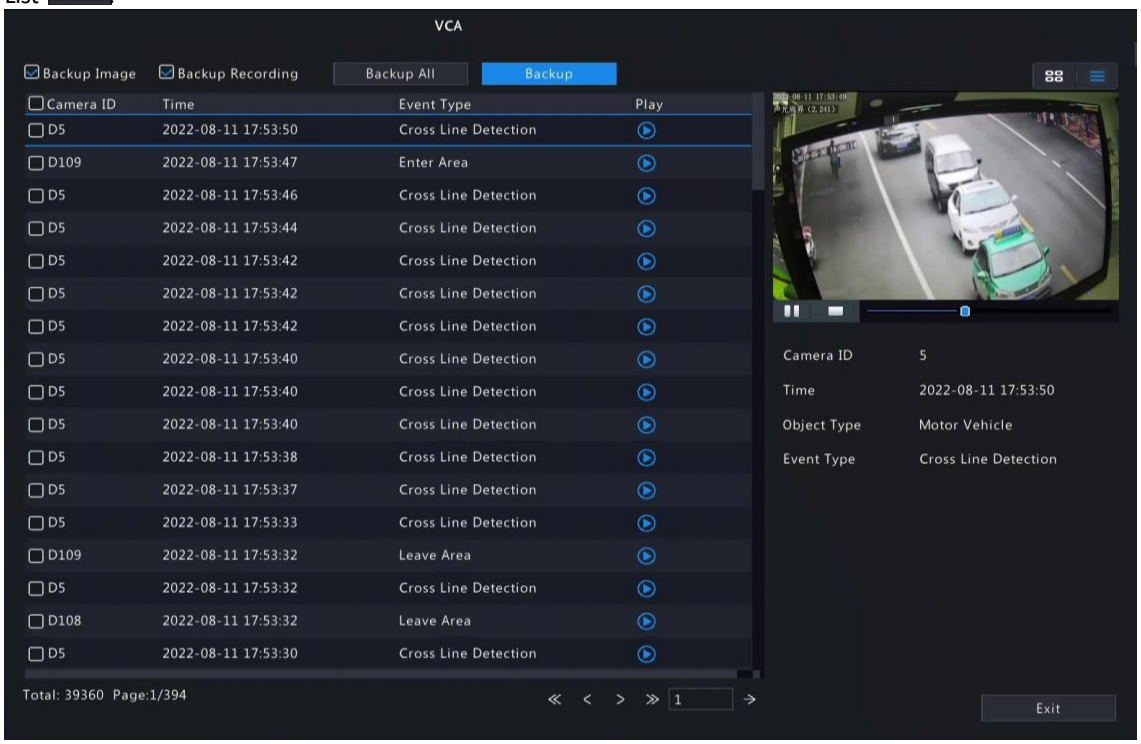
3. Click **Search**. The search results are shown in tile mode by default. You may click  to switch to list mode.

- Tile 

Note:

- By default, a 10s video (5s before and 5s after the first image) and the detailed information about the first image are displayed on the right.
- You can click any image to view the 10s video and detailed information about it.

- List 



Note:

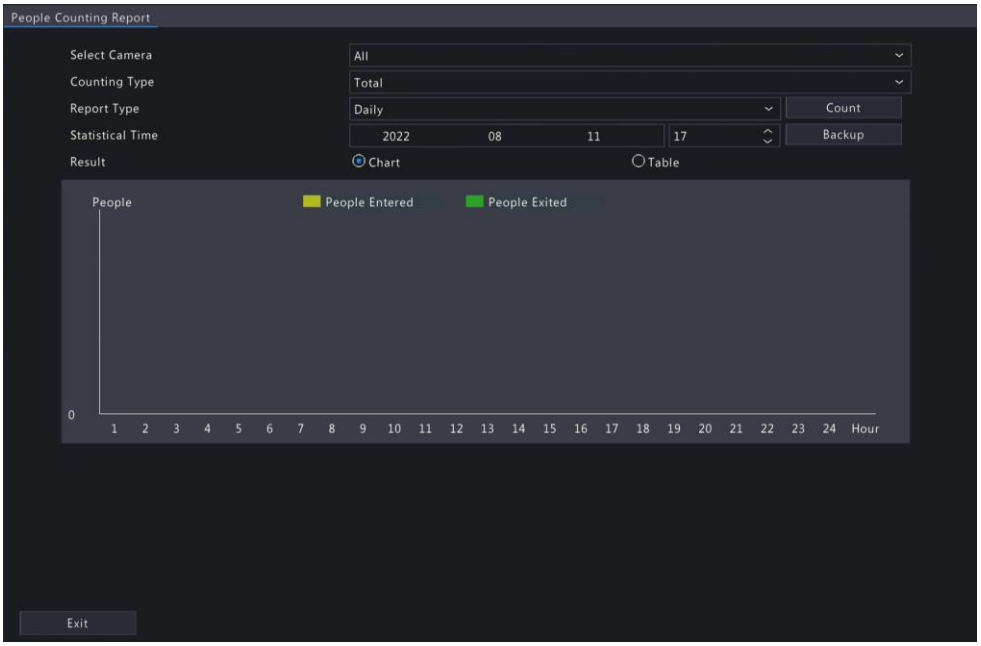
- By default, a 10s video (5s before and 5s after the first item) and the detailed information about the first item are displayed on the right.
- You can click any item and click  or  to view the 10s video and detailed information about it.

4. Back up search results. See Back up search results for details.

5.3.3 People Counting Report

Search for people counting data. You can view daily/weekly/monthly/yearly people counting reports-the number of people entering and/or leaving a certain area during a specified time period.

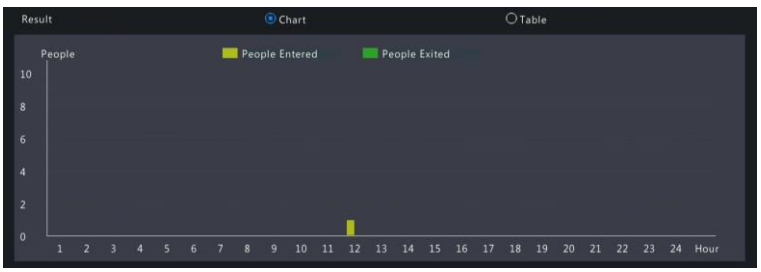
1. Go to **Menu** > **VCA** > **VCA Search** > **People Counting Report**.



2. Set search conditions.

Parameter	Description
Select Camera	Select the camera(s) to search.
Counting Type	Select the counting type to search: **Total**, **People Entered**, or **People Exited**.
Report Type	Select the report type to view: **Hourly**, **Daily**, **Weekly**, **Monthly**, or **Yearly**.
Statistical Time	Select the time to count.

3. Select to create the report as a chart or a table.



- Chart
- Table

4. Click **Backup** to export the report to an external storage device as a .CSV file. The content of the file exported from a report in chart or table format is the same.

5.4 Smart Preview

View real-time snapshots and statistics of four major categories of VCA functions on the live view page, including vehicle, face, perimeter and people counting.

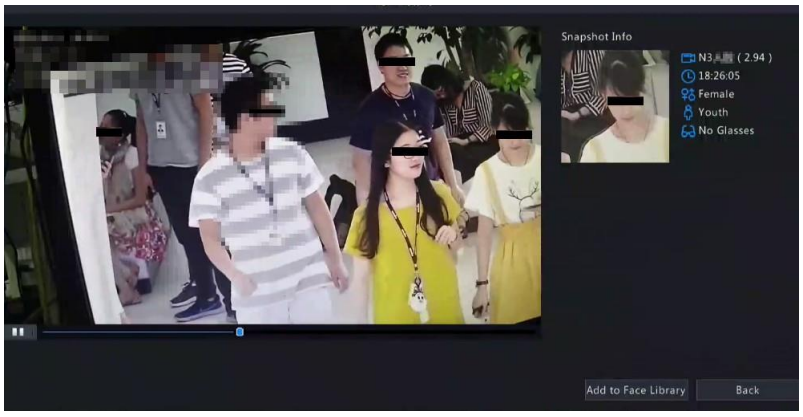
Right-click on the live view page and select **Preview Mode** > **Smart**, then the real-time snapshots are displayed on the right.

Main Interface

Icon	Description
	Select the event type(s) for which you want to view real-time snapshots. 
	Open the **Behavior Search** page.
	Open the **VCA Config** page.
	Clear real-time snapshots displayed on the live view page. Search records and statistics are not affected.

Face

View face snapshots, face snapshot information, and face matching/mismatching information.

Type	Description
Not Match Face Info	1. Select a mismatched face snapshot.  2. Click on the snapshot to view more details. 

Face Snapshot Info	1. Select a face snapshot. 2. Click on the snapshot to view more details.
Match Face Info	1. Select a matched face snapshot. The left image is the captured image, and the right image is the face image in the face list. 2. Click on the snapshot to view more details.

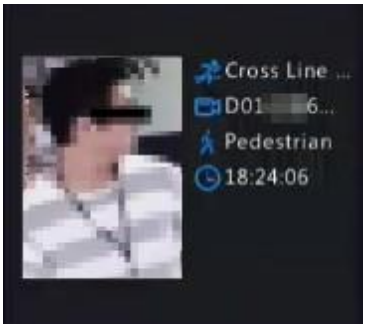
Note:

- In the **View Details** dialog box, a 10s video (5s before and 5s after the snapshot) is automatically played on the left, and the snapshot and its detailed information are displayed on the right.
- You can click + under a face snapshot or click **Add to Face Library** in the details page of a face snapshot to add the snapshot to the face list, and click 🔍 to search face images in face lists by this snapshot.

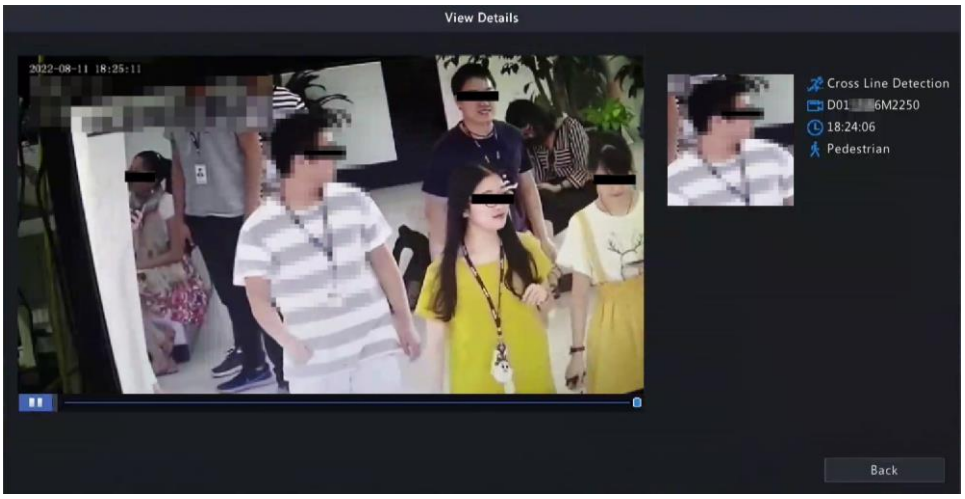
Perimeter

View real-time snapshots of perimeter protection functions including cross line detection, intrusion detection, enter area detection and leave area detection.

1. Select a snapshot.



2. Click on the snapshot to view more details.
   In the **View Details** dialog box, a 10s video (5s before and 5s after the snapshot) is automatically played on the left, and the snapshot and its detailed information including event type, camera name, time, and object type are displayed on the right.



People Flow Counting

View real-time people flow statistics including the number of people entering/leaving/currently allowed/present.

- : The number of people present in the detection area does not exceed the set threshold. : The number of people present in the detection area exceeds the set threshold.
- : Clear the people counting statistics on the current page. This operation does not affect statistics and data reporting.

6 Network Configuration

Configure the network parameters of the DVR, such as IP address.

Note: The default IP address of network interface is 192.168.0.100.

6.1 Basic Configuration

Configure the network, mobile app, DDNS, email, etc.

6.1.1 Network Configuration

Configure IP address and other network parameters of the DVR.

1. Go to **Menu** > **Network** > **Basic** > **Network**.

2. Configure the network parameters according to the actual network environment.

   Note: The MTU must be in the range of [576-1500]. To use IPv6, you must set MTU within [1280-1500], and make sure the IPv6 addresses of the DVR and PC are connected. To use functions such as live view, playback, make sure IPv4 addresses of the DVR and PC are also connected.

3. Click **Apply**.

6.1.2 Mobile APP

You can scan this QR cord with the GV-Eye mobile app to remote view the NVR. For details, see *4. GV-Relay QR Code* in the GV-Eye Installation Guide.

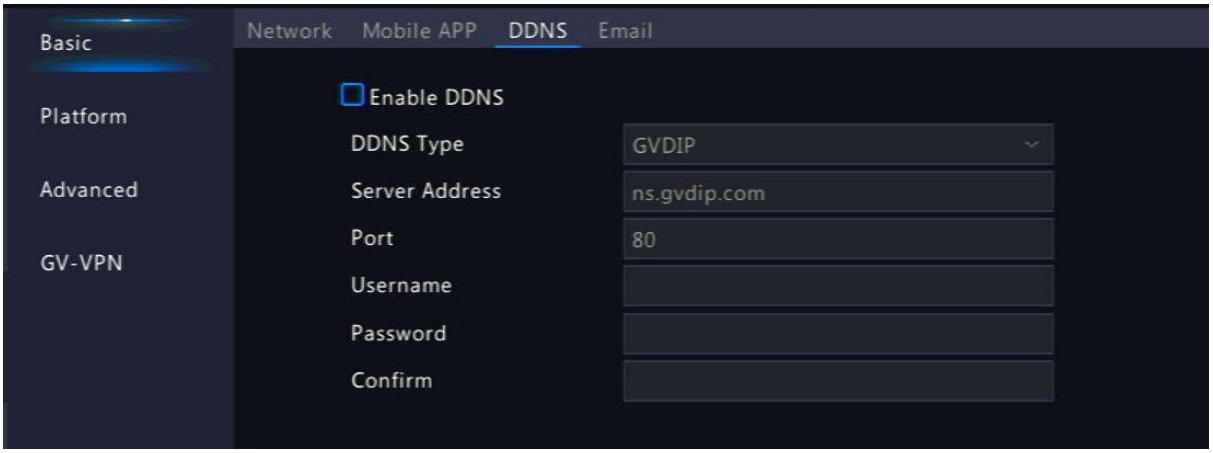
Go to **Menu** > **Network** > **Basic** > **Mobile APP**.

6.1.3 DDNS

Configure DDNS so you can access the DVR on the LAN from the Internet by visiting a fixed domain name instead of the changing IP addresses.

Note: You can open the DVR's Web page by visiting **http://*server address*/*DVR's domain name*** using a Web browser.

1. Go to **Menu** > **Network** > **Basic** > **DDNS**.



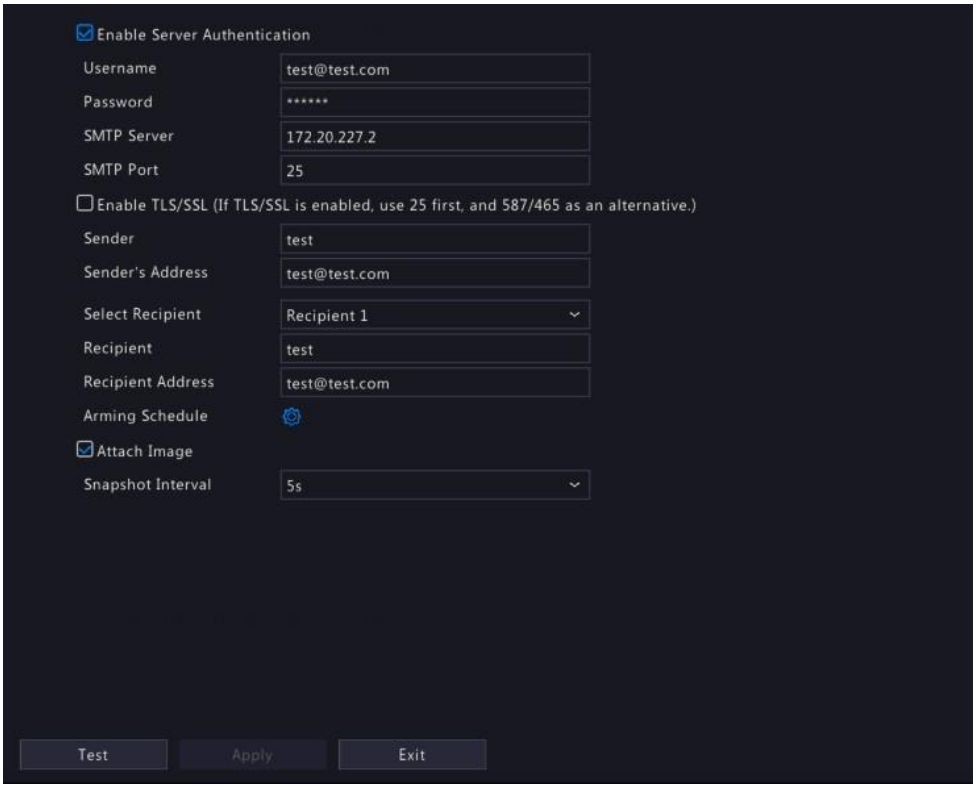
2. Select **Enable DDNS**, choose a DDNS type, and configure the parameters.
   - DynDNS/No-IP: Third-party DDNS service provider. Enter the domain name and username/password that you acquired from your DDNS service provider.
     - Domain name: Domain name assigned by your DDNS service provider.
     - Username and password: The corresponding username/password for your DDNS account.
   - GVDIP: DDNS service provided by GeoVision.
3. Click **Apply**.

6.1.4 Email

Configure email so the DVR can send alarm information to specified users through email when an alarm occurs.

Note: Select the **Send Email** checkbox on the **Trigger Actions** page before you start configuration.

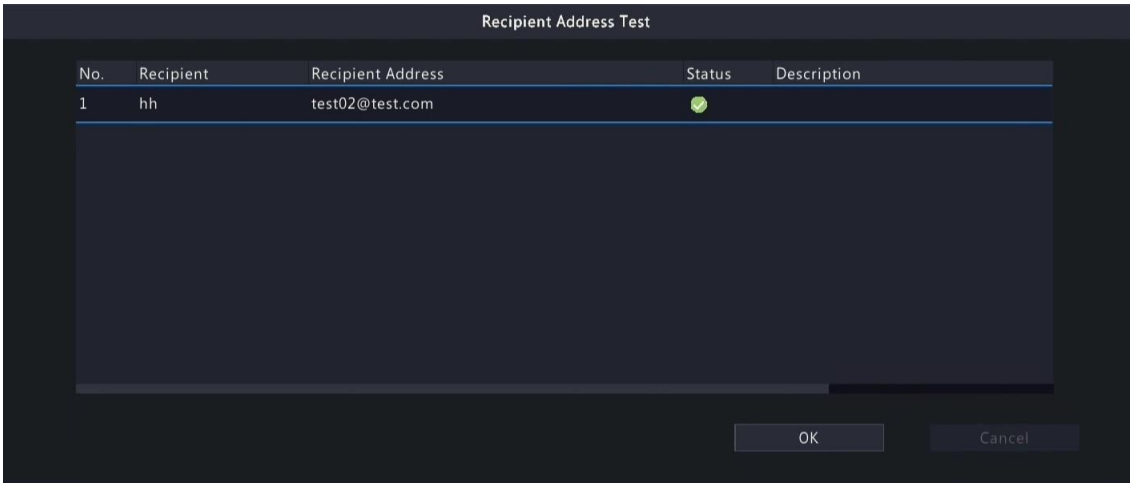
1. Go to **Menu** > **Network** > **Basic** > **Email**.



2. Configure the parameters.

Parameter	Description
Enable Server Authentication	SMTP server authentication, when enabled, can enhance email security. This feature is disabled by default. To enable it, you need to enter the correct username and password.
Username/Password	Username and password of the SMTP server. Usually it is the username and password of the email box.
SMTP Server	SMTP server address.
SMTP Port	Default: 25. Range: [1-65535].
Enable TLS/SSL	When enabled, communication security will be improved by encrypting emails via TLS or SSL. This feature requires the SMTP server to support TLS/SSL. **Note:** After TLS/SSL is enabled, if email sending via port 25 failed, try 587 or 465.
Sender	Sender's name.
Sender's Address	Sender's email address, which can the same as the recipient's address.
Select Recipient	Choose a recipient from the list and then complete the recipient information. Up to 6 recipients are allowed.
Recipient	Recipient's name.
Recipient Address	Recipient's email address.
Arming Schedule	Click to configure an arming schedule. See Arming Schedule.
Attach Image	When enabled, the DVR will send an email attached with snapshot(s) when an alarm occurs. **Note:** This feature is only available to certain devices.
Snapshot Interval	Options are 2s (default), 3s, 4s, and 5s.

3. Click **Test**. The system will check the recipient address by sending it a test email. in the **Status** column means the test succeeded and the email address is valid.



4. Click **Apply**.

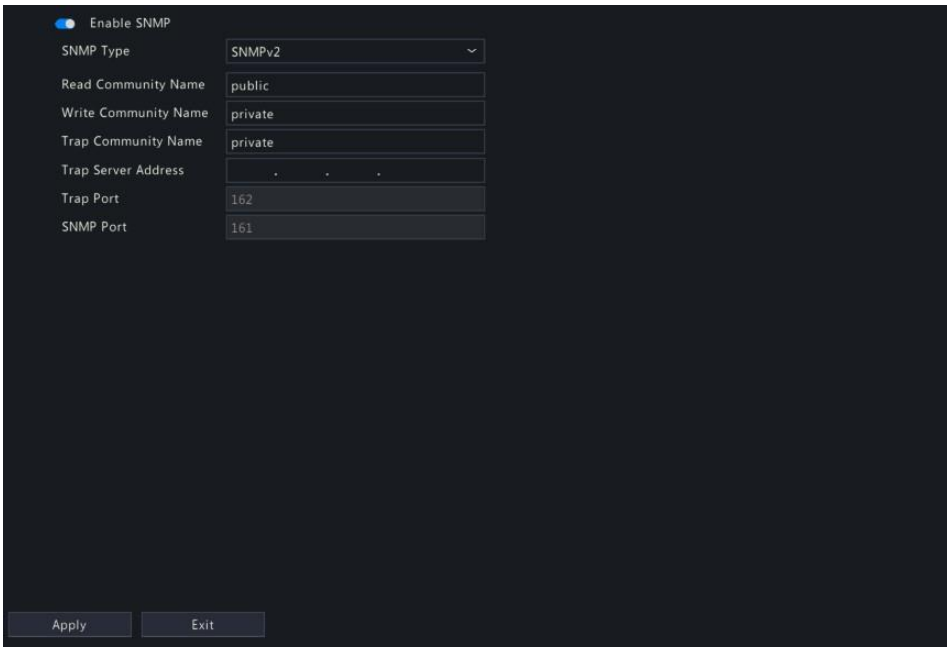
6.2 Platform Configuration

Configure an upper platform for the DVR.

6.2.1 SNMP

The NVR can use SNMP to interconnect with the upper platform and transfer certain configuration information.

1. Go to **Menu** > **System** > **Network** > **Platform** > **SNMP**.
2. Enable SNMP.

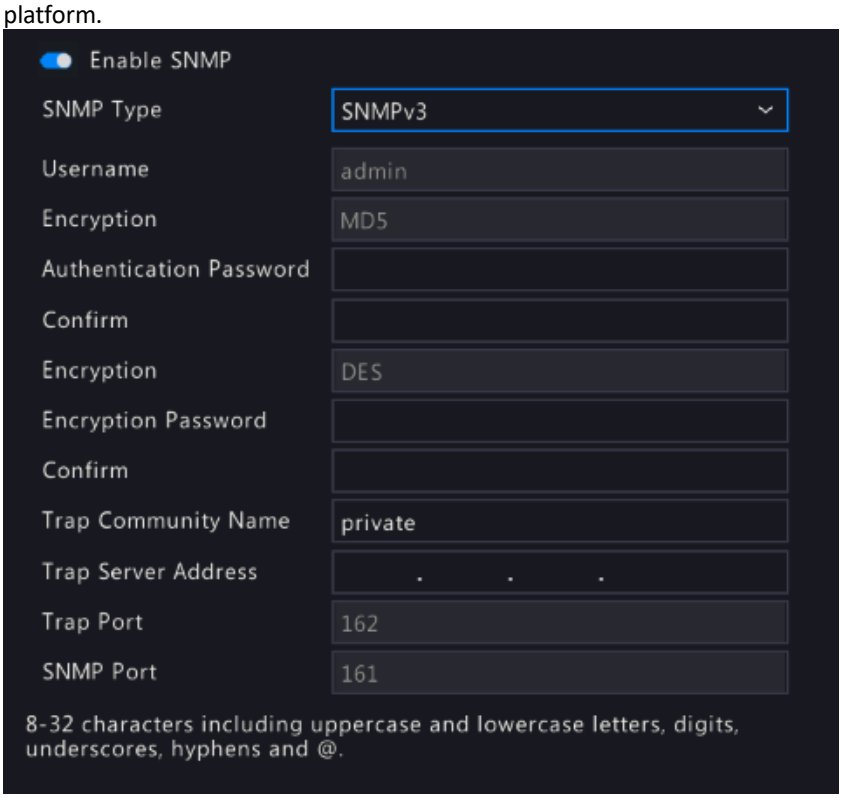


3. Choose an SNMP type and configure the parameters.
   - SNMPv2:

     Set the read community's name and write community name for the platform to read NVR data.

- SNMPv3:

  Set authentication password and encryption password. The authentication password is used by the platform to access the NVR. The encryption password is used to encrypt data sent from the NVR to the platform.



4. Click **Apply**.

6.2.2 Alarm Service

Configure an upper server to receive alarms and images from the DVR.

1. Go to **Menu** > **Network** > **Platform** > **Alarm Service**.

2. Select **Enable Alarm Service**.
3. Configure the parameters.

Parameter	Description
Server Address	Upper server's IP address.
Server Port	Upper server's port number.

Note: This configuration only enables the sending of alarm-related packets to the alarm host. The specific alarm methods on the alarm host need to be configured separately.

4. Click **Apply**.

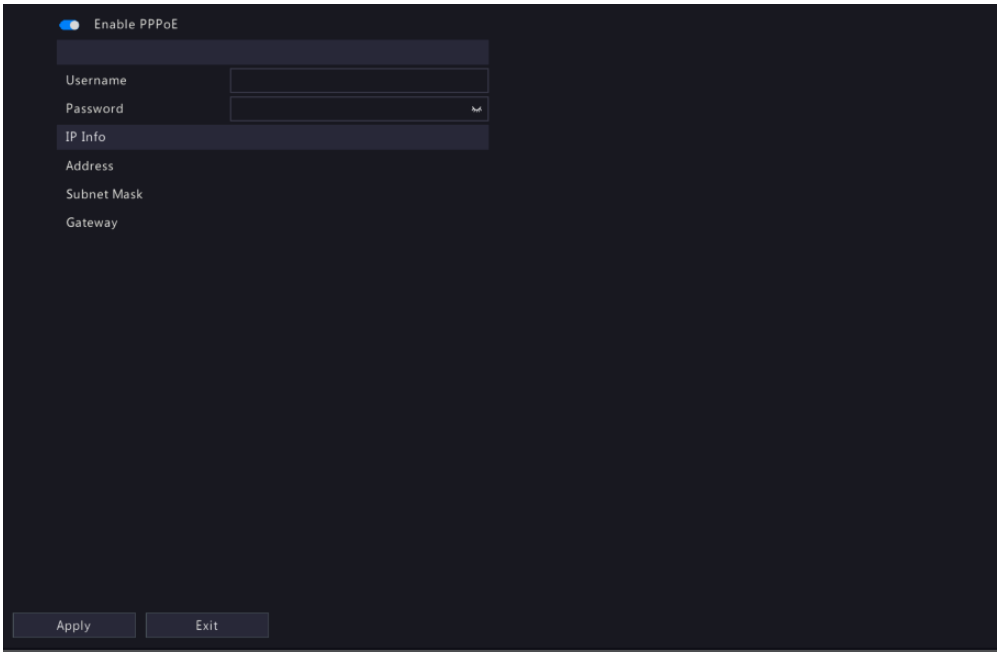
6.3 Advanced Configuration

Configure PPPoE, ports, port mapping, multicast, and FTP.

6.3.1 PPPoE

Use Point to Point Protocol over Ethernet (PPPoE) to connect the NVR to network.

1. Go to **Menu** > **System** > **Network** > **Advanced** > **PPPoE**.

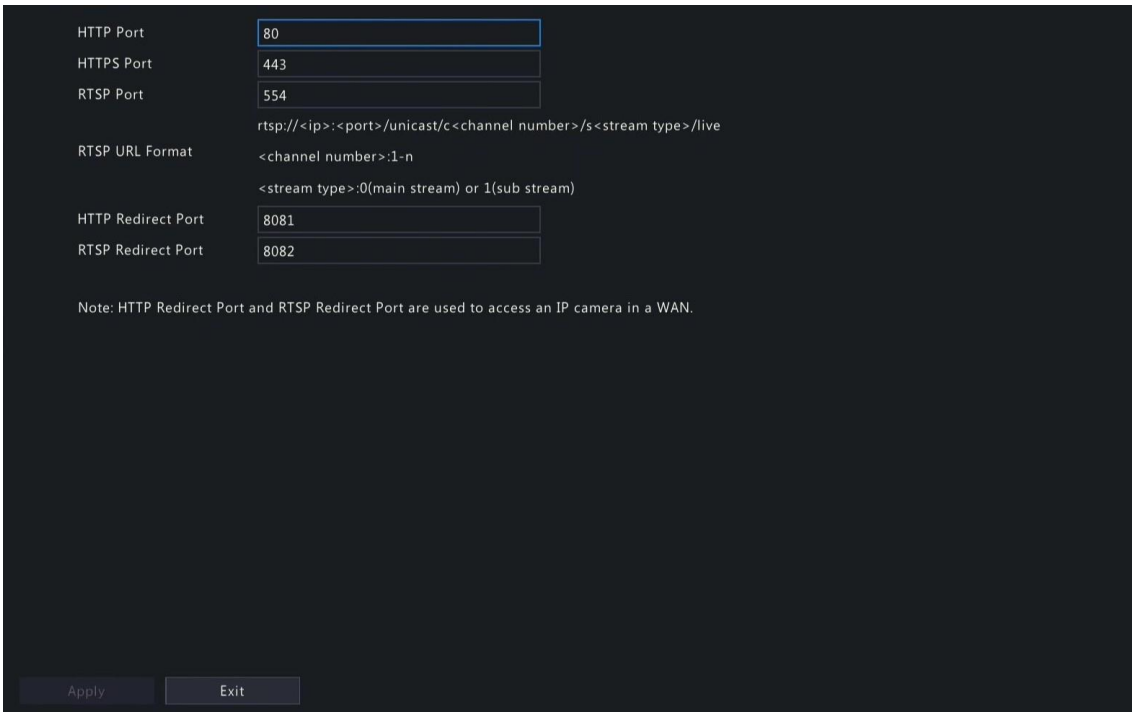


2. Enable PPPoE.
3. Enter the username and password provided by the Internet Service Provider (ISP). IP information is displayed when dial-up succeeds.
4. Click **Apply**.

6.3.2 Port

Configure HTTP, HTTPS, RTSP, HTTP redirect port, and RTSP redirect port.

1. Go to **Menu** > **Network** > **Advanced** > **Port**.



2. Configure the ports.

Note:

- The port range is 1-65535, among which, ports 21, 23, 2000, 3702 and 60000 are reserved for other purposes. Duplicate ports are not allowed.
- The upper platform can access the live video of a camera using the displayed RTSP URL.

3. Click **Apply**.

6.3.3 Port Mapping

Configure port mapping so client computers can access the DVR on the LAN across the Internet.

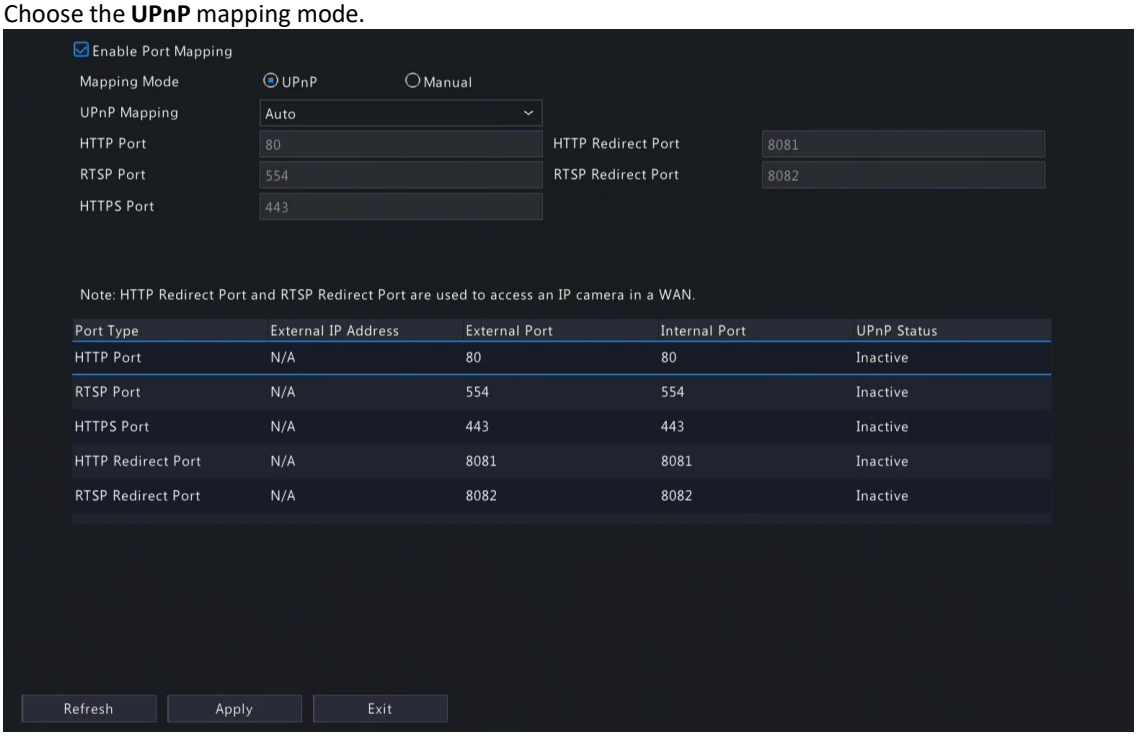
1. Go to **Menu** > **Network** > **Advanced** > **Port Mapping**.
2. Port mapping is enabled by default. You can choose a mapping mode, UPnP or manual port mapping.

UPnP

UPnP is short for Universal Plug and Play. UPnP-enabled network address translation (NAT) can perform automatic port mapping to enable client computers to access the DVR on the LAN from the Internet.

Note: This function requires router support. You need to enable UPnP on the router before starting configuration on the DVR.

1. Choose the **UPnP** mapping mode.



2. Choose a mode from the **UPnP Mapping** list:
   - Auto: The DVR automatically assigns external port numbers, which are usually the same as the internal port numbers.
   - Specify ports: User specifies ports within the range of [1-65535].

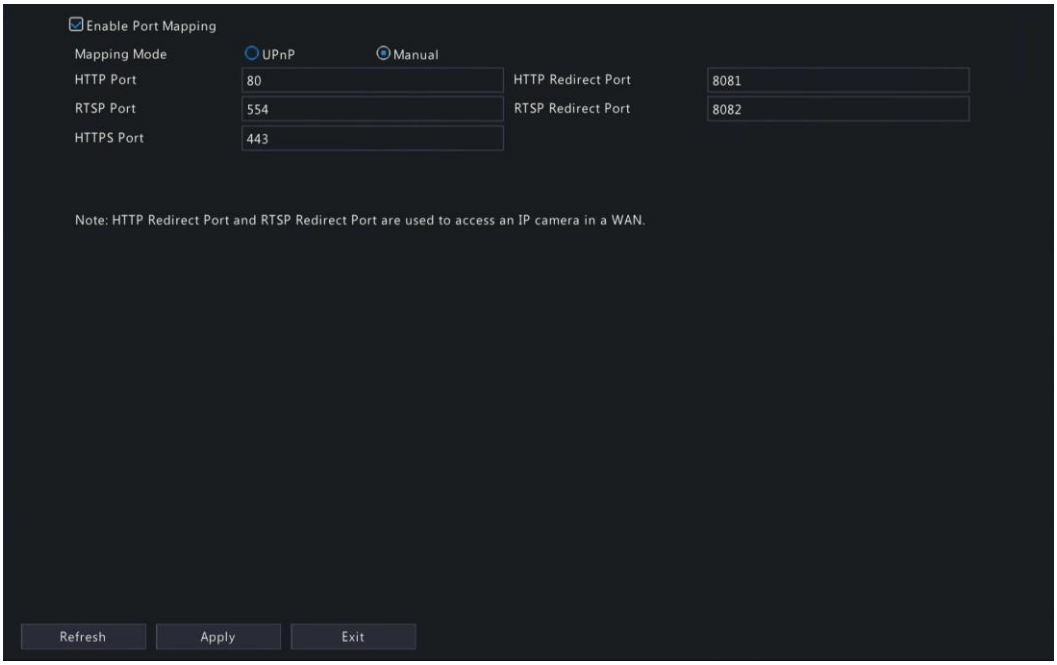
   Note:
   - Auto is recommended. Port conflict may occur when external ports are specified manually.
   - For a multi-NIC DVR, port mapping shall be performed on the NIC that is configured as the default route.
3. Click **Refresh**, and check whether **Active** is displayed in the **UPnP Status** column.
4. Click **Apply**.

Manual

If the router does not support UPnP, you have to configure internal and external ports manually.

Note:
- Make sure the ports configured on the DVR are consistent with that configured on the router.
- For some routers, the DVR's external and internal ports must be the same, and they also must be the same as the ports on the router.

1. Choose the **Manual** mapping mode.



2. Set the external ports manually.
3. Click **Apply**.

Note:

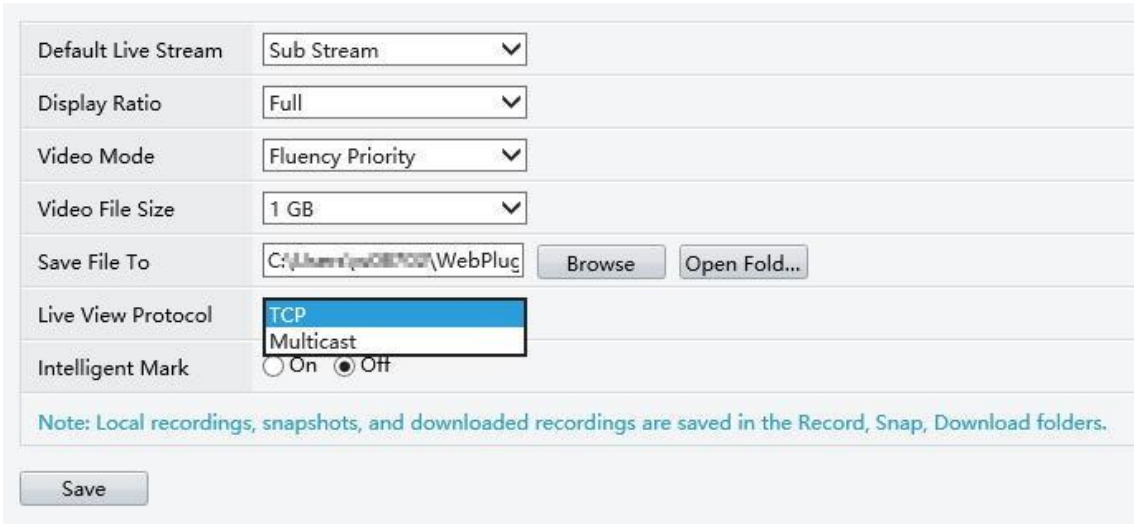
After port mapping is configured, you can open the Web interface using the following address: *Router's WAN IP*:*external HTTP port*. For example, the router's external IP address is 10.2.2.10, and the external HTTP port is 82, then enter http://10.2.2.10:82 in the Web browser's address bar.

6.3.4 Multicast

When the number of users accessing the Web client has reached the upper limit and live video is unavailable, you can use multicast to solve this issue.

1. Go to **Menu** > **Network** > **Advanced** > **Multicast**.

2. Select **Enable Multicast**, enter the multicast IP address and port number.
3. Click **Apply**.
4. Log in to the Web interface, go to **Setup** > **Client**, set **Live View Protocol** to **Multicast**. Now live view is available through multicast.



Note:

- IP multicast addresses are class-D addresses. 224.0.1.0 - 238.255.255.255 can be used on the Internet.
- In the range of 224.0.0.0 - 239.255.255.255, some are reserved for special uses, for example, 224.0.0.0 - 244.0.0.255 can only be used on the LAN, where packets with these addresses will not be forwarded by a router; 224.0.0.1 is used by all the hosts on the subnet; 224.0.0.2 is used by all the routers on the subnet; 224.0.0.5 is used by OSPF routers; 224.0.0.13 is used by PIMv2 routers; and 239.0.0.0 - 239.255.255.255 are private addresses (e.g., 192.168.x.x).

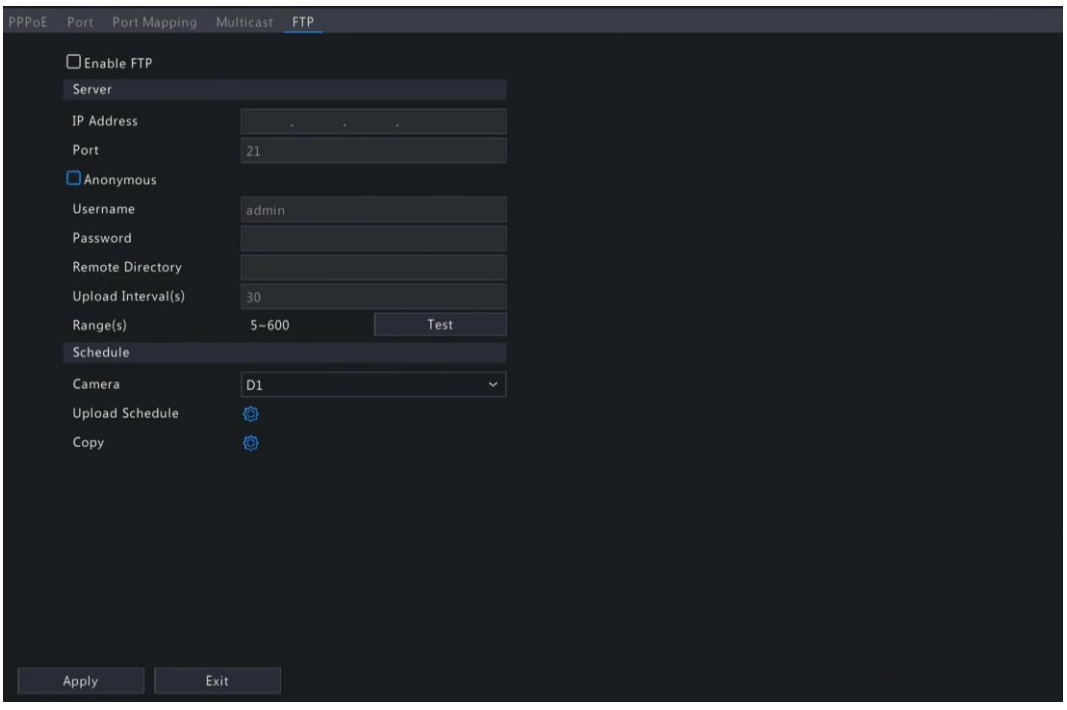
6.3.5 FTP

Configure FTP so the DVR can upload images to the FTP server.

Note:

- This feature is only available to certain DVRs.
- To use this feature, you need to deploy an FTP server first.
- After the FTP server is enabled and connected, the DVR can automatically upload images to the FTP server.

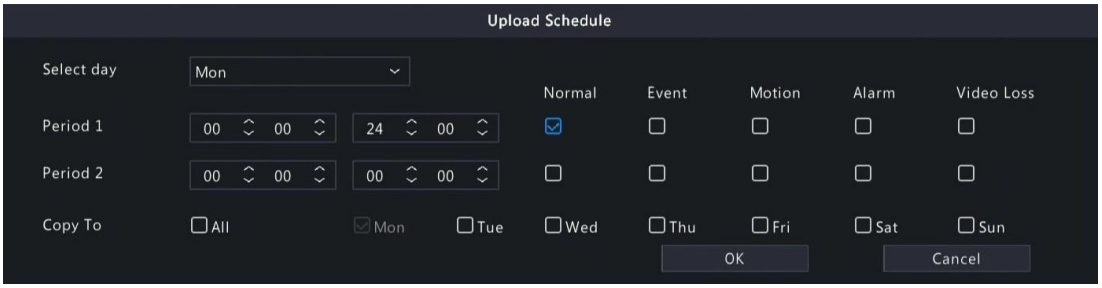
1. Go to **Menu** > **Network** > **Advanced** > **FTP**.



2. Select **Enable FTP**.
3. Configure server parameters. Click **Test** to test the connection between the DVR and the FTP server.

Parameter	Description
IP Address	FTP server address.
Port	The default is 21. You can set a different port as needed.
Anonymous	When enabled, the DVR will connect to the FTP server as anonymous user without username/password required.
Username	Username used to access the FTP server.
Password	Password used to access the FTP server.
Remote Directory	Input the remote directory in the correct format (abc/efg/xyz), and the system will create folders level by level accordingly under the root directory, and then create different folders based on IP, time, and channel. **Note:** • For example, if the remote directory is abc, then the created folder is FTP > abc > 206.2.5.8 > 2022-10-08 > D5. If the remote directory is abc/efg/xyz, then the created folder is FTP > abc efg > xyz > 206.2.5.8 > 2022-10-08 > D5. • If the remote directory is empty, the system will create folders under the root directory based on IP, time, and channel, for example, FTP > 206.2.5.8 > 2022-10-08 > D5.
Upload Interval(s)	The DVR uploads images captured within the set periods to the FTP server at the set interval. The default is 30s. You can alter the setting as needed.
Range(s)	Show the range of image upload interval: [5-600]s

4. Set an upload schedule.
   (1) Choose a camera from the list.
   (2) Click behind **Upload Schedule**, configure time periods during which the camera will upload images of the desired type(s). Click **OK**.



Note:
- Two image upload periods are allowed each day, and the periods must not overlap.
- To apply the schedule to other days, select **All** or days and then click **OK**.

5. (Optional) To apply the current upload schedule to other cameras, click behind **Copy**, select cameras, and then click **OK**.

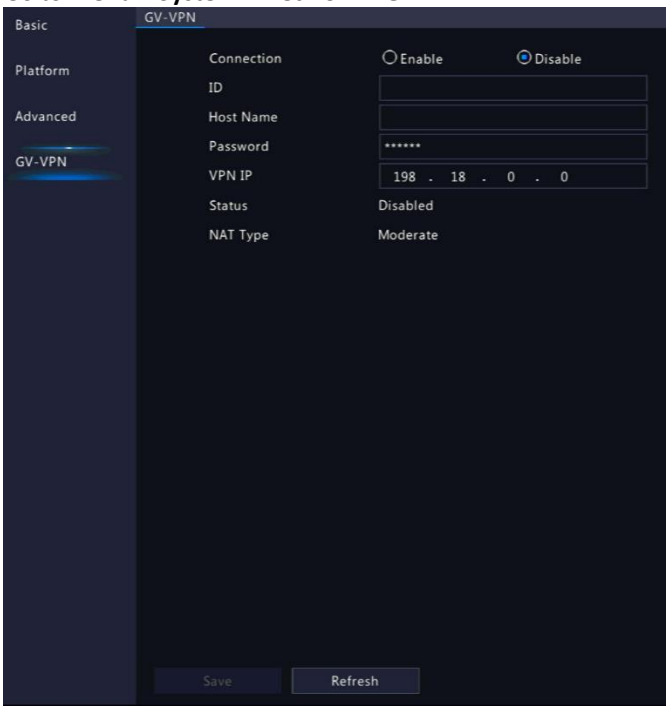
6. Click **Apply**.

6.4 GV-VPN

GV-VPN is an application powered by P2P VPN technology and the cloud-based GV-Cloud platform. It enables users to create a secure virtual private network (VPN) environment that connects multiple DVRs and NVRs. With GV-VPN, there is no need for complex router configurations — the NVRs are seamlessly linked within the same virtual network.

For details, see *GV-VPN Guide*.

1. Go to **Menu** > **System** > **Network** > **GV-VPN**.



2. Click **Refresh** to refresh the wireless hotspot list.
3. Choose the desired hotspot and then click to connect it.

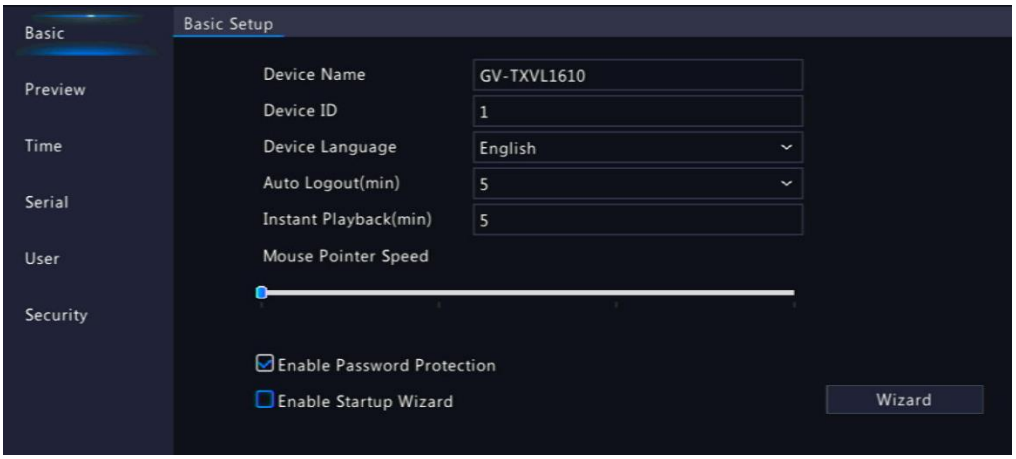
7 System Configuration

This chapter describes how to configure the system parameters.

7.1 Basic Configuration

Configure the basic information of the system.

1. Go to **Menu** > **System** > **Basic Setup**.



2. Configure the basic parameters.

Parameter	Description
Device Name	The default name is the DVR model. You can change it as needed.
Device ID	Used to distinguish devices if you have more than one device. You can change it as needed.
Device Language	Choose the system language. The system will restart after you change the system language.
Auto Logout(min)	If you are not on the live view page and don't perform any operation, you will log out automatically when the set time is over, and the live view page will be displayed. Default: 5 minutes. You can change it as needed.
Instant Playback (min)	Set the instant playback time. Default: 5 minutes.
Mouse Pointer Speed	Drag the slider to adjust the speed (left to right: slow to fast).
Enable Password Protection	When the auto logout time is over, the user needs to enter the login password to access the main menu. This feature is enabled by default. **Note:** Only admin can change the setting.
Enable Startup Wizard	Startup wizard appears when the DVR starts up for the first time. If the checkbox is selected, the startup wizard appears every time the device starts up. You may click **Wizard** to set wizard on the **Menu** page.

3. Click **Apply**.

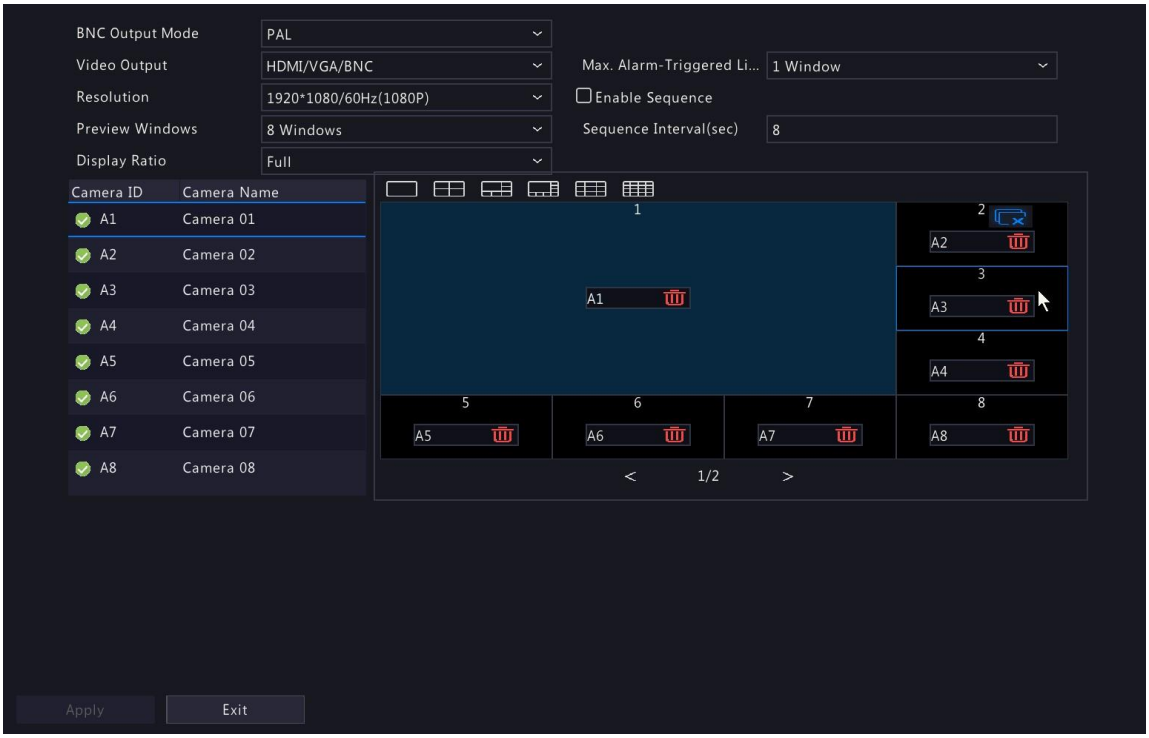
7.2 Preview Configuration

Configure the screen display and preferred stream type for preview.

7.2.1 Preview Configuration

Configure the basic preview parameters and display mode.

Go to **Menu** > **System** > **Preview**.



Basic Preview Configuration

Parameter	Description
Video Output	Outputs the system display to an external display device. Choose an output port. **Note:** The DVR provides three output ports (VGA, HDMI1/HDMI2, BNC) and can output the system display to three displays simultaneously for independent operations. The actual port types available may vary with device.
Resolution	The resolution includes the display format and refresh rate. The display format refers to the number of pixels that can be displayed on the screen, for example, 1920x1080, 1280x720, 1280x1024, etc. More pixels displayed means higher image quality. The refresh rate can be 60Hz, 50Hz, 25Hz, etc. Choose an option that best fits your needs.
Preview Windows	Displays images in the desired window layout. Choose an option from the list, or click an icon to choose the layout. 
Max. Alarm-Triggered Live View Windows	Three options: 1/4/9 windows. See Preview for more information.
Enable Sequence	Select the **Enable Sequence** checkbox. See Sequence for more information.
Sequence Interval(sec)	Set the sequence interval time. Default: 8 seconds.
Display Ratio	• Full: Displays images according to the window size . • Original: Displays images with original size.

Screen Configuration

By default, camera IDs correspond to live view windows: D1 to window 1, D2 to window 2, and so on. You can change the correspondence relationship as follows. The example below shows how to switch D1 and D2.

Note: You may also drag an image on the live view page to swap windows, and then view the changed window-channel binding relationship on this page. But this method requires the Configure permission, and it cannot switch windows that are not on the same screen.

1. Click window 1 on the right side. Window 1 is selected.

2. Click D2 on the left-side channel list. Now window 1 shows D2, and window 2 shows None.

Note: On the left-side channel list, is empty for D1, which means the channel is not bound to any window.

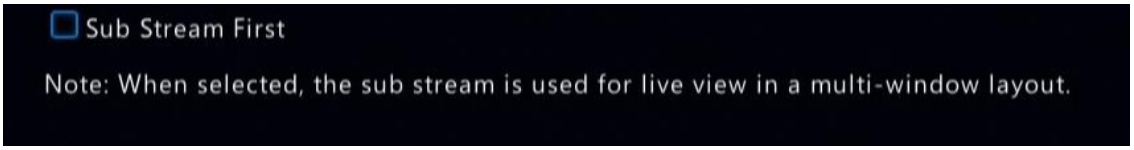
3. Click window 2 on the right side. Window 2 is selected.

4. Click D1 on the left-side channel list. Now window 2 shows D1, which means D1 and D2 have switched windows with each other.

5. Click **Apply**.

7.2.2 Advanced Configuration

1. Go to **Menu** > **System** > **Preview** > **Advanced**.



2. Select **Sub Stream First**.
3. Click **Apply**.

7.3 Time Configuration

Configure the time display mode, time synchronization mode, and holidays.

7.3.1 Time Configuration

Configure the time format and update method.

Configure Time Format

1. Go to **Menu** > **System** > **Time** > **Time**.

2. Choose the time zone, date, and time format.
3. Set the system time.

Enable Auto Update

When enabled, the system syncs time with the NTP server.

1. Select **Auto Update**.
2. Enter the NTP server address and port number.
3. Choose an update interval.

7.3.2 DST

Configure DST.

1. Go to **Menu** > **System** > **Time** > **DST**.

2. Select DST.
3. Configure the parameters.
4. Click **Apply**.

7.3.3 Camera Time Synchronization

When **Sync Camera Time** is enabled, the DVR syncs time to the connected cameras regularly. This feature is enabled by default.

Note:

- Time sync occurs when a camera goes online for the first time.
- If **Sync Camera Time** is enabled, time sync occurs every 30 minutes.

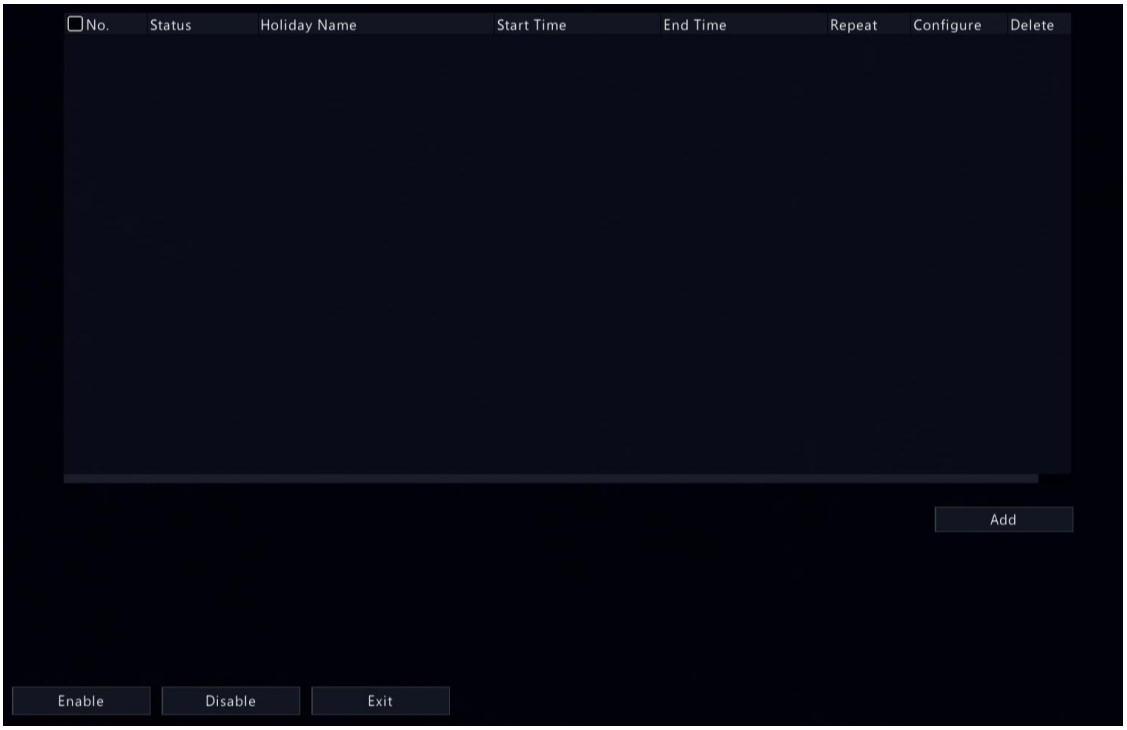
1. Go to **Menu** > **System** > **Time** > **Time Sync**.

2. Enable/disable this feature as needed.
3. Click **Apply**.

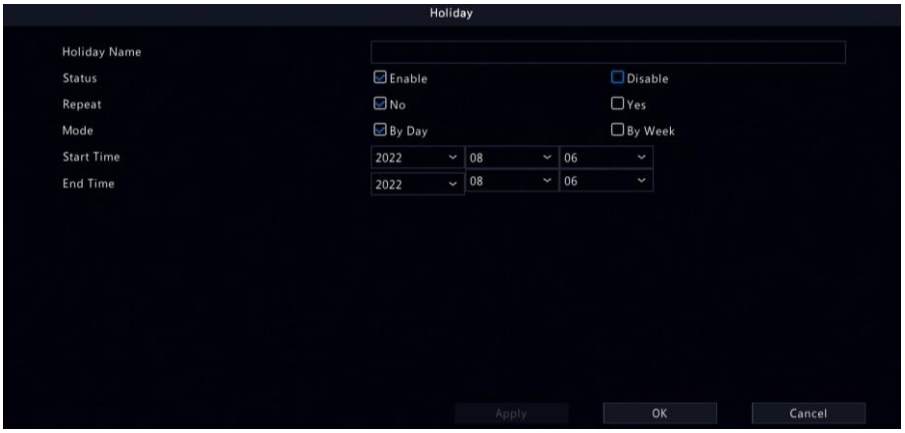
7.3.4 Holiday Configuration

Configure special time periods as holidays for use in recording schedules.

1. Go to **Menu** > **System** > **Time** > **Holiday**.



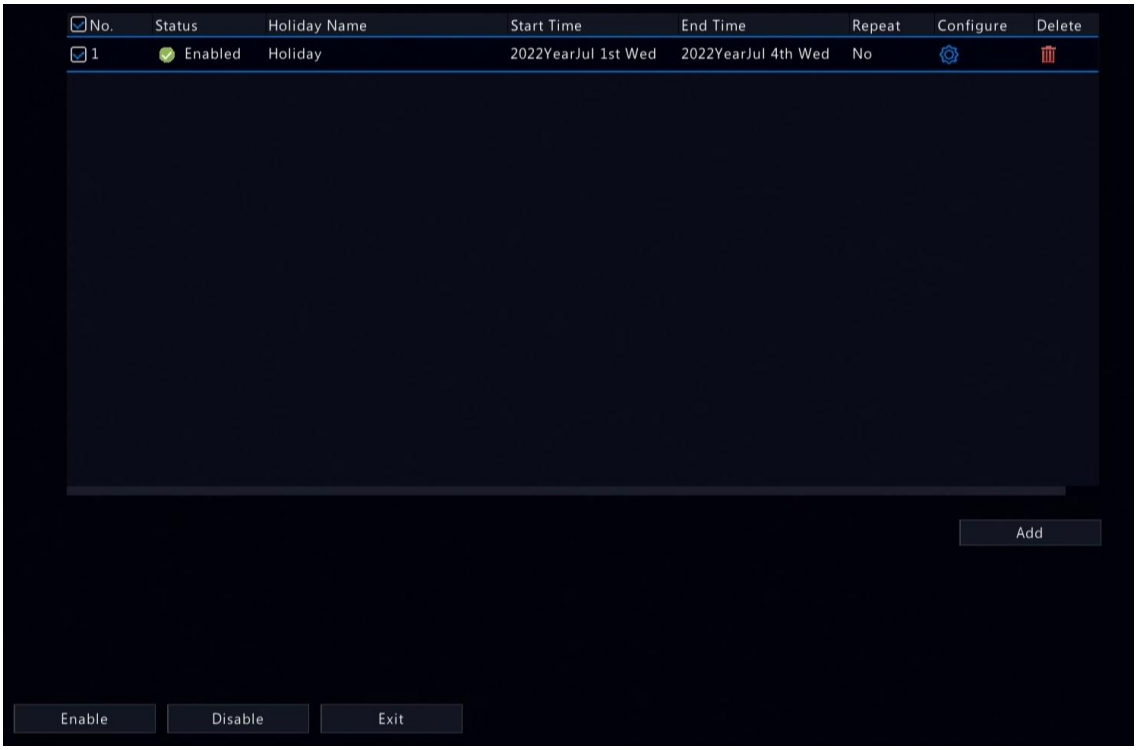
2. Click **Add** in the lower-right corner.



3. Configure the parameters.

Parameter	Description
Holiday Name	Set a meaningful and easy-to-remember holiday name.
Status	The new holiday is enabled by default. If you want to disable it, select **Disable**.
Repeat	• No: The holiday is effective once only in the specified year. Specify a year for the holiday. • Yes: The holiday is effective every year.
Mode	• By Day: Set the holiday in the specified format: year/month/day. • By Week: Set the holiday in the specified format: year/month/week/day of the week.
Start Time/End Time	Set according to the specified format.

4. Click **Apply**.
5. Click **OK**.

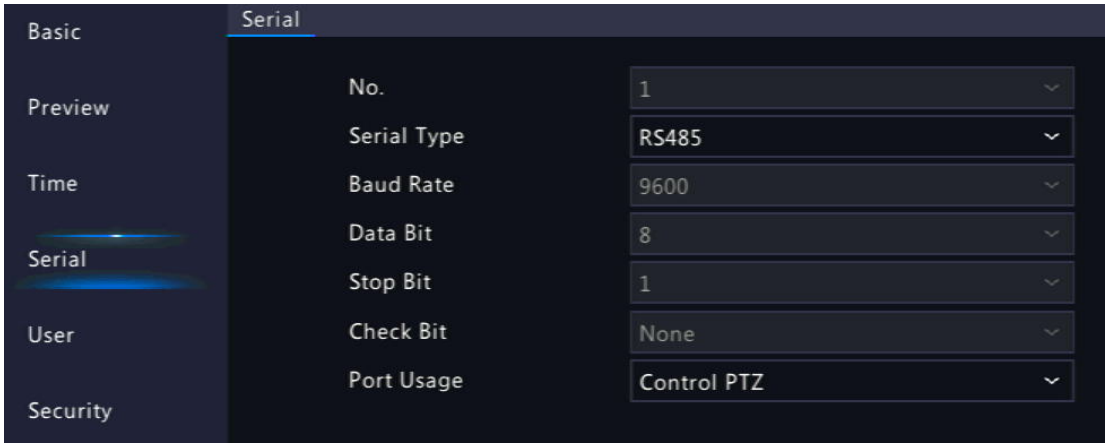


- Click  to edit the current holiday.
- Click to delete a holiday. Deleting a holiday will not delete the relevant recordings.
- Click **Disable** to disable the holiday.

7.4 Serial Port Configuration

Configure serial port parameters to connect a PTZ camera. The serial port settings configured on the DVR must match the serial port settings on the camera.

Go to **Menu** > **System** > **Serial**.



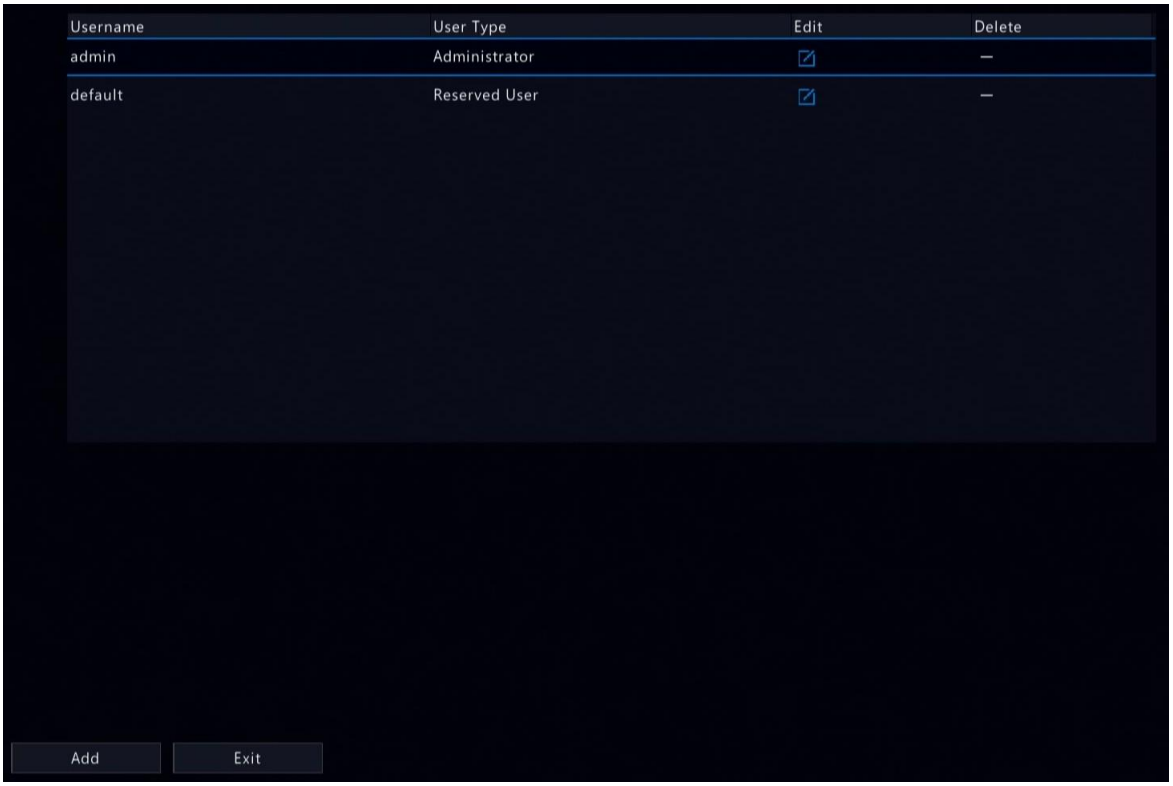
7.5 User Configuration

Users are entities that manage and operate the system. A user type is a set of operation permissions. After a user type is assigned to a user, the user has all the permissions defined in the type.

The system supports four user types:

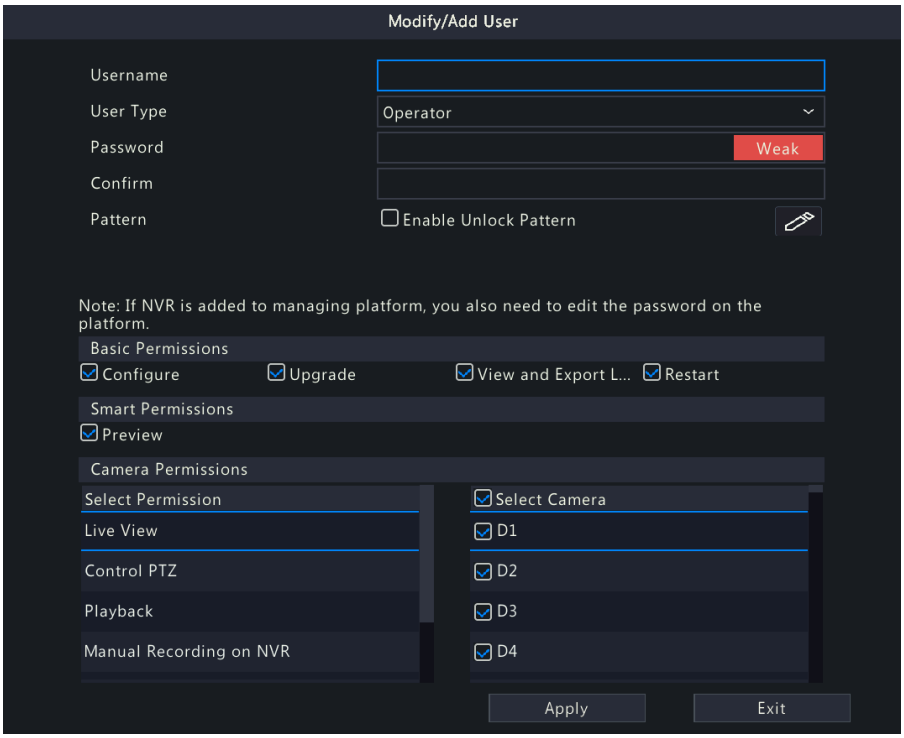
User Type	Description
admin	The default super administrator, which has the maximum permissions.
default	The default reserved user, which cannot be added or deleted, only has live view and two-way audio permissions by default, and can be configured by admin only. **Note:** If the default user is forbidden to use live view and two-way audio on a camera, the camera will be locked when no user is logged in, and is displayed in the corresponding window.
Operator	By default, an operator has basic permissions and camera permissions.
Guest	By default, a guest only has camera permissions.

Go to **Menu** > **System** > **User**.



Add User

1. Click **Add**.



2. Configure the parameters. Enter the username, password, choose a user type, enable/disable unlock pattern, and choose permissions.

Item	Description
Username	Set a username as you need. Cannot be empty or include Chinese characters.
Password/Confirm	Set a strong password.
Pattern	To enable the unlock pattern, select the checkbox. Click , and then follow on-screen instructions to set a pattern.
Basic Permissions/Smart Permissions	Select the permissions you want to assign to the user.

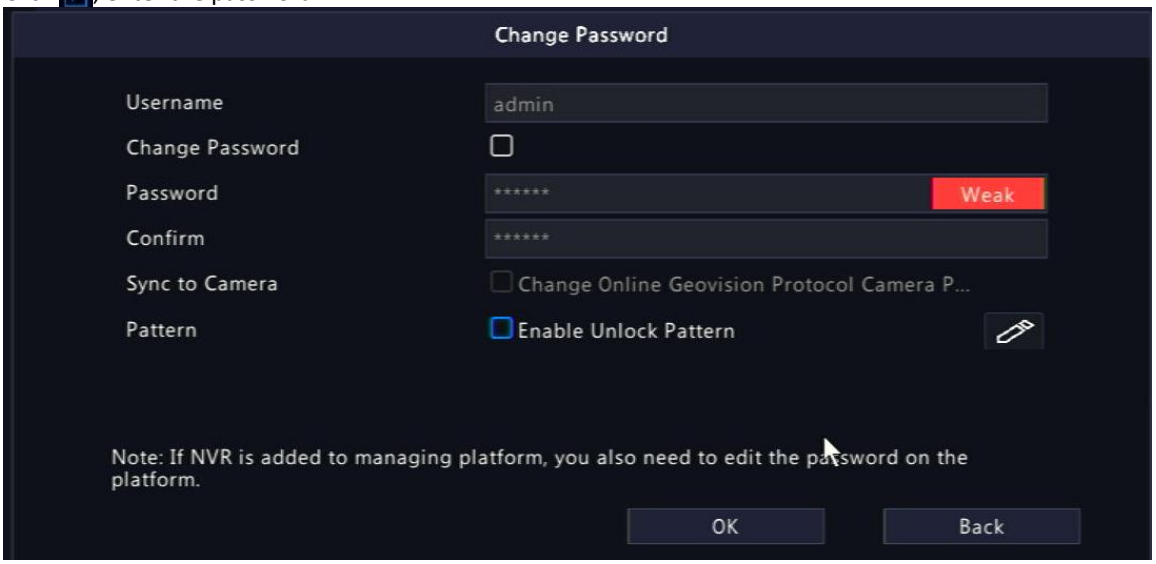
3. Click **OK**.

Delete User

1. On the **User** page, select the user you want to delete.
2. Click . A confirmation message appears.
3. Click **Yes**.

Edit User

1. On the **User** page, select the user you want to edit.
2. Click , enter the password.



3. Edit the user type, password, or permissions.
4. Click **OK**.

7.6 Security Configuration

Security configuration includes IP address filtering, Onvif authentication, ARP protection,and watermark.

7.6.1 IP Address Filtering

IP address filtering can ensure only certain source IP addresses can be used to access the DVR's web interface.

1. Go to **Menu** > **System** > **Security** > **IP Address Filtering**.

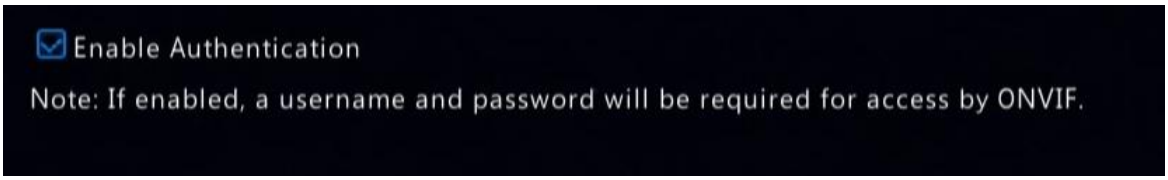
2. Select **Enable IP Address Filtering**.
3. Configure the parameters.

Parameter	Description
Control Type	• Blocklist: Access is forbidden if the IP is on the blocklist. • Allowlist: Access is allowed only when the IP is on the allowlist. If **Allowlist** is selected but is empty, remote access will be forbidden.
Start IP/End IP	Enter the start and end IP addresses. If you want to add only one IP address, enter it in the **Start IP** field.

4. Click **Add**.

7.6.2 ONVIF Authentication

When Onvif authentication is enabled, a username and password will be required to access the DVR via Onvif. This feature is enabled by default. Go to **Menu** > **System** > **Security** > **ONVIF Auth**.

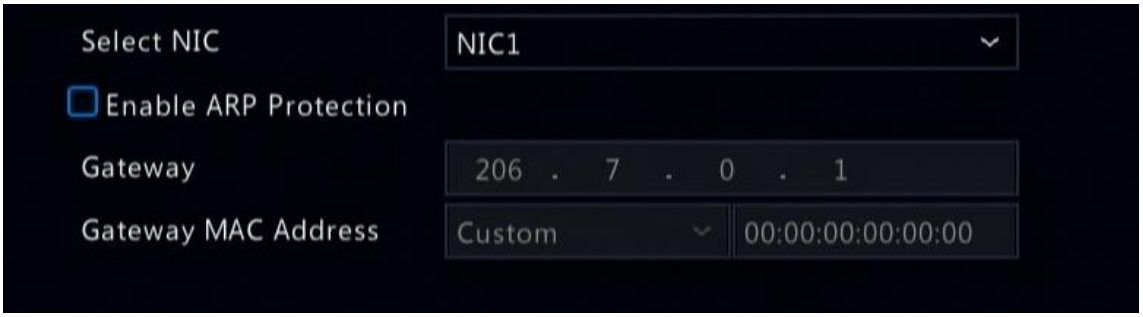


7.6.3 ARP Protection

.The Address Resolution Protocol (ARP) dynamically maps an IP address to a MAC address. In a local area network,ARP is necessary for devices to communicate with each other through MAC addresses. ARP attacks exploit ARP vulnerabilities to forge IP addresses and MAC addresses. ARP protection can bind the gateway's IP address and anMAC address to prevent ARP spoofing.

Note: For multi-NIC devices, this feature will be disabled automatically if you change the NIC's working mode. For information about changing the working mode, see Network Configuration.

1. Go to **Menu** > **System** > **Security** > **ARP Protection**.



2. Choose the NIC. Skip this step if the device only has one NIC.
3. Select **Enable ARP Protection**.
4. Configure the parameters.

Parameter	Description
Gateway	Gateway you have configured in **Menu** > **Network** > **Basic** > **Network**.
Gateway MAC Address	Custom: Enter the gateway's physical address in the network switch.
	Auto: Automatically obtains the gateway's physical address in the network switch.

5. Click **Apply**.

8 Backup

This chapter introduces recording backup and image backup.

8.1 Recording Backup

Recording backup refers to backing up videos stored on the DVR's hard disk to a USB storage device. It has the following conditions:

- The USB storage device has been formatted to FAT32 or NTFS.
- Backup permission is required.
- The recording to back up is stored on a hard disk of the DVR.
- The storage device is connected correctly to the DVR.

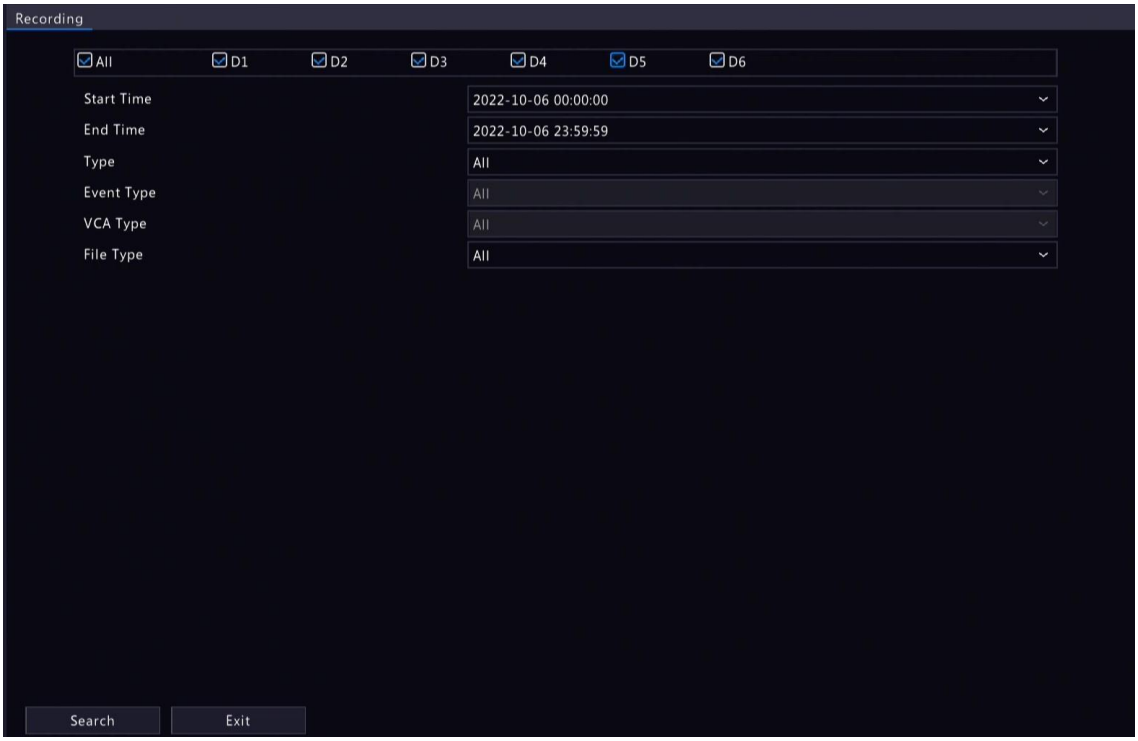
Note:

- Recordings are backed up as .mp4 files by default.
- You can back up recordings in HD or SD mode.

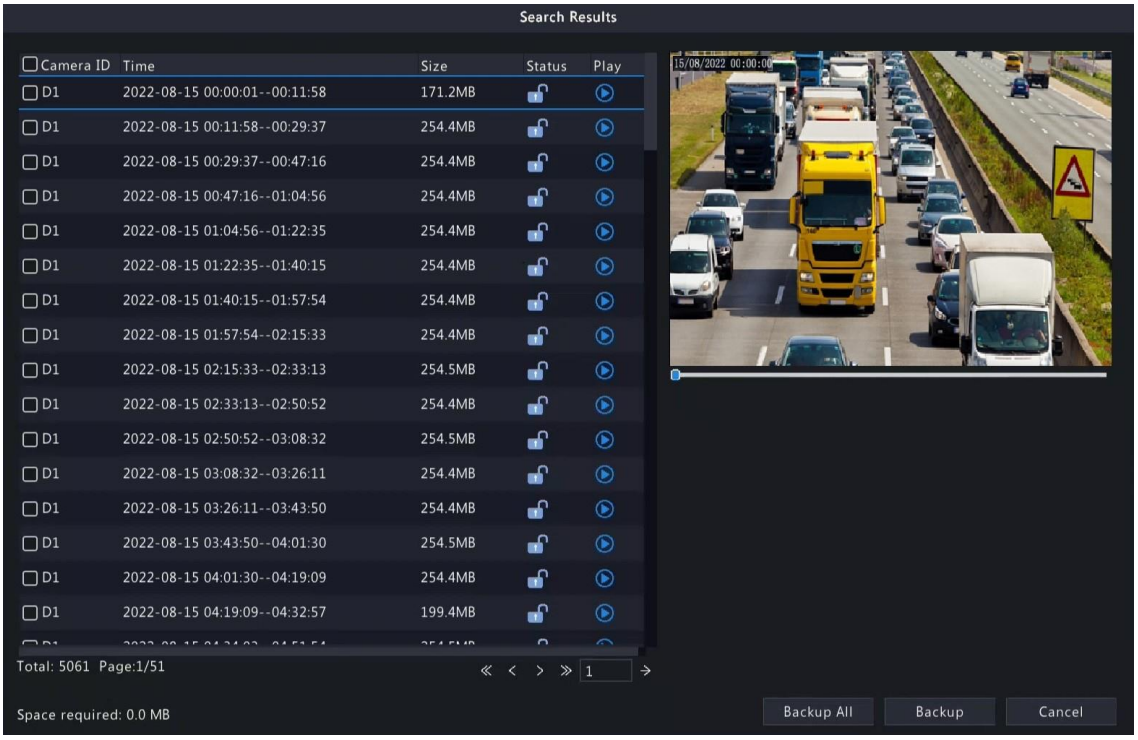
Normal Video Backup

Refers to backing up scheduled recording, manual recording, and event-triggered recording.

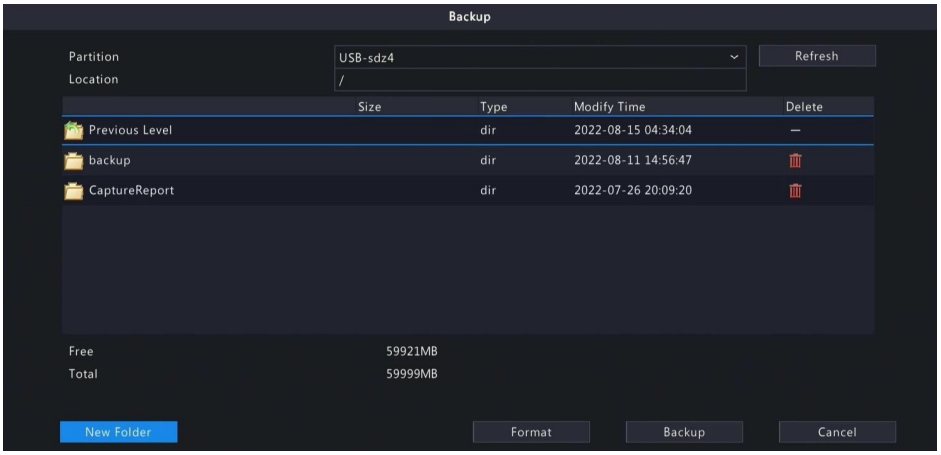
1. Go to **Menu** > **Backup** > **Recording** > **Recording**.
2. Select the desired camera(s). All cameras are selected by default.



3. Set search conditions, including the start time, end time, recording type, event type, VCA type, and file type.
4. Click **Search**. Search results are displayed. The image from the first search result is displayed on the right side. Click  to play the video.



5. Choose a way to back up recording(s) as needed.
   - Select the recording(s) you want to back up, and then click **Backup**.
   - Or click **Backup All** to back up all the recordings in the list.



6. Select the partition and storage path, and then click **Backup**. You can also create a new folder for the recording(s) by clicking **New Folder**.

Note:

- Click **Format** to format the USB device. A USB device with more than 2TB capacity can only be formatted to NTFS, with 2TB or less capacity can be formatted to NTFS or FAT32. Only certain DVRs can format a USB device with more than 2TB capacity.
- During backup, a progress bar is displayed to indicate the progress (e.g., Exporting X/Y) , where X indicates the current number being backed up, and Y indicates the total number of recordings. To stop the backup, click **Cancel**.
- A backup file is named in this format: Camera ID_S recording start time_E recording end time.file extension. For example, D1-S20220823000400_E20220823003148.mp4, where S means the start time, and E means the end time.

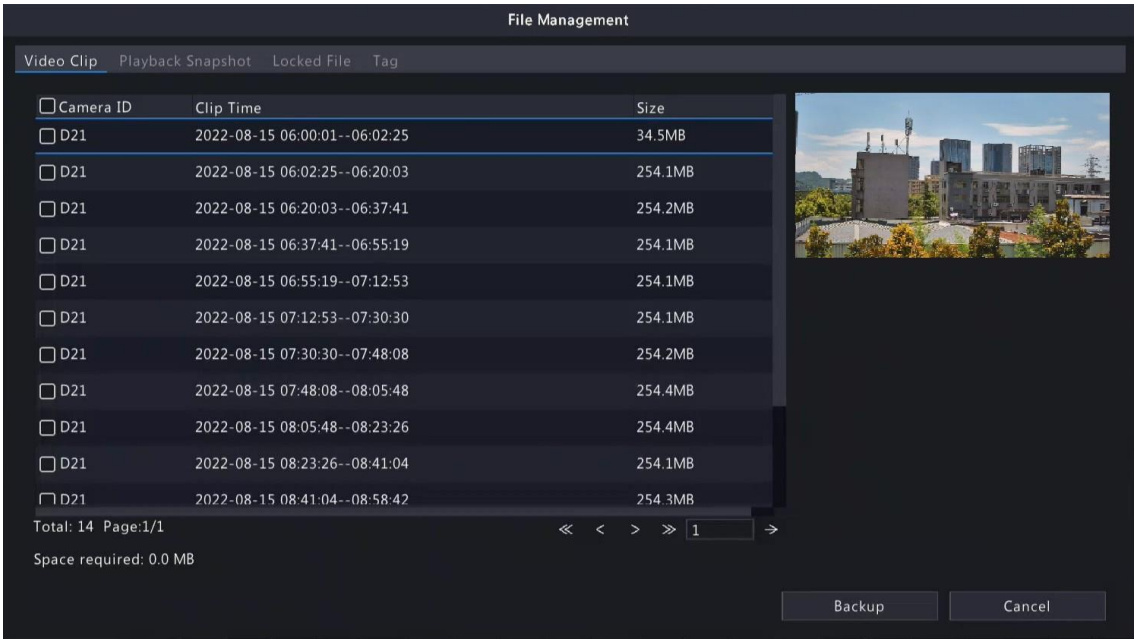
Video Clip Backup

Refers to clipping a recording and saving it to a USB storage device.

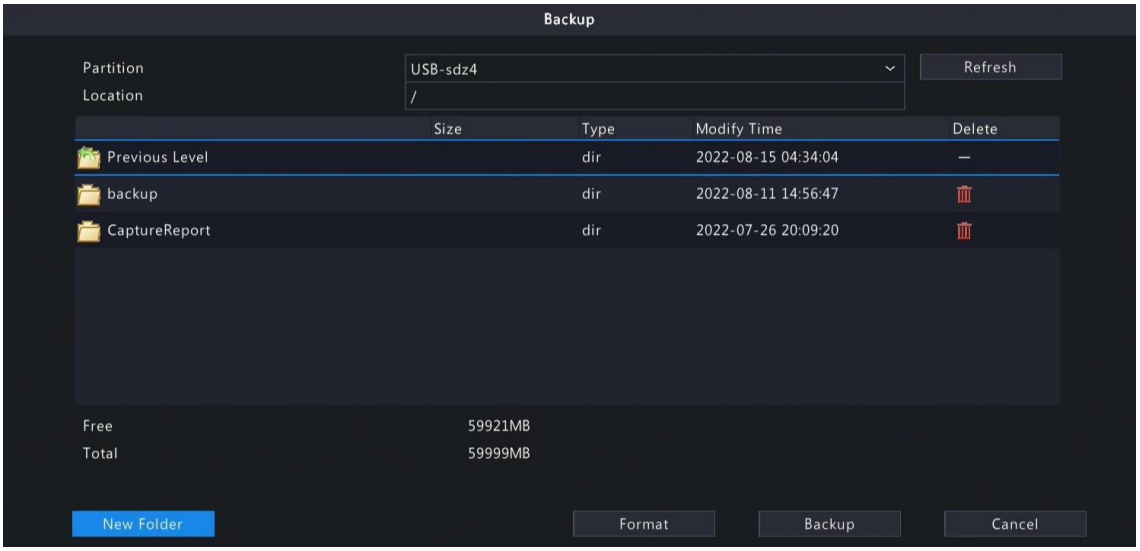
1. Right-click and select **Playback** to go to the **Playback** page.

2. Click HD to select HD or SD on the playback toolbar. The default is HD.
3. Select the desired camera to play the recorded video. Click to clip the video during playback. Click to save the video clip.

4. Click  to view the video clip in the **Video Clip** tab.



5. Select the desired video clip(s) and then click **Backup**.



6. Select the partition and storage path, click **Backup**. Then the recordings are saved to the specified path on the storage device. You can also create a new folder for the recording(s) by clicking **New Folder**.

8.2 Image Backup

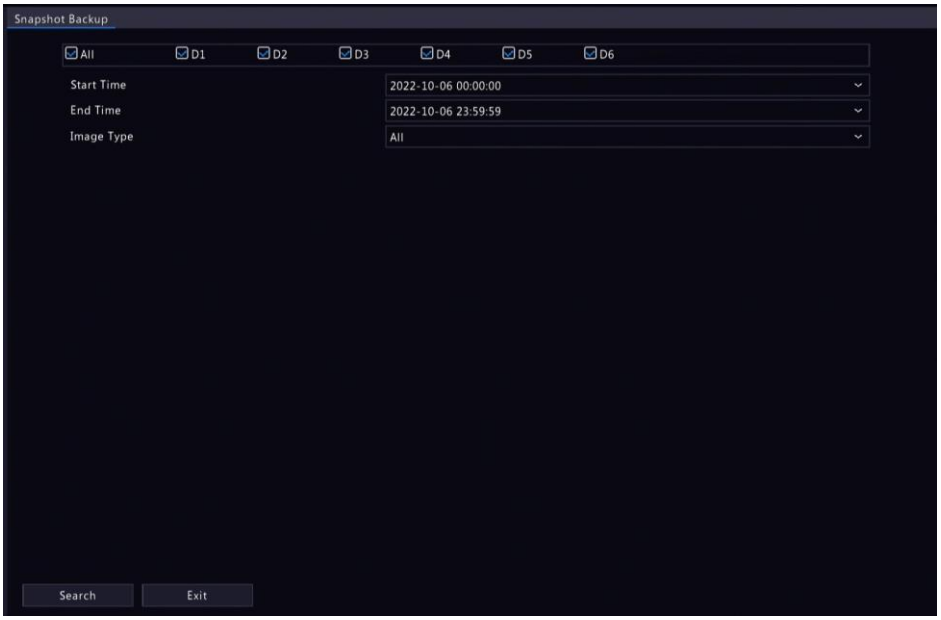
Image backup refers to backing up images stored on the DVR's hard disk to a USB storage device.

Note: The default format of image backup is *.JPG.

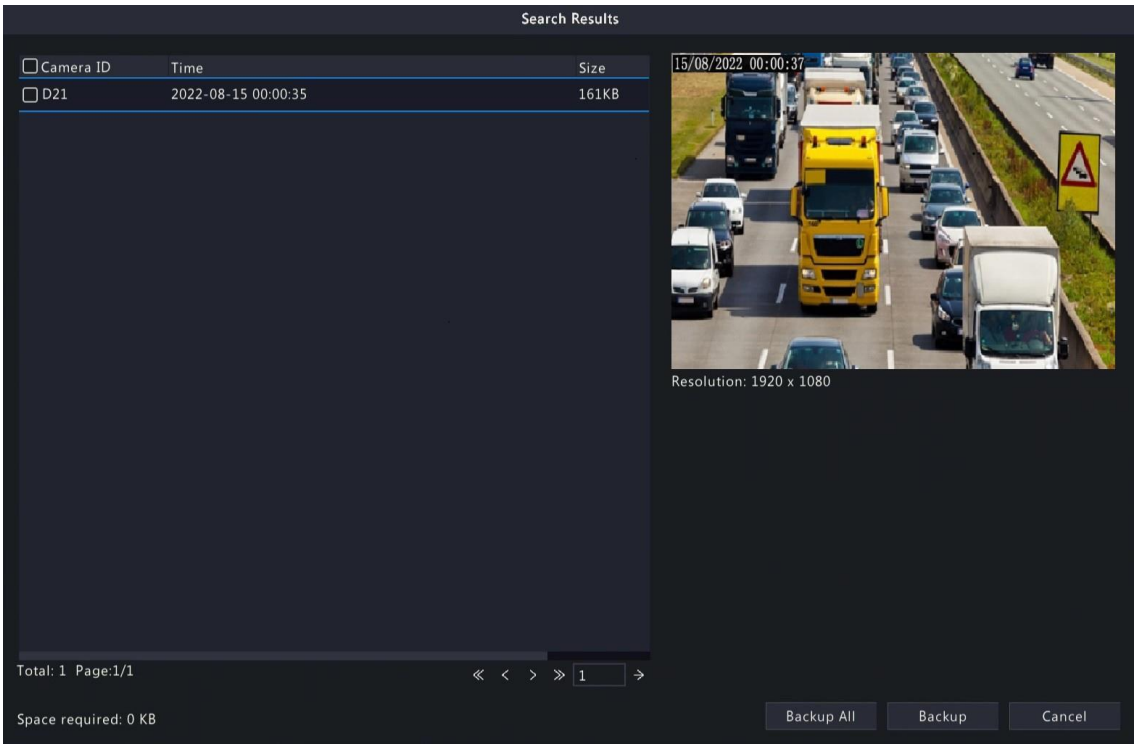
Normal Snapshot Backup

Refers to backing up scheduled snapshot, manual snapshot, and event-triggered snapshot.

1. Go to **Menu** > **Backup** > **Image** > **Snapshot Backup**.



2. Select the desired camera(s). All cameras are selected by default.
3. Set search conditions, including the image type, start time, and end time.
4. Click **Search**. Search results are displayed. The image displayed on the right is from the first result in the list by default.



Note: The image resolution depends on the resolution from the output interface and the number of windows displayed when the snapshot is taken.

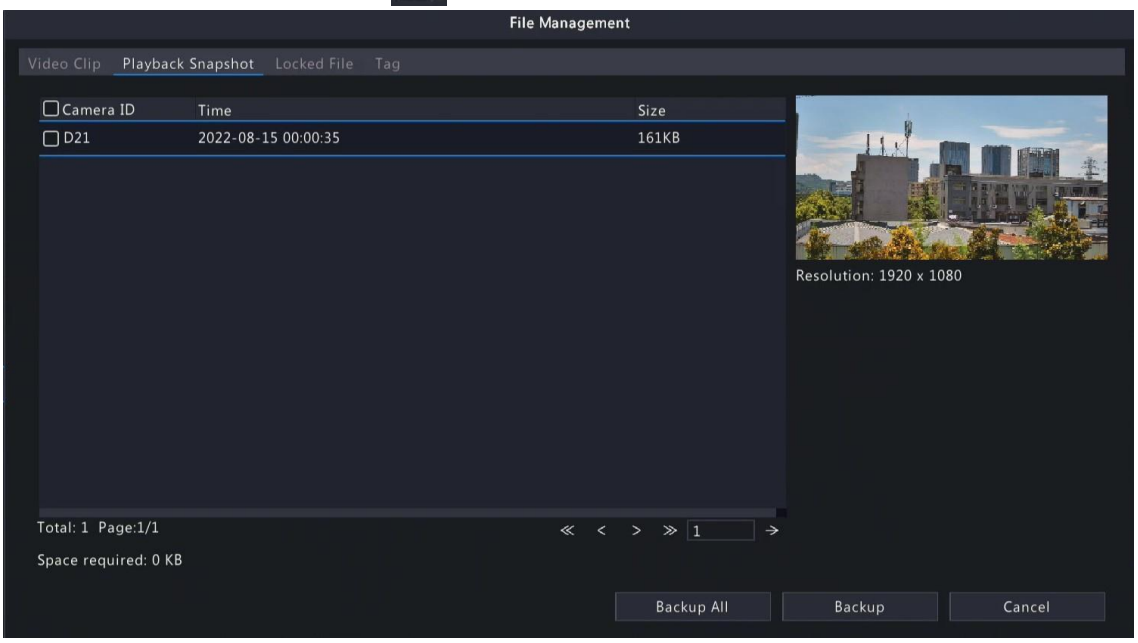
5. Choose one way to back up image(s) as needed.
   - To back up one or more images, select the desired image(s), and then click **Backup**.
   - To back up all the images in the list, click **Backup All**.
6. Select the partition and storage path, click **Backup**. Then the images are backed up to the specified path on the storage device. You can also create a new folder for the image(s) by clicking **New Folder**.

Playback Snapshot Backup

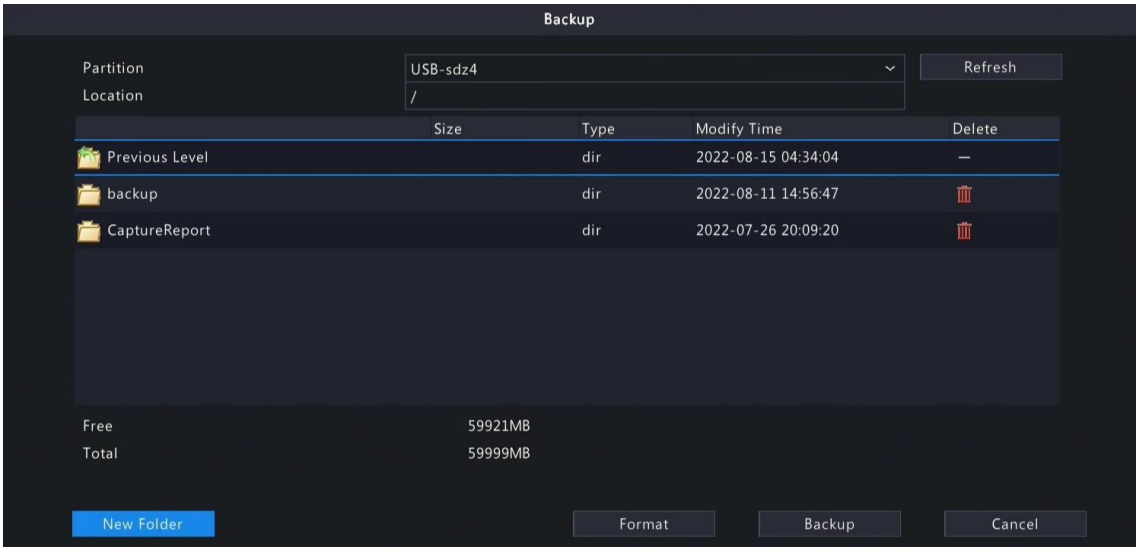
Refers to backing up snapshots that are taken during playback to a USB storage device.

1. Go to the **Playback** page.

2. Click HD to select HD or SD on the playback toolbar. The default is HD.
3. Select the desired camera to play the recorded video. Click to take a snapshot during the playback.
4. To view the saved snapshot(s), click .



5. Select the desired snapshot(s) and then click **Backup**.



6. Select the partition and storage path, and then click **Backup**. The snapshots are saved in the specified path on the storage device. You can also create a new folder for the snapshot(s) by clicking **New Folder**.

9 Storage

Configure disk storage parameters.

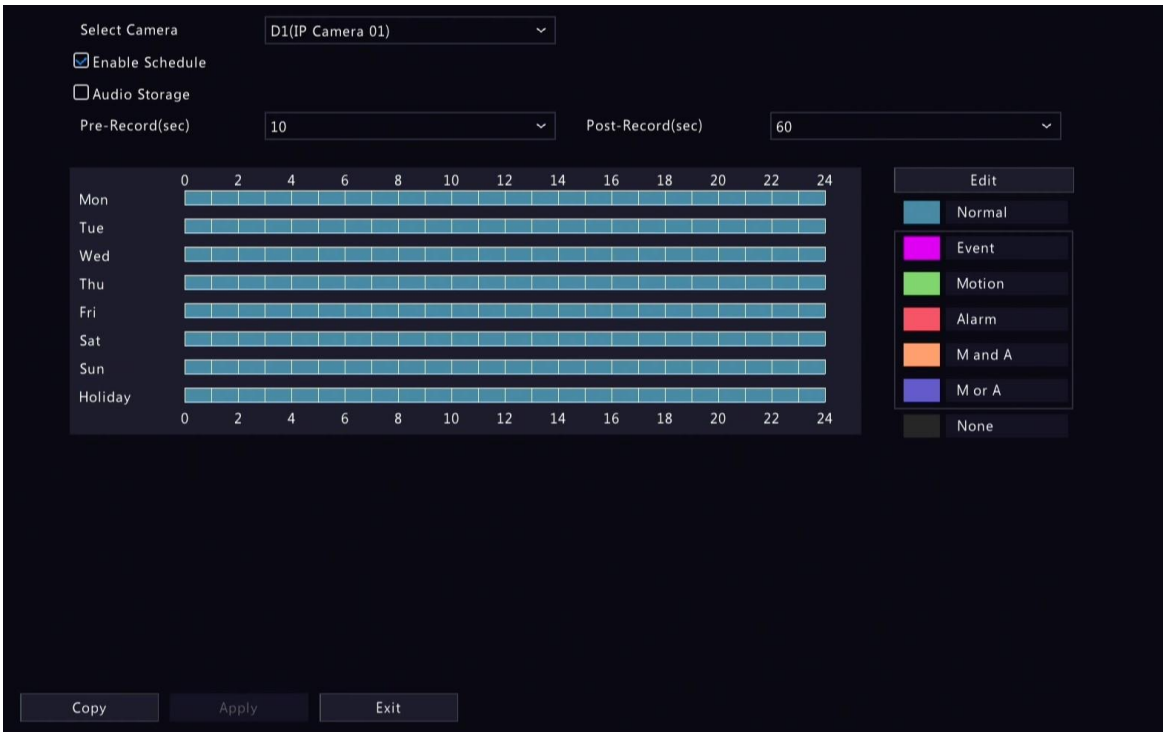
Note: You can configure the storage mode under **Menu** > **Camera** > **Encoding**.

9.1 Recording Schedule

Make a recording schedule.

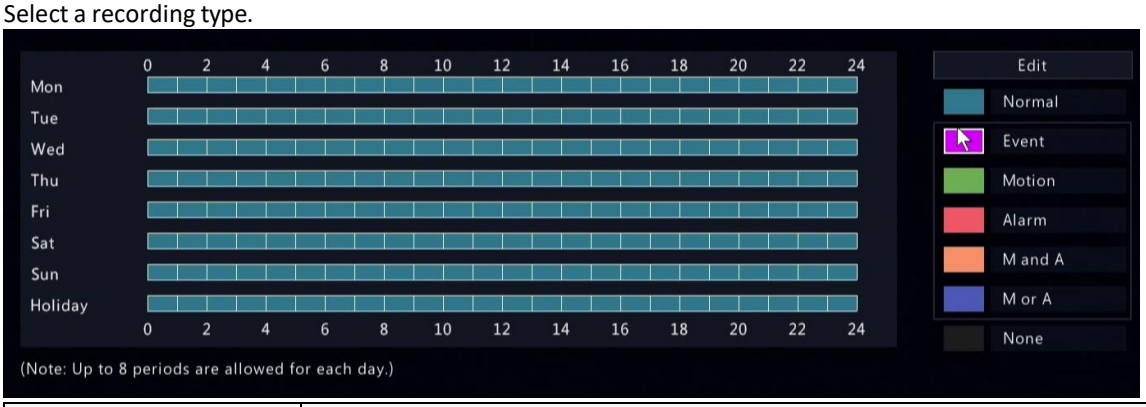
A 24/7 normal recording schedule is enabled by default. You can modify the schedule by drawing or editing as needed.

Go to **Menu** > **Storage** > **Recording Schedule**. Select the camera for which you want to make a recording schedule.



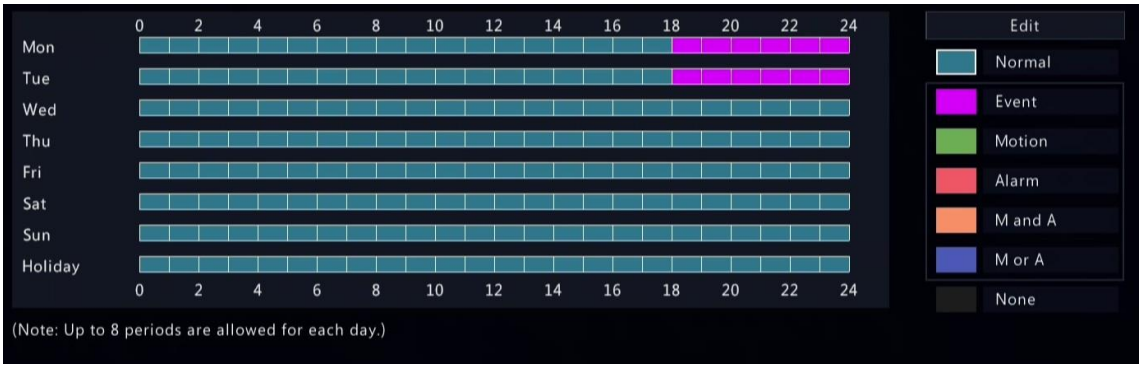
Draw a Schedule

1. Select a recording type.



Recording Type	Description
Normal	Records video during specified time periods.
Event	Records video in the event of an event-triggered alarm.
Motion	Records video in the event of motion.
Alarm	Records video in the event of alarm input. Configure Alarm Input first before making an alarm schedule.
M and A	Records video when motion and alarm input occur simultaneously.
M or A	Records video when motion or alarm input occurs.
None	No recording schedule.

2. Drag on the time schedule to specify time periods for the recording type. The figure below shows a recording schedule with event recording from 18:00 to 24:00 on Monday and Tuesday, and normal recording during the rest of the time.

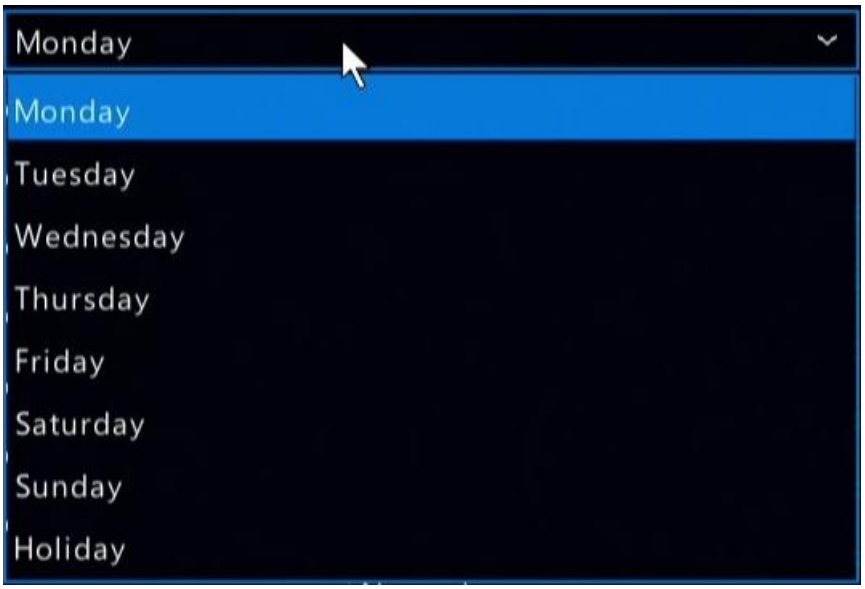


3. Click **Apply**.

Edit a Schedule

1. Click **Edit**.

2. Select a day.



Note: Before you select **Holiday**, go to **System** > **Time** > **Holiday** and complete the holiday settings.

3. Clear the **All Day** check box. As a 24/7 normal recording schedule is enabled by default, you cannot modify the schedule unless **All Day** is unchecked.
4. Set time periods and the corresponding recording types.

5. To apply the same settings to other days, select the desired day(s) after **Copy To**.
6. Click **OK**.

7. Click **Apply**.

Other Settings

Item	Description
Pre-Record	The duration of video to be recorded before an alarm. The default value is 10s.
Post-Record	The duration of video to be recorded after an alarm. The default value is 60s.
Audio Storage	Set whether to record audio. Audio is not recorded by default.

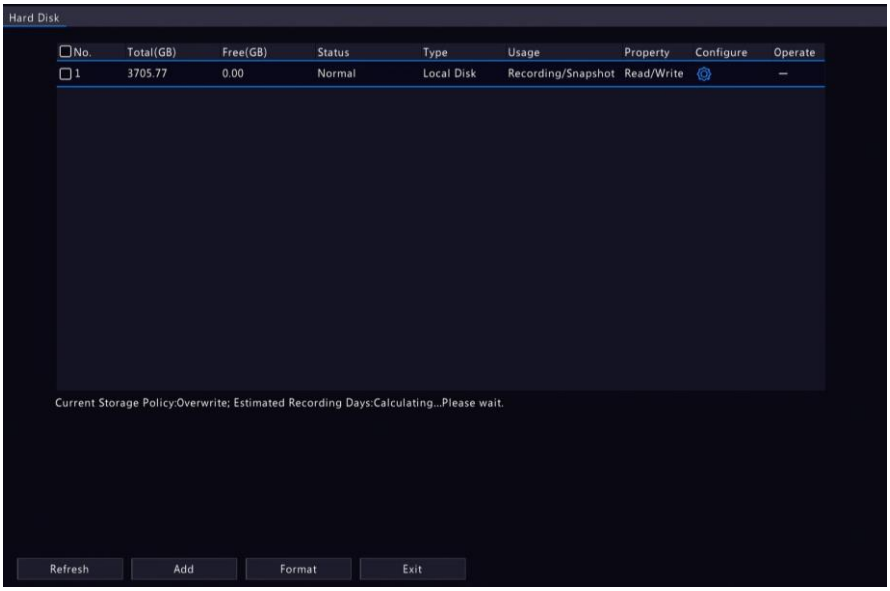
9.2 Disk Management

Configure disk usage and property, add external disks, and format disks.

Note:

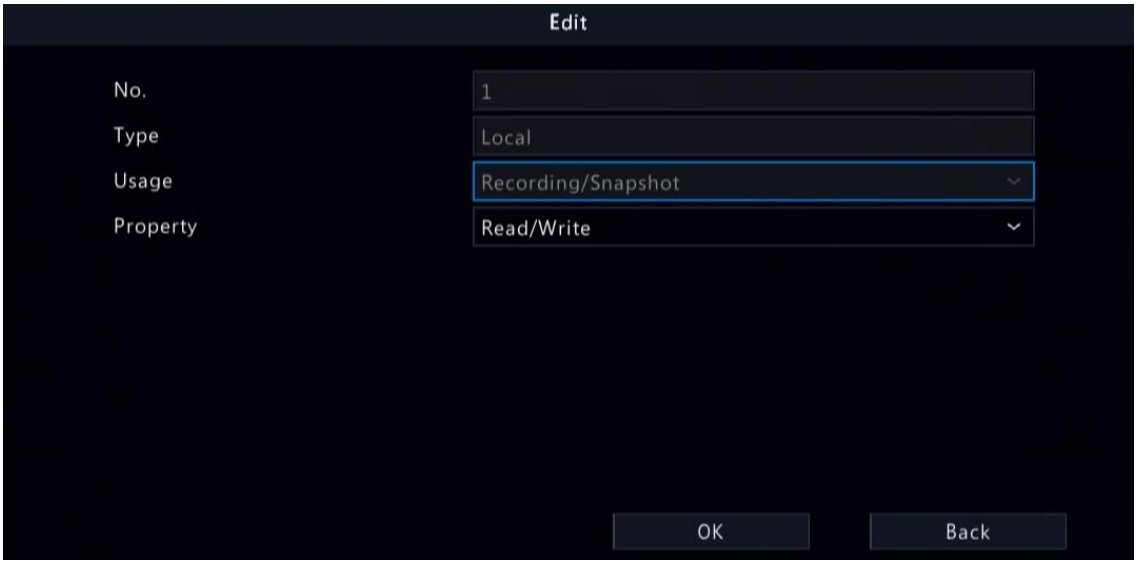
- Before you start, make sure all disks are installed properly.
- Only admin can format disks and configure the disk property.

Go to **Menu** > **Storage** > **Hard Disk**.



Configure the Disk Usage and Property

1. Click  for the disk to edit.



2. Select the usage and property. You can only configure the usage of NAS and eSATA.

Usage	Description
Recording/Snapshot	Used to automatically store recordings or snapshots.

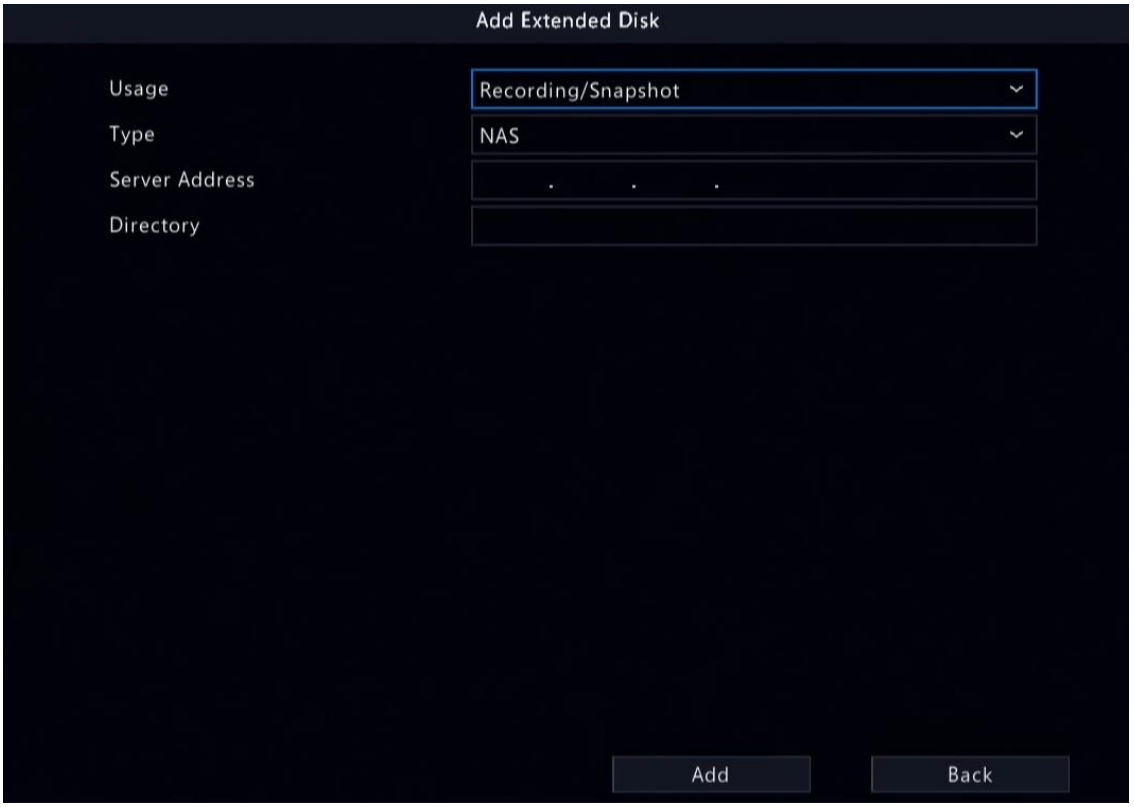
Property	Description
Read/Write	The disk supports recording/snapshot storage, recording playback and snapshot retrieval.
Read Only	The disk only supports recording playback and snapshot retrieval, and does not support recording/snapshot storage.

3. Click **OK**.

Add an External Disk

You can add external disks to the device, including NAS, eSATA, and disk enclosure. eSATA disks and disk enclosures are automatically added when connected to the device. The following describes how to add a NAS.

1. Click **Add**.



2. Enter the NAS server address and directory.
3. Click **Add**.

Format a Disk

Formatting a disk will erase all data stored on it. Please handle with caution.

1. Select the disk you want to format.
2. Click **Format**.
3. A confirmation message appears.
   - Local disk: Click **Yes**.
   - External disk: Select the files you want to format.

Other Operations

Click / to unmount/mount an eSATA disk.

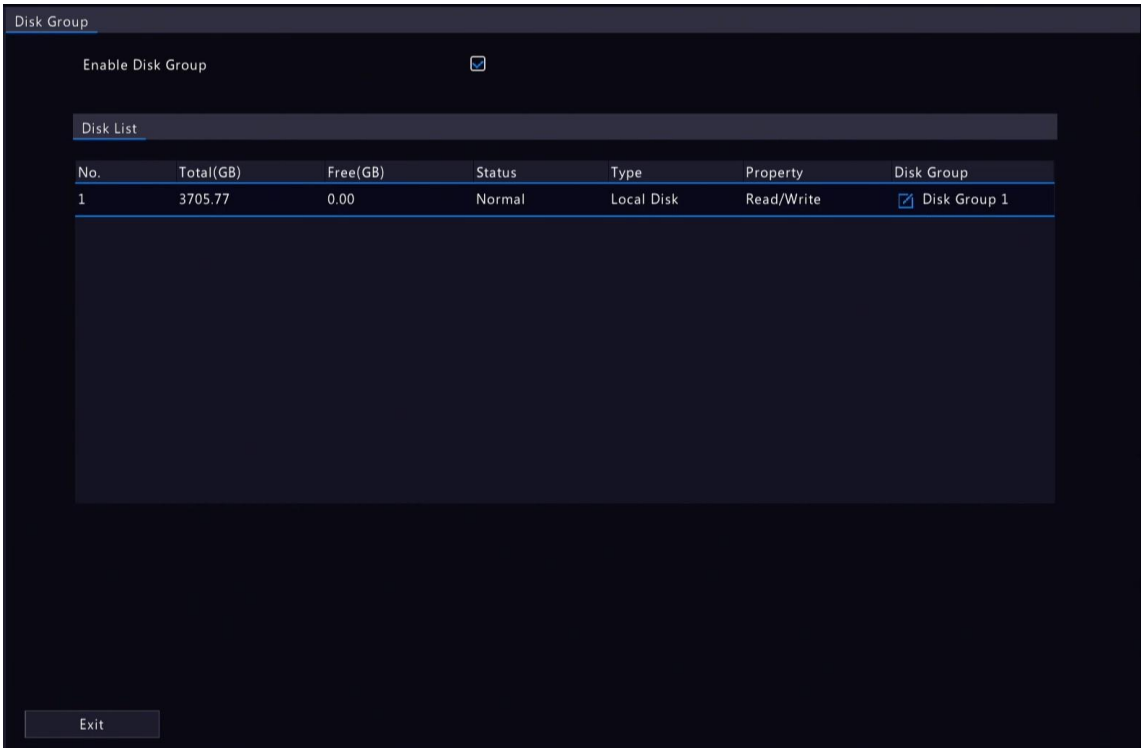
9.3 Disk Group

You can group disks and allocate a disk group for videos and images from a specified camera to meet the different storage duration requirements of cameras. Different arrays can be assigned to different disk groups. See Space Allocation for details.

Note:

- Redundant disks cannot be assigned to any disk group.
- Disk group information will be initialized if any disk in the group is formatted.

1. Go to **Menu** > **Storage** > **Disk Group**.
2. Select the **Enable Disk Group** check box.



3. Click .

4. Select a disk group for the disk.
5. Click **Apply**.

9.4 Space Allocation

Allocate storage space for videos and images from a specified camera.

1. Go to **Menu** > **Storage** > **Allocate Space**.

2. Select a camera, select a disk group for storage by the camera, and allocate storage space for videos and images from this camera on the disk group.

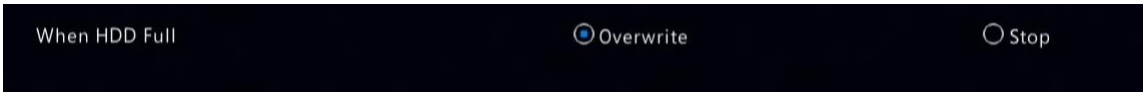
Space Type	Description
Recording Space	Used to store first stream videos, smart snapshots, POS data, people flow data, and heat map images.
Image Space	Used to store common snapshots, such as snapshots captured by schedule or manually.

3. Click **Apply**.
4. (Optional) Click **Copy** to apply the same settings to other camera(s).

9.5 Advanced Settings

Configure the storage policy when the storage is full.

1. Go to **Menu** > **Storage** > **Advanced**.



2. Select whether to overwrite the existing data or stop storage when the storage is full.

When HDD Full	Description
Overwrite	The disk space is divided into allocated space and remaining space according to whether the disk is used for storage by cameras. • If a camera is not allocated storage space, it will use the remaining disk space, and its oldest data will be overwritten when the remaining space is used up. **Note:** As the remaining disk space is variable and older recordings may be overwritten due to insufficient storage space, please allocate storage space with caution. For example, on a device with 20G disk capacity and two cameras, if camera 1 is allocated 10G, camera 2 will use the remaining 10G if it is not allocated storage space. In this case, you can view the last 5 days of recordings from camera 2. However, if you add a new camera to the device, there will be less storage space available to camera 2, and fewer days of recordings can be viewed. • If a camera is allocated storage space, its oldest data will be overwritten when the allocated space is used up.
Stop	This option is only effective to cameras that have been allocated storage space. When enabled, if the allocated space of a camera is used up, new recordings/ snapshots will not be saved.

10 Alarm Configuration

Set alarm rules and alarm-triggered actions so as to alert users when an alarm occurs.

10.1 Motion Detection

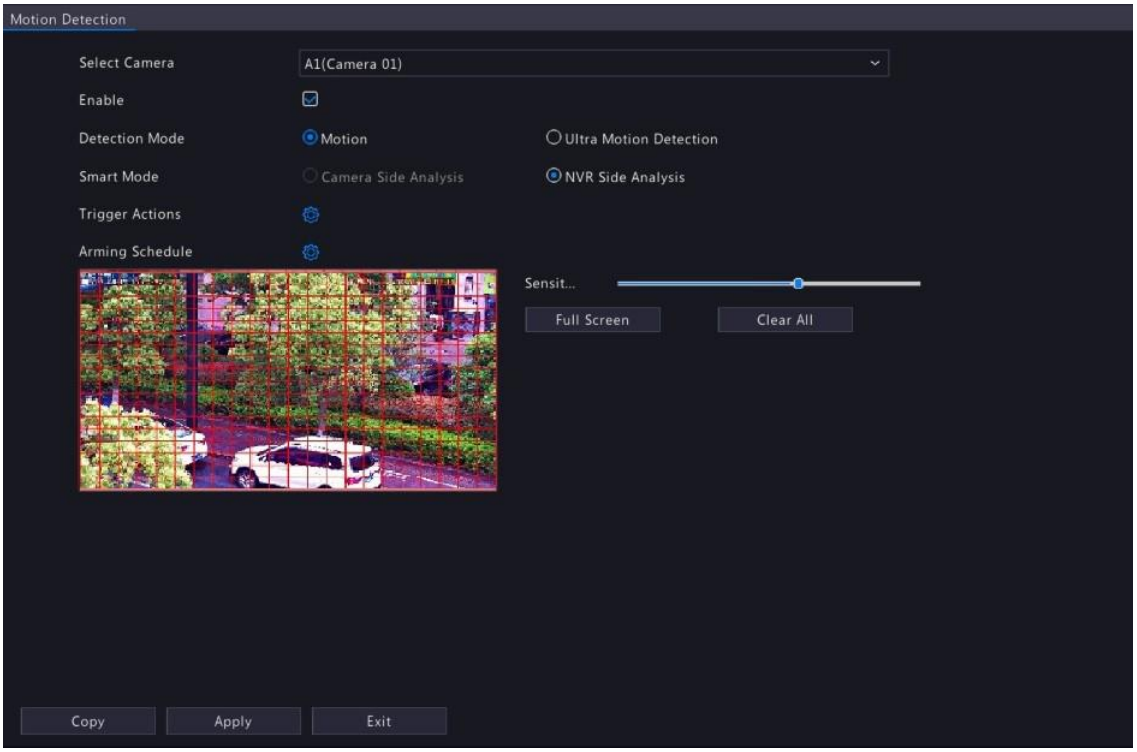
Motion detection detects motions in specified grids on the image. An alarm is reported when detection rules are triggered.

Note:
- The ultra motion detection may be unavailable to certain devices.
- The parameters may vary with DVR model.
- To configure ultra motion detection, enable the **Ultra Motion Detection** mode in Analyzer Configuration.

1. Go to **Menu** > **Alarm** > **Motion Detection**.
2. Select the desired camera, and enable motion detection.
3. Select the detection mode: **Motion** or **Ultra Motion Detection**.

Motion Detection

1. Select the detection mode as **Motion**.



2. Set the detection area. The default is the full screen. You can adjust grid detection areas as needed.
   - To erase grids, click or drag on grid areas.
   - To redraw grids, click **Clear All**, and then click or drag on blank areas to draw grids.
   - To detect the full screen, click **Full Screen**.

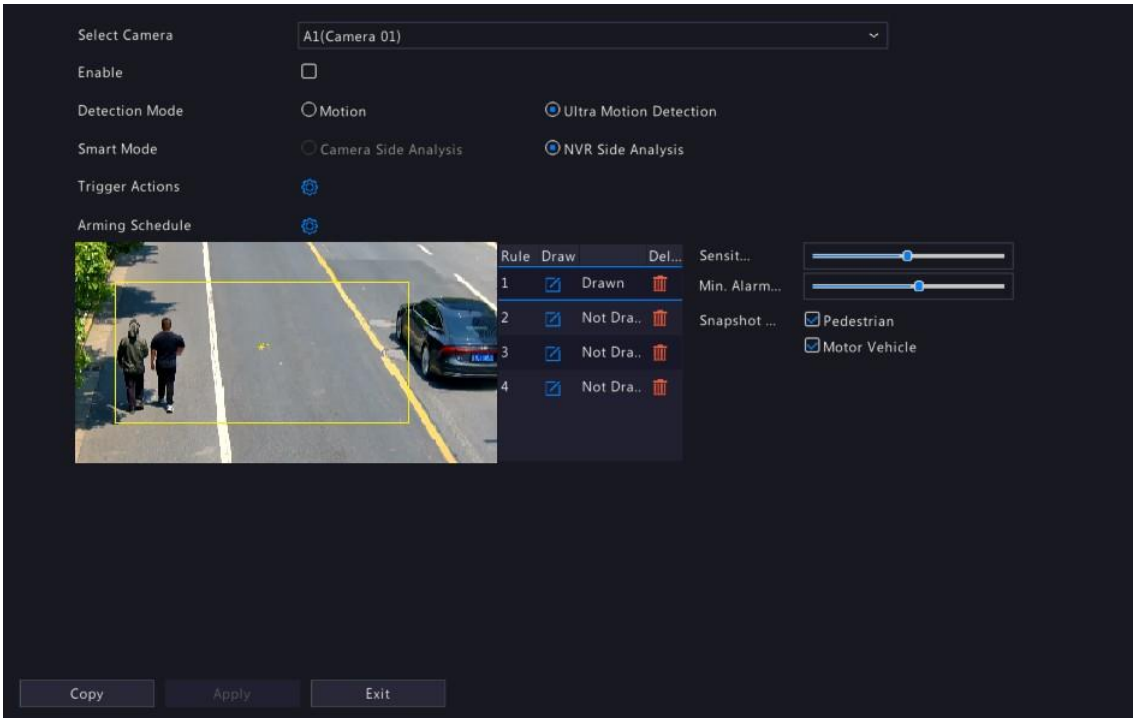
   Note: When a moving object is detected, the grids where the object appears on the left-side image are filled by .
3. Drag the slider to adjust detection sensitivity. The higher the sensitivity, the more likely small motions will be detected, and the more likely false alarms will occur. Set based on the scene and your actual needs.
4. Set the alarm-triggered actions and arming schedule. Click the corresponding to go to the **Trigger Actions** page and **Arming Schedule** page respectively. See Alarm-triggered Actions and Arming Schedule for details.
5. (Optional) To apply the same settings to other cameras, click **Copy** and select the desired parameter(s) and camera(s).

   Note: The settings of analog camera can only be copied to analog cameras, and the settings of digital camera can only be copied to digital cameras.
6. Click **Apply**.

Ultra Motion Detection

Ultra motion detection detects motions in specified grids on the image, and judges that the motion object is pedestrian or motor vehicle. An alarm is reported when detection rules are triggered.

1. Select the detection mode as **Ultra Motion Detection**.



2. Set detection rules. The 4 detection rules shall be set separately. The following takes Rule 1 as an example.

Parameter	Description
Detection Area	Select Rule 1, click , and the full screen is displayed, then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Rightclick to exit the full screen. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely motion behaviors will be detected, but the false alarm rate will increase.
Min. Alarm Interval (s)	Set the sensitivity by dragging the slider. Alarm interval refers to how frequent the alarm is reported. When a pedestrian or motor vehicle enters the detection area, an alarm will be triggered and reported immediately, and repeated after the alarm interval. The recommended alarm interval is 6s. You can adjust the value as needed.
Snapshot Type	Select the object(s) to be detected, including **Pedestrian** and **Motor Vehicle**,

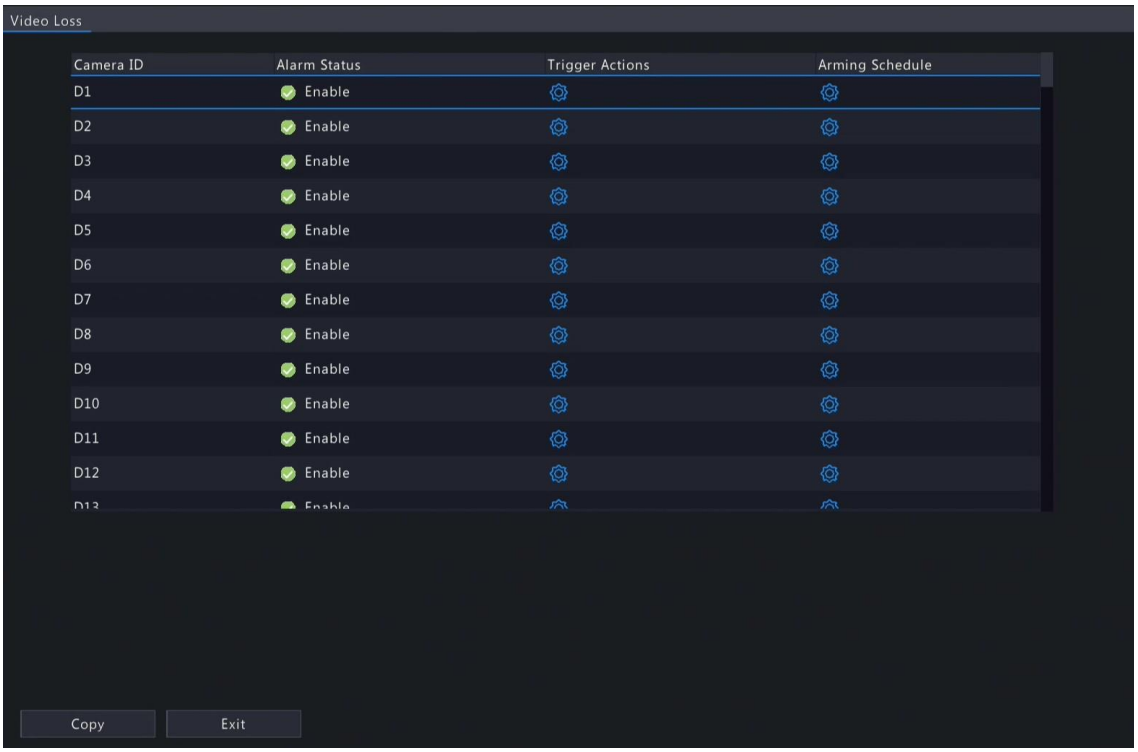
3. Set the alarm-triggered actions and arming schedule. Click the corresponding to go to the **Trigger Actions** page and **Arming Schedule** page respectively. See Alarm-triggered Actions and Arming Schedule for details.
4. (Optional) To apply the same settings to other cameras, click **Copy** and select the desired parameter(s) and camera(s).

   Note: The settings of analog camera can only be copied to analog cameras, and the settings of digital camera can only be copied to digital cameras.
5. Click **Apply**.

10.2 Video Loss

A video loss alarm is reported when the DVR loses video signals from a camera.

1. Go to **Menu** > **Alarm** > **Video Loss**.



2. Video loss alarm is enabled by default. To disable video loss alarm for a channel, click , which then changes to .
3. Set the alarm-triggered actions and arming schedule. Click the corresponding to go to the **Trigger Actions** page and **Arming Schedule** page respectively. See Alarm-triggered Actions and Arming Schedule for details.
4. (Optional) To apply the same settings to other cameras, click **Copy** and select the desired parameter(s) and camera(s), and then click **OK**.

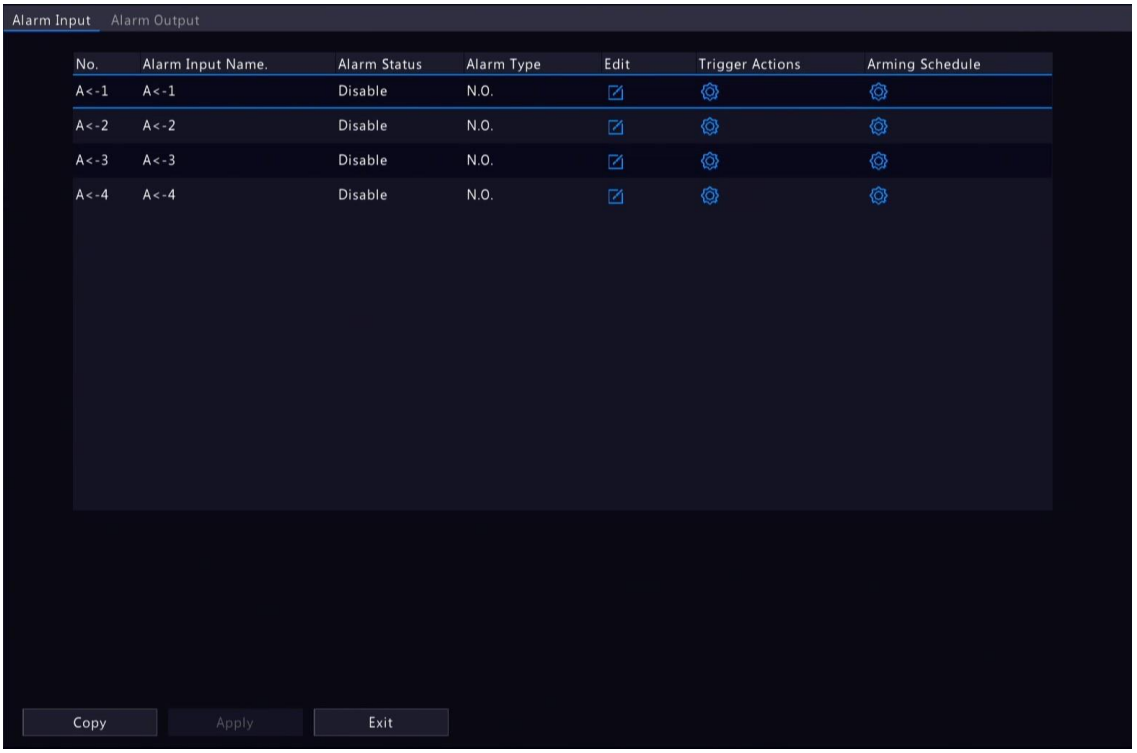
10.3 Alarm Input and Output

Configure alarm input and alarm output.

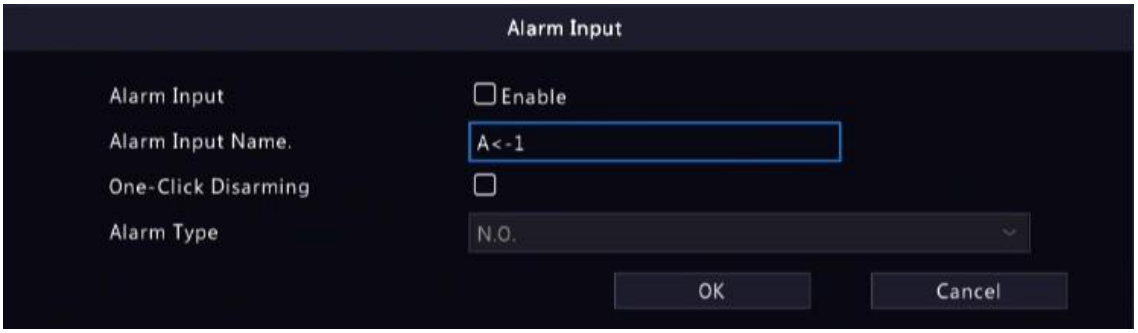
10.3.1 Alarm Input

Configure the alarm mode, arming schedule, and alarm-triggered actions for external alarm input devices. The external alarm input devices include devices connected to the ALARM IN interfaces on the DVR and the ALARM IN interfaces on the cameras. For example, access control devices.

1. Go to **Menu** > **Alarm** > **Input/Output** > **Alarm Input**.



2. Select the alarm input channel to be set.
   - A<-1: **A** refers to the ALARM IN interfaces on the DVR, **1** means the first ALARM IN interface. Likewise, **A <-2** means the second ALARM IN interface on the DVR. The number of ALARM IN interfaces may vary with DVR model. See the device datasheet for specifications.
   - D <-1: **D** refers to channels, the number means channel ID. **D<-1** means the alarm input device is connected to the ALARM IN interface of the camera whose channel ID is 1. Likewise, **D <-2** means the alarm input device is connected to the ALARM IN interface of the camera whose channel ID is 2. The number is not displayed if the camera has no ALARM IN interface.
3. Click  to configure alarm input parameters. After configuration, click **OK**.



Item	Description
Alarm Input	Select **Enable** to enable the alarm input.
Alarm Input Name	The default name is the alarm input number. You may rename it as needed.
One-Click Disarming	Select **Enable** to enable the one-click disarming. When enabled, the configured actions will not be triggered when A<-1 reports alarms.
Alarm Type	This item is applicable when **Alarm Input** is enabled. The default is **N.O.**. • N.O.: Choose this option if the alarm input device is normally closed. The device opens the circuit to input an alarm, triggers the DVR to open the alarm circuit and report an alarm. • N.C.: Choose this option if the alarm input device is normally opened. The device closes the circuit to input an alarm, triggers the DVR to close the alarm circuit and report an alarm.

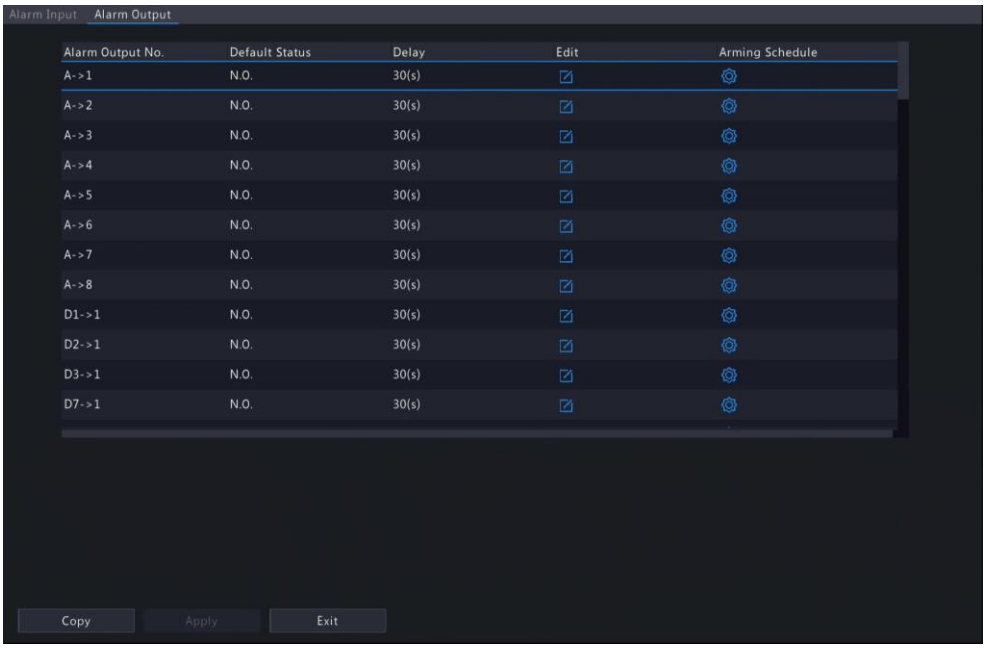
4. Set the alarm-triggered actions and arming schedule. Click the corresponding to go to the **Trigger Actions** page and **Arming Schedule** page respectively. See Alarm-triggered Actions and Arming Schedule for details.
5. (Optional) To apply the alarm input parameters to other cameras, click **Copy**, and select the desired channel(s) or **Copy To**, and then click **OK**.
6. Click **Apply**.

10.3.2 Alarm Output

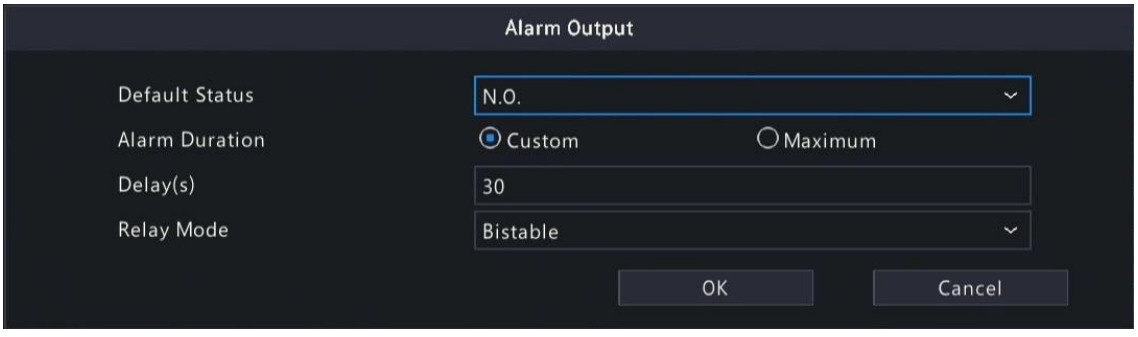
Configure the alarm mode and arming schedule for external alarm output devices.

The external alarm output devices include devices connected to the ALARM OUT interfaces on the DVR and the ALARM OUT interfaces on the cameras, such as alarm light and alarm bell.

1. Go to **Menu** > **Alarm** > **Input/Output** > **Alarm Output**.



2. Select the alarm output channel to be set.
   - A>-1: **A** refers to the ALARM OUT interfaces on the DVR, **1** means the first ALARM OUT interface. **A <-2** means the second ALARM OUT interface on the DVR, and so on. The number of ALARM OUT interfaces may vary with DVR model. See the device datasheet for specifications.
   - D >-1: **D** refers to channels, the number means channel ID. **D->1** means the alarm output device is connected to the ALARM OUT interface of the camera whose channel ID is 1. Likewise, D->2 means the alarm output device is connected to the ALARM OUT interface of the camera whose channel ID is 2. The number is not displayed if the camera has no ALARM OUT interface.
3. Click to configure alarm output parameters. After configuration, Click **OK**.



Item	Description
Default Status	Select the default status from the drop-down list. The default is **N.O.**. • N.O.: Choose this option if the external device is normally open. • N.C.: Choose this option if the external device is normally closed.

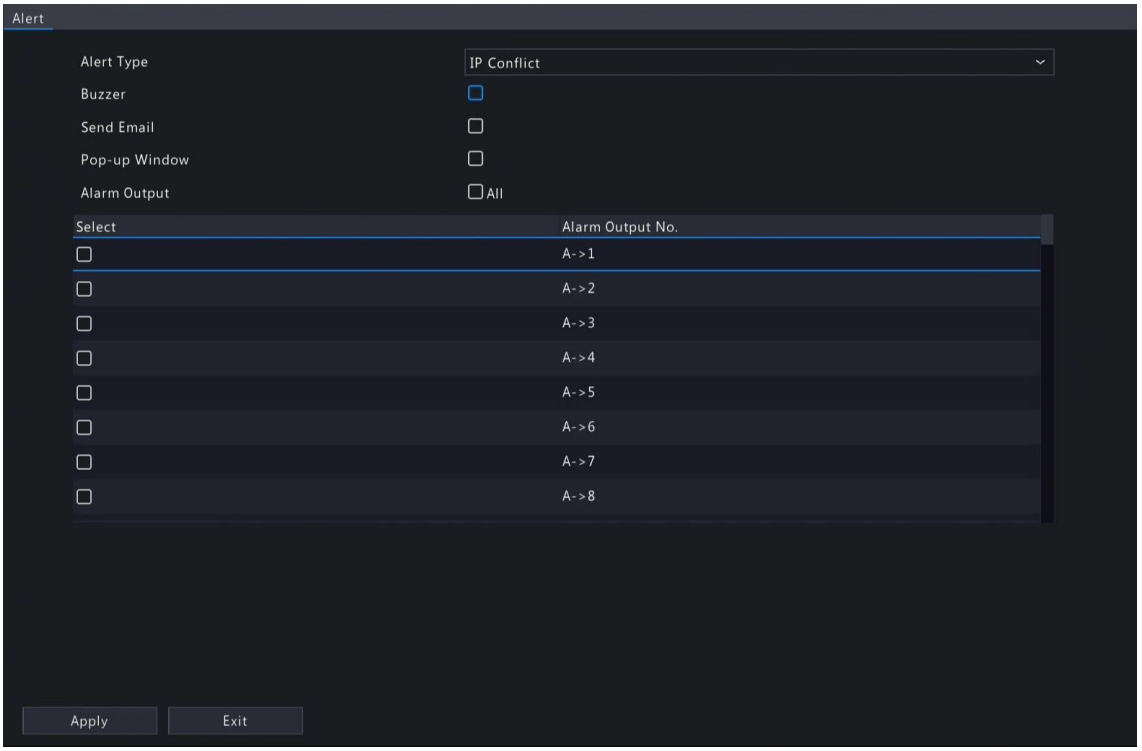
Item	Description
Alarm Duration/Delay(s)	Set the alarm duration, that is, the length of time that an output alarm lasts after the alarm is ended. • Custom: When enabled, you can set the length of time as needed. After an alarm is cleared on the DVR, the third-party alarm device continues alarm till the end of the set duration. **Note:** The delay period supported by channels may vary. For most channels, the valid range is 5 to 3600s. For certain channels, the valid range is 1 to 3600s. • Maximum: When enabled, you cannot set the delay period. The third-party alarm device continues alarm until you clear it manually.
Relay Mode	Set the relay mode, including monostable and bistable. The default is bistable. **Note:** Set relay mode to better adapt to third-party alarm devices such as alarm lights. Please set the relay mode according to the trigger mode of the third-party alarm device. • Monostable: The circuit can only remain in one stable state. When a trigger pulse is applied, the circuit switches to another state, and then automatically switches back to the original stable state. The circuit will repeat the same actions when the next trigger pulse arrives. • Bistable: The circuit can remain in two stable states. When a trigger pulse is applied, the circuit switches to another state, and remains in this state after the trigger pulse is removed. When the next trigger pulse is applied, the circuit switches back to the other stable state and remains in that state.

4. Set the alarm-triggered actions and arming schedule. Click the corresponding to go to the **Trigger Actions** page and **Arming Schedule** page respectively. See Alarm-triggered Actions and Arming Schedule for details.
5. (Optional) To apply the alarm output parameters to other cameras, click **Copy**, and select the desired channel(s) or **Copy To**, and then click **OK**.
6. Click **Apply**.

10.4 Alert

Configure alert actions for device abnormal events. The DVR reports an alarm when an event occurs.

1. Go to **Menu** > **Alarm** > **Alert**.
2. Select an alert type from the drop-down list.
   - IP Conflict: IP cameras use the same IP address on the network.
   - Network Disconnected: The DVR is disconnected from the network.
   - Disk Offline: No disk or a disk is not properly connected.
   - HDD Abnormal: A disk is in position but cannot work normally.
   - Illegal Access: Incorrect username/password.
   - Hard Disk Space Low: The disk space is about to use up.
   - Hard Disk Full: The disk space has been used up.
   - Recording/Snapshot Abnormal: Videos/snapshots cannot be stored normally because the disk is offline or abnormal.
3. Set the alert actions, including buzzer, sending email, and pop-up window. See Alarm-triggered Actions for details.
4. Set the alarm output channel(s). You may select **All**, or select specified alarm output channel(s).

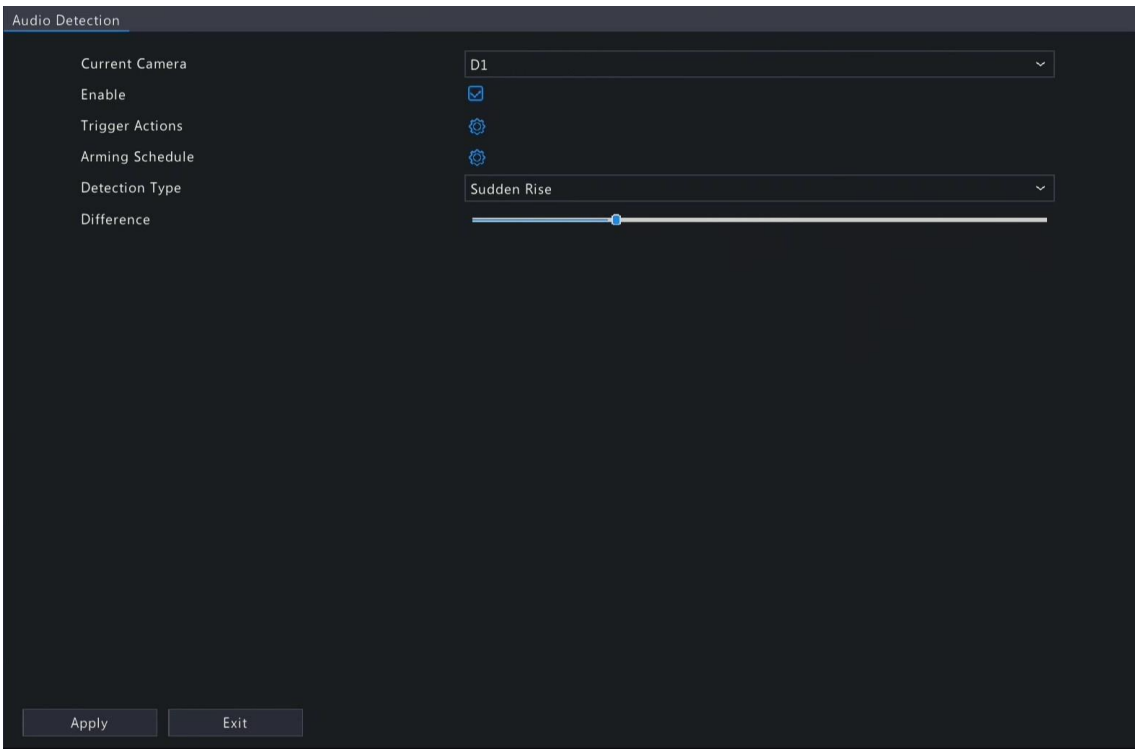


5. Click **Apply**.
6. Repeat the above operations to configure alert actions for other events.

10.5 Audio Detection

Audio detection detects input audio signals. An alarm is reported when an exception is detected. Make sure an audio collection device (e.g. sound pickup) is connected, and audio detection is enabled. See Audio Configuration for details.

1. Go to **Menu** > **Alarm** > **Audio Detection**.



2. Select the desired camera, and click **Enable**.
3. Set the alarm-triggered actions and arming schedule. Click the corresponding to go to the **Trigger Actions** page and **Arming Schedule** page respectively. See Alarm-triggered Actions and Arming Schedule for details.
4. Set audio detection rules.

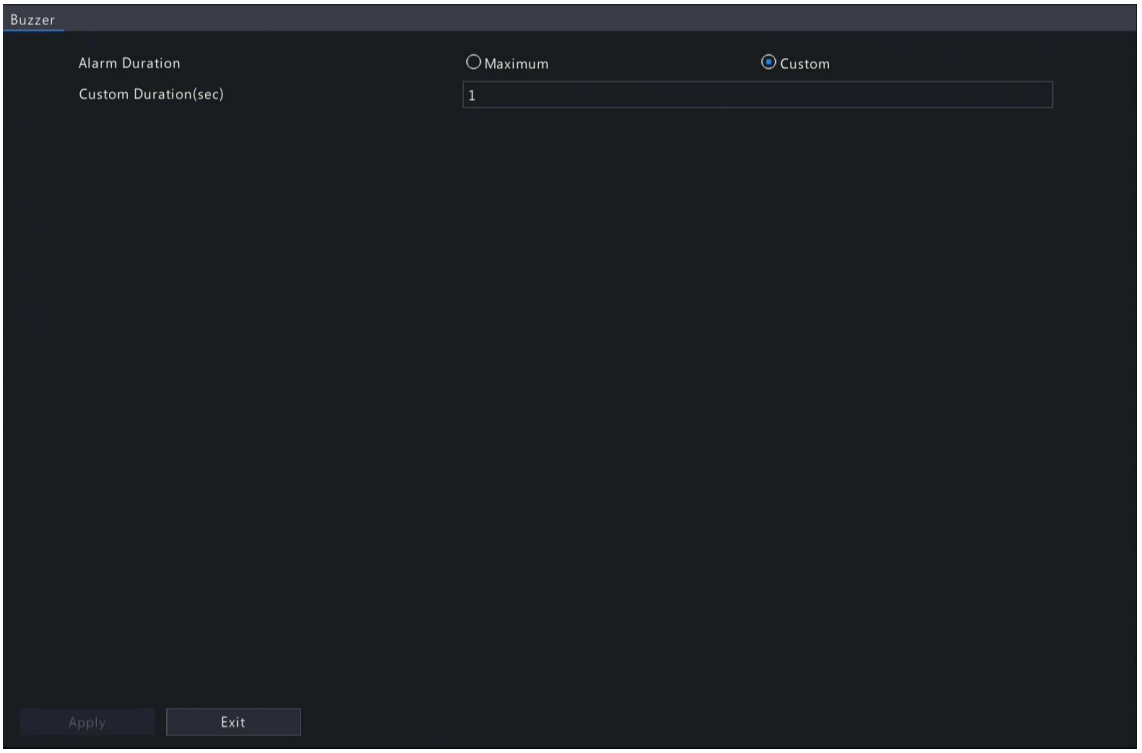
Item	Description
Detection Type	Select an audio detection type from the drop-down list. • Sudden Rise: An alarm occurs when the rise of volume exceeds the set value. • Sudden Fall: An alarm occurs when the fall of volume exceeds the set value. • Sudden Change: An alarm occurs when the rise or fall of volume exceeds the set value. • Threshold: An alarm occurs when the volume exceeds the set threshold.
Difference/Threshold	Drag the slider to adjust the difference and threshold. • The difference between two sound volumes. An alarm occurs when the rise or fall of volume exceeds the difference (range: 0-400). This item is applicable when the detection type is **Sudden Rise**, **Sudden Fall**, or **Sudden Change**. • Threshold: The limit value of volume. An alarm occurs when the detected volume exceeds the set value (range: 0-400). This item is applicable when the detection type is **Threshold**.

5. Click **Apply**.

10.6 Buzzer

Configure the alarm duration of the buzzer on the DVR.

1. Go to **Menu** > **Alarm** > **Buzzer**.



2. Set the alarm duration. The default is 30s.
   - Maximum: When enabled, you cannot set the alarm duration. When an alarm occurs, the buzzer will alarm continuously until the alarm ends.
   - Custom: When enabled, you can set how long the buzzer will alarm after it is triggered. The valid range is from 1 to 600(s). When an alarm occurs, the buzzer will alarm continuously within the alarm duration, and stop automatically if the alarm ends first within the duration.

   Note: To stop a buzzer alarm manually, right-click in the preview window, select **Manual** > **Buzzer**. See Buzzer for details.

3. Click **Apply**.

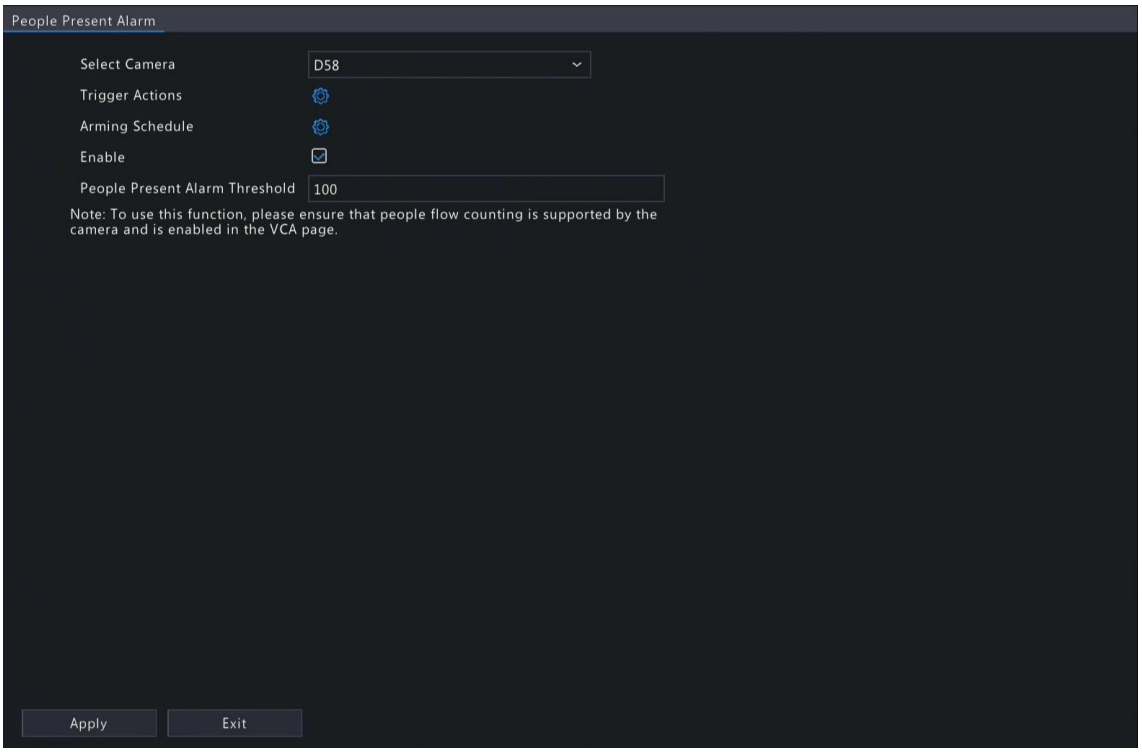
10.7 People Present Alarm

An alarm occurs when the number of people present in a specified area exceeds the set threshold.

Note: To use this function, make sure that people flow counting is supported by the camera and is enabled in the **VCA** page. See People Flow Counting for details.

Configure People Present Alarm

1. Go to **Menu** > **Alarm** > **People Present Alarm**.



2. Select the desired camera, and click **Enable**.
3. Set the alarm-triggered actions and arming schedule. Click the corresponding to go to the **Trigger Actions** page and **Arming Schedule** page respectively. See Alarm-triggered Actions and Arming Schedule for details.
4. Set the people present alarm threshold, which is the maximum number of people allowed in the monitored area. An alarm occurs when the number of people present exceeds the threshold. The valid range is from 1 to 100,000.
5. Click **Apply**.

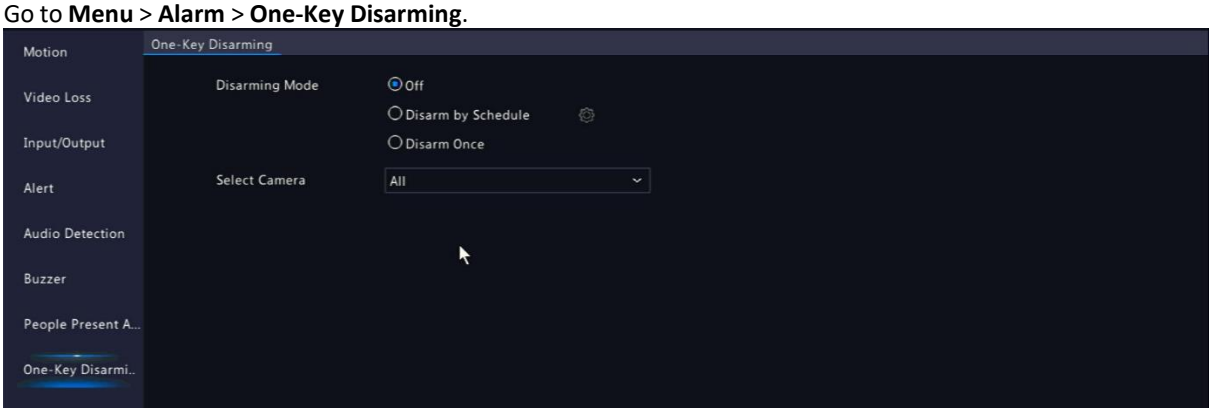
View Data

In the preview page, select **People Flow Counting** from the drop-down list in the upper right corner, then you can view the number of people entered, left, and present.

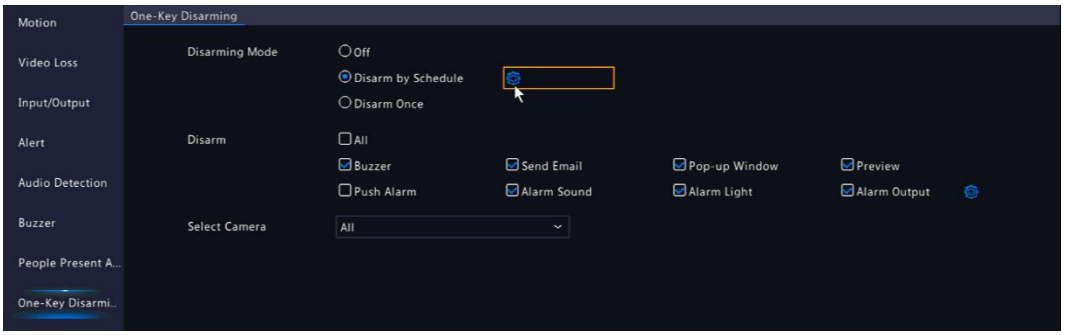
10.8 One-Key Disarming

Cancel alarm-triggered actions of DVRs with one click.

1. Go to **Menu** > **Alarm** > **One-Key Disarming**.



2. Select a disarming mode and configure parameters.
   - Off: Disarming is disabled on the DVR.
   - Disarm by Schedule: The DVR is disarmed during specific time periods per week.

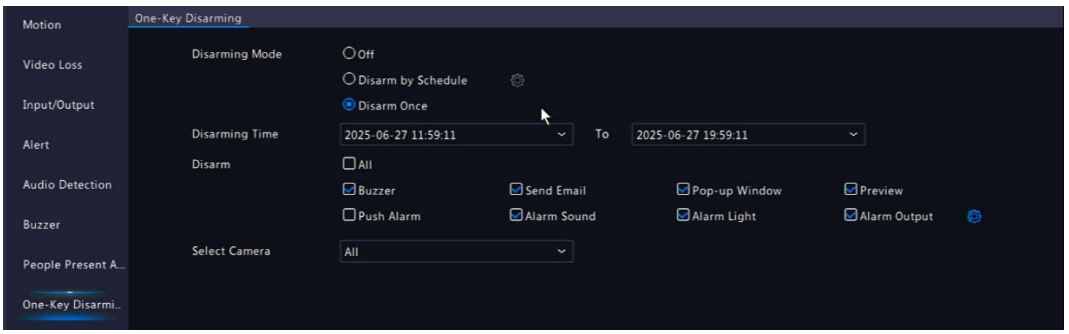


   (1) Click right to **Disarm by Schedule**, and set the disarming periods. Click **OK** to return to the **NVR Disarming** page.

   Note:
   - Up to 4 disarming periods during one day are allowed.
   - To apply the same disarming schedule to other days, select **All** or the intended day(s), and click **OK**.

   (2) Select actions to be disarmed. The default is all actions. See Alarm-triggered Actions for details.

   - Disarm Once: The DVR is disarmed during a specified time period.



   (1) Select **Disarm Once**, and set the disarming start time and end time.

   (2) Select actions to be disarmed. The default is all actions. See Alarm-triggered Actions for details.

3. Click **Apply**.

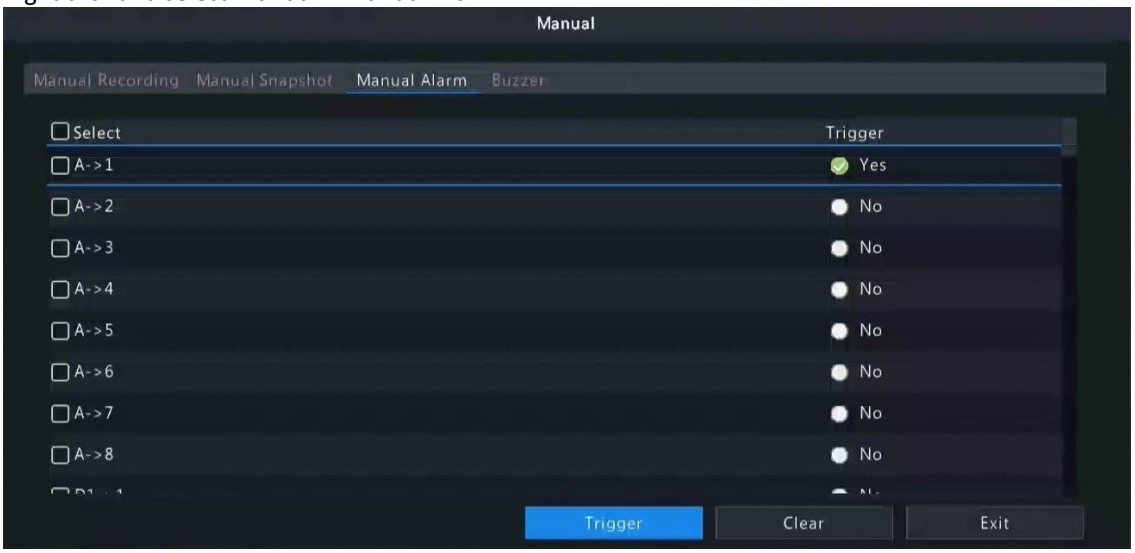
10.9 Manual Alarm

Trigger or clear an alarm output manually.

Note: Manual alarm has the highest priority.

Manual Alarm

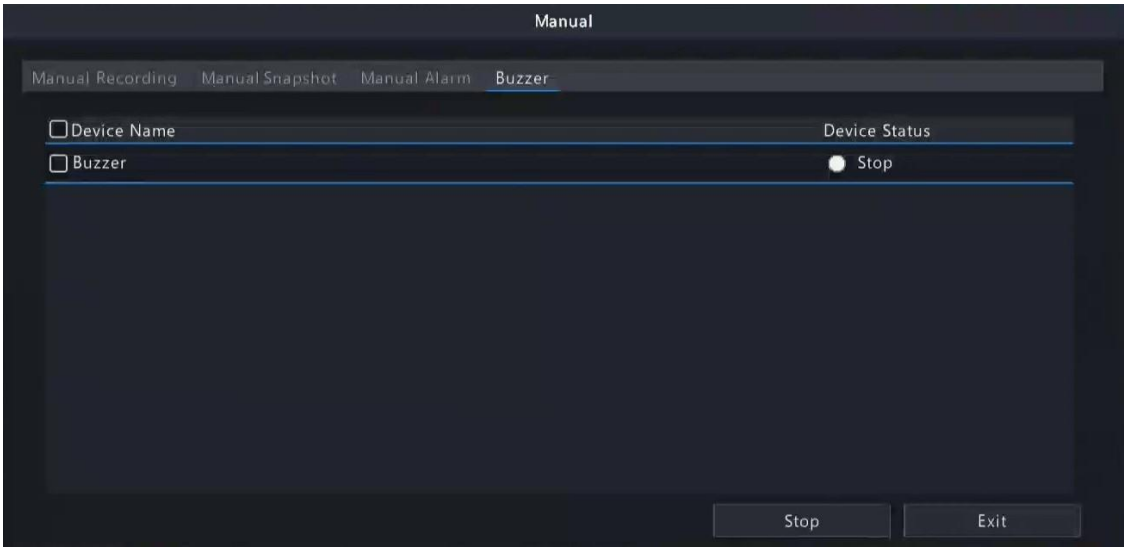
1. Right click and select **Manual** > **Manual Alarm**.



2. Trigger or clear alarm(s) manually.
   - Trigger: Select the channel(s) to be triggered and click **Trigger**, and then changes to .
   - Clear: Select the channel(s) to be cleared and click **Clear**, and then changes to .

Buzzer

1. Right click and select **Manual** > **Buzzer**.



2. To stop the buzzer, select the buzzer (in Started status) and then click **Stop**.

11 System Maintenance

View system operation status to ensure stable system operation.

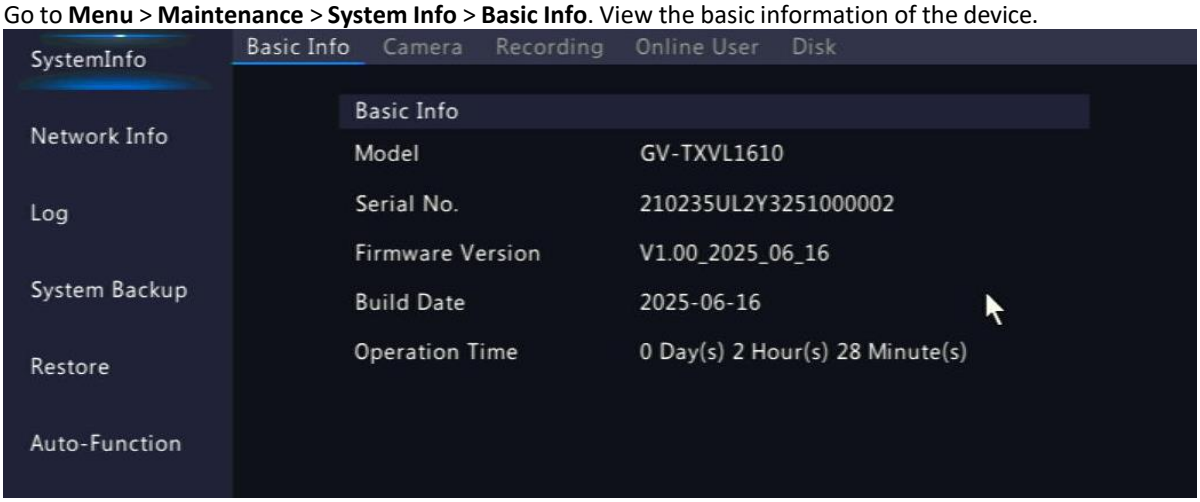
11.1 System Info

View the basic information and operation status of the device.

11.1.1 Basic Info

View the basic information of the device, including DVR model, firmware version, build date, etc.

1. Go to **Menu** > **Maintenance** > **System Info** > **Basic Info**. View the basic information of the device.

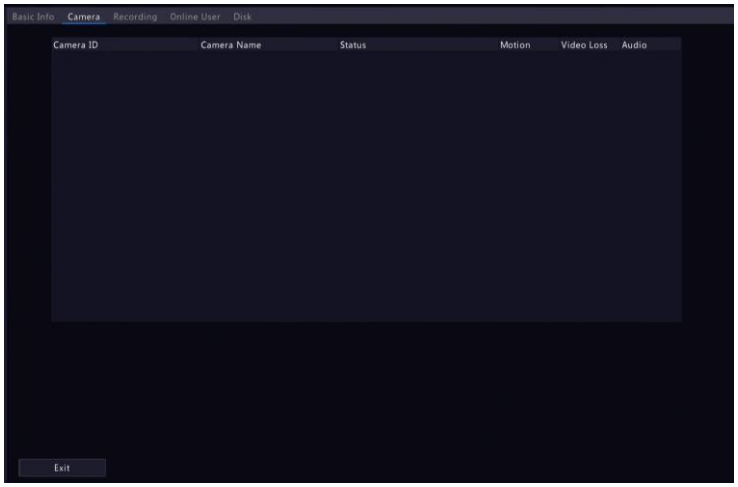


Parameter	Description
Model	DVR model.
Serial No.	Serial number.
Firmware Version	Firmware version of the DVR.
Build Date	Release date of the current firmware version.
Operation Time	Length of time the DVR has been operating since the latest startup.

11.1.2 Camera Status

View camera status information.

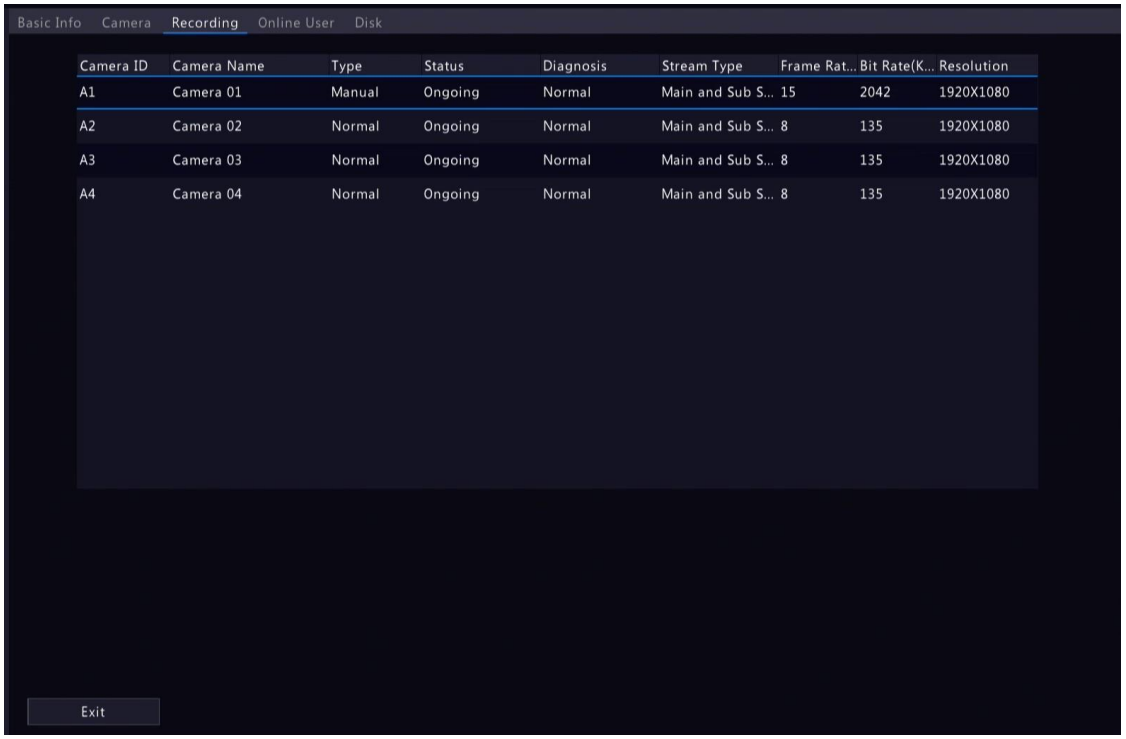
Go to **Menu** > **Maintenance** > **System Info** > **Camera**. View camera information including name, online/offline status, event type and status.



11.1.3 Recording Status

View the recording status and encoding parameters of the connected cameras.

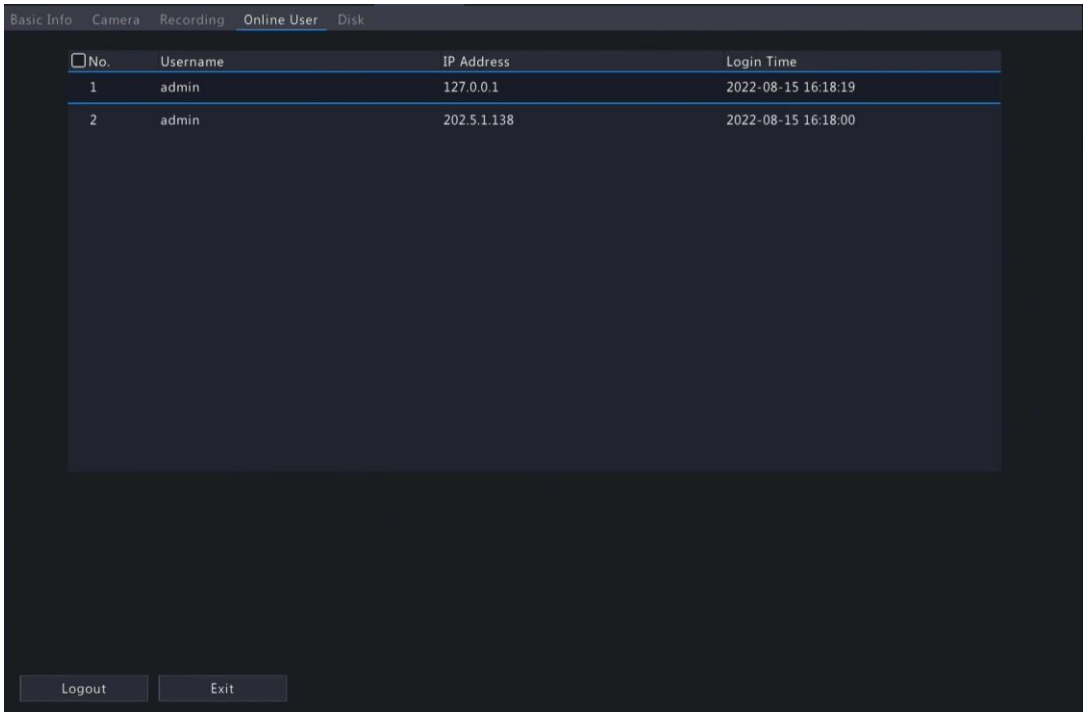
Go to **Menu** > **Maintenance** > **System Info** > **Recording**. View recording information including recording type, recording status, diagnosis, and encoding parameters.



11.1.4 Online User

View the logged-in users, and force non-admin users to log out of the DVR when necessary.

1. Go to **Menu** > **Maintenance** > **System Info** > **Online User**.



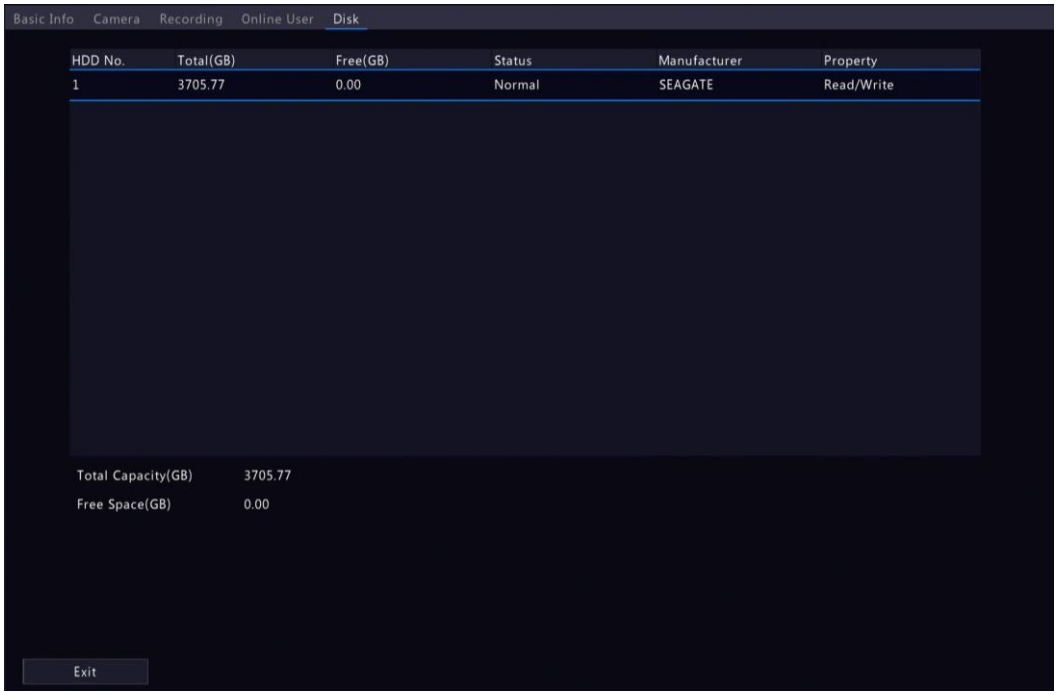
2. Choose a non-admin user and then click **Logout**.

Note: Only admin can manage user permissions.

11.1.5 HDD Status

View the status and property of HDDs on the DVR.

Go to **Menu** > **Maintenance** > **System Info** > **Disk**. View hard disk information including the total capacity, free space, status, manufacturer, and property.



11.2 Network Information

View network information including network traffic, network statistics and network status.

11.2.1 Network Traffic

View network interface card (NIC) information including connection status, physical address, MTU, NIC type, and real-time traffic.

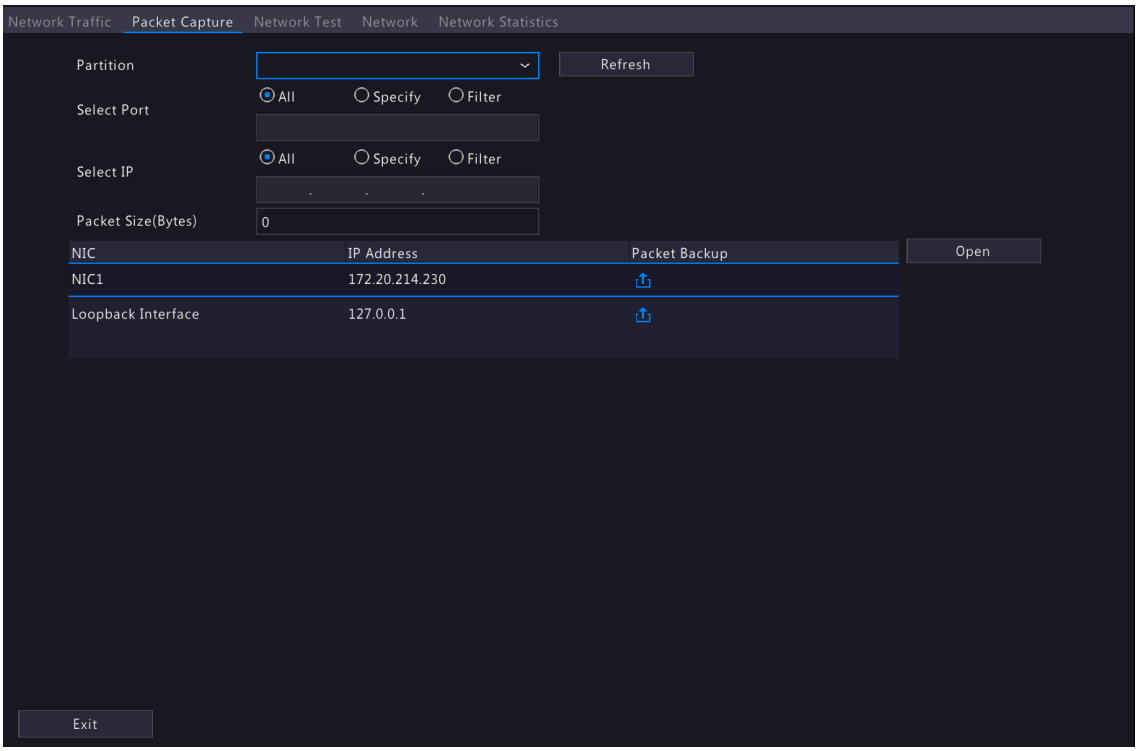
1. Go to **Menu** > **Maintenance** > **Network Info** > **Network Traffic**.

2. Choose an NIC to view the real-time network traffic.

11.2.2 Package Capture

Capture, view, and save network packets for network security and troubleshooting.

1. Go to **Menu** > **Maintenance** > **Network Info** > **Packet Capture**.

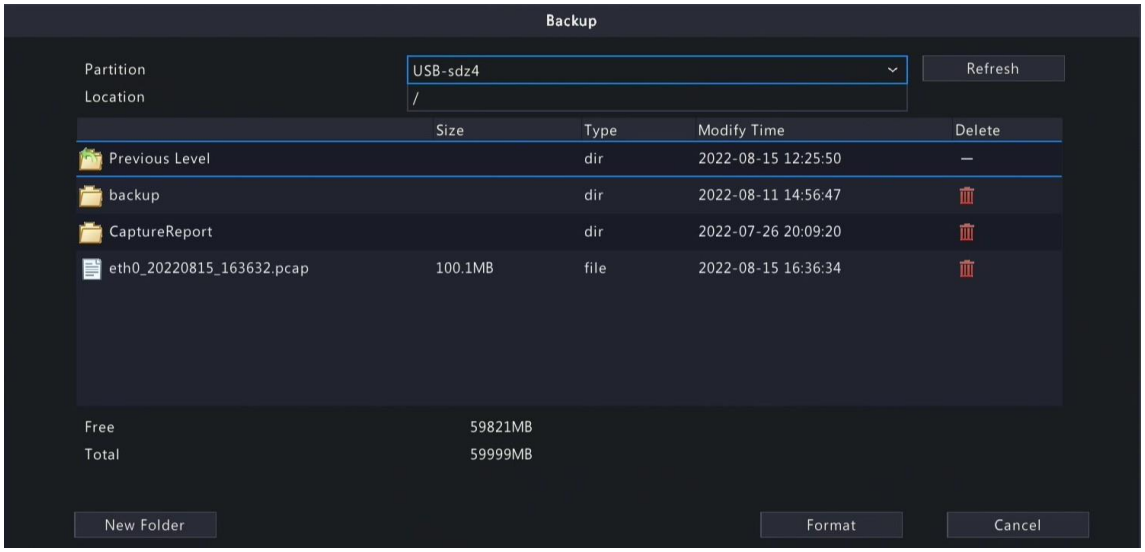


2. Choose a partition to save the captured packets.
3. Specify ports and IPs.
   - All: Capture packets of all the ports and IPs connected to the device.
   - Specify: Capture packets of the specified ports and IPs.
   - Filter: Capture packets except that of the specified ports and IPs.
4. Set the packet size.

   Note:
   - The packet size is 0 by default, which indicates that there is no size limit for the captured packet data. The larger the size, the lower the risk of data loss, and the more complete the information.
   - Too large packet size may occupy too much storage space.
5. Click  for the NIC or loopback interface to start capturing packets.
   - NIC 1/2/3...: Capture transmission packets of the NIC.
   - Loopback interface: Capture operation packets of the NVR.

   Note: A progress bar appears. To cancel the task, click **Cancel**.
6. View the captured data.

   When the task is completed, the captured data are saved to the root directory of the USB storage device, and the **Backup** page appears, showing the file containing the captured packets. You may also click **Open** to open the **Backup** page.



Note:

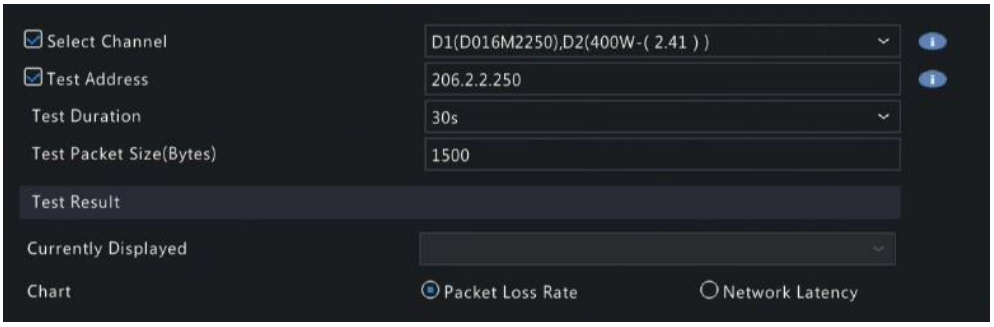
- The device cannot capture packets if a capturing task is already started on the Web client.
- The file containing the captured packets is named in this format: *NIC_YYYYMMDD_hhmmss*.pcap, for example, eth0_20220815_163632.pcap.
- When PPPoE dial-up succeeded, a virtual NIC appears in the NIC list. You can also capture packets of the NIC.

11.2.3 Network Check

Monitor the network traffic, network latency, packet loss rate, etc.

Configure Network Check

1. Go to **Menu** > **Maintenance** > **Network Info** > **Network Check**.
2. Select the **Select Channel** checkbox, select the channel(s) you want to monitor. Up to 5 channels are allowed.
3. Select the **Test Address** checkbox, and then enter the address you want to test. You may enter an IP address or a domain name. Up to 2 IP addresses (separated with a semicolon) are allowed.
4. Choose the test duration. The system will test the network status during this time. Options are 30s (default), 1 min, 5 min, 10 min, 30 min, and 1 hour.
5. Set the size of test packets. The default is 1500 Bytes. The range is [64-4000]. Set according to the actual network condition.



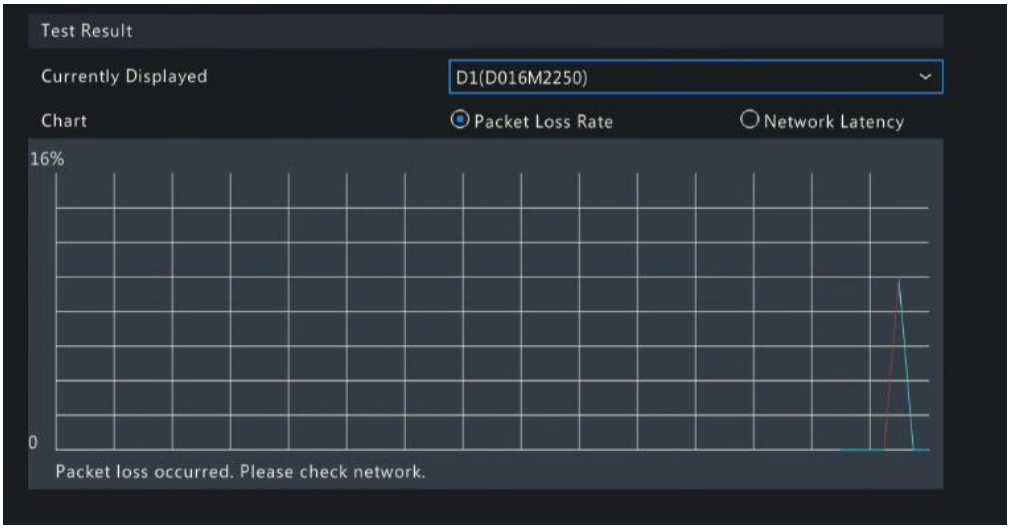
6. Click **Test** to test the packet loss rate and network latency.

View Test Results

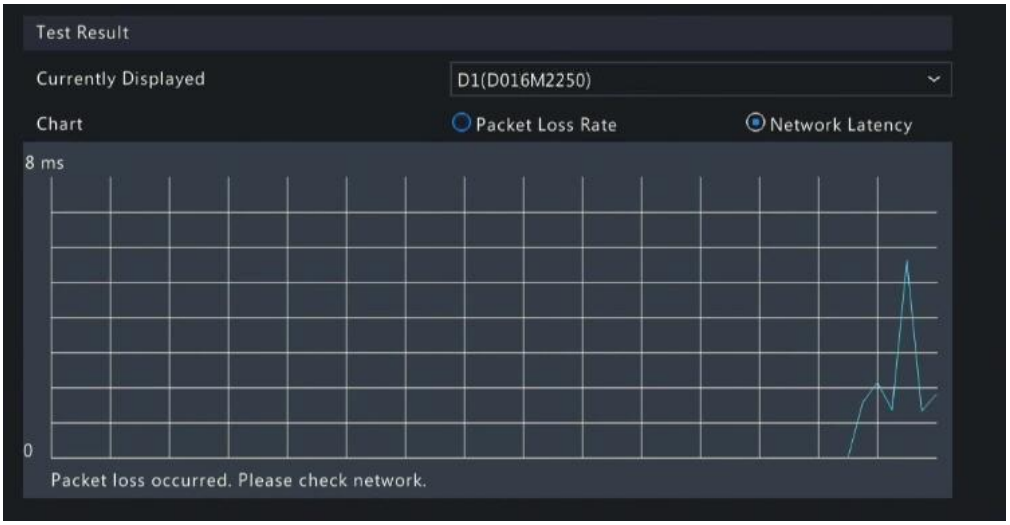
If the test is successful, the system saves test data and shows the packet loss rate and network latency. If the test failed, the test result shows “The destination is unreachable”.

Note: If you click **Stop Test** before the test is completed, the system will save the existing test data and show the test result.

1. You can click the **Currently Displayed** drop-down list to choose the channel or address to be tested.
2. Click **Packet Loss Rate** or **Network Latency** to view the test result.
   - Packet loss rate



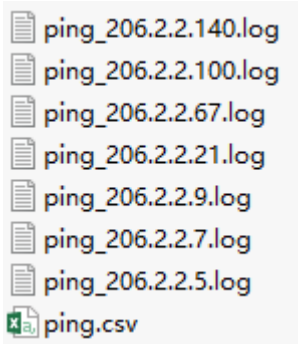
- Network latency



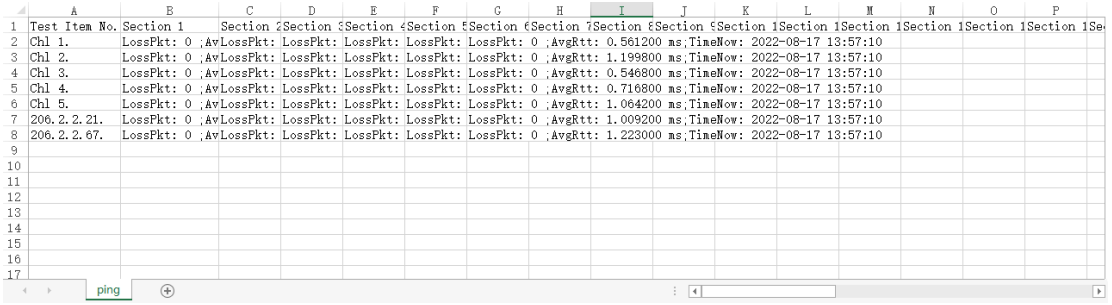
Export Test Results

1. Click **Export**. The **Backup** page appears.
2. Choose the destination path, click **Backup** to export test results to the external storage device.
3. The exported file is a **.tgz** package, including ping logs of all the test objects and one summary file. See the examples below.

- Exported files



- Exported report



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Test Item No.	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	Section 9	Section 1	Section 1	Section 1	Section 1	Section 1	Section 1
2	Chl 1.	LossPkt: 0 ;	AvLossPkt:	LossPkt:	LossPkt:	LossPkt:	LossPkt: 0 ;	AvgRtt: 0.561200 ms;	TimeNow: 2022-08-17 13:57:10							
3	Chl 2.	LossPkt: 0 ;	AvLossPkt:	LossPkt:	LossPkt:	LossPkt:	LossPkt: 0 ;	AvgRtt: 1.199800 ms;	TimeNow: 2022-08-17 13:57:10							
4	Chl 3.	LossPkt: 0 ;	AvLossPkt:	LossPkt:	LossPkt:	LossPkt:	LossPkt: 0 ;	AvgRtt: 0.546800 ms;	TimeNow: 2022-08-17 13:57:10							
5	Chl 4.	LossPkt: 0 ;	AvLossPkt:	LossPkt:	LossPkt:	LossPkt:	LossPkt: 0 ;	AvgRtt: 0.716800 ms;	TimeNow: 2022-08-17 13:57:10							
6	Chl 5.	LossPkt: 0 ;	AvLossPkt:	LossPkt:	LossPkt:	LossPkt:	LossPkt: 0 ;	AvgRtt: 1.064200 ms;	TimeNow: 2022-08-17 13:57:10							
7	206.2.2.21.	LossPkt: 0 ;	AvLossPkt:	LossPkt:	LossPkt:	LossPkt:	LossPkt: 0 ;	AvgRtt: 1.009200 ms;	TimeNow: 2022-08-17 13:57:10							
8	206.2.2.67.	LossPkt: 0 ;	AvLossPkt:	LossPkt:	LossPkt:	LossPkt:	LossPkt: 0 ;	AvgRtt: 1.223000 ms;	TimeNow: 2022-08-17 13:57:10							
9																
10																
11																
12																
13																
14																
15																
16																
17																

ping

11.2.4 Network Status

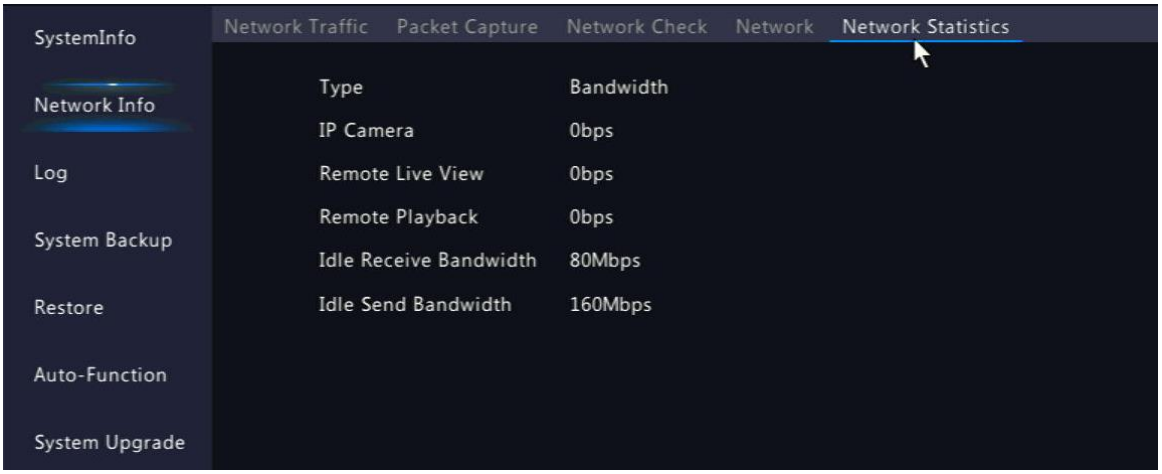
View network parameters of an NIC.

Go to **Menu** > **Maintenance** > **Network Info** > **Network**.

11.2.5 Network Statistics

View bandwidth usage.

Go to **Menu** > **Maintenance** > **Network Info** > **Network Statistics**. Bandwidth usage is displayed.

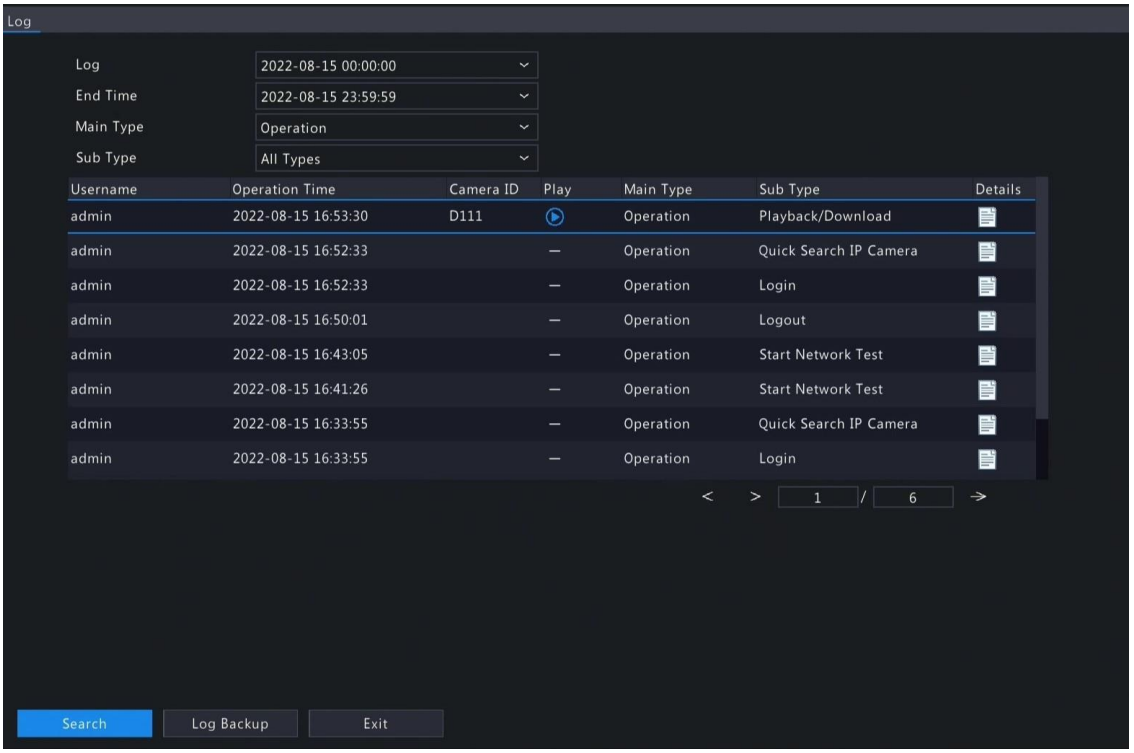


11.3 Log Search

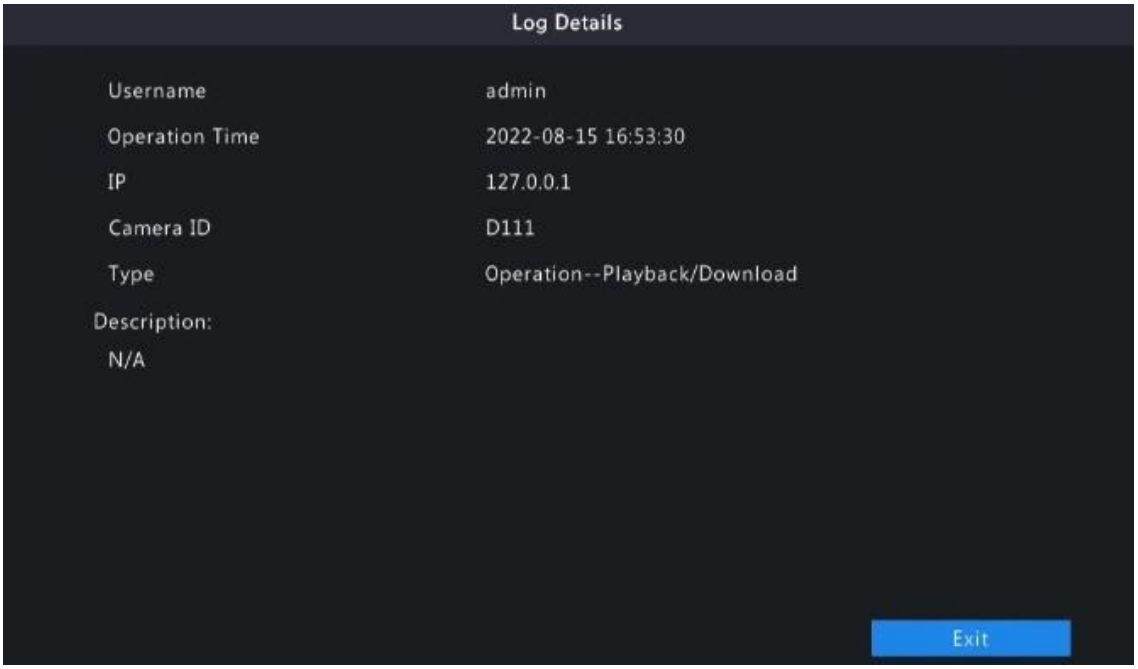
Logs contain information about user operation and device status. You can use logs to keep track of device operation status and view detailed alarm information.

Log Search

1. Go to **Menu** > **Maintenance** > **Log**.

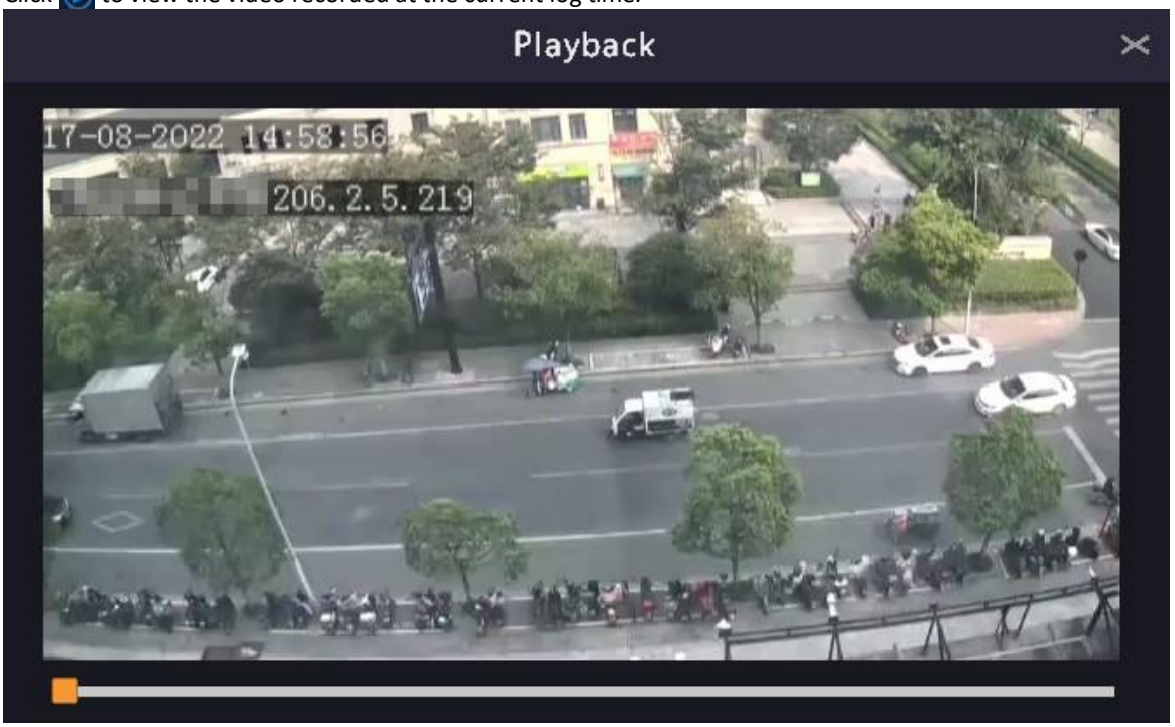


2. Set the start time, end time, main type and sub type.
3. Click **Search**.
4. Click  to view log details.



Playback

Click to view the video recorded at the current log time.



Note:

- This feature is not available to certain log types.
- The video is 11 minutes long (1m before and 10m after alarm).

Log Backup

Click **Backup**. The **Backup** page appears. Choose the destination path, click **Backup** to save the logs to the external storage device.

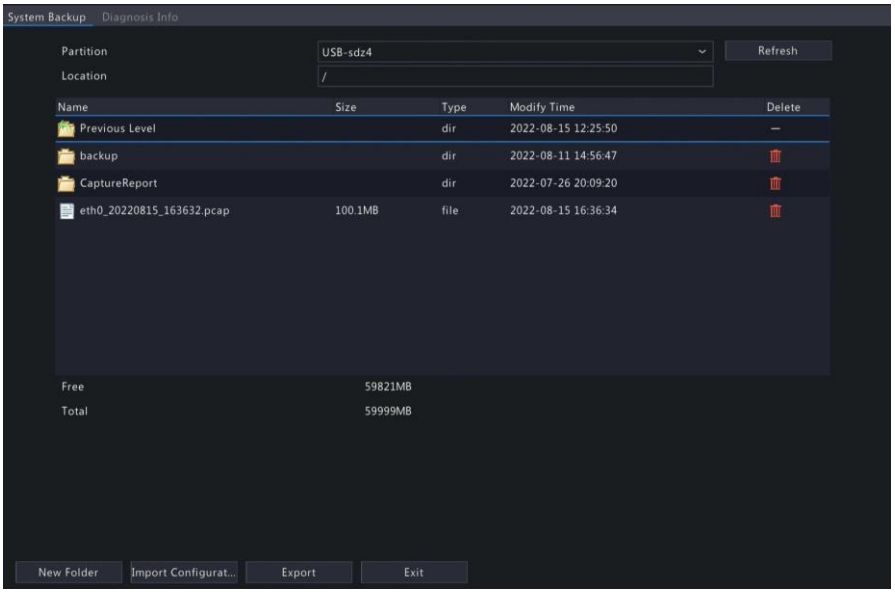
11.4 System Backup

Back up system configuration and device diagnosis information.

11.4.1 System Backup

Import, export, and delete system configurations.

Go to **Menu** > **Maintenance** > **Backup** > **System Backup**.



Perform the following operations as needed:

- Import configurations: Choose the *.xml file in the directory list, click **Import Configuration**, and then confirm to import the configuration file.
- Export configurations: Choose the destination in the directory list, click **Export Configuration**. Then a *.xml file containing the exported configurations is generated in the specified folder later.

Note:

- Caution: The device will restart after you import configurations. If power is disconnected during the process, the system will be unusable.
- Only admin can import or export configurations.

- Delete: Choose the folder or file to be deleted, click . means the folder or file cannot be deleted.

Note: Caution: Deleted files cannot be recovered.

- Create folder: Choose the destination path in the directory list, click **New Folder**, enter a folder name to create the folder.
- Refresh: Click the **Refresh** button to refresh the list.

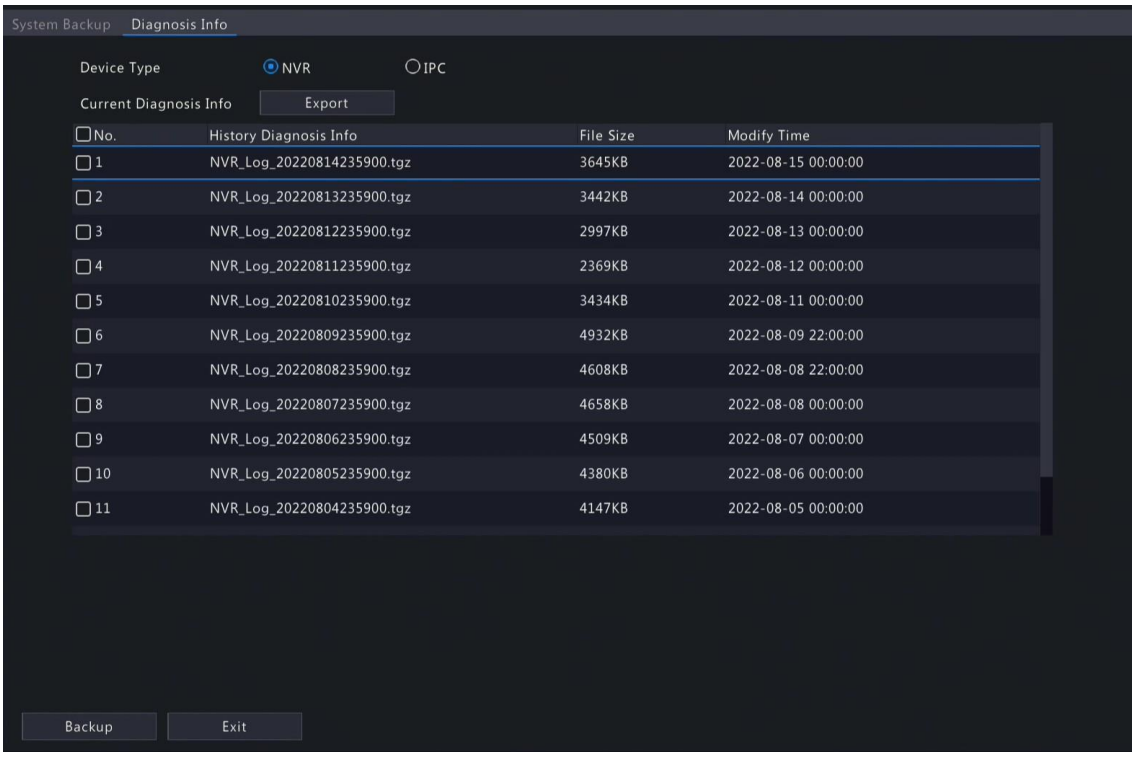
11.4.2 Diagnosis Info

View and back up diagnosis information of the DVR and the connected cameras. The DVR keeps 14 days of diagnosis information and overwrites the earliest when the storage is full.

Go to **Menu** > **Maintenance** > **Backup** > **Diagnosis Info**.

NVR (DVR) Diagnosis Info

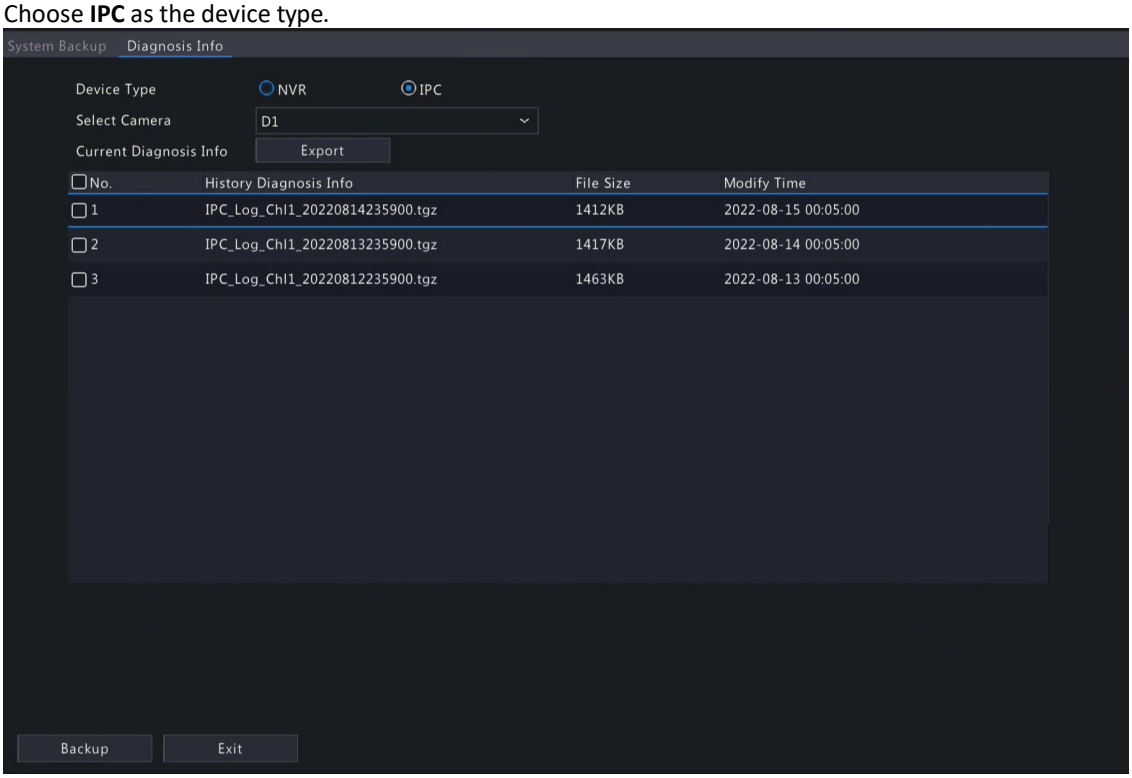
1. Choose **NVR** as the device type.



2. Export NVR (DVR) diagnosis information.
   - Current Diagnosis Info: Diagnosis information since the latest startup. Click **Export** to export diagnosis information to the external storage device.
   - History Diagnosis Info: All the history diagnosis information in the list. Select the desired item(s), click **Backup**. On the **Backup** page, choose the destination path, click **Backup**.

Camera Diagnosis Info

1. Choose **IPC** as the device type.

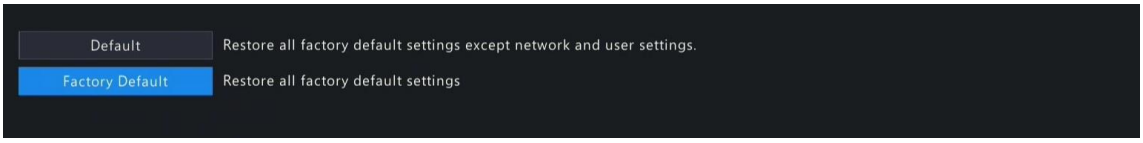


2. Choose the desired camera from the list.
3. Export diagnosis information of the selected camera.
   - Current Diagnosis Info: Diagnosis information since the latest startup. Click **Export** to export diagnosis information to the external storage device.
   - History Diagnosis Info: All the history diagnosis information in the list. Select the desired item(s), click **Backup**. On the **Backup** page, choose the destination path, click **Backup**.

11.5 Restore System

Restore default system settings.

1. Go to **Menu** > **Maintenance** > **Restore**.



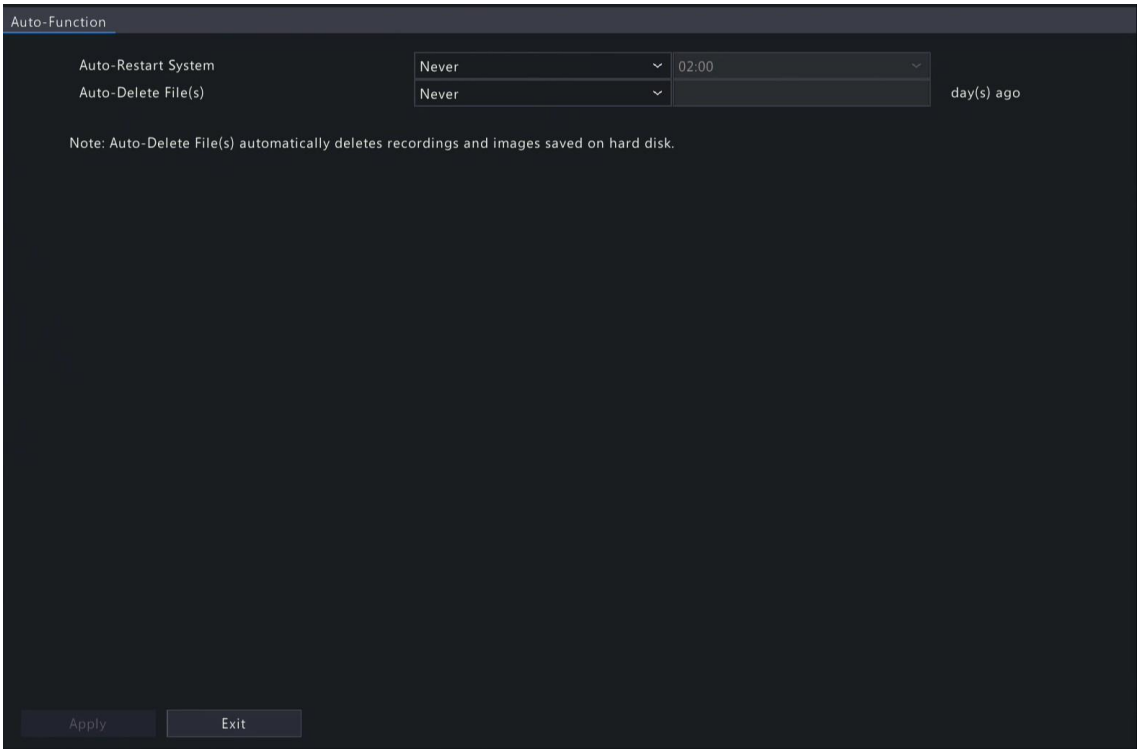
2. Choose **Default** or **Factory Default** as needed. A message appears. The DVR will restart and restore the default settings after you confirm. Choose a method according to your actual needs:
   - Restore: Restore default settings except network settings, user settings, and time settings.
   - Factory Default: Restore all default settings.

Note: Either option will not delete the recorded videos and operation logs.

11.6 Auto-Function

The device can restart or delete files automatically at the preset time. Only admin can perform this operation.

1. Go to **Menu** > **Maintenance** > **Auto-Function**.



2. Configure the parameters.
   - Auto-Restart System: The system restarts automatically at the set time.
   - Auto-Delete File(s): The system automatically deletes videos and images saved on the hard disk. Range: 1-240.
3. Click **Apply**.

11.7 System Upgrade

Upgrade the firmware of the DVR and the connected cameras.

- Local upgrade: Upgrade using the upgrade files saved in a USB storage device.

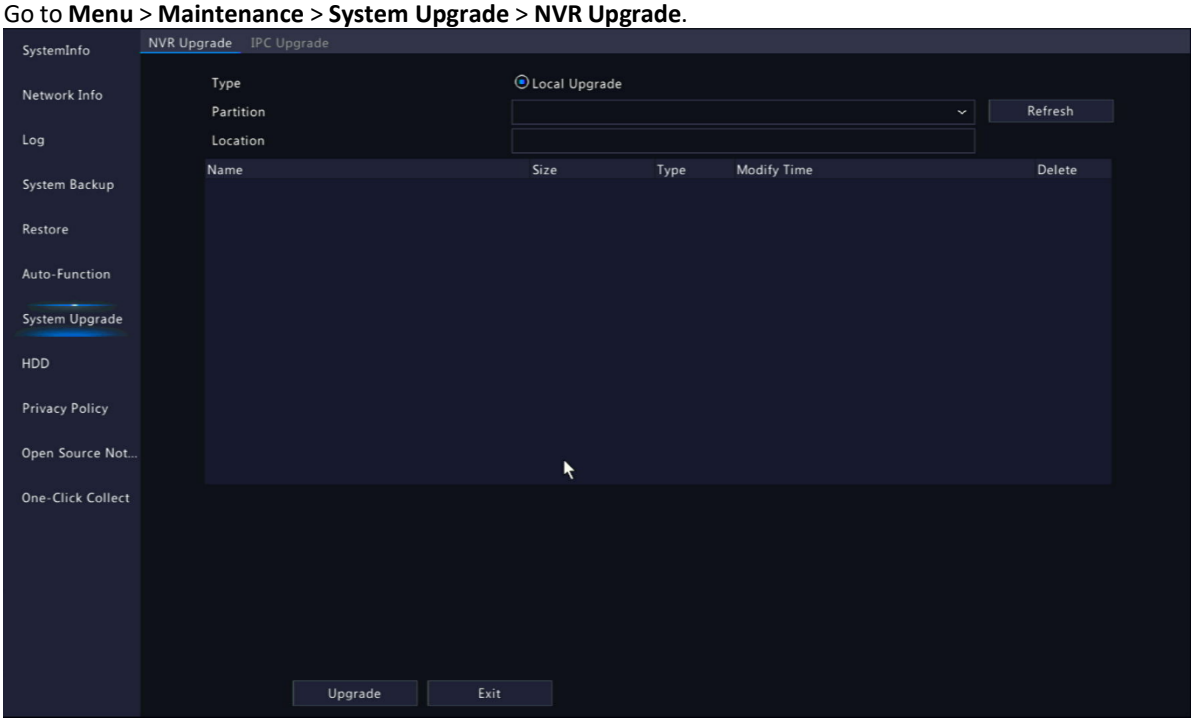
Note:

- Make sure the device is always connected to power and network during the upgrade. Use an Uninterrupted Power Supplies (UPS) if necessary.

11.7.1 NVR (DVR) Upgrade

Upgrade the firmware of the NVR (DVR).

1. Go to **Menu** > **Maintenance** > **System Upgrade** > **NVR Upgrade**.



2. Choose **Local Upgrade**. Select the upgrade file in the USB storage device, click **Upgrade** to start.

Note: If the upgrade failed, the failure cause will be displayed, and the device will restart automatically. Fix the problem and then try again.

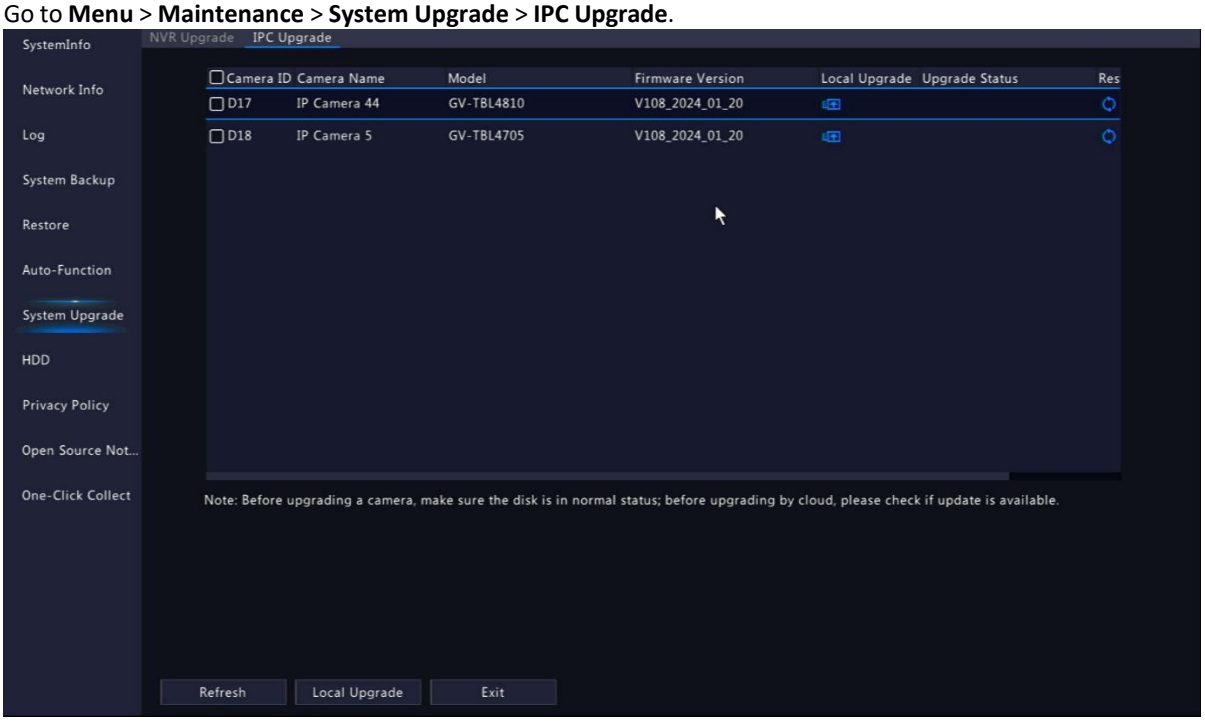
Note: The DVR firmware can be upgraded via its Web interface or GV-IP Device Utility. See *5.2 Upgrading Firmware Using GV-IP Device Utility*, *GV-TXVL1610 Quick Start Guide*, to upgrade firmware.

11.7.2 IPC Upgrade

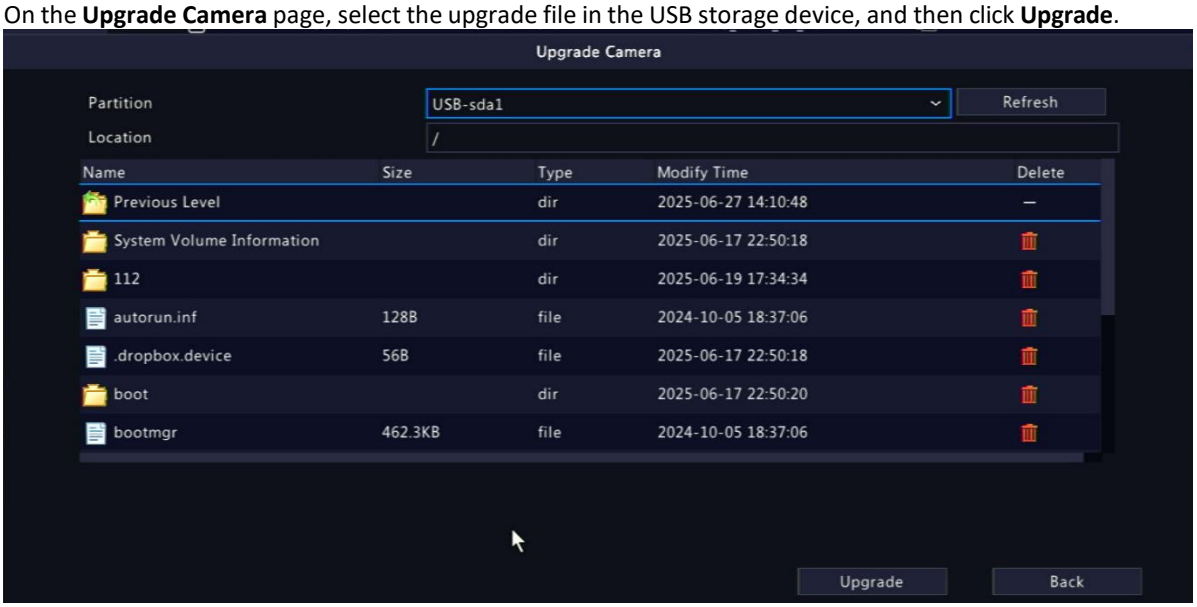
Upgrade the firmware of the IPC.

Note: The IPC Upgrade only works with compatible AI GV-IP Cameras (see the datasheet for compatible AI cameras).

1. Go to **Menu** > **Maintenance** > **System Upgrade** > **IPC Upgrade**.



2. Click  to upgrade a camera, or select multiple cameras and then click **Local Upgrade**.
3. On the **Upgrade Camera** page, select the upgrade file in the USB storage device, and then click **Upgrade**.



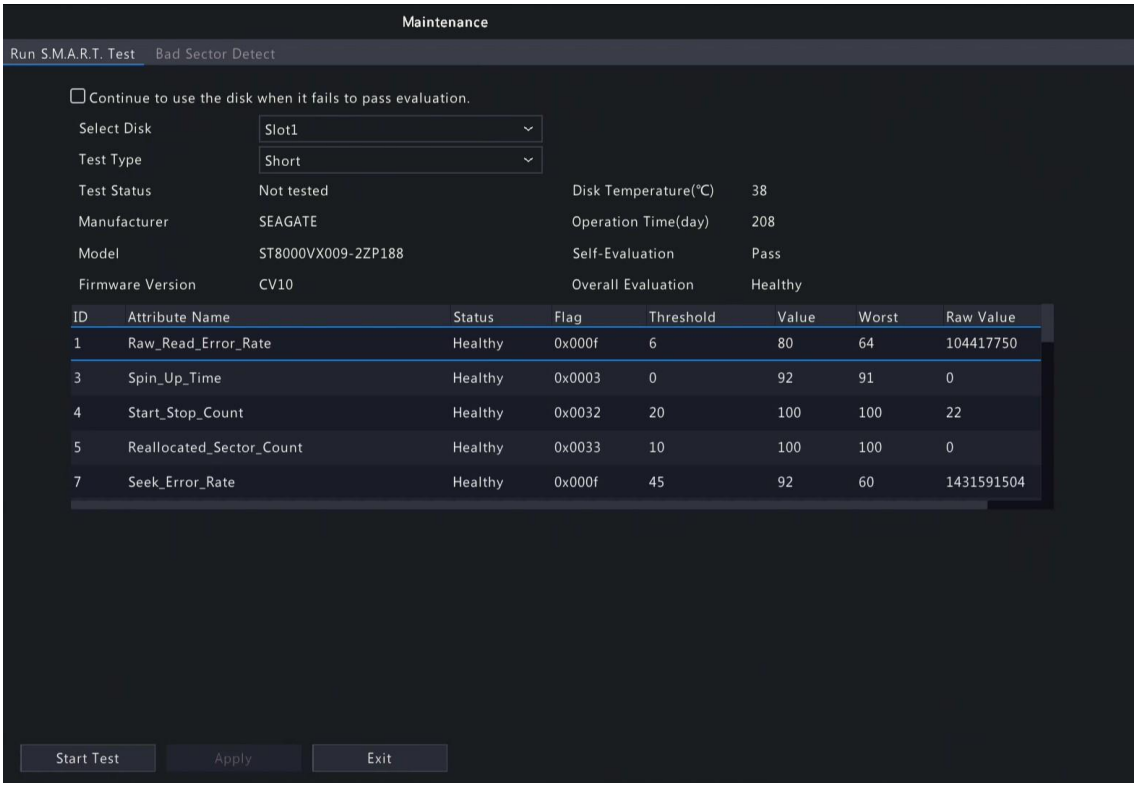
11.8 HDD Check

Perform S.M.A.R.T. test and bad sector detection. The actual functions available may vary with device.

11.8.1 Run S.M.A.R.T. Test

S.M.A.R.T. tests the hard disk including its head, platter, motor, circuit, etc. and evaluates the disk health status.

1. Go to **Menu** > **Maintenance** > **HDD** > **S.M.A.R.T. Test**.



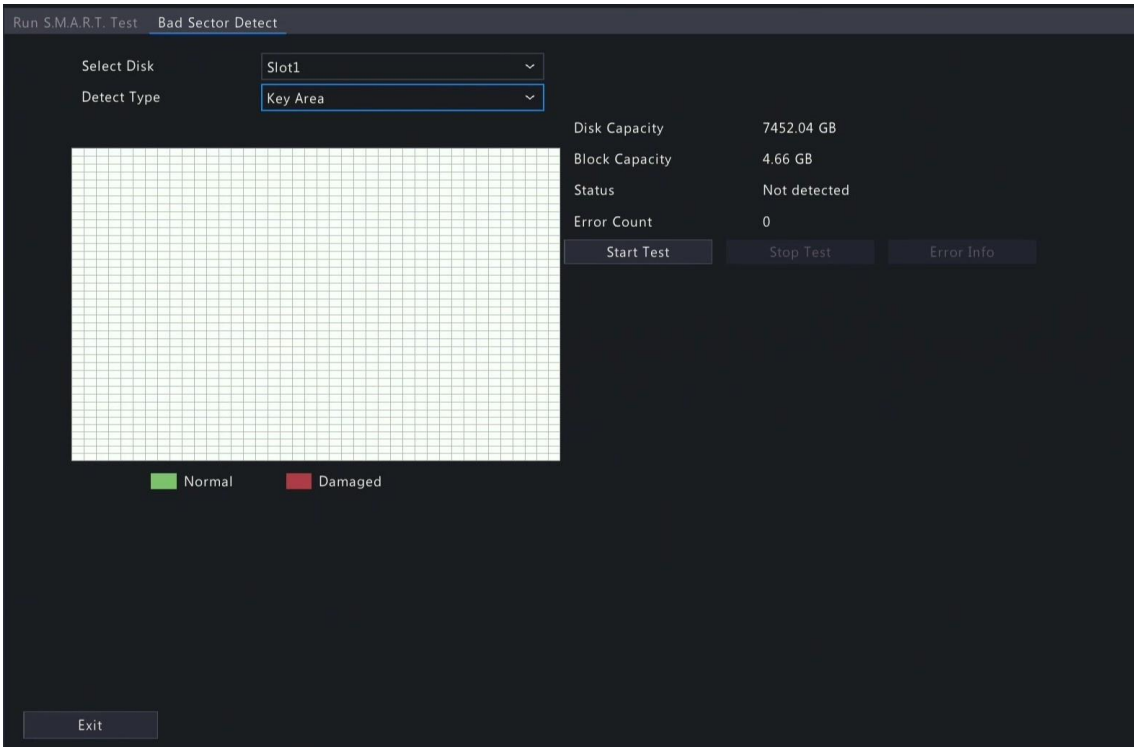
2. (Optional) Select , so the device can continue using the hard disk even if the disk fails in the self-assessment. However, this may incur great risks. Please choose carefully.
3. Choose the disk slot and test type.
   - Short: Less test contents, faster speed.
   - Extended: More comprehensive and thorough, longer time.
   - Conveyance: Detects problems in data transmission.
4. Click **Start Test**. The **Test Status** column shows the real-time progress, for example, Testing: 10%. View test results after the test is completed.

   The overall evaluation provides three kind of status: Healthy, Failure, Bad Sectors. It is recommended to replace faulty disks immediately. Contact our technical support for more information.

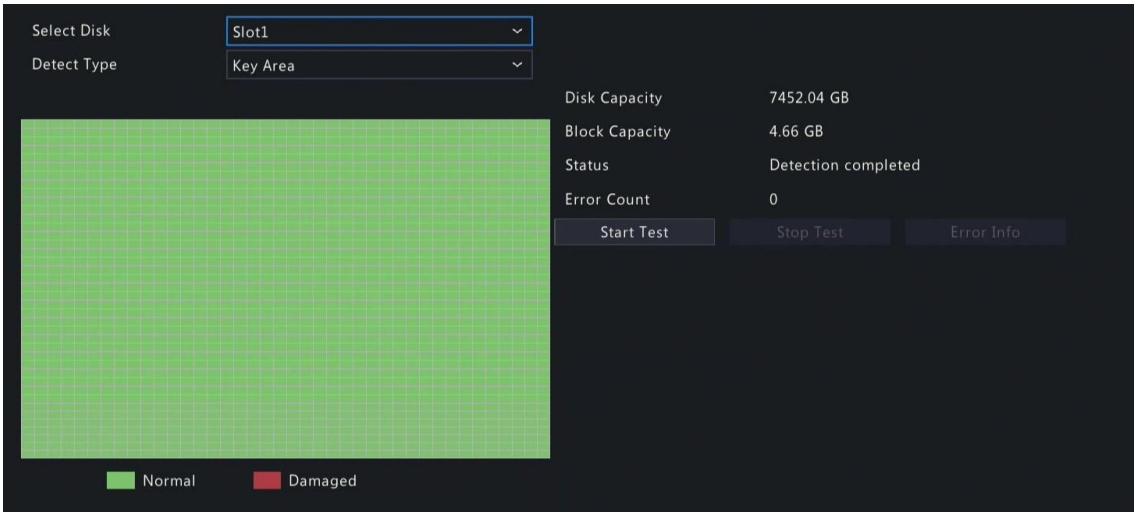
11.8.2 Bad Sector Detection

The device system detects bad sectors in hard disks in a read-only manner.

1. Go to **Menu** > **Maintenance** > **HDD** > **Bad Sector Detect**.



2. Choose the disk slot and detection type.
3. Click **Start Test**. To stop the detection, click **Stop Test**.

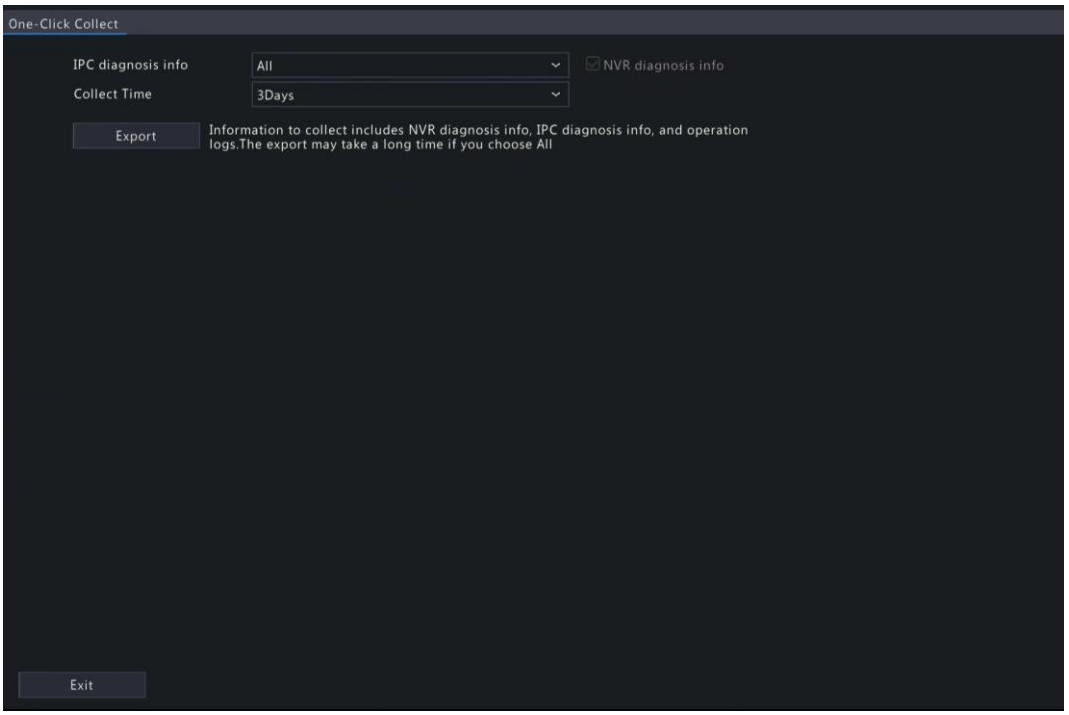


- means the detected area is in good condition.
- means the detected area is damaged. The detection stops automatically when the error count reaches 100.

11.9 One-Click Collection

Collect NVR (DVR) and camera diagnosis information.

1. Go to **Menu** > **Maintenance** > **One-Click Collect**.



2. Choose the camera and select a number of days of diagnosis information to be collected. NVR (DVR) diagnosis information is always collected.
3. Click **Export** to collect camera diagnosis information, NVR (DVR) diagnosis info, and operation logs.

Note: Choose the days according to the actual requirements. The export process may take a long time if you choose **All**.

12 Playback

12.1 Instant Playback

Instant playback plays the video recorded during the last 5 minutes.

Make sure that the video is recorded during the last 5 minutes. Instant playback does not work if there's no recording during this time.

1. In the preview page, select the target window, and click on the window toolbar.

2. Drag the slider on the progress bar to fast forward; Click to pause.
3. Click to exit the playback.

12.2 Normal Playback

Normal playback plays all recordings of the selected camera(s).

1. In the preview page, right-click the desired window and select **Playback**. The system plays the video of the selected camera. You can also choose other cameras to play videos in this page.
   - You can choose multiple cameras for synchronous playback.
   - Click **Max. Cameras** to select the maximum number of cameras allowed. The performance may vary with DVR model.
   - Click **Close All** to stop playback for all cameras.

2. Double-click the desired date, or select the date and then click  to start playback. By default, the system plays the video of the current day.

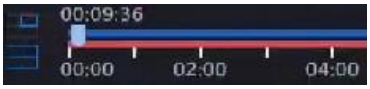
   Note: The calendar uses different flags to indicate different recording types: blue for normal recording, red for event-triggered recording, and no flag for none.

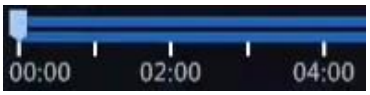
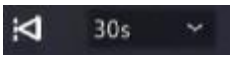
3. The DVR plays HD videos by default. You can switch to SD mode if SD videos are stored.

   The supported video clarity depends on the storage mode, and HD videos are supported by all the storage mode. To store SD videos, go to **Menu** > **Camera** > **Encoding** to set the storage mode. See Encoding Settings for details.

   Note:
   - If no images are displayed in the preview page in SD mode, it indicates SD videos are not stored.
   - If SD video is available in SD playback mode, SD video is played by default; it switches to HD video automatically when you double-click the window to maximize it in a multi-window layout.

Table 12-1: Playback Toolbar

Button	Description
	Show playback progress. **Note:** •  indicates 4 cameras are selected.  indicates the playback progress in the first window.  indicates the playback progress in the second window, and so on. • Different colors on the progress bar mean different recording types: blue for normal recording, red for event-triggered recording, green for smart event recording.

	Timeline. **Note:** In normal playback mode, hover over the timeline to view a thumbnail image to quickly pinpoint an event.
	Zoom in or out on the timeline. Alternatively, click on the timeline and use the scroll wheel to zoom in or out.
	Select  ,  , or  , and the corresponding human body, non-motor vehicle, or motor vehicle recordings will be shown green on the progress bar. **Note:** • Select  , and the playback page will only play recordings of the corresponding object type. • This function is only available to the single-channel playback.
	File saved on a USB storage device.
	Start/stop clipping video.
	Manage files (clips, snapshots, locked files, tags);  indicates there is a newly saved file.
	Take a snapshot. The window borders will flash white.
	Rewind/forward 30s, or choose from the drop-down list.
	Reverse.
	Stop playback and return to the start point.
	Play/pause.
	Slow down/speed up. **Note:** Click to restore the normal playback speed after clicking , and vice versa.
	Forward by frame.
	Set the video clarity, including HD or SD.
	Full screen.
	Exit the playback screen.
	Click a playback window to show the window toolbar.
	Take a snapshot.

	Add a tag at the current time point.
	Digital zoom. See Digital zoom for details.
/	Turn on/off audio.
	Adjust the sound volume.
	Lock.

12.3 Smart Playback

In smart playback mode, the system searches smart events in the recording and adjusts the playback speed accordingly. If smart results are detected such as motions, the video plays at normal speed; otherwise, the video plays at 16x speed to save time.

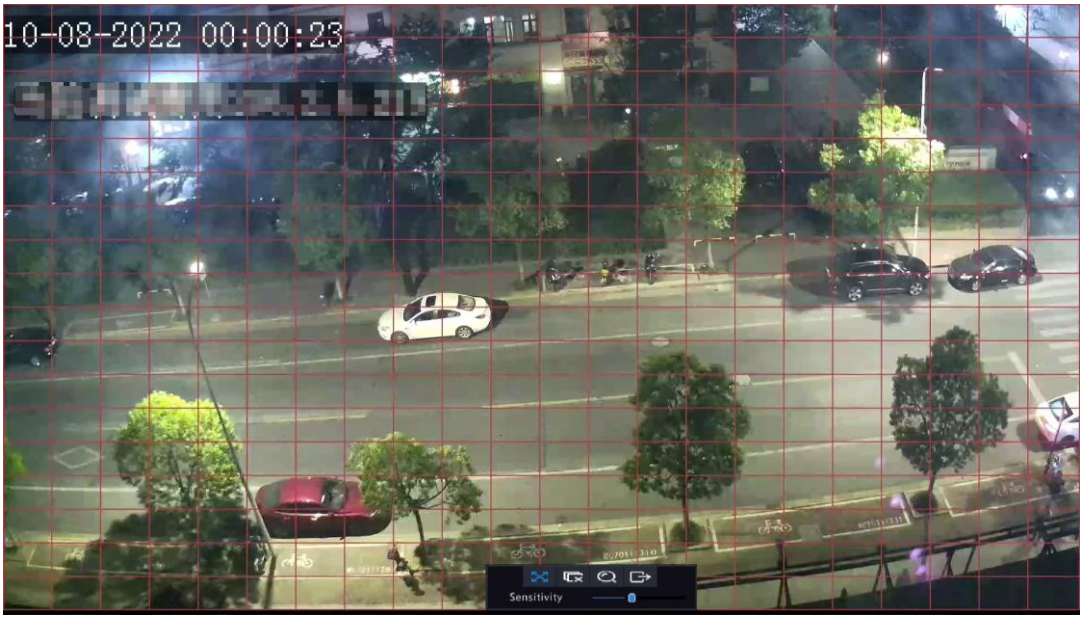
Note:

- This function is available for cameras that support smart functions.
- By default the system searches motion in video.
- Only one camera can be selected for smart playback.

1. In the playback page, select **Smart**.

2. Select the desired camera.
3. Double-click the date you want to play, or select the date and then click or to start playback.
4. Set smart search rules. The default smart search area is the full screen. To specify a smart search area, follow the steps below.

   (1) Click to go to the **Smart** page.



(2) Click  to clear the existing areas, then click and drag on the image to specify an area.

Table 12-2: Smart Search Buttons

Button	Description	Button	Description
	Motion detection: Full screen.		Clear the specified areas.
	Start search smart playback of the specified areas.		Exit the **Smart** page.
	Adjust detection sensitivity.		

12.4 External File Playback

This function allows you to play recordings stored in an external storage devices such as USB drive or portable hard drive.

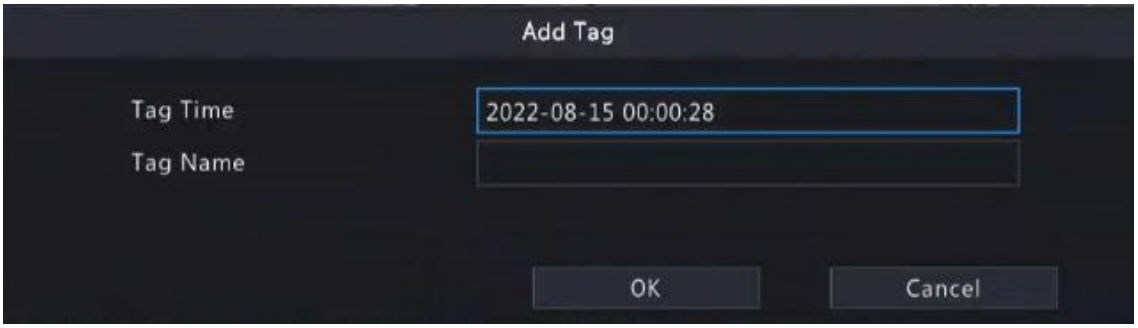
1. In the playback page, click  on the screen toolbar.
2. Click **Refresh** and then wait for the DVR to read the external storage device.
3. Double-click the desired recording file, or select the file and then click  or  to start playback.

12.5 Tag Playback

Use tags to mark specific events in the video for quick location and playback.

Add Tag

1. In the playback page, select the desired camera and date, and click  to start playback.
2. Click anywhere on the image, and then select  in the pop-up toolbar.

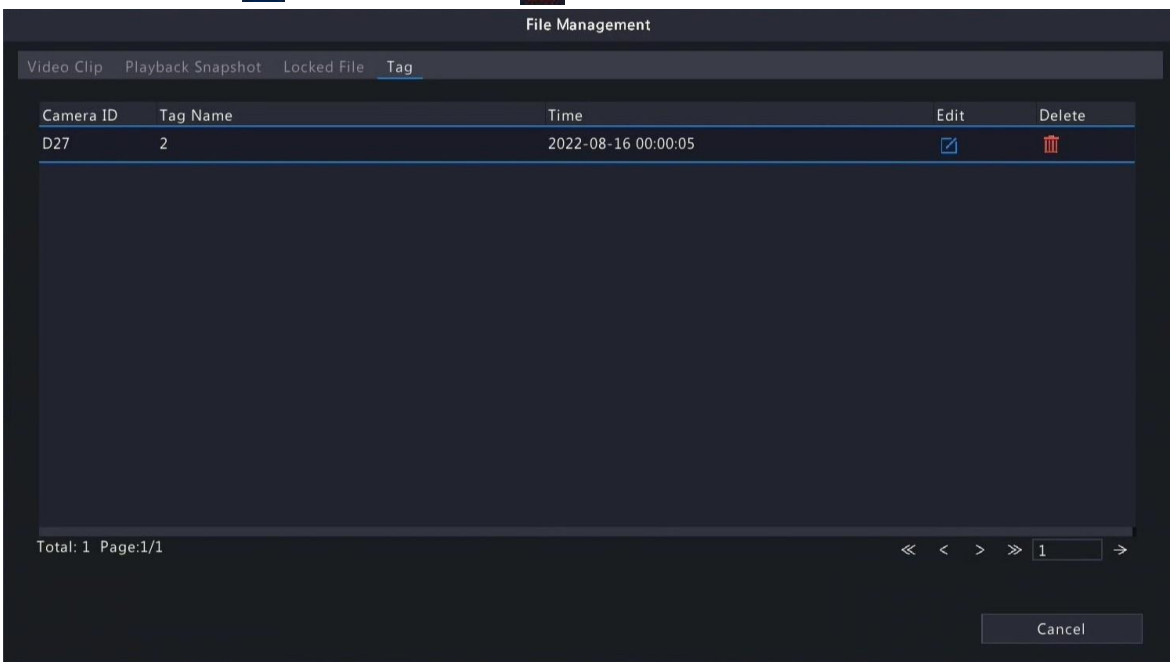


3. Enter the tag name. Tag time cannot be edited, which is the time when the tag was added.
4. Click **OK** to save the settings.

Tag Management

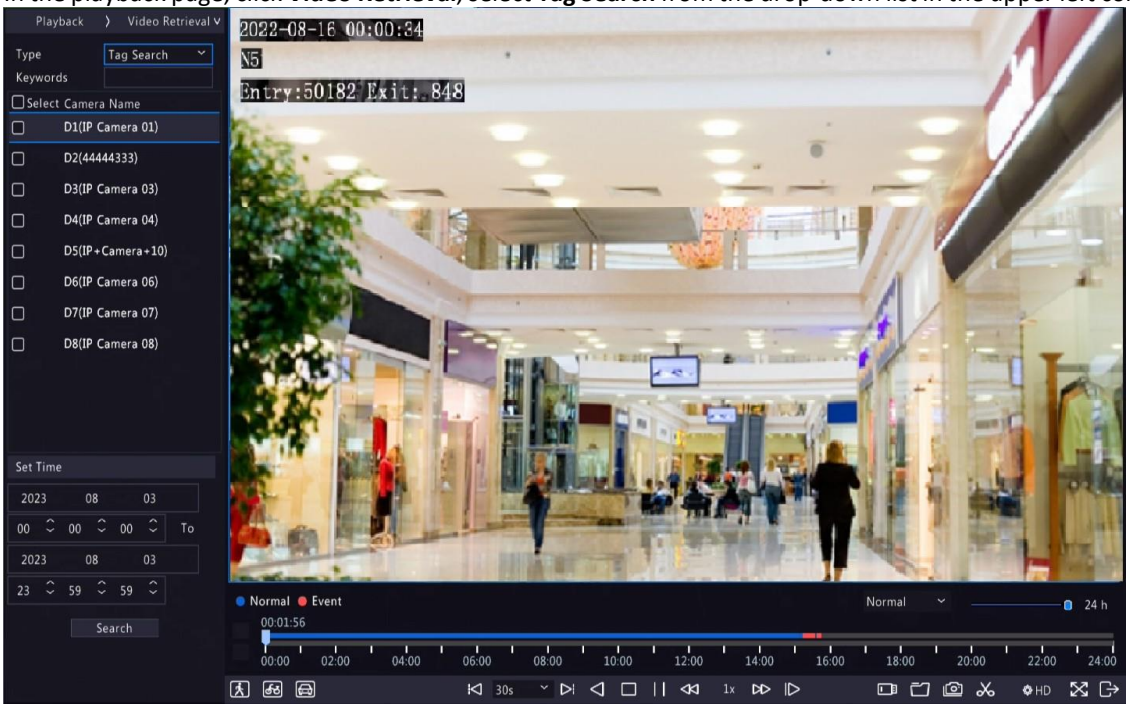
The added tags are saved to **File Management**. To view the newly added tag, click  on the screen toolbar.

To rename a tag, click  . To delete a tag, click  .

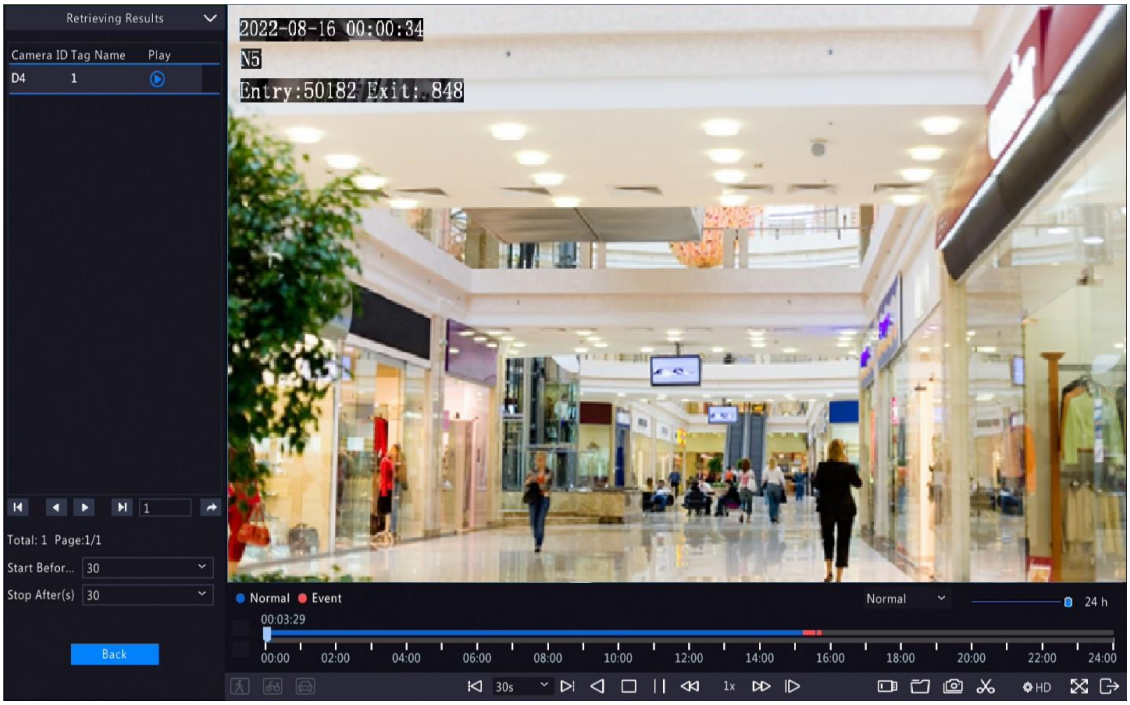


Playback by Tag

1. In the playback page, click **Video Retrieval**, select **Tag Search** from the drop-down list in the upper left corner.



2. Select the desired cameras with tags, enter keywords, set the time period, and then click **Search**.



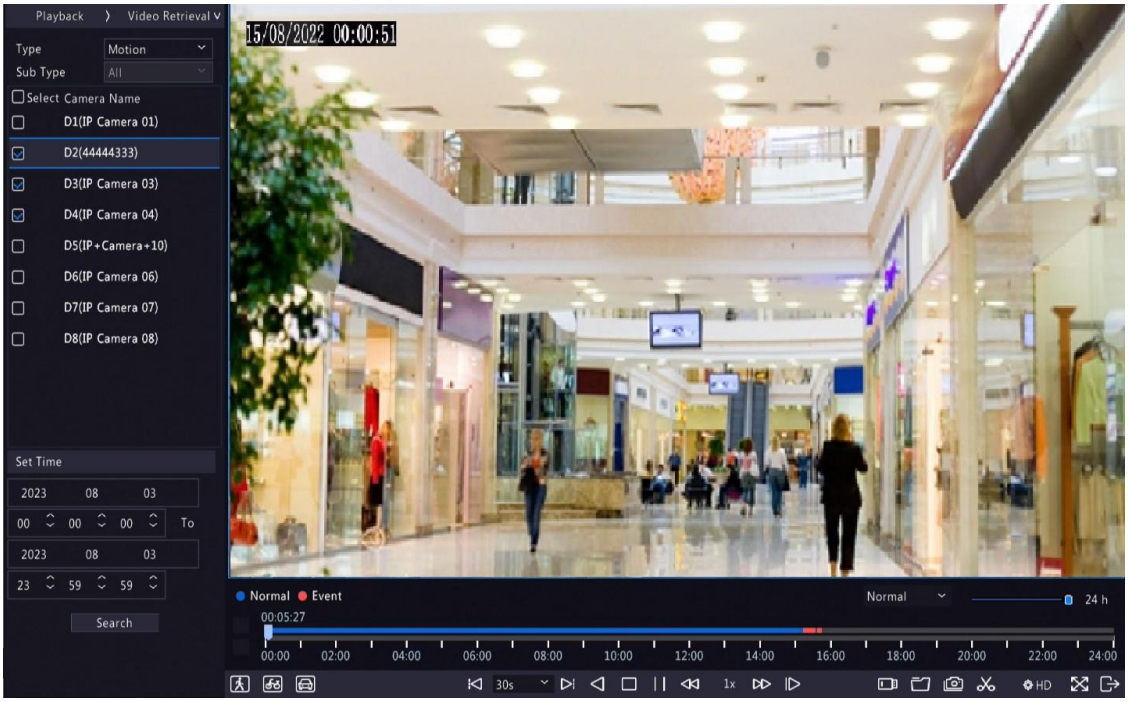
3. Double-click the tag you want to play, or select the tag and then click  or  to start playback.

12.6 Playback by Search

This function allows you to search and play recordings by an event type, such as motion detection, alarm input, video loss, VCA, tag, and people present alarm.

Note: Before playback, make sure that the alarm and alarm-triggered storage for the event are enabled.

1. In the preview window, right-click and select **Playback**.
2. In the playback page, click **Video Retrieval**, select the type and sub type, and enter keywords.



3. Select the desired camera(s) and time period, and then click **Search**.
4. Double-click the result you want to play, or select the result and then click  or  to start playback.

12.7 File Management

File management allows you to manage video clips, tags, snapshots taken during playback, and lock/unlock files.

Video Clip

You may clip and back up videos during playback. See Video Clip Backup for details.

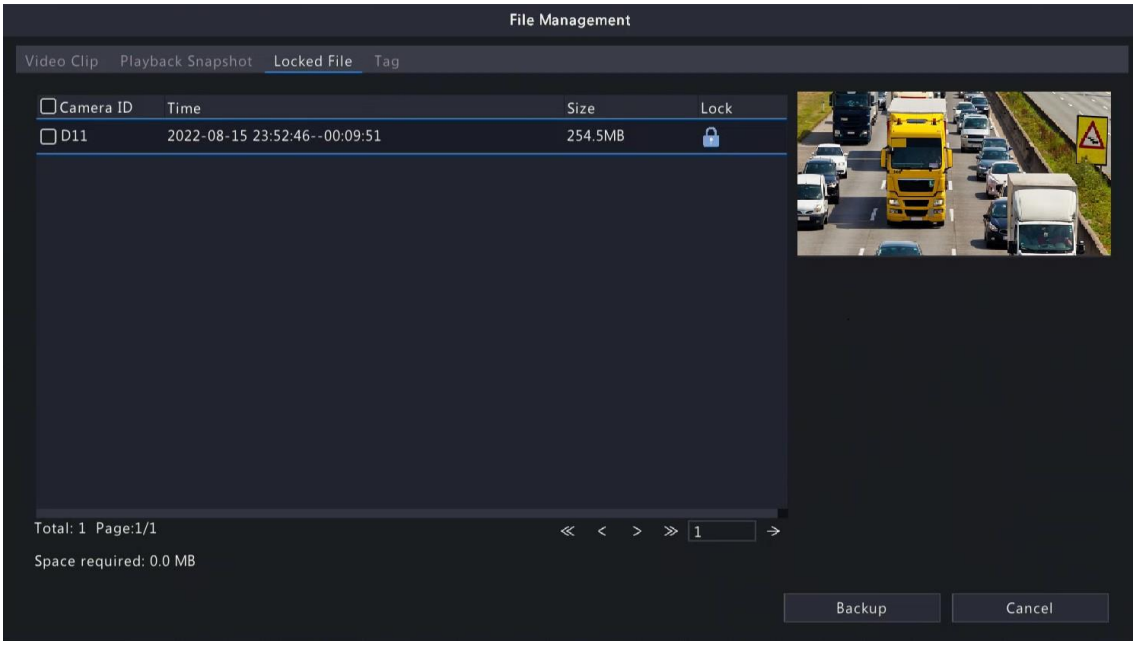
Playback Snapshot

You may take a snapshot during playback and then back up the snapshot. See Playback Snapshot Backup for details.

Locked File

You may lock, unlock, and back up a recording file.

1. In the playback page, select the desired camera and date, and click  to start playback.
2. Drag the slider to play the desired part of the video, click on the image to display the toolbar, and then select  .
   Locking a recording file will prevent all the files stored in the same disk partition (254.4MB in size) from being overwritten.
3. Click  on the screen toolbar to view the locked file in the **Locked File** tab.
   - To unlock a file, click  , and then the icon changes to  .
   - To back up a file, select the file and then click **Backup**.



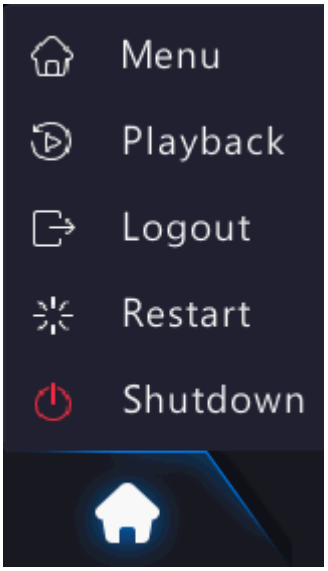
Tag

You may view, edit, or delete tags as needed. See Tag Management for details.

13 Shutdown

This chapter describes device shutdown, logout, and restart.

Shutdown refers to turn off the operating system of the device with power supply connected. Please disconnect the power supply if the device will be shut down for a long time.



- To shut down the DVR, long press the power button on the front panel (if available) for more than 3 seconds till an on-screen message appears, and then click **Yes**.
- To shut down, log out, or restart the DVR, hover the mouse at the bottom of the preview page to display the screen toolbar, click  and then select shut down, log out, or restart as needed.

Note: Unsaved settings will be lost if the DVR is shut down unexpectedly, for example, due to a power failure. A shutdown during a system upgrade may cause startup failures.

14 Web-Based Operations

You may access and manage the DVR remotely using a web browser on your PC (through the Web interface).

14.1 Preparation

Check the following before you begin:

- Access will be authenticated during login, and operation permissions will be required.
- The DVR is operating properly and has a network connection to the PC.
- A Web browser is installed on the PC. Chrome 60 or later is recommended. Firefox 60 or later, Microsoft Internet Explorer 10.0 or later, Edge 79 or later are also supported.
- The PC uses an operating system of Windows 7 or later.
- A 32-bit or 64-bit Web browser is required if you are using a 64-bit operating system.

Note:

- The parameters that are grayed out on the Web interface cannot be edited. The parameters and values displayed may vary with DVR model.
- The figures below are for illustration purpose only and may vary with DVR model.

14.2 Login

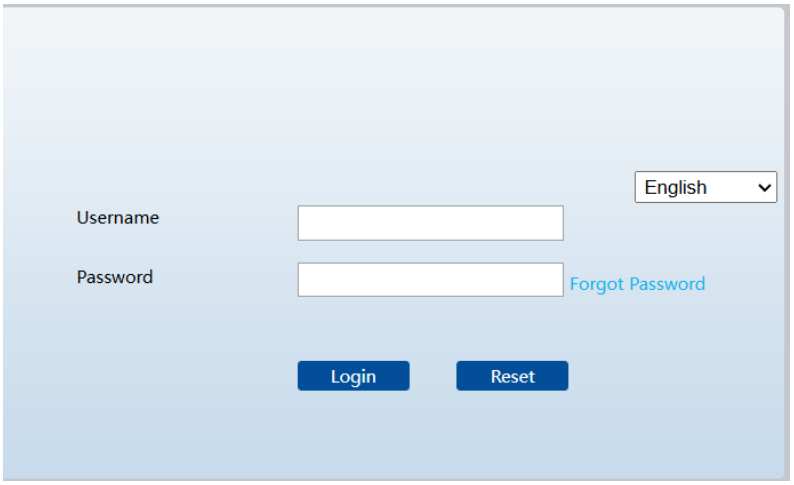
Follow these steps to log in to the Web interface (take IE10 browser as an example).

1. Open a Web browser on your PC, enter the IP address of the DVR in the address bar (**192.168.0.100** by default), and then press **Enter**.
2. Install the plug-in.
   - You need to install the plug-in as prompted at your first login, which is mainly used for processing media streams. Close all the Web browsers when the installation starts. Follow the on-screen instructions to complete the installation and then open the browser again to log in.

     Please click here to download and install the latest plug-in. Close your browser before installation.
   - You may also find the plug-in manually by entering http://IP address/ActiveX/WebPlayer.exe in the address bar, and press Enter.

   Note:

   - The plugin-free function may vary with device model.
   - For non-IE browsers, you can log in to the Web interface without installing the plug-in, but some functions on the live view, playback, and setup pages are unavailable.
3. In the login page, enter the username and password of the DVR, and then click **Login**.

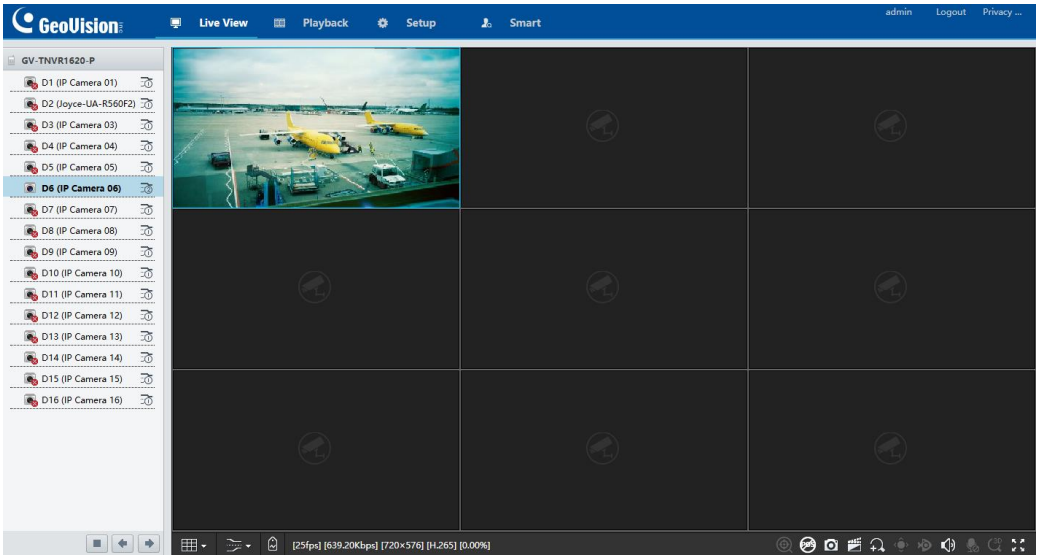


Note: The default password is intended only for your first login. You are strongly recommended to set a strong password to ensure account security.

- Strong password: At least 9 characters including all three elements: letter, special character, and digit.
- Weak password: Less than 9 characters including two or less of the three elements: letter, special character, and digit.

14.3 Live View

The **Live View** page is displayed when you are logged in. Select the desired channel on the left, and view the live video.



The operations may vary with DVR model.

Table 14-1: Live View Window Control Buttons

Button	Description	Button	Description
	Two-way audio		Main/sub/third stream
	Start/stop live video in all windows		Previous/next screen
	Switch screen layout		Select stream type
	Open/close the control panel		Frame rate/bit rate/ resolution/packet loss
	Local recording		Take a snapshot
	Turn on/off audio		Digital zoom
	3D positioning		Start/stop two-way audio
	Multi-sensor preview		Full screen
			Fisheye mode

Note:

- right to device name means two-way audio with the DVR. right to channel name means two-way audio with the camera.
- Only the main stream is displayed when the camera is offline or it supports only one stream.
- Snapshots are saved in a snapshot file folder named with the IP address, and snapshot files are named in *Camera ID_ time* format and saved in this directory: \Snap\IP\Camera ID_time. The time is in YYYYMMDDHHMMSSMS format.
- Local recordings are saved in a recording file folder named with the IP address, and recording files are named in *Camera ID_S recording start time_E recording end time* format and saved in this directory: \Record\IP\Camera ID_S recording start time_E recording end time. The recording start and end times are in YYYYMMDDHHMMSSMS format.

14.4 Playback

Click **Playback** to go to the **Playback** page. You can select the playback type, clarity, and camera to view recorded videos.

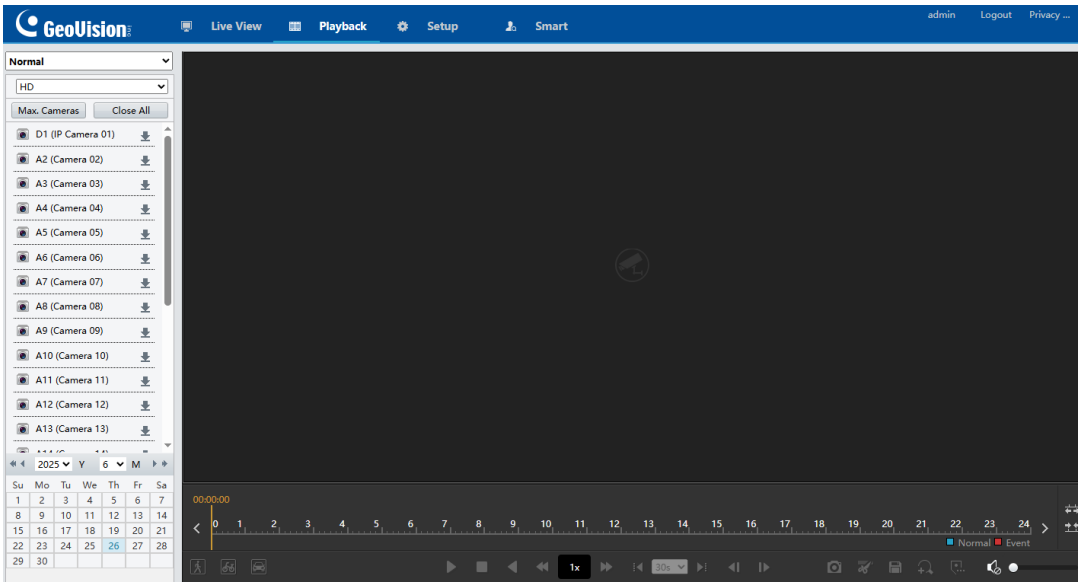
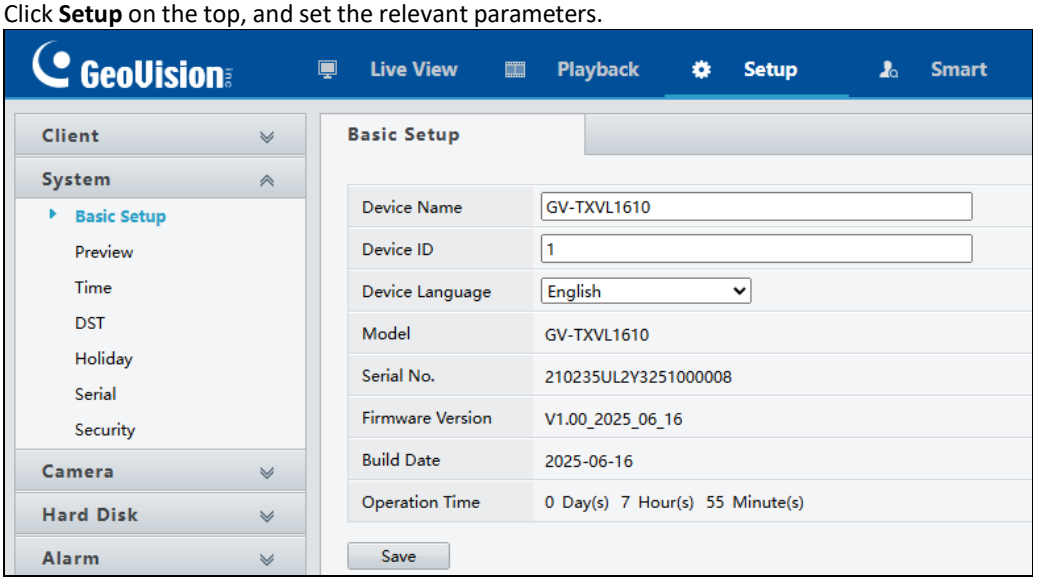


Table 14-2: Playback Control Buttons

Button	Description	Button	Description
/	Play/pause		Stop
	Reverse	/	Slow down/speed up
30 / 30	Rewind/forward 30s. You can change the time as needed.	/	Rewind/forward by frame
	Set the display ratio, including full or original		Take a snapshot
/	Start/stop clipping video		Save video clip
/	Enable/disable digital zoom		Add a custom tag
/	Zoom in/out on the timeline		Adjust sound volume; turn on/ off sound
/	Previous/next period		

14.5 Configuration

Click **Setup** on the top, and set the relevant parameters.



14.6 Smart

Click **Smart** on the top, and configure the relevant parameters. See VCA Configuration for details.

15 Appendix FAQ

Problem	Possible Cause and Solution
Forgot the login password.	Click **Forgot Password** in the login page as admin, then follow the on-screen instructions to retrieve password.
Cannot load the Web plugin.	• Close your web browsers when the installation starts. • Disable the firewall and close the anti-virus program on your PC. • Enable your Internet Explorer (IE) to check for newer versions of the stored pages every time you visit the webpage (**Tools** > **Internet Options** > **General** > **Settings**). • Add your DVR's IP address to the trusted sites in your IE (**Tools** > **Internet Options** > **Security**). • Add your DVR's IP address to the Compatibility View list in your IE (**Tools** > **Compatibility View Settings)**. • Clear your IE's cache.
No images are displayed in live view on the Web interface.	Check if the bit rate is 0Mbps in the live view window. • If yes, check if the firewall/anti-virus program is disabled on your PC. • If not, check if the graphics card driver on your PC is working properly. Try installing the driver again.

A camera is offline, and **No Link** is displayed.	Click **Menu > Maintenance** > **System Info**. The cause is displayed under **Status**. Common causes include disconnected network, incorrect username or password, weak password, and insufficient bandwidth. • Check network connection and other configuration. • If it indicates incorrect username or password, check that the camera password set in the DVR is the one used to access the camera's Web interface. • If it indicates denied access for weak password, log in to the camera's Web interface and set a strong password. • If it indicates insufficient bandwidth, delete other online IP devices on the DVR.
The DVR displays live video for some cameras and **No Resource** for others.	• Set the camera to encode the sub stream, and decrease its resolution to D1. • Set the DVR to use the sub stream first for live view.
A camera goes online and offline repeatedly.	• Check if network connection is stable. • Upgrade the software version of the camera and DVR. Contact your dealer for the latest versions.
Live view is normal, but the recording cannot be found.	• Check if a recording schedule is properly configured. • Check if the time and time zone configured in the DVR are correct. • Check if the hard disk storing the recording is damaged. • Check if the desired recording has been overwritten.
Motion detection is not effective.	• Check that motion detection is enabled, and the motion detection area is properly configured. • Check that detection sensitivity is properly set. • Check that the arming schedule is properly configured.
A hard disk cannot be identified by the DVR.	• Use the power adapter delivered with the DVR. • Disconnect the power supply of the DVR, and then mount the hard disk again. • The disk is not compatible with your DVR. Contact your dealer for a list of compatible disk models.
The mouse does not work.	• Use the mouse delivered with your DVR. • Make sure no cable is extended.