HYUNDAI

Network Video Recorder

HYU-CC-RN4864002

User quick guide

GENUINE PRODUCT OF
HYUNDAI CORPORATION

- Please read this manual carefully before using the product you purchase and keep it well for future use.
- Please note that images and sketch maps in this manual may be different from the actual product.

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1LocalOperations

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

1.1 Before You Begin

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

1.2 Local Operations

This section introduces mouse operations and front panel buttons.

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.

Mouse Operations

Table 1-1: Mouse Operations

Name	Operation	Description
Left button	Click	• Select or confirm an item. • Select to edit digits, symbols, uppercase or lowercase letters in a field.
	Double-click	Switch single window or multi-window in live view.
	Drag	• Draw or move a rectangle on the screen. • Sort windows in a multi-window layout.
Right button	Click	• Show the shortcut menu. • Exit digital zoom. • Exit the current window when **Cancel** or **Exit** is displayed.
Scroll wheel	Scroll up	• Scroll up a list, window, or scroll bar. • Zoom in on the screen when digital zoom is enabled.
	Scroll down	• Scroll down a list, window, or scroll bar. • Zoom out on the screen when digital zoom is enabled.
	Long press	Restore to the lowest resolution.

Front Panel Buttons

The front panel buttons may vary with NVR model.

Table 1-2: Front Panel Buttons 1

Button	Description
	Display the main menu.
	Switch to the next tab on the screen or switch the input method.
	Auxiliary function button.
	Exit the current window.

Button	Description
	Direction button: Switch windows or menu items; or control rotation direction of a PTZ camera when the PTZ toolbar is closed. PTZ stands for pan, tilt, and zoom. • / : Rewind or forward 30 seconds in full screen. • / : Variable-speed forward or rewind in full screen.
	Confirm an operation, or start/pause the playback.
	Long press at least 3 seconds to start up or shut down the NVR.

Table 1-3: Front Panel Buttons 2

Button	Description
	Enter 1; or display the main menu.
	Enter 2, A, B, or C; or start instant playback.
	Enter 3, D, E, or F; or start manual recording.
	Enter 4, G, H, or I; or enter the PTZ control interface.
	Enter 5, J, K, or L; or switch the screen layout in live view or playback mode.
	Enter 6, M, N, or O; or enable or disable arming.
	Enter 7, P, Q, R, or S; or take a snapshot.
	Enter 8, T, U, or V.
	Enter 9, W, X, Y, or Z.
	Enter 0 or a space.
	Delete.
	Switch the input method.
	Auxiliary function button.
	Exit the current window.
	Switch to the next tab.

Button	Description

	• △/▽/▷/◁: Switch windows or menu items; or control rotation directions of a PTZ camera when the PTZ toolbar is closed. PTZ stands for pan, tilt, and zoom.
	  • |◁◁/▷▷|: Rewind or forward 30 seconds in full screen.
	  • ▷▷/◁◁: Variable-speed forward or rewind in full screen.
	• OK ▷II : Confirm an operation, or start/pause the playback.

	Long press at least 3 seconds to start up or shut down the NVR.

2InitialConfiguration

This chapter describes the initial configuration of the NVR.

2.1 Preparation

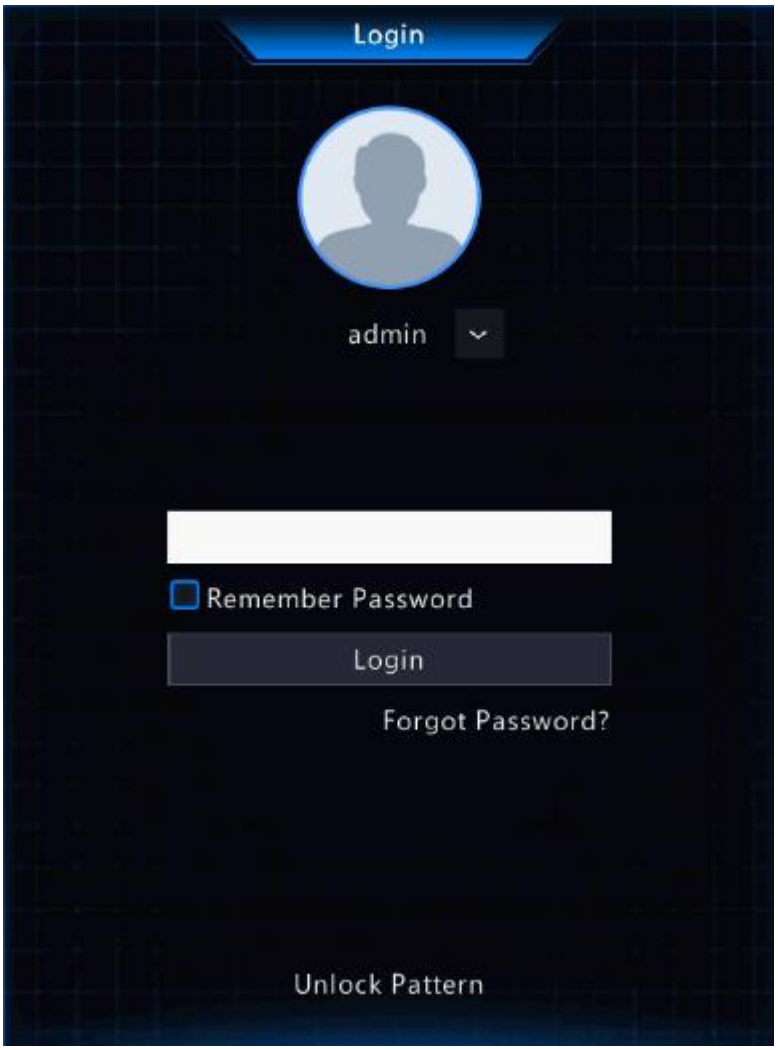
- Make sure that at least one monitor is correctly connected to the VGA or HDMI interface on the rear panel of the NVR, otherwise, you cannot view the local interface.

  Note: If no images are displayed after the NVR is powered on, it may be because the monitor does not support the current output resolution of the NVR. 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 NVR.

2.2 Login

Device Login

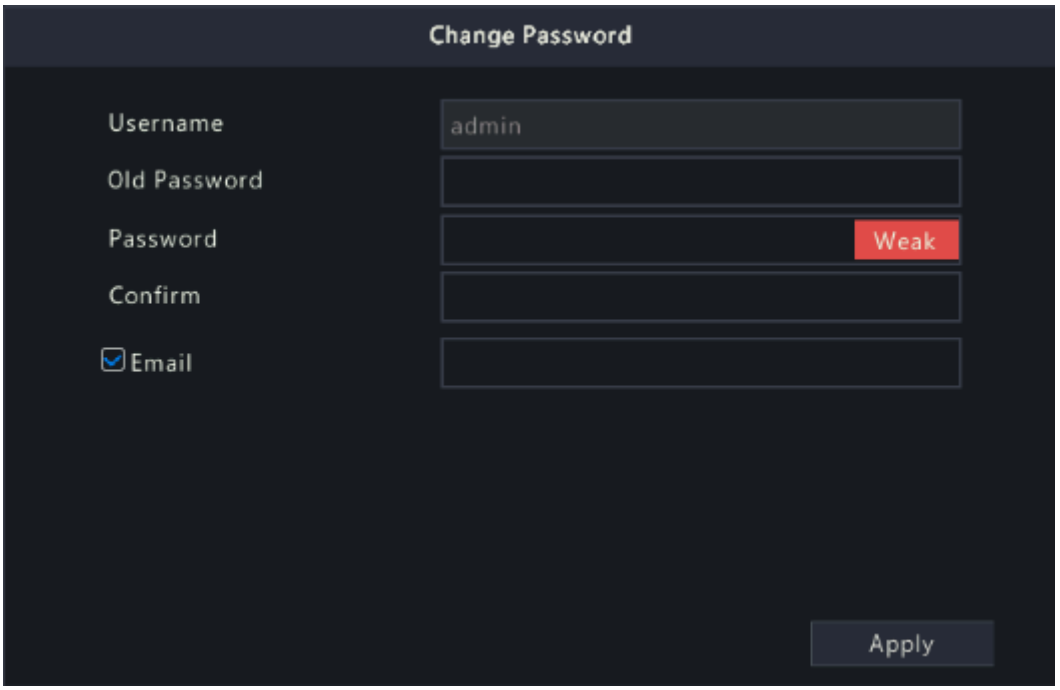
1. The login page appears after the NVR starts up. Select the default username and enter the password (admin/123456), and then click **Login**.



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

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

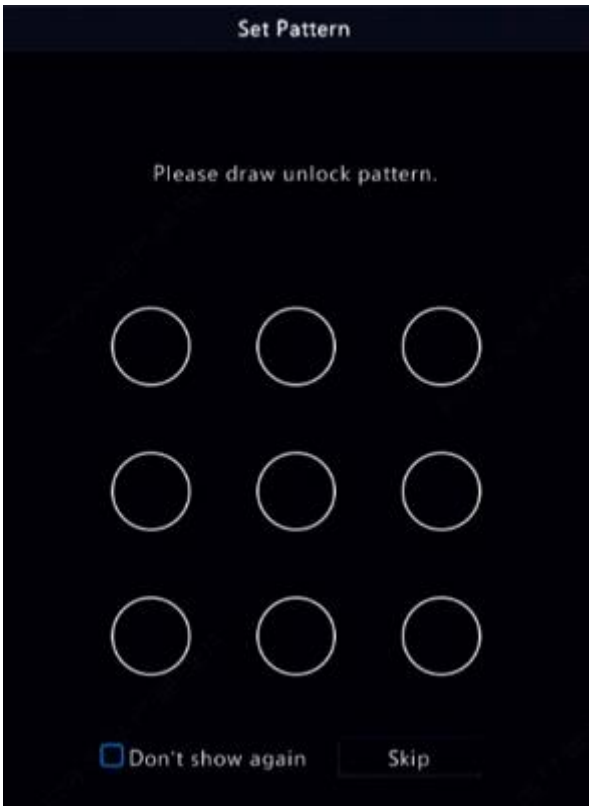
3. In the **Change Password** page, enter the old password, new password, and confirm the new password. You may check **Email** to enter your email address, and then click **OK**.



Note:

- Use the default username and password (admin/123456) to log in for the first time. After login, you have to 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.
- It is recommended to enter your email address in case you need to reset the password. You may also enter it when you need to retrieve the password. See Reset Password for details.

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

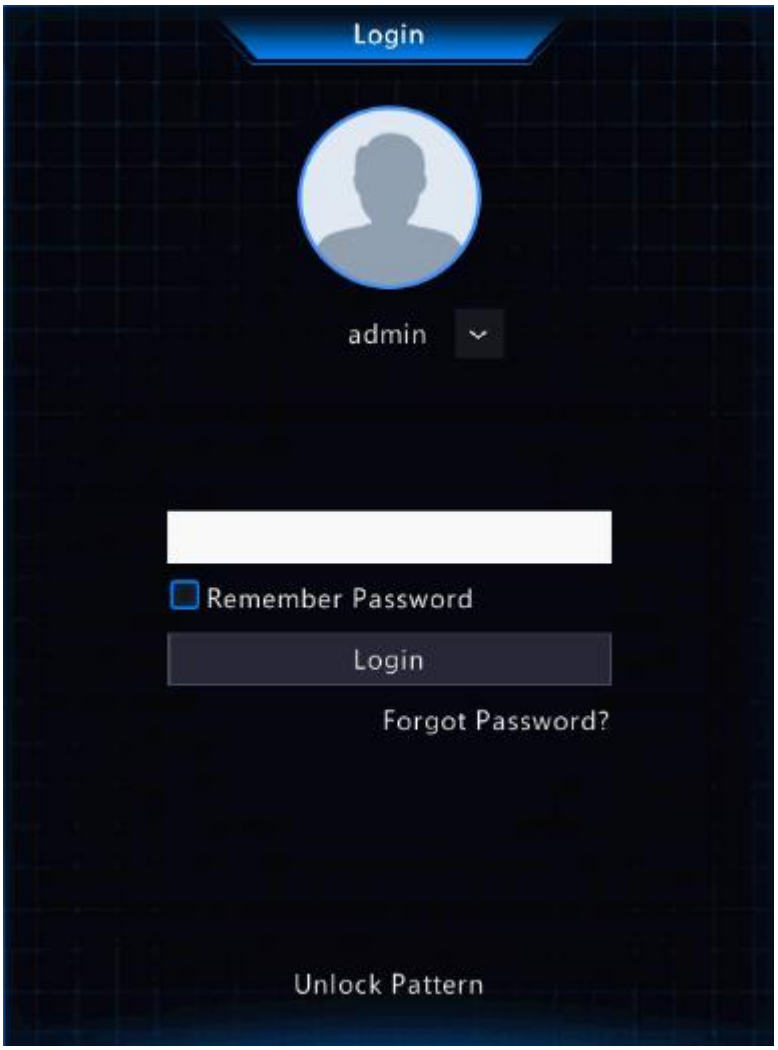


Note:

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

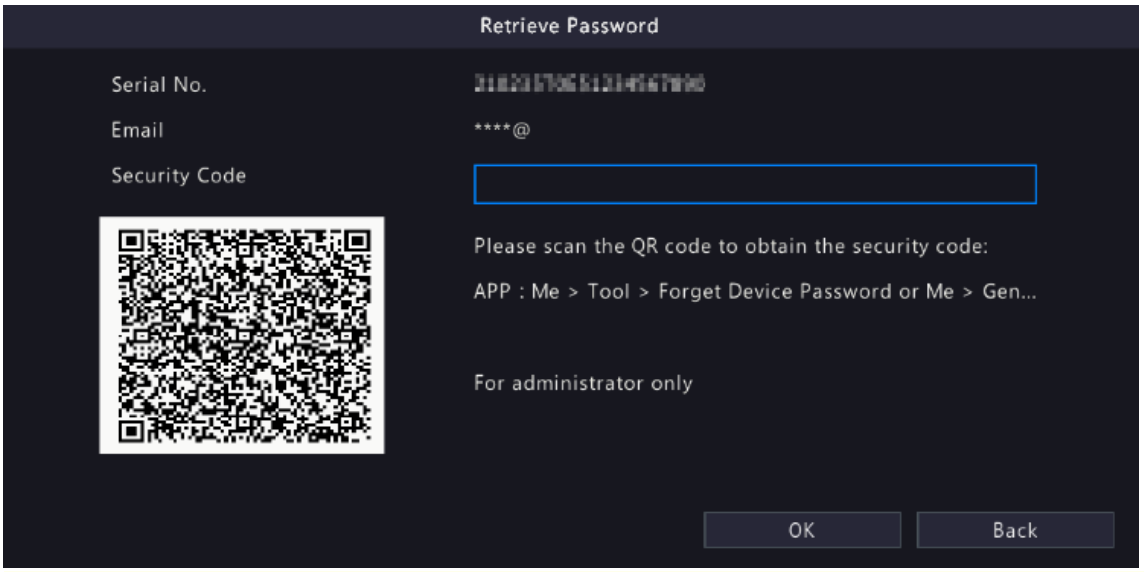
Reset Password

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



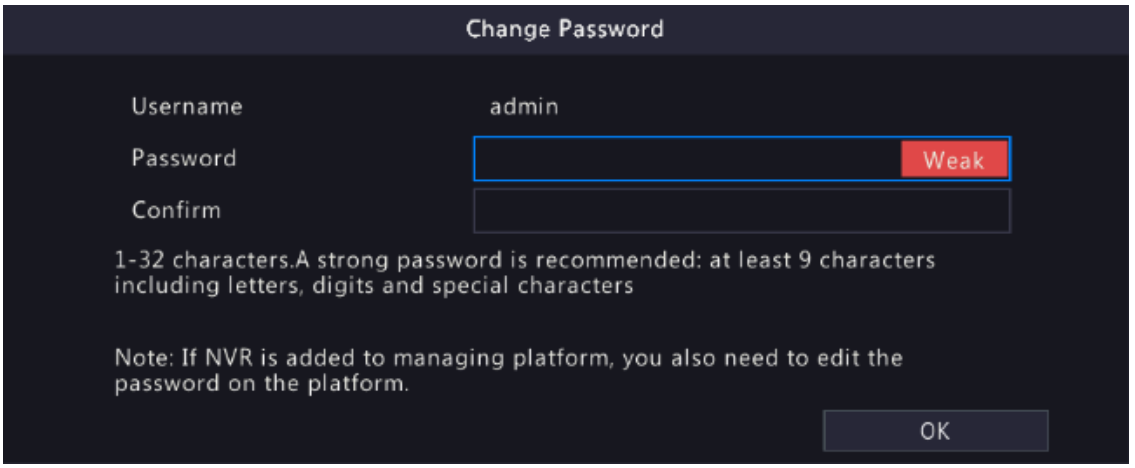
2. (Skip this step if you have already entered your email address) Enter your email address so as to receive the security code, that is, the temporary password.

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



Note: The app may vary with NVR model.

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

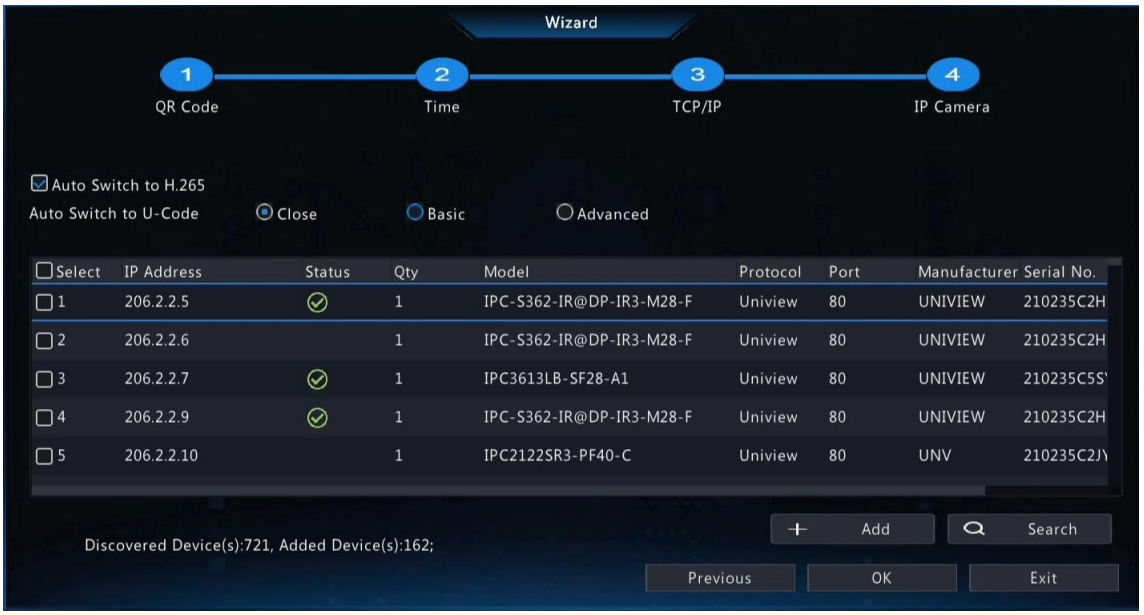
The wizard page appears after you login. Follow the wizard to complete the most basic setup, or click **Exit** to skip this step.

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

1. Scan the QR code and follow the on-screen instructions to add the NVR to your app, and then click **Next** or click **2**.
2. Set the time parameters, including time zone, date format, time format, and system time, and then click **Next**.

3. Configure TCP/IP. Select the working mode and NIC. Check **Enable DHCP** to automatically obtain the IP address, subnet mask and IP default gateway. You can also enter the information manually. Then, click **Next**.

4. Add IP devices. Select the IP devices to add in the discovered device list, and click **Add**.



Note:

- To add IP devices through PoE ports, see *Option 6: Connect via Cable* in Add IPC for details.
- The added IP devices can go online and start live view only if the password is still the default password. If the password has been changed, you need to enter the correct password for the camera to go online.
- If the desired IP device is not in the device list, you may add it in a preview page or under **Camera** > **Camera** > **Camera**. See Channel Management for details.

5. Click **OK**.

3LiveView

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 NVR 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.

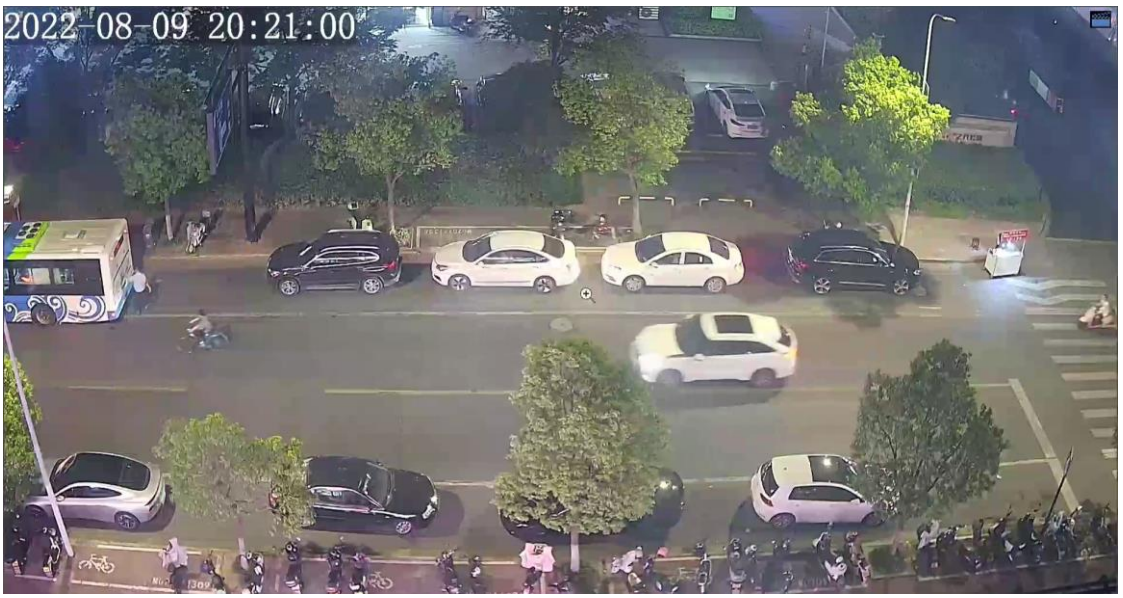
Table 3-2: Window Toolbar

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 the 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 higher 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 Enhancement 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	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 NVR 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 view the camera information.

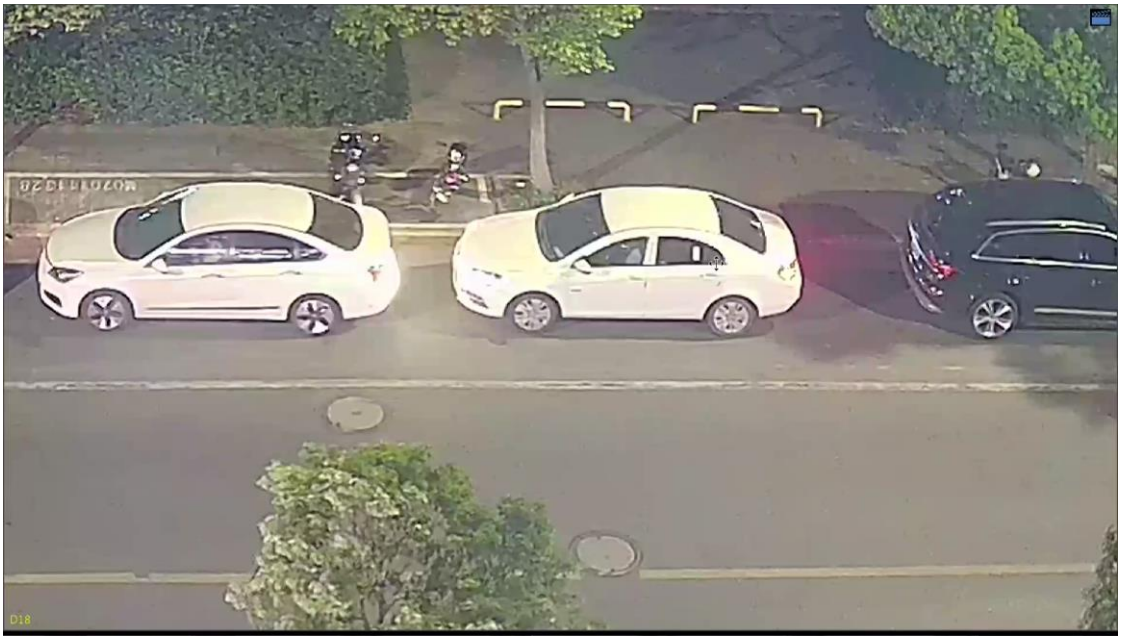
Digital zoom

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 4/6/8/9/16/25/36 windows.
	Previous or next screen.

Button	Description
	Start or stop sequence. See Sequence for details.
	Click to go to the **Playback** page.
	Click to go to the **Face Recognition** page. See Face Recognition for details.
	Click to go to the **Vehicle Recognition** page. See Vehicle Recognition for details.
	Switch to multi-sensor preview mode. **Note:** This function is only available for dual-channel cameras.
	Click to go to the **Epidemic Control** page. For temperature measurement results, see Thermal Imaging for details.
	Click to display the cloud service window. You may scan the QR code and download an app to manage your NVR. **Note:** This function is only available to certain NVR models.
	Click to view camera information, including camera status and alarm status.
	Click to view NVR alarm and camera alarm.
	Hover over the button to view the NIC information; Click to edit network settings.
20:31	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 NVR 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.

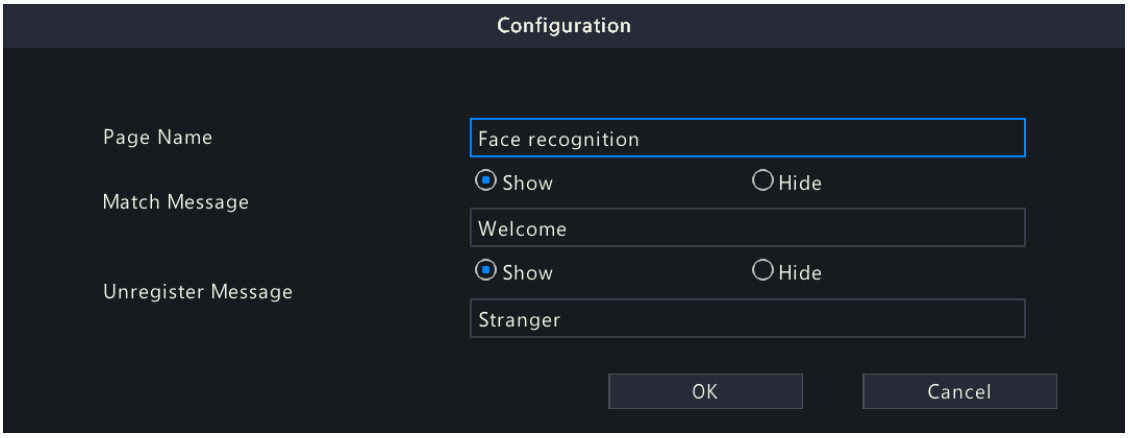
Face Recognition

To view face snapshot records, you need to configure Face List, Face Comparison, and Face Detection first.

1. Click on the screen toolbar.

   In this page, you can view the historical face comparison records on the left, and view face snapshots, snapshot details, and prompt message on the right. 1 view is displayed by default, and you can switch to 4 or 9 views to view more face snapshots in the page.

2. Click , configure face recognition parameters, and then click **OK**.



Item	Description
Page Name	The default is face recognition. Set it as needed.
Match Message	If the face has a match in the face library, the default match message **Welcome** appears. You can customize the message as needed. Click **Hide**, the page will not show the match message.
Unregister Message	If the face does not have a match in the face library, the default message **Stranger** appears. You can customize the message as needed. Click **Hide**, the page will not show the message.

3. Click to exit the face recognition page.

Vehicle Recognition

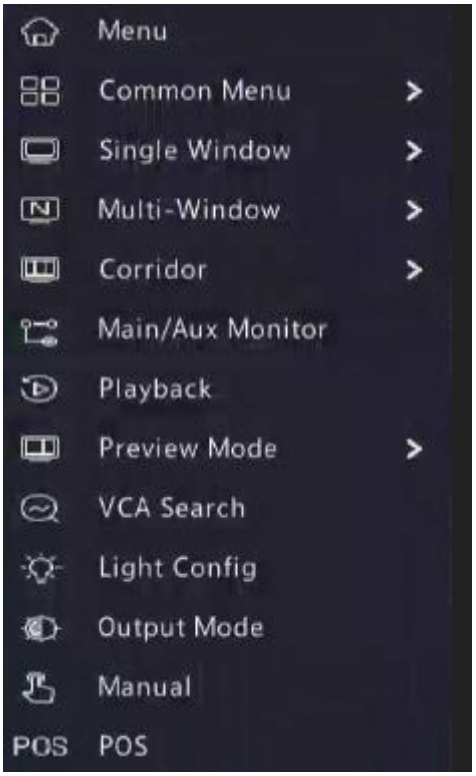
To view vehicle recognition details, you need to configure Plate List and Vehicle Alarm Monitoring first.

1. Click on the screen toolbar, and then you can view pass-through records, vehicle snapshot information, etc.

2. Click to exit the vehicle recognition page.

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 Config**, and **Backup** page.
Single Window	Switch to single window.
Multi-Window	Select the screen layout, including 4/6/8/9/16/25/36 windows.
Corridor	Display video images in corridor mode. You can set the number of windows from the **Preview Windows** drop-down list under **Menu** > **System** > **Preview**. See Preview Configuration for details. **Note:** • To display images in corridor mode, make sure the camera is installed correctly (rotated 90° clockwise or counterclockwise), and then set the **Image Rotation** parameter under **Menu** > **Camera** > **Image** to rotate images accordingly. • When a channel is in corridor mode, all the operations (such as digital zoom and drawing motion detection area) are performed in corridor mode.
Main/Aux Monitor	Switch live video from different video outputs. Press and hold the right mouse button to switch between main monitor and auxiliary monitor.
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** 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.
Light Config	Set image parameters for the selected camera, including image enhancement, smart illumination, exposure, white balance, and advanced configuration. See Image Settings for details.
Output Mode	Choose a video output mode, including standard, soft, bright, vivid, and custom. Brightness, saturation, and other parameters are also configurable.

Item	Description
Manual	Manual settings include manual recording, manual snapshot, and manual alarm, buzzer, let through manually. See Manual Operations for details.
POS	Set POS OSD, POS protocol, etc. See POS Configuration for details.

Manual Operations

Manual operations include manual recording, manual snapshot, manual alarm, buzzer, and let through manually.

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.

Let Through Manually

If a license plate not match alarm occurs, and the IPC cannot lift the barrier automatically, you can trigger the IPC to lift the barrier manually on the NVR side as needed.

Note:

- This function requires you to configure plate not match alarm first. See Vehicle Alarm Monitoring for details.
- This function is available to cameras that support controlling barrier gates.

1. Right-click and select **Manual** > **Let Through Manually**.

2. Click the corresponding and trigger the camera to lift the barrier.

4ChannelConfiguration

Configure IPC, encoding, audio, snapshot, OSD, image, privacy mask, and PTZ parameters.

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

4.1 Channel Management

Manage IP cameras.

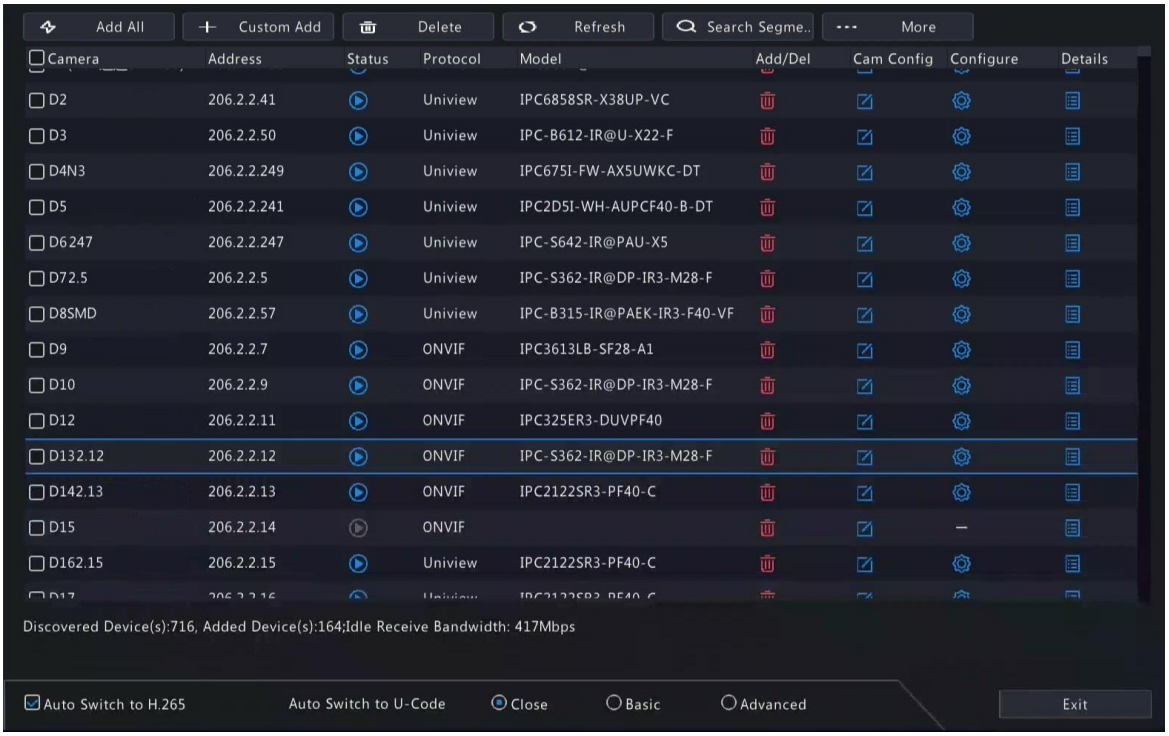
Note:

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

4.1.1 IPC Configuration

Add and manage IP cameras.

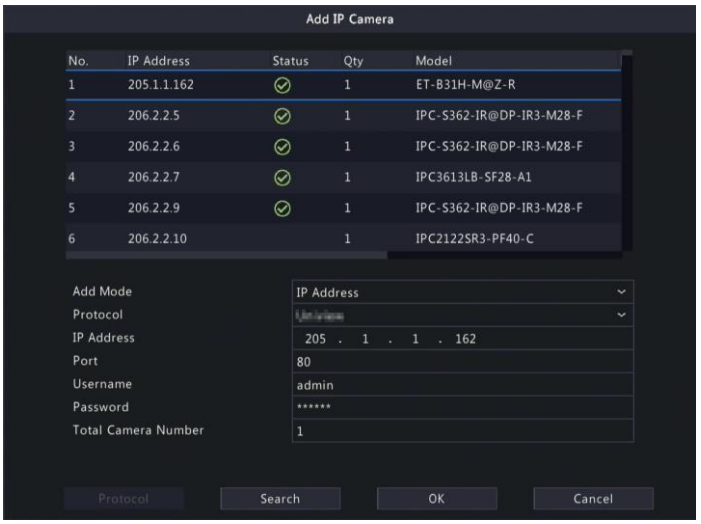
Go to **Menu** > **Camera** > **Camera** > **Camera**.



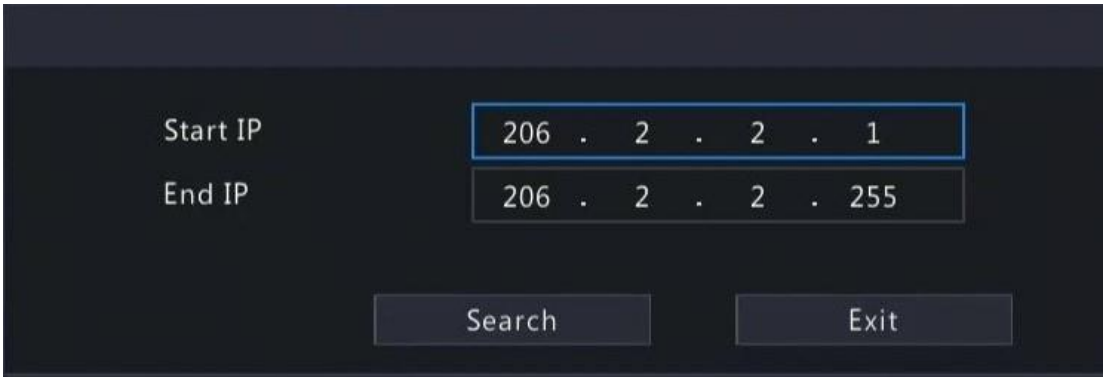
Add IPC

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 NVR.
  3. Repeat the above steps to add other IPCs.
- 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 NVR.

- 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 the Preview Window

  Note: This option is not applicable to NVRs with PoE ports. Some NVRs have PoE ports and non-PoE ports, and some have PoE ports only. All these NVRs do not support this option.

  1. In the preview page, click in a window to go to the **Add IP Camera** page.
  2. Select the desired IP camera and then click **OK**.

- Option 6: Connect via Cable
  1. Connect an IP camera to a PoE port or a switching port of the NVR with a network cable. The connected camera will be added to the NVR automatically.
  2. Check the camera status under **Menu** > **Camera** > **Camera** > **Camera**.

     Note:
     - This option is only applicable to NVRs with PoE ports, and the added camera cannot be deleted.
     - If you want to add an IPC that is not connected to the NVR's with a network cable, click , change **Plug-and-Play** to **Manual**, and complete other parameters.
     - For NVR with PoE ports only, appears under **Status** if the power output from a PoE port is below or above the rated power of the connected camera.

- Option 7: Add From Another Network

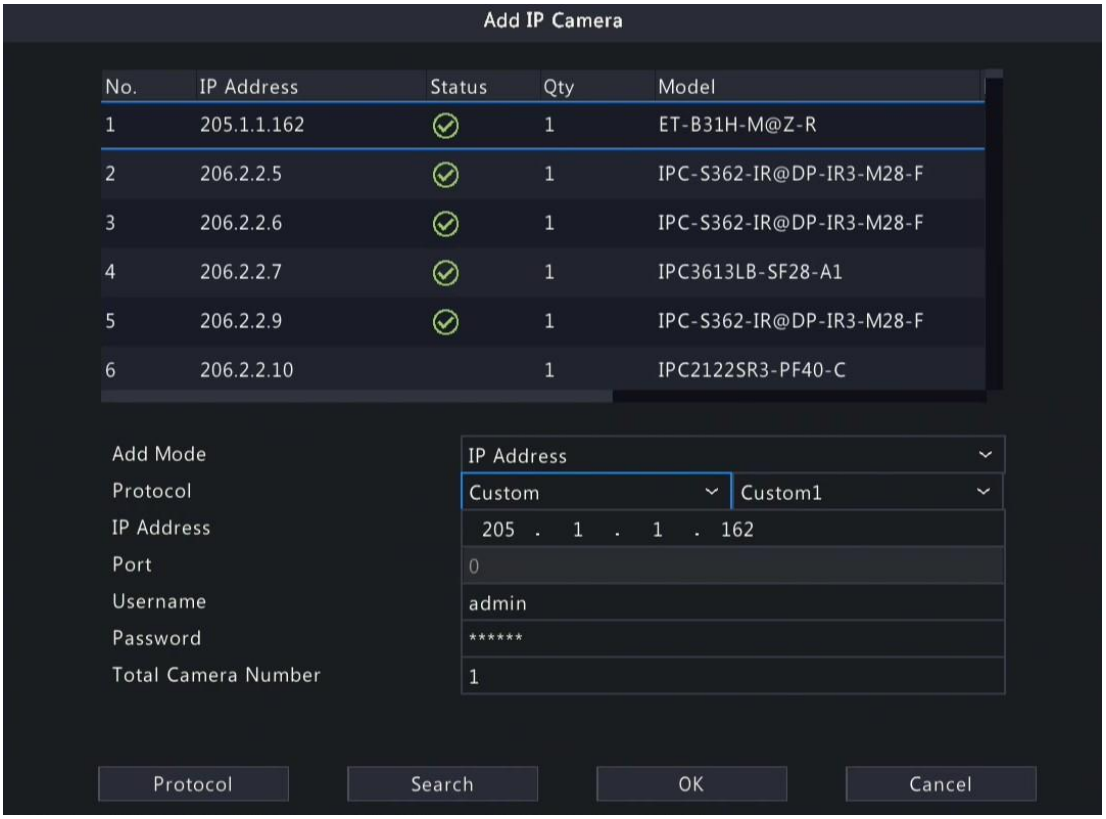
  Use this option when the NVR and the IP camera are connected to different router. Make sure the NVR can access the camera via the camera's public IP address and mapped port number.

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

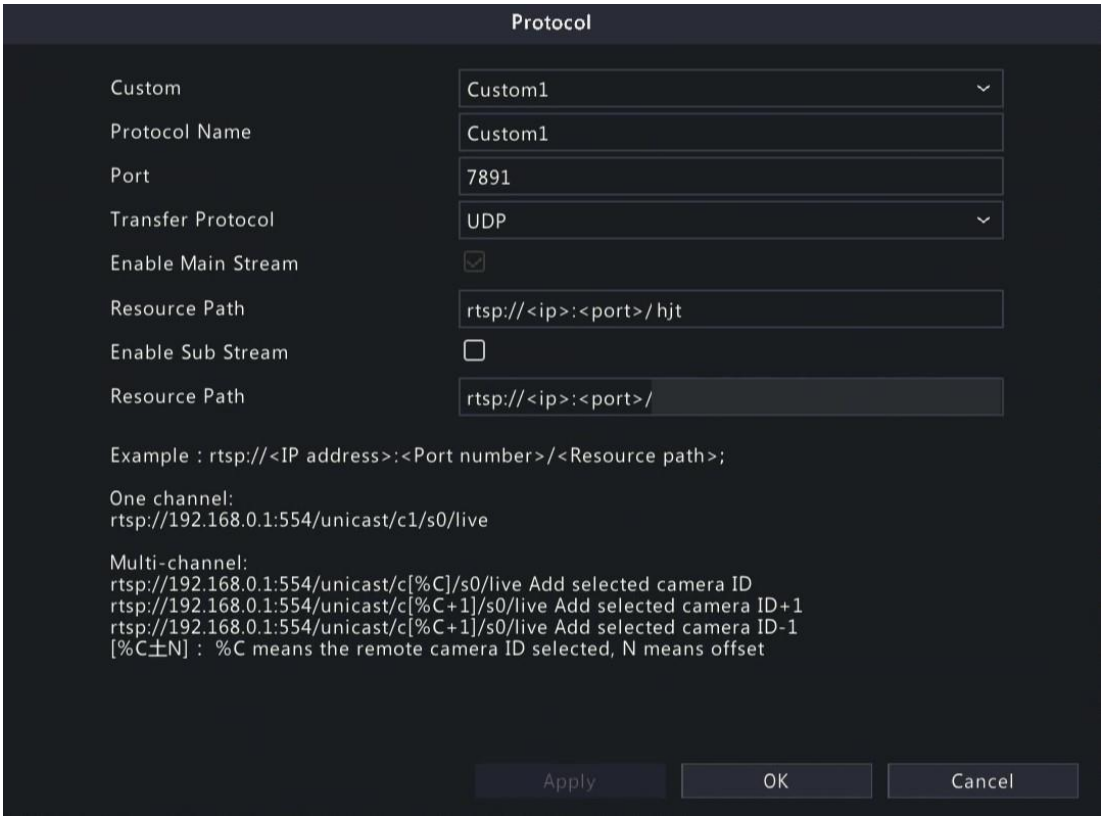
- Option 8: Use Custom Protocol

  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**.



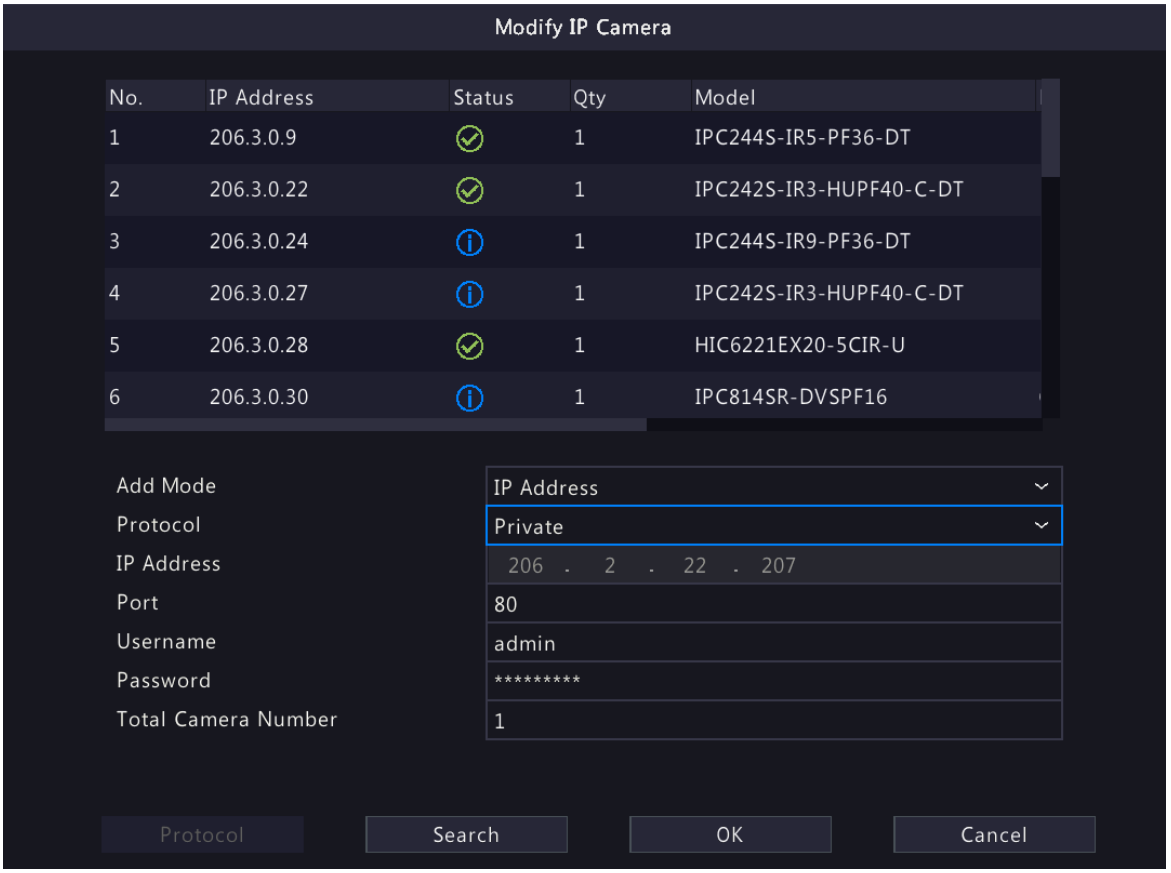
4. Set the protocol name, enter the RTSP port number, transmission protocol, resource paths, etc., and then click **OK**.

   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**.



Note:

- To change the IP camera connected to the channel, you can edit the IP channel related parameters (except IP address), or directly click another camera in the list above.
- The configuration items may vary with IPC model.

Delete IP Camera

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

Note: Cameras corresponding to PoE ports or switching ports cannot be deleted.

- 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.

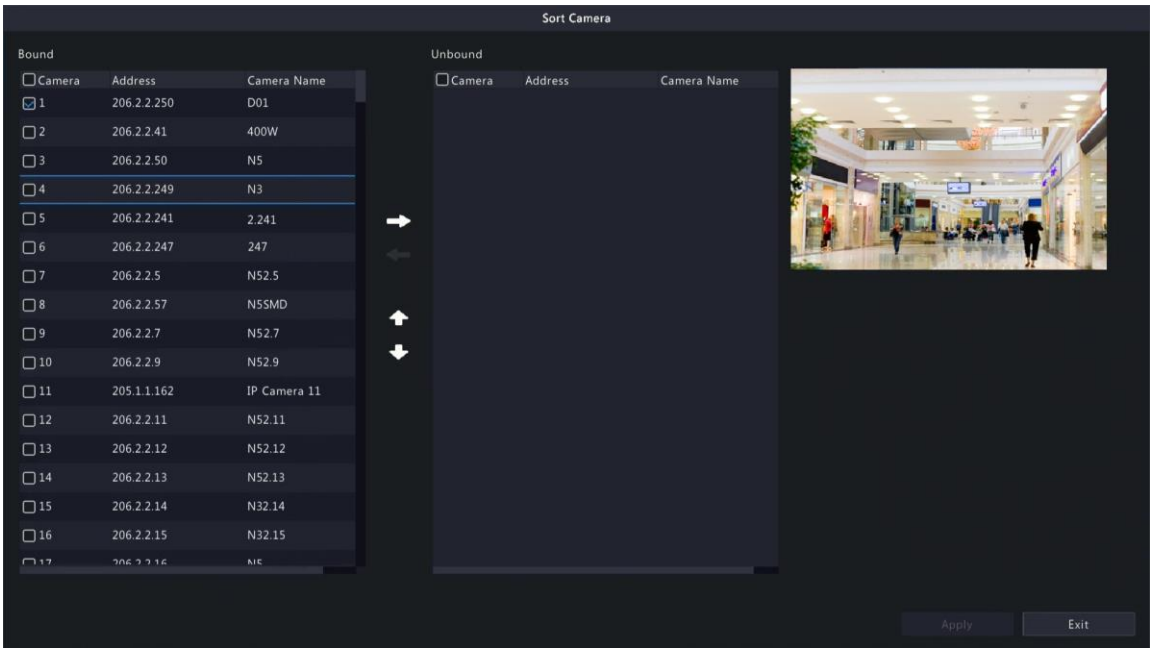
Sort Camera

Use this function to change a camera IP bound to a channel. This will not only change the camera's position in the camera list, but also change the position of the camera's live view window. The following example describes how to switch camera 1 and camera 4.

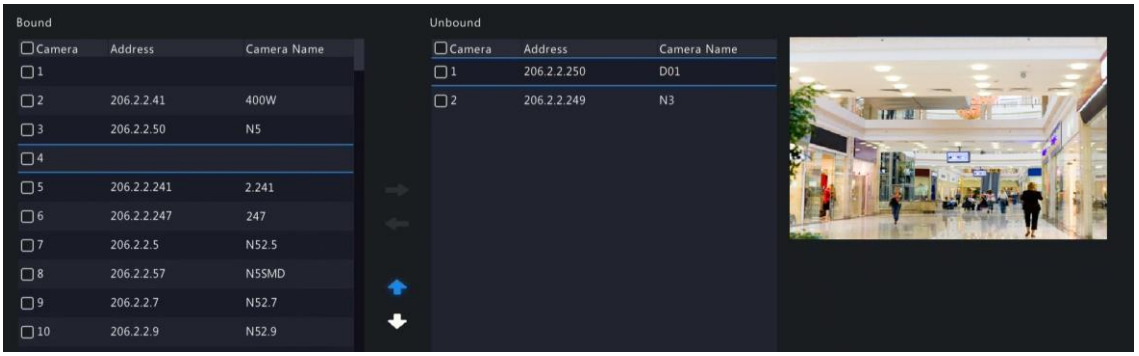
Note:

- This function is not available to NVRs with PoE ports or switching ports.
- This section describes how to sort cameras on an NVR with more than 32 channels. For NVRs with 32 channels or less, you can sort cameras by dragging the mouse.

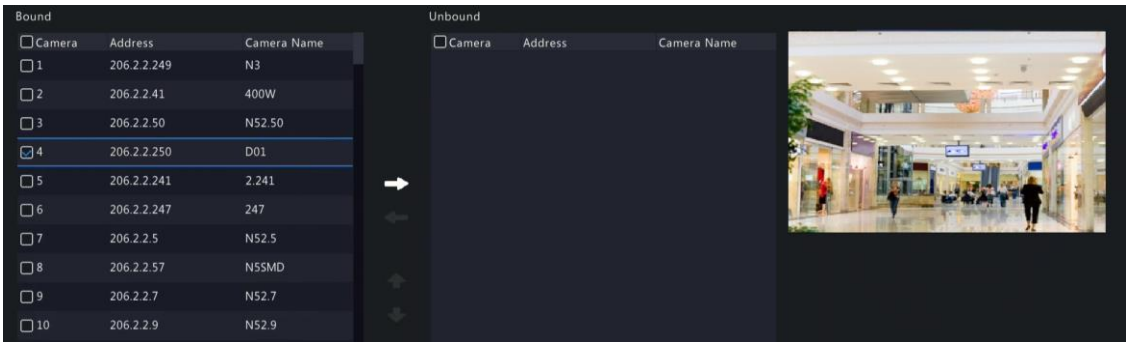
1. Click More, select **Sort Camera**.



2. In the left list, select the check box for camera 1 and click . Then camera 1 with IP 206.2.2.250 now appears in the right list. Perform the same operations to camera 4.



3. In the right list, select the camera 4 with IP 206.2.2.249 and click . Then camera 4 appears at the previous line of camera 1 in the list. Perform the same operations to camera 1, so camera 1 appears at the previous line of camera 4 in the list.



4. Click **Apply**. IPs of camera 1 and camera 4 are swapped, and the position of preview window will also be swapped. Repeat the above steps to sort other cameras.

Note:

- Click or to move up or move down the current highlighted camera (not the selected camera).
- To move a camera left, select a corresponding check box in the left list first; otherwise the camera will be inserted to the first blank line.
- The settings cannot be saved when the right list is not empty. You need to clear the list first.

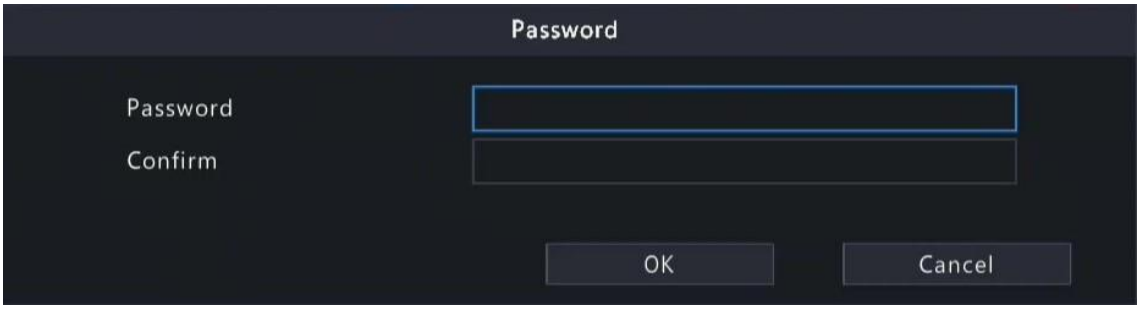
Batch Change Password

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.

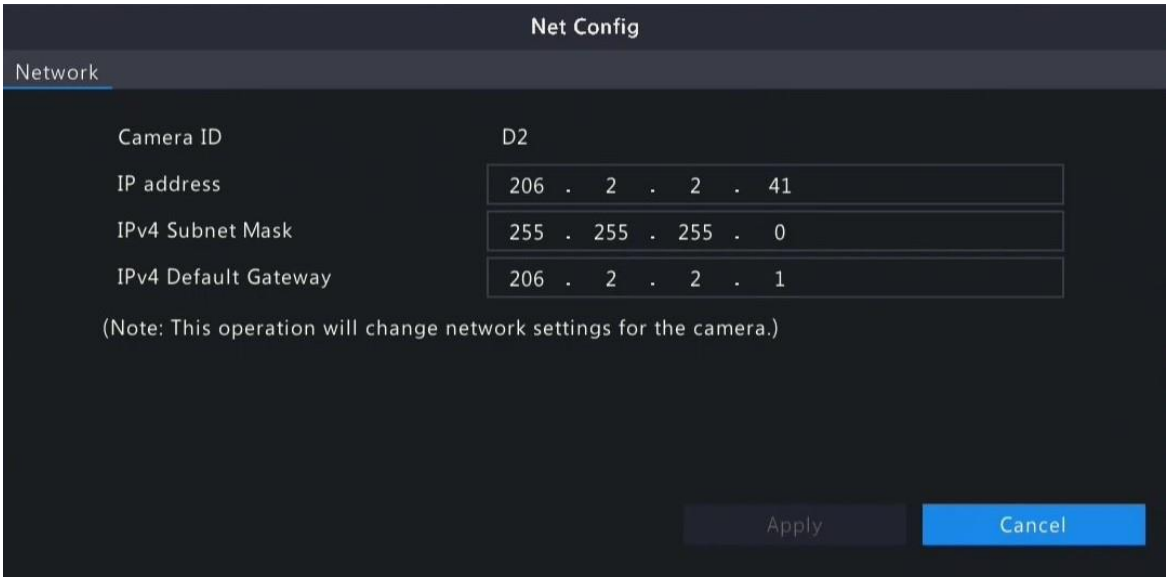
1. Select the cameras with the same password. Click More, and select **Batch Edit Password**.



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

Network Configuration

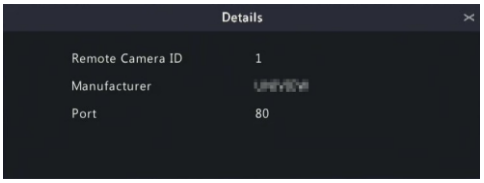
Select the camera, click under **Configure**. Edit the IP address, IPv4 subnet mask, IPv4 default gateway for the camera. Click **Apply**.



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 NVR automatically chooses H.265 for a newly added camera.

Item	Description
	Note: • Every time a camera is added to the NVR, 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 NVR models.
Auto Switch to U-Code	Select **Basic Mode** or **Advanced Mode**, then the NVR automatically chooses basic U-code mode or advanced U-code mode for a newly added camera. **Note:** • Every time a camera is added to the NVR, 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 NVR models.
Refresh	Click **Refresh** to check the camera status.
Live View	Click to play live video of the camera.

4.1.2 Fisheye Configuration

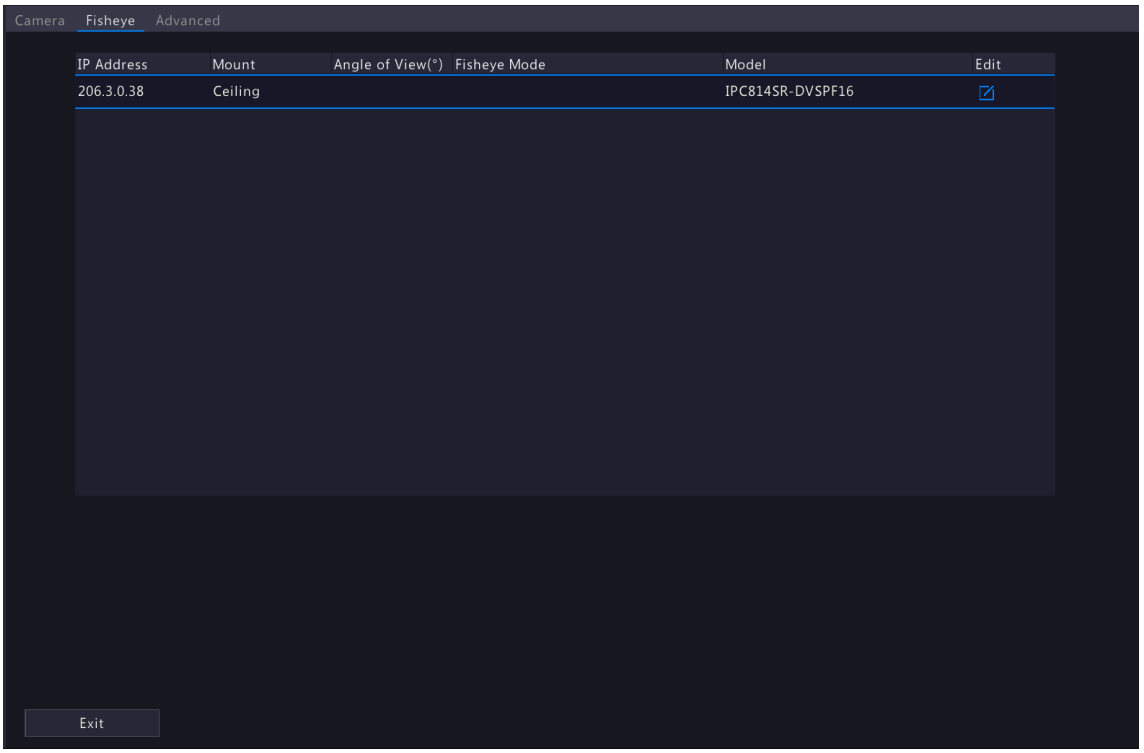
Set the mounting mode and display mode for fisheye cameras. Fisheye configuration is supported only by certain fisheye cameras.

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

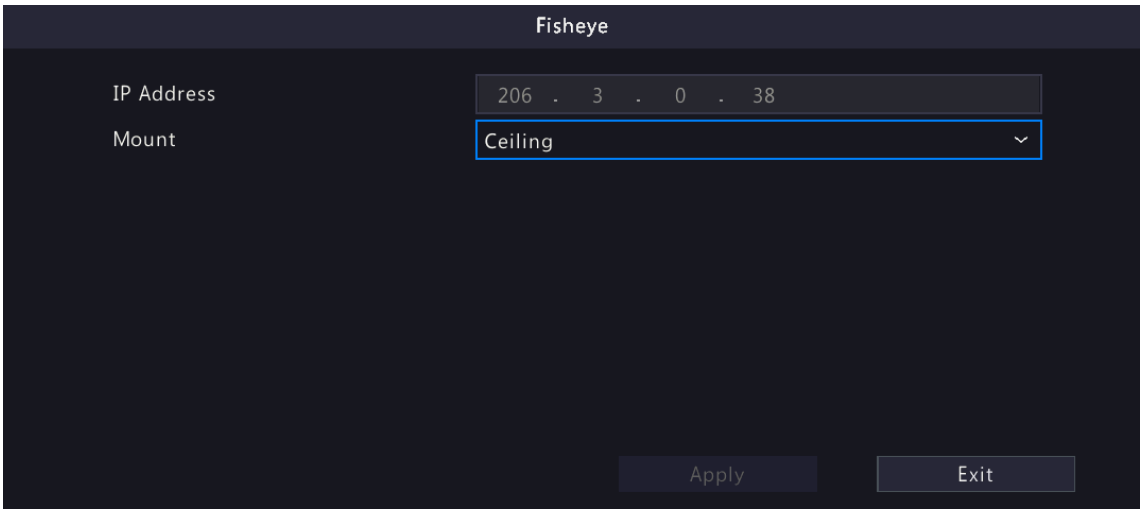
Configuration

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.

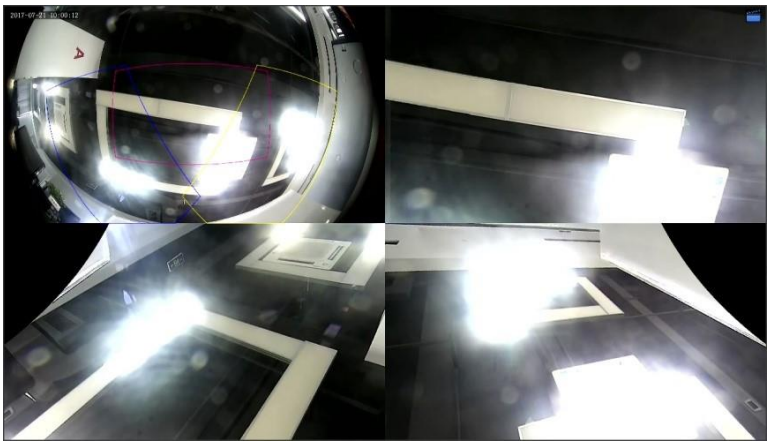
Note: Dewarping is available in live view and playback (in normal and corridor playback modes). The operations are similar. The following describes dewarping in live view.

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
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.



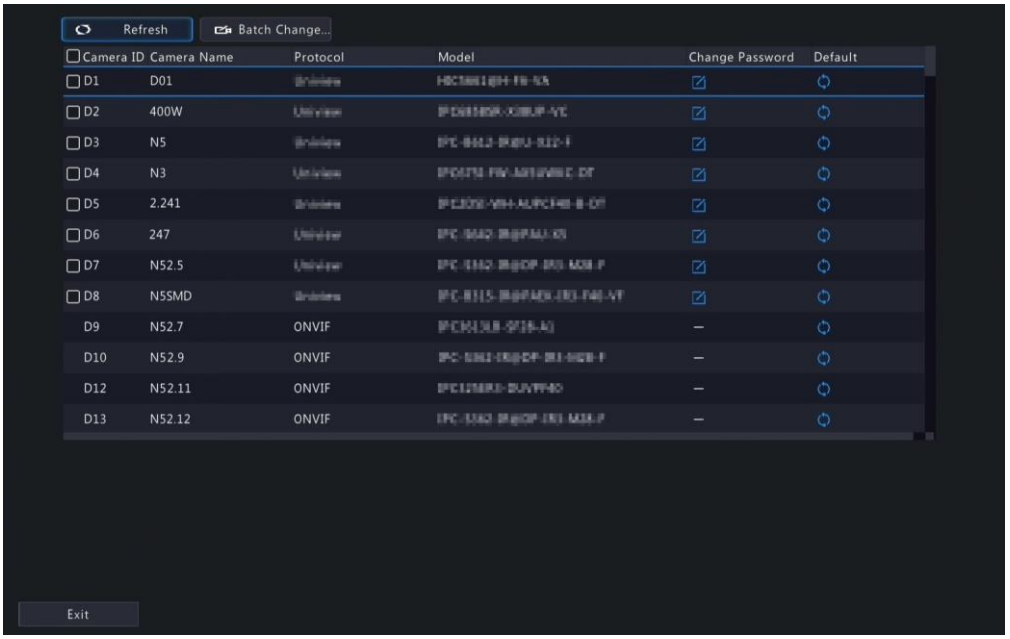
- Drag the mouse to rotate the image or use the scroll wheel to zoom in or out on a PTZ image. A box appears on the fisheye image as the image rotates, and as you drag the box or move the scroll wheel on the fisheye image, the corresponding PTZ image rotates or zooms in or out as well.

4.1.3 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 private protocol.

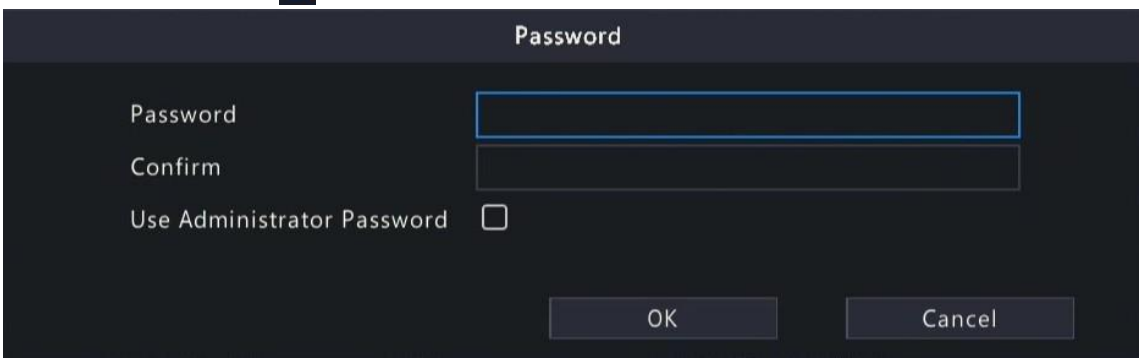
Go to **Menu** > **Camera** > **Camera** > **Advanced**.



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 NVR, 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 Camera Type

You can change the camera type to analog or digital. This function is only available for hybrid NVRs.

Change Camera Type

Change camera type to analog or digital.

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

2. Select the camera you want to change and choose the desired type.
3. Click **Apply**, then a message indicating device restart appears.
4. Click **Yes**. The camera type will be changed after the NVR restarts.

Add Analog Camera

Analog cameras can be added to hybrid NVRs only.

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

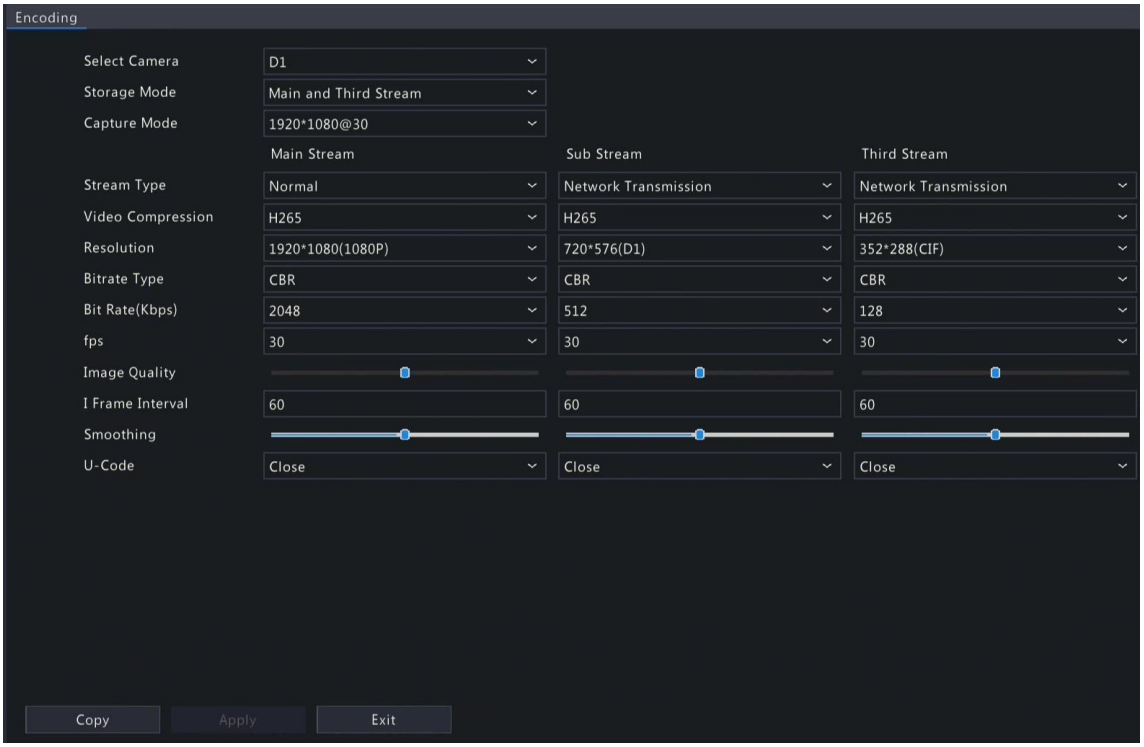
4.2 Encoding Settings

Configure storage mode, capture mode, stream type, 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, including main stream, sub stream, main and sub stream, main and third stream, sub and third stream. The default is main and third stream. Only certain NVR models support all the five modes. The storage mode determines the recording format (HD or SD). It may affect the clarity and output mode of the recording. Set the storage mode as needed by referring to the table below.

Table 4-1: Storage Mode

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

Note:
This configuration item only changes the storage stream of the NVR, and does not change the video stream sent from IPC. The IPC sends the main stream by default.

4. Set the capture mode, that is, combinations of resolution and frame rate. This parameter is configurable only when the camera is connected to the NVR via the private protocol.
5. Set the encoding parameters for different streams.

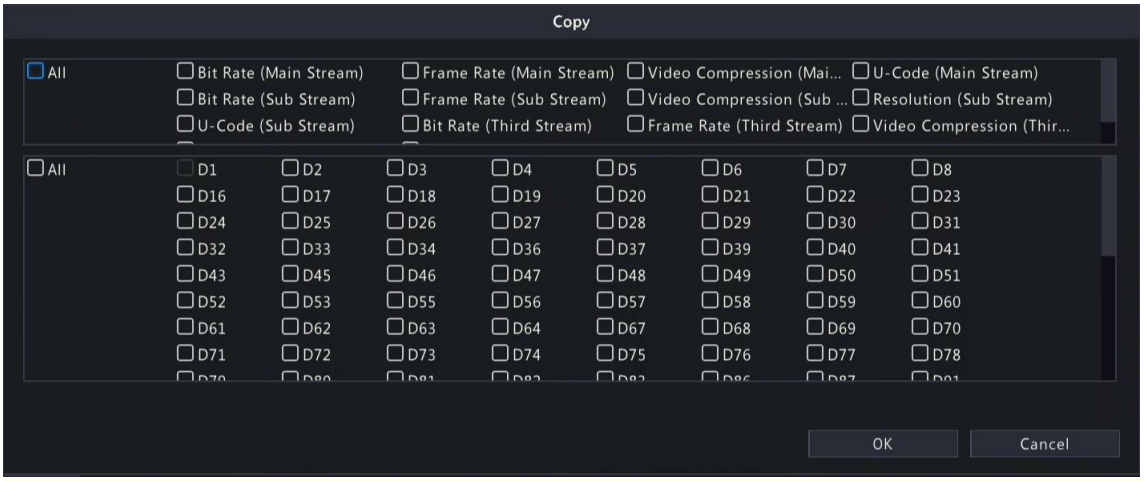
Item	Description

Stream Type	• Main stream: Select **Schedule** or **Event**.
	  • Schedule: Set encoding parameters for scheduled recordings.
	  • Event: Set encoding parameters for events such as motion detection and alarm input.
	• Sub stream: Set encoding parameters for low resolution videos intended for network transmission.

Video Compression	Choose H264 or H265. The supported video compression may vary with IPC model.
Resolution	The number of pixels in a frame.

Item	Description
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.
Frame Rate(fps)	The number of frames per second.
Image Quality	This parameter is configurable when **Bitrate Type** is set to **VBR**. 1 to 9 levels are available.
I Frame Interval	The number of frames between two adjacent I frames.
Smoothing	Use the slider to control the sudden change of bit rate.
U-Code	Select the U-Code mode, including basic mode and advanced mode. The advanced mode achieves higher compression ratios. You can also turn off the U-Code.

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:

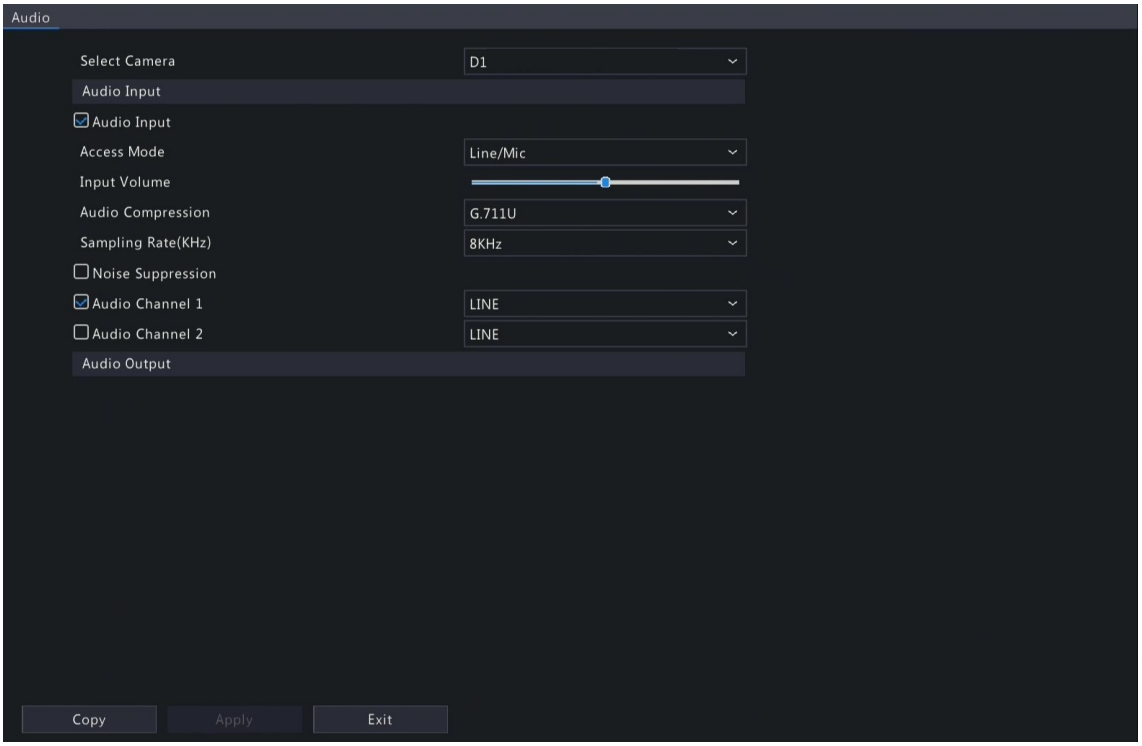
- When you copy **Storage Mode** to other camera(s), if the target camera does not support the storage mode, the operation will fail.
- When you copy **Video Compression** and **U-Code** to other camera(s), **Bit Rate** will be selected automatically because video compression adjusts bit rate automatically.

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. Configure audio input parameters.

Item	Description
Audio Input	Check ☑ to enable audio input.
Access Mode	Select the access method according to the IPC's audio interface, including Line, Mic, and RS485. • Line-in: The IPC is connected to a sound pickup by a 3.5mm audio cable. • Mic-in: The IPC is connected to a microphone. • RS485: The IPC is connected to a sound pickup by a RS485 cable. You need to set the port mode to sound pickup on the IPC's web interface. See ***Network Camera User Manual*** for details. **Note:** Only certain brands of sound pickups are supported by IPCs. Contact technical support for details.
Input Volume	Drag the slider to adjust the audio input volume.
Audio Compression	Select the audio compression, including G.711A, G.711U, AAC-LC. The supported audio compression may vary with IPC model.
Sampling Rate(KHz)	Select the sampling rate based on the audio compression. • For AAC-LC, select 8 KHz, 16 KHz, or 48KHz. • For G.711A or G.711U, select 8KHz or 16KHz.
Noise Suppression	Select ☑ to enable noise suppression.
Audio Channel 1/Audio Channel 2	Select ☑ to enable audio channel 1 or audio channel 2, and then select the access mode from the drop-down list. **Note:** Only certain dual-channel IPCs support two audio channels, but the two audio channels cannot be enabled at the same time.

4. Configure audio output parameters. Only certain IPC models support audio output.

Item	Description
Audio Output	Select the audio output mode. • Speaker: The default mode.

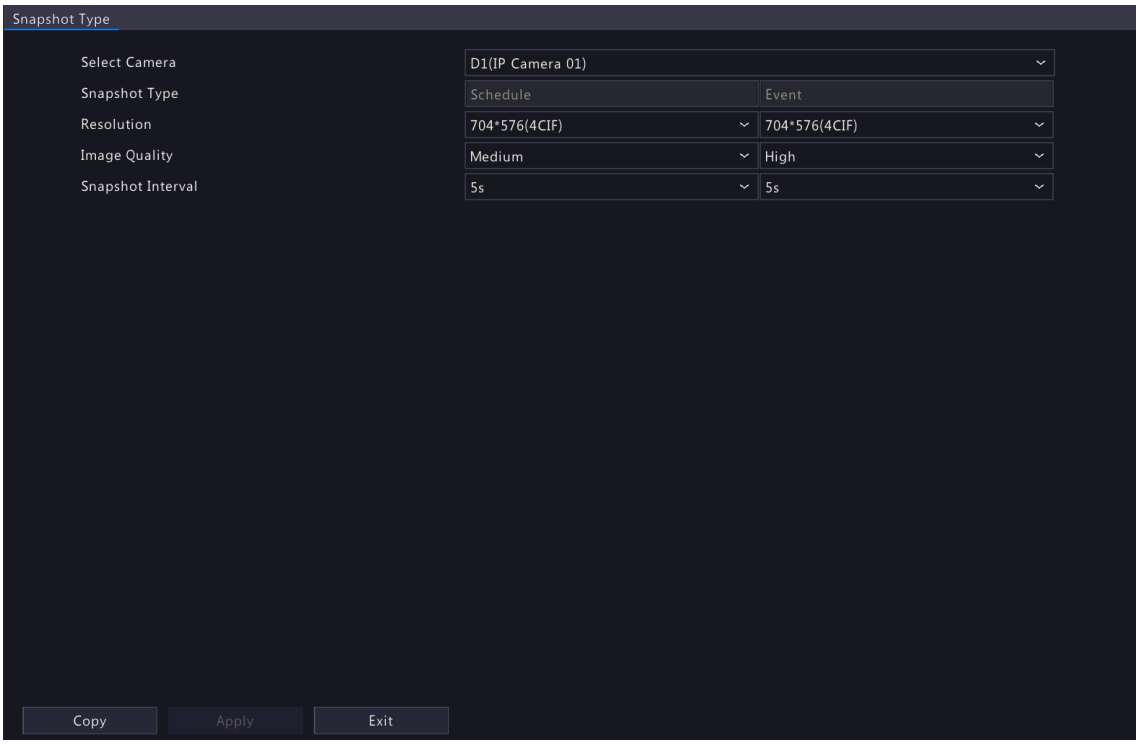
Item	Description
	• Line: An external speaker or earphone is required.
Output Volume	Drag the slider to adjust the audio output volume.

5. (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**.
6. 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.

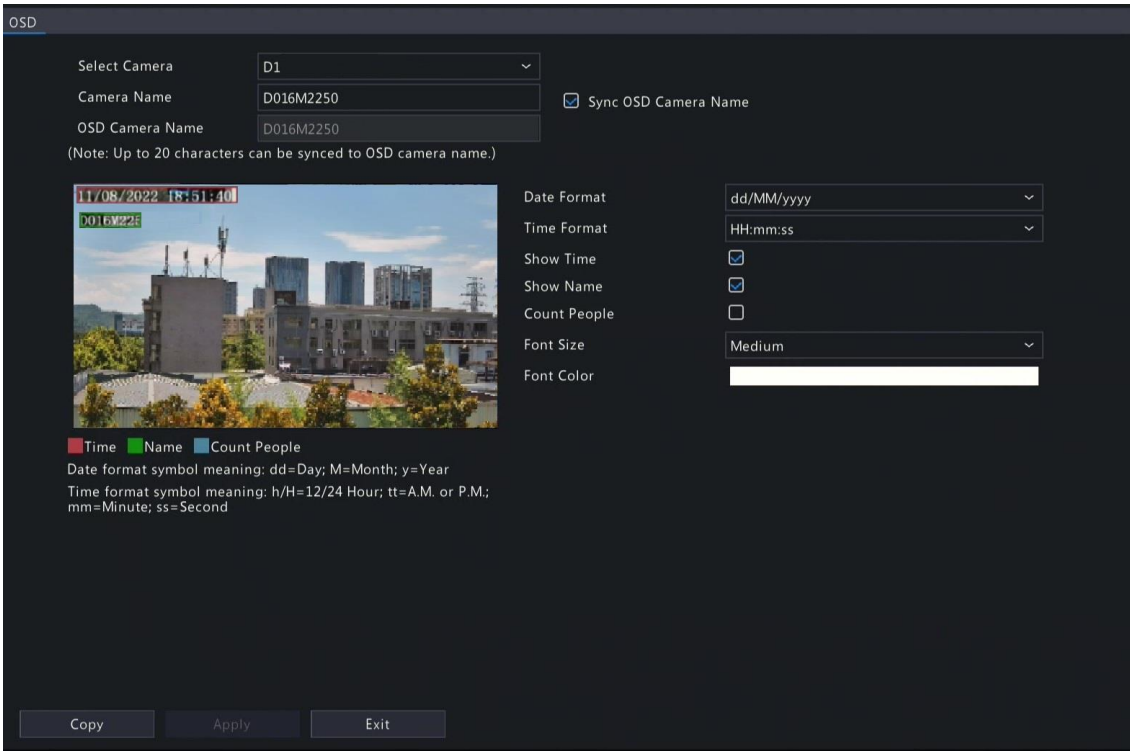
Item	Description
Snapshot Type	Supports scheduled snapshot and event-triggered snapshot. You need set image quality and snapshot interval for them respectively. • Schedule: A snapshot is taken according to the set schedule. • Event: A snapshot is triggered by an event such as alarm input and motion detection alarm. Manual snapshots are event-triggered snapshots.
Resolution	The number of pixels in a frame. Only certain NVRs 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 the 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.
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.
Count People	When enabled, people counting statistics are displayed on the video image, including the number of people entered and exited. This function requires you to configure People Flow Counting first.
Font Size	Select the front size from the drop-down list, including X-large, large, medium, and small.
Font Color	Select the front color from the drop-down list.

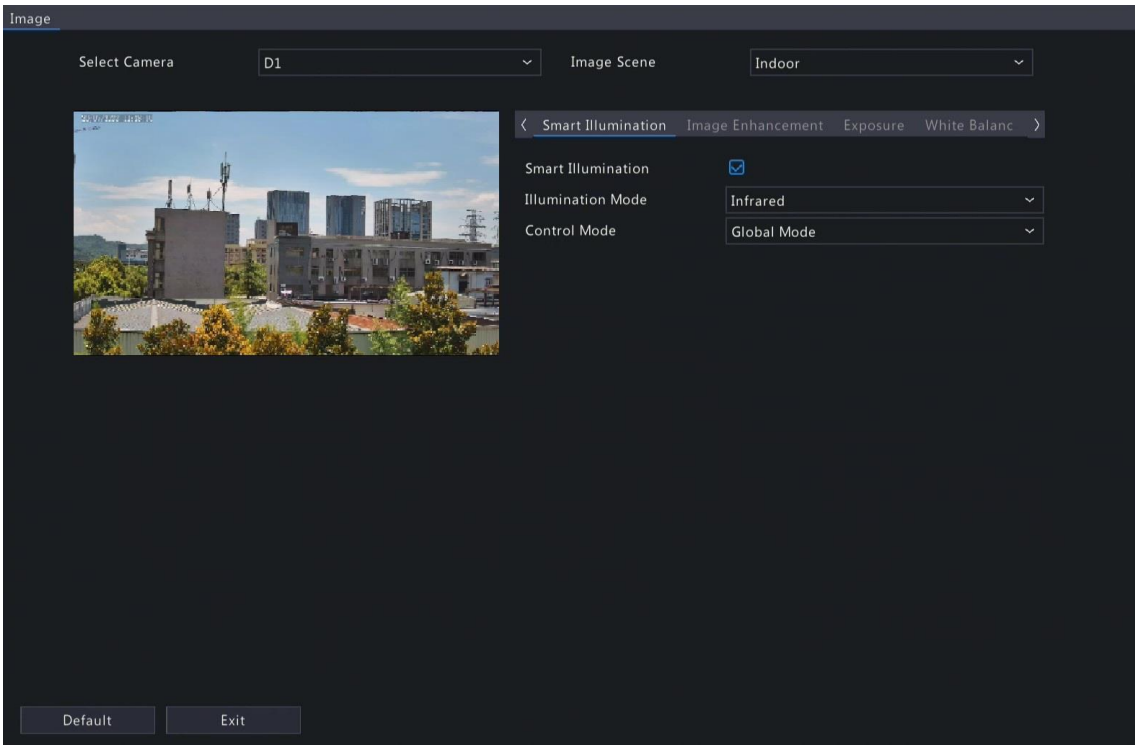
Item	Description

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 camera.
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.
   - Road Highlight Compensation/Park Highlight Compensation: Recommended for capturing vehicle license plates on roads or in parks.
   - 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 NVR via the private protocol.
- Image settings apply to both live and recorded videos.

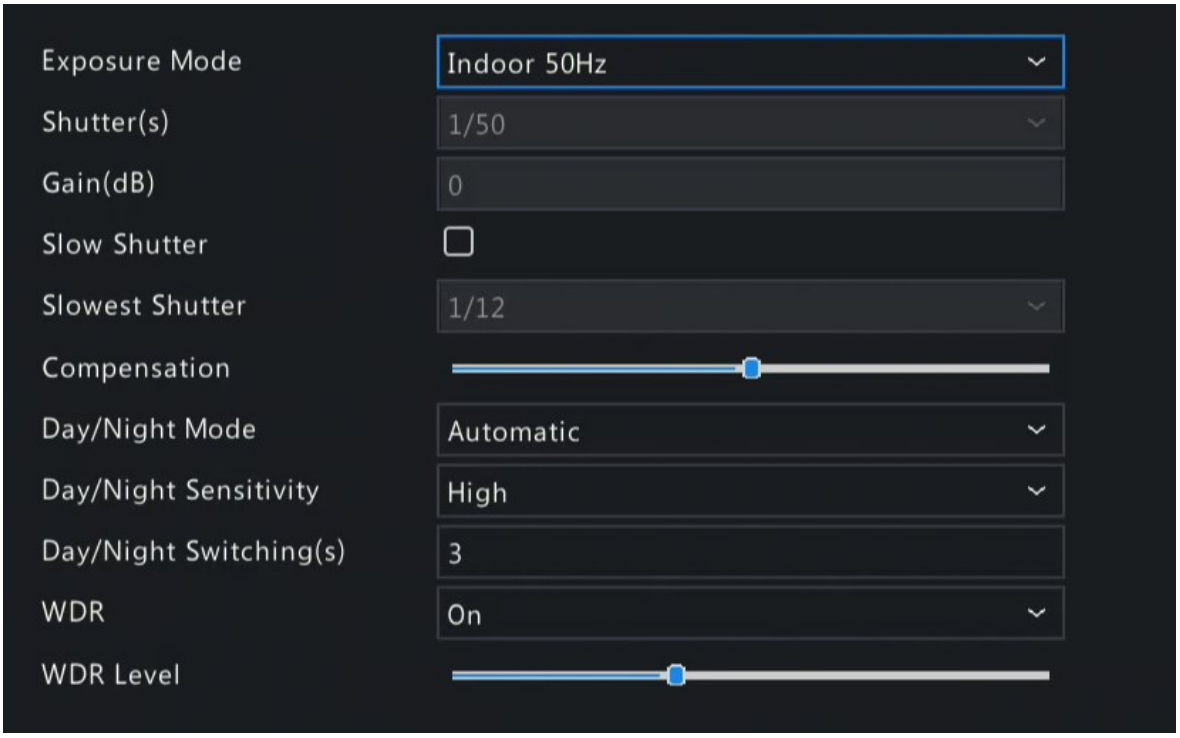
Image Enhancement

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 NVR 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 limiting shutter frequency. • Indoor 60Hz: Reduce stripes by limiting shutter frequency. • 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.

Item	Description
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	Enable/disable WDR from the drop-down list. Enable WDR to ensure clear images in high contrast conditions. This parameter is not available when **Exposure Mode** is set to **Manual** or **Custom**.
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.

Smart Illumination

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

Item	Description
Smart Illumination	Click ☑ to enable smart illumination.
Lighting Type	Select the lighting type 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).

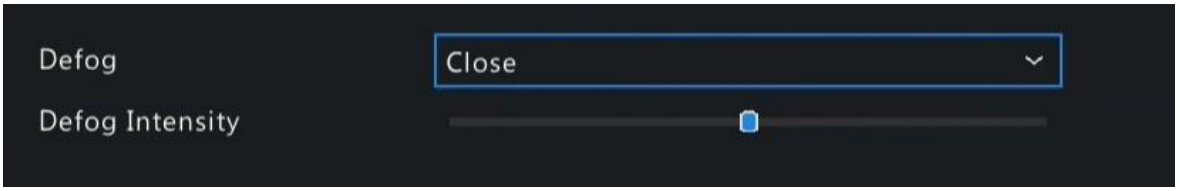
White Balance

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.

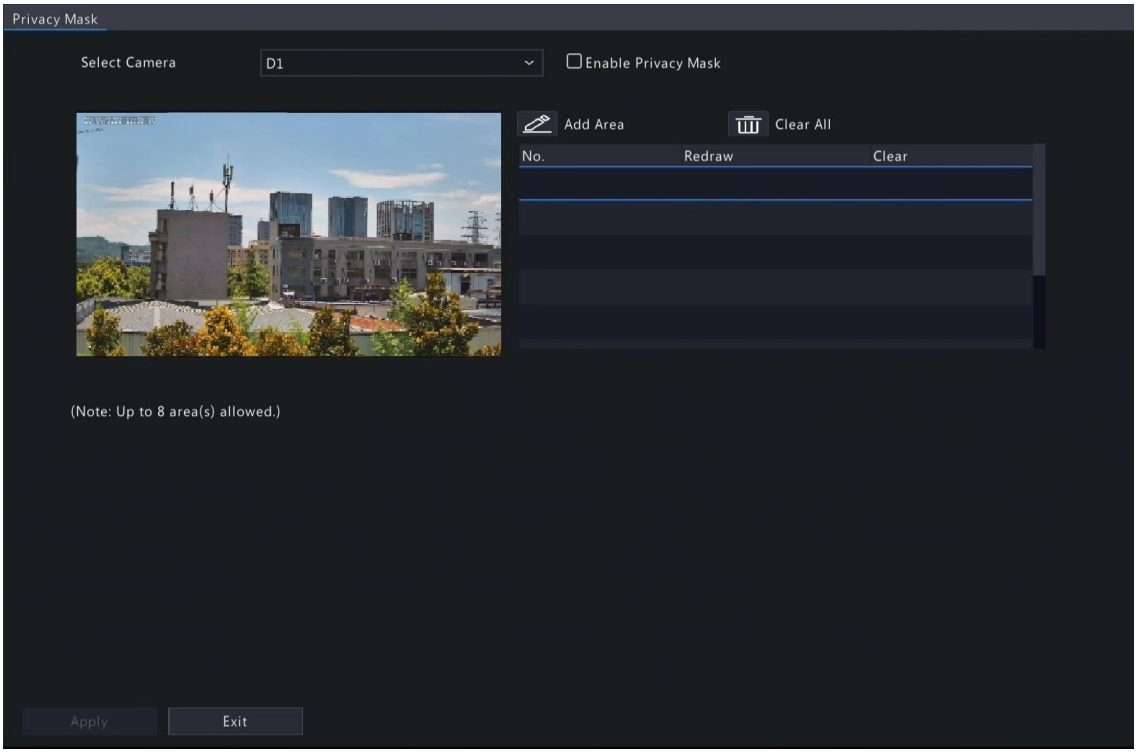


Item	Description
Defog	Enable/disable defog from the drop-down list. Defog is used to improve image visibility in foggy, hazy and other low-visibility scenes.
Defog Intensity	When defog is enabled, you can adjust the defog intensity. In a heavy-fog environment, the higher the defog level, the clearer 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.

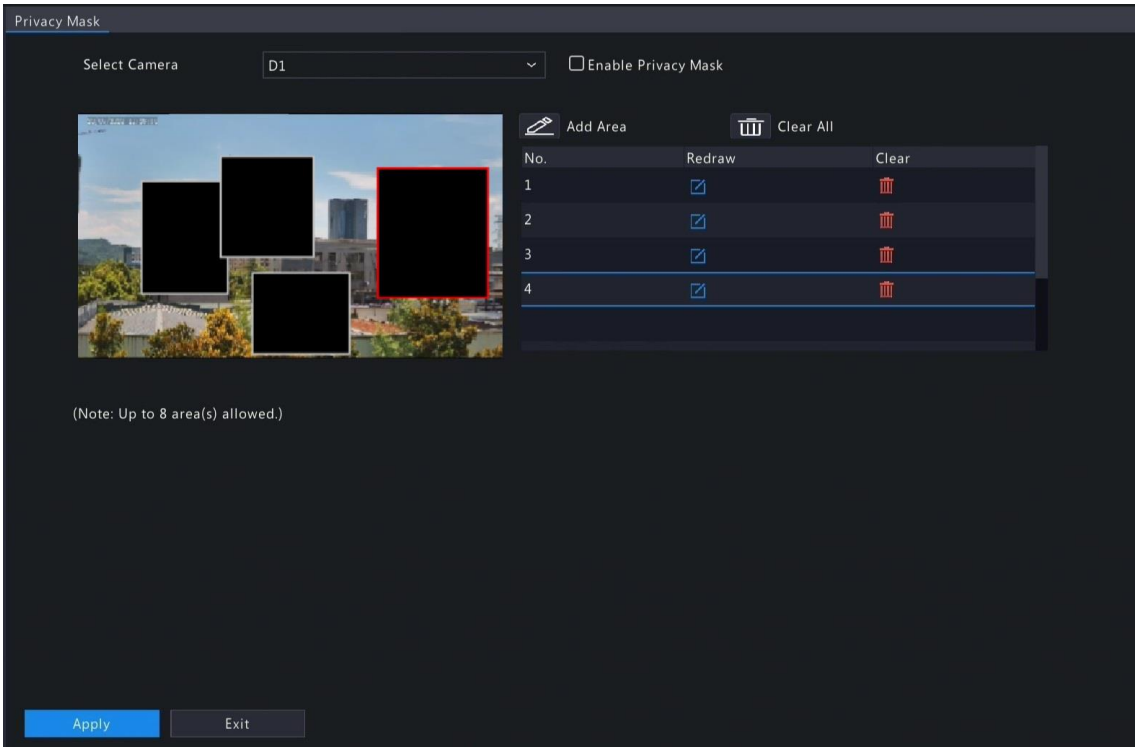
4.7 Privacy Mask

Privacy mask is used to cover certain areas on the image for privacy, for example, ATM keyboard. When a PTZ camera rotates and zooms, the privacy mask moves and zooms with the camera and the masked area is always covered.

1. Go to **Menu** > **Camera** > **Privacy Mask**.



2. Select the desired camera from the drop-down list.
3. Select to enable privacy mask.
4. Click , and then use the mouse to specify a rectangle area on the left-side image. The number of areas supported varies with NVR model. Some NVRs support 4 areas and some support 8 areas.



- Adjust the size and position of the mask: Point to a handle of the mask and drag to resize it. Point to any position of the mask and drag it to the desired position.
- Redraw: Click to clear all the existing area(s) and draw an area again.
- Delete: Select the mask and click ; Or click to delete all the masks.

5. Click **Apply**.

4.8 PTZ Configuration

Configure and control PTZ cameras.

Note:

- This function is only available for PTZ cameras.
- 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

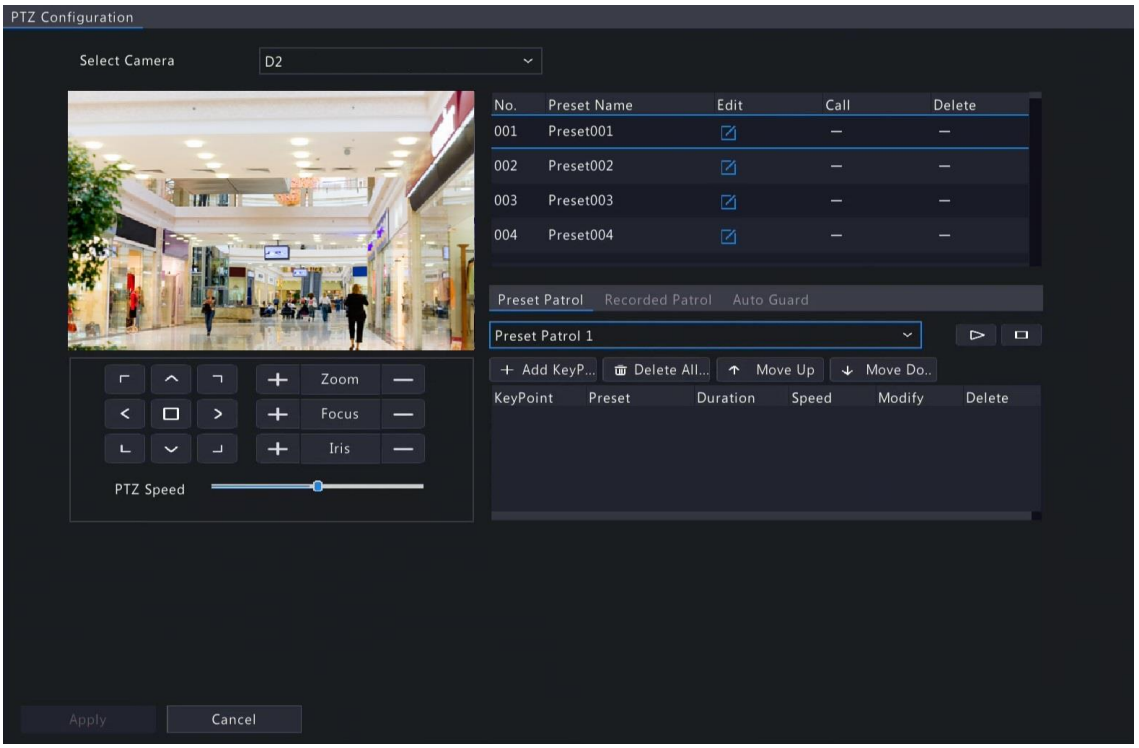
Hybrid NVRs support two control modes, including **Coaxial** or **Serial Port**. Choose the control mode before using PTZ function.

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

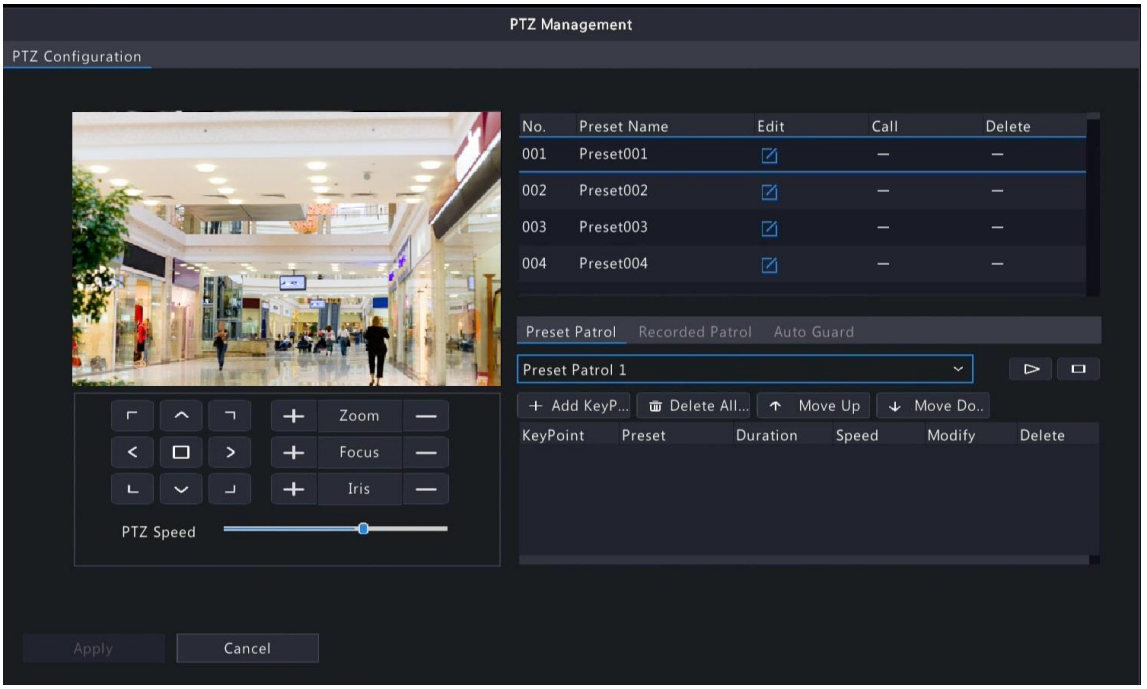


Table 4-2: PTZ Control Window Buttons

Button	Description
	Control the rotation direction of the PTZ camera; release PTZ control.
Zoom Focus Iris	• 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.
PTZ Speed	Control the rotation speed of the camera. 1-9 are available. 1 means the slowest, and 9 means the fastest.
PTZ Configuration	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.
/	• 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

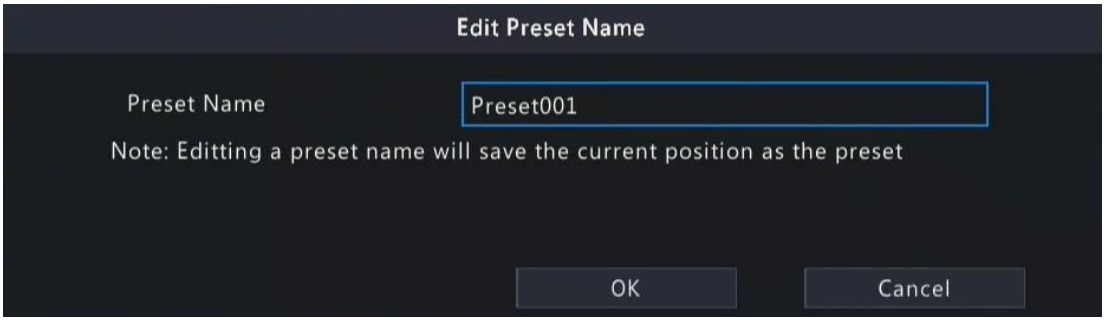
Configure analog cameras on hybrid NVRs. This function is only available for hybrid NVRs.

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

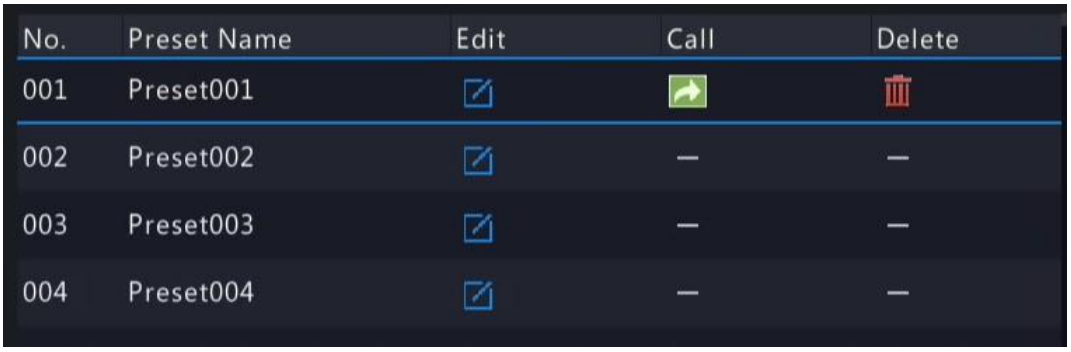
Preset

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

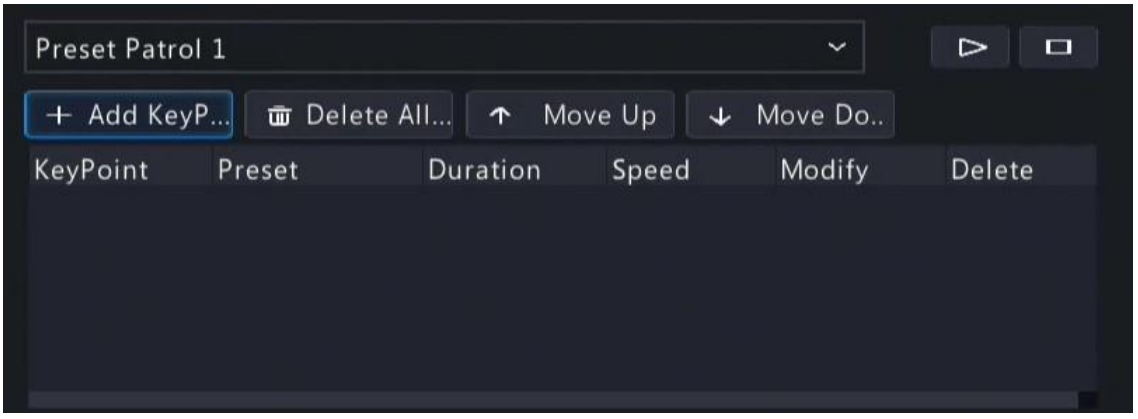
  In the preset list, select the preset to delete, and then click .

Preset Patrol

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

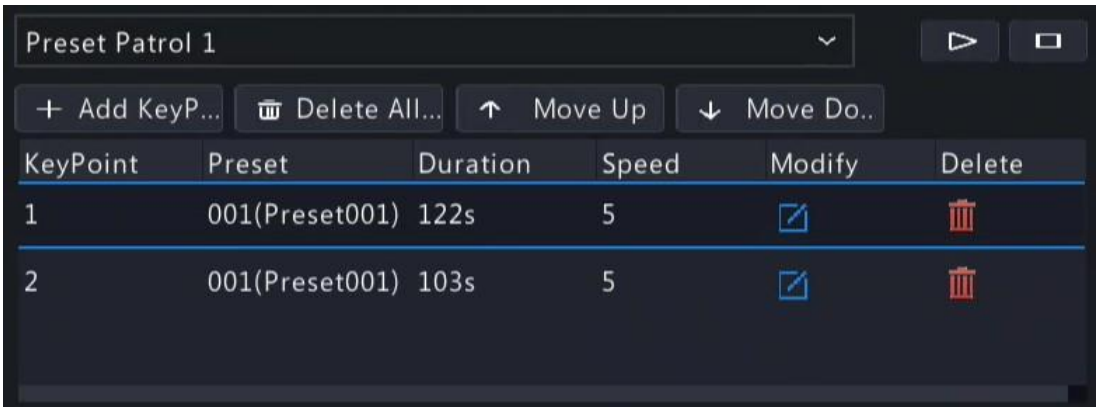
Item	Description
Preset	Set the length of time the camera stays at the preset after performing the patrol. See Preset for setting preset.
Duration(s)	Set the time the camera stays at the preset after the patrol is performed. The valid range is from 120 to 1800 seconds. The default is 10s.
Speed	Set the 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 direction, 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**.

5VCA

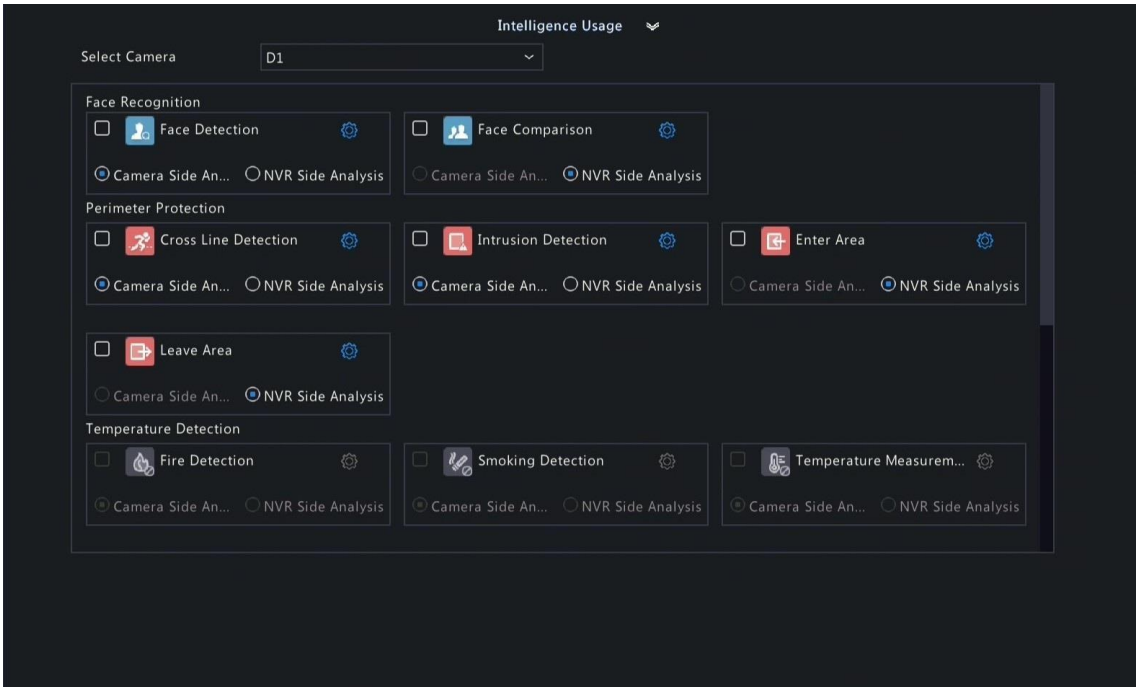
Configure VCA (Video Content Analysis), analyzer, and VCA search.

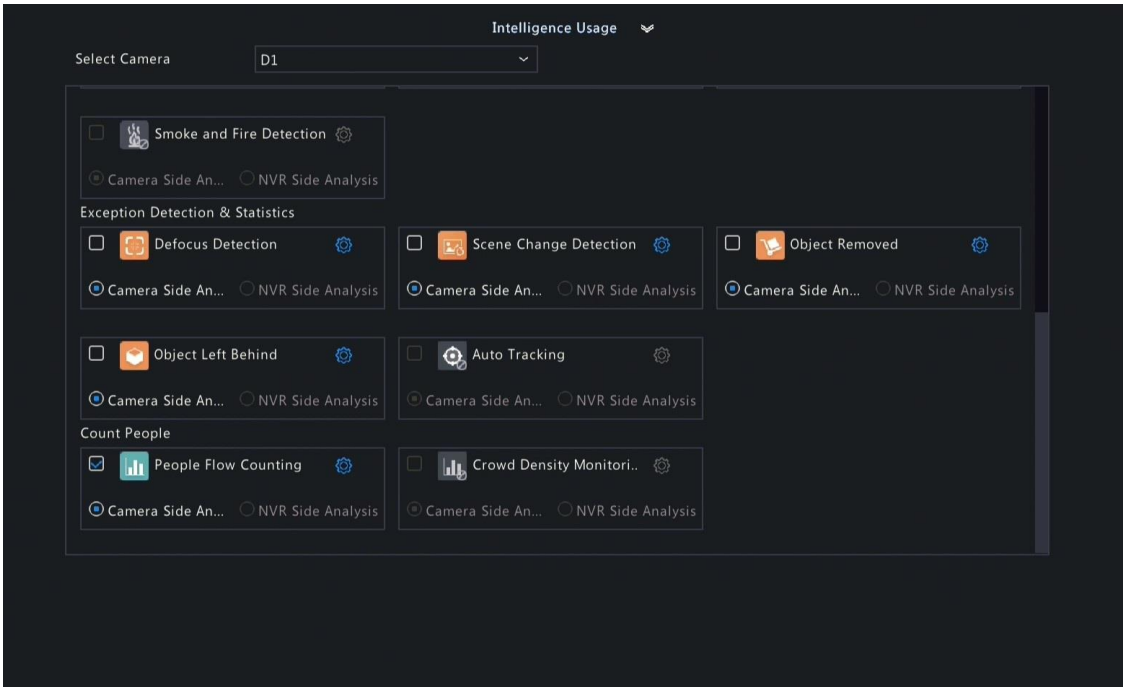
5.1 VCA Configuration

VCA includes face recognition, perimeter protection, temperature detection, mixed-traffic detection, exception detection & statistics, and people counting. You can monitor people flow, roads and moving objects by configuring VCA. The VCA functions and parameters may vary with NVR 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 side.
   - Camera Side Analysis: The VCA function is implemented by the camera.
   - NVR Side Analysis: The VCA function is implemented by the NVR.

Note:
- The parameters of some VCA functions supported on the camera side are more than that supported on the NVR side.
- Before you enable camera side analysis, make sure the camera is connected via private protocol.
- VCA functions that are not supported by the camera or NVR are grayed out.
- VCA functions on the NVR side is subject to device capabilities. For more information, go to **Menu** > **VCA** > **VCA Config** > **Analyzer Config**.

4. Click to configure the function.

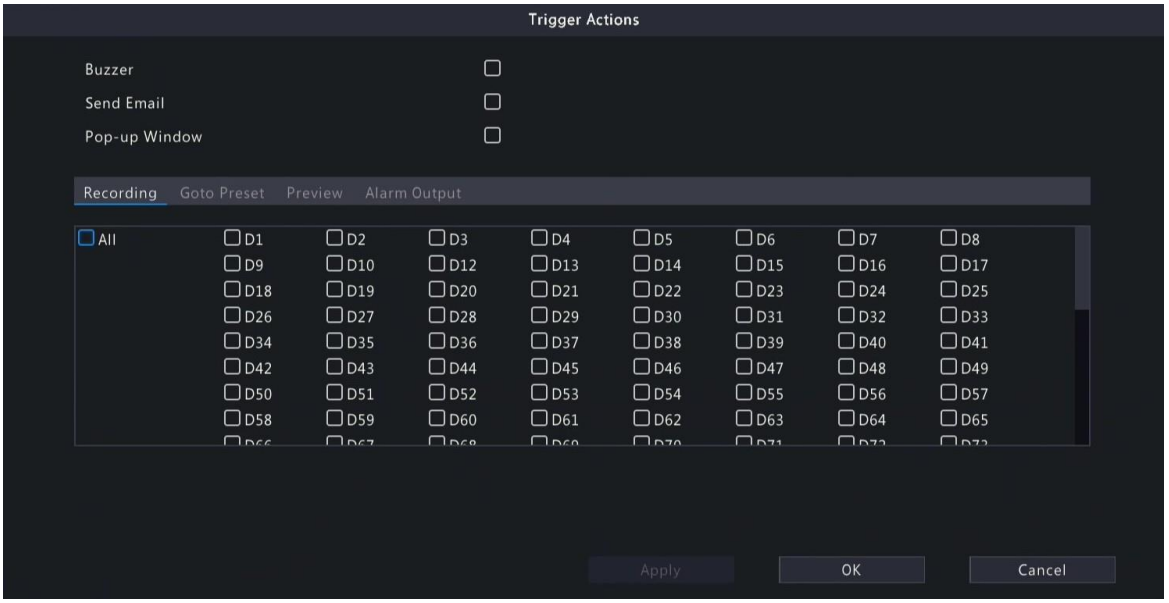
5.1.1 Alarm-triggered Actions

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 NVR model and VCA function.

Some actions are detailed below.



Buzzer

The NVR makes a buzzing sound when an alarm occurs.

Send Email

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

Pop-up Window

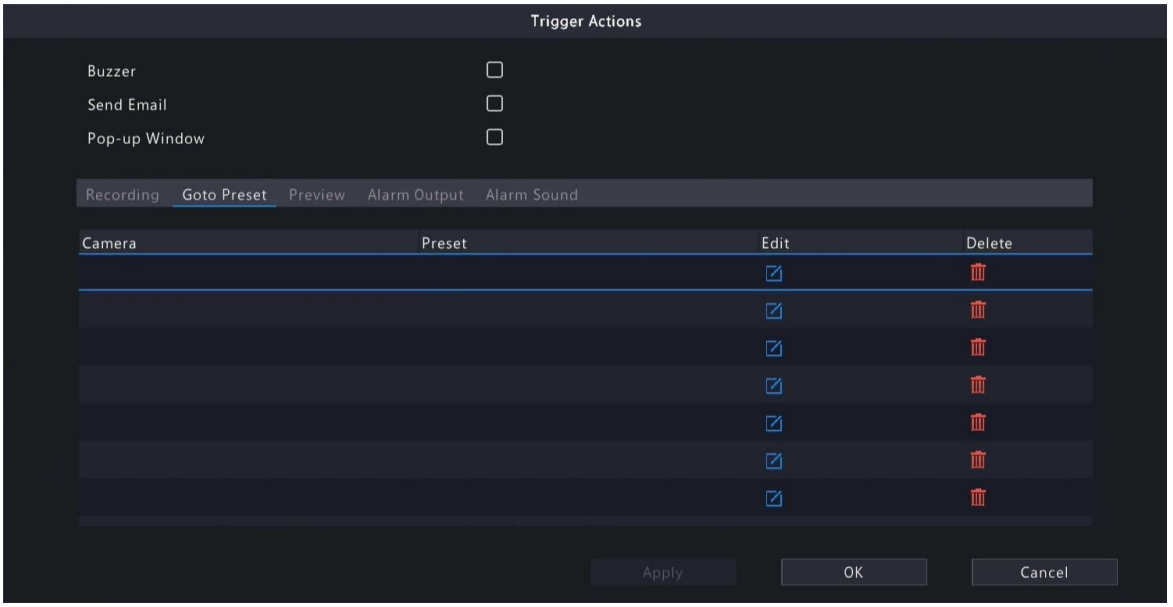
An alarm message pops up when an alarm occurs.

Recording

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

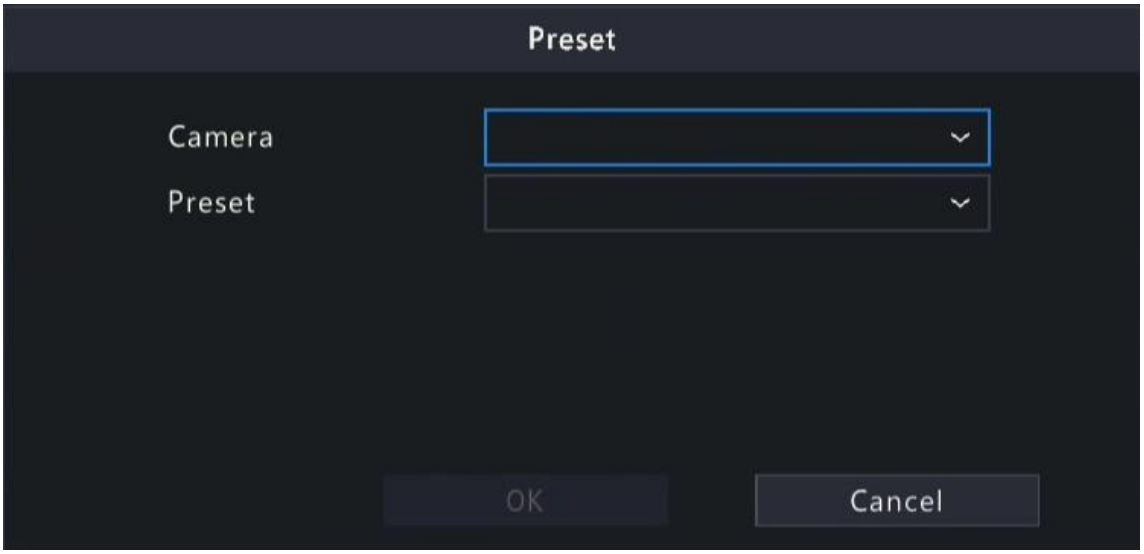
Goto Preset

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.

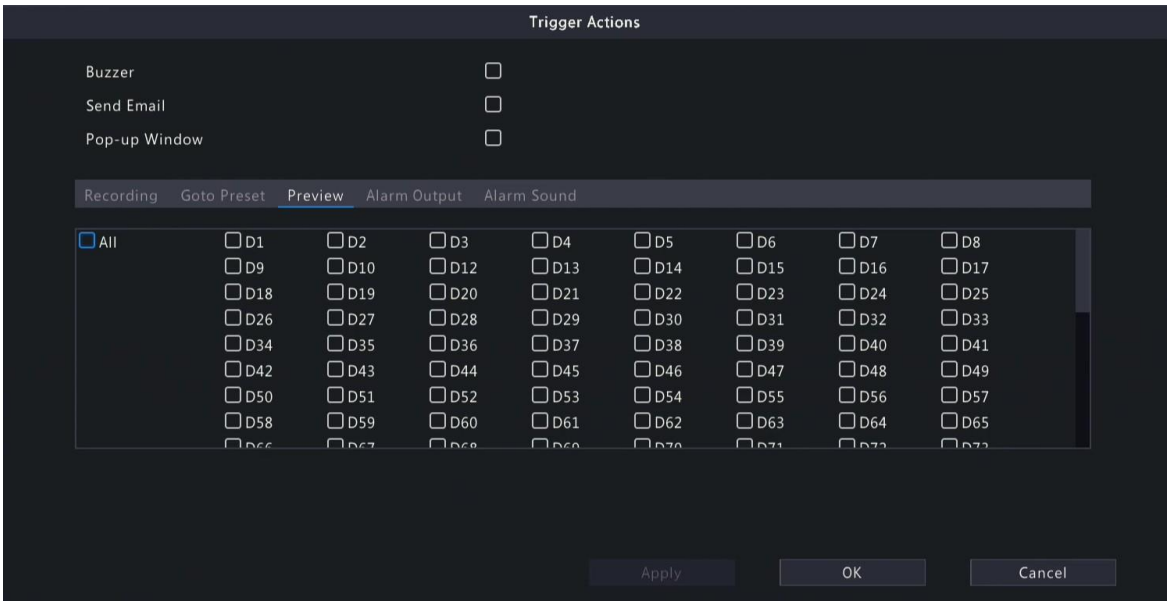
   Note: Before use, you need to configure presets on the PTZ camera. See *Network Camera User Manual* for details.

3. Click **OK**.

   Note: To delete or unlink a preset, click .

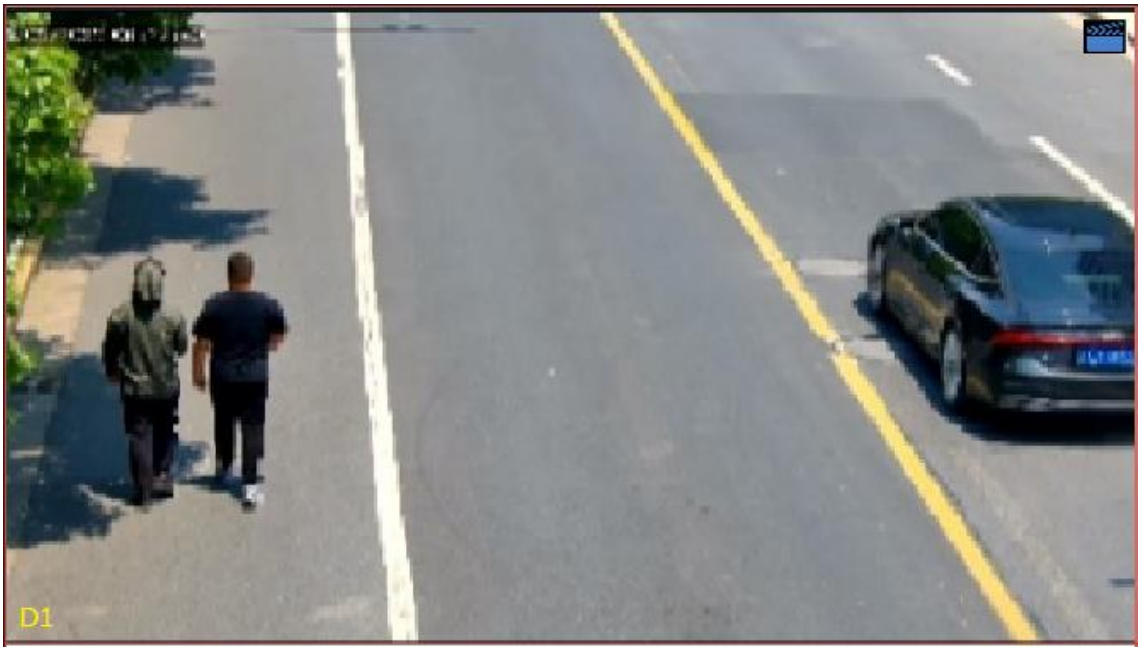
Preview

The NVR 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.

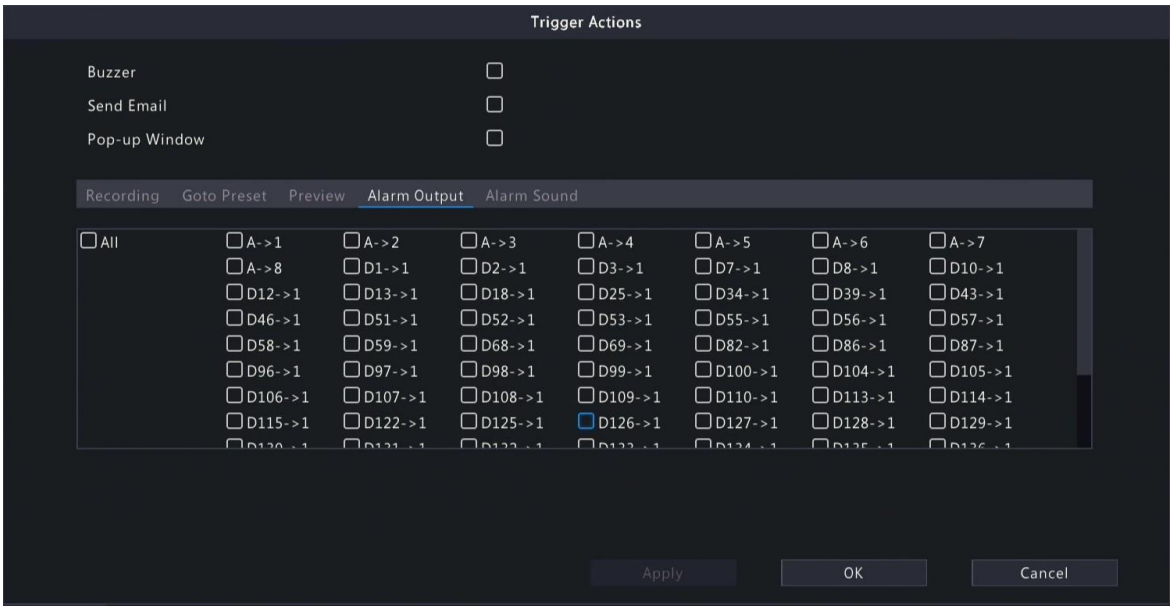
  Live view page with 3 cameras linked:

  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.

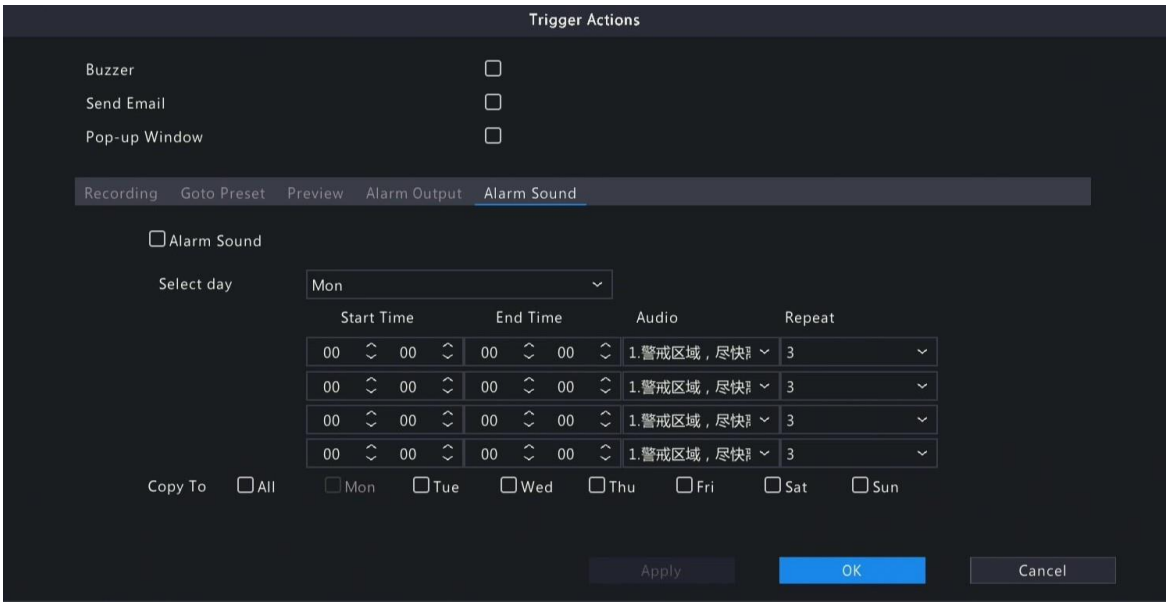
Alarm Output

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



Alarm Sound

The selected camera plays an audio alarm when an alarm occurs. This action is only available to cameras that support alarm sound.



Configure this action as follows:

1. Select the **Alarm Sound** check box, select the alarm mode, and configure other parameters as needed.

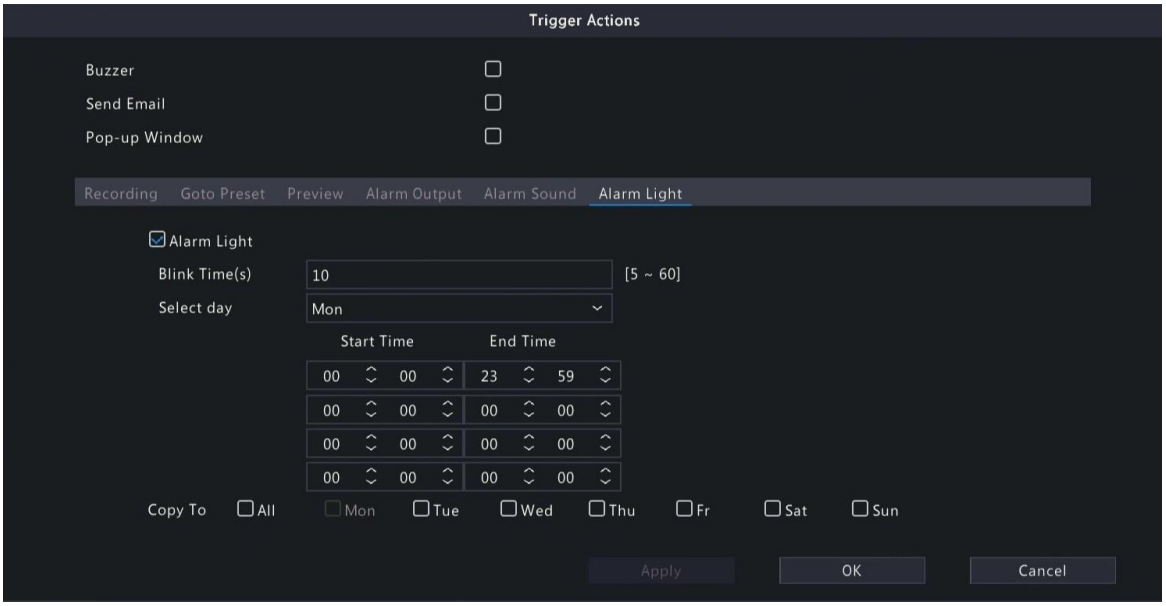
Mode	Description
Day/Night Mode	Select the day and time (day/night) in which alarm sound is enabled. **Note:** The camera automatically switches to day or night mode according to the ambient brightness. See *Network Camera User Manual* for details.
Custom Mode	Select the day and time (start/end time) in which alarm sound is enabled. **Note:** Up to 4 time periods are allowed per day, and the time periods cannot overlap.
Audio	Select the audio file to be played by the camera when an alarm occurs. By default, 13 audio files are available. You can configure the audio files on the camera's Web interface. **Note:** The number of built-in audio files varies depending on the camera model, and up to 5 audio files are allowed on certain models.

Mode	Description
Repeat	Set the number of times the audio file to be played when an alarm occurs. Range: 1 to 50.

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

Alarm Light

The illuminator of the selected camera flashes for a certain period of time when an alarm occurs. This action is only available to cameras that support alarm light.



Configure this action as follows:

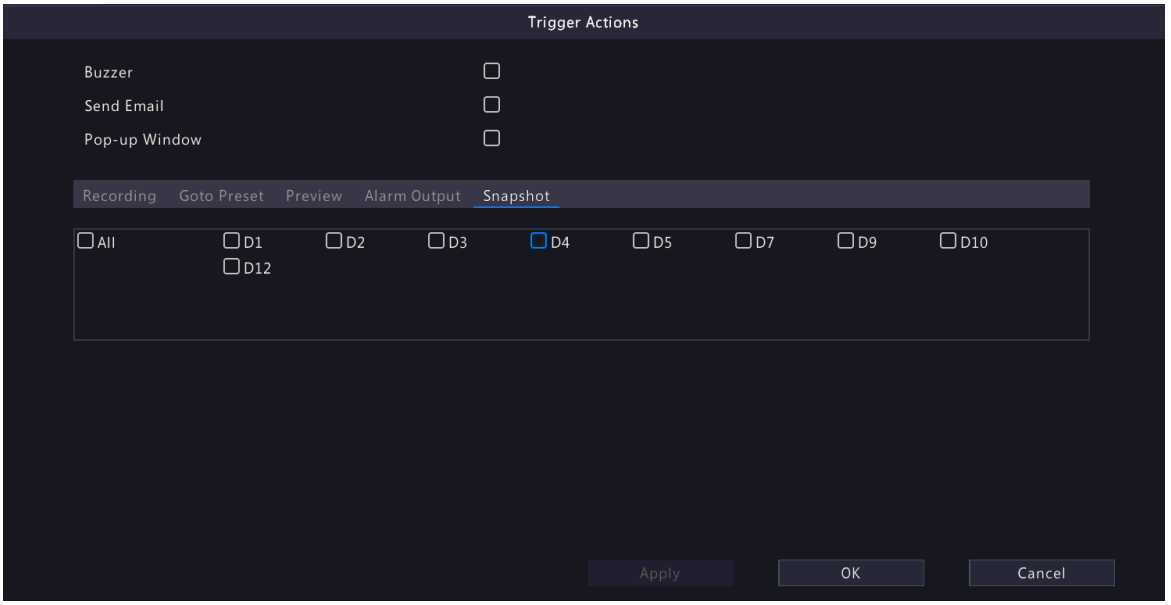
1. Select the **Alarm Light** check box, select the alarm mode, and configure other parameters as needed.

Mode	Description
Day/Night Mode	Select the day and time (day/night) in which alarm light is enabled. **Note:** The camera automatically switches to day or night mode according to the ambient brightness. See *Network Camera User Manual* for details.
Custom Mode	Select the day and time (start/end time) in which alarm light is enabled. **Note:** Up to 4 time periods are allowed per day, and the time periods cannot overlap.
Blink Time(s)	Set the duration that the illuminator flashes when an alarm occurs.

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

Snapshot

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

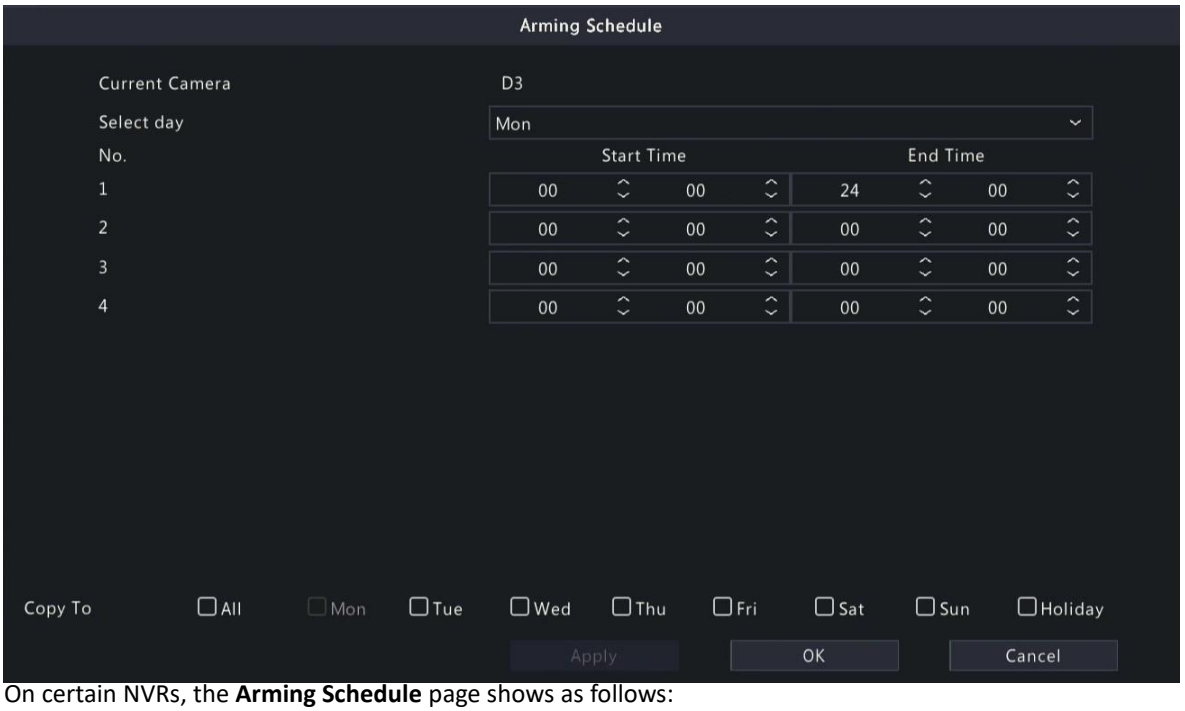


Note: This action is only available to certain alarm functions such as motion detection and human body detection, and is not available to VCA functions.

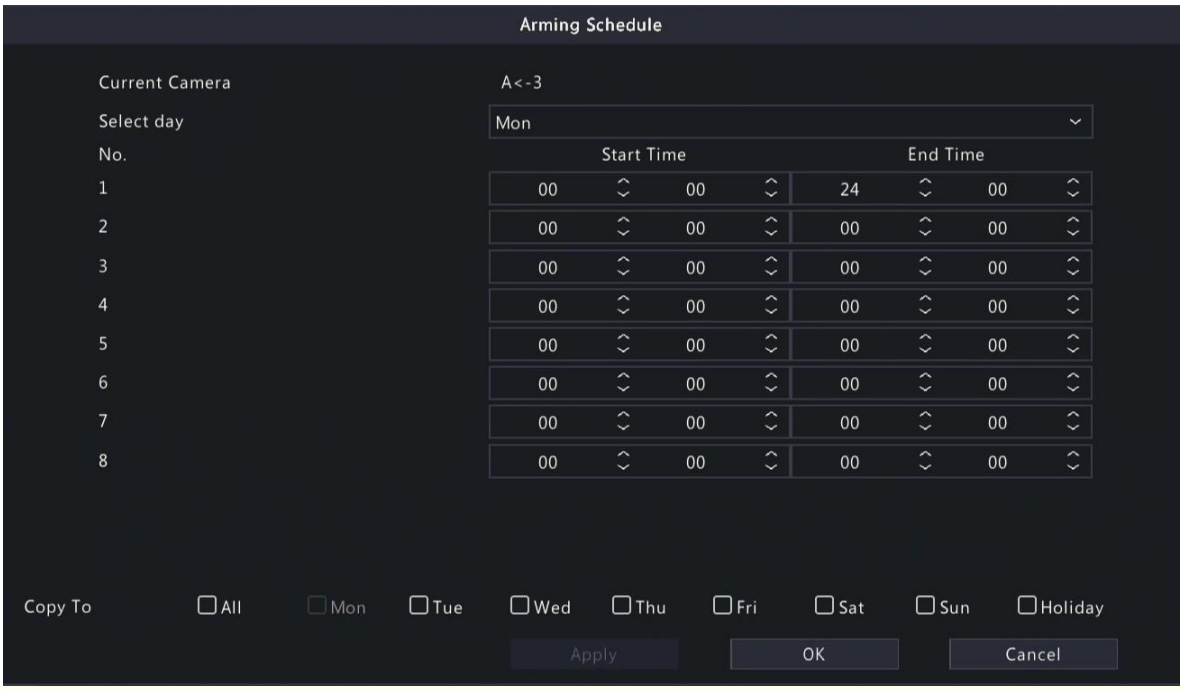
5.1.2 Arming Schedule

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

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



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



Note:

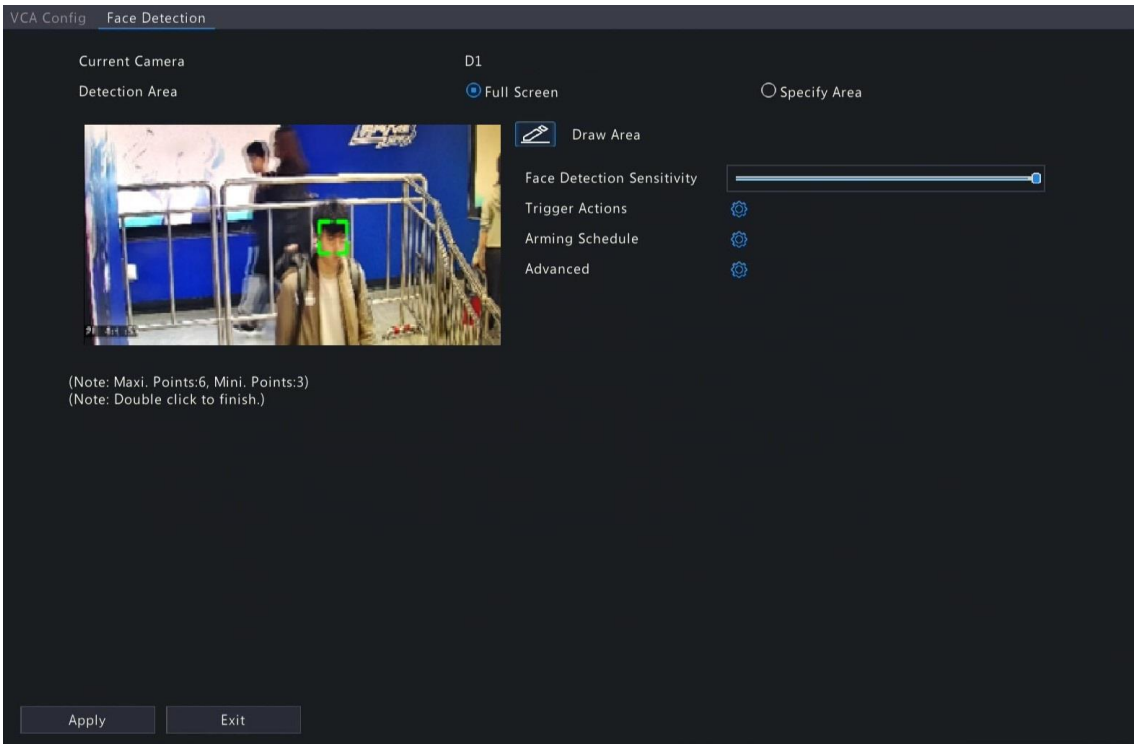
- Up to 4 or 8 time periods are allowed per day, and the time periods cannot overlap.
- (Optional) To apply the same schedule to other days, select the desired day(s) after **Copy To**.
- The number of arming time periods available varies by function.
- If a SIP camera is connected to the NVR and configured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

5.1.3 Face Detection

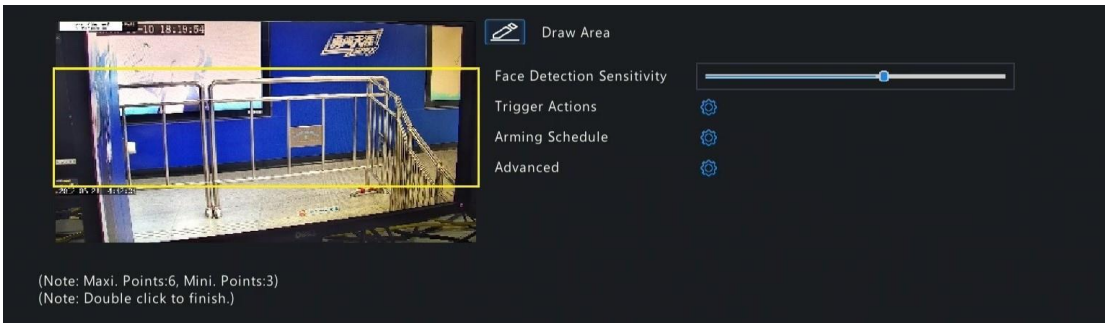
Face detection detects and captures faces in a specified detection area.

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

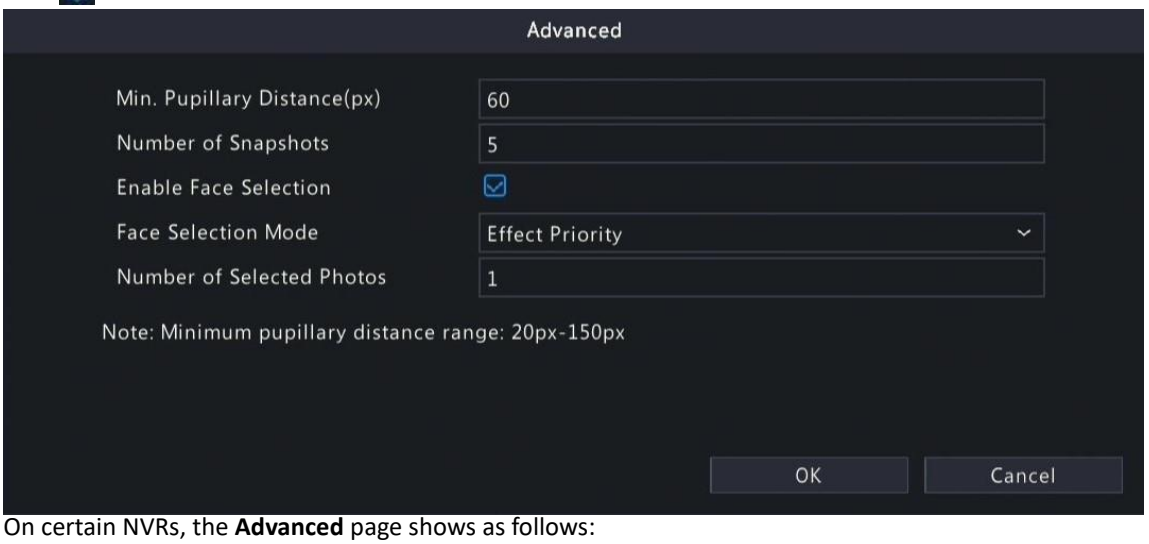
1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Face Detection** and click to configure it.



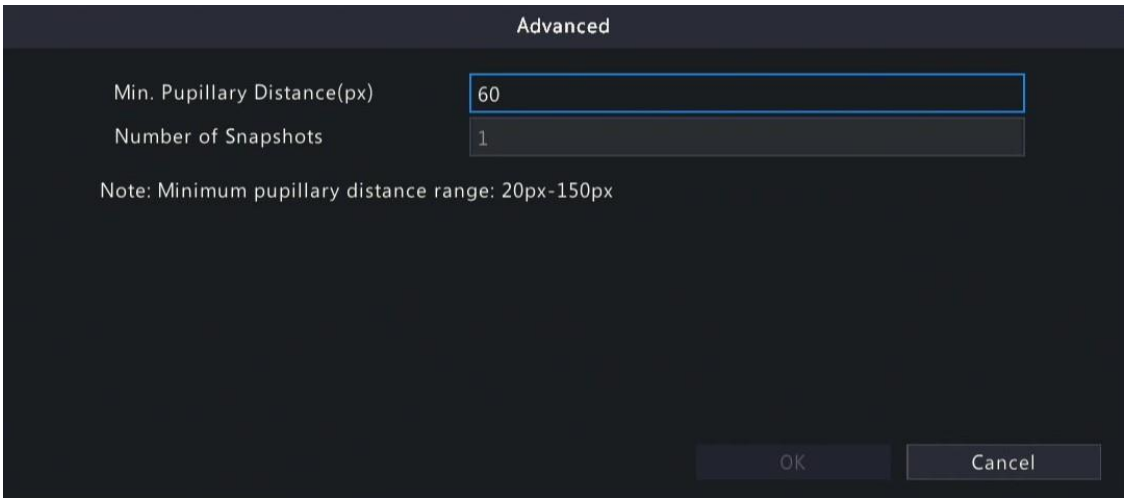
4. Set the detection area. Only 1 detection area is allowed.
   - Full Screen: Detects all faces in the live video.
   - Specify Area: Detects faces in a specified area of the live video. Select **Specify Area** and click , then a detection box appears in the left preview window. You can adjust the position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

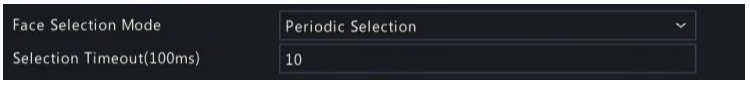


   - Adjust the position of the area. Point to a border of the area and drag it to the desired position.
   - Draw an area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed.
5. Set the face detection sensitivity 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**.



On certain NVRs, the **Advanced** page shows as follows:



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 NVR model.
Number of Snapshots	The number of snapshots to be captured when the detection rule is triggered. Range: 1 to 30. Default: 5.
Enable Face Selection	Select whether to select face snapshots to report.
Face Selection Mode	• Effect Priority: Set the **Number of Selected Photos**, then the NVR selects the specified number of snapshots with the best quality from all the snapshots captured when a face is detected to report. • Speed Priority: Set the **Number of Selected Photos** and **Selection Timeout**, then the NVR selects the specified number of snapshots from the moment that a face is detected till **Selection Timeout** is up to report. Range: 1 to 1800. • Periodic Selection: Set the **Selection Timeout**, for example, 600ms, then the NVR selects a face snapshot every 600ms to report. 
Number of Selected Photos	The number of face snapshots to be selected. Range: 1 to 3. This parameter is set to 1 by default and cannot be modified on certain models.
Max/Min Face Width(px)	The NVR only captures faces within **Min. Face Width** and **Max Face Width**. Range: 20 to 500.

8. Click **Apply**.

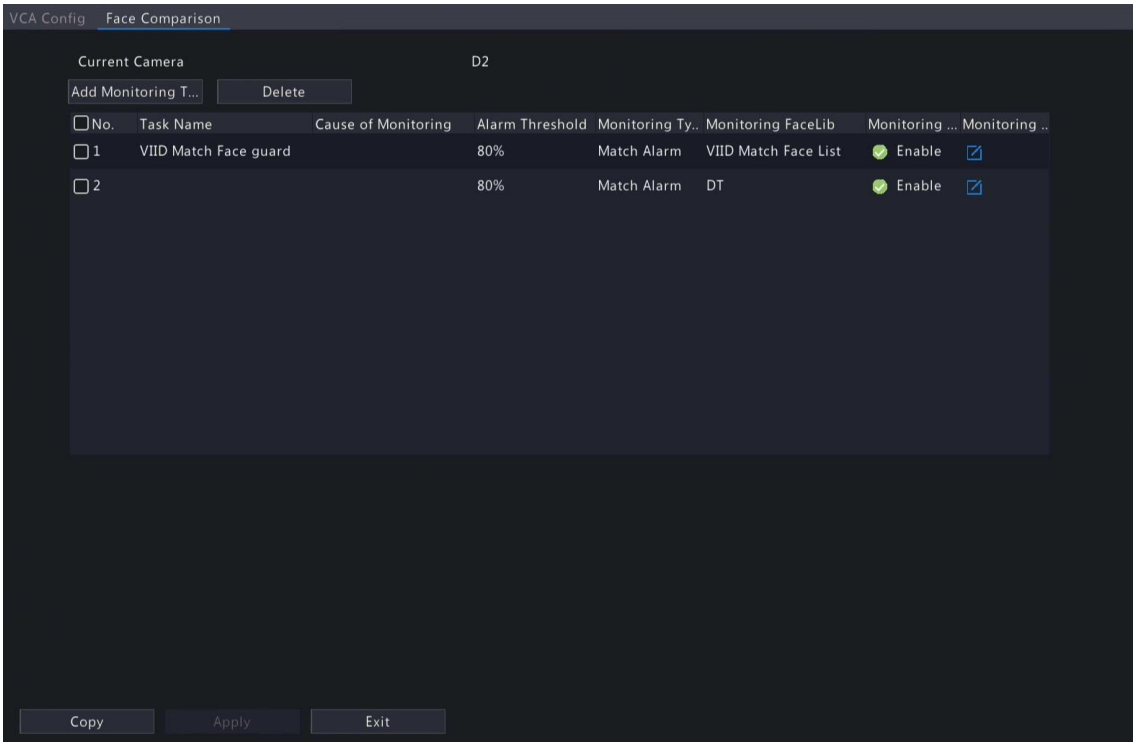
5.1.4 Face Comparison

Face comparison compares captured faces with face images in face libraries (also called face list). To use face comparison, you need to enable face detection first.

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

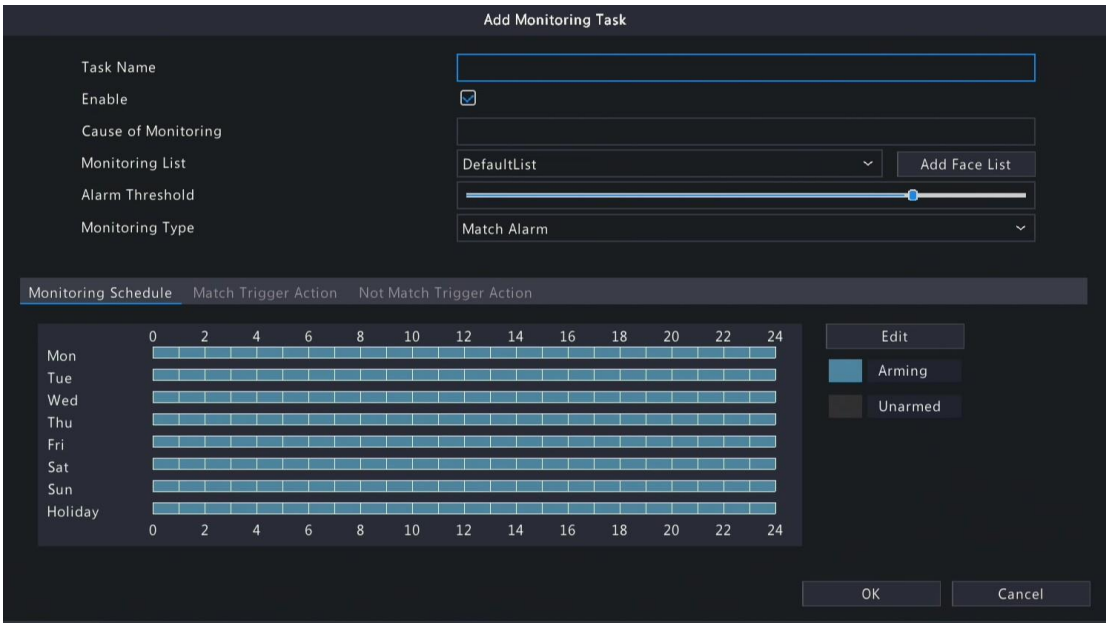
Configure Monitoring Task

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



4. Configure monitoring tasks. A monitoring task of "DefaultList 80% Match Alarm" is enabled by default. You can click to modify it, or click **Add Monitoring Task** to add more.

   (1) Click **Add Monitoring Task**.



   (2) Complete the monitoring task settings.

Parameter	Description
Task Name	Enter a name for the monitoring task.
Enable	Enable/disable the monitoring task.
Cause of Monitoring	Enter the cause of the monitoring task.
Monitoring List	Select a face list from the **Monitoring List** drop-down list or click **Add Face List** to create a face list to monitor.
Alarm Threshold	Set the alarm threshold by dragging the slider. The NVR takes snapshots when the similarity between a detected face and a face image in the monitoring list reaches the threshold. Default: 80. The higher the alarm threshold, the more accurate the matching result.

Parameter	Description
Monitoring Type	Select the monitoring type. • Match Alarm: A match alarm occurs when the similarity between a detected face and a face image in the monitoring list reaches the alarm threshold. • Not Match Alarm: A not match alarm occurs when the similarity between a detected face and a face image in the monitoring list fails to reach the alarm threshold. • All: An alarm occurs when a face is detected.
Monitoring Schedule	Set the monitoring schedule. See Recording Schedule for details.
Match Trigger Action	Set the actions to be triggered by a match alarm. See Alarm-triggered Actions for details.
Not Match Trigger Action	Set the actions to be triggered by a not match alarm. See Alarm-triggered Actions for details.

(3) Click **OK**.

5. (Optional) To apply the monitoring tasks to other cameras, click **Copy**, select the desired monitoring task(s) and camera(s), and then click **OK**.
6. Click **Apply**.

View Library Sync Status

This function is only available to cameras with face recognition support and camera side analysis enabled. Library sync indicates the sync of face libraries from NVR to IPC. After IPC receives a face list, it can compare the captured faces with the face images in the face list and upload the comparison results to NVR.

Click **Library sync state** to view the sync status of face lists and faces in the face lists from NVR to IPC. You may manually synchronize the face lists in **Not Started** state.

- View faces by status: Select a state from the **Sync Status** drop-down list to view faces in this state.
- Manually sync face lists: Select the face list to be synced and click **Manual sync**. If a face in a face list is not synced successfully, you can manually sync the face list.

Other Operations

Operation	Description
Delete	Delete the selected monitoring task(s).
/	Enable/disable the monitoring task.
	Edit the monitoring task.

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 Face for details.

5.1.5 Cross Line Detection

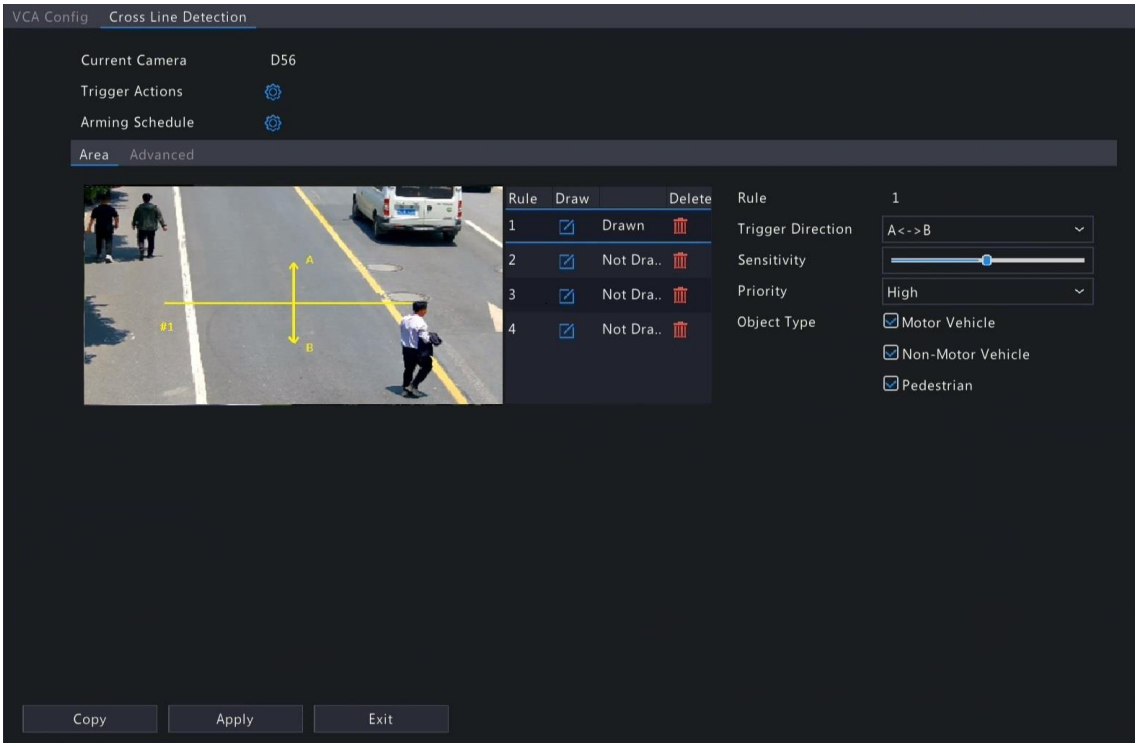
Cross line detection detects objects crossing a user-specified virtual line in a specified direction. The NVR takes snapshots and reports an alarm when the detection rule is triggered.

Note:

- Before you use camera side analysis, make sure an intelligent server with **Platform Communication Type** set to **LAPI** is enabled on the camera.
- The functions and parameters supported by camera side analysis and NVR side analysis are different.
- To perform this function on the camera side, enable **Intelligent Mark** under **Menu** > **System** > **Basic**.

Configure Cross Line Detection

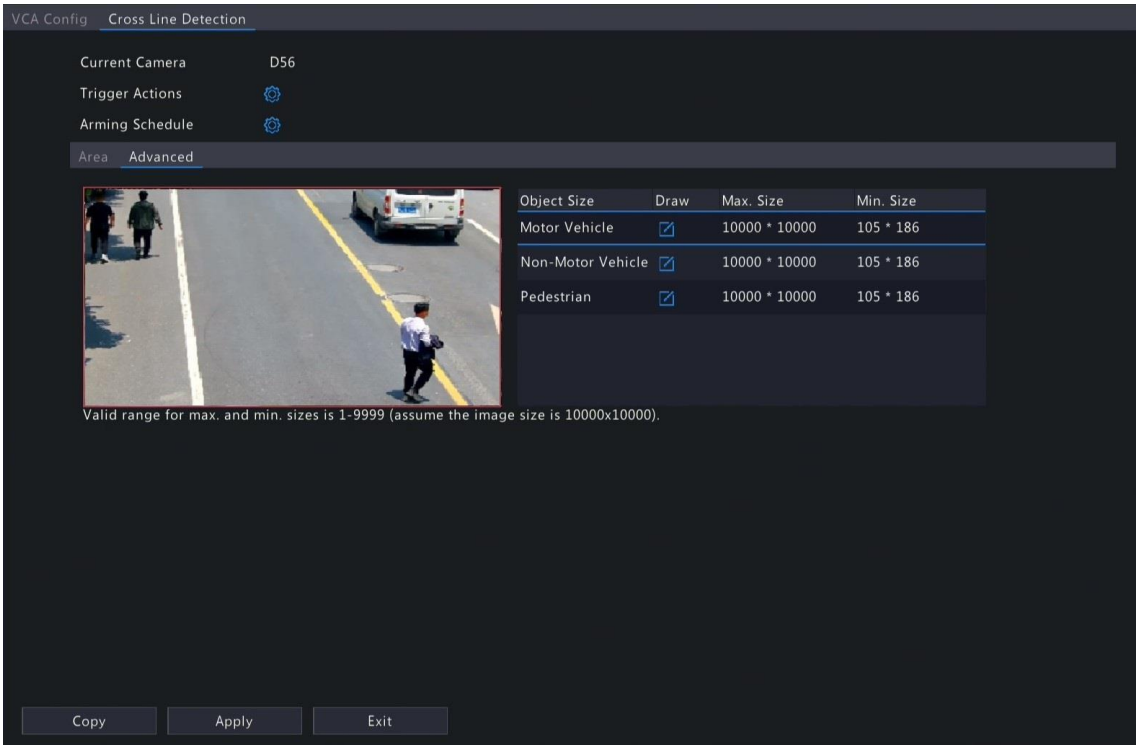
1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Cross Line Detection** and click to configure it.



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 NVR detects the rule that is triggered first by default. If multiple rules are triggered at the same time, the NVR 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 Intrusion Detection

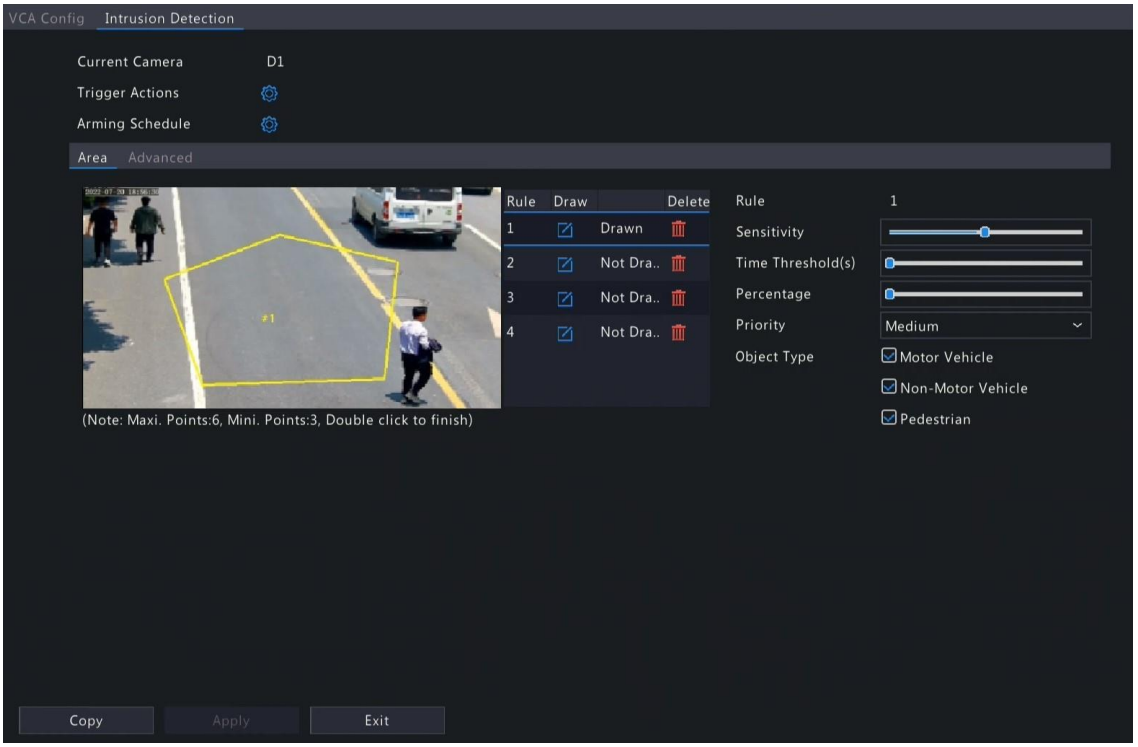
Intrusion detection detects objects entering a user-specified area and staying for a preset time. The NVR takes snapshots and reports an alarm when the detection rule is triggered.

Note:

- Before you use camera side analysis, make sure an intelligent server with **Platform Communication Type** set to **LAPI** is enabled on the camera.
- The functions and parameters supported by camera side analysis and NVR side analysis are different.
- To perform this function on the camera side, enable **Intelligent Mark** under **Menu** > **System** > **Basic**.

Configure Intrusion Detection

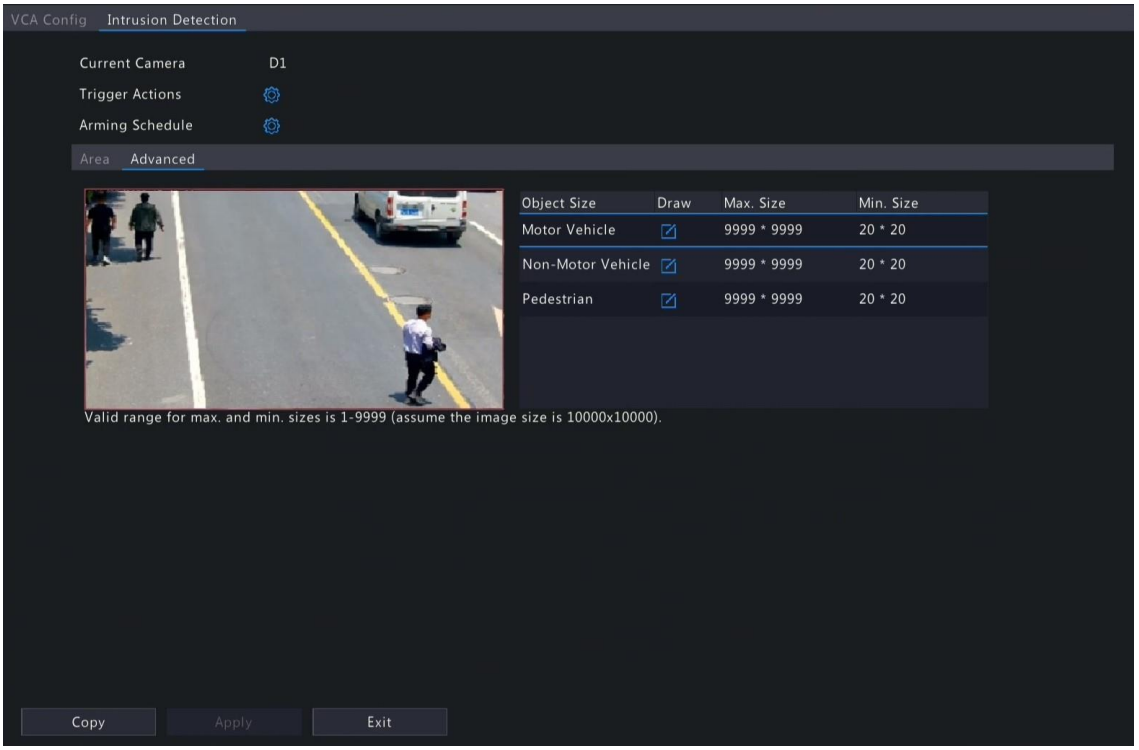
1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Intrusion Detection** and click to configure it.



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 NVR detects the rule that is triggered first by default. If multiple rules are triggered at the same time, the NVR 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 Enter Area Detection

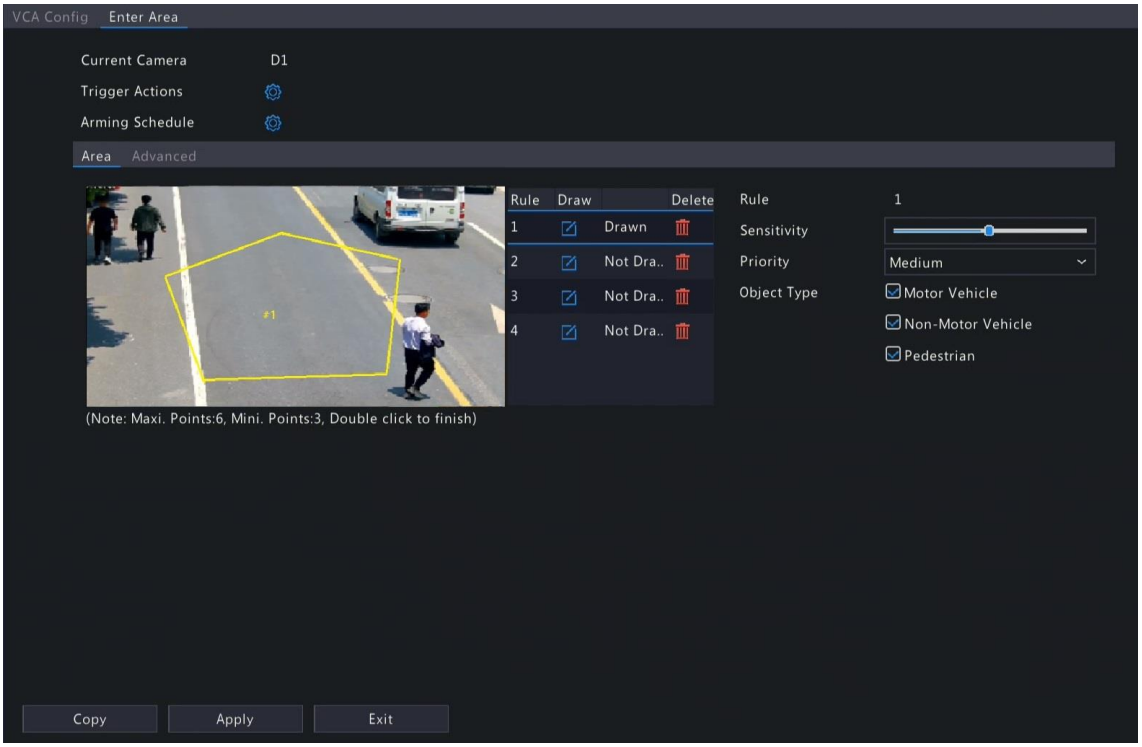
Enter area detection detects objects entering a user-specified area. The NVR takes snapshots and reports an alarm when the detection rule is triggered.

Note:

- Before you use camera side analysis, make sure an intelligent server with **Platform Communication Type** set to **LAPI** is enabled on the camera.
- The functions and parameters supported by camera side analysis and NVR side analysis are different.
- To perform this function on the camera side, enable **Intelligent Mark** under **Menu** > **System** > **Basic**.

Configure Enter Area Detection

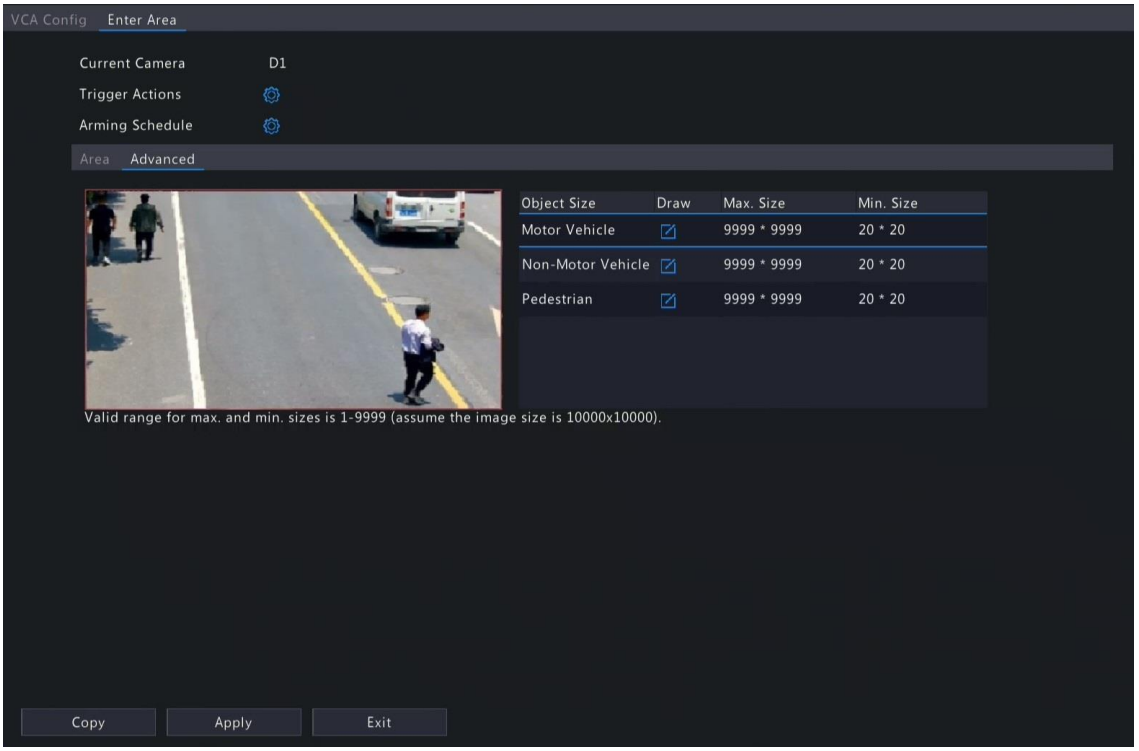
1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Enter Area** and click to configure it.



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 NVR detects the rule that is triggered first by default. If multiple rules are triggered at the same time, the NVR 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 Leave Area Detection

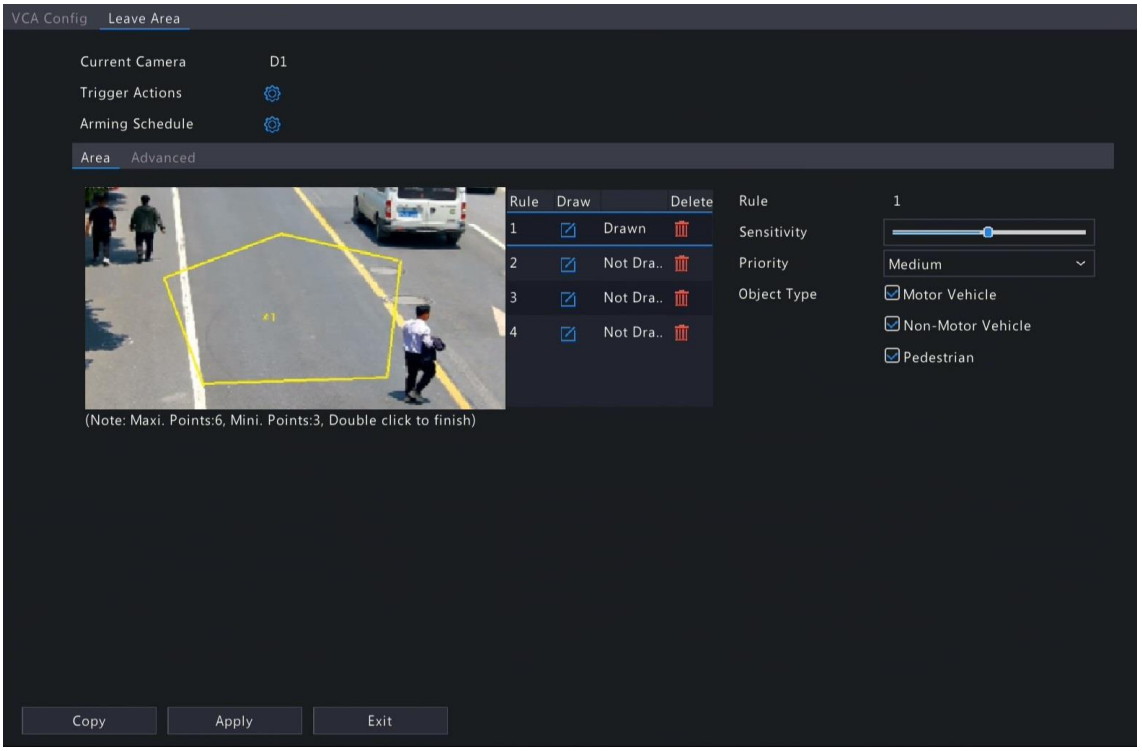
Leave area detection detects objects leaving a user-specified area. The NVR takes snapshots and reports an alarm when the detection rule is triggered.

Note:

- Before you use camera side analysis, make sure an intelligent server with **Platform Communication Type** set to **LAPI** is enabled on the camera.
- The functions and parameters supported by camera side analysis and NVR side analysis are different.
- To perform this function on the camera side, enable **Intelligent Mark** under **Menu** > **System** > **Basic**.

Configure Leave Area Detection

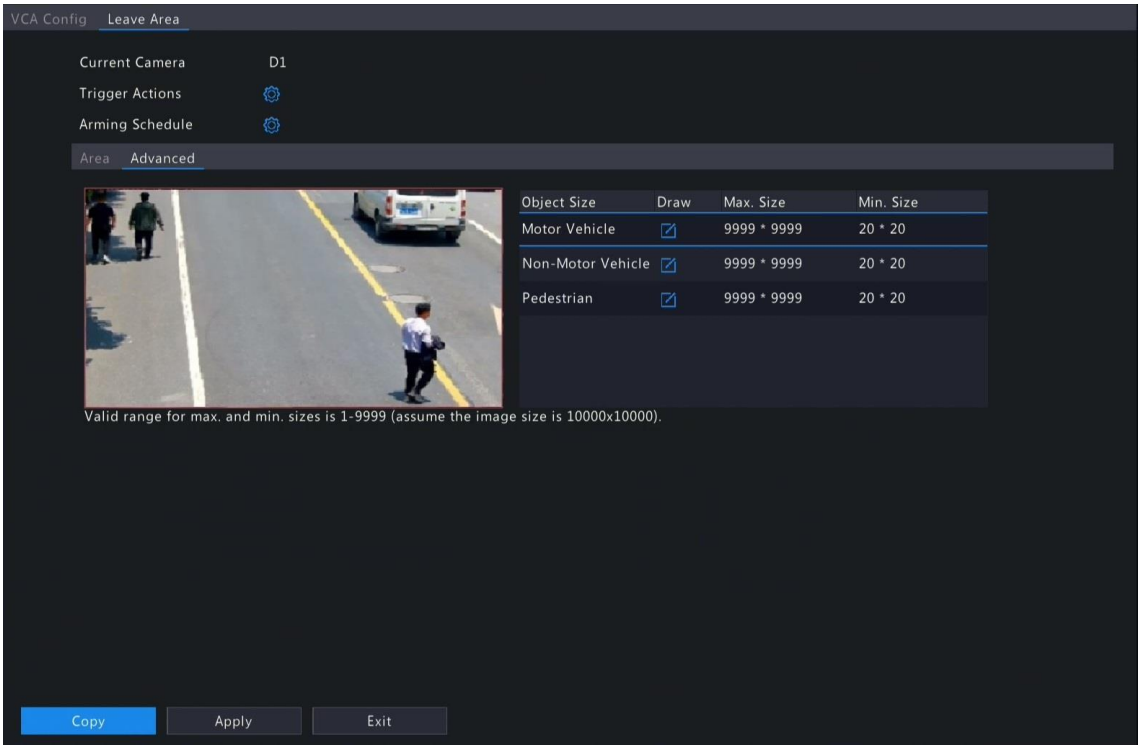
1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Leave Area** and click to configure it.



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 NVR detects the rule that is triggered first by default. If multiple rules are triggered at the same time, the NVR 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.

5.1.9 Ultra Motion Detection

Ultra motion detection detects motions of motor vehicles or pedestrians in a user-specified area. The NVR takes snapshots and reports an alarm when the detection rule is triggered.

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Ultra Motion 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.

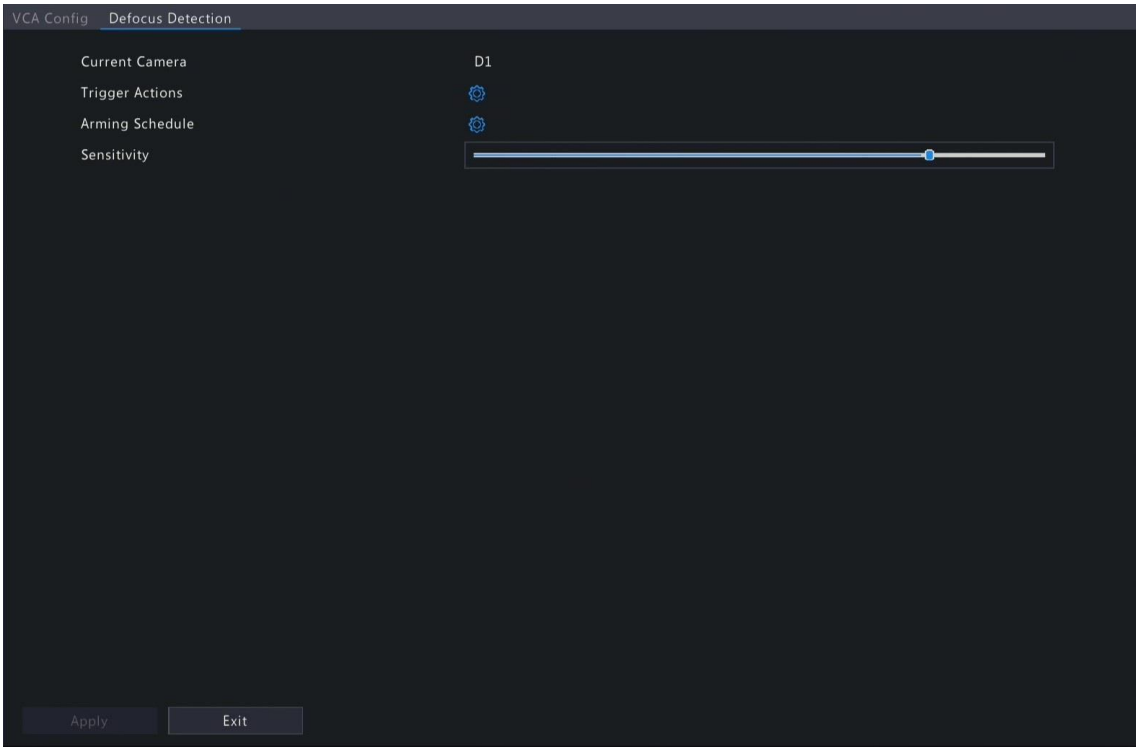
Parameter	Description
Detection Area	Select Rule 1, click , and then draw a detection area in the left preview window.
Sensitivity	Set the detection sensitivity by dragging the slider. The higher the sensitivity, the more likely motions will be detected, but the false alarm rate will increase.
Min. Alarm Interval(s)	Set the minimum alarm interval by dragging the slider. When a pedestrian or motor vehicle enters the detection area, an alarm is triggered and reported immediately, and a new alarm will only be reported after the set interval. Recommended value: 6s.
Snapshot Object	Select the snapshot object(s), including **Motor Vehicle** and **Pedestrian**.

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

5.1.10 Defocus Detection

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

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

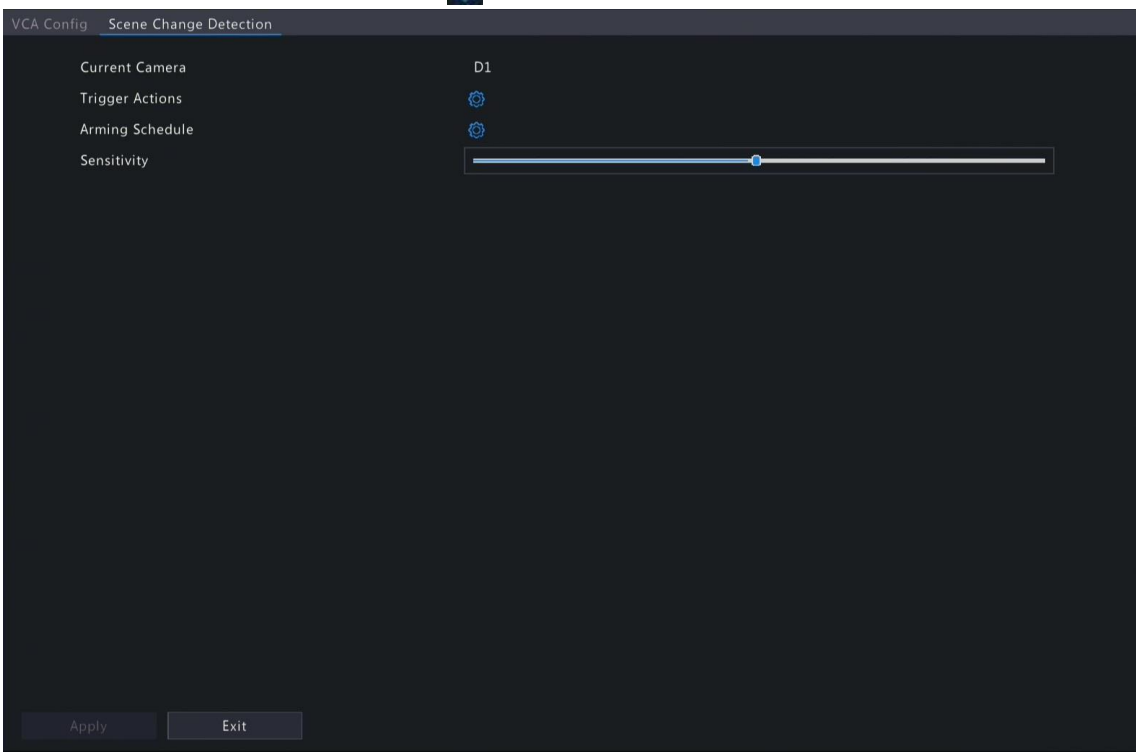


4. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
5. Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely defocus will be detected, but the false alarm rate will increase.
6. Click **Apply**.

5.1.11 Scene Change Detection

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

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



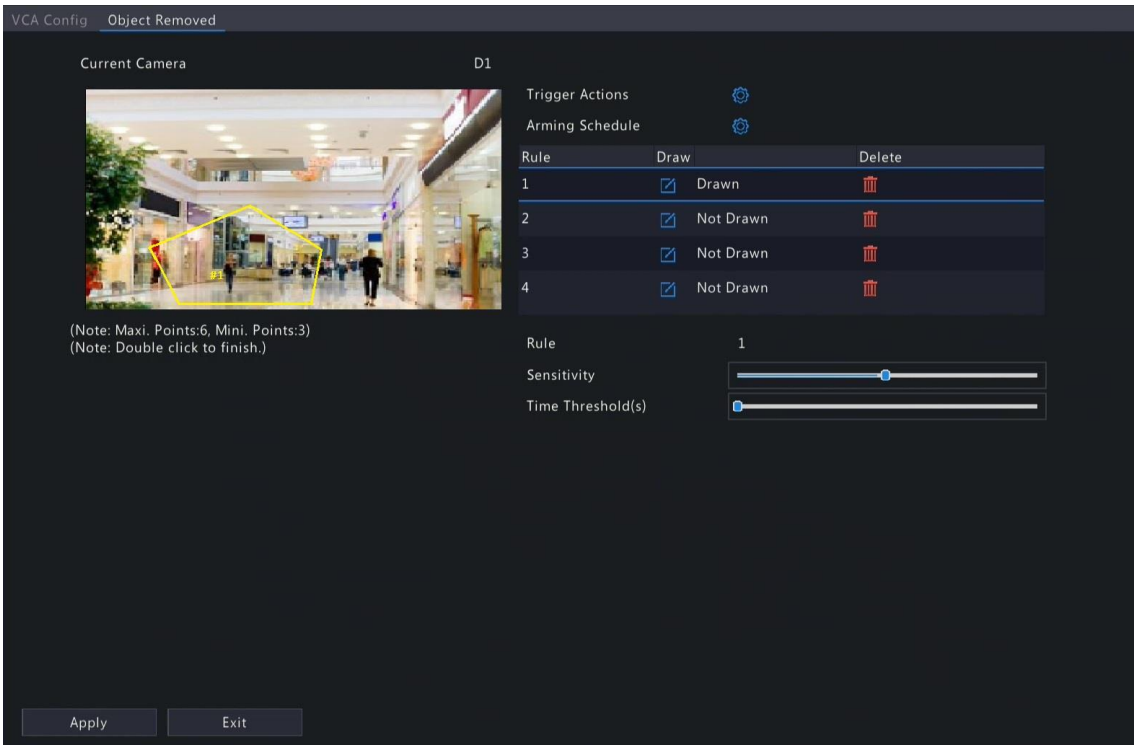
4. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.

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**.

5.1.12 Object Removed Detection

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

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.

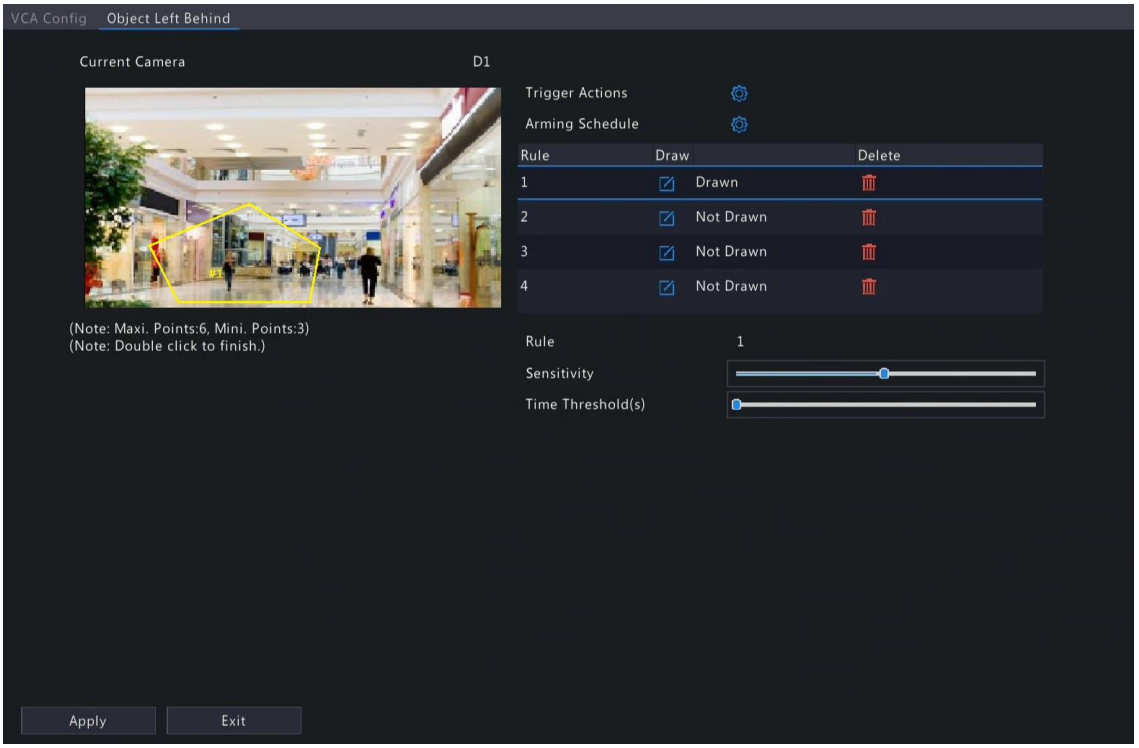
5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Apply**.

5.1.13 Object Left Behind Detection

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

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.

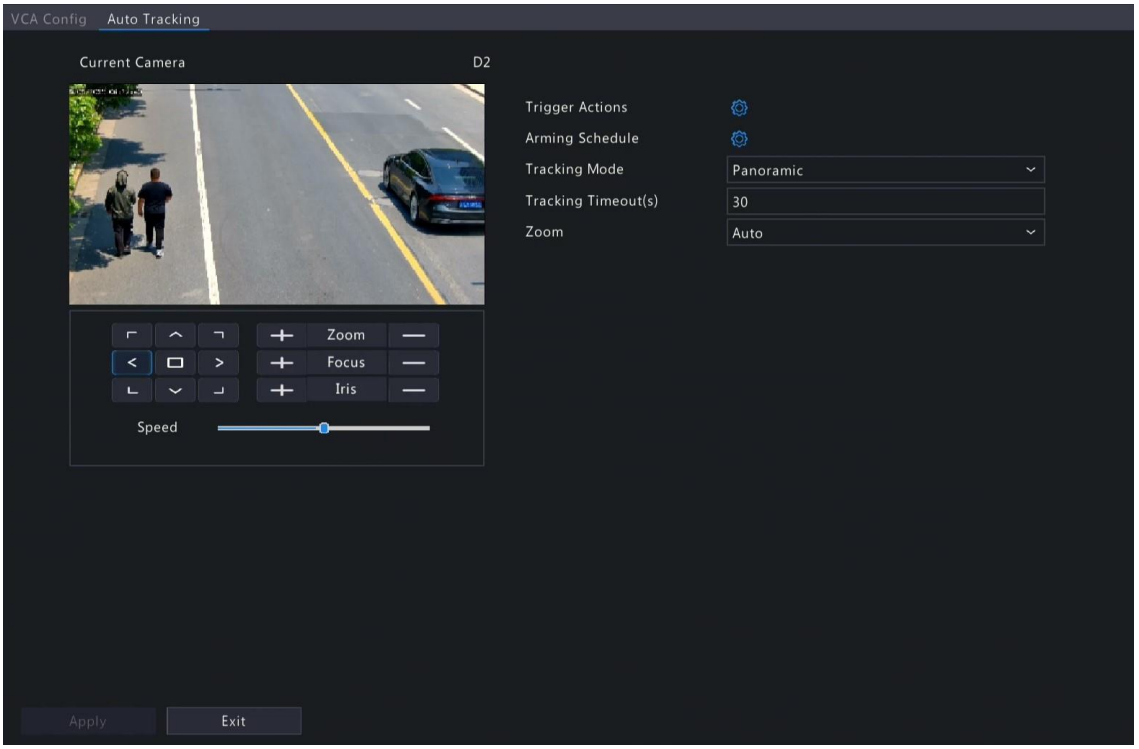
Parameter	Description
Detection Area	Select Rule 1, click , and then draw a detection area in the left preview window. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. **Note:** For a rule in **Drawn** state, 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**.

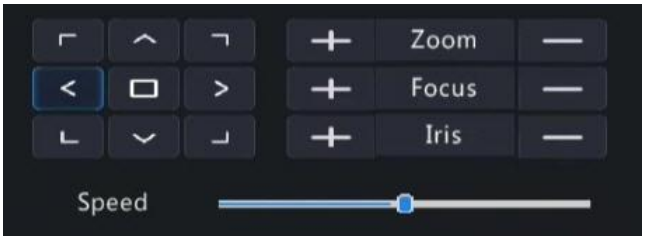
5.1.14 Auto Tracking

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

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.

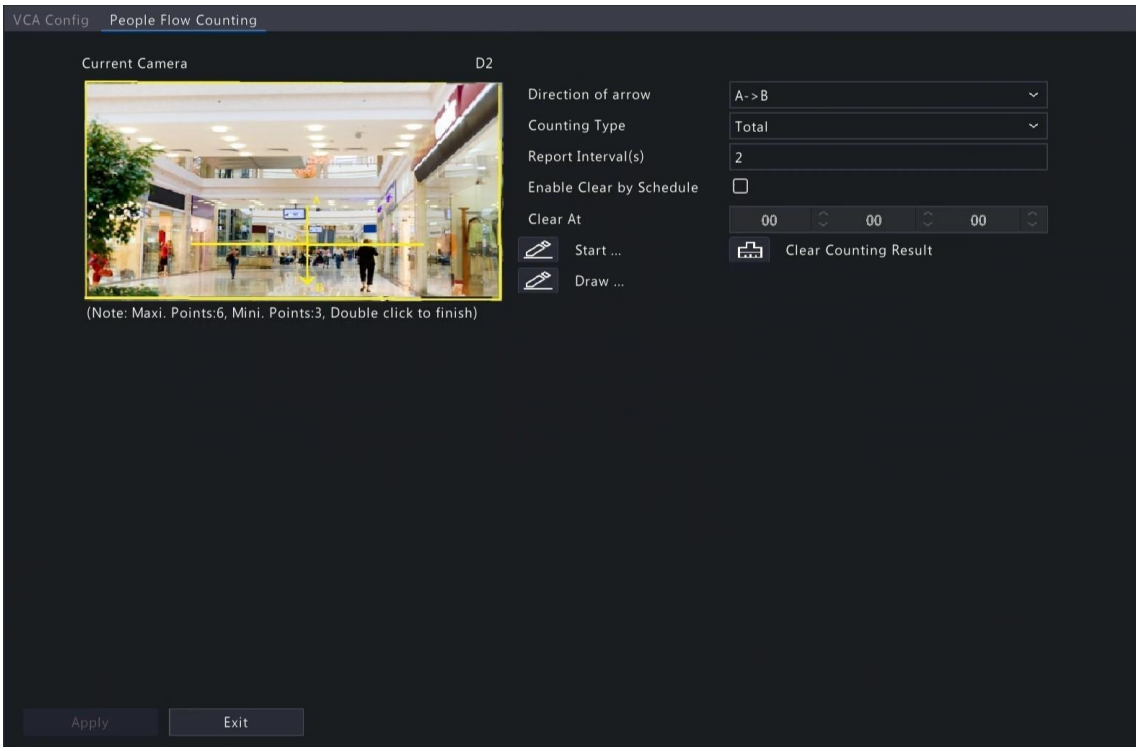
5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Apply**.

5.1.15 People Flow Counting

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

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 NVR 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 NVR 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**.

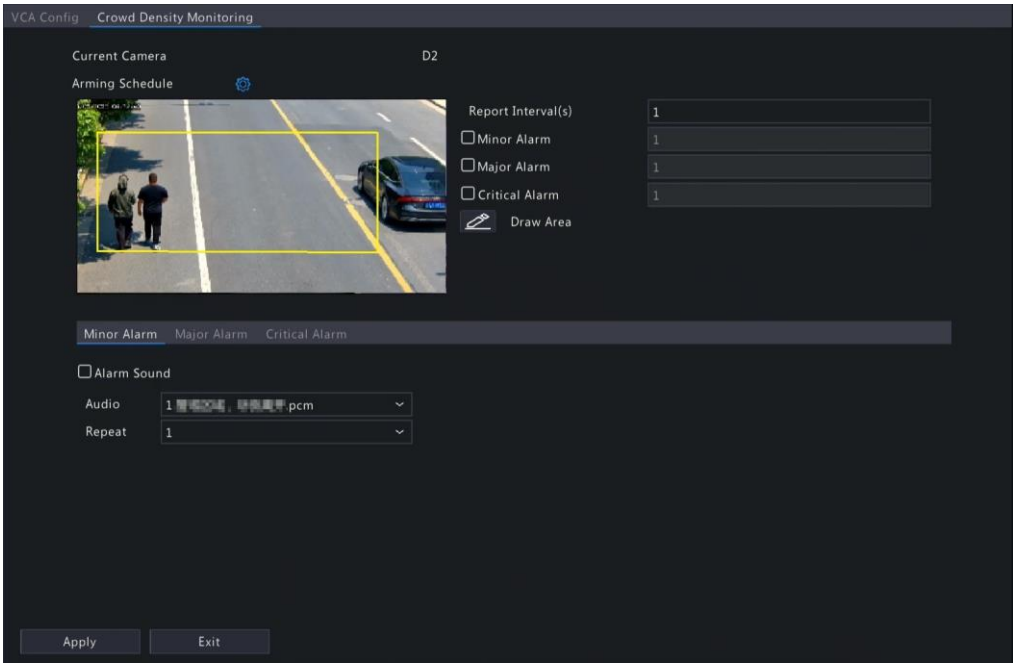
View Real-time Statistics

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.

5.1.16 Crowd Density Monitoring

Crowd density monitoring monitors the number of people in a specified area and triggers an alarm if the number exceeds the set alarm threshold.

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Crowd Density Monitoring** and click to configure it.



4. Set the crowd density monitoring rule.

Parameter	Description
Detection Area	A detection box is displayed in the left preview window by default. You can adjust the position of it or draw an area as needed. Only 1 detection area is allowed. • Adjust the position of the default detection area: Point to a border of the area and drag it to the desired position. • Draw an area: Click . 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.
Report Interval(s)	Set the time interval for reporting crowd density statistics. Default: 60. Range: 1 to 60.

Parameter	Description
	The device reports crowd density statistics to the uplink platform at set intervals. The uplink platform must subscribe to the function to receive the statistics.
Minor Alarm	A minor alarm is triggered when the number of people in the specified area reaches the set value. Select the **Minor Alarm** check box and set the number of people to trigger minor alarms. Range: 1 to 40.
Major Alarm	A major alarm is triggered when the number of people in the specified area reaches the set value. The value of major alarm must be greater than that of minor alarm. Select the **Major Alarm** check box and set the number of people to trigger major alarms. Range: 1 to 40.
Critical Alarm	A critical alarm is triggered when the number of people in the specified area reaches the set value. The value of critical alarm must be greater than that of major alarm. Select the **Critical Alarm** check box and set the number of people to trigger critical alarms. Range: 1 to 40.

5. Enable **Alarm Sound** for minor alarm, major alarm, and critical alarm, set the alarm audio and playback times, then the camera will play the alarm audio when an alarm occurs.
6. Set the arming schedule. See Arming Schedule for details.
7. Click **Apply**.

5.2 Analyzer Configuration

View the analyzer usage and change the analysis mode.

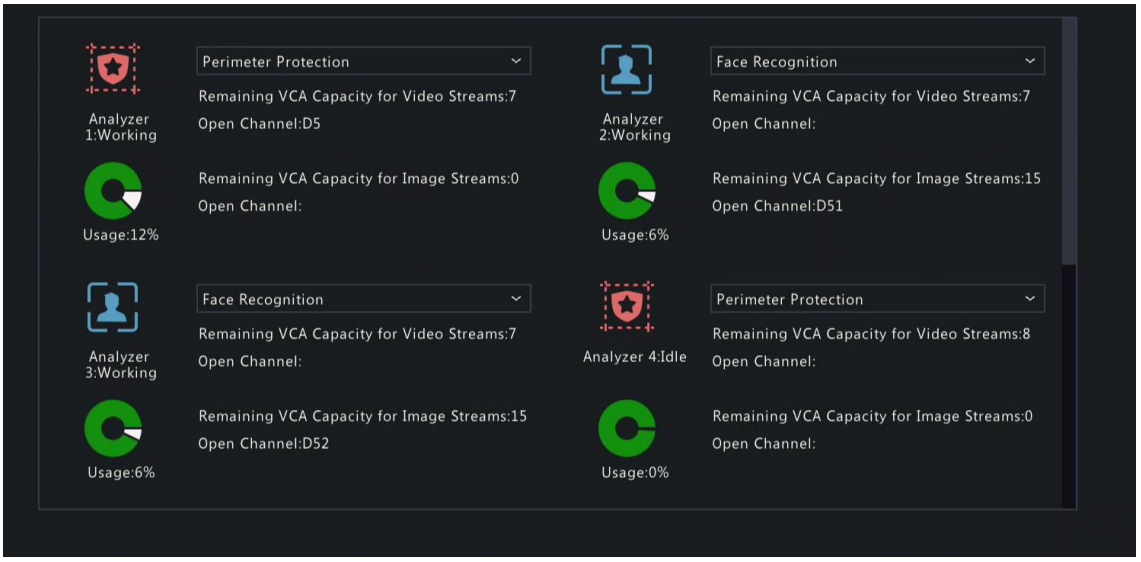
Analyzer is a smart chip used to process face recognition and perimeter protection. The analyzer capacity varies by NVR model, which requires you to allocate channels appropriately.

Note: An analyzer can only be used for one type of VCA-**Face Recognition** or **Perimeter Protection**.

1. Go to **Menu** > **VCA** > **Analyzer Config**.
2. Select an analysis mode. **Face Recognition** 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 intrusion detection is enabled for D1 and D2, you need to disable intrusion detection for D1 and D2 first before changing the analysis mode to face recognition.
   - If face recognition or perimeter protection cannot be enabled on the NVR, check the analyzer configuration first. If the analysis mode of all four analyzers is face recognition, all NVR perimeter protection functions cannot be enabled unless you set the mode of one analyzer to perimeter protection.
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-side analysis, and image stream analysis is camera-side analysis.

   The settings shown in the figure above means: The NVR has 4 analyzers. Analyzer 3 has been used for 1 video stream channel and 1 image stream channel, and can be used for 7 video stream channels or 15 image stream channels.



5.3 Face List Management

Import face images so the NVR can compare the detected faces with the imported face images.

5.3.1 Face List

Configure face lists for face comparison.

Configure Face List

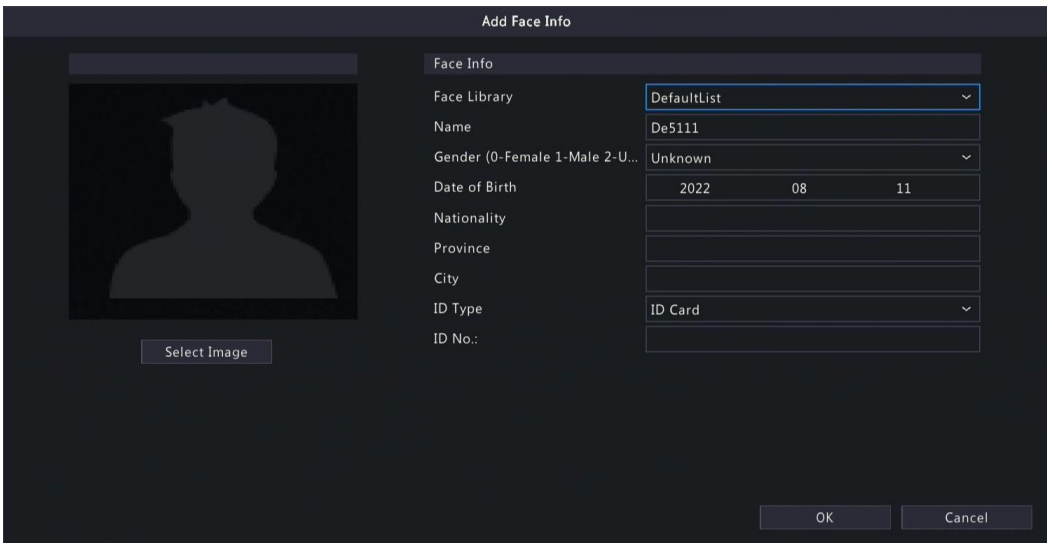
1. Go to **Menu** > **VCA** > **VCA Search** > **List Management** > **Face List**.

2. Configure face lists. A face list is created by default. Up to 128 face lists are allowed.

Parameter	Description
	(1) Click to add a face list. (2) Enter the list name.

Parameter	Description
	(3) (Optional) Select the **Set as Dynamic Library** check box to set the face list as a dynamic list. The captured face images that do not match any face image in face lists will be automatically added to the dynamic list. **Note:** • If there is no dynamic face list, you can add a new face list and set it as a dynamic list. You can only configure a dynamic list while adding a face list. • Only 1 dynamic list is allowed. To change the dynamic list, you need to delete the original dynamic list and add a new one. (4) Click **OK**.
	Delete the selected face list(s). **Note:** Deleting a face list will also delete its related historical alarm records. Please handle with caution.
/	Click to edit the face list. You can only edit the list name. indicates that the face list cannot be edited.
/	indicates that the face list is a dynamic list. indicates that the face list is not a dynamic list.
/	Click / to enable/disable **Auto Snapshot to Library**.

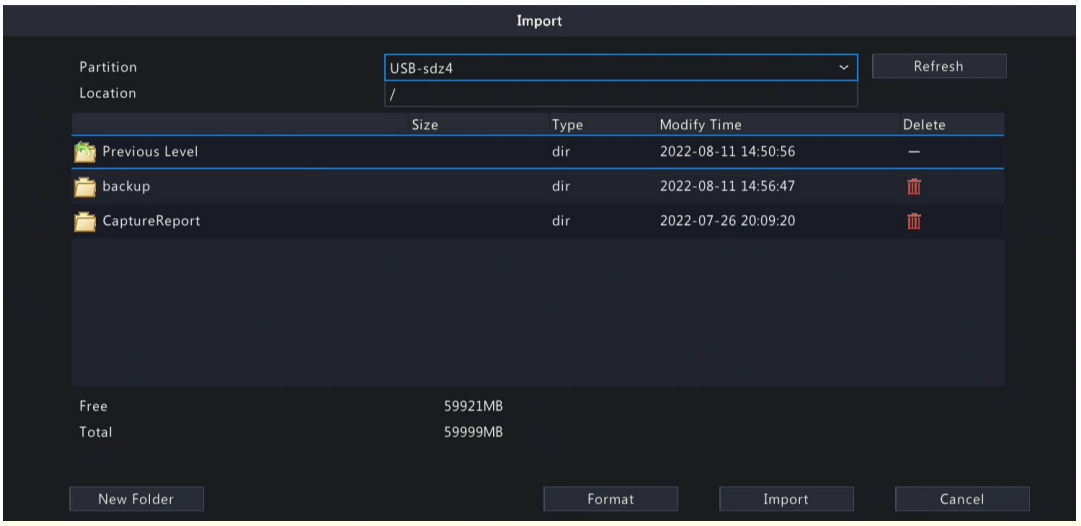
3. Import face images. You can import one by one or in batches.
   - Import one by one
     (1) Click **Add**.



     (2) Click **Select Image** to import the desired face image.
     (3) Complete the face information including face library, name, gender, date of birth, nationality, province, city, ID type and ID number.
     (4) Click **OK**.
   - Import in batches
     (1) Click **Export Template**.
     (2) Select the location to save the template and click **Backup**.

     Note: You can export the template to an external storage device (connect a storage device to the NVR) or a PC (log in to the NVR's web interface, go to **Smart** > **List Management** > **Face List**, click **DefaultList**, and then click **Export Template**).

     (3) Complete the template with reference to the import guide.
     (4) Click **Import**, select the template, and click **Import**.



Note: The number of images allowed for a file depends on the library capacity of the device.

Other Operations

Parameter	Description
Search	1. Set search conditions. Status All Name: Search Reset • Select the modeling state: **All**, **Modeled**, **Modeling Failed**, **Modeling**, or **Not Modeled**. • Select **Name** or **ID No.** and enter the name or ID number to search. 2. Click **Search**. 3. To clear the search conditions, click **Reset**.
Edit	Select a face image and click **Edit** to modify its information.
Model	Model face images in **Not Modeled** or **Modeling Failed** status.
Export Selected	Export the selected face image(s).
Export All	Export all face images in the selected face list.

5.4 Vehicle Monitoring

Search images related to vehicle monitoring events. Before you start,

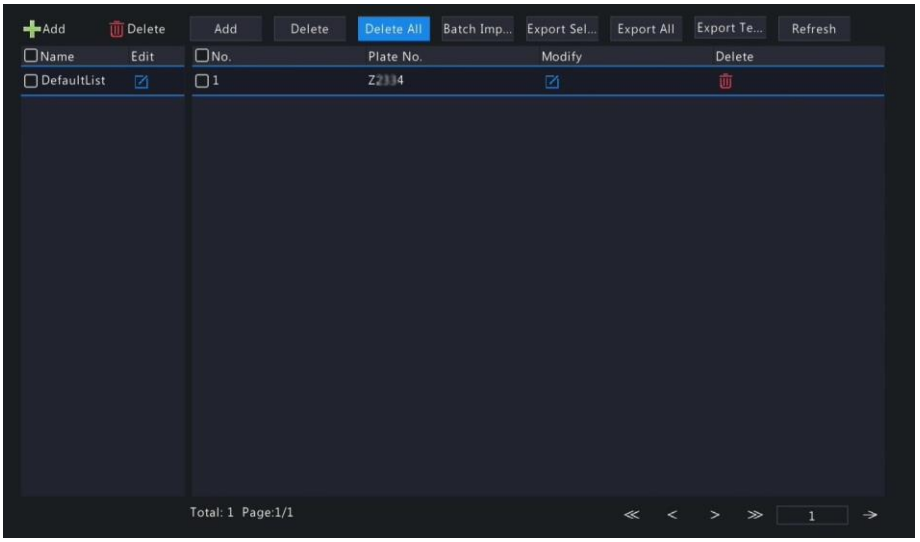
1. Configure VIID. See Configure VIID Local for details.
2. Configure plate lists. See Plate List for details.
3. Configure vehicle alarm monitoring. See Vehicle Alarm Monitoring for details.

5.4.1 Plate List

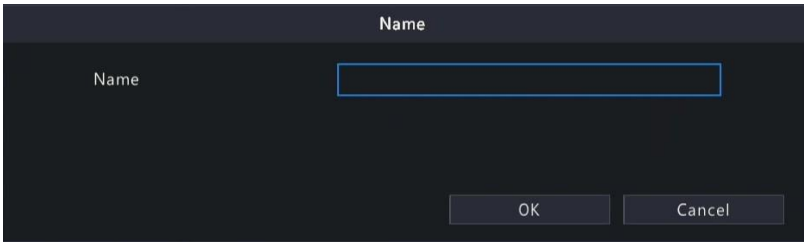
Configure plate lists for vehicle monitoring.

Configure Plate List

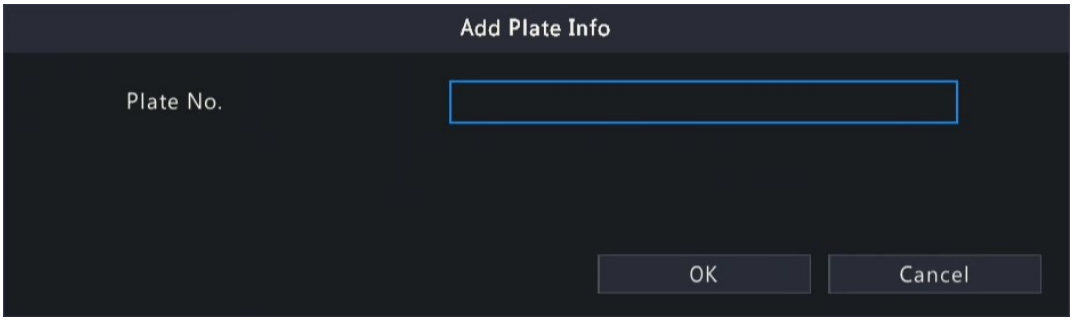
1. Go to **Menu** > **VCA** > **VCA Search** > **Vehicle Control** > **Plate List**.



2. Configure plate lists. A plate list is created by default. You can add more as needed.

Parameter	Description
Add	Click , enter the list name, and click **OK**. 
Delete	Select the list(s) you want to delete and click .
Edit	Click to modify the list name.

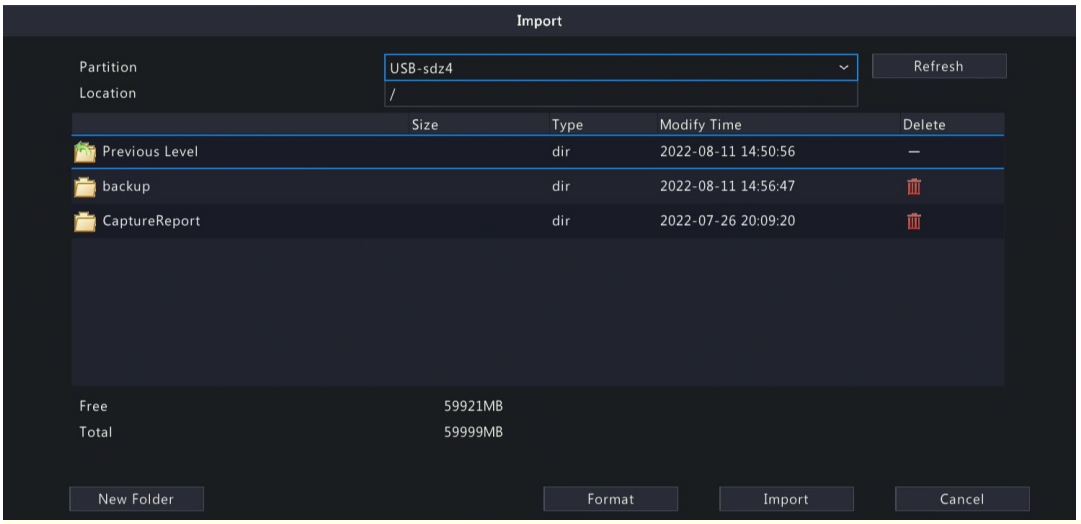
3. Add plate numbers. You can add one by one or in batches.
   - Add one by one
     (1) Click **Add**.



     (2) Enter the plate number.
     (3) Click **OK**.
   - Add in batches by importing a file
     (1) Click **Export Template**.
     (2) Select the location to save the template and click **Backup**.

     Note: You can export the template to an external storage device (connect a storage device to the NVR) or a PC (log in to the NVR's web interface, go to **Smart** > **Vehicle Control** > **Plate List**, click **DefaultList**, and then click **Export Template**).

     (3) Complete the template with reference to the import guide.
     (4) Click **Batch Import**, select the template, and click **Import**.



Note: A progress bar is displayed during import. The import result will be displayed when the progress bar shows 100%.

Other Operations

Parameter	Description
	Delete a specific plate number.
Delete	Delete selected plate number(s).
Delete All	Delete all plate numbers in the selected plate list.
	Modify the plate number.
Export Selected	Export the selected plate number(s).
Export All	Export all plate numbers in the selected plate list.
Refresh	Refresh the plate list.

View Real-time Snapshots

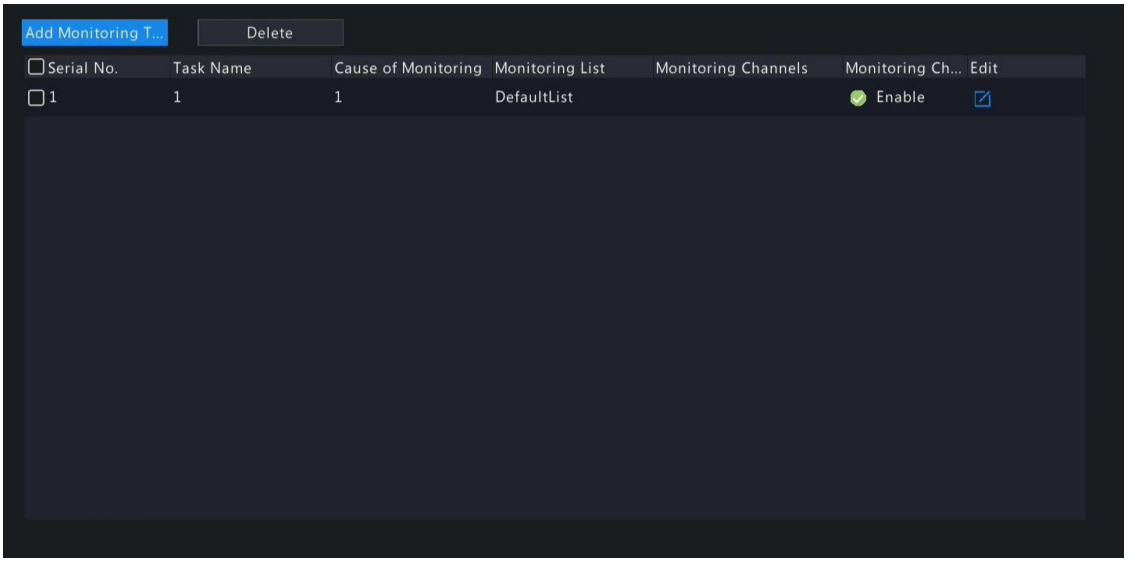
1. Right-click on the live view page and select **Preview Mode** > **Smart**, then the real-time vehicle snapshots are shown on the right.
2. Click a snapshot to view detailed information. See Vehicle for details.

5.4.2 Vehicle Alarm Monitoring

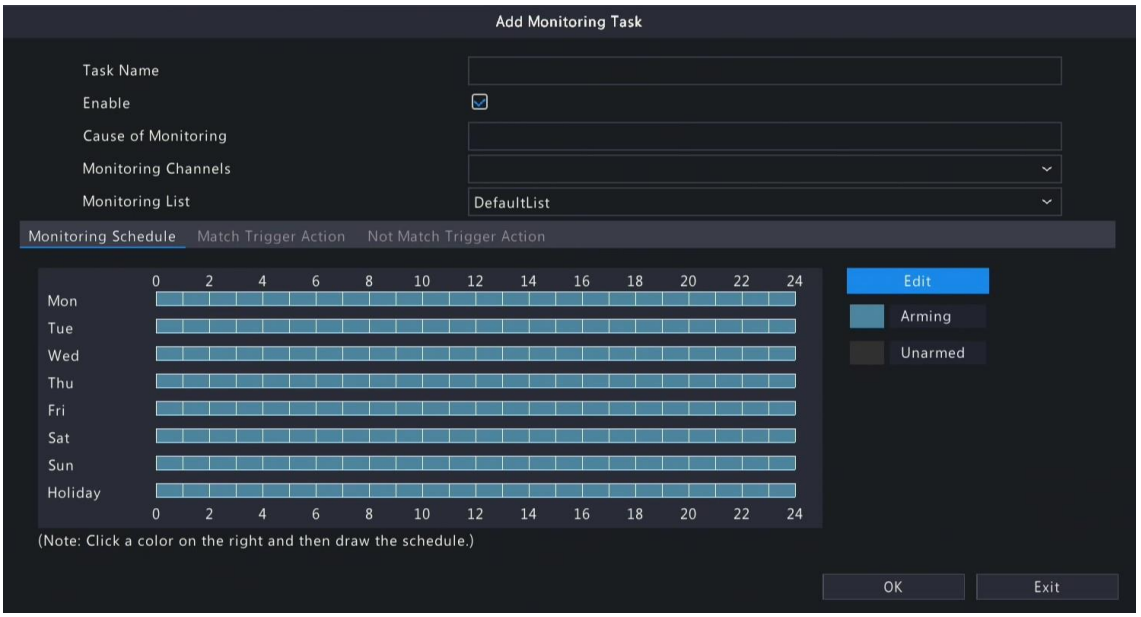
Configure vehicle monitoring tasks so that the NVR can report alarms according to the matching result of the captured plate numbers and the plate numbers in plate lists.

Configure Vehicle Monitoring Task

1. Go to **Menu** > **VCA** > **VCA Search** > **Vehicle Control** > **Vehicle Alarm Control**.



2. Click **Add Monitoring Task**.



3. Complete the monitoring task settings.

Parameter	Description
Task Name	Enter a name for the monitoring task.
Enable	Enable/disable the monitoring task.
Cause of Monitoring	Enter the cause of the monitoring task.
Monitoring Channels	Select the channel(s) to monitor.
Monitoring List	Select the plate list to monitor. Only 1 plate list is allowed.
Monitoring Schedule	Set the monitoring schedule as needed. See Recording Schedule for details.
Match Trigger Action	Set the action(s) to be triggered when a captured plate number matches a plate number in the monitoring list. See Alarm-triggered Actions for details.
Not Match Trigger Action	Set the action(s) to be triggered when a captured plate number does not match any plate number in the monitoring list. See Alarm-triggered Actions for details.

4. Click **OK**.

Other Operations

Operation	Description
Delete	Delete the selected monitoring task(s).
/	Enable/disable the monitoring task.
	Edit the monitoring task.

5.5 VCA Search

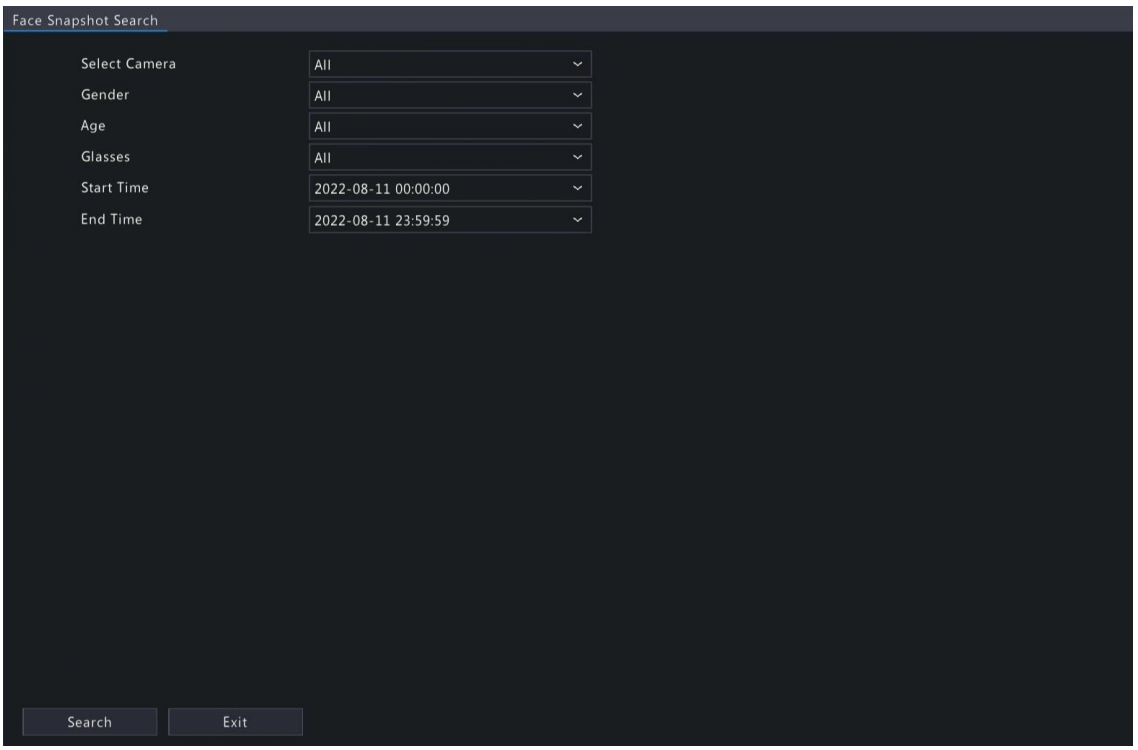
Search for face snapshots, face comparison results, vehicle snapshots, VCA event snapshots and people counting statistics.

5.5.1 Face Snapshot Search

Search for face snapshots.

Search Face Snapshots

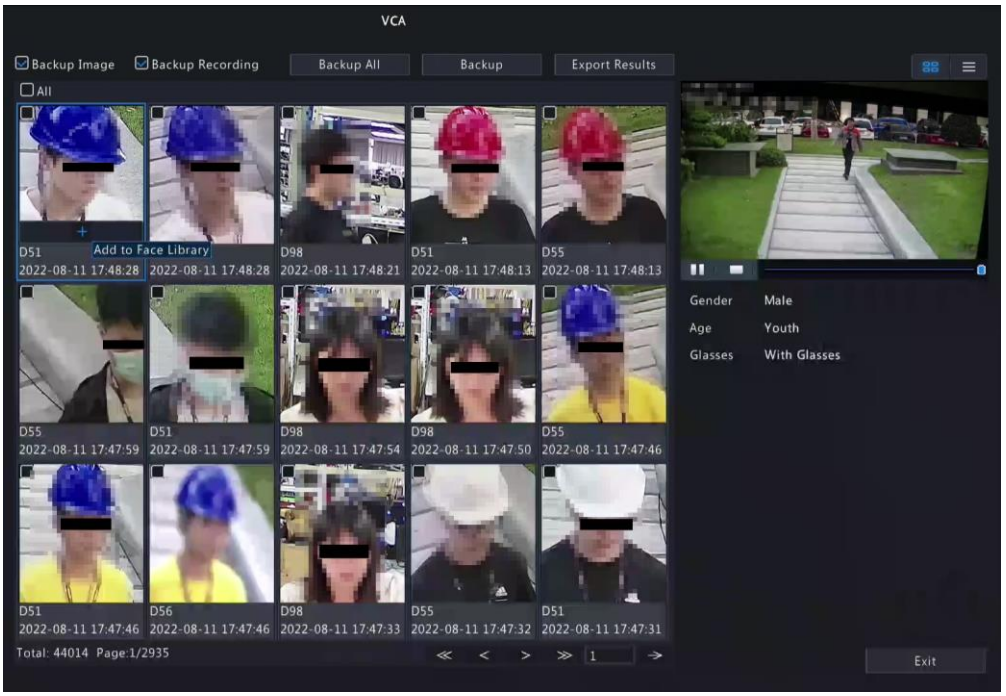
1. Go to **Menu** > **VCA** > **VCA Search** > **Face Snapshot Search**.



2. Set search conditions.

Parameter	Description
Select Camera	Select the camera(s) to search.
Gender	Select the gender: **All**, **Male** or **Female**.
Age	Select the age: **All**, **Childhood**, **Teenager**, **Youth**, **Middle Age**, or **Senior**.
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.

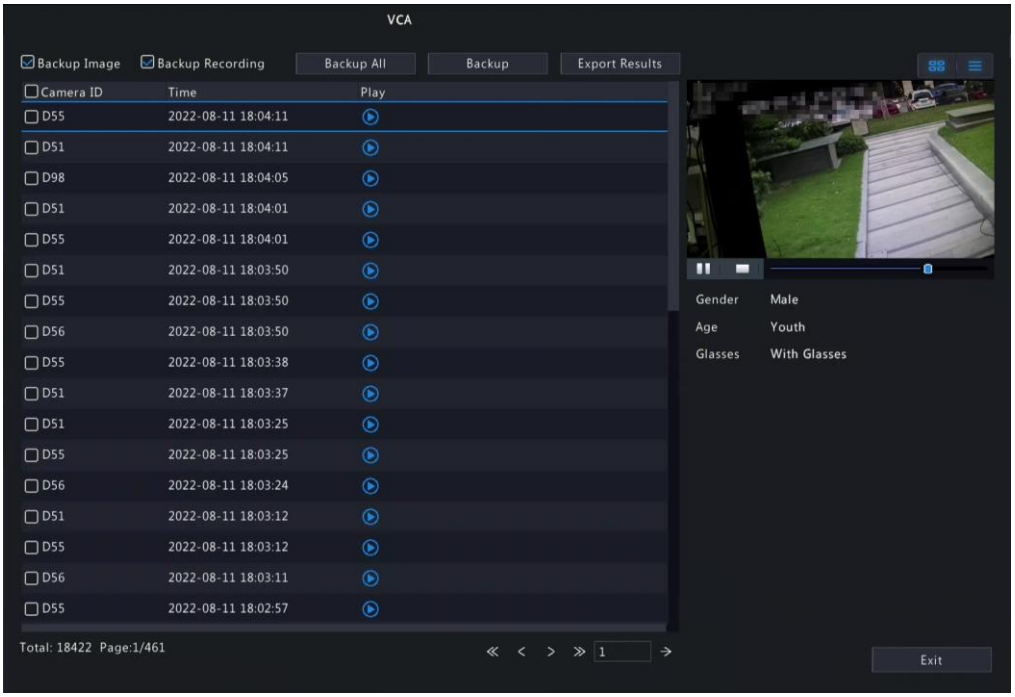
3. Click **Search**. The search results are shown in tile mode by default. You may click to switch to list mode.
   - Tile :



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 ☰:



- 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.

Other Operations

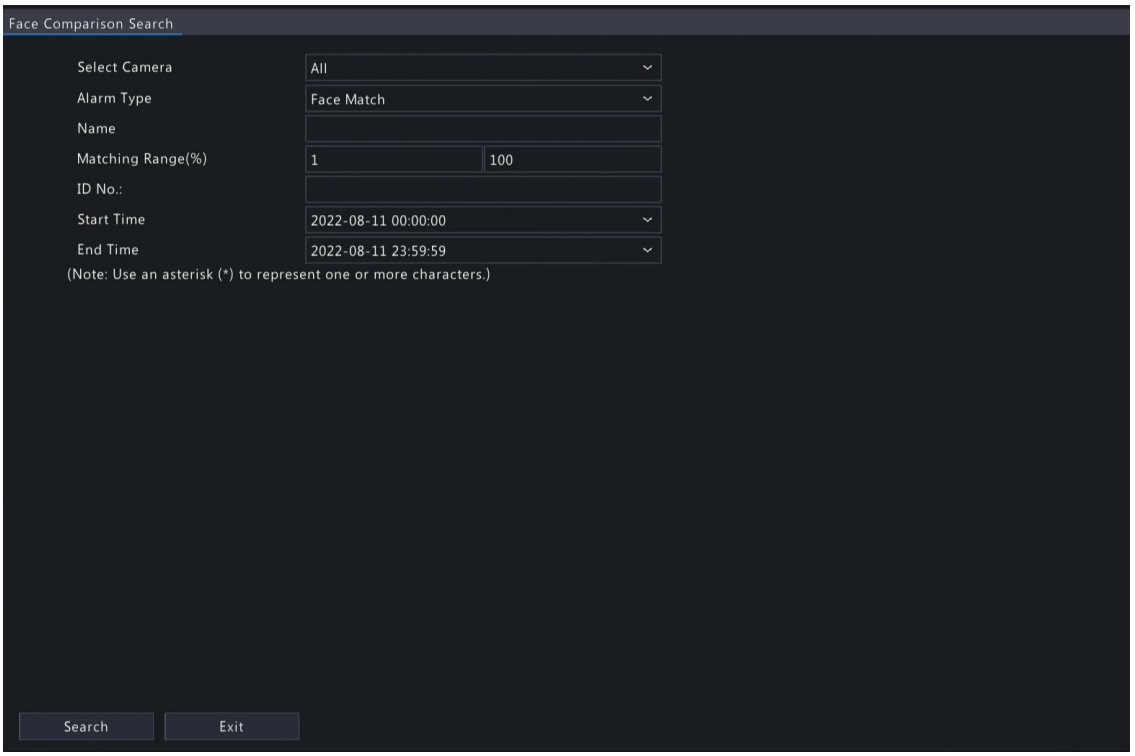
Operation	Description
Backup/Backup All	1. Enable **Backup Image** or/and **Backup Recording** as needed. By default, they are both enabled. • Backup Image: Back up the selected image(s) to an external device.

Operation	Description
	• 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.

5.5.2 Face Comparison Search

Search for face comparison results.

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

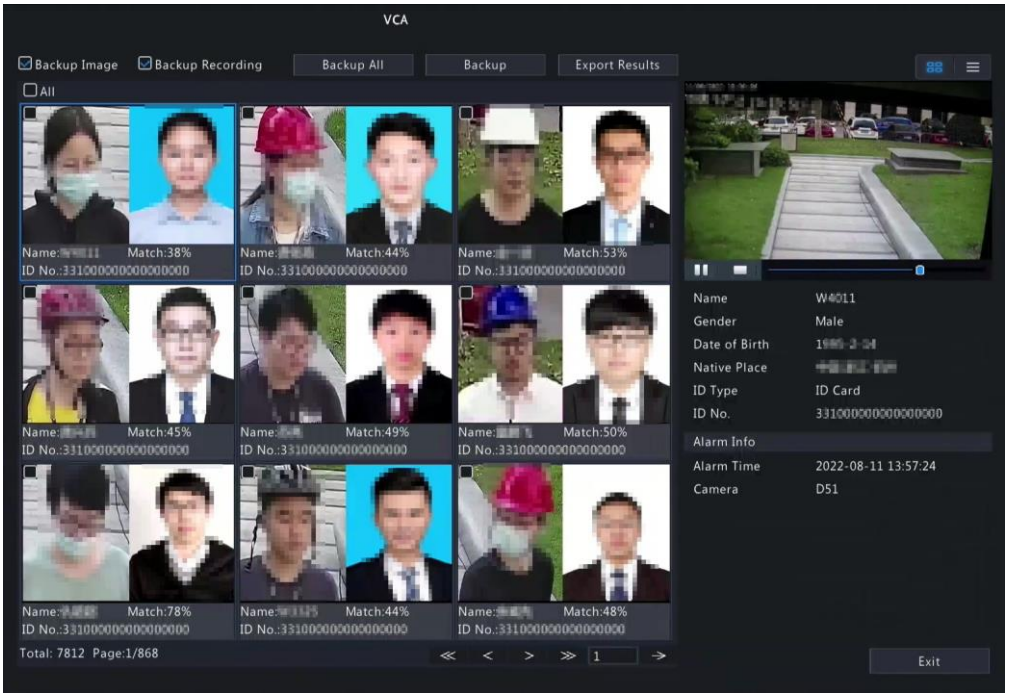


2. Set search conditions.

Parameter	Description
Select Camera	Select the camera(s) to search.
Alarm Type	Select the alarm type: **Face Match** or **Face Not Match**.
Name	Enter the name you want to search.
Matching Range(%)	The similarity between the captured faces and the face images in face lists, ranging from 1% to 100%. The higher the similarity, the more accurate the face comparison. Set it as needed.
ID No.	Enter the ID number you want to search.
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.

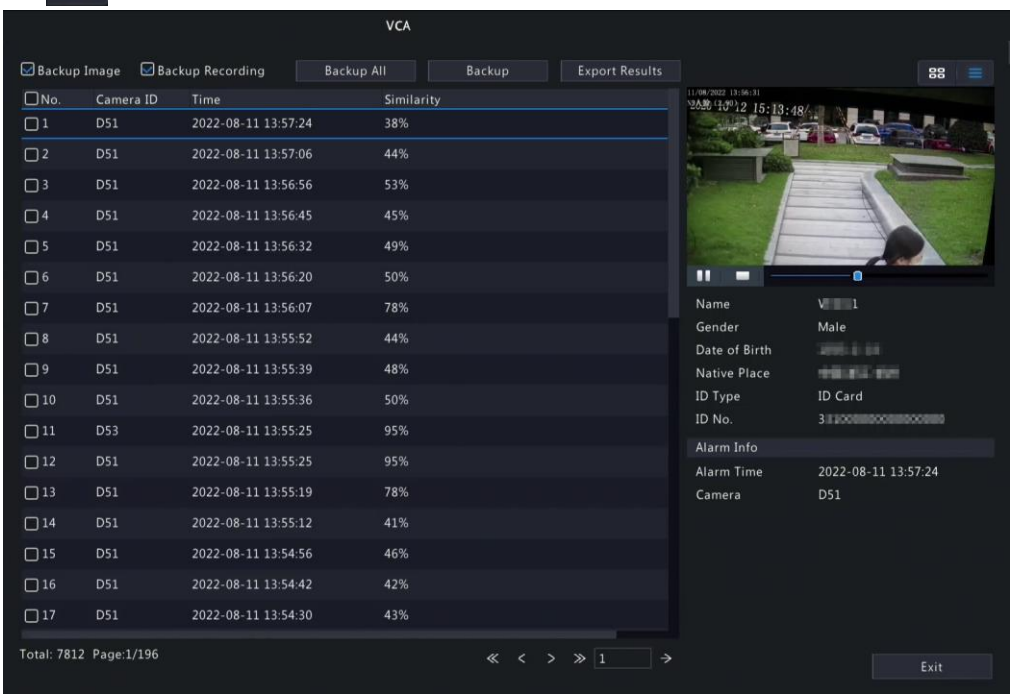
- Tile :



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 to view the 10s video and detailed information about it.

4. Back up search results.
   (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.

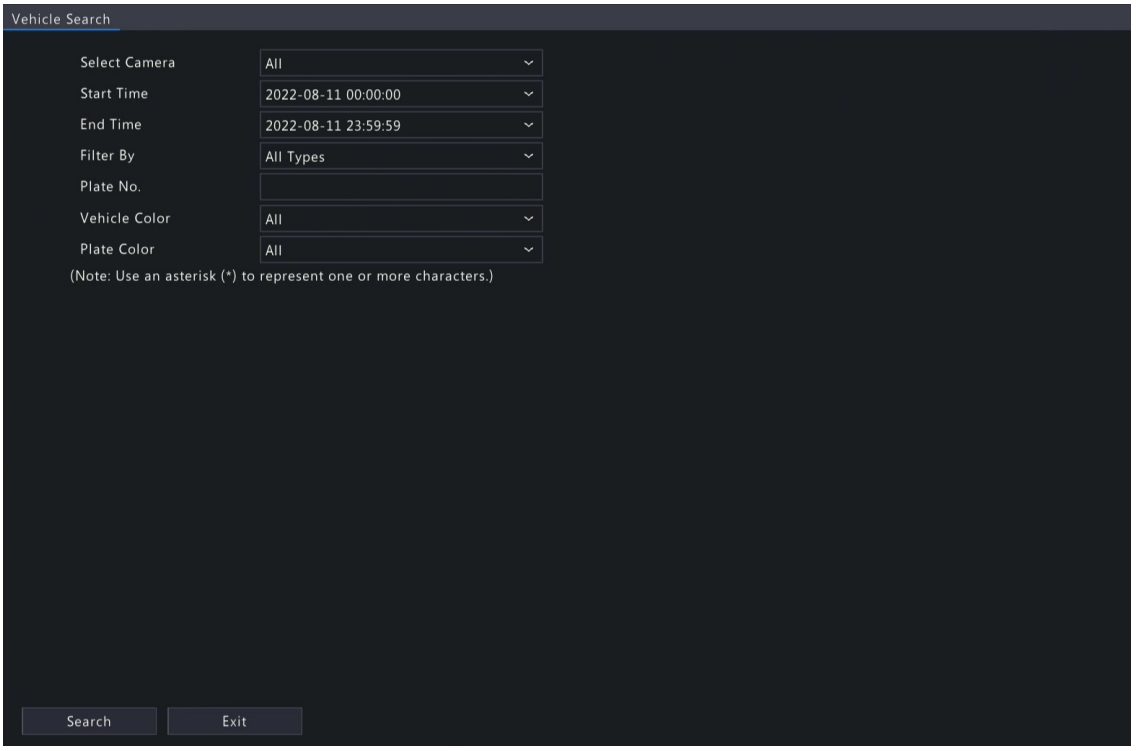
   (2) Select **Backup** or **Backup All**.

- 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**.

5.5.3 Vehicle Search

Search for images based on vehicle monitoring events.

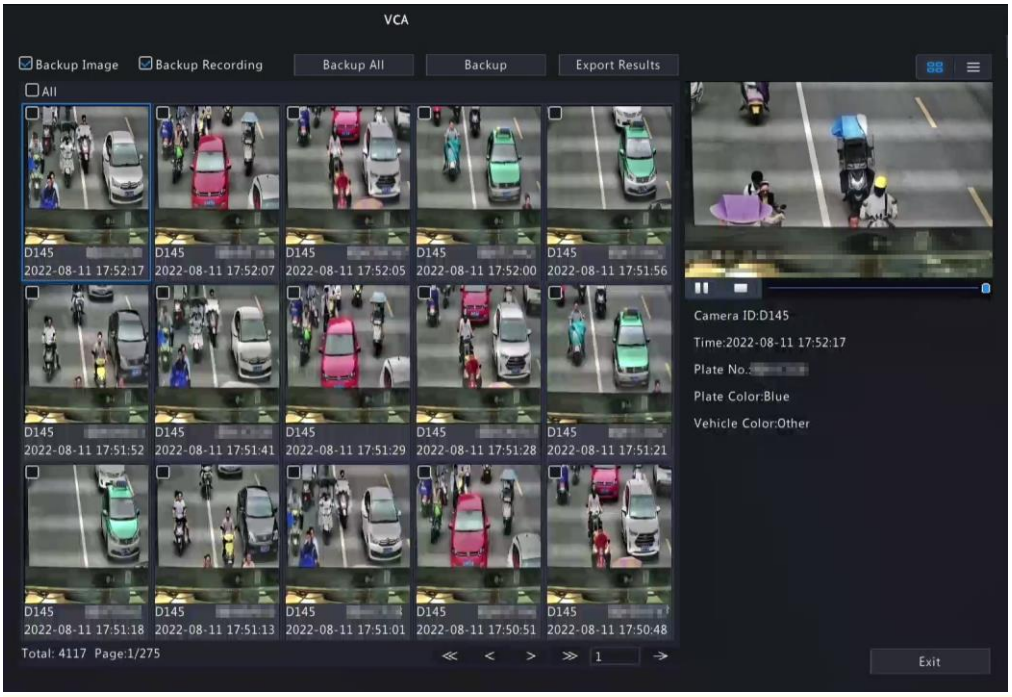
1. Go to **Menu** > **VCA** > **VCA Search** > **Vehicle Search**.



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.
Filter By	Select the filter type: **All Types**, **Match**, or **Not Match**.
Plate No.	Enter the plate number to search.
Vehicle Color	Select the vehicle color to search.
Plate Color	Select the plate color to search.

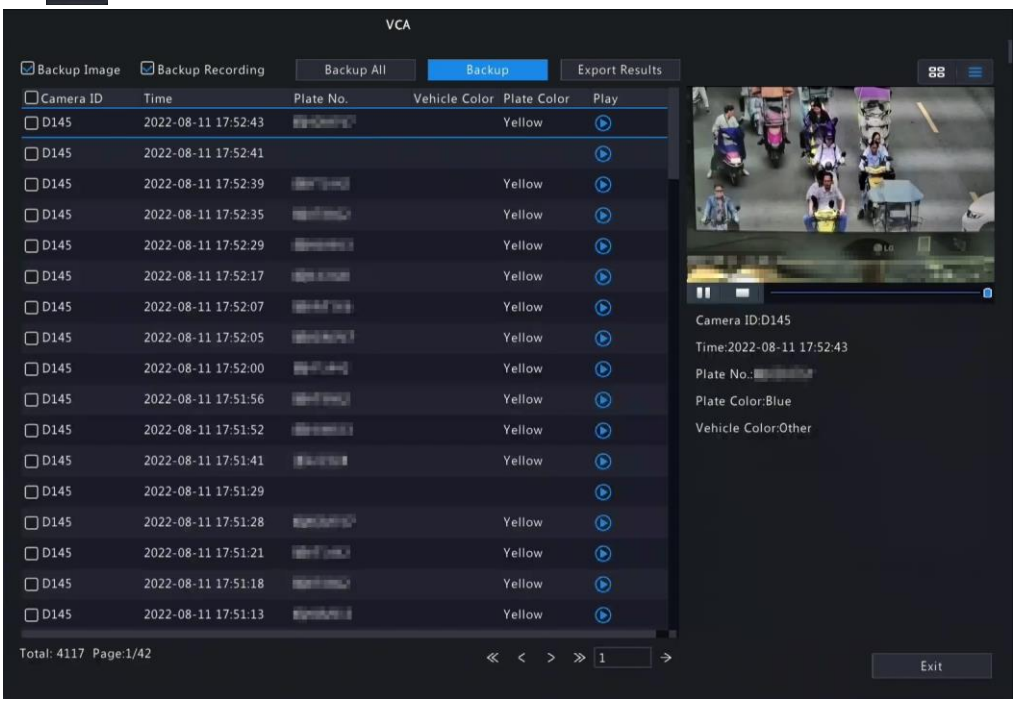
3. Click **Search**. The search results are shown in tile mode by default. You may click to switch to list mode.
   - Tile :



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.
- Double-click an image to magnify 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. To export the search results as a .CSV file, click **Export Results**.

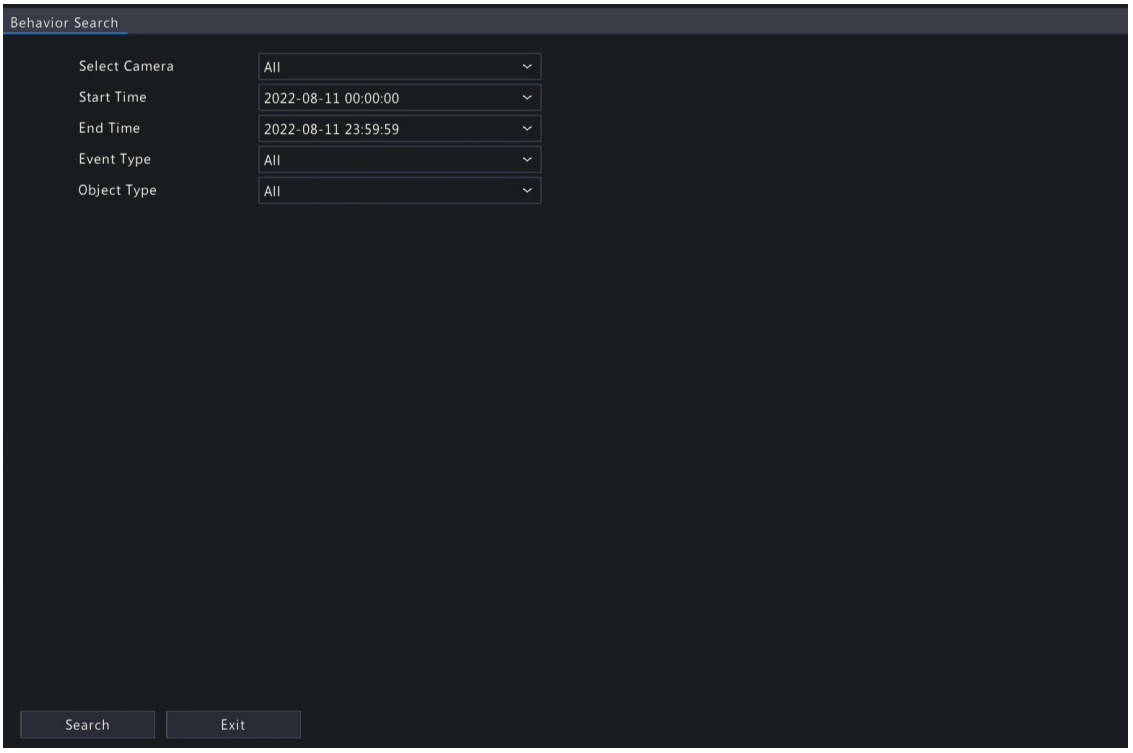
No.	Camera ID	Camera Name	Time	Plate No.	Plate Color	Vehicle Color
1	D1	D18Plate22247	2022-08-05 16:02:59	D565656	Blue	Other
2	D2	D19Plate2	2022-08-05 16:02:40	W745413	Blue	White
3	D3	D20Plate22249	2022-08-05 16:00:39	A435453	Green	White
4	D4	D21Plate22250	2022-08-05 15:58:13	B425434	Blue	Black

plate20220812105238

5.5.4 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 NVR 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**.

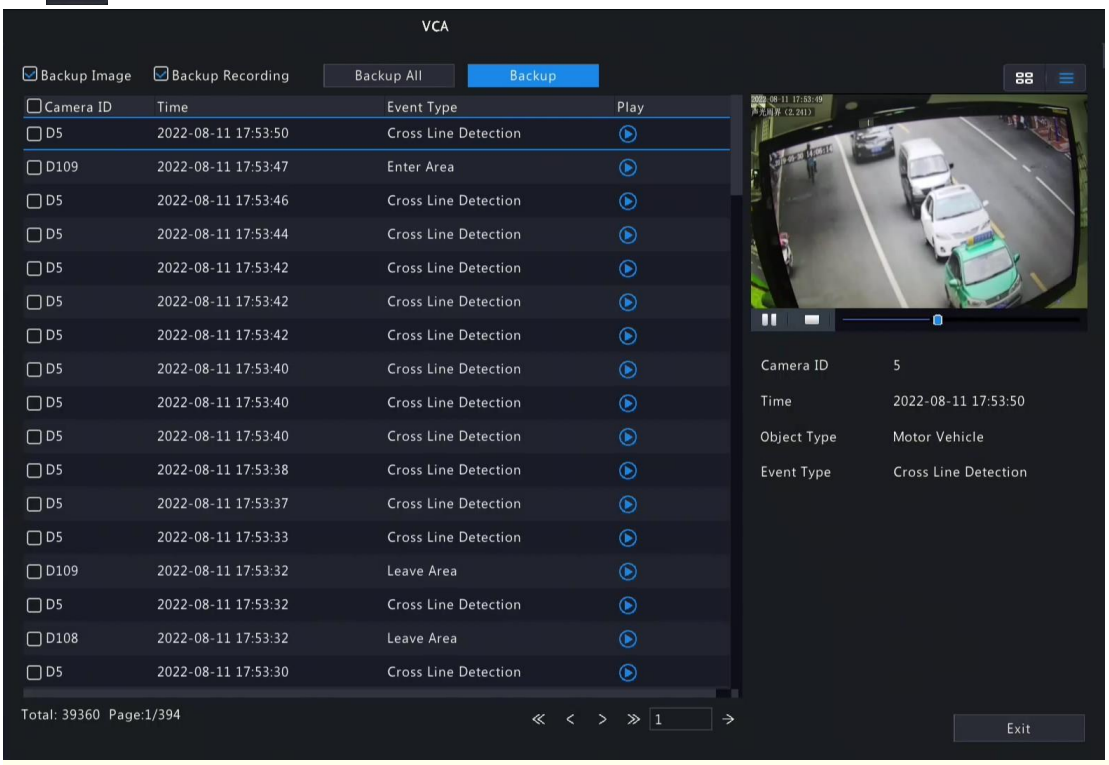
3. Click **Search**. The search results are shown in tile mode by default. You may click to switch to list mode.

- 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:

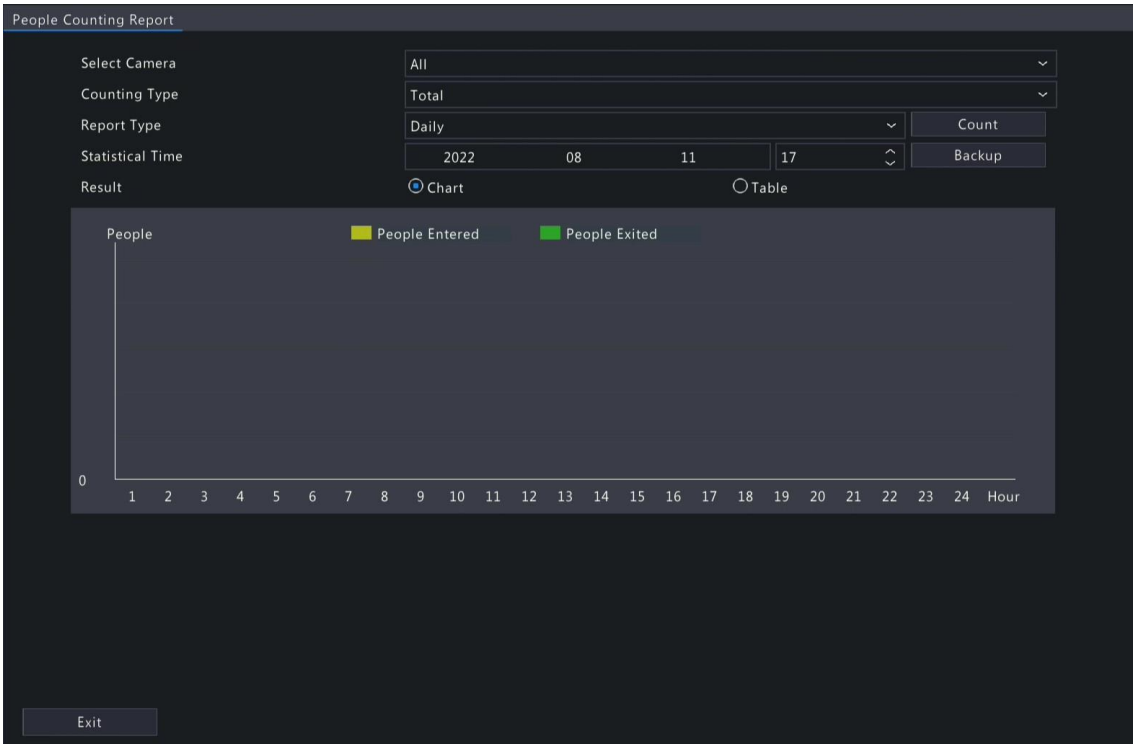
- By default, a 10s video (5s before and 5s after the first item) and the detailed information about the first item are displayed on the right.
- You can click any item and click or to view the 10s video and detailed information about it.

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

5.5.5 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.

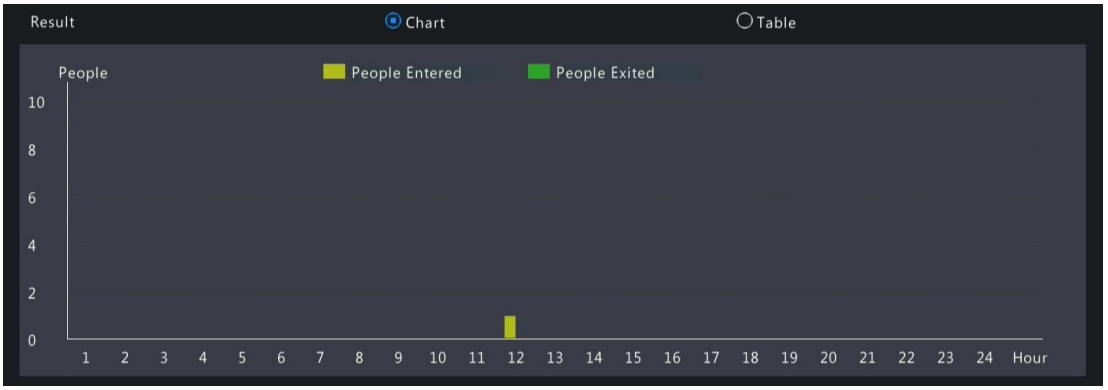
1. Go to **Menu** > **VCA** > **VCA Search** > **People Counting Report**.



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.

5.6 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.
	Set the display mode of snapshot information for face recognition, vehicle recognition and perimeter protection.
	Open the **Behavior Search** page.
	Open the **VCA Config** page.

Icon	Description
	Clear real-time snapshots displayed on the live view page. Search records and statistics are not affected.

Vehicle

View vehicle monitoring information, vehicle snapshot information, and license plate matching/mismatching information.

1. Select a vehicle snapshot.

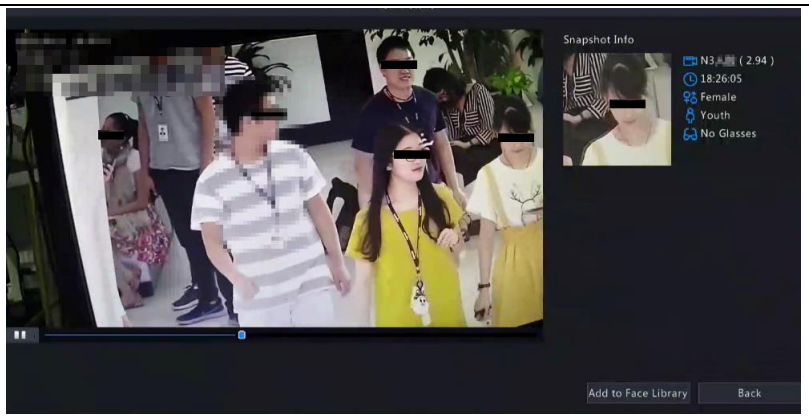
2. Click on the snapshot to view more details.

   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 camera name, time, license plate number, vehicle color, and plate color are displayed on the right.

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.

Type	Description
	
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.

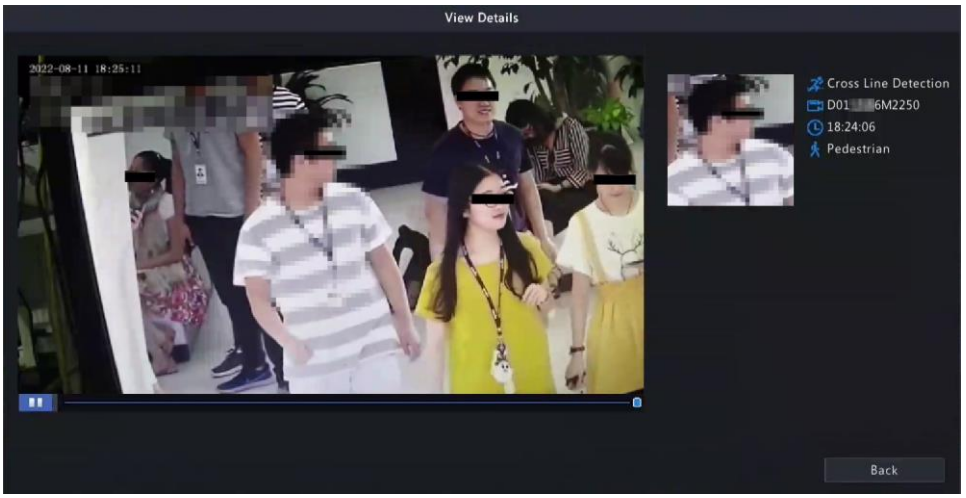
Perimeter

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.

6NetworkConfiguration

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

Note: The default IP address of network interface 1 is 192.168.1.30, and that of network interface 2 is 192.168.2.30.

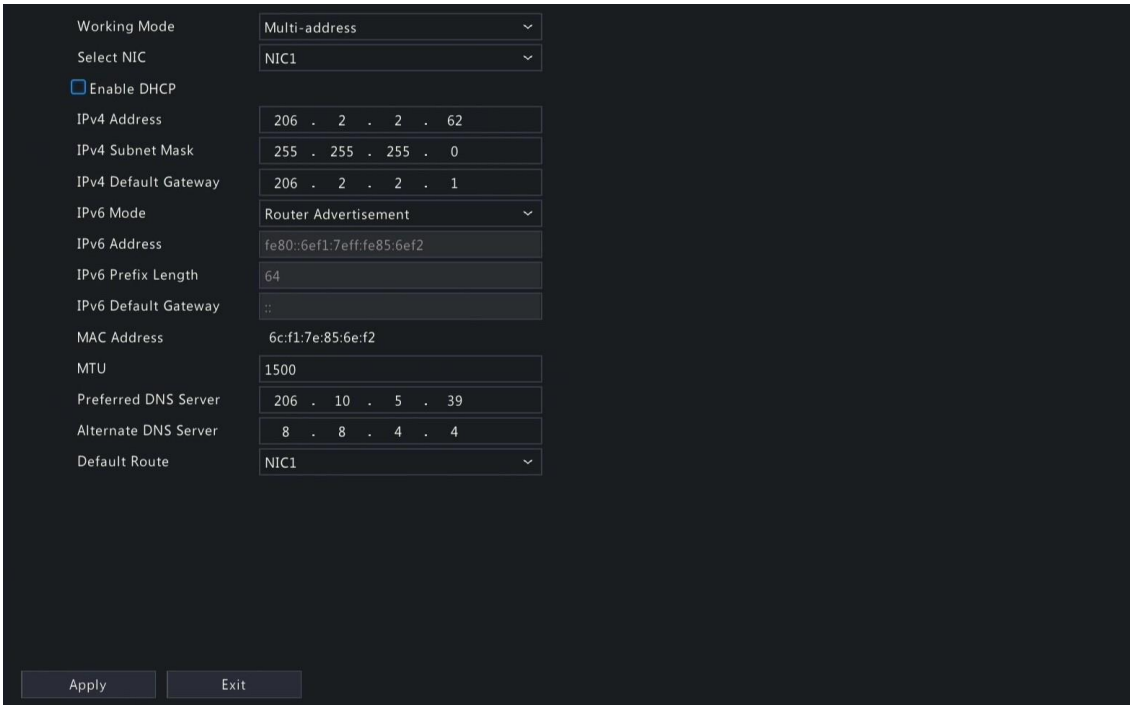
6.1 Platform Configuration

Configure an upper platform for the NVR.

6.1.1 Network Configuration

Configure IP address and other network parameters of the NVR.

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



2. Choose a working mode. Only multi-NIC NVRs support these three working modes.

Working Mode	Description
Multi-address	Two NICs work independently. You need to configure the NICs separately.
Load Balance	Two NICs use the same IP address and work together to share the sending and receiving bandwidth.
Net Fault-tolerance	Two NICs use the same IP address, and if the primary NIC fails, the standby NIC takes over seamlessly to ensure uninterrupted network connection.

Note: Switching working modes with 802.1x and ARP protection enabled will disable 802.1x and ARP protection.

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

Note:
- For a multi-NIC NVR, you can choose an NIC as the default route. When the NVR connects to an external network, data will be forwarded via the default route.
- For an NVR with PoE ports, you can configure an IPv4 address for the internal NIC.
- 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 NVR and PC are connected. To use functions such as live view, playback, make sure IPv4 addresses of the NVR and PC are also connected.

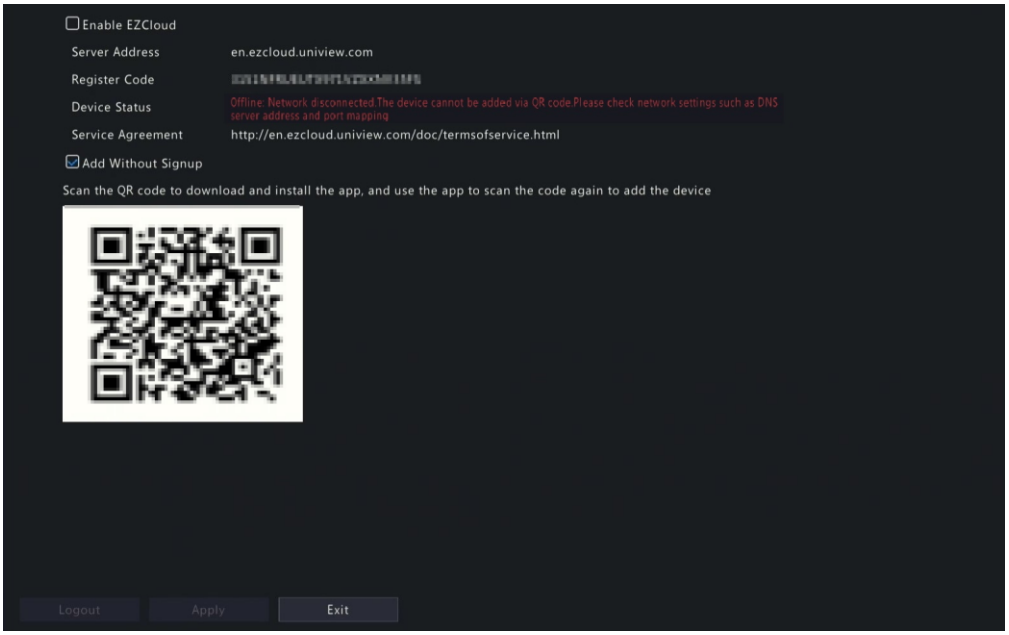
4. Click **Apply**.

6.1.2 EZCloud

With EZCloud you can manage and operate the NVR remotely on a mobile phone.

Configure EZCloud

1. Go to **Menu** > **Network** > **Basic** > **EZCloud**. EZCloud is enabled by default.



2. Add the NVR to cloud. See Add Device below.
3. (Optional) Select **Snapshot Upload**, and the NVR will upload images to cloud.
4. Click **Apply**.
5. Check the device status. If online, the current username will be displayed. If offline, the common cause will be displayed for your troubleshooting reference.

   Note: You can also check the device status on the cloud website (en.ezcloud.uniview.com).
6. (Optional) To delete the NVR from cloud, click **Delete**.

Add Device

Add the NVR to cloud using the app or cloud website.

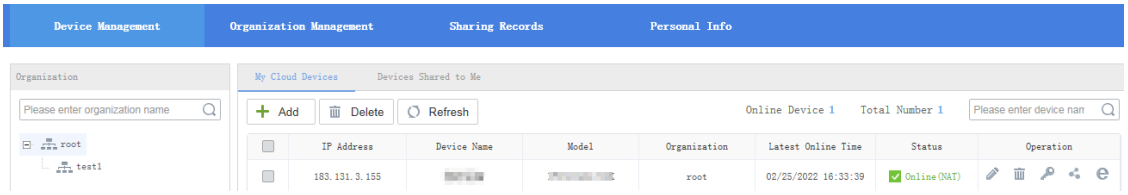
Add NVR on app

1. Scan the QR code with your mobile phone to download the app; or search EZView or EZLive at app store. The following steps take EZView as an example.
2. Open the app, add the NVR with or without a cloud account.
   - Add with a cloud account:
     Sign up for a cloud account, and then log in to add the NVR.
     (1) Tap **Log In/Sign Up**, follow the on-screen instructions to sign up and log in.
     (2) On the **Live View** page, tap > , and choose a way to add the NVR.
   - Add without a cloud account:
     Scan the QR code using the app to add the NVR without a cloud account.
     (1) Tap **Try Now**. The **Live View** screen is displayed.
     (2) Tap > > **Add Without Signup**, follow instructions to scan the QR code. You may also scan the QR code on the device body.
     (3) The registered code is filled in automatically. The default username is "admin". Enter the device password, tap **Login**.

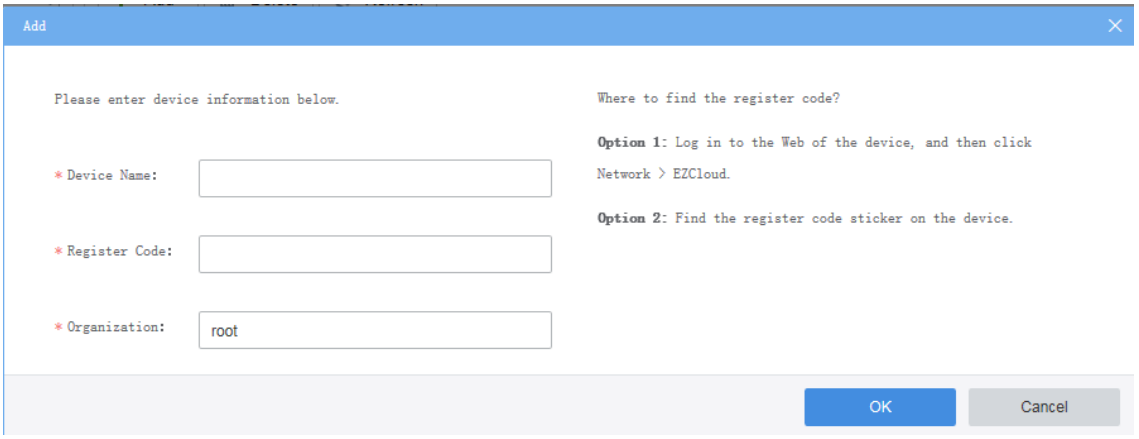
     Note:
     - To add the NVR without a cloud account, ensure that **EZCloud** and **Add Without Signup** are enabled on the NVR, and the NVR's admin password is a strong password.
     - Certain functions will be unavailable on the app if the NVR is added without a cloud account. Signup for a cloud account is required to use full functions on the app.

Add NVR on the cloud website

1. Visit the EZCloud website address using a Web browser.
2. Tap **Sign Up**, follow the on-screen instructions to sign up for a cloud account.
3. Log in to the account.



4. Go to **Device Management** > **My Cloud Device**, click **Add**.



Parameter	Description
Device Name	Set a device name that is easy to recognize.
Register Code	Enter the register code. You can find it on the **EZCloud** page.
Organization	Choose an organization for the NVR on the cloud. The default organization is **root**. You can add organizations at **Organization Management** > **My Cloud Organization**.

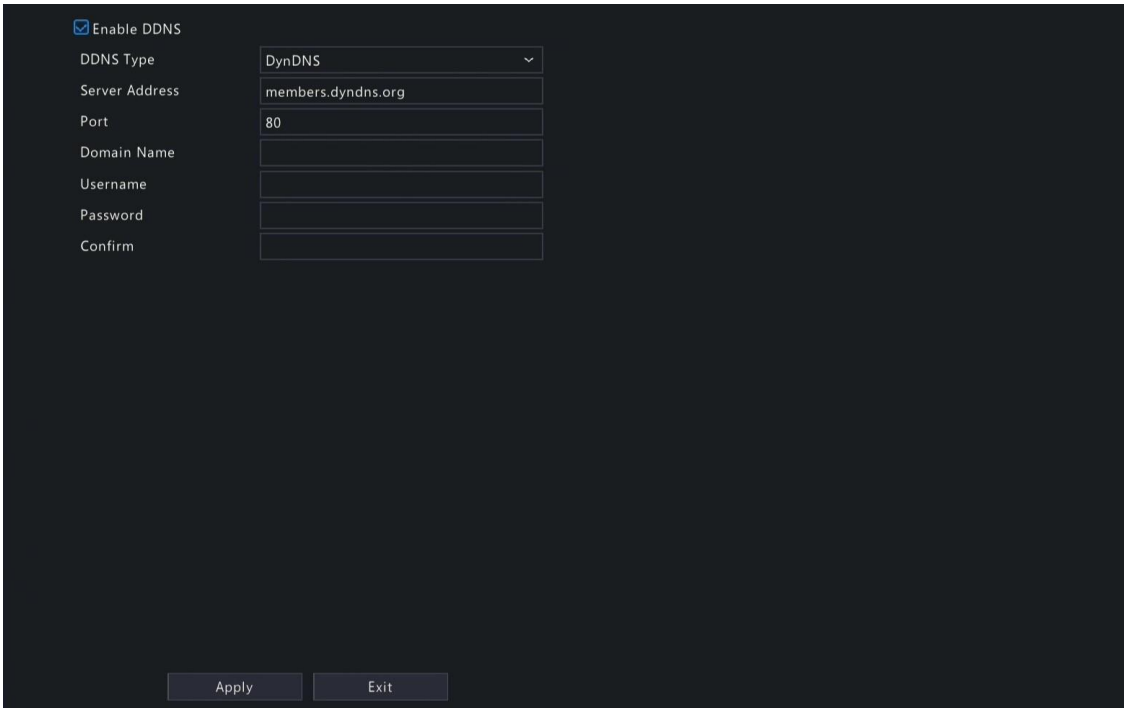
5. Click **OK** to add the NVR to cloud.
6. Click **Save**.

6.1.3 DDNS

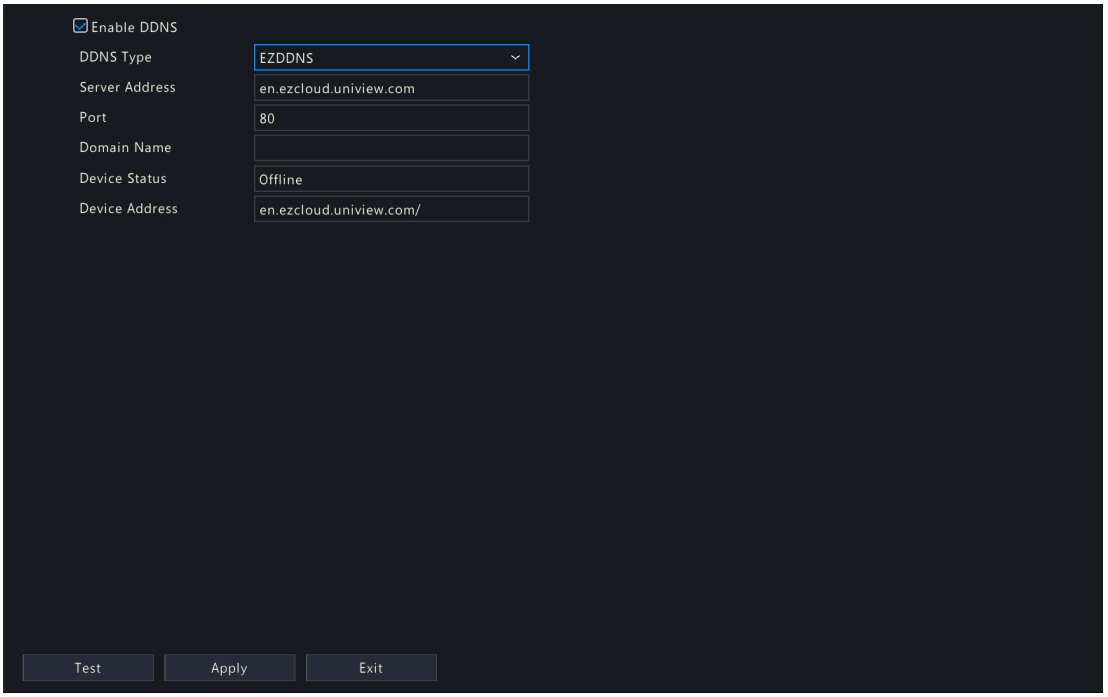
Configure DDNS so you can access the NVR on the LAN from the Internet by visiting a fixed domain name instead of the changing IP addresses.

Note: You can open the NVR's Web page by visiting **http://*server address/NVR'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.



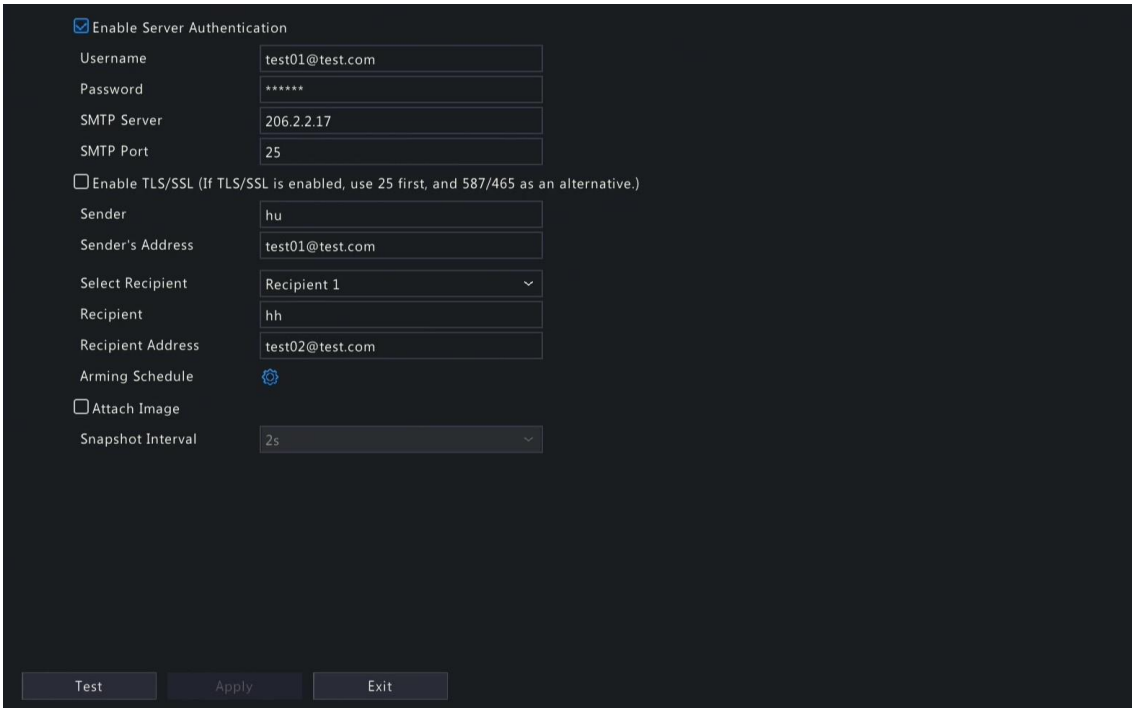
3. Click **Apply**.

6.1.4 Email

Configure email so the NVR 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.

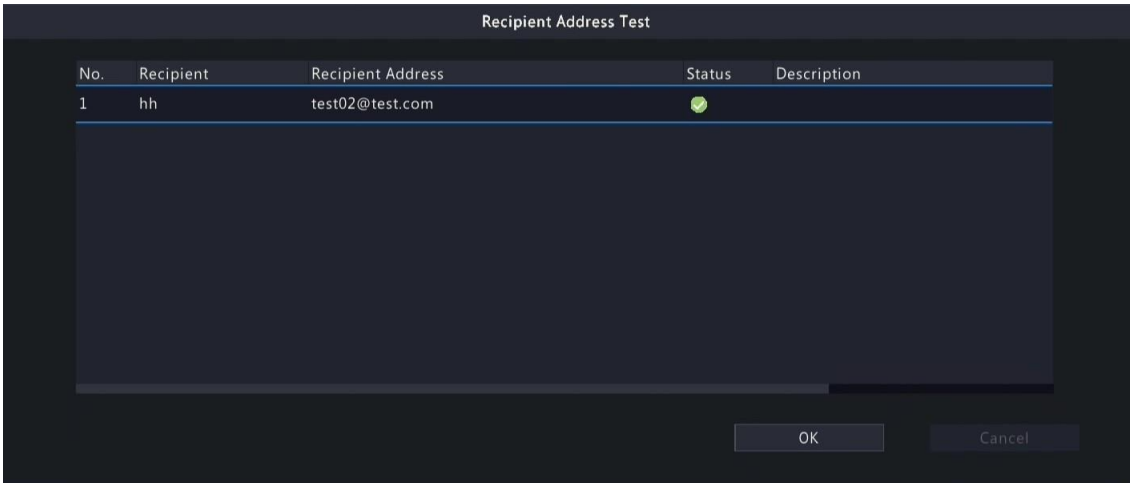
1. Go to **Menu** > **Network** > **Basic** > **Email**.



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 NVR 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**.

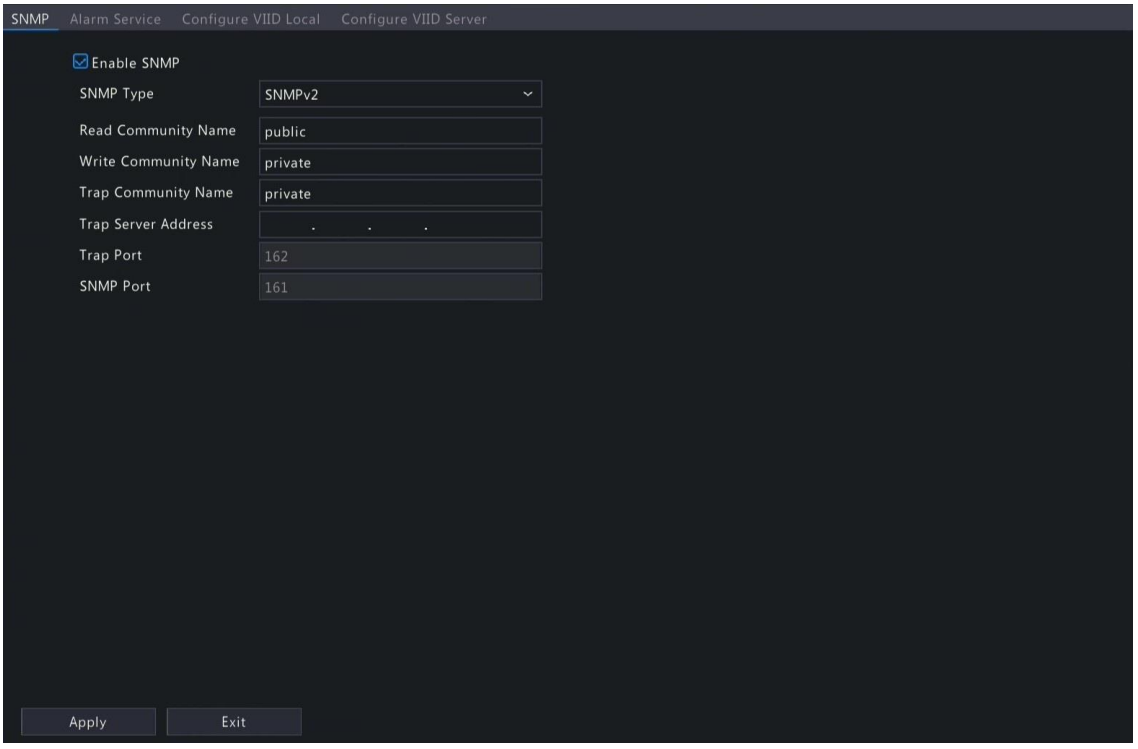
6.2 Basic Configuration

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

6.2.1 SNMP

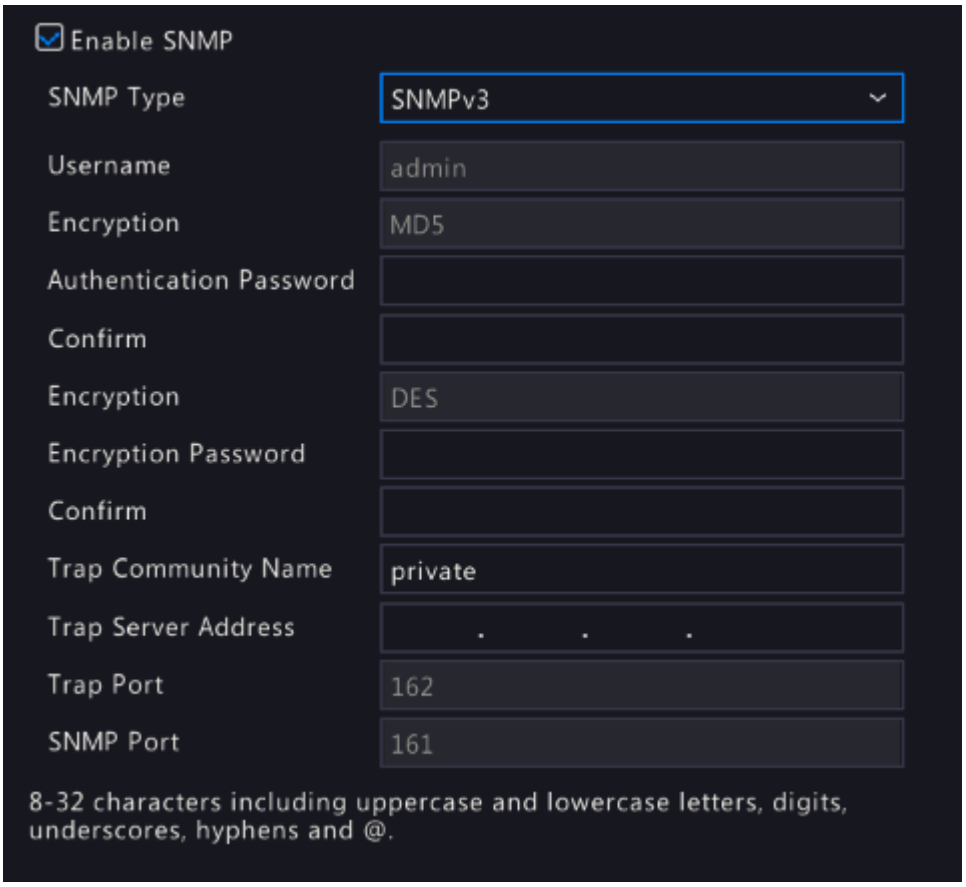
The NVR can use SNMP to interconnect with the upper platform and transfer certain configuration information.

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



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

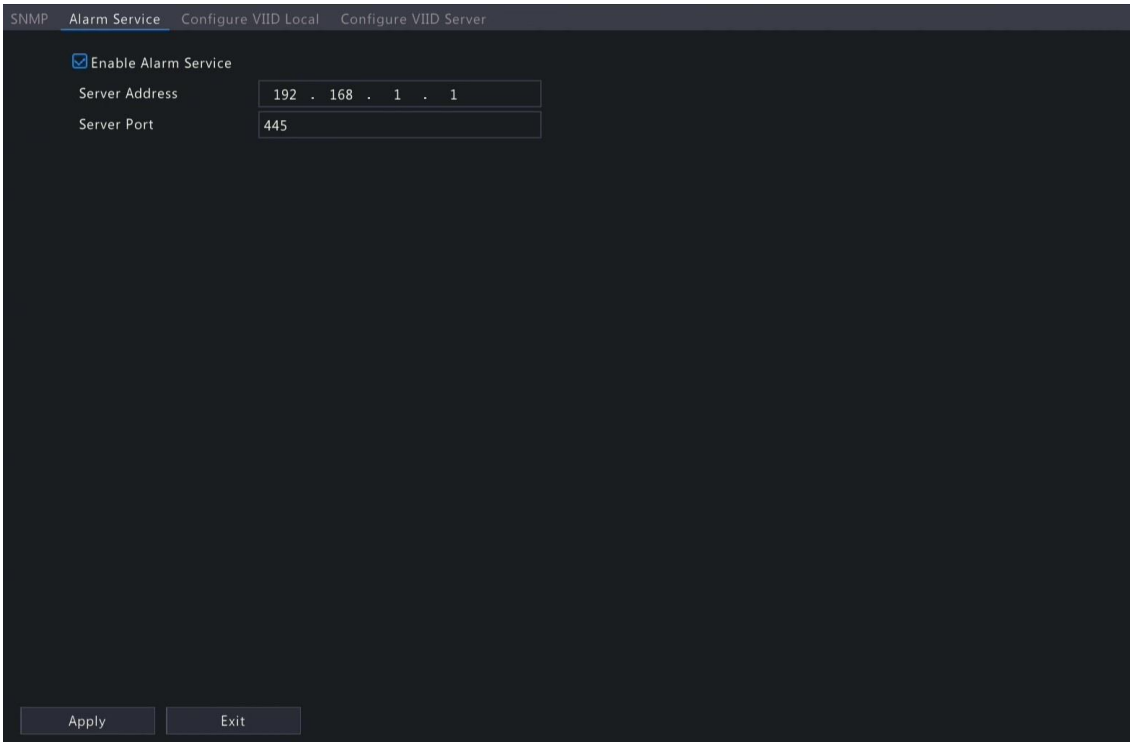


4. Click **Apply**.

6.2.2 Alarm Service

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

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.

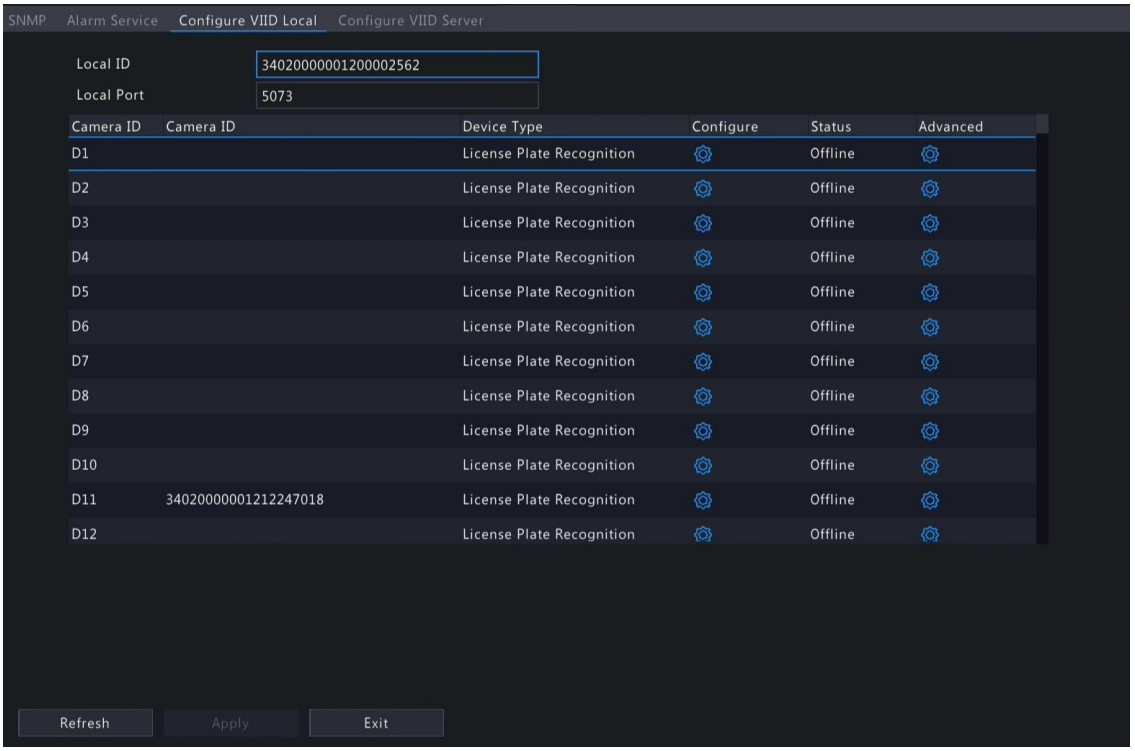
Note: This configuration only enables the sending of alarm-related packets to the alarm host. The specific alarm methods on the alarm host need to be configured separately.

4. Click **Apply**.

6.2.3 Configure VIID Local

Configure VIID local settings so the NVR can monitor vehicles and upload vehicle information to the upper platform.

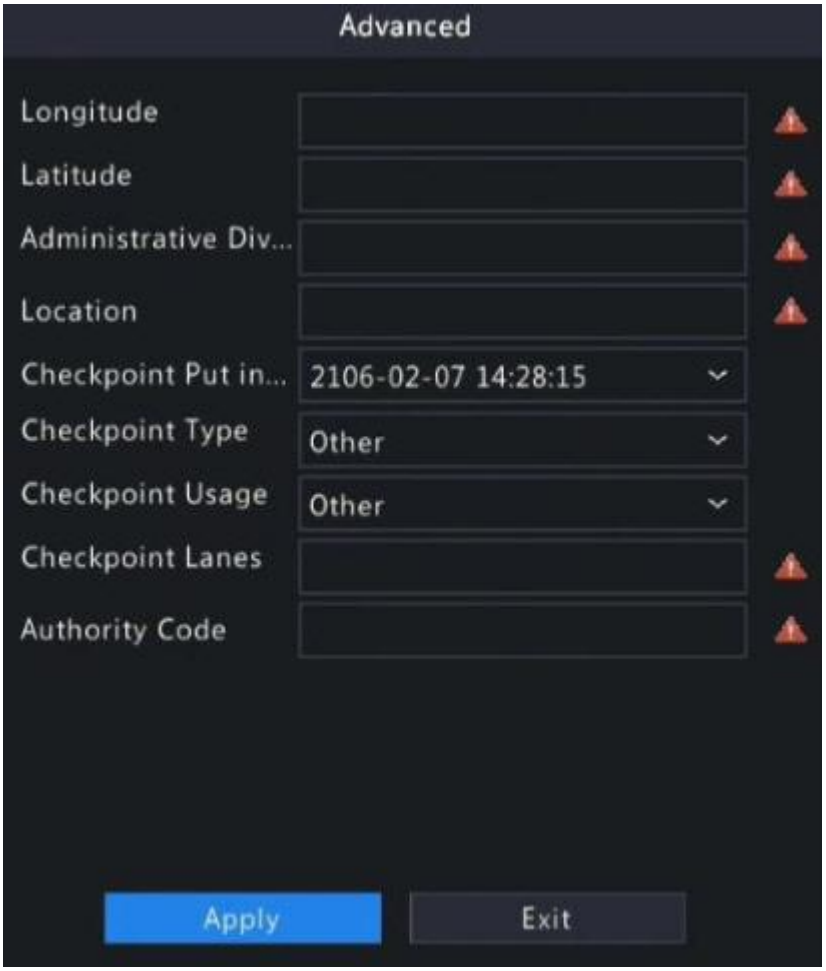
1. Go to **Menu** > **Network** > **Platform** > **Video&Image Database Local**.



2. The local ID and local port use the default settings by default.
3. Choose a camera, click under **Configure**, and then configure the parameters.

Parameter	Description
Camera ID	Used for connecting the IP device. Camera IDs consist of VIID-conformant codes and are differentiated by device type and usage. Camera IDs are assigned by the upper platform.
Device Type	Divided into two types by usage: • License plate recognition: Usually installed on road checkpoints to capture license plates of passing vehicles. • Collection device: Used to capture faces or plates.

4. Choose a camera, click under **Advanced**, and then configure the parameters.



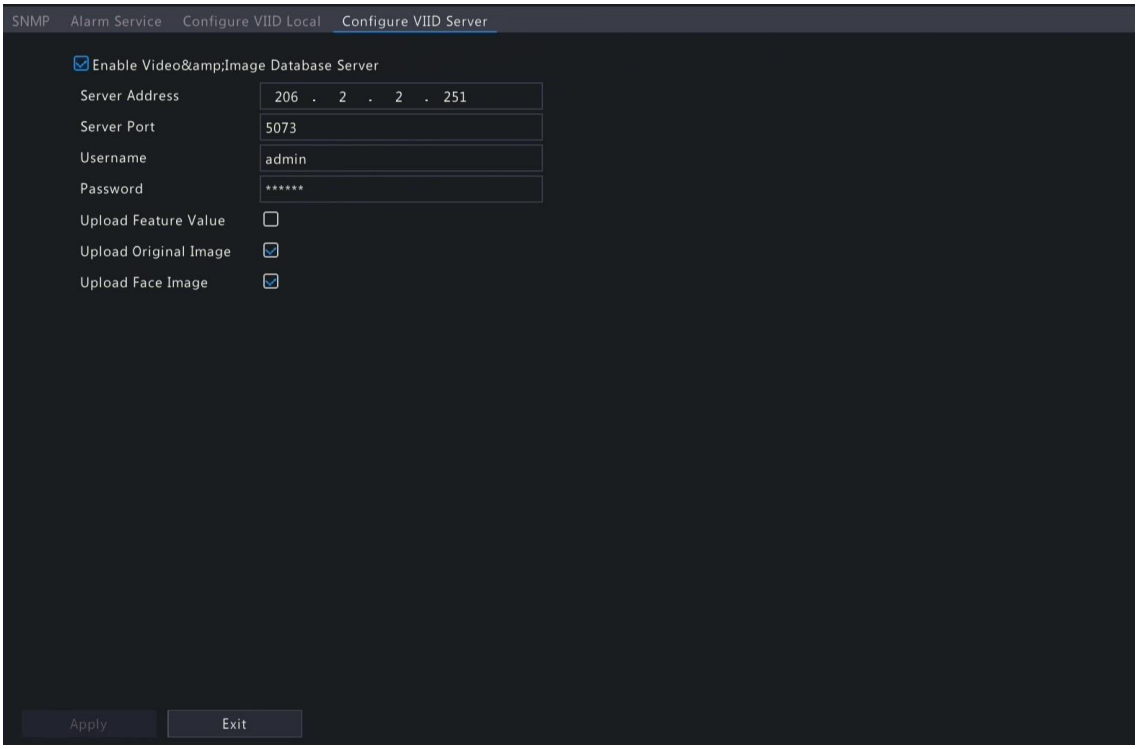
Parameter	Description
Longitude	Longitude of the region where the IP device is located (-180,180).
Latitude	Latitude of the region where the IP device is located (-90,90).
Administrative Division Code	Administrative division code of the region where the IP device is installed.
Location	Location of the IP device. Max 256 characters, allows uppercase and lowercase letters, digits, underscores, and hyphens.
Checkpoint Put into Use	Time when the camera was put into use.
Checkpoint Type	Choose the actual checkpoint type of the IP device.
Checkpoint Usage	Choose the usage of the IP device.
Checkpoint Lanes	Number of lanes monitored by the IP device.
Authority Code	Organization code of the IP device.

5. Click **Apply**.

6.2.4 Configure VIID Server

Configure the VIID server so the NVR can upload face and plate information to the upper VIID platform.

1. Go to **Menu** > **Network** > **Platform** > **Video&Image Database Server**.
2. Select **Enable Video&Image Database Server**.



3. Configure server parameters.

Parameter	Description
Server Address	VIID platform's IP address.
Server Port	VIID platform's port number.
Username	Username of the VIID platform.
Password	Password of the VIID platform.
Upload Feature Value	When enabled, the NVR will upload feature information of the captured faces or plates to the upper platform.
Upload Original Image	When enabled, the NVR will upload original images of the captured faces or plates to the upper platform. This feature is enabled by default.
Upload Face Image	When enabled, the NVR will upload small face images to the upper platform.

4. Click **Apply**.

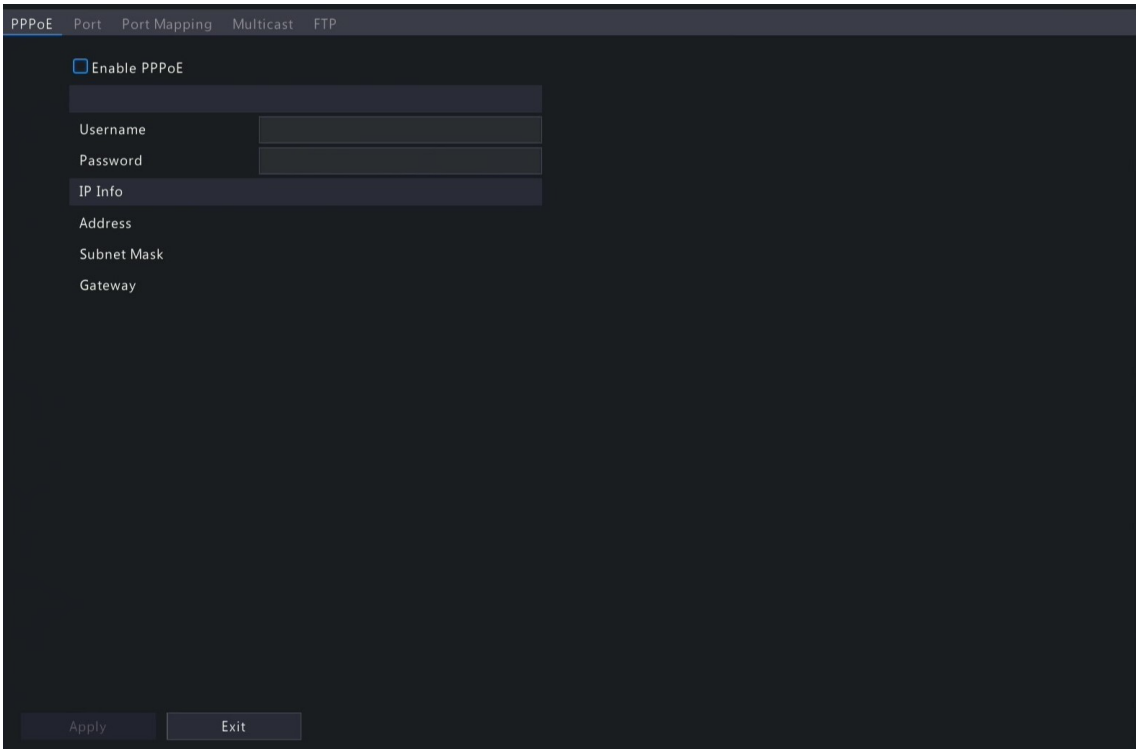
6.3 Advanced Configuration

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** > **Network** > **Advanced** > **PPPoE**.



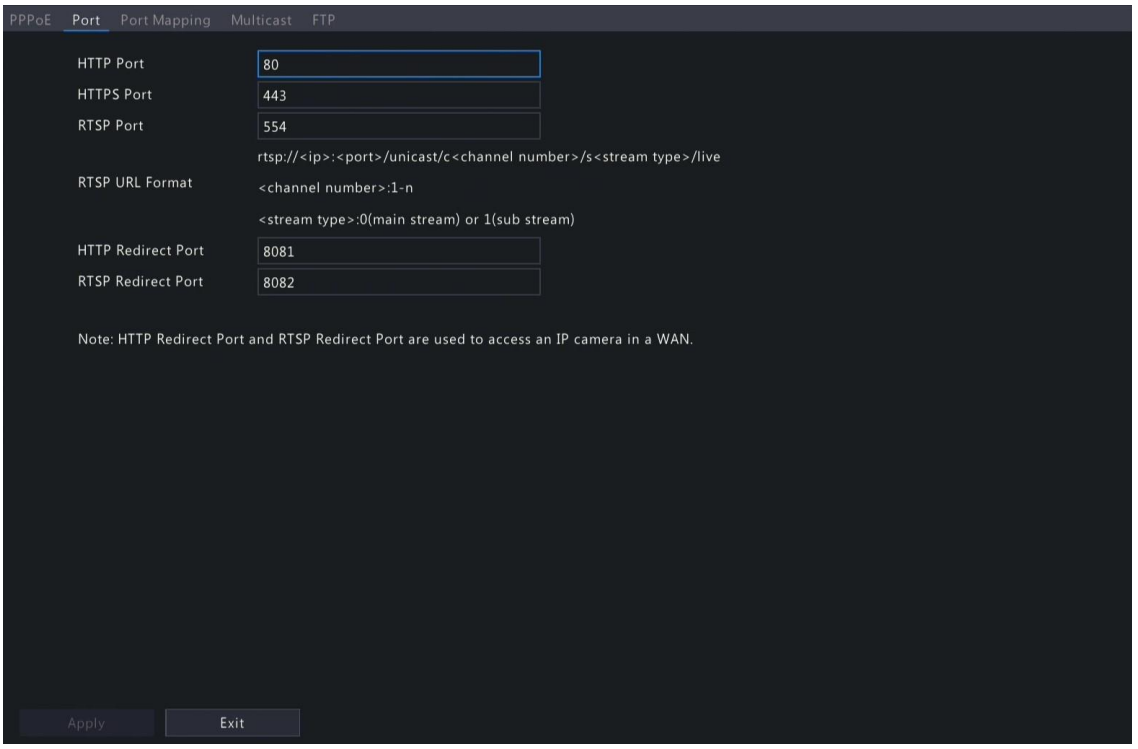
2. Select **Enable PPPoE**.
3. Enter the username and password provided by the Internet Service Provider (ISP). IP information is displayed when dial-up succeeds.

   Note:
   For a multi-NIC device, dial-up shall be performed on the NIC that is configured as the default route.
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 NVR on the LAN across the Internet.

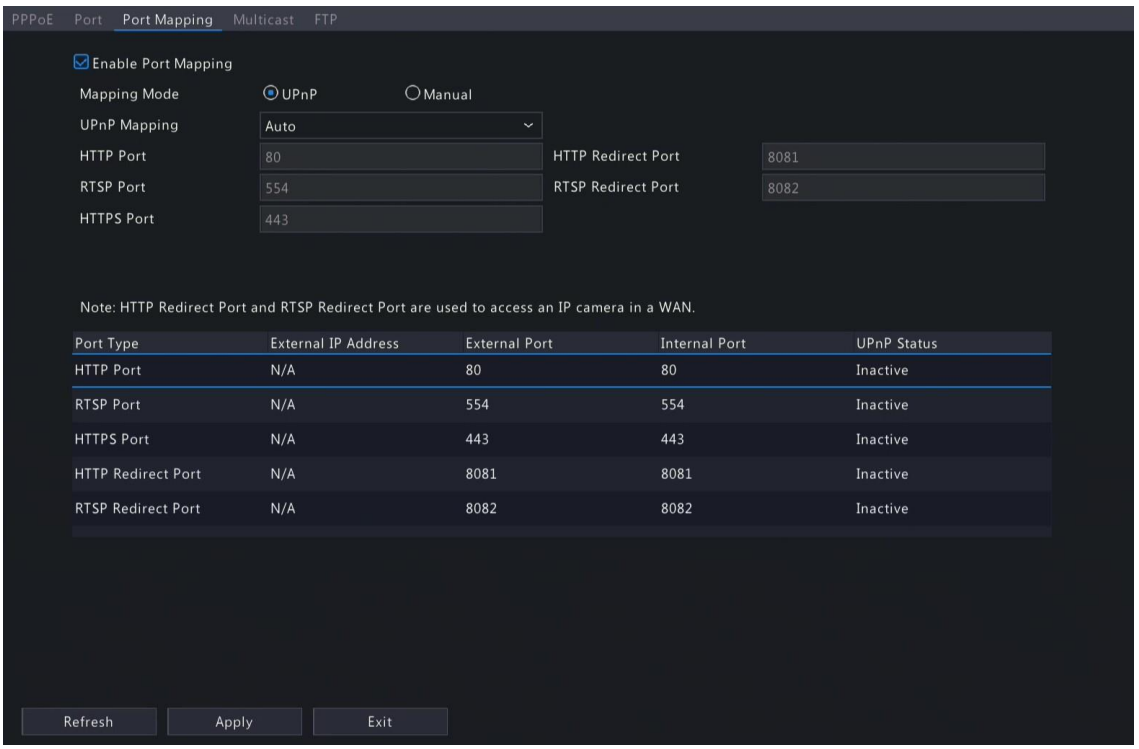
1. Go to **Menu** > **Network** > **Advanced** > **Port Mapping**.
2. Port mapping is enabled by default. You can choose a mapping mode, UPnP or manual port mapping.

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 NVR 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 NVR.

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



2. Choose a mode from the **UPnP Mapping** list:
   - Auto: The NVR 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 NVR, 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**.

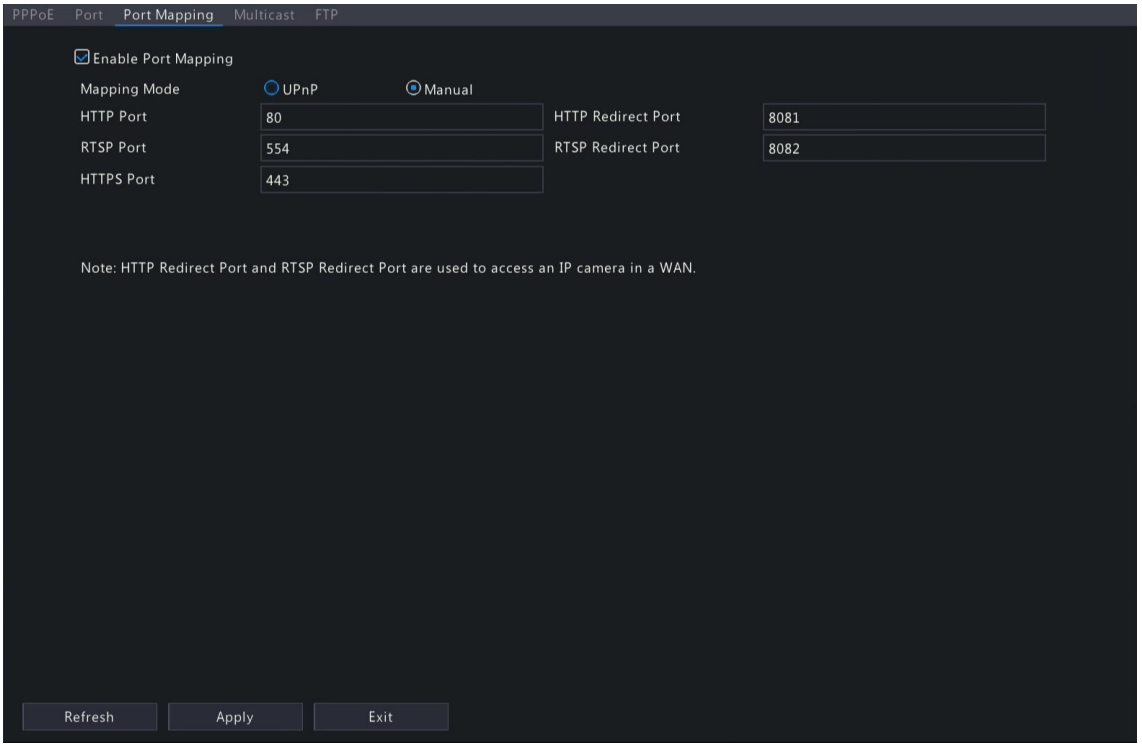
Manual

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

Note:

- Make sure the ports configured on the NVR are consistent with that configured on the router.
- For some routers, the NVR'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**.

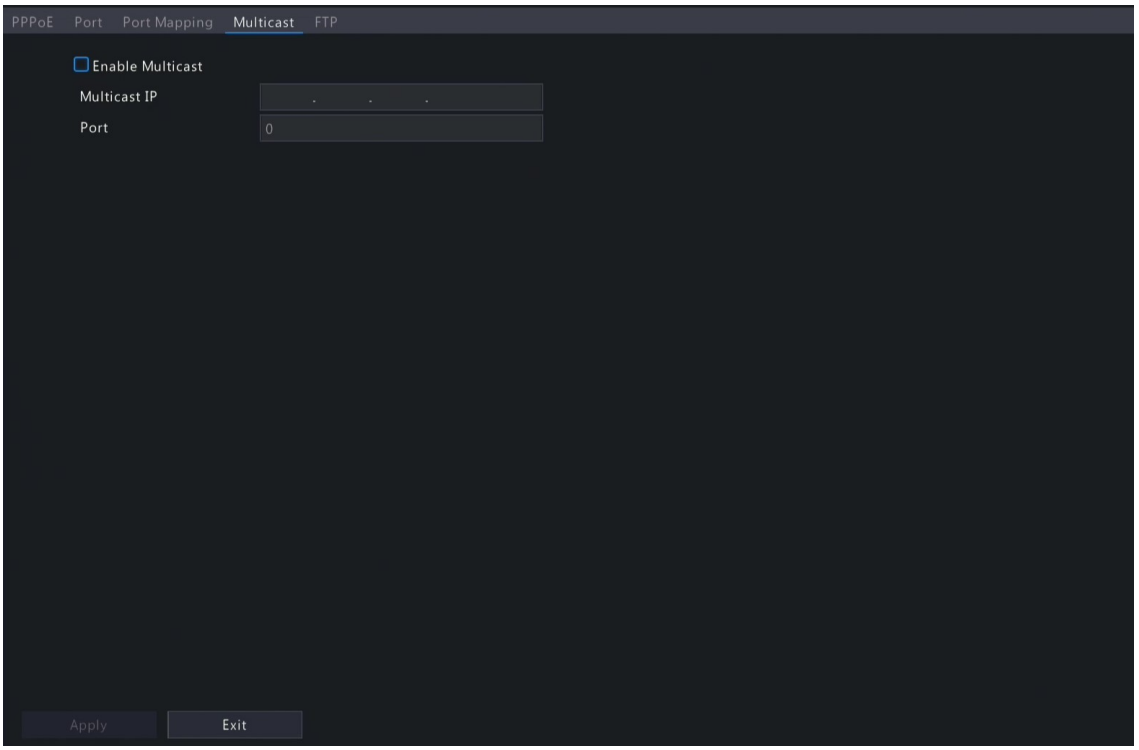
Note:

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

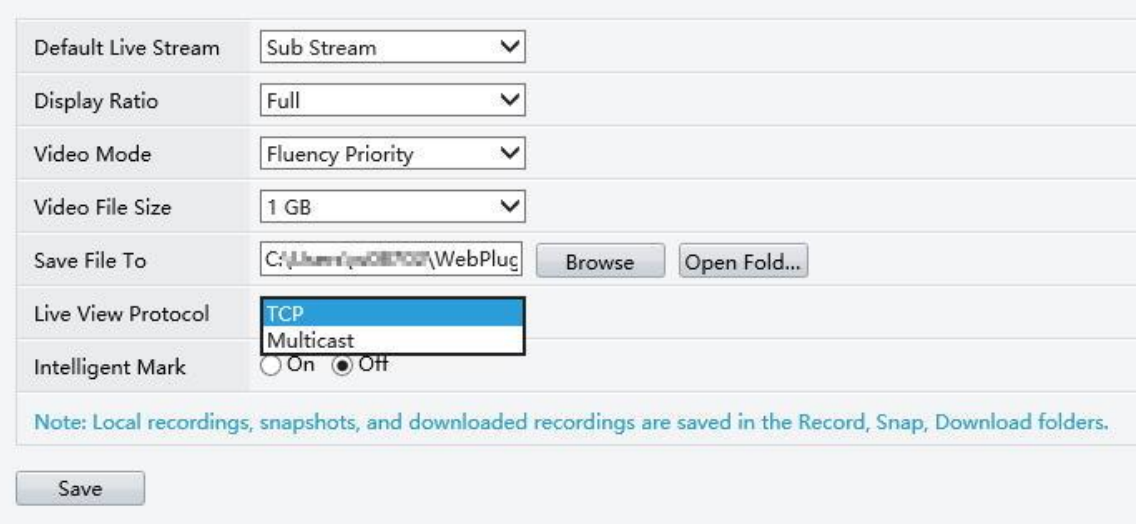
When the number of users accessing the Web client has reached the upper limit and live video is unavailable, you can use multicast to solve this issue.

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).

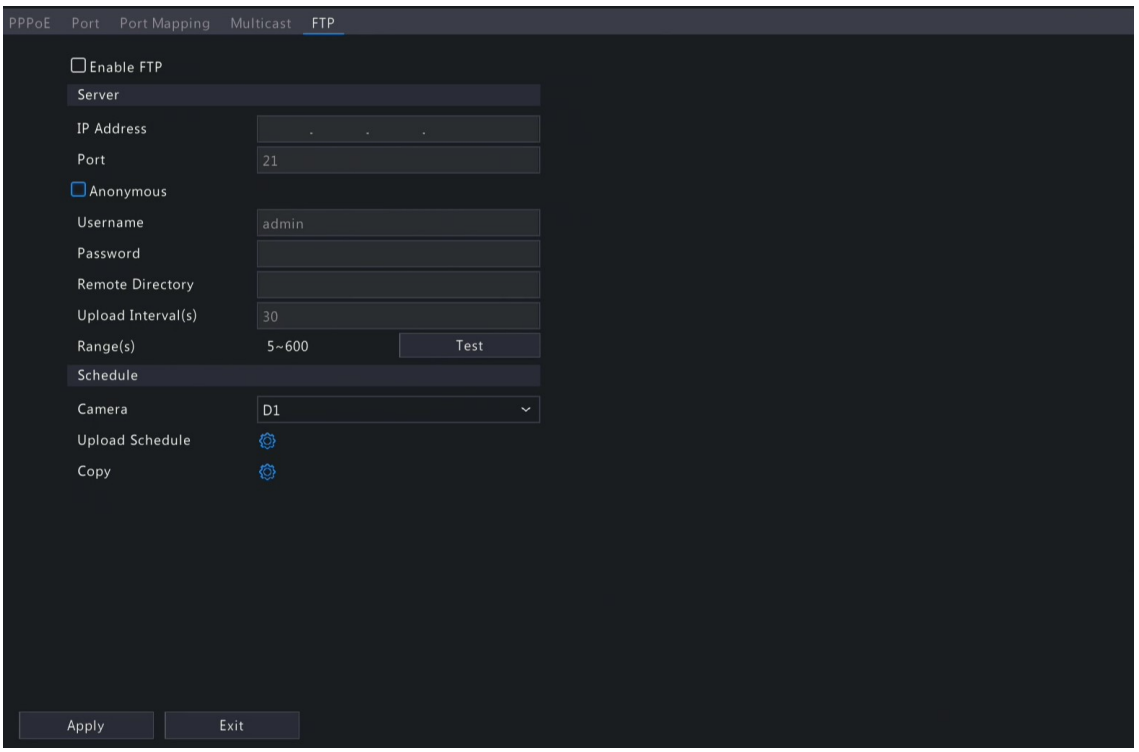
6.3.5 FTP

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

Note:

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

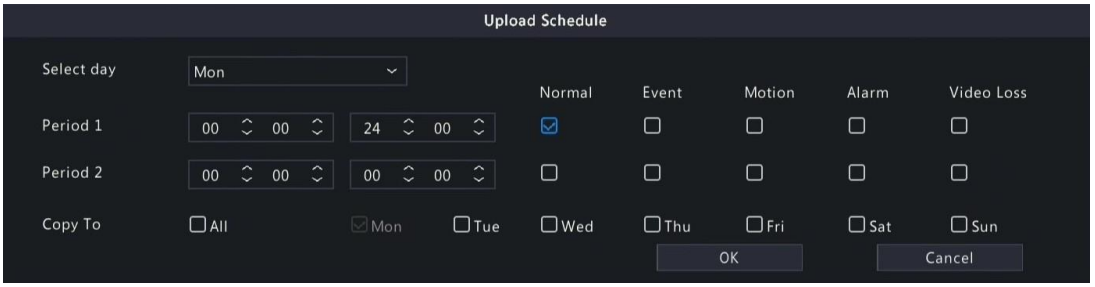
1. Go to **Menu** > **Network** > **Advanced** > **FTP**.



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

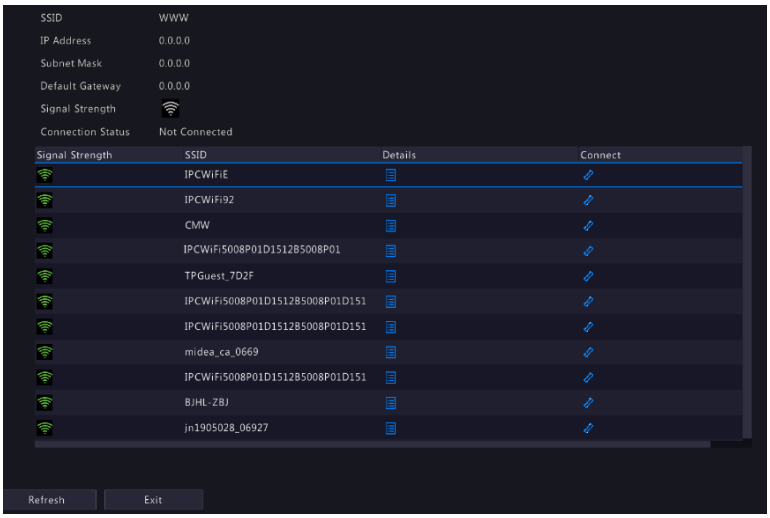
5. (Optional) To apply the current upload schedule to other cameras, click behind **Copy**, select cameras, and then click **OK**.

6. Click **Apply**.

6.4 Wireless Local Area Network

Plug in a USB wireless network interface card and connect the NVR to the hotspot of a wireless router.

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



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

6.5 WiFi AP

Only Wi-Fi Kit NVR models support this function.

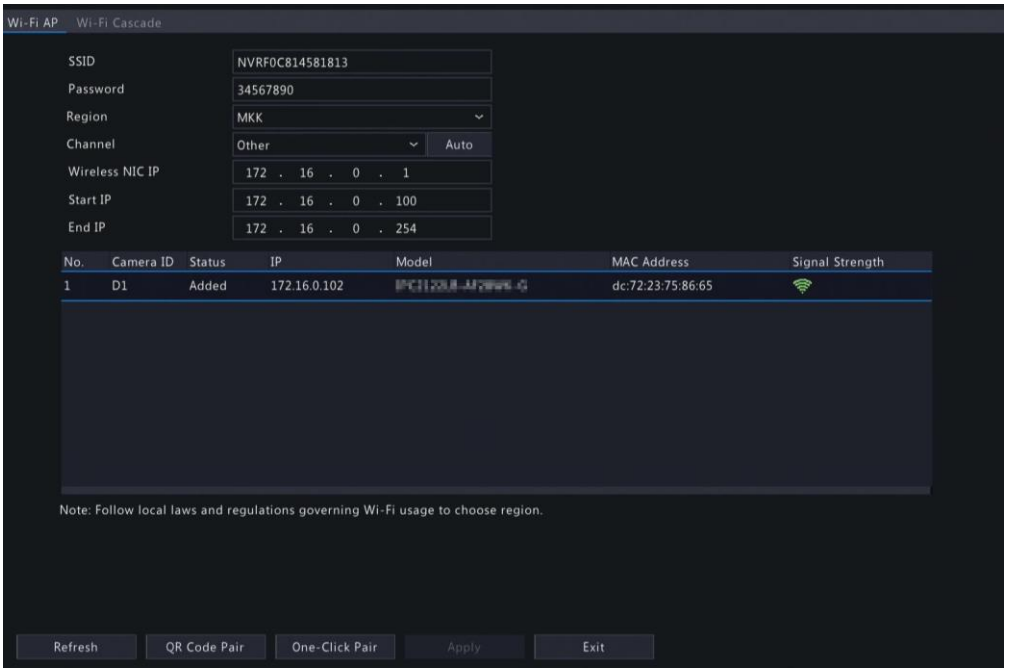
6.5.1 WiFi AP

The IPC and NVR have been paired before leaving factory, and the IPC will be automatically added to the NVR after power-on. However, if the user manually changed one of the parameters and caused any inconsistent parameter between the two, the IPC cannot be added automatically, and pairing is needed.

There are four methods to pair.

One-click pair (if you have a network cable)

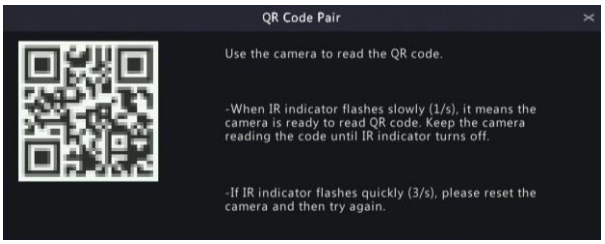
1. Connect the camera to the switch via a network cable, and connect the switch to the NVR.
2. Power on the camera.
3. On the NVR's local interface, choose **Menu** > **Network** > **Wi-Fi AP** > **Wi-Fi AP**.



4. Click One-Click Pair, and wait for successful pair within five minutes after the camera is powered on.

Scan code using the camera:

1. On the NVR's local interface, choose **Menu** > **Network** > **Wi-Fi AP** > **Wi-Fi AP**.
2. Click QR Code Pair and use the camera to read the QR Code to pair.

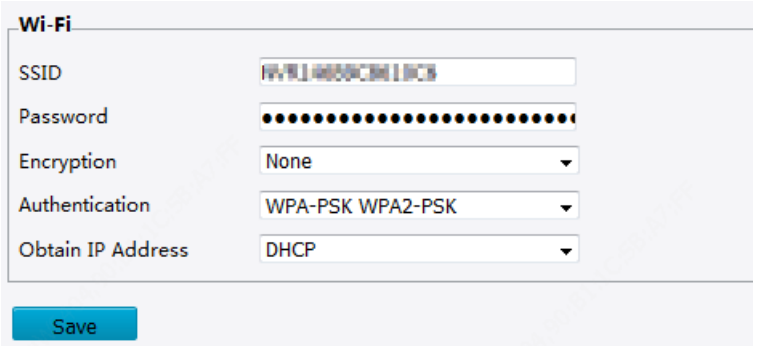


Use the EZView app (if you don't have a network cable)

1. On the NVR's local interface, choose **Menu** > **System** > **Basic**, click **Wizard**, scan the QR code in Step 1 to download and install the EZView app on your mobile phone.
2. Connect the mobile phone to the NVR's Wi-Fi.
3. Open EZView, tap **Settings** > **Local Config** > **Device Wi-Fi Configuration**, enter the NVR's Wi-Fi name and password.
4. Within 10 minutes after the camera is powered on, long-press the IPC's reset button to restore default settings.
5. Tap Start on EZView and wait till the IPC is added to the NVR.

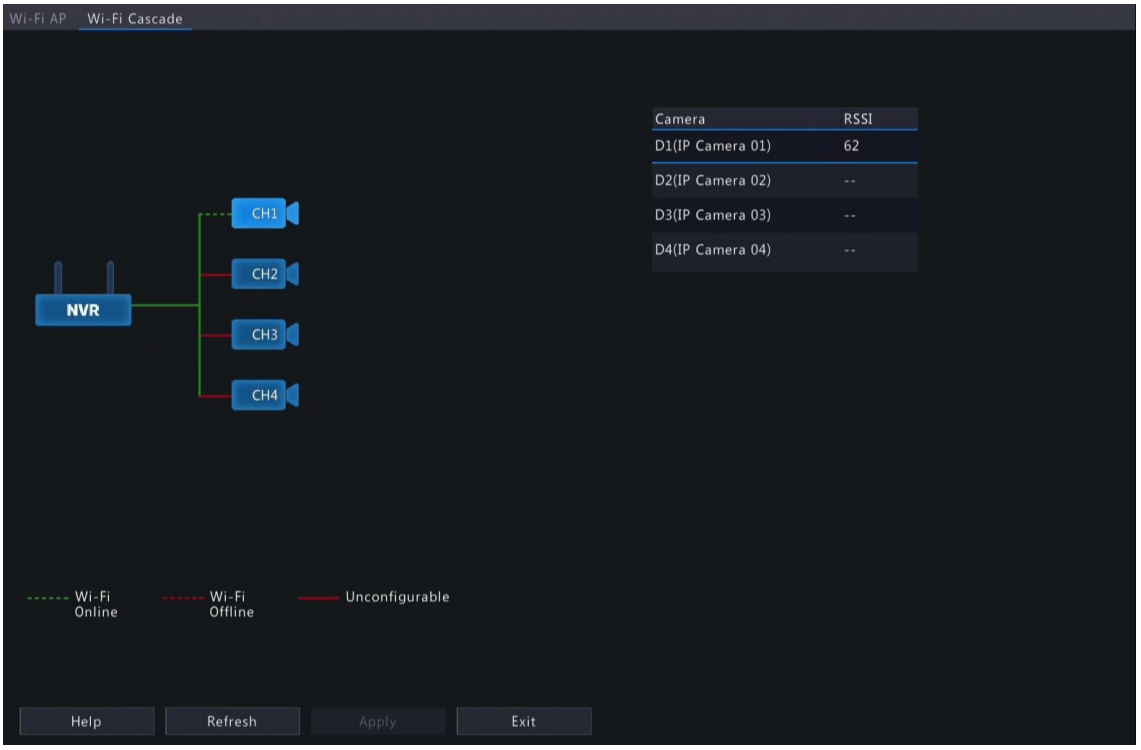
Pair manually (if you have a network cable)

Log in to the IPC's web interface. On the Wi-Fi configuration page, fill in the NVR's SSID and password.

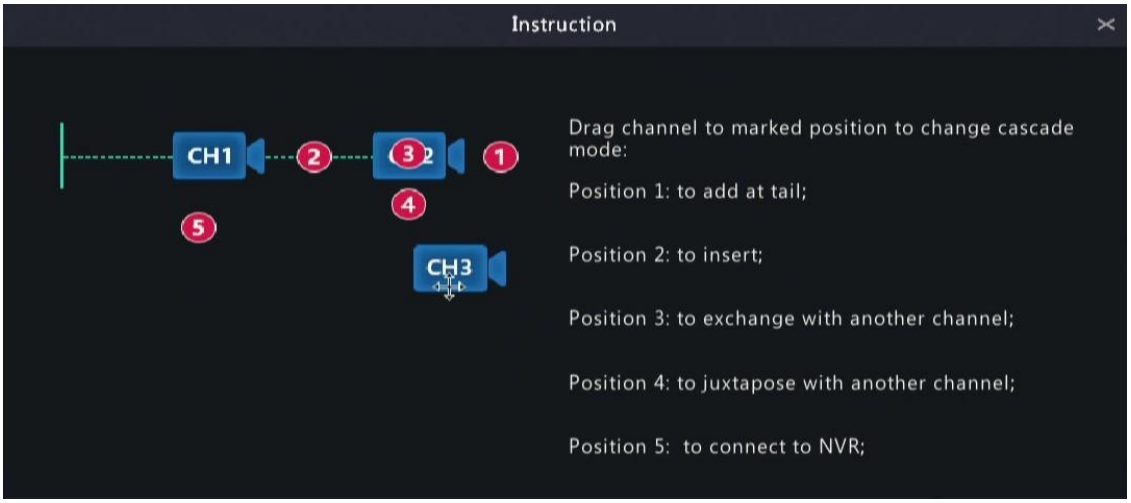


6.5.2 WiFi Cascade

1. Click **Menu** > **Network** > **Wi-Fi AP** > **Wi-Fi Cascade**.



2. When long-distance transmission or IPC needs to transmit across the wall, the IPC can be dragged, connected to another IPC, and then connected to the NVR by cascading.
3. (Optional) Click **Help** to view the detailed instruction.



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

7SystemConfiguration

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**.

2. Configure the basic parameters.

Parameter	Description
Device Name	The default name is the NVR 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. **Note:** Not all devices can switch the 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 in order 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 NVR 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.
Intelligent Mark	When enabled, smart detection rules will be displayed on the live video, or smart detection objects will be marked, and the corresponding smart data will be displayed. Smart rules are yellow detection boxes or detection lines. Detection boxes have two colors with different meaning as described below: • Green: Data have changed but didn't trigger the rules. • Red: Data in the area have triggered the rules configured for the VCA alarm and a VCA alarm has occurred. **Note:** Some smart functions do not support this feature.

3. Click **Apply**.

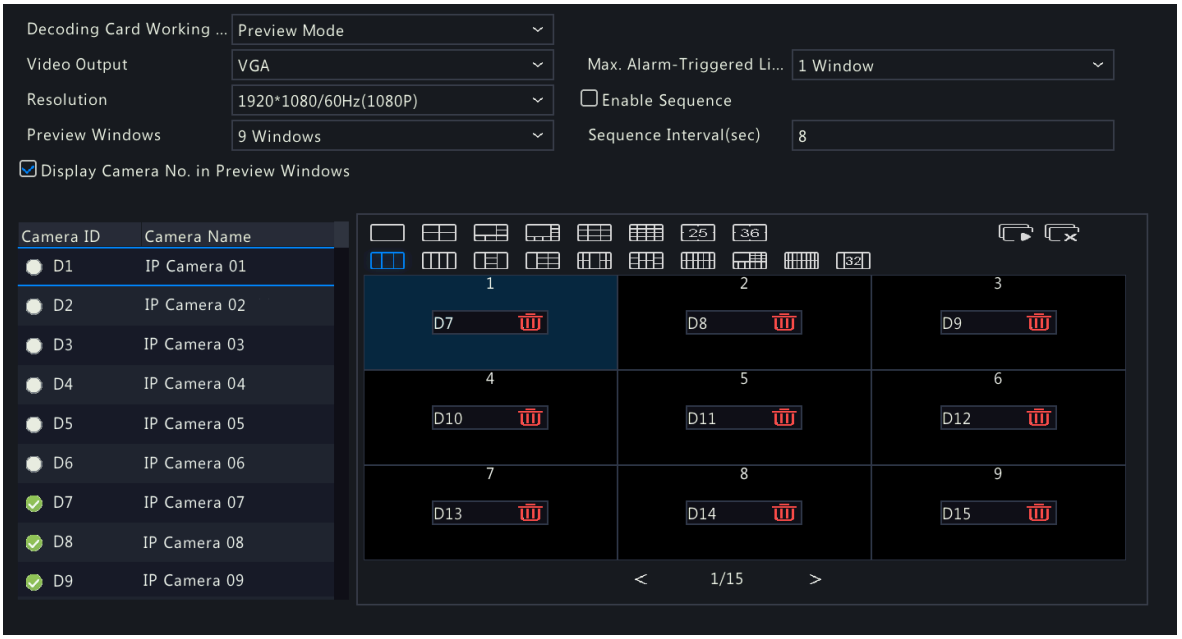
7.2 Preview Configuration

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 NVR 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 Camera No. in Preview Windows	When enabled, camera IDs will be displayed in live view windows. This feature is enabled by default.

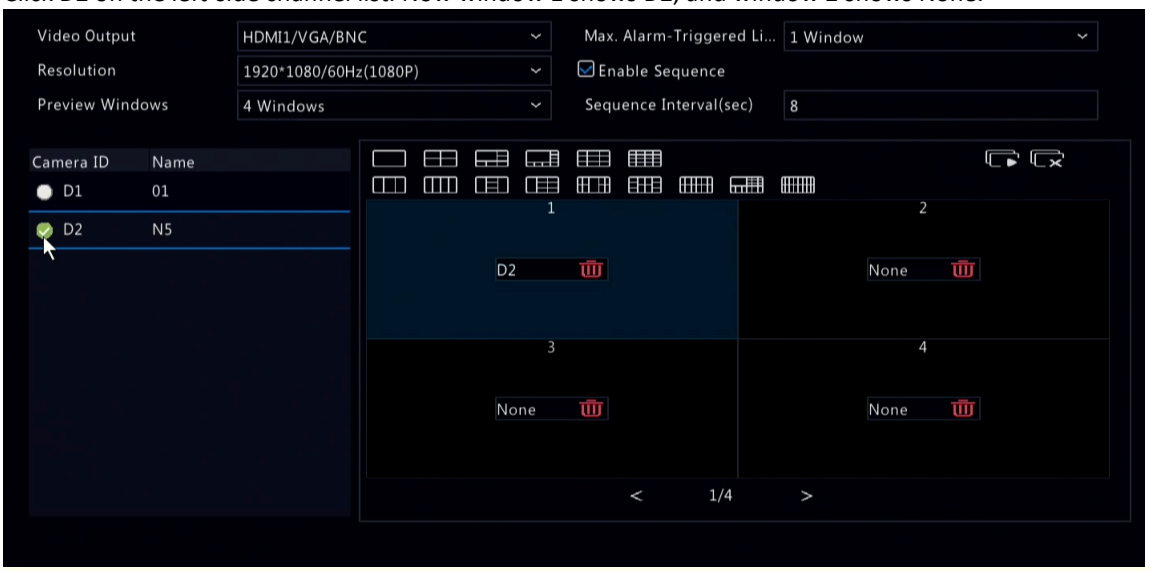
Screen Configuration

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.

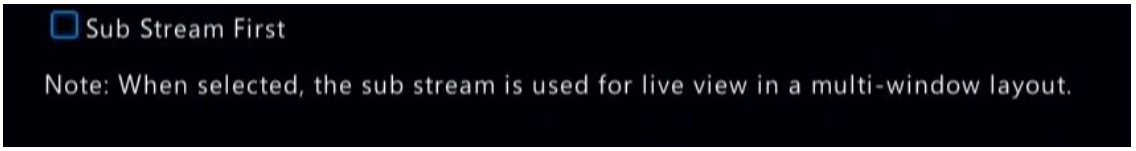
3. Click window 2 on the right side. Window 2 is selected.

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**.

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 **Enable Auto Update**.

2. Enter the NTP server address and port number.
3. Choose an update interval.

7.3.2 Camera Time Synchronization

When **Sync Camera Time** is enabled, the NVR 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.

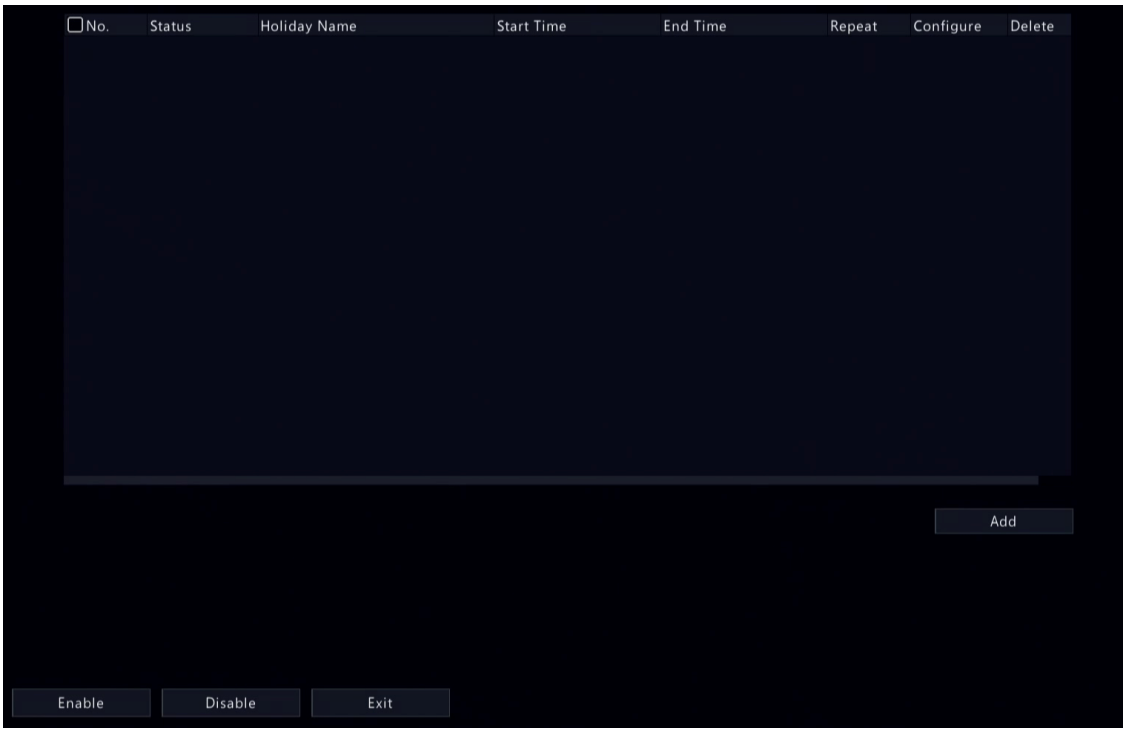
1. Go to **Menu** > **System** > **Time**.

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

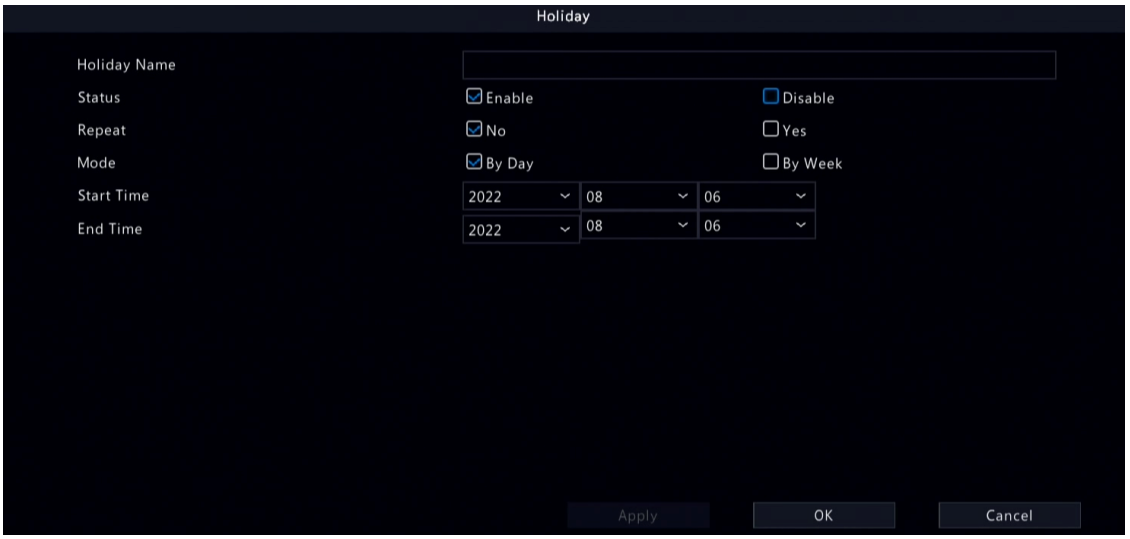
7.3.3 Holiday Configuration

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

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



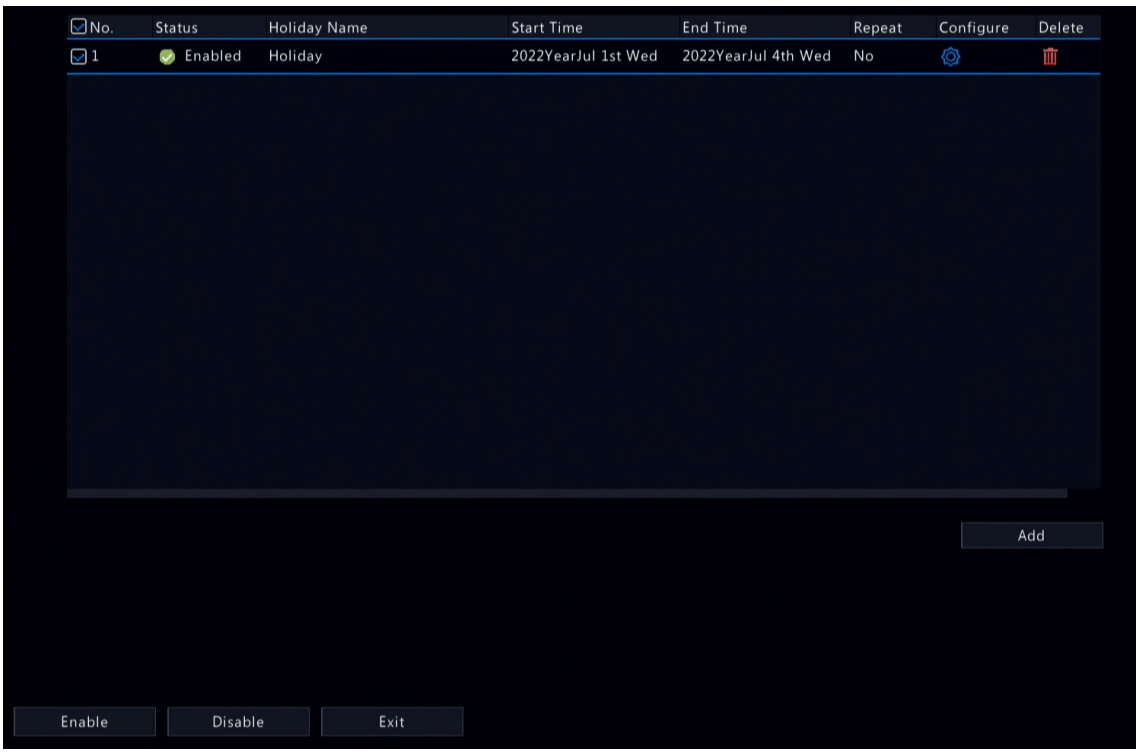
2. Click **Add** in the lower-right corner.



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**.



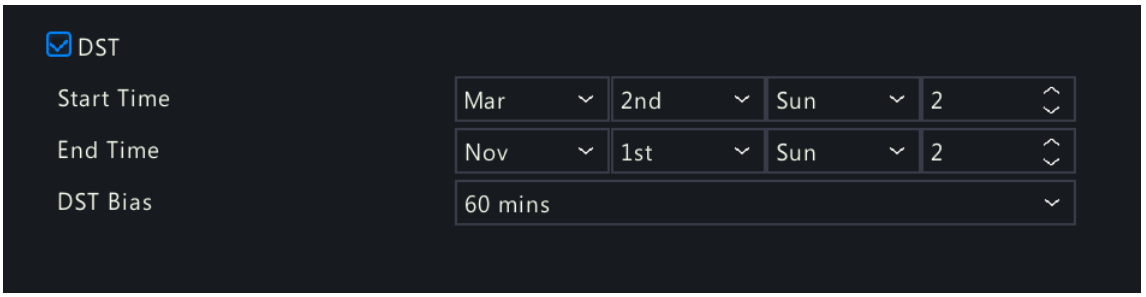
- Click to edit the current holiday.
- Click to delete a holiday. Deleting a holiday will not delete the relevant recordings.

- Click **Disable** to disable the holiday.

7.3.4 DST

Configure DST.

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



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

7.4 POS Configuration

Overlay transaction information to live and recorded videos for check and audit.

POS configuration includes POS OSD Configuration and POS Configuration. After the configuration is completed, POS information will be displayed on both live and recorded videos, and POS recordings can be retrieved for playback.

7.4.1 POS OSD Configuration

Configure POS OSD parameters.

1. Go to **Menu** > **System** > **POS** > **POS OSD**.

2. Select **Enable POS OSD**.
3. Configure the parameters.

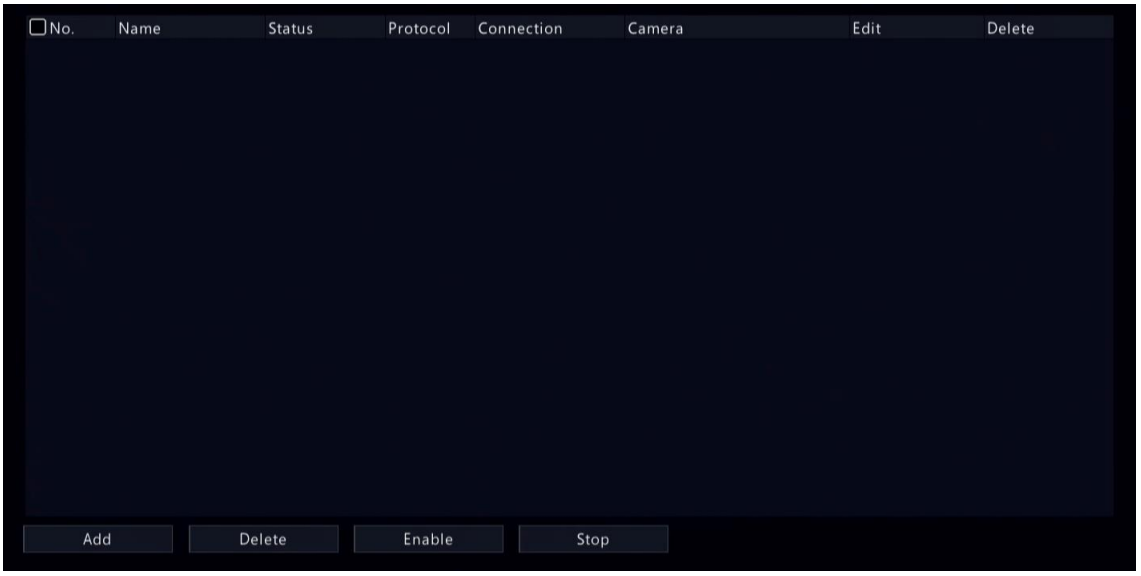
Parameter	Description
Position	POS OSD position. • Left: In the upper-left corner of the image. • Center: In the middle of the image. • Right: In the upper-right corner of the image.
Duration(s)	Length of time that POS OSD is displayed on live and recorded video images. Default: 5s. Max. 120s.
Auto	Displays POS OSD according to the POS data duration obtained based on **Time Start Identifier** and **Time End Identifier**. For **Time Start Identifier** and **Time End Identifier**, see also POS Configuration.
Font	Font size and color of POS OSD. Font sizes include X-large, Large, Medium, and Small.

4. Click **OK**.

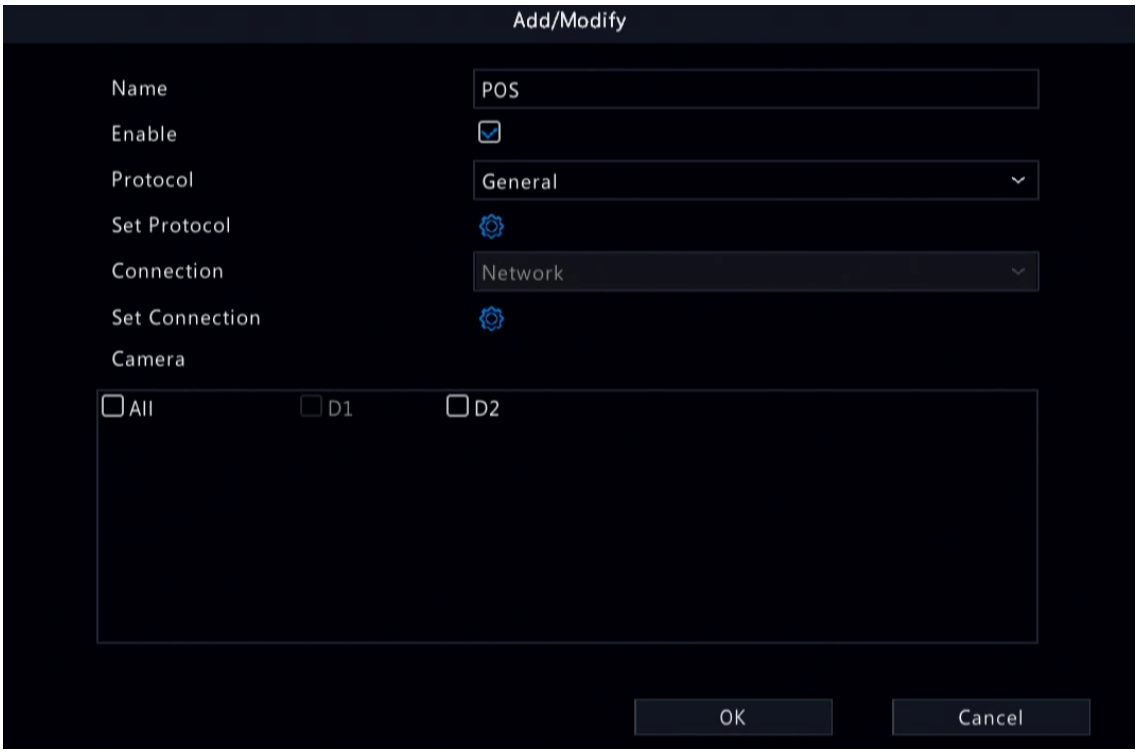
7.4.2 POS Configuration

Add POS and configure POS protocols.

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



2. Click **Add**.

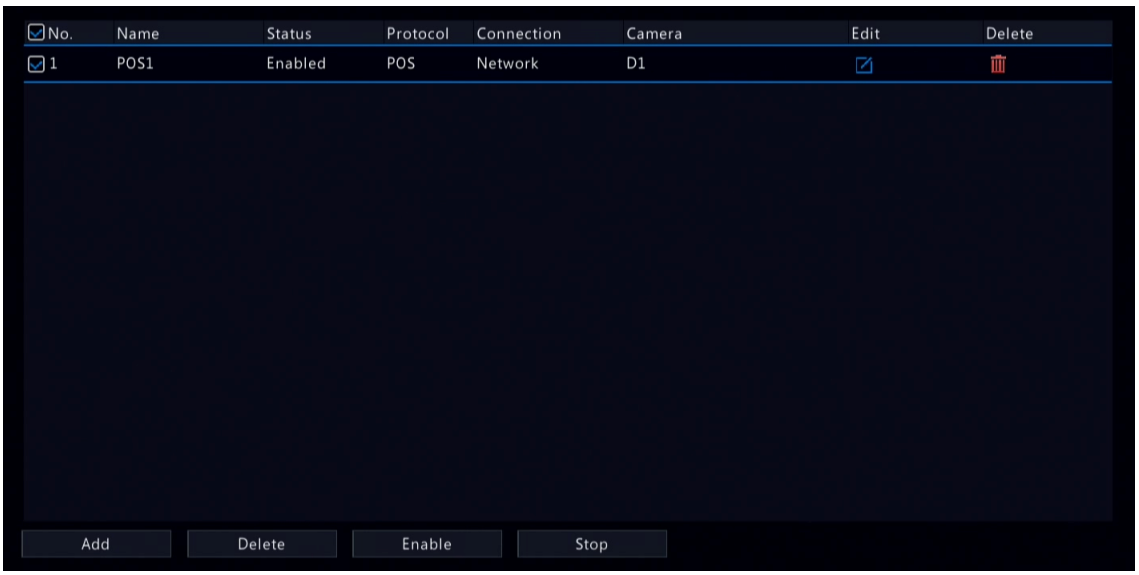


3. Configure the parameters.

Parameter	Description
Name	Set a name that is easy to recognize. The POS name must be unique.
Enable	The new POS is enabled by default. You may clear the checkbox to disable the POS, and enable it on the POS page at any time.
Protocol	• General: The POS is directly connected to the NVR. **Note:** Choose this option with caution. POS connection may fail due to different protocols of different POS machine vendors. • AVE: The POS machine transmits data to the AVE device, and the AVE device connects to the NVR. **Note:** AVE is a device that supports multiple POS protocols. It integrates POS data in different formats and converts them into data transmittable via TCP/UDP.

Parameter	Description
	Only applicable to the General protocol. Click . The start identifier, end identifier, and line delimiter must be converted into hexadecimal values using Notepad+ before being entered. • Start Identifier: (Optional) The NVR starts receiving POS data from the start identifier. • Stop Identifier: (Optional) The NVR stops receiving POS data at the received stop identifier. • Line Delimiter: (Optional) The NVR inserts a line break into POS data at the line delimiter.
	• Ignore Characters: (Optional) The NVR displays ignored POS data as *. • Time Start Identifier: (Optional) Start time of POS data. • Time End Identifier: (Optional) End time of POS data.
Set Connection	Transmission protocols include TCP and UDP. Transaction data are sent to the NVR via TCP or UDP.
	Local Receiving Port: Port that the NVR uses to receive data. Set an unused port.
	Source IPv4 Address: IP address that the POS machine uses to send data.
	Source Port: Port that the POS machine uses to send data.
	Destination IPv4 Address: Not required. Address that the NVR uses to forward the received POS data.
	Destination Port: Not required. Port that the NVR uses to forward the received POS data.
	Timeout: Time that the NVR receives POS data before it stops. Default: 5s. Range: 1-3600s. If a stop identifier is configured, the NVR stops receiving POS data at the stop identifier; if no stop identifier is configured, the NVR stops receiving POS data when the timeout expires. The AVE protocol does not involve start and stop identifiers. Therefore, it is necessary to configure a timeout for the NVR to stop receiving POS data and to display POS information. If no timeout is configured, the NVR does not stop receiving POS data, and POS information cannot be displayed.
Camera	Choose the camera to which you want to overlay POS data.

4. Click **OK**.



- Click to edit the POS.
- Click to delete the POS.

- Click **Disable** to disable the POS.

7.5 Serial Port Configuration

Configure serial port parameters to connect a keyboard. The serial port settings configured on the NVR must match the serial port settings on the keyboard.

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

2. Configure the parameters.

Parameter	Description
Serial No.	Choose the serial port ID. The number of serial ports available may vary with device.
Type	Currently only RS485 is available.
Baud Rate	Data transmission speed (unit: bits per second). The greater the value, the faster the transmission speed, and the shorter the transmission distance. Usually the default value is used.
Data Bit	The actual number of data bits in a data packet. Usually the default value is used.
Stop Bit	Indicates the end of a unit of transmission. Usually the default value is used.
Check Bit	Used to check whether the received data bits are erroneous. Choose Odd, Even, or None (default) as needed.
Port Usage	Keyboard.

3. Click **Apply**.

7.6 User Configuration

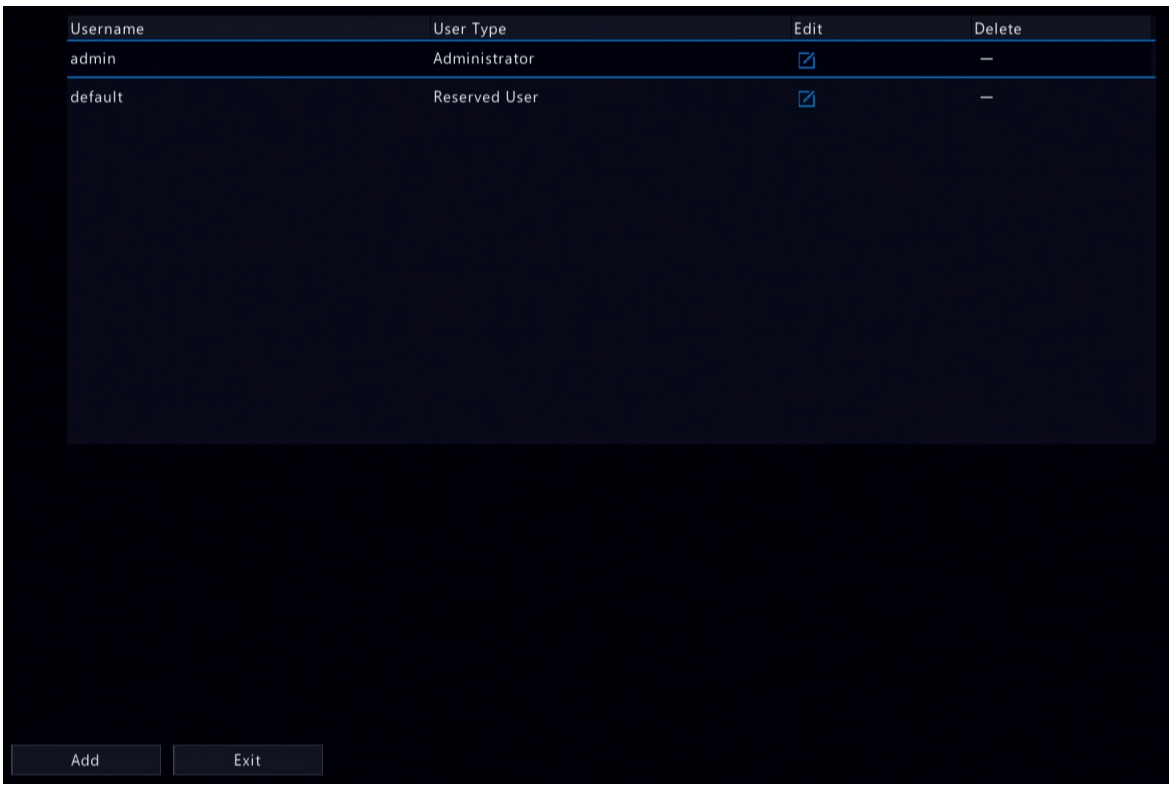
Users are entities that manage and operate the system. A user type is a set of operation permissions. After a user type is assigned to a user, the user has all the permissions defined in the type.

The system supports four user types:

User Type	Description
admin	The default super administrator, which has the maximum permissions. The initial password is **123456**. **Note:** Only admin can add or delete users and edit other users' permissions.

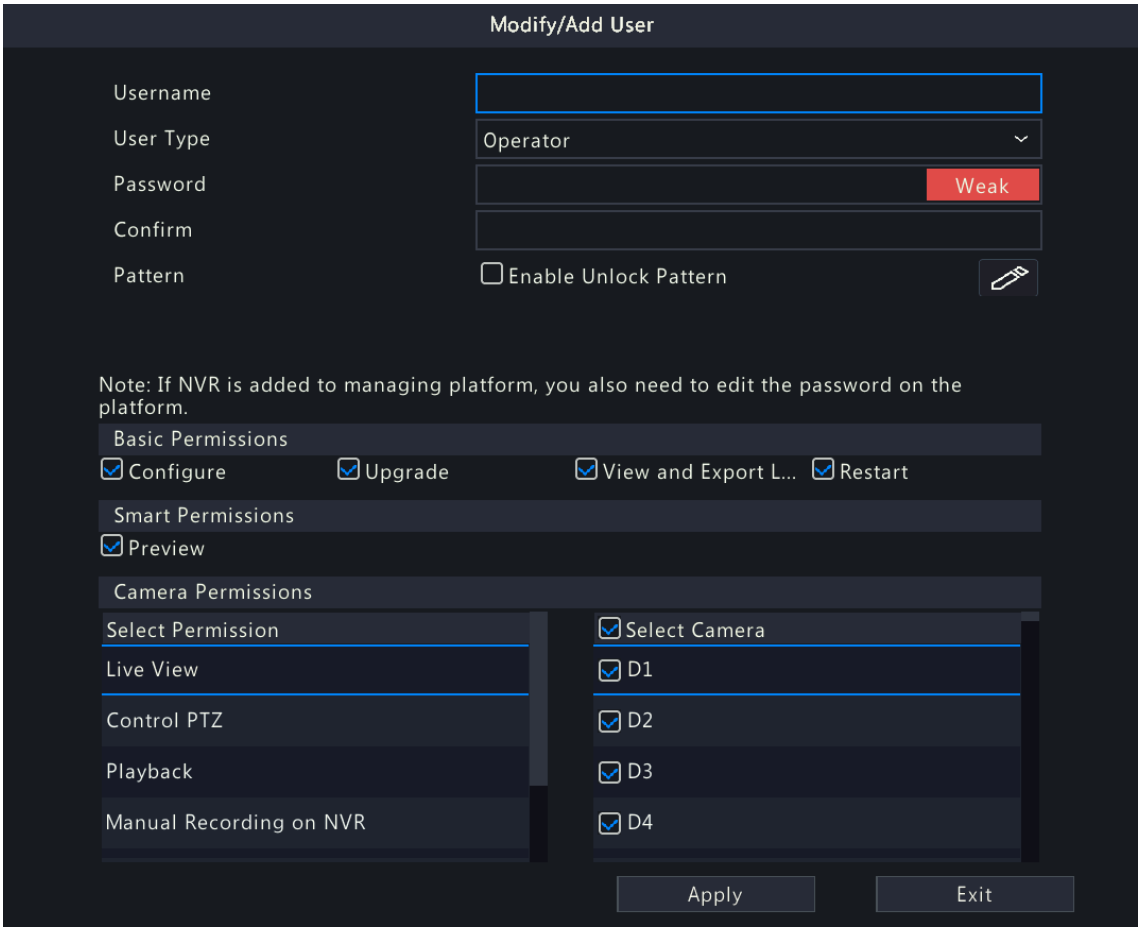
User Type	Description
default	The default reserved user, which cannot be added or deleted, only has live view and two-way audio permissions by default, and can be configured by admin only. **Note:** If the default user is forbidden to use live view and two-way audio on a camera, the camera will be locked 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.

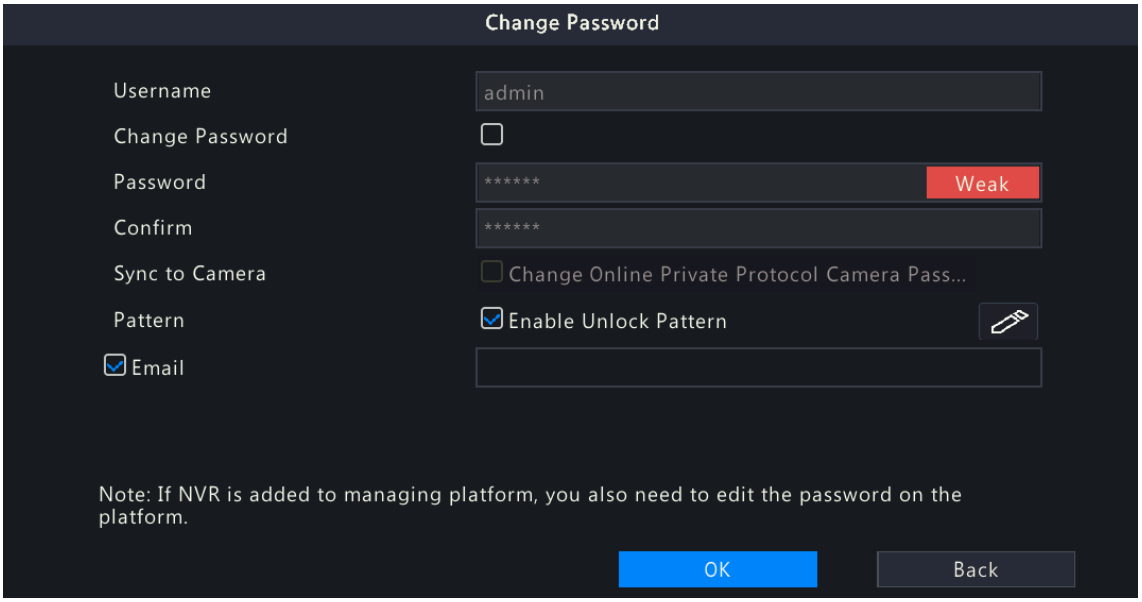
3. Click **OK**.

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**.

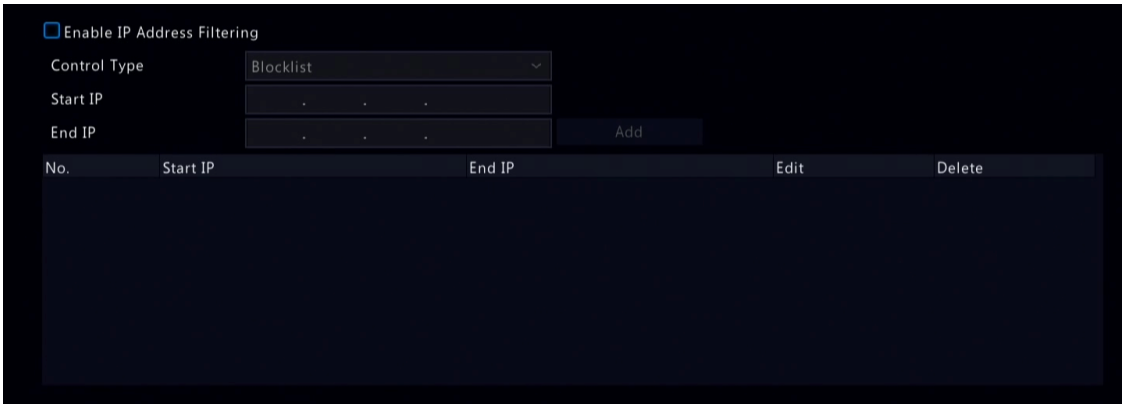
7.7 Security Configuration

Security configuration includes IP address filtering, Onvif authentication, 802.1x, ARP protection, watermark, and secure password.

7.7.1 IP Address Filtering

IP address filtering can ensure only certain source IP addresses can be used to access the NVR'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**.

7.7.2 ONVIF Authentication

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

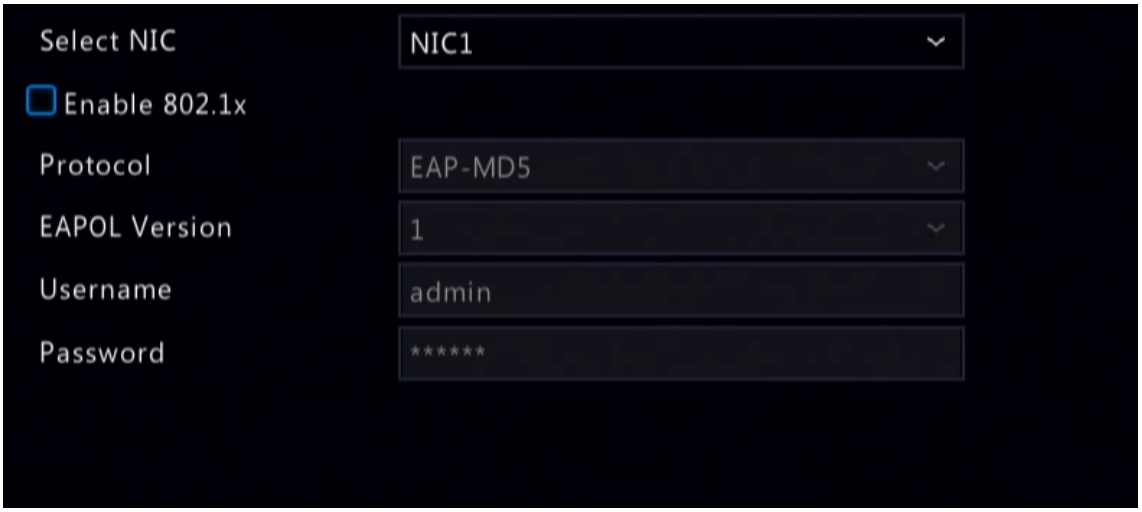
7.7.3 802.1x

802.1X can prevent unauthenticated devices from accessing the local area network.

Note:

- Only some NVRs support this function.
- You need to configure and enable this function on the network switch first.
- For multi-NIC devices, this feature will be disabled automatically if you change the NIC's working mode.

1. Go to **Menu** > **System** > **Security** > **802.1x**.



2. Choose the NIC. Skip this step if the device has only one NIC.
3. Select **Enable 802.1x**.
4. Configure the parameters.

Parameter	Description
Protocol	Default: EAP-MD5.
EAPOL Version	Choose **1** or **2**. It must be the same version configured on the network switch.
Username/Password	Must be the username and password configured on the network switch.

5. Click **Apply**.

7.7.4 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 an MAC 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.

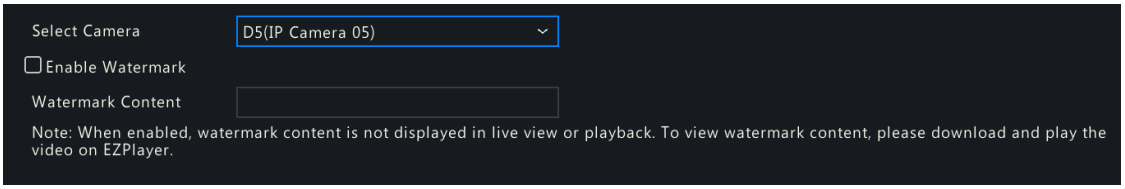
Parameter	Description
Gateway	Gateway you have configured in **Menu** > **Network** > **Basic** > **Network**.
Gateway MAC Address	Custom: Enter the gateway's physical address in the network switch.
	Auto: Automatically obtains the gateway's physical address in the network switch.

5. Click **Apply**.

7.7.5 Watermark

Use the watermark function to encrypt custom information into video contents to prevent video tampering.

1. Go to **Menu** > **System** > **Security** > **Watermark**.



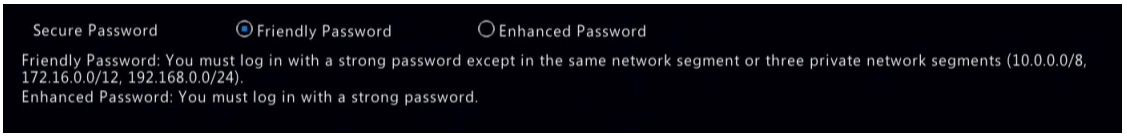
2. Choose the channel, and select **Enable Watermark**.
3. Enter the watermark contents.
4. Click **Apply**.

7.7.6 Secure Password

Secure password specifies application ranges of strong and weak passwords in different password modes. Secure password is divided into two password modes: friendly password and enhanced password.

Note: Only admin can change the setting.

1. Go to **Menu** > **System** > **Security** > **Secure Password**.



2. Choose whether to enable the **Enhanced Password** mode. The default is **Friendly Password**.
   - Friendly Password: In this mode, a strong password is required except when the PC client is in the same network segment as the NVR or in one of the three private network segments (10.0.0.0/8, 172.16.0.0/12, 192.168.0.0/24).
   - Enhanced Password:

     In this mode, the system prompts user to set a strong password if the current password is weak. Also, only strong passwords can be set for new users: At least 9 characters long, and include all three types: letters, digits, and special characters.
3. Click **Apply**.

7.8 Hot Spare

When one of multiple working NVRs failed, the hot spare takes over to replace the faulty one. When the faulty NVR recovered, it takes over the hot spare, and the hot spare transfers data stored during the downtime back to the recovered NVR to ensure reliable and uninterrupted data storage.

Go to **Menu** > **System** > **Hot Spare**.

Normal Mode

On the NVR to be used as a working device, perform the steps to add a hot spare:

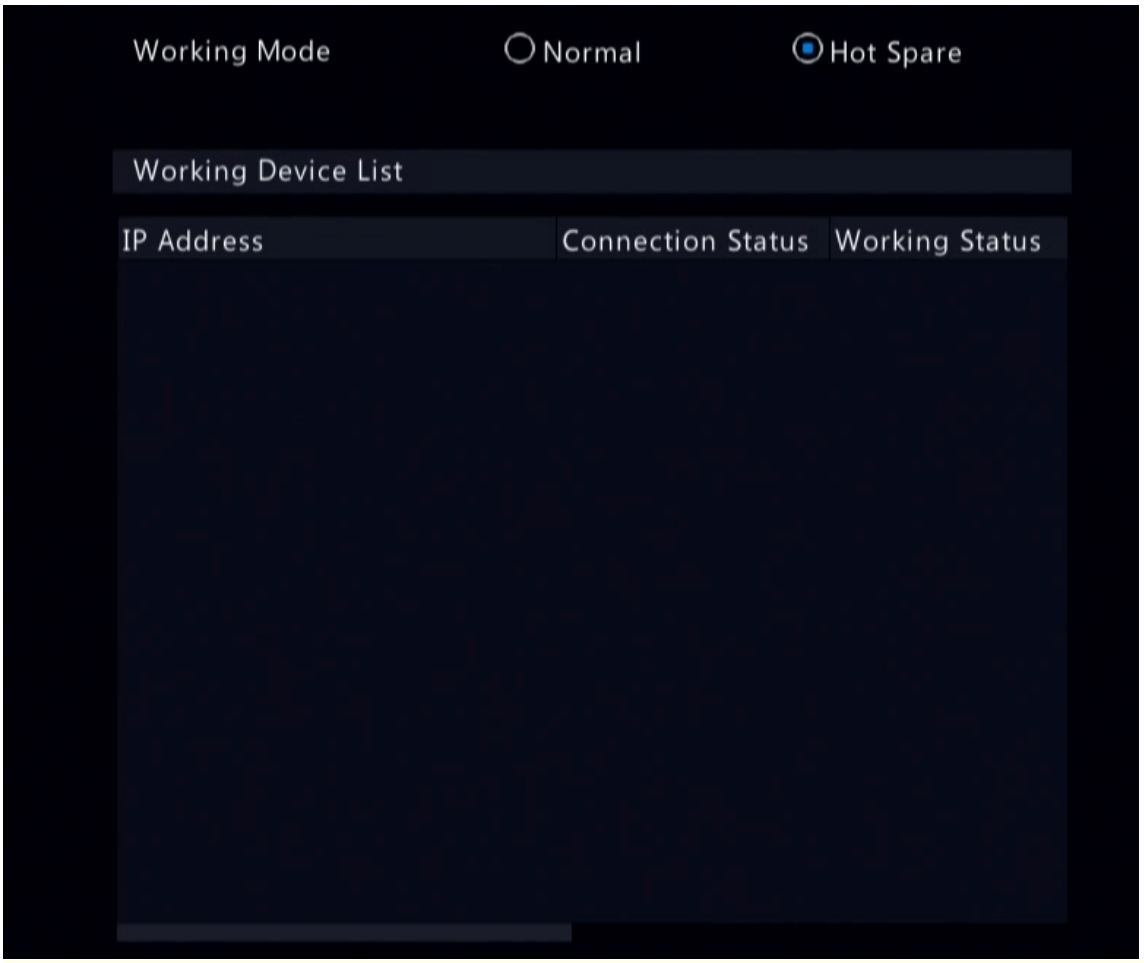
1. Click **Custom Add**.
2. Add a hot spare. You can enter the IP of the hot spare manually or search the network segment. The steps are similar to the steps described in Add IPC.
3. Click **Exit** to return to the **Hot Spare** page to complete the setup.

Hot Spare Mode

On the NVR to be used as the hot spare, perform the steps:

1. Go to **Menu** > **System** > **Hot Spare**.

2. Select the **Hot Spare** mode.



Note:

- Switching the working mode will restart the device. After the device is restarted, some of its parameters will change.
- After a working device is switched to a hot spare, some of its functions are unavailable, and some of its parameters are restored to the default settings.
- If multiple NVRs fail simultaneously, only one can be replaced by the hot spare; the rest wait for backup.

8Backup

This chapter introduces recording backup and image backup.

8.1 Recording Backup

Recording backup refers to backing up videos stored on the NVR'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 NVR.
- The storage device is connected correctly to the NVR.

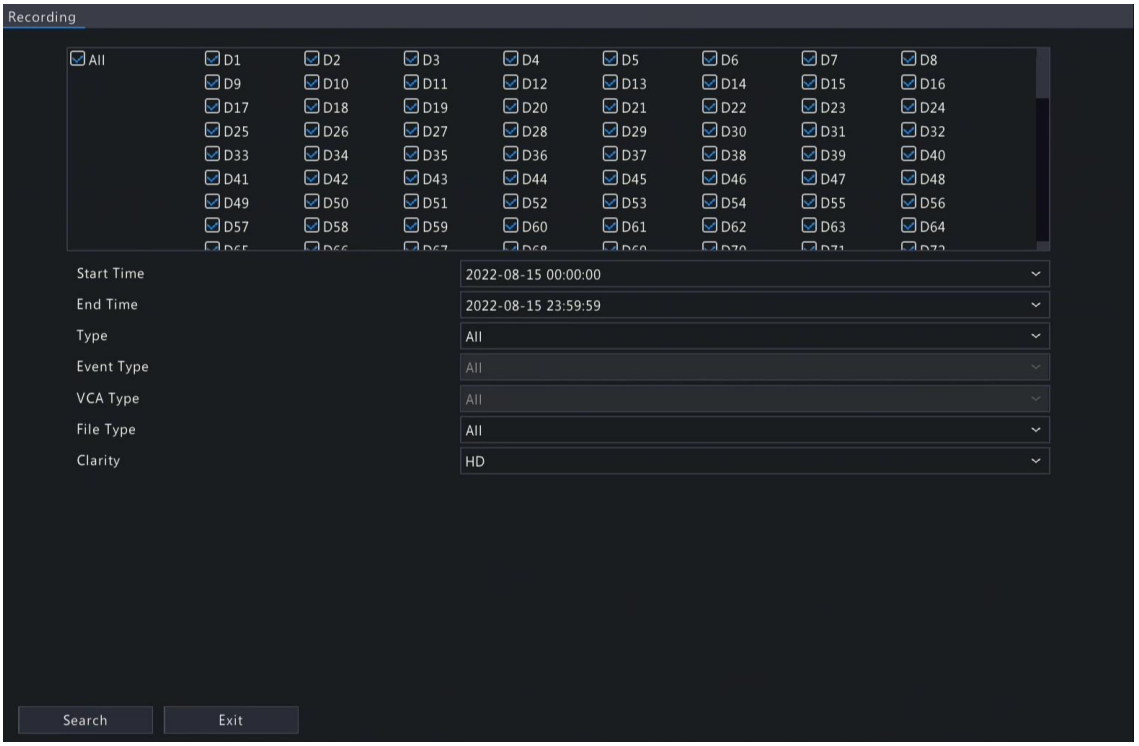
Note:

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

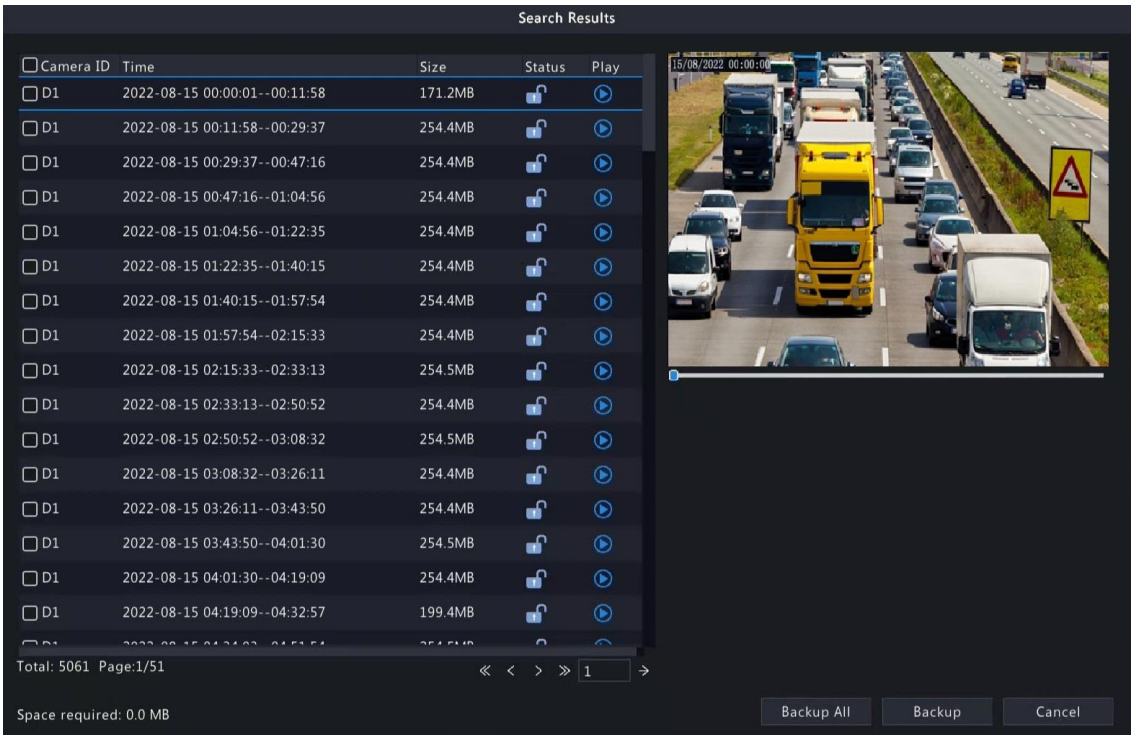
Normal Video Backup

Normal video backup refers to backing up scheduled recording, manual recording, and event-triggered recording.

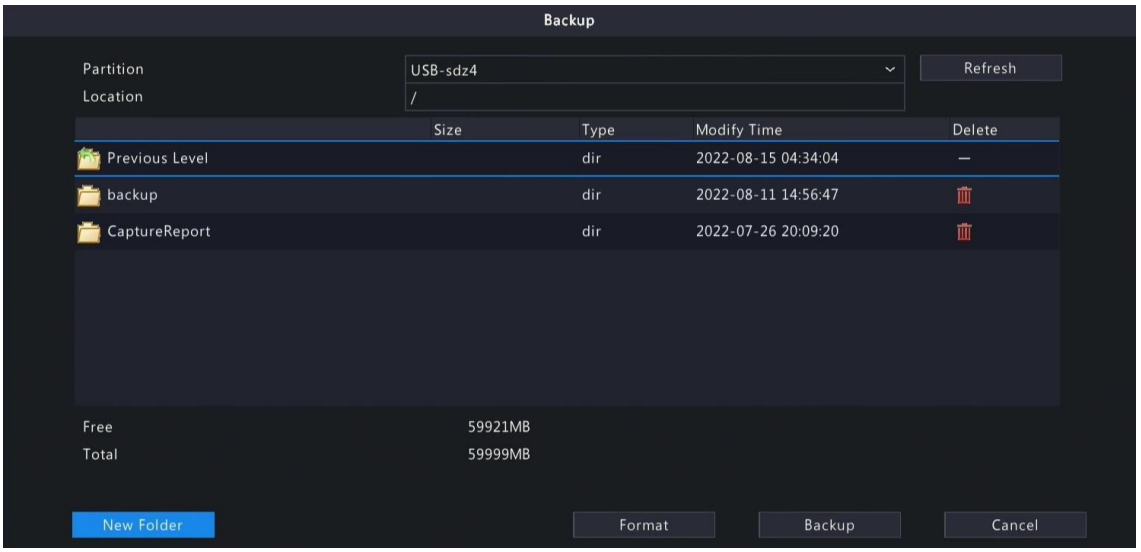
1. Go to **Menu** > **Backup** > **Recording**.
2. Select the desired camera(s). All cameras are selected by default.



3. Set search conditions, including the start time, end time, recording type, event type, VCA type, file type, and clarity (HD or SD).
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**.

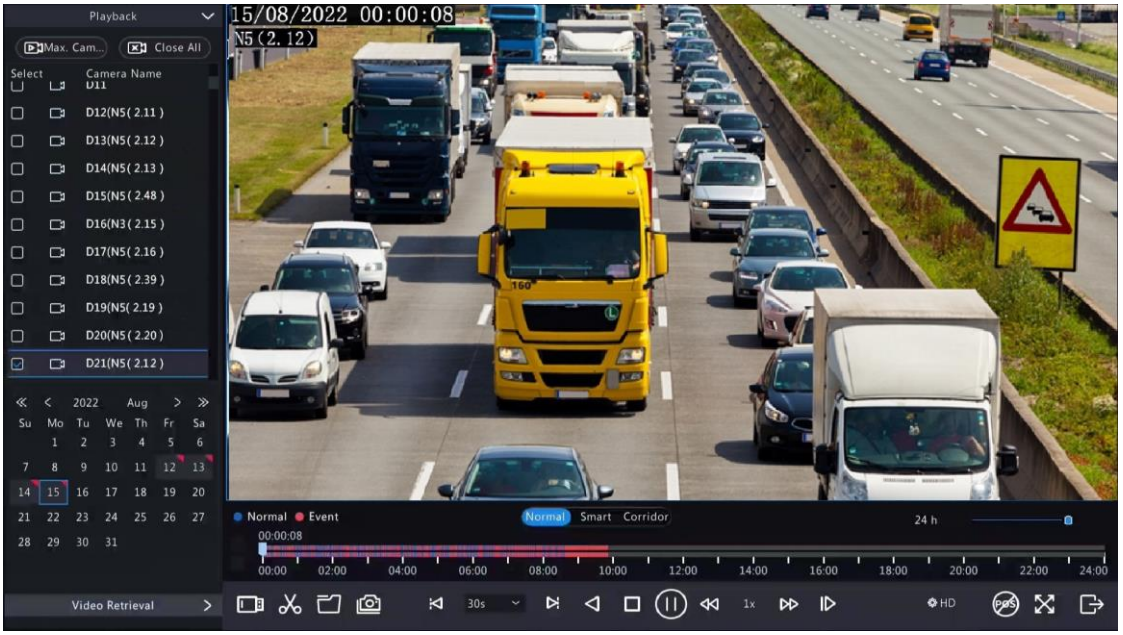
Note:

- 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 NVRs 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.

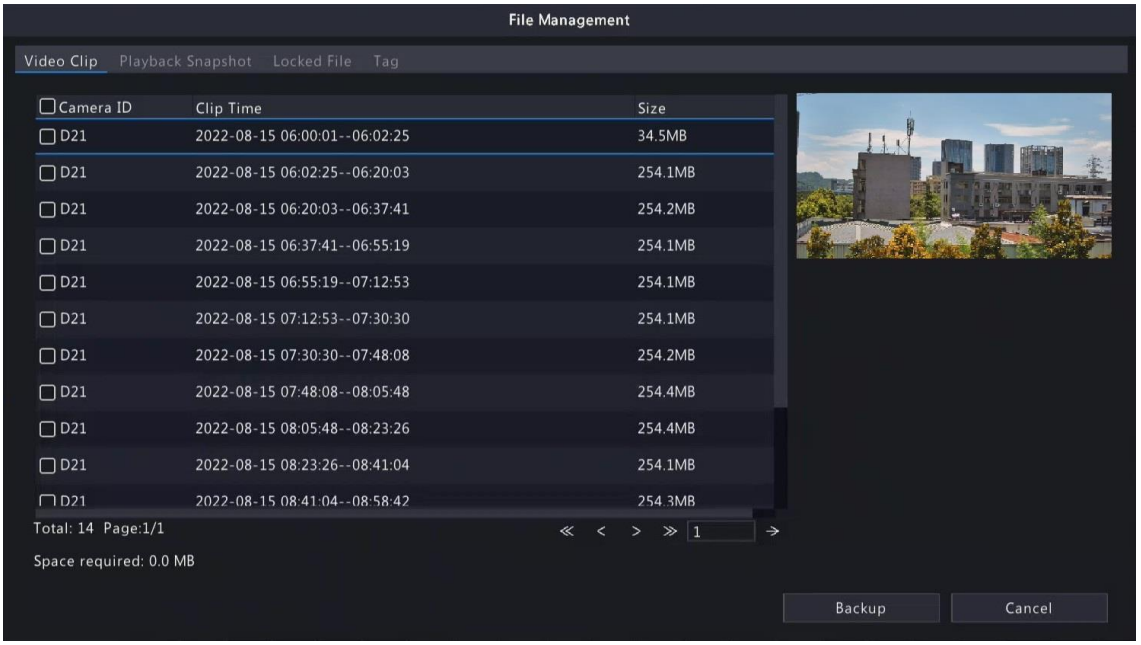
Video Clip Backup

Video clip backup refers to clipping a recording and saving it to a USB storage device.

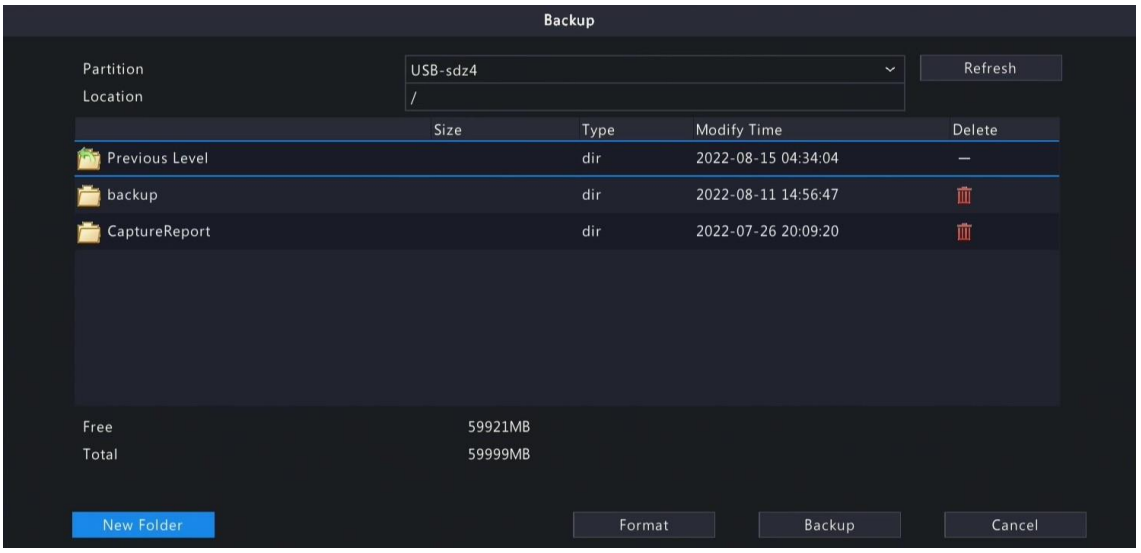
1. Right-click and select **Playback** to go to the **Playback** page.



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 the 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

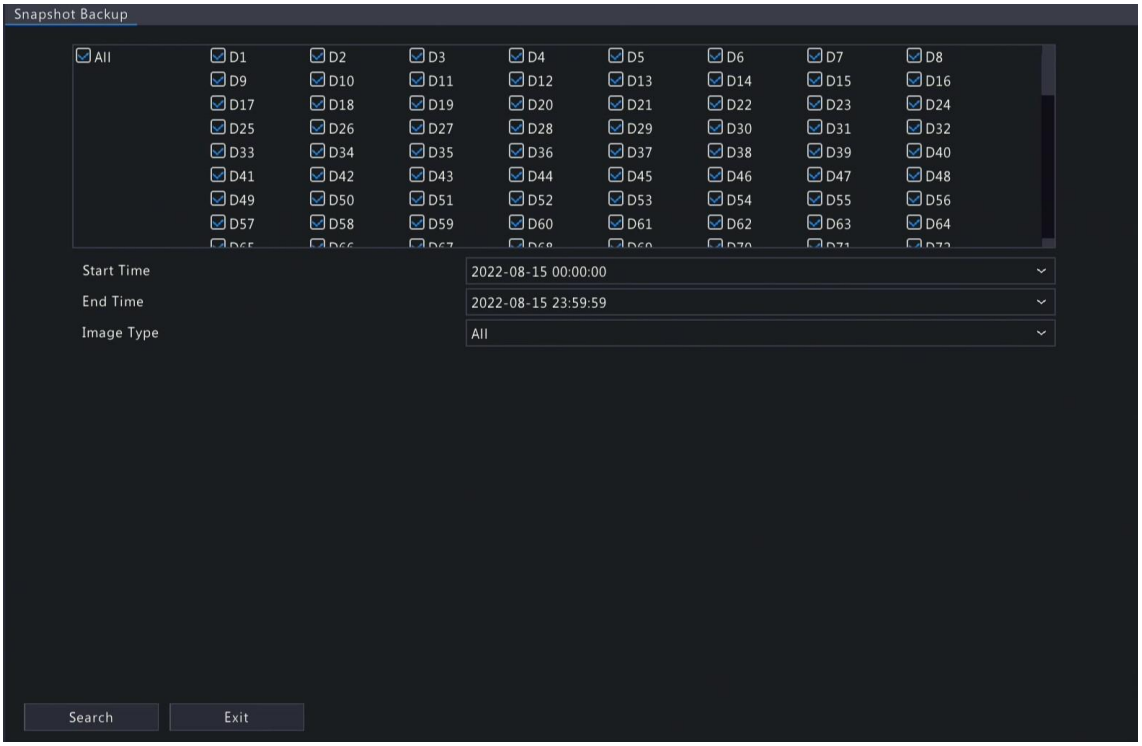
Image backup refers to backing up images stored on the NVR's hard disk to a USB storage device.

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

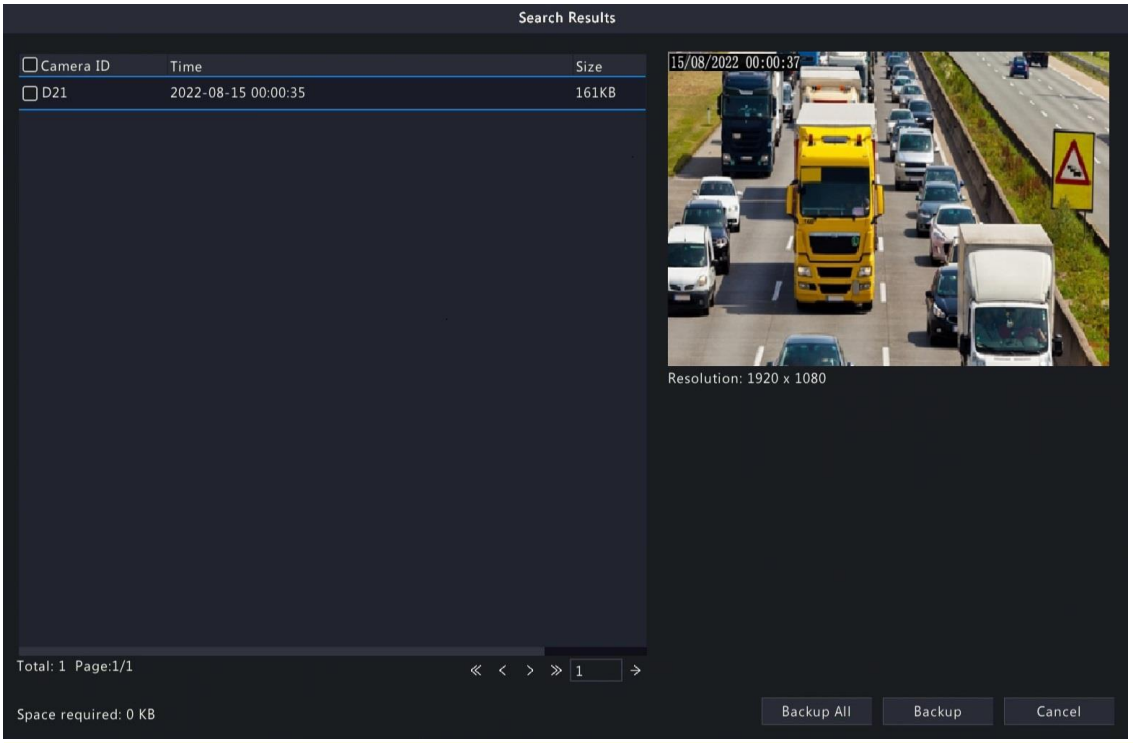
Normal Snapshot Backup

Normal snapshot backup refers to backing up scheduled snapshot, manual snapshot, and event-triggered snapshot.

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



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.



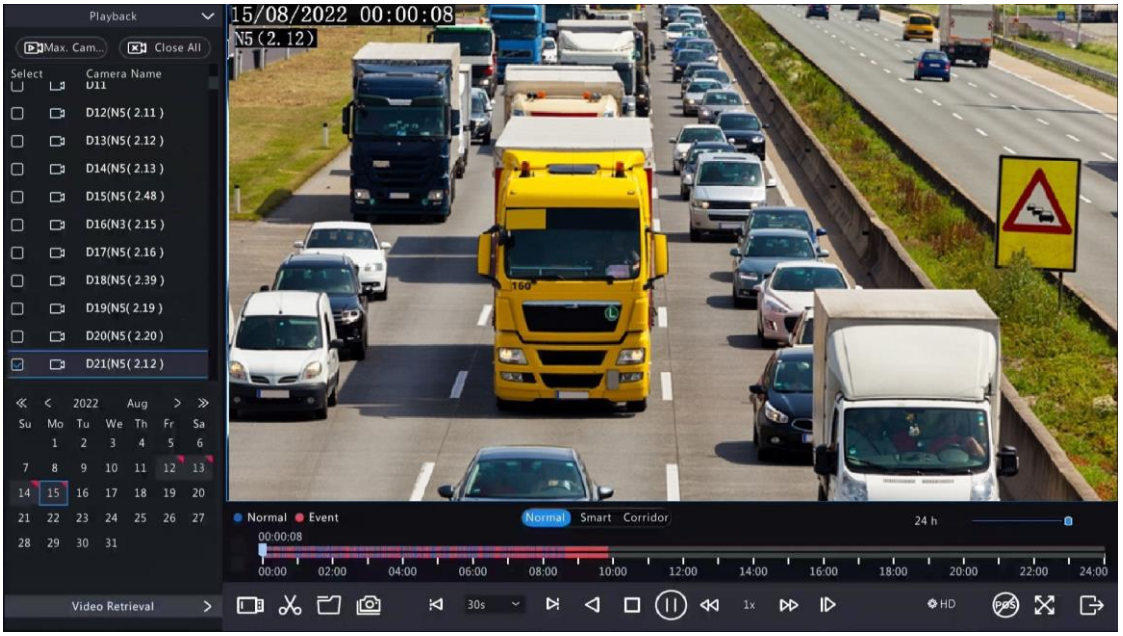
Note: The image resolution depends on the resolution from the output interface and the number of windows displayed when the snapshot is taken.

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

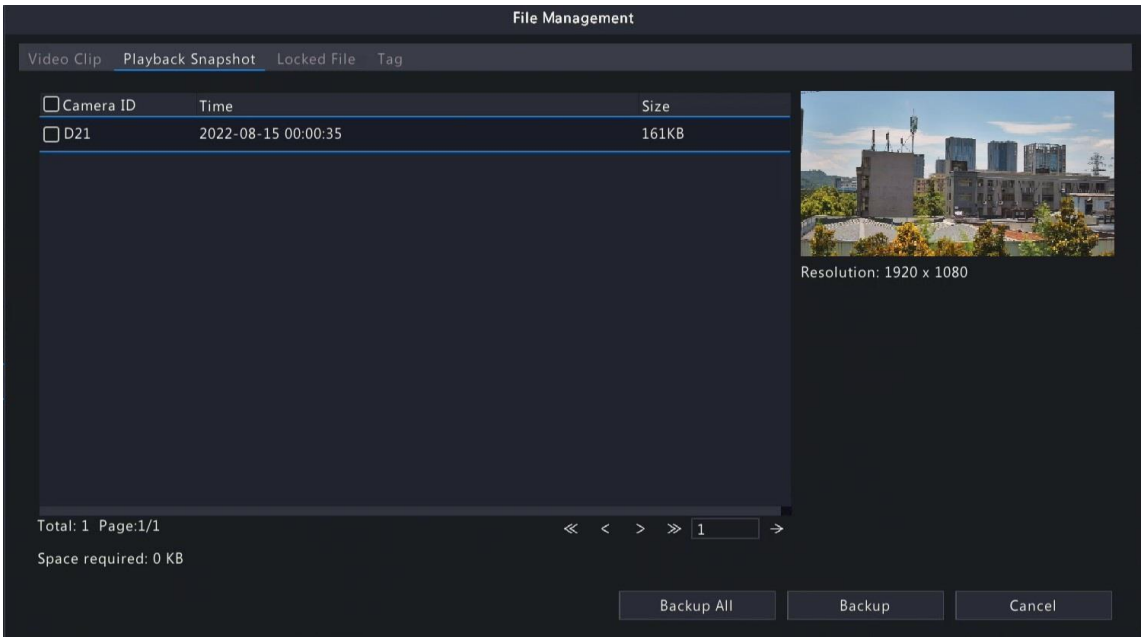
Playback Snapshot Backup

Playback snapshot backup refers to backing up snapshots that are taken during playback to a USB storage device.

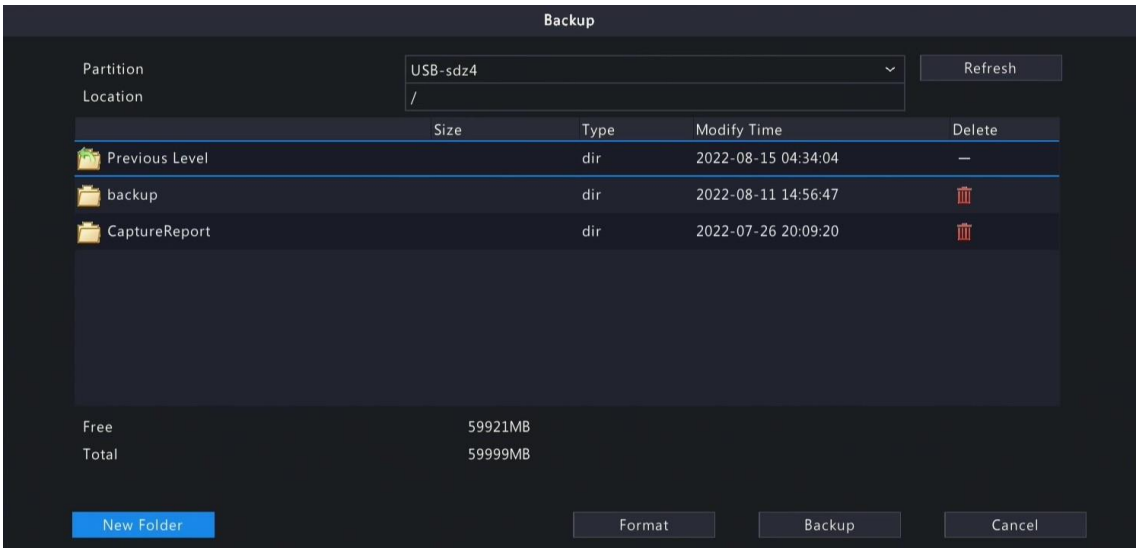
1. Go to the **Playback** page.



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**.

9Storage

Configure disk storage parameters.

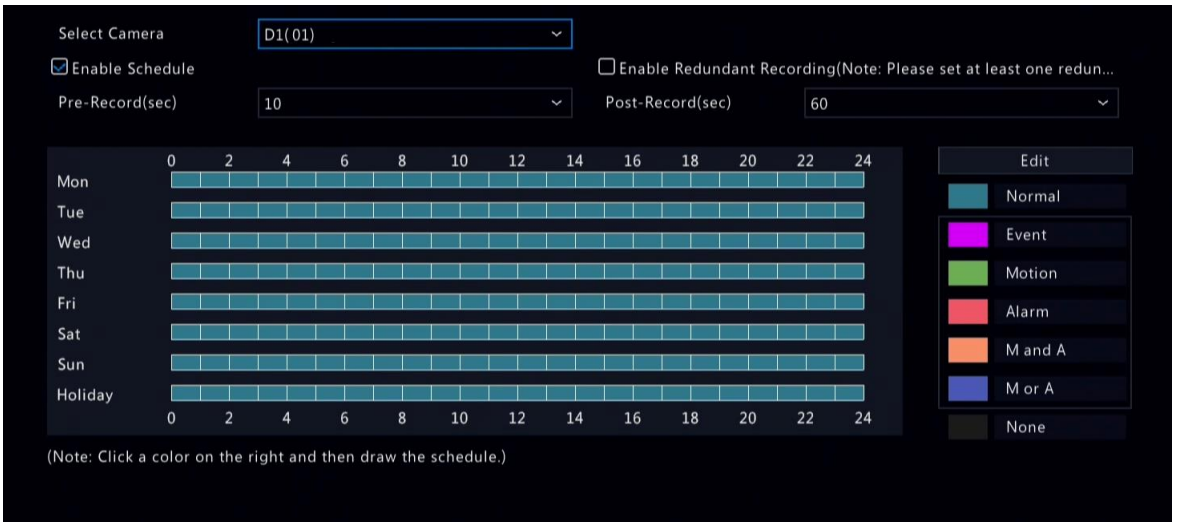
Note: You can configure the storage mode under **Camera** > **Encoding**.

9.1 Recording Schedule

Make a recording schedule.

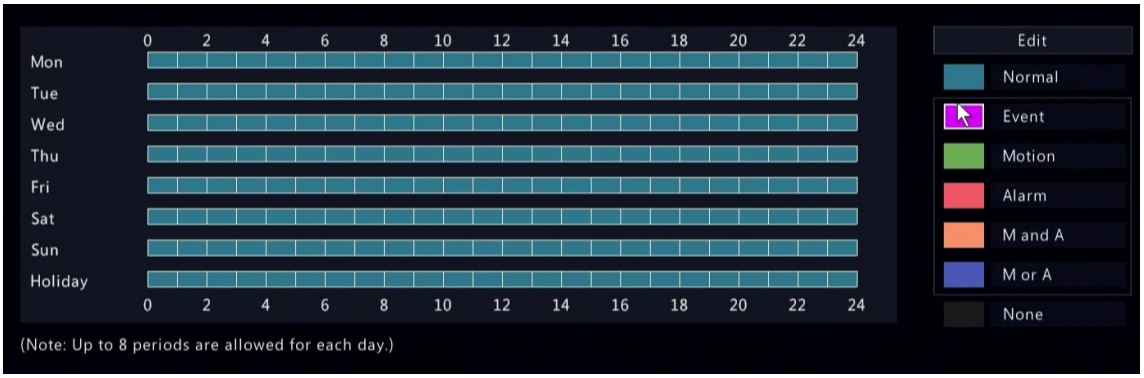
A 24/7 normal recording schedule is enabled by default. You can modify the schedule by drawing or editing as needed.

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



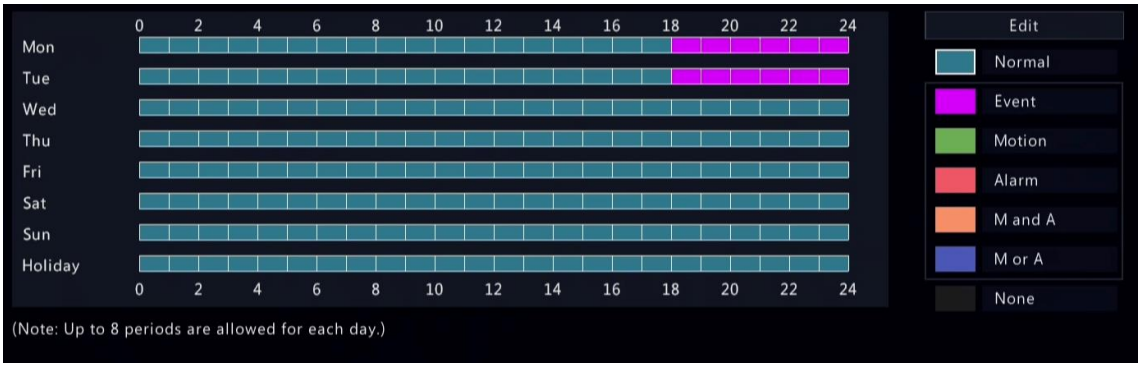
Draw a Schedule

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.

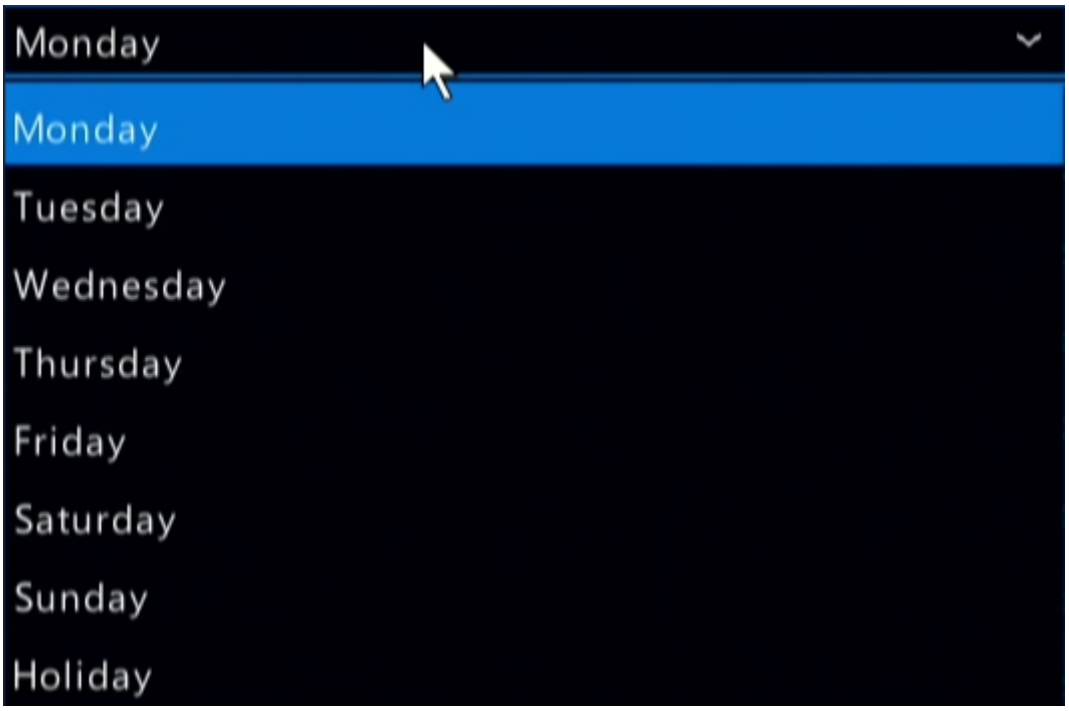


3. Click **Apply**.

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**.

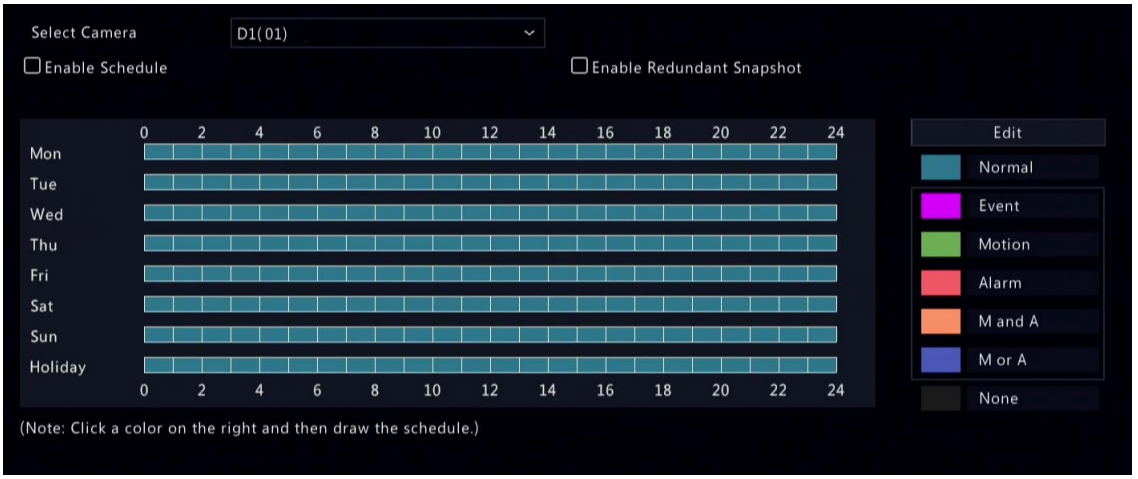
Other Settings

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.
Enable Redundant Recording	Recording backup, stores recorded videos to redundant disks synchronously to prevent video loss in case of read/write disk failure. You need to configure at least one redundant disk before enabling redundant recording. See Disk Management for details.
Audio Storage	Set whether to record audio. Audio is not recorded by default.

9.2 Snapshot Schedule

Make a snapshot schedule.

1. Go to **Menu** > **Storage** > **Snapshot Schedule**.



2. Select the camera for which you want to make a snapshot schedule.
3. Select the **Enable Schedule** check box.
4. Set the snapshot schedule. See Draw a Schedule and Edit a Schedule.

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

5. Click **Apply**.

Other Settings

Item	Description
Enable Redundant Snapshot	Snapshot backup, stores snapshots to redundant disks synchronously to prevent snapshot loss in case of read/write disk failure. You need to configure at least one redundant disk before enabling redundant snapshot. See Disk Management for details. **Note:** A redundant disk can be used for both recording backup and snapshot backup.

9.3 Array

Configure RAID (Redundant Arrays of Independent Disks) to improve disk read/write efficiency and data security.

Note:
- RAID is only available on certain models, and the RAID types supported may vary with NVR model.
- Cannot create a RAID with local disks and disks in an expansion enclosure at the time.
- NAS and eSATA disks cannot be used to create arrays.

Currently 7 RAID types are supported: RAID 0, RAID 1, RAID 5, RAID 6, RAID 10, RAID 50 and RAID 60. The number of disks available to create different RAID arrays varies depending on the number of disks equipped with the device. See the table below for details.

Note: The number of disks listed in the table below does not include global hot spare disks.

RAID Type	Number of Disks
RAID 0	2 to 8

RAID Type	Number of Disks
RAID 1	2
RAID 5	3 to 8
RAID 6	4 to 8
RAID 10	4 to 16 (must be an integer multiple of 2)
RAID 50	6 to 16
RAID 60	8 to 16

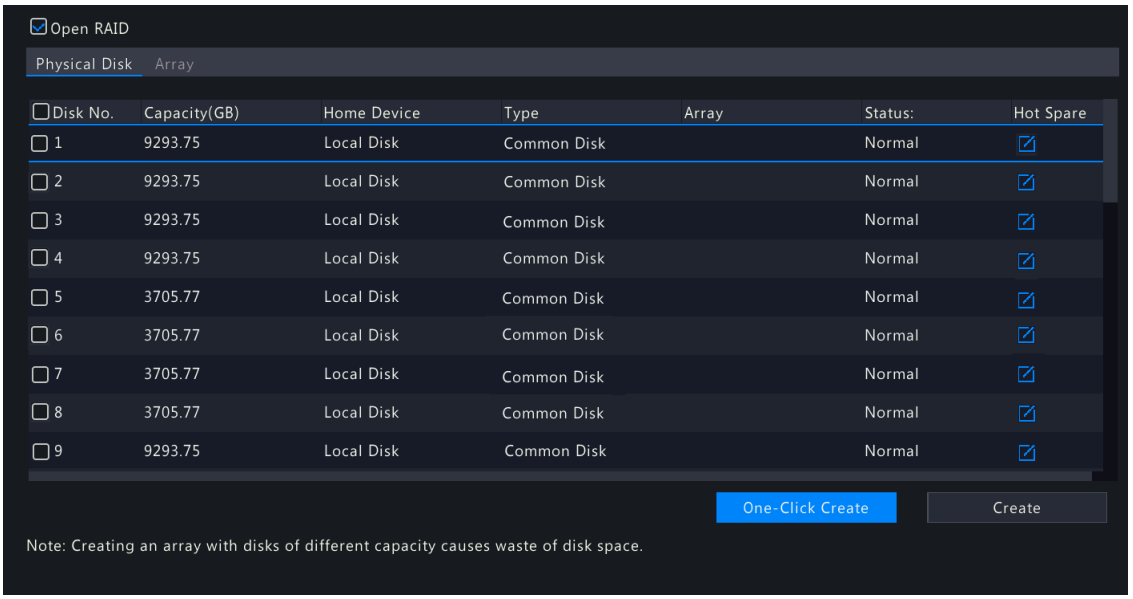
Before array configuration, enable RAID as follows:

1. Go to **Menu** > **Storage** > **Array**.
2. Select the **Open RAID** check box and click **Yes** in the pop-up dialog box.

Automatically Create an Array

Quickly create an array with one click.

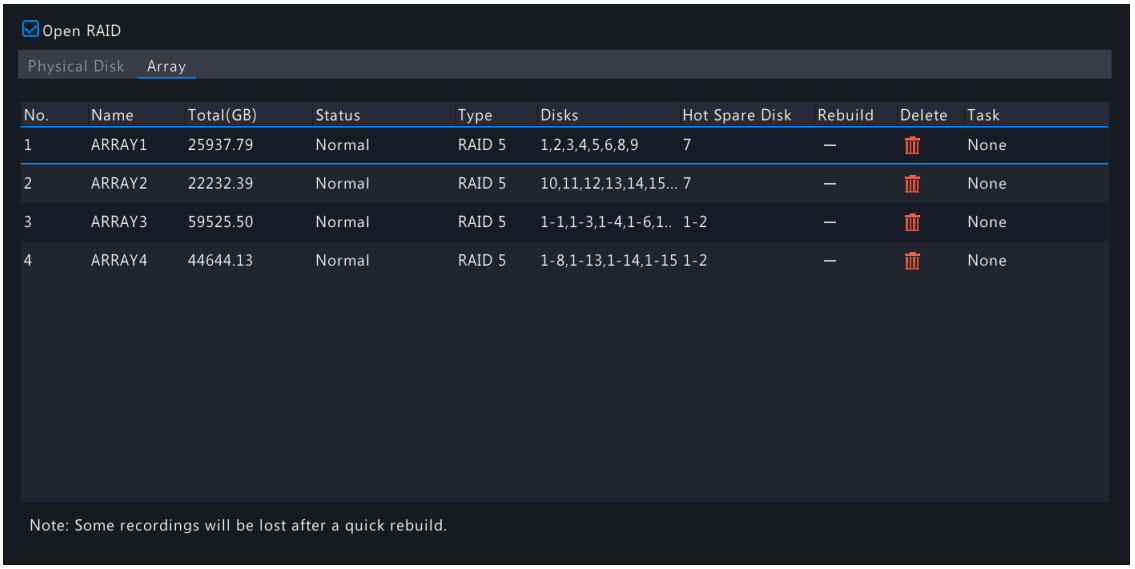
1. Go to **Menu** > **Storage** > **Array** > **Physical Disk**.



2. Click **One-Click Create**, then the system automatically completes array creation based on the number of available disks.

Number of Disks Available	RAID Type
2	RAID 1
≥3	RAID 5 If there are 4 or more disks available, a global hot spare disk will be created automatically. **Note:** A global hot spare disk can automatically replace a failed disk in any RAID array to ensure stable array operation.

3. A message appears to prompt you the creation result. Click **OK** to complete the creation. Check the created array under the **Array** tab.



Manually Create an Array

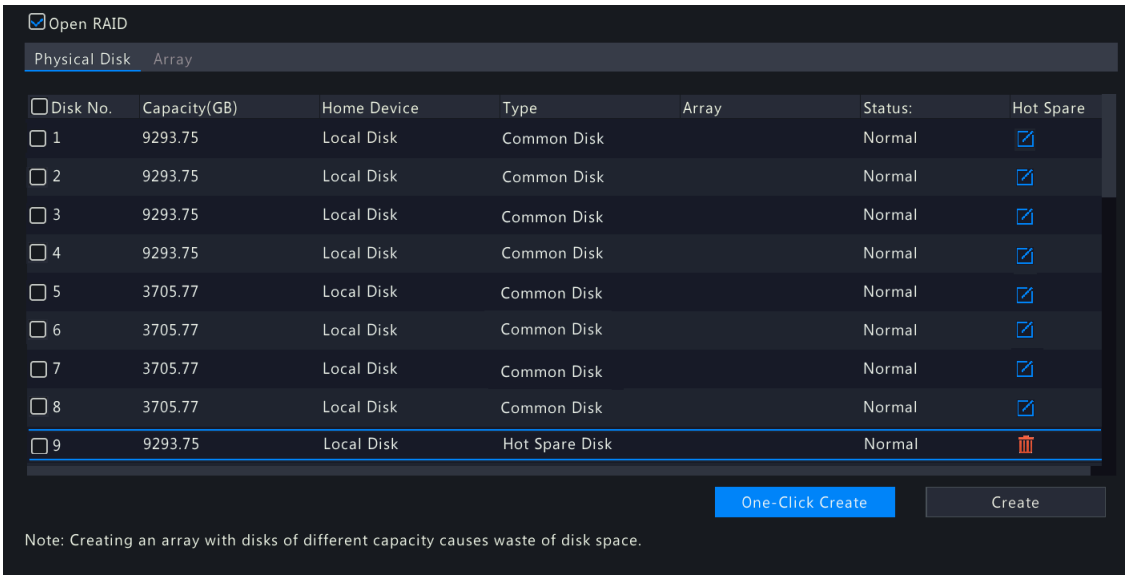
Manually create a desired array. Take RAID 50 as an example.

Note:

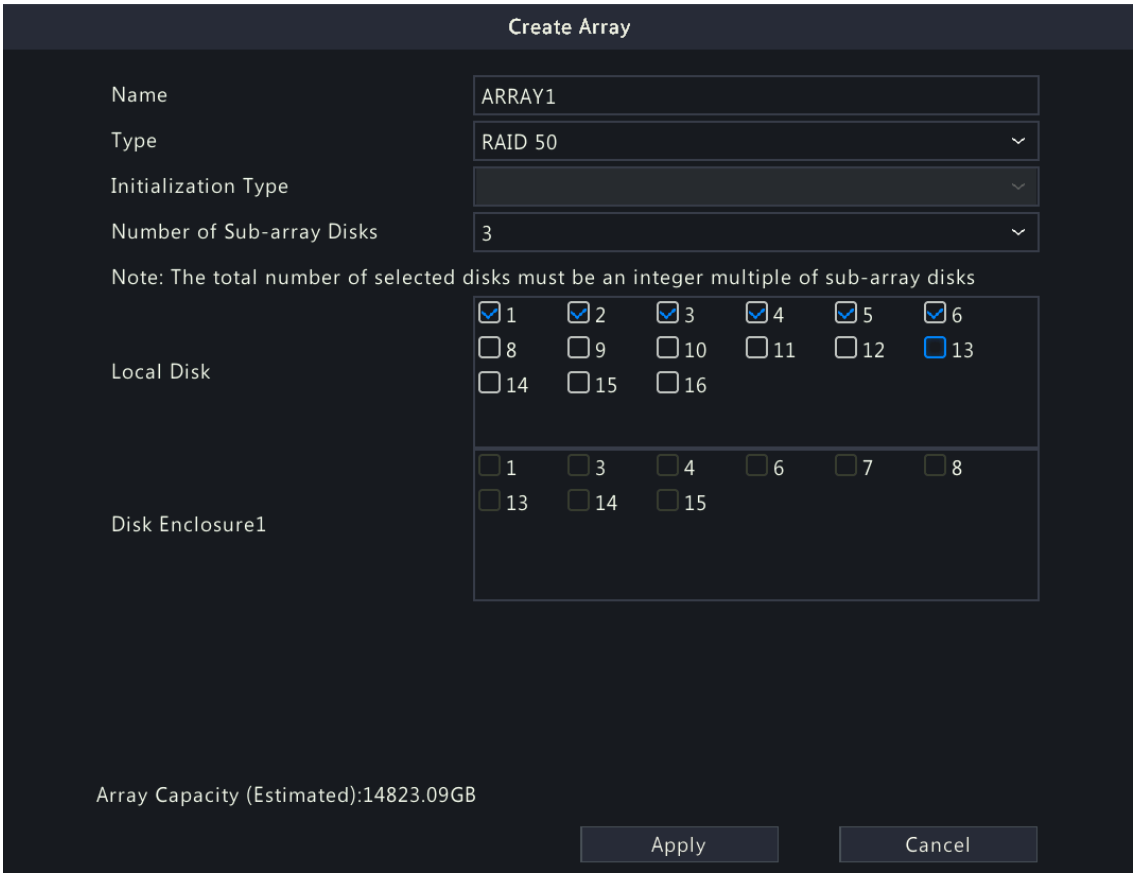
- To avoid wasting disk resources, please make sure all disks are used to create arrays. Disks that are not used to create arrays are unusable.
- No global hot spare disk will be created automatically if you create arrays manually. To ensure successful automatic array rebuilding and stable system operation, it is recommended to set a global hot spare disk.
- The capacity of the global hot spare disk must not be less than that of the smallest disk in the array.

1. Go to **Menu** > **Storage** > **Array** > **Physical Disk**.
2. (Optional) Select a disk and click to set it as a hot spare disk.

   Note: If there are multiple arrays and you require highly stable arrays, you can configure multiple global hot spare disks. When multiple arrays degrade, the global hot spare disks are used to rebuild them in order of disk number. However, too many global hot spare disks may cause waste of disk resources, so please set them as required.



3. Click **Create**.



4. Enter the array name and select the **RAID 50** type.
5. Select the number of sub-array disks.

   Note: This parameter is only available to RAID 50 and RAID 60 due to different array creation principles. For example, RAID 50 is a combination of RAID 5 and RAID 0, and RAID 5 is the sub-array of it.

Type	Number of Sub-array Disks	Number of Disks Required
RAID 50	3 to 8	An integer multiple of the number of sub-array disks. RAID 50 requires at least 6 disks.
RAID 60	4 to 8	An integer multiple of the number of sub-array disks. RAID 60 requires at least 8 disks.

6. Click **OK**. Check the created array under the **Array** tab.

Rebuild an Array

An array is in one of three states: Normal, Degraded, and Damaged. You can maintain disks in time by checking the disk status to take advantage of the disk array and ensure the security and reliability of data storage.

Note: To be alerted when an array is degraded or damaged, you can configure alarm-triggered actions under **Menu** > **Alarm** > **Alert**.

Go to **Menu** > **Storage** > **Array** > **Array**.

Array Status	Description
Normal	The array is functional.
Damaged	The number of physical disks lost exceeds the allowable limit for this type of array and the lost disks cannot be rebuilt.
Degraded	A state between **Normal** and **Damaged**.

Note: For example, in a RAID 5 array with 4 disks, the array is in **Degraded** state when 1 disk is lost, and in **Damaged** state when 2 disks are lost.

- Automatically Rebuild an Array

A degraded array can be automatically rebuilt in ten minutes if a global hot spare disk is available and the capacity of the global hot spare disk is not less than that of the smallest disk in the array.

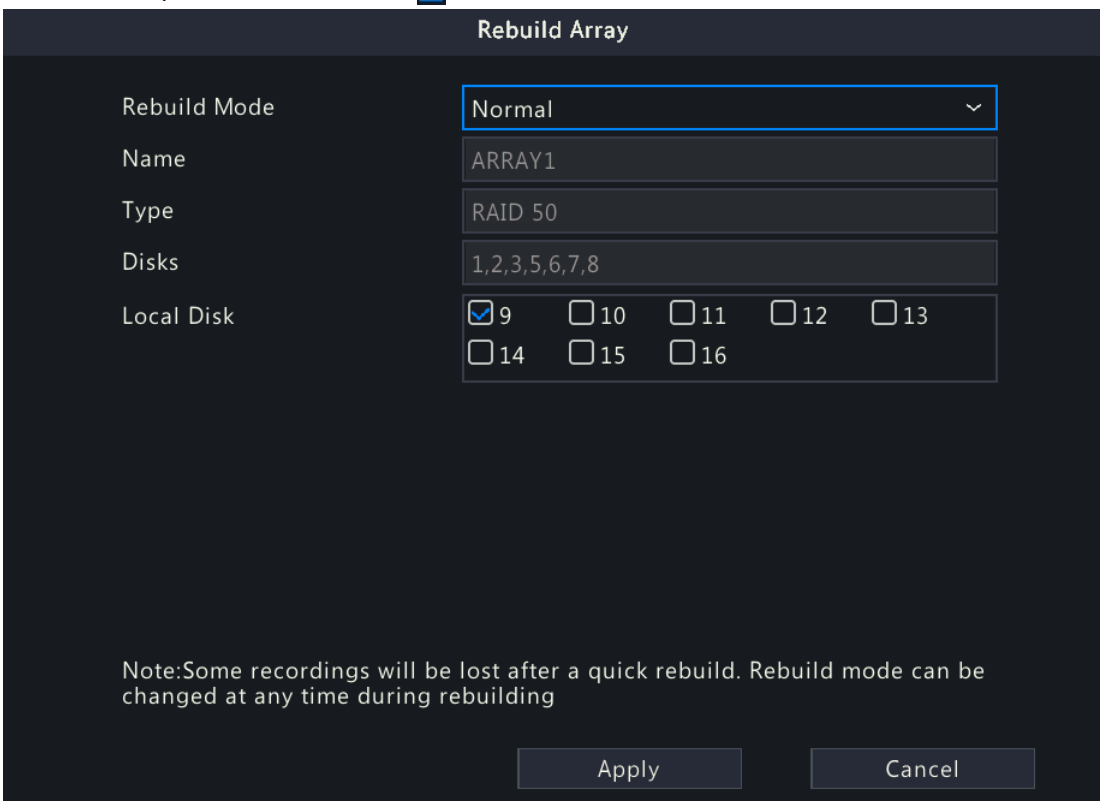
Note: After rebuilding, replace the failed disk in time and set the replaced disk as a global hot spare to ensure the stable operation of the array. See Manually Rebuild an Array for details.

- Manually Rebuild an Array

  A degraded array can only be rebuilt manually if no global hot spare disk is available.

  Note: Before you start, check if there is an available physical disk. If no, you need to replace the failed disk.

  1. Go to **Menu** > **Storage** > **Array** > **Array**.
  2. Select the array to be rebuilt and click .



  3. Select the rebuild mode and local disk. The **Quick** rebuild mode takes less time than the **Normal** rebuild mode, but may result in data loss. Please select with caution.
  4. Click **Apply**.

Delete an Array

Deleting an array will erase all data stored on it. Please handle with caution.

1. Go to **Menu** > **Storage** > **Array** > **Array**.
2. Click for the array you want to delete. A confirmation message appears. Click **Yes** to confirm the deletion.

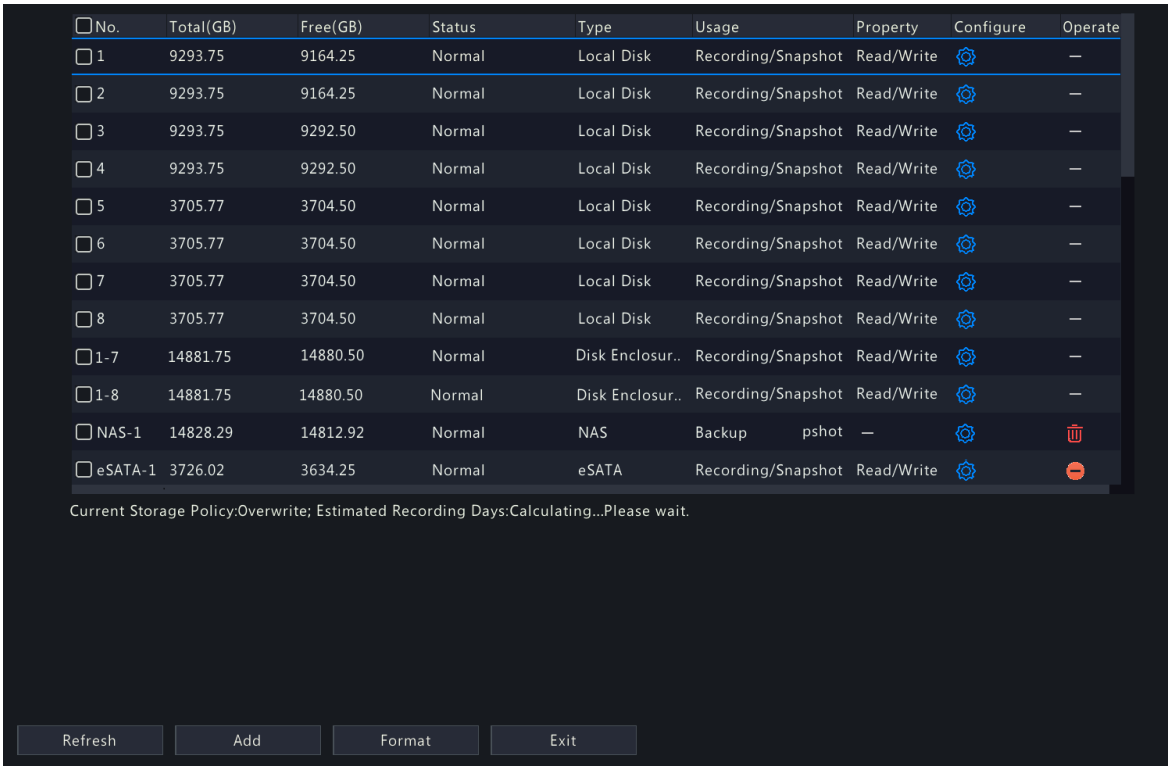
9.4 Disk Management

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

Note:

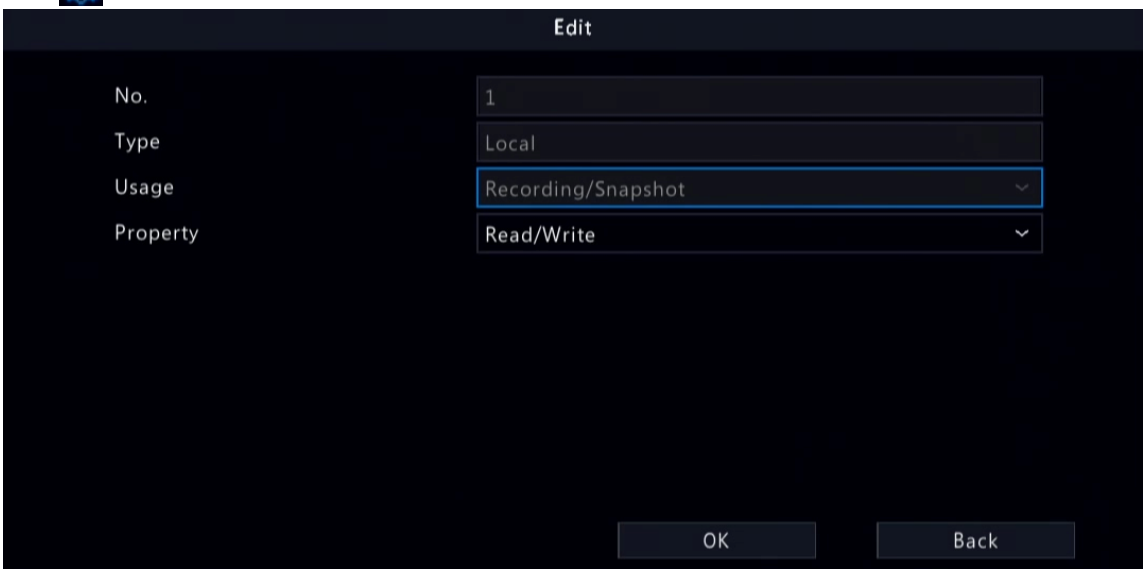
- Before you start, make sure all disks are installed properly.
- Only admin can format disks and configure the disk property.

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.
Backup	Used to manually back up device related files, such as recordings/snapshots, logs, configuration information, etc.

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.

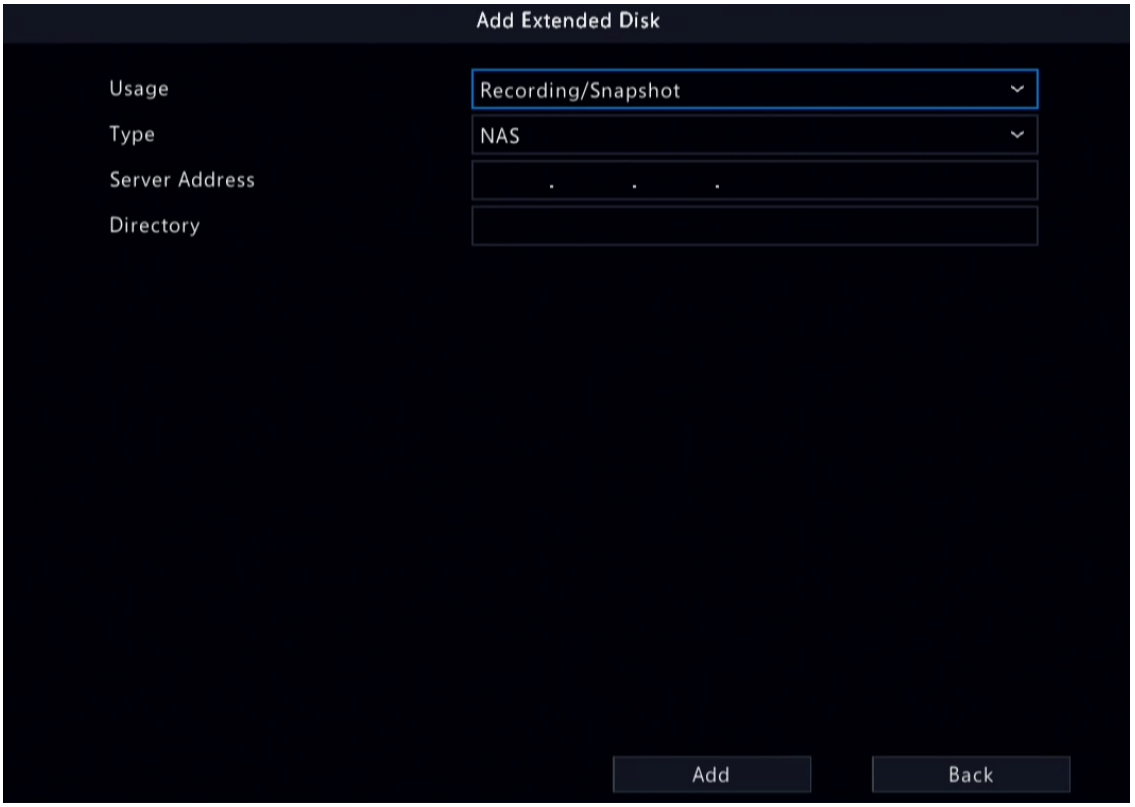
Property	Description
Redundant	Recordings and snapshots are saved to read/write disks and redundant disks simultaneously. **Note:** To view recordings and snapshots on a redundant disk, you need to change the disk property to **Read Only**.

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.

9.5 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**.

9.6 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. **Note:** First stream video: • If the **Storage Mode** is set to **Main and Sub Stream** or **Main and Third Stream**, the first stream is the main stream. • If the **Storage Mode** is set to **Sub and Third Stream**, the first stream is the sub stream.
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).

9.7 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.

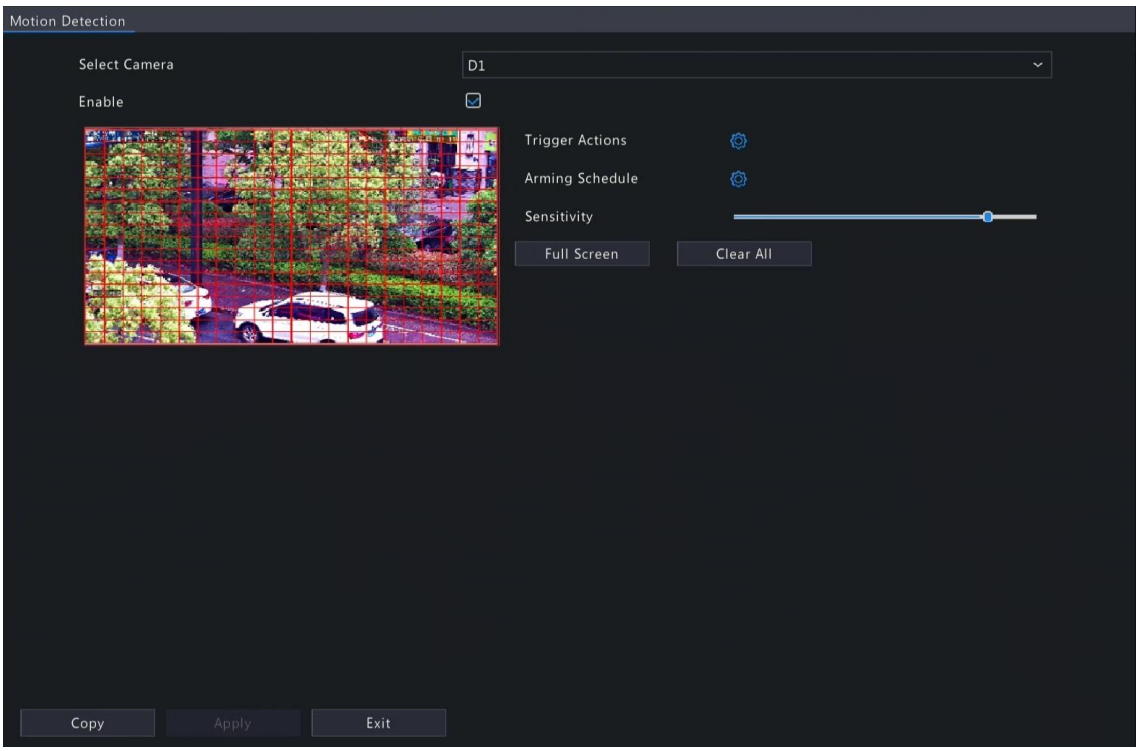
10Alarm Configuration

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. icon appears in the upper right corner of the preview page when the alarm occurs.

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



2. Select the desired camera, and click **Enable**.
3. 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**.

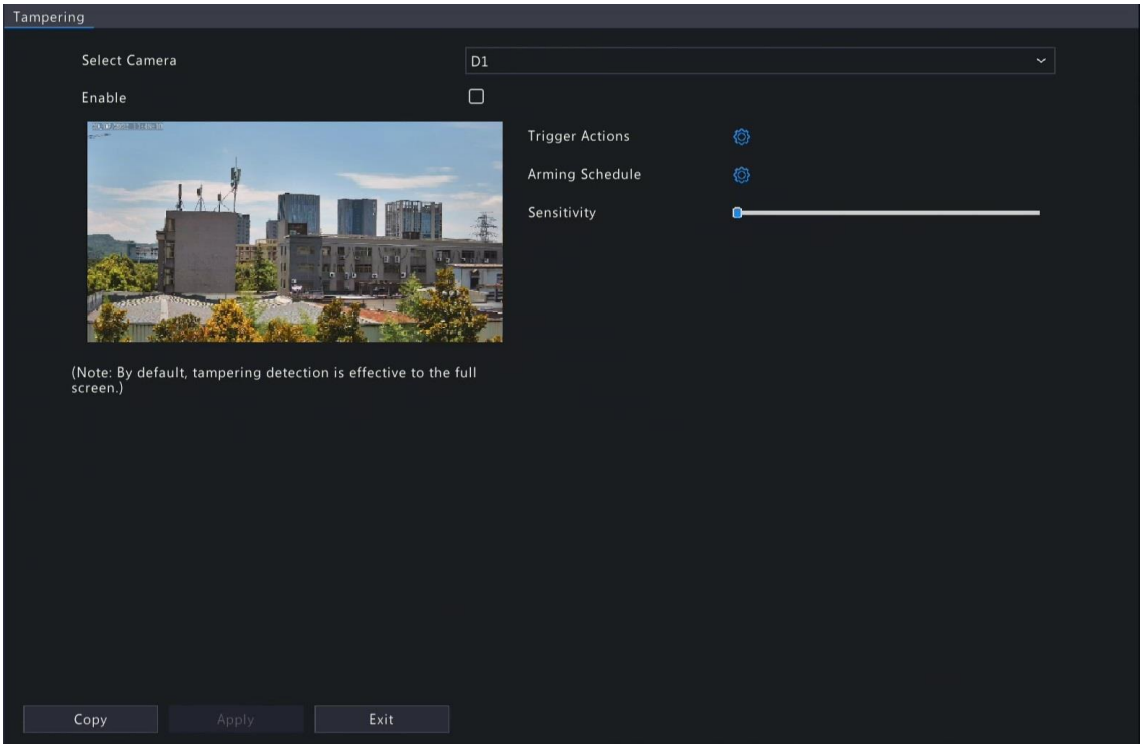
Note: When a moving object is detected, the grids where the object appears on the left-side image are filled by .

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

10.2 Tampering Detection

Tampering detection detects live video tampering. An alarm is reported when detection rules are triggered.

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

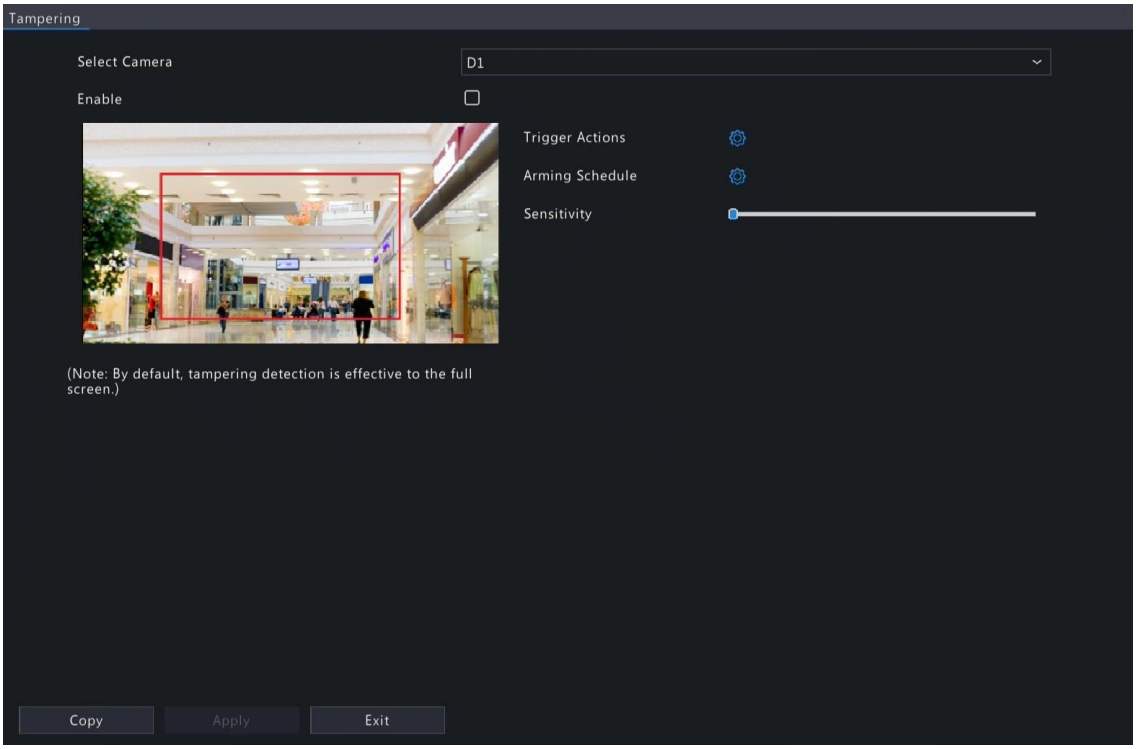


2. Select the desired camera, and click **Enable**. The tampering detection area is the full screen by default and cannot be edited.
3. Drag the slider to adjust detection sensitivity. The higher the sensitivity, the higher the detection rate, and the higher the false alarm rate. Set based on the scene 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).
6. Click **Apply**.

10.3 Human Body Detection

Human body detection detects humans in a specified area. An alarm is reported when the detection rule is triggered.

1. Go to **Menu** > **Alarm** > **Human Body Detection**.



2. Select the desired camera, and click **Enable**.
3. Set the detection rule. Only 1 detection rule is allowed.

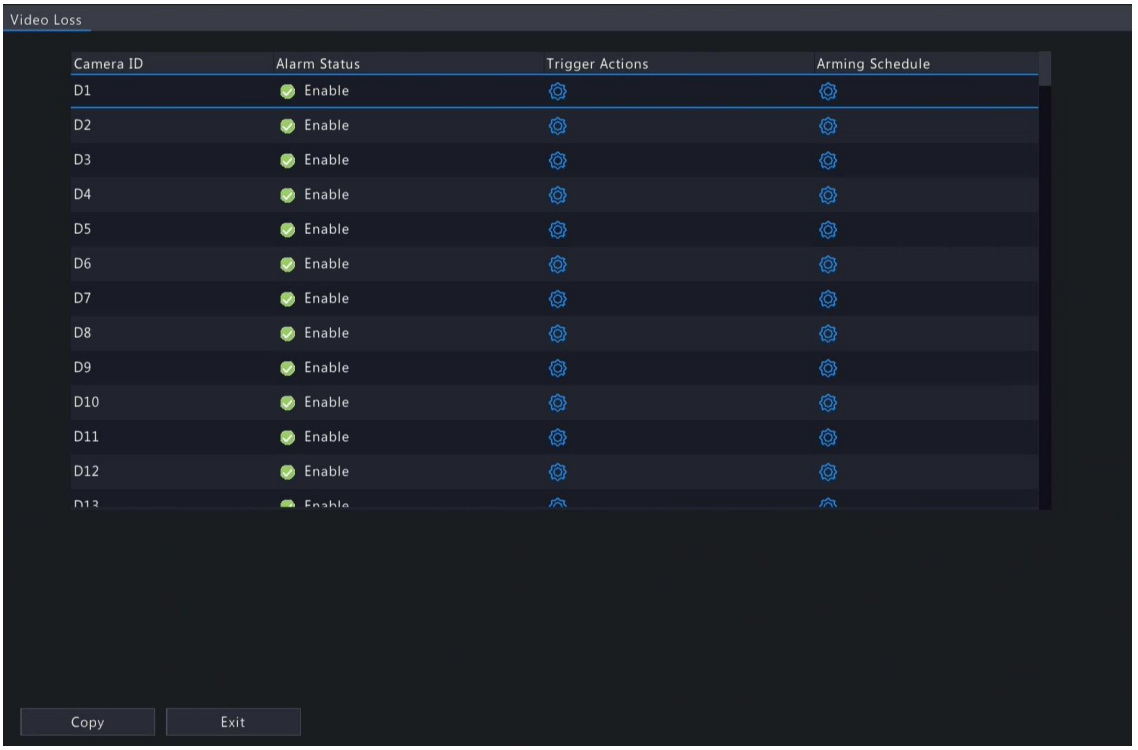
   Click , drag in the preview window to draw a rectangular detection area. Only 1 detection area is allowed.

   Note: To redraw the detection area, select the set rule, and click . To delete the detection area, click .
4. Drag the slider to adjust detection sensitivity. The higher the sensitivity, the more likely humans will be detected, and the more likely false alarms will occur. Set based on the scene and your actual needs.
5. 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.
6. (Optional) To apply the same settings to other cameras, click **Copy** and select the desired parameter(s) and camera(s).
7. Click **Apply**.

10.4 Video Loss

A video loss alarm is reported when the NVR 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**.

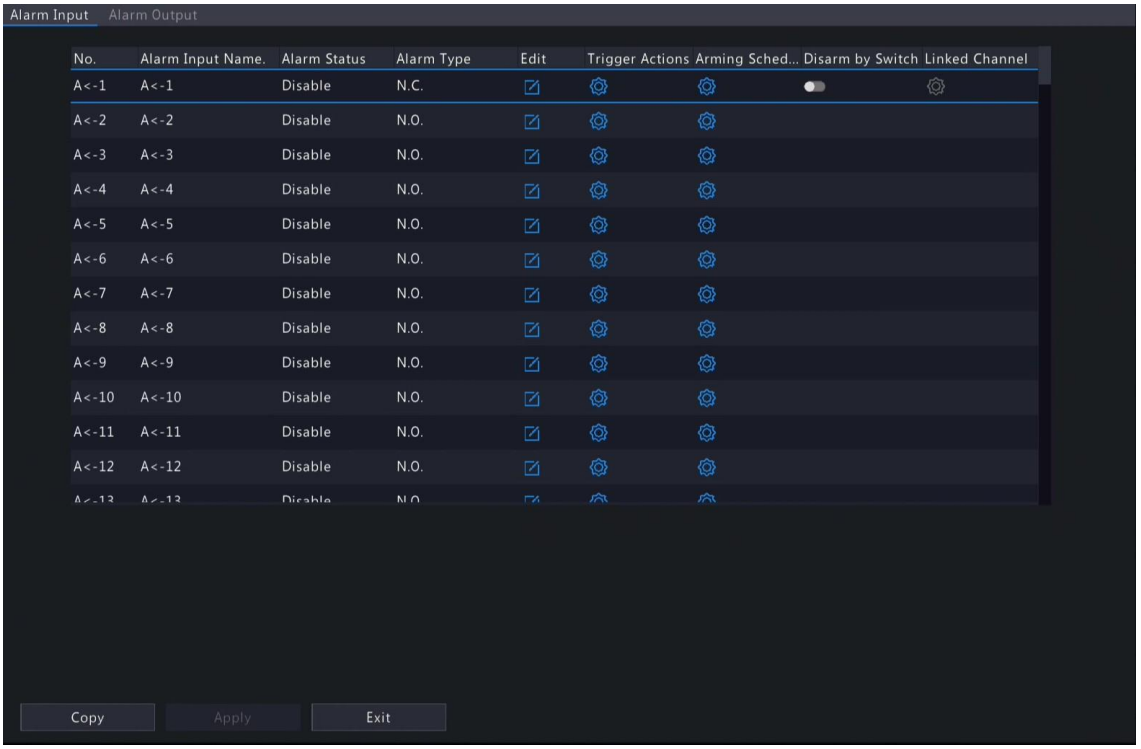
10.5 Alarm Input and Output

Configure alarm input and alarm output.

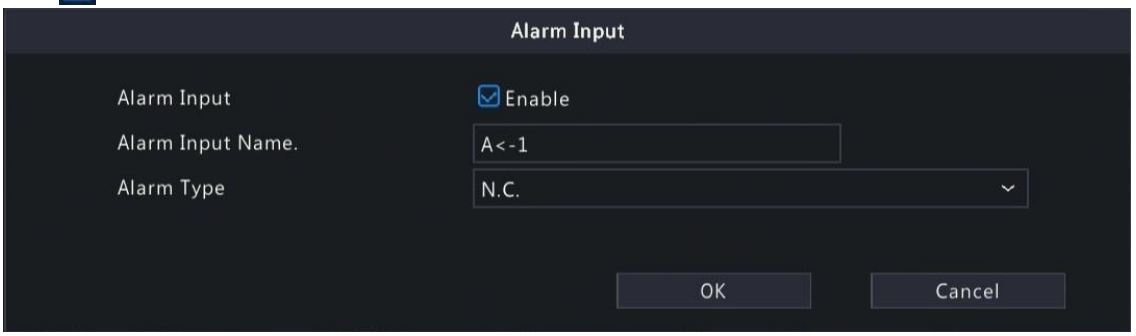
10.5.1 Alarm Input

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 NVR 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 NVR, **1** means the first ALARM IN interface. Likewise, **A <-2** means the second ALARM IN interface on the NVR. The number of ALARM IN interfaces may vary with NVR 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.
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 NVR 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 NVR to close the alarm circuit and report an alarm.

4. (Optional) Set one-key disarming.
   (1) To enable one-key disarm, select in the **Disarm by Switch** column. When enabled, the configured actions will not be triggered when A<-1 reports alarms.

(2) To apply one-key disarming to other channel(s), click in the **Linked Channel** column, select the desired channel(s) or **All**, and then click **Apply**.

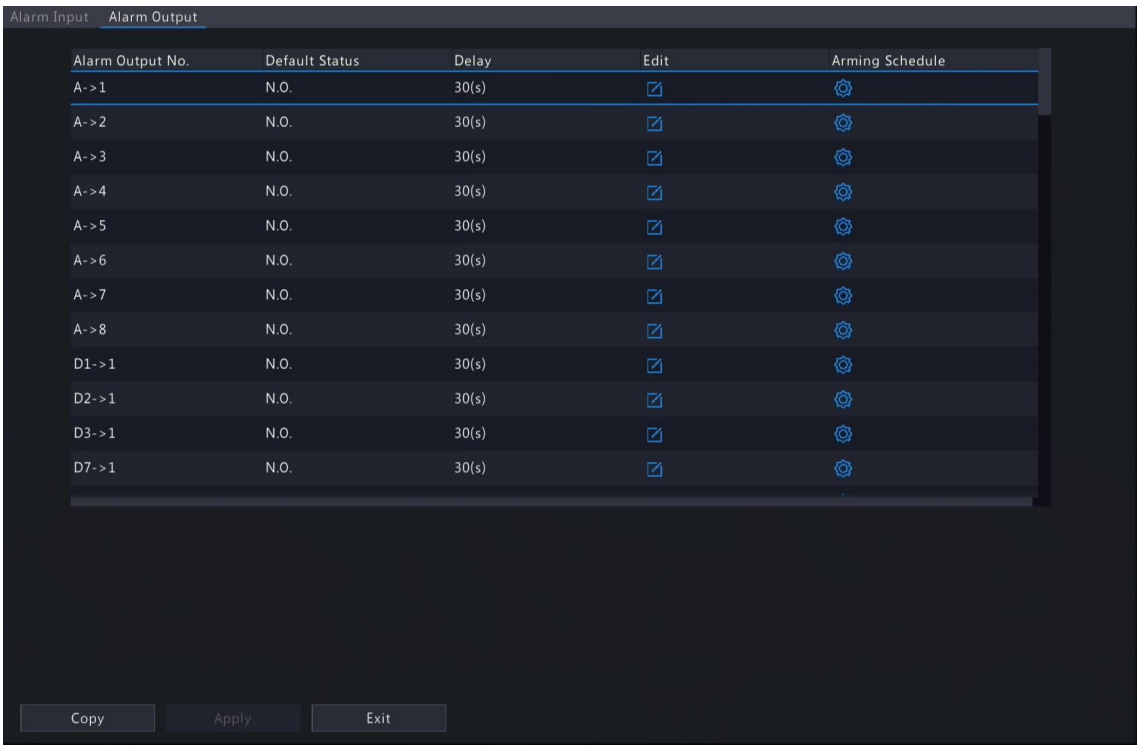
5. Set the alarm-triggered actions and arming schedule. Click the corresponding to go to the **Trigger Actions** page and **Arming Schedule** page respectively. See Alarm-triggered Actions and Arming Schedule for details.
6. (Optional) To apply the alarm input parameters to other cameras, click **Copy**,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

10.5.2 Alarm Output

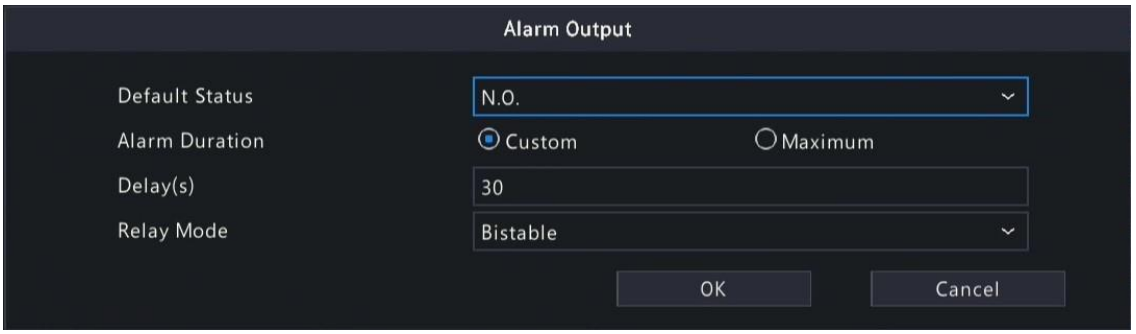
Configure the alarm mode and arming schedule for external alarm output devices.

The external alarm output devices include devices connected to the ALARM OUT interfaces on the NVR 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 NVR, **1** means the first ALARM OUT interface. **A <-2** means the second ALARM OUT interface on the NVR, and so on. The number of ALARM OUT interfaces may vary with NVR 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.**.

Item	Description
	• N.O.: Choose this option if the external device is normally open. • N.C.: Choose this option if the external device is normally closed.
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 NVR, 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.

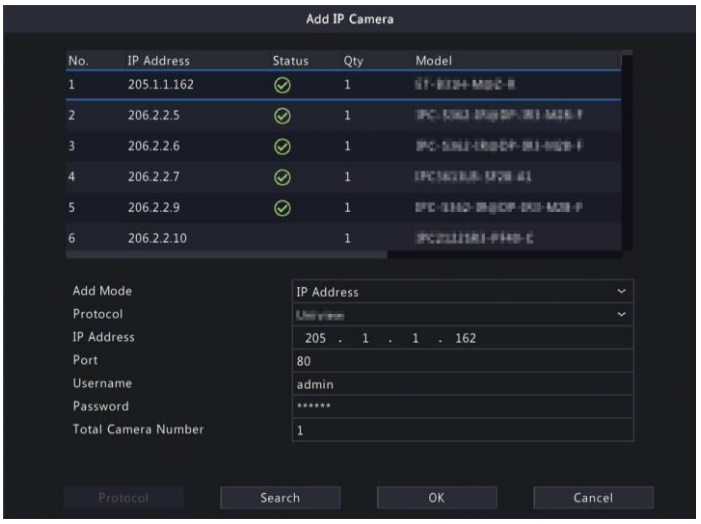
4. Set the alarm-triggered actions and arming schedule. Click the corresponding to go to the **Trigger Actions** page and **Arming Schedule** page respectively. See Alarm-triggered Actions and Arming Schedule for details.
5. (Optional) To apply the alarm output parameters to other cameras, click **Copy**,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

10.6 Thermal Imaging

This function measures body temperature based on infrared imaging, and is suitable for high traffic areas such as hospitals, stations, and shopping malls.

Note: To use this function, please enable face detection in the visible light channel first. To perform face recognition, please enable face comparison at the same time. See Face Detection and Face Comparison for details.

1. Add a thermal imaging camera.
   (1) Go to **Menu** > **Camera** > **Camera** > **Camera**.
   (2) Click **Custom Add** to go to the **Add IP Camera** page.

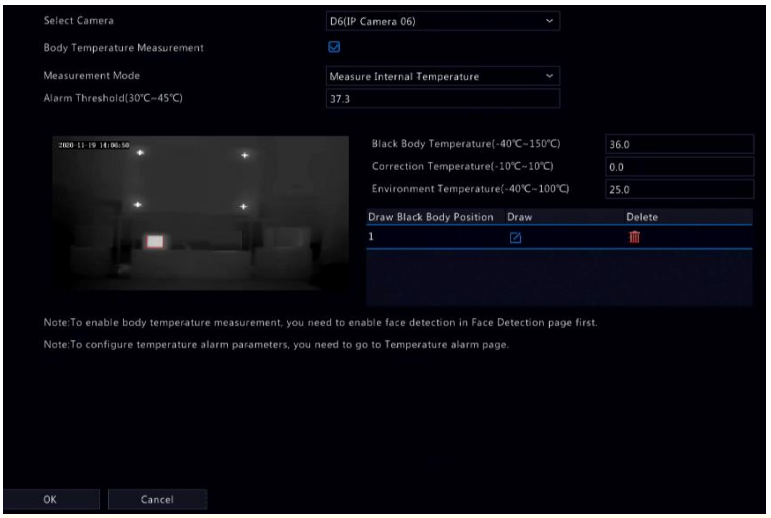


(3) Set the add mode to **IP Address**, select a protocol, enter the IP address, port, username, and password. There are 2 channels in total, including a visible light channel and an infrared light channel.

2. Configure thermal imaging parameters.

(1) Go to **Menu** > **Alarm** > **Thermal Imaging** > **Body Temperature Measurement**.

(2) Select the infrared light channel, and enable **Body Temperature Measurement**.



Note: To use this function, please enable face detection first. See Face Detection for details.

(3) Set the black body position. Click , drag to draw a bounding box on the left-side image.

Note: The size of the box should be the same as that of the highlighted part of the black body, otherwise measurement results may be affected.

(4) Set the relevant parameters.

Item	Description
Measurement Mode	• Measure Internal Temperature: Calculated from the measured body surface temperature by formulas. • Measure Body Surface Temperature: Measured directly by the thermal imaging camera.
Alarm Threshold (30°C~45°C)	An alarm occurs when the measured temperature exceeds the threshold. The default is the normal body temperature of 37.3 °C.
Black Body Temperature (-40°C~150°C)	Set the same temperature as the black body temperature. 36 °C is recommended. For more information, refer to the camera's site survey and commissioning guide.
Correction Temperature (-10°C~10°C)	Correct temperature measurement errors. Devices have been calibrated before leaving the factory. You do not need to set the correction temperature. If in harsh conditions, such as high or low temperature, you

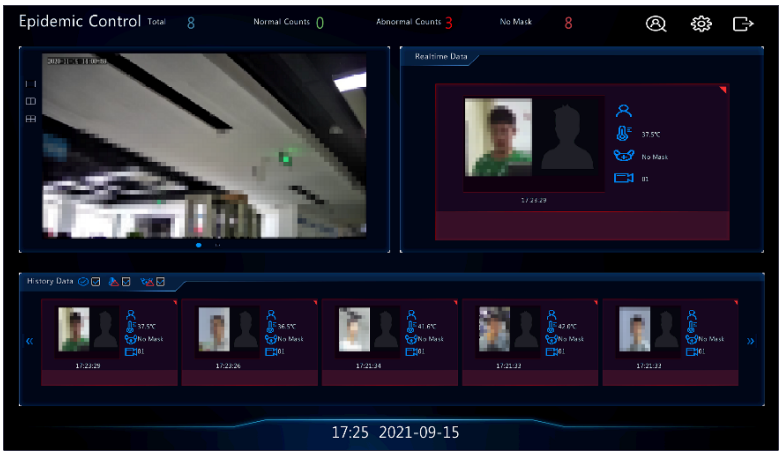
Item	Description
	may configure it according to the camera's site survey and commissioning guide.
Environment Temperature (-40°C~100°C)	The environment temperature of the camera will affect the temperature measurement results. The higher the environment temperature, the higher the measurement result. The system can calculate the actual temperature automatically based on the entered environment temperature. 25°C is recommended.

(5) Set alarm-triggered actions in the **Temperature Alarm** page. See Temperature Alarm for details.

(6) Click **OK**.

3. View temperature measurement results.

   In the preview page, click on the screen toolbar to go to the **Epidemic Control** page. Then you can view the detailed information, including counting statistics, live video, realtime data, and history data.



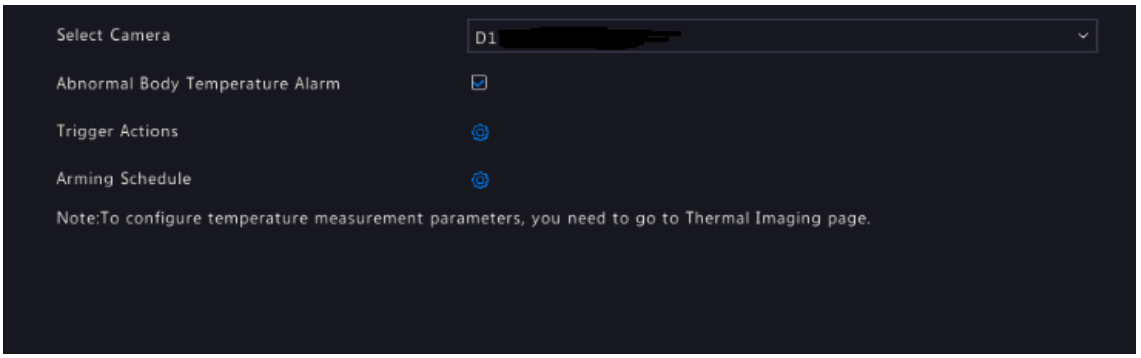
10.7 Temperature Alarm

An alarm occurs when the abnormal body temperature is detected.

Note:

- This function is only available for thermal imaging cameras.
- Before using this function, please enable body temperature measurement in the **Temperature Measurement** page first. See Thermal Imaging for details.

1. Go to **Menu** > **Alarm** > **Temperature Alarm** > **Body Temperature Alarm**.



2. Select the infrared light channel, and enable **Abnormal Body Temperature Alarm**.
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. Click **OK**.

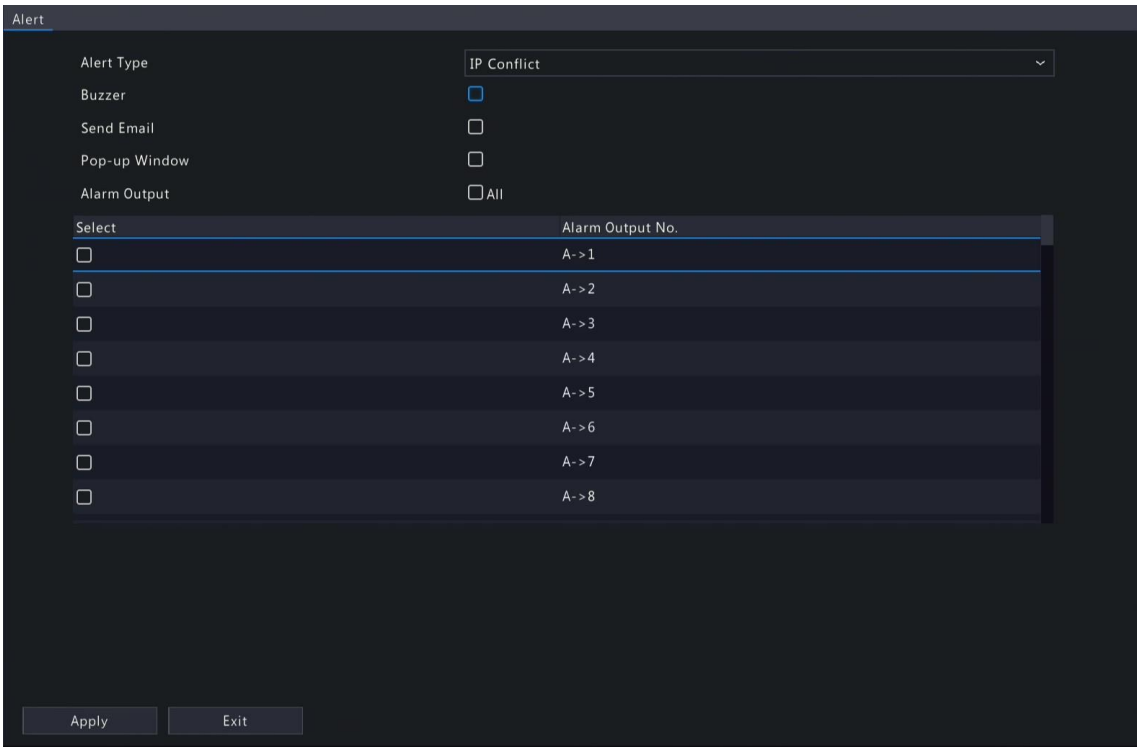
10.8 Alert

Configure alert actions for device abnormal events. The NVR 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: An IP camera is offline.
- Disk Offline: No disk or a disk is not properly connected.
- High CPU Temperature: The CPU temperature of the NVR is too high.
- High Motherboard Temperature: The motherboard temperature of the NVR is too high.
- Disk 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.
- Array Damaged: The number of lost physical disks in an RAID exceeds the limit.
- Array Degraded: Some physical disks are lost in an RAID but the number of the lost disks is still below the limit.
- 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).

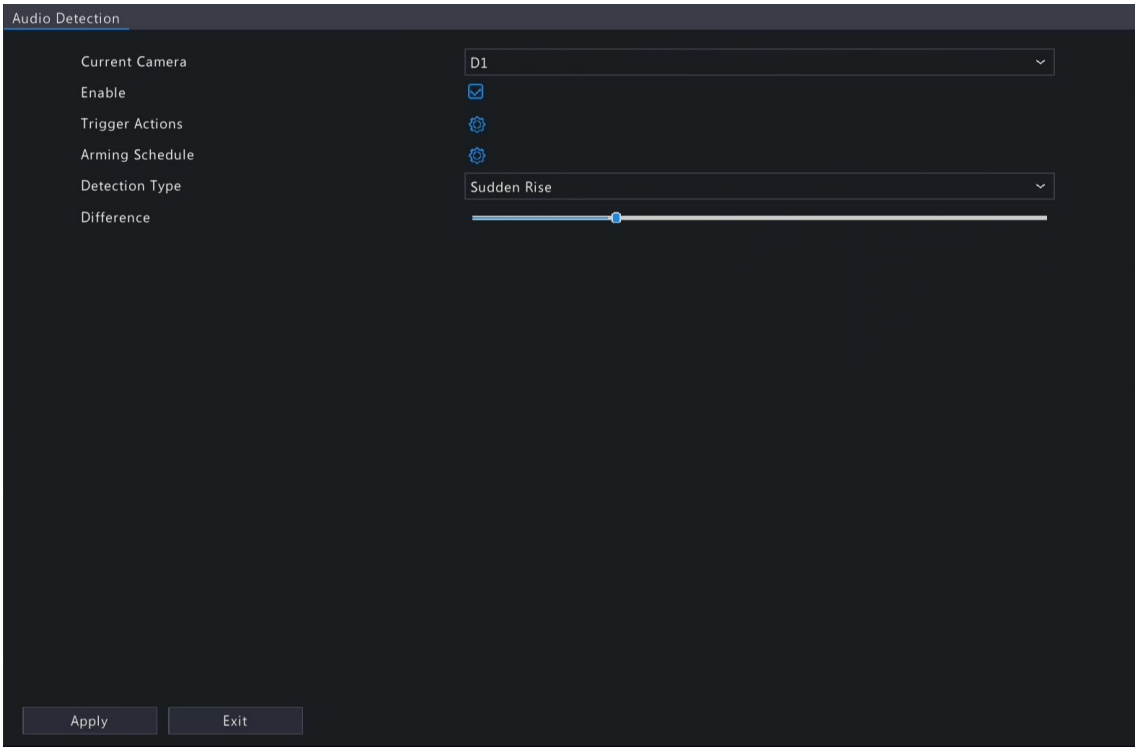


5. Click **Apply**.
6. Repeat the above operations to configure alert actions for other events.

10.9 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.

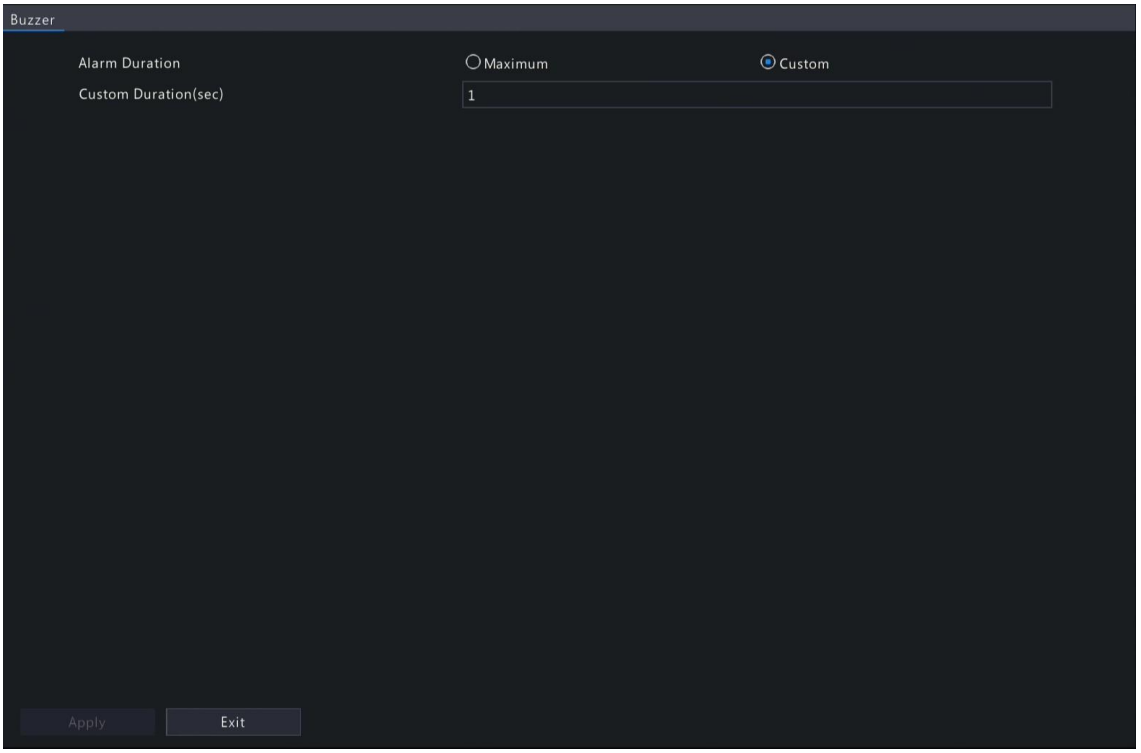
Item	Description
Detection Type	Select an audio detection type from the drop-down list. • Sudden Rise: An alarm occurs when the rise of volume exceeds the set value. • Sudden Fall: An alarm occurs when the fall of volume exceeds the set value. • Sudden Change: An alarm occurs when the rise or fall of 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**.

10.10 Buzzer

Configure the alarm duration of the buzzer on the NVR.

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**.

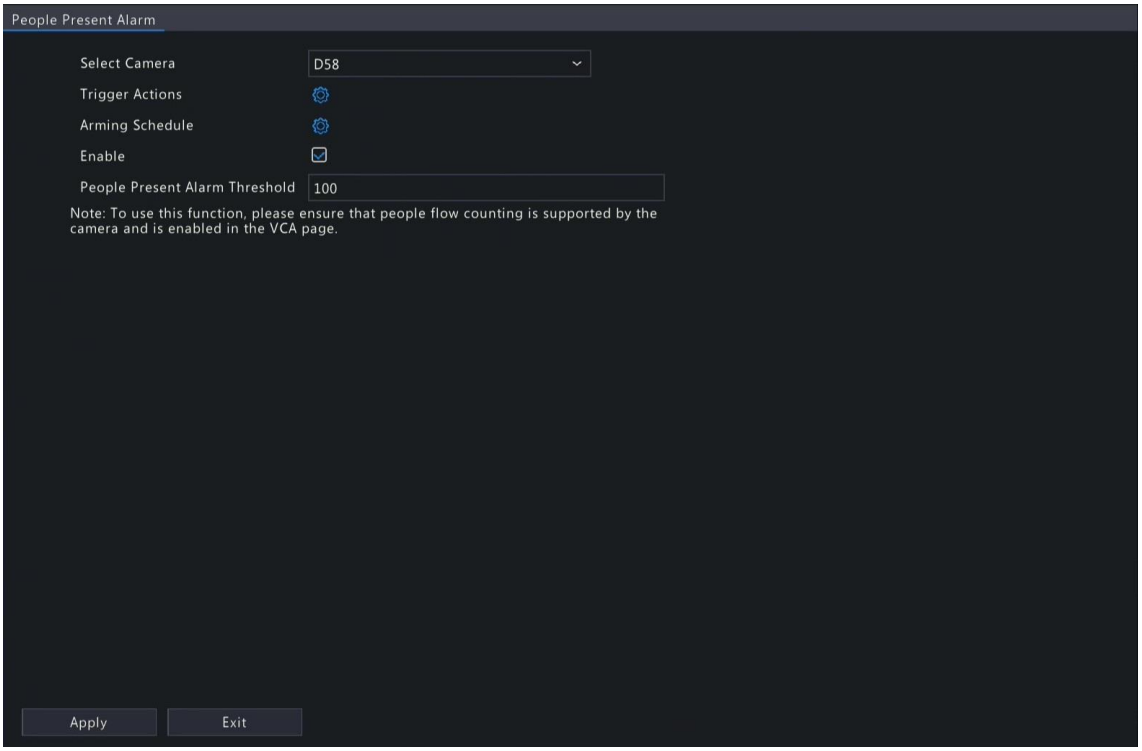
10.11 People Present Alarm

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

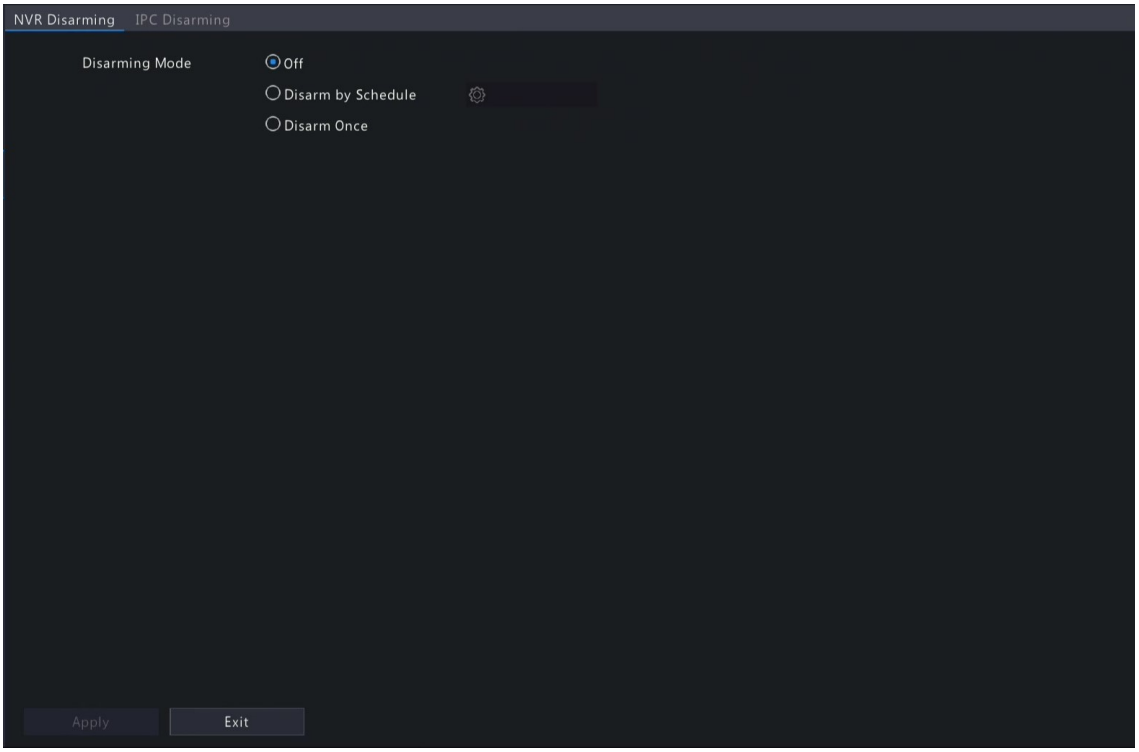
In the preview page, select **People Flow Counting** from the drop-down list in the upper right corner, then you can view the number of people entered, left, and present.

10.12 One-Key Disarming

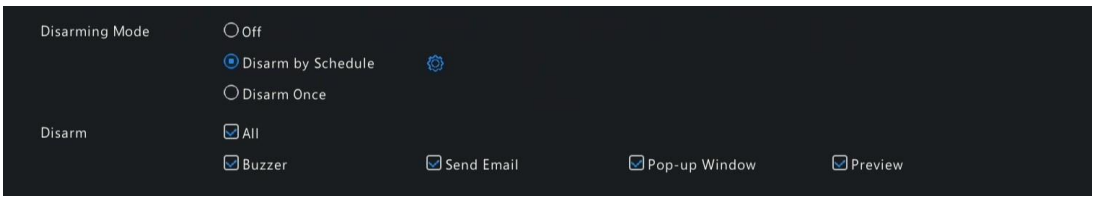
Cancel alarm-triggered actions of NVRs or IPCs with one click.

NVR Disarming

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



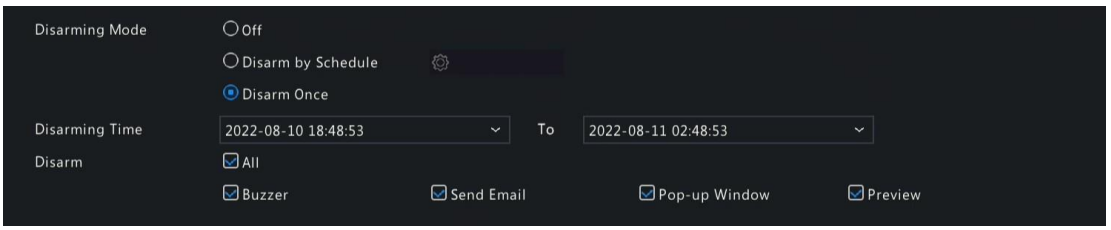
2. Select a disarming mode and configure parameters.
   - Off: Disarming is disabled on the NVR.
   - Disarm by Schedule: The NVR is disarmed during specific time periods per week.



   (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**.

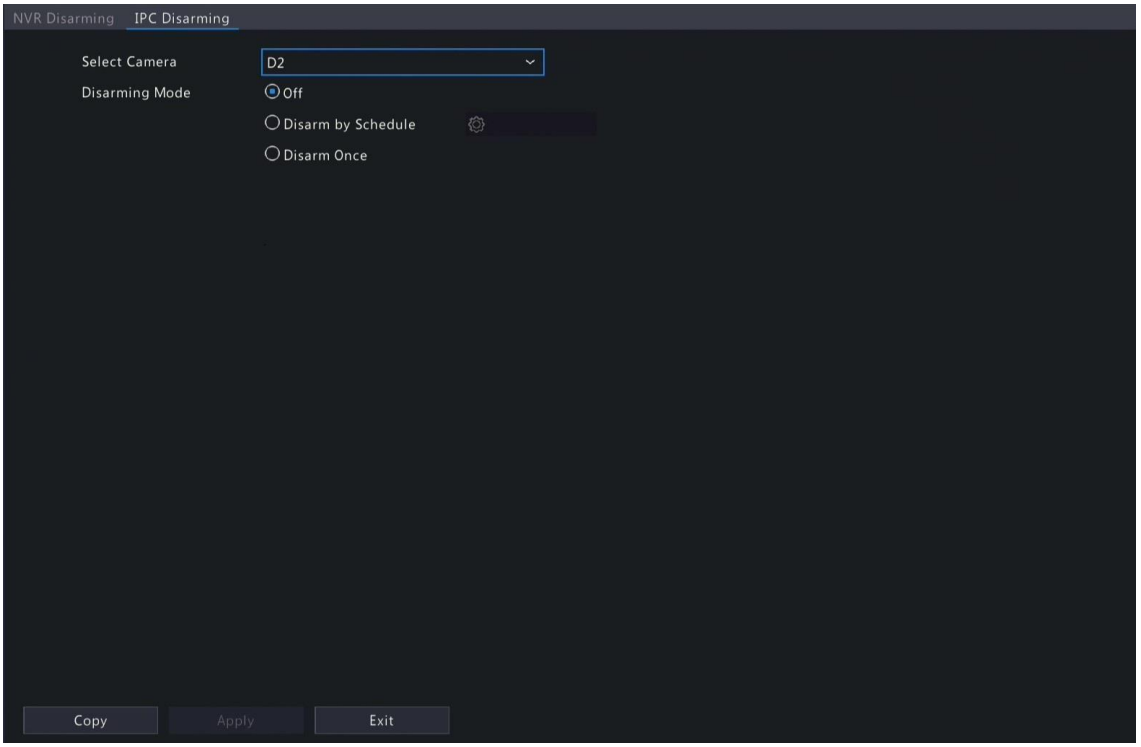
   (2) Select actions to be disarmed. The default is all actions. See Alarm-triggered Actions for details.
   - Disarm Once: The NVR is disarmed during a specified time period.



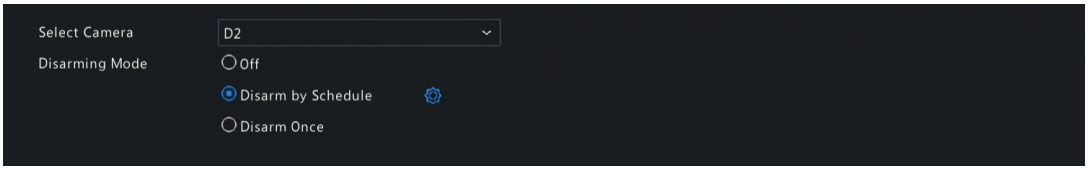
   (1) Select **Disarm Once**, and set the disarming start time and end time.
   (2) Select actions to be disarmed. The default is all actions. See Alarm-triggered Actions for details.
3. Click **Apply**.

IPC Disarming

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

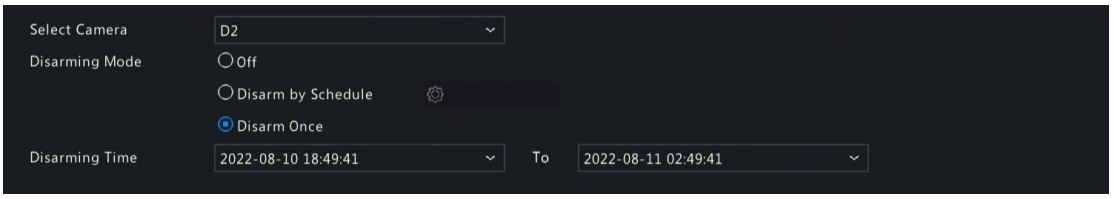


2. Select the desired camera.
3. Select a disarming mode and configure parameters.
   - Off: Disarming is disabled on the IPC.
   - Disarm by Schedule: The IPC is disarmed during specific time periods per week.

     Click right to **Disarm by Schedule**, and set the disarming periods. Click **OK** to return to the **IPC 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**.
     - Disarming by schedule will cancel all the actions configured on the IPC's web interface by default. You can modify the settings on the IPC's web interface.
   - Disarm Once: The IPC is disarmed during a specified time period. Select **Disarm Once**, and set the disarming start time and end time.

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

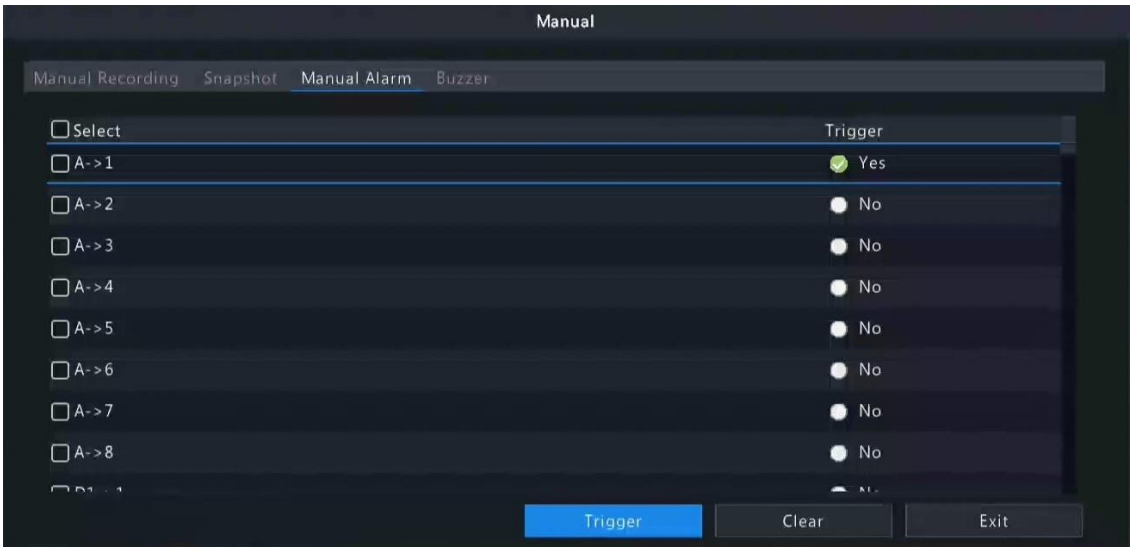
10.13 Manual Alarm

Trigger or clear an alarm output manually.

Note: Manual alarm has the highest priority.

Manual Alarm

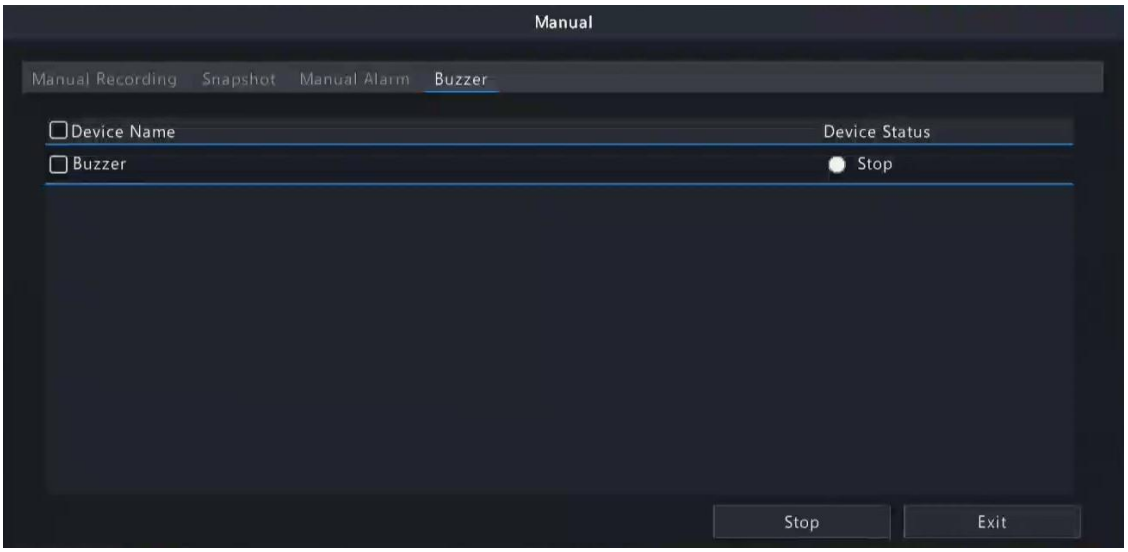
1. Right-click and select **Manual** > **Manual Alarm**.



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**.

11SystemMaintenance

View system operation status to ensure stable system operation.

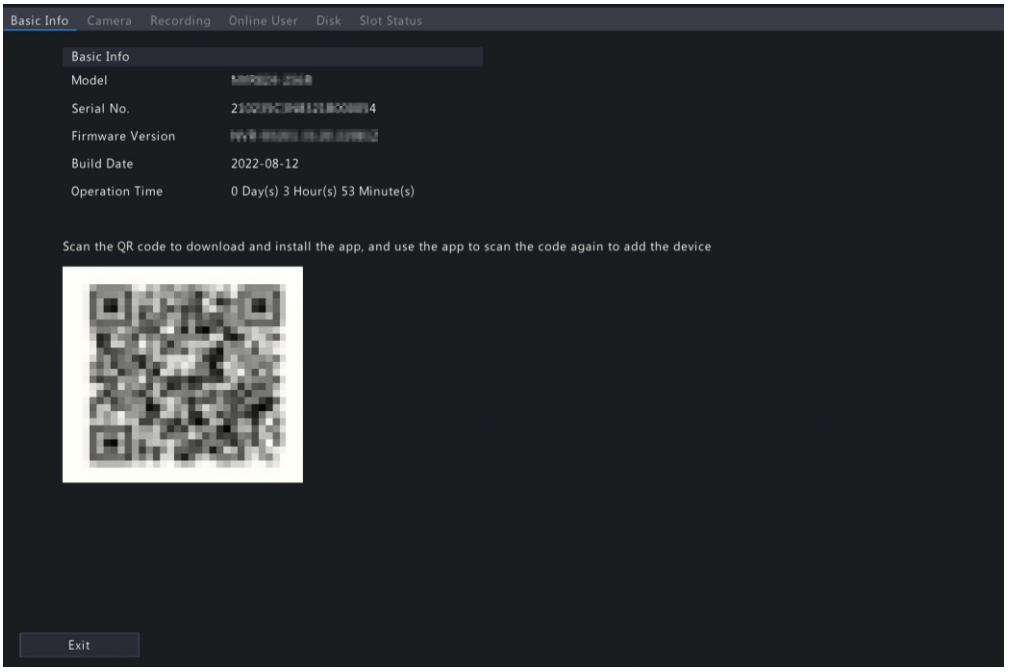
11.1 System Info

View the basic information and operation status of the device.

11.1.1 Basic Info

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

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



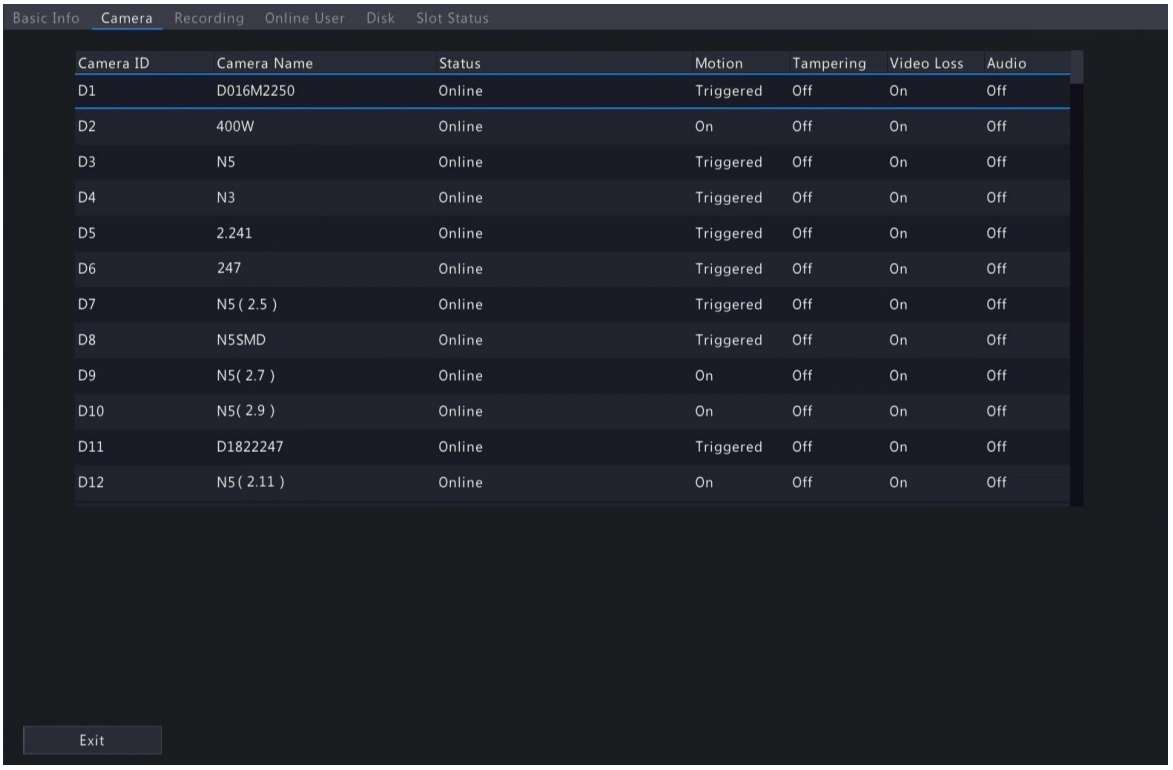
Parameter	Description
Model	NVR model.
Product Configuration	Product configuration, which can be the maximum number of channels or product series, for example, 128 means up to 128 cameras can be connected; 8-X means X Series and can connect up to 8 cameras.
Serial No.	Serial number.
Firmware Version	Firmware version of the NVR.
Build Date	Release date of the current firmware version.
Operation Time	Length of time the NVR has been operating since the latest startup.

2. Scan the QR code to download the app and manage the NVR on a mobile phone.

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.



Basic Info | Camera | Recording | Online User | Disk | Slot Status

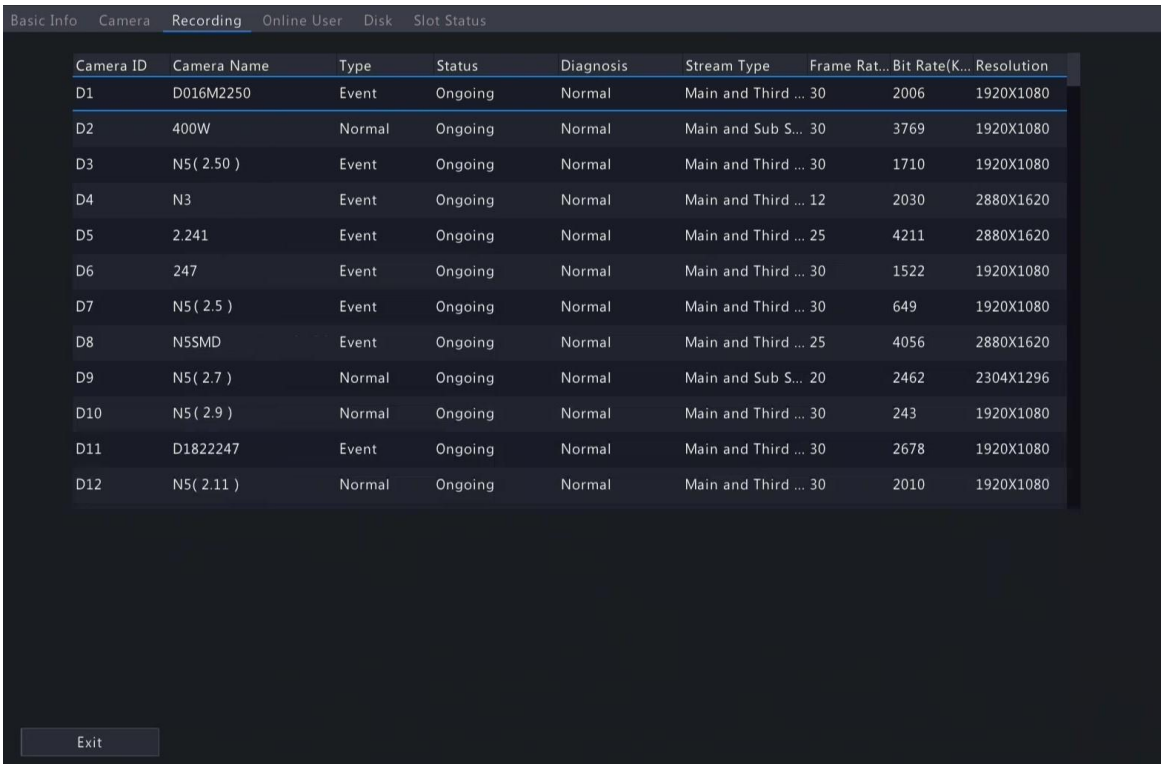
Camera ID	Camera Name	Status	Motion	Tampering	Video Loss	Audio
D1	D016M2250	Online	Triggered	Off	On	Off
D2	400W	Online	On	Off	On	Off
D3	N5	Online	Triggered	Off	On	Off
D4	N3	Online	Triggered	Off	On	Off
D5	2.241	Online	Triggered	Off	On	Off
D6	247	Online	Triggered	Off	On	Off
D7	N5 (2.5)	Online	Triggered	Off	On	Off
D8	N5SMD	Online	Triggered	Off	On	Off
D9	N5(2.7)	Online	On	Off	On	Off
D10	N5(2.9)	Online	On	Off	On	Off
D11	D1822247	Online	Triggered	Off	On	Off
D12	N5 (2.11)	Online	On	Off	On	Off

Exit

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.



Basic Info | Camera | Recording | Online User | Disk | Slot Status

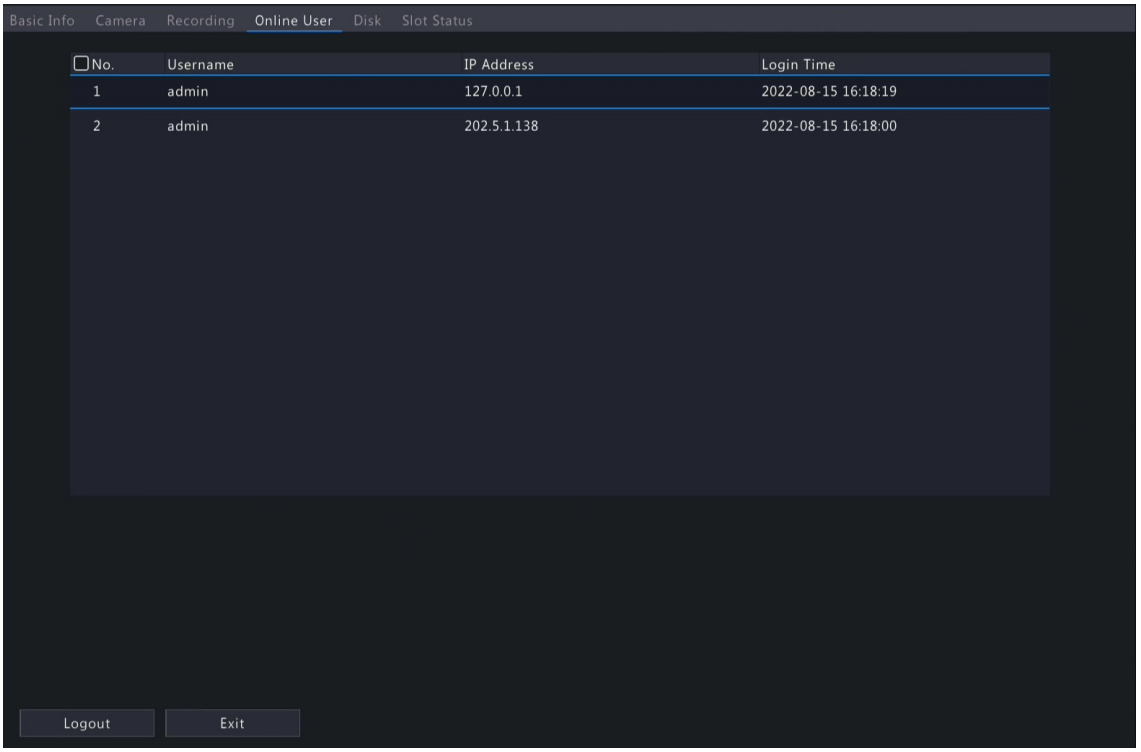
Camera ID	Camera Name	Type	Status	Diagnosis	Stream Type	Frame Rat...	Bit Rate(K...	Resolution
D1	D016M2250	Event	Ongoing	Normal	Main and Third ...	30	2006	1920X1080
D2	400W	Normal	Ongoing	Normal	Main and Sub S...	30	3769	1920X1080
D3	N5(2.50)	Event	Ongoing	Normal	Main and Third ...	30	1710	1920X1080
D4	N3	Event	Ongoing	Normal	Main and Third ...	12	2030	2880X1620
D5	2.241	Event	Ongoing	Normal	Main and Third ...	25	4211	2880X1620
D6	247	Event	Ongoing	Normal	Main and Third ...	30	1522	1920X1080
D7	N5(2.5)	Event	Ongoing	Normal	Main and Third ...	30	649	1920X1080
D8	N5SMD	Event	Ongoing	Normal	Main and Third ...	25	4056	2880X1620
D9	N5(2.7)	Normal	Ongoing	Normal	Main and Sub S...	20	2462	2304X1296
D10	N5(2.9)	Normal	Ongoing	Normal	Main and Third ...	30	243	1920X1080
D11	D1822247	Event	Ongoing	Normal	Main and Third ...	30	2678	1920X1080
D12	N5(2.11)	Normal	Ongoing	Normal	Main and Third ...	30	2010	1920X1080

Exit

11.1.4 Online User

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

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



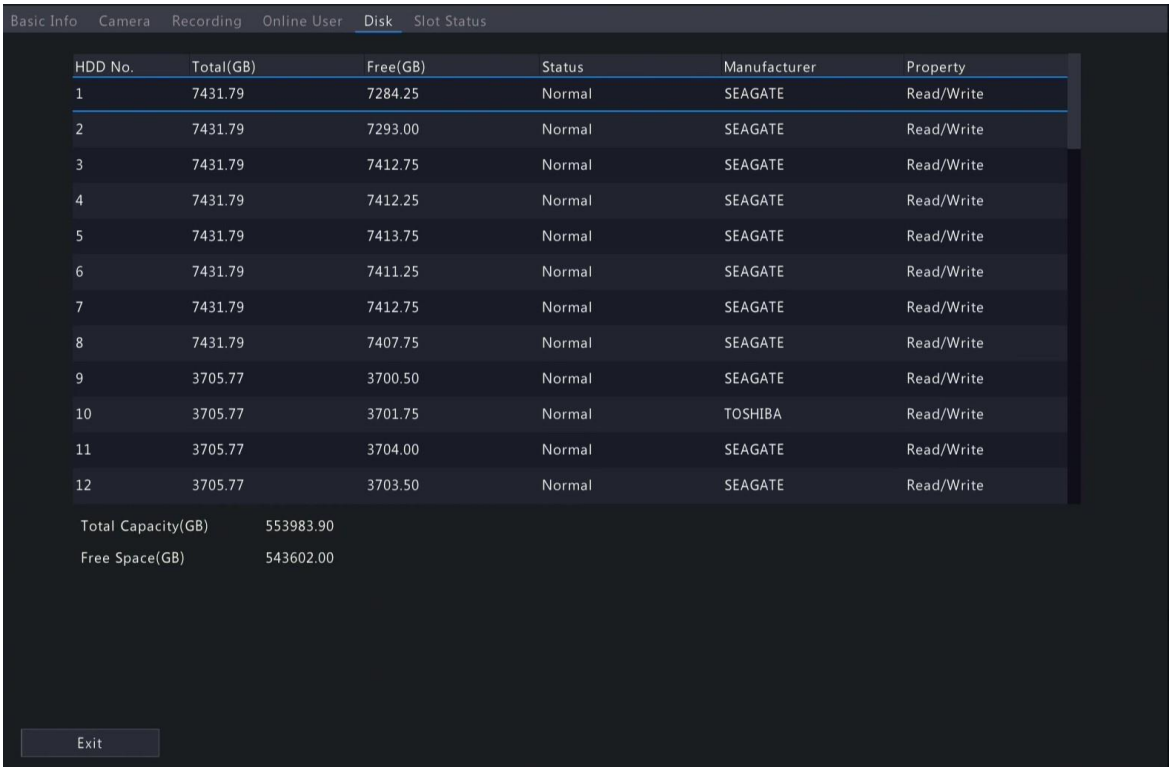
2. Choose a non-admin user and then click **Logout**.

Note: Only admin can manage user permissions.

11.1.5 HDD Status

View the status and property of HDDs on the NVR.

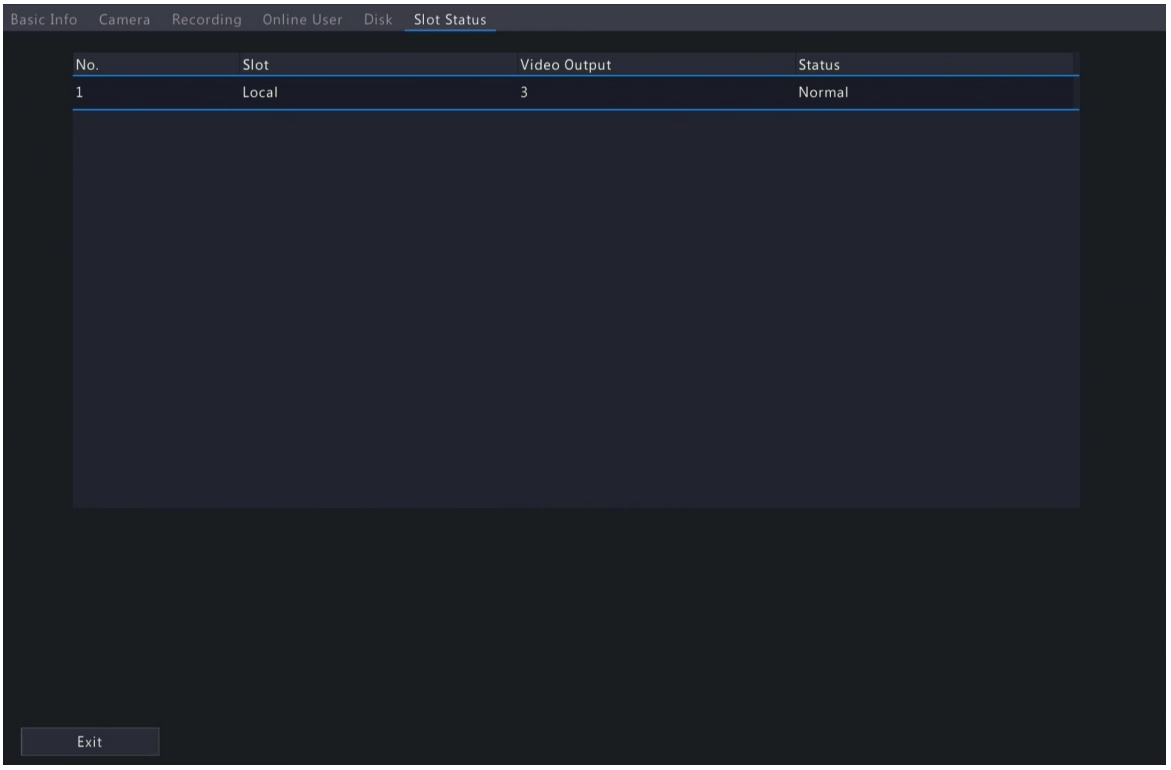
Go to **Menu** > **Maintenance** > **System Info** > **Disk**. View hard disk information including the total capacity, free space, status, manufacturer, and property.



11.1.6 Decoding Card Status

View decoding card status. Only certain NVRs support this function.

Go to **Menu** > **Maintenance** > **System Info** > **Slot Status**. View the slot type, number of video outputs, and video output status.



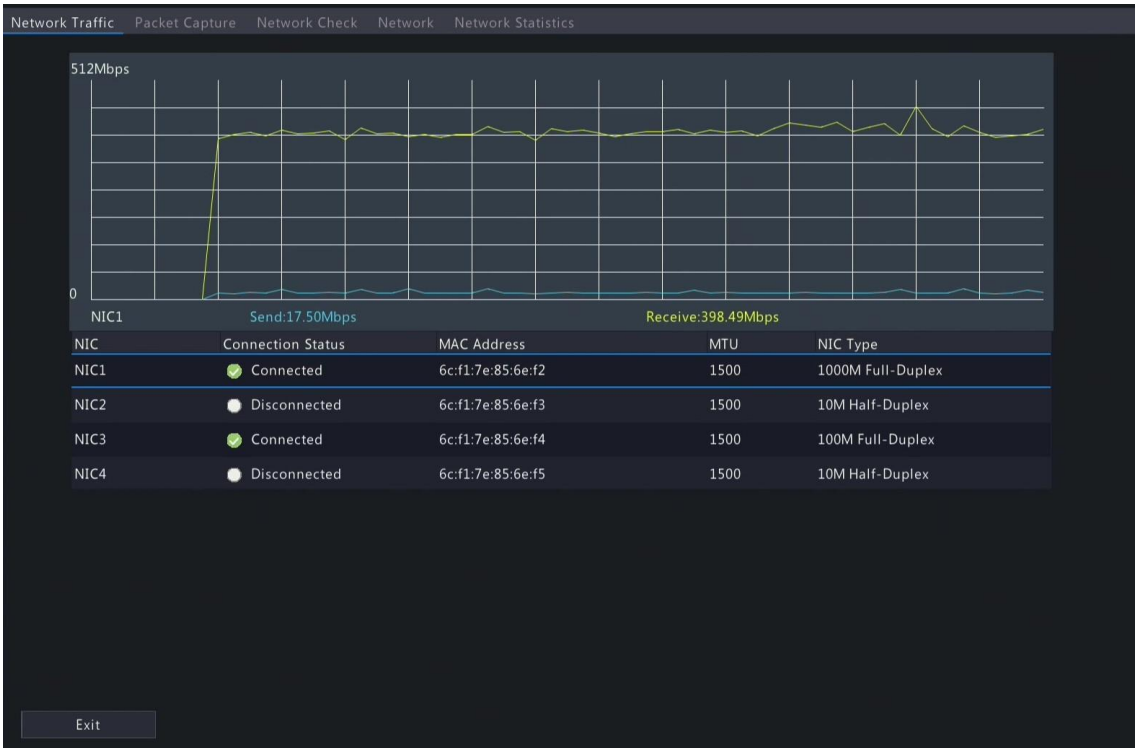
11.2 Network Information

View network information including network traffic, network latency, packet loss rate, 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**.

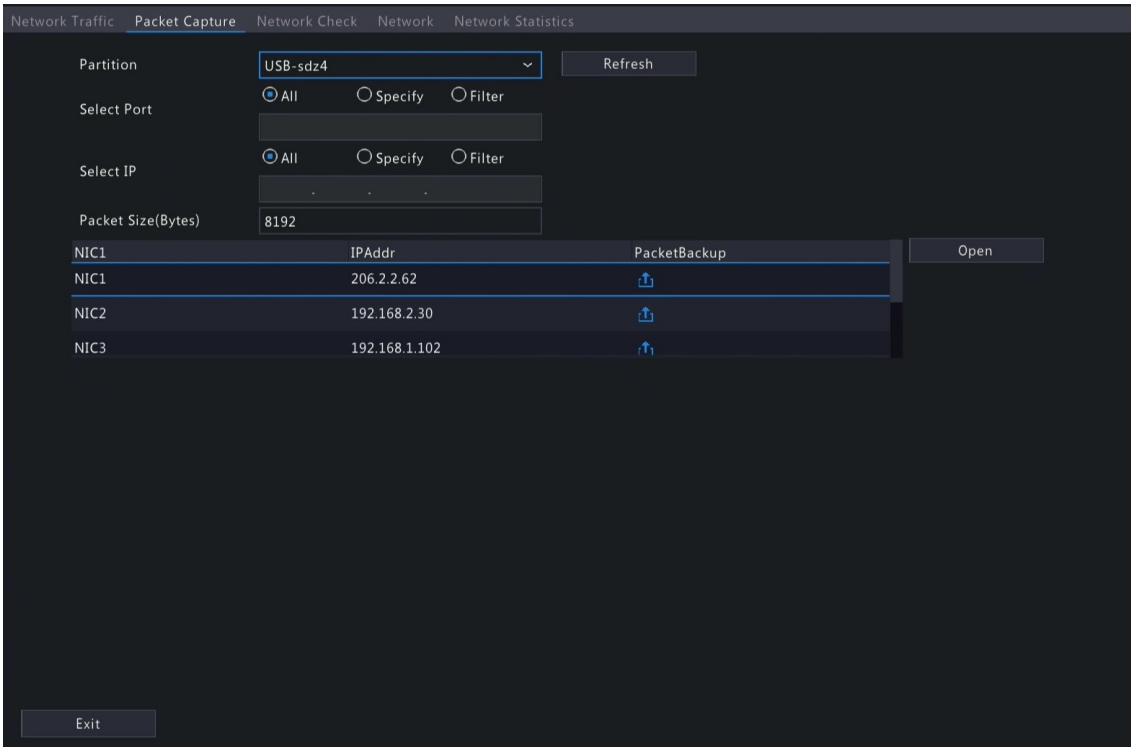


2. Choose an NIC to view the real-time network traffic.

11.2.2 Packet Capture

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

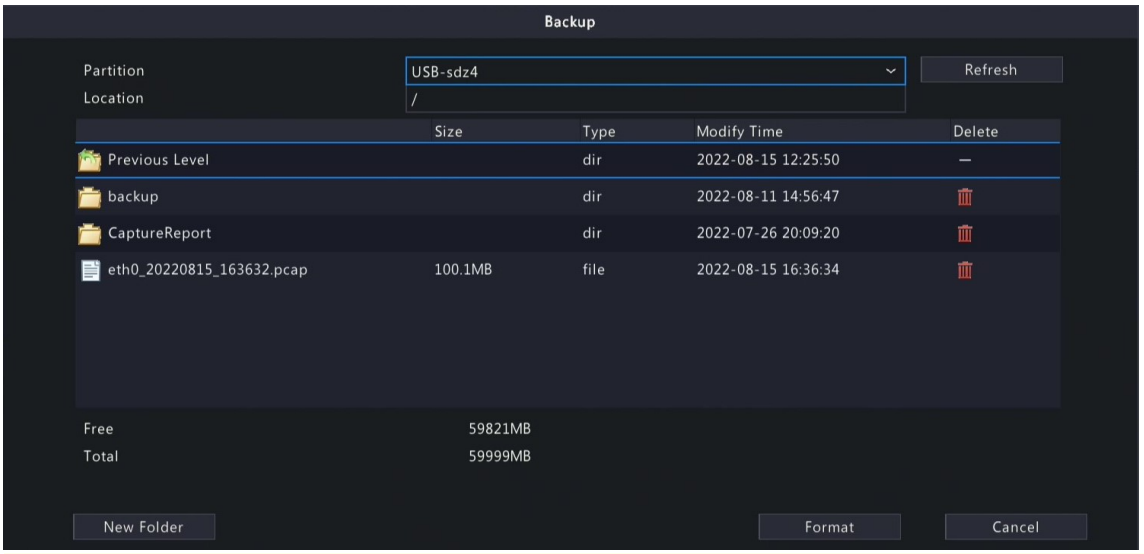
1. Go to **Menu** > **Maintenance** > **Network Info** > **Packet Capture**.



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. The default is 8192 Bytes, and the range is [0-8192].
5. Click for the NIC to start capturing packets.

   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.



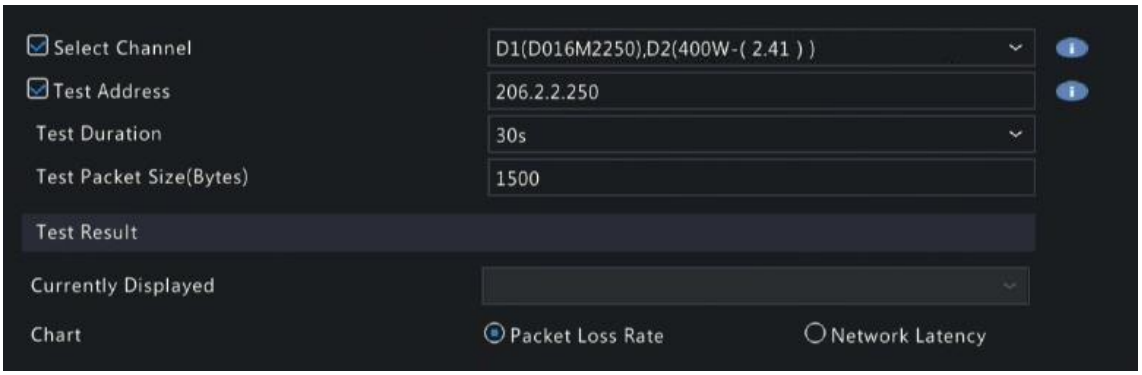
Note:
- The device cannot capture packets if a capturing task is already started on the Web client.
- The file containing the captured packets is named in this format: *NIC_YYYYMMDD_hhmmss*.pcap, for example, eth0_20220815_163632.pcap.
- When PPPoE dial-up succeeded, a virtual NIC appears in the NIC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



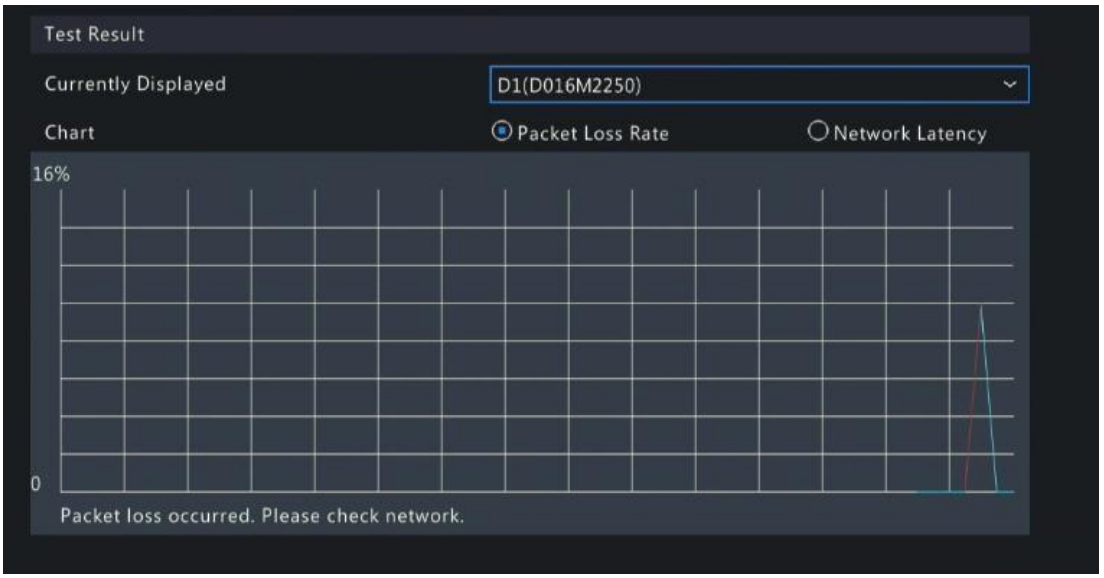
6. Click **Test** to test the packet loss rate and network latency.

View Test Results

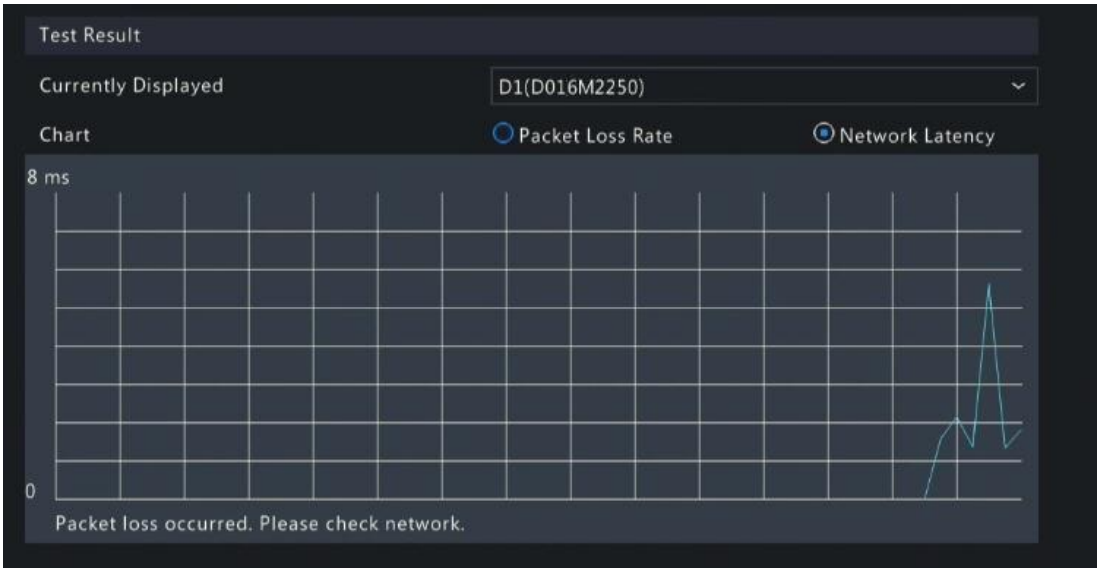
If the test is successful, the system saves test data and shows the packet loss rate and network latency. If the test failed, the test result shows “The destination is unreachable”.

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

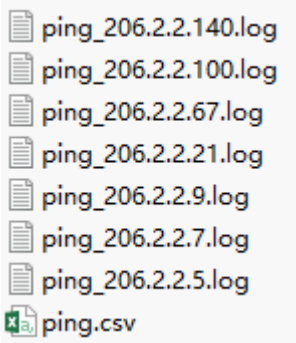


   - Network latency

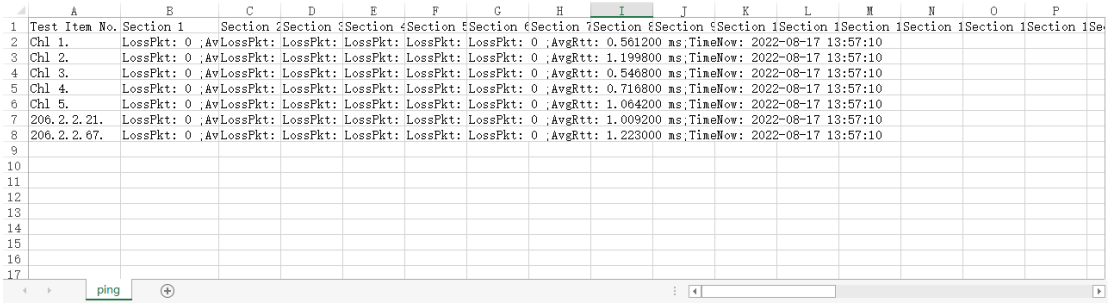


Export Test Results

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

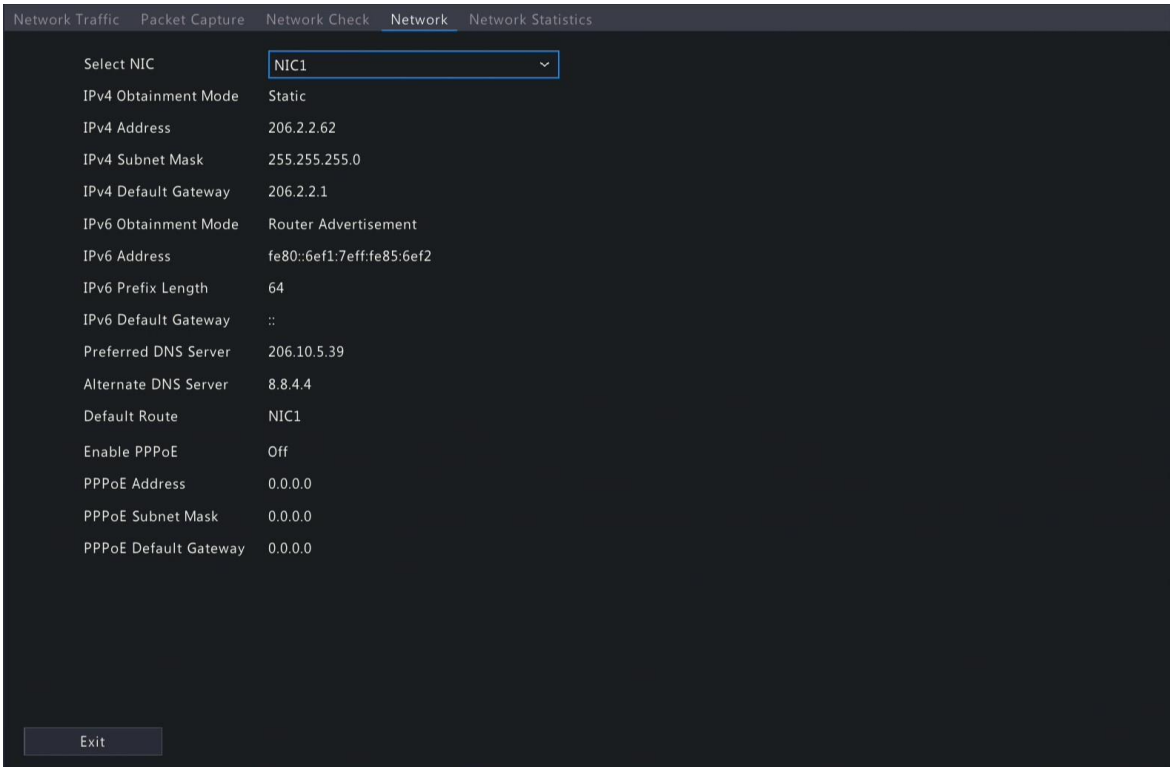


	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Test Item No.	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	Section 9	Section 1	Section 1	Section 1	Section 1	Section 1	Section 1
2	Chl 1.	LossPkt: 0 ;Av	LossPkt:	LossPkt:	LossPkt:	LossPkt:	LossPkt: 0 ;AvgRtt: 0.561200 ms;TimeNow: 2022-08-17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

11.2.4 Network Status

View network parameters of an NIC.

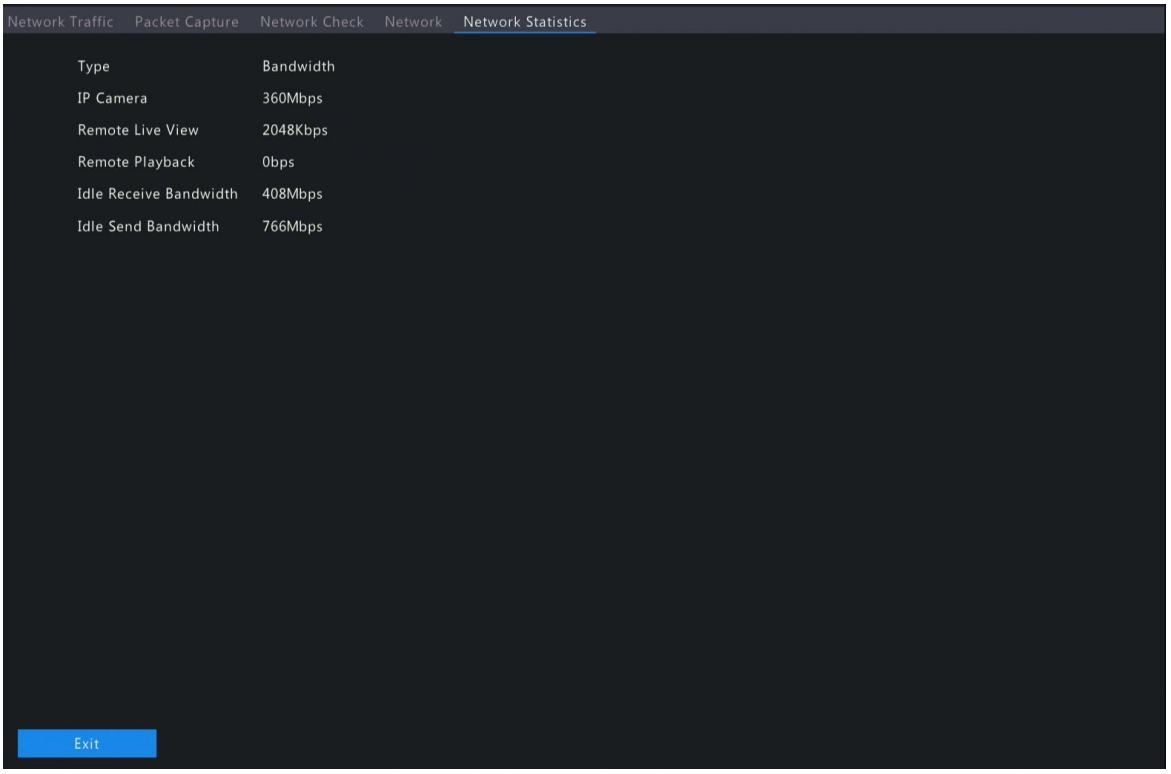
Go to **Menu** > **Maintenance** > **Network Info** > **Network**. Choose an NIC to view its network parameters.



11.2.5 Network Resource Statistics

View bandwidth usage.

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



Note:

- When idle receive bandwidth is low, cameras cannot get online.
- When idle send bandwidth is low, live view, playback, and recording download will fail.

11.2.6 PoE and Network Port Status

View connection status of PoE ports or network ports. This function is applicable to NVRs with PoE ports or network ports.

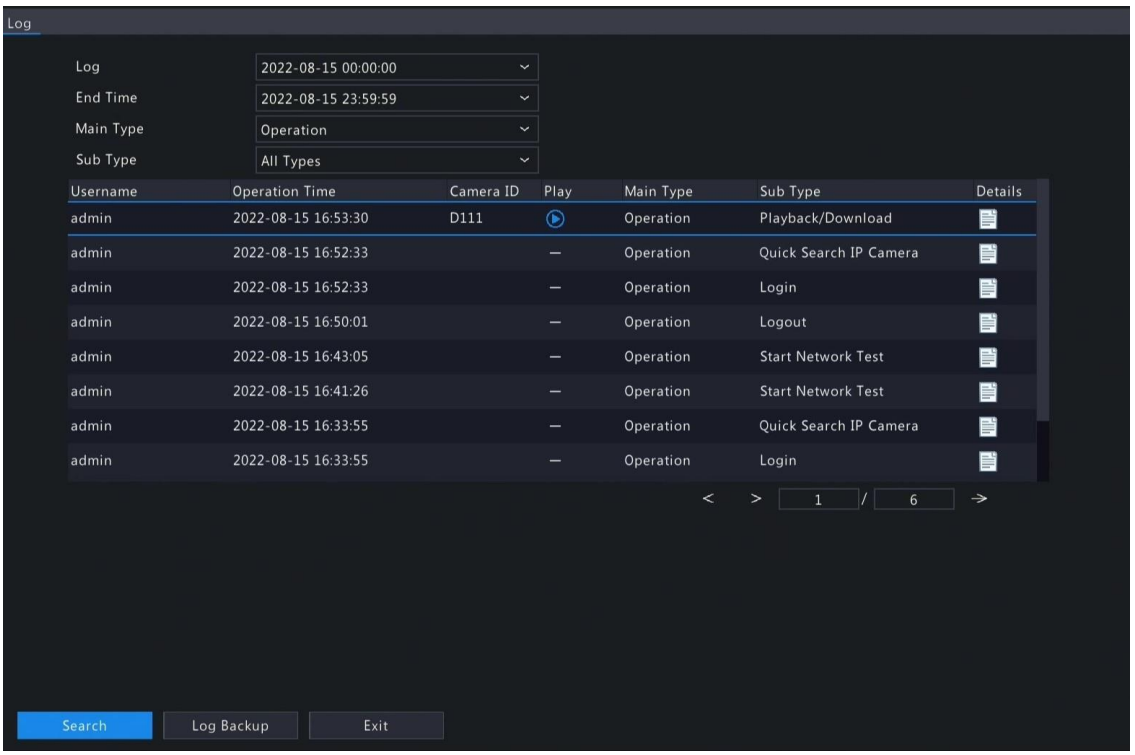
Go to **Menu** > **Maintenance** > **Network Info** > **PoE Port Status** or **Network Port Status**. The port connection status is displayed. Blue means the port is in use. For PoE device, you may also view power information.

11.3 Log Search

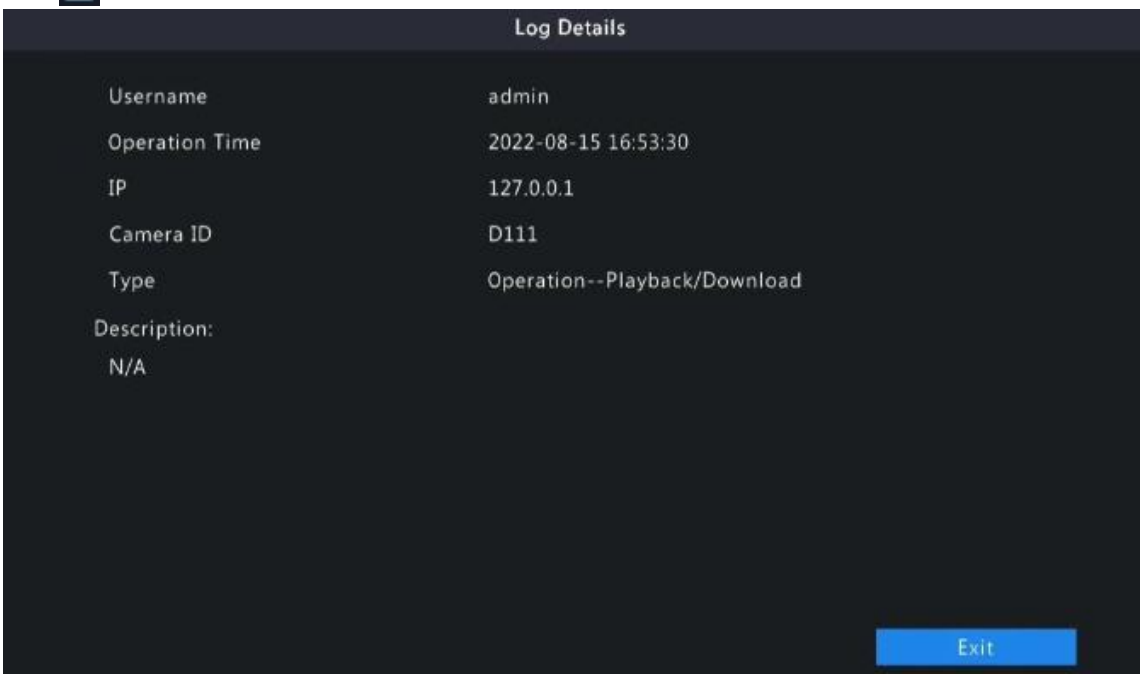
Logs contain information about user operation and device status. You can use logs to keep track of device operation status and view detailed alarm information.

Log Search

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

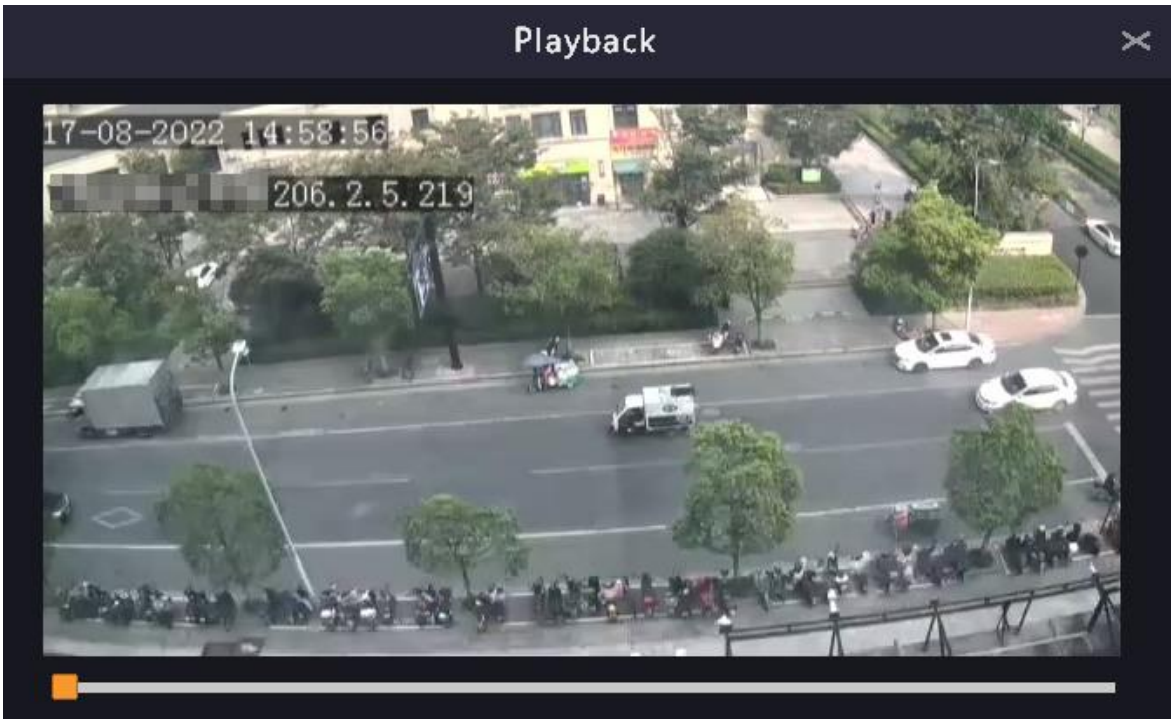


2. Set the start time, end time, main type and sub type.
3. Click **Search**.
4. Click to view log details.



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.

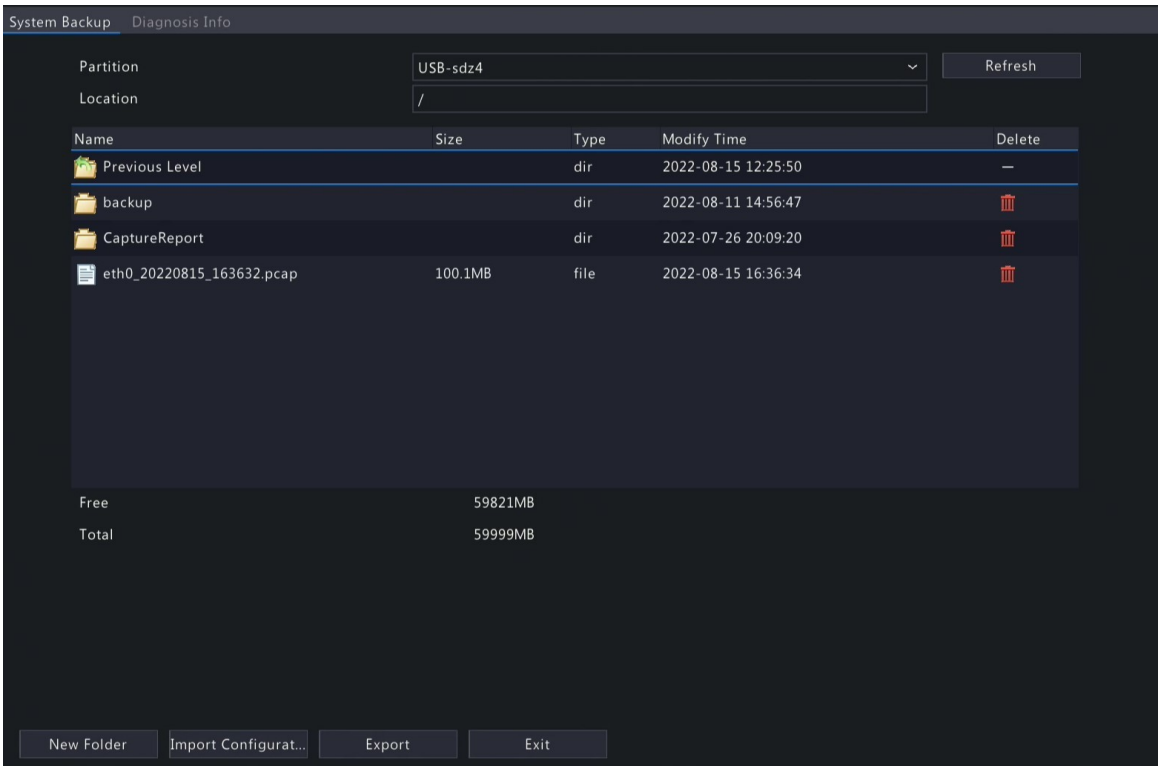
11.4 System Backup

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.

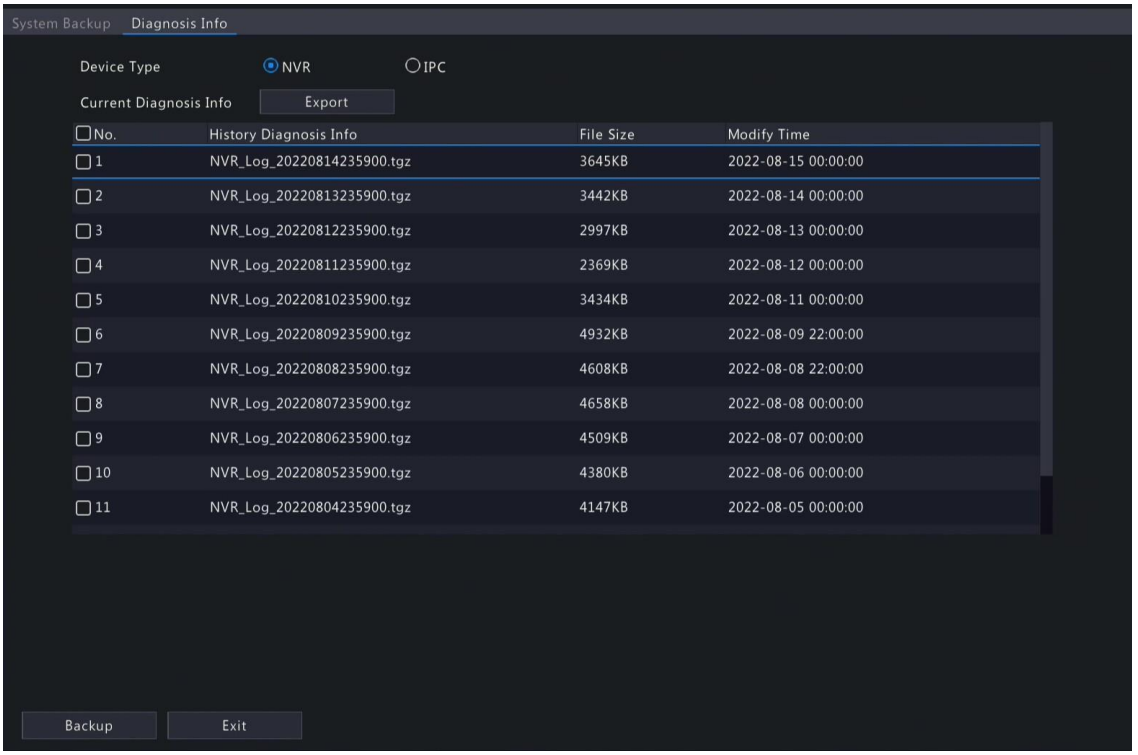
11.4.2 Diagnosis Info

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

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

NVR Diagnosis Info

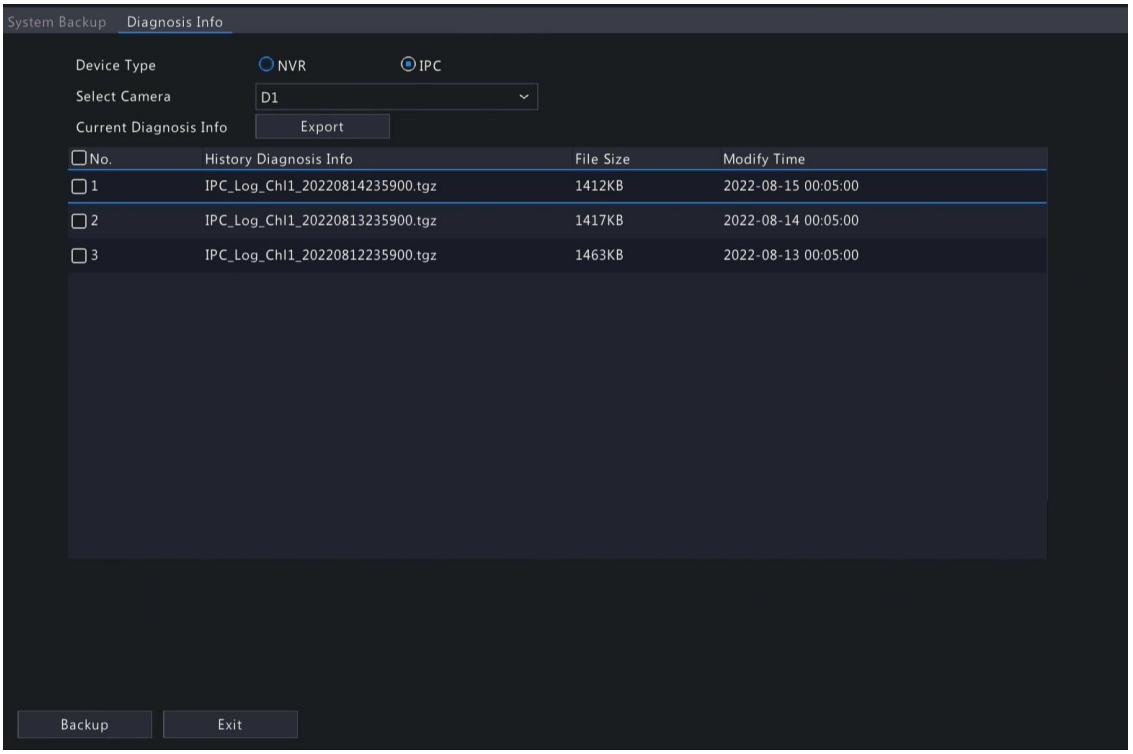
1. Choose **NVR** as the device type.



2. Export NVR 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.

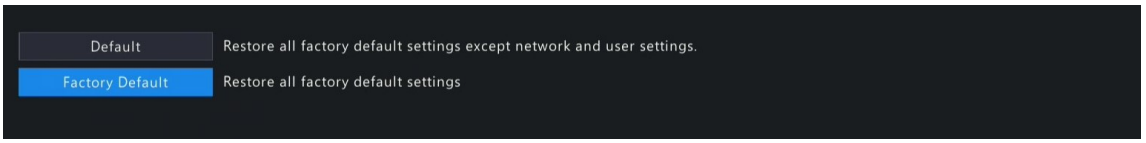


2. Choose the desired camera from the list.
3. Export diagnosis information of the selected camera.
   - Current Diagnosis Info: Diagnosis information since the latest startup. Click **Export** to export diagnosis information to the external storage device.
   - History Diagnosis Info: All the history 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**.



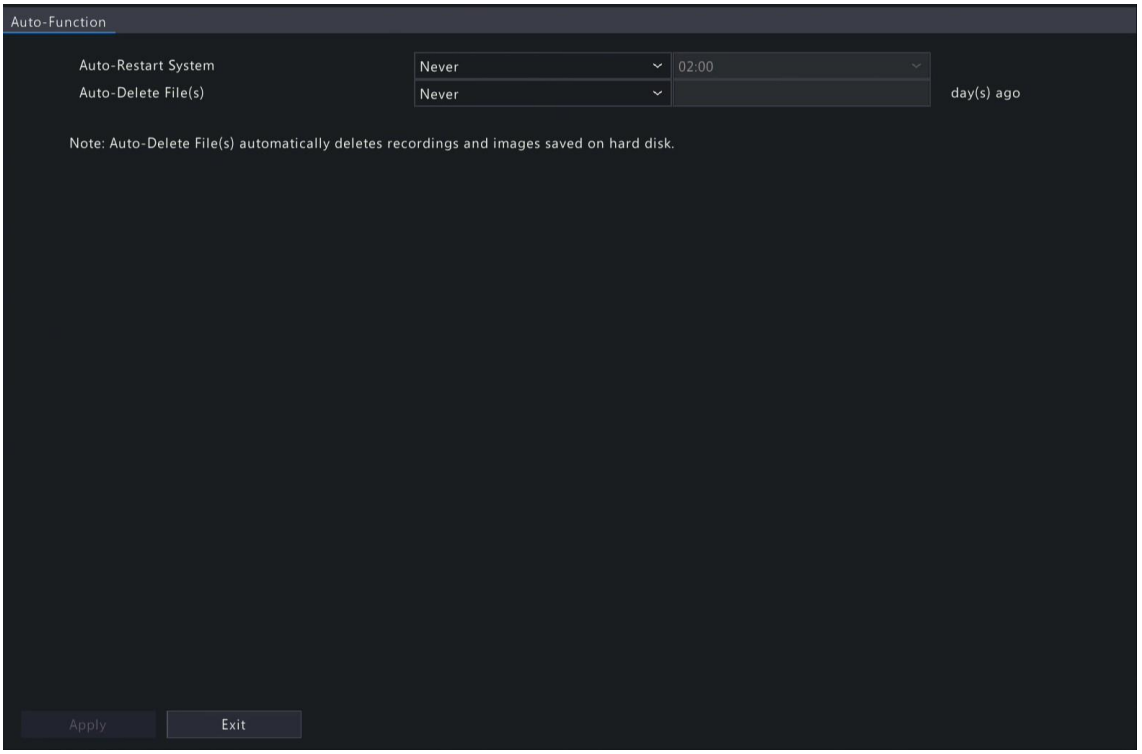
2. Choose **Default** or **Factory Default** as needed. A message appears. The NVR will restart and restore the default settings after you confirm. Choose a method according to your actual needs:
   - Restore: Restore default settings except network settings, user settings, and time settings.
   - Factory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

Two upgrade methods are available. The device will restart after the upgrade is completed.

- Cloud upgrade: Upgrade through the cloud server.
- Local upgrade: Upgrade using the upgrade files saved in a USB storage device.

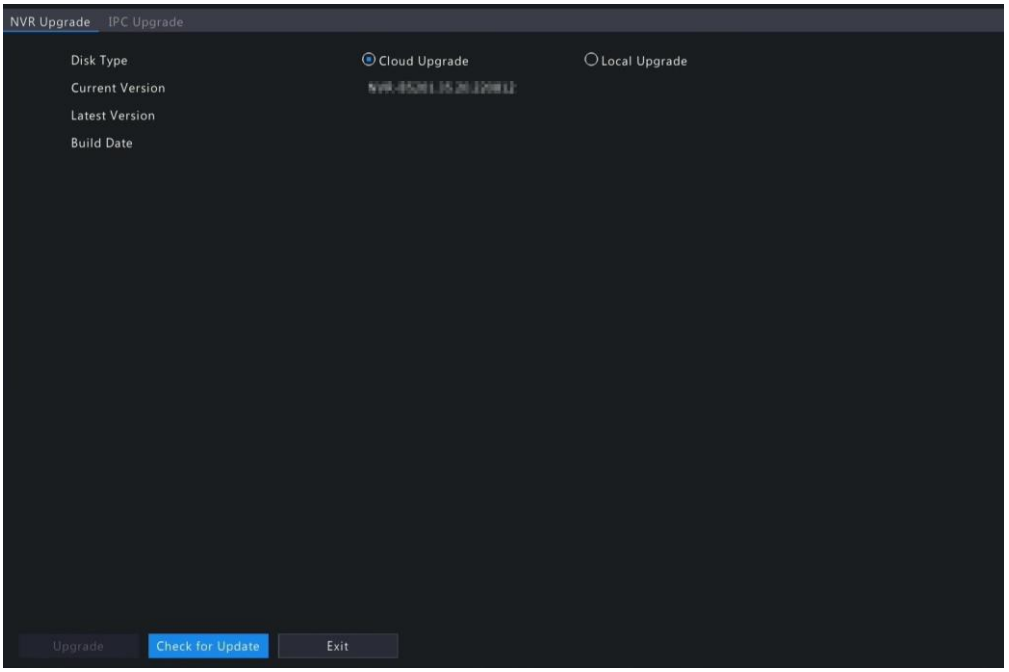
Note:

- Make sure the device is always connected to power and network during the upgrade. Use an Uninterrupted Power Supplies (UPS) if necessary.
- Before you start a cloud upgrade, make sure the DNS server is functional. Go to **Menu** > **Network** > **Basic** > **Network**. See Network Configuration for detailed information.
- The cloud upgrade speed is limited by the network transmission speed.

11.7.1 NVR Upgrade

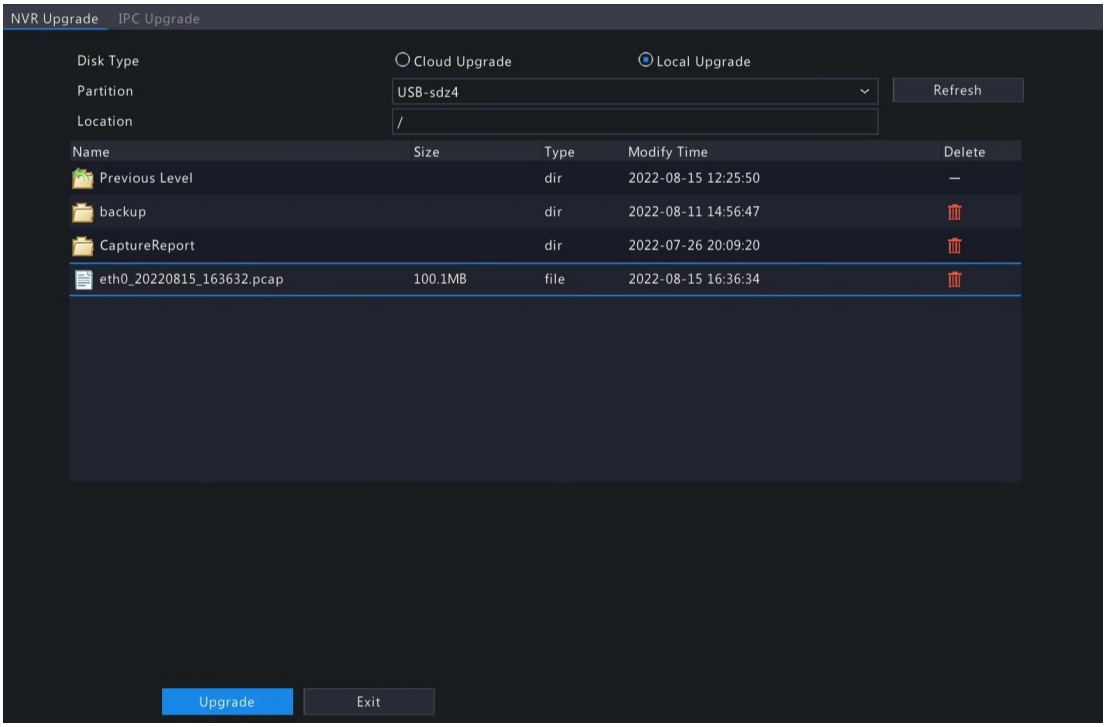
Upgrade the firmware of the NVR.

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



2. Choose **Cloud Upgrade** or **Local Upgrade**.
   - Cloud Upgrade
     Click **Check for Update**. The system checks for updates.
     - If updates are available, the new version number and its build date are displayed. Click **Upgrade** to start.
     - If no updates are available, the system indicates that the current version is already the latest.
   - Local Upgrade
     Select the upgrade file in the USB storage device, click **Upgrade** to start.

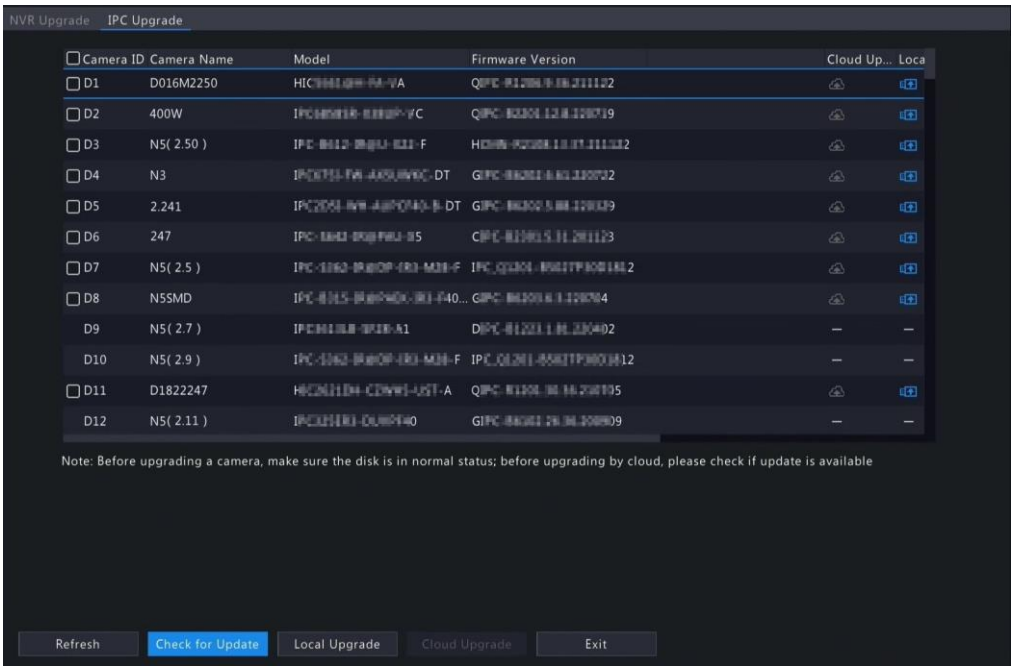
     Note: If the upgrade failed, the failure cause will be displayed, and the device will restart automatically. Fix the problem and then try again.



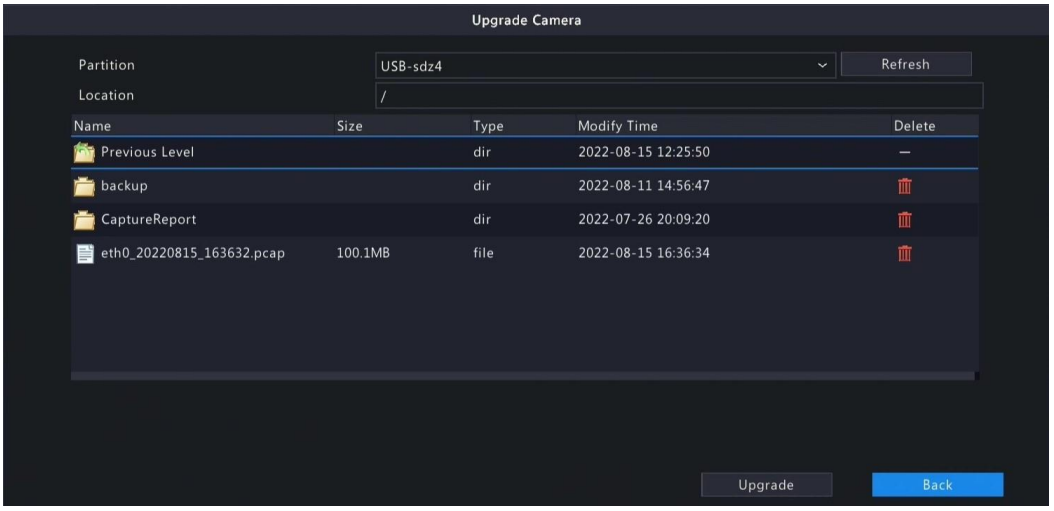
11.7.2 IPC Upgrade

Upgrade the firmware of the IPC. This function is only applicable to cameras connected via the Private protocol.

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



2. Choose **Cloud Upgrade** or **Local Upgrade**.
   - Cloud Upgrade
     Click **Check for Update**. The system checks for updates.
     - If updates are available, the new version number and its build date are displayed. Click to upgrade a camera, or select multiple cameras and then click **Upgrade** to upgrade in batches.
     - If no updates are available, the system indicates that the current version is already the latest.
   - Local Upgrade
     (1) Click to upgrade a camera, or select multiple cameras and then click **Local Upgrade**.



     (2) On the **Upgrade Camera** page, select the upgrade file in the USB storage device, and then click **Upgrade**.

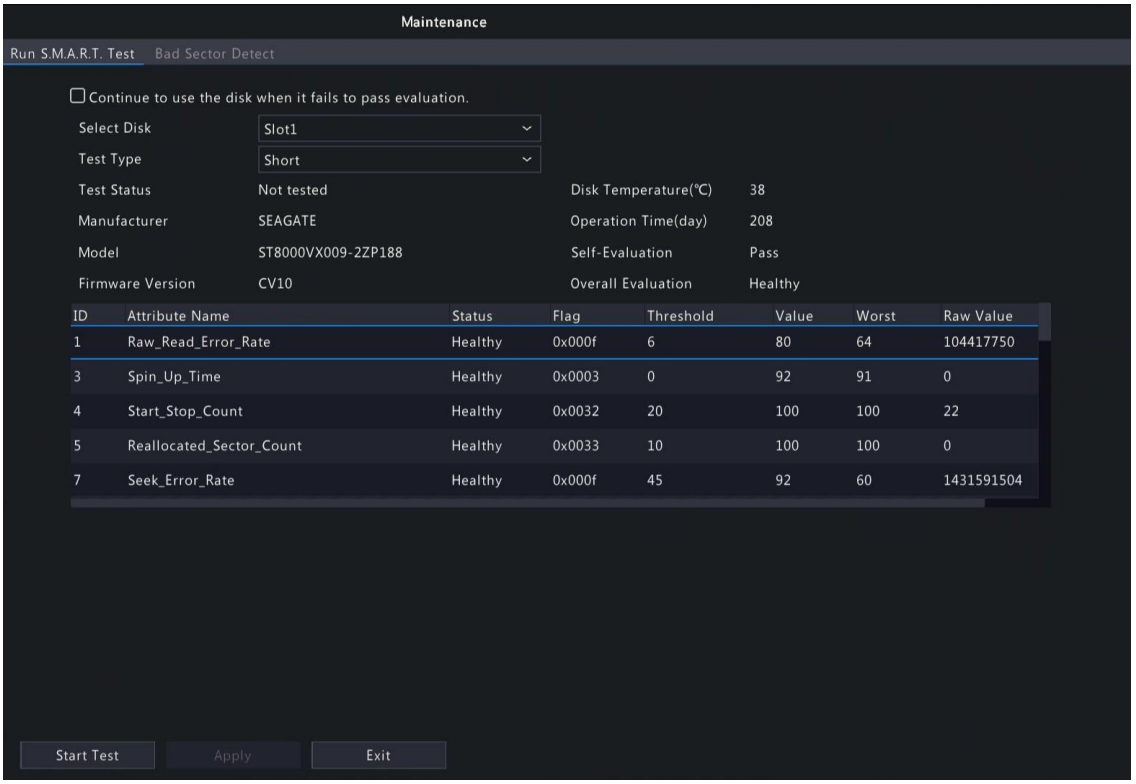
11.8 HDD Check

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**.



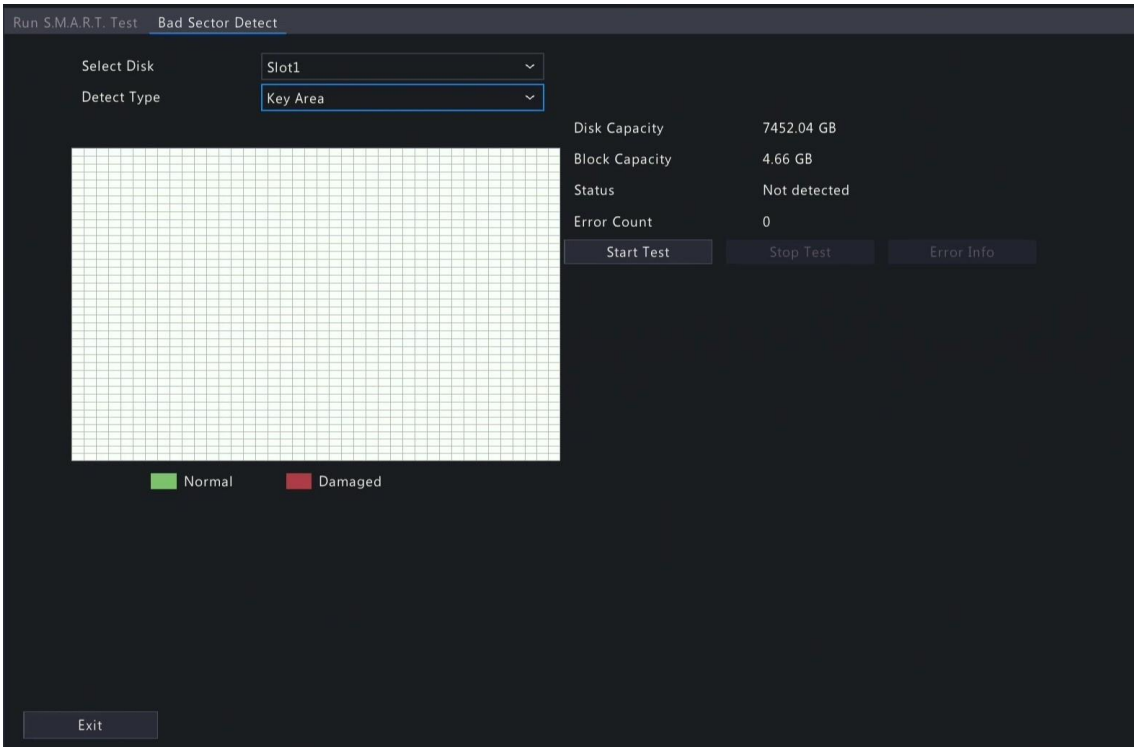
2. (Optional) Select , so the device can continue using the hard disk even if the disk fails in the self-assessment. However, this may incur great risks. Please choose carefully.
3. Choose the disk slot and test type.
   - Short: Less test contents, faster speed.
   - Extended: More comprehensive and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

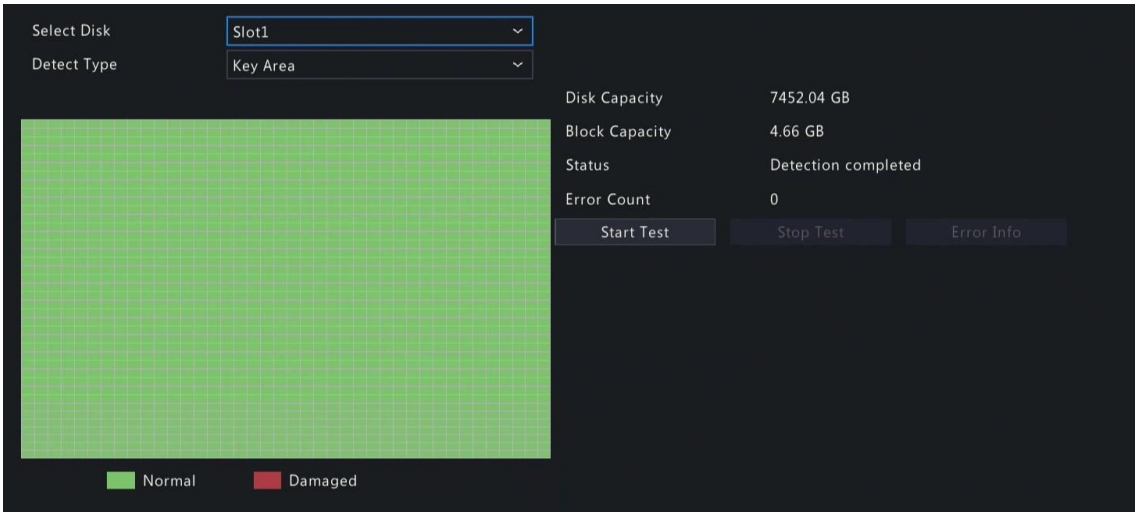
11.8.2 Bad Sector Detection

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**.

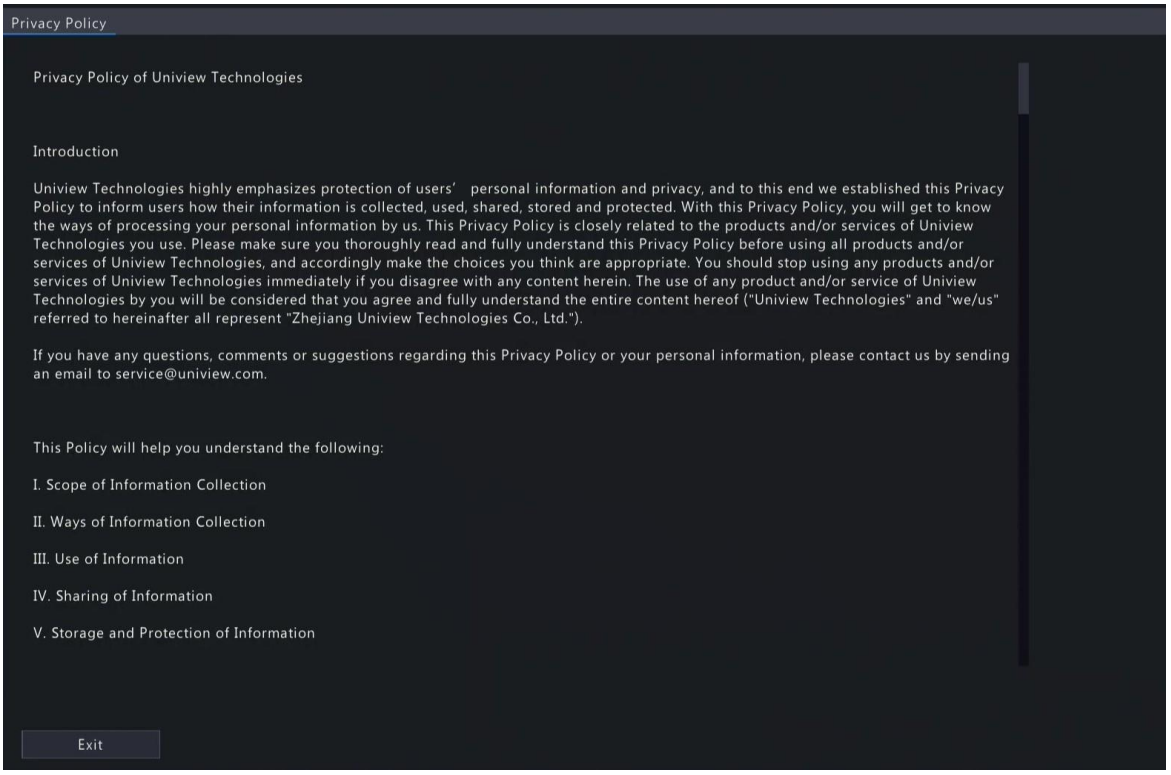


- means the detected area is in good condition.
- means the detected area is damaged. The detection stops automatically when the error count reaches 100.

11.9 Privacy Policy

View the privacy policy.

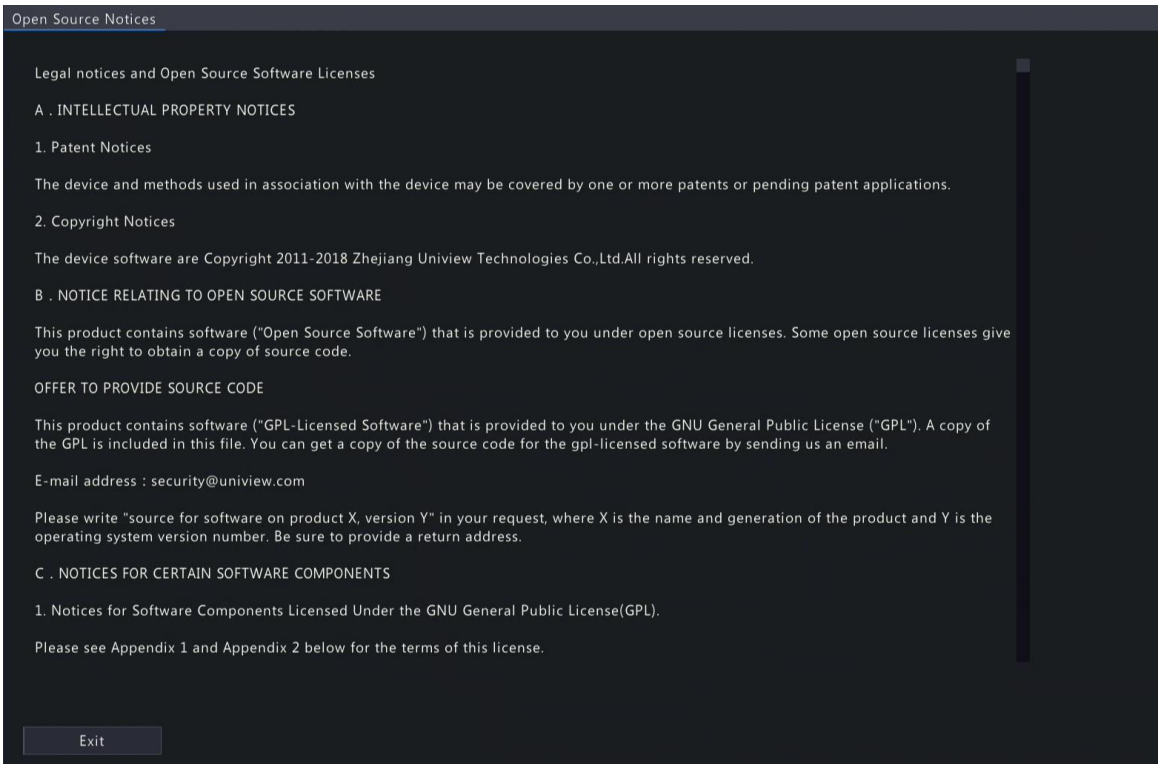
Go to **Menu** > **Maintenance** > **Privacy Policy**.



11.10 Open Source Notices

View our open source notice.

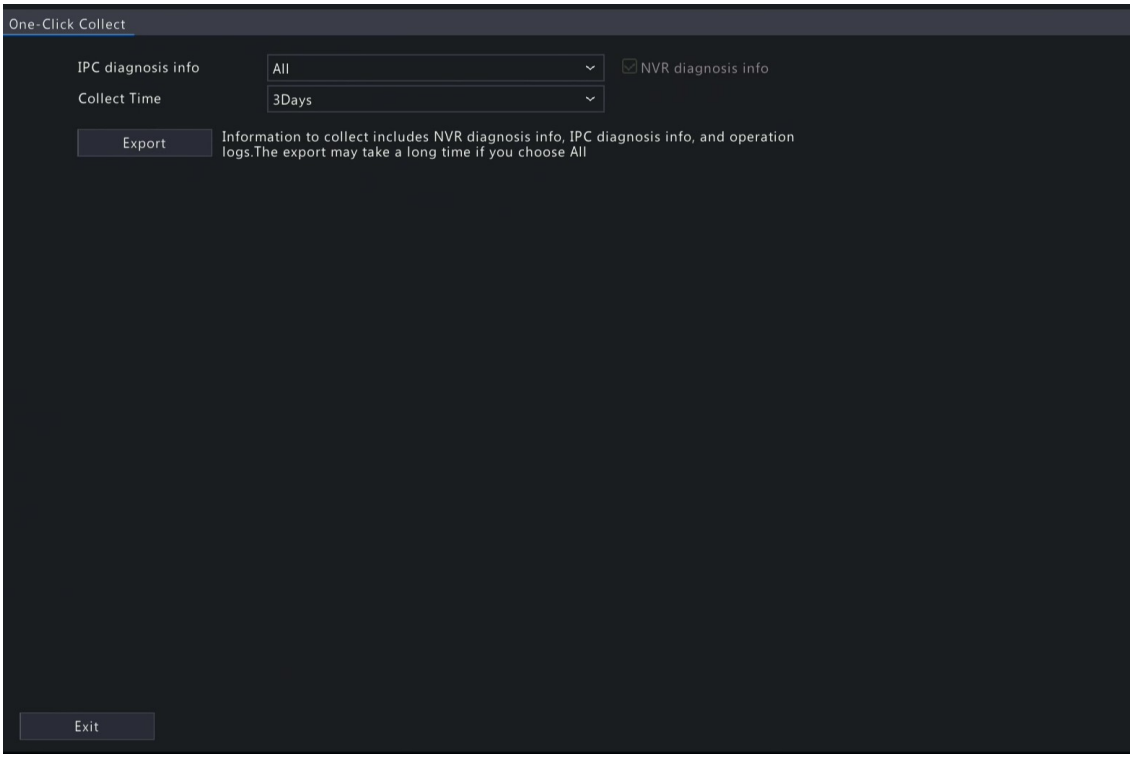
Go to **Menu** > **Maintenance** > **Open Source Notices**.



11.11 One-Click Collection

Collect NVR 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 diagnosis information is always collected.
3. Click **Export** to collect camera diagnosis information, NVR 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**.

12Playback

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.

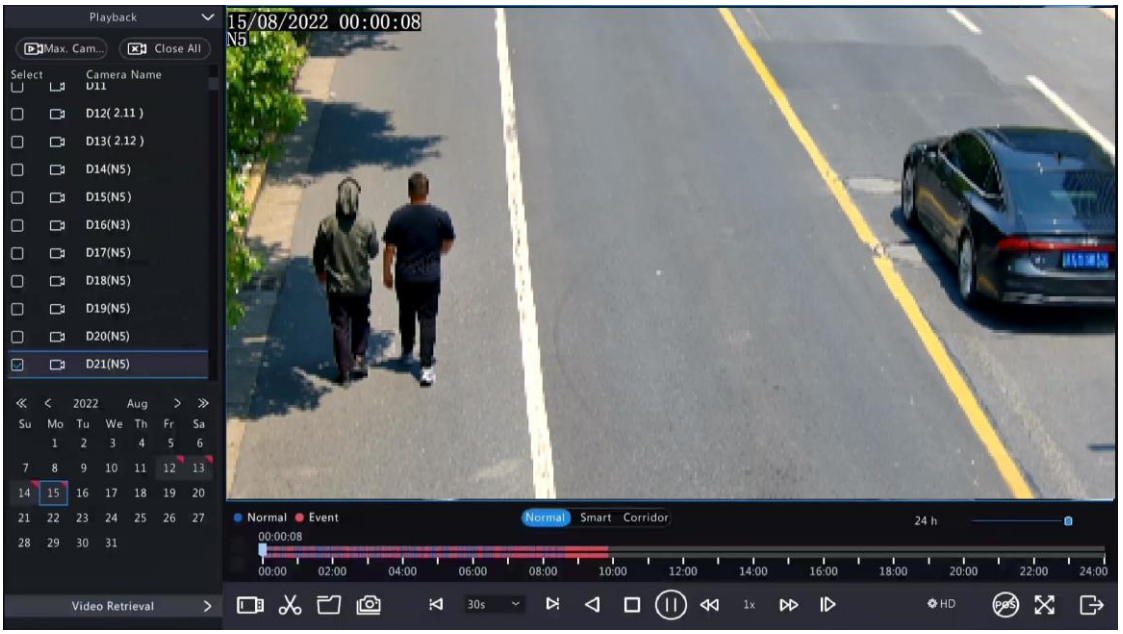
1. In the preview page, select the target window, and click on the window toolbar.

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 NVR model.
   - Click **Close All** to stop playback for all cameras.



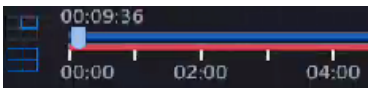
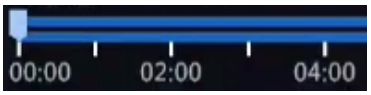
2. Double-click the desired date, or select the date and then click to start playback. By default, the system plays the video of the current day.

   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 NVR 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.

Button	Description
	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.
30s	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.
HD	Set the video clarity, including HD or SD.
	Enable/disable POS. When enabled, POS OSD appears on the screen, and some toolbar buttons are deactivated. **Note:** • This function is available for certain NVRs. • The button only appears in normal playback mode and POS playback mode. In normal playback mode, POS OSD is displayed for 5s. In POS playback mode, the time is configurable.
	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.

Button	Description
	Lock.

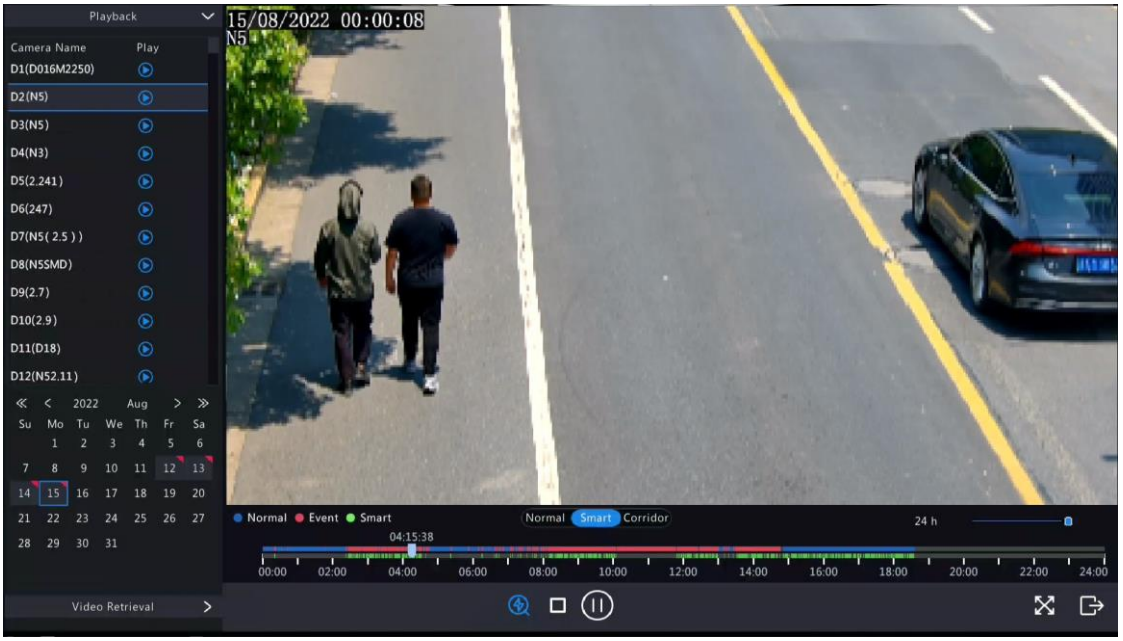
12.3 Smart Playback

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:

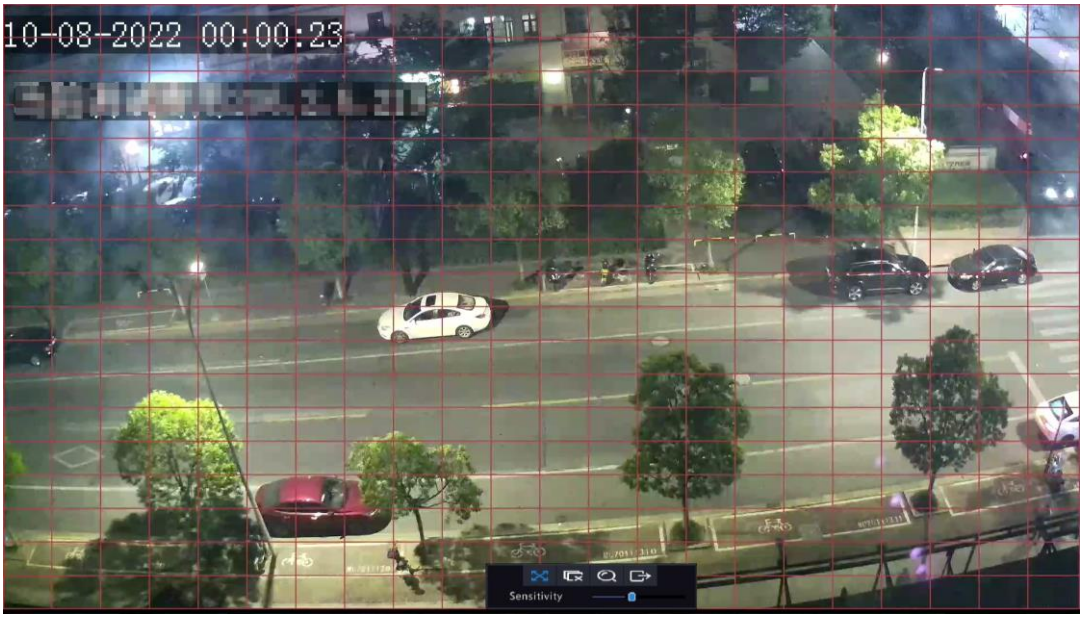
- This function is available for cameras that support smart functions.
- By default the system searches motion in video.
- Only one camera can be selected for smart playback.

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 Corridor Playback

Corridor playback plays recordings in corridor mode in multiple windows. Up to 3 cameras can be selected in corridor mode.

1. In the playback page, select **Corridor**.
2. Select the desired cameras you want to play.
3. Double-click the desired date, or select the date and then click to start playback.

12.5 External File Playback

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

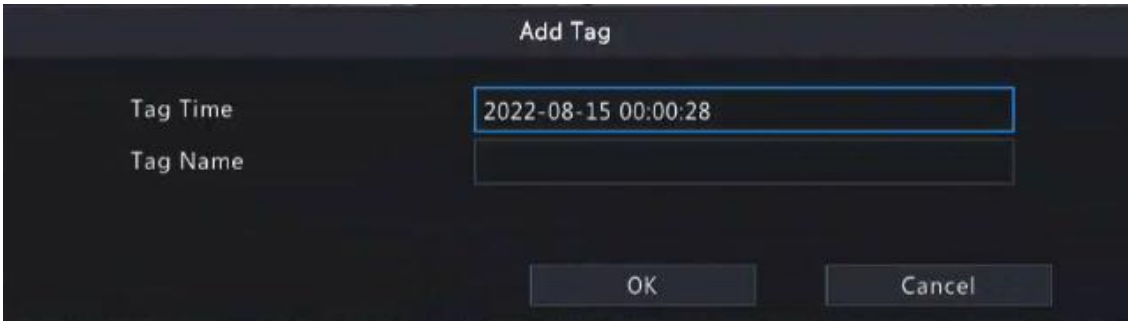
1. In the playback page, click on the screen toolbar.
2. Click **Refresh** and then wait for the NVR to read the external storage device.
3. Double-click the desired recording file, or select the file and then click or to start playback.

12.6 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.

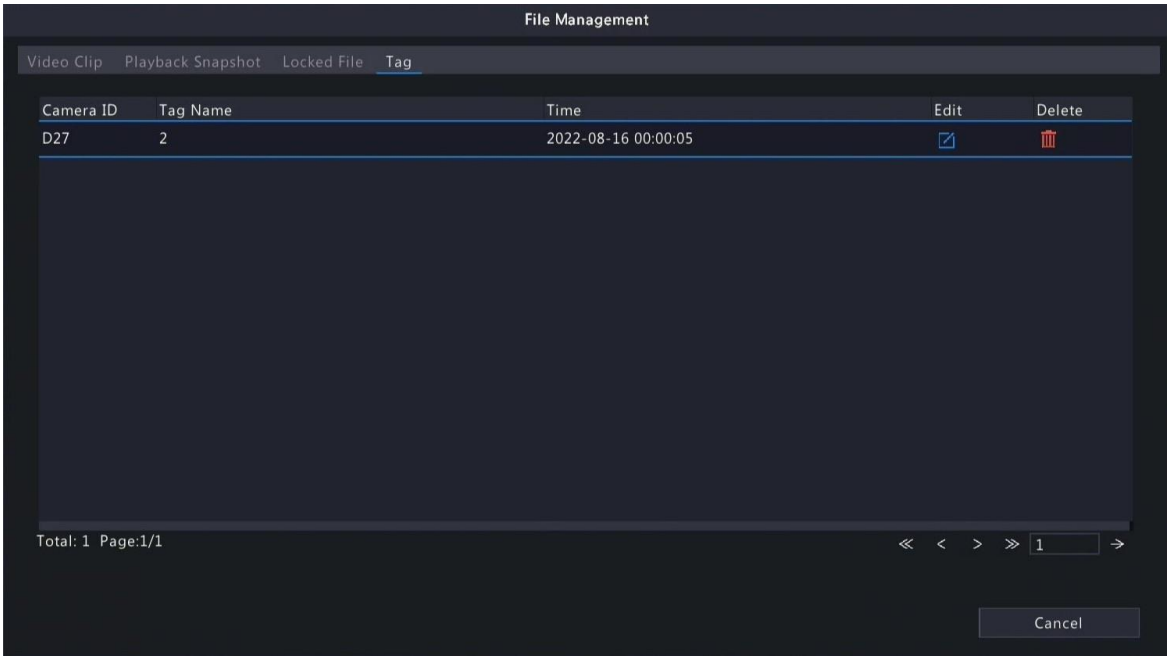


3. Enter the tag name. Tag time cannot be edited, which is the time when the tag was added.
4. Click **OK** to save the settings.

Tag Management

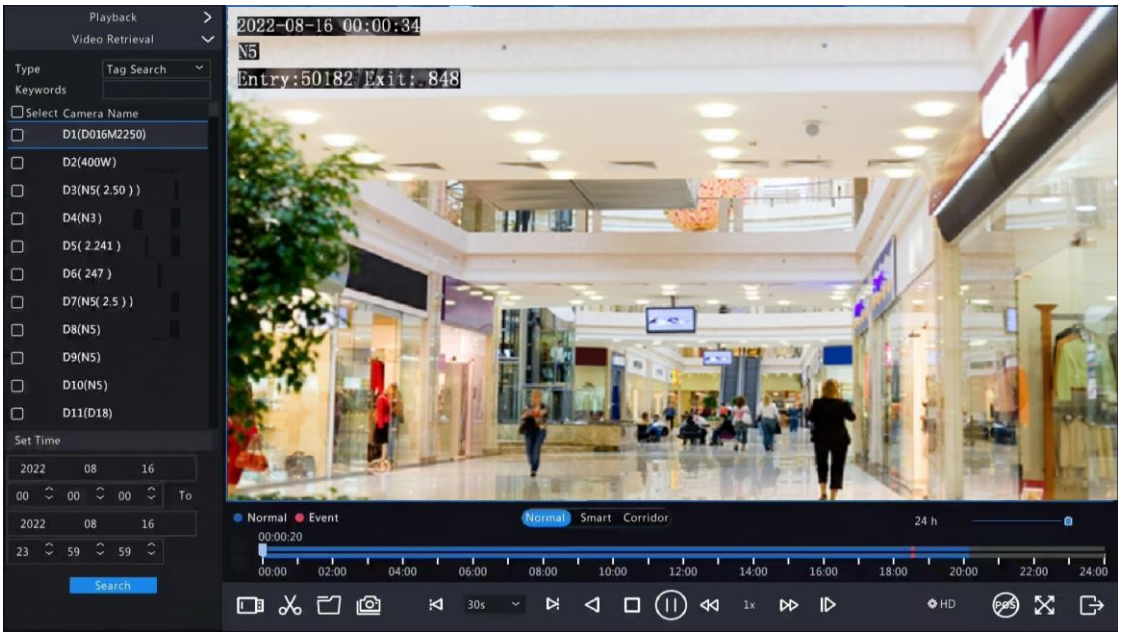
The added tags are saved to **File Management**. To view the newly added tag, click on the screen toolbar.

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

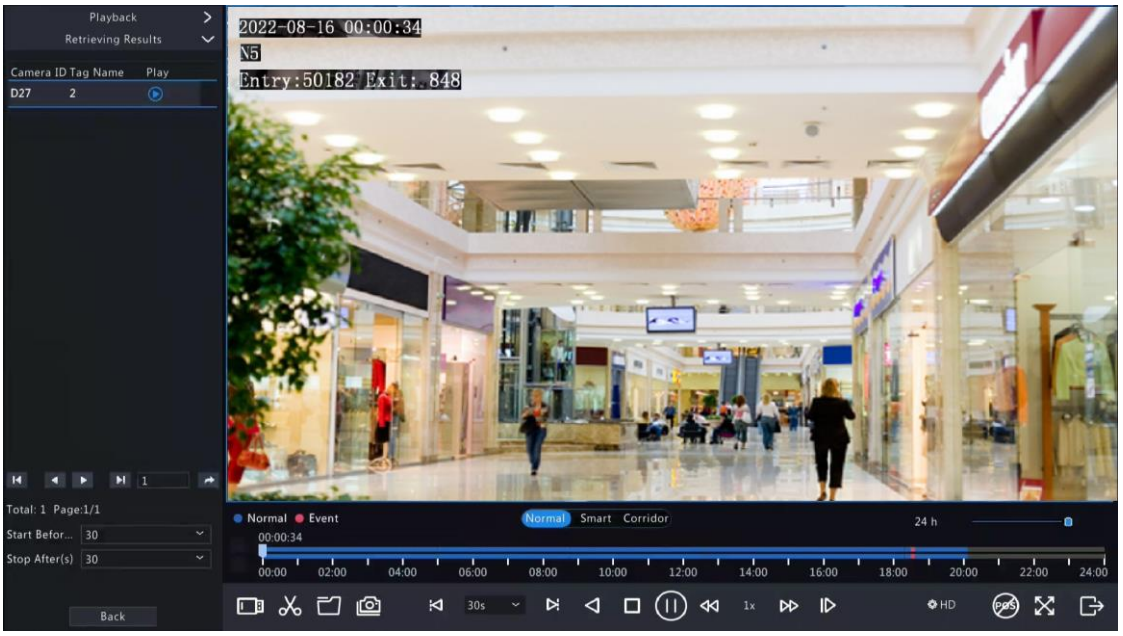


Playback by Tag

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**.



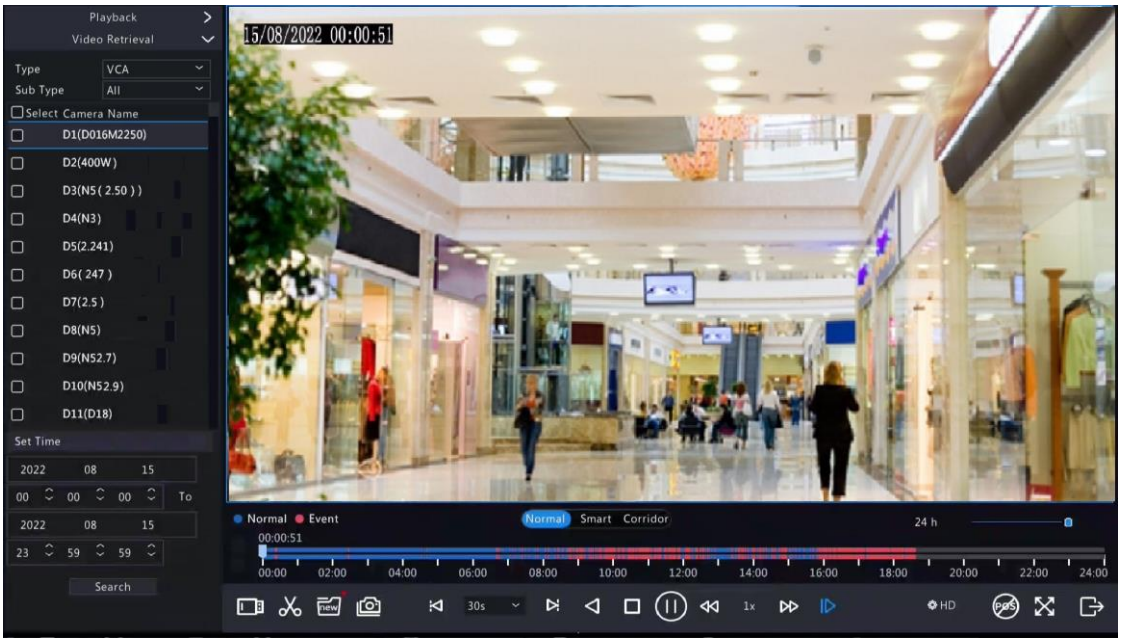
3. Double-click the tag you want to play, or select the tag and then click or to start playback.

12.7 Playback by Search

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

12.8 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

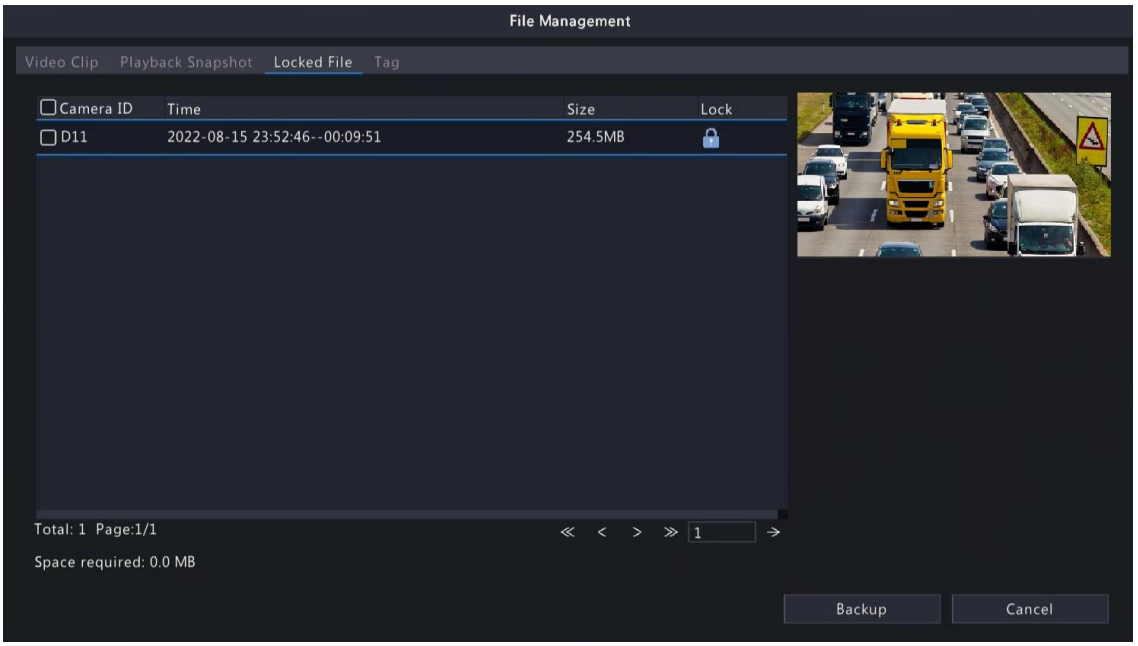
You may take a snapshot during playback and then back up the snapshot. See Playback Snapshot Backup for details.

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**.



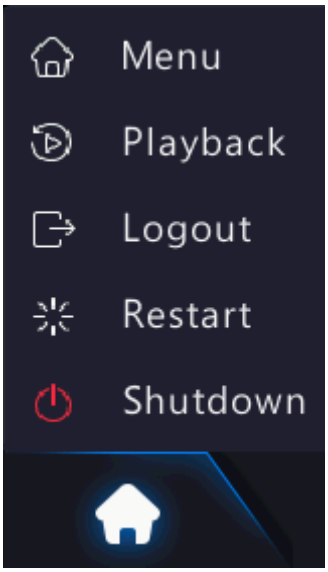
Tag

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

13Shutdown

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 NVR, 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 NVR, 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 NVR is shut down unexpectedly, for example, due to a power failure. A shutdown during a system upgrade may cause startup failures.

14Web-BasedOperations

You may access and manage the NVR 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 NVR 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 NVR model.
- The figures below are for illustration purpose only and may vary with NVR model.

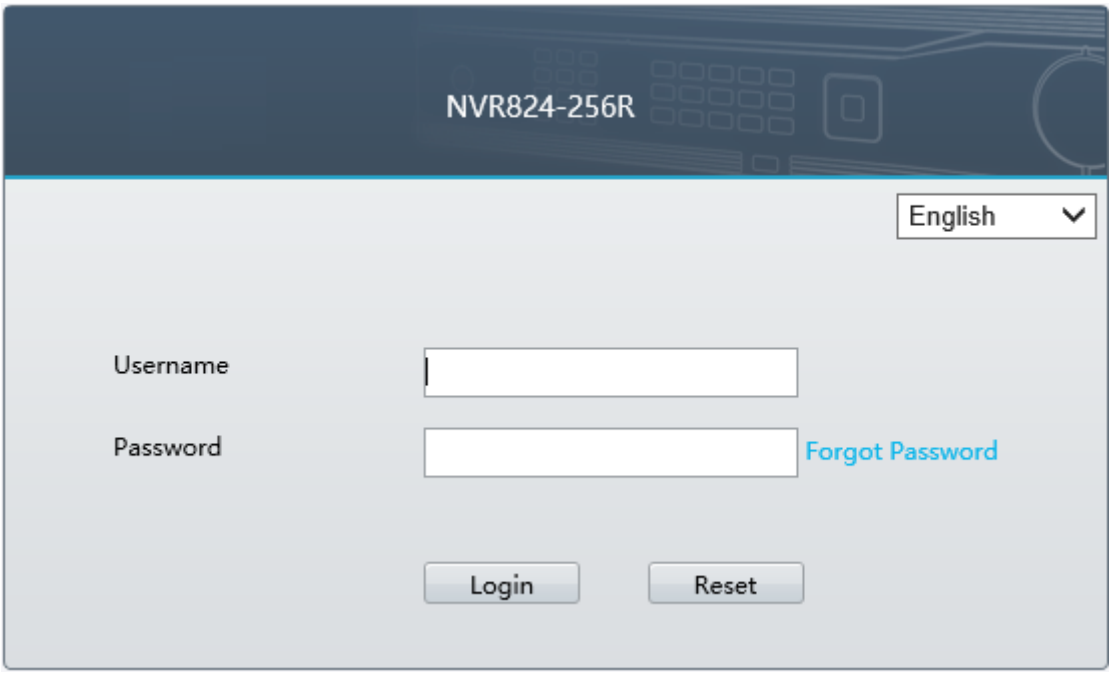
14.2 Login

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 NVR in the address bar (**192.168.1.30** 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/Setup.exe in the address bar, and press Enter.
3. In the login page, enter the default username and password (admin/123456) and then click **Login**.

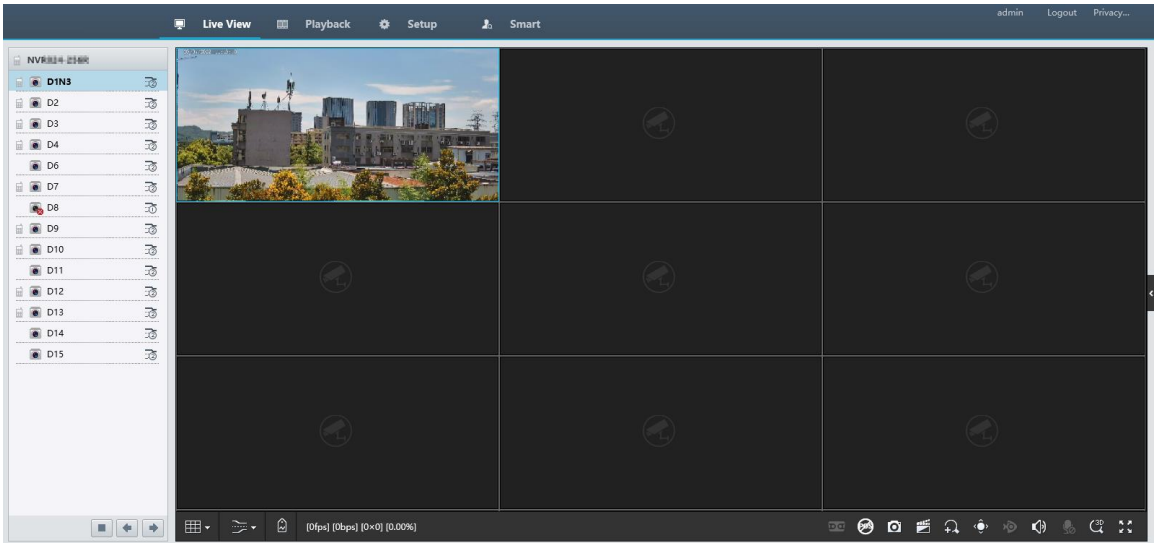


Note: The default password is intended only for your first login. You are strongly recommended to set a strong password to ensure account security.

- 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 NVR 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

Button	Description	Button	Description
/	Enable/disable intelligent mark	[25fps] [2.56Mbps] [1920×1088] [H.264] [0.59%]	Frame rate/bit rate/ resolution/packet loss
	Open/close the control panel		Take a snapshot
	Local recording		Digital zoom
/	Turn on/off audio	/	Start/stop two-way audio
	3D positioning		Full screen
	Multi-sensor preview		Fisheye mode

Note:

- right to device name means two-way audio with the NVR. 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.

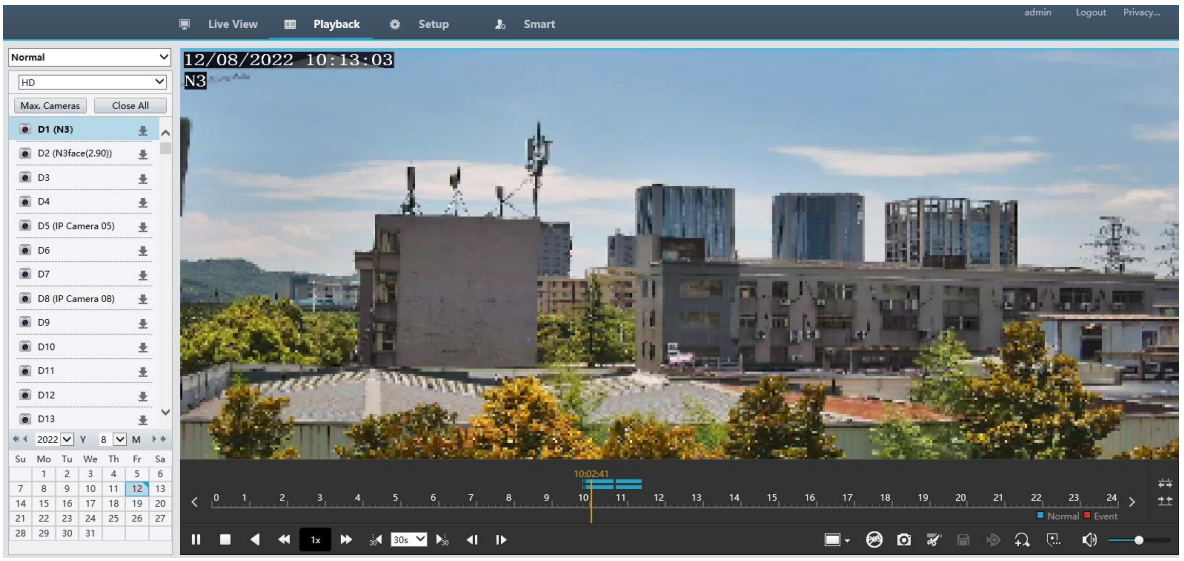


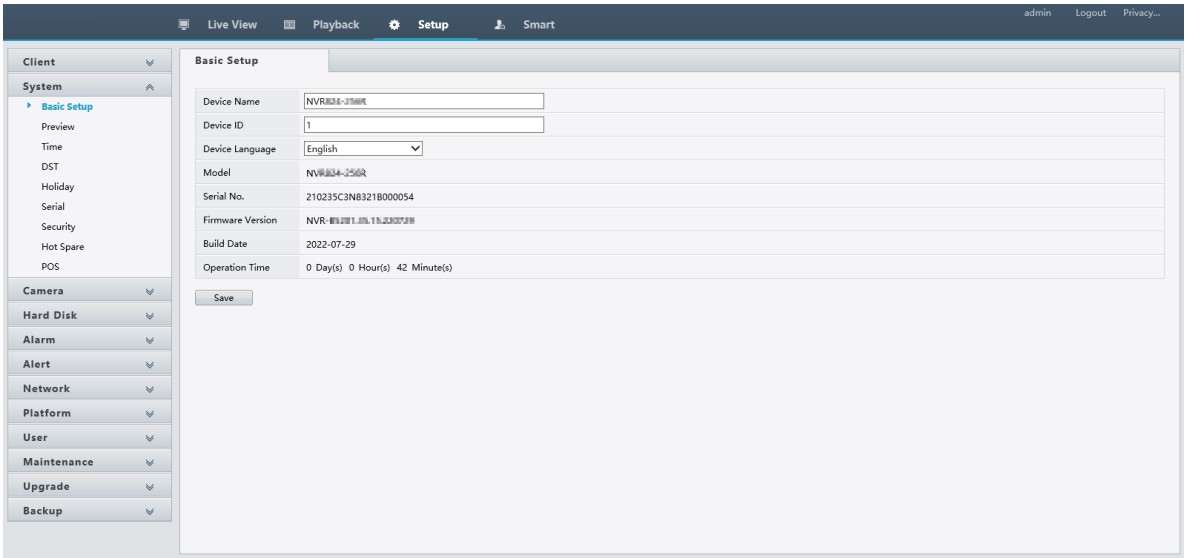
Table 14-2: Playback Control Buttons

Button	Description	Button	Description
/	Play/pause		Stop
	Reverse	/	Slow down/speed up

Button	Description	Button	Description
/	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		

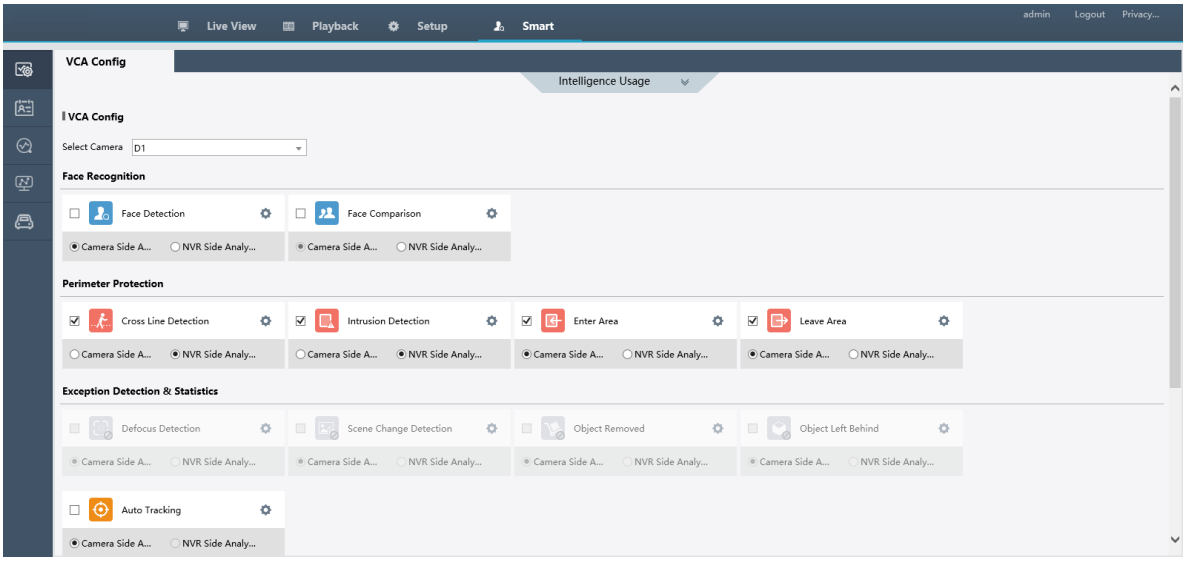
14.5 Configuration

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.



15AppendixFAQ

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 NVR's IP address to the trusted sites in your IE (**Tools** > **Internet Options** > **Security**). • Add your NVR'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 NVR 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 NVR.
The NVR 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 NVR 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 NVR. 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 NVR 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 NVR.	• Use the power adapter delivered with the NVR. • Disconnect the power supply of the NVR, and then mount the hard disk again. • Try another disk slot.

Problem	Possible Cause and Solution
	• The disk is not compatible with your NVR. Contact your dealer for a list of compatible disk models.
The mouse does not work.	• Use the mouse delivered with your NVR. • Make sure no cable is extended.

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