Network Video Recorders

User Manual

V3.05

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About this Manual

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Disclaimer

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

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

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

Safety Symbols

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

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

1 Local Operations

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

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.

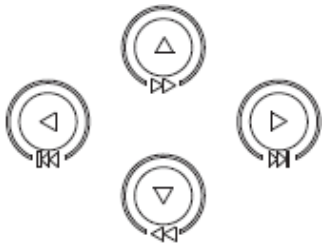
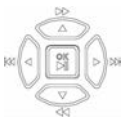
Button	Description
	Auxiliary function button.
	Exit the current window.
	Direction button: Switch windows or menu items; or control rotation direction of a PTZ camera when the PTZ toolbar is closed. PTZ stands for pan, tilt, and zoom. • : Rewind or forward 30 seconds in full screen. • : Variable-speed forward or rewind in full screen.
	Confirm an operation, or start/pause the playback.
	• Startup: Press and hold the button for 1 to 2 seconds. **Note:** This button only supports shutdown for certain devices. Please connect the device to power to start it up. • Shutdown: Press and hold the button for 3 seconds until you hear a beep, then hold for 2 seconds until an on-screen message appears, and then click **Yes** to shut down the device.

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.

Button	Description
	Delete.
	Switch the input method.
	Auxiliary function button.
	Exit the current window.
	Switch to the next tab.

	• △/▽/▷/◁: 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 ⏯ : Confirm an operation, or start/pause the playback.

	• Startup: Press and hold the button for 1 to 2 seconds. **Note:** This button only supports shutdown for certain devices. Please connect the device to power to start it up. • Shutdown: Press and hold the button for 3 seconds until you hear a beep, then hold for 2 seconds until an on-screen message appears, and then click **Yes** to shut down the device.

2 Initial Configuration

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.

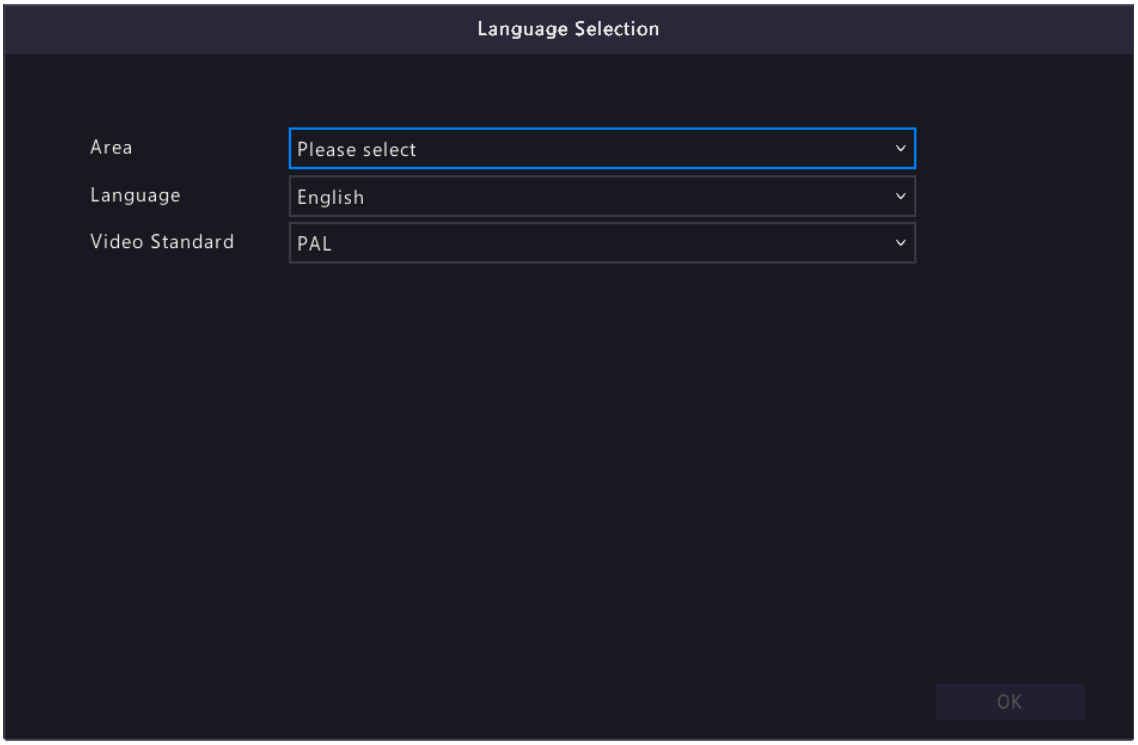
- Make sure that the hard disk(s) are correctly installed. For detailed installation steps, please refer to the quick guide shipped with the NVR.

2.2 Login

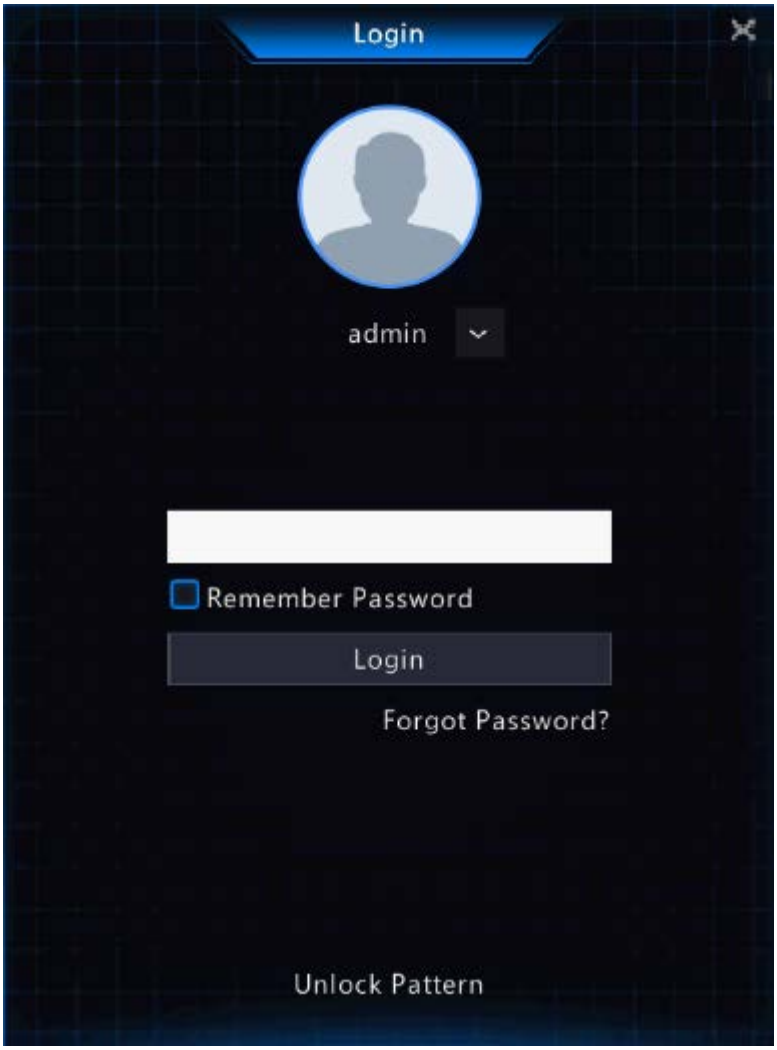
Device Login

1. The **Language Selection** page appears after the NVR starts up. Set the area, language, and video standard based on the actual situation. The video standard can be changed in Basic Configuration later.
   - PAL: 50Hz
   - NTSC: 60Hz

Note: The video standard is automatically generated according to the default standard of the selected area. You can also change it as needed.



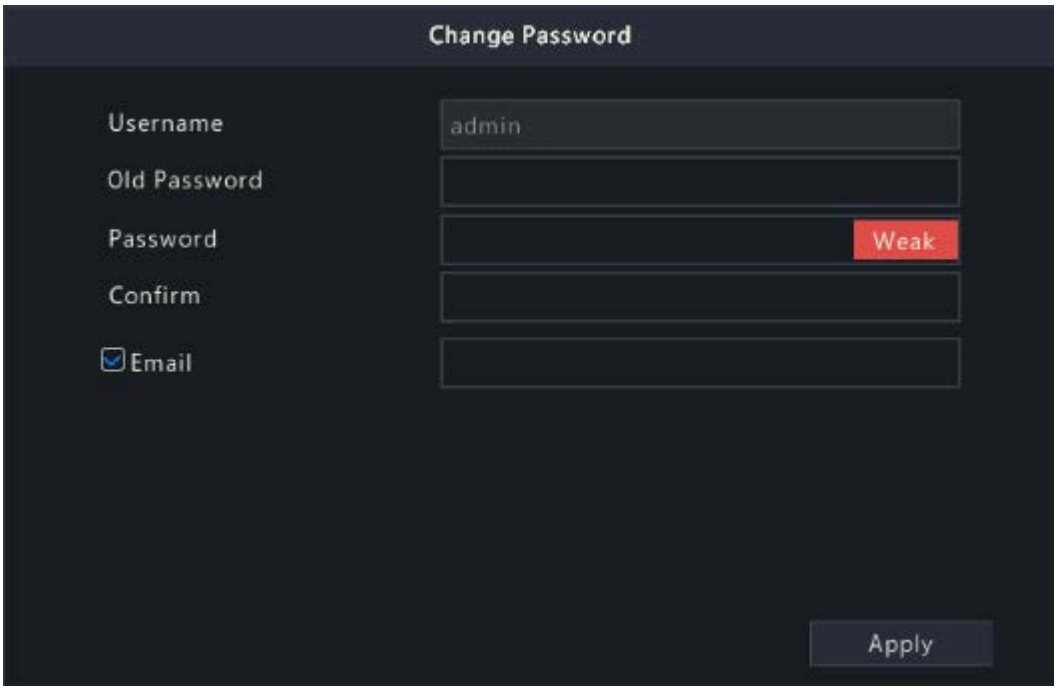
2. On the **Login** page, select the default user (admin), enter the default password (123456), and then click **Login**.



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

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

4. On 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**.

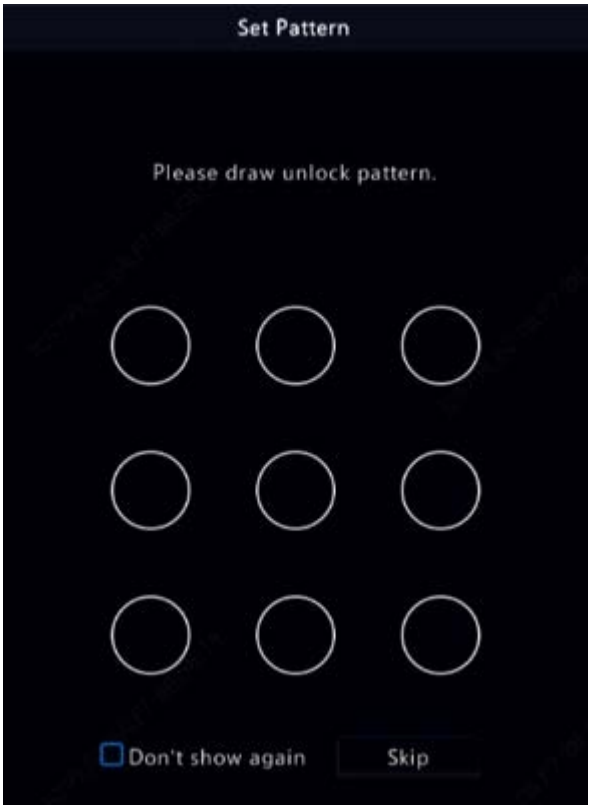


Note:

- 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.

5. The **Password Sync Attention** dialog box appears. Select the checkbox below as needed, and then the new NVR password will be synced to all the online cameras via Plug & Play.

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

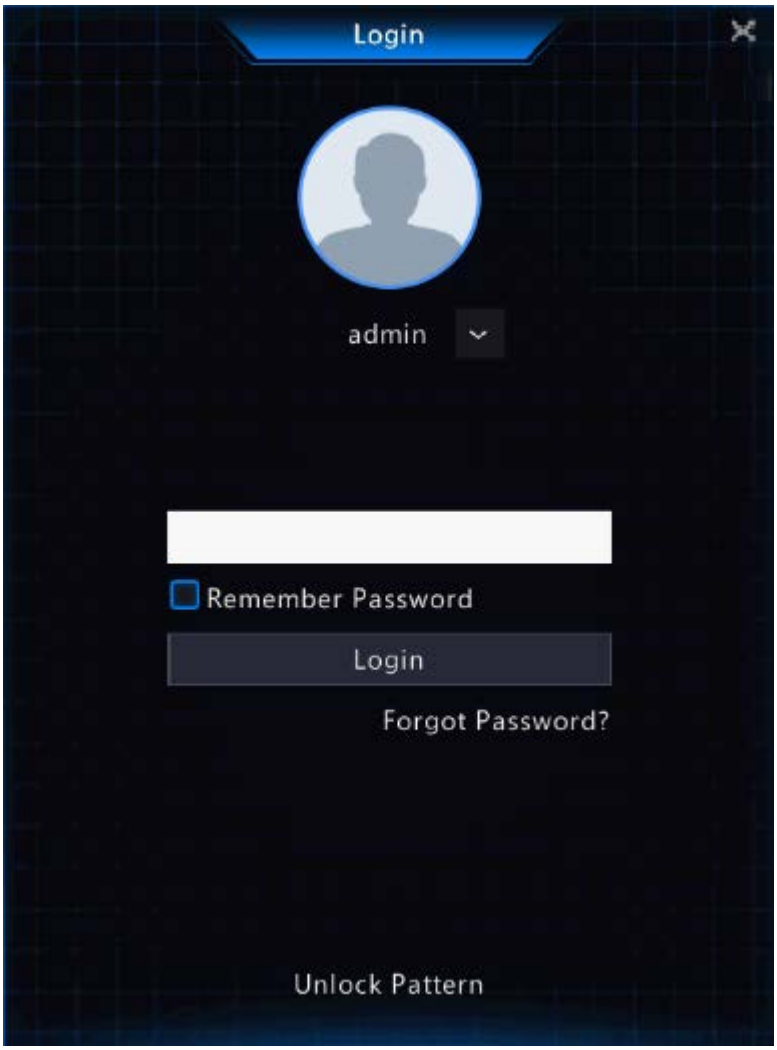


Note:

- 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.

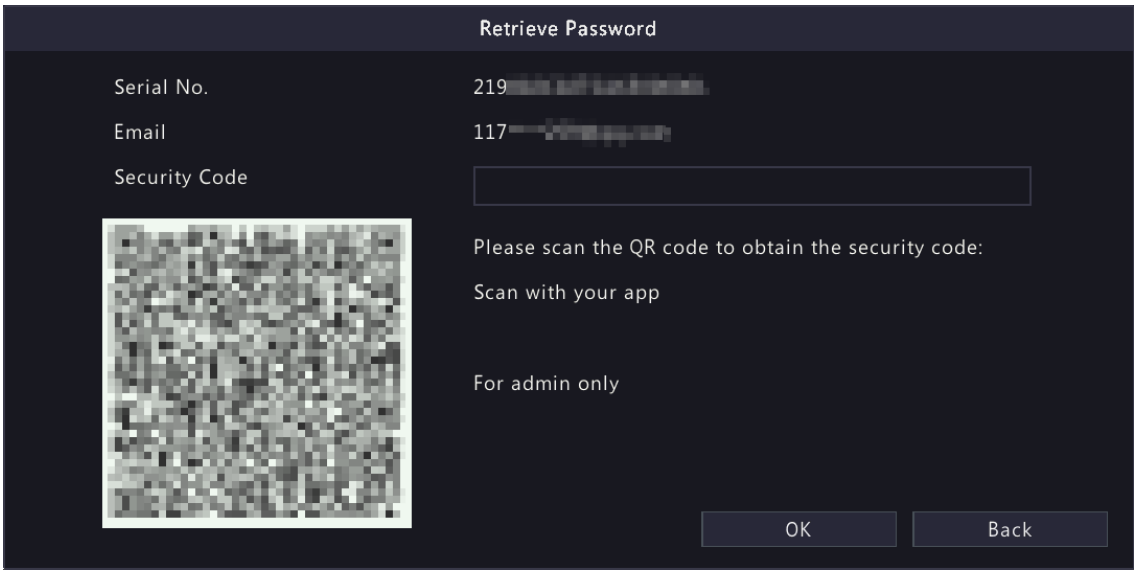
Reset Password

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



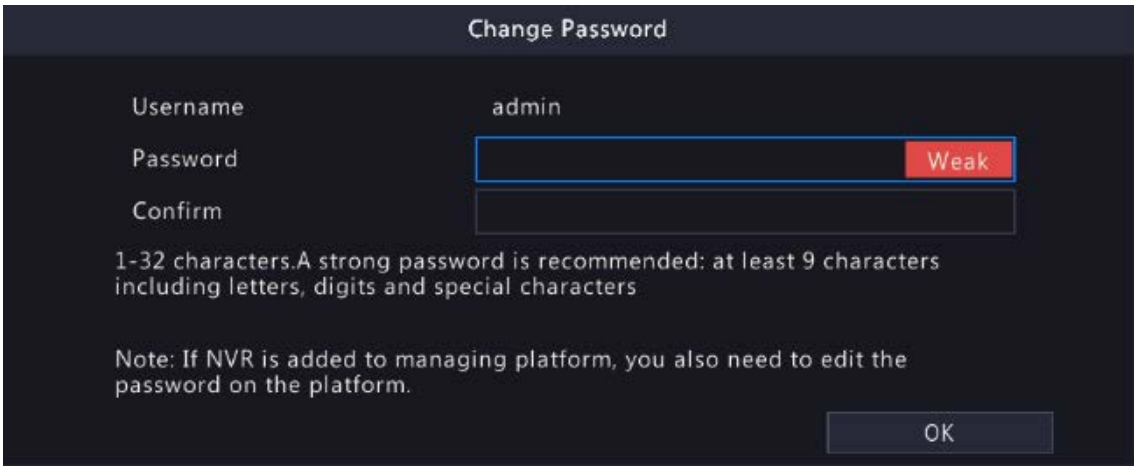
2. (Skip this step if you have already entered your email address) Enter your email address so as to receive the security code, that is, the temporary password.

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, 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 log in. Follow the wizard to complete the most basic setup, or click **Exit** to skip this step.

Note: You can also go to **Menu** > **System** > **General** > **Basic Setup** 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**. This page shows the network connection status.

- Network connected:

- Network unconnected:

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. (For Wi-Fi devices only) Configure IPC Wi-Fi Connection . Select the channel region and 2.4G channel based on the actual situation, and then click **Next**.

Note:

- This step applies to Wi-Fi models only. Please refer to the actual UI display.
- Wi-Fi signal frequency bands supported may vary by country or region. The use of wireless channels must comply with local laws and regulations.

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

Note:

- For Wi-Fi models, this function is displayed as step 5. Please refer to the actual UI display.
- 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 or set the default password for the camera. See Default Password for details.
- If the desired IP device is not in the device list, you may add it in a preview page or under **Menu** > **Camera** > **Camera** > **Camera**. See Channel Management for details.

6. Click **OK**.

3 Live View

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

Note: The operations may vary with 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

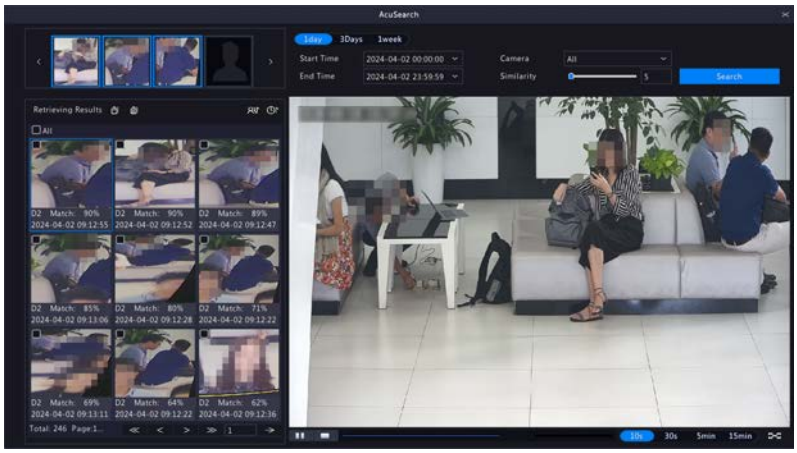
Icon	Description
	Tampering
	Recording
	Two-way audio
	Alarm

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	• Click to set OSD. • You can also set OSD under **Menu** > **Camera** > **OSD**. See Display 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. • For certain devices operating in independent output mode, after you enable audio for a channel displayed on a monitor (e.g., monitor A) and then move the mouse to another monitor (e.g., monitor B), the audio of the channel displayed on the previous monitor (monitor A) will be muted automatically.
	Quick IPC Disarming	The icon appears when an alarm occurs. If the alarm comes from a connected IPC, you can click to cancel the action(s) configured for the IPC.

Button	Name	Description
	Camera Info	Hover over the button to view the bit rate of the current window; click the button to view the camera information, change the user name or password.
	AcuSearch	**Note:** Before use, go to **Menu** > **VCA** > **Analyzer Config**, and set the analyzer mode to **AcuSearch/AcuTrack**. On the live view or playback page, click , drag to select the target (motor vehicle/non-motor vehicle/human body), and click **AcuSearch** to view the accurate search results. By default, the NVR searches for images of all cameras of the current day and with the similarity of 60%. You can reset the search conditions as needed, and the set similarity will be the default value the next time you perform the accurate search.  **Note:** Up to 8 targets of the selected area can be analyzed and searched at the same time.

Digital Zoom

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

1. On 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.
	Start or stop sequence. See Sequence for details.
	Click to go to the **Playback** page.
	Click to go to the Face Recognition page.
	Click to go to the Vehicle Recognition page.
	Switch to multi-sensor preview mode. See Multi-Sensor Preview for details. **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.
	Tap to choose or , and select an IP speaker for two-way audio or broadcast. See Two-Way Audio and Broadcast of IP Speaker 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.

Button	Description
	Click to view camera information, including camera status and alarm status.
	Click to view NVR alarm and camera alarm.
	Show device time. Hover over the button to view the date; click to edit time settings.
	Lock/hide the screen toolbar.
	Click to go to the Smart U page.

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. On 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's 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.

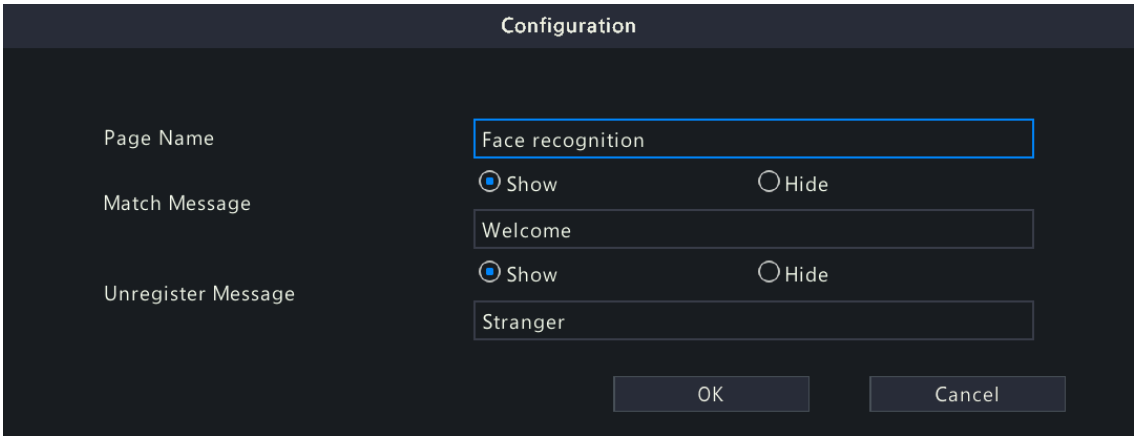
Face Recognition

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

1. Click on the screen toolbar.

   On 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.

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 snapshot records, you need to configure Plate List and Plate Comparison first.

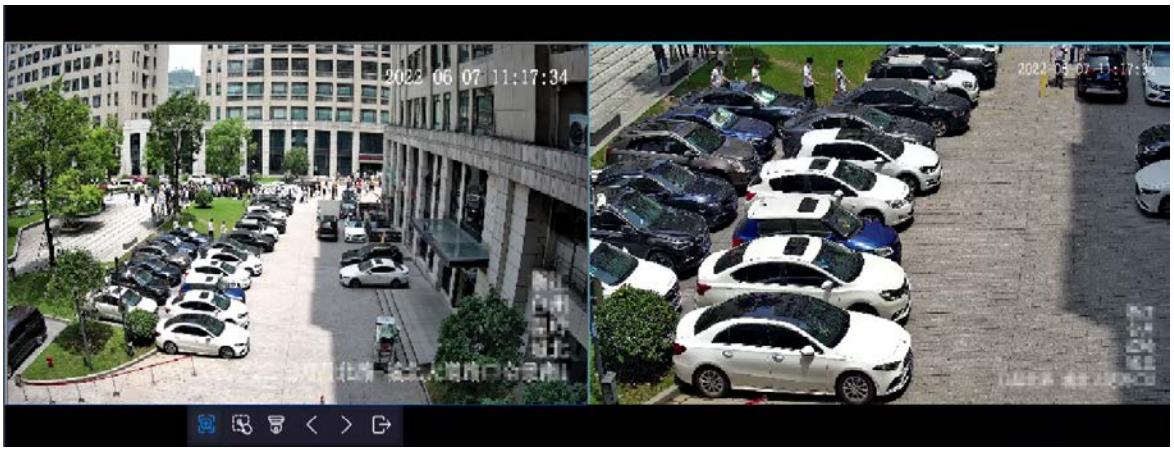
1. Click on the screen toolbar, and then you can view pass-through records, vehicle snapshot information, etc.

2. Click to exit the vehicle recognition page.

Multi-Sensor Preview

This function is only available to dual-channel cameras that support Panoramic Linkage.

Note: For some devices, the windows are displayed in up-and-down split mode. The figure below is for reference only.

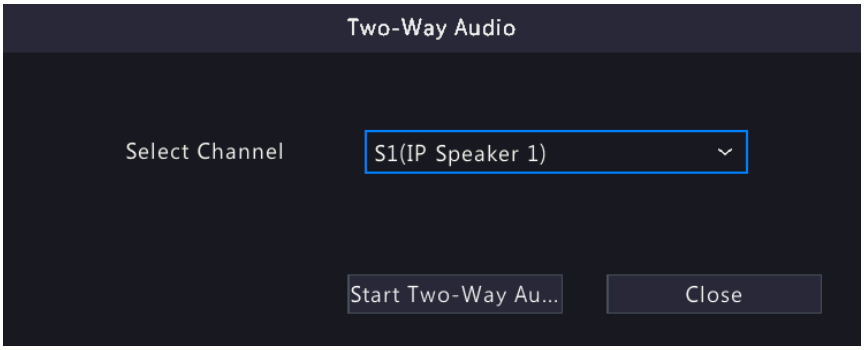


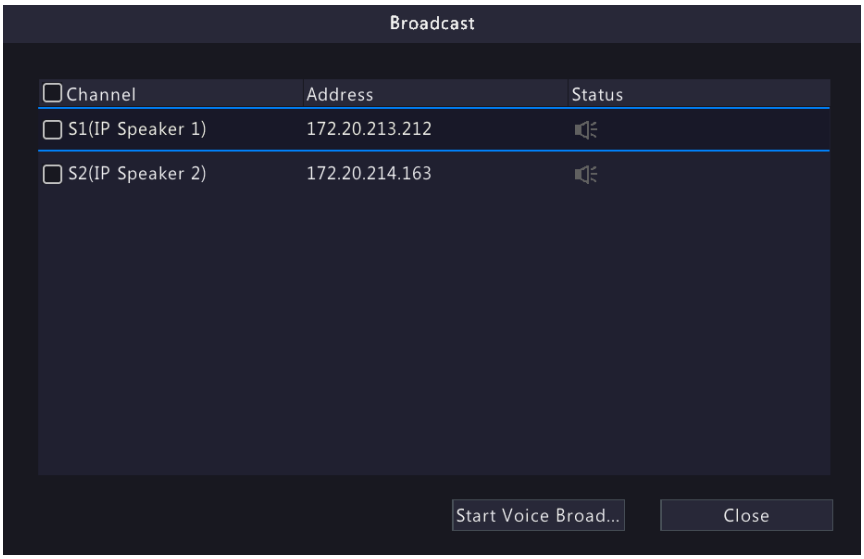
Button	Description
	Drag to zoom. Drag to select a specific area in the left/top panoramic image, and then the corresponding area will be linked and magnified in the right/buttom close-up image.
	Track manually. After configuring detection rules for Smart Intrusion Prevention functions, when the camera detects moving objects (motor vehicle/non-motor vehicle/pedestrian) in the detection area, you can click the bounding box in the left window to zoom in on and track the object in the right/buttom window.

Button	Description
	Note: To use this function, enable **Panoramic Linkage** on the **Trigger Actions** page of smart intrusion prevention functions. See Camera Linkage for details.
	Click to link. Click anywhere in the left/top panoramic image, and then the right/buttom close-up image will move to the corresponding position.
	PTZ configuration. Configure and control PTZ cameras. **Note:** To use this function, the channel 2 should be a PTZ camera. See PTZ Configuration for details.
	Previous screen.
	Next screen.
	Exit the multi-sensor preview.

Two-Way Audio and Broadcast of IP Speaker

Please add IP speakers first. See IP Speaker for details. The two-way audio and broadcast cannot be enabled at the same time.

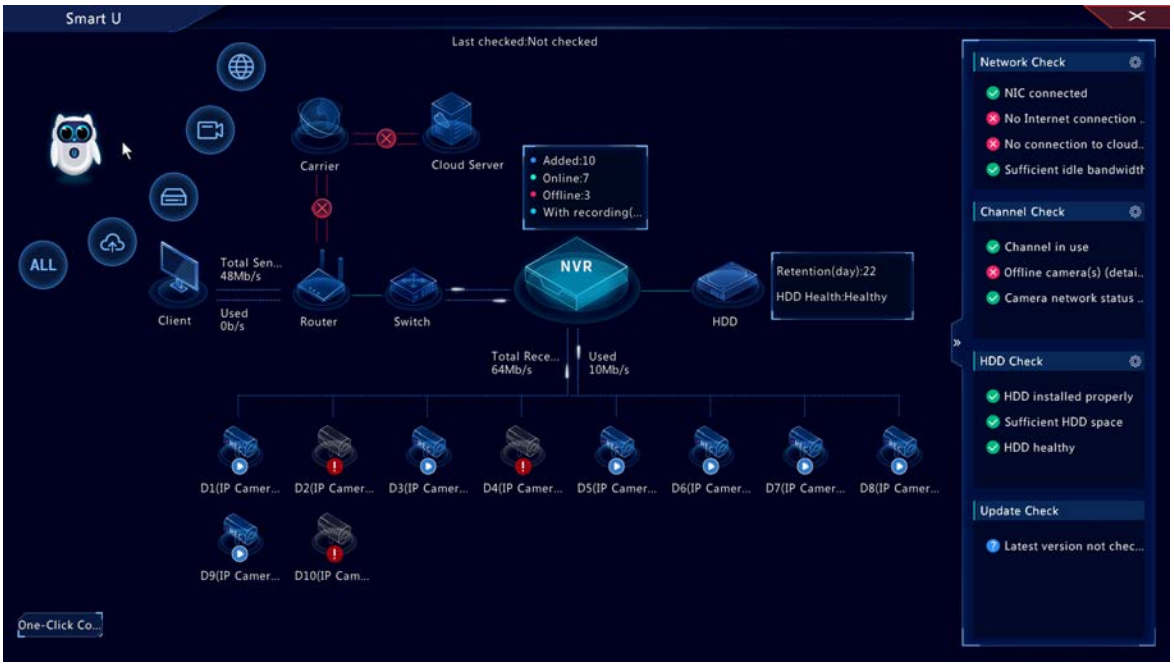
Icon	Description
	Select an IP speaker, and click **Start Two-Way Audio**. The two-way audio of the previous channel is automatically turned off when you turn on the two-way audio of the other channel. 

Icon	Description
	Select an IP speaker, click **Start Voice Broadcast**, and the icon status changes to . 

Note: The two-way audio or broadcast will be turned off when you exit the preview page or click **Stop Two-Way Audio** or **Stop Voice Broadcast** in the pop-up window. They cannot be turned off if you only close the pop-up window.

Smart U

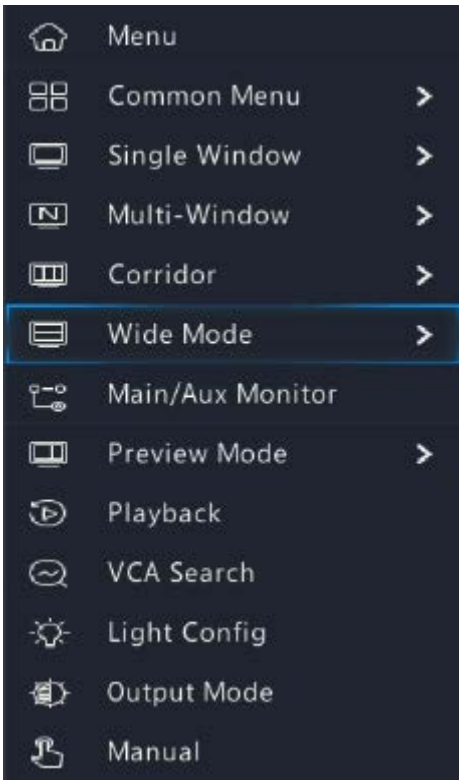
Display the current network diagram, and detect the network, channels, hark disks, and version update in real time.



Icon/Button	Name	Description
	Detect network	Click to start detecting, and the detection results will be displayed in the right pop-up window. Click to enter the details page. • : Normal. • : Abnormal. Click the detection item, and the reason for the anomaly is displayed in the pop-up window. • : To be detected. It means that the hard disk or version is to be detected. **Note:** The network detection and channel detection are automatically triggered by the system. • : Packet loss prompt. Click the detection item, and the packet loss rate is displayed in the pop-up window.
	Detect channels	
	Detect hard disks	
	Detect version update	
	Detect all items above	
	Connection failed	Click the icon, and the details are displayed in the pop-up window.
	IPC online, no recording	Click to play live video.
	IPC online, with recordings	
	IPC offline	Hover over the icon to view the offline reason.
	IPC not added	/
	One-click collection	Click to go to the One-Click Collection 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.
Wide mode	Switch to the wide mode. Support the screen layout of 2/3/6/7/8/9/12 windows.
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 on the **Search** page.
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.

Item	Description
Output Mode	Choose a video output mode, including standard, soft, bright, vivid, and custom. Brightness, saturation, and other parameters are also configurable.
Manual	Manual settings include manual recording, manual snapshot, manual alarm, buzzer, and let through manually. See Manual Operations for details.

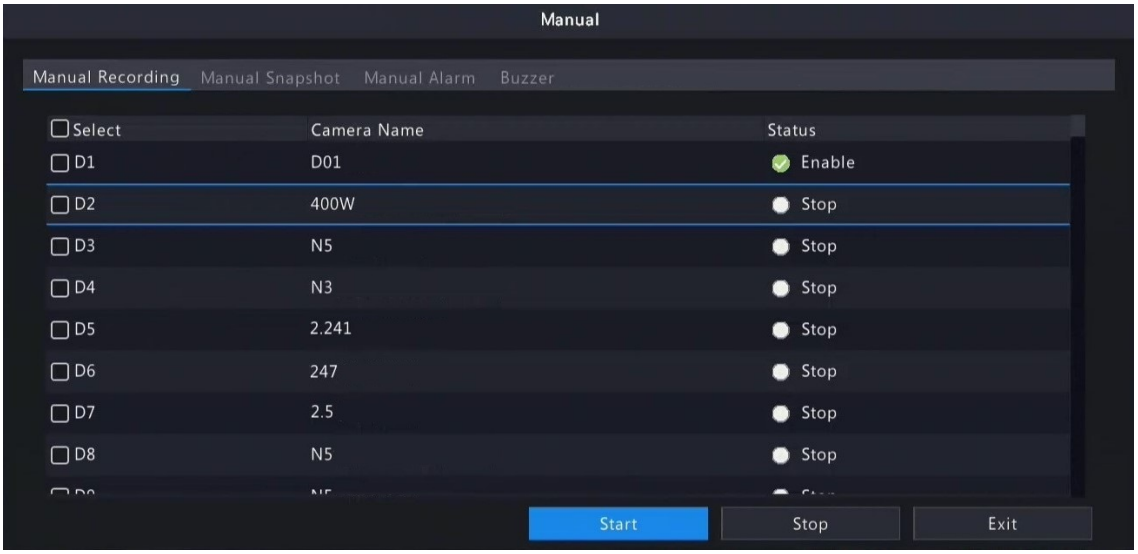
Manual Operations

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 Plate Comparison 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.

4 Channel Configuration

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:

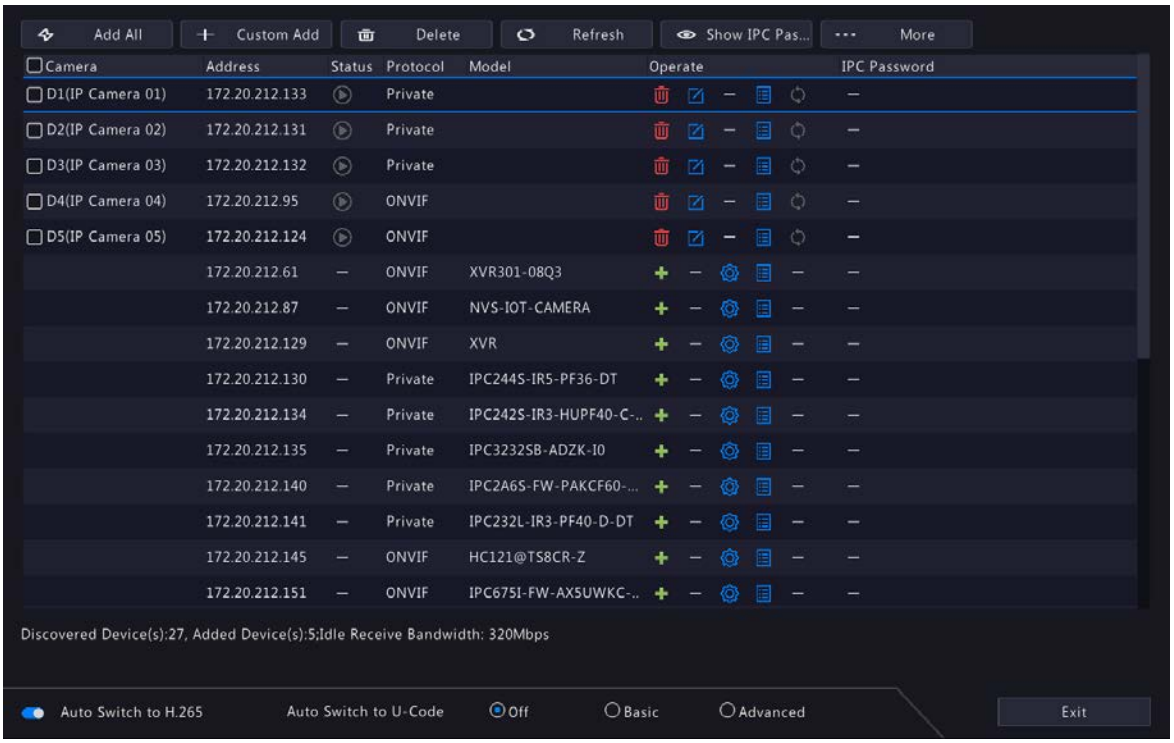
- Before you start, make sure the IP cameras are connected to your NVR via network.
- An IP camera should be connected to one NVR only. An IP camera managed by multiple NVRs may cause unwanted issues.

4.1.1 IPC Configuration

Add and manage IP cameras.

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

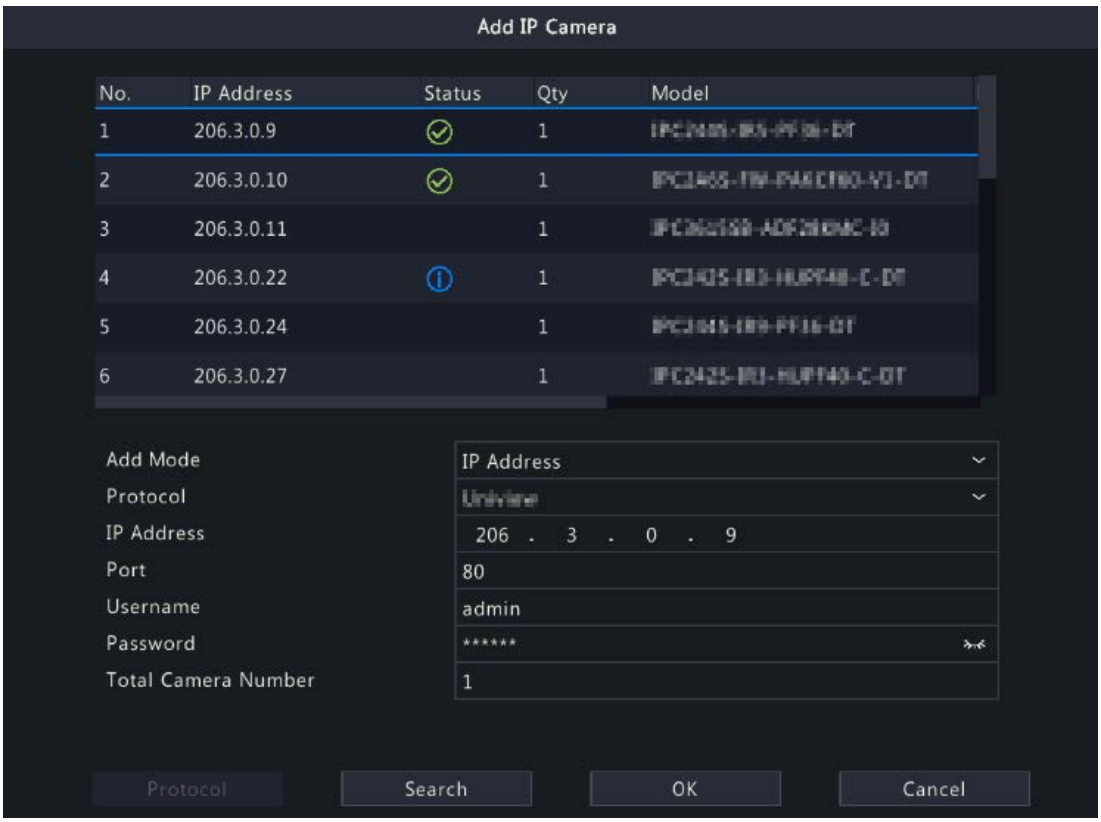
Note: The third-party cameras cannot be added to the NVR via the private protocol.



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**.



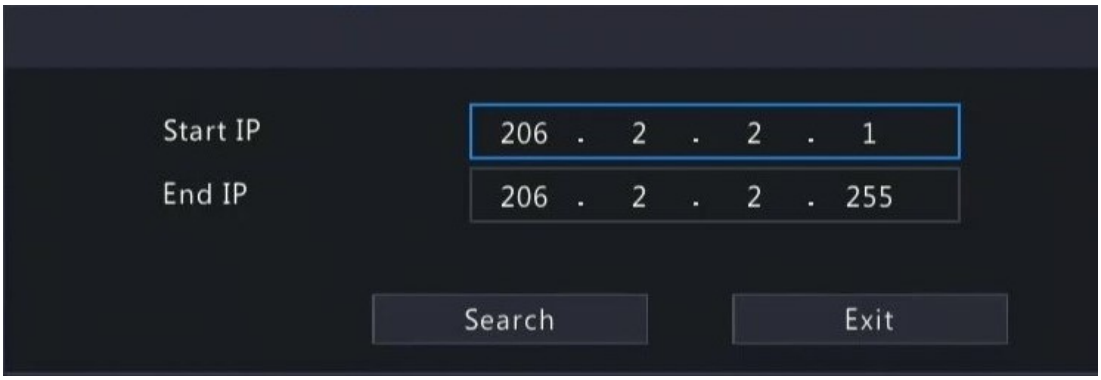
  2. In the window displayed, enter the IPC's IP address and complete other settings, then click **OK**. You may check the camera's status.

- : 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 More, and select **Search Segment**.
2. Enter the start and end IP addresses, and click **Search**. The discovered IP devices are listed.



3. 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).

Note: If the camera's login password has been changed and it not its default password, you can change the default password to be the same as the current login password, and then the camera can go online. See Default Password for details.

- Option 4: Click

Click to add the camera directly.

Note: If the camera's login password has been changed and it not its default password, you can change the default password to be the same as the current login password, and then the camera can go online. See Default Password for details.

- Option 5: Add from the Preview Window

Note: This option is not applicable to NVRs with PoE ports.

1. On the preview page, click in a window to enter 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 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 routers. 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** > **Network** > **Basic Config** > **Port Mapping** on the IP camera's Web interface.

1. Click **Custom Add**.
2. Choose a way to add IP cameras.
   - IP Address
     (1) On the IP camera's Web interface, go to **Setup** > **Network** > **Basic Config** > **Port Mapping**, and obtain the IP address (public IP) and external port number.
     (2) On the NVR's local interface, select a protocol, enter the obtained IP address and port, and then enter the username and password.
     (3) Click **OK**.
     Note: GB28181 protocol is not supported.
   - EZDDNS
     (1) On the IP camera's Web interface, go to **Setup** > **Network** > **DDNS**, enable **DDNS**, set the DDNS type to **EZDDNS**, set a domain name, and get the server address.
     Note:
     - After setting the domain name, make sure that you can use the device address to access the IP camera's Web interface.
     - Make sure the EZDDNS server and the NVR are connected (ping the EZDDNS server from the NVR).

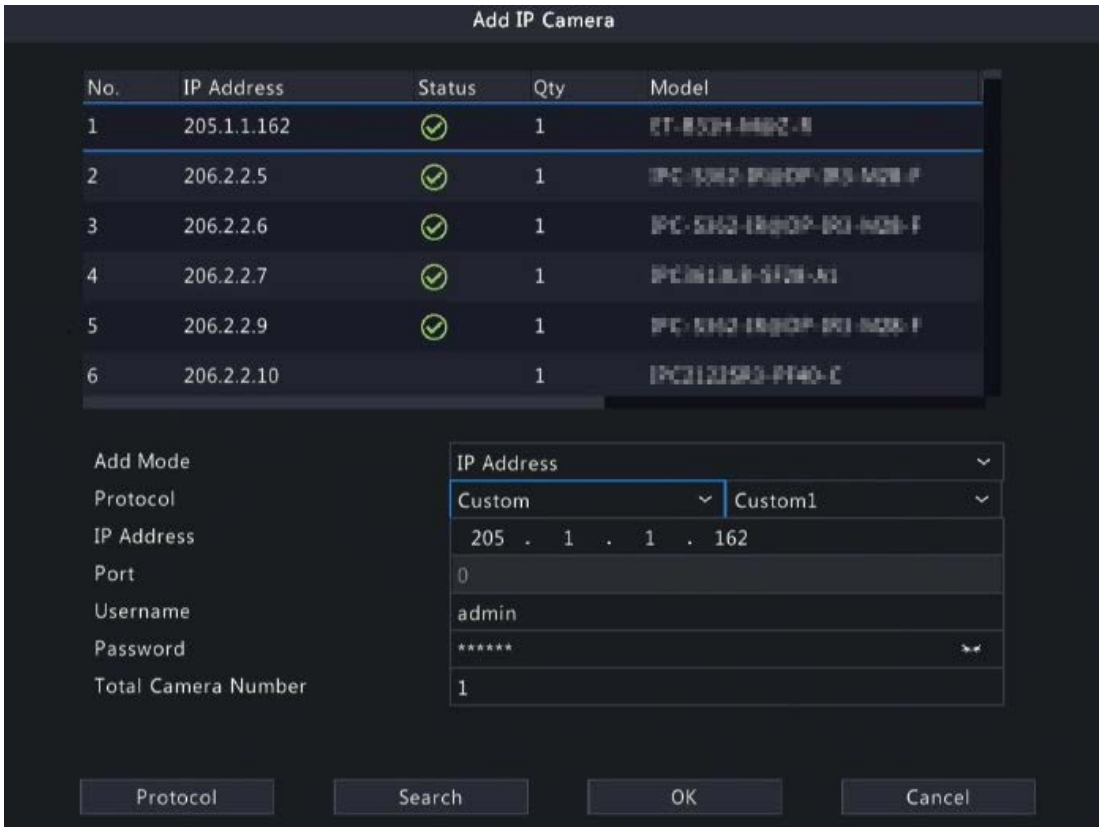
     (2) On the NVR's local interface, select a protocol, enter the obtained server address and domain name, and then enter the username and password.
     (3) Click **OK**.
   - Domain Name
     (1) On the IP camera's Web interface, go to **Setup** > **Network** > **DDNS**, enable **DDNS**, set the DDNS type to **DynDNS** or **NO-IP**, set a domain name, and get the server address. Enter the domain name that you have signed up on the DNS website, enter the username and password, and then click **Save**.
     (2) On the NVR's local interface, select a protocol, enter the obtained domain name, and enter the username and password. The port is the IP camera's external port.
     (3) Click **OK**.
     Note:
     - If the protocol is set to **Custom**, the port is the mapped external RTSP port of the IP camera.
     - Do not add an IP camera to an NVR using different methods (e.g., IP and DDNS) at the same time.
     - When an IP camera is added by DDNS, domain name, or IP (public IP+public port) and it is not connected to the same router as the NVR, the alarm is configurable but the alarm push is not available.
   - WebSocket
     (1) On the NVR's local interface, enter the channel ID, username, and password.
     (2) On the IP camera's Web interface, go to **Setup** > **Network** > **Platform Access** > **Websocket**. Enable **Websocket**, enter the destination IP address, destination port, device ID, and authentication key, and then click **Save**.
     (3) Click **OK**.
     Note:
     - The channel ID and password on the NVR should be the same as the device ID and login password on the IP camera.
     - The destination address, destination port, and authentication key on the IP camera correspond to the IP addresses, port, and login password on the NVR.

- Option 8: Use Custom Protocol

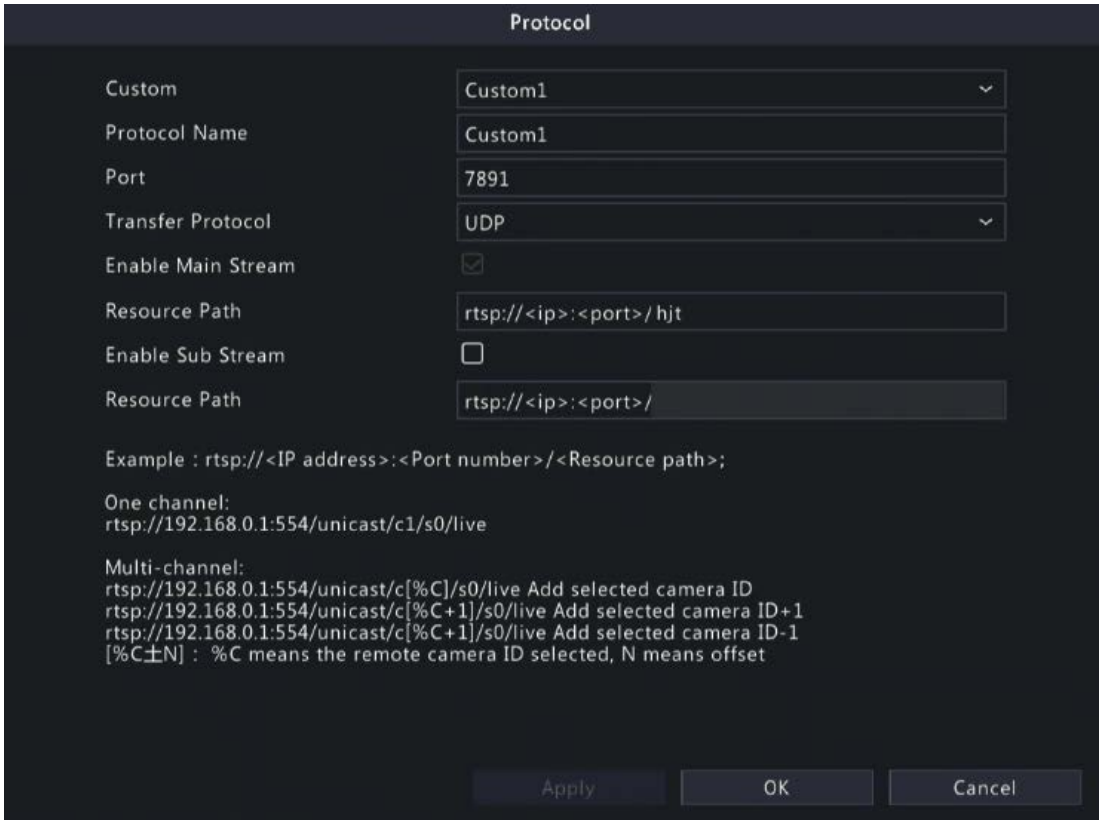
Note:

- 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.

- Option 9: Add by Importing File
  - For first-time NVR users: Please insert a USB drive (purchased separately) into the device first.
    1. Click More and choose **Export**. Select an export path in the directory list and click **Backup**. A .CSV file will be then generated in the selected directory.

       Note:
       - For the PoE NVR: The default information of each channel is displayed in the file. You may edit the information as needed.
       - For the non-PoE NVR: There are only table headers in the file. You need to manually fill in the channel information.

    2. Remove the USB drive from the device and insert it into the PC. Open the exported .CSV file, enter or edit the information as needed, and then save it.

       Note: The contents for some fields are as follows:

       - Add Mode: Plug-and-Play/IP Address/EZDDNS/Domain Name
       - Protocol: Private/ONVIF/GB28181/Custom
       - Transport Protocol: UDP/TCP
       - PTZ: Auto/Support/Not Support

    3. Insert the USB drive back into the device. Click More and choose **Import**. Select the .CSV file in the directory list.
  - When transferring data from an old NVR to a new one: Click More and choose **Import**. Select the .CSV file exported from the old NVR in the directory list, and click **Import**.

Note: If the IPC fails to get online, please check whether the information in the .CSV file is correct.

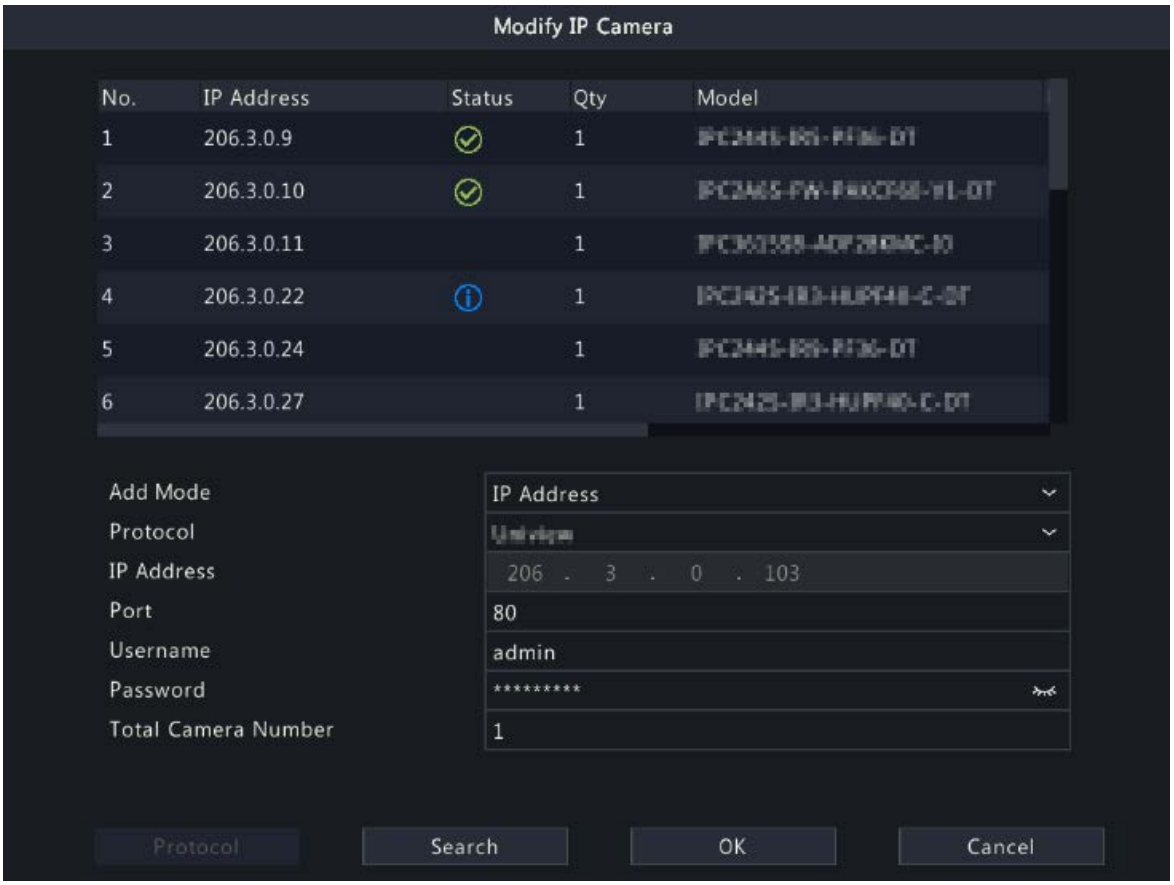
Export IP Camera List

Click More and choose **Export**. Select the export path in the directory list and click **Backup**. A .CSV file will be then generated in the selected directory, indicating that the IP camera list has been successfully exported.

Edit IP Camera

Option 1

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



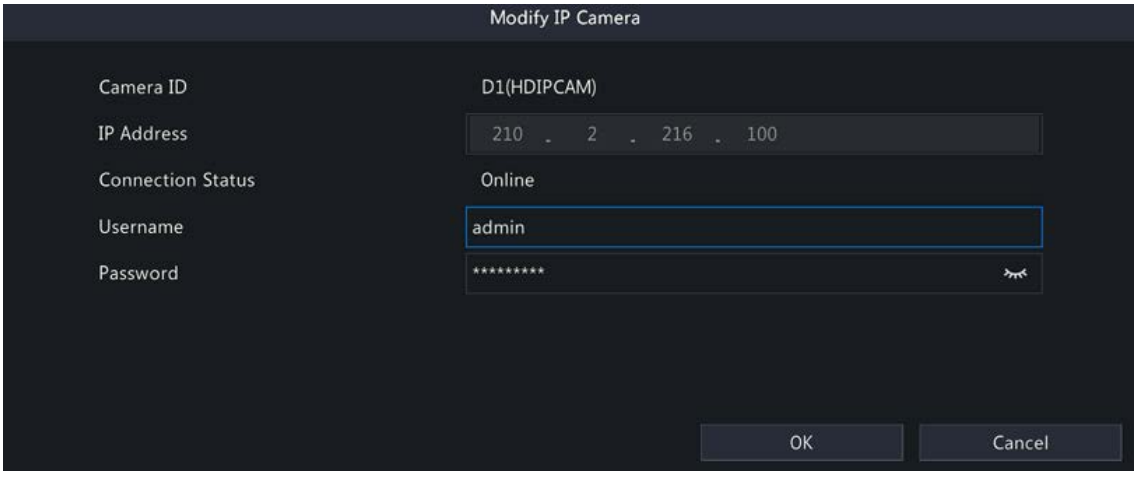
Note:

- 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.

Option 2

1. If the username and password input for an IPC is incorrect, the live view window will show the cause, and you can change the username and password in the live view window.

2. Click , and modify username or password.



3. Click **OK** and then check the status of camera. means the camera is online.

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.

Network Configuration

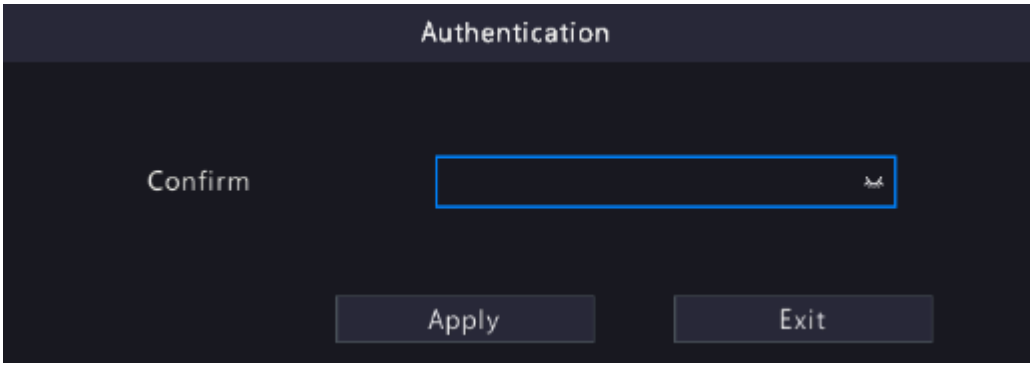
Select the camera, and click . Edit the IP address, IPv4 subnet mask, IPv4 default gateway for the camera. Click **Apply**.

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

IPC Password

Show or hide the login password of connected IPCs.

1. Click Show IPC Pas....



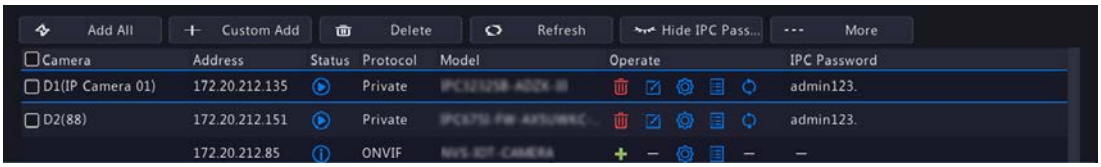
2. On the **Authentication** page, enter the login password of the admin user.

   Note:

   - Only admin can set to display or hide IPC password.
   - Click to display the password in clear text.

3. Click **Apply**.

   - If the password is correct, it will automatically return to the IPC configuration page, and IPC password will be displayed in clear text.



Note: Click Hide IPC Pass... to hide IPC passwords.

- If the password is incorrect, a message will appear, and the IPC password will not be displayed.

More Info

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

Change Window Position

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

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

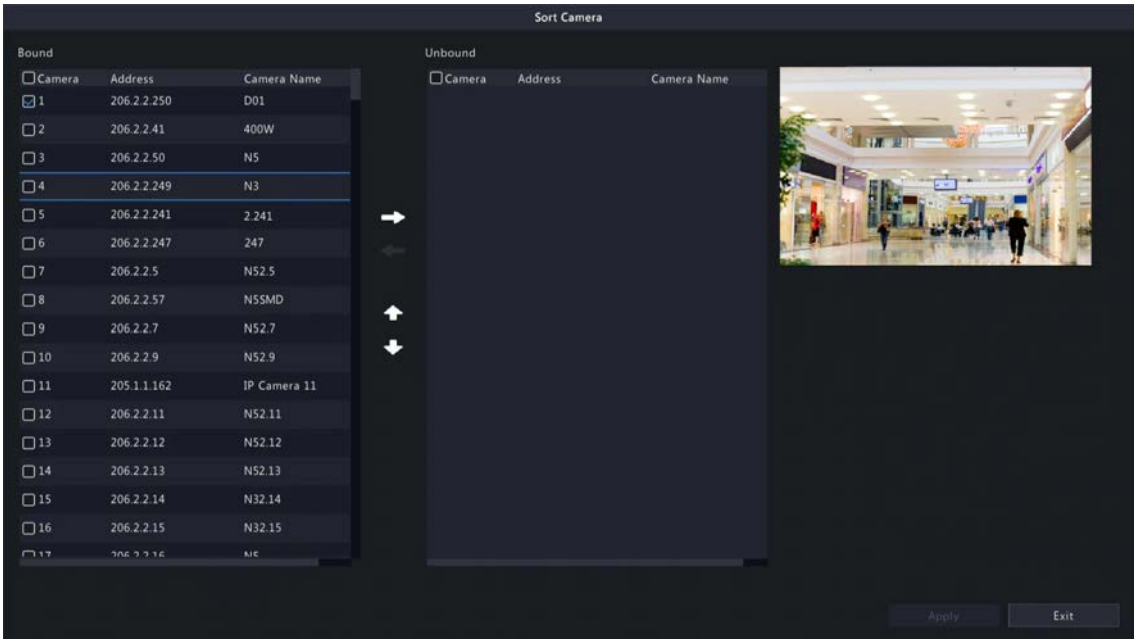
Sort Camera

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.

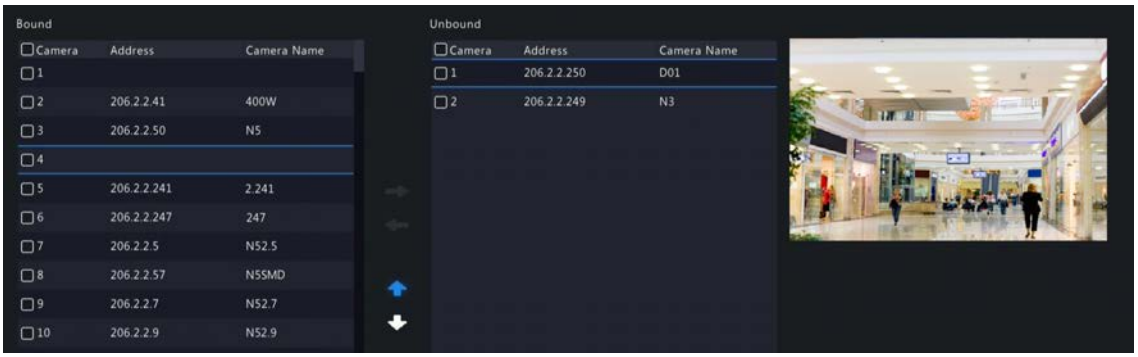
Note:

- 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.

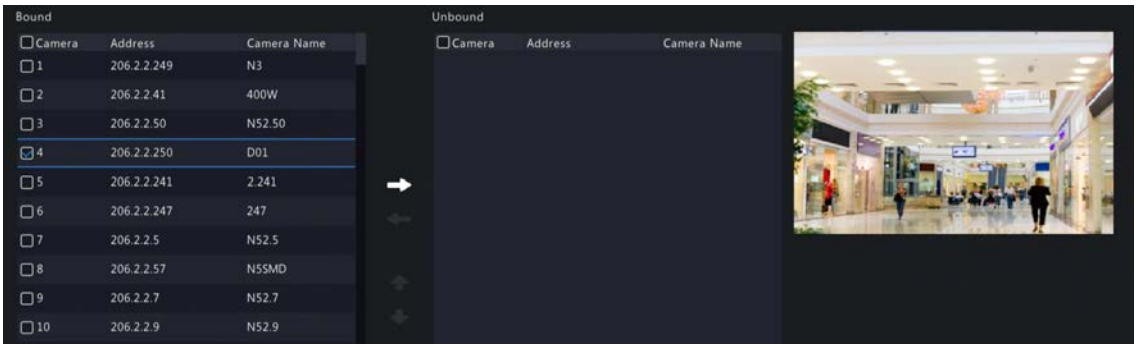
1. Click More, and select **Sort Camera**.



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.

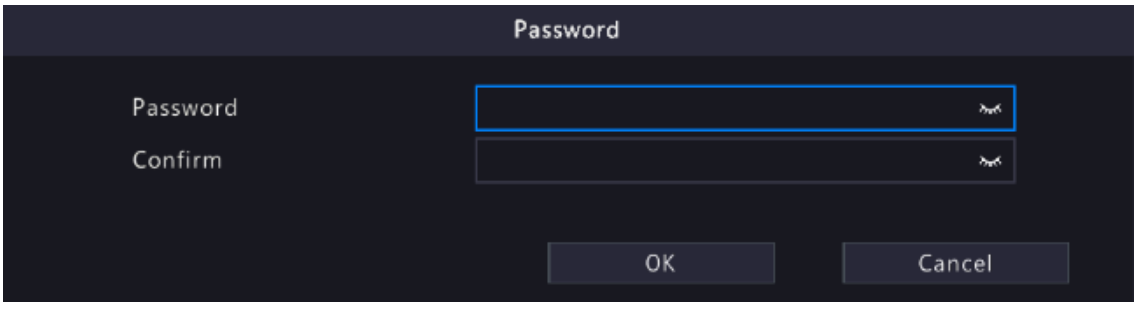
Batch Change Password

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**.

Default Password

The default password is used to add the camera. The original default password is the same as the camera's default login password.

If the camera's login password has been changed and is not its default password, the camera will not be able to go online after being added to the NVR. You can enable **Default Password**, and change the default password to be the same as the camera's current login password before adding the camera. You may also click to change the password to the camera's current login password after adding the camera.

Note: This function is available to add IPC in Wizard, and **Option 3: Add All** or **Option 4: Click** in Add IPC.

Other Operations

Item	Description
Auto Switch to H.265	When enabled, the NVR automatically chooses H.265 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.
Auto Switch to U-Code	Select **Basic** or **Advanced**, 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

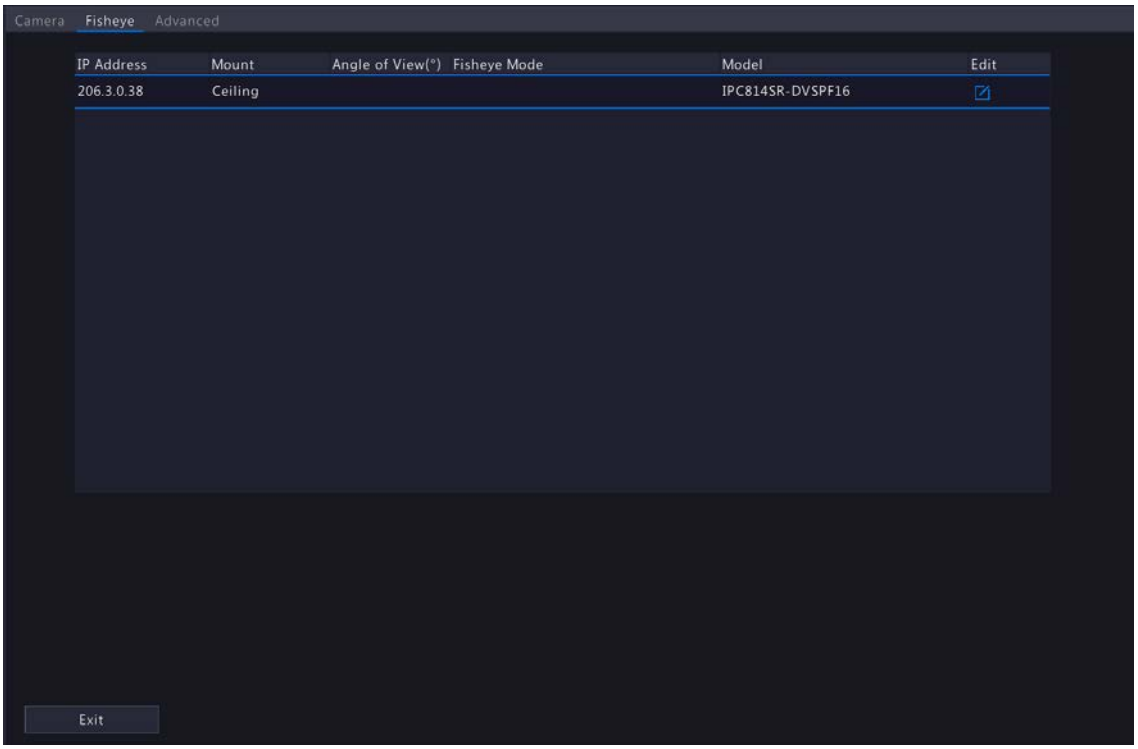
Set the mounting mode and display mode for fisheye cameras. Fisheye configuration is supported only by certain fisheye cameras.

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

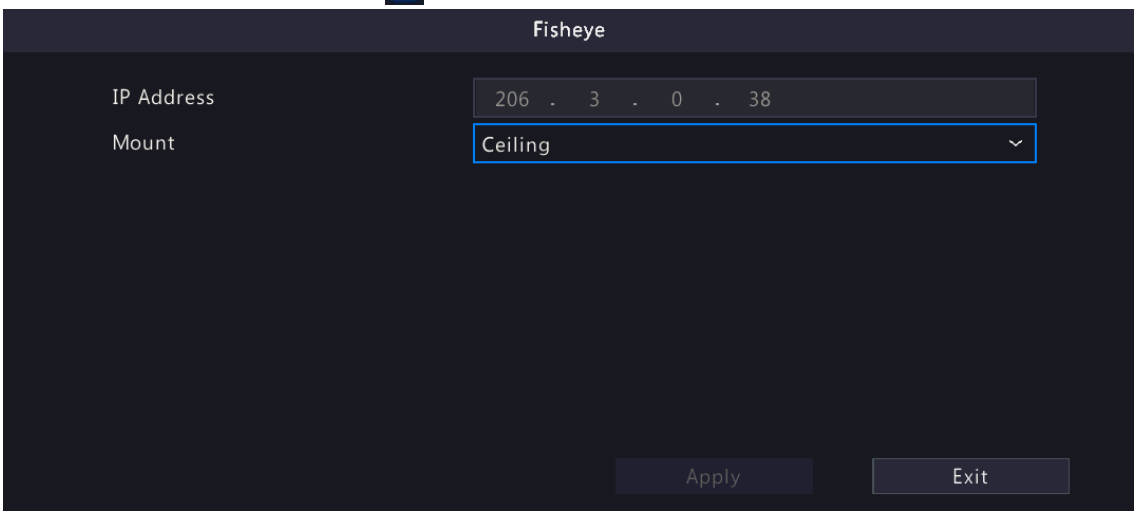
Configuration

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.

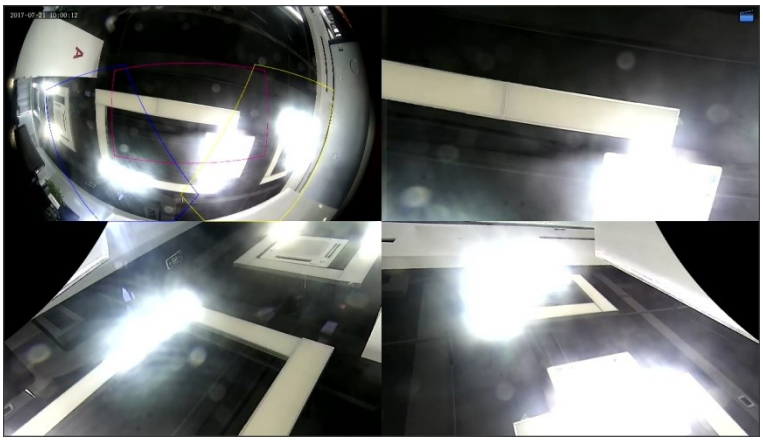
Note: Dewarping is available in live view and playback (in normal and corridor playback modes). The operations are similar. The following describes dewarping in live view.

1. On 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.



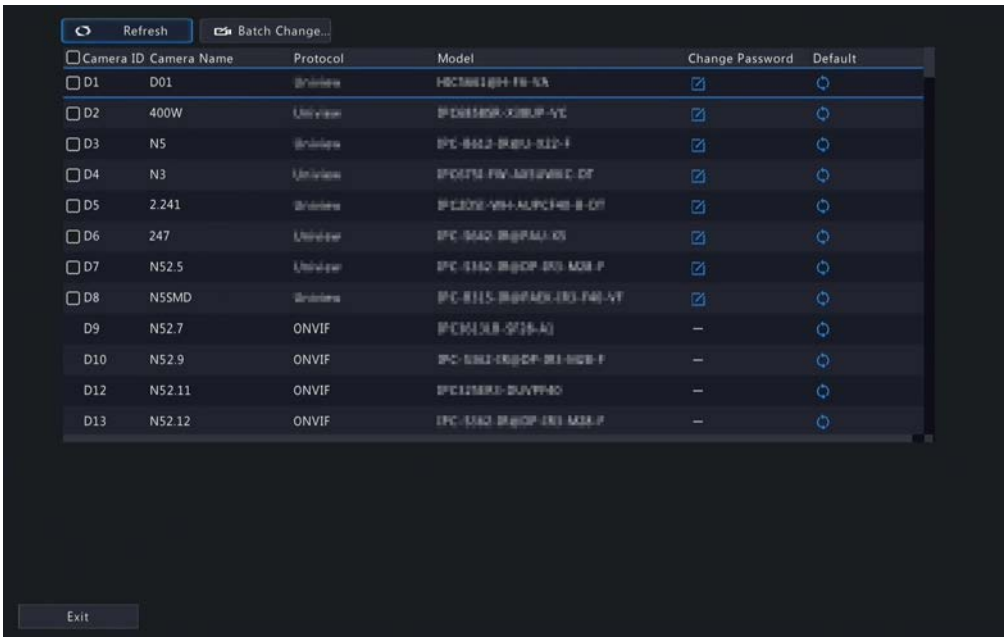
- Drag the mouse to rotate the image or use the scroll wheel to zoom in or out on a PTZ image. A box appears on the fisheye image as the image rotates, and as you drag the box or move the scroll wheel on the fisheye image, the corresponding PTZ image rotates or zooms in or out as well.

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.

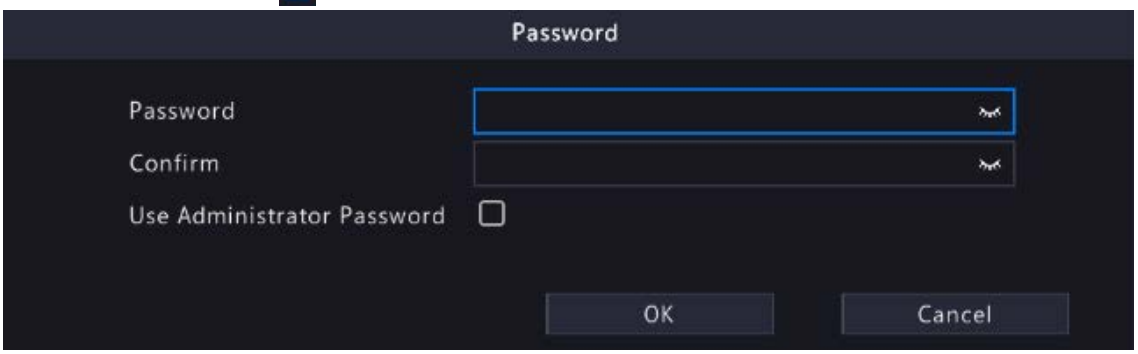
Go to **Menu** > **Camera** > **Camera** > **Advanced**.



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.

4.2 Audio & Video

Configure encoding and audio parameters.

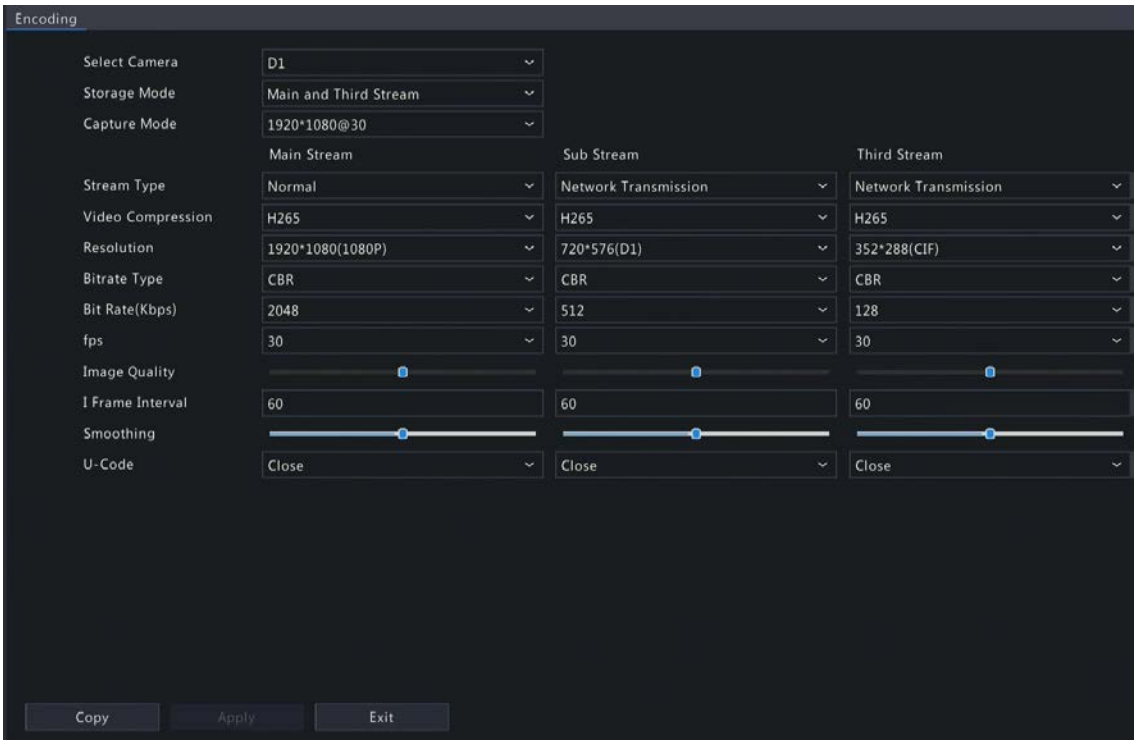
4.2.1 Encoding Settings

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** > **Audio & Video** > **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

Storage Mode	HD Streaming	SD Streaming
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.

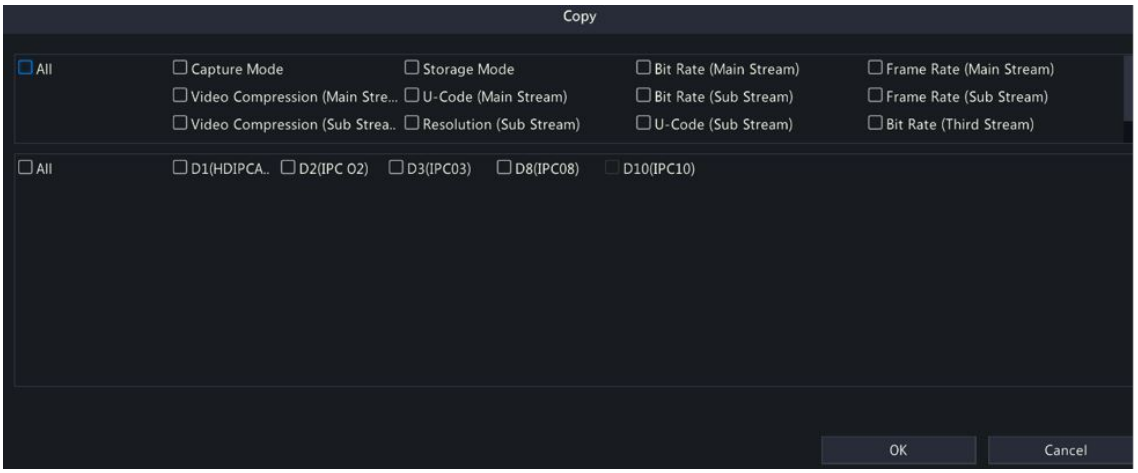
4. Set the capture mode, that is, combinations of resolution and frame rate. This parameter is configurable only when the camera is connected to the NVR via the private protocol.
5. Set the encoding parameters for different streams.

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.
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:

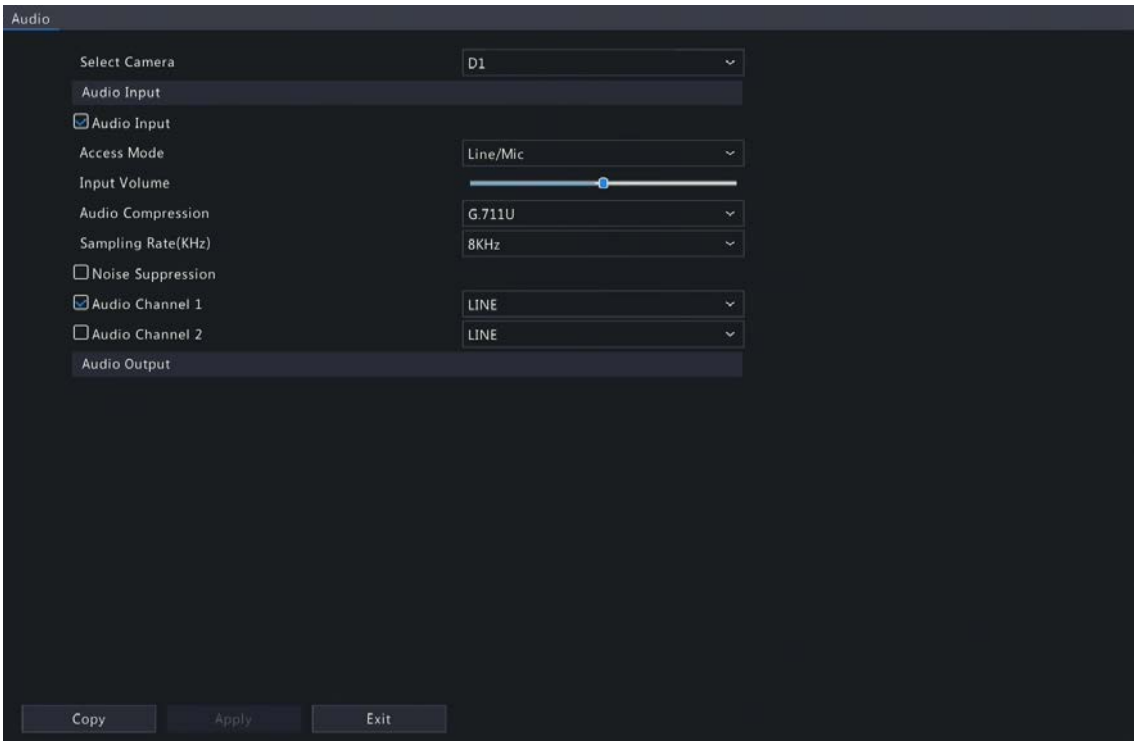
- When you copy **Storage Mode** to other camera(s), if the target camera does not support the storage mode, the operation will fail.
- When you copy **Video Compression** and **U-Code** to other camera(s), **Bit Rate** will be selected automatically because video compression adjusts bit rate automatically.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

7. Click **Apply**.

4.2.2 Audio Configuration

Configure audio input and audio output of the IPCs.

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

Item	Description
	• 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. • 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**.

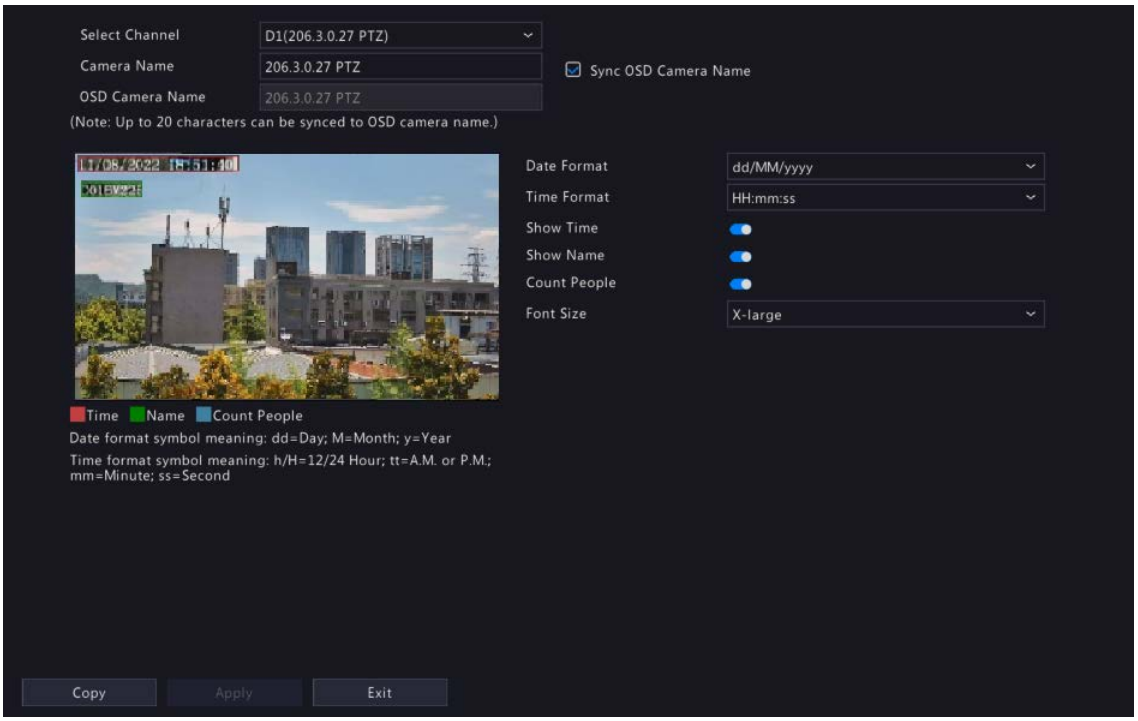
4.3 Display Configuration

Configure OSD characters, image parameters, and privacy mask.

4.3.1 OSD Configuration

Configure the characters overlaid on the preview (live view) window.

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



2. Select the desired channel 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.

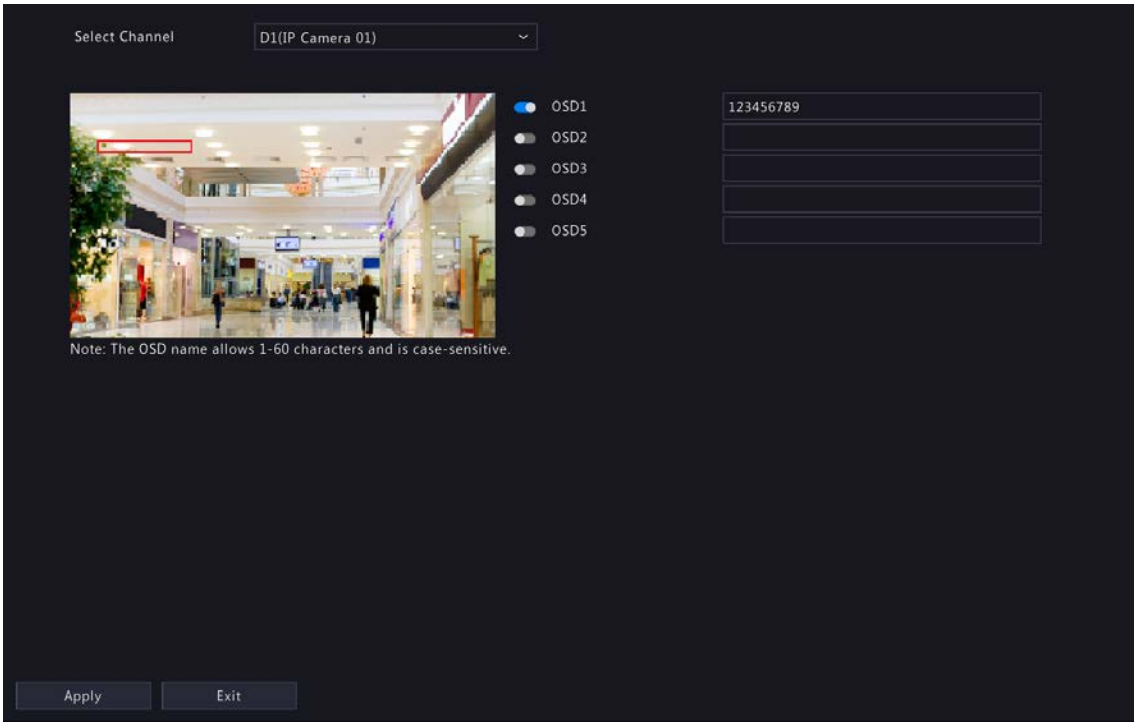
Item	Description

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

4.3.2 OSD Content

Configure other characters overlaid on the preview (live view) window.

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



2. Select a channel.
3. Enable OSD(s), and configure OSD name.

Note:

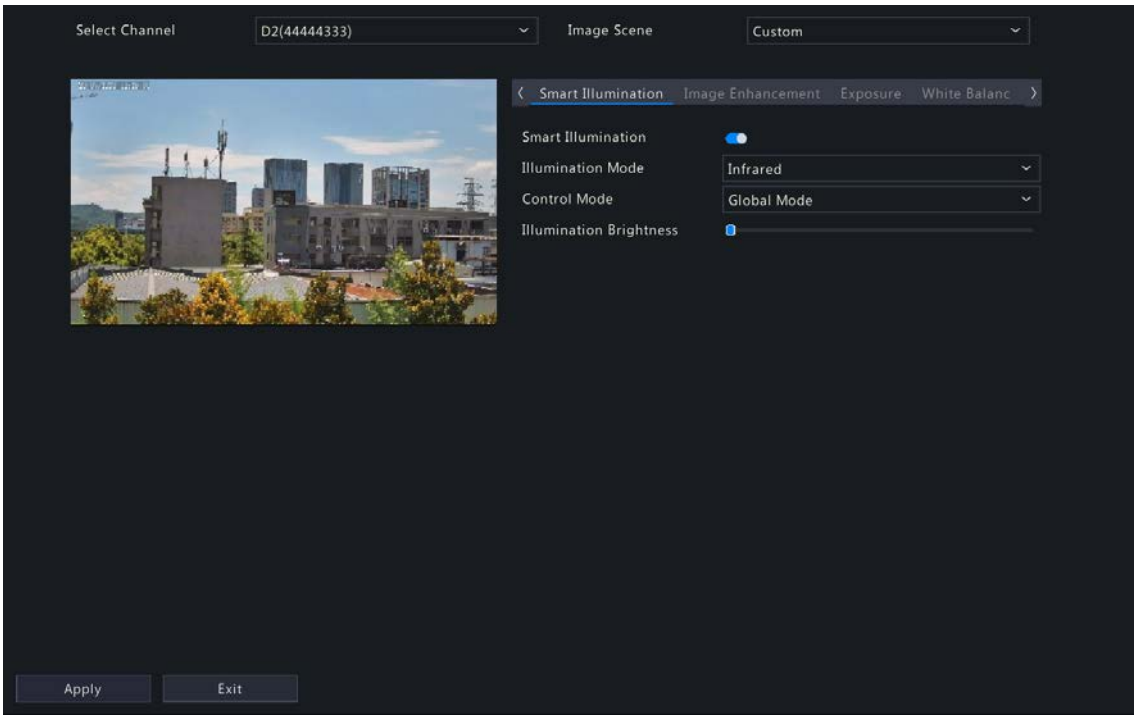
- The number of OSDs may vary with IPC model.
- The OSD name allows 60 characters and is case-sensitive.

4. Click **Apply**
5. (Optional) To adjust the font size and color, go to OSD Configuration.

4.3.3 Image Settings

Adjust image settings to get optimal images.

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



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

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

   - Indoor: Recommended for indoor scenes.
   - Common: Recommended for outdoor scenes.
   - Starlight: Recommended for low light conditions.
   - Test: Recommended for test scenes.
   - 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.
   - Auto: Automatically adjust image settings based on different environmental conditions, changes in lighting, etc., to ensure image quality. Suitable for harsh weather conditions such as rainy and foggy days, scenes with strong light and dark contrasts, and situations where image stripes occur due to light sources.
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.

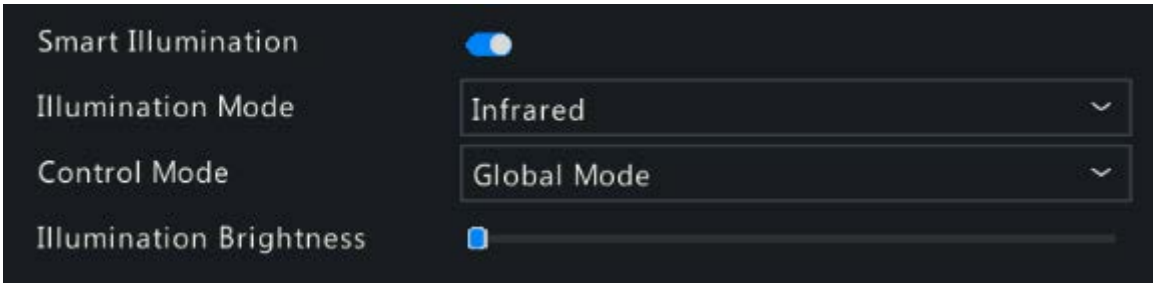
Item	Description
Exposure Mode	Select the correct exposure mode to achieve the desired exposure effect. • Automatic: The camera automatically sets the exposure parameters according to the scene. • Custom: User can set exposure parameters as needed. • Shutter Priority: The camera adjusts shutter as priority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

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

Item	Description
Linear Stripe Suppression	Adjust the linear stripes in the image. Range: 1 to 9, the default is 5. The greater the value, the more obvious the linear stripe suppression effect is, but it may cause overexposure in the image. Please configure this according to the actual scene. **Note:** This parameter is configurable when **Exposure Mode** is set to **Indoor 50Hz** or **Indoor 60Hz**.

Smart Illumination

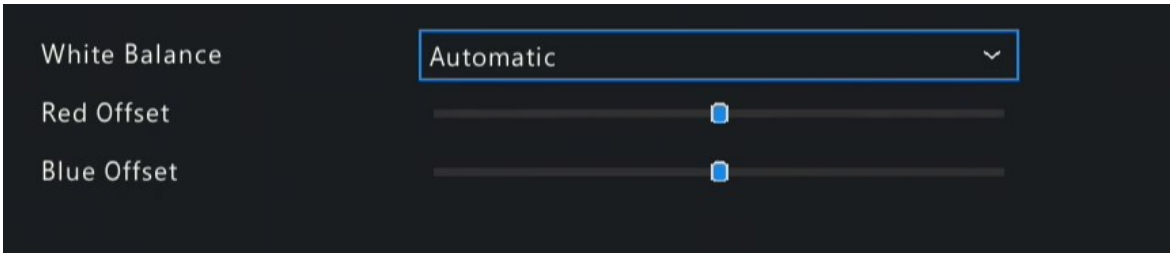
Click the **Smart Illumination** tab, and set the parameters.



Item	Description
Smart Illumination	Enable **Smart Illumination**.
Illumination Mode	Select the illumination mode from the drop-down list. • Infrared: The camera uses infrared light illumination. • White Light: The camera uses white light illumination. • Dual Light: The camera adjusts the white light or infrared automatically according to the current lighting condition.
Control Mode	Select the control mode from the drop-down list. • Global Mode: The camera automatically adjusts illumination brightness and exposure to achieve the balanced image effect. • Overexposure Restrain: The camera automatically adjusts illumination brightness and exposure to avoid regional overexposure. • Manual: Control the brightness of illumination manually.
Illumination Brightness	Drag the slider to adjust the illumination brightness. 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.

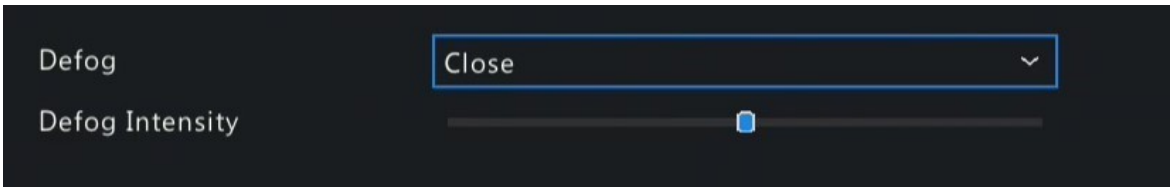


Item	Description
White Balance	Adjust the red and blue gains of the image to remove unrealistic color casts.

Item	Description
	• 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.

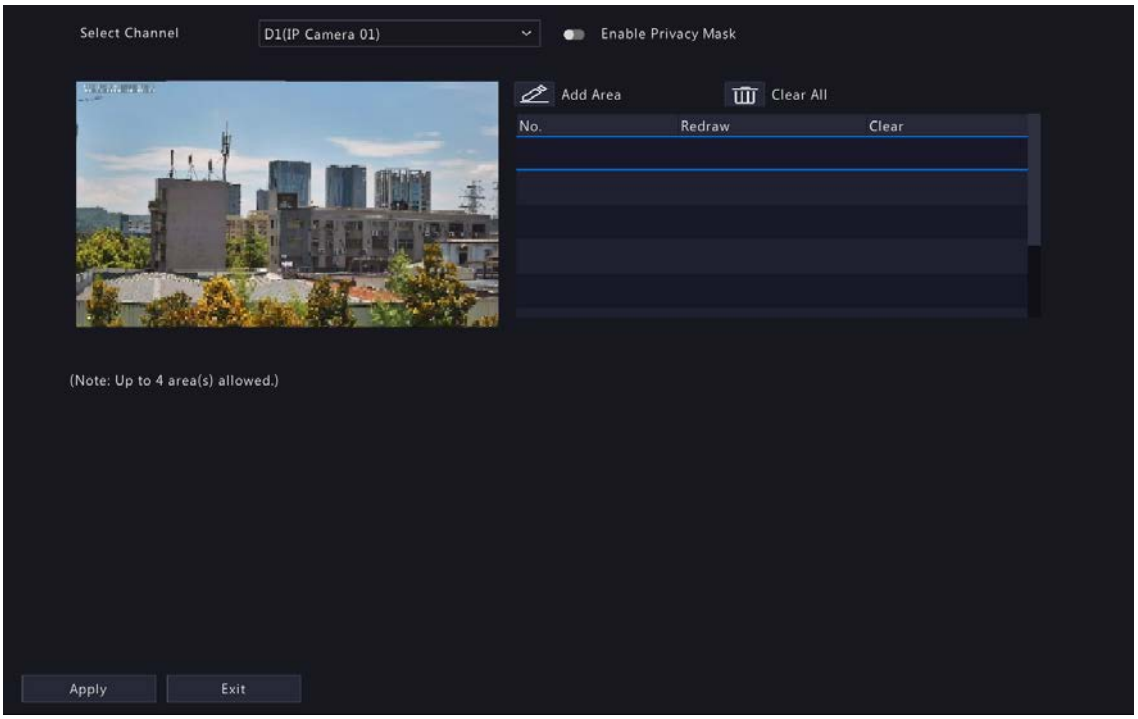


Item	Description
Defog	Enable/disable defog from the drop-down list. Defog is used to improve image visibility in foggy, hazy and other low-visibility scenes.
Defog Intensity	When defog is enabled, you can adjust the defog intensity. In a heavy-fog environment, the higher the defog level, the clearer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

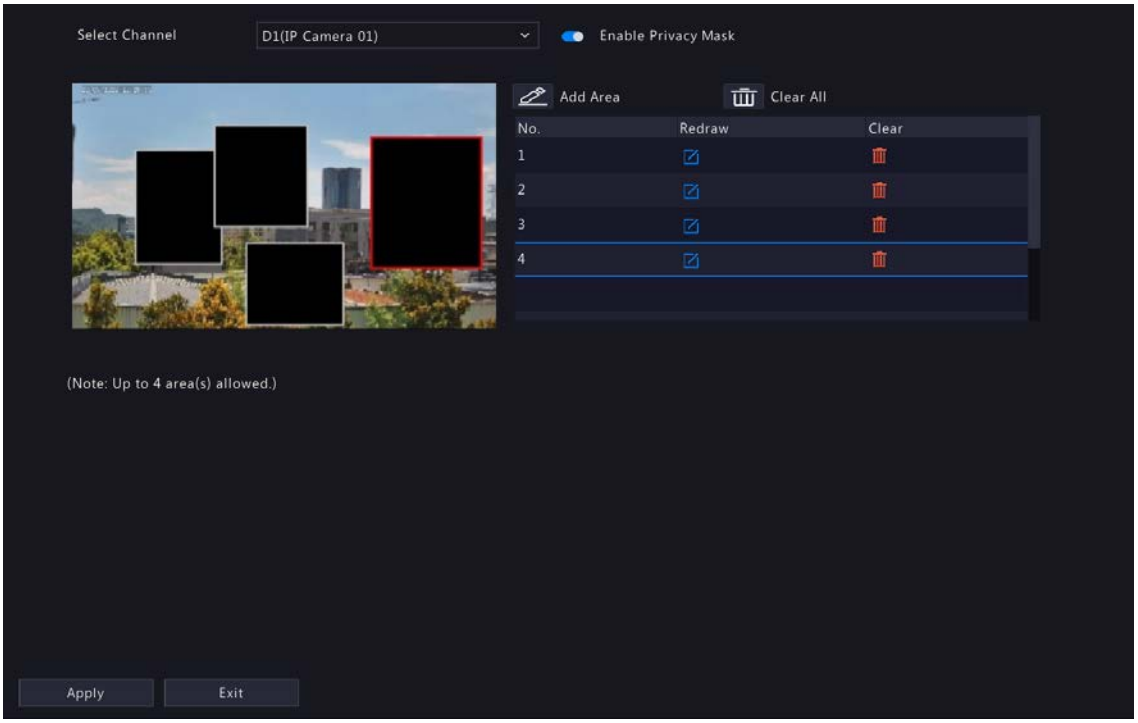
4.3.4 Privacy Mask

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** > **Configuration** > **Privacy Mask**.



2. Select the desired channel from the drop-down list.
3. 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**.

4.4 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

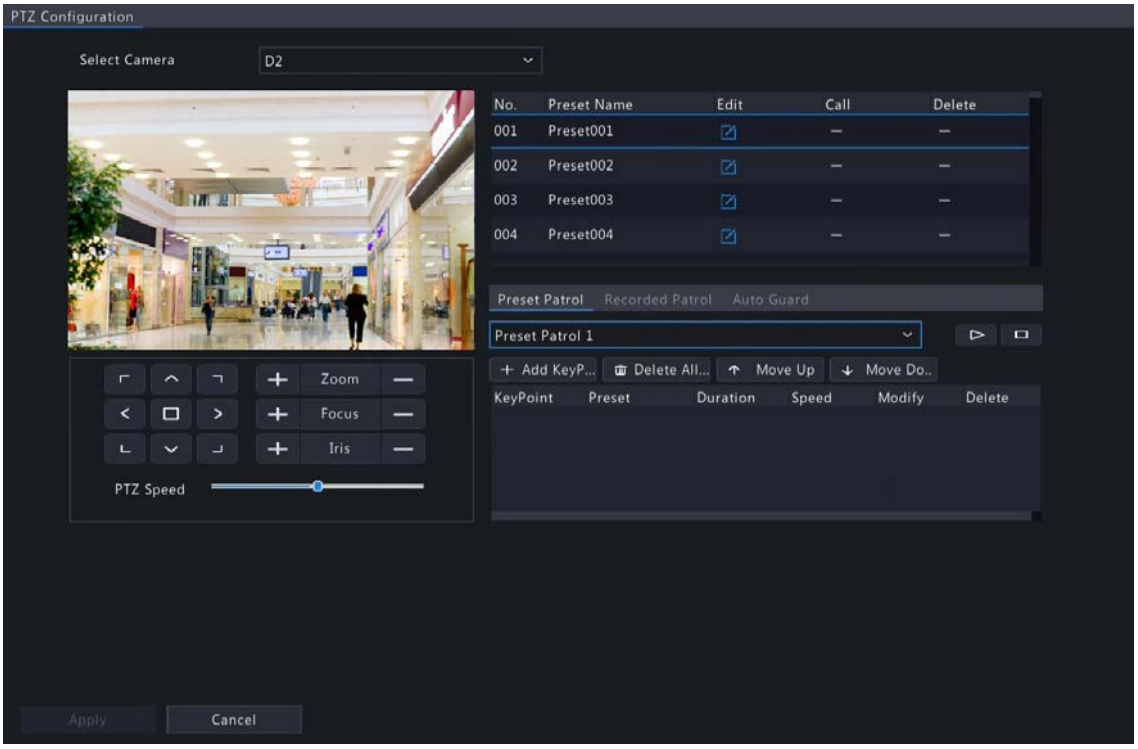
DVRs support two control modes, including **Coaxial** or **Serial Port**. Choose the control mode before using PTZ function.

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. On the preview page, select the target window, and 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.

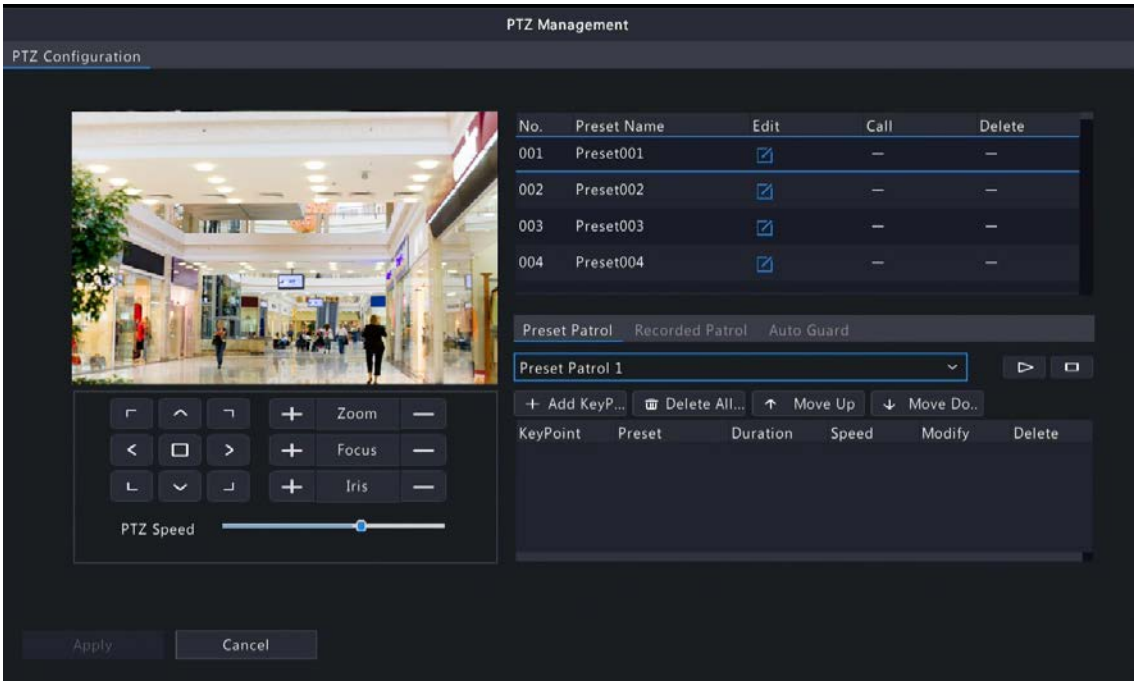


Table 4-2: PTZ Control Window Buttons

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

OSD Menu

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

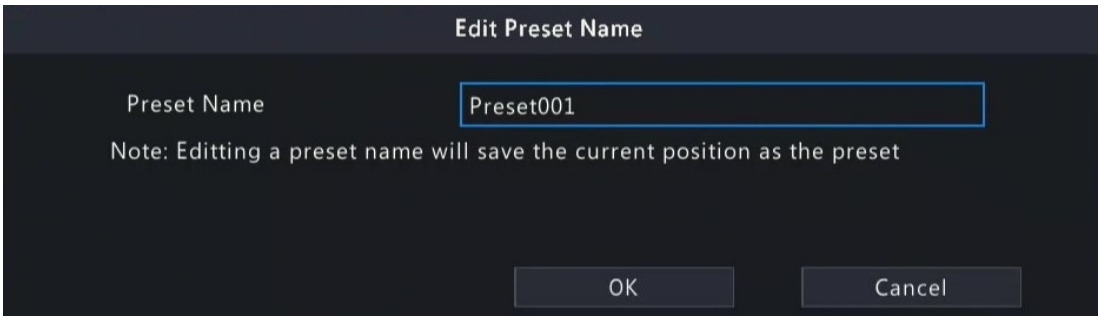
1. On the preview window of an analog camera, click on the window toolbar.
2. Click **OSD Menu**.
3. Click or to open camera settings window, and set the parameters.
4. Click to save the settings, and then choose **Exit** button to close the window.

Preset

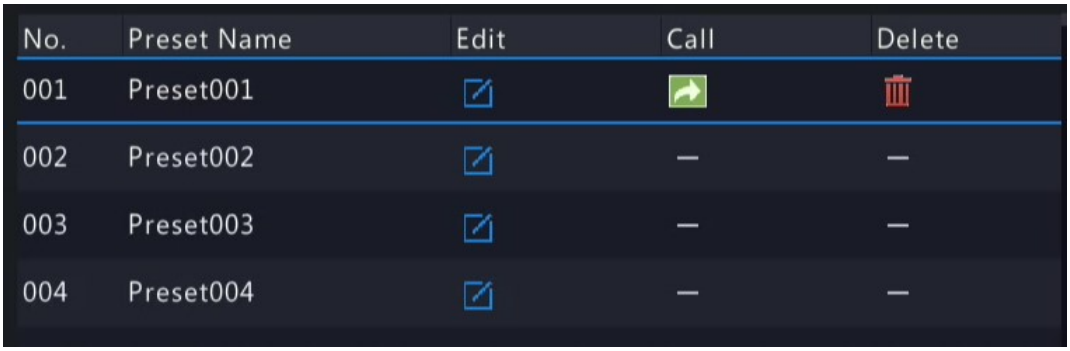
A preset position (preset for short) is a saved view used to quickly steer the PTZ camera to a specific position.

- 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

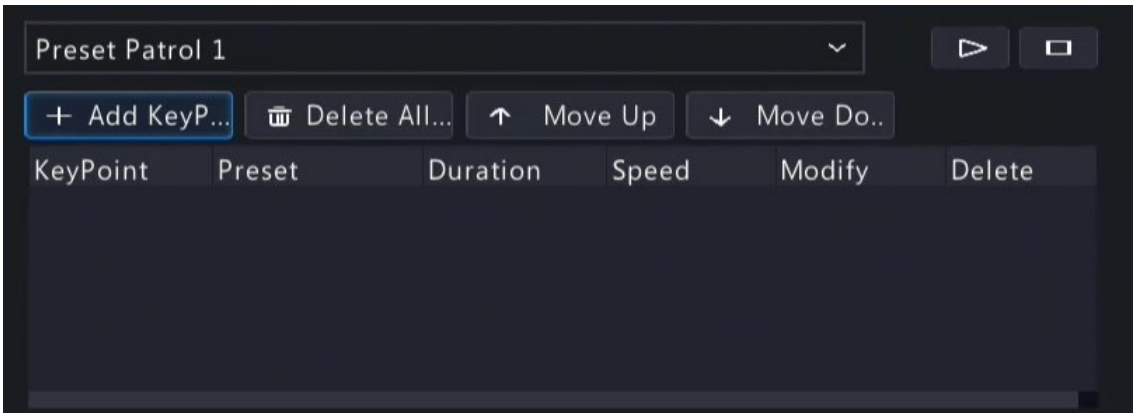
  In the preset list, select the preset you want to delete, and then click .

Preset Patrol

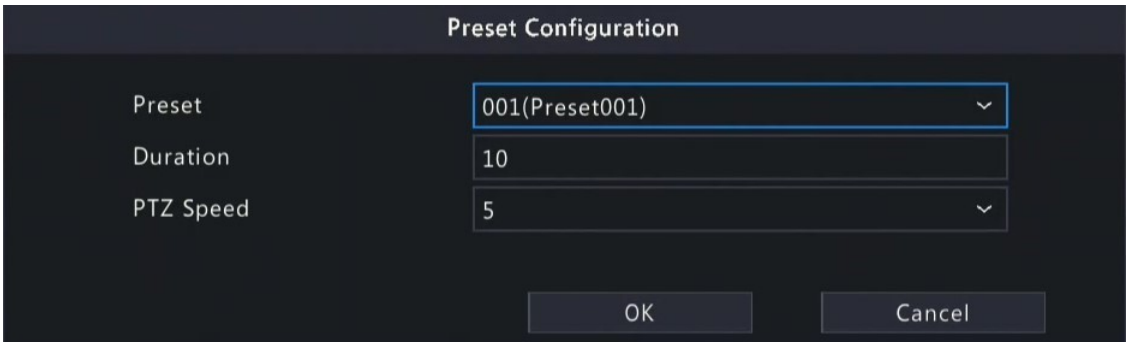
Set a preset patrol route so the PTZ camera can patrol by presets (go from one preset to the next in the specified order).

- 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**.

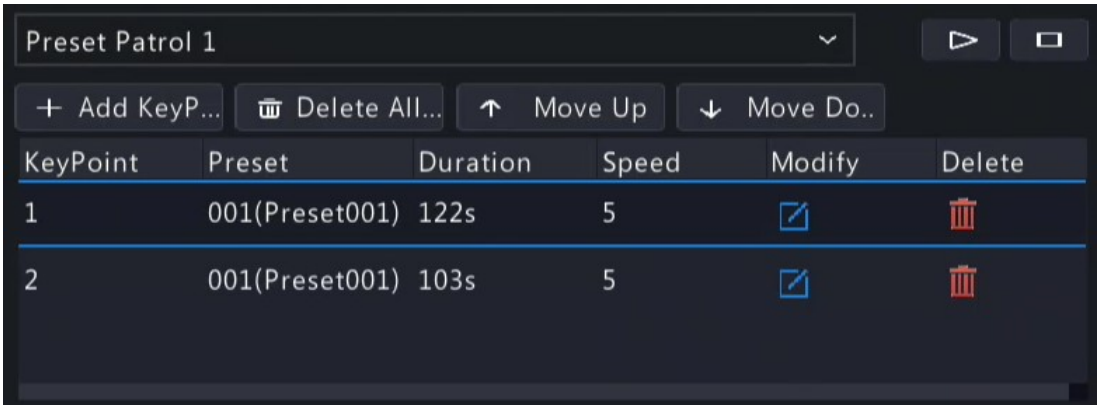
Item	Description
Preset	Set the length of time the camera stays at the preset after performing the patrol. See Preset for setting preset.
Duration(s)	Set the time the camera stays at the preset after the patrol is performed. The valid range is from 120 to 1800 seconds. The default is 10s.
Speed	Set the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

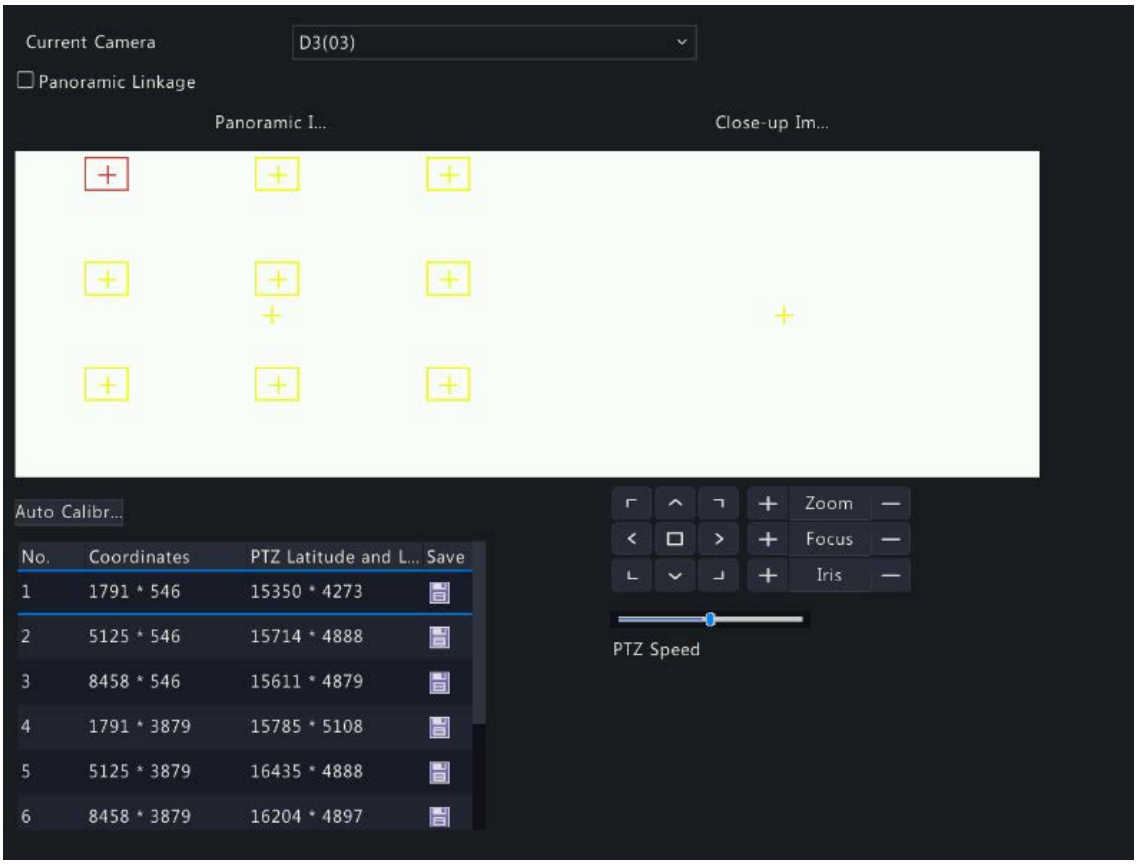
3. Click **Apply**.

4.5 Panoramic Linkage

Configure panoramic linkage for cameras that support the function.

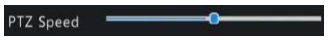
Enable Panoramic Linkage

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



2. Select the camera that supports panoramic linkage.
3. Enable **Panoramic Linkage**.

Configure Panoramic Linkage

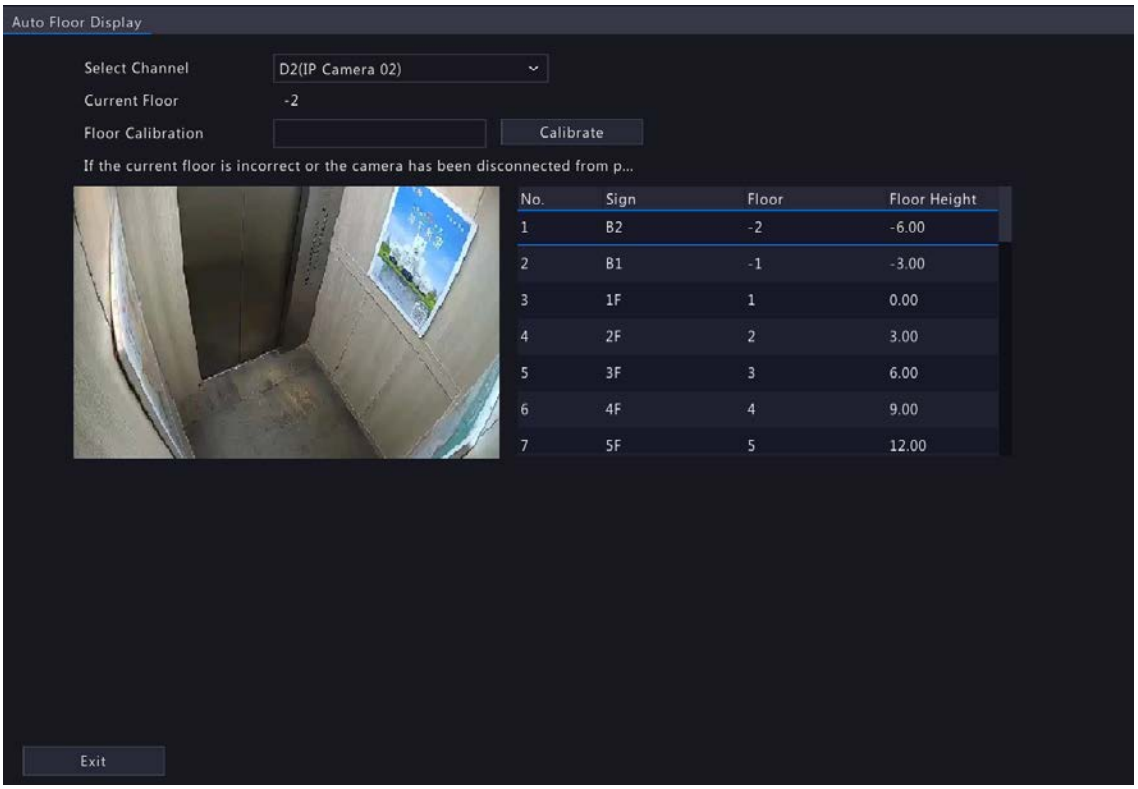
Parameter	Description
Auto Calibration	Calibrate in close-up image and panoramic image to ensure accurate panoramic linkage. 1. Click **Auto Calibration**, and then manually calibrate the center of panoramic image and close-up image. 2. Click **Next** to complete the calibration.
Manual Calibration	After completing auto calibration, you can manually adjust the coordinate. 1. Click any coordinate from the list, the close-up image will move to the corresponding coordinate. 2. Adjust the coordinate image by using the PTZ control panel. 3. Click to save the calibration.
	Control the rotation direction of the PTZ camera; release PTZ control.
	• Zoom in or out on images. **Note:** You can also zoom in or out using the scroll wheel on your mouse. • Focus far or near for clear images. • Increase or reduce the amount of light that enters the lens of the camera.
	Control the rotation speed of the camera. 1-9 are available. 1 means the slowest, and 9 means the fastest.

4.6 Auto Floor Display

Auto Floor Display is mainly used in elevator scenarios. It can display the current floor in real time and calibrate the floor.

Note: This feature requires the camera support.

1. Go to **Menu** > **Channel** > **Auto Floor Display**.
2. Select a camera to view the floor where the elevator is currently located.



3. If the displayed floor is incorrect, input the correct floor, and then click **Calibrate** to correct it.

Parameter Description

Parameter	Description
Sign	The corresponding sign of the floor, for example, B5 for Floor -5.
Floor	The actual floor number.
Floor Height	Actual height of the floor. For example, the second floor (2F) has a floor heigh of 4 meters.

5 Search

Search for and back up recordings and snapshots based on event, object, and statistical funcitons.

Note: The search and backup functions may vary with device models.

5.1 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.

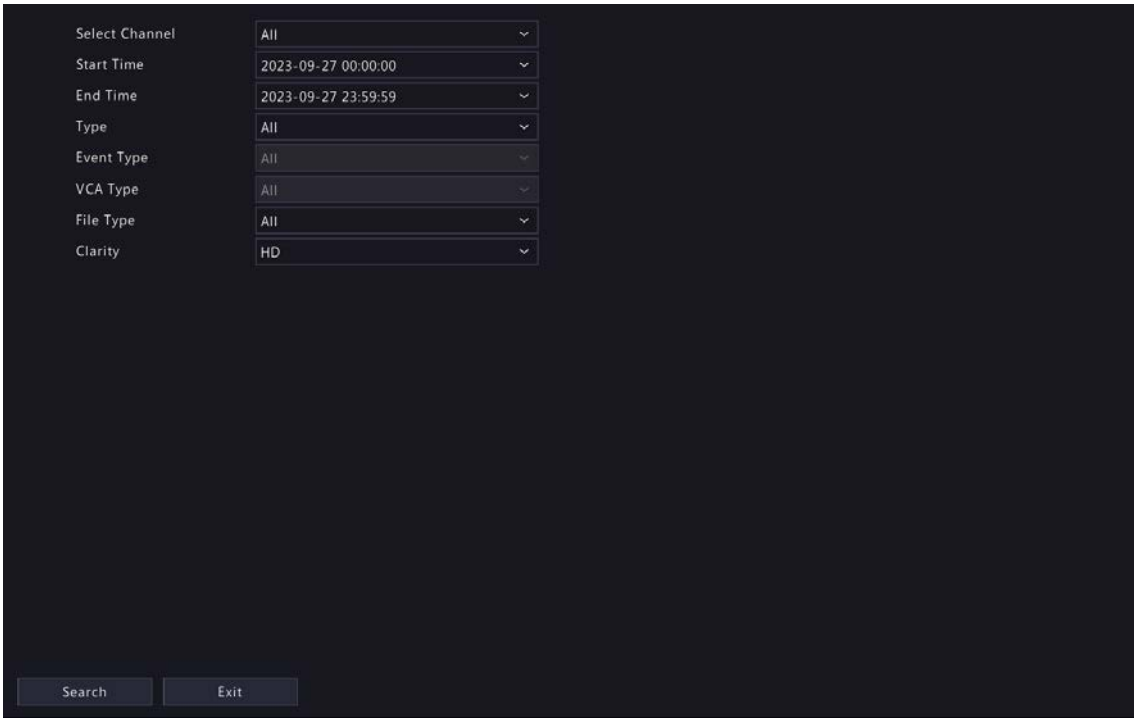
Note:

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

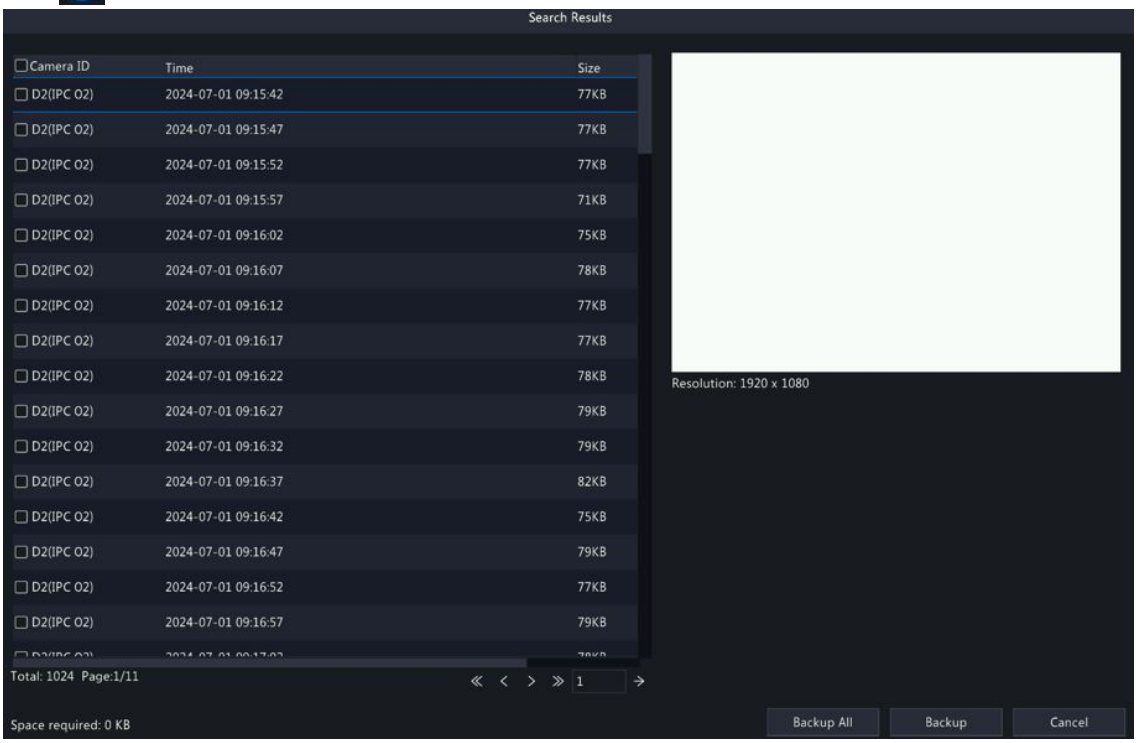
Normal Video Backup

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

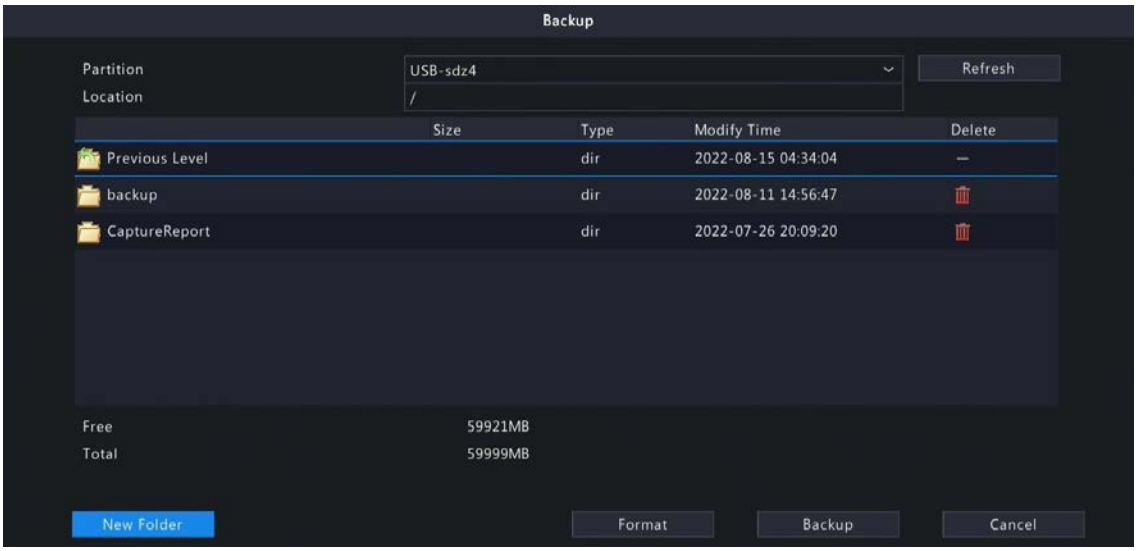
1. Go to **Menu** > **Search** > **Video** > **Recording**.
2. Select the desired camera(s). All cameras are selected by default.



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.

5.2 Image Backup

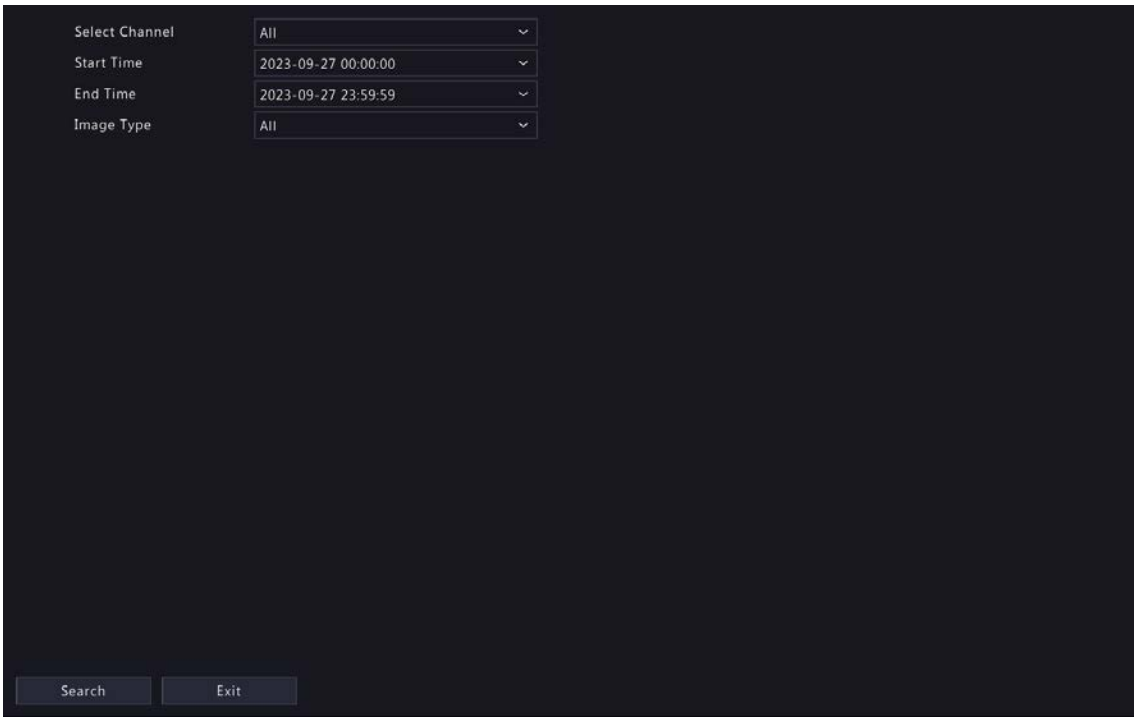
Image backup refers to backing up images stored on the NVR's hard disk to a USB storage device.

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

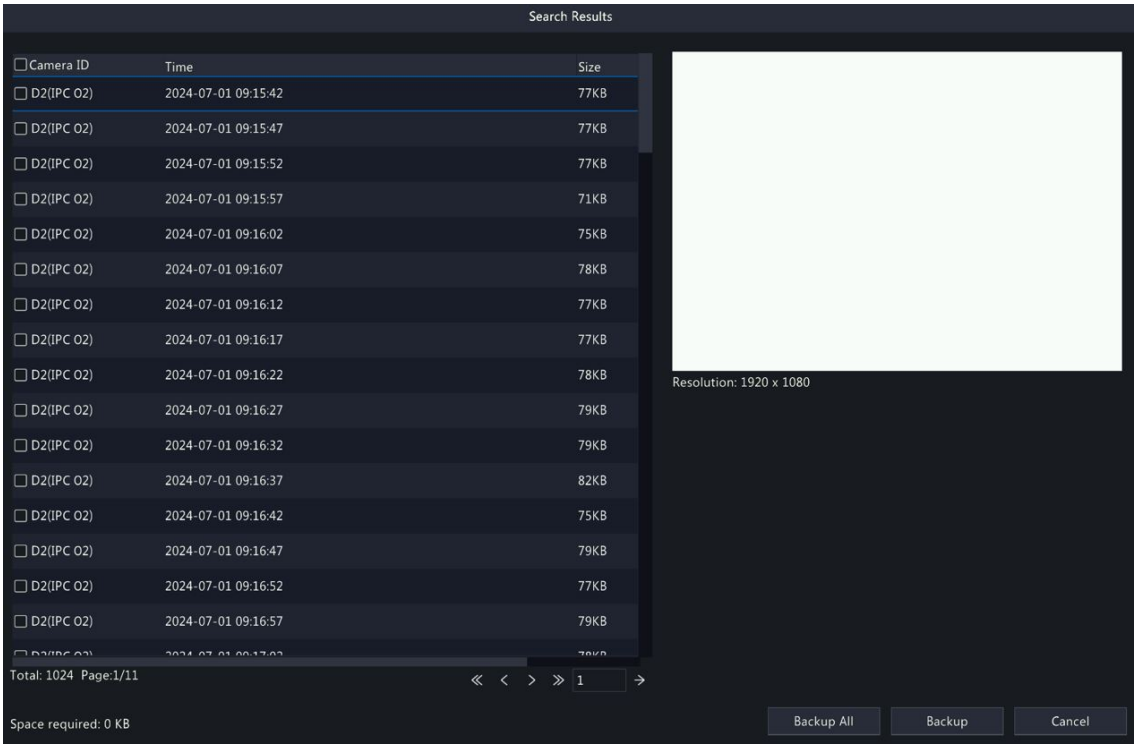
Normal Snapshot Backup

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

1. Go to **Menu** > **Search** > **Picture** > **Snapshot Backup**.



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



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

5. Choose 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**.

5.3 Event

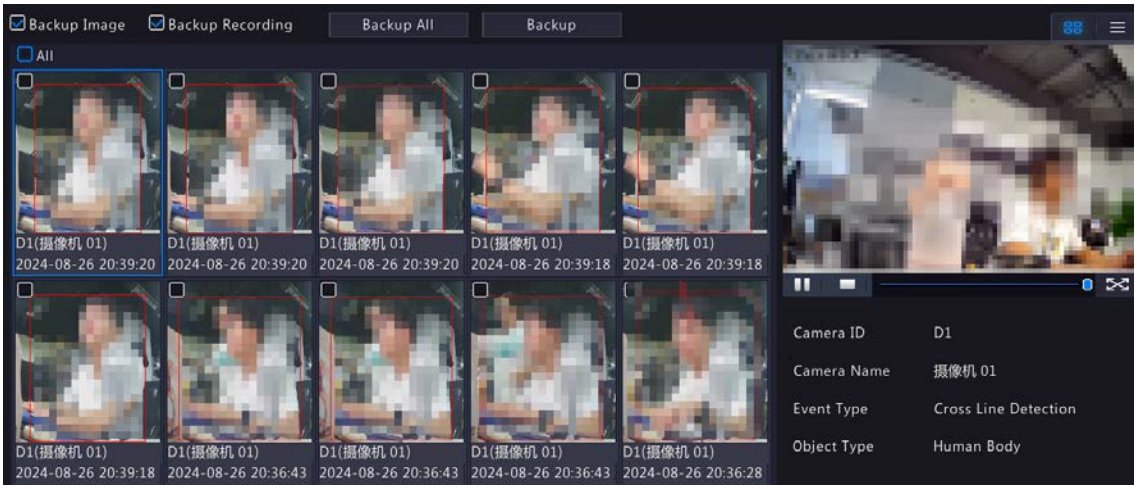
Smart Event

Back up images and recordings triggered by smart event alarms.

1. Go to **Menu** > **Search** > **Event** > **Event Search**.
2. Set search conditions.

Parameter	Description
Select Channel	Select the channel(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 **Smart Event**.
Smart Event Type	Select the smart event type: **All**, **Cross Line Detection**, **Intrusion Detection**, **Enter Area**, **Leave Area**, and **Ultra Motion Detection**.

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



- Click any image to view the 15s video (10s before and 5s after the snapshot time) and detailed information about it.
- Double-click an image on the left to magnify it; double-click the recording on the right to play it in full screen. See search results of Motor Vehicle Search for details.

4. Select **Backup** or **Backup All**. See for details.

Basic Event

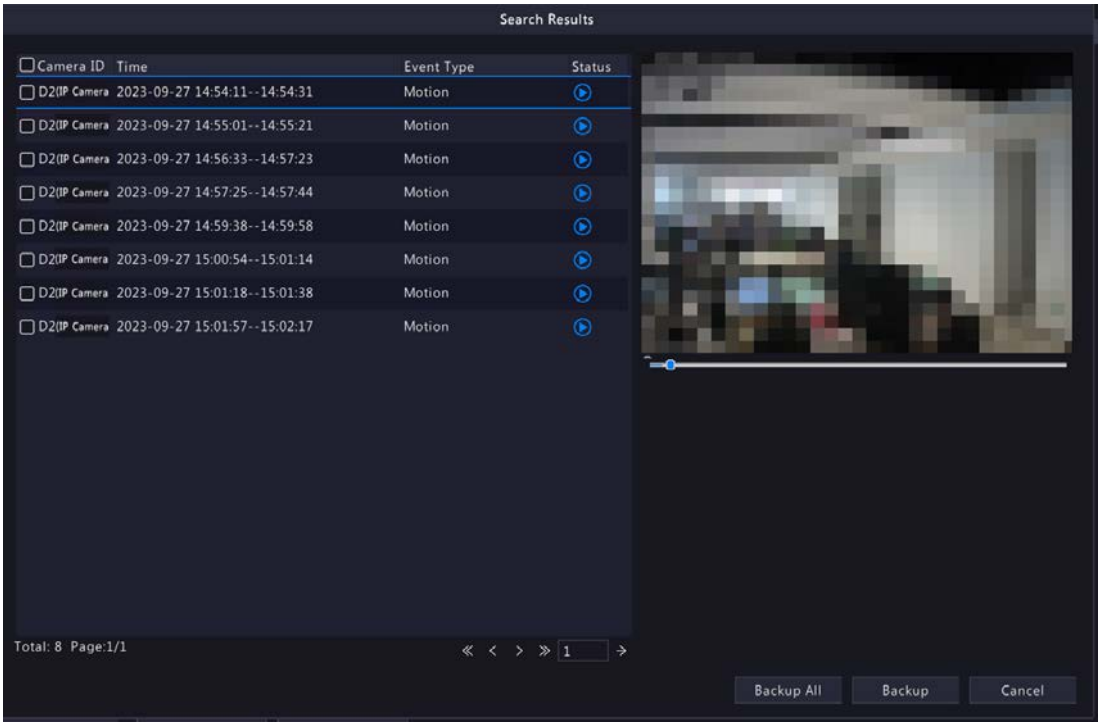
Back up images and recordings triggered by basic event alarms.

1. Go to **Menu** > **Search** > **Event** > **Event Search**.
2. Set search conditions.

Parameter	Description
Select Channel	Select the channel(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 **Basic Event**.

Parameter	Description
Basic Event Type	Select the basic event type: **All**, **Motion Detection**, **Video Loss**, **Audio Detection**, **People Present Alarm**, **Human Body Detection**, **Doorbell Call**, **People Present Minor Alarm**, **People Present Major Alarm**, and **People Present Critical Alarm**.

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



   - The image from the first search result is displayed on the right side. Click to play the video.
4. Back up search results. See Back up search results for details.

5.4 Object

Search for images based on various objects, including person, motor vehicle, and non-motor vehicle.

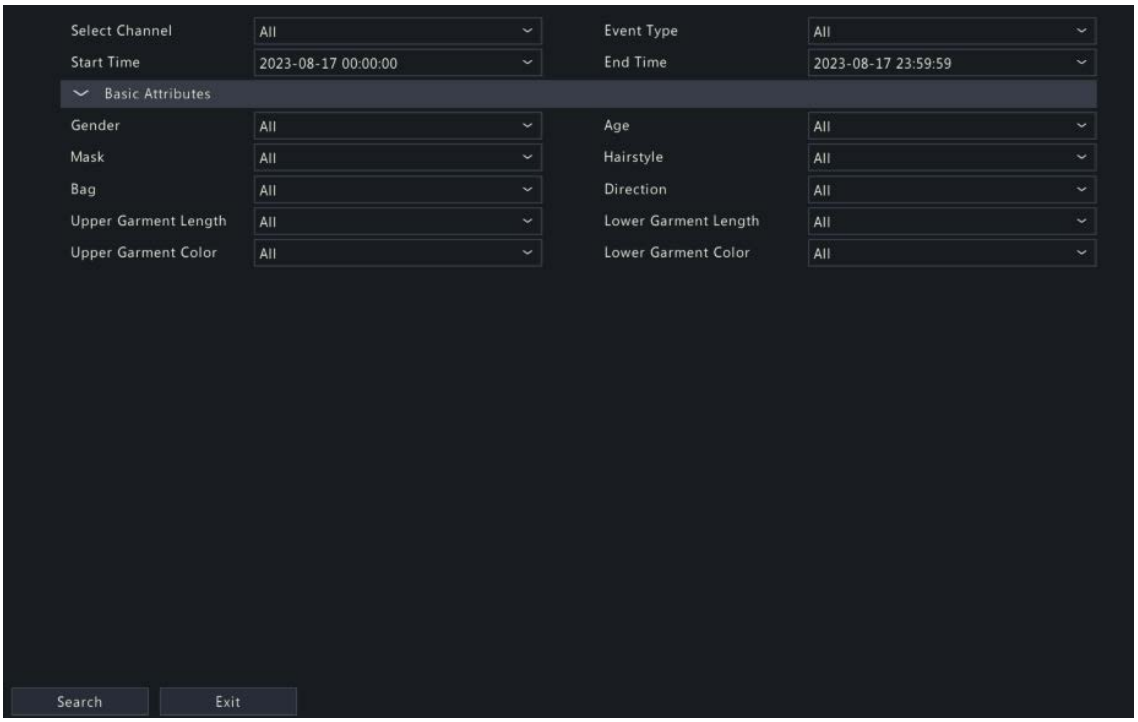
5.4.1 Person Search

Search for images based on human body events, face snapshots and face comparison results.

5.4.1.1 Human Body Search

Search for images based on human body events.

1. Go to **Menu** > **Search** > **Object** > **Person** > **Human Body Search**.



2. Set search conditions.

Parameter	Description
Select Channel	Select the channel(s) to search.
Event Type	Select the event type: **All**, **Cross Line Detection**, **Intrusion Detection**, **Enter Area**, **Leave Area**, **Multi-Target Detection**, **Traffic Monitoring**, **Ultra Motion Detection**, etc.
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.
Gender	Select the gender: **All**, **Male**, or **Female**.
Age	Select the age: **All**, **Childhood**, **Teenager**, **Youth**, **Middle Age**, or **Senior**.
Mask	Select the mask: **All**, **No Mask**, or **With Mask**.
Hairstyle	Select the hairstyle: **All**, **Long Hair**, or **Short Hair**.
Bag	Select the bag: **All**, **No Bag**, **Handbag**, or **Backpack**.
Direction	Select the direction: **All**, **Motionless**, **Upward**, **Downward**, **Leftward**, **Rightward**, **Top Left**, **Bottom Left**, **Top Right**, or **Bottom Right**.
Upper Garment Length	Select the upper garment length: **All**, **Short Sleeve**, or **Long Sleeve**.
Lower Garment Length	Select the lower garment length: **All**, **Shorts**, or **Trousers**.

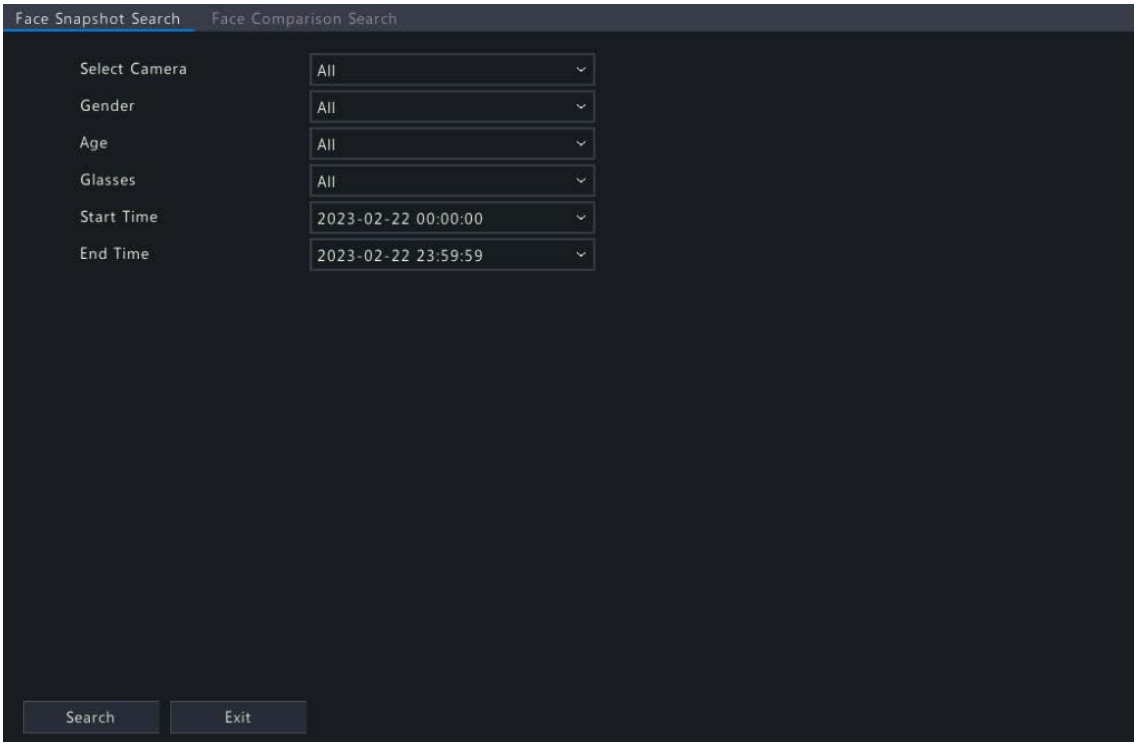
3. Click **Search**. The search results are shown in tile mode by default. You may click to switch to list mode.
   - Click any image to view the 15s video (10s before and 5s after the snapshot time) and detailed information about it.
   - Double-click an image on the left to magnify it; double-click the recording on the right to play it in full screen.
   - You can click **All Attributes** to view detailed human body attributes.
4. Back up search results. See Back up search results for details.

5.4.1.2 Face Snapshot Search

Search for face snapshots.

Search Face Snapshots

1. Go to **Menu** > **Search** > **Object** > **Person** > **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.

   - Click any image to view the 15s video (10s before and 5s after the snapshot time) and detailed information about it.
   - Double-click an image on the left to magnify it; double-click the recording on the right to play it in full screen.

Other Operations

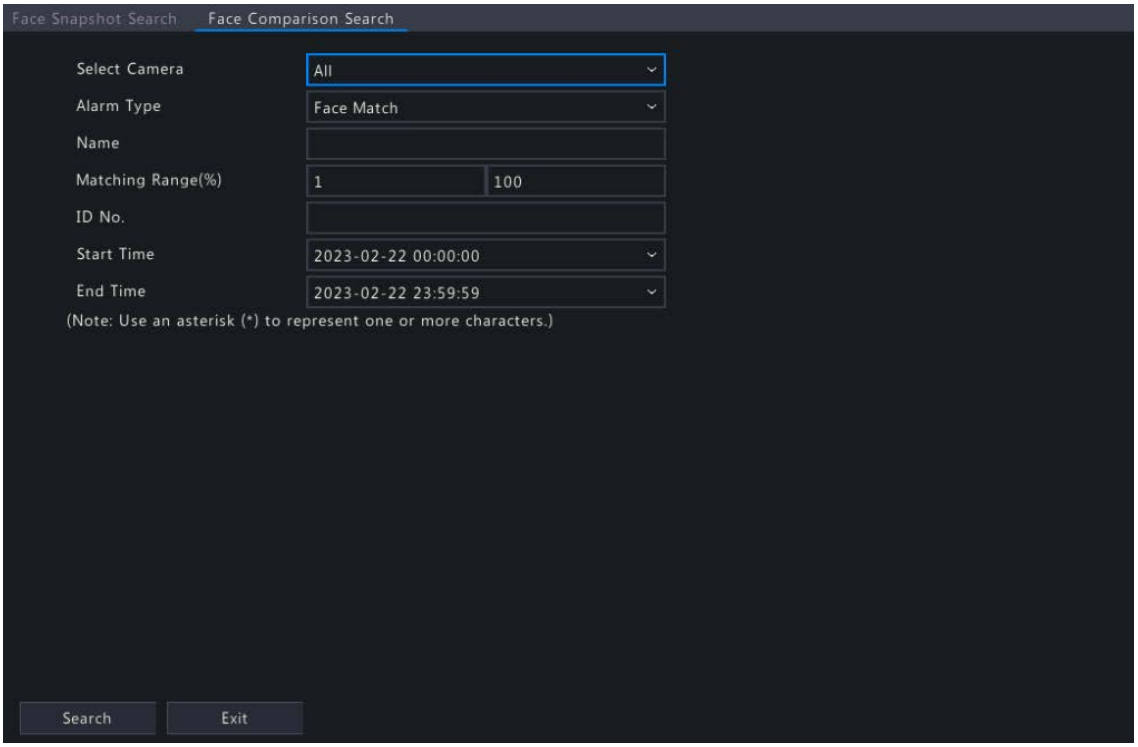
Operation	Description
Backup/Backup All	1. Enable **Backup Image** or/and **Backup Recording** as needed. By default, they are both enabled. • Backup Image: Back up the selected image(s) to an external device. • Backup Recording: Back up the 15s video of the selected image(s) to an external device.

Operation	Description
	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.

5.4.1.3 Face Comparison Search

Search for face comparison results.

1. Go to **Menu** > **Search** > **Object** > **Person** > **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.

- Click any image to view the 15s video (10s before and 5s after the snapshot time) and detailed information about it.
- Double-click an image on the left to magnify it; double-click the recording on the right to play it in full screen.

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 15s video of the selected image(s) to an external device.

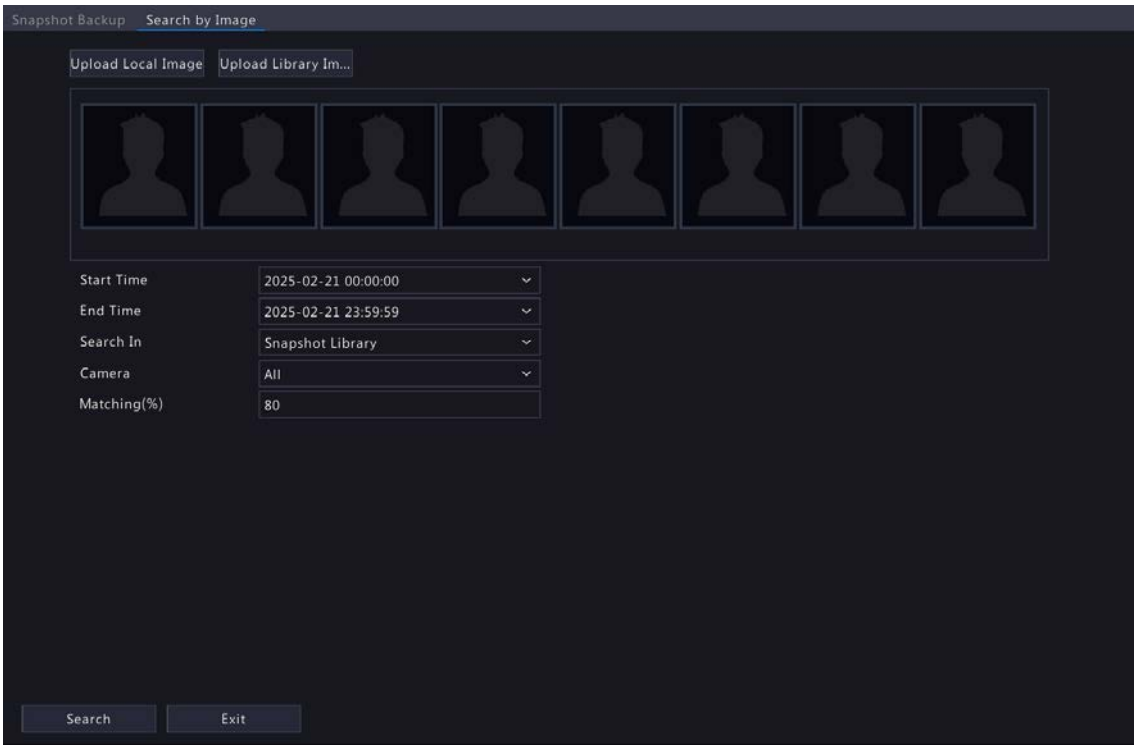
   (2) Select **Backup** or **Backup All**.

   - 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**.

5.4.1.4 Search by Image

Search similar images of a specific face in a face library or a snapshot library.

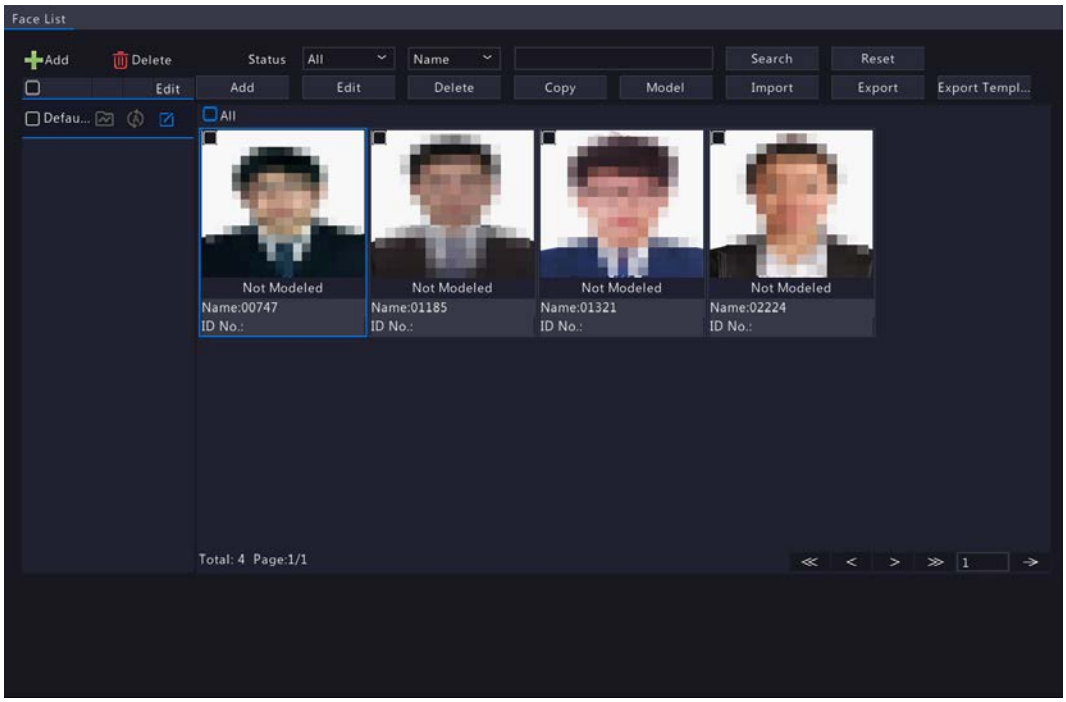
1. Go to **Menu > VAC > VCA Search > Search by Image**.



2. Upload a face library image.

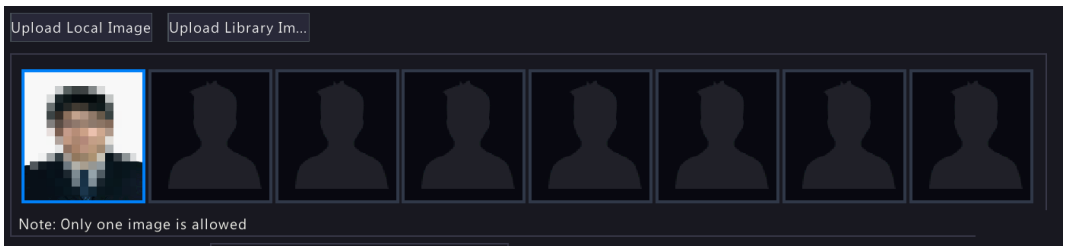
   - Upload an image from a face library

     (1) Click **Upload Library Image**,



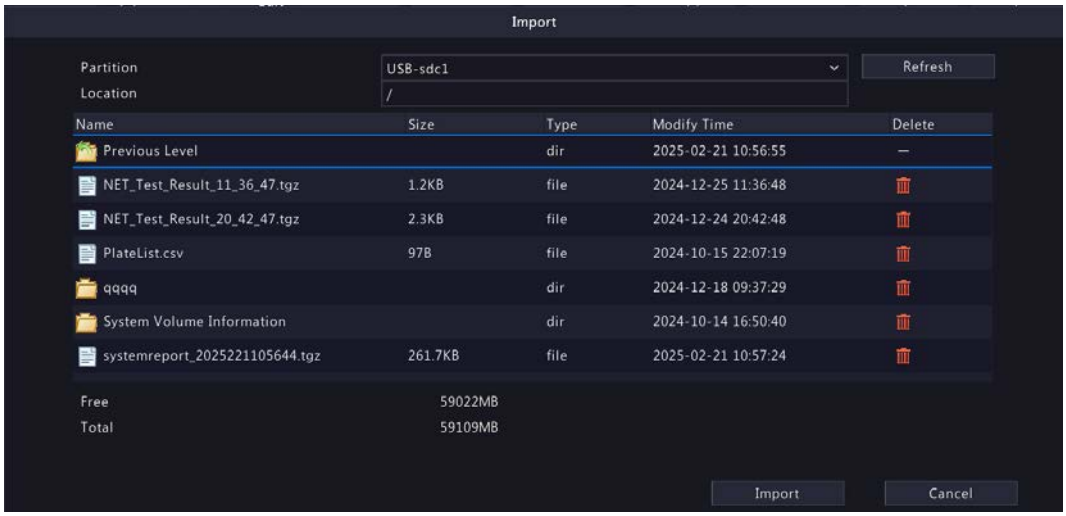
(2) Choose the face library, and then select the desired face image in the library. You can search face images by status, name, and ID number.

(3) Click **OK** to upload the image.



- Upload a local image

(1) Click **Upload Local Image**.



(2) Locate the image, and then click **Import**.

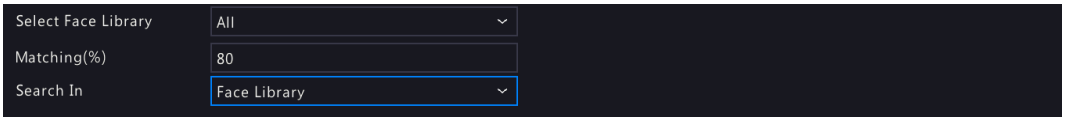
Note: If the uploaded image is a group photo, the system can recognize up to 8 faces, but only one face image can be selected for image-based search at a time. Only specific devices support the upload of group photos.

3. Enter search criteria and view the search results. You can search similar face images in a snapshot library or a face library.

- Search in a face library

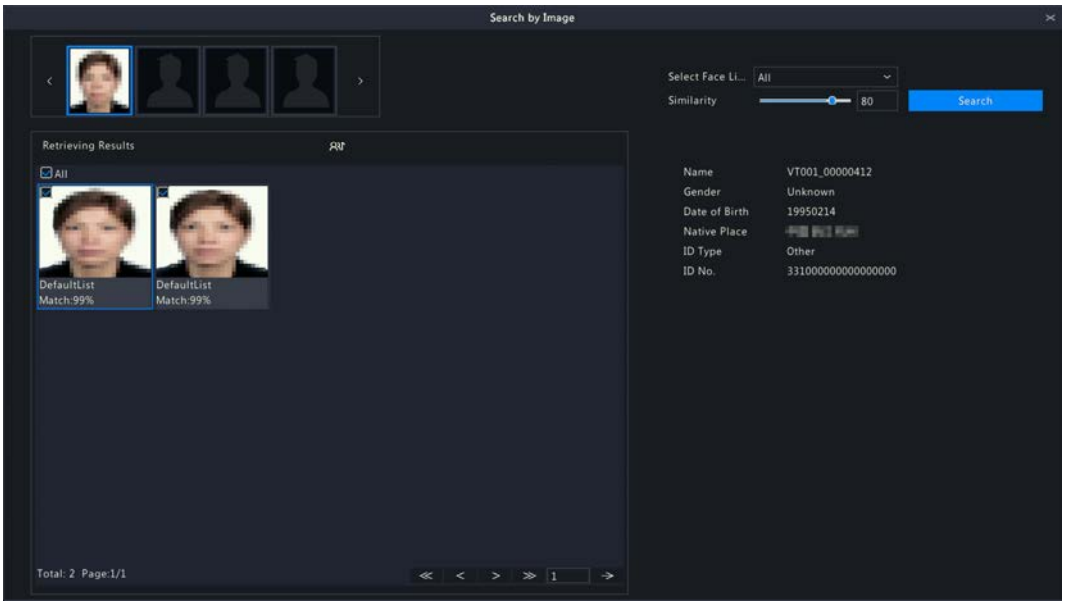
(1) Select **Face Library** from the **Search In** drop-down list.

(2) Select the target face library from the **Select Face Library** drop-down list. You can select one or multiple face libraries.



(3) Set the matching degree (%). The higher the matching degree, the closer the retrieved images are to the target person, and the more accurate the results. The default is 80.

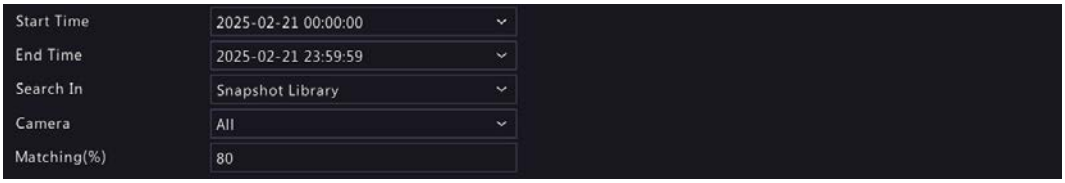
(4) Click **Search** to view the details of similar images.



- The left panel shows similar images, along with the face library and similarity score.
- The right panel shows the name, gender, date of birth, native place, ID type, and ID number of the person in the image. The search criteria can be modified in this panel.

- Search in a snapshot library

(1) Select **Snapshot Library** from the **Search In** drop-down list.

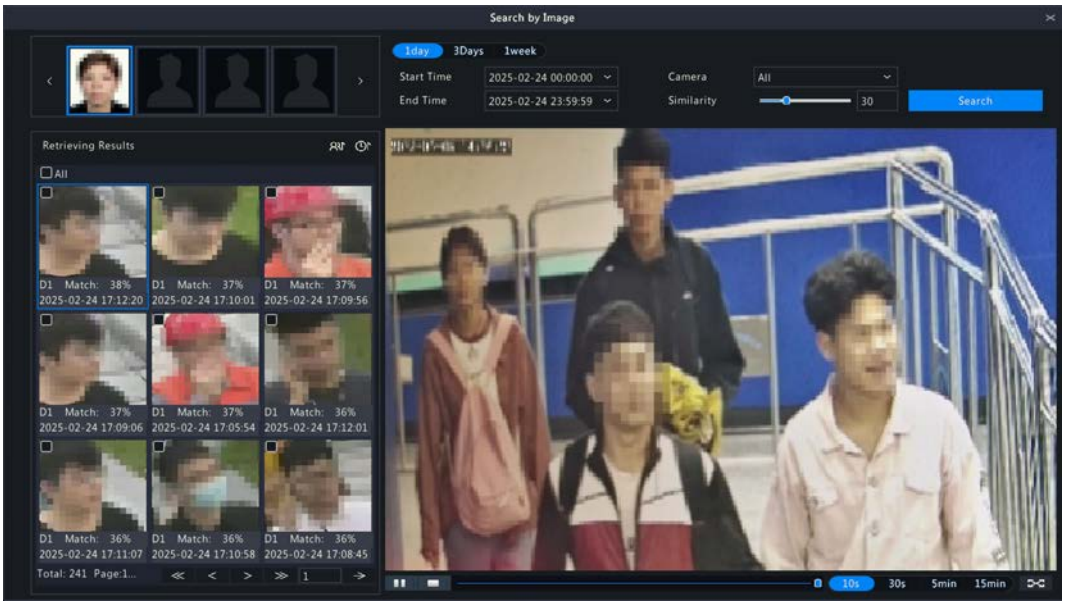


(2) Set the start time and end time.

(3) From the **Camera** drop-down list, select the target camera(s) to search. You can select one or more cameras as needed.

(4) Set the matching degree (%). The higher the matching degree, the closer the retrieved images are to the target person, and the more accurate the results. The default is 80.

(5) Click **Search** to view the details of similar images.

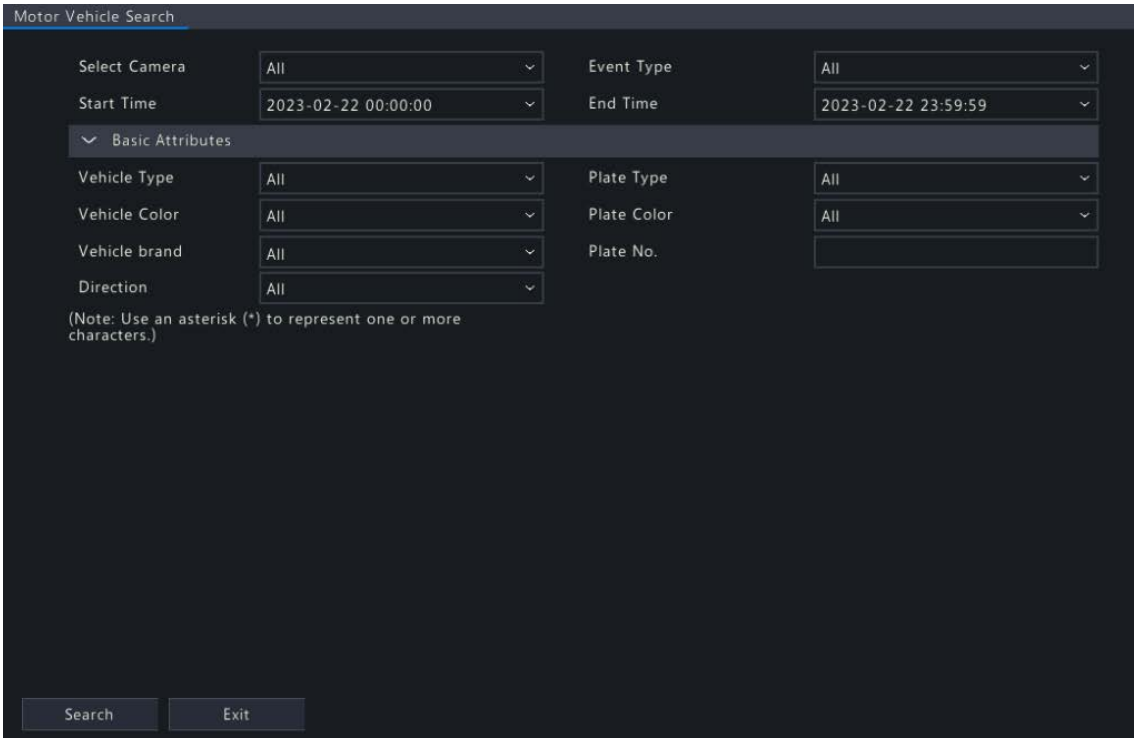


- The left panel shows similar images, snapshot channel, matching degree, and snapshot time.
- The right panel automatically plays a 15s video (10s before and 5s after the snapshot time). The search criteria can be modified in this panel.
- Double-clicking the video on the right will enable full-screen playback.

5.4.2 Motor Vehicle Search

Search for images based on motor vehicle monitoring events.

1. Go to **Menu** > **Search** > **Object** > **Motor Vehicle** > **Motor Vehicle Search**.



2. Set search conditions.

Parameter	Description
Select Camera	Select the camera(s) to search.
Event Type	Select the event type: **All**, **Cross Line Detection**, **Intrusion Detection**, **Enter Area**, **Leave Area**, **Multi-Target Detection**, **Traffic Monitoring**, **Ultra Motion Detection**, **Plate Comparison**, etc.

Parameter	Description
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.
Vehicle Type	Select the vehicle type to search.
Plate Type	Select the plate type to search.
Vehicle Color	Select the vehicle color to search.
Plate Color	Select the plate color to search.
Vehicle Brand	Select the vehicle brand to search.
Plate No.	Enter the plate number to search.
Direction	Select the direction: **All**, **Motionless**, **Upward**, **Downward**, **Leftward**, **Rightward**, **Top Left**, **Bottom Left**, **Top Right**, or **Bottom Right**.
Plate Comparison	Select the plate comparison type: **All**, **Match**, or **Not Match**. **Note:** This parameter appears when **Event Type** is **Plate Comparison**.

3. Click **Search**. The search results are shown in tile mode by default. You may click to switch to list mode.
   - Click any image to view the 15s video (10s before and 5s after the snapshot time) and detailed information about it.
   - Double-click an image on the left to magnify it; double-click the recording on the right to play it in full screen.
   - You can click **All Attributes** to view detailed motor vehicle attributes.
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**.

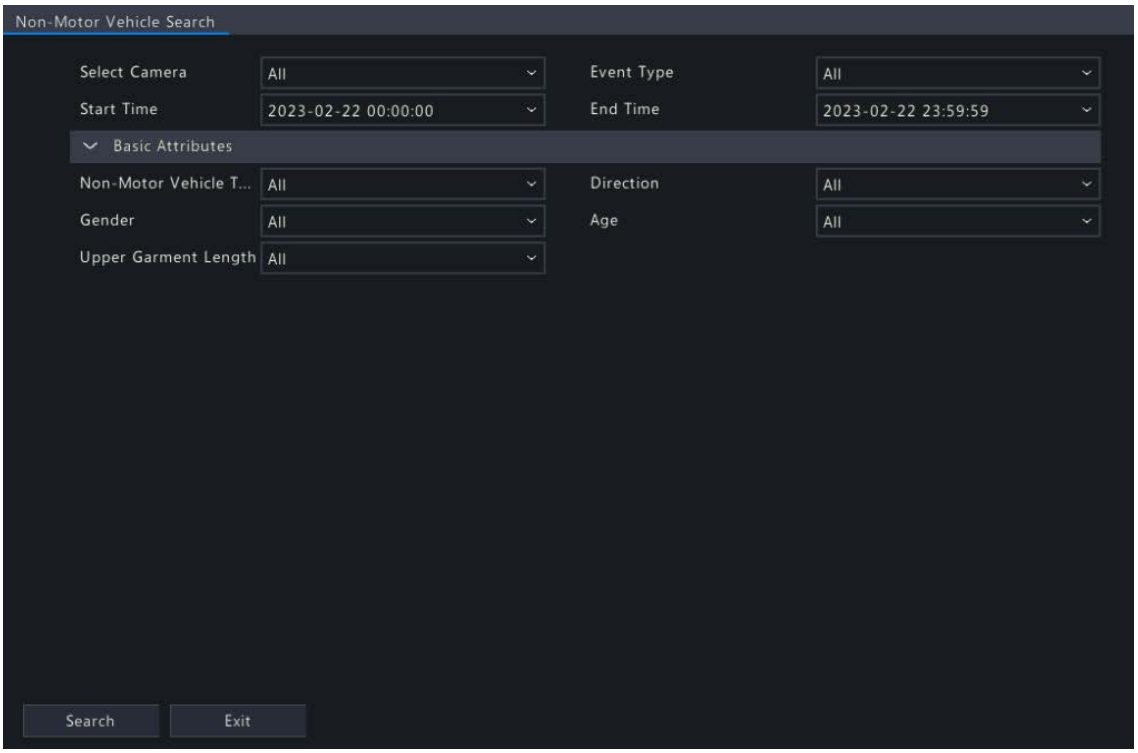
No.	Camera ID	Camera Name	Time	Plate No.	Plate Color	Vehicle Color
1	D1	D18Plate22247	2022-08-05 16:02:59	[illegible]	Blue	Other
2	D2	D19Plate2	2022-08-05 16:02:40	[illegible]	Blue	White
3	D3	D20Plate22249	2022-08-05 16:00:39	[illegible]	Green	White
4	D4	D21Plate22250	2022-08-05 15:58:13	[illegible]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

plate20220812105238

5.4.3 Non-Motor Vehicle Search

Search for images based on non-motor vehicle events.

1. Go to **Menu** > **Search** > **Object** > **Non-Motor Vehicle** > **Non-Motor Vehicle Search**.



2. Set search conditions.

Parameter	Description
Select Camera	Select the camera(s) to search.
Event Type	Select the event type: **All**, **Cross Line Detection**, **Intrusion Detection**, **Enter Area**, **Leave Area**, **Multi-Target Detection**, **Traffic Monitoring**, **Ultra Motion Detection**, **Plate Comparison**, etc.
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.
Non-Motor Vehicle Type	Select the non-motor vehicle type: **All**, **Bicycle**, **3-wheel Vehicle**, **Motorcycle**, **Electric Moped**, or **2-wheel Vehicle**.
Direction	Select the direction: **All**, **Motionless**, **Upward**, **Downward**, **Leftward**, **Rightward**, **Top Left**, **Bottom Left**, **Top Right**, or **Bottom Right**.
Gender	Select the gender: **All**, **Male** or **Female**.
Age	Select the age: **All**, **Childhood**, **Teenager**, **Youth**, **Middle Age**, or **Senior**.
Upper Garment Length	Select the upper garment length worn by drivers: **All**, **Short Sleeve**, or **Long Sleeve**.

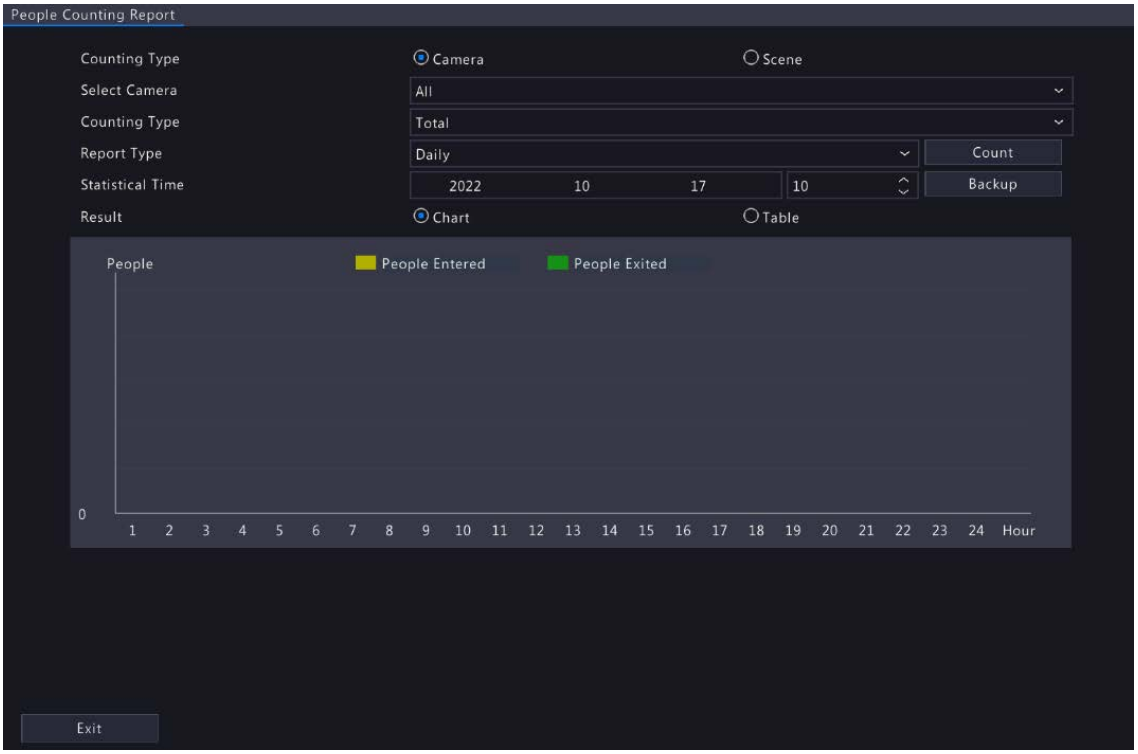
3. Click **Search**. The search results are shown in tile mode by default. You may click to switch to list mode.
   - Click any image to view the 15s video (10s before and 5s after the snapshot time) and detailed information about it.
   - Double-click an image on the left to magnify it; double-click the recording on the right to play it in full screen.
   - You can click **All Attributes** to view detailed non-motor vehicle attributes (human body attributes will be shown when event type is multi-target detection).
4. Select **Backup** or **Backup All**. See Backup or Backup All for details.

5.5 Statistics

5.5.1 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 or scene during a specified time period.

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

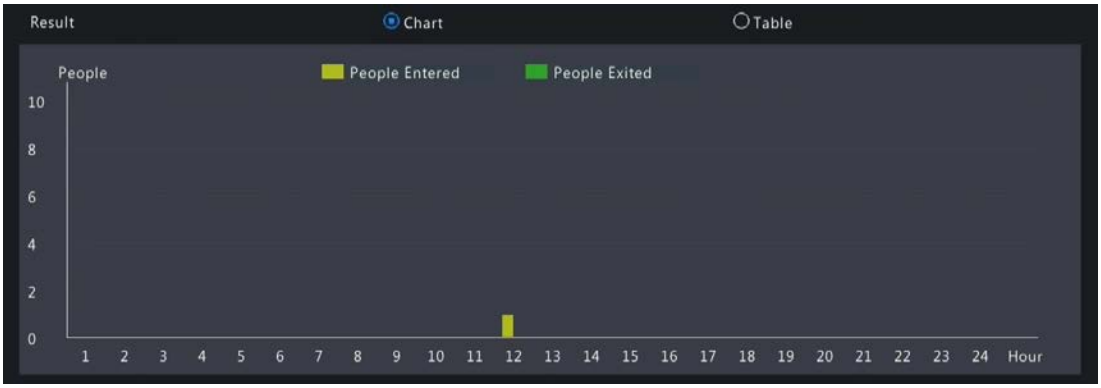


2. Set search conditions.

Parameter	Description
Counting Type	Count people flow data according to the camera or scene.
Select Camera/Scene Select	• Camera: Select the camera(s) to search. • Scene: Select the scene to search. Please configure scene information first, see People Present Alarm for details.
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

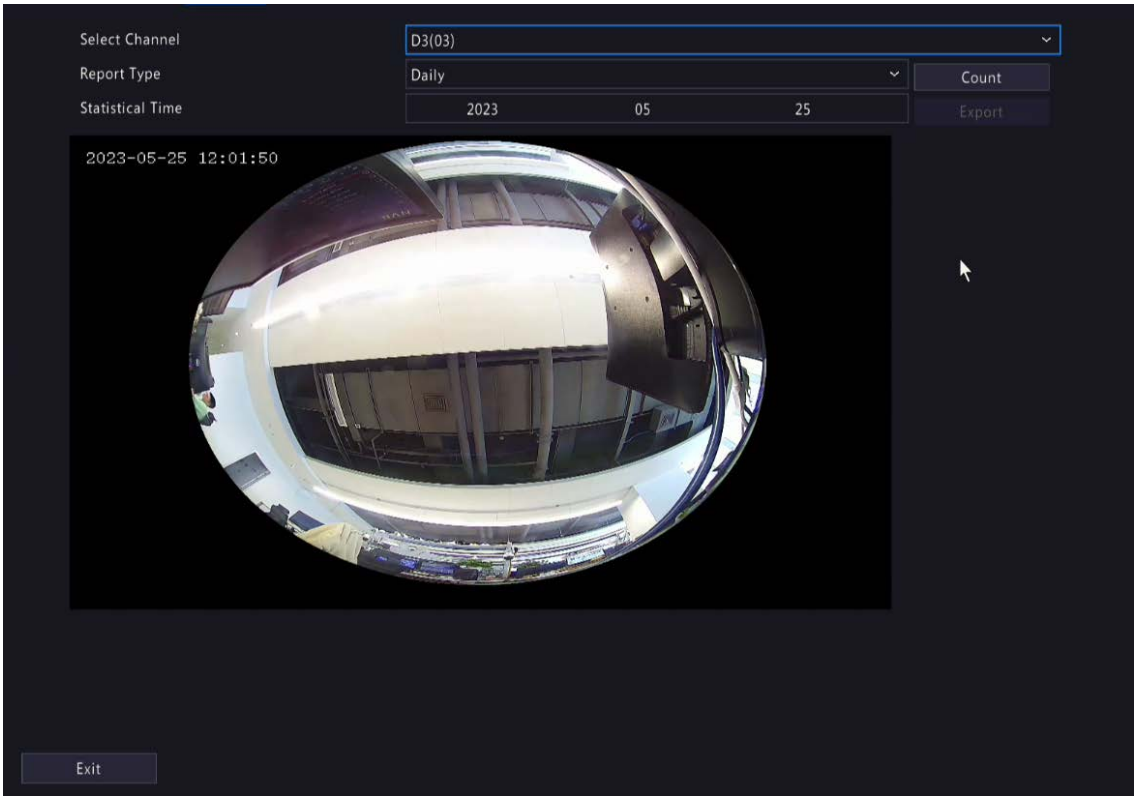
4. Click **Backup** to export the report to an external storage device as a .CSV file. The content of the file exported from a report in chart or table format is the same. Take the exported results of daily report as an example:

Camera ID	Camera Name	Statistical Time	People Entered	People Exited
D4	N5	11:00-12:00	12	11
D4	N5	12:00-13:00	15	7
D4	N5	13:00-14:00	4	4
D4	N5	14:00-15:00	7	2

5.5.2 Heat Map

The heat map function is used with a fisheye camera to monitor people counting in supermarkets or shops. You can view the heat map formed by the people flow statistics of a specified channel during a specified time period, which can help you plan accordingly, and improve service, operational efficiency and profitability.

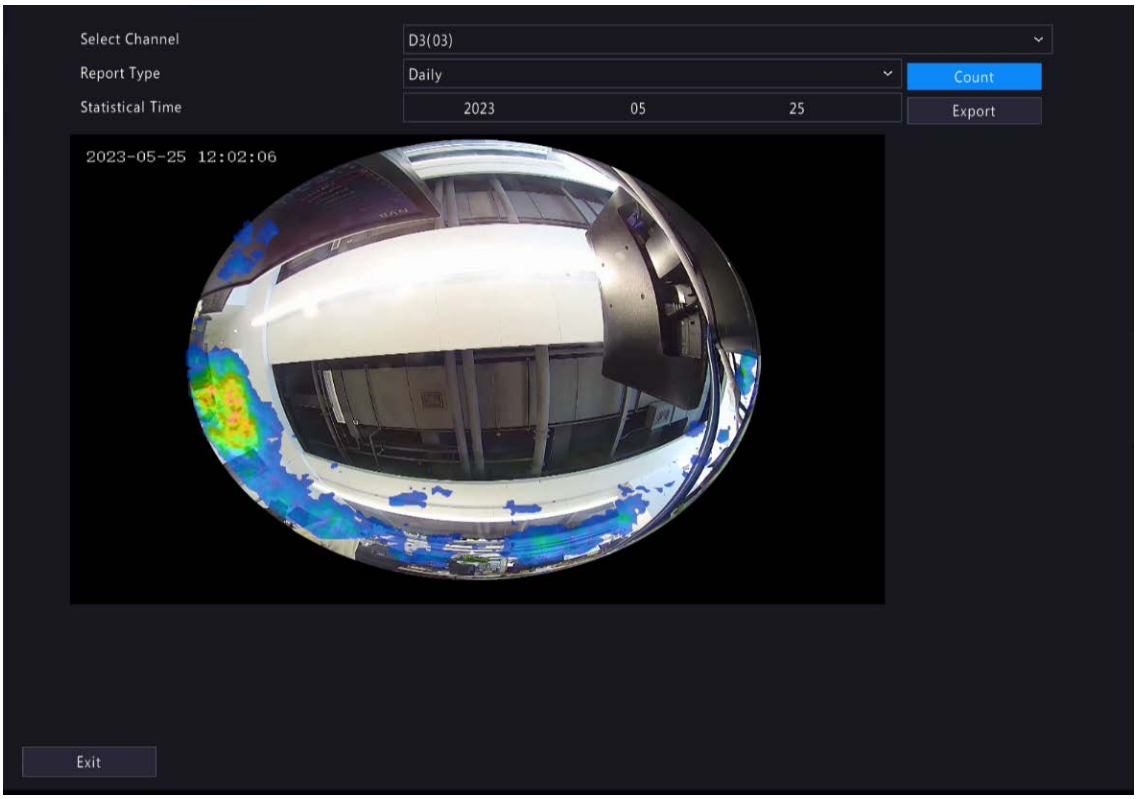
1. Go to **Menu** > **Search** > **Statistics** > **Heat Map**.



2. Set search conditions.

Parameter	Description
Select Channel	Select the channel to count heat data.
Report Type	Select the report type to view: **Daily**, **Weekly**, **Monthly**, or **Yearly**.
Statistical Time	Select a statistical period.

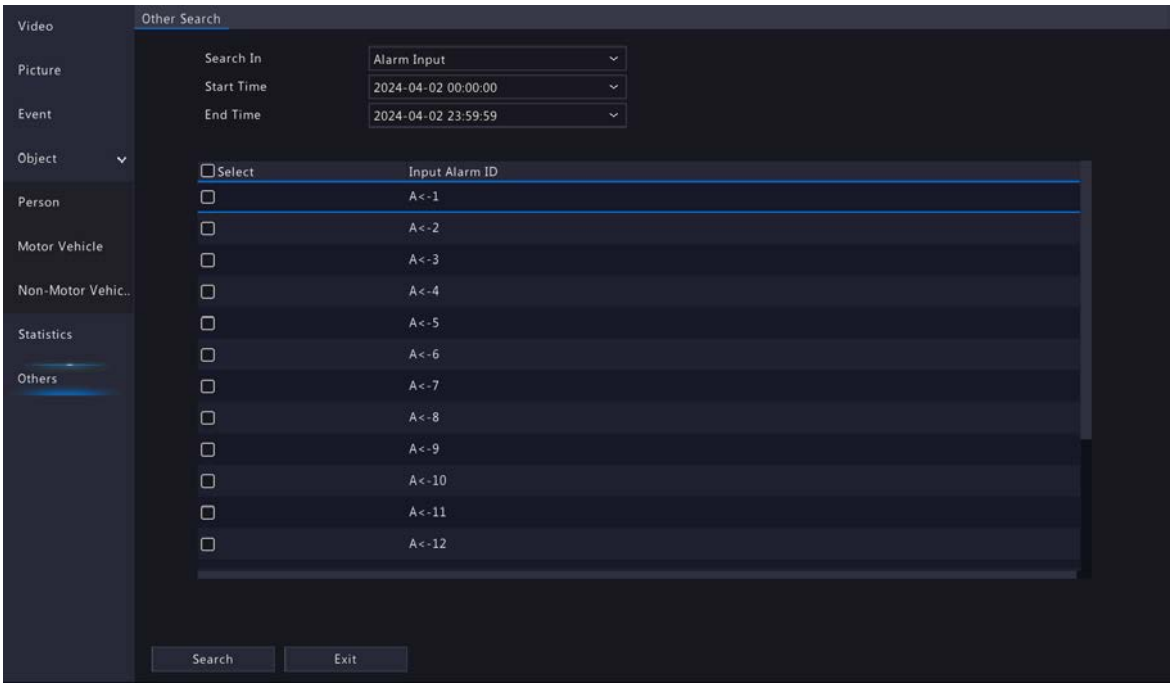
3. Click **Count** to view the result.



4. Click **Export** to export the heat map image to an external storage device as a .jpg file. The exported file is an image, regardless of the report type. Take the exported result of daily report as an example:

5.6 Others

Search for recordings based on alarm input, tags search, POS search, people present alarm, people present minor alarm, people present major alarm, and people present critical alarm.



6 VCA

Configure VCA (Video Content Analysis), analyzer, face library, work clothes library, plate list, and VCA search.

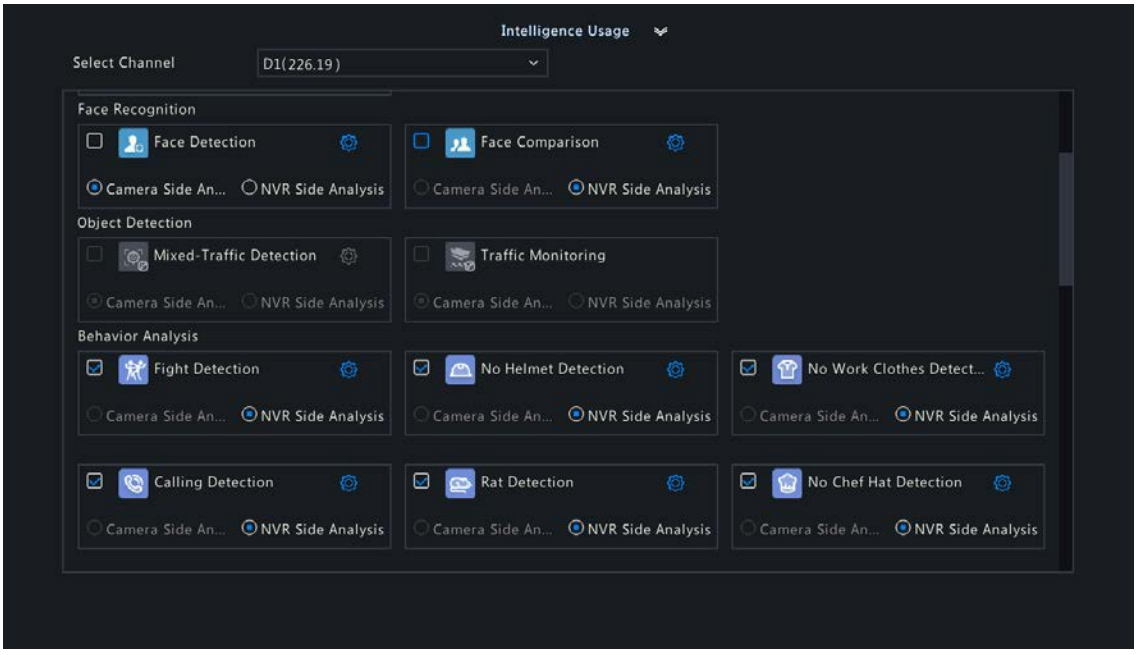
6.1 VCA Configuration

VCA includes face recognition, smart intrusion prevention, behavior analysis, object detection, exception detection & statistics, temperature detection, 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**.

   Note: Regardless of whether a channel is online or not, once a VCA function is configured and enabled, the analysis capability will be occupied by the channel.



2. Select a channel.

3. Select the check box for the VCA function to be enabled, and choose 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:
   - For some VCA functions, the camera side supports more parameters than the NVR side.
   - Before you enable camera side analysis, make sure the camera is connected via the 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** > **Analyzer Config**.
   - VCA function is grayed out when the NVR-side analyzer capability reaches the upper limit. You can hover over the function to view the details, and disable certain types of functions to free up some of the analyzer's capacity.
   - When the camera goes online for the first time, the system will automatically sync camera-side configuration and enabled/disabled state to the NVR side; When the camera goes online again, the system will automatically sync camera-side configuration to the NVR side, however, the enabled/disabled state will not be synced.
   - When the camera goes online, if the channel enabled/disabled state on the IPC is not consistent with the NVR, and the NVR-side analysis is enabled while the camera-side analysis is disabled, then a prompt will appear and ask if you want to sync NVR enabled/disabled state to the IPC.
4. Click to configure the function.

6.1.1 Face Recognition

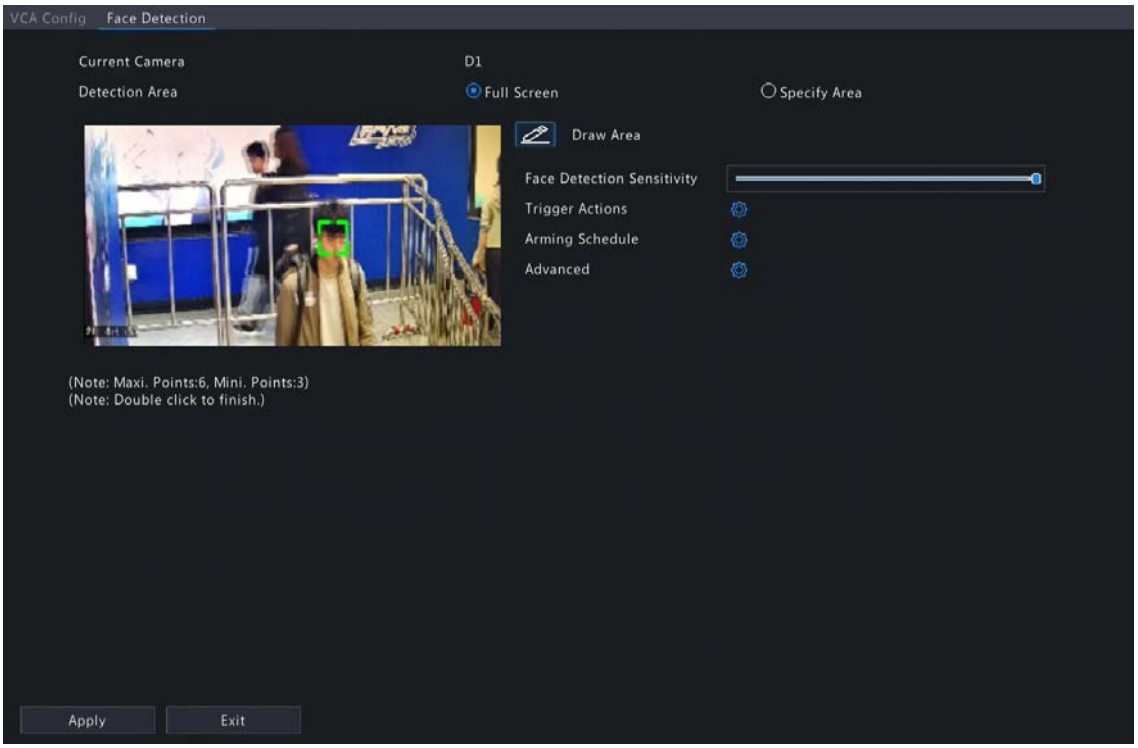
Face recognition includes face detection and face comparison.

6.1.1.1 Face Detection

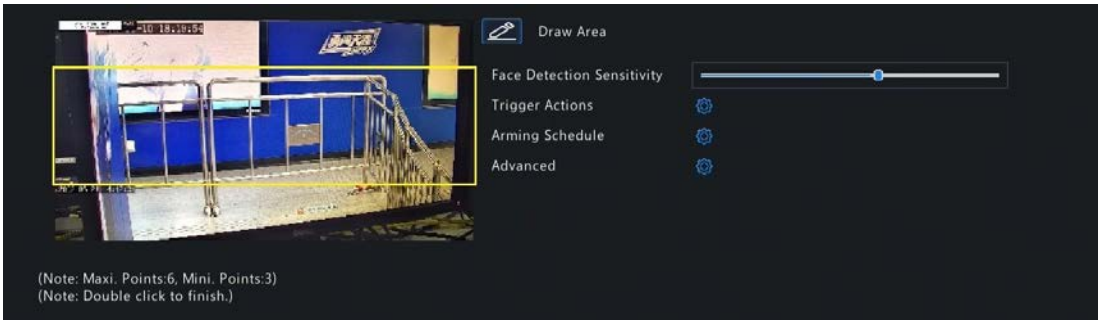
Face detection detects and captures faces in a specified detection area.

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.

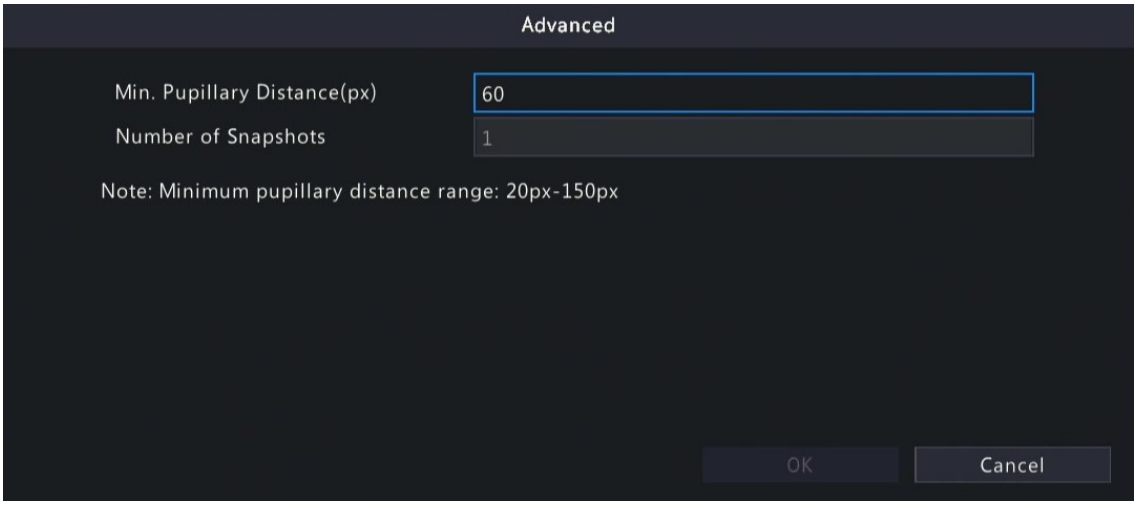


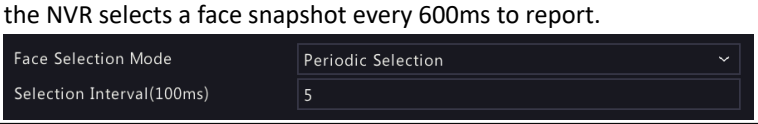
4. Set the detection area. Only 1 detection area is allowed.
   - Full Screen: Detects all faces in the live video.
   - Specify Area: Detects faces in a specified area of the live video. Select **Specify Area**, click , then the full screen will be displayed and a default detection box appears. You can adjust the position of the area or draw an area as needed. Right-click to exit the full screen.

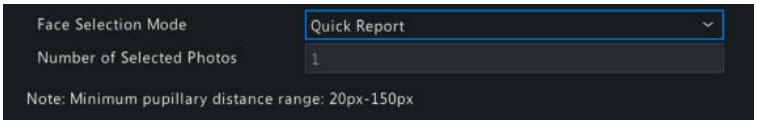


   - Adjust the position of the area. Point to a border of the area and drag it to the desired position.
   - Draw an area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed.
5. Set the face detection sensitivity 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	• Quality 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 Interval**, for example, 600ms, then the NVR selects a face snapshot every 600ms to report. 

Parameter	Description
	• Quick Report: A face snapshot that exceeds the set score will be reported, and a higher quality snapshot will be reported to replace the previous one. The number of face snapshots is 1 by default and cannot be modified.  **Note:** Only the NVR-side face detection supports quick 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**.

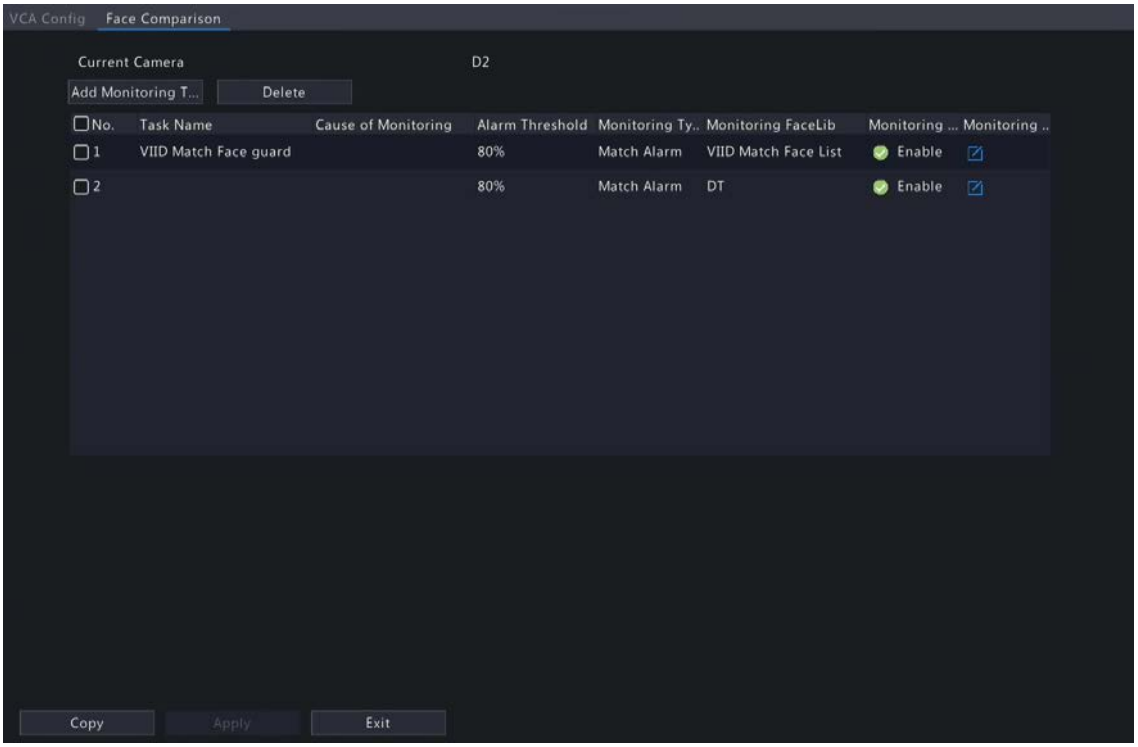
6.1.1.2 Face Comparison

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.

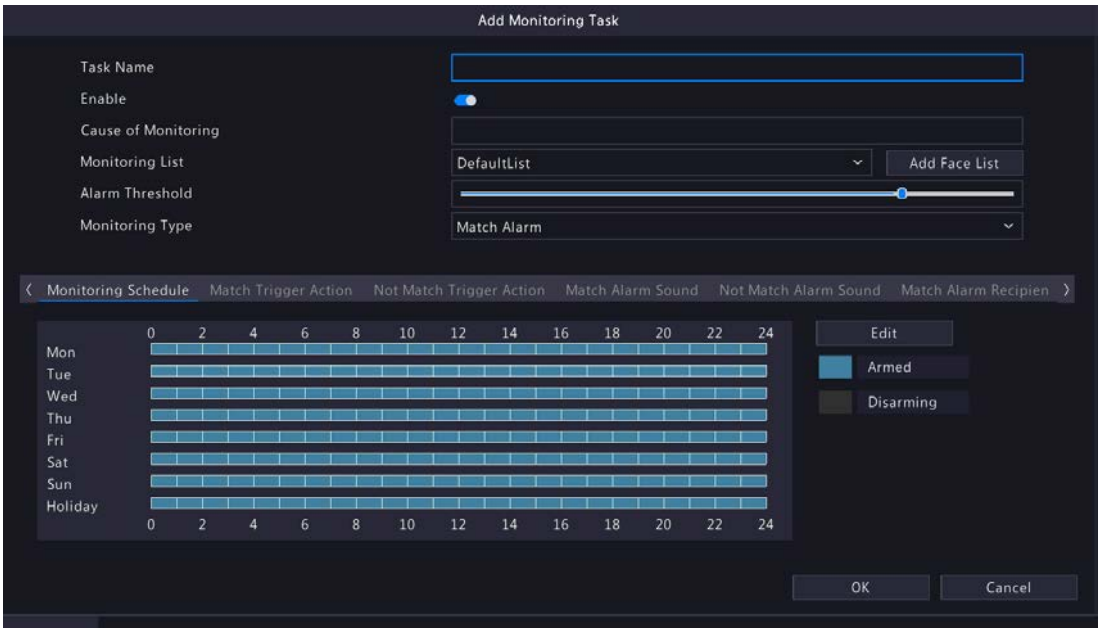
Configure Monitoring Task

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.
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.
Match Alarm Sound	Set the IP speaker alarm sound to be triggered when a captured face matches a face image in the monitoring list. See IP Speaker Alarm Sound for details.
Not Match Alarm Sound	Set the IP speaker alarm sound to be triggered when a captured face does not match any face image in the monitoring list. See IP Speaker Alarm Sound for details.
Match Alarm Recipient	Choose the recipient(s), and then the NVR sends an email with alarm information to the selected email address(es) when a captured face matches a

Parameter	Description
	face image in the monitoring list. Please set the recipient information in Email. Up to 6 recipients are allowed.
Not Match Alarm Recipient	Choose the recipient(s), and then the NVR sends an email with alarm information to the selected email address(es) when a captured face does not match any face image in the monitoring list. Please set the recipient information in Email. Up to 6 recipients are allowed.

(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 Recognition for details.

6.1.2 Smart Intrusion Prevention

Smart intrusion prevention includes cross line detection, intrusion detection, enter area, and leave area.

6.1.2.1 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.

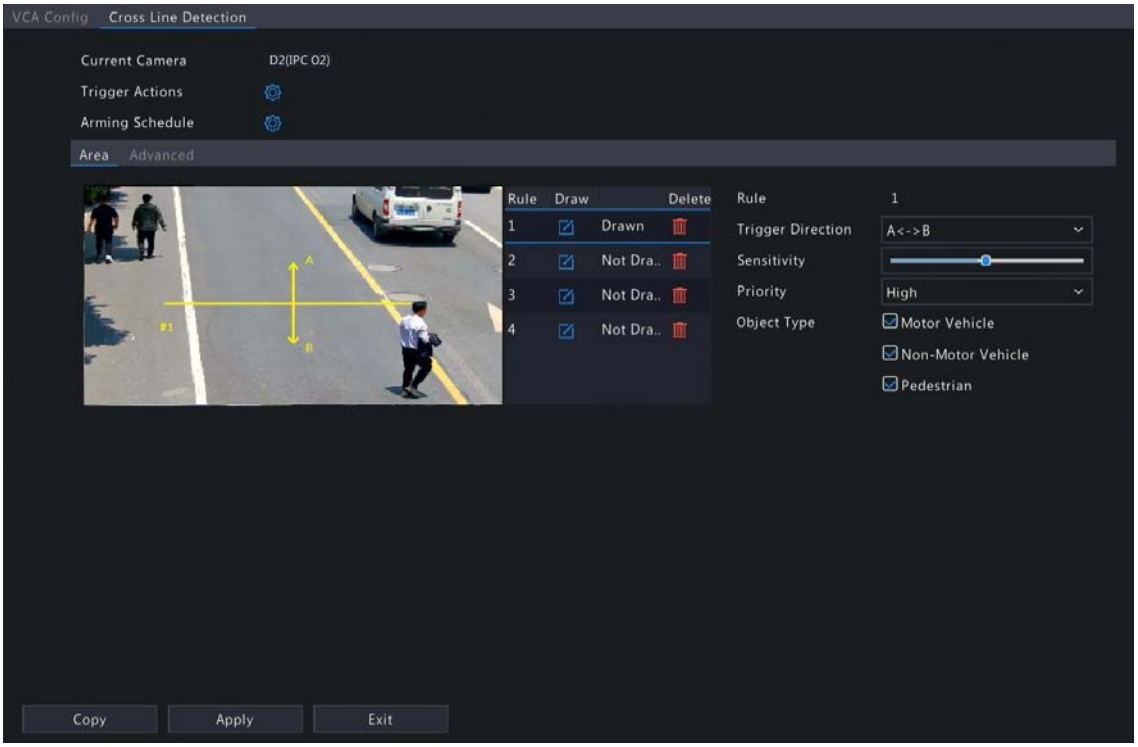
Note:

- 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.

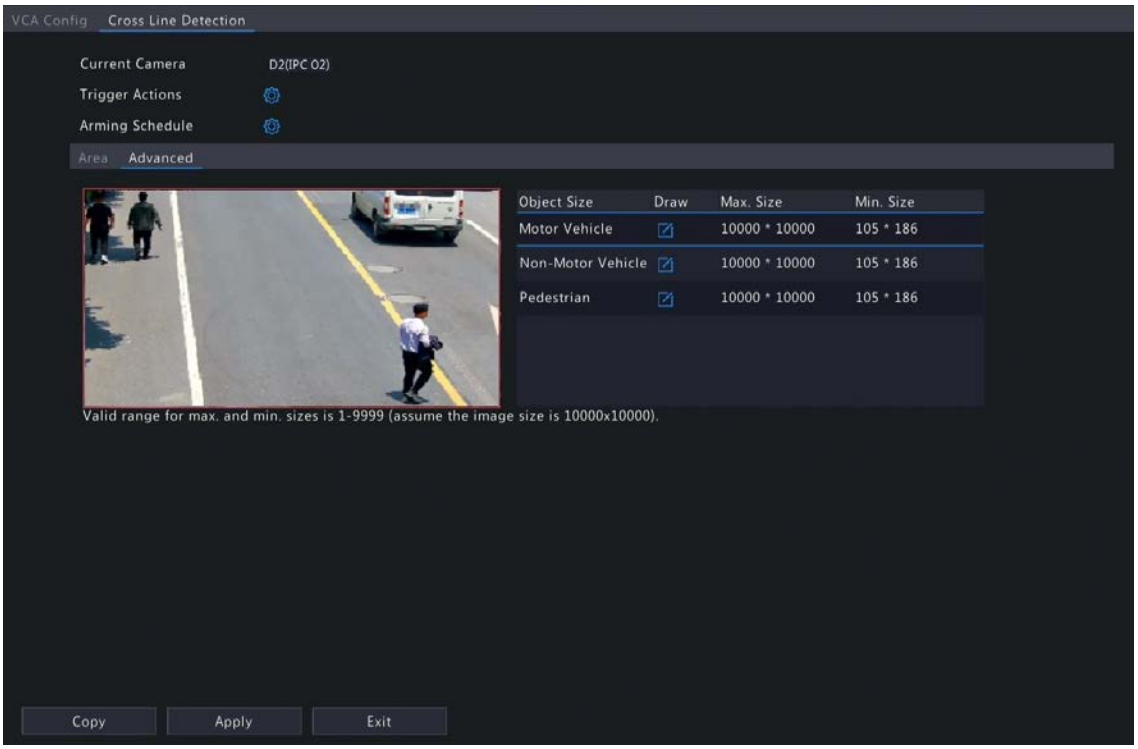
3. Select **Cross Line Detection** and click to configure it.



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 , and the full screen is displayed. Click on the image and drag to draw a detection line. The line defaults to A<->B direction. You can modify it as needed. Right-click to exit the full screen.
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 Smart Intrusion Prevention for details.

6.1.2.2 Intrusion Detection

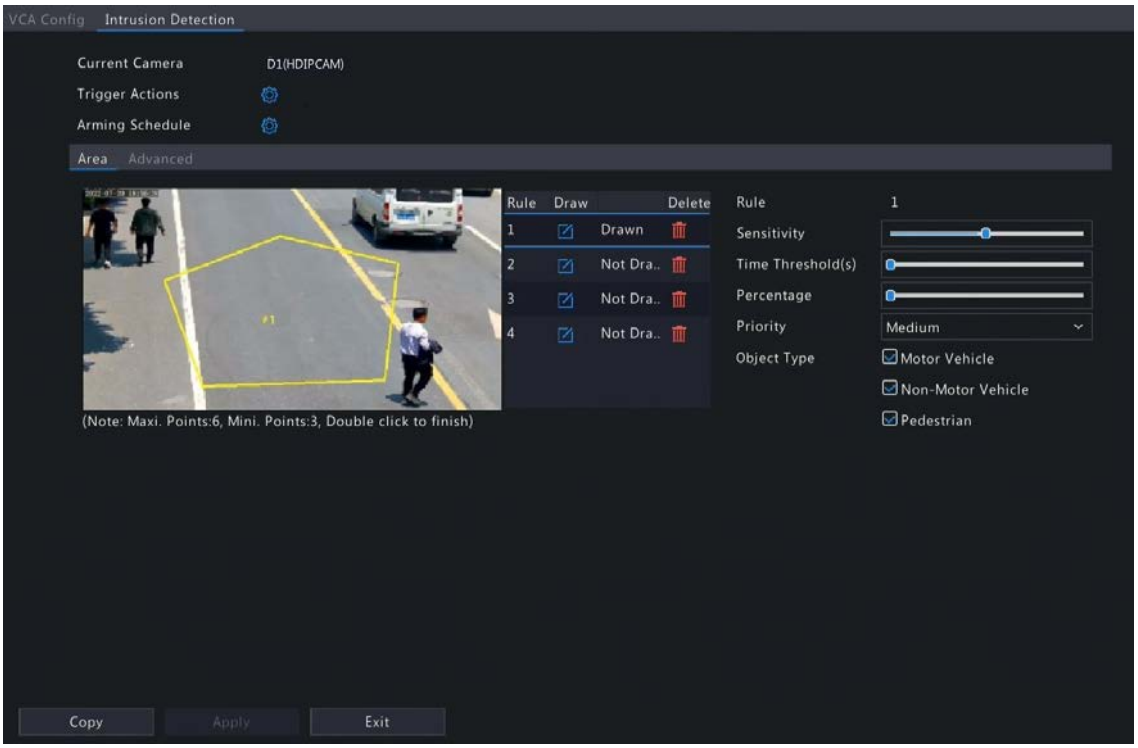
Intrusion detection detects objects entering a user-specified area and staying for a preset time. The NVR takes snapshots and reports an alarm when the detection rule is triggered.

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

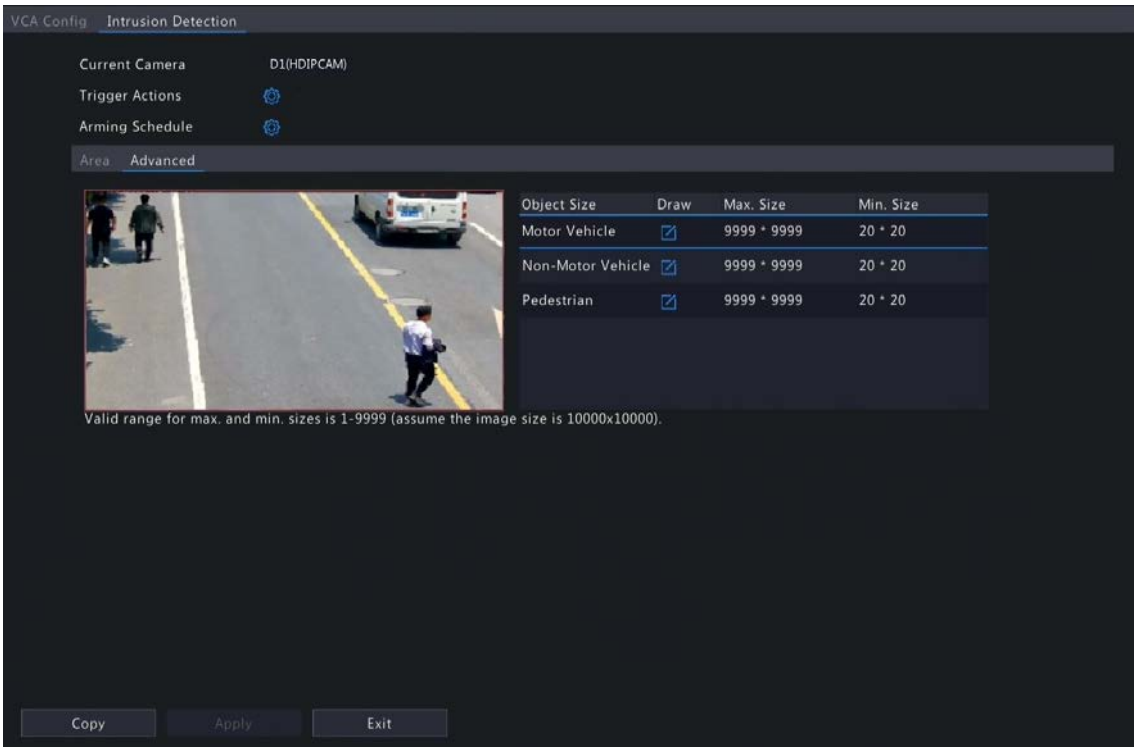
1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Intrusion Detection** and click to configure it.



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 the full screen is displayed, then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely 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 Elevator Entrance Detection for details.

6.1.2.3 Enter Area Detection

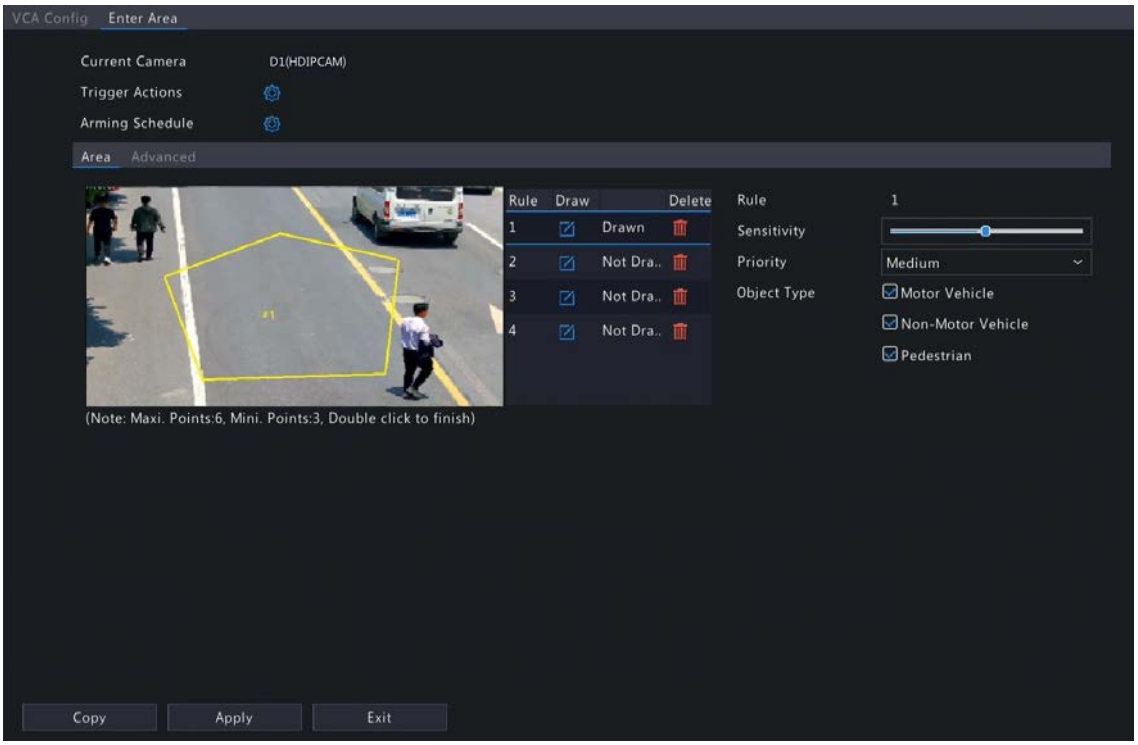
Enter area detection detects objects entering a user-specified area. The NVR takes snapshots and reports an alarm when the detection rule is triggered.

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

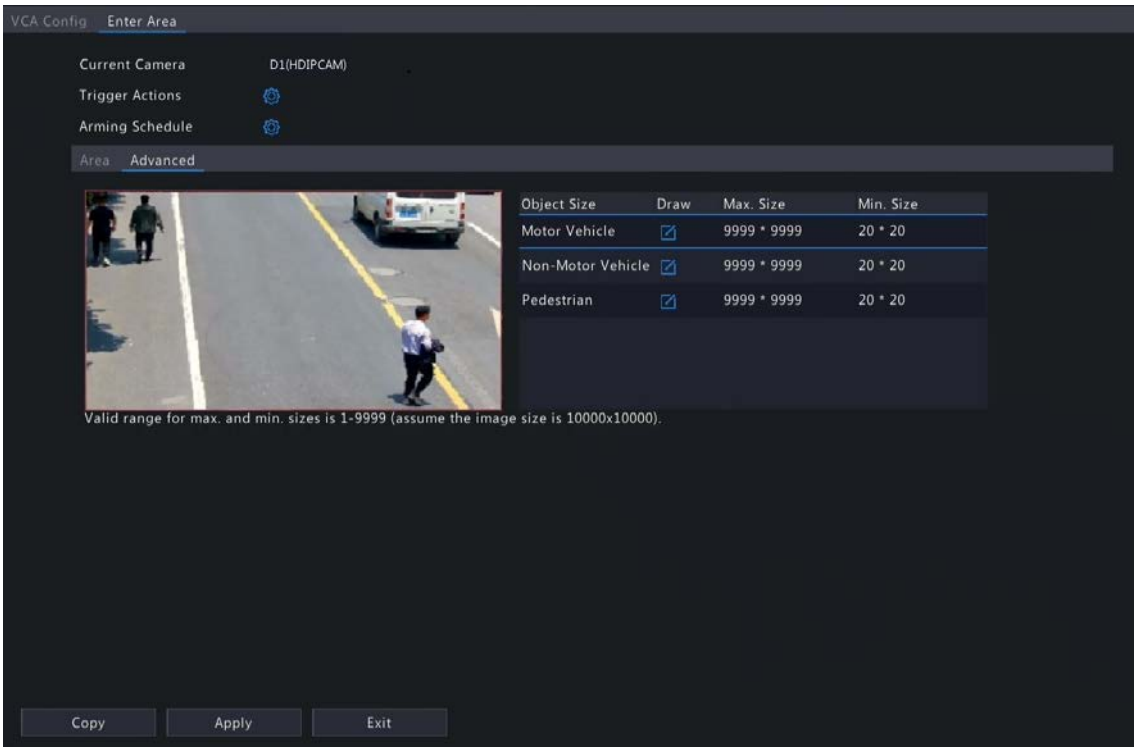
1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Enter Area** and click to configure it.



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 the full screen is displayed, then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely 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 Elevator Entrance Detection for details.

6.1.2.4 Leave Area Detection

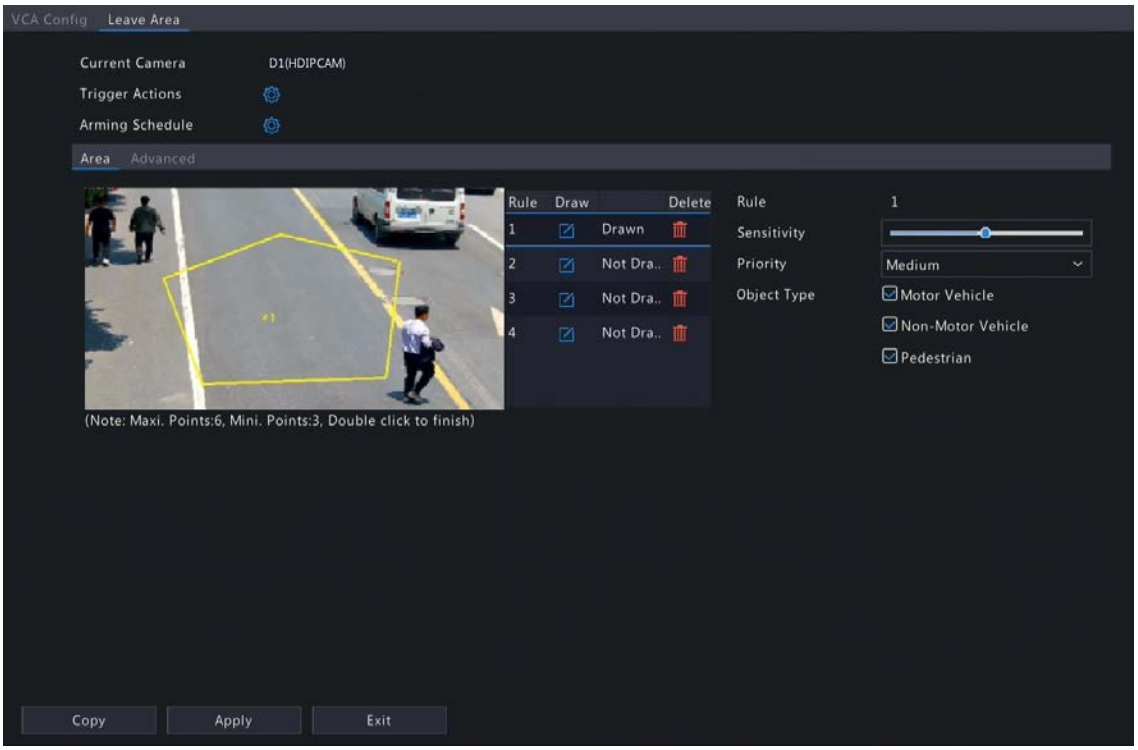
Leave area detection detects objects leaving a user-specified area. The NVR takes snapshots and reports an alarm when the detection rule is triggered.

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

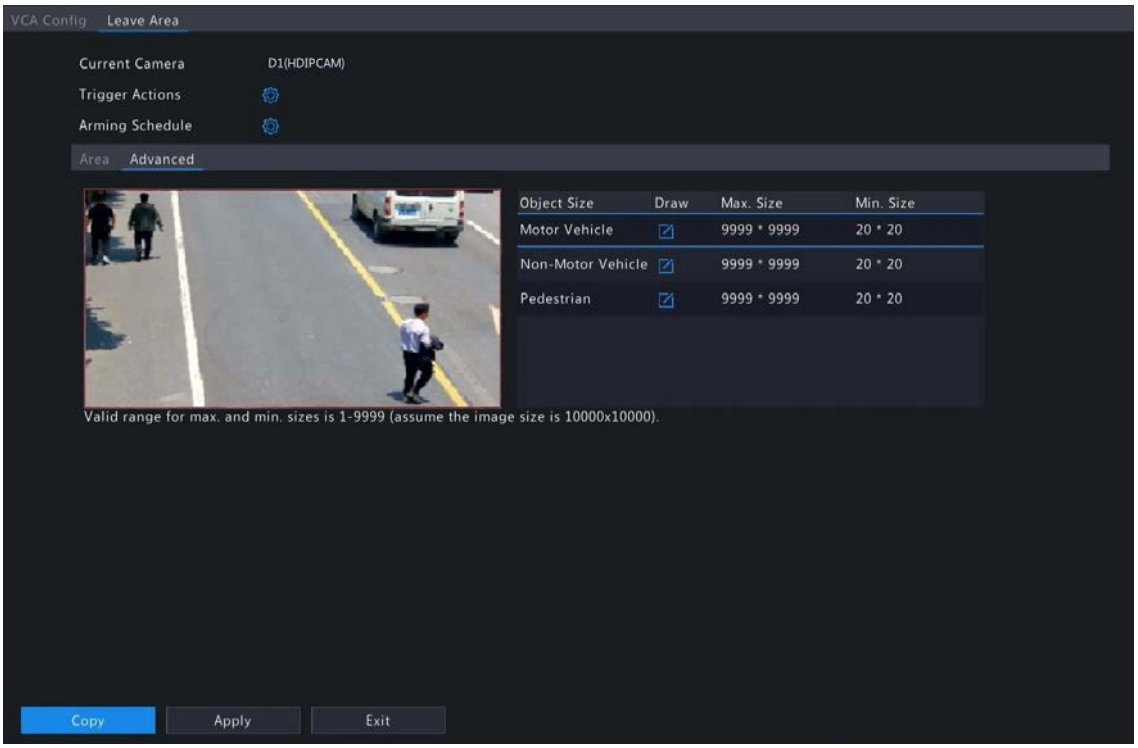
1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Leave Area** and click to configure it.



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 the full screen is displayed, then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely 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 Elevator Entrance Detection for details.

6.1.3 Behavior Analysis

Behavior analysis detects certain behavior in the specified detection area. The NVR takes snapshots and reports an alarm when a certain behavior is detected.

6.1.3.1 Fight/No Helmet/Calling/Rat/No Chef Hat/No Mask/Fall/Long Stay/Climbing/No Reflective Clothing/Using Mobile Phone/Elevator Entrance/Quick Moving/Evacuation Route Obstruction/Illegally Parked Motor Vehicle Detection

Function Introduction

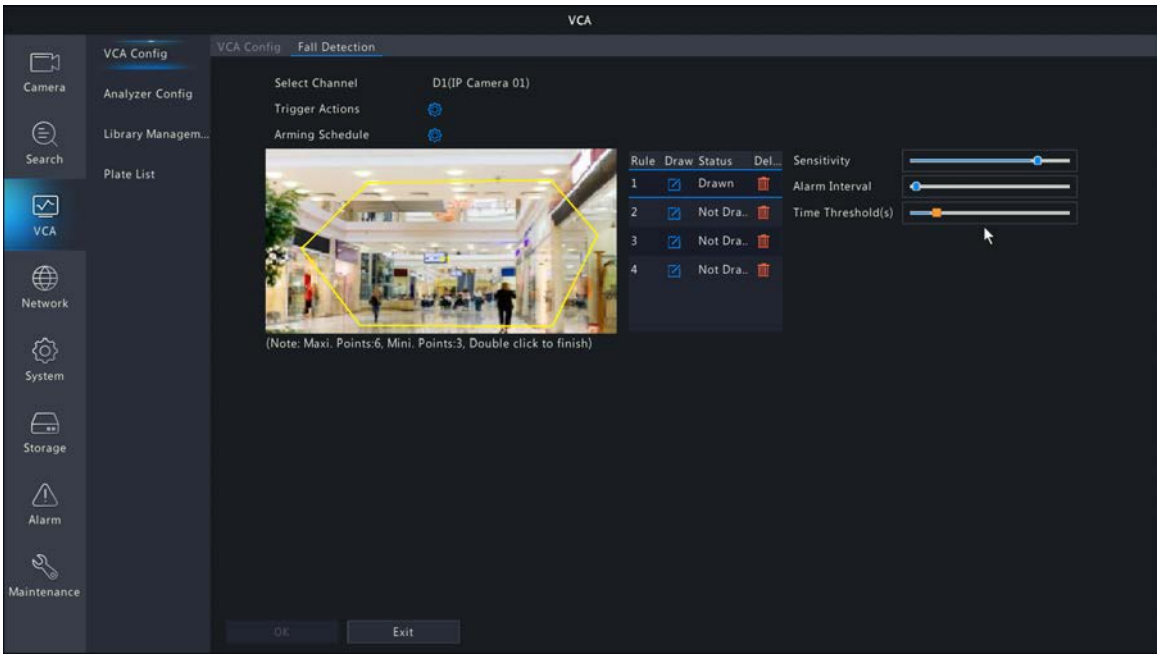
Function	Description
Fight Detection	Detect people fighting in specified detection areas and trigger an alarm.

Function	Description
No Helmet Detection	Detect people not wearing a safety helmet in specified detection areas and trigger an alarm.
Calling Detection	Detect people calling in specified detection areas and trigger an alarm.
Rat Detection	Detect rats in specified detection areas and trigger an alarm. This function is applicable to night scenes with IR illumination such as kitchens and barns.
No Chef Hat Detection	Detect people not wearing a chef hat in specified detection areas and trigger an alarm. This function is mainly used in kitchens or other similar scenes where wearing a chef hat is required.
No Mask Detection	Detect people not wearing a mask in specified detection areas and trigger an alarm.
Fall Detection	Detect people falling in specified detection areas and trigger an alarm. This function is suitable for keeping an eye on elderly people living alone or falling people.
Long Stay Detection	Detect people loitering in specified detection areas and trigger an alarm.
Climbing Detection	Detect people climbing high in the specified detection area and trigger an alarm.
No Reflective Clothing Detection	Detect people not wearing reflective clothing in specified detection areas and trigger an alarm.
Using Mobile Phone Detection	Detect people using mobile phone in specified detection areas and trigger an alarm.
Elevator Entrance Detection	Detect electric mopeds or bicycles entering the specified detection area of the elevator scene and trigger an alarm. **Note:** See Elevator Entrance Detection for detailed configuration.
Quick Moving	Detect people moving quickly in specified detection areas and trigger an alarm. This function is mainly used in scenes where it is required to detect people running or cycling quickly.
Evacuation Route Obstruction	Detect non-motor vehicle or other objects obstructing the evacuation route and trigger an alarm.
Illegally Parked Motor Vehicle	Detect motor vehicle illegally parking in the specified detection areas and trigger an alarm. This function is mainly used to detect illegally parked motor vehicles in the prohibited parking areas.

Configure Behavior Analysis

The configuration steps for the above functions are similar. The following takes fall detection as an example.

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Fall 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 the full screen is displayed, then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely fall behaviors will be detected, but the false alarm rate will increase.
Alarm Interval	The device keeps detecting fall in the scene until the alarm is ended. This parameter can refrain the device from reporting the same alarm repeatedly within a specified time range. **Note:** This parameter is only available for rat detection and fall detection.
Time Threshold (s)	Set the time threshold by dragging the slider. If a target stays in the detection area for the set time, an alarm will be triggered. Set an appropriate value according to the actual scene or requirements. **Note:** This parameter is only available for long stay detection and fall detection.

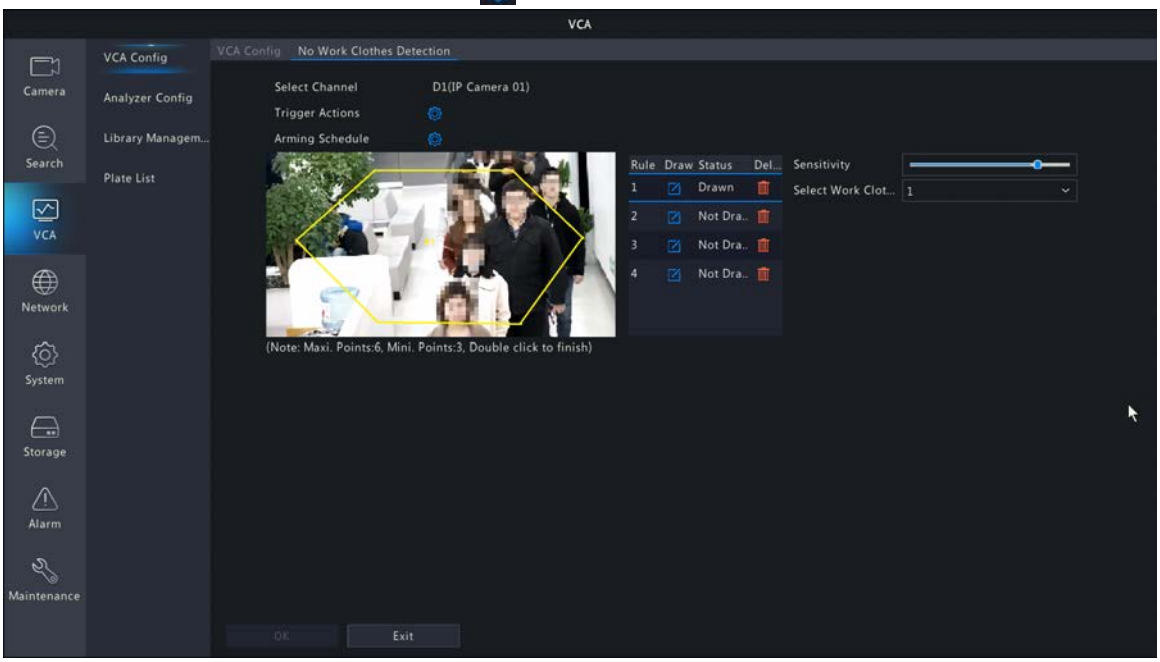
5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. (Optional) To apply the same settings to other cameras, click **Copy**, select the desired setting(s) and camera(s), and then click **OK**.

6.1.3.2 No Work Clothes Detection

No work clothes detection compares the work clothes images in the specified detection area with the images in the work clothes library to detect people not wearing the work clothes. The NVR takes snapshots and reports an alarm when the detection rule is triggered.

Please configure Work Clothes Library first before using this function.

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **No Work Clothes Detection** and click to configure it.



4. Select a work clothes library with imported work clothes images.
5. Set detection rules. The 4 detection rules shall be set separately. The following takes Rule 1 as an example.

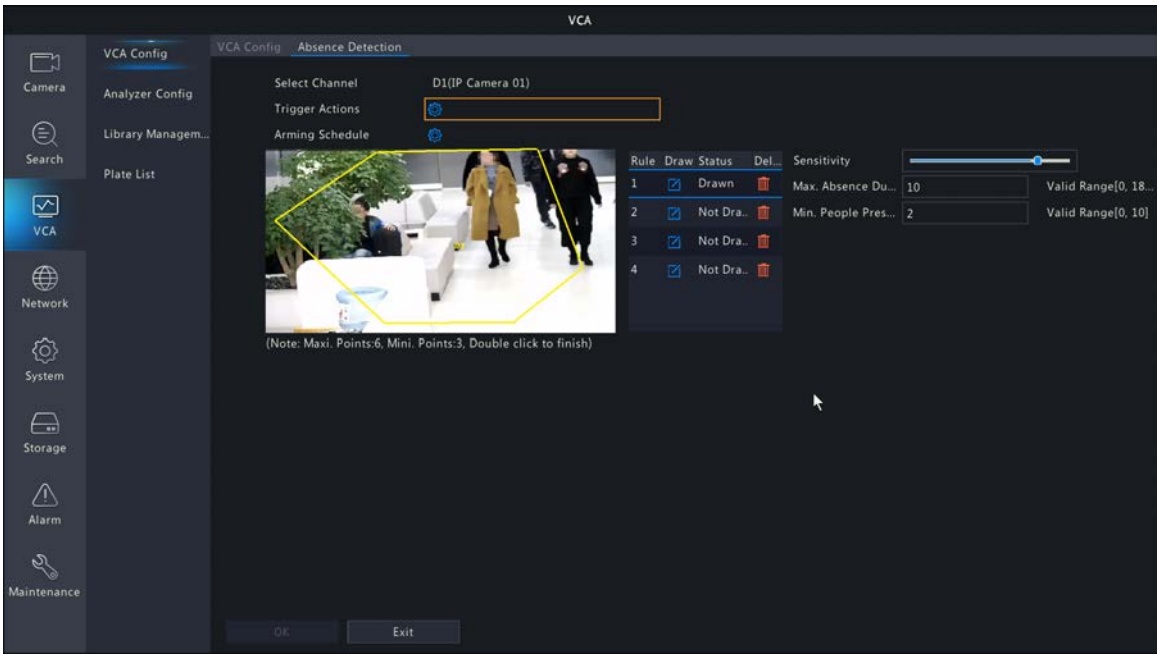
Parameter	Description
Detection Area	Select Rule 1, click , and the full screen is displayed, then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely no work clothes behaviors will be detected, but the false alarm rate will increase.

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**.

6.1.3.3 Absence Detection

Absence detection detects people absent from the specified detection area. The NVR takes snapshots and triggers an alarm when the absence duration exceeds the set value and the number of people present is less than the set value.

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

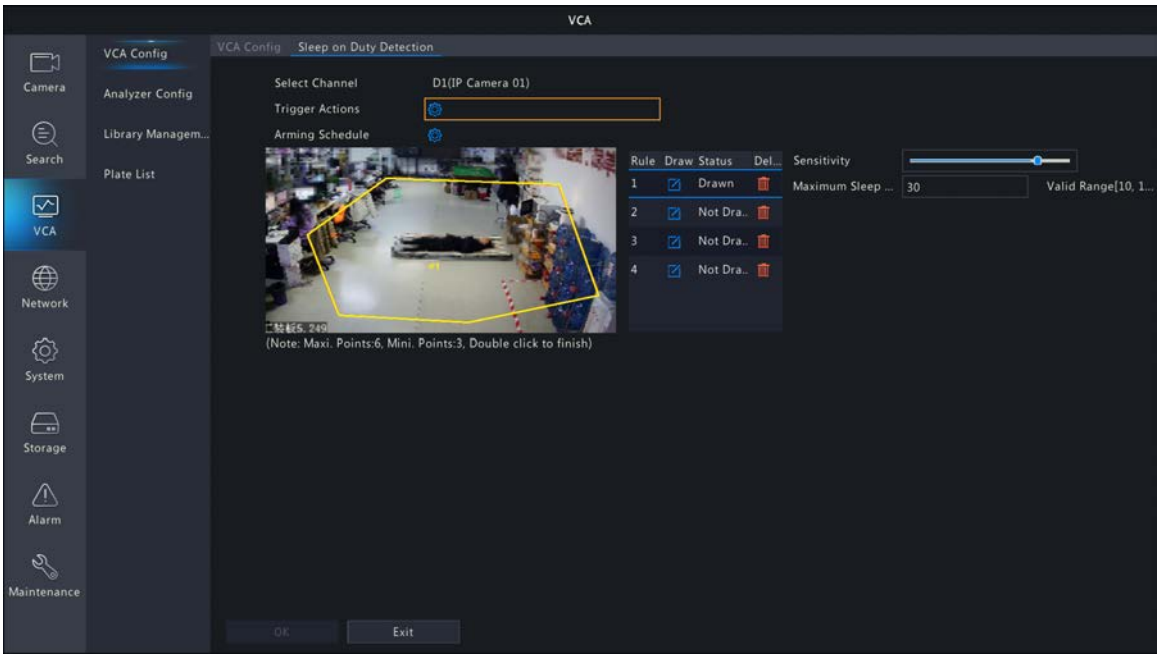
Parameter	Description
Detection Area	Select Rule 1, click , and the full screen is displayed, then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely absence behaviors will be detected, but the false alarm rate will increase.
Max. Absence Duration(s)	An alarm is triggered when an object is absent from the detection area for the set duration. Range: 0-1800.
Min. People Present	An alarm is triggered when the number of people present in the detection area is less than the set value. Range: 0-10.

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

6.1.3.4 Sleep on Duty Detection

Sleep on duty detection detects people on duty sleeping in the specified detection area and remaining 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 **Sleep on Duty 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.

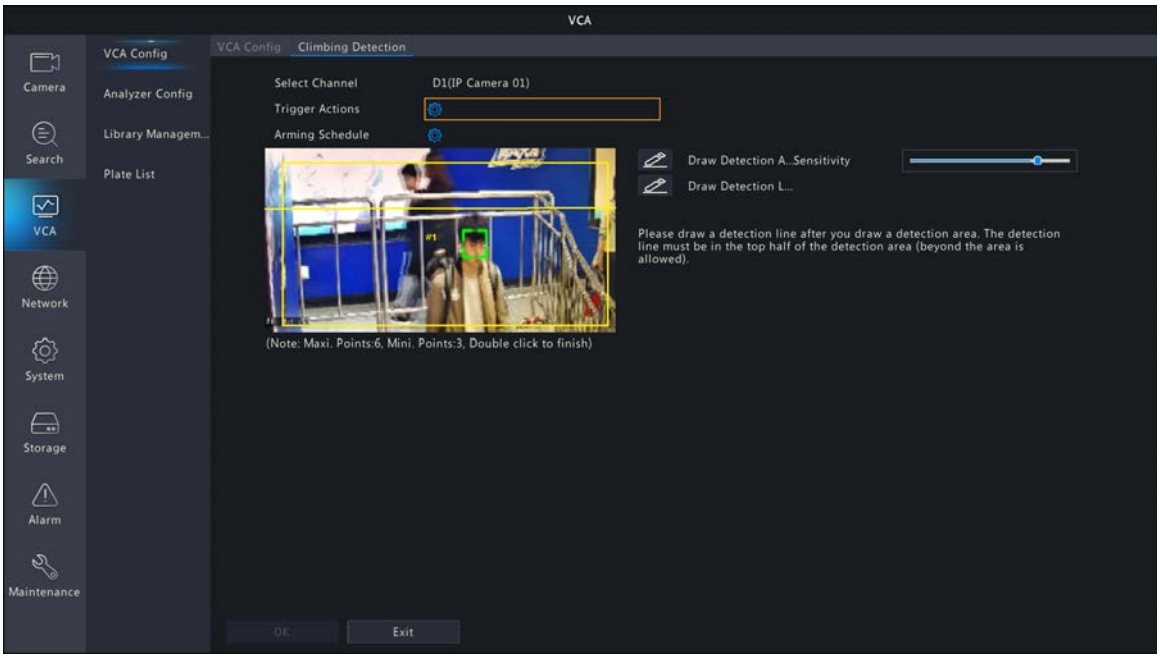
Parameter	Description
Detection Area	Select Rule 1, click , and the full screen is displayed, then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely sleep on duty behaviors will be detected, but the false alarm rate will increase.
Maximum Sleep Duration(s)	An alarm is triggered when people is sleeping in the detection area for the set duration. Range: 10-1800.

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

6.1.3.5 Climbing Detection

Climbing detection detects people climbing high in the specified detection 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 **Climbing Detection** and click to configure it.



4. Set the detection rule. Only one detection rule is allowed.

   (1) Click , and the full screen is displayed, then draw a detection area.

   Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen.

   (2) Click , and the full screen is displayed, then draw a detection line. Click on the image and drag to draw a straight line. Right-click to exit the full screen.

   Note: The detection line must be in the top half of the detection area (beyond the area is allowed).

5. Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely climbing behaviors will be detected, but the false alarm rate will increase.
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**.

6.1.4 Object Detection

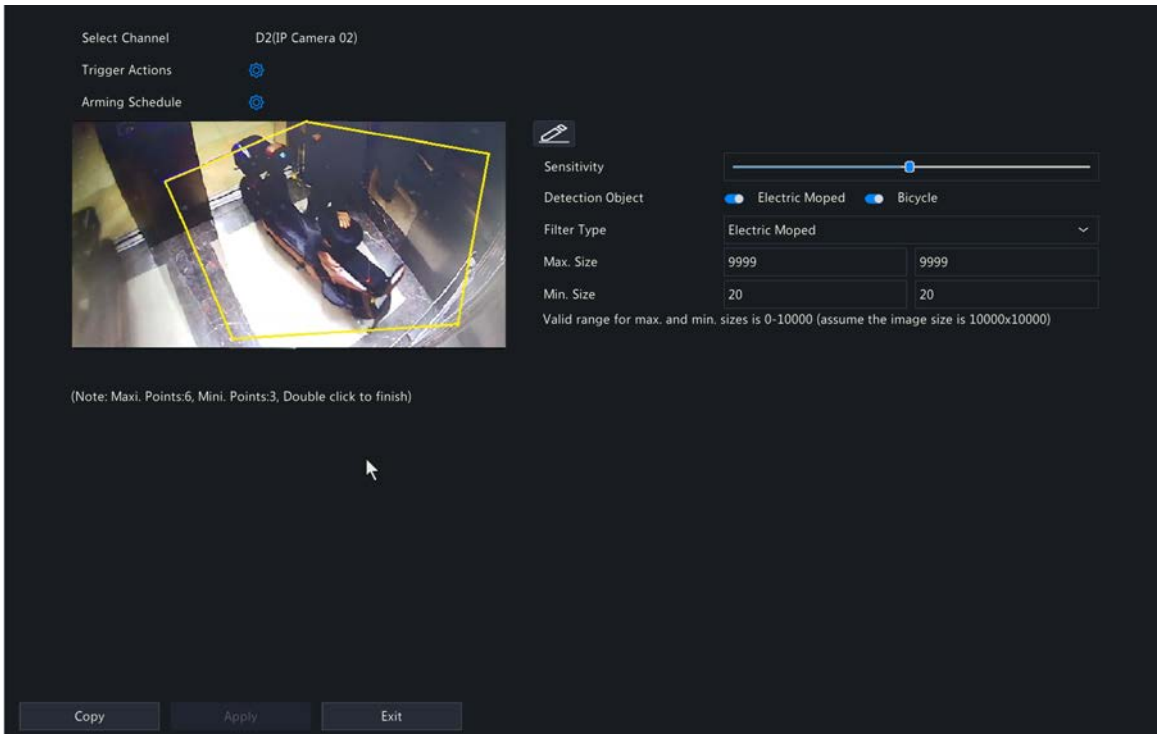
Object detection detects certain objects in the specified area. The NVR takes snapshots and reports an alarm when the detection rule is triggered.

6.1.4.1 Elevator Entrance Detection

Elevator entrance detection detects electric mopeds or bicycles entering the specified detection area of the elevator scene. The NVR takes snapshots and reports an alarm when the detection rule is triggered.

Configure Elevator Entrance Detection

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



4. Set the detection rule. Only one detection rule is allowed.

Parameter	Description
Detection Area	Click , and the full screen is displayed, then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen.
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely elevator entrance behaviors will be detected, but the false alarm rate will increase.
Detection Object	Select the object(s) to be detected, including **Electric Moped** and **Bicycle**.
Filter Type	Select a filter type and set the maximum size and minimum size.
Max./Min. Size	Select a filter type, and then enter the maximum size and minimum size manually. • The width and height of the maximum size must be greater than those of the minimum size. • The device filters objects larger than the maximum size or smaller than the minimum size. Please set the appropriate size based on the actual requirement and application scenario.

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

   Note: The arming schedule, detection area, and parameter configuration can be copied to other channels.
7. 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.

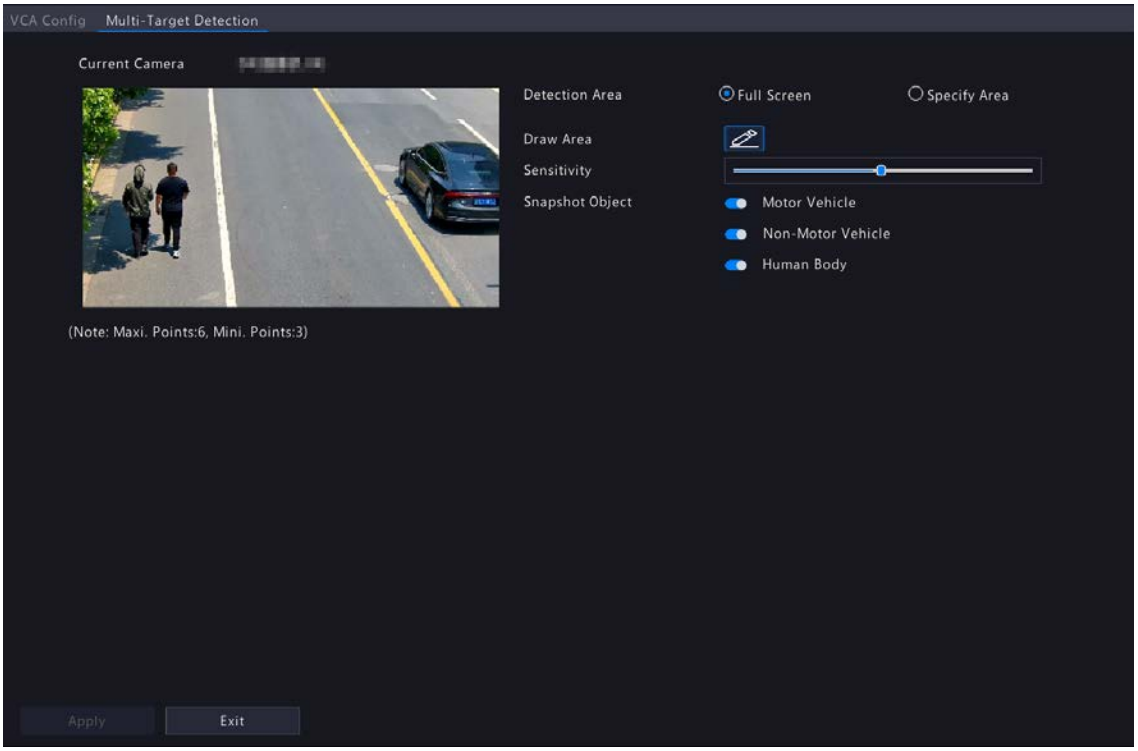
2. Click a snapshot to view detailed information. See Smart Intrusion Prevention for details.

6.1.4.2 Multi-Target Detection

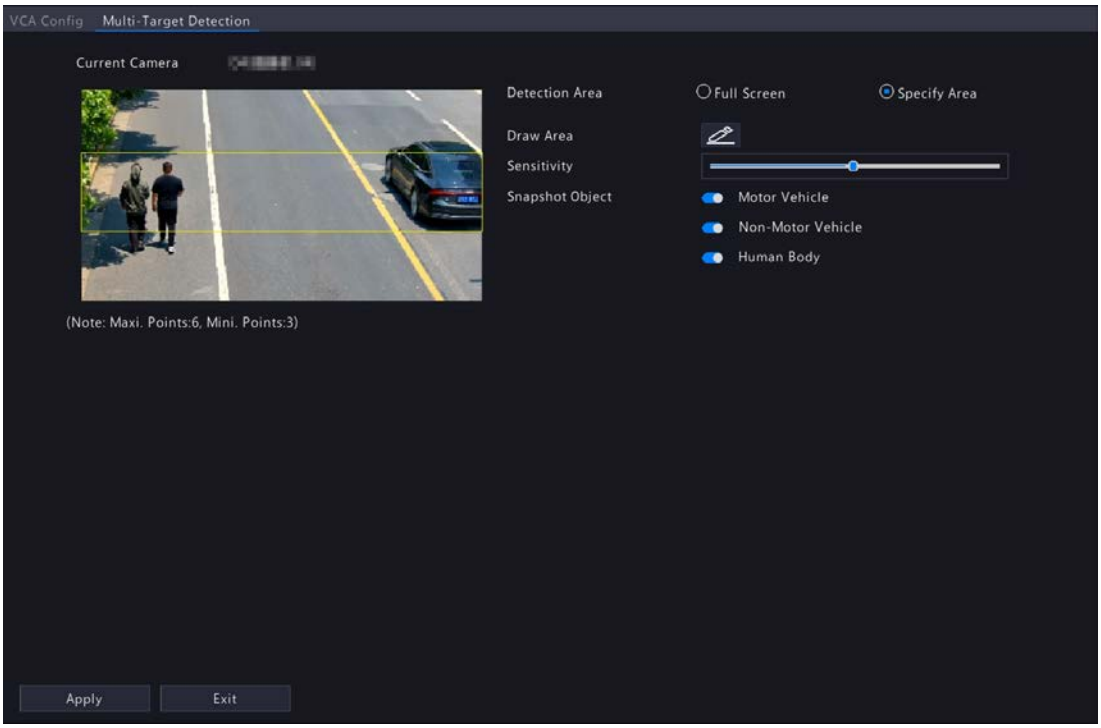
Multi-target detection monitors the live video for motor vehicles, non-motor vehicles, and pedestrians; once detection, a snapshot and alarm will be triggered.

Configure Multi-Target Detection

1. Go to **Menu > VCA > VCA Config**.
2. Select the camera from the list.
3. Select the **Multi-Target Detection** function, and then click .



4. Set the detection area. The device supports full-screen detection or specified area detection, and only one detection area can be set.
   - Full screen: The device will detect targets in the entire live view area.
   - Specified area: The device will only detect targets within the specified area of the live video. Select **Specify Area**, then click to switch to full screen and display the default detection area. Adjust the position of the detection area or redraw the detection area. Right-click to exit the full-screen view.



- Default detection area: The default detection area is a rectangular shape with four corners and cannot be edited, only its position can be adjusted. Hover the mouse over anywhere in the detection box, then drag the entire detection box to the desired position.
- Redraw detection area: You can draw an irregular area with 3 to 6 points. Click anywhere on the image and drag to draw a line. Repeat the action to draw more lines (3-6 lines). Double-click to form an enclosed area.

5. Set the sensitivity by dragging the slider.

   The higher the sensitivity, the more likely smaller targets will be detected, but the false alarm rate will increase.

6. Set snapshot objects, including motor vehicles, non-motor vehicles, and pedestrians.
7. Click **Apply**.

View Real-time Snapshots

1. Right-click to return to the preview page, then right-click again and choose **Preview Mode > Smart Mode**. The real-time snapshots will be displayed on the right side.
2. Different snapshots will display different attributes. For detailed information, see Smart Preview.

6.1.4.3 Traffic Monitoring

Receive traffic monitoring alarm for IPCs.

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Check to enable **Traffic Monitoring**, then the NVR will receive an alarm form IPCs. If unchecked, the alarm will not be received.

   Note: Please log in to the Web interface of IPC to configure traffic monitoring function. See *Network Camera User Manual* for details.

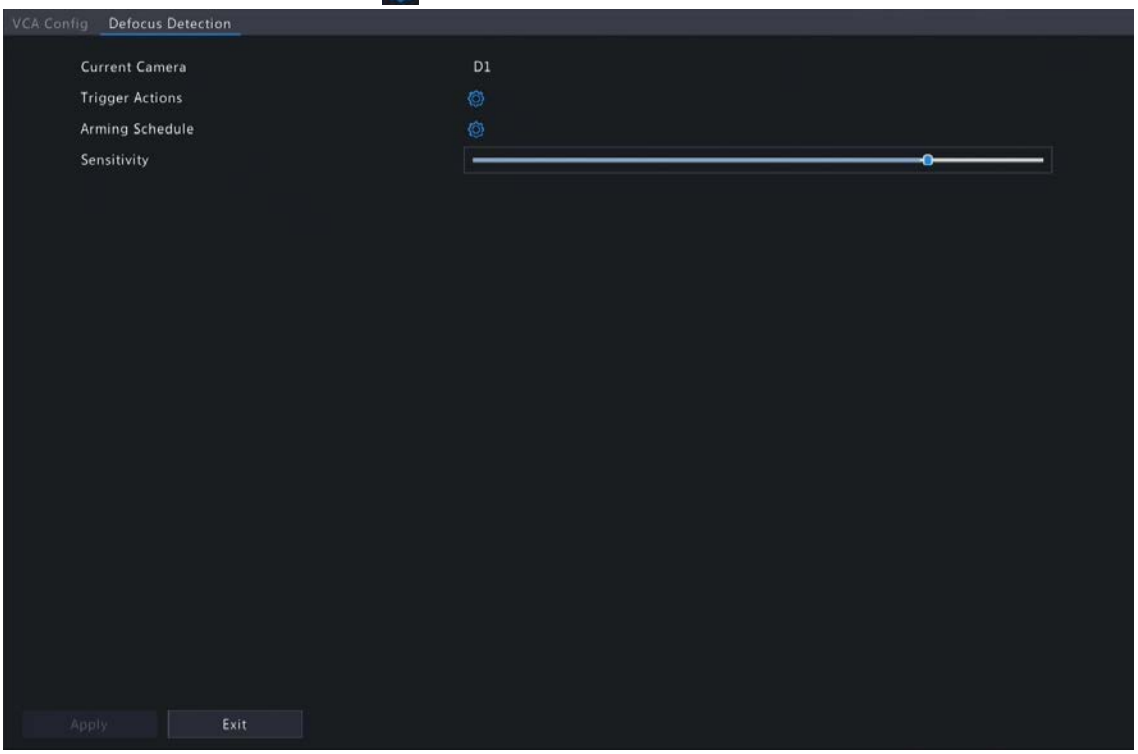
6.1.5 Exception Detection & Statistics

Exception detection and statistics includes defocus detection, scene change, object removed, and object left behind detection.

6.1.5.1 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.

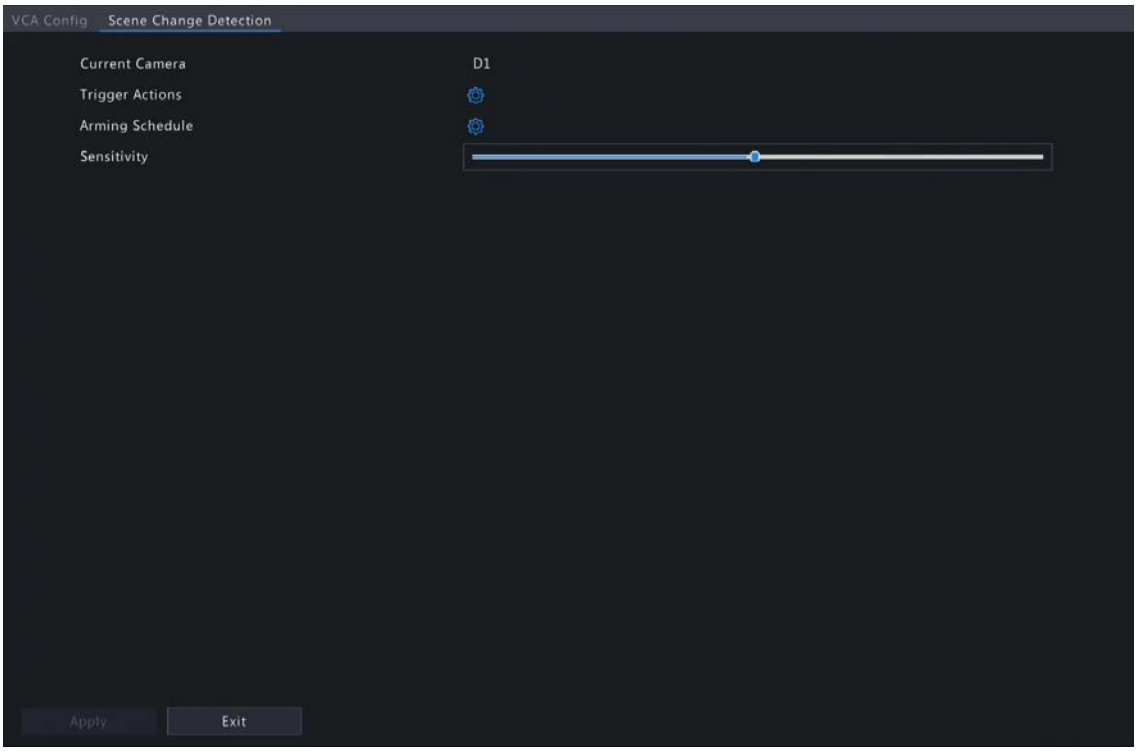


4. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
5. Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely defocus will be detected, but the false alarm rate will increase.
6. Click **Apply**.

6.1.5.2 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.

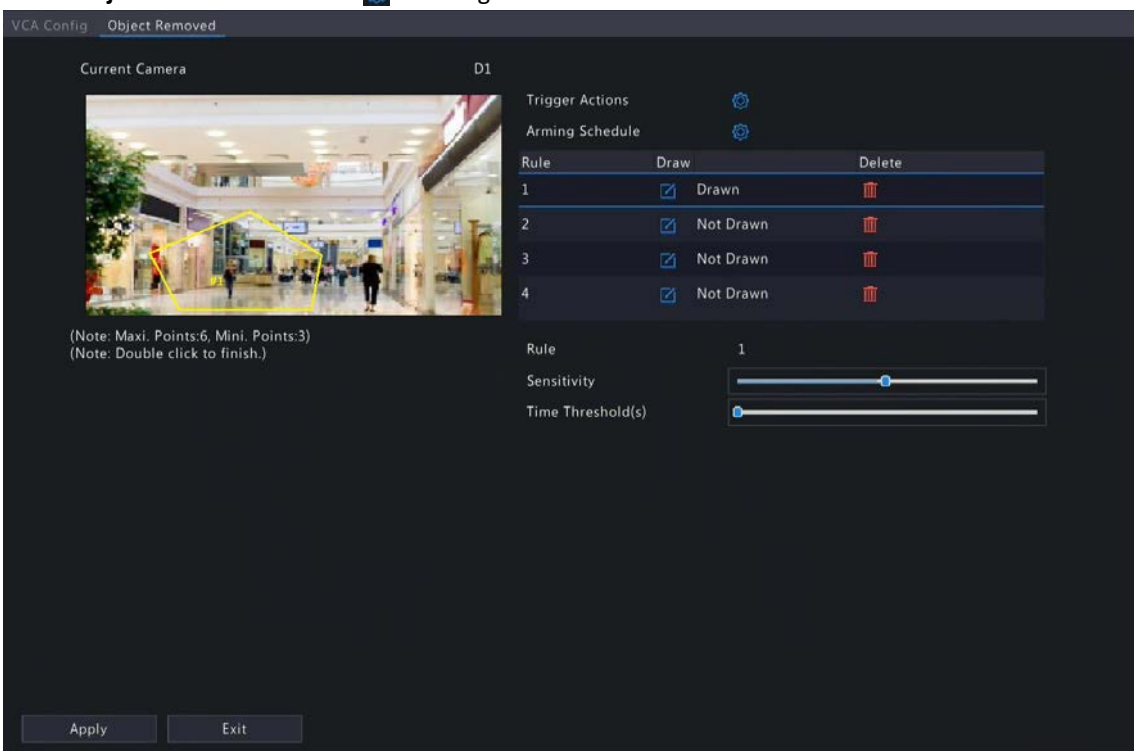


4. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
5. Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely scene change behaviors will be detected, but the false alarm rate will increase.
6. Click **Apply**.

6.1.5.3 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.

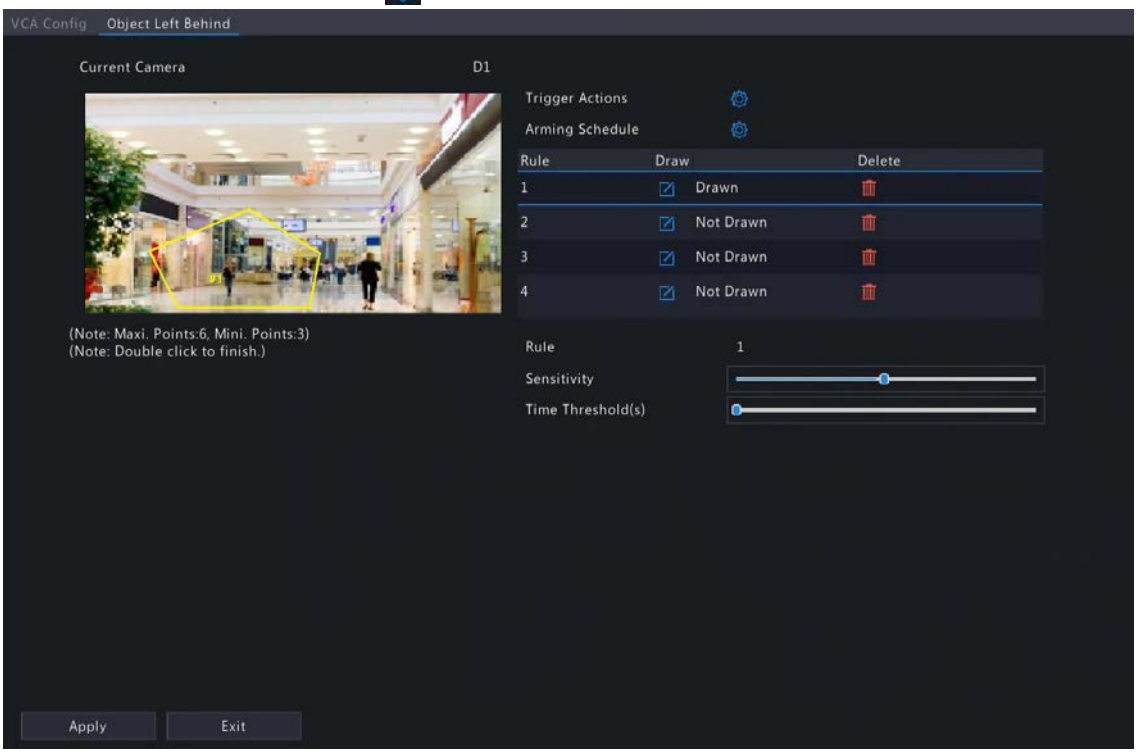
Parameter	Description
Detection Area	Select Rule 1, click , and the full screen is displayed, then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely 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**.

6.1.5.4 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.

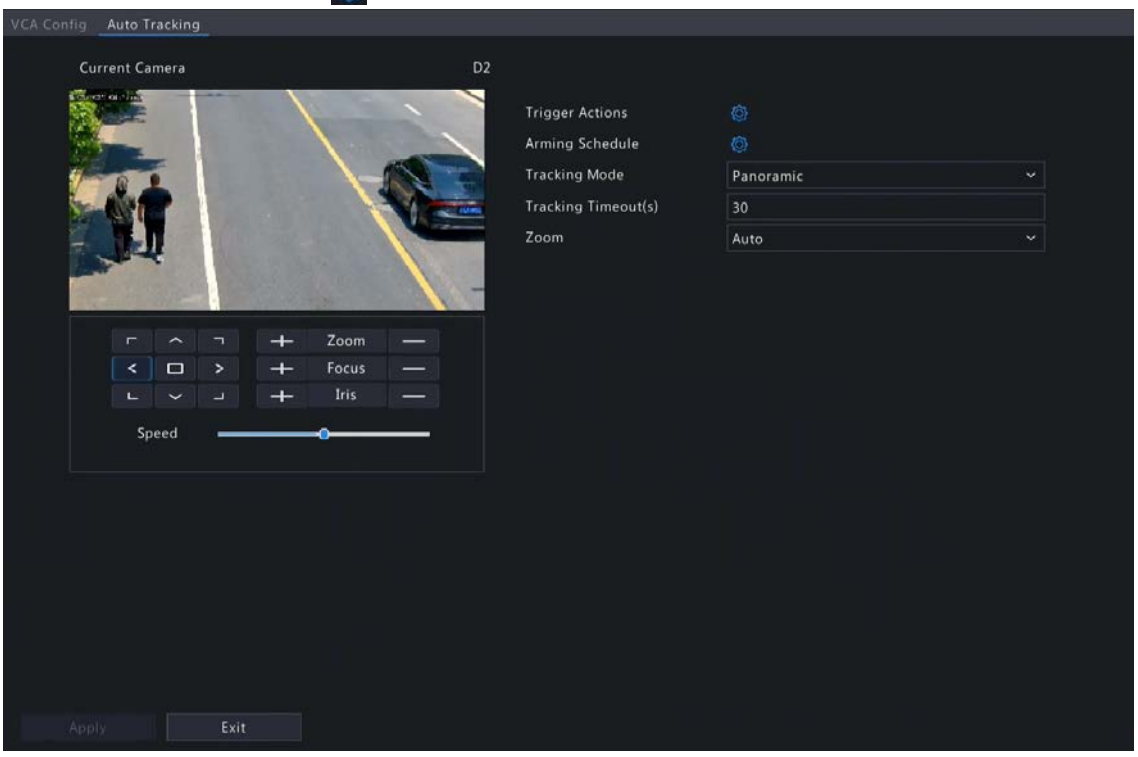
Parameter	Description
Detection Area	Select Rule 1, click , and the full screen is displayed, then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely 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**.

6.1.5.5 Auto Tracking

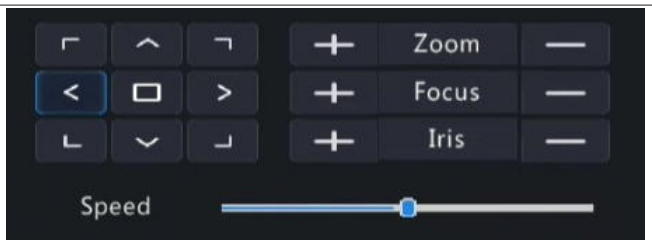
Auto tracking detects moving objects in the live video and tracks the first object detected.

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.

Parameter	Description
	
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**.

6.1.6 Temperature Detection

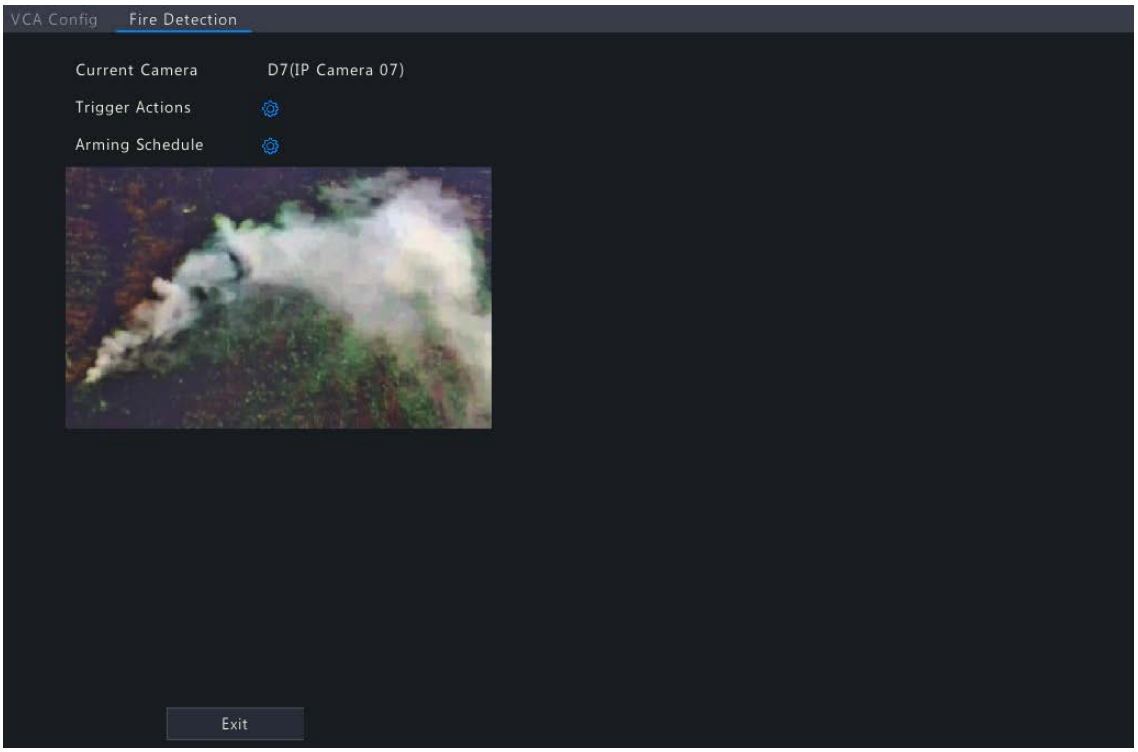
Temperature detection includes fire detection, smoking detection, temperature detection, smoke and fire detection.

6.1.6.1 Fire Detection

Receive fire detection alarm information from IPCs. If the IPC detects a fire or other high temperature in a specified area, it will take snapshots and report an alarm to NVR.

Note: This function requires the camera support (camera-side analysis).

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

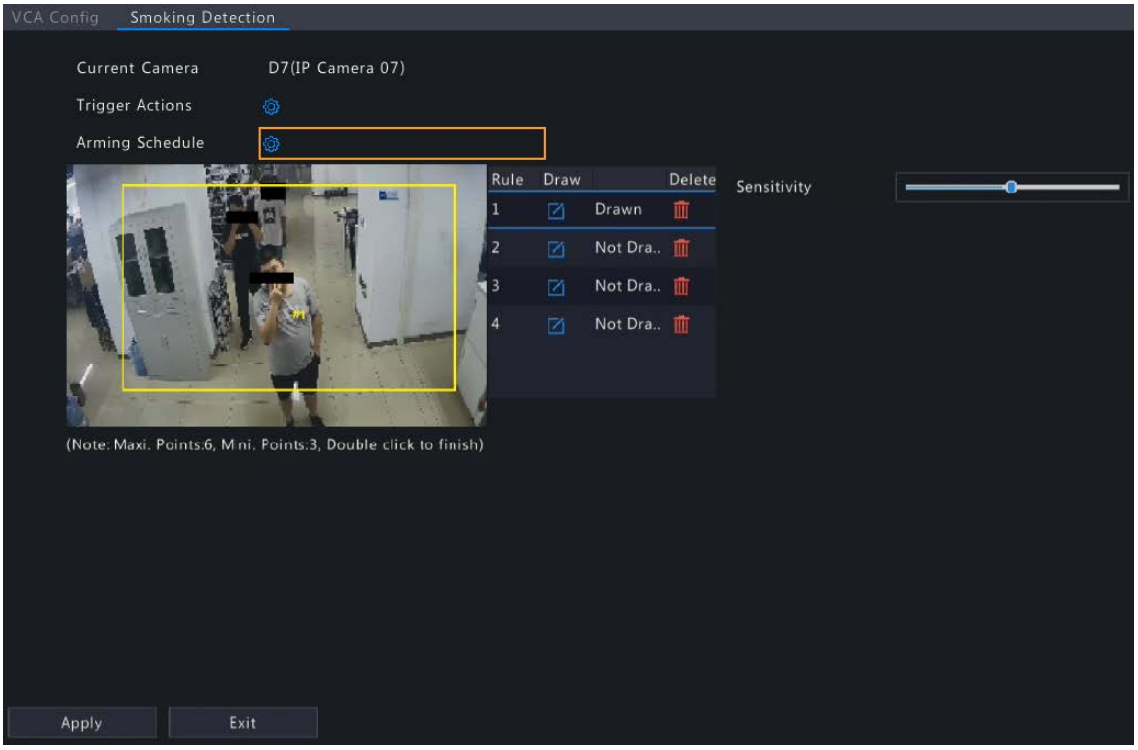


4. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.

6.1.6.2 Smoking Detection

Smoking detection detects people smoking in a specified area in live video. 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 **Smoking 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 the full screen is displayed, then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely smoking behaviors will be detected, but the false alarm rate will increase.

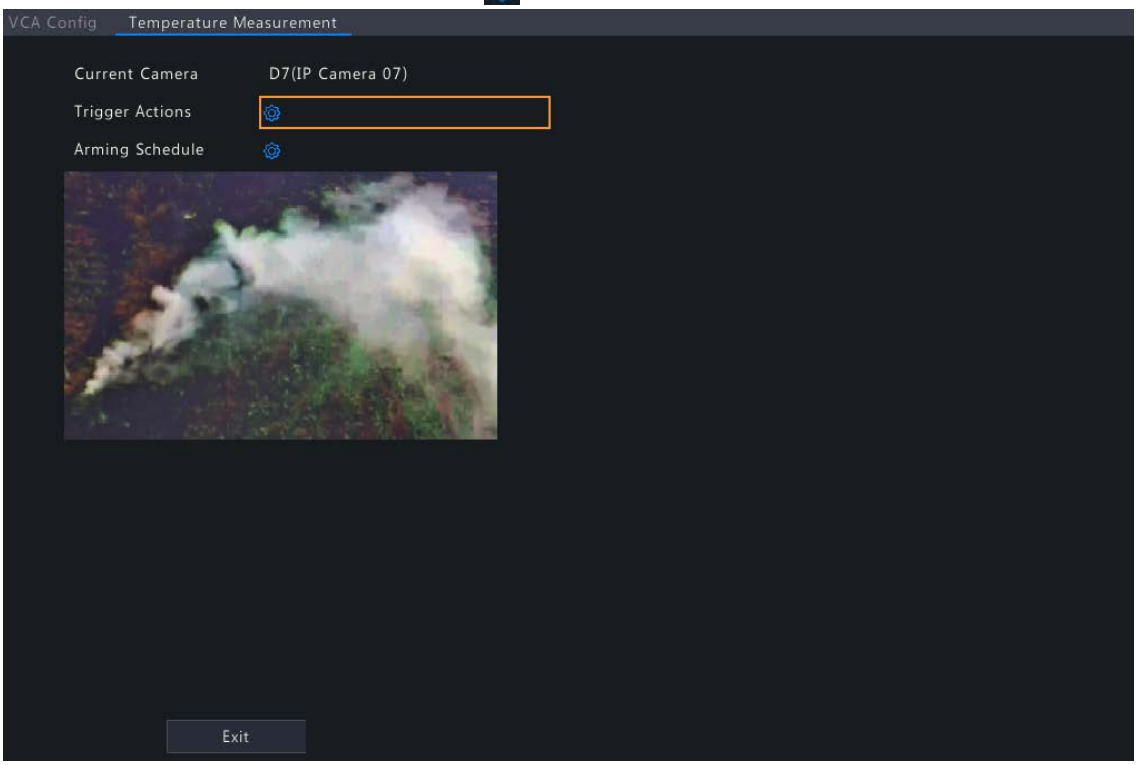
5. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.
6. Click **Apply**.

6.1.6.3 Temperature Measurement

Receive temperature measurement alarm information from IPCs. The IPC detects the temperature of objects in a specified area, and it will take snapshots and report an alarm to NVR when the detection rule is triggered.

Note: This function requires the camera support (camera-side analysis).

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



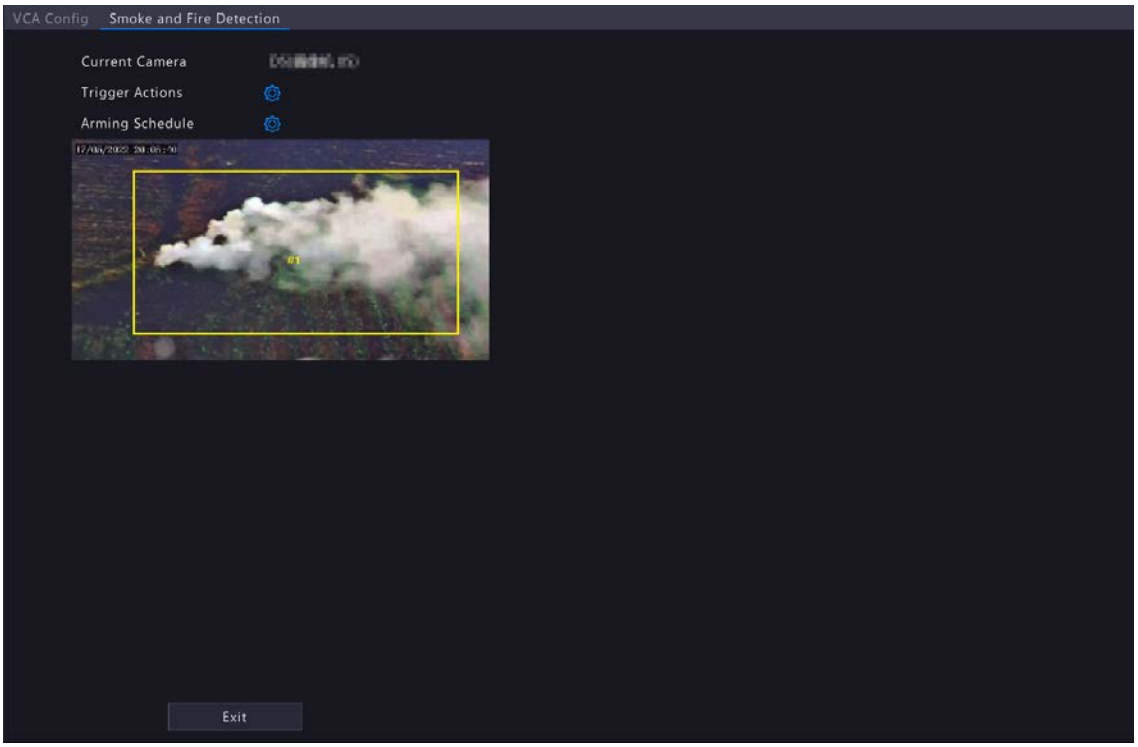
4. Set the alarm-triggered actions and arming schedule. See Alarm-triggered Actions and Arming Schedule for details.

6.1.6.4 Smoke and Fire Detection

Smoke and fire detection monitors the live video for smoke and fire; once detected, a snapshot and alarm will be triggered.

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

2. Select the camera from the list.
3. Select the **Smoke and Fire Detection** function, and then click .



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

Item	Description
Detection area	Click , and then move the mouse to the live video on the left side to draw detection areas. You can draw irregular areas with 3 to 6 points. Click on the image and drag to draw a line. Repeat the action to draw more lines (3 to 6 lines). Double-click to form an enclosed area. **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 smoke and fire will be detected, but the false alarm rate will increase.

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和Arming Schedule.
6. Click **Apply**.

6.1.7 People Counting

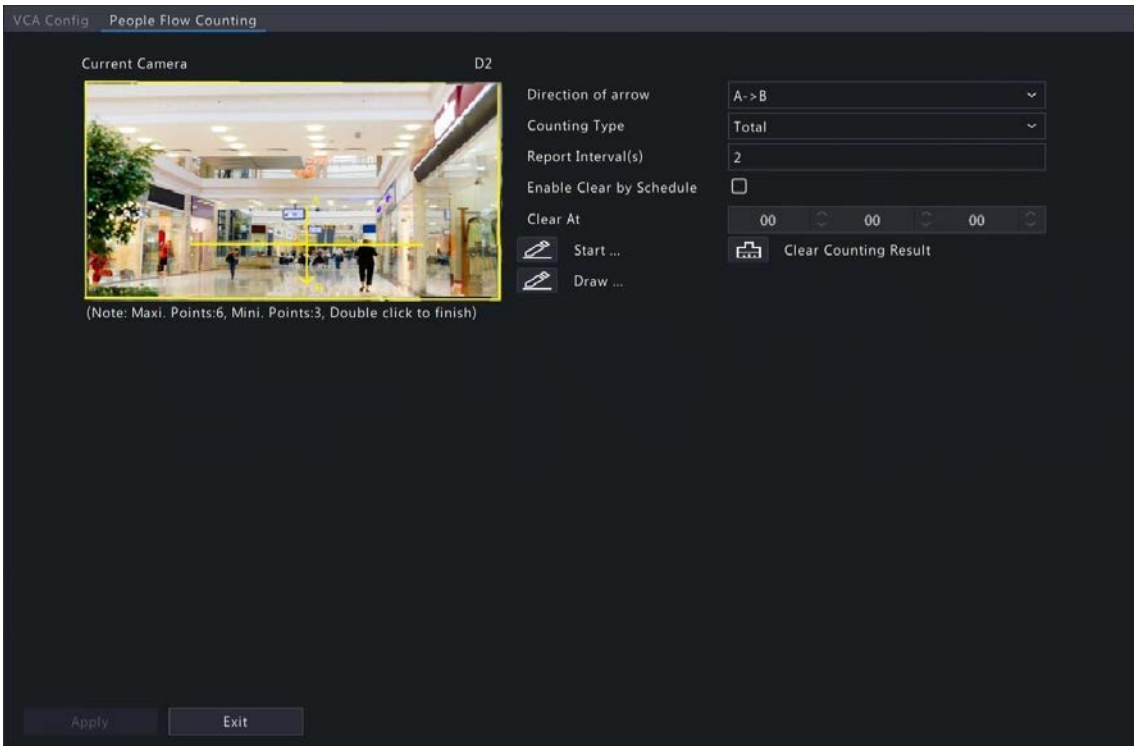
People counting includes people flow counting and crowd density monitoring.

6.1.7.1 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 to enter the full screen and then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen.
Draw Tripwire	Click to enter the full screen and then draw a tripwire. Only 1 tripwire is allowed. Right-click to exit the full screen.
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.

Parameter	Description
	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.
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**.

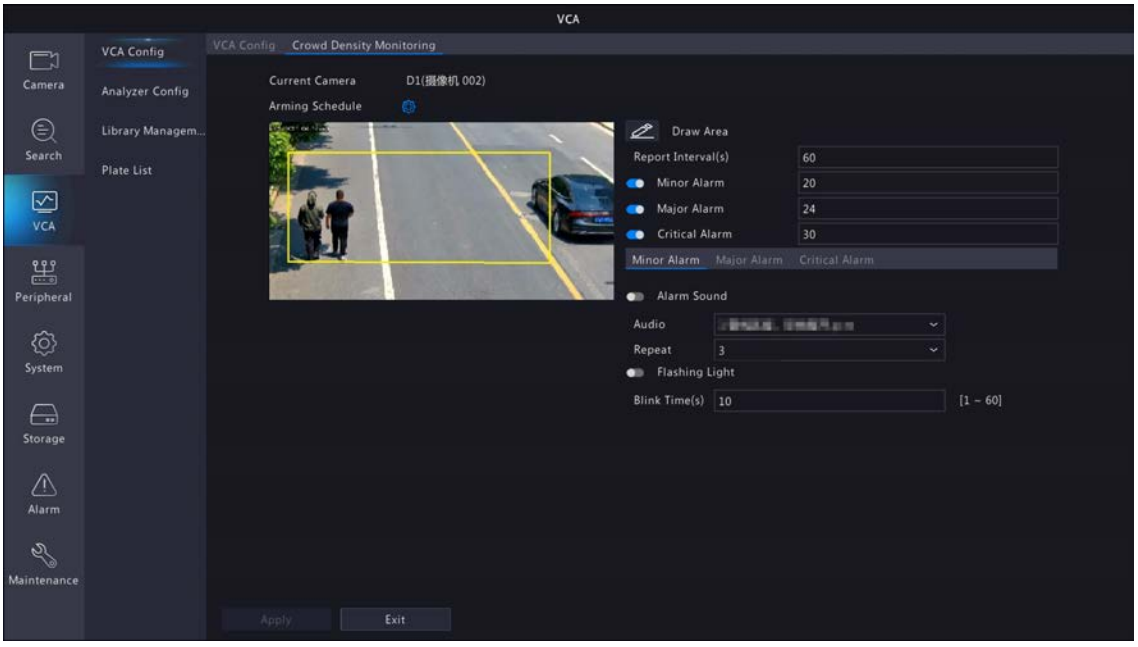
View Real-time Statistics

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.

6.1.7.2 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.

Parameter	Description
	• Draw an area: Click , and the full screen is displayed. 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. Right-click to exit the full screen.
Report Interval(s)	Set the time interval for reporting crowd density statistics. Default: 60. Range: 1 to 60. 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. Enter the **Minor Alarm**, **Major Alarm**, and **Critical Alarm** tabs, and set the alarm sound and flashing light respectively.
   - Alarm Sound: Enable **Alarm Sound**, and set the audio file and the number of times the audio file to be played by the camera when an alarm occurs.
   - Flashing Light: Enable **Flashing Light**, and set the duration that the illuminator flashes when an alarm occurs.
6. Set the arming schedule. See Arming Schedule for details.
7. Click **Apply**.

6.1.8 Plate Detection

Configure plate detection and plate comparison.

6.1.8.1 Plate Detection

Detect license plates in the live video and take snapshots.

Note: This function is only available to the camera side analysis.

1. Go to **Menu** > **VCA** > **VCA Config**.
2. Select a camera.
3. Select **Plate Detection** to enable this function.

6.1.8.2 Plate Comparison

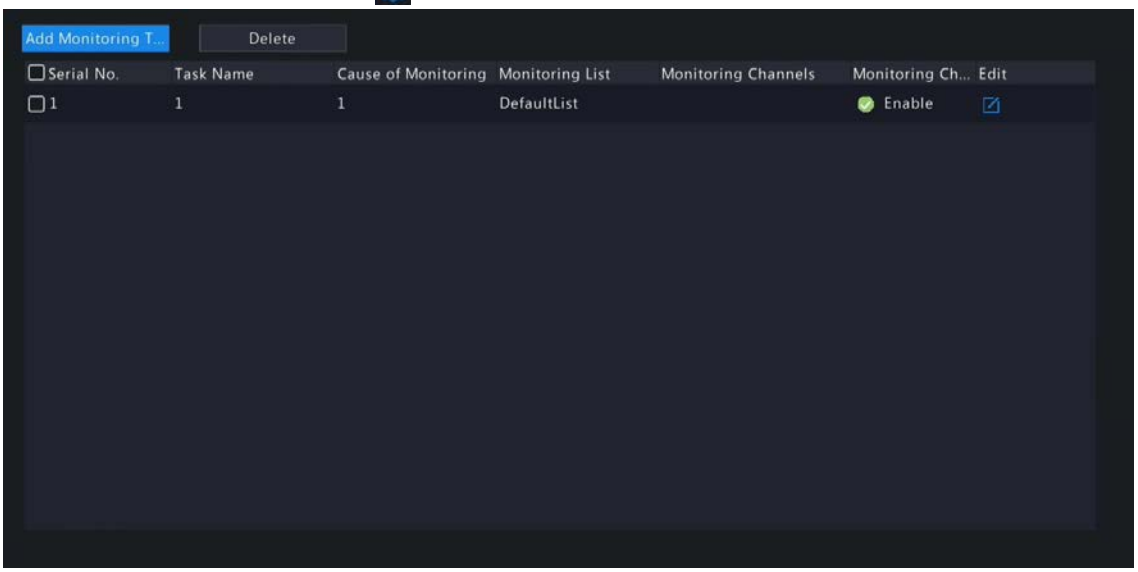
Configure vehicle monitoring tasks so that the NVR can report alarms according to the matching result of the captured plate numbers and the plate numbers in plate lists. To use plate comparison function, enable Plate Detection or Configure VIID Local first.

Note:

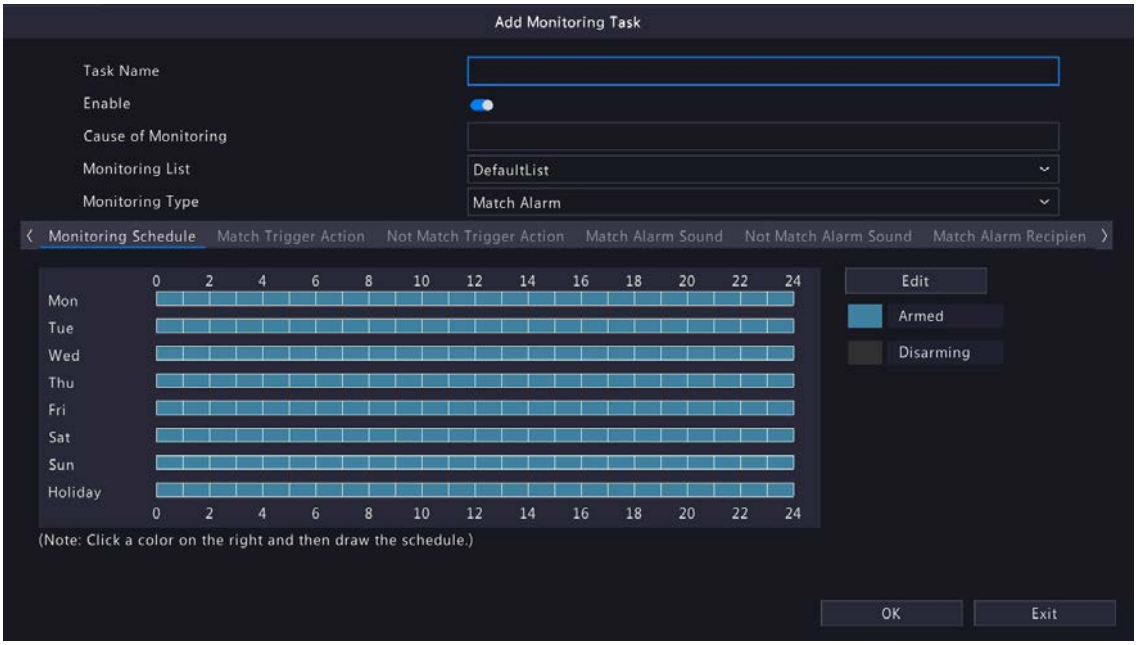
- This function is only available to the NVR side analysis.
- To configure plate list and plate library, see Plate List for details.

Note: This function is only available to the NVR side analysis.

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



4. Click **Add Monitoring Task**.



5. 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.

Parameter	Description
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.
Match Alarm Sound	Set the IP speaker alarm sound to be triggered when a captured plate number matches a plate number in the monitoring list. See IP Speaker Alarm Sound for details.
Not Match Alarm Sound	Set the IP speaker alarm sound to be triggered when a captured plate number does not match any plate number in the monitoring list. See IP Speaker Alarm Sound for details.
Match Alarm Recipient	Choose the recipient(s), and then the NVR sends an email with alarm information to the selected email address(es) when a captured plate number matches a plate number in the monitoring list. Please set the recipient information in Email. Up to 6 recipients are allowed.
Not Match Alarm Recipient	Choose the recipient(s), and then the NVR sends an email with alarm information to the selected email address(es) when a captured plate number does not match any plate number in the monitoring list. Please set the recipient information in Email. Up to 6 recipients are allowed.

6. Click **OK**.

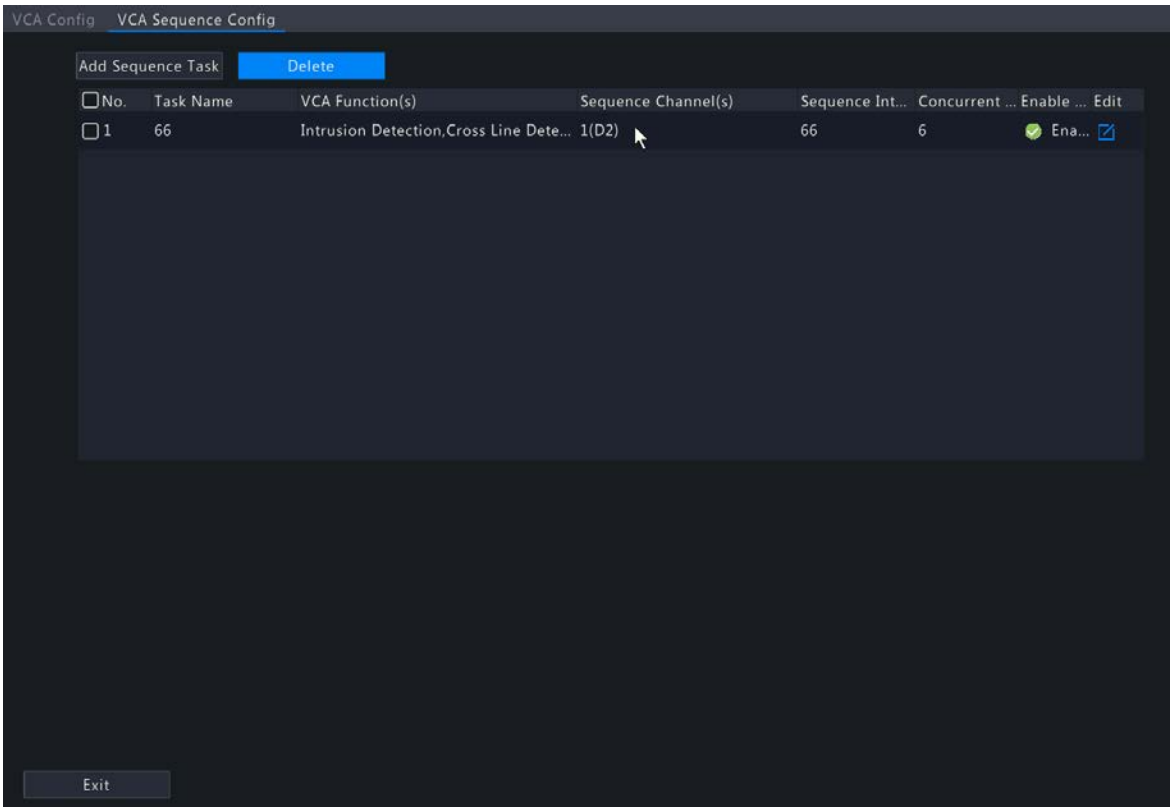
Other Operations

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

6.1.9 VCA Sequence Configuration

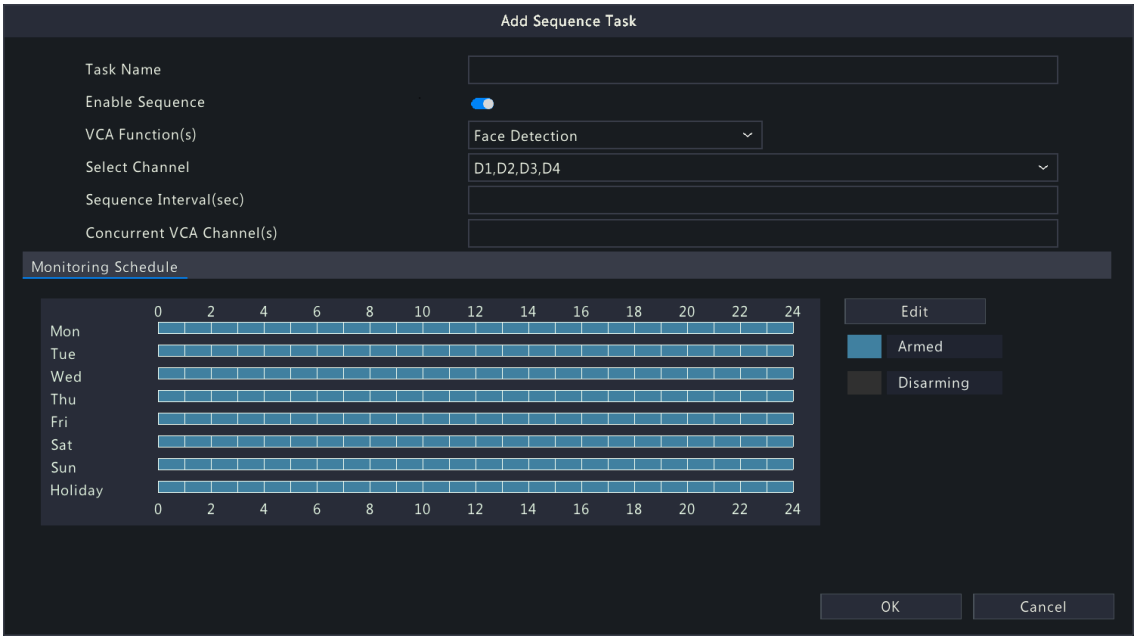
Set VCA sequence tasks to specify which channels will perform VCA during specific time periods, so as to enhance utilization efficiency and cover more scenes with available analysis capabilities.

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



Add Sequence Task

1. Click **Add Sequence Task**. The **Add Sequence Task** page appears.



2. Click to enable VCA sequence.
3. Configure the sequence task parameters.

Parameter	Sequence
Task Name	Enter a name for the sequence task.
VCA Function	Select the desired VCA functions from the list.

Parameter	Sequence
	Note: • You can select up to 21 VCA functions, including face recognition, perimeter protection, and behavior analysis. The actual functions available may vary depending on the device. • For perimeter protection, you can choose multiple perimeter protection functions for simultaneous sequence.
Select Channel	Select channel(s) for the task. Up to 16 channels can be added for each task. **Note:** Each channel can be added to only one task.
Sequence Interval	Performs the sequence at the set interval. The range is [60,3600]s.
Concurrent VCA Channel(s)	The number of analyzer channels to be allocated for this task. Range: [1,8].

4. Set a monitoring schedule according to your actual needs.
   - Draw the schedule

     Click **Armed**, and then drag on the time schedule to specify the armed period; or click **Disarming**, and then drag on the time schedule to erase the armed period.
   - Edit the schedule

     Click **Edit**, and then set a detailed armed period according to your actual needs. Click **OK** to complete the configuration.

   Note: Multiple periods are allowed per day, and the time periods cannot overlap.
5. Click **OK**.

Edit Sequence Task

1. Click .
2. Edit the sequence task as needed.
3. Click **OK**.

Delete Sequence Task

Select the sequence task you want to delete, and then click **Delete**.

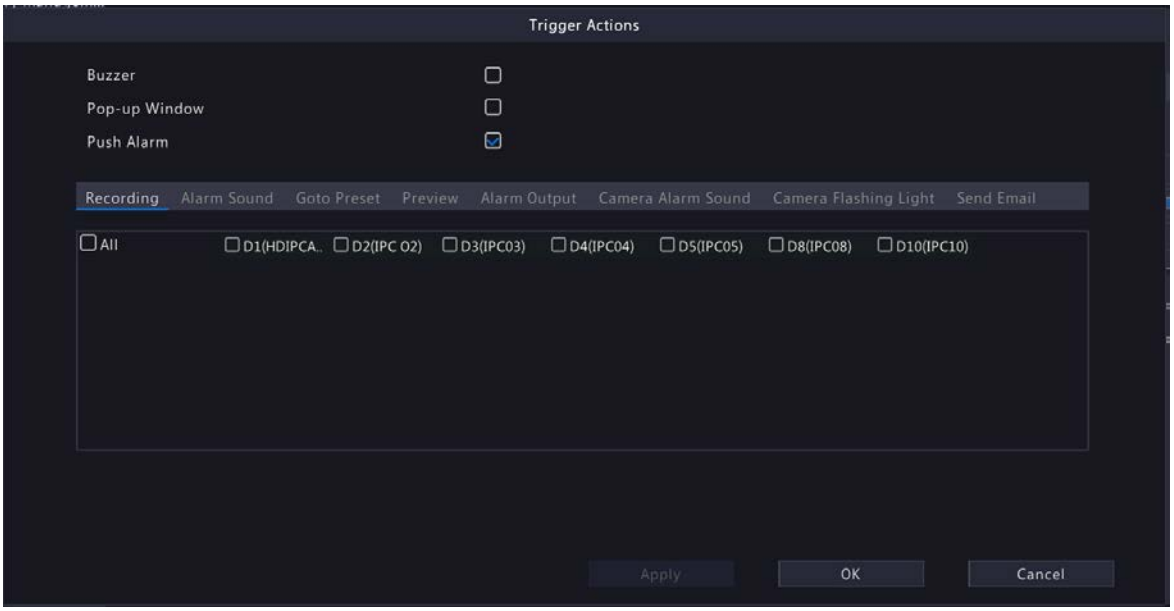
6.1.10 Alarm-triggered Actions

Configure actions to be triggered when an alarm occurs to alert user or the specified people.

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.

Pop-up Window

An alarm message pops up when an alarm occurs.

Push Alarm

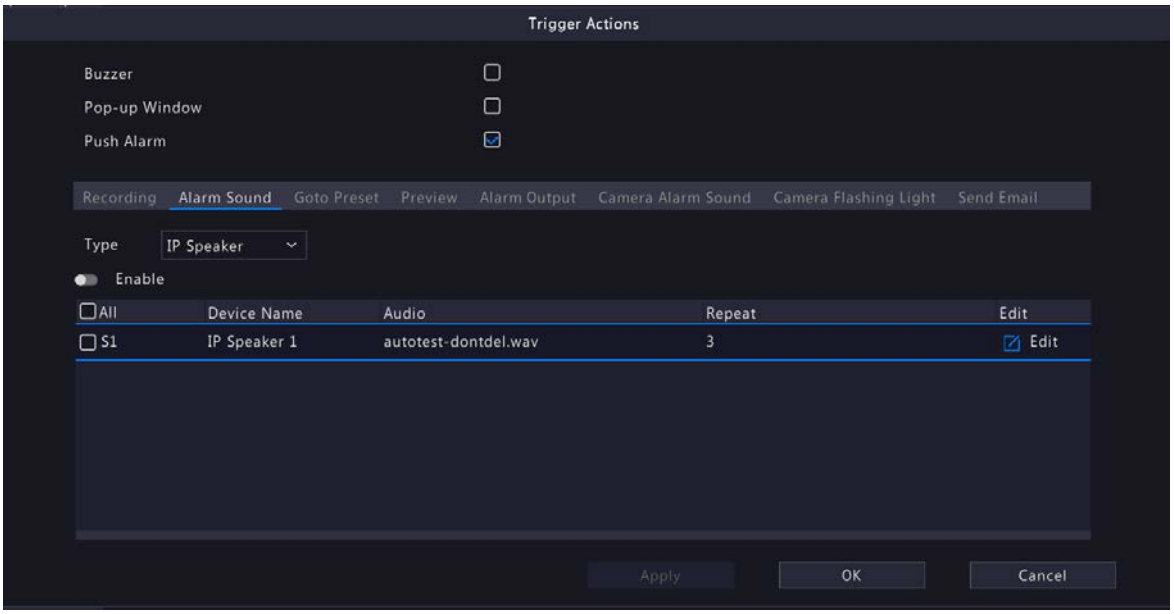
An alarm information will be pushed to the upper platform when an alarm occurs.

Recording

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

IP Speaker Alarm Sound

Click the **IP Speaker Alarm Sound** tab, and configure the audio to be played by an IP speaker when an alarm occurs.



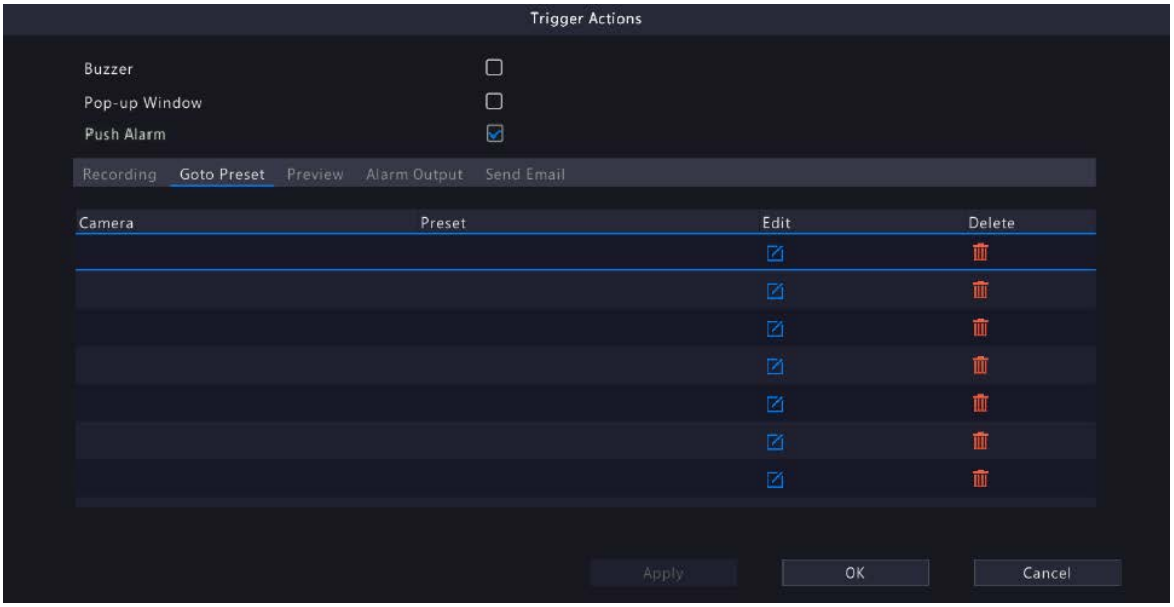
Configure this action as follows:

1. Click , and configure the alarm sound and repeat mode as needed.

2. Select the desired IP speaker(s), enable alarm sound, and click **OK**.

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.

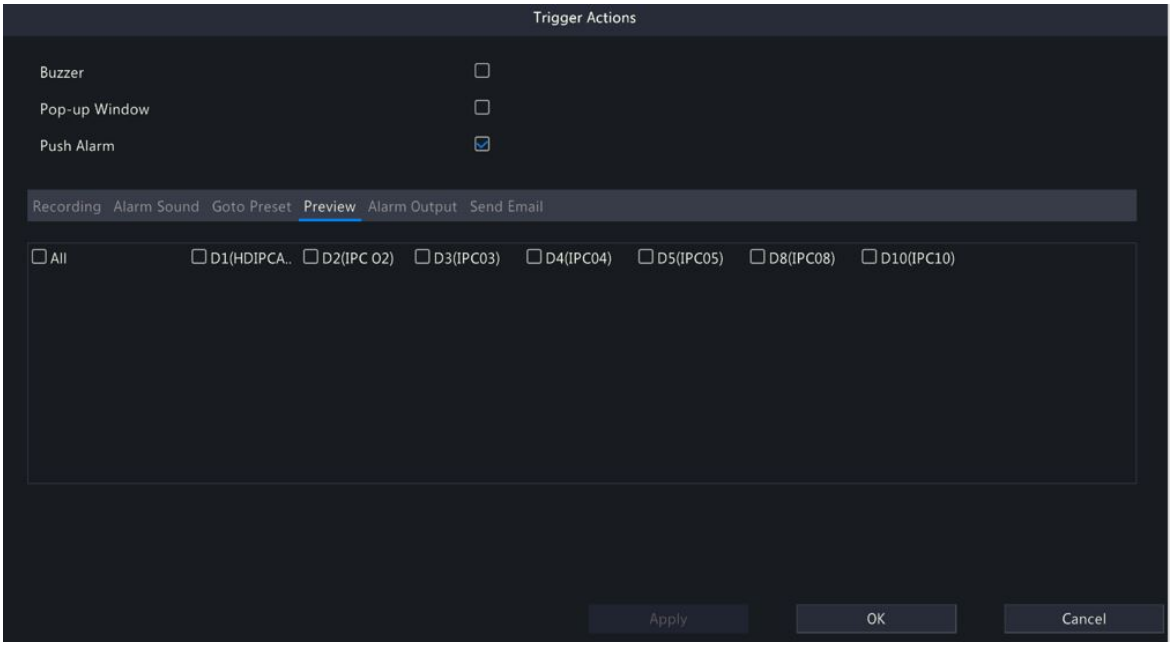
   Note: Before use, you need to configure presets on the PTZ camera. See *Network Camera User Manual* for details.

3. Click **OK**.

   Note: To delete the action, click .

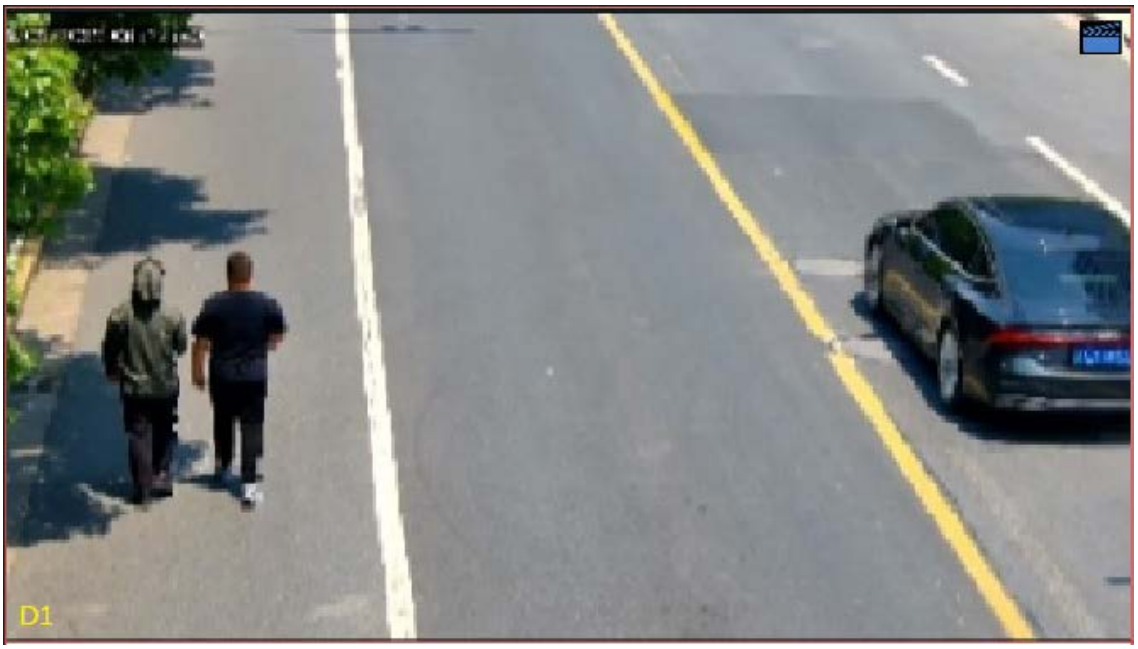
Preview

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.

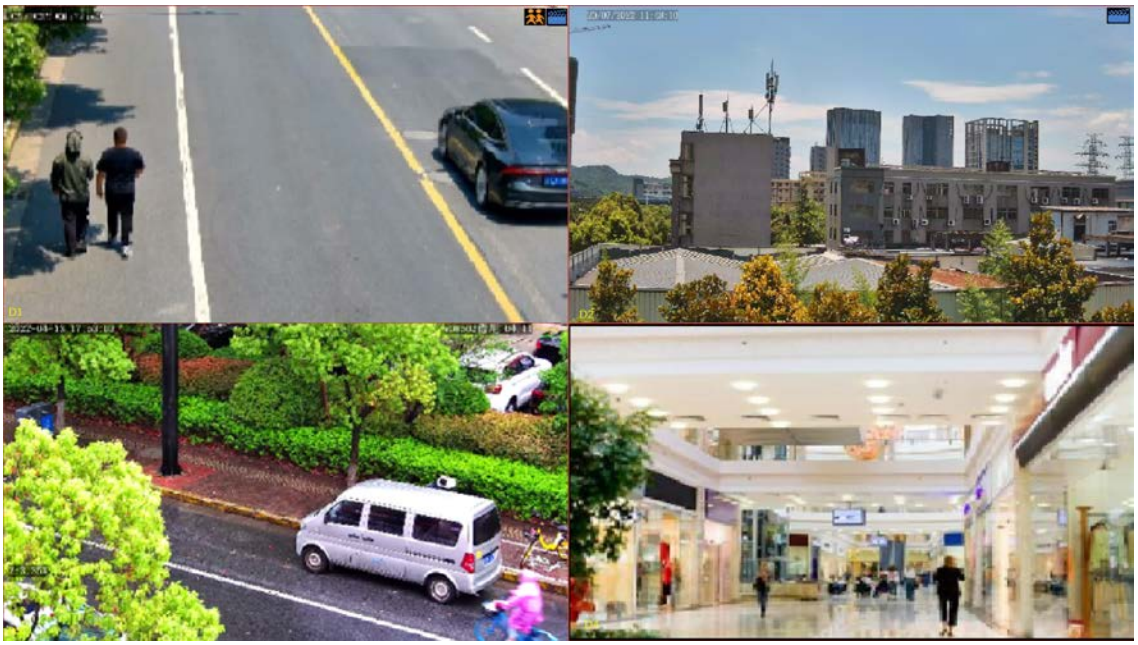
- When **Max. Alarm-Triggered Live View Windows** is set to **1 Window**, the live view page plays live video in one window. If more than one camera is linked, the live video switches at 5s.

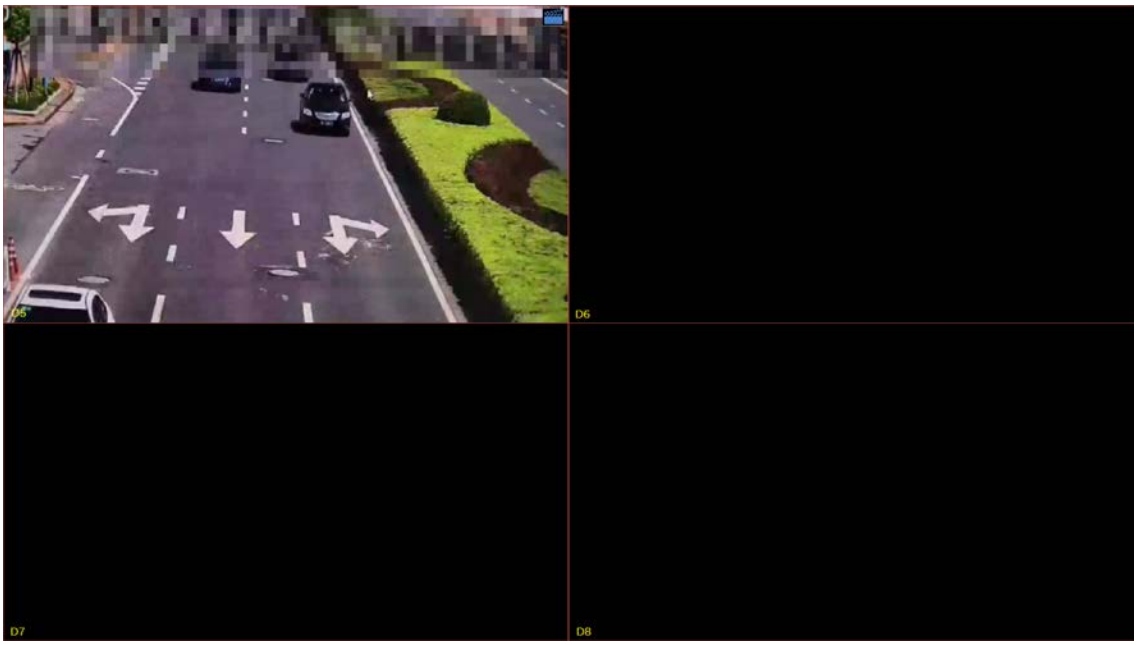


- When **Max. Alarm-Triggered Live View Windows** is set to **4 Windows**, the live view page plays the live video of each camera in 4-split mode. If more than 4 cameras are linked, the live video switches at 5s.

Live view page with 3 cameras linked:

Live view page with 5 cameras linked:

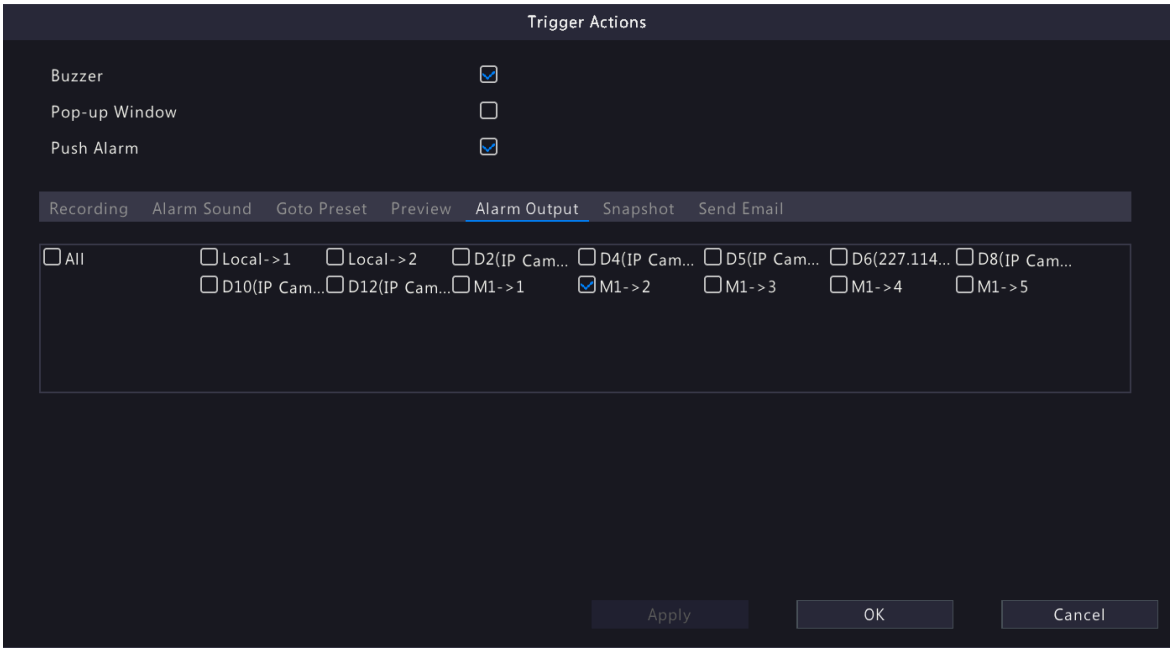




- When **Max. Alarm-Triggered Live View Windows** is set to **9 Windows**, the live view page plays the live video of each camera in 9-split mode. If more than 9 cameras are linked, the live video switches at 5s.

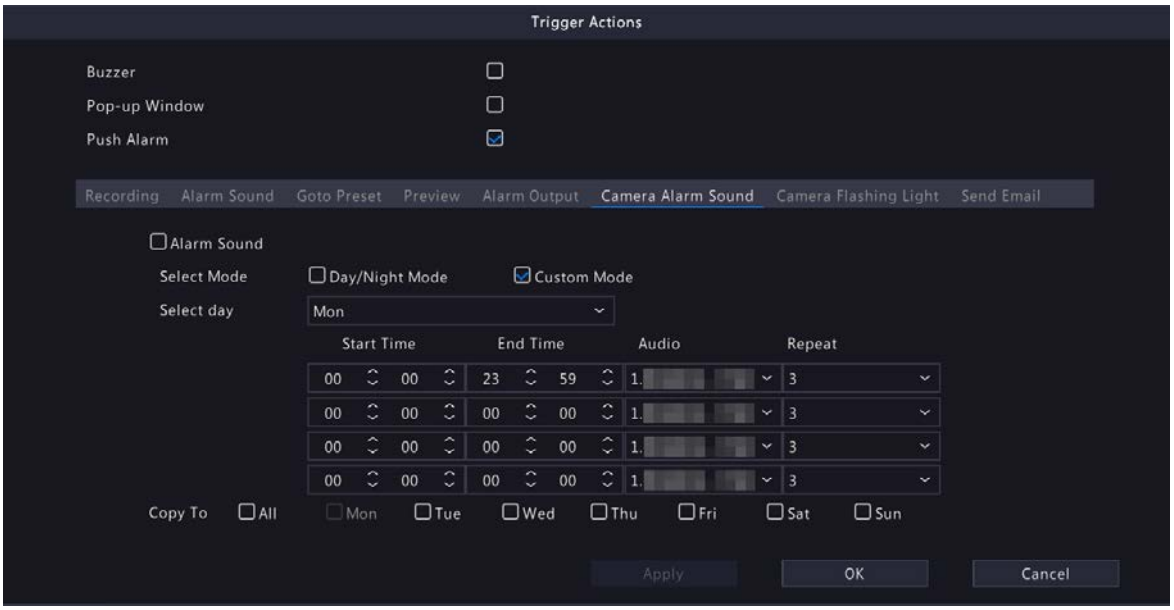
Alarm Output

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



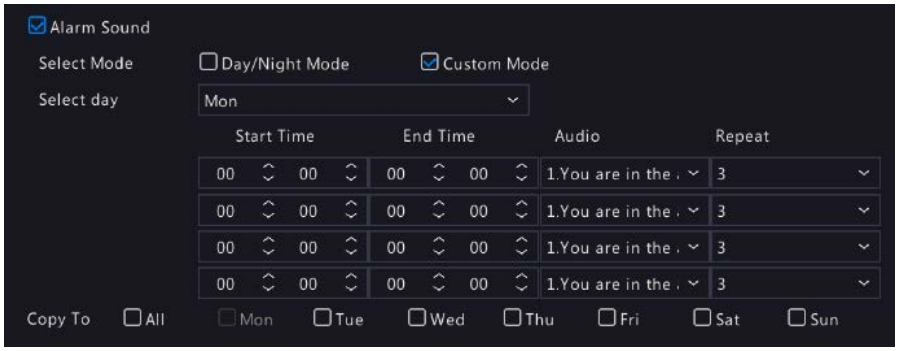
Camera Alarm Sound

The selected camera plays an audio alarm when an alarm occurs. This action is only available to cameras that support alarm sound, and the day/night mode is available on certain cameras only.



Configure this action as follows:

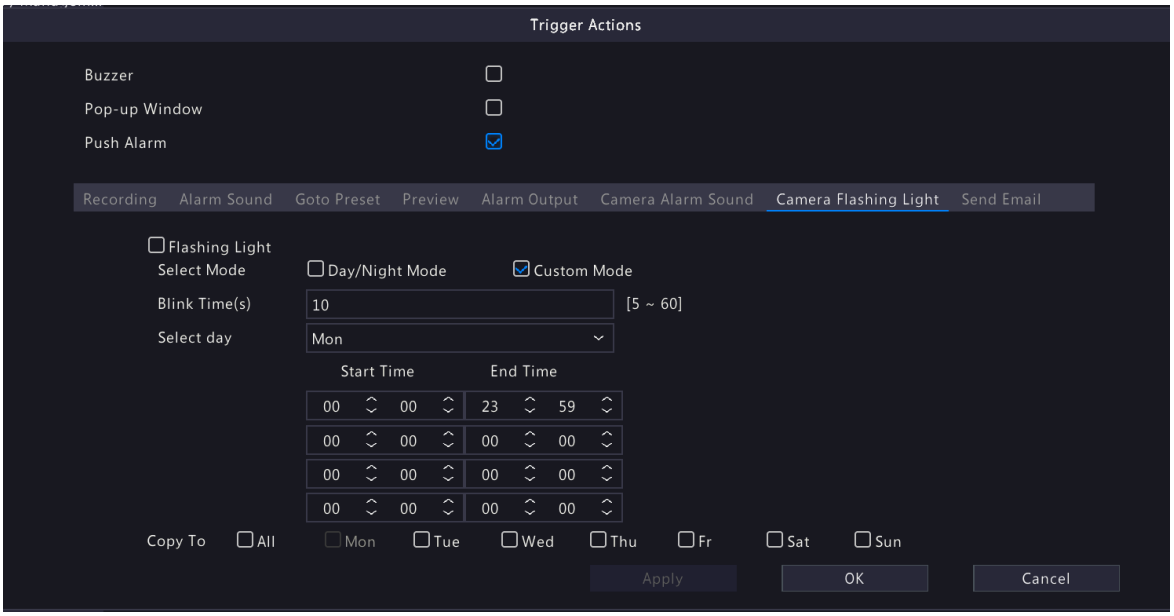
1. Select the **Alarm Sound** check box, select the alarm mode, and configure other parameters as needed.

Mode	Description
Day/Night Mode	Select the day and time (day/night) during which alarm sound is enabled. **Note:** The camera automatically switches to day or night mode according to the ambient lighting. 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.
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**.

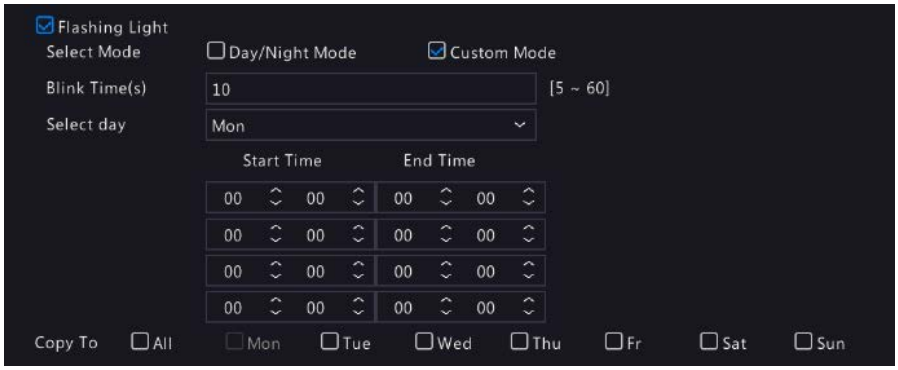
Camera Flashing Light

The illuminator of the selected camera flashes for a certain length of time when an alarm occurs. This action is only available to cameras that support flashing light, and the day/night mode is available on certain cameras only.



Configure this action as follows:

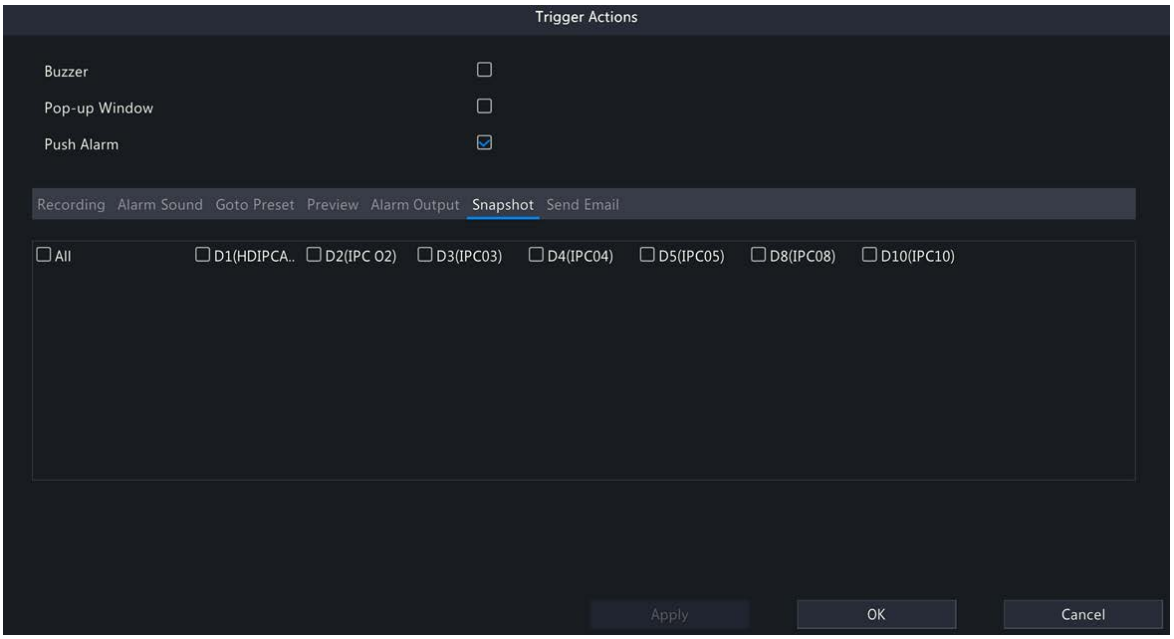
1. Select the **Flashing Light** check box, select the alarm mode, and configure other parameters as needed.

Mode	Description
Day/Night Mode	Select the day and time (day/night) during which flashing light is enabled. **Note:** The camera automatically switches to day or night mode according to the ambient lighting. See *Network Camera User Manual* for details.
Custom Mode	Select the day and time (start/end time) in which flashing 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

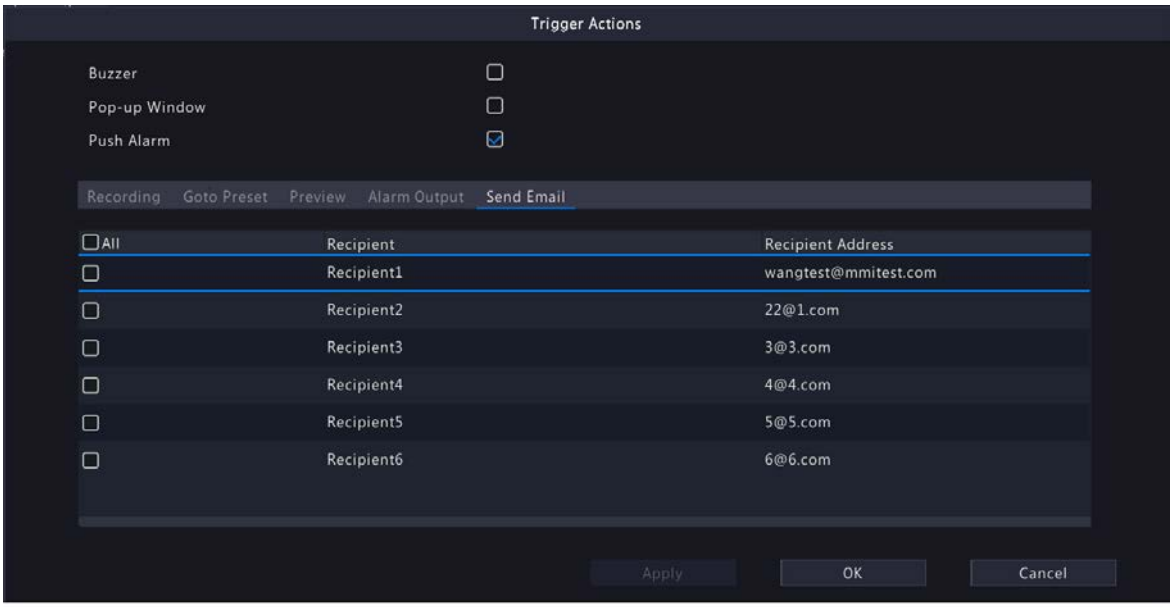
The NVR triggers the linked camera to capture a snapshot when an alarm occurs.



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

Send Email

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



HTTP

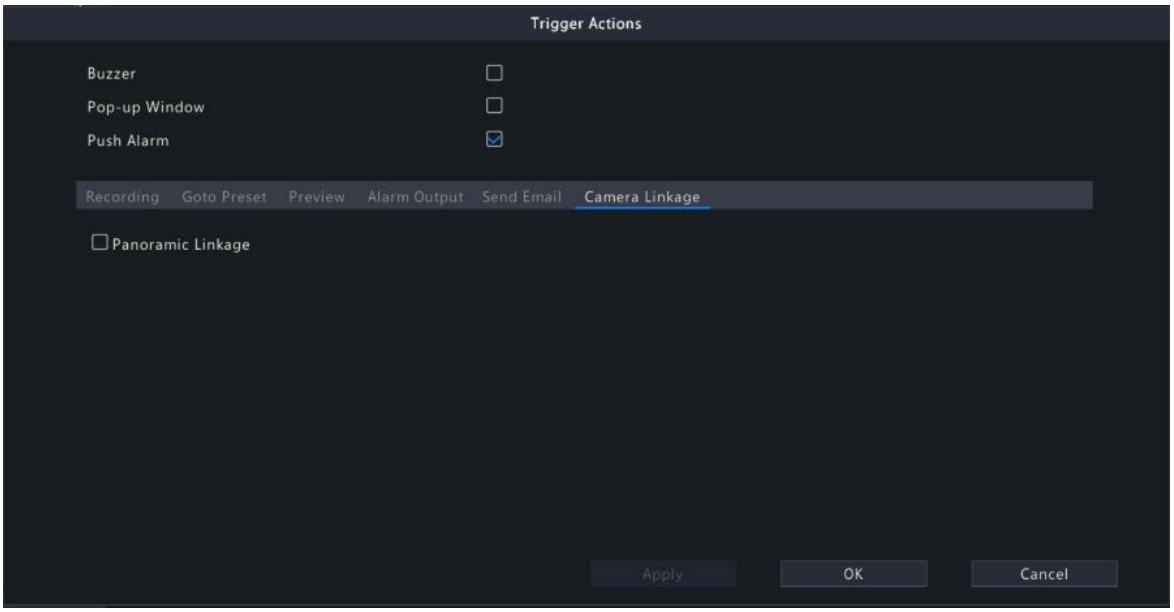
The third-party platform can receive alarm and video loss information via the HTTP protocol. This linkage action is available to smart intrusion prevention, alarm input, motion detection, ultra motion detection, tampering detection, and video loss.

URL format example: Http://platform address to receive alarm message/alarm channel (customizable)/alarm type (customizable)

Note: Please configure the function on the NVR's web interface.

Camera Linkage

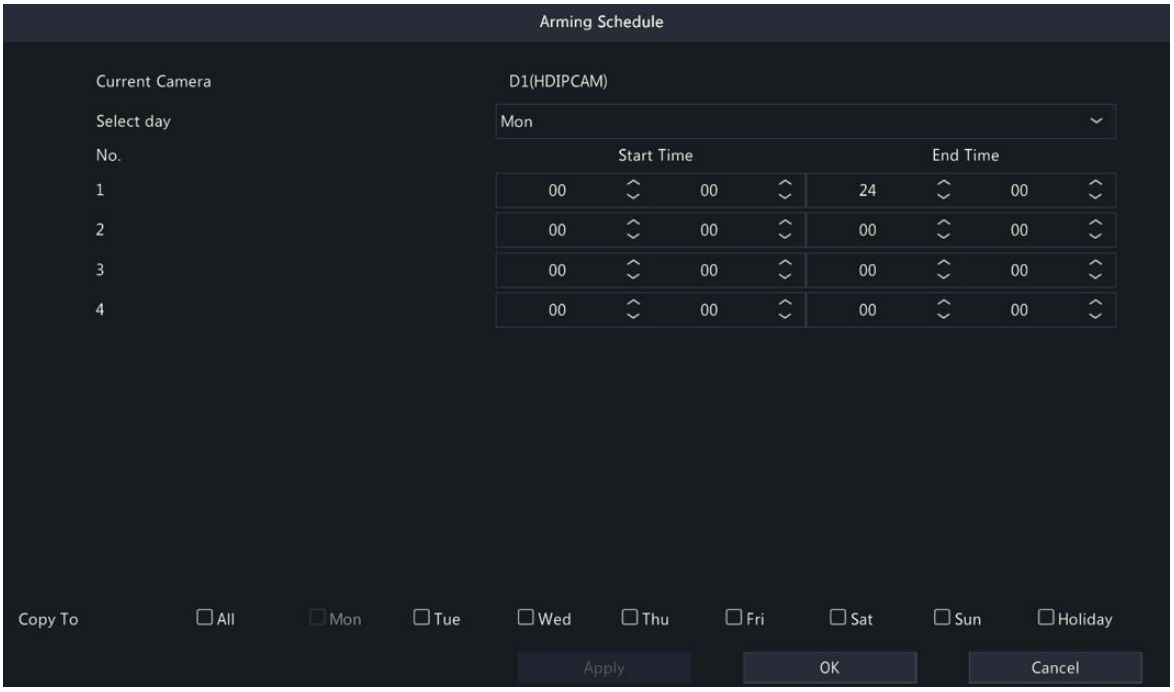
Click the **Camera Linkage** tab, select **Panoramic Linkage**, and then the panoramic camera will link to a PTZ camera when an alarm occurs.



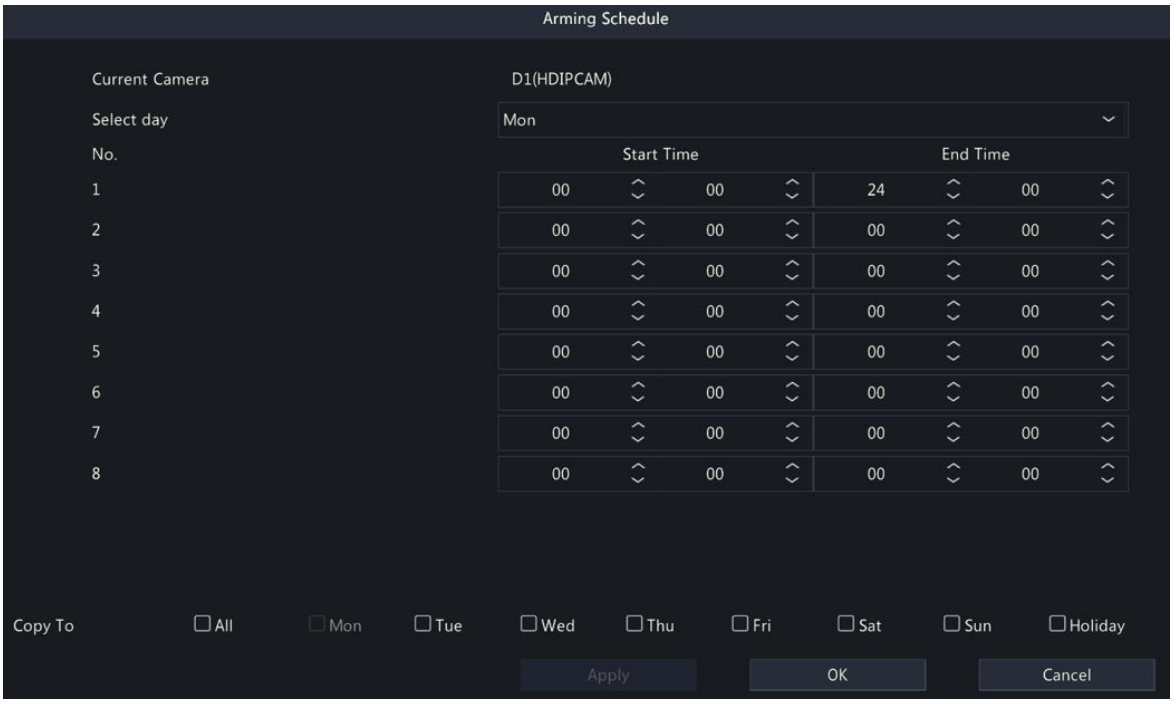
6.1.11 Arming Schedule

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.

6.2 Analyzer Configuration

View the analyzer usage and change the analysis mode.

Analyzer is a smart chip used to process face recognition, smart intrusion prevention, behavior analysis, ultra motion detection, people counting, AcuSearch/Track, etc. The analyzer capacity varies by NVR model, which requires you to allocate channels appropriately.

1. Go to **Menu** > **VCA** > **Analyzer Config**.
2. View the analyzer's capacity usage. The analyzer's capacity can be represented by the number of video streams or image streams it can analyze.

   The following table describes the detailed analyzer capacity usage strategy.

Type	Usage	Description
Video stream analysis (NVR-side function)	10% (for each function)	Enabling each function in this category for a channel will consume 10% capacity: rat detection, fight detection, fall detection, no work clothes detection, no reflective clothing detection, smoke and fire detection, people flow counting, and mixed-traffic detection. For example, if you enable rat detection and fight detection for a channel; that's two functions, and it will consume 20% capacity.
Video stream analysis (NVR-side function)	10% (for each analysis model)	Enabling any or all functoins of a category for a channel will consume 10% capacity. • Category 1: No mask detection, no helmet detection, smoking detection, calling detection, no chef hat detection, and sleep on duty detection.

Type	Usage	Description
		• Category 2: Cross line detection, intrusion detection, enter area, leave area, absence detection, climbing detection, and long stay detection. • Category 3: Face detection and face comparison (NVR-side analysis). For example, if you enable no mask detection and no helmet detection for a channel, which belong to one category (category 1), and it will consume 10% capacity; if you enable no mask detection, no helmet detection, cross line detection, and climbing detection, which belong to one category (category 1 and 2), and it will consume 20% capacity.
Image stream analysis (only for camera-side face recognition)	5%	Only camera-side face detection will consume the capacity of image stream analysis. • When the analyzer has sufficient capacity, enabling camera-side face detection for a channel will consume 5% capacity. • When the analyzer has insufficient capacity, camera-side face detection can be enabled, but it does not consume analyzer capacity. At the same time, other camera-side functions except the face comparison can be enabled and configured, as they does not consume analyzer capacity and their data are analyzed and reported from the corresponding IPC.

Takes analyzer 1 as an example. The analyzer 1 has been used for 2 video stream channels, which consumes 20% capacity, and can be still used for 8 video stream channels or 16 image stream channels. The **VCA Config** page shows the enabled functions.

6.3 Library Management

Manage face library and work clothes library.

6.3.1 Face List

Configure face lists for face comparison.

Configure Face List

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

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

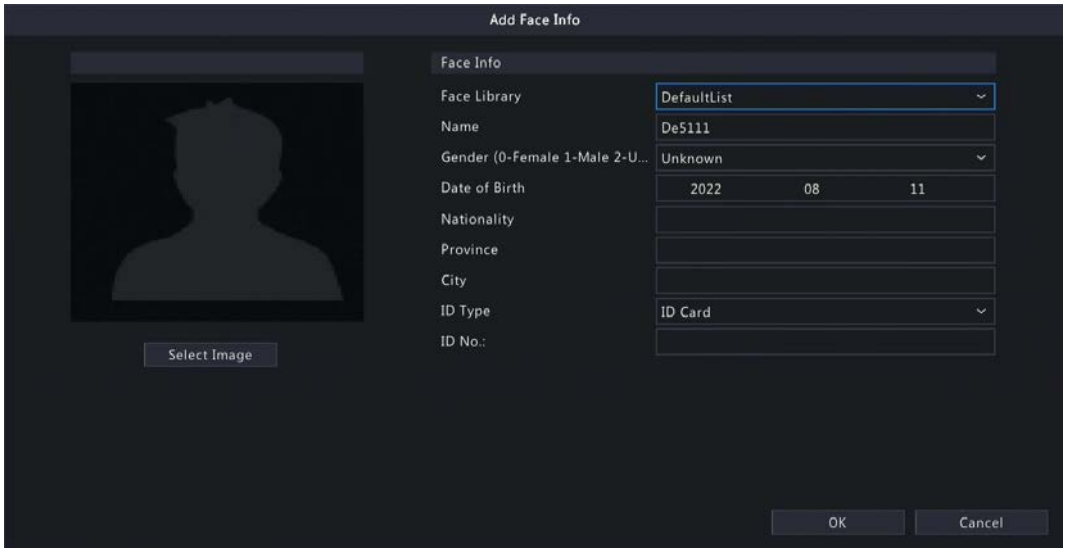
Parameter	Description
	(1) Click to add a face list. (2) Enter the list name. (3) (Optional) Select the **Set as Dynamic Library** check box to set the face list as a dynamic list. The captured face images that do not match any face image in face lists will be automatically added to the dynamic list. **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.

Note: For models with a 40,000-face library capacity, to use a larger face library capacity (e.g., 200,000 faces), please format the hard disk and then import.

- 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

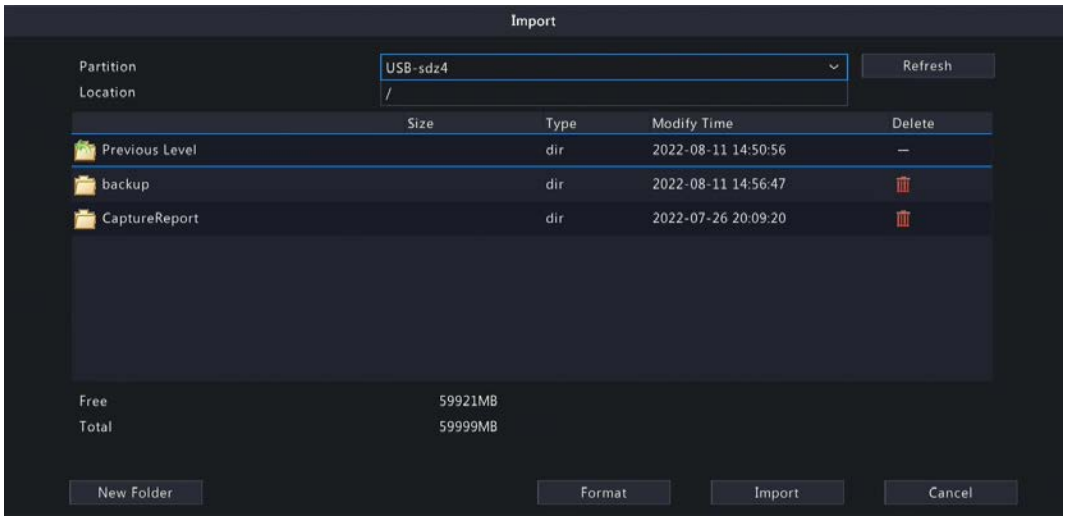
  (1) Click **Export Template**.

  (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.

Parameter	Description
	 • 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.

6.3.2 Work Clothes Library

Import work clothes images so the NVR can compare the detected clothes with the images in the work clothes library.

1. Go to **Menu** > **VCA** > **Library Management** > **Work Clothes Library**.
2. Set work clothes library.

Parameter	Description
	(1) Click to add a work clothes library. (2) Enter the library name. (3) Click **OK**. **Note:** Up to 8 work clothes libraries are allowed, and up to 50 images can be added to each library. Importing images captured from different angles can improve the detection accuracy.
	Click to delete the selected library. **Note:** Deleting the library will disable the No Work Clothes Detection function of the library.
	Click to edit the library name.

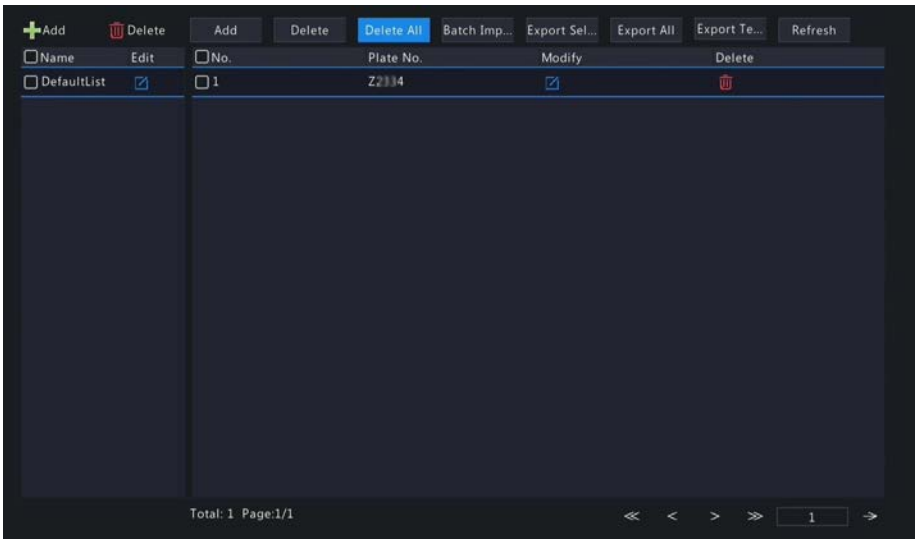
3. Click **Add** to import work clothes images.

6.4 Plate List

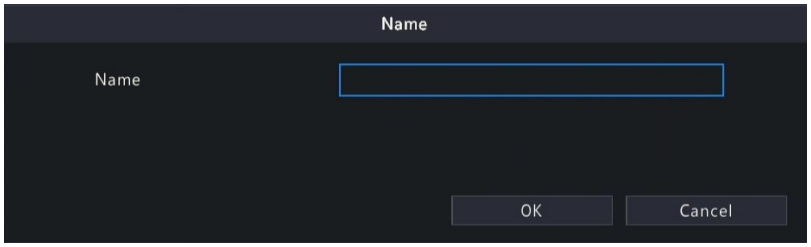
Configure plate lists for vehicle monitoring.

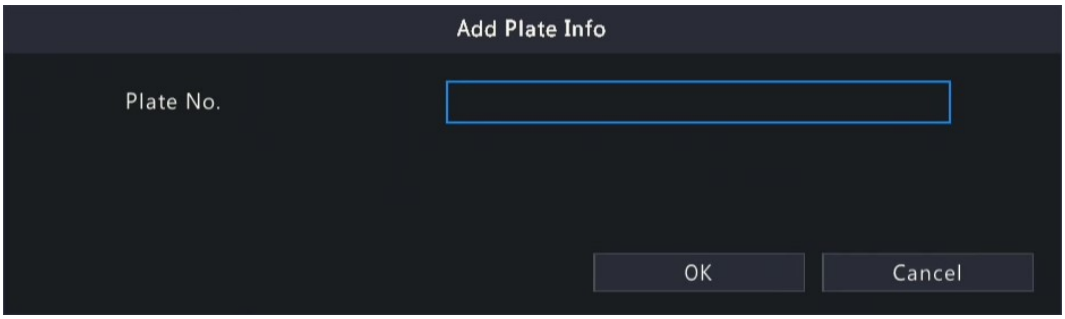
Configure Plate List

1. Go to **Menu** > **VCA** > **Plate List**.

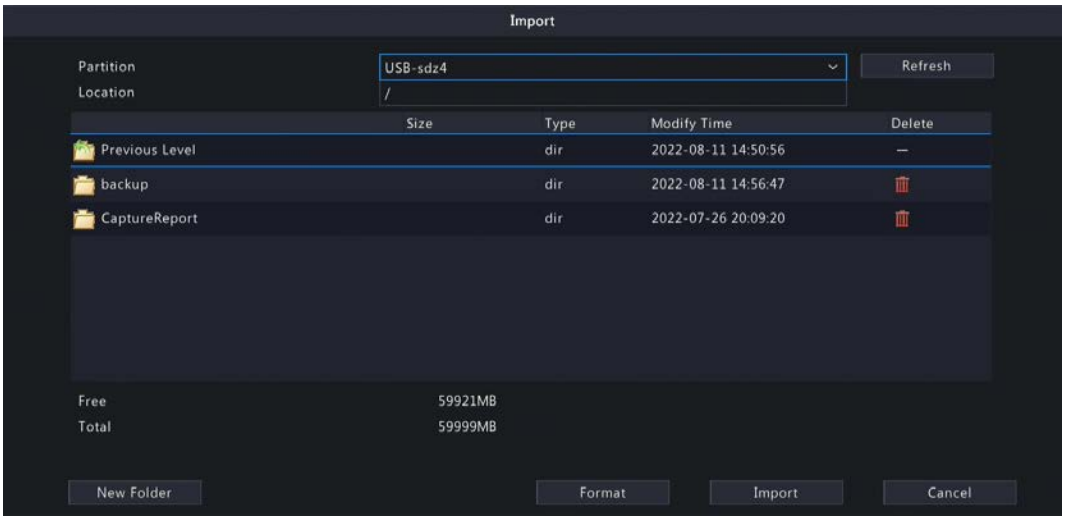


2. Configure plate lists. A plate list is created by default. You can add more as needed.

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 Monitoring for details.

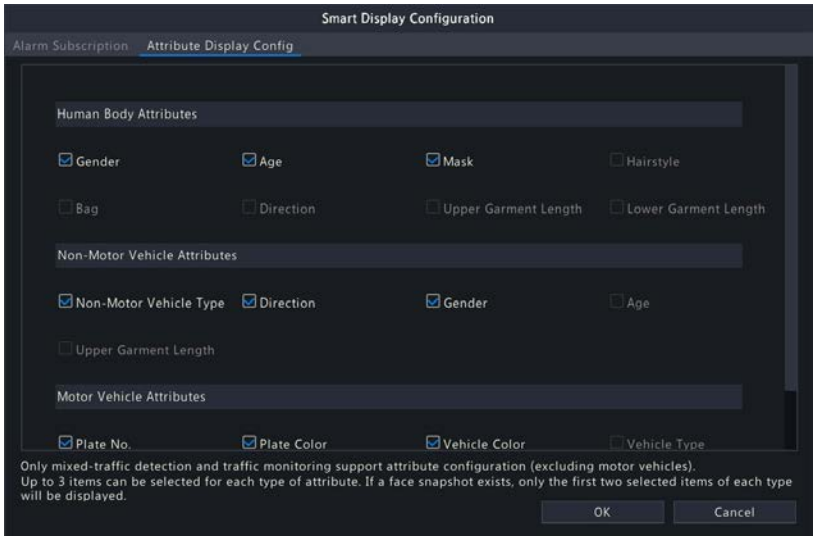
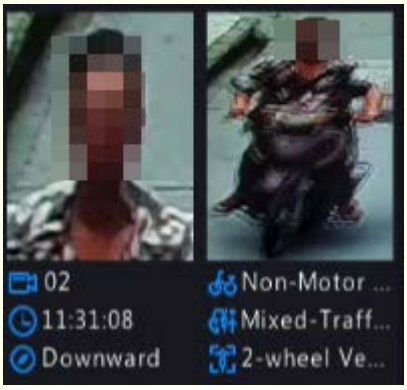
6.5 Smart Preview

View real-time snapshots and statistics of VCA functions on the live view page, including motor vehicle, non-motor vehicle, human body, face and people flow counting.

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

Preview Interface

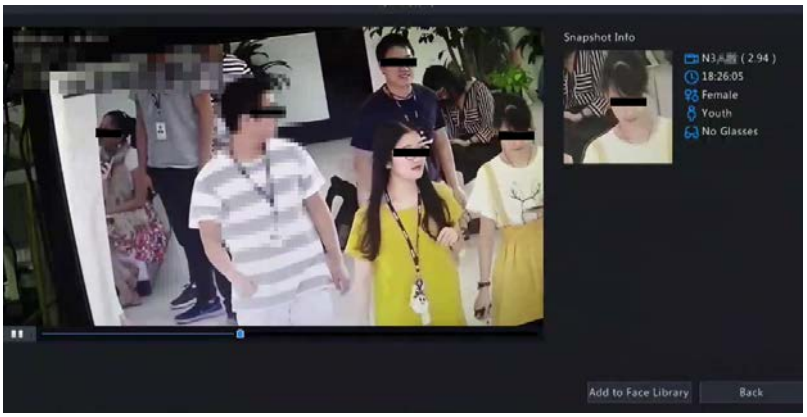
Icon	Description
	Select the object type(s) for which you want to view real-time snapshots. means the motor vehicle, means the non-motor vehicle, means the human body, and means the face.

Icon	Description
	Click to enter the **Smart Display Configuration** page, on which two tabs are displayed: **Alarm Subscription** and **Attribute Display Config**. • **Alarm Subscription** tab: You can subscribe to various alarms at the same time. If you want to view real-time alarm information on smart preview page, please configure VCA functions of the corresponding alarm(s). For details, please refer to VCA Configuration. • **Attribute Display Config** tab: You can configure human body attributes, motor vehicle attributes, and non-motor vehicle attributes, and up to 3 items can be selected for each attribute type. By default, the first 3 items of human body attributes and non-motor vehicle attributes are selected; and vehicle color, vehicle brand, and vehicle type of motor vehicle attributes are selected. The attribute configuration is only available to mixed-traffic detection and road monitoring alarms(excluding motor vehicles).  **Note:** If you enable and a face exists in the human body or non-motor vehicle snapshot, only the first two selected items of each attribute type will be displayed on the smart preview page. • Face is not enabled/face is enabled but not recognized: • Face is enabled and recognized: 

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

6.5.1 Face Recognition

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

Type	Description
Not Match Face Info	1. Select a mismatched face snapshot. 2. Click on the snapshot to view more details. 
Face Snapshot Info	1. Select a face snapshot. 2. Click on the snapshot to view more details.
Match Face Info	1. Select a matched face snapshot. The left image is the captured image, and the right image is the face image in the face list. 2. Click on the snapshot to view more details.

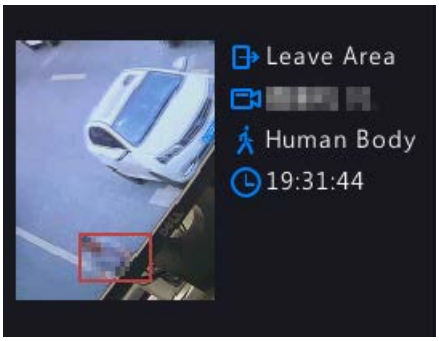
Note:

- In the **View Details** dialog box, a 15s video (10s before and 5s after the snapshot time) 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.

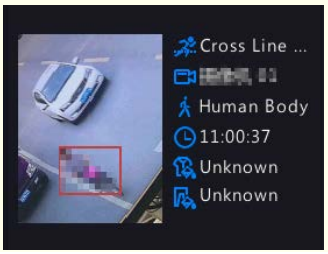
6.5.2 Smart Intrusion Prevention

View real-time snapshots for smart intrusion prevention, including cross line detection, intrusion detection, enter area, and leave area.

1. Select the snapshot thumbnail for smart intrusion prevention on the right panel, such as cross line detection.



Note: If the camera supports and has enabled smart intrusion prevention, the snapshot thumbnail will display attribute fields.



2. Click the thumbnail to view details.

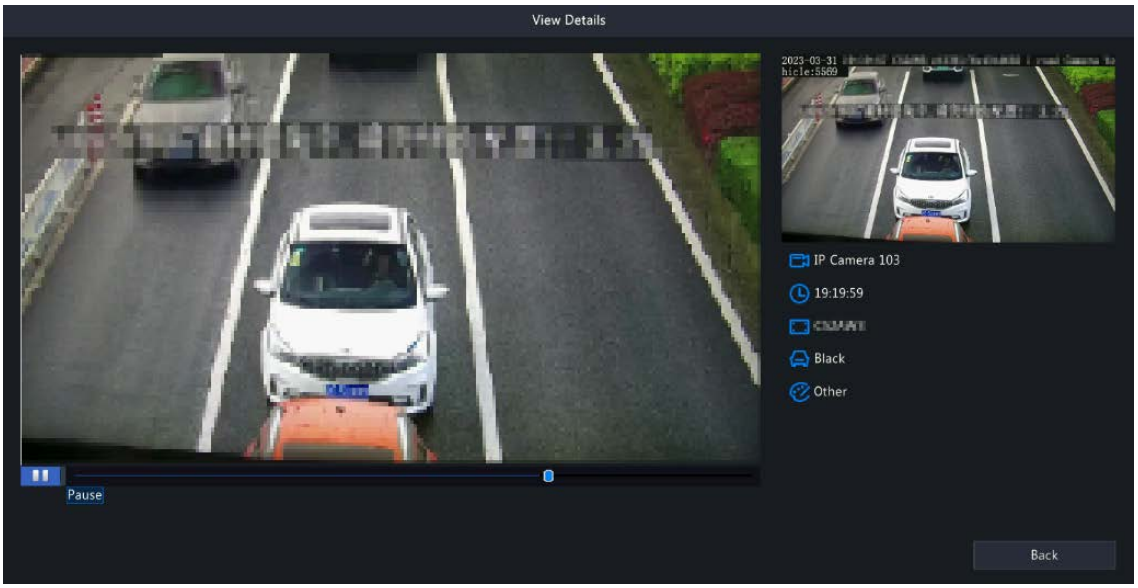
   The left panel automatically plays a 15s video (10s before and 5s after the snapshot time). The right panel will show the snapshot image, event type (cross line), channel name, time, and target type.

6.5.3 Vehicle Monitoring

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 15s video (10s before and 5s after the snapshot time) 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.

6.5.4 Object Detection

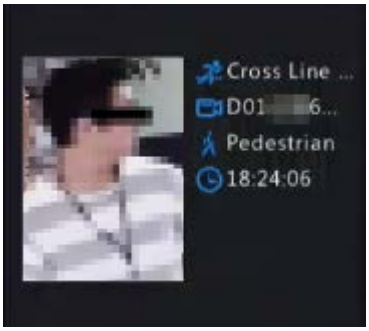
View real-time snapshots of object detection functions including multi-target detection and road monitoring.

The following takes the multi-target detection as an example.

6.5.4.1 Elevator Entrance Detection

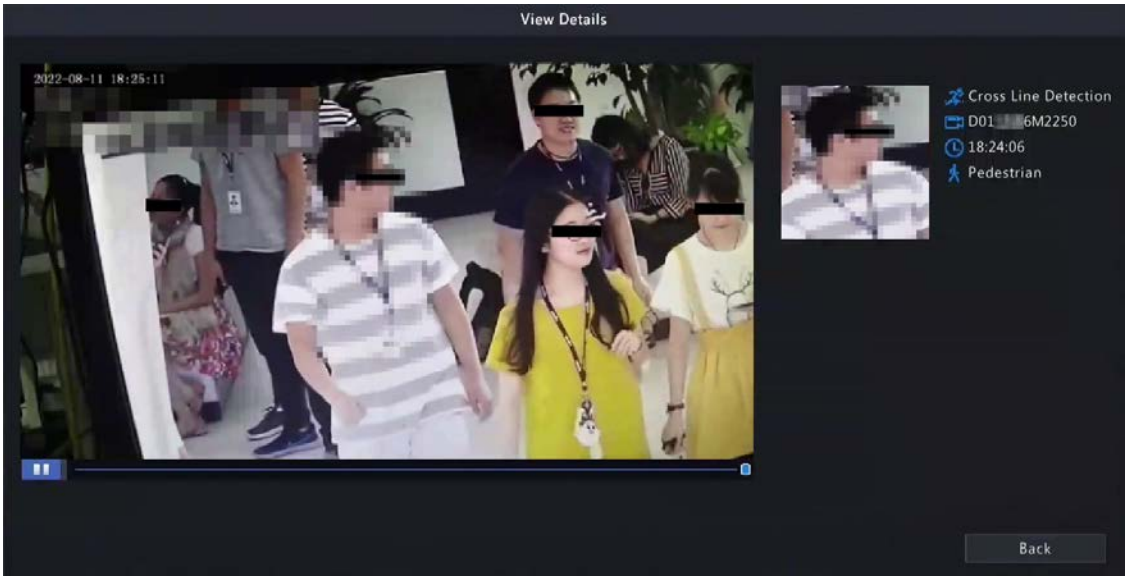
View real-time snapshots of smart intrusion prevention functions including cross line detection, intrusion detection, enter area detection, and leave area detection.

1. Select a snapshot.



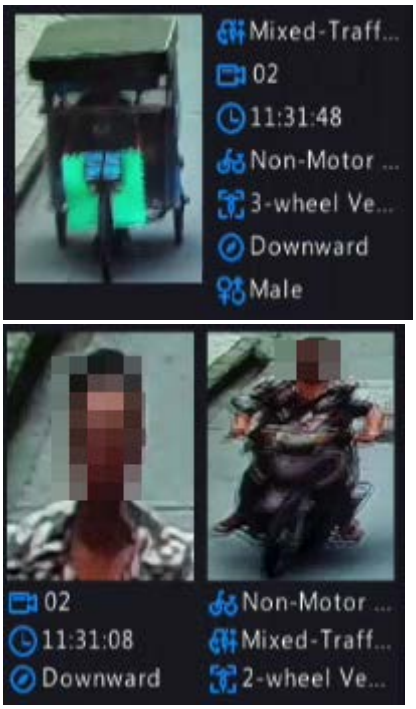
2. Click on the snapshot to view more details.

   In the **View Details** dialog box, a 15s video (10s before and 5s after the snapshot time) 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.



6.5.4.2 Multi-Target Detection

View real-time snapshots and detailed attributes of multi-target detection, and the object types captured include motor vehicle, non-motor vehicle, human body, and face. The displayed attributes can be customized. Please refer to ShowTime Attr Config for details.



Note: When a face is recognized, the smart preview page will display a close-up image of the face and an image of the captured object.

6.5.5 People Flow Counting

Select a scene and view real-time people flow statistics including the number of people entering/leaving/currently allowed/present.

The green icon under **People Present Alarm** means the number of people present in the detection area does not exceed the set threshold. If the icon is red, it means the number of people present in the detection area exceeds the set threshold.

7 Peripheral Management

Manage the external devices connected to the NVR.

Note: This function is only available to certain NVR models.

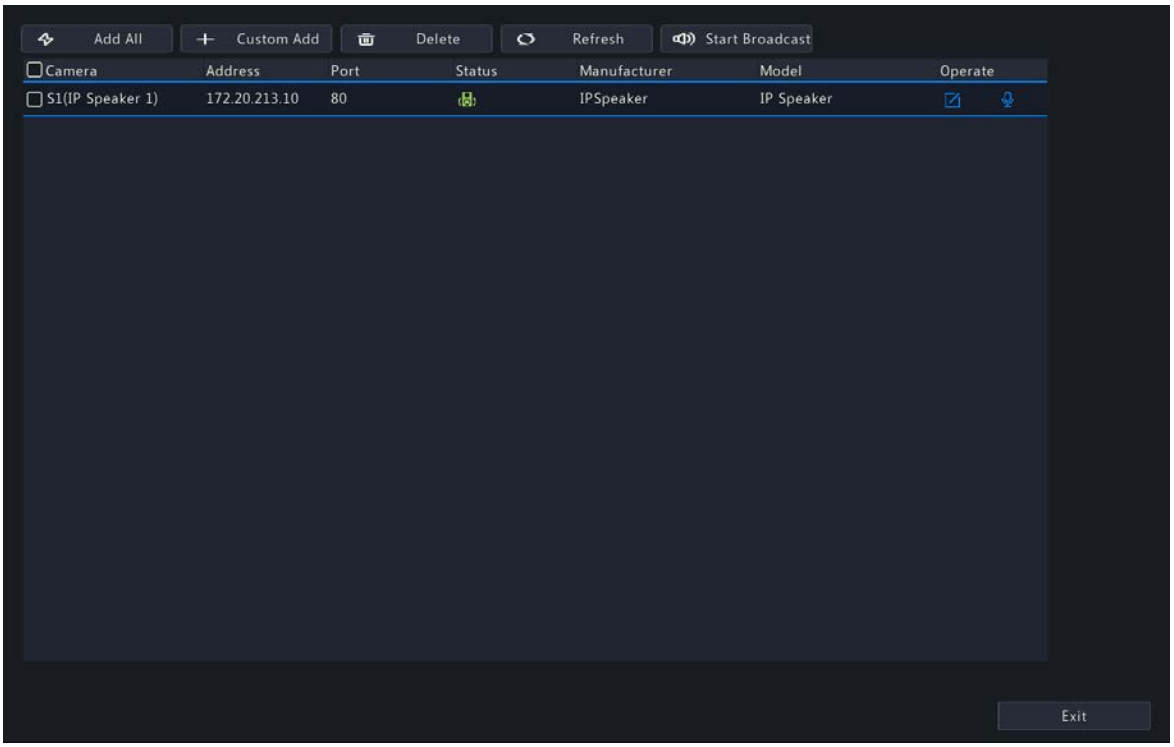
7.1 IP Speaker

Manage IP speakers.

7.1.1 IP Speaker

Add and manage IP speakers.

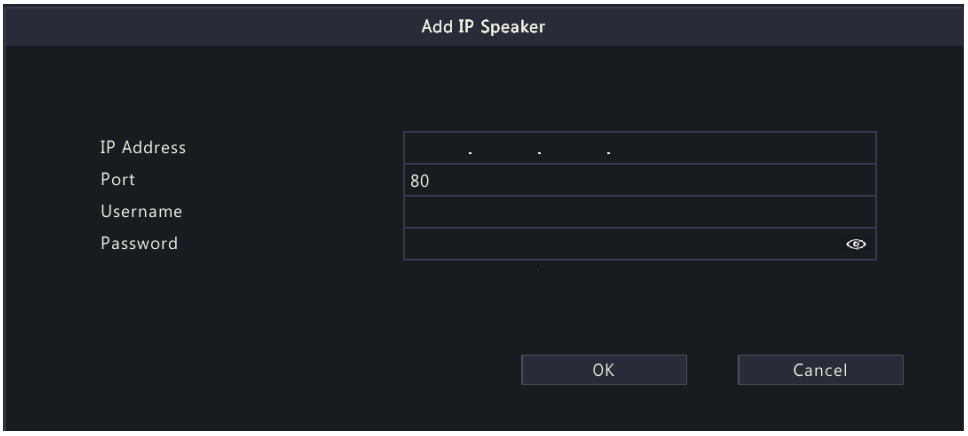
Go to **Menu** > **Peripheral** > **IP Speaker**.



Add IP Speaker

The system automatically searches for IP speakers and lists the discovered. Click **Refresh**, and the system refreshes the list and IP speaker status. Two methods are available to add IP speakers:

- Option 1: Custom Add
  1. Click **Custom Add**.

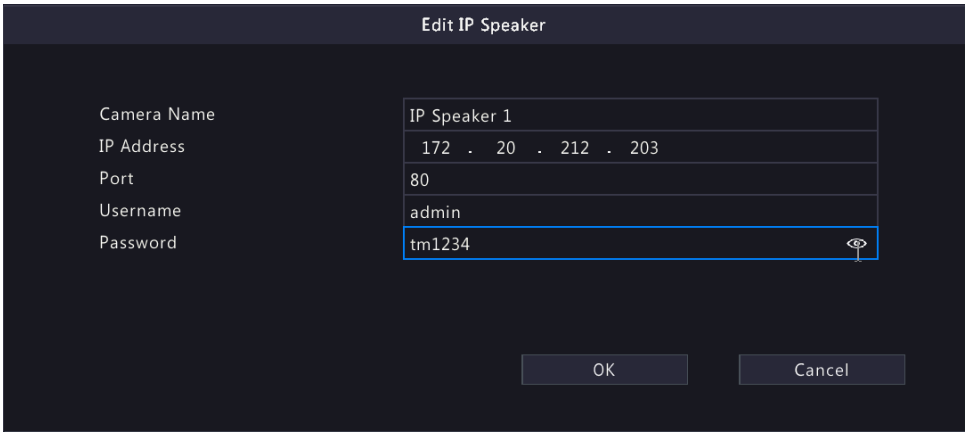


  2. Enter the device information, click **OK**, and then check the device status.
     - : IP speaker online.
     - : IP speaker offline. Point to the icon to view the reason for the failure.
- Option 2: Add All

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

Edit IP Speaker

Click , and edit the IP speaker settings as needed.



Two-Way Audio

The NVR supports two-way audio with one IP speaker. Click beside the IP speaker to start two-way audio.

Audio Broadcast

The NVR supports audio broadcast with multiple IP speakers. Select the IP speaker(s), and click Start Broadcast to start audio broadcast.

Note: Please connect an external microphone to the NVR before you use the two-way audio and audio broadcast.

Delete IP Speaker

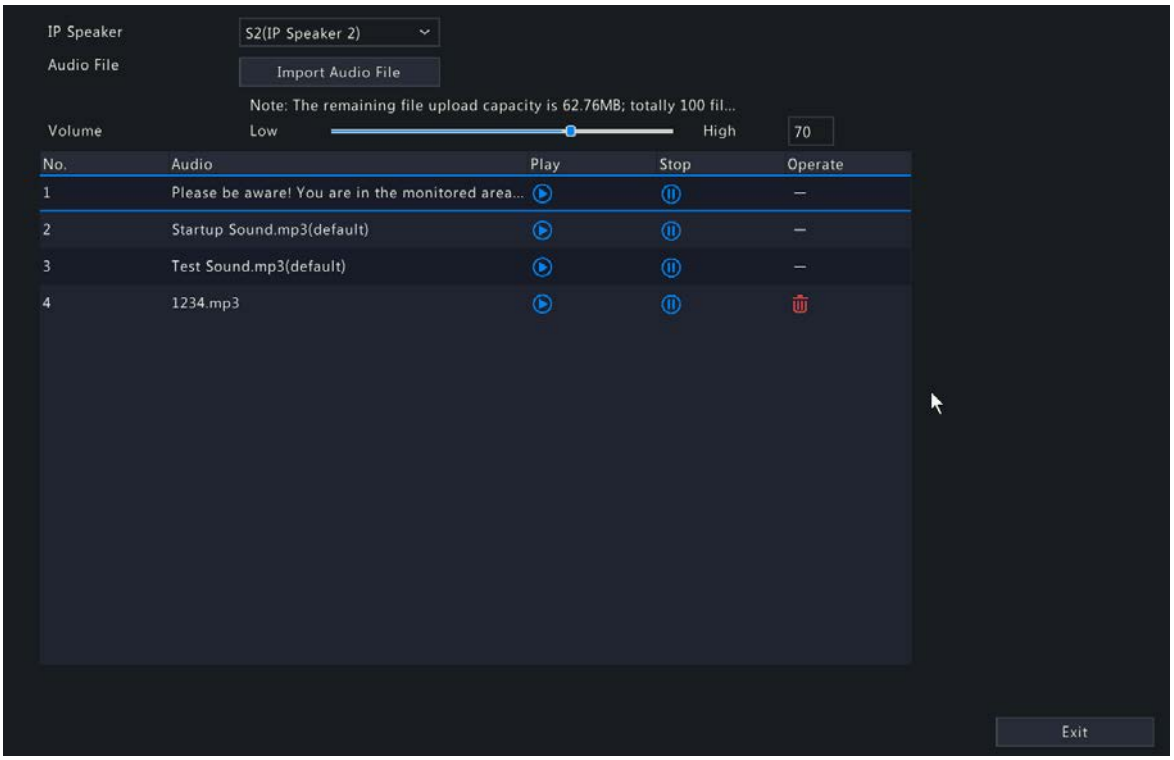
Select the IP speaker(s) you want to delete, and then click Delete.

7.1.2 Audio File Configuration

Configure the audio file to be played by an IP speaker when an alarm occurs. See IP Speaker Alarm Sound for details.

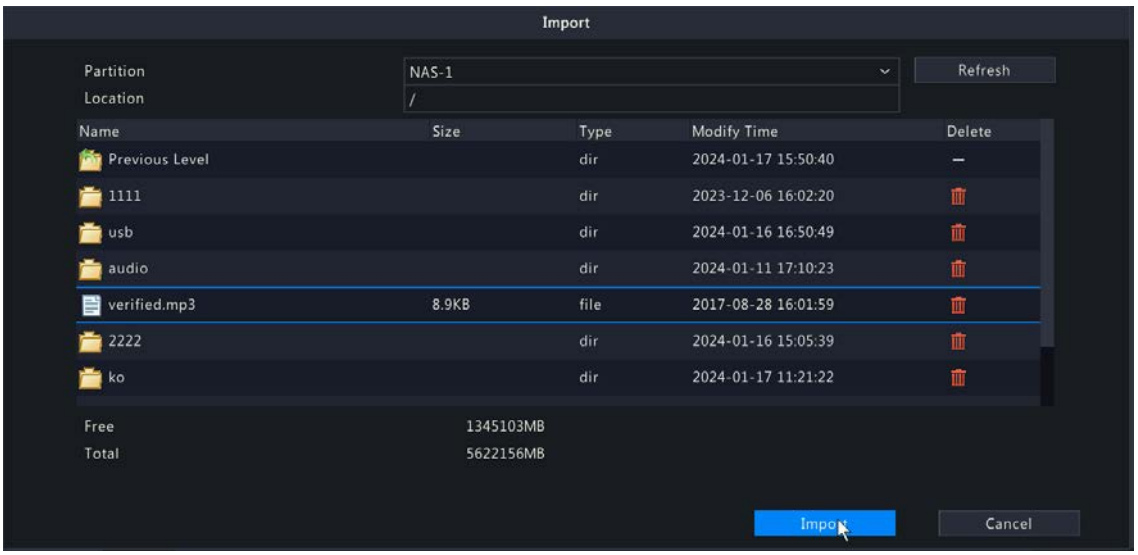
Go to **Menu** > **Peripheral** > **IP Speaker** > **Audio File**.

Note: You can also configure the audio file on the Web interface of the IP speaker.



Add Audio File

1. Select an IP speaker, and click **Import Audio File**.
2. Select the desired audio file, and click **Import**.



Default Audio File

The system audio file stored in the NVR at the factory.

Note:

- Only certain IP speakers have default audio files. Please refer to the actual interface.
- The default audio files cannot be deleted.

Adjust Volume

Drag the slider to adjust the audio volume of the IP speaker as needed.

Test Audio

Test the audio to be played by the IP speaker at the configured volume.

- Click to start playing the audio.
- Click to stop playing the audio.

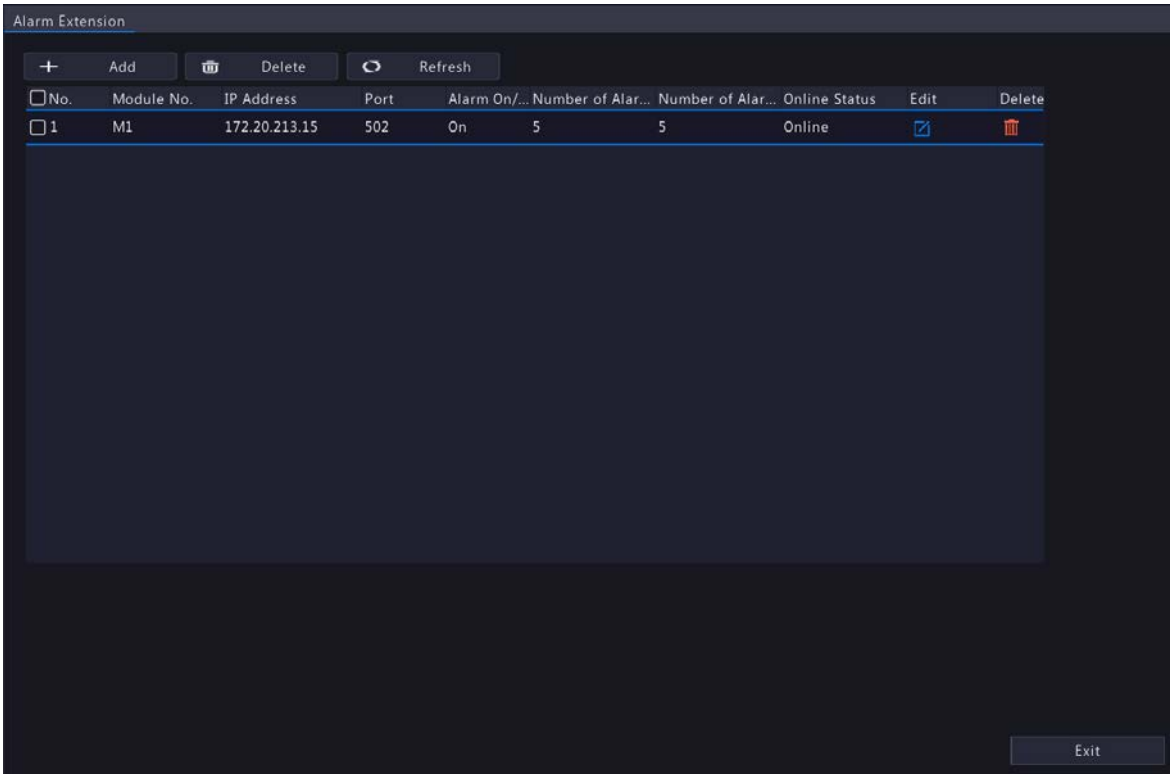
Delete Audio File

Select the audio file you want to delete, and click .

7.2 Alarm Extension

Add and manage third-party alarm extension devices (such as a relay).

Go to **Menu > Peripheral > Alarm Extension**.

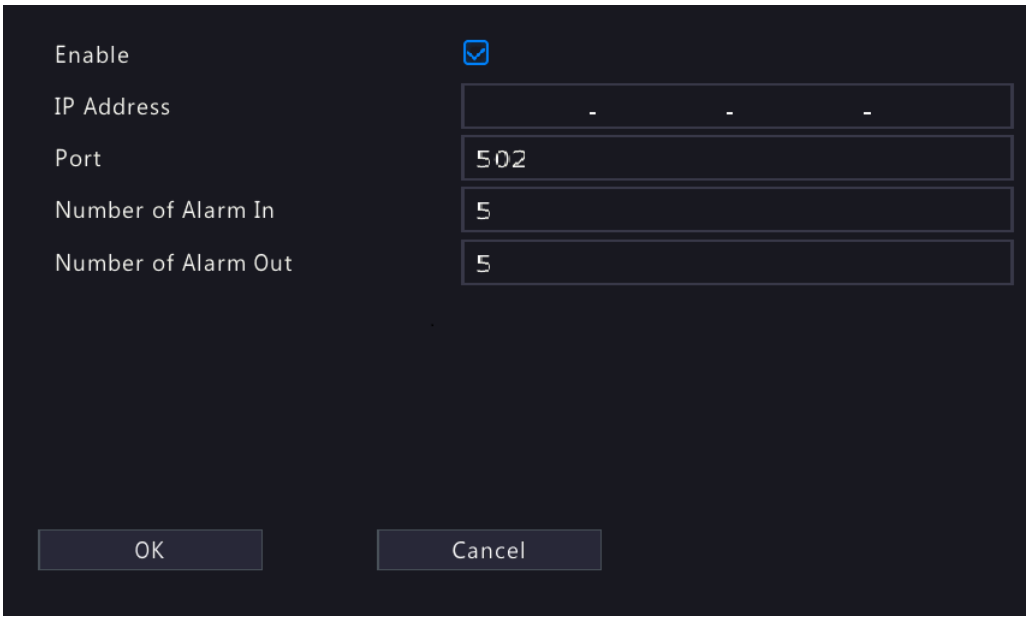


Add Alarm Extension Device

1. Click **Add**. The **Add** page appears. Select the **Enable** checkbox.

Note:

- The corresponding alarm switch status is "On".
- You can configure alarm input/output for the alarm extension device when alarm is enabled. See Alarm Input and Output.



2. Enter the IP address and port of the alarm extension device.The default port is 502. You can change it as needed.
3. Set the number of alarm inputs and outputs for the device. The default number is 6, and you can change it within the range of [1-32].
4. Click **OK**. Chech the status of the alarm extension device.
   - Online: The alarm extension device is online.
   - Offline: The alarm extension device is offline. You can hover over the status to view the failure cause.

Edit Alarm Extension Device

Click . The **Edit** page appears. Modify the device parameters such as IP address and port as needed.

Delete Alarm Extension Device

Select the device to delete, and then click or Delete.

7.3 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.

7.3.1 POS OSD Configuration

Configure POS OSD parameters.

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

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

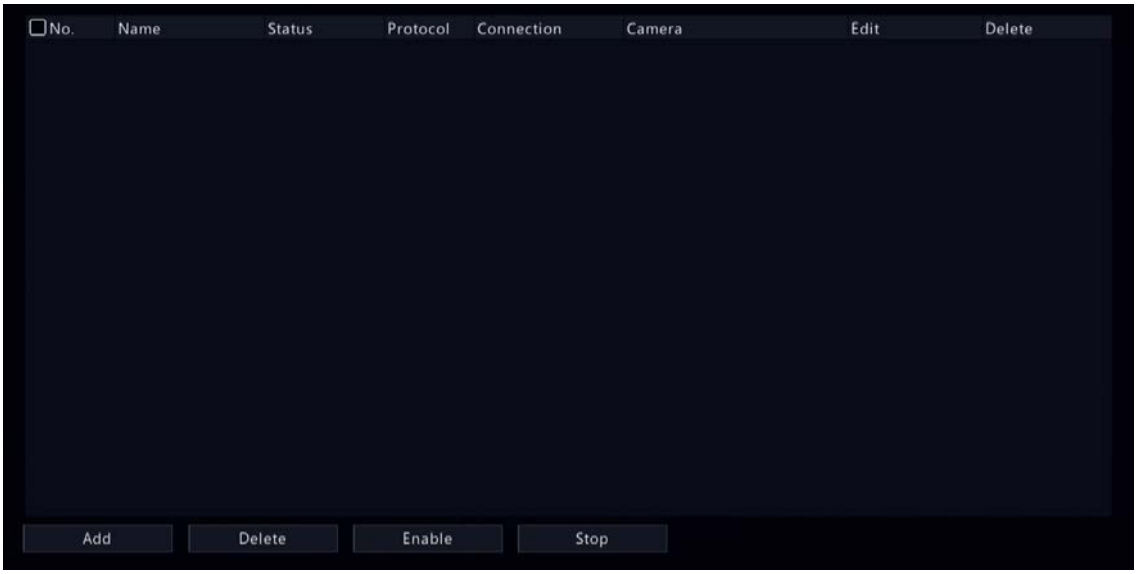
Parameter	Description
Position	POS OSD position. • Left: In the upper-left corner of the image. • Center: In the middle of the image. • Right: In the upper-right corner of the image.
Duration(s)	Length of time that POS OSD is displayed on live and recorded video images. Default: 5s. Max. 120s.
Auto	Displays 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**.

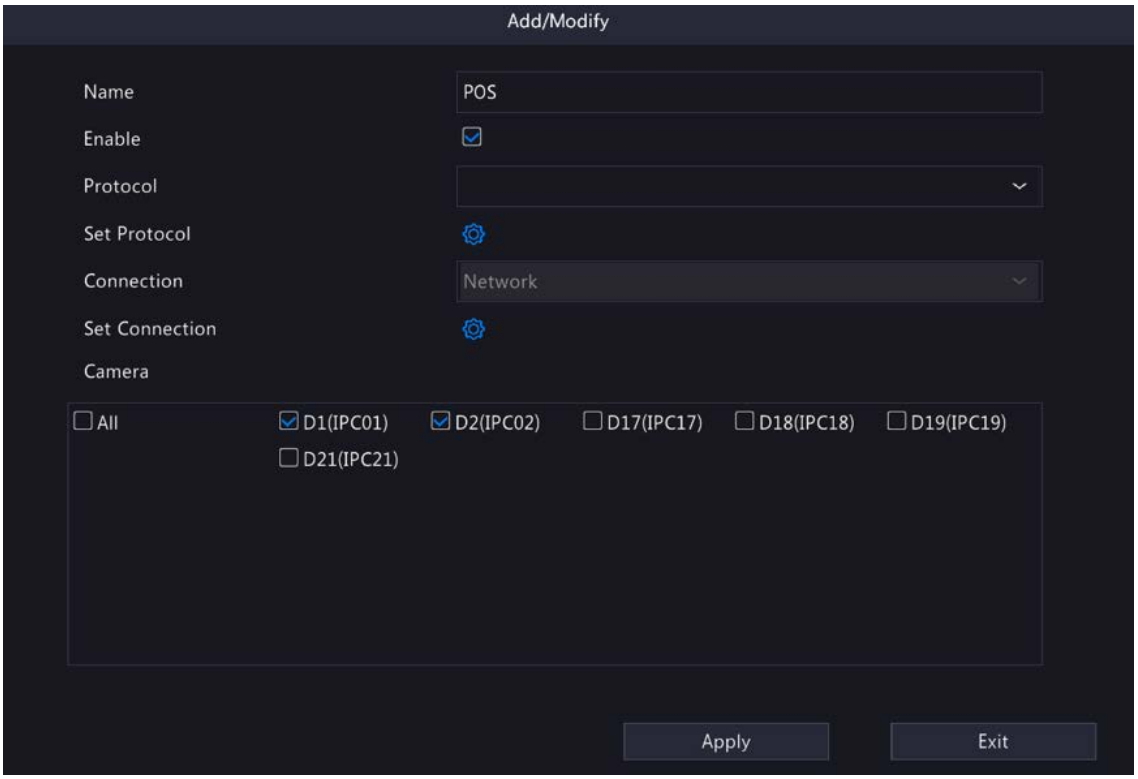
7.3.2 POS Configuration

Add POS and configure POS protocols.

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



2. Click **Add**.

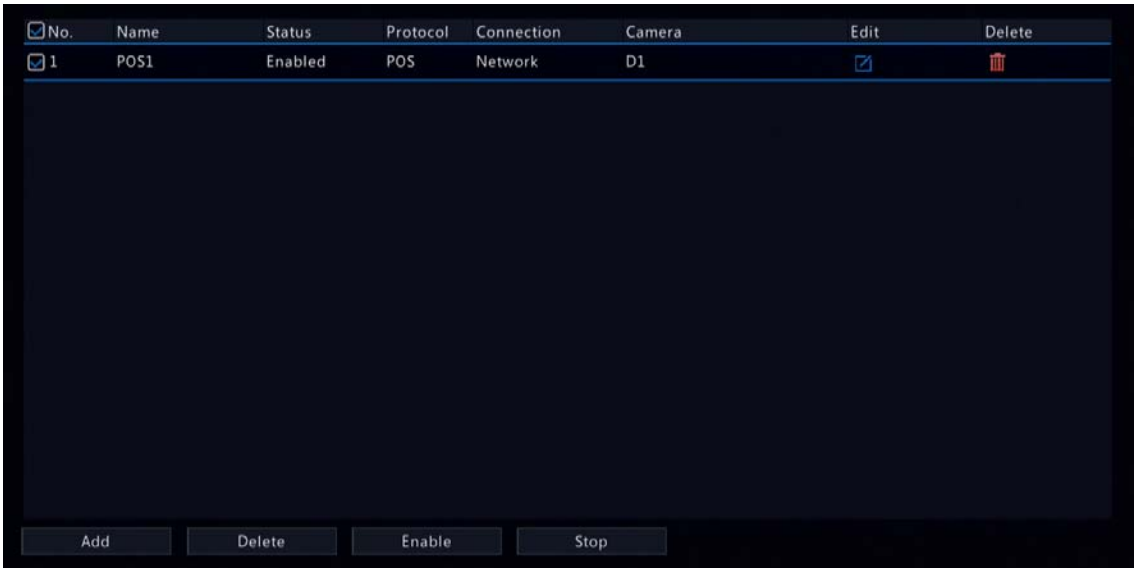


3. Configure the parameters.

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.
	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.

Parameter	Description
	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.

7.4 Radar Configuration

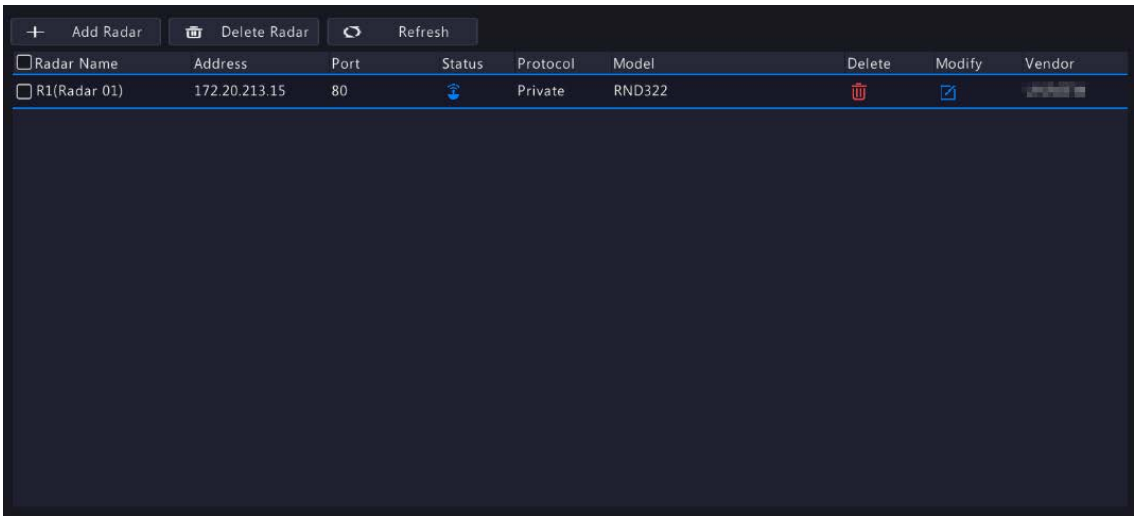
Add, modify, or delete radar devices on the NVR.

Note:

- Up to 20 radar devices are allowed.
- NVR can receive realtime people counting data from the radar devices, and then transfer the data to UCS if connected to the cloud. However, it does not store and search data.

Add Radar

1. Go to **Menu** > **Peripheral** > **Radar**.



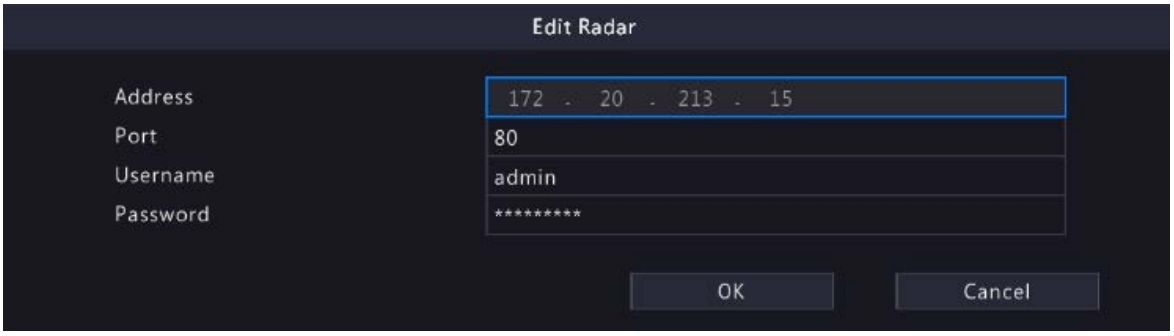
2. Click **Add Radar**, and then configure radar parameters.

Parameter	Description
Address	IP address of the radar device.
Port	80 by default.
Username	Username used to log in to the radar device.
Password	Password used to log in to the radar device.

3. Click **OK**.

Modify Radar

Click to modify the radar information.



Delete Radar

You can delete radar device(s) one by one or in batches.

- Delete one by one: Select a radar device to be deleted, and then click .
- Delete in batches: Select radar devices to be deleted, click **Delete Radar**, and then click **OK**.

Refresh

Click **Refresh** to show the latest radar list.

8 System Configuration

This chapter describes how to configure the system parameters.

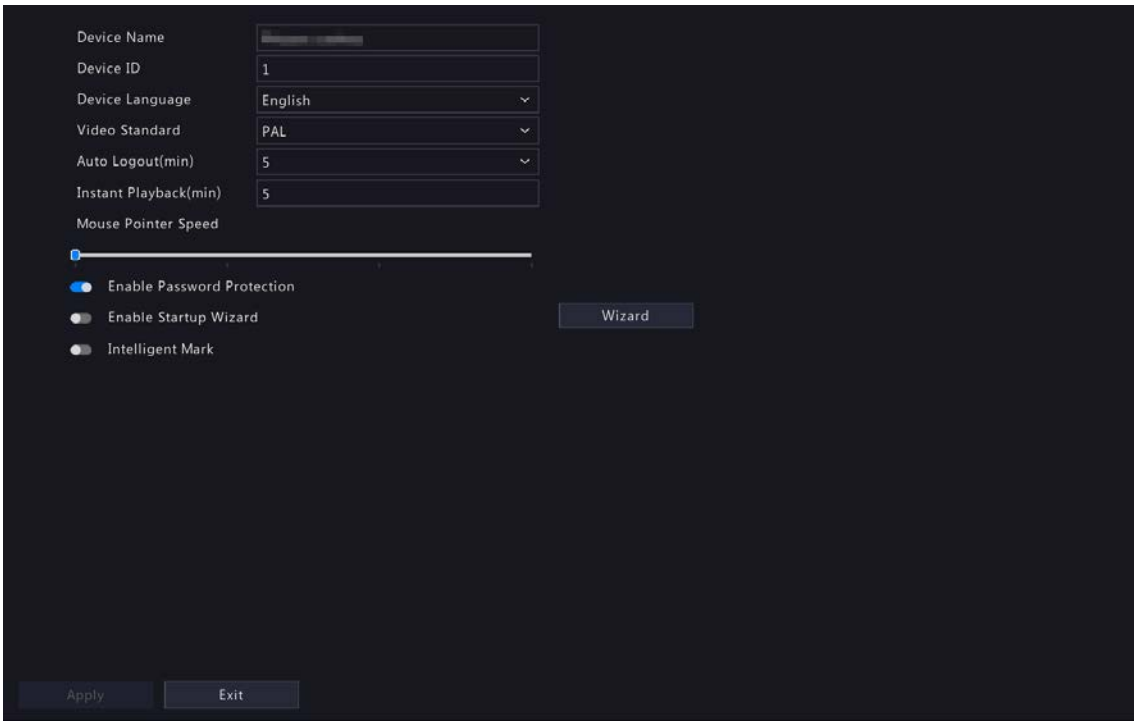
8.1 General Configuration

Configure device basic information, time display mode, DST, time synchronization mode, and holidays.

8.1.1 Basic Configuration

Configure the basic information of the system.

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



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.
Video Standard	Choose a video standard, and then the device may automatically adjust the capture mode of the connected cameras. • PAL: 50Hz • NTSC: 60Hz
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).

Parameter	Description
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. When enabled, 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**.

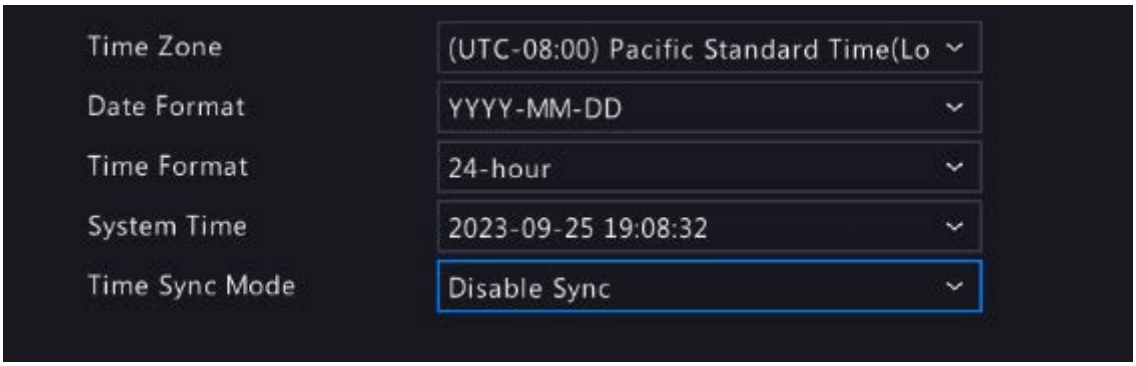
8.1.2 Time Configuration

Configure the time format and update method.

Note: If the device's battery is low, the following message will appear on the screen: Device time error. Please replace the button battery on the motherboard and reset the time.

Basic Time Config

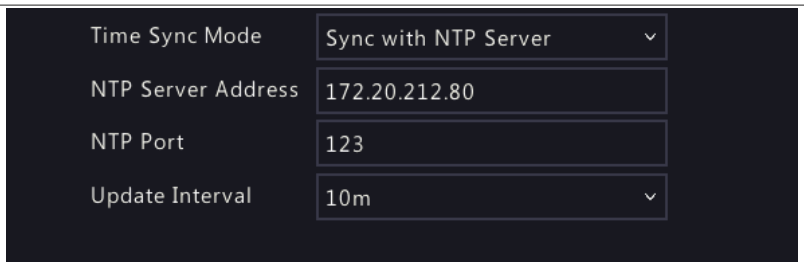
Go to **Menu** > **System** > **General** > **Time**. Choose the time zone, date, and time format as needed.



System Time

- Set the system time manually.
- Select the sync mode from the drop-down list, and then the system time will be updated based on the set mode. It is **Disable Sync** by default.

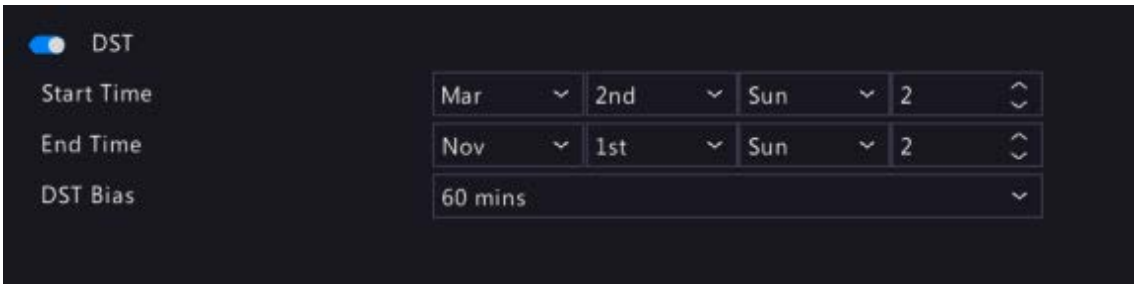
Sync Mode	Description
Sync with NTP Server	The system time will be synced from the NTP server. Configure parameters below as needed.

Sync Mode	Description
	
Sync with Cloud Server	The system time will be synced from the Cloud server. To use this function, enable EZCloud first.

8.1.3 DST

Configure DST.

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



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

8.1.4 Camera Time Synchronization

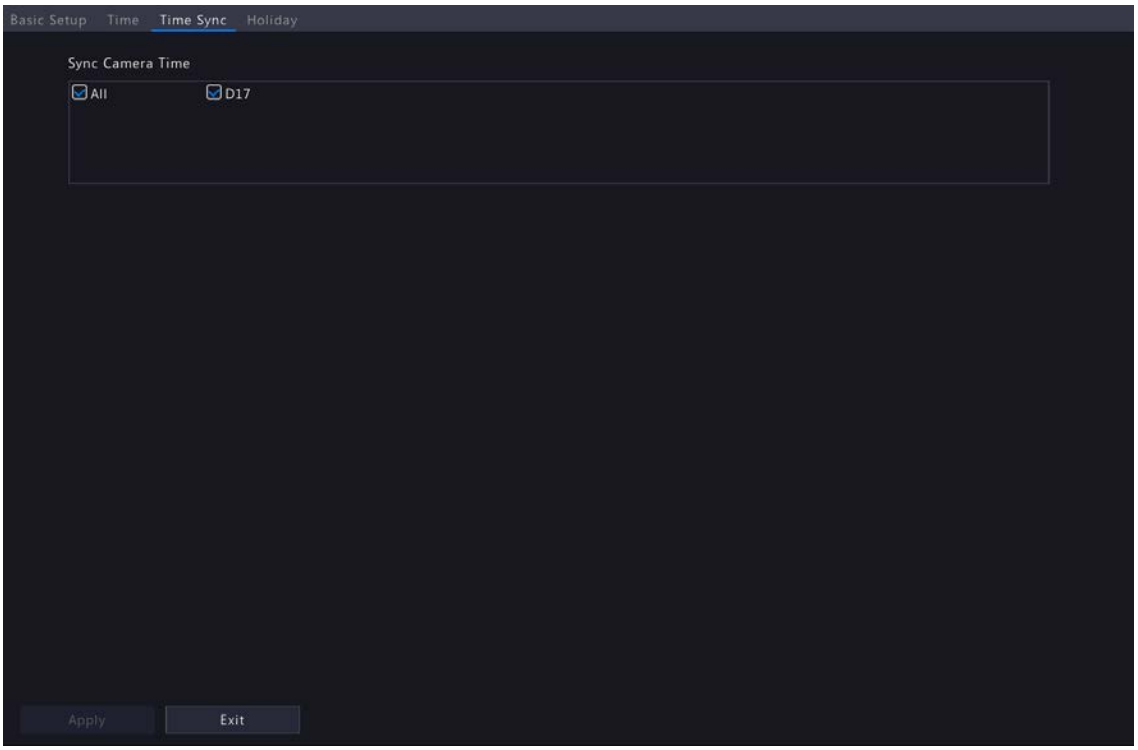
When **Sync Camera Time** is enabled, the NVR syncs time to the connected cameras regularly.

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** > **General** > **Time Sync**.

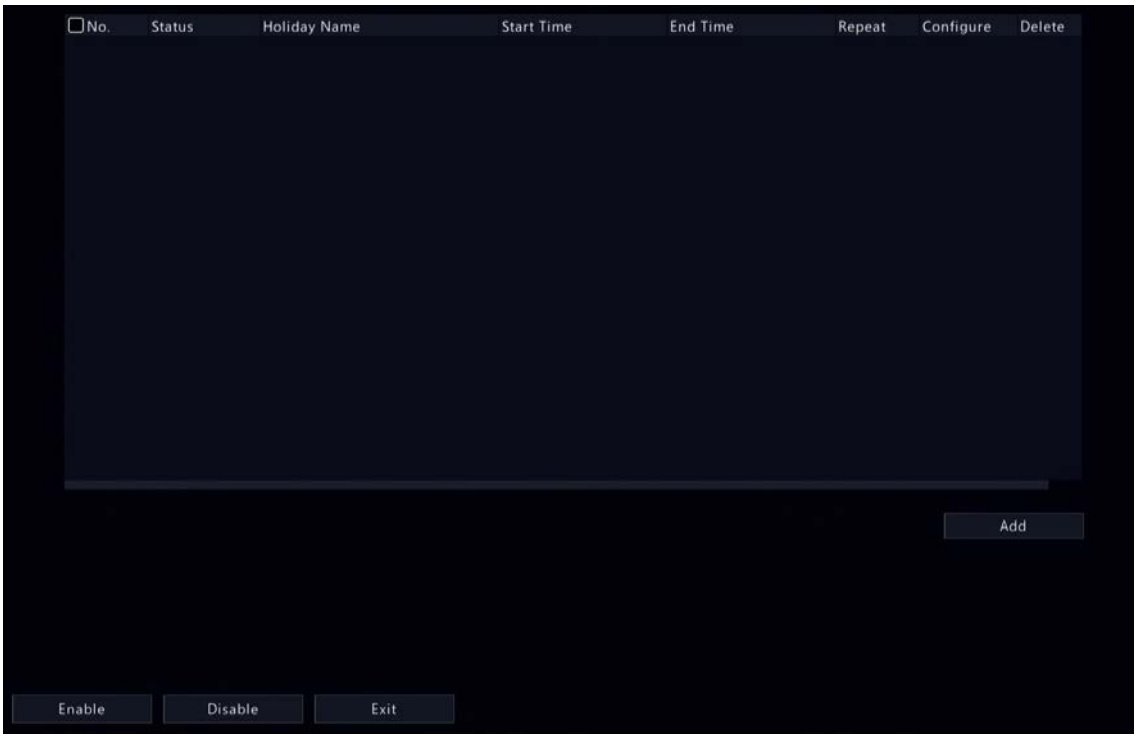


2. Deselect **All** to disable time sync for all channels; or clear the corresponding checkbox(es) to disable time sync for specific channel(s). To enable time sync again, select the checkbox(es).
3. Click **Apply**.

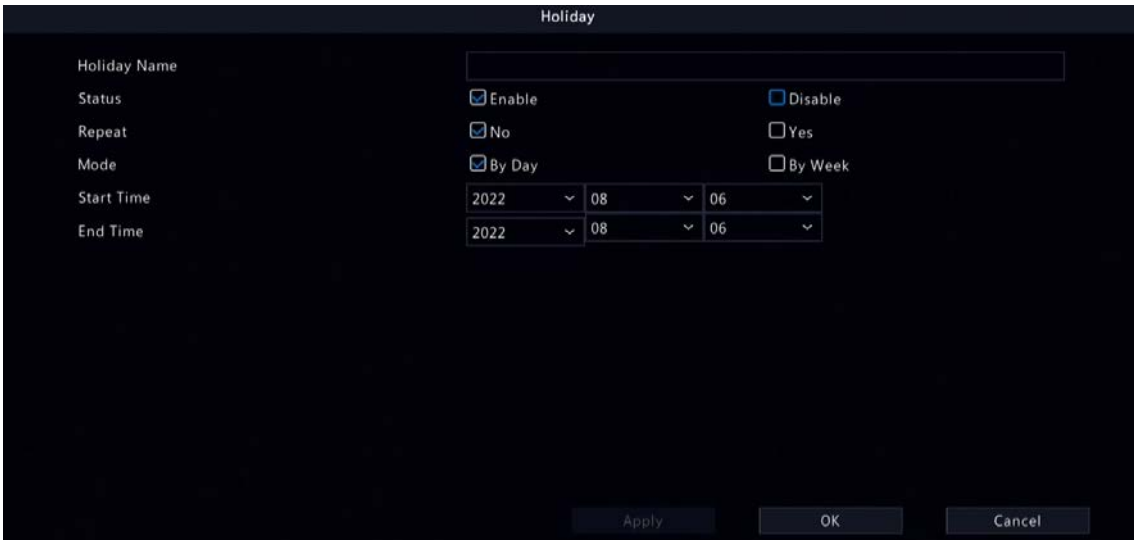
8.1.5 Holiday Configuration

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

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



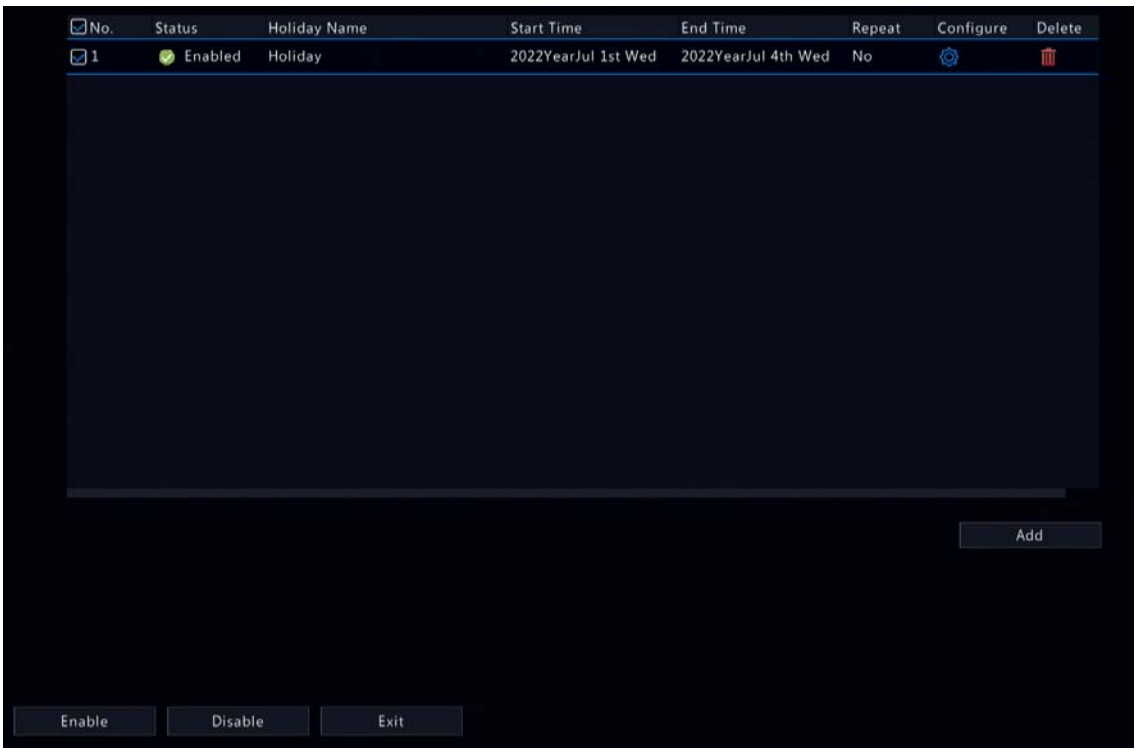
2. Click **Add** in the lower-right corner.



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.

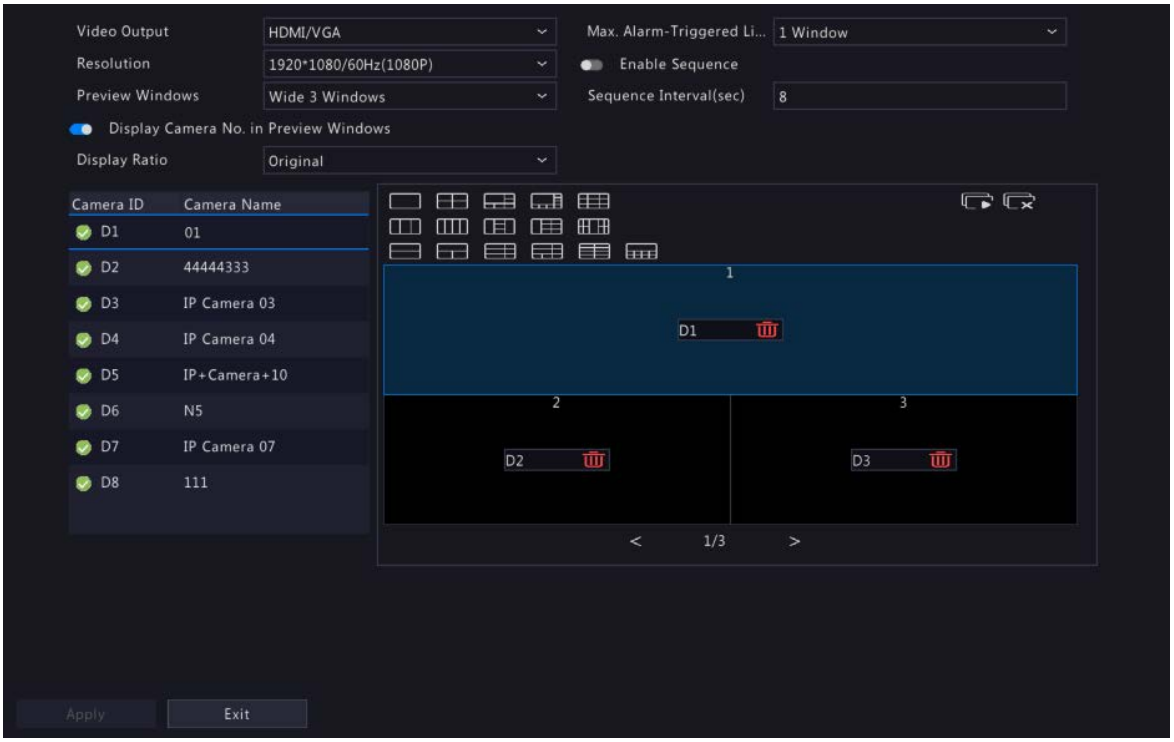
8.2 Preview Configuration

Configure the screen display and preferred stream type for preview.

8.2.1 Preview Configuration

Configure the basic preview parameters and display mode.

Go to **Menu** > **System** > **Preview** > **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	Enable sequence. See Sequence for more information.

Parameter	Description
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.

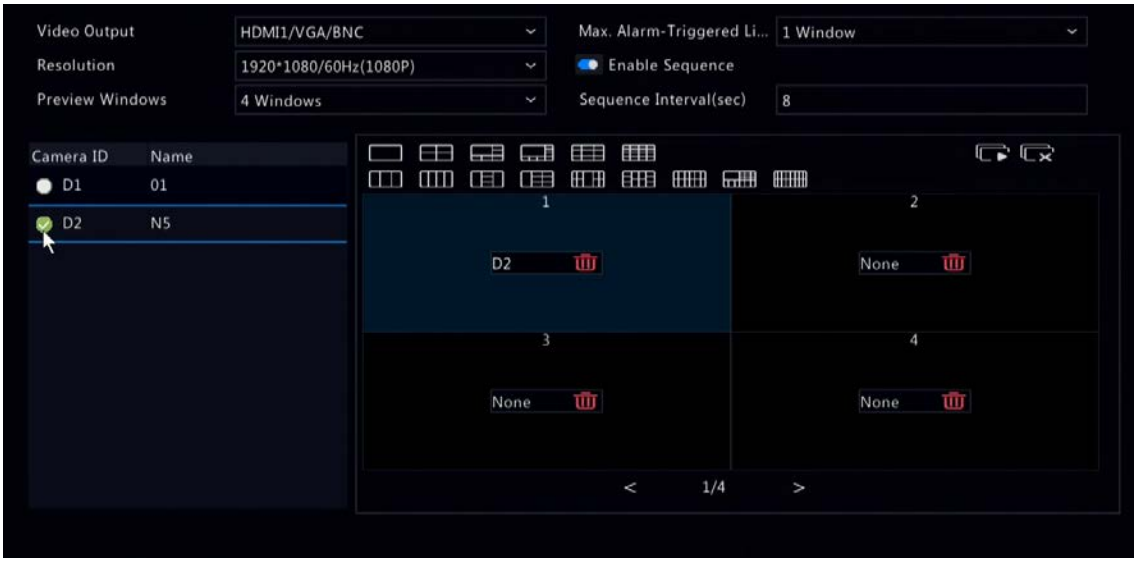
Screen Configuration

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.

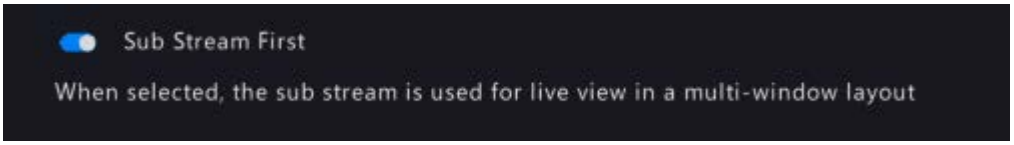
3. Click window 2 on the right side. Window 2 is selected.

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**.

8.2.2 Advanced Configuration

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



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

8.3 Network Configuration

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.

8.3.1 Basic Configuration

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

8.3.1.1 Network Configuration

Configure IP address and other network parameters of the NVR.

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

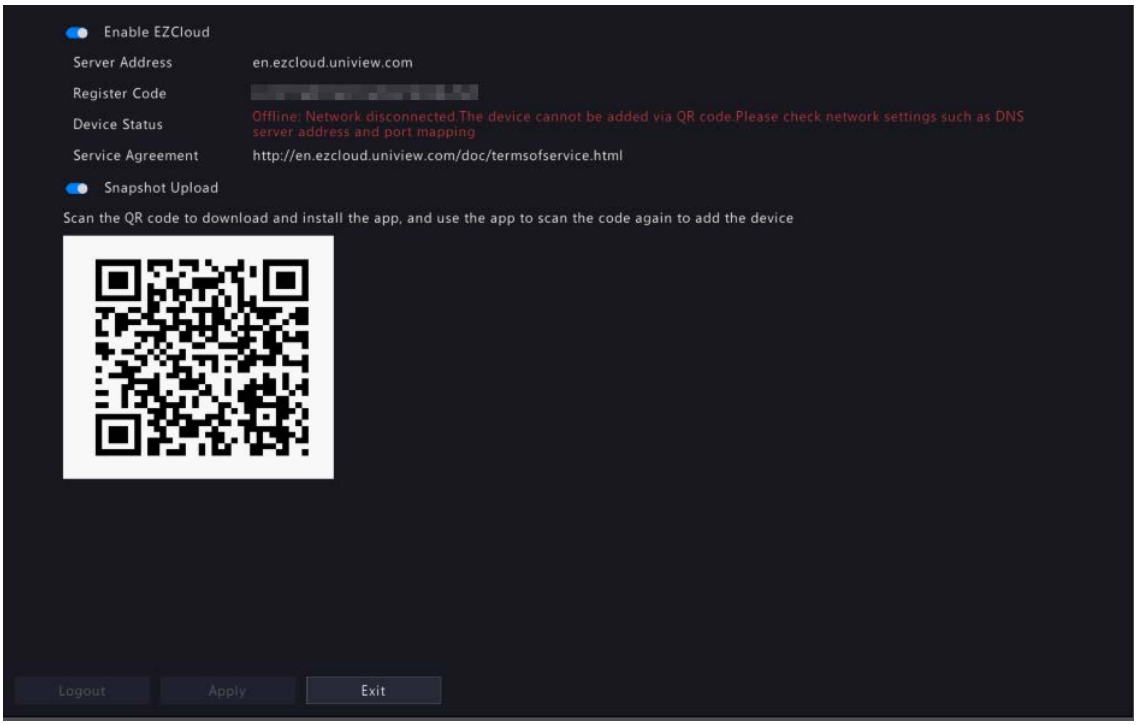
4. Click **Apply**.

8.3.1.2 EZCloud

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

Configure EZCloud

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



2. Add the NVR to cloud. See Add Device below.
3. (Optional) Enable **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 **Logout**.

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.

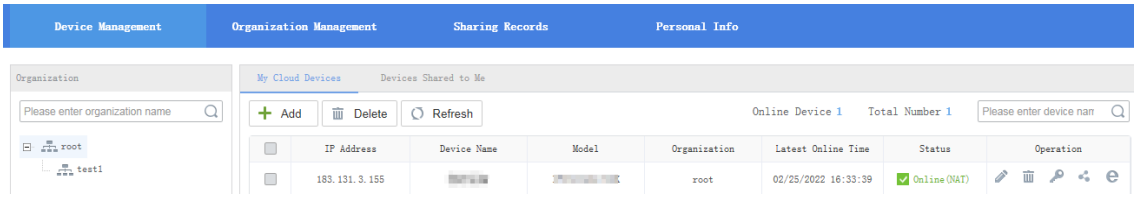
     (3) The registered code is filled in automatically. The default username is "admin". Enter the device password, tap **Login**.

Note:

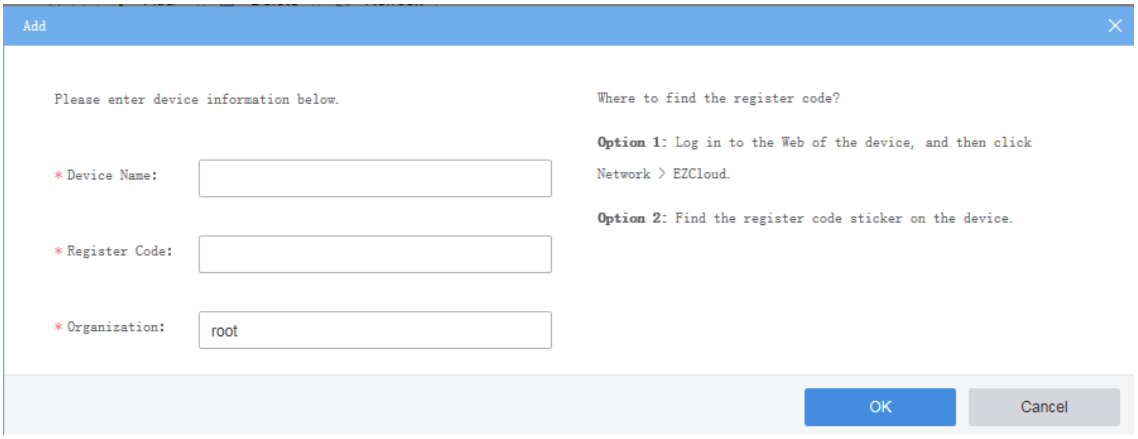
- To add the NVR without a cloud account, ensure that **EZCloud** and **Add Without Signup** are enabled on the NVR, and the NVR's admin password is a strong password.
- Certain functions will be unavailable on the app if the NVR is added without a cloud account. Signup for a cloud account is required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

Add NVR on the cloud website

1. Visit the EZCloud website address (en.ezcloud.uniview.com) 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**.

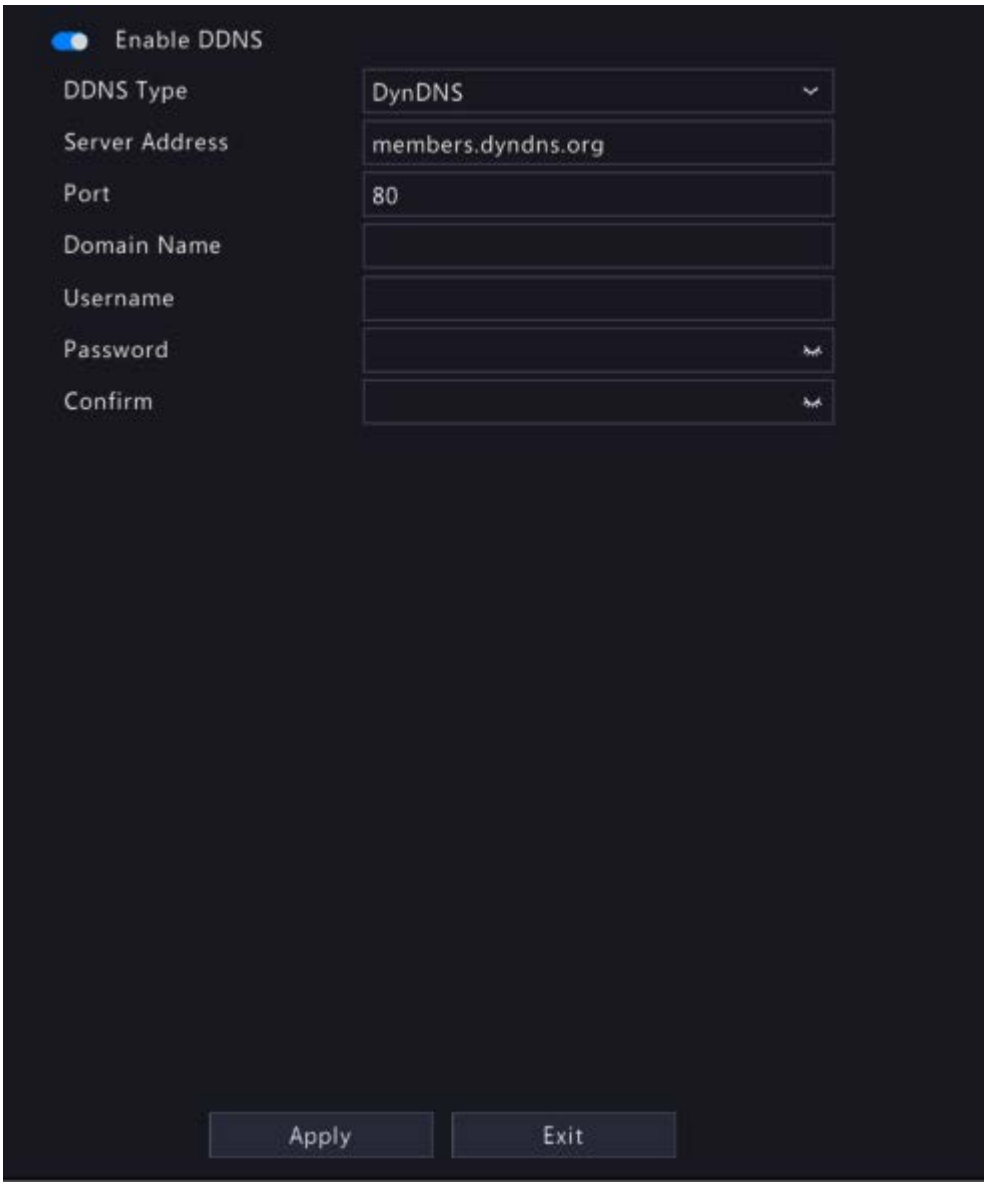
5. Click **OK** to add the NVR to cloud.
6. Click **Save**.

8.3.1.3 DDNS

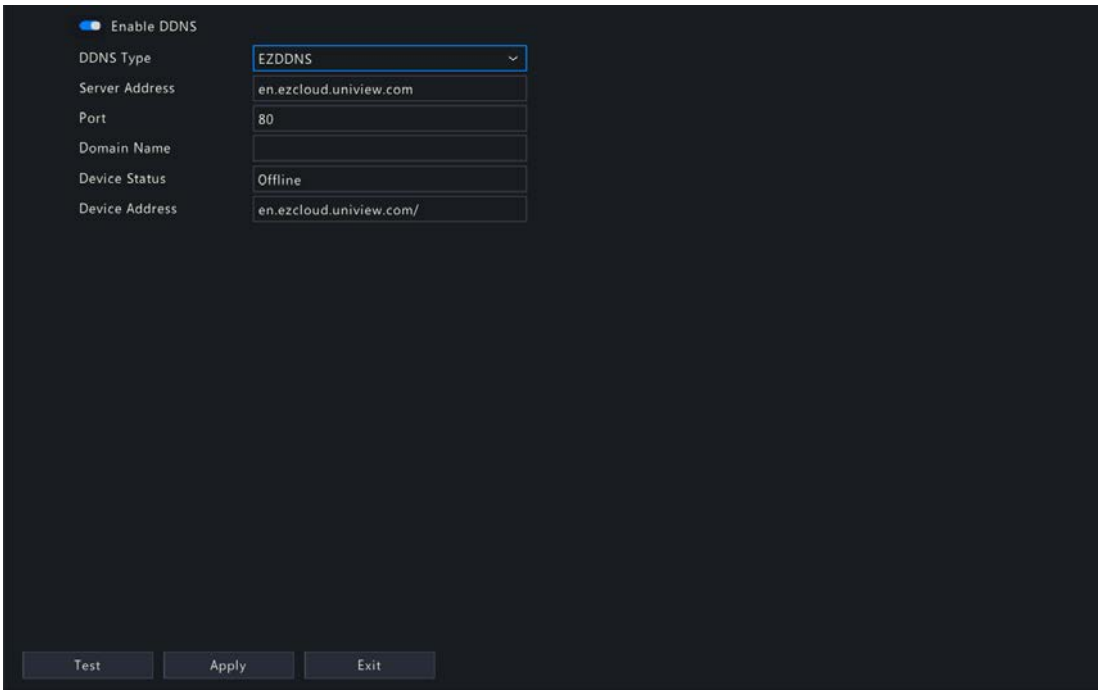
Configure DDNS so you can access the NVR on the LAN from the Internet by visiting a fixed domain name instead of the changing IP addresses.

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** > **System** > **Network** > **Basic** > **DDNS**.



2. 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.
   - EZDDNS: DDNS service provided by Uniview. You can input a domain name, and then click **Test** to check its validity.



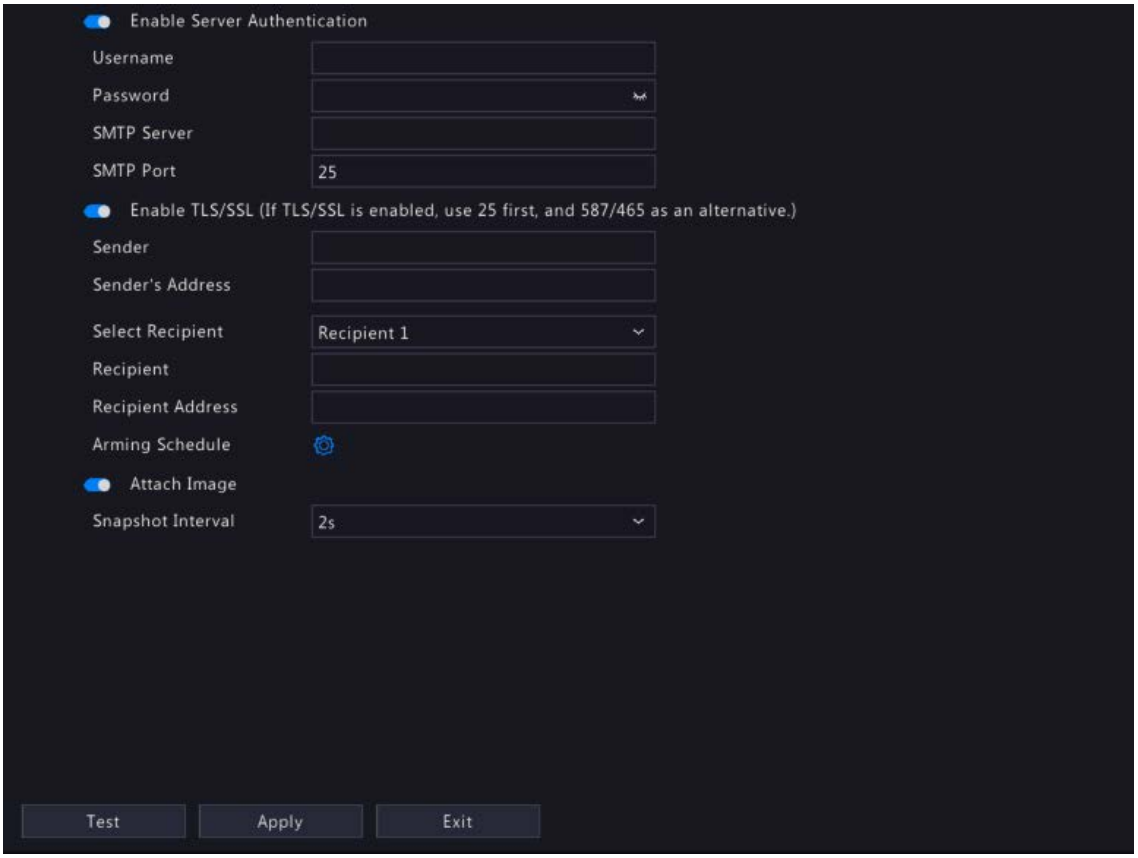
3. Click **Apply**.

8.3.1.4 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.

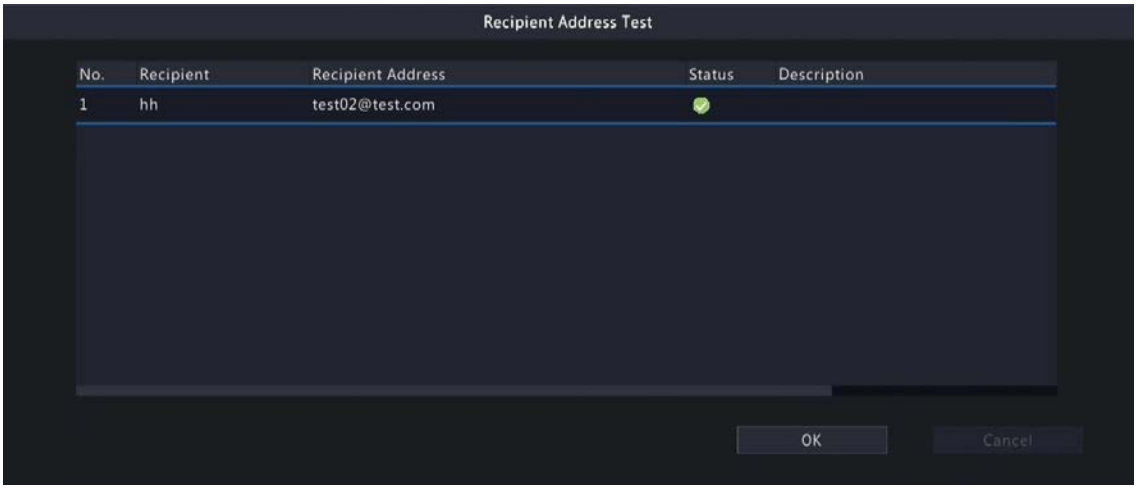
1. Go to **Menu** > **System** > **Network** > **Basic** > **Email**.



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. **Note:** Select Send Email, user can receive the corresponding alarm.
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 alarm information and snapshot(s) every a snapshot interval when an alarm occurs. When disabled, the NVR will send only an email with alarm information when an alarm occurs. **Note:** This function 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**.

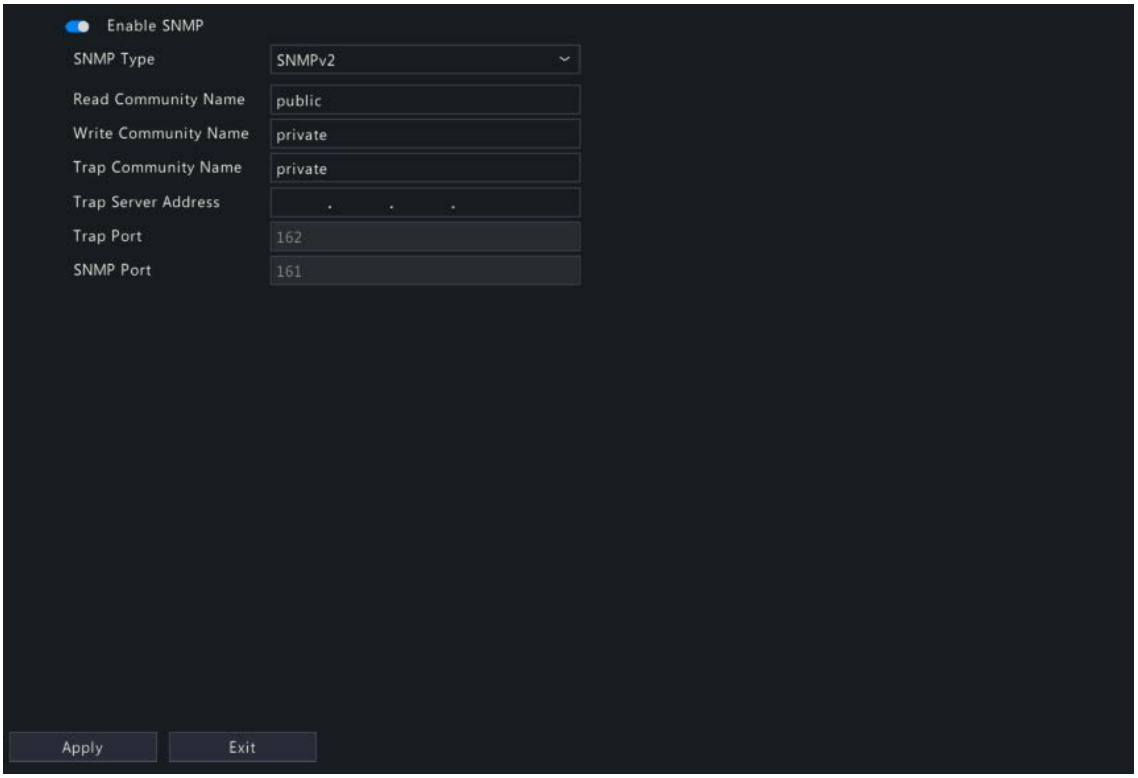
8.3.2 Platform Configuration

Configure an upper platform for the NVR.

8.3.2.1 SNMP

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

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



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

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

   - SNMPv3:

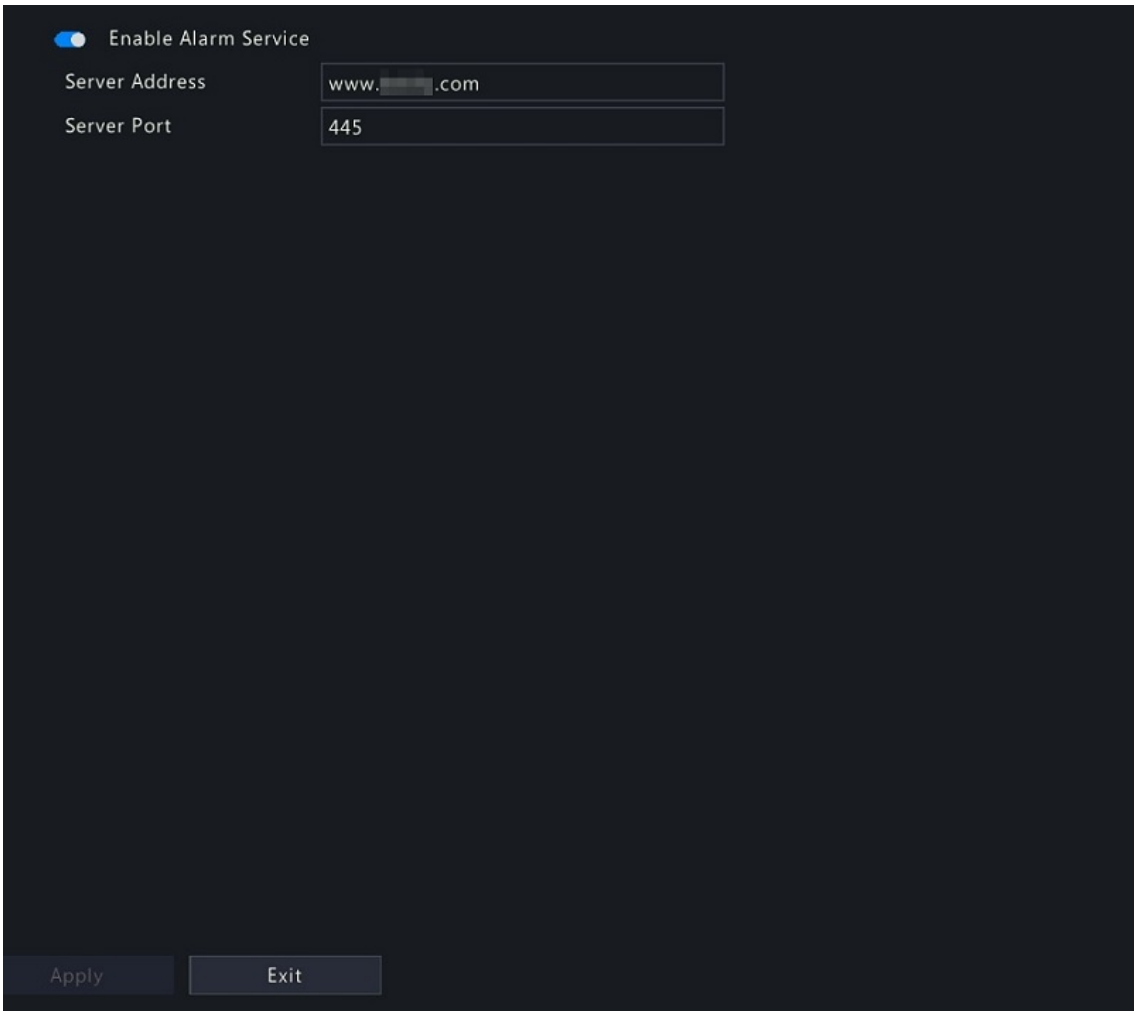
     Set authentication password and encryption password. The authentication password is used by the platform to access the NVR. The encryption password is used to encrypt data sent from the NVR to the platform.

4. Click **Apply**.

8.3.2.2 Alarm Service

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

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



2. Enable alarm service.
3. Configure the parameters.

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

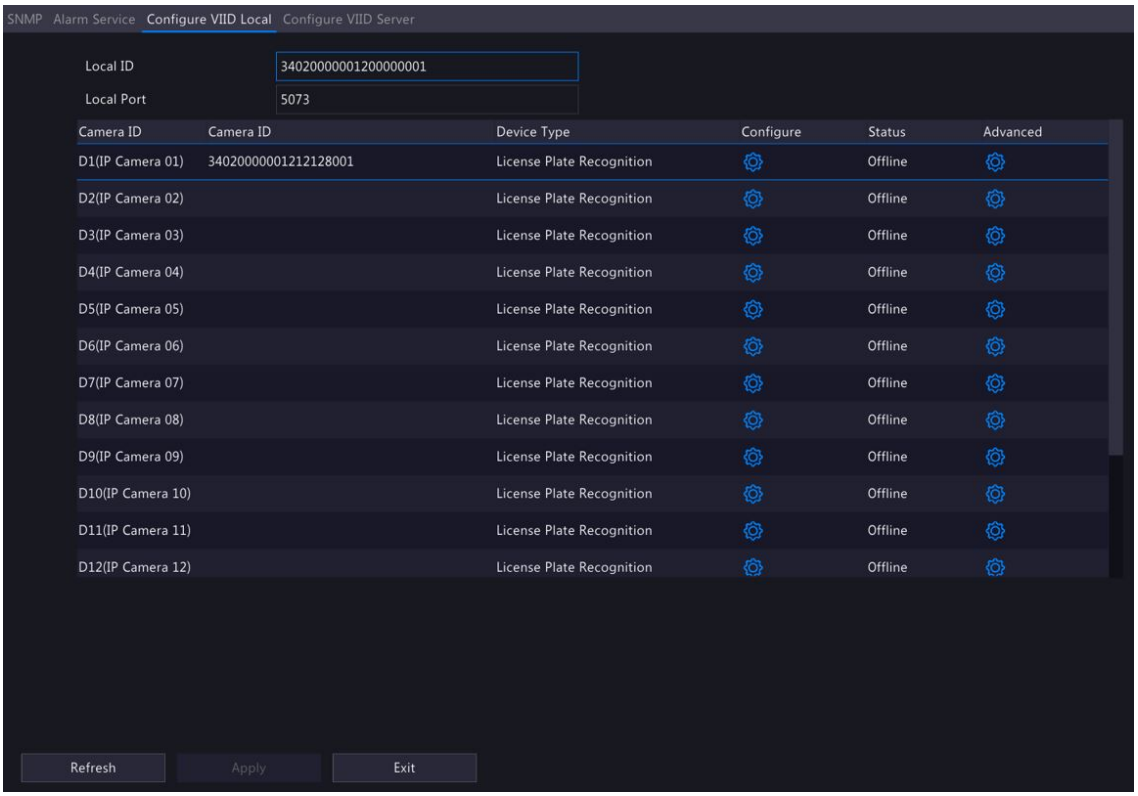
Note: This configuration only enables the sending of alarm-related packets to the alarm host. The specific alarm methods on the alarm host need to be configured separately.

4. Click **Apply**.

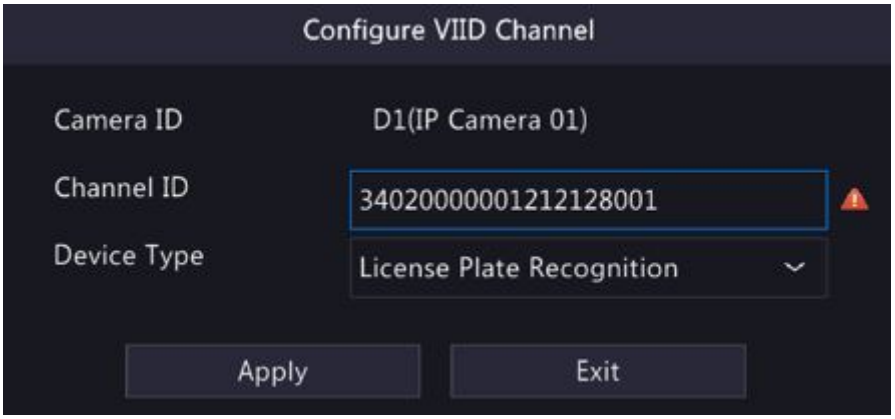
8.3.2.3 Configure VIID Local

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

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

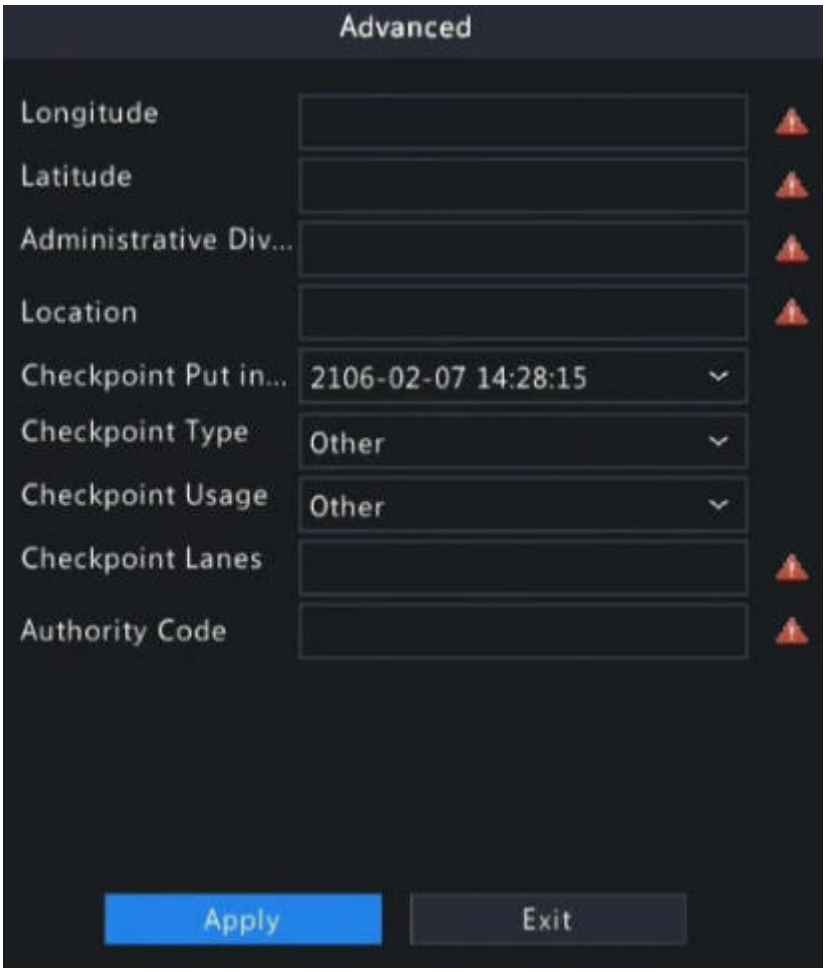


2. The local ID and local port use the default settings by default.
3. Choose a camera, click under **Configure**, and then configure the parameters.



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.



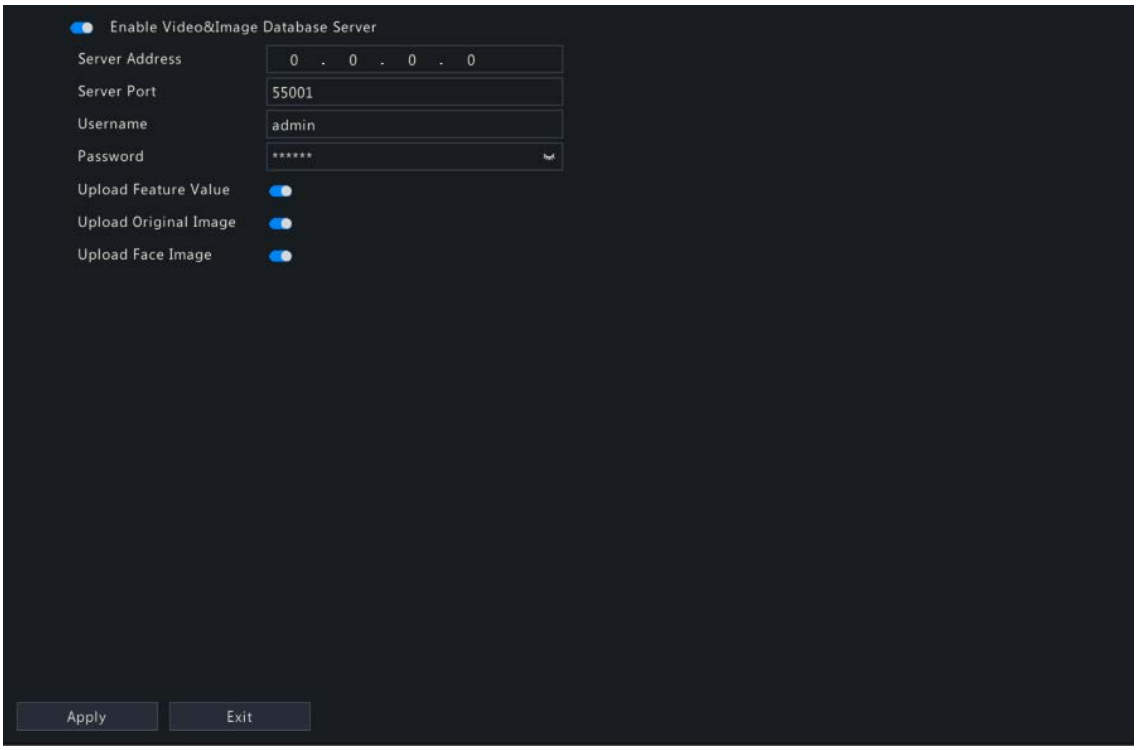
Parameter	Description
Longitude	Longitude of the region where the IP device is located (-180,180).
Latitude	Latitude of the region where the IP device is located (-90,90).
Administrative Division Code	Administrative division code of the region where the IP device is installed.
Location	Location of the 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**.

8.3.2.4 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** > **System** > **Network** > **Platform** > **Video&Image Database Server**.
2. 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**.

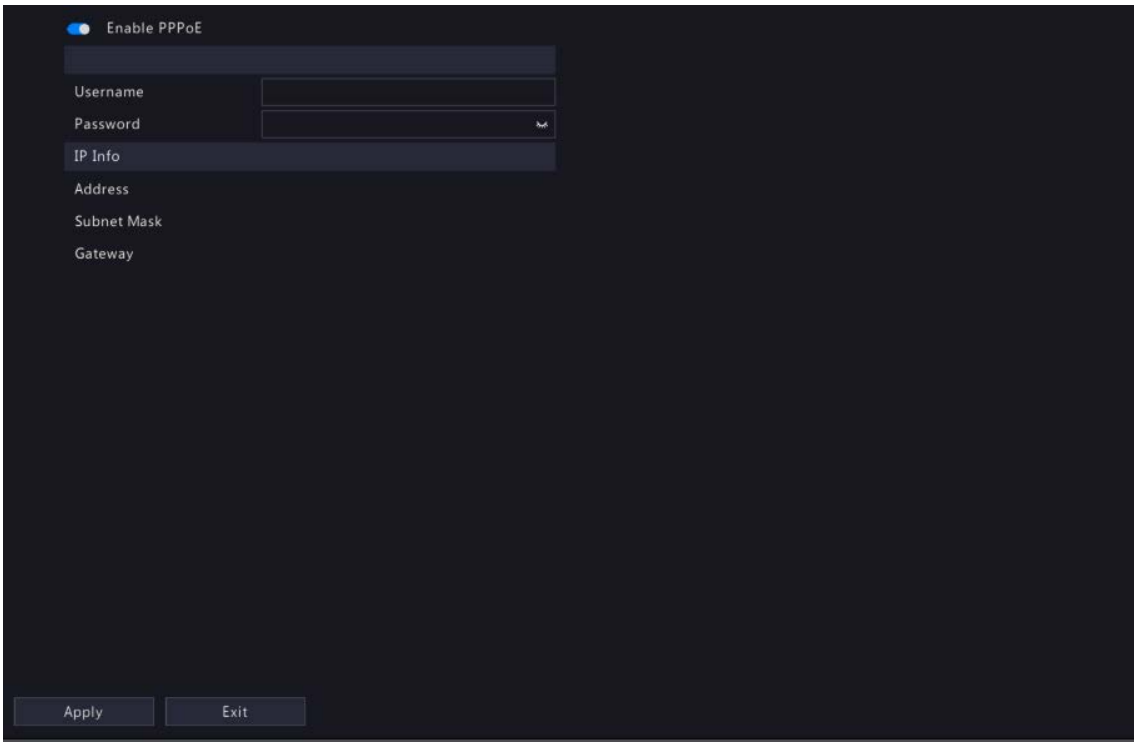
8.3.3 Advanced Configuration

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

8.3.3.1 PPPoE

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

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



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

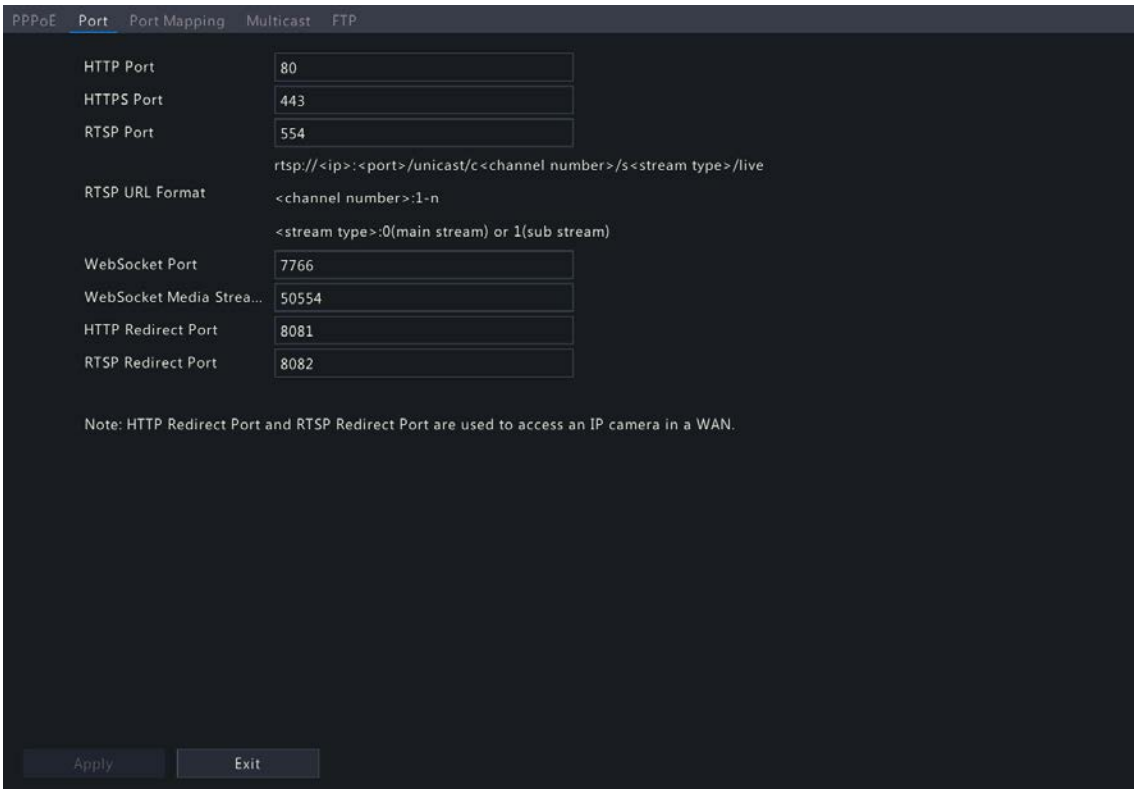
   Note: For a multi-NIC device, dial-up shall be performed on the NIC that is configured as the default route.

4. Click **Apply**.

8.3.3.2 Port

Configure HTTP, HTTPS, RTSP, WebSocket, WebSocket Media Stream, HTTP redirect port, and RTSP redirect port.

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

8.3.3.3 Port Mapping

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

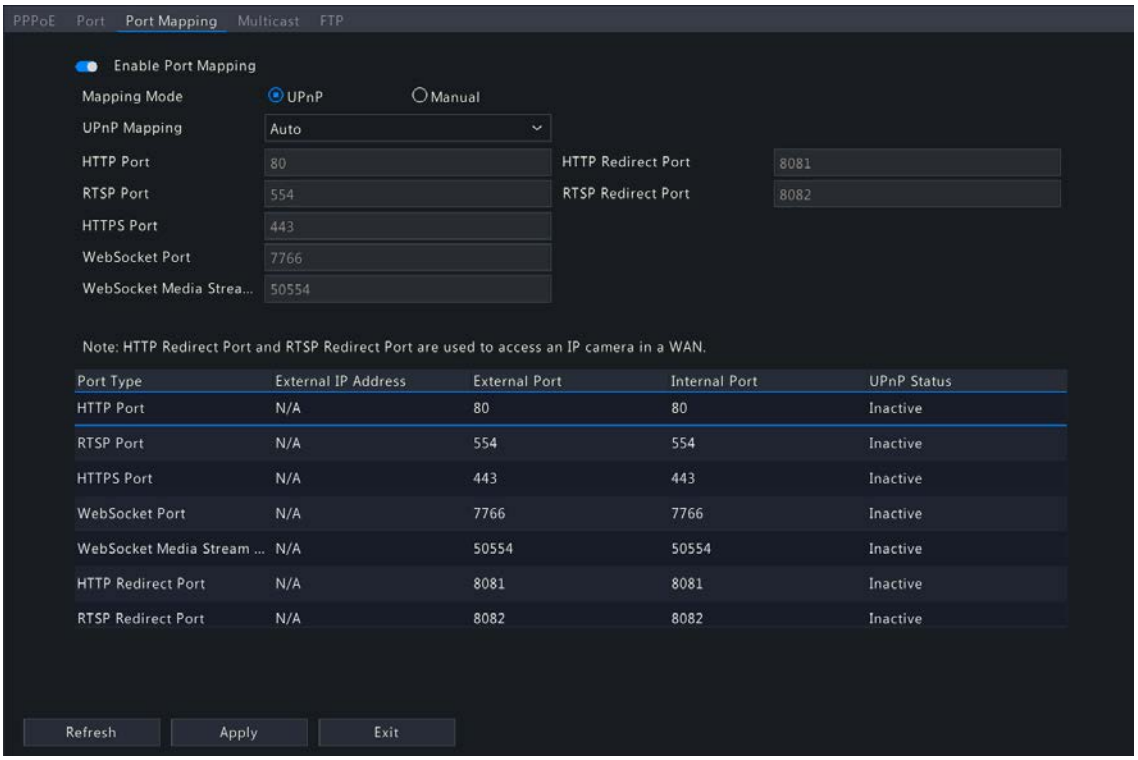
1. Go to **Menu** > **System** > **Network** > **Advanced** > **Port Mapping**.
2. Port mapping is enabled by default. You can choose a mapping mode, UPnP or manual port mapping.

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**.

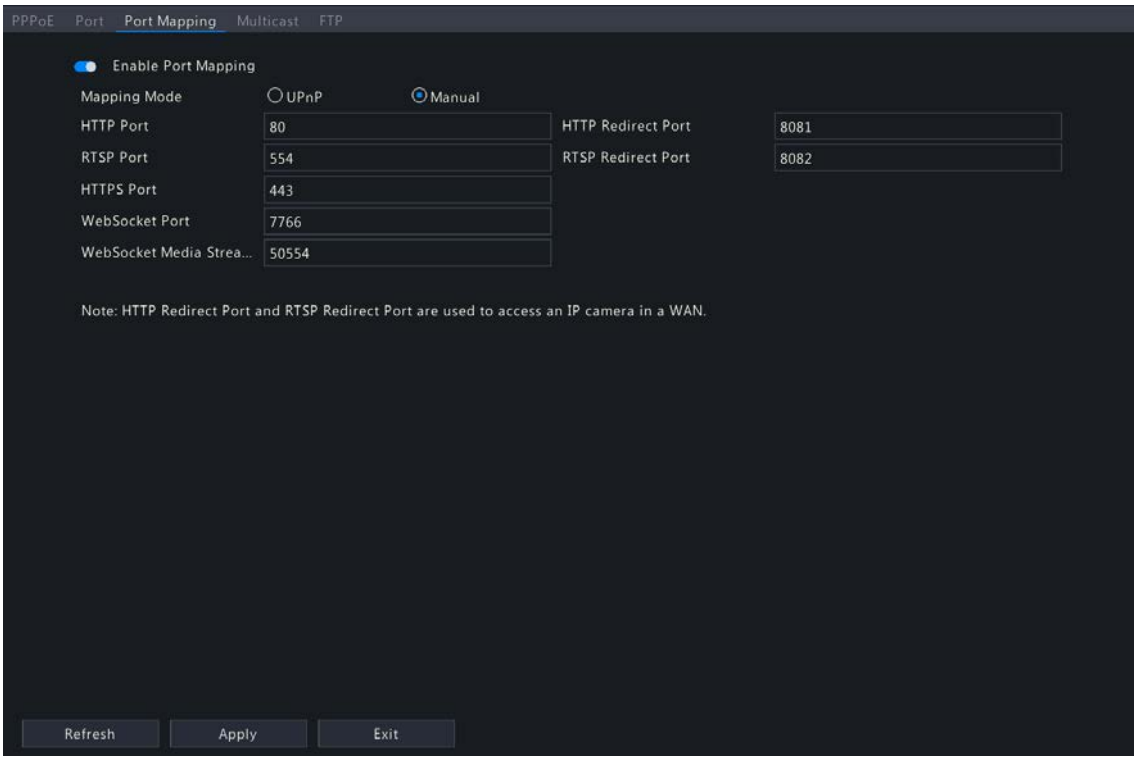
Manual

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.



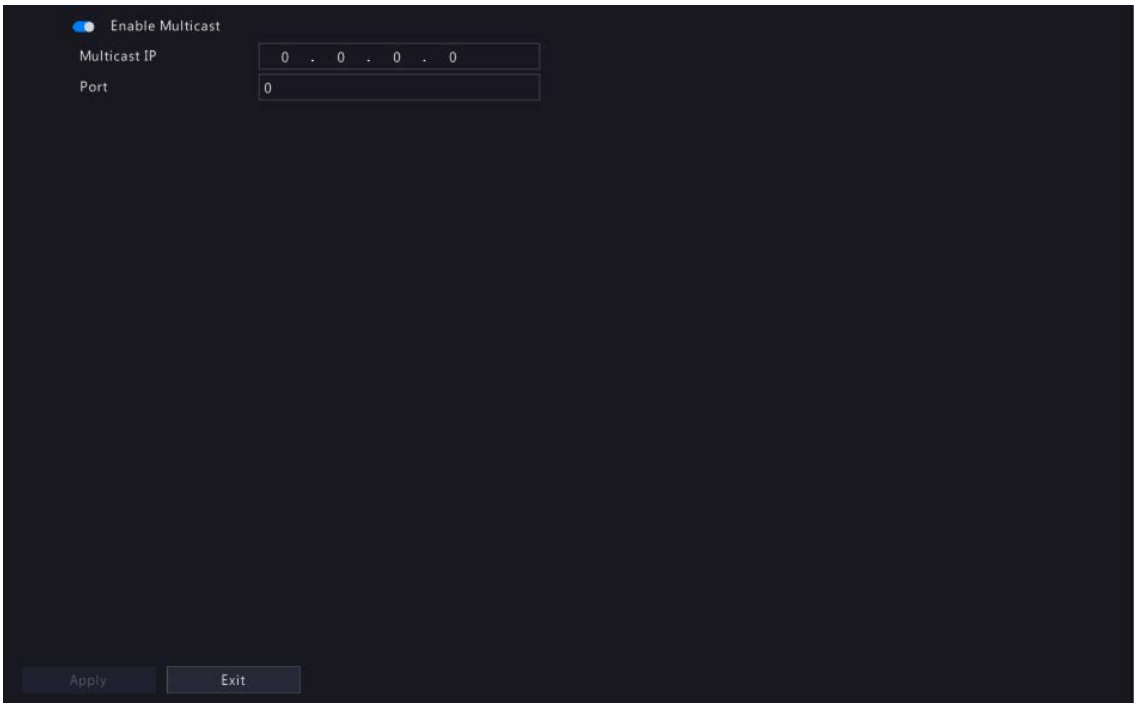
2. Set the external ports manually.
3. Click **Apply**.

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.

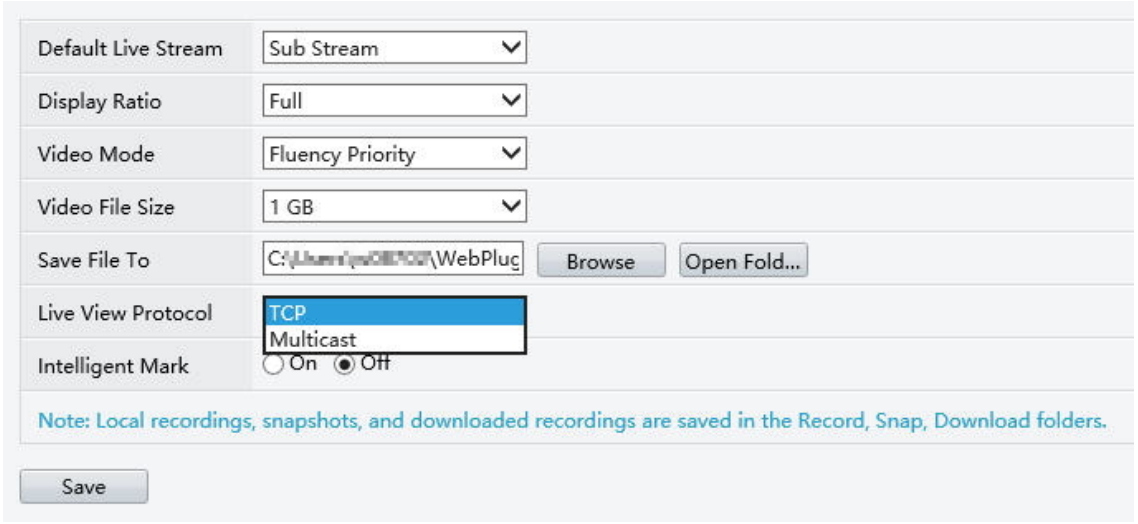
8.3.3.4 Multicast

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** > **System** > **Network** > **Advanced** > **Multicast**.



2. 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).

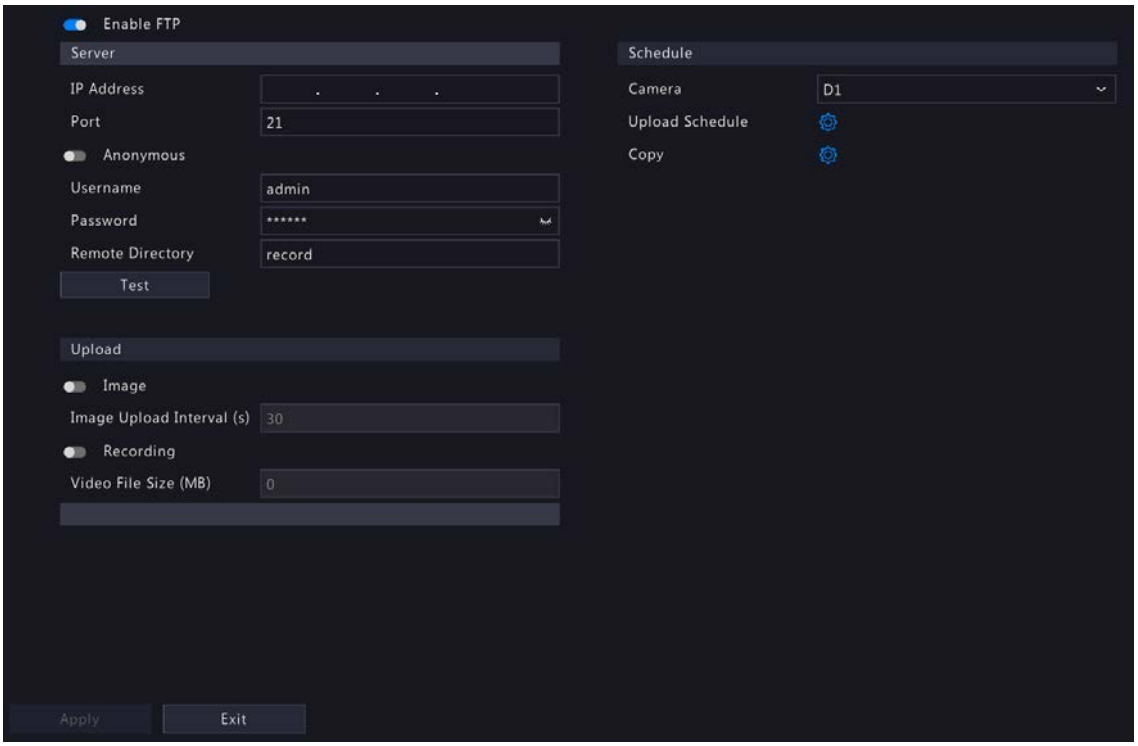
8.3.3.5 FTP

Configure FTP so the NVR can upload images and recording 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** > **System** > **Network** > **Advanced** > **FTP**.



2. 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.

4. Set an upload schedule.

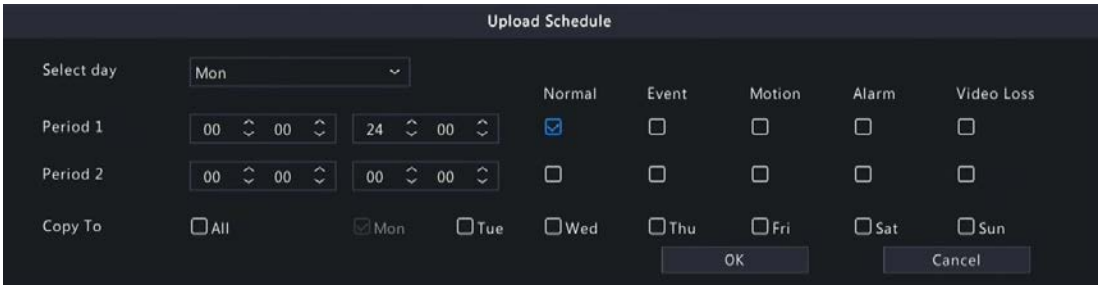
   (1) Click to enable image/recording upload, and then configure the following parameters.

Upload Interval(s)	The NVR uploads images captured within the set periods to the FTP server at the set interval. The default is 30s. Show the range of image upload interval: [5-600]s.
Video File Size (MB)	The maximum threshold for uploading a single video file is set within the configurable range of [0-2048] MB.

	Note: If the size of the video file to be uploaded exceeds the set threshold, the file will be split into smaller parts before uploading. For example, if the setting is 200 MB and the file to be uploaded is 500 MB, then the file will be split into 3 files for upload.

(2) Click the **Camera** drop-down list, select the camera for which you want to configure image/recording upload.

(3) Click behind **Upload Schedule**, set the upload time periods and the type(s) of images and recordings you want to upload. Click **OK**.



Note:

- Two image upload or recording 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**.

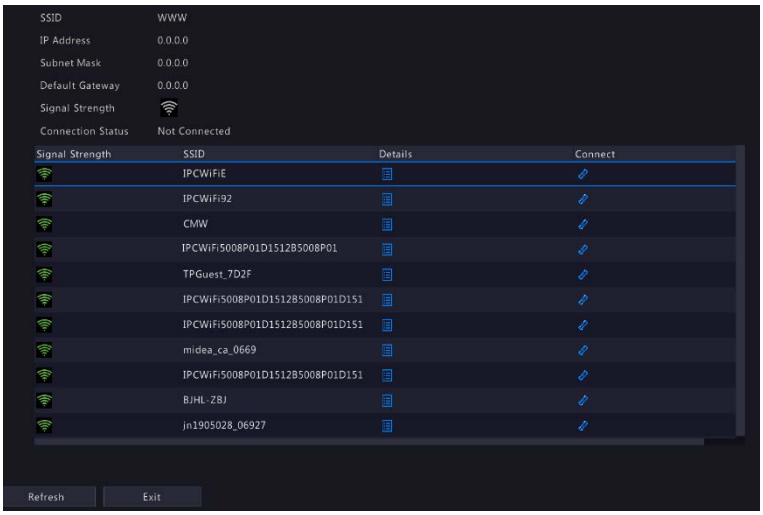
5. (Optional) To apply the current upload schedule to other cameras, click behind **Copy**, select cameras, and then click **OK**.

6. Click **Apply**.

8.3.4 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** > **System** > **Network** > **WLAN**.



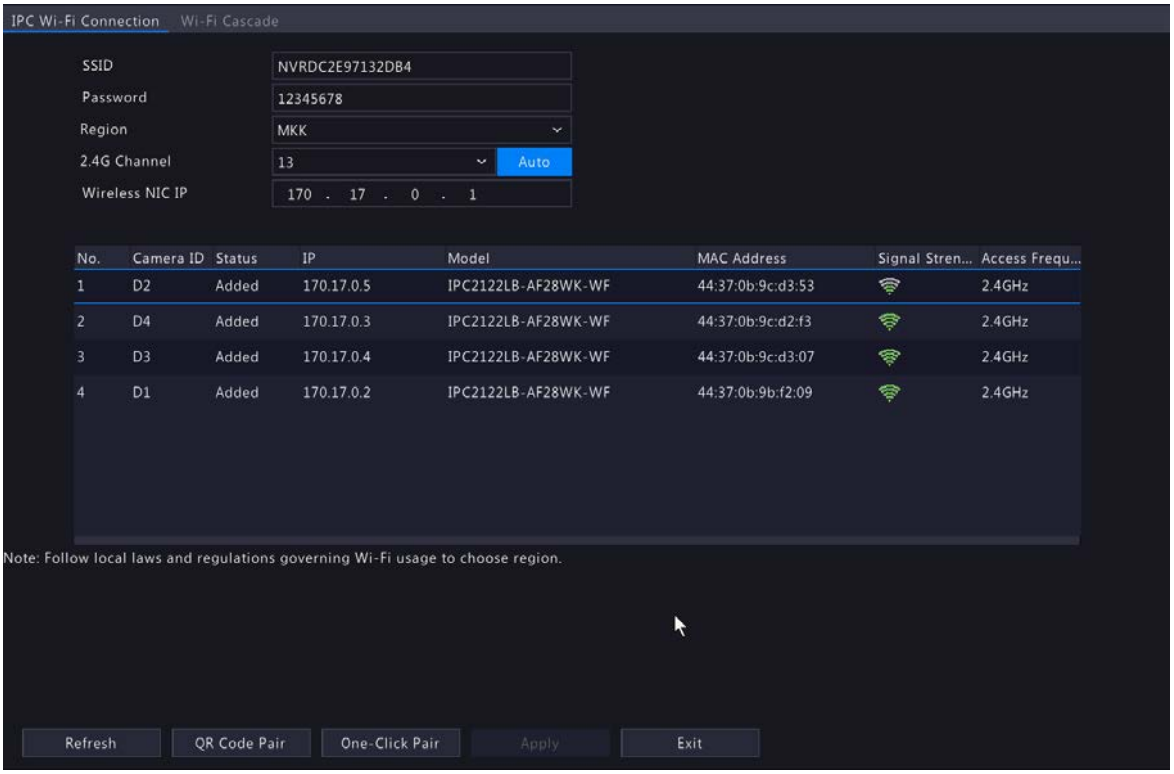
2. Click **Refresh** to refresh the wireless hotspot list.
3. Choose the desired hotspot and then click to connect it.

8.3.5 Wi-Fi AP

Only Wi-Fi Kit NVR models support this function.

8.3.5.1 Wi-Fi 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.



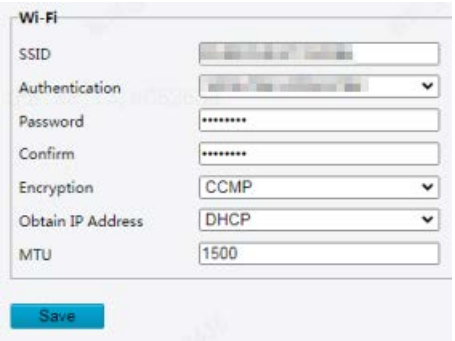
Wireless Pairing

1. Restore the camera to factory default settings.
2. Click **One-Click Pair** or **QR Code Pair**.
   - One-Click Pair: Click this button to add the device. The device is added successfully if it appears on the list.
   - QR Code Pair: Click this button, and then follow the on-screen instructions to add the device.

Wired Pairing

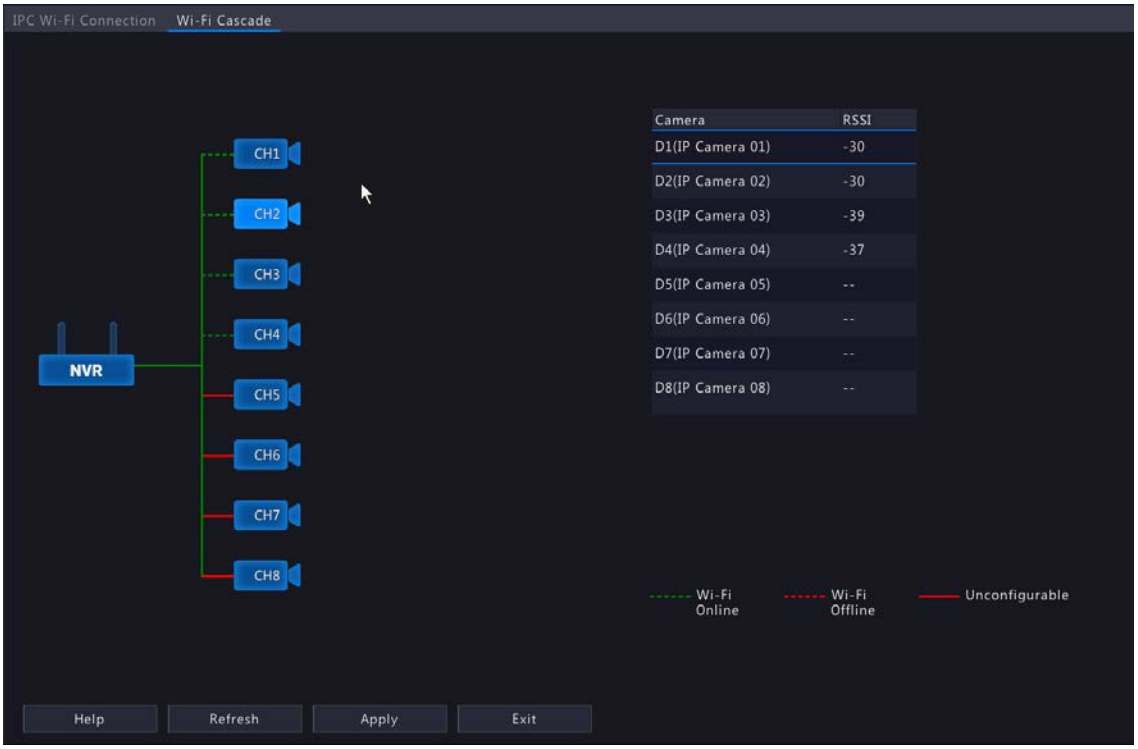
Choose this pairing mode if the wireless pairing mode does not work.

1. Connect the camera and NVR to the same network switch through a network cable.
2. Click **One-Click Pair**, or go to the camera's web interface to pair the device.
   - One-Click Pair: Click this button to add the device. The device is added successfully if it appears on the list.
   - Pair on the camera's web interface: Go to **Setup > Network > Basic Config > Wi-Fi**, enter the NVR's SSID and password, and then click **Save**. The camera will play an audio message indicating network is connected successfully.

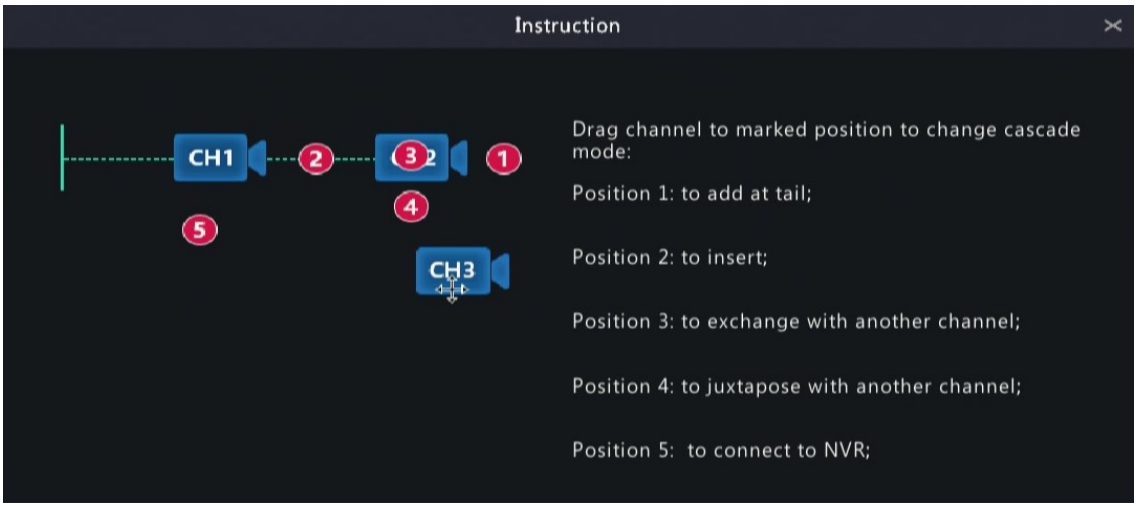


8.3.5.2 Wi-Fi Cascade

1. Click **Menu** > **System** > **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.

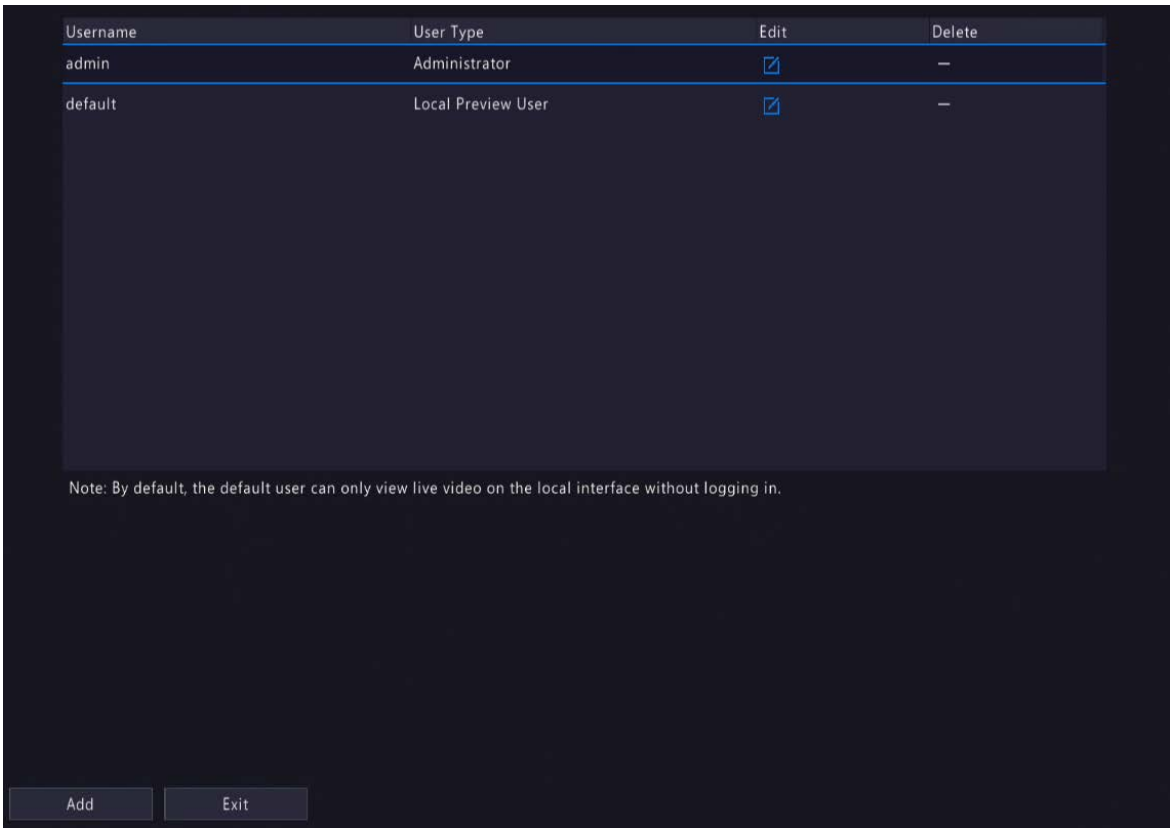
8.4 User Configuration

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:

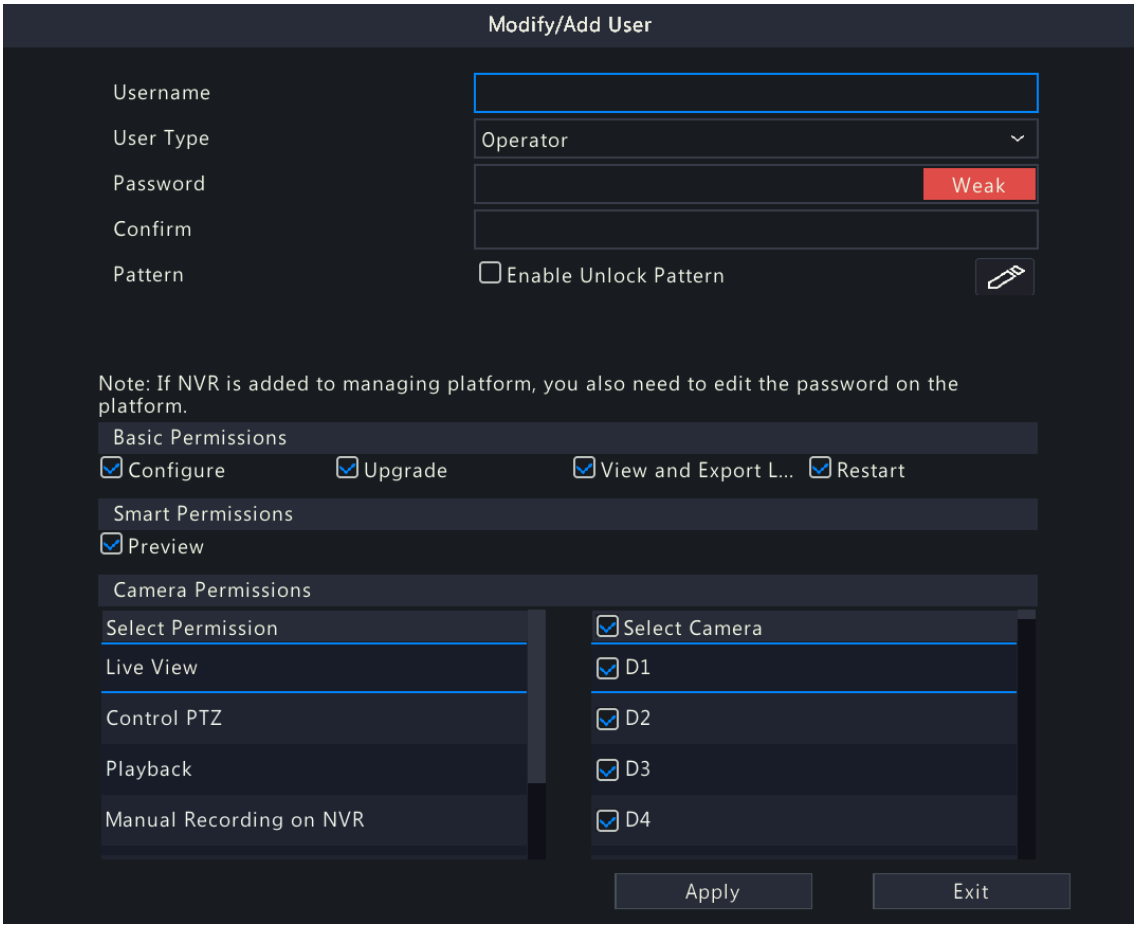
User Type	Description
admin	The default super administrator, which has the maximum permissions. The initial password is **123456**. **Note:** Only admin can add or delete users and edit other users' permissions.
default	The default reserved user, which cannot be added or deleted, only has live view and 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. By default, the default user can only view live video on the local interface without logging in.
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.

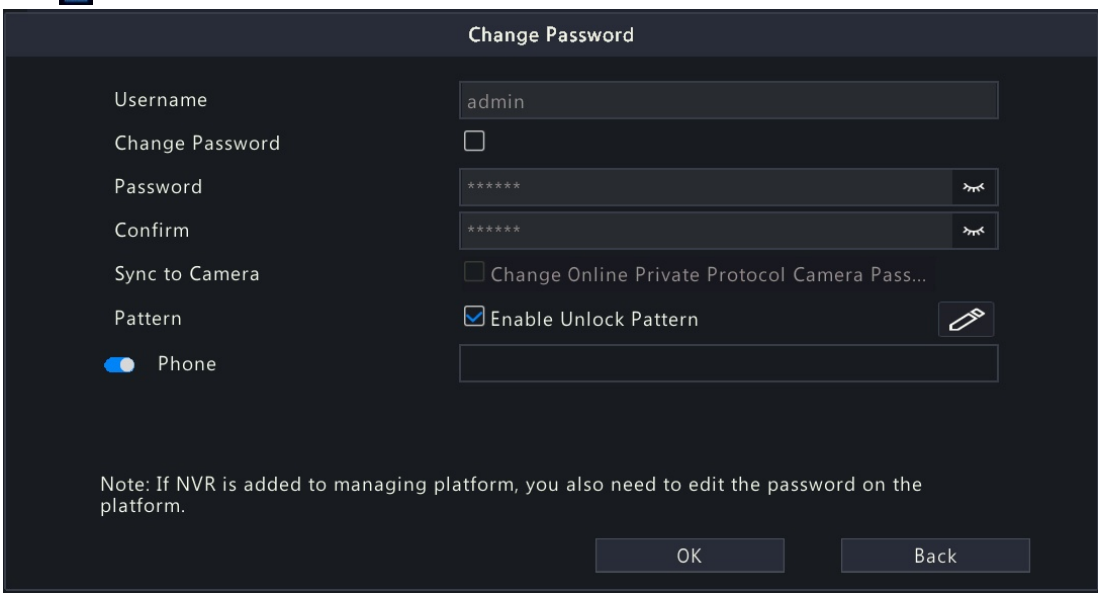
3. Click **OK**.

Delete User

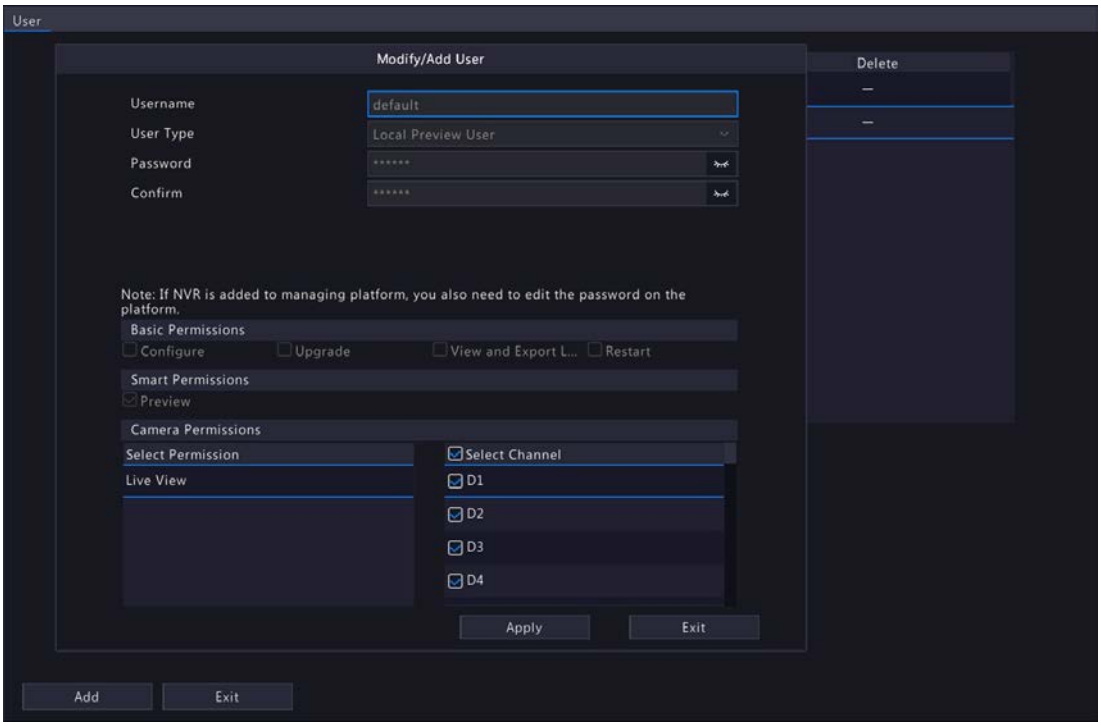
1. On the **User** page, select the user you want to delete.
2. Click . A confirmation message appears.
3. Click **Yes**.

Edit User

- Admin
  1. On the **User** page, select the admin user.
  2. Click , enter the password.

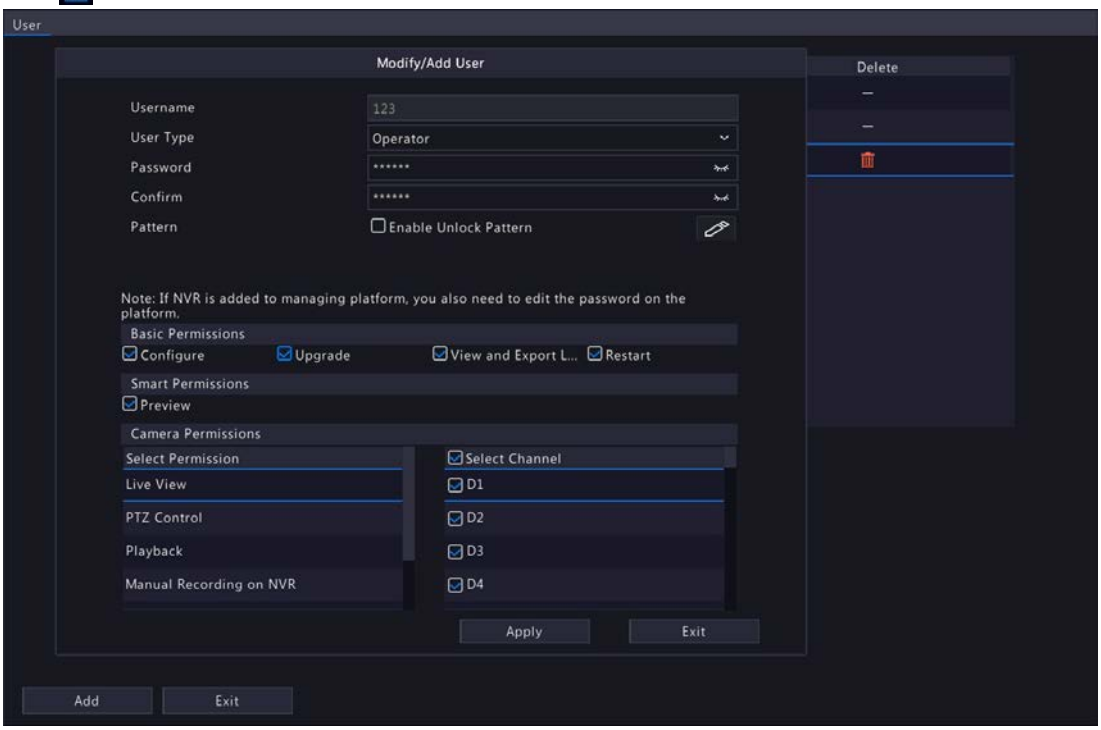


  3. Edit the password and phone number.
  4. Click **OK**.
- Default user
  1. On the **User** page, select the default user.
  2. Click , enter the password.



3. Modify the camera permissions.
4. Click **OK**.

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



3. Modify the user type, password, or permissions as needed.
4. Click **OK**.

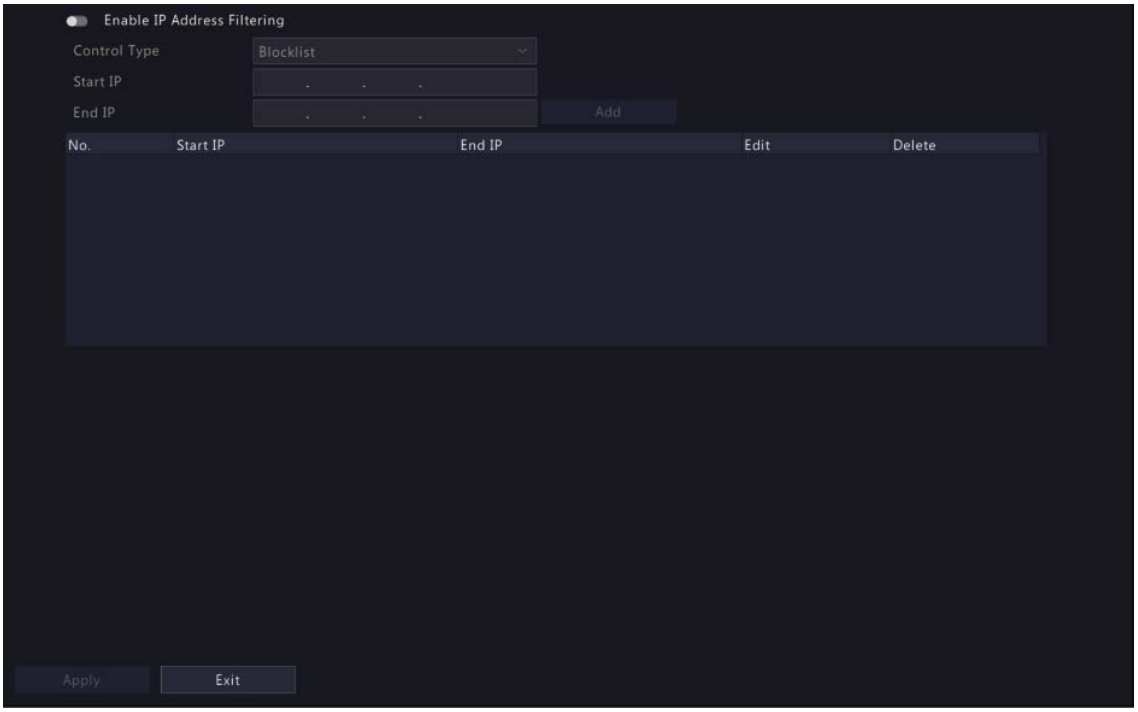
8.5 Security Configuration

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

8.5.1 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. Enable IP address filtering.
3. Configure the parameters.

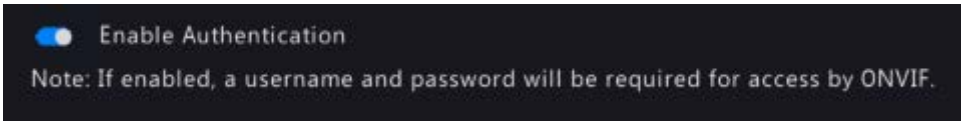
Parameter	Description
Control Type	Blocklist: Access is forbidden if the IP is on the blocklist.
	Allowlist: Access is allowed only when the IP is on the allowlist. If **Allowlist** is selected but is empty, remote access will be forbidden.
Start IP/End IP	Enter the start and end IP addresses. If you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

4. Click **Add**.

8.5.2 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**.



8.5.3 802.1x

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. Enable **Configure 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.

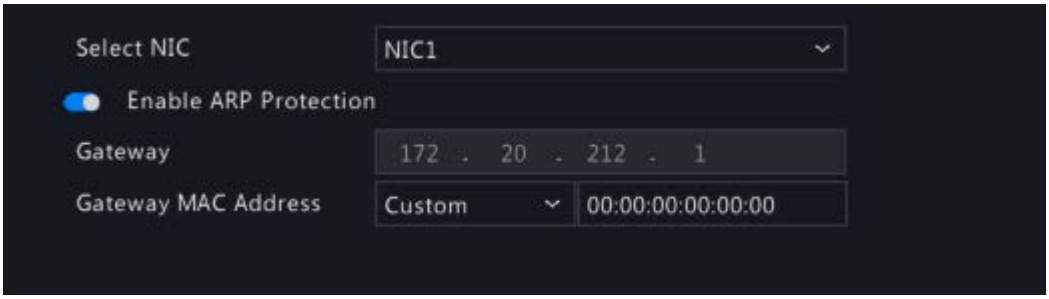
5. Click **Apply**.

8.5.4 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. Enable ARP protection.
4. Configure the parameters.

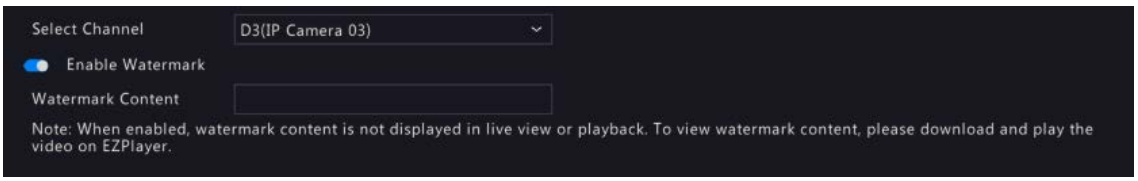
Parameter	Description
Gateway	Gateway you have configured in **Menu** > **Network** > **Basic** > **Network**.
Gateway MAC Address	Custom: Enter the gateway's physical address in the network switch.
	Auto: Automatically obtains the gateway's physical address in the network switch.

5. Click **Apply**.

8.5.5 Watermark

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

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



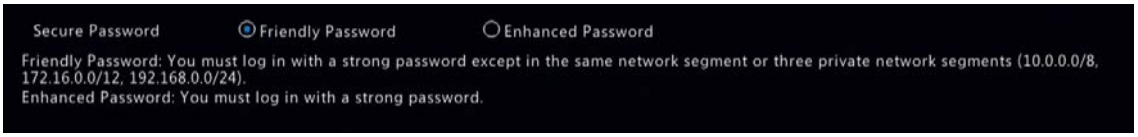
2. Choose the channel, and enable watermark.
3. Enter the watermark contents.
4. Click **Apply**.

8.5.6 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**.

8.6 Advanced

Configure other items, including serial port, hot spare, and unit.

8.6.1 Serial Port

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** > **Advanced** > **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**.

8.6.2 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** > **Advanced** > **Hot Spare**.

Normal Mode

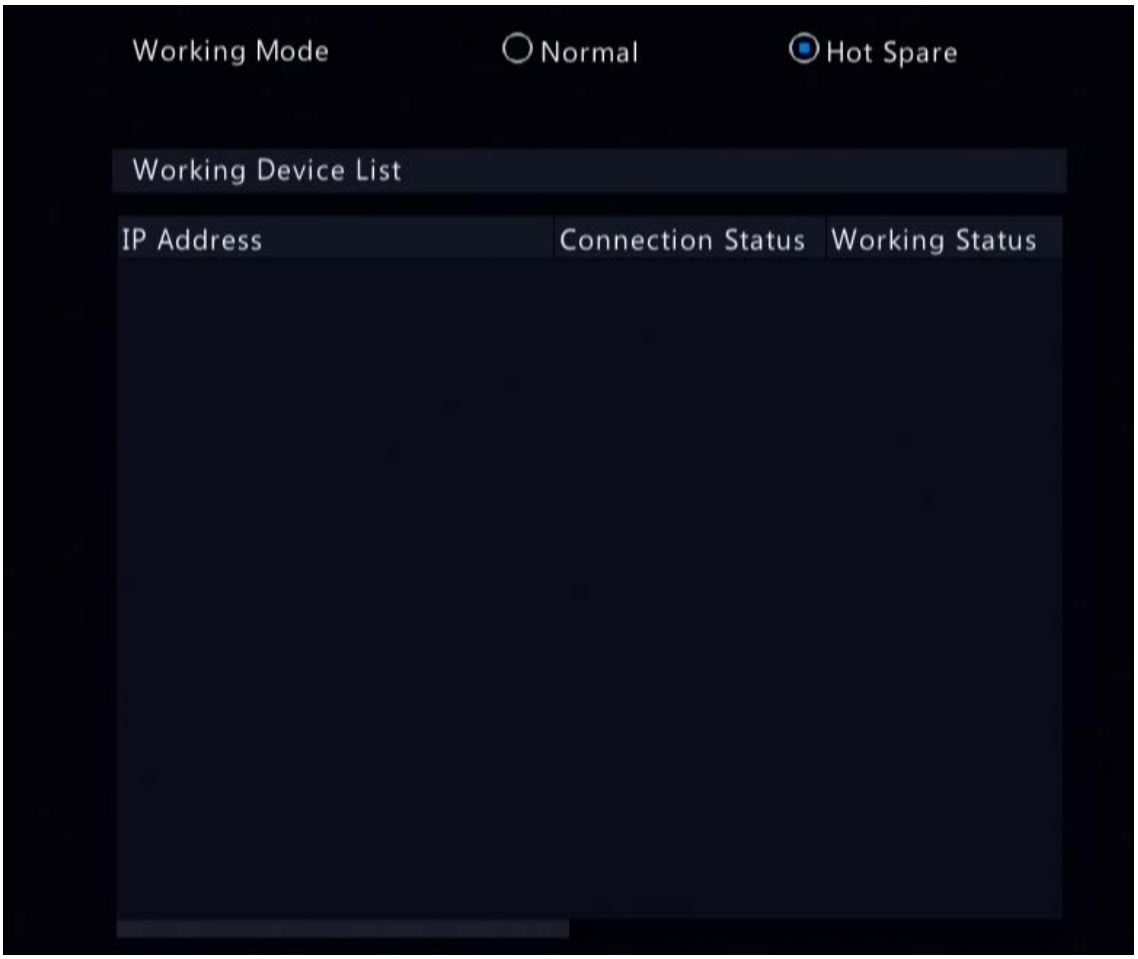
On the NVR to be used as a working device, perform the steps to add a hot spare:

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



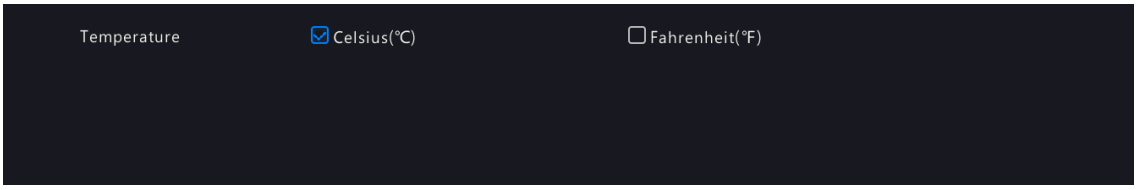
Note:

- 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.

8.6.3 Unit

Configure the temperature unit.

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



2. Choose a temperature unit, including Celsius(℃) and Fahrenheit(℉).
3. Click **Apply**.

9 Storage

Configure disk storage parameters.

You can configure the storage mode under **Camera** > **Audio & Video** > **Encoding**.

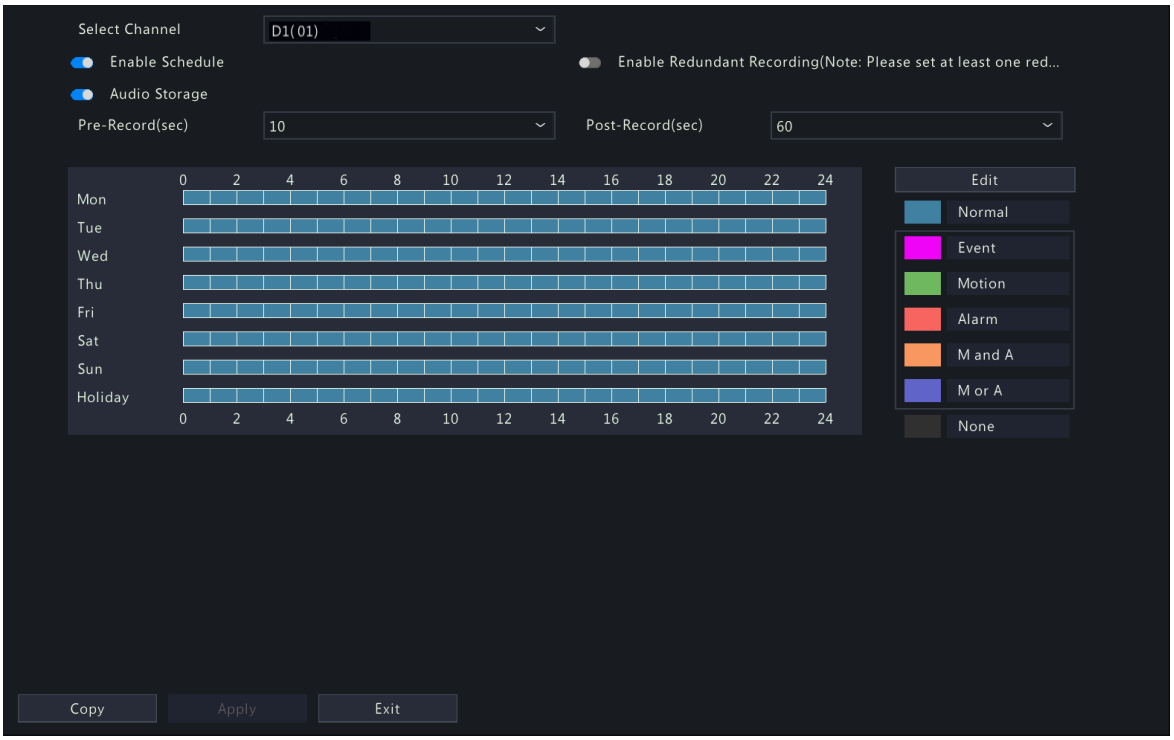
Note: The device uses hard disks to store data, and the hard disks need to be formatted; otherwise, data storage function will be unavailable or affected. A message will alert you if there is no hard disk or any hard disk unformatted.

9.1 Recording Schedule

Make a recording schedule.

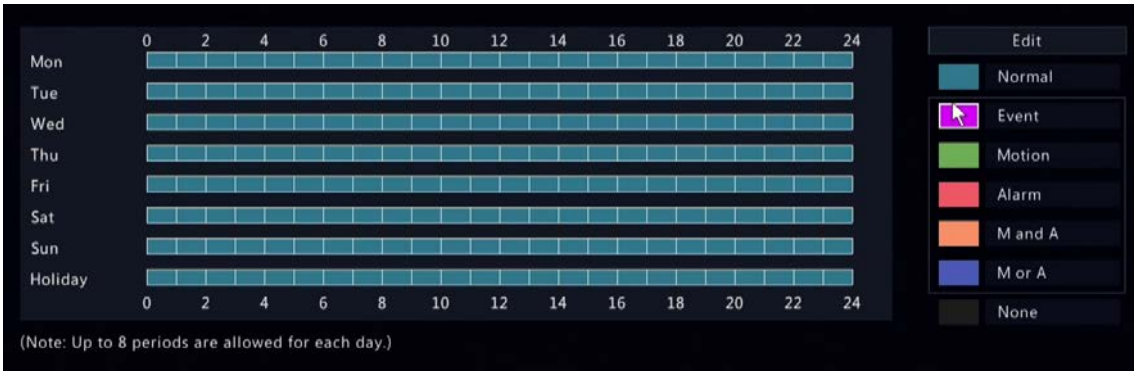
A 24/7 normal recording schedule is enabled by default. You can modify the schedule by drawing or editing as needed.

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



Draw a Schedule

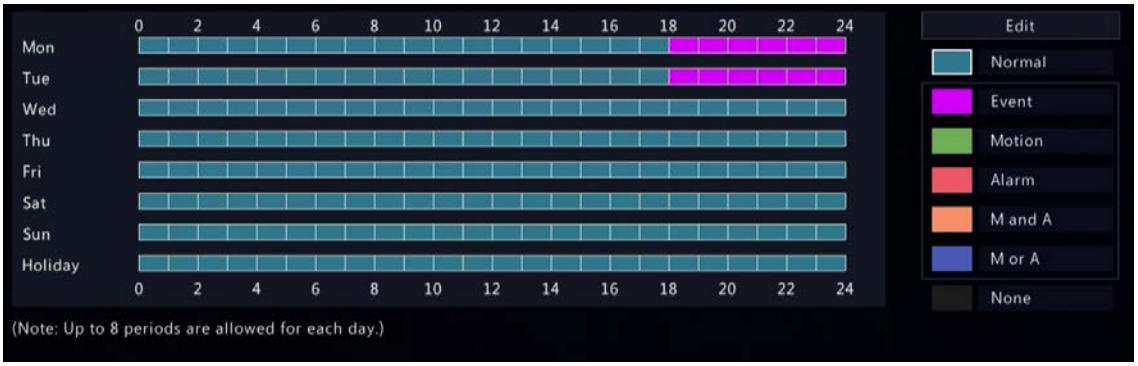
1. Select a recording type.



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.

Recording Type	Description
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

Configure snapshot schedule and snapshot type.

9.2.1 Configure Snapshot Schedule

Make a snapshot schedule.

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

2. Select the camera for which you want to make a snapshot schedule.
3. Enable schedule.

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**.

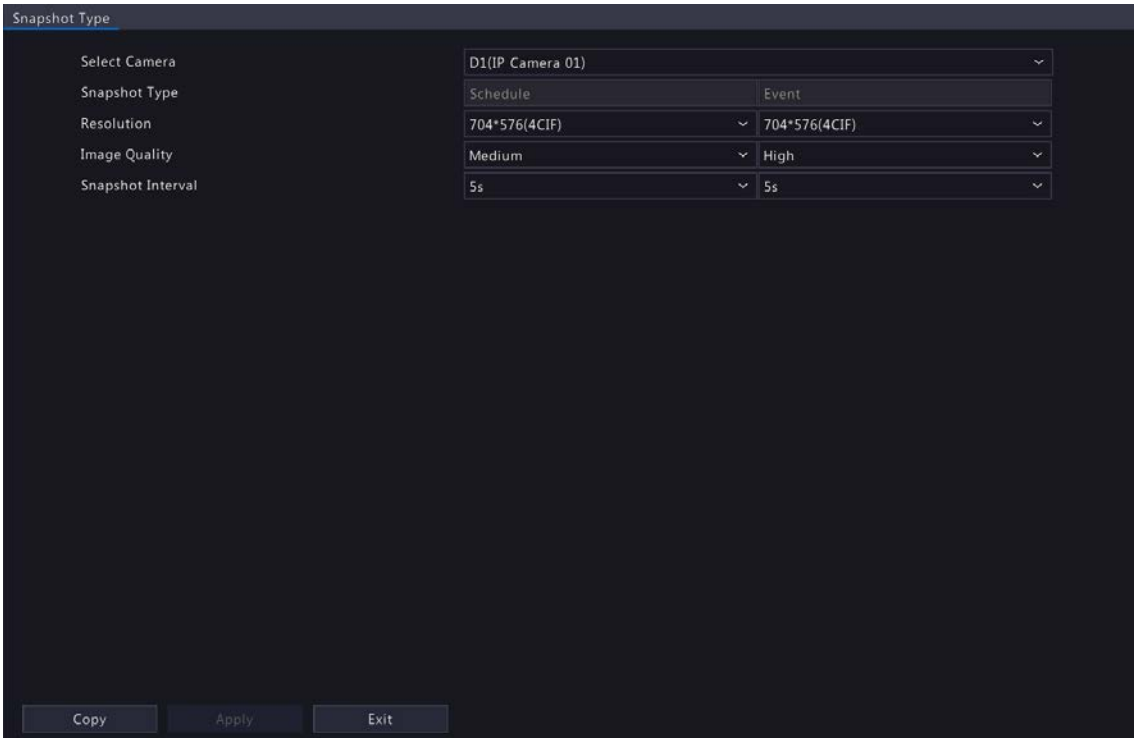
Other Settings

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.

9.2.2 Snapshot Type

Configure snapshot parameters.

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

Item	Description
	• 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**.

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 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

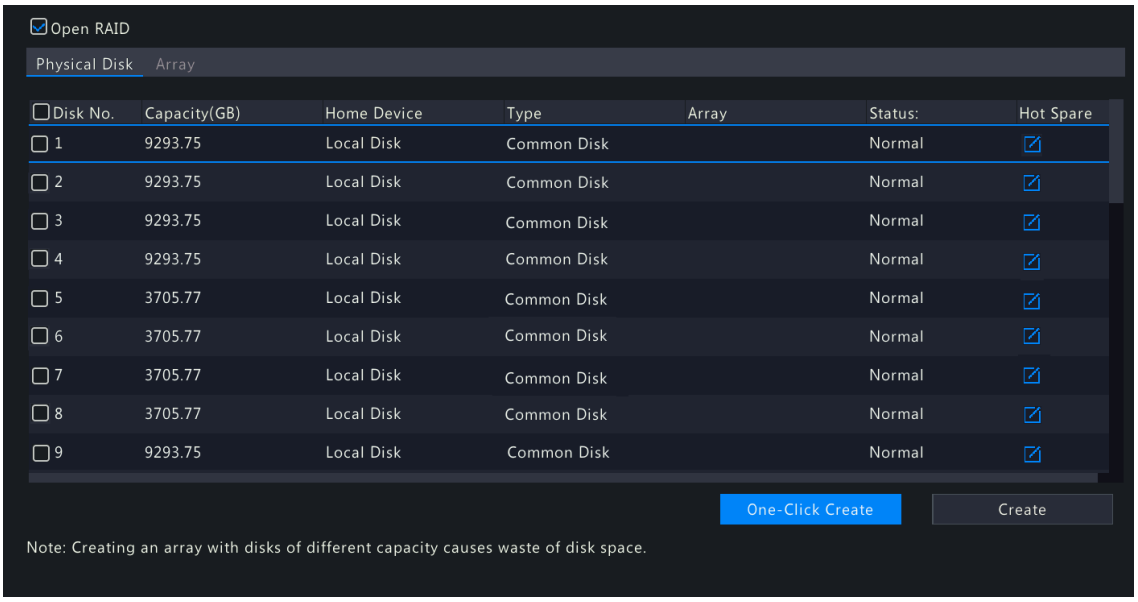
Before array configuration, enable RAID as follows:

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.

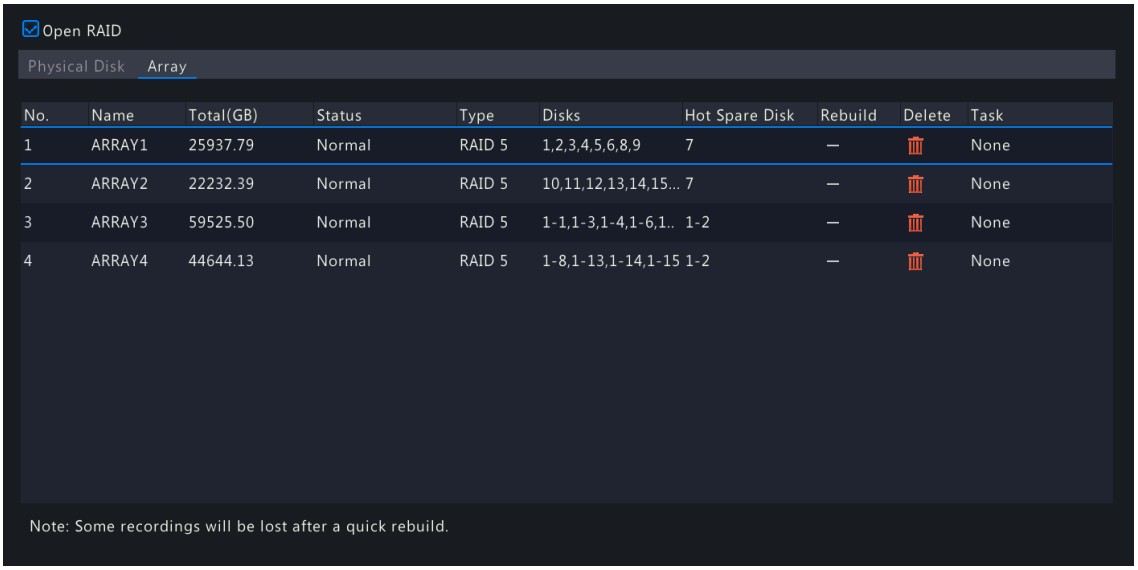
1. Go to **Menu** > **Storage** > **Array** > **Physical Disk**.



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

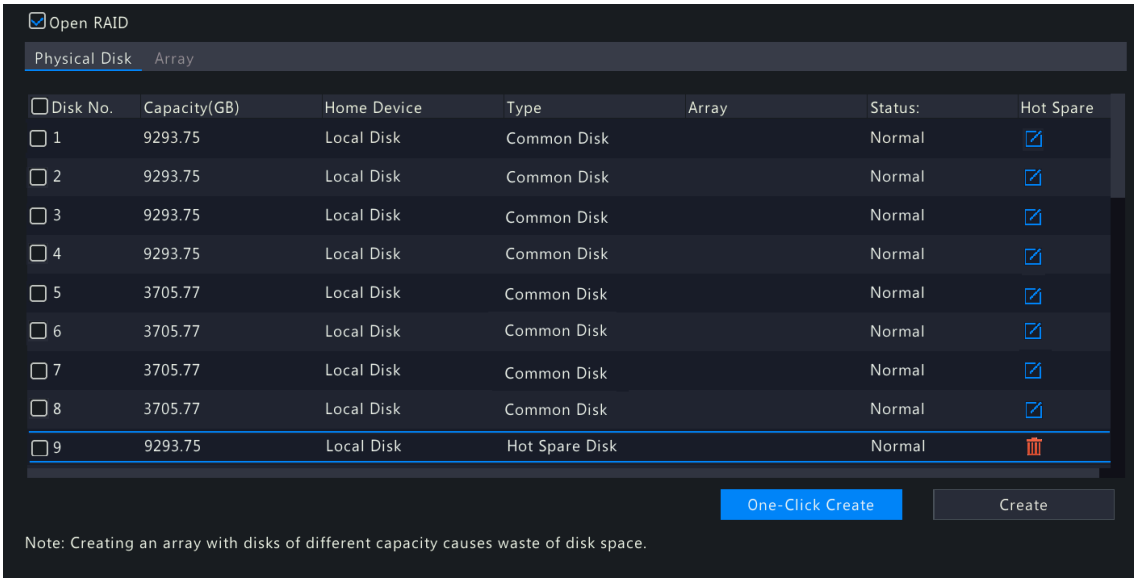
Manually create a desired array. Take RAID 50 as an example.

Note:

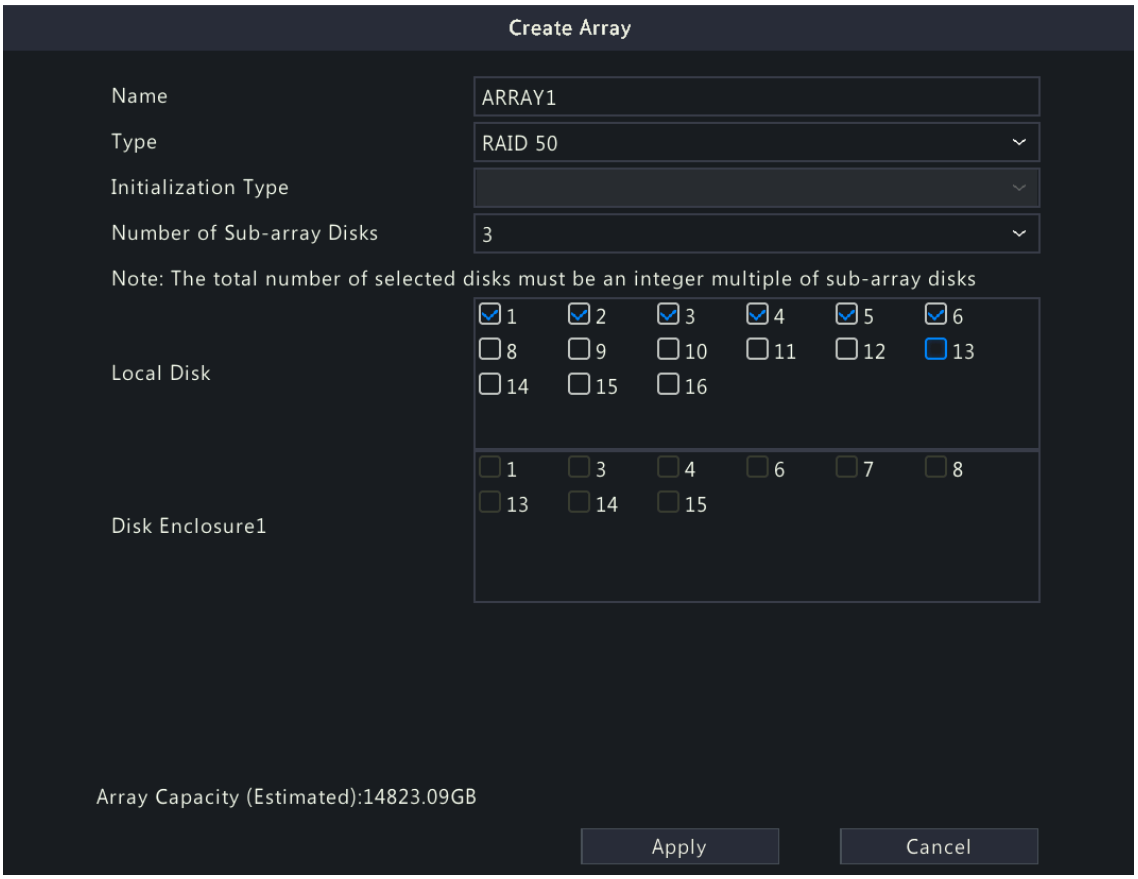
- To avoid wasting disk resources, please make sure all disks are used to create arrays. Disks that are not used to create arrays are unusable.
- No global hot spare disk will be created automatically if you create arrays manually. To ensure successful automatic array rebuilding and stable system operation, 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.

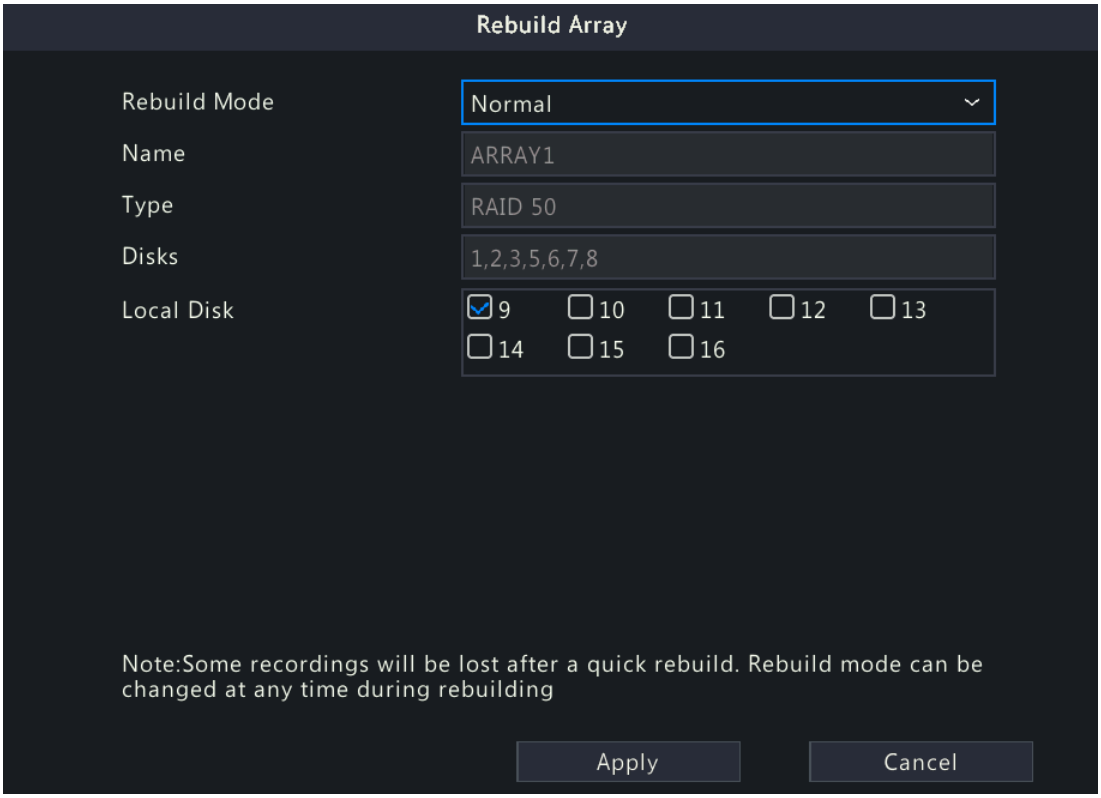
  Note: After rebuilding, replace the failed disk in time and set the replaced disk as a global hot spare to ensure the stable operation of the array. See Manually Rebuild an Array for details.

- 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.

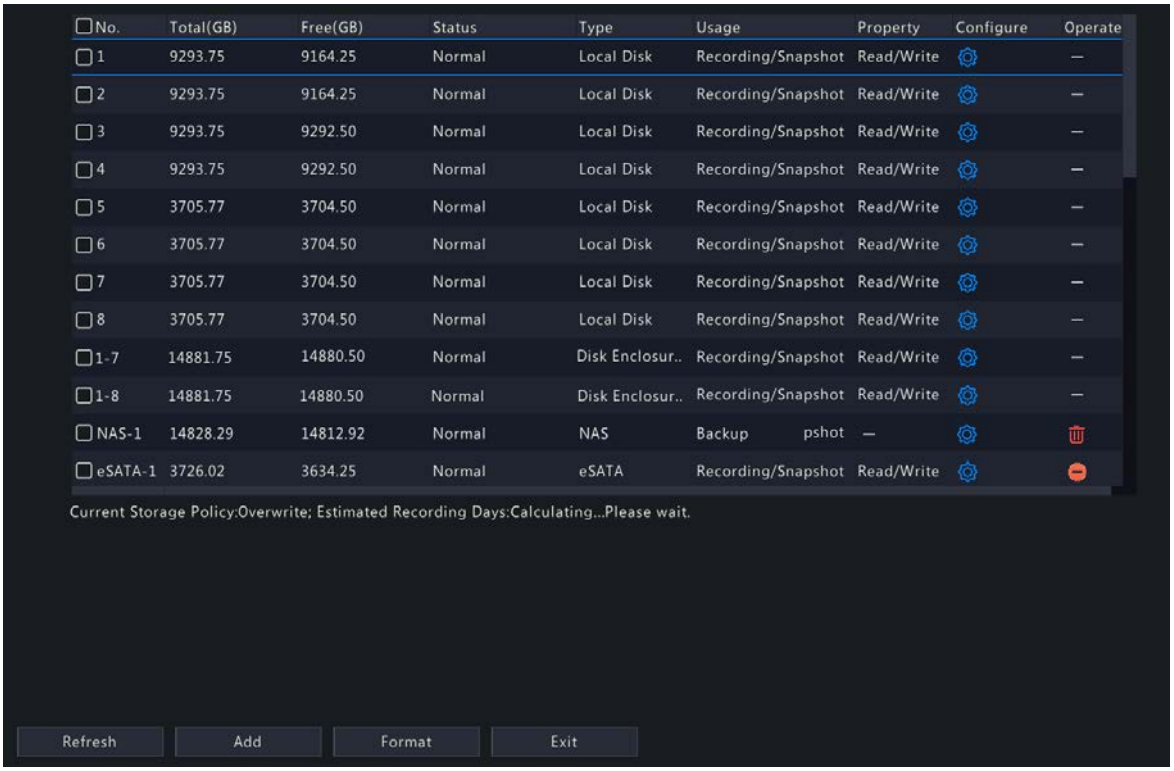
9.4 Disk Management

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

Note:

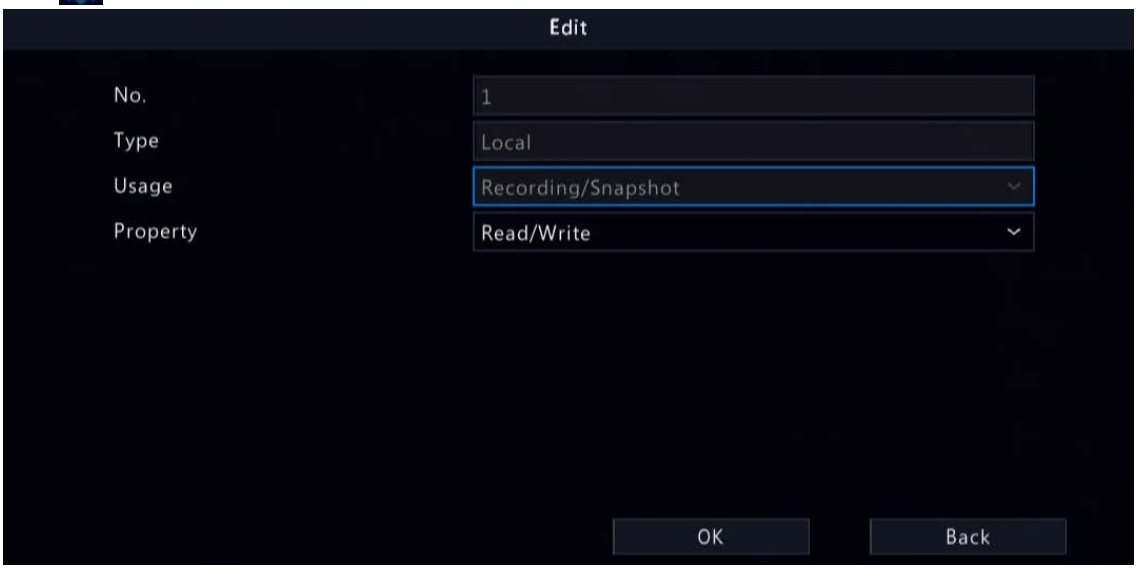
- Before you start, make sure all disks are installed properly.
- Only admin can format disks and configure the disk property.

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.

Usage	Description
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.
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**.

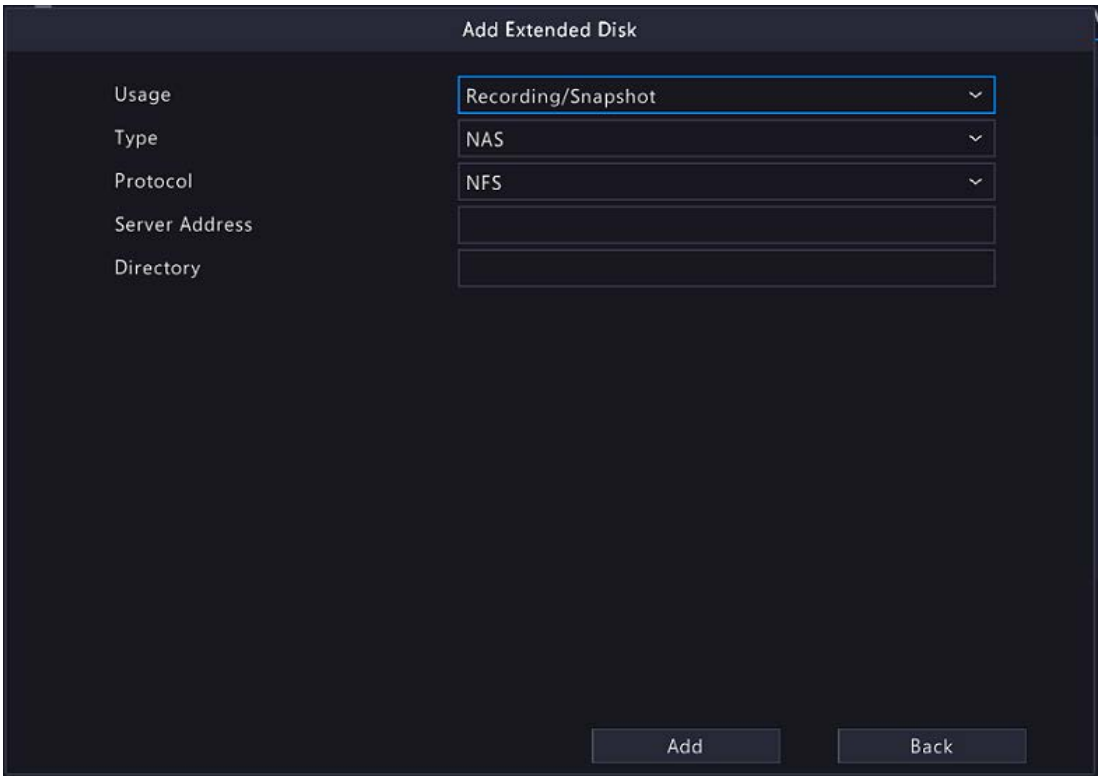
3. Click **OK**.

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.

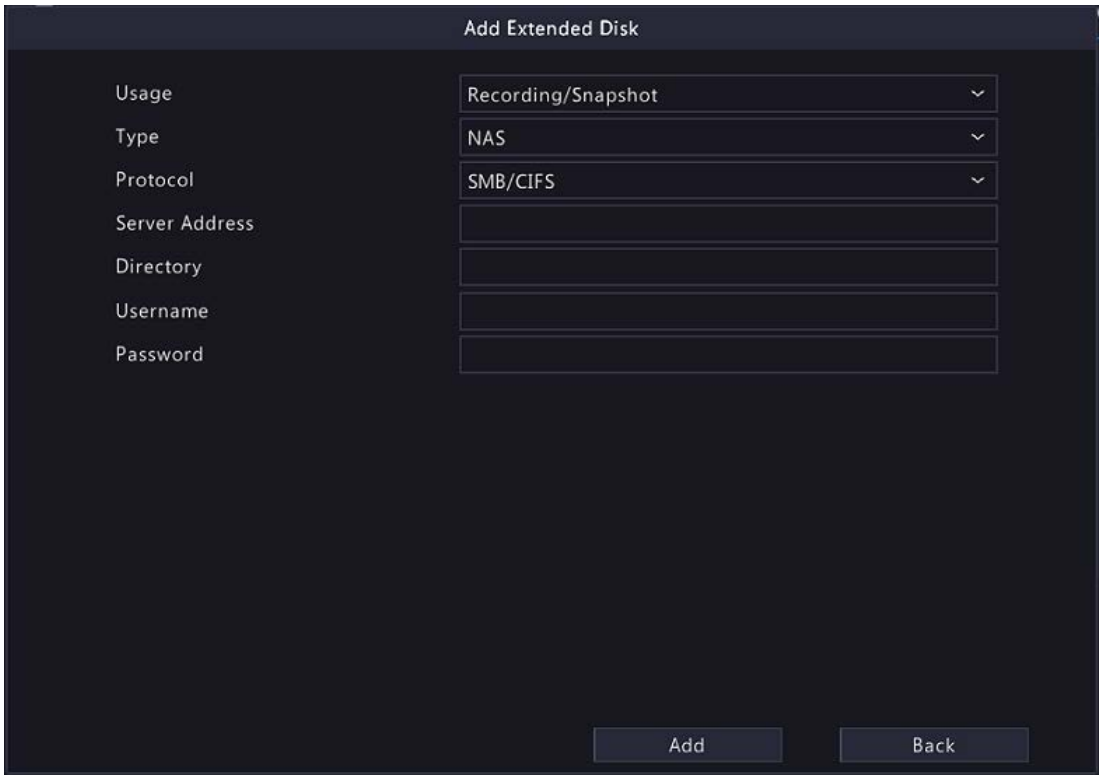
1. Click **Add**. The **Add Extended Disk** page appears.
2. Select a protocol, and configure parameters.
   - NFS: Used to add NAS servers to the LAN.

     Enter the NAS server address and directory (a folder path where the NAS server store videos and images).



   - SMB/CIFS: Used to add NAS servers to the public network for security.

     Enter the NAS server address, directory, username, and password.



Note:

- Before use, make sure that the NAS server supports SMB/CIFS protocol and has enabled UPnP, or the ports 445 and 139 have been mapped manually on the router.
- A domain name is allowed for the server address if the NAS domain name resolution is available.

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.

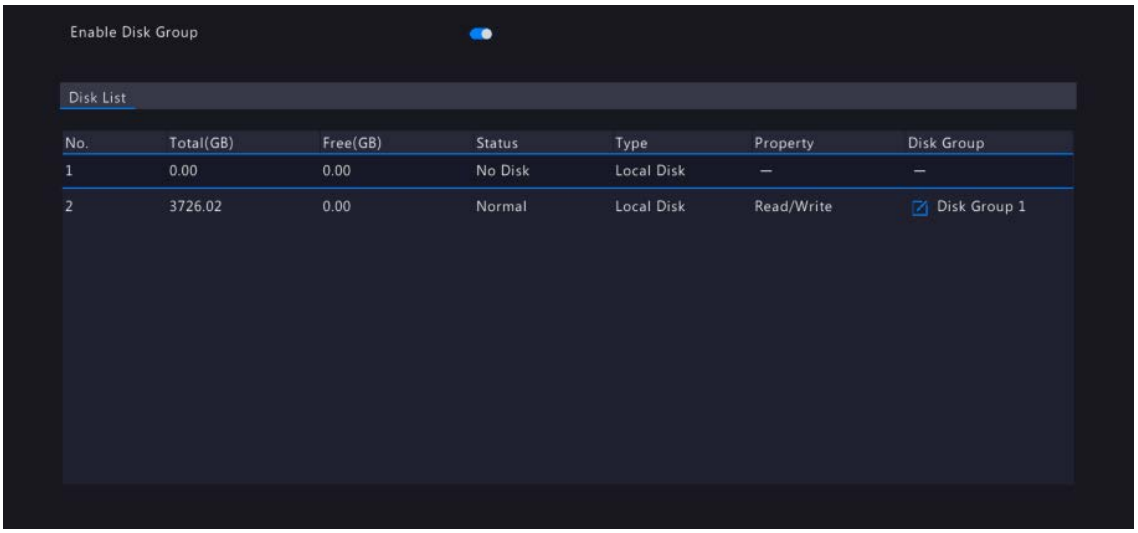
9.5 Disk Group

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. Enable disk group.



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.

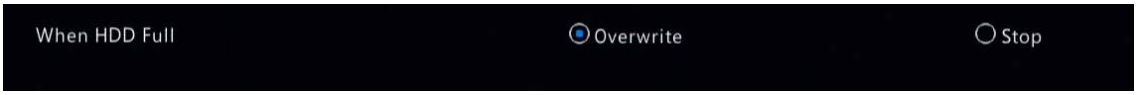
Space Type	Description
Recording Space	Used to store first stream videos, smart snapshots, POS data, people flow data, and heat map images. **Note:** First stream video: • If the **Storage Mode** is set to **Main and Sub Stream** or **Main and Third Stream**, the first stream is the main stream. • If 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.

10 Alarm Configuration

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

10.1 Motion Detection

Motion detection detects motions in specified grids on the image and triggers an alarm when the detection rules are triggered.

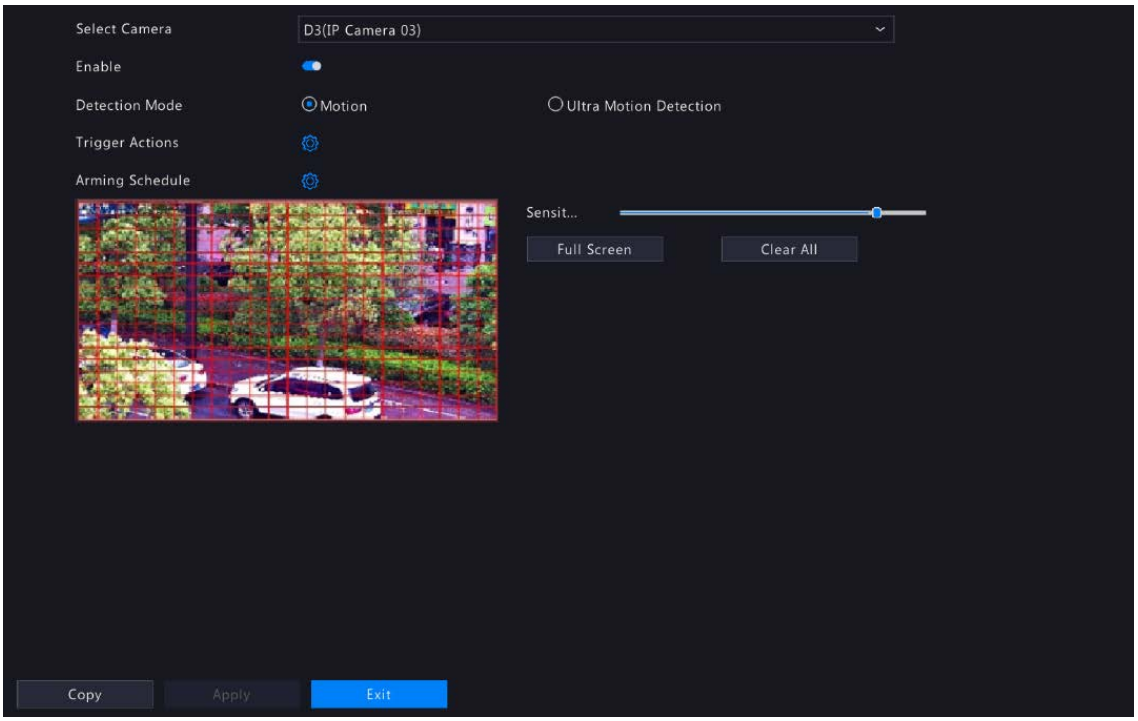
Note: The parameters may vary with NVR model.

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

Motion Alarm

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

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



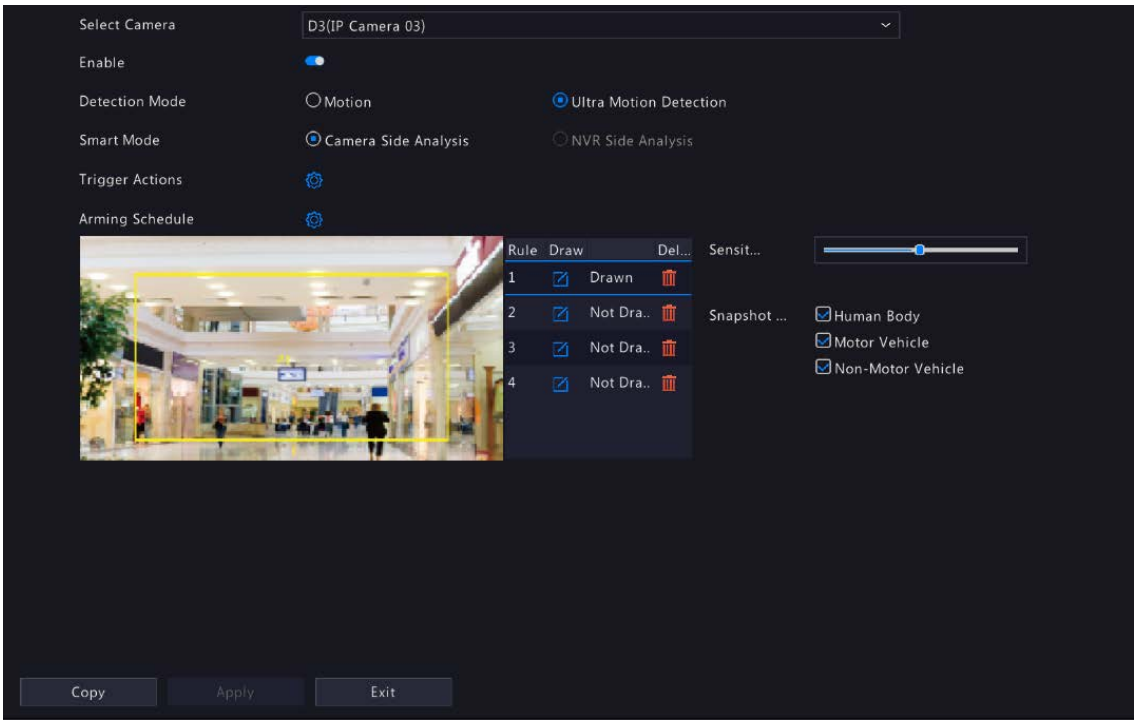
2. Set the detection area. The default is the full screen. You can adjust grid detection areas as needed.
   - To erase grids, click or drag on grid areas.
   - To redraw grids, click **Clear All**, and then click or drag on blank areas to draw grids.
   - To detect the full screen, click **Full Screen**.

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

Ultra Motion Detection

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

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



2. Select the smart mode, and choose whether to implement this function on the camera side or the NVR side.
3. Set detection rules. The 4 detection rules shall be set separately. The following takes Rule 1 as an example.

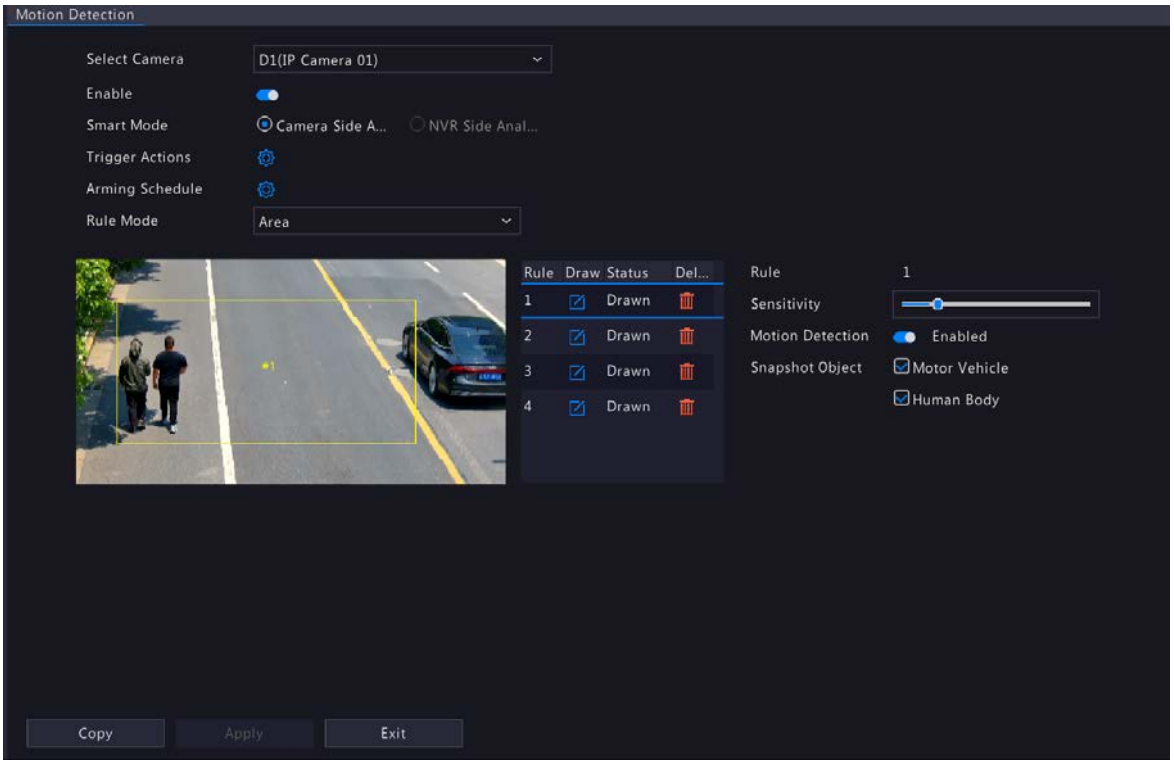
Parameter	Description
Detection Area	Select Rule 1, click , and the full screen is displayed, then draw a detection area. Click on the image and drag to draw a line. Repeat the action to draw more lines to form an enclosed shape as needed. Up to 6 lines are allowed. Right-click to exit the full screen. **Note:** For a rule in **Drawn** state, you can click to redraw a detection area. To delete a detection area, click .
Sensitivity	Set the sensitivity by dragging the slider. The higher the sensitivity, the more likely motion behaviors will be detected, but the false alarm rate will increase.
Min. Alarm Interval(s)	Set the minimum alarm intervals by dragging the slider.
Snapshot Type	Select the object(s) to be detected, including **Human Body**, **Motor Vehicle** and **Non-Motor Vehicle**.

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**.

(New) Ultra Motion Detection

This function can detect motion within the detection areas and recognize four types of targets: human body, motor vehicles, non-motor vehicles, and pets. When a target is detected, it triggers a snapshot and an alarm.

Note: This function requires the camera to support both ultra motion detection and standard motion detection simultaneously.



1. Enable ultra motion detection, select **Camera Side Analysis**.
2. Select the rule mode (determined by camera capability), and draw rules.

Rule Mode	Description
Area	Up to four rules are allowed. Click , click anywhere on the live video image to draw vertices of the area. You can draw 3 to 6 vertices. Double-click the left mouse button to automatically connect the first and last vertices, forming the detection area. **Note:** To redraw a detection area (whose status is Drawn), click . To delete a detection area, click .
Grid	• Press and hold the left mouse button on the live view images and drag to clear or set the detection area. • Full screen: The detection area covers the entire screen. • Clear all: Delete the detection area.

3. Set the rule parameters. In area mode, each area must be set individually.

Parameter	Description
Sensitivity	The higher the sensitivity, the more likely motion behaviors will be detected, but the false alarm rate will increase. Please adjust the setting based on the actual scenario to determine the optimal configuration.
Motion Detection	When enabled, motion detection and ultra motion detection will run simultaneously.
Snapshot Object	Select the desired types, including human body, motor vehicle, non-motor vehicle, and pet. **Note:** The actual types supported may vary depend on camera capability.

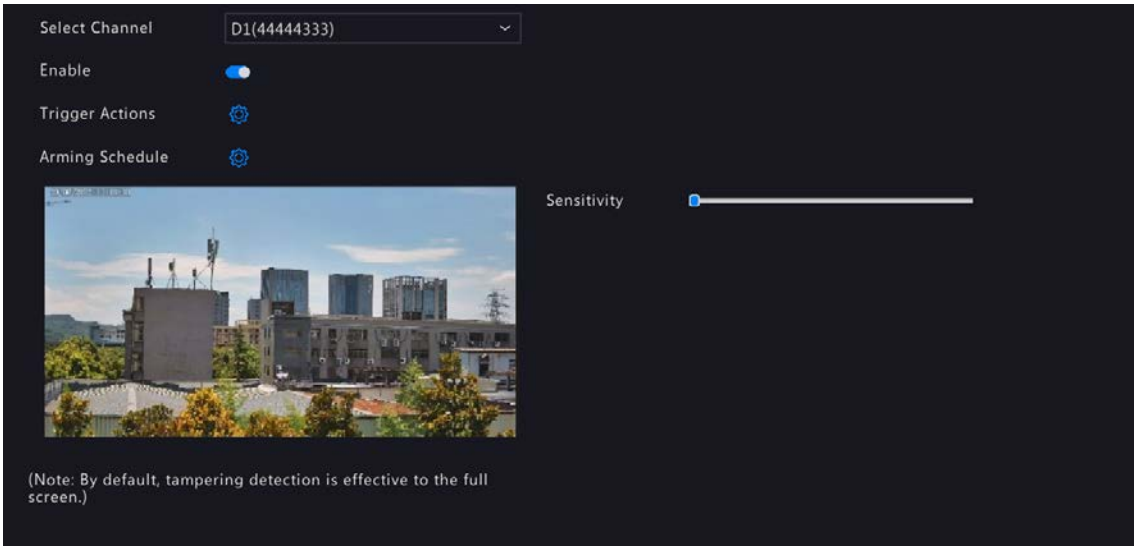
4. Click and set linkage actions and an arming schedule separately. See Alarm-triggered Actions and Arming Schedule.
5. (Optional) To apply the current settings to other channels, click **Copy**, and select the parameters to copy and the target channels.

6. 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**.

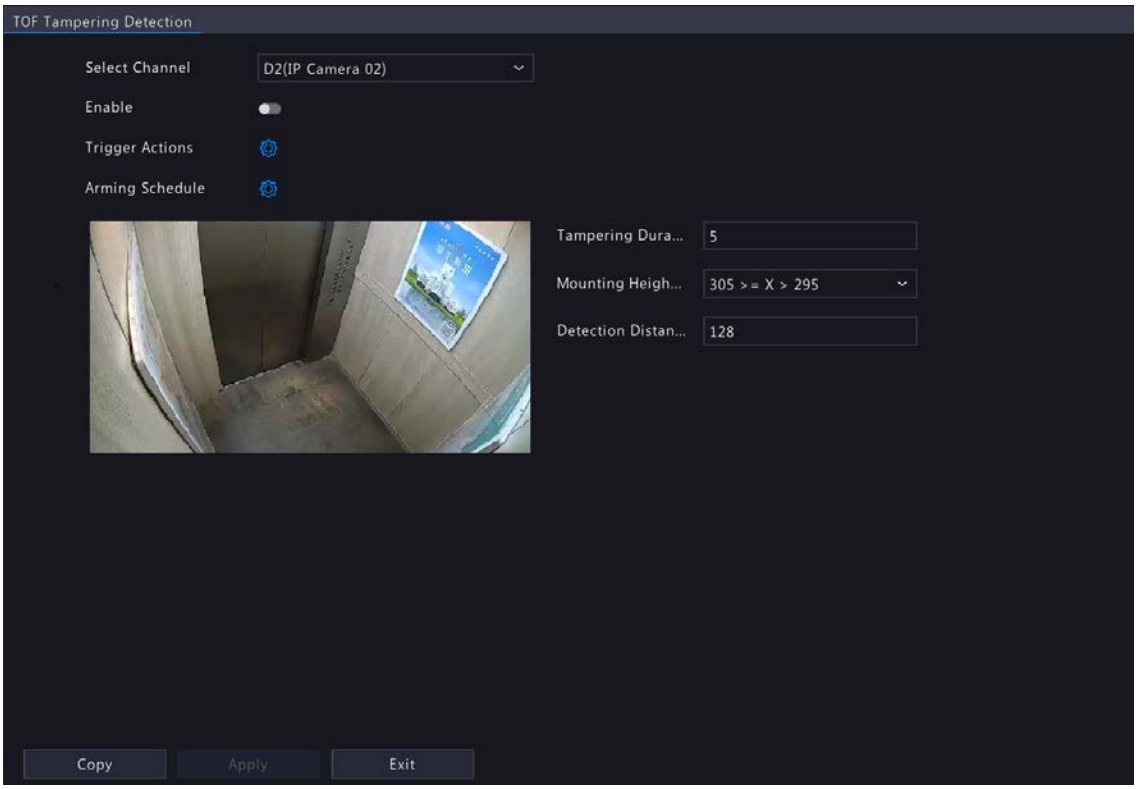


2. Select the desired channel, and enable tampering detection. The tampering detection area is the full screen by default and cannot be edited.
3. Drag the slider to adjust detection sensitivity. The higher the sensitivity, the higher the detection rate, and the higher the false alarm rate. Set based 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 TOF Tampering Detection

TOF tampering detection uses the Time of Flight (ToF) technology to detect whether the camera is obstructed. When the camera is blocked and the duration of the obstruction reaches a preset threshold, an alarm is triggered. This function is mainly used on cameras that support elevator entrance detection.

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



2. Choose the channel to configure, and then click to enable TOF tampering detection.
3. Configure TOF tampering detection parameters.

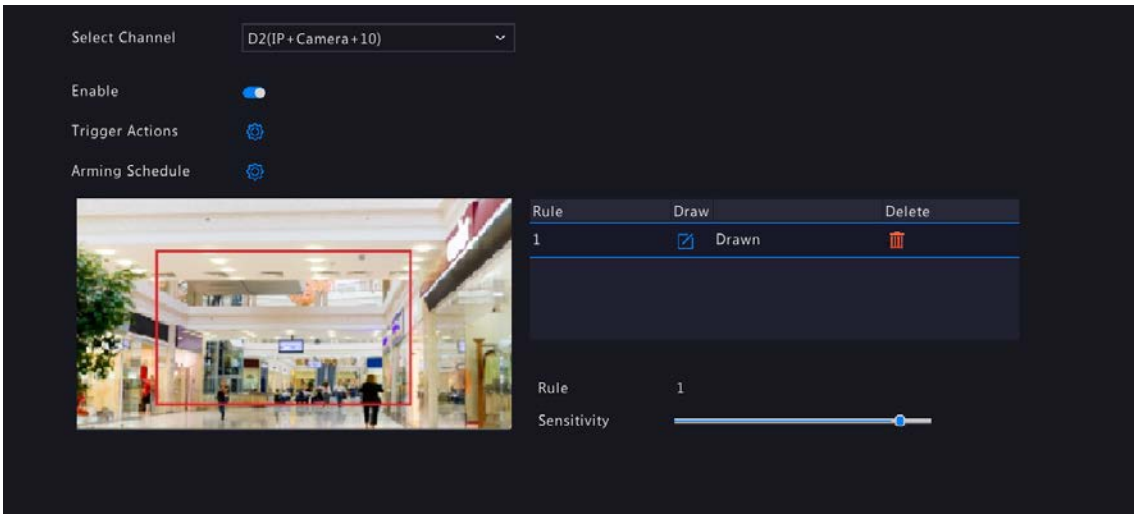
Parameter	Description
Tampering Duration	An alarm will be triggered when the duration of the tampering action reaches the set value.
Mounting Height (cm)	Choose according to the actual mounting height of the camera.
Detection Distance (cm)	An alarm will be triggered when the distance of the object blocking the sensor is less than or equal to this set value. It can also be filled in automatically after you select the mounting height.

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 camera(s).
6. Click **Apply**.

10.4 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 channel, and enable human body detection.
3. Set the detection rule. Only 1 detection rule is allowed.

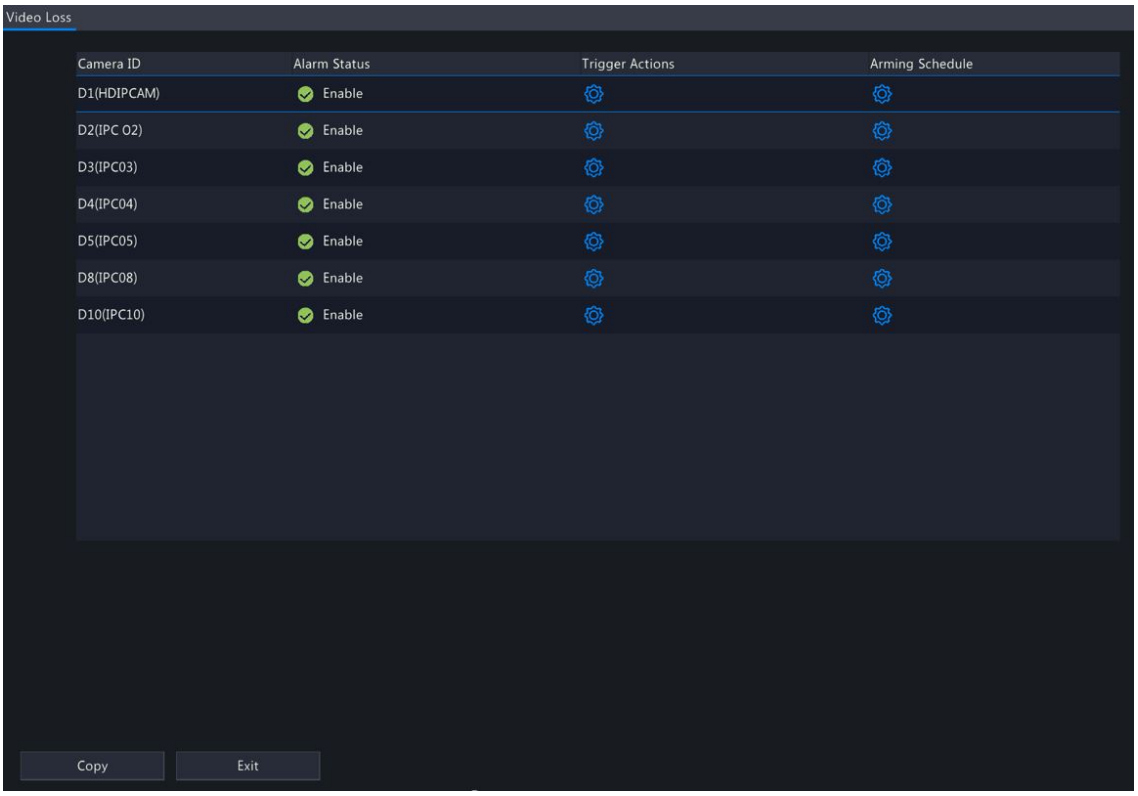
   Click , and the full screen is displayed. Drag in the preview window to draw a rectangular detection area. Only 1 detection area is allowed. Right-click to exit the full screen.

   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**.

10.5 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**.

10.6 Alarm Input and Output

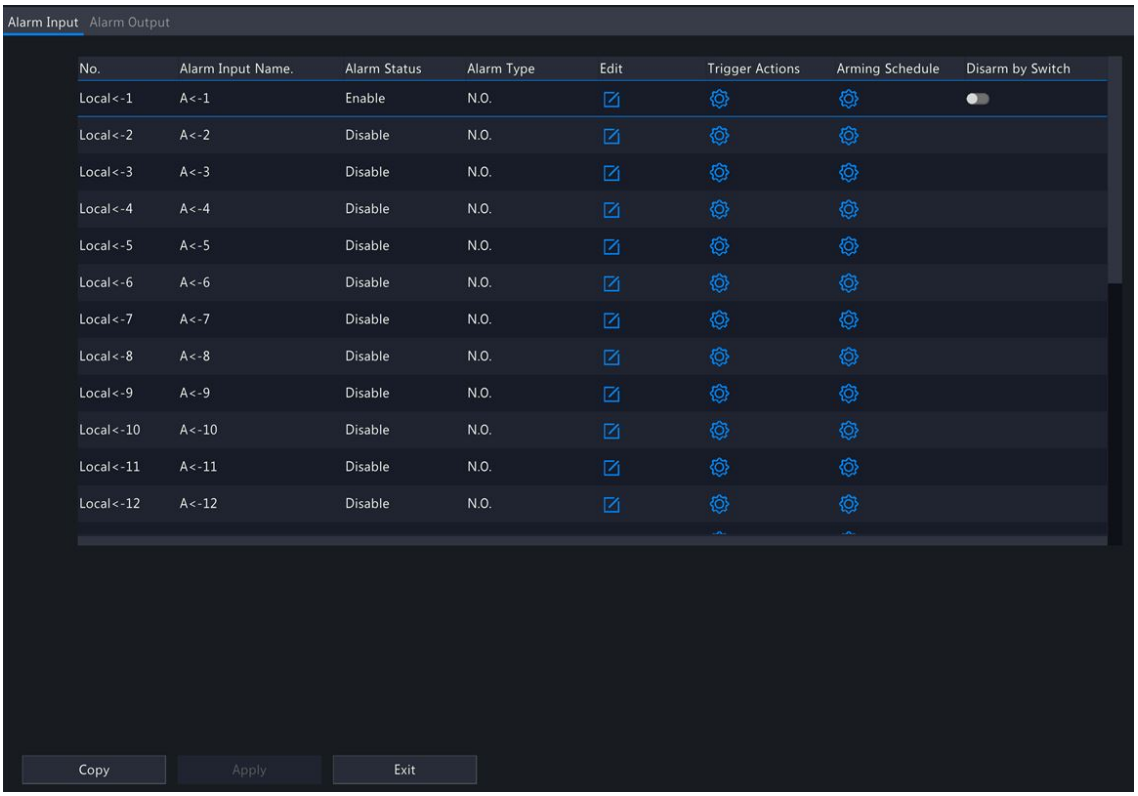
Configure alarm input and alarm output.

10.6.1 Alarm Input

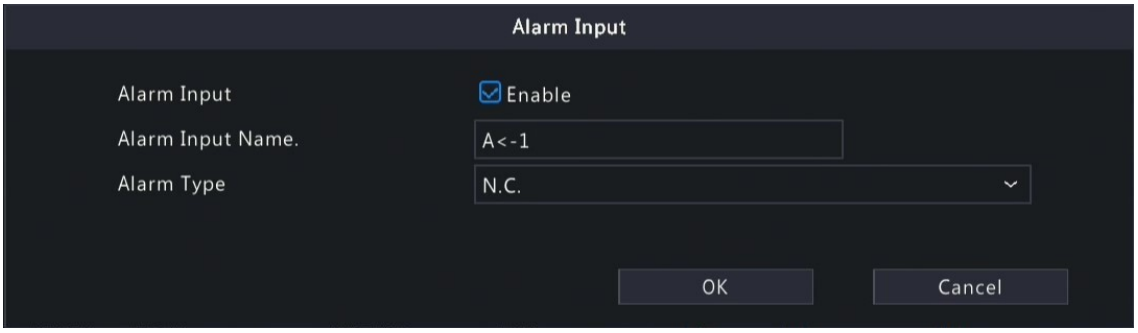
Configure the alarm mode, arming schedule, and alarm-triggered actions for external alarm input devices.

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.
   - Local < -1: **Local** refers to the ALARM IN interfaces on the NVR, **1** means the first ALARM IN interface, **Local <-2** means the second ALARM IN interface on the NVR, and so on. 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, **D < -2** means the alarm input device is connected to the ALARM IN interface of the camera whose channel ID is 2, and so on. The number is not displayed if the camera has no ALARM IN interface.
   - M1<-1: **M1** refers to the first alarm extension device. **M1<-1** means the first ALARM IN interface of this alarm extension device, **M1<-2** means the second ALARM IN interface, and so on. The number of ALARM IN interfaces and the configuration of the alarm extension devices are detailed in Alarm Extension.
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.

Item	Description
	• 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 Local < -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**.

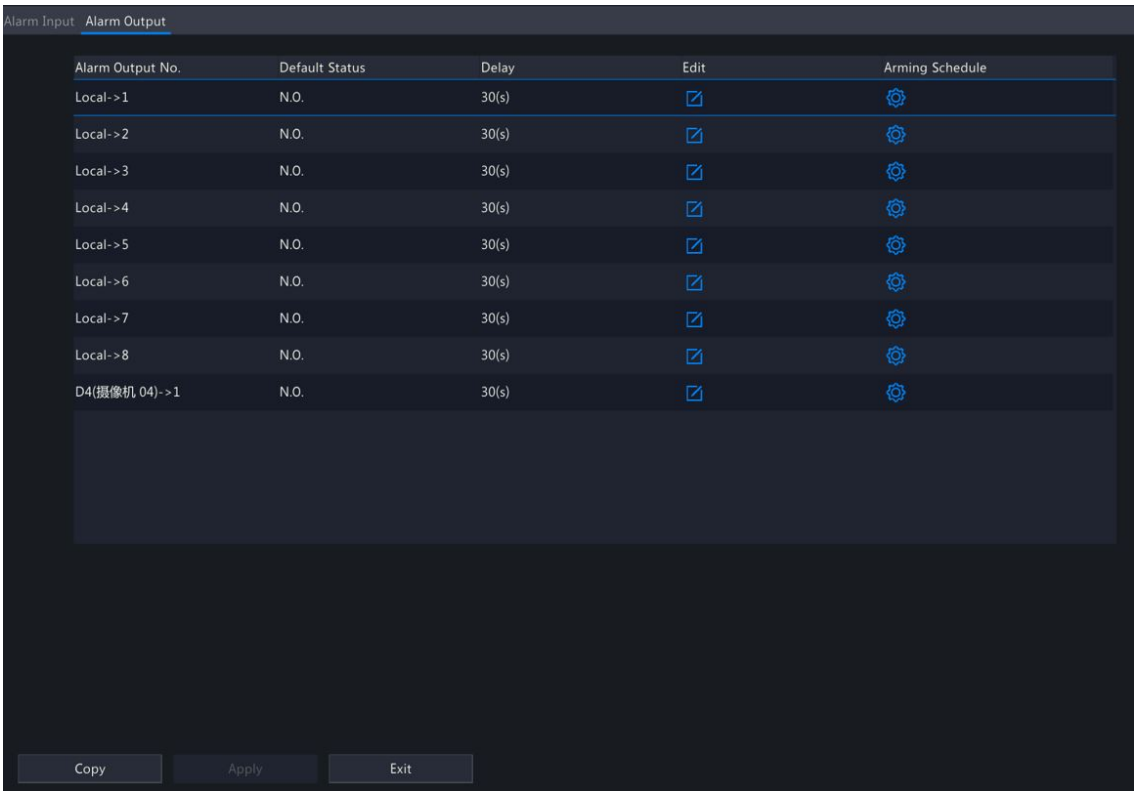
7. Click **Apply**.

10.6.2 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**.

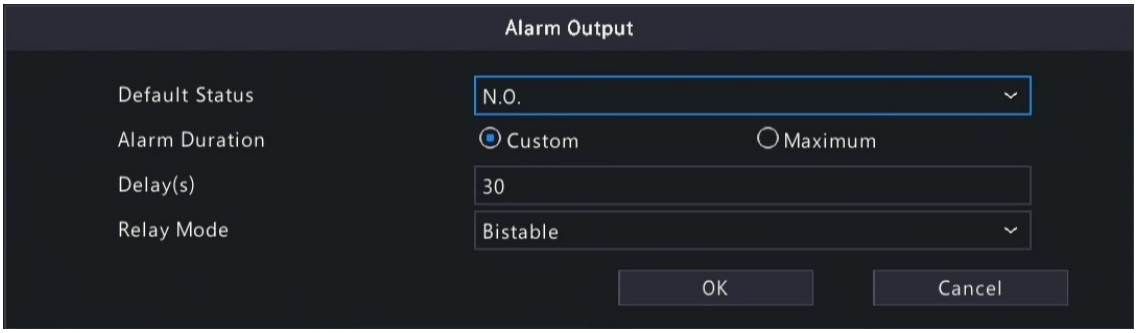


2. Select the alarm output channel to be set.

   - Local- >1: **A** refers to the ALARM OUT interfaces on the NVR, **1** means the first ALARM OUT interface. **Local->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.

- M1->1: **M1** refers to the first alarm extension device. **M1->1** means the first ALARM OUT interface of this alarm extension device, **M1->2** means the second ALARM OUT interface, and so on. The number of ALARM OUT interfaces and the configuration of the alarm extension devices are detailed in Alarm Extension.

3. Click to configure alarm output parameters. After configuration, Click **OK**.



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

10.7 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**.

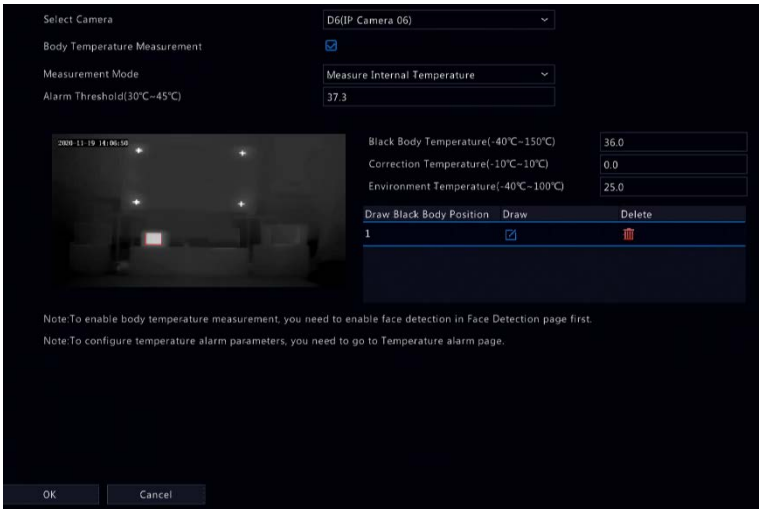
   (2) Click **Custom Add** to go to the **Add IP Camera** page.

   (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 to enter the full screen, and then drag to draw a bounding box on the image. Right-click to exit the full screen.

   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.

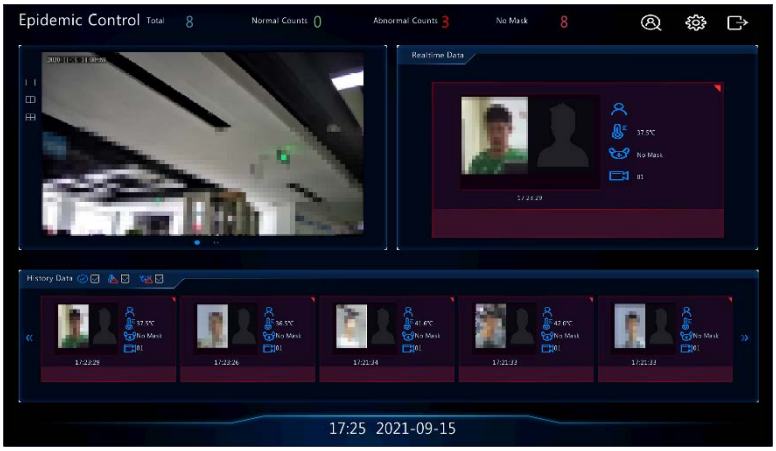
Item	Description
Measurement Mode	• Measure Internal Temperature: Calculated from the measured body surface temperature by formulas. • Measure Body Surface Temperature: Measured directly by the thermal imaging camera.
Alarm Threshold (30°C~45°C)	An alarm occurs when the measured temperature exceeds the 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 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.

   On 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.



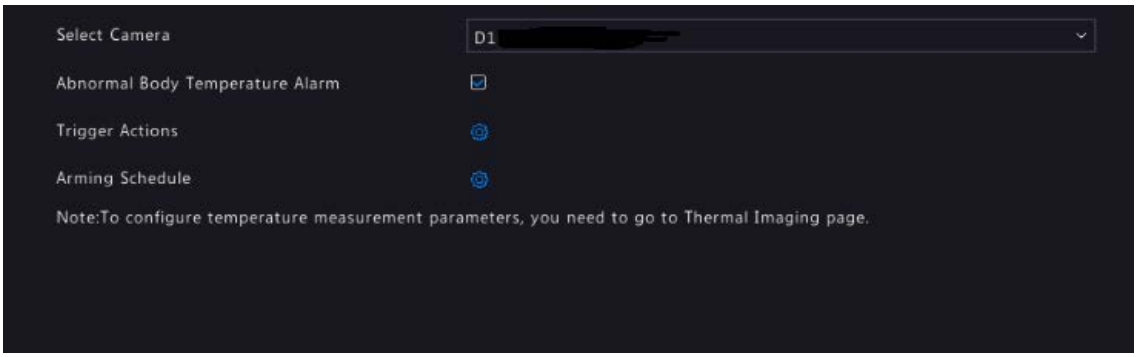
10.8 Temperature Alarm

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 on the **Temperature Measurement** page first. See Thermal Imaging for details.

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

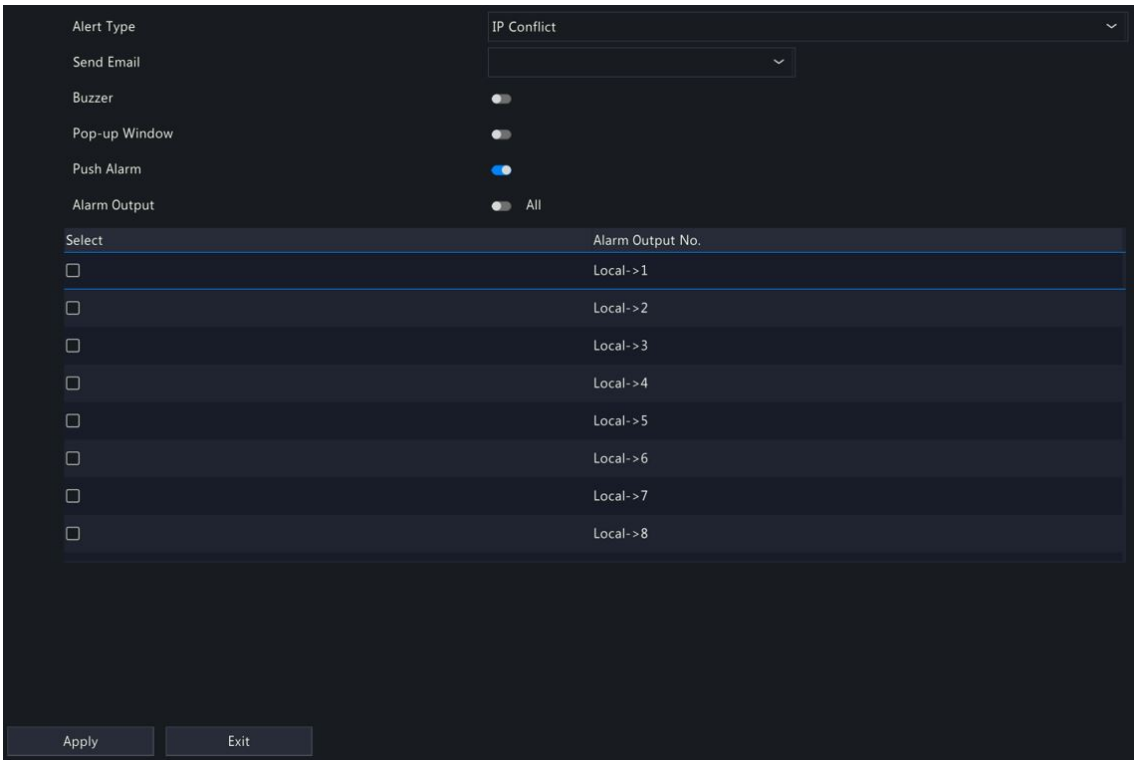


2. Select the infrared light channel, and enable **Abnormal Body Temperature Alarm**.
3. Set the alarm-triggered actions and arming schedule. Click the corresponding to go to the **Trigger Actions** page and **Arming Schedule** page respectively. See Alarm-triggered Actions and Arming Schedule for details.
4. Click **OK**.

10.9 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: The NVR is disconnected from the network.
   - 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.

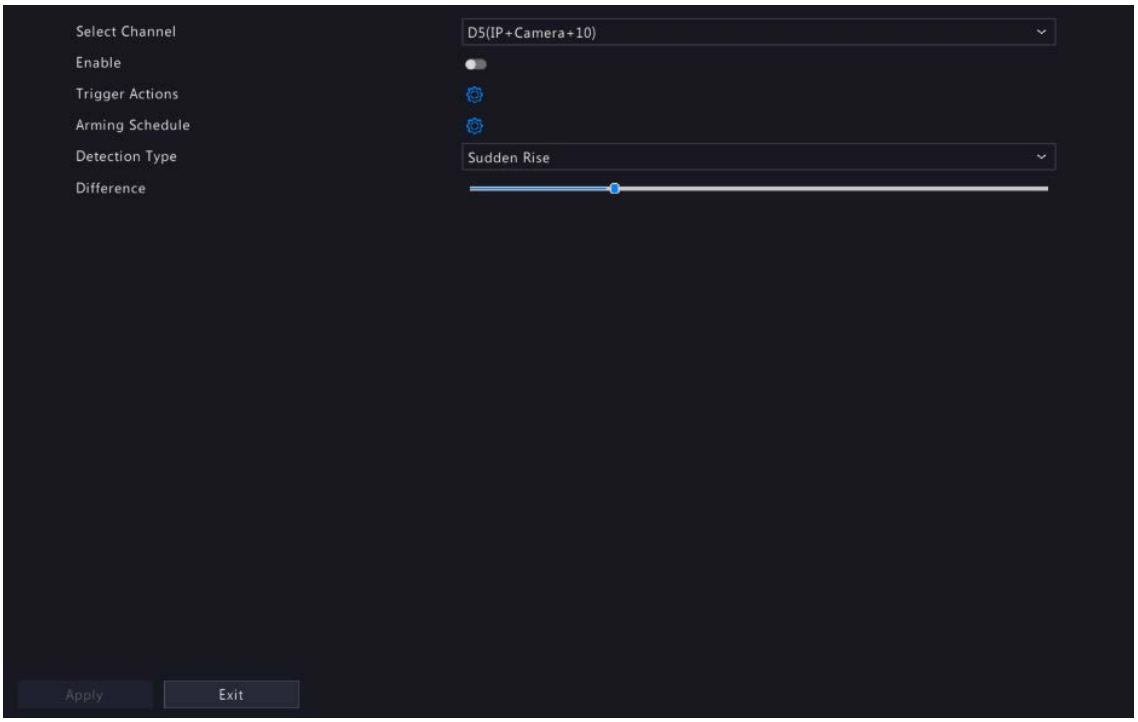
- Array Degraded: Some physical disks are lost in an RAID but the number of the lost disks is still below the limit.
- Recording/Snapshot Abnormal: Videos/snapshots cannot be stored normally because the disk is offline or abnormal.

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 enable **All**, or select specified alarm output channel(s).
5. Click **Apply**.
6. Repeat the above operations to configure alert actions for other events.

10.10 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 channel, and enable audio detection.
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.

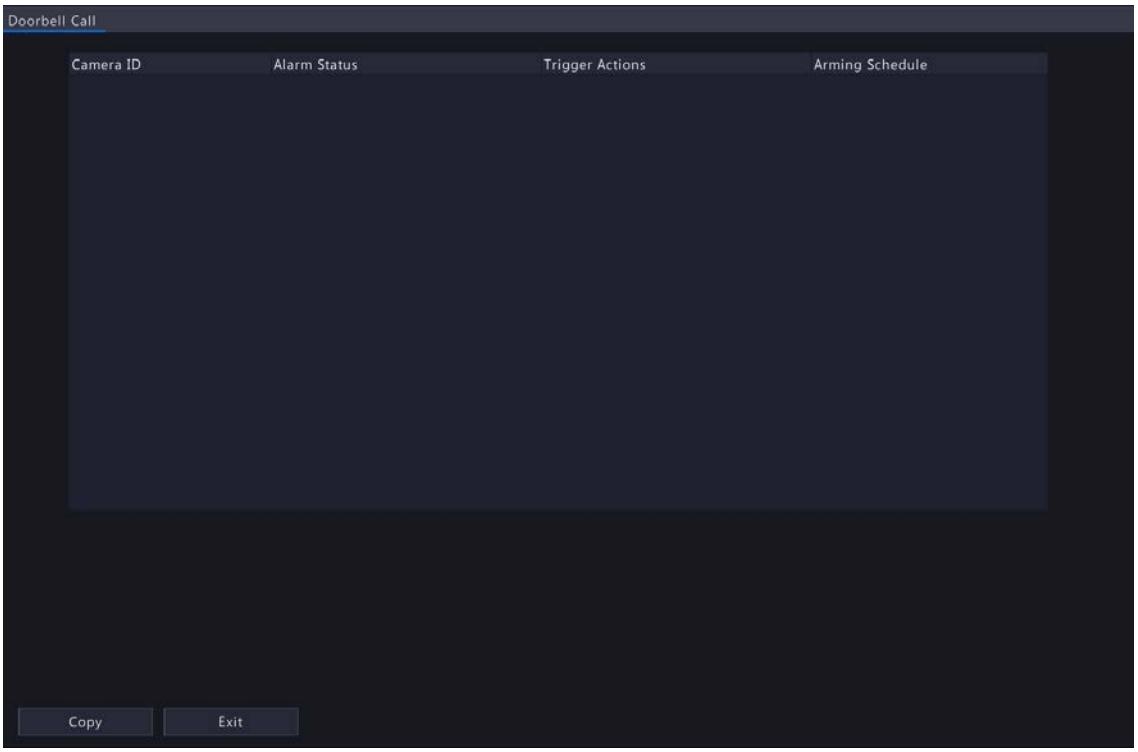
Item	Description
	• The difference between two sound volumes. An alarm occurs when the rise or fall of volume exceeds the difference (range: 0-400). This item is applicable when the detection type is **Sudden Rise**, **Sudden Fall**, or **Sudden Change**. • Threshold: The limit value of volume. An alarm 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**.

10.11 Doorbell Call

Receive and report doorbell alarms.

1. Go to **Menu > Alarm > Doorbell Call**.

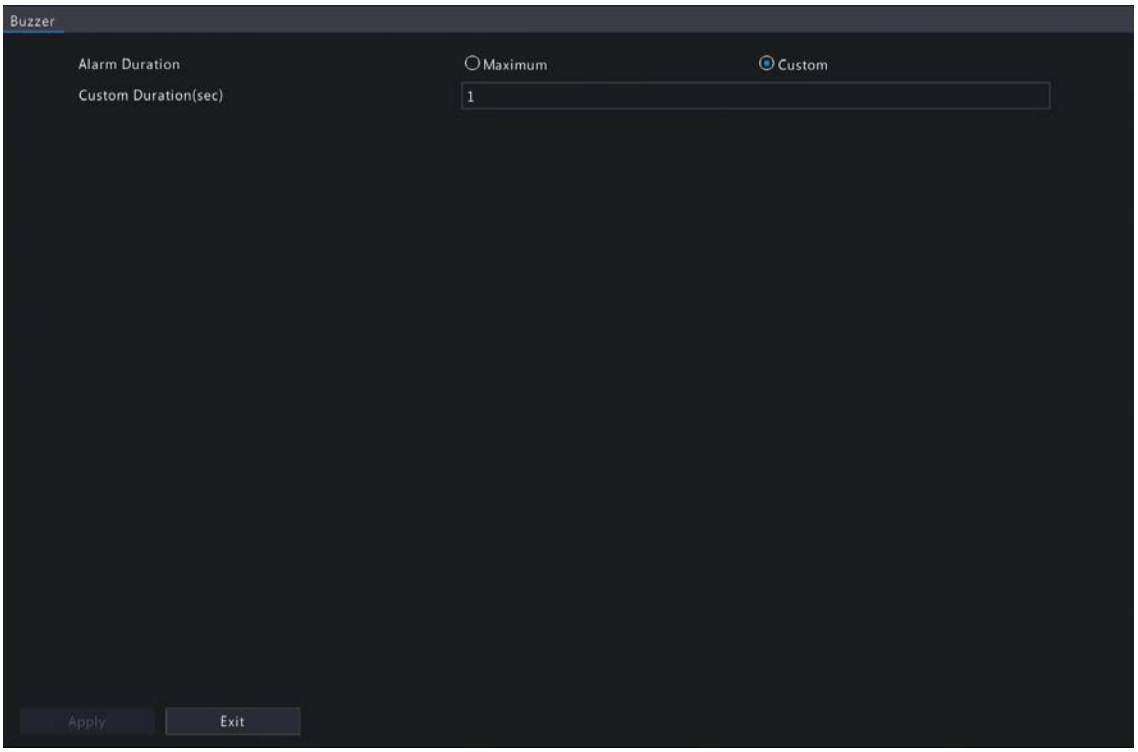


2. Select the channel and set the alarm status. Alarm is enabled by default for the doorbell device. You can click to disable the alarm, and the alarm status will change to .
3. Set the alarm-triggered actions and arming schedule. Click the corresponding to go to the **Trigger Actions** page and **Arming Schedule** page respectively. See Alarm-triggered Actions和Arming Schedule.
4. (Optional) To apply the same settings to other cameras, click **Copy**, select the desired camera(s), and then click **OK**.

10.12 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**.

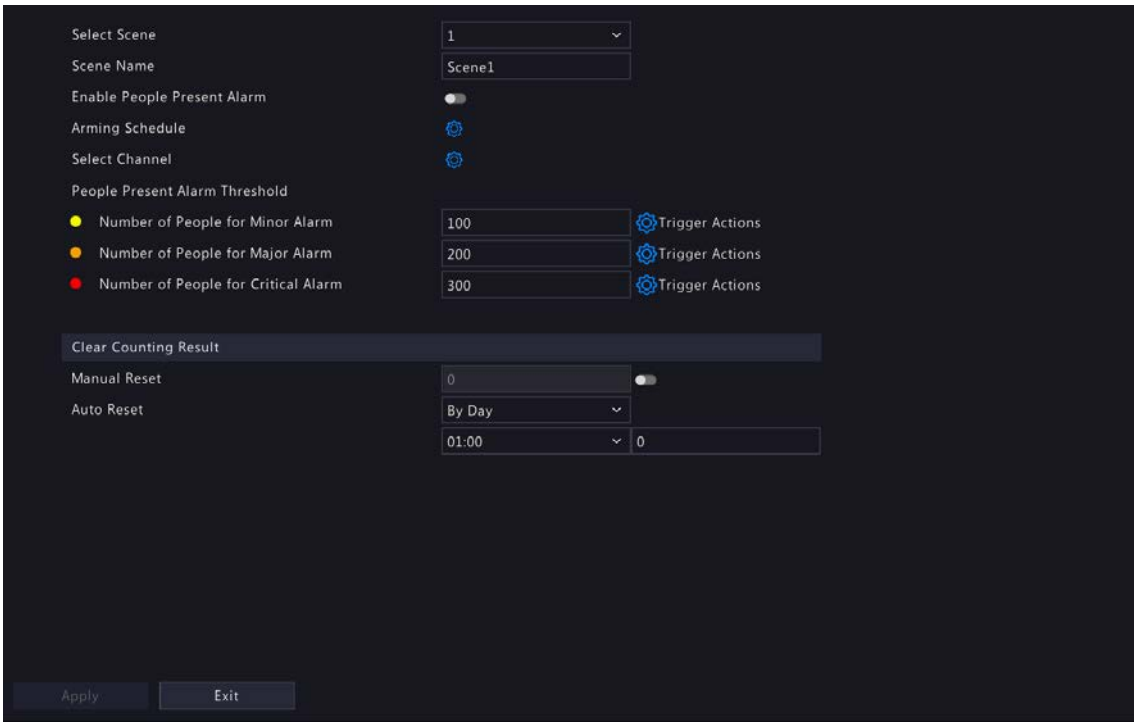
10.13 People Present Alarm

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

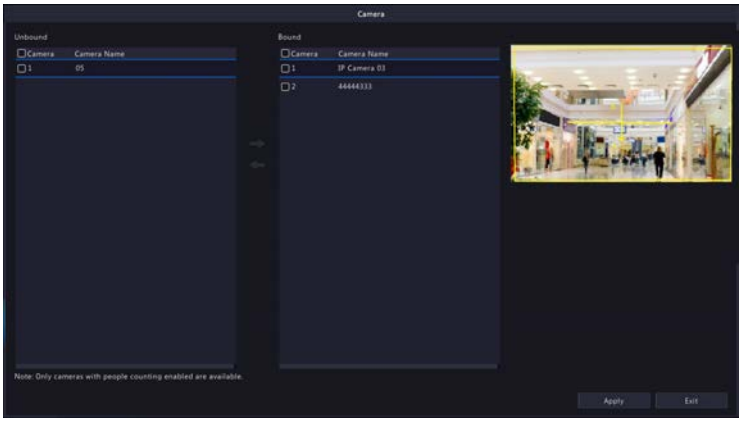
Note: To use this function, make sure that people flow counting is supported by the camera and is enabled on the **VCA** page. See People Flow Counting for details.

Configure People Present Alarm

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



2. Configure parameters.

Parameter	Description
Select Scene	Select a scene and set scene information respectively. Up to 4 scenes are allowed.
Scene Name	The 4 scenes are named as Scene 1, Scene 2, Scene 3, and Scene 4 by default. You can also customize scene name.
Enable People Present Alarm	Enable people present alarm.
Arming Schedule	Click right to **Arming Schedule** and configure it as needed. See Arming Schedule for details.
Select Channel	Click to select desired channel(s) to bind to the scene. The number of people present is calculated from the number of people entering and leaving the bound channels. It is recommended to bind all the channels to ensure the accuracy of the alarm. 
People Present Alarm Threshold	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. • Number of People for Minor Alarm: Set the number, and click to set Alarm-triggered Actions.

Parameter	Description
	• Number of People for Major Alarm: Set the number, which must be greater than the number of people for minor alarm, and then click to set Alarm-triggered Actions. • Number of People for Critical Alarm: Set the number, which must be greater than the number of people for major alarm, and then click to set Alarm-triggered Actions.

3. Set the time to clear people counting data. The NVR will clear people counting statistics on the OSD at the set time. This operation does not affect statistics and data reporting.

   (1) The initial number of people in scene is 0 by default. You can enable **Manual Reset**, and set the number as needed.

   (2) When **Manual Reset** is disabled, you can set the auto reset strategy. It can be set by day, week, and month.

4. Click **Apply**.

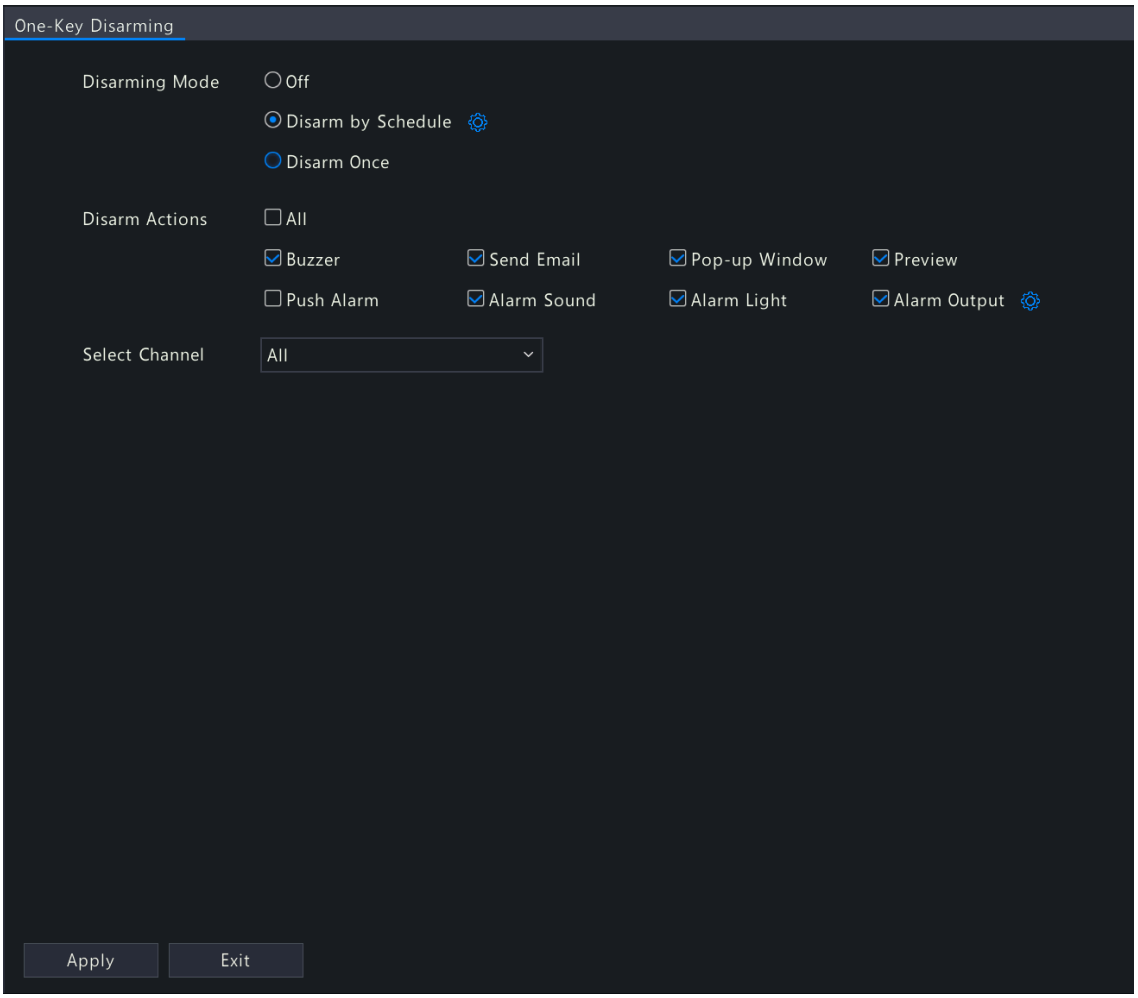
View Data

On 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, exited, and present.

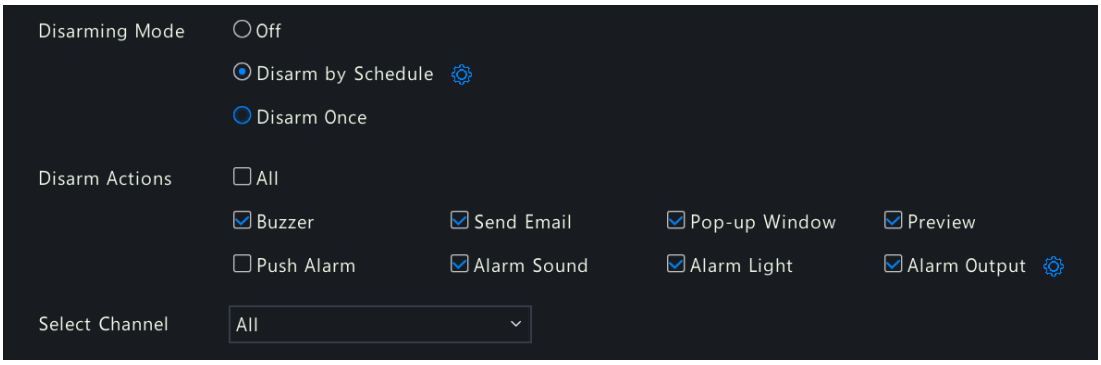
10.14 One-Key Disarming

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

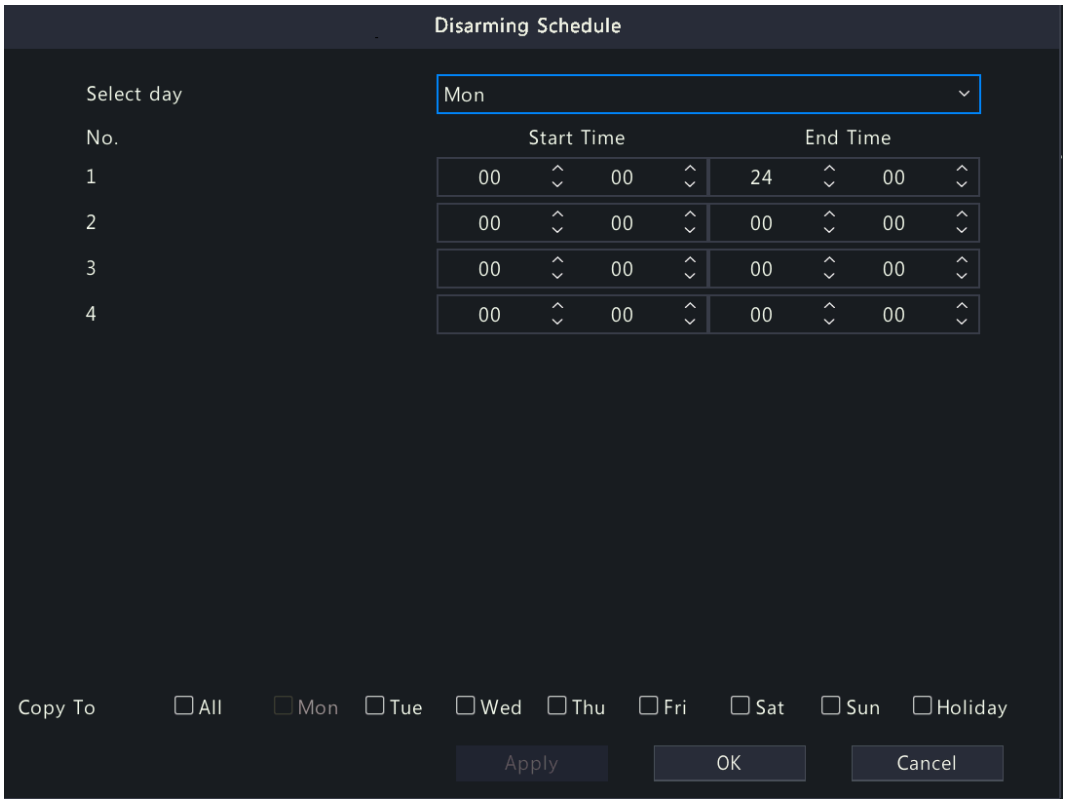
1. Go to **Menu** > **Alarm** > **One-Key Disarming**.



2. Select a disarming mode and configure parameters.
   - Off: Disarming is disabled.
   - Disarm by Schedule: The device 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 **One-Key Disarming** page.

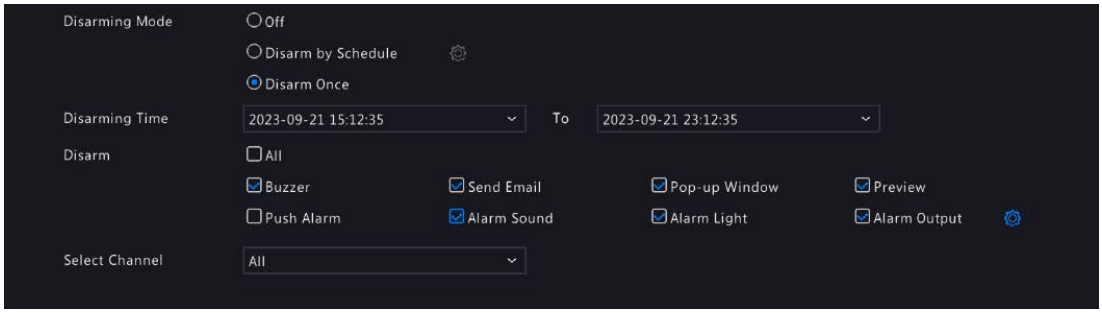


Note:

- 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 device is disarmed during a specified time period.



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

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

3. Click **Apply**.

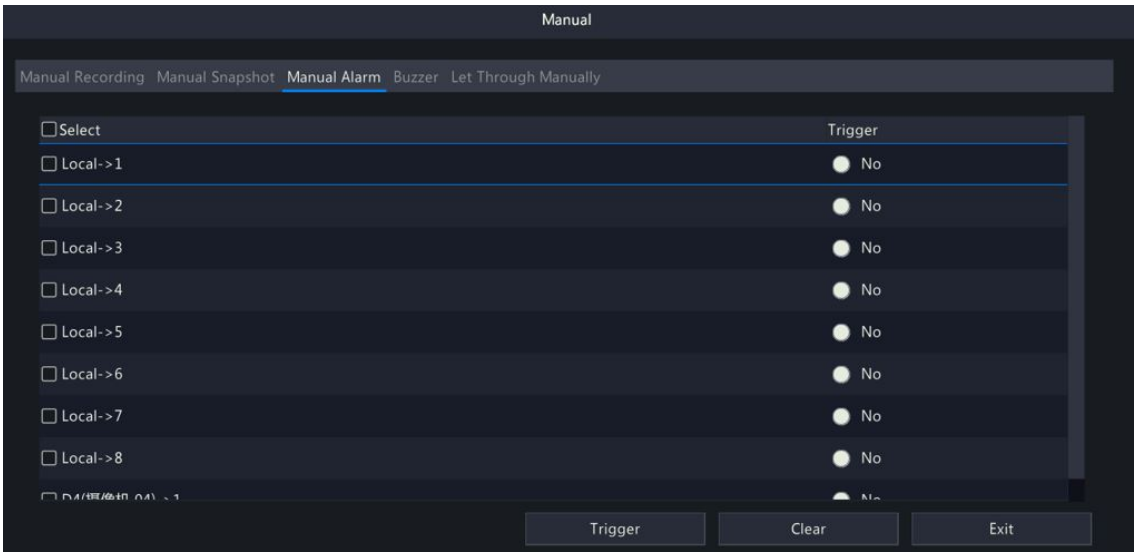
10.15 Manual Alarm

Trigger or clear an alarm output manually.

Note: Manual alarm has the highest priority.

Manual Alarm

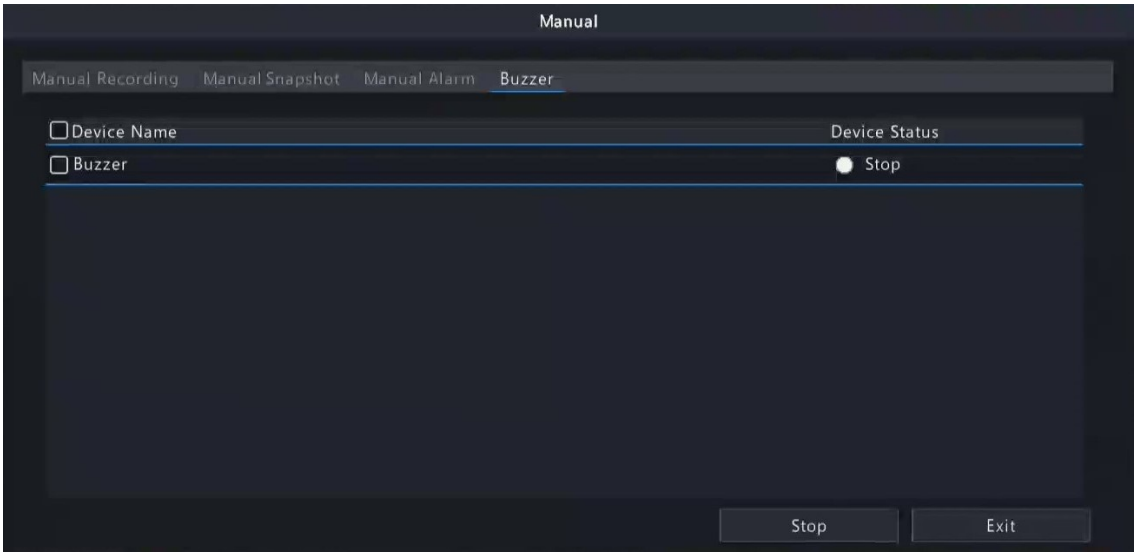
1. Right-click and select **Manual** > **Manual Alarm**.



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

Buzzer

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



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

11 System Maintenance

View system operation status to ensure stable system operation.

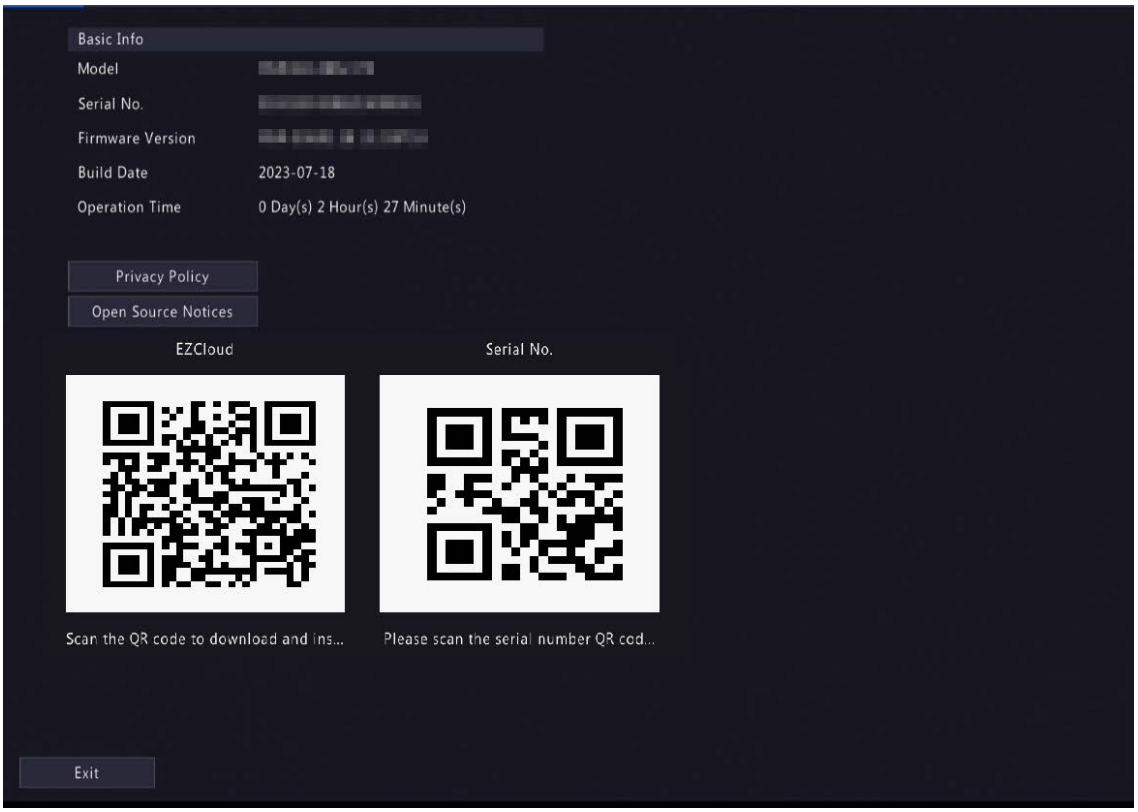
11.1 System Info

View the basic information and operation status of the device.

11.1.1 Basic Info

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

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



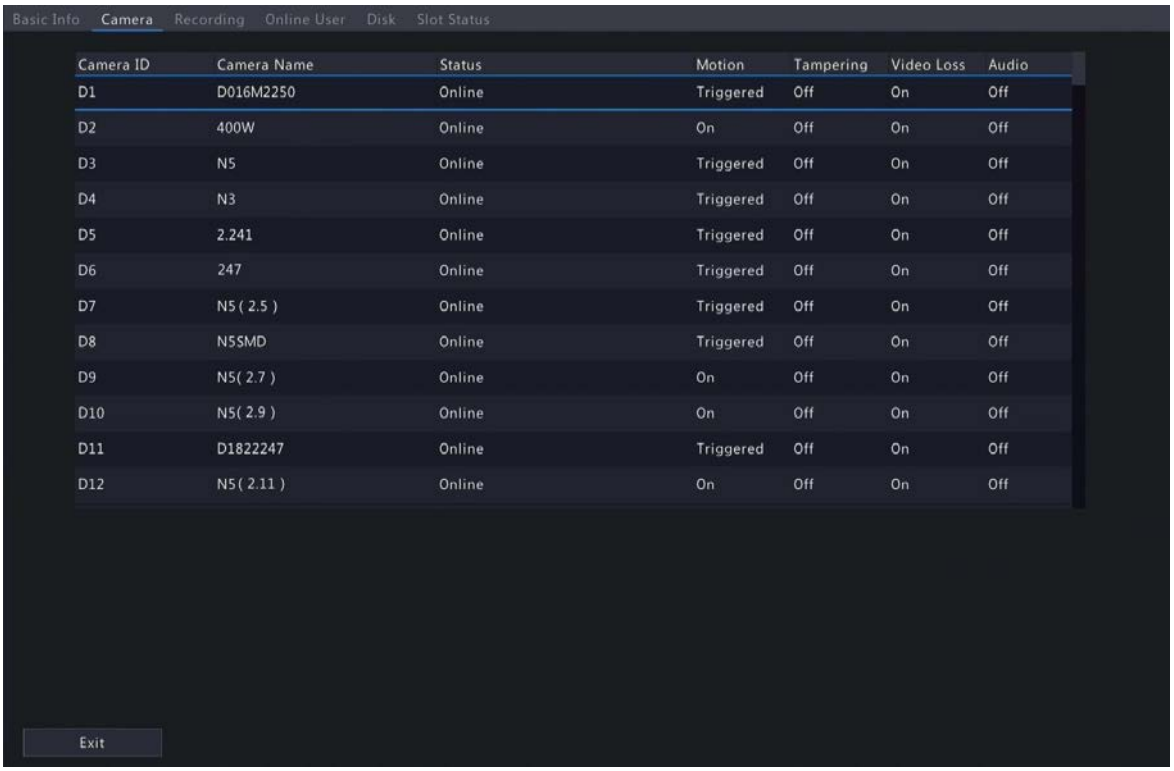
Parameter	Description
Model	NVR model.
Product Configuration	Product configuration, which can be the maximum number of channels or product series, for example, 128 means up to 128 cameras can be connected; 8-X means X Series and can connect up to 8 cameras.
Serial No.	Serial number.
Firmware Version	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 EZCloud QR code to download the app for device management.
3. Scan the serial number QR code to view the device information.
4. Click **Privacy Policy** to view our privacy policy as needed.
5. Click **Open Source Notices** to view our open source notices as needed.

11.1.2 Camera Status

View camera status information.

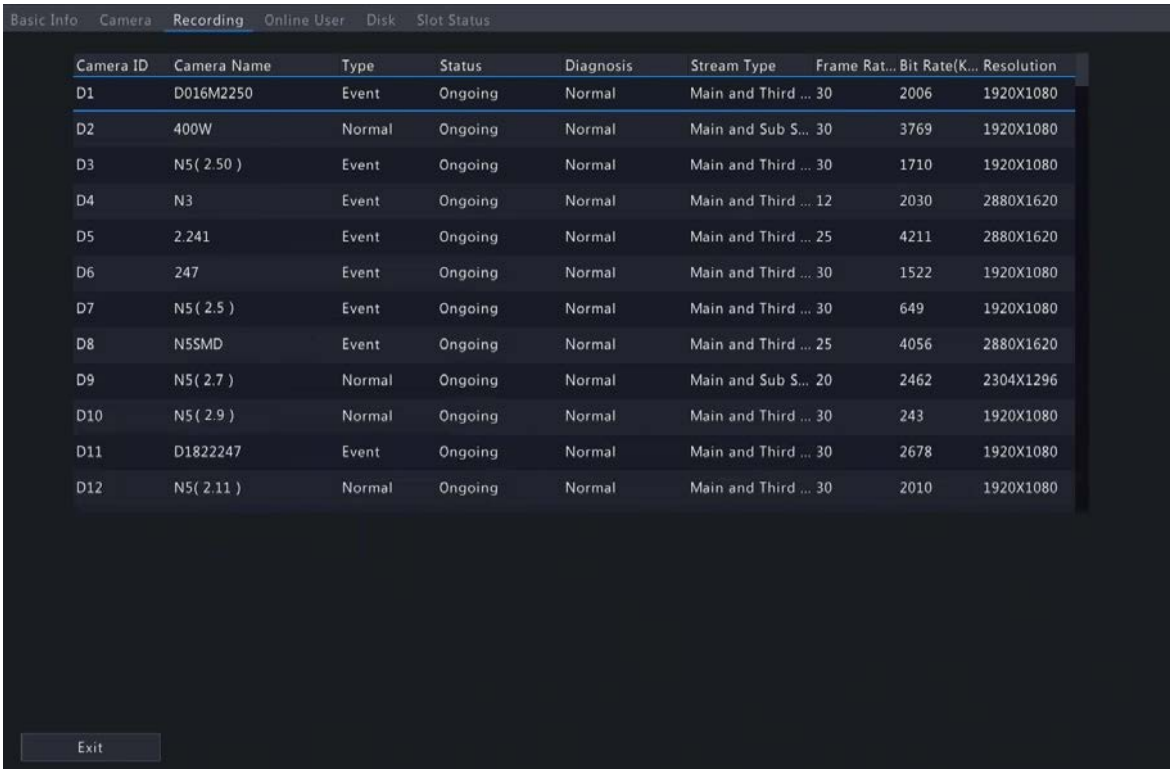
Go to **Menu** > **Maintenance** > **System Info** > **Camera**. View camera information including name, online/offline status, event type and status.



11.1.3 Recording Status

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

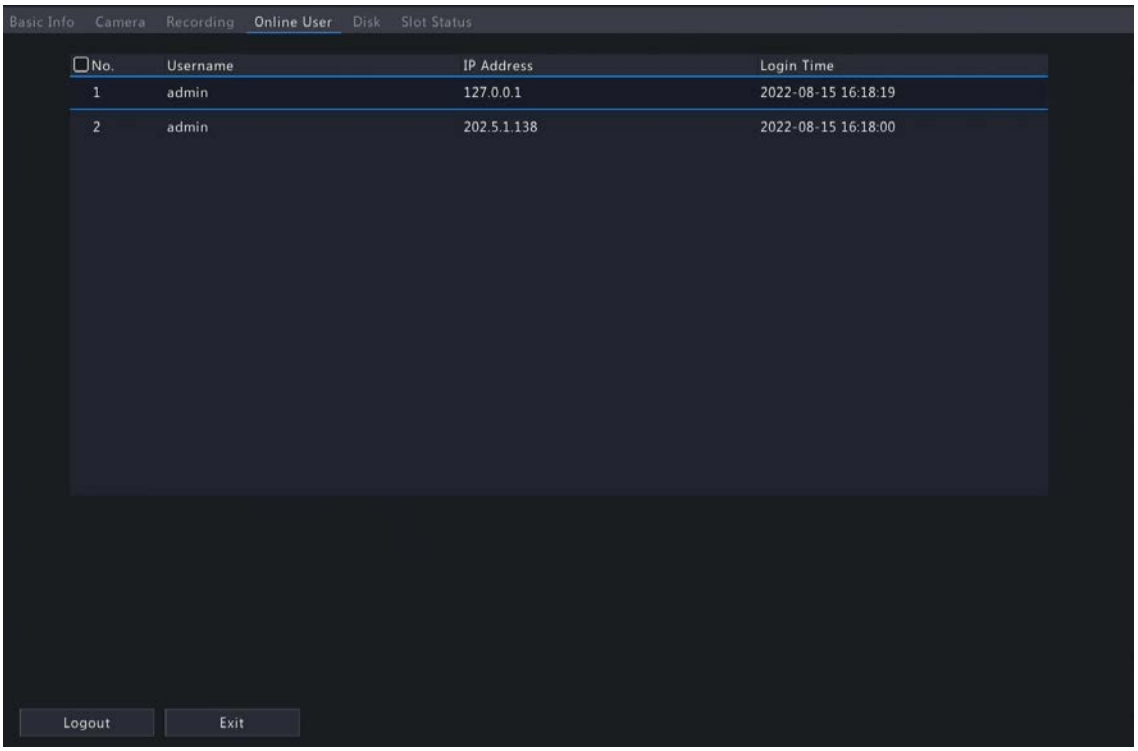
Go to **Menu** > **Maintenance** > **System Info** > **Recording**. View recording information including recording type, recording status, diagnosis, and encoding parameters.



11.1.4 Online User

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

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



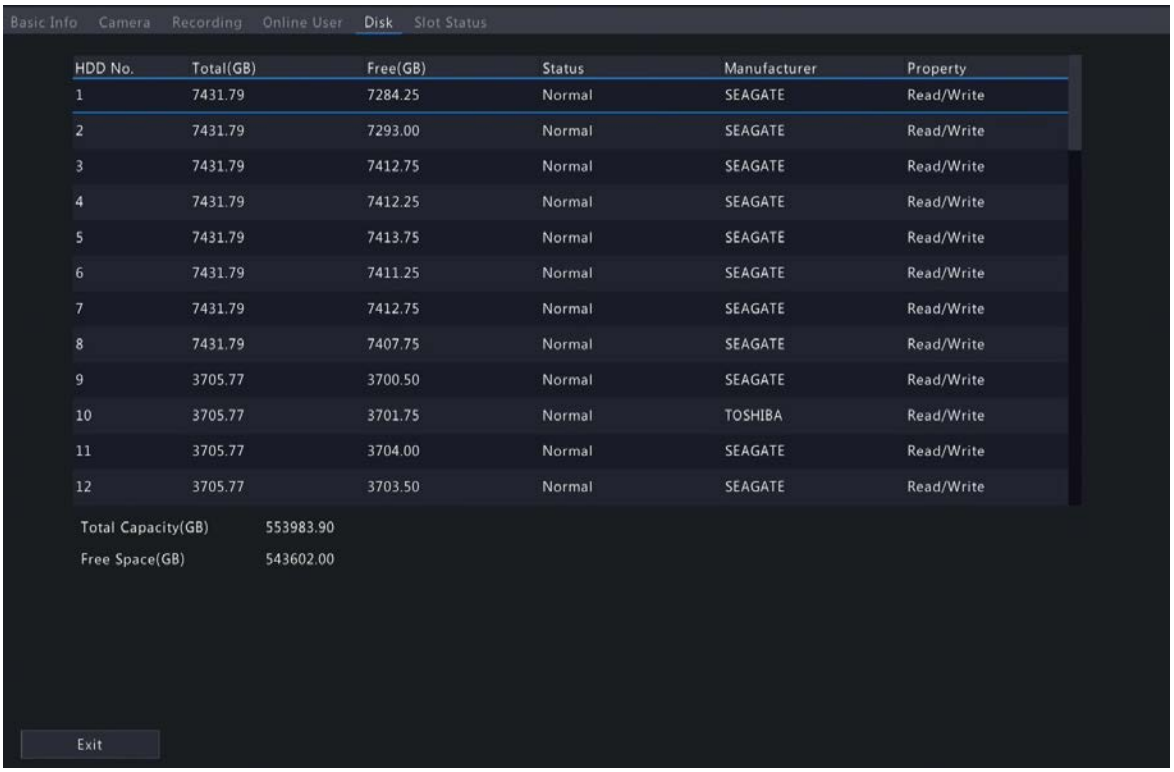
2. Choose a non-admin user and then click **Logout**.

Note: Only admin can manage user permissions.

11.1.5 HDD Status

View the status and property of HDDs on the NVR.

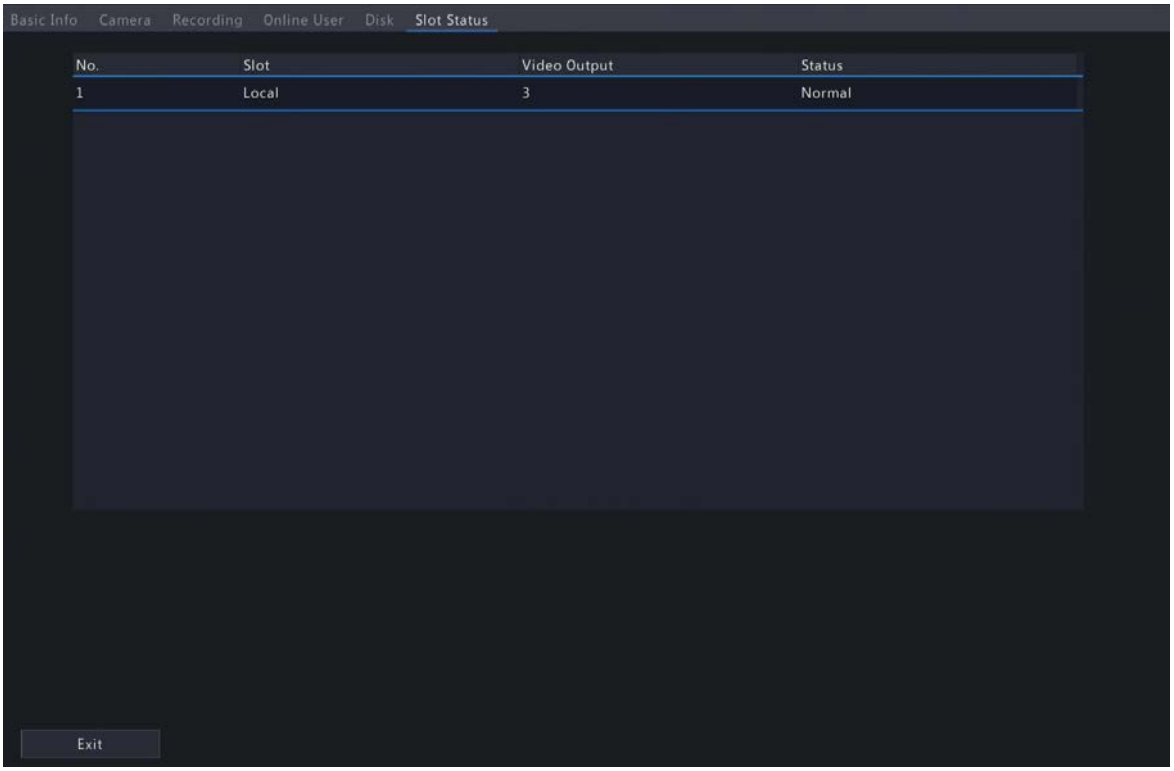
Go to **Menu** > **Maintenance** > **System Info** > **Disk**. View hard disk information including the total capacity, free space, status, manufacturer, and property.



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.



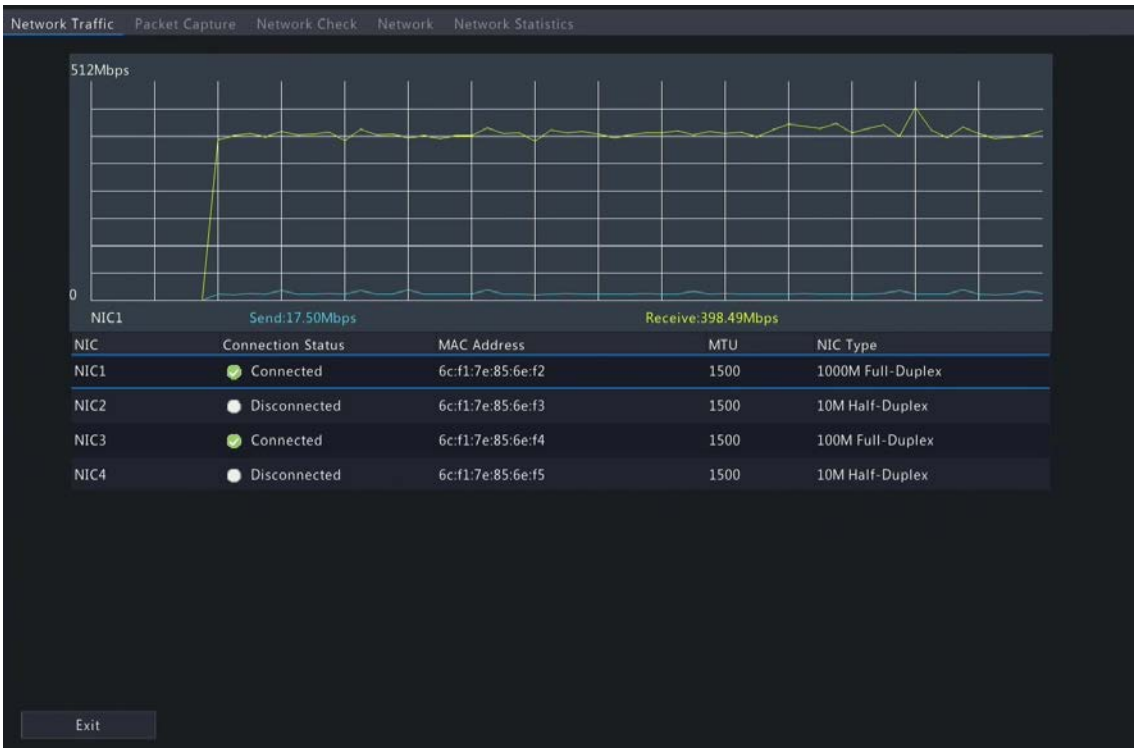
11.2 Network Information

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**.

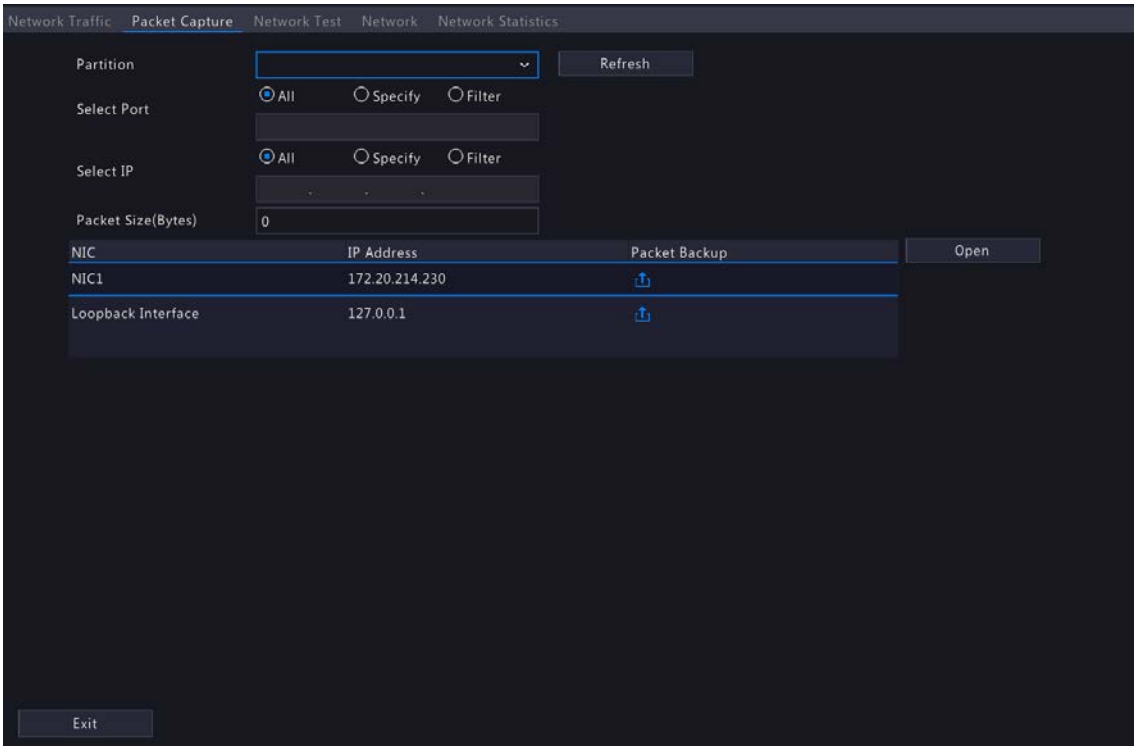


2. Choose an NIC to view the real-time network traffic.

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.

Note:

- The packet size is 0 by default, which indicates that there is no size limit for the captured packet data. The larger the size, the lower the risk of data loss, and the more complete the information.
- Too large packet size may occupy too much storage space.

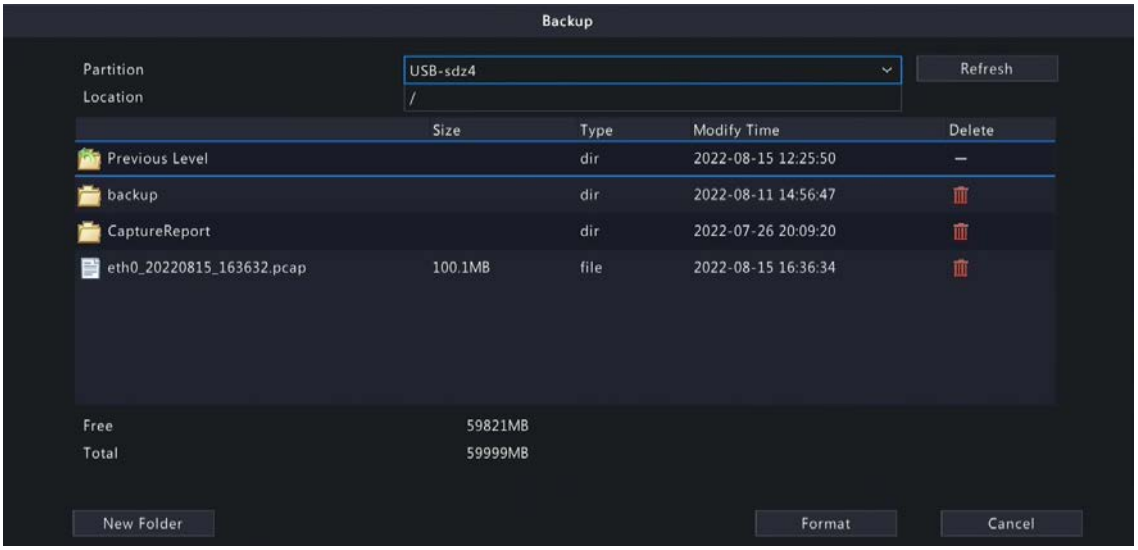
5. Click for the NIC or loopback interface to start capturing packets.

- NIC 1/2/3...: Capture transmission packets of the NIC.
- Loopback interface: Capture operation packets of the NVR.

Note: A progress bar appears. To cancel the task, click **Cancel**.

6. View the captured data.

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



Note:

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

11.2.3 Network Check

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

Configure Network Check

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

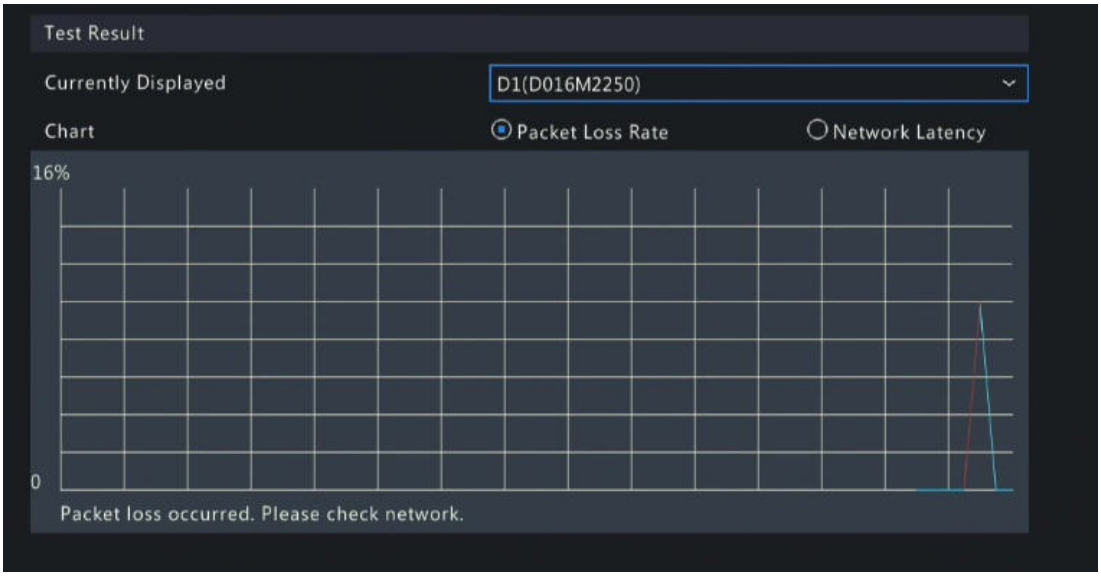
6. Click **Test** to test the packet loss rate and network latency.

View Test Results

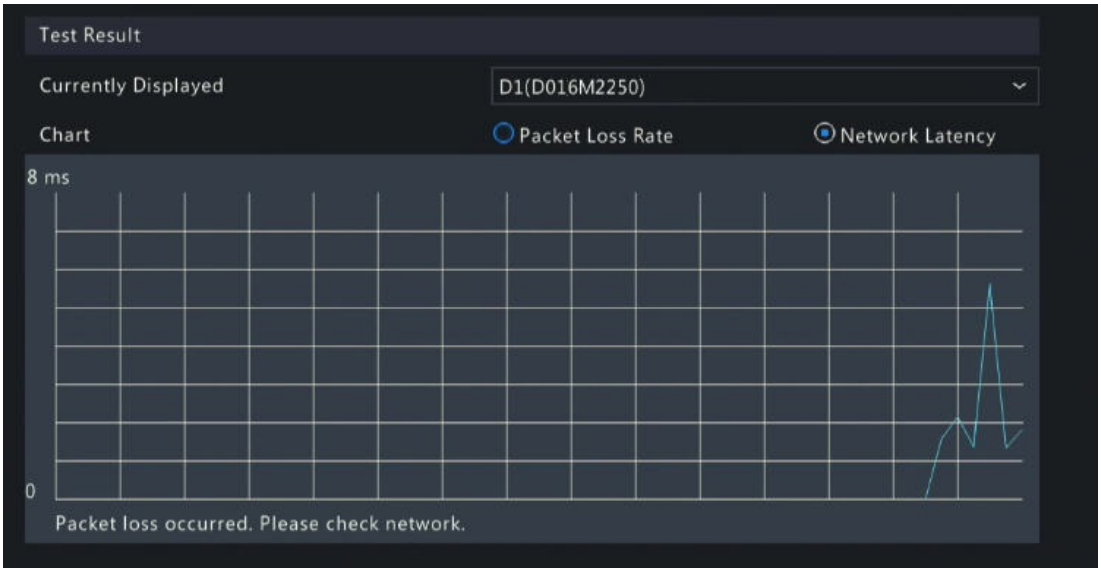
If the test is successful, the system saves test data and shows the packet loss rate and network latency. If the test failed, the test result shows “The destination is unreachable”.

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

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

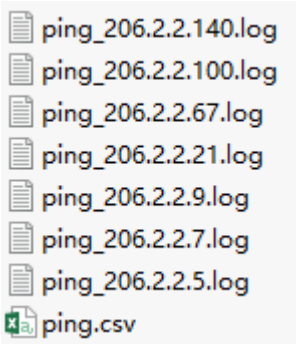


   - Network latency

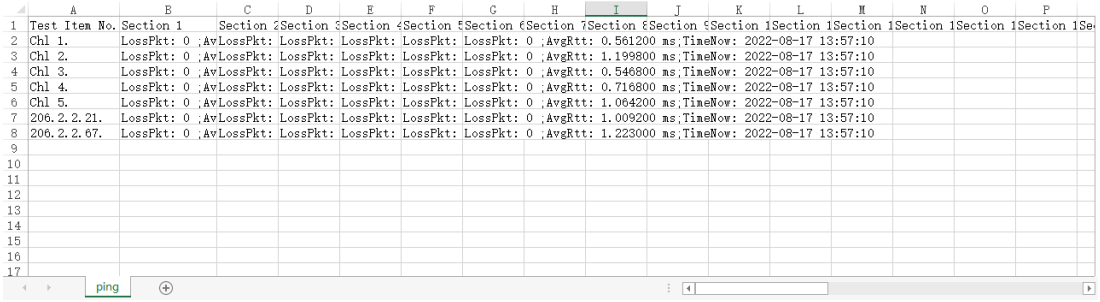


Export Test Results

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



   - Exported report



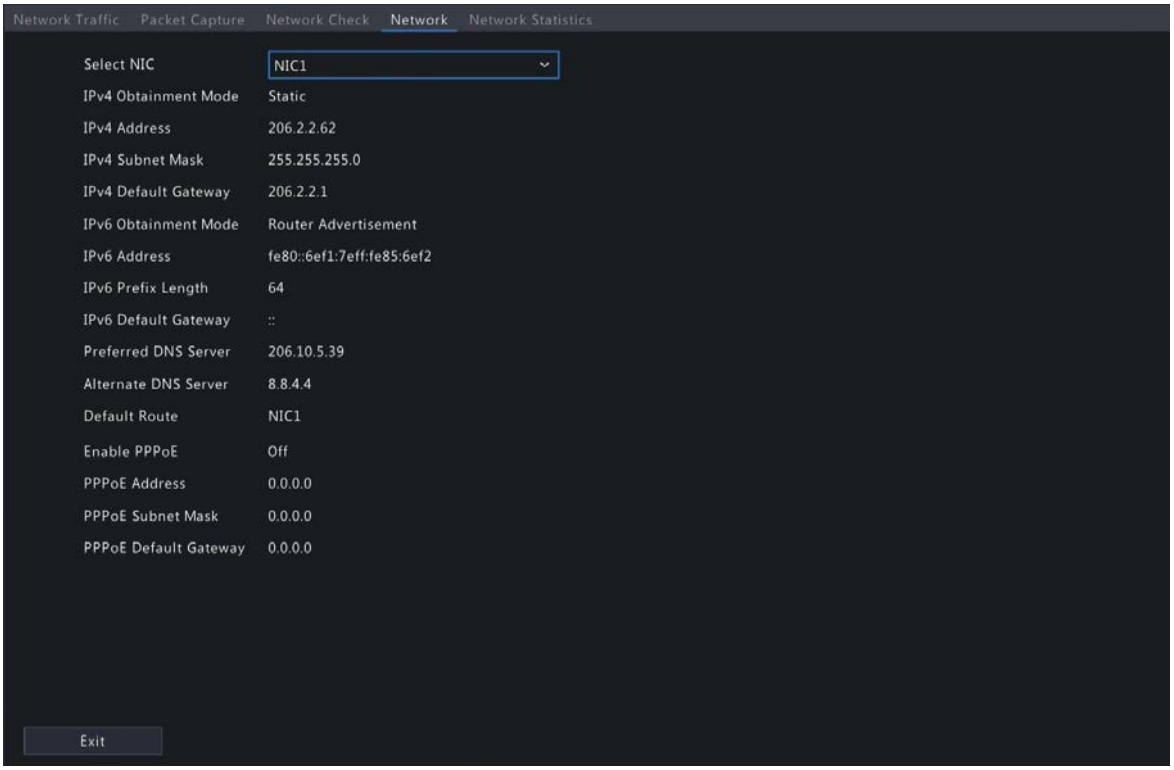
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Test Item No.	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8	Section 9	Section 1	Section 1	Section 1	Section 1	Section 1	Se
2	Chl 1.	LossPkt: 0 ;	AvLossPkt:	LossPkt:	LossPkt:	LossPkt:	LossPkt: 0 ;	AvgRtt: 0.561200 ms;	TimeNow: 2022-08-17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

ping

11.2.4 Network Status

View network parameters of an NIC.

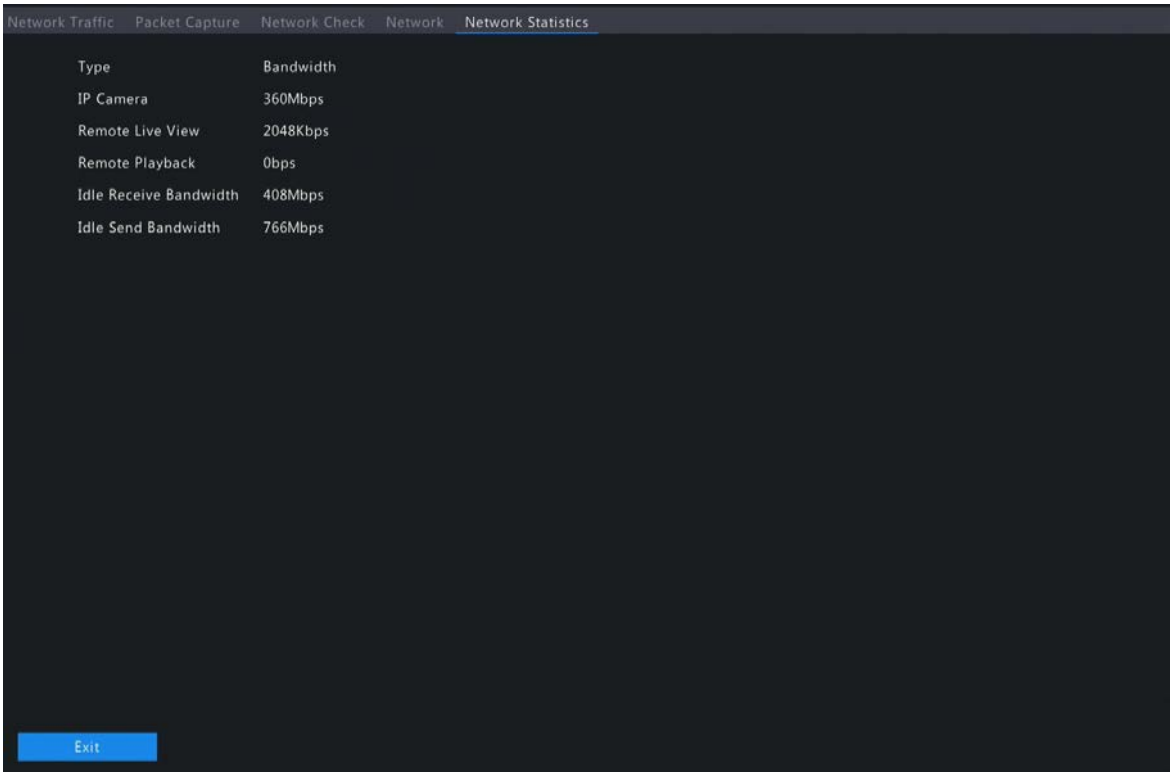
Go to **Menu** > **Maintenance** > **Network Info** > **Network**. Choose an NIC to view its network parameters.



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.

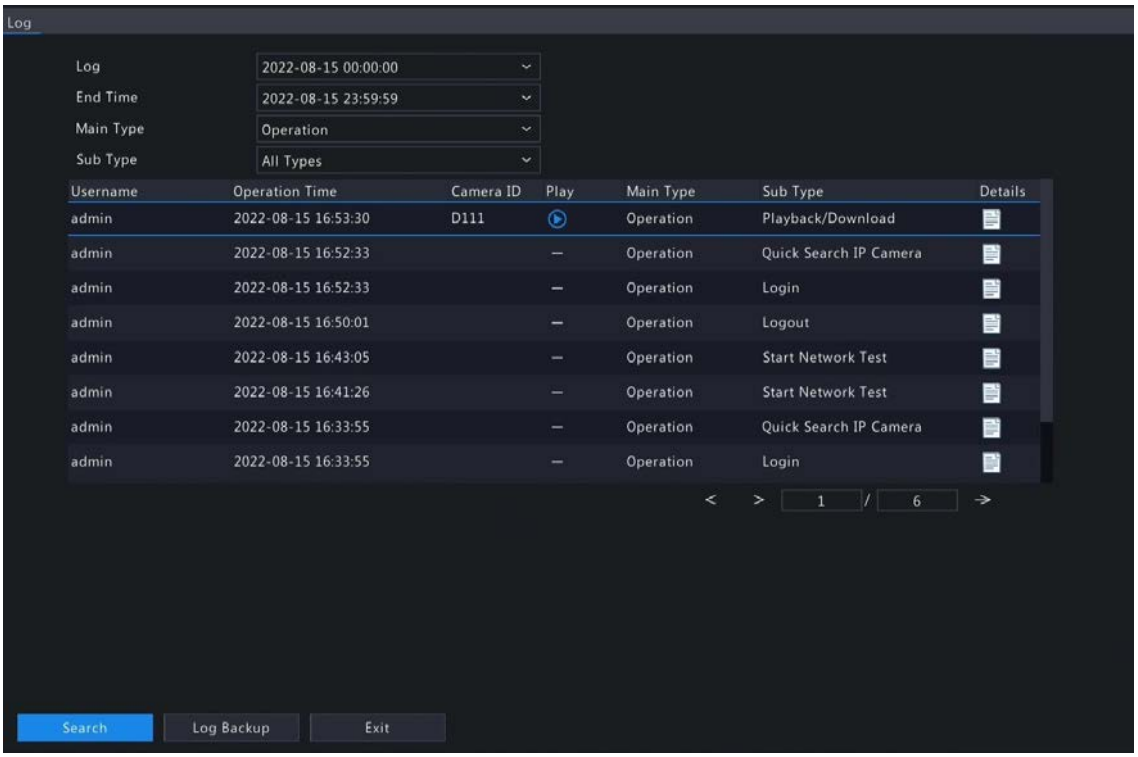
Go to **Menu** > **Maintenance** > **Network Info** > **PoE Port Status** or **Network Port Status**. The port connection status is displayed. Blue means the port is in use. For PoE device, you may also view power information.

11.3 Log Search

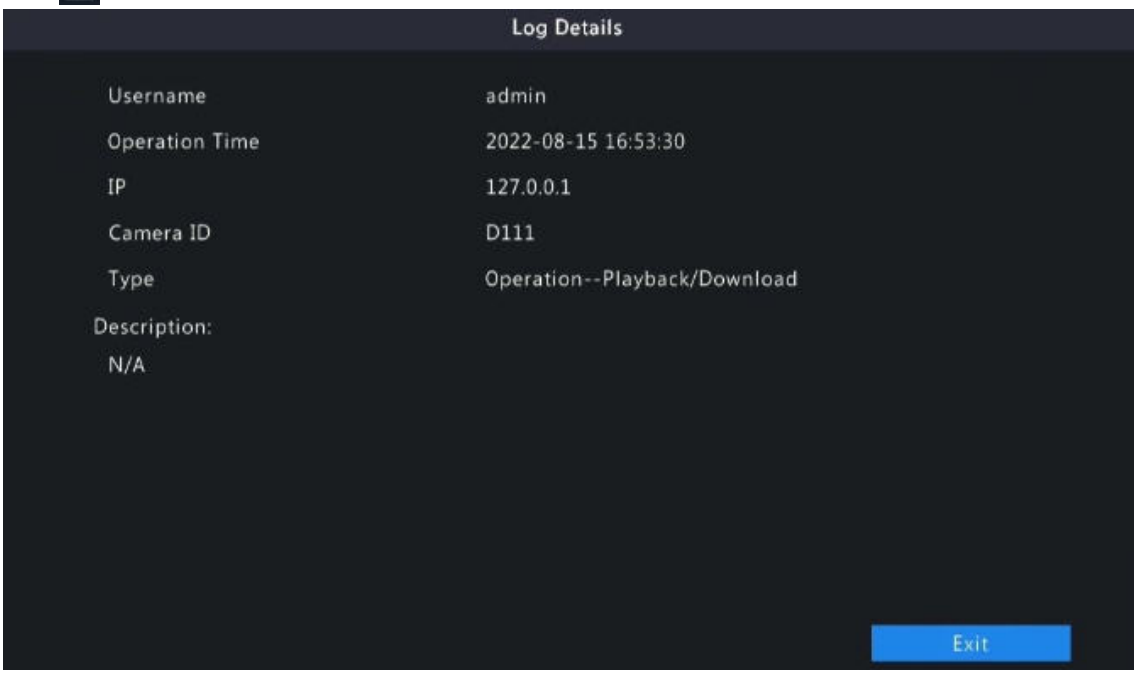
Logs contain information about user operation and device status. You can use logs to keep track of device operation status and view detailed alarm information.

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 Maintenance

11.4.1 Maintenance

Maintenance includes restore system, system backup, and auto-function.

Go to **Menu** > **Maintenance** > **Maintenance** > **Maintenance**.

Restore System

Restore default system settings.

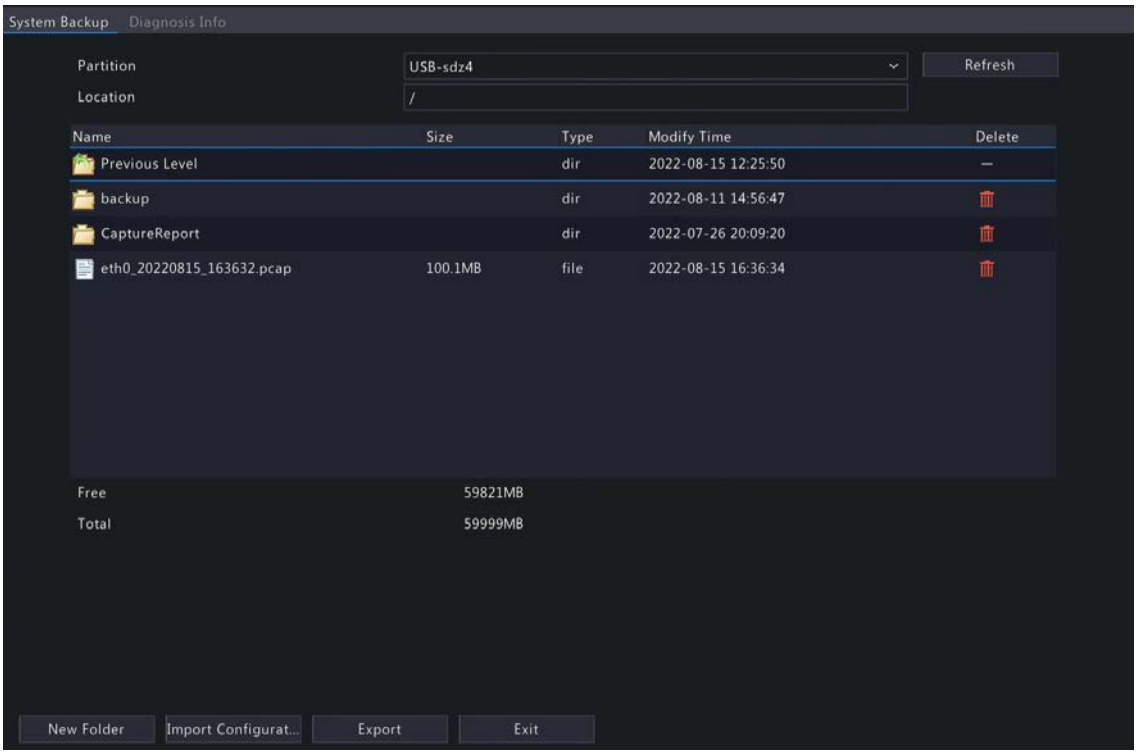
1. Choose **Default** or **Factory Default** as needed. A message appears. The NVR will restart and restore the default settings after you confirm. Choose a method according to your actual needs:
   - Restore: Restore default settings except network settings, user settings, and time settings.
   - Factory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

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

System Backup

Import, export, and delete system configurations.

1. Click **System Backup**.



2. 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.
3. Click **Apply**.

Auto-Function

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

1. Find the **Maintenance** area.
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**.

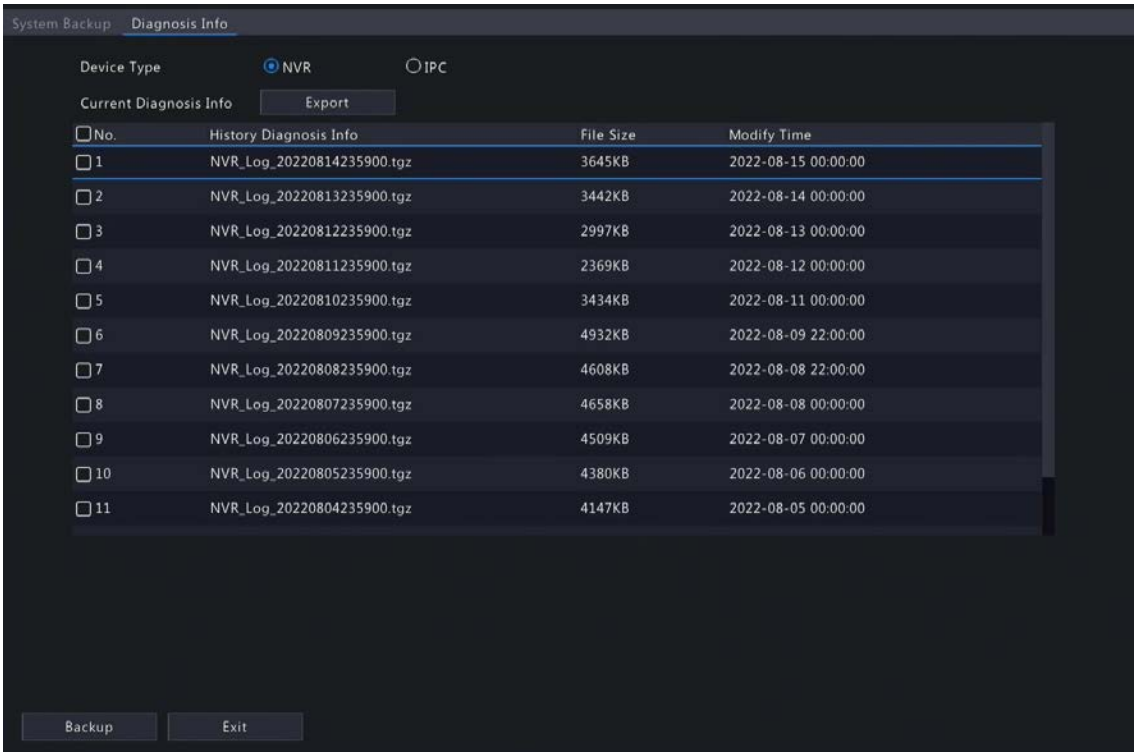
11.4.2 Diagnosis Info

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** > **Maintenance** > **Diagnosis Info**.

NVR Diagnosis Info

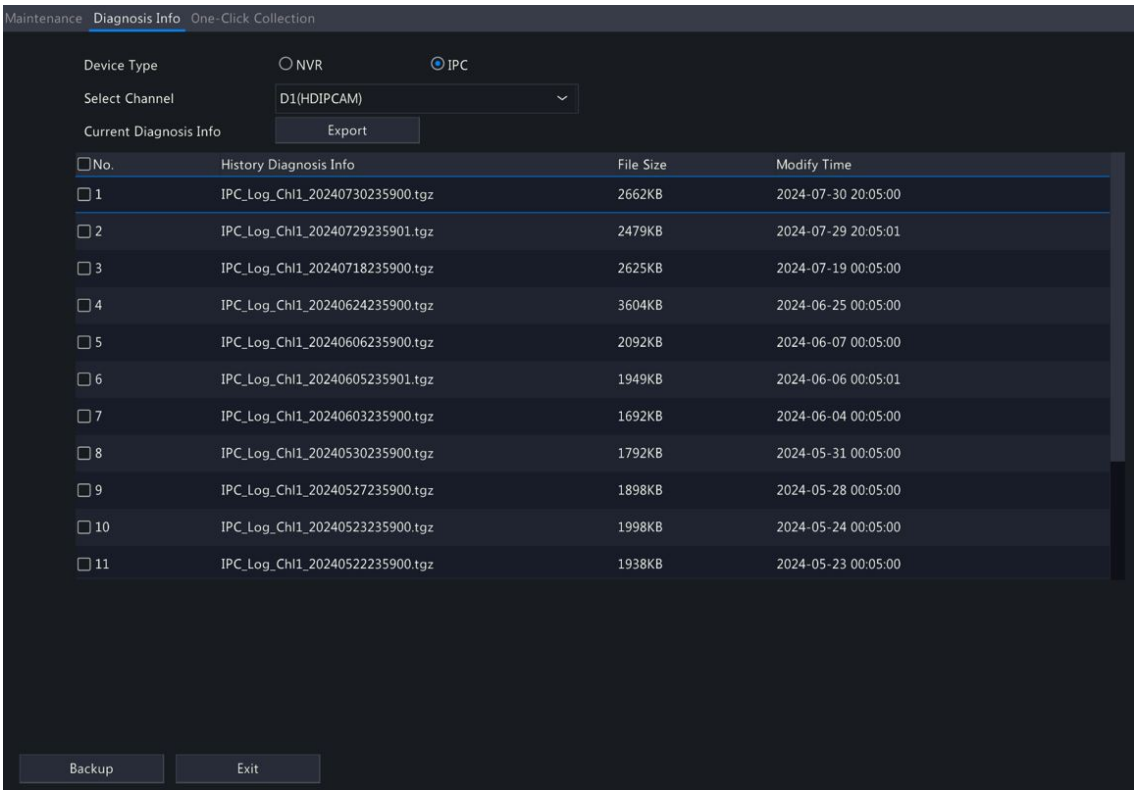
1. Choose **NVR** as the device type.



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.

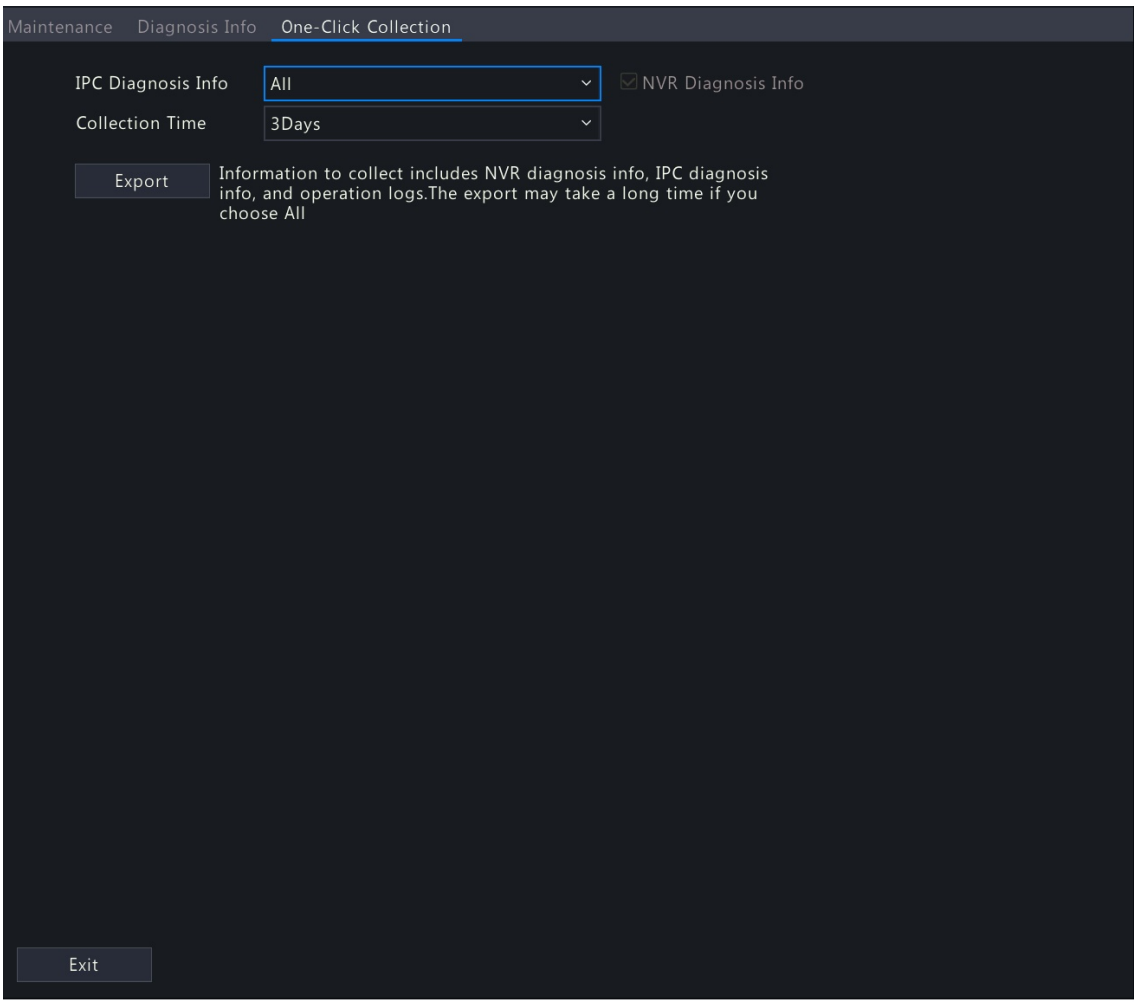


2. Choose the desired camera from the list.
3. Export diagnosis information of the selected camera.
   - Current Diagnosis Info: Diagnosis information since the latest startup. Click **Export** to export diagnosis information to the external storage device.
   - History Diagnosis Info: All the history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

11.4.3 One-Click Collection

Collect NVR and camera diagnosis information.

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



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**.

11.5 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.

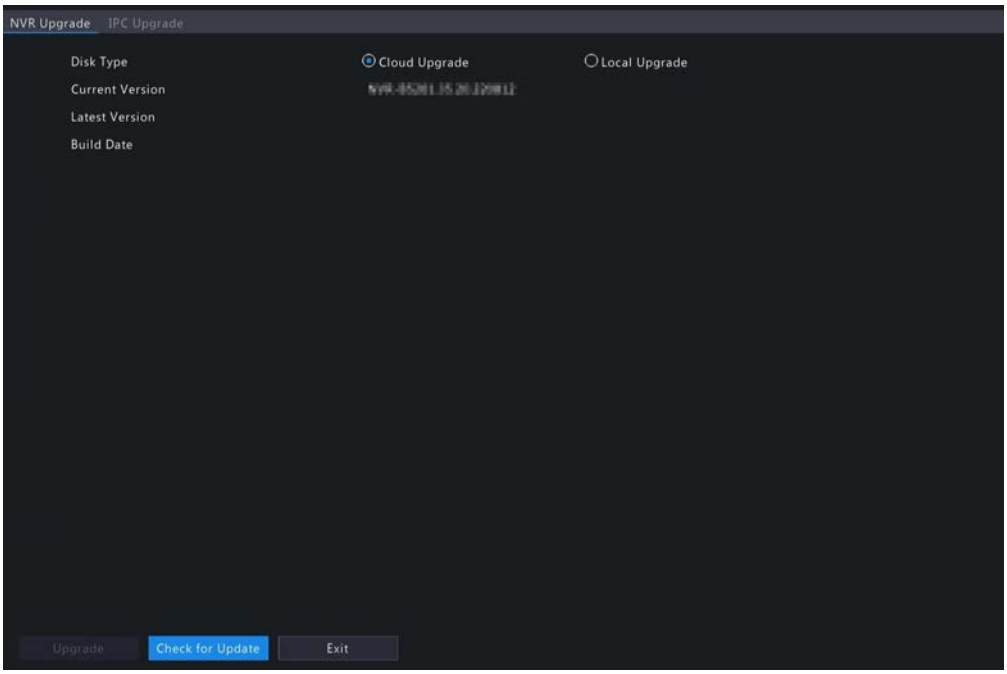
Note:

- 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.

11.5.1 NVR Upgrade

Upgrade the firmware of the NVR.

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



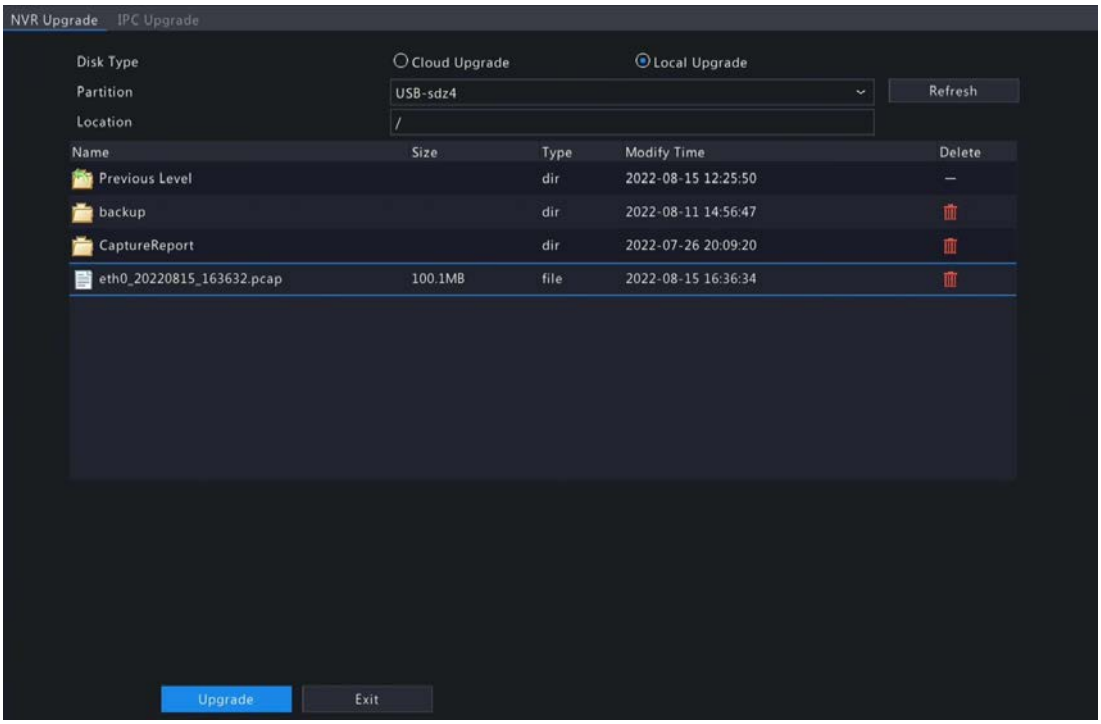
2. Choose **Cloud Upgrade** or **Local Upgrade**.
   - Cloud Upgrade

     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.

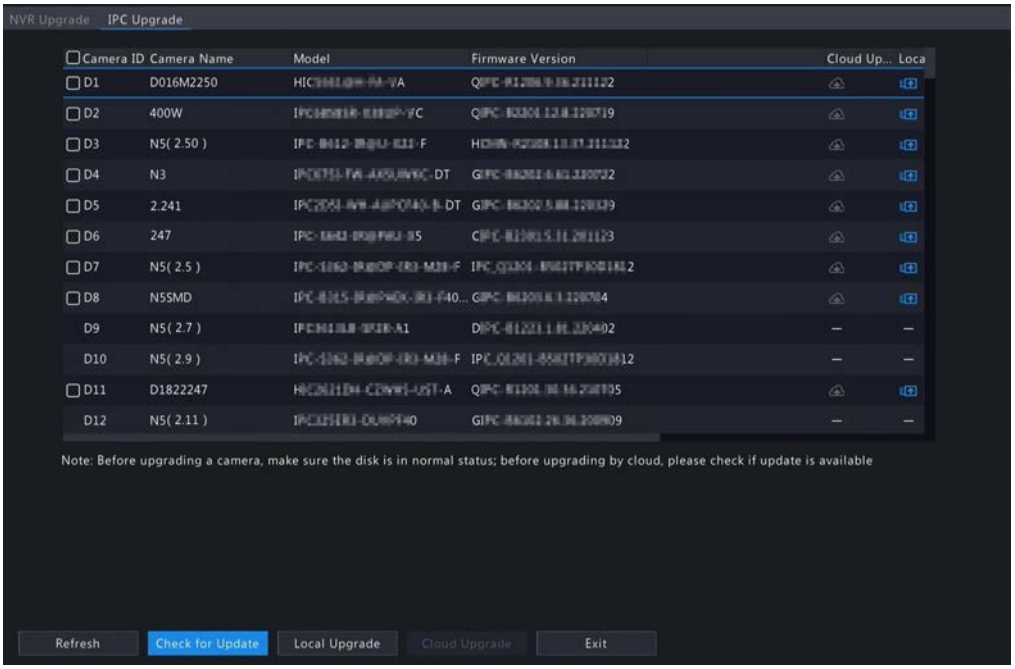
     Note: If the upgrade failed, the failure cause will be displayed, and the device will restart automatically. Fix the problem and then try again.



11.5.2 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** > **System Upgrade** > **IPC Upgrade**.

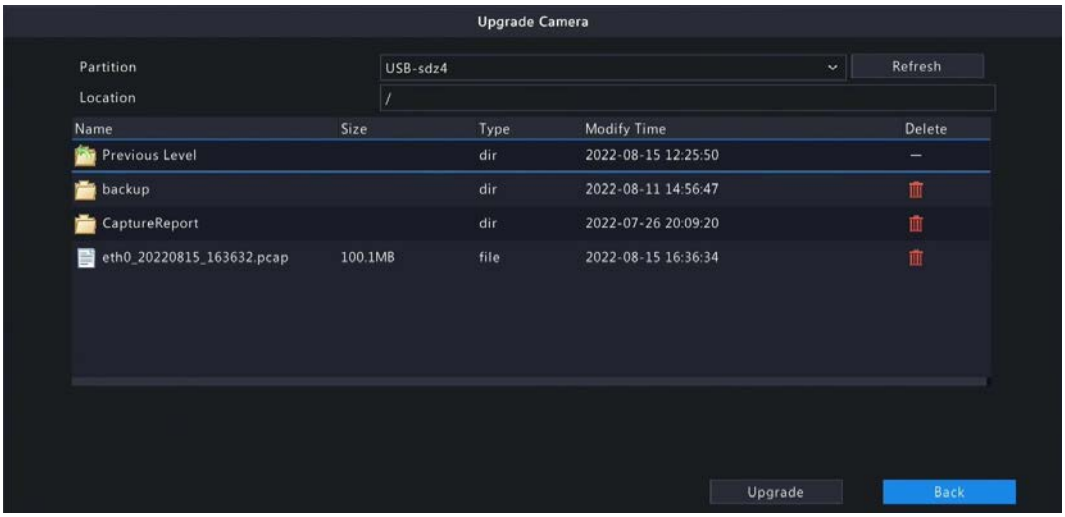


2. Choose **Cloud Upgrade** or **Local Upgrade**.
   - Cloud Upgrade

     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**.

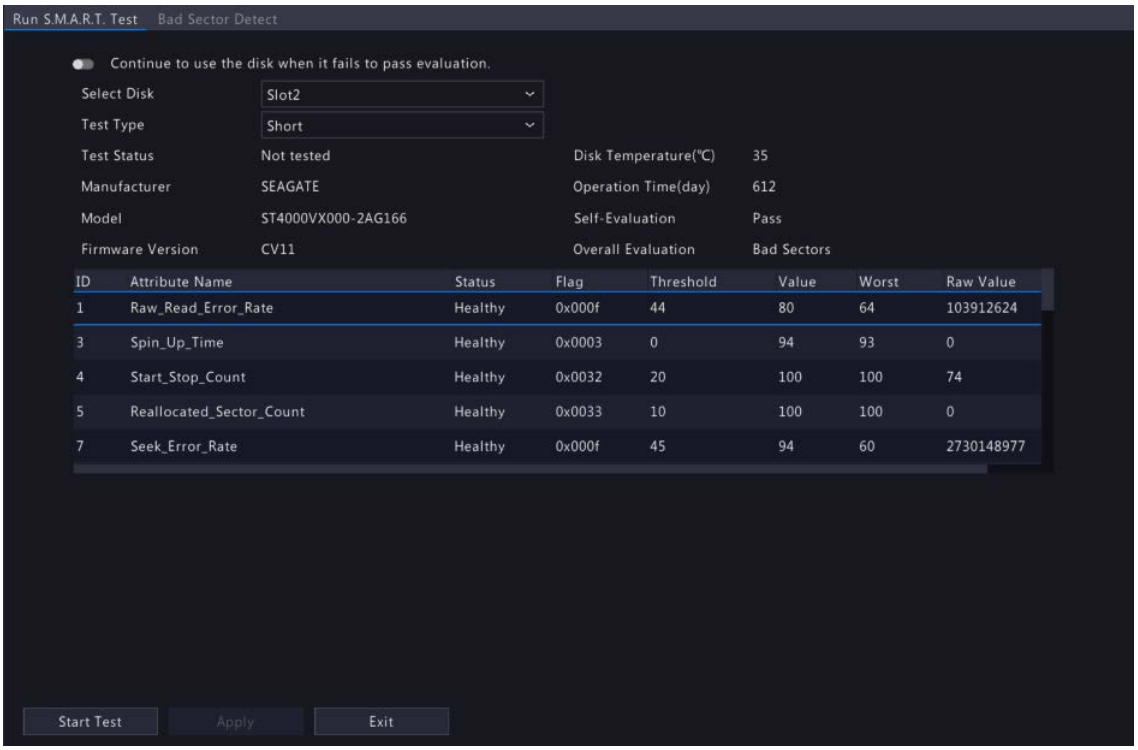
11.6 HDD Check

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

11.6.1 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** > **Run S.M.A.R.T. Test**.



2. (Optional) Enable **Continue to use the disk when it fails to pass evaluation**, 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.

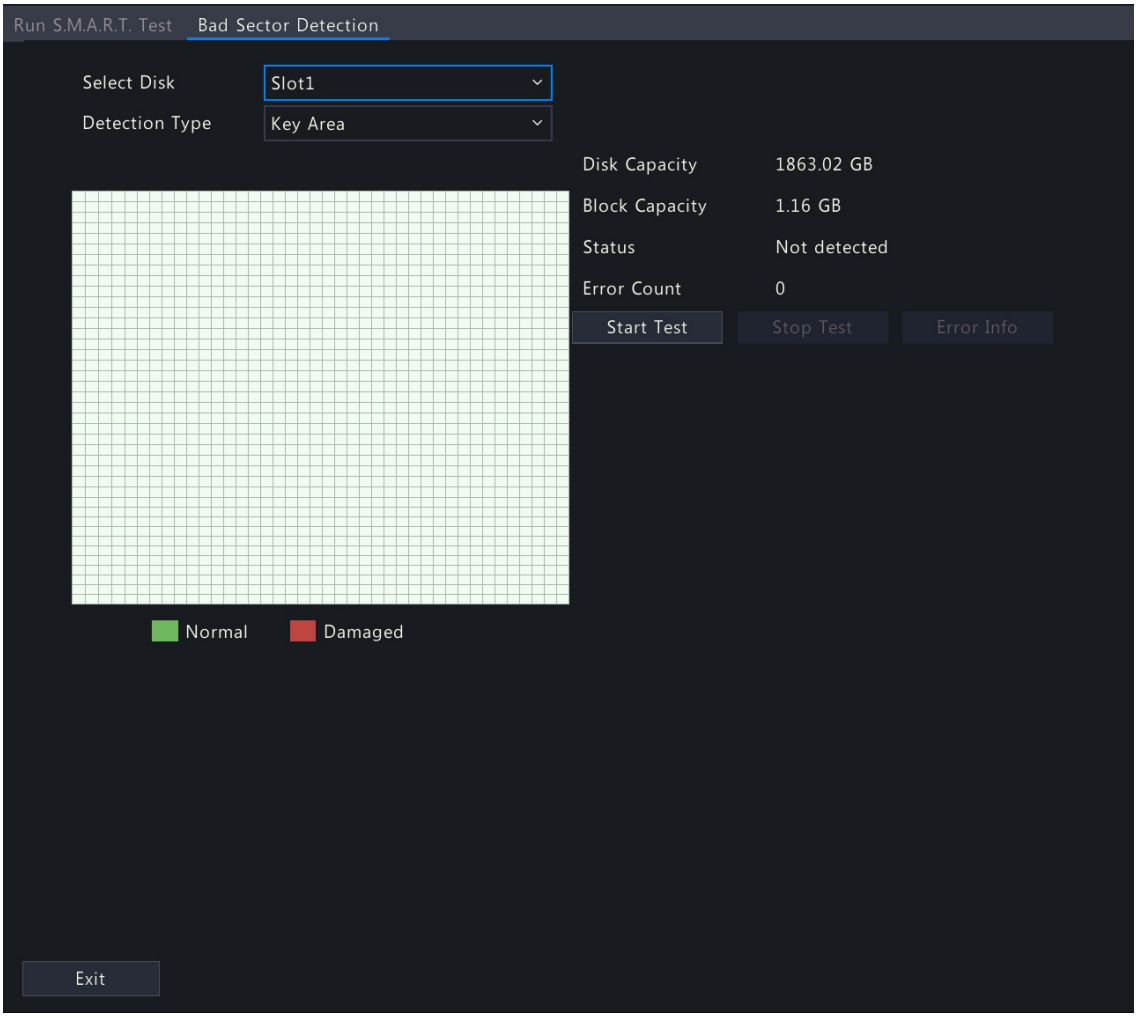
4. Click **Start Test**. The **Status** column shows the real-time progress, for example, Testing: 10%. View test results after the test is completed.

   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.

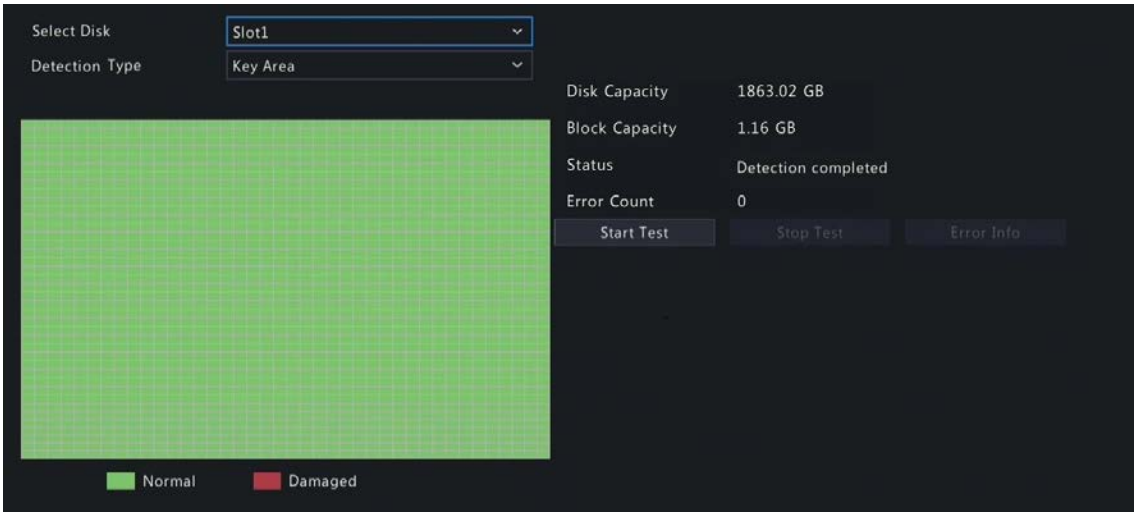
11.6.2 Bad Sector Detection

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

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



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.

12 Playback

12.1 Instant Playback

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

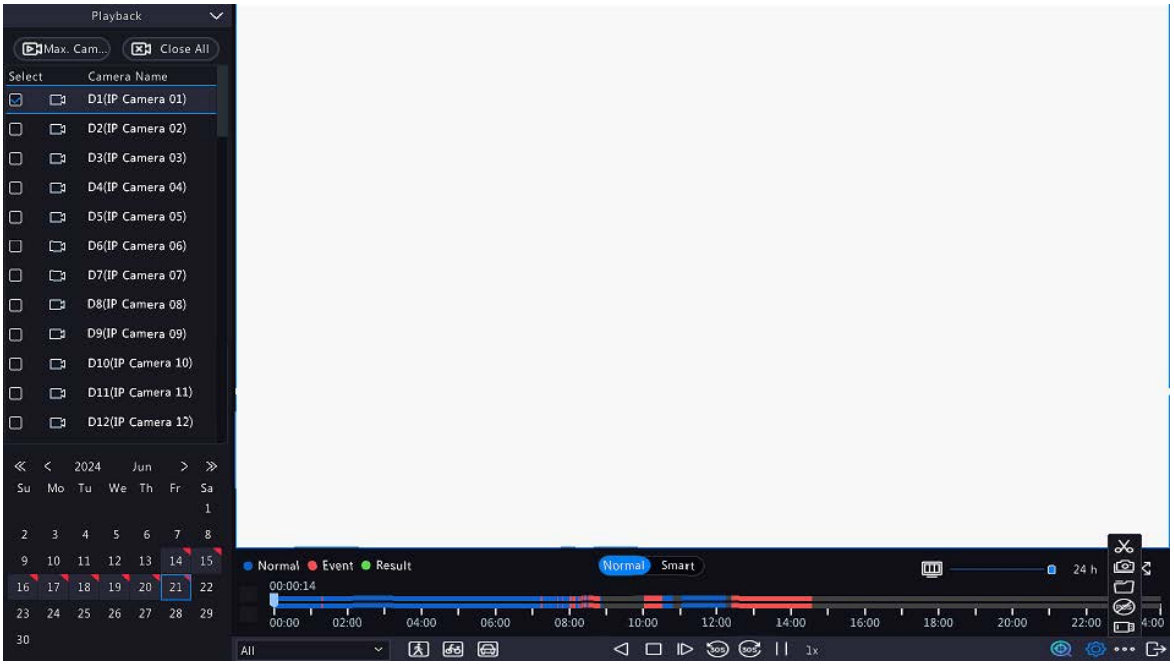
Make sure that the video is recorded during the last 5 minutes. Instant playback does not work if there's no recording during this time.

1. On 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.

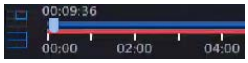
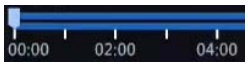
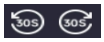
12.2 Recording Playback

On the preview page, right-click the desired window and select **Playback**.



Playback Interface Introduction

Table 12-1: Playback Toolbar

Icon	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.	
	Normal playback timeline. Blue for normal recording, and red for event-triggered recording. Hover over the timeline to view a thumbnail image to quickly pinpoint an event.	
	Smart playback timeline. Green for recording of smart search; red for event-triggered recording; blue for normal recording,	
	Select an event playback type.	
	Zoom in or out on the timeline. Alternatively, click on the timeline and use the scroll wheel to zoom in or out.	
   	Normal playback: Show the progress bar including event recordings triggered by human/motor vehicle/non-motor vehicle. Smart playback: Show the progress bar including recordings of human/motor vehicle/non-motor vehicle. **Note:** • The smart playback recordings of targets are larger than the normal playback recordings of targets. • The target recording search is only available to the single-channel playback, and the corresponding recordings will be shown green on the progress bar.	Click to enable/diable **Skip Normal Recordings** and set the playback speed as needed.
	Rewind/forward 30s, or click and choose from the **Interval** drop-down list.	
	Reverse.	
	Stop playback and return to the start point.	
	Play/pause.	
	Set the playback speed.	
	Forward by frame.	

<table>
<tr><th>Icon</th><th>Description</th></tr>
<tr><td> </td><td>Search images or recordings of targets by AcuSearch or AcuTrack.

AcuSearch: Search for images of the motor vehicle, non-motor vehicle, or human body.

AcuTrack: Search for recordings of the motor vehicle, non-motor vehicle, or human body during a specified period of a day and display the search results on the timeline.

Note:
• Before use, go to Menu > VCA > Analyzer Config, and set the analyzer mode to AcuSearch/AcuTrack.
• By default, the NVR searches for images/ recordings of all cameras of the current day and with the similarity of 60%. You can reset the search conditions as needed, and the set similarity will be the default value the next time you perform the accurate search or tracking.</td><td>Click , drag to select the target, and choose AcuSearch or AcuTrack to view the accurate search results.

Note:
• : Last Recording.
• : Next Recording.
• : Back up the current recording to the storage device.</td></tr>
<tr><td> </td><td colspan="2">Click to set the video clarity, including HD or SD.

Note:
• If no images are displayed on 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.</td></tr>
<tr><td rowspan="4"> </td><td colspan="2">Choose to enable/disable POS; choose to play recordings stored in an external storage device.

When POS is enabled, POS OSD appears on the playback 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.</td></tr>
<tr><td colspan="2"> : Start/stop clipping video. The video clips will be temporarily saved to , and will be deleted if you exit the playback page.</td></tr>
<tr><td colspan="2"> : Take a snapshot. The window borders will flash white. The snapshots will be temporarily saved to , and will be deleted if you exit the playback page.</td></tr>
<tr><td colspan="2"> : File management, including files of clips, snapshots, locked files, tags; indicates there is a newly saved file.

• Video Clip: The video clips can be saved to an external storage device.
• Playback Snapshot: The playback snapshots can be saved to an external storage device.
• Lock File: The locked recordings can be saved to an external storage device.
• Tag: Tag management.</td></tr>
</table>

Icon	Description
	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 to record the current video. The added tags can be viewed in . User can search for recordings based on the tag keywords. For tag search, see Others.
	Digital zoom. See Digital Zoom for details.
	Turn on/off audio.
	Adjust the sound volume.
	Lock the playback recording. Locking a recording file will prevent all the files stored in the same disk partition (254.4MB in size) from being overwritten.

Playback Operations

<table>
<tr><th>Type</th><th>Description</th><th>Step 1</th><th>(Optional) Step 2</th></tr>
<tr><td>Normal playback</td><td>Play all recordings of the selected camera(s)</td><td rowspan="3">Select camera(s) in normal/corridor playback mode or select a camera in smart playback mode, double-click the desired date; or select the date and then click to start playback.
Note:
In normal playback mode, click Max. Cameras to select the maximum number of cameras allowed. The performance may vary with NVR model.
In normal playback mode, click Close All to stop playback for all cameras.
The calendar uses different flags to indicate different recording types: blue for normal recording,
red for event-triggered recording, and no flag for none.
The NVR plays HD videos by default. You can switch to SD mode if SD videos are stored. For SD video storage, see Encoding Settings.</td><td>Click , , or to specify the target type(s), and then the corresponding event recordings triggered by human body, non-motor vehicle, or motor vehicle will be displayed.
Click All and choose an event type to play the corresponding recordings.</td></tr>
<tr><td>Corridor playback</td><td>Play recordings in corridor mode in multiple windows. Up to 3 cameras can be selected.</td><td>/</td></tr>
<tr><td>Smart playback</td><td>search for recordings triggered by motion detection or targets including motor vehicle/ non-motor vehicle/human body</td><td>Click to play the event recordings triggered by motion detection.
Click , , or to specify the target type(s), and then the corresponding recordings including human body, non-motor vehicle, or motor vehicle will be displayed.
The default smart search area is the full screen. To specify a smart search area, click , and choose to clear the existing areas. Then, click and drag on the image to specify an area, and click to start search smart playback of the specified area.
Note:
: Full screen.
: Exit the smart search page.
Sensitivity: Adjust the smart search sensitivity.</td></tr>
</table>

13 Startup and Shutdown

This chapter describes device startup, shutdown, logout, and restart.

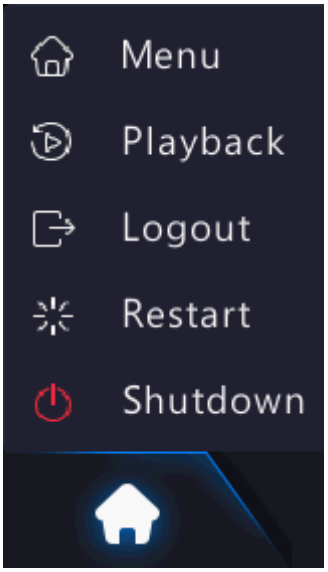
Startup

Start up the device. See Front Panel Buttons for details.

Shutdown

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.

- Local interface: Hover the mouse at the bottom of the preview page to display the screen toolbar, click , and then select shutdown, logout, or restart as needed.



- Front panel: Press and hold the power button on the front panel (if available) for 3 seconds until you hear a beep, then hold for 2 seconds until an on-screen message appears, and then click **Yes** to shut down the device.

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. Please handle with caution.

14 Web-Based Operations

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 (The login page may vary with browser type).

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.

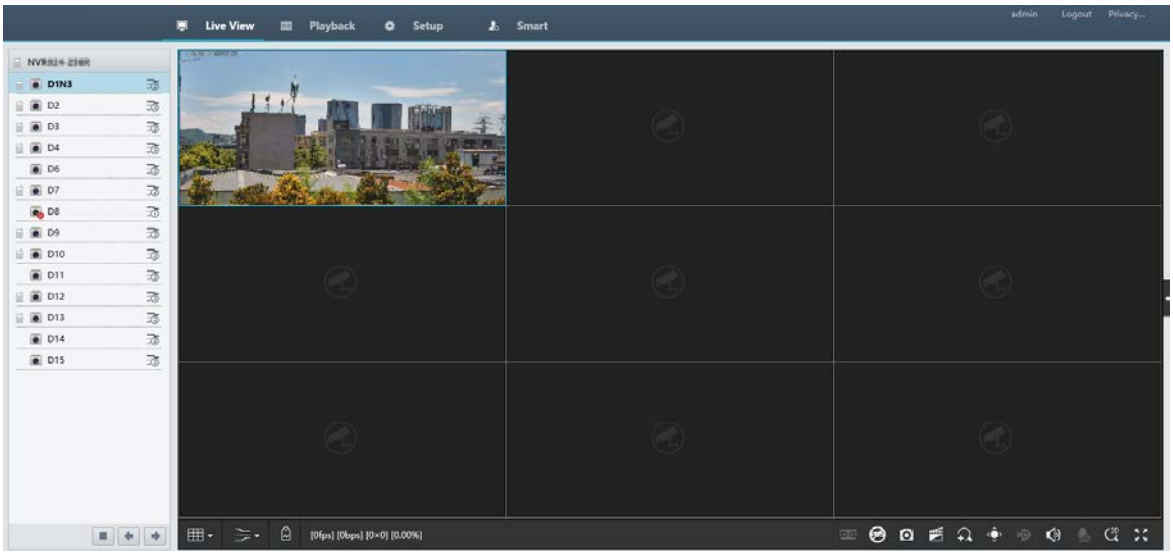
   - You may also find the plug-in manually by entering http://IP address/ActiveX/WebPlayer.exe in the address bar, and press Enter.

   Note:
   - The plug-in is available for devices that support access to the cloud website.
   - For non-IE browsers, you can log in to the Web interface without installing the plug-in, but some functions on the live view, playback, and setup pages are unavailable.
3. On 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
	Enable/disable intelligent mark		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

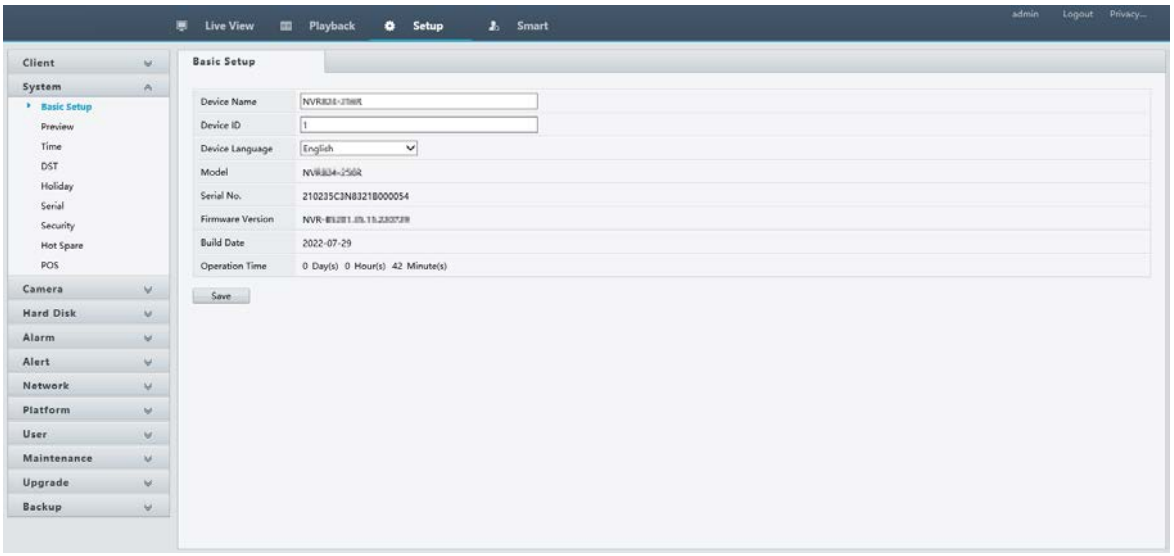
Click **Playback** to go to the **Playback** page. You can select the playback type, clarity, and camera to view recorded videos.

Table 14-2: Playback Control Buttons

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

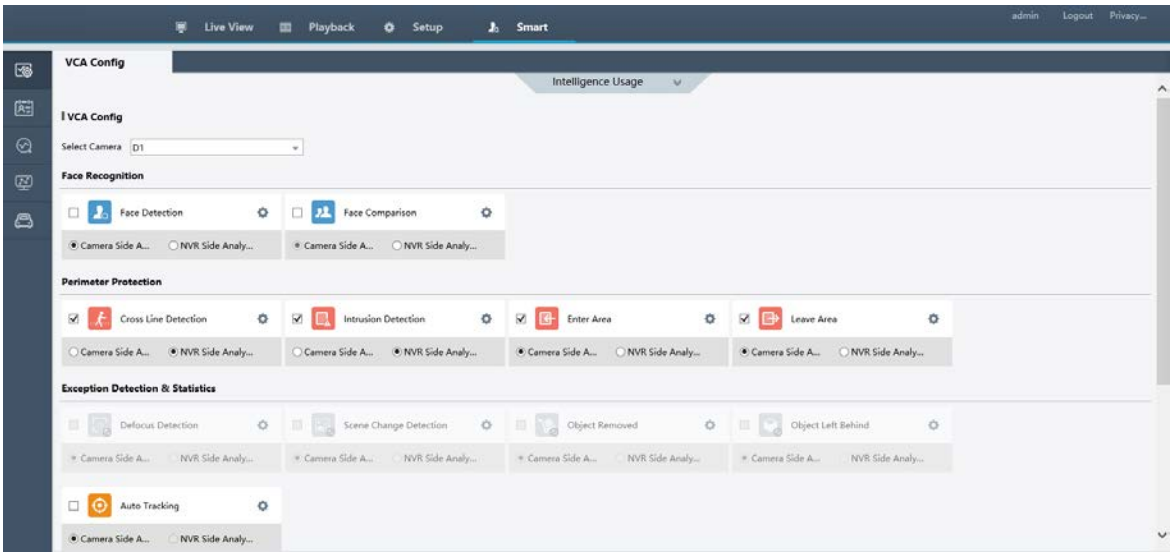
14.5 Configuration

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



14.6 Smart

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



15 Appendix FAQ

Problem	Possible Cause and Solution
Forgot the login password.	Click **Forgot Password** on 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.

Problem	Possible Cause and Solution
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** > **Camera**. 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.	• Click to Encoding Settings, 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. • 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.