

# Network Video Recorders User Manual

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Models: NVR204-32C-16P-V2, NVR204-32C, NVR308-64C, NVR716-128C, NVR724-256C, NVR101-8C  
NVR101-9C, NVR101-16C, NVR101-8C-8P, NVR102-8C-8P, 102-16C-16P

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## Preface

This manual describes how to use your NVR locally or on the Web interface.

In this manual, the terms IP camera and IPC refer to the same thing: network camera, which requires a connection to the network. And the IP device mentioned in this manual refers to an IP camera (also known as network camera) or a Digital Video Server (DVS).

## Part I Local Operations

An NVR supports two types of operations: local operations and webbased remote operations. With local operations you connect a monitor and a mouse to the NVR and use the mouse to operate. If your NVR has buttons on the front panel or is delivered with a remote control, you may also control your NVR by pressing the front panel buttons or using the remote control.

The NVR has an embedded web server and allows web-based operations. To do this, you need a PC that has a network connection to the NVR and is installed with a web browser. You just need to navigate to the NVR's IP address and log in to the Web interface like you log in to the system locally. This section describes local operations.

# 1 Before You Begin

Please be aware that the parameters that are grayed out on the system user interface (UI) cannot be modified. The parameters and values displayed may vary with device model, and the figures in this manual are for illustration purpose only.

## 1.1 User Login

Use the default username admin and password 123456 for your first login.

### CAUTION

The default password is intended only for the first login and should be changed to a strong one containing at least nine characters including letters, digits and special characters after your first login to ensure security.

- Right-click anywhere in the window and then choose Menu. The login dialog box is displayed.
- Select the username from the drop-down list, enter your password, and then click Login.

## 1.2 Local Operations

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. See Mouse Operations for details.

### 1.2.1 Mouse Operations

**Table 1–1** Mouse Operations

Name	Action	Description
Left button	Click	<ul style="list-style-type: none"> <li>● Select or confirm an item.</li> <li>● Select to edit digits, symbols, upper-case or lower-case letters in a field.</li> </ul>
	Double-click	Enter or exit full screen mode in live view.
	Drag	Draw or move a rectangle on the screen, for example, a motion detection area.
Right button	Click	<ul style="list-style-type: none"> <li>● Show the shortcut menu.</li> <li>● Exit zoom.</li> <li>● Exit the current window when <b>Cancel</b> or <b>Exit</b> is displayed.</li> </ul>
Wheel	Scroll up or down	Scroll up or down a list or a window; or zoom in or out on a playback progress bar.
	Long press	Restore to lowest resolution.

### 1.2.2 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.
	<ul style="list-style-type: none"> <li>△,▽,▶,◀: 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.</li> <li>⏮,⏭: Rewind or forward 30 seconds in full screen.</li> <li>⏪,⏩: Variable-speed forward or rewind in full screen.</li> </ul>
	Confirm an operation, or start/pause the playback.
	<p>Press this button to start up or shut down the NVR.</p> <p>To shut down, press this button and hold for at least 3 seconds till a message appears on your monitor. Click <b>Yes</b>.</p> <p><b>Note:</b></p> <p>This shutdown operation can be performed only when you have logged in to the system.</p>

Table 1–3 Front Panel Buttons 2

Button	Description
	<p>Press this button to start up or shut down the NVR. To shut down, press this button and hold for at least 3 seconds till a message appears on your monitor.</p> <p>Click <b>Yes</b>.</p> <p><b>Note:</b></p> <p>This shutdown operation can be performed only when you have logged in to the system.</p>
	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.

Button	Description
	Enter 8, T, U, or V.
	Enter 9, W, X, Y, or Z.
	Enter 0 or a space.
	Delete
	Switch the input method.
	Auxiliary function button.
	Exit the current window.
	Switch to the next tab.
	<ul style="list-style-type: none"> <li>• : Switch windows or menu items; or control rotation directions of a PTZ camera when the PTZ toolbar is closed</li> <li>• : Rewind or forward 30 seconds in full screen.</li> <li>• : Variable-speed forward or rewind in full screen.</li> <li>• : Confirm an operation; or start or pause playback.</li> </ul>

### 1.3 Remote Control

**Table 1-4** Functions of the Buttons on the Remote Control

Button	Function
Power	Press this button to start up or shut down the NVR. To shut down, press this button and hold for at least 3 seconds till a message appears on your monitor. Click <b>Yes</b> . <b>Note:</b> This shutdown operation can be performed only when you have logged in to the system.
DEV	This button is for reserved functions.
Toolbar	<ul style="list-style-type: none"> <li>• In live view mode, press this button to show the toolbar for the currently selected window.</li> <li>• In playback mode, press this button to display windows according to the configured screen layout</li> </ul>
Menu	Press this button to display the main menu.
Iris+/Iris-	Adjust the iris, focus and zoom of the PTZ camera in PTZ control mode.
Focus+/Focus-	
Zoom+/Zoom-	

Button	Function
UP, DOWN, LEFT, RIGHT, ENTER	<ul style="list-style-type: none"> <li>● Press UP, DOWN, LEFT and RIGHT to navigate between menu items or shift focus.</li> <li>● In PTZ control mode, press UP, DOWN, LEFT, and RIGHT buttons to select the corresponding buttons on the screen, and then press ENTER to activate the selection.</li> <li>● In live view mode, press UP to start sequence in full screen. Pressing UP again starts sequence with three windows on the screen. Press DOWN to open the playback window.</li> <li>● Press ENTER to confirm an operation or to display a selected drop-down list. In playback mode, press ENTER to play or pause in full screen mode.</li> <li>● UP and DOWN: Variable speed forward or rewind in full screen.</li> <li>● LEFT and RIGHT: Rewind or forward 30 seconds in full screen.</li> </ul>
Fn	Press to navigate to the next window when multiple windows are displayed.
Esc	Exit.
Alphanumeric buttons	<ul style="list-style-type: none"> <li>● Switch to the corresponding channel in live view mode.</li> <li>● Input numbers and characters in edit mode.</li> </ul>
Shift	Switch menu items.
Del	Remove characters or spaces on the left of the cursor.

## 2 Initial Configuration

### 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.
- Verify that the hard disk(s) are correctly installed. For detailed steps to install a hard disk, please refer to the quick guide shipped with your NVR. Initial Configuration.

### 2.2 Device Login

The login page appears after the NVR starts up.



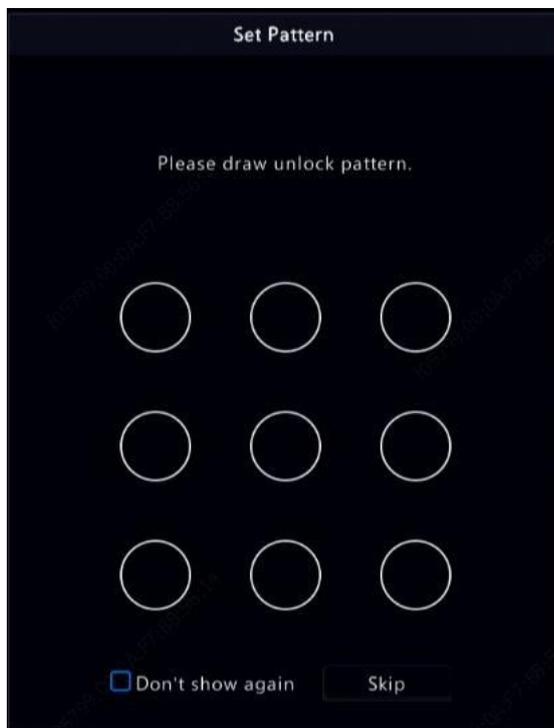
1. Enter the default admin password 123456, click **Login**, and then click **Yes** to change the password.



2. Change the password into a strong one, then click **OK**.



3. Set the unlock pattern.



**NOTE**

To disable unlock pattern, click **System > User**. See User Configuration for details

**2.3 Wizard**

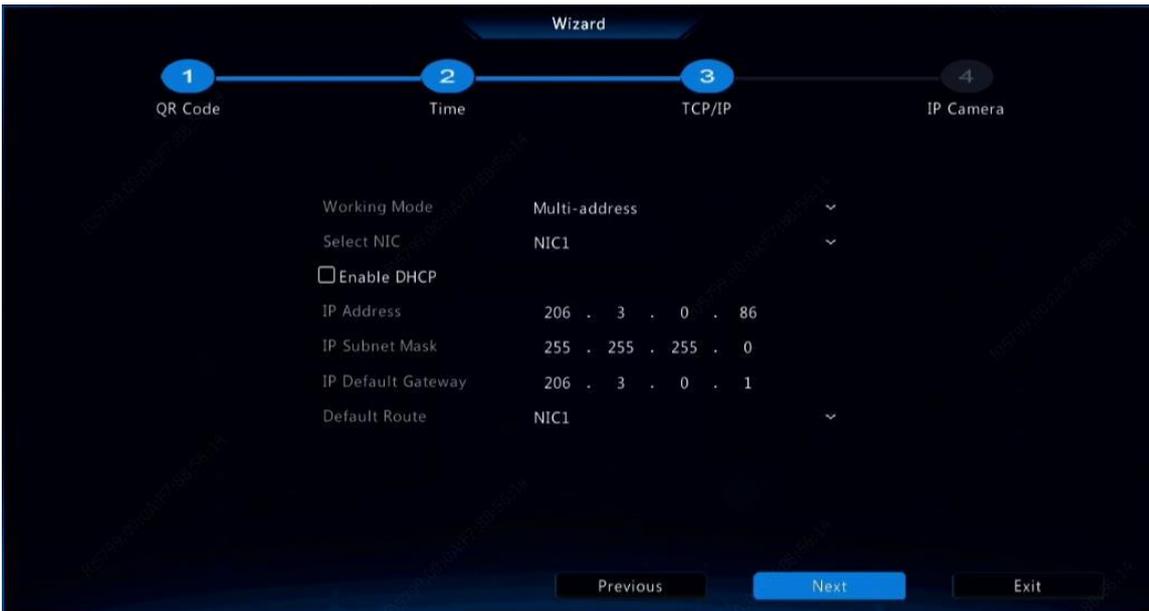
The wizard can guide you to complete the most basic setup. The following page appears after your login:



1. Enable or disable the wizard as needed and then click **Next**. You may also click 
2. Select the time zone, date and time format, set the system time, and then click **Next**.



3. Complete network configuration, and then click **Next**.



4. Select the devices to add in the discovered device list, click **Add**, and then click **Yes** to complete configuration.



**NOTE**

- To add devices through PoE ports, see Option 3 in Adding an IP Device for details.
- The devices added can get online and start live view only if the device password is default; if not, you need to modify the device password.
- If the desired device is not in the device list, you may add it in a preview window or under **Camera > Camera > Camera** (see Adding an IP Device).

### 3 Live View

#### 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 alarm
	Motion detection alarm
	Recording
	Two-way audio

#### 3.2 Window Toolbar

Icon	Description
	Available for PTZ cameras only. Click to display the PTZ control window.
	Set mount mode and display mode for fisheye camera. This icon appears only for fisheye cameras.
	Record live video in the window to the hard disk. Clicking  stops recording.
	Click to play video recorded during the past 5 minutes and 30 seconds.
	Zoom in on an area of interest.
	Click to edit image settings.
	Click to set OSD.
	Click to take a snapshot. The window borders will flash white. You may view and back up snapshots under <b>Backup &gt; Image</b> .
	Rest your mouse pointer on the icon to view bitrate info; click this button to view the camera ID and IP address or to change the username and password used to connect the camera.
	Start two-way audio with the camera. Click  to stop. The sound volume is adjustable. <b>Note:</b> Correct audio input and output connections are required.
	Click to turn on audio. Clicking  turns off audio. The sound volume is adjustable. <b>Note:</b> When you turn on audio in the current window, audio of the previous window is turned off.

#### 3.3 Screen Toolbar

Icon	Description
	Click to access the main menu.

Icon	Description
	Select the screen layout.
	Previous or next screen.
	Start or stop sequence
	Playback.
	Rest the mouse pointer on this icon to view encoding information including frame rate, bit rate, and resolution; or click to view camera status.
	Click to view device alarm status and camera status.
	Rest the mouse pointer on it to view NIC card information. Or click this icon to edit basic network settings.
	Rest the mouse pointer on it to view the date. Or click this icon to edit time settings.
	Available to certain NVR models. Click to display the cloud service window. You may scan the QR code and download an app to manage your NVR.
	Click to automatically hide the toolbar, or click  to lock.

### 3.4 Shortcut Menu

A shortcut menu as shown below appears when you right-click in a window. Some menu items are described in Shortcut Menu Description.

**Table 3-2** Shortcut Menu



**Table 3–3** Shortcut Menu Description

Menu	Description
Menu	Access the main menu. Most of operations described in this manual are performed start from the main menu; for example, click <b>Camera &gt; Camera</b> (with <b>Menu &gt;</b> omitted).
Common Menu	Quick access to <b>Camera, Net Config, and Backup.</b>
Corridor	Choose a corridor mode. Corridor mode can also be set in the <b>Preview Windows</b> drop-down list under <b>System &gt; Preview.</b> To display images in corridor mode, the camera must be installed correctly (rotated 90° clockwise or counterclockwise), and then use the <b>Image Rotation</b> parameter under <b>Camera &gt; Image</b> to rotate images accordingly.
Main/Aux Monitor	Switch live video from different video output.
Preview Mode	Switch between <b>Normal</b> and <b>Smart.</b> The default is <b>Normal</b> mode.
Playback	Play the current day's recording for the camera linked to the current window.
Face Recognition Config	Configure face recognition parameters.
Output Mode	Choose a video output mode, including standard, soft, bright, and vivid.
Manual	Manual settings include manual recording, manual snapshot, and manual alarm.

### 3.5 Sequence Operation

The sequence operation requires you to configure the screen layout, windows, linked cameras, and the sequence interval.

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

1. Click 4 Windows on the screen toolbar.

**NOTE**

The number of windows that can be displayed may vary with NVR model.

2. Click **Start Sequence** on the screen toolbar. Sequence starts by displaying four windows on the first screen and then the fifth on the second at the set interval.



**NOTE**

The default sequence interval is eight seconds and can be set under **System > Preview**.  
 You may drag video to the desired window on the screen.

**3.6 Zoom**

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

1. Click the window and then click  on the window toolbar.



2. Move your mouse to the area you want to zoom in, then use your scroll wheel to zoom in and out.
3. Right click to exit zoom.

**3.7 Image Configuration**

Adjust image settings to get optimal images from a camera.

1. Click the window and then click  on the window toolbar.
2. Select a mode from the drop-down list according to the surveillance scenario, and then adjust contrast, hue, saturation and brightness as needed. The settings available may vary with device model.
3. Click **OK** to save the settings and exit.

**3.8 Preview Configuration**

Normally, live view (video) is available after you complete the basic setup by following the wizard. You can click **System > Preview** and edit preview setting as needed, including video output, image resolution, default layout, and sequence interval. The video output and the number of windows supported may vary with NVR model.

**NOTE**

Pressing and holding the scroll wheel for at least 3 seconds will restore the default resolution.

**3.8.1 Preview Configuration**

Each preview window (window for short) links to a camera. By default, window 1 links to camera D1, window 2 links to camera D2, and so on. You may want to change the link to display live video from a camera in another specified window. The following example describes how to link window 1 to camera D2 and link window 2 to camera D1.

Step 1: Click window 1 on the right, and then click **D2** under **Camera** on the left. Now **D2** appears in window 1, and **None** appears in window 2. Meanwhile,  is cleared for camera D1, meaning D1 is not linked to any window.



Step 2: Click window 2 on the right, and then click **D1** under **Camera** on the left. Now **D1** appears in window 2. Click **Apply** to save the settings.



### 3.8.2 Advanced Configuration

Click the **Advanced** tab and then select **Sub Stream First** so the NVR uses the sub stream to establish live video from multiple cameras simultaneously. This function is disabled by default.

## 4 Channel Configuration

### 4.1 Channel Management

This chapter describes how to add and manage IP devices in your NVR. The IP devices mentioned in this manual mainly refer to IP camera (or network camera); sometimes they can also be Digital Video Server (DVS). Before you start, make sure the IP devices are connected to your NVR via network.

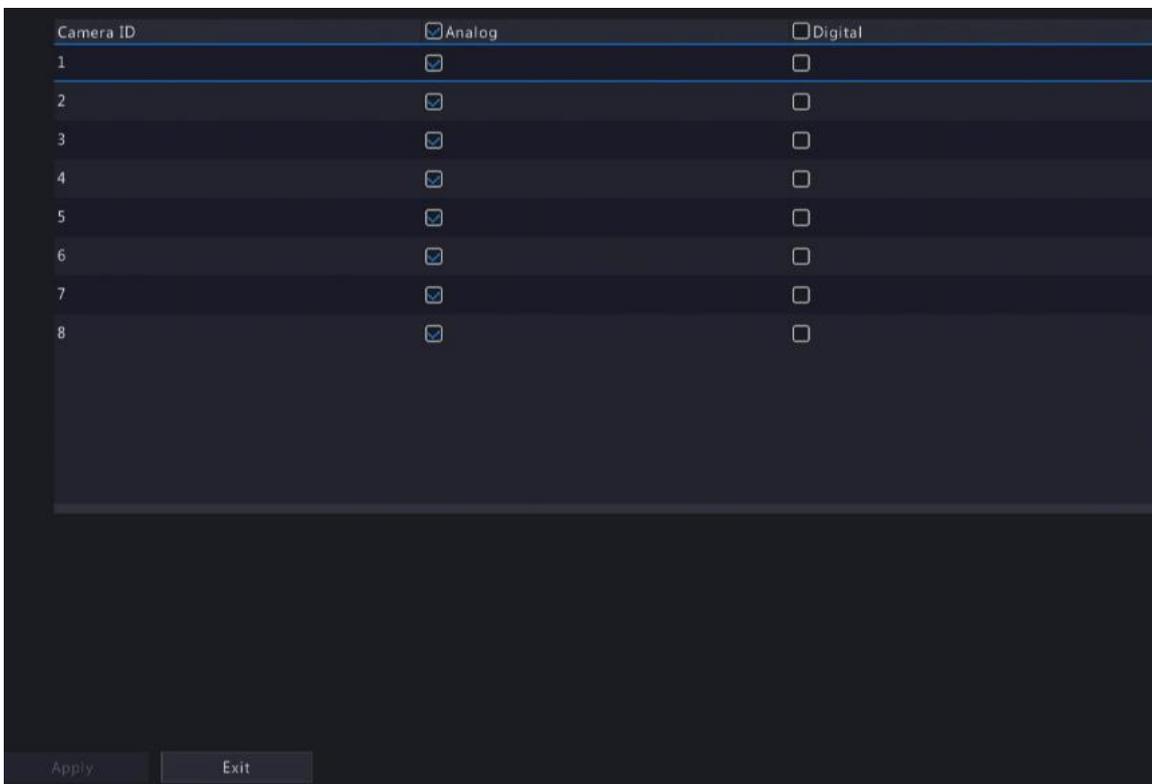
#### CAUTION

An IP device should be connected to one NVR only. An IP device managed by multiple NVRs may cause unwanted issues.

#### 4.1.1 Camera Type

This page is displayed for hybrid NVRs only. You can change analog channel to digital channel in this page.

1. Click **Camera > Camera > Camera Type**.
2. Select the channel you want to change and choose **Digital**.



3. Click **Apply**, then a message indicating device restart appears. Click **Yes**.
4. Channel type will be changed after the NVR restarts.

#### 4.1.2 Adding an IP Device

This section provides multiple options to add an IP device. Some options are only applicable to certain NVR models. Choose one as appropriate.

##### Option 1

1. Click **Camera > Camera > Camera**. The system automatically searches for IP devices and lists the discovered.

Camera	IP Address	Status	Protocol	Model	Add/Del	Cam Config	Net Config	Details
<input type="checkbox"/> D9(IP Camera 09)	206.3.0.29		Private	IPC-B612				
	192.168.1.32	—	ONVIF	DS-2CD		—		
	203.1.8.11	—	Private	IPC324E		—		
	203.1.8.167	—	Private	IPC322SR3		—		
	206.0.0.127	—	Private	HIC5631		—		
	206.0.0.130	—	Private	HIC3531		—		
	206.0.0.134	—	ONVIF	NVS-DM		—		
	206.2.25.83	—	ONVIF	DS-2CD3		—		
	206.7.10.175	—	ONVIF	DVS411		—		
	206.7.16.100		Private	IPC332E		—		
	206.7.16.101		Private	IPC231E-IR		—		
	206.7.16.102		Private	IPC622L-X2		—		
	206.7.33.13	—	ONVIF	IPC-S214-IR		—		
	206.7.33.19	—	Private	IPC2415-IR5		—		
	206.7.33.27		Private	IPC-S214-IR@P		—		

Discovered Device(s):158, Added Device(s):1,Idle Receive Bandwidth: 62Mbps

2. (Optional) To search a specified network segment, click **Search Segment** and then set the address range.

3. You may choose one of the following ways to add an IP device:

- Click **Add All** to add all the discovered IP devices allowed (depending on channels supported by the NVR).
- Click **Custom Add**. In the window displayed, enter the IP address and complete other settings, and then click **Add**. You may also click **Search Segment** and add discovered cameras in the list.
- Click .
- Click to add the camera.

**NOTE**

For a Digital Video Server (DVS), a window appears when you click **Add**, and you need to select channels to add the connected cameras.

**Option 2**

This option is not applicable to NVRs with PoE ports or switching ports.

1. Click in a window.
2. Select the desired IP device and then click **OK**.

**Option 3**

This option is only applicable to NVRs with PoE ports or switching ports. Connect an IP camera to a PoE port or a switching port with a network cable. The connected camera will be added to the NVR automatically. Check status under **Camera > Camera > Camera**.

means live video from the camera is available. Click to view live video.

If the camera is connected via a network switch, click under **Cam Config** in the window displayed, set **Add Mode** to **Manual** and then complete the settings correctly.

**NOTE**

appears under **Status** if the power output from a PoE port is below or above the rated power of the connected camera.

**Option 4**

Use this option to add an IP device that is connected to a different router, for example, when the NVR and the IP device are connected across the Internet.

**NOTE**

First you need to enable port mapping at **Setup > Port > Port Mapping** on the IP device's Web interface.

1. Click **Camera > Camera**, click **Custom Add**.

2. Choose an option:

- By IP
  - a. On the IP device's Web interface, go to **Setup > Port > Port Mapping**, find the external IP (public IP) and external port number.
  - b. On the NVR: Select a protocol, enter the above-mentioned IP address and port number, enter the username and password.
  - c. Click **OK**.
- By EZDDNS
  - a. On the IP device's Web interface, go to **Setup > Network > DDNS**, enable DDNS, select **EZDDNS**, set a domain name and get the server address.

#### NOTE

After setting the domain name, check that you can use the device address to access the IP device's Web interface.

Make sure the EZDDNS server and the NVR are connected (ping the EZDDNS server from the NVR).

- b. On the NVR: Select a protocol, enter the above-mentioned server address, domain name, username and password.
  - c. Click **OK**.
- By a domain name
    - a. On the IP device's Web interface, go to **Setup > Network > DDNS**, enable DDNS, select **DynDNS** or **NO-IP**, enter the domain name that you have signed up on the DNS website, enter the username and password, and then click **Save**.
    - b. On the NVR: Select a protocol, enter the domain name mentioned above, enter the username and password. The port is the external port of the IP device.
    - c. Click **OK**.

#### NOTE

If Custom is selected for Protocol, the port is the mapped external RTSP port of the IP device.

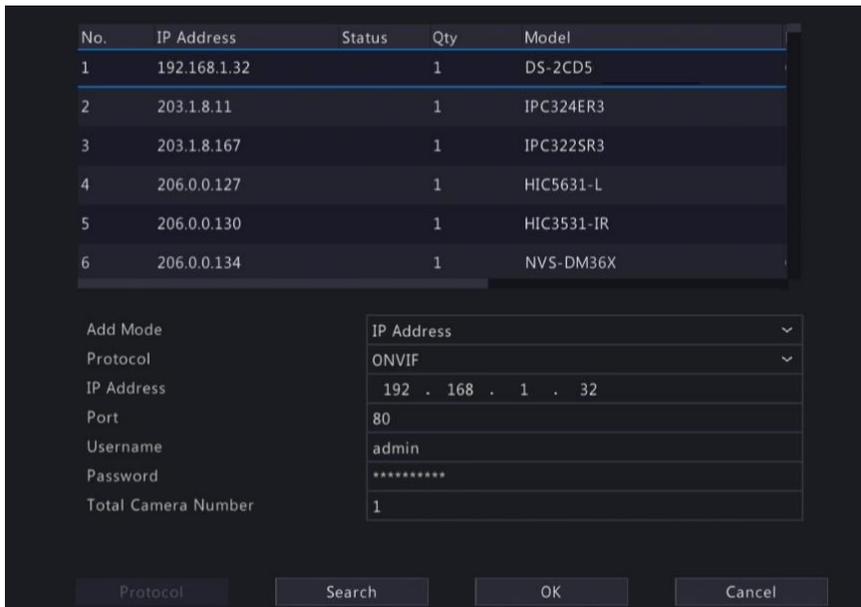
Do not add an IP device to an NVR using different methods (e.g., IP and EZDDNS) at the same time.

When an IP device is added by EZDDNS, domain name (NO-IP or DynDNS), or IP (public IP+public port) and it is not connected to the same router as the NVR, alarm is configurable, but alarm push is not available.

### Option 5

Use this option only when the IP device to add supports the standard RTSP, and all you need from the IP device are just view live and playback. IP devices added in this way cannot be configured from the NVR.

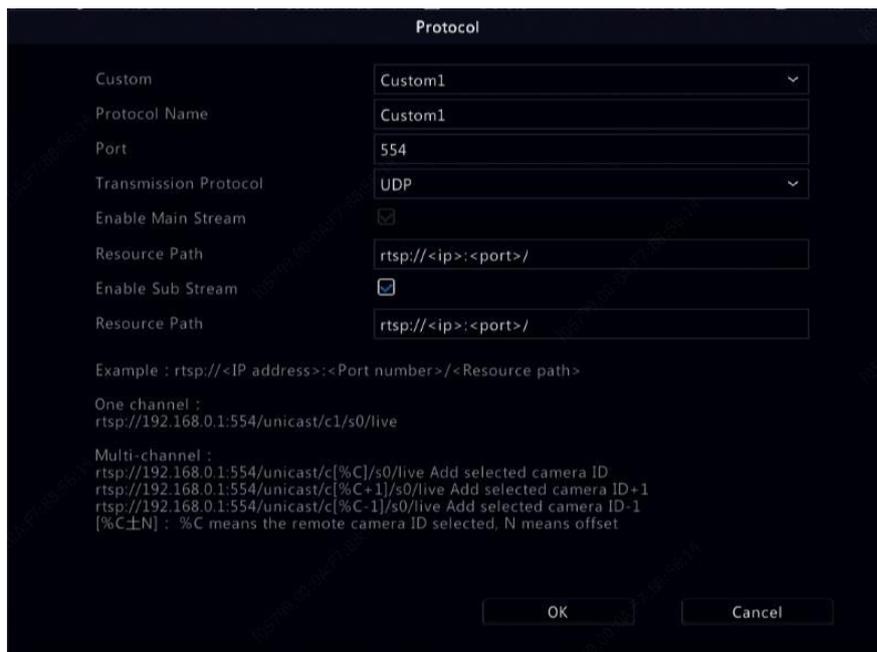
1. Click **Camera > Camera**.
2. Click **Custom Add**.
3. Click to select a camera in the list, select **Custom** from the **Protocol** drop-down list, and then click the **Protocol** button.



4. In the **Protocol** window, name the protocol, enter the RTSP port number, select a transmission protocol, input the resource paths, and then click **Apply**.

**NOTE**

Contact the camera manufacturer for resource paths.



5. Edit settings in the **Add/Modify** window as needed, including the IP address, username and password, and then click **Add**. Check status in the camera list.

**4.1.3 Add an Analog Device**

Analog devices can be added to hybrid NVRs only.

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

#### 4.1.4 Managing an IP Device

Manage IP devices under **Camera > Camera > Camera**.

- Click to edit settings including the protocol, IP address, port number, username and password. The IP Address field displays the **IP address** that the current channel links to, and you may change the address so the channel links to another device. The username and password must be consistent with that of the IP camera.
- Click to delete an IP device, or select multiple IP devices and then click **Delete**. Channels corresponding to PoE ports or switching ports cannot be deleted.
- Click to change the IP address of an IP camera and the default gateway. A **DVS'** IP address cannot be edited from the NVR. **---** means this function is not available.

#### 4.1.5 Sort Cameras

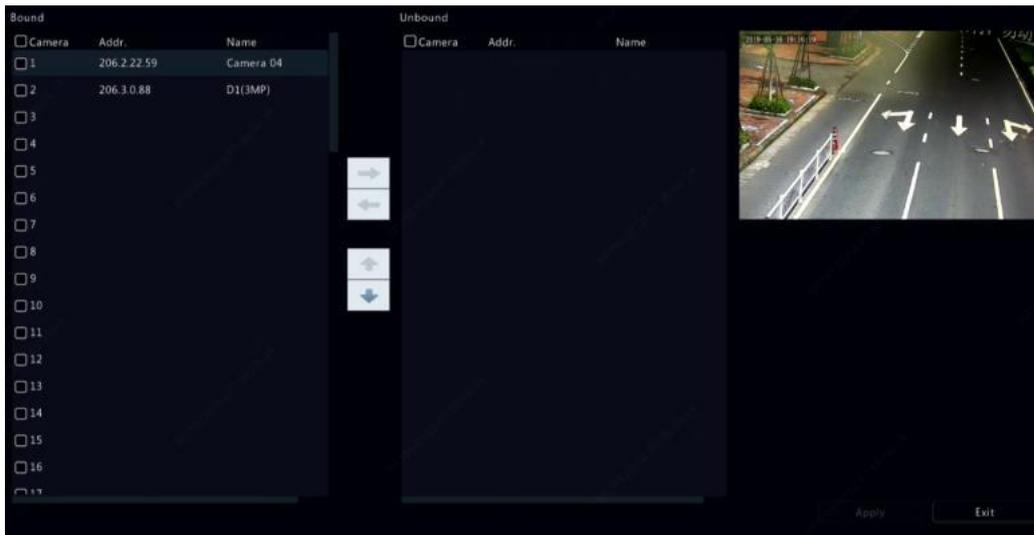
Sort cameras to display in the desired order.

**NOTE**

- This function is unavailable to hybrid NVRS, NVRs with PoE ports or switching ports.
- This chapter 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.

For example, to switch channel 1 with channel 4, click , and choose **Sort Camera**, and then follow the steps below:

1. In the left list, select the check box for channel 1, and then click . Channel 1 now appears in the right list. Perform the same operations to channel 4.
2. In the right list, select channel 4 and then click . Now channel 4 appears at the previous line of channel 1 in the list. Perform the same operations to channel 1, so channel 1 appears at the previous line of channel 4 in the list.
3. Click Apply to save the setting, and then click Yes.



**NOTE**

- To move a channel left or right, select the check box first; otherwise, the buttons are grayed.
- To move a channel up or down, click the channel first; otherwise, the buttons are grayed.

- A channel will be inserted to the first blank line in the left list unless you have specified another line in the list by selecting the corresponding check box.
- Save cannot be clicked when the right list is not empty. You need to clear the list first.

#### 4.1.6 Batch Edit Password

If the password you used to add the cameras is incorrect, use this function to batch edit the password used for authentication.

**NOTE**

The cameras can be added to NVR successfully only when the authentication password is correct.

1. Select the cameras with the same password.
2. Click , and then select **Batch Edit Password**.
3. Enter the correct camera password.
4. Click **Confirm**, then check whether password is changed successfully in **Status** window.

**NOTE**

The cameras can be added to NVR successfully only when the authentication password is correct.

5. Click **OK**.

#### 4.1.7 Fisheye Configuration

Only certain NVR models can dewarp images from fisheye cameras.

**NOTE**

Fisheye configuration is supported only by certain fisheye cameras.

**Configuration**

1. Click **Camera > Camera > Fisheye**.

IP Addr.	Mount	Angle of View(°)	Fisheye Mode	Model	Edit
206.2.22.150	Ceiling	0	Fisheye	IPC868ER-VF18-B	

2. Click  under **Edit**. The **Fisheye** window appears.
3. Select a correct mounting mode and complete other settings accordingly.
4. Click **OK**.

**Dewarping**

**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.

Click **Fisheye Mode** on the window toolbar. The figure below appears. Set mounting mode and display mode



Three mounting modes are available: ceiling, wall, desktop. Ceiling and desktop mounting modes use the same dewarping method.

Mounting Mode	Display Mode	Description
Ceiling mount  Desktop mount 		Original Image
		360° Panoramic+1PTZ
		180° Panoramic
		Fisheye+3PTZ
		Fisheye+4PTZ
		360° Panoramic+6PTZ
		Fisheye+8PTZ
Wall mount 		Original Image
		Panoramic
		Panoramic+3PTZ
		Panoramic+4PTZ
		Panoramic+8PTZ

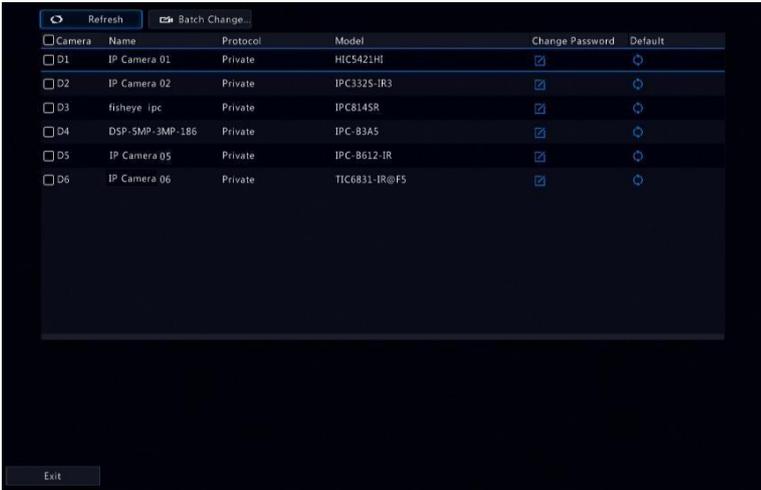
Operations: Take Ceiling Mount and Fisheye+3PTZ as an example:



On a PTZ image, drag the mouse to rotate the image or use the scroll wheel to zoom in or out. 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.

### 4.1.8 Advanced Functions

Change the password of connected IP cameras or restore factory default settings for cameras under **Camera > Camera > Advanced**.



**NOTE**

Changing camera password is available for certain cameras only.

**Change Camera Password**

- To change the password of a single camera, select the target camera, and click , enter the new password, then click **Confirm**.
- To change the password of cameras in batch, select the target cameras, and click . Enter the new password, then click **Confirm**.

**NOTE**

- Select the checkbox of Use Admin Password to change the camera's password to the admin's password of the NVR.
- You can check if the password has been successfully changed on Status window.

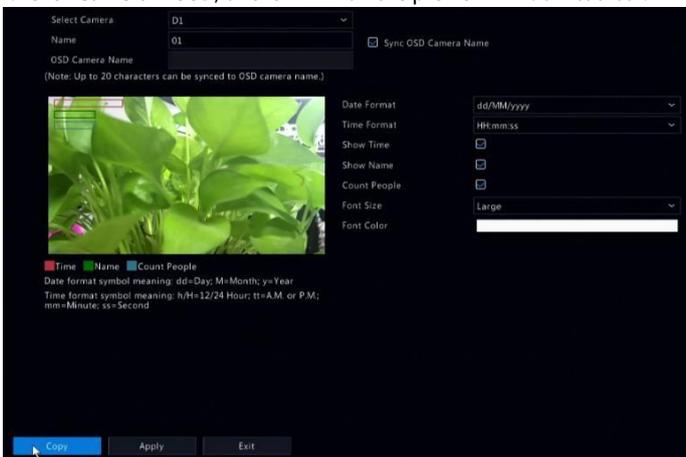
**Restore Default Settings**

Click , then click OK in the pop-up window, then the camera's default settings will be restored.

### 4.2 OSD Configuration

On Screen Display (OSD) are characters displayed with video images, for example, camera name, date and time, and people counting statistics.

1. Click **Camera > OSD**; or click  on the preview window toolbar.



2. Select the desired camera.

3. Set camera name to display. Enable **Show Name** first, and set OSD camera name as needed:
  - If camera name is less than 20 characters, and camera name and **OSD Camera Name** (i.e., the camera name you want to overlay on video image) are same:
    - a. Select Sync OSD Camera Name, then the OSD name will be synchronized with the camera name. This function is enabled by default.
    - b. Enter the camera name in the Name field. The name will be displayed on video image.

**NOTE**

If camera name exceeds 20 characters, only the first 20 characters will be used as the OSD camera name.

- If camera name exceeds 20 characters, and you want to overlay a different camera name on video image:
    - a. Deselect Sync OSD Camera Name.
    - b. Enter the camera name in Name field.
    - c. Enter the OSD camera name.
4. Set time to display. Select Show Time, and select date and time formats.
  5. Set people counting statistics to display. Select Count People. You need to configure people counting function first. See People Counting for details.
  6. Set font size and color as needed.

**NOTE**

You may click **Copy** to apply the same settings to other cameras.

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

**4.3 Image Configuration**

1. Click **Camera > Image**.
2. Select the desired camera and scene.



3. Adjust settings on the tabs as needed to achieve optimal images. See the following sections for detailed information.

**NOTE**

- A scene can be selected only when supported by the IP camera.
- To restore default image settings, click Default in the lower right 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.

**4.3.1 Image enhancement**

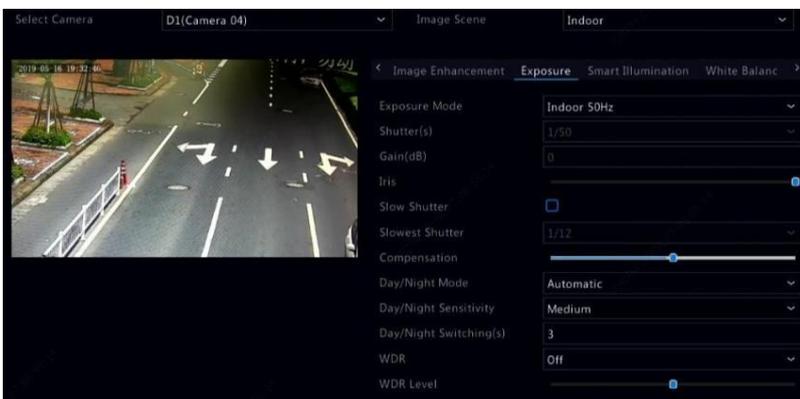
Click the **Image Enhancement** tab.

Adjust the settings as needed. Some important parameters are described in the table below.

Parameter	Description
Brightness	The greater the value, the brighter the images appear.
Saturation	The amount of color in a specified hue.

Parameter	Description
Contrast	The degree of difference between the lightest (white) and darkest (black) parts of an image. Setting a greater value increases contrast.
Hue	Purity of colors in an image.
Sharpness	Contrast of boundaries of objects in an image.
Noise Reduction	Reduce noises in images to improve image quality.
Image Rotation	<ul style="list-style-type: none"> <li>● Normal: Displays images without rotation.</li> <li>● Flip Vertical: Displays images flipped vertically.</li> <li>● Flip Horizontal: Displays images flipped horizontally.</li> <li>● 180°: Displays images flipped vertically and horizontally.</li> <li>● 90° CW and 90° CCW: Display images in corridor format. The camera must be installed correctly (rotated 90° clockwise or counterclockwise).</li> </ul>

### 4.3.2 Exposure



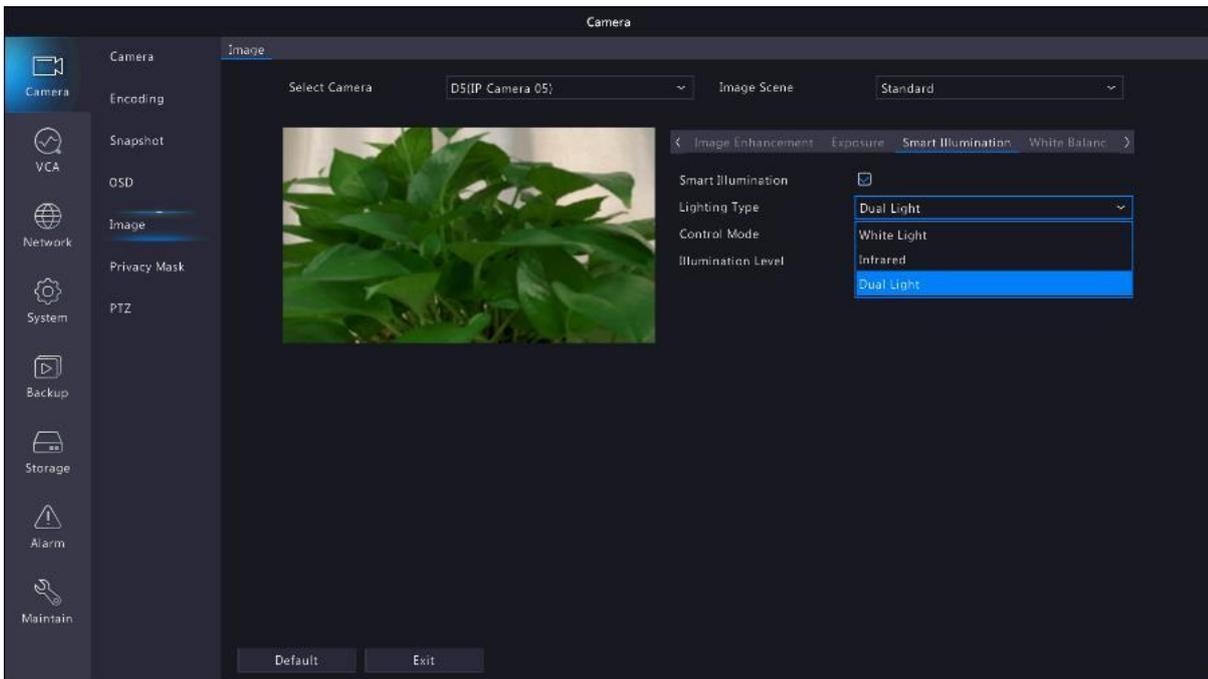
1. Click the **Exposure** tab.
2. Adjust the settings as needed. Some important parameters are described in the table below.

Parameter	Description
Exposure Mode	Select the correct exposure mode to achieve the desired exposure effect.
Shutter(s)	Shutter is used to control the 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.
Gain(dB)	Control image signals so that the camera can output standard video signals in different light conditions.
Iris	Adjust iris opening of the lens to control the amount of incoming light.
Slow Shutter	Improves image brightness in low light conditions.
Slowest Shutter	Set the slowest shutter speed for the camera during exposure.
Compensation	Adjust the compensation value as required to achieve the desired image effects.
Day/Night Mode	<ul style="list-style-type: none"> <li>● Automatic: In this mode, the camera can automatically switch between night mode and day mode according to the ambient lighting condition to output optimum images.</li> <li>● Night: The camera outputs high-quality black and white images according to the ambient lighting condition.</li> <li>● Day: The camera outputs high-quality color images according to the ambient lighting condition.</li> </ul>

Parameter	Description
Day/Night Sensitivity	Light threshold for switching between day mode and night mode. A higher sensitivity value 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.
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.
WDR	Enable WDR to ensure clear images in high contrast conditions.
WDR Level	After enabling WDR, you can improve image quality by adjusting the WDR level.

### 4.3.3 Smart Illumination

1. Click the **Smart Illumination** tab.



2. Adjust parameters on the right side of the image to achieve smart illumination.

Parameter	Description
Lighting Type	<ul style="list-style-type: none"> <li>● Dual Light: The camera adjusts the white light or infrared automatically according to the current lighting condition.</li> <li>● White Light: The camera uses white light illumination.</li> <li>● Infrared: The camera uses infrared light illumination.</li> </ul>
Control Mode	<ul style="list-style-type: none"> <li>● Global Mode: The camera adjusts illumination brightness and exposure to achieve balanced image effects.</li> <li>● Overexposure Restrain: The camera adjusts illumination brightness and exposure to avoid regional overexposure.</li> <li>● Manual: This mode allows you to manually control the intensity of illumination.</li> </ul>
Illumination Level	<p>Set the intensity level of the light. The greater the value, the higher the intensity (0 means that the light is turned off).</p> <p><b>Note:</b> You can set this parameter only when <b>Control Mode</b> is set to <b>Manual</b>.</p>

**NOTE**

This function may vary with models. Please see the actual model for details.

**4.3.4 White Balance**

1. Click the **White Balance** tab.

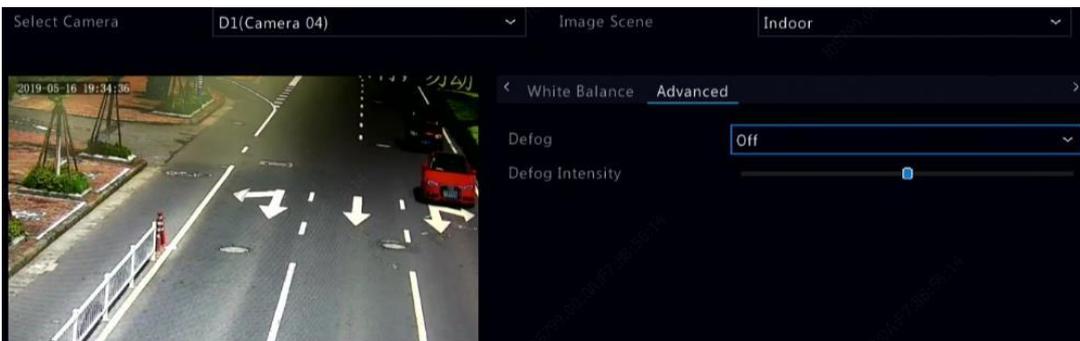


2. Adjust the settings on this tab. Some important parameters are described in the table below.

Parameter	Description
White Balance	Adjust the red or blue offset of the image: <ul style="list-style-type: none"> <li>● Auto: The camera adjusts the red or blue offset automatically according to the lighting condition (the color tends to be blue).</li> <li>● Finetune: Allow you to adjust the red or blue offset manually.</li> <li>● Outdoor: Suitable for outdoor environment with a relatively greater color temperature range.</li> <li>● Sodium Lamp: The camera adjusts red and blue offset automatically according to the light condition (the color tends to be red).</li> <li>● Lock: Lock the current color temperature without change.</li> </ul>
Red Offset	Adjust the red offset manually.
Blue Offset	Adjust the blue offset manually.

**4.3.5 Advanced settings**

1. Click the **Advanced** tab.
2. Use defog to improve image quality in foggy days.

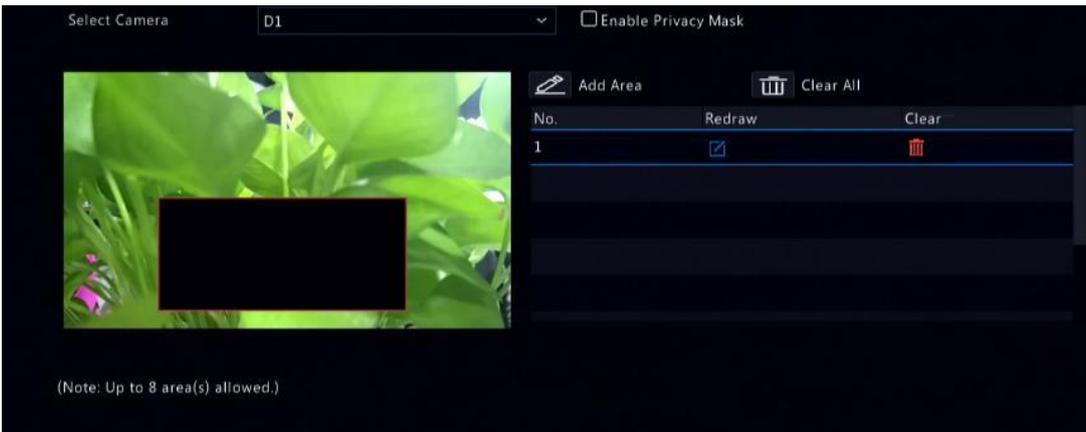


**4.4 Privacy Mask Configuration**

A privacy mask is an area of solid color covering certain parts of the monitored area. Privacy mask protects specified areas of images from being viewed and recorded. Multiple mask areas are allowed.

1. Click **Camera > Privacy Mask**.

2. Select the desired camera, select **Enable Privacy Mask**, click **Add Area** and then use the mouse to specify areas to mask. Up to eight areas are allowed, and the number of the areas allowed may vary with device model. The areas are differentiated by different colors.



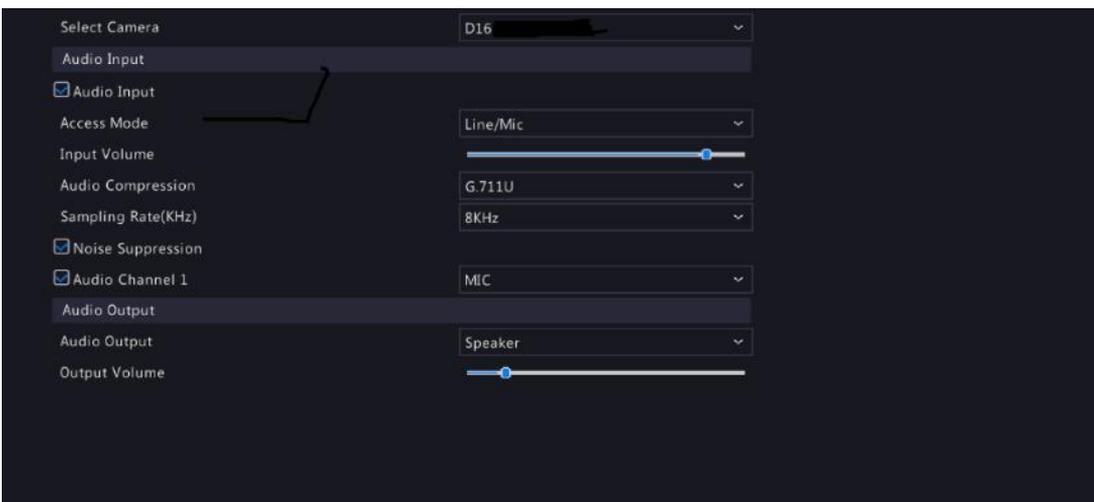
3. (Optional) To clear a mask area, click

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

#### 4.5 Audio Configuration

You can configure audio input and output from IPCs to NVRs. Only certain NVR models support this function.

1. Select **Camera > Audio**.



2. Select the desired camera.

3. Configure audio input parameters.

Item	Description
Audio Input	Audio input from the IPC to the NVR. Select the check box to enable audio input.
Access Mode	Line/Mic: Audio interface <ul style="list-style-type: none"> <li>● Line-in: The IPC is connected to a sound pickup by a 3.5mm audio cable.</li> <li>● Mic-in: The IPC is connected to a microphone.</li> </ul>
Input Volume	Drag the slider to adjust the audio input volume.

Item	Description
Audio Compression	G.711A/G.711U/AAC-LC. The supported audio compression format may vary with IPCs.
Sampling Rate(KHz)	How many times per second a sound is sampled when digitizing analog sound. For AAC-LC, select 8 KHz, 16 KHz or 48KHz. For G.711A or G.711U, select 8 KHz.
Noise Suppression	Enable <b>Noise Suppression</b> to reduce noise and optimize audio output quality.
Audio Channel 1	LINE/MIC: Select an audio input interface according to the sound pickup device. The supported access mode may vary with IPCs.

4. Configure audio output parameters.

Item	Description
Audio Output	Speaker: Audio output from the NVR to the IPC.
Output Volume	Drag the slider to adjust the audio output volume.

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

**NOTE**

- To copy the same settings to other cameras, click **Copy** and then select the desired camera(s).
- The configuration items may vary with IPC model or version.

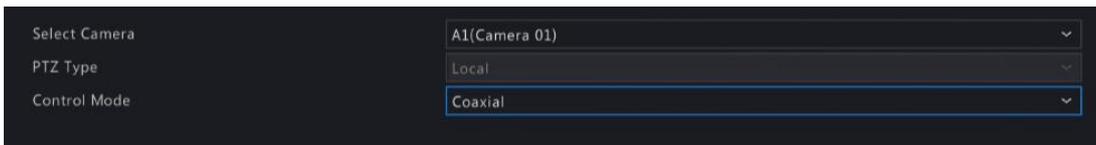
## 5 PTZ Control

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 more details.

### 5.1 PTZ Control Mode

Only hybrid NVRs support changing PTZ control mode. Please complete the settings before using PTZ cameras.

1. Click **Menu > Camera > PTZ**.
2. Choose control mode and complete the settings. Choose **Coaxial** or **Serial Port** according to camera connection method.



### 5.2 PTZ Control Window and PTZ Management Window

1. Click on the window toolbar. The **PTZ Control** window appears. See PTZ Control Window Buttons for detailed descriptions.
2. Click the **Set** button. The **PTZ Management** window appears (can also be opened by clicking **Camera > PTZ**).

**Table 5–1** PTZ Control Window Buttons

Button	Description
	Control the rotation direction of the PTZ camera or stop rotation.
	Adjust the zoom, focus, and iris of the PTZ camera. <b>Note:</b> You can also zoom in or out using the scroll wheel on your mouse.

Button	Description
	Control the rotation speed of the camera. 1 means the slowest, and 9 means the fastest.
	Click to display the <b>PTZ Management</b> window.
	<ul style="list-style-type: none"> <li>● Turn on/off the light.</li> <li>● Turn on/off the wiper.</li> <li>● Use 3D positioning.</li> <li>● Turn on/off the heater.</li> <li>● Turn on/off the function to remove snow.</li> <li>● Turn on/off PTZ shortcut operations.</li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>● Check that the 3D positioning, heater and snow removal functions are supported by the camera before using.</li> <li>● Use 3D positioning to zoom in or out. Dragging from top down zooms in. Dragging the other way zooms out.</li> </ul>
	Preset button.
	<ul style="list-style-type: none"> <li>● Call a preset so the PTZ camera goes to the preset position.</li> <li>● Delete a preset.</li> </ul> <p><b>Note:</b>  and  are displayed for saved presets only.</p>
	Preset patrol, recorded patrol and auto guard. For detailed information, see Setting a Preset Patrol, Setting a Recorded Patrol, and Setting Auto Guard.
	Start or stop.

### 5.3 OSD Menu

OSD menu is used to configure analog cameras on hybrid NVRs.

1. In the preview window of an analog camera, click on the window toolbar.
2. Click **OSD Menu**.

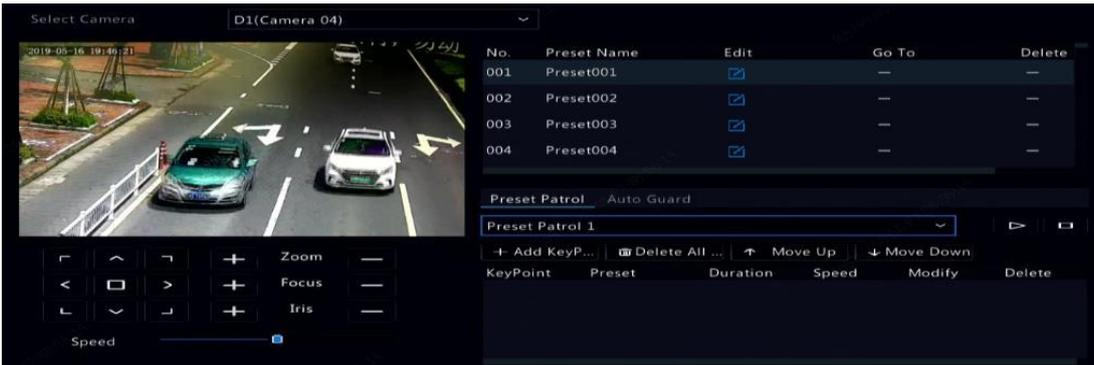


3. Click  or  to open camera settings window, and complete the configurations.
4. Choose the exit button to save the settings, and then click  to close the window.

### 5.4 Setting and Calling a Preset

A preset position (preset for short), is a saved view used to quickly steer the PTZ camera to a specific position. A preset consists of the following settings: pan and tilt positions, zoom, focus, and iris.

1. Access the **PTZ Management** window. For the detailed steps, see PTZ Control Window and PTZ Management Window.



2. Add presets.
  - a. Click the directional buttons to steer the PTZ camera to the desired position.
  - b. Adjust the zoom, focus, and iris as needed.
  - c. Select a preset number not in use, and then click  under Edit.
  - d. Repeat the above steps to add all the presets.
3. To call a preset, click  for the corresponding number. The camera rotates to the preset position.

**NOTE**

Presets can also be triggered by alarms. See Alarm-Triggered Actions for details.

### 5.5 Setting a Preset Patrol

Set the PTZ camera to patrol by presets (go from one preset to the next in specified order). You need to set presets first and then select some as keypoints. Up to four patrol routes (Preset Patrol 1, 2, 3 and 4) are allowed for each PTZ camera, and each patrol route can have up to eight presets (keypoints). After setting presets, follow the steps to set a preset patrol. The following takes preset patrol 1 as an example.

1. In the **PTZ Management** window, click . A window is displayed as follows.



2. Select a preset from the drop-down list, set the duration (time the camera stays at the preset, unit: second), and then set the rotation speed (1: slowest, 9: fastest). Click **OK** to save the settings. The preset is added as a keypoint.

- Repeat the above steps to add all presets (keypoints), and adjust the sequence of these presets by clicking or . Modify or delete a preset by clicking or . Clicking will delete all the added keypoints.
- After completing the configuration, click **Apply** to save the settings. Now keypoints for preset patrol 1 is complete.
- Click right to the drop-down list to start preset patrol 1. To stop, click .

**NOTE**

The duration ranges from 0 to 1800 seconds (default: 10). The rotation speed ranges from 1 to 9 levels (default: 5).

**5.6 Setting a Recorded Patrol**

This function requires the camera's support. The drop-down list and the buttons on the right are hidden if this function is not supported by the camera. Currently only one recorded patrol route is allowed.

Record a patrol, including the patrol route, the time that the camera stays at a certain direction, rotation speed, zoom, focus and focus.

- Click to start recording. Steer the camera to the desired directions, adjust the zoom, focus, iris as needed during the process.



- Click to stop recording. All the patrol actions have been recorded.
- To start the recorded patrol, click . Click to stop.

**5.7 Setting Auto Guard**

Use auto guard so the PTZ camera automatically operates as configured if no operation is performed by any user during a certain time period. Auto guard avoids situations where the camera is left to monitor incorrect scenes by user's negligence.

This function requires the camera's support. The **Auto Guard** tab is hidden if it is not supported.

- Click **Auto Guard** and then select **Enable**.
- Select the desired mode from the drop-down list and then complete other settings accordingly. Click **Apply** to save the settings.



## 6 Recording and Snapshot

Video recording has different levels of priority, which from high to low is: event recording, manual recording, and scheduled recording.

**NOTE**

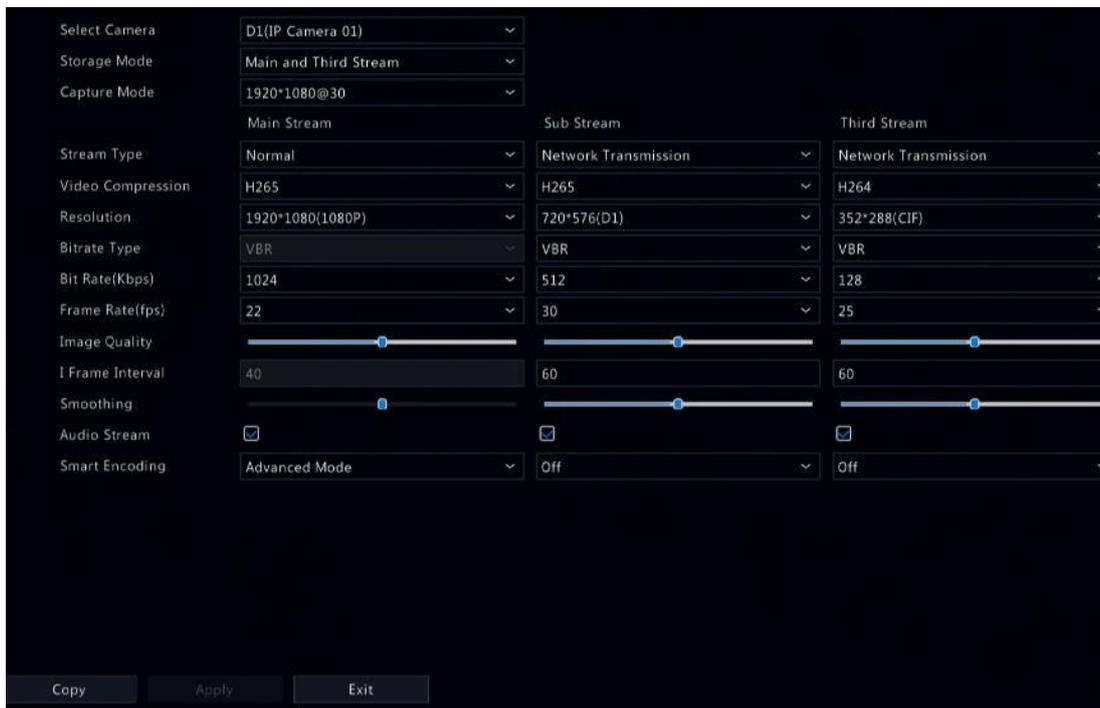
Snapshot is supported by certain device models only.

### 6.1 Encoding Settings

#### 6.1.1 Recording

The parameters and options displayed may vary with camera model and version. Some functions may be unavailable if the camera version is too low. In this case, you need to upgrade the camera first.

1. Click **Camera > Encoding**.



Select the camera and then edit settings as needed. Some parameters are described in the table below.

**Table 6–1** Encoding Settings

Parameter	Description
Storage Mode	Five storage modes are available: Main Stream, Sub Stream, Main and Sub Stream, Main and Third Stream, Sub and Third Stream. <b>Note:</b> Only certain models support all the five modes.
Capture Mode	Combinations of resolutions and frame rates. <b>Note:</b> This parameter is effective only when the camera is connected to the NVR via the private protocol.
Stream Type	<ul style="list-style-type: none"> <li>● Normal: main stream that is intended for scheduled recording.</li> <li>● Event: main stream that is intended for recording triggered by events such as alarm inputs or motion detection alarms.</li> <li>● Sub Stream: low resolution video that is intended for local or remote real-time monitoring.</li> </ul>

Parameter	Description
Video Compression	Video compression standard, for example, H.264, H.265. The listed options depend on the standards supported by the camera.
Resolution	Image resolution.
Bitrate Type	<ul style="list-style-type: none"> <li>● CBR: Constant Bit Rate (CBR) is used to maintain a specific bit rate by varying the quality of video streams. CBR is preferred when limited bandwidth is available. The disadvantage is that video quality will vary and may decrease significantly with increased motion in the scene.</li> <li>● VBR: When using Variable Bit Rate (VBR), video quality is kept as constant as possible, at the cost of a varying bit rate, and regardless of whether or not there is motion in the image. VBR is ideal when high quality is a requirement, especially when there is motion in the picture.</li> </ul>
Bit Rate(Kbps)	Number of bits transferred per second. Select a value or select <b>Custom</b> and then set a value as needed.
Range	Bit rate range. Currently the range is fixed.
Frame Rate(fps)	Number of frames per second.
Image Quality	This parameter is effective only when <b>Bitrate Type</b> is set to <b>VBR</b> . 9 levels are provided.
I Frame Interval	Number of frames between two adjacent I frames.
I Frame Range	Range of I frames. Currently the range is fixed.
Smoothing	Use the slider to control the sudden increase of bit rate.
Audio Stream	Enable or disable audio stream.
Smart Encoding	The advanced mode achieves higher compression ratios.

2. (Optional) Click **Copy** to apply some current settings such as bitrate and frame rate to other cameras.
3. Click **Apply** to save the settings.

### 6.1.2 Snapshot

Set resolution, image quality and snapshot interval for snapshots taken according to schedule or triggered by an event.

1. Click **Camera > Snapshot**.
2. Select the camera and set the parameters as needed.



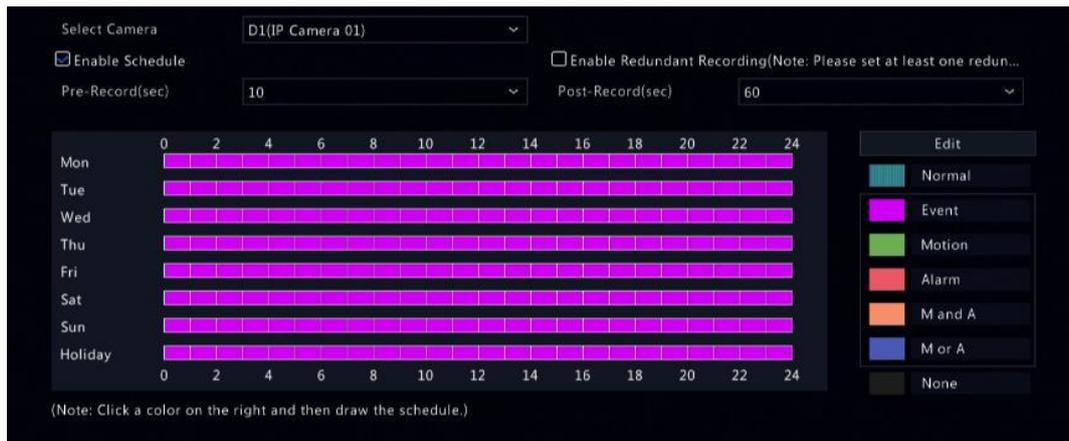
Parameter	Description
Snapshot Type	Scheduled snapshot uses the <b>Normal</b> type of schedule. Event-triggered snapshot is triggered by an event such as an alarm input and a motion detection alarm. Note: Settings effective to event-triggered snapshot also apply to manual snapshot.
Resolution	Snapshot resolution.
Image Quality	High, Medium or Low are available.
Snapshot Interval	The time interval between two snapshots.

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

## 6.2 Draw or Edit a Schedule

Make a recording or snapshot schedule by drawing (pressing and dragging) or by editing (using the **Edit** button). The operations for recording and snapshot are similar, so this section only describes how to make a recording schedule.

1. Click **Storage > Recording**.
2. Select the camera from the list.
  - a. Select **Enable Schedule** and **Audio Storage**.
  - b. Set **Pre-Record** and **Post-Record** as needed.
  - c. (Applicable to some NVR models) To save a redundant copy of recordings, select **Enable Redundant Recording** and configure a redundant hard disk (see Disk Management for details).



3. Click a color icon on the right under the **Edit** button and then draw a schedule on the left. You may also click **Edit** and set schedule details in the **Edit Schedule** window.

**NOTE**

When editing a schedule, you may clear the **All Day** check box and set up to eight different periods for each day. To apply the settings to other day(s), select the day(s) right to **Copy To**.

4. Click **Apply**.
5. (Optional) Click **Copy** to apply the same settings to other cameras.

## 6.3 Scheduled Recording and Snapshot

### 6.3.1 Scheduled Recording

Scheduled recording records video according to the set schedule and it is different from manual recording and alarm-triggered recording. A 24x7 recording schedule is enabled by default and may be edited as needed to record video in specified periods only. See Draw or Edit a Schedule for the detailed steps. Make sure the schedule type is **Normal**. The set schedule appears in blue, which stands for scheduled recording.

### 6.3.2 Scheduled Snapshot

Configure scheduled snapshot under **Storage > Snapshot**. Scheduled snapshot is similar to scheduled recording (see Scheduled Recording for details). Make sure the schedule type is **Normal**.

## 6.4 Motion Detection Recording and Snapshot

When enabled, a motion detection alarm occurs if an object inside the detection area moves to a certain extent (see Motion Detection for more details). Motion detection alarms can trigger actions including recording and snapshot.

### 6.4.1 Motion Detection Recording

1. Click **Alarm > Motion**.
2. Select the camera from the list, and then select the check box to enable motion detection.

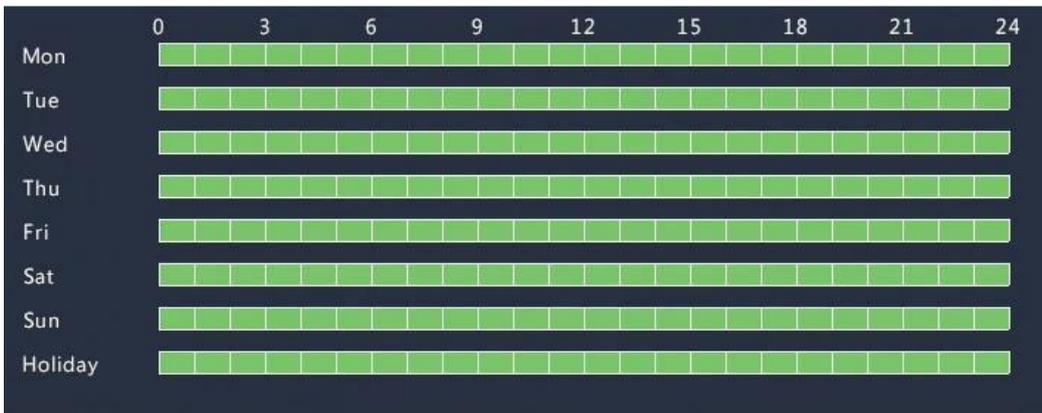
**NOTE**

- Motion detection is enabled on the NVR by default. Unless modified, the detection area covers the full screen, and recording is triggered only for the current camera. The settings remain if you disable motion detection and then enable it.
- An alarm icon appears in the upper right corner when motion is detected.

3. In the preview window on the left side, click and drag your mouse to specify a motion detection area (red grid). Use the slider to adjust detection sensitivity.



4. Configure motion detection recording: click right to **Trigger Actions**, click the **Recording** tab, select the desired camera, and then click **OK**.
5. (Optional) Configure an arming schedule (time when actions will be triggered): click right to **Arming Schedule** and then set time periods as needed.
6. Set a recording schedule under **Storage > Recording**. For the detailed steps, see Draw or Edit a Schedule. Make sure the schedule type is **Motion**. The set schedule appears in green, which stands for motion detection recording. The following figure shows an example.



### 6.4.2 Motion Detection Snapshot

Motion detection snapshot is similar to motion detection recording. You need to enable and configure motion detection alarm first (see steps 1 to 3 in Motion Detection Recording for details), and then proceed with the following steps.

1. Set motion detection snapshot under **Alarm > Motion**: click right to **Trigger Actions**. In the window displayed, click the **Snapshot** tab, select the desired camera, and then click **OK**.
2. Set a snapshot schedule under **Storage > Snapshot**. For the detailed steps, see Draw or Edit a Schedule. Make sure the schedule type is

**Motion.**

**6.5 Alarm Triggered Recording and Snapshot**

Set input alarms to trigger recording and snapshot. See Alarm Input and Output for more details.

**6.5.1 Alarm Triggered Recording**

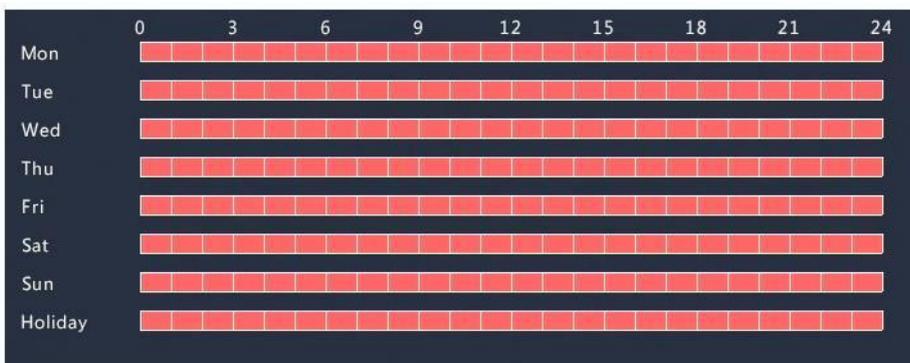
1. Click **Alarm > Input/Output > Alarm Input**.
2. Set alarm input: click  for the desired camera. In the window displayed, select **Enable**, select N.O. (normally open) or N.C. (normally closed) trigger mode, and then click **OK**.



**NOTE**

To apply the same settings to other camera(s), click Copy and then select the desired camera(s).

3. Set alarm triggered recording: click under **Trigger Actions**. In the window displayed, click the **Recording** tab, select the desired camera, and then click **OK**.
4. Set a schedule under **Storage > Recording**. For the detailed steps, see Draw or Edit a Schedule. Make sure the schedule type is **Alarm**. The set schedule appears in red, which stands for alarm-triggered recording. The following shows an example.



**6.5.2 Alarm Triggered Snapshot**

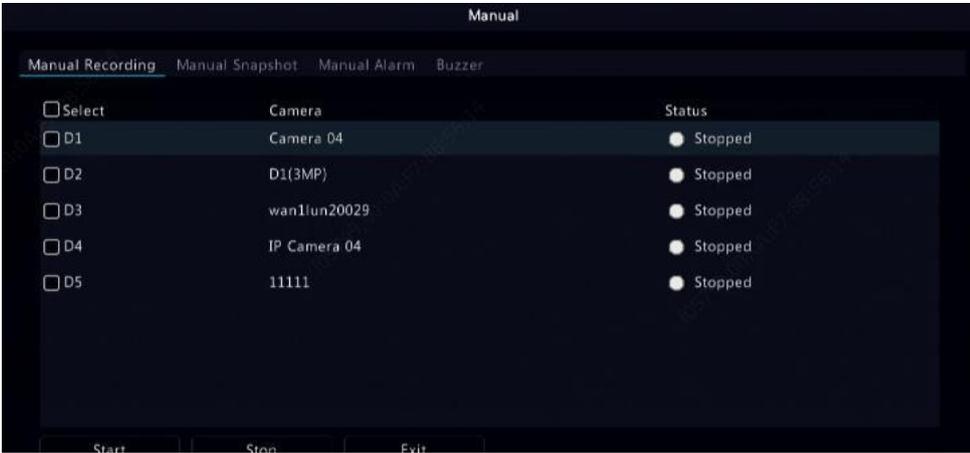
Alarm triggered snapshot is similar to alarm triggered recording. You need to enable and configure alarm input first (see steps 1 to 2 in Alarm Triggered Recording for details) and then proceed with the following steps.

1. Set alarm triggered snapshot: Click  under **Trigger Actions**. In the window displayed, click the **Snapshot** tab, select the desired camera, and then click **OK**.
2. Set a snapshot schedule under **Storage > Snapshot**. For the detailed steps, see Draw or Edit a Schedule. Make sure the schedule type is **Alarm**.

## 6.6 Manual Recording and Snapshot

### 6.6.1 Manual Recording

Right click on the preview window, select **Manual** in the shortcut menu. Click the **Manual Recording** tab, select the desired camera and then click **Start**. To stop manual recording, select the camera and then click **Stop**.



### 6.6.2 Manual Snapshot

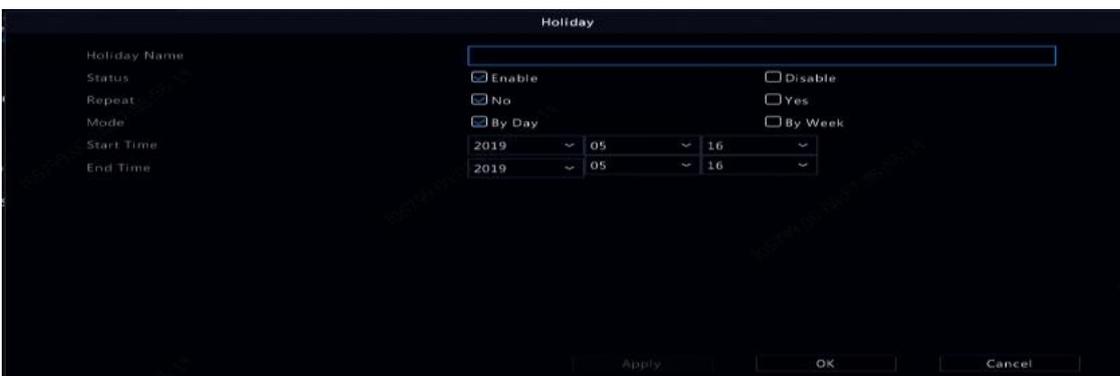
Manual snapshot is similar to manual recording. Right click and select **Manual > Manual Snapshot**, select the desired camera, and then click **Start**. Click **Stop** to stop.

## 6.7 Holiday Recording and Snapshot

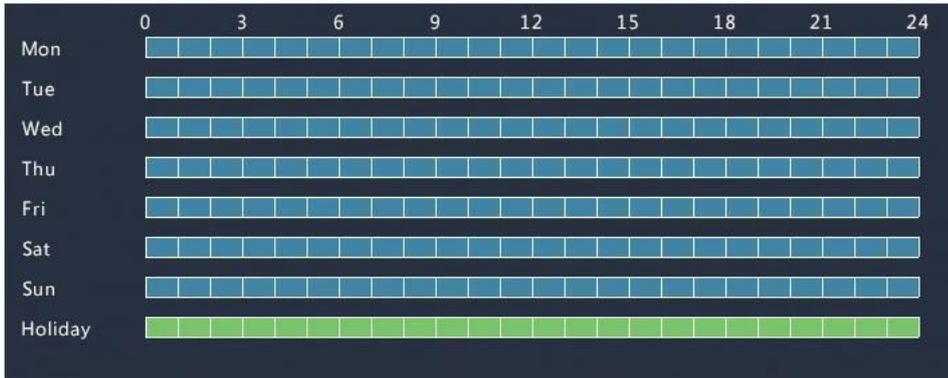
Holiday recording and snapshot allows you to specify certain time periods as holidays for scheduled recording and snapshot. First you specify certain date(s) as holidays, and then configure recording or snapshot schedules on these days.

### 6.7.1 Holiday Recording

1. Click **System > Time > Holiday**.
2. Click the **Add** button in the lower right corner. The **Holiday** window is displayed. Complete the settings including the holiday name, start and end dates. By default a holiday is enabled when added and does not repeat.



3. Click **OK**. The holiday appears in the list.
4. Click **Storage > Recording** and then set a recording schedule as described in Draw or Edit a Schedule. Make sure **Holiday** is selected in the **Select Day** drop-down list. In the following example, motion detection recording is enabled on the set holiday.



### 6.7.2 Holiday Snapshot

Holiday snapshot is similar to holiday recording. First you set holidays under **System > Time > Holiday**, and then configure a snapshot schedule under **Storage > Snapshot**. Set a snapshot schedule as described in Scheduled Recording. Make sure **Holiday** is selected from the **Select Day** drop-down list.

### 6.8 Other Recording and Snapshot Types

Other recording and snapshot types:

- Event: Including the types below and VCA. Any of these types will trigger event recording/snapshot.
- Motion detection AND alarm triggered (M and A for short): recording or snapshot is triggered only when a motion detection alarm AND an input alarm occur simultaneously.
- Motion detection OR alarm triggered (M or A for short): recording or snapshot is triggered when a motion detection alarm OR an input alarm occurs.

When you choose an Event type of recording or snapshot, make sure you have enabled the corresponding alarm function and configured alarm- triggered recording/snapshot. The configuration steps are similar. See Motion Detection Recording and Snapshot for more details.

## 7 Playback

### 7.1 Instant Playback

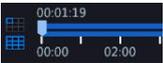
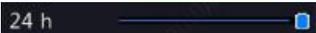
Instant playback plays the video recorded during the last 5 minutes. If no recording is found, it means there is no recording during this period.

1. Click the desired window, and then click  on the toolbar to start instant playback.
2. You may drag the slider to control the progress. Pause and resume as needed.



### 7.2 Playback Toolbar

Table 7-1 Playback Toolbar Buttons

Button	Description
	Show playback progress. <b>Note:</b> <ul style="list-style-type: none"> <li>• A small window displaying video of the selected window is displayed as you drag the slider, helping locate the part of the video you want to view.</li> <li>• The first progress bar indicates playback progress of the video playing in the highlighted window. The second indicates the overall playback progress for all the selected cameras.</li> </ul>
	Timeline.
	Zoom in or out on the timeline. <b>Note:</b> Alternatively, scroll your mouse wheel.
	Play, pause, stop, and reverse.
	Rewind or forward 30 seconds.
	Slow down or speed up. <b>Note:</b> Click  to restore the normal playback speed after clicking  , and vice versa.
	Forward by frame.
	Start or stop clipping video.

Button	Description
	Take a snapshot. The window borders will flash white.
	Lock.
	Manage files (clips, snapshots, locked files, tags).
	Zoom in on images. For more details, see Zoom.
	Set fisheye mounting mode and display mode.
	<p>Enable/disable POS (available to certain NVR models).                      When enabled, POS OSD appears on the screen, and some toolbar buttons are deactivated.                      These buttons only appear in two playback modes: playback by camera and data and playback by POS.</p> <p>POS OSD duration (how long POS OSD appears on screen) varies with playback mode. For playback by camera and date, the duration is fixed to 5 seconds. For playback by POS, the duration is configurable.                      See Playback by Camera and Date and Playback by POS for more details.</p>
	Turn off/on audio.
	Adjust sound volume for the current window.

### 7.3 Playback by Camera and Date

Use this method to search and play recordings by camera and date.

1. Click on the preview window, then right click and choose **Playback** to start playback.

**NOTE**

In playback window, you can select multiple cameras for synchronous playback. Clicking **Max. Camera** selects the maximum number of cameras allowed, and clicking **Close All** stops playback for all cameras. The performance varies with NVR model.

2. Select the desired date on the calendar and then click to start playback. Double-clicking the date will start playback directly.



**NOTE**

The calendar uses different flags to indicate different recording types.

No flag means no recording. The blue flag means normal recording. The red flag means event-triggered recording.

In the drop-down list right to playback mode: HD means video recorded with the main or sub stream; SD means video recorded with the third stream.

#### 7.4 Playback in Corridor Mode

Play recordings in corridor mode in multiple windows.

1. In the playback window, select **Corridor** above the progress bar.
2. Select cameras and then double-click the desired date to start playback.

#### 7.5 Playback by Tag

Add tags named with keywords such as event name and location to a recording and use tags to quickly locate the part of the video you need during playback.

##### 7.5.1 Adding a Tag

1. Right-click and then click choose **Playback**.
2. Click  on the window toolbar, and then set the tag name.
3. To manage the added tags, click  on the screen toolbar, and then rename or delete tags as needed.

##### 7.5.2 Playback by Tag

1. In the playback window, click Video Retrieval, select Tag Search from the drop-down list in the upper left corner.
2. Select cameras, set the time period, and then click **Search**. Search results, if there are any, are displayed with names of cameras and tags.
3. Click  for the desired tag to start playback. You may use the **Start Before** and **Stop After** drop-down lists to set when the tagged video starts and ends.

#### 7.6 Playback by Motion Detection

Search for and play recordings triggered by motion detection during a specified time period.

**NOTE**

Make sure motion detection is enabled and alarm-triggered recording has been configured before you use this function. See Motion Detection and Alarm-Triggered Actions for details.

1. In the playback window, click **Video Retrieval**, select **Motion** from the drop-down list in the upper left corner.
2. Select the desired camera, set the time period, and then click **Search**.
3. Click  for the desired recording to start playback.

#### 7.7 Playback by Video Loss

Search for and play recordings triggered by video loss during a specified time period.

## NOTE

Make sure video loss alarm is enabled and alarm-triggered recording has been configured before you use this function. See Video Loss and Alarm-Triggered Actions details.

1. In the playback window, click **Video Retrieval**, select **Video Loss** from the drop-down list in the upper left corner.
2. Select the desired camera, set the time period, and then click **Search**.
3. Click  for the desired recording to start playback.

## 7.8 Playback by Smart Search

This function provides an efficient way to review recordings containing smart search results such as detected motions. In smart playback mode, the system analyzes recordings for smart search results. If such results are detected, the progress bar is highlighted in green, and the video plays at the normal speed, allowing you enough time to catch details; otherwise, the video plays at 16x speed to save time.

1. In the playback window, select **Smart** above the progress bar.
2. Click  for the desired camera to start smart playback.
3. Click . The smart search window is displayed. By default, the full screen is the smart search area. To clear all, click ; to restore the full-screen search area, click .
4. Set smart search rules, including detection area and sensitivity.
5. Click  to start search. To quit, click .

## 7.9 Playback by External File

Use this function to play recordings stored in an external storage device, for example, a USB drive or a portable USB hard drive.

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

## 7.10 Playback by Image

Specify an image type (for example, Normal or Motion) to search for and play images from one or more cameras during a specified time period.

1. In the playback window, click **Video Retrieval**, select **Picture Search** from the drop-down list in the upper left corner.
2. Select a type from the **Type** drop-down list in the upper right corner.
3. Select the desired camera(s), set the desired time period, and then click **Search**.
4. Click the desired file to start playback.

## 7.11 Playback by POS

Use this function to play recordings of a POS machine.

1. In the playback window, click **Video Retrieval**, select **POS Search** from the drop-down list in the upper left corner.
2. Select the desired camera, set the time period, enter keywords and then click **Search**.

**NOTE**

Keywords allow special characters & (means AND) and | (means OR).

3. Click  to display overlay content.
4. Click  to start playback.

**7.12 File Management**

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

1. Take snapshot during playback.
  - a. In the playback page, play the recording until the desired image appears.
  - b. Click  in the playback window to take a snapshot.
  - c. Click  and then click the **Playback Image** tab to view the snapshot.
  - d. Select the desired image file(s) and then click **Backup** to save them to the storage device.

**NOTE**

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

2. Lock files.

Use this function to lock a recording file so it will not be overwritten. To lock a recording file will prevent all the files stored in the same disk partition (254.4MB in size) from being overwritten.

- a. Play the recording you want to lock.
- b. Click  in the playback window.
- c. Click  and then click the **Locked File** tab to view the locked file. To unlock a file, click , and the icon changes to . To back up a file, select the file and then click **Backup**.

## 8 Backup

### 8.1 Recording Backup

Backup, also known as recording backup, is the process of querying video stored on a hard disk of the NVR and then saving to a USB storage device or a DVD-R disc as a file.

Recording backup has the following conditions:

- Back up using a USB storage device: format the partition in FAT32 or NTFS format; connect the storage device correctly to the NVR.
- Back up using a disc: use a GP65NB60 DVD burner. Make sure the DVD-R disc is empty, and the burner is correctly connected to the NVR.
- Permission is required.
- The recording to back up is stored on a hard disk of the NVR.

#### NOTE

The default file format is .mp4 when you back up recordings to a USB storage device.

When backing up using a disc, recordings are saved as .TS files only.

#### 8.1.1 Normal Backup

1. Click **Backup > Recording**. All cameras are selected by default.
2. Set search conditions and then click **Search**. Search results are displayed.

#### NOTE

You can lock/unlock and play recording files in this window.

3. Select the desired recording(s) and then click **Backup**.
4. Select a partition.

- Back up to USB storage device

Set the destination in the USB storage device and then click **Backup**. The recording(s) will be saved to the specified directory.

#### NOTE

- You may want to create a new folder for the recording(s) by clicking New Folder.
- If the connected storage device has a capacity that is greater than 2T, clicking Format will format the device to NTFS file system; if the capacity is 2T or less, the device will be formatted to FAT32 or NTFS. Only certain devices can format a storage device that has a greater capacity than 2T.
- A progress bar (e.g., Exporting X/Y) is displayed to indicate the progress, where X indicates the current number being backed up, and Y indicates the total number of recordings. To cancel the operation, click Cancel.
- A backup file is named in this format: camera name-recording start time.file extension. For example, Ch9-20150630183546.mp4.
- Back up to a DVD-R disc

Set the destination and then click **Backup**. The recording(s) will be saved to the specified directory.

- Before you start burning, check that the video to back up was not compressed using smart encoding.
- Clicking Cancel before burning is finished will cause the disc unusable.
- When burning is finished, wait for the drive to eject itself. Do not eject the drive manually.
- The NVR does not support playback of recordings saved on a disc.

#### 8.1.2 Video Clip Backup

A recording can be clipped and saved to a USB storage device.

1. Open the playback window. For the detailed steps, see Playback.

2. After playback starts, click  on the playback toolbar to clip videos.
3. Click  and then click the **Video Clip** tab to view video clips.
4. Select the desired video clip(s) and then click **Backup**.
5. Select a destination in the USB storage device and then click **Backup**. The selected video clips are saved to the specified directory.

## 8.2 Image Backup

1. The default format of image backup is JPG. Click **Backup > Image**.
2. Set search conditions and then click **Search**. Search results are displayed.

### NOTE

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

3. Select the desired file(s) and then click **Backup**.
4. Select a destination in the USB storage device and then click **Backup**. The selected files are saved to the specified directory.

## 9 Alarm

### 9.1 Alarm Input and Output

#### 9.1.1 Alarm Input

1. Click Alarm > Input/Output > Alarm Input.
2. Select the desired camera, and click to configure alarm input parameters.

Item	Description
Alarm Input	Select <b>Enable</b> to enable alarm input.
Alarm Input Name	The default name is the alarm input No. You may customize a name.
One-Key Disarming	Only <b>A&lt;-1</b> in the <b>No.</b> column supports one-key disarming. When enabled, the NVR will block the alarm-triggered actions generated by A<-1 port.
Alarm Type	N.O./ N.C.

3. Click under **Trigger Actions** and then set action(s) to trigger. For more details, see Alarm-Triggered Actions.

**NOTE**

- The number of cameras that can be connected may vary with NVR model.
- Actions that can be triggered may vary with alarm type.

4. Click under **Arming Schedule** and then set the time when actions will be triggered.

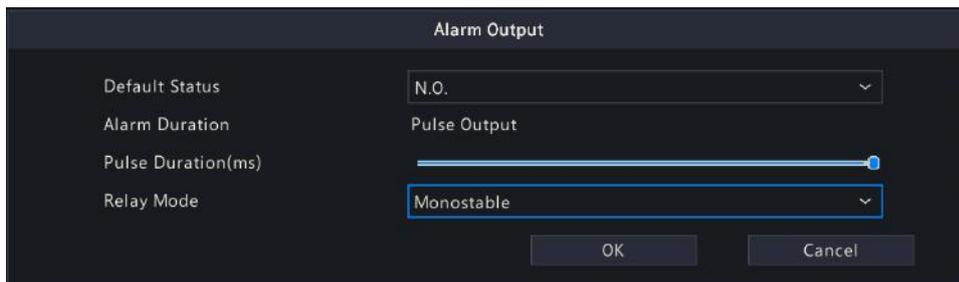
**NOTE**

- The default schedule is 24x7 and you may change it as needed. Up to 8 different periods for each day are allowed. Time periods cannot overlap.
- To apply the same arming schedule to other days, select the intended day(s) right to Copy To.
- To apply the same settings to other cameras, click Copy and select the desired camera(s).

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

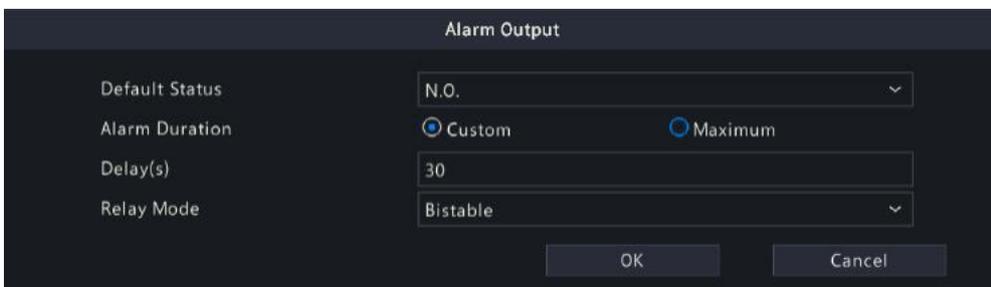
**9.1.2 Alarm Output**

1. Click **Alarm > Input/Output > Alarm Output**.
2. Select the desired camera, and click  to set the alarm output parameters.
  - Select **Monostable** in the **Relay Mode** drop-down list.



Item	Description
Default Status	N.O./ N.C.
Relay Mode	Monostable, a basic pulse circuit with stable output state.
Alarm Duration	Alarms triggered by pulse output.
Pulse Duration(ms)	The duration of pulse signal. Drag the slider to adjust it within 100-900 milliseconds.

- Select **Bistable** in the **Relay Mode** drop-down list.



Item	Description
Default Status	N.O./ N.C.
Relay Mode	Bistable, an electronic circuit with two stable output states.
Alarm Duration	Custom: You may customize the alarm duration from 5 to 3600 seconds. Maximum: The alarm output lasts infinitely that needs to be turned off manually.
Pulse Duration(ms)	The duration of the alarm output after an alarm is triggered (only applicable when <b>Custom</b> is selected).

3. Click under **Arming Schedule** and then set the time when actions will be triggered.

**NOTE**

- The default schedule is 24x7 and you may change it as needed. Up to 8 different periods for each day are allowed. Time periods cannot overlap.
- To apply the same arming schedule to other days, select the intended day(s) right to Copy To.
- To apply the same settings to other cameras, click Copy and select the desired camera(s).

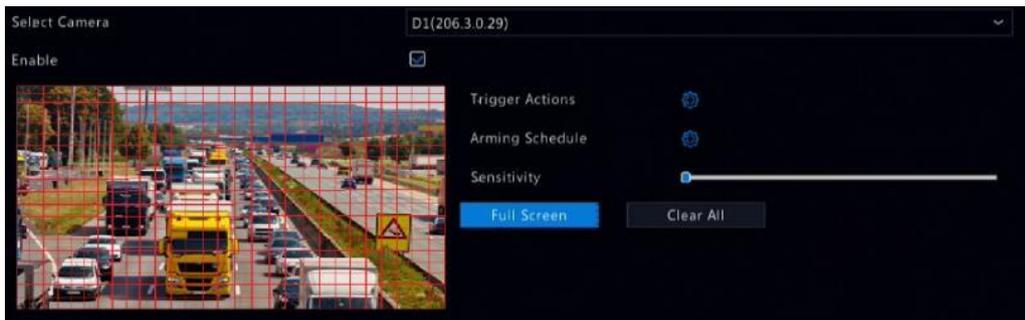
4. Click **Apply** to save the settings.

### 9.2 Motion Detection

When enabled, a motion detection alarm occurs if an object inside the detection area moves to certain extent, and an alarm icon appears in the upper right corner.

Motion detection is enabled on the NVR by default. Unless modified, the detection area covers the full screen, and recording is triggered only for the current camera. The settings remain if you disable motion detection and then enable it.

1. Click **Alarm > Motion**.
2. Select the desired camera and then select **Enable** to enable motion detection.
3. Use the mouse to draw a detection area, and drag the slider to set detection sensitivity, target object size, and duration. The higher the sensitivity, the more likely a moving object will be detected.



4. Click right to **Trigger Actions** and set action(s) to trigger. For more details, see Alarm-Triggered Actions.

**NOTE**

The number of cameras that can be connected may vary with NVR model.

Actions that can be triggered may vary with alarm type.

5. (Optional) Click right to **Arming Schedule** and then set the time when actions will be triggered.

**NOTE**

- The default schedule is 24x7. You may change it as needed and set up to eight different periods for each day. Time periods cannot overlap.
- To apply the same arming schedule to other days, select the intended day(s) right to **Copy To**.

6. Click **Apply** to save the settings.
7. (Optional) Click **Copy** to apply the same settings to other cameras.

### 9.3 Tampering Detection

A tampering detection alarm occurs when the camera lens is covered.

1. Click **Alarm > Tampering**.
2. Select the desired camera and then select **Enable** to enable tampering detection.



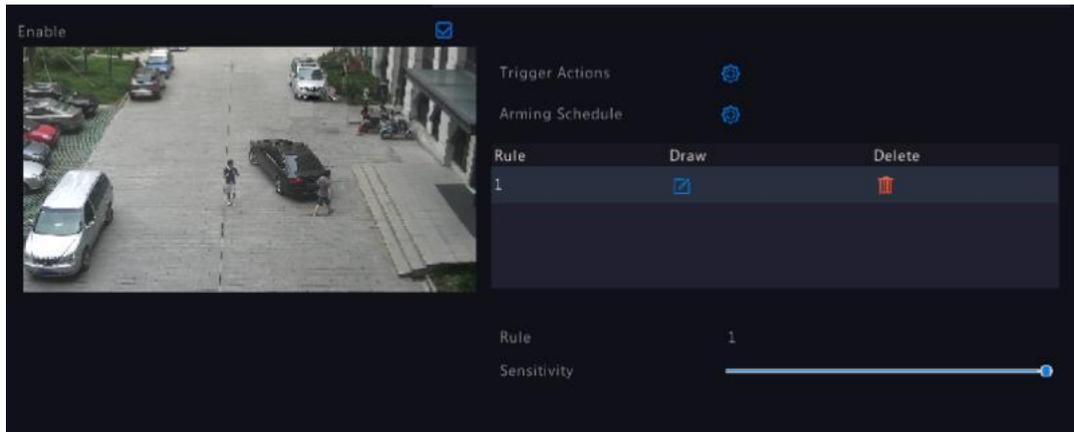
3. Click right to **Trigger Actions** and set action(s) to trigger. For more details, see Alarm-Triggered Actions.

4. (Optional) Click  right to **Arming Schedule** and then set the time when actions will be triggered.
5. (Optional) Click **Copy** to apply the same settings to other cameras.
6. Click **Apply** to save the settings.

### 9.4 Human Body Detection

Human body detection alarms occur when the presence of human beings is detected in the specified area.

1. Click **Alarm > Human Body Detection**.



2. Enable human body detection by selecting the checkbox.
3. Click , and then draw detection area.  
**NOTE**  
Only one detection area is allowed for each camera.
4. Set detection sensitivity. The higher the sensitivity, the more likely a human body will be detected.
5. Click  right to **Trigger Actions** and set action(s) to trigger. For more details, see Alarm-Triggered Actions.
6. (Optional) Click  right to **Arming Schedule** and then set the time when actions will be triggered.
7. Click **Apply** to save the settings.

### 9.5 Video Loss

A video loss alarm occurs when the NVR loses video signals from a camera. Video loss alarm is enabled by default.

1. Click **Alarm > Video Loss**. To disable video loss alarm for a channel, click , which then changes to .
2. Click  under **Trigger Actions** and set action(s) to trigger. For more details, see Alarm-Triggered Actions.

**NOTE**

Video loss alarm cannot trigger recording, preset, preview (live view) and snapshot actions for the current camera.

3. Click  under **Arming Schedule** and then set the time when actions will be triggered.
4. (Optional) Click **Copy** to apply the same settings to other cameras.

### 9.6 Alert

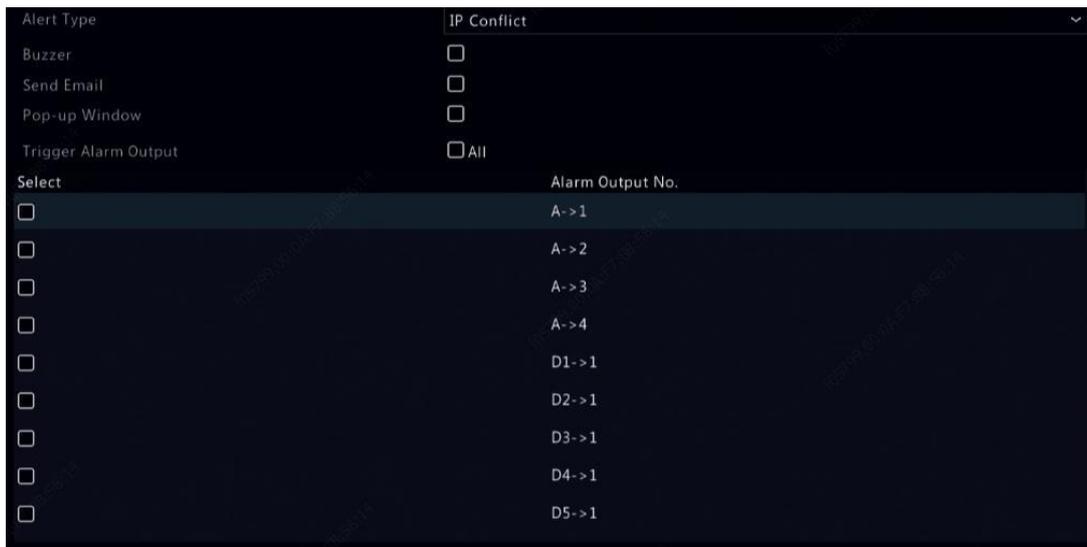
The NVR reports an alert when an event occurs in the system. The following are some alerts and their definitions in the system.

- **Running Out of Space:** Less than 10% of disk space remains.

- **Space Used Up:** No disk space.
- **Disk Offline:** A disk is not properly connected or is damaged.
- **Disk Abnormal:** A disk can be detected but cannot be accessed.
- **Illegal Access:** A failed login attempt for a username that does not exist or a password that is incorrect.
- **Network Disconnected:** Network connection is lost.
- **IP Conflict:** Devices on the network use the same IP address.
- **Recording/Snapshot Abnormal:** Storage resource cannot be found, for example, when all hard disks are removed, or when there is no disk in disk group 1 (see Disk Group for more information).

Perform the following steps to configure an alert:

1. Click **Alarm > Alert**.
2. Select an alert type, select the desired actions, and then select the camera(s) for which you want to enable alarm output.



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

### 9.7 Thermal Imaging

Thermal infrared imaging can be used to measure body surface temperature, which is suitable for body temperature monitoring in high traffic areas such as hospital, station, and shopping mall.

**NOTE**

- This function is only available for thermal imaging cameras that can use black body. Refer to the camera’s site survey and commissioning guide for more information.
- Before using this function, face detection in visible light channel should be enabled. To perform face recognition, go to **VCA > VCA Config** to enable face comparison.

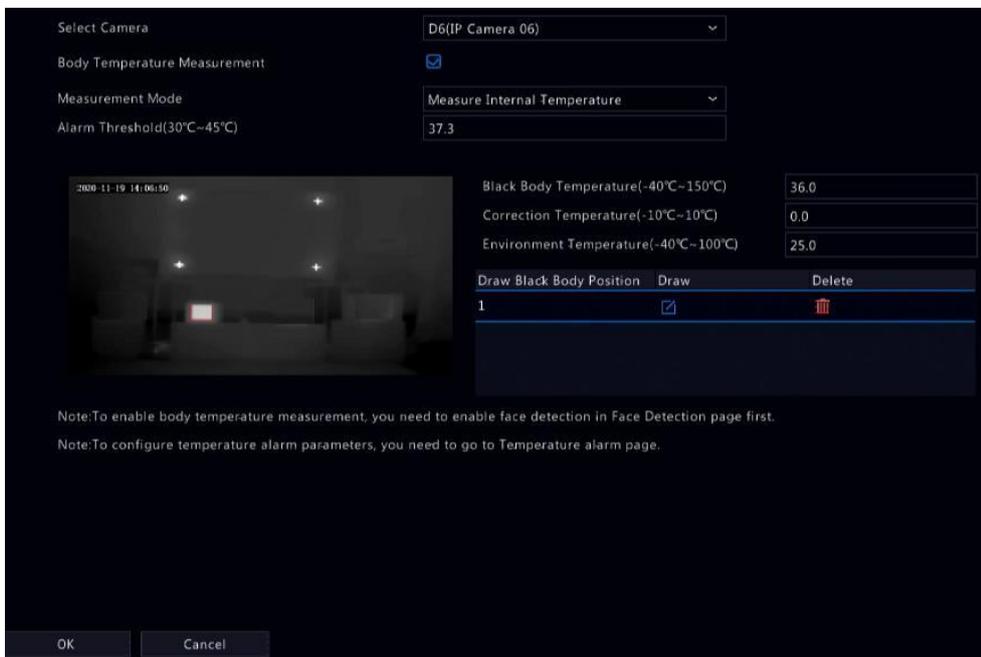
1. Add a thermal imaging camera.



Item	Description
Add Mode	Add a camera by an IP address.
Protocol	Select <b>Private</b> or other transmission protocol.
Total Camera Number	Two channels, including a visible light channel and an infrared light channel.

2. Configure thermal imaging parameters.

- a. Select **Alarm > Temperature Imaging** to go to the **Temperature Measurement** page.



Item	Description
Select Camera	Select the infrared light channel.

Item	Description
Body Temperature Measurement	Select the check box to enable body temperature measurement.
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	An alarm occurs when the temperature exceeds the threshold.
Black Body Temperature	36 °C is recommended. You may adjust it within the black body temperature range. Refer to the camera's site survey and commissioning guide for more information.
Correction Temperature	Correct temperature measurement errors. You do not need to set the correction temperature. Devices have been debugged before leaving the factory. 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	The environment temperature of the camera will affect the temperature measurement results. The higher the environment temperature, the higher the measurement result. The recommended value is 25 °C. The system calculates the actual temperature automatically after you enter the environment temperature.

b. Draw black body position.

Click  to draw a bounding box in the preview window when the brush icon appears. The size of box should be the same as that of the highlighted part of the black body, otherwise temperature measurement results would be affected.



3. Click **OK** to save the settings.
  4. Configure alarm triggered actions. For more details, see Alarm- Triggered Actions.
  5. View temperature measurement results.
- In the preview window, click  on the screen toolbar to go to the **Epidemic Control** page.



Button	Description
	Click to go to the <b>Face Snapshot Search</b> page. You can search snapshots and recordings, and export the results.
	Click to go to the <b>Configuration</b> page. You can configure the <b>Page Name</b> , <b>Match Message</b> , and <b>Unregister Message</b> .
	Exit the current window.

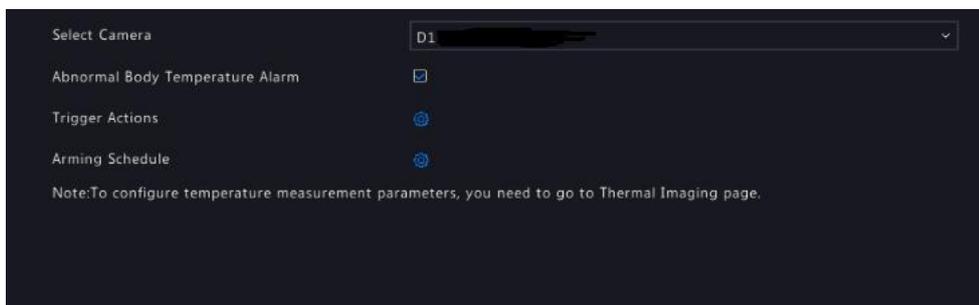
### 9.8 Abnormal Temperature

Configure abnormal body temperature alarm.

**NOTE**

- This function is only available for thermal imaging cameras.
- Before using this function, you need to enable body temperature measurement in the **Temperature Measurement** page first.

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



2. Select the infrared light channel, and enable **Abnormal Body Temperature Alarm**.
3. Configure **Trigger Actions** and **Arming Schedule** as needed. For more details, see Alarm-Triggered Actions.

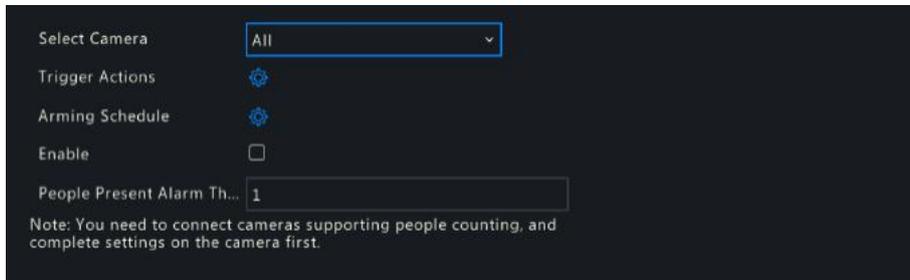
### 9.9 People Present Alarm

An alarm occurs when the number of people in a monitored area exceeds the preset value.

**NOTE**

- This function is only available for cameras that support people flow counting.
- Before using this function, you need to enable people flow counting in the **VCA Config** page first.

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



2. Configure the related parameters.

Item	Description
Select Camera	All is selected by default. You may change it as needed.
Trigger Actions	Click  right to <b>Trigger Actions</b> and set action(s) to trigger.
Arming Schedule	Click  right to <b>Arming Schedule</b> and set the time when actions will be triggered.
Enable	Select the check box to enable people present alarm.
People Present Alarm Threshold	The maximum number of people allowed in a monitored area. An alarm occurs when the value exceeds the threshold.

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

4. To view people flow counting results and other alarm information, click on the screen toolbar in the preview page to go to the **Shopping Mall Application** page.

**Audio Detection**

An audio detection alarm occurs when a camera detects a sudden change in sound volume.

1. Click **Alarm > Audio Detection**.
2. Select the camera and then select **Enable** to enable audio detection.



3. Click right to **Trigger Actions** and set action(s) to trigger. For more details, see Alarm-Triggered Actions.
4. (Optional) Click right to **Arming Schedule** and then set the time when actions will be triggered.
5. Select a detection type and adjust the settings as needed.

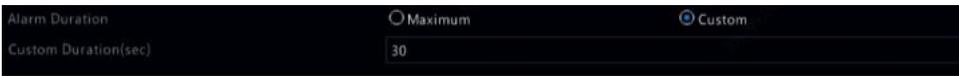
Detection Type	Description
Sudden Rise	An alarm occurs when the rise of volume exceeds the set value.
Sudden Fall	An alarm occurs when the fall of volume exceeds the set value.
Sudden Change	An alarm occurs when the rise or fall of volume exceeds the set value.
Threshold	An alarm occurs when the volume exceeds the set value.

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

### 9.10 Buzzer

The buzzer can be triggered by alarms to alert the user. Follow the steps to set how long the buzzer will buzz after it is triggered.

1. Click **Alarm > Buzzer**.



2. Set the duration as needed. The range is from 1 to 600 seconds.
3. Click **Apply** to save the settings.

### 9.11 Doorbell Call

Doorbell calling alarms are enabled by default on the NVR when a doorbell is connected. To disable doorbell calling alarm or change alarm settings, click **Alarm > Doorbell Call**.

Camera	Status	Trigger Actions	Arming Schedule
D1	Enabled		
D2	Enabled		
D3	Enabled		
D4	Enabled		
D5	Enabled		
D6	Enabled		

### 9.12 Alarm-Triggered Actions

An alarm can trigger actions, for example, buzzer, recording, and preview. The supported actions may vary with NVR model.

#### Alarm-Triggered Buzzer

The NVR makes a buzzing sound when an alarm occurs.

#### Alarm-Triggered E-mail

The NVR e-mails an alarm message to a specified email address when an alarm occurs.

#### Alarm-Triggered Pop-up Window

A window pops up when an alarm occurs.

#### Alarm-Triggered Recording

The NVR records video from a specified camera when an alarm occurs.

#### Alarm-Triggered Snapshot

The NVR takes a snapshot when an alarm occurs.

#### Alarm-Triggered Preset

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

#### Alarm-Triggered Preview

The NVR plays live video in full screen when an alarm occurs.

#### Alarm-Triggered Alarm Output

The NVR outputs an alarm to trigger actions by a third-party device when an alarm occurs.

### 9.13 Manual Alarm

#### 9.13.1 Manual Alarm Output

Follow the steps to trigger or clear an alarm output manually.

1. Right click and select **Manual > Manual Alarm**.
2. To trigger an alarm output manually, select the desired channel and then click **Trigger**. To clear an alarm output manually, select the desired channel and then click **Clear**.

### 9.13.2 Manual Buzzer

Follow the steps to stop the buzzer manually.

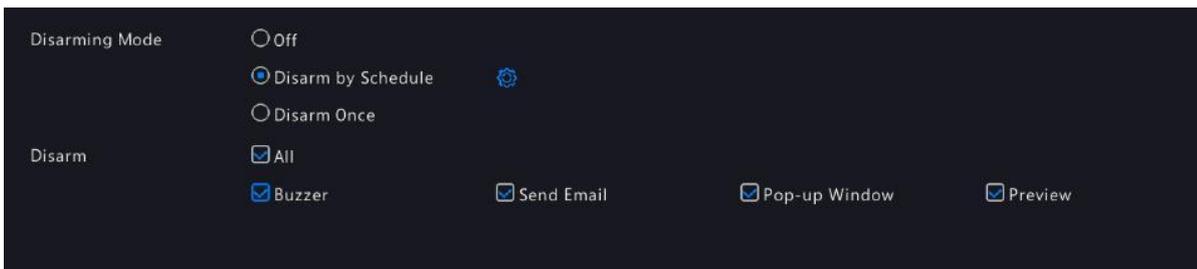
1. Right click and select **Manual > Buzzer**.
2. Select the buzzer (in Started status) and then click **Stop**.

## 9.14 One-Key Disarming

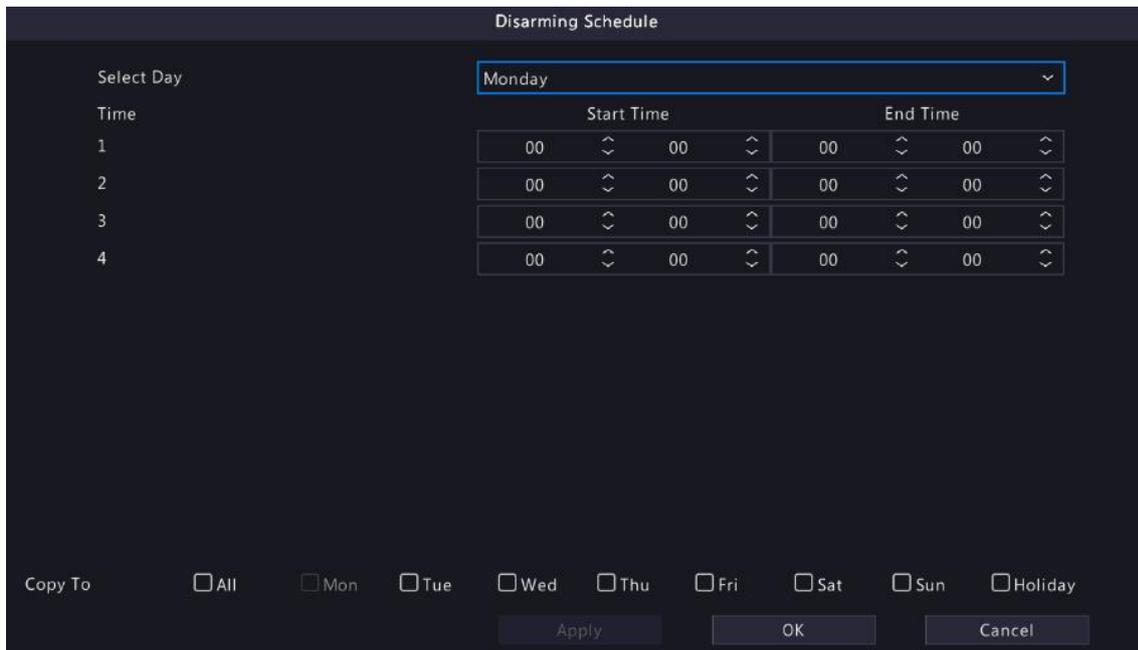
You may cancel alarm-triggered actions of NVRs or IPCs with one click.

### 9.14.1 NVR Disarming

1. Go to **Alarm > One-Key Disarming > NVR Disarming**.
2. Select a disarming mode.
  - **Off**: The NVR triggers alarm actions according to the arming schedule.
  - **Disarm by Schedule**: The NVR is disarmed during specific time periods per week.



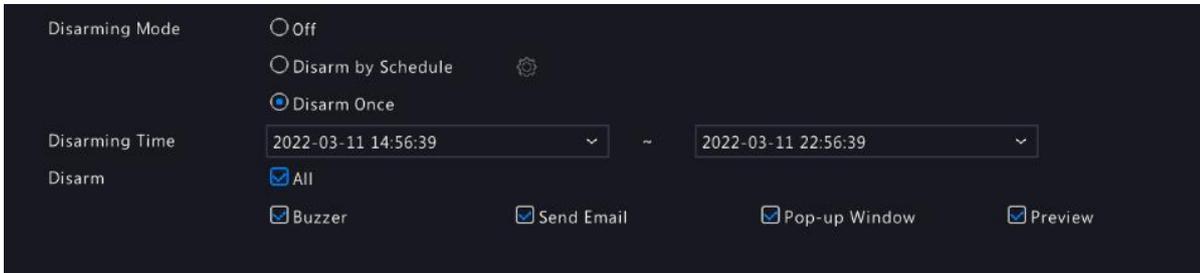
- a. Click  right to **Disarm by Schedule** and set the disarming periods. Click **OK** to return to the **NVR Disarming** page.



- b. Configure **Disarm**. See Alarm-Triggered Actions for details.

NOTE

- Up to 4 different periods for each day are allowed.
- To apply the same disarming schedule to other days, select the intended day(s) right to Copy To.
- To apply the same setting to other cameras, click Copy and then select the desired camera(s).
- Disarm Once: The NVR is disarmed during a fixed time period.



- Set the disarming start time and end time.
- Configure Disarm. See Alarm-Triggered Actions for details.

**NOTE**

To apply the same setting to other cameras, click Copy and select cameras.

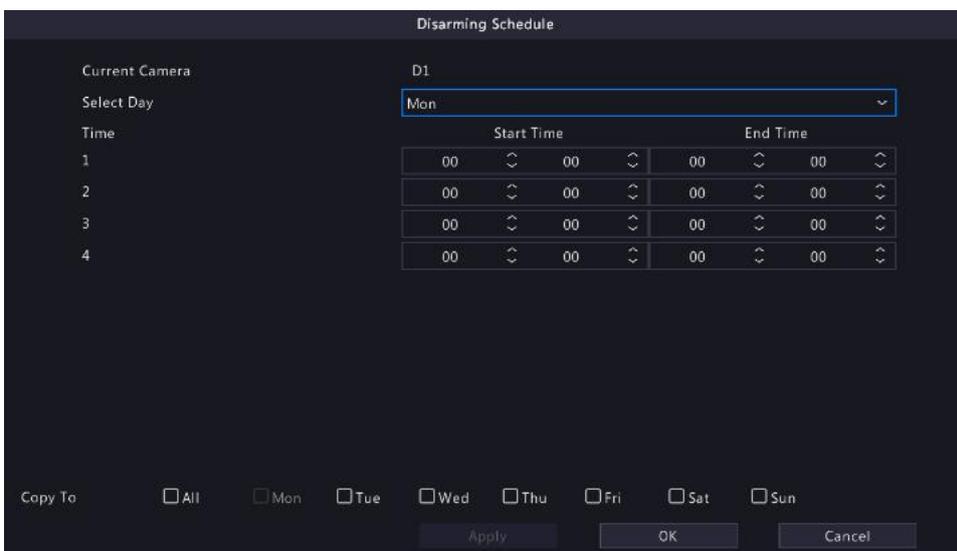
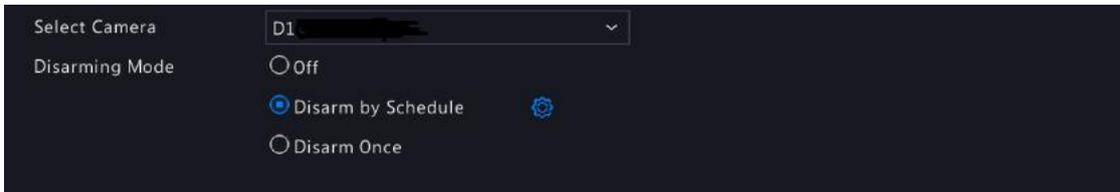
3. Click **Apply** to save the settings.

**9.14.2 IPC Disarming**

- Go to **Alarm > One-Key Disarming > IPC Disarming**.
- Select the desired camera.
- Select a disarming mode.

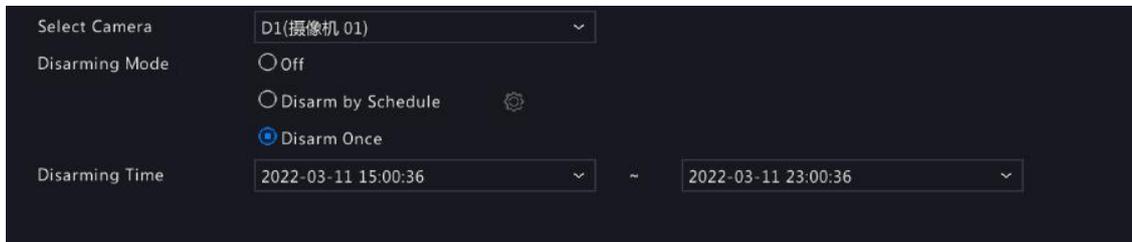
- Off: The IPC triggers alarm actions according to the arming schedule.
- Disarm by Schedule: The IPC is disarmed during specific time periods per week.

Click  right to **Disarm by Schedule** and set the disarm periods. Click **OK** to return to the **IPC Disarming** page.



**NOTE**

- By default, disarming by schedule will cancel all the actions configured on the IPC's web interface. You can modify the settings on the IPC's web interface.
- Up to 4 different periods for each day are allowed.
- To apply the same disarming schedule to other days, select the intended day(s) right to Copy To.
- To apply the same setting to other cameras, click Copy and select the desired camera(s).
- Disarm Once: The IPC is disarmed during a fixed time period.



**NOTE**

To apply the same setting to other cameras, click **Copy** and select cameras.

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

## 10 VCA

### 10.1 VCA Configuration

VCA means Video Content Analysis. VCA functions include face recognition, perimeter protection, and exception detection.

1. Click **VCA > VCA Config**.
2. Choose **Camera Side Analysis** or **NVR Side Analysis**.
  - **Camera Side Analysis:** The analysis is performed by the camera.
  - **NVR Side Analysis:** The analysis is performed by the NVR.

**NOTE**

- The checkbox of a function that is grayed out means that the function is not supported by the camera or the NVR.
- NVR Side Analysis depends on device capability. Click **VCA Config > Intelligence Usage** to view details.

3. Click  to enter the configuration page of that function.

#### 10.1.1 Face Recognition

Only certain device models support face recognition. To use this function, you need to enable face detection first, and configure face list and face comparison.

1. Enable face detection. See Face Detection for detailed steps.
2. Add a face list.
  - a. Click **VCA > VCA Config > List Management** to go to the **Face List** page.



- b. Click  to add a new face list. You may also use the default list.



3. Import face pictures. You may choose to add faces one by one or import a file containing face data.

- Import a file containing face data
  - a. Click **Export Template** to export the CSV template to a storage device.

**NOTE**

A USB storage device is required to export the template on the local interface. Export the template on the Web interface (**Smart > List Management**) if you do not have a USB storage device.

- b. Complete your face data file by referring to the Face Template Import Guide.
- c. Select the target face library, click **Import**, and select the csv file.

- Add faces one by one

Click **Add**, then select face image and enter required information in **Add Face Info** window.



4. Configure monitoring task for face recognition.

- a. Go to **VCA > VCA Config > Face Comparison**.

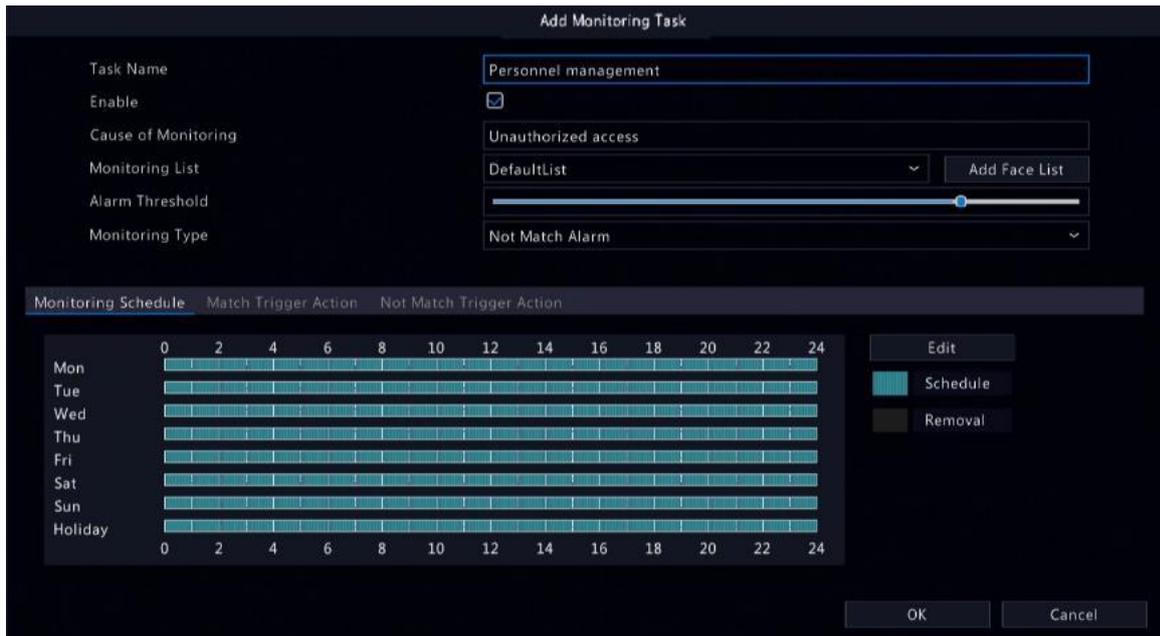


**NOTE**

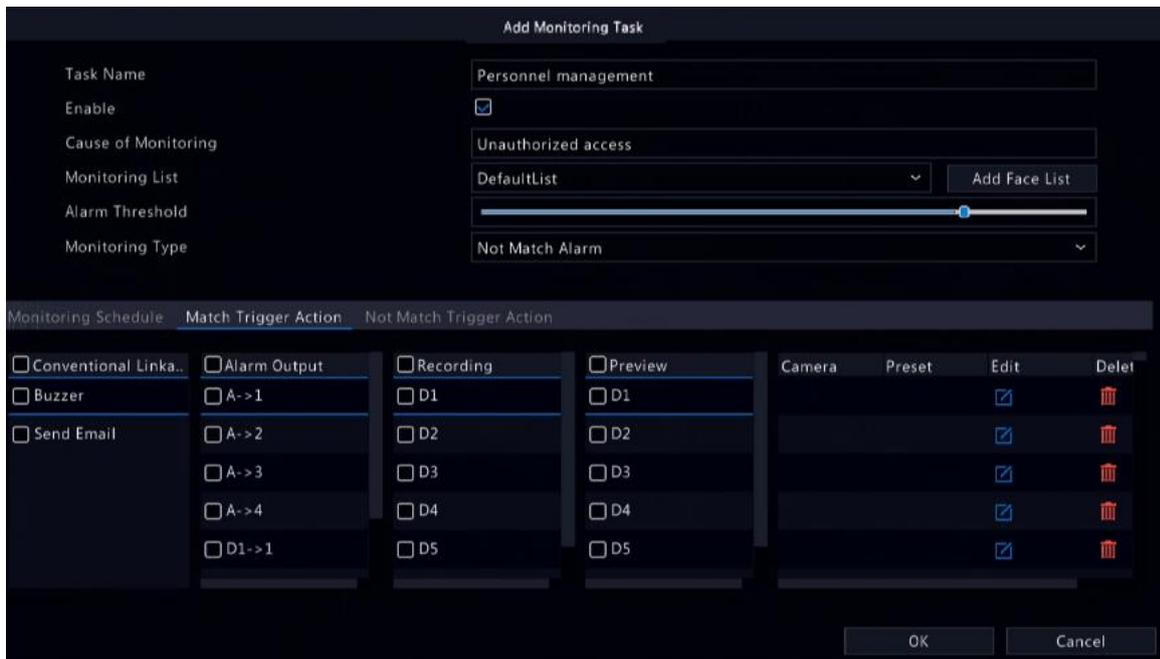
- Select the Enable check box, the default alarm threshold is 80%. That is, an alarm occurs when a captured face image is 80% similar with an image in the face library.
- Click  in the **Monitoring Edit** column to modify the current camera's monitoring task.

- b. Click **Add Monitoring Task**, and configure monitoring task and alarm-triggered actions.

**Figure 10-1** Configure Monitoring Task & Schedule



**Figure 10-2** Configure Trigger Action



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



**NOTE**

- See Alarm-Triggered Actions for more details.
- To apply the same settings to other cameras, click **Copy** and select cameras.

5. View face comparison results.

- In preview window, click on the screen toolbar.

- Click **Preview Mode > Smart**, then face recognition results are displayed on the right side.

**NOTE**

- In **Smart** mode, click in the upper right corner to configure the information to display.
- Click **Preview Mode > Normal** to exit Smart mode.

**10.1.2 Face Detection**

Face detection is used to detect and capture human faces in a specified surveillance area.



1. Select the detection area. You may choose full screen or specify an area to detect. If you select **Specify Area**, click **Draw Area** and then draw a detection area using the mouse.
2. Set face detection sensitivity. The higher the sensitivity, the more likely a face will be detected.

**NOTE**

The lower the sensitivity, the less likely a side face or blurring face will be detected. Adjust detection sensitivity as needed to achieve optimal effects.

3. Configure trigger actions. Click right to **Trigger Actions** and set action(s) to trigger. For more details, see Alarm-Triggered Actions.
4. Configure an arming schedule. Click right to **Arming Schedule** and then set the time when actions will be triggered.
5. (Optional) Click right to **Advanced**, and complete the settings.



- **Min. Pupillary Distance:** the minimum resolution between two pupils. The face with pupillary distance smaller than the value will not be captured.
- **Number of Snapshots:** the total number of snapshots to take for a face during the detection. Up to 30 snapshots are allowed.
- **Face Selection:** Enable face selection, choose selection mode, then complete the settings.
  - **Effect Priority:** During the face's stay in the surveillance area, select and upload the face snapshots with best image quality. You can set the number of snapshots.
  - **Speed Priority:** Upload the best face snapshots within the time period from when the face enters the surveillance area to

when the set time is up.

- **Periodic Priority:** From the time when the face enters the surveillance area, select and upload one snapshot in every set time period.

### Cross Line Detection

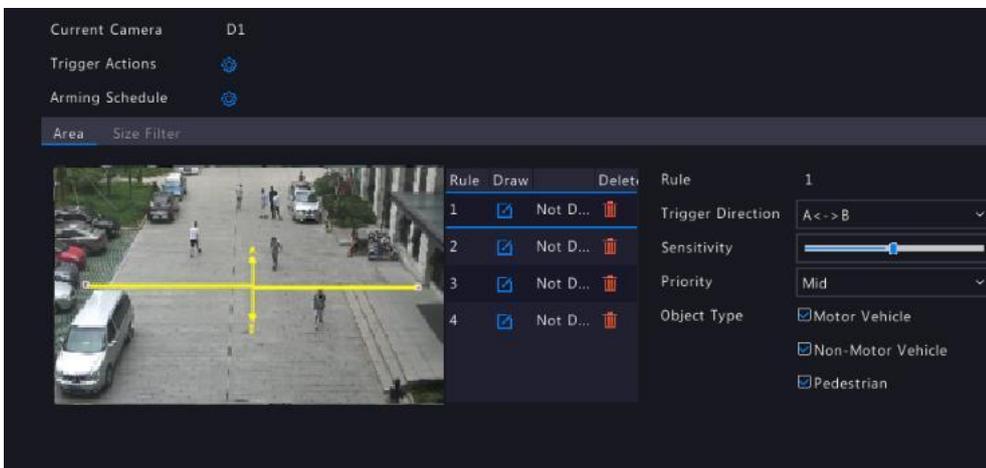
Cross line detection is used to detect and capture objects crossing a virtual line in a specified direction.

### Camera Side Analysis

Cameras that support smart intrusion prevention (SIP) can detect cross line behaviors for motor vehicles, non-motor vehicles, and pedestrians.

#### NOTE

- Make sure the intelligent server of the camera is enabled by default and the platform communication type is in LAPI mode before connecting the camera.
- To enable intelligent mark, go to **System > Basic**, and select **Intelligent Mark**.



1. Configure cross line detection.

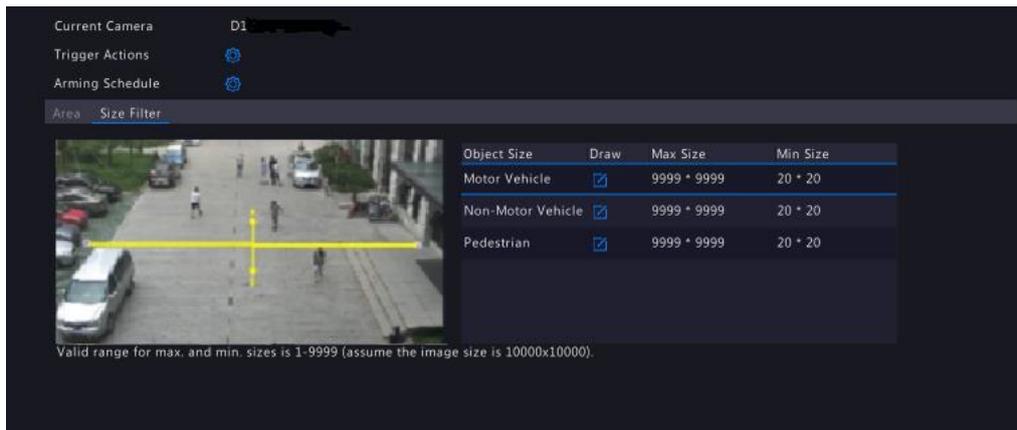
- Click **VCA > VCA Config**. Click right to **Cross Line Detection** to configure the parameters.
- Select a camera and select the **Enable** check box.
- Click to draw a line in the left preview window.
- Set the parameters.

Item	Description
Sensitivity	The higher the sensitivity, the more likely cross line behaviors will be detected, and the more likely false alarms will occur. The default value is 50. You may adjust it as needed to achieve optimal effects.
Trigger Direction	A<>B: Triggers a snapshot when the object crosses the line from A to B. B<>A, Triggers a snapshot when the object crosses the line from B to A.
Priority	Set the priority when there are several rules, including high, medium and low. Areas with high priority will be detected preferentially.
Object Type	Choose the detection object, including motor vehicle, non-motor vehicle, and pedestrian.

e. Set the size filter.

In the **Size Filter** tab, select a filter type and click to set the percentage of the object size against the detection area size in the left preview window. Valid range for the maximum size and minimum size is 20-9999 (assume the image size is 10000x10000). Only

objects in the range of Max. Size and Min. Size will be captured.



f. Set alarm-triggered actions. Click to go to the **Trigger Actions** page.

Item	Description
Alarm Sound	This item is available for cameras that support alarm sound. Enable <b>Alarm Sound</b> , and select an alarm audio. The camera plays the alarm sound when an alarm occurs. The number of default audios may vary. Up to 5 audio files can be imported on the camera's web interface.
Alarm Light	This item is available for cameras that support alarm light. Enable <b>Alarm Light</b> . The camera triggers alarm light when an alarm occurs.
Others	See Alarm-Triggered Actions for details.

g. Modify the arming schedule.

Click right to **Arming Schedule** and then set the time when actions will be triggered. Click **OK** to return to the **Cross Line Detection** page.

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

2. View captured snapshots in real time.

a. To preview the captured snapshots in real time, right-click to return to the preview page, and right-click again to select **Preview Mode > Smart**, you can view snapshots in the right side of the preview page.



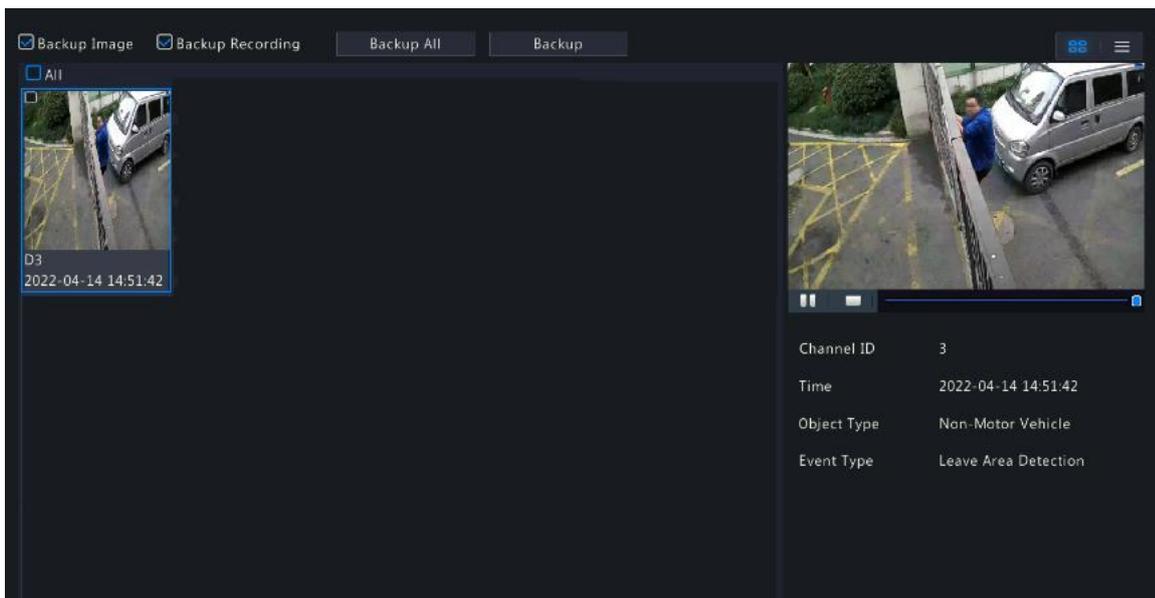
b. Click a thumbnail image to view more details.

**Table 10-1** Button Description

Button	Description
	This button appears only when snapshots triggered by SIP are displayed. To stop refreshing the snapshots, click  right and deselect <b>Perimeter</b> .
	Click to search snapshots and recordings.
	Click to configure VCA.
	Only clear the snapshots displayed in the preview page but not delete the captured snapshots.

3. Search the captured snapshots and recordings.

- a. Select **VCA > VCA Search** to go to the **Behavior Search** page.
- b. Select the desired camera, time, event type, and object type, and click **Search**.



### NVR Side Analysis

Use the NVR to detect cross line behaviors for motor vehicles, non-motor vehicles, and pedestrians.

The operation steps are basically the same as those of camera side analysis, and some of the different steps are explained in the following.

1. Configure cross line detection.

Item	Description
Sensitivity	See Camera Side Analysis.
Trigger Direction	See Camera Side Analysis.
Priority	Set the priority when there are several rules. The rule with high priority will be detected preferentially.
Object Type	Object type includes motor vehicle, non-motor vehicle, and pedestrian.
Filter Type	See Camera Side Analysis.

2. View captured snapshots in real time.

To preview the captured snapshots, select **Preview Mode > Smart**. The snapshot in the preview page is displayed as follows.

- The captured snapshot displayed on the right side is the original image, not the clipped thumbnail image.
- The detailed information about thumbnail images only includes event type (cross line detection) and capture time, and not includes object type (motor vehicles, non-motorized vehicles, pedestrians) and channel number.

### 10.1.3 Intrusion Detection

Intrusion detection is used to detect objects entering specified area(s), and take a snapshot when the time threshold and percentage exceed the set value.

#### Camera Side Analysis

Cameras that support SIP can detect intrusion behaviors for motor vehicles, non-motor vehicles, and pedestrians.

#### NOTE

- Make sure the intelligent server of the camera is enabled by default and the platform communication type is in LAPI mode before connecting the camera.
- To enable intelligent mark, go to **System > Basic**, and select Intelligent Mark.



1. Configure intrusion detection.

- a. Click **VCA > VCA Config**. Click right to **Intrusion detection** to configure the parameters.
- b. Select a camera and select the **Enable** check box.
- c. Click to draw an area in the left preview window.

#### NOTE

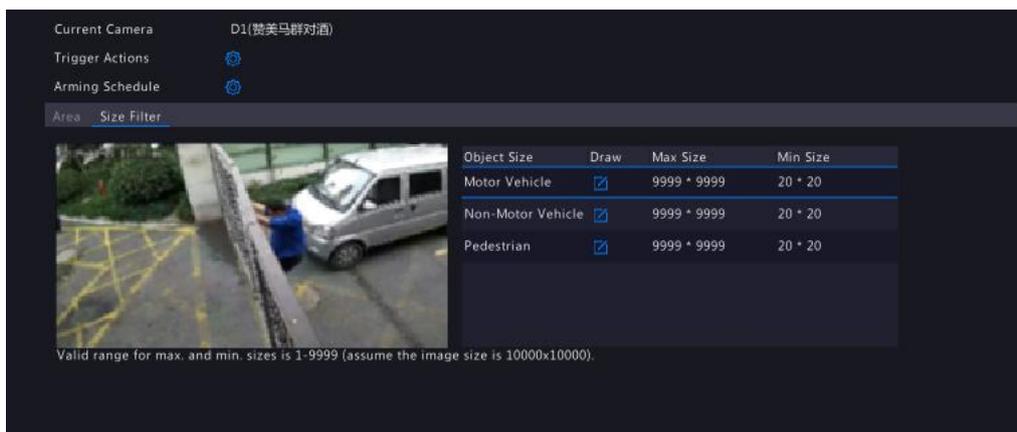
Up to 4 detection areas are allowed, and up to 6 vertices in an area.

d. Set the parameters.

Item	Description
Sensitivity	The higher the sensitivity, the more likely intrusion behaviors will be detected, and the more likely false alarms will occur. The default value is 50. You may adjust it as needed to achieve optimal effects.
Time Threshold(s)	Set the time threshold that an object stays in the detection area. If the time that the object stays in the detection area exceeds the threshold, an alarm will be triggered.
Percentage	Set the percentage of the size of the object against the size of the detection area. An alarm occurs when the percentage of the size of the object exceeds the set value.
Priority	Only available for cameras that support auto tracking. Set the priority when there are several rules, including high, medium and low. Areas with high priority will be detected preferentially.
Object Type	Choose the detection object, including motor vehicle, non-motor vehicle, and pedestrian.

e. Set the size filter.

In the Size Filter tab, select a filter type and click  to set the percentage of the object size against the detection area size in the left preview window. Valid range for the maximum size and minimum size is 20-9999 (assume the image size is 10000x10000). Only objects in the range of Max. Size and Min. Size will be captured.



f. Set alarm-triggered actions. Click  to go to the **Trigger Actions** page.

Item	Description
Alarm Sound	This item is available for cameras that support alarm sound. Enable <b>Alarm Sound</b> , and select an alarm audio. The camera plays the alarm sound when an alarm occurs. The number of default audios may vary. Up to 5 audio files can be imported on the camera's web interface.
Alarm Light	This item is available for cameras that support alarm light. Enable <b>Alarm Light</b> . The camera triggers alarm light when an alarm occurs.
Others	See Alarm-Triggered Actions for details.

g. Modify the arming schedule.

Click  right to **Arming Schedule** and then set the time when actions will be triggered. Click **OK** to return to the **Intrusion Detection** page.

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

2. View captured snapshots in real time.

- a. To preview the captured snapshots in real time, right-click to return to the preview page, and right-click again to select **Preview Mode > Smart**, you can view snapshots in the right side of the preview page.



- b. Click a thumbnail image to view more details.

**Table 10-2** Button Description

Button	Description
	This button appears only when snapshots triggered by SIP are displayed. To stop refreshing the snapshots, click  right and deselect <b>Perimeter</b> .
	Click to search snapshots and recordings.
	Click to configure VCA.
	Only clear the snapshots displayed in the preview page but not delete the captured snapshots.

- 3. Search the captured snapshots and recordings.
  - a. Select **VCA > VCA Search** to go to the **Behavior Search** page.
  - b. Select the desired camera, time, event type, and object type, and click **Search**.

**NVR Side Analysis**

Use the NVR to detect intrusion behaviors for motor vehicles, non-motor vehicles, and pedestrians.

The operation steps are basically the same as those of camera side analysis, and some of the different steps are explained in the following.

- 1. Configure intrusion detection.

Item	Description
Sensitivity	See Camera Side Analysis.
Trigger Direction	See Camera Side Analysis.
Percentage	See Camera Side Analysis.
Priority	Set the priority when there are several rules. Areas with high priority will be detected preferentially.
Object Type	Object type includes motor vehicle, non-motor vehicle, and pedestrian.
Filter Type	See Camera Side Analysis.

- 2. View captured snapshots in real time.

To preview the captured snapshots, select **Preview Mode > Smart**. The snapshot in the preview page is displayed as follows.

- The captured snapshot displayed on the right side is the original image, not the clipped thumbnail image.
- Only display event type (intrusion detection) and capture time, not including object type (motor vehicles, non-motorized vehicles, pedestrians) and channel number.

### 10.1.4 Enter Area Detection

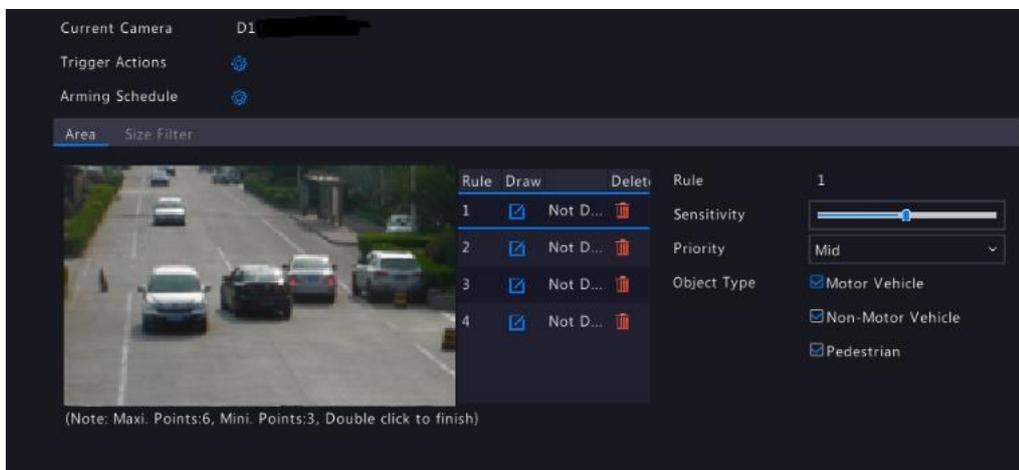
Enter area detection is used to detect and capture objects entering specified area(s).

#### Camera Side Analysis

Cameras that support SIP can detect entry behaviors for motor vehicles, non-motor vehicles, and pedestrians.

**NOTE**

- Make sure the intelligent server of the camera is enabled by default and the platform communication type is in LAPI mode before connecting the camera.
- To enable intelligent mark, go to **System > Basic**, and select **Intelligent Mark**.



1. Configure enter area detection.

- Go to **VCA > VCA Config**. Click right to **Enter Area Detection** to configure the parameters.
- Select a camera and select **Enable** check box.
- Click right to draw an area in the left previewwindow.

**NOTE**

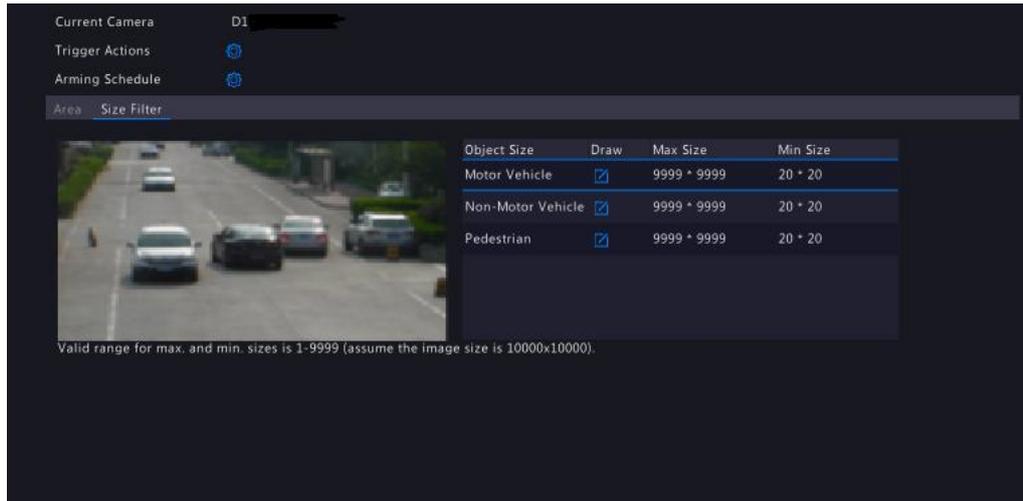
Up to 4 areas are allowed, and up to 6 vertices in an area.

d. Set the parameters.

Item	Description
Sensitivity	The higher the sensitivity, the more likely entry behaviors will be detected, and the more likely false alarms will occur. The default value is 50. You may adjust it as needed to achieve optimal effects.
Priority	Only available for cameras that support auto tracking. Set the priority when there are several rules, including high, medium and low. Areas with high priority will be detected preferentially.
Object Type	Choose the detection object, including motor vehicle, non-motor vehicle, and pedestrian.

e. Set the size filter.

Select a filter type, and click to set the percentage of an object size against the detection area size in the left preview window. Valid range for maximum size and minimum size is 20-9999 (assume the image size is 10000x10000). Only objects in the range of Max. Size and Min. Size will be captured.



f. Set alarm-triggered actions. Click to go to the **Trigger Actions** page.

Item	Description
Alarm Sound	Enable <b>Alarm Sound</b> , and select an alarm audio. The camera plays the alarm sound when an alarm occurs. The number of default audios may vary. Up to 5 audio files can be imported on the camera's web interface.
Alarm Light	This item is available for cameras that support alarm light. Enable <b>Alarm Light</b> . The camera triggers alarm light when an alarm occurs.
Others	See Alarm-Triggered Actions for details.

g. Modify the arming schedule.

Click right to **Arming Schedule** and then set the time when actions will be triggered. Click **OK** to return to the **Enter Area Detection** page.

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

2. View captured snapshots in real time.

a. To preview the captured snapshots in real time, right-click to return to the preview page, and right-click again to select **Preview Mode > Smart**, you can view snapshots in the right side of the preview page.



b. Click a thumbnail image to view more details.

**Table 10-3** Button Description

Button	Description
	This button appears only when snapshots triggered by SIP are displayed. To stop refreshing the snapshots, click  right and deselect <b>Perimeter</b> .
	Click to search snapshots and recordings.
	Click to configure VCA.
	Only clear the snapshots displayed in the preview page but not delete the captured snapshots.

3. Search the captured images and recordings.
  - a. Select **VCA > VCA Search** to go to the **BehaviorSearch** page.
  - b. Select the desired camera, time, event type, and object type, and click **Search**.

**NVR Side Analysis**

Use the NVR to detect cross line behaviors for motor vehicles, non-motor vehicles, and pedestrians.

The operation steps are basically the same as those of camera side analysis, and some of the different steps are explained in the following.

1. Configure enter area detection.

Item	Description
Sensitivity	See Camera Side Analysis.
Priority	Set the priority when there are several rules. Areas with high priority will be detected preferentially.
Object Type	Object type includes motor vehicle, non-motor vehicle, and pedestrian.
Filter Type	See Camera Side Analysis.

2. View captured snapshots in real time.

To preview the captured snapshots, select **Preview Mode > Smart**. The snapshot in the preview page is displayed as follows.

- The captured snapshot displayed on the right side is the original image, not the clipped thumbnail image.
- The detailed information about thumbnail images only includes event type (enter area detection) and capture time, and not includes object type (motor vehicles, non-motorized vehicles, pedestrians) and channel number.

**10.1.5 Leave Area Detection**

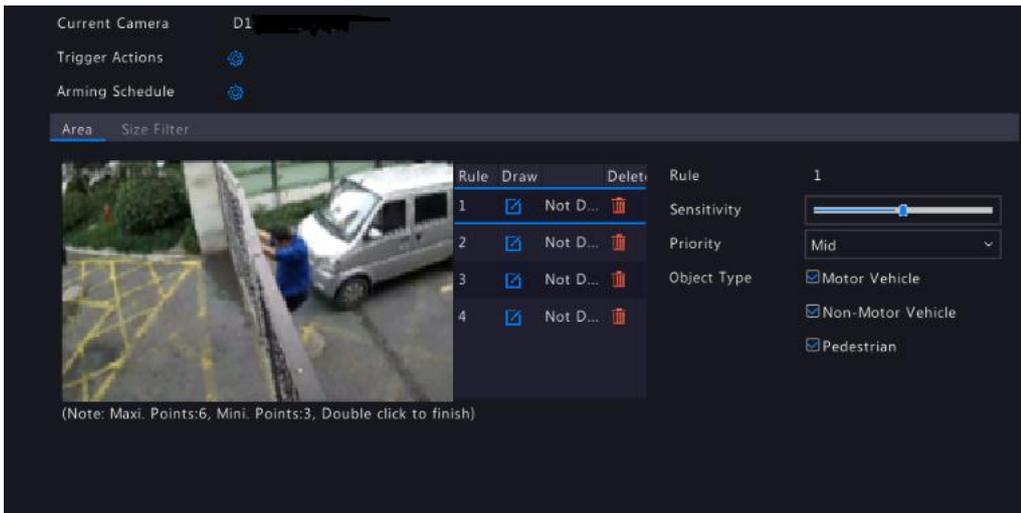
Leave area detection is used to detect and capture objects leaving specified area(s).

**Camera Side Analysis**

Cameras that support SIP can detect leave area behaviors for motor vehicles, non-motor vehicles, and pedestrians.

**NOTE**

- Make sure the intelligent server of the camera is enabled by default and the platform communication type is in LAPI mode before connecting the camera.
- To enable intelligent mark, go to **System > Basic**, and select **Intelligent Mark**.



For details, see Camera Side Analysis in Enter Area Detection.

### NVR Side Analysis

Use the NVR to detect leave area behaviors for motor vehicles, non-motor vehicles, and pedestrians.

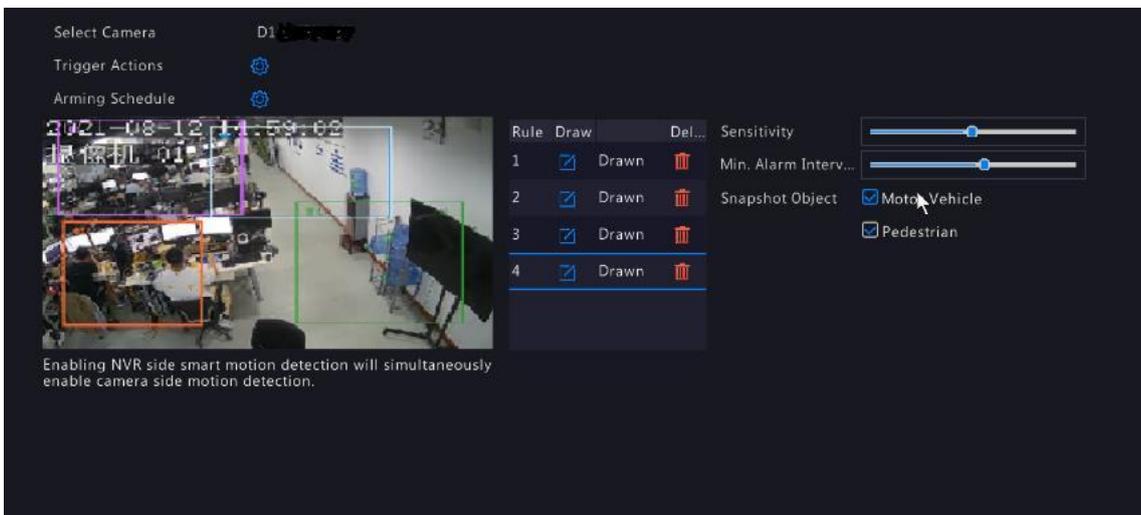
For details, see NVR Side Analysis in Enter Area Detection.

#### 10.1.6 Smart Motion Detection

Smart motion detection is used to detect pedestrians and motor vehicles within specified area(s) and trigger alarms. Plants, animals and other moving objects are not involved.

#### Configure Smart Motion Detection

1. Go to VCA > VCA Config. Click right to Smart Motion Detection to configure the parameters.



- a. Click , and drag the mouse to draw a detection area in the preview window. Up to four detection areas are allowed. Areas can be partially superimposed rather than completely overlapped.
- b. Drag the **Sensitivity** slider to adjust detection sensitivity.

#### NOTE

The higher the sensitivity, the more likely the object will be detected. Adjust detection sensitivity as needed.

c. Drag the **Min. Alarm Interval(s)** slider to set the minimum alarm interval. Alarm interval refers to how frequent the alarm is reported. When a pedestrian or motor vehicle enters the detection area, an alarm will be triggered and reported immediately, and repeated after the alarm interval.

**NOTE**

The recommended alarm interval is 6s. Adjust the value as needed.

d. Select a snapshot object. You may select motor vehicle only, pedestrian only, or both as needed.

2. Set alarm-triggered actions.

Click  right to **Trigger Actions** and set action(s) to trigger. For more details, see Alarm-Triggered Actions.

**NOTE**

- The number of cameras that can be connected may vary with NVR model.
- Actions that can be triggered may vary with alarm type.

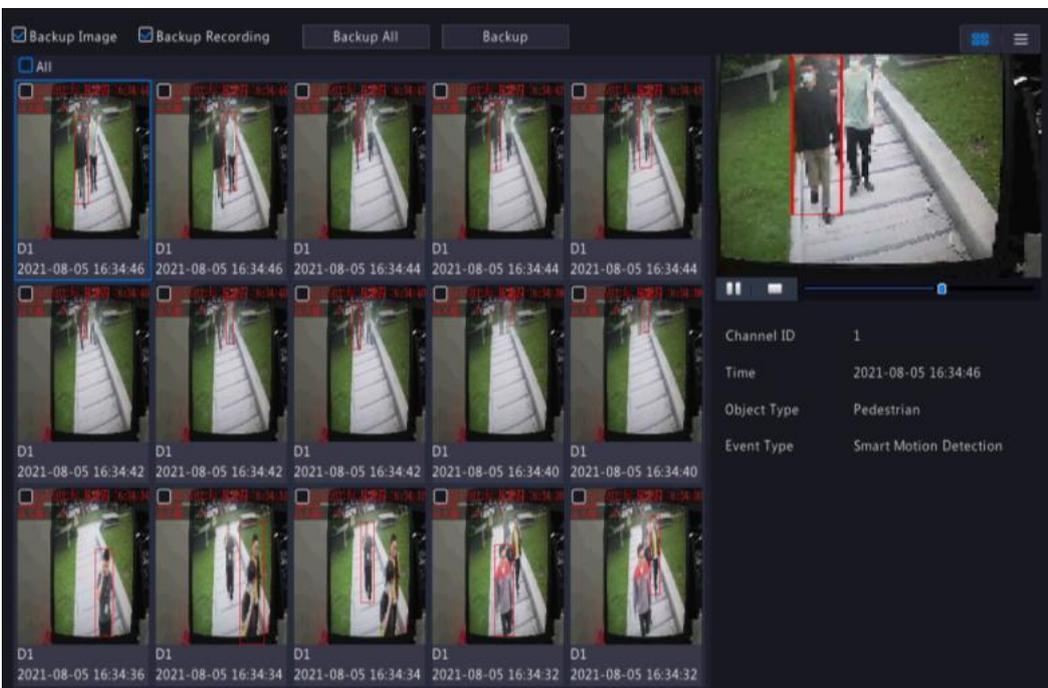
3. Configure the arming schedule.

a. Click  right to **Arming Schedule** and then set the time when actions will be triggered as needed.

b. Click **OK** to save the settings and exit.

**Smart Motion Search**

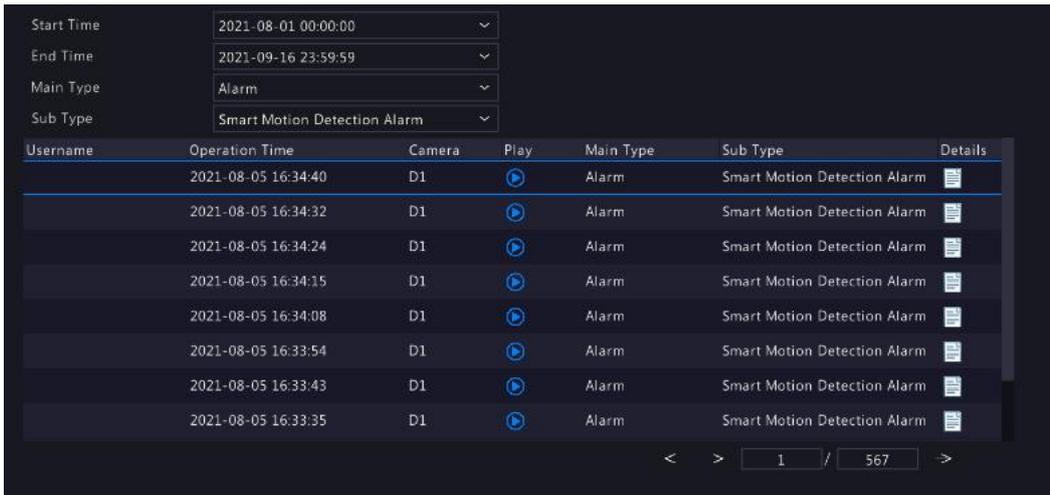
1. Go to **VCA > VCA Search > Behavior Search**.
2. Select a channel, set the start time and end time, select the event type (**Smart Motion Detection**), and object type (pedestrian, motor vehicle, or all).
3. Click **Search** to view the details.



**10.1.7 Alarm Log Search**

1. Click **Maintenance > Log Search**.
2. Set the start time and end time, select the main type (**Alarm**) and sub type (**Smart Motion Detection Alarm**). Click **Search** to view alarm logs.

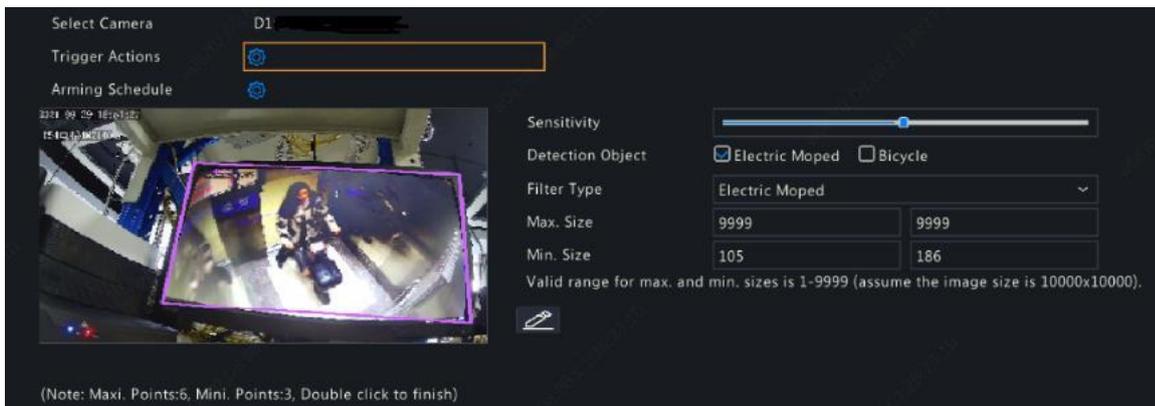
3. Click **Export** to export the alarm logs to a storage device.



### Elevator Entrance Detection

Elevator entrance detection is used to detect electric mopeds or bicycles entering an elevator. Once detected, it will trigger light and sound alarm of the IPC, and the elevator control system will keep the door open. The NVR also triggers the related alarm. Only certain NVR models support this function.

1. Configure the elevator entrance detection parameters.
  - a. Go to **VCA >VCA Config > Elevator Entrance Detection**.
  - b. Select the desired camera.



c. Click to draw an area in the left preview window.

**NOTE**

Only one closed detection area is allowed.

d. Set other parameters.

Item	Description
Sensitivity	Drag the <b>Sensitivity</b> slider as needed. The higher the sensitivity, the more likely the object will be detected.
Detection Object	Electric moped or bicycle.
Filter Type	Electric moped or bicycle.
Max. Size and Min. Size	Set the percentage of an object size against the detection area size. Valid range for maximum size and minimum size is 1-10000 (assume the image size is 10000x10000). Only objects in the valid range will be captured.

e. Set alarm-triggered actions.

Click right to **Trigger Actions** and set action(s) to trigger.

Item	Description
Alarm Sound	This item is available for cameras that support alarm sound. Select the check box to enable <b>Alarm Sound</b> . Set the start time and end time, audio and repeat. The camera plays the alarm sound when an alarm occurs. There are 3 default audios. Up to 4 audio files can be imported on the camera's web interface.
Alarm Light	This item is available for cameras that support alarm light.

f. Configure the arming schedule.

Click right to **Arming Schedule** and then set the time when actions will be triggered as needed.

2. View the captured snapshots in real time.

- a. Right-click to select Preview Mode > Smart, the captured snapshots in real time are displayed on the right side.
- b. Right-click a thumbnail image to view the details.

The snapshot details appear on the right side of the thumbnail image, including event type (elevator entrance detection), capture time, object type (non-motor vehicle), and camera ID.

3. Search the captured snapshots and recordings.

- a. Go to **VCA > VCA Search > Behavior Search**.
- b. Select a camera ID, start time, end time, event type, and object type. Then click **Search**.
- c. The search results are displayed as thumbnail images or in a table.

**NOTE**

- To back up snapshots or recordings, select **Backup Image** or **Backup Recording**.
- Click a snapshot to view the 10s recordings before and after the event.

**Crowd Density Monitoring**

Crowd density monitoring is used to detect the number of people in a monitored area. When the number exceeds a certain value, the camera triggers an alarm and reports to the NVR. Only NVR models support this function.



- 1. Go to **VCA > VCA Config > Crowd Density Monitoring**.
- 2. Select the desired camera.

3. Click to draw a detection area in the left preview window.

**NOTE**

Only one closed detection area is allowed, and 3 to 6 vertices are allowed in a closed shape.

4. Click right to **Arming Schedule** and then set the time when actions will be triggered.

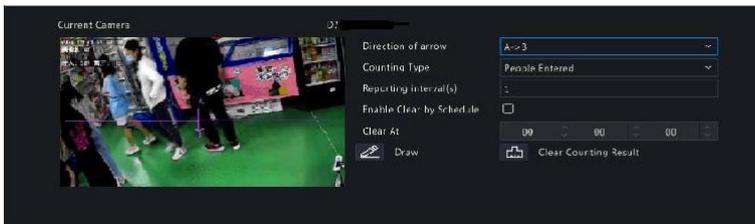
5. Set the parameters.

Item	Description
Reporting Interval	IPCs report the data to the NVR at a certain interval, and then the NVR reports it to the upper platform immediately.
Alarm Parameters	Number of People for Minor Alarm: Set a value within 1-40. Number of People for Major Alarm: Must be greater than the number of people for minor alarm, and no more than 40. Number of People for Critical Alarm: Must be greater than the number of people for major alarm, and no more than 40.
Alarm Sound	This item is available for cameras that support alarm sound. Enable <b>Alarm Sound</b> , and select an alarm audio. The camera plays the alarm sound when an alarm occurs. The number of default audios may vary. Up to 5 audio files can be imported on the camera's web interface.
Alarm Light	This item is available for cameras that support alarm light. Enable <b>Alarm Light</b> . The camera triggers alarm light when an alarm occurs.

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

### People Flow Counting

People flow counting is used to count people entering and/or leaving an area. Only certain NVR models support this function.



1. Configure people flow counting.

- a. Select **VCA > VCA Config > People Flow Counting**.
- b. Select the desired camera.
- c. Set the parameters.

Item	Description
Direction of arrow	<ul style="list-style-type: none"> <li>● A-&gt;B: Count the number of people from A to B.</li> <li>● B-&gt;A: Count the number of people from B to A.</li> </ul>
Counting Type	<ul style="list-style-type: none"> <li>● Total: Show the number of people entering and leaving within the statistical time.</li> <li>● People entered: Only show the number of people entering within the statistical time.</li> <li>● People exited: Only show the number of people leaving within the statistical time.</li> </ul>
Reporting interval(s)	The time interval at which the IPC reports data to the NVR. Then the NVR reports the result to an upper platform immediately.
Enable Clear by Schedule	Select the check box to reset people counting OSD at a specified time everyday.
Clear Counting Result	Clear people counting OSD immediately. It only changes the OSD and does not change report statistics.

d. Click **Draw** to draw a detection area in the left preview window.

2. View counting results.

- a. Select **VCA > VCA Config > VCA Search > People Counting Report**.
- b. Select the camera, counting type (total, people exited or people entered), report type (hourly, daily, weekly, monthly, yearly), and

statistical time.

c. You may choose to display search results in a chart or table. Click **Count** to view the results.

**Figure 10-3** Counting Result in Chart



**Figure 10-4** Counting Result in Table

Camera	Statistical Time	People Entered	People Exited
D1	09:12-09:14	2	0
D1	09:14-09:16	1	1
D1	09:16-09:18	2	0
D1	09:20-09:22	1	0

d. To save the counting statistics to a connected USB storage device, click **Backup**.

**Defocus Detection**

Use defocus detection to check whether the camera focuses properly.



1. Click right to **Trigger Actions** and set action(s) to trigger. For more details, see Alarm-Triggered Actions.
2. (Optional) Click right to **Arming Schedule** and then set the time when actions will be triggered.
3. Set detection sensitivity and then click **Apply** to save the settings.

### Scene Change Detection

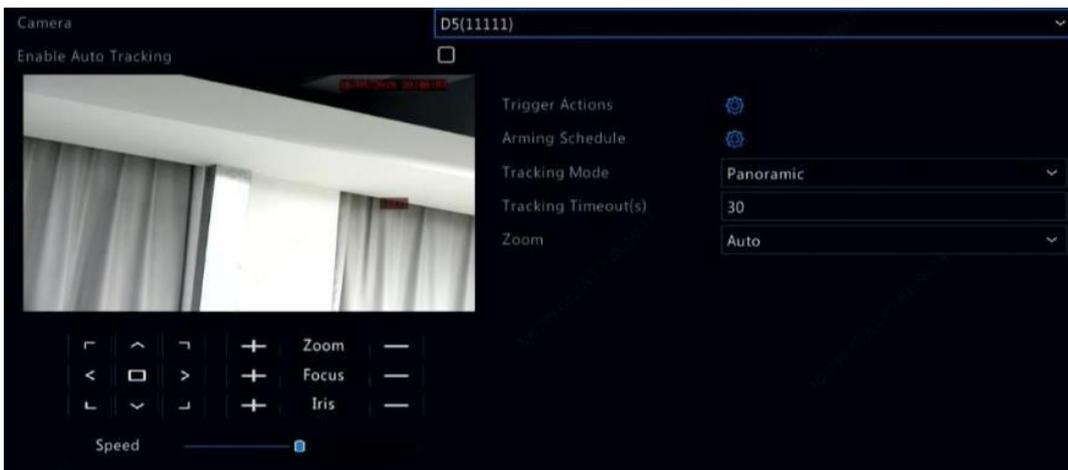
Use scene change detection to detect the change of surveillance environment caused by external factors such as intentional rotation of the camera.



1. Click  right to Trigger Actions and set action(s) to trigger. For more details, see Alarm-Triggered Actions.
2. (Optional) Click  right to Arming Schedule and then set the time when actions will be triggered.
3. Set detection sensitivity and then click Apply to save the settings.

### Auto Tracking

Auto tracking detects moving objects in the scene and automatically tracks the first object detected.



1. Click  right to Trigger Actions and set action(s) to trigger. For more details, see Alarm-Triggered Actions.
2. (Optional) Click  right to **Arming Schedule** and then set the time when actions will be triggered.
3. Set tracking mode (currently only **Panoramic**). Set tracking timeout and zoom ratio.

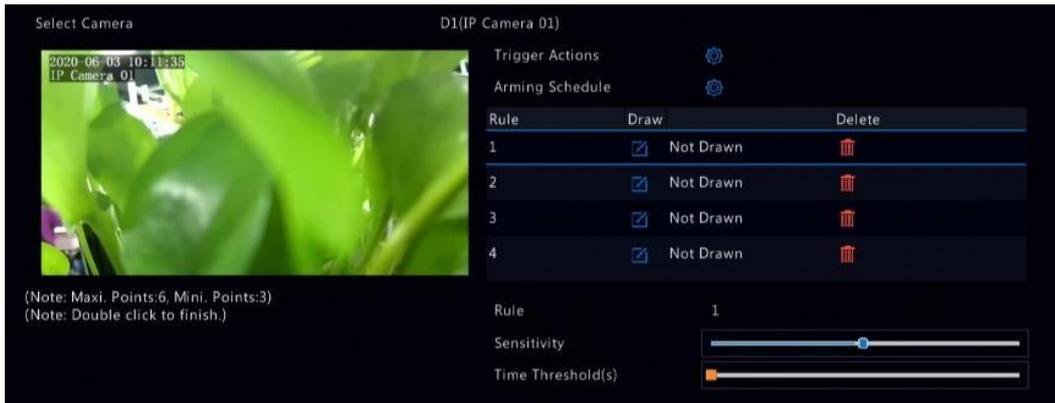
**NOTE**

- Tracking Timeout(s) means the maximum length of time the camera tracks an object automatically. The range is 1-300 seconds and the default is 30 seconds. When the tracking timeout is over, the camera stops tracking and restores the original scene and status.
- Zoom means zoom ratio and includes **Auto** (default) and **Current Zoom**. **Auto** means the camera automatically adjusts the zoom ratio according to the tracking distance and thus captures more details on the tracking object; **Current Zoom** means the camera maintains the original zoom ratio during tracking and thus attends to the whole scene.

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

### Object Left Behind

Detect object left behind in specified areas and trigger an alarm.



1. Click to draw detection areas.

**NOTE**

When drawing a detection area, you can use up to 6 points to specify the area. Up to 4 detection areas area allowed.

2. Set sensitivity and time threshold:

- Sensitivity: The higher the sensitivity, the more likely an object left behind will be detected.
- Time Threshold: An alarm will be triggered when the length of time an object is left behind in a detection area exceeds this value.

3. Click right to Trigger Actions and set action(s) to trigger. For more details, see Alarm-Triggered Actions.

4. (Optional) Click right to **Arming Schedule** and then set the time when actions will be triggered.

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

**Object Removed**

Detect object removed from specified areas and trigger an alarm.



1. Click to draw detection areas.

**NOTE**

When drawing a detection area, you can use up to 6 points to specify the area. Up to 4 detection areas area allowed.

2. Set sensitivity and time threshold:

- Sensitivity: The higher the sensitivity, the more likely an object will be detected.
- Time Threshold: An alarm will be triggered when the length of time an object is missing in specified areas exceeds this value.

3. Click  right to Trigger Actions and set action(s) to trigger. For more details, see Alarm-Triggered Actions.
4. (Optional) Click  right to **Arming Schedule** and then set the time when actions will be triggered.
5. Click **Apply** to save the settings.

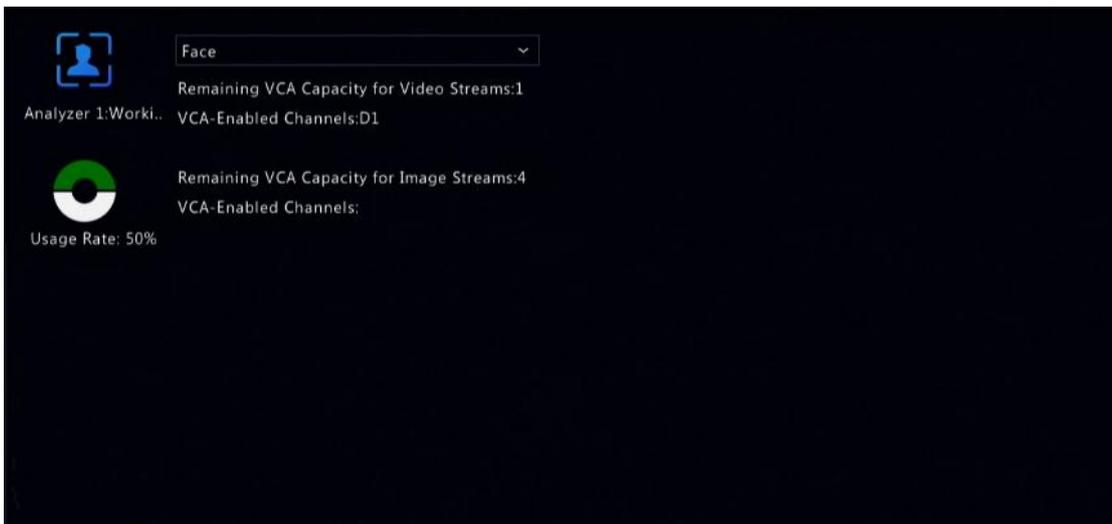
**Analyzer Config**

Analyzer is a hardware unit used for NVR’s intelligent functions. You can view the usage of analyzer capacity, and change its usage. An analyzer can only be used for one intelligent function at a time.

Click **VCA > Analyzer Config**, and view analyzer capacity usage. Analyzer capacity includes the capacity for video streams and that for image streams. If the VCA function is set to **NVR Side Analysis**, the capacity for video streams will be used for that function. And if **Camera Side Analysis** is chosen, then the capacity for image streams will be used.

For example, the following page indicates that:

- The device has only one analyzer.
- The analyzer is used for face detection or face recognition.
- One-channel NVR-side-analyzed intelligent function has been enabled, and the analyzer supports 1 more channel of NVR-side-analyzed function or 4 more channels of camera-side-analyzed function.



**10.2 VCA Search**

VCA searches for data of each VCA function. Only certain NVR models support this function. The search result, application scenario and settings vary with the VCA function.

**10.2.1 Face Snapshot Search**

Use face snapshot search to search for captured face images.

1. Click **VCA > VCA Search > Face Snapshot**.
2. Select cameras, set a search period, and then click **Search**. Search results are displayed.
3. The search results are displayed as thumbnail images or in a table. Back up search results (including images and recordings) as needed. To view videos recorded when the face was detected (around 10 seconds before and after), click the play button.

### 10.2.2 Face Comparison Search

Use face comparison search to search for face comparison results.

1. Click **VCA > VCA Search > Face Comparison**.
2. Set search conditions and then click Search. Search results are displayed.

#### Search by Image

Search similar face images from libraries based on an image. Only certain NVRs support this function.

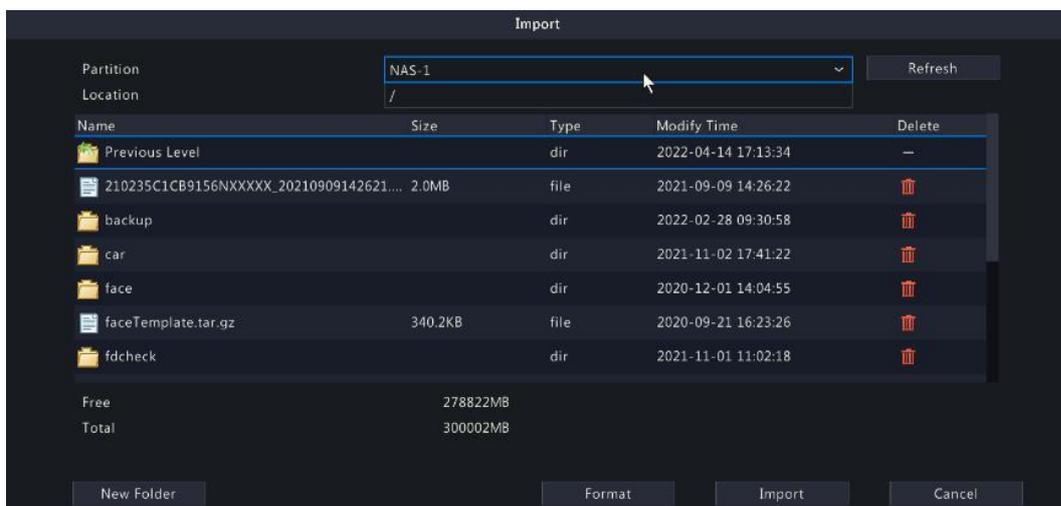
1. Go to **VCA > VCA Search > Search by Image**.
2. Upload a face image.
  - Upload Library Image
    - a. Click **Upload Library Image**, and enter name and ID number.



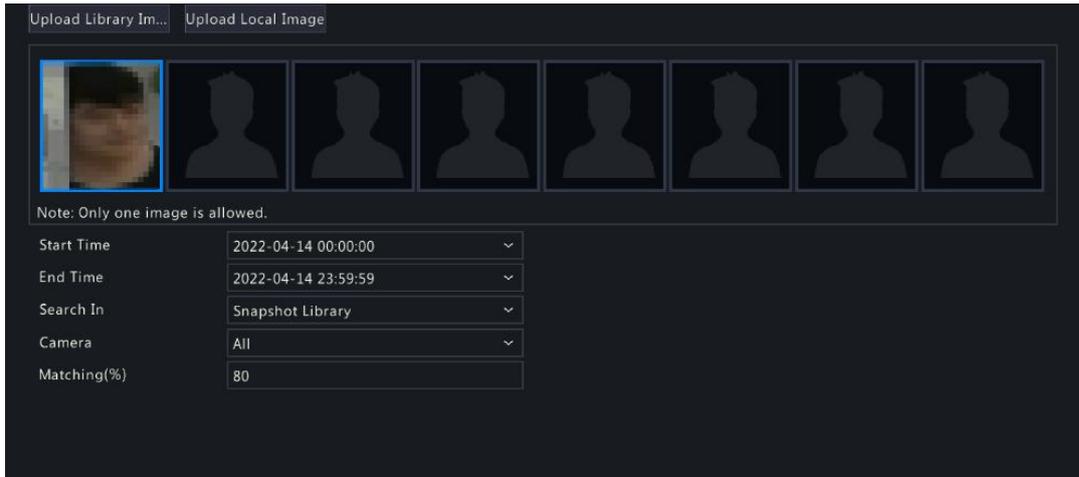
- b. Click **Search** to view the images for comparison.

- Upload Local Image

- a. Click **Upload Local Image**, and select the image path.



- b. Click **Import** to view the images for comparison.



**NOTE**

Only certain NVRs support a group image. Up to 8 faces can be recognized in a photo, but only one face can be selected to search at a time.

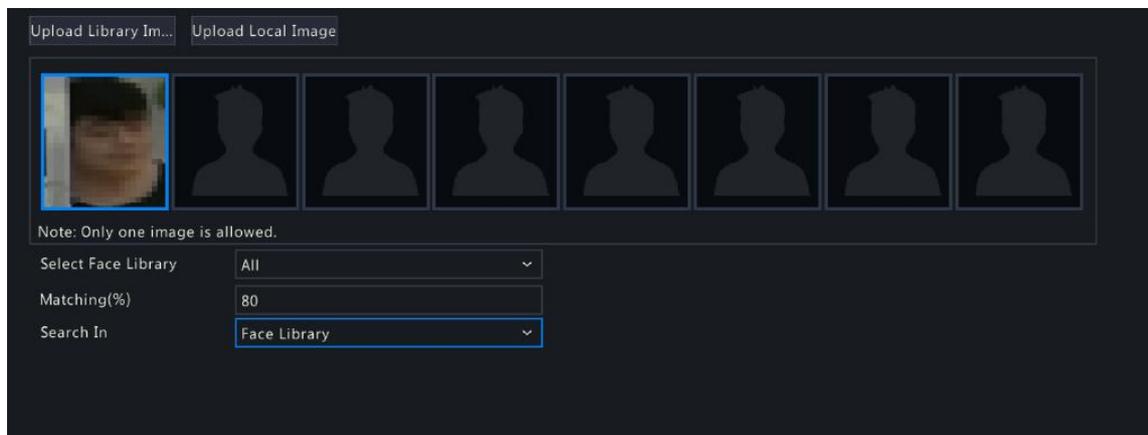
3. Configure the parameters and view the results.

- To search a face library:
  - a. Select Face Library.
  - b. Set the match value.

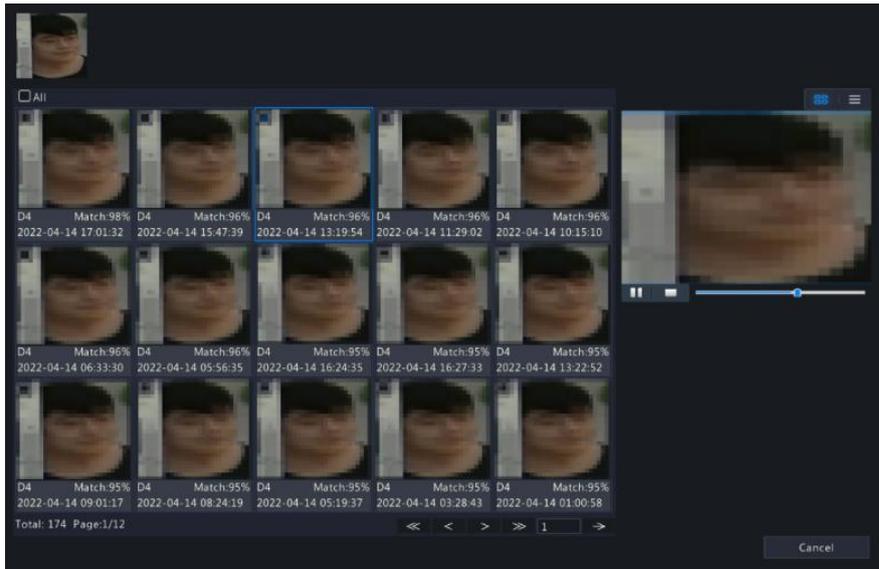
**NOTE**

The higher the match value, the more similar the images, and the more accurate the results. The recommended value is 80.

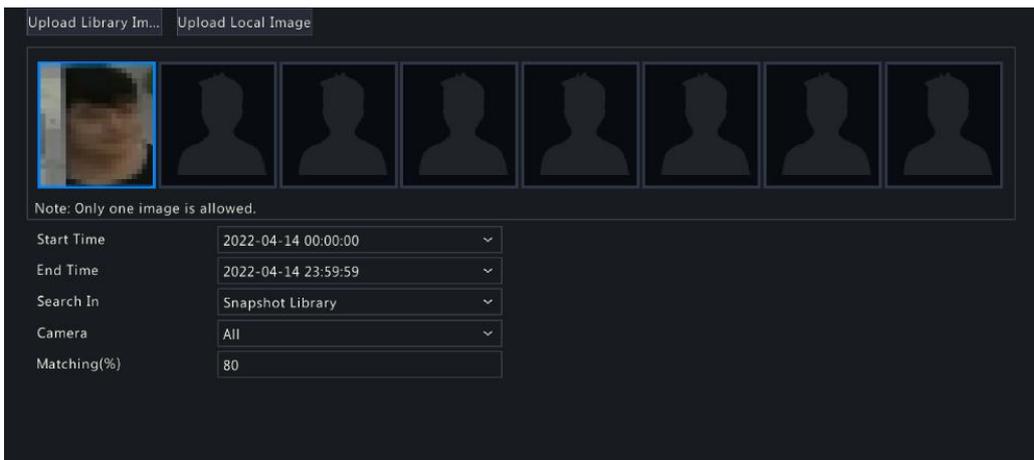
- c. Click **Search** to view other similar images of the person from the face library.



- d. Click an image to view about 10s recordings before and after the event.



- To search a snapshot library:
  - a. Select **Snapshot Library**.
  - b. Set the start time and end time, and select the desired camera.
  - c. Set the match value.



- d. Click **Search** to view other similar images of the person from the snapshot library.
- e. View search results. The information about the person is displayed on the right side, including name, gender, date of birth, native place, ID type, and ID number.

### 10.2.3 Vehicle Search

Search vehicle snapshots based on vehicle control events.

1. Click **VCA > VCA Search > Vehicle**.



2. Select the camera, set the time range, license plate number, vehicle color, and plate number.

3. Click **Search**.

**NOTE**

Double click to zoom in on the snapshot

#### 10.2.4 Behavior Search

Use behavior search to search for recordings triggered by detected behaviors.

1. Click **VCA > VCA Search > Behavior**.
2. Select camera(s), set a search period, select a search type, and then click **Search**. Search results are displayed.
3. The search results are displayed as thumbnail images or in a table. Back up search results as needed.

#### 10.2.5 Heat Map

Heat map is used to monitor passenger flow in specified area and to display the data in the form of an image by using warm-to-cool color spectrums. The warmer the color, the higher the density of the passenger flow.

1. Click **VCA > VCA Search > Heat Map**.
2. Select the camera and the report type, then click **Count**.
3. Click **Backup** to export the counting statistics to a storage device.

## 11 Network Configuration

Network configuration is required if your NVR operates in a network.

**NOTE**

The default IP address is 192.168.1.30 for NIC 1 and 192.168.2.30 for NIC 2, and likewise.

### 11.1 Basic Configuration

#### 11.1.1 TCP/IP

1. Click Network > Basic.
2. Set the network parameters as needed. DHCP is enabled by default. You can choose a working mode if your NVR has two NICs:
  - Multi-address mode: The two NICs work independently and can be configured separately. Either NIC can be chosen as the default route, and data will be forwarded through this NIC when the NVR connects to the extranet.
  - Load balance mode: The two NICs are bound to the same IP address and work together to share network traffic.
  - Net fault-tolerance mode: The two NICs are bound to the same IP address. In cases where one NIC fails, the other takes over service seamlessly from the faulty one to ensure network connectivity.

Working Mode	Multi-address
Select NIC	NIC1
<input type="checkbox"/> Enable DHCP	
IPv4 Address	206 . 3 . 0 . 86
IPv4 Subnet Mask	255 . 255 . 255 . 0
IPv4 Default Gateway	206 . 3 . 0 . 1
IPv6 Mode	Router Advertisement
IPv6 Address	fe80::4aea:63ff:fe6a:c792
IPv6 Prefix Length	64
IPv6 Default Gateway	::
MAC Address	48:ea:63:6a:c7:92
MTU(Bytes)	1500
Preferred DNS Server	114 . 114 . 114 . 114
Alternate DNS Server	8 . 8 . 8 . 8
Default Route	NIC1

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

**NOTE**

- For an NVR with multiple NICs, you can configure the NICs and choose a default route (currently NIC1).
- If your NVR has a PoE port or a switching port, you can configure an internal NIC IPv4 address.

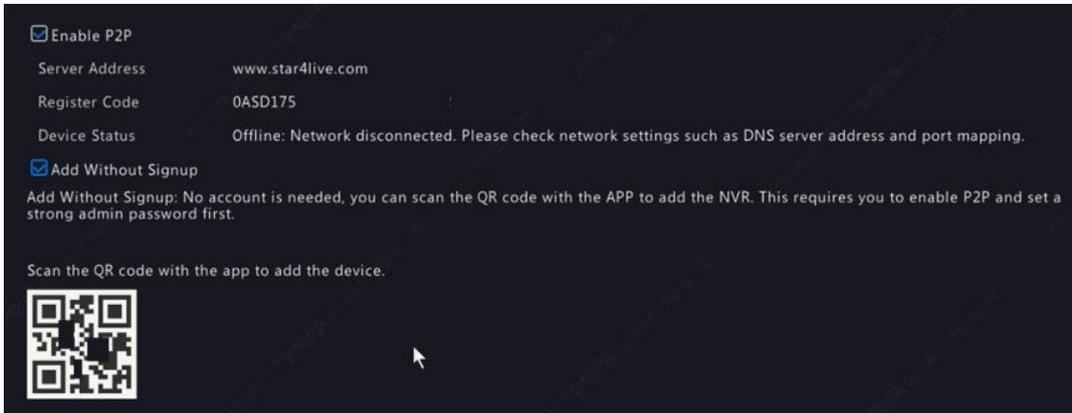
**CAUTION**

- If you switch the working mode, the enabled 802.1x and ARP protection will be disabled automatically.
- The valid MTU ranges from 576 to 1500 (1280-1500 for IPv6). To use IPv6, make sure the NVR and PC can connect to each other using IPv6 addresses. To view live or recorded videos, make sure the IPv4 addresses are also connectable.

#### 11.1.2 P2P

The NVR allows access from the cloud website or from the mobile surveillance app. You need to sign up for a cloud account at [www.star4live.com](http://www.star4live.com) first.

1. Click **Network > Basic > P2P**.
2. P2P is enabled by default.
3. To add the NVR to cloud at the cloud website: Log in to your account at [www.star4live.com](http://www.star4live.com) and then add the NVR by entering the register code and device name.
4. To add the NVR to cloud using the app: Scan the QR code with the app. You need to download and install the app on your mobile phone first. Contact your dealer for details.



#### NOTE

- You may access the NVR through cloud if the device status is **Online**. The username is your cloud account name, and the device name is the name you entered at the cloud website.
  - If the device is offline, the possible causes will be displayed for your reference.
  - To delete the NVR from cloud, click **Delete**.
5. Click **Apply** to save the settings.

#### 11.1.3 DDNS

If your NVR is connected to the Internet through PPPoE, the IP address of the network changes every time it connects to the ISP server without your awareness. This is inconvenient when you remotely access your NVR with an IP address. To avoid this issue, you can register with an DDNS server to obtain a domain name for your NVR and then access your NVR by visiting the domain name instead of an IP address (<http://DDNS server address/NVR's domain name>) using a web browser.

1. Click **System > Network > DDNS**.
2. Enable DDNS, select a DDNS type, and then complete other settings.
  - If the DDNS type is **DynDNS** or **No-IP**, enter the domain name, username and password. The domain name is the one that you have successfully registered at a domain name registration website (e.g., DynDNS). The username and password are those of the account you have registered at the domain name registration website (e.g., DynDNS).
  - If the DDNS type is **MyDDNS**, enter a valid domain name for your NVR and then click **Test** to see if the domain name is available.
3. Click **Apply** to save the settings.

#### 11.1.4 Email

After Email is enabled as a triggered action (in Trigger Actions windows) and configured properly, the NVR sends an email notification to specified email address(es) if an alarm occurs within the time period(s) set in the arming schedule. The email contains basic alarm information such as alarm type, alarm time, camera ID, and camera name, etc.

Before using this function, make sure the NVR has a functional connection to an SMTP server with which you have a valid email account. Depending on the intended recipients, a connection to the Internet may be required.

Only certain NVR models support this function.

1. Click **Network > Basic > Email**.
2. Configure the related parameters. If server authentication is required, you need to enter the correct username and password. Click **Test** to send a test email. Enter a valid SMTP server address and port number, and then select **Enable TLS/SSL** if required.

Enable Server Authentication

Username

Password

SMTP Server

SMTP Port

Enabled TLS/SSL (If TLS/SSL is enabled, use 25 first, and 587/465 as an alternative.)

Sender Name

Sender Address

Select Recipient

Recipient Name

Recipient Address

Arming Schedule

Attach Image

Snapshot Interval

**NOTE**

- By default a 24x7 arming schedule is enabled. The NVR sends an email notification only in the arming period.
- Select **Attach Image** if you want snapshots to be sent via email. Make sure Email and snapshot have been enabled in the **Trigger Actions** window.
- Only certain NVR models support image attachment. You may click **Test** to check whether the email can be sent successfully.

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

## 11.2 Platform Configuration

### 11.2.1 SNMP

Use SNMP to connect to a platform and obtain system time.

1. Click **Network > Platform**. Select **Enable SNMP**.

Enable SNMP

SNMP Type

Read Community Name

Write Community Name

Trap Community Name

Trap Address

Trap Port

SNMP Port

2. Select an SNMP type.

- Snmp V2

Set **Read Community Name** and **Write Community Name**, which are used by the platform to read data on NVR.

- Snmp V3

Set authentication password (for the platform to access the NVR) and encryption password (for encrypting data sent from the NVR to the platform).

3. Click **Apply**.

### 11.2.2 Alarm Service

Use this function to send alarm signals to an external alarm device (for example, alarm control panel) when an alarm or an alert occurs on the NVR.

1. Click **Network > Platform > Alarm Service**.



2. Select **Enable Alarm Service**, and set the server address and server port.

**NOTE**

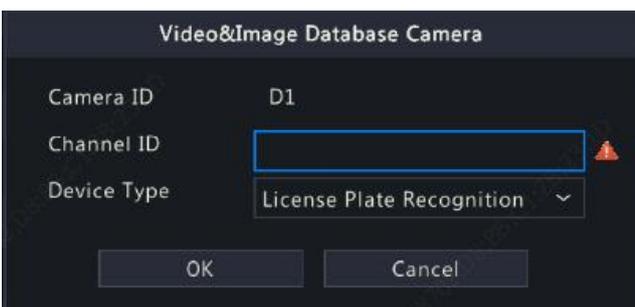
The NVR only sends alarm signals when an alarm or alert occurs; users need to implement alarm receiving and reporting for the external alarm device separately.

### 11.2.3 Video&Image Database Local Config

1. Click **Network > Platform > Video&Image Database Local Config**.

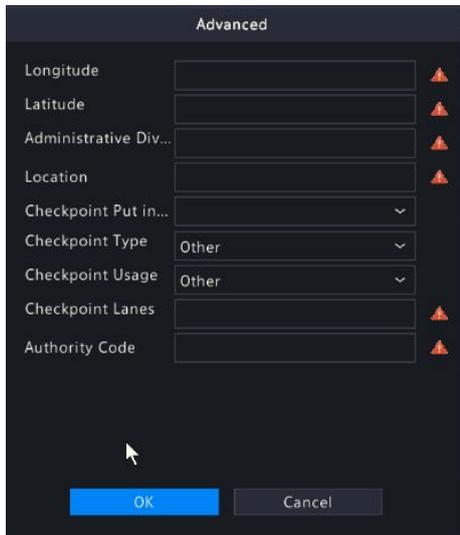
Local ID	3402000001200000001				
Local Port	5073				
Camera ID	Channel ID	Device Type	Configure	Status	Advanced
D1		License Plate Recognition		Offline	
D2		License Plate Recognition		Offline	
D3		License Plate Recognition		Offline	
D4		License Plate Recognition		Offline	
D5		License Plate Recognition		Offline	
D6		License Plate Recognition		Offline	
D7		License Plate Recognition		Offline	
D8		License Plate Recognition		Offline	
D9		License Plate Recognition		Offline	
D10		License Plate Recognition		Offline	
D11		License Plate Recognition		Offline	
D12		License Plate Recognition		Offline	

2. Use the default local ID and local port. Click to set the parameters.



Item	Description
Local ID	NVR ID by default. It is used to connect the NVR to the upper database.
Local Port	5073 by default and you may change it as needed. The local port number must be the same as the camera's port number.
Channel ID	Camera ID. It is used to connect cameras to the NVR. Note: Camera ID may vary with camera model and usage, which is provided by the upper platform according to the video&image database rules.
Device Type	<ul style="list-style-type: none"> <li>● Collection Device: Used to capture faces and vehicles, focusing on faces. Install the camera according to application scenarios.</li> <li>● License Plate Recognition: Used to capture vehicles. It is generally installed at the checkpoint of roads to capture motor vehicle license plates.</li> </ul>

3. Select the desired camera and click  in the **Advanced** column. Then set the parameters.



Item	Description
Longitude	The longitude of the region where the camera is located (-180, 180).
Latitude	The latitude of the region where the camera is located (-90, 90).
Administrative Division Code	The administrative division code of the region where the camera is located.
Location	Up to 256 characters allowed, including digits (0-9), uppercase and lowercase letters (A-Z, a- z), underscore (_) and hyphen (-).
Checkpoint Put into Use	The time when the camera puts into use.
Checkpoint Type	Select the type of checkpoint device according to the actual situation (including international, interprovincial, intercity, intra- city, inter-county, intra-county, and others).
Checkpoint Usage	Security checkpoint, traffic checkpoint, and others.
Checkpoint Lanes	The total number of lanes monitored by the camera.
Authority Code	The authority code of the region where the camera is located.

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

5. Log in to the camera's Web interface, and select **Setup > Config Management > Photo Server**.

6. Set the parameters.

Item	Description
TMS Server Address	The IP address of the NVR

Item	Description
TMS Server Port	The database port number configured on the NVR.
Platform Communication Type	Choose the correct type.
LPR ID	The database ID configured on the NVR.
Device ID	The camera ID configured on the NVR.
Platform Access Code	Use the default setting.
Username	Use the default setting.

7. Click **Save**. Check the photo server status in the lower left corner. A green icon means the camera is connected to the database successfully.

### 11.2.4 Vehicle Control

Vehicle control allows you to view license plate recognition results. To use this function, you need to configure in Video&Image Database, add plate list, and set vehicle monitoring task.

#### Video&Image Database

See Video&Image Database Local Config for details.

#### Add Plate List

1. Click **VCA > Vehicle Control > Plate List**.



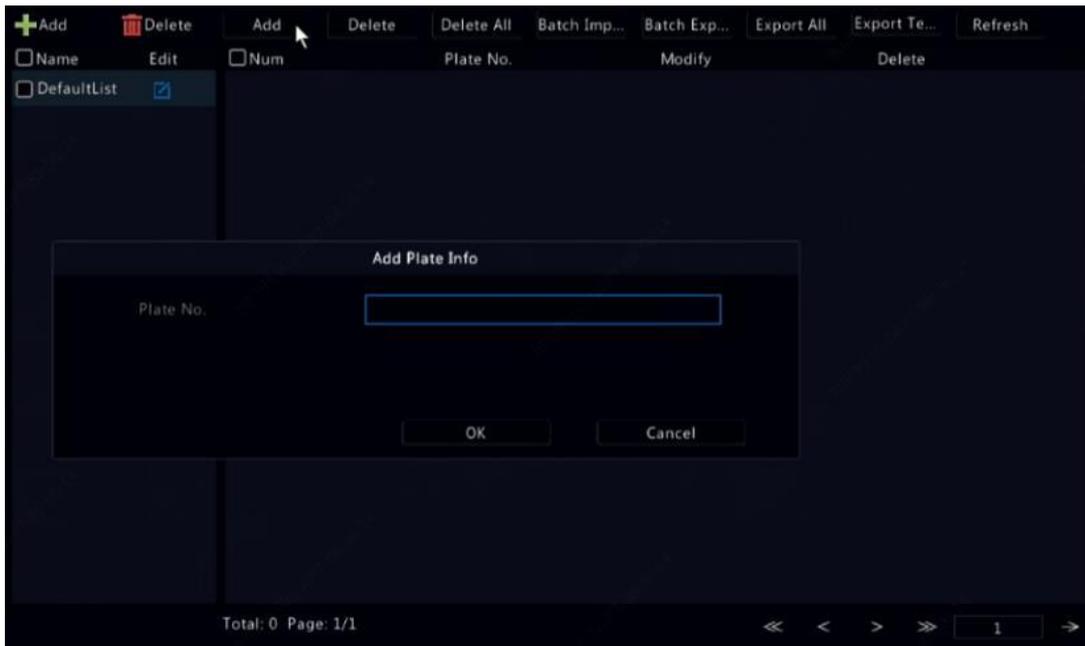
2. Click **+ Add** to add a plate list.

**NOTE**

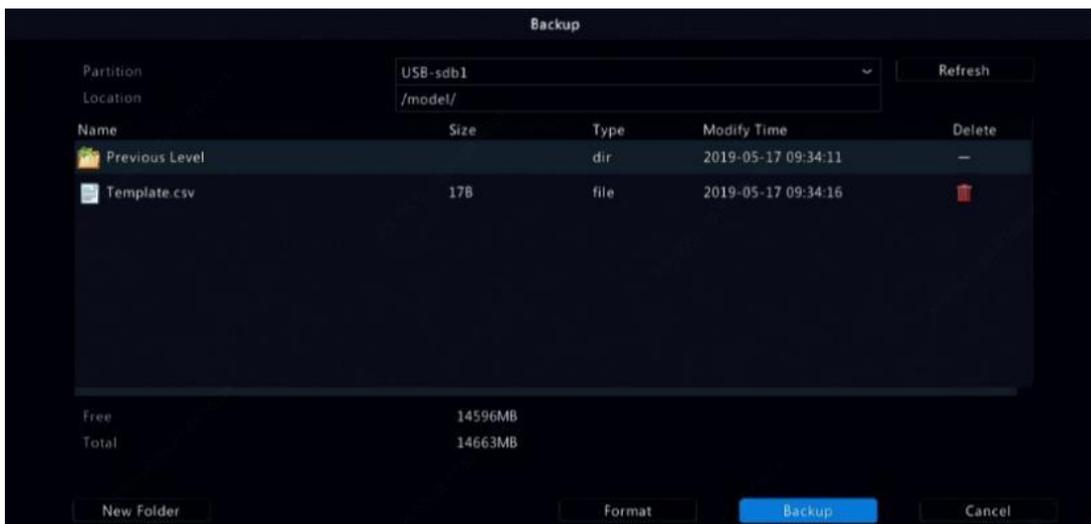
**Default List** is created by default. Click to modify the list name.

3. Add plate number(s) to plate list.

- To add a single plate, click **Add**, and then enter the plate number in the window displayed.



- To batch add plates, click **Export Template** to export the template to a USB storage device first. Then edit the list, and click **Batch Import** to import the edited file.



After importing is completed, click **Cancel** to return to **Plate List**.

**NOTE**

The import results will be displayed when the progress bar reaches 100%.

**Add Vehicle Monitoring Task**

1. Click **VCA > Vehicle Control > Vehicle Alarm Control**.
2. Click **Add** to add a monitoring task.



3. View license plate recognition results.

- In preview window, click on the screen toolbar.
- Right click and select **Preview Mode > Smart**.

**NOTE**

- In smart mode, click in the upper right corner to set the display content.
- To exit smart mode, right click and select **Preview Mode > Normal**.

11.2.5 Video&Image Database Server

Video&Image database server is used to connect to an upper platform for unified management of face and plate data.

1. Click **Network > Platform > Video&Image Database Server**.



2. Select **Enable Video&Image Database Server**, and complete the settings.

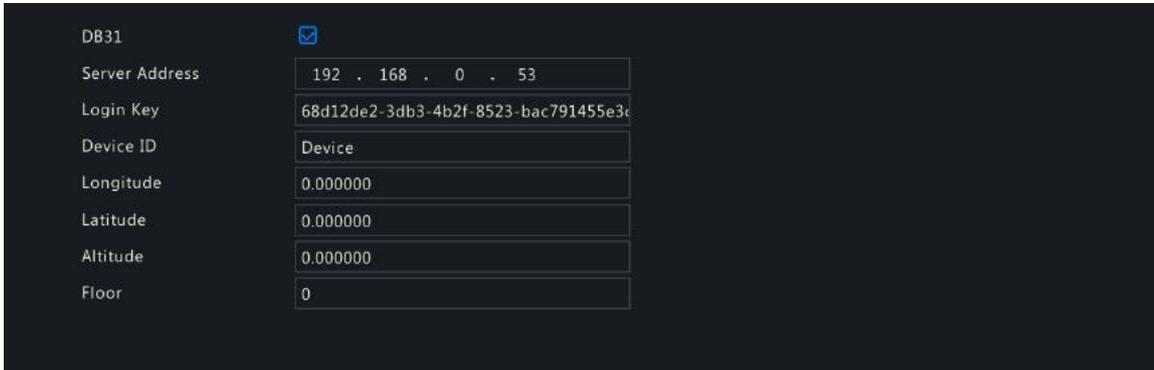
Item	Description
Server Address	The IP address of the upper database platform.
Server Port	The port number of the upper database platform.
Username	The username of the upper database platform.
Password	The password of the upper database platform.
Report Feature Value	Report feature information about the captured faces or license plates to the upper platform.
Upload Original Image	Upload the captured original images about face or license plate.
Upload Face Cutout	Upload Face Cutout

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

### 11.2.6 DB31 Configuration

DB31 is used to connect an NVR to an Agent Box platform. The NVR receives alarms triggered by IPCs when such event is detected, including fire lane blocking, face comparison and person sign in&out. And then the NVR sends the alarm to the Agent Box platform.

1. Select **Network > Platform** to go to the **DB31** page.



2. Select the check box to enable DB31, and complete the settings.

Item	Description
Server Address	Use the default server address issued by the Agent Box platform.
Login Key	Use the default login key issued by the Agent Box platform.
Device ID	The NVR name (custom).
Longitude	The longitude of the region where the NVR is located.
Latitude	The latitude of the region where the NVR is located.
Altitude	The altitude of the region where the NVR is located.
Floor	The floor where the NVR is located.

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

### 11.3 Advanced Configuration

#### 11.3.1 PPPoE

The NVR allows access through Point-to-Point over Ethernet (PPPoE).

1. Click **Network > Advanced > PPPoE**.
2. Enable PPPoE by selecting the check box.
3. Enter the username and password provided by your Internet Service Provider (ISP). Network information including IP address appears when dial-up succeeds.

**NOTE**

If your NVR has multiple NICs, PPPoE dial-up will be implemented through the NIC specified as the default route

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

#### 11.3.2 Port

Normally the default port numbers need no modification. This function is mainly used together with the port mapping function. See Adding an IP Device for more details.

1. Click **Network > Advanced > Port**.
2. Configure ports as planned. Each port number must be unique.

HTTP Port	80
RTSP Port	554
HTTPS Port	443
RTSP URL Format	rtsp://<ip>:<port>/unicast/c<channel number>/s<stream type>/live <channel number>: 1-n <stream type>: 0(main stream) or 1(sub stream)

**NOTE**

A valid port number ranges from 1 to 65535, among which 21, 23, 2000, 3702 and 60000 are reserved.

An RTSP URL can be used to view live video of a channel of the current NVR from another NVR. See Option 5 in Adding an IP Device for more information.

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

**11.3.3 Port Mapping**

Two port mapping methods are available:

- Universal Plug and Play (UPnP)
- Internal and external mapping

**UPnP**

UPnP enables the NVR to discover other devices on the network and establish network services such as data sharing and communication.

To use UPnP in your NVR, you must enable UPnP in the connected router. With UPnP enabled for Network Address Translation (NAT), the ports on the NVR can be mapped automatically to the router, and computers can access your NVR from outside the LAN.

1. Click **Network > Advanced**.
2. UPnP is enabled by default. Select the desired mapping type from the drop-down list. To map ports manually, select **Manual** and then set external ports for the router.

**NOTE**

- Automatic mapping (Auto) is recommended. Ports will conflict if not configured properly.
- For an NVR with multiple NICs, port mapping should be configured based on the NIC specified as the default route.

Enable Port Mapping

Mapping Mode  UPnP  Manual

UPnP Mapping Auto

HTTP Port 80

RTSP Port 554

HTTPS Port 443

Port Type	External IP Address	External Port	Internal Port	UPnP Status
HTTP Port	N/A	80	80	Inactive
RTSP Port	N/A	554	554	Inactive
HTTPS Port	N/A	443	443	Inactive

3. Click **Refresh** and check that Active is displayed for these ports under UPnP Status.
4. Click **Apply** to save the settings.

### Manual Port Mapping

If your router does not support UPnP, then you need to configure internal and external ports manually.

**NOTE**

- The principle of port mapping is that the internal and external ports of the NVR are consistent with that of the router.
- Some routers may require the same internal and external ports for the NVR and the router.

1. Click **Network > Advanced**.
2. Select **Manual** for **Mapping Mode**, and then set external ports manually.



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

**NOTE**

After port mapping is completed, you may access the Web client of your NVR by entering the following information in the address bar of your web browser: router's WAN port IP address: external HTTP port. For example, if 10.2.2.10 is the IP address and 82 is the HTTP port, then you enter http://10.2.2.10:82.

### 11.3.4 FTP

Use this function to automatically upload images to a preconfigured FTP server. Only certain NVR models support this function.

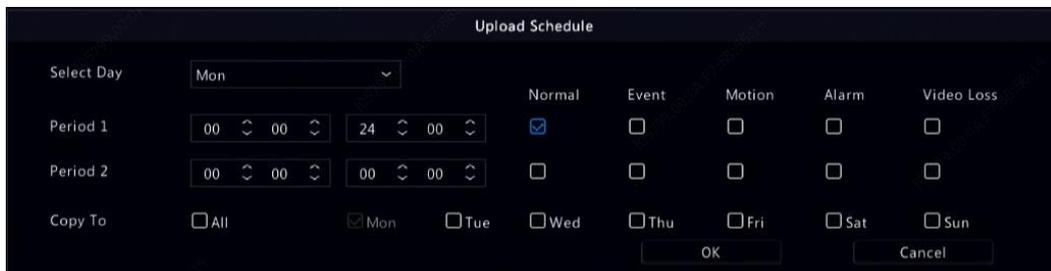
1. Click **Network > Advanced > FTP**.
2. Select the check box to enable FTP.
3. Enter the IP address of the FTP server, username and password, remote directory, and upload interval.

**NOTE**

Click **Test** to verify whether an FTP connection can be established.

If the remote directory is not specified, the system will create different folders directly by IP, time and camera. You may also specify a remote directly, for example, FTPtest/xxx/xxx, then the system will create the directory first and then create folders by IP, time and camera.

4. Select the desired camera and then click right to **Upload Schedule**. In the **Upload Schedule** window, select the desired image type and set time periods.



**NOTE**

- If you select Event, Motion, Alarm or Video Loss, you also need to configure the corresponding alarm-triggered snapshot. For example, if you select Motion, you need to configure alarm-triggered snapshot (select Motion in the Edit Schedule window).
- To apply the same settings to other days in a week, select the desired day(s) right to Copy To.

5. (Optional) Apply the same settings to other cameras by clicking  right to **Copy** and then selecting desired cameras.
6. Click **Apply** to save the settings.

**NOTE**

To apply the same settings to other cameras, click  right to **Copy**, select cameras and then click **OK**.

**11.3.5 Multicast**

Multicast can be used to realize live view when the number of connecting Web clients exceeds the limit the NVR can accommodate.

1. Click **Network > Advanced > Multicast**.
2. Select the check box to enable multicast, and then enter the multicast IP and port number.



3. Click **Apply** to save the settings.
4. Log in to the Web client and set **Live View Protocol** to **Multicast** under **Setup > Client**.

**NOTE**

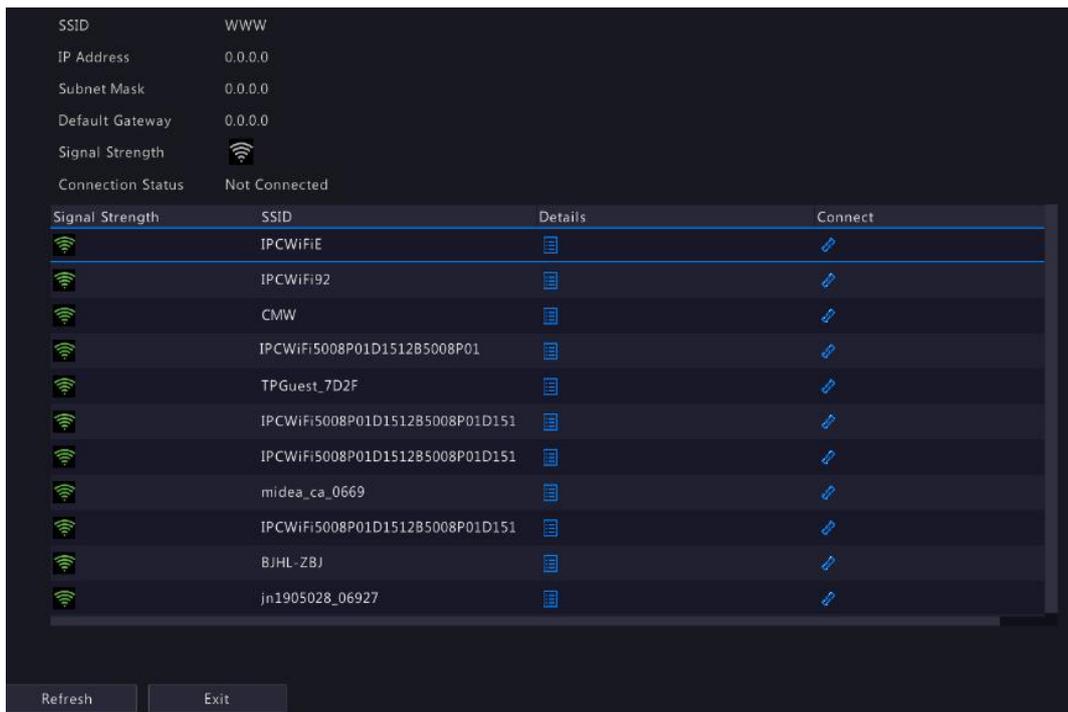
Set the multicast IP correctly. Multicast address is class D address with the range 224.0.0.0 through 239.255.255.255; some are for special use:

- 224.0.1.0--238.255.255.255 can be used on the Internet.
- 224.0.0.0-244.0.0.255: only for use on LAN.
- 224.0.0.1: all-hosts group address, which refers to all the multicast- capable hosts and routers on a physical network.
- 224.0.0.2: for all routers on this subnet.
- 224.0.0.5: for all OSPF routers.
- 224.0.0.13: for all PIMv2 routers.
- 239.0.0.0--239.255.255.255 are for private use like 192.168.x.x.

**11.3.6 WLAN**

The NVR support connecting to a Wi-Fi hotspot via a wireless USB network adapter.

1. Click **Network > WLAN**.



2. Select and connect the hotspot you want to connect.

## 12 Disk Configuration

### 12.1 Disk Management

View disk information, including total and free disk space, disk status, disk type, disk usage, and disk property. Admin users can format disks and edit disk property

1. Click **Storage > Hard Disk**.

No.	Total(GB)	Free(GB)	Status	Type	Usage	Property	Configure	Operate
1	1842.39	1717.00	Normal	Array	Recording/Snapshot	Read/Write		—

2. To add a disk, click **Add**. In the dialog box displayed, select disk usage (recording/snapshot or backup) and disk type (currently NAS only), enter the server address and directory, and then click **Add**. Up to eight NAS disks are allowed.

**Add Extended Disk**

Usage: Recording/Snapshot

Type: NAS

Server Address:

Directory:

3. To edit disk property, click , and then modify disk usage (recording/snapshot or backup) and disk property (**Read/Write, Read Only** or **Redundant**) as needed.

**NOTE**

- Disk property can be edited if the disk is used for recording/snapshot.
- The Redundant property is available to certain NVR models.
- You may use external eSATA disks for recording/snapshot or backup purpose and unmount them if necessary. eSATA disks and NAS disks cannot be used to create arrays.

4. To format a disk, select the disk and then click **Format**. A confirmation message appears. Click **Yes**.

**NOTE**

- Local disks will be formatted automatically when installed. Extended disks will not.
- Format a disk with caution. All data will be removed.

### 12.2 Array Configuration

Only certain NVR models support RAID. The table below lists the supported RAID types and hard disks required.

RAID	HDD Qty
RAID 0	2-8
RAID 1	2
RAID 5	3-8
RAID 6	4-8
RAID 10	4-16 (Must be an integral multiple of 2, e.g., 4, 8, 10, etc).
RAID 50	6-16
RAID 60	8-16

### 12.2.1 Enabling RAID

You need to enable RAID first.

1. Click **Storage > Array**.
2. Select the check box to enable RAID. A confirmation message appears. Click **Yes**.

### 12.2.2 Creating an Array

It is recommended to configure a hot spare disk to ensure reliable system operation and successful rebuilding in case an array fails.

1. Click **Storage > Array**.
2. To create an array automatically, click **One-click Create**.

**NOTE**

- There is no need to select disks when creating an array with One-click Create. The system identifies all usable disks. RAID 1 is created when two disks are available. When three or more disks are available, RAID 5 is created. If more than four disks are available, a global hot spare disk will be created.
  - Arrays created in this way are named ARRAYX, for example, ARRAY1, ARRAY2.
3. To create an array manually, select the desired disks and then click **Create**. In the window displayed, enter the array name, select the array type, and select local disks. Click **OK** to complete the setup. Note that no hot spare disk will be created automatically. Make sure all disks are selected to create array(s); otherwise, disk space will be wasted (because disks that are not selected will not be used for storage).

### 12.2.3 Rebuilding an Array

By checking array status you can determine whether maintenance is necessary.

**NOTE**

To be alerted when an array is degraded or damaged, you can configure alarm-triggered action at **Alarm > Alert**.

An array is in one of four statuses: normal, degraded, damaged, rebuild. The status is normal if no physical disk is lost. When the number of physical disks lost reaches the specified value, the array is considered damaged. The status between normal and damaged is degraded. A degraded array can be recovered to normal status through rebuilding.

**NOTE**

Take RAID 5 that consists of 4 disks as an example. The array is degraded when one disk is lost. When two disks are lost, the array is damaged.

A degraded array can be automatically rebuilt in ten minutes if these conditions are met: a hot spare disk is available; the capacity of the hot spare disk is not less than that of any disk in the array. A degraded array without a hot spare disk can only be rebuilt manually under **Storage > Array > Array**. By default the first local disk that satisfies requirements is selected.

### 12.2.4 Deleting an Array

**CAUTION**

Deleting an array will erase all data on it.

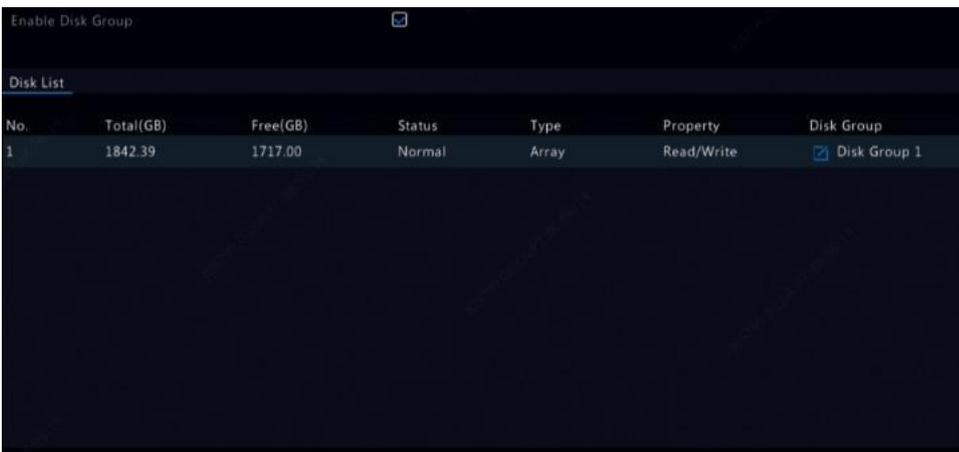
1. Click **Storage > Array > Array**.
2. Click for the array to delete. A confirmation message appears. Click **Yes**.

### 12.3 Disk Group

Assign hard disks to a disk group and use the disk group to store recordings and snapshots of specified cameras. Different arrays can be assigned to different disk groups.

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

1. Click **Storage > Disk Group**.



2. Select **Enable Disk Group**. By default all disks belong to Disk Group. Click for the disk to edit, and then select a group to which the disk will be assigned.

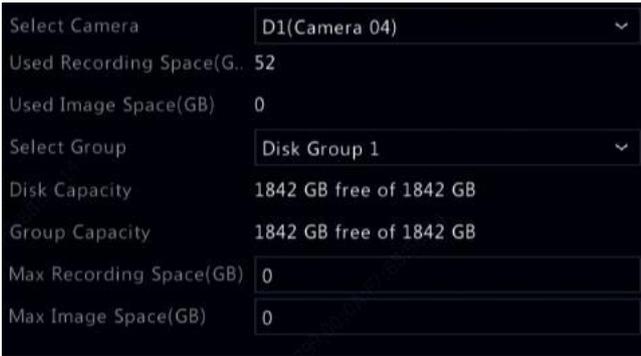


3. Click **Apply** to save the settings.

### 12.4 Space Allocation

Allocate space to store videos and snapshots of a specified camera.

1. Click **Storage > Allocate Space**.

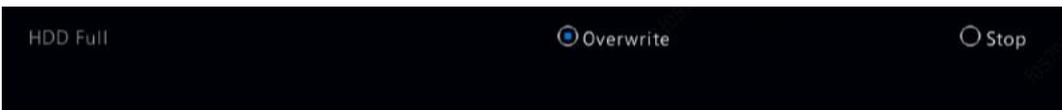


2. Select the desired camera and then set the maximum recording space and maximum image space. You can select a disk group only when disk group is enabled under **Storage > Disk Group**. For more information, see Advanced Configuration.
3. Click **Apply** to save the settings.
4. (Optional) Click **Copy** to apply the same settings to other camera(s).

### 12.5 Advanced Configuration

Set whether to overwrite recordings or snapshots when storage is full.

1. Click **Storage > Advanced**.



2. Choose an option.

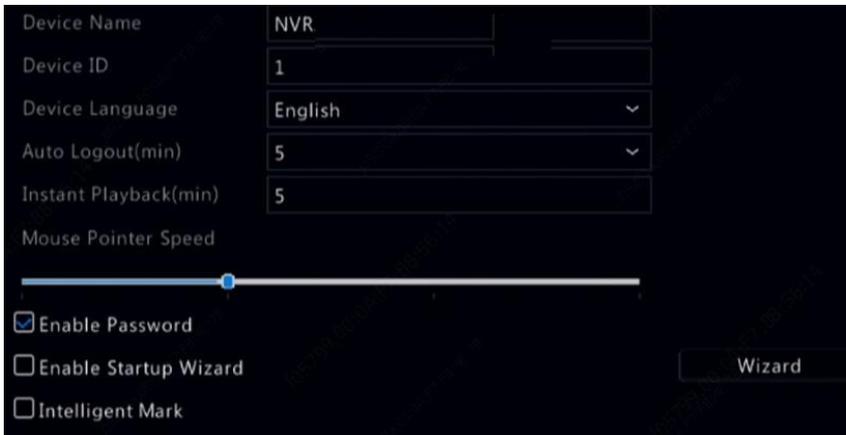
Option	Allocated Space	Description
Overwrite	0	The camera shares unallocated space, and its oldest recordings/snapshots will be overwritten when the space is used up.
	Other values	The camera's oldest recordings/snapshots will be overwritten when its allocated space is used up.
Stop	0	The camera shares unallocated space, and its oldest recordings/snapshots will still be overwritten when the space is used up.
	Other values	The camera's new recordings/snapshots will not be saved when its allocated space is used up.

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

## 13 System Configuration

### 13.1 Basic Configuration

1. Click **System > Basic**.
2. Configure the parameters.



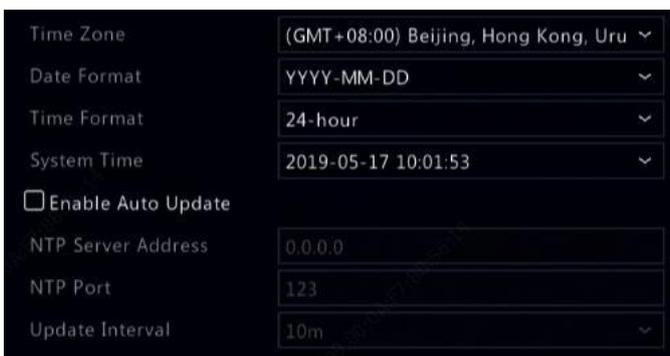
**NOTE**

- Only admin can set **Enable Password**.
  - If **Enable Password** is not selected, no password is required for local login at system startup. However, a username and password are still required when you log in after a logout.
  - Some NVR models support Intelligent Mark. When the NVR and IP camera are both enabled, the latest areas/lines or VCA data configured for face detection, intrusion detection, and cross line detection will be displayed on the **Preview**, **Behavior** and **Alarm** windows in real time.
  - Intelligent mark is displayed on the screen as areas/lines in different colors. Yellow means areas/lines configured for face detection, intrusion detection, and cross line detection; green means VCA data has changed but not triggered rules; red means rules are triggered in the configured area (rules are configured for VCA alarms), and VCA alarm has occurred.
  - You may also set startup Wizard here by clicking **Wizard**.
3. Click **Apply** to save the settings.

### 13.2 Time Configuration

#### 13.2.1 Time

1. Click **System > Time > Time**.
2. Select the correct time zone, and then set date and time formats and the system time. The following shows an example.



3. To use Network Time Protocol (NTP), enable auto update, set the address and port number of the NTP server, and the update interval.
4. Click **Apply** to save the settings.

### 13.2.2 DST

1. Click **System > Time > DST**.
2. Enable DST by selecting the check box, and then set the start time, end time, and DST bias correctly.
3. Click **Apply** to save the settings.

### 13.2.3 Time Synchronization

Use this function to synchronize camera time with the NVR. Time sync is enabled by default, and cameras will synchronize time with the NVR after getting online, and then synchronize once every 30 minutes.

1. Click **System > Time > Time Sync**.
2. Select **Sync Camera Time** and then click **Apply**.

**CAUTION**

Use this function with caution if you have more than one NVR on the network. An IP camera synchronizing time with multiple NVRs at the same time will cause chaotic recordings.

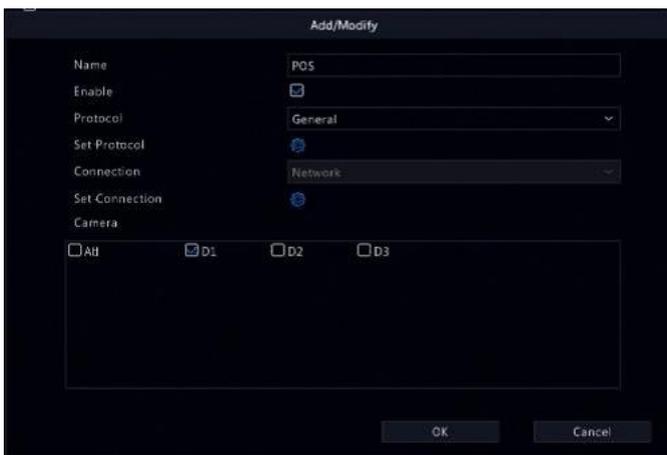
## 13.3 POS Configuration

This function is intended for the scenario such as in a café or a supermarket where the NVR is connected to a POS machine. When configured properly, the NVR obtains data from the POS machine and displays information in form of text with video images on the monitor.

Only certain NVR models support this function.

### 13.3.1 POS

1. Click **System > POS > POS**.
2. Click **Add** and then complete settings in the window displayed.



**NOTE**

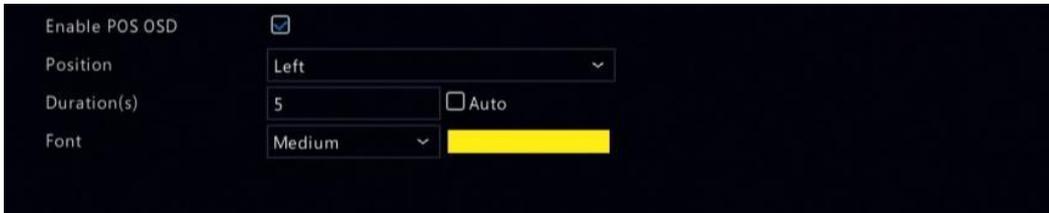
- The name entered should be unique.
- The start identifier, end identifier, and line delimiter should be hexadecimal characters. The ignore characters are character strings that cannot be displayed.
- The source address is the IP address of the POS machine, and the destination address is that of a settlement center that receives

POS data. An empty destination address means it is necessary for the NVR to forward POS data.

### 13.3.2 POS OSD

Configure the POS OSD, including the position, font and color of POS information displayed on the screen.

1. Click **System > POS > POS OSD**.
2. Select **Enable POS OSD**, and complete the settings.



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

### 13.4 Serial Port Configuration

Only certain NVR models support this function.

Serial port settings in the NVR should be consistent with those in the connected serial device. Serial port configuration is required for PTZ control.

1. Click **System > Serial**.
2. Configure the parameters for the serial port.

**NOTE**

You may set **Port Usage** to **Keyboard** to control a PTZ camera with a specialized surveillance keyboard.

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

### 13.5 User Configuration

Add, delete users or edit user permissions. Only admin can perform these operations. Device password is required for user configuration. A user type is a set of permissions in the system. When a user type is assigned to a user, this user has all the permissions specified for the user type.

There are four user types in the system:

- Admin: Default super administrator in the system, has full system access. Its initial password is **123456**.
- Default: Default user reserved in the system, cannot be created or deleted, and only has access to live view and two-way audio. If the default user is denied access, the corresponding channel is locked when no user is logged in, and  appears in the window.
- Operator: Has basic permissions and access to cameras.
- Guest: Only has access to cameras by default.

1. Click **System > User**.
2. To add a user, click **Add**, and then set the username and password, select user type, permissions and whether to enable unlock pattern as needed. Click **OK** to save the settings.

Username	User Type	Edit	Delete
admin	Administrator		—
default	Reserved User		—

3. To edit or delete a user, click or as needed. If you change the password for a user, the new password takes effect at the user's next login.

### 13.6 Security Configuration

#### 13.6.1 IP Address Filtering

Use this function to enhance security by allowing or forbidding access to the NVR from specified IP addresses.

1. Click **System > Security > IP Address Filtering**.
2. Select **Enable IP Address Filtering**, select **Blocklist** or **Allowlist** from the drop-down list, set the start and end IP addresses, and then click **Add**.

**NOTE**

- If **Blocklist** is selected, the NVR denies remote access from the IP address(es) on the list.
- If **Allowlist** is selected, the NVR only allows remote access from the IP address(es) on the list. However, if **Allowlist** is selected with no IP address specified, remote access to the NVR will be denied.

Enable IP Address Filtering

Control Type: Blocklist

Start IP:

End IP:

**Add**

No.	Start IP	End IP	Edit	Delete

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

#### 13.6.2 ONVIF Authentication

Enable ONVIF authentication under **System > Security > ONVIF Auth** so a username and password will be required for ONVIF-based device access. Select the check box and then click **Apply**.

Enable Authentication

Note: If enabled, a username and password will be required for access by ONVIF.

#### 13.6.3 ARP Protection

ARP protocol is used to associate an IP address to a hardware MAC address. ARP attacks mainly occur on LAN, in which attackers use

forged IP and MAC addresses. APR protection prevents this kind of attacks by verifying the gateway's MAC address in all access requests. Note that changing the NIC working mode will disable ARP protection automatically.

1. Click **System > Security > ARP Protection**.



2. Select the desired NIC and then select **Enable ARP Protection**.
3. Obtain the gateway's MAC address automatically, or select **Custom** and input the MAC address.
4. Click **Apply** to save the settings.

### 13.6.4 802.1x

802.1x is a port-based network access control protocol mainly used to solve authentication and security issues on LAN. Only certain NVR models support this function. Note that changing the NIC working mode will disable 802.1x automatically.

1. Click **System > Security > 802.1x**.
2. Select the desired NIC and select the check box to enable 802.1x.
3. Select the EAPOL version, and then enter the username and password of the authentication server.
4. Click **Apply** to save the settings.

### 13.6.5 Video Watermark

Encrypt custom information in videos to prevent unauthorized alteration.

1. Click **System > Security**.

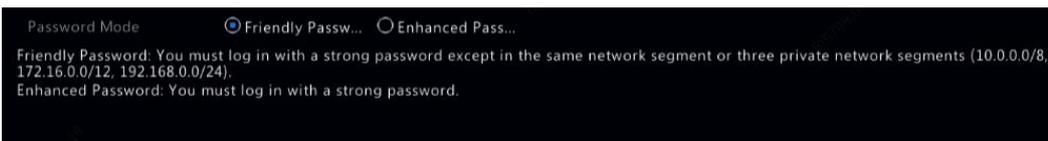


2. Select the desired camera and then select **Enable Watermark**.
3. Enter watermark content.
4. Click **Apply** to save the settings.

### 13.6.6 Secure Password

Password mode specifies the permission of strong or weak password in different modes: friendly password and enhanced password.

1. Click **System > Security > Secure Password**.



2. Friendly password is enabled by default. You may enable **Enhanced Password** as needed.

- Friendly Password

If this option is selected, a strong password must be used except when login from the same network segment or one of the three private

network segments (10.0.0.0/8, 172.16.0.0/12, 192.168.0.0/24).

- Enhanced Password

If this option is selected, a prompt for a strong password will appear when a weak password is detected. Also, only strong passwords are allowed for new users.

**NOTE**

Only admin can configure secure password.

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

### 13.7 Hot Spare Configuration

Only certain NVR models support this function.

With hot spare configured, when the working device fails, the hot spare takes over service of the working data. When the working device restores normal status, it takes over service from the hot spare, and data saved to the hot spare during the period of failure is transferred back to the working device to ensure reliable and consistent data storage.

1. Click **System > Hot Spare**.
2. Select a working mode, **Normal** (default mode) for working device, or **Hot Spare** for hot spare device.



#### 13.7.1 Normal

You must add a hot spare device after choosing this mode; otherwise, hot spare does not take effect. Click Custom Add and then enter device information, including IP address, port number and password. The username is fixed to admin. Click **Add**.

#### 13.7.2 Hot Spare

Select **Hot Spare**, and the current device will be a hot spare for other working devices. All the working devices that the current hot spare serves are listed.



**NOTE**

- After the working mode is changed, the NVR will restart with some parameters and settings changed.
- For a working device that switches to a hot spare, some of its functions will be unavailable, and some settings will be reset to defaults.
- If multiple working device fail at the same time with only one hot spare device available, one working device gets backup at a time.

## 14 System Maintenance

### 14.1 System Information

Click **Maintenance > System Info** to view the basic NVR information for maintenance purpose.

#### 14.1.1 System Info

View the basic information such as the device model, serial number, firmware version, build date and operation time.

Basic Info	
Model	NVR
Serial No.	210235T0
Firmware Version	NVR-B31
Build Date	2019-04-22
Operation Time	0 Day(s) 15 Hour(s) 19 Minute(s)

#### 14.1.2 Camera status

Click the **Camera** tab to view camera status (online or offline with possible offline cause) and status of alarm functions such as motion detection, tampering, video loss and audio detection. **Off** means disabled, and **On** means enabled.

Camera ID	Name	Status	Motion	Tampering	Video Loss	Audio
D1	Camera 04	Online	Off	Off	On	Off
D2	D1(3MP)	Online	On	Off	On	Off
D3	wan1lun20029	Online	Triggered	Off	On	Off
D4	IP Camera 04	Online	Triggered	Off	On	Off
D5	11111	Online	On	Off	On	Off

#### 14.1.3 Recording status

Click the **Recording** tab to view recording status and stream settings.

Camera ID	Name	Type	Status	Diagnosis	Stream Type	fps	kbps	Resolution
D1	Camera 04	Normal	Ongoing	Normal	Main Stream	25	2590	1920X1080
D2	D1(3MP)	Normal	Ongoing	Normal	Main Stream	20	530	2592X1520
D3	wan1lun20029	Event	Ongoing	Normal	Main Stream	15	496	3000X3000
D4	IP Camera 04	Event	Ongoing	Normal	Main Stream	30	271	1920X1080
D5	11111	Normal	Ongoing	Normal	Main Stream	25	162	1920X1080

#### 14.1.4 Online user

Click the **Online User** tab for information about users who are currently logged in.

<input type="checkbox"/> No.	Username	IP Address	Login Time
1	admin	127.0.0.1	2019-05-17 09:11:47

#### 14.1.5 Disk status

Click the **Disk** tab to view the hard disk status and disk properties.

Disk No.	Total(GB)	Free(GB)	Status	Vendor	Property
1	1842.39	1716.50	Normal		Read/Write

Total Capacity(GB)	1842.39
Free Space(GB)	1716.50

#### 14.1.6 Decoding card status

Click the **Slot Status** tab to view the decoding card status. This function is available to certain NVR models only.

## 14.2 Network Information

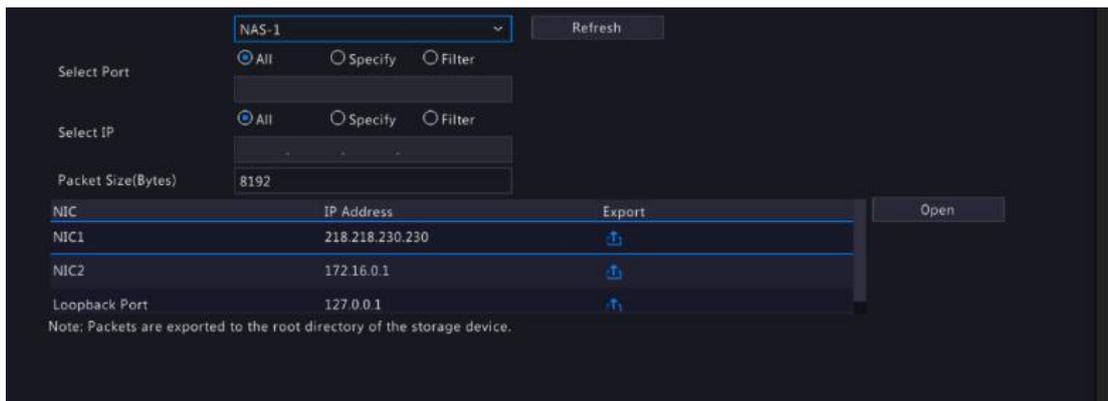
### 14.2.1 Traffic

Click **Maintenance > Network Info > Traffic** to view network traffic information.



### 14.2.2 Packet Capture

1. Click **Maintenance > Network Info > Packet Capture**.



2. Select a partition, i.e. a USB device you want to back up to.

3. Select port and IP to capture packets.

- All: All ports or IPs to which the NVR is connected.
- Specify: A specified port or IP.
- Filter: Other ports or IPs excluding a specified port or IP.

4. Select a NIC and click  in the Export column to start packet capture.

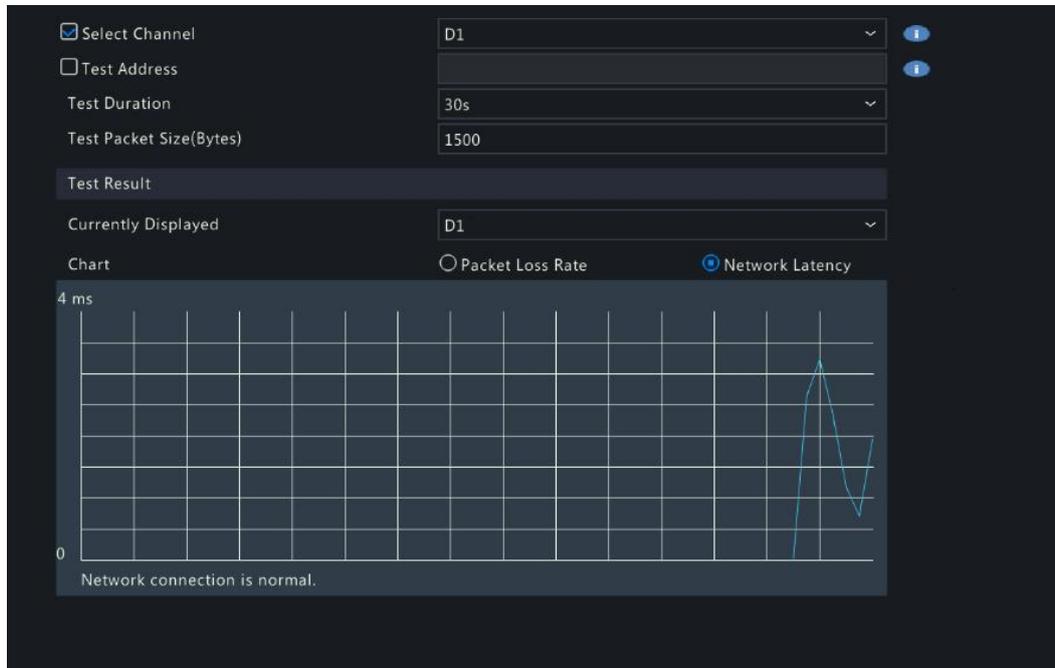
5. The captured packets are saved as a backup file in the root directory of the USB storage device. You may click Open to view the file.

#### NOTE

- The data packet size is 1520 bytes by default and can be changed as needed.
- The backup file of the captured packets is named in *NIC name\_time.pcap* format.
- Packets cannot be captured if it is already started on the Web interface.
- If you use PPPoE, a virtual NIC will appear in the list after the dial-up succeeds, and you may capture packets sent to and from this NIC.

### 14.2.3 Network Test

1. Configure network test parameters.
  - a. Click **Maintenance > Network Info > Network Test**.



- b. Select channels. Up to 5 channels are allowed.
  - c. Enter a test address (IP or domain name). Up to 2 addresses can be tested simultaneously.
  - d. Click **Start Test** to detect network latency and packet loss rate.

**NOTE**

The data packet size is 1500 bytes by default and can be changed as needed.

2. View test results.

The system will automatically pack the data when the test ends or test duration is up. You can view the packet loss rate and network latency of the current camera in a chart.

3. Export test results.

- a. Click **Export** to the **Backup** page.
- b. Select a partition and export format. Click **Backup** to export the network test results to the USB storage device.

### 14.2.4 Network Settings

Click **Maintenance > Network Info > Network** to view network settings.

### 14.2.5 PoE/Network Port Status

Only certain NVR models support this function.

Click **System > Network Info** to view port status. A blue port indicates that the port is in use. For PoE models, power information will be displayed.

### 14.2.6 Network Statistics

Click **Maintenance > Network Info > Network Statistics**. Bandwidth usage statistics are displayed.

Type	Bandwidth
IP Camera	7936Kbps
Remote Live View	0bps
Remote Playback	0bps
Idle Receive Bandwidth	312Mbps
Idle Send Bandwidth	320Mbps

**NOTE**

Insufficient receiving bandwidth (**Idle Receive Bandwidth**) may cause the connected cameras to be offline.

When the sending bandwidth (**Idle Send Bandwidth**) is insufficient, remote live view, playback or download may fail on the NVR.

### 14.3 Log Query

Logs contain information about user-performed operations and device status. By analyzing logs, you can keep track of device operation status and view detailed alarm information.

1. Click **Maintenance > Log**.
2. Set query conditions, including the start and end times, main type and sub type.
3. Click **Query**.

Start Time	2019-05-17 00:00:00					
End Time	2019-05-17 23:59:59					
Main Type	All					
Sub Type	All Types					
Username	Operation Time	Camera	Play	Main Type	Sub Type	Details
	2019-05-17 10:18:26	D3		Alarm	Motion Detection Started	
admin	2019-05-17 10:18:10		—	Operation	Quick Search IP Camera	
	2019-05-17 10:17:54	D3		Alarm	Motion Detection Ended	
	2019-05-17 10:17:34	D3		Alarm	Motion Detection Started	
	2019-05-17 10:17:26	D3		Alarm	Motion Detection Ended	
	2019-05-17 10:17:22	D4		Alarm	Motion Detection Started	
	2019-05-17 10:17:21	D4		Alarm	Motion Detection Ended	
	2019-05-17 10:16:21	D3		Alarm	Motion Detection Started	

4. If is displayed under Play, you may click to view the recording that started one minute before the alarm time and ended ten minutes after the alarm time. means this function is not available.
5. To export logs to an external storage device, click **Export**, set the export destination and format, and then click **Backup**.

### 14.4 Import/Export

#### 14.4.1 System Import/Export

Configurations and diagnosis information can be exported to a storage device and saved as files for backup. A configuration file can also be imported to the NVR to restore configurations. The configuration file of an NVR can be imported to multiple NVRs of the same model if you want them to have the same settings. If the imported configuration file contains camera information, the related camera will be added to all the NVRs.

Only admin can perform these operations.

1. Click **Maintenance > Import/Export**.
2. To export device configurations, specify the destination directory and then click **Export**. A .xml file will be created in the specified directory when export is completed.
3. To import device configurations, double-click the target folder containing the .xml file, select the file, and then click **Import**.

**CAUTION**

Delete files with caution. Deleted files cannot be recovered.

**14.4.2 Diagnosis Info**

The device can save diagnosis info for 14 days and will overwrite the oldest when space is full.

1. Click **Maintenance > History Diagnosis Info**.



2. Select a device type:
  - NVR: For NVR, history diagnosis info is generated at 00:00 every day. To export history diagnosis info, click **Export** at the bottom. To export current diagnosis info, click **Export** right to **Current Diagnosis Info**.
  - IPC: For IPC, history diagnosis info is generated at 00:05 every day. Select channels and then click **Export** at the bottom. To export current diagnosis info, click **Export** right to **Current Diagnosis Info**.

**NOTE**

For IPC, diagnosis info is recorded based on channel, which means, if an IPC is added to multiple channels, all the channels will record diagnosis info for the IPC.

**14.5 System Restoration**

Use this function to restore some or all factory default settings. The NVR will restart automatically to complete this operation. Recordings and operation logs will not be deleted.

1. Click **Maintenance > Restore**.
2. Click **Default** to restore factory default settings except network and user settings, or click **Factory Default** to restore all factory default settings.

**14.6 Automatic Maintenance**

Set the NVR to restart as scheduled and delete files (including recordings and snapshots) as needed. Only admin can perform this operation.

1. Click **Maintenance > Auto-Function**.
2. Set an auto-restart time, and choose a way to delete files automatically.



**CAUTION**

Files deleted automatically cannot be recovered.

## 14.7 System Upgrade

Upgrade the device locally (using an upgrade file saved in a USB storage device) or by cloud (through a cloud server).

**CAUTION**

Make sure power is not interrupted during upgrade. A power failure during system upgrade may cause startup failure. Use an Uninterrupted Power Supply (UPS) if necessary.

### 14.7.1 NVR Upgrade

1. Click **Maintenance > Upgrade**.
2. Choose **Cloud** or **Local**.

- Cloud upgrade

Click **Check for Update** to see whether a new version is available. Click **Upgrade** to start upgrade if a newer version is displayed.

**NOTE**

Before you begin, ensure that the NVR is connected to a fully functional DNS server (configured under **System > Network**).

The time that a cloud upgrade takes is affected by network connection status.

- Local upgrade

Select the directory where the upgrade file is, click **Upgrade** to start upgrade.

### 14.7.2 Camera Upgrade

Click **Check** to see if the version of the connected IP camera is up to date. You may upgrade cameras by cloud (  ) or by disk (  ) one by one, or select multiple cameras and then click **Upgrade by Cloud** or **Upgrade By Disk** to upgrade cameras in batches.

## 14.8 Hard Disk Detection

### 14.8.1 S.M.A.R.T. Test

Click **Maintenance > HDD > S.M.A.R.T. Test** to do S.M.A.R.T. test.

S.M.A.R.T. (enabled by default) checks the head, platter, motor, and circuit of hard disks to evaluate their health status. The overall evaluation results include **Healthy**, **Failure**, and **Bad Sectors**. It is recommended to replace the disk immediately if the status is **Failure**.

Continue to use the disk when it fails to pass evaluation.

Select Disk: Slot1

Test Type: Short

Test Status: Not tested

Vendor: TOSHIBA

Model: TOSHIBA MD04ABA400V

Firmware Version: FP1T

Disk Temperature(°C): 34

Operation Time(day): 501

Self-Evaluation: Pass

Overall Evaluation: Healthy

ID	Attribute Name	Status	Flag	Threshold	Value	Worst	Raw Value
1	Raw_Read_Error_Rate	Healthy	0x000b	50	100	100	0
2	Throughput_Performance	Healthy	0x0005	50	100	100	0
3	Spin_Up_Time	Healthy	0x0027	1	100	100	5228
4	Start_Stop_Count	Healthy	0x0032	0	100	100	25
5	Reallocated_Sector_Count	Healthy	0x0033	50	100	100	0

**NOTE**

- Some hard disks only support some of the test items.
- The system provides three test types: Short, Extended, and Conveyance. Extended tests detect more thoroughly and thus take longer time than Short tests. Conveyance tests mainly detect data transmission problems.

**CAUTION**

Using a faulty disk is risky. Faulty disks should be replaced immediately. Contact your local dealer for information about hard disks.

**14.8.2 Bad Sector Detection**

Bad sector detection checks for bad sectors in hard disks.

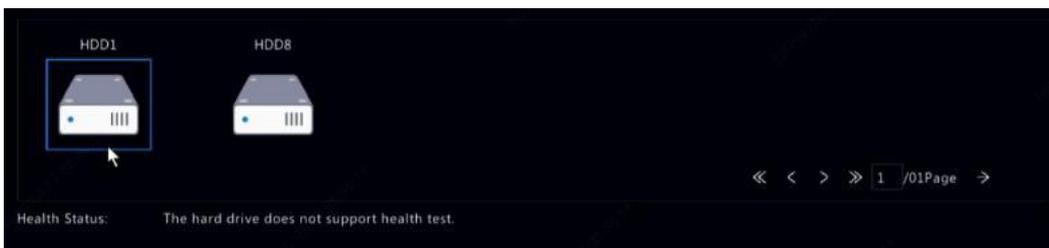
1. Click **Maintenance > HDD > Bad Sector Detect**.
2. Select the desired disk and detection type, and then click **Detect** to start detection. Click **Stop** if you want to stop.

**CAUTION**

The detection stops automatically when the error count reaches 100.

**14.8.3 Health Test**

Health test is supported by certain NVR models.



**14.9 Smart Bar Info**

View smart bar information including status, firmware version, and serial number in the **Smart Bar Info** page.

Follow the steps to upgrade the smart bar.

1. Click **Maintenance > Smart Bar Info**.
2. Click **Upgrade** to upgrade the smart bar.

**NOTE**

When smart bar status is **Abnormal** or **Off**, check if the smart bar is properly connected to the NVR.

### 14.10 One-Click Collect

Collect the diagnosis information of IPC and NVR with one click.

IPC diagnosis info	<input type="text" value="All"/>	▼	<input checked="" type="checkbox"/> NVR Diagnosis Info
Collect Time	<input type="text" value="3 day"/>	▼	

Information to collect includes NVR diagnosis info, IPC diagnosis info, and operation logs. The export may take a long time if you choose All.

## 15 Shutdown

Click **Shutdown** to log out, restart or shut down as needed. To shut down the NVR, you may also long-press the power button on the front panel (if available) for around three seconds till an on-screen message appears, and then click **Yes**.

### CAUTION

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

## Part II Web-Based Operations

### 1 Before You Begin

You may access and manage your NVR remotely using a web browser on a PC (through the Web interface). Check the following before you begin:

- Access will be authenticated during login, and operation permissions will be required.
- The PC is operating properly and has a network connection to the NVR.
- The PC uses an operating system of Windows 7 or later.
- Chrome 60 or later is recommended. You may also use Firefox 60 or later, Microsoft Internet Explorer 10.0 or later, Edge 79 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 GUI cannot be modified. The parameters and values displayed may vary with NVR model.
- The figures are for illustration purpose only and may vary with NVR model.

## 2 Login

1. Open a Web browser on your PC and browse to the login page by entering the IP address (**192.168.1.30** by default) of your NVR. You may need to install a plug-in as prompted at your first login. Close the Web browser when the installation starts.
2. In the login dialog box, enter the correct username and password (**123456** for admin) and then click **Login**.

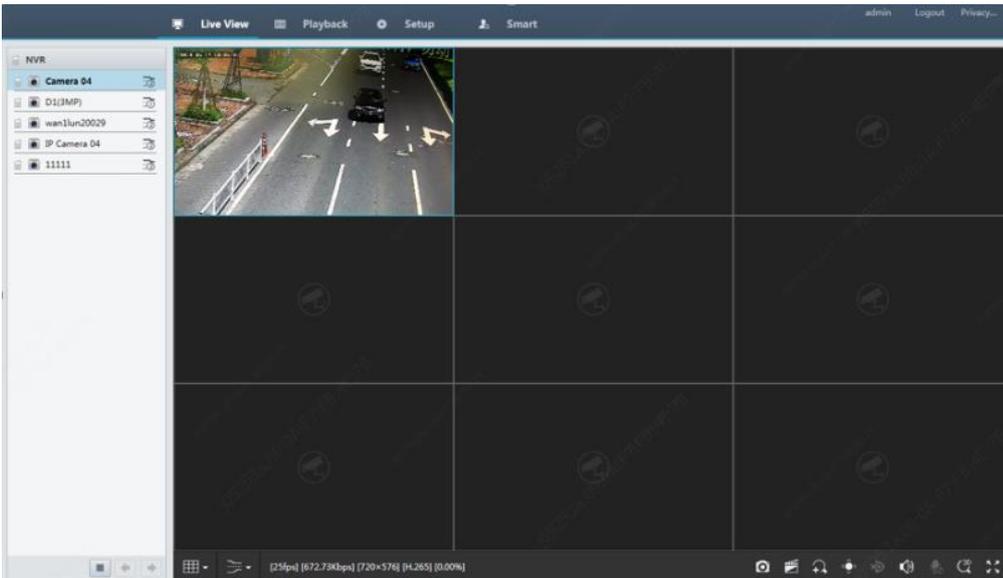
### NOTE

The default password is intended only for your first login. We strongly recommend you set a strong password to ensure account security.

- Strong: contains at least 8 characters from at least three of the four types: upper-case letter, lower-case letter, special character, and digit.
- Weak: contains at least 8 characters from two of the four types: upper- case letter, lower-case letter, special character, and digit.

### 3 Live View

The **Live View** page is displayed when you are logged in. The following figure shows an example.



**Table 3–1** Live View Window Control Buttons

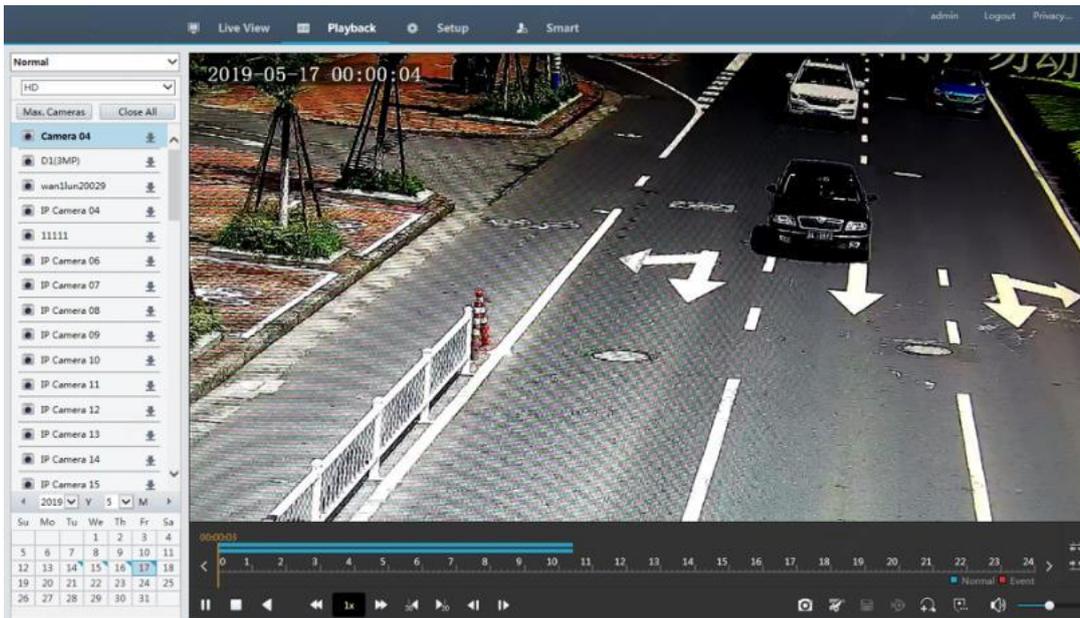
Button	Description	Button	Description
	Two-way audio		Main/Sub stream
	Start or stop live view in all windows		Previous and next screen
	Switch screen layout		Full screen
	Select stream type		Shows the current frame rate, bit rate, resolution, and packet loss rate
	Take a snapshot		Start zoom
	Local recording		Turn on or off audio; adjust sound volume.
	Adjust MIC volume		3D positioning
	Open or close the control panel	--	--

**NOTE**

- The icon means two-way audio is available. Click to start two-way audio with the NVR or a camera (depending on where the icon is displayed).
- 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 by the IP address, and the snapshot file is named in this format: Camera ID\_time. By default, snapshots are 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 by the IP address, and the recording file is named in this format: Camera ID\_S recording start time\_E recording end time. By default, recordings are 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.

## 4 Playback

Click **Playback** on the top to show the **Playback** page. The following figure shows an example.

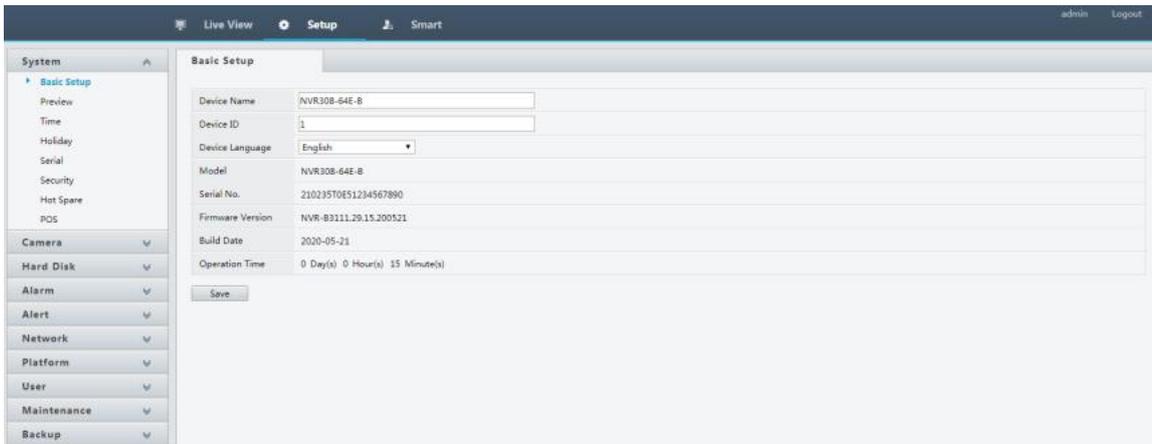


**Table 4-1** Playback Control Buttons

Button	Description	Button	Description
	Play/Pause		Stop
	Reverse		Slow down or speed up
	Rewind or forward 30 seconds		Rewind or forward by frame
	Previous or next period		Clip video/pause
	Save video clip		Take a snapshot
	Zoom		Adjust sound volume; turn on or off sound

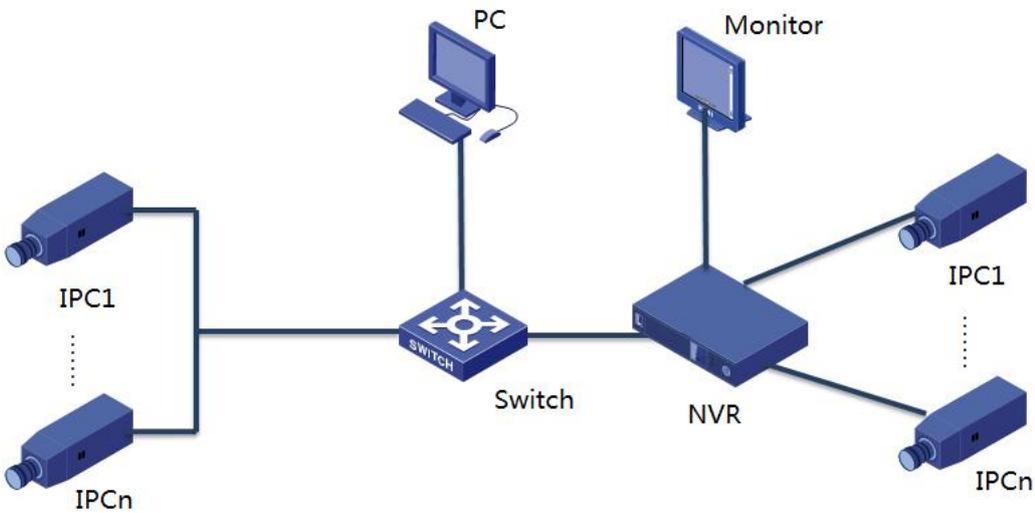
## 5 Configuration

Click **Setup** on the top, and then click the menus on the left to configure parameters.



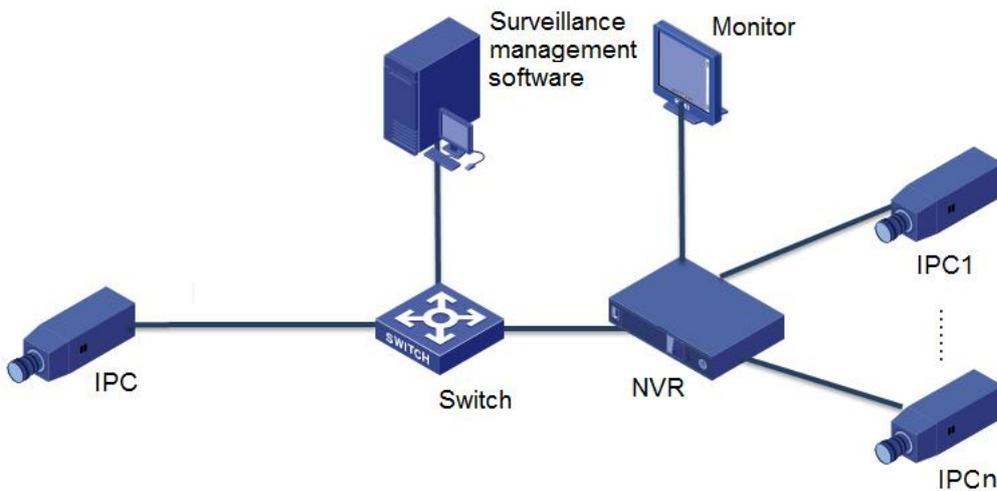
## 6 Appendix A Typical Applications

### Typical Application 1



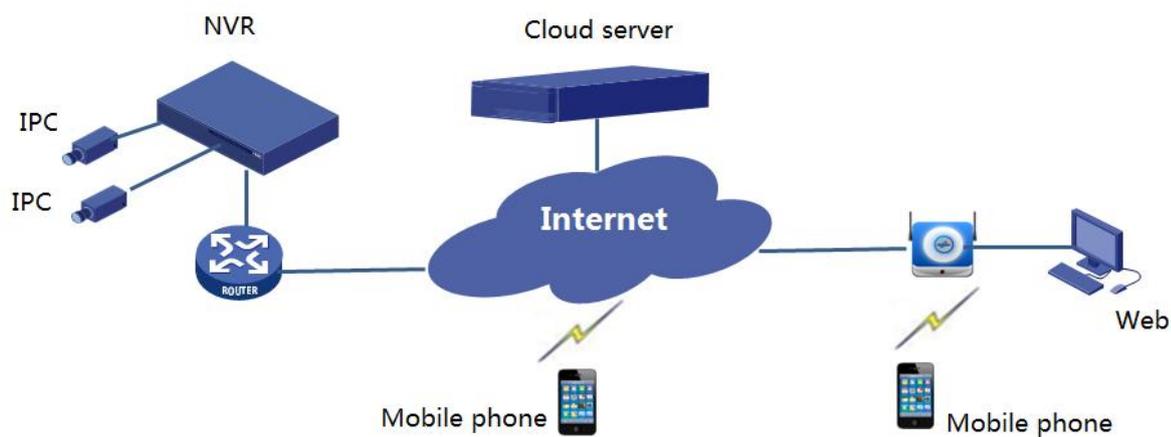
The NVR, IP cameras, and PC are connected on a private network (or LAN). The IP cameras can be connected to the NVR directly or via a switch. And you manage the NVR and the connected IP cameras through the monitor or using a web browser on the PC.

### Typical Application 2



The NVR, IP cameras, and PC are connected on a private network (or LAN). The IP cameras can be connected to the NVR directly or via a switch. The PC is installed with surveillance management software. You can manage the NVR and the connected IP cameras using the surveillance software or through the monitor.

### Typical Application 3



The NVR and the connected IP cameras are located on a private network (or LAN), and you manage these devices through the cloud server, a cloud solution for device management over Internet. After registering a cloud account and properly configuring your network devices (including router), you can manage your NVR and the connected IP cameras from a PC or a mobile phone.

## Appendix B Acronyms

Acronym	Description
CBR	Constant Bit Rate
DDNS	Dynamic Domain Name Service
DHCP	Dynamic Host Configuration Protocol
DST	Daylight Saving Time
DVS	Digital Video Server
FTP	File Transfer Protocol
HDMI	High Definition Multimedia Interface
HTTPS	Hypertext Transfer Protocol Over Secure Sockets Layer
IPC	IP Camera
JPEG	Joint Photographic Experts Group
MTU	Maximum Transfer Unit
NAT	Network Address Translation
NIC	Network Interface Card
NTP	Network Time Protocol
NVR	Network Video Recorder
ONVIF	Open Network Video Interface Forum
PoE	Power over Ethernet
PPPoE	Point-to-Point Protocol over Ethernet
PTZ	Pan, Tilt, Zoom
P2P	Peer-to-Peer
RAID	Redundant Arrays of Independent Disks
RTSP	Real-Time Streaming Protocol
SDK	Software Development Kit
S.M.A.R.T.	Self-Monitoring, Analysis and Reporting Technology
UPnP	Universal Plug-and-Play
USB	Universal Serial Bus
VGA	Video Graphics Array
VBR	Variable Bit Rate

## Appendix C FAQs

Problem	Possible Cause and Solution
Forgot the login password	Click <b>Forgot Password</b> in the login page as admin, then follow the on screen instructions to retrieve password.
The Web plugin (ActiveX) cannot be loaded.	<ul style="list-style-type: none"> <li>● Close your web browser when the installation starts.</li> <li>● Disable the firewall and close the anti-virus program on your computer.</li> <li>● Enable your Internet Explorer (IE) to check for newer versions of the stored pages every time you visit the webpage (<b>Tools &gt; Internet Options &gt; General &gt; Settings</b>).</li> <li>● Add your NVR's IP address to the trusted sites in your IE (<b>Tools &gt; Internet Options &gt; Security</b>).</li> <li>● Add your NVR's IP address to the Compatibility View list in your IE (<b>Tools &gt; Compatibility View Settings</b>).</li> <li>● Clear your IE's cache.</li> </ul>
No images are displayed in live view on the Web interface.	<p>Check if the bit rate is 0Mbps in the live view window.</p> <ul style="list-style-type: none"> <li>● If yes, check if the firewall has been disabled, and the anti-virus program has been stopped on your computer.</li> <li>● If not, maybe it is because the graphics card driver on your computer is not working properly. Try installing the driver again.</li> </ul>
A camera is offline, and No Link is displayed.	<p>Click <b>Maintenance &gt; System Info &gt; Camera</b>. The cause is displayed under Status. Common causes include disconnected network, incorrect username or password, weak password, insufficient bandwidth.</p> <ul style="list-style-type: none"> <li>● Check network connection and network configurations.</li> <li>● 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.</li> <li>● If it indicates denied access for weak password, log in to the camera's Web interface and set a strong password.</li> <li>● If it indicates insufficient bandwidth, delete other online IP devices in the NVR.</li> </ul>
The NVR displays live video for some cameras and No Resource for others.	<ul style="list-style-type: none"> <li>● Set the camera to encode the sub stream, and decrease its resolution to D1.</li> <li>● Set the NVR to use the sub stream first for live view.</li> </ul>
A camera goes online and offline repeatedly.	<ul style="list-style-type: none"> <li>● Check if network connection is stable.</li> <li>● Upgrade the firmware for the camera and the NVR. Contact your dealer for the latest versions.</li> </ul>
Live view is normal, but the recording cannot be found.	<ul style="list-style-type: none"> <li>● Check that a recording schedule has been properly configured.</li> <li>● Check if the time and time zone configured in the NVR are correct.</li> <li>● Check if the hard disk storing the recording has been damaged.</li> <li>● Check if the desired recording has been overwritten.</li> </ul>
Motion detection is not effective.	<ul style="list-style-type: none"> <li>● Check that motion detection is enabled, and the motion detection area is properly configured.</li> <li>● Check that detection sensitivity is properly set.</li> <li>● Check that the arming schedule is properly configured.</li> </ul>
A hard disk cannot be identified by the NVR.	<ul style="list-style-type: none"> <li>● Use the power adapter delivered with your NVR.</li> <li>● Power down the NVR and then mount the hard disk again.</li> <li>● Try another disk slot.</li> <li>● The disk is not compatible with your NVR. Contact your dealer for a list of compatible disk models.</li> </ul>

Problem	Possible Cause and Solution
The mouse does not work.	<ul style="list-style-type: none"><li>● Use the mouse delivered with your NVR.</li><li>● Make sure no cable is extended.</li></ul>