

REVO NVR/ Hybrid Video Recorders

User Manual

Manual Version: V1.17

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Disclaimer



CAUTION!




- 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 9 characters comprising all three elements: letter, special character, digit.
 - Weak: contains at least 8 characters from two of the four types: upper-case letter, lower-case letter, special character, digit.
-
- To the maximum extent permitted by applicable law, the product described, with its hardware, software, firmware and documents, is provided on an "as is" basis.
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malfunction or information leakage caused by cyber attack, hacking or virus in connection with the use of this product.

- Video and audio surveillance can be regulated by laws that vary from country to country. Check the law in your local region before using this product for surveillance purposes. We shall not be held responsible for any consequences resulting from illegal operations of the device.
- The illustrations in this manual are for reference only and may vary depending on the version or model. The screenshots in this manual may have been customized to meet specific requirements and user preferences. As a result, some of the examples and functions featured may differ from those displayed on your monitor.
- This manual is a guide for multiple product models and so it is not intended for any specific product.
- Due to uncertainties such as physical environment, discrepancy may exist between the actual values and reference values provided in this manual. The ultimate right to interpretation resides in our company.

Safety Symbols

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

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

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Preface

This manual describes how to use your Hybrid DVR 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

All DVR supports two types of operations: local operations and web-based remote operations. With local operations you connect a monitor and a mouse to the DVR 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 DVR by pressing the front panel buttons or using the remote control.

The DVR has an embedded web server and allows web-based operations. To do this, you need a PC that has a network connection to the DVR and is installed with a web browser. You just need to navigate to the DVR 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.

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.

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

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.

Mouse Operations





Table 1–1 Mouse Operations

Name	Action	Description
Left button	Click	<ul style="list-style-type: none"> Select or confirm an item. Select to edit digits, symbols, upper-case or lower-case letters in a field.
	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"> Show the shortcut menu. Exit zoom. Exit the current window when Cancel or Exit is displayed.
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

Front Panel Buttons

The front panel buttons may vary with DVR model.

Table 1–2 Front Panel Buttons 1

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

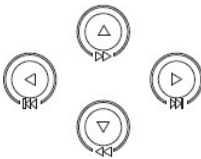


















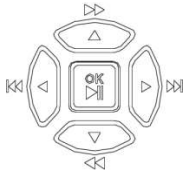

Button	Description
	<ul style="list-style-type: none"> △, ▽, ▷, ◁: Switch windows or menu items; or control rotation directions of a PTZ camera when the PTZ toolbar is closed. PTZ stands for pan, tilt, and zoom. ⏮, ⏭: Rewind or forward 30 seconds in full screen. ⏩, ⏪: Variable-speed forward or rewind in full screen.
	Confirm an operation, or start/pause the playback.
	<p>Press this button to start up or shut down the DVR.</p> <p>To shut down, press this button and hold for at least 3 seconds till a message appears on your monitor. Click Yes.</p> <p>Note:</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 DVR.</p> <p>To shut down, press this button and hold for at least 3 seconds till a message appears on your monitor. Click Yes.</p> <p>Note:</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.

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

Button	Description
	<ul style="list-style-type: none"> △, ▽, ▷, ◁: Switch windows or menu items; or control rotation directions of a PTZ camera when the PTZ toolbar is closed ⏮, ⏭: Rewind or forward 30 seconds in full screen. ⏩, ⏪: Variable-speed forward or rewind in full screen.  : Confirm an operation; or start or pause playback.

Remote Control

Table 1–4 Functions of the Buttons on the Remote Control

Button	Function
Power	<p>Press this button to start up or shut down the DVR. To shut down, press this button and hold for at least 3 seconds till a message appears on your monitor. Click Yes.</p> <p>Note: This shutdown operation can be performed only when you have logged in to the system.</p>
DEV	This button is for reserved functions.
Toolbar	<ul style="list-style-type: none"> In live view mode, press this button to show the toolbar for the currently selected window. In playback mode, press this button to display windows according to the configured screen layout.
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"> • Press UP, DOWN, LEFT and RIGHT to navigate between menu items or shift focus. • 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. • 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. • 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. • UP and DOWN: Variable speed forward or rewind in full screen. • LEFT and RIGHT: Rewind or forward 30 seconds in full screen.
Fn	Press to navigate to the next window when multiple windows are displayed.
Esc	Exit.
Alphanumeric buttons	<ul style="list-style-type: none"> • Switch to the corresponding channel in live view mode. • Input numbers and characters in edit mode.
Shift	Switch menu items.
Del	Remove characters or spaces on the left of the cursor.

2 Initial Configuration

Preparation

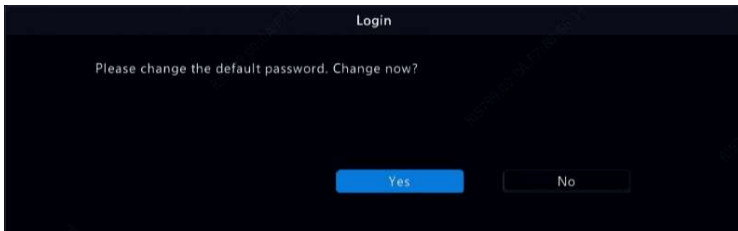
- Make sure that at least one monitor is correctly connected to the VGA or HDMI interface on the rear panel of the DVR.
- Verify that the hard disk(s) are correctly installed. For detailed steps to install a hard disk, please refer to the quick guide shipped with your DVR.

Device Login

The login page appears after the DVR starts up.

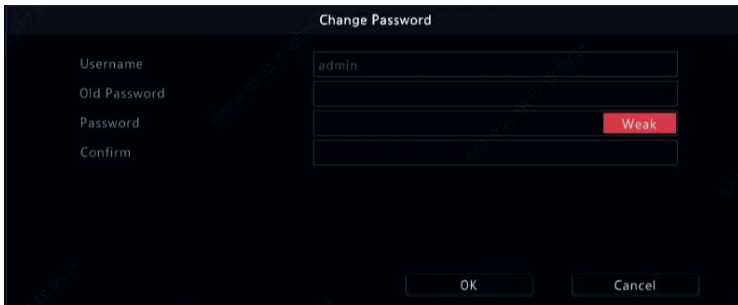


1. Enter the default admin password 123456, click **Login**, and then click **Yes** to change the password.



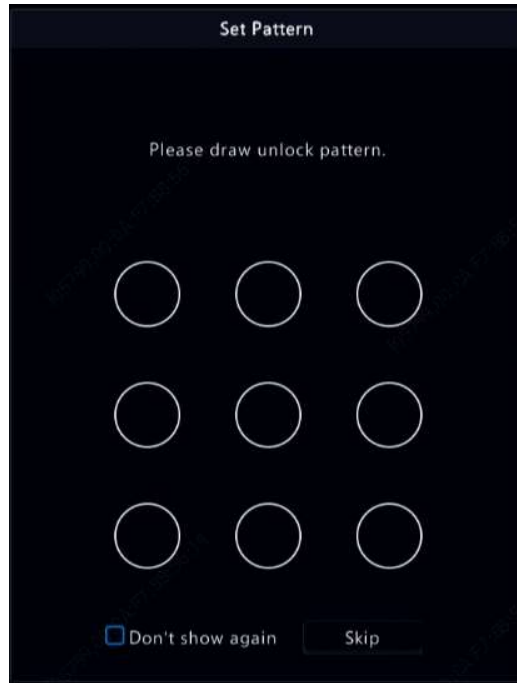
The image shows a dark-themed login screen. At the top, the word "Login" is centered. Below it, a message reads "Please change the default password. Change now?". At the bottom, there are two buttons: a blue "Yes" button and a grey "No" button.

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



The image shows a "Change Password" screen. It has four input fields on the left: "Username" (containing "admin"), "Old Password", "Password", and "Confirm". The "Password" field has a red "Weak" indicator to its right. At the bottom, there are two buttons: "OK" and "Cancel".

3. Set the unlock pattern.




NOTE!

To disable unlock pattern, click **System > User**. See [User Configuration](#) for details.

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**.

Wizard

1 2 3 4
QR Code Time TCP/IP IP Camera

Working Mode: Multi-address

Select NIC: NIC1

☐ Enable DHCP

IP Address: 206 . 3 . 0 . 86

IP Subnet Mask: 255 . 255 . 255 . 0

IP Default Gateway: 206 . 3 . 0 . 1

Default Route: NIC1

Previous Next Exit

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

Wizard

1 2 3 4
Wizard Time TCP/IP IP Camera

☐ Auto Switch to H.265

Auto Switch to Smart Encod... ☐ Off ☐ Basic ☐ Advanced

<input type="checkbox"/> Select	IP Addr.	Status	Qty	Device Model	Protocol	Port	Manufacturer	Serial No.
<input type="checkbox"/> 1	192.168.1.32		1	DS-2CD50	ONVIF	80	DS-2CD502	
<input type="checkbox"/> 2	203.1.8.11		1	IPC324ER3	ONVIF	80	UNI	210235C23
<input type="checkbox"/> 3	203.1.8.167		1	IPC322SR3	ONVIF	80	UNI	210235C2H
<input type="checkbox"/> 4	206.0.0.127		1	HIC5631-L	ONVIF	80	UNI	210235C1FI
<input type="checkbox"/> 5	206.0.0.130		1	HIC3531-IR@D	ONVIF	80	UNI	210235C2Y

Discovered Device(s):158, Added Device(s):6

+ Add Search

Previous OK Exit



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










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




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 Backup > Image .

Icon	Description
	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. Note: Correct audio input and output connections are required.
	Click to turn on audio. Clicking  turns off audio. The sound volume is adjustable. Note: When you turn on audio in the current window, audio of the previous window is turned off.

Screen Toolbar

Icon	Description
	Click to access the main menu.
	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.

Icon	Description
	Available to certain DVR models. Click to display the cloud service window. You may scan the QR code and download an app to manage your DVR.
	Click to automatically hide the toolbar, or click  to lock.

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 Camera > Camera (with Menu > omitted).
Common Menu	Quick access to Camera , Net Config , and Backup .

Menu	Description
Corridor	Choose a corridor mode. Corridor mode can also be set in the Preview Windows drop-down list under System > Preview . To display images in corridor mode, the camera must be installed correctly (rotated 90° clockwise or counterclockwise), and then use the Image Rotation parameter under Camera > Image to rotate images accordingly.
Main/Aux Monitor	Switch live video from different video output.
Preview Mode	Switch between Normal and Smart . The default is Normal 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.

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 DVR 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.






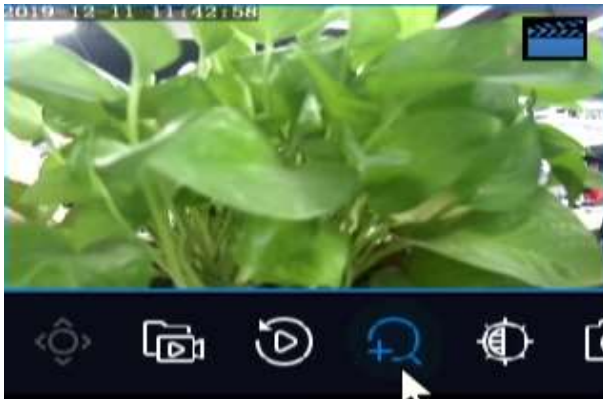
NOTE!

- 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.

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.

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.

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 DVR model.



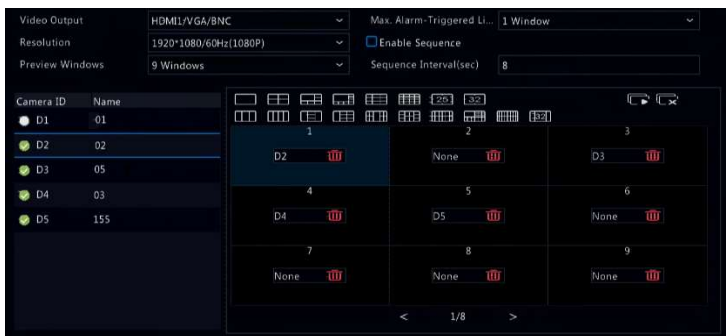
NOTE!

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

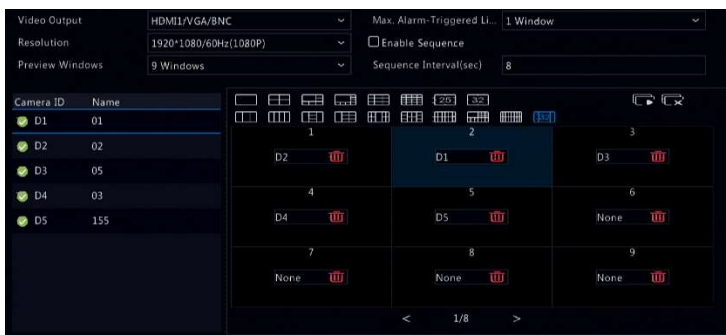
Preview Configuration

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.



Advanced Configuration

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

4 Channel Configuration

Channel Management

This chapter describes how to add and manage IP devices in your DVR. 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 DVR via network.



CAUTION!

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

Camera Type

This page is displayed for hybrid DVRs 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**.

Camera ID	<input checked="" type="checkbox"/> Analog	<input type="checkbox"/> Digital
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	<input checked="" type="checkbox"/>	<input type="checkbox"/>

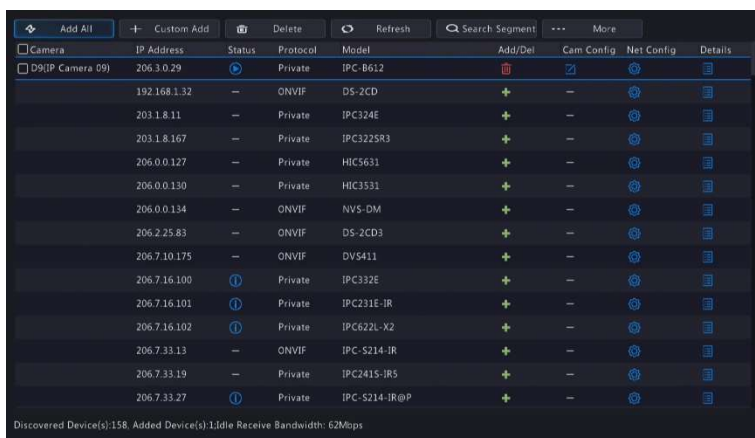
3. Click **Apply**, then a message indicating device restart appears.
4. Click **Yes**. Channel type will be changed after the DVR restarts.

Adding an IP Device

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

Option 1


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



	IP Address	Status	Protocol	Model	Add/Del	Cam. Config	Net Config	Details
<input type="checkbox"/> Camera								
<input type="checkbox"/> 09(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	DV5411	+	—		
	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 DVR).
 - 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 DVRs with PoE ports or switching ports.

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

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 MyDDNS
 - a. On the IP device's Web interface, go to **Setup > Network > DDNS**, enable DDNS, select **MyDDNS**, 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 MyDDNS server and the NVR are connected (ping the MyDDNS 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 MyDDNS) at the same time.
 - When an IP device is added by MyDDNS, 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.

No.	IP Address	Status	Qty	Model
1	192.168.1.32		1	DS-2CD5
2	203.1.8.11		1	IPC324ER3
3	203.1.8.167		1	IPC322SR3
4	206.0.0.127		1	HIC5631-L
5	206.0.0.130		1	HIC3531-IR
6	206.0.0.134		1	NVS-DM36X

Add Mode	IP Address
Protocol	ONVIF
IP Address	192 . 168 . 1 . 32
Port	80
Username	admin
Password	*****
Total Camera Number	1

Protocol Search OK Cancel

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.

Protocol

Custom	Custom1
Protocol Name	Custom1
Port	554
Transmission Protocol	UDP
Enable Main Stream	<input checked="" type="checkbox"/>
Resource Path	rtsp://<ip>:<port>/
Enable Sub Stream	<input checked="" type="checkbox"/>
Resource Path	rtsp://<ip>:<port>/

Example : rtsp://<IP address>:<Port number>/<Resource path>

One channel :
rtsp://192.168.0.1:554/unicast/c1/s0/live

Multi-channel :
rtsp://192.168.0.1:554/unicast/c[%C]/s0/live Add selected camera ID
rtsp://192.168.0.1:554/unicast/c[%C+1]/s0/live Add selected camera ID+1
rtsp://192.168.0.1:554/unicast/c[%C-1]/s0/live Add selected camera ID-1
[%C±N] : %C means the remote camera ID selected, N means offset

OK Cancel

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.


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 preview page.

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.


Sort Cameras



Sort cameras to display in the desired order.



NOTE!

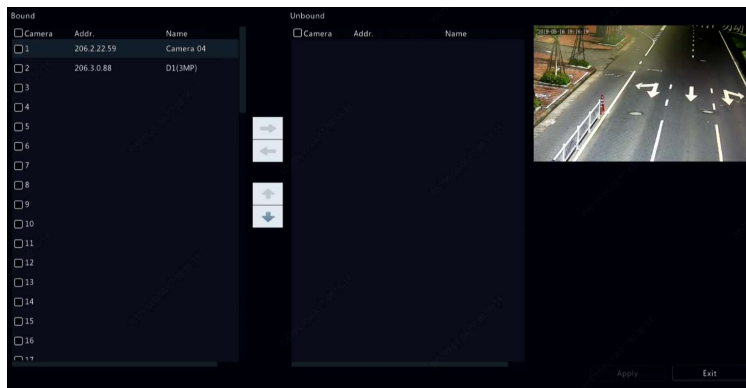
- This function is unavailable to hybrid NVRs, NVRs with PoE ports or switching ports.
- This chapter describes how to sort cameras on an NVR with more than 32 channels. For NVRs with 32 channels or less, you can sort cameras by dragging the mouse.

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.


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.
-

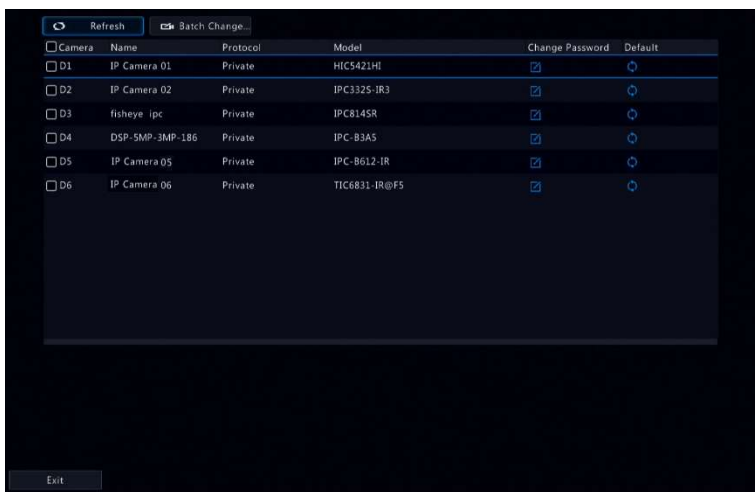
**NOTE!**

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

5. Click **OK**.

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.

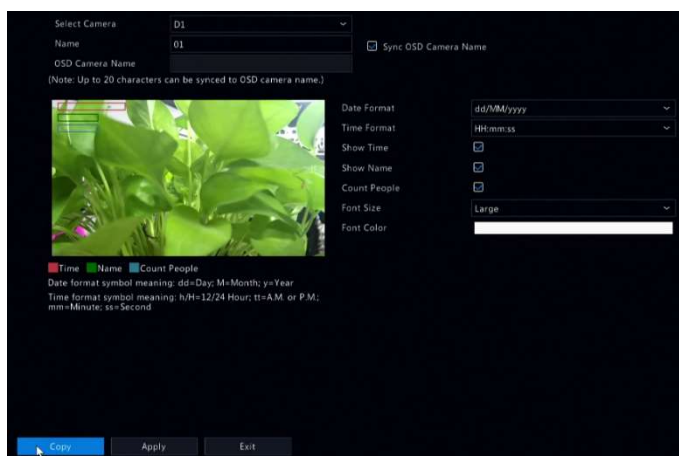
Restore Default Settings

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

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.



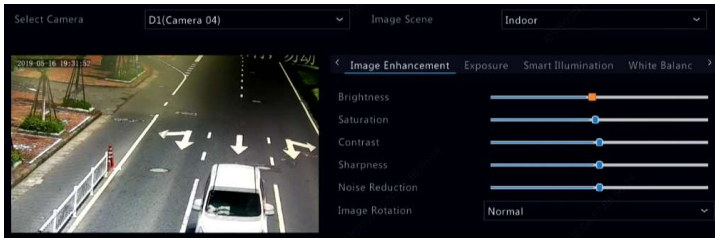
NOTE!

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

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

Image Configuration

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



- 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.

Image enhancement

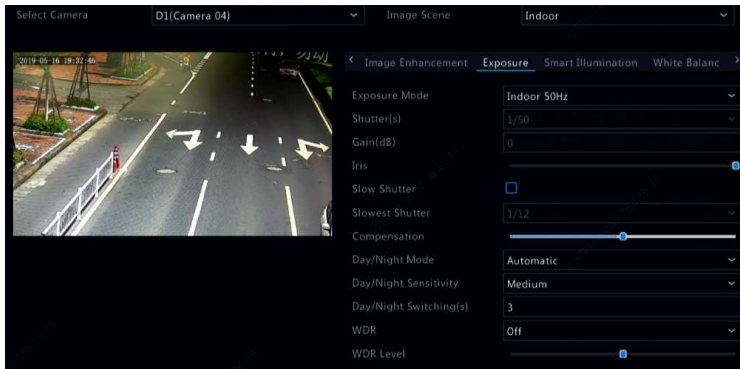
- Click the **Image Enhancement** tab.
- Adjust the settings as needed. Some important parameters are described in the table below.

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

Parameter	Description
Image Rotation	<ul style="list-style-type: none"> • Normal: Displays images without rotation. • Flip Vertical: Displays images flipped vertically. • Flip Horizontal: Displays images flipped horizontally. • 180°: Displays images flipped vertically and horizontally. • 90° CW and 90° CCW: Display images in corridor format. The camera must be installed correctly (rotated 90° clockwise or counterclockwise).

Exposure

1. Click the **Exposure** tab.



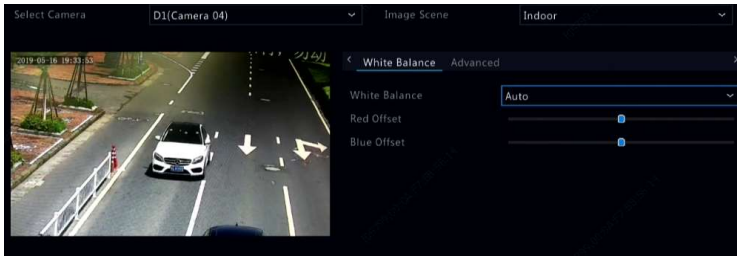
2. Adjust the settings as needed. Some important parameters are described in the table below.

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.

Parameter	Description
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"> 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. Night: The camera outputs high-quality black and white images according to the ambient lighting condition. Day: The camera outputs high-quality color images according to the ambient lighting condition.
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.

White balance

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

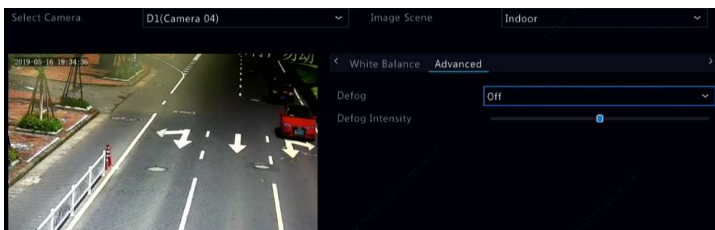


2. Adjust the settings on this tab. Some important parameters are described in the table below.

Parameter	Description
White Balance	Adjust the red or blue offset of the image: <ul style="list-style-type: none"> • Auto: The camera adjusts the red or blue offset automatically according to the lighting condition (the color tends to be blue). • Finetune: Allow you to adjust the red or blue offset manually.
Red Offset	Adjust the red offset manually.
Blue Offset	Adjust the blue offset manually.

Advanced settings

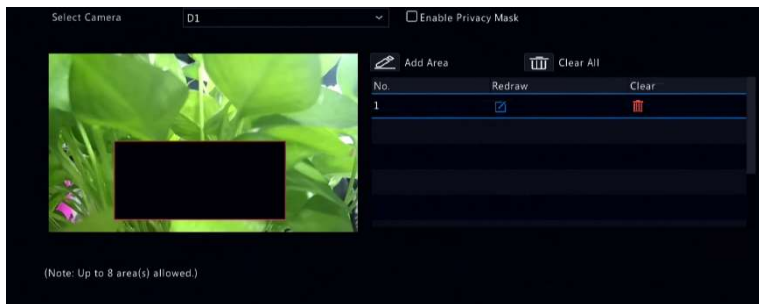
1. Click the **Advanced** tab.
2. Use defog to improve image quality in foggy days.




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.

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.

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.



PTZ Control Window and PTZ Management Window













- 3. Click  on the window toolbar. The **PTZ Control** window appears.
See [PTZ Control Window Buttons](#) for detailed descriptions.
- 4. 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.




Button	Description
	<p>Adjust the zoom, focus, and iris of the PTZ camera.</p> <p>Note: You can also zoom in or out using the scroll wheel on your mouse.</p>
	<p>Control the rotation speed of the camera. 1 means the slowest, and 9 means the fastest.</p>
	<p>Click to display the PTZ Management window.</p>
	<ul style="list-style-type: none"> • Turn on/off the light. • Turn on/off the wiper. • Use 3D positioning. • Turn on/off the heater. • Turn on/off the function to remove snow. • Turn on/off PTZ shortcut operations. <p>Note:</p> <ul style="list-style-type: none"> • Check that the 3D positioning, heater and snow removal functions are supported by the camera before using. • Use 3D positioning to zoom in or out. Dragging from top down zooms in. Dragging the other way zooms out.
	<p>Preset button.</p>
	<ul style="list-style-type: none"> • Call a preset so the PTZ camera goes to the preset position. • Delete a preset <p>Note:  and  are displayed for saved presets only.</p>
	<p>Preset patrol, recorded patrol and auto guard. For detailed information, see Error! Reference source not found., Error! Reference source not found., and Error! Reference source not found..</p>
	<p>Start or stop.</p>

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.

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.

Encoding Settings

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 Camera	D1(IP Camera 01)		
Storage Mode	Main and Third Stream		
Capture Mode	1920*1080@30		
	Main Stream	Sub Stream	Third Stream
Stream Type	Normal	Network Transmission	Network Transmission
Video Compression	H265	H265	H264
Resolution	1920*1080(1080P)	720*576(D1)	352*288(CIF)
Bitrate Type	VBR	VBR	VBR
Bit Rate(Kbps)	1024	512	128
Frame Rate(fps)	22	30	25
Image Quality	<input type="range"/>	<input type="range"/>	<input type="range"/>
I Frame Interval	40	60	60
Smoothing	<input type="range"/>	<input type="range"/>	<input type="range"/>
Audio Stream	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Smart Encoding	Advanced Mode	Off	Off
<div>Copy Apply Exit</div>			

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	<p>Five storage modes are available: Main Stream, Sub Stream, Main and Sub Stream, Main and Third Stream, Sub and Third Stream.</p> <p>Note: Only certain models support all the five modes.</p>
Capture Mode	<p>Combinations of resolutions and frame rates.</p> <p>Note: This parameter is effective only when the camera is connected to the NVR via the private protocol.</p>
Stream Type	<ul style="list-style-type: none">• Normal: main stream that is intended for scheduled recording.• Event: main stream that is intended for recording triggered by events such as alarm inputs or motion detection alarms.• Sub Stream: low resolution video that is intended for local or remote real-time monitoring.
Video Compression	<p>Video compression standard, for example, H.264, H.265.</p> <p>The listed options depend on the standards supported by the camera.</p>
Resolution	Image resolution.
Bitrate Type	<ul style="list-style-type: none">• 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.• 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

Parameter	Description
	in the picture.
Bit Rate(Kbps)	Number of bits transferred per second. Select a value or select Custom 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 Bitrate Type is set to VBR . 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.

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

Snapshot

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

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

Select Camera	D1(IP Camera 01) ▼	
Snapshot Type	Schedule	Event
Resolution	704*576(4CIF) ▼	704*576(4CIF) ▼
Image Quality	Medium ▼	High ▼
Snapshot Interval	5s ▼	2s ▼

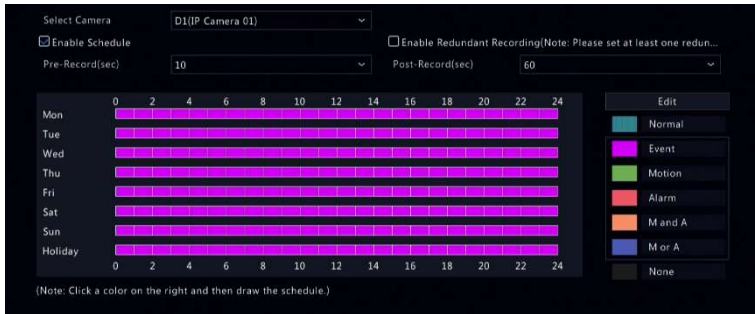
Parameter	Description
Snapshot Type	Scheduled snapshot uses the Normal type of schedule. Event-triggered snapshot is triggered by an event such as an alarm input and a motion detection alarm. Note: Settings effective to event-triggered snapshot also apply to manual snapshot.
Resolution	Snapshot resolution.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

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

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. Schedule is enabled by default. If it is disabled, select to enable it.
3. Set **Pre-Record** and **Post-Record** as needed.
4. (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).



5. 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**.

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

Scheduled Recording and Snapshot

Scheduled Recording

Scheduled recording records video according to the set schedule and it is different from manual recording and alarm-triggered recording. A 24×7 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.

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**.

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.

Motion Detection Recording

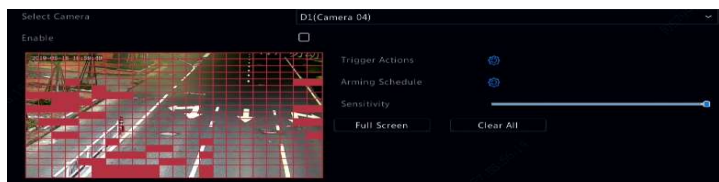
1. Click **Alarm > Motion**.
2. Select the camera from the list, and then select the check box to enable motion detection.





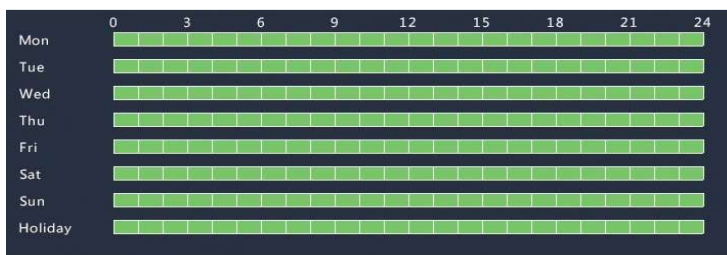
NOTE!

- 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.



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**.

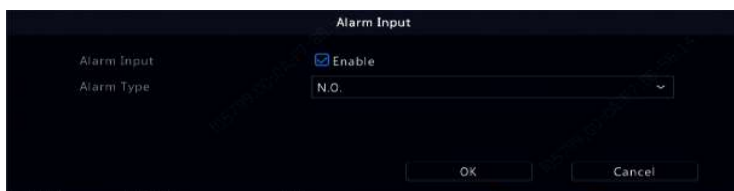
2. Set a snapshot schedule under **Storage > Snapshot**. For the detailed steps, see [Draw or Edit a Schedule](#). Make sure the schedule type is **Motion**.

Alarm Triggered Recording and Snapshot

Set input alarms to trigger recording and snapshot. See [Alarm Input and Output](#) for more details.


Alarm Triggered Recording

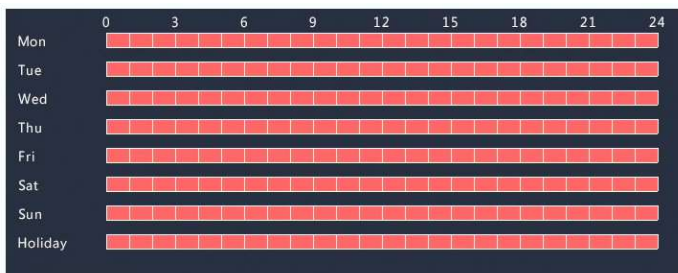
1. Click **Alarm > Input/Output > Alarm Input**.
2. Set alarm input: click  for the desired camera. In the window displayed, select **Enable**, select N.O. (normally open) or N.C. (normally closed) trigger mode, and then click **OK**.



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.



Alarm Triggered Snapshot

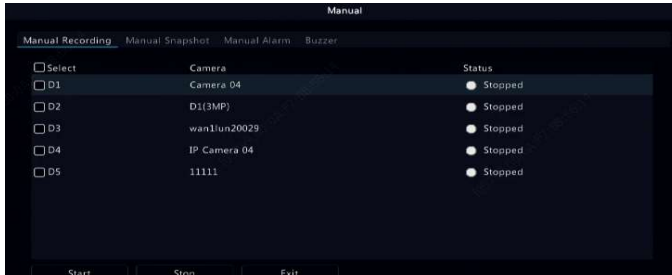
Alarm triggered snapshot is similar to alarm triggered recording. You need to enable and configure alarm input first (see steps 1 to 2 in [Alarm Triggered Recording](#) for details) and then proceed with the following steps.

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**.

Manual Recording and Snapshot

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**.



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.

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.

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.

Holiday

Holiday Name:

Status: ☒ Enable ☐ Disable

Repeat: ☒ No ☐ Yes

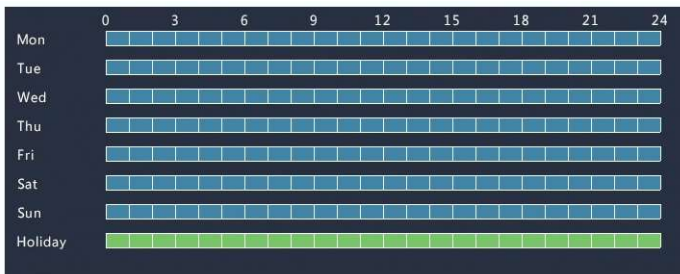
Mode: ☒ By Day ☐ By Week

Start Time: 2019-05-16

End Time: 2019-05-16

Apply OK Cancel

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.



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.

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

Instant Playback

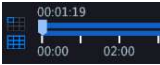
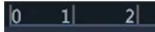
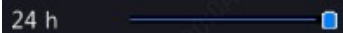









Instant playback plays the video recorded during the last 5 minutes and 30 seconds. If no recording is found, it means there is no recording during this period.







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.



Playback Toolbar

Table 7–1 Playback Toolbar Buttons

Button	Description
	Show playback progress. Note: <ul style="list-style-type: none">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.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.
	Timeline.
	Zoom in or out on the timeline. Note: Alternatively, scroll your mouse wheel.
	Play, pause, stop, and reverse.
	Rewind or forward 30 seconds.
	Slow down or speed up. Note: Click  to restore the normal playback speed after clicking  , and vice versa.
	Forward by frame.
	Start or stop clipping video.
	Take a snapshot. The window borders will flash white.
	Lock.

Button	Description
	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).</p> <p>When enabled, POS OSD appears on the screen, and some toolbar buttons are deactivated.</p> <p>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.

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.
-

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.

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.

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.

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.


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.


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.



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 .

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.

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.

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.

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 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**.

Backup

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.

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.



NOTE!

- 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.
-

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.

Image Backup

The default format of image backup is JPG.

1. 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.


8 Alarm

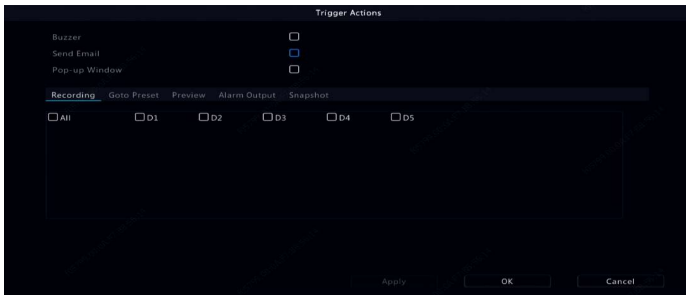
Alarm Input and Output

Alarm Input

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




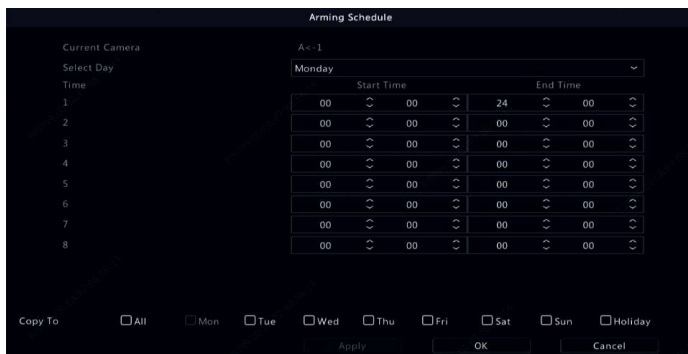
4. Click  under **Trigger Actions** and then set action(s) to trigger. For more details, see [Alarm-Triggered Actions](#).



NOTE!

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

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





The screenshot shows the 'Arming Schedule' configuration window. On the left, there is a sidebar with 'Current Camera', 'Select Day', and a list of time slots from 1 to 8. The main area is titled 'Monday' and shows a table with 'Start Time' and 'End Time' columns. The first row is set to '00' for start and '24' for end, with '00' for both in the second row. Below the table, there are checkboxes for 'Copy To' (All, Mon, Tue, Wed, Thu, Fri, Sat, Sun, Holiday) and buttons for 'Apply', 'OK', and 'Cancel'.



NOTE!

- The default schedule is 24×7. 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 days right to **Copy To**.
- To apply the same settings to other cameras, click **Copy**, select cameras, and then click **OK**.

Alarm Output

1. Click **Alarm > Input/Output > Alarm Output**.
2. Click  under **Edit** for the desired camera, and then set the default status and duration. After you have completed the settings, click **OK**.
3. Click  under **Arming Schedule** and then set the time when actions will be triggered.



NOTE!

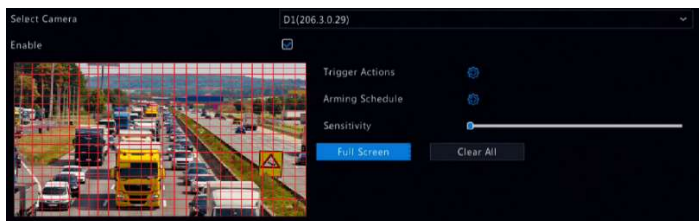
To apply the same settings to other cameras, click **Copy**, select cameras, and then click **OK**.


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!

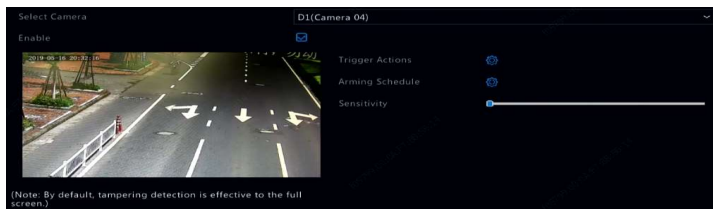
- The default schedule is 24x7. You may change it as needed and set up to eight different periods for each day. Time periods cannot overlap.
- To apply the same arming schedule to other days, select the intended days right to **Copy To**.



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

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.

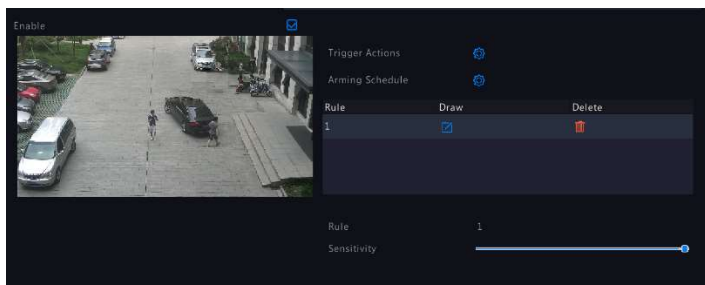



3. Click  right to **Trigger Actions** and set action(s) to trigger. For more details, see [Alarm-Triggered Actions](#).
4. (Optional) Click  right to **Arming Schedule** and then set the time when actions will be triggered.
5. (Optional) Click **Copy** to apply the same settings to other cameras.
6.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

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 check box
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.

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.

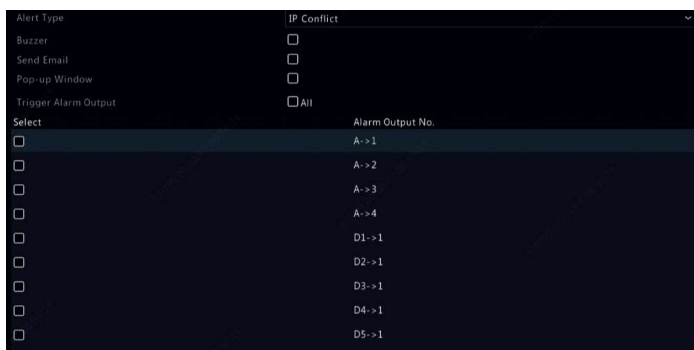
Alert

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 [Error! Reference source not found.](#) 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.

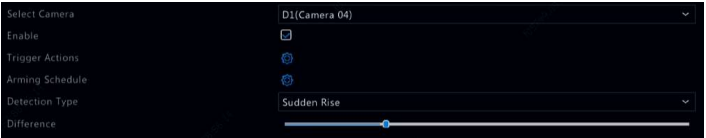




3. Click **Apply** to save the settings.

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.

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**.

Alarm Duration	<input type="radio"/> Maximum	<input checked="" type="radio"/> Custom
Custom Duration(sec)	30	

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

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		

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.

Manual Alarm

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**.

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 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.

Basic Configuration

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.
-

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.myrevocloud.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.myrevocloud.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 REVO ULTRA app on your mobile phone first.



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.

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 a 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](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.

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!

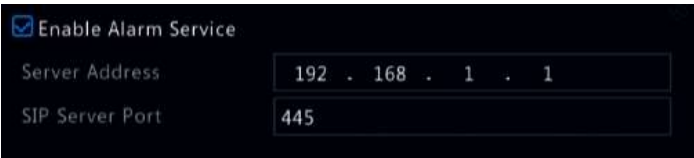
- By default a 24×7 arming schedule is enabled. The NVR sends an email notification only in the arming period.
- Select **Attach Image** if you want snapshots to be sent via email. Make sure Email and snapshot have been enabled in the **Trigger Actions** window.
- Only certain NVR models support image attachment. You may click **Test** to check whether the email can be sent successfully.

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

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 SIP server port.

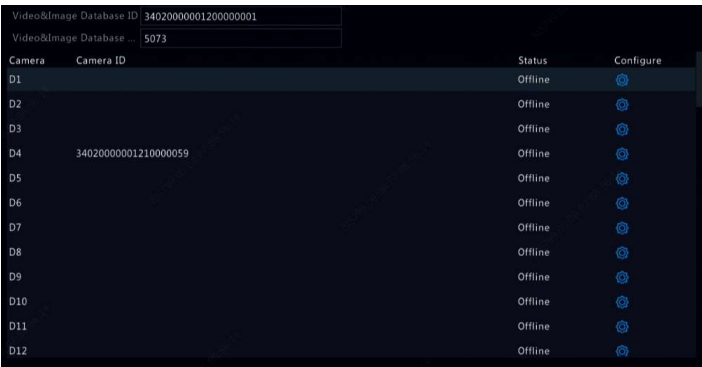


NOTE!


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.

Video&Image Database Local Config

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



Camera	Camera ID	Status	Configure
D1		Offline	
D2		Offline	
D3		Offline	
D4	3402000001210000059	Offline	
D5		Offline	
D6		Offline	
D7		Offline	
D8		Offline	
D9		Offline	
D10		Offline	
D11		Offline	
D12		Offline	

2. Use the default database ID and port. Click  to set camera ID.



3. Click **OK**.
4. Log in to the camera's Web interface and complete settings on **Setup > Config Management > Photo Server**. The settings may vary depending on the platform communication type you choose. Some settings are described below.
 - TMS Server: IP address of the NVR
 - TMS Server Port: Database port configured on the NVR.
 - Platform Communication Type: Choose the correct type.
 - LPR ID: Database ID configured on the NVR.
 - Device ID: Camera ID configured on the NVR.
 - Platform Access Code: Use the default setting.
 - Username: Use the default setting.
5. Click **Save**. Check management server status in the page's lower left corner. A green icon means the camera is connected to the Video&Image database. Now configuration on the camera is complete.

10 Disk Configuration

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**.

<input type="checkbox"/> No.	Total(GB)	Free(GB)	Status	Type	Usage	Property	Configure	Operate
<input type="checkbox"/> 1	1842.39	1717.00	Normal	Array	Recording/Snapshot	Read/Write		—

- 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

- 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.

11 System Configuration

Basic Configuration

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

Device Name	NVR
Device ID	1
Device Language	English
Auto Logout(min)	5
Instant Playback(min)	5
Mouse Pointer Speed	<input type="range"/>
<input checked="" type="checkbox"/> Enable Password	
<input type="checkbox"/> Enable Startup Wizard	
<input type="checkbox"/> Intelligent Mark	

Wizard



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.

Time Configuration

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.

Time Zone	(GMT+08:00) Beijing, Hong Kong, Uru ▾
Date Format	YYYY-MM-DD ▾
Time Format	24-hour ▾
System Time	2019-05-17 10:01:53 ▾
<input type="checkbox"/> Enable Auto Update	
NTP Server Address	0.0.0.0
NTP Port	123
Update Interval	10m ▾

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.

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.

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.

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.

Security Configuration

IP Address Filtering

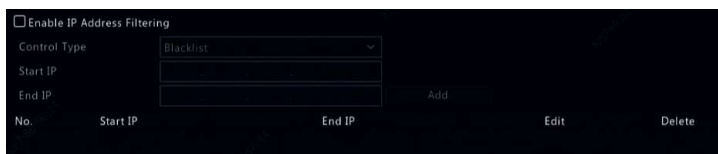
Use this function to enhance security by allowing or forbidding access to the NVR from specified IP addresses.

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



NOTE!

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



The screenshot shows the 'Enable IP Address Filtering' configuration window. It includes a checkbox for 'Enable IP Address Filtering', a 'Control Type' dropdown menu set to 'Blacklist', and input fields for 'Start IP' and 'End IP'. Below these fields is a table with columns for 'No.', 'Start IP', 'End IP', 'Add', 'Edit', and 'Delete'. The 'Add' button is positioned to the right of the 'End IP' field.

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

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.

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.

12 System Maintenance

System Information

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

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.	21023570
Firmware Version	NVR-B31
Build Date	2019-04-22
Operation Time	0 Day(s) 15 Hour(s) 19 Minute(s)

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	wan1jun20029	Online	Triggered	Off	On	Off
D4	JP Camera 04	Online	Triggered	Off	On	Off
D5	11111	Online	On	Off	On	Off

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	wan1jun20029	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

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

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

Decoding card status

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

Network Information

Traffic

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



Network Detection

Click **Maintain > Network Info > Net Detect.**


To test network delay and packet loss rate, enter the test address and then click **Test**.



NOTE!

The test packet size is 3000 bytes by default and can be changed as needed.

The screenshot shows a form titled "Network Delay and Packet Loss Test". It includes a "Test Address" input field, a "Ping Packet Size(Bytes)" input field set to "3000", and a "Test Result" output field. A "Test" button is located to the right of the "Test Result" field.

To capture and save packets, select the USB storage device, specify the port number and IP address, and then click  right to the desired NIC. 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 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.
-

Network Settings

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

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.

Network Statistics

Click **Maintain > 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.


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 **Maintain > 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
admin	2019-05-17 10:18:26	D3		Alarm	Motion Detection Started	
	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	
<div>< > 1 / 452 ➔</div>						

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**.

Import/Export

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 **Maintain > 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.

Diagnosis Info

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

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

Device Type		<input checked="" type="radio"/> NVR	<input type="radio"/> IPC
Current Diagnosis Info		Export	
<input type="checkbox"/> No.	History Diagnosis Info	File Size	Modify Time
<input type="checkbox"/> 1	NVR_Log_20190517000000.tgz	241KB	2019-05-17 00:00:00
<input type="checkbox"/> 2	NVR_Log_20190516000000.tgz	218KB	2019-05-16 00:00:00
<input type="checkbox"/> 3	NVR_Log_20190515000000.tgz	238KB	2019-05-15 00:00:00
<input type="checkbox"/> 4	NVR_Log_20190514000000.tgz	204KB	2019-05-14 00:00:00
<input type="checkbox"/> 5	NVR_Log_20190513000000.tgz	204KB	2019-05-13 00:00:00
<input type="checkbox"/> 6	NVR_Log_20190512000000.tgz	203KB	2019-05-12 00:00:00
<input type="checkbox"/> 7	NVR_Log_20190511000000.tgz	204KB	2019-05-11 00:00:00
<input type="checkbox"/> 8	NVR_Log_20190510000000.tgz	203KB	2019-05-10 00:00:00
<input type="checkbox"/> 9	NVR_Log_20190509000000.tgz	203KB	2019-05-09 00:00:00
<input type="checkbox"/> 10	NVR_Log_20190508000000.tgz	202KB	2019-05-08 00:00:00
<input type="checkbox"/> 11	NVR_Log_20190507000000.tgz	202KB	2019-05-07 00:00:00

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.

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.

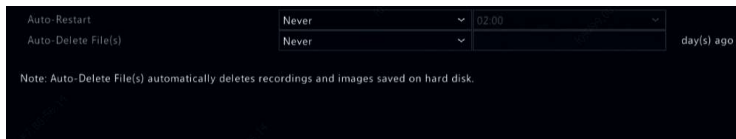
1. Click **Maintain > Restore**.

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

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



Auto-Restart	Never	02:00	
Auto-Delete File(s)	Never		day(s) ago

Note: Auto-Delete File(s) automatically deletes recordings and images saved on hard disk.



CAUTION!

Files deleted automatically cannot be recovered.

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.

NVR Upgrade

1. Click **Maintain > 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.

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.

Hard Disk Detection

S.M.A.R.T. Test

Click **Maintain > 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	Disk Temperature(°C)	34
Vendor	TOSHIBA	Operation Time(day)	501
Model	TOSHIBA MD04ABA400V	Self-Evaluation	Pass
Firmware Version	FP1T	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 REVO AMERICA for information about hard disks.

Bad Sector Detection

Bad sector detection checks for bad sectors in hard disks.

1. Click **Maintain > 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.

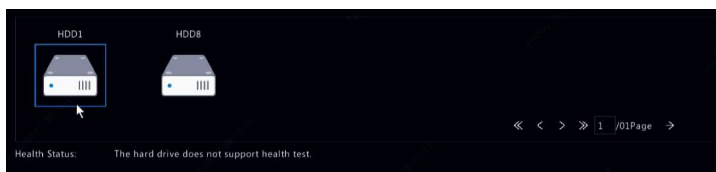


CAUTION!

The detection stops automatically when the error count reaches 100.

Health Test

Health test is supported by certain NVR models.



Smart Bar Info

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

Follow the steps to upgrade the smart bar.

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

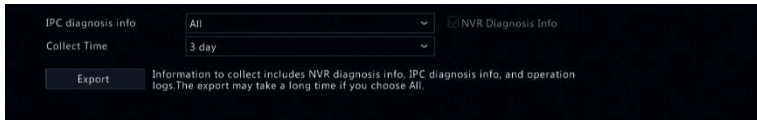


NOTE!

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

One-Click Collect

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



The screenshot shows a dark-themed interface for exporting diagnostic information. On the left, there are two labels: 'IPC diagnosis info' and 'Collect Time'. To the right of 'IPC diagnosis info' is a dropdown menu with 'All' selected. To the right of 'Collect Time' is a dropdown menu with '3 day' selected. Further right is a checkbox labeled 'NVR Diagnosis Info' which is checked. Below these elements is a grey button labeled 'Export'. To the right of the 'Export' button is a line of text: 'Information to collect includes NVR diagnosis info, IPC diagnosis info, and operation logs. The export may take a long time if you choose All.'

13 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 the Windows 7 or Windows 8 operating system.
- A Web browser has been installed on the PC. Microsoft Internet Explorer 8.0 or higher is recommended. Firefox, Chrome and Opera browsers are also supported.
- A 32-bit Web browser is still required even 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 or go to myrevocloud.com, create an account and add your NVR/DVR to your account using the register code. The register code is located in the P2P tab under network settings.

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**.



CAUTION!

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

3 Live View

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

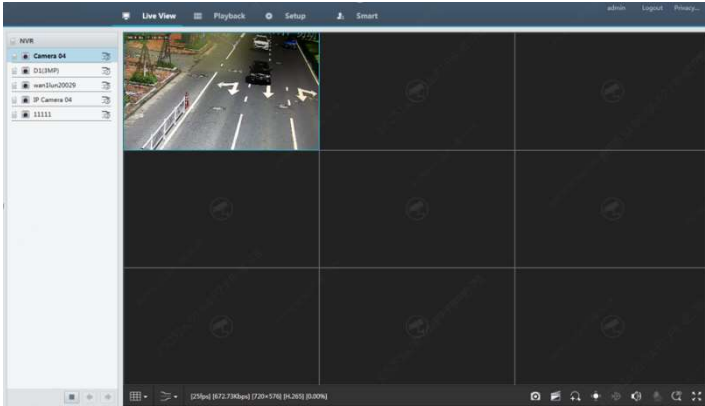







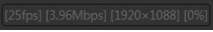











Table 3–1 Live View Window Control Buttons

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.

Button	Description	Button	Description
	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.

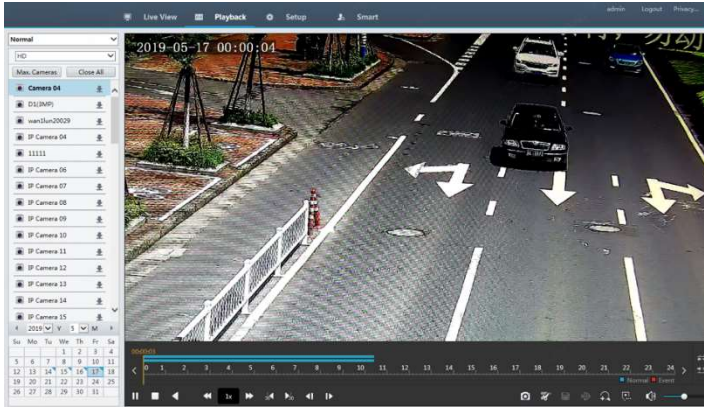


Table 4–1 Playback Control Buttons

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.

The screenshot displays the configuration interface of an NVR system. At the top, there are three tabs: 'Live View', 'Setup' (which is selected), and 'Smart'. On the left side, there is a 'System' menu with a list of options: 'Basic Setup' (highlighted in blue), 'Preview', 'Time', 'Holiday', 'Serial', 'Security', 'Hot Spare', 'POS', 'Camera', 'Hard Disk', 'Alarm', 'Alert', 'Network', 'Platform', 'User', 'Maintenance', and 'Backup'. The main area of the interface is titled 'Basic Setup' and contains a table of configuration parameters. The parameters and their values are as follows:

Parameter	Value
Device Name	NVR308-04E-8
Device ID	1
Device Language	English
Model	NVR308-04E-8
Serial No.	2102370E51214567890
Firmware Version	NVR-8311.26.13.200521
Build Date	2020-09-21
Operation Time	0 Day(s) 0 Hour(s) 15 Minute(s)

At the bottom of the configuration table, there is a 'Save' button.

Appendix C FAQs

Problem	Possible Cause and Solution
Forgot the login password	Click Forgot Password in the login page as admin, then follow the on screen instructions to retrieve password.
The Web plugin (ActiveX) cannot be loaded.	<ul style="list-style-type: none">• Close your web browser when the installation starts.• Disable the firewall and close the anti-virus program on your computer.• Enable your Internet Explorer (IE) to check for newer versions of the stored pages every time you visit the webpage (Tools > Internet Options > General > Settings).• Add your NVR's IP address to the trusted sites in your IE (Tools > Internet Options > Security).• Add your NVR's IP address to the Compatibility View list in your IE (Tools > Compatibility View Settings).• Clear your IE's cache.
No images are displayed in live view on the Web interface.	<p>Check if the bit rate is 0Mbps in the live view window.</p> <ul style="list-style-type: none">• If yes, check if the firewall has been disabled, and the anti-virus program has been stopped on your computer.• If not, maybe it is because the graphics card driver on your computer is not working properly. Try installing the driver again.

Problem	Possible Cause and Solution
<p>A camera is offline, and No Link is displayed.</p>	<p>Click Maintain > System Info > Camera. 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"> • Check network connection and network configurations. • If it indicates incorrect username or password, check that the camera password set in the NVR is the one used to access the camera's Web interface. • If it indicates denied access for weak password, log in to the camera's Web interface and set a strong password. • If it indicates insufficient bandwidth, delete other online IP devices in the NVR.
<p>The NVR displays live video for some cameras and No Resource for others.</p>	<ul style="list-style-type: none"> • Set the camera to encode the sub stream, and decrease its resolution to D1. • Set the NVR to use the sub stream first for live view.
<p>A camera goes online and offline repeatedly.</p>	<ul style="list-style-type: none"> • Check if network connection is stable. • Upgrade the firmware for the camera and the NVR.
<p>Live view is normal, but the recording cannot be found.</p>	<ul style="list-style-type: none"> • Check that a recording schedule has been properly configured. • Check if the time and time zone configured in the NVR are correct. • Check if the hard disk storing the recording has been damaged. • Check if the desired recording has been overwritten.

Problem	Possible Cause and Solution
Motion detection is not effective.	<ul style="list-style-type: none"> • Check that motion detection is enabled, and the motion detection area is properly configured. • Check that detection sensitivity is properly set. • Check that the arming schedule is properly configured.
A hard disk cannot be identified by the NVR.	<ul style="list-style-type: none"> • Use the power adapter delivered with your NVR. • Power down the NVR and then mount the hard disk again. • Try another disk slot. • The disk is not compatible with your NVR. Contact REVO AMERICA for a list of compatible disk models.
The mouse does not work.	<ul style="list-style-type: none"> • Use the mouse delivered with your NVR. • Make sure no cable is extended.