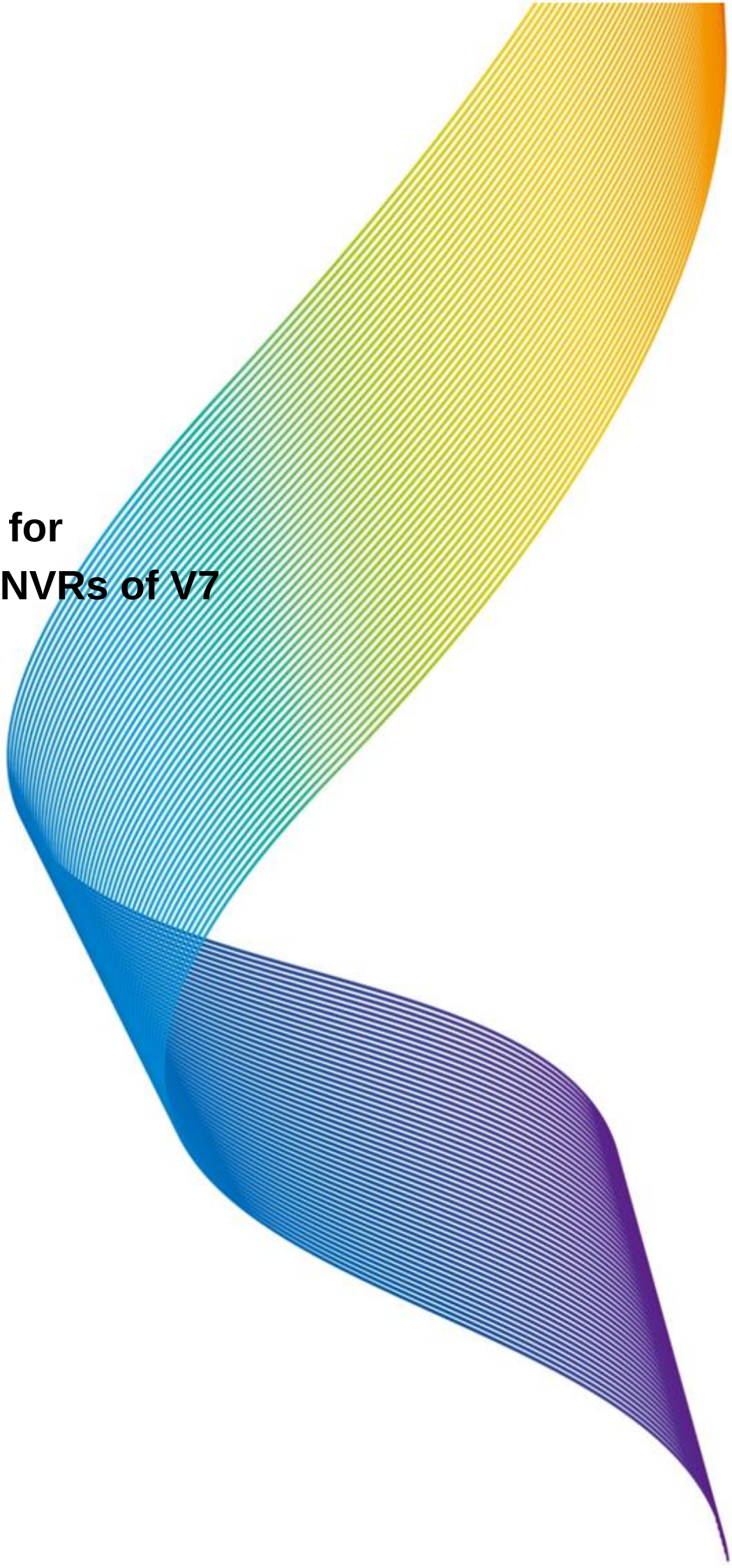
KEDACOM

User Manual for Commercial NVRs of V7



Version 00
March 2019

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About This Document

Intended Audience

This document is intended for the personnel who:

- Work with the commercial Network Video Recorders (NVRs)
- Know video surveillance basics

Document Versions

Version 00 (2019-03-08)

This is a draft.

Compatibility

The following table provides the products and NVR software version to which this document applies.

Product	• NVR1827 • NVR1828 • NVR1829
NVR Software Version	NVR V7R2B2

Getting Started

In this document, the admin account (username: **admin**) is applied and the "device" indicates a commercial NVR.

Procedure

Preparations

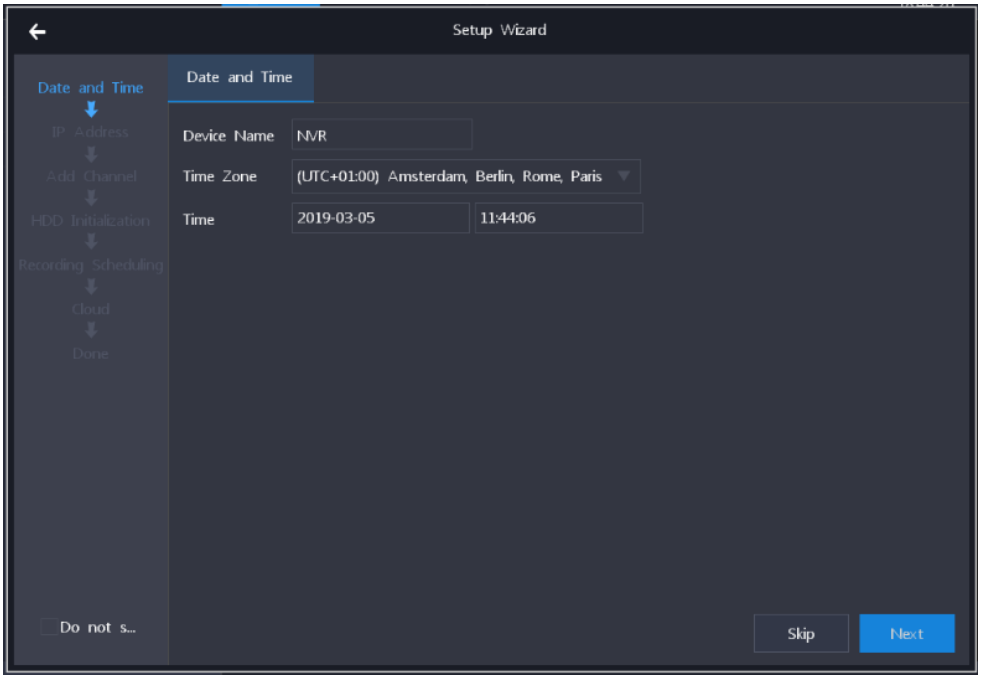
1. Connect a network cable to a network port (default IP**:** 192.168.1.100) of the device.
2. Install one or multiple HDDs.
   For details, see the related installation guide.
3. Connect peripheral devices (such as an alarm input) to the device.
   If you already connect such devices to the device when installing it, this step can be skipped.
   For details, see the related installation guide.
4. Power on the device.

Activating the Device

5. In the **Activate Device** dialog box, create a strong password, confirm the password, and enter a mail address for password resetting.
   The more a password contains special characters, the stronger the password is. You are advised to use a strong password to ensure your data safety. Periodically changing your password at 3-month intervals would be appreciated. If your network environment is risky, you should change your password at weekly or monthly intervals. Additionally, do not leak your username and password.
   The mail address is used to re-enable the default password of the admin account, which helps you access the device when you forget the new password of the account. Your mail box is the only access to resetting your password. Therefore, you must enter a valid and often used mail box address. For details on how to re-enable the default password of the admin account, see section "Re-Enabling the Default Password of the admin Account".
6. Click **Activate and Log In**.

Configuring Time Settings

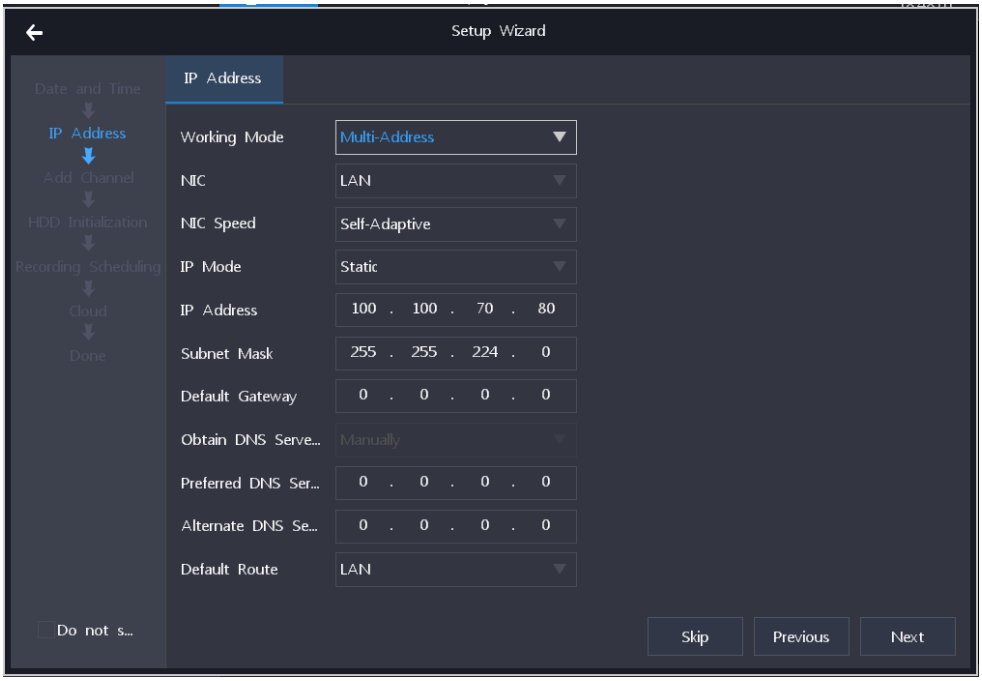
7. Configure the time settings.



8. Click **Next**.

Configuring Network Settings

9. Configure the network settings.



For PoE ports, their IP address is 172.26.1.100 and it cannot be changed.

10. Click **Next**.

Adding Cameras

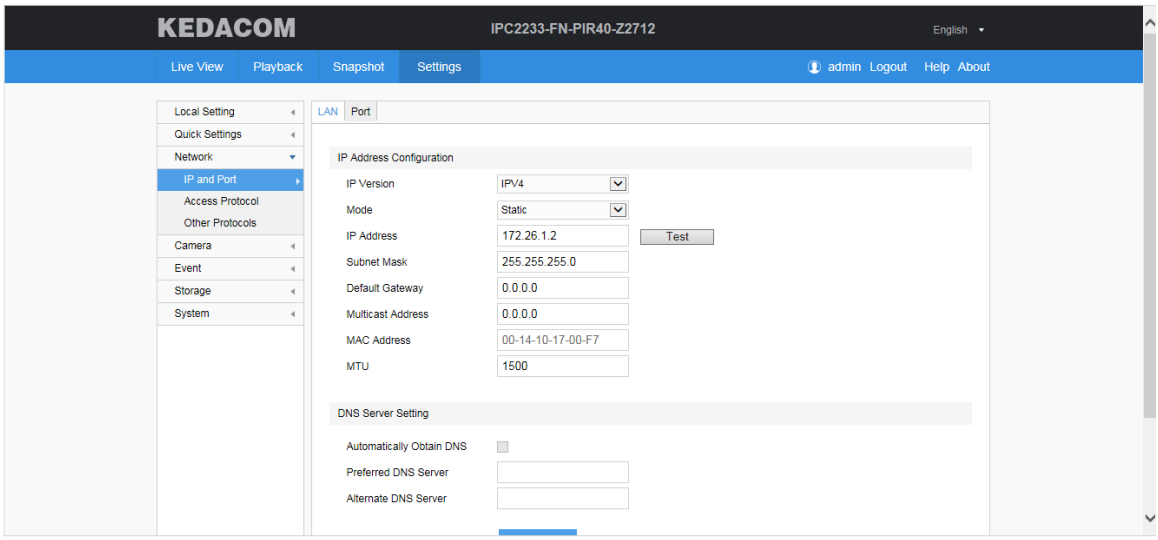
11. Add target cameras.

Method 1: PoE or ONVIF Cameras

1) Ensure the following:

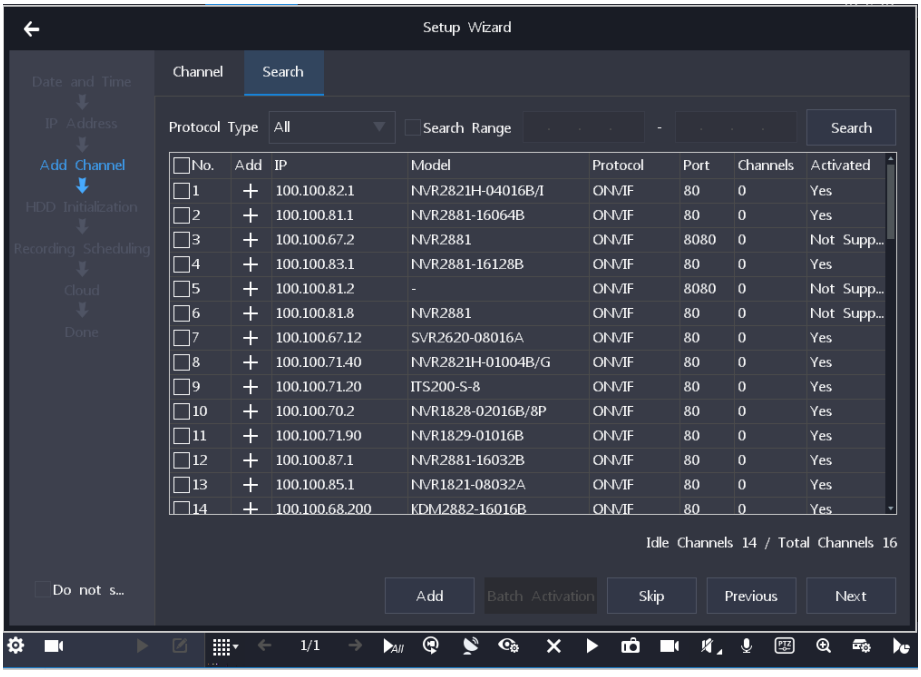
- The target PoE camera must meet any of the following conditions:
  - ➢ It is located on the same network segment (172.26.1.*X*) as the device (default IP**:** 172.26.1.100).
  - ➢ It is a deactivated KEDACOM camera. (Deactivated KEDACOM cameras can be reached by the device immediately after they are connected to the PoE ports, achieving plug and play.) Alternatively, the camera is already reset to factory defaults.
  - ➢ It is an activated KEDACOM or third-party camera but meets the following conditions:
    - ✓ DHCP is enabled for the camera.
    - ✓ The camera has been added to the device.
- The target ONVIF camera is located on the same network segment (172.26.1.*X* or 192.168.1.*X*) as the NVR (default IP of **LAN1:** 192.168.1.94).

If not, change its IP address on its web client. The following is an example.



Under **IP Address Configuration** of the preceding figure only the **Multicast Address** parameter is optional and the other parameters are mandatory.

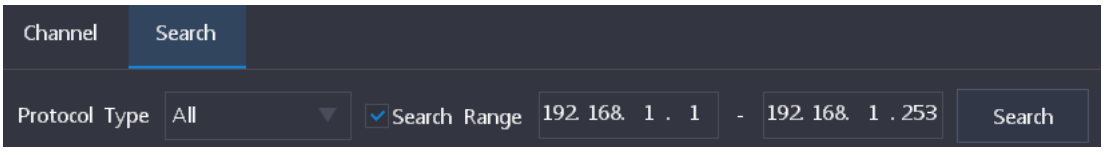
2) Click **Search**.



ONVIF Cameras located on the 172.26.1.*X* and 192.168.1.*X* network segments will be searched.

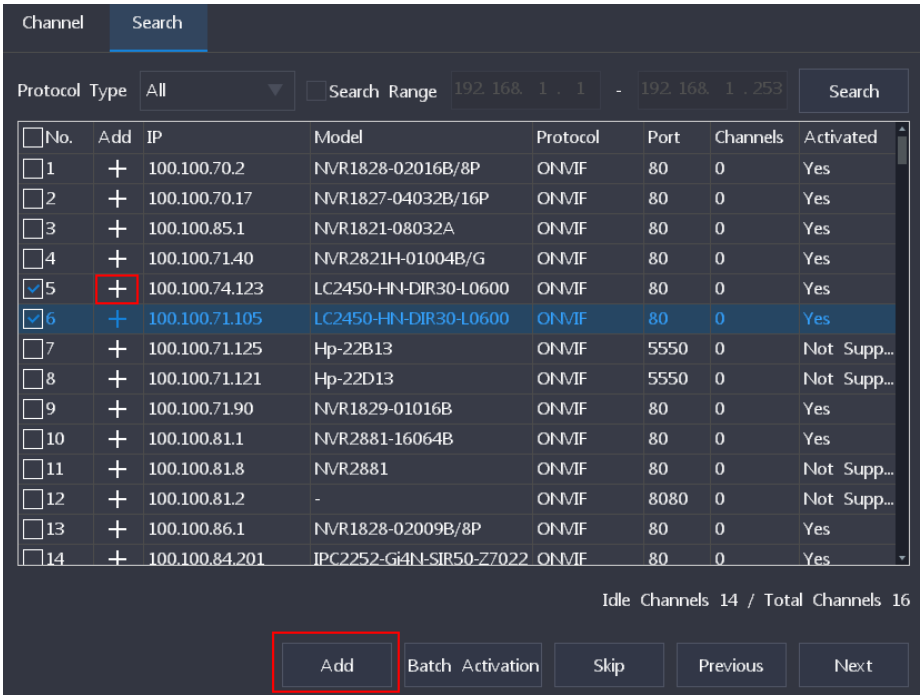
3) (Optional) Specify the search criteria.

The following is an example.



Note that two IP addresses entered in the two text boxes should be identical in the most significant eight bits. For example, **172.16.2.**10 and **172.16.168.**12.

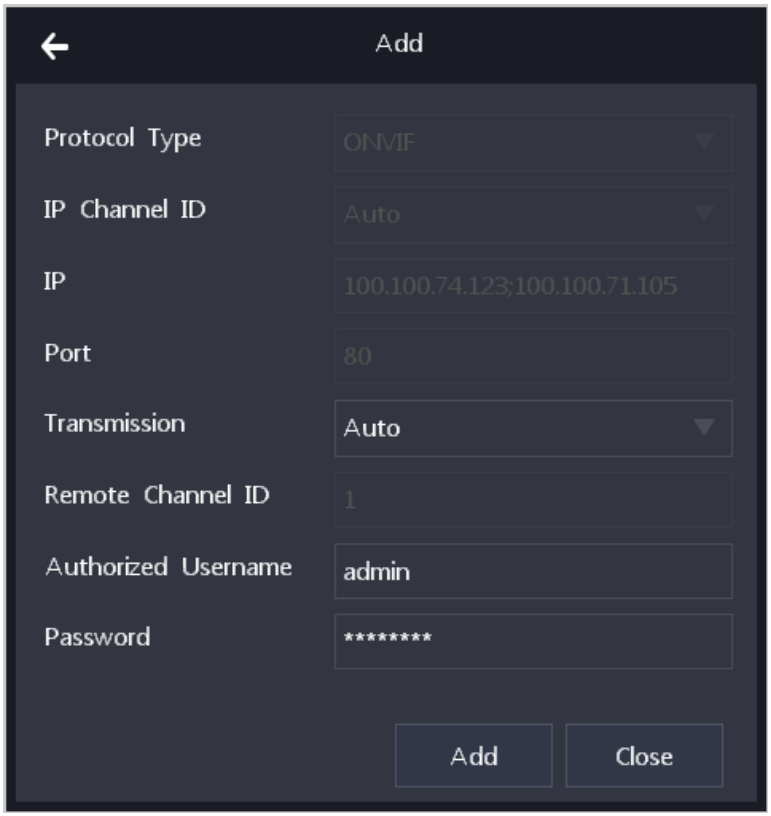
4) Select the target camera from the search results and click **+** or **Add**.



If you add multiple cameras at a time, you must click **Add**.

5) In the displayed dialog box, specify parameters displayed.

The following is an example.



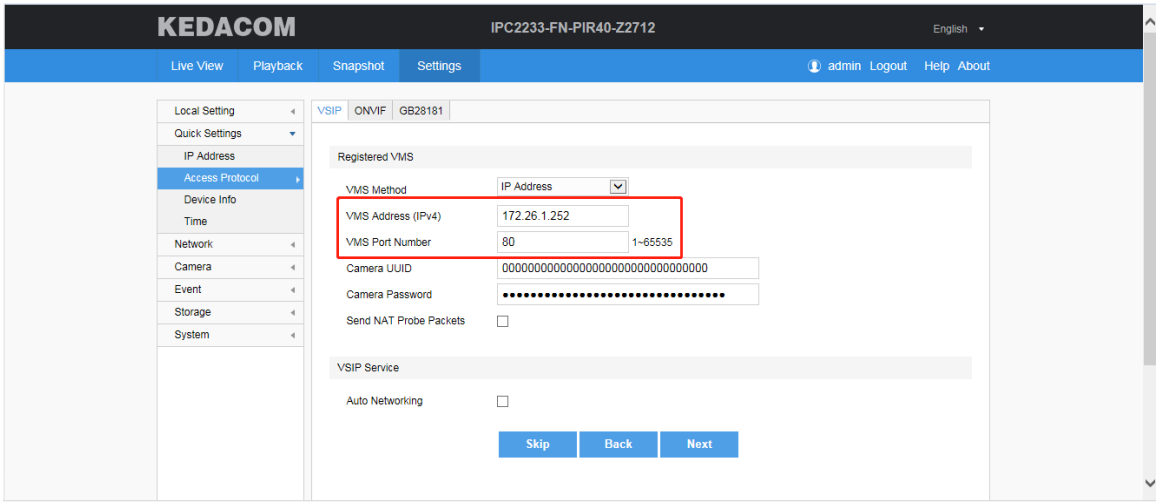
If you add multiple cameras, ensure that they use the same protocol, username, and password in advance. Otherwise, you cannot add them at a time.

6) Click **Add**.

Note that a wireless front-end device, such as a Body Worn Camera (BWC), is also an ONVIF camera.

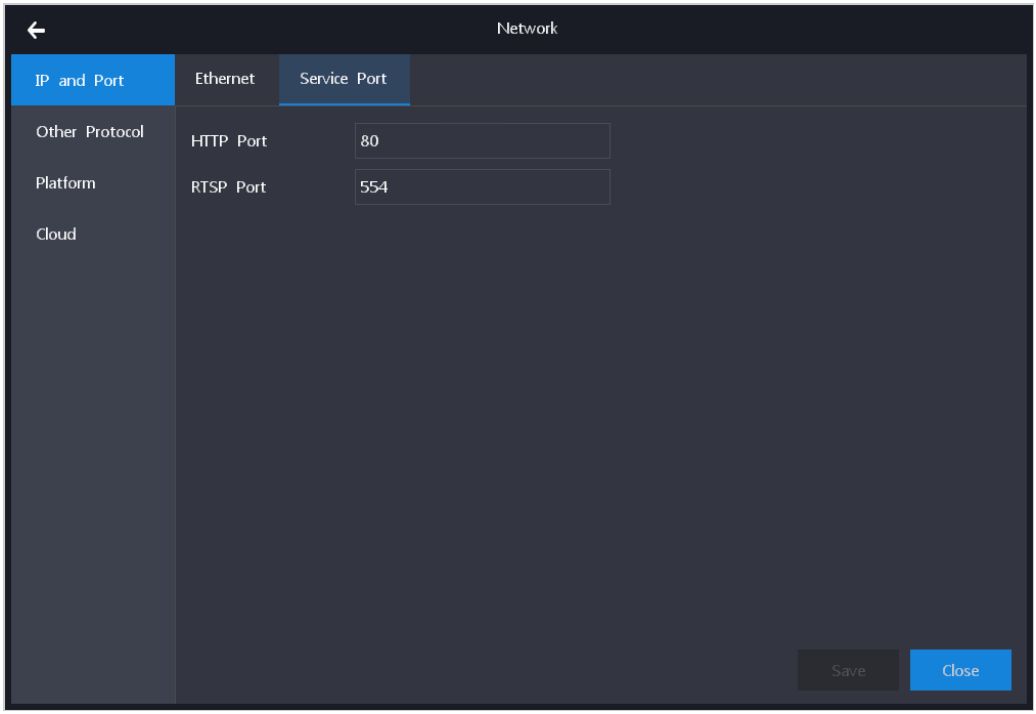
Method 2: VSIP Cameras

1) Ensure that the target VSIP camera is located on the same network segment (172.26.1.X or 192.168.1.X) as the device.
2) On the camera web client, choose **Settings** > **Quick Settings** > **Access Protocol** > **VISP** and configure **VMS Address (IPv4)** and **VMS Port Number**.

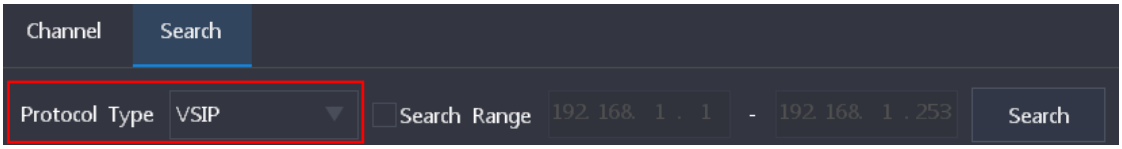


VMS Address (IPv4): device IP

VMS Port Number: device port number, which is specified by **HTTP Port** (**Settings** > **Network** > **IP and Port**).



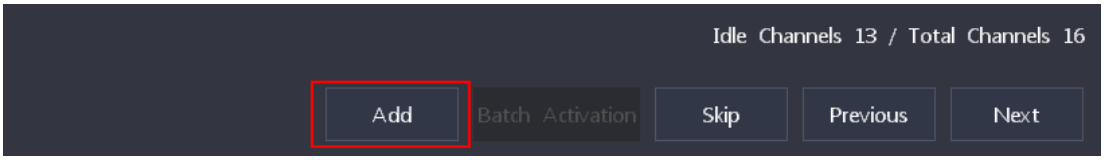
3) Under **Search**, set **Protocol Type** to **VSIP**.



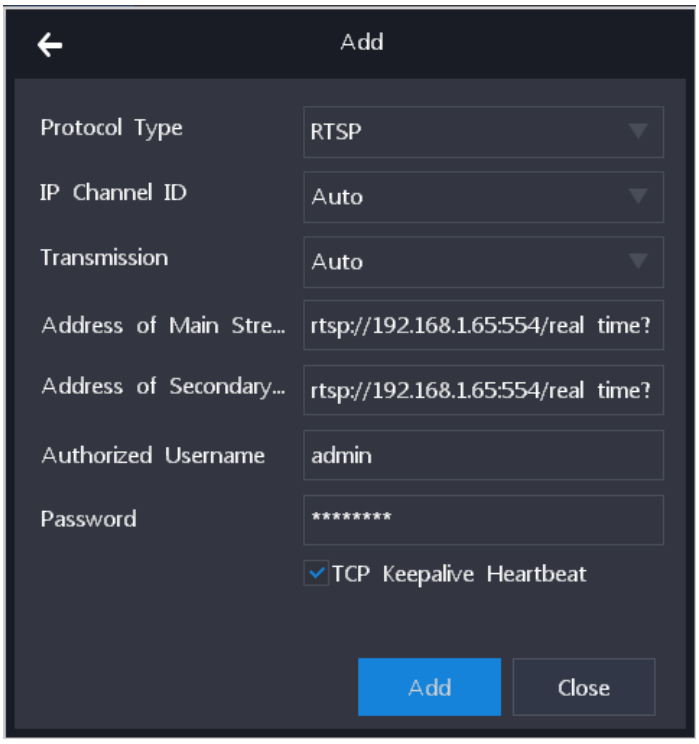
4) Click **Search**.
5) Select the target camera from the search results and click **+** (single camera) or **Add** (single or multiple cameras).
6) Click **Add**.

Method 3: RTSP Cameras

1) Ensure that the target RTSP camera is located on the same network segment (172.26.1.X or 192.168.1.X) as the device.
2) Under **Search**, click **Add**.



3) In the displayed dialog box, specify parameters displayed.
The following is an example.



Note that the RTSP addresses (main and secondary streams) of cameras from different vendors differ.

4) Click **Add**.

If the camera status is "Authentication Failed", check whether the entered password is correct.

If the status of a VSIP camera is "Not Registered", wait at most one minute till the status changes to "Online".

In this step, you can activate and change IP addresses for KEDACOM V7 cameras (ONVIF and VSIP) with the **Batch Activation** and **Edit IP** buttons.

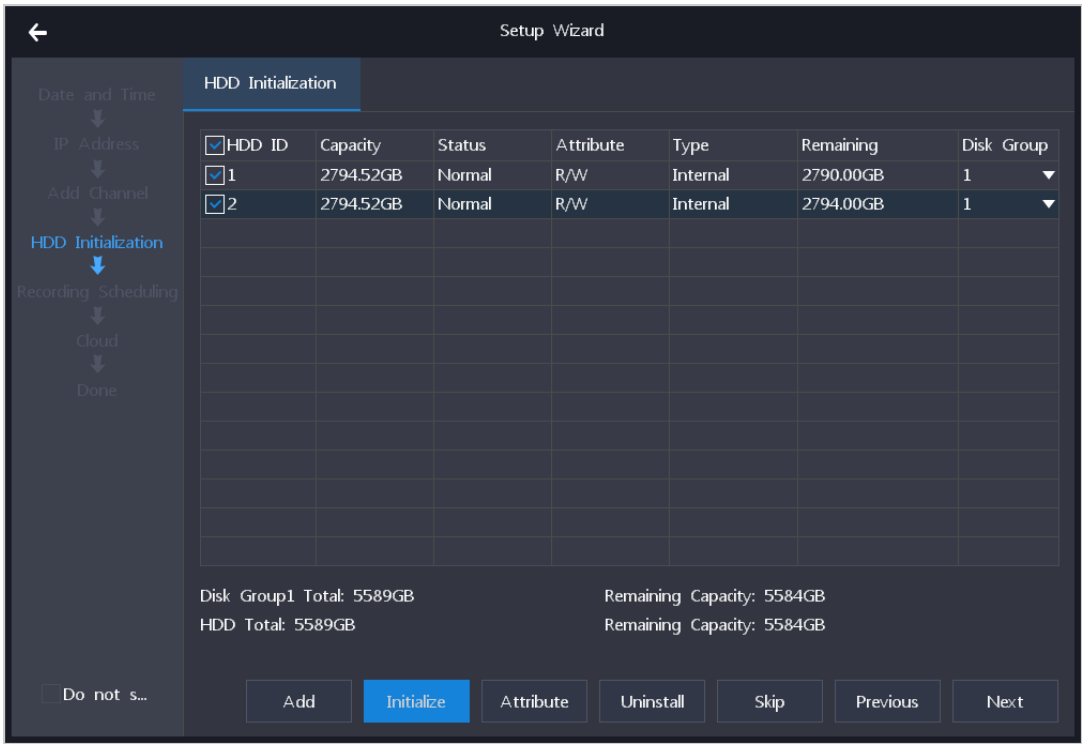
12. Click **Next**.

Initializing HDDs

13. Initialize HDDs.

IF YOU DO NOT INITIALIZE HDDS, NO RECORDING CAN BE STARTED.

1) Select the target HDDs and click **Initialize**.



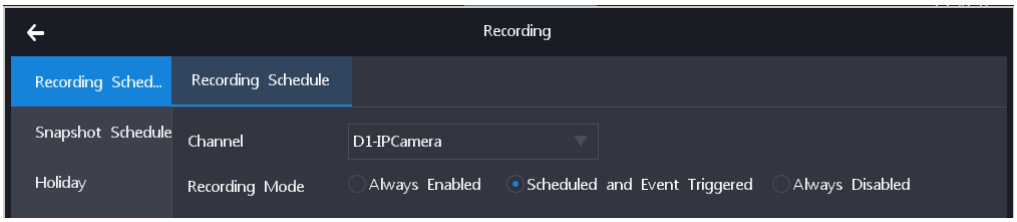
2) Confirm your operation.

3) Enter the password of the admin account.
4) Click **OK** when the intialization is completed.

14. Click **Next**.

Scheduling Recordings

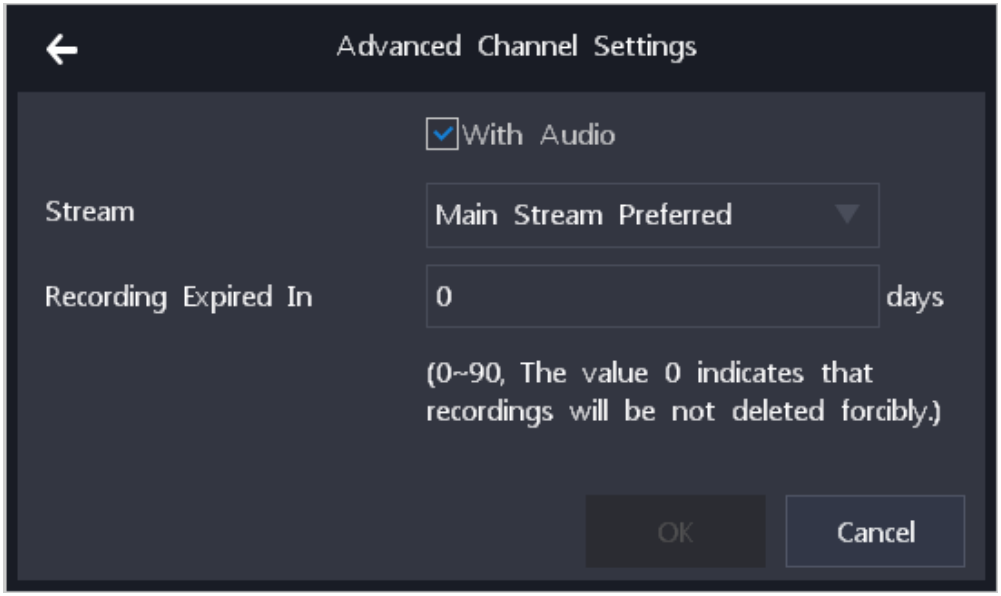
15. Schedule recordings.
    1) Choose **Settings** > **Recording** > **Recording Schedule** > **Recording Schedule**.
    2) Select a channel.
    3) Specify a recording mode.



Scheduled and Event Triggered: indicates that a recording will be started:

- At a scheduled time, which can be configured at step 6)
- Upon the occurrence of an event/alarm (Motion Detection and Intelligent Feature Alarms) (assuming alarm linkage settings of the channel already include the recording action; for details about the alarm linkage settings, see sections "Motion Detection" and "Intelligent Feature Alarms")

4) Click **Advanced Channel Settings** to configure advanced channel settings.

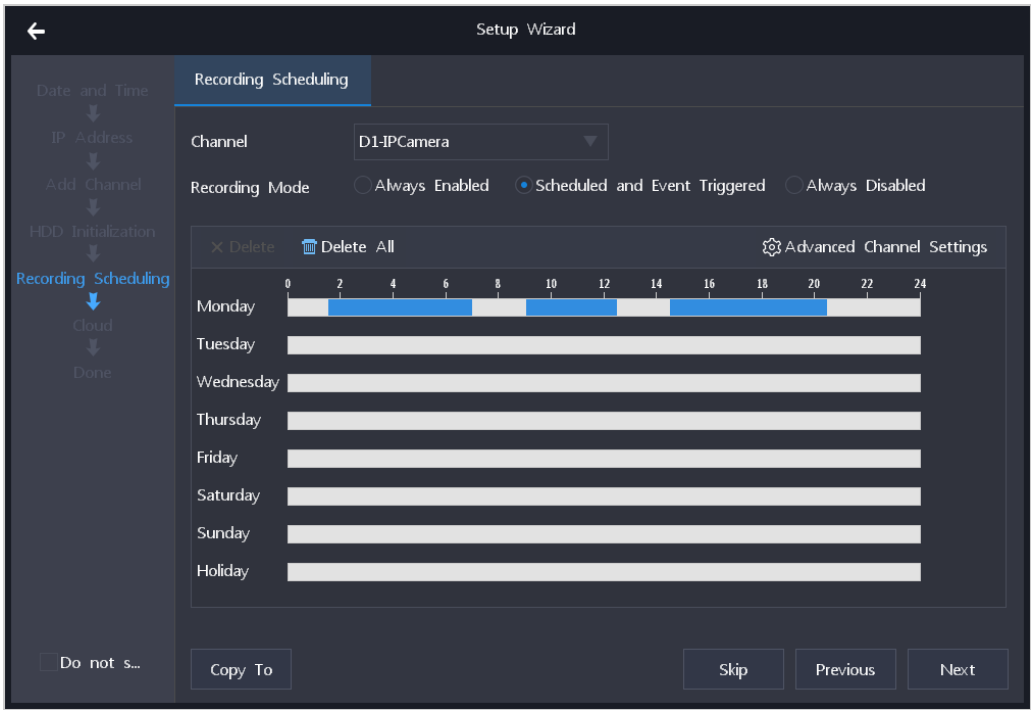


The following table provides parameter descriptions.

Parameter	Description
With Audio	Whether to include audio in a record
Stream	Stream preferentially recorded
Recording Expired In	Number of days after which a record (unless locked) will be deleted. The NVR deletes records at 00:00 of each day. • When recording space is sufficient: ✓ If you set it to 3, involved records (except locked ones) will be saved only for 3 days. ✓ If you set it to 0, involved records will not be deleted. • When recording space is full: Either the involved records (except locked ones) will be overwritten or recordings will be stopped, depending on the policy described in section "Setting the Recording Policy". **NOTE:** The locked records will be deleted only when you format related HDDs.

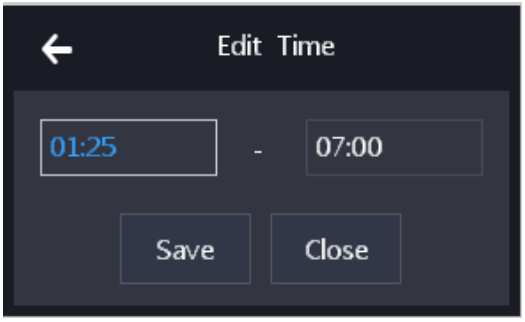
5) Click **OK**.

6) Press and hold the left mouse button and draw one or multiple lines on the timeline (accurate to the minute) of a day.
The following is an example.



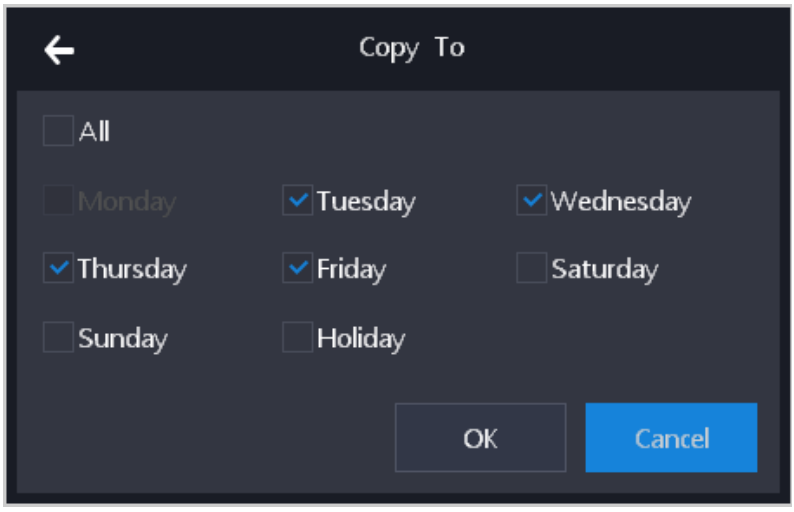
After this, a recording will be enabled during the preceding three periods. A maximum of eight periods can be created in a day and those periods cannot overlap.

If you double-click a period, you can edit its start and end times.



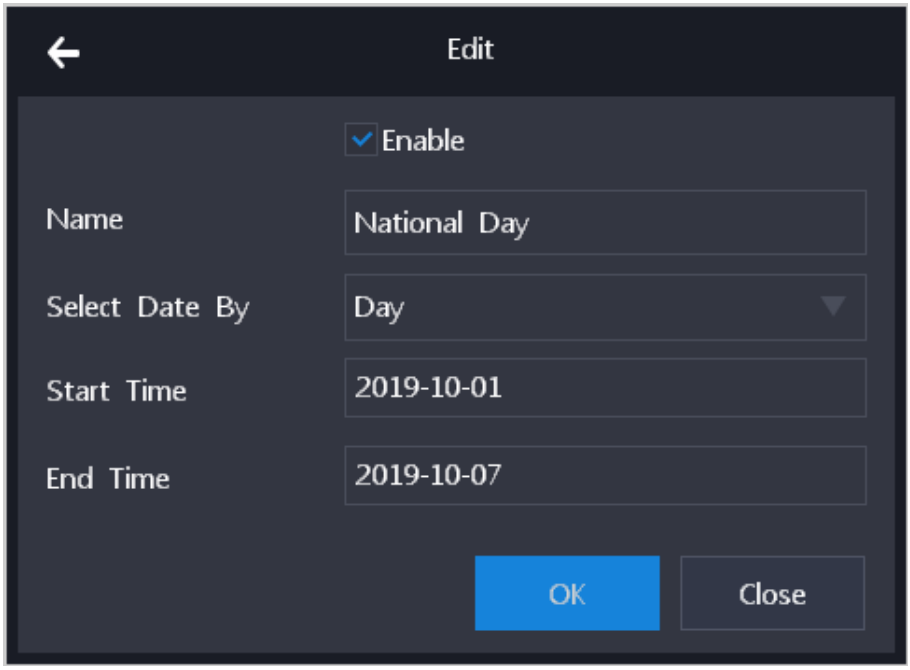
7) Copy the period settings of a day to other target days by clicking and selecting the target days.

The following is an example.



If you want to copy the settings to the other six days in a week and holidays, check **All**.

You can define holidays by choosing **Settings** > **Recording** > **Holiday** > **Edit** and specifying parameters displayed. The following is an example.

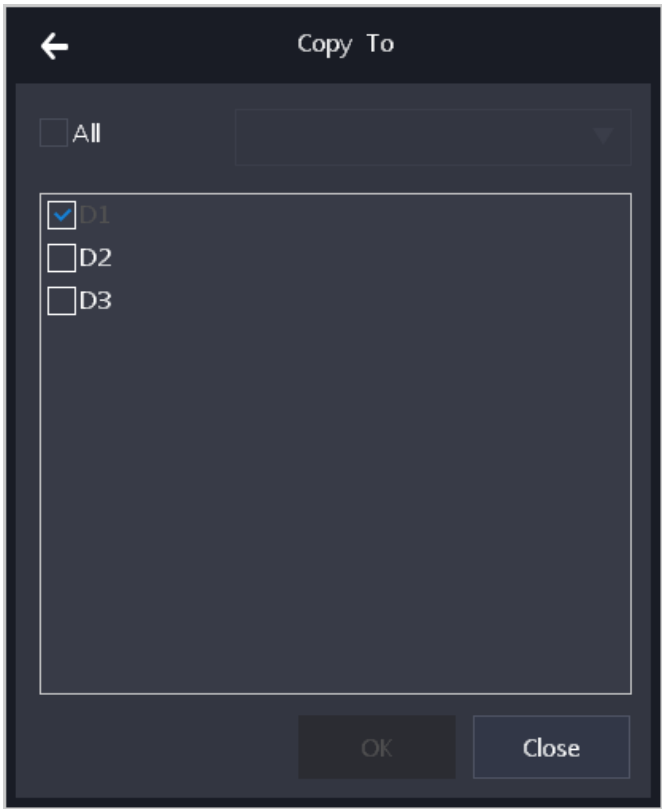


After this, you can find the following.

No.	Name	Start Date	End Date	Status	Edit
1	National Day	2019-10-1	2019-10-7	Enable	Edit

8) Click **OK**.

9) Copy the recording schedule settings of the channel to other target channels by clicking **Copy To** and selecting the target channels.

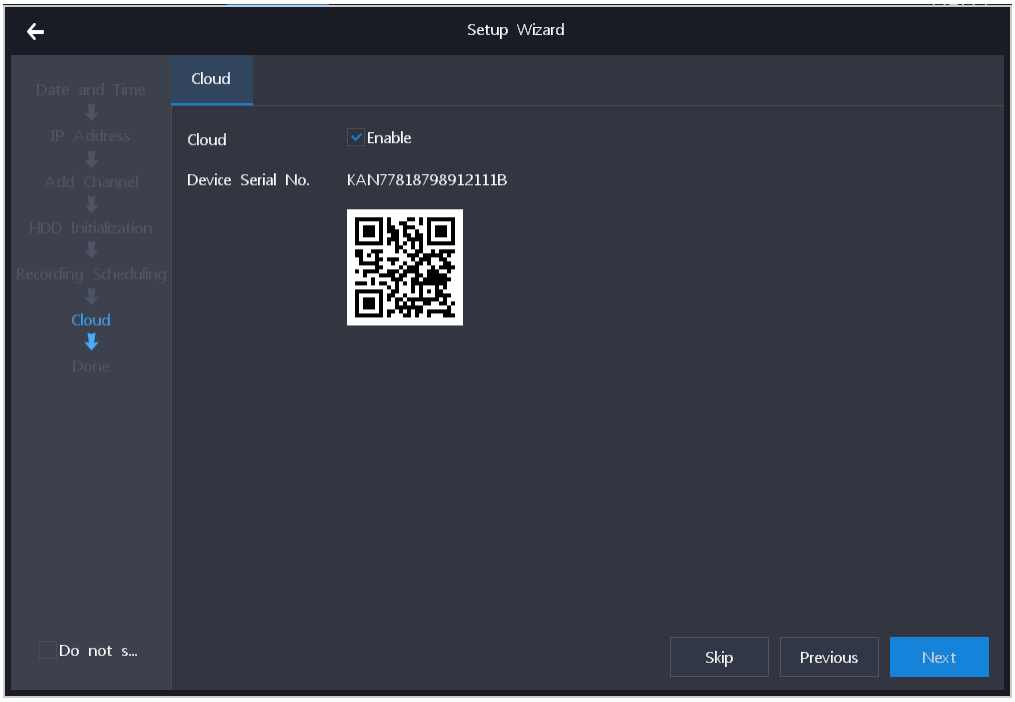


10) Click **OK**.

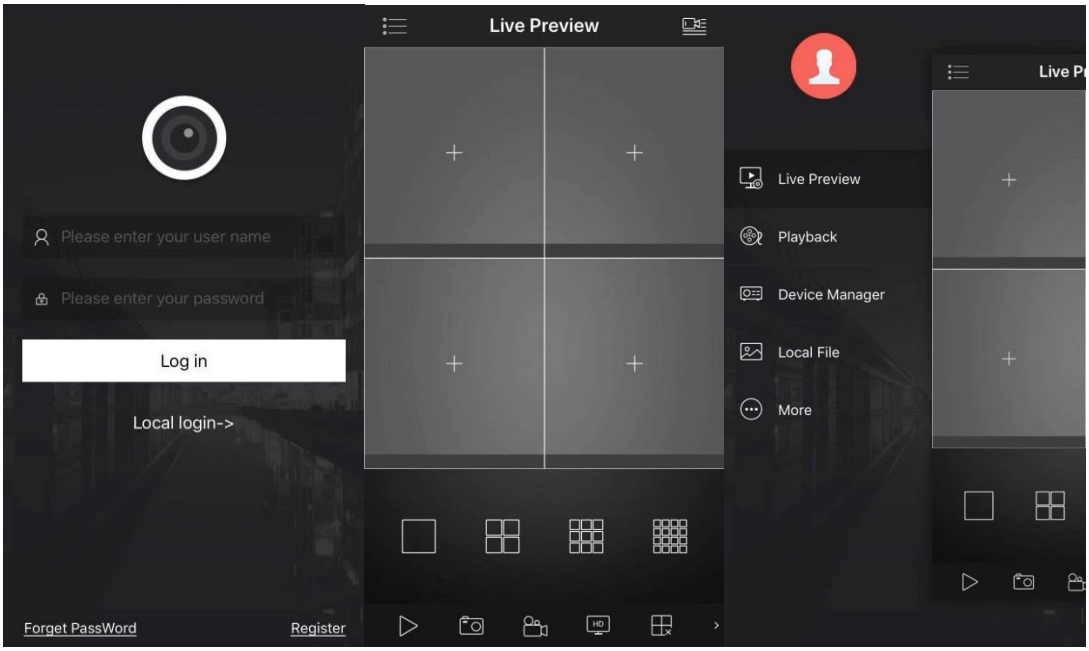
16. Click **Next**.

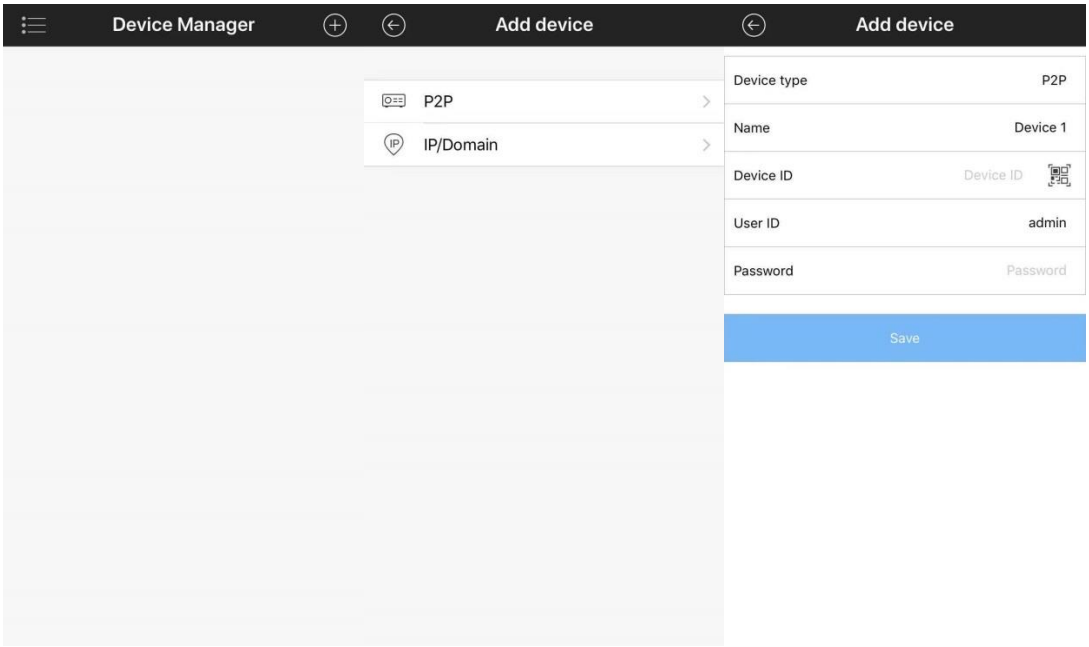
Enabling the Cloud Service

17. Enable the Cloud service, which allows you to view camera videos of the NVR on your mobile phone.
    1) Check **Enable**.

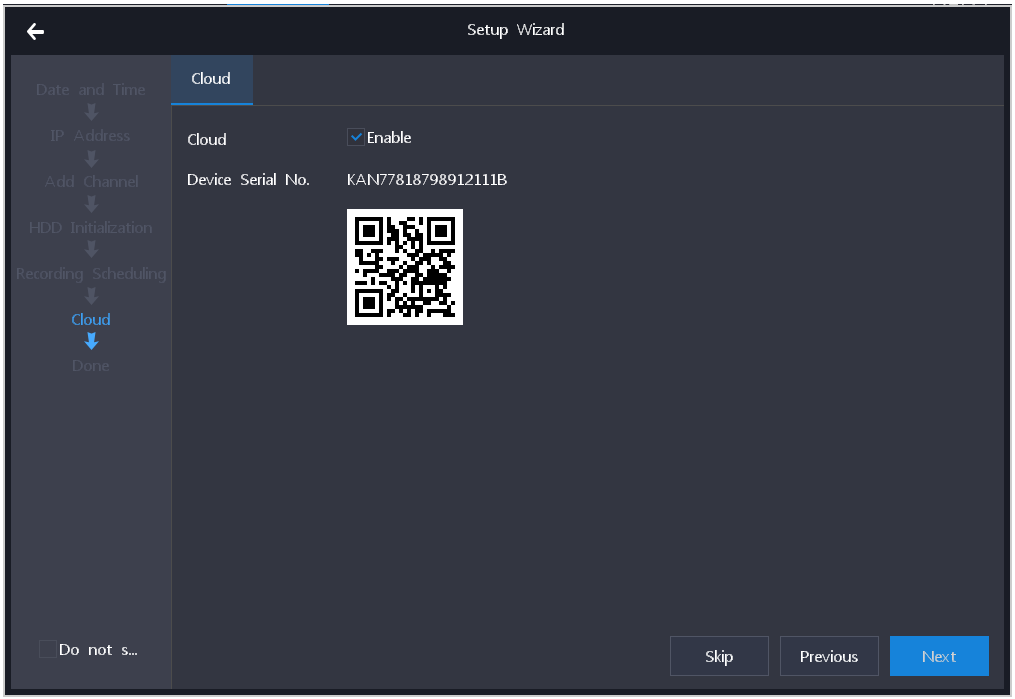


    2) Download vSee Pro (iOS) or vSee (Android) from the mobile phone application market.
    3) Open vSee Pro.
       The following operations are performed on vSee Pro (iOS) and operations on vSee (Android) will not be detailed here since operations are similar.
    4) Choose **Local login->** > > **Device Manager** > > **P2P** > **Device ID**.

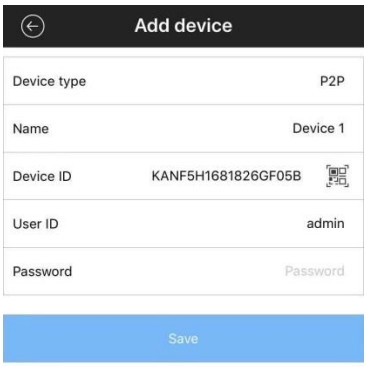




5) Scan the QR code.



After this, the device serial number of the NVR is read. The following is an example.

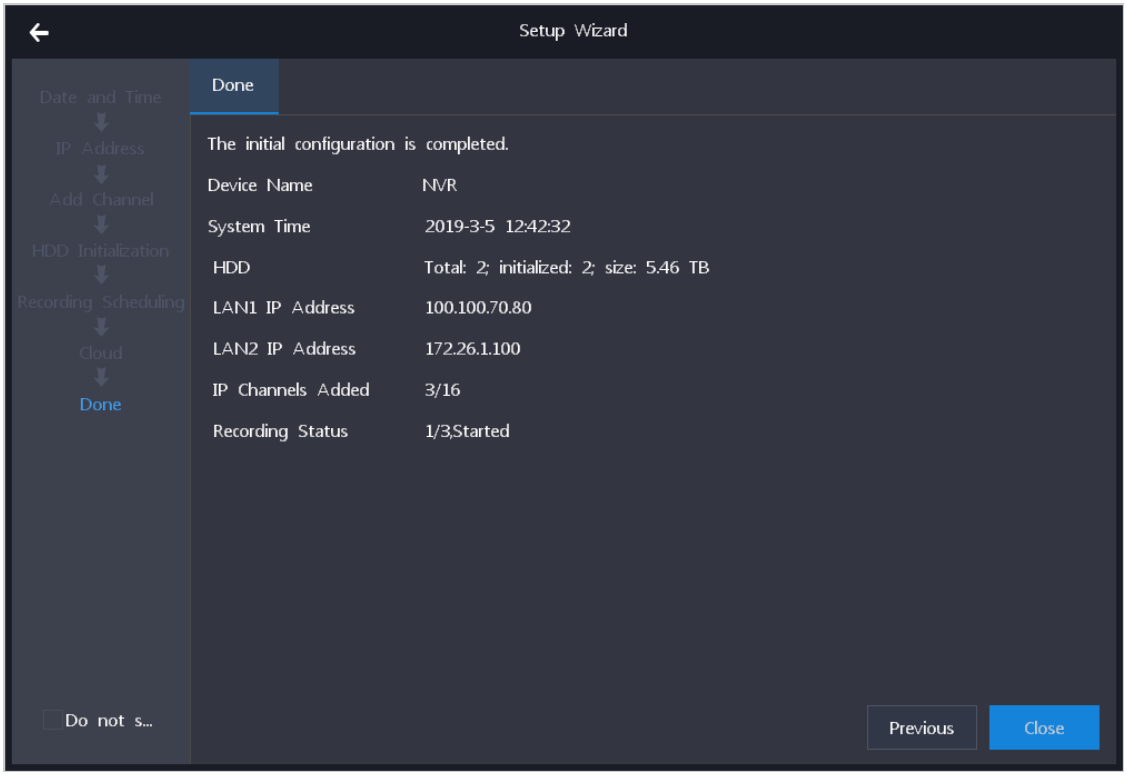


6) Enter the password of the admin account.

7) Click **Save**.

After the preceding steps are performed, the NVR is added to the device list and you can view camera videos on your mobile phone.

18. Click **Done**.



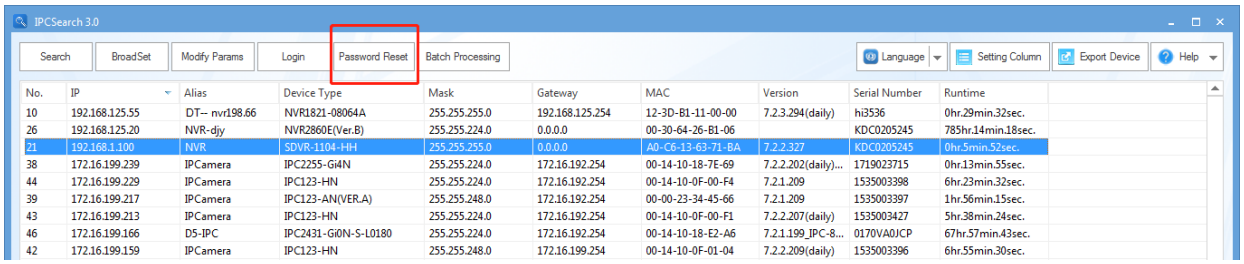
Re-Enabling the Default Password of the admin Account

If you forget the password of the admin account, you can reset the password using IPCSearch3.0, which can be downloaded from

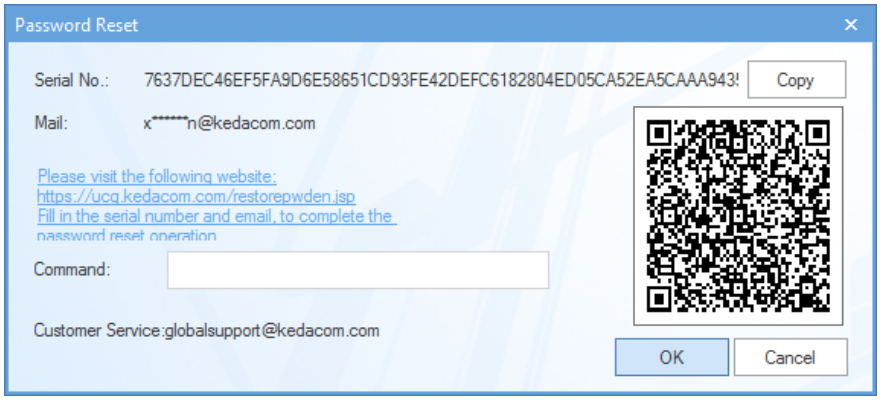
https://en.kedacom.com/en/r/cms/www/kedacom/downloads/IPCSearch%203.0%20Setup.zip.

To reset your password:

1. Find your device from the device list and click **Password Reset**.

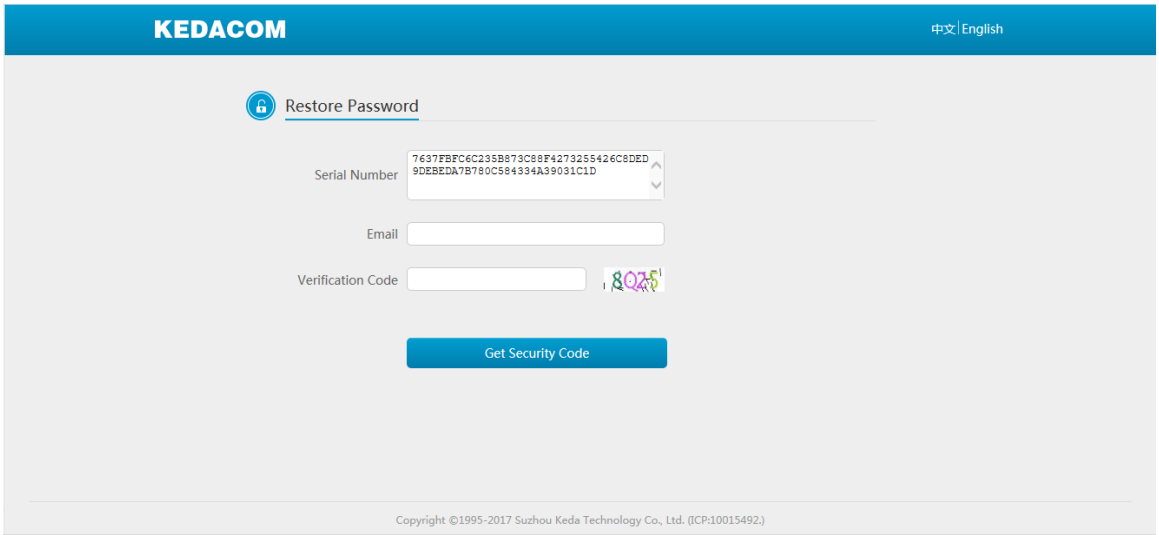


2. In the displayed **Password Reset** dialog box, click the URL or scan the QR code.



If you click the URL:

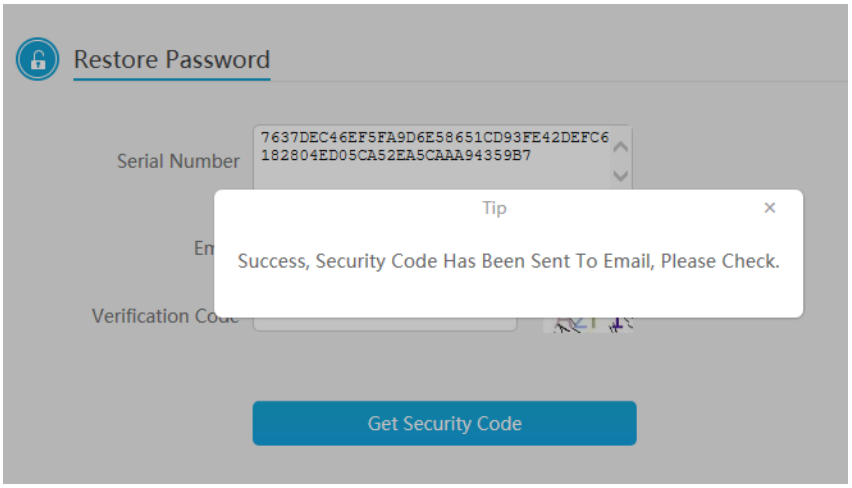
1) Enter the mail address specified when activating the NVR.



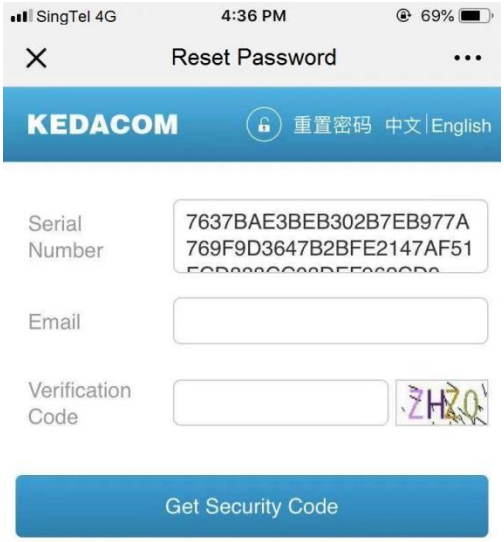
2) Enter the verification code.

3) Click **Get Security Code**.

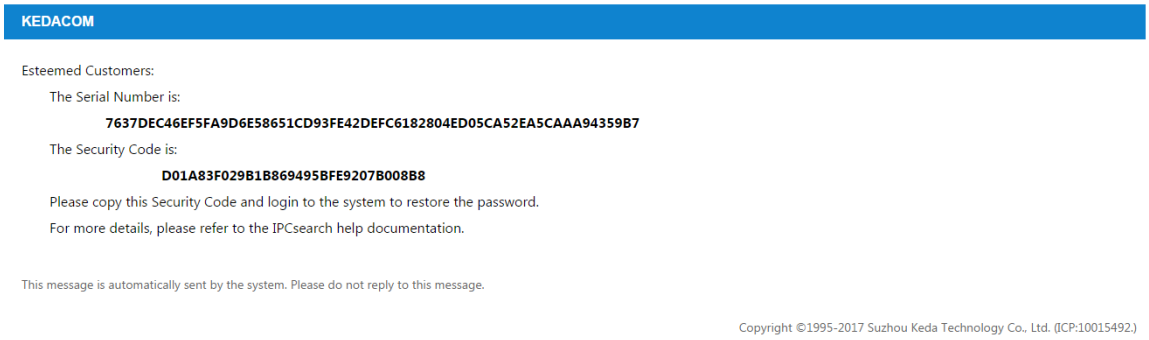
After this, you will find the following.



If you scan the QR code, you will see the following. The following steps are similar to the preceding ones.



3. Find and copy the security code from your mail box.


KEDACOM

Esteemed Customers:

The Serial Number is:

7637DEC46EF5FA9D6E58651CD93FE42DEFC6182804ED05CA52EA5CAAA94359B7

The Security Code is:

D01A83F029B1B869495BFE9207B008B8

Please copy this Security Code and login to the system to restore the password.

For more details, please refer to the IPCsearch help documentation.

This message is automatically sent by the system. Please do not reply to this message.

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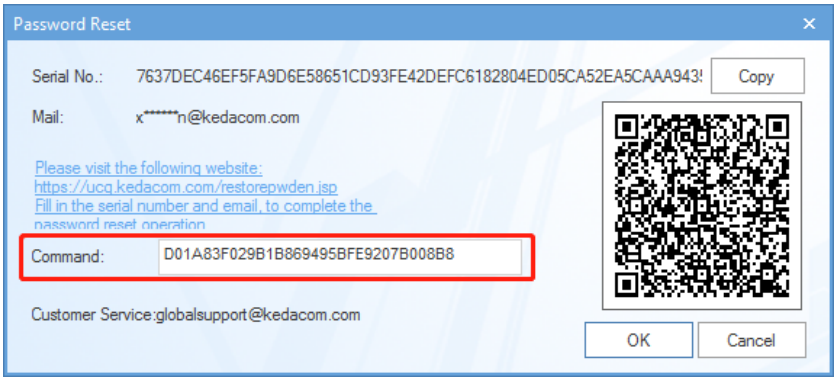
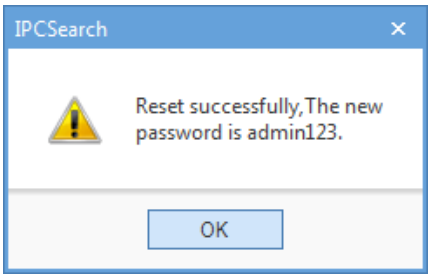
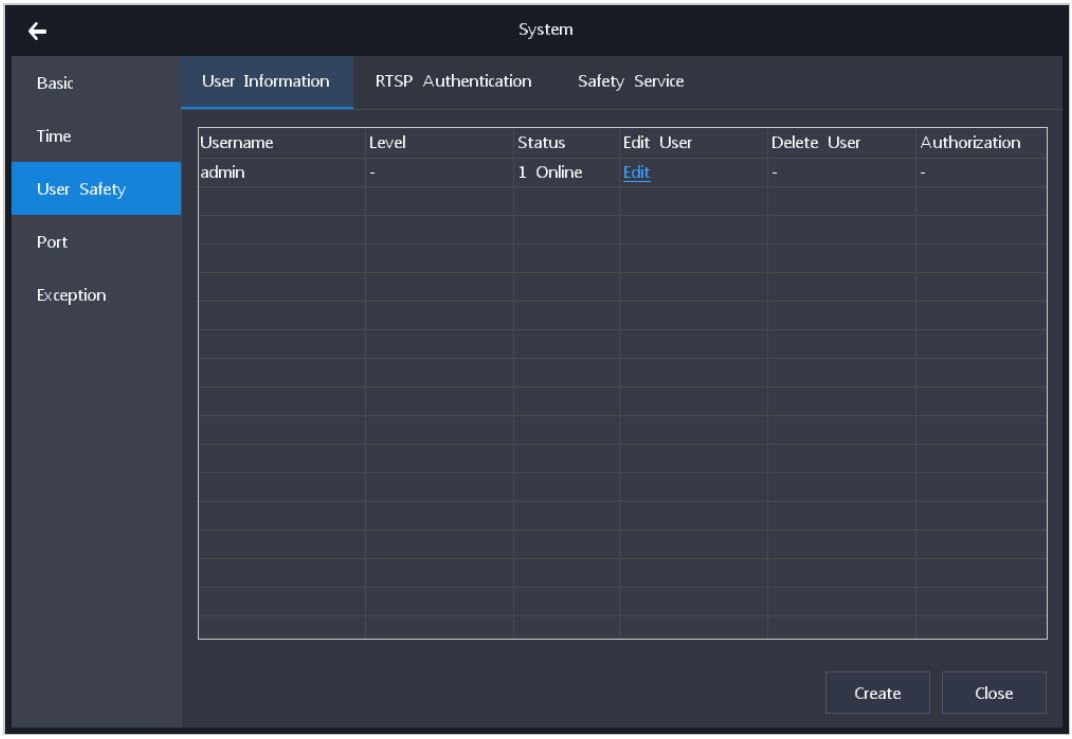
4. Paste the security code to the **Command** text field.



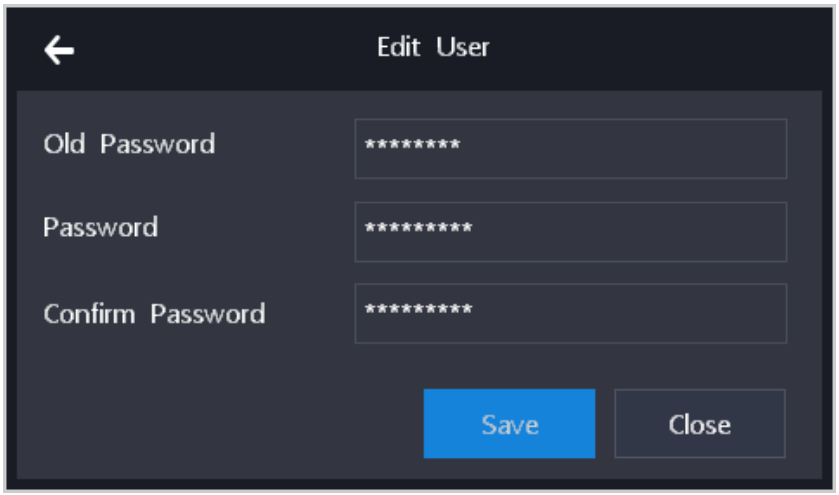
5. Click **OK**.
6. Click **OK**.



7. Log in to the NVR with the default password.
8. Create your own strong password again.
   1) Choose **Settings** > **System** > **User Safety** > **User Information**.
   2) Select the admin account and click **Edit**.



3) In the **Edit User** dialog box, enter the old password and a new strong password and confirm the new password.



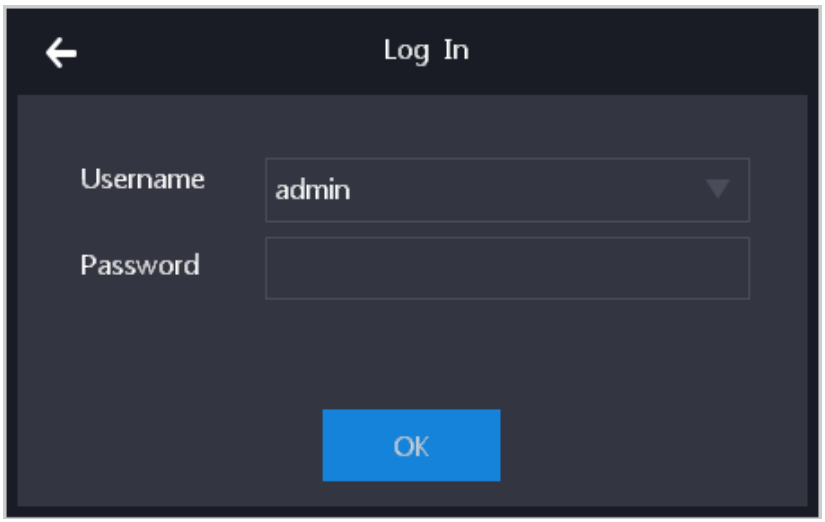
4) Click **Save**.

9. Log in to the device again.

Logging In to the Device

To log in to the device:

1. In the displayed **Log In** dialog box, enter a username and a password.



2. Click **OK**.

If you enter an incorrect password three times in succession, your IP will be locked for 10 minutes.

If you forget your password, reset your password (see section "Re-Enabling the Default Password of the admin Account") or contact your system administrator to re-enable the default password of your account (specific to standard users).

NOTE

The graphical user interface (GUI) of the device is continuously changed. Therefore, do not be alarmed when you find the screenshots in this document are different from actual ones. We greatly appreciate your understanding.

All the screenshots in this document are taken from the NVR1828. If you find some options are missing, contact the system administrator to check whether your device supports these options. If so, contact the local authorized KEDACOM agent.

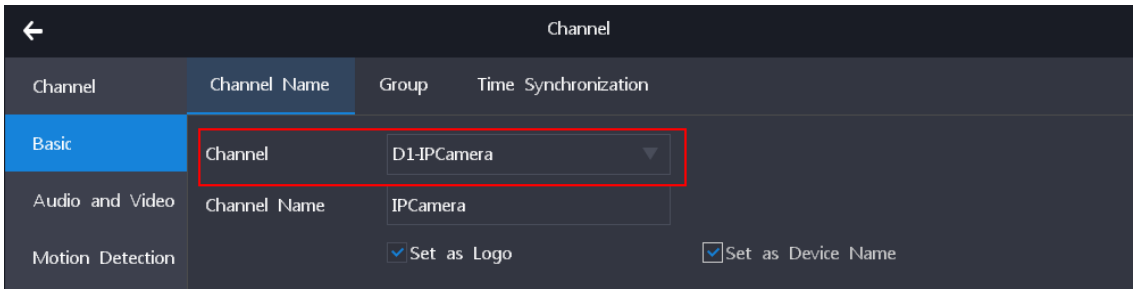
Configuring Cameras

Basic Information

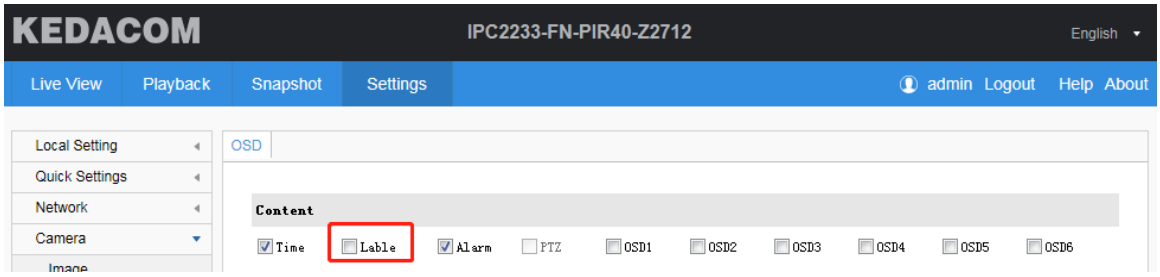
Channel Name

To change the channel name of a camera:

1. Choose **Settings** > **Channel** > **Basic** > **Channel Name**.
2. Select the camera from the **Channel** drop-down list.



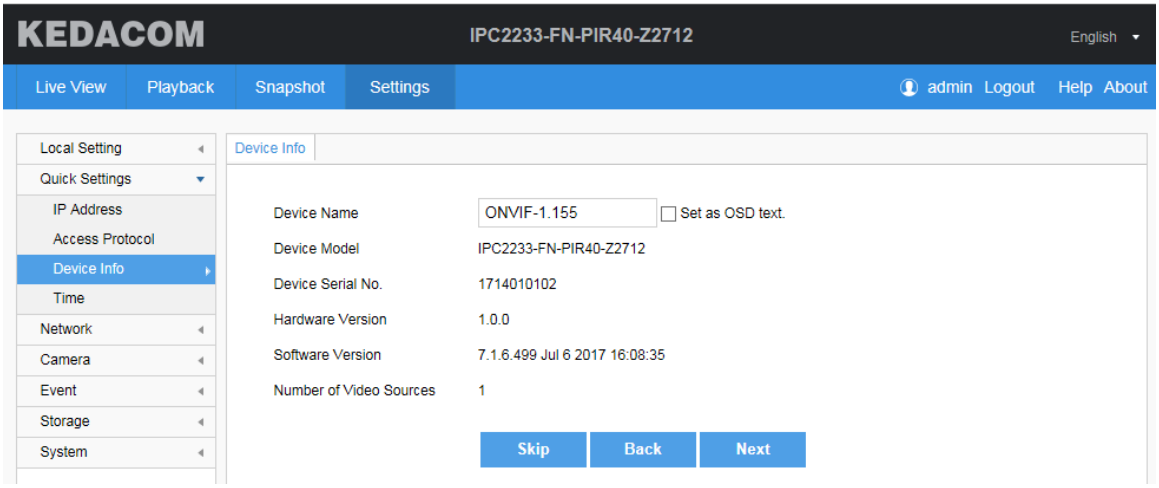
3. Enter a channel name.
4. (Optional) Check **Set as Logo** to set the channel name of the camera as the camera logo.
   After this, you can find the channel name is displayed on the top left corner of the viewing window.
   If you do not want to show the logo, please go to the IPC Web and uncheck **Label** (**Settings** > **Camera** > **OSD**).



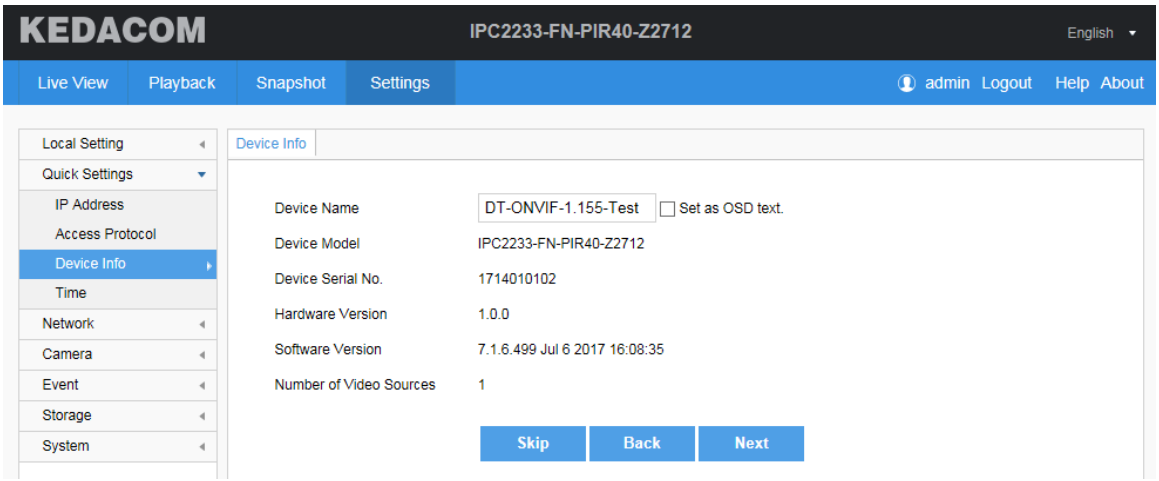
NOTE:

This option does not apply to VSIP and offline channels.

5. (Optional) Check **Set as Device Name** to set the channel name of the camera as its device name.
   After this, you can find the device name of the camera is changed on its web client.
   Before:



After:



NOTE:

This option does not apply to VSIP and offline channels.

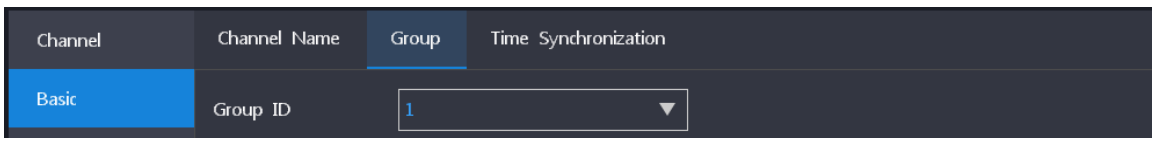
6. Click **Save**.

Group

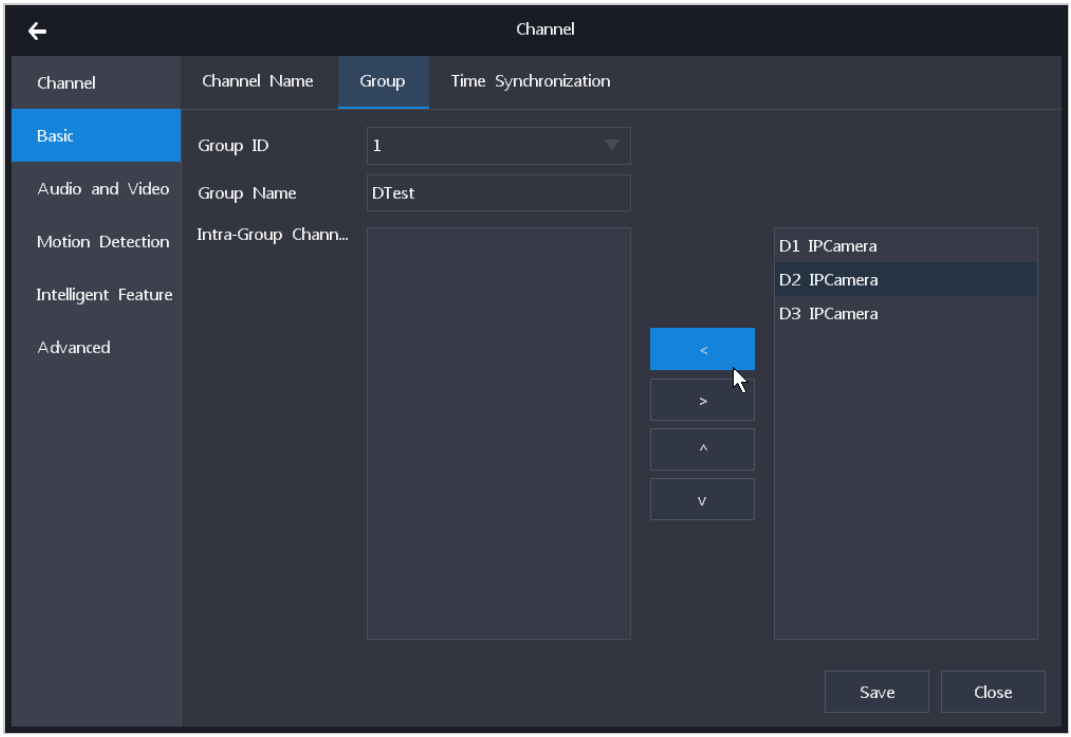
The camera grouping function applies only to NVRs that can accommodate more than 9 channels.

To create a camera group:

1. Click **Group**.



2. Select a group ID and enter a group name.
3. Select a camera to be grouped into the camera group and click **<**.



4. Click **Save**.

To delete a camera group, remove all the included cameras and then the group name.

Time Synchronization

To change the time settings of a camera:

1. On the **Time Synchronization** tab page, select the camera from the **Channel** drop-down list.
2. Select a value from the **Synchronization With** drop-down list.
   The following table provides an example.

If	Then
The NVR uses the UTC +08 time zone and the current time is 10:00 (24-hour). The IPC uses the UTC +02 time zone.	When **Time Zone and Time** is selected, **the IPC time is 4:00**. (Formula: 10-8+2=4) When **Time Zone and Time** is selected and **Use Time Zone of NVR** is checked, **the IPC time is 10:00**. (Formula: 10-8+8=10) When **Local Time** is selected, **the IPC time is 12:00**. (Formula: 10+2=12) When **UTC Time** is selected, **the IPC time is 4:00**. (Formula: 10-8+2=4)

3. Click **Save**.

Audio and Video

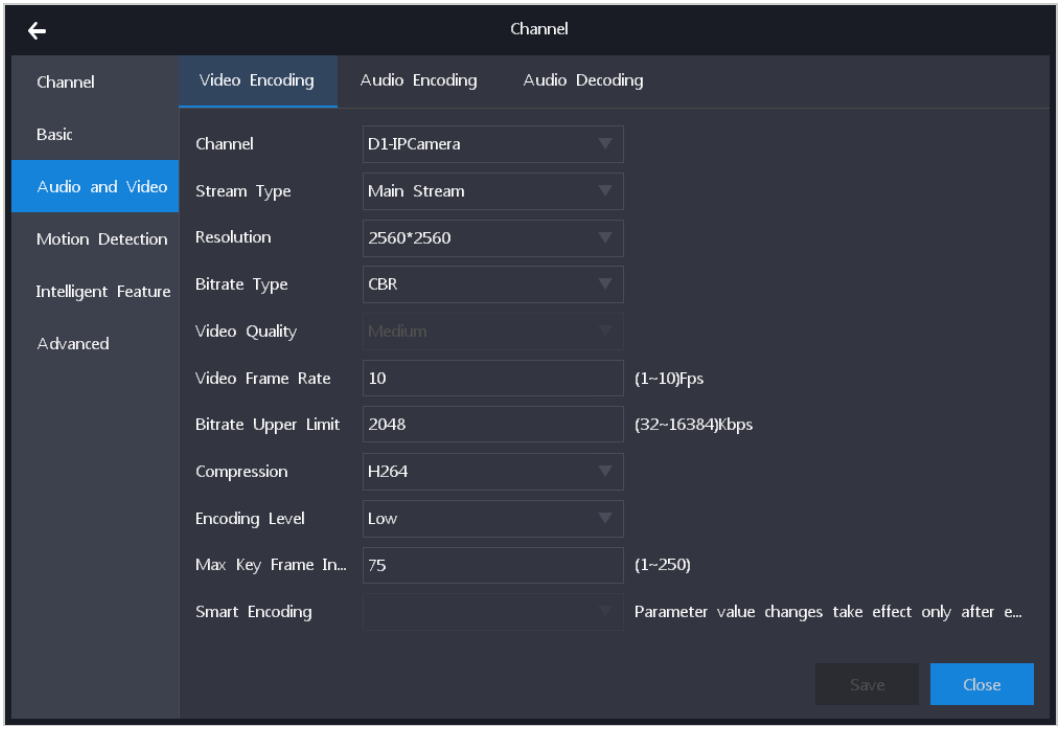
NOTE:

Parameters displayed under **Audio and Video** vary according to the camera type.

Video Encoding

To configure the video encoding settings of a camera:

1. Click **Video Encoding**.
2. Configure parameters displayed.
   The following is an example.

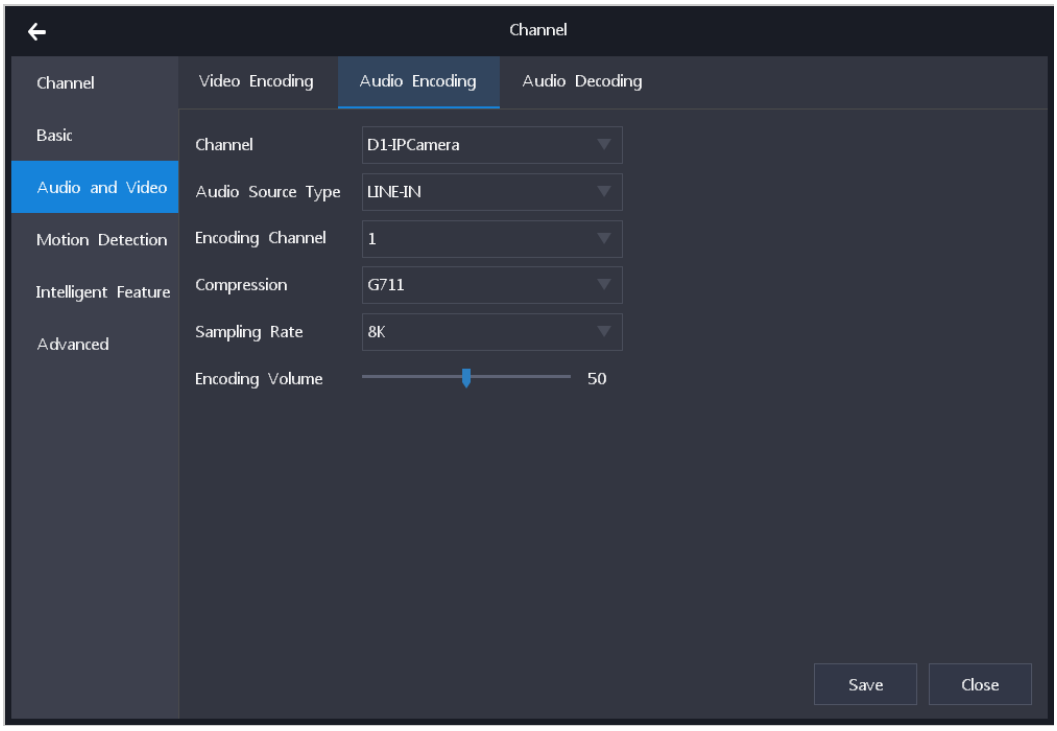


   Smart Encoding: Whether to enable the smart encoding function. If this function is enabled and the IP mode is static, it helps reduce the video frame rate. If it is enabled and the bitrate is low, it helps improve the image quality.
   Not all cameras support the **Video Quality** and **Smart Encoding** parameters.
   Changing the values of the **Resolution** and **Compression** parameters for ONVIF cameras will cause them to go offline and then online.
3. Click **Save**.

Audio Encoding

To configure the audio encoding settings of a camera:

1. Click **Audio Encoding**.
2. Configure parameters displayed.
   The following is an example.



Encoding Volume: indicates the audio input volume.

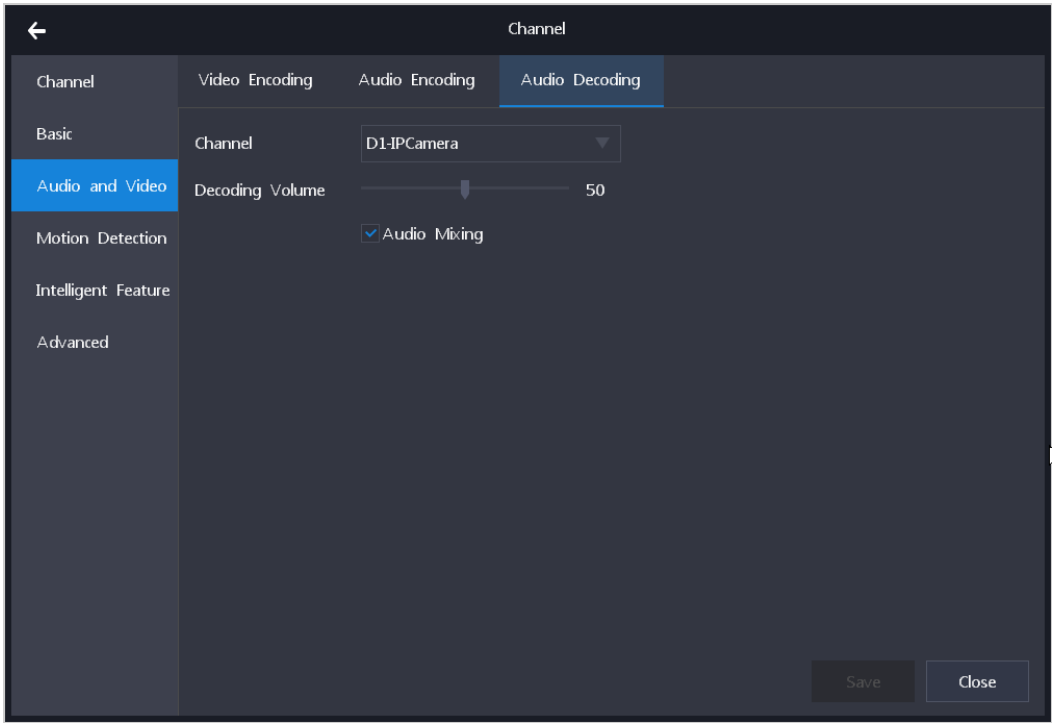
Changing the values of the **Compression** and **Sampling Rate** parameters for ONVIF cameras will cause them to go offline and then online.

3. Click **Save**.

Audio Decoding

To configure the audio decoding settings of a camera:

1. Click **Audio Decoding**.
2. Configure parameters displayed.



Decoding Volume: indicates the audio output volume.

Audio Mixing: Whether to enable the audio mixing function. When this function is enabled, you can hear the sound from two-way audio (listening and calling). VSIP cameras do not support this function.

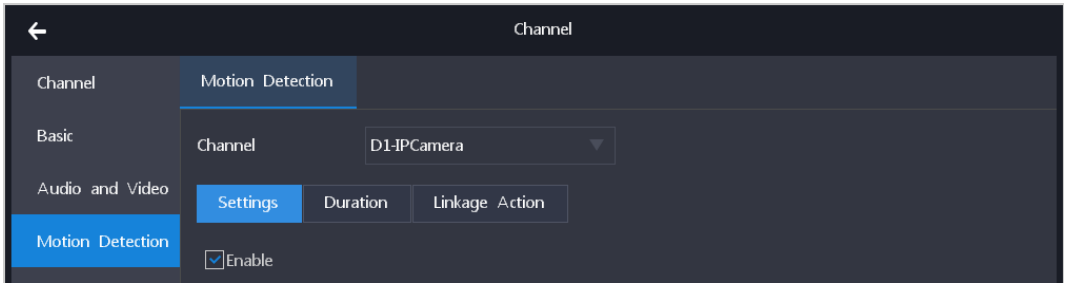
3. Click **Save**.

Motion Detection

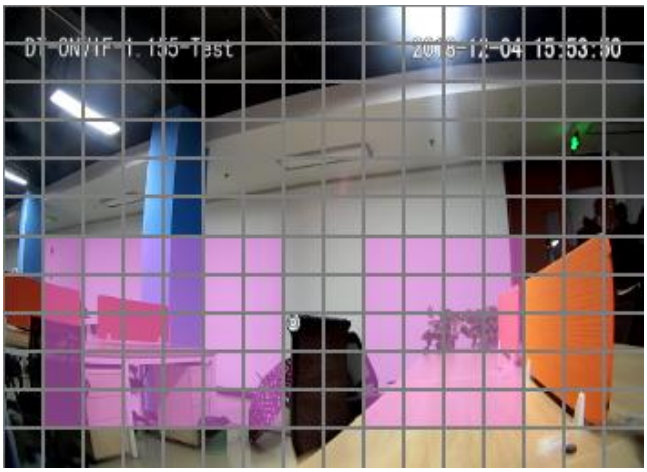
The motion detection feature can detect suspicious motions in guarding areas of cameras. When a motion is detected, the " Alarm:Moving " text is displayed on the viewing window of the related camera and multiple linkage actions (if configured) will be triggered.

To enable this feature for a camera:

1. Click **Motion Detection**.
2. Select the camera from the **Channel** drop-down list.
3. Under **Settings**, check **Enable**.



4. Specify the detection **Sensitivity**.
5. Click **Start Drawing**.
6. Draw detection areas (displayed in purple red).



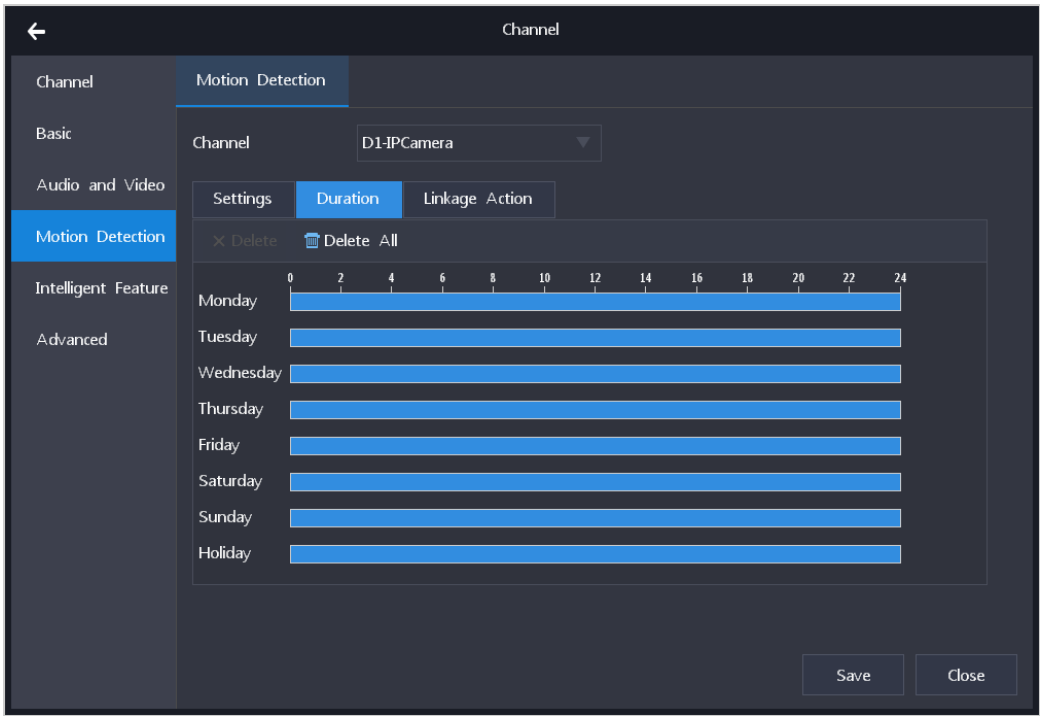
As shown in the preceding figure, the entire guarding area is divided into 16*12 cells. You can draw at most four detection areas (rectangles) for the camera.

You can draw in the bottom right direction to select areas and in the top left direction to unselect areas.

7. Click **Stop Drawing**.

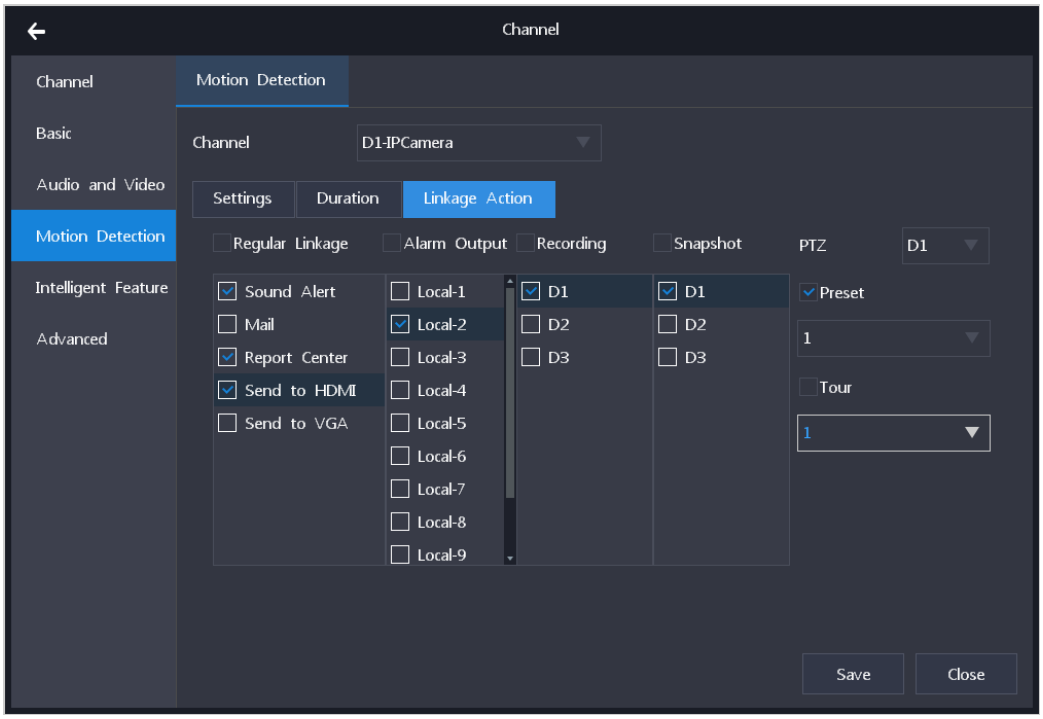
After this, you can find the following.

8. (Optional) Click **Clear All** to clear all detection areas.
9. Click **Save**.
10. Under **Duration**, select the durations when the Motion Detection is enabled.



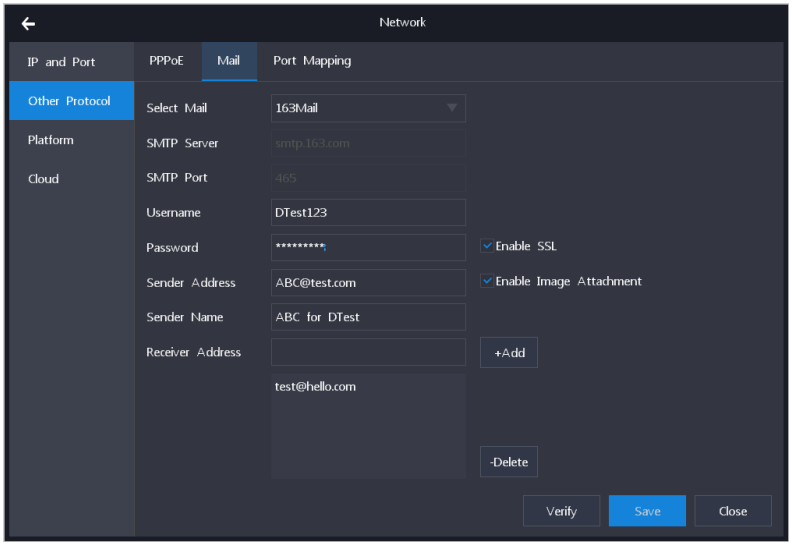
In this step, operations are similar with those described in section "Scheduling Recordings".

11. Click **Save**.
12. Under **Linkage Action**, specify linkage actions.
    The following is an example.



The following table provides action descriptions.

Type	Action	Description
Regular Linkage	Sound Alert	Trigger the sound alert on the NVR.
	Mail	Email an alarm notification to specific users. When a mail address is configured, the NVR can notify users of alarms and exceptions. The mail addresses can be configured in the

<table>
<tr><th>Type</th><th>Action</th><th>Description</th></tr>
<tr><td rowspan="4"></td><td></td><td>following path.
 

To configure mail addresses:
1. Select a mail type.
If you select an existing mail type (for example, 126/163 mail), you do not need to specify SMPT Server and SMTP Port. Instead, they will be configured by the device itself. If you select Other Mail, they are mandatory.
2. Specify Username and Password.
3. (Optional) Enable the SSL.
If you enable the SSL, mails will be encrypted by the SSL and the SMTP port will be automatically updated to 465.
4. Specify Sender Address and Sender Name.
5. (Optional) Enable image attachment.
If you enable image attachment, real-time snapshots will be attached to alarm/exception notification mails.
6. Specify Receiver Address.
You need to enter a receiver address and click Add.
A maximum of eight receiver addresses can be added.
7. Click Save.
8. Click Verify to verify the mail settings.</td></tr>
<tr><td>Report Center</td><td>Report an alarm to the management system (for example, the VMS).</td></tr>
<tr><td>Send to HDMI</td><td>Send the live video of the alarming camera to the display connecting to the HDMI port of the NVR.</td></tr>
<tr><td>Send to VGA</td><td>Send the live video of the alarming camera to the display connecting to the VGA port of the NVR.</td></tr>
<tr><td>Alarm Output</td><td>Local->1/2/3/4</td><td>Trigger the going off of the NVR alarm outputs.
The number of alarm outputs varies according to the NVR model.</td></tr>
<tr><td>Recording</td><td>D1/D2…</td><td>Trigger a recording on the linked camera.</td></tr>
<tr><td>Snapshot</td><td>D1/D2…</td><td>Trigger a capture on the linked camera.</td></tr>
</table>

Type	Action	Description
PTZ	Preset	Enable the linked camera to go to a specific preset.
	Tour	Enable the linked camera to start a specific path tour.

13. Click **Save**.

Intelligent Feature Alarms

Introduction

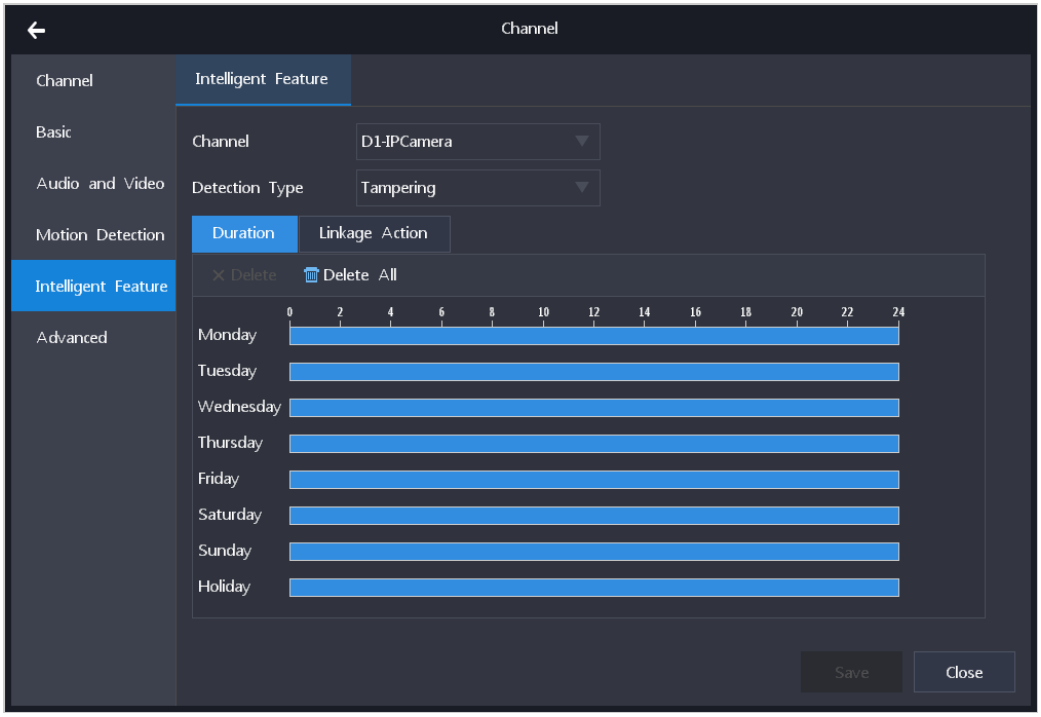
The NVR supports the following intelligent feature alarms of cameras:

Intelligent Feature Alarm	This Alarm Is Triggered When
Tampering	The video of the camera is blocked.
Guard Line	A person crosses the preconfigured guard line.
Enter Guard Area	A person enters the guarding area.
Entry Guard Area	A person loiters around the guarding area.
Exit Guard Area	A person leaves the guarding area.
Object Removal	A person takes away an object from the guarding area.
Object Left	A person leaves an object in the guarding area.
Defocus	The video image gets blurred.
Gathering	People gather in an area (for example, emergency exit) where people are not supposed to do so.
Scene Change	The guarding area changes.
Audio Surge	An audio surge occurs.
Face Detection	A target face is detected.

Configuring

To configure an intelligent feature alarm for a camera:

1. Click **Intelligent Feature**.
2. Select the camera from the **Channel** drop-down list.
3. Specify **Detection Type**.
4. Under **Duration**, select the durations when the alarm is enabled.
   The following is an example.



In this step, operations are similar with those described in section "Scheduling Recordings".

5. Click **Save**.
6. Under **Linkage Action**, specify linkage actions.
   In this step, operations are similar with those described in section "Motion Detection".
7. Click **Save**.

Advanced Settings

Upgrade

NOTE:

Do not power off the camera in operation or device during an import or export. Otherwise, the imported/exported channel list may be erroneous.

To upgrade a camera:

1. Choose **Advanced** > **Upgrade**.
2. Select the camera model from the **Model** drop-down list and the camera from the channel list.
3. Click **Upgrade**.

Importing or Exporting a Channel List

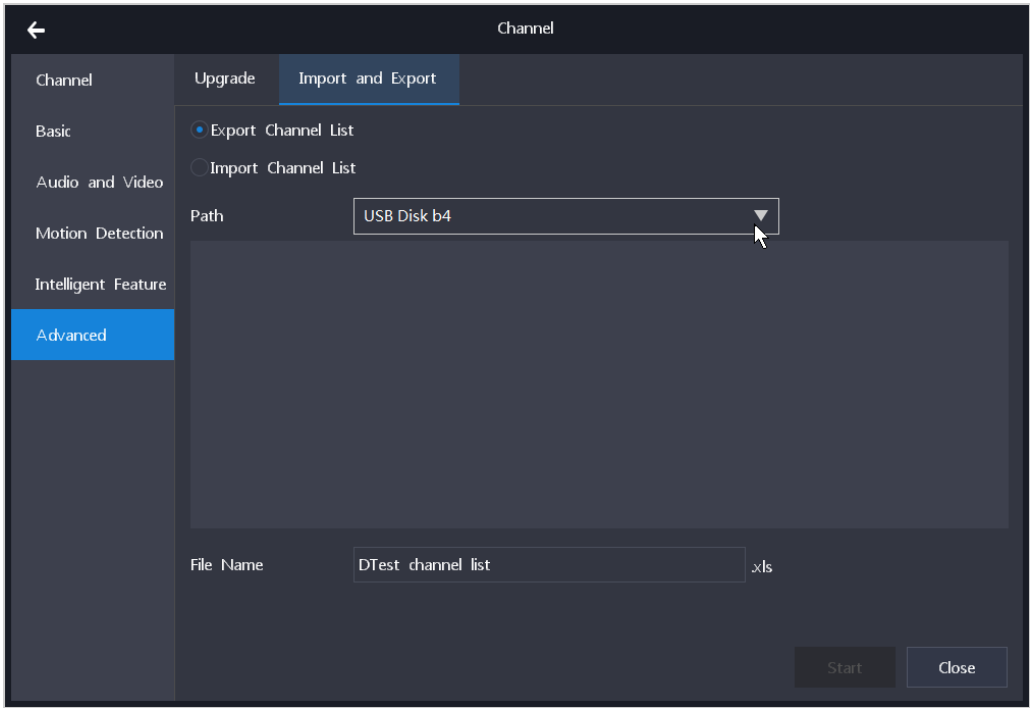
NOTE:

Do not power off the device during an import or export. Otherwise, the imported/exported channel list may be erroneous.

The channel list importing/exporting function can help you quickly add/replace a batch of cameras to/for a device.

To export a channel list:

1. Select **Export Channel List**
2. Select an external storage path, for example, a USB flash drive path.
3. Enter a file name.
   The following is an example.



4. Click **Start**.

To import a channel list:

1. Select **Import Channel List**.
2. Select an external storage path, for example, a USB flash drive path.
   In this step, you must upload a Microsoft Excel file and the format of the data included in the file must be valid. Otherwise, the import may fail.

After the new channel list is imported, the original channel list will be removed from the device together with the originally listed cameras.

Configuring Storage Settings

NOTE:

Commercial NVRs do not support network storage units.

Editing an HDD

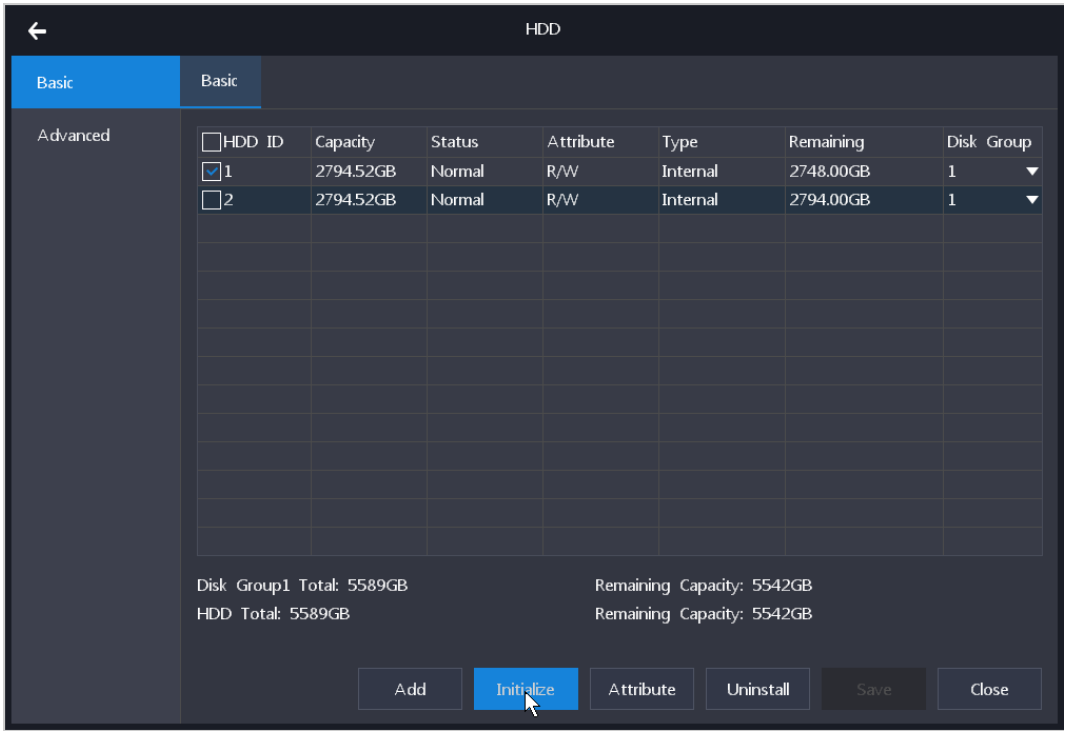
Initializing an HDD

NOTE:

You cannot initialize a USB flash drive or an HDD where playbacks are in progress.

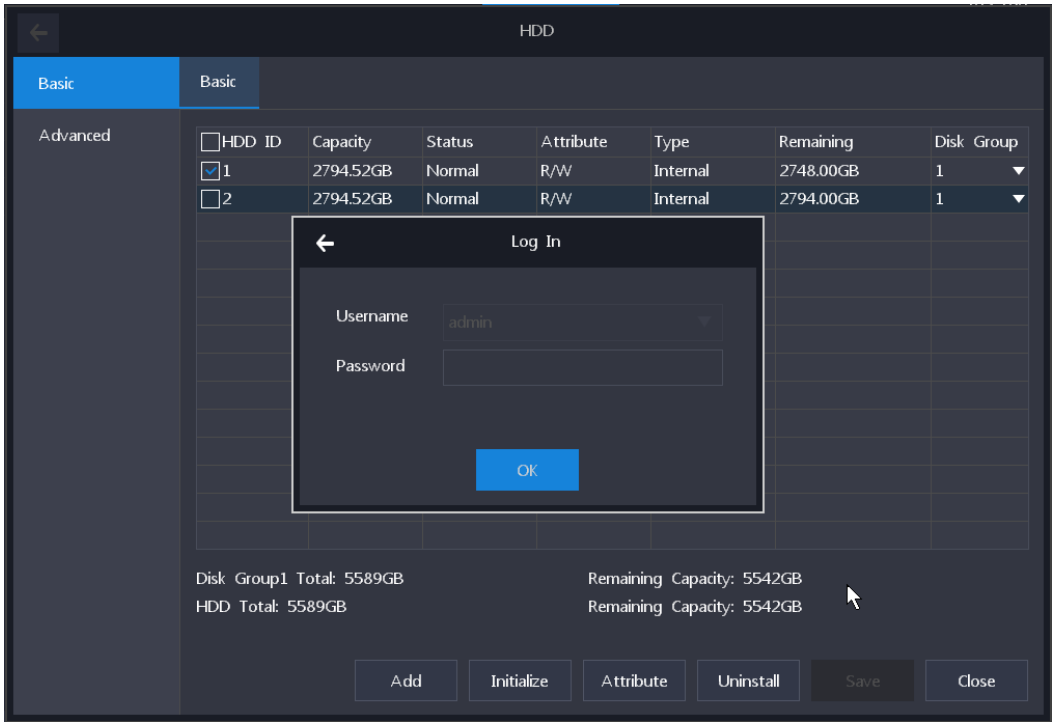
To initialize an HDD:

1. Stop all playbacks.
2. Select the HDD from the HDD list.
3. Click **Initialize**.

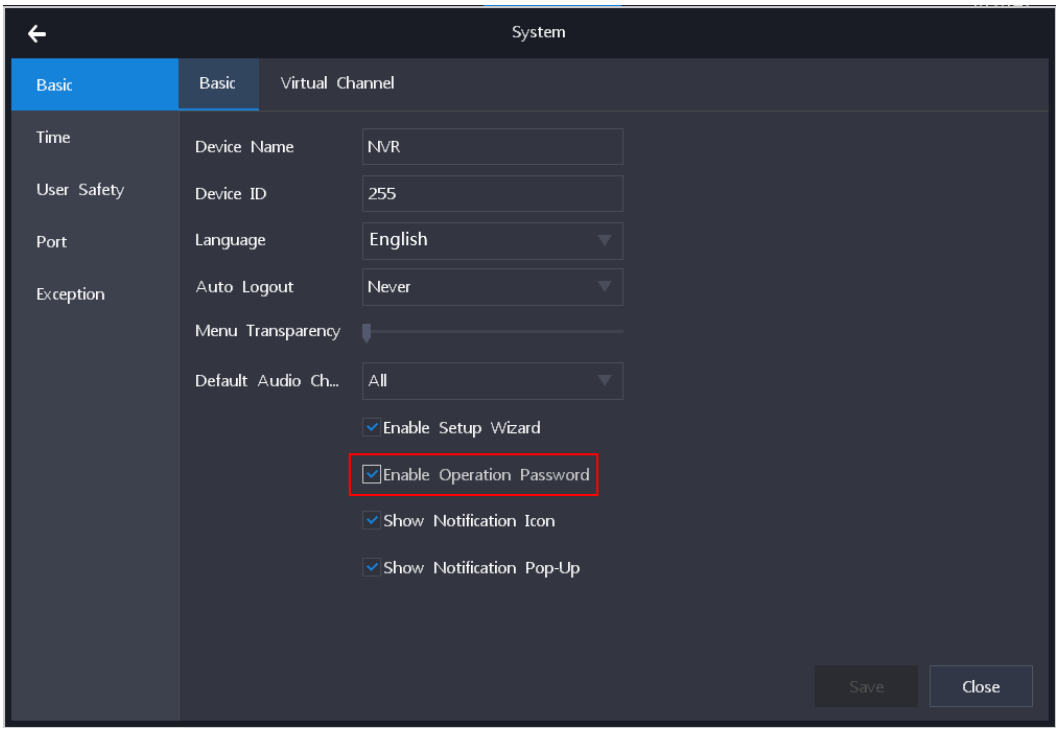


4. Confirm your operation.

5. Enter the password of the admin account.



If **Enable Operation Password** is unchecked, this step can be skipped. For details about this option, see section "Device Name and ID".



6. Click **Save**.

Adding a Network Storage Unit

N/A

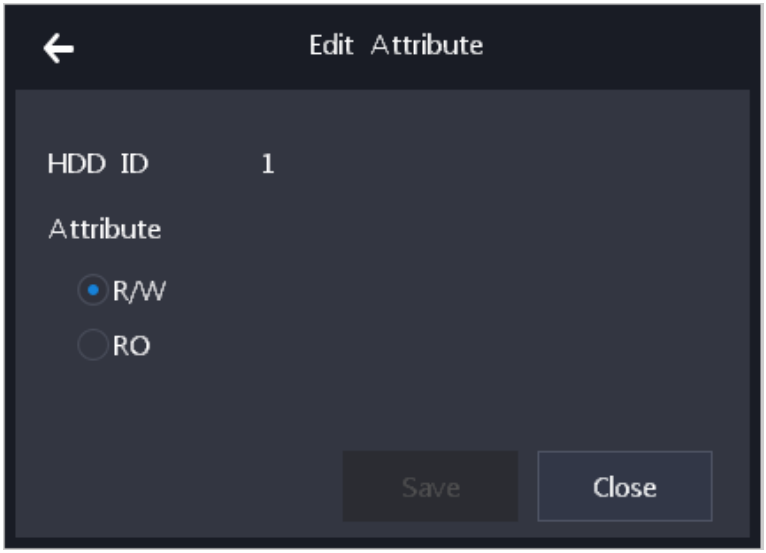
NOTE:

Commercial NVRs do not support network storage units.

Editing the Attribute of an HDD

To edit the attribute of an HDD:

1. Select the HDD from the HDD list.
2. Click **Attribute**.
3. Select an attribute.



4. Click **Save**.

NOTE:

You cannot edit the attribute of a USB flash drive.

Changing the Storage Mode

The NVR supports the following storage modes:

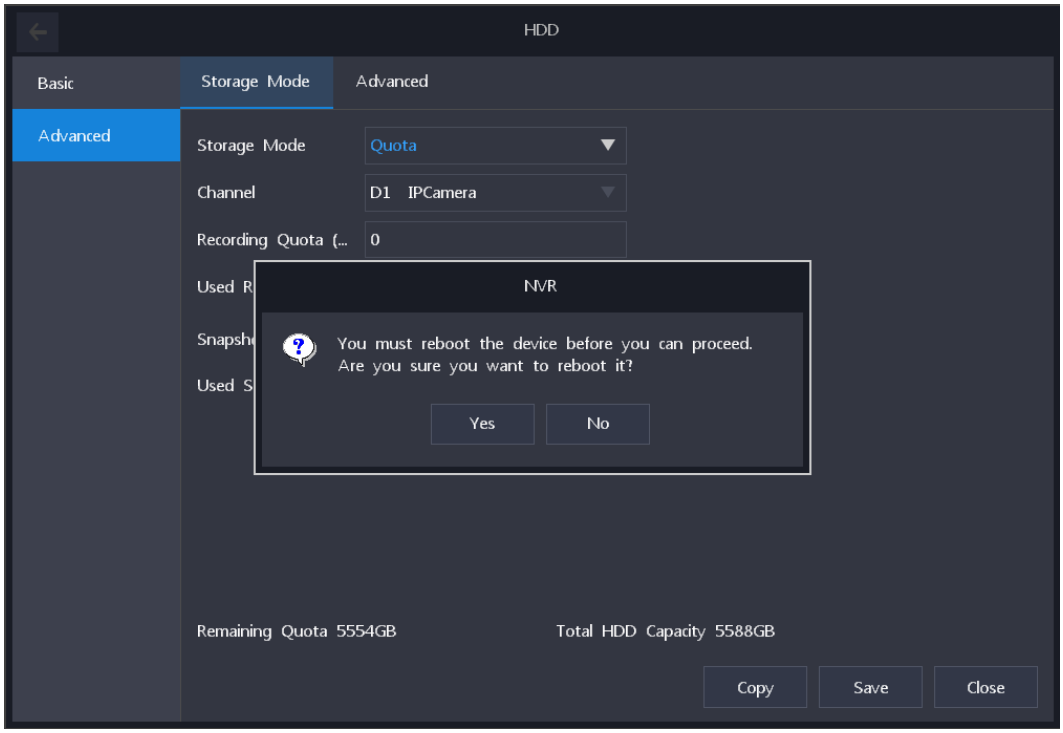
- **Disk Group**: When a camera is assigned a group, records and pictures of the camera will be saved in HDDs of this group. An HDD can belong to only one disk group, which can include multiple HDDs.
- **Quota**: A camera is assigned a specific amount of recording/capturing/synopsis space quota. The synopsis quota is available only to cameras supporting the record synopsis function. A quota must be a multiple of 2. You can click **Copy** to copy the quota settings of a camera to other cameras. In quota mode, when the data size of a camera exceeds the specified quota, the excess will be saved temporarily. If the storage space becomes insufficient, the excess will be overwritten preferentially.

Please note the following before changing the storage mode:

- Switching between the disk group and quota modes will cause the device to reboot.
- USB flash drives and NAS/IPSAN storage units do not support the disk group mode.

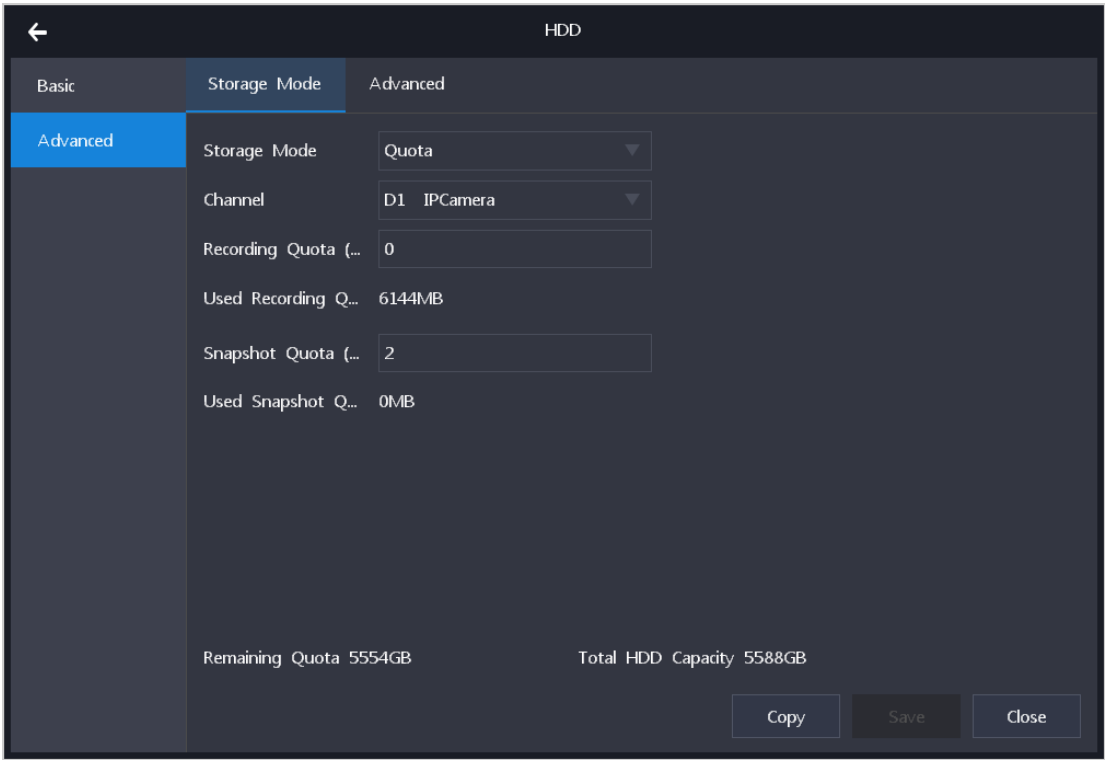
To change the storage mode of the device from **Disk Group** to **Quota**:

1. Choose **Advanced** > **Storage Mode**.
2. Select **Quota** from the **Storage Mode** drop-down list.
3. Click **Yes**.



4. Wait while the storage mode is being changed.
5. Log in to the NVR again.

After the preceding steps are performed, you can find the following.



You can then assign a specific amount of recording/snapshot quota to a camera. If you set **Recording Quota** to **0**, the device will still try to save the records of the camera to a space-sufficient HDD. If you set **Snapshot Quota** to **0**, snapshots of the camera will be not saved.

Uninstalling an HDD

To uninstall an HDD, select the HDD from the HDD list and click **Uninstall**.

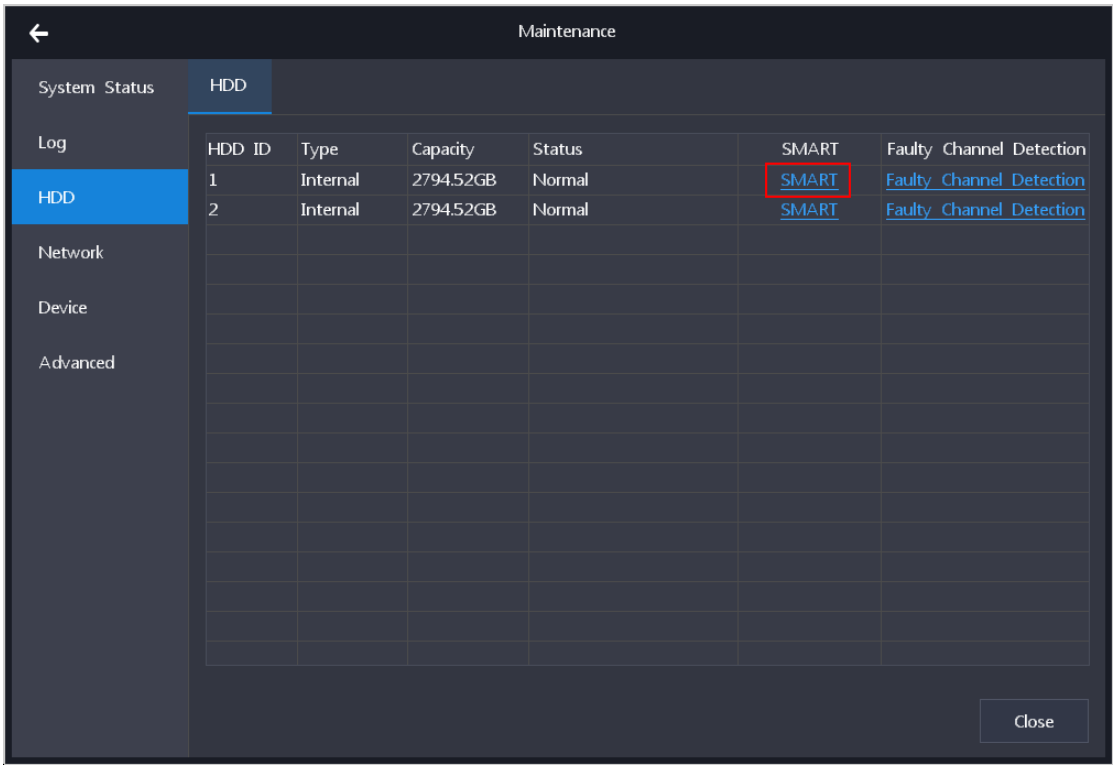
NOTE:

You cannot uninstall an HDD involved in an ongoing playback.

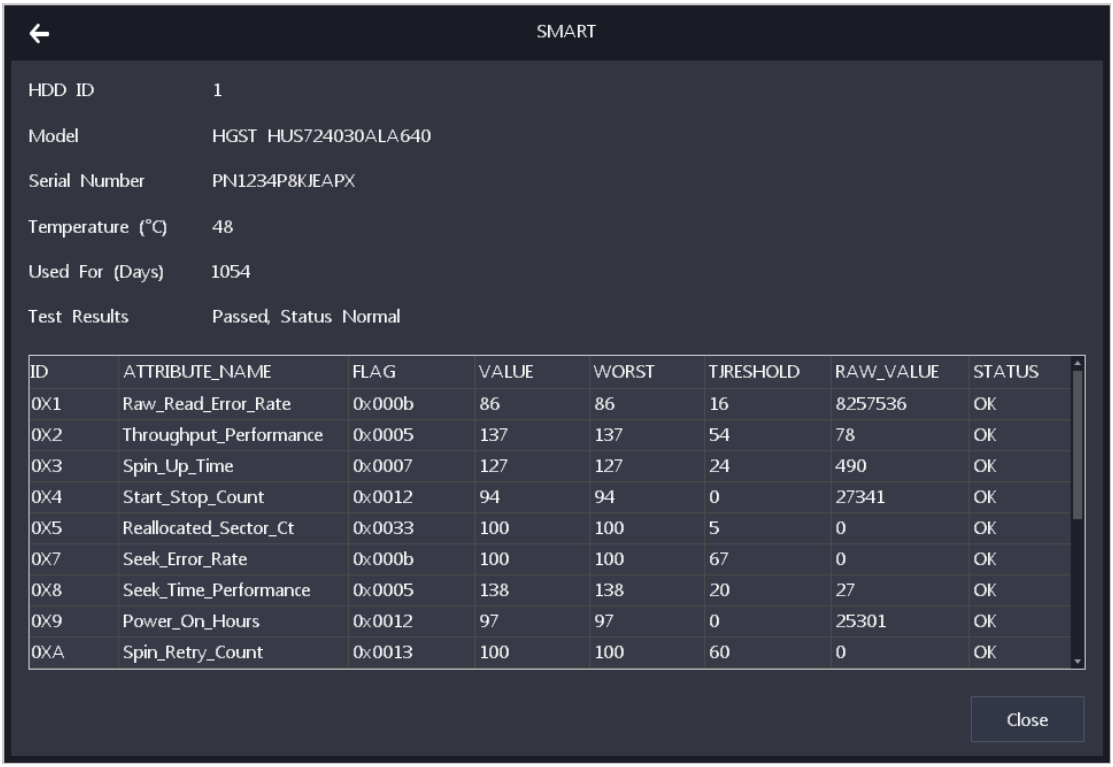
Testing an HDD

SMART Test

To conduct a Self-Monitoring Analysis and Reporting Technology (SMART) test, choose **Maintenance** > **HDD** > **SMART**.



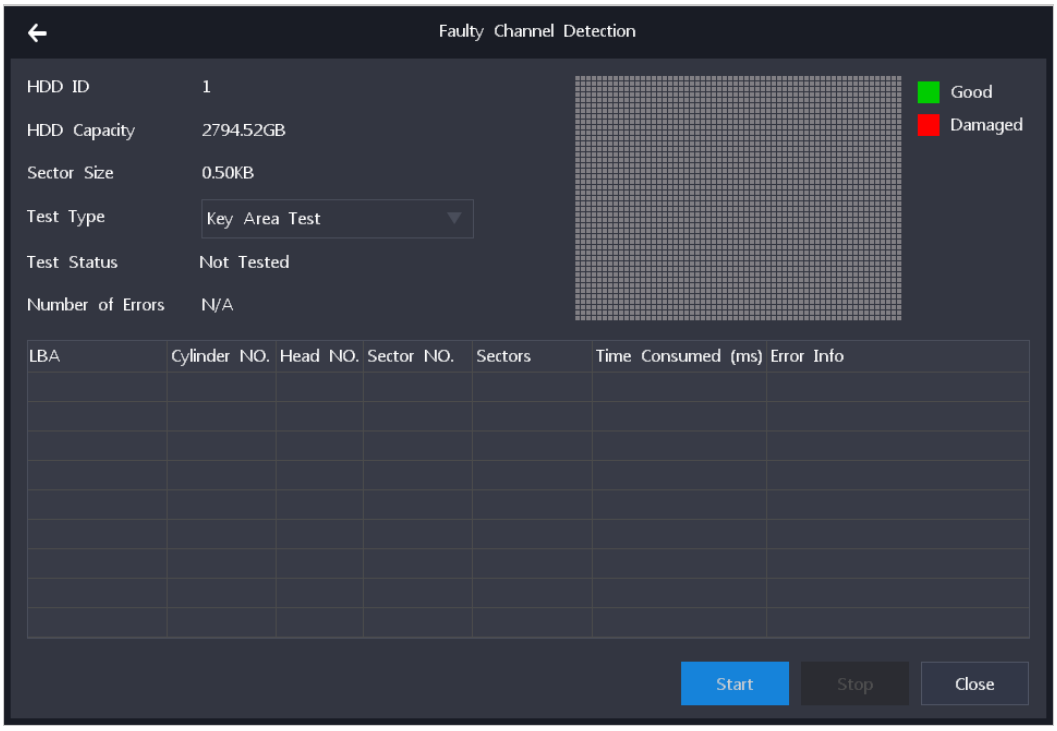
The following is an example for test results.



Faulty Channel Detection

To conduct a faulty channel detection:

1. Choose **Faulty Channel Detection**.
2. Specify **Test Type**.
   Both the two test types will take an hour. However, the accuracy of the complete test type is higher than that of the key area test type.
3. Click **Start**.



4. Wait while the detection is going on.
5. Click **Close** when the detection is completed.

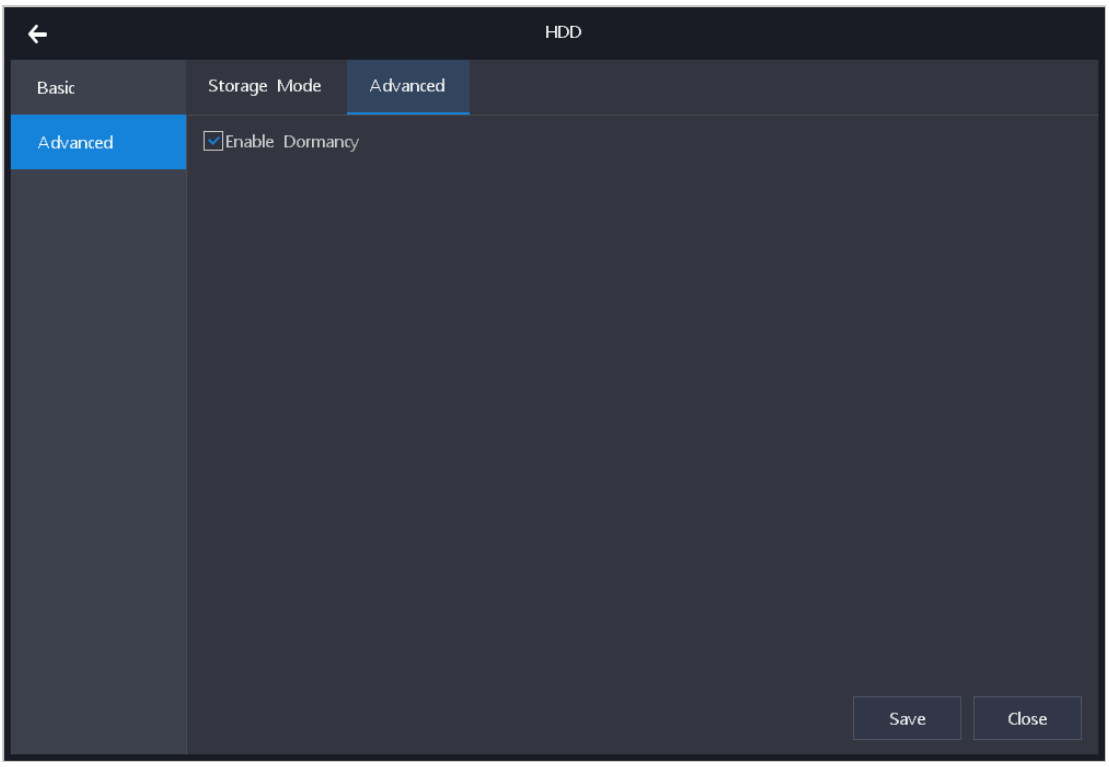
Regrouping a Camera

To regroup a camera, select a new group ID from the **Save in Disk Group** drop-down list and click **Save**.

Enabling HDD Dormancy

The HDD Dormancy function enables an HDD to become dormant if it is idle for over 15 minutes. When an HDD becomes dormant, it stops reading and writing. It may take 5-15 seconds to wake up a dormant HDD, depending on the HDD model. This function takes effect only when HDDs support this function and no RAID array is created.

To enable this function, choose **Advanced** > **Advanced**, check **Enable Dormancy**, and click **Save**.

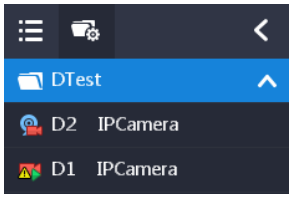

HDD
Basic
Advanced
Storage Mode
Advanced
Enable Dormancy
Save
Close

Live View

Main Interface

The following is the main interface of the **Live** tab page.

The four main areas are described as follows:

Area A	Camera list. All the cameras are listed under ☰ and all the camera groups and group members are listed under ⚙.  Clicking ＋ will direct you to the **Search** tab page (**Channel** > **Channel** > **Search**)

Area B

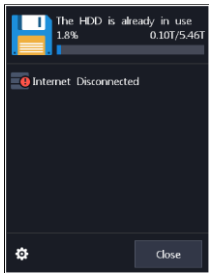
Screen layout with viewing windows.

You can click to change the screen layout.

To view videos of a camera, select a viewing window and double-click the camera.

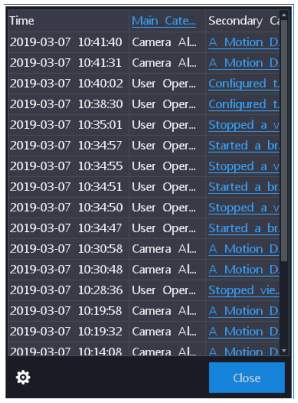
Area C

Alarm notifications. The following is an example.

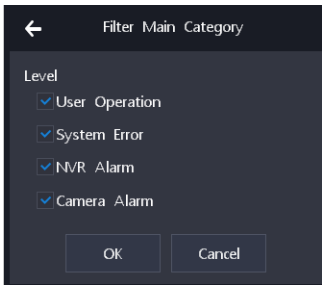


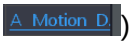
Clicking will direct you to the **Alarm Status** tab page (**Maintenance** > **System Status** > **Alarm Status**).

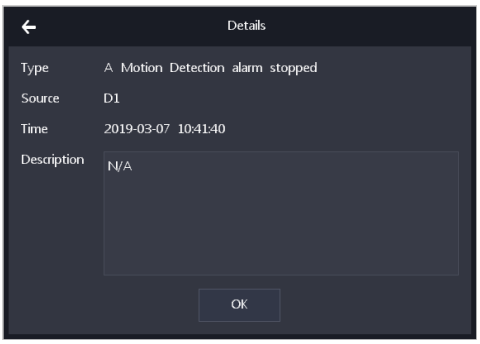
Logs. The following is an example.



- Clicking **Main Category** can allow you to choose logs of a specific log category to be showed on the main screen.

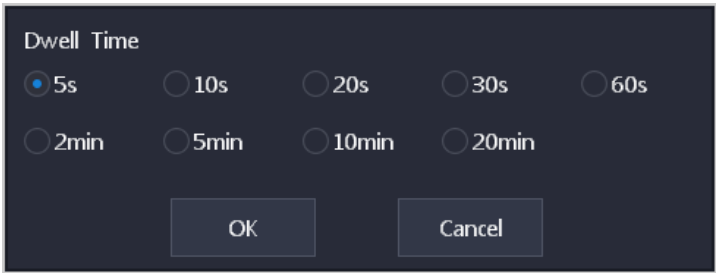
  

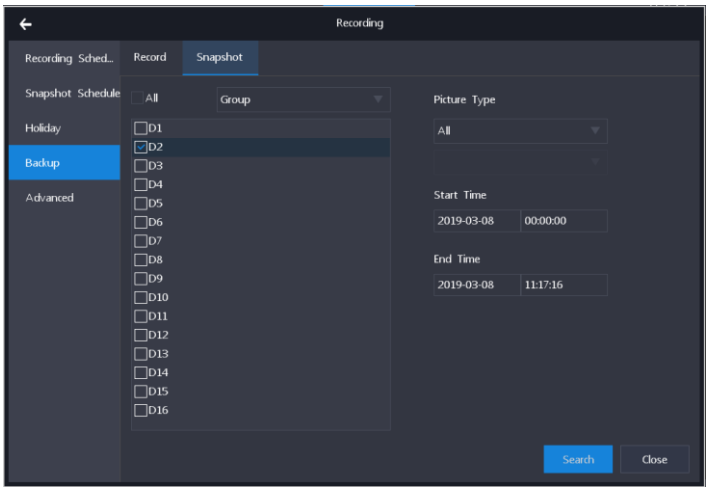
  If you select a log category, for example, **User Operation**, then only user operation logs will be showed on the main screen.
- Clicking a log link (for example, ) will show you the log details. The following is an example.

<table>
<tr><td></td><td></td><td> 

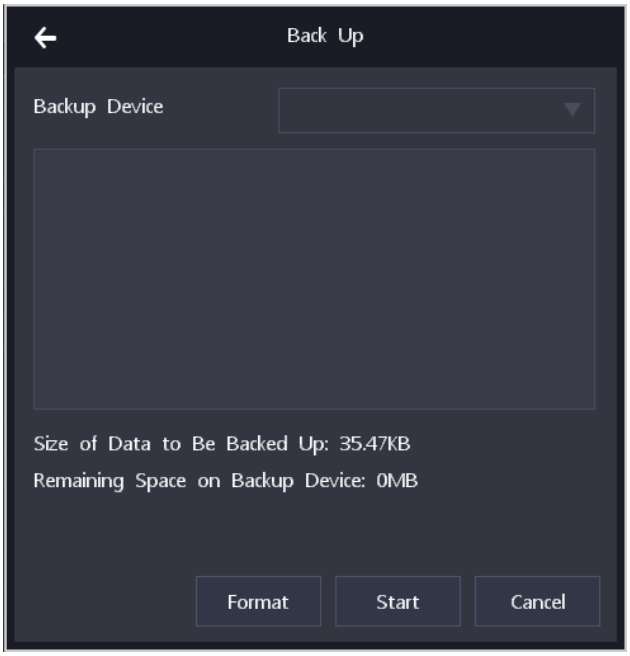
• Clicking will direct you to the Search tab page (Maintenance > Log > Search).</td></tr>
<tr><td></td><td> </td><td>Switch between main and secondary screens</td></tr>
<tr><td></td><td> </td><td>Full screen</td></tr>
<tr><td rowspan="10">Area D</td><td></td><td></td></tr>
<tr><td> </td><td>Direct you to the Channel tab page (Channel > Channel > Channel).</td></tr>
<tr><td> </td><td>Direct you to the Recording Schedule tab page (Recording > Recording Schedule > Recording Schedule)</td></tr>
<tr><td> </td><td>View videos from a channel.</td></tr>
<tr><td> </td><td>Rename a channel.</td></tr>
<tr><td> </td><td>Change the screen layout.</td></tr>
<tr><td>
</td><td>Screen display pages which vary according to the camera accommodating capability of the device and the current screen layout.</td></tr>
<tr><td>
</td><td>View videos from all online cameras. In such a case, all cameras will be assigned a viewing window.</td></tr>
<tr><td> </td><td>Start a screen tour.
To start a screen tour:
1. Select a screen layout.
Note that the number of screen pages must be equal to or greater than 2.

2. Bind cameras and viewing windows together on each screen pages.
3. Click and select a dwell time (for example, 5s).</td></tr>
</table>

	 4. Click **OK**. After the preceding steps are performed, each screen page will be toured and each page will dwell for 5s.
	Start a broadcast to all the cameras that support broadcasts.
	Change display settings.
	Cancel viewing videos from a camera.
	Start a rapid playback which plays back a record of the last five minutes. For example, if the current time is 12:00:00, and then a rapid playback will start from 11:55:00 and end at 12:00:00. You cannot start a rapid playback if no record is found, which usually because: 1) The recording function is disabled. 2) The recording mode is Scheduled and Event Triggered but the scheduled time has not arrived yet or no event has occurred.
	Take a capture. To back up captures to an external storage unit: 1. Choose **Settings** > **Recording** > **Backup** > **Snapshot**. 2. Select a camera group or a specific camera. 3. Specify **Picture Type**, **Start Time**, and **End Time**. The following is an example.



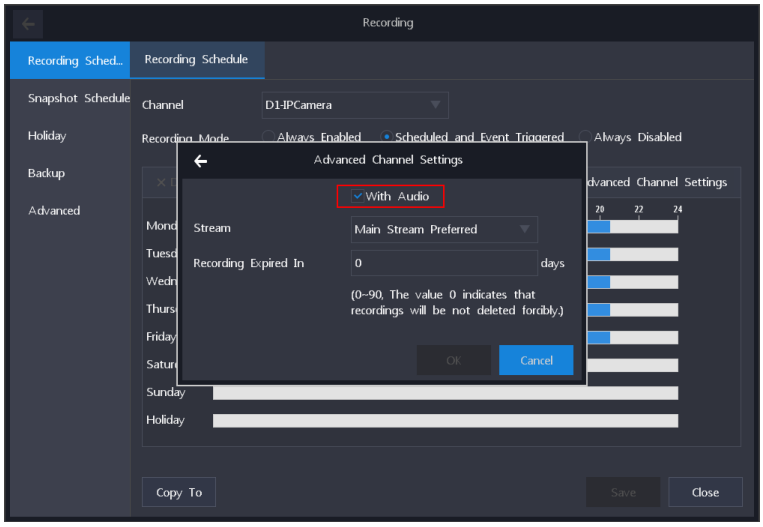
4. Click **Search**.
5. From **Search Results**, select captures you want to download and click **Back Up**.
6. Insert the external storage unit to the device and select it from the **Backup Device** drop-down list.



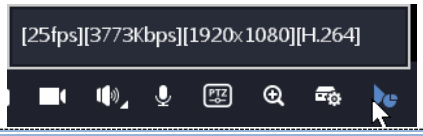
In this step, you can format the external storage unit.

7. Click **Start**.

	Change the recording mode of cameras.
	Adjust the volume of a video. If **With Audio** is unchecked, all the cameras will not include audio into videos. In such a case, adjusting the volume of videos is useless.



If you click ( ), you can switch between audio channels for cameras that have two audio channels.

	Call a camera.
	PTZ controls, which are detailed in section "PTZ Controls". Presets and tour paths, which will be detailed in section "Presets and Paths".
	Digitally zoom in or out.
	Decoding mode:
	Show the frame rate, bitrate, resolution, and video compression of a camera. The following is an example. 

The table helps you read icons in Area A.

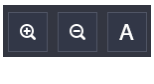
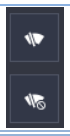
	Online		Being viewed
	Offline or not registered		Alarm generated and recording in progress
	Alarm generated		Recording in progress and being viewed
	Recording in progress		Recording in progress, being viewed, and alarm generated

PTZ Controls

NOTE:

PTZ controls take effect on only PTZ cameras.

PTZ controls are described as follows.

	Direction buttons. You can click to reset the camera to the factory position.	 	Increase or decrease the focus. Alternatively, use the automatic focus. Increase or decrease the aperture. Alternatively, use the automatic aperture.
	Adjust the PTZ speed.		Enable or disable the backlight.
	Zoom in or out.		Enable or disable the wiper.

Presets and Paths

Creating a Preset

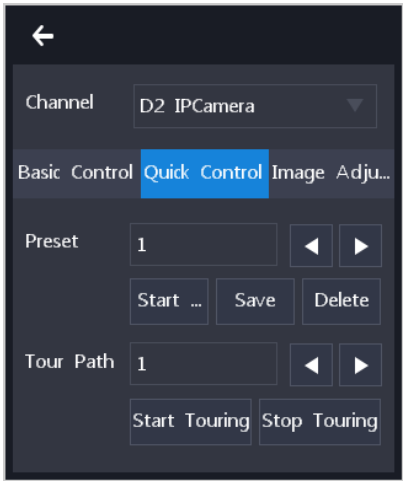
NOTE:

Only ONVIF/VSIP cameras support this operation.

To create a preset for a camera:

1. Move the camera in operation to a position using arrow buttons.

2. Select a preset from the **Preset** text filed under **Quick Control** using .



3. Click **Save**.

After the preceding steps are performed, a preset is saved. Clicking **Start Touring**

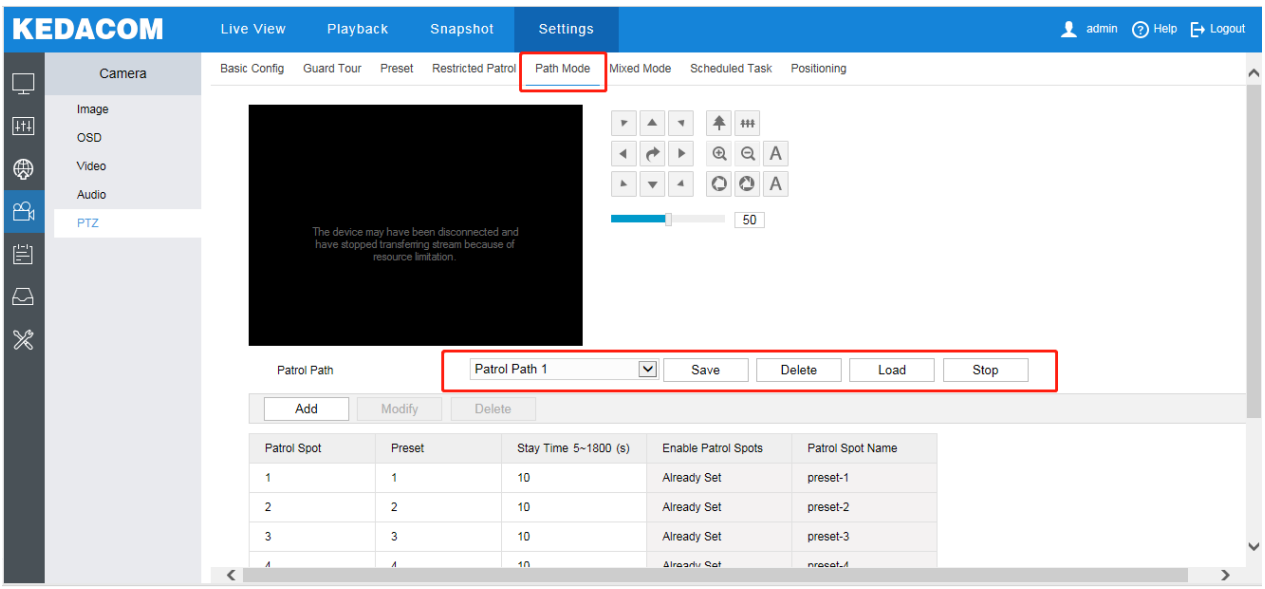
will enable the camera to go to the preset.

Touring Presets

Go to the IPC Web of the camera in operation to tour its presets. For details, see the camera user manual.

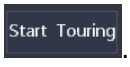
Touring Paths

On the NVR Web, you can only tour paths and these paths can be configured only on the IPC Web of the camera in operation.



To tour paths of a camera:

1. Select a path from the **Tour Path** text filed under **Quick Control** using .

2. Click 

.

Recording

Scheduling a Recording

For details, see section "Scheduling Recordings".

Setting the Recording Policy

The recording policy includes the following:

- What to do when storage space is insufficient
- How long a recording starts in advance, in other words, the pre-recording length, when an alarm is generated

Pre-recording	Pre-recording time for scheduled or event-triggered (with alarm linkage settings configured) recordings. For example, if an alarm is generated at 11:00:10 and this parameter is set to 5, a recording will be started from 11:00:05. The maximum value of this parameter is 60.

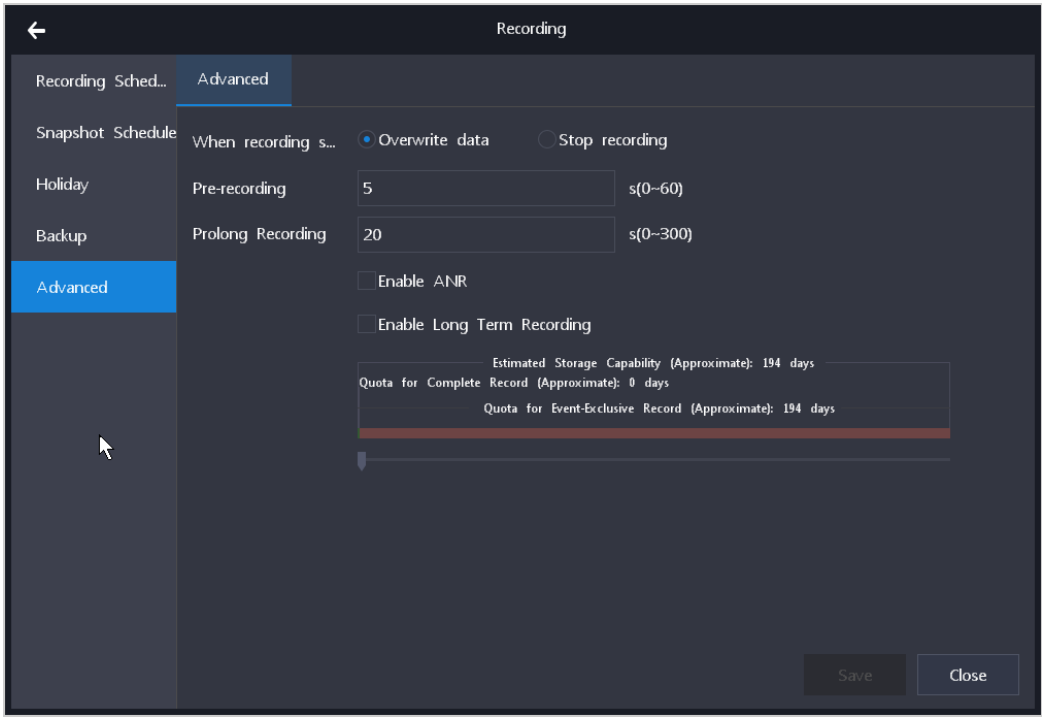
- How long a recording prolongs when an alarm is generated

Prolong Recording	Post-recording time for event-triggered (with alarm linkage settings configured) recordings. For example, if an alarm is cleared at 12:00:30 and this parameter is set to 20, the recording will last to 12:00:50. The maximum value of this parameter is 300.

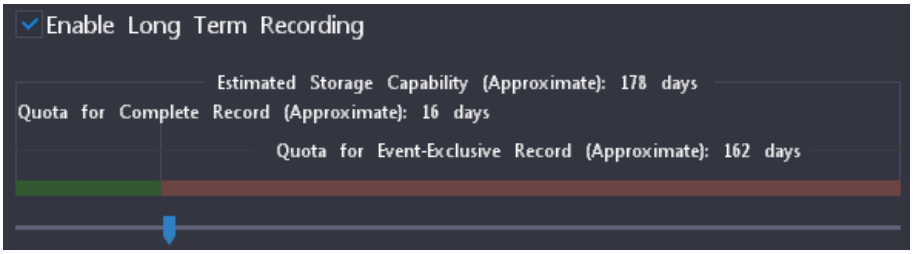
- Whether to allow cameras to store recordings when they are disconnected from the NVR and transfer these recordings to the NVR when they are connected to the NVR again. This is achieved using the Automatic Network Replenishment (ANR) technology.
- Whether to enable the Long Term Recording function, which allows you to use the device storage capability to the full extent.

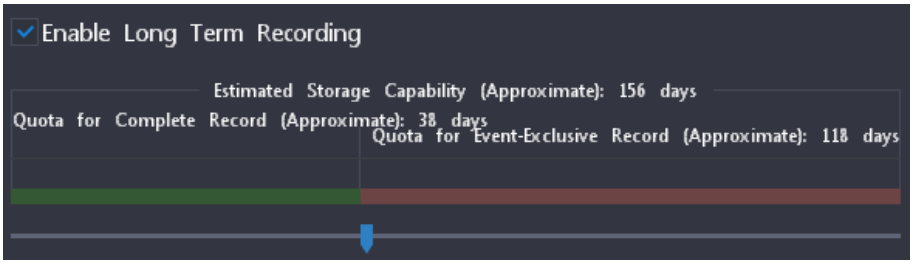
To configure the recording policy:

1. Choose **Settings** > **Recording** > **Advanced**.
2. Specify parameters displayed.



If you select **Enable ANR**, the ANR technology is enabled. For cameras, the ANR technology can be configured only on the camera side using the IPC Web. For details, see the related user guide. When the Long Term Recording function is enabled, the device calculates the **Quota for Complete Record** and **Quota for Event-Exclusive Record** in a timely manner if you drag the slider. The following are examples.



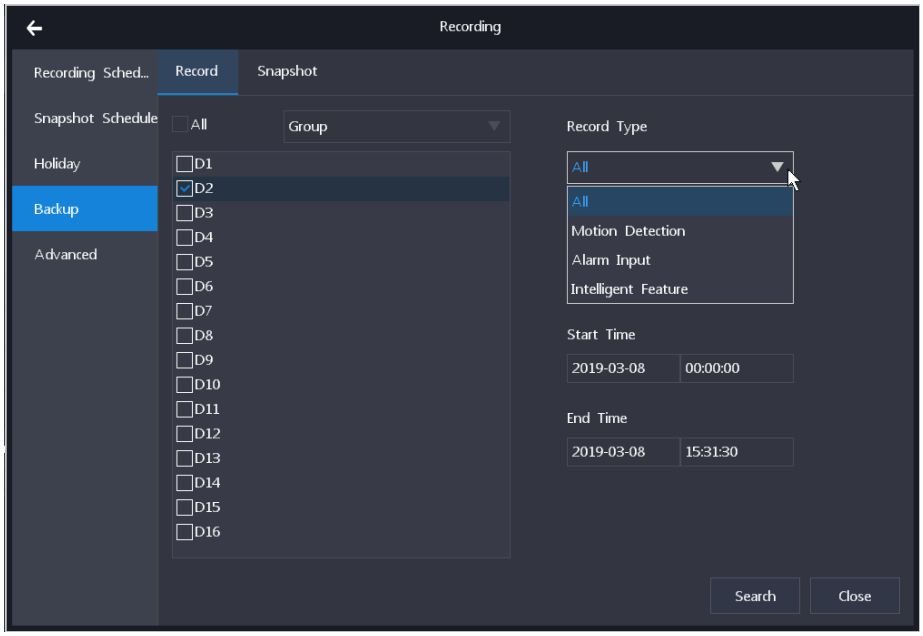


3. Click **Save**.

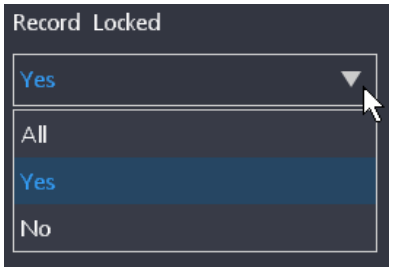
Backing Up Records

To back up records:

1. Choose **Settings** > **Recording** > **Backup** > **Record**.
2. Select a camera group, a specific camera, or all the cameras.
3. Specify **Record Type**.

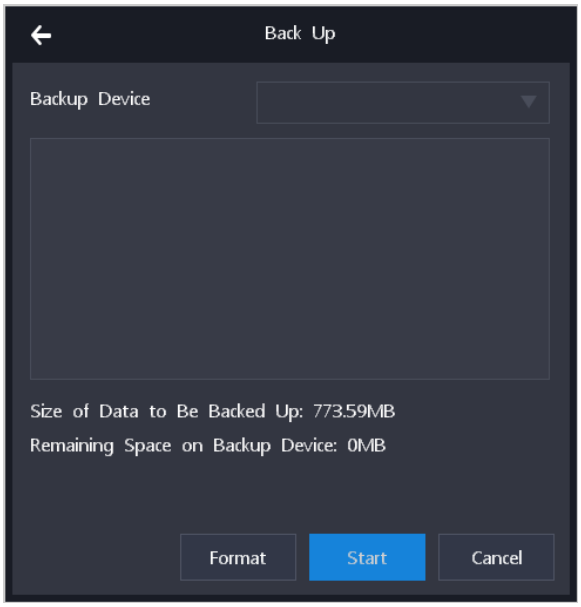


4. Specify **Record Locked**.



- **Yes**: locked records
- **No**: unlocked records

5. Specify **Start Time** and **End Time**.
6. Click **Search**.
7. Select target records from the search results and click **Back Up**.
8. Select an external storage unit and click **Start**.



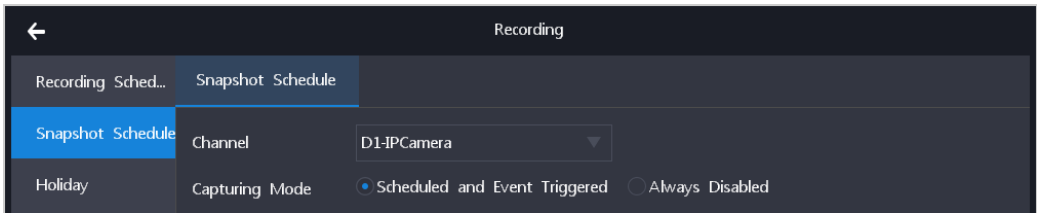
In this step, you can format the external storage unit.

Capturing

Scheduling a Capturing

To schedule a capturing for a camera:

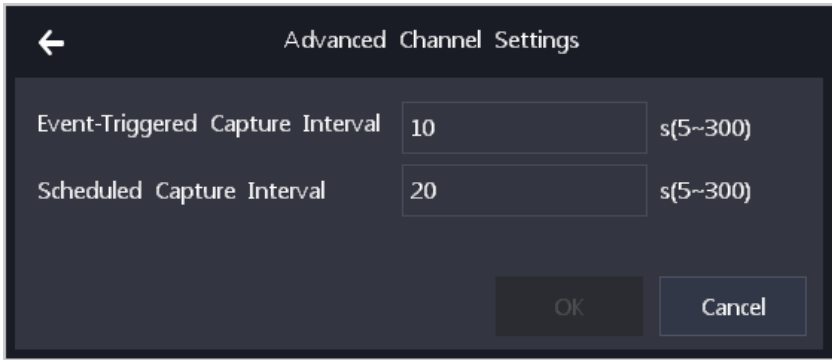
1. Choose **Settings** > **Recording** > **Snapshot Schedule**.
2. Select a channel.
3. Specify a capturing mode.



Scheduled and Event Triggered: indicates that a capturing will be started:

- At a scheduled time, which can be configured at step 6
- Upon the occurrence of an event/alarm (Motion Detection and Intelligent Feature Alarms) (assuming alarm linkage settings of the channel already include the capturing action; for details about the alarm linkage settings, see sections "Motion Detection" and "Intelligent Feature Alarms")

4. Click **Advanced Channel Settings** to configure advanced channel settings.



The following table provides parameter descriptions.

Parameter	Description
Event-Triggered Capture Interval	Interval at which capturings triggered by an event/alarm are made
Scheduled Capture Interval	Interval at which scheduled capturings are made

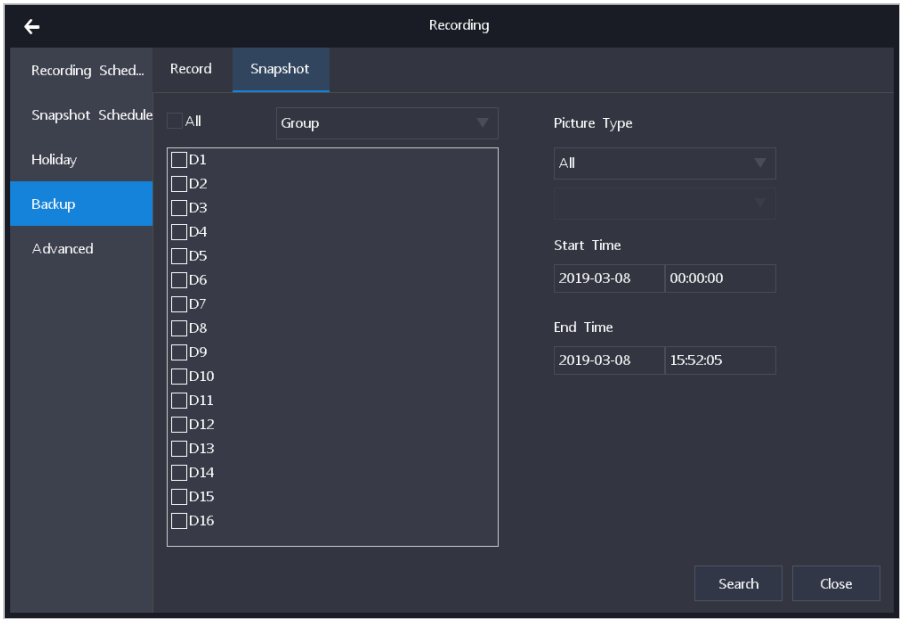
5. Click **OK**.
6. Press and hold the left mouse button and draw one or multiple lines on the timeline (accurate to the minute) of a day.
   After this, capturings will be made during the preceding six periods at a specific interval (**Event-Triggered Capture Interval** or **Scheduled Capture Interval**). A maximum of eight periods can be created in a day and those periods cannot overlap.
   If you click a period, you can edit its start and end times.

7. Copy the period settings of a day to other target days by clicking and selecting the target days. For references, see section "Scheduling Recordings".
8. Click **Save**.
9. Copy the capturing schedule settings of the channel to other target channels by clicking **Copy To** and selecting the target channels.
10. Click **OK**.
11. Click **Save**.

Backing Up Snapshots

To back up records:

1. Choose **Settings** > **Recording** > **Backup** > **Snapshot**.
2. Select a camera group, a specific camera, or all the cameras.
3. Specify **Picture Type**.



4. Specify **Start Time** and **End Time**.
5. Click **Search**.
6. Select target records from the search results and click **Back Up**.
7. Select an external storage unit and click **Start**.
   In this step, you can format the external storage unit.

Playing Back

NOTE:

- If you click **All Channels**, existing and deleted channels will be displayed.
- When a record is played back for the first time, the playback will start from the very beginning.

Starting a Rapid Playback

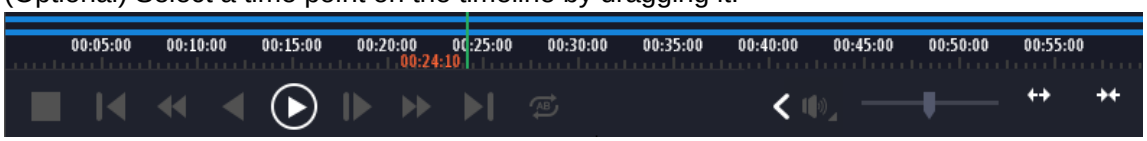
On the **Live** page, clicking at the bottom allows you to start a rapid playback. For details, see section "Main Interface".

Starting a Playback by Channel

To start a playback by channel:

1. Choose **Playback**.
2. Select one or multiple cameras from the channel list.
   Note:
   The screen layout will automatically change according to the number of selected cameras. A maximum of 16 cameras can be played back at the same time.
   When multiple channels are selected, they are bound to view windows according to the channel ID in an ascending order and will be played back simultaneously from the start time of the first record-available date.
   Usually, channels have different record-available dates. For synchronous playbacks, all these dates are blue, for example, 5. From the view of the set theory, the specially displayed dates are the union of the selected cameras' record-available dates. For example, records are available on March 1 for camera 1 and records are available on March 2 for camera 2. In such a case, the dates March 1 and 2 are specially displayed. Additionally, all these dates are specially displayed no matter which view window is currently selected.
3. Select a blue date.
   If you do not select a date, the playback will start from the very beginning of the first record-available date.
4. Click .

5. (Optional) Select a time point on the timeline by dragging it.

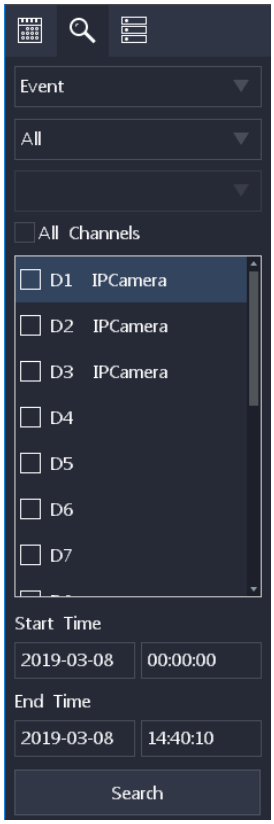


Starting a Playback by Event

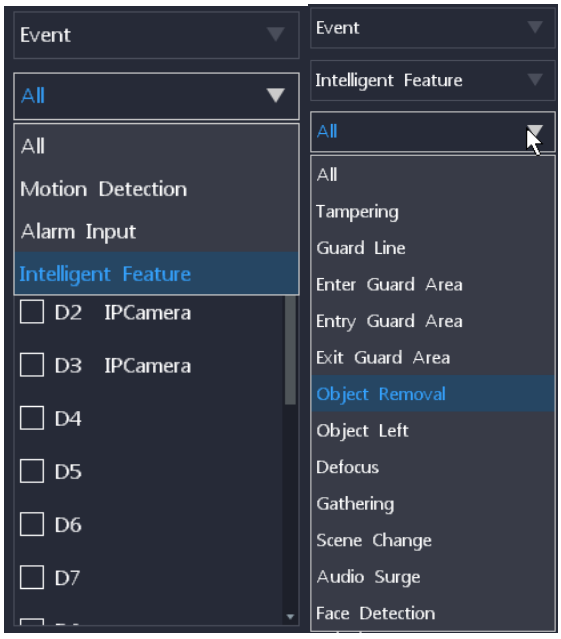
To start a playback by event:

1. Click .

2. Select **Event** from the first drop-down list.



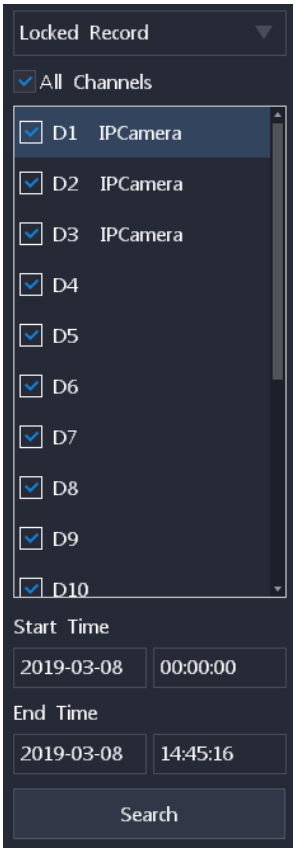
3. (Optional) Specify the event by selecting items in the second and third drop-down lists.



4. Select the target camera(s).
5. Specify the start and end times.
6. Click **Search**.
7. Double-click each searching result to play back records related to the event.
8. Click **Back**.

Starting a Playback by Locked Record

1. Click .
2. Select **Locked Record** from the drop-down list.
3. Select the target channel(s).
4. Specify the start and end times.



5. Click **Search**.
6. Double-click each search result to play back locked records.
   Note: In this step, you can unlock specific records. You can also lock them back later.
   For details on how to lock records, see the description about in section "Playback Controls".

Starting a Playback by Tag

The steps are similar to those described in section "Starting a Playback by Locked Record".

Starting a Playback by Sub-Period

The sub-period playback is a playback where a record is equally divided into several sub-records with the same duration and these sub-records are played back simultaneously.

For example, a 12-hour record is equally divided into *4* (specified by **Fragments**) sub-records each of them lasting for 3 hours and these *4* sub-records are played back simultaneously.

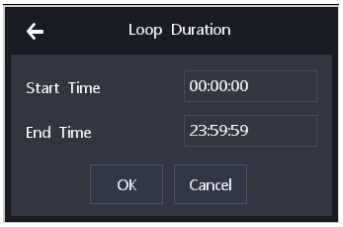
To start a playback by sub-period:

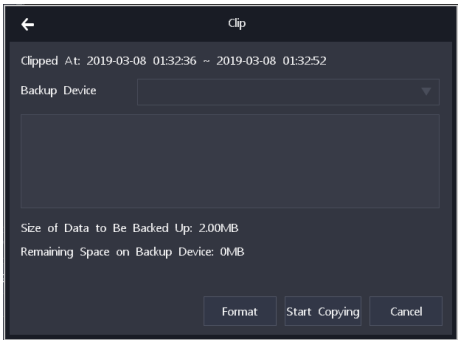
1. Click .
2. Select the target channel.
3. Select a blue date.
4. Specify **Fragments**.
   The **Fragments** parameter indicates the number of sub-records.
5. Click .
6. (Optional) Further divide a sub-record into fragments by choosing > **Recursive Fragment**.
   The following is an example.
   You can click as long as the sub-record/fragment duration is long enough. If a sub-record/fragment lasts for less than 2 minutes, you will find , indicating that the sub-record/fragment cannot be further divided.

Playback Controls

Playback controls are described as follows.

	Stop a playback.		Accelerate the playback. Every click will increase the speed from 2X to 4X and then 8X 16X 32X and finally 64X. When the speed is 64X, clicking it will make the speed normal again.
	Go backward 30 seconds.		Go forward 30 seconds.
	Slow the playback down. Every click will slow down the speed from 1/2X to 1/4X and then 1/8X and finally 1/16X. When the speed is 1/16X, clicking it will make the speed normal again.		Repeatedly play back a certain section of a record. To start a loop playback: 1. Click . 2. Enter a start time and an end time.

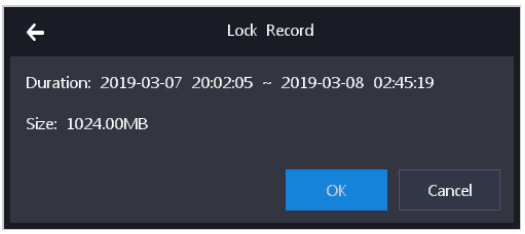
			 3. Click **OK**.
	Play the record back reversely. Clicking it again will stop the reverse playback.		Expand the control bar.
/	Start/pause a playback.		Mute/unmute the speaker. In addition, you can select an audio channel.
	Play back frame by frame. Every click will play a single frame. To go back to the normal playback, click .	-	-

	Take snapshots. Note that all snapshots can be backed up. For details, see the description about in section "Main Interface". **NOTE:** If you cannot take captures, you may not have the capture authorization.		Digitally zoom in or out. After this button is clicked, if you press and hold the left mouse button and select a place towards the bottom right corner, the place will be zoomed in and viewed in full screen. If you press and hold the left mouse button and select a place towards the top left corner, the view will be normal again.
	Click it to start a recording during a playback. Click it again to stop the recording. The record is saved in an external storage unit. 		Adjust the volume.
	Add tags to a record.	-	-

Lock a certain section or the whole section of a record to prevent this section from being overwritten.

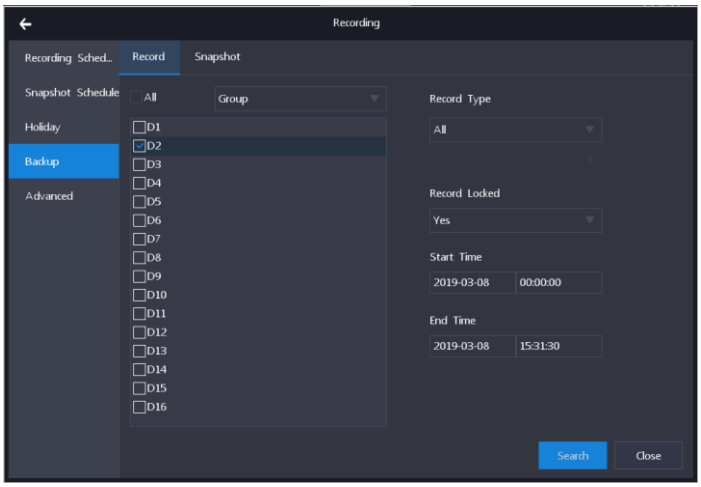
To achieve this:

1. Click at the target start time.
2. Click it again at the target end time.
3. Click **OK**.



To back up locked records:

1. Choose **Settings** > **Recording** > **Backup** > **Record**.
2. Select the target channel(s).
3. Specify **Recording Type**, **Record Locked (**set it to **Yes)**, **Start Time**, and **End Time**, and click **Search**.



4. Select target locked records and click **Back Up**.

Alarming

Motion Detection

For details, see section "Motion Detection".

Intelligent Feature Alarms

For details, see section "Intelligent Feature Alarms".

Alarm Inputs of the Device

For details, see section "Alarm Inputs".

Exceptions on the Device

For details, see section "Exceptions".

Active Alarm

For details, see section "Active Alarms".

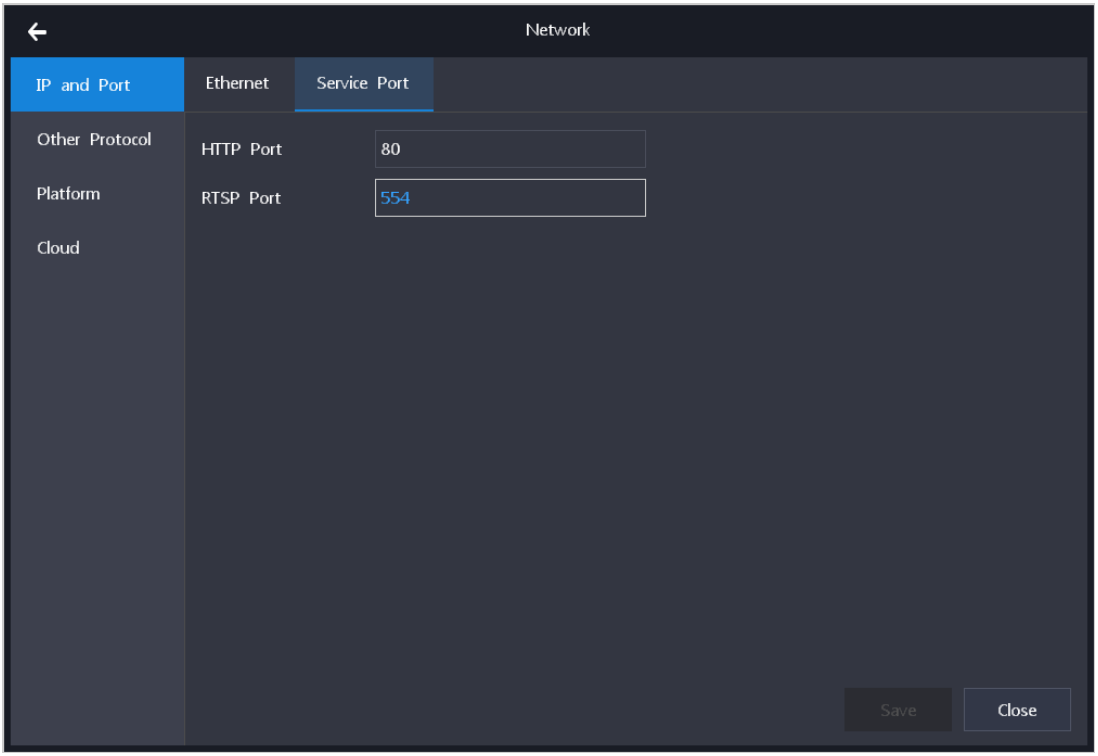
Configuring Network Settings

NICs

For details on how to configure NICs, see section "Configuring Network Settings".

HTTP and RTSP Ports

The two ports can be configured in the following path.



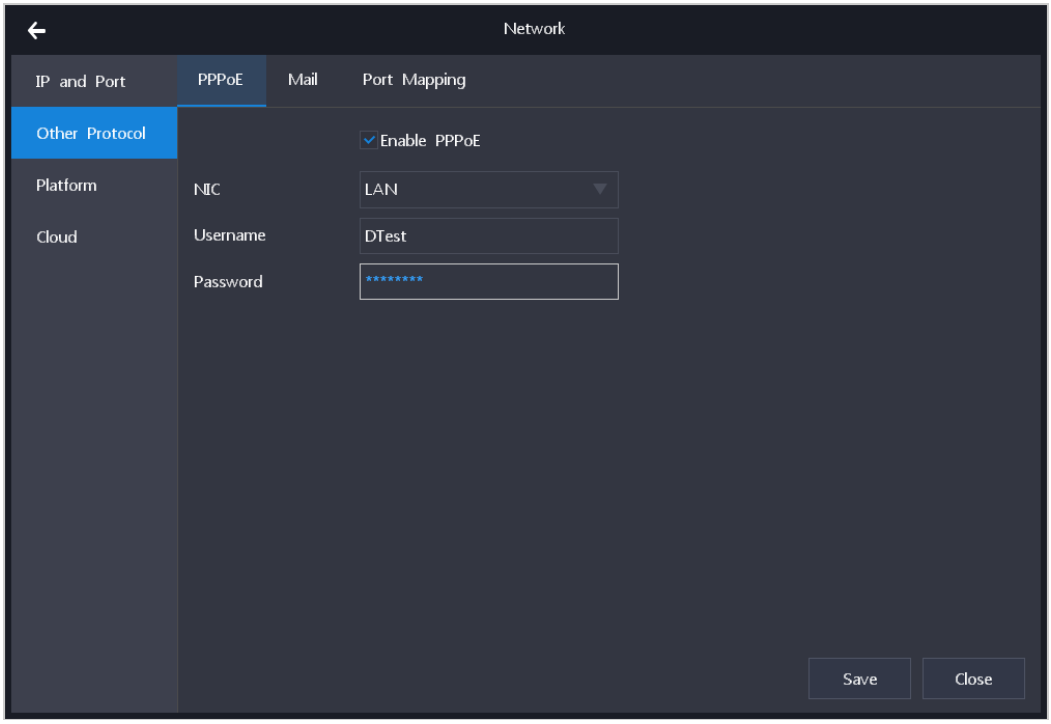
HTTP Port: Port for web access. The default value is **80**. Users access an NVR Web by entering the IP address of an NVR into the address bar of a web page browser, for example, http://192.168.1.100:80.
RTSP Port: RTSP port for live viewing. The default value is **554**. If you want to view live videos on an NVR only, you can type "IP+this port" into a web page browser, for example, http://192.168.1.100:554.

PPPoE

The Point-to-Point Protocol (PPP) is a link layer protocol that encapsulates and transmits network layer packets over point-to-point links. It provides user authentication methods, supports synchronous and asynchronous communication, and is easy to extend.
As an enhancement of PPP, the PPP over Ethernet (PPPoE) provides point-to-point connections over the Ethernet, sets up PPP sessions, and provides a method to encapsulate PPP data packets.
To enable the PPPoE for an NIC:

1. Choose **Other Protocol** > **PPPoE**.

2. Check **Enable PPPoE**.



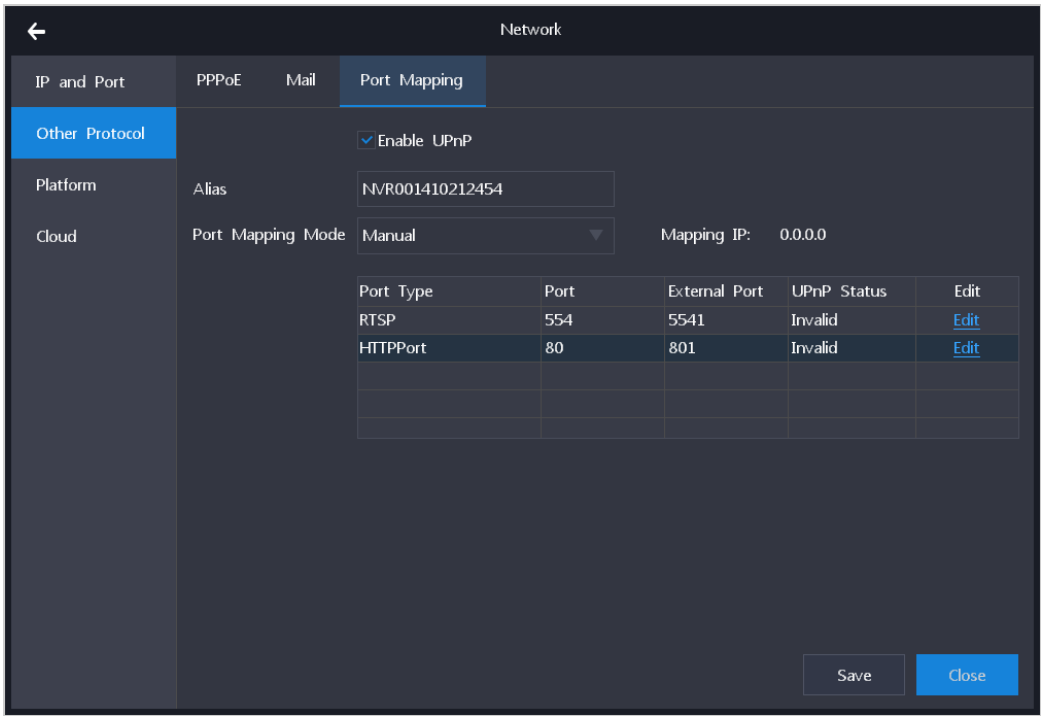
3. Select the NIC from the **NIC** drop-down list.
4. Specify **Username** and **Password**.
   Ask your network operator for the username and password.
5. Click **Save**.

UPnP

One solution for Network address translation (NAT) traversal, named the Internet Gateway Device Protocol (IGD Protocol), is implemented via the Universal Plug and Play (UPnP) technology. Many routers and firewalls expose themselves as Internet Gateway Devices (IGDs), allowing any local UPnP control point to perform a variety of actions, including retrieving the external IP address of the device, enumerating existing port mappings, and adding or removing port mappings. By adding a port mapping, a UPnP controller behind the IGD can enable traversal of the IGD from an external address to an internal client.

To enable the UPnP:

1. Click Port Mapping
2. Check **Enable UPnP**.
3. Enter an alias.
   When an alias is configured, the NVR can be found if your PC is located on the same broadcast domain (in a LAN) as the NVR and UPnP is enabled on your PC. After you find the NVR, double-clicking the NVR icon will show you the current IP address of the NVR.
4. Select a port mapping mode.
   If you select the manual mode, you need to configure port mapping for each port by clicking **Edit** and then, in the displayed dialog box, enter an external port.
   The following is an example.



5. Click **Save**.

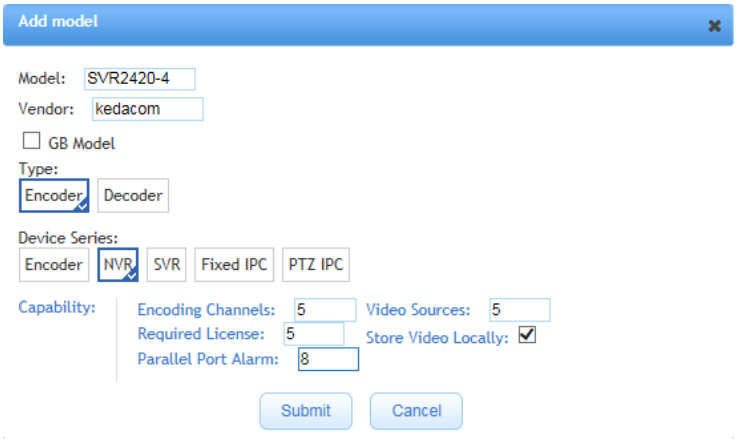
Registering with a Platform

VSIP Platform

The VSIP protocol is a KEDACOM proprietary protocol and it allows for communication between VSIP devices.

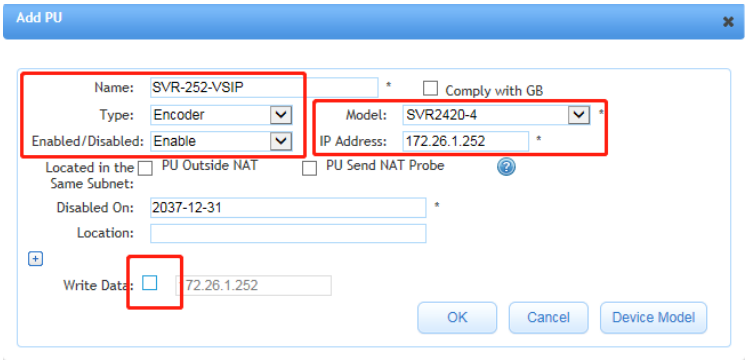
To enable the device to register with a VSIP platform (for example, the VMS):

1. Access the PMC of the VMS.
2. Choose **Device** > **Device Model** > **Add**.
3. In the **Add model** dialog box, specify parameters displayed.
   The following is an example.



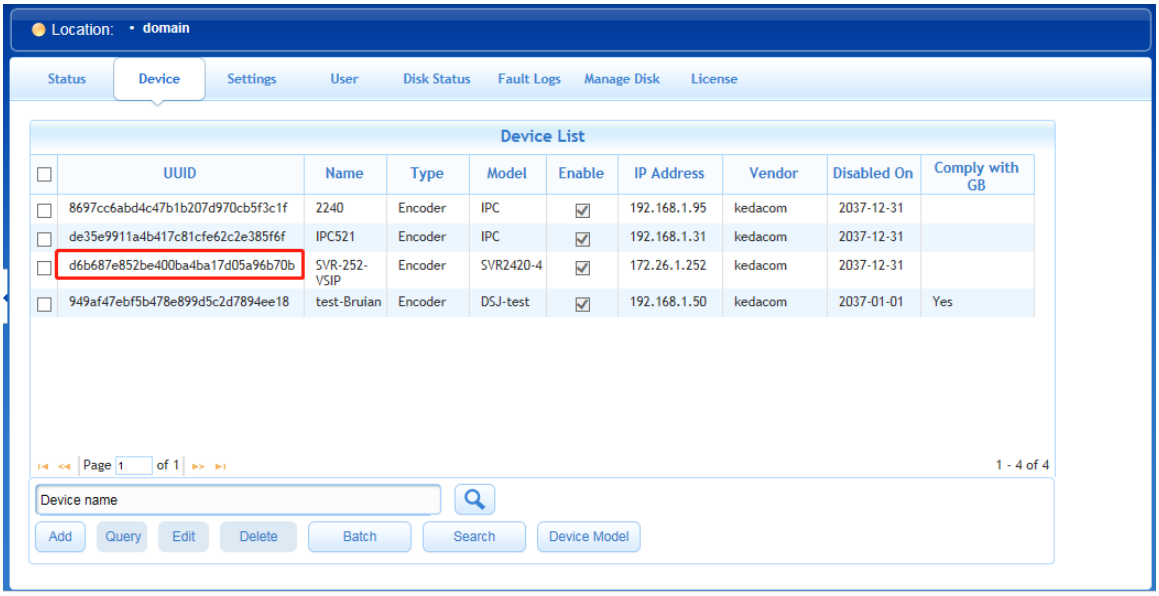
4. Click **Submit**.
5. Choose **Device** > **Add**.

6. In the **Add PU** dialog box, specify parameters displayed.
   The following is an example.

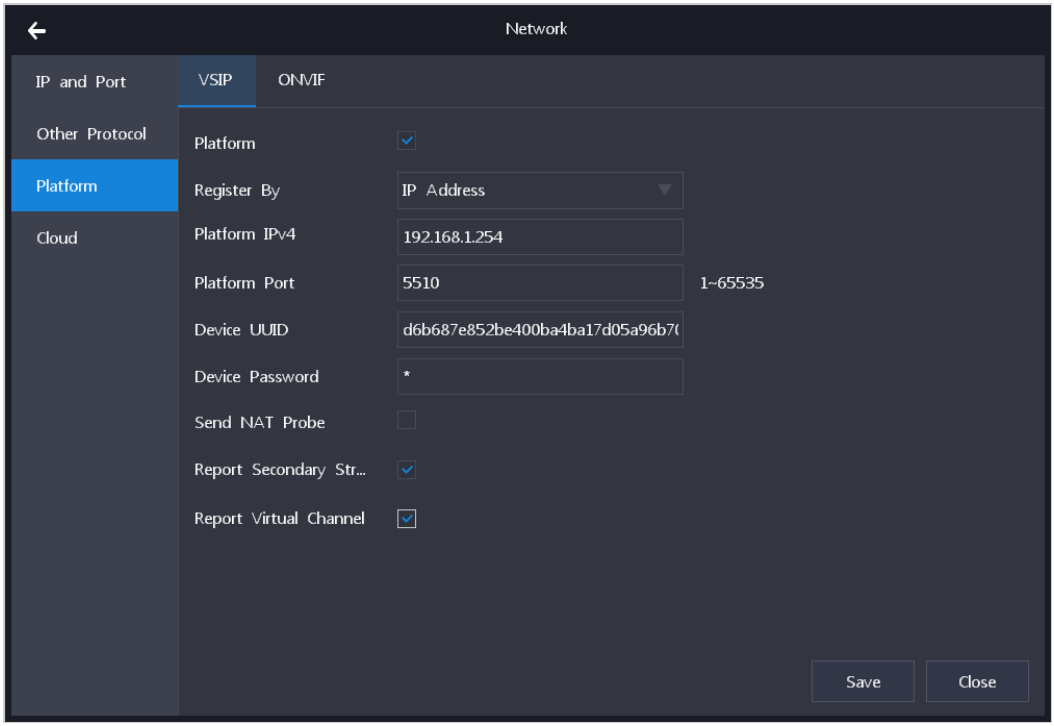


   Remember to uncheck **Write Data**.

7. Click **OK**.
8. Copy the UUID of the newly added NVR.



9. On the NVR OSD, choose **Platform** > **VSIP** and configure parameters displayed.
   The following is an example.



Keep the default values of the **Device Password** and **Send NAT Probe** parameters.

10. Click **Save**.

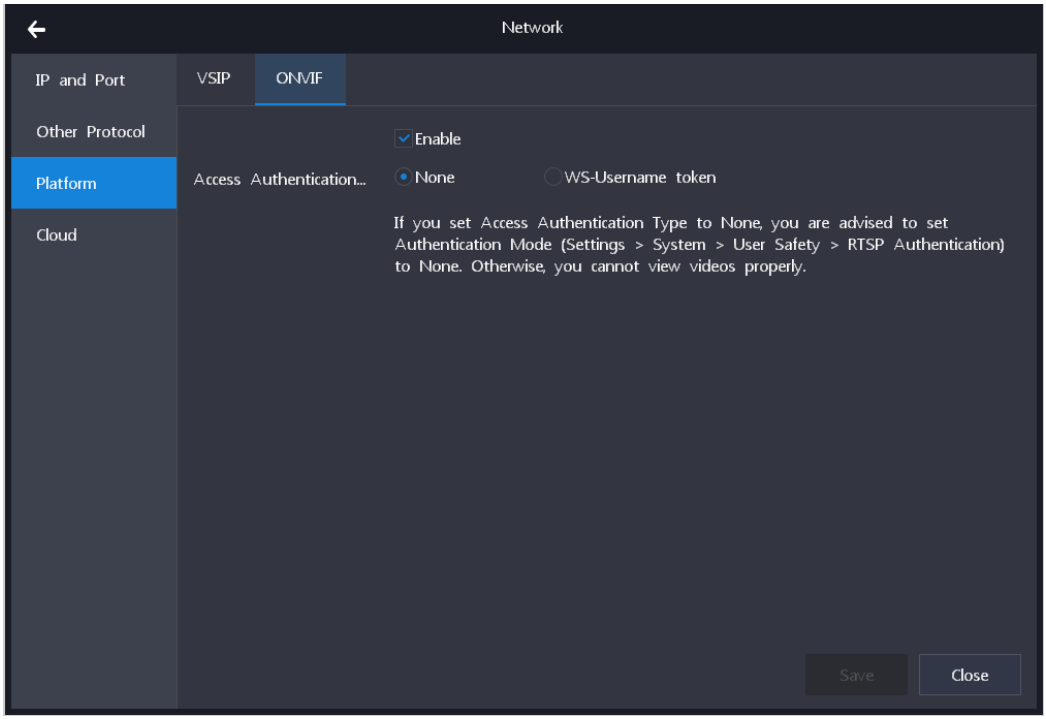
NOTE:

VSIP settings apply only to the KEDACOM VMS or systems developed on the basis of the KEDACOM VMS SDK.

ONVIF Platform

To enable the NVR to access an ONVIF platform:

1. Check **Enable**.
2. Specify **Access Authentication Type**.
   For this parameter, you must keep the red note in mind. Otherwise, you may not view videos properly.



If you select **WS-Username token**, the NVR username and password are required.

3. Click **Save**.

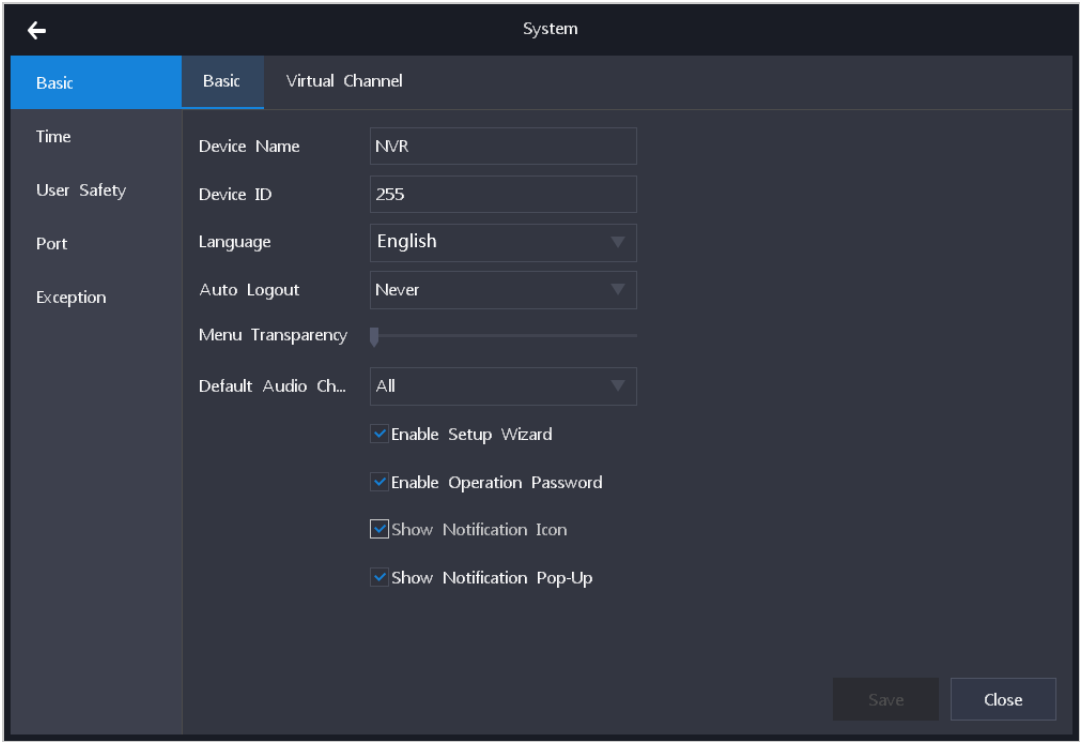
Cloud Service

For details, see section "Enabling the Cloud Service".

Configuring System Settings

Device Name and ID

The device name and ID can be configured in the following path.



Enable Setup Wizard	When this option is checked, the Setup Wizard is evoked every time the device is rebooted.
Enable Operation Password	When this option is checked, users must enter the administrator's password before they can perform the following operations: • Initializing HDDs • Editing the administrator mail address • Resetting the NVR to factory defaults • Editing the downward SIP ID of the NVR • Disabling/enabling the operation password
Show Notification Icon	When this option is checked, in the full screen mode, alarm and log notification icons will be displayed at the bottom right corner.
Show Notification Pop-Up	When this option is checked, notifications other than alarms or logs will be displayed at the top right corner. For example, when you insert a USB flash drive, a notification will be displayed.

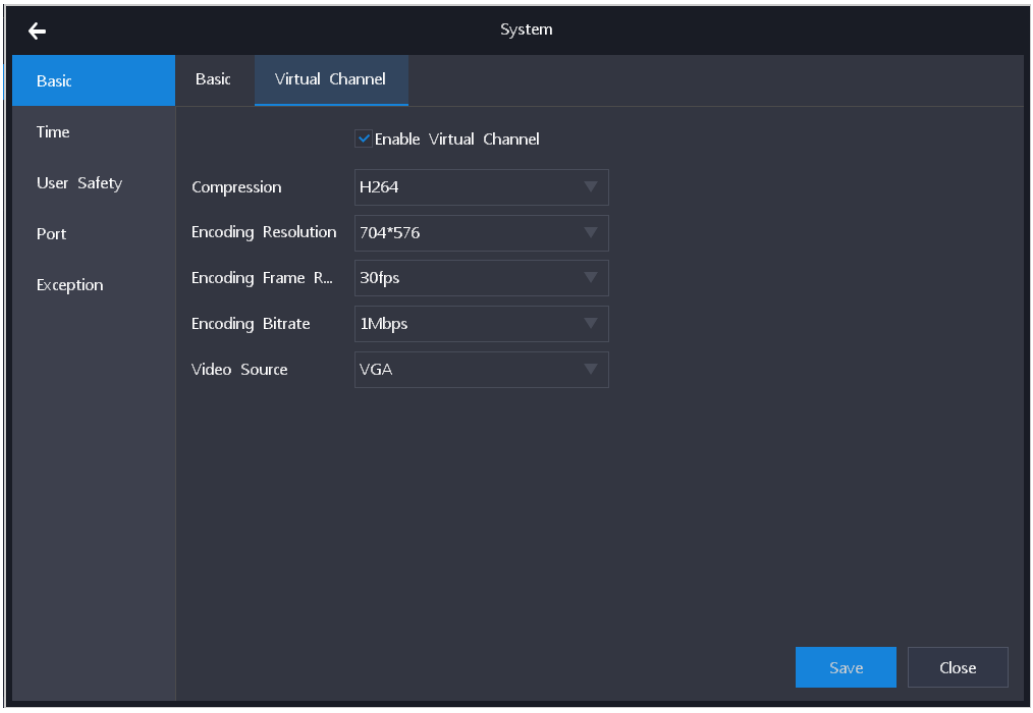
Virtual Channel

Introduction

The Virtual Channel feature allows you see a panoramic (or combined) view of active videos on the screen layout of a display (connecting to the VGA or HDMI port). This helps save bandwidth resources. When some cameras are removed, related videos cannot be retrieved if these videos are not backed up. With this feature, you can retrieve these videos even though the cameras are removed.

To configure this feature:

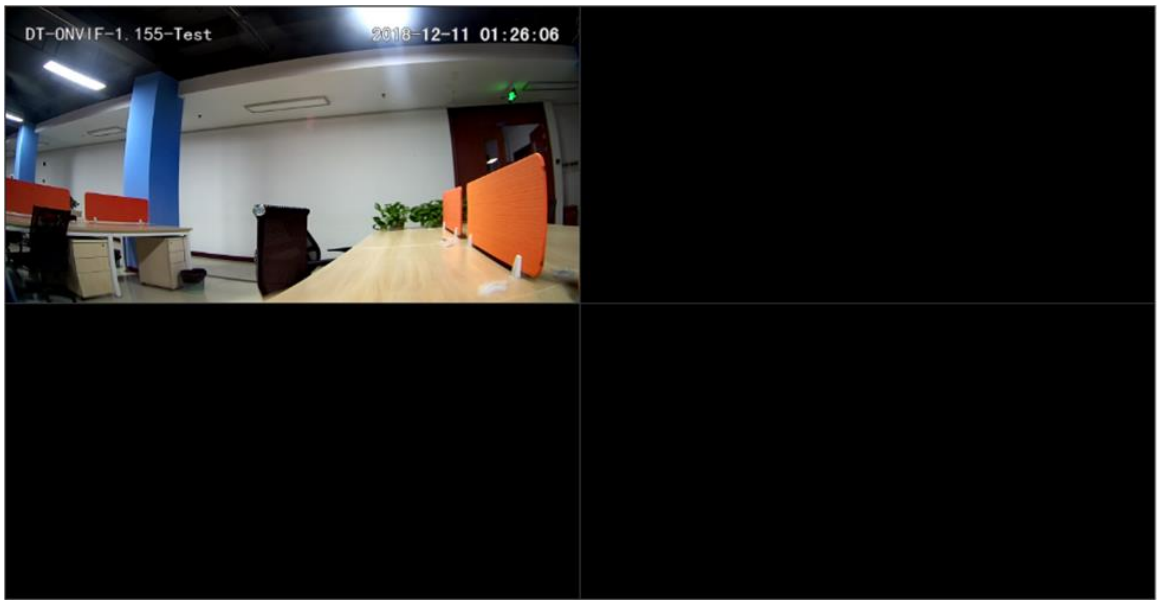
1. Check **Enable Virtual Channel**.
2. Configure parameters displayed.
   The following is an example.



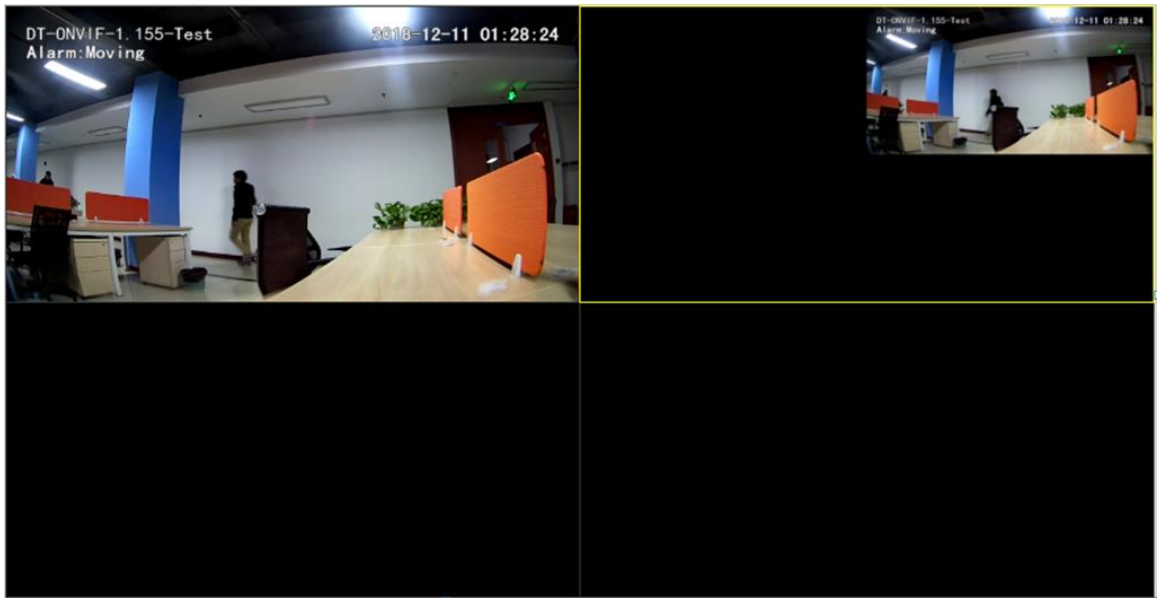
3. Click **Save**.

Example

When the 4-picture screen layout is applied and only one camera is online, you can find the following.



Double-clicking the virtual channel will show you the following, as shown in the second viewing window.



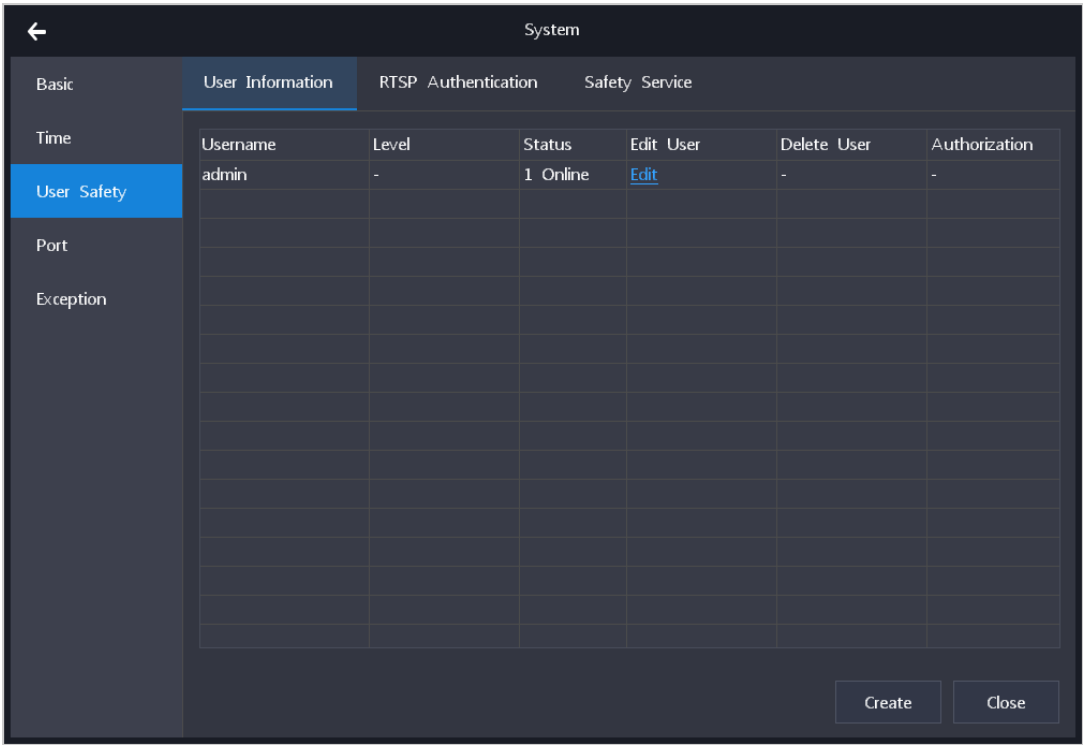
In the preceding figure, the video of D2 is displayed in the second sub-viewing window of the virtual channel due to its channel ID "D2".

Time

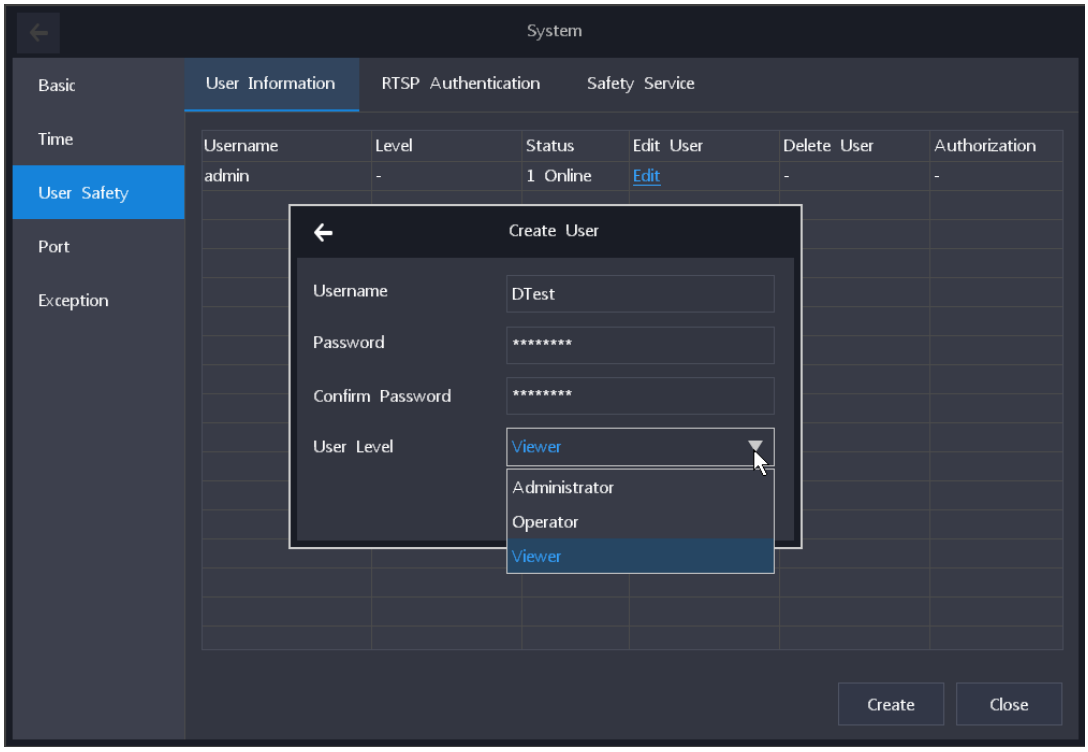
For details, see section "Configuring Time Settings".

Users

You can add/edit users on the **User Information** tab page.



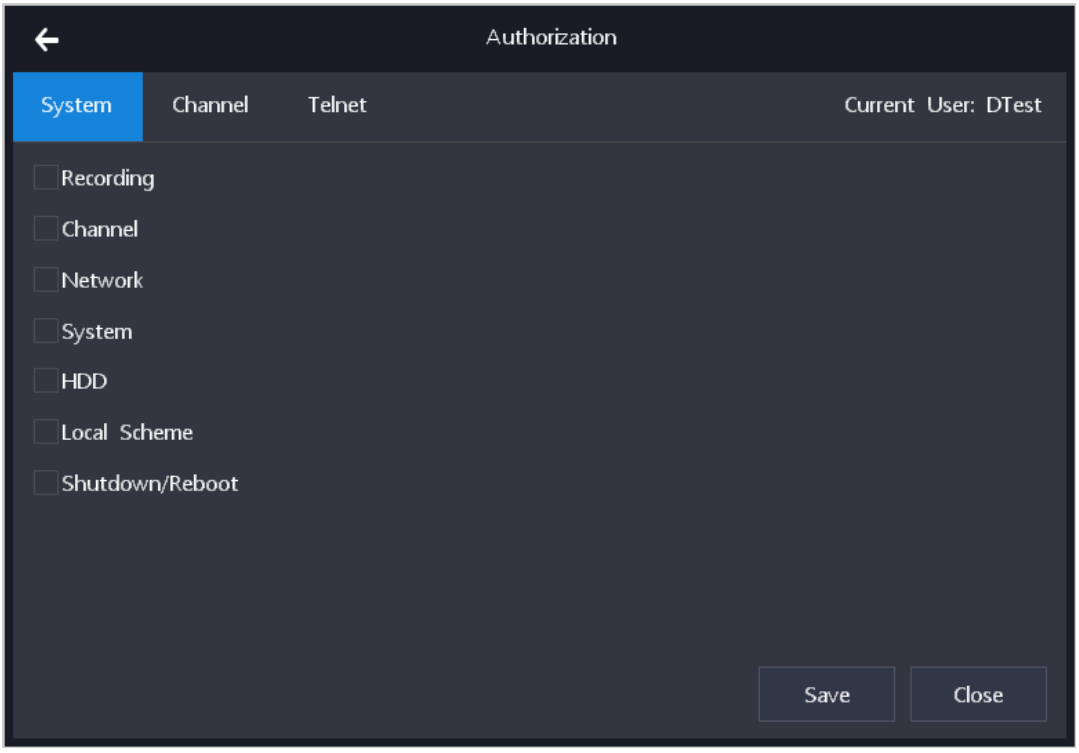
When creating a user, you can select the user level.



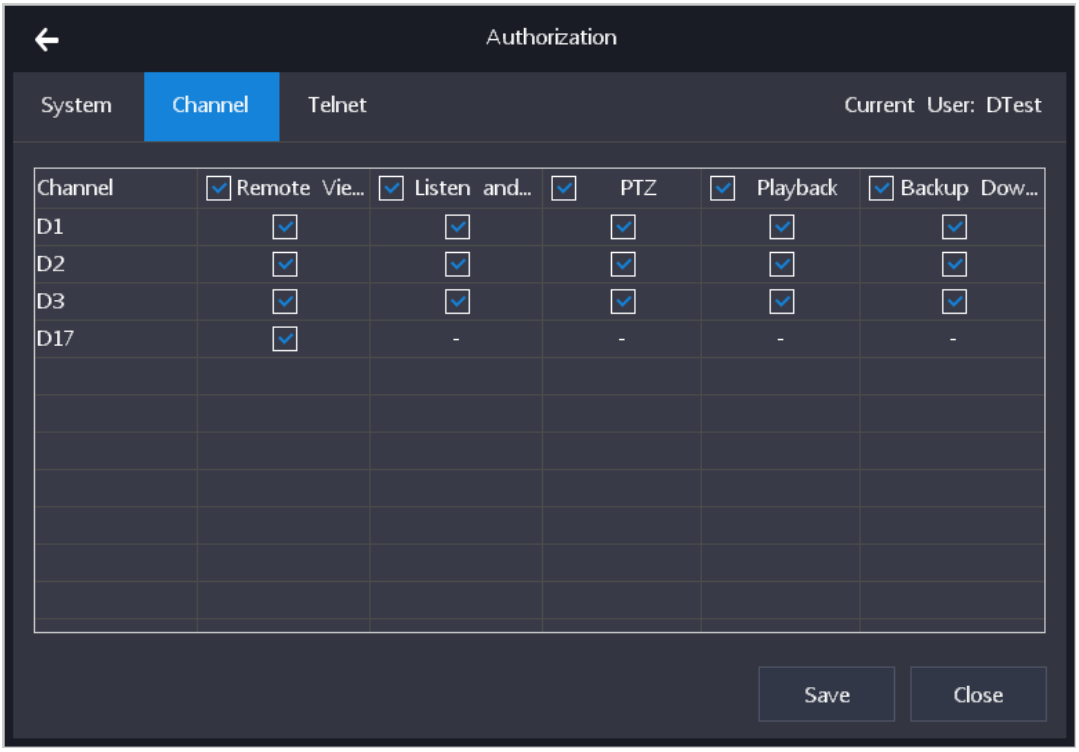
The difference between an operator and an administrator is that the former by default has no permission to perform any system-related operations while the latter has the permission to perform all those operations by default. However, the admin account can grant users permissions or retrieve permissions from them.

You can click **Authorization** to edit the authorization settings of a user.

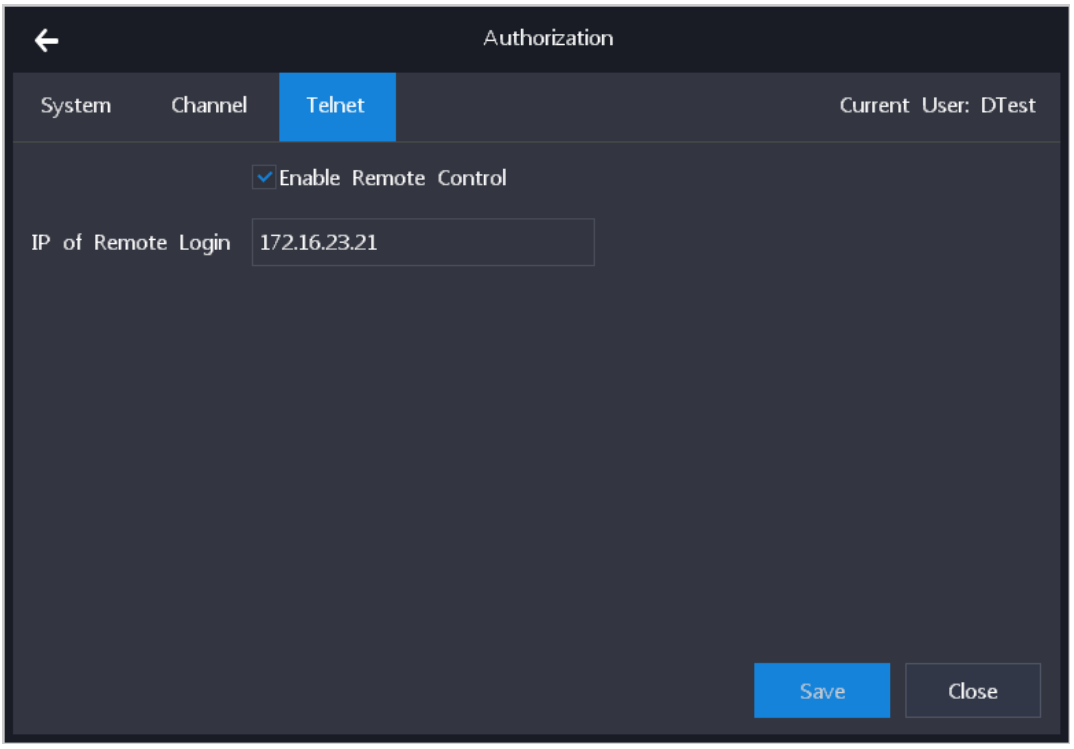
Under **System**, you can grant the user the permission to perform specific operations.



Under **Channel**, you can grant the user the permission to perform specific operations on a camera.



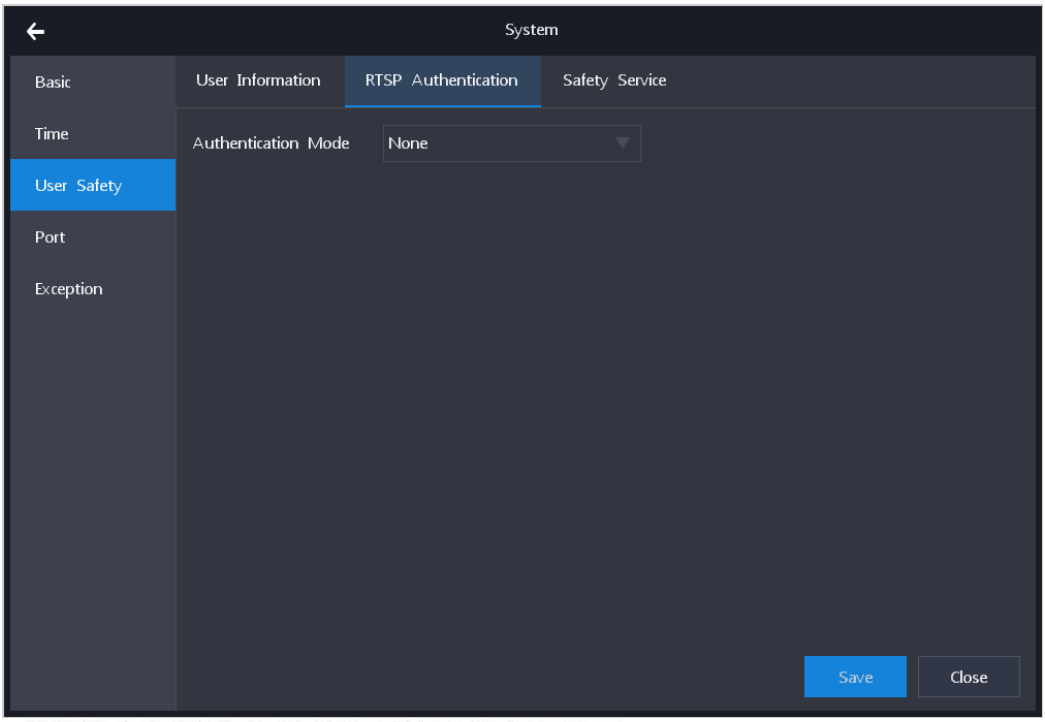
Under **Telnet**, you can restrict the user to access the NVR from the specific IP address. The following is an example.

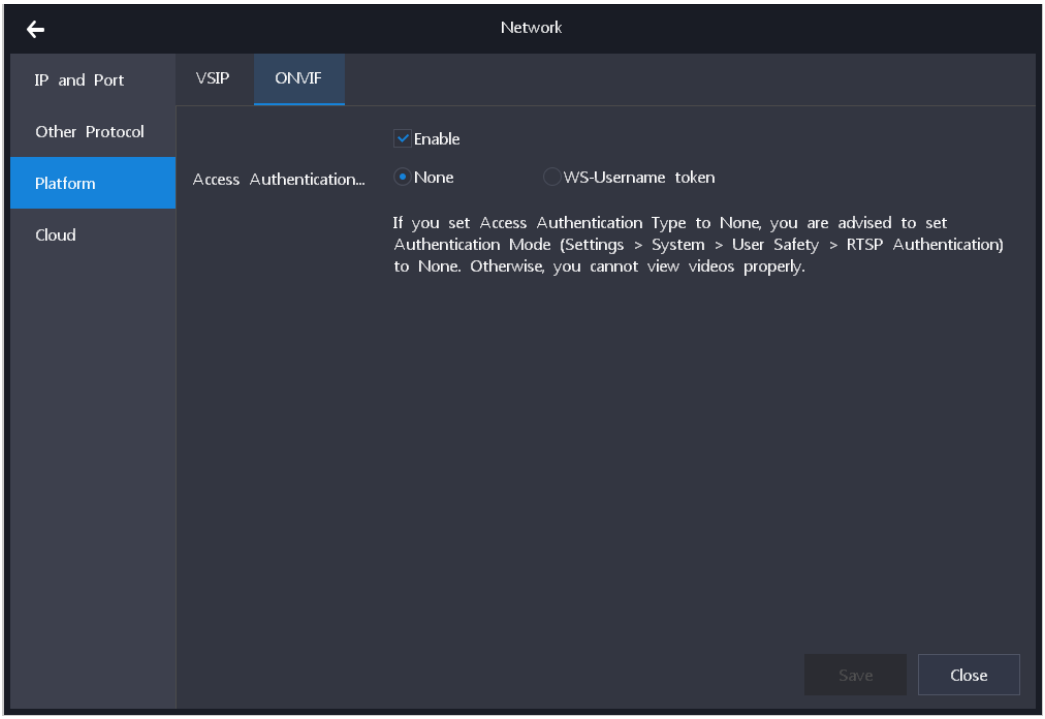


RTSP Authentication

If you set **Authentication Mode** to **Basic** or **Digest**, the operation authorization of RTSP users is determined by that of the NVR accounts used by these RTSP users. For example, if the NVR account used by an RTSP user does not have the listening and talking authorization, and then the RTSP user has no listening and talking authorization over the NVR.

If you set it to **None**, RTSP users can access the NVR without authentication. Note that when you set **Access Authentication Type** of ONVIF to **None**, you must set **RTSP Authentication** to **None**. Otherwise, users may no view videos properly.





The RTSP URL of the NVR is composed as follows:

`rtsp://IP:PORT/realtime?chnid=N;[vid=V;][aid=A1[,A2];][mode=M;]agent=cgi`

Where

- *IP*: an IP address of the NVR
- *PORT*: RTSP port of the NVR (**Network** > **IP and Port** > **Service Port** > **RTSP Port**)
- *N*: video channel ID (starting from 0 and including the virtual channel)
- *V*: stream type (0: main; 1: secondary)
- A1/A2: audio stream ID (starting from 0)
- *M*: URL mode (**videoonly**: video only; **audioonly**: audio only; if not specified: video and audio)
- The bracketed part (included in [ ]) is optional.

The following is an example.

rtsp://192.168.1.100:554/realtime?chnid=0;vid=0;aid=0;agent=cgi

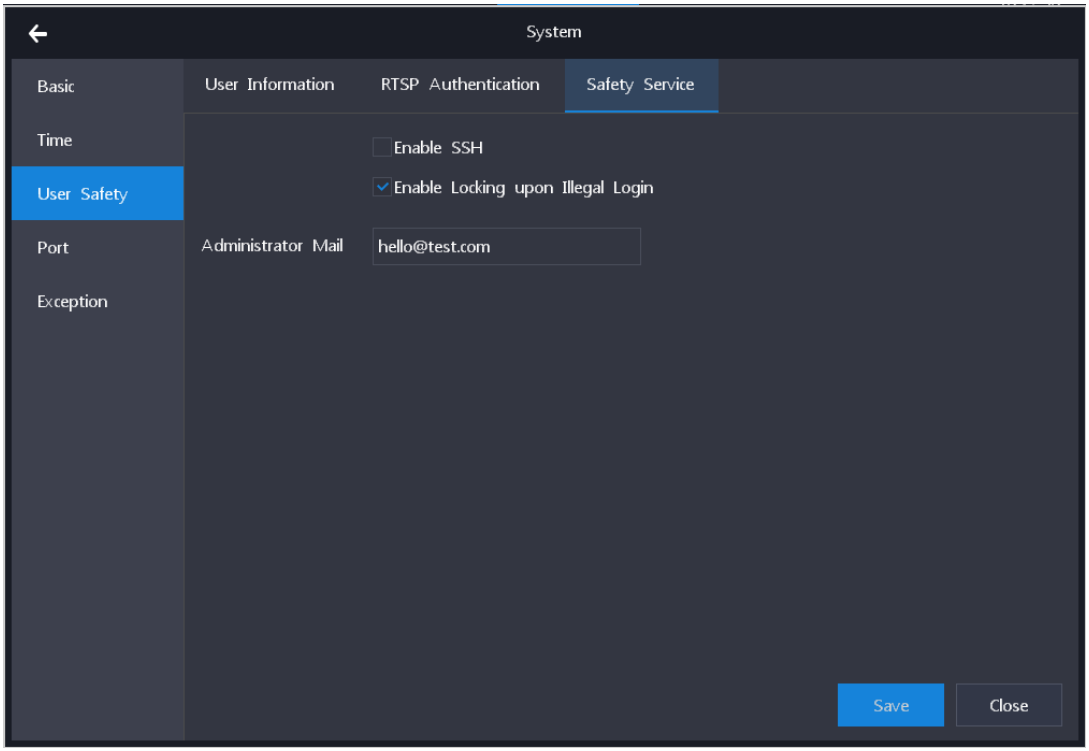
The preceding URL indicates that the main stream and the first audio stream of the camera with the channel ID being D1 that is registered with the NVR whose IP address is 192.168.1.100 are required.

Safety Service

SSH

The Secure Shell (SSH) is a cryptographic network protocol for operating network services securely over an unsecured network. Typical applications include remote command-line login and remote command execution, but any network service can be secured with SSH.

To enable the SSH, check **Enable SSH**.



Locking upon Illegal Login

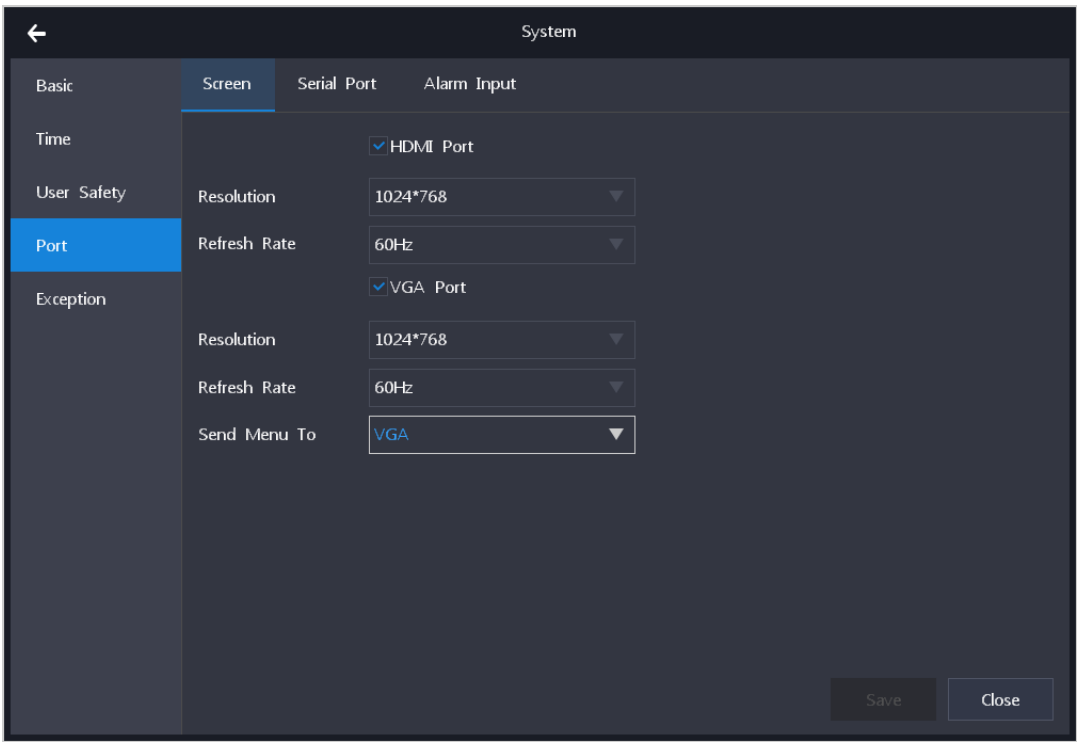
When **Enable Locking upon Illegal Login** is checked, problem IP addresses will be prohibited from being used to access the NVR for 10 minutes if users make 3 continuous login failures with them. When such a problem occurs, users either wait for 10 minutes or use other IP addresses.

Administrator Mail Address

The administrator mail address is required for password resetting for the admin account.

HDMI and VGA Ports

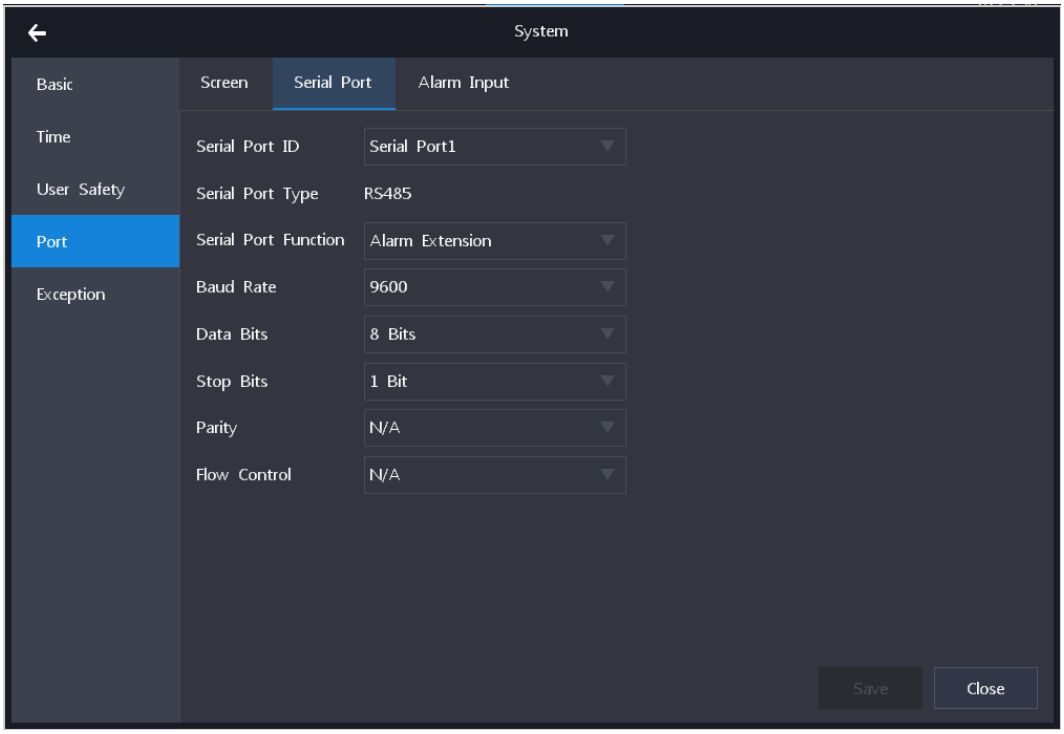
Under **Screen**, you can configure HDMI and VGA ports.



If you set **Send Menu To** to **HDMI**, users can perform operations on the display connected to the HDMI port of the NVR. On the display connected to the VGA port of the NVR, users can only view videos. And vice versa.

Serial Ports

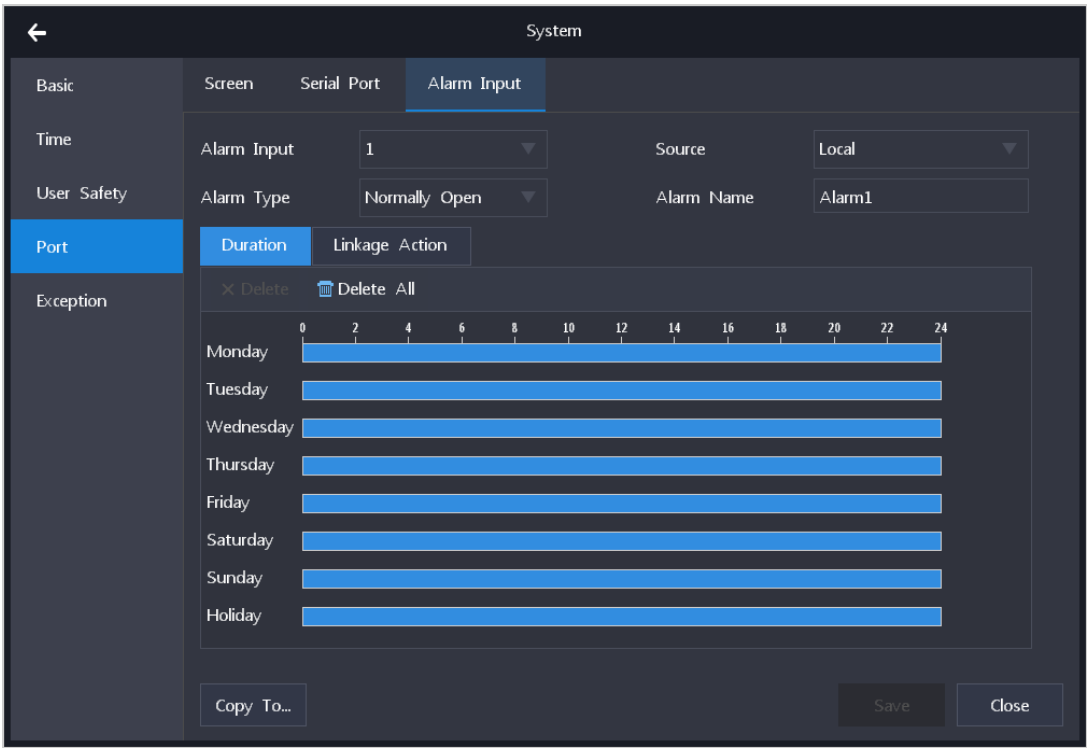
Under **Serial Port**, you can configure serial ports.



Only one serial port can function as an alarm extension port. The transparent channel function is currently not supported.

Alarm Inputs

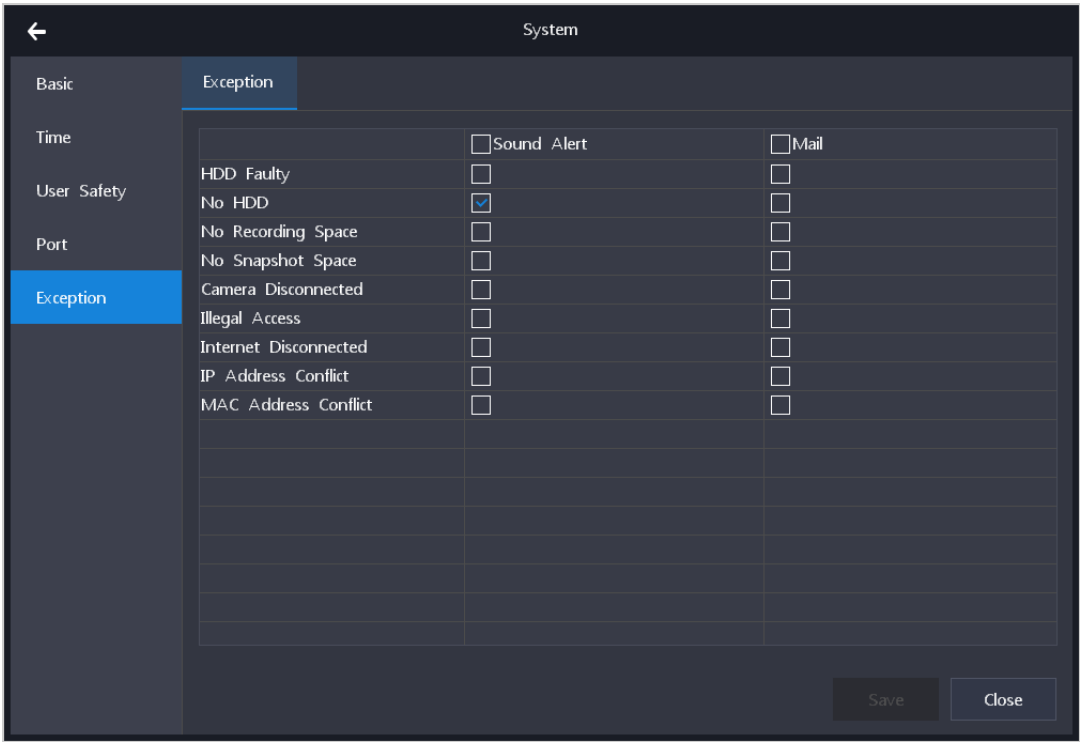
Under **Alarm Input**, you can configure alarm inputs of the NVR.



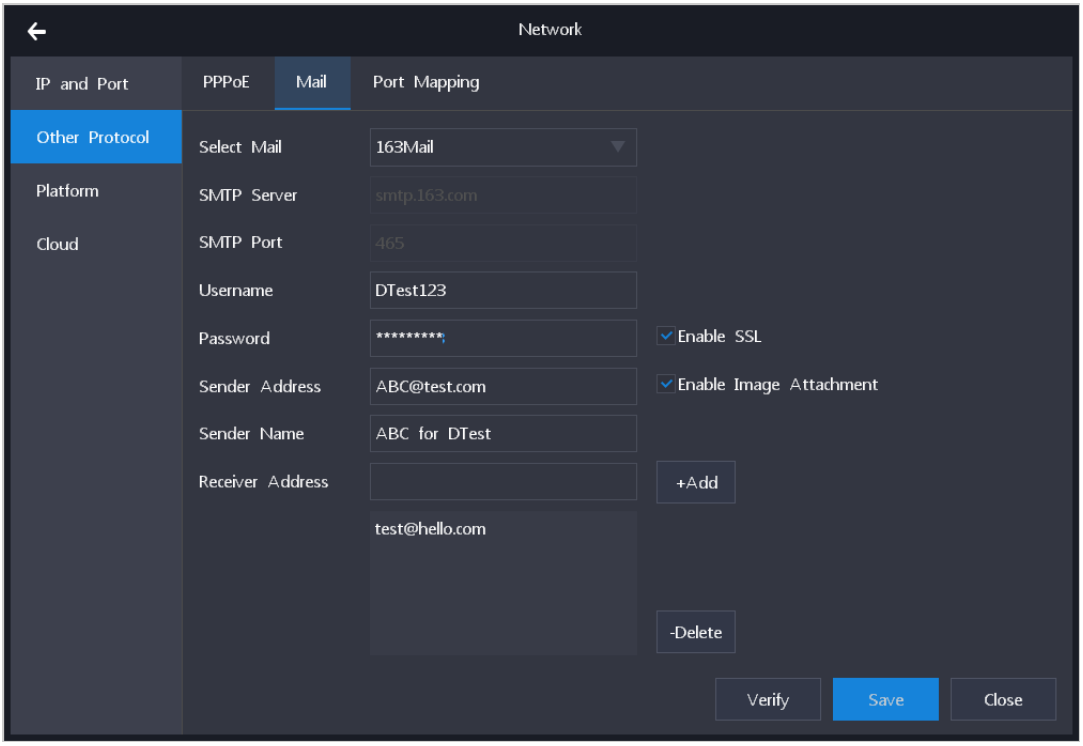
For references, see section "Motion Detection".

Exceptions

Under **Exception**, you can configure alarm linkage actions for NVR exceptions.



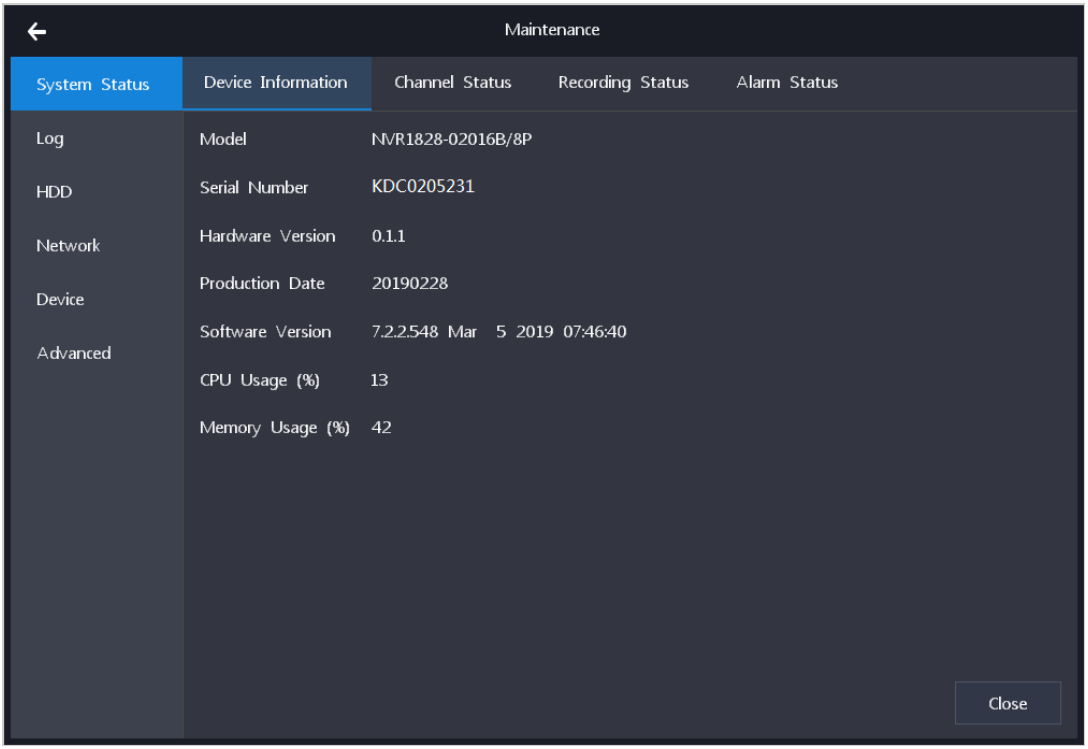
An alarm notification mail will be sent to mail addresses (receivers) added in the following.



Maintenance

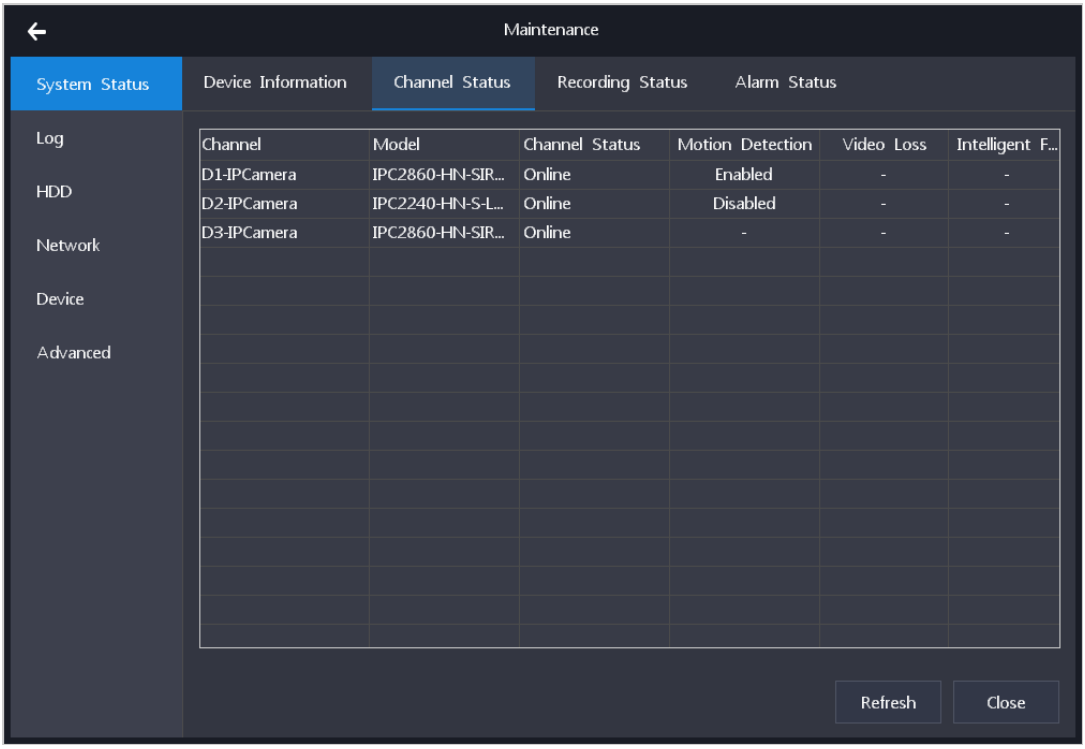
NVR Information

Under **Device Information**, you can query the NVR information.



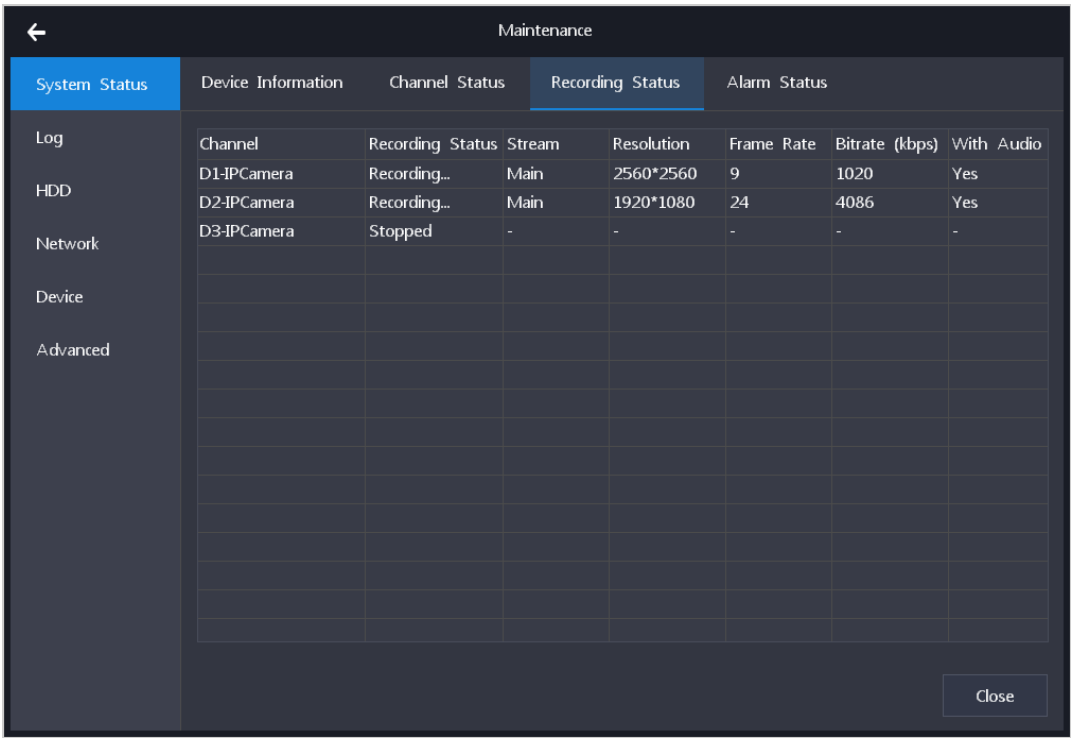
Camera Status

Under **Channel Status**, you can query the camera status.



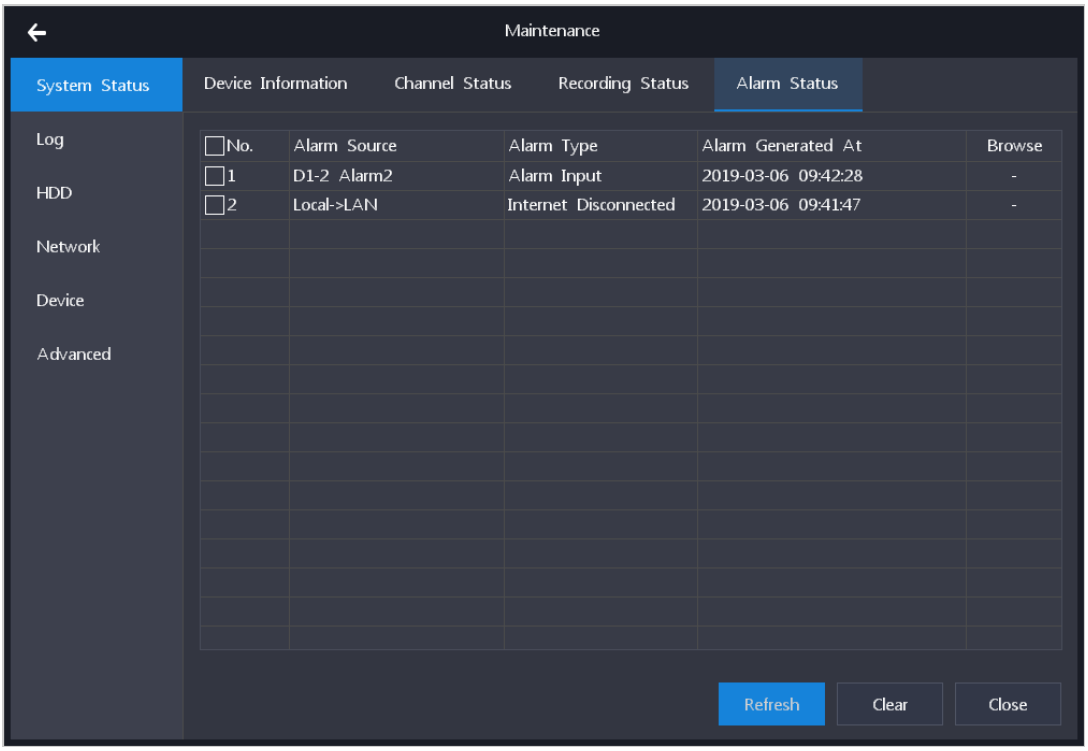
Recording Status

Under **Recording Status**, you can query the camera recording status.



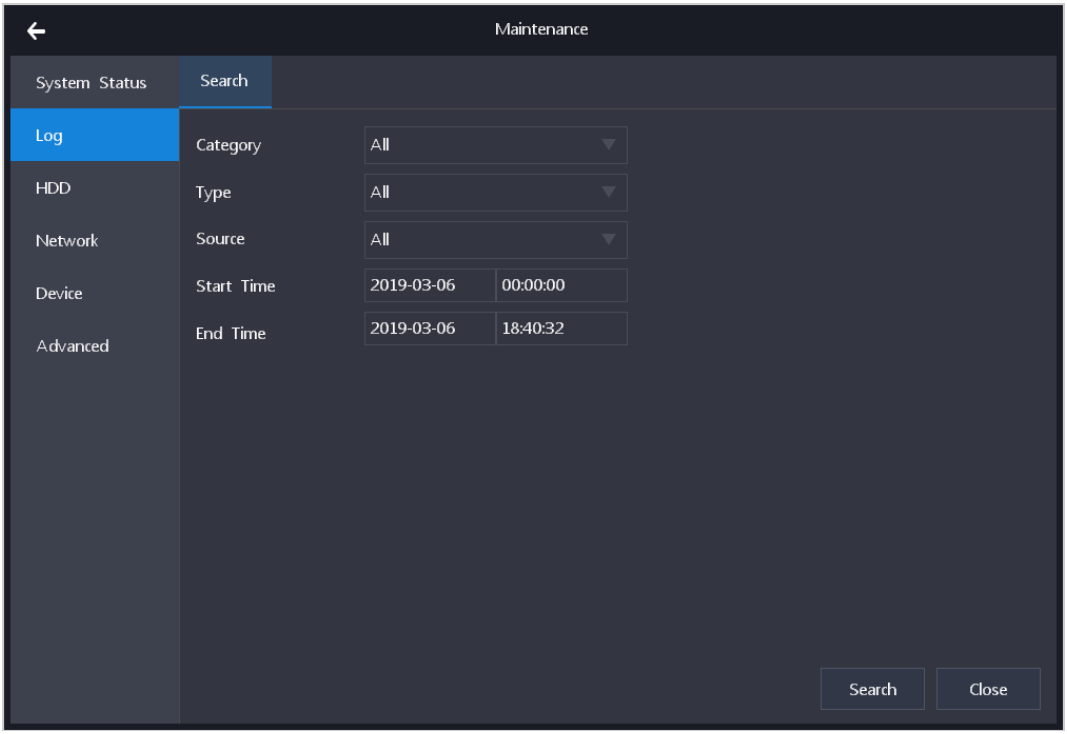
Active Alarms

Under **Alarm Status**, you can query the active alarms.

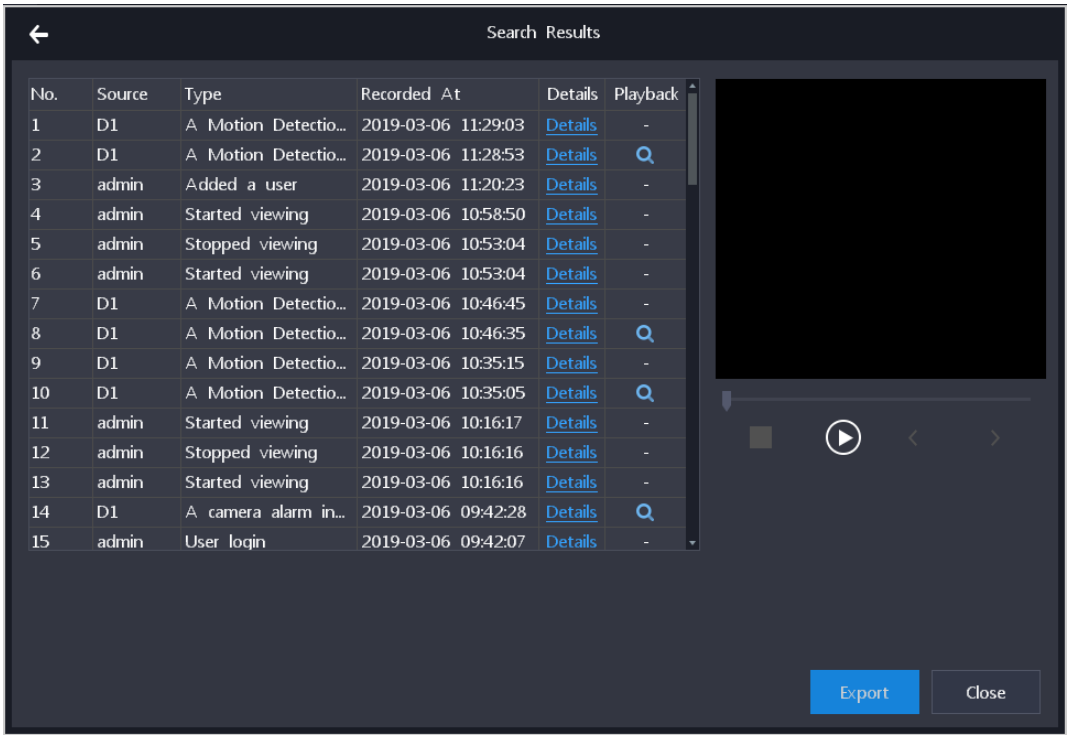


Logs

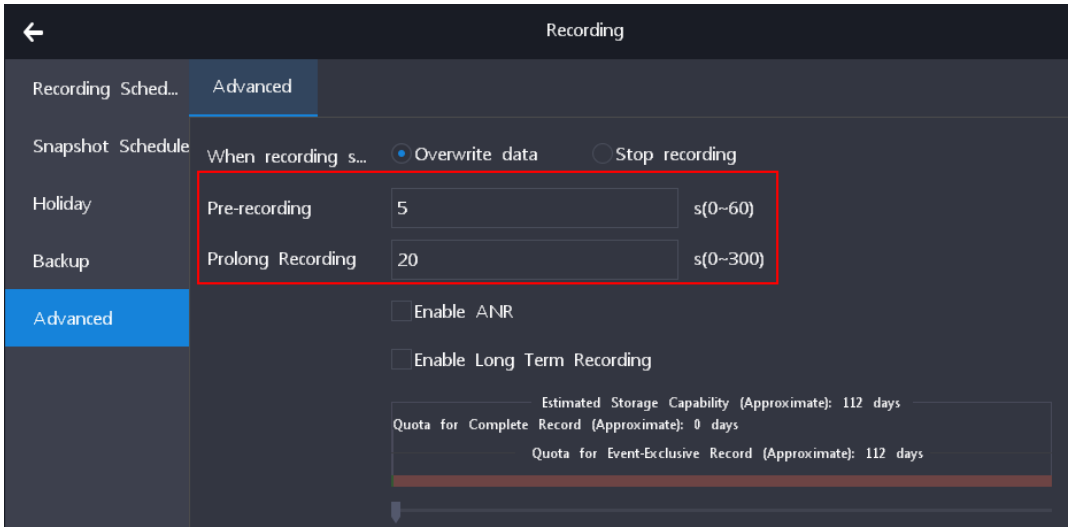
Under **Log**, you can query logs.



The following is an example for searching results.



Clicking will allow you to play back the record made during the generation and clearance of an alarm. Note that the record length is subject to the following settings.



For details about these parameters, see section "Setting the Recording Policy".

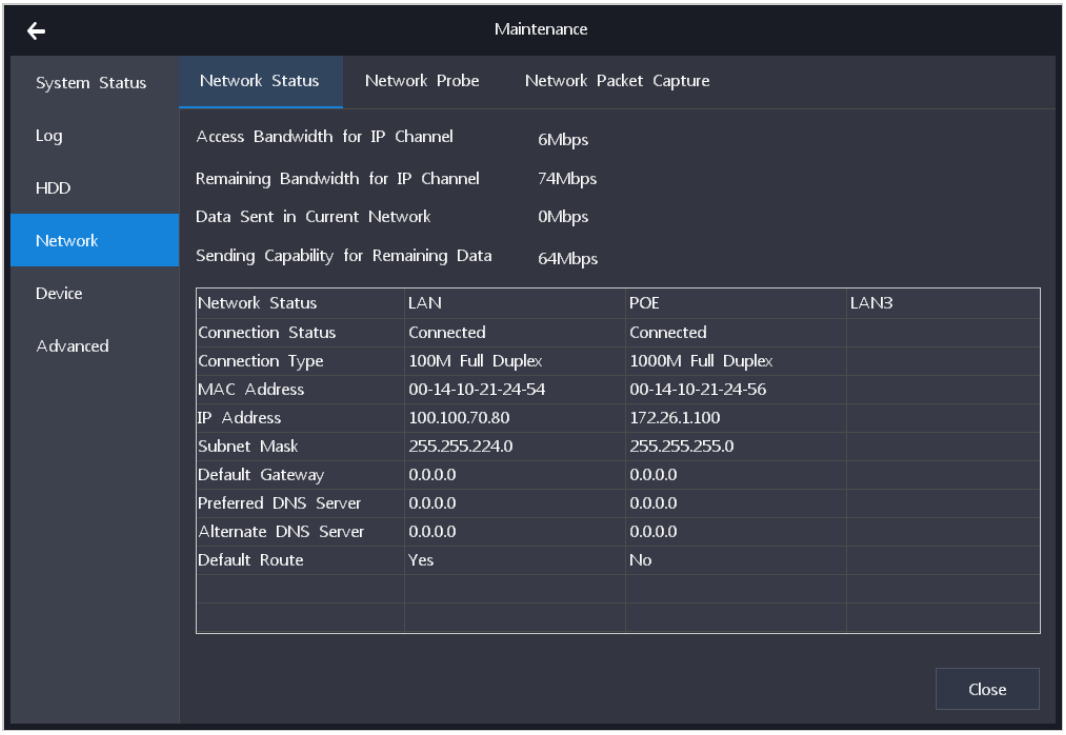
Clicking **Export** will allow you to export logs.

HDD Status

For details, see section "Testing an HDD".

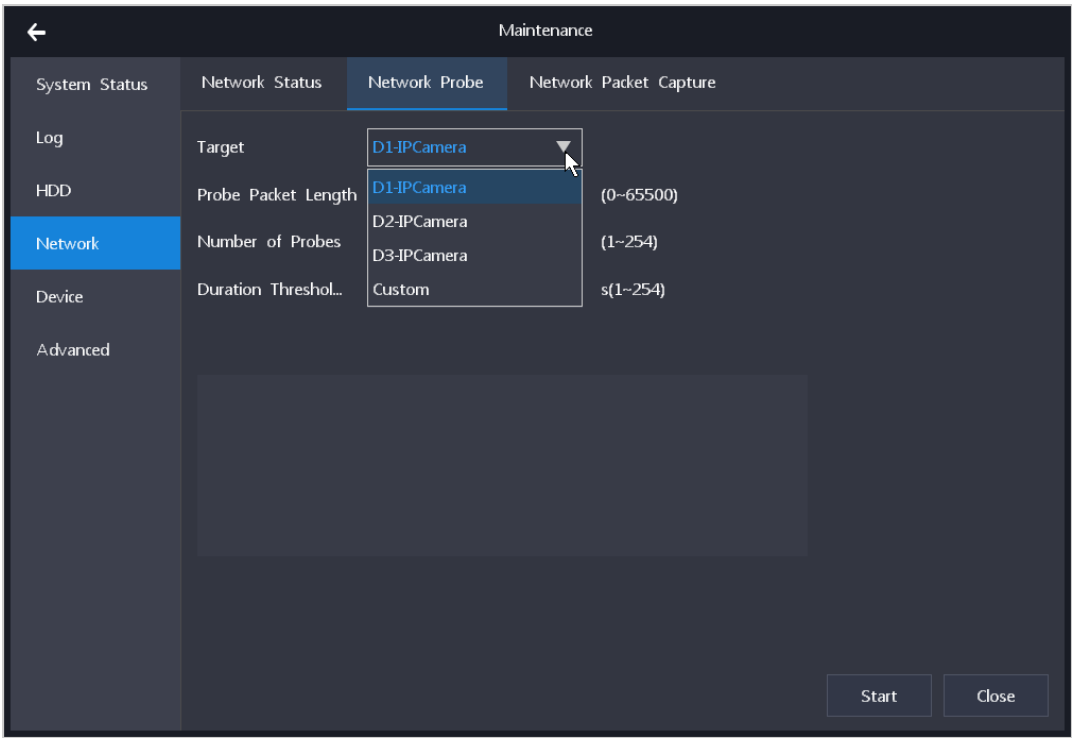
Network Status

Under **Network Status**, you can query the local network status.

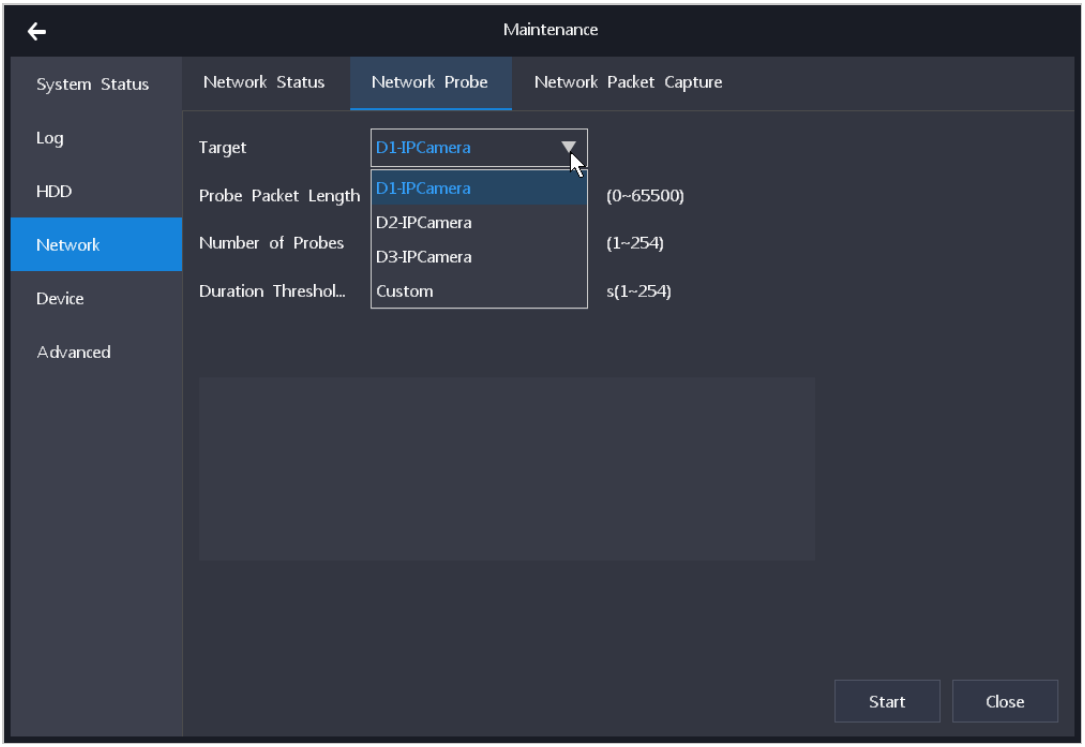


Network Probe

Under **Network Probe**, you can query the connection between the NVR and the target device.
If the target device is a camera registered with the NVR, select the camera from the **Target** drop-down list.

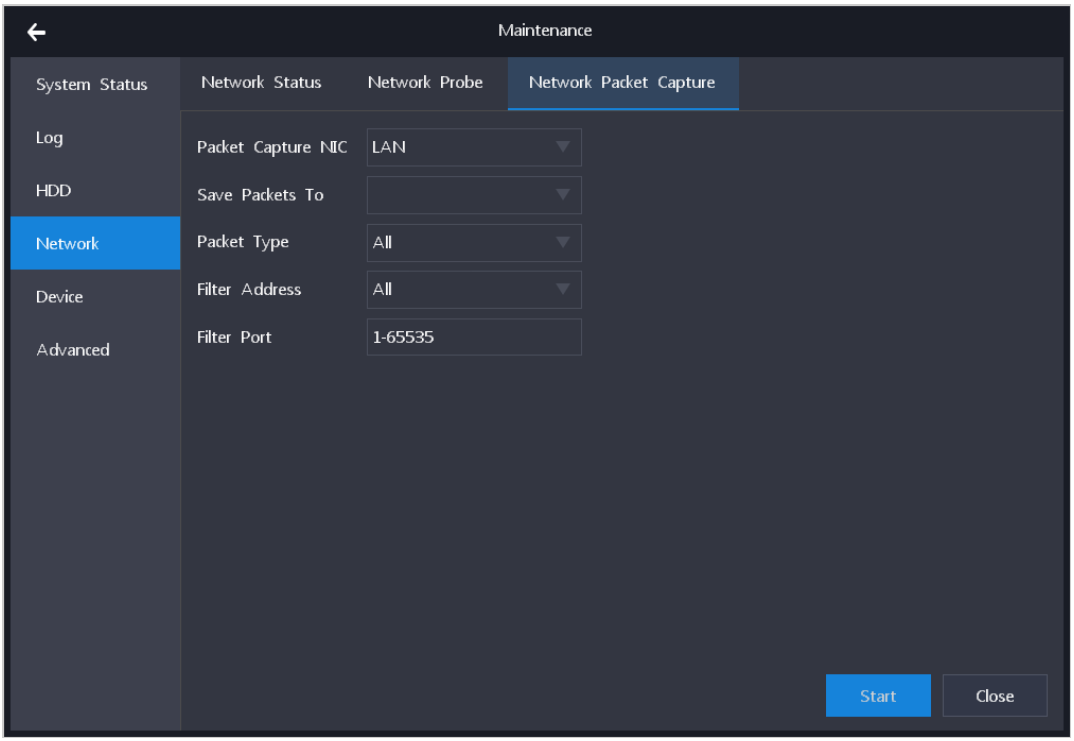


If not, select **Custom** and enter the IP address of the target device.



Capturing Network Packets Sent over NICs

Under **Network Packet Capture**, you can capture network packets sent over an NIC.



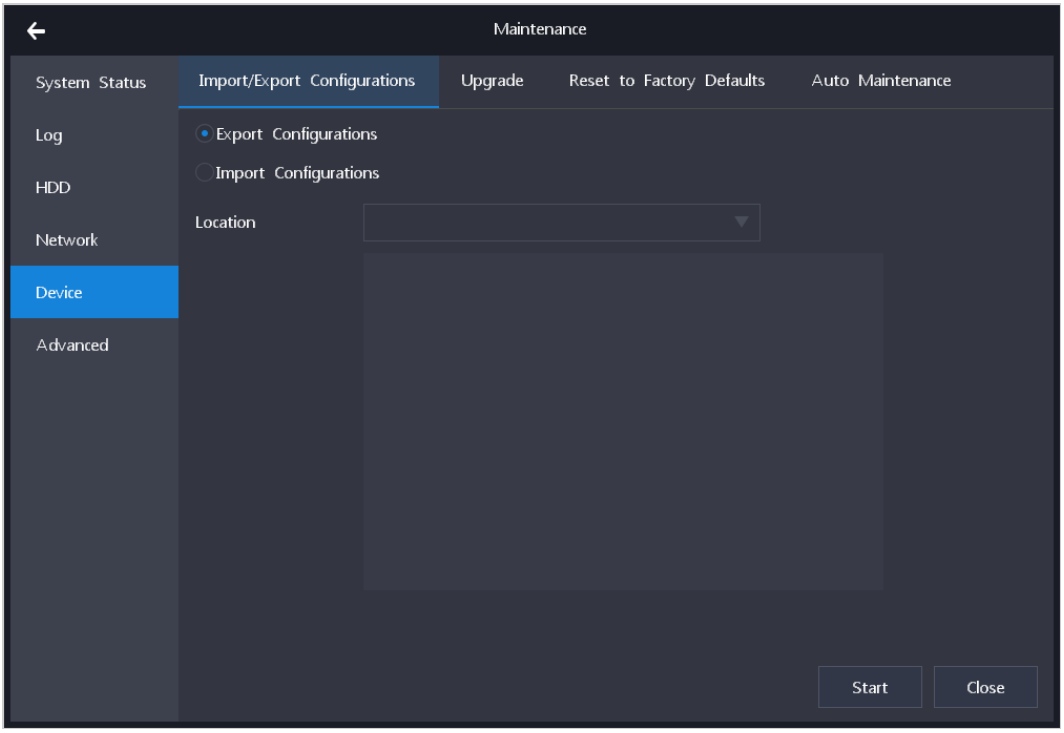
After a capturing is completed, you can download the capturing results from the path specified by **Save Packets To**.

NOTE:

A capturing is automatically stopped when the packet size exceeds 30 MB.

Importing/Export Device Configurations

Under **Import/Export Configurations**, you can import configurations to the device or export the device configurations.



Upgrading the Device

NOTE:

During an upgrade, do not cut the power to the NVR or perform any operation.

USB Flash Drive

To upgrade the NVR using a local USB flash drive:

1. Insert the USB flash drive to your PC.
2. Choose **Maintenance** > **Device** > **Upgrade** > **Upgrade Package**.
3. Select the upgrade package.
4. Wait while the NVR is being upgraded.
5. Click **Close** when the upgrade is completed.

Local Upgrade Package

To upgrade the system through a local upgrade package:

1. Choose **Maintenance** > **Device** > **Upgrade** > **Upgrade Package**.
2. Select the upgrade package.

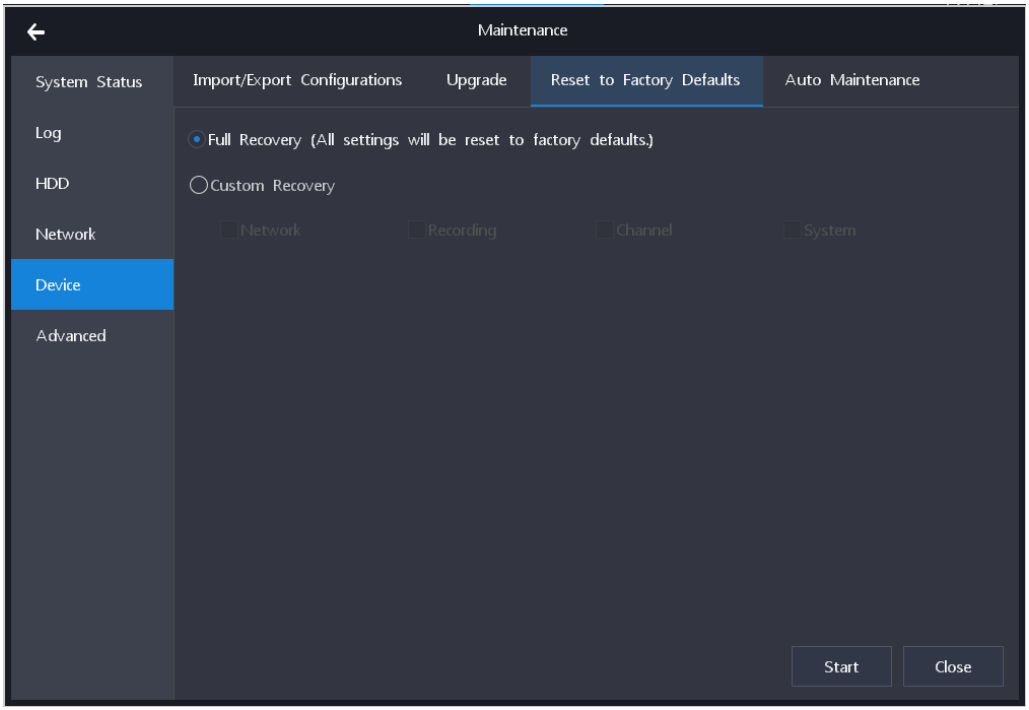
3. Upload the upgrade package and wait.
4. Click **Close** when the upgrade is completed.

Resetting the Device to Factory Defaults

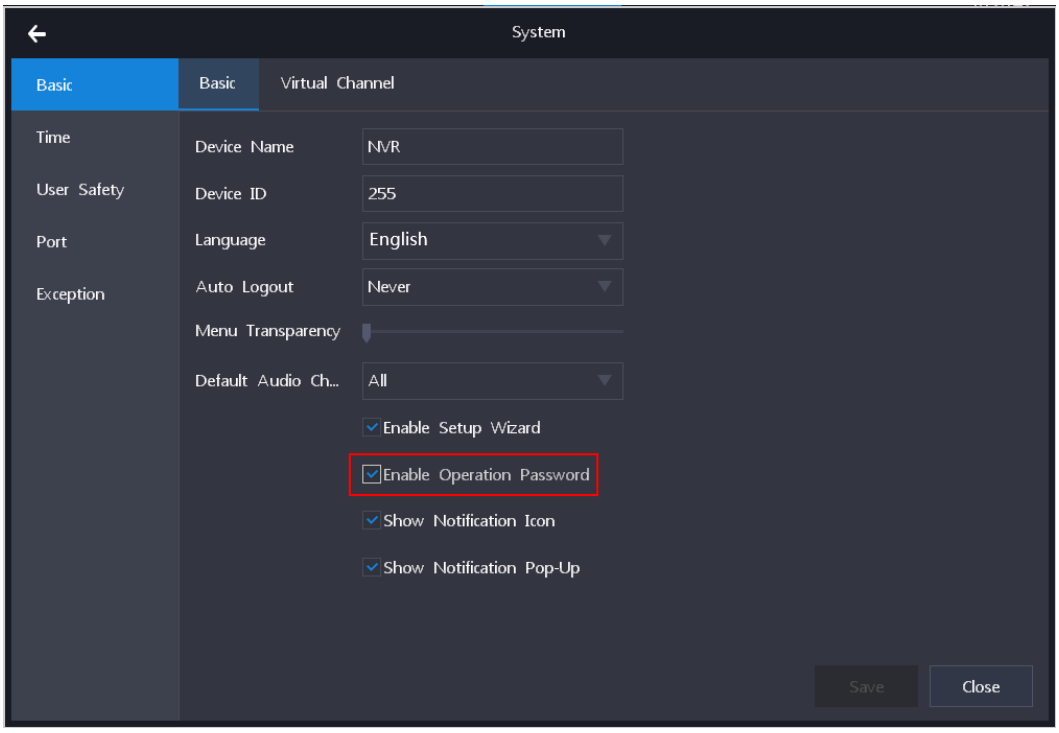
Under **Reset to Factory Defaults**, you can reset the NVR to factory defaults. You can choose to reset all or partial settings of the NVR.

To reset the system to factory defaults:

1. Chose **Maintenance** > **Device** > **Reset to Factory Defaults**.



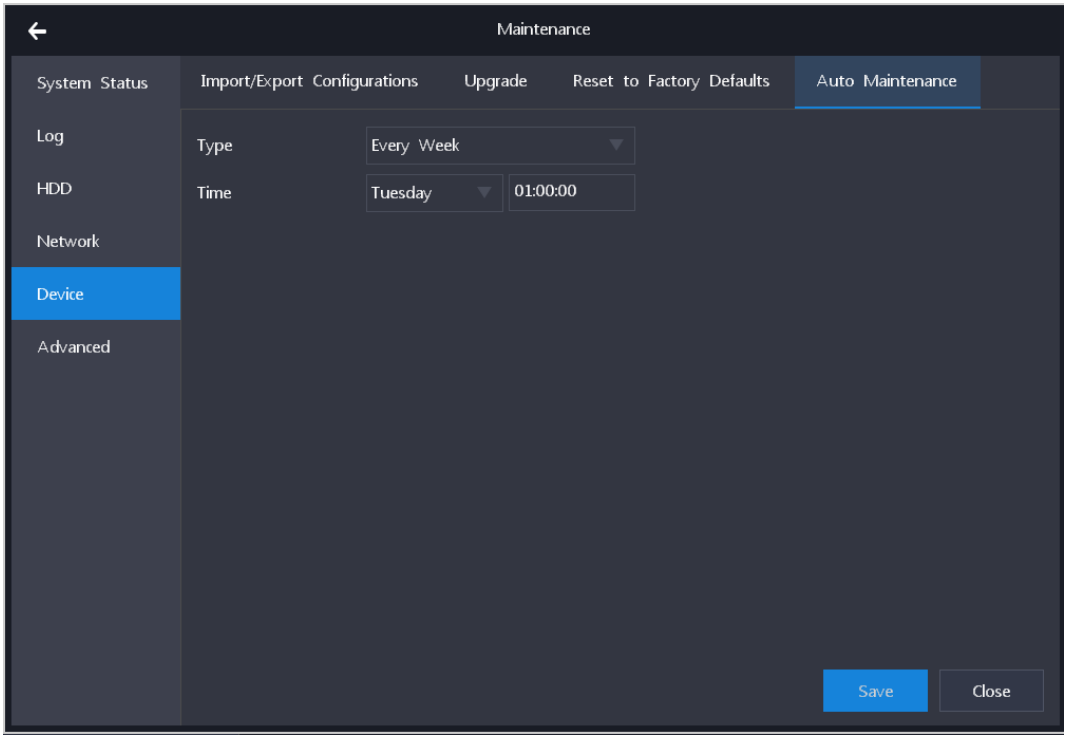
2. Select **Full Recovery** or **Custom Recovery**.
3. Click **Start**.
4. Confirm your operation.
5. (Optional) Enter the password of the admin account.
   This step is mandatory if **Enable Operation Password** is checked.



6. Click **Save**.
7. Log in again.

Automatic Rebooting

Under **Auto Maintenance**, you can schedule the automatic rebooting of the device.



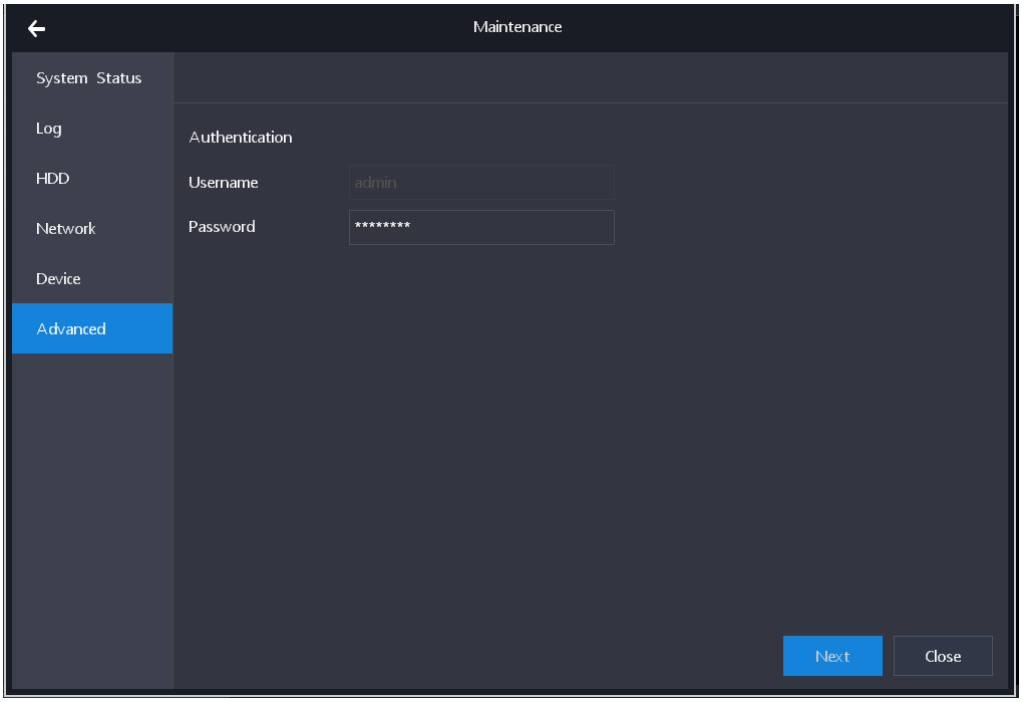
Advanced Device Settings

NOTE:

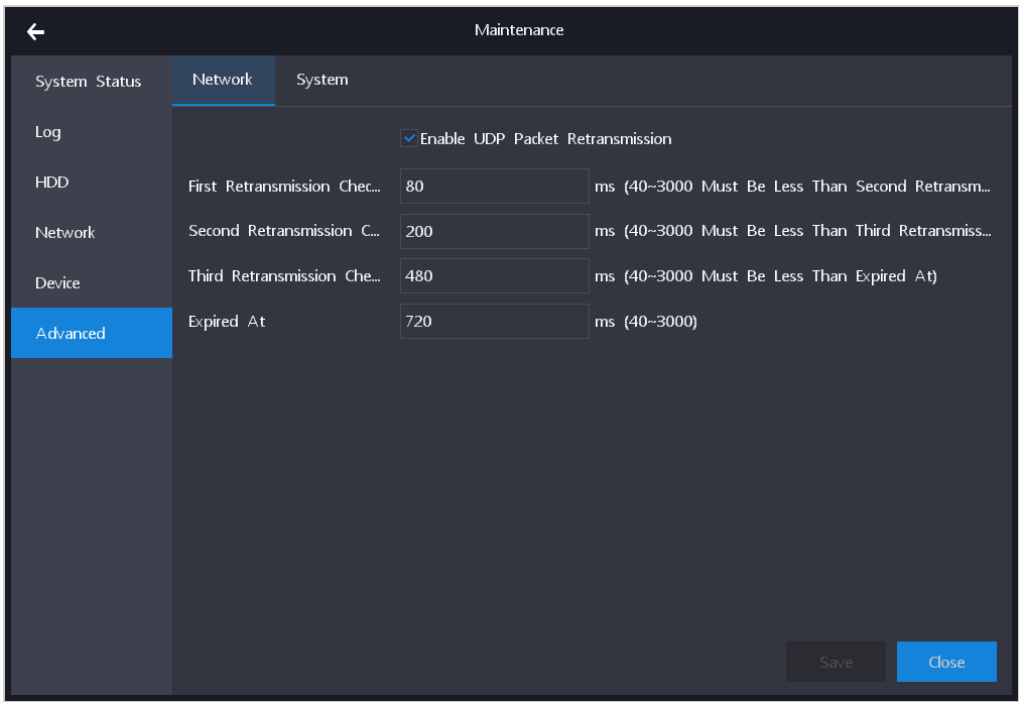
Only the admin account is allowed to configure these settings.

To configure the advanced NVR settings:

1. Click **Advanced**.
2. Enter the password of the admin account.

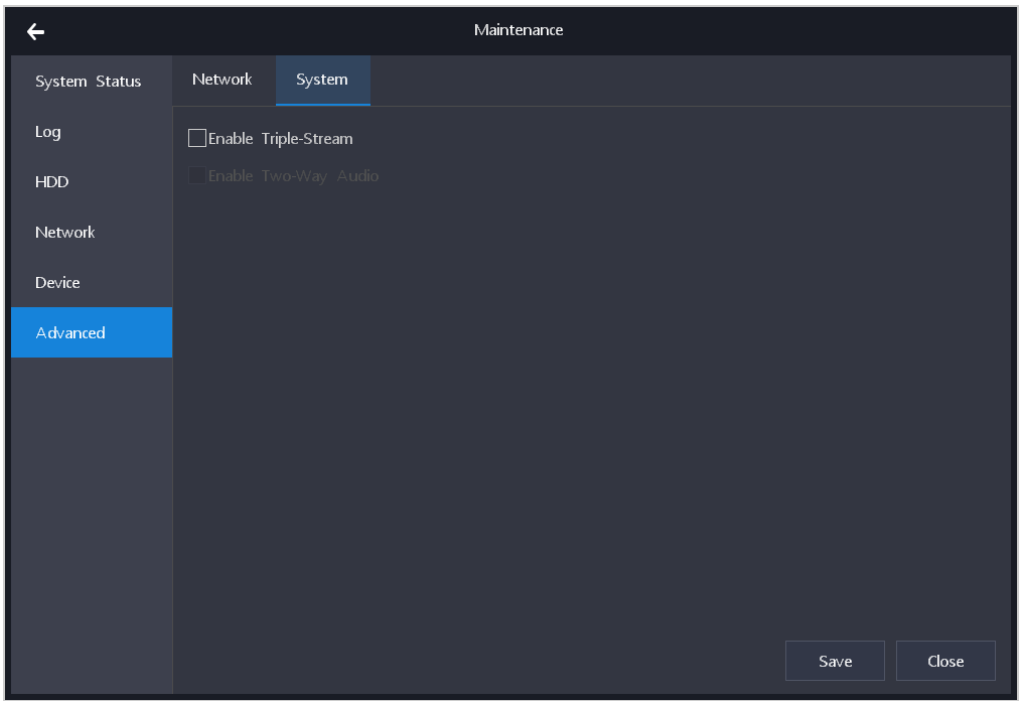


3. Click **Next**.
4. Configure parameters under **Network**.



Under normal circumstances, you are advised to keep the default values (as displayed in the preceding figure).

5. Click **OK**.
6. Configure parameters under **System**.



Under normal circumstances, you are advised to keep the default values (as displayed in the preceding figure).

- **Enable Triple-Stream**: whether to enable three streams
- **Enable Two-Way Audio**: whether to enable two-way audio, which allows the both parties in a call to be heard

7. Click **Save**.

Specifications

The following table provides the specifications of the NVR1827-04B.

	NVR1827-04016B/16P	NVR1827-040032B/16P	NVR1827-04009B	NVR1827-04016B	NVR1827-04032B
Video/Audio Input					
IP Camera Input	16channel	32 channel	9 channel	16 channel	32 channel
Resolution	8MP(4K), 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF				
Compression	H.265 / H.264				
Protocols	ONVIF, RTSP, KEDACOM				
Incoming Bandwidth	80Mbps	90Mbps	45Mbps	80Mbps	90Mbps
Live Viewing					
Local Display	1 x HDMI, 1 x VGA, simultaneously output different content				
Multi Screen Display Local monitor (Main / Secondary):	1/1, 4/4, 1+5/1+5, 1+7/1+7, 9/9, 16/16	1/1, 4/4, 1+5/1+5, 1+7/1+7, 9/9, 16/16	1/1, 4/4, 1+5/1+5, 1+7/1+7, 9/9, 16/16	1/1, 4/4, 1+5/1+5, 1+7/1+7, 9/9, 16/16	1/1, 4/4, 1+5/1+5, 1+7/1+7, 9/9, 16/16
Multi Screen Display Client	up to 4 screen simultaneously: 1 ~ 64 Multiple Layouts				
E-Map	Live Viewing in E-Map (V Station)				
Function	E-PTZ / Scheme (V Station) / Virtual channel				
Recording					
Resolution	8MP(4K), 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF				
Mode	Manual / Continuous / Schedule / Event (Pre / Post) / Long term recording				
Event Trigger	Supported				
Tag	Supported				
Search & Playback					
Search Mode	Date and time (Calendar) / Event				
Resolution	8MP(4K), 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF				
Playback (Local	1 x 4K@30fps / 4 x 1080p@30fps / 9 x 720p@30fps				

Monitor)	
Playback (Client)	up to 16 x 4K@30fps
Synchronize Playback (Local Monitor)	4 x 1080p@30fps
Synchronize Playback (Client)	up to 16 x 4K@30fps
Function	Slow forward / Fast forward / Loop / Single frame / E-PTZ
Storage	
Max. Internal HDDs	4 x 3.5'' HDD
	Max. 32TB (up to 8TB/each)
Audio	
Compression	G.711a / G.711u / ADPCM / G.722 / G.722.1c / AAC-LC
Bit rate	32kbps ~ 64kbps
Audio Function	Bi-directional audio / Dumb / Mute / Broadcasting
Alarm	
Service Alarm Triggers	Alarm input / Video lost / Motion detection / Tampering / Guard line / Defocus / Scene change / Enter guard area / Exit guard area / Object left / Object removal / Gathering / Audio surge
System Alarm Triggers	Device disconnected / No disk / Disk error / IP Address conflict / Network disconnected / Low speed / Insufficient recording space / MAC address conflict / Insufficient snapshot space
Alarm Events	Snapshot / Recording / PTZ preset / Buzzer / Email / Link to Client / Alarm caption / Live view in first window / Link to TV Wall / Link to secondary screen / Full screen viewing
System	
Operating System	Embedded Linux
User Management	Admin / User
Log Management	User login / User operation / Alarm / Backup / Update
Application Programming	V Station SDK
Network	
Network	TCP/IP, UDP, HTTP, DHCP, DNS/DDNS, RTP/RTCP, RTSP, PPPoE, FTP, SNTP, VSIP, UPNP,

Protocols	SMTP, IPv4, IPv6 (optional)			
Viewer Software	CMS (V Station) / Web / iOS app / Android app			
Max. User Access	16 Users			
Output Bandwidth	64Mbps			
Function	NAT / Multiple network access / Packet loss recovery / Auto network organizing			
Network Test	Supported			
Interfaces				
Ethernet	1 x Gigabite network port, RJ45 interface	1 x Gigabite network port, RJ45 interface	1 x 10/100M, RJ45 interface	1 x Gigabite network port, RJ45 interface
PoE	16 x 10/100M PoE port, RJ45 interface, 15W / each port		/	
Video Out	1 x HDMI (up to 3840 x 2160@60Hz)			
	1 x VGA (up to 1920 x 1080@60Hz)			
Audio In / Out	1 x RCA Line in / 1 x RCA Line out			
Alarm In / Out	4 x Inputs / 2 x Outputs			
Control	1 x RS485			
USB	2 x USB 2.0			
Environmental				
Operating Temperature	-10°C ~ 55°C / 14°F ~ 131°F			
Operating Humidity	10% ~ 90%			
Electrical				
Power	100 ~ 240V AC, 50 ~ 60Hz			
Power Consumption	Max. 280W (HDD not included)		Max. 15W (HDD not included)	
Mechanical				
Weight	5kg / 11lb (HDD not included)		4.5kg / 9.9lb (HDD not included)	
Dimensions	444 x 410 x 33mm / 17.48'' x 16.14'' x 1.3''			

The following table provides the specifications of the NVR1828-01B.

	NVR1828-01009B/8P	**NVR1828-01016B/8P**
Video/Audio Input		
IP Camera Input	9 channel	16 channel
Resolution	8MP(4K), 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF,	

	QCIF	
Compression	H.265 / H.264	
Protocols	ONVIF, RTSP, KEDACOM	
Incoming Bandwidth	45Mbps	80Mbps
Live Viewing		
Local Display	1 x HDMI, 1 x VGA, simultaneously output different content	
Multi Screen Display Local monitor (Main / Secondary):	1/1, 4/4, 1+5/1+5, 1+7/1+7, 9/9, 16/16	
Multi Screen Display Client	up to 4 screen simultaneously: 1 ~ 64 Multiple Layouts	
E-Map	Live Viewing in E-Map (V Station)	
Function	E-PTZ / Scheme (V Station) / Virtual channel	
Recording		
Resolution	8MP(4K), 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF	
Mode	Manual / Continuous / Schedule / Event (Pre / Post) / Long term recording	
Event Trigger	Supported	
Tag	Supported	
Search & Playback		
Search Mode	Date and time (Calendar) / Event	
Resolution	8MP(4K), 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF	
Playback (Local Monitor)	1 x 4K@30fps / 4 x 1080p@30fps / 9 x 720p@30fps	
Playback (Client)	up to 16 x 4K@30fps	
Synchronize Playback (Local Monitor)	4 x 1080p@30fps	
Synchronize Playback (Client)	up to 16 x 4K@30fps	
Function	Slow forward / Fast forward / Loop / Single frame / E-PTZ	
Storage		
Max. Internal HDDs	1 x 3.5'' HDD	
	Max. 8TB (up to 8TB/each)	
Audio		
Compression	G.711a / G.711u / ADPCM / G.722 / G.722.1c / AAC-LC	
Bit rate	32kbps ~ 64kbps	
Audio Function	Bi-directional audio / Dumb / Mute / Broadcasting	
Alarm		
Service Alarm Triggers	Alarm input / Video lost / Motion detection / Tampering / Guard line / Defocus / Scene change / Enter guard area / Exit guard area / Object left / Object removal / Gathering / Audio surge	
System Alarm Triggers	Device disconnected / No disk / Disk error / IP Address conflict / Network disconnected / Low speed / Insufficient recording space / MAC address conflict / Insufficient snapshot	

	space	
Alarm Events	Snapshot / Recording / PTZ preset / Buzzer / Email / Link to Client / Alarm caption / Live view in first window / Link to TV Wall / Link to secondary screen / Full screen viewing	
System		
Operating System	Embedded Linux	
User Management	Admin / User	
Log Management	User login / User operation / Alarm / Backup / Update	
Application Programming	V Station SDK	
Network		
Network Protocols	TCP/IP, UDP, HTTP, DHCP, DNS/DDNS, RTP/RTCP, RTSP, PPPoE, FTP, SNTP, VSIP, UPNP, SMTP, IPv4, IPv6 (optional)	
Viewer Software	CMS (V Station) / Web / iOS app / Android app	
Max. User Access	16 Users	
Output Bandwidth	64Mbps	
Function	NAT / Multiple network access / Packet loss recovery / Auto network organizing	
Network Test	Supported	
Interfaces		
Ethernet	1 x 10/100M, RJ45 interface	1 x Gigabite network port, RJ45 interface
PoE	8 x 10/100M PoE port, RJ45 interface, 15W / each port	
Video Out	1 x HDMI (up to 3840 x 2160@60Hz)	
	1 x VGA (up to 1920 x 1080@60Hz)	
Audio In / Out	1 x RCA Line in / 1 x RCA Line out	
Alarm In / Out	4 x Inputs / 2 x Outputs	
Control	1 x RS485	
USB	2 x USB 2.0	
Environmental		
Operating Temperature	-10°C ~ 55°C / 14°F ~ 131°F	
Operating Humidity	10% ~ 90%	
Electrical		
Power	48V DC ± 10%	
Power Consumption	Max. 40W (HDD not included)	
Mechanical		
Weight	1.2kg / 2.65lb (HDD not included)	
Dimensions	384 x 199 x 33mm / 15.1'' x 7.83'' x 1.3''	

The following table provides the specifications of the NVR1828-02B.

	NVR1828-02009B/8P	**NVR1828-020016B/8P**	**NVR1828-02004B**	**NVR1828-02009B**	**NVR1828-02016B**
Video/Audio Input					
IP Camera Input	9channel	16 channel	4 channel	9 channel	16 channel
Resolution	8MP(4K), 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF				
Compressio	H.265 / H.264				

n					
Protocols	ONVIF, RTSP, KEDACOM				
Incoming Bandwidth	45Mbps	80Mbps	20Mbps	45Mbps	80Mbps
Live Viewing					
Local Display	1 x HDMI, 1 x VGA, simultaneously output different content				
Multi Screen Display Local monitor (Main / Secondary):	1/1, 4/4, 1+5/1+5, 1+7/1+7, 9/9	1/1, 4/4, 1+5/1+5, 1+7/1+7, 9/9, 16/16	1/1, 4/4	1/1, 4/4, 1+5/1+5, 1+7/1+7, 9/9	1/1, 4/4, 1+5/1+5, 1+7/1+7, 9/9, 16/16
Multi Screen Display Client	up to 4 screen simultaneously: 1 ~ 64 Multiple Layouts				
E-Map	Live Viewing in E-Map (V Station)				
Function	E-PTZ / Scheme (V Station) / Virtual channel				
Recording					
Resolution	8MP(4K), 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF				
Mode	Manual / Continuous / Schedule / Event (Pre / Post) / Long term recording				
Event Trigger	Supported				
Tag	Supported				
Search & Playback					
Search Mode	Date and time (Calendar) / Event				
Resolution	8MP(4K), 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF				
Playback (Local Monitor)	1 x 4K@30fps / 4 x 1080p@30fps / 9 x 720p@30fps		1 x 4K@30fps / 4 x 1080p@30fps	1 x 4K@30fps / 4 x 1080p@30fps / 9 x 720p@30fps	
Playback (Client)	up to 16 x 4K@30fps				
Synchronize Playback (Local Monitor)	4 x 1080p@30fps				
Synchronize Playback (Client)	up to 16 x 4K@30fps				
Function	Slow forward / Fast forward / Loop / Single frame / E-PTZ				
Storage					
Max. Internal HDDs	2 x 3.5'' HDD				
	Max. 16TB (up to 8TB/each)				

Audio				
Compression	G.711a / G.711u / ADPCM / G.722 / G.722.1c / AAC-LC			
Bit rate	32kbps ~ 64kbps			
Audio Function	Bi-directional audio / Dumb / Mute / Broadcasting			
Alarm				
Service Alarm Triggers	Alarm input / Video lost / Motion detection / Tampering / Guard line / Defocus / Scene change / Enter guard area / Exit guard area / Object left / Object removal / Gathering / Audio surge			
System Alarm Triggers	Device disconnected / No disk / Disk error / IP Address conflict / Network disconnected / Low speed / Insufficient recording space / MAC address conflict / Insufficient snapshot space			
Alarm Events	Snapshot / Recording / PTZ preset / Buzzer / Email / Link to Client / Alarm caption / Live view in first window / Link to TV Wall / Link to secondary screen / Full screen viewing			
System				
Operating System	Embedded Linux			
User Management	Admin / User			
Log Management	User login / User operation / Alarm / Backup / Update			
Application Programming	V Station SDK			
Network				
Network Protocols	TCP/IP, UDP, HTTP, DHCP, DNS/DDNS, RTP/RTCP, RTSP, PPPoE, FTP, SNTP, VSIP, UPNP, SMTP, IPv4, IPv6 (optional)			
Viewer Software	CMS (V Station) / Web / iOS app / Android app			
Max. User Access	16 Users			
Output Bandwidth	64Mbps			
Function	NAT / Multiple network access / Packet loss recovery / Auto network organizing			
Network Test	Supported			
Interfaces				
Ethernet	1 x 10/100M, RJ45 interface	1 x Gigabite network port, RJ45 interface	1 x 10/100M, RJ45 interface	1 x Gigabite network port, RJ45 interface

PoE	8 x 10/100M PoE port, RJ45 interface, 15W / each port	/
Video Out	1 x HDMI (up to 3840 x 2160@60Hz)	
	1 x VGA (up to 1920 x 1080@60Hz)	
Audio In / Out	1 x RCA Line in / 1 x RCA Line out	
Alarm In / Out	4 x Inputs / 2 x Outputs	
Control	1 x RS485	
USB	2 x USB 2.0	
Environmental		
Operating Temperature	-10°C ~ 55°C / 14°F ~ 131°F	
Operating Humidity	10% ~ 90%	
Electrical		
Power	48V DC ± 10%	12V DC ± 10%
Power Consumption	Max. 80W (HDD not included)	Max. 15W (HDD not included)
Mechanical		
Weight	1.2kg / 2.65lb (HDD not included)	1kg / 2.2lb (HDD not included)
Dimensions	384 x 199 x 33mm / 15.1'' x 7.83'' x 1.3''	

The following table provides the specifications of the NVR1829-01B.

	NVR1829-01004B/4P	**NVR1829-01009B/4P**	**NVR1829-01016B/4P**	**NVR1829-01004B**	**NVR1829-01009B**	**NVR1829-01016B**
Video/Audio Input						
IP Camera Input	4 channel	9 channel	16 channel	4 channel	9 channel	16 channel
Resolution	8MP(4K), 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF					
Compression	H.265 / H.264					
Protocols	ONVIF, RTSP, KEDACOM					
Incoming Bandwidth	20Mbps	45Mbps	80Mbps	20Mbps	45Mbps	80Mbps
Live Viewing						
Local Display	1 x HDMI, 1 x VGA, simultaneously output different content					
Multi Screen Display Local monitor	1/1, 4/4, 1+5/1+5, 1+7/1+7, 9/9, 16/16					
Multi Screen Display Client	up to 4 screen simultaneously: 1 ~ 64 Multiple Layouts					
E-Map	Live Viewing in E-Map (V Station)					
Function	E-PTZ / Scheme (V Station) / Virtual channel					
Recording						

Resolution	8MP(4K), 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF			
Mode	Manual / Continuous / Schedule / Event (Pre / Post) / Long term recording			
Event Trigger	Supported			
Tag	Supported			
Search & Playback				
Search Mode	Date and time (Calendar) / Event			
Resolution	8MP(4K), 6MP, 5MP, 4MP, 3MP, 1080p, UXGA, 960p, 720p, XGA, SVGA, D1, CIF, QCIF			
Playback (Local Monitor)	1 x 4K@30fps / 4 x 1080p@30fps	1 x 4K@30fps / 4 x 1080p@30fps / 9 x 720p@30fps	1 x 4K@30fps / 4 x 1080p@30fps	1 x 4K@30fps / 4 x 1080p@30fps / 9 x 720p@30fps
Playback (Client)	up to 16 x 4K@30fps			
Synchronize Playback (Local Monitor)	1 x 4K@30fps / 4 x 1080p@30fps / 9 x 720p@30fps			
Synchronize Playback (Client)	up to 16 x 4K@30fps			
Function	Slow forward / Fast forward / Loop / Single frame / E-PTZ			
Storage				
Max. Internal HDDs	1 x 3.5” HDD			
	Max. 8TB (up to 8TB/each)			
Audio				
Compression	G.711a / G.711u / ADPCM / G.722 / G.722.1c / AAC-LC			
Bit rate	32kbps ~ 64kbps			
Audio Function	Bi-directional audio / Dumb / Mute / Broadcasting			
Alarm				
Service Alarm Triggers	Alarm input / Video lost / Motion detection / Tampering / Guard line / Defocus / Scene change / Enter guard area / Exit guard area / Object left / Object removal / Gathering / Audio surge			
System Alarm Triggers	Device disconnected / No disk / Disk error / IP Address conflict / Network disconnected / Low speed / Insufficient recording space / MAC address conflict / Insufficient snapshot space			
Alarm Events	Snapshot / Recording / PTZ preset / Buzzer / Email / Link to Client / Alarm caption / Live view in first window / Link to TV Wall / Link to secondary screen / Full screen viewing			
System				
Operating System	Embedded Linux			
User Management	Admin / User			
Log Management	User login / User operation / Alarm / Backup / Update			
Application Programming	V Station SDK			
Network				
Network Protocols	TCP/IP, UDP, HTTP, DHCP, DNS/DDNS, RTP/RTCP, RTSP, PPPoE, FTP, SNTP, VSIP, UPNP, SMTP, IPv4, IPv6 (optional)			
Viewer Software	CMS (V Station) / Web / iOS app / Android app			
Max. User Access	16 Users			
Output Bandwidth	64Mbps			

Function	NAT / Multiple network access / Packet loss recovery / Auto network organizing			
Network Test	Supported			
Interfaces				
Ethernet	1 x 10/100M, RJ45 interface	1 x Gigabite network port, RJ45 interface	1 x 10/100M, RJ45 interface	1 x Gigabite network port, RJ45 interface
PoE	4 x 10/100M PoE port, RJ45 interface, 15W / each port		/	
Video Out	1 x HDMI (up to 3840 x 2160@60Hz)			
	1 x VGA (up to 1920 x 1080@60Hz)			
Audio In / Out	1 x RCA Line in / 1 x RCA Line out			
USB	2 x USB 2.0			
Environmental				
Operating Temperature	-10°C ~ 55°C / 14°F ~ 131°F			
Operating Humidity	10% ~ 90%			
Electrical				
Power	48V DC ± 10%		12V DC ± 10%	
Power Consumption	Max. 40W (HDD not included)		Max. 10W (HDD not included)	
Mechanical				
Weight	0.7kg / 1.54lb (HDD not included)		0.6kg / 1.32lb (HDD not included)	
Dimensions	254 x 194 x 33mm / 10'' x 7.64'' x 1.3''			

Abbreviations and Acronyms

BOOTP	Bootstrap Protocol
CU	Client Unit
DDNS	Dynamic Domain Name System
DHCP	Dynamic Host Configuration Protocol
e-PTZ	electronic PTZ
NAT	network address translation
NVR	Network Video Recorder
ONVIF	Open Network Video Interface Forum
OSD	on-screen display
PC	personal computer
PMC	Platform Management Client
RTSP	Real Time Streaming Protocol
UUID	Universally Unique Identifier
VMS	Video Management Server
WDR	wide dynamic range