SNK RAID Series NVR
Administrator Guide

Sysvideo Technology Limited

Only For SNK 8, 16 HDD series RAID NVR

Version 02

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Contents

Intended Audience

This document is intended for the personnel who:

- Manage SNK 8/16 HDD RAID series Network Video Recorders (NVRs)
- Know video surveillance basics

Document Versions

Version 02 (2015-04-30)

Compared with Version 01 (2014-08-30), Version 02 (2015-04-03) includes the changes described in the following table.

Change Type	Description
Feature change	Added the UPnP technology to the SNK16000RD series.
Editorial change	Changed the list of recommended third-party disks.

Version 01 (2014-08-30)

Compared with Version 00 (2014-06-30), Version 01 (2014-08-30) includes the changes described in the following table.

Change Type	Description
Feature change	Added the functions of the SNK16000RD series.
Editorial change	Updated screenshots.

Version 00 (2014-06-30)

This is a draft.

Compatibility

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

Product	SNK series 8/16 HDD RAID NVR
NVR Software Version	NVR V5R1B2

1 About SNK 8/16 HDD RAID series NVRs

1.1 Product Introduction

Sysvideo SNK 8/16 HDD RAID series NVR is a turnkey solution for video surveillance and video recording. SNK 8/16 HDD RAID series NVRs support Open Network Video Interface Forum (ONVIF) and Real Time Streaming Protocol (RTSP) interoperability standards. Additionally, SNK 8/16 HDD RAID series NVRs feature native integration to cameras and encoders from third party manufacturers, therefore making them an open system.

The advanced system capabilities make SNK 8/16 HDD RAID series NVRs easy to use with functions like Automatically Adding Devices and One-Click Partition and Initialization and meet various customer needs with functions like Record Fragment and Privacy Mask for every day security users to advanced video surveillance users.

SNK 8/16 HDD RAID series NVRs work with the following management system and applications:

- NVR Station: is a complete system for device management and video viewing/recording/playback.
- NVR Station Web: is a web-based application of the NVR Station.
- Mobile NVR Client (MNC): is an iOS/Andriod-compatible mobile application of the NVR Station.

Note

In this document, the NVR refers to a SNK 8/16 HDD RAID series NVR.

1.2 Key Features

The following table lists key features provided by SNK 8/16 HDD RAID series NVRs to meet vairous customer needs.

Item	Feature	Description
Adding devices	Automatically Adding Devices	This feature allows you to quickly add cameras to your NVR. This feature is available to all SNK RAID series enterprise NVRs. For details on how to use this feature, see section 3.1 "Automatically Adding the Target Camera."

Item	Feature	Description
Disk management	One-Click Partition and Formatting	Before starting a recording, you must partition and format disks. With this feature, you can complete the two operations with one click. This feature is available to all SNK RAID series enterprise NVRs. For detais on how to use this feature, see section 4.1 of *SNK RAID series enterprise NVR Administrator Guide*.
Viewing	Dual-Stream and Audio	SNK RAID series enterprise NVRs offer the ability to record the main and secondary streams for each camrea. Along with exceptional image quality, these NVRs can also record audio. This feature is available to all SNK RAID series enterprise NVRs.
	Dual/Triple-Monitor Live Viewing	The SNK0800RD can connect to two monitors, allowing for dual-monitor live viewing. The SNK1600RD can connect to three monitors, allowing for triple-monitor live viewing. For feature details, see section 3.8 "Enabling Dual/Triple-Monitor Viewing." Note: For the SNK16128RD, you cannot use the dual/triple-monitor viewing feature if you already create RAID arrays. In other words, you cannot create RAID arrays if you already use the dual/triple-monitor viewing feature.
	Privacy Mask	This feature prevents a camera from monitoring sensitive objects or areas in a scene. When privacy masks are created in a scene, you cannot track objects if the objects move to a masked area. You can create up to 4 privacy masks (24 privacy blocks) for a camera. This feature is available to all SNK RAID series enterprise NVRs. For details on how to use this feature, see section

Item	Feature	Description
		3.5 "Setting Privacy Masks."
	Image Flip	This feature allows you to track an object continuously as it passes beneath a camera. This feature is available to all SNK RAID series enterprise NVRs. For details on how to use this feature, see section 3.3.2 "Advanced PTZ Controls."
Playback	16-Channel 1080p Video Playback	A spectacular 1920x1080 resolution lets you see more of your high-resolution images with pixel-for-pixel accuracy. When you play back videos on a screen, the solution allows you to capture more details. This feature is available to all SNK RAID series enterprise NVRs.
	Record Fragment	This feature breaks one piece of record into several parts and plays these parts at the same time. This feature is available to all SNK RAID series enterprise NVRs. For details on how to use this feature, see section 5.1 "Multi-Record Playback."
Alarming	Motion Detection	With this feature, an NVR can detect a change in the position of an object relative to its surroundings. This feature is available to all SNK RAID series enterprise NVRs. For details on how to use this feature, see section 6.1 "Motion Detection."
	E-Mail Notification	Alarm notification via an e-mail alert is offered as a standard feature with all Sysvideo NVRs. You can program an NVR to send a message to a designated address whenever an alarm is triggered. This feature is available to all SNK RAID series enterprise NVRs. For feature details, see section 7.5 "E-Mail Notification."

Item	Feature	Description
Storage	ANR	The automatic network replenishment (ANR) feature enables an IP camera to locally save records when the connection between it and the NVR is broken and send the records to the NVR when the connection is resumed. This feature is available to all SNK RAID series enterprise NVRs. For details on where to enable this feature, see section 4.3 "Setting the Recording Policy."

1.3 Major Specifications

Resolution of 3840x 2160

The SNK16000RD series provides a resolution of 3840 x 2160, allowing you to see a more detailed picture compared with a resolution of 1920 x 1080.

Homing

From a single NVR, you can view and control up to 128 cameras.

WDR

This feature allows you to record greater scene details, from shadows to highlights than normal.

IR

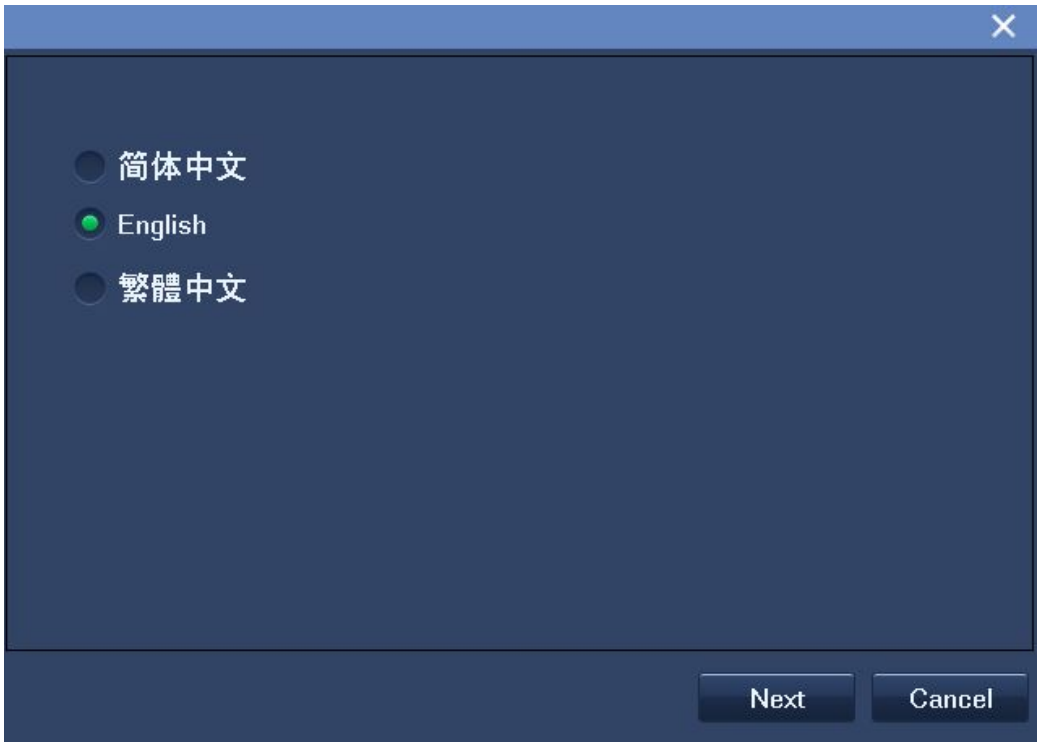
Infrared camreas can capture objects when there is insufficient visible light to see.

Three-Megapixel Lens

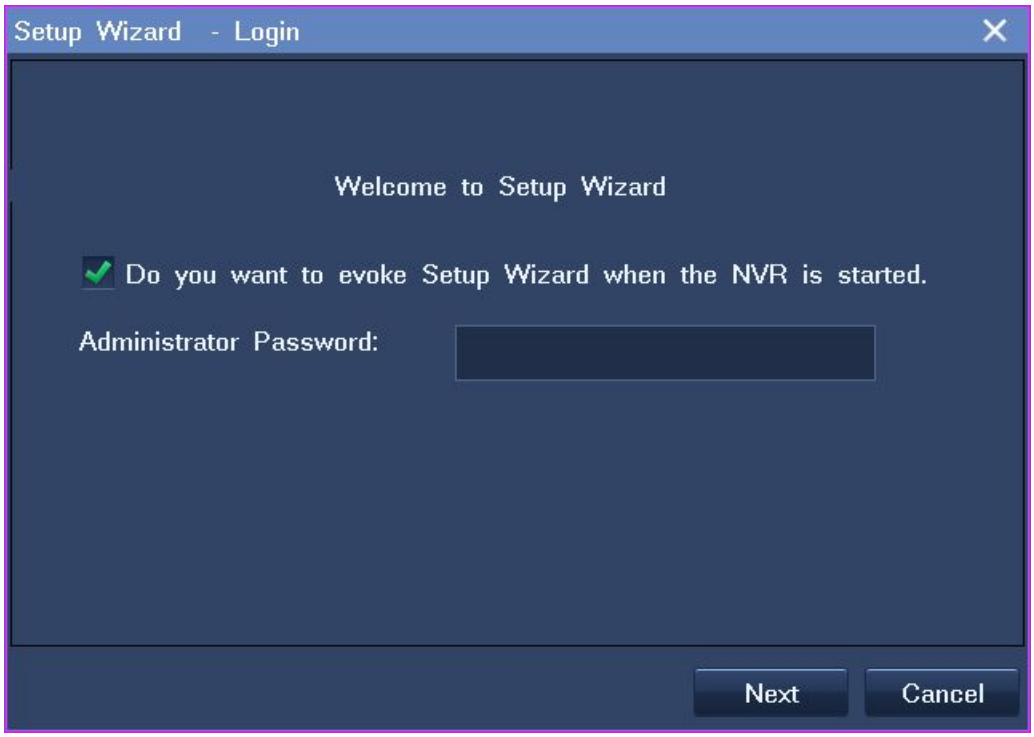
SNK 8/16 HDD RAID series NVRs can work with three-megapixel lenses so that you can capture stunning nad high-resolution digital images.

2 Getting Started

After an NVR is started up, choose a display language, as shown in the following figure.



Then, you can find the Setup Wizard on the main screen, as shown in the following figure.

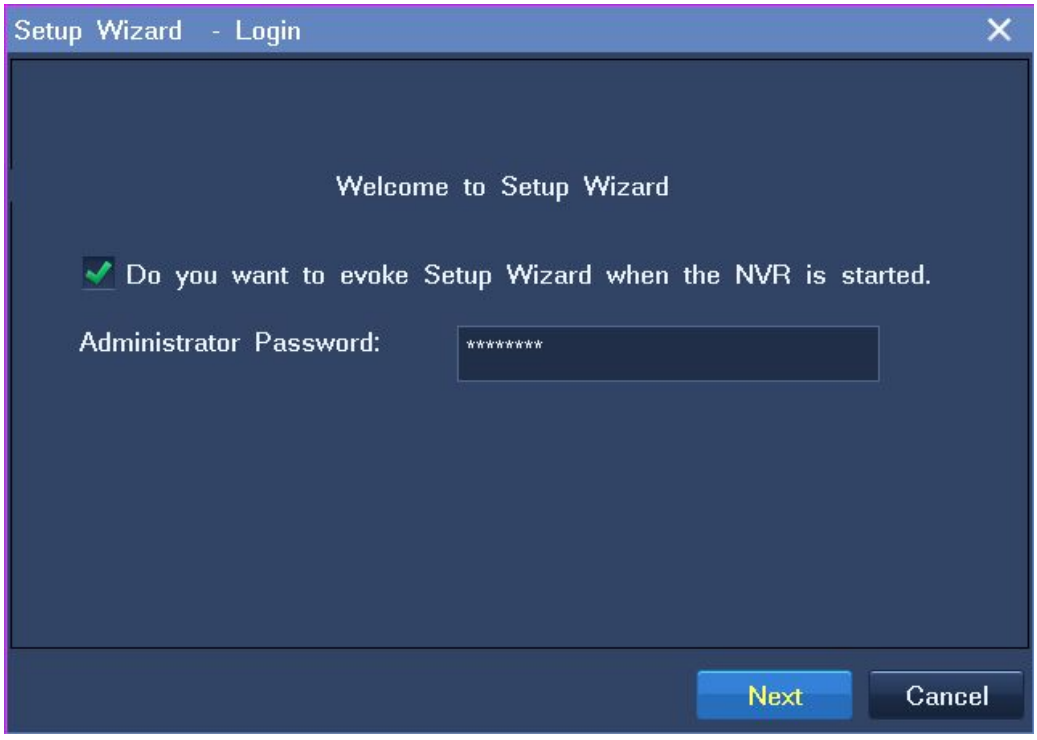


The Setup Wizard will walk you through some important settings of the NVR. However, you can choose not to use the Setup Wizard to configure those settings. If so, click **Cancel**.

If you want to use the Setup Wizard at a later time, select the **Do you want to evoke Setup Wizard when the NVR is started.** option.

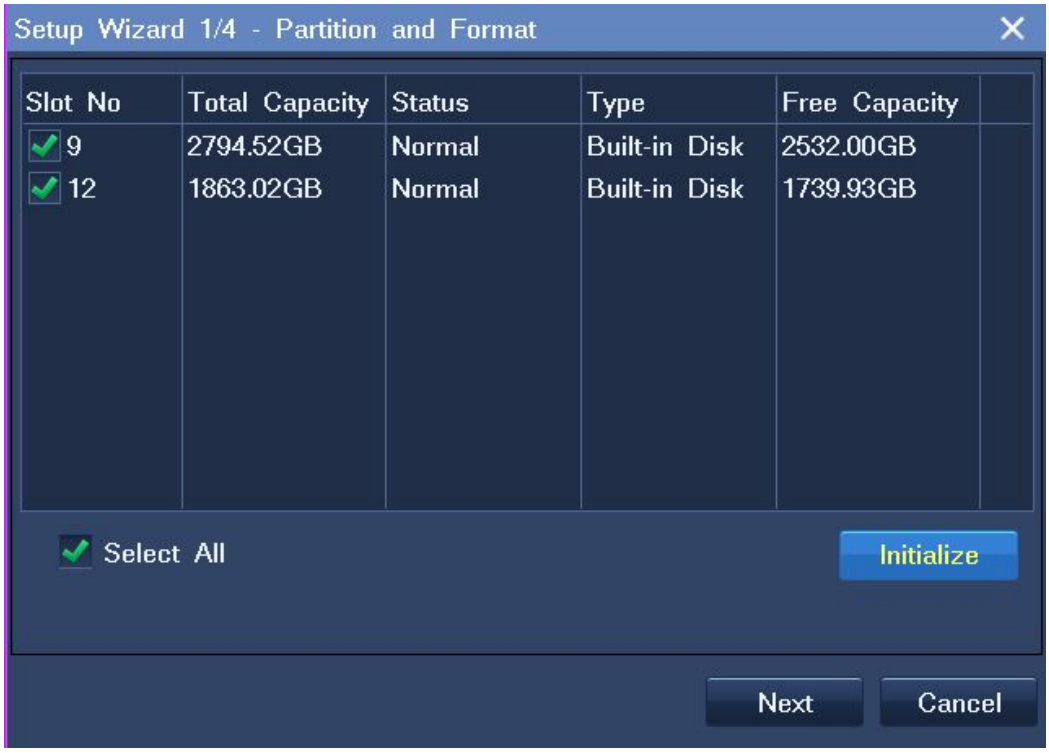
To use the Setup Wizard:

1. Enter **admin123** in the **Administartor Password** text box, as shown in the following figure.



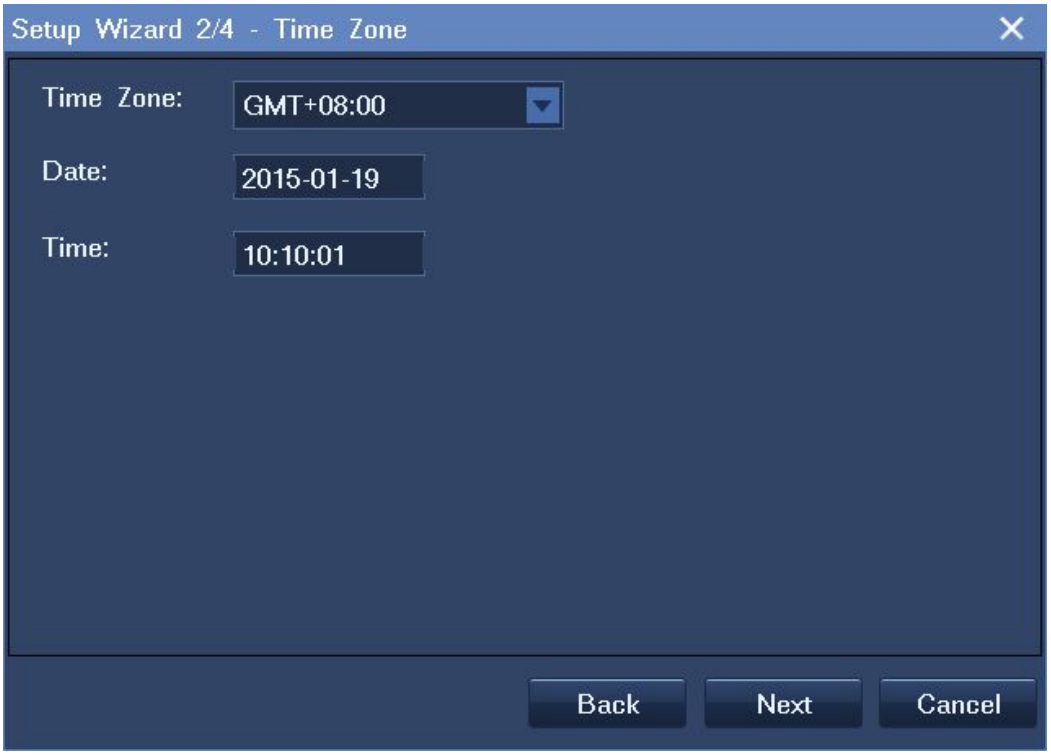
2. Click **Next**.

3. Select all disks and click **Initialize** to partition and format all these disks, as shown in the following figure.

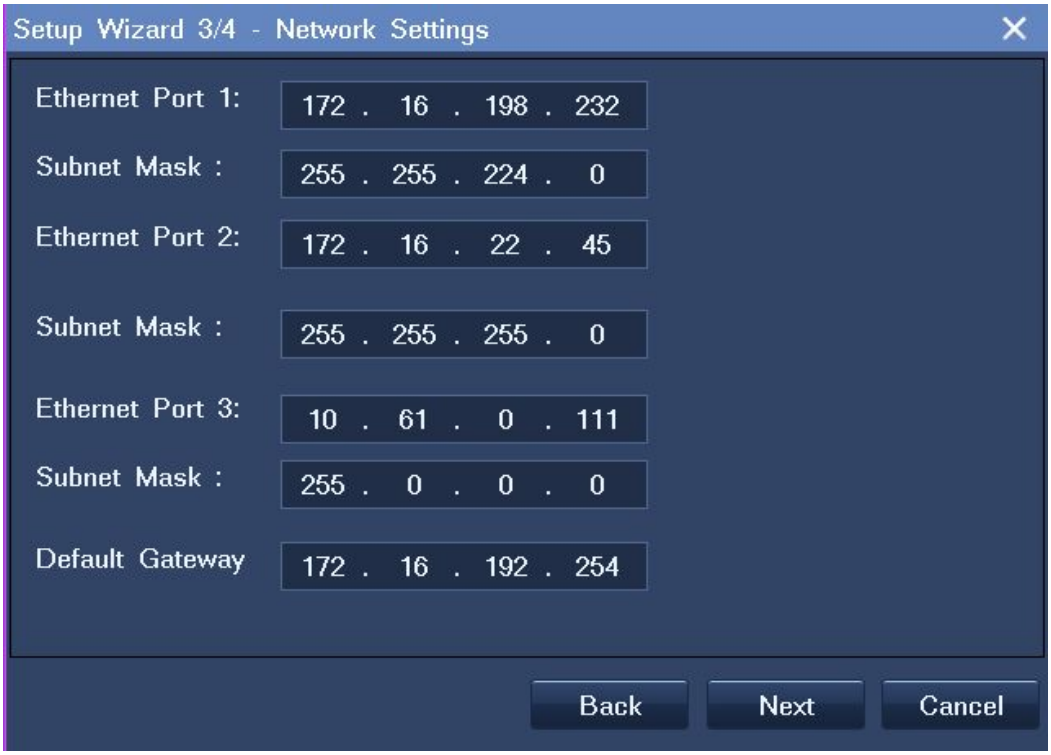


4. Click **Next**.

5. Configure the time settings, as shown in the following figure.



6. Click **Next**.
7. Configure the network settings, The following is an example.



8. Click **Next**.
9. Add devices.

To add a device:

1) Select the device from the device list, as shown in the following figure.

2) Click **Change IP Address** to change the registration address of the device.

   Note that you can change registration addresses only for cameras that use the factory defaults.

3) Click **OK**.

4) Click **Add**.

10. Click **Done**.

Note

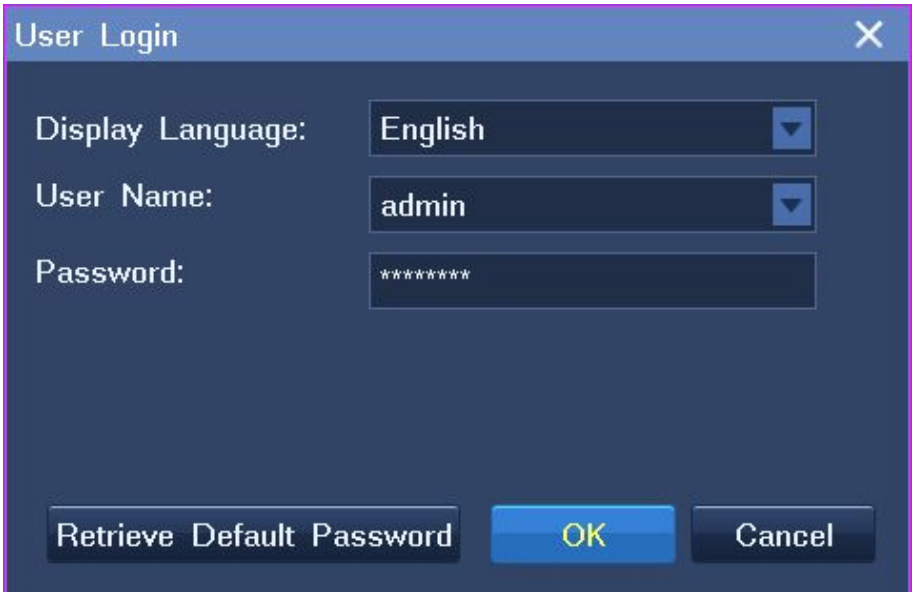
The registration address of a device is one IP address of the NVR to which the device registers.

3 Logging In to the NVR

The NVR comes with an administrator account whose user name is admin and the password is admin123.

To log in to the NVR as an administrator:

1. Click any button on the control panel located at the bottom of the main screen of the NVR.
2. In the displayed **User Login** dialog box, set **User Name** and **Password** to **admin** and **admin123**, respectively.



In this step, you can select a display language.

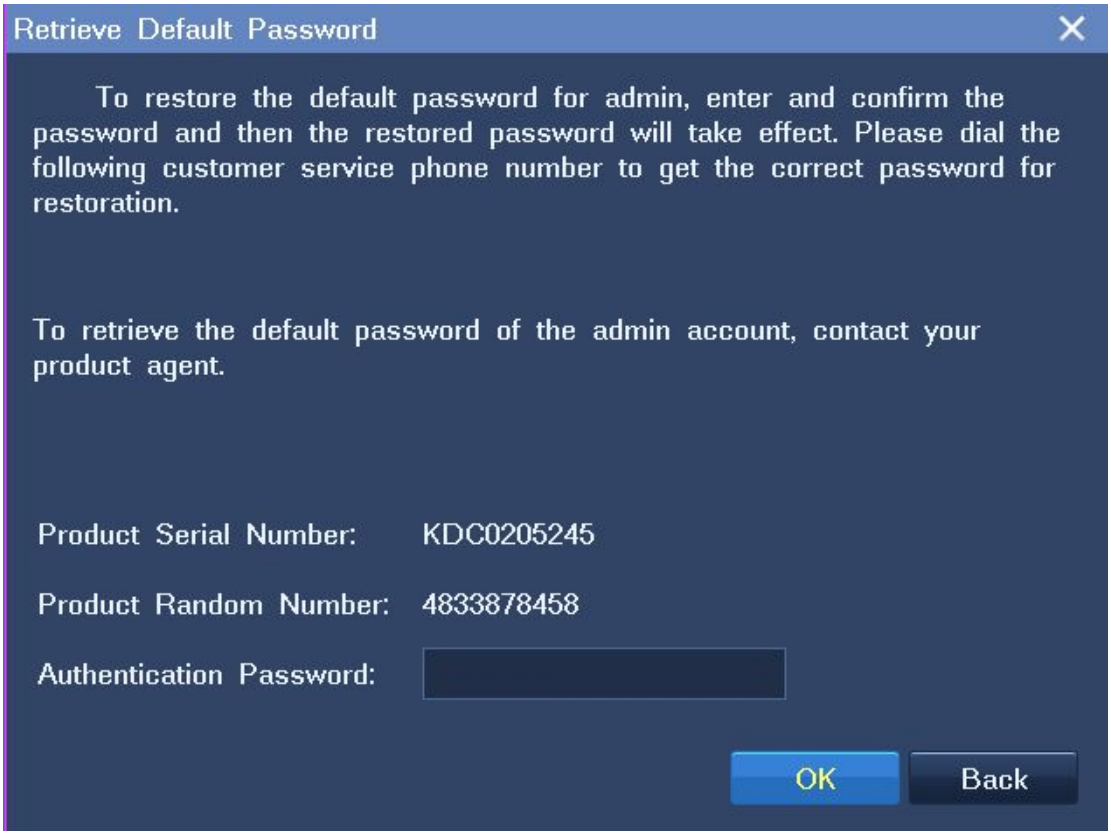
3. Click **OK**.

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

If you forget your new password:

1. Click **Retrieve Default Password** in the **User Login** dialog box.
2. Write down the product serial number and the product random number.

   The following is an example.



3. Contact the local authorized Sysvideo agent and inform them of the previous product serial number and product random number.

4. After obtaining an authentication password, enter the password in the **Authentication Password** text box.

5. Click **OK**.

After you perform the previous steps, you will be prompted that the default password for the administrator account is restored. Then, you can log in to the NVR using the password admin123.

Note

The graphical user interface (GUI) of the NVR 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.

Most screenshots in this document are taken from the SNK16000RD series. If you find some options are missing, contact the NVR system administrator to check whether these options are supported by your NVR. If so, contact the local authorized Sysvideo agent.

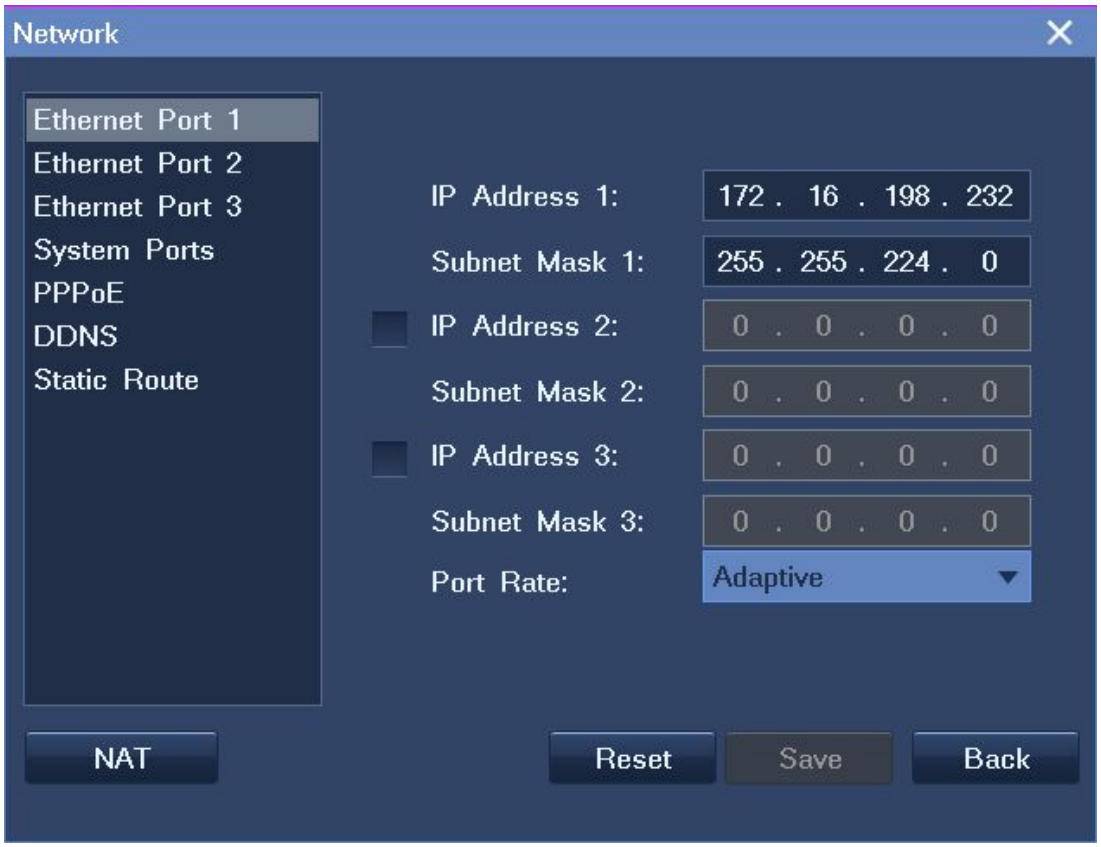
4 Configuring Network Settings

4.1 Ethernet Ports

To configure Ethernet ports:

1. Choose **Main Menu** > **Network** > **Ethernet Port 1**, **Ethernet Port 2**, or **Ethernet Port 3**.
2. Configure parameters displayed according to onsite conditions.

   The following is an example.



3. Click **Save**.

The default value for **IP Address 1** of **Ethernet Port 1** is 192. 168. 1. 100. The subnet mask for this IP address is 255.255.255.0.

The default value for **IP Address 2** of **Ethernet Port 2** is 172. 26. 1. 100. The subnet mask for this IP address is 255.255.255.0.

The default value for **IP Address 3** of **Ethernet Port 3** is 10.26. 1. 100. The subnet mask for this IP address is 255.255.255.0.

Note

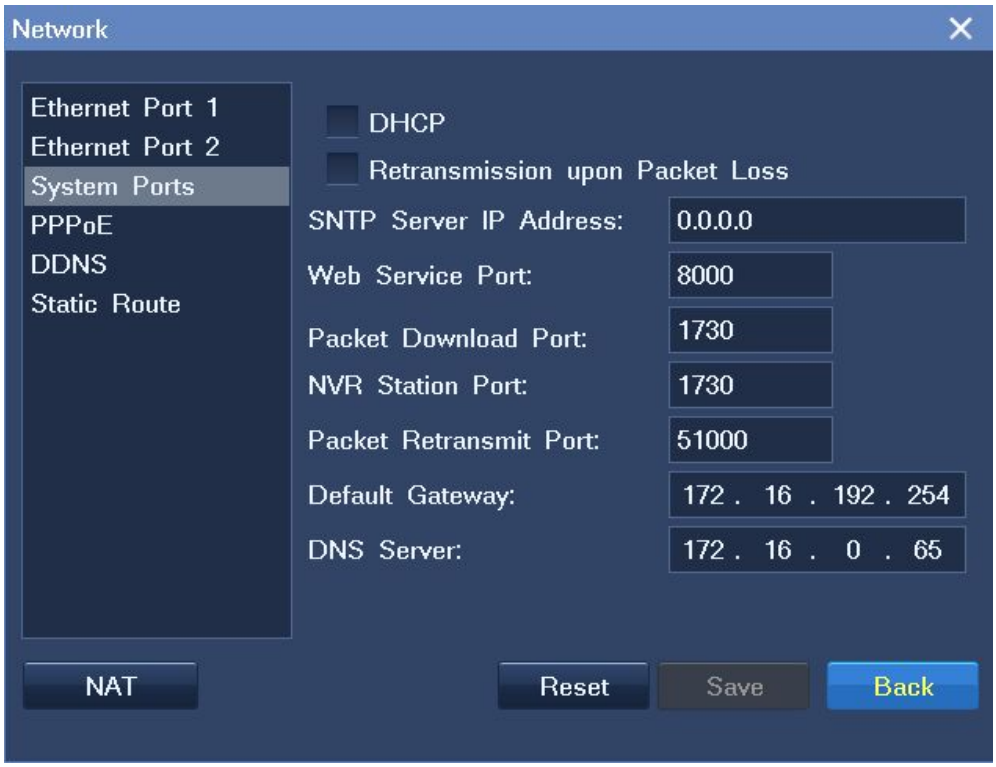
Clicking the **Reset** button will restore the previously saved parameter settings. For example, IP address 1 of Ethernet port 1 is 1.1.1.1 and this address is successfully saved. If you change the address to 2.2.2.2 without clicking **Save**, clicking **Reset** will change the address back to 1.1.1.1.

4.2 System Ports

To configure system ports:

1. Choose **Main Menu** > **Network** > **System Ports**.
2. Configure parameters displayed according to onsite conditions.

   The following is an example.



The following table provides the descriptions for key parameters.

Parameter	Description
Web Service Port	Port for web-based access to the NVR.

Parameter	Description
	The default value for this parameter is **80**.
Packet Download Port	Port for the NVR Station to download data from the NVR. The default value for this parameter is **1730**.
NVR Station Port	Port for the NVR Station to communicate with the NVR. The default value for this parameter is **1730**.
Packet Retransmit Port	Port for the NVR to retransmit packets to the NVR Station. The default value for this parameter is **51000**.

3. Click **Save**.

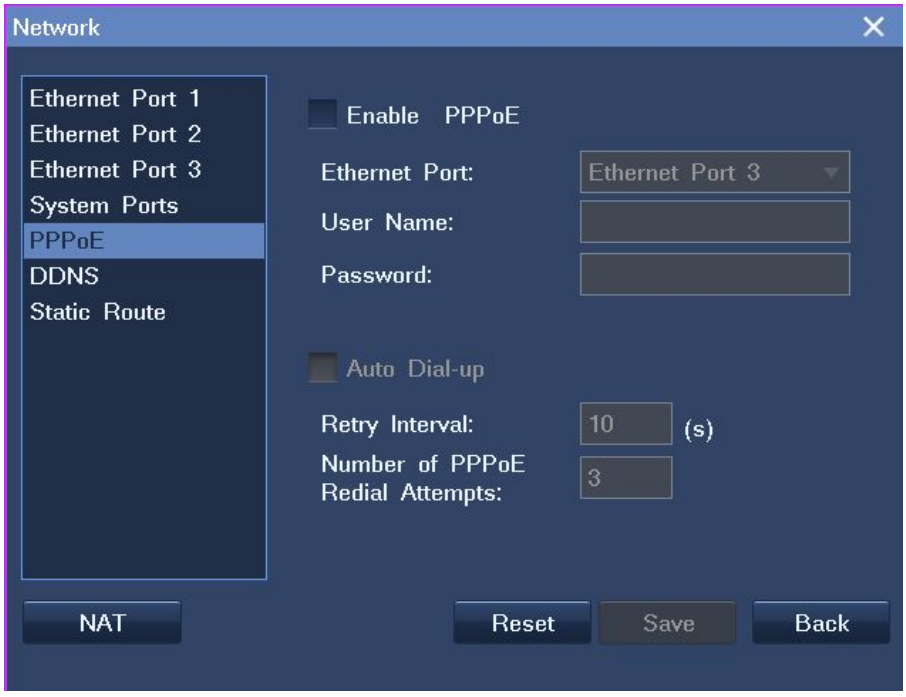
Note

Clicking the **Reset** button will restore the previously saved parameter settings.

4.3 PPPoE

To enable PPPoE for an Ethernet port:

1. Choose **Main Menu** > **Network** > **PPPoE** > **Enable PPPoE**, as shown in the following figure.



2. Select the Ethernet port from the **Ethernet Port** drop-down list.
3. Specify **User Name** and **Password**.
4. Click **Save**.

If the existing dial-up connection is broken, choose **Main Menu** > **Network** > **PPPoE** > **Save** to manually establish a new dial-up connection.

To enable the system to automatically establish a new dial-up connection when the existing dial-up connection is broken:

1. Select **Auto Dial-up**.
2. Specify **Retry Interval** and **Number of PPPoE Redial Attempts**.
3. Click **Save**.

When PPPoE is enabled, you are advised to enable the DDNS technique to facilitate access from other devices to the NVR.

Note

Clicking the **Reset** button will restore the previously saved parameter settings.

4.4 DDNS

The Dynamic Domain Name System (DDNS) update integrates DNS with DHCP. The two protocols are complementary: DHCP centralizes and automates IP address allocation; DDNS update automatically records the association between assigned addresses and hostnames at pre-defined intervals.

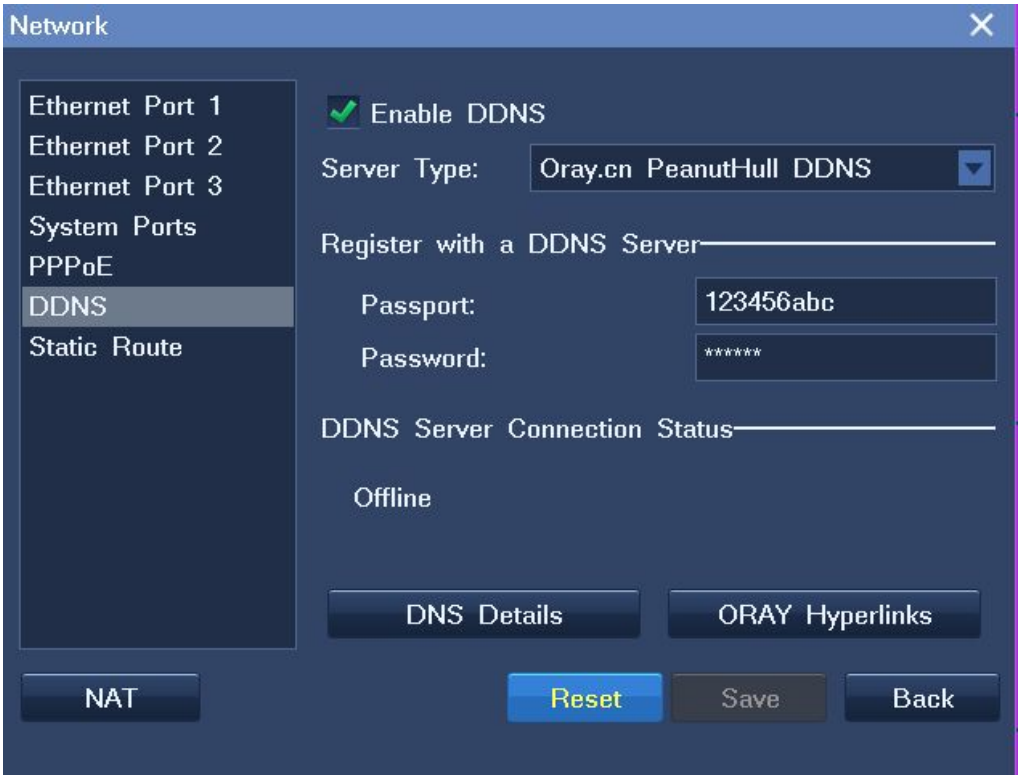
The DDNS allows frequently changing address-hostname associations to be updated frequently. Mobile hosts, for example, can then move freely on a network without user or administrator intervention. DDNS provides the necessary dynamic update and synchronization of the name-to-address mapping and address-to-name mapping on the DNS server.

Before enabling DDNS, go to the **System Ports** tab to configure the **DNS Server** and **Default Gateway** parameters and ensure that the NVR connects to the Internet.

To enable DDNS:

1. Choose **Main Menu** > **Network** > **DDNS** > **Enable DDNS**.
2. Configure parameters displayed.

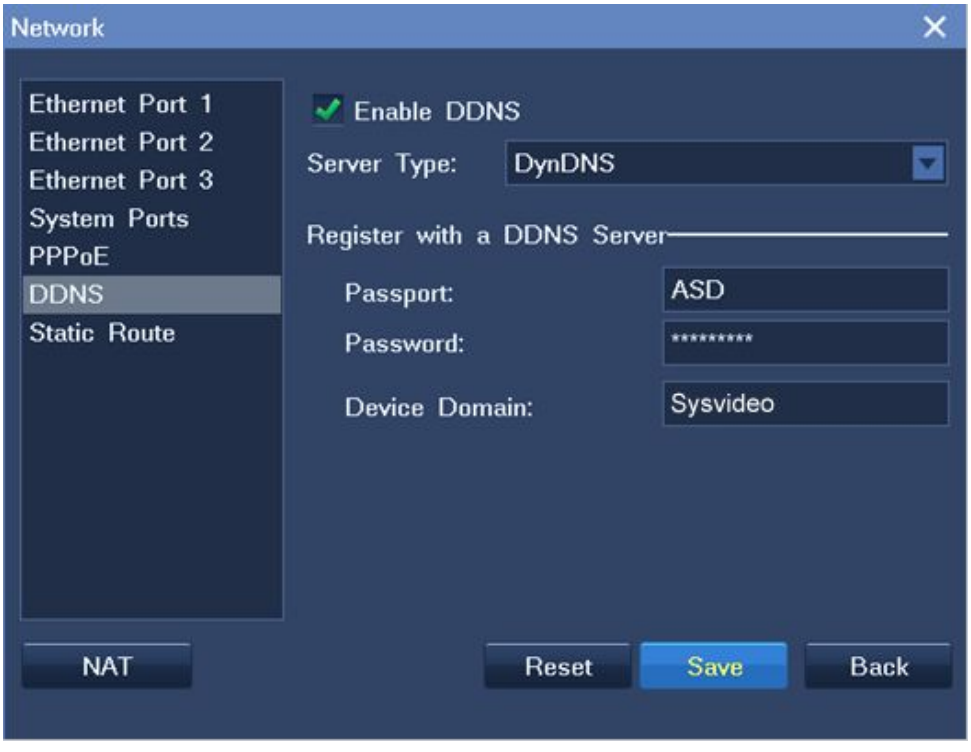
   The following figure shows the parameters displayed when the server type is set to **Oray.cn PeanutHull DDNS**.



(Before configuring the **Passport** and **Password** parameters, register with the Oray (www.oray.com) to obtain a passport. Note that the Oray will automatically assign the NVR a domain, which can be queried by clicking **DNS Details**.

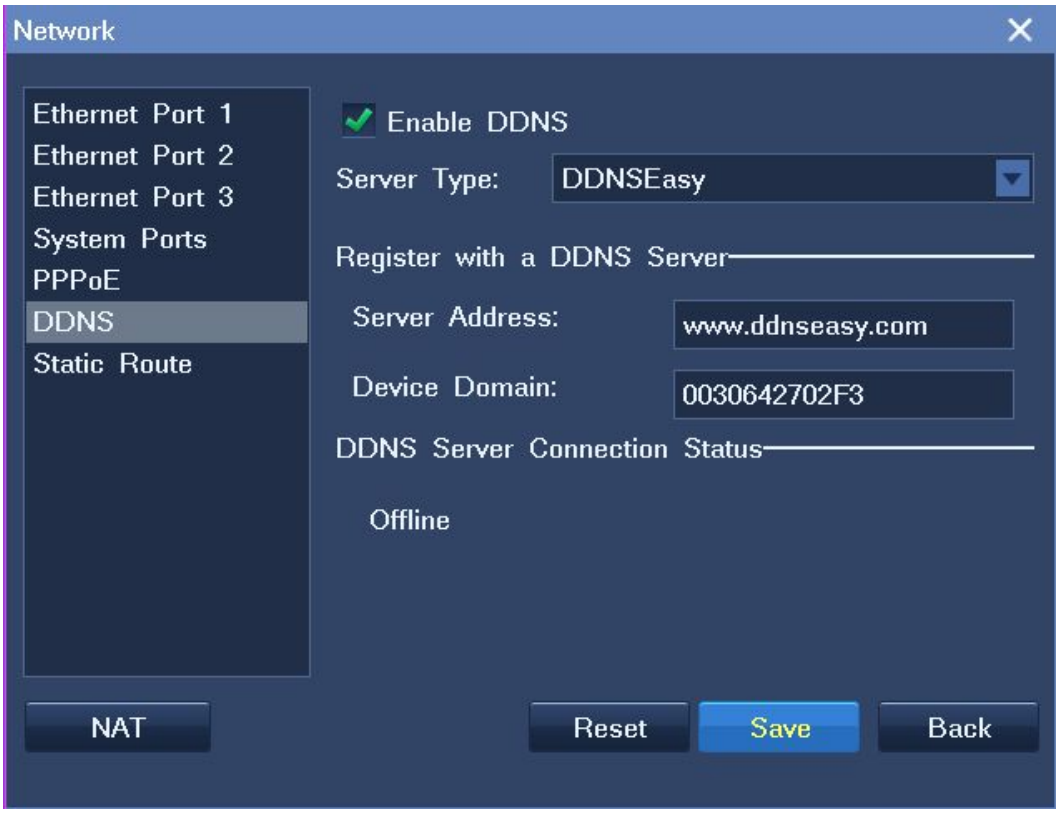
To query DNS details, click **DNS Details**. To query Oray hyperlinks, click **ORAY Hyperlinks**.)

The following figure shows the parameters displayed when the server type is set to **DynDNS**.



(Before configuring the **Passport**, **Password**, and **Device Domain** parameters, register with the Dyn (www.dyndns.com) to obtain a passport and domain. One example for the **Device Domain** parameter is Sysvideo.)

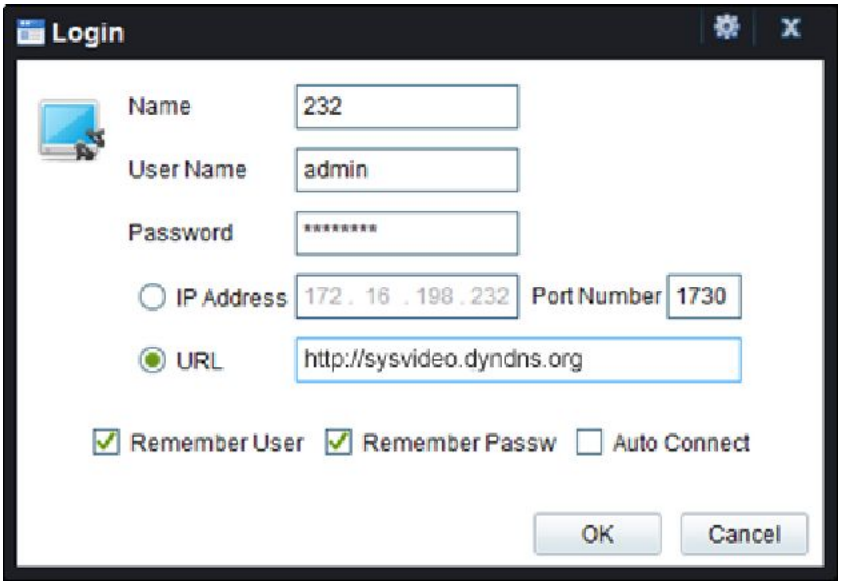
The following figure shows the parameters displayed when the server type is set to **DDNSEasy**.



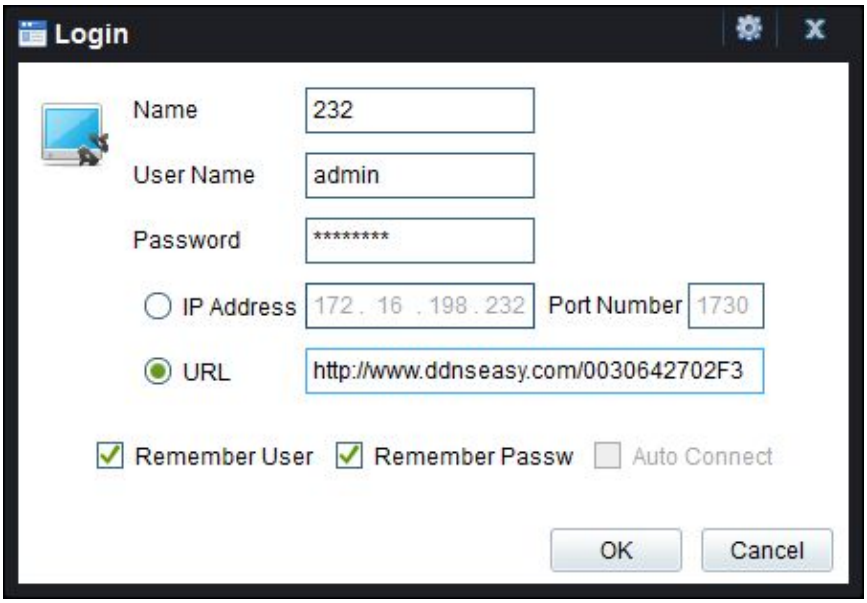
(You must keep the default value (**www.ddnseasy.com**) for the **Server Address** parameter. Every NVR comes with a unique value for the **Device Domain** parameter. You can either keep this value or change the parameter value.)

After being configured with a domain, the NVR can be reached using this domain. On the NVR Station, enter the domain of the NVR in the **URL** text box to connect to the NVR.

The following figure assumes that the domain (**http://sysvideo.dyndns.org**) of the NVR is provided by the Dyn.



The following figure assumes that the domain (**http://www.ddnseasy.com/0030642702F3**) of the NVR is provided by the DDNS Easy.



3. Click **Save**.

Note

Clicking the **Reset** button will restore the previously saved parameter settings.

4.5 Static Route

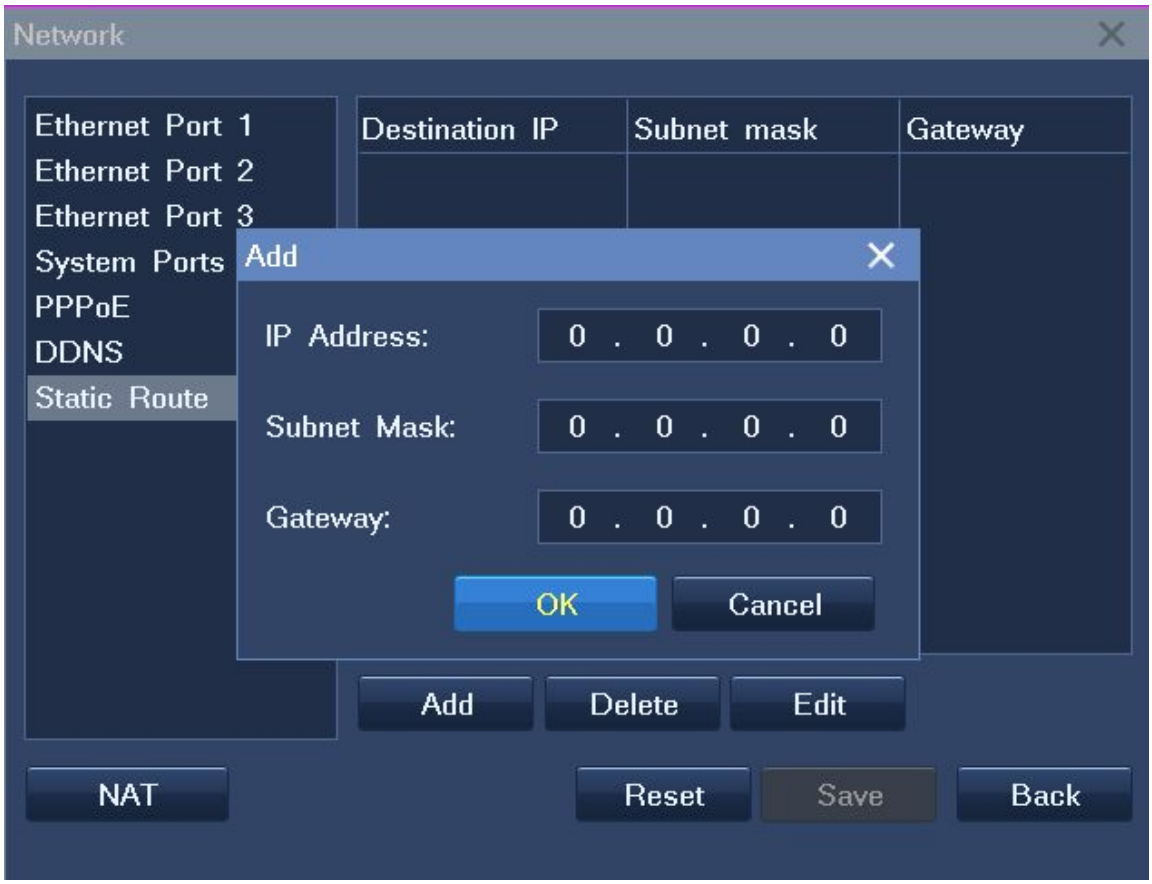
Networking devices forward packets using route information that is either manually configured or dynamically learned using a routing protocol. Static routes are manually configured and define an explicit

path between two networking devices. Unlike a dynamic routing protocol, static routes are not automatically updated and must be manually reconfigured if the network topology changes.

The benefits of using static routes include security and resource efficiency. Static routes use lower bandwidth than dynamic routing protocols and no CPU cycles are used to calculate and communicate routes. The main disadvantage to using static routes is the lack of automatic reconfiguration if the network topology changes.

To add a static IP route:

1. Choose **Main Menu** > **Network** > **Static Route** > **Add**, as shown in the following figure.



2. Specify the **IP Address**, **Subnet Mask**, and **Gateway** parameters for the target network.

   Note that IP addresses of hosts are not supported.

3. Click **OK**.

To edit a static IP route:

1. Choose **Main Menu** > **Network** > **Static Route**.
2. Select the route and click **Edit**.

3. Change values for the **IP Address**, **Subnet Mask**, and **Gateway** parameters.

   Note that IP addresses of hosts are not supported.

4. Click **OK**.

To delete a static IP route:

1. Choose **Main Menu** > **Network** > **Static Route**.
2. Select the route
3. Click **Delete**.
4. In the displayed dialog box, click **OK** to confirm your operation.

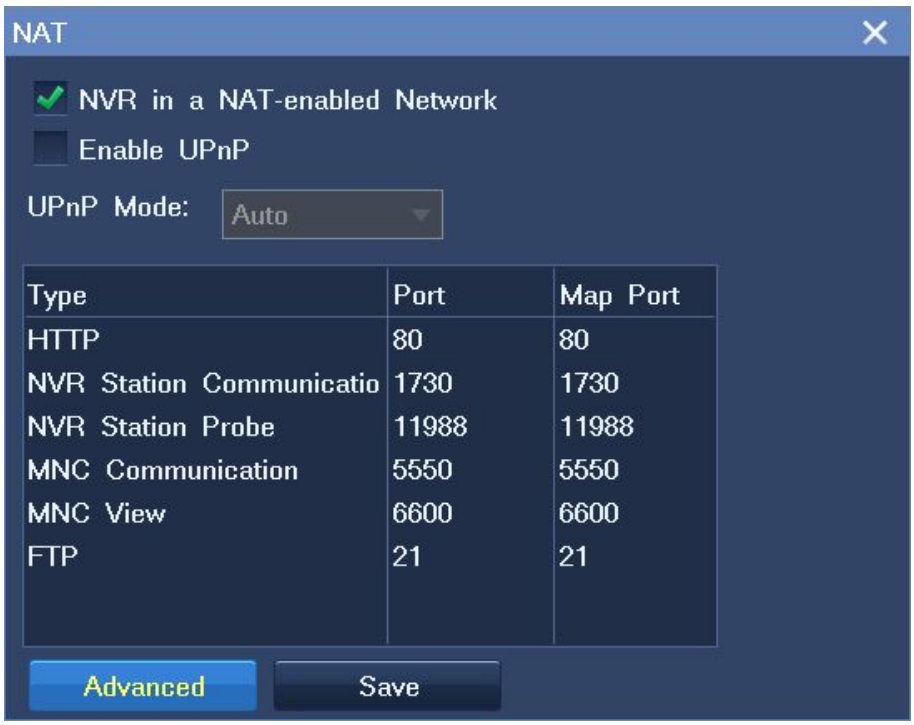
4.6 NAT

Address translation substitutes the real address in a packet with a mapped address that is routable on the destination network. The network address translation (NAT) technique includes the following processes:

- Translate a real address into a mapped address
- Undo translation for returning traffic

To enable the NAT technique:

1. Choose **Main Menu** > **Network** > **NAT**.
2. In the displayed **NAT** dialog box, select **NVR in a NAT-enabled Network**, as shown in the following figure.

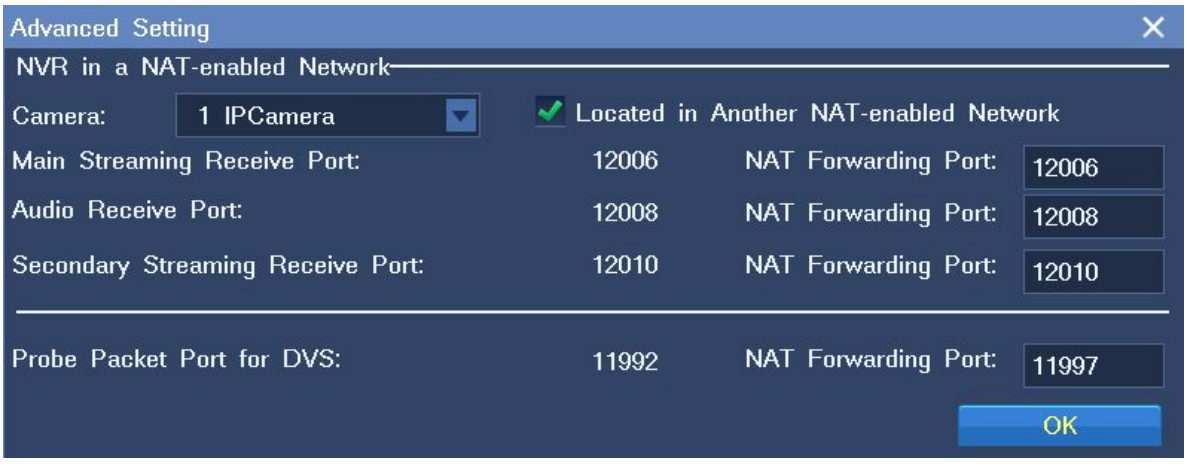


3. Double-click **HTTP**, **NVR Station Communication**, **NVR Station Probe**, **MNC Communication**, **MNC View**, and **FTP** to set mapping ports, as shown in the following figure.

The following table describes the parameters displayed.

Parameter	Description
HTTP	Port for the NVR Station Web to communicate with the NVR
NVR Station Communication	Port for the NVR Station to communicate with the NVR
NVR Station Probe	Port for the NVR Station to send probe packets to the NVR
MNC Communication	Port for the MNC to communicate with the NVR
MNC View	Port for the MNC to receive video from the NVR
FTP	Port for the FTP server to communicate with the NVR

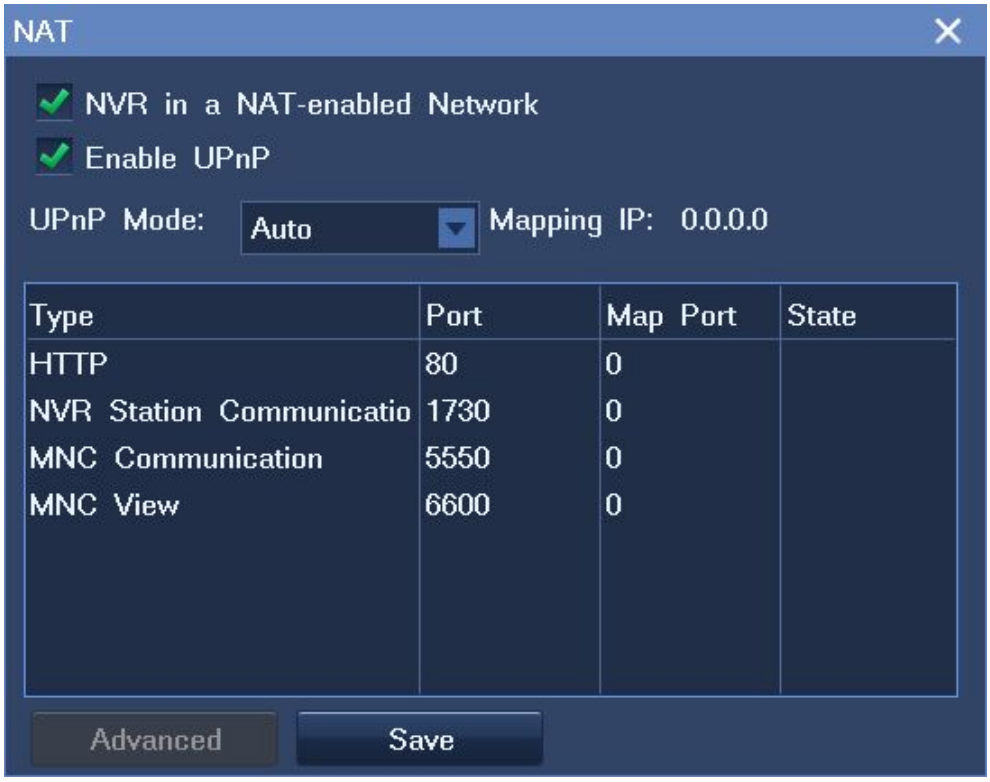
4. Click **Advanced** to configure parameters displayed, as shown in the following figure.



For cameras located in a different NAT-enabled network from the NVR, select **Located in Another NAT-enabled Network** and configure NAT forwarding port numbers according to onsite conditions.

5. (Optional) Enable the Universal Plug and Play (UPnP) technology.

   1) On the **NAT** dialog box, select **Enable UPnP**, as shown in the following figure.



   2) Select a UPnP mode.

      - If you choose the auto mode, no further operations are required.
      - If you choose the manual mode, double-click **HTTP**, **NVR Station Communication**, **MNC Communication**, and **MNC View** to configure mapping ports.

6. Click **Save**.
7. Connect a router to the NVR using a LAN port on the router.
8. Configure the network settings of the router.

When the NAT technique is enabled, the NVR can be reached using the IP address of the WAN port on the router.

If the UPnP technology does not take effect, perform the following steps:

1. Check whether the NVR connects to the Internet.

   - If yes, go to the next step.

- If not, connect the NVR to the Internet.

2. Check whether the default gateway is located in the same network segment as the NVR.

   This step requires you to check the IP addresses and subnet masks of the NVR.

   - If yes, go to the next step.
   - If not, correct the default gateway or change the IP addresses of the NVR.

3. Check whether a port mapping table between the router and another NVR already exists on the router.

   - If yes, power off your NVR and the router, delete the mapping table on the router, and power on your NVR and the router.
   - If not, contact the local authorized Sysvideo agent.

Note

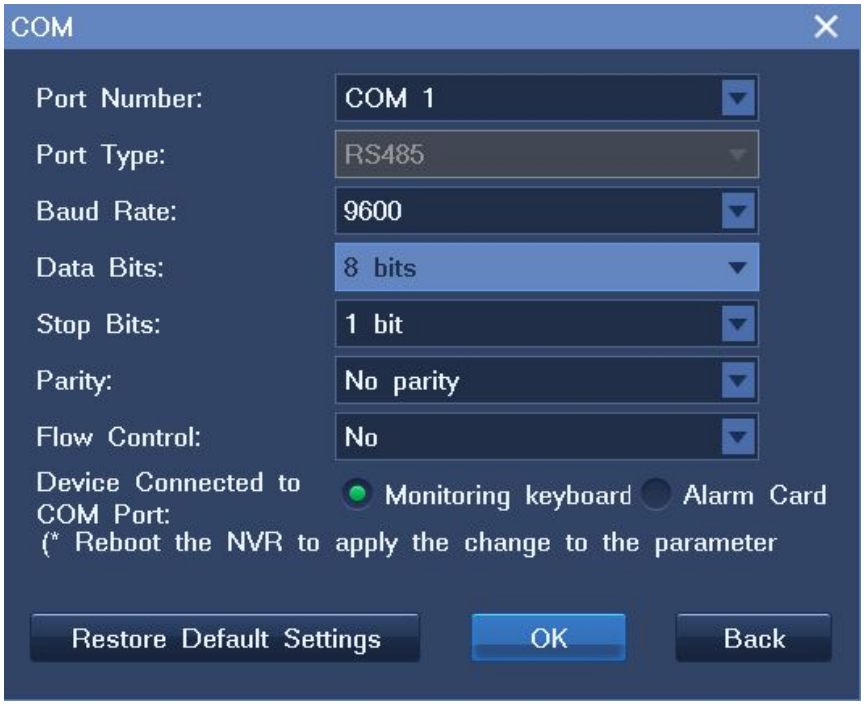
Before enabling the NAT technique, ensure that you already know the NAT basics.

4.7 COM Ports

To configure a COM port:

1. Choose **Main Menu** > **Settings** > **COM Port**.

   The following figure shows the **COM Port** dialog box.



2. In the displayed **COM Port** dialog box, specify parameters displayed according to onsite conditions.

   Note that the **Port Type** parameter is unconfigurable.

   The following table provides the default values for parameters displayed.

Parameter	Default Value
Port Type	RS485
Baud Rate	9600
Data Bits	8 bits
Stop Bits	1 bit
Parity	No parity
Flow Control	No

3. Click **OK**.

4.8 Registering with a VMS

Note

SNK series NVR VMS is not free software, it need to pay license charges, please ask Sysvideo.

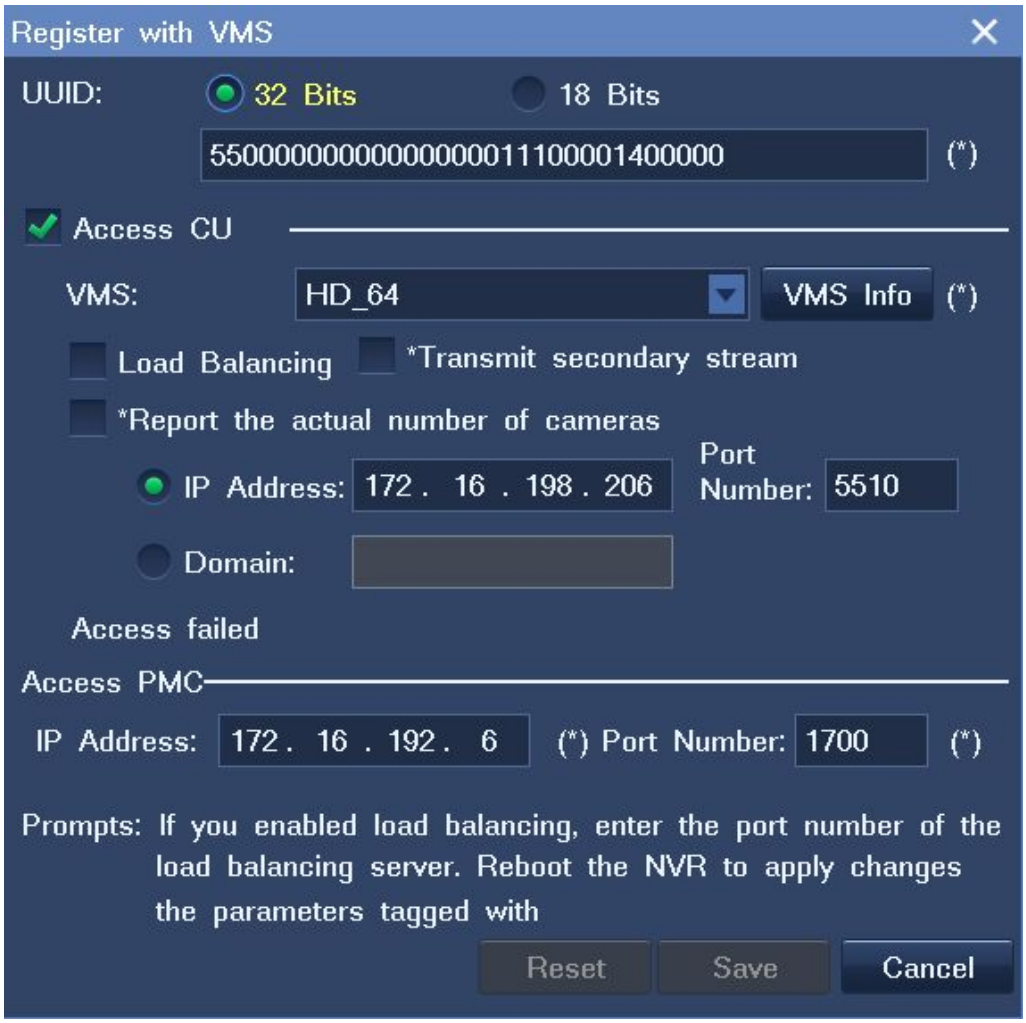
Sysvideo Video Management Server (VMS) consists of the following:

- Client Unit (CU): supports live viewing, e-map, multi-record playback, NVR/camera/decoder/video wall management.
- Platform Management Client (PMC): supports device registration.

To register with a VMS:

1. Obtain a Universally Unique Identifier (UUID) from a PMC.
2. Write down the UUID that is automatically generated after step 1 is performed.
3. On the NVR, choose **Main Menu** > **Settings** > **Register with VMS**.
4. In the displayed **Register with VMS** dialog box, specify parameters according to onsite conditions.

   The following is an example.



The following table provides the descriptions for parameters or options displayed.

Item	Parameter or Option	Description
Access to CU	VMS	VMS type
	VMS Info	To query VMS information, click this option.
	Load Balancing	Whether to enable the load balancing function
	Transmit secondary stream	Whether to transmit secondary streams to the VMS
	Report the actual number of cameras	Whether to report the actual number of cameras to the VMS
	IP Address	IP address of the VMS

Item	Parameter or Option	Description
	Port Number	Number of the port for the CU
	Domain	Domain name of the VMS
Access to PMC	IP Address	IP address of the VMS
	Port Number	Number of the port for the PMC

5. Click **Save**.

6. (Optional) In the displayed dialog box, click **Yes** to reboot the system to enable the NVR to send real-time data to the VMS.

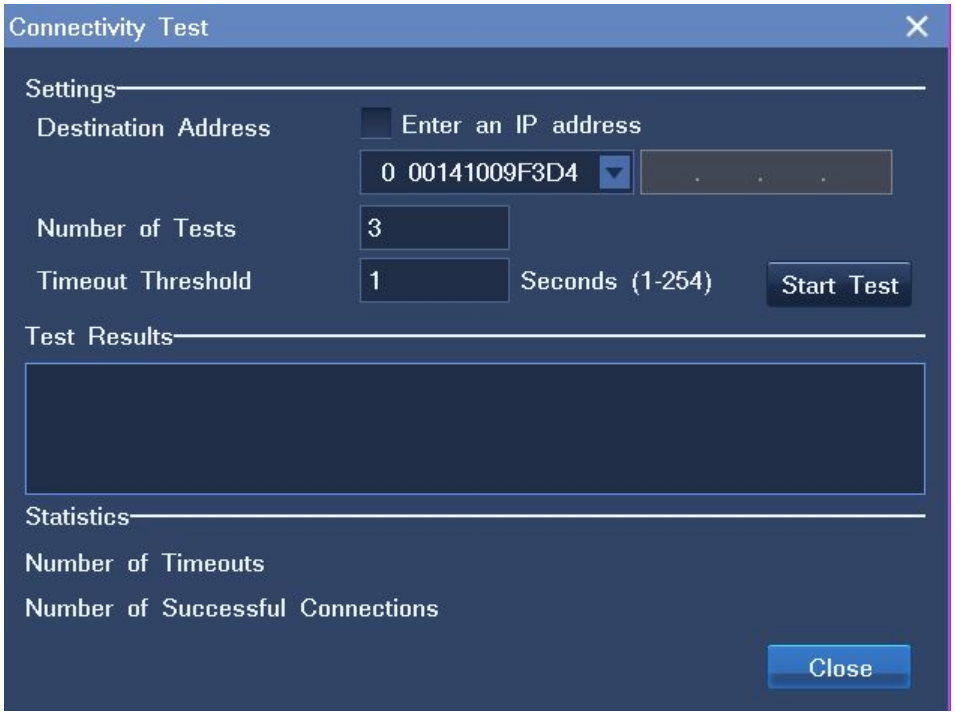
4.9 Conducting Connectivity Tests

You can conduct connectivity tests to check the connection between the system and a device.

To conduct a connectivity test:

1. Choose **Main Menu** > **Settings** > **Connectivity Test**.

   The following figure shows the **Connectivity Test** dialog box.



2. Select the device.

   - If the device is on the camera or decoder list of the system, select the device from the

drop-down list near the **Destination Address** parameter.

- If the device is not listed, select the **Enter an IP address** option and enter the IP address of the device in the text box below this option.

3. Specify the **Number of Tests** and **Timeout Threshold** parameters.
4. Click **Start Test**.

Under **Test Results**, you can query test results.

4.10 Miscellaneous

DHCP

The Dynamic Host Configuration Protocol (DHCP) is based on the Bootstrap Protocol (BOOTP), which provides the framework for passing configuration information to hosts on a TCP/IP network. The DHCP adds the capability to automatically allocate reusable network addresses and configuration options to Internet hosts.

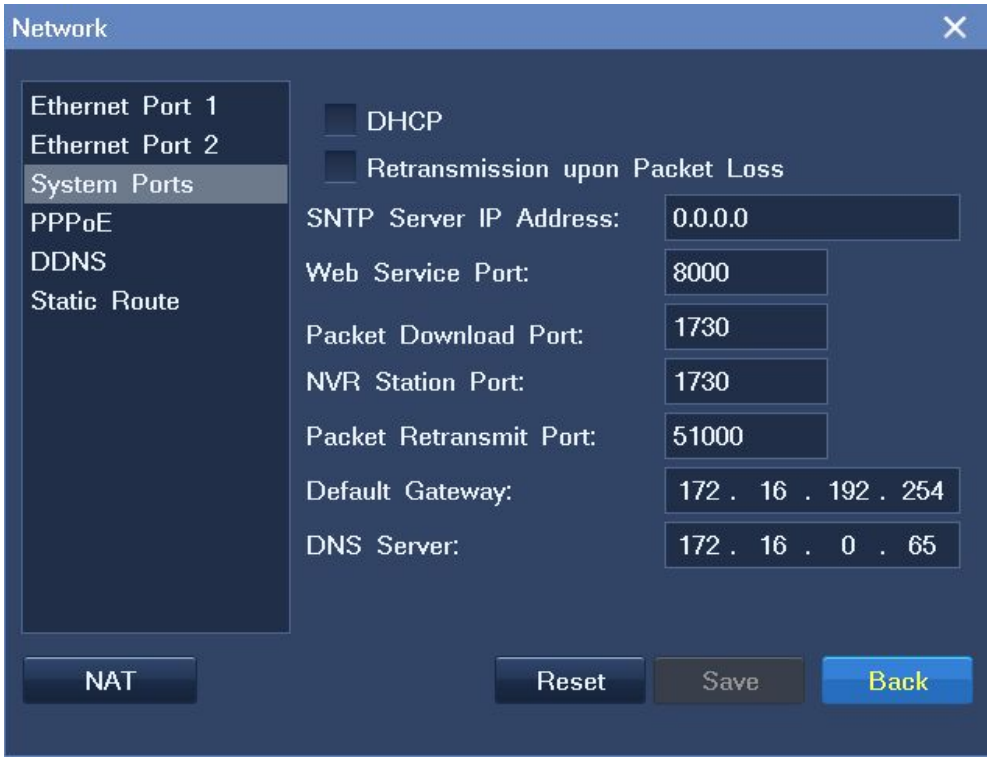
To enable the DHCP technique, choose **Main Menu** > **Network** > **System Ports** > **DHCP**.

Retransmission upon Packet Loss

The Retransmission upon Packet Loss technique periodically checks whether the NVR receives all packets transmitted from an encoder or decoder.

Upon detecting packet loss, the technique sends a retransmission request to the packet transmitter.

To enable the technique, **Main Menu** > **Network** > **System Ports** > **Retransmission upon Packet Loss**, as shown in the following figure.


Network
Ethernet Port 1
Ethernet Port 2
System Ports
PPPoE
DDNS
Static Route
DHCP
Retransmission upon Packet Loss
SNTP Server IP Address:
0.0.0.0
Web Service Port:
8000
Packet Download Port:
1730
NVR Station Port:
1730
Packet Retransmit Port:
51000
Default Gateway:
172 . 16 . 192 . 254
DNS Server:
172 . 16 . 0 . 65
NAT
Reset
Save
Back

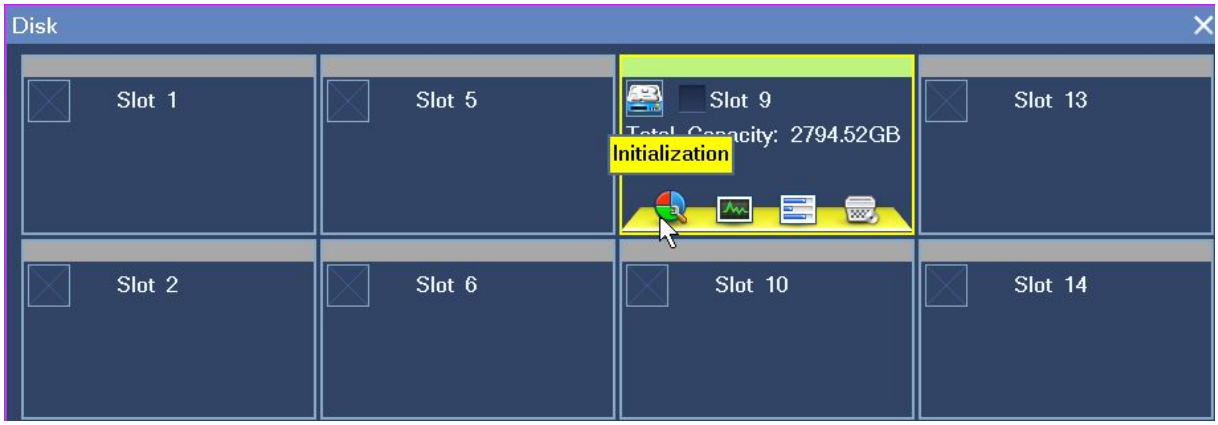
5 Configuring Disk Management Settings

5.1 One-Click Partition and Formatting

Before starting a recording, you must partition and format disks. With this feature, you can complete the two operations with one click.

To complete partition and formatting using this feature:

1. Choose **Main Menu** > **Settings** > **Disk**.
2. Move your cursor to the slot where a disk is installed.
3. Click the  **Initialization** button.



4. Click **OK** when the partition and formatting is complete.

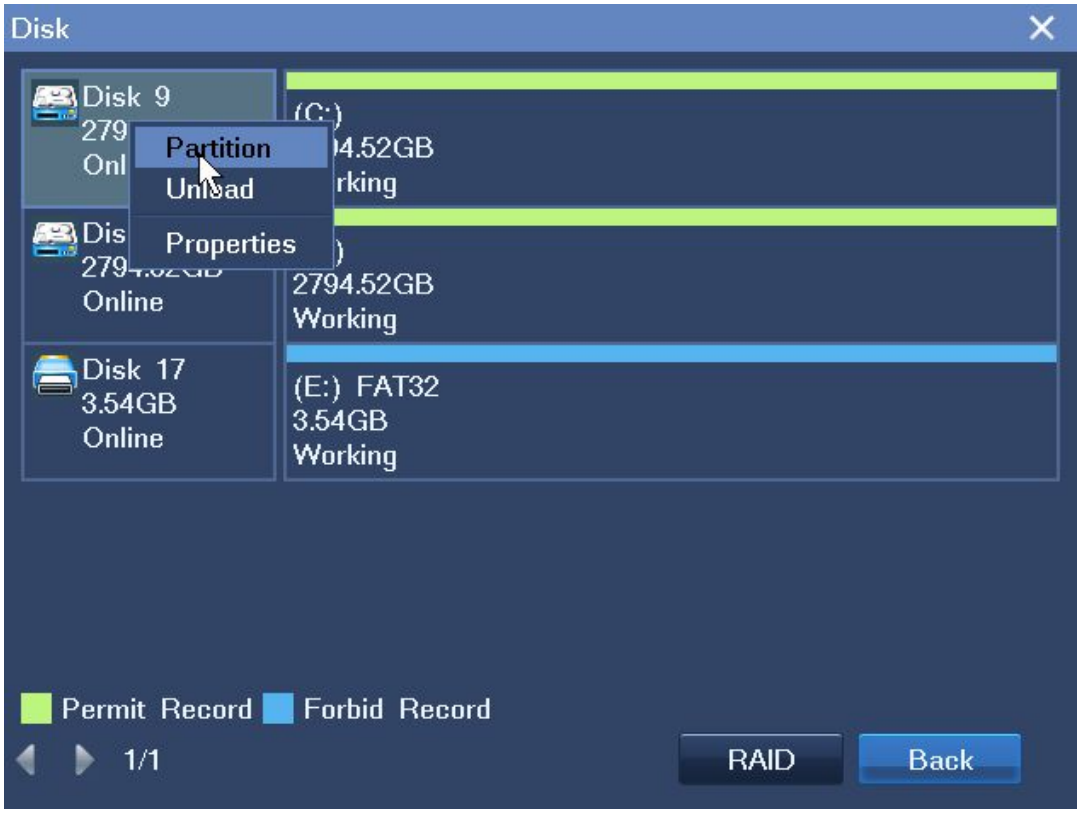
To apply this feature to several disks at one time, select these disks and click **Initialize** at the bottom of the **Disk** window.

Note

This feature creates only one partition.

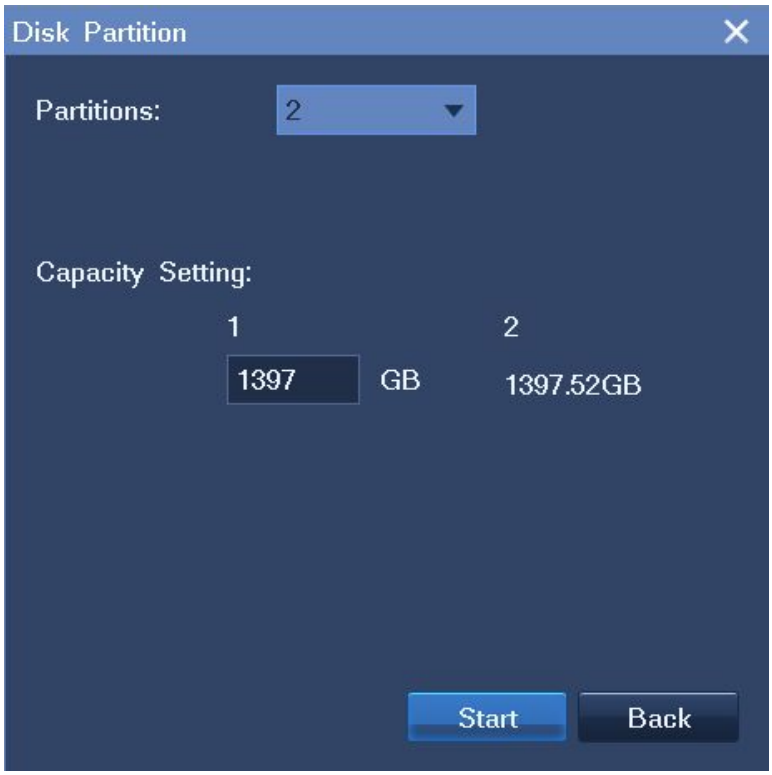
To partition a disk only:

1. Choose **Main Menu** > **Settings** > **Disk** > **Advanced**.
2. Click the disk and choose **Partition**, as shown in the following figure.



3. In the displayed **Disk Partition** dialog box, specify parameters displayed.

   The following is an example.

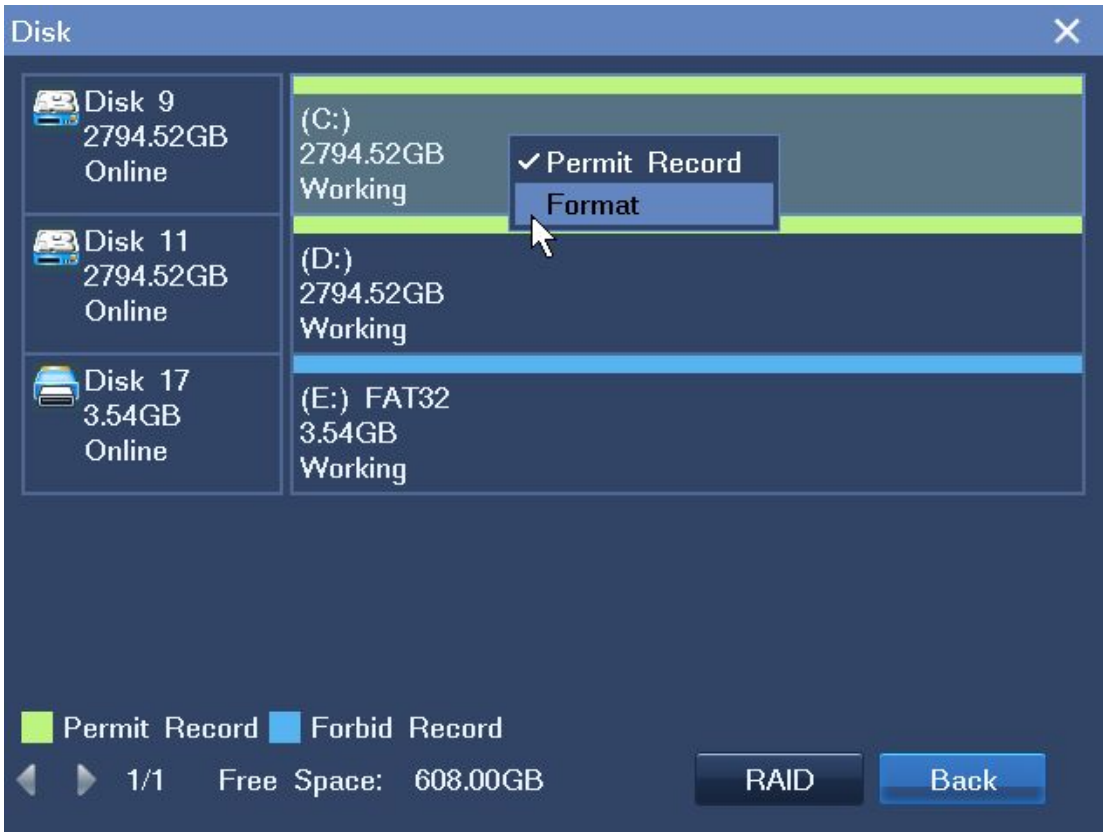


Note that a maximum of four partitions are supported.

4. Click **Start**.

To format a partition only:

1. Choose **Main Menu** > **Settings** > **Disk** > **Advanced**.
2. Click the partition and choose **Format**, as shown in the following figure.



3. In the displayed dialog box, click **Start**.

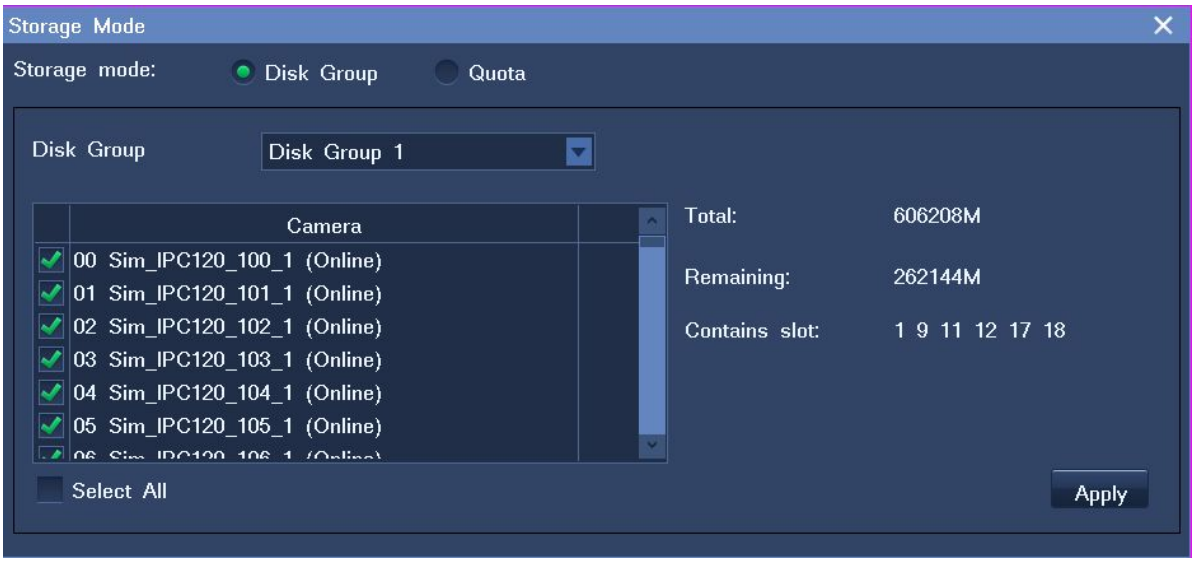
5.2 Setting the Storage Mode

The storage modes of a disk include the following:

- Grouping: In this mode, multiple disks are grouped to form a disk pool and you can determine which camera can use this pool.
- Quota: In this mode, one disk is shared between specific cameras.

To set the storage mode to grouping for a disk:

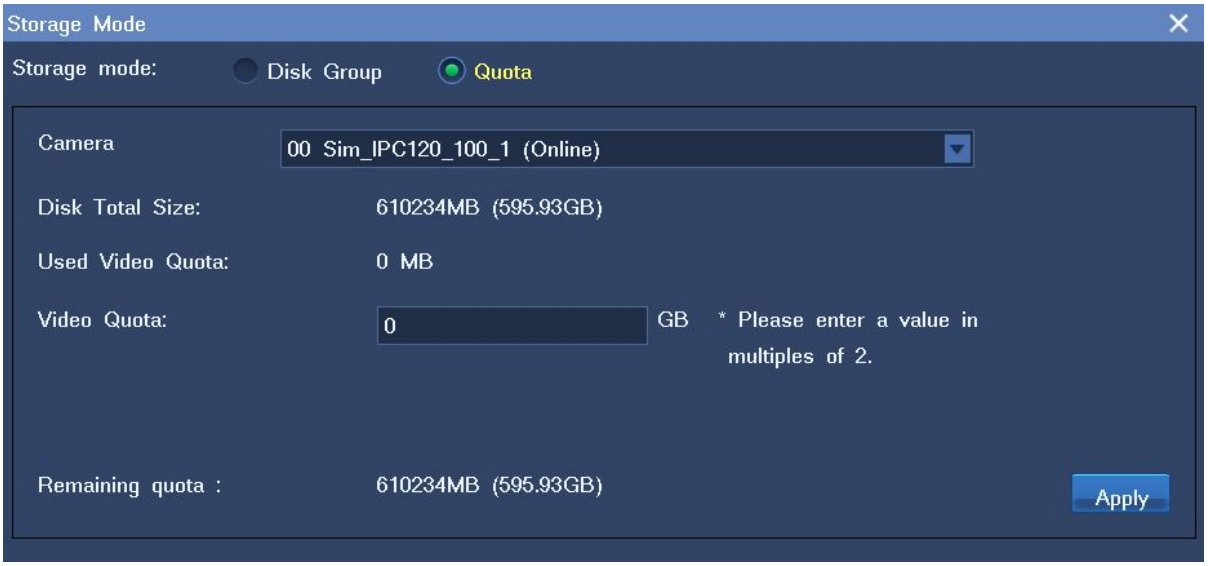
1. Choose **Main Menu** > **Settings** > **Disk** > **Storage Mode**.
2. In the displayed dialog box, set **Storage mode** to **Disk Group**, as shown in the following figure.



3. Select a group from the **Disk Group** drop-down list.
4. Determine which camera is allowed to use the disk group.
5. Click **Apply**.

To set the storage mode to quota for a disk:

1. Choose **Main Menu** > **Settings** > **Disk** > **Storage Mode**.
2. In the displayed dialog box, set **Storage mode** to **Quota**.



3. Select a camera from the **Camera** drop-down list to assign shares to the camera.
4. Enter a digit in the **Video Quota** text box.

   Note that the digit must be in multiples of 2.

5. Click **Apply**.

To change the group ID of a disk:

1. Choose **Main Menu** > **Settings** > **Disk**.

2. Move your cursor to the slot where the disk is installed and click the  **Disk Group** button.

3. Select a group ID in the displayed **Disk Group** dialog box.

4. Click **OK**.

5.3 Creating RAID Arrays

Redundant array of independent disks (RAID) is a data storage virtualization technique that combines multiple disk drive components into a logical unit for the purposes of data redundancy or performance improvement.

Before creating a RAID array, note the following:

- Different RAID levels require different numbers of physical disk drives.
  - RAID 0: at least 2 disk drives
  - RAID 1: 2 disk drives
  - RAID 5: at least 3 disk drives

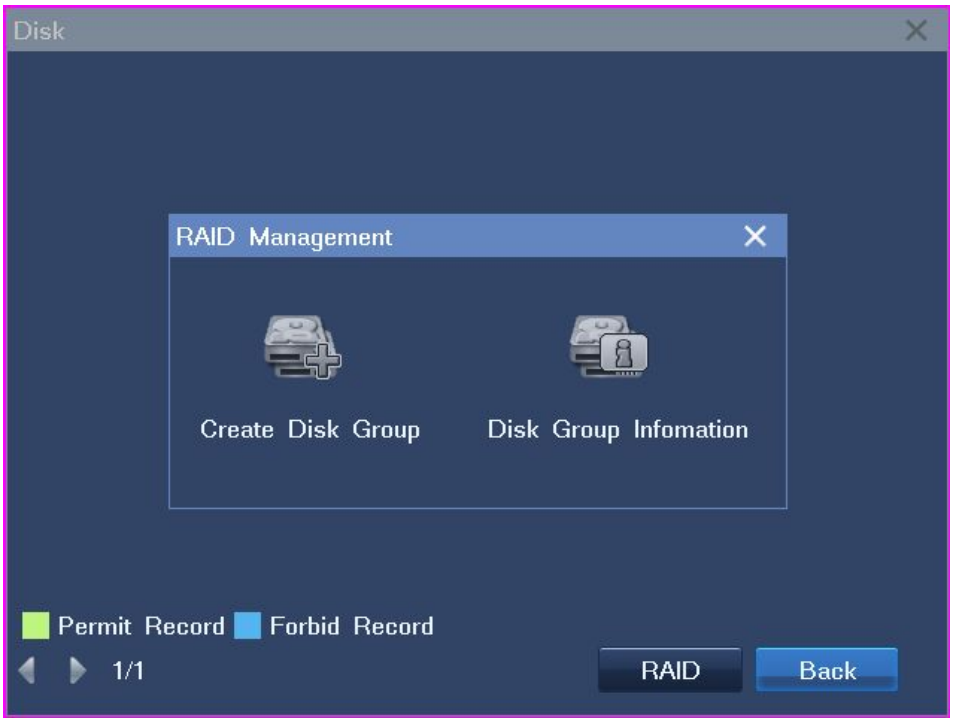
- RAID 6: at least 4 disk drives
- RAID 10: at least 4 disk drives (Note: The number of disk drives must be even.)

- Only SATA disk drives can be used in RAID arrays.
- Uninstall all the existing disk drives.

Creation

To create a RAID array:

1. Choose **Main Menu** > **Disk** > **Advanced** > **RAID** > **Create Disk Group**, as shown in the following figure.



2. In the displayed **Create Disk Group** dialog box, select a RAID level.
3. Click **Create**.
4. When you are notified that the RAID array is created, return to the **Disk** window and click the **Initialization** button to partition and format the array.

   There is a yellow arrow pointing at the **Initialization** button. This is to prompt you to partition and format the array.
5. In the displayed dialog box, click **Yes** to confirm that you want to partition and format the array.

Deletion

When a RAID array is successfully created, you can click **Disk Group Information** to query the information about the array. In the **Disk Group Information** dialog box, you can click **Delete Disk Group** to delete the RAID array.

Changing the disk group ID

By default, the newly added RAID array is grouped into disk group 1.

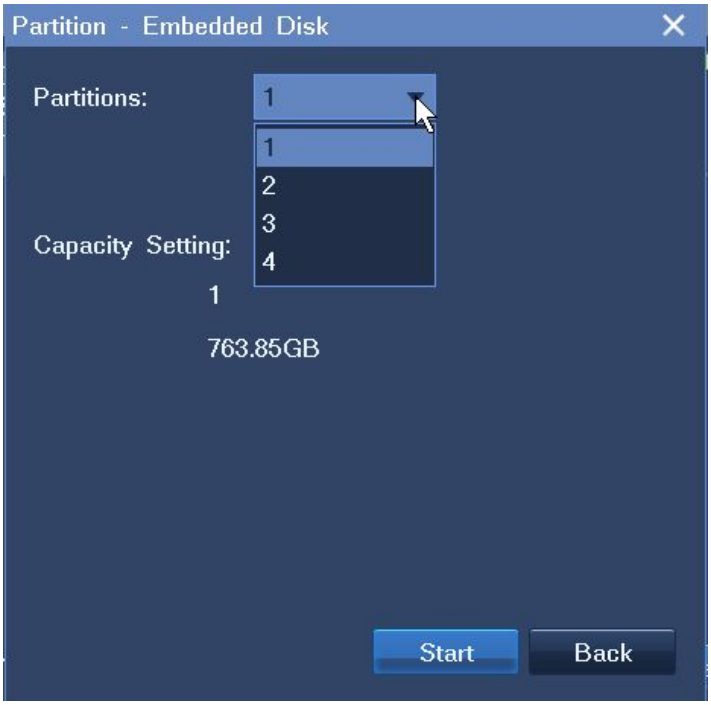
To change the group ID of the RAID array:

1. On the array view window, click the  **Disk Group** button.
2. In the displayed **Disk Group** dialog box, select a new group ID.
3. Click **OK**.

Partition

To partition the RAID array:

1. On the **Disk** window, click **Advanced**.
2. In the displayed **Disk** dialog box, click the RAID array and choose **Partition**.
3. In the **Partition** dialog box, determine the number of partitions that you want to set up, as shown in the following figure.

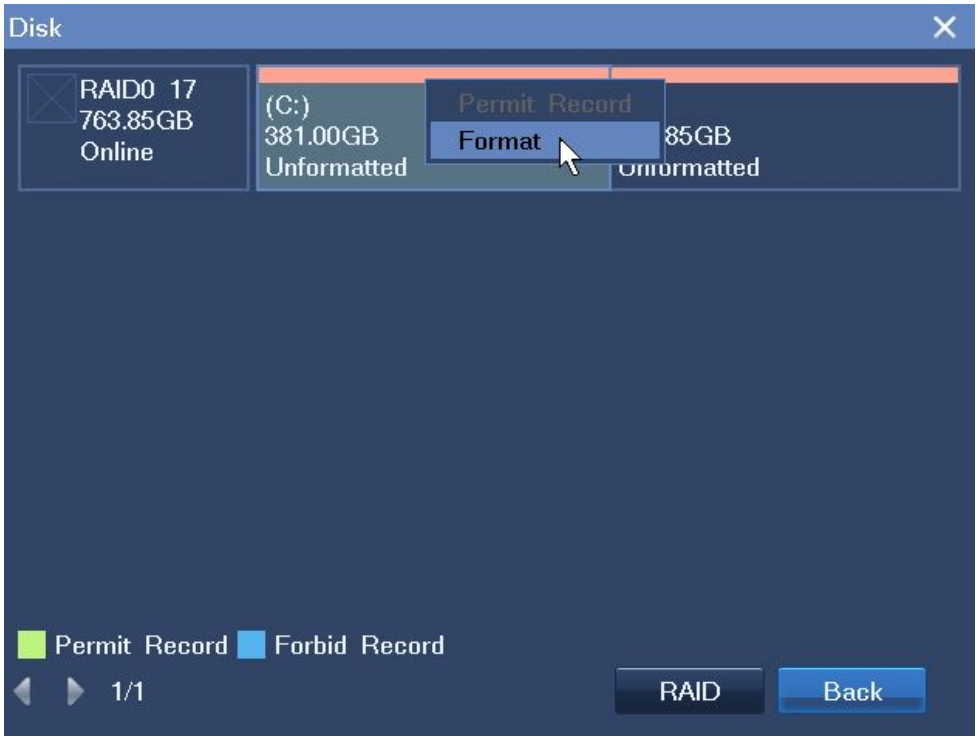


4. Click **Start**.

Format

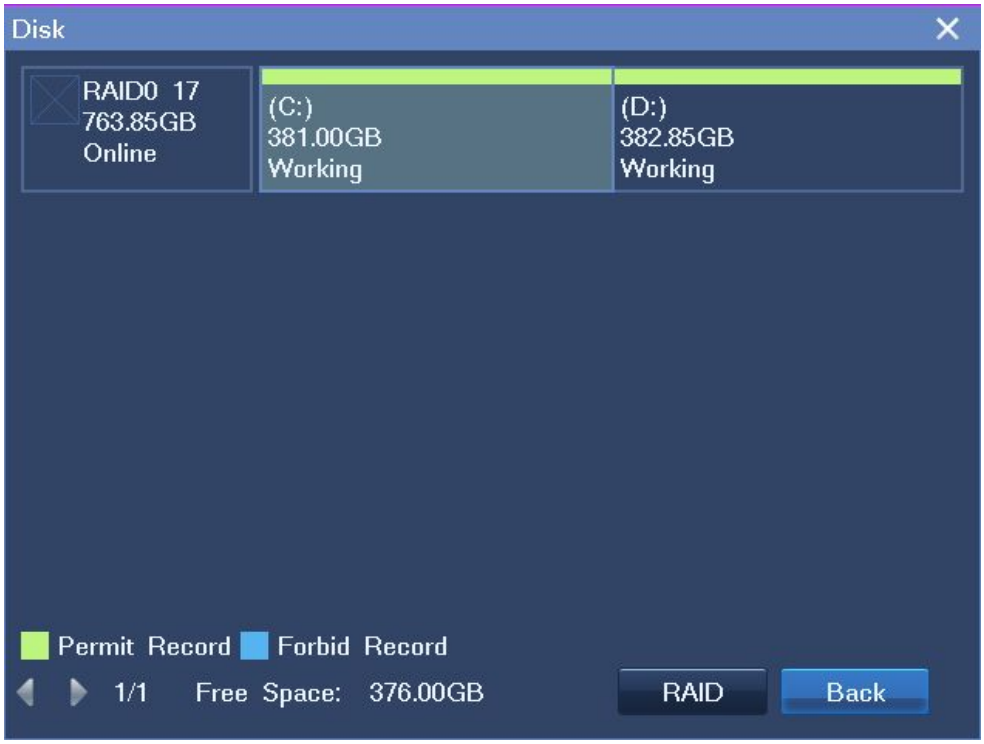
To format a partition:

1. In the **Disk** dialog box, click the partition and choose **Format**, as shown in the following figure.

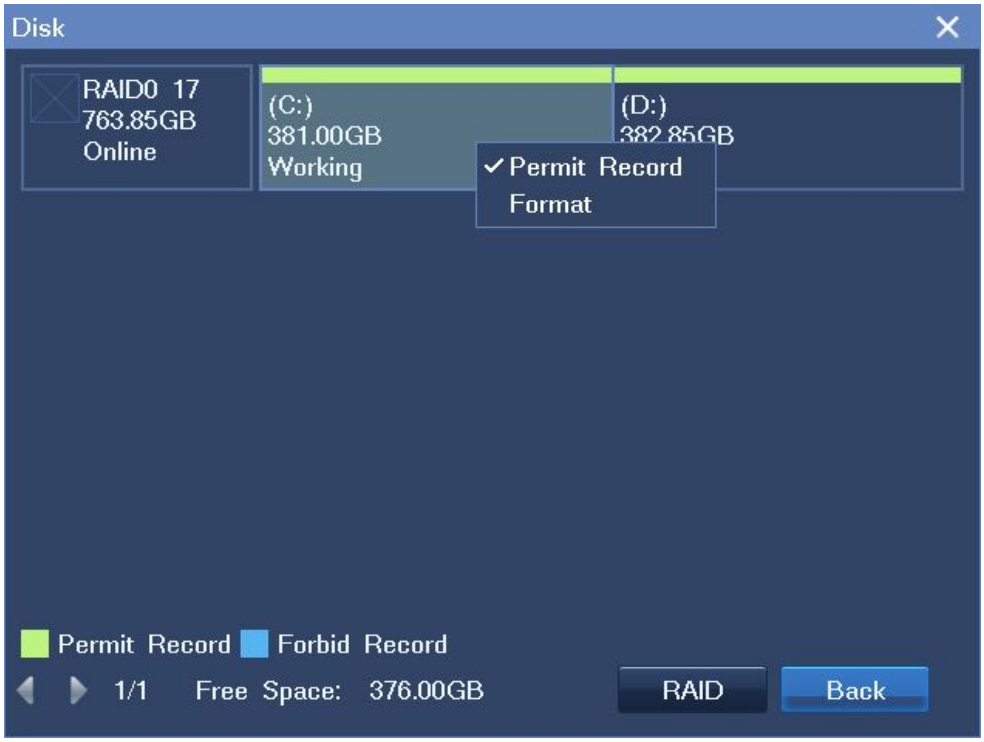


2. In the displayed dialog box, click **Start**.

After the partitioning and formatting is complete, you can see the following.



If you want to forbid a partition from recording, click the partition and unselect **Permit Record**, as shown in the following figure.



Note

You cannot query the Self-Monitoring Analysis and Reporting Technology (SMART) information about a RAID array.

For the SNK16000RD series, you cannot use the dual/triple-monitor viewing feature if you already create RAID arrays. In other words, you cannot create RAID arrays if you already use the dual/triple-monitor viewing feature.

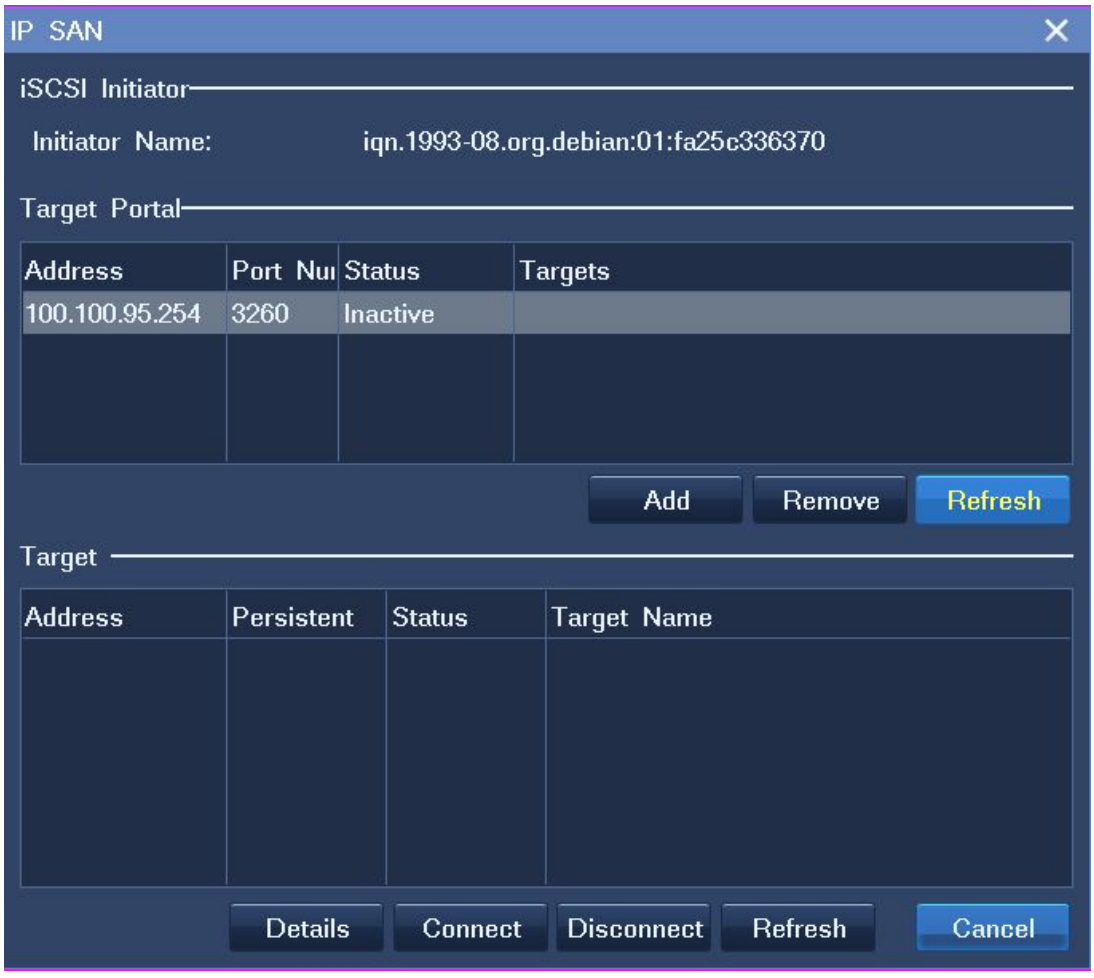
5.4 IP SAN

Before configuring IP SAN settings, ensure that the following conditions are true:

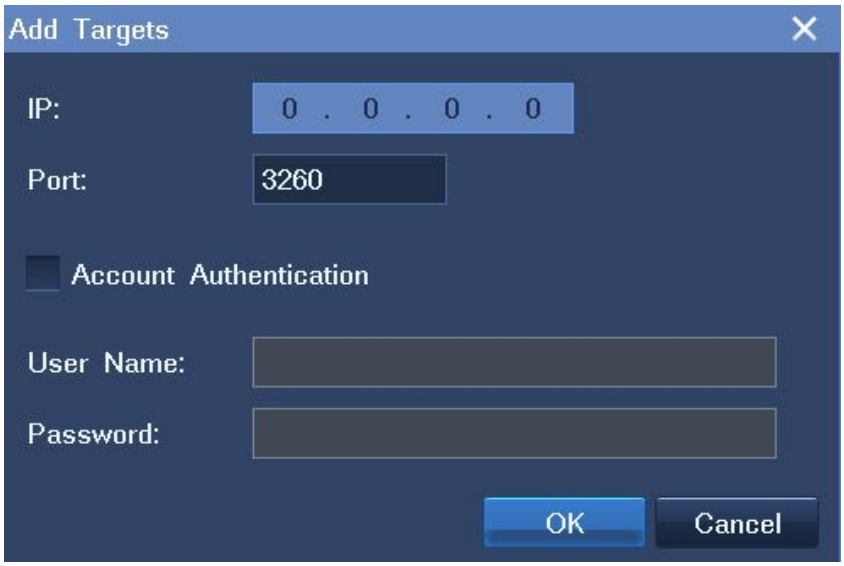
- The NVR has been assigned a virtual disk from a target.
- The sector size of the virtual disk is 512 or 4096 bytes.
- The virtual disk is at least 4 GB large.

To add a target to the NVR:

1. Choose **Main Menu** > **Settings** > **IP SAN** > **Add**, as shown in the following figure.



2. In the **Add Targets** dialog box, specify parameters displayed.



1) Set the **IP** parameter to the IP address of the target.

2) For the **Port** parameter:

   - If you use Sysvideo SNK IP SAN System, retain the default value **3260**.
   - If you do not use Sysvideo SNK IP SAN System, change the parameter value accordingly.

3) For the **Account Authentication** option:

   - If you use Sysvideo SNK IP SAN System, skip this option.
   - If you do not use Sysvideo SNK IP SAN System, determine whether to select this option according to the user authentication requirements of the target.

4) When the **Account Authentication** option is selected, specify **User Name** and **Password**.

3. Click **OK**.

To remove a target from the NVR:

1. Choose **Main Menu** > **Settings** > **IP SAN**.
2. Select the target from the target portal list and click **Remove**.

To update the NVR status on the target:

1. Choose **Main Menu** > **Settings** > **IP SAN**.
2. Select the target from the target portal list and click **Refresh**.

To query details about a target:

1. Choose **Main Menu** > **Settings** > **IP SAN**.

2. Select the target from the target list and click **Details**.

To disconnect the NVR from a target:

1. Choose **Main Menu** > **Settings** > **IP SAN**.
2. Select the target from the target list and click **Disconnect**.

When the NVR is disconnected from the target, you can click **Connect** to reconnect the NVR to the target.

To update the connection status with a target for the NVR:

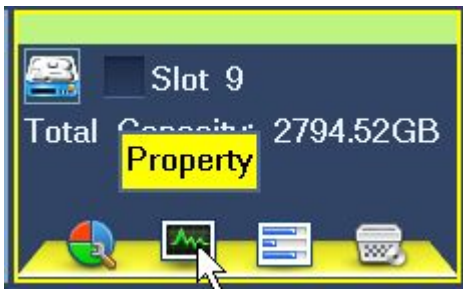
1. Choose **Main Menu** > **Settings** > **IP SAN**.
2. Select the target from the target list and click **Refresh**.

5.5 Miscellaneous

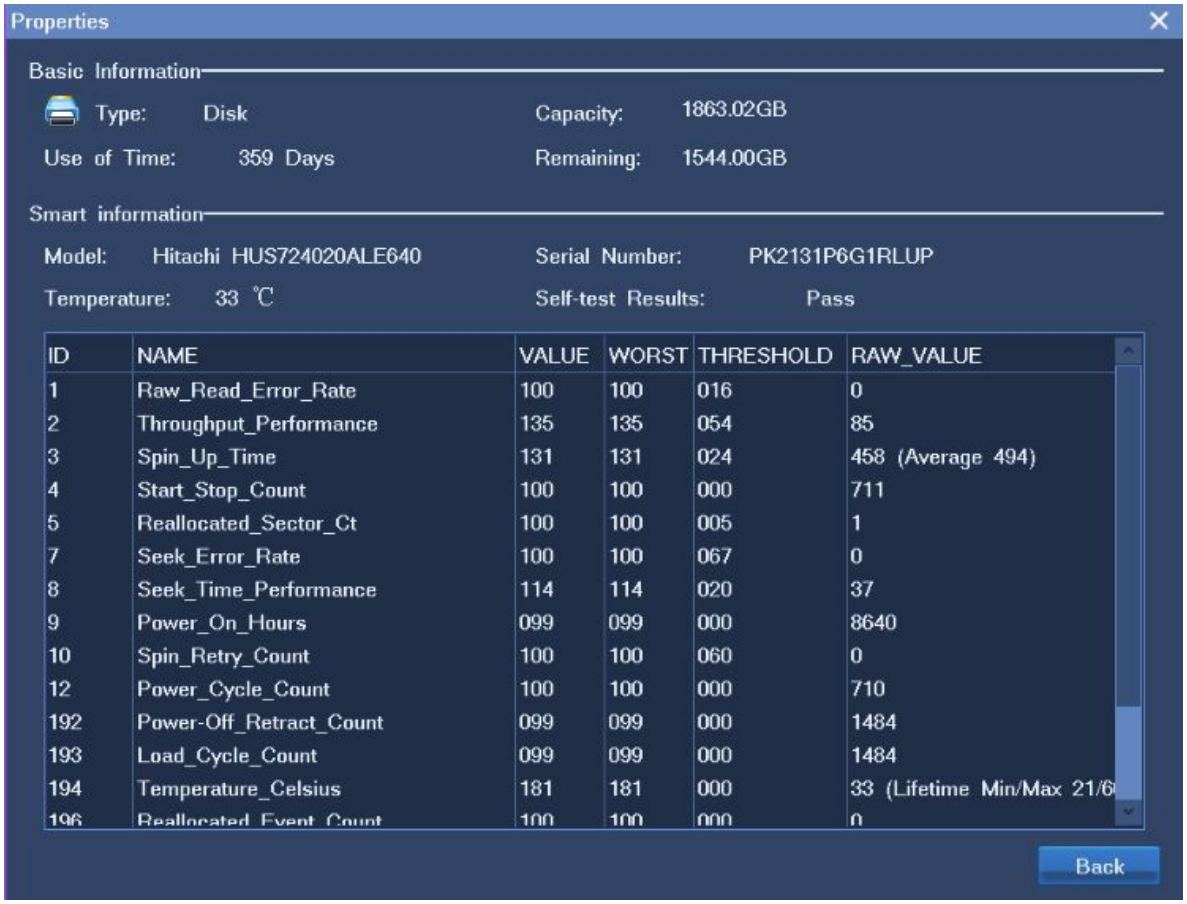
Querying the Basic Information and SMART Information About a Disk

To query the basic information and SMART information about a disk:

1. Choose **Main Menu** > **Settings** > **Disk**.
2. Move your cursor to the slot where the disk is installed and click the  **Property** button.



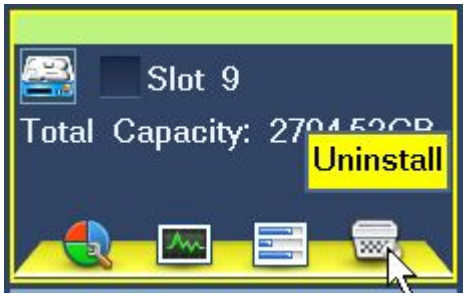
The following is a querying result.



The **Use of Time** parameter indicates the days that elapse since the first startup of the disk. This information is provided by the SMART.

Uninstalling a Disk

1. Choose **Main Menu** > **Settings** > **Disk**.
2. Move your cursor to the slot where the disk is installed and click the  **Uninstall** button.

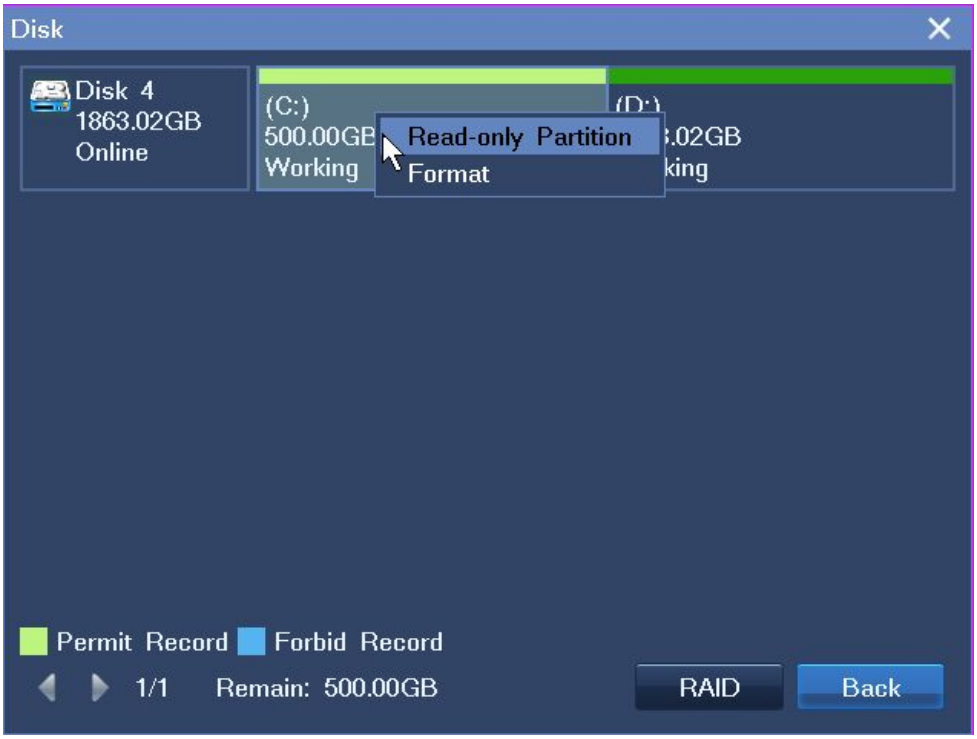


3. In the displayed dialog box, click **Yes** to confirm your operation.

Forbidding a Partition from Recording

To forbid a partition from recording:

1. Choose **Main Menu** > **Settings** > **Disk** > **Advanced**.
2. Click the partition and select **Read-only Partition**.



Recommended Third-Party Disks

The following table lists the recommended third-party disks.

Vendor	Product Type	Model	Size
Seagate	SV35.5	ST2000VX002	2 TB
		ST31000524NS	1 TB
		ST31000526SV	1 TB
		ST3500411SV	500 GB
		ST1000VX000	1 TB
		ST2000VX000	2 TB
		ST3000VX000	3 TB

Vendor	Product Type	Model	Size
		ST3320620SV	320 GB
	Constellation ES	ST1000NM0011	1 TB
		ST2000NM0011	2 TB
	Pipeline HDTM.2	ST3500312CS	500 GB
		ST31000322CS	1 TB
	Barracuda XT	St33000651AS	3 TB
		ST32000641AS	2 TB
	Barracuda 7200.11	ST31500341AS	1.5 TB
		ST31000333AS	1 TB
		ST31000340AS	1 TB
	Barracuda 7200.12	ST31000528AS	1 TB
		ST3500418AS	500 GB
	Barracuda Green	ST2000DL003	2 TB
	Barracuda LP	ST32000542AS	2 TB
		ST31500541AS	1.5 TB
	Constellation ES.2	ST32000645NS	2 TB
		ST33000650NS	3 TB
Samsung	Samsung/CE	HD103SI/CE	1 TB
		HD154UI/CE	1.5 TB
		HD203WI/CE	2 TB
		HD204UI	2 TB

Vendor	Product Type	Model	Size
Hitachi	Ultrastar 7K1000	HUA721010KLA330	1 TB
	A7K2000	HUA722020ALA330	2 TB
	Ultrastar	HUA723020ALA640	2 TB
	Ultrastar 7K4000	HUS724040ALE640	4 TB
	HGST	HUS724020ALE640	2 TB
		HUS724040ALA640	4 TB
		HUS724020ALA640	2 TB
		HUS724030ALA640	3 TB
TOSHIBA	-	MK1002TSKB	1 TB
	-	MK2002TSKB	2 TB

Troubleshooting

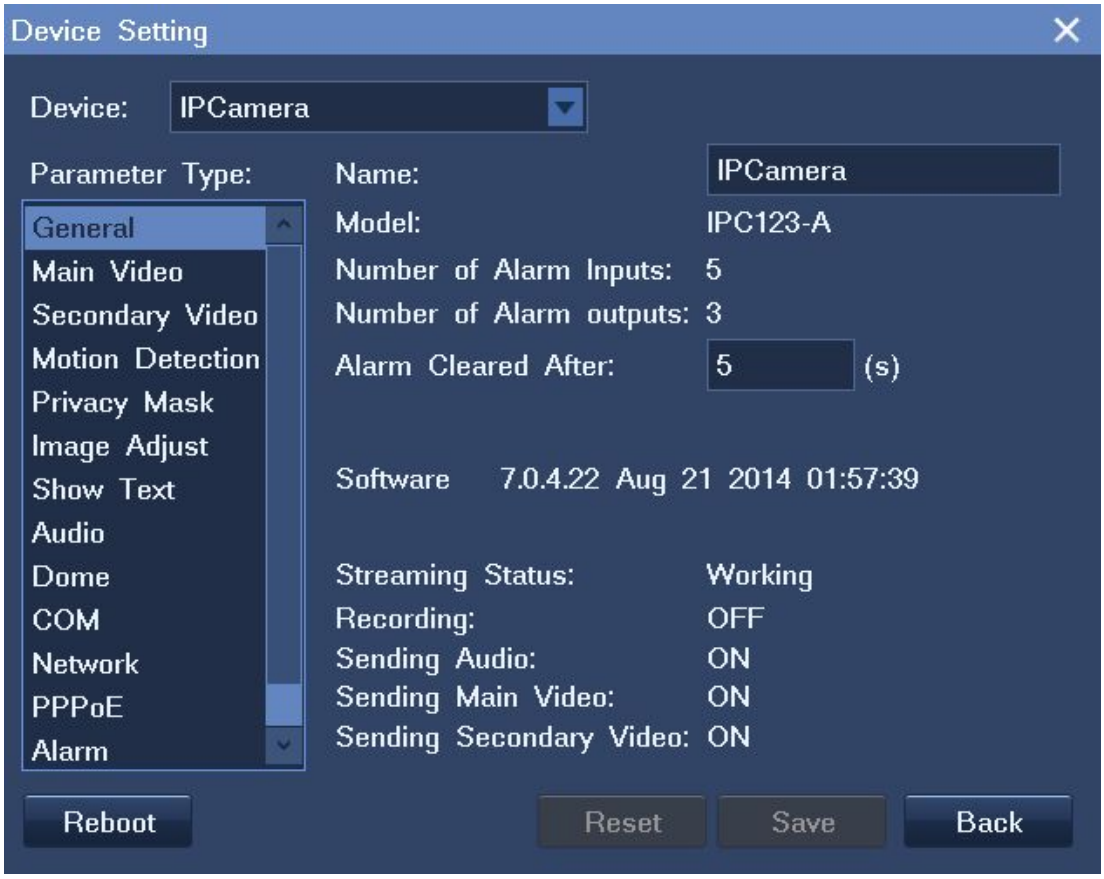
When you find some data fails to be recorded:

- If you have created a RAID array, choose **Main Menu** > **Settings** > **General** > **Disable the secondary screen** to disable secondary screens (if any).
- If no RAID array is created, check for faulty disks.
- If none of the preceding measures works, contact the local authorized Sysvideo agent.

6.1 General

To change the general information about a camera:

1. Right-click the corresponding view window and choose **Device Setting** > **General**.
2. On the **General** tab page, change parameter values according to onsite conditions.



The **Alarm Cleared After** parameter indicates the time after which an alarm is automatically cleared.

3. Click **Save**.

Note

Clicking the **Reset** button will restore the previously saved parameter settings.

6.2 Main Video

To configure the main stream for a camera:

1. Click the **Main Video** tab.
2. On the **Main Video** tab page, change parameter values according to onsite conditions.

The **Max Interval for Key Frame** parameter indicates the maximum interval at which the camera sends a key frame to the NVR.

For the **Max. Quantization** and **Min. Quantization** parameters, you are advised to use the default values. For the default values, see the documents of the camera.

3. Click **Save**.

Note

Clicking the **Reset** button will restore the previously saved parameter settings.

6.3 Secondary Video

To configure the secondary stream for a camera:

1. Click the **Secondary Video** tab.
2. On the **Secondary Video** tab page, change parameter values according to onsite conditions.

3. Click **Save**.

Note

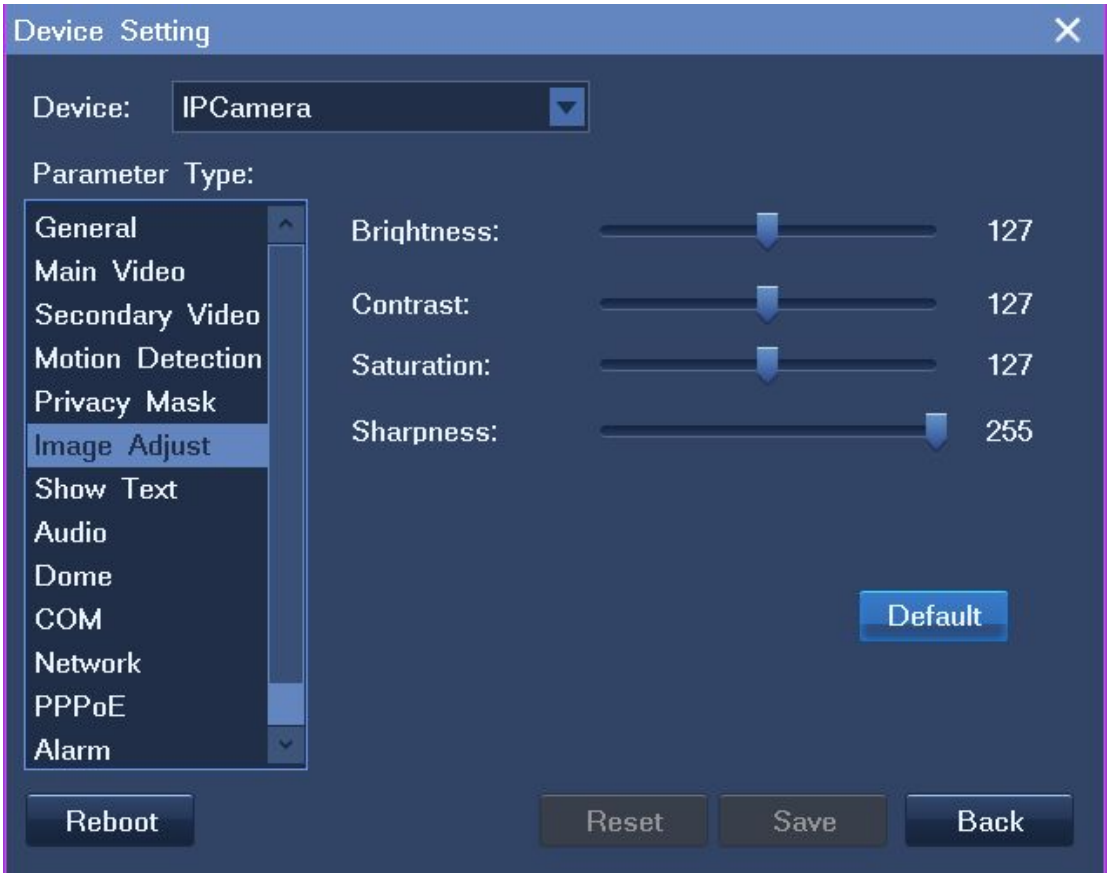
For the **Max. Quantization** and **Min. Quantization** parameters, you are advised to use the default values. For the default values, see the documents of the camera.

Clicking the **Reset** button will restore the previously saved parameter settings.

6.4 Image Adjust

To adjust the image settings of a camera:

1. Click the **Image Adjust** tab.
2. On the **Image Adjust** tab page, change parameter values according to onsite conditions.



3. Click **Save**.

Note

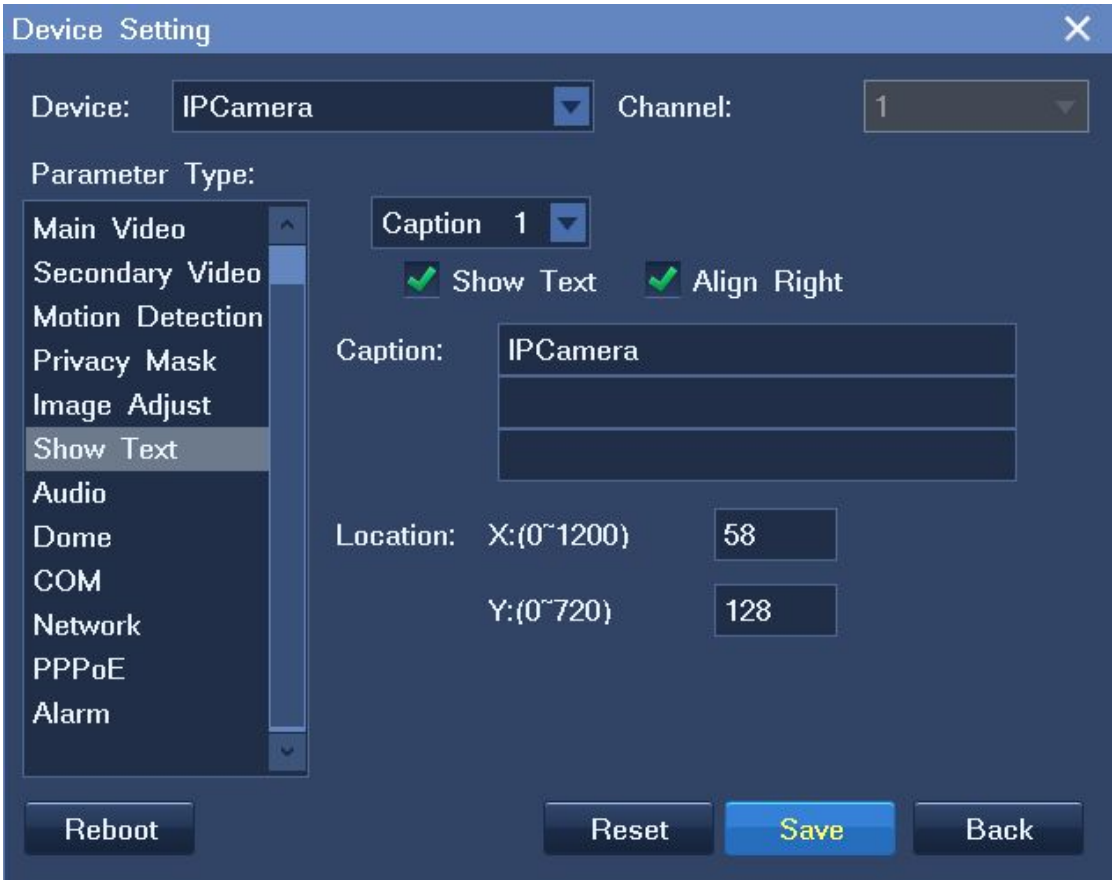
Clicking the **Reset** button will restore the previously saved parameter settings.

6.5 Show Text

You can show a maximum of three user-defined texts on the view window of a camera.

To show a user-defined text on the view window of a camera:

1. Click the **Show Text** tab.
2. Select a text (**Caption 1/2/3**) from the drop-down list above **Show Text**.



Note that some cameras may not support three user-defined texts. In such a case, you can configure only one or two captions.

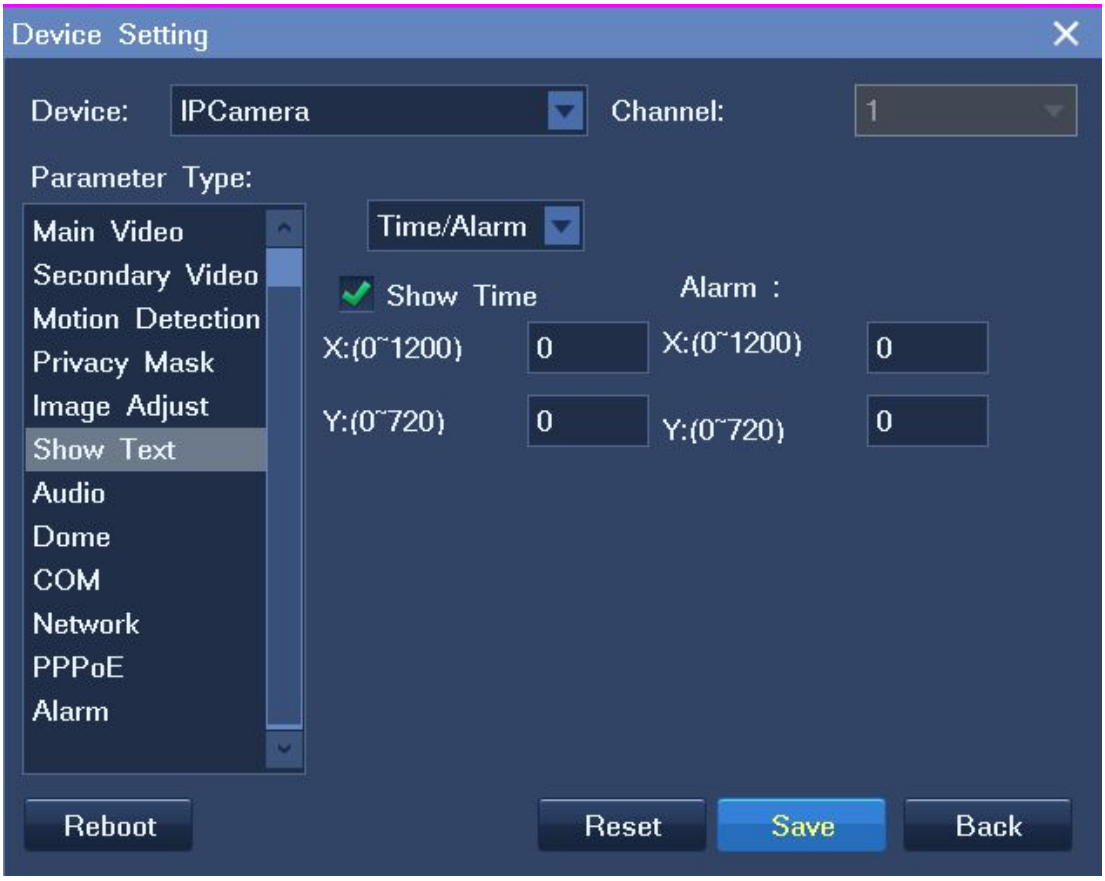
3. Select the **Show Text** option.
4. (Optional) Select the **Align Right** option to align all the texts to the right edge.

   If you find this option does not take effect, contact the local authorized Sysvideo agent to check whether the camera in question does not support the option.
5. Edit the text in the **Caption** text field.
6. (Optional) Specify **X** and **Y** to select a location for the text.
7. Click **Save**.

On the **Show Text** page, you can choose whether to show the system time and where to show an alarm prompt.

To show the system time:

1. Select **Time/Alarm** from the drop-down list above **Show Text**.



2. Select the **Show Time** option.
3. (Optional) Specify **X** and **Y** to select a location for the system time.

To determine where to show an alarm prompt:

1. Select **Time/Alarm** from the drop-down list above **Show Text**.
2. Specify **X** and **Y** under **Alarm** to select a location for the alarm prompt.
3. Click **Save**.

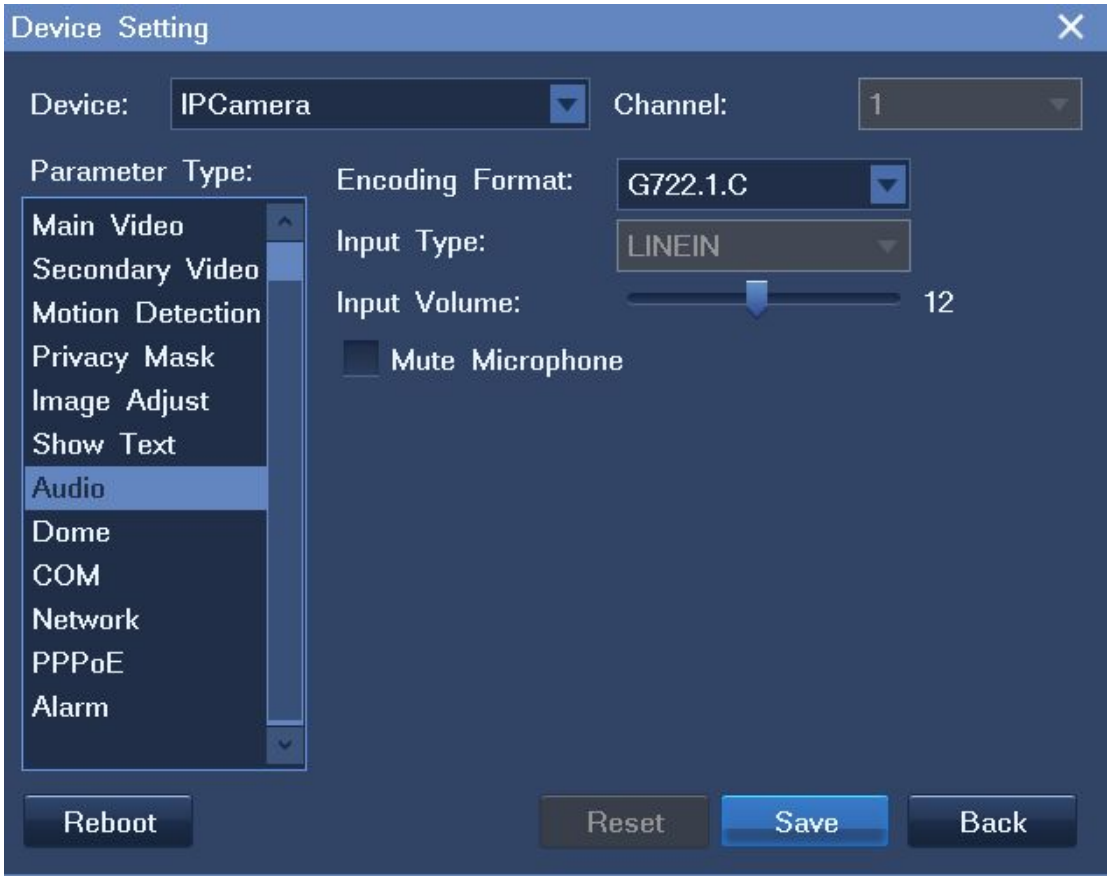
Note

Clicking the **Reset** button will restore the previously saved parameter settings.

6.6 Audio

To configure audio settings for a camera:

1. Click the **Audio** tab.
2. Select a speech encoding protocol or technique from the **Encoding Formatting** drop-down list.



3. Adjust the input volume using the adjustment bar.
4. (Optional) Select the **Mute Microphone** option.
5. Click **Save**.

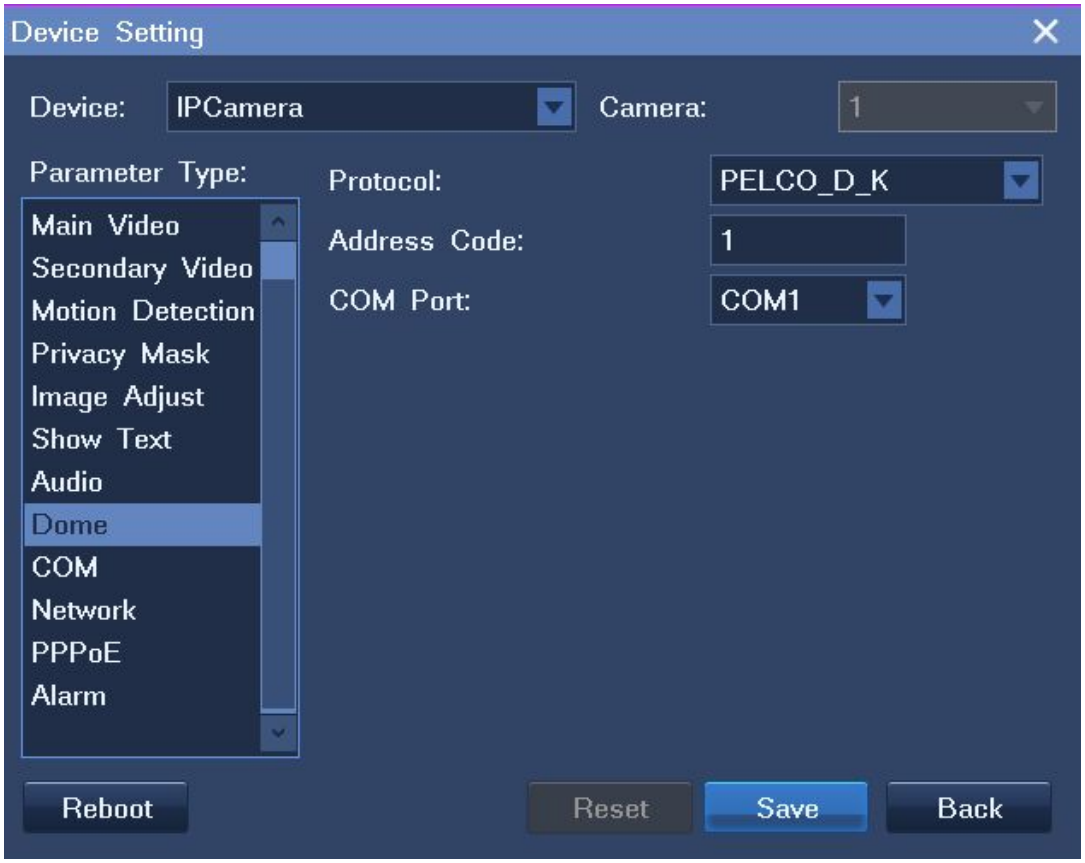
Note

Clicking the **Reset** button will restore the previously saved parameter settings.

6.7 Dome

To configure the dome for a camera:

1. Click the **Dome** tab.
2. Select a protocol from the **Protocol** drop-down list.



3. Specify the **Address Code** parameter.
4. Select a COM port from the **COM Port** drop-down list.

   If the camera has only one COM port, you can skip this step because COM1 is displayed by default.
5. Click **Save**.

Note

The parameter settings on the NVR must be consistent with those on the camera.

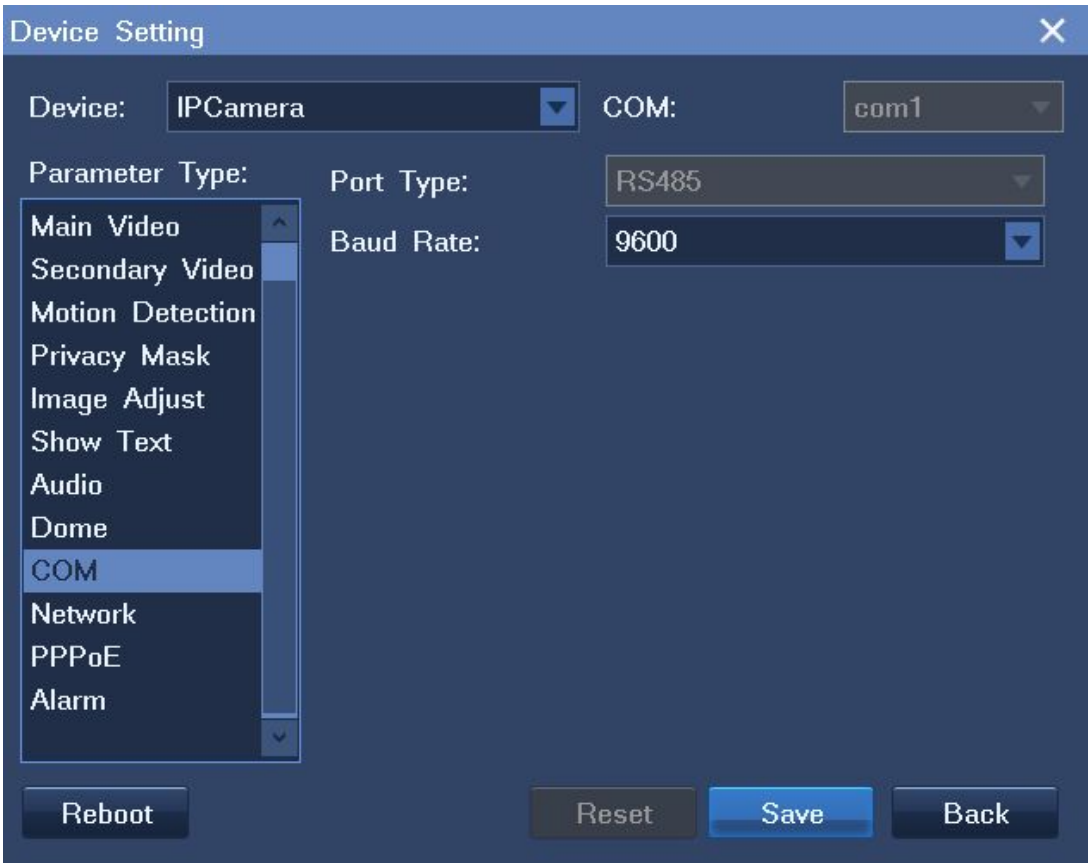
Clicking the **Reset** button will restore the previously saved parameter settings.

6.8 COM

To configure a COM port for a camera:

1. Click the **COM** tab.
2. Select a COM port from the **COM** drop-down list.

   If the camera has only one COM port, you can skip this step because COM1 is displayed by default.
3. Specify the **Baud Rate** parameter.



The default parameter value is **9600**.

4. Click **Save**.

Note

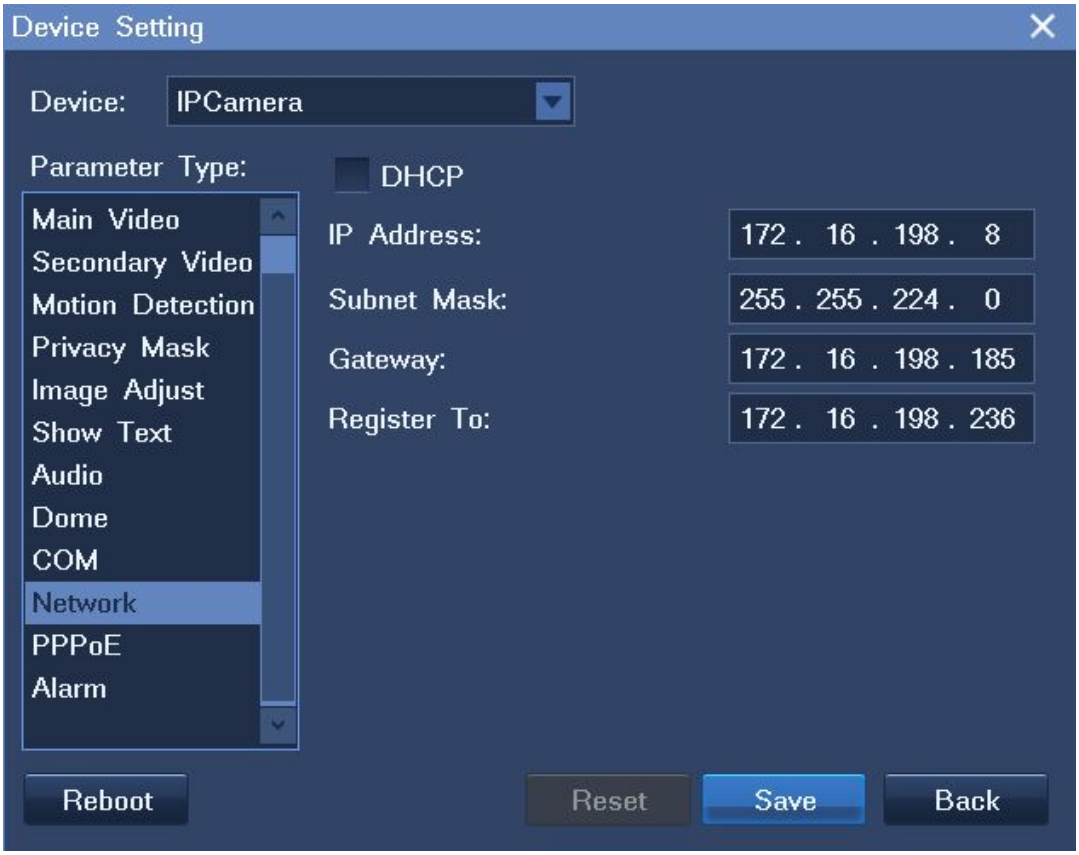
The **Port Type** parameter is unconfigurable.

Clicking the **Reset** button will restore the previously saved parameter settings.

6.9 Network

To configure network settings for a camera:

1. Click the **Network** tab.



2. (Optional) Enable the DHCP technique by selecting the **DHCP** option.
3. Specify parameters displayed on the **Network** tab page.

   The **Register To** parameter indicates the IP address of an NVR to which the camera can register to.
4. Click **Save**.

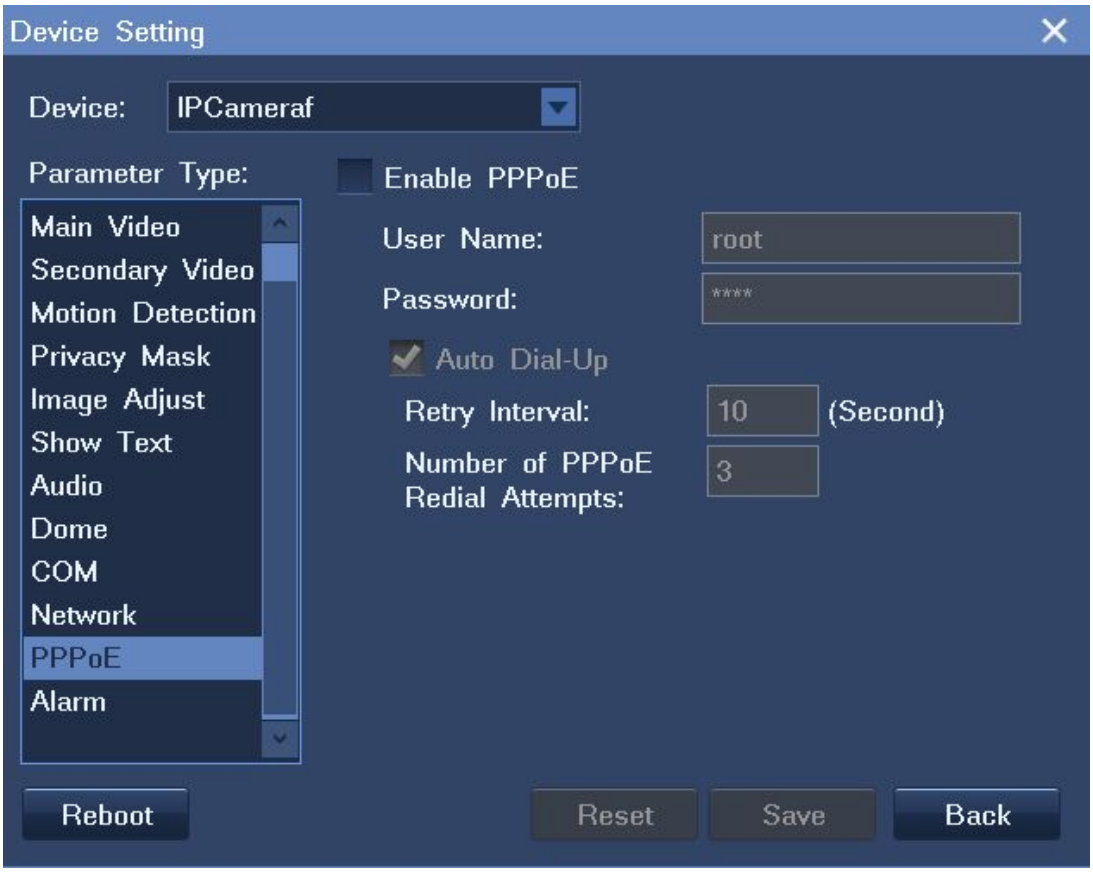
Note

Clicking the **Reset** button will restore the previously saved parameter settings.

6.10 PPPoE

To enable PPPoE for a camera:

1. Click the **PPPoE** tab.



2. Select the **Enable PPPoE** option.
3. Specify the **User Name** and **Password** parameters.
4. Click **Save**.

To enable the camera to automatically establish a new dial-up connection when the existing dial-up connection is broken:

1. On the **PPPoE** tab page, select the **Auto Dial-up** option.
2. Specify **Retry Interval** and **Number of PPPoE Redial Attempts**.
3. Click **Save**.

Note

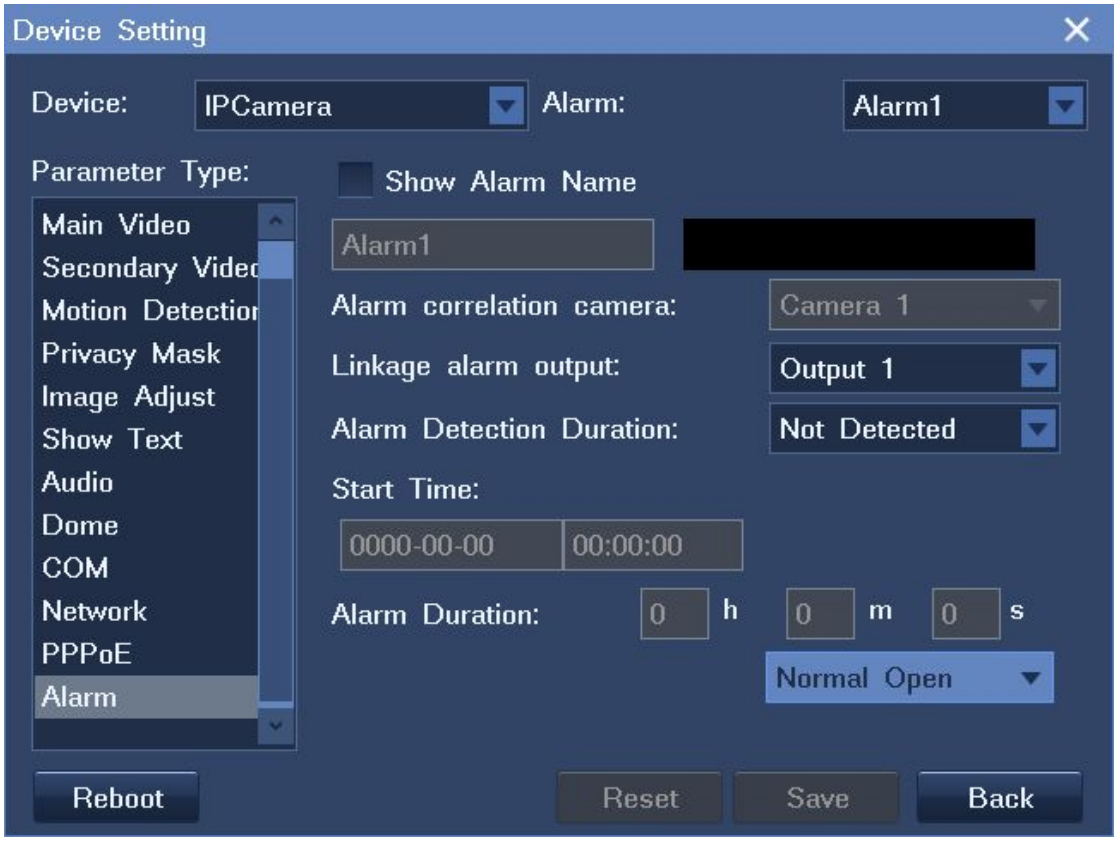
Clicking the **Reset** button will restore the previously saved parameter settings.

6.11 Alarm

On the **Alarm** tab page, you can configure alarm inputs and outputs for a camera.

To configure an alarm input and an alarm output for a camera:

1. Click the **Alarm** tab.
2. Specify parameters displayed.



The **Alarm** drop-down list includes all the alarm inputs of the camera. The number of alarm inputs varies according to the camera type.

3. Click **Save**.

Note

Clicking the **Reset** button will restore the previously saved parameter settings.

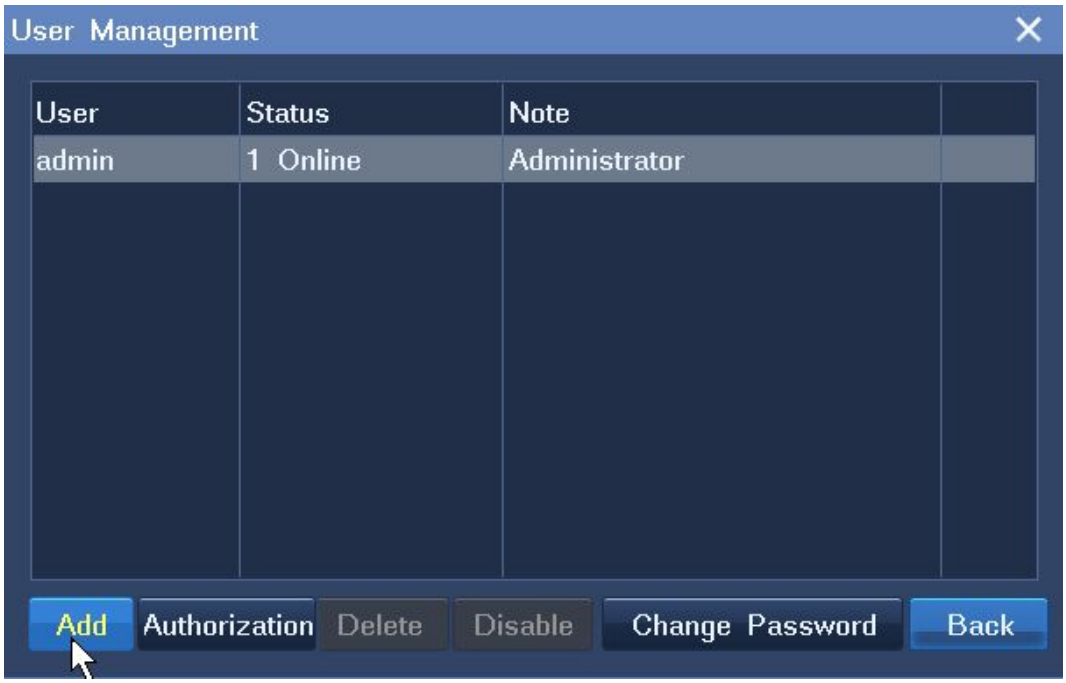
7 Miscellaneous

7.1 User Authorizaiton

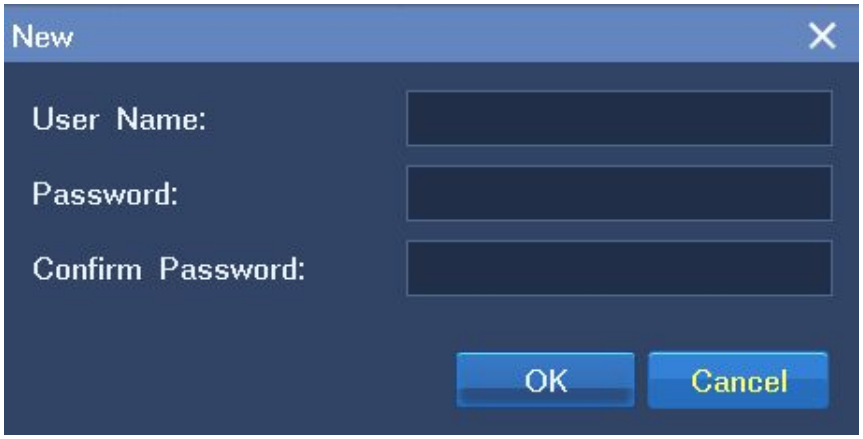
7.1.1 Adding a User Account

To add a standard user:

1. Choose **Main Menu** > **Settings** > **User Authorization** > **Add**, as shown in the following figure.



2. In the displayed **New** dialog box, specify parameters displayed, as shown in the following figure.



3. Click **OK**.

By default, a standard user is allowed to perform the following operations:

- System:
  - Recording and Capturing
  - Managing Devices
  - Managing Alarms
  - Configuring Video Wall
  - Configuring System Settings
- Camera:
  - PTZ Control
  - Live View
  - Playback and Backup

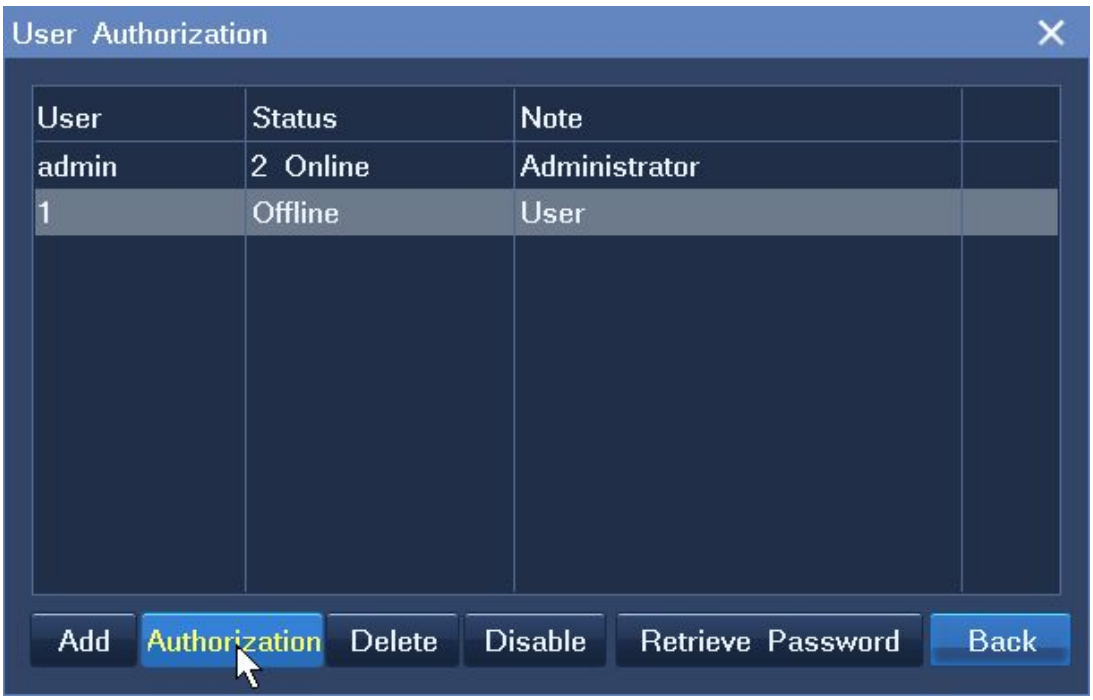
Only the administrator is allowed to perform the following operations:

- Restoring factory defaults
- Import or exporting user data
- Managing disks and configuring IP SAN settings
- Switching off the system
- Rebooting the system

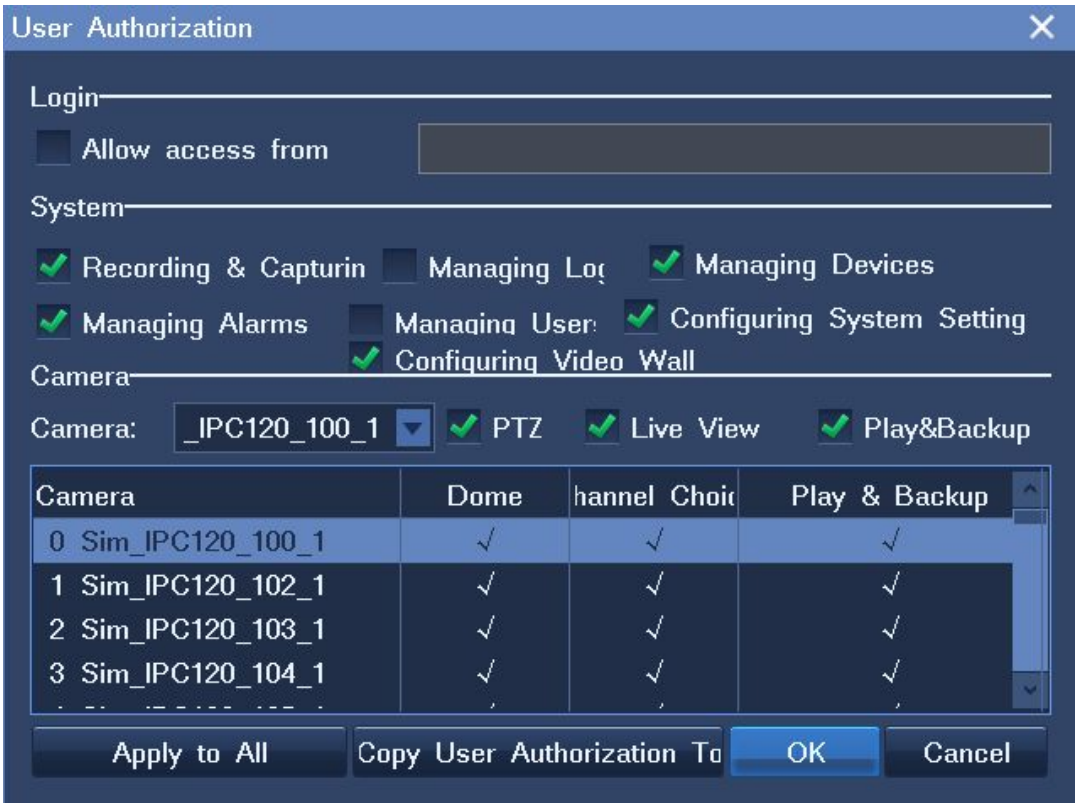
7.1.2 Editing a User Account

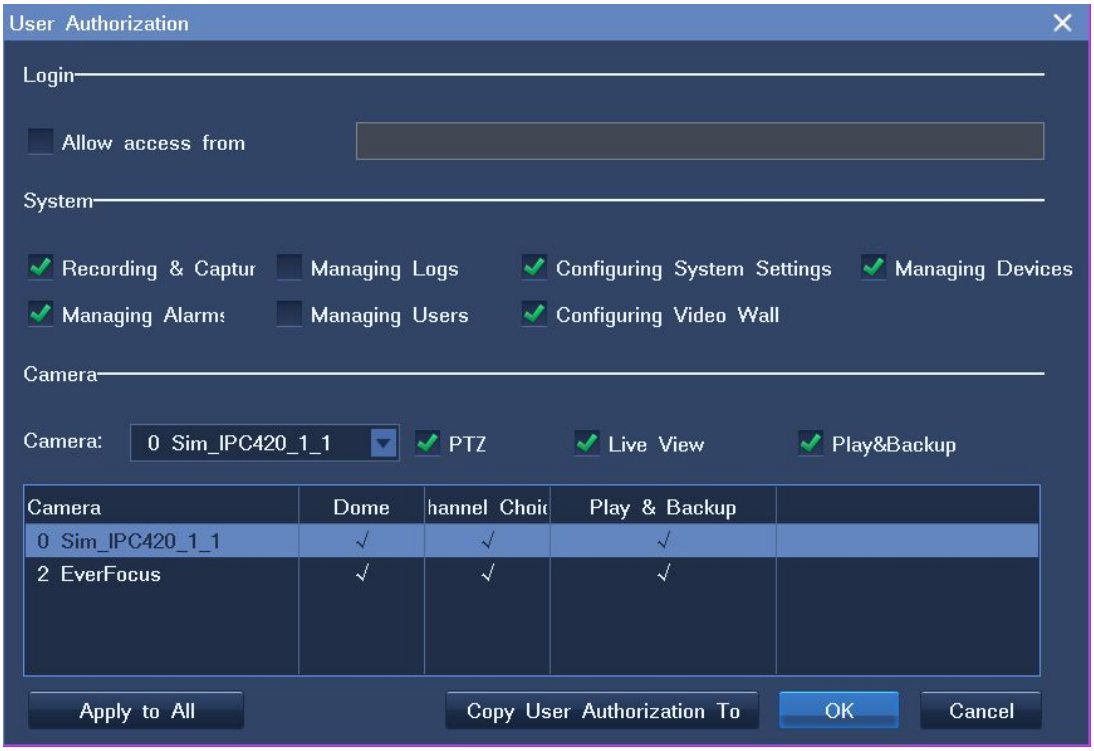
To change the user authorization for a standard user:

1. Choose **Main Menu** > **Settings** > **User Authorization**.
2. Select the user from the user account list and click **Authorization**, as shown in the following figure.



3. Specify parameters displayed according to onsite conditions, as shown in the following figure.





You can copy the user authorization of this user to another user by clicking **Copy User Authorization To** or to all users by clicking **Apply to All**.

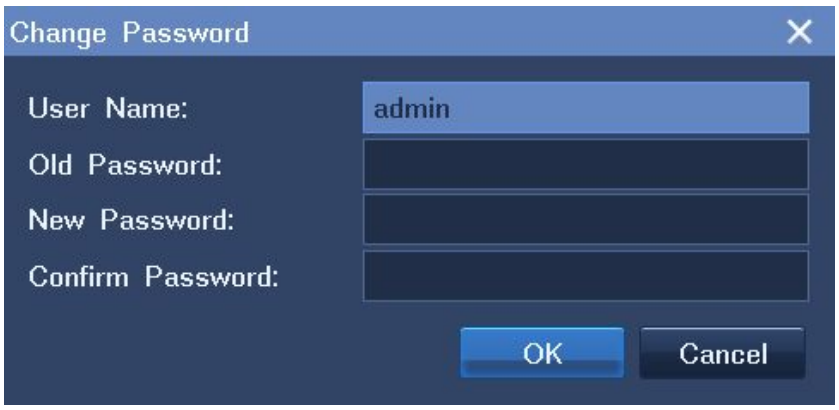
4. Click **OK**.

To retrieve the default password (admin123) for a standard user:

1. Choose **Main Menu** > **Settings** > **User Authorization**.
2. Select the user from the user account list and click **Retrieve Password**.
3. In the displayed dialog box, click **Yes** to confirm your operation.

To change the password of your own account:

1. Choose **Main Menu** > **Settings** > **User Authorization**.
2. Select your account from the user account list and click **Change Password**.
3. In the displayed **Change Password** dialog box, specify parameters displayed, as shown in the following figure.



4. Click **OK**.

7.1.3 Deleting a User Account

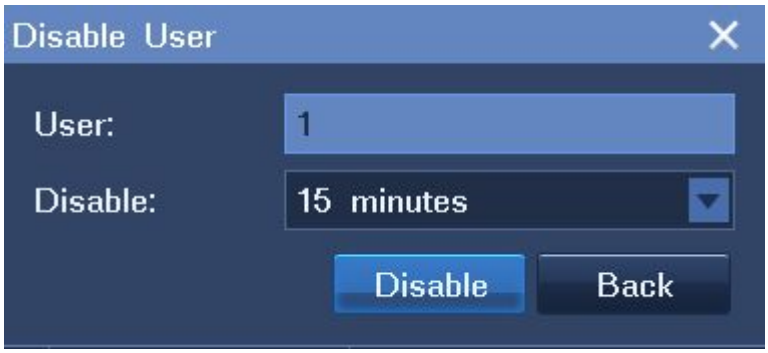
To delete a standard user:

1. Choose **Main Menu** > **Settings** > **User Authorization**.
2. Select the user from the user account list and click **Delete**.
3. In the displayed dialog box, click **Yes** to confirm your operation.

7.1.4 Disabling a User Account

To disable a standard user for a certain period of time:

1. Choose **Main Menu** > **Settings** > **User Authorization**.
2. Select the user from the user account list and click **Disable**.
3. In the displayed **Disable User** dialog box, select a time length from the drop-down list next to the **Disable** parameter.



4. Click **Disable**.

7.2 Display

To change the display settings for the main screen:

1. Choose **Main Menu** > **Settings** > **Display**.
2. In the displayed **Display** dialog box, select a resolution and a refresh rate.

For the **Output Mode** parameter:

- Upon detecting that the HDMI and VGA ports are in use, the system sets the parameter to **Dual Output** or **Triple Output**.
- Upon detecting that only one of these ports is in use, the system sets the parameter to **Single Output**.

Additionally, the system configures the **Video Out on Main Screen**, **Video Out on Secondary Screen 1**, and **Video Out on Secondary Screen 2** parameters based on the usage of these ports.

For the **Resolution** parameters, gray values indicate that monitors connected to the NVR do not support the corresponding resolutions.

3. Click **Apply**.

7.3 Logs

The system logs include the following:

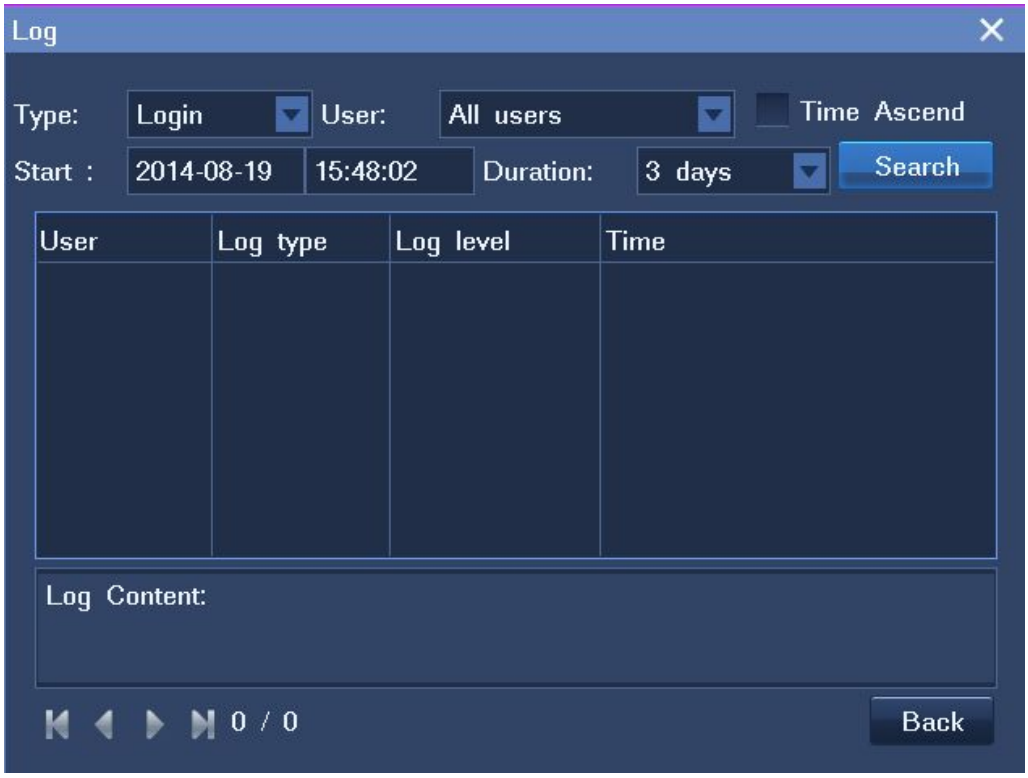
- Login attempts, including login results, the addresses from which users attempt to log in to the NVR, the reasons why users failed to log in to the NVR
- Operation details, including operation results and the addresses from which users perform operations

- Alarm logs, including the devices that report alarms and alarm types
- Record backup attempts
- System upgrade attempts

To query a specific type of system log (for example, login attempt):

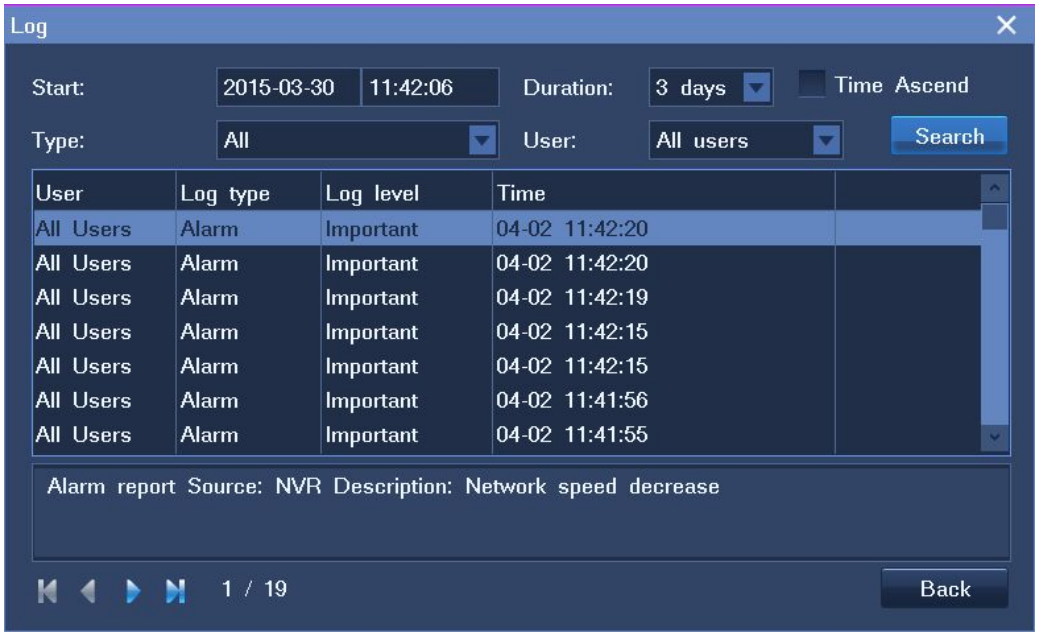
1. Choose **Main Menu** > **Settings** > **Log**.
2. Specify parameters displayed on the **Log** dialog box.

   For example, set **Type** to **Login**.



3. Click **Search**.

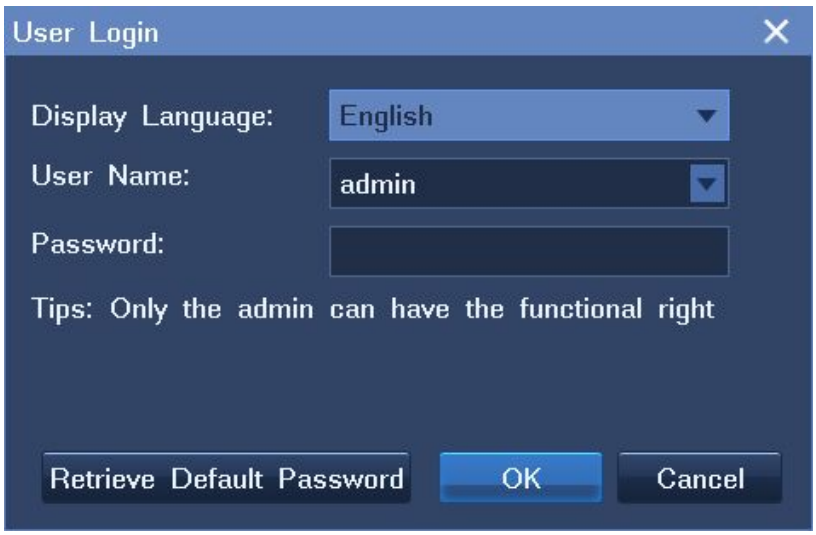
At the bottom of the **Log** dialog box, you can query the details of a log. The following is an example.



7.4 Restoring Factory Defaults

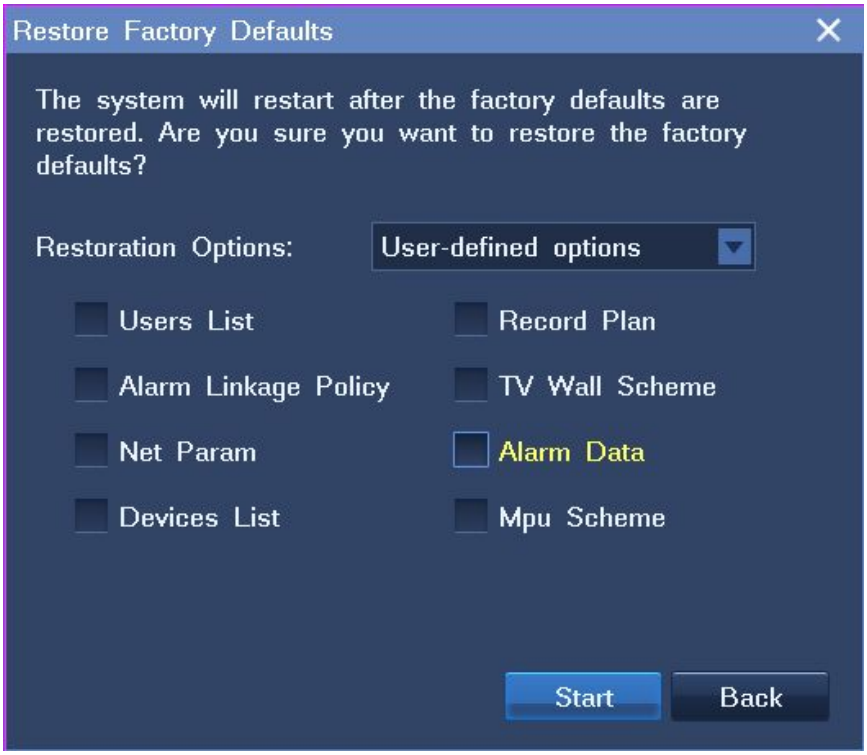
To restore factory defaults:

1. Choose **Main Menu** > **Settings** > **Restore Factor Defaults**.
2. In the **User Login** dialog box, enter the password for your account.



3. Click **OK**.
4. In the displayed dialog box, select an option from the **Restoration Options** drop-down list.

   If you select the **User-defined options** option, select the items for which you want to restore factory defaults, as shown in the following figure.



5. Click **Start**.

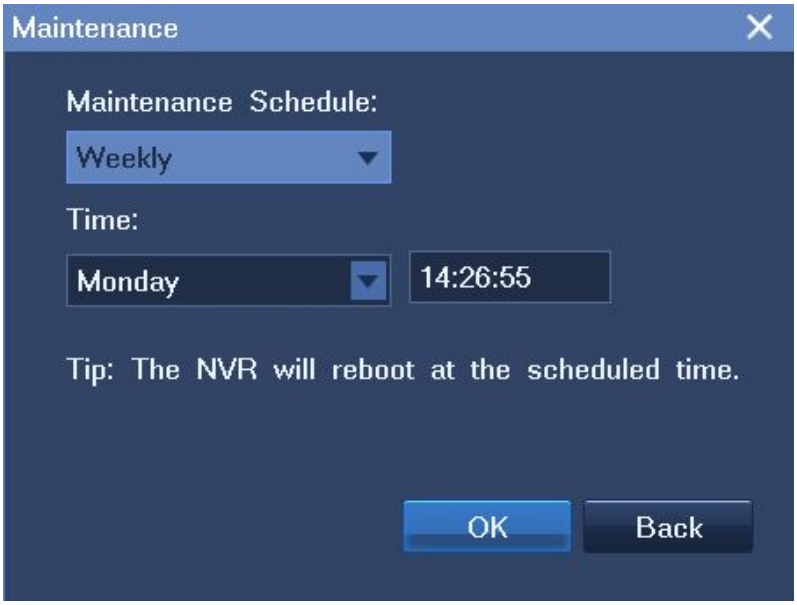
7.5 Scheduled Rebooting

You can enable the system to automatically reboot at a scheduled time.

To schedule a time to perform a system rebooting:

1. Choose **Main Menu** > **Settings** > **Auto Maintenance**.
2. In the **Maintenance** dialog box, select an option from the **Maintenance Schedule**.

   The following is an example.



Select a day or date and a time.

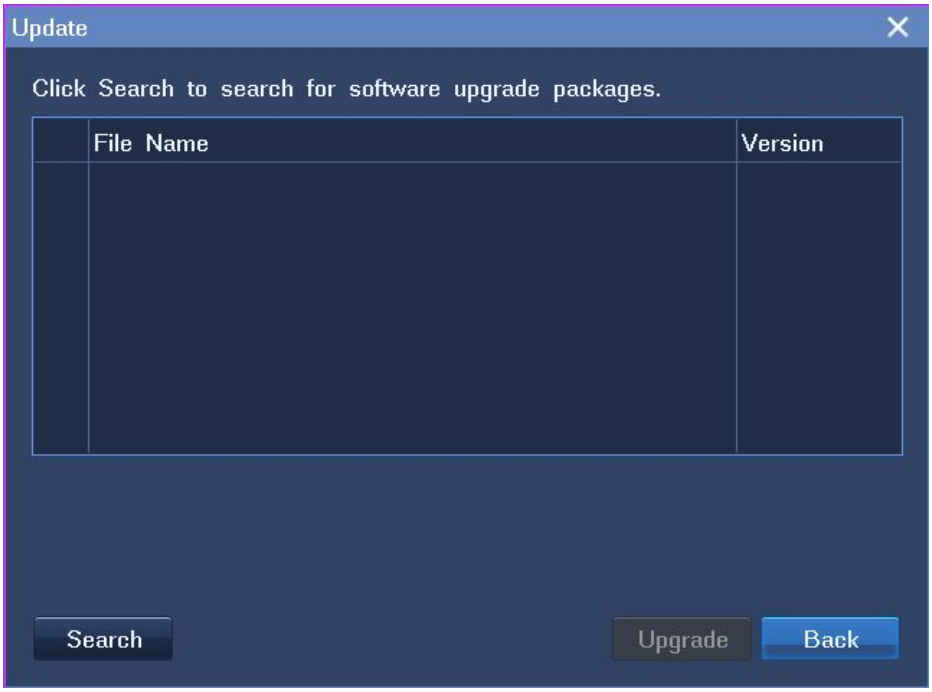
3. Click **OK**.

7.6 Upgrading the System

You can upgrade the system using a USB flash drive or on the NVR Station.

To upgrade the system using a USB flash drive:

1. Save the software upgrade package in a root directory of the USB flash drive.
2. Plug the USB flash drive into a USB port of the NVR.
3. Choose **Main Menu** > **Settings** > **Upgrade** > **Search**.



4. Select the package.
5. Click **Upgrade**.

Note

The USB flash drive must employ File Allocation Table (FAT) file system 32 or the XFS file system. If the USB flash drive does not employ any of these file systems, the system may not be able to find the software upgrade package.

For details on how to upgrade an NVR on the NVR Station, see *NVR Station User Guide*.

After the upgrade is completed, the system automatically reboots.

8 Abbreviations and Acronyms

ANR	automatic network replenishment
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
RAID	redundant array of independent disks
RTSP	Real Time Streaming Protocol
UPnP	Universal Plug and Play
UUID	Universally Unique Identifier
VMS	Video Management Server
WDR	wide dynamic range