VioStor NVR

Network Video Recorder

User Manual (Version: 3.3.2)

Thank you for choosing QNAP products! This user manual provides detailed instructions of using the product. Please read carefully and start to enjoy the powerful functions of the product!

- **VioStor NVR** is hereafter referred to as **VioStor** or **NVR**.
- This manual provides the description of all the functions of the VioStor NVR. The product you purchased may not support certain functions dedicated to specific models.

Legal Notices

All the features, functionality, and other product specifications are subject to change without prior notice or obligation. Information contained herein is subject to change without notice.

LIMITED WARRANTY

In no event shall the liability of QNAP Systems, Inc. (QNAP) exceed the price paid for the product from direct, indirect, special, incidental, or consequential software, or its documentation. QNAP makes no warranty or representation, expressed, implied, or statutory, with respect to its products or the contents or use of this documentation and all accompanying software, and specifically disclaims its quality, performance, merchantability, or fitness for any particular purpose. QNAP reserves the right to revise or update its products, software, or documentation without obligation to notify any individual or entity.

CAUTION

1. Back up your system periodically to avoid any potential data loss. QNAP disclaims any responsibility of all sorts of data loss or recovery.
2. Should you return any components of the product package for refund or maintenance, make sure they are carefully packed for shipping. Any form of damages due to improper packaging will not be compensated.

Important Notice

- Reading instructions
  Please read the safety warnings and user manual carefully before using this product.
- Power supply
  This product can only be used with the power supply provided by the manufacturer.
- Service
  Please contact qualified technicians for any technical enquires. Do not repair this product by yourself to avoid any voltage danger and other risks caused by opening this product cover.
- Warning
  To avoid fire or electric shock, do not use this product in rain or humid environment. Do not place any objects on this product.

Regulatory Notice

FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
Shielded interface cables, if any, must be used in order to comply with the emission limits.

CE NOTICE

Class B only.

Table of Contents

Safety Warning

1. This product can operate normally in the temperature of 0ºC–40ºC and relative humidity of 0%–90%. Please make sure the environment is well-ventilated.
2. The power cord and devices connected to this product must provide correct supply voltage.
3. Do not place this product in direct sunlight or near chemicals. Make sure the temperature and humidity of the environment are in optimized level.
4. Unplug the power cord and all connected cables before cleaning. Wipe this product with a wet towel. Do not use chemical or aerosol to clean this product.
5. Do not place any objects on this product for the server's normal operation and to avoid overheat.
6. Use the flat head screws in the product package to lock the hard disks in this product when installing hard disks for proper operation.
7. Do not place this product near any liquid.
8. Do not place this product on any uneven surface to avoid falling off and damage.
9. Make sure the voltage is correct in your location when using this product. If you are not sure about the voltage, please contact the distributor or the local power supply company.
10. Do not place any object on the power cord.
11. Do not attempt to repair this product in any occasions. Improper disassembly of the product may expose you to electric shock or other risks. For any enquiries, please contact the distributor.
12. The chassis models should only be installed in the server room and maintained by the authorized server manager or IT administrator. The server room is locked by key or keycard access and only certified staff is allowed to enter the server room.

Warning:

- Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- Do NOT touch the fan inside the system to avoid serious injuries.

Chapter 1. Introduction

1.1 Overview

QNAP VioStor (hereafter referred to as NVR or VioStor) is the high performance network surveillance solution for network-based monitoring of IP cameras, video recording, playback, and remote data access. Up to 120 channels from multiple QNAP NVR servers can be monitored simultaneously. The NVR supports IP-based cameras and video servers from numerous brands, for more information please visit http://www.qnapsecurity.com/pro_compatibility_camera.asp.

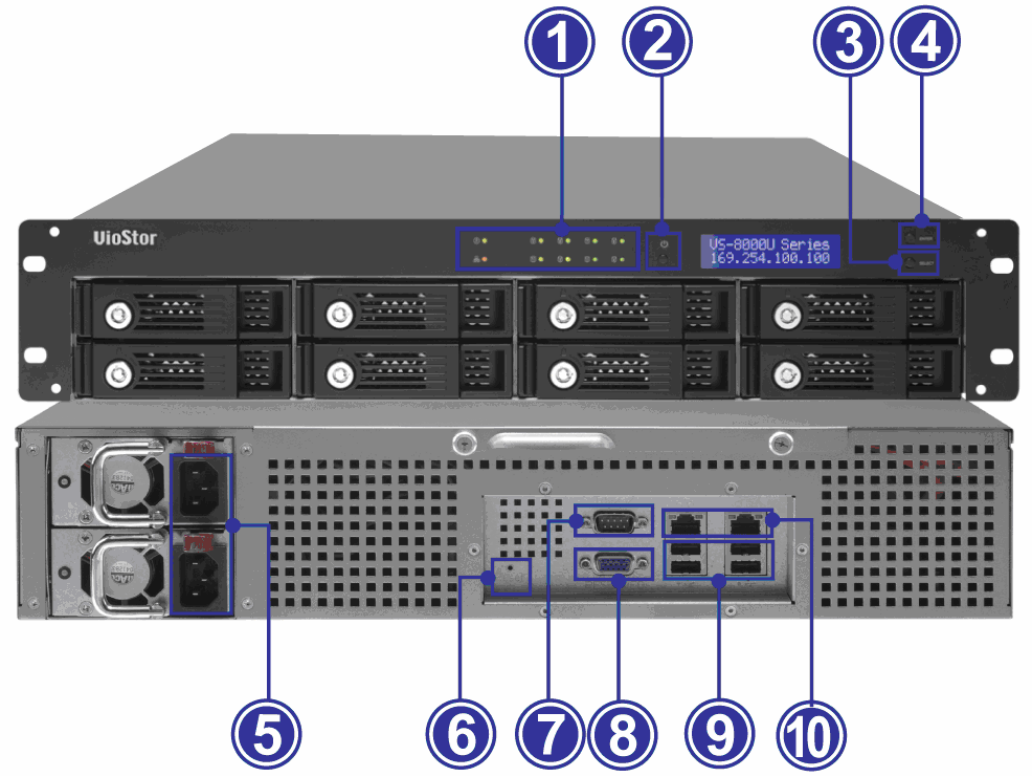
The NVR supports video recording in H.264, MxPEG, MPEG-4, or MJPEG video compression. The NVR offers diversified display modes and recording features, e.g. scheduled recording, alarm recording, alarm recording schedule. The NVR also supports data search by date and time, timeline, event, and intelligent video analytics (IVA), including motion detection, missing object, foreign object, out of focus, and camera occlusion. All the functions can be configured by an IE web browser.

The VioStor Pro Series NVR is the world's first Linux-based NVR capable of truly PC-less quick configuration, monitoring of IP cameras on the network, and video playback via the VGA connector. You can connect a high-definition (HD) VGA monitor or TV, and a USB mouse (optional), USB keyboard (optional), and a USB sound card (optional) to the NVR to manage the surveillance system.

* The MxPEG video compression feature is not supported by VS-2004L, VS-2008L, VS-1004L, VS-201, VS-101, NVR-104.

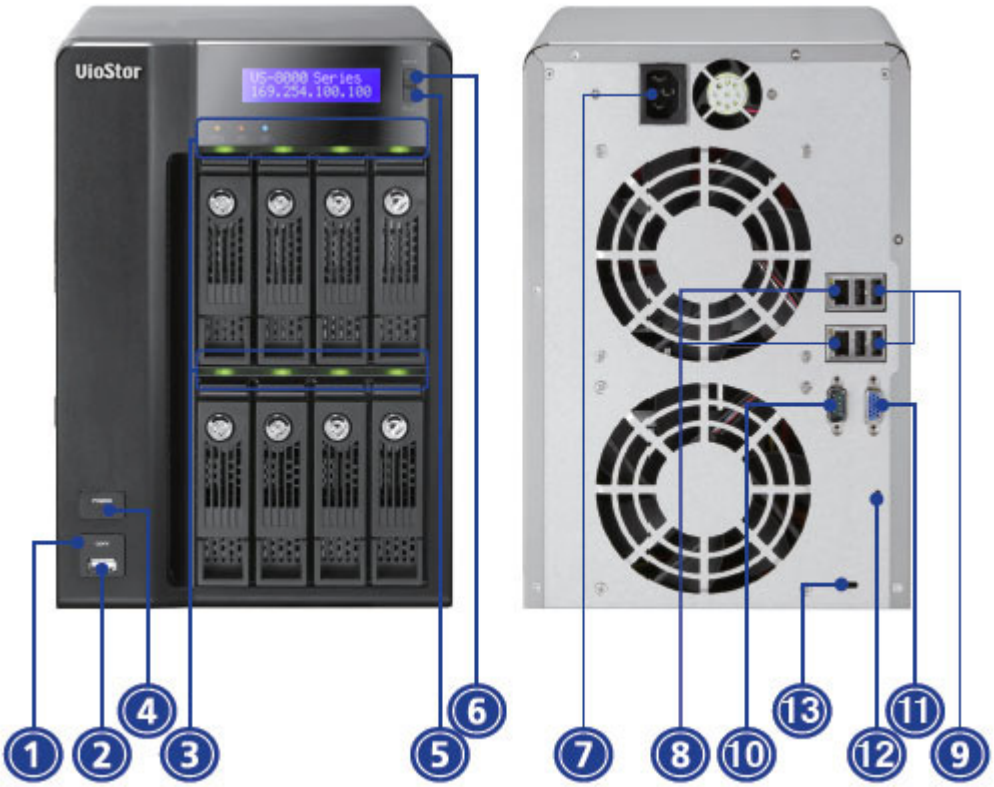
1.2 Hardware Illustration

1.2.1 VS-8040U-RP/VS-8032U-RP/VS-8024U-RP



1. LED indicators: Status, LAN, USB, HDD1–8
2. Power button
3. Select button
4. Enter button
5. Power connector
6. Password & network settings reset button
7. RS-232 port
8. VGA
9. USB x 4
10. Gigabit LAN x 2

1.2.2 VS-8040/VS-8032/VS-8024



1. One-touch-auto-video-backup button
2. USB
3. LED indicators: Status, LAN, USB, HDD1–8
4. Power button
5. Select button
6. Enter button
7. Power connector
8. Gigabit LAN x 2
9. USB x 4
10. RS-232 port
11. VGA
12. Password & network settings reset button
13. Kensington security slot

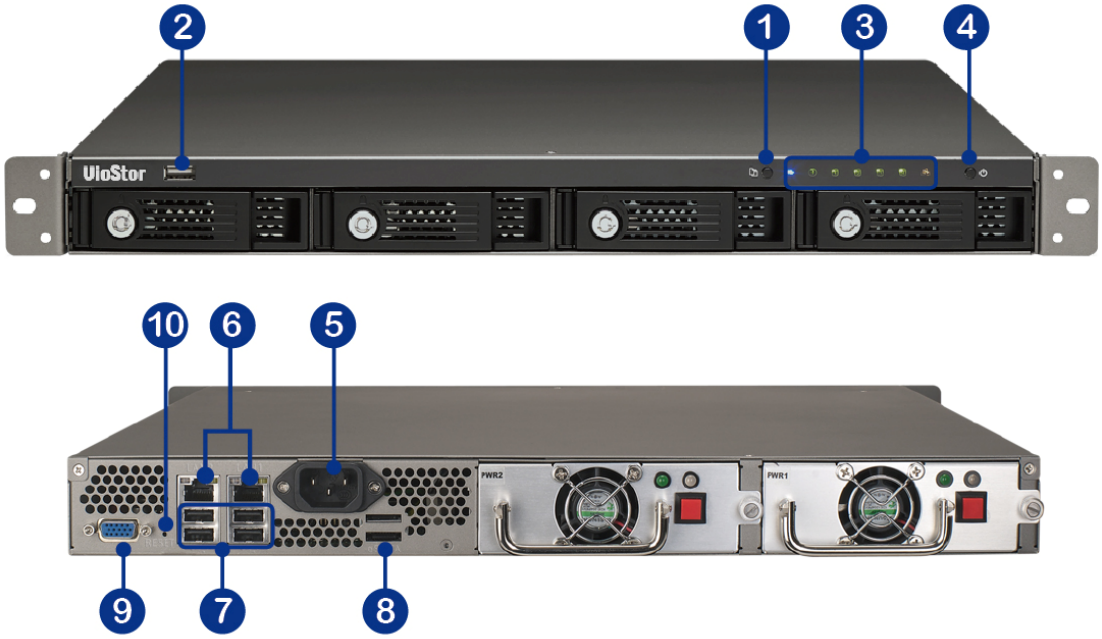
1.2.3 VS-6020 Pro/VS-6016 Pro/VS-6012 Pro

1. One-touch-auto-video-backup button
2. USB
3. LED indicators: Status, LAN, USB, eSATA, HDD1–6
4. Power button
5. Select button
6. Enter button
7. Power connector
8. Gigabit LAN x 2
9. USB x 4
10. eSATA x 2 (reserved)
11. VGA
12. Password & network settings reset button
13. Kensington security slot

1.2.4 VS-5020/VS-5012

1. One-touch-auto-video-backup button
2. USB
3. LED indicators: USB, Status, HDD1–5, LAN
4. Power button
5. Select button
6. Enter button
7. Power connector
8. Gigabit LAN x 2
9. USB x 4
10. eSATA (reserved)
11. VGA
12. RS-232 port
13. Password & network settings reset button
14. Kensington security slot

1.2.5 VS-4016U-RP Pro/VS-4012U-RP Pro/VS-4008U-RP Pro

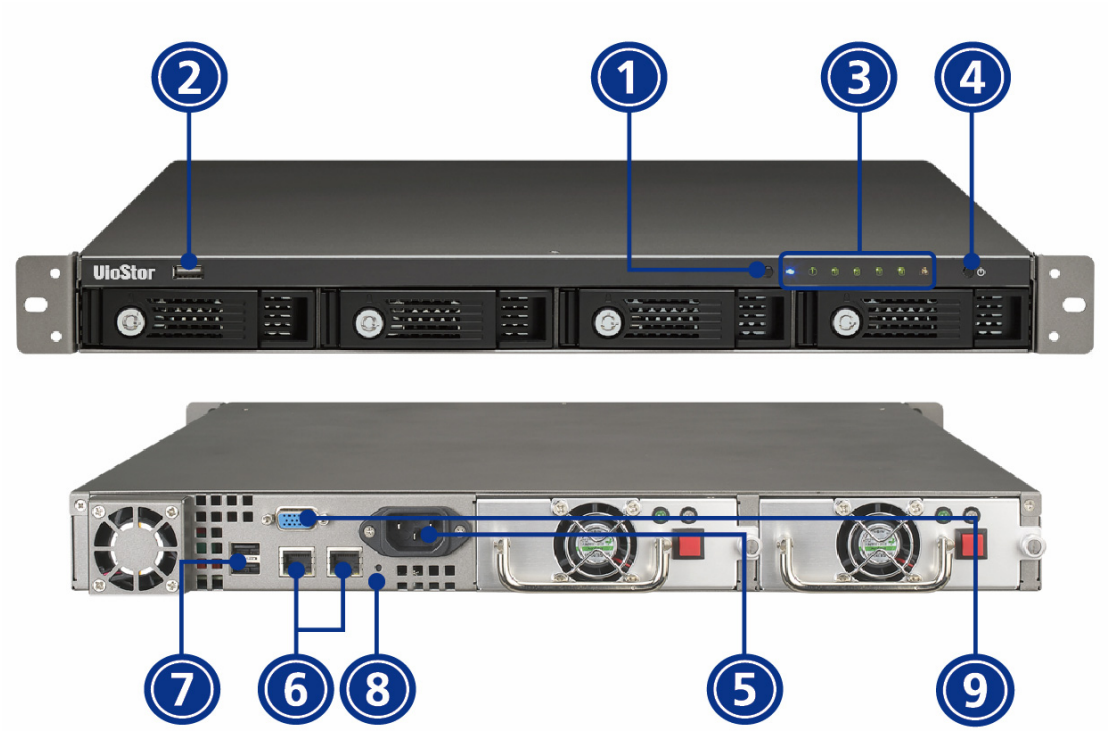


1. One-touch-auto-video-backup button
2. USB
3. LED indicators: Status, LAN, USB, eSATA, HDD1–4
4. Power button
5. Power connector
6. Gigabit LAN x 2
7. USB x 4
8. eSATA x 2 (reserved)
9. VGA
10. Password & network settings reset button

1.2.6 VS-4016 Pro/VS-4012 Pro/VS-4008 Pro

1. One-touch-auto-video-backup button
2. USB
3. LED indicators: Status, LAN, USB, eSATA, HDD1–4
4. Power button
5. Select button
6. Enter button
7. Power connector
8. Gigabit LAN x 2
9. USB x 4
10. eSATA x 2 (Reserved)
11. VGA
12. Password & network settings reset button
13. Kensington security slot

1.2.7 VS-4016U-RP



1. One-touch-auto-video-backup button
2. USB
3. LED indicators: USB, Status, HDD1–HDD4, LAN
4. Power button
5. Power connector
6. Gigabit LAN x 2
7. USB x 2
8. Password & network settings reset button
9. VGA

1.2.8 VS-2012 Pro/VS-2008 Pro

1. One-touch-auto-video-backup button
2. USB
3. LED indicators: HDD1, HDD2, LAN, eSATA
4. Power button
5. Power connector
6. Gigabit LAN x 2
7. USB x 2
8. eSATA x 2 (reserved)
9. VGA
10. Password & network settings reset button
11. Kensington security slot

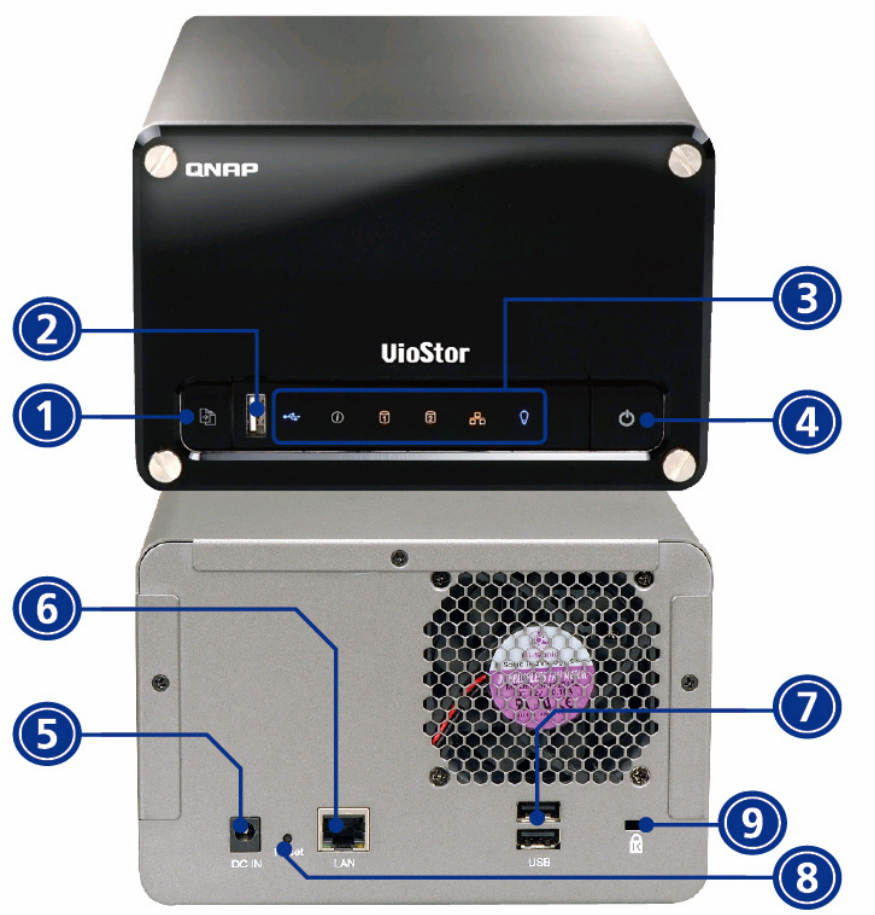
1.2.9 VS-2012/VS-2008

1. One-touch-auto-video-backup button
2. USB
3. LED indicators: HDD1, HDD2, LAN, eSATA
4. Power button
5. Power connector
6. Gigabit LAN x 2
7. USB x 2
8. Password & network settings reset button
9. Kensington security slot
10. eSATA x 2 (reserved)
11. VGA

1.2.10 VS-2004L/VS-2008L

1. One-touch-auto-video-backup button
2. USB 2.0
3. LED Indicators: USB, status, HDD1, HDD2, LAN, power
4. Power button
5. Power connector
6. Gigabit LAN
7. USB 2.0 x 2
8. Password & network settings reset button
9. K-Lock security slot
10. Power cord hook

1.2.11 VS-201P/V



1. One-touch-auto-video-backup button
2. USB
3. LED indicators: USB, status, HDD1, HDD2, LAN, and power
4. Power button
5. Power connector
6. Gigabit LAN
7. USB x 2
8. Password & network settings reset button‼
9. Kensington security slot

1.2.12 VS-1004L

1. One-touch-auto-video-backup button
2. USB 2.0
3. LED Indicators: USB, status, HDD, eSATA, LAN, power
4. Power button
5. Power connector
6. Gigabit LAN
7. USB 2.0 x 2
8. Password & network settings reset button
9. K-Lock security slot
10. eSATA
11. Power cord hook

1.2.13 NVR-104P/V

1. One-touch-auto-video-backup button
2. USB
3. LED indicators
4. Power button
5. USB x 2
6. eSATA port
7. Gigabit LAN
8. Password & network settings reset button
9. Power connector
10. Kensington security slot

1.2.14 VS-101P/V

1. One-touch-auto-video-backup button
2. USB
3. LED indicators
4. Power button
5. Power connector
6. Gigabit LAN
7. USB x 2
8. Password & network settings reset button
9. Kensington security slot
10. eSATA port (reserved)

Chapter 2. Install the NVR

For the information of hardware installation, see the 'Quick Installation Guide' (QIG) in the product package. You can also find the QIG in the product CD-ROM or QNAP website (http://www.qnapsecurity.com/).

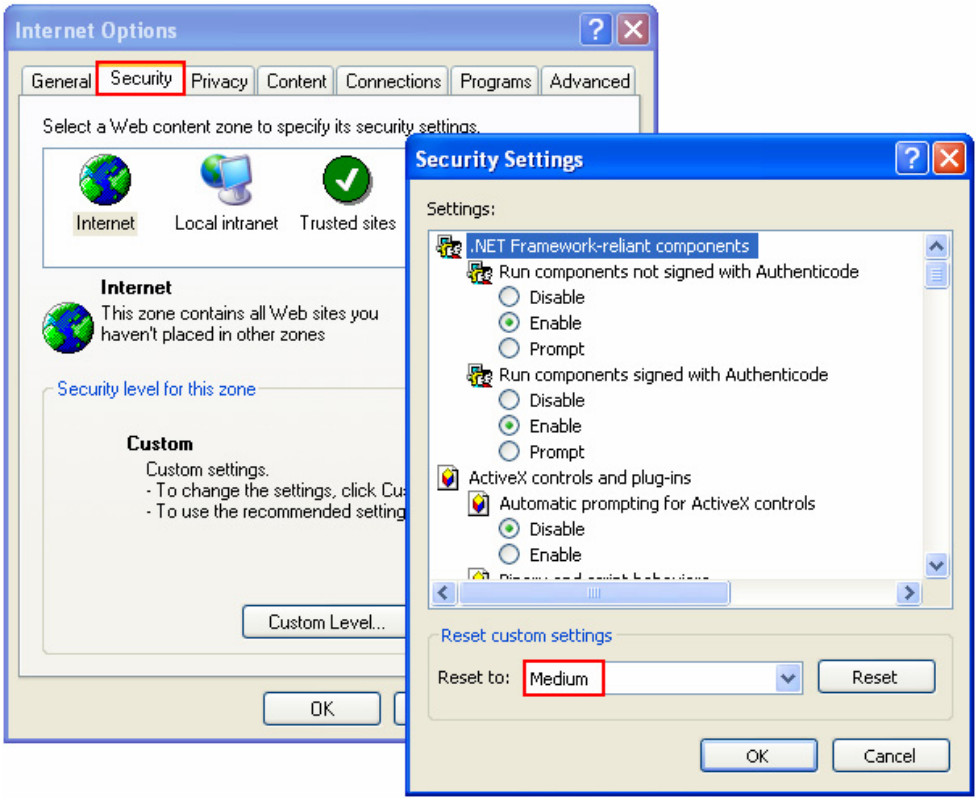
2.1 Personal Computer Requirements

For better system performance, your computer should at least fulfil the following requirements:

No. of Channels	Format	CPU	Others
4	M-JPEG	Intel Pentium 4 CPU, 2.4GHz or above	• Operation system: Microsoft Windows 7, Vista, XP • Memory: 2GB or above • Network port: 100Mbps Ethernet port or above • Web browser: Microsoft Internet Explorer 6.0 or above • CD-ROM drive • Recommended resolution: 1024 x 768 pixels or above
	MPEG-4/MxPEG/H.264	Dual core CPU, 2.0GHz or above	
8	M-JPEG	Intel Pentium 4 CPU, 2.8GHz or above	
	MPEG-4/MxPEG/H.264	Dual core CPU, 2.4GHz or above	
12	M-JPEG	Intel Pentium 4 CPU, 3.0GHz or above	
	MPEG-4/MxPEG/H.264	Dual core CPU, 2.8GHz or above	
16	M-JPEG	Dual core CPU, 2.4GHz or above	
	MPEG-4/MxPEG/H.264	Quad core CPU, 2.33GHz or above	
20	M-JPEG	Dual core CPU, 2.6GHz or above	
	MPEG-4/MxPEG/H.264	Quad core CPU, 2.6GHz or above	
40	M-JPEG	Quad core CPU 2.33GHz or above	
	MPEG-4/MxPEG/H.264	Core i7 CPU 2.8GHz or above	

Security Settings of the Web Browser

Please make sure the security level of the IE browser in Internet Options is set to Medium or lower.

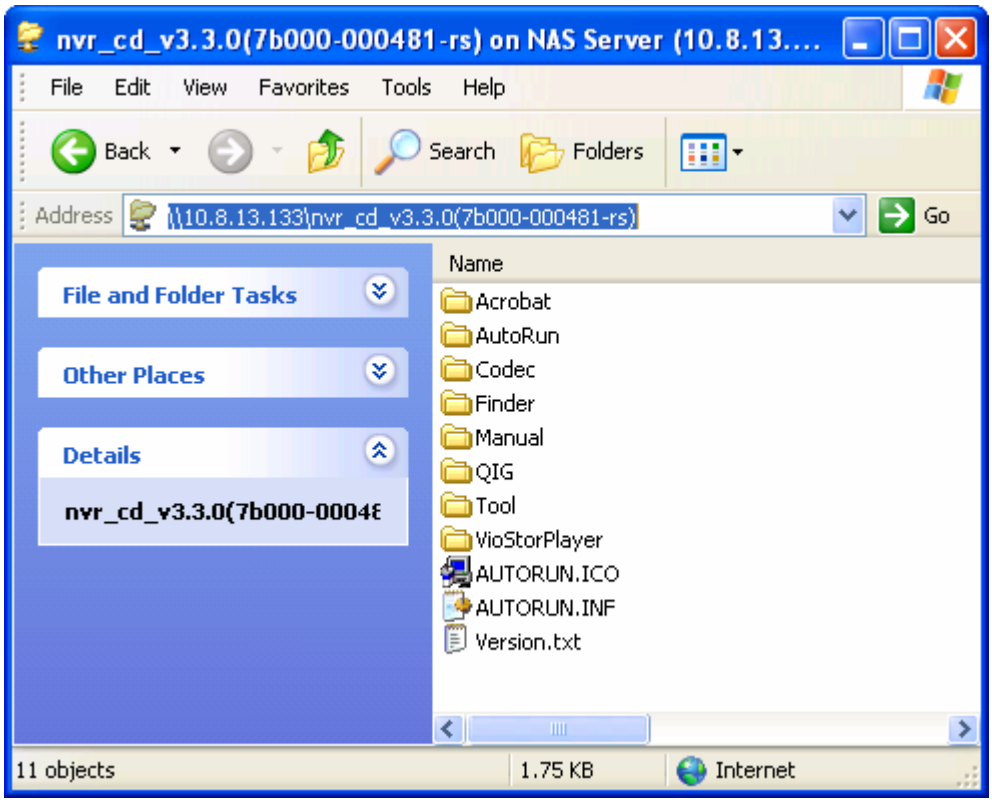


2.2 Browse CD-ROM

Run the product CD-ROM on your Windows PC, you can view the Quick Installation Guide (QIG) and user manual, and install codec and software utilities Finder and VioStor Player.

You can browse the CD-ROM and access the following contents:

- Finder: The setup program of QNAP Finder. This tool is used to discover the NVR servers available on the local network and configure the network settings of the NVR.
- Manual: The user manuals of NVR.
- QIG: View the hardware installation instructions of NVR.
- Codec: The codec for playing AVI videos recorded by NVR on Windows Media Player.
- Tool: This folder contains IPP library and monitor plugin. If you failed to install the ActiveX plugin when connecting to the monitoring page of NVR by an IE browser, you can install the plugin from the CD-ROM.
- VioStorPlayer: The setup program of VioStor Player, a tool to play the videos recorded by the NVR. If you failed to install VioStor Player when connecting to the playback page of the NVR by an IE browser, you can install the plugin from the CD-ROM.



2.3 Hard Disk Drives Compatibility List

This product works with 2.5-inch and 3.5-inch SATA hard disk drives from popular hard disk brands. For the hard disk compatibility list, please visit http://www.qnapsecurity.com/pro_compatibility.asp

QNAP disclaims any responsibility for product damage/malfunction or data loss/recovery due to misuse or improper installation of hard disks in any occasions for any reasons.

2.4 IP Cameras Compatibility List

For the information of supported IP camera models, please visit http://www.qnapsecurity.com/pro_compatibility_camera.asp

2.5 Check System Status

LED Display & System Status Overview

LED	Colour	LED Status	Description
System Status	**Red/ Green**	Flashes green and red alternately every 0.5 sec	1) A hard drive on the NVR is being formatted 2) The NVR is being initialised 3) The system firmware is being updated 4) RAID rebuilding is in process 5) Online RAID Capacity Expansion is in process 6) Online RAID Level Migration is in process
		Red	1) A hard drive is invalid 2) The disk volume has reached its full capacity 3) The disk volume is going to be full 4) The system fan is out of function 5) An error occurs when accessing (read/write) the disk data 6) A bad sector is detected on the hard drive 7) The NVR is in degraded read-only mode (2 member drives fail in a RAID 5 or RAID 6 configuration, the disk data can still be read) 8) (Hardware self-test error)
		Flashes red every 0.5 sec	The NVR is in degraded mode (one member drive fails in RAID 1, RAID 5 or RAID 6 configuration)
		Flashes green every 0.5 sec	1) The NVR is starting up 2) The NVR is not configured 3) A hard drive is not formatted
		Green	The NVR is ready
		Off	All the hard drives on the NVR are in standby mode
LAN	**Orange**	Orange	The NVR is connected to the network
		Flashes orange	The NVR is being accessed from the network

HDD	**Red/ Green**	Flashes red	The hard drive data is being accessed and a read/write error occurs during the process
		Red	A hard drive read/write error occurs
		Flashes green	The hard drive data is being accessed
		Green	The hard drive can be accessed
USB	**Blue**	Flashes blue every 0.5 sec	1) A USB device is detected 2) A USB device is being removed from the NVR 3) The USB device connected to the front USB port of the NVR is being accessed 4) The NVR data is being copied to the external USB device
		Blue	The USB device connected to the front USB port of the NVR is ready
		Off	The NVR has finished copying the data to the USB device connected to the front USB port
eSATA†	**Orange**	Flashes	The eSATA device is being accessed

† The eSATA port is available on certain models only. Please refer to http://www.qnapsecurity.com/ for more information.

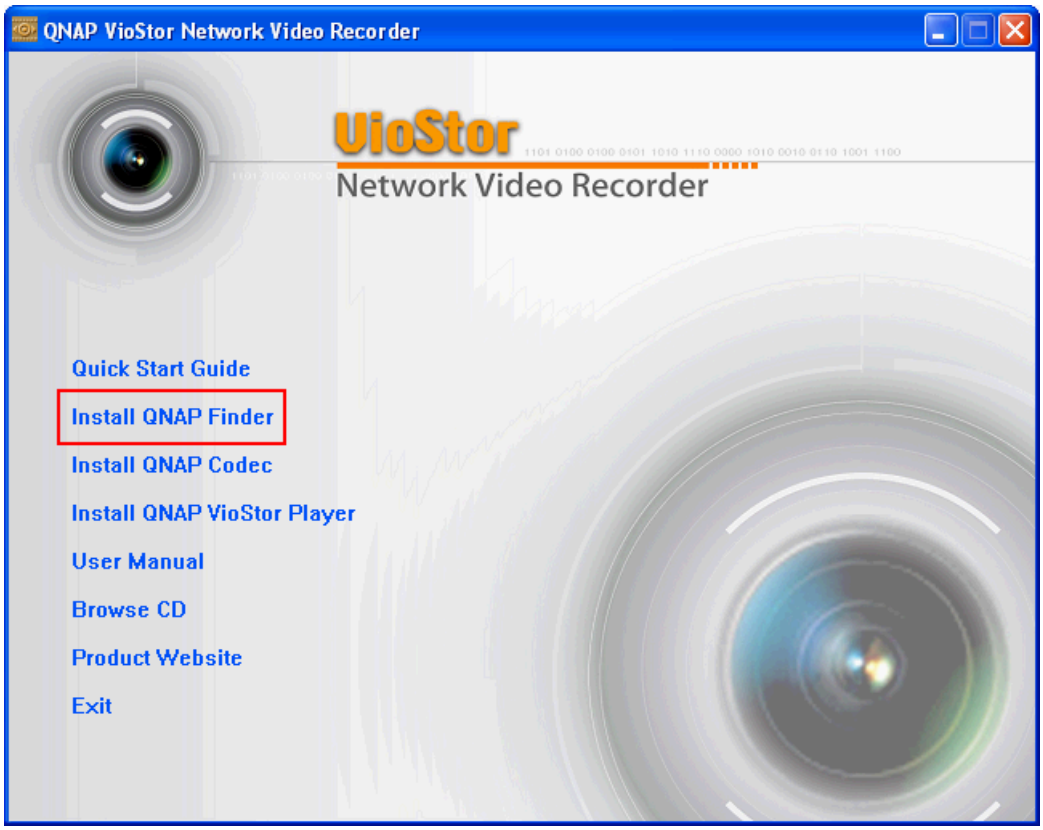
Beep Alarm (beep alarm can be disabled in 'System Tools' > 'Hardware Settings')

Beep sound	No. of Times	Description
Short beep (0.5 sec)	1	1) The NVR is starting up 2) The NVR is being shut down (software shutdown) 3) The reset button is pressed 4) The system firmware has been updated
Short beep (0.5 sec)	3	The NVR data cannot be copied to the external device by pressing the one-touch-auto-video-backup button.
Short beep (0.5 sec), long beep (1.5 sec)	3, every 5 min	The system fan is out of function
Long beep (1.5 sec)	2	1) The disk volume is going to be full 2) The disk volume has reached its full capacity 3) The hard drives on the NVR are in degraded mode 4) Hard disk rebuilding process starts
	1	1) The NVR is turned off by force shutdown (hardware shutdown) 2) The NVR has been turned on successfully and is ready

2.6 System Configuration

Install Finder

1. Run the product CD, the following menu is shown. Click 'Install Finder'.



2. Follow the instructions to install Finder. Upon successful installation, run Finder. If Finder is blocked by your firewall, unblock it.

3. Finder detects the NVR servers on the local network. If the server has not been initialised, you will be prompted to perform quick setup. Click 'Yes' to continue.

> **Note:** If the NVR is not found, click 'Refresh' to try again.

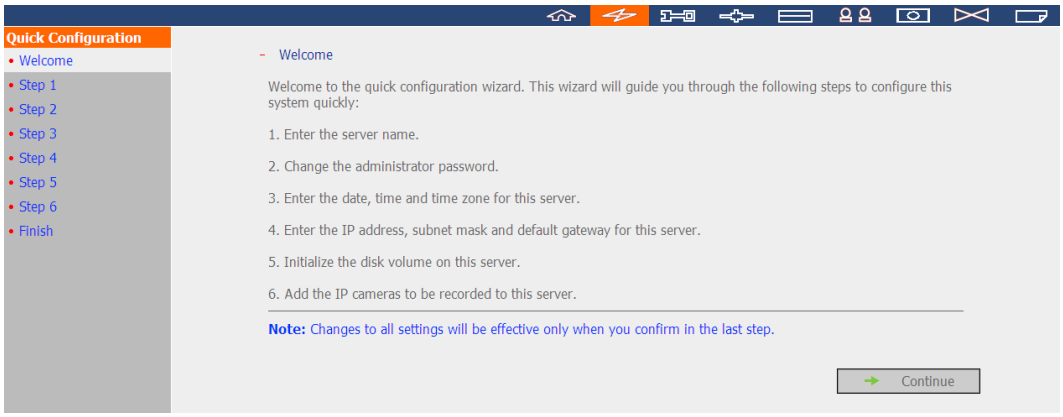
4. You must enter the administrator name and password to perform quick setup. The default administrator name and password are as below:

Use name: **admin***
Password: **admin**

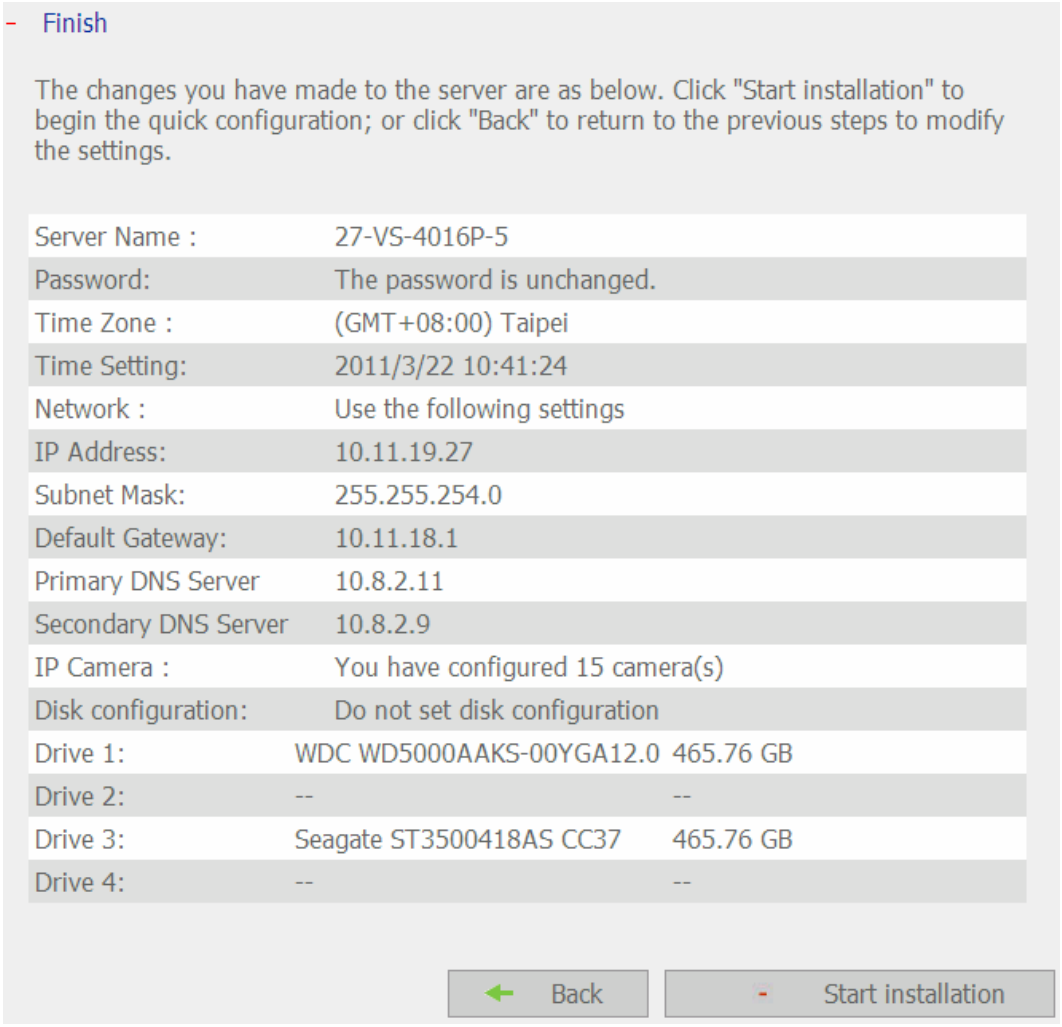
*If you are using the VS-201/VS-101/NVR-104, the default login name is 'administrator' and the login password is 'admin'.

Note: Make sure all the IP cameras are configured and connected to the network.

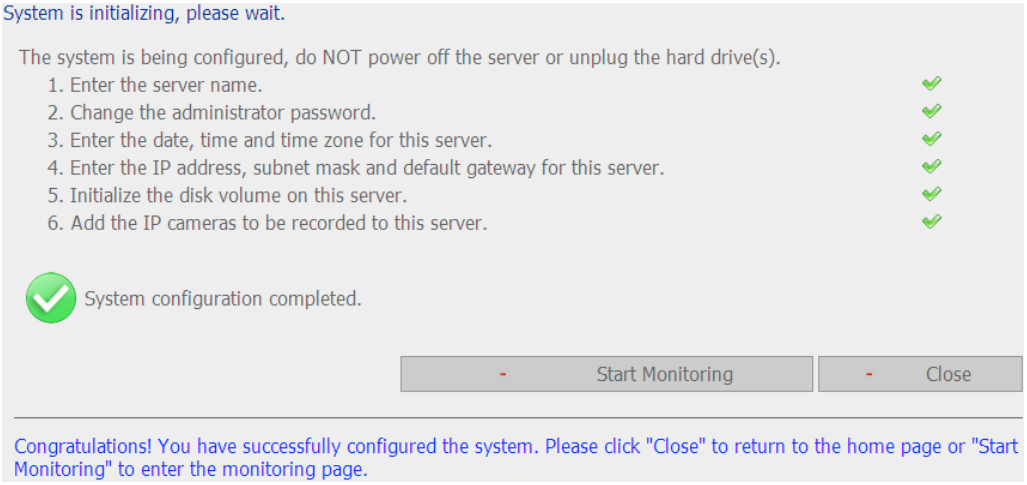
5. The quick configuration page will be shown. Click 'Continue' and follow the instructions to finish the configuration. For further information, please refer to Chapter 6.1.



6. Click ‘Start installation’ to execute the quick configuration.



7. After the quick configuration, you can start to use the NVR. Click ‘Start Monitoring’ to view the live video from the IP cameras or click ‘Close’ to return to the home page of the system administration.



8. The first time you connect to the monitoring page of the NVR, install the ActiveX add-on.

You can view the live video from the IP cameras configured on the NVR and the recording status of each channel.

Chapter 3. Use the NVR by Local Display

Note: This feature is supported by the VioStor Pro Series NVR only. The models include VS-8040U-RP, VS-8032U-RP, VS-8024U-RP, VS-8040, VS-8032, VS-8024, VS-6020 Pro, VS-6016 Pro, VS-6012 Pro, VS-4016U-RP Pro, VS-4012U-RP Pro, VS-4008U-RP Pro, VS-4016 Pro, VS-4012 Pro, VS-4008 Pro, VS-2012 Pro, VS-2008 Pro, and VS-2004 Pro.

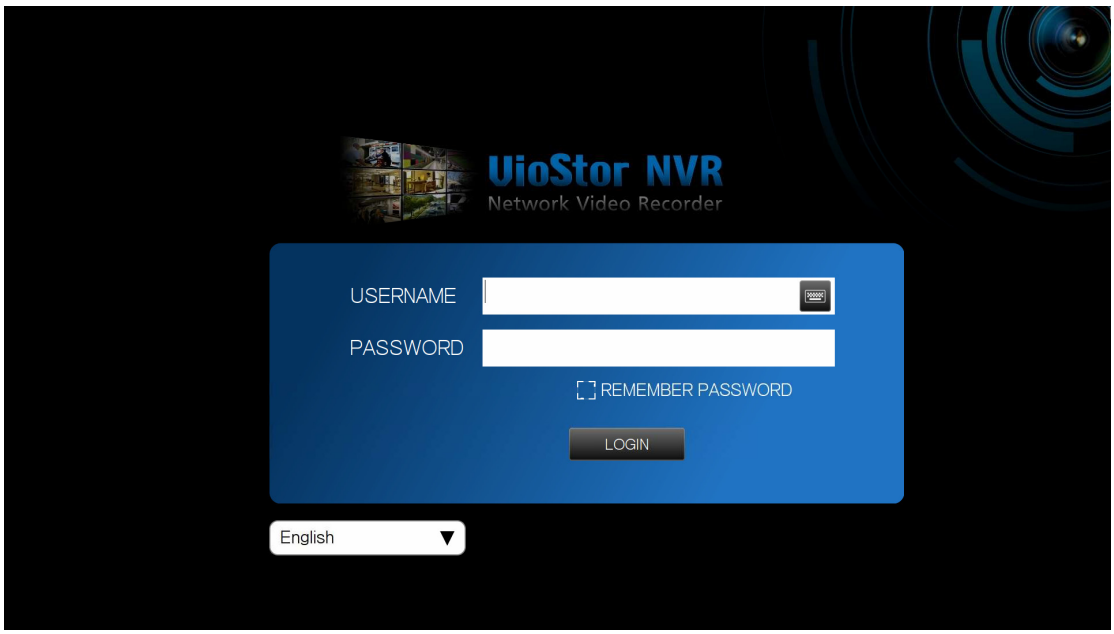
You can connect to the NVR by local display via the VGA connector to perform PC-less quick configuration, monitoring, and video playback. To use this feature, you need to do the following:

1. Make sure at least one hard disk drive has been installed on the NVR.
2. Connect the NVR to the network.
3. Make sure the IP cameras have been configured and connected to the network.
4. Connect a VGA monitor or TV (suggested video output resolution: 1920 x 1080)* to the NVR via the VGA connector.
5. Connect a USB mouse and a USB keyboard (optional) to the NVR via the USB ports.
6. Turn on the NVR.

*The local display feature supports maximum screen resolution of 2048*1536 (QXGA).

When the NVR is turned on, the login screen will be shown. Select the language. Enter the administrator name and password. If the NVR has not been configured, skip the login page and enter Quick Configuration (refer to Chapter 3.1).

Default user name: admin Password: admin



Click the keyboard icon  to enter the necessary information if you do not have a USB keyboard.

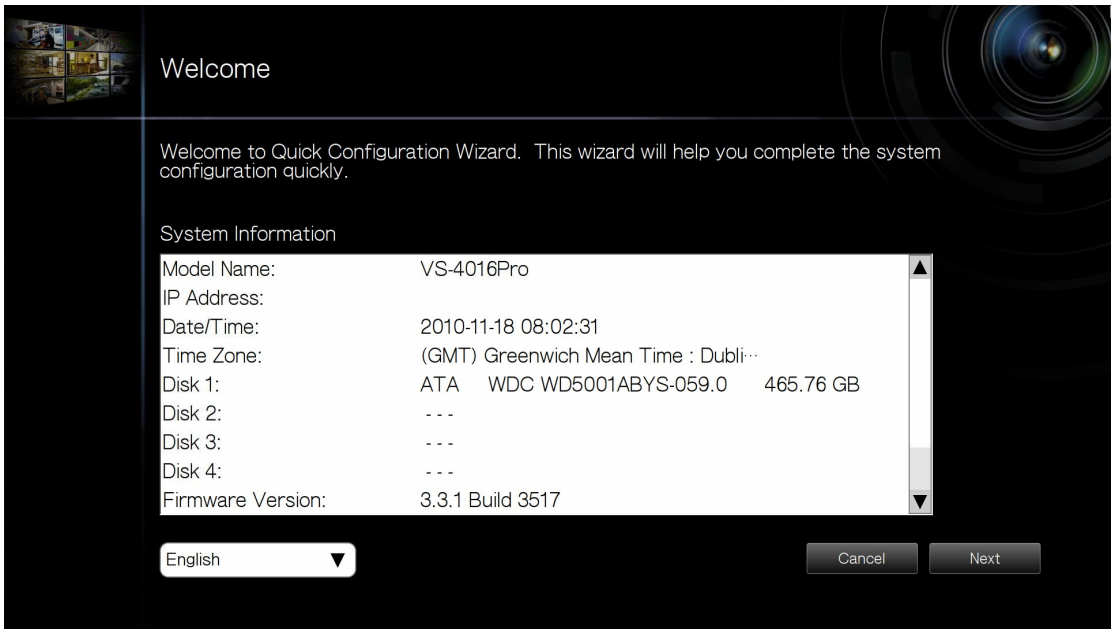
The monitoring page will be shown upon successful login, refer to Chapter 3.3 for details.

3.1 Quick Configuration

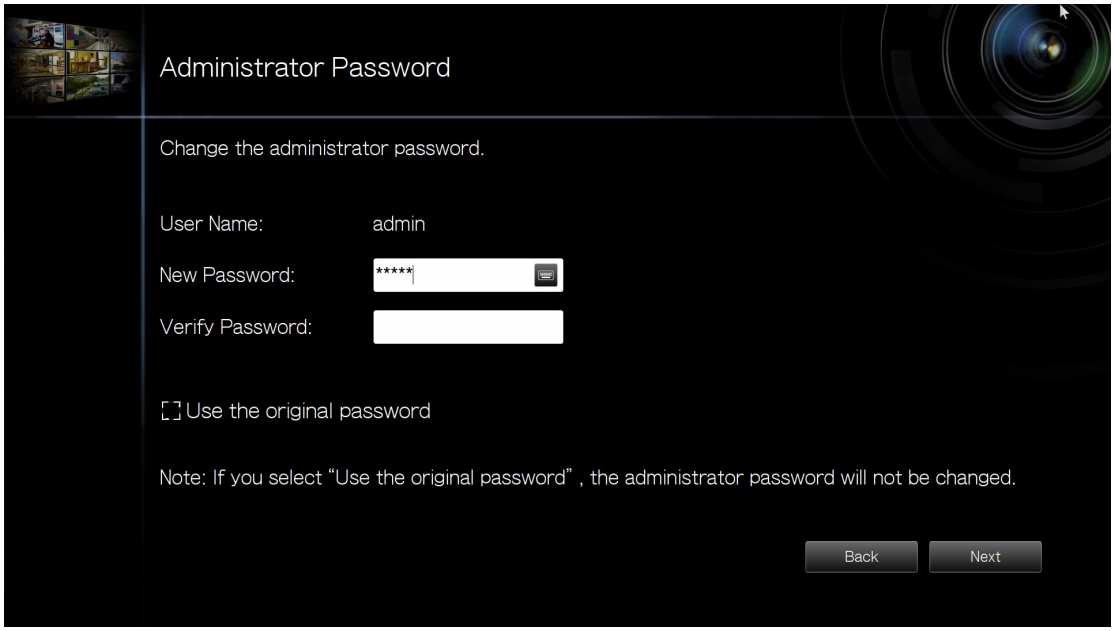
If the NVR has not been configured, Quick Configuration Wizard will be shown. Follow the instructions of the wizard to complete the system setup.

Note: All the changes will be effective only after you apply the settings in the last step.

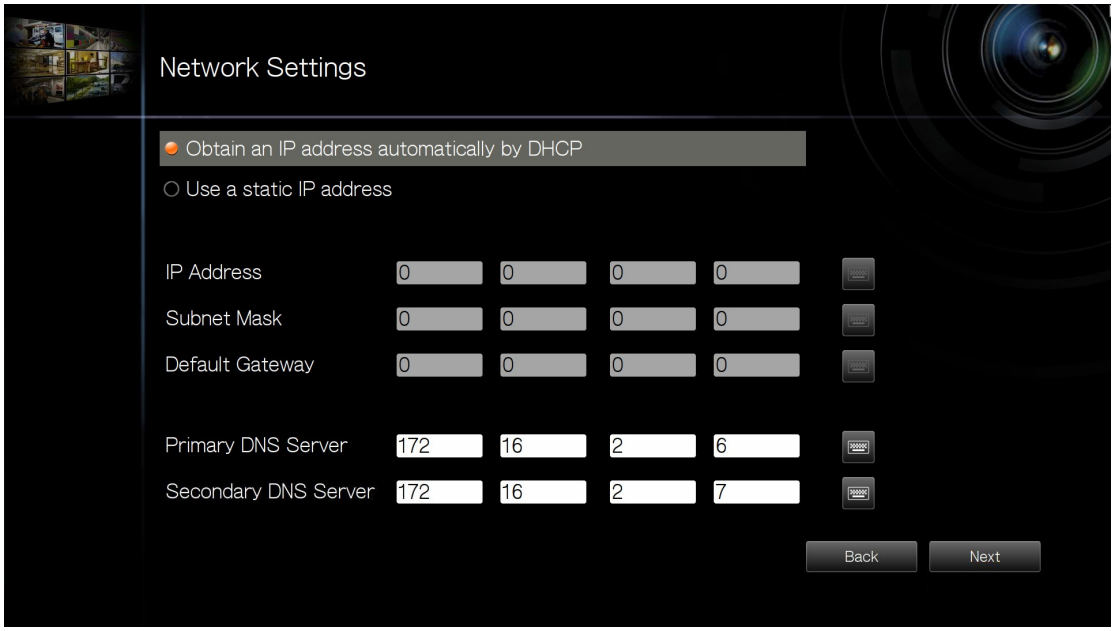
1. The system information will be shown. Select the language and click 'Next'.



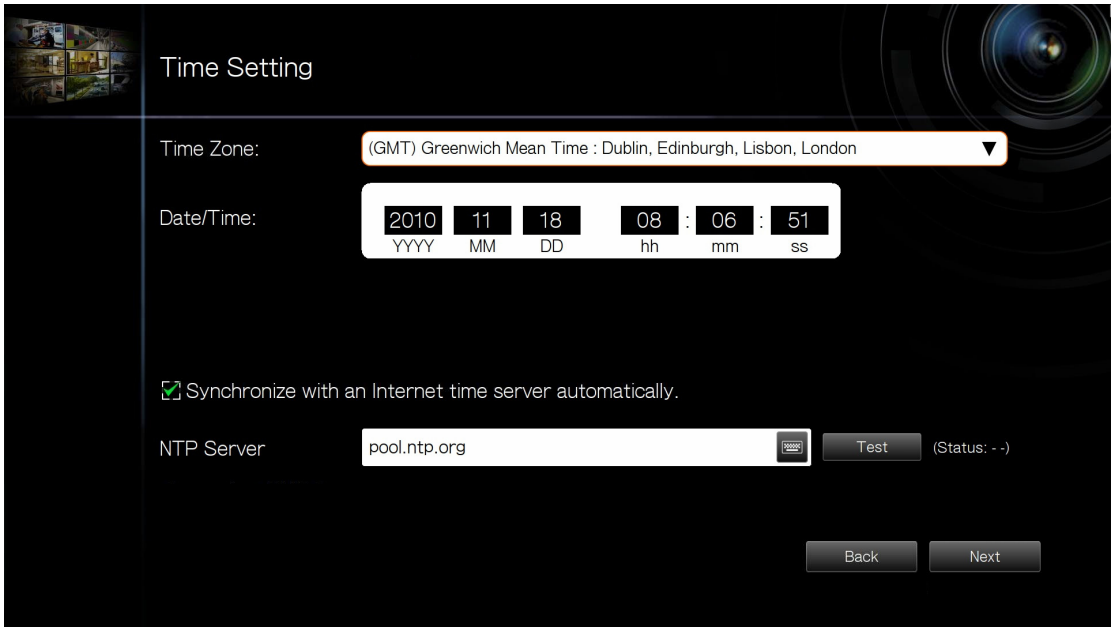
2. Change the admin password or use the default password (admin).



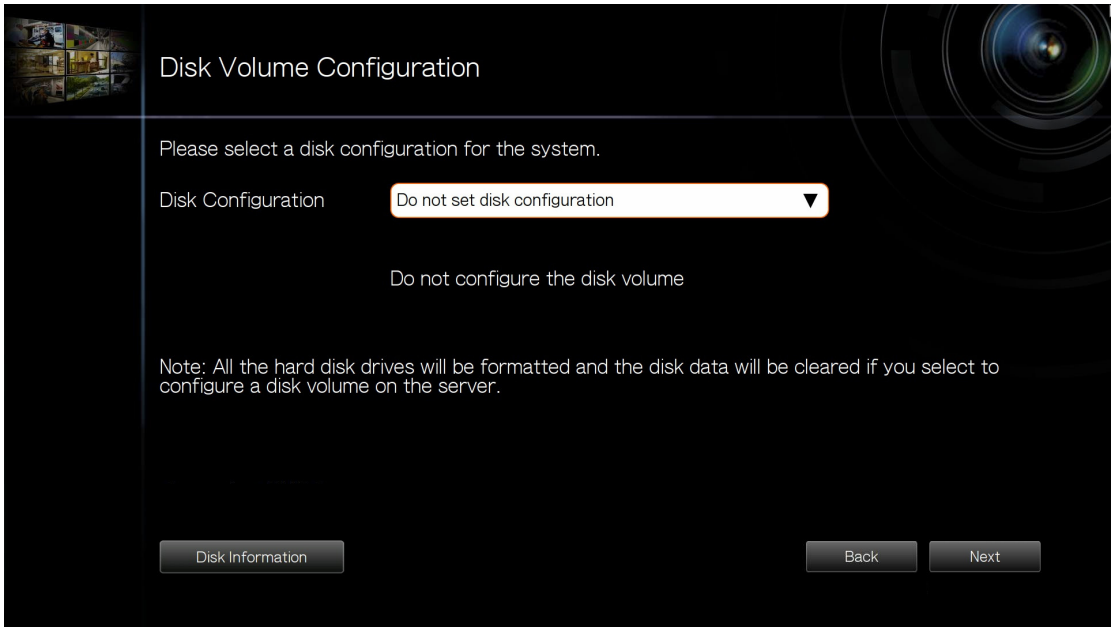
3. Select to obtain the network settings automatically or enter the network settings.



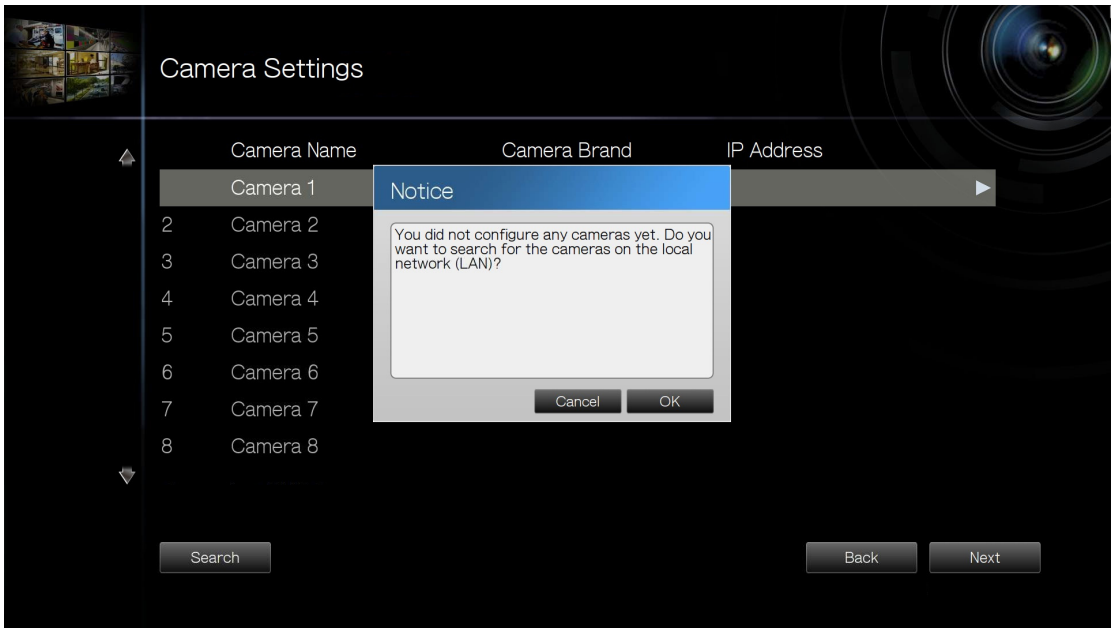
4. Enter the date and time settings. You can select to synchronize the server time with an Internet time server. If you enter a domain name for the NTP server, make sure you have set up a correct DNS server.



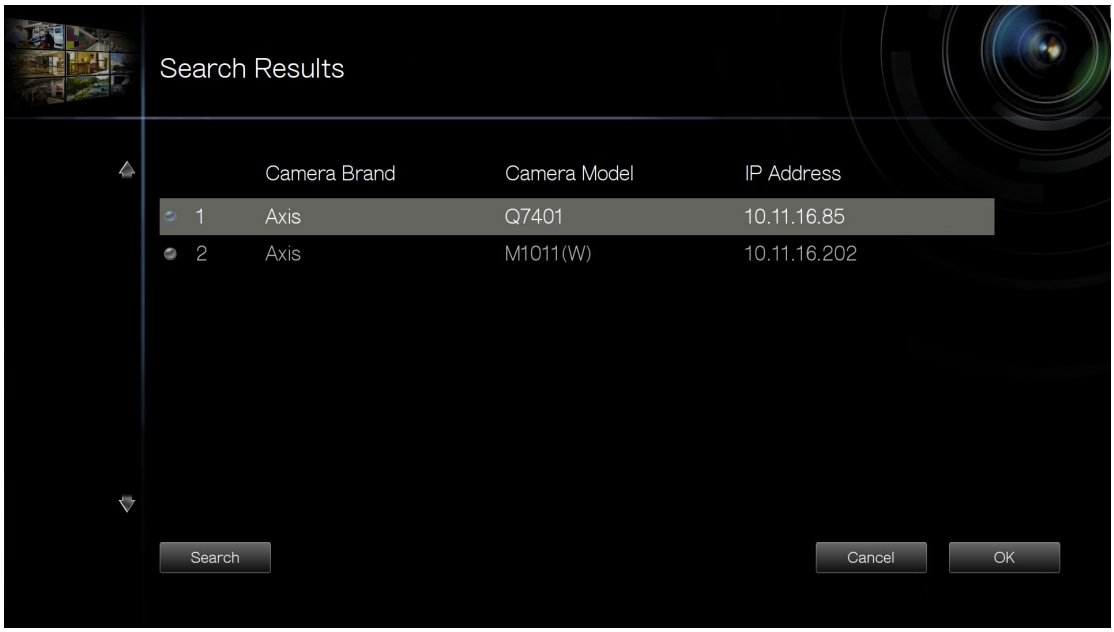
5. Select the disk configuration. Click 'Disk Information' to view the hard disk drive details. Note that all the disk data will be deleted when you select to initialize the disk volume.



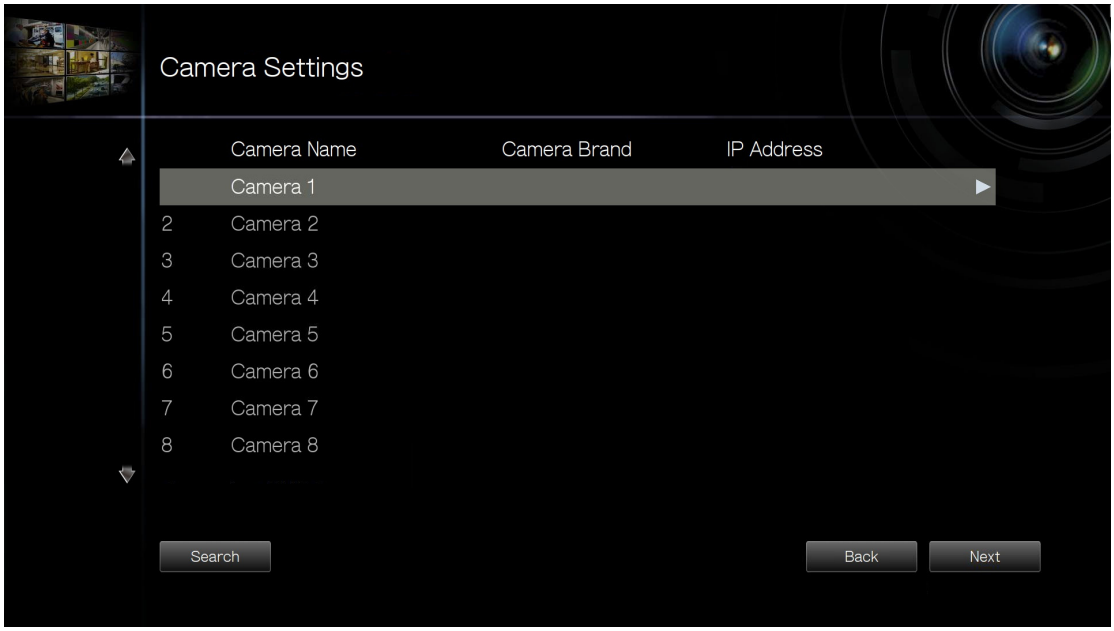
6. Configure the IP camera settings. If no IP cameras have been set, you will be prompted to search for the cameras on the local network.



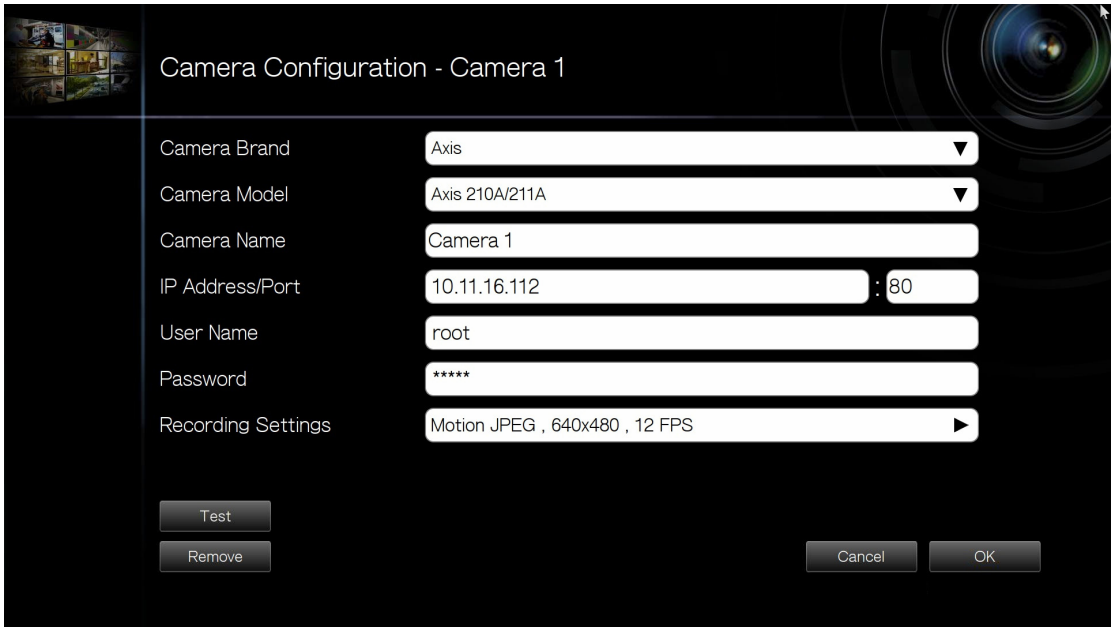
a. The cameras found will be shown. Select the IP cameras and click 'Add' to add the channels.



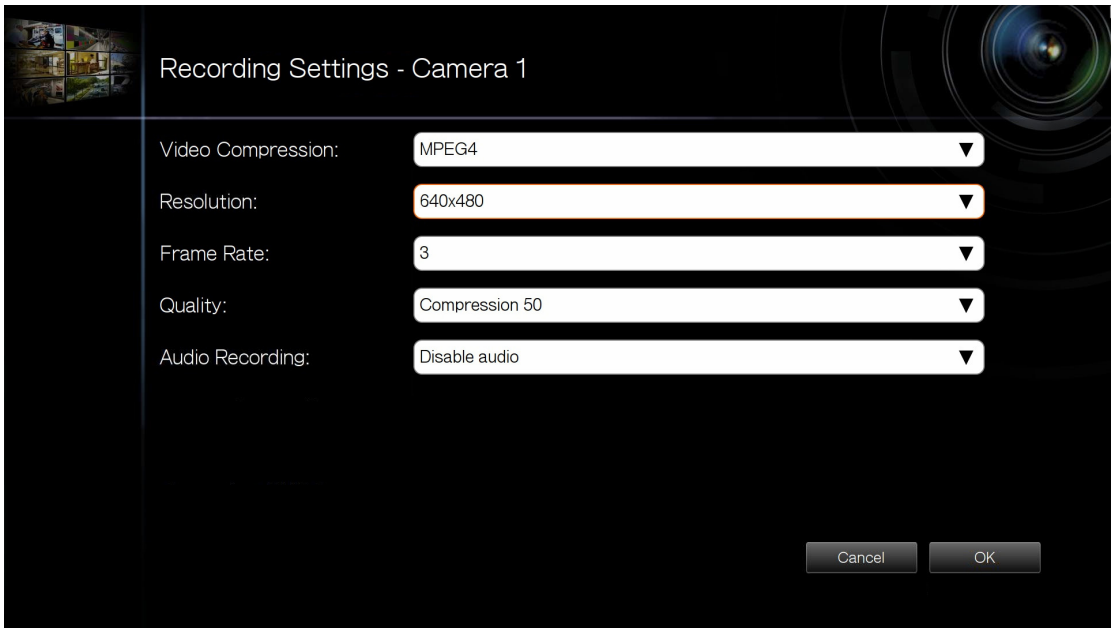
b. To manually add an IP camera or edit the camera settings, click ▸.



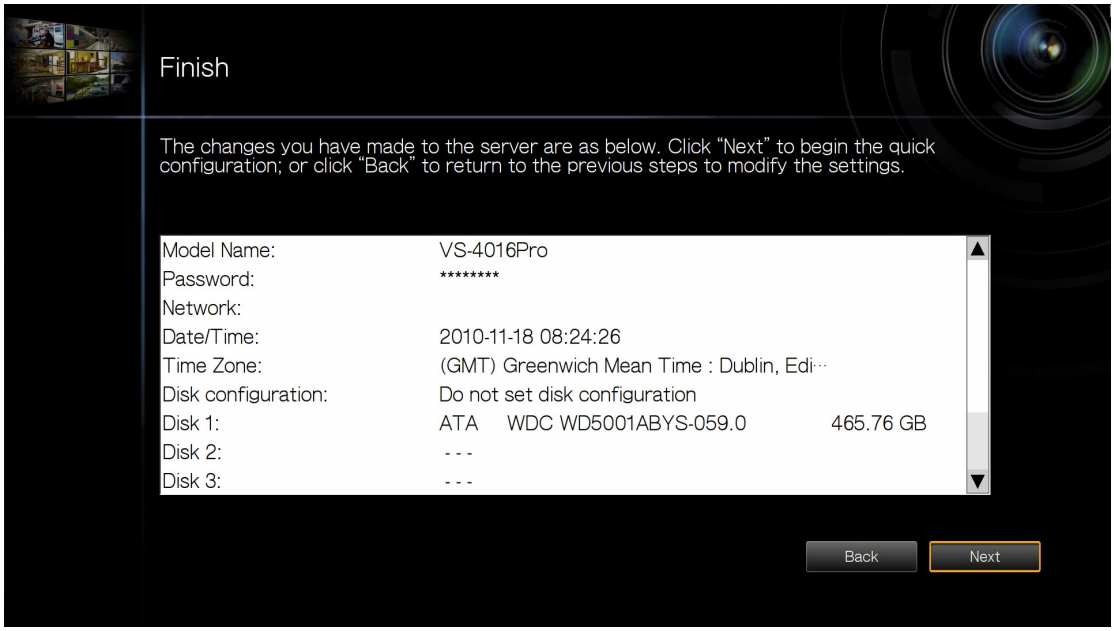
c. Enter the camera settings. Click 'Test' to test the connection. Click 'Remove' to delete the camera.



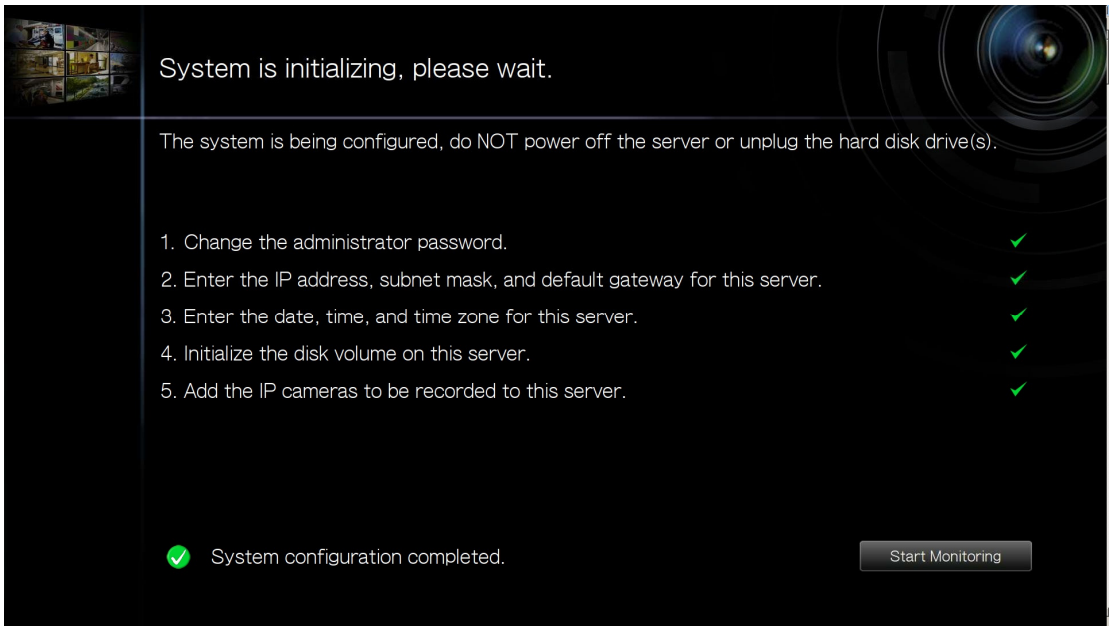
d. To edit the recording settings, click ▸ next to 'Recording Settings'. Define the recording settings and click 'OK'.



7. Verify the settings and click ‘Next’ to initialize the server.

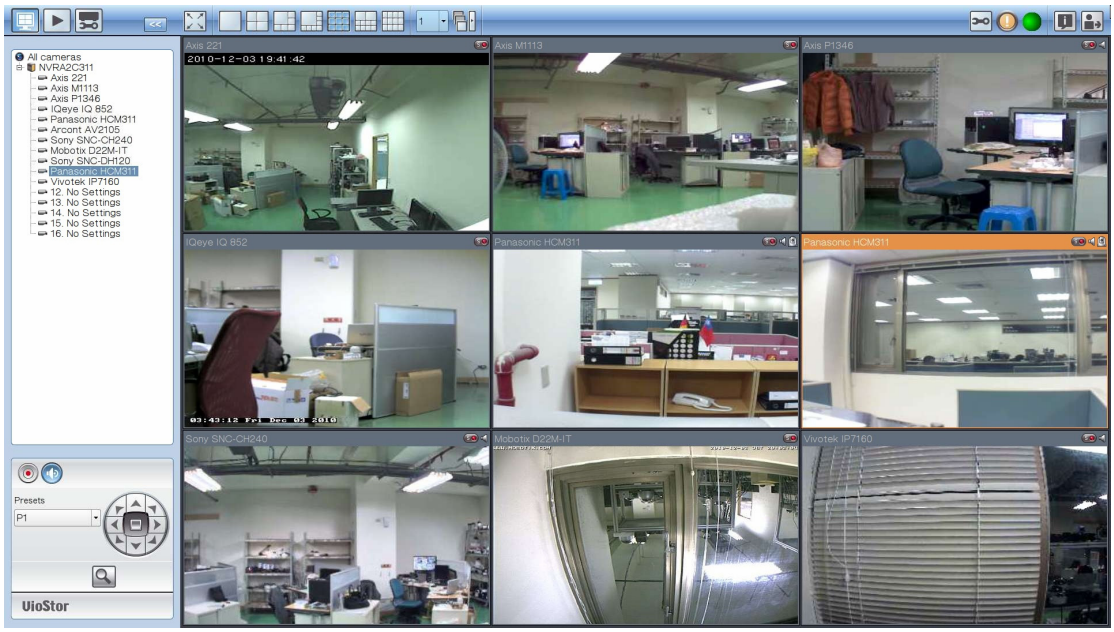


8. After the system has been initialized, you can start to use the NVR. Click ‘Start Monitoring’ to enter the monitoring screen.

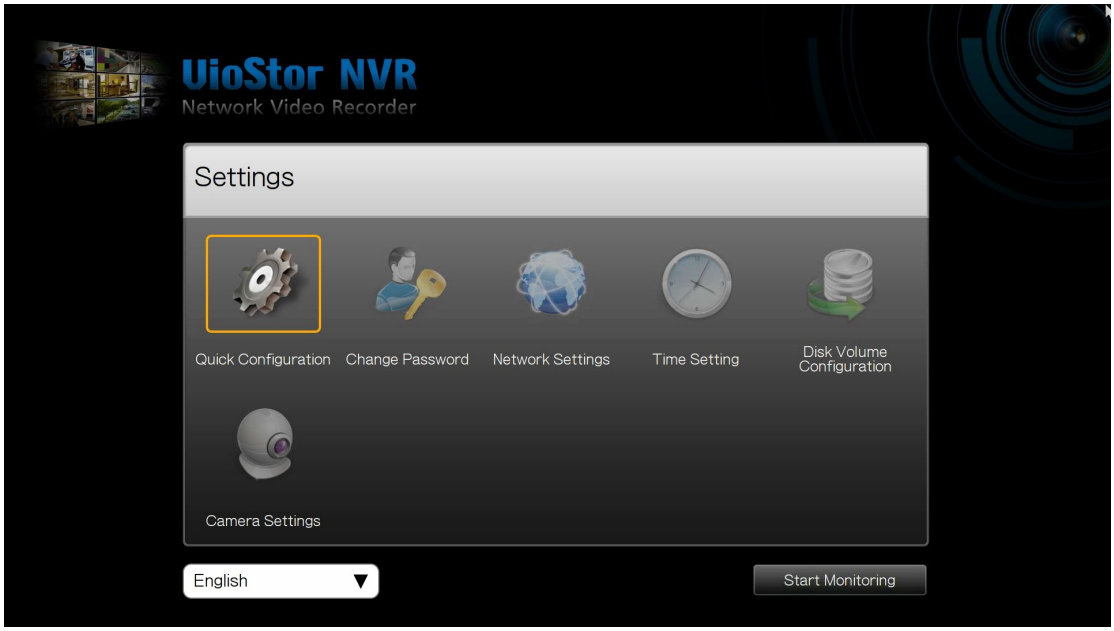


3.2 System Configuration

To manage the system settings such as administrator password, network and time settings, click  on the monitoring screen. Note that this button (option) will only be shown when you login as an administrator.



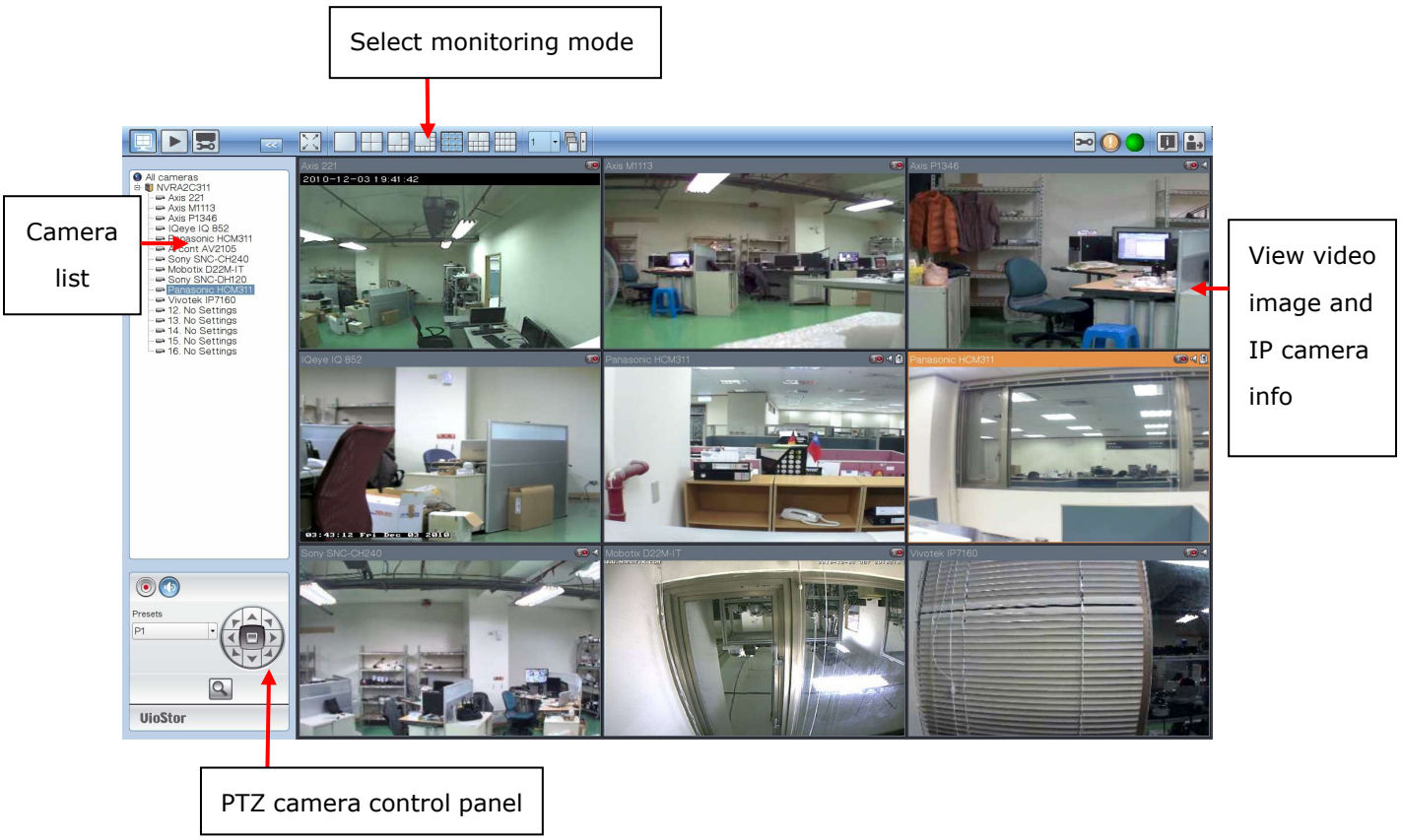
Select the language and click the icons to configure the settings.



Icon	Description
	Perform quick configuration of the system.
	Change the administrator password to login local display.
	Change the network settings.
	Change the date and time settings.
	Configure the disk volume and initialize the hard disks.
	Configure the network camera settings.

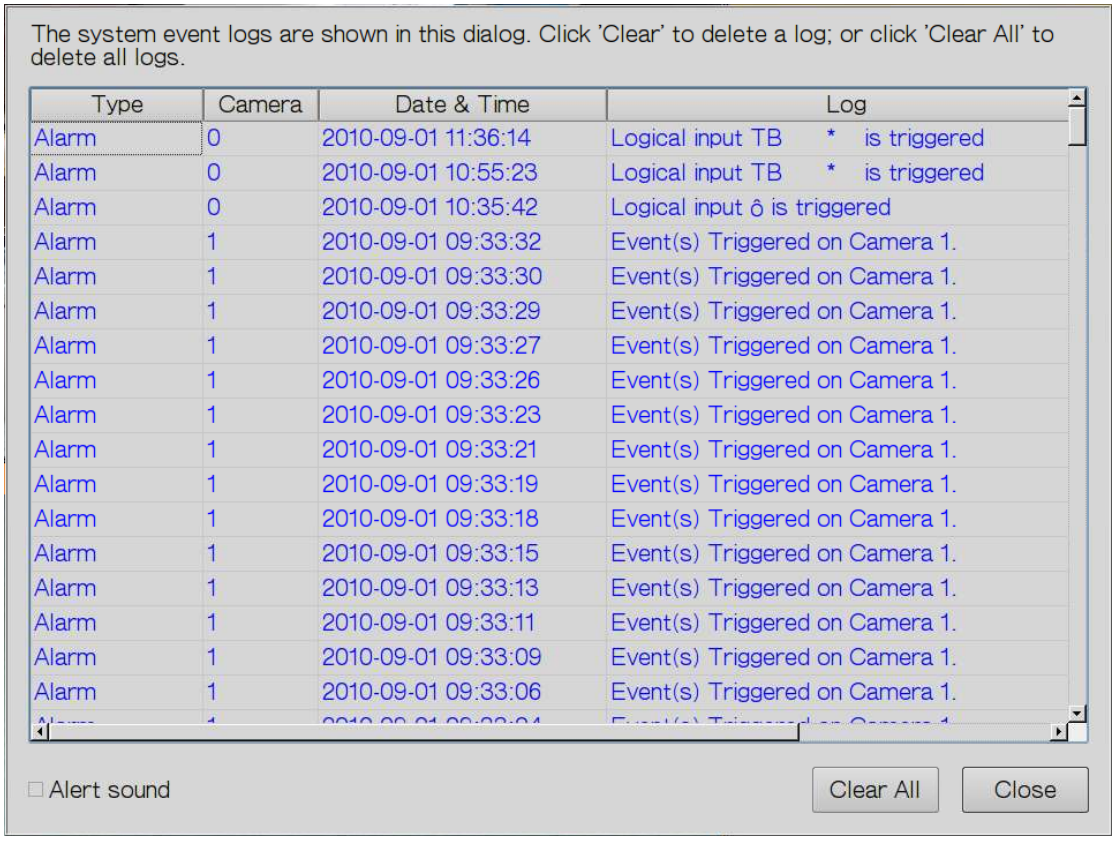
3.3 Monitoring

Upon successful login, the monitoring screen will be shown. You can monitor the IP cameras, change the display mode, enable or disable manual recording, control the PTZ cameras, and so on.



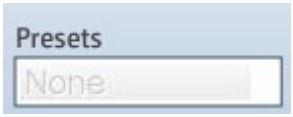
Icon	Description
	**Monitor:** Enter the monitoring page.
	**Playback:** Enter the playback page.
	**Configuration:** Enter the system configuration page; allows admin access only.
	**Options:** Configure the event notification settings, video window display settings, screen resolution, etc.
	**Hide left panel:** Hide the panel on the left of the monitoring page.
	**Show left panel:** Show the panel on the left of the monitoring page.
	**Logout:** Logout the NVR.
	**About:** View the server name, NVR model, and firmware version.
	**Manual recording:** Enable or disable recording on the IP camera. The administrator can select to enable or disable this function in 'Camera Settings' > 'Recording Settings' on the web-based administration interface.
	**Audio (optional):** Turn on or off the audio support for the monitoring page.

	**Event notification:** When the alarm recording is enabled and an event is detected, this icon will be shown. Click this icon to view the alert details. You can turn on or off the alert sound. To clear all the logs, click 'Clear All'.



PTZ Control Panel

The term 'PTZ' stands for 'Pan/Tilt/Zoom'. If your IP camera supports PTZ, you can use the control panel on the NVR to adjust the viewing angel of the IP camera. These functions are available depending on the camera models. Please consult the camera's documentation for details. Note that the digital zoom function will be disabled when the PTZ function is in use.

	**Pan and tilt:** If the PTZ camera supports pan and tilt functions, click these buttons to pan or tilt the camera.
	**Preset positions:** Select the preset position of the PTZ camera.
	**Zoom in/Zoom out:** If your PTZ camera supports zooming, click these buttons to zoom in or zoom out.
	**Digital zoom:** Select a channel and click this button to enable the digital zoom function. When enabled, you can click '+' to zoom in or '-' to zoom out.
	**Focus control:** Adjust the focus control of the PTZ camera.

Display Mode

The NVR supports various display modes for monitoring. Click the correct icon to switch the display mode.

Icon	Description
	Full screen
	Single-channel mode
	4-channel mode
	6-channel mode
	8-channel mode
	9-channel mode
	10-channel mode
	12-channel mode
	Select the display page number
	Sequential mode. This mode can be used with other display modes. Click  to enable or disable sequential mode. Click  to define the time interval of which the channels will be displayed.

Note:
VS-2004 Pro supports 1 to 6-channel display modes only.
VS-2008 Pro, VS-4008 Pro, VS-4008U-RP Pro support 1 to 10-channel display modes only.
Other NVR models support 1 to 12-channel display modes.

Live View Screen

Upon successful configuration of the IP cameras, you can enter the monitoring screen to view the live video from the cameras.

If the camera supports pan and tilt functions, you can click the channel on the screen and adjust the viewing angle with a mouse. If zooming is supported, you can scroll the mouse wheel to zoom in or zoom out the video. These functions are available depending on the camera models. Please consult the camera's documentation for details.

Camera Status

The camera status is indicated by the icons shown below:

Icon	Camera Status
	Scheduled or continuous recording is in process
	This IP camera supports audio function
	This IP camera supports PTZ function
	Manual recording is enabled
	The recording triggered by advanced event management (‘Camera Settings’ > ‘Alarm Settings’ > ‘Advanced Mode’) is in process
	The alarm input 1 of the IP camera is triggered
	The alarm input 2 of the IP camera is triggered
	The alarm input 3 of the IP camera is triggered
	Motion detection recording is in process
	Digital zoom is enabled

Connection Message

When the NVR fails to display the video of an IP camera, a message will be shown in the channel window to indicate the status.

Message	Description
Connecting	If the IP camera is located on remote network or the Internet, it may take some time to establish the connection to the camera.
Disconnected	The NVR cannot connect to the IP camera. Please check the network connection of your computer and the availability of the IP camera. If the IP camera is installed on the Internet, make sure you have opened the port on your router or gateway to connect to the IP camera. Please refer to Appendix B.
No Permission	You do not have the right to view the channel. Please login as a user with the access right or contact the system administrator.
Server Error	Please check the camera settings or update the firmware of the IP camera (if any). Contact the technical support if the error persists.

Note:

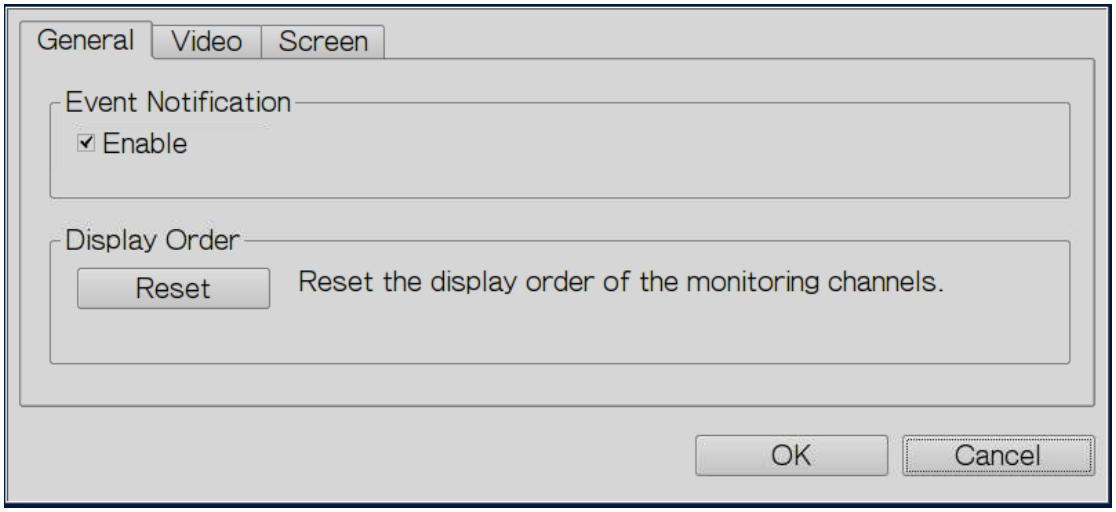
1. Enabling or disabling manual recording will not affect scheduled or alarm recording tasks. They are independent processes.
2. You can right click the IP camera channel and select the following options:
   a. Full screen
   b. Keep aspect ratio
   c. Deinterlace (available on particular camera models only)
   d. Keep original size

Options

To configure advanced monitor settings, click  .

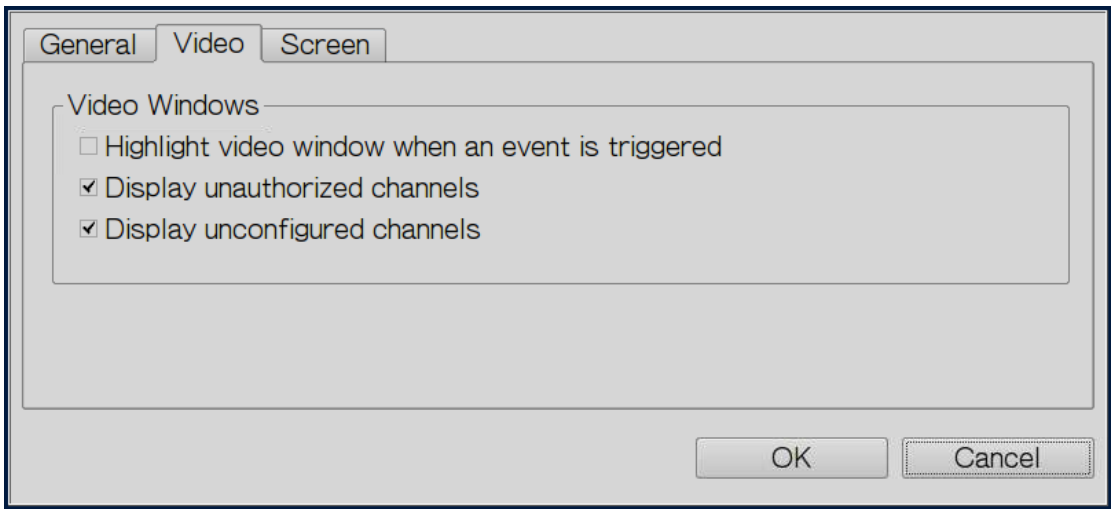
The following options are provided under the 'General' tab.

- Event Notification: When this option is enabled and an event is triggered, the alert icon  will be shown on the monitoring channel instantly. Click the icon to view the alert details.
- Display Order: Click 'Reset' to reprioritize the monitoring channels to default order.

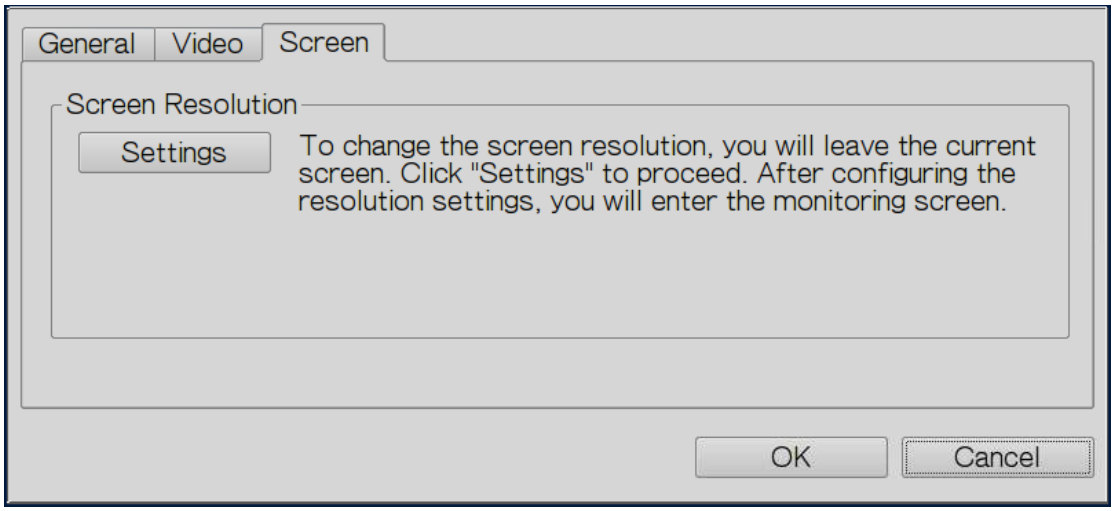


The following options are provided under the 'Video' tab.

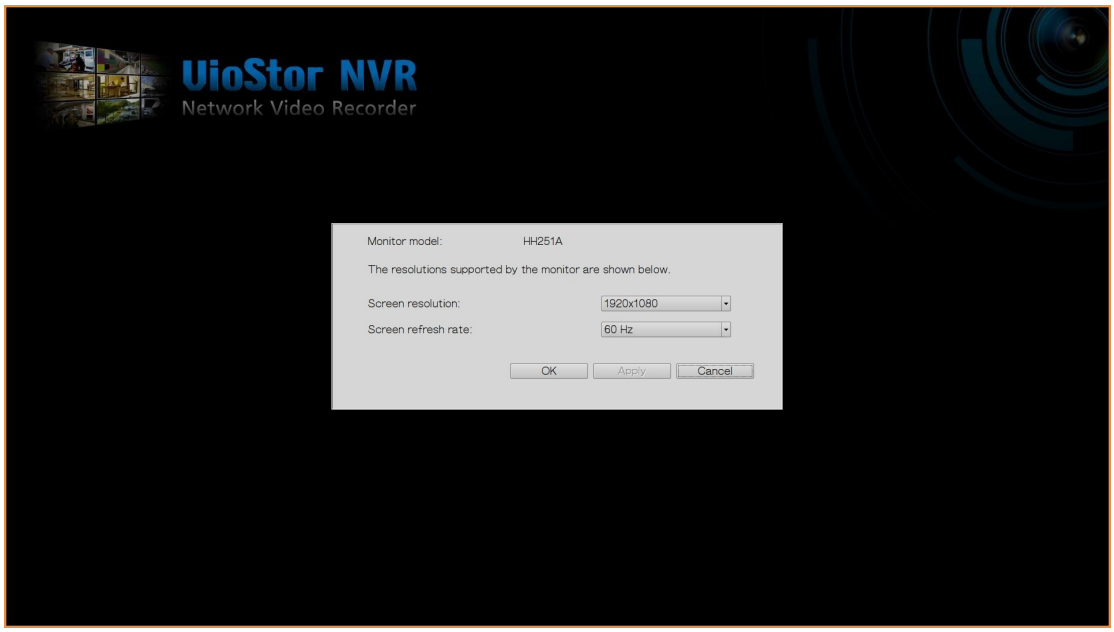
- Highlight the video window when an event is triggered: The video window will flash if an event is triggered.
- Display unauthorized channels: Select this option to show the channels that the user does not have access right to monitor.
- Display unconfigured channels: Select this option to show the channels that have not been configured.



The NVR detects the resolution settings supported by the connected monitor and selects the most appropriate setting automatically. To change the screen resolution, click 'Settings' under the 'Screen' tab. After configuring the resolution settings, you will enter the monitoring screen.



If the monitor model cannot be detected, the NVR will provide the options 1400*1050, 1280*1024, 1024*768.

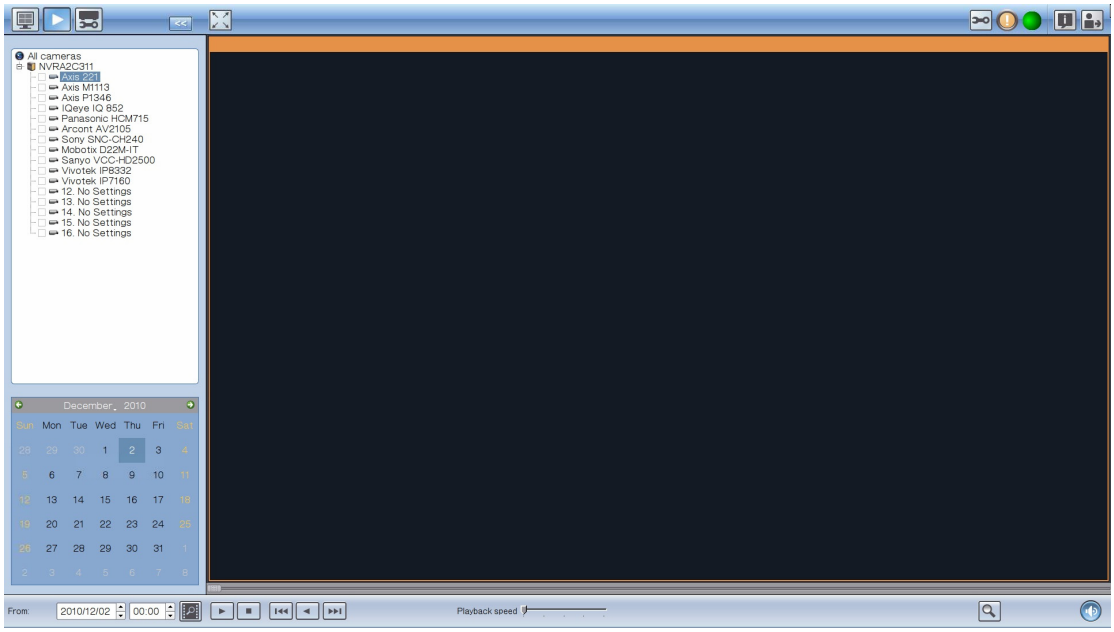


3.4 Video Playback

You can play the videos on the NVR by the local display. To use this feature, click  on the monitoring screen. Most of the icons on the playback screen are the same as those on the monitoring screen. Please refer to Chapter 3.2 for the icon description.

Note: You must have the playback access right to the IP cameras to play the videos. You can login the NVR as admin and edit the playback access right in 'User Management' by the web-based administration interface.

When the playback screen is shown, select a camera channel on the NVR. Next, select the date and time of the video, click  to start searching. The videos which match the search criteria will be played automatically.



Playback Settings:

You can play, pause, stop, reverse play a video file, or select to play the previous or next file. When playing a video, you can use the scroll bar to adjust the playback speed or click the digital zoom icon  to zoom in or zoom out the video. You can also right click the IP camera channel and select the following options:

a. Full screen
b. Keep aspect ratio
c. Deinterlace (available on particular camera models only)
d. Keep original size

Chapter 4. Use the NVR by Web-based Interface

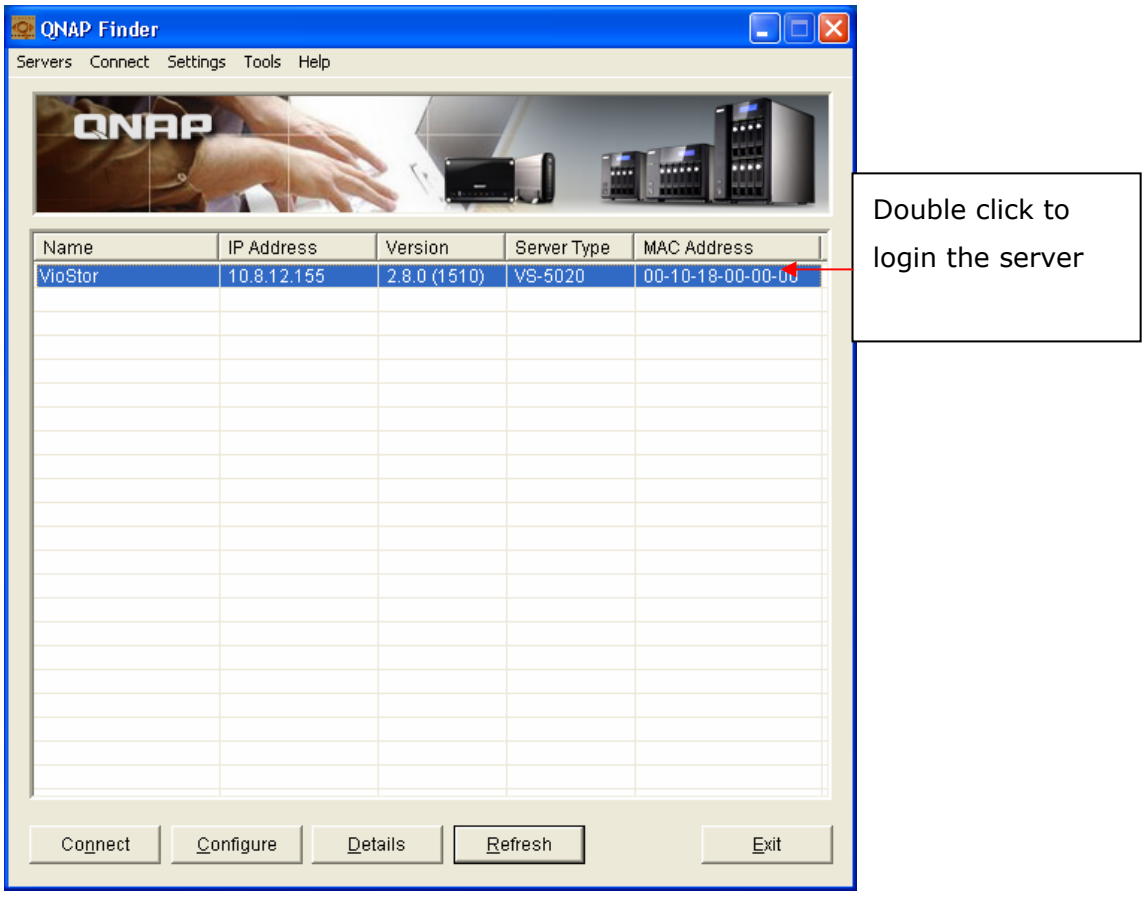
You are recommended to use Microsoft Internet Explorer to monitor the IP cameras and manage the functions of the NVR.

Important Notice:
Before using the NVR, make sure you have installed the hard disks in the server correctly and finished the disk formatting and configuration. Otherwise, the server will not function properly.

4.1 Connect to the NVR

Follow the steps below to connect to the monitoring page of the NVR.

1. Run Finder. Double click the name of the NVR. You can also type the IP address of the server in the IE browser to connect to the monitoring page.



2. Enter the user name and password to login the NVR.

Default user name: **admin***
Default password: **admin**

* If you are using the VS-201/VS-101/NVR-104, the login name is 'administrator' and the login password is 'admin'.

3. To view the live video, install the ActiveX add-on.

4.2 Monitoring Page

Upon successful login, the monitoring page will be shown. Select the display language. You can start to configure the system settings and use the monitoring and recording functions of the server.

Icon	Description
	**Multi display mode:** The NVR supports multi-display mode. (This function can only be used when the computer or the host is connected to multiple monitors.)
	**Multi-server monitoring:** Up to 120 channels from multiple QNAP NVR servers can be monitored.
	**Select language:** Select the display language.
	**E-map:** Display the location of the IP camera. The E-map can be changed in system configuration page.
	**System configuration:** Login the system administration page (admin access required).
	**Monitoring settings:** Configure the advanced settings of the monitoring page. You can configure the source of the video/audio stream, event notification, and snapshot folder.
	**Playback:** Enter the video playback page. The administrator can grant access right to the users to playback the videos.
	**Help:** View the system online help.
	**Logout:** Logout the NVR.
	**Snapshot:** Take a snapshot on the selected channel. When the picture is shown, right click the picture to save it to the computer.
	**Manual recording:** Enable or disable manual recording on the selected channel. The administrator can enable or disable this option on the system configuration page.
	**Audio (optional):** Turn on/off the audio support for the monitoring page.

	**Login network camera homepage:** Select a channel and click this button to go to the homepage of the selected IP camera.
	**Event notification:** When the alarm recording is enabled and an event is detected, this icon will be shown. Click this icon to view the alert details.
	**Digital zoom:** Select a channel and click this button to enable the digital zoom function. (You can also right click the monitoring channel to enable this function.) Press and hold the left mouse button to zoom in or press and hold the right mouse button to zoom out. You can press the left mouse button to drag the viewing angle of the IP camera. You can also use the mouse wheel or the PTZ control panel to use the digital zoom function.
	**Focus control:** Adjust the focus control of the PTZ camera.
	**Select PTZ camera preset positions:** You can view different preset positions of the IP camera by clicking the number buttons. To configure the preset positions of the IP camera, please refer to the user manual of the IP camera.
	**Recording storage status:** Display the percentage of the used storage and the free space of the NVR.

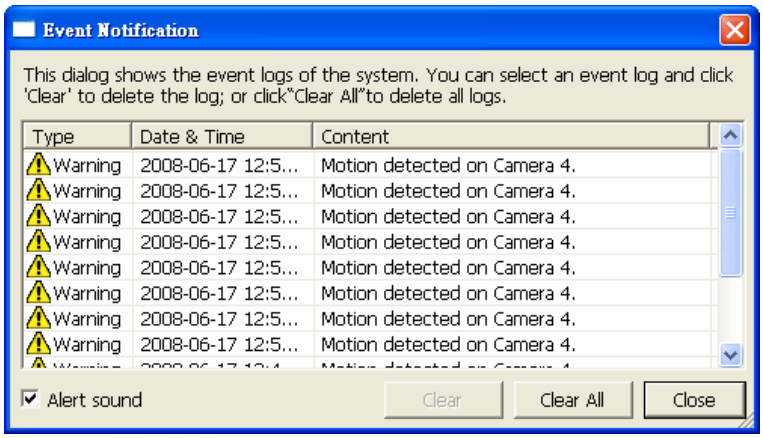
Note:

1. Enabling or disabling the manual recording feature will not affect the scheduled or alarm recording.

2. By default, the snapshots are saved in 'My Documents' or 'Documents'> 'Snapshots' on your Windows OS.

3. If the snapshot time is inconsistent with the actual time that the snapshot is taken, it is caused by the network environment but not a system error.

4. Click the event notification icon to view the event details, enable or disable the alert sound or clear the event logs.

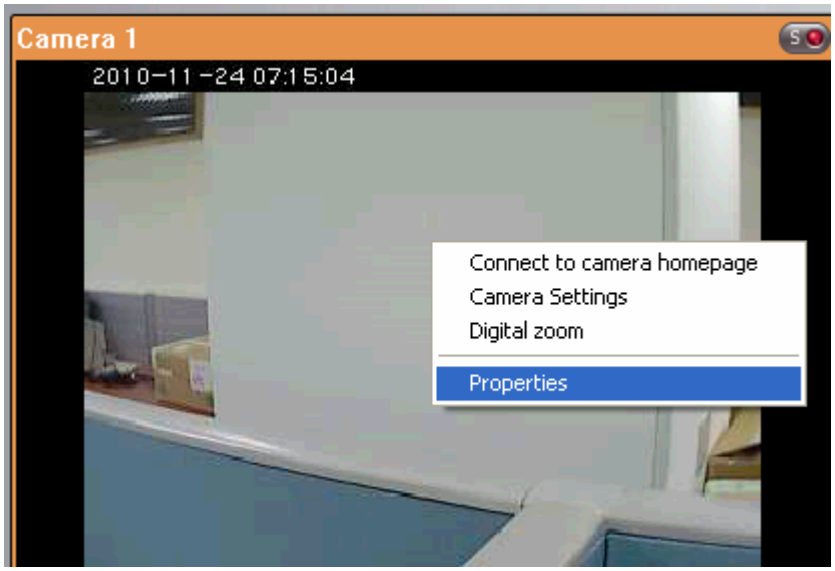


5. When the digital zoom function is enabled on multiple IP cameras, the zooming function will be affected if your computer performance is not high enough.

Right click the monitoring channel on the live view page. The following functions are available depending on the IP camera model.

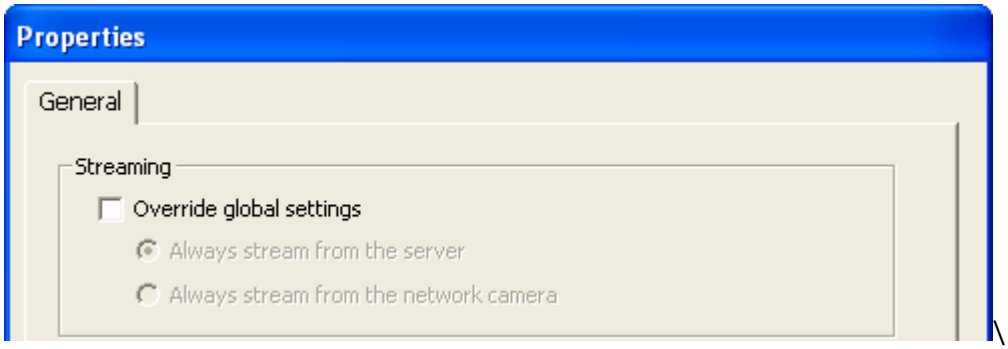
a. Connect to camera homepage.
b. Camera setting: Enter the configuration page of the IP camera.
c. PTZ: Pan/Tilt/Zoom camera control.
d. Preset: Select the preset positions of the PTZ camera.
e. Enable live tracking: Available on Panasonic NS202(A) camera.
f. Disable live tracking: Available on Panasonic NS202(A) camera.
g. Auto cruising: This feature is used to configure the PTZ cameras to cruise according to the preset positions and the staying time set for each preset position.
h. Digital zoom: Enable/disable digital zoom.
i. Keep aspect ratio.

To configure other monitoring options, right click a channel and select 'Properties'.



Streaming:

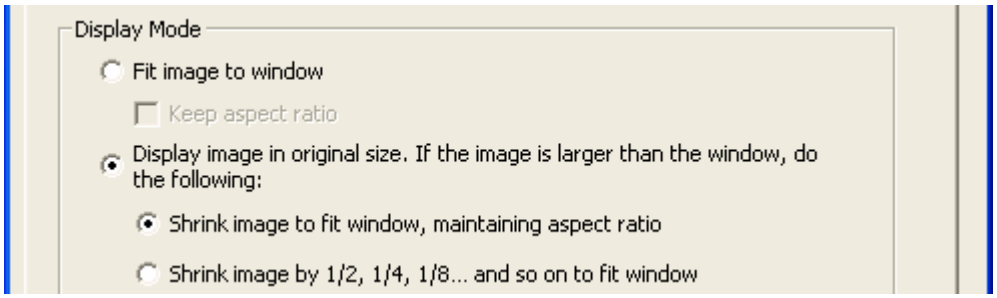
- Always stream from the server: Select this option to stream the audio and video data from the NVR. If your computer cannot connect to the network cameras, select this option to allow the NVR to stream the data; no extra port forwarding is required. However, the performance of the NVR may be affected.
- Always stream from the network camera: If the NVR and the network cameras are connected to the same local network, select this option to stream the video data from the network cameras. If the NVR, the network cameras, and the PC are located behind a router, virtual server, or firewall, configure port forwarding on the network cameras to use certain ports.



OSD Settings: Specify the font colour of the texts on the channels.

Display Mode:

- Fit image to window: Select this option to fit an image to the browser window. You may also specify to keep the aspect ratio when resizing an image.
- Display image in original size: Select this option to display an image in its original size if it is smaller than the browser window. Specify also how an image will be resized if it is larger than the browser window.
  - ✓ Shrink image to fit window, maintaining aspect ratio
  - ✓ Shrink image by 1/2, 1/4, 1/8… and so on to fit window

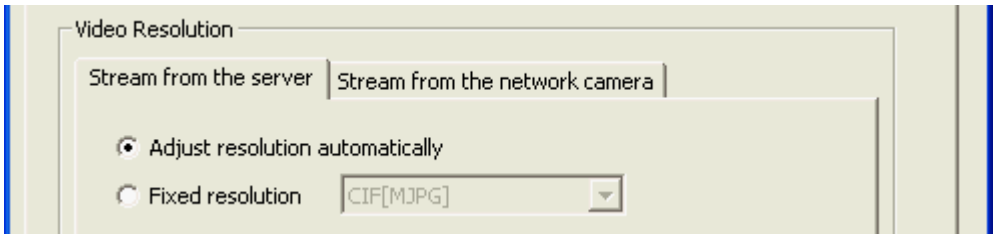


Video Processing: Turn on 'Deinterlace' when there are interlaced lines on the video.

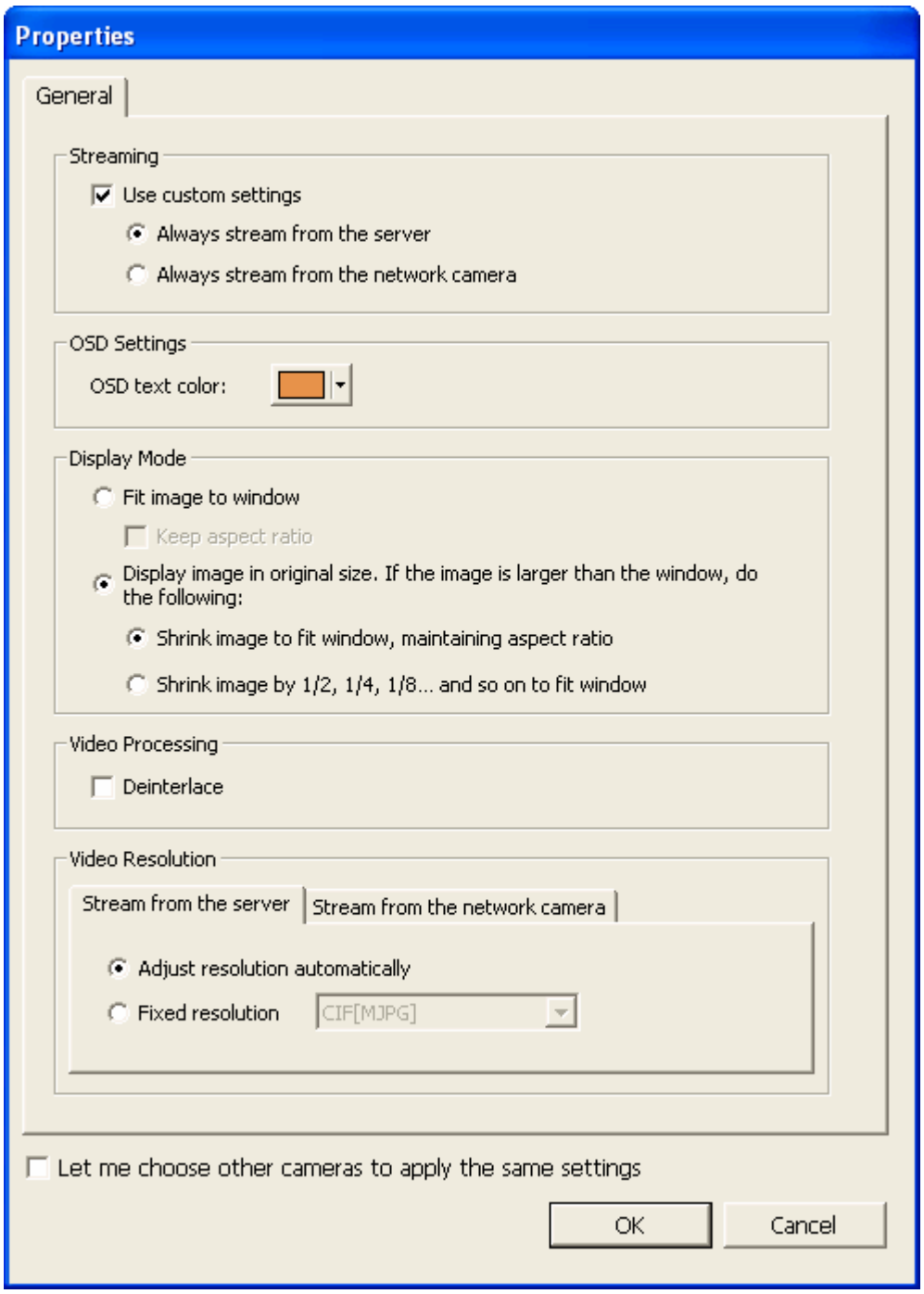
Video Resolution: Specify to adjust resolution automatically or use fixed resolution. If you select to adjust resolution automatically, the NVR will select the resolution setting* which best fits the size of the IE browser window. Note that 'Stream from network camera' will not be available if the network camera does not support streaming from camera or video resolution configuration. Both options will not be available if the network camera does not support multiple streams.

*If a network camera supports different resolution settings, the NVR will select the smallest resolution larger than (or equal to) the size of the browser window.

If all the supported resolution settings of a network camera are smaller than the browser window, the largest resolution will be selected.



Let me choose other cameras to apply the same settings: Select this option to apply the changes to other network cameras. Note that some settings may not be applied if the network camera does not support the features, such as streaming from camera or video resolution configuration.


Properties
General
Streaming
Use custom settings
Always stream from the server
Always stream from the network camera
OSD Settings
OSD text color:
Display Mode
Fit image to window
Keep aspect ratio
Display image in original size. If the image is larger than the window, do the following:
Shrink image to fit window, maintaining aspect ratio
Shrink image by 1/2, 1/4, 1/8... and so on to fit window
Video Processing
Deinterlace
Video Resolution
Stream from the server
Stream from the network camera
Adjust resolution automatically
Fixed resolution
CIF[MJPG]
Let me choose other cameras to apply the same settings
OK
Cancel

4.2.1 Live Video Window

The live videos of the IP cameras configured on the NVR are shown on the monitoring page. You can click the channel window to use the features supported by the IP camera, e.g. digital zoom or pan/tilt/zoom.

Camera Status

The camera status is indicated by the icons shown below:

Icon	Camera Status
	Scheduled or continuous recording is in process
	This IP camera supports audio function
	This IP camera supports PT function
	Manual recording is enabled
	The recording triggered by advanced event management ('Camera Settings' > 'Alarm Settings' > 'Advanced Mode') is in process
	The alarm input 1 of the IP camera is triggered and recording is in process
	The alarm input 2 of the IP camera is triggered and recording is in process
	The alarm input 3 of the IP camera is triggered and recording is in process
	Motion detection recording is in process
	Digital zoom is enabled

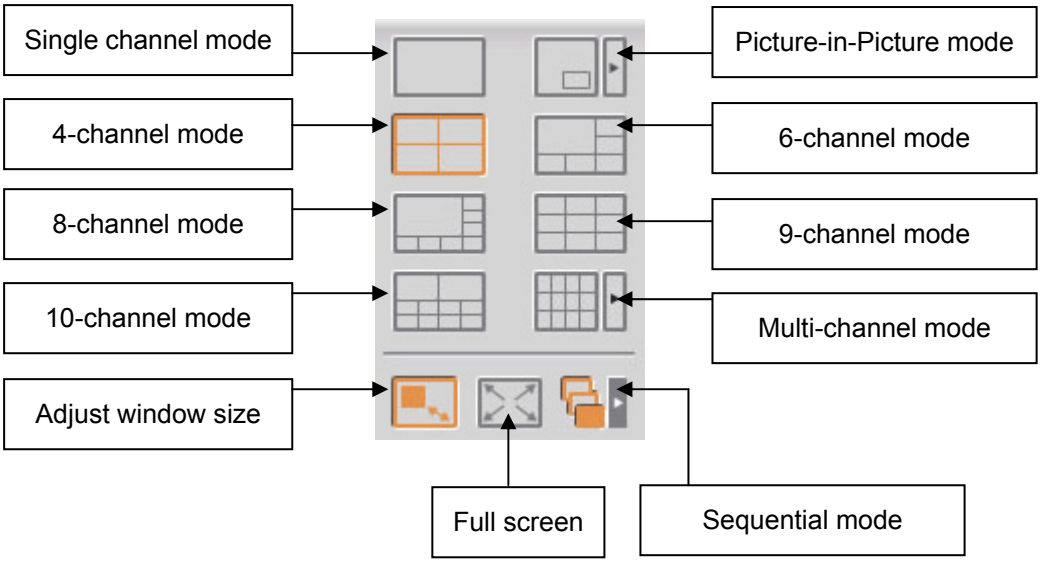
Connection Message

When the NVR fails to display the video of an IP camera, a message will be shown in the channel window to indicate the status.

Message	Description
Connecting	If the IP camera is located on a remote network or the Internet, it may take some time to establish the connection to the camera.
Disconnected	The NVR cannot connect to the IP camera. Please check the network connection of your computer and the availability of the IP camera. If the IP camera is located on the Internet, make sure you have opened the port on your router or gateway.
No Permission	You do not have the right to view the monitoring channel. Please login as a user with the access right or contact the system administrator.
Server Error	Please check the camera settings or update the firmware of the IP camera (if any). Contact the technical support if the error persists.

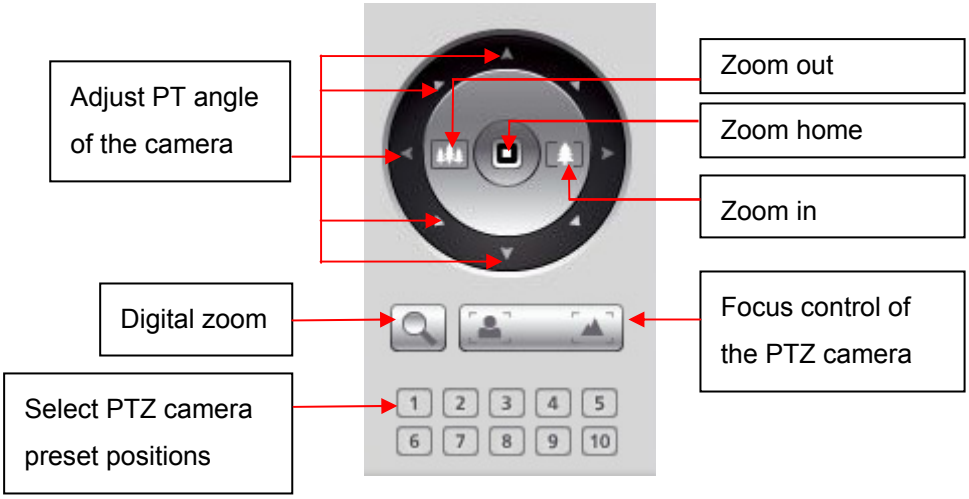
4.2.2 Display Mode

The NVR supports different display modes for viewing the monitoring channels.



4.2.3 PTZ Camera Control Panel

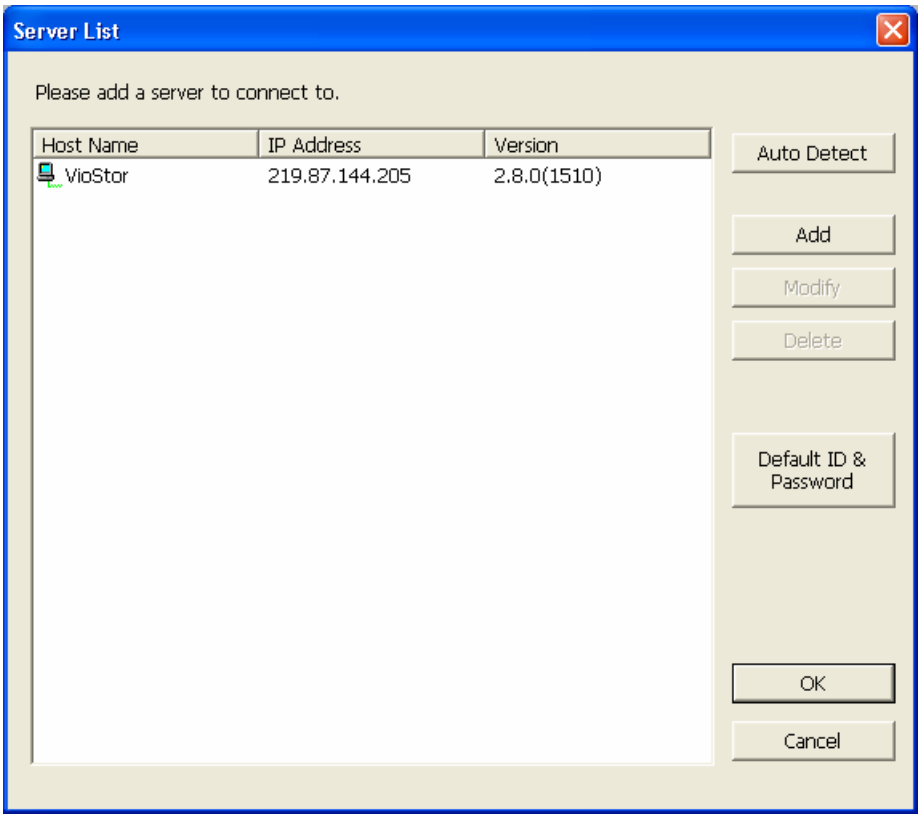
The term 'PTZ' stands for 'Pan/Tilt/Zoom'. If an IP camera supports the PTZ feature, you can use the control panel on the NVR to adjust the viewing angel of the IP camera. These functions are available depending on the camera models. Please refer to the user manual of the IP cameras for more information. Note that the digital zoom function will be disabled when the PTZ function is in use.



4.2.4 Multi-server Monitoring

Follow the steps below to use the multi-server monitoring feature of the NVR.

1. Click 'Server List' on the monitoring page.

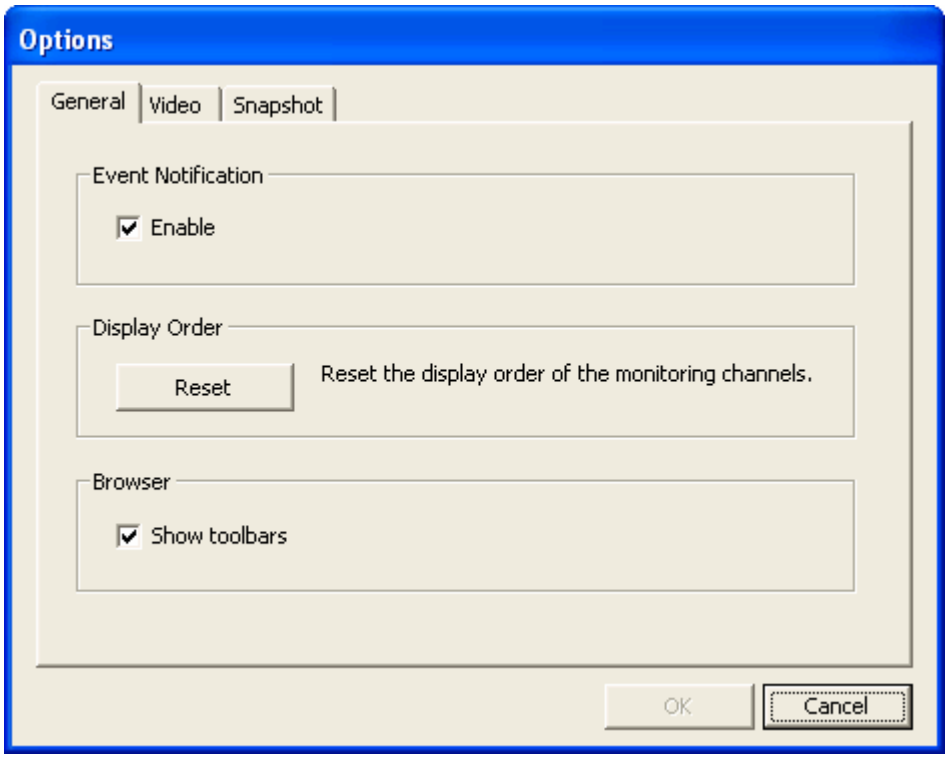


   a. Click 'Auto Detect' to search for the NVR on the LAN and add the server to the server list.
   b. Click 'Add' to add the NVR to the server list.

2. Up to 120 channels from multiple NVR servers can be added for monitoring.

4.2.5 Monitor Settings

To configure advanced monitor settings, click  .



The following options are provided under the 'General' tab.

- Event Notification: When this option is enabled and an event is triggered, the alert icon  will be shown on the monitoring channel instantly. Click the icon to view the alert details.
- Display Order: Click 'Reset' to reprioritize the monitoring channels to the default order.
- Browser: Select to show or hide the toolbars of the IE browser.

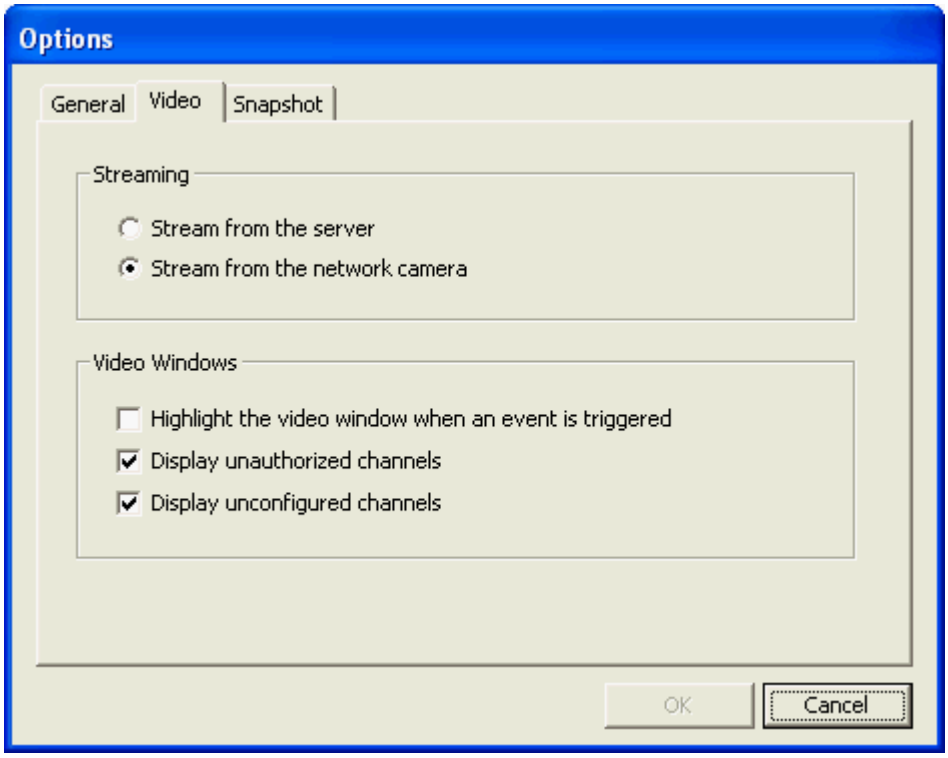
The following options are provided under the 'Video' tab.

Video Streaming

- Stream from the server: If you cannot connect to the IP camera from your computer, select this option and the video will be streamed from the NVR. This option does not require extra port mapping configuration; but may influence the performance of the NVR.
- Stream from IP camera: If the NVR and the IP cameras are located on the same LAN, select this option to stream the video from the IP camera. Note that you need to configure the port forwarding settings on the IP cameras if the NVR, IP cameras, and the computer are located behind a router, a virtual server, or a firewall.

Video Windows

a. Highlight the video window when an event is triggered: The video window will flash if an event is triggered.
b. Display unauthorized channels: Select this option to show the channels that the user does not have the access right to monitor.
c. Display unconfigured channels: Select this option to show the channels that have not been configured.

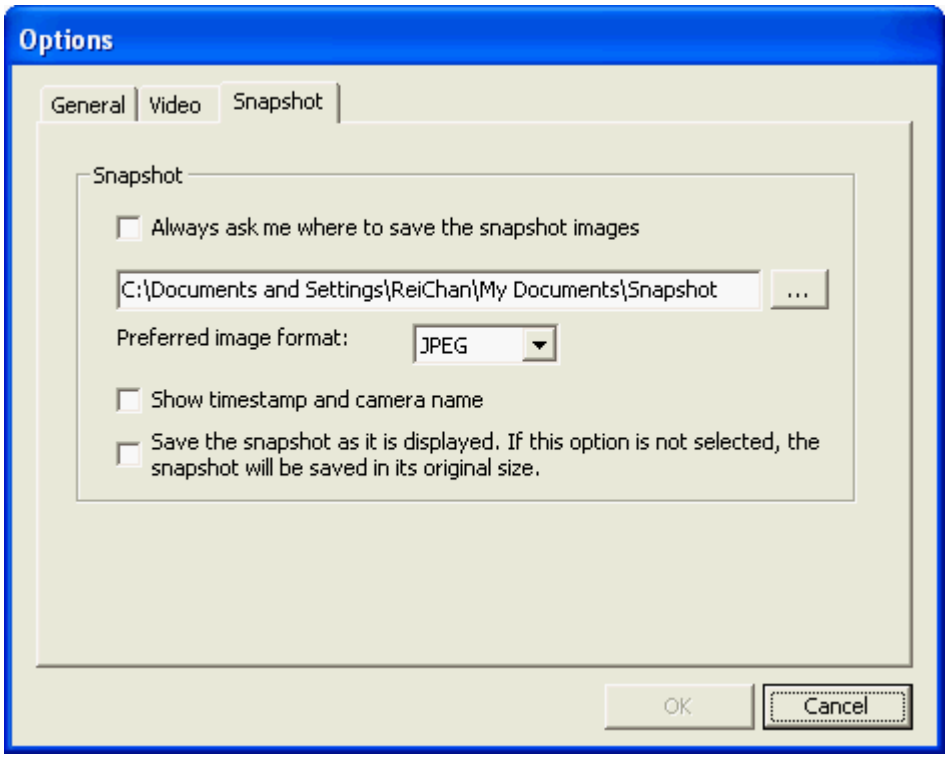


The following options are provided under the 'Snapshot' tab.

Snapshot: Specify the location where the snapshots are saved and the image format (JPEG or BMP).

Show timestamp and camera name: Show the timestamp and the camera name on the snapshot.

Save the snapshot as it is displayed: Select this option to save the snapshot as it is displayed on the window. Otherwise, the snapshot will be saved in its original size.

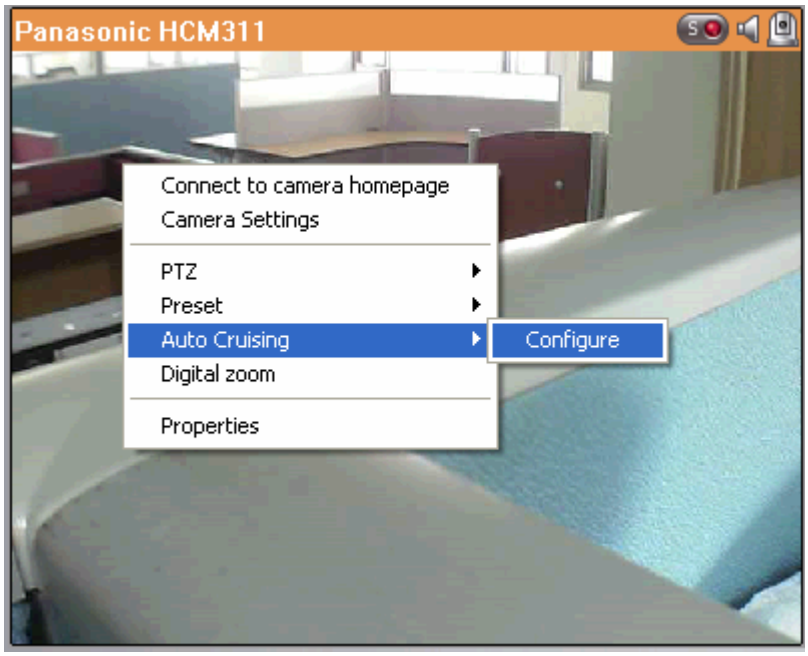


4.2.6 Auto Cruising

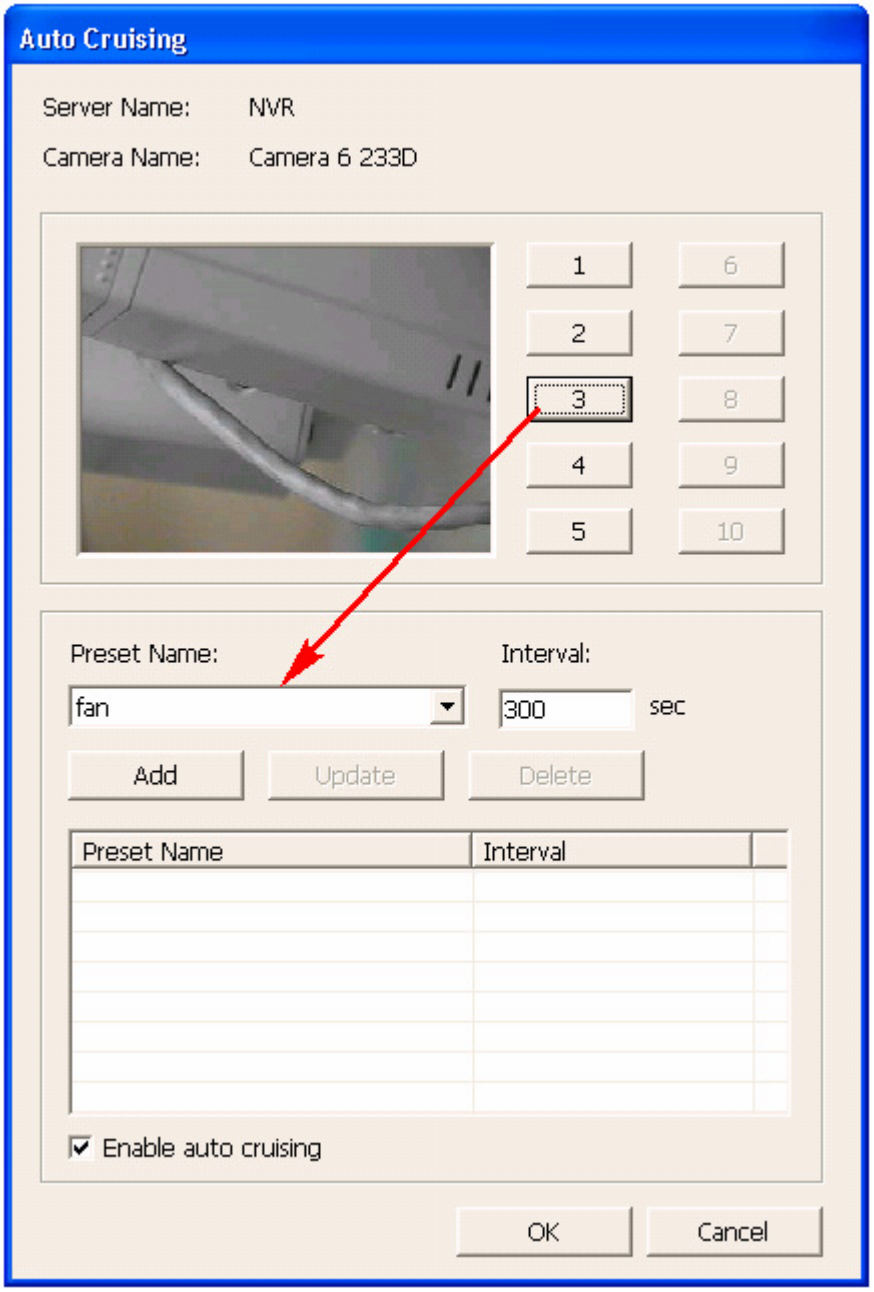
The auto cruising feature of the NVR is used to configure the PTZ cameras to cruise according to the preset positions and the staying time set for each preset position.

To use the auto cruising feature, follow the steps below.

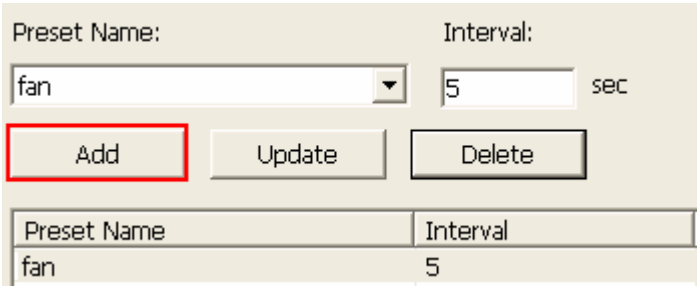
1. On the monitoring page of the NVR, click  to go to the configuration page of the PTZ camera.
2. Set the preset positions on the PTZ camera.
3. Return to the monitoring page of the NVR. Right click the display window of the PTZ camera. Select 'Auto Cruising' > 'Configure'.



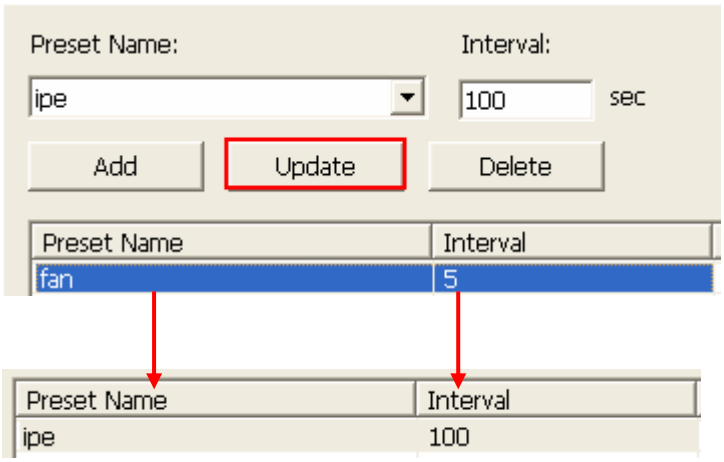
4. Click the number buttons to view the preset positions of the PTZ camera. When you click the button, the name of the corresponding preset position is shown on the 'Preset Name' drop-down menu.



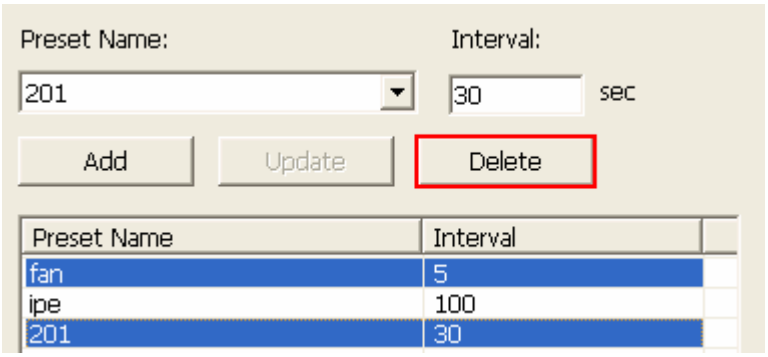
5. Add: To add a setting for auto cruising, select the 'Preset Name' from the drop-down menu and enter the staying time (interval, in seconds). Click 'Add'.



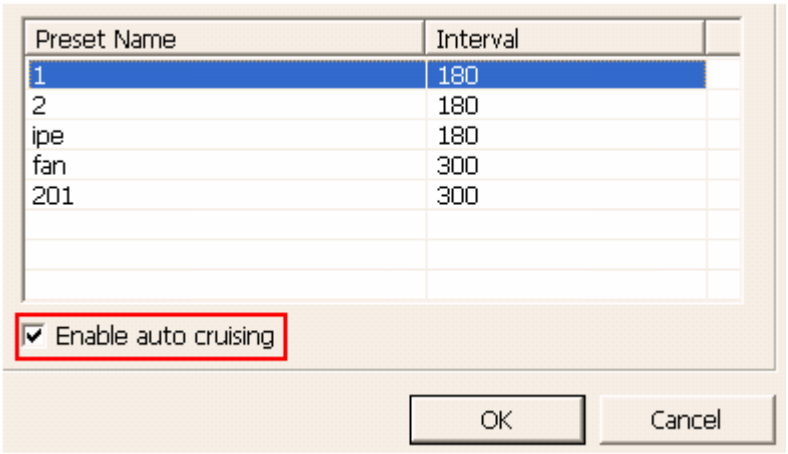
6. Update: To change a setting on the list, highlight the selection. Select another preset position from the drop-down menu and/or change the staying time (interval). Click 'Update'.



7. Delete: To delete a setting, highlight a selection on the list and click 'Delete'. To delete more than one setting, press and hold the Ctrl key and select the settings. Then click 'Delete'.



8. After configuring the auto cruising settings, select the option 'Enable auto cruising' and click 'OK'. The NVR will start auto cruising according to the settings.



Note:

1) The default staying time (interval) of the preset position is 5 seconds. You can enter 5–999 seconds for this setting.
2) The system supports up to 10 preset positions (the first 10) configured on the PTZ cameras. You can configure up to 20 settings for auto cruising on the NVR. In other words, the NVR supports maximum 10 selections on the drop-down menu and 20 settings on the auto cruising list.

Chapter 5. Play Video Files

The NVR provides an intuitive web interface to search and play the recording files without any extra software required. You can access the video files on LAN or WAN.
The first time you connect to the playback interface of the NVR by an IE browser, you will be prompted to install an ActiveX plugin. Follow the instructions to install the plugin.

You can also install the program from the CD-ROM in the product package. Upon successful installation, you can access the VioStor player from the web interface or from Windows start menu > Programs > QNAP > Player.

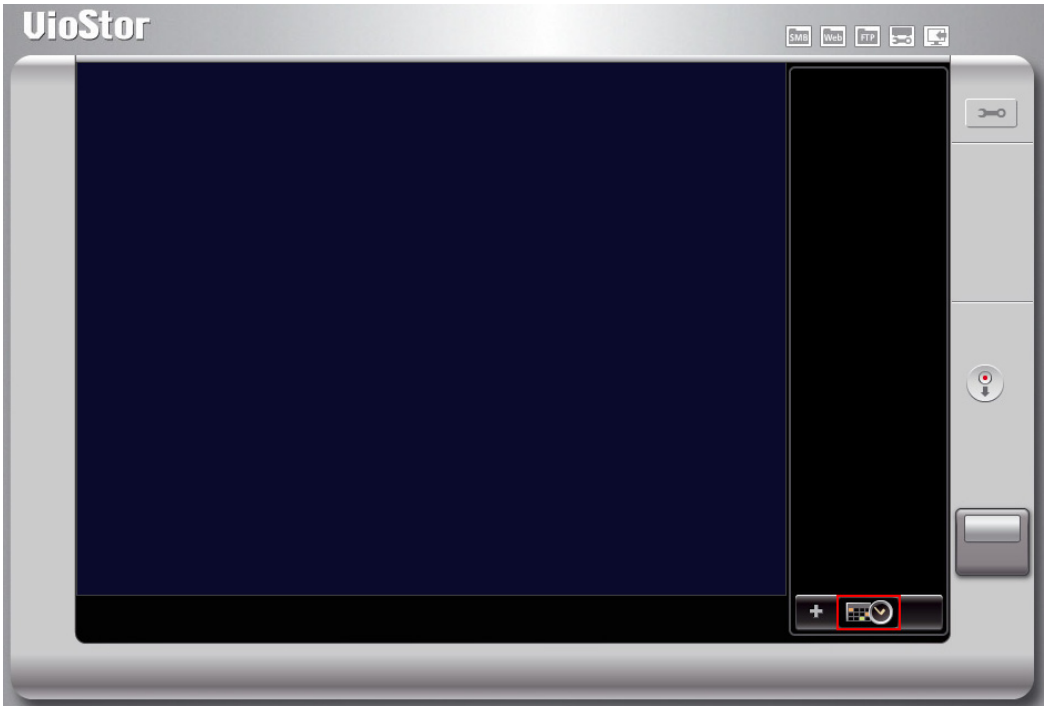
5.1 Use the Web-based Playback Interface (VioStor Player)

1. Click the playback button  on the monitoring page.
2. VioStor Player will be shown. You can use this program to search and play the recording files on the NVR servers. To return to the monitoring page, click  . To enter the system administration page, click  .

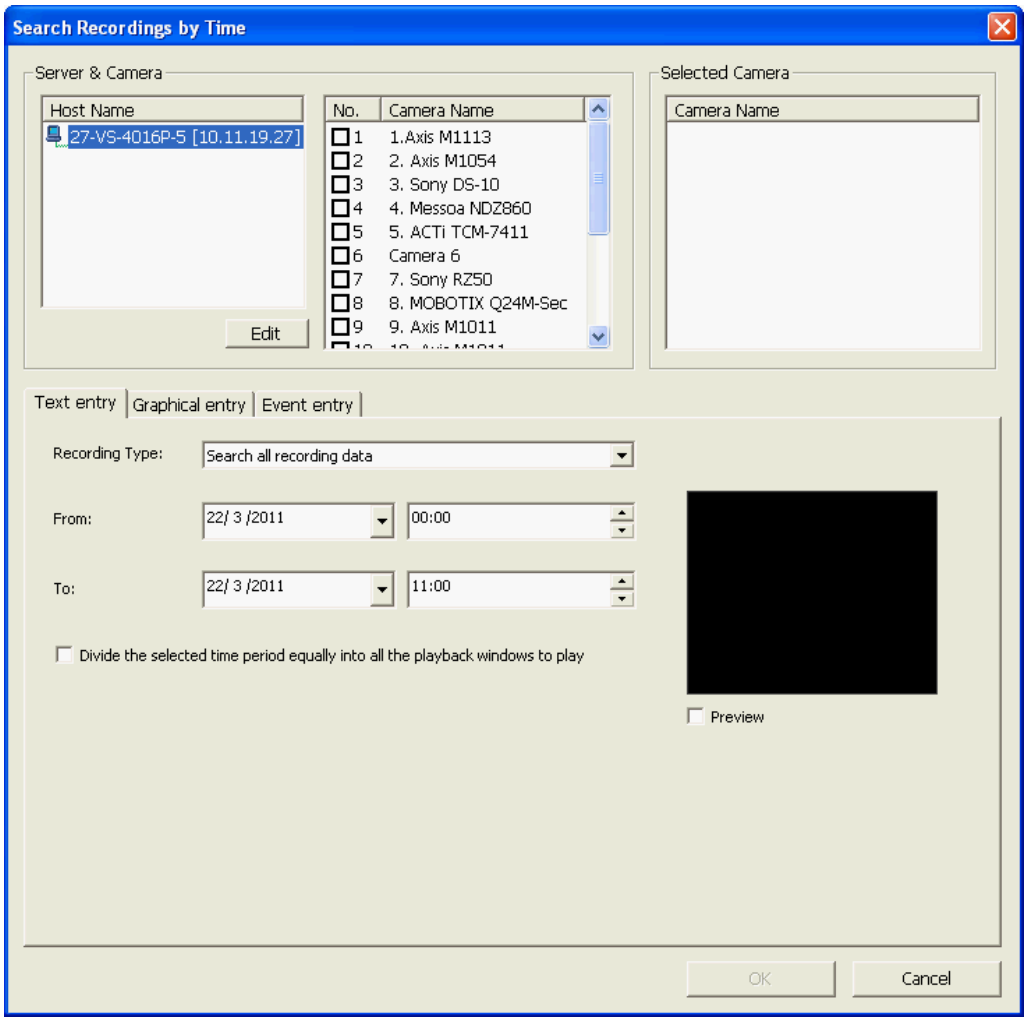
Note: You must have the access rights to the IP cameras in order to view and play the recording files by VioStor Player. Please refer to Chapter 6.5 for access right configuration.

5.1.1 Connect to Server for Playback

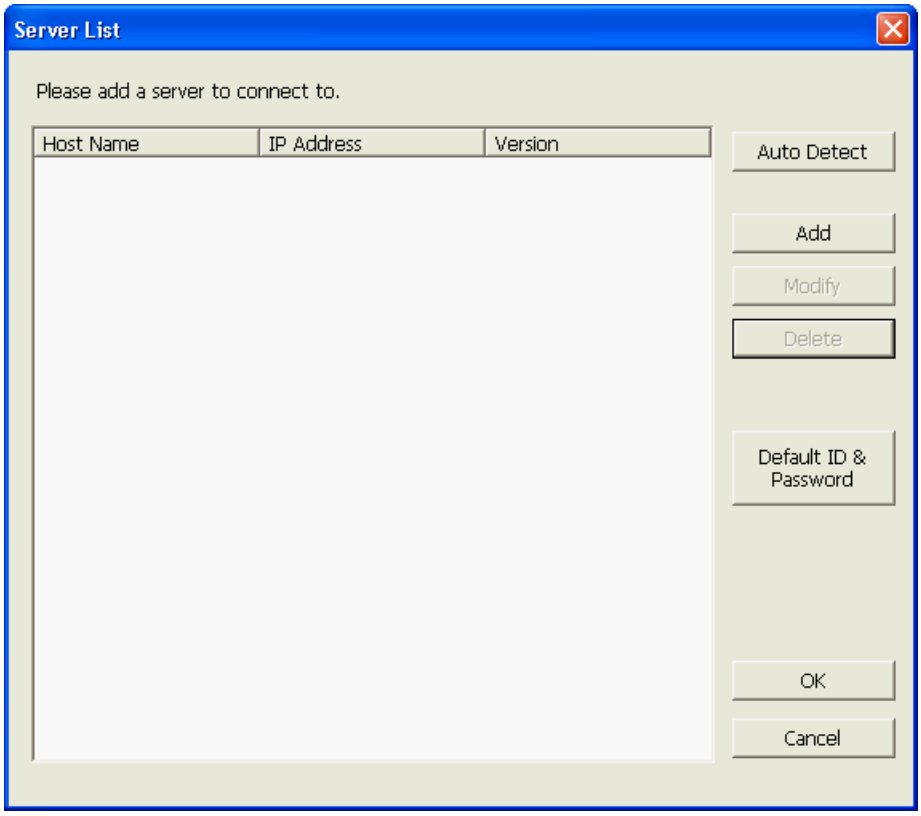
1. Click 'Play by Time'  .



2. The following dialog will be shown.

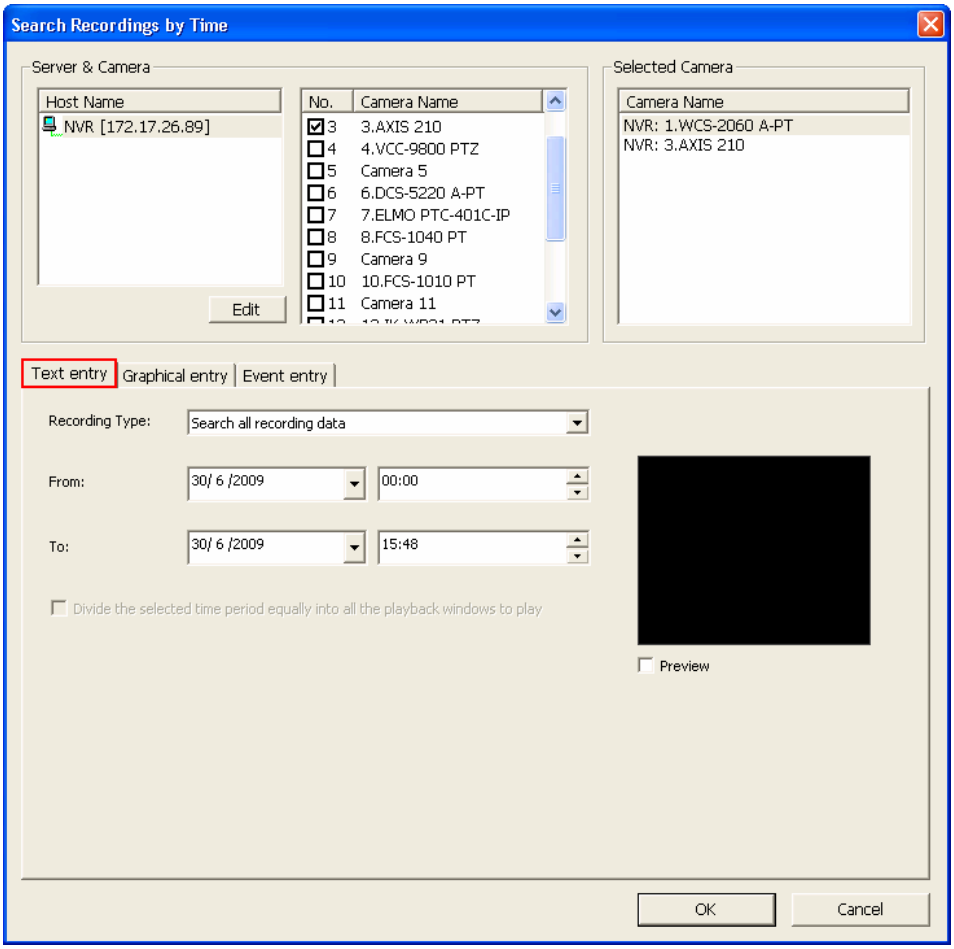


3. Configure servers:
   a. Add: Add a server.
   b. Modify: Modify a server.
   c. Remove: Remove a server.
   d. Auto: Auto-search servers.
   e. Default settings: Enter the default user name and password for all newly added servers.



4. Select the data search mode.
   - **Date and time search (Text entry)**
     i. Select the NVR server(s) and the IP camera(s)*.
     ii. Click the 'Text entry' tab.
     iii. Select the recording type, the start and end time when the video is recorded.
     iv. Click 'Preview' to preview the video.
     v. Click 'OK'.

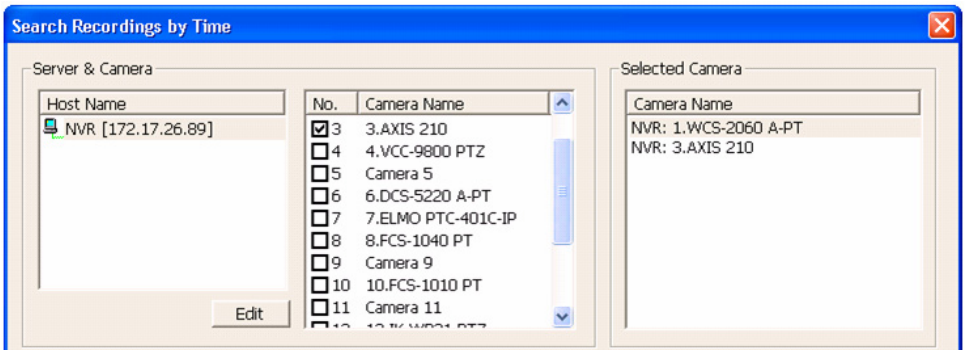
   * You can select 4 IP cameras at maximum.



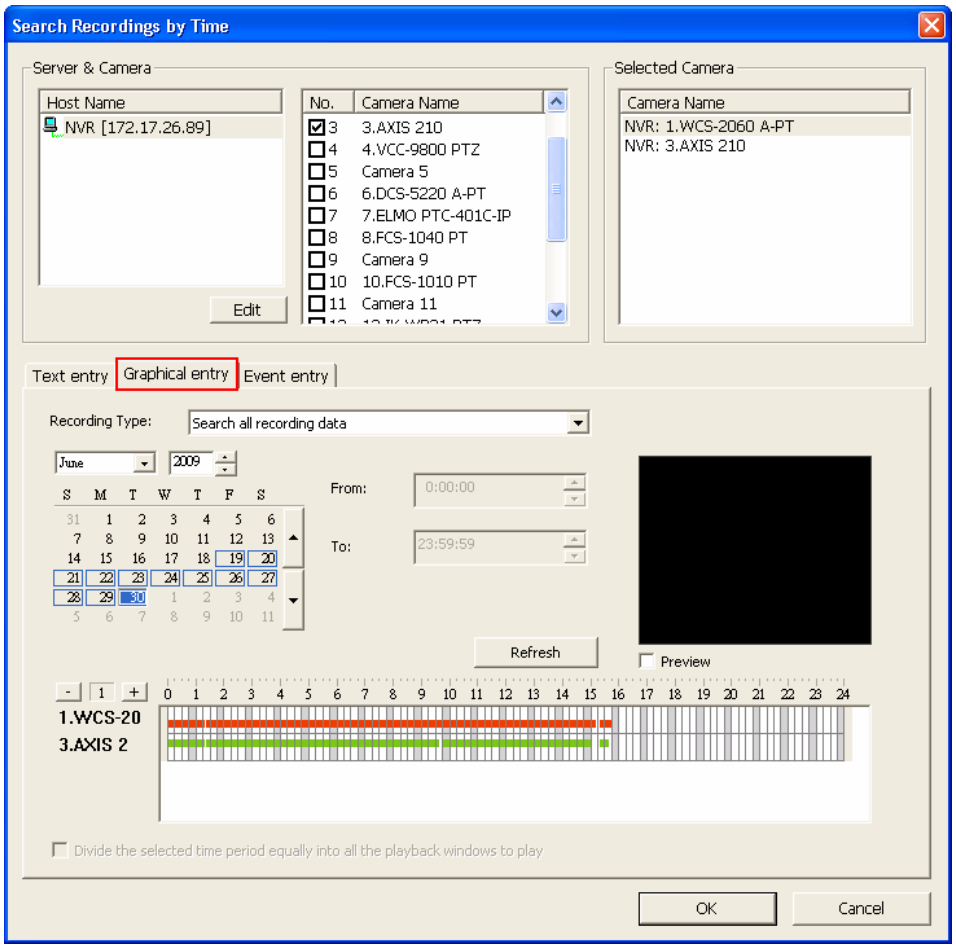
- **Timeline search**

  i. Select the NVR server(s) and the IP camera(s)*.

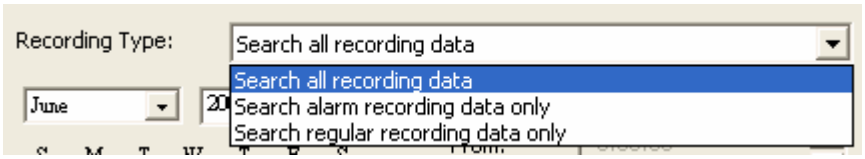
  * You can select 4 IP cameras at maximum.



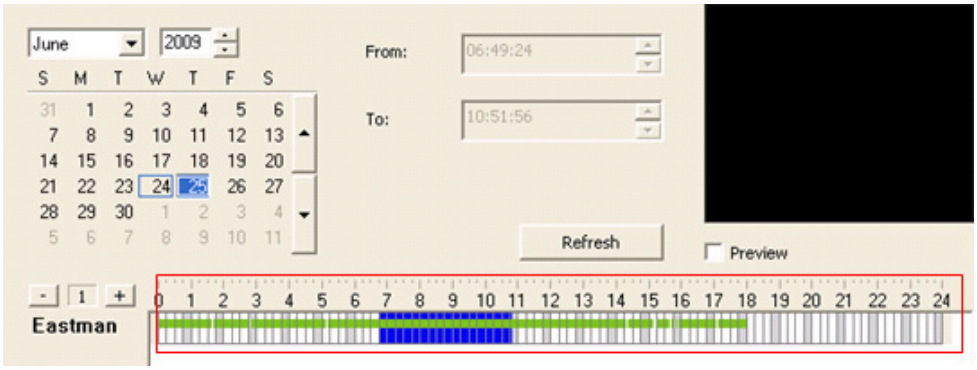
  ii. Click the 'Graphical entry' tab.



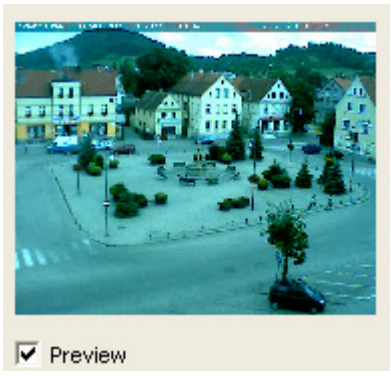
iii. Select the recording type.



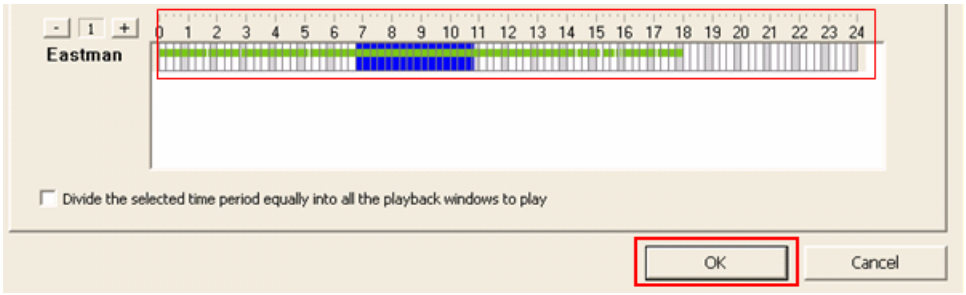
iv. Specify the time range when the files are recorded. The settings will be applied to all the cameras selected.



v. Click 'Preview' to preview the video.



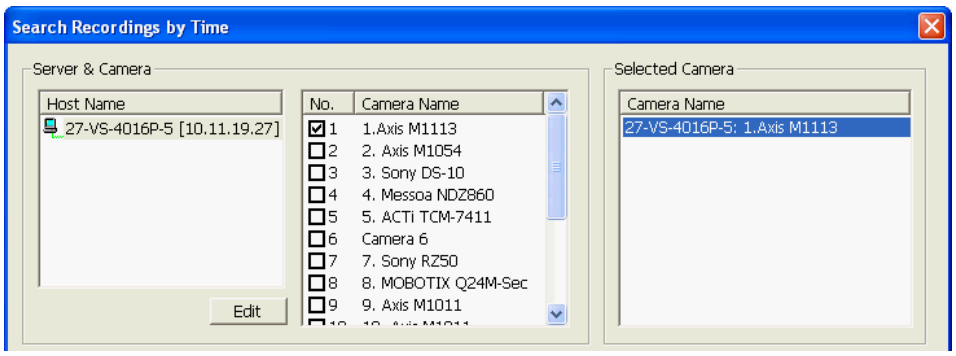
vi. Click 'OK'.



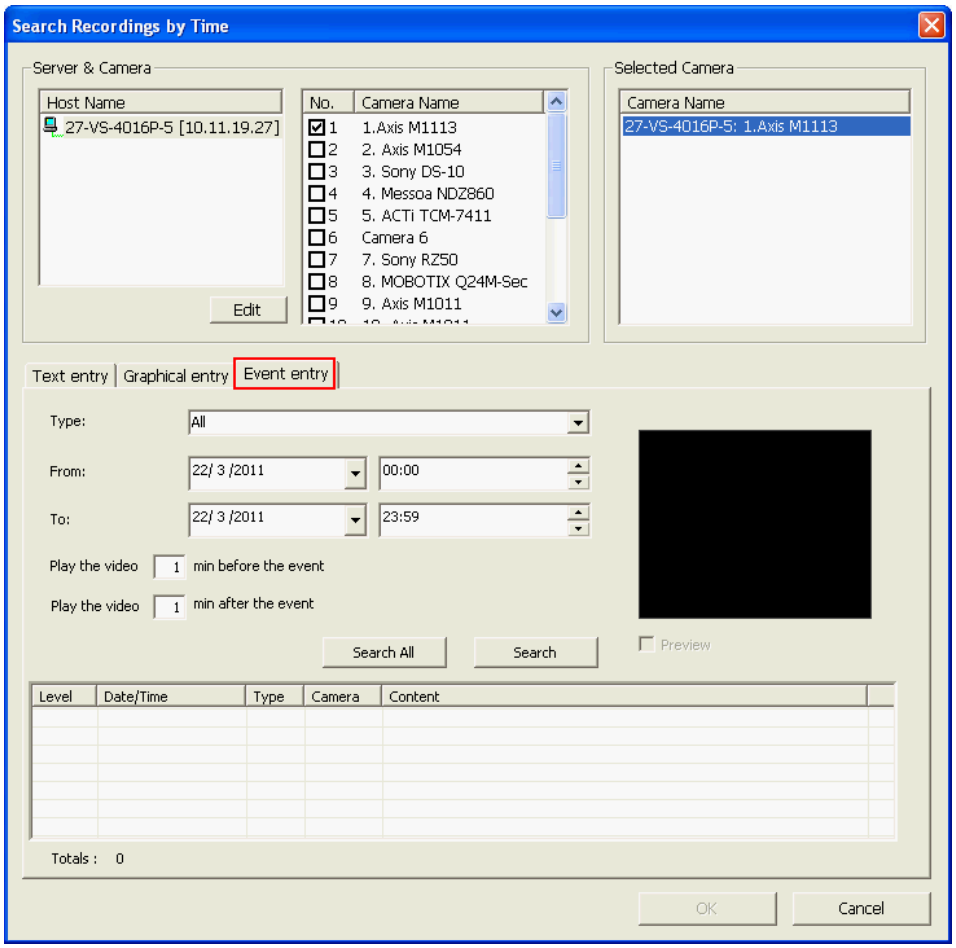
- **Event entry**

  i. Select the NVR server(s) and the IP camera(s)*.

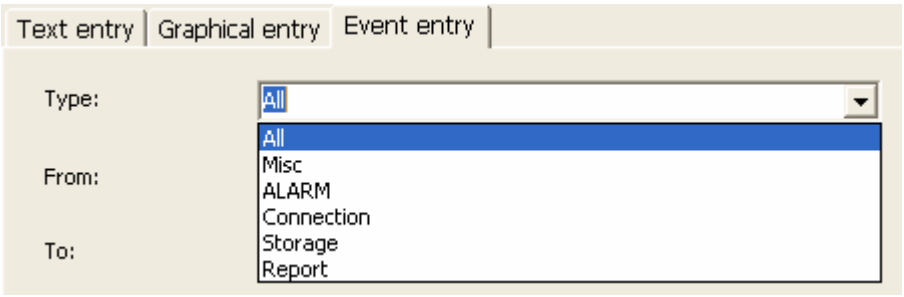
  * You can select 4 IP cameras at maximum.



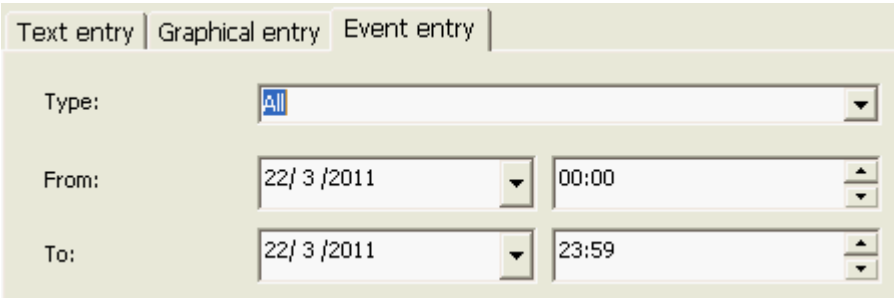
  ii. Click the 'Event entry' tab.



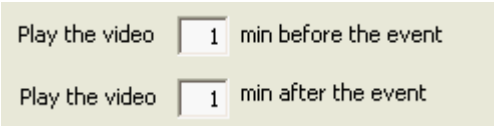
iii. Select the event type.



iv. Specify the time range when the files are recorded.

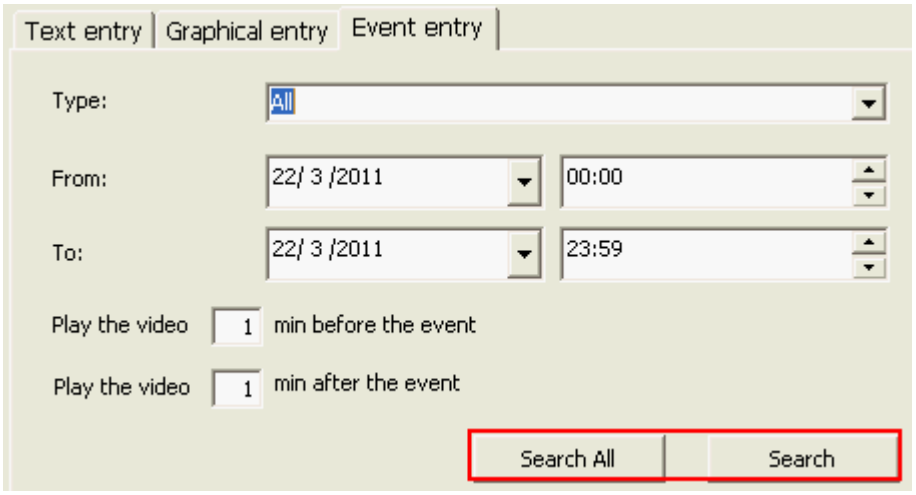


v. Specify the number of minutes to play the video recorded before and after the event.

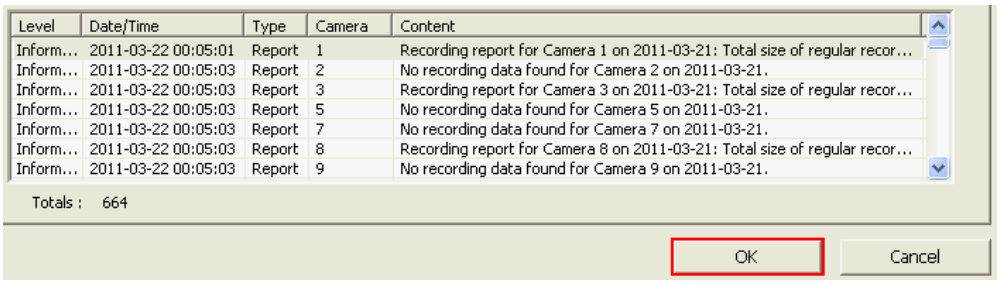


vi. Event search. Use this function to search for all the events occurred on the IP cameras. You may refer to the event details to search for the recording data.

- ✓ Search all: Search for the specified events occurred on all the IP cameras of an NVR within the time range specified.
- ✓ Search: Search for the specified events occurred on one IP camera within the time range specified.



vii. The events will be shown. Click 'OK'.



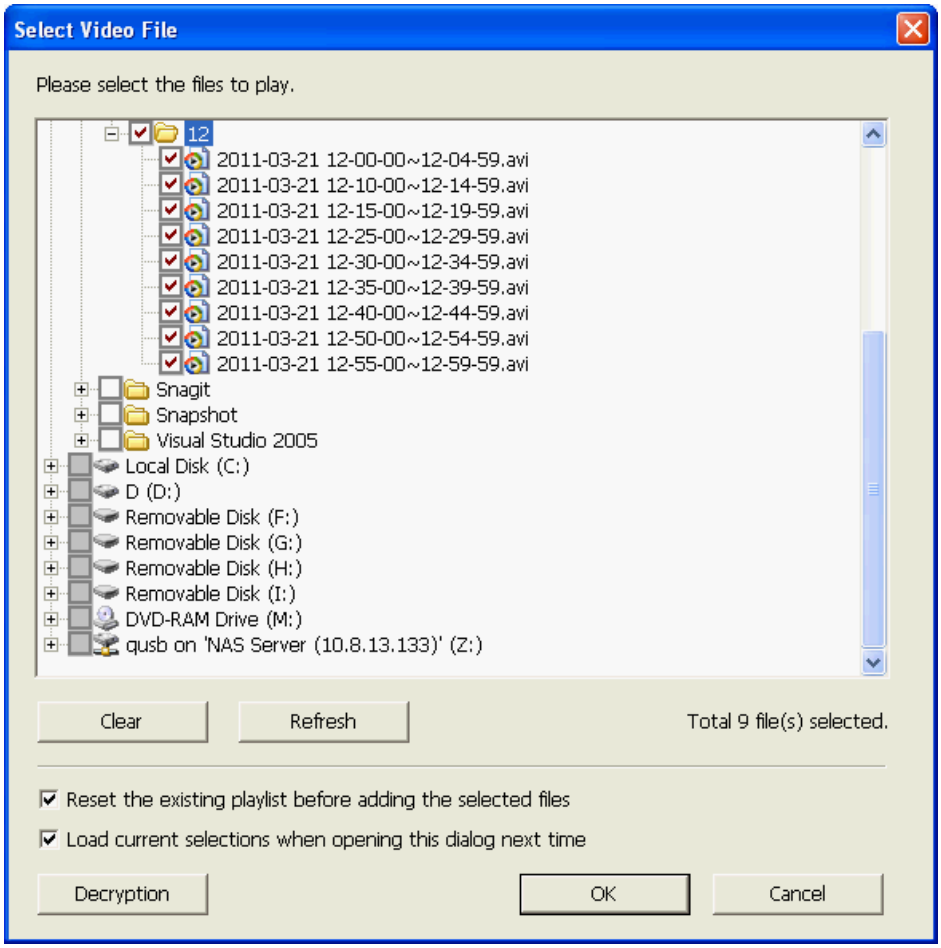
5. When the files are shown, you can play the video.

Note: The regular recordings are shown in white and the alarm recordings are shown in red on the playlist.

5.1.2 Play Video Files from Your Computer

1. Click 'Add files'  .

2. Browse and select the files.



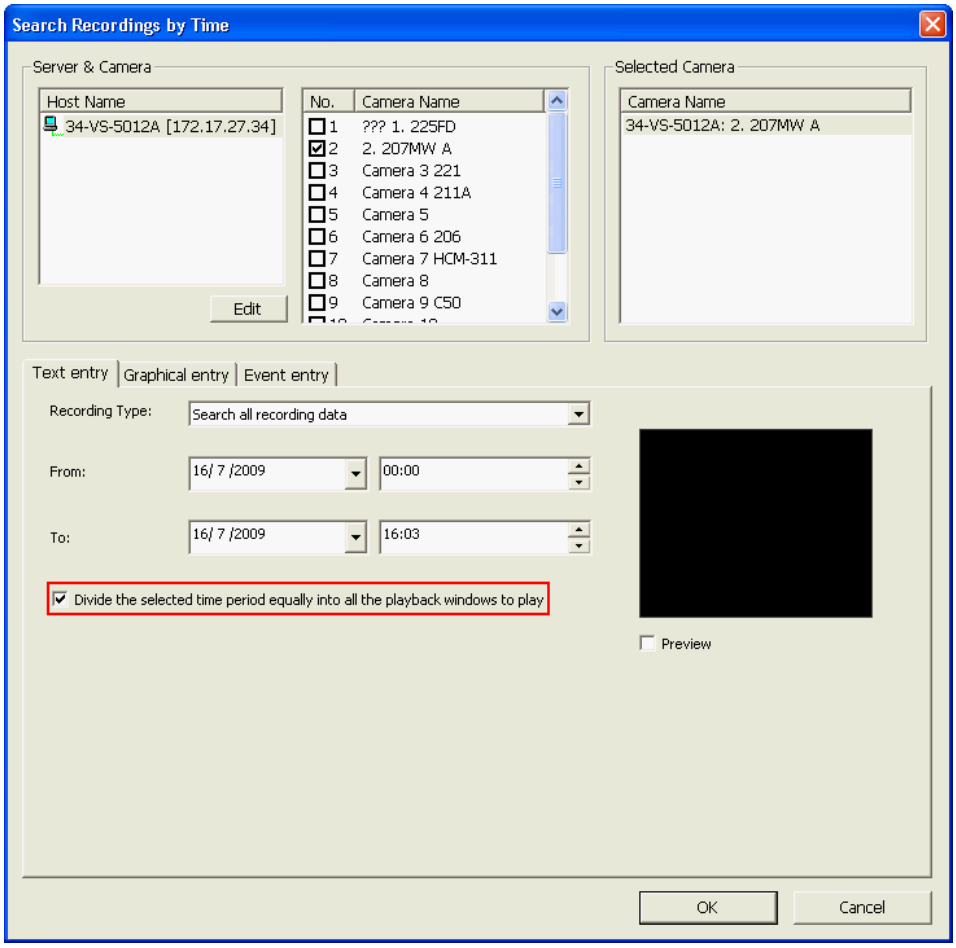
3. The playlist will be shown. Click 'Play'  to start playing.

5.1.3 Quad-view Playback

The quad-view playback feature allows you to search for the video recorded by the NVR servers quickly. You can view the videos of four IP cameras simultaneously or select to divide the video of one IP camera into four time periods and play them in a quad-view window.

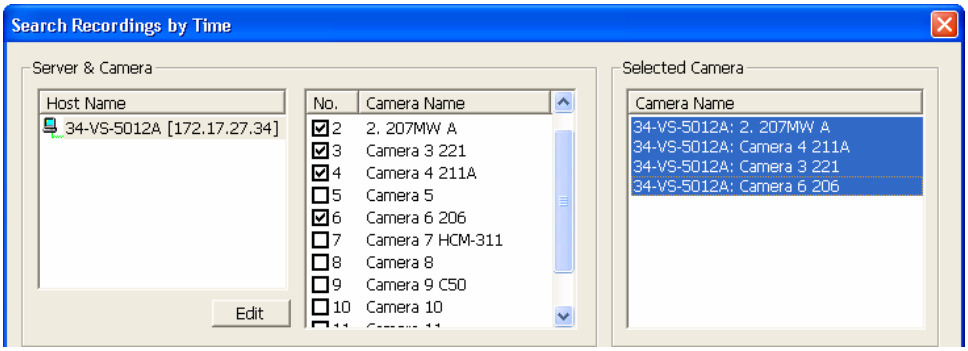
✓ **Divide the selected time equally into four playback windows**

Select only one camera. Click 'Text entry' or 'Graphical entry'. Enter the search criteria and select the option 'Divide the selected time period equally into all the playback windows to play'. Click 'OK'.



✓ **Play the video of four IP cameras**

Select four IP cameras. Enter the search criteria in the 'Text entry' or 'Graphical entry'. When the search results are shown, you can play the video files of the four IP cameras simultaneously.



5.1.4 Intelligent Video Analytics (IVA)

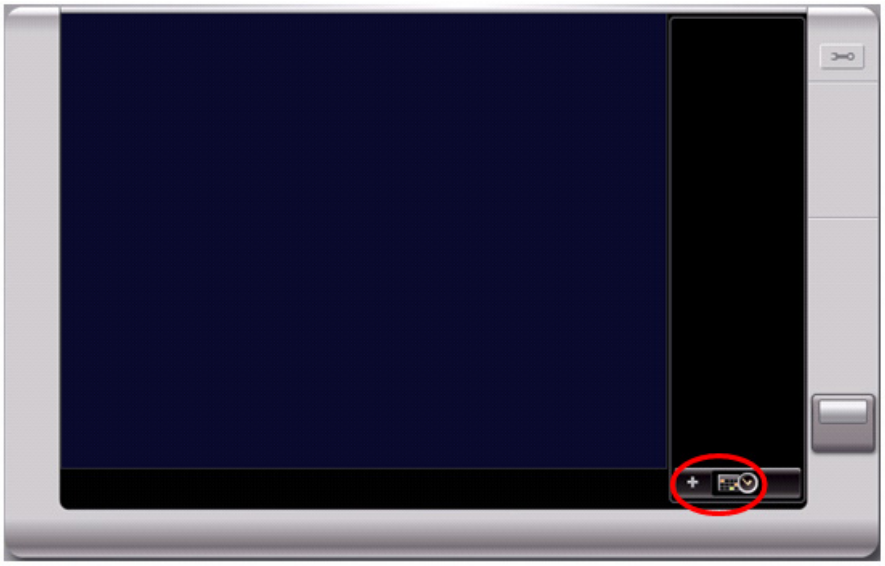
The NVR supports intelligent video analytics for video data search.

The following features are supported:

- ✓ Motion detection: Detects the movement of the objects in the video.
- ✓ Foreign object: Detects new object in the video.
- ✓ Missing object: Detects missing object in the video.
- ✓ Out of focus: Detects if the camera is out of focus.
- ✓ Camera occlusion: Detects if the IP camera is obstructed.

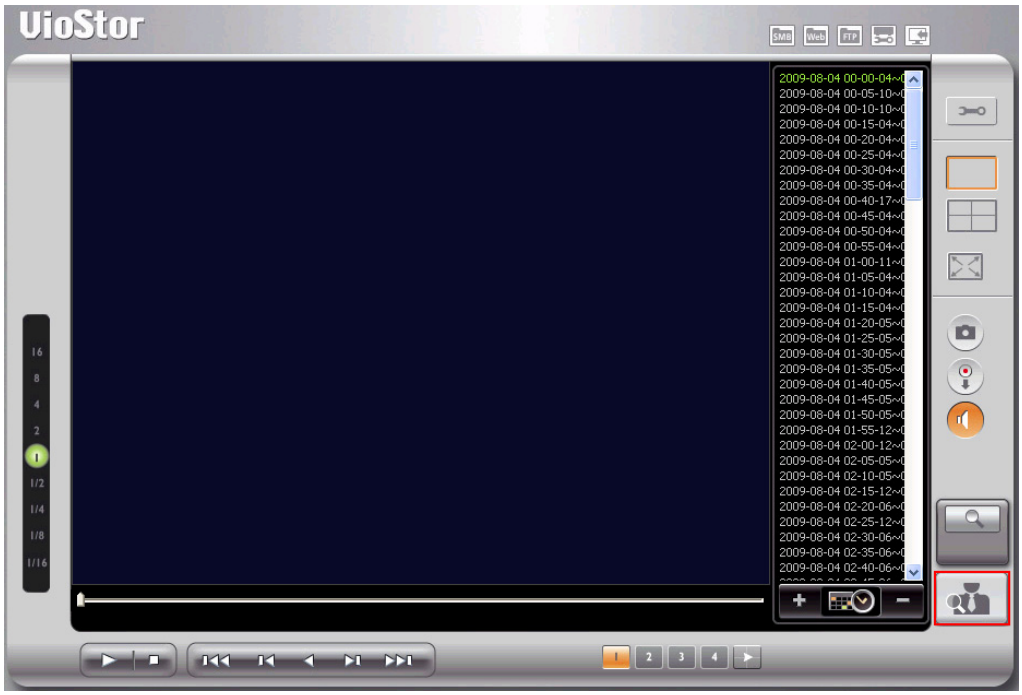
To use this function, follow the steps below:

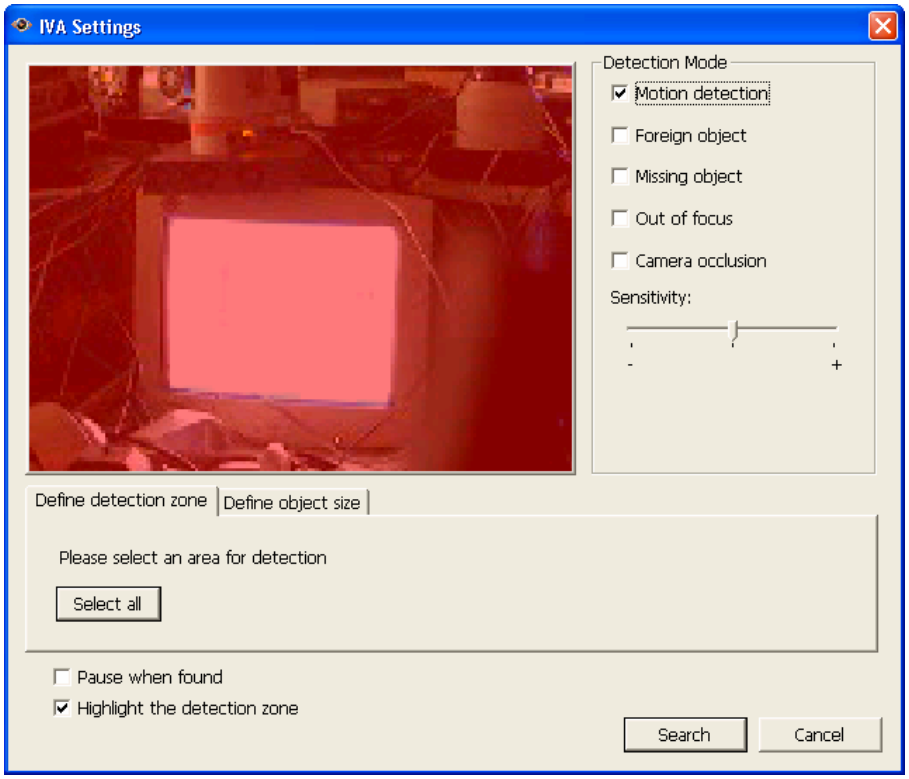
1. Go to the Playback page of the NVR. Add the files to the playlist.



Note: The intelligent video analytics support video search on one channel only.

2. On the playback window, click  .

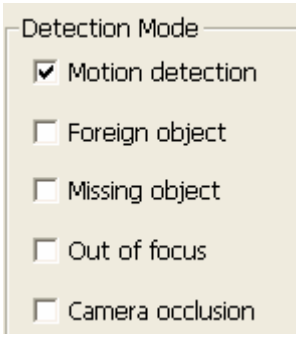




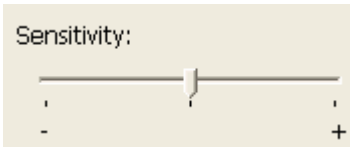
Note:

- ✓ When the option 'Pause when found' is selected, the data search stops when a video file which matches the search criteria is found.
- ✓ When 'Highlight the detection zone' is enabled, the moving objects will be highlighted in red brackets; the foreign or missing objects will be highlighted in yellow brackets; the video which is out of focus or obstructed will be displayed in transparent red.

3. Select the detection mode: motion detection, foreign object, missing object, out of focus, or camera occlusion. Multiple options can be selected.

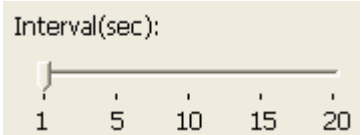


4. Adjust the sensitivity for object detection.

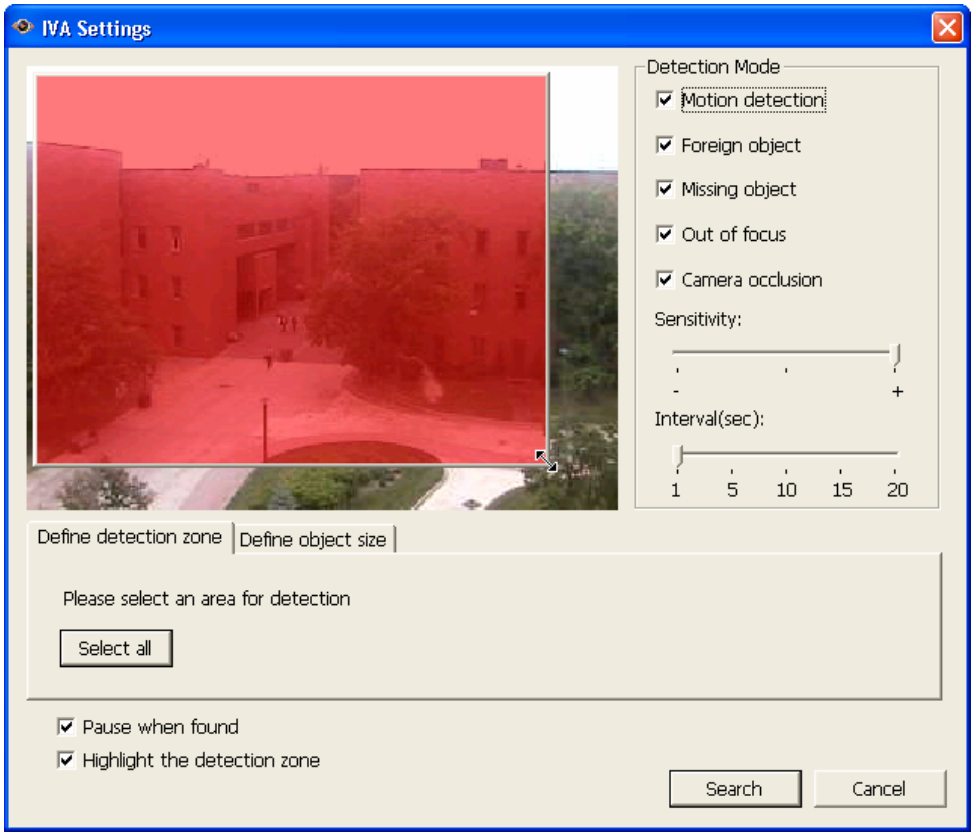


5. Adjust the time interval for detecting the foreign objects and missing objects. If a foreign object appears or a missing object disappears for a period of time which is longer than the time interval, the NVR will record an event.

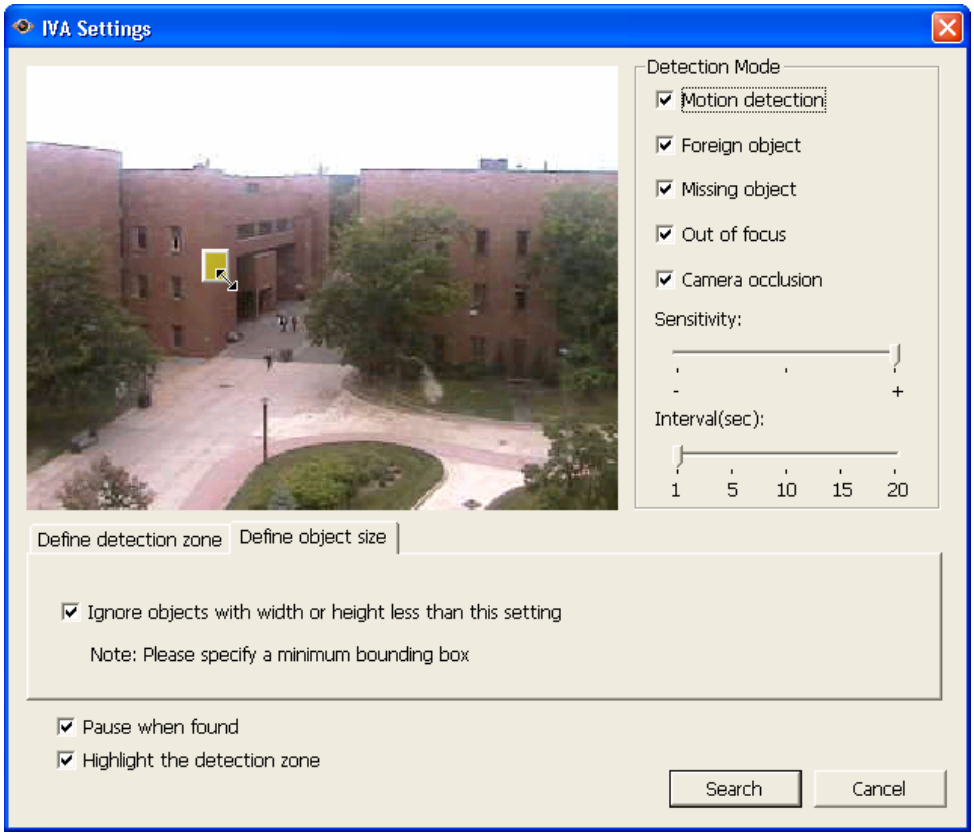
Note: The interval slide bar appears only when 'foreign object' or 'missing object' is selected.



6. Define the detection zone. Mouse over the edge of the red zone and use the mouse to define the detection zone. Click 'Select all' to highlight the entire area.

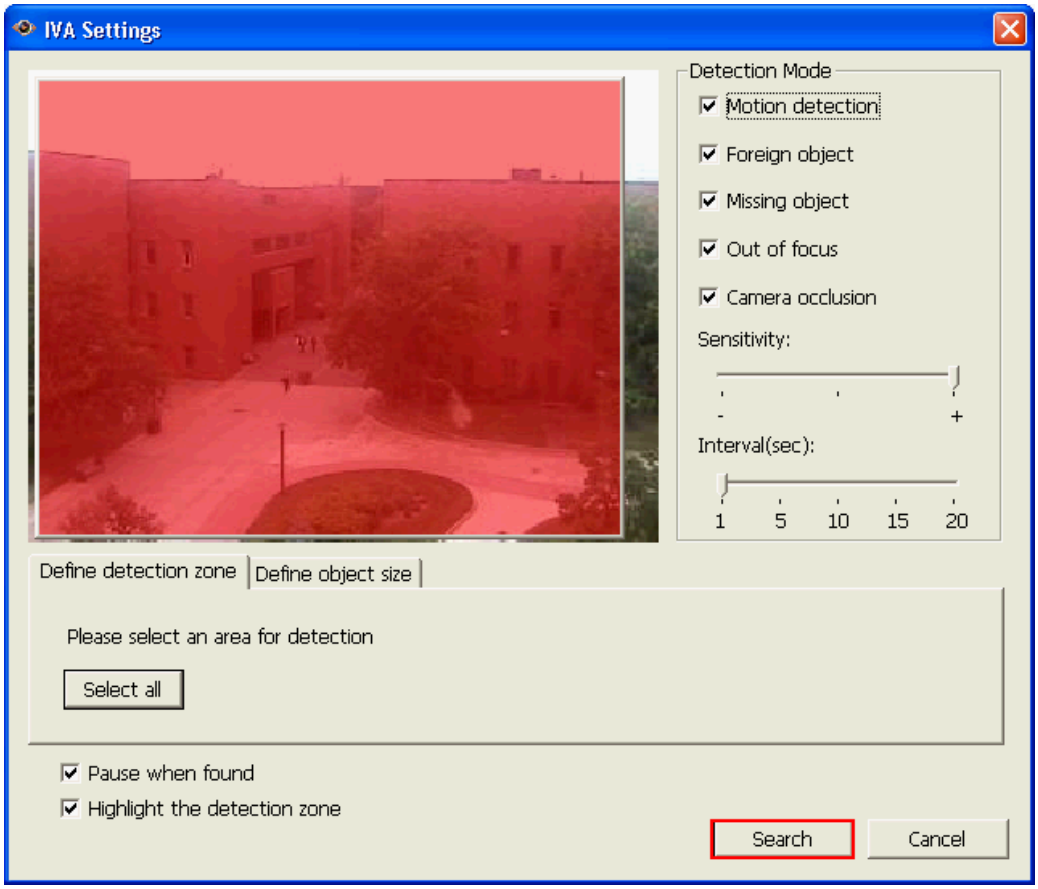


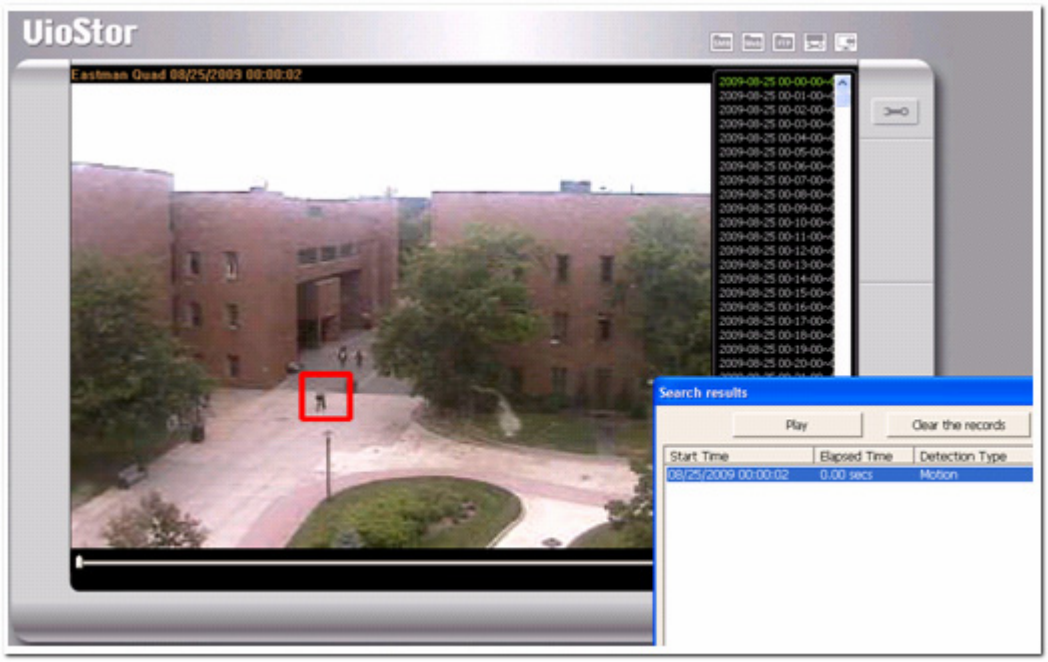
7. Define the object size for detection. Use the mouse to drag the yellow zone to define the minimum object size for detection.



Note: After this option is enabled, all the objects smaller than the yellow zone will be ignored for detection.

8. Click ‘Search’ to start searching the video by IVA. The results will be shown.





Note:

- Double click an entry on the search result dialog to play the video. The player will play the video starting from 15 seconds before the event to 15 seconds after the event.
- Right click an entry on the search result dialog to export the video and save it on your computer. The exported video starts from 15 seconds before the event to 15 seconds after the event.

5.1.5 Convert to AVI File

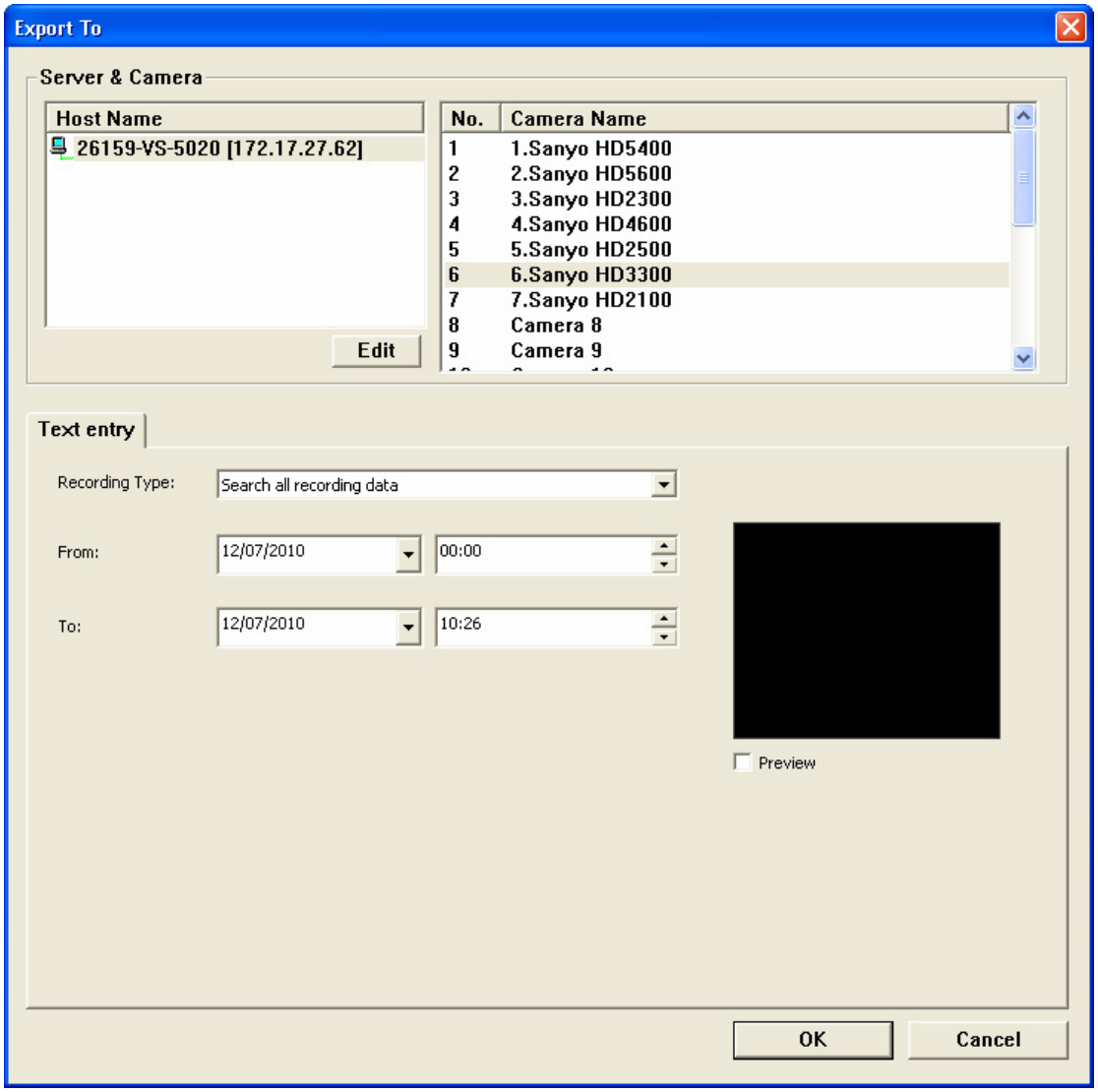
You can save the video files recorded by the NVR as AVI files to your PC.

Note: You must have the playback authority of the IP camera to use this feature.

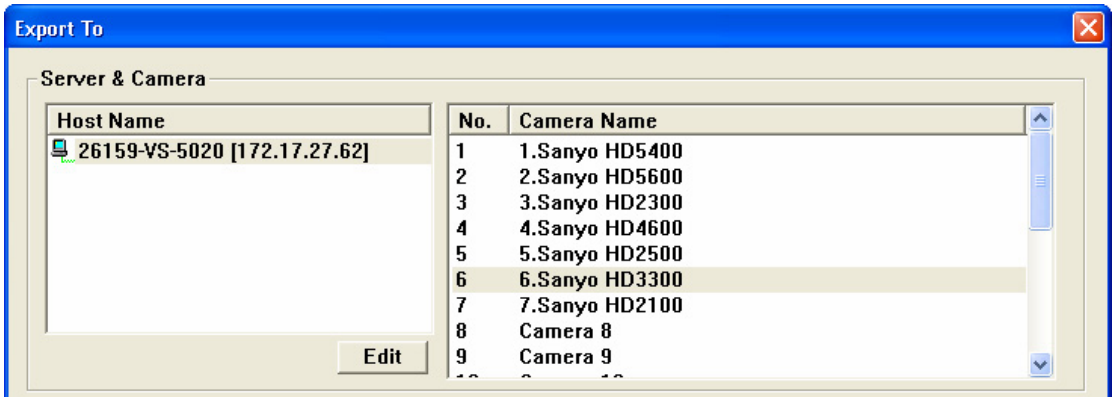
Follow the steps below to save the video from the NVR.

1. Click 'Convert to AVI file'. 

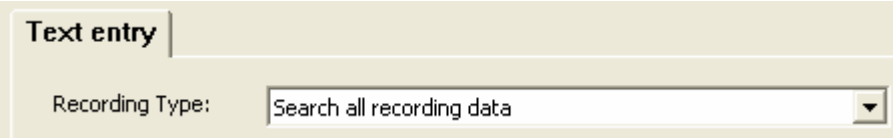
2. The following screen will be shown.



3. Select an NVR server and an IP camera.



4. Select the recording type.



5. Specify the time range for the search.

6. Click 'Preview' to preview the video.

7. Click 'OK'. Enter the file name and specify the location where the file is saved to.

8. The file will be converted into AVI format.

5.2 Digital Watermarking

The NVR supports digital watermarking to protect the videos and snapshots from unauthorized modification. You can add digital watermark on the exported video and snapshot by VioStor Player. A permanent digital signal will be added to the exported files for digital watermarking. The watermark cannot be removed and is only visible to watermark proof software.

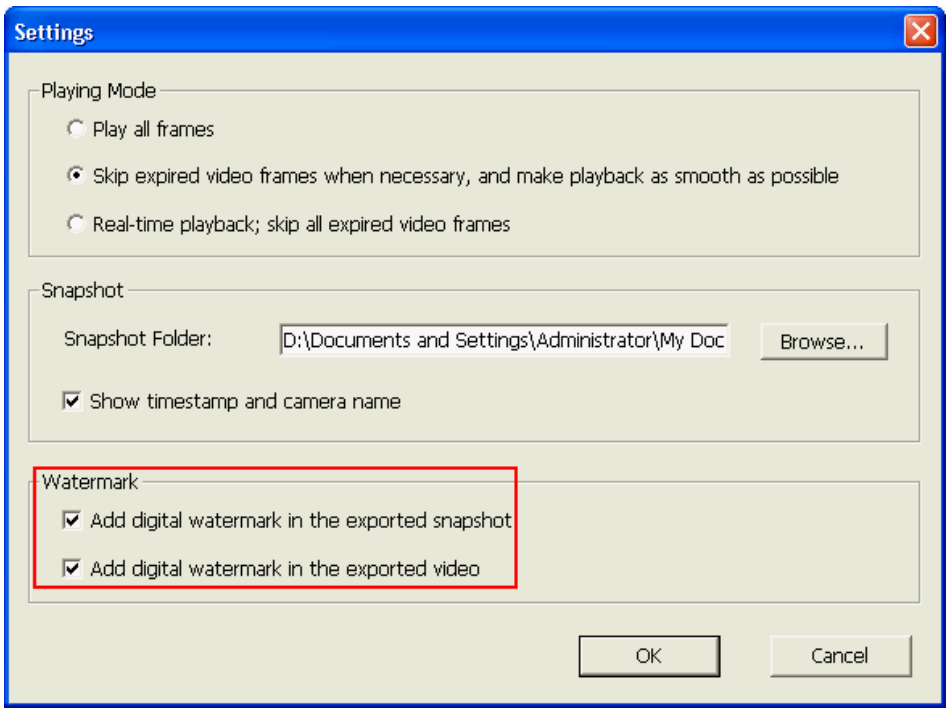
5.2.1 Export Files with Digital Watermark

To use digital watermarking by VioStor Player, follow the steps below.

1. Click 'Playback' to open VioStor Player.

2. Click 'Settings'  .

3. Select to add digital watermark in the exported snapshot or video.



4. Select the recording files (refer to Chapter 5).

5. Click  to convert the video files into AVI format.

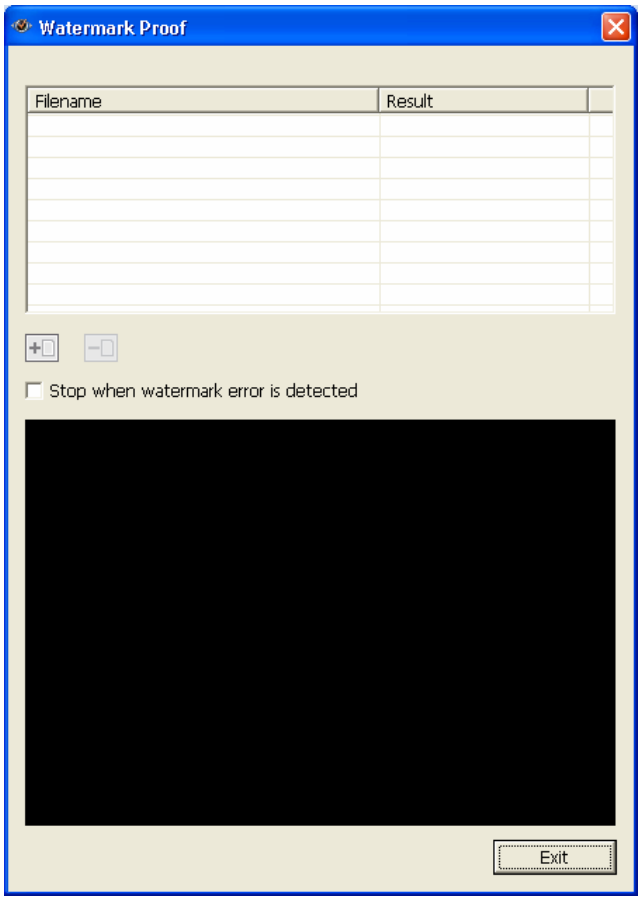
6. Click  to start playing and exporting the files.

Note: When you click  again, the NVR will stop exporting the files and resume to the playback mode.

5.2.2 Watermark Proof

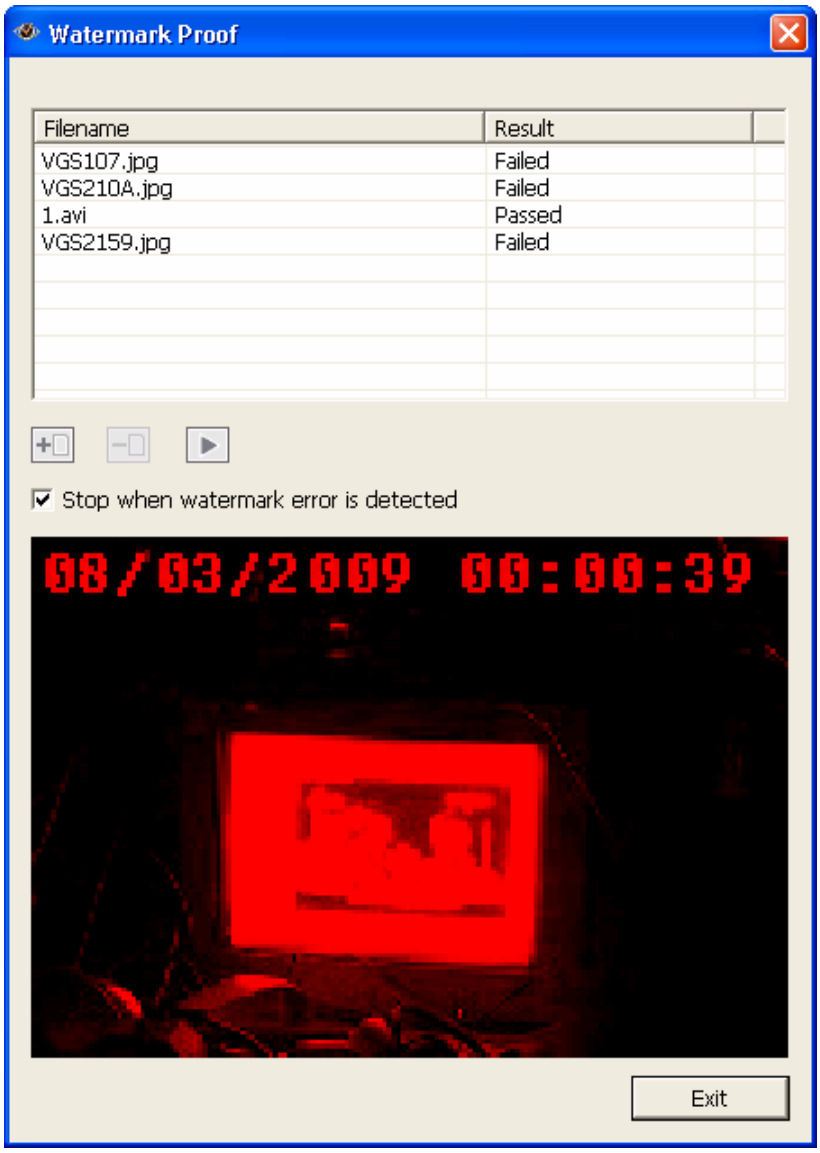
The Watermark Proof utility is installed automatically along with VioStor Player. From the Windows Start menu, select 'All Programs' > 'QNAP' > 'Player' to locate 'Watermark Proof'.

Run Watermark Proof. The following window will be shown.



Click  to browse and locate the files. You can select multiple files at one time.

Click  to check the files and view the proof result. If you select 'Stop when watermark error is detected', the checking process will stop if a failed file is detected. Otherwise the program will check all the files you have selected. If a file has been modified, the proof result will be shown as 'Failed'.



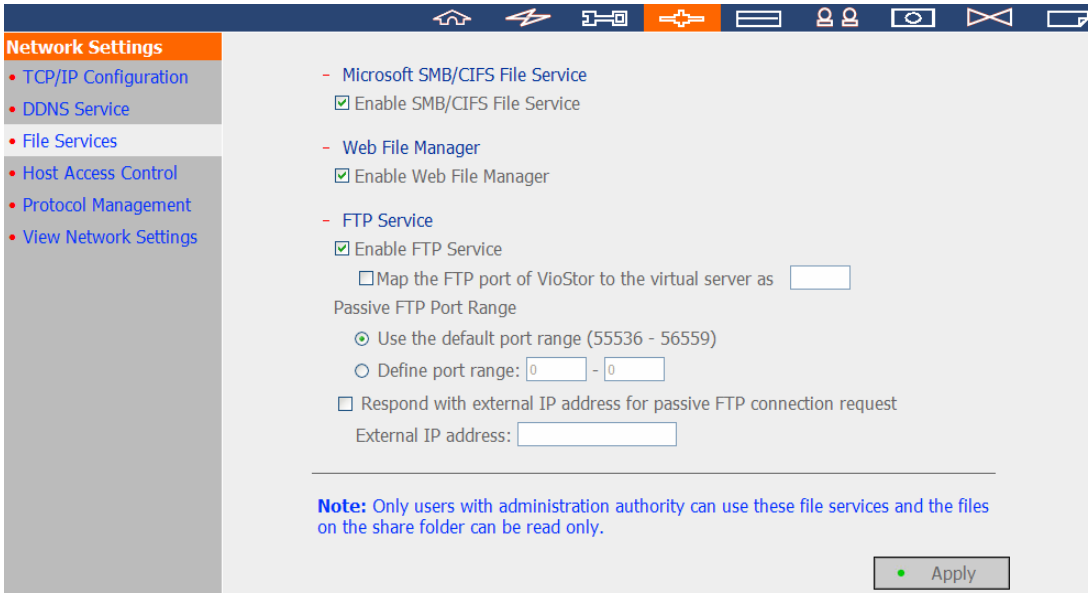
5.3 Access the Recording Data

You can access the recording data on the NVR by the following services:

- Windows Network Neighbourhood (SMB/CIFS)
- Web File Manager (HTTP)
- FTP Server (FTP)

Note:

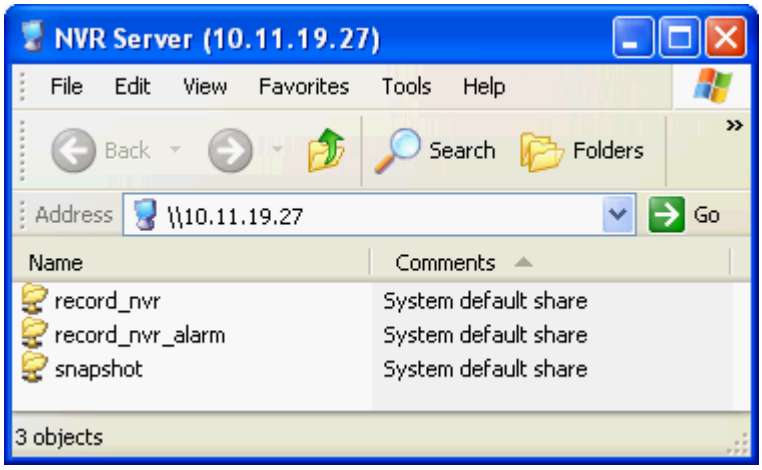
- To access the video files by these protocols, you must enter the user name and password with the administrator access right.
- To use these services, enable the files services in 'Network Settings' > 'File Services' in the system administration page.



5.3.1 Windows Network Neighbourhood (SMB/CIFS)

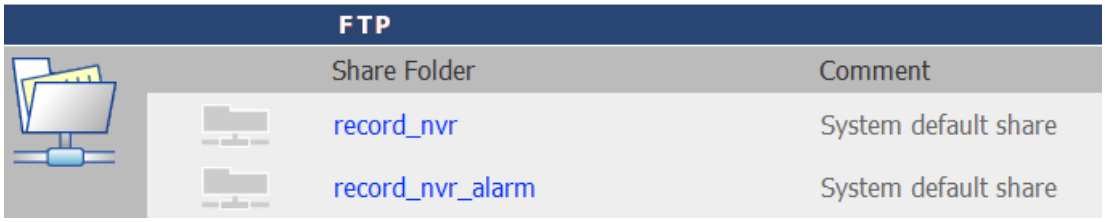
You can access the video files by the SMB/CIFS protocol on Windows OS.

- On the web-based playback interface, click 'SMB'.
- Run \\NVR_IP\ from the Windows Start menu. For example, if your NVR IP is 10.11.19.27, enter \\10.11.19.27.



5.3.2 Web File Manager (HTTP)

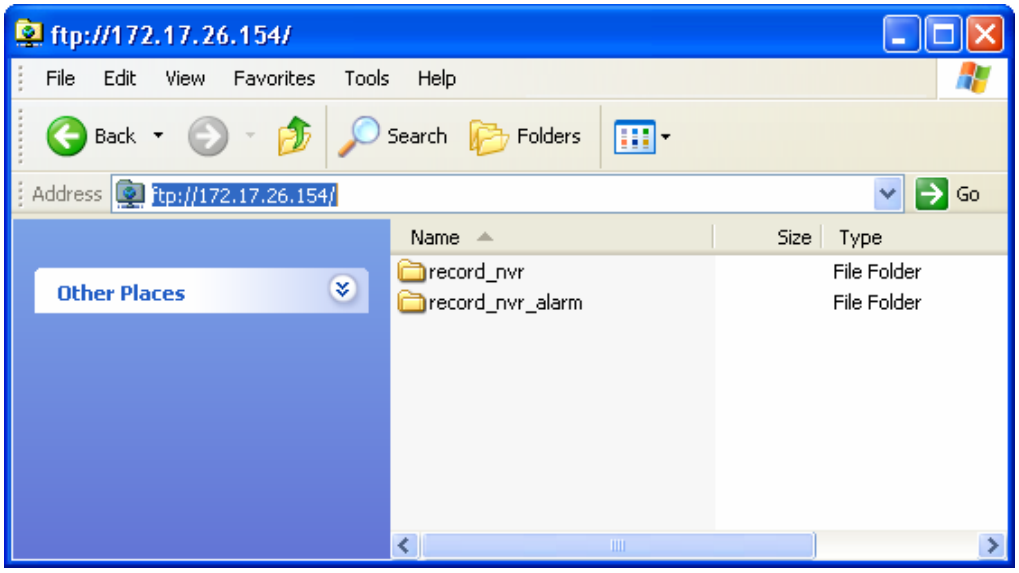
To access the recording data on the NVR by a web browser, click 'Web' on the web-based playback interface and login as an administrator.



5.3.3 FTP Server (FTP)

You can access the recording data by FTP:

- On the web-based playback interface, click 'FTP'.
- In Windows Internet Explorer, enter ftp://username:password@NVRIP/. For example, enter ftp://admin:admin@172.17.26.154/ if the NVR IP is 172.17.26.154.



Chapter 6. System Administration

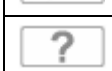
To login the system configuration page of the NVR, click  on the monitoring page and login as an administrator.

Upon successful login, you can view the monitoring channels, the connection and recording status, and the network bandwidth of the NVR on the 'Advanced Mode' page.

You can also view the settings by 'Traditional Mode'.

If the NVR is has not been configured yet, the Quick Configuration page will be shown to guide you through the system setup.

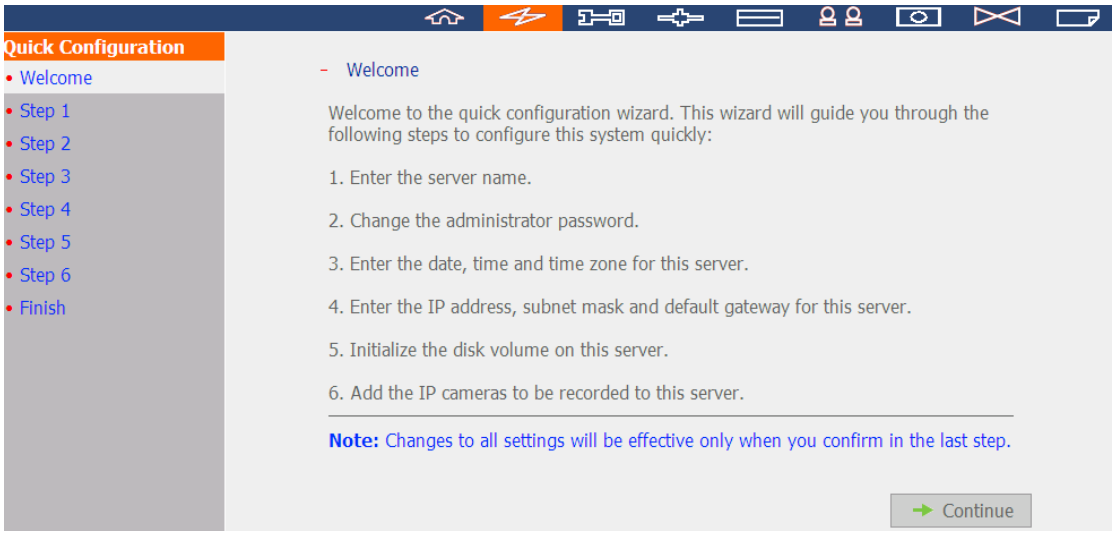
The functions of the buttons on the configuration page are described below:

	Return to the monitoring page
	Playback the videos
	View the on-line help
	Log out the NVR

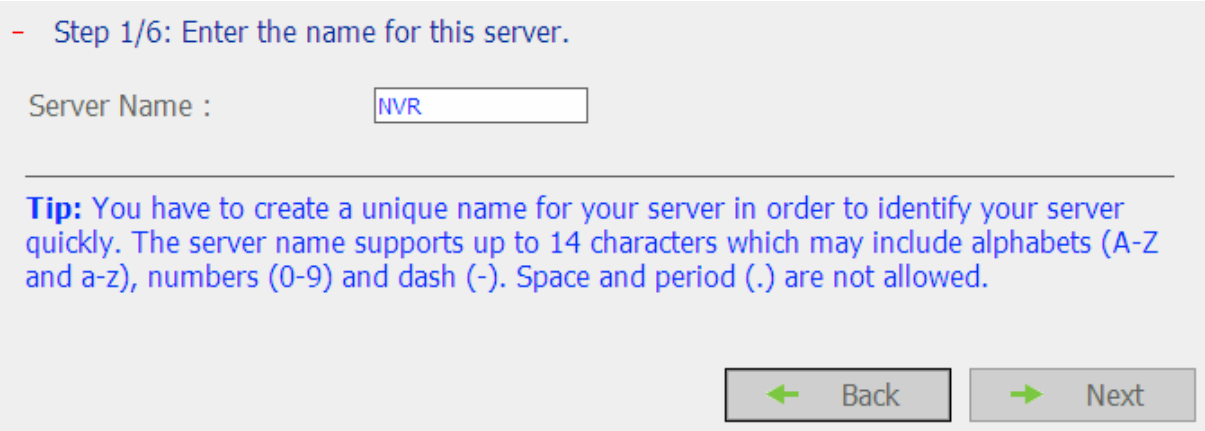
6.1 Quick Configuration

Follow the instructions to configure the NVR.

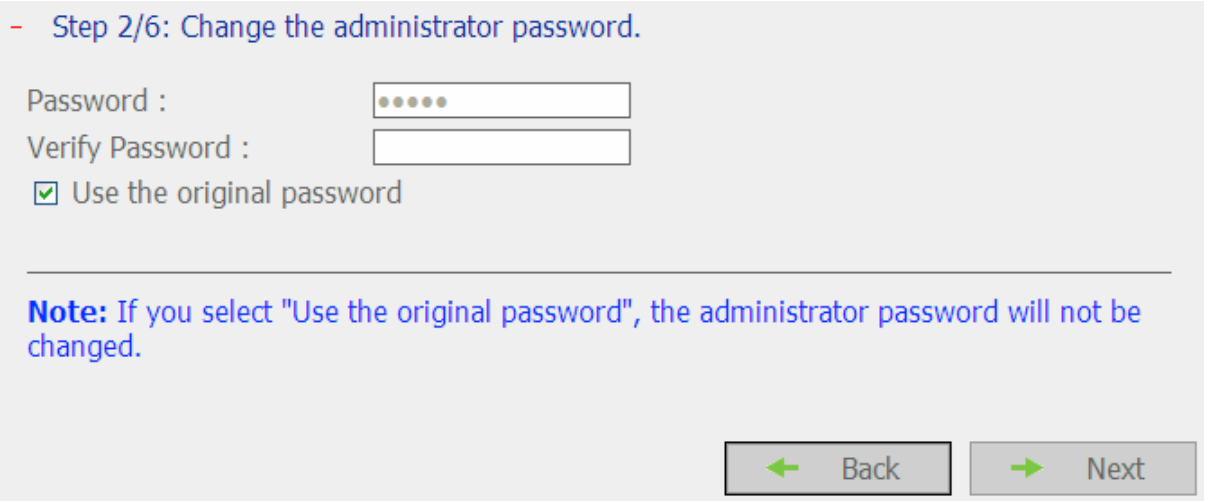
Note: All the changes will be effective only after clicking 'Start installation' in the last step.



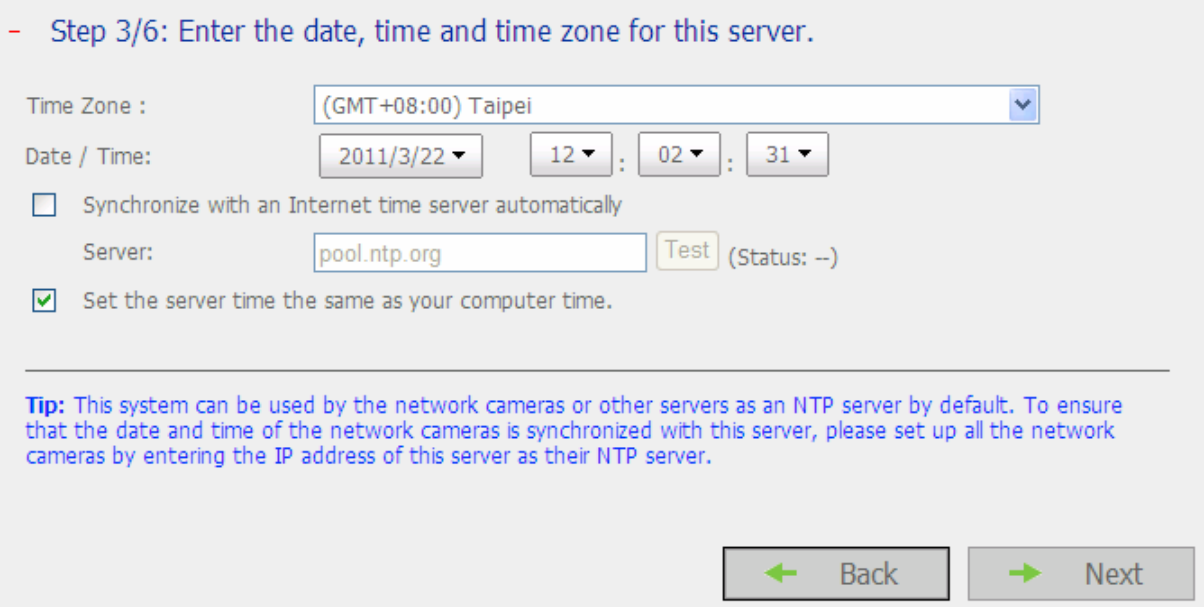
1. Enter the server name. The server name supports up to 14 characters which may include alphabets (A–Z and a–z), numbers (0–9), and dash (-). Space and period (.) are not allowed.



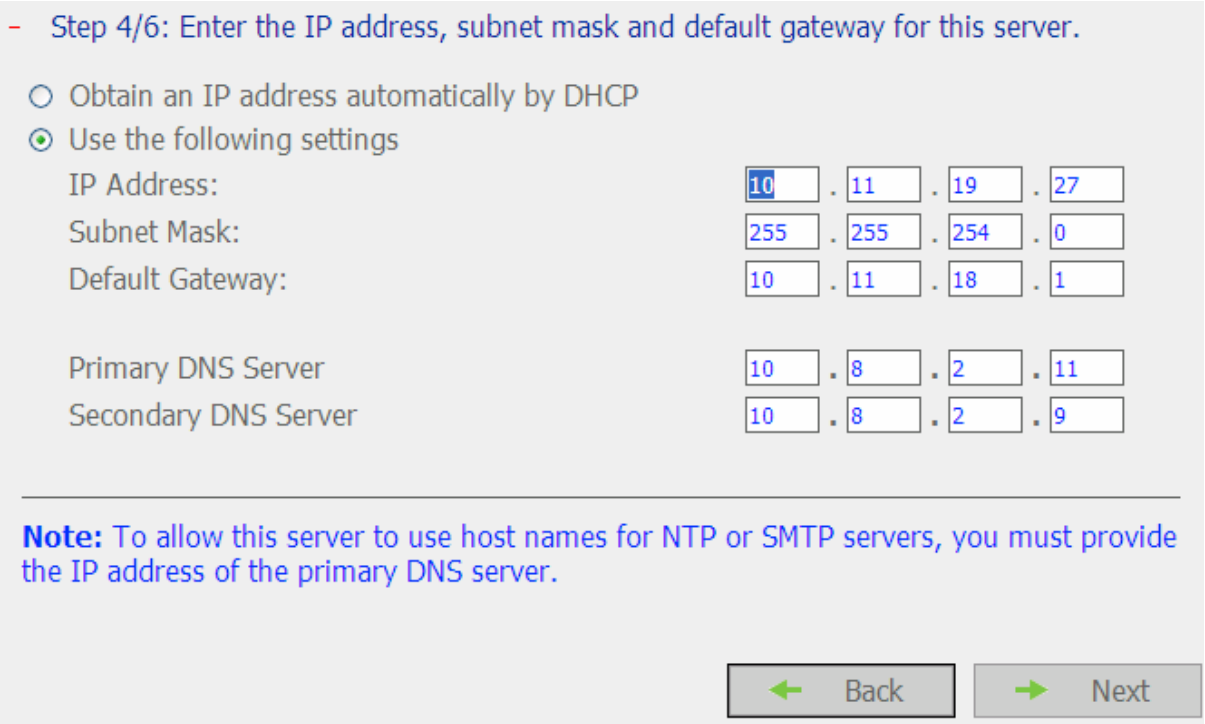
2. Change the administrator password or select to use the default password (admin).



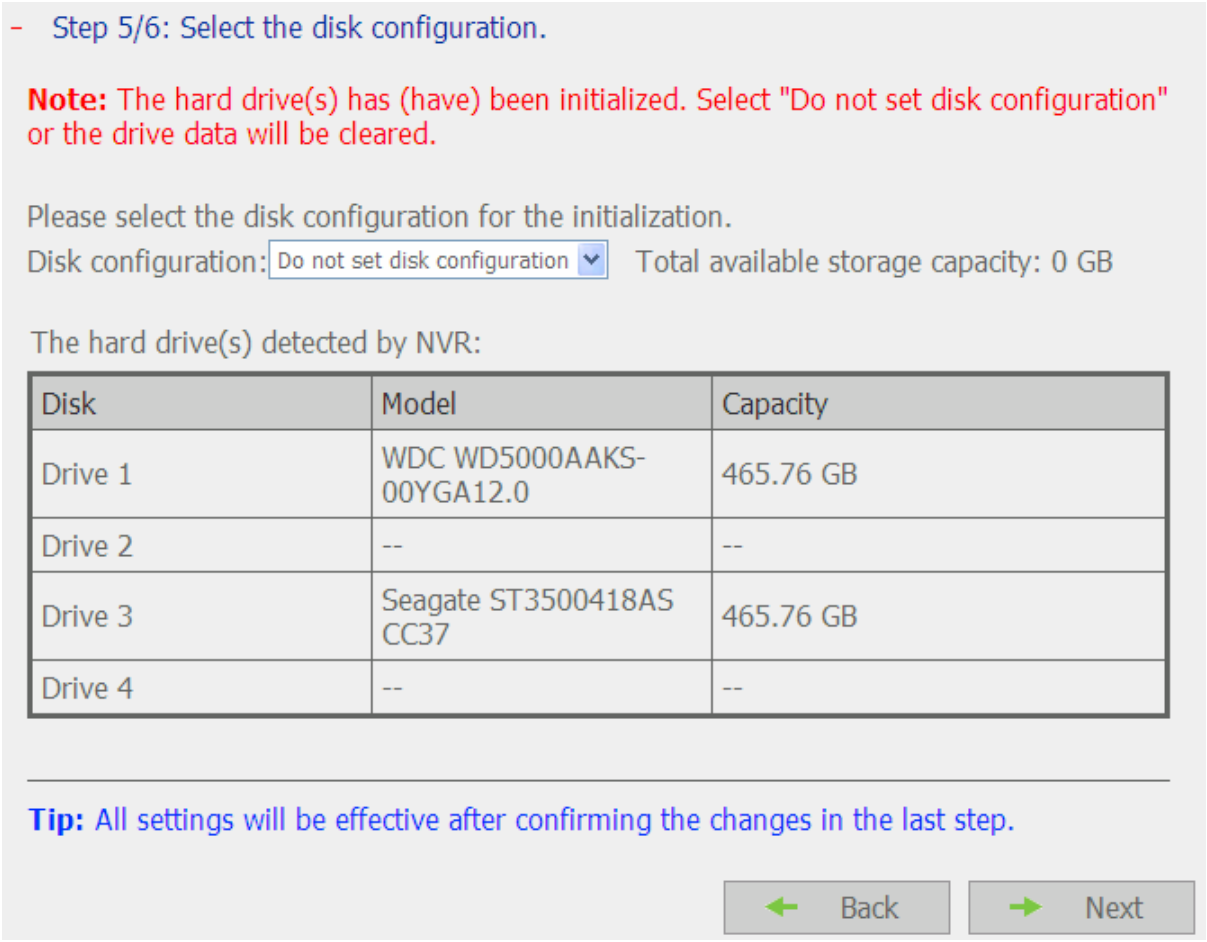
3. Enter the date, time, and time zone of the server.



4. Enter the IP address, subnet mask, and default gateway of the server.



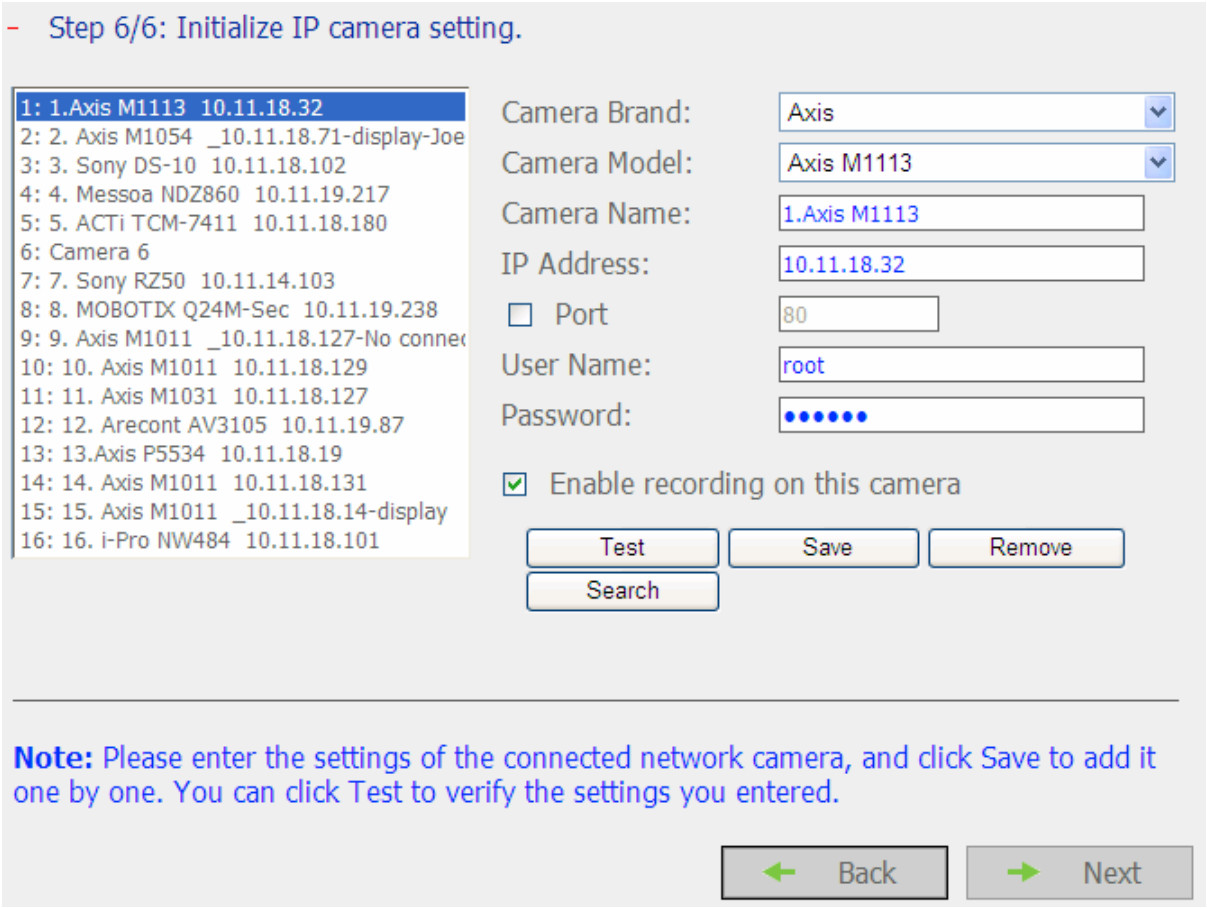
5. Select the disk configuration. All the disk data will be cleared unless you select not to set the disk configuration.



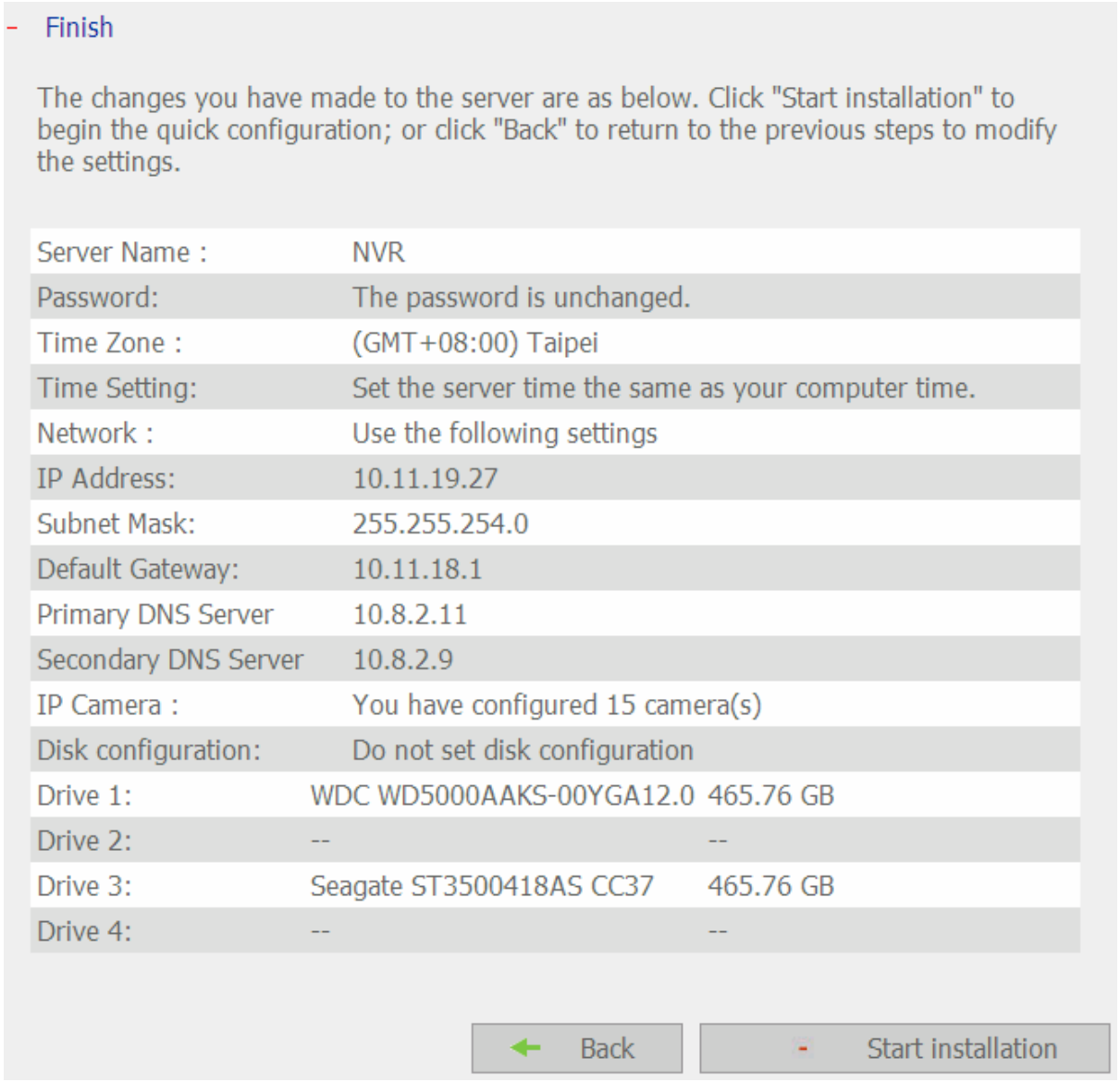
6. Initialize the IP camera settings.

Select the camera brand and model. Enter the name and IP address of the camera, and the user name and password. You can also enable or disable the recording function on each channel, test the connection to the IP cameras and then click 'Save' to apply the changes.

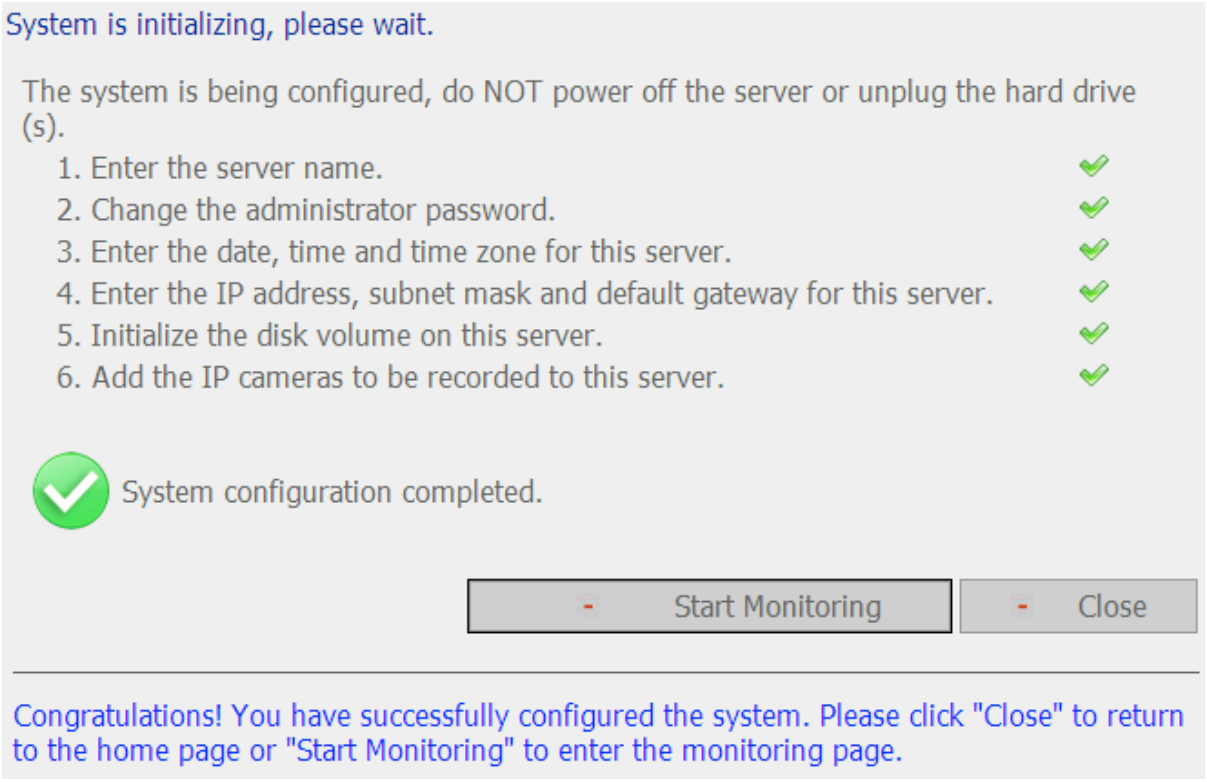
Click 'Search' to search for the IP cameras on the local network. Select a channel and click 'Add' to add the camera. With the search function, the camera model and the IP address are filled in automatically. Click 'Close' to close the search results.



Click ‘Start Installation’ to apply the changes and initialize the system.



Click ‘Start Monitoring’ to view the live video from the IP cameras or click ‘Close’ to return to the system administration home page.



6.2 System Settings

You can configure the basic system settings including the server name, the date & time, and view the system settings.

6.2.1 Server Name

Enter the name of the NVR. The server name supports maximum 14 characters, which can be a combination of alphabets (a-z), numbers (0-9), and hyphen (-). It does not allow spaces ( ), pure numbers, or the following characters:
. ; : " < > * + = \ | ? , [ ] /

6.2.2 Date & Time

Set the date, time, and time zone according to your location. If the settings are incorrect, the following problems may occur:

- Incorrect time display on the video files.
- Incorrect time display on the event logs.

Synchronize with an Internet time server automatically

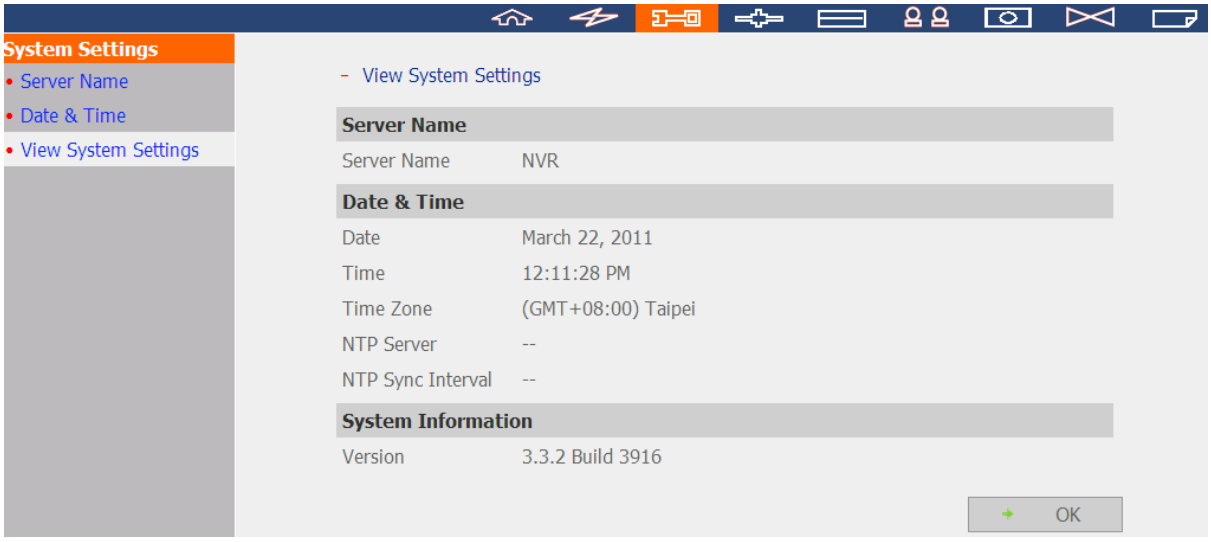
Enable this option to update the date and time of the NVR automatically with an NTP (Network Time Protocol) server. Enter the IP address or the domain name of the NTP server, for example, time.nist.gov or time.windows.com.

The NVR can be configured as the NTP server for the IP cameras or other servers. To ensure the date and time of the IP cameras are synchronized with the NVR, enter the NVR IP as the NTP server of the IP cameras. To set the server time the same as the computer time, select 'Set the server time the same as your computer time'.

Note: It may take several minutes to synchronize the time after you enable the NTP server feature.

6.2.3 View System Settings

You can view the system settings such as the server name on this page.



6.3 Network Settings

You can configure the WAN and LAN settings, DDNS service, file service, host access control, protocol management and view the network settings in this section.

6.3.1 TCP/IP Configuration

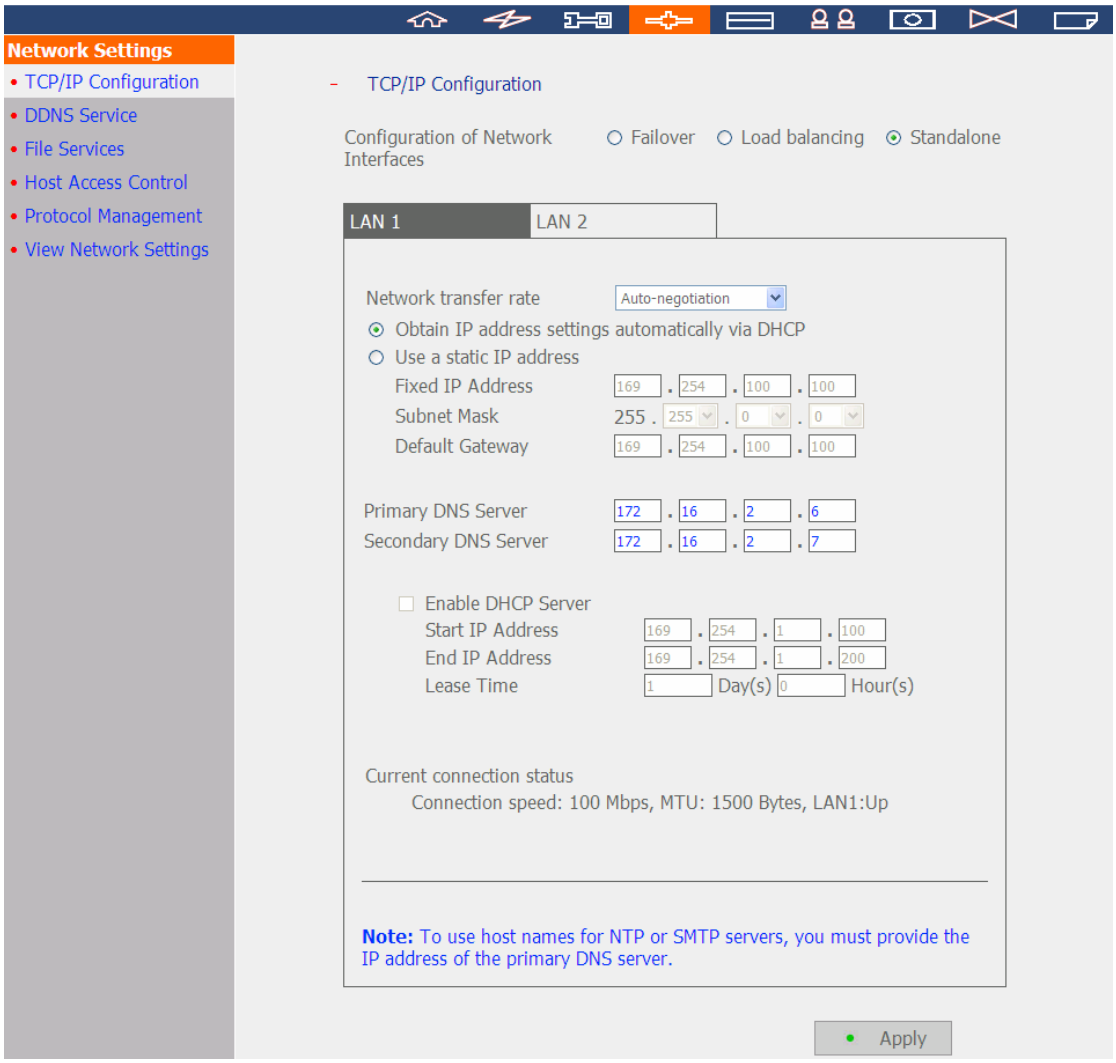
Select one of the following options to configure the TCP/IP settings of the NVR.

- **Obtain IP address settings automatically via DHCP**
  Select this option to allow the NVR to acquire an IP address on the local network automatically if a DHCP server is available.
- **Use static IP address**
  To assign a fixed IP to the NVR, enter the IP address, the subnet mask, and the default gateway.

Primary DNS Server: Enter the IP address of the primary DNS server that provides the DNS service for the NVR on the external network.
Secondary DNS Server: Enter the IP address of the secondary DNS server that provides the DNS service for the NVR on the external network.

Note: The Jumbo Frame setting is valid in Gigabit network environment only. All the network appliances connected must enable Jumbo Frame and use the same MTU value.

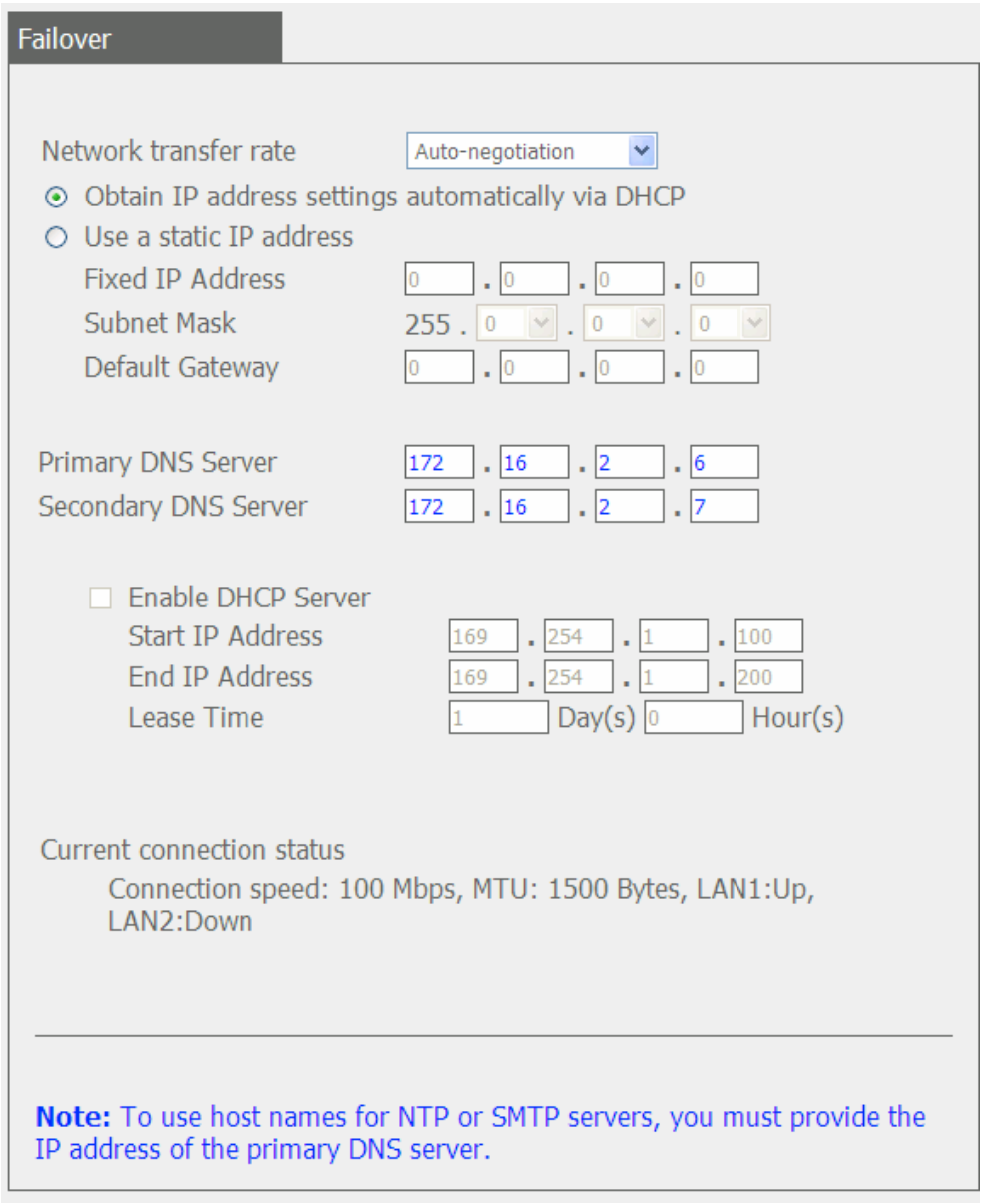
If the NVR supports two LAN ports, you can select to use failover, load balancing, or standalone settings. To use these features, make sure both LAN ports are connected to the network.



Configuration of Network Interfaces

- **Failover (Default settings for dual LAN NVR models)**

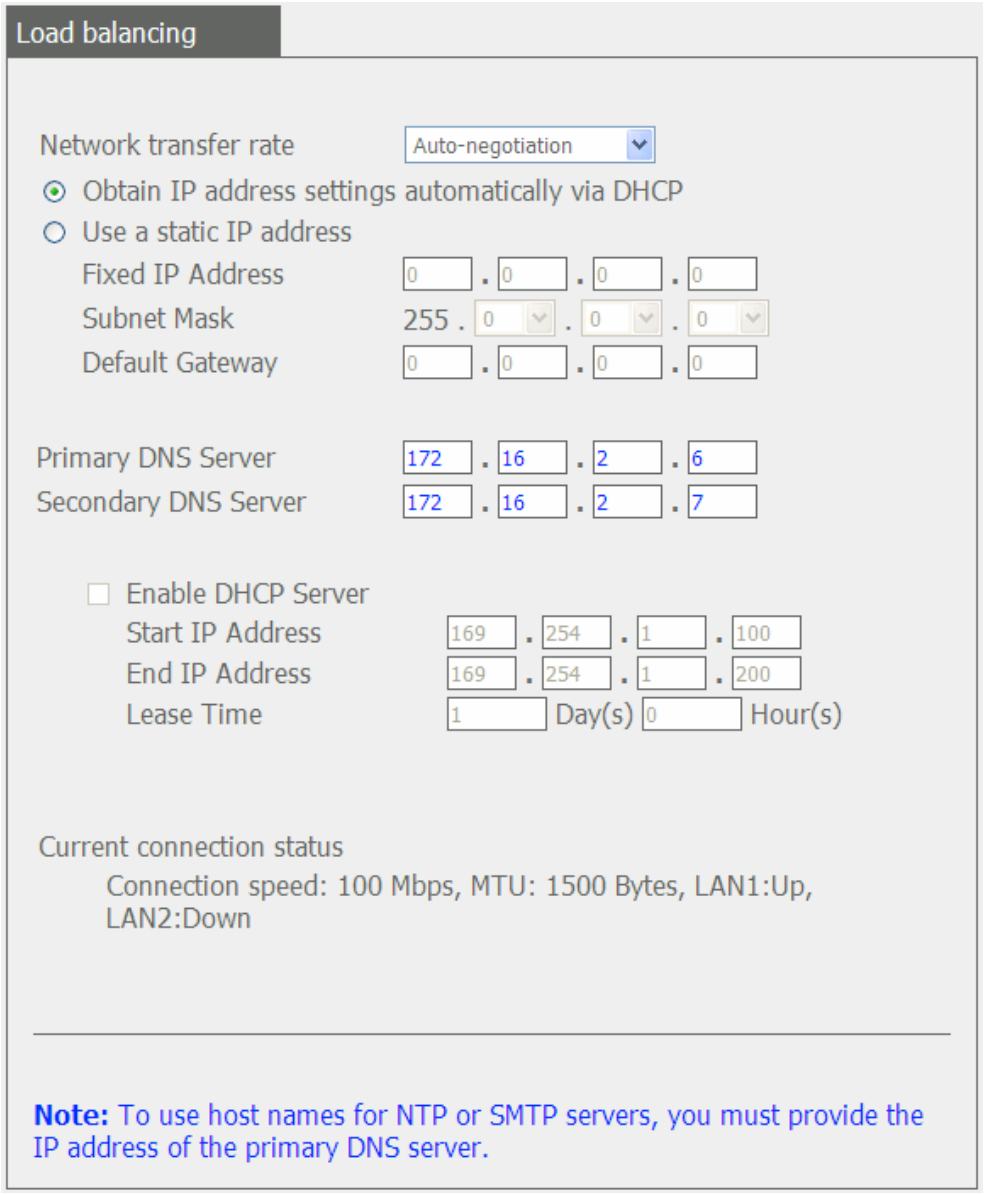
  Failover refers to the capability of switching over the network transfer port to the redundant port automatically when the primary one fails due to hardware or connection error to avoid network disconnection. When the primary network port resumes the connection, the network transfer will be switched over to that port automatically.



- **Load balancing**

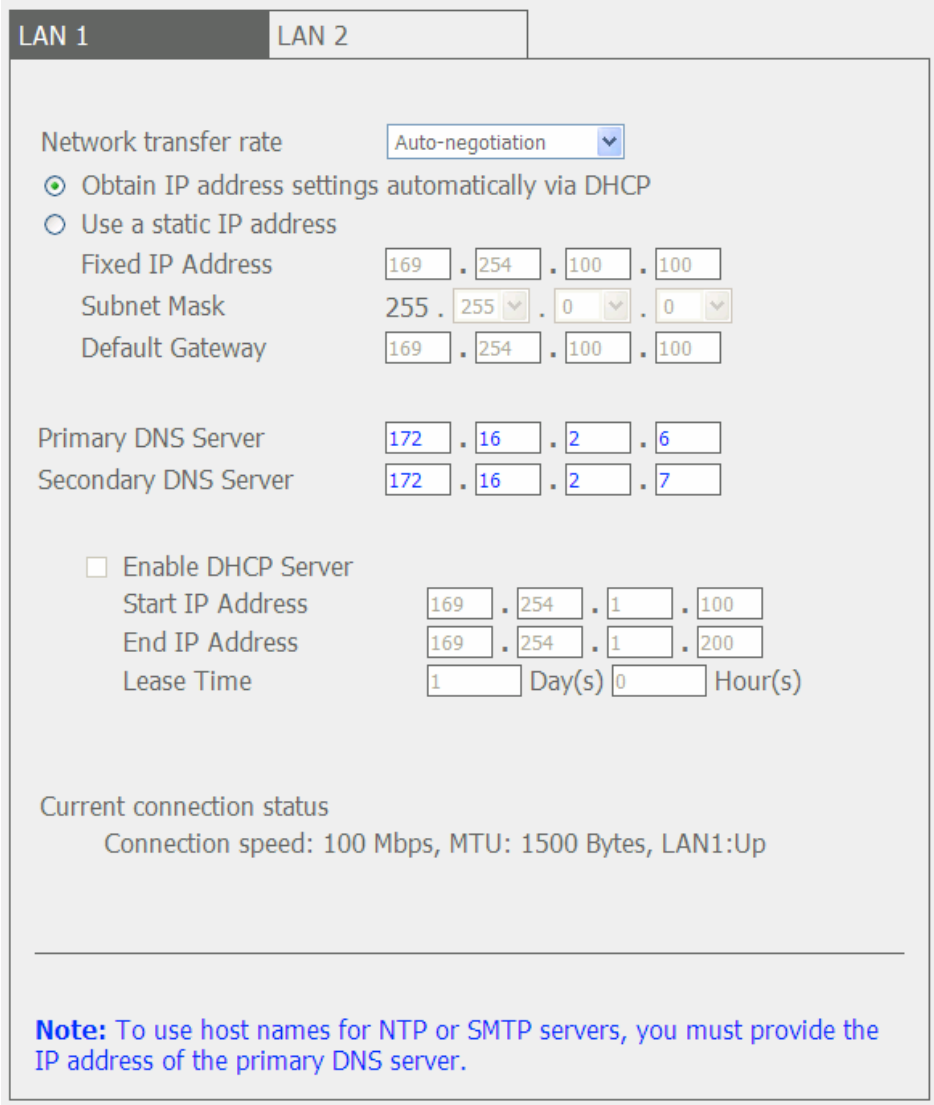
  Load balancing enables the network resources to spread between two or more network interfaces to optimize the network transfer and enhance the system performance. It operates on layer 3 protocol (IP, NCP IPX) only. Multicast/broadcast and other non-routable protocols such as NetBEUI can only be transferred via the main network port.

Note: To optimize the network transfer speed of the NVR in load balancing mode, use a managed Ethernet switch and enable 802.3ad (or link aggregation) on the ports of the switch that the Gigabit LAN ports of the NVR are connected to.



- **Standalone**

  The standalone option allows you to assign different IP settings for each network port. The NVR can be accessed by different workgroups on two different subnets. When load balancing is enabled, failover does not work. You can only enable the DHCP server for the primary network port (LAN 1).



Network Transfer Rate

You can select auto-negotiation (default), 1000 Mbps, or 100 Mbps. It is recommended to use the default setting that the server will determine the network speed automatically.

Obtain IP address settings automatically via DHCP

If your network supports DHCP, select this option to allow the NVR to retrieve an IP address and the related information automatically.

Use static IP address

To assign a fixed IP to the NVR, enter the IP address, subnet mask, and default gateway.

Primary DNS Server

Enter the IP address of the primary DNS server that provides the DNS service for the NVR on the external network.

Secondary DNS Server

Enter the IP address of the secondary DNS server that provides the DNS service for the NVR on the external network.

Enable DHCP Server

If no DHCP server is available on the LAN where the NVR locates, you can enable the NVR as a DHCP server to allocate dynamic IP address to the DHCP clients on the LAN.

You can set a range of IP addresses allocated by the DHCP server and the lease time. The lease time refers to the time that the IP address is leased to the clients by the DHCP server. When the time expires, the client has to acquire an IP address again.

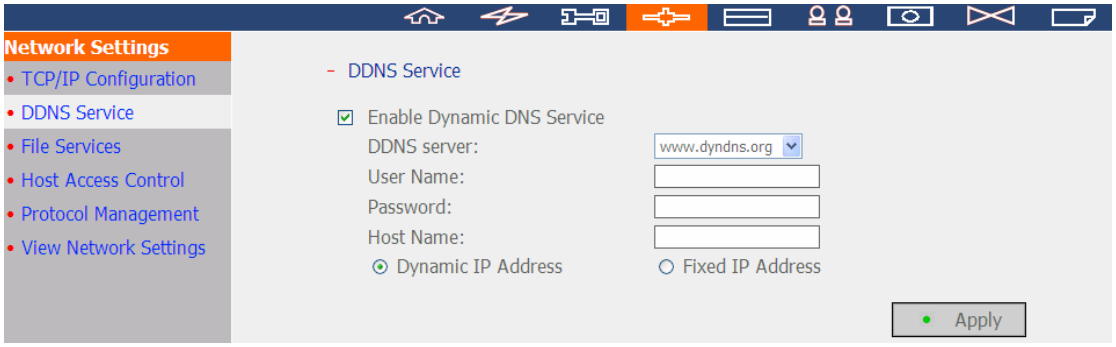
Note: If there is an existing DHCP server on the LAN, do not enable this function to avoid IP address allocation failure and network access error.

6.3.2 DDNS (Dynamic Domain Name) Service

The DDNS service enables the users to connect to the NVR by the domain name directly. There is no need to memorize the lengthy IP address of the server. To enable the DDNS service, you have to register a DDNS account from a DDNS provider. Please refer to Appendix A for details.

The NVR currently supports the DDNS service provided by:

1. DynDNS (http://www.dyndns.org)
2. OSD (http://ods.org)
3. DHS (http://www.dhs.org)
4. DyNS (http://www.dyns.cx)
5. http://www.3322.org
6. No-IP (http://www.no-ip.com)
7. http://ipcam.jp



6.3.3 File Services

You can enable the SMB/CIFS file service, Web File Manager, and FTP service to access the video files. These settings are enabled by default.

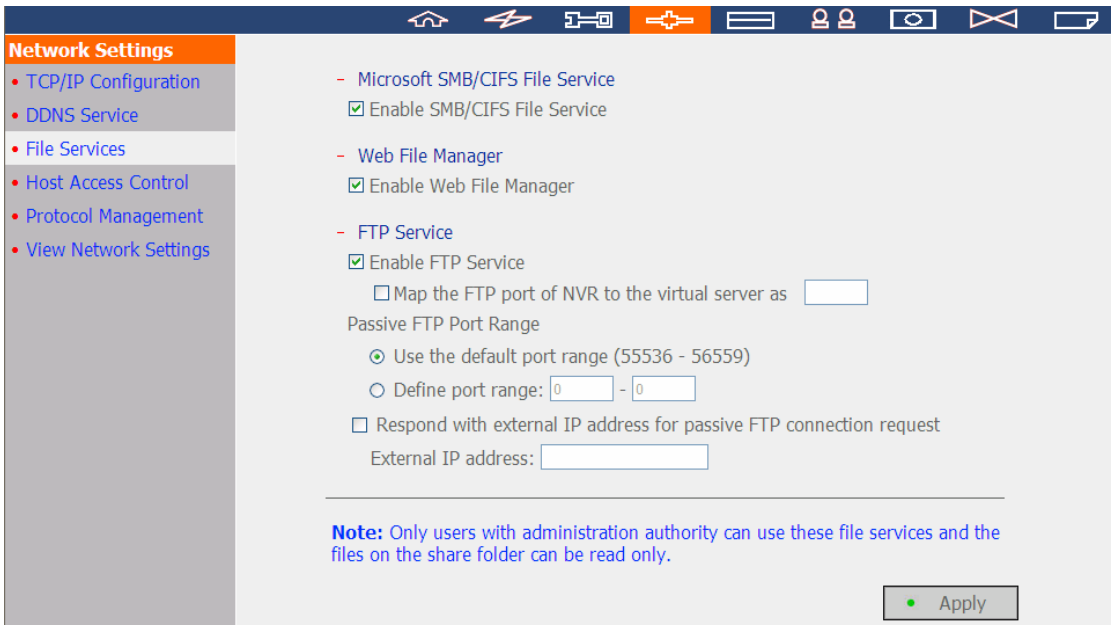
If the NVR is installed behind the router, you may enable FTP port mapping to allow the users from the external network to connect to the NVR via FTP (please refer to Appendix B).

Passive FTP Port Range

You can use the default port range (55536–56559) or specify a port range larger than 1023. When using this function, make sure you have opened the ports on the router or firewall.

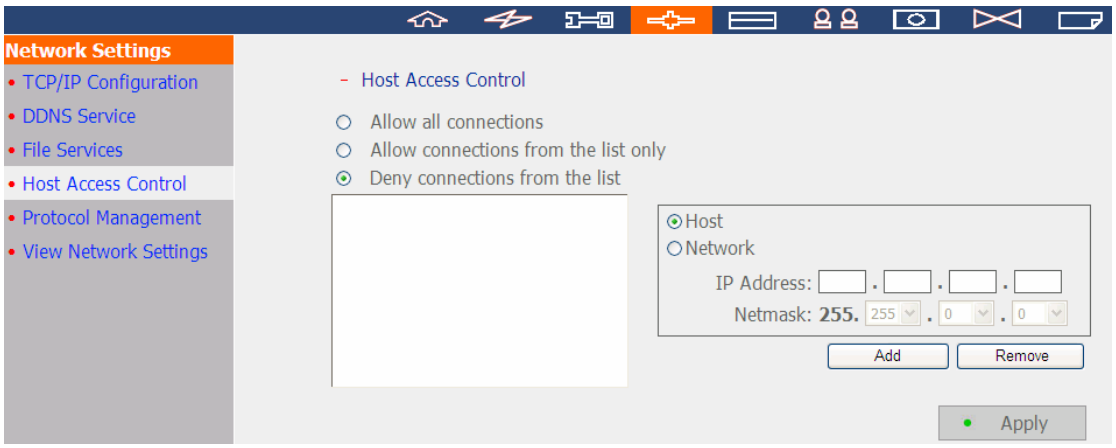
Respond with external IP address for passive FTP connection request

When passive FTP connection is in use and the NVR is configured behind a router, enable this function to allow connection to the NVR on WAN. By enabling this function, the FTP service replies the specified IP address or automatically detects the external IP address so that the remote computer can connect to the NVR.



6.3.4 Host Access Control

Specify the connections to be allowed or denied to connect to the NVR. Choose one of the following options to restrict the access from a network or an IP address (host) to the server:



1. Allow all connections (Default setting)

Allow the connection from all the hosts to the server.

2. Allow connections from the list only

Allow the connection from the hosts specified on the list only.

> **Note:** When this function is enabled, only the specified IP on the list will be able to find and connect to the NVR.

3. Deny connections from the list

Deny the connection from the hosts or IP specified on the list.

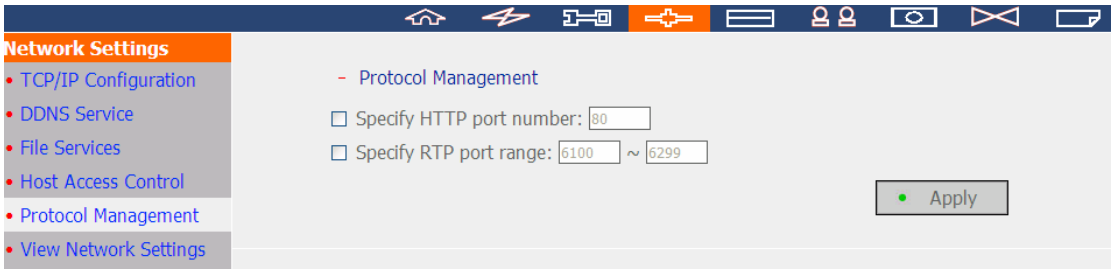
> **Note:** Make sure your PC is added to the allowed list.

6.3.5 Protocol Management

To connect to the NVR by a specific HTTP port number, enable the option 'Specify HTTP port number' and enter the port number. The default setting is 80.

RTP (Real-time Transfer Protocol) is a standardized packet format for delivering real-time audio and video data of the IP cameras on the Internet. The real-time data transfer is monitored and controlled by RTP (also RTCP). The default setting is 6100–6299. If your IP cameras use different RTP ports, enable 'Specify RTP port range' and specify the port numbers.

Note: Make sure you have opened the ports configured on the router or firewall to ensure normal monitoring and recording.



6.3.6 View Network Settings

You can view the current network settings and the status of the VioStor in this section.

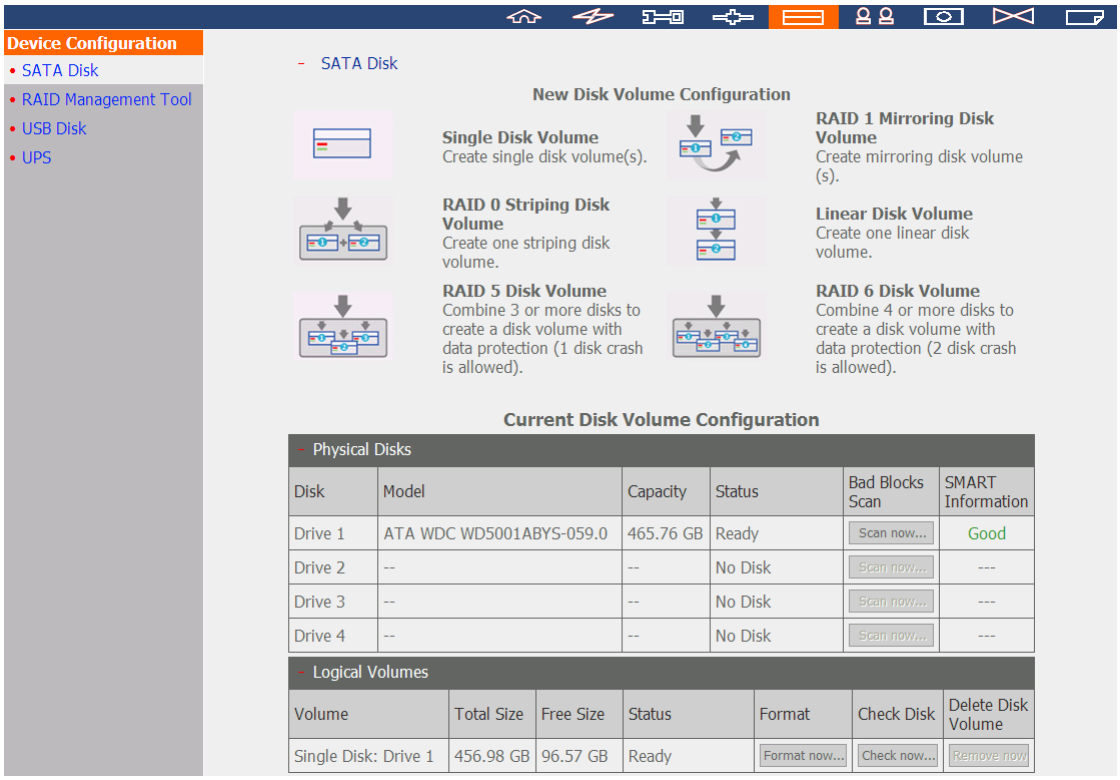
6.4 Device Configuration

You can configure the SATA disk, RAID management tool, USB disk, and the UPS settings in this section.

6.4.1 SATA Disk

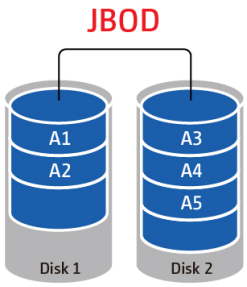
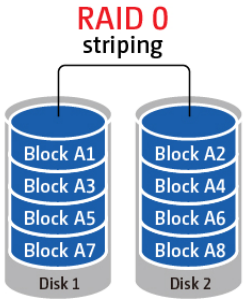
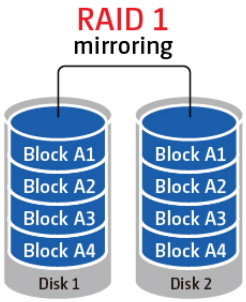
This page shows the model, size and current status of the hard disk drive(s) installed on the VioStor. You can format the hard disks and view the status, and scan the bad blocks. When the hard disks are formatted, the VioStor will create the following default share folders:

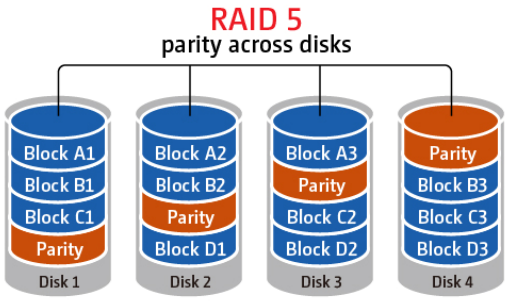
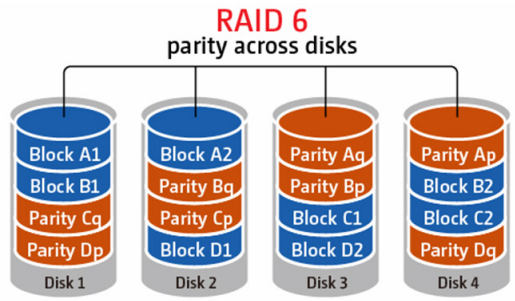
- record_nvr: The folder to where the regular recording files are saved.
- record_nvr_alarm: The folder to where the alarm recording files are saved.



Click the icons on the 'SATA Disk' page to format the hard disk drive(s).

Disk Configuration	Applied NVR Models
Single disk volume	All models
RAID 1, JBOD (just a bunch of disks)	2-bay models or above
RAID 5, RAID 6, RAID 5+hot spare	4-bay models or above
RAID 6+hot spare	5-bay models or above

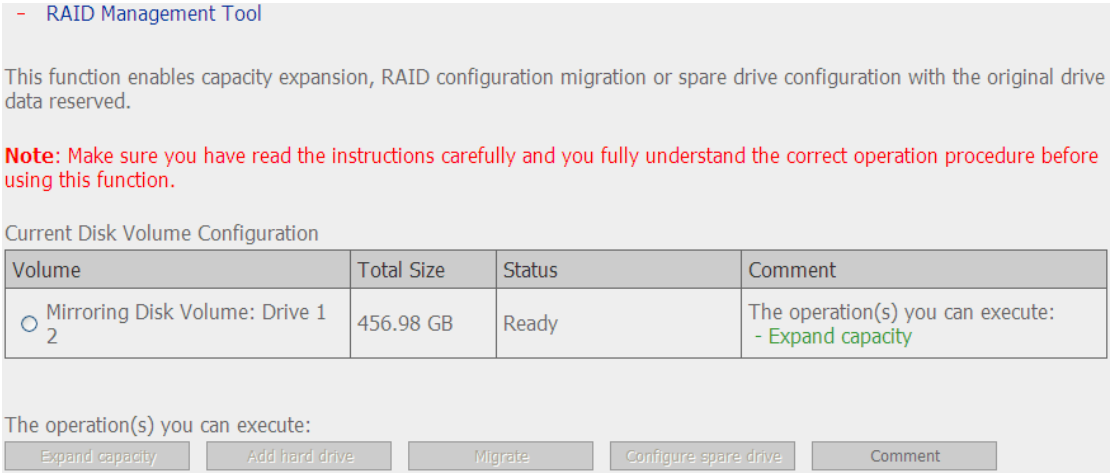
Single Disk Volume Each hard disk drive is used as a standalone disk. If a disk is damaged, all the data will be lost.	
JBOD (Just a bunch of disks) JBOD is a collection of hard disk drives that does not offer any RAID protection. The data are written to the physical disks sequentially. The total storage capacity equals to the sum of the capacity of all the member drives.	
RAID 0 Striping Disk Volume RAID 0 (striping disk) combines 2 or more hard disk drives into one larger volume. The data is written to the hard disk drives without any parity information and no redundancy is offered. The total storage capacity equals to the sum of the capacity of all the member drives.	
RAID 1 Mirroring Disk Volume RAID 1 duplicates the data between two hard disk drives to provide disk mirroring. To create a RAID 1 array, a minimum of 2 hard drives are required. The storage capacity of a RAID 1 disk volume is equal to the size of the smallest hard drive.	

RAID 5 Disk Volume The data are striped across all the drives in a RAID 5 array. The parity information is distributed and stored across each drive. If a member drive fails, the array enters degraded mode. After installing a new drive to replace the failed one, the data can be rebuilt from other member drives that contain the parity information. To create a RAID 5 disk volume, a minimum of 3 hard disks are required. The storage capacity of a RAID 5 array equals (N-1) * (size of smallest hard drive). N is the total number of hard drive members in the array.	
RAID 6 Disk Volume The data are striped across all the drives in a RAID 6 array. RAID 6 differs from RAID 5 that a second set of parity information is stored across the member drives in the array. It tolerates failure of two member drives. To create a RAID 6 disk volume, a minimum of 4 hard disks are required. The storage capacity of a RAID 6 array equals (N-2) * (size of smallest hard drive). N is the total number of hard drive members in the array.	

6.4.2 RAID Management Tool

*This function is not supported by the VS-1004L, VS-101, VS-201, NVR-104.

The RAID management tool allows you to carry out capacity expansion, RAID migration, or spare drive configuration with the original drive data reserved.



- Expand capacity
  This function enables capacity expansion of a RAID configuration by replacing the member drives one by one. This option is supported by RAID 1, RAID 5, or RAID 6 configurations.

- Add hard drive
  This function enables adding new drive member to a RAID configuration. It is supported by RAID 5 configuration.

- Migrate
  This function enables a drive configuration to be migrated to a different RAID configuration. You can use this feature to:
  - Migrate a single drive to RAID 1, 5, or 6
  - Migrate a RAID 1 configuration to RAID 5 or 6
  - Migrate a RAID 5 configuration to RAID 6

- Configure spare drive

  This function enables adding or removing a spare drive from a RAID 5 configuration.

  The options available are:

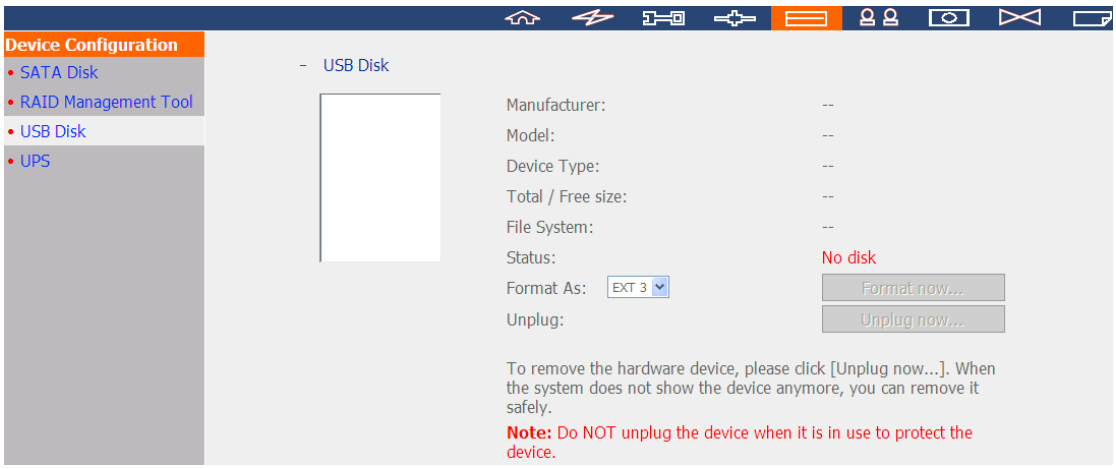
  - Add a spare drive to a RAID 5 configuration
  - Remove a spare drive from a RAID 5 configuration

For detailed operation instructions, click ‘Comment’ on the management interface.

6.4.3 USB Disk

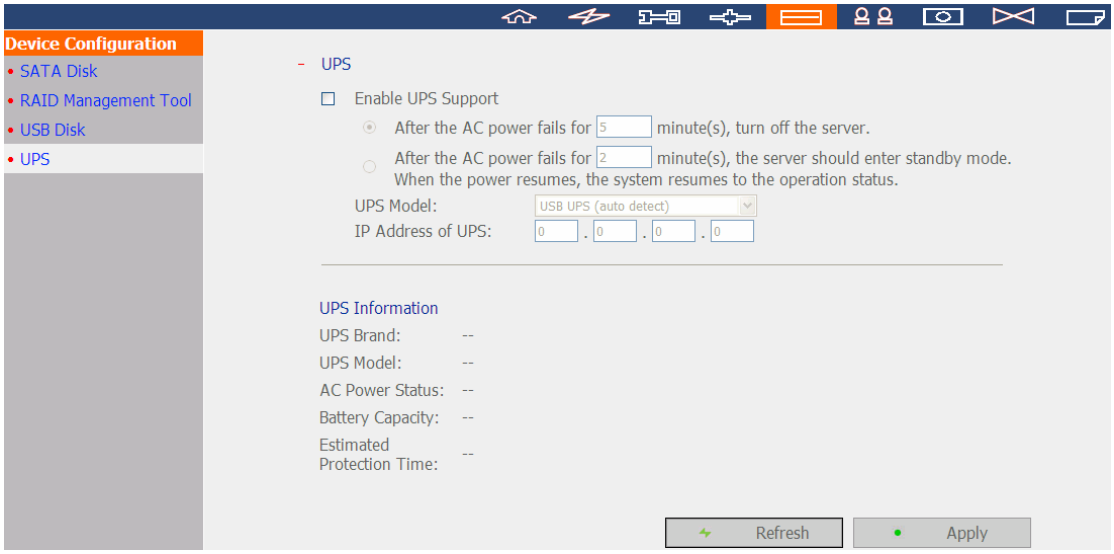
The NVR supports data backup to the external USB storage devices. Connect the USB storage device to the USB port of the NVR, when the device is successfully detected, the details will be shown.

* The VS-101, VS-201, NVR-104 do not support FAT32 and NTFS.



6.4.4 UPS

You can connect a UPS (uninterruptible power supply) to the NVR and enable the UPS support. When an expected power outage occurs, the UPS is able to supply the power to the NVR continuously. You can also configure the settings to turn off the NVR after the AC power fails. If the power of the UPS is insufficient to last for the time specified, the NVR will shut down immediately for optimized server protection.



* It is recommended to connect the UPS to one of the USB ports on the rear side of the NVR.

- **Enable UPS Support**

  Select this option to enable the UPS support. Enter the time the NVR should wait before shutting down after the AC power fails. In general, the UPS can supply the power for 5-10 minutes when AC power fails depending on the maximum load and the number of connected devices.

- **UPS Model**

  Select the UPS model on the list. If your UPS is not available on the list, please contact the distributor or QNAP technical support.

- **IP Address of UPS**

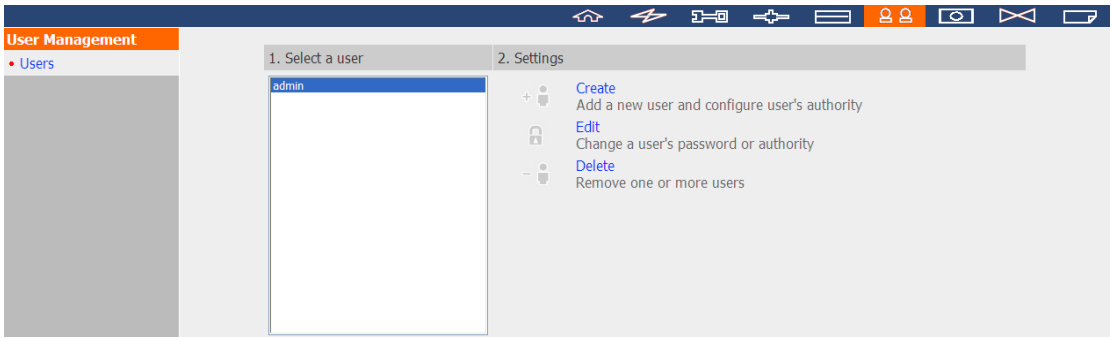
  If you select to use 'APC UPS with SNMP Management', enter the IP address of the UPS.

  Note: It is recommended to use APC Smart-UPS 700+ APC Network Management Card.

6.5 User Management

The NVR supports secure user access right management. A user can be defined as an administrator, a system manager, or a general user and given different rights of monitoring, playback, and system administration.

Note: The NVR supports up to 32 users (including the system default users).



The NVR supports 3 types of users:

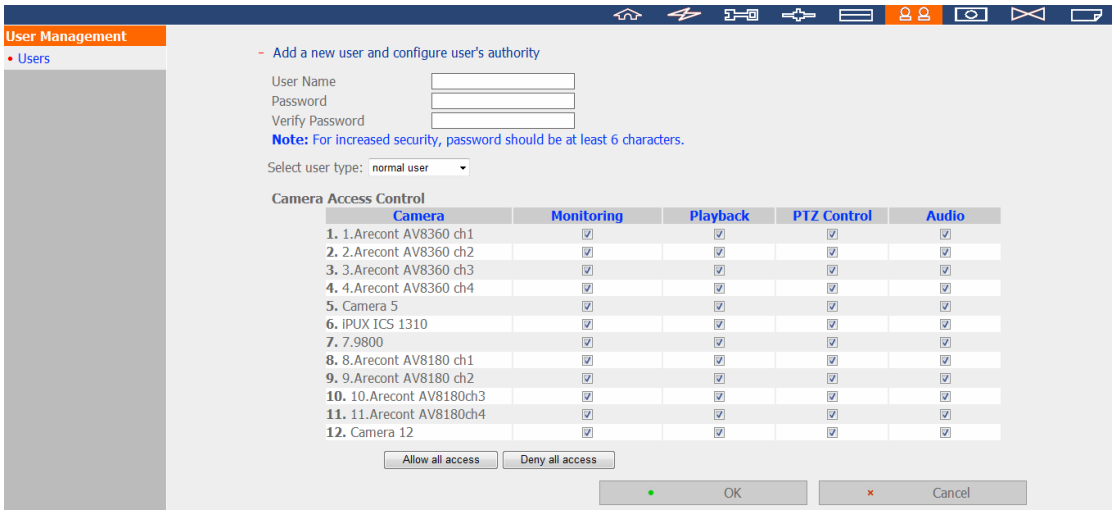
1. administrator
   The system default administrator accounts are 'admin' and 'supervisor' (default password: **admin**). Both of them have the rights of system administration, monitoring, and playback. The administrators cannot be deleted. They have the rights to create and delete new administrators, system managers, and general users, and change their passwords. Other newly created 'administrators' have the rights of system administration, monitoring, and playback but some rights are different from 'admin' and 'supervisor'. Please refer to Chapter 6.5.4 for more details.

2. system manager
   The default system manager account is 'sysmgr' (default password: **admin**). This account has the right of system administration and cannot be deleted. 'sysmgr' can create and delete other system manager and general user accounts, and assign monitoring, playback, and administration rights to them. Other newly created system managers will also have the administration right but some rights are different from 'sysmgr'. Please refer to Chapter 6.5.4 for more details.

3. user

   The general users have only the rights of monitoring and video playback. They have no administration authority. Please refer to Chapter 6.5.4 for more details.

6.5.1 Create user



- **User Name**

  The user name must be 1 to 32 characters in length. It supports alphabets (A-Z), numbers (0-9), and underscore (_). It is case-insensitive and supports double-byte characters, such as Chinese, Japanese, and Korean but cannot be a pure number or contain the following characters:

  " / \ [ ] : ; | = , + * ? < > ` '

- **Password**

  The password is case-sensitive and supports maximum 16 characters. It is recommended to use a password of at least 6 characters.

- **Select user type**

  Define the user as an administrator, system manager, or general user.

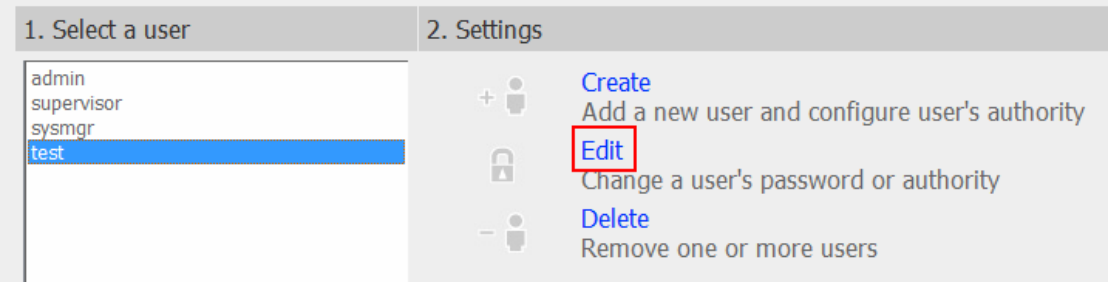
- **Camera Access Control**

  Assign the rights of monitoring (video/audio), playback, and PTZ control to the user.

Note: Please refer to Chapter 6.5.4 for further information of the user access rights.

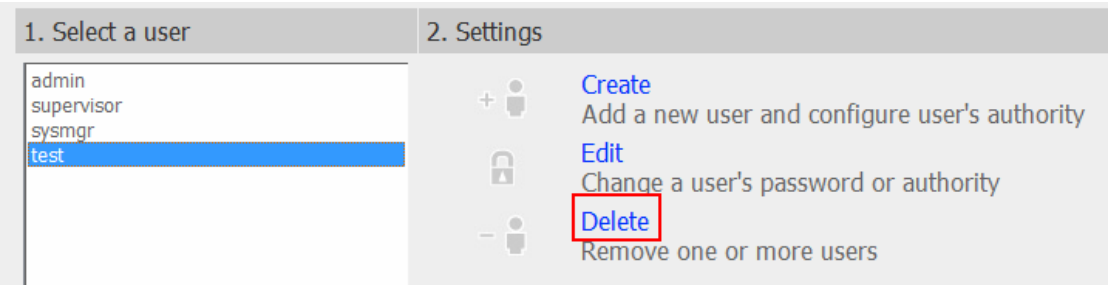
6.5.2 Edit User

Select a user on the list and click 'Edit'. You can change the password; assign the rights of system administration and camera access to the user. However, the user name cannot be changed.



6.5.3 Delete User

To delete a user, select the user on the list and click 'Delete'. Click 'OK' to confirm.



Note: The system administrator (admin, supervisor, sysmgr) cannot be deleted.

6.5.4 User Access Rights Comparison

The VioStor NVR supports three types of users including system administrator, system manager, and general user. The default system administrators are 'admin' and 'supervisor' who cannot change one another's password, user type, and access rights to the IP cameras.

Note 1: The user can delete his/her account

Note 2: The user can change his/her password

		administrator			**system manager**		**user**
	Rights	**admin**	**supervisor**	**Other administrators**	**sysmgr**	**Other system managers**	**User**
1.	Create new 'admin' account	Default	Default	No	No	No	No
2.	Create new 'supervisor' account	Default	Default	No	No	No	No
3.	Create new administrator accounts	Yes	Yes	Yes	No	No	No
4.	Delete other administrator accounts	Yes	Yes	No (Note 1)	No	No	No
5.	Change the password of 'admin'	Yes	No	No	No	No	No
6.	Change the password of 'supervisor'	No	Yes	No	No	No	No
7.	Change the password of other administrators	Yes	Yes	No (Note 2)	No	No	No
8.	Change the user type of admin	Default	No	No	No	No	No
9.	Change the user type of supervisor	No	Default	No	No	No	No
10.	Change the user type of other administrators	Yes	Yes	Default	No	No	No
11.	Change the camera access control of admin	Default	No	No	No	No	No

		administrator			system manager		user
	Rights	**admin**	**supervisor**	**Other administrators**	**sysmgr**	**Other system managers**	**User**
12.	Change the camera access control of supervisor	No	Yes	No	No	No	No
13.	Change the camera access control of other administrators	No	No	Yes	No	No	No
14.	Create sysmgr	No	No	No	Default	No	No
15.	Create other system manager accounts	Yes	Yes	Yes	Yes	Yes	No
16.	Delete sysmgr	No	No	No	No	No	No
17.	Delete other system manager accounts	Yes	Yes	Yes	Yes	No (Note 1)	No
18.	Change the password of sysmgr	Yes	Yes	Yes	No (Note 2)	No	No
19.	Change the password of other system managers	Yes	Yes	Yes	Yes	No (Note 2)	No
20.	Change the user type of sysmgr	No	No	No	Default	No	No
21.	Change the user type of other system managers	Yes	Yes	Yes	Yes	No	No
22.	Change the camera access control of sysmgr	No	No	No	No	No	No
23.	Change the camera access control of other system managers	No	No	No	No	No	No
24.	Create new users	Yes	Yes	Yes	Yes	Yes	No
25.	Delete users	Yes	Yes	Yes	Yes	Yes	No
26.	Change the user password	Yes	Yes	Yes	Yes	No	No

		administrator			system manager		user
	Rights	**admin**	**supervisor**	**Other administrators**	**sysmgr**	**Other system managers**	**User**
27.	Change the user type of normal users	Yes	Yes	Yes	Yes	No	No
28.	Change the camera access control of normal users	Yes	Yes	Yes	Yes	Yes	No
29.	System administration	Yes	Yes	Yes	Yes	Yes	No
30.	Monitoring	Yes	Yes	Yes	No	No	Default
31.	Playback	Yes	Yes	Yes	No	No	Default
32.	Open data encryption password	Yes	Yes	No	No	No	No

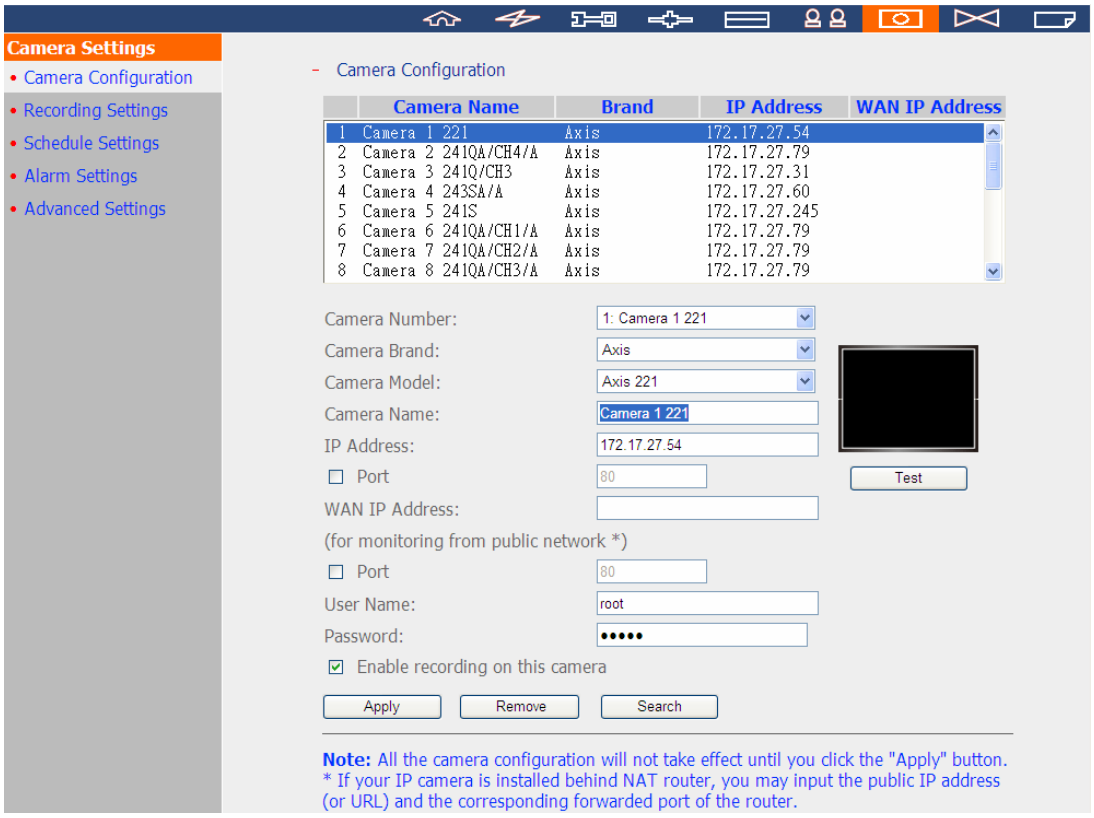
6.6 Camera Settings

You can configure the IP camera, recording, schedule, alarm, and advanced settings.

6.6.1 Camera Configuration

Please follow the steps below to configure the IP cameras.

1. Select a camera number.
2. Select the camera brand.
3. Select the camera model.
4. Enter the camera name.
5. Enter the IP address or domain name of the camera.
6. Enter the user name and the password to login the camera.
7. Select to enable the recording or not.
8. Click 'Apply' to save the settings.



Note:

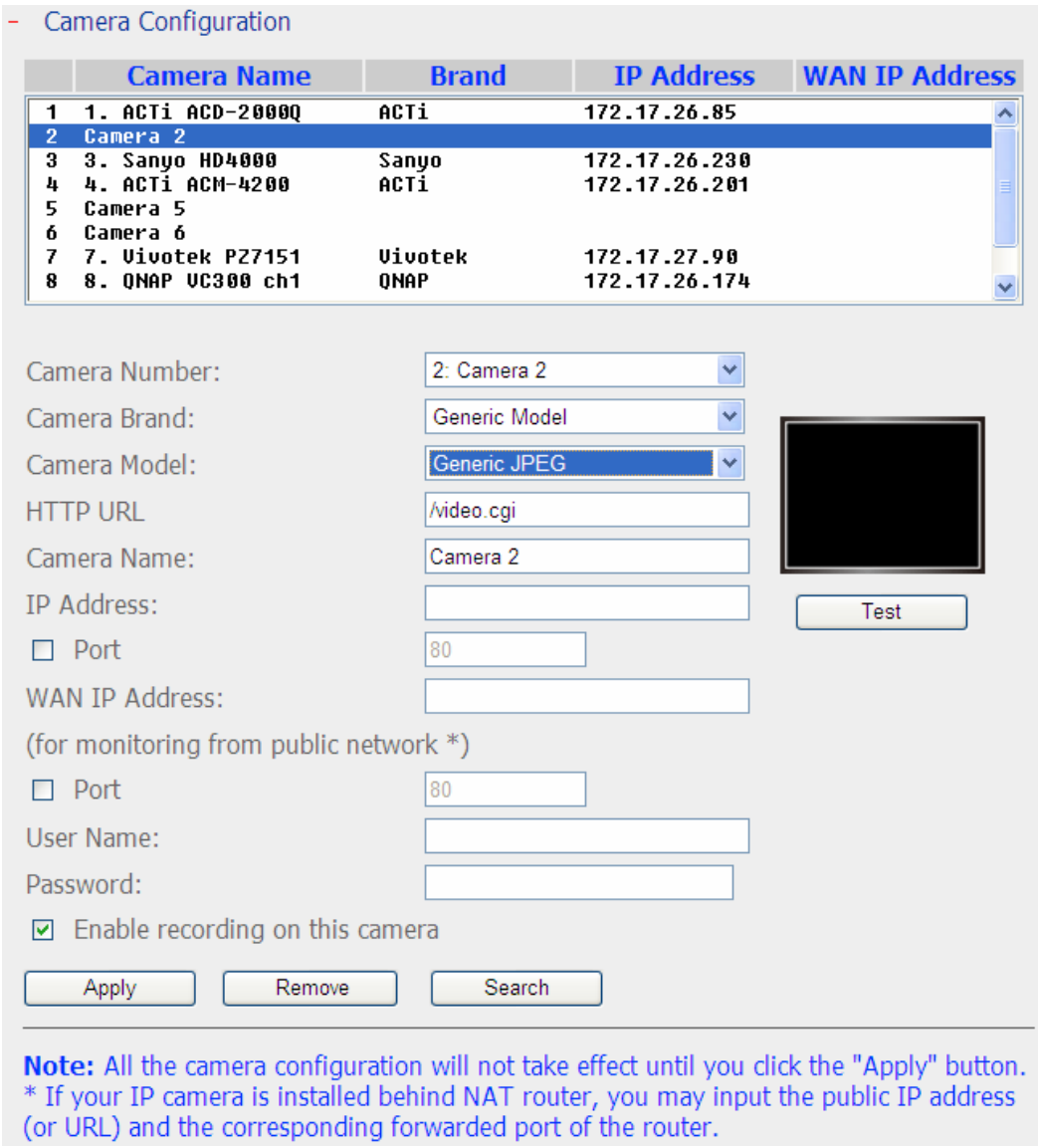
1. All the settings will not take effect until you click 'Apply'. When applying the changes, the recording operation will stop for a while (maximum 1 minute) and then restart.
2. Click 'Search' to search for the IP cameras on the local network. Select a channel for the IP camera and click 'Add' to add the camera. By using the search function, the camera model and the IP address are filled in automatically. Click 'Close' to close the search results.

Add generic IP camera support by the CGI command

The NVR provides an interface for the users to enter the JPEG CGI command of the IP cameras in order to receive the video and audio streaming data from the IP cameras and monitor, record, and playback the video of the IP cameras on the NVR.

Follow the steps below to configure your IP camera.

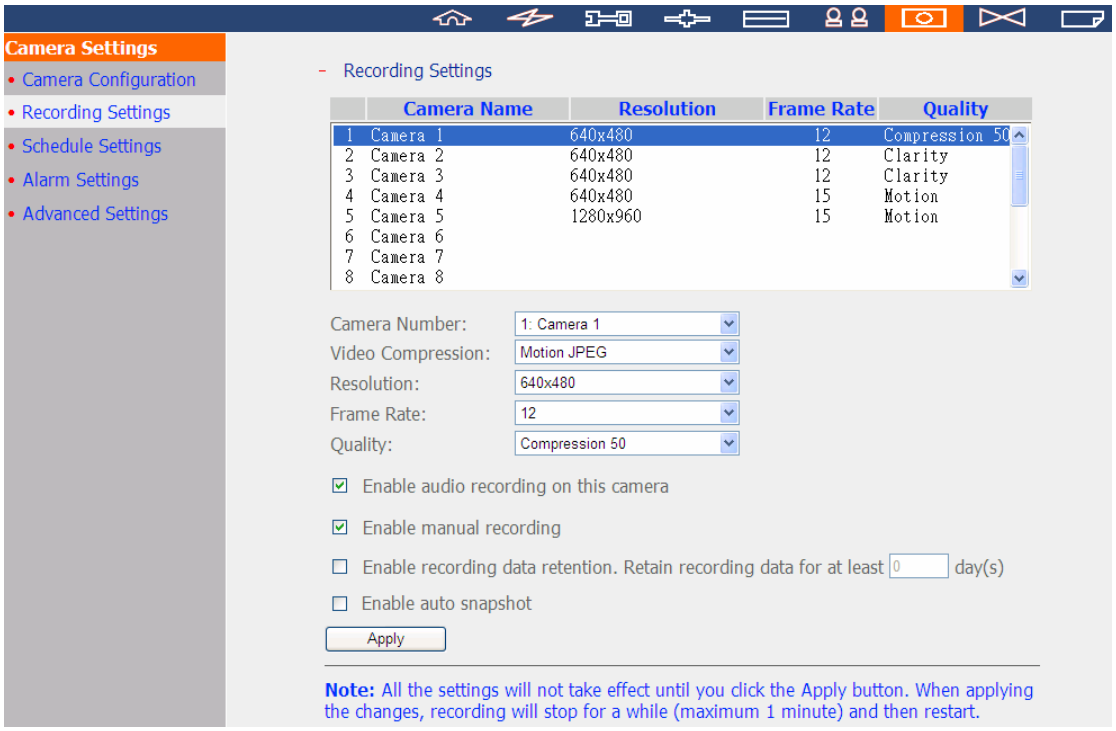
1. Select the IP camera number.
2. Select 'Generic Model' for the camera brand.
3. Select 'Generic JPEG' for the camera model.
4. Enter the CGI path of the IP camera in the 'HTTP URL' field.
5. Enter the camera name or the IP address of the camera.
6. Enter the user name and the password of the IP camera.
7. Select to enable the recording or not.
8. Click 'Apply' to save the settings.



Note: The QNAP NVR only supports JPEG CGI command interface, but does not guarantee the compatibility with all the IP camera brands.

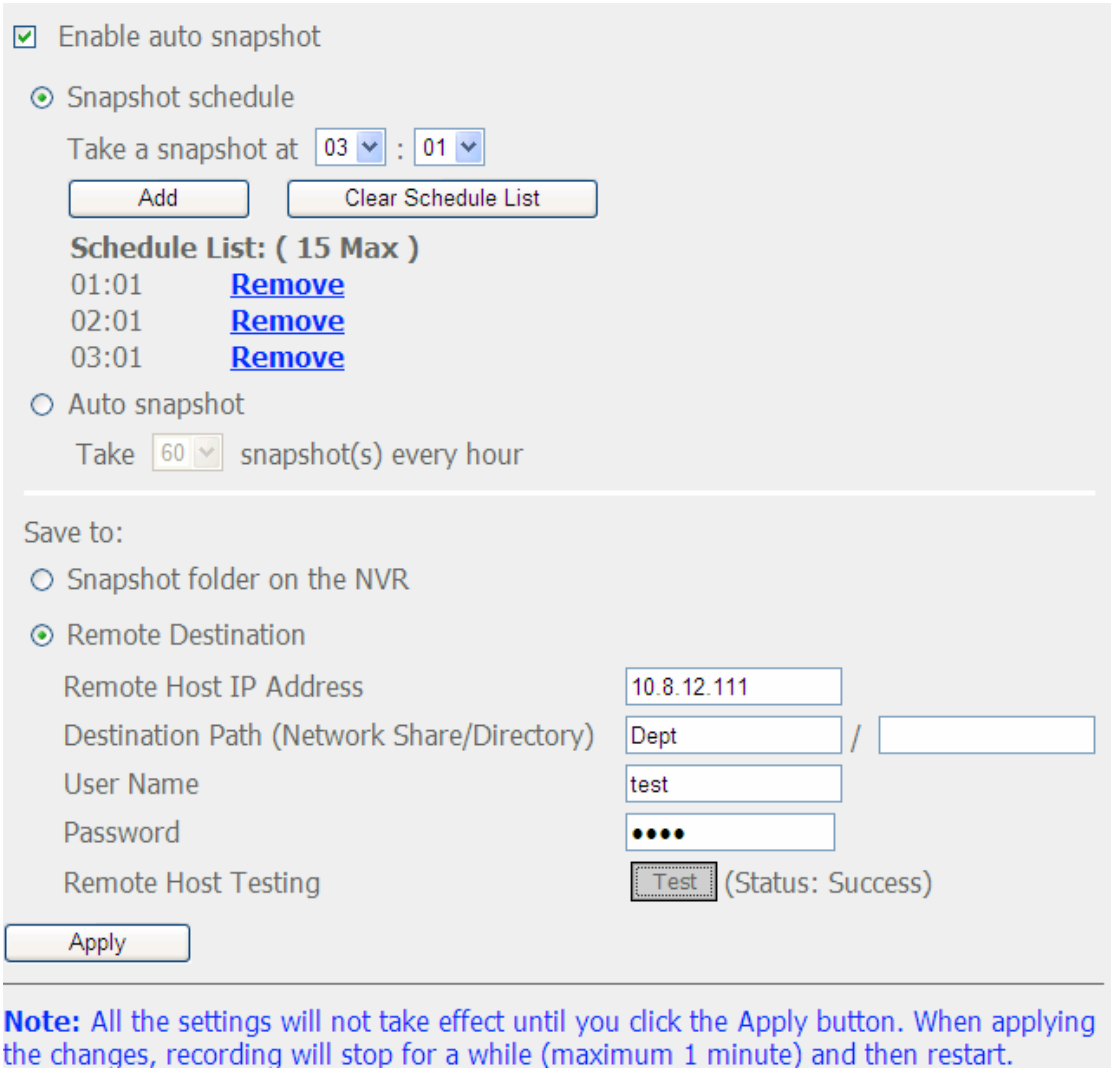
6.6.2 Recording Settings

Select a camera on the list and configure the recording resolution, frame rate, and quality. You can also enable audio recording, manual recording, recording data retention, and auto snapshot settings. Click 'Apply' to save the settings.



1. Video compression: Choose a video compression format for the recording.
2. Resolution: Select the recording resolution.
3. Frame rate: Adjust the frame rate for the recording. Note that the frame rate of the IP camera may be affected by the network traffic.
4. Quality: Select the image quality for the recording. More disk space is required to save higher quality recording.
5. Audio recording (optional): To enable the audio recording, click 'Enable audio recording on this camera'.
6. Estimated storage space for recording: The number of the estimated storage space for recording is only for reference. The actual space required depends on the network environment and the camera performance.
7. Manual recording: To allow manual activation and deactivation of manual recording function on the monitoring page, enable this option.
8. Enable recording data retention: Turn on this function and specify the minimum number of days to keep the recording data. Note that the number of days entered here must be smaller than the maximum number of days to keep all recordings configured in 'Camera Settings' > 'Advanced Settings'.

9. Enable auto snapshot: Select this option and the settings will be displayed. You can configure up to 15 schedules for automatic snapshot taking or specify the number of snapshots (max 60) the NVR should take every hour. The snapshots are saved to the share folder of the NVR by default. You can also specify a remote server to where the files will be saved. Make sure you have read/write access to the remote server.

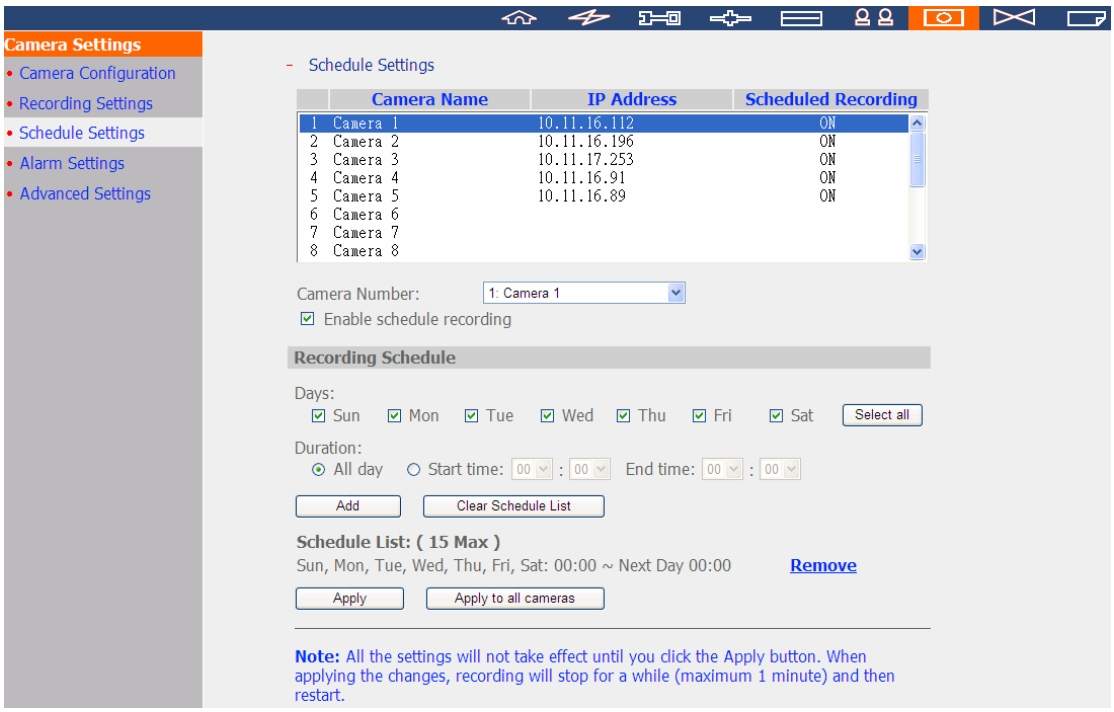


Note:

- Starting and stopping manual recording will not affect scheduled or alarm recording tasks. They are independent processes.
- All the settings will not take effect until you click 'Apply'. When applying the changes, recording will stop for a while (maximum 1 minute) and then restart.

6.6.3 Schedule Settings

You can select continuous recording or scheduled recording. The default setting is continuous recording. To set up a recording schedule, select a camera number on the list. Then select the date and time and click 'Add'. Click 'Apply' to save the settings for the particular IP camera or click 'Apply to all cameras' to apply the settings to all the IP cameras. To delete a schedule, click 'Remove' on the schedule list.



Note:

1. You can add up to 15 schedules.
2. All the settings will not take effect until you click 'Apply'. When applying the changes, the recording will stop for a while (maximum 1 minute) and then restart.

6.6.4 Alarm Settings

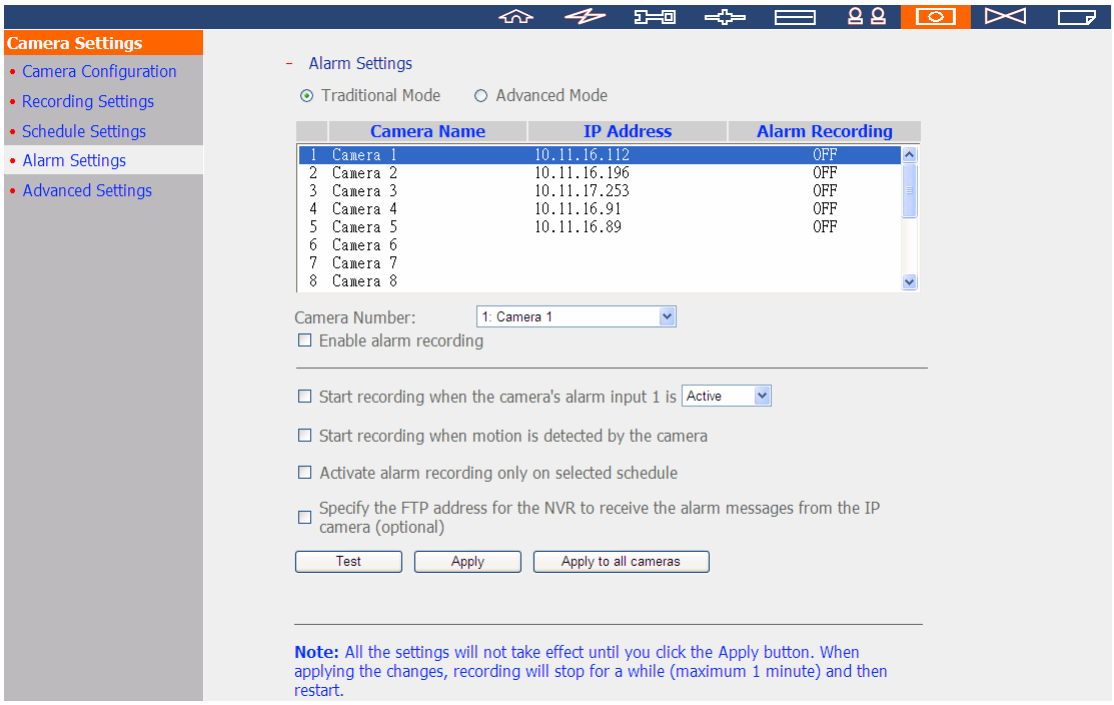
The NVR provides 'Traditional Mode' and 'Advanced Mode' for alarm settings. Select 'Traditional Mode' to use the standard alarm settings in response to the alarm events. To use advanced event management, select 'Advanced Mode'.

Note: The VS-201, VS-101, NVR-104 do not support Advanced Mode in 'Alarm Settings'.

Traditional Mode

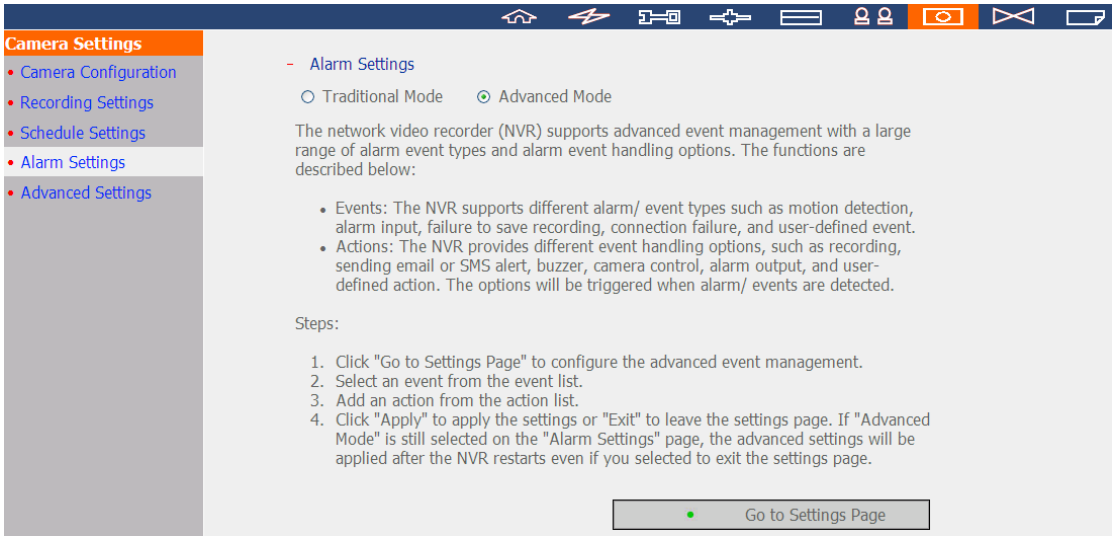
Select a channel (IP camera/video server) on the list and configure the alarm settings. The video recording will be activated when the alarm input of the selected channel is triggered or a moving object is detected.

When you enable the option 'Activate alarm recording only on selected schedule', the alarm recording will be activated only when the alarm input is triggered or a moving object is detected within the schedule. You can test the settings by clicking 'Test'. Click 'Apply' to apply the settings to the selected channel. To apply the same settings to all the channels on the list, click 'Apply to all cameras'.



Note:

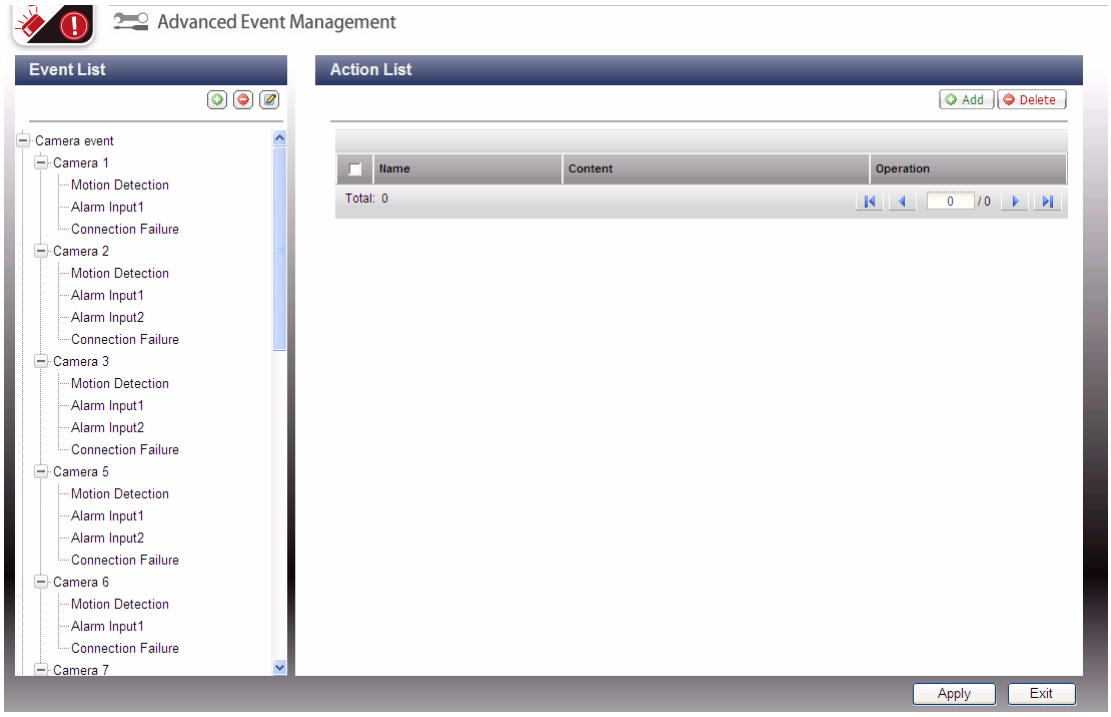
- All the settings will be effective after clicking 'Apply'. When applying the changes, the current recording process will stop for a while (maximum 1 minute) and then restart.
- To avoid blocking by the firewall, the IP cameras or the video servers configured for alarm recording must be located on the same subnet as the NVR.
- To switch from traditional mode to advanced mode, select 'Advanced Mode' and click 'Go to the settings page'.



Advanced Mode:

The advanced mode consists of the event and action sections. You can define the action to take for each event triggered on the IP cameras or the video servers connected to the NVR.

To configure the advanced event management by the 'Advanced Mode', select an event type on the left channel list and configure the actions to take on the right.



Note:

- Click 'Apply' to apply the settings or 'Exit' to exit the settings page. If the 'Advanced Mode' is selected on the 'Alarm Settings' page, the advanced settings will be applied after the NVR restarts even if you have selected to exit the settings page. The settings will be cancelled if you select to use 'Traditional Mode' after exiting the 'Advanced Mode'.
- To avoid blocking by the firewall, the IP cameras or the video servers configured for the alarm recording must be located on the same subnet as the NVR.
- To switch from the advanced mode to the traditional mode, select 'Traditional Mode' and click 'Apply'.

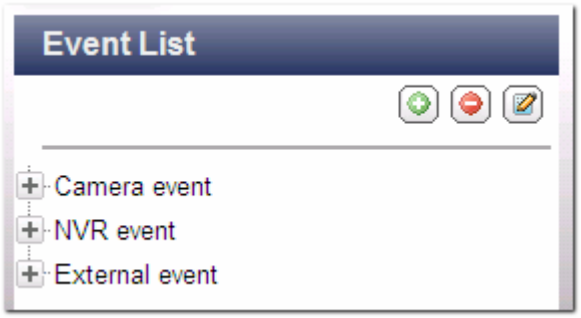
- **Events:**

  The events supported by the NVR are classified as camera events (motion detection, alarm input, camera disconnection), NVR events (recording failure), and external events (user-defined events).

Note: The camera events available depend on the features supported by the IP cameras or video servers.

Buttons on the event list

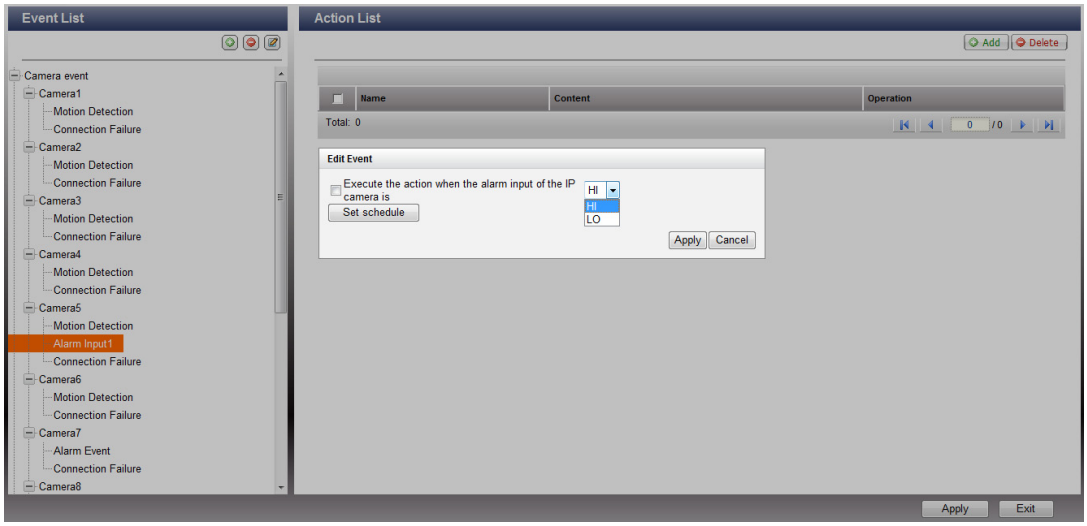
	Add an external event. This button is not applicable to the camera events and the NVR events.
	Edit an event. This button cannot be used to edit camera disconnection.
	Delete an external event. This button is not applicable to the camera events and the NVR events.



The NVR supports the following event types. Before you define the action settings, select the events to manage and configure the settings.

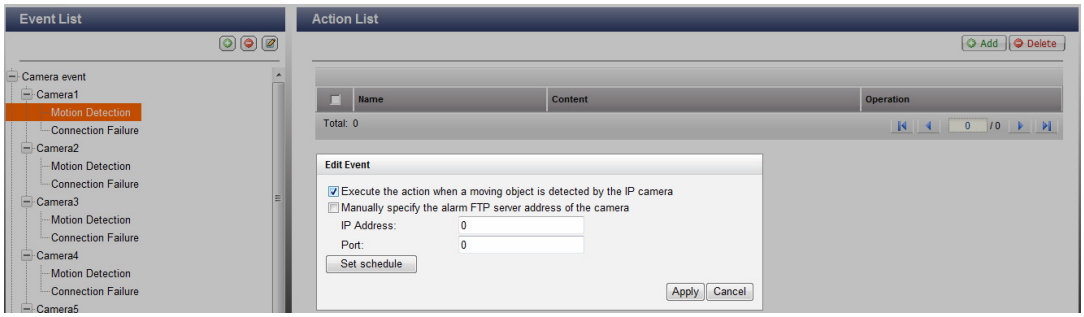
(1) Alarm input

This option allows the NVR to trigger an action when the alarm input of the IP camera or the video server is triggered. Select 'Camera event' from the 'Event List'. Locate the channel which supports alarm input and click 'Alarm Input'. Next, click the edit button (), enable this option, configure the settings, and click 'Apply'. You may also set the schedule to define the active period of the alarm settings. After that, define the action on the right (discussed in the later sections).



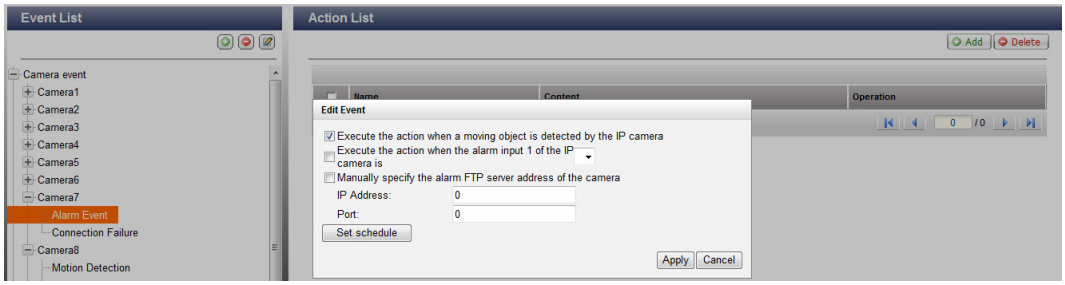
(2) Motion detection

This option allows the NVR to trigger an action when a moving object is detected by the IP camera or the video server. Select 'Camera event' from the 'Event List'. Locate the channel and click 'Motion Detection'. Next, click the edit button ( ), enable this option, configure the settings, and click 'Apply'. You may also set the schedule to define the active period of the alarm settings and define the action on the right (discussed in the later sections).



(3) Alarm event

The alarm input and the motion detection settings of some IP cameras or video servers may be combined together and called 'Alarm Event' on the Event List. You can edit the event settings and define the action on the right (discussed in the later sections).

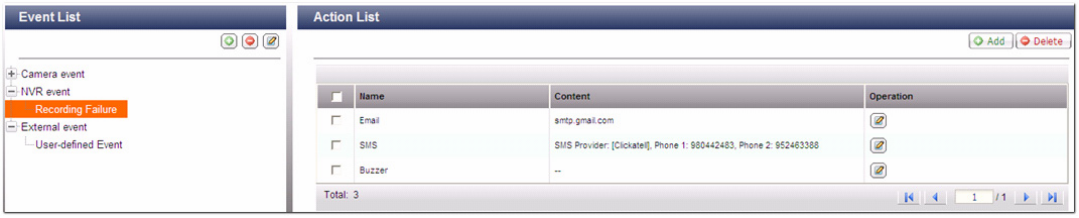


(4) Connection failure

This option allows the NVR to trigger an action when the IP camera or the video server is disconnected. Select 'Camera Event' from the 'Event List'. Locate the channel and click 'Connection Failure'. After that, define the action on the right (discussed in the later sections).

(5) Recording failure (NVR event)

This option allows the NVR to trigger an action when the video recording of the IP camera or the video server fails due to the hard disk bad blocks, file system crash, or other reasons. Select 'NVR event' from the 'Event List'. Click 'Recording failure'. Then define the action settings on the right (discussed in the later sections).



(6) External event (user-defined events)

To create a self-defined event on the NVR, select 'User-defined Event' under 'External event' on the 'Event List'. Then click the + button. Enter the event name, for example, 'door'.

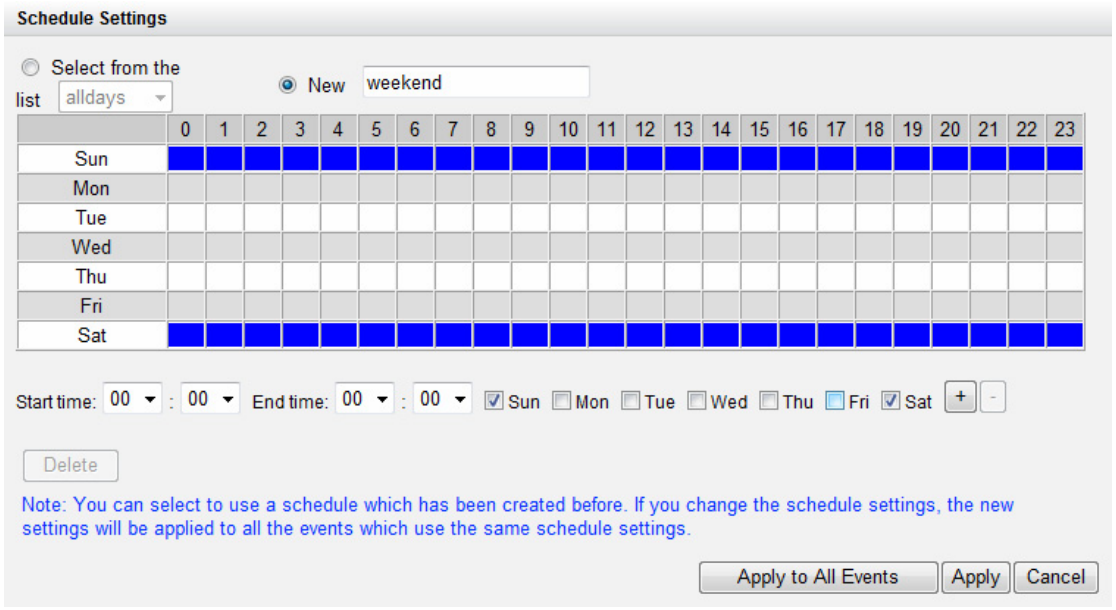
After creating an event, click the event name and define the action on the right (discussed in the later sections). After configuring the action settings, you can enter the CGI command (including the self-defined event name) in the web browser (Internet Explorer) to trigger the action anytime. The format of the CGI command is: http://*NVRIP*/cgi-bin/logical_input.cgi?name=*event-name*. For example, http://10.8.12.12:80/cgi-bin/logical_input.cgi?name=door

Event schedule settings:

When you edit an event (not including camera disconnection, NVR events, and external events), you can click 'Set Schedule' to define when the alarm settings will be active.

To create a new schedule, select 'New' and enter the schedule name. The schedule supports maximum 25 characters (double-byte characters, spaces, and symbols are allowed). Select the day and time when the alarm settings should be active. Click + to add a schedule; or – to delete a schedule. Up to 6 settings can be defined for each schedule.

The settings will be shown on the graphical table. Click 'Apply' to save the settings. To use the same schedule for all the events, click 'Apply to All Events'. You can also select to use the default schedule or a formerly created schedule from the list. The default alarm settings are active all day, every day.

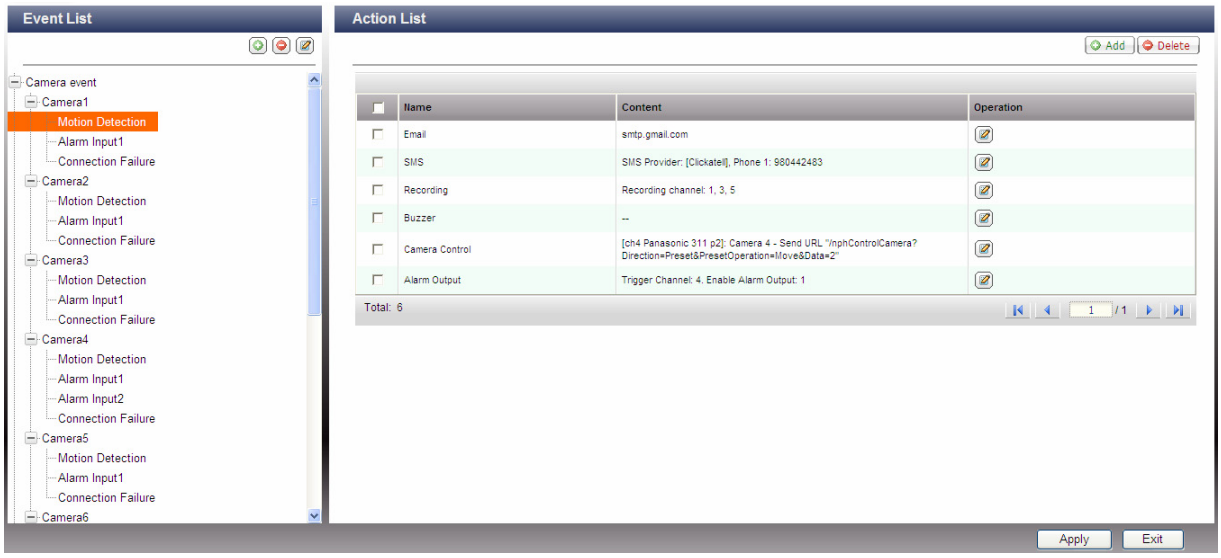


- **Actions:**

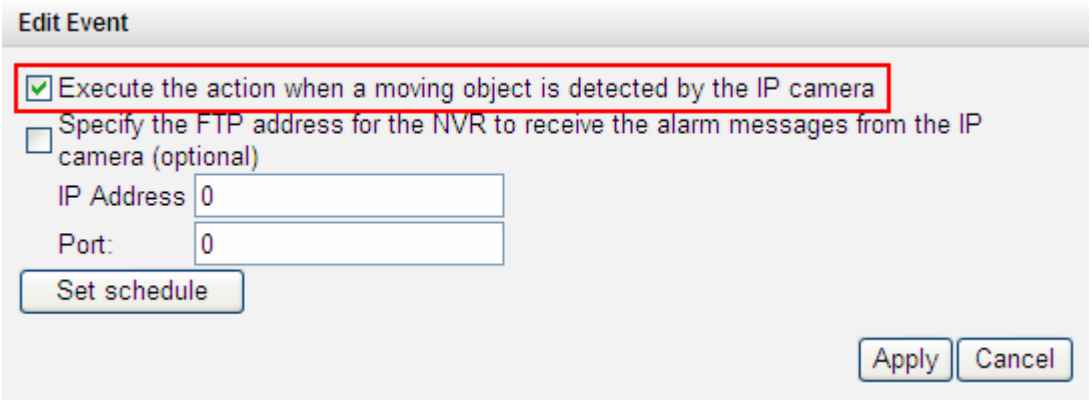
  The NVR supports different actions which can be activated when the selected events are triggered on the IP cameras or the video servers. The actions include video recording, email alert, SMS alert, buzzer, PTZ camera control, alarm output, and logic output.

Buttons on the action list

	Add an action: After configuring an event on the left, click 'Add' to create an action in response to the event. Click 'Apply' to save the settings.
	Edit an action: Select an event on the left. All the actions defined for this event will be shown. Select the box in front of the action name you want to edit. Then click this button on the 'Action' column to edit the action settings.
	Delete an action: Select an event on the left. All the actions defined for this event will be shown. Select the box in front of the action name you want to delete and click 'Delete'. You can select to delete multiple actions.



Note: Make sure you have enabled the action in the event settings; otherwise the action will not be executed. For example:



(1) Recording

Select the channels (IP cameras or video servers) which will start recording when an event occurs. You may also select the following options:

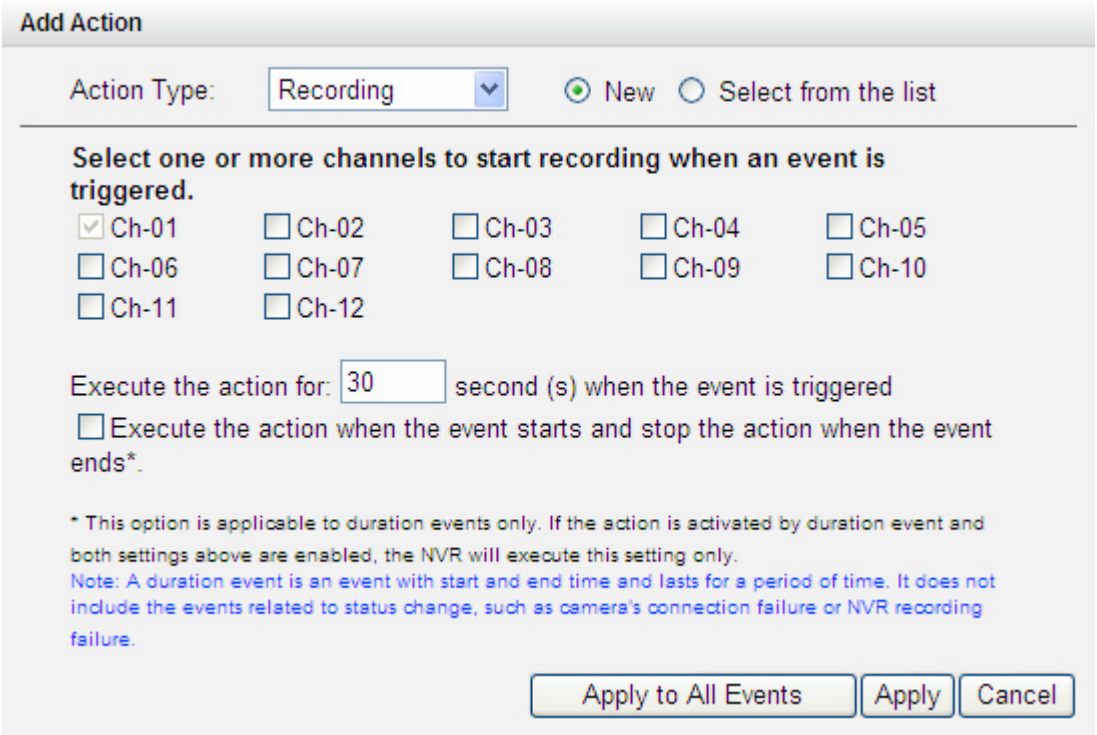
(i) Enter the time (in seconds) the recording should be executed after the event is triggered.

(ii) Start recording when the event starts and stop recording when the event ends.

The option (ii) is applicable to the duration events only. A duration event is an event with the start and end time and lasts for a period of time. It does not include the events related to status change, such as camera disconnection or NVR recording failure.

If the action is triggered by a duration event and both settings (i, ii) are enabled, the NVR will execute the second setting (ii) only.

Click 'Select from the list' to select an action setting which has been configured before.

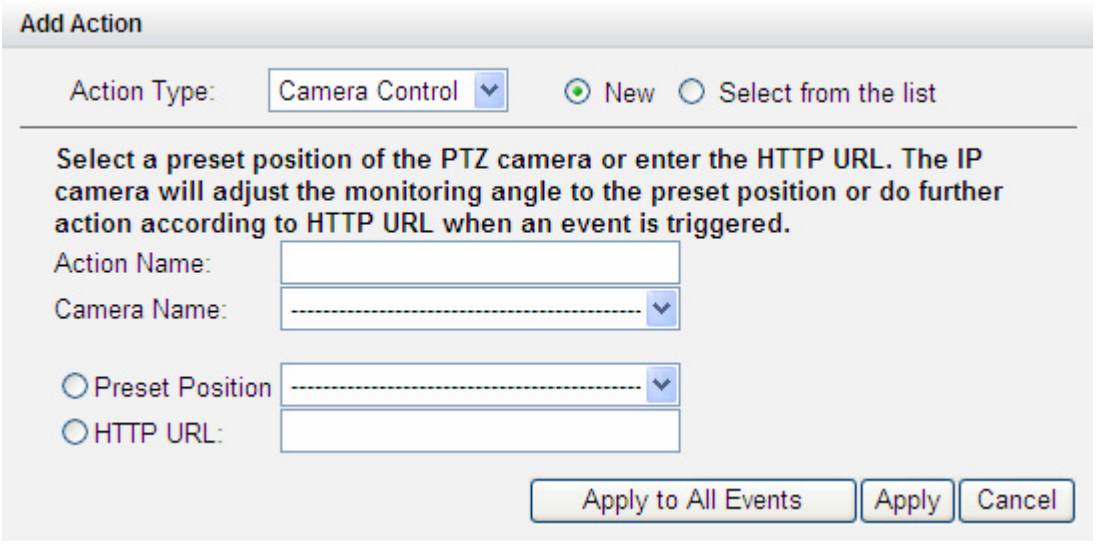


(2) Camera control

This option allows you to configure the PTZ camera to adjust to the preset position for monitoring or act according to the HTTP URL entered when an event is triggered. You can select a preset position from the drop-down menu or enter the HTTP URL.

Click 'Select from the list' to select an action setting which has been configured before.

Note: The preset names will appear only after you have configured the preset position settings of the PTZ cameras.



(3) Alarm output

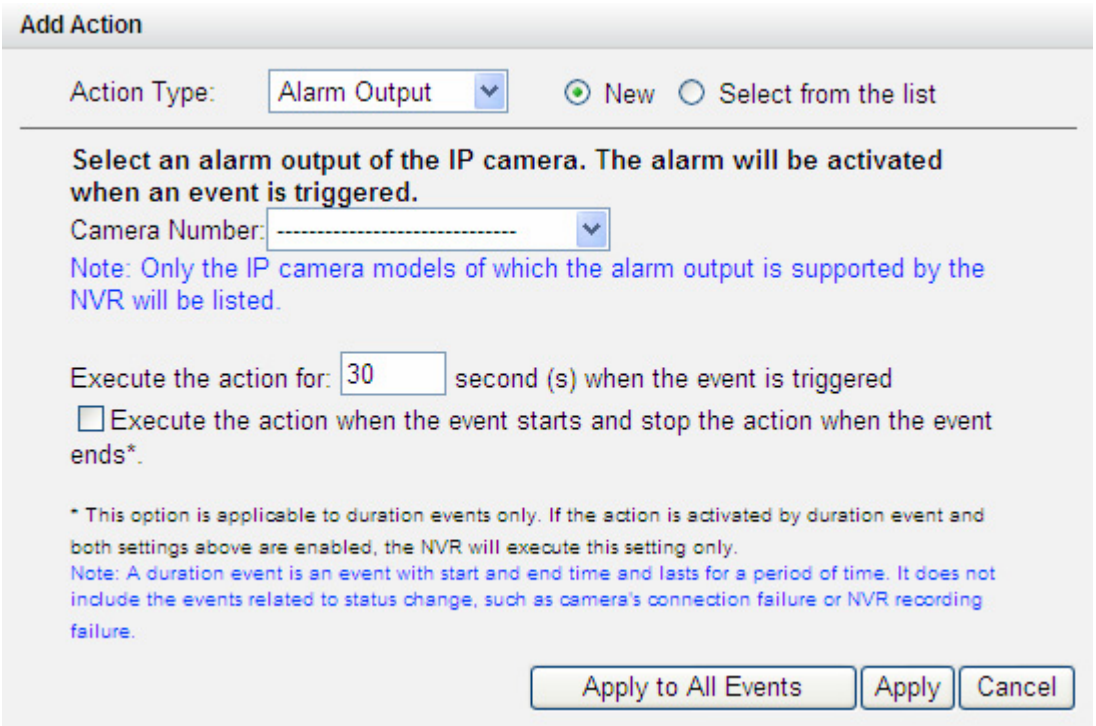
Select to activate the alarm device connected to the IP camera when an event is triggered. You may also select the following options:

(i) Enter the number of second(s) the alarm device will be active when the event is triggered.

(ii) Activate the alarm device when the event starts and stop the alarm device when the event ends.

The option (ii) is applicable to the duration events only. A duration event is an event with the start and end time and lasts for a period of time. It does not include the events related to status change, such as camera disconnection or NVR recording failure.

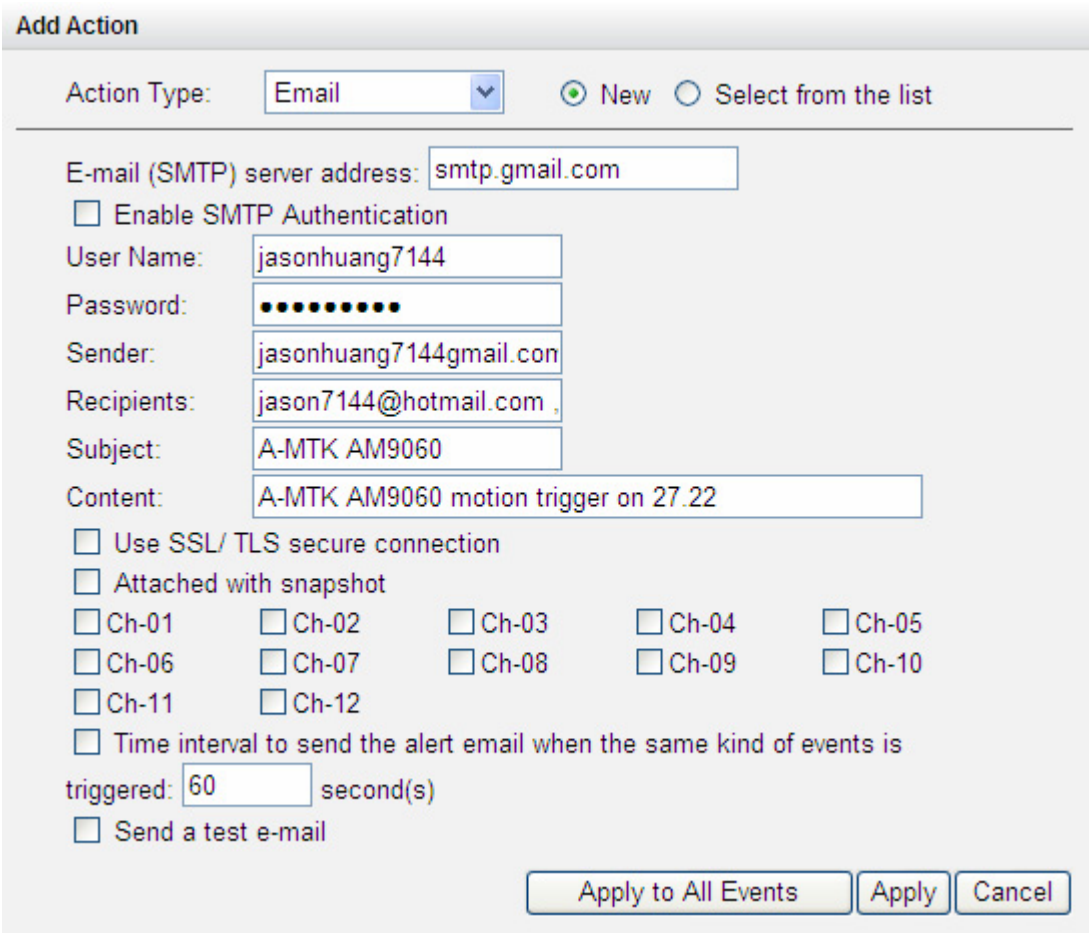
Click 'Select from the list' to select an action setting which has been configured before.



(4) Email

To allow the system administrator to receive an instant email alert when an event is triggered, enter the SMTP settings. Multiple email addresses can be entered as the recipients. You may also select to attach the snapshots of the multiple channels (IP cameras/video servers) available on the NVR.

Click 'Select from the list' to select an action setting which has been configured before.

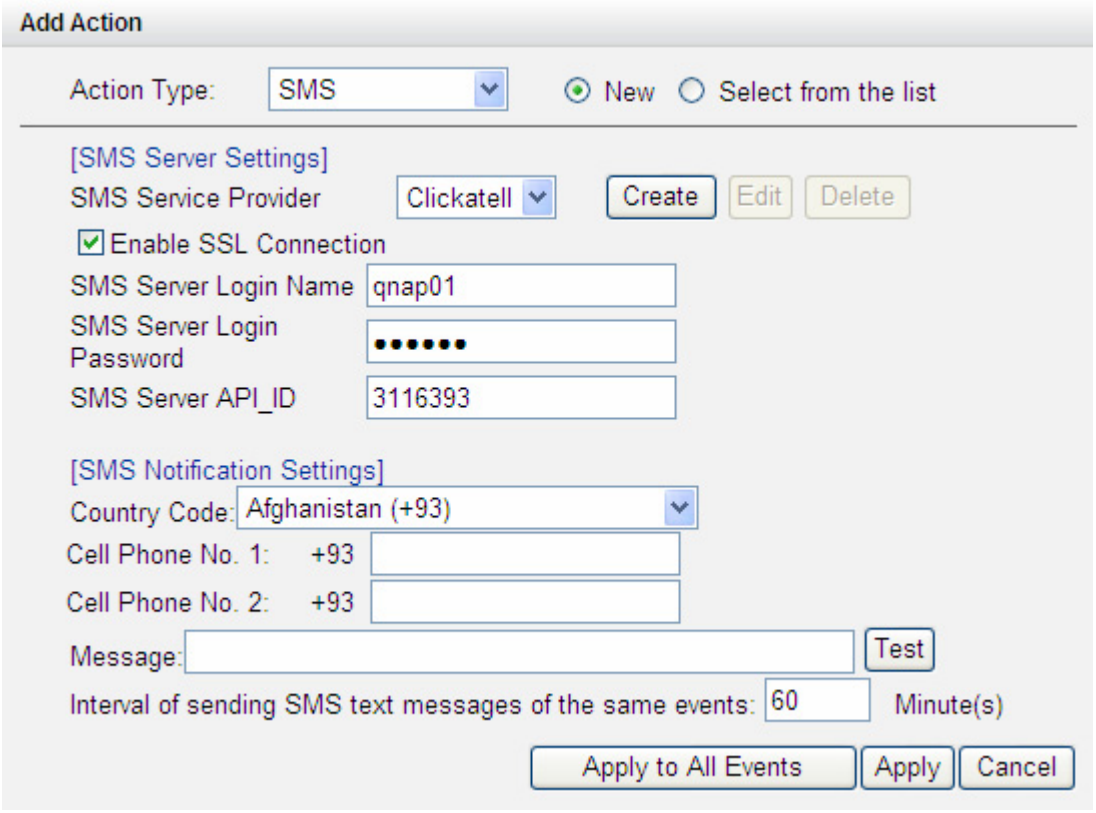


(5) SMS

To allow the system administrator to receive an instant SMS alert when an event is triggered, enter the SMS server settings. The default SMS service provider is Clickatell. To add other SMS service providers, click 'Add' and enter the provider's name and the URL template text.

Click 'Select from the list' to select an action setting which has been configured before.

Note: You will not be able to receive the SMS properly if the URL template text entered does not follow your SMS service provider's standard.



(6) Buzzer

Enable the buzzer when an event is triggered. You may also select the following options:

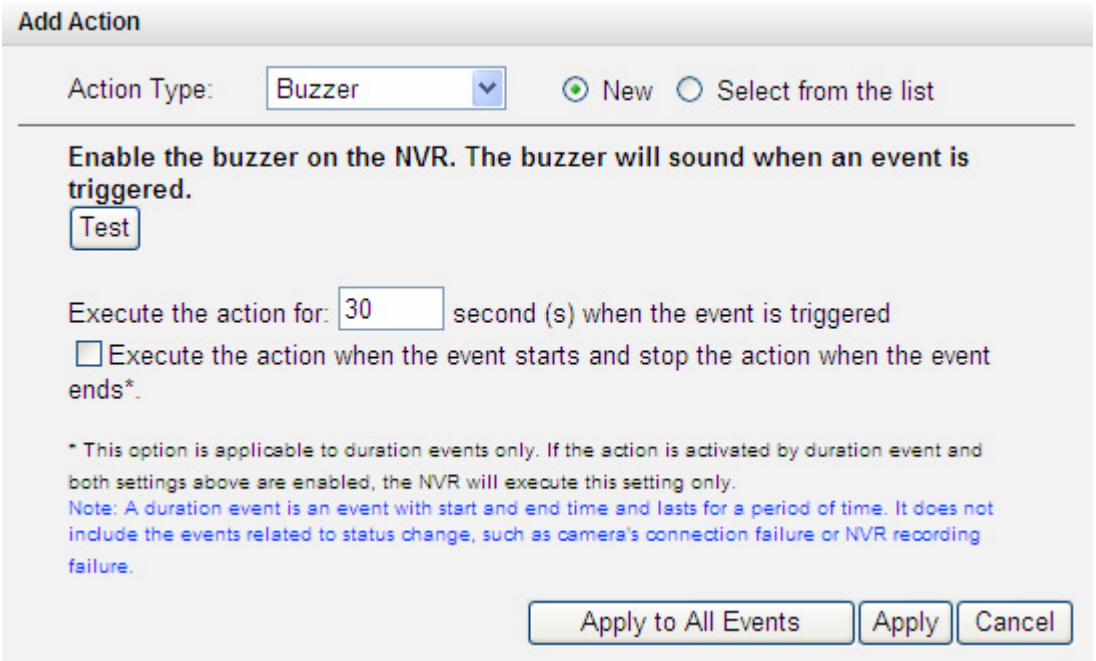
(i) Enter the time (in seconds) the buzzer will sound when the event is triggered.

(ii) Execute the buzzer when the event starts and stop the buzzer when the event ends.

The option (ii) is applicable to the duration events only. A duration event is an event with the start and end time and lasts for a period of time. It does not include the events related to status change, such as camera disconnection or NVR recording failure.

If the action is triggered by a duration event and both settings (i, ii) are enabled, the NVR will execute the second setting (ii) only.

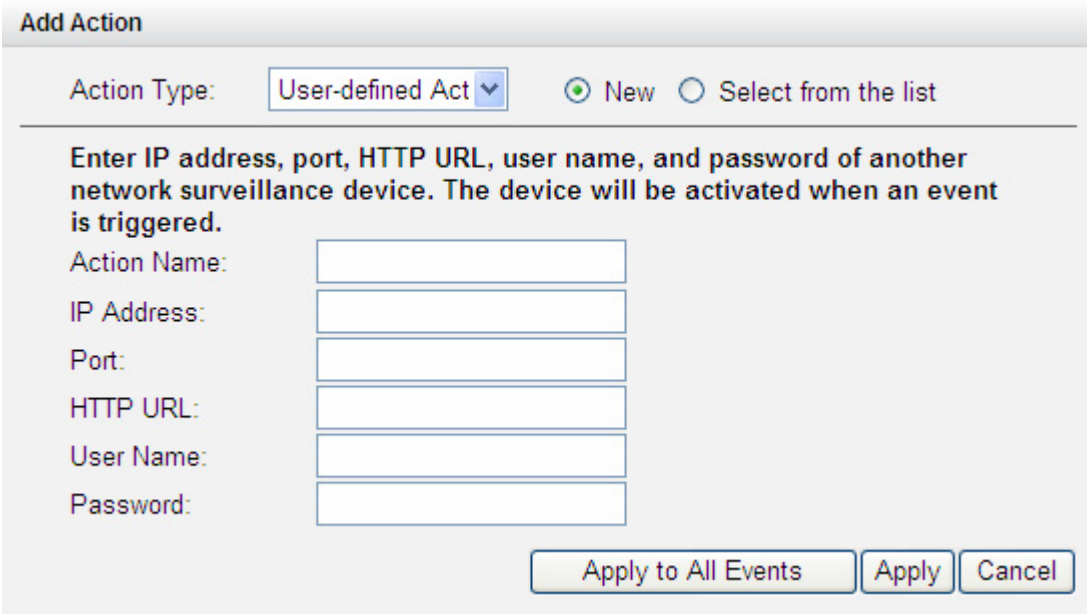
Click 'Select from the list' to select an action setting which has been configured before.



(7) User-defined Action

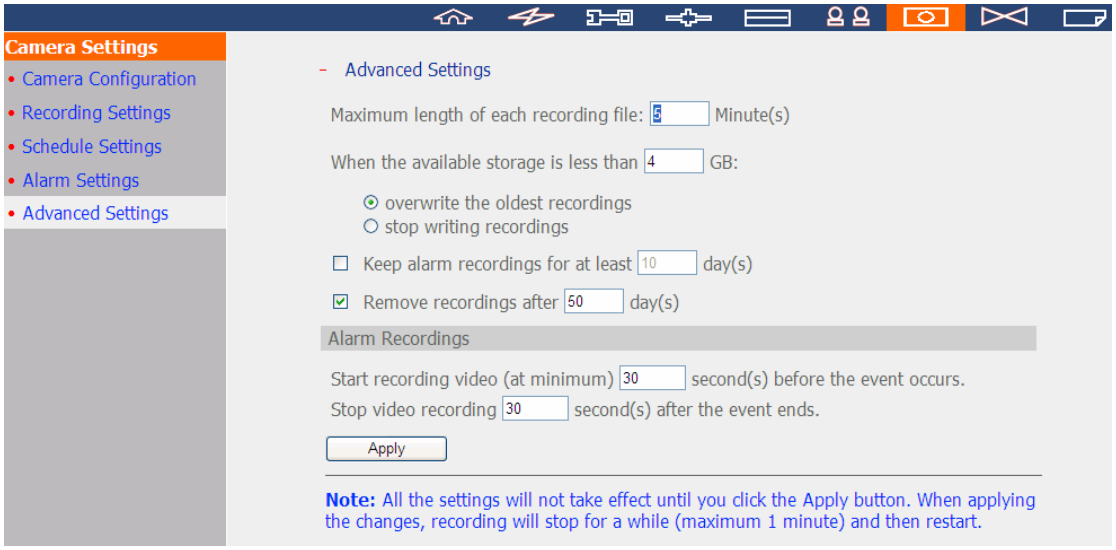
You can enter a self-defined action when an event is triggered. Enter the login account and password, IP address, port, and the HTTP URL of other surveillance devices. You can manage the devices such as fire protection devices, power controller, and air conditioning control.

Click 'Select from the list' to select an action setting which has been configured before.



6.6.5 Advanced Settings

You can configure the advanced recording settings in this section.



- **Maximum period for each recording file:** Configure the maximum length of each recording file (maximum 15 min).

- **When the available storage is less than...GB:** Select the action to take when the available storage is less than the preset level. You can select to overwrite the oldest recordings or stop recording the new videos.

- **Keep alarm recordings for at least...day(s):** Specify the number of days that alarm recordings will be retained. This will prevent the recording files from being overwritten when the free storage space is insufficient.

- **Remove recordings after...day(s):** Enter the number of calendar days for the VioStor to keep the recording files.
  Please make sure your storage capacity is enough to save the data for the number of calendar days you set. When the recording data has reached the expiry date, all the expired video files will be deleted. For example, if you set to delete the recording data after 7 calendar days, on the 8th day, the files recorded on the first day of each camera will be deleted so that the VioStor can start to save the data on the 8th day.

- Pre-/Post-alarm Recordings
  - **Start recording video…second(s) before the event occurs:** Enter the number of seconds to start the recording before an event occurs.
  - **Stop video recording…second(s) after the event ends:** Enter the number of seconds to stop the recording after an event ends.

  The maximum number of seconds for the above settings is 300, i.e. 5 minutes.

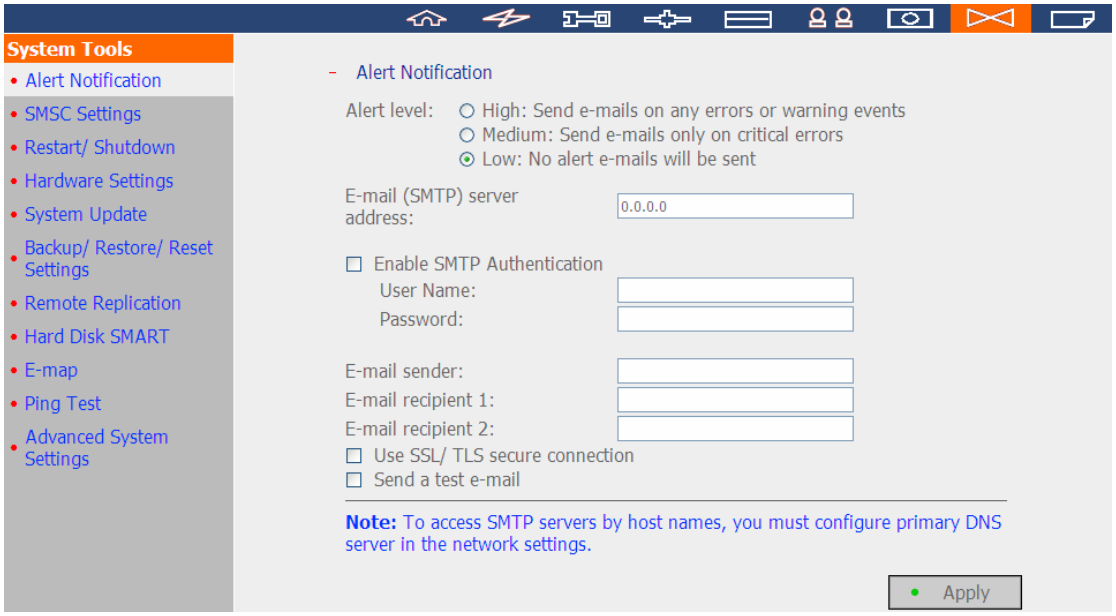
Note: All the settings will not be effective until you click 'Apply'. When applying the changes, the recording will stop for a while (maximum 1 minute) and then restart.

6.7 System Tools

The System Tools enable you to optimize the system maintenance and management. You can set the alert notification, restart or shut down the server, configure the hardware settings, update the system firmware, back up/restore/reset the system settings, set the E-map, and run the ping test.

6.7.1 Alert Notification

Enter the email address of the administrator and the IP address of the SMTP server. When an error occurs, e.g. power outage or a hard disk drive is unplugged, an alert email will be sent to the specified recipients automatically. You can go to the 'Event Logs' to view the details of all the errors and warnings.



Note: It is recommended to send a test email to make sure the mail server settings are correct.

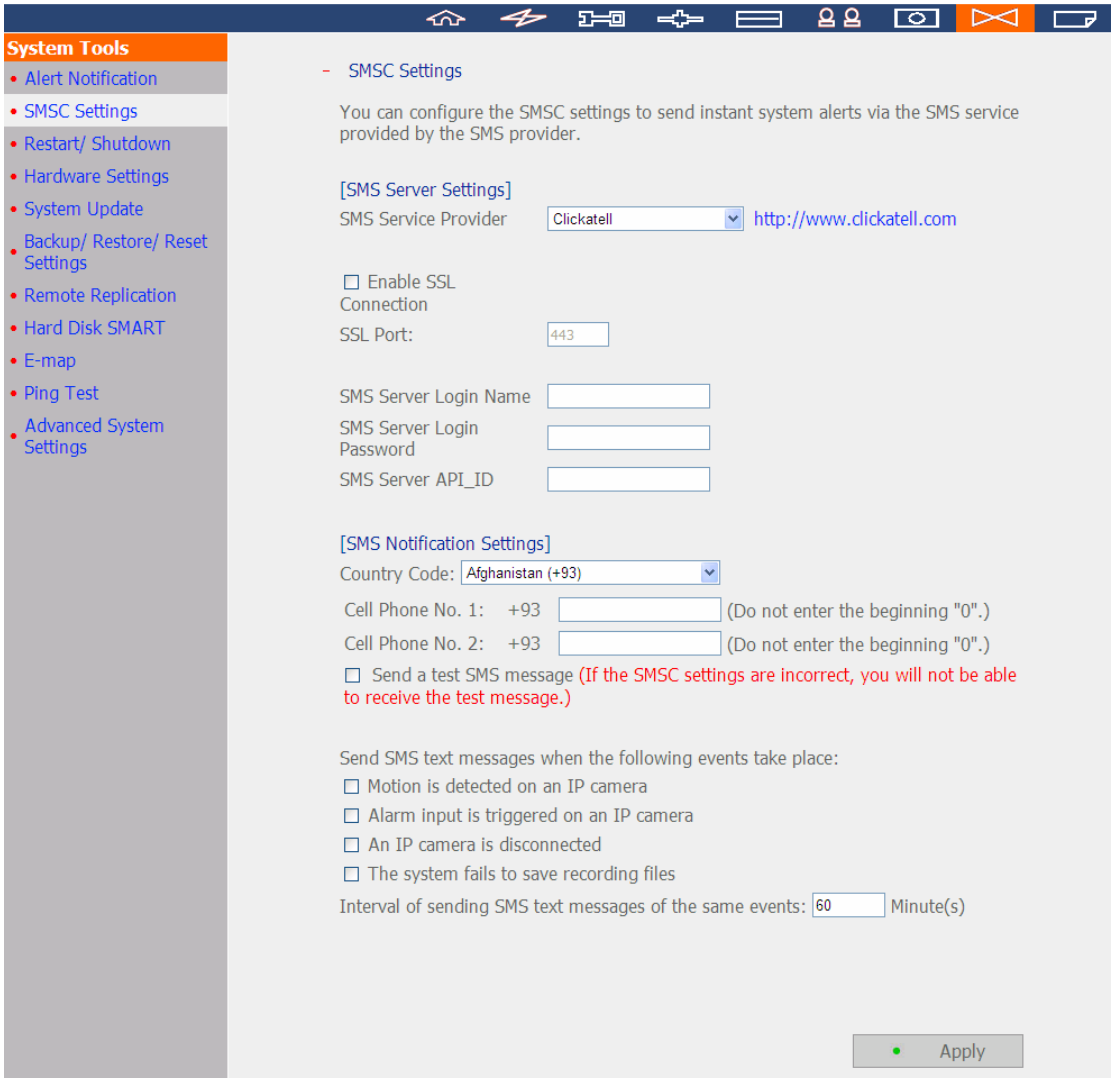
6.7.2 SMSC Settings

You can configure the SMSC (Short message service centre) settings to send the SMS text messages to the particular mobile phone numbers when an event takes place on the NVR. The default SMS service provider is Clickatell. You may also add your own SMS service provider by selecting 'Add SMS Provider' from the drop-down menu.

When you select 'Add SMS service provider', you need to enter the name of the SMS provider and the URL template text.

Note:

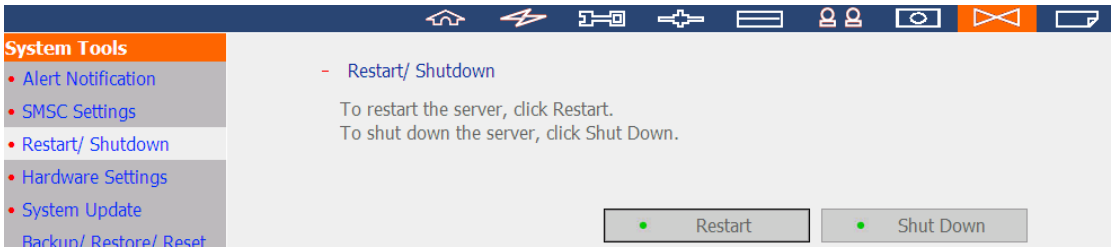
- You will not be able to receive the SMS properly if the URL template text entered does not follow the standard of your SMS service provider.
- Please send a test SMS to verify the settings are correct.
- When the 'Advanced mode' is in use in the 'Alarm Settings', this page will become inactive. You may go to 'Camera Settings' > 'Alarm Settings' > 'Advanced Mode' to edit the SMS settings or select to use the 'Traditional Mode' and configure the SMS settings on this page.


System Tools
• Alert Notification
• SMSC Settings
• Restart/ Shutdown
• Hardware Settings
• System Update
• Backup/ Restore/ Reset Settings
• Remote Replication
• Hard Disk SMART
• E-map
• Ping Test
• Advanced System Settings
SMSC Settings
You can configure the SMSC settings to send instant system alerts via the SMS service provided by the SMS provider.
[SMS Server Settings]
SMS Service Provider
Clickatell
http://www.clickatell.com
Enable SSL Connection
SSL Port:
443
SMS Server Login Name
SMS Server Login Password
SMS Server API_ID
[SMS Notification Settings]
Country Code:
Afghanistan (+93)
Cell Phone No. 1: +93
(Do not enter the beginning "0".)
Cell Phone No. 2: +93
(Do not enter the beginning "0".)
Send a test SMS message (If the SMSC settings are incorrect, you will not be able to receive the test message.)
Send SMS text messages when the following events take place:
Motion is detected on an IP camera
Alarm input is triggered on an IP camera
An IP camera is disconnected
The system fails to save recording files
Interval of sending SMS text messages of the same events:
60
Minute(s)
Apply

6.7.3 Restart/Shut Down

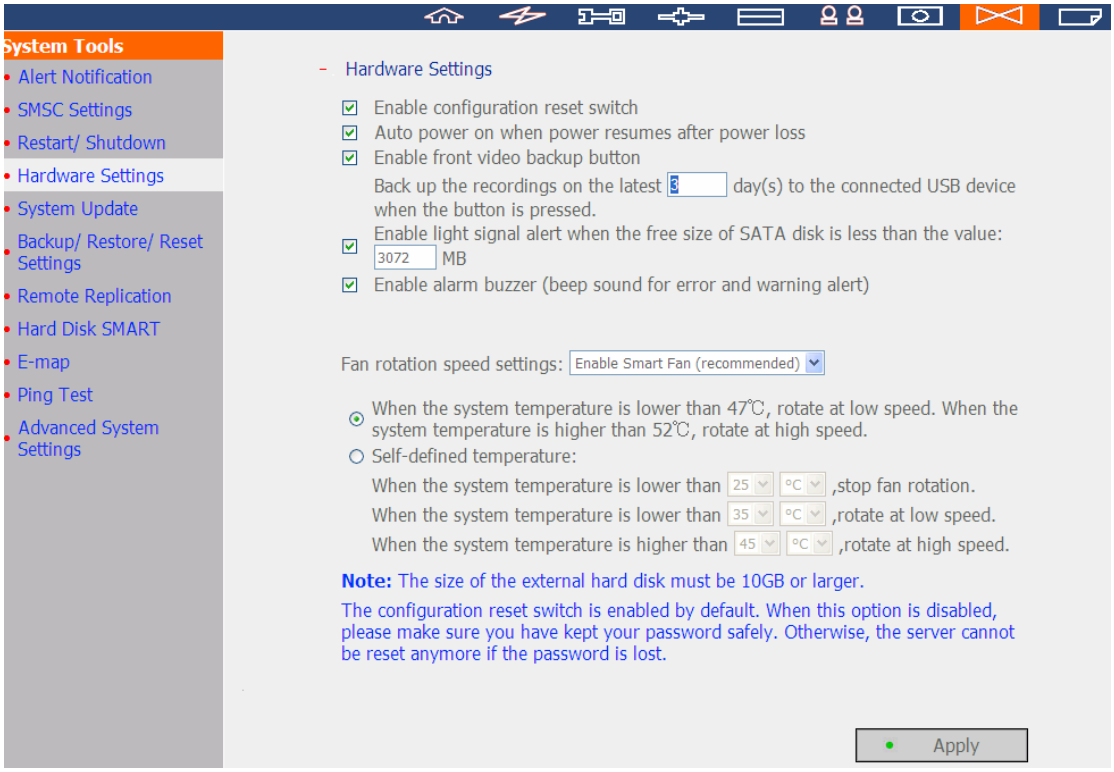
Follow the steps below to restart or shut down the server.

1. Go to 'System Tools' > 'Restart/Shutdown'.
2. Click 'Restart' to reboot the server or 'Shut Down' to turn off the NVR.



6.7.4 Hardware Settings

You can enable or disable the hardware functions of the NVR.



- **Enable the configuration reset switch**

  By enabling this option, you can press the reset button for 5 seconds to reset the administrator password and system settings to default.

  Note: The configuration reset switch is enabled by default. When this option is disabled, make sure you have kept your password safely. Otherwise, the NVR cannot be reset anymore if the password is lost.

- **Auto power on when power resumes after power loss**

  When this function is enabled, the server will turn on automatically when the power resumes after a power loss.

- **Enable front video backup button**

  The VioStor supports direct copy of the recording data on the NVR to the connected USB device via the USB port. You can set the number of days that the videos are recorded to copy to the device. To use this function, please follow the steps below:

  1. Set the number of days that the latest recordings should be backed up. If 3 days are entered, the recordings of today, yesterday and the day before yesterday will be backed up.
  2. Connect a USB storage device, for example, USB disk drive to the front USB port of the VioStor.
  3. Press and hold the video backup button for 3 seconds*. The VioStor will start copying the recording data to the USB device instantly. If the USB device is recognized, the USB LED glows blue. The USB LED flashes blue when the data is being copied. The LED will become blue again when the data copy is finished. You can then safely remove the device.

  Note: The video backup function supports only the USB devices of 10GB storage capacity or above.
  This function is not supported by the VS-8040U-RP, VS-8032U-RP, VS-8024U-RP.

  * If you are using the VS-101/VS-201/NVR-104, press the video backup button for 0.5 second to execute the data copy.

- **Enable light signal alert when the free size of SATA disk is less than the value**

  The status LED flashes red and green when this function is enabled and the free space of the hard disk drive(s) on the NVR is less than the value. The range of the value is 1–51200 MB.

- **Enable alarm buzzer**

  Enable this option to allow the NVR to sound when an error occurs.

- **Enable redundant power supply mode**

  When the redundant power supply mode is enabled, the NVR beeps if any of the power supply units does not function properly.

  *This function applies to the models with redundant power supply only.

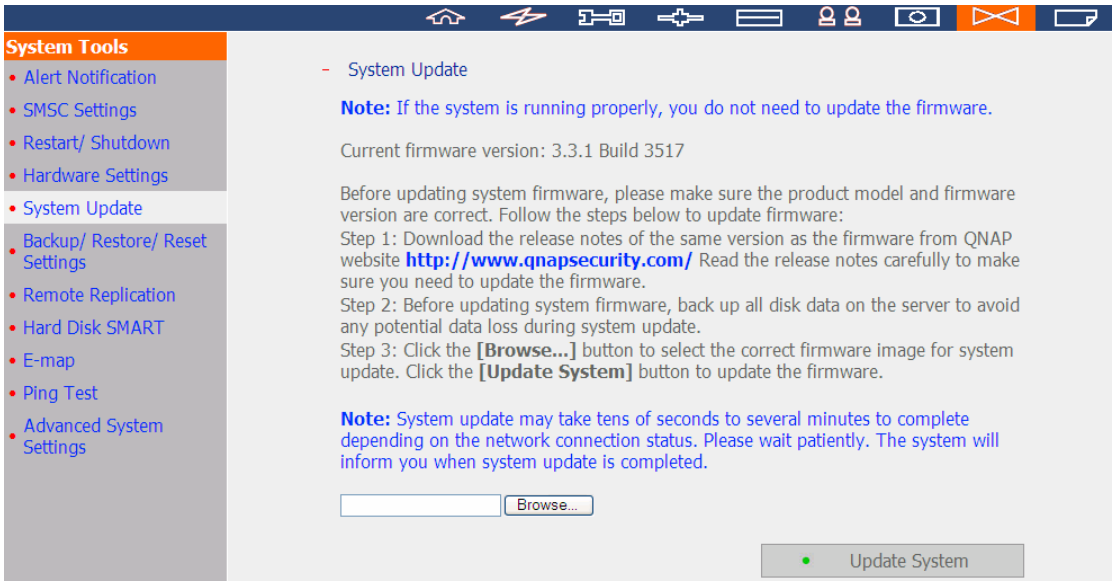
- **Smart fan configuration**

  After enabling the smart fan, the fan rotation speed is automatically adjusted according to the system temperature of the NVR. It is recommended to enable this option. By manually setting the fan rotation speed, the fan rotates at the defined speed continuously.

  *This function is not supported by the VS-101, VS-201, NVR-104.

6.7.5 System Update

QNAP provides new firmware release for the VioStor NVR from time to time to provide updated features and enhancements. You may update the system firmware in order to use these new features. Before updating the system firmware, make sure the product model and the firmware version are correct. Follow the steps below to update firmware:



Note: If the NVR is running properly, you may not need to update the firmware. QNAP is not responsible for any forms of data loss caused by improper or illegal system update.

1. Download the release notes of the firmware from the QNAP website http://www.qnapsecurity.com/. Read the release notes carefully to make sure you need to update the firmware.
2. Unzip the firmware file to your local computer.
3. Before updating the system firmware, you are strongly suggested to back up all the disk data on the NVR to avoid any potential data loss during the system update.
4. Click 'Browse…' to select the correct firmware image. Click 'Update System' to update the firmware.

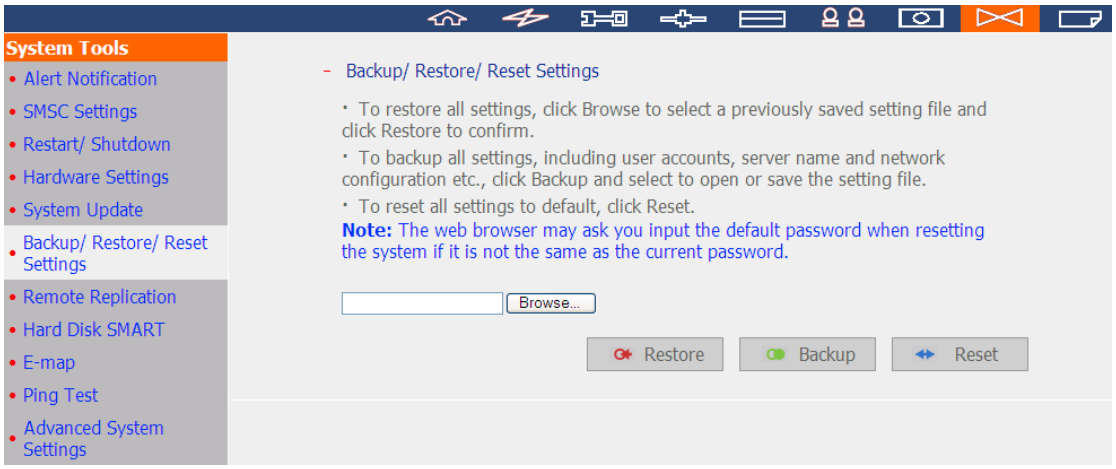
The system update may take several minutes to complete depending on the network connection status. Please wait patiently. The NVR will inform you when the system update is completed.

When updating the firmware, make sure the power supply is at a steady state. Otherwise, the NVR may be unable to start up.

6.7.6 Backup/Restore/Reset Settings

- To back up all the settings, including the user accounts, the server name and the network configuration, click 'Backup' and select to open or save the setting file.
- To restore all the settings, click 'Browse' to select a previously saved setting file and click 'Restore'.
- To reset all the settings to default, click 'Reset'. **All the disk data will be deleted.**

Caution: When you press 'Reset' on this page, all the drive data, user accounts, network shares, and the system settings will be cleared and restored to default. Please make sure you have backed up all the important data and the system settings before resetting the NVR.

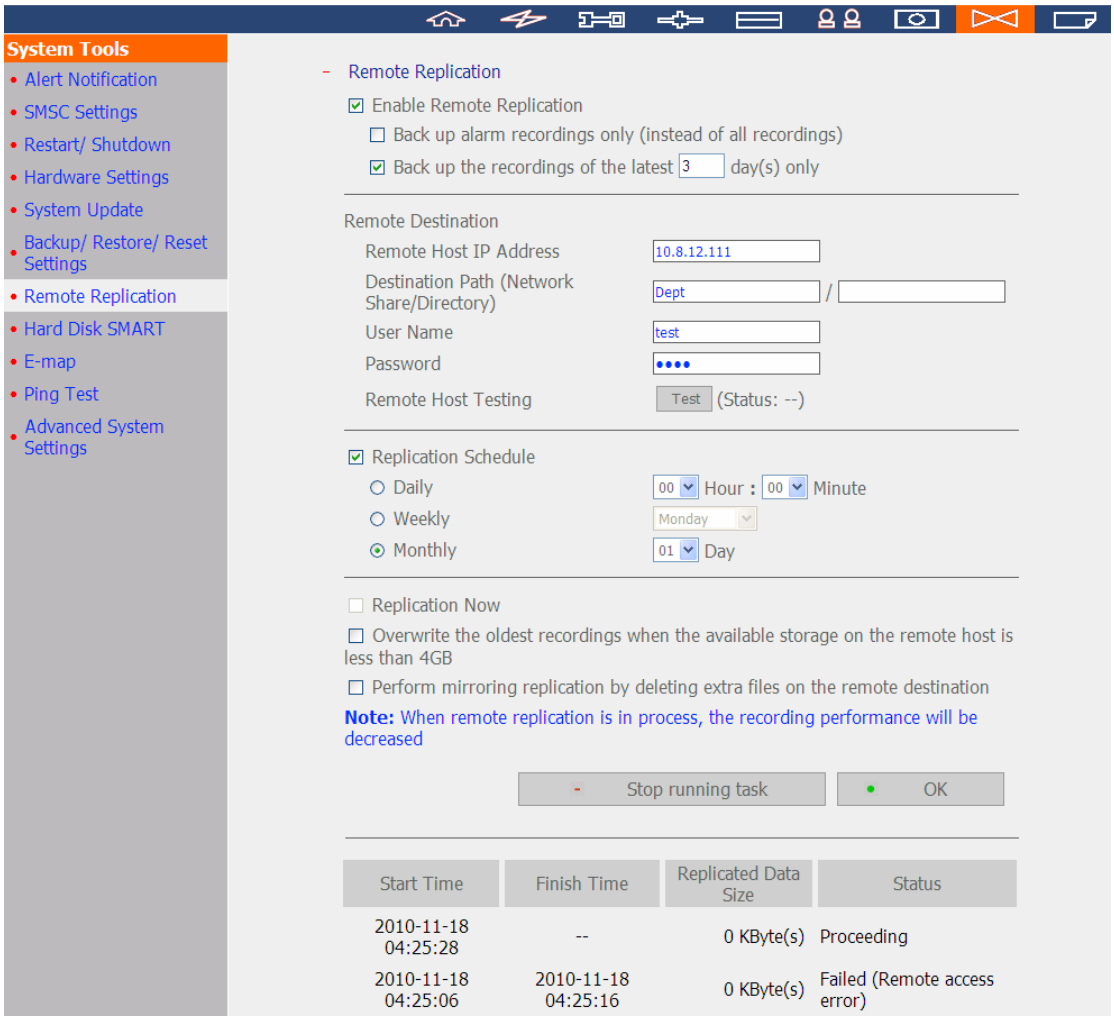


6.7.7 Remote Replication

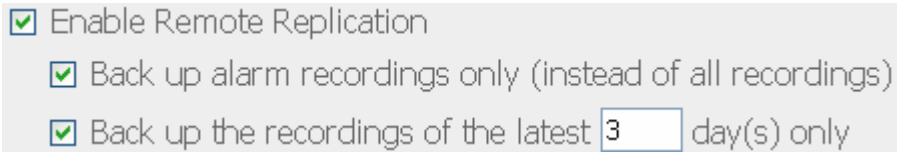
You can use the remote replication feature to copy the recording data of the local VioStor to a remote QNAP network attached storage (NAS). The remote QNAP NAS is hereafter referred to as 'the remote storage device'.

Note: Before using this function, make sure the Microsoft networking service of the remote storage device is enabled, and the corresponding path and user access right have been correctly configured.

1. Login the VioStor and go to 'System Tools' > 'Remote Replication'.



2. Enable remote replication (support multiple choices)



In the above example, the NVR only copies the alarm recording data of the latest 3 days to the remote storage device.

- Select 'Enable remote replication' to activate this feature. The NVR executes automatic backup of the recording data to the remote storage device according to the settings.

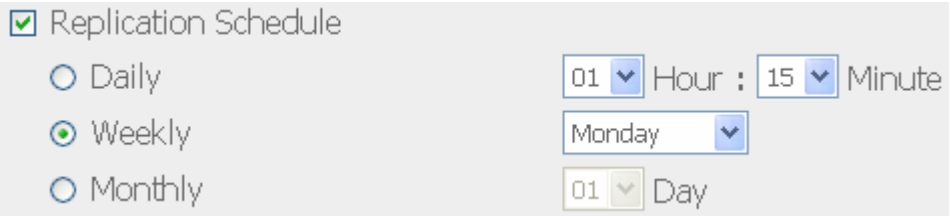
- When you select 'Back up alarm recordings only (instead of all recordings)', the NVR will only copy the alarm recording data to the remote storage device. If this option is unselected, the NVR will back up all the recording data to the remote storage device.

- When you select 'Back up the recordings of the latest…day(s) only' and enter the number of days, the NVR will back up the latest recording data to the remote storage device automatically according to your settings. If this option is unselected, the NVR will copy all the recording data to the remote storage device.

3. Configure your remote storage server

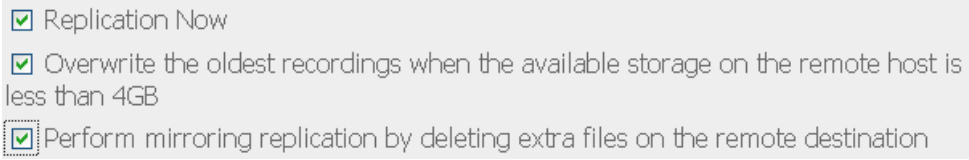
Note: It is recommended to execute the 'Remote host testing' function to verify the connection to the remote storage device is successful.

4. Configure the remote replication schedule



For example, to enable the NVR to copy the recording data automatically to the remote storage device at 01:15 every Monday, please do the following:
Select 'Replication Schedule', select 'Weekly', enter 01 Hour: 15 minute, and select 'Monday'.

5. Select the backup options



(a) Select 'Replication Now', the NVR will back up the recording data to the remote storage device immediately.
(b) Select 'Overwrite the oldest recordings when the available storage on the remote host is less than 4GB'; the NVR will overwrite the oldest recording data when the free space on the server is less than 4GB.
(c) Select 'Perform mirroring replication by deleting extra files on the remote replication', the NVR will synchronize the recording data between itself and the remote storage device and delete any extra files on the remote storage device.

- When the above options are all selected and you execute the remote replication, the NVR will do the following:
  i. The NVR checks if there are files on the remote storage device that are different from the local source. If yes, the differentiated files will be deleted.
  ii. Next, the NVR checks the free space of remote storage device. If the free space is larger than 4GB, the remote replication will be executed immediately.
  iii. If the free space of the remote storage device is less than 4GB, the NVR will overwrite the recording data of the oldest day and then executes the remote replication.

10. The NVR displays the latest 10 remote replication records.

Start Time	Finish Time	Replicated Data Size	Status
2007-11-08 18:00:07	2007-11-09 06:29:39	54.36 GByte(s)	Succeeded
2007-11-07 18:00:06	2007-11-08 10:18:26	74.17 GByte(s)	Succeeded
2007-11-06 18:00:02	2007-11-06 19:56:31	12.24 GByte(s)	Succeeded
2007-11-05 18:00:06	2007-11-05 20:05:06	12.53 GByte(s)	Succeeded
2007-11-04 18:00:03	2007-11-04 19:59:28	11.33 GByte(s)	Succeeded
2007-11-03 18:00:08	2007-11-03 20:01:54	11.75 GByte(s)	Succeeded
2007-11-02 18:14:09	2007-11-02 19:11:16	4.98 GByte(s)	Failed (Remote access error)
2007-11-01 18:00:04	2007-11-02 02:32:27	43.68 GByte(s)	Succeeded
2007-10-31 18:00:05	2007-11-01 03:34:13	33.01 GByte(s)	Failed (An internal error occurred)

In the above example:

1. When the status is shown as 'Failed (Remote access error)': You may check if the remote storage device is running or the network settings are correct.
2. When the status is shown as 'Failed (An internal error occurred)': You may view the hard drive status of the VioStor or view the Event Logs.

Note: The time required by the VioStor to replicate the data to the remote storage device varies depending on the network environment. If the remote replication takes too long, some recording files may be overwritten by the NVR. To avoid this, you are recommended to refer to the status messages to analyse the time required for the remote replication and adjust the replication schedule accordingly.

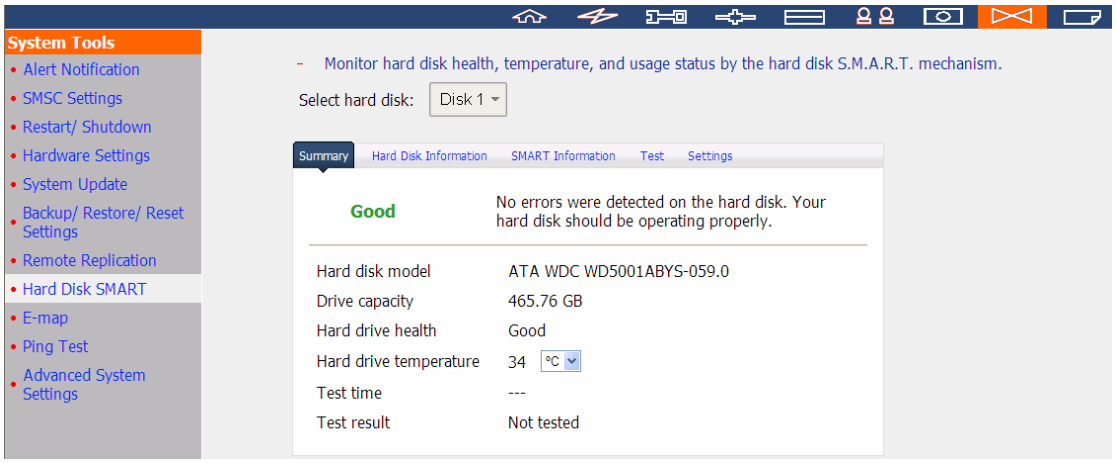
6.7.8 Hard Disk SMART

This function is not supported by the VS-101, VS-201, NVR-104.

This page enables you to monitor the health, temperature, and status of the hard disk drives by the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology).

Select a hard disk drive to view the following information by clicking the corresponding buttons.

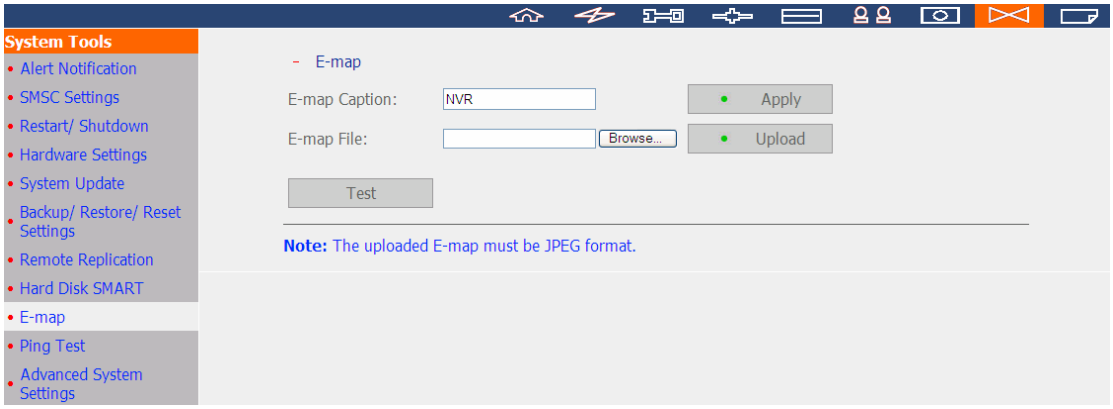
Field	Description
Summary	Displays the summary and the latest test result of the hard disk drive.
Hard disk information	Displays the hard disk drive details such as the model, the serial number, and the drive capacity.
SMART information	Displays the hard disk drive S.M.A.R.T. The items of which the values are lower than the threshold are regarded as abnormal.
Test	To perform a quick or complete hard drive S.M.A.R.T. test and display the results.
Settings	To configure the temperature alarm. When the hard drive temperature is higher than the preset value, the VioStor will record the error logs. You can also configure the quick and complete test schedule. The latest test result is shown on the Summary page.



6.7.9 E-map

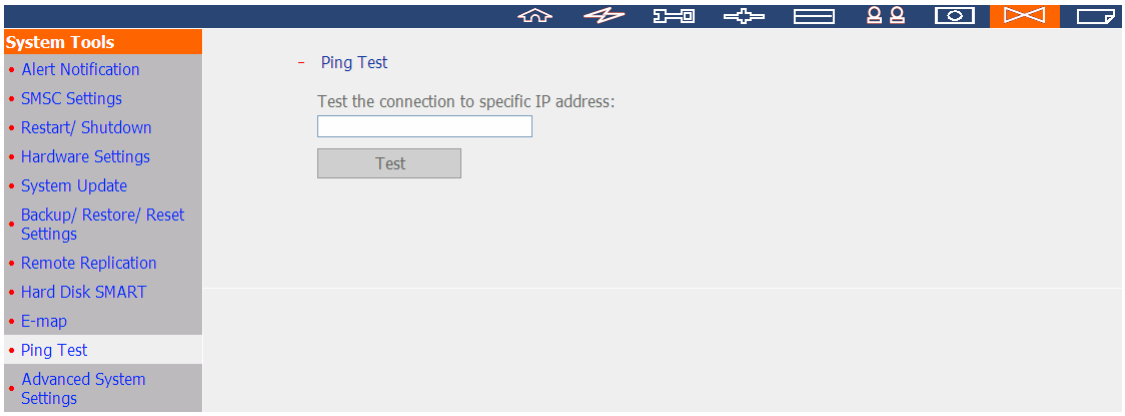
You can upload an E-map to the VioStor to illustrate the location of the IP cameras.

1. To upload an E-map, click 'Browse' and select the file (JPEG only). Then click 'Upload'.
2. You can change the caption of the E-map and click 'Apply'.
3. After uploading the E-map, click 'Test' to view the map.



6.7.10 Ping Test

To test the connection to an IP address, enter the IP address and click 'Test'.

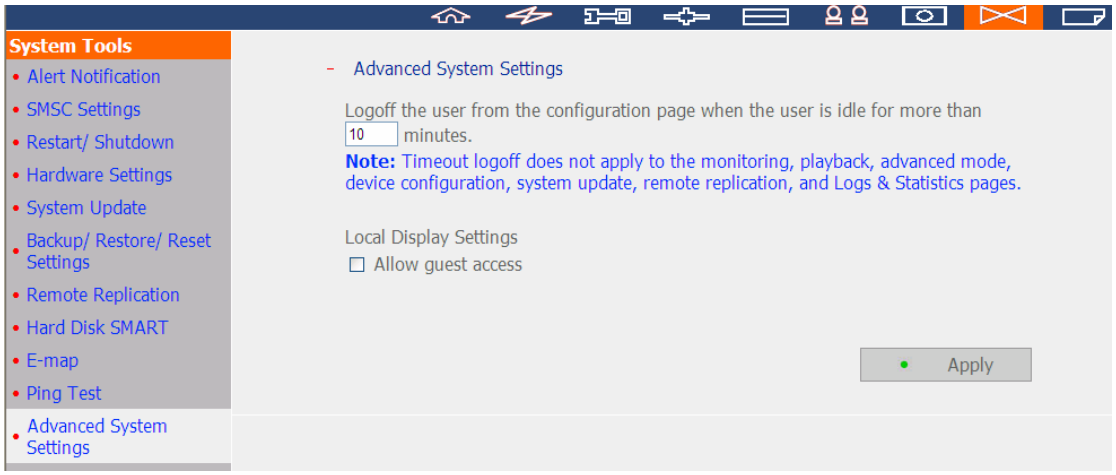


6.7.11 Advanced System Settings

You can set the timeout period to log off the users from the configuration page of the NVR when the idling time has reached.

To allow guest access to the monitoring screen of the NVR by local display, select 'Allow guest access'.

Note: The timeout logoff does not apply to the monitoring, playback, advanced mode, device configuration, system update, remote replication, and logs & statistics pages.

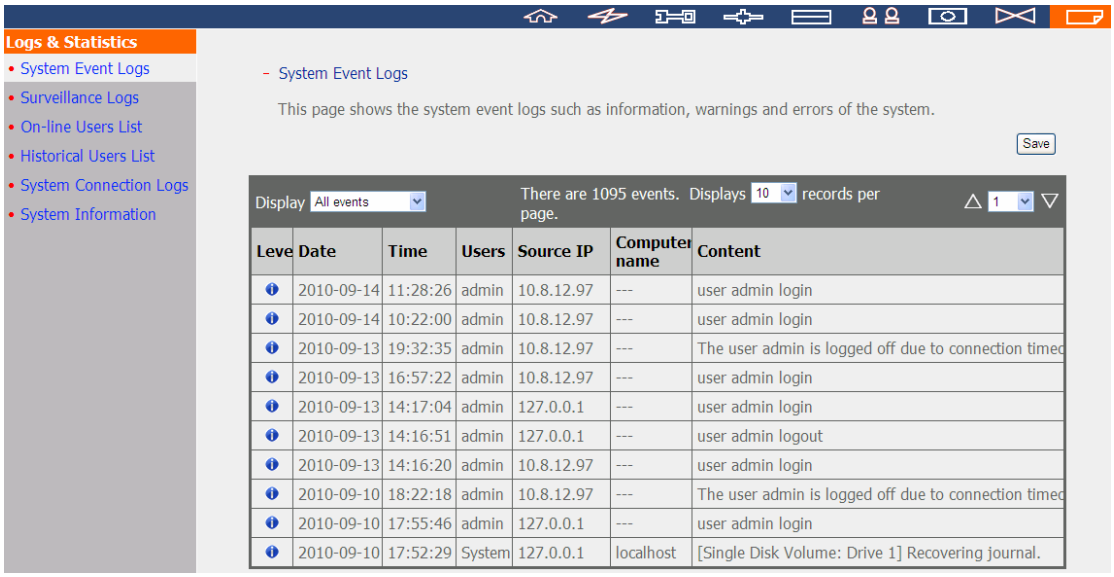


6.8 Logs & Statistics

6.8.1 System Event Logs

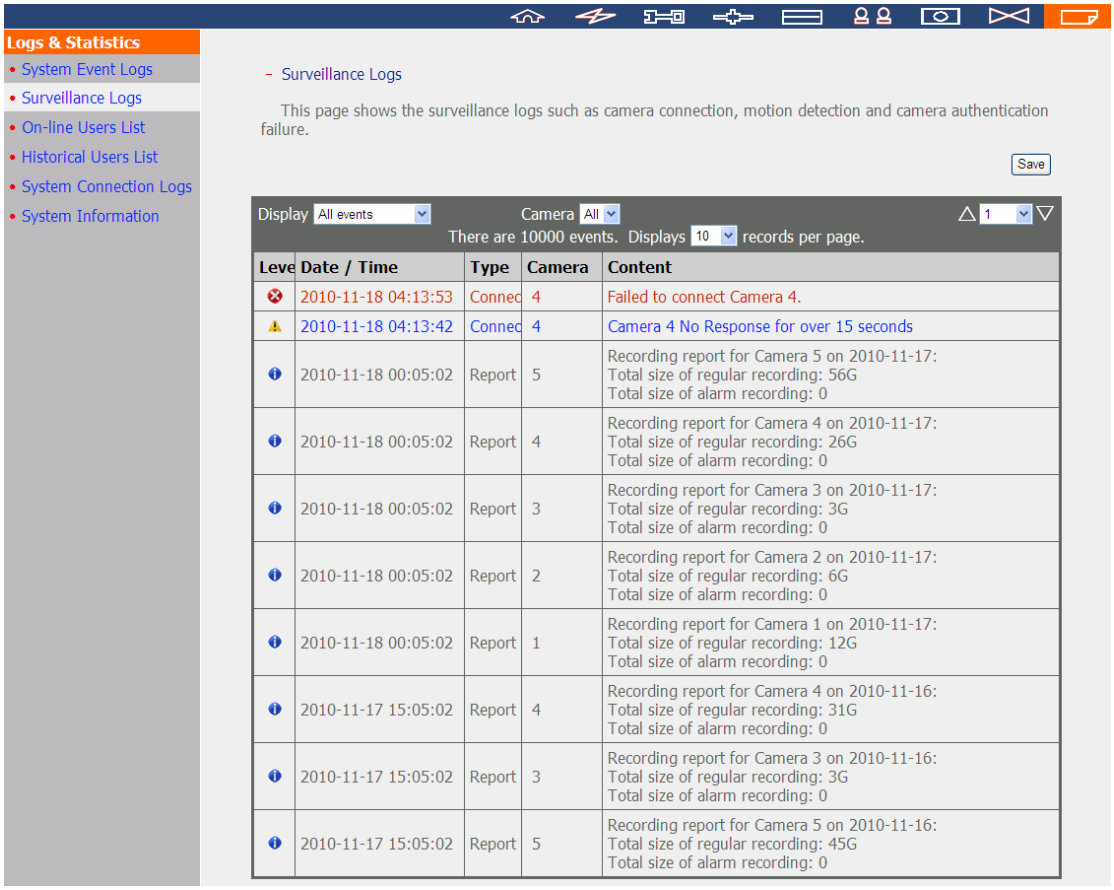
The NVR can save maximum 10,000 recent event logs, including warning, error, and information messages. In case of system malfunction, the event logs (only in English) can be retrieved to analyse the system problems.

Click 'Save' to save the logs as a CSV file.



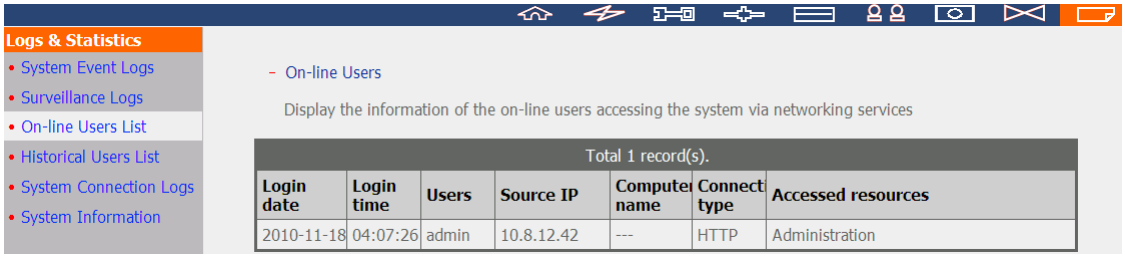
6.8.2 Surveillance Logs

This page shows the surveillance logs such as camera connection, motion detection, and camera authentication failure.



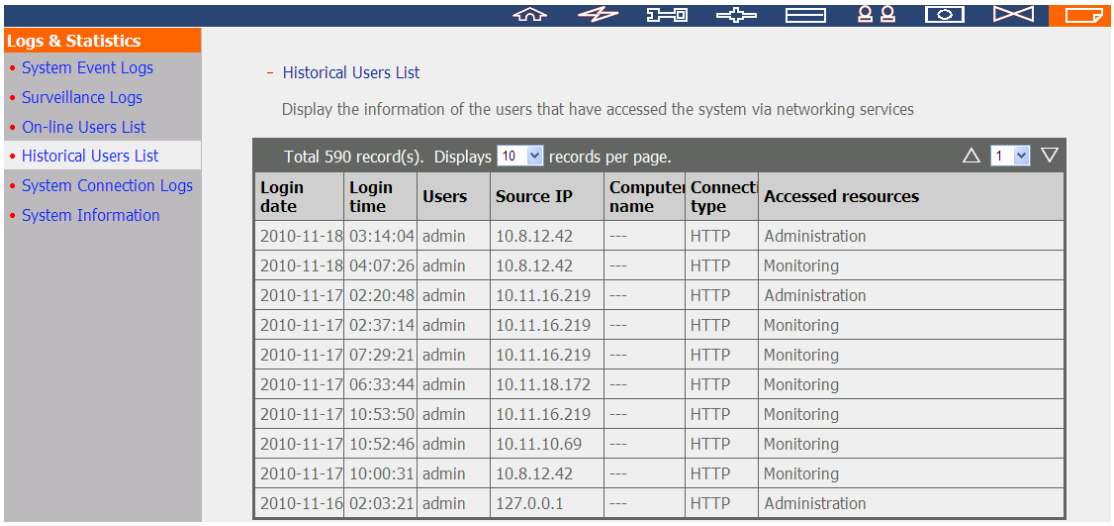
6.8.3 On-line Users List

This page shows the information of the currently active users, e.g. the user name, IP address, and login time.



6.8.4 Historical Users List

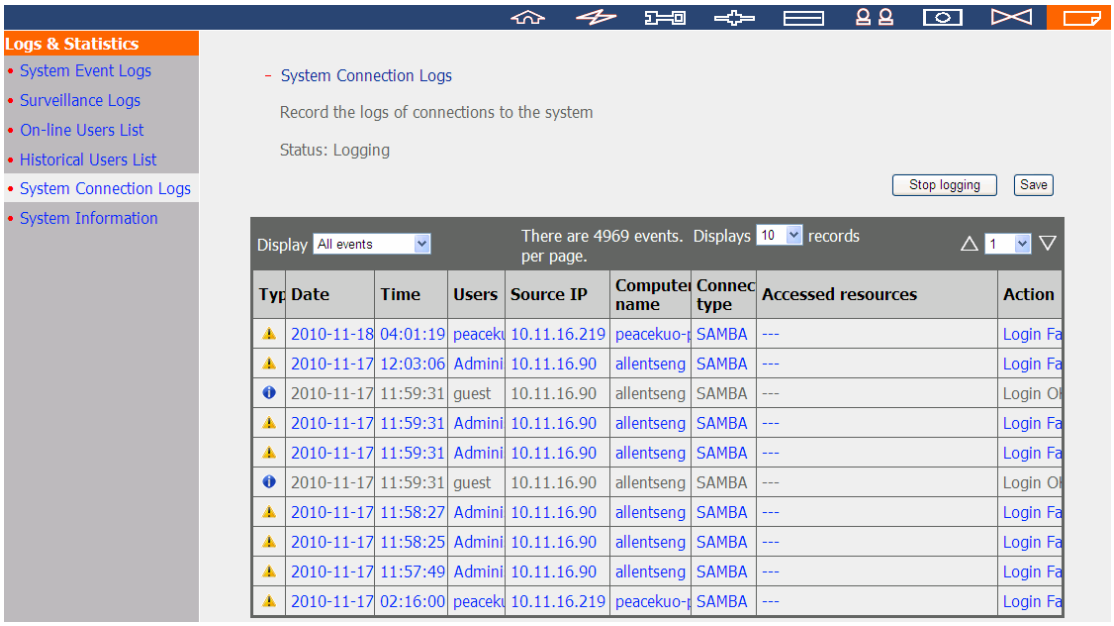
This page shows the information of the users who have logged in the system including the user name, IP address, login time, and the services they have accessed etc.



6.8.5 System Connection Logs

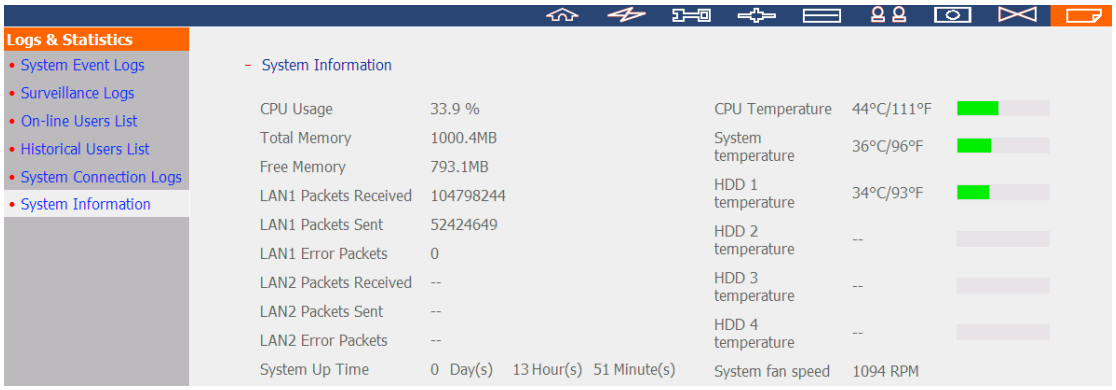
The connection logs to the NVR by samba, FTP, AFP, HTTP, HTTPS, Telnet, and SSH are recorded on this page.

You can select to start or stop the logging. The file transfer performance may be slightly affected by enabling the event logging.



6.8.6 System Information

This page shows the system information, such as the CPU usage, memory, and system temperature.



Chapter 7. System Maintenance

This section provides a general overview of the system maintenance.

7.1 Reset the Administrator Password and Network Settings

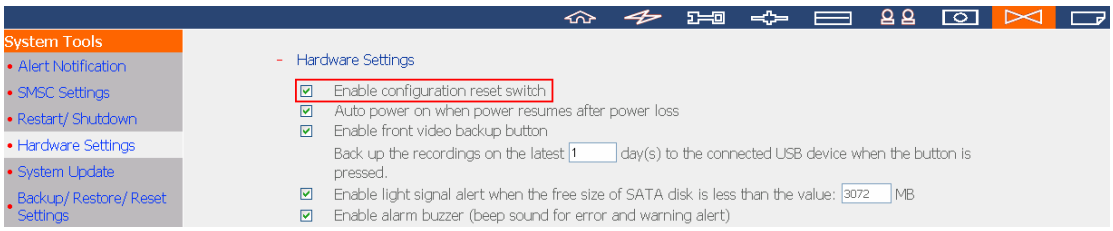
To reset the administrator password and the network settings, press the reset button of the server for five seconds. A beep sound will be heard.

After resetting the system, you can login the server with the default user name and password:

Default user name: **admin***
Password: **admin**

*If you are using the VS-201/VS-101/NVR-104, the default login name is 'administrator' and the password is 'admin'.

Note: To reset the system by the reset button, the option 'Enable configuration reset switch' in the 'Hardware Settings' must be activated.



7.2 Power Outage or Abnormal Shutdown

In case of power outage or improper shutdown of the server, the server will resume to the state before it is shut down. If your server does not function properly after the restart, please do the following:

1. If the system configuration were lost, configure the system again.
2. If the problem persists, contact the technical support.

7.3 Hot Swapping Hard Disk Drives (RAID Configuration)

This function is not supported by the one-bay NVR models.

When a hard disk drive (HDD) of a RAID configuration fails, the failed HDD can be replaced by a new one immediately without shutting down the server, and the recording data can be reserved. However, if the HDD are working properly and the recording is in process, do not hot swap the HDD to avoid damage to the HDD or recording files.

Warning: You are strongly recommended to turn OFF the server before replacing the HDD to reduce the risk of electric shock.

Chapter 8. LCD Panel

* This section is applicable to the NVR models with an LCD panel only.

The NVR provides a handy LCD panel for you to perform the disk configuration and view the system information.

When the NVR has started up, you will be able to view the server name and the IP address:

For the first time installation, the LCD panel shows the number of the hard disk drives detected and the IP address. You may select to configure the hard drives.

Number of hard drives detected	Default disk configuration	Available disk configuration options*
1	Single	Single
2	RAID 1	Single -> JBOD ->RAID 0 -> RAID 1
3	RAID 5	Single -> JBOD -> RAID 0 -> RAID 5
4 or above	RAID 5	Single ->JBOD -> RAID 0 -> RAID 5 -> RAID 6

*Press the 'Select' button to choose the option, and press the 'Enter' button to confirm.

For example, when you turn on the NVR with 5 hard drives installed, the LCD panel shows:

You can press the 'Select' button to browse more options, e.g. RAID 6.
Press the 'Enter' button and the following message shows. Press the 'Select' button to select 'Yes' to confirm.

When you execute RAID 1, RAID 5, or RAID 6 configuration, the system will initialize the hard drives, create the RAID configuration, format the RAID configuration, and mount it as a volume on the NVR. The progress will be shown on the LCD panel. When it reaches 100%, you can access the RAID volume, e.g. create share folders and upload files to the folders on the NVR. In the meantime, to make sure the stripes and blocks in the RAID configuration are ready, the NVR will execute RAID synchronization and the progress will be shown on the 'Disk Management' > 'Volume Management' page. The synchronization rate is around 30-60 MB/s (varied by hard disk drive models, system resource usage, etc.).

Note: If a member drive of the RAID configuration was lost during the synchronization, the RAID volume will enter degraded mode. The volume data is still accessible. If you add a new member drive to the volume, the volume will start to rebuild. You can view the status on the 'Volume Management' page.

When the configuration has finished, the server name and the IP address will be shown. If the NVR fails to create the disk volume, the following message will be shown.

View the system information by the LCD panel

When the LCD panel shows the server name and the IP address, you may press the 'Enter' button to enter the Main Menu. The Main Menu consists of the following items:

1. TCP/IP
2. Physical disk
3. Volume
4. System
5. Shut down
6. Reboot
7. Password
8. Back

1. TCP/IP

In TCP/IP, you can view the following options:

1.1 LAN IP Address
1.2 LAN Subnet Mask
1.3 LAN Gateway
1.4 LAN PRI. DNS
1.5 LAN SEC. DNS
1.6 Enter Network Settings
  1.6.1 Network Settings – DHCP
  1.6.2 Network Settings – Static IP*
  1.6.3 Network Settings – BACK
1.7 Back to Main Menu

* In 'Network Settings – Static IP', you can configure the IP address, subnet mask, gateway, and the DNS of LAN 1 and LAN 2.

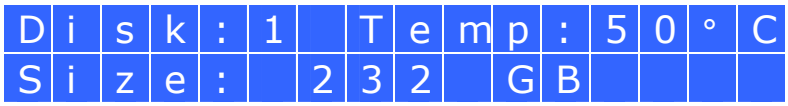
2. Physical disk

In Physical disk, you can view the following options:

2.1 Disk Info

2.2 Back to Main Menu

The disk info shows the temperature and the capacity of the hard disk drive.



3. Volume

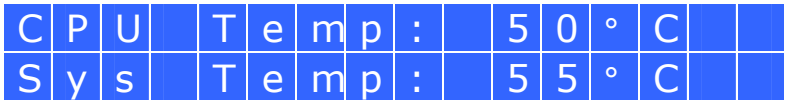
This section shows the disk configuration of the NVR. The first line shows the RAID configuration and storage capacity; the second line shows the member drive number of the configuration.

If there is more than one volume, press the 'Select' button to view the information. The following table shows the description of the LCD messages for the RAID 5 configuration.

LCD Display	Drive configuration
RAID5+S	RAID5+spare
RAID5 (D)	RAID 5 degraded mode
RAID 5 (B)	RAID 5 rebuilding
RAID 5 (S)	RAID 5 re-synchronizing
RAID 5 (U)	RAID 5 is unmounted
RAID 5 (X)	RAID 5 non-activated

4. System

This section shows the system temperature and the rotation speed of the system fan.



5. Shut down

Use this option to turn off the NVR. Press the 'Select' button to select 'Yes'. Then press the 'Enter' button to confirm.

6. Reboot

Use this option to restart the NVR. Press the 'Select' button to select 'Yes'. Then press the 'Enter' button to confirm.

7. Password

The default password of the LCD panel is blank. Enter this option to change the password of the LCD panel. Select 'Yes' to continue.

You may enter a password of maximum 8 numeric characters (0-9). When the cursor moves to 'OK', press the 'Enter' button. Verify the password to confirm the changes.

8. Back

Select this option to return to the main menu.

System Messages

When the NVR encounters system error, an error message will be shown on the LCD panel. Press the 'Enter' button to view the message. Press the 'Enter' button again to view the next message.

System Message	Description
Sys. Fan Failed	The system fan fails
Sys. Overheat	The system overheats
HDD Overheat	The hard drive overheats
CPU Overheat	The CPU overheats
Network Lost	Both LAN 1 and LAN 2 are disconnected in failover or load-balancing mode
LAN1 Lost	LAN 1 is disconnected
LAN2 Lost	LAN 2 is disconnected
HDD Failure	The hard drive fails
Vol1 Full	The volume is full
HDD Ejected	The hard drive is ejected
Vol1 Degraded	The volume is in degraded mode
Vol1 Unmounted	The volume is unmounted
Vol1 Nonactivate	The volume is not activated

Chapter 9. Troubleshooting

1. The monitoring screen did not display.

Please check the following:

A. Check if you have installed the ActiveX add-on when logging in the monitoring page of the VioStor. Set the security level to 'Medium' or lower in Internet Options of the IE browser.

B. The VioStor is turned on and the network is correctly connected.

C. The IP address of the VioStor does not conflict with other devices in the same subnet.

D. Check the IP address settings of the VioStor and your computer. Make sure they are on the same subnet.

2. A channel on the monitoring page cannot be displayed.

Please check the following:

A. The IP address, the name, and the password entered on the camera configuration page are correct. You can use the 'Test' function to verify the connection.

B. When the PC and the IP camera are on the same subnet, while the VioStor is on another subnet, you will be unable to view the monitoring screen from the PC. You can solve the problems by the following methods.

Method 1: Enter the IP address of the IP camera as the WAN IP on the VioStor.

Method 2: Configure the router to allow internal access to the public IP address and the mapped ports of the IP cameras.

3. The recording is not working properly.

A. Make sure each hard disk tray is correctly locked on the VioStor.

B. When only one hard disk drive is installed, make sure the HDD is installed in the tray of HDD 1. The HDD 1 should be installed on top of the HDD 2.

C. Check if the recording function is enabled on the Camera Configuration page (the function is enabled by default). Make sure the IP address, the login name, and the password of the IP camera are correct.

D. If the above items are verified to work properly while the status LED flashes green, the HDD may be damaged or cannot be detected. In this case, turn off the VioStor and install a new hard disk. If the problem persists, please contact the technical support.

Note: If you have updated the configurations of the VioStor, the recording will be stopped temporarily and restart again shortly.

4. I cannot login the administration page of the VioStor.

Please check if you have the administrator authority. Only administrators are allowed to login the VioStor.

5. The live video is not clear or smooth sometimes.

A. The image quality may be restricted and interfered by the network traffic.

B. When there are multiple connections to the IP camera or the VioStor, the image quality will be reduced. It is recommended to allow only three simultaneous connections to the monitoring page at maximum. For higher recording performance, do not open too many IE browsers to view the live video.

C. The same IP camera may be shared by multiple VioStor servers for recording at the same time.

6. The alarm recording does not function.

A. Please login the VioStor and go to 'Camera Settings' > 'Alarm Settings'. Make sure the alarm recording is enabled for the IP camera.

B. When using Panasonic BB-HCM311 cameras, the camera firmware must be upgraded to v1.3 for the alarm recording to work properly.

C. If the VioStor is installed behind a router while the IP camera is not, the alarm recording will not work.

D. When the alarm recording is enabled, make sure you have entered the number of days that the alarm recordings will be retained in 'Camera Settings' > 'Advanced Settings'. Otherwise, the recordings may be overwritten.

7. **The estimated storage space for recording displayed on the 'Recording Settings' page is different from the actual value.**
   This estimated value is a reference value only. The actual disk space may vary according to the image contents, the network environment, and the performance of the IP cameras.

8. **The monitoring screen shows horizontal lines when the resolution of Panasonic BB-HCM381 camera is set as 640x480.**
   This is due to the interlaced scanning design of the camera. Please login the configuration page of the IP camera and go to 'Setup' > 'Camera' > 'Vertical Resolution'. Configure the resolution setting as 240.

9. **The E-map cannot be displayed correctly.**
   Please check the file format. The VioStor supports E-map in JPEG only.

10. **I cannot find the VioStor by the QNAP Finder.**
    A. Check if the VioStor is turned on.
    B. Make sure the computer on which Finder is run and the VioStor have been connected to the network.
    C. Refresh the QNAP Finder and check the IP address of the VioStor. Make sure you have turned off all the firewall software on your computer.

11. **The changes to the system configuration did not take effect.**
    After changing the settings on the administration page, click 'Apply' to apply the changes.

12. **The monitoring page cannot be fully displayed in Internet Explorer.**
    If you are using the zooming function of Internet Explorer 7, the page may not be displayed properly. Please click F5 to refresh the page.

13. **I cannot use the SMB, FTP, and Web File Manager services of the VioStor.**
    A. Login the VioStor as an administrator. Go to 'Network Settings' > 'File Services' and check if these three functions are enabled.
    B. If the VioStor is installed behind a router, the SMB and FTP services can only be accessed from the same subnet. Please refer to Appendix B for details.

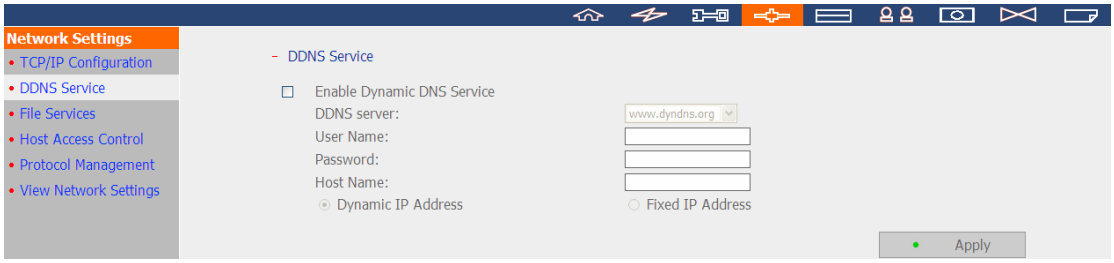
14. The VioStor takes too long to restart.

When the VioStor takes more than 5 minutes to restart, turn off the power and turn on the server again. If the problem persists, please contact the technical support.

Appendix A Dynamic Domain Name Registration

The VioStor supports the DDNS service provided by DynDNS. You can go to the DynDNS website http://www.dyndns.org/ to register a dynamic domain name.

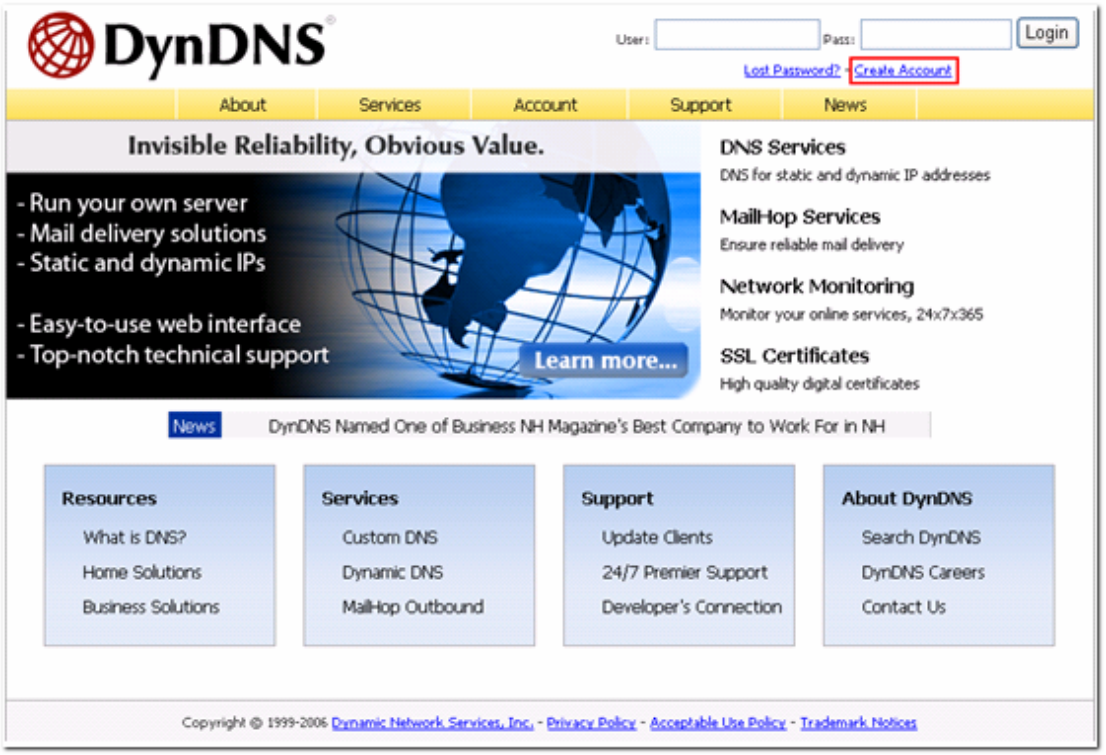
Configure and activate the DDNS service to enable the Internet users to connect to the VioStor by this dynamic domain name. When the ISP assigns a new WAN IP address, the VioStor will update the new address to the DynDNS server automatically.



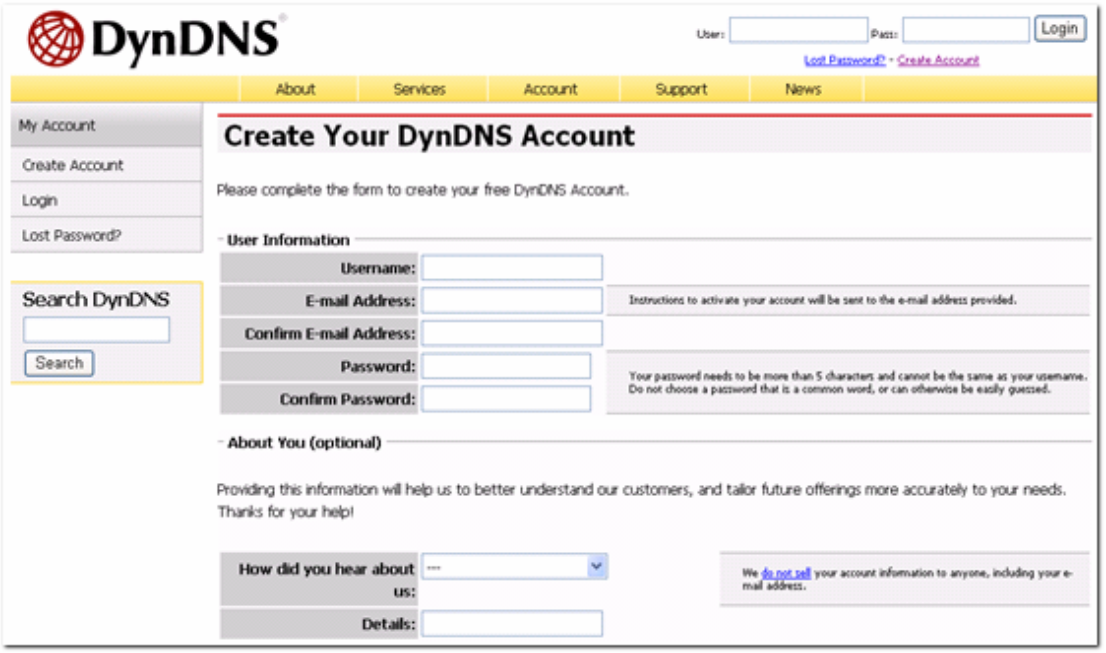
Registration Procedure

Please follow the steps below to register a dynamic domain name. This guide is for reference only. If there are any changes, please refer to the instructions or the documents on the web site.

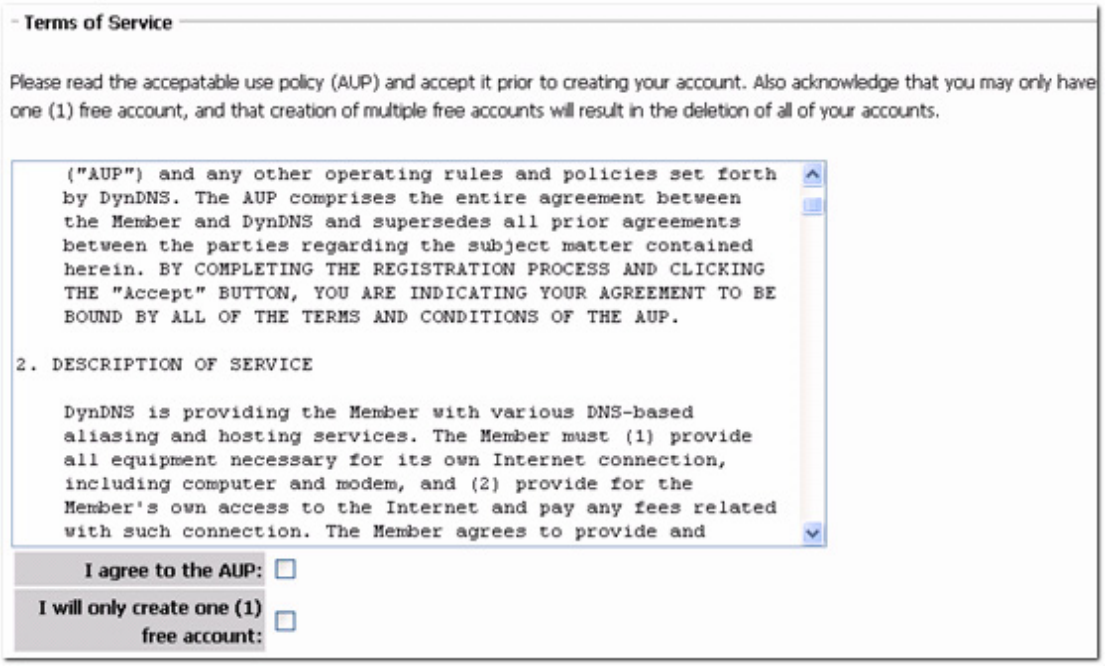
1. Open the web browser and connect to http://www.dyndns.com/. Click 'Create Account' to begin the registration.



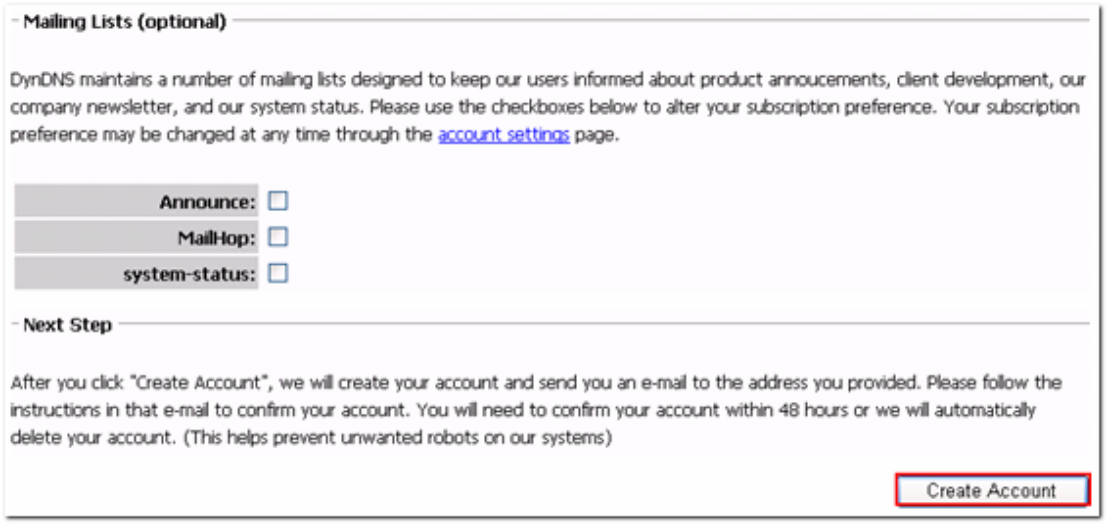
2. Enter the information required to register the account.



3. Accept the terms of service.



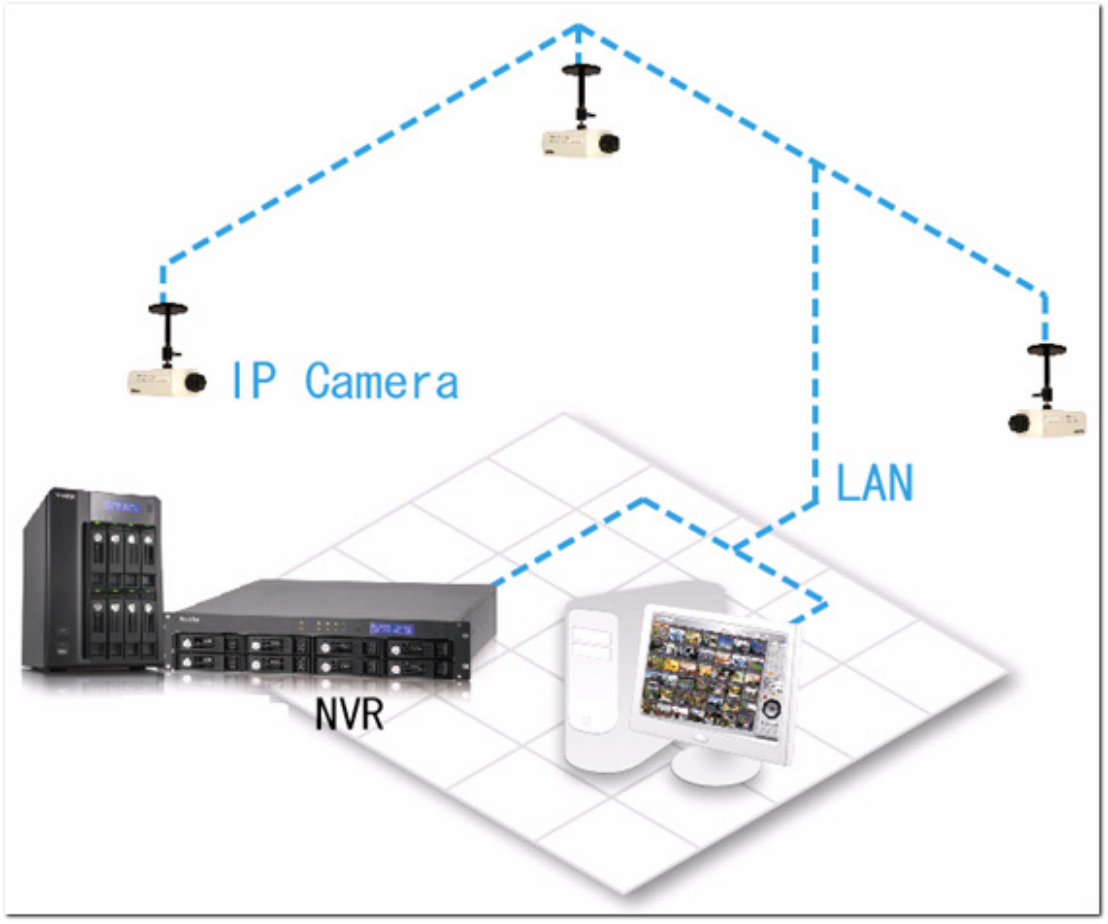
4. Configure the mailing lists if necessary. Then click 'Create Account'.



5. When your account has been successfully created, a confirmation email will be sent to you. Follow the instructions in the email to activate your account. When you have finished the confirmation process, you can apply for your own dynamic domain name. Please refer to the website of the DDNS provider for more information.

Appendix B Configuration Examples

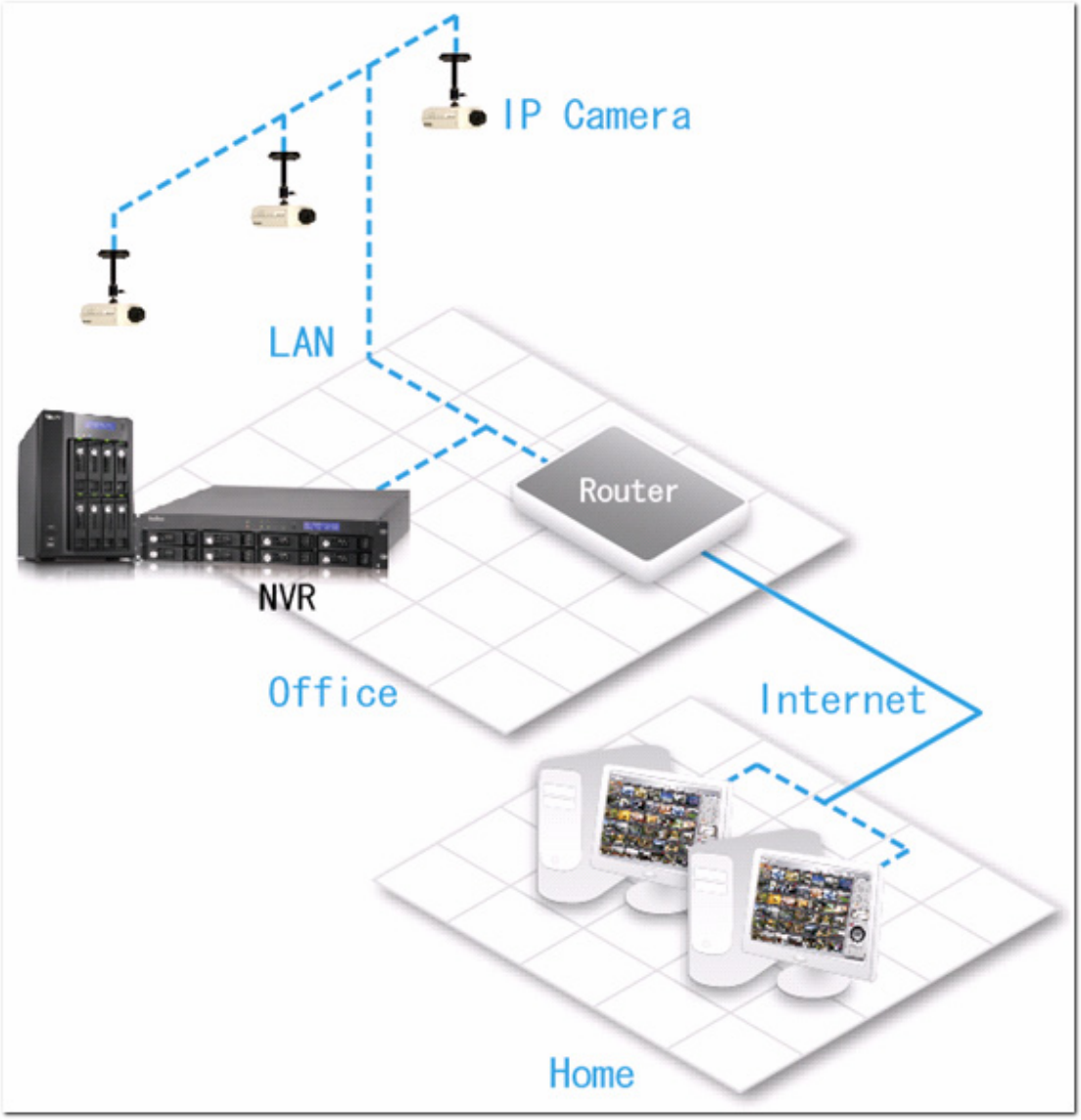
Environment 1: The VioStor, the IP camera, and the monitoring PC are all on the same network



	IP address
VioStor	*192.168.1.1*
PC	*192.168.1.100*
Camera 1	*192.168.1.101*
Camera 2	*192.168.1.102*
Camera 3	*192.168.1.103*

In the example, add the IP cameras to the VioStor by entering the IP addresses of the IP cameras.

Environment 2: The VioStor and the IP camera are installed behind the router, while the monitoring PC is located remotely



	IP address	**Mapped port on the router**
VioStor	*192.168.1.1*	*8000*
Camera 1	*192.168.1.101*	*8001*
Camera 2	*192.168.1.102*	*8002*
Camera 3	*192.168.1.103*	*8003*
Router public IP	*219.87.144.205*	
PC	*10.8.10.100*	

To allow a remote PC to connect to the VioStor and the IP cameras, you need to:

Step 1. Set up the port mapping (virtual server) on the router.

From	Forward to
219.87.144.205:8000	*192.168.1.1:80*
219.87.144.205:8001	*192.168.1.101:80*
219.87.144.205:8002	*192.168.1.102:80*
219.87.144.205:8003	*192.168.1.103:80*

Step 2. Add the IP camera to the VioStor by entering the IP address of the IP camera in the 'IP Address' settings. Enter the public IP address of the router and the mapped ports of the IP camera in the 'WAN IP Address' settings.

Note: When configuring the IP camera, the WAN IP and LAN IP must be entered.

To open FTP (port 21) and SMB (port 445) of the VioStor on WAN, configure the following port mapping settings:

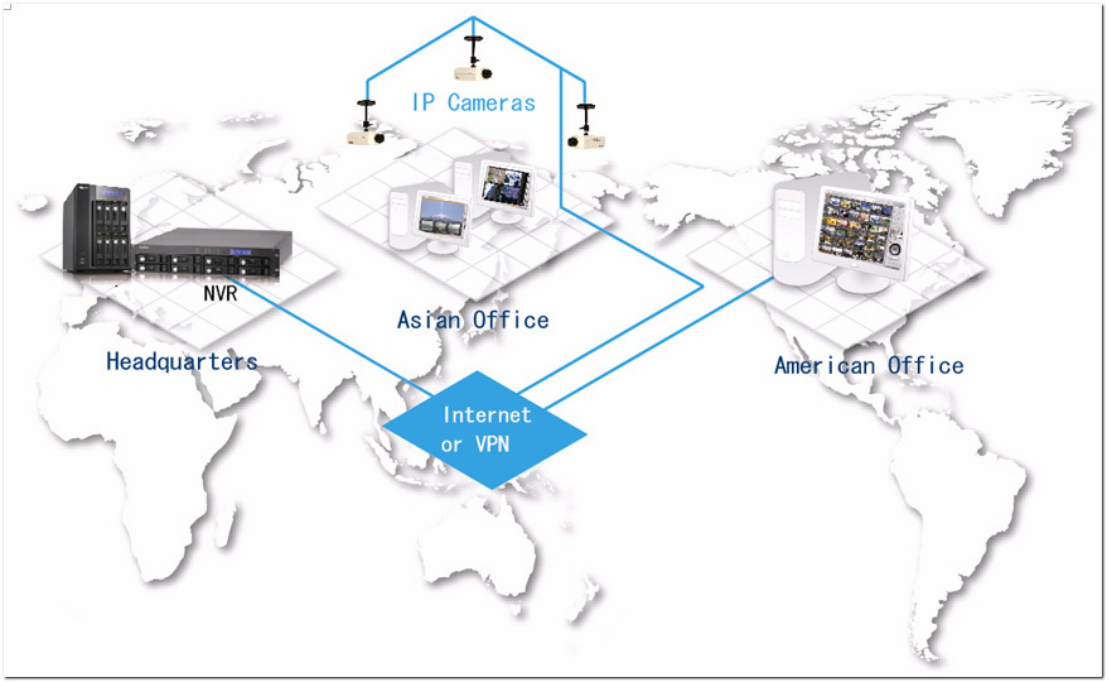
From	Forward to
219.87.144.205:21	*192.168.1.1:21*
219.87.144.205:139	*192.168.1.1:139*
219.87.144.205:445	*192.168.1.1:445*

After finishing the above two steps, you can connect to the VioStor on WAN by entering the IP address http://219.87.144.205:8000 in the IE browser. Then login the VioStor with the correct user name and password.

If the port specified to the VioStor is 80, you can enter http://219.87.144.205 to connect to the VioStor.

Note: If the router does not use a fixed IP, you will need to configure the DDNS settings on the router. Other configurations are the same as above.

Environment 3: The VioStor and the IP camera are all located remotely



	IP address
VioStor	*219.87.144.205*
Camera 1	*61.62.100.101*
Camera 2	*61.62.100.102*
Camera 3	*61.62.100.103*

In this example, add the IP camera to the VioStor by adding its IP address to the 'IP Address' settings.

Note: If a particular port is assigned to connect to the IP camera, specify the port in the system configuration.

Environment 4: The VioStor and the IP camera are installed behind the router

	IP address
VioStor 1	192.168.1.101
VioStor 2	192.168.1.102
VioStor 3	192.168.1.103
Router public IP	219.87.145.205

In the example, to allow a remote PC to connect to each VioStor by FTP, you need to:

Step 1. Set up the port mapping (virtual server) on the router

	From	**Forward to**
VioStor 1	219.87.145.205:2001	192.168.1.101:21
VioStor 2	219.87.145.205:2002	192.168.1.102:21
VioStor 3	219.87.145.205:2003	192.168.1.103:21

You can connect to VioStor 1 by ftp://219.87.145.205:2001
You can connect to VioStor 2 by ftp://219.87.145.205:2002
You can connect to VioStor 3 by ftp://219.87.145.205:2003

Step 2. Enable FTP port mapping on the VioStor
To connect to each VioStor via FTP by clicking 'FTP' on the playback page of each VioStor, enable FTP port mapping in 'Network Settings' > 'File Services' on the system administration page and set the mapped port number.

	Mapped port
VioStor 1	2001
VioStor 2	2002
VioStor 3	2003

After finishing the above two steps, you can connect to the VioStor via FTP by entering the IP address in the IE browser or clicking 'FTP' on the playback page. Then login the VioStor by the correct user name and password.

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MSN: q.support@hotmail.com
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TEL: 909-595-2819
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Version 3, 29 June 2007

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