



VioStor NVR

Network Video Recorder

User Manual (Version: 3.5.0)

©Copyright 2011. QNAP Systems, Inc. All Rights Reserved.

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!

- The VioStor NVR is hereafter referred to as the VioStor or the NVR.
- This user 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.
- This user manual (version 3.5.0) is applicable for the VioStor NVR firmware version 3.5.0 only. If the VioStor NVR is running an older firmware version, please refer to the previous versions of the user manuals.

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.

QNAP and the QNAP logo are trademarks of QNAP Systems, Inc. All other brands and product names referred to are trademarks of their respective holders.

Further, the ® or ™ symbols are not used in the text.

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 the 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



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.



Class B only.

Table of Contents

TABLE OF CONTENTS	5
SAFETY WARNING	9
CHAPTER 1. INTRODUCTION	10
1.1 OVERVIEW.....	10
1.2 HARDWARE ILLUSTRATION	11
1.2.1 VS-8040 Pro/VS-8032 Pro/VS-8024 Pro	11
1.2.2 VS-8040U-RP/VS-8032U-RP/VS-8024U-RP.....	12
1.2.3 VS-8040/VS-8032/VS-8024.....	13
1.2.4 VS-6020 Pro/VS-6016 Pro/VS-6012 Pro	14
1.2.5 VS-5020/VS-5012.....	15
1.2.6 VS-4016U-RP Pro/VS-4012U-RP Pro/VS-4008U-RP Pro	16
1.2.7 VS-4016 Pro/VS-4012 Pro/VS-4008 Pro	17
1.2.8 VS-4016U-RP	18
1.2.9 VS-2012 Pro/VS-2008 Pro.....	19
1.2.10 VS-2012/VS-2008.....	20
1.2.11 VS-2004L/VS-2008L	21
1.2.12 VS-1004L	22
CHAPTER 2. INSTALL THE NVR.....	23
2.1 PERSONAL COMPUTER REQUIREMENTS	23
2.2 BROWSE CD-ROM.....	26
2.3 HARD DISK DRIVES COMPATIBILITY LIST	28
2.4 IP CAMERAS COMPATIBILITY LIST	28
2.5 CHECK SYSTEM STATUS.....	29
2.6 SYSTEM CONFIGURATION.....	32
CHAPTER 3. USE THE NVR BY LOCAL DISPLAY.....	36
3.1 QUICK CONFIGURATION	38
3.2 SYSTEM CONFIGURATION.....	45
3.3 MONITORING	47
3.4 VIDEO PLAYBACK	58
3.5 VIDEO CONVERSION & EXPORT	60
CHAPTER 4. USE THE NVR BY WEB-BASED INTERFACE.....	62

4.1	CONNECT TO THE NVR	62
4.2	MONITORING PAGE	64
4.2.1	<i>Live Video Window</i>	73
4.2.2	<i>Display Mode</i>	75
4.2.3	<i>PTZ Camera Control Panel</i>	75
4.2.4	<i>Multi-server Monitoring</i>	76
4.2.5	<i>Monitor Settings</i>	77
4.2.6	<i>Auto Cruising</i>	81
4.3	E-MAP	85
4.3.1	<i>Icons and Description</i>	87
4.3.2	<i>Add a Map Set or an E-map</i>	88
4.3.3	<i>Edit a Map Name</i>	91
4.3.4	<i>Delete a Map Set or an E-map</i>	91
4.3.5	<i>Indicate IP Cameras on an E-map</i>	92
4.3.6	<i>Enable/Disable Event Alert</i>	94
CHAPTER 5.	PLAY VIDEO FILES.....	97
5.1	USE WEB-BASED VIOSTOR PLAYER	98
5.1.1	<i>Play Video Files from NVR</i>	101
5.1.2	<i>Play Video Files from Local PC</i>	113
5.1.3	<i>Multi-view Playback</i>	118
5.1.4	<i>Intelligent Video Analytics (IVA)</i>	126
5.1.5	<i>Convert NVR Videos to an AVI File</i>	133
5.2	DIGITAL WATERMARKING.....	137
5.2.1	<i>Export Video Files with Digital Watermark</i>	137
5.2.2	<i>Watermark Proof</i>	139
5.3	ACCESS THE RECORDING DATA.....	141
5.3.1	<i>Microsoft Networking (SMB/CIFS)</i>	142
5.3.2	<i>Web File Manager (HTTP)</i>	142
5.3.3	<i>FTP Server (FTP)</i>	143
CHAPTER 6.	SYSTEM ADMINISTRATION.....	144
6.1	QUICK CONFIGURATION	147
6.2	SYSTEM SETTINGS	154
6.2.1	<i>Server Name</i>	154
6.2.2	<i>Date & Time</i>	155
6.2.3	<i>View System Settings</i>	156
6.3	NETWORK SETTINGS	157
6.3.1	<i>TCP/IP Configuration</i>	157

6.3.2	<i>DDNS (Dynamic Domain Name) Service</i>	163
6.3.3	<i>File Services</i>	164
6.3.4	<i>Host Access Control</i>	165
6.3.5	<i>Protocol Management</i>	166
6.3.6	<i>View Network Settings</i>	167
6.4	DEVICE CONFIGURATION	168
6.4.1	<i>SATA Disk</i>	168
6.4.2	<i>RAID Management Tool</i>	172
6.4.3	<i>USB Disk</i>	174
6.4.4	<i>UPS</i>	175
6.5	USER MANAGEMENT	176
6.5.1	<i>Create user</i>	178
6.5.2	<i>Edit User</i>	179
6.5.3	<i>Delete User</i>	179
6.5.4	<i>User Access Rights Comparison</i>	180
6.6	CAMERA SETTINGS.....	183
6.6.1	<i>Camera Configuration</i>	183
6.6.2	<i>Recording Settings</i>	186
6.6.3	<i>Schedule Settings</i>	188
6.6.4	<i>Alarm Settings</i>	189
6.6.5	<i>Advanced Settings</i>	207
6.7	SYSTEM TOOLS.....	209
6.7.1	<i>Alert Notification</i>	209
6.7.2	<i>SMSC Settings</i>	210
6.7.3	<i>Restart/Shut Down</i>	212
6.7.4	<i>Hardware Settings</i>	213
6.7.5	<i>System Update</i>	215
6.7.6	<i>Back up/Restore/Reset Settings</i>	216
6.7.7	<i>Remote Replication</i>	217
6.7.8	<i>Hard Disk SMART</i>	221
6.7.9	<i>Ping Test</i>	222
6.7.10	<i>Advanced System Settings</i>	223
6.8	LOGS & STATISTICS.....	224
6.8.1	<i>System Event Logs</i>	224
6.8.2	<i>Surveillance Logs</i>	225
6.8.3	<i>On-line Users List</i>	226
6.8.4	<i>Historical Users List</i>	226
6.8.5	<i>System Connection Logs</i>	227

6.8.6	<i>System Information</i>	227
CHAPTER 7.	SYSTEM MAINTENANCE	228
7.1	RESET THE ADMINISTRATOR PASSWORD AND NETWORK SETTINGS.....	228
7.2	POWER OUTAGE OR ABNORMAL SHUTDOWN	229
7.3	HOT SWAPPING HARD DISK DRIVES (RAID CONFIGURATION).....	229
CHAPTER 8.	LCD PANEL	230
CHAPTER 9.	TROUBLESHOOTING	236
APPENDIX A	DYNAMIC DOMAIN NAME REGISTRATION.....	239
APPENDIX B	CONFIGURATION EXAMPLES.....	244
TECHNICAL SUPPORT	249

Safety Warning

1. This product can operate normally in the temperature of 0°C–40°C 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

The QNAP VioStor NVR (hereafter referred to as the NVR or the VioStor) is the high performance network surveillance solution for network-based monitoring of IP cameras, video recording, playback, and remote data access. Up to 128 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.

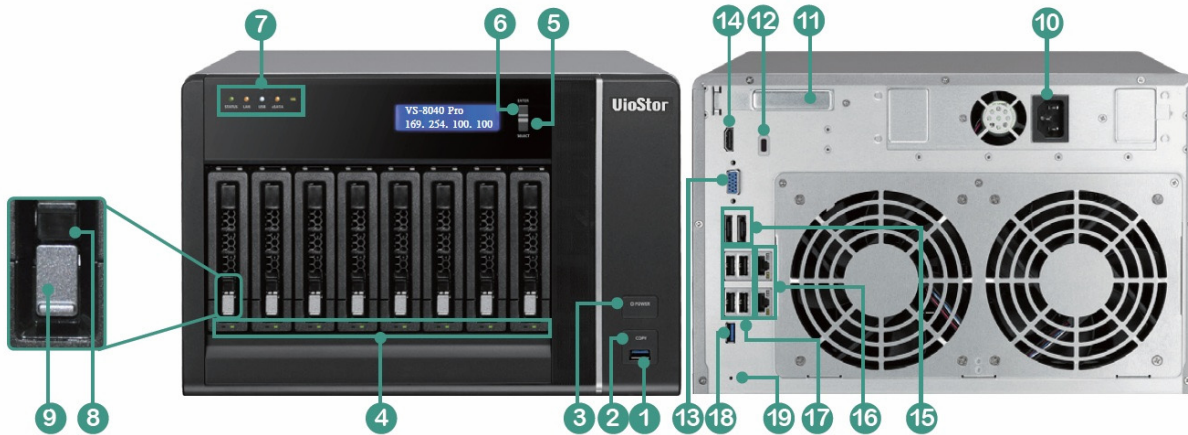
The NVR supports video recording in H.264, MxPEG, MPEG-4, or MJPEG video compression. The NVR offers diversified display modes and recording features, e.g. scheduled recording, alarm recording, alarm recording schedule. The NVR also supports data search by date and time, timeline, event, and intelligent 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. The NVR can be operated by connecting to a high-definition (HD) VGA monitor or TV, and a USB mouse (optional), USB keyboard (optional), and a USB sound card (optional).

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

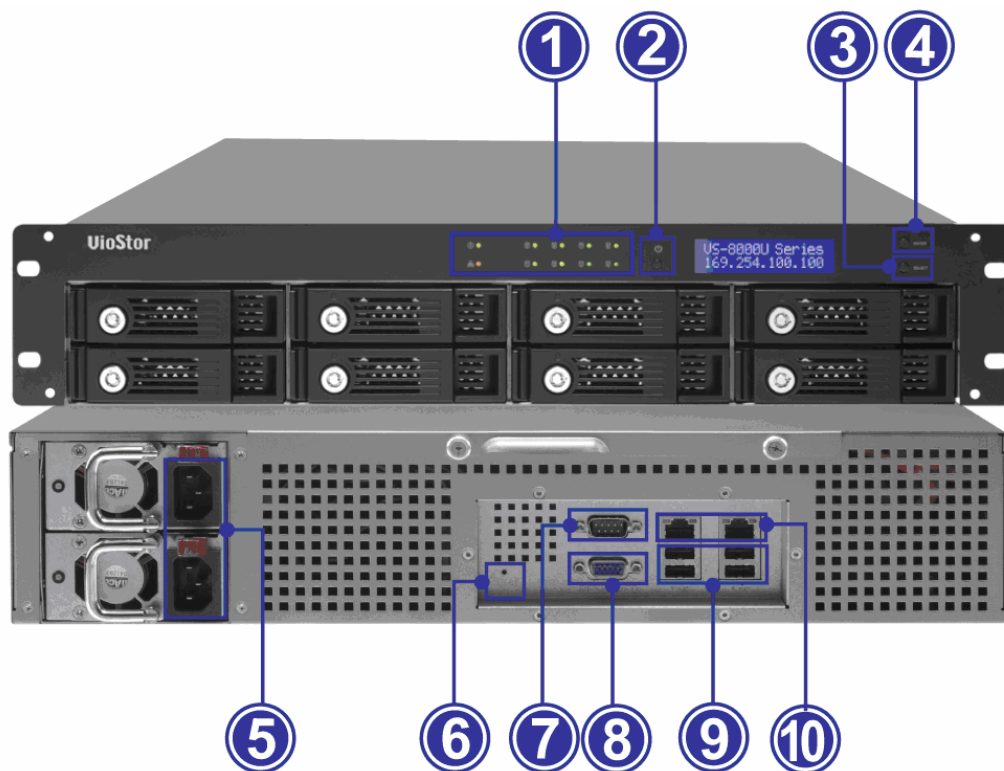
1.2 Hardware Illustration

1.2.1 VS-8040 Pro/VS-8032 Pro/VS-8024 Pro



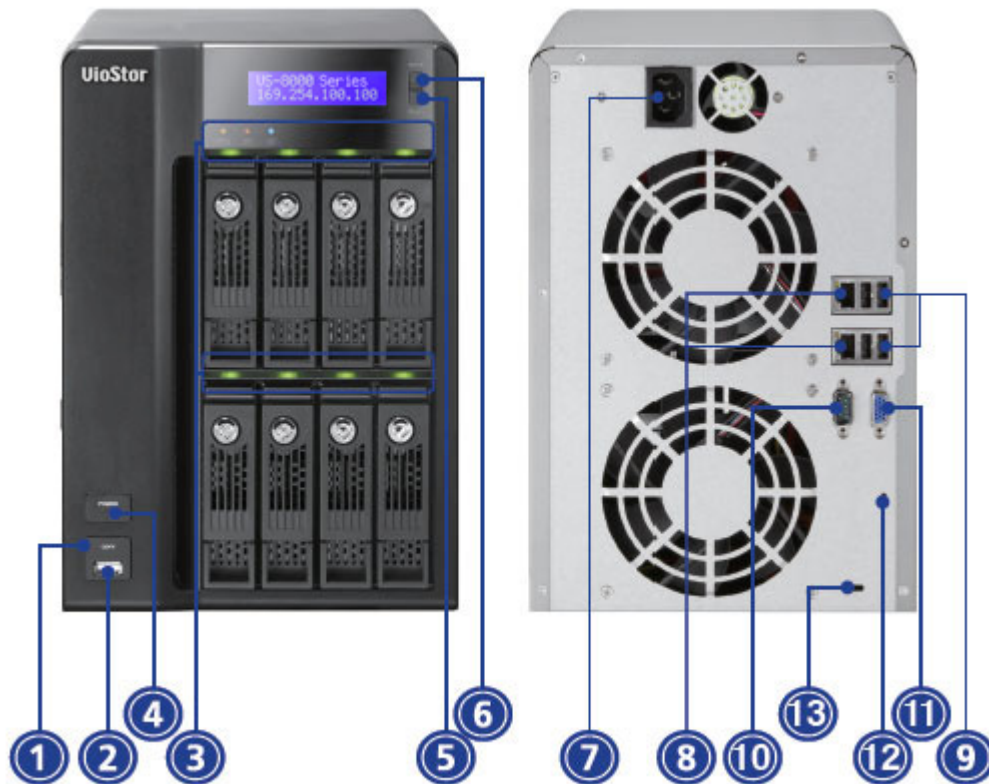
1. USB 3.0
2. One-touch-auto-video-backup button
3. Power button
4. Hard drive LEDs
5. Select button
6. Enter button
7. LED indicators: Status, LAN, USB, eSATA, 10 GbE
8. Tray lock
9. Release button
10. Power connector
11. Expansion slot
12. Kensington security slot
13. VGA
14. HDMI
15. eSATA x 2 (reserved)
16. Gigabit LAN x 2
17. USB 2.0 x 4
18. USB 3.0
19. Password & network settings reset button

1.2.2 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 2.0 x 4
10. Gigabit LAN x 2

1.2.3 VS-8040/VS-8032/VS-8024



1. One-touch-auto-video-backup button
2. USB 2.0
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 2.0 x 4
10. RS-232 port
11. VGA
12. Password & network settings reset button
13. Kensington security slot

1.2.4 VS-6020 Pro/VS-6016 Pro/VS-6012 Pro



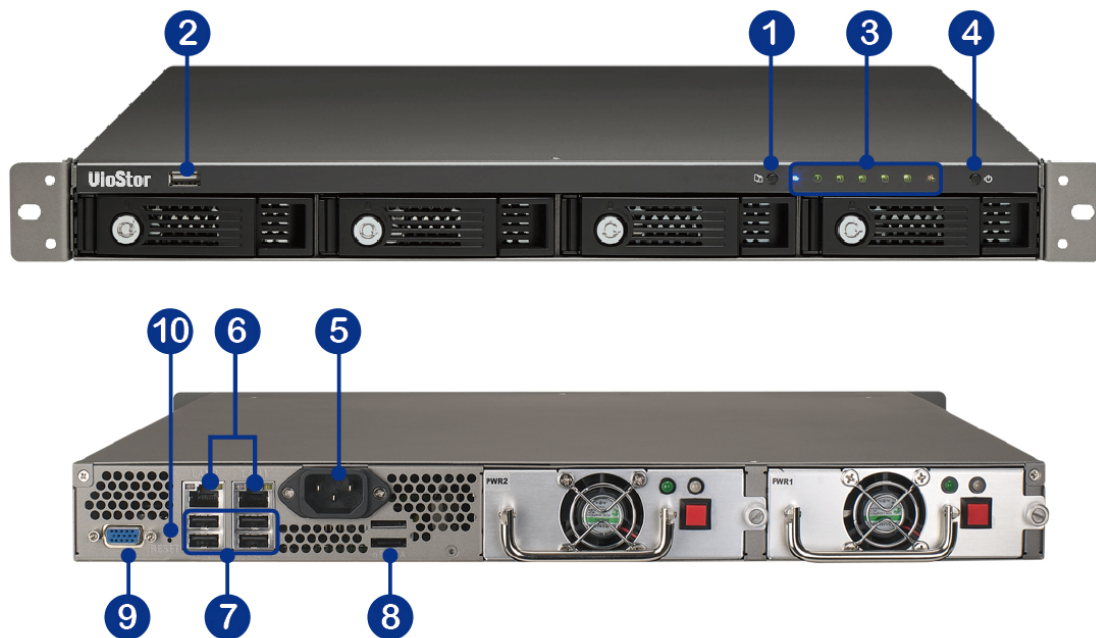
1. One-touch-auto-video-backup button
2. USB 2.0
3. LED indicators: Status, LAN, USB, eSATA, HDD1-6
4. Power button
5. Select button
6. Enter button
7. Power connector
8. Gigabit LAN x 2
9. USB 2.0 x 4
10. eSATA x 2 (reserved)
11. VGA
12. Password & network settings reset button
13. Kensington security slot

1.2.5 VS-5020/VS-5012



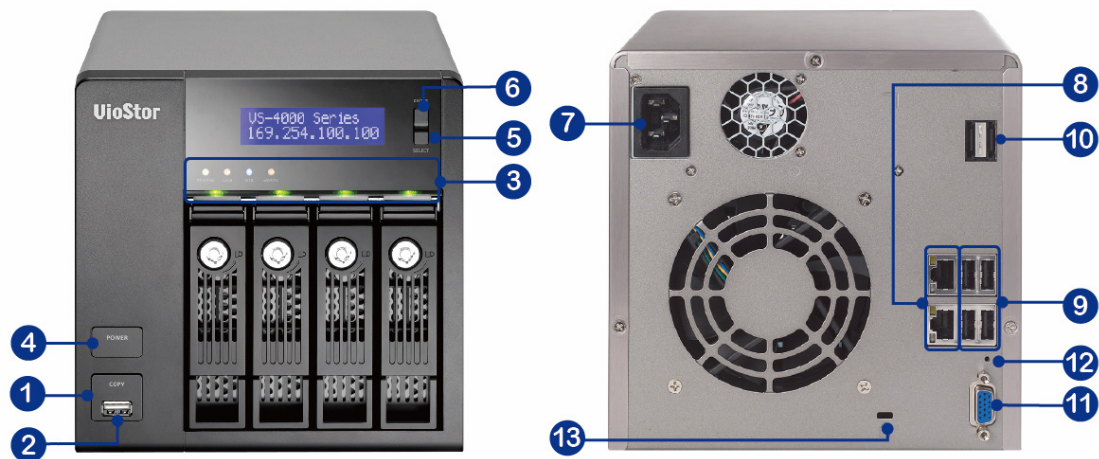
1. One-touch-auto-video-backup button
2. USB 2.0
3. LED indicators: USB, Status, HDD1-5, LAN
4. Power button
5. Select button
6. Enter button
7. Power connector
8. Gigabit LAN x 2
9. USB 2.0 x 4
10. eSATA (reserved)
11. VGA
12. RS-232 port
13. Password & network settings reset button
14. Kensington security slot

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



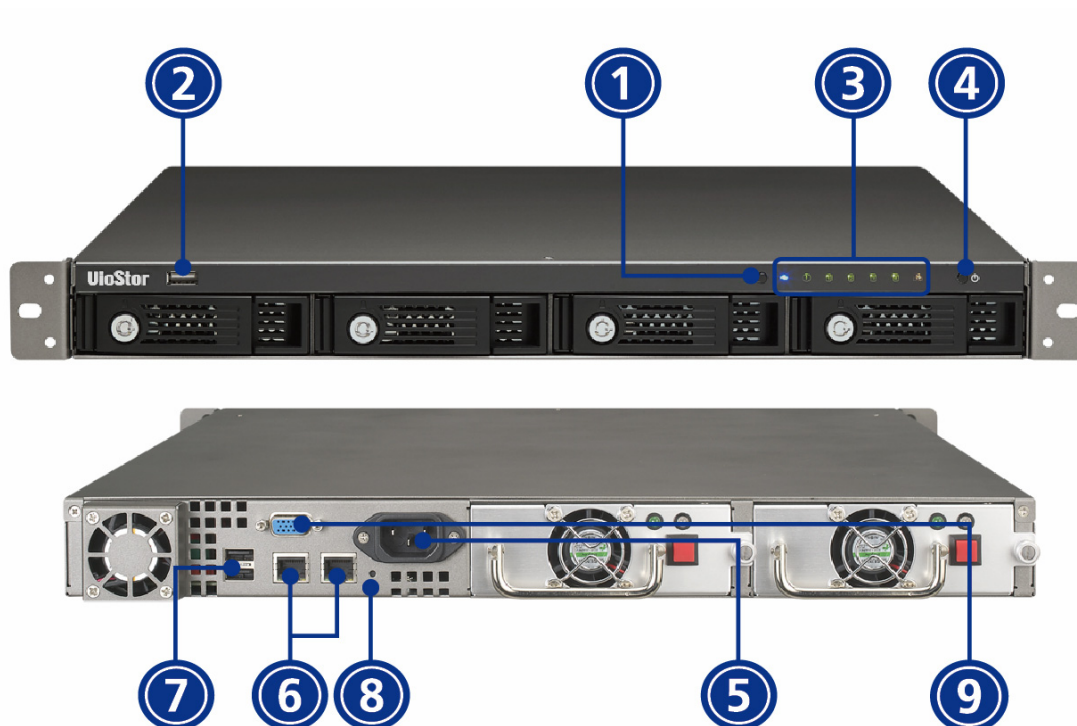
1. One-touch-auto-video-backup button
2. USB 2.0
3. LED indicators: Status, LAN, USB, eSATA, HDD1-4
4. Power button
5. Power connector
6. Gigabit LAN x 2
7. USB 2.0 x 4
8. eSATA x 2 (reserved)
9. VGA
10. Password & network settings reset button

1.2.7 VS-4016 Pro/VS-4012 Pro/VS-4008 Pro



1. One-touch-auto-video-backup button
2. USB 2.0
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 2.0 x 4
10. eSATA x 2 (reserved)
11. VGA
12. Password & network settings reset button
13. Kensington security slot

1.2.8 VS-4016U-RP



1. One-touch-auto-video-backup button
2. USB 2.0
3. LED indicators: USB, Status, HDD1-4, LAN
4. Power button
5. Power connector
6. Gigabit LAN x 2
7. USB 2.0 x 2
8. Password & network settings reset button
9. VGA

1.2.9 VS-2012 Pro/VS-2008 Pro



1. One-touch-auto-video-backup button
2. USB 2.0
3. LED indicators: HDD1, HDD2, LAN, eSATA
4. Power button
5. Power connector
6. Gigabit LAN x 2
7. USB 2.0 x 2
8. eSATA x 2 (reserved)
9. VGA
10. Password & network settings reset button
11. Kensington security slot

1.2.10 VS-2012/VS-2008



1. One-touch-auto-video-backup button
2. USB 2.0
3. LED indicators: HDD1, HDD2, LAN, eSATA
4. Power button
5. Power connector
6. Gigabit LAN x 2
7. USB 2.0 x 2
8. Password & network settings reset button
9. Kensington security slot
10. eSATA x 2 (reserved)
11. VGA (reserved)

1.2.11 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

1.2.12 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

Note: This model is designed for some projects only.

Chapter 2. Install the NVR

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

2.1 Personal Computer Requirements

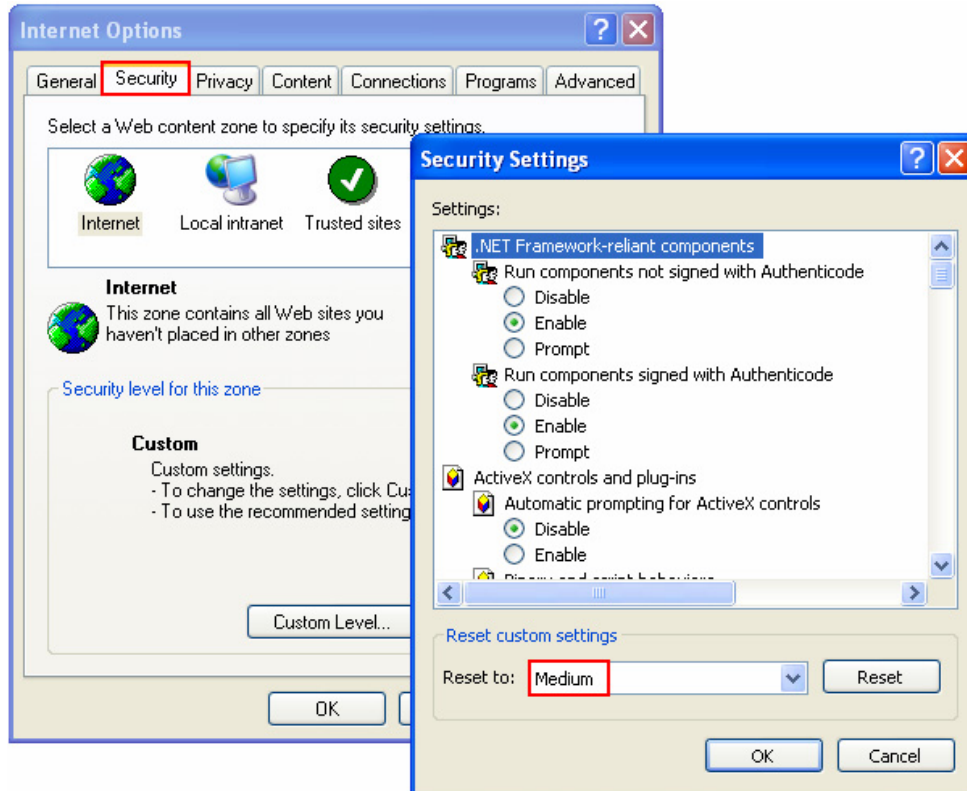
For better system performance, the computer should at least fulfill the following requirements:

No. of Channels	Format	CPU	Others
4	M-JPEG	Intel Pentium 4 CPU, 2.4GHz or above	<ul style="list-style-type: none"> ● 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.



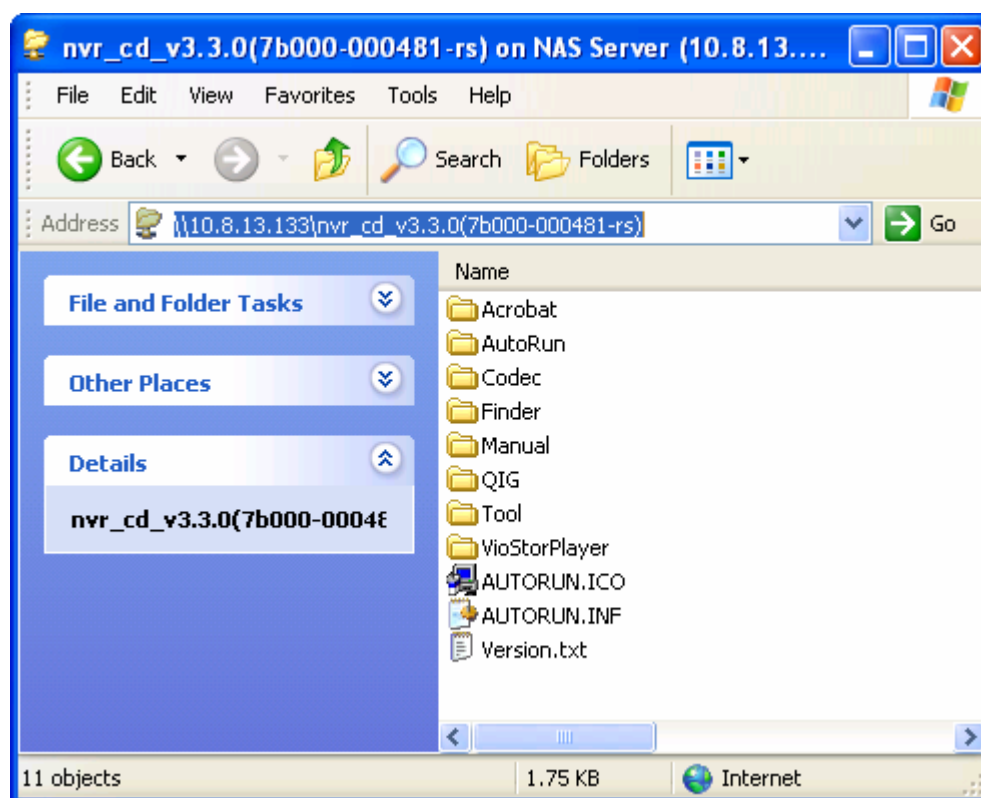
2.2 Browse CD-ROM

Run the product CD-ROM on a Windows PC to access the Quick Start Guide and user manual, and install codec and software utilities Finder and VioStor Player.



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 the NVR.
- QIG: View the hardware installation instructions of the NVR.
- Codec: The codec for playing AVI videos recorded by the NVR via 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 the NVR by an IE browser, 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, 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	Color	LED Status	Description
System Status	Red/ Green	Flashes green and red alternately every 0.5 sec	<ol style="list-style-type: none"> 1) A hard drive on the NVR is being formatted 2) The NVR is being initialized 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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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
10 GbE*	Green	(Reserved)	
HDD (Hard Drive)	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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1) No USB is detected 2) The NVR has finished copying the data to the USB device connected to the front USB port of the NVR
eSATA†	Orange	Flashes	The eSATA device is being accessed

*The 10 GbE network expansion function is reserved.

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

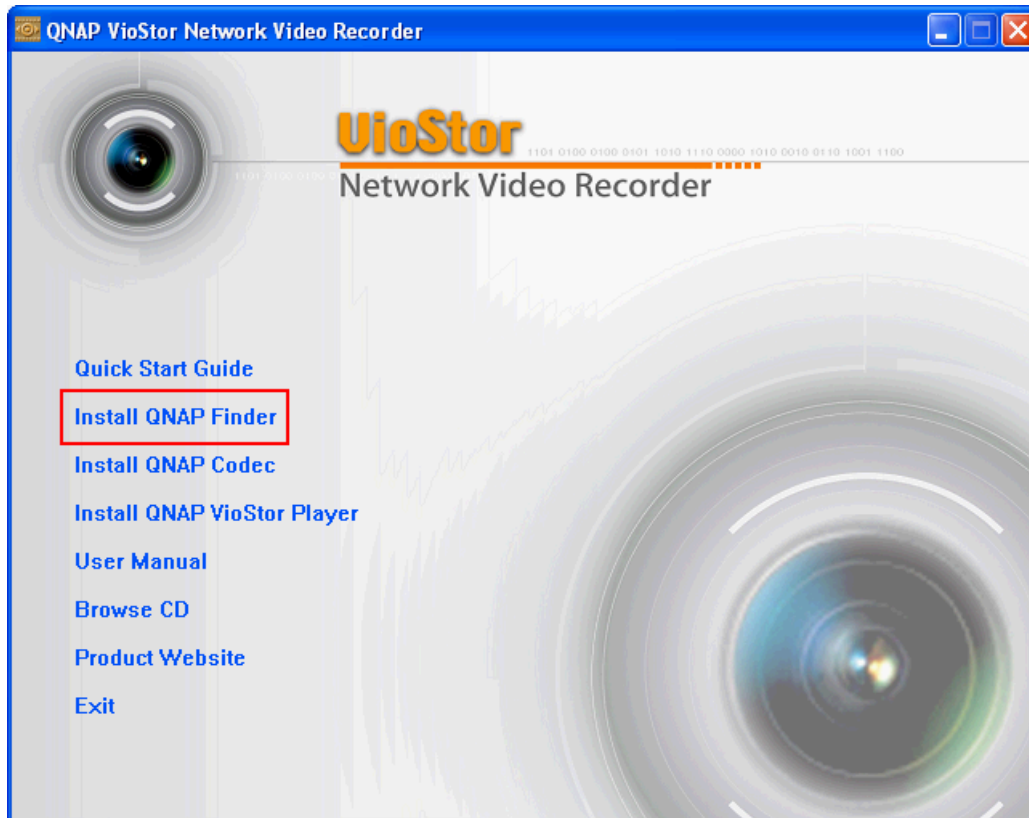
Beep Alarm (beep alarm can be disabled in 'System Tools' > 'Hardware Settings')

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 the Finder. Upon successful installation, run the Finder. If the Finder is blocked by the firewall, unblock it.
3. The Finder detects the NVR servers on the local network. If the server has not been initialized, you will be prompted to perform quick setup. Click 'Yes' to continue.

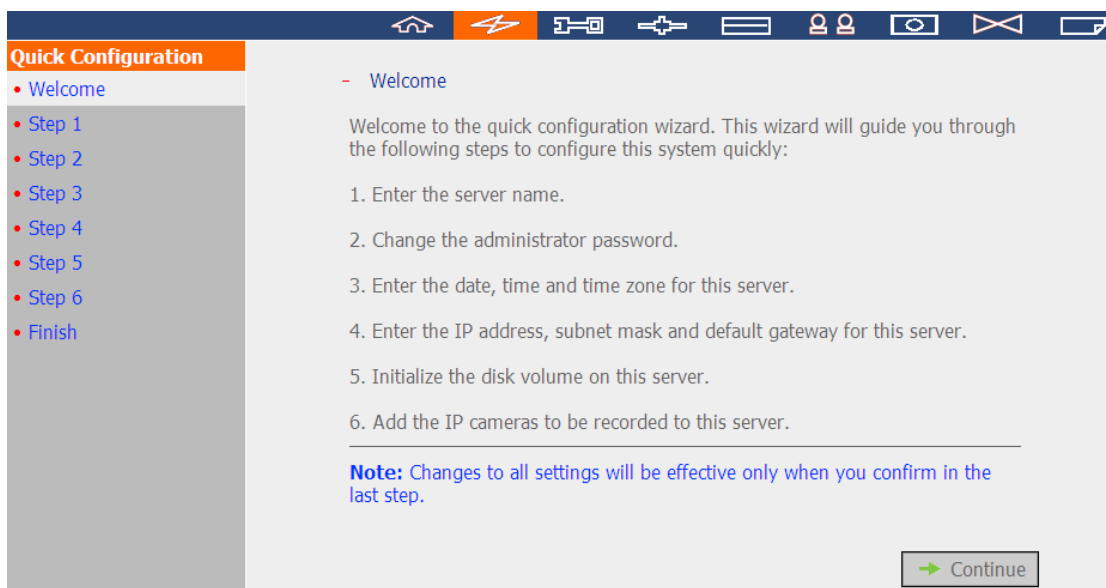
Note: If the NVR is not found, click 'Refresh' to try again.

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

Use name: admin
Password: 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.

Finish

The changes you have made to the server are as below. Click "Start installation" to begin the quick configuration; or click "Back" to return to the previous steps to modify the settings.


Server Name :	27-VS-4016P-5
Password:	The password is unchanged.
Time Zone :	(GMT+08:00) Taipei
Time Setting:	2011/3/22 10:41:24
Network :	Use the following settings
IP Address:	10.11.19.27
Subnet Mask:	255.255.254.0
Default Gateway:	10.11.18.1
Primary DNS Server	10.8.2.11
Secondary DNS Server	10.8.2.9
IP Camera :	You have configured 15 camera(s)
Disk configuration:	Do not set disk configuration
Drive 1:	WDC WD5000AAKS-00YGA12.0 465.76 GB
Drive 2:	-- --
Drive 3:	Seagate ST3500418AS CC37 465.76 GB
Drive 4:	-- --

7. After the quick configuration, the NVR is ready for use. 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.

System is initializing, please wait.

The system is being configured, do NOT power off the server or unplug the hard drive(s).

1. Enter the server name. ✓
2. Change the administrator password. ✓
3. Enter the date, time and time zone for this server. ✓
4. Enter the IP address, subnet mask and default gateway for this server. ✓
5. Initialize the disk volume on this server. ✓
6. Add the IP cameras to be recorded to this server. ✓

 System configuration completed.

Congratulations! You have successfully configured the system. Please click "Close" to return to the home page or "Start Monitoring" to enter the monitoring page.

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

The live video from the IP cameras configured on the NVR and the recording status of each channel are shown.



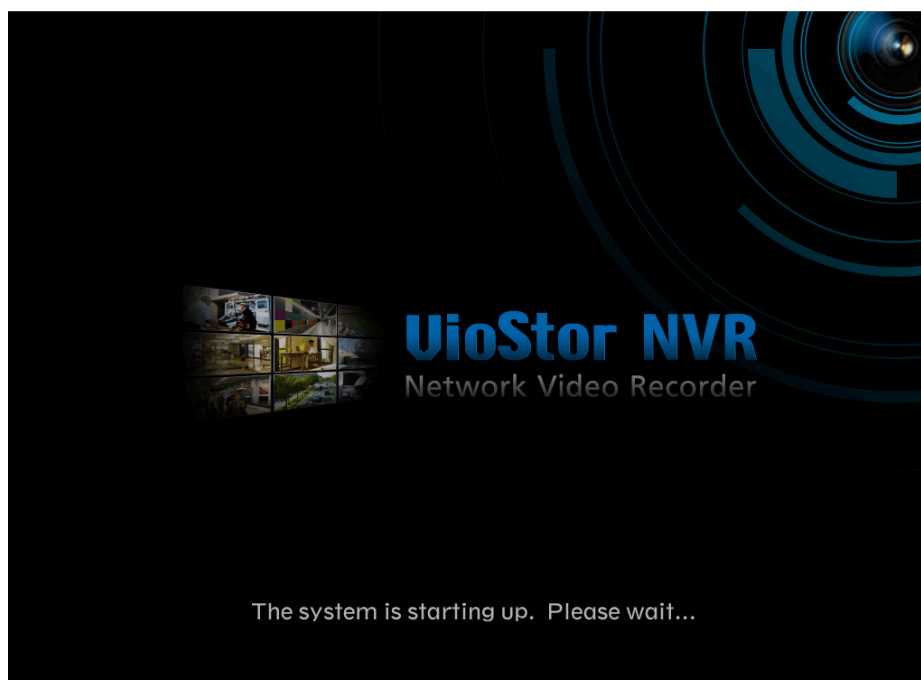
Chapter 3. Use the NVR by Local Display

Note: This feature is supported by the VioStor Pro Series NVR only. The models include VS-8040 Pro, VS-8032 Pro, VS-8024 Pro, 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.

Connect a monitor or TV to the NVR via the HDMI or VGA interface to perform PC-less quick configuration, monitoring, and video playback. To use this feature, follow the steps below:

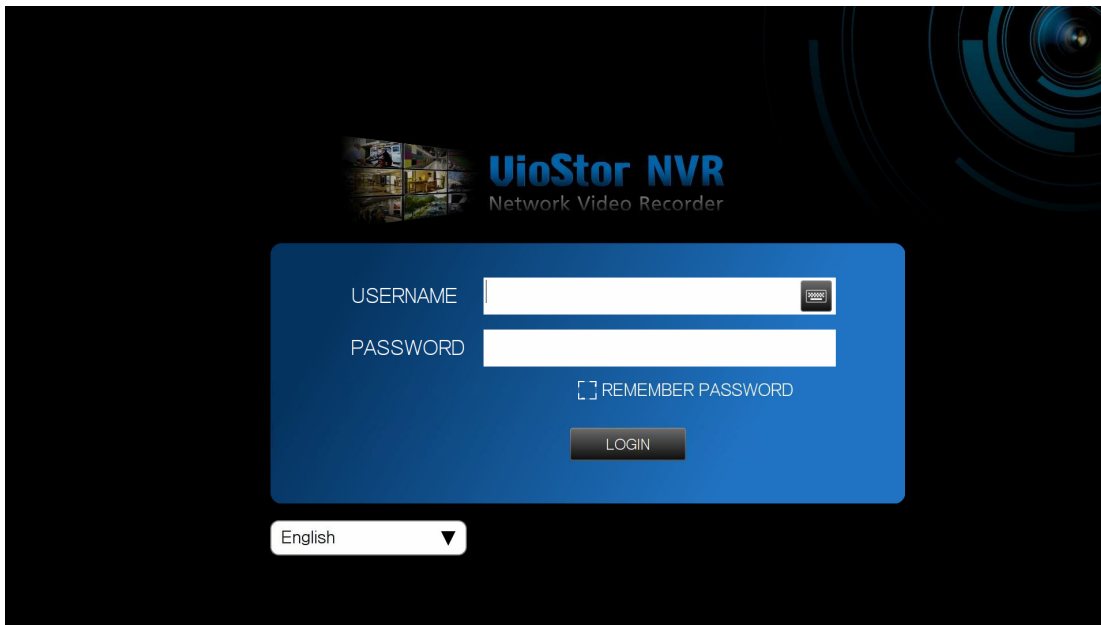
1. Make sure at least one hard drive has been installed on the NVR.
2. Connect the NVR to the network.
3. Make sure the IP cameras have been configured and connected to the network.
4. Connect an HDMI or a VGA monitor or TV (suggested video output resolution: 1920 x 1080)* to the HDMI or VGA interface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


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

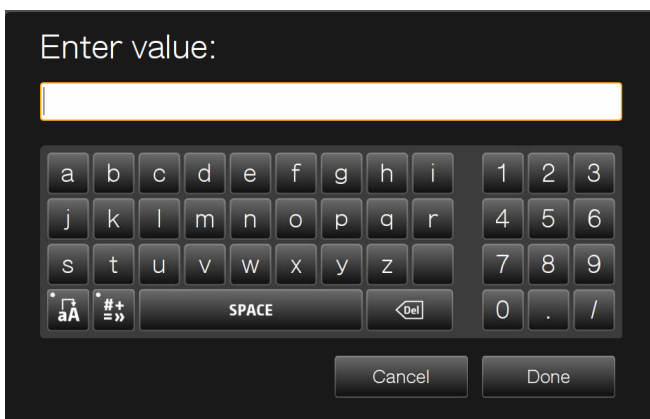


When the NVR is turned on, the login screen will be shown. Select the language. Enter the administrator name and password. If the NVR has not been configured, skip the login page and enter Quick Configuration (refer to Chapter 3.1).

Default user name: admin
Password: admin



Click the keyboard icon  to enter the necessary information if a USB keyboard is not available.



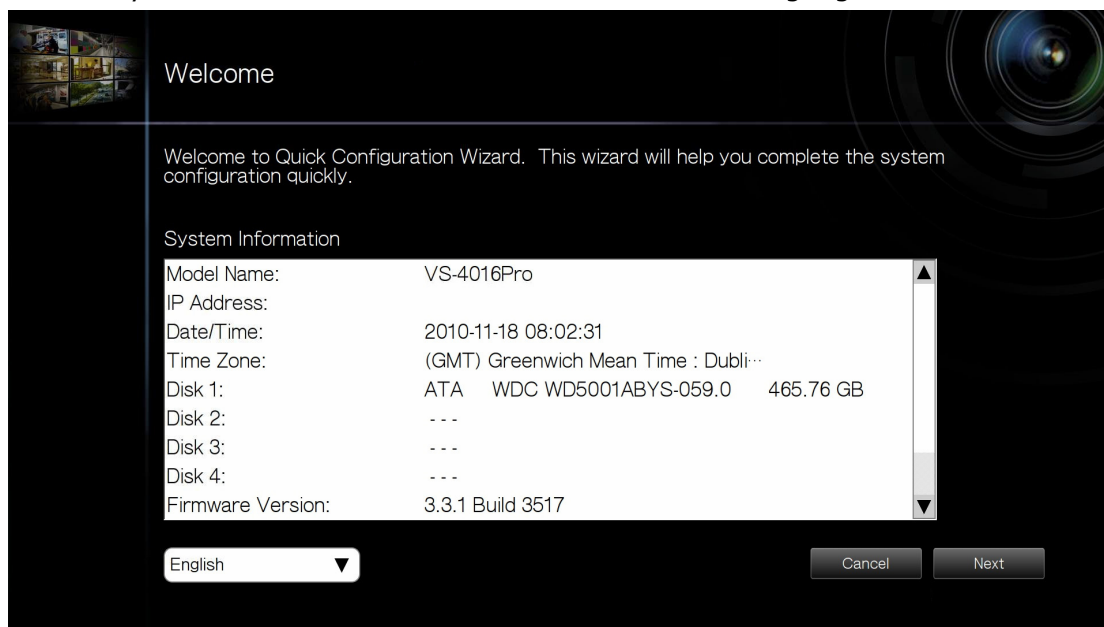
The monitoring page will be shown upon successful login, refer to Chapter 3.3 for details.

3.1 Quick Configuration

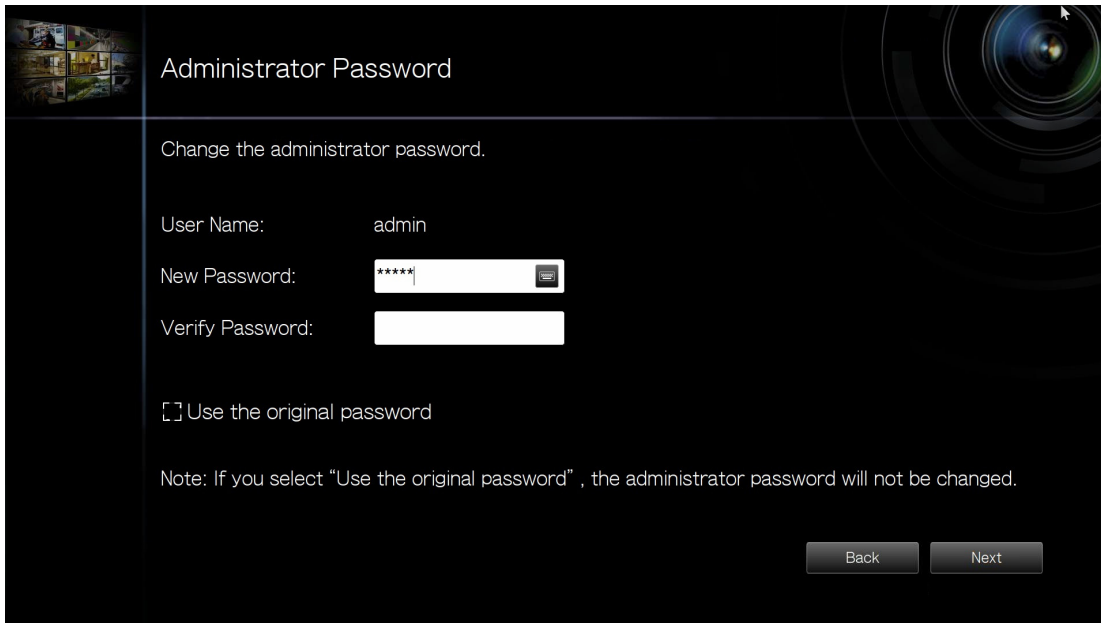
If the NVR has not been configured, Quick Configuration Wizard will be shown. Follow the instructions of the wizard to complete the system setup.

Note: All the changes will be effective only after applying 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).



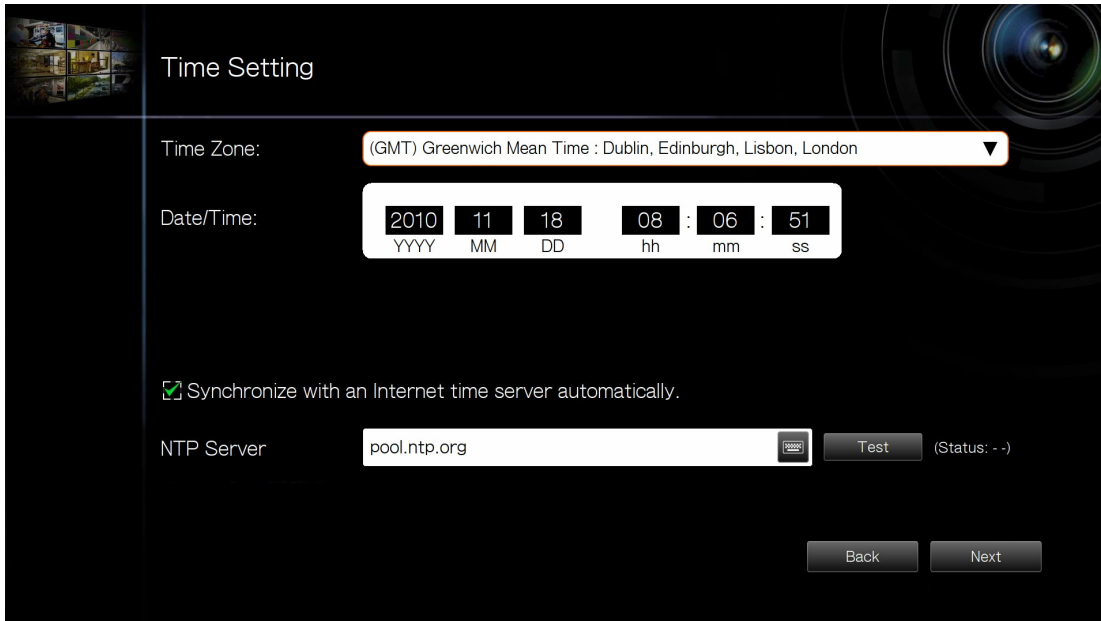
The screenshot shows the 'Administrator Password' configuration screen. The title is 'Administrator Password'. Below the title, it says 'Change the administrator password.' The 'User Name' is set to 'admin'. There are two password input fields: 'New Password' and 'Verify Password'. The 'New Password' field contains six asterisks. Below the input fields, there is a checkbox labeled 'Use the original password'. A note at the bottom states: 'Note: If you select "Use the original password", the administrator password will not be changed.' At the bottom right, there are 'Back' and 'Next' buttons.

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

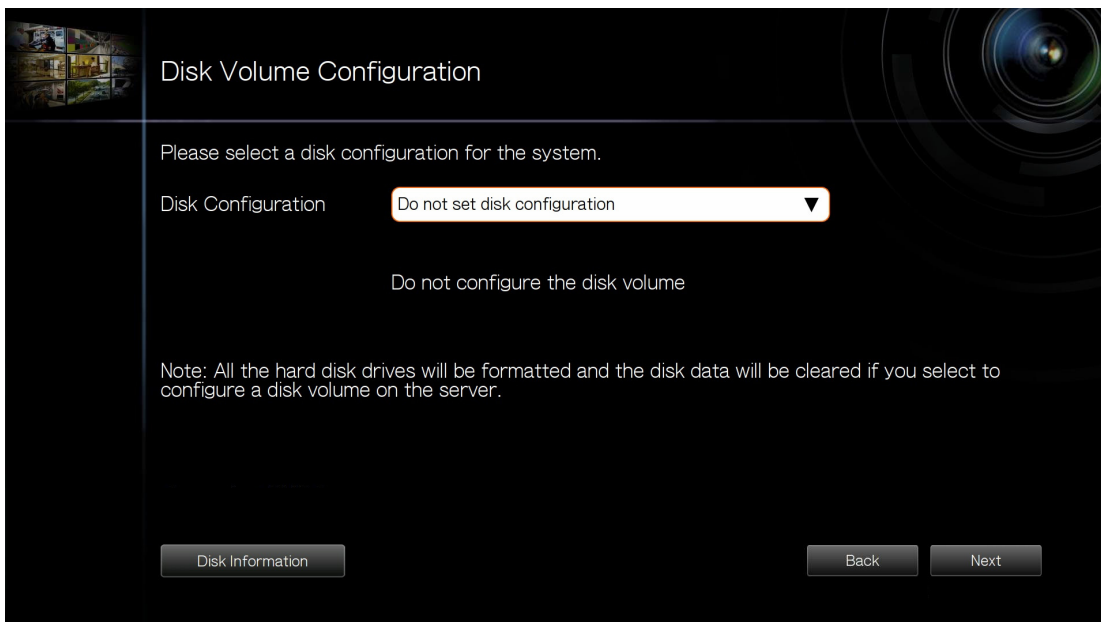


The screenshot shows the 'Network Settings' configuration screen. The title is 'Network Settings'. There are two radio button options: 'Obtain an IP address automatically by DHCP' (which is selected) and 'Use a static IP address'. Below these options, there are input fields for 'IP Address', 'Subnet Mask', and 'Default Gateway', each with four digits and a 'Go' button. The 'IP Address' field is currently empty. The 'Subnet Mask' field is currently empty. The 'Default Gateway' field is currently empty. Below these, there are input fields for 'Primary DNS Server' and 'Secondary DNS Server', each with four digits and a 'Go' button. The 'Primary DNS Server' field contains the digits '172', '16', '2', and '6'. The 'Secondary DNS Server' field contains the digits '172', '16', '2', and '7'. At the bottom right, there are 'Back' and 'Next' buttons.

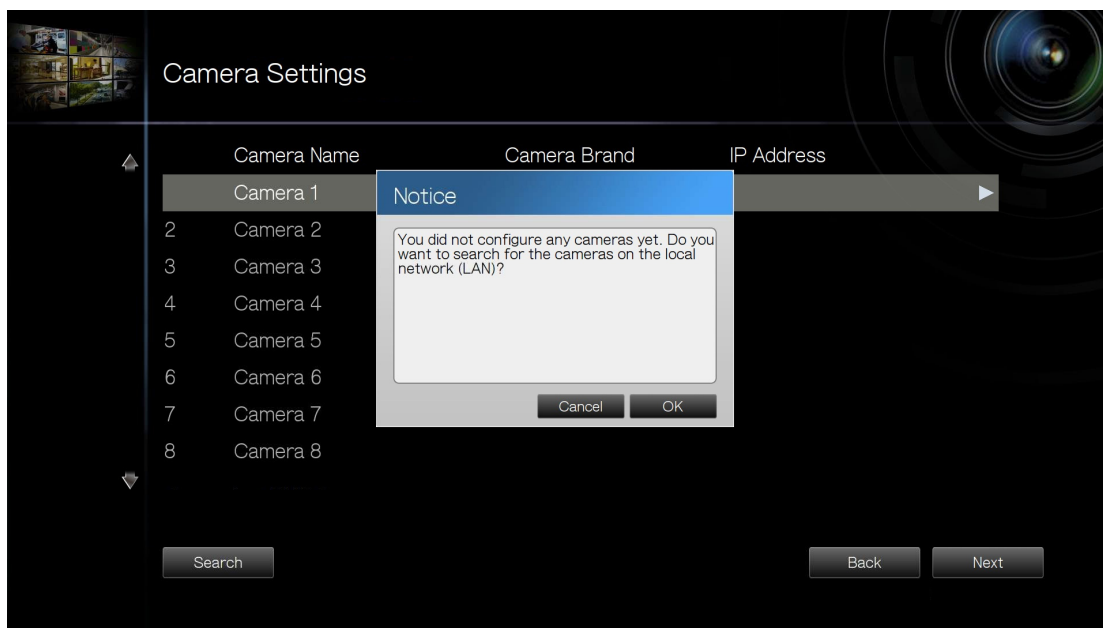
4. Enter the date and time settings. Select to synchronize the server time with an Internet time server. To enter a domain name for the NTP server, make sure the DNS server has been correctly set up.



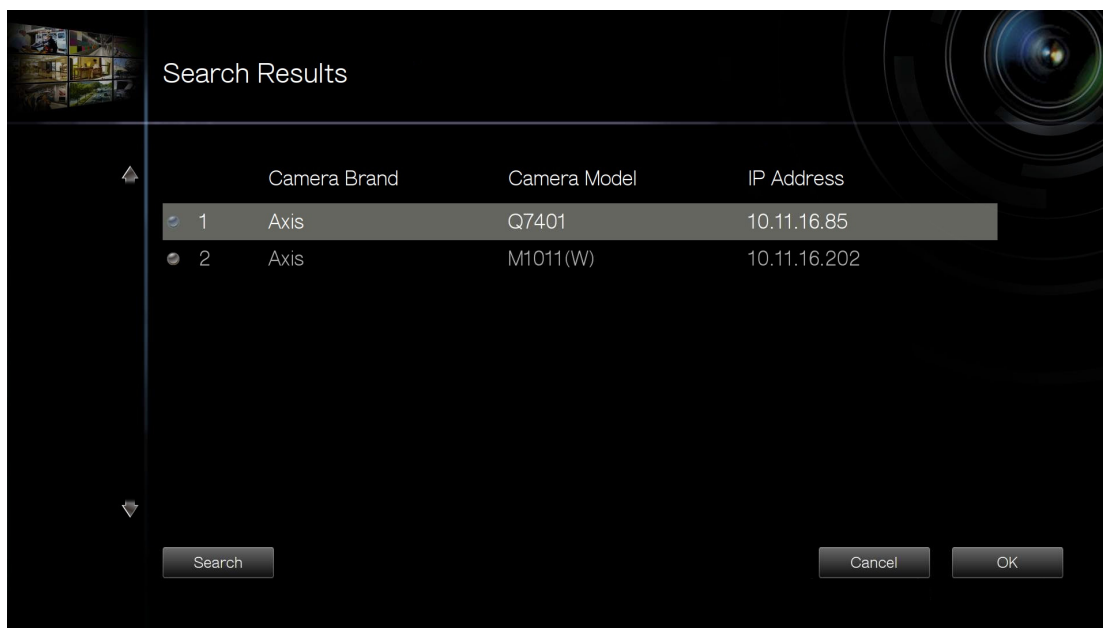
5. Select the disk configuration. Click 'Disk Information' to view the hard disk drive details. Note that all the disk data will be deleted when the disk volume is initialized.




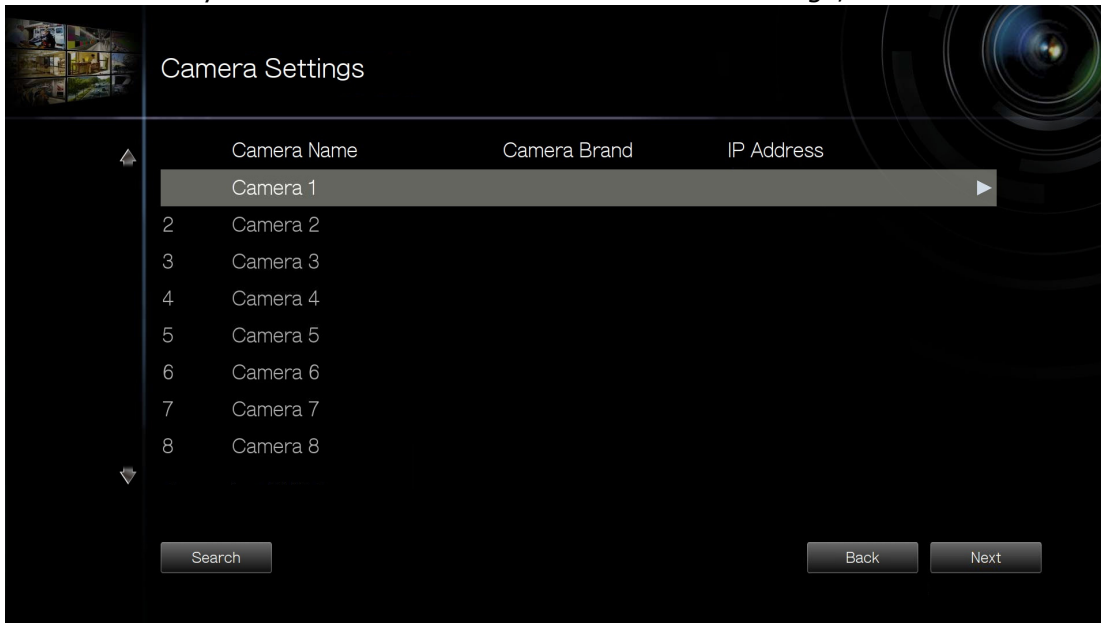
6. Configure the IP camera settings. If no IP cameras have been set, try to search for the cameras on the local network.



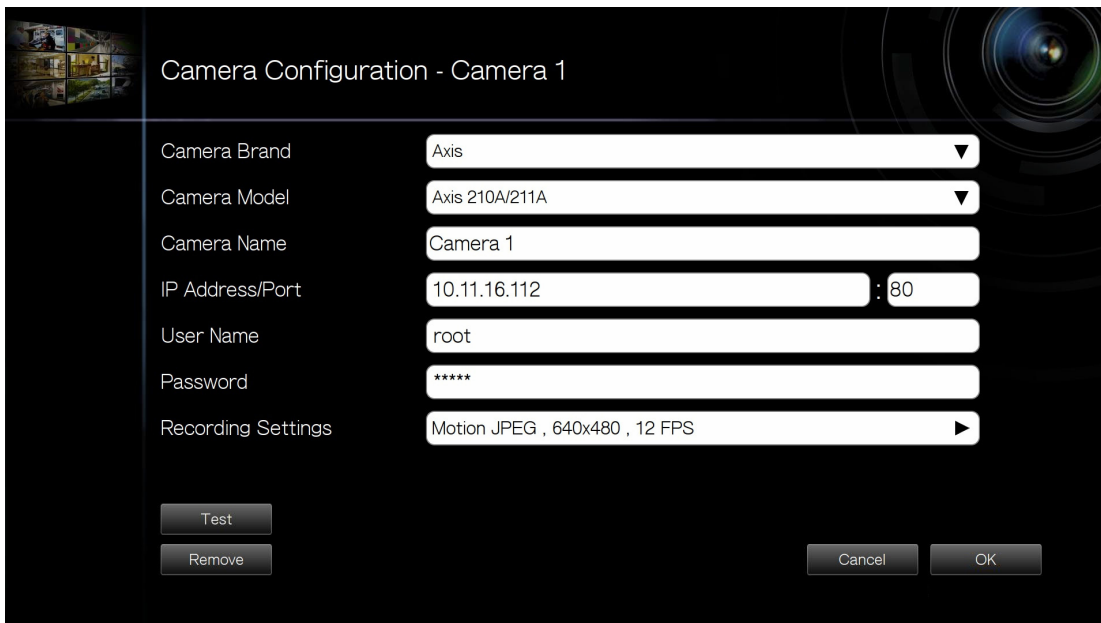
- a. The cameras found will be shown. Select the IP cameras and click 'Add' to add the channels.




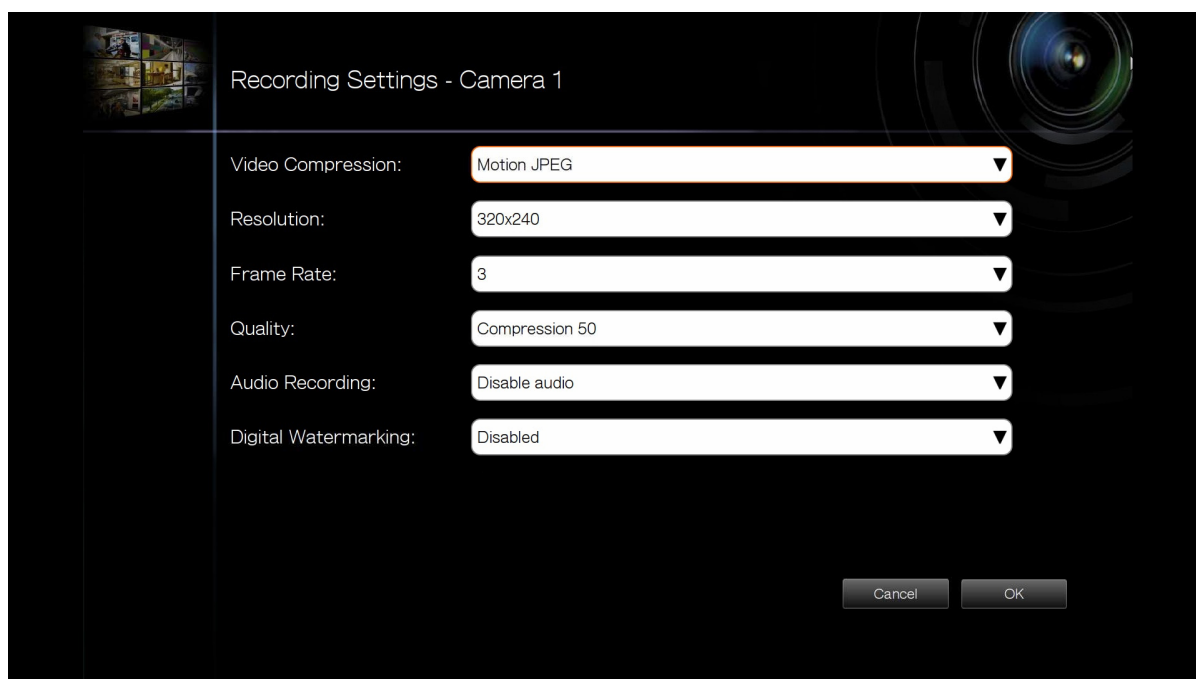
b. To manually add an IP camera or edit the camera settings, click .



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

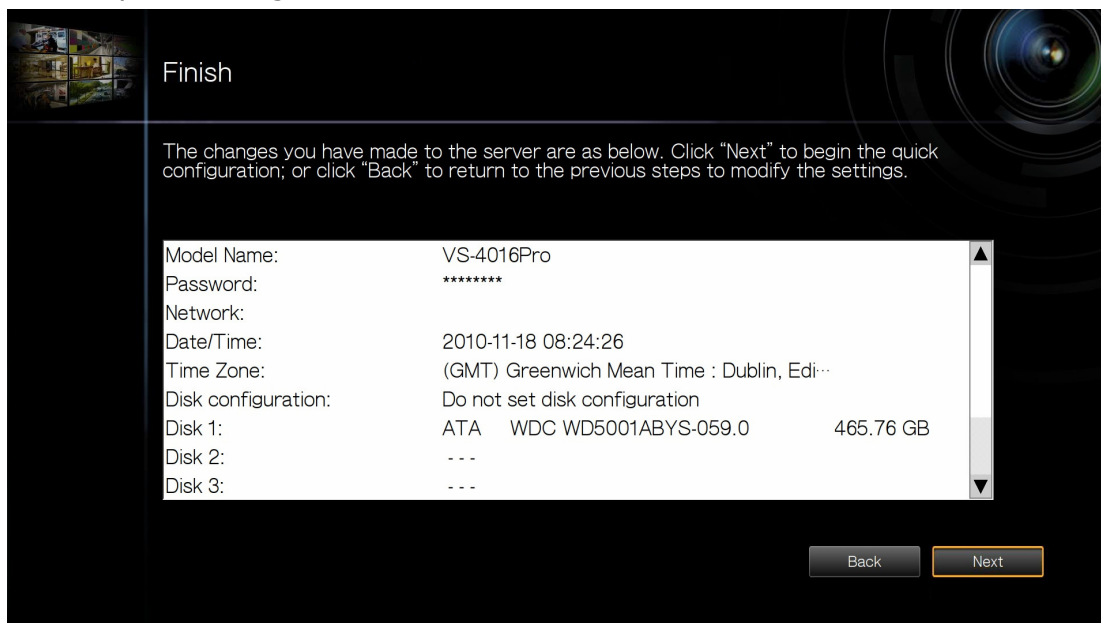


- d. To edit the recording settings, click  next to 'Recording Settings'. Define the recording settings and click 'OK'.

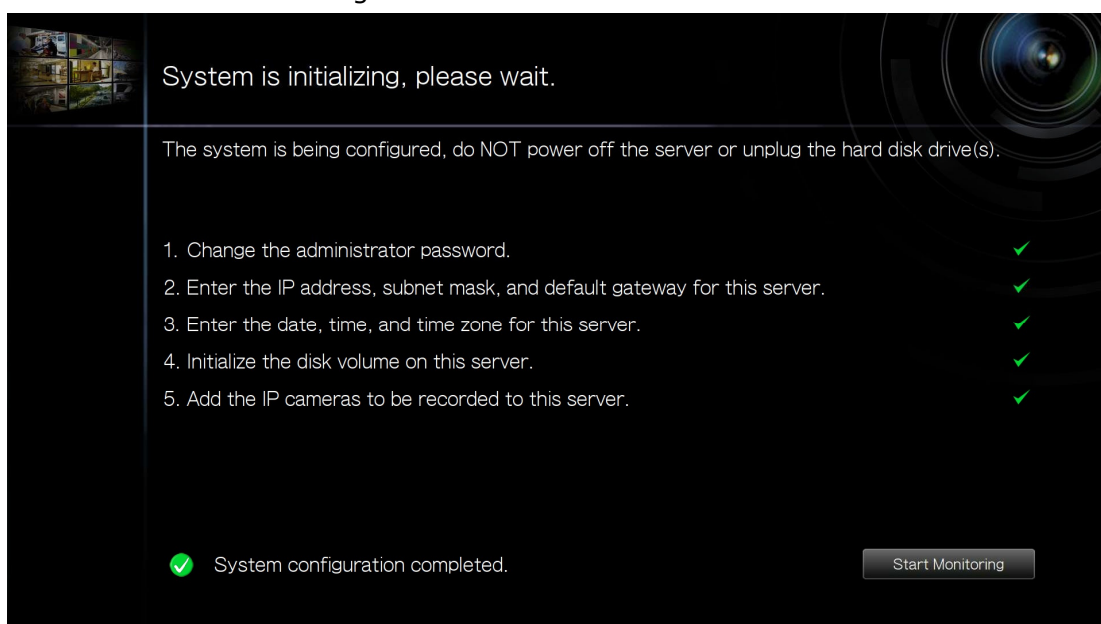


Digital Watermarking: Enable this option to add digital watermarks to the video files recorded to the NVR. Use the Watermark Proof utility to verify if the video files were maliciously modified. For more information, refer to Chapter 5.2.


7. Verify the settings and click 'Next' to initialize the server.

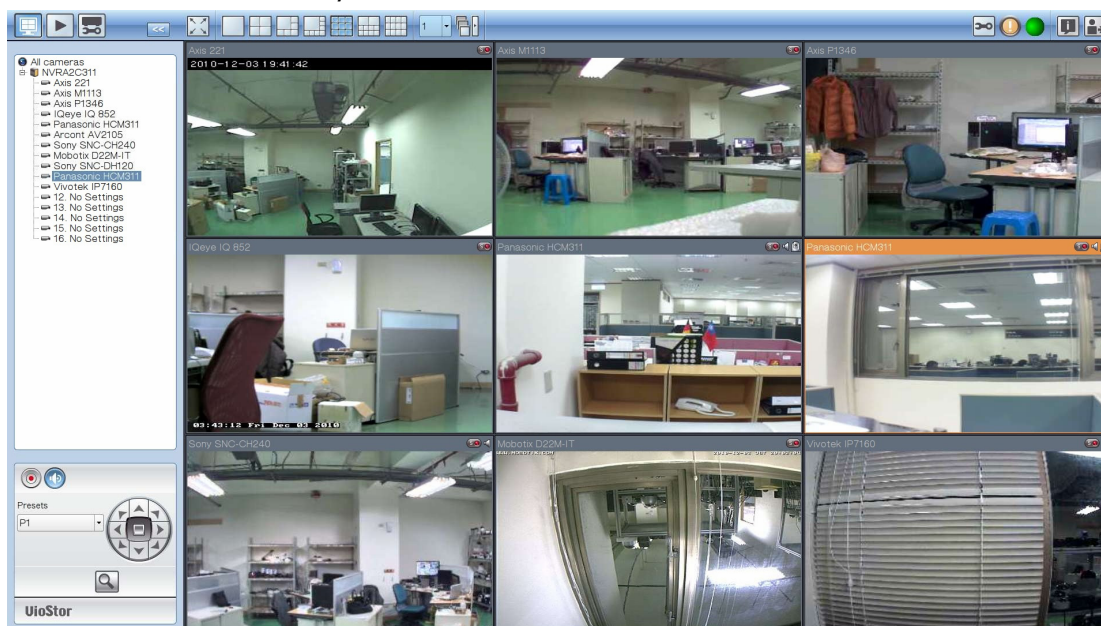


8. After the system has been initialized, the NVR is ready for use. Click 'Start Monitoring' to enter the monitoring screen.

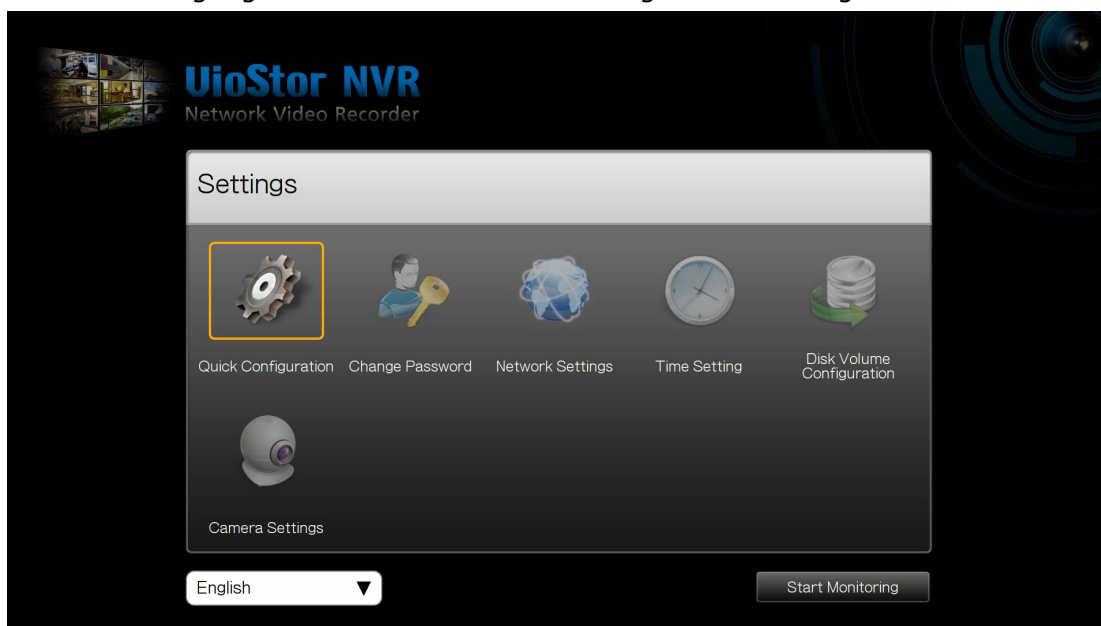








3.2 System Configuration

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



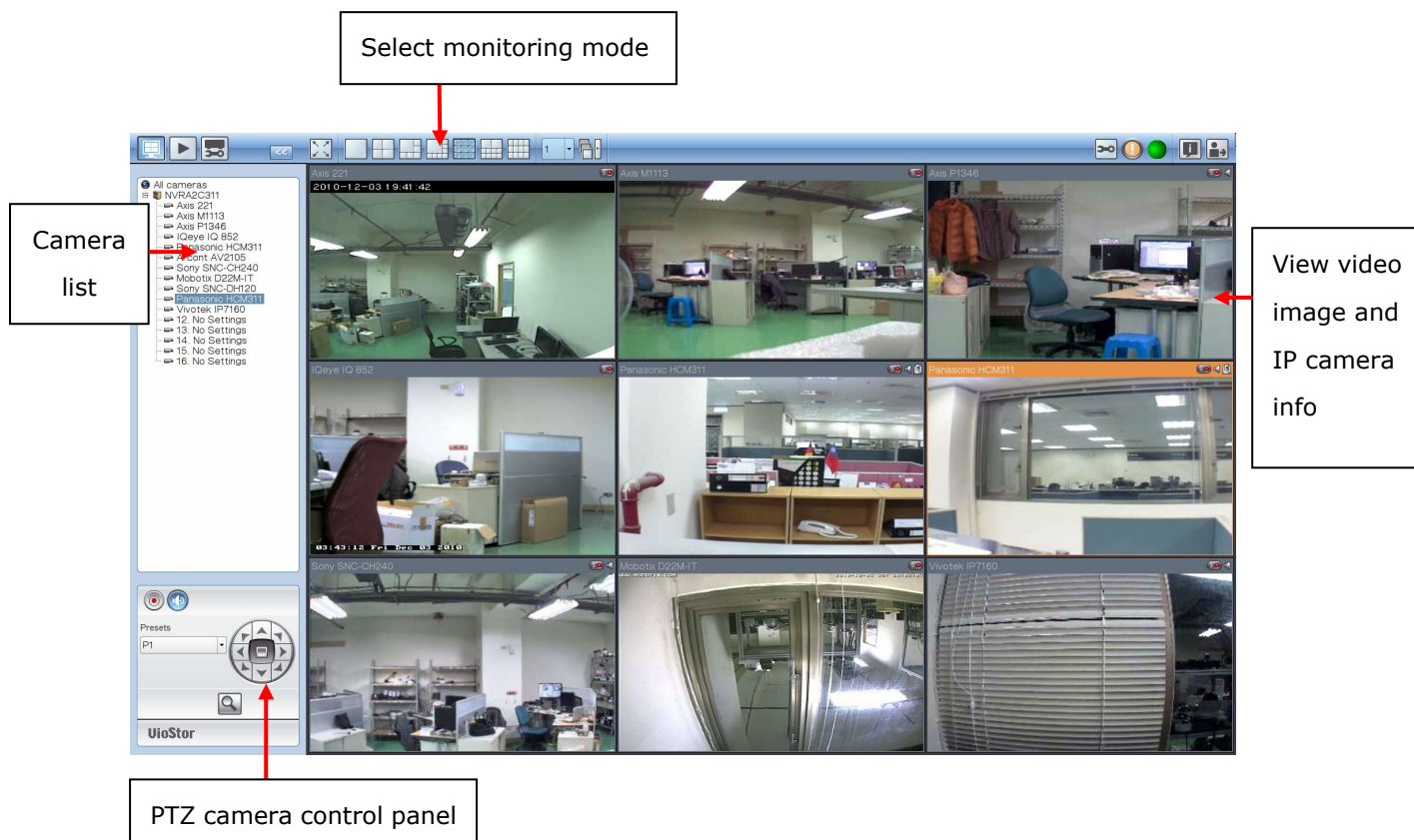
Select the language and click the icons to configure the settings.













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 IP camera settings.

3.3 Monitoring

Upon successful login, the monitoring screen will be shown. 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. The alert sound can be turned on or off. To clear all the logs, click 'Clear All'.

The system event logs are shown in this dialog. Click 'Clear' to delete a log; or click 'Clear All' to delete all logs.


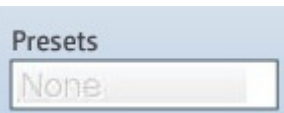



Type	Camera	Date & Time	Log
Alarm	0	2010-09-01 11:36:14	Logical input TB * is triggered
Alarm	0	2010-09-01 10:55:23	Logical input TB * is triggered
Alarm	0	2010-09-01 10:35:42	Logical input 0 is triggered
Alarm	1	2010-09-01 09:33:32	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:30	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:29	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:27	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:26	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:23	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:21	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:19	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:18	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:15	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:13	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:11	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:09	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:06	Event(s) Triggered on Camera 1.
Alarm	1	2010-09-01 09:33:04	Event(s) Triggered on Camera 1.

Alert sound

Clear All Close









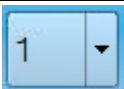



PTZ Control Panel

The term 'PTZ' stands for 'Pan/Tilt/Zoom'. If the IP camera supports PTZ, use the control panel on the NVR to adjust the viewing angle 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.

Icon	Description
 A circular control panel with a central square button and eight surrounding triangular buttons pointing inwards, representing pan and tilt functions.	<p>Pan and tilt:</p> <p>If the PTZ camera supports pan and tilt functions, click these buttons to pan or tilt the camera.</p>
 A rectangular control panel with the word 'Presets' at the top and a dropdown menu below it showing 'None'.	<p>Preset positions:</p> <p>Select the preset positions of the PTZ camera.</p>
 A rectangular control panel with two buttons: one with a plus sign (+) and one with a minus sign (-).	<p>Zoom in/Zoom out:</p> <p>If the PTZ camera supports zooming, click these buttons to zoom in or zoom out.</p>
 A square control panel with a magnifying glass icon.	<p>Digital zoom:</p> <p>Select a channel and click this button to enable the digital zoom function. When enabled, click '+' to zoom in or '-' to zoom out.</p>
 A rectangular control panel with a person icon on the left and a triangle icon on the right.	<p>Focus control:</p> <p>Adjust the focus control of the PTZ camera.</p>

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, enter the monitoring screen to view the live video from the cameras.



If the camera supports pan and tilt functions, click the channel on the screen and adjust the viewing angle with a mouse. If zooming is supported, 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 the computer and the availability of the IP camera. If the IP camera is installed on the Internet, open the port on the router or gateway to connect to the IP camera. Please refer to Appendix B.
No Permission	No access right to view the channel. Please login as a user with the access right or contact the system administrator.
Server Error	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. 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

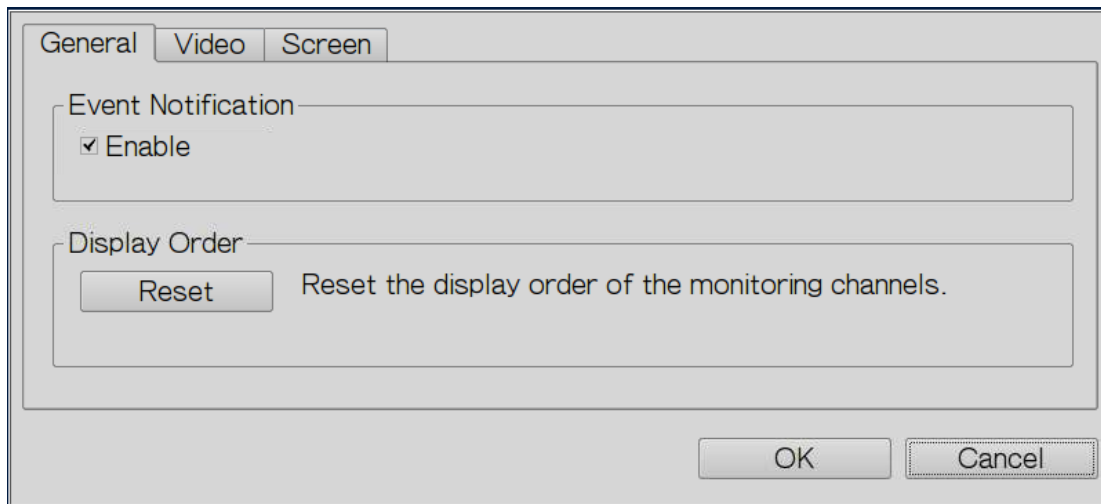
Options

To configure advanced monitor settings, click .



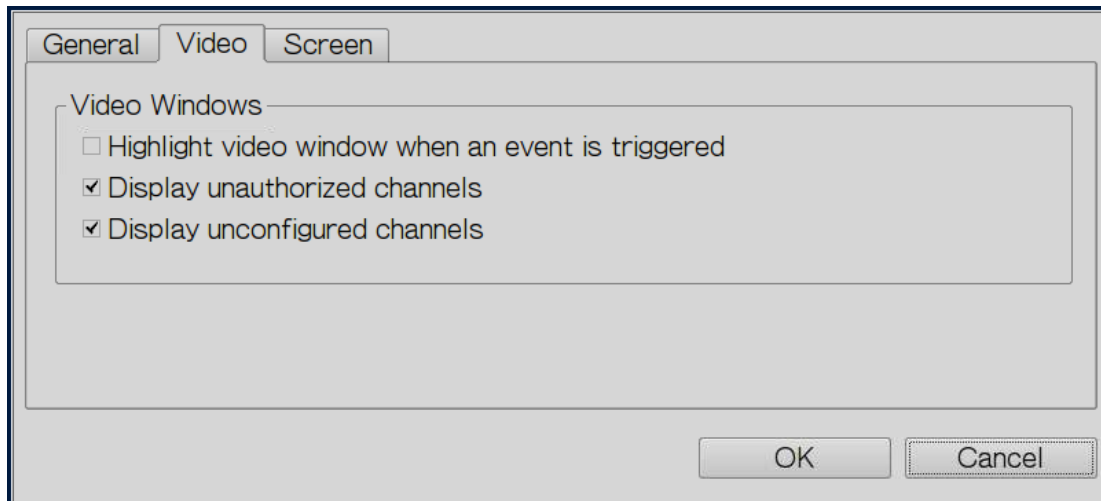
The following options are provided under the 'General' tab.

- **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.

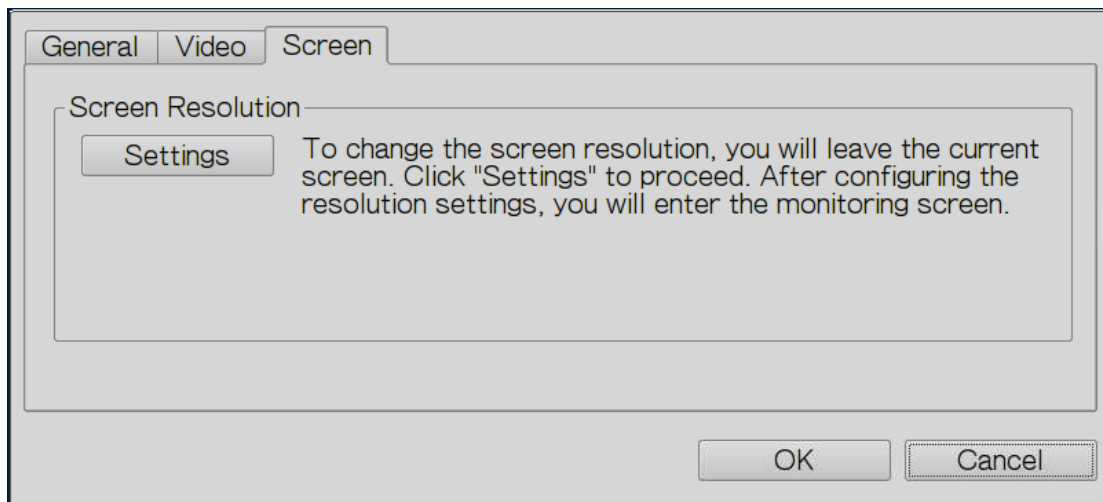


The following options are provided under the 'Video' tab.

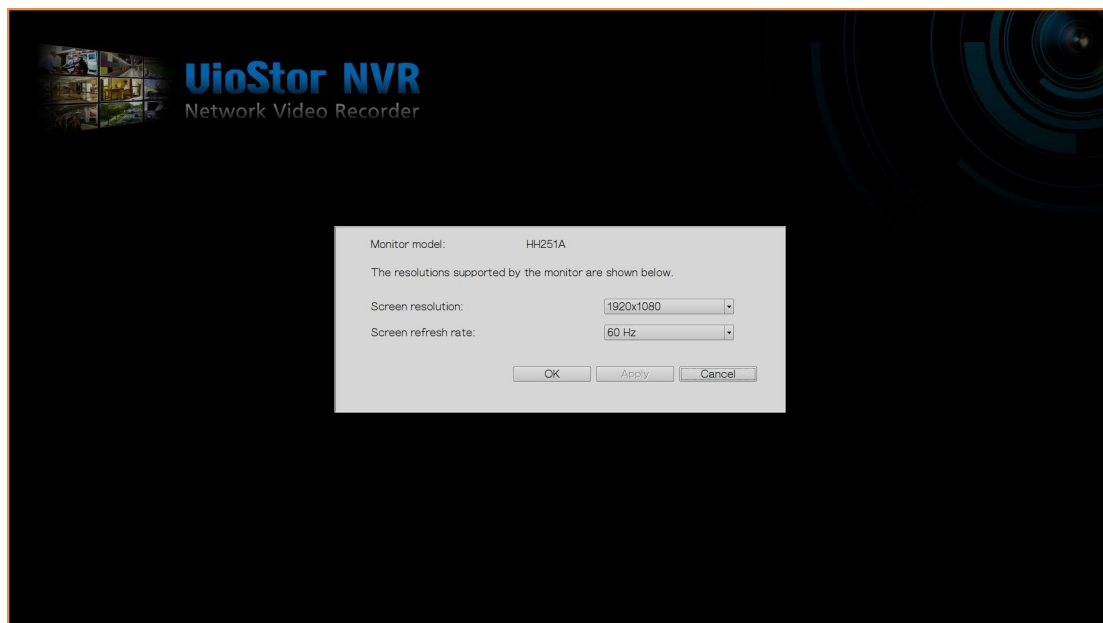
- Highlight the video window when an event is triggered: The video window will flash if an event is triggered.
- Display unauthorized channels: Select this option to show the channels that the user does not have access right to monitor.
- Display unconfigured channels: Select this option to show the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




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

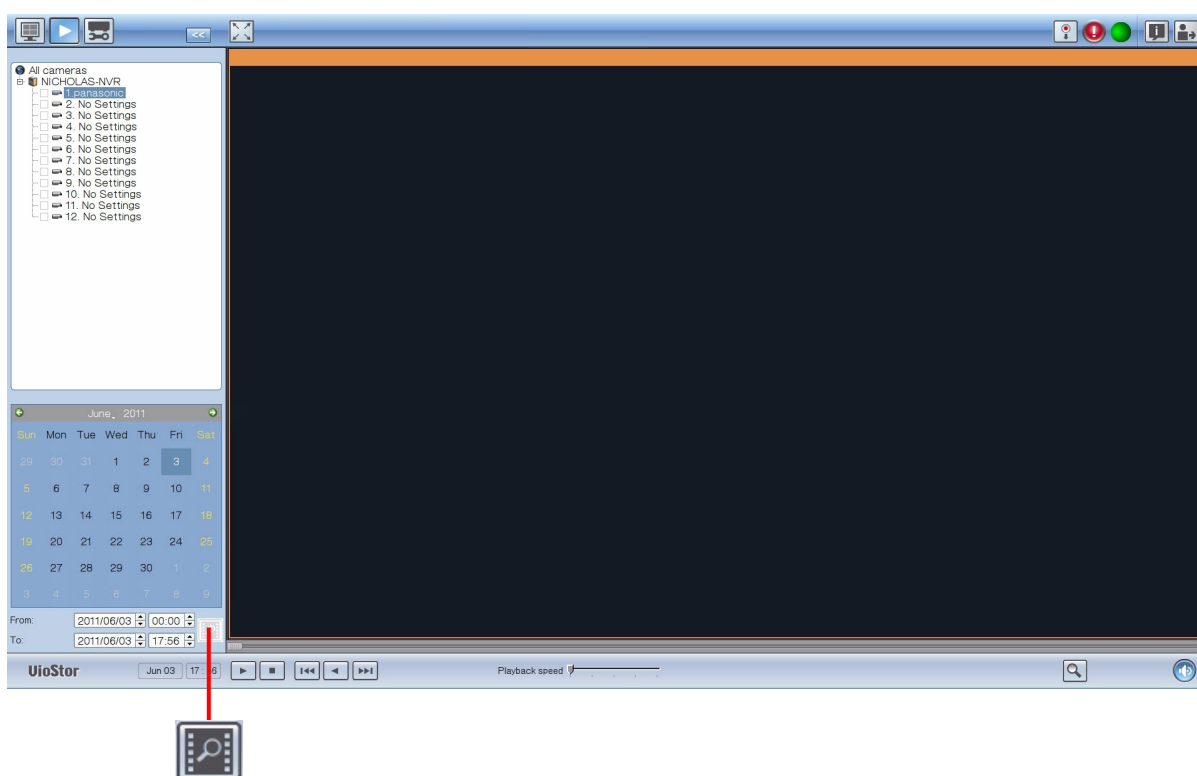


3.4 Video Playback

The videos on the NVR can be played 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: The playback access right to the IP cameras is required to play the videos. 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 start and end time of the video, click  to start searching. The videos which match the search criteria will be played automatically.




Note: The maximum time interval between the start and end time is 3 days.

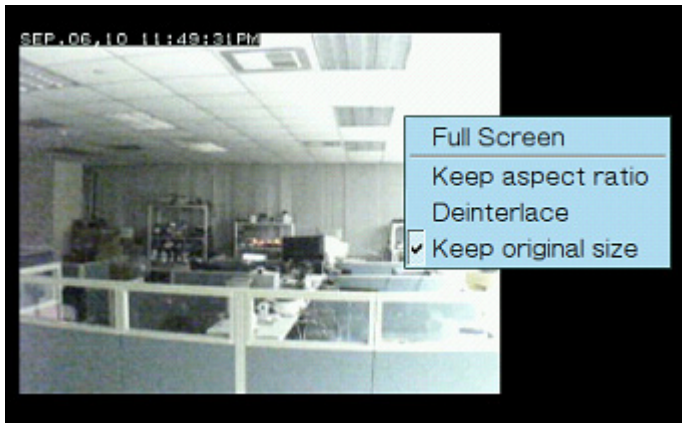
Playback Settings:



Play, pause, stop, reverse play a video file, or select to play the previous or next file. When playing a video, use the scroll bar to adjust the playback speed or click the digital

zoom icon  to zoom in or zoom out the video. 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



3.5 Video Conversion & Export

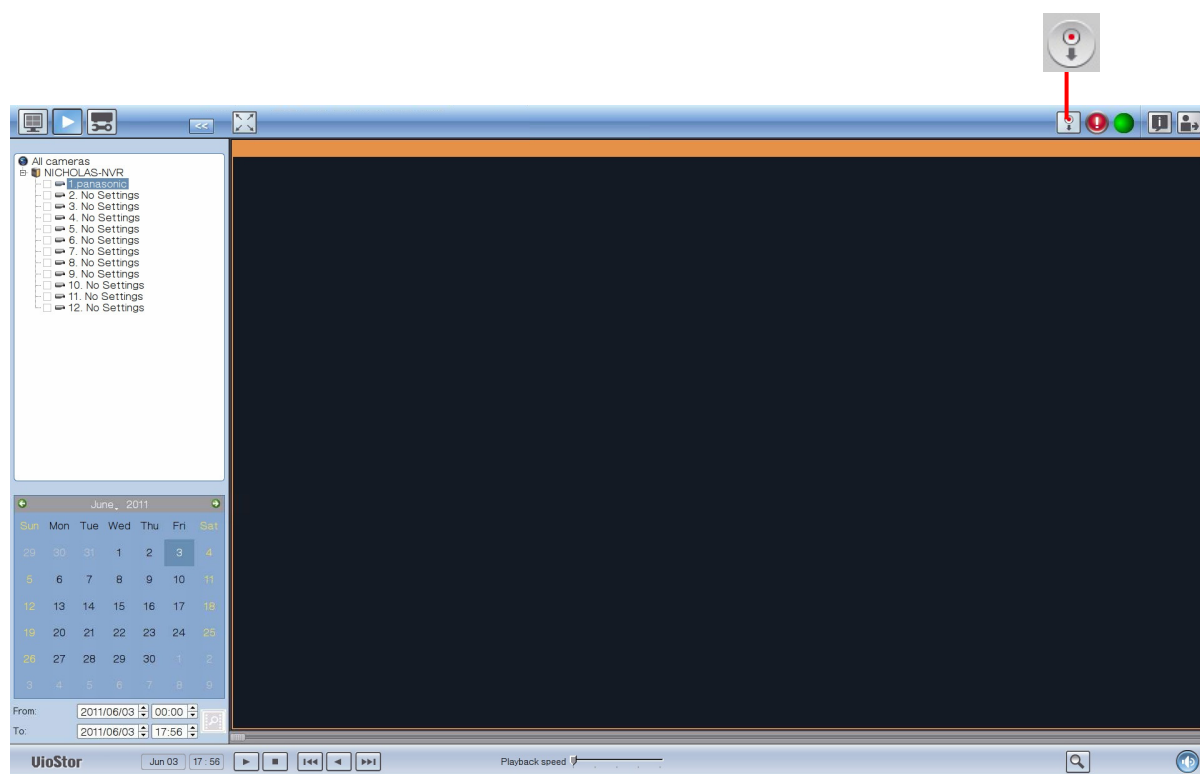
The NVR supports converting the video files to AVI format and saving the files to an external USB storage device.

Note:


- To use this feature, connect a USB storage device to the front USB port of the NVR and make sure the device has been correctly formatted.
- The access right to play the videos of the IP camera is required to convert the video files.

Follow the steps below to export the video files of an IP camera from the NVR and convert the files to an AVI file.

1. Enter the playback interface of the NVR. Click  (Convert to AVI file).



2. Select the IP camera and the recording type.
3. Specify the start and end time of the video files.
4. Enter the file name of the video file.
5. Click 'OK' to convert the video files to an AVI file and save them to the external USB storage device.

Camera:	1.panasonic	
From:	2011/06/03	00:00
To:	2011/06/03	17:28
Total / Free size:	3827 MB / 2570 MB	
File Name:	Camera-1_06-03-00-00-06-03-17-28	
<input type="button" value="OK"/> <input type="button" value="Cancel"/>		

Chapter 4. Use the NVR by Web-based Interface

Use Microsoft Internet Explorer to monitor the IP cameras and manage the functions of the NVR.

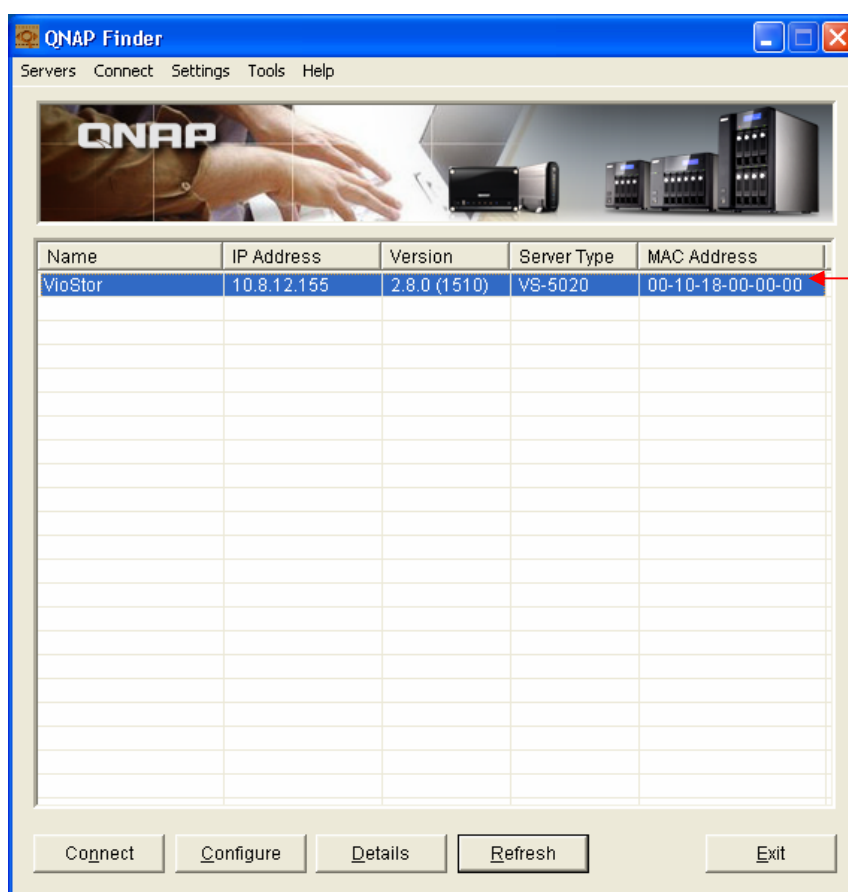
Important Notice:

Before using the NVR, install the hard disks in the server correctly and finish 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 the Finder. Double click the name of the NVR, or enter the IP address of the server in the IE browser to connect to the monitoring page.



Double click to login the server

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

Default user name: **admin**













Default password: **admin**






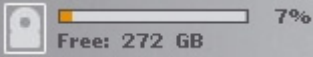
3. To view the live video by Internet Explorer, install the ActiveX add-on.

4.2 Monitoring Page

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

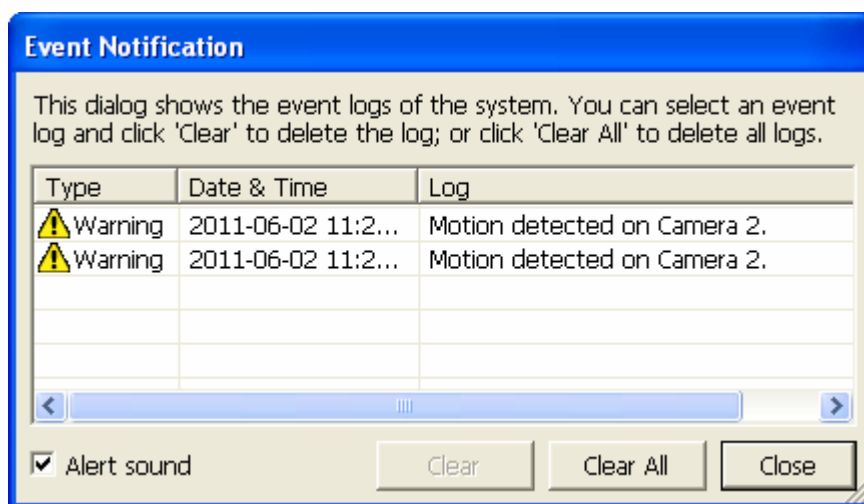


Icon	Description
	<p>Multi display mode: The NVR supports multi-display mode. (This function can only be used when the computer or the host is connected to multiple monitors.)</p>
	<p>Multi-server monitoring: Up to 128 channels from multiple QNAP NVR servers can be monitored.</p>
	<p>Select language: Select the display language.</p>
	<p>E-map: Upload E-map(s) and indicate the locations of the IP cameras. The administrators are allowed to edit and view the E-map. Other users can only view the E-map.</p>
	<p>System configuration: Login the system administration page (admin access required).</p>
	<p>Monitoring settings: Configure the advanced settings of the monitoring page. Specify the source of the video/audio stream, event notification, and snapshot folder.</p>
	<p>Playback: Enter the video playback page. The administrator can grant access right to the users to playback the videos.</p>
	<p>Help: View the system online help.</p>
	<p>Logout: Logout the NVR.</p>
	<p>Snapshot: Take a snapshot on the selected channel. When the picture is shown, right click the picture to save it to the computer.</p>
	<p>Manual recording: Enable or disable manual recording on the selected channel. The administrator can enable or disable this option on the system configuration page.</p>
	<p>Audio (optional): Turn on/off the audio support for the monitoring page.</p>

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

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 Windows.
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.

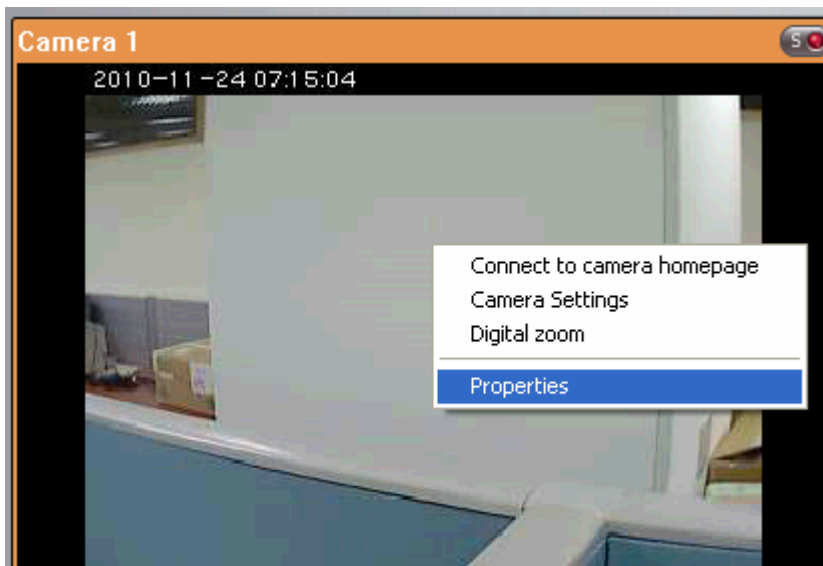


5. When the digital zoom function is enabled on multiple IP cameras, the zooming function will be affected if the computer performance is not high enough.

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

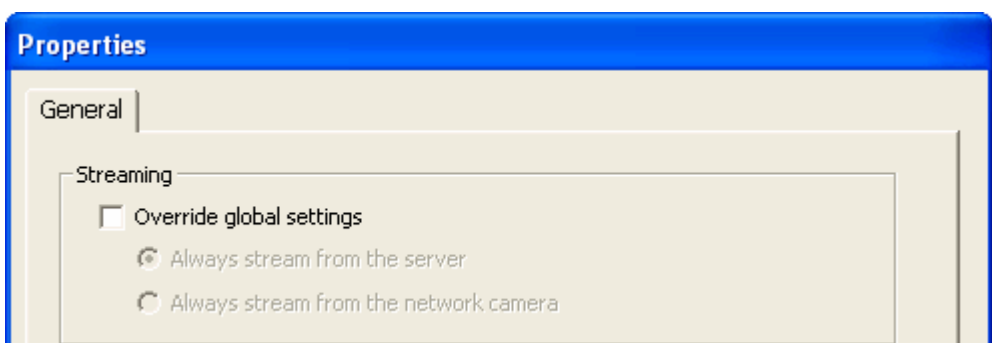
- a. Connect to camera homepage.
- b. Camera setting: Enter the configuration page of the IP camera.
- c. PTZ: Pan/Tilt/Zoom camera control.
- d. Preset: Select the preset positions of the PTZ camera.
- e. Enable live tracking: Available on Panasonic NS202(A) camera.
- f. Disable live tracking: Available 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'.

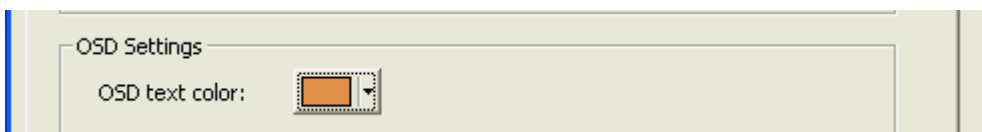


Streaming:

- Always stream from the server: Select this option to stream the audio and video data from the NVR. If the computer cannot connect to the IP 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 IP cameras are connected to the same local network, select this option to stream the video data from the IP cameras. If the NVR, the IP cameras, and the PC are located behind a router, virtual server, or firewall, configure port forwarding on the IP cameras to use certain ports.

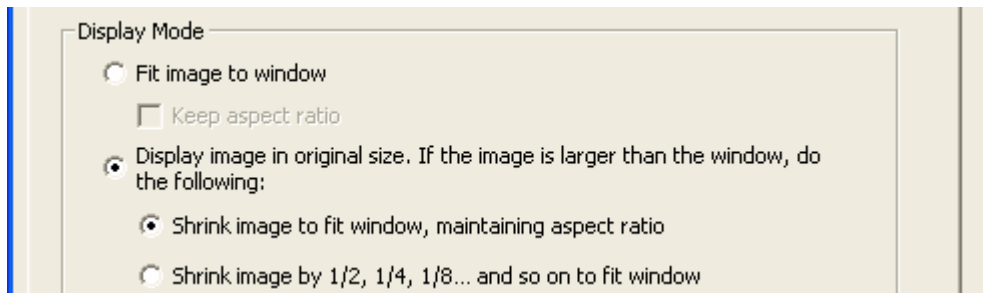


OSD Settings: Specify the font color of the texts on the channels.

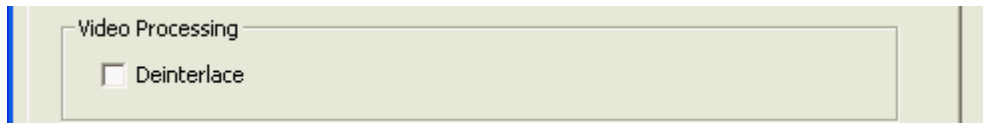


Display Mode:

- Fit image to window: Select this option to fit an image to the browser window. Specify to keep the aspect ratio or not 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



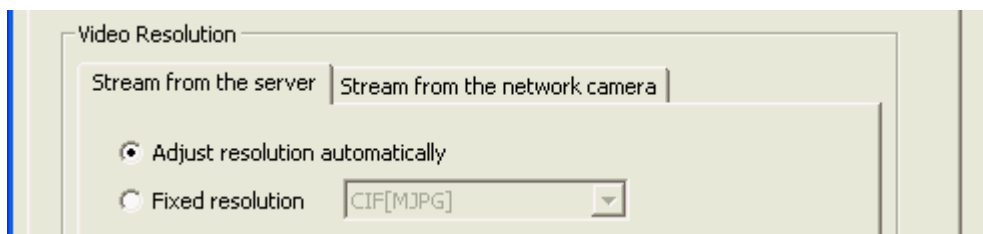
Video Processing: Turn on 'Deinterlace' when there are interlaced lines on the video.



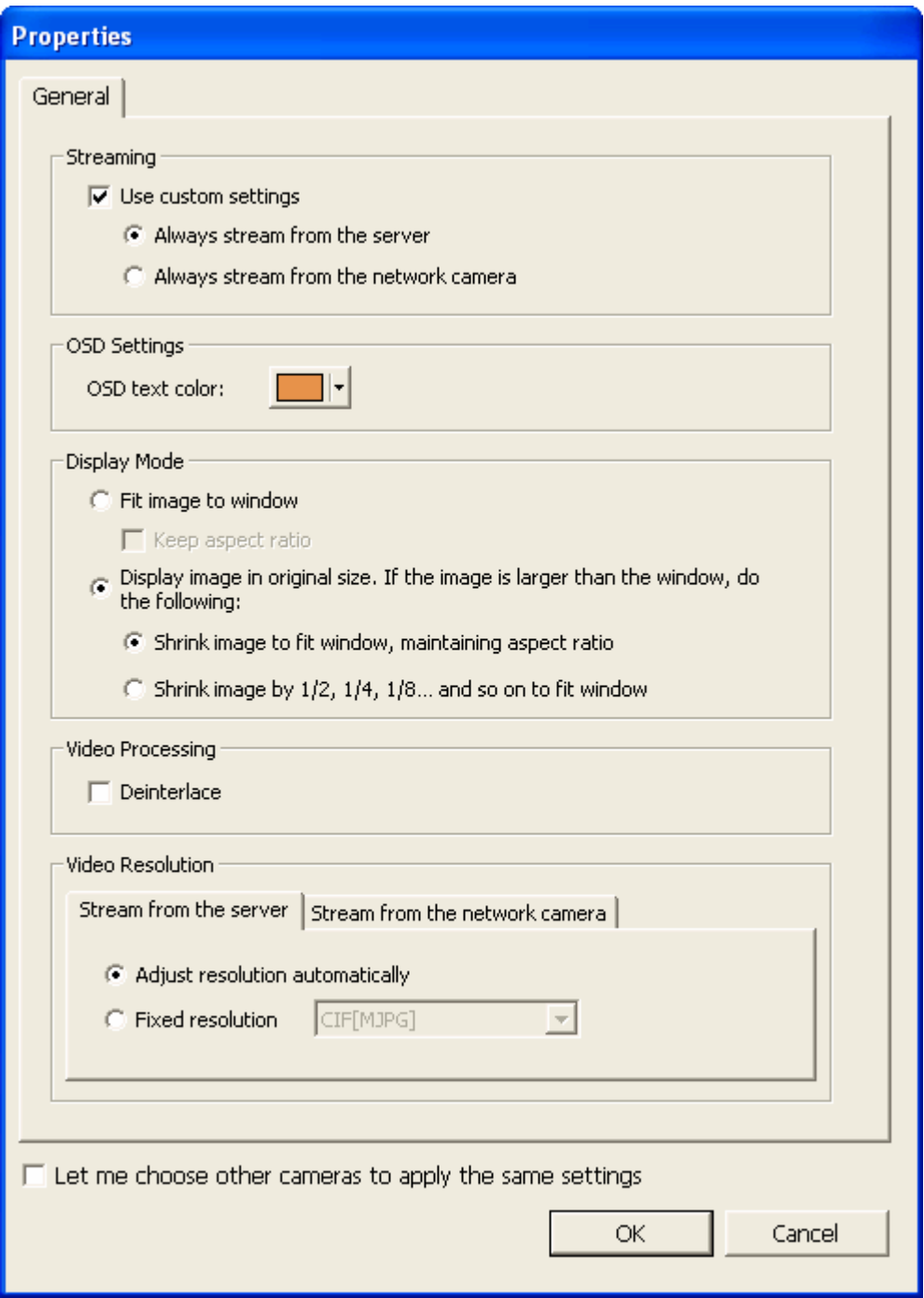
Video Resolution: Specify to adjust the resolution automatically or use a fixed resolution. To adjust the resolution automatically, the NVR will select the resolution setting* which best fits the size of the IE browser window. Note that 'Stream from network camera' will not be available if the IP camera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

*If an IP 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 an IP camera are smaller than the browser window, the largest resolution will be selected.

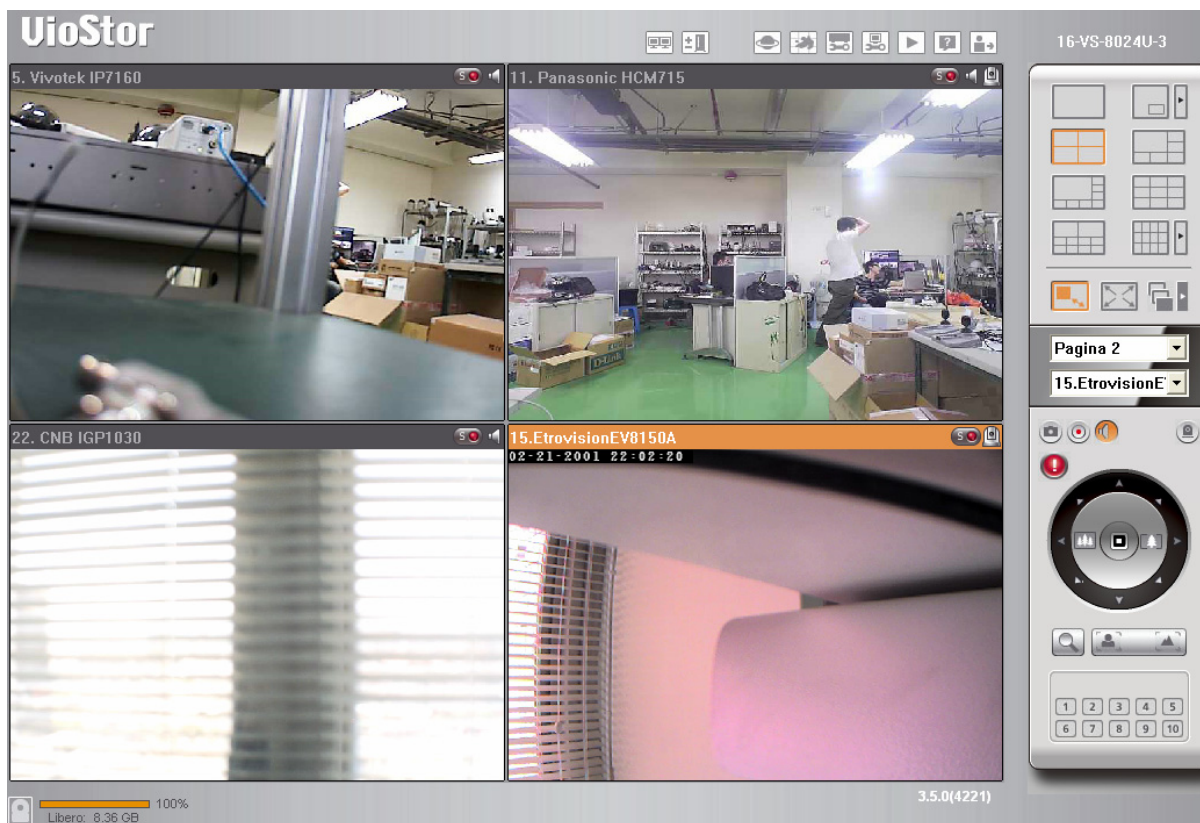


Let me choose other cameras to apply the same settings: Select this option to apply the changes to other IP cameras. Note that some settings may not be applied if the IP camera does not support the features, such as streaming from camera or video resolution configuration.













4.2.1 Live Video Window

The live videos of the IP cameras configured on the NVR are shown on the monitoring page. 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 has been triggered
	The alarm input 2 of the IP camera has been triggered
	The alarm input 3 of the IP camera has been triggered
	A moving object has been detected
	Digital zoom is enabled

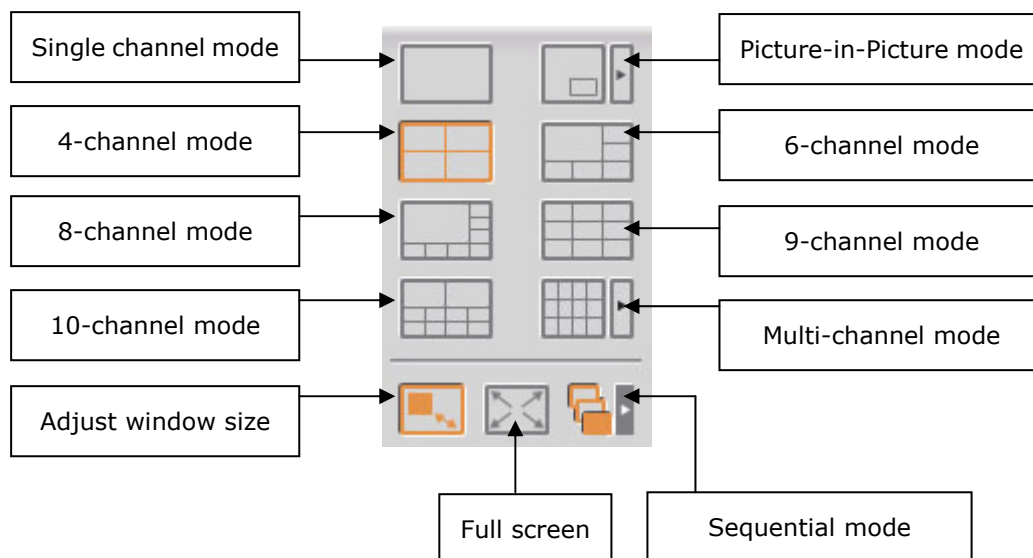
Connection Message

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 the computer and the availability of the IP camera. If the IP camera is located on the Internet, open the port on the router or gateway.
No Permission	No access right to view the monitoring channel. Please login as an authorized user 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.

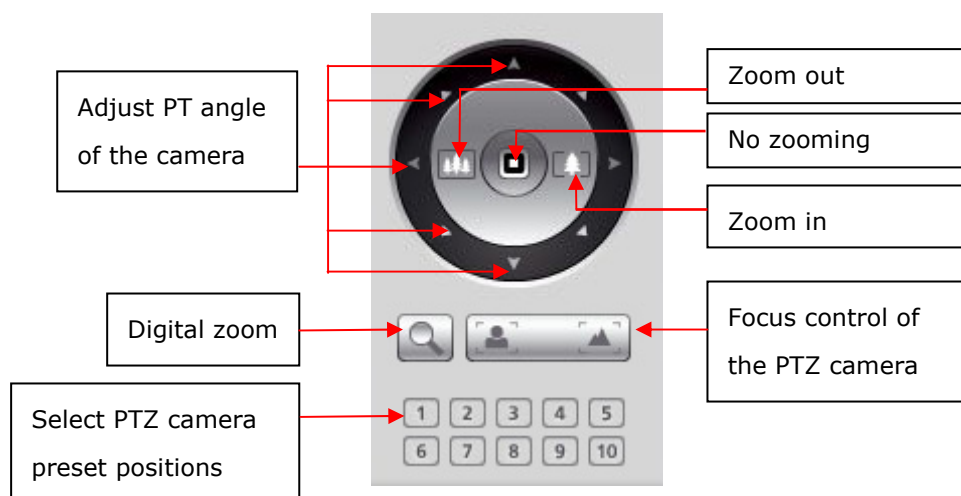
4.2.2 Display Mode

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



4.2.3 PTZ Camera Control Panel

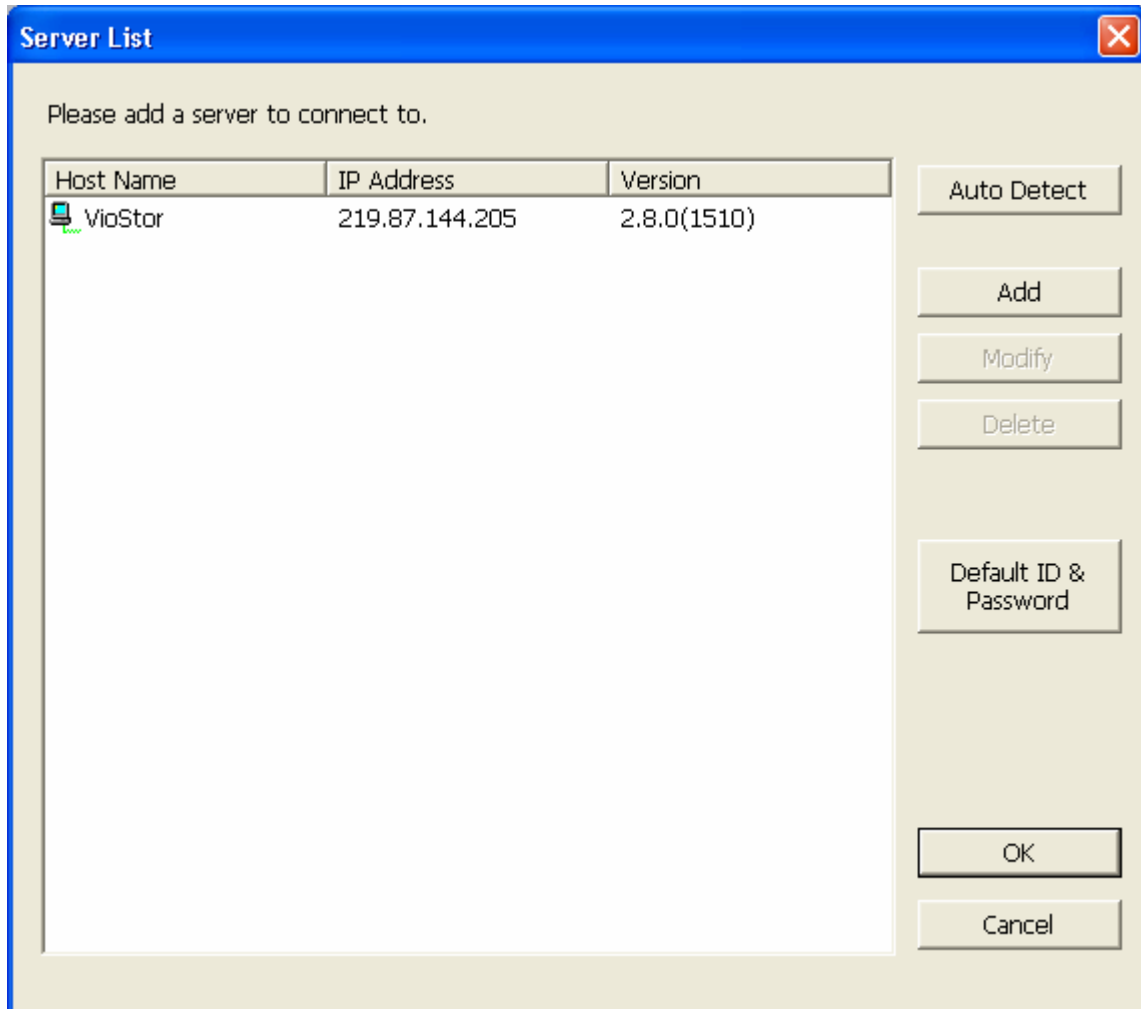
The term 'PTZ' stands for 'Pan/Tilt/Zoom'. If an IP camera supports the PTZ feature, use the control panel on the NVR to adjust the viewing angle of the IP camera. These functions are available depending on the camera models. Please refer to the user manual of the IP cameras for more information. Note 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.

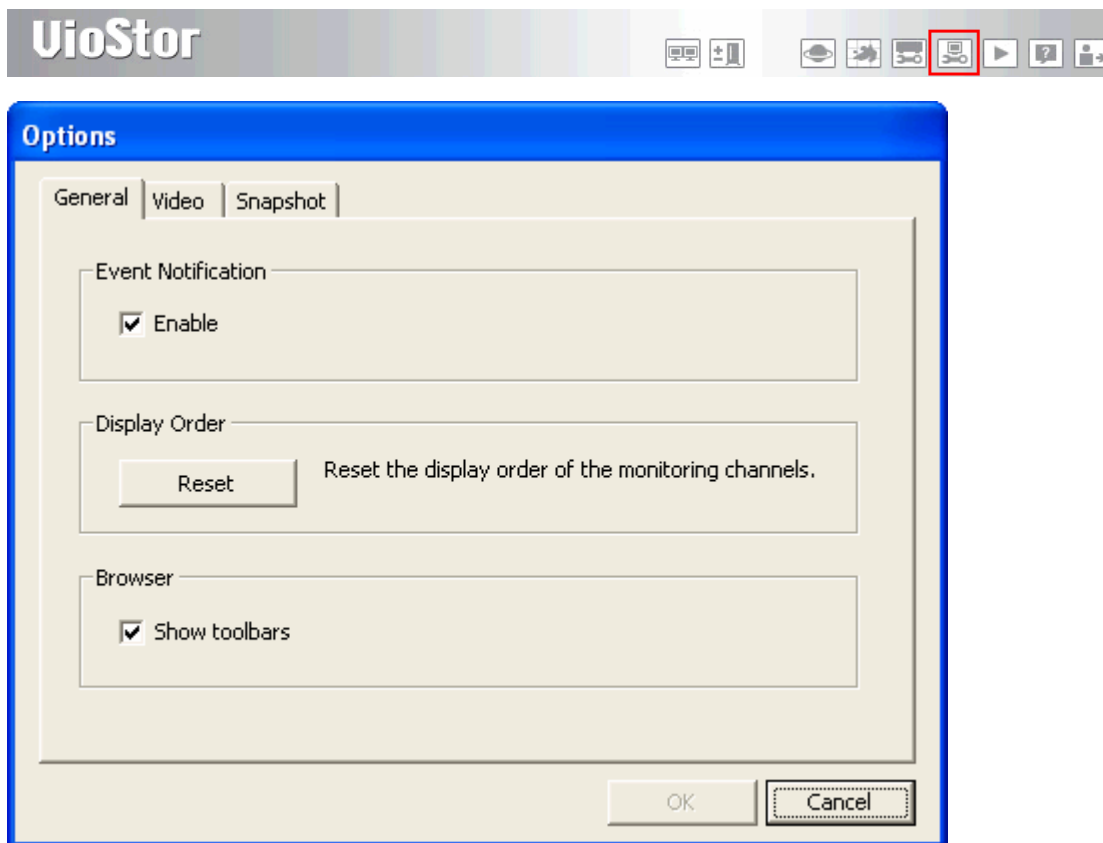
1. Click 'Server List'  on the monitoring page.




- 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 128 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

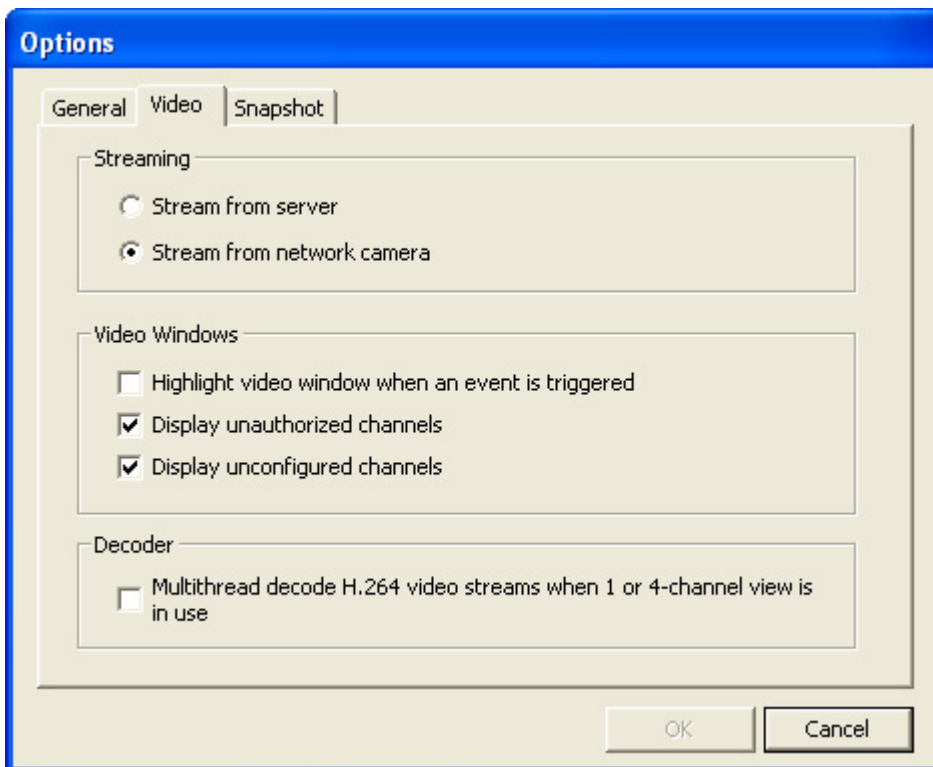
- Stream from the server: If the IP camera cannot be connected from the computer, select this option and the video will be streamed from the NVR. This option does not require extra port mapping configuration; but may influence the performance of the NVR.
- Stream from IP camera: If the NVR and the IP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

Video Windows

- 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 the access right to monitor.
- Display unconfigured channels: Select this option to show the channels that have not been configured.

Decoder

Select this option to multithread decode H.264 video streams when 1 or 4-channel view is in use.

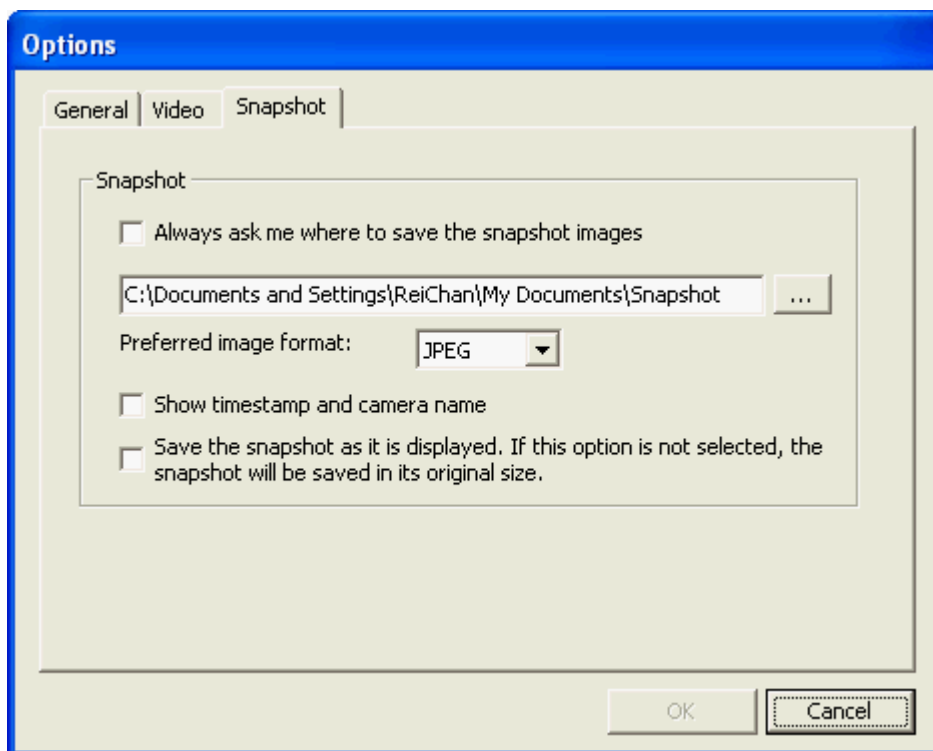


The following options are provided under the 'Snapshot' tab.

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.

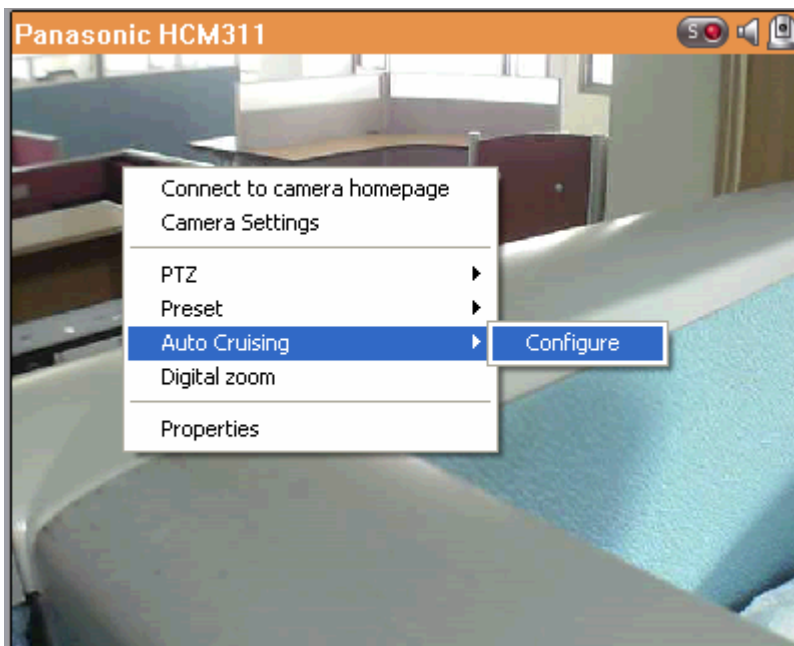


4.2.6 Auto Cruising

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 this button is clicked, the name of the corresponding preset position is shown on the 'Preset Name' drop-down menu.

Auto Cruising

Server Name: NVR
Camera Name: Camera 6 233D



1	6
2	7
3	8
4	9
5	10

Preset Name: Interval: sec

Preset Name	Interval	

Enable auto cruising

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'.

The screenshot shows the 'Add' function interface. At the top, there are two labels: 'Preset Name:' and 'Interval:'. Below 'Preset Name:' is a dropdown menu with 'fan' selected. Below 'Interval:' is a text input field containing '5' followed by 'sec'. Below these are three buttons: 'Add', 'Update', and 'Delete'. The 'Add' button is highlighted with a red border. Below the buttons is a table with two columns: 'Preset Name' and 'Interval'. The table contains one row with 'fan' in the first column and '5' in the second column.

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'.

The screenshot shows the 'Update' function interface. At the top, there are two labels: 'Preset Name:' and 'Interval:'. Below 'Preset Name:' is a dropdown menu with 'ipe' selected. Below 'Interval:' is a text input field containing '100' followed by 'sec'. Below these are three buttons: 'Add', 'Update', and 'Delete'. The 'Update' button is highlighted with a red border. Below the buttons is a table with two columns: 'Preset Name' and 'Interval'. The table contains two rows: 'fan' with '5' and 'ipe' with '100'. The 'fan' row is highlighted in blue. Two red arrows point from the 'fan' row to the 'ipe' row in a second table below, indicating the update action.

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'.

The screenshot shows the 'Delete' function interface. At the top, there are two labels: 'Preset Name:' and 'Interval:'. Below 'Preset Name:' is a dropdown menu with '201' selected. Below 'Interval:' is a text input field containing '30' followed by 'sec'. Below these are three buttons: 'Add', 'Update', and 'Delete'. The 'Delete' button is highlighted with a red border. Below the buttons is a table with two columns: 'Preset Name' and 'Interval'. The table contains three rows: 'fan' with '5', 'ipe' with '100', and '201' with '30'. All three rows are highlighted in blue.

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.

Preset Name	Interval
1	180
2	180
ipe	180
fan	300
201	300

Enable auto cruising

OK Cancel


Note:

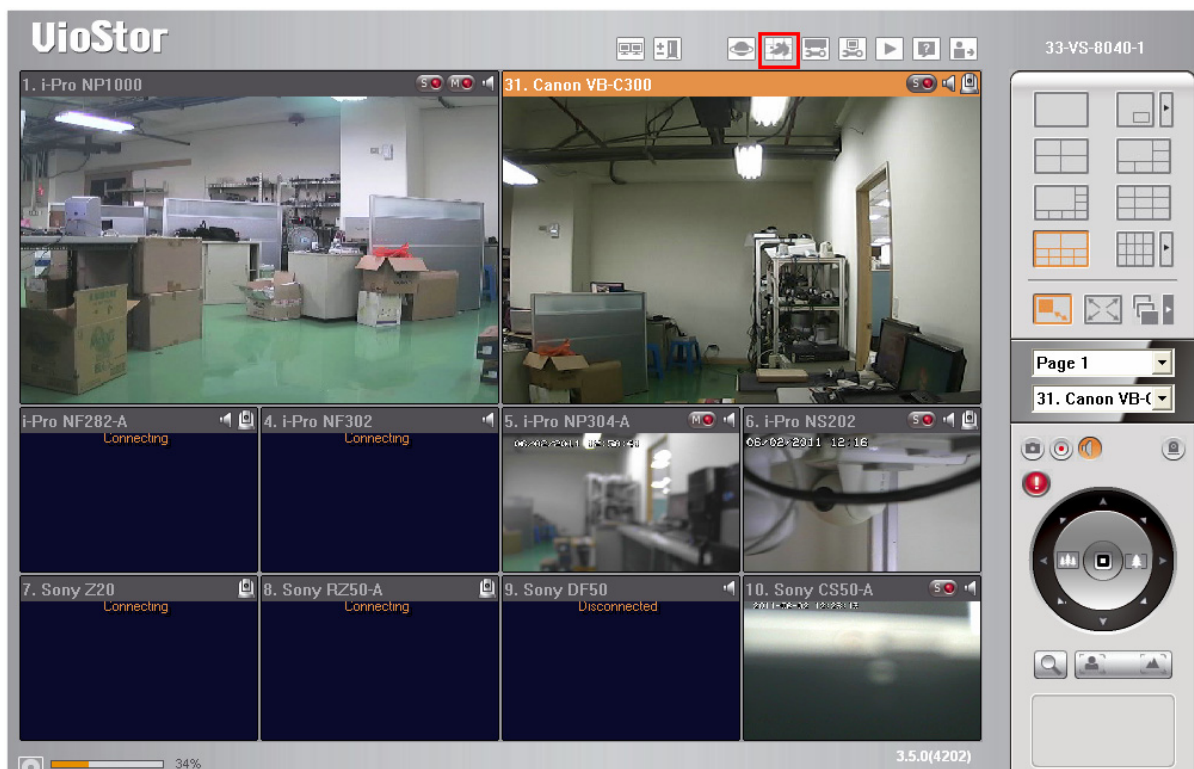
- The default staying time (interval) of the preset position is 5 seconds. Enter 5–999 seconds for this setting.
- The system supports up to 10 preset positions (the first 10) configured on the PTZ cameras. Up to 20 settings for auto cruising can be configured. In other words, the NVR supports maximum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

4.3 E-map

The E-map feature of the NVR is provided to for users to upload electronic maps to the system to indicate the locations of the IP cameras. Users can drag and drop the camera icons* to the E-map and enable event alert to receive instant notification when an event occurs to the IP camera.

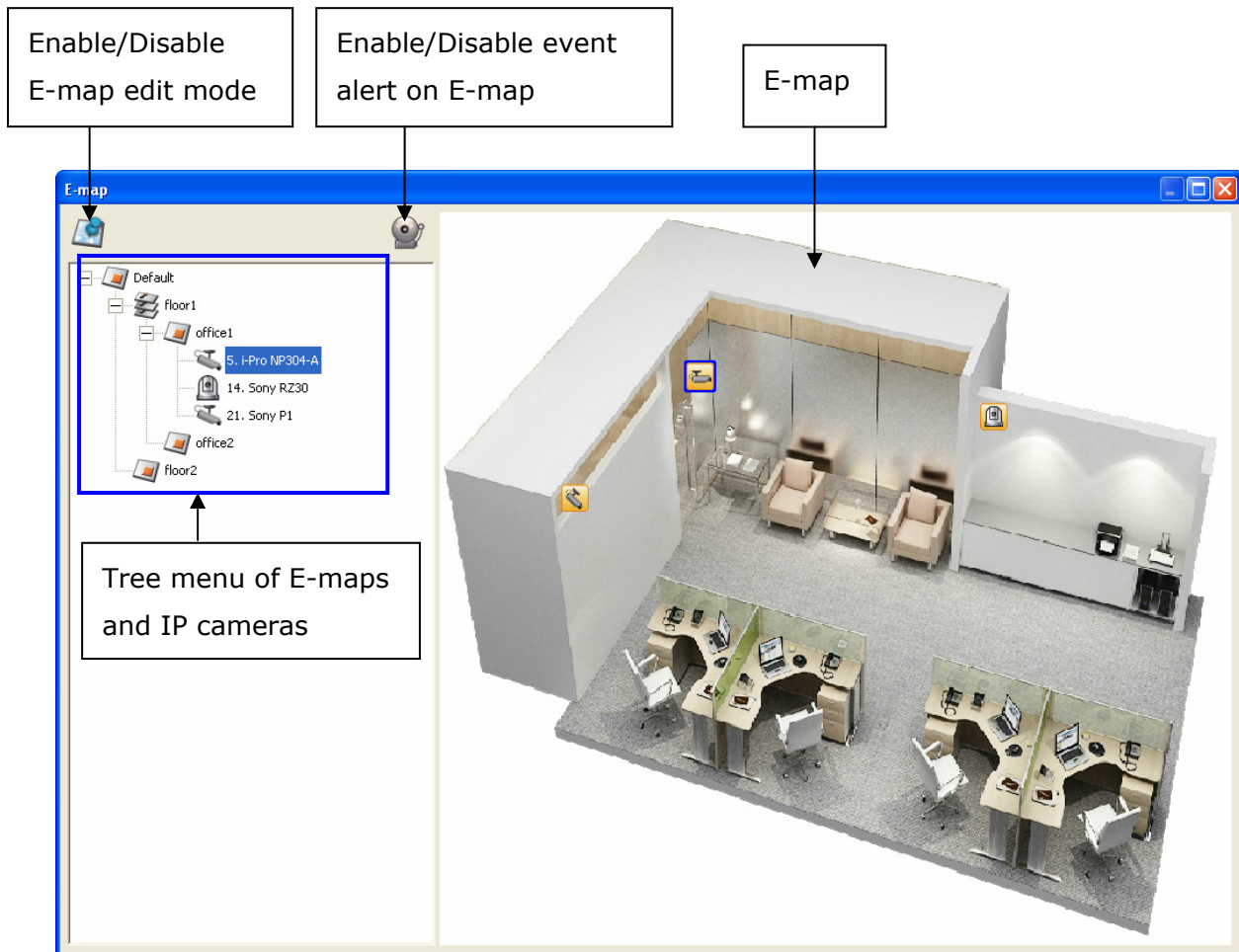
*The camera icons are available only when the IP cameras have been configured on the NVR.

To use the E-map feature, login the monitoring page of the NVR as an administrator and click .















An E-map example is shown below. The NVR provides a default E-map. Add or remove the E-maps whenever necessary.


Note: Login as an administrator to edit and view the E-map.

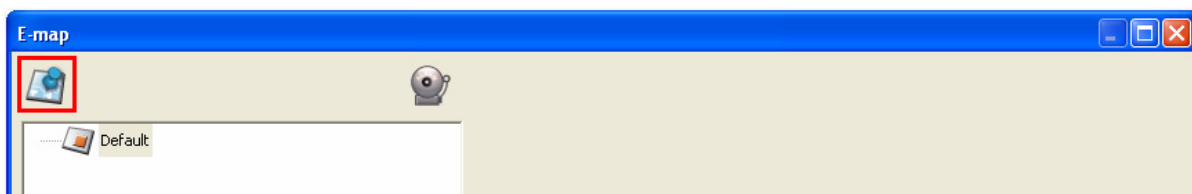



4.3.1 Icons and Description

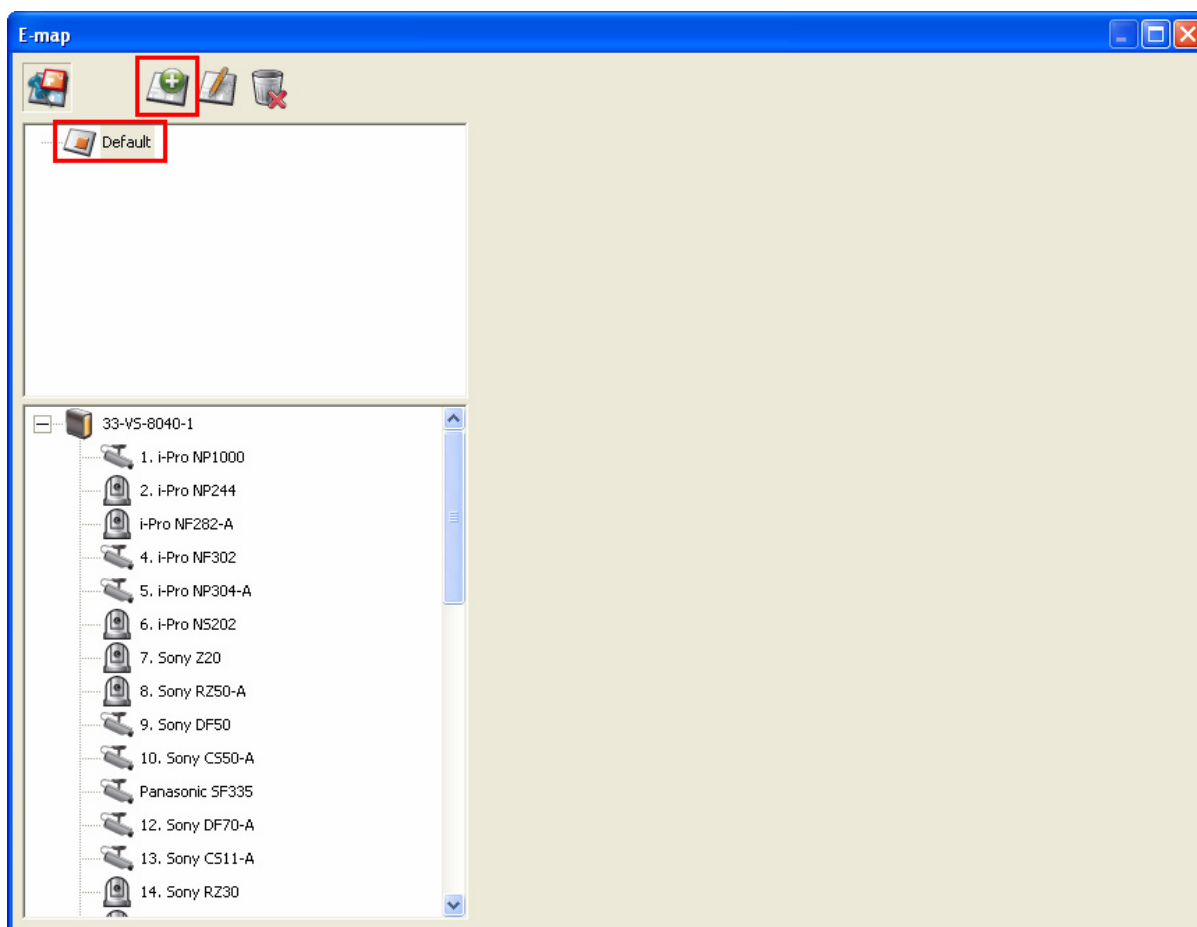
Icon	Description
	Enable E-map edit mode.
	E-map edit mode in use. Click this icon to disable the edit mode.
	Add a map.
	Edit the name of a map.
	Remove a map or a camera icon.
	Event alert not in use. Click this icon to enable event alert on the E-map.
	<p>Event alert in use. When an event occurs to an IP camera, such as a moving object is detected, the camera icon will change and flash to alert the administrator. To disable event alert on the E-map, click this icon.</p> <p>Note: When event alert is enabled, the E-map cannot be edited.</p> <p>The icon  will become invisible.</p>
	Icon for a set of E-maps.
	Icon for a single E-map.
	Icon for a PTZ IP camera.
	Icon for a fixed body or fixed dome IP camera. After dragging the icon to a map, right click the camera icon to change the icon direction or delete the icon from the E-map.

4.3.2 Add a Map Set or an E-map

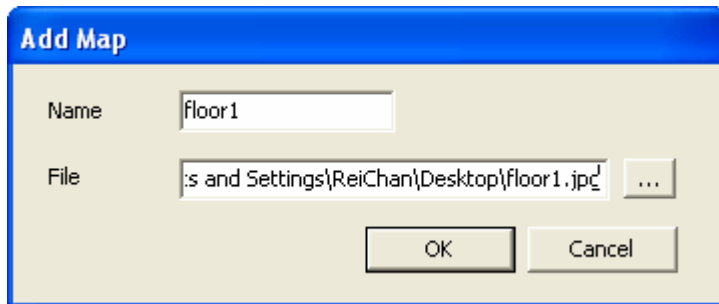
To add a map set or an E-map to indicate the locations of the IP cameras, click  to enable Edit mode.



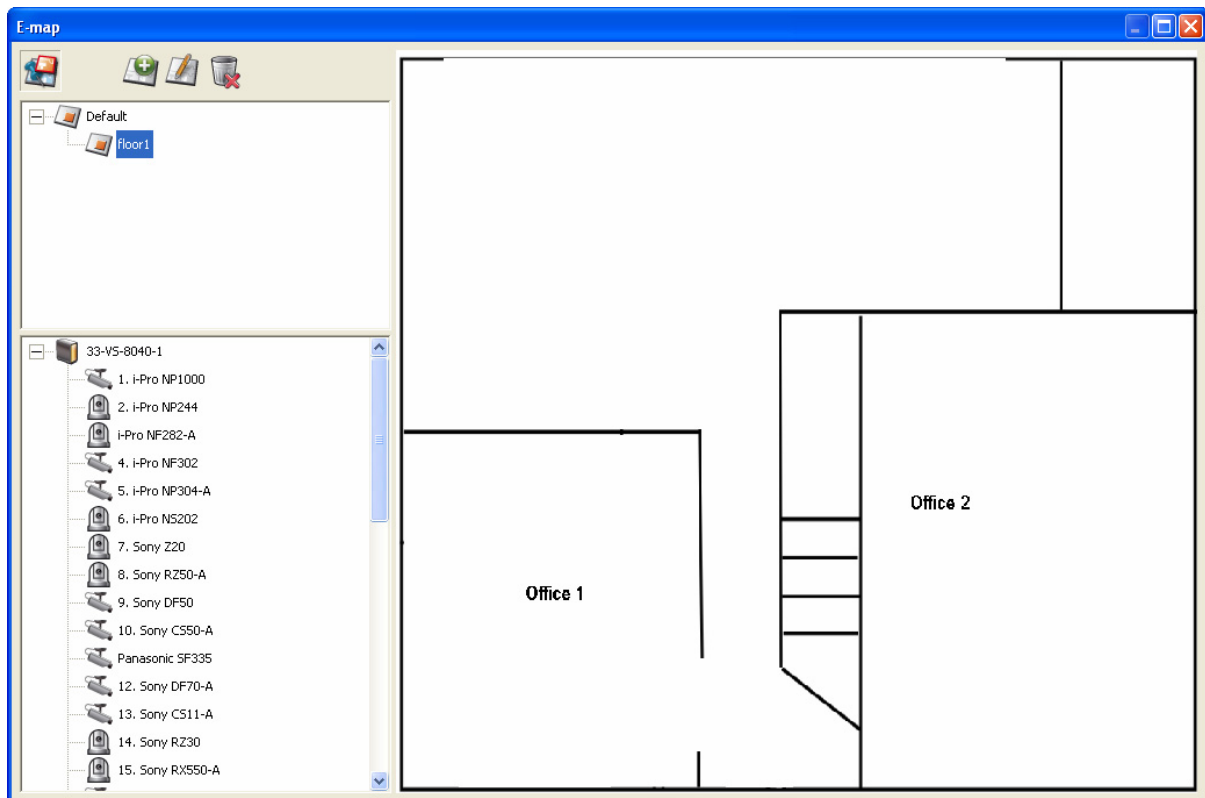
A list of IP cameras configured on the NVR will be shown on the left. Click 'Default' and then  to add an E-map.





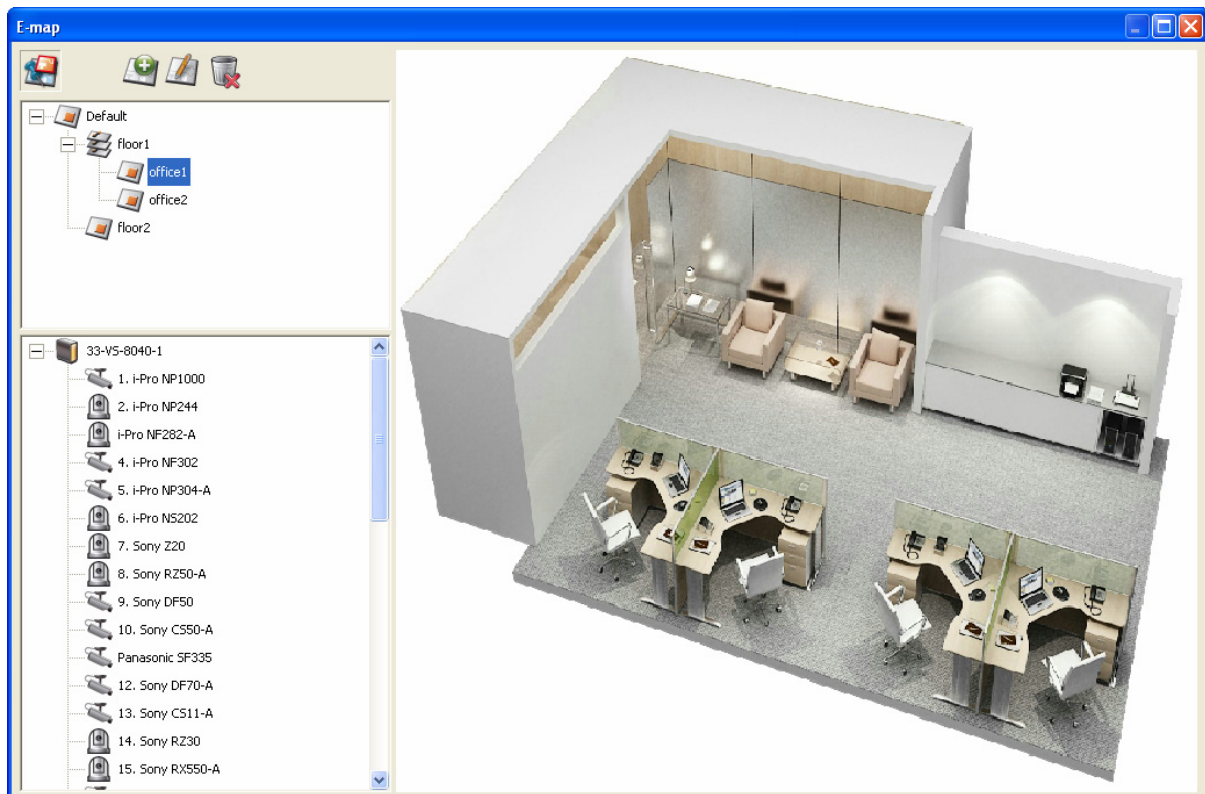
Enter the map name and select the file. **The E-map must be in JPEG format.** Click 'OK'.




The E-map will be shown.







To add one or multiple E-maps, e.g. office1 and office2, under an E-map, e.g. floor1, click the E-map icon of floor1 and then click  to add the E-maps one by one. The icon of floor1 will be changed to  when more than one E-map is added. To add another E-map of the same level of floor1, select 'Default' and add the E-map, e.g. floor2.





4.3.3 Edit a Map Name

To edit the name of an E-map, select the E-map and click . Enter the new name and click 'OK'. To change the picture of the E-map, delete the E-map and add the new file.

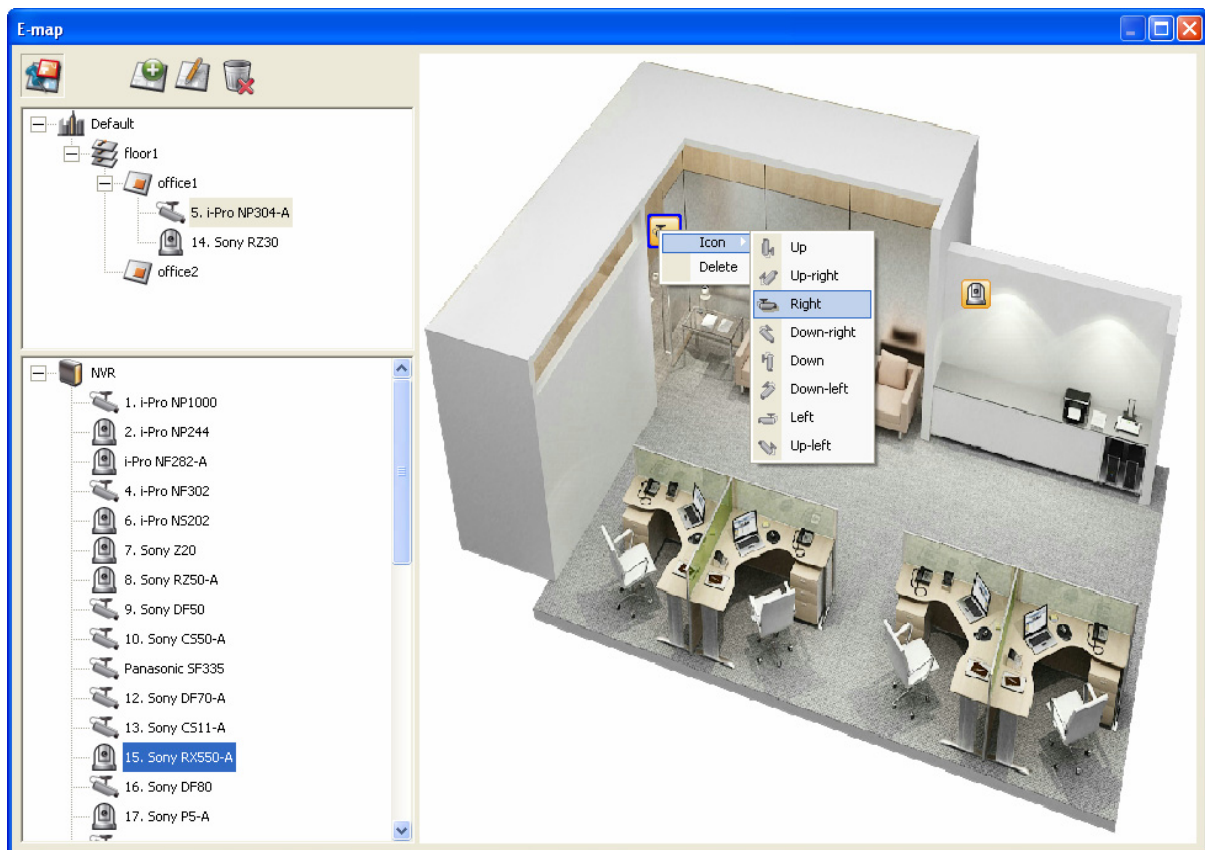
4.3.4 Delete a Map Set or an E-map


To delete an E-map, select the map  and click . To delete a set of maps under the same level, select the map set  and click .


4.3.5 Indicate IP Cameras on an E-map

After uploading the E-maps, drag and drop the IP camera icons to the E-map(s) to indicate the camera location. The camera name will appear under the E-map on the top left column. When an icon of a fixed body or fixed dome IP camera  is dropped to the E-map, right click the camera icon and adjust the icon direction. The icon of a PTZ IP camera  cannot be adjusted.

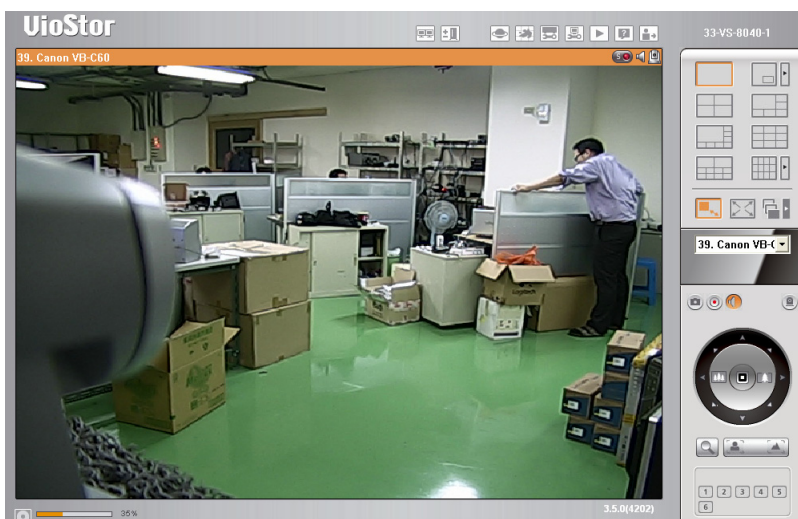
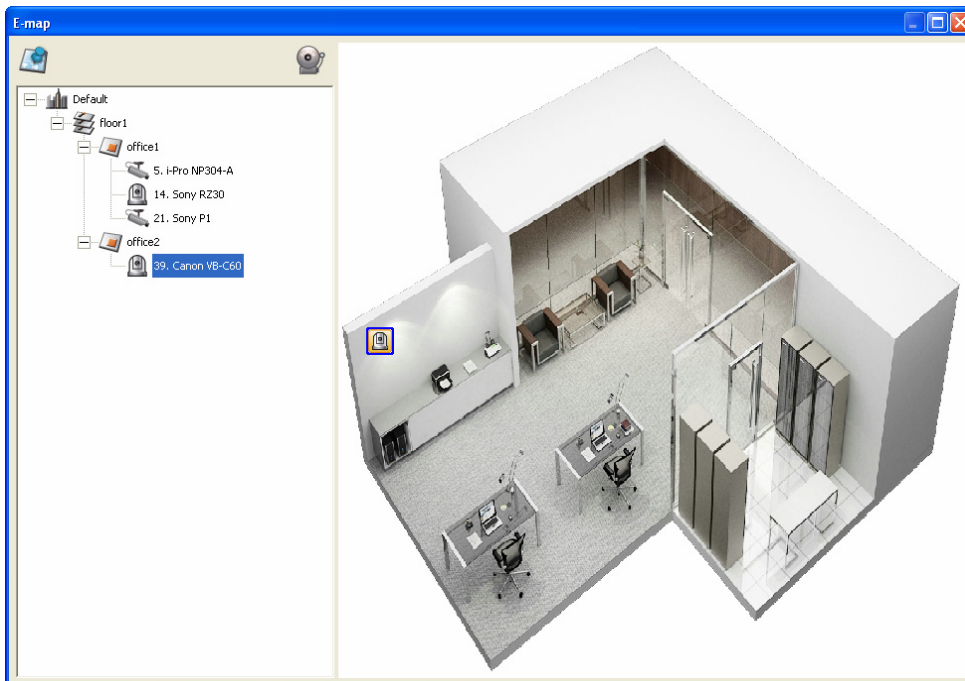
To delete a camera icon from the E-map, right click the icon and select 'Delete'.



To save the changes made to the E-maps, click  to exit the Edit mode.


When clicking an E-map or an IP camera on the left, the E-map or the E-map with the camera icon will be shown on the right immediately. The selected camera icon will be highlighted with a blue bracket .

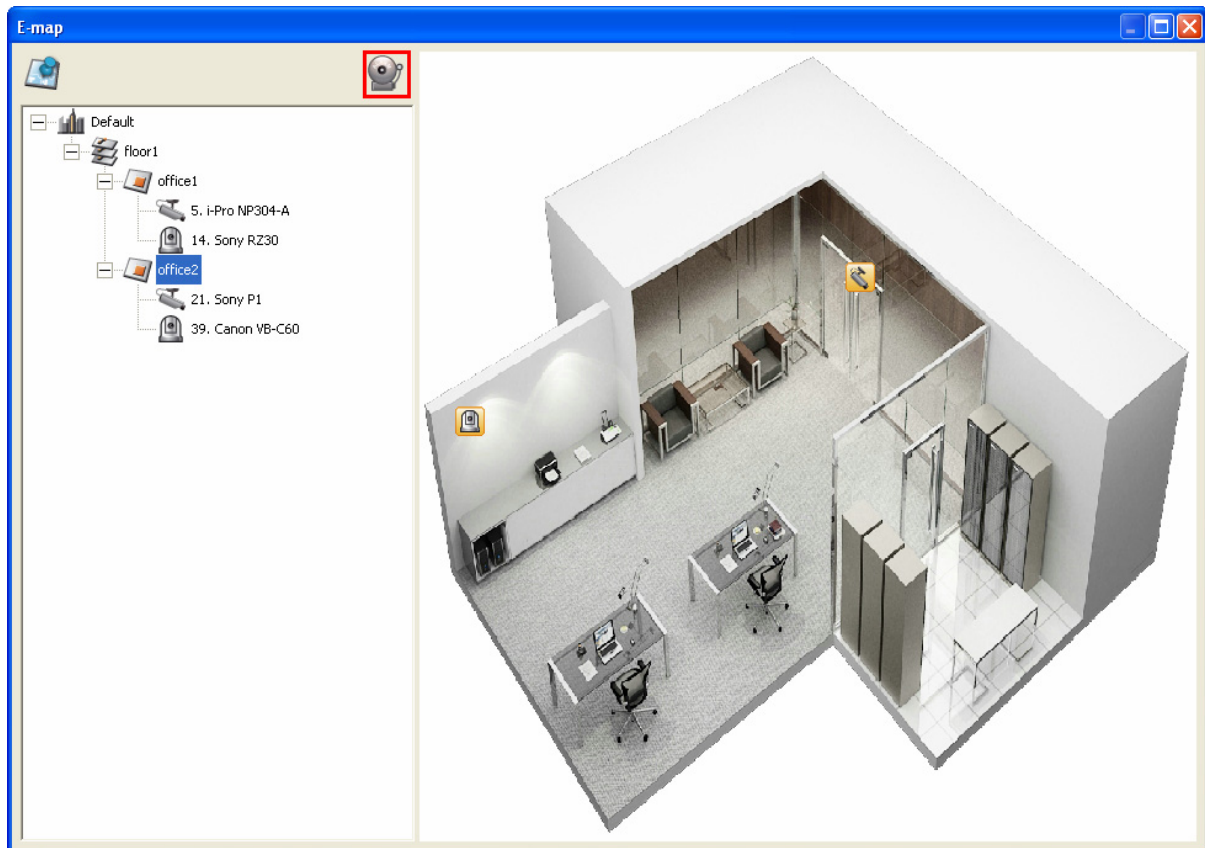
When double clicking a camera icon on an E-map, whether or not Edit mode is enabled, the IP camera will be shown in single-channel mode on the monitoring screen.



4.3.6 Enable/Disable Event Alert

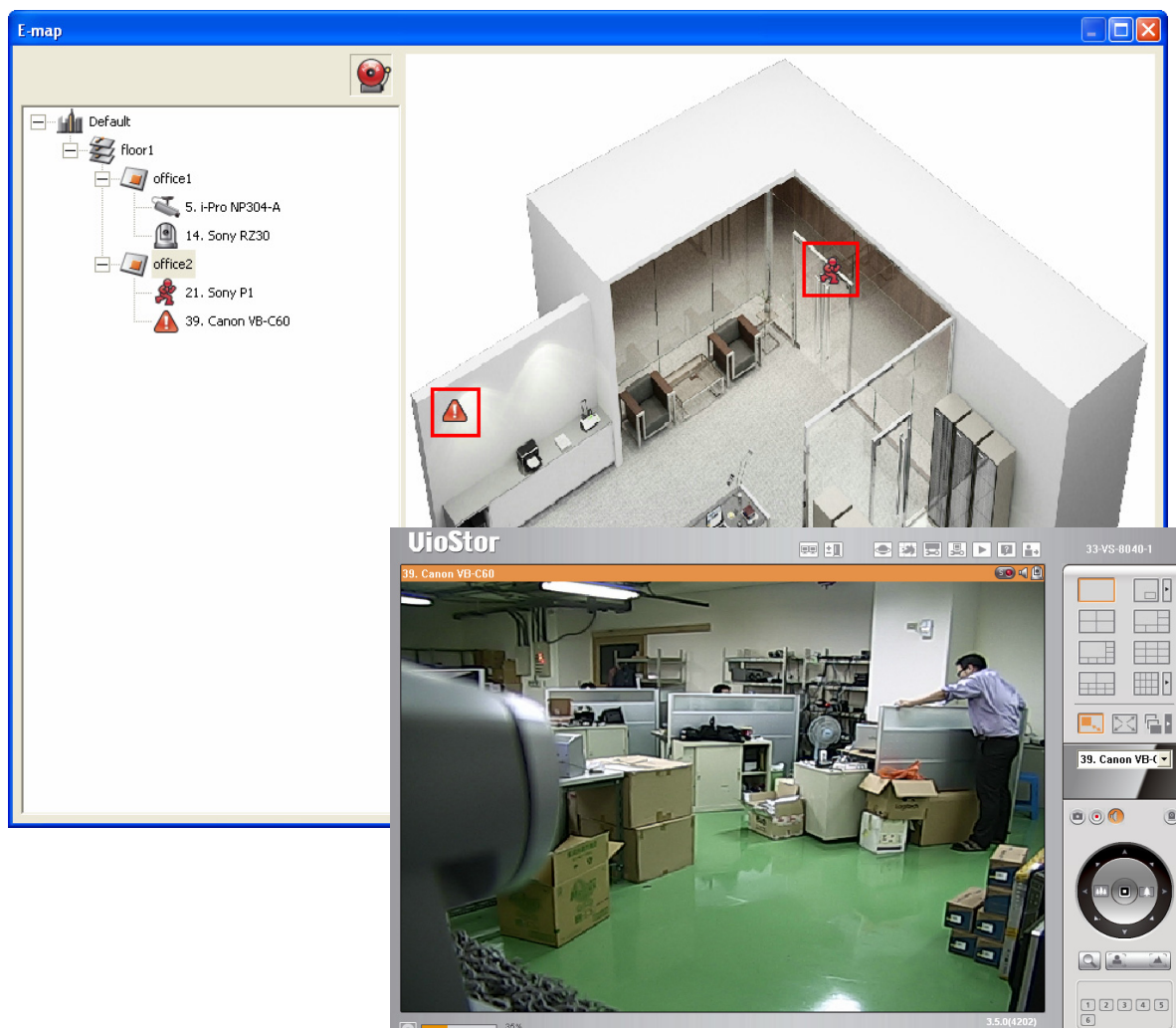


To enable event alert on an E-map, click .








When an event occurs to an IP camera on the E-map, the camera icon will flash and indicate the event type. The E-map with the IP camera on which an event is triggered will be shown immediately*. Double click the camera/alert icon and the monitor screen will switch to display the alert camera channel in single-channel view on the monitor screen automatically.

*The E-map with event alert will not be switched to display automatically if the time difference between the event time and the last time the user uses the E-map (clicks the E-map window) is less than 20 seconds. In this case, refer to the tree menu on the left to locate the IP cameras with alerts/flashing icons.



The event type occurred to an IP camera can be identified by the camera icon on an E-map.

Icon	Description
	A moving object has been detected
	The alarm input 1 of the IP camera has been triggered
	The alarm input 2 of the IP camera has been triggered
	The alarm input 3 of the IP camera has been triggered
	An unidentified event has been triggered




Chapter 5. Play Video Files

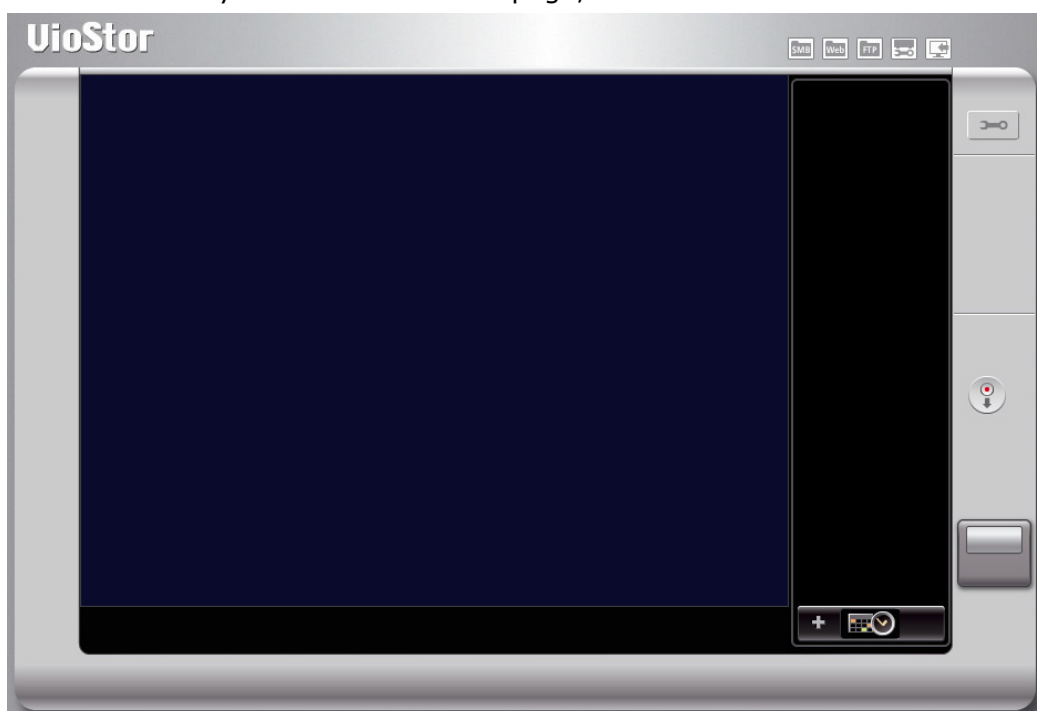
The recording files on the NVR can be played by the web-based VioStor Player or QNAP VioStor Player utility over LAN or WAN. The first time you connect to the playback interface of the NVR by an IE browser, install the ActiveX plugin.

The VioStor Player utility can be installed from the product CD-ROM. Upon successful installation, it is available on the Windows start menu > Programs > QNAP > VioStor Player.

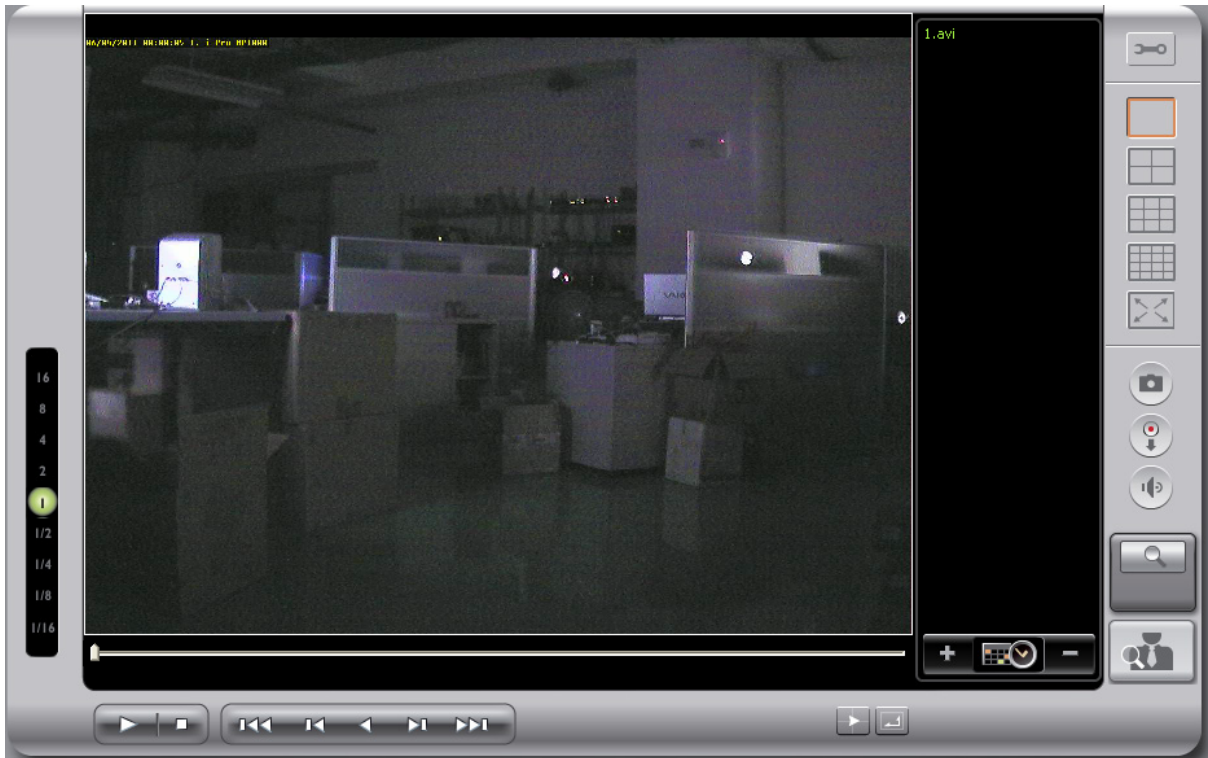


5.1 Use Web-based VioStor Player









1. Click the playback button  on the monitoring page or the administration interface.
2. The web-based VioStor Player will be shown. Use this program to search and play the video files on the NVR servers. To return to the monitoring page, click . To enter the system administration page, click .


















Note: The playback access right to the IP cameras is required to view and play the video files by the VioStor Player. Please refer to Chapter 6.5 for the access right configuration.




The icons and description of the VioStor Player are described below.

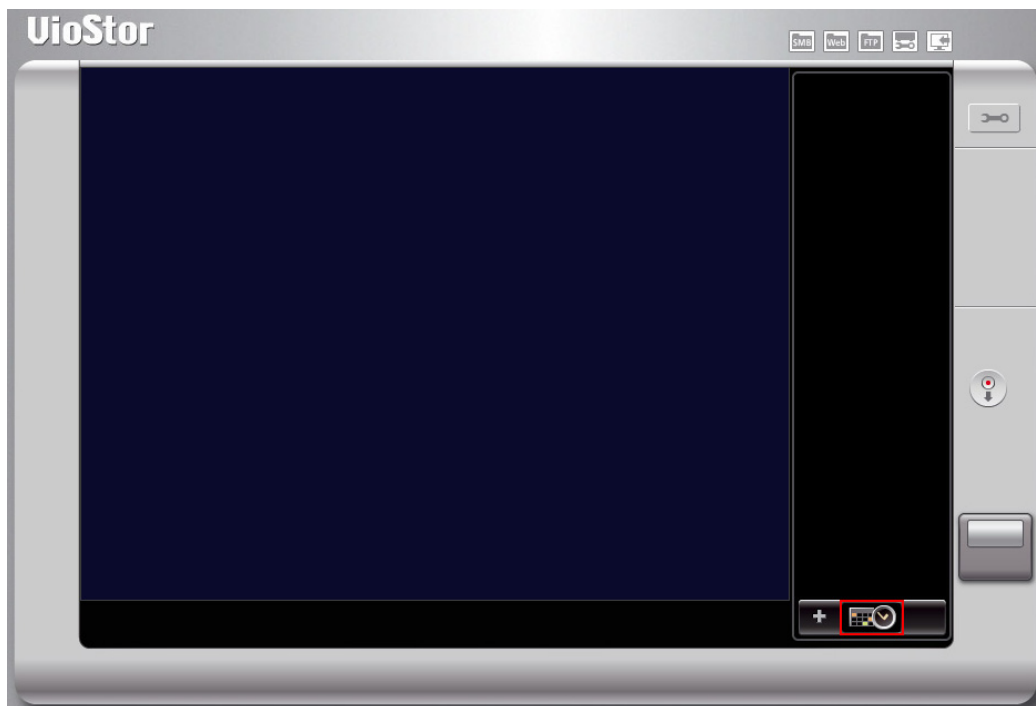
Icons	Description
	Configure the options such as playing mode, snapshot settings, and digital watermark
	Single-view mode
	4-view mode
	9-view mode
	16-view mode
	Full screen
	Take a snapshot of the video
	Convert the video files on the NVR to AVI files

	Audio (optional): Turn on/off the audio support
	Digital zoom: Enable/disable digital zoom
	Search recording files by IVA
	Add file(s) to the playlist
	Remove selected file(s) from the playlist
	Play/pause a video file
	Stop
	Reverse play
	Previous file
	Next file
	Last frame
	Next frame
	Play the video at 1/16x, 1/8x, 1/4x, 1/2x, 1x, 2x, 4x, 8x, 16x speed
	Control all views: Control the playback settings of all the playback windows simultaneously
	Click once to fit the image to the window and keep the aspect ratio when playing the video. When disabled, the Player will fit the video to the window only.

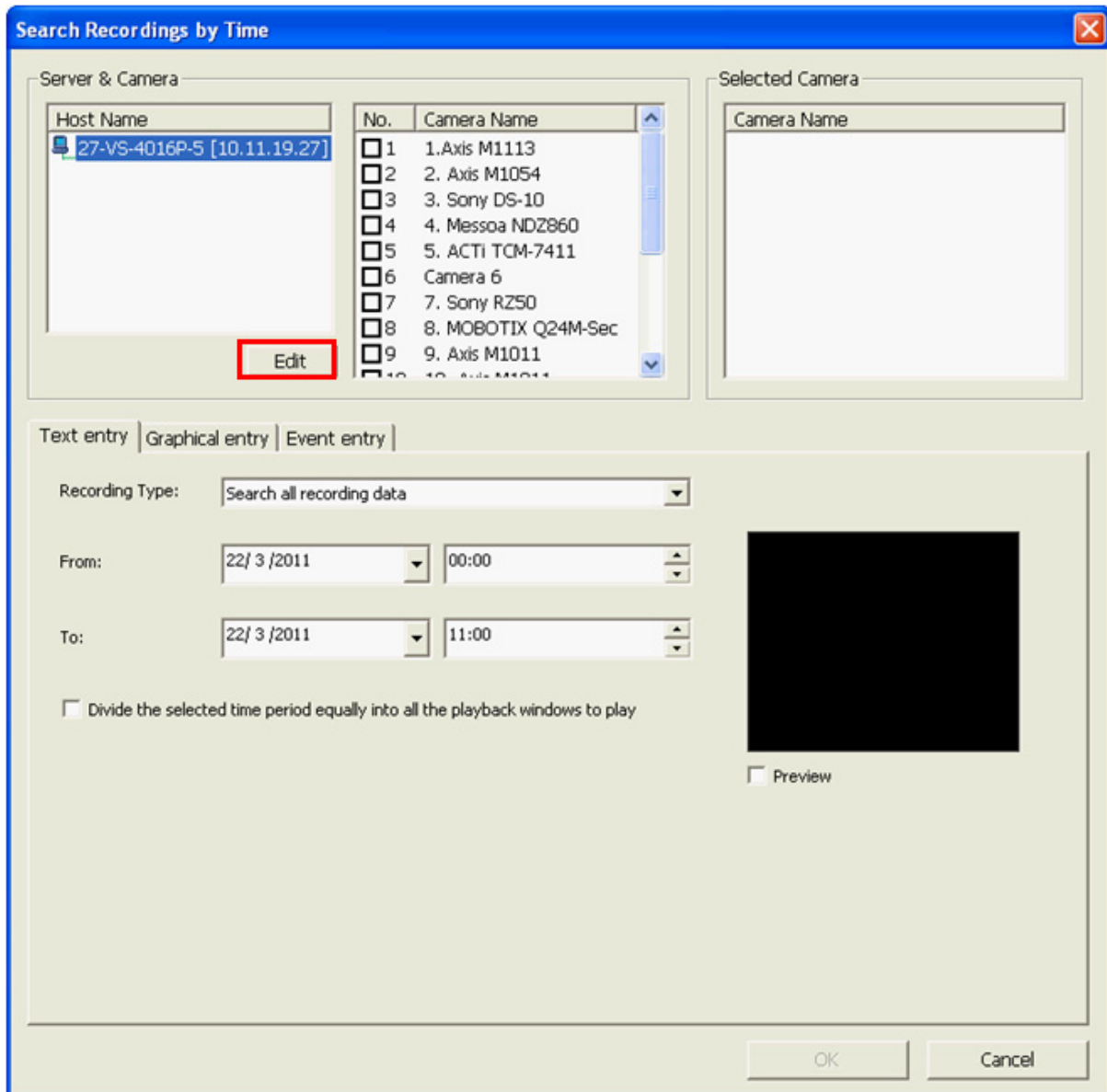
5.1.1 Play Video Files from NVR

Follow the steps below to play the video files on the remote NVR servers by the VioStor Player.

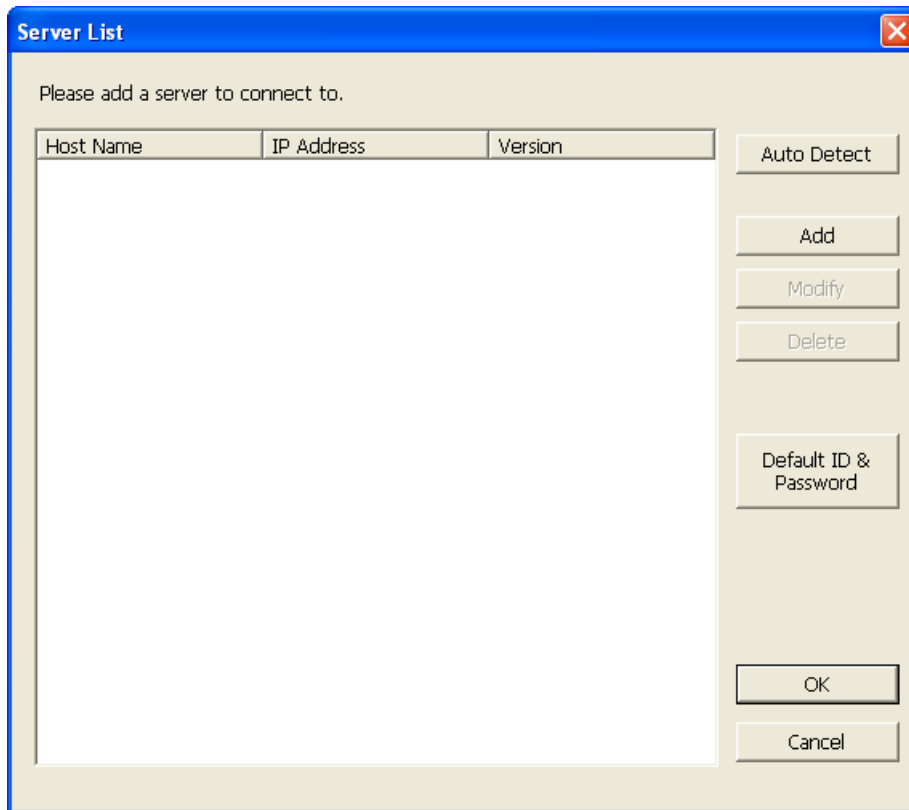
1. Click 'Play by Time' .



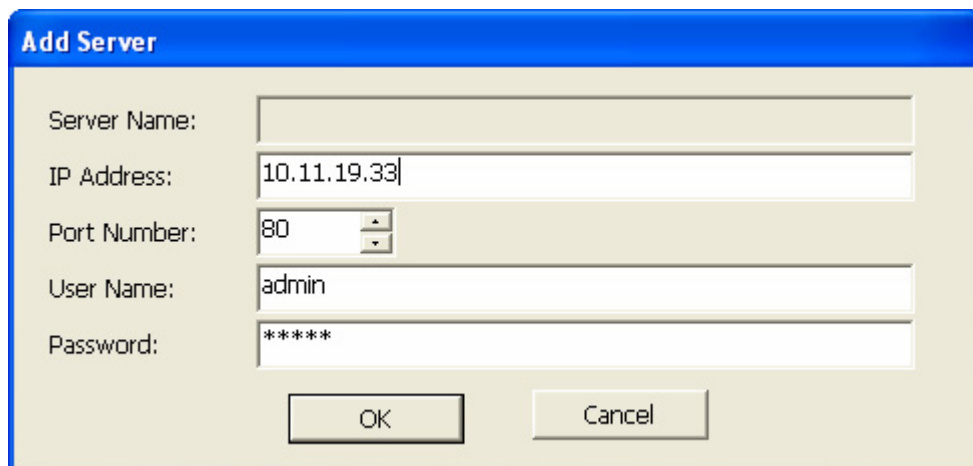
2. The following dialog will be shown. To add more NVR servers for playback, click 'Edit'.



3. Configure servers:



- Auto Detect: Auto-search all the available NVR servers on the local network.
- Add: Connect to an NVR server. Enter the IP address, port number, and login information.



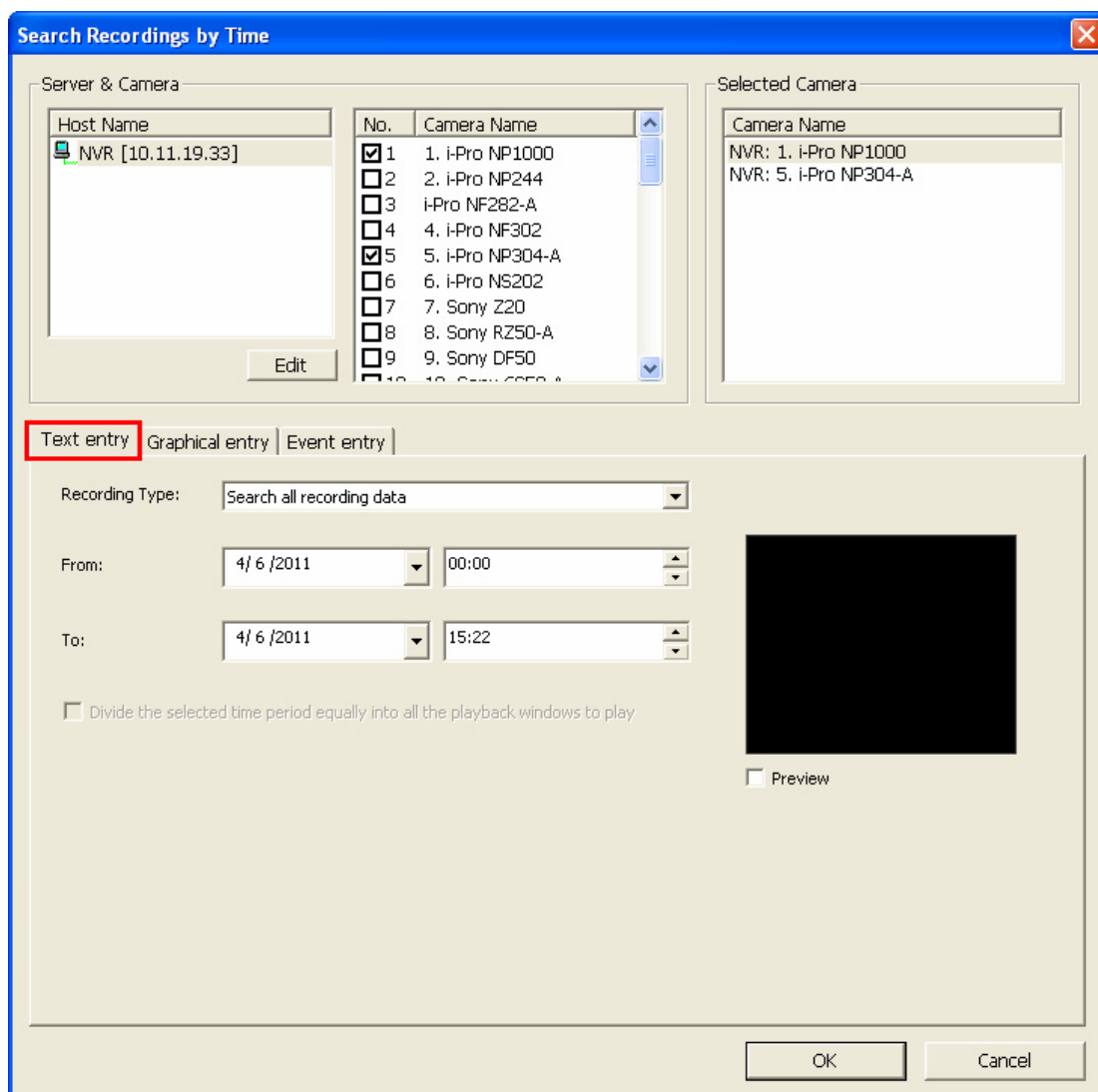
- Modify: Modify the login settings of an NVR server.
- Remove: Delete a manually added NVR server from the list.
- Default settings: Enter the default user name and password for all newly added servers. The login name and password can be changed manually.

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'.

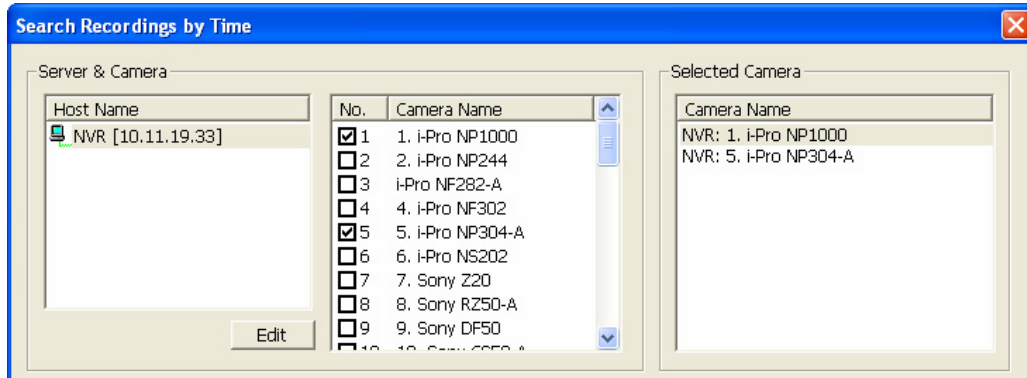
* Maximum 16 IP cameras can be selected. The IP cameras to which you are denied to access will be shown in grey.



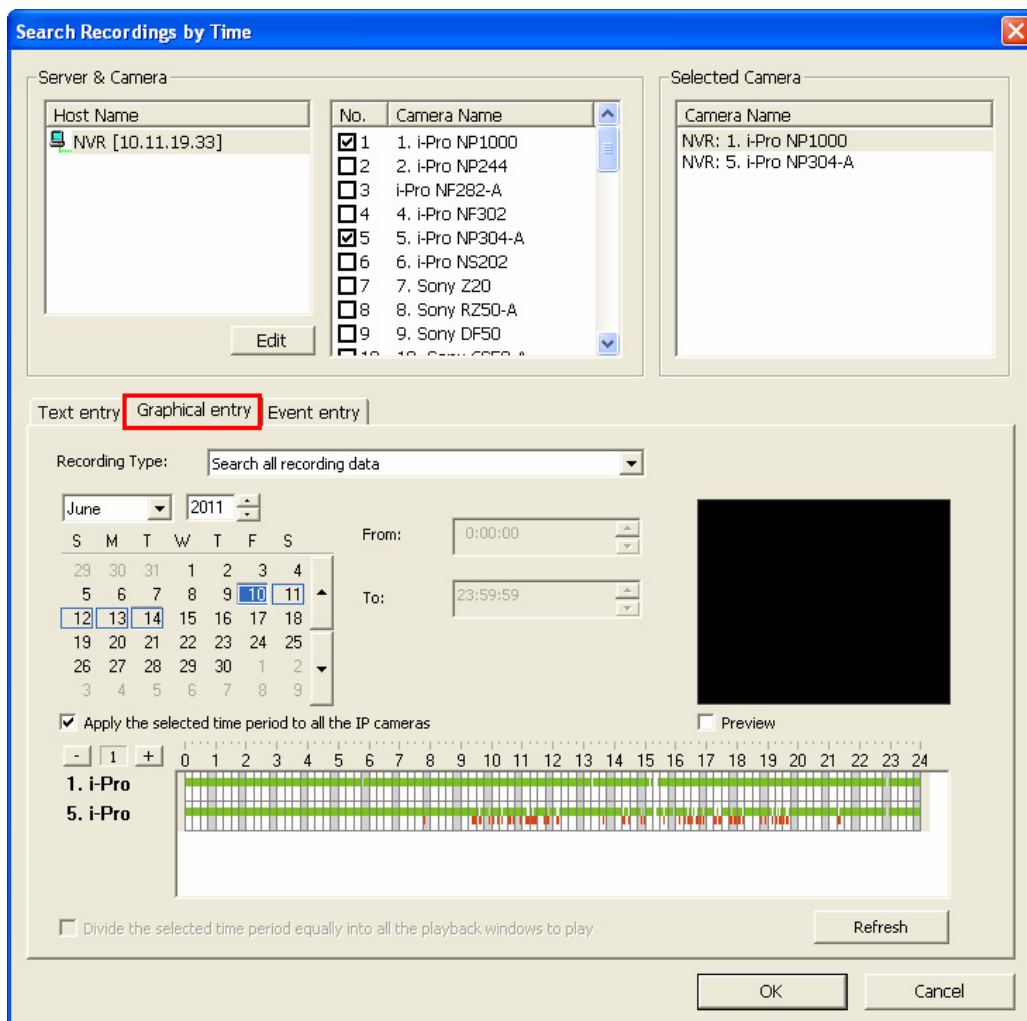
Timeline search (Graphic entry)

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

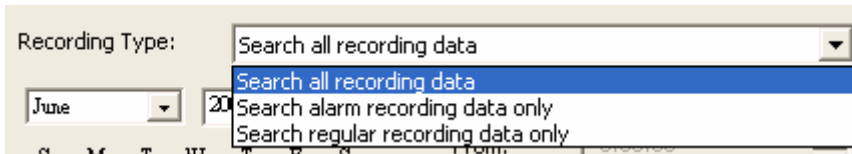
* Maximum 16 IP cameras can be selected. The IP cameras to which you are denied to access will be shown in grey.



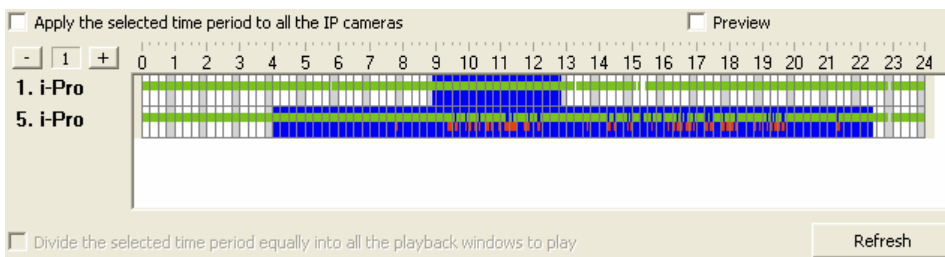
ii. Click the 'Graphical entry' tab.



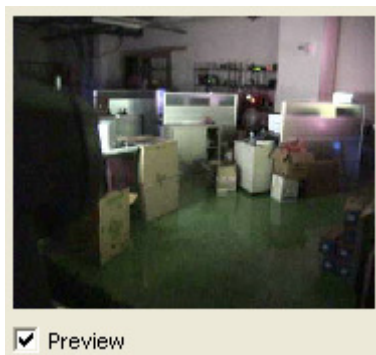
iii. Select the recording type.



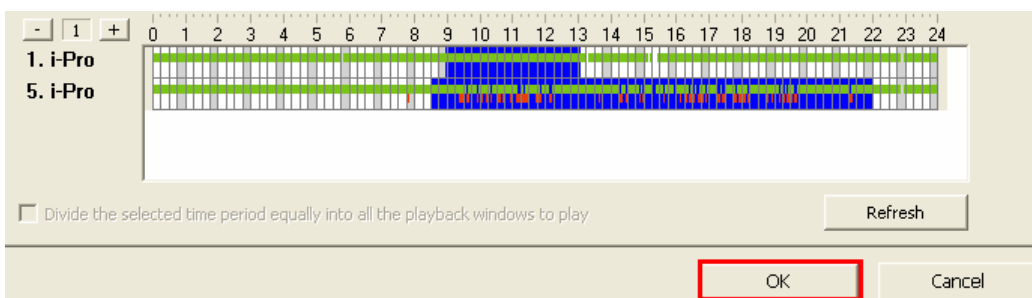
iv. Specify the time range when the files are recorded for each IP camera. The green cells indicate regular recording files and the red cells indicate alarm recording files. Click 'Apply the selected time period to all the IP cameras' to apply the time selection to all the IP cameras.



v. Click 'Preview' to preview the video.



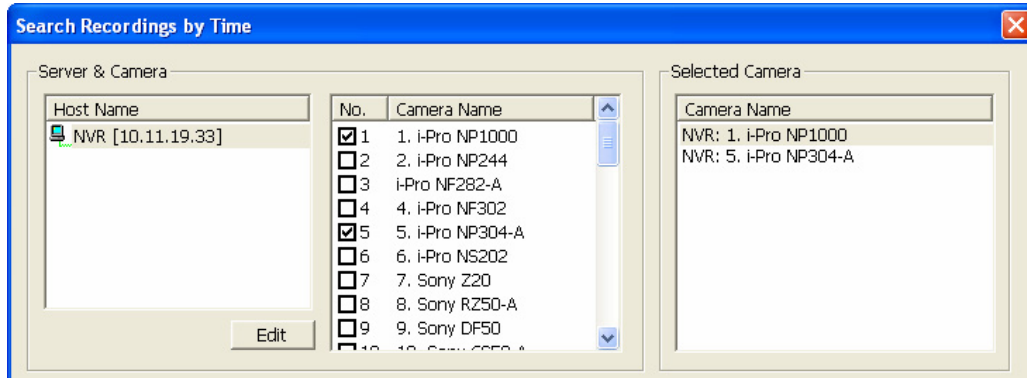
vi. Click 'OK'.



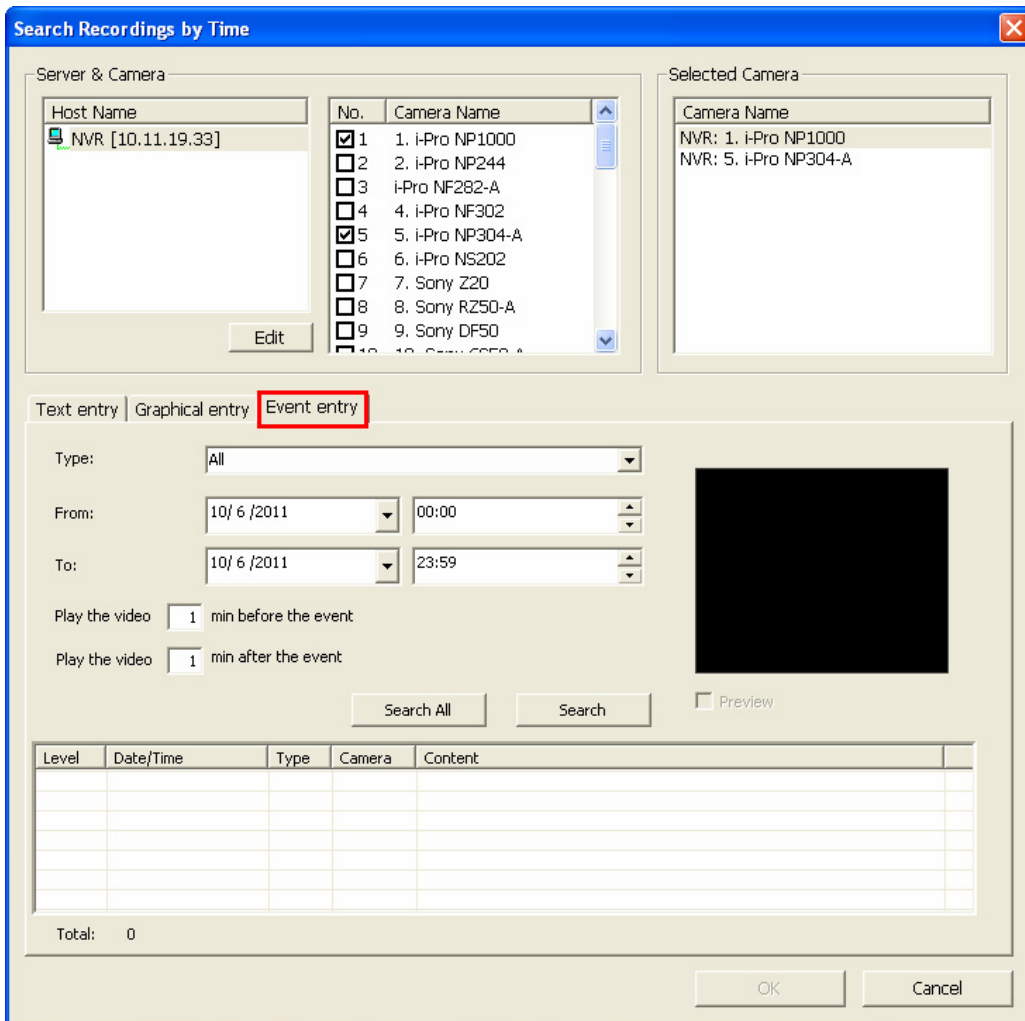
Event entry

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

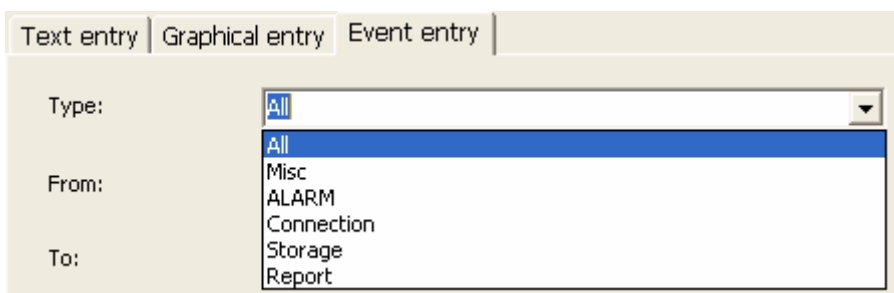
* Maximum 16 IP cameras can be selected. The IP cameras to which you are denied to access will be shown in grey.



ii. Click the 'Event entry' tab.



iii. Select the event type.



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

Text entry | Graphical entry | Event entry

Type: All

From: 10/ 6 /2011 00:00

To: 10/ 6 /2011 23:59

v. Specify the number of minutes (1-30) to play the video recorded before and after the event.

Play the video 1 min before the event

Play the video 1 min after the event

vi. Event search. Use this function to search for all the events occurred on the IP cameras. 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.

Text entry | Graphical entry | Event entry

Type: All

From: 1/ 6 /2011 00:00

To: 14/ 6 /2011 23:59

Play the video 1 min before the event

Play the video 1 min after the event

Search All Search

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

Level	Date/Time	Type	Camera	Content
Inform...	2011-06-14 00:38:05	Alarm	13	Event(s) Triggered on Camera 13.
Inform...	2011-06-14 00:38:06	Alarm	27	Motion detected on Camera 27.
Inform...	2011-06-14 00:38:08	Alarm	13	Event(s) Triggered on Camera 13.
Inform...	2011-06-14 00:38:09	Alarm	27	Motion Stopped on Camera 27.
Inform...	2011-06-14 00:38:10	Alarm	27	Motion detected on Camera 27.
Inform...	2011-06-14 00:38:11	Alarm	13	Event(s) Triggered on Camera 13.
Inform...	2011-06-14 00:38:13	Alarm	27	Motion Stopped on Camera 27.


Total: 9996

OK Cancel

5. The VioStor Player will display the 1, 4, 9, or 16-view window according to the number of IP cameras specified for video search. Click the window one by one to view the search results. A blank playlist means no files were found on the selected IP camera.




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

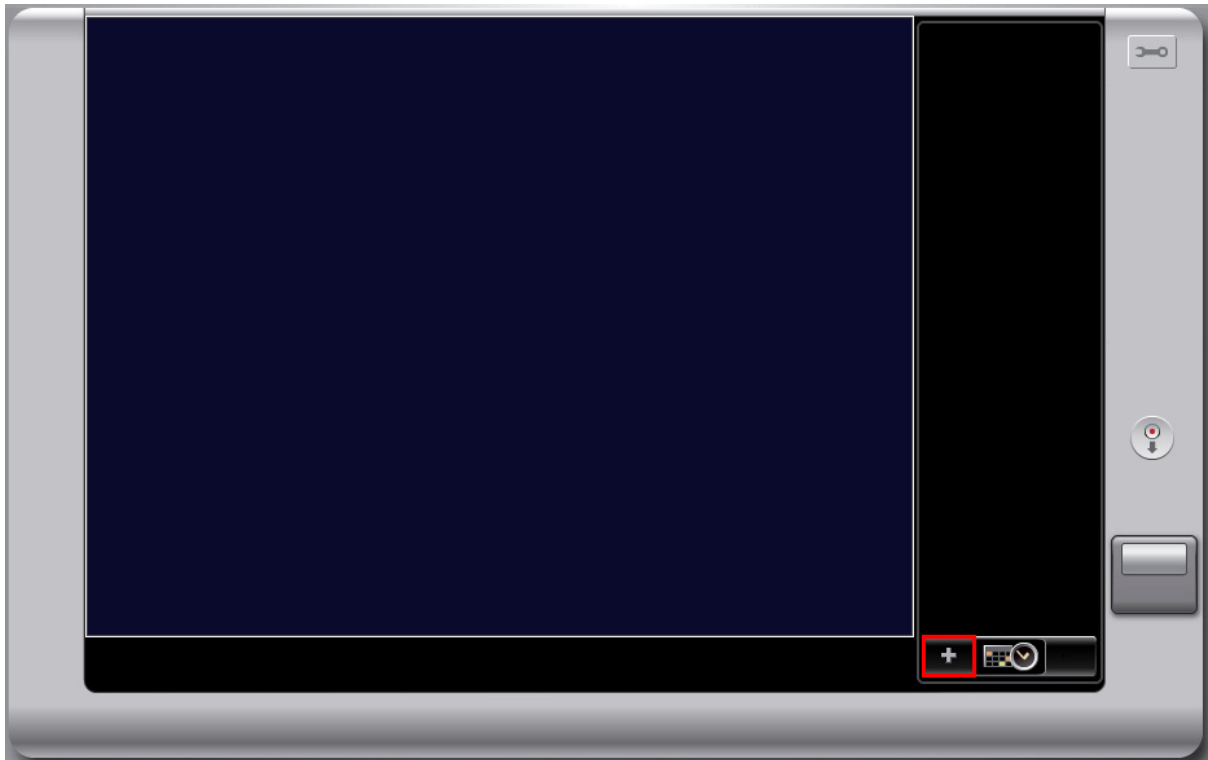
6. To control all the playback windows at the same time, click  to enable 'Control All Views'. When 'Control All Views' is enabled, the playback options (play, pause, stop, previous/next frame, previous/next file, speed adjustment) will be applied to all the playback windows.



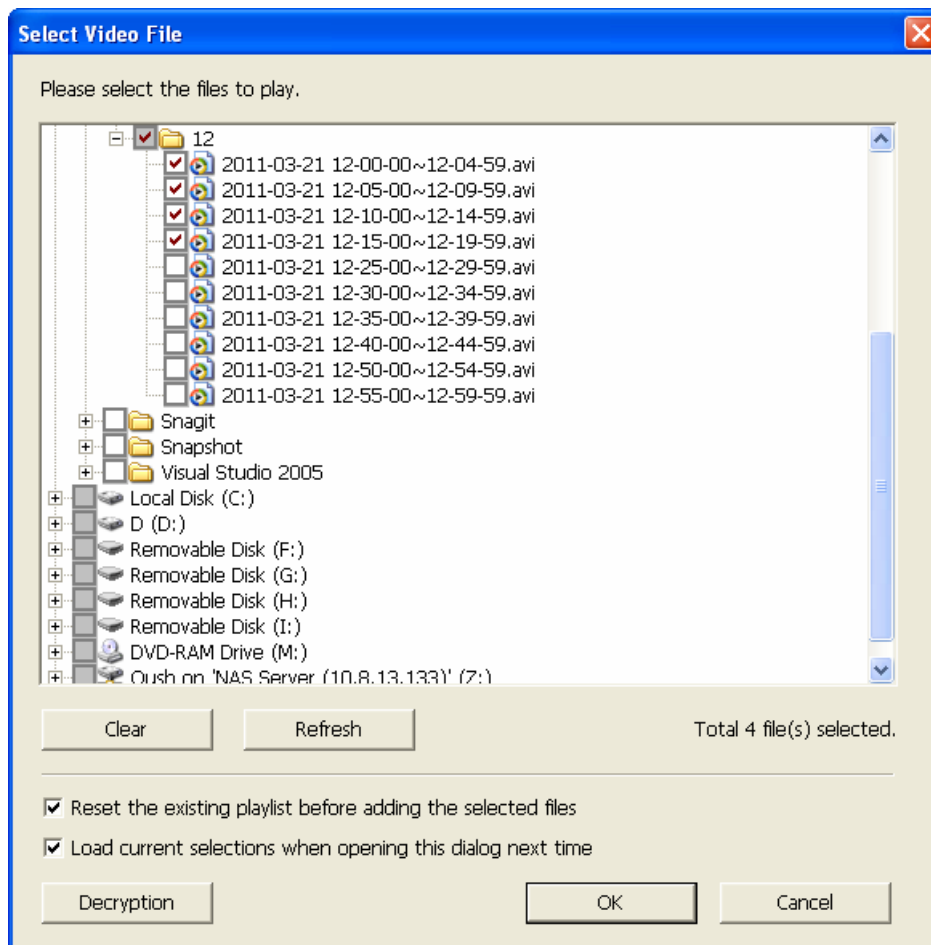
5.1.2 Play Video Files from Local PC

Follow the steps below to play the video files on a local PC by the VioStor Player.

1. Click 'Add files' .



2. Browse and select the video files from the computer.




3. The playlist will be shown. Click 'Play'  to play the videos.



4. To play the video files from the PC in multiple windows by the VioStor Player, click the 4, 9, or 16-view icon. Click the playback window and browse for the video files one by one.



5. To control all the playback windows at the same time, click  to enable 'Control All Views'.



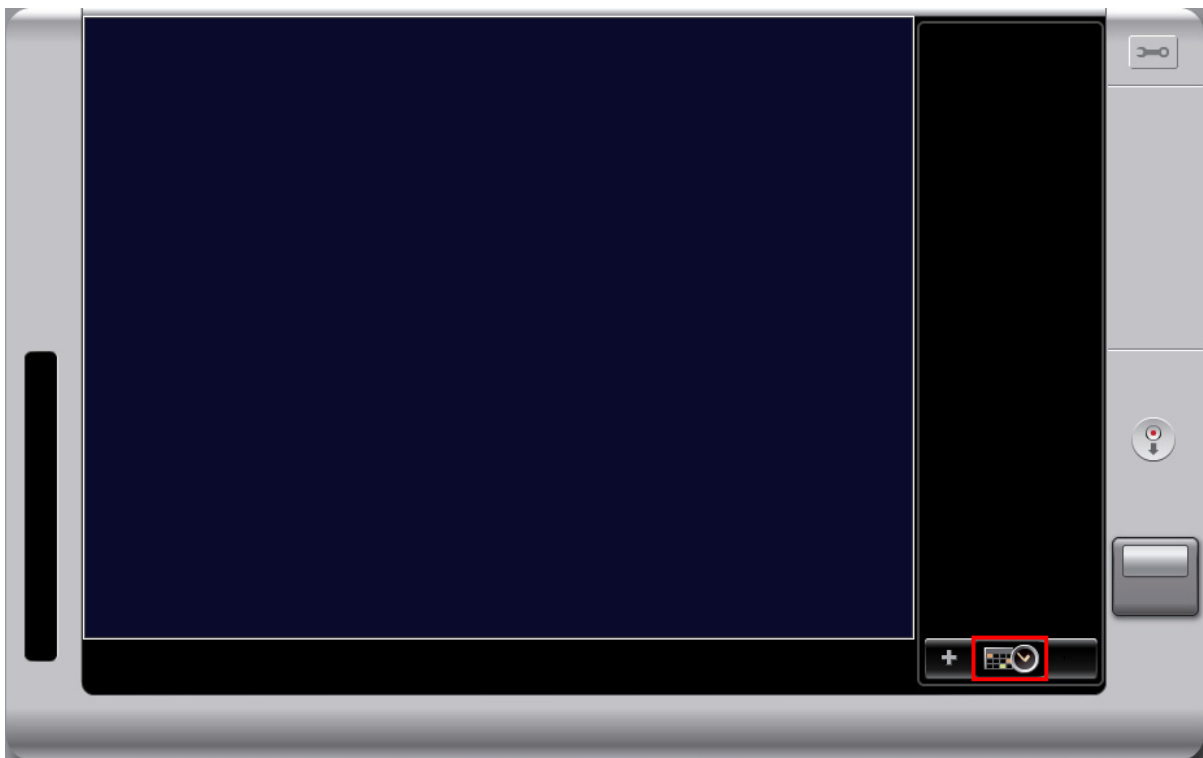
5.1.3 Multi-view Playback

The multi-view playback feature support playing the video files of multiple IP cameras simultaneously. View the videos of maximum 16 IP cameras at the same time or select to divide the video of one IP camera into multiple time periods (16) and play them in a multi-view window.

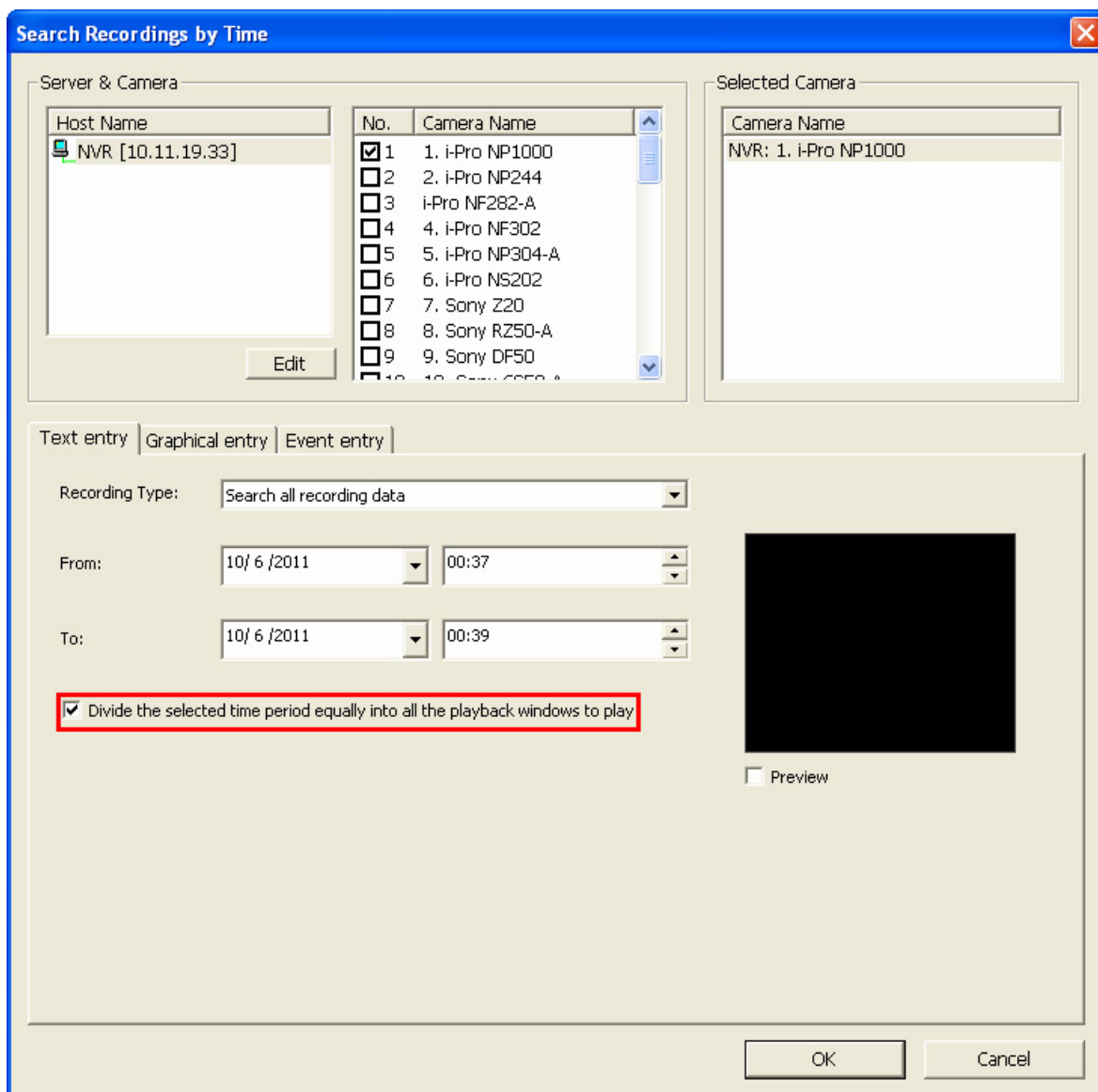
Divide the selected time equally into multiple playback windows

Follow the steps below to play the video files of one IP camera in multiple playback windows by the VioStor Player.

1. Click  'Playback by Time'.




2. Select only one IP camera. The IP cameras to which you are denied to access will be shown in grey.
3. Click 'Text entry' or 'Graphical entry'.
4. Enter the search criteria and select the option 'Divide the selected time period equally into all the playback windows to play'.
5. Click 'OK'.



6. The video files will be divided evenly by 16 windows.



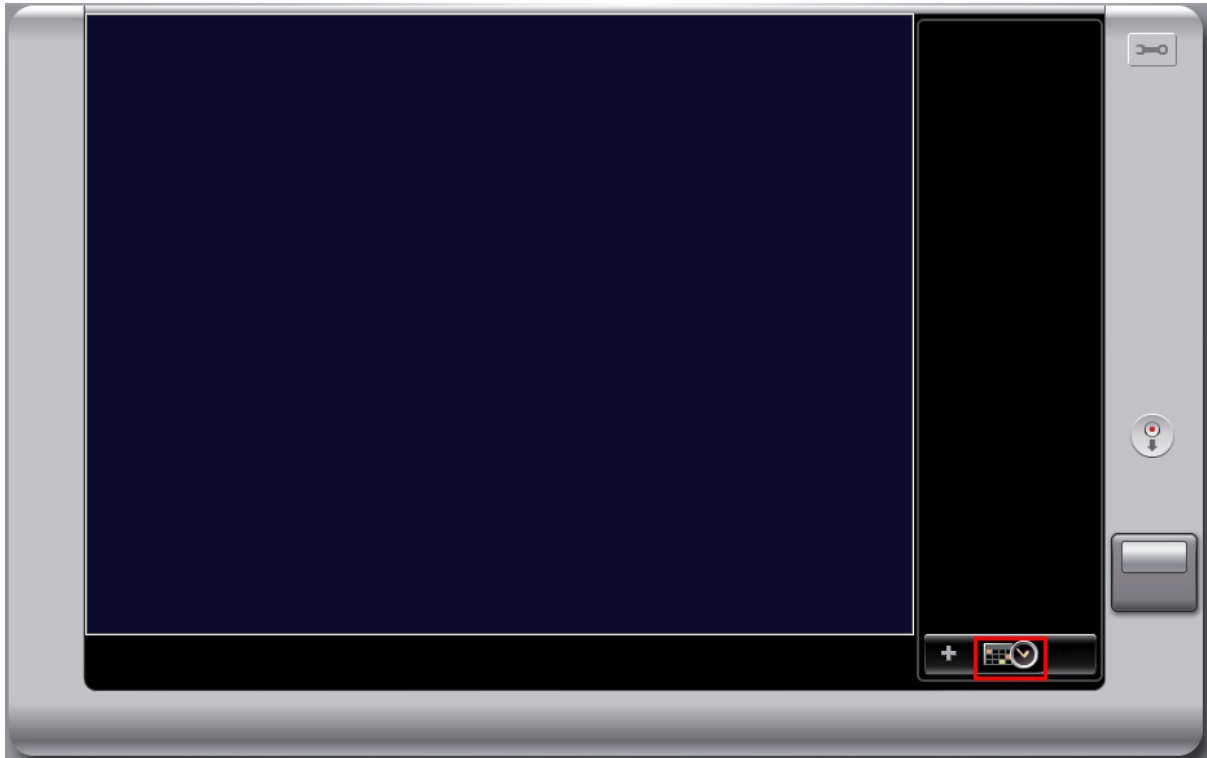
7. To control all the playback windows at the same time, click  to enable 'Control All Views'. When 'Control All Views' is enabled, the playback options (play, pause, stop, previous/next frame, previous/next file, speed adjustment) will be applied to all the playback windows.



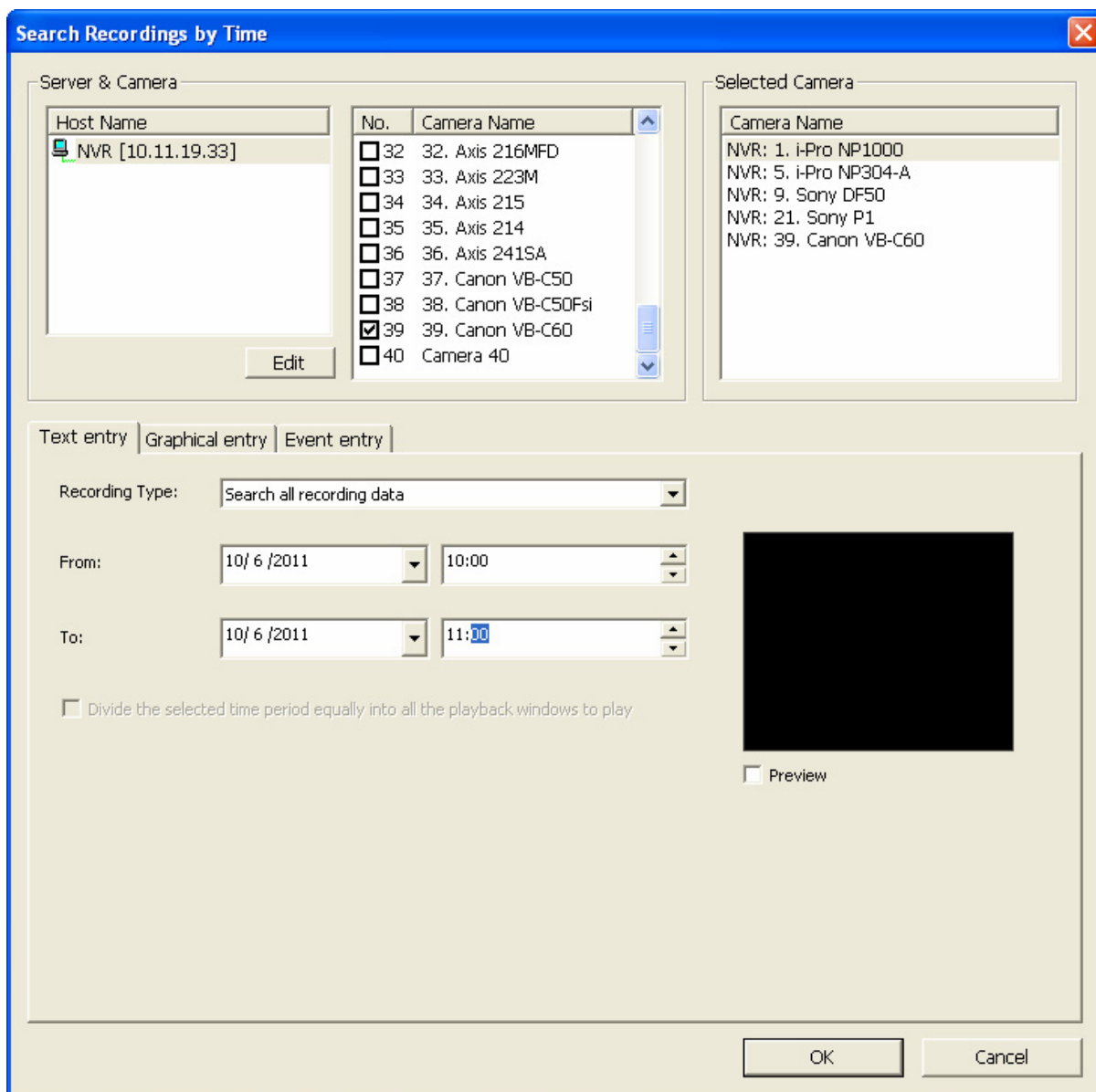
Play the video files of multiple IP cameras

Follow the steps below to play the video files of multiple IP cameras by the VioStor Player.

1. Click  'Playback by Time'.




2. Select multiple IP cameras (maximum 16). The IP cameras to which you are denied to access will be shown in grey.
3. Enter the search criteria in the 'Text entry', 'Graphical entry' or 'Event Entry'. Click 'OK'.



4. The VioStor Player will display the 1, 4, 9, or 16-view window according to the number of IP cameras specified for video search. Click the window one by one to view the search results. A blank playlist means no files were found on the selected IP camera.



5. To control all the playback windows at the same time, click  to enable 'Control All Views'. When 'Control All Views' is enabled, the playback options (play, pause, stop, previous/next frame, previous/next file, speed adjustment) will be applied to all the playback windows.



5.1.4 Intelligent Video Analytics (IVA)

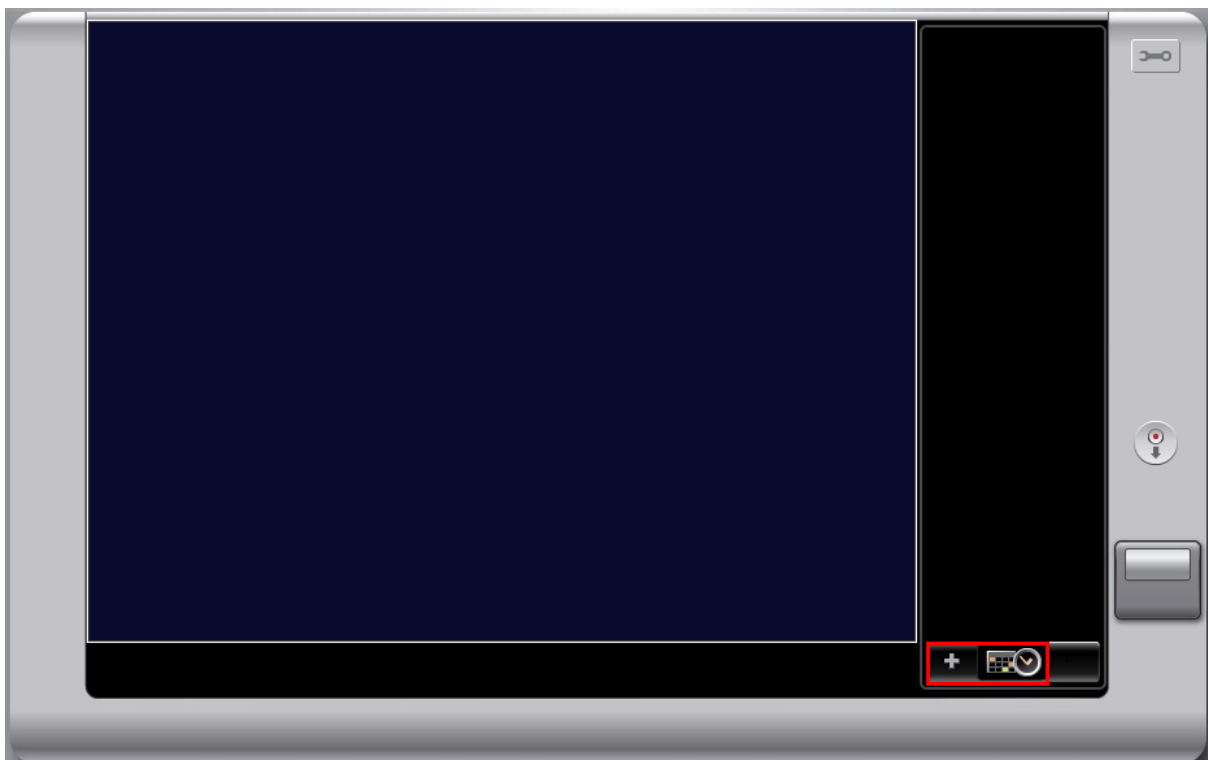
The NVR supports intelligent video analytics for video data search.

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.

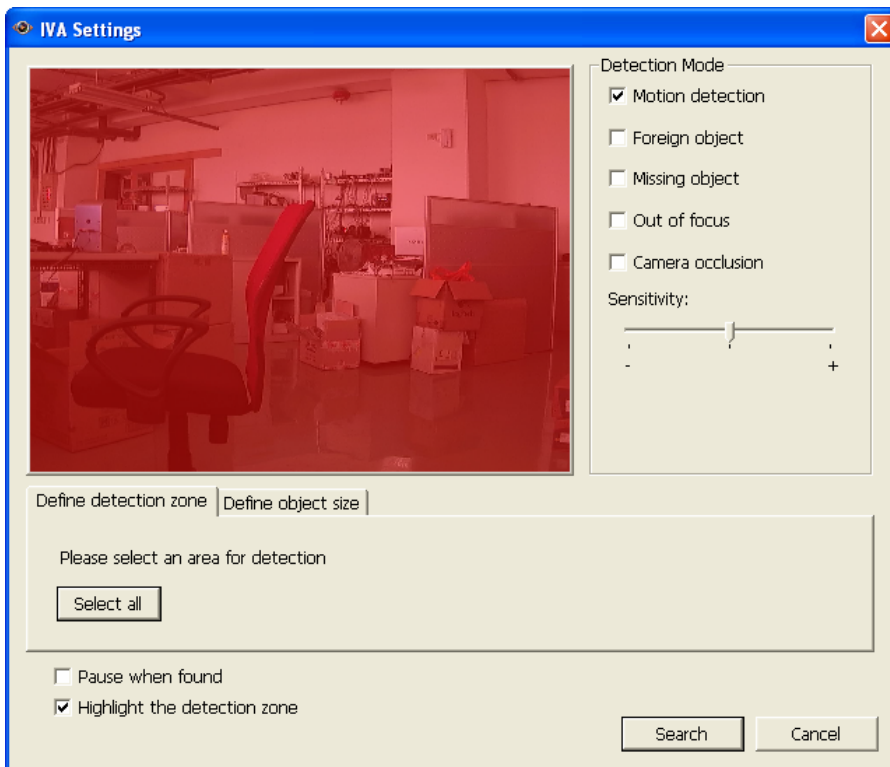
To use this function, follow the steps below:

1. Open the VioStor Player. Add video files to the playlist from the local PC or search for the video files on the NVR.

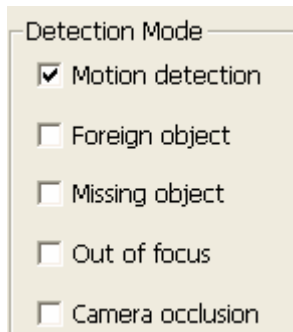


Note: The intelligent video analytics support video search on one IP camera channel only.

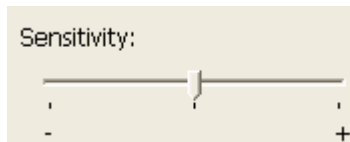
2. When the video files are shown on the playlist, click  and specify the IVA settings for video search.



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

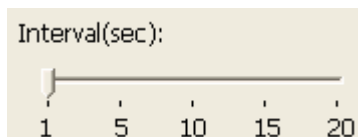


4. Adjust the sensitivity for object detection.

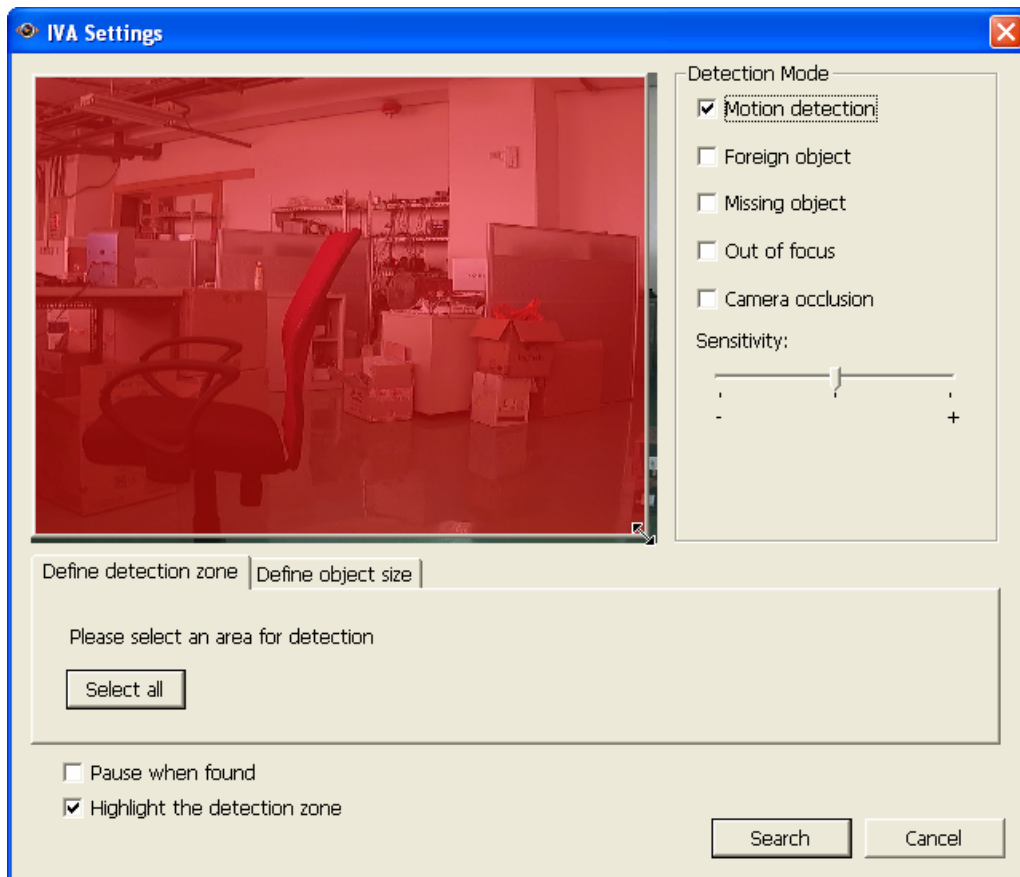


5. Adjust the time interval for detecting the foreign objects and missing objects. If a foreign object appears or a missing object disappears for a period of time which is longer than the time interval, the NVR will record an event.

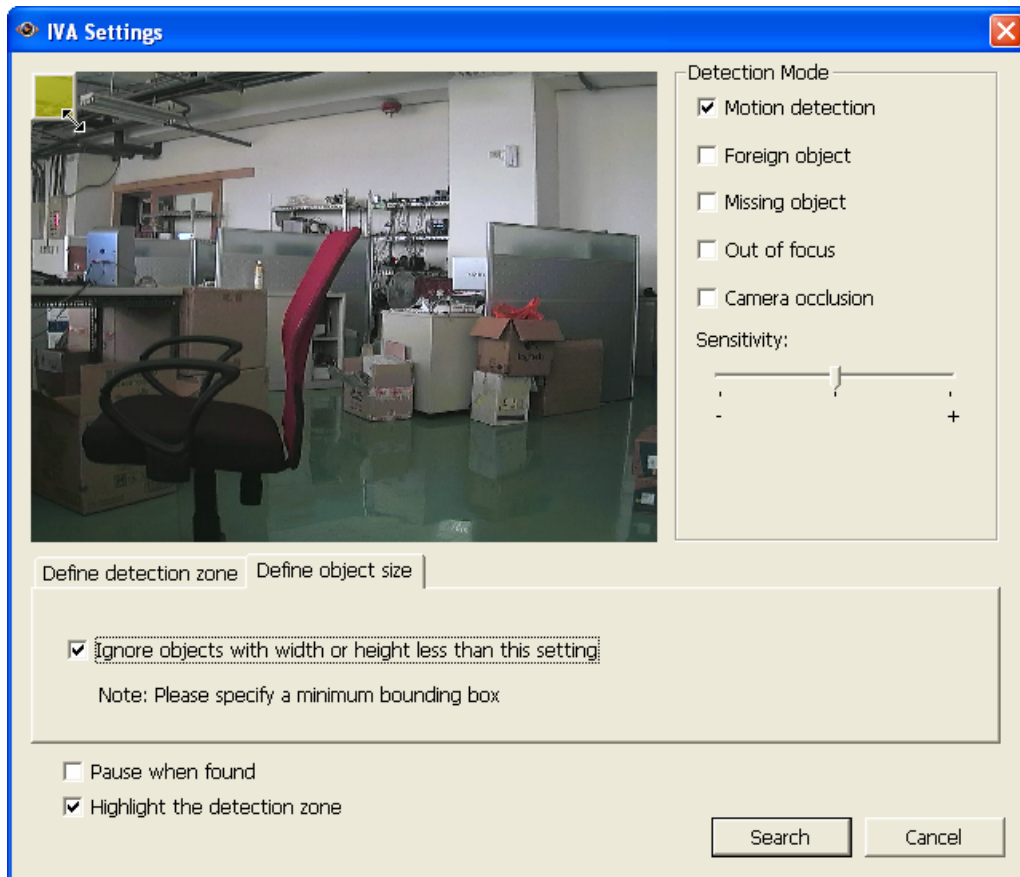
Note: The interval slide bar appears only when 'foreign object' or 'missing object' is selected.



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.

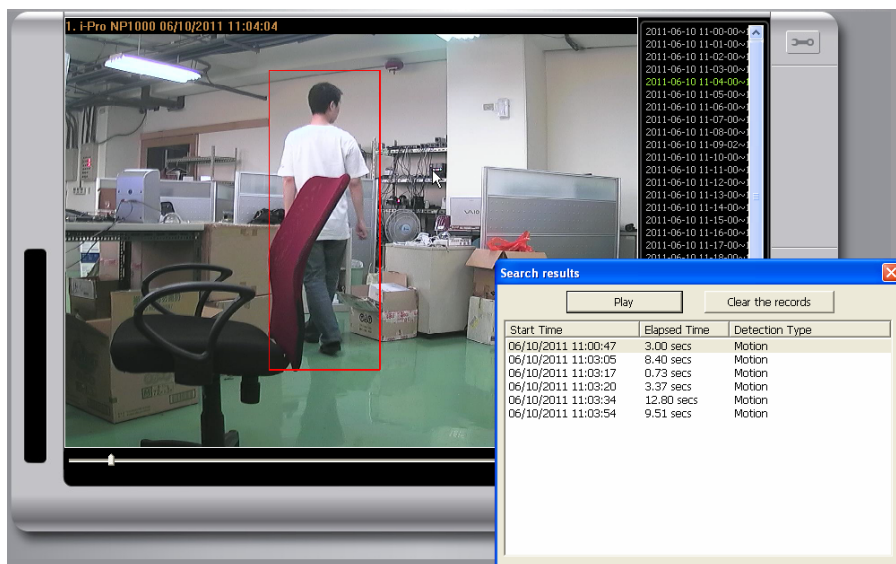
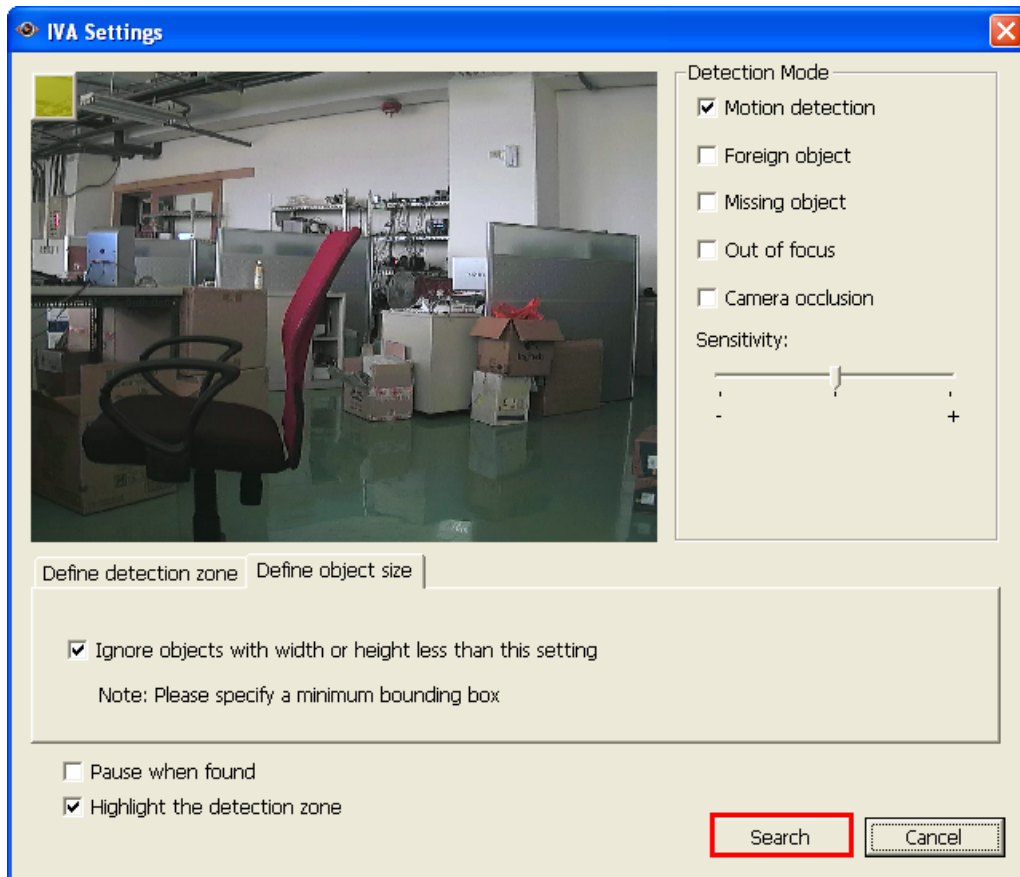


7. Define the object size for detection. Use the mouse to drag the yellow zone to define the minimum object size for detection.
 - ✓ Ignore objects with width or height less than this setting: Enable this option to ignore all the objects smaller than the yellow zone



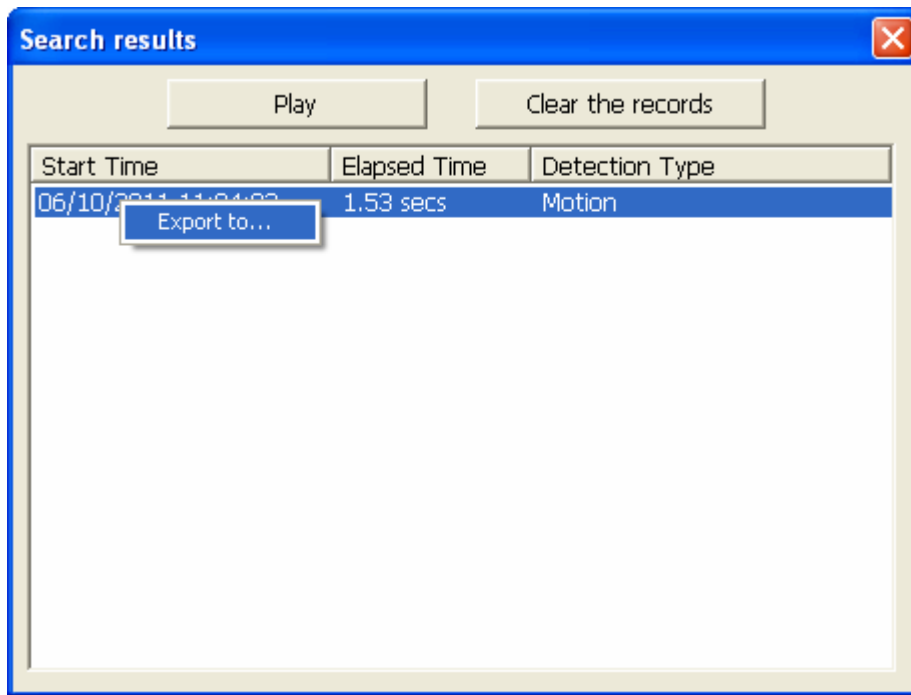
8. Enable/Disable other options for video search.
 - ✓ Pause when found: Enable this option and the video search will stop when a video file which matches the search criteria is found.
 - ✓ Highlight the detection zone: The moving objects detected in the video will be highlighted in red brackets; the 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.

9. Click 'Search' to start searching the video by IVA. The results will be shown.



Other options:

- ✓ 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 (AVI format) and save it on the computer. The exported video starts from 15 seconds before the event to 15 seconds after the event.

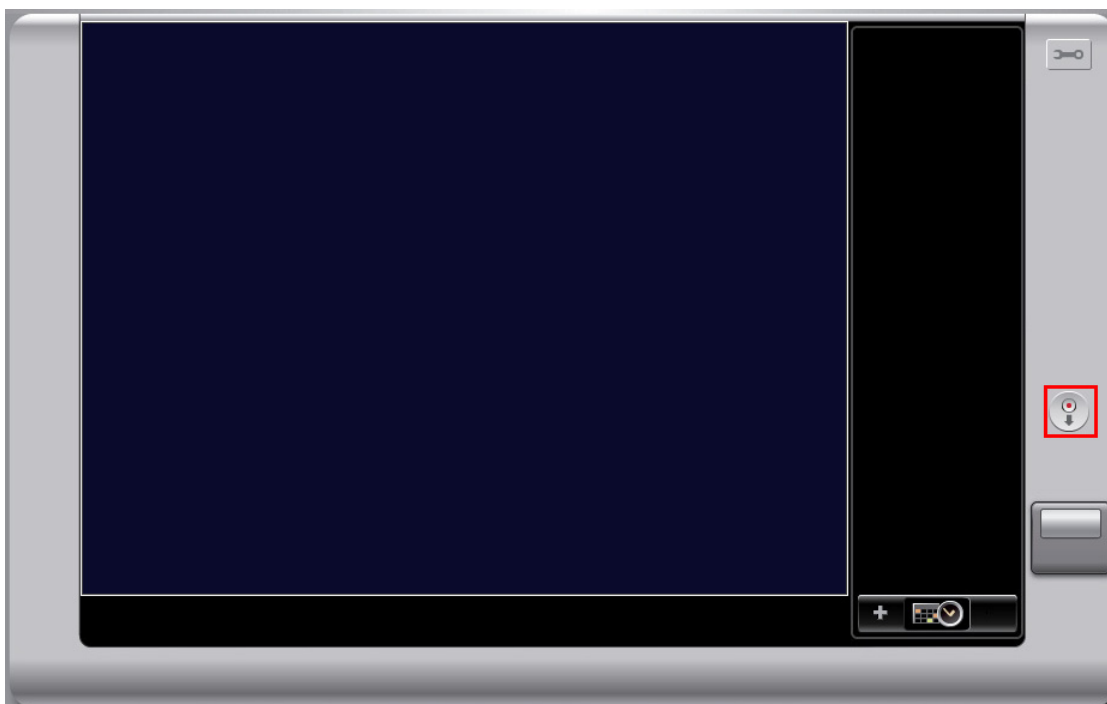


5.1.5 Convert NVR Videos to an AVI File

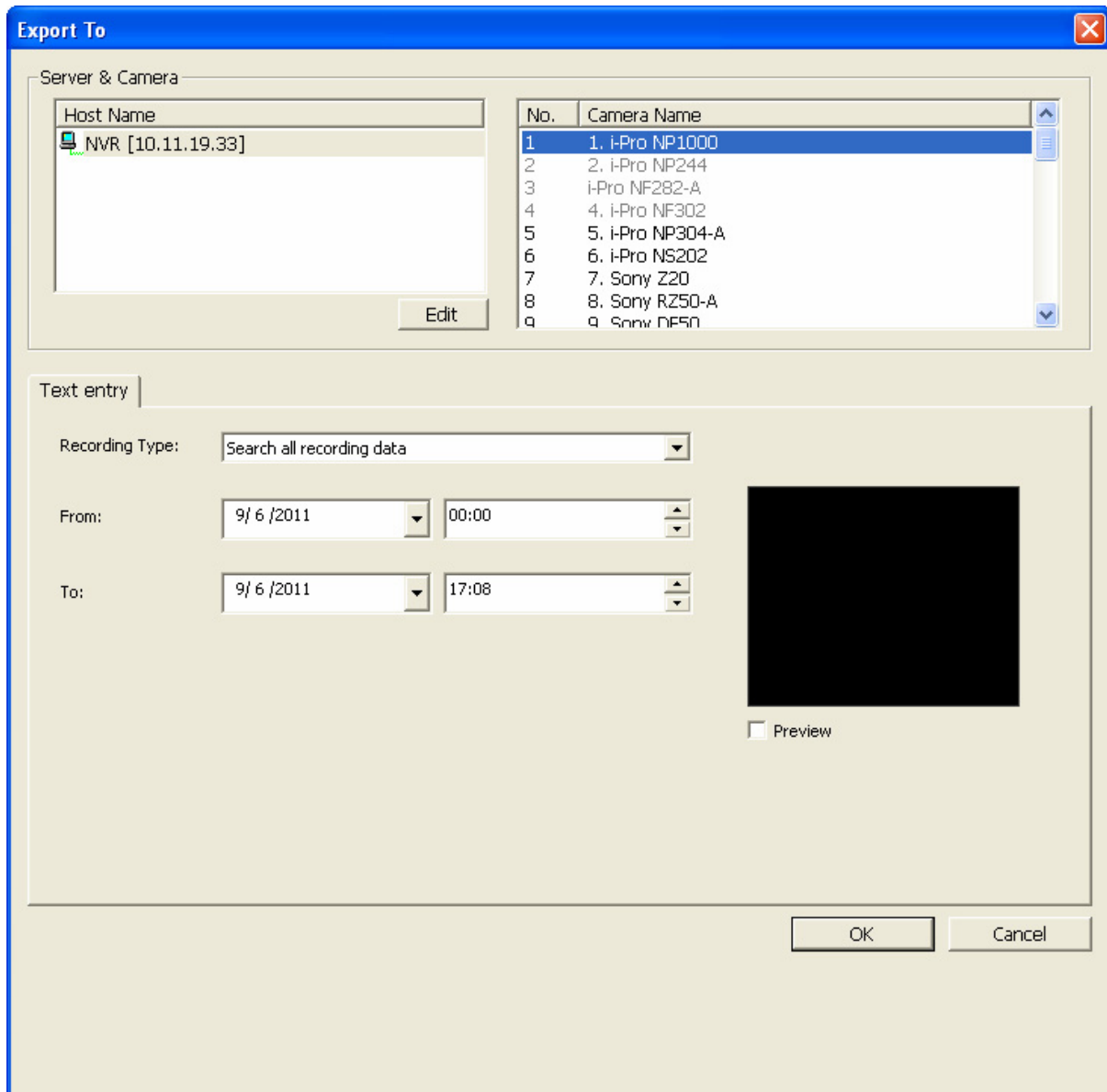
To convert the video files on the NVR to an AVI file and export the file to the local PC by the VioStor Player, follow the steps below.

Note: The playback access right to the IP cameras is required to use this feature.

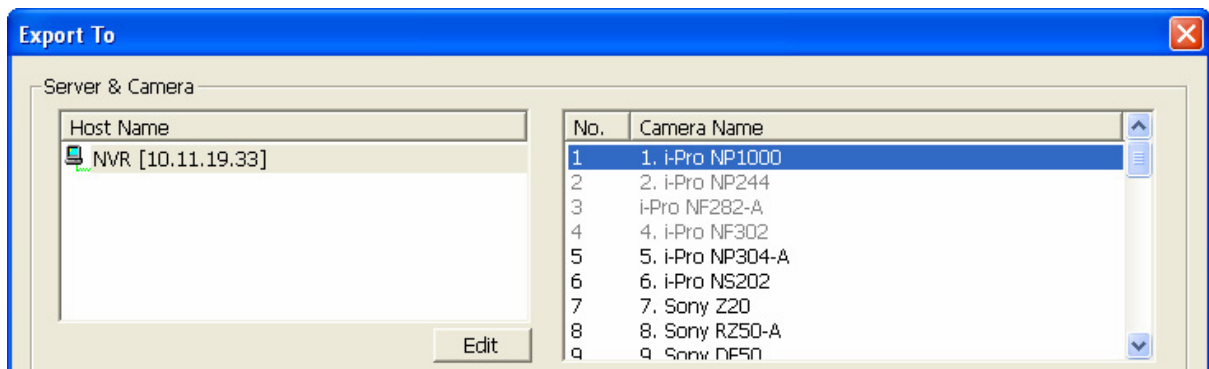
1. Click  'Convert to AVI file'.



2. If no NVR servers or IP cameras are shown, click 'Edit' to add an NVR server manually.



3. Select an NVR server and an IP camera. The IP cameras to which you are denied to access will be shown in grey.



4. Search the video files by 'Text entry'. Select the recording type.

Note: Video search by 'Graphic entry' and 'Event entry' is not available for the video conversion feature.



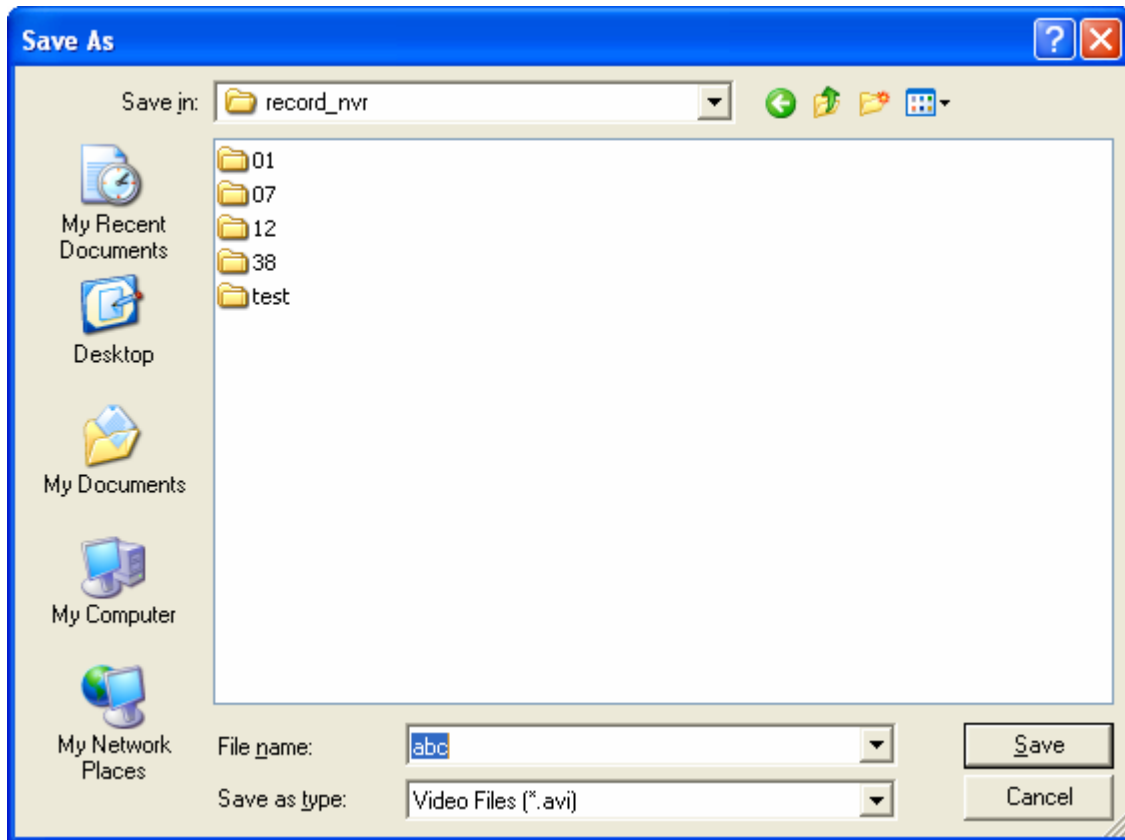
5. Specify the time range. Specify a smaller time range or the video file will be too large and take a long time to convert.



6. Click 'Preview' to preview the video. If no videos are found, search again.



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



8. All the video files which meet the search criteria will be converted to an AVI file.

5.2 Digital Watermarking

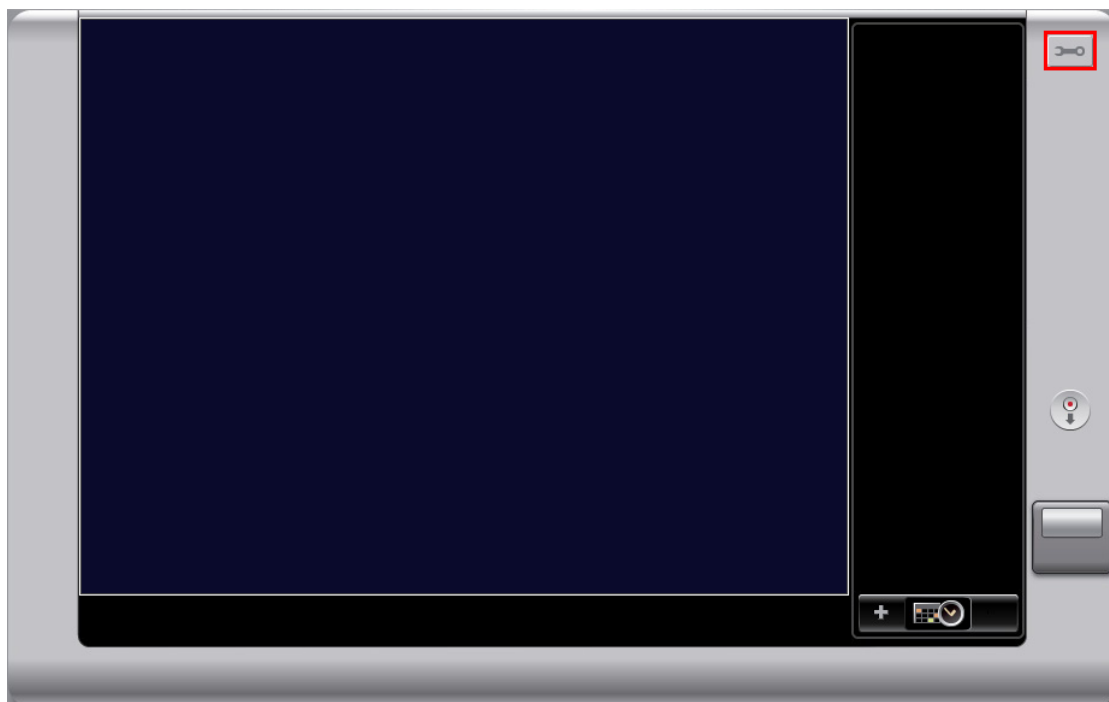
The NVR supports digital watermarking to protect the videos and snapshots from unauthorized modification. Digital watermarks can be added on the exported videos and snapshots by the VioStor Player. The watermark cannot be removed and is only visible to the Watermark Proof software.

5.2.1 Export Video Files with Digital Watermark

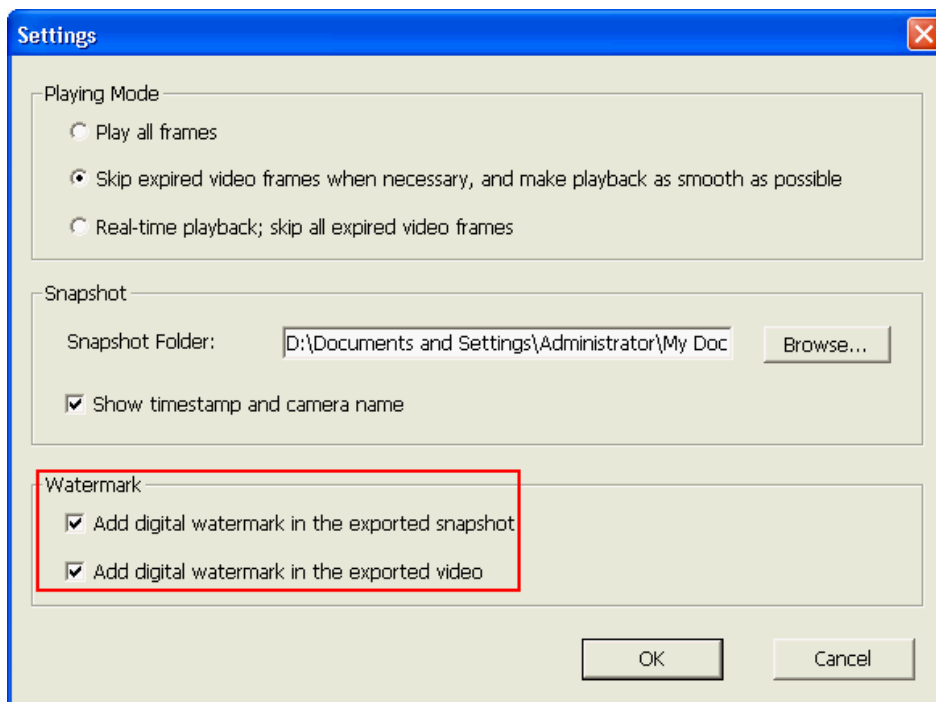
To use digital watermarking by the VioStor Player, follow the steps below.


1. Open the VioStor Player.

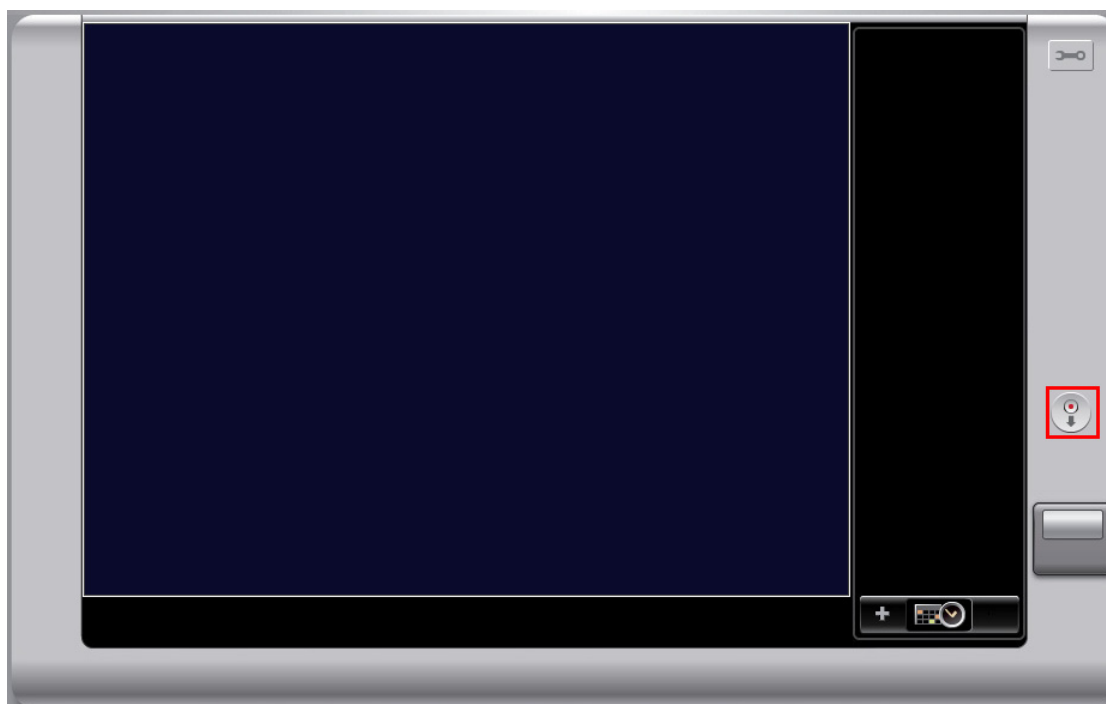
2. Click 'Settings' .



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



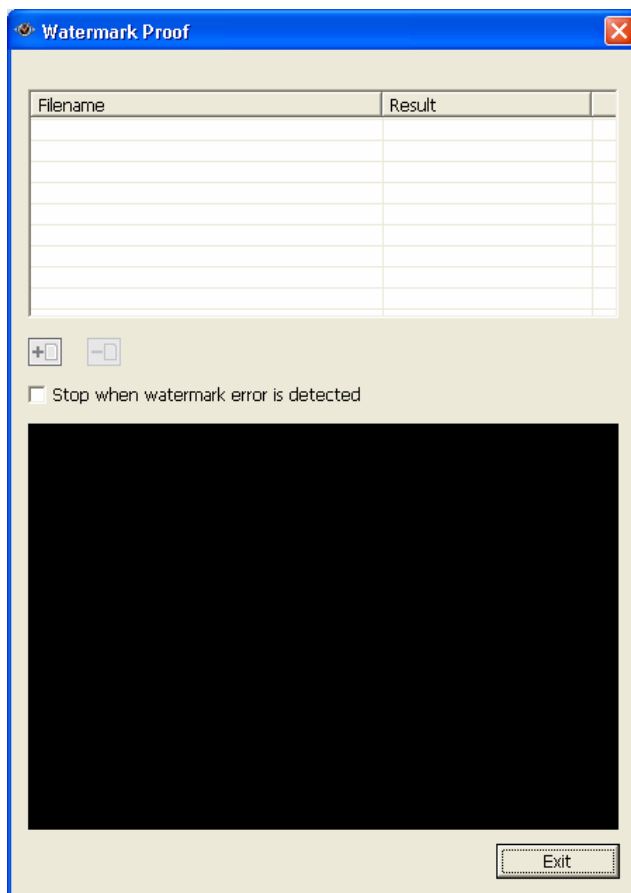
4. Click  'Convert to AVI file' (refer to Chapter 5.1.5). Digital watermarks will be added to the exported video files and snapshots.





5.2.2 Watermark Proof

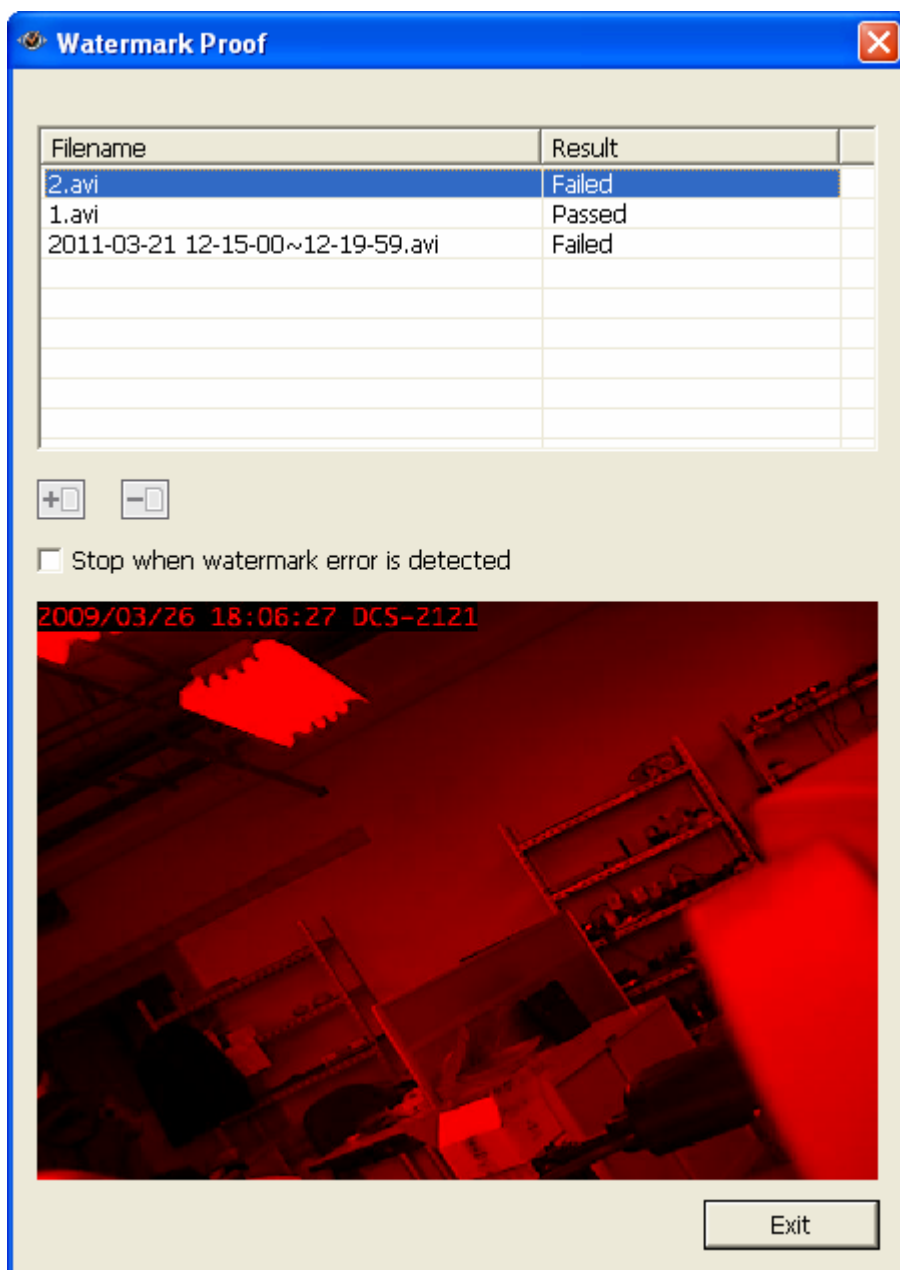
The Watermark Proof utility is installed automatically along with the VioStor Player. From the Windows Start menu, select 'All Programs' > 'QNAP' > 'VioStor Player' to locate 'Watermark Proof'.

Run Watermark Proof. The following window will be shown.



Click  to browse and locate the files. Multiple files can be selected at one time.

Click  to check the files and view the proof result. When 'Stop when watermark error is detected' is selected, the checking process will stop if a failed file is detected. Otherwise the program will check all the files selected. If a video file has been modified, or is not exported with digital watermark, or not an NVR video file, the proof result will be shown as 'Failed'.



5.3 Access the Recording Data

The recording data on the NVR can be accessed by the following services:

- Microsoft Networking (SMB/CIFS)
- Web File Manager (HTTP)
- FTP Server (FTP)



Note:

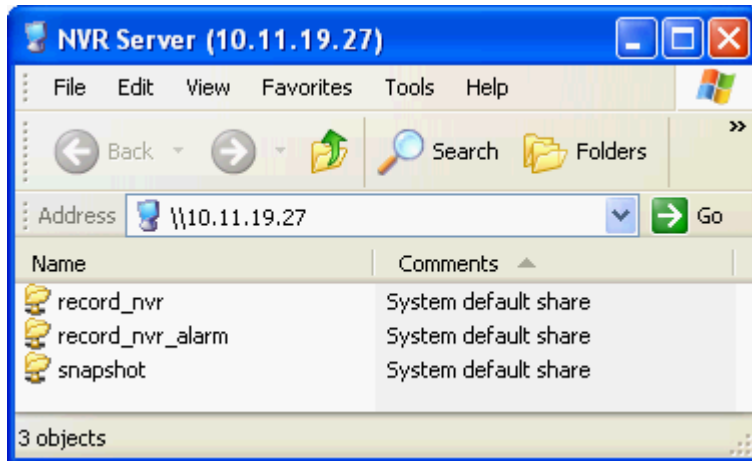
- To access the video files by these protocols, enter the user name and password with the administrator access right.
- To use these services, enable the files services in 'Network Settings' > 'File Services' in the system administration page.

A screenshot of a web-based system administration interface. The top navigation bar includes icons for home, power, network, file services, menu, user profile, search, and refresh. The left sidebar is titled 'Network Settings' and contains links for TCP/IP Configuration, DDNS Service, File Services (highlighted), Host Access Control, Protocol Management, and View Network Settings. The main content area is titled 'File Services' and contains three sections: 'Microsoft SMB/CIFS File Service' with a checked 'Enable SMB/CIFS File Service' checkbox; 'Web File Manager' with a checked 'Enable Web File Manager' checkbox; and 'FTP Service' with a checked 'Enable FTP Service' checkbox. Below the FTP section, there is an unchecked checkbox 'Map the FTP port of VioStor to the virtual server as' followed by an empty text input field. Underneath is the label 'Passive FTP Port Range' with two radio button options: 'Use the default port range (55536 - 56559)' (selected) and 'Define port range: [input] - [input]'. At the bottom of the FTP section, there is an unchecked checkbox 'Respond with external IP address for passive FTP connection request' followed by the label 'External IP address:' and an empty text input field. A blue note at the bottom states: 'Note: Only users with administration authority can use these file services and the files on the share folder can be read only.' An 'Apply' button is located at the bottom right of the configuration area.

5.3.1 Microsoft Networking (SMB/CIFS)

Access the video files by the SMB/CIFS protocol on Windows OS.

- On the web-based playback interface, click 'SMB'. OR
- Run \\NVR_IP from the Windows Start menu. For example, if the 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.

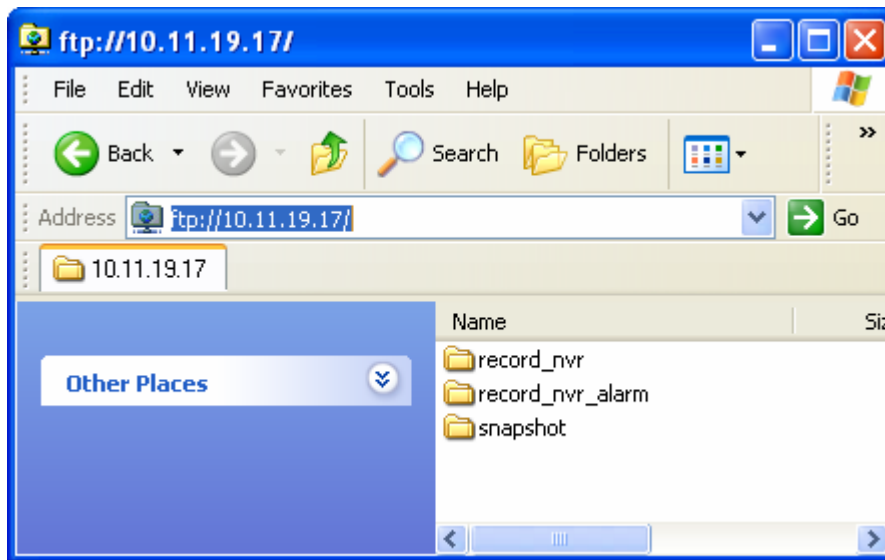


Share Folder	Comment
record_nvr	System default share
record_nvr_alarm	System default share
snapshot	System default share


5.3.3 FTP Server (FTP)

Access the recording data by FTP:

- On the web-based playback interface, click 'FTP'. OR
- 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 enter the system configuration page of the NVR, login the monitoring page as an administrator and click .











Upon successful login, the monitoring channels, connection and recording status, and the network bandwidth of the NVR will be shown on the 'Advanced Mode' page.

	Preview	Camera Name	IP Address	Status	Recording status	Frame rate	Bit rate	Management
1		1. Panasonic HCM-481	172.17.27.134	Connected	Recording	10 fps	944.4 Kbps	
2		2. Axis Q7401	172.17.26.65	Connected	Recording	16 fps	435.9 Kbps	
3		3. Axis P3301	172.17.26.102	Connected	Recording	1 fps	122.7 Kbps	
4		4. I-Pro NS202	172.17.26.28	Connected	Recording	1 fps	232.9 Kbps	
5		5. IQeye 040S	172.17.27.24	Connected	Recording	13 fps	3606.8 Kbps	
6		6. IQeye 041S	172.17.27.25	Connected	Recording	2 fps	1795.5 Kbps	





View the settings by 'Traditional Mode'.

<<< Advanced Mode

 <p>Quick Configuration Quick step-by-step server setup</p>	 <p>User Management Add / Edit / Delete Users</p>
 <p>System Settings Server Name · Date & Time · View System Settings</p>	 <p>Camera Settings Camera Configuration · Recording Settings · Schedule Settings · Alarm Settings · Advanced Settings</p>
 <p>Network Settings TCP/IP Configuration · DDNS Service · File Services · Host Access Control · Protocol Management · View Network Settings</p>	 <p>System Tools Alert Notification · SMSC Settings · Restart/Shutdown · Hardware Settings · System Update · Backup/ Restore/ Reset Settings · Remote Replication · Hard Disk SMART · Ping Test · Advanced System Settings</p>
 <p>Device Configuration SATA Disk · RAID Management Tool · USB Disk · UPS</p>	 <p>Logs & Statistics System Event Logs · Surveillance Logs · On-line Users List · Historical Users List · System Connection Logs · System Information</p>

If the NVR is has not been configured yet, the Quick Configuration page will be shown.
Follow the instructions to finish the setup.

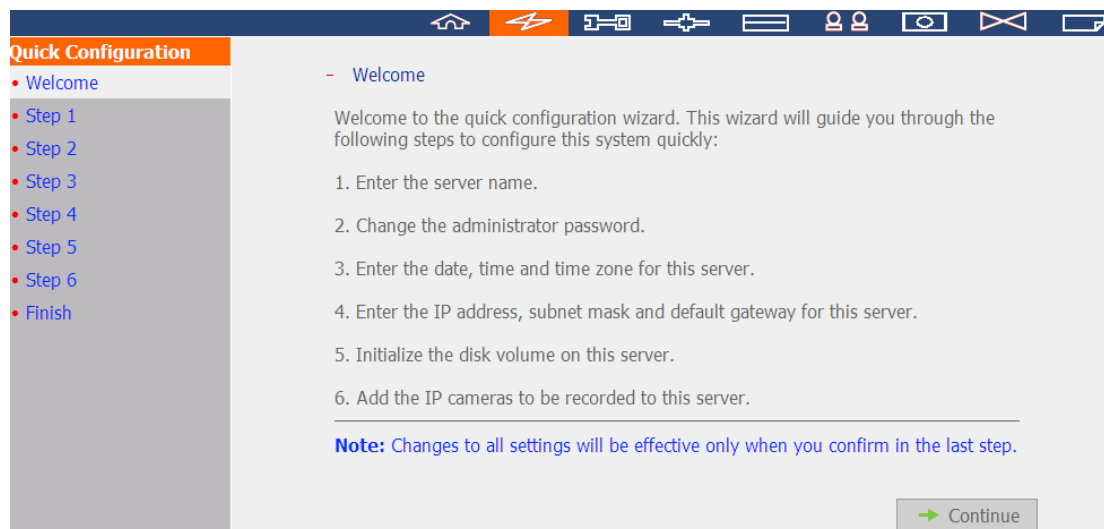
The functions of the buttons on the configuration page are described below:

	Return to the monitoring page
	Playback the videos
	View the on-line help
	Logout 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.

- Step 1/6: Enter the name for this server.

Server Name :

Tip: You have to create a unique name for your server in order to identify your server quickly. 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.

 Back

 Next

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


- Step 2/6: Change the administrator password.


Password :

Verify Password :

Use the original password

Note: If you select "Use the original password", the administrator password will not be changed.

 Back

 Next

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

- Step 3/6: Enter the date, time and time zone for this server.

Time Zone : (GMT+08:00) Taipei

Date / Time: 2011/3/22 12 : 02 : 31

Synchronize with an Internet time server automatically

Server: pool.ntp.org Test (Status: --)

Set the server time the same as your computer time.

Tip: This system can be used by the network cameras or other servers as an NTP server by default. To ensure that the date and time of the network cameras is synchronized with this server, please set up all the network cameras by entering the IP address of this server as their NTP server.

← Back → Next

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

- Step 4/6: Enter the IP address, subnet mask and default gateway for this server.

Obtain an IP address automatically by DHCP

Use the following settings

IP Address: 10 . 11 . 19 . 27

Subnet Mask: 255 . 255 . 254 . 0

Default Gateway: 10 . 11 . 18 . 1

Primary DNS Server: 10 . 8 . 2 . 11

Secondary DNS Server: 10 . 8 . 2 . 9

Note: To allow this server to use host names for NTP or SMTP servers, you must provide the IP address of the primary DNS server.

← Back → Next

5. Select the disk configuration. All the disk data will be cleared unless 'Do not to set the disk configuration' is selected.

- Step 5/6: Select the disk configuration.

Note: The hard drive(s) has (have) been initialized. Select "Do not set disk configuration" or the drive data will be cleared.

Please select the disk configuration for the initialization.

Disk configuration: Total available storage capacity: 0 GB

The hard drive(s) detected by NVR:

Disk	Model	Capacity
Drive 1	WDC WD5000AAKS-00YGA12.0	465.76 GB
Drive 2	--	--
Drive 3	Seagate ST3500418AS CC37	465.76 GB
Drive 4	--	--

Tip: All settings will be effective after confirming the changes in the last step.

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. 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.

- Step 6/6: Initialize IP camera setting.

1: 1.Axis M1113 10.11.18.32	Camera Brand:	Axis
2: 2. Axis M1054 _10.11.18.71-display-Joe	Camera Model:	Axis M1113
3: 3. Sony DS-10 10.11.18.102	Camera Name:	1.Axis M1113
4: 4. Messoa NDZ860 10.11.19.217	IP Address:	10.11.18.32
5: 5. ACTi TCM-7411 10.11.18.180	<input type="checkbox"/> Port	80
6: Camera 6	User Name:	root
7: 7. Sony RZ50 10.11.14.103	Password:	•••••
8: 8. MOBOTIX Q24M-Sec 10.11.19.238	<input checked="" type="checkbox"/> Enable recording on this camera	
9: 9. Axis M1011 _10.11.18.127-No connec	<input type="button" value="Test"/>	<input type="button" value="Save"/>
10: 10. Axis M1011 10.11.18.129	<input type="button" value="Remove"/>	
11: 11. Axis M1031 10.11.18.127	<input type="button" value="Search"/>	
12: 12. Arecont AV3105 10.11.19.87		
13: 13.Axis P5534 10.11.18.19		
14: 14. Axis M1011 10.11.18.131		
15: 15. Axis M1011 _10.11.18.14-display		
16: 16. i-Pro NW484 10.11.18.101		

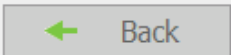
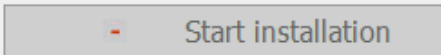
Note: Please enter the settings of the connected network camera, and click Save to add it one by one. You can click Test to verify the settings you entered.

7. Click 'Start Installation' to apply the changes and initialize the system.

Finish

The changes you have made to the server are as below. Click "Start installation" to begin the quick configuration; or click "Back" to return to the previous steps to modify the settings.







Server Name :	NVR
Password:	The password is unchanged.
Time Zone :	(GMT+08:00) Taipei
Time Setting:	Set the server time the same as your computer time.
Network :	Use the following settings
IP Address:	10.11.19.27
Subnet Mask:	255.255.254.0
Default Gateway:	10.11.18.1
Primary DNS Server	10.8.2.11
Secondary DNS Server	10.8.2.9
IP Camera :	You have configured 15 camera(s)
Disk configuration:	Do not set disk configuration
Drive 1:	WDC WD5000AAKS-00YGA12.0 465.76 GB
Drive 2:	-- --
Drive 3:	Seagate ST3500418AS CC37 465.76 GB
Drive 4:	-- --


 

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

System is initializing, please wait.

The system is being configured, do NOT power off the server or unplug the hard drive (s).

1. Enter the server name. 
2. Change the administrator password. 
3. Enter the date, time and time zone for this server. 
4. Enter the IP address, subnet mask and default gateway for this server. 
5. Initialize the disk volume on this server. 
6. Add the IP cameras to be recorded to this server. 

 System configuration completed.

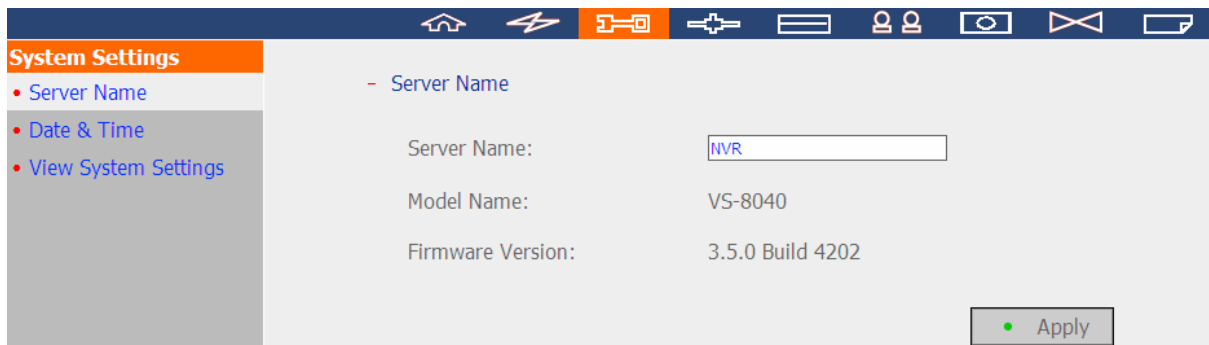
Congratulations! You have successfully configured the system. Please click "Close" to return to the home page or "Start Monitoring" to enter the monitoring page.

6.2 System Settings

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 up to 14 characters which can only contain alphabets (A-Z and a-z), numbers (0-9), and dash (-).



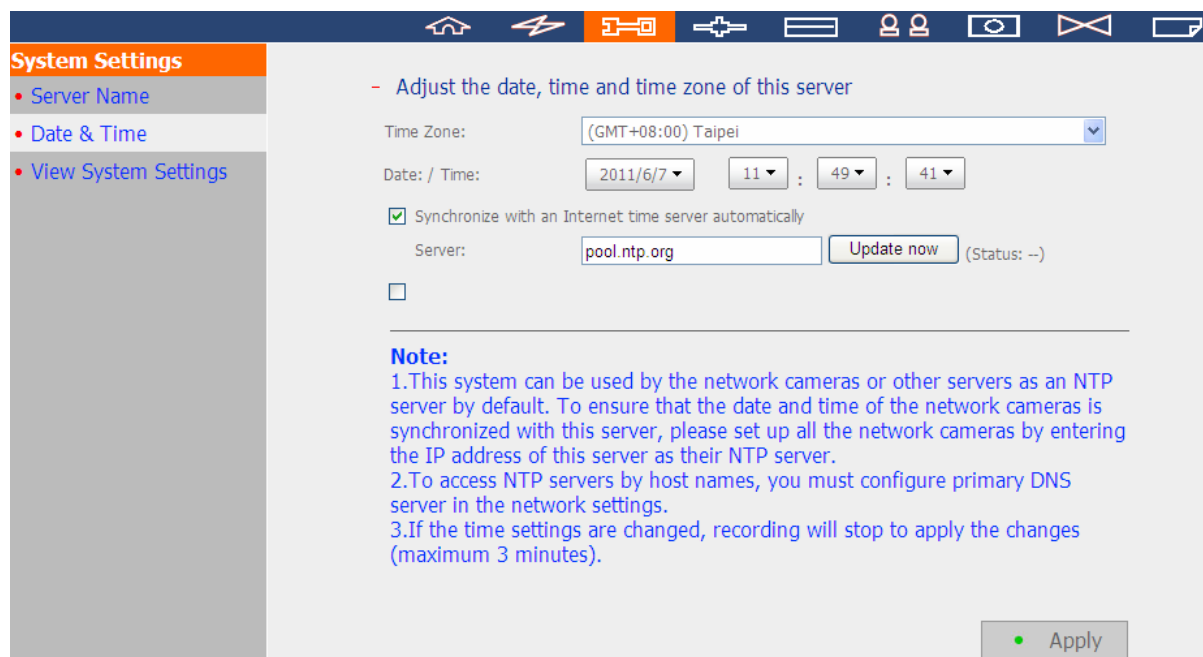
The screenshot displays the 'System Settings' interface. On the left, a sidebar menu lists 'System Settings', 'Server Name', 'Date & Time', and 'View System Settings'. The 'Server Name' option is selected. The main content area shows the 'Server Name' configuration page. It includes a text input field for the 'Server Name' containing the text 'NVR'. Below this, the 'Model Name' is listed as 'VS-8040' and the 'Firmware Version' is listed as '3.5.0 Build 4202'. An 'Apply' button is located at the bottom right of the configuration area.

Field	Value
Server Name:	NVR
Model Name:	VS-8040
Firmware Version:	3.5.0 Build 4202

6.2.2 Date & Time

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

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



The screenshot shows the 'System Settings' window with the 'Date & Time' section selected. The interface includes a navigation bar at the top with icons for home, refresh, settings, search, list, user, camera, and help. The left sidebar contains 'System Settings', 'Server Name', 'Date & Time', and 'View System Settings'. The main content area is titled 'Adjust the date, time and time zone of this server' and contains the following fields:

- Time Zone:** A dropdown menu set to '(GMT+08:00) Taipei'.
- Date: / Time:** Three dropdown menus for date and time, showing '2011/6/7', '11', and '49'.
- Synchronize with an Internet time server automatically:** A checked checkbox.
- Server:** A text input field containing 'pool.ntp.org' and an 'Update now' button with '(Status: --)' next to it.
- Note:** A section with three numbered instructions:
 1. This system can be used by the network cameras or other servers as an NTP server by default. To ensure that the date and time of the network cameras is synchronized with this server, please set up all the network cameras by entering the IP address of this server as their NTP server.
 2. To access NTP servers by host names, you must configure primary DNS server in the network settings.
 3. If the time settings are changed, recording will stop to apply the changes (maximum 3 minutes).
- Apply:** A button with a green dot icon.

Synchronize with an Internet time server automatically

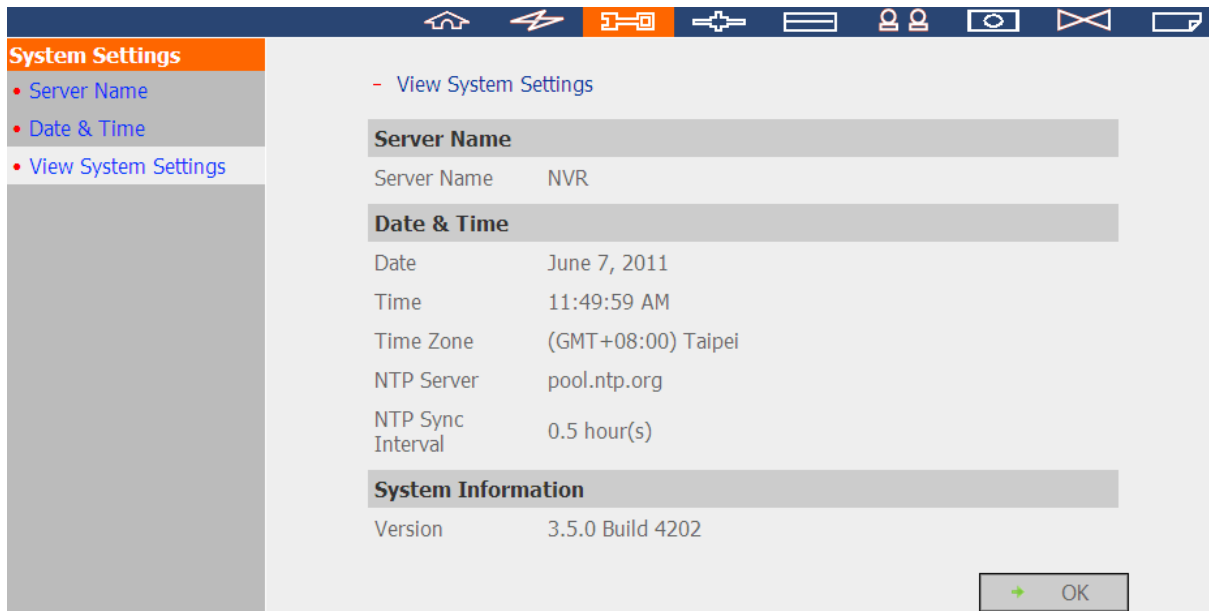
Enable this option to update the date and time of the NVR automatically with an NTP (Network Time Protocol) server. Enter the IP address or the domain name of the NTP server, for example, time.nist.gov or time.windows.com.

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 the computer time'.

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

6.2.3 View System Settings

View the system settings such as the server name on this page.



The screenshot displays a web-based system settings interface. At the top, there is a dark blue navigation bar with several icons: a home icon, a lightning bolt, a key, a plus sign, a list icon, a user profile icon, a camera icon, a close icon, and a refresh icon. Below the navigation bar is a sidebar menu titled "System Settings" in orange. The menu items are "Server Name", "Date & Time", and "View System Settings", with "View System Settings" being the active item. The main content area shows the "View System Settings" page. It features three sections: "Server Name" with a value of "NVR"; "Date & Time" with values for Date (June 7, 2011), Time (11:49:59 AM), Time Zone ((GMT+08:00) Taipei), NTP Server (pool.ntp.org), and NTP Sync Interval (0.5 hour(s)); and "System Information" with a value of Version 3.5.0 Build 4202. An "OK" button with a green plus icon is located at the bottom right of the settings area.

Server Name	
Server Name	NVR

Date & Time	
Date	June 7, 2011
Time	11:49:59 AM
Time Zone	(GMT+08:00) Taipei
NTP Server	pool.ntp.org
NTP Sync Interval	0.5 hour(s)

System Information	
Version	3.5.0 Build 4202

OK

6.3 Network Settings

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, select to use failover, load balancing, or standalone settings. To use these features, make sure both LAN ports are connected to the network.

The screenshot displays the 'Network Settings' menu on the left, with 'TCP/IP Configuration' selected. The main area shows 'TCP/IP Configuration' for 'LAN 1'. At the top, there are radio buttons for 'Failover', 'Load balancing', and 'Standalone Interfaces', with 'Standalone Interfaces' selected. Below this, there are tabs for 'LAN 1' and 'LAN 2'. The configuration for LAN 1 includes: 'Network transfer rate' set to 'Auto-negotiation'; 'Obtain IP address settings automatically via DHCP' selected; 'Fixed IP Address' set to 169.254.100.100; 'Subnet Mask' set to 255.255.0.0; 'Default Gateway' set to 169.254.100.100; 'Primary DNS Server' set to 172.16.2.6; 'Secondary DNS Server' set to 172.16.2.7; 'Enable DHCP Server' unchecked; 'Start IP Address' set to 169.254.1.100; 'End IP Address' set to 169.254.1.200; and 'Lease Time' set to 1 Day(s) and 0 Hour(s). The 'Current connection status' shows 'Connection speed: 100 Mbps, MTU: 1500 Bytes, LAN1:Up'. A note at the bottom states: 'Note: To use host names for NTP or SMTP servers, you must provide the IP address of the primary DNS server.' An 'Apply' button is located at the bottom right.

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.

Failover

Network transfer rate

Obtain IP address settings automatically via DHCP
 Use a static IP address

Fixed IP Address . . .

Subnet Mask 255 . . .

Default Gateway . . .

Primary DNS Server . . .

Secondary DNS Server . . .

Enable DHCP Server

Start IP Address . . .

End IP Address . . .

Lease Time Day(s) Hour(s)

Current connection status
Connection speed: 100 Mbps, MTU: 1500 Bytes, LAN1:Up,
LAN2:Down

Note: To use host names for NTP or SMTP servers, you must provide the IP address of the primary DNS server.

- **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.

Load balancing

Network transfer rate Auto-negotiation ▼

Obtain IP address settings automatically via DHCP

Use a static IP address

Fixed IP Address 0 . 0 . 0 . 0

Subnet Mask 255 . 0 . 0 . 0

Default Gateway 0 . 0 . 0 . 0

Primary DNS Server 172 . 16 . 2 . 6

Secondary DNS Server 172 . 16 . 2 . 7

Enable DHCP Server

Start IP Address 169 . 254 . 1 . 100

End IP Address 169 . 254 . 1 . 200

Lease Time 1 Day(s) 0 Hour(s)

Current connection status

Connection speed: 100 Mbps, MTU: 1500 Bytes, LAN1:Up, LAN2:Down

Note: To use host names for NTP or SMTP servers, you must provide the IP address of the primary DNS server.

- **Standalone**

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. The DHCP server can only be enabled for the primary network port (LAN 1).

LAN 1	LAN 2
Network transfer rate Auto-negotiation ▼	
<input checked="" type="radio"/> Obtain IP address settings automatically via DHCP <input type="radio"/> Use a static IP address	
Fixed IP Address	169 . 254 . 100 . 100
Subnet Mask	255 . 255 ▼ . 0 ▼ . 0 ▼
Default Gateway	169 . 254 . 100 . 100
Primary DNS Server	172 . 16 . 2 . 6
Secondary DNS Server	172 . 16 . 2 . 7
<input type="checkbox"/> Enable DHCP Server	
Start IP Address	169 . 254 . 1 . 100
End IP Address	169 . 254 . 1 . 200
Lease Time	1 Day(s) 0 Hour(s)
Current connection status Connection speed: 100 Mbps, MTU: 1500 Bytes, LAN1:Up	
<hr/> <p>Note: To use host names for NTP or SMTP servers, you must provide the IP address of the primary DNS server.</p>	

Network Transfer Rate

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 the 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, enable the NVR as a DHCP server to allocate dynamic IP address to the DHCP clients on the LAN.

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.

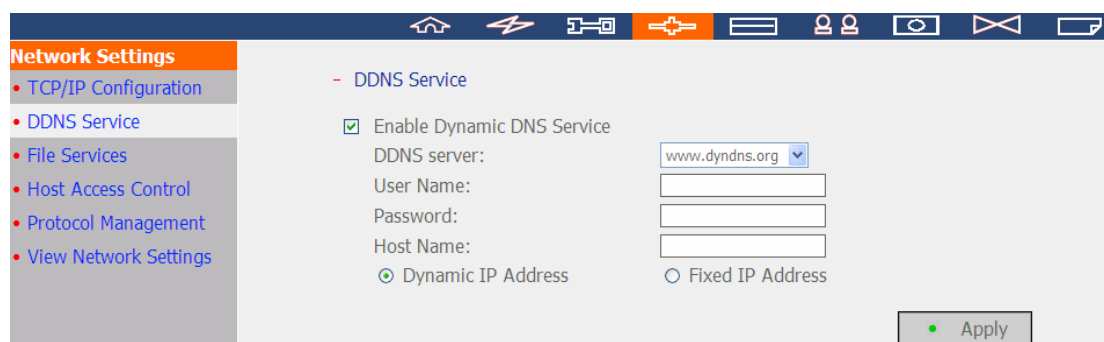
Note: If there is an existing DHCP server on the LAN, do not enable this function to avoid IP address allocation failure and network access error.

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, 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>
8. <http://www.nwcam.jp>



6.3.3 File Services

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

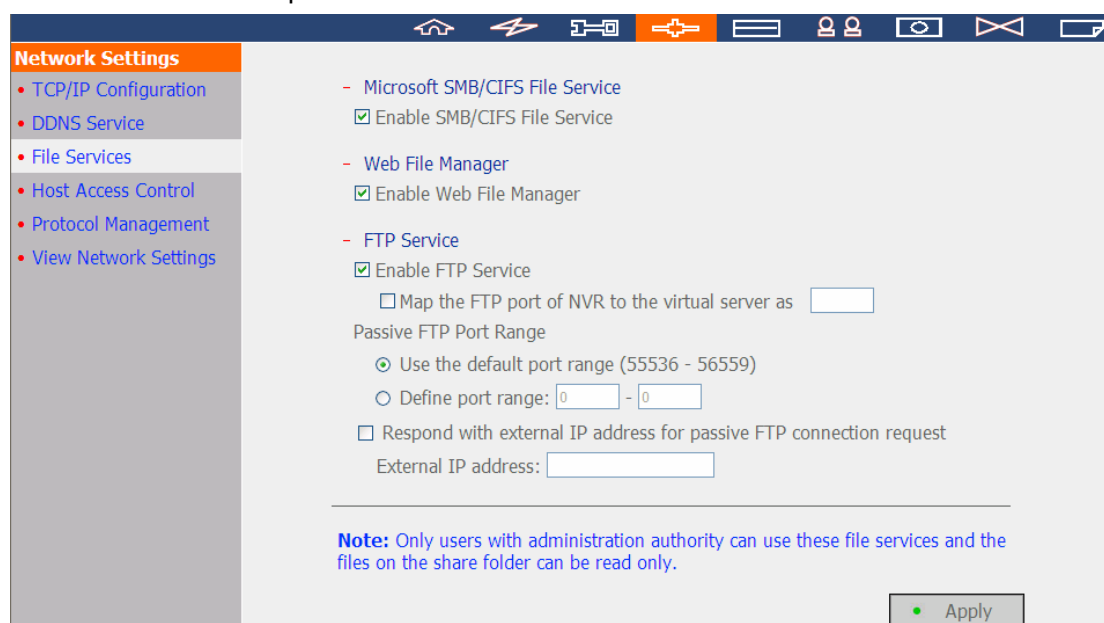
If the NVR is installed behind the router, enable FTP port mapping to allow the users from the external network to connect to the NVR via FTP (please refer to [Appendix B](#)).

Passive FTP Port Range

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

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.



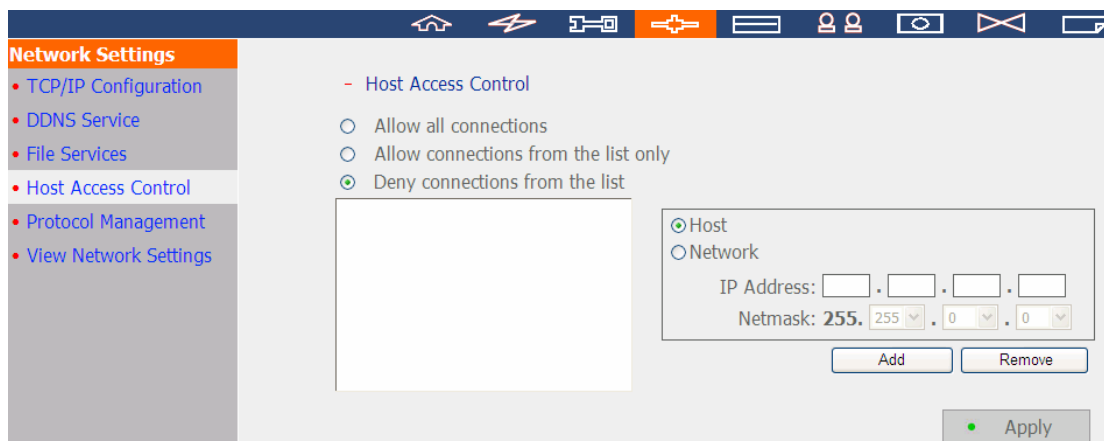
The screenshot displays the 'Network Settings' configuration page. On the left, a sidebar lists menu items: TCP/IP Configuration, DDNS Service, File Services (highlighted), Host Access Control, Protocol Management, and View Network Settings. The main content area is titled 'File Services' and includes the following settings:

- Microsoft SMB/CIFS File Service**: Enable SMB/CIFS File Service
- Web File Manager**: Enable Web File Manager
- FTP Service**: Enable FTP Service
 - Map the FTP port of NVR to the virtual server as
 - Passive FTP Port Range**:
 - Use the default port range (55536 - 56559)
 - Define port range: -
 - Respond with external IP address for passive FTP connection request
 - External IP address:

A note at the bottom states: **Note:** Only users with administration authority can use these file services and the files on the share folder can be read only. An 'Apply' button is located at the bottom right.

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.

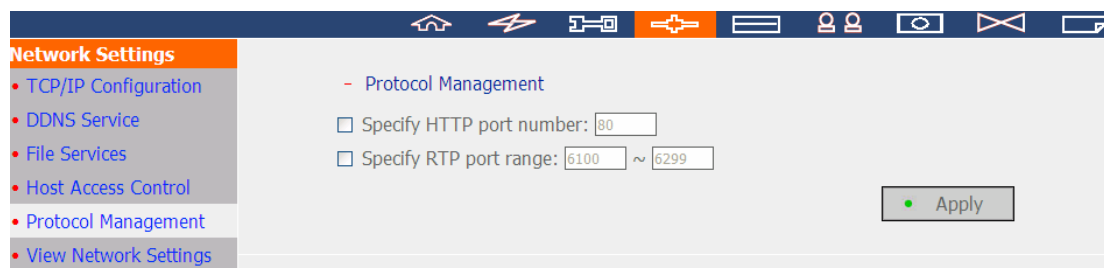
3. Deny connections from the list
Deny the connection from the hosts or IP specified on the list.

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 the IP cameras use different RTP ports, enable 'Specify RTP port range' and specify the port numbers.

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



6.3.6 View Network Settings

View the current network settings and the status of the NVR in this section.

The screenshot displays the 'View Network Settings' window of an NVR. The interface includes a top navigation bar with icons for home, power, network, settings, menu, user, camera, and refresh. A left sidebar lists network-related settings, with 'View Network Settings' selected. The main content area shows the configuration for two LAN interfaces.

LAN 1

Configuration of Network Interfaces	Standalone
Network transfer rate	Auto-negotiation
Connection Type	DHCP
IP Address	10.11.16.217
Subnet Mask	255.255.254.0
Default Gateway	10.11.16.254
Primary DNS Server	172.16.2.6
Secondary DNS Server	172.16.2.7
MAC Address	00:08:9B:A2:C3:11
Connection Status	100 Mbps, LAN1:Up
DDNS Service	Disabled
DDNS Server	--
DDNS Host Name	--
SMB/CIFS Service	On
Web File Manager	On
FTP Service	On
FTP Port	21
Host Access Control	Off

LAN 2

Configuration of Network Interfaces	Standalone
Network transfer rate	Auto-negotiation
Connection Type	Static
IP Address	0.0.0.0
Subnet Mask	0.0.0.0
MAC Address	00:08:9B:A2:C3:12
Connection Status	0 Mbps, LAN2:Down
SMB/CIFS Service	On
Web File Manager	On
FTP Service	On
FTP Port	21
Host Access Control	Off

Close

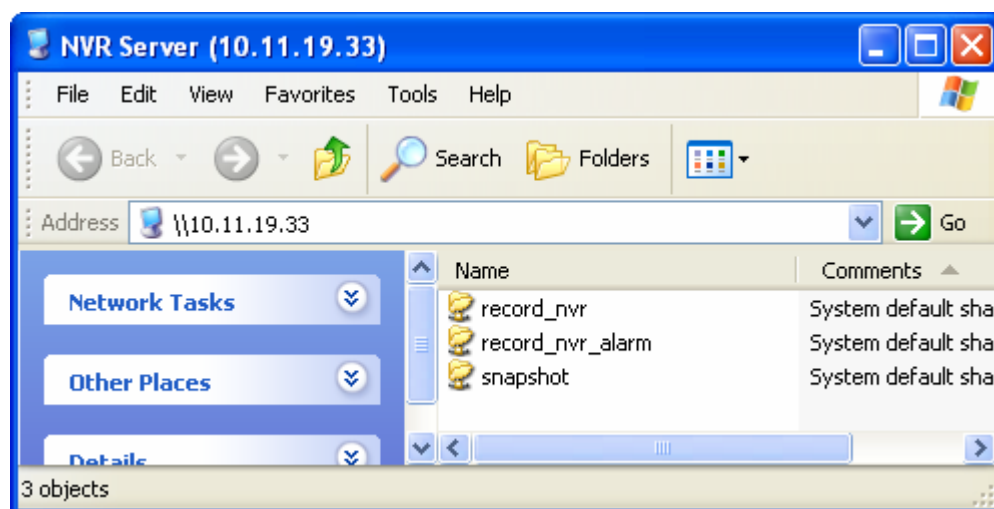
6.4 Device Configuration

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 NVR. Other options include formatting the hard disks and viewing the status, and scanning the hard drive bad blocks. When the hard disks are formatted, the NVR will create the following default share folders:

- record_nvr: The network share for saving regular recording files.
- record_nvr_alarm: The network share for saving alarm recording files.
- snapshot: The network share for saving snapshots.




Device Configuration


- SATA Disk
- RAID Management Tool
- USB Disk
- UPS

- SATA Disk


New Disk Volume Configuration




Single Disk Volume
Create single disk volume(s).




RAID 1 Mirroring Disk Volume
Create mirroring disk volume (s).




RAID 0 Striping Disk Volume
Create one striping disk volume.



Linear Disk Volume
Create one linear disk volume.



RAID 5 Disk Volume
Combine 3 or more disks to create a disk volume with data protection (1 disk crash is allowed).



RAID 6 Disk Volume
Combine 4 or more disks to create a disk volume with data protection (2 disk crash is allowed).

Current Disk Volume Configuration

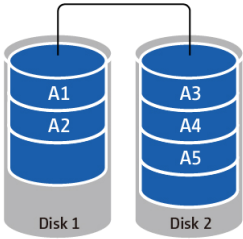
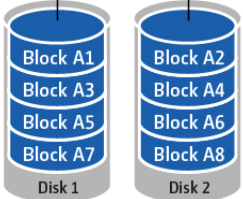
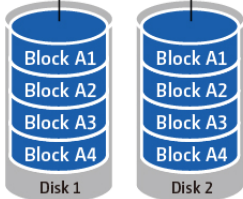
Physical Disks					
Disk	Model	Capacity	Status	Bad Blocks Scan	SMART Information
Drive 1	ATA WDC WD5001ABYS-059.0	465.76 GB	Ready	<input type="button" value="Scan now..."/>	Good
Drive 2	--	--	No Disk	<input type="button" value="Scan now..."/>	---
Drive 3	--	--	No Disk	<input type="button" value="Scan now..."/>	---
Drive 4	--	--	No Disk	<input type="button" value="Scan now..."/>	---

Logical Volumes						
Volume	Total Size	Free Size	Status	Format	Check Disk	Delete Disk Volume
Single Disk: Drive 1	456.98 GB	96.57 GB	Ready	<input type="button" value="Format now..."/>	<input type="button" value="Check now..."/>	<input type="button" value="Remove now"/>

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

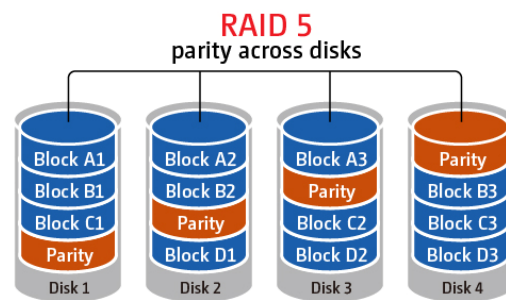
Note: Do NOT turn off the server or unplug any hard drives when RAID rebuilding is in process.

<p>Single Disk Volume</p> <p>Each hard disk drive is used as a standalone disk. If a disk is damaged, all the data will be lost.</p>	
<p>JBOD (Just a bunch of disks)</p> <p>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.</p>	<p style="text-align: center;">JBOD</p> 
<p>RAID 0 Striping Disk Volume</p> <p>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.</p>	<p style="text-align: center;">RAID 0 striping</p> 
<p>RAID 1 Mirroring Disk Volume</p> <p>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.</p>	<p style="text-align: center;">RAID 1 mirroring</p> 

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.

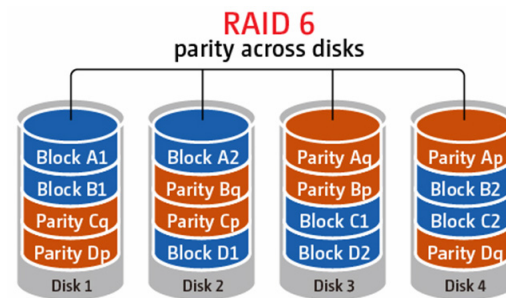
The storage capacity of a RAID 5 array equals $(N-1) * (\text{size of smallest hard drive})$. N is the total number of hard drive members in the array.



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 $(N-2) * (\text{size of smallest hard drive})$. 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.

The RAID management tool supports capacity expansion, RAID migration, or spare drive configuration with the original drive data reserved.

- RAID Management Tool

This function enables capacity expansion, RAID configuration migration or spare drive configuration with the original drive data reserved.

Note: Make sure you have read the instructions carefully and you fully understand the correct operation procedure before using this function.

Current Disk Volume Configuration

Volume	Total Size	Status	Comment
<input type="radio"/> Mirroring Disk Volume: Drive 1 2	456.98 GB	Ready	The operation(s) you can execute: - Expand capacity

The operation(s) you can execute:

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. 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

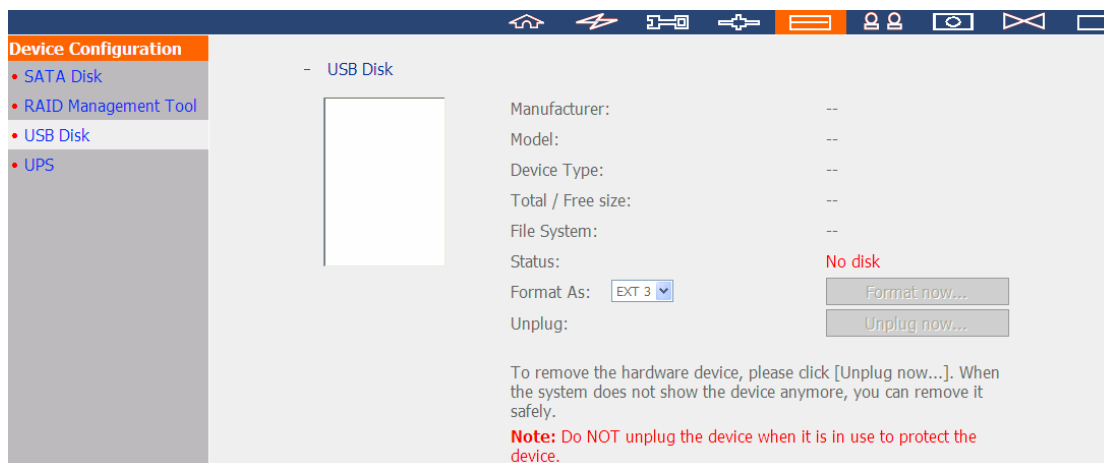
This function enables adding or removing a spare drive from a RAID 5 configuration. The options available are:

- 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.

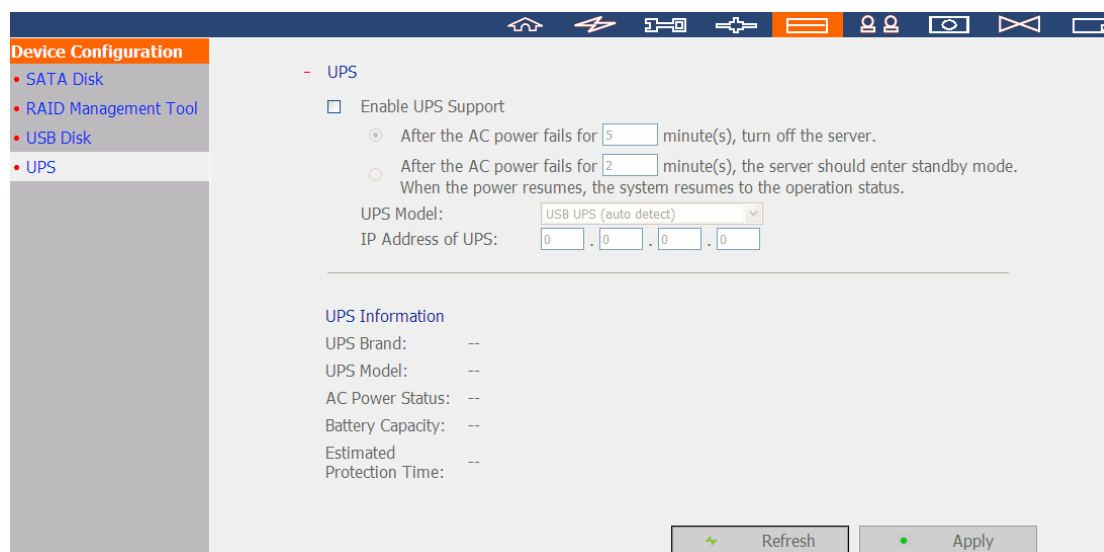
6.4.3 USB Disk

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.



6.4.4 UPS

The NVR supports UPS (uninterruptible power supply). When an expected power outage occurs, the UPS is able to supply the power to the NVR continuously. 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 the UPS is not available on the list, please contact the distributor or QNAP technical support.

IP Address of UPS

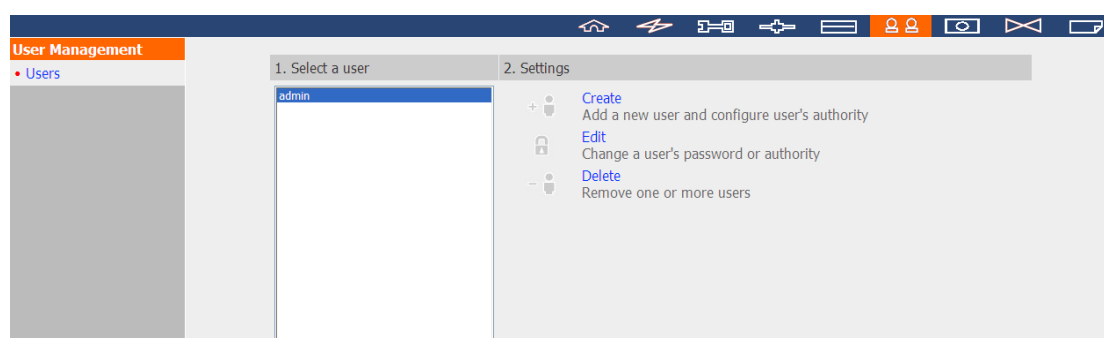
If 'APC UPS with SNMP Management' is selected, enter the IP address of the UPS.

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

- Add a new user and configure user's authority

User Name

Password

Verify Password

Note: For increased security, password should be at least 6 characters.

Select user type: normal user

Camera Access Control

Camera	Monitoring	Playback	PTZ Control	Audio
1. 1.Arecont AV8360 ch1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2. 2.Arecont AV8360 ch2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3. 3.Arecont AV8360 ch3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4.Arecont AV8360 ch4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5. Camera 5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6. iPUX ICS 1310	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7. 7.9800	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8. 8.Arecont AV8180 ch1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9. 9.Arecont AV8180 ch2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10. 10.Arecont AV8180ch3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11. 11.Arecont AV8180ch4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
12. Camera 12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

User Name

The user name must be 1 to 32 characters in length. It supports alphabets (A-Z), numbers (0-9), and underscores (_). 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.

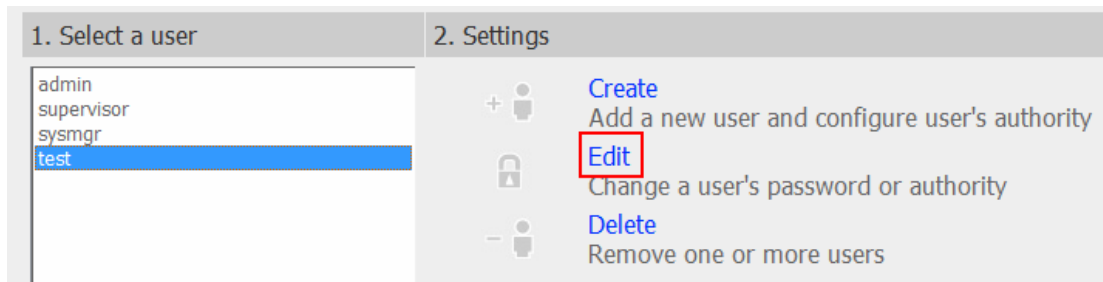
Camera Access Control

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.

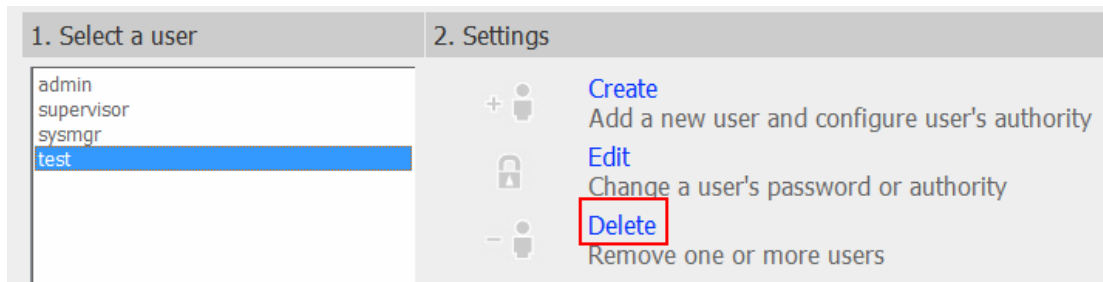
6.5.2 Edit User

Select a user on the list and click 'Edit'. 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 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

	Rights	administrator			system manager		user
		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

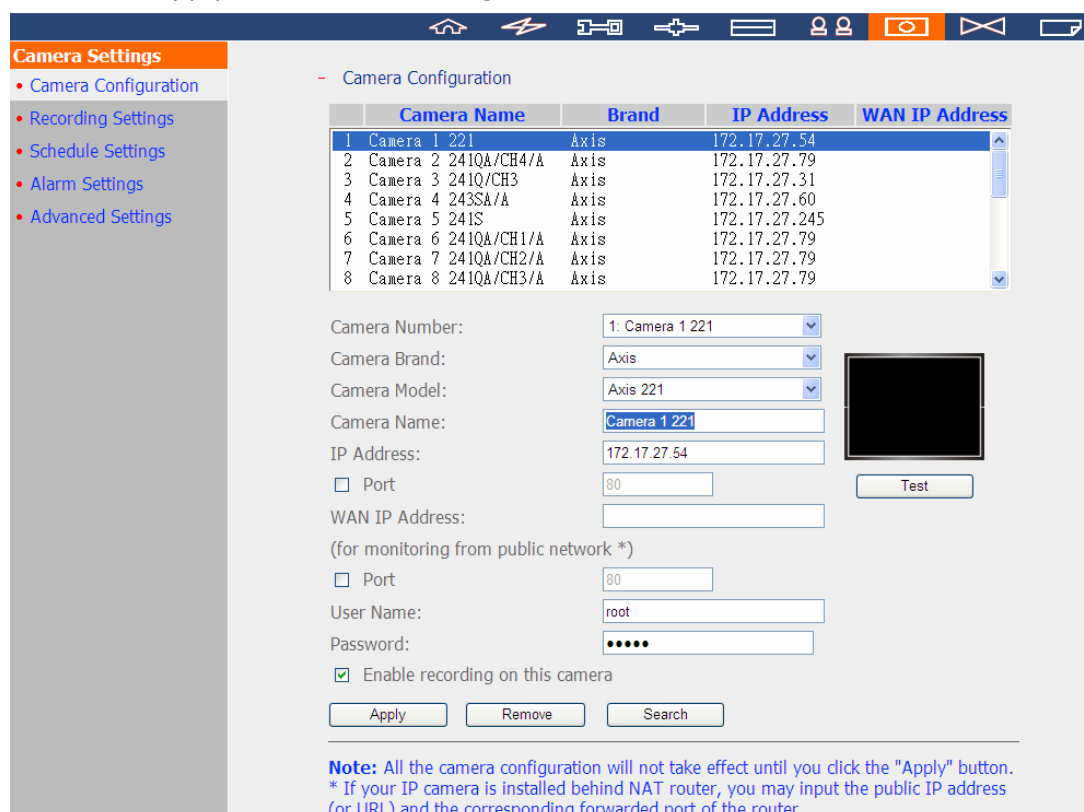
6.6 Camera Settings

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.



Camera Settings

- Camera Configuration
- Recording Settings
- Schedule Settings
- Alarm Settings
- Advanced Settings

- Camera Configuration

	Camera Name	Brand	IP Address	WAN IP Address
1	Camera 1 221	Axis	172.17.27.54	
2	Camera 2 241QA/CH4/A	Axis	172.17.27.79	
3	Camera 3 241Q/CH3	Axis	172.17.27.31	
4	Camera 4 243SA/A	Axis	172.17.27.60	
5	Camera 5 241S	Axis	172.17.27.245	
6	Camera 6 241QA/CH1/A	Axis	172.17.27.79	
7	Camera 7 241QA/CH2/A	Axis	172.17.27.79	
8	Camera 8 241QA/CH3/A	Axis	172.17.27.79	

Camera Number:

Camera Brand:

Camera Model:

Camera Name:

IP Address:

Port

WAN IP Address:

(for monitoring from public network *)

Port

User Name:

Password:

Enable recording on this camera

Note: All the camera configuration will not take effect until you click the "Apply" button.
* If your IP camera is installed behind NAT router, you may input the public IP address (or URL) and the corresponding forwarded port of the router.

Note:

- All the settings will not take effect until 'Apply' is clicked. When applying the changes, the recording operation will stop for a while (maximum 1 minute) and then restart.
- 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 the 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.

- Camera Configuration

	Camera Name	Brand	IP Address	WAN IP Address
1	1. ACTi ACD-2000Q	ACTi	172.17.26.85	
2	Camera 2			
3	3. Sanyo HD4000	Sanyo	172.17.26.230	
4	4. ACTi ACM-4200	ACTi	172.17.26.201	
5	Camera 5			
6	Camera 6			
7	7. Uivotek P27151	Uivotek	172.17.27.90	
8	8. QNAP UC300 ch1	QNAP	172.17.26.174	

Camera Number:

Camera Brand:

Camera Model:

HTTP URL:

Camera Name:

IP Address:

Port:

WAN IP Address:

(for monitoring from public network *)

Port:

User Name:

Password:

Enable recording on this camera

Note: All the camera configuration will not take effect until you click the "Apply" button.
 * If your IP camera is installed behind NAT router, you may input the public IP address (or URL) and the corresponding forwarded port of the router.

Note: The 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. Enable audio recording, manual recording, recording data retention, real-time digital watermarking, and auto snapshot settings. Click 'Apply' to save the settings.

Recording Settings

	Camera Name	Resolution	Frame Rate	Quality
8	8. Sony RZ50-A	640x480(VGA)	10	Bit rate 768kb
9	9. Sony DF50	640x480(VGA)	10	Bit rate 1024k
10	10. Sony CS50-A	640x480(VGA)	20	Bit rate 1536k
11	Panasonic SF335	1280x720	10	3
12	12. Sony DF70-A	640x480(VGA)	25	Bit rate 1024k
13	13. Sony CS11-A	640x480(VGA)	25	Bit rate 1024k
14	14. Sony RZ30	736x480/736x544(auto)	20	Level 9
15	15. Sony RX550-A	640x480(VGA)	10	Bit rate 1024k

Camera Number: 8: 8. Sony RZ50-A

Video Compression: MPEG4

Resolution: 640x480(VGA)

Frame Rate: 10

Quality: Bit rate 768kbps

Enable audio recording on this camera

Enable manual recording

Enable real-time digital watermarking

Enable recording data retention. Keep recording data for minimum 0 day(s)

Enable auto snapshot

Apply

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

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. Real-time digital watermarking: Enable this option to add digital watermarks to the video files as soon as they are recorded to the NVR. Use the Watermark Proof utility to verify if the video files were maliciously modified. For more information of digital watermarking, refer to Chapter 5.2.
9. 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'.
10. Enable auto snapshot: Select this option and the settings will be displayed. 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. Specify a remote server to where the files will be saved. Read/write access to the remote server is required.

Enable auto snapshot

Snapshot schedule

Take a snapshot at :

Schedule List: (15 Max)

01:01 [Remove](#)

02:01 [Remove](#)

03:01 [Remove](#)

Auto snapshot

Take snapshot(s) every hour

Save to:

Snapshot folder on the NVR

Remote Destination

Remote Host IP Address

Destination Path (Network Share/Directory) /

User Name

Password

Remote Host Testing (Status: Success)

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

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 'Apply' is clicked. When applying the changes, recording will stop for a while (maximum 1 minute) and then restart.

6.6.3 Schedule Settings

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.

Camera Settings

- Camera Configuration
- Recording Settings
- Schedule Settings
- Alarm Settings
- Advanced Settings

- Schedule Settings

	Camera Name	IP Address	Scheduled Recording
1	Camera 1	10.11.16.112	ON
2	Camera 2	10.11.16.196	ON
3	Camera 3	10.11.17.253	ON
4	Camera 4	10.11.16.91	ON
5	Camera 5	10.11.16.89	ON
6	Camera 6		
7	Camera 7		
8	Camera 8		

Camera Number:

Enable schedule recording

Recording Schedule

Days: Sun Mon Tue Wed Thu Fri Sat

Duration: All day Start time: : End time: :

Schedule List: (15 Max)
Sun, Mon, Tue, Wed, Thu, Fri, Sat: 00:00 ~ Next Day 00:00 [Remove](#)

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

Note:

- Up to 15 schedules can be added.
- All the settings will not take effect until 'Apply' is clicked. 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'.

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 the option 'Activate alarm recording only on selected schedule' is enabled, the alarm recording will be activated only when the alarm input is triggered or a moving object is detected within the schedule. 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'.

The screenshot shows the 'Camera Settings' interface with the 'Alarm Settings' tab selected. The 'Traditional Mode' radio button is chosen. A table lists 8 cameras with their names and IP addresses, and an 'Alarm Recording' column. Below the table, there are several configuration options: 'Camera Number' (set to 1: Camera 1), 'Enable alarm recording' (unchecked), 'Start recording when the camera's alarm input 1 is' (set to Active), 'Start recording when motion is detected by the camera' (unchecked), 'Activate alarm recording only on selected schedule' (unchecked), and 'Specify the FTP address for the NVR to receive the alarm messages from the IP camera (optional)' (unchecked). At the bottom, there are 'Test', 'Apply', and 'Apply to all cameras' buttons. A note at the bottom states: 'Note: All the settings will not take effect until you click the Apply button. When applying the changes, recording will stop for a while (maximum 1 minute) and then restart.'

	Camera Name	IP Address	Alarm Recording
1	Camera 1	10.11.16.112	OFF
2	Camera 2	10.11.16.196	OFF
3	Camera 3	10.11.17.253	OFF
4	Camera 4	10.11.16.91	OFF
5	Camera 5	10.11.16.89	OFF
6	Camera 6		
7	Camera 7		
8	Camera 8		

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'.

The screenshot displays the 'Camera Settings' interface. On the left, a sidebar lists navigation options: Camera Configuration, Recording Settings, Schedule Settings, Alarm Settings, and Advanced Settings. The main content area is titled 'Alarm Settings' and features two radio buttons: 'Traditional Mode' and 'Advanced Mode'. The 'Advanced Mode' radio button is selected. Below the radio buttons, a paragraph explains that the NVR supports advanced event management with various alarm event types and handling options. This is followed by two bullet points: 'Events' (listing motion detection, alarm input, failure to save recording, connection failure, and user-defined event) and 'Actions' (listing recording, email/SMS alerts, buzzer, camera control, alarm output, and user-defined actions). A 'Steps' section provides a four-step guide for configuring advanced event management. At the bottom right, a button labeled 'Go to Settings Page' is visible.

Camera Settings

- Camera Configuration
- Recording Settings
- Schedule Settings
- Alarm Settings
- Advanced Settings

- Alarm Settings

Traditional Mode Advanced Mode

The network video recorder (NVR) supports advanced event management with a large range of alarm event types and alarm event handling options. The functions are described below:

- Events: The NVR supports different alarm/ event types such as motion detection, alarm input, failure to save recording, connection failure, and user-defined event.
- Actions: The NVR provides different event handling options, such as recording, sending email or SMS alert, buzzer, camera control, alarm output, and user-defined action. The options will be triggered when alarm/ events are detected.

Steps:

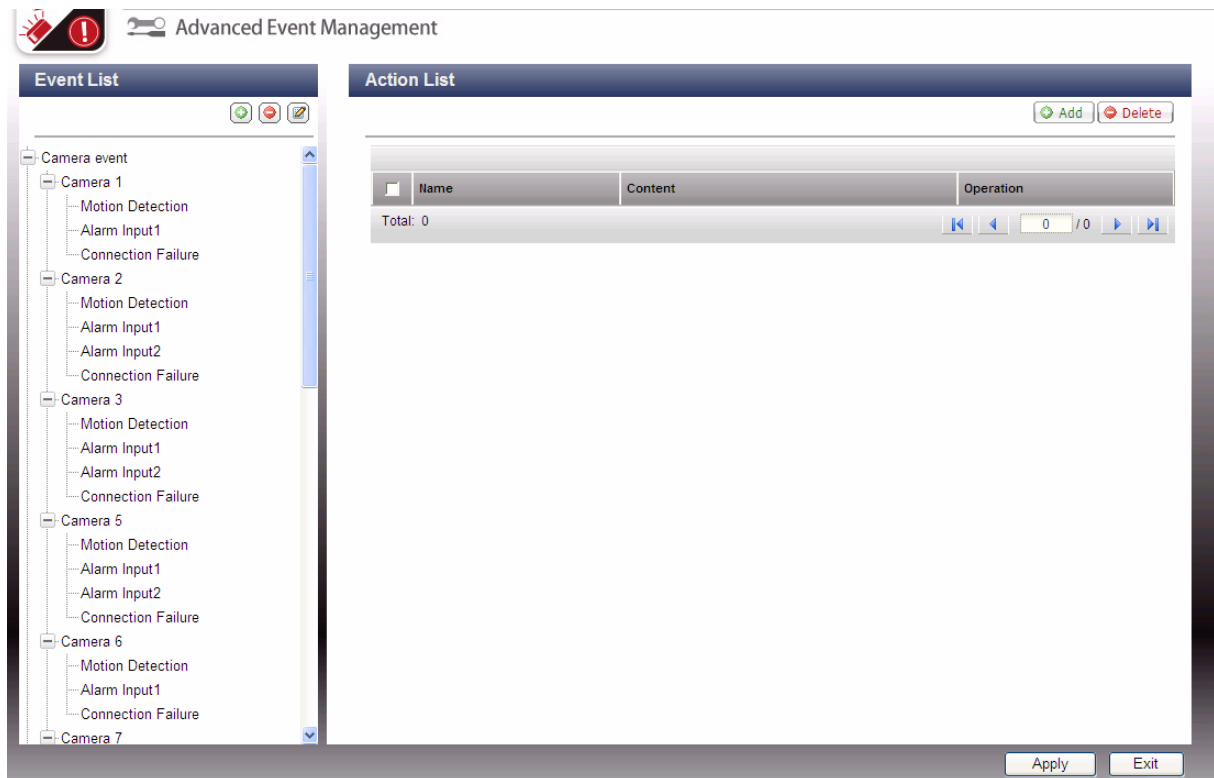
1. Click "Go to Settings Page" to configure the advanced event management.
2. Select an event from the event list.
3. Add an action from the action list.
4. Click "Apply" to apply the settings or "Exit" to leave the settings page. If "Advanced Mode" is still selected on the "Alarm Settings" page, the advanced settings will be applied after the NVR restarts even if you selected to exit the settings page.

Go to Settings Page

Advanced Mode:

The advanced mode consists of the event and action sections. 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:

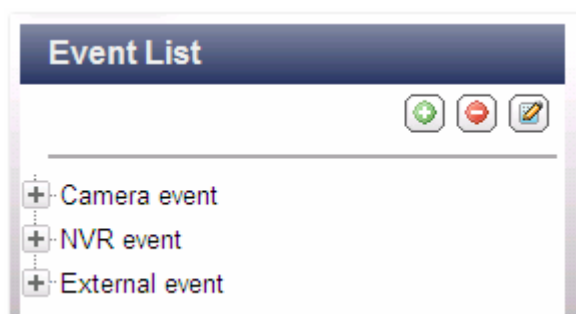
- Click 'Apply' to apply the settings or 'Exit' to exit the settings page. If the 'Advanced Mode' is selected on the 'Alarm Settings' page, the advanced settings will be applied after the NVR restarts even if you have selected to exit the settings page. The settings will be cancelled if 'Traditional Mode' is selected 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.

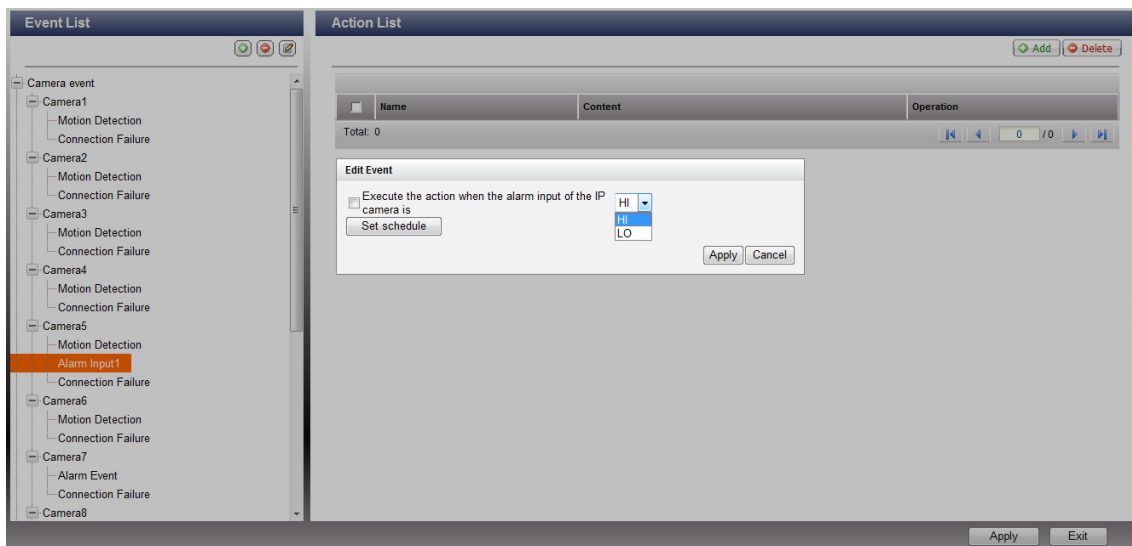
Button	Description
	Add an external event. This button is not applicable to the camera events and the NVR events.
	Edit an event. This button cannot be used to edit camera disconnection.
	Delete an external event. This button is not applicable to the camera events and the NVR events.




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

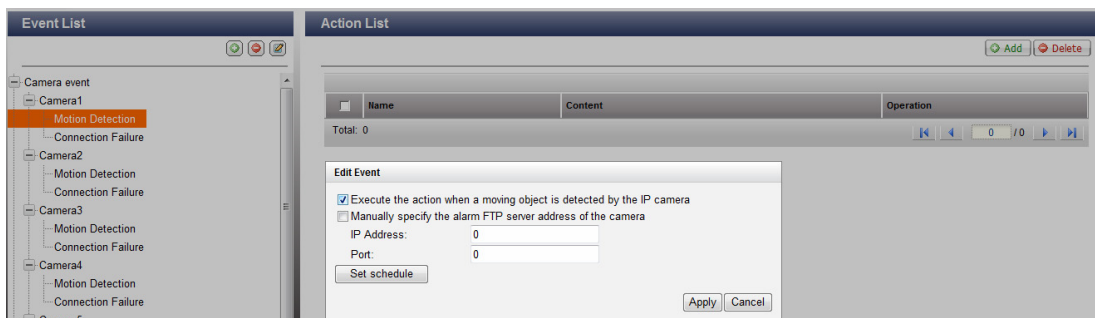
(1) Alarm input

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'. 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).



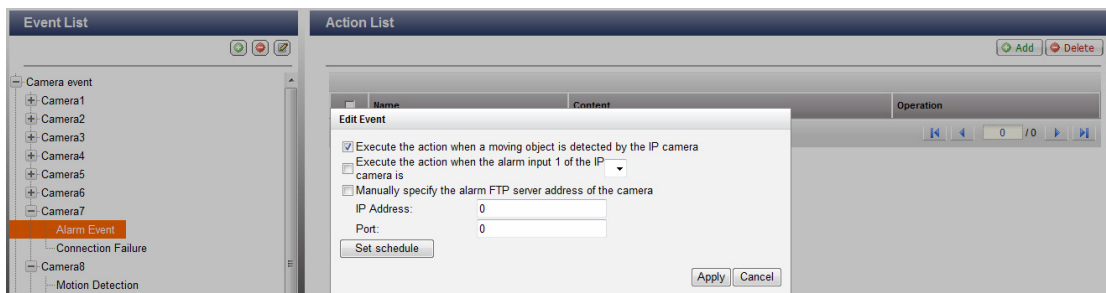
(2) Motion detection

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'. 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. 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)

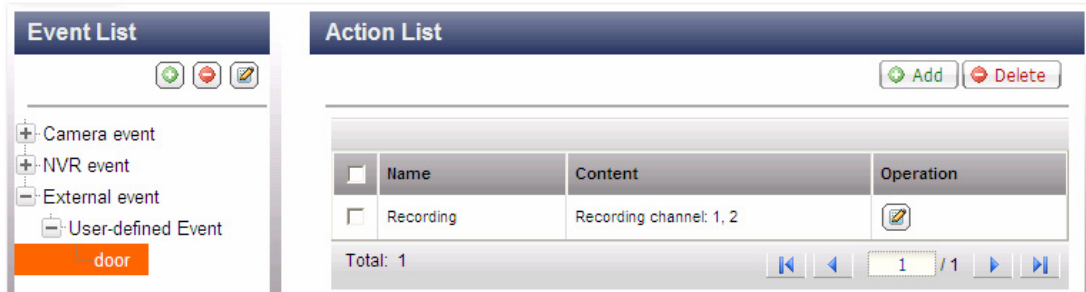
This option allows the NVR to trigger an action when the video recording of the IP camera or the video server fails due to the hard disk bad blocks, file system crash, or other reasons. Select 'NVR event' from the 'Event List'. Click 'Recording failure'. Then define the action settings on the right (discussed 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, 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 editing an event (not including camera disconnection, NVR events, and external events), 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'. Select to use the default schedule or a formerly created schedule from the list. The default alarm settings are active all day, every day.

Schedule Settings

Select from the list New

list

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Sun	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Mon																								
Tue																								
Wed																								
Thu																								
Fri																								
Sat	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Start time: 00 : 00 End time: 00 : 00 Sun Mon Tue Wed Thu Fri Sat + -




Delete

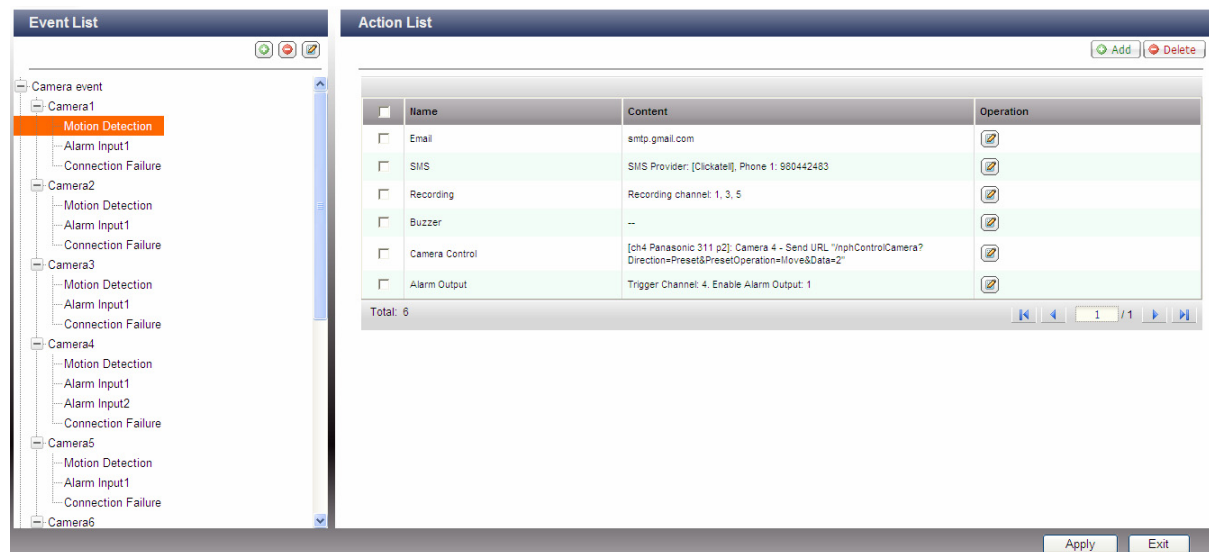
Note: You can select to use a schedule which has been created before. If you change the schedule settings, the new settings will be applied to all the events which use the same schedule settings.

Apply to All Events Apply Cancel

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.

Button	Description
	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 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 to delete and click 'Delete'. Multiple actions can be deleted.



Note: Make sure the action in the event settings has been enabled; otherwise the action will not be executed.

Edit Event

Execute the action when a moving object is detected by the IP camera

Specify the FTP address for the NVR to receive the alarm messages from the IP camera (optional)

IP Address

Port:

(1) Recording

Select the channels (IP cameras or video servers) which will start recording when an event occurs. The following options are also available:

- (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.

Add Action
Action Type: New Select from the list

Select one or more channels to start recording when an event is triggered.

<input checked="" type="checkbox"/> Ch-01	<input type="checkbox"/> Ch-02	<input type="checkbox"/> Ch-03	<input type="checkbox"/> Ch-04	<input type="checkbox"/> Ch-05
<input type="checkbox"/> Ch-06	<input type="checkbox"/> Ch-07	<input type="checkbox"/> Ch-08	<input type="checkbox"/> Ch-09	<input type="checkbox"/> Ch-10
<input type="checkbox"/> Ch-11	<input type="checkbox"/> Ch-12			

Execute the action for: second (s) when the event is triggered

Execute the action when the event starts and stop the action when the event ends*.

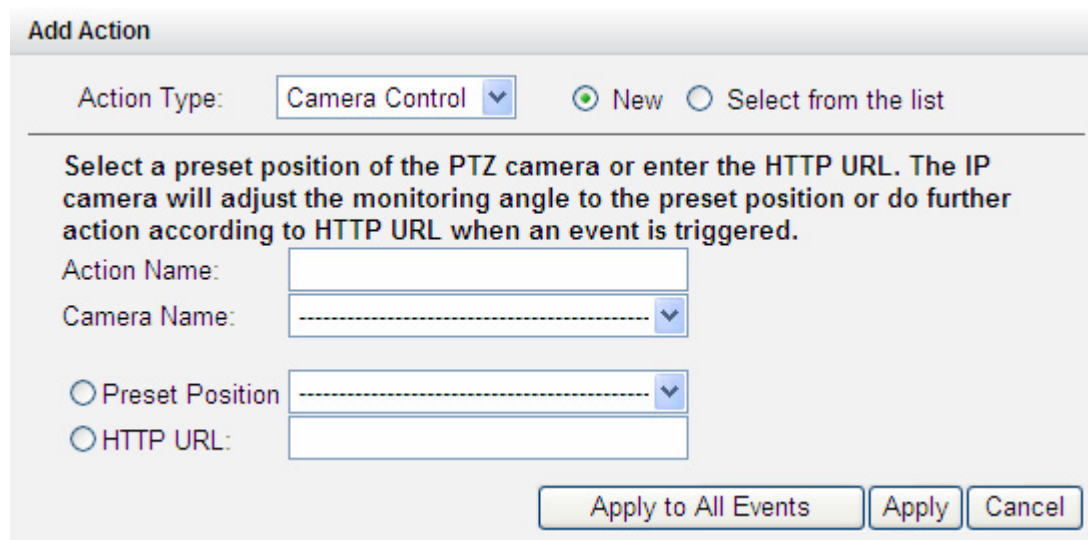
* This option is applicable to duration events only. If the action is activated by duration event and both settings above are enabled, the NVR will execute this setting only.
Note: A duration event is an event with start and end time and lasts for a period of time. It does not include the events related to status change, such as camera's connection failure or NVR recording failure.

(2) Camera control

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. 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 the preset settings of the PTZ cameras have been configured.



The screenshot shows a dialog box titled "Add Action". At the top, "Action Type:" is set to "Camera Control" with a dropdown arrow. To the right are two radio buttons: "New" (selected) and "Select from the list". Below this is a horizontal line, followed by the instruction: "Select a preset position of the PTZ camera or enter the HTTP URL. The IP camera will adjust the monitoring angle to the preset position or do further action according to HTTP URL when an event is triggered." The form contains the following fields: "Action Name:" with an empty text box; "Camera Name:" with a dropdown menu showing a dashed line; "Preset Position:" with a radio button and a dropdown menu showing a dashed line; and "HTTP URL:" with a radio button and an empty text box. At the bottom right are three buttons: "Apply to All Events", "Apply", and "Cancel".

(3) Alarm output

Select to activate the alarm device connected to the IP camera when an event is triggered. The following options are available:

- (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.

Add Action

Action Type: New Select from the list

Select an alarm output of the IP camera. The alarm will be activated when an event is triggered.

Camera Number:

Note: Only the IP camera models of which the alarm output is supported by the NVR will be listed.

Execute the action for: second (s) when the event is triggered

Execute the action when the event starts and stop the action when the event ends*.

* This option is applicable to duration events only. If the action is activated by duration event and both settings above are enabled, the NVR will execute this setting only.
Note: A duration event is an event with start and end time and lasts for a period of time. It does not include the events related to status change, such as camera's connection failure or NVR recording failure.

(4) Email

To receive an instant email alert when an event is triggered, enter the SMTP settings. Multiple email addresses can be entered as the recipients. Snapshots of multiple channels (IP cameras/video servers) can be attached to the alert emails.

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

The screenshot shows a dialog box titled "Add Action". At the top, "Action Type" is set to "Email" in a dropdown menu. To the right, there are two radio buttons: "New" (which is selected) and "Select from the list". Below this, the "E-mail (SMTP) server address" is "smtp.gmail.com". There is a checkbox for "Enable SMTP Authentication" which is unchecked. The "User Name" is "jasonhuang7144" and the "Password" is masked with dots. The "Sender" is "jasonhuang7144gmail.com", the "Recipients" is "jason7144@hotmail.com", and the "Subject" is "A-MTK AM9060". The "Content" field contains "A-MTK AM9060 motion trigger on 27.22". Below these fields are several checkboxes: "Use SSL/ TLS secure connection" (unchecked), "Attached with snapshot" (unchecked), and a grid of checkboxes for channels Ch-01 through Ch-12, all of which are unchecked. There is also a checkbox for "Time interval to send the alert email when the same kind of events is triggered" which is unchecked, with a text input field set to "60" and the label "second(s)". At the bottom left, there is a checkbox for "Send a test e-mail" which is unchecked. At the bottom right, there are three buttons: "Apply to All Events", "Apply", and "Cancel".

(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: Always follow the standard of the SMS service provider to receive the SMS properly.

The screenshot shows the 'Add Action' configuration window. At the top, 'Action Type' is set to 'SMS'. There are radio buttons for 'New' (selected) and 'Select from the list'. Below this, there are sections for '[SMS Server Settings]' and '[SMS Notification Settings]'. The server settings include 'SMS Service Provider' (Clickatell), 'Enable SSL Connection' (checked), 'SMS Server Login Name' (qnap01), 'SMS Server Login Password' (masked), and 'SMS Server API_ID' (3116393). The notification settings include 'Country Code' (Afghanistan (+93)), 'Cell Phone No. 1' (+93), 'Cell Phone No. 2' (+93), 'Message' (empty), and 'Interval of sending SMS text messages of the same events' (60 Minute(s)). At the bottom, there are buttons for 'Apply to All Events', 'Apply', and 'Cancel'.

Add Action

Action Type: SMS Select from the list

[SMS Server Settings]

SMS Service Provider: Clickatell

Enable SSL Connection

SMS Server Login Name: qnap01

SMS Server Login Password: ●●●●●●

SMS Server API_ID: 3116393

[SMS Notification Settings]

Country Code: Afghanistan (+93)

Cell Phone No. 1: +93

Cell Phone No. 2: +93

Message:

Interval of sending SMS text messages of the same events: 60 Minute(s)

(6) Buzzer

Enable the buzzer when an event is triggered. The following options are also available:

- (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.

The screenshot shows a dialog box titled "Add Action". At the top, "Action Type:" is set to "Buzzer" in a dropdown menu. To the right, there are two radio buttons: "New" (which is selected) and "Select from the list". Below this, the text reads: "Enable the buzzer on the NVR. The buzzer will sound when an event is triggered." There is a "Test" button. Underneath, it says "Execute the action for: 30 second (s) when the event is triggered". There is a checkbox for "Execute the action when the event starts and stop the action when the event ends*." which is currently unchecked. At the bottom, there is a note: "* This option is applicable to duration events only. If the action is activated by duration event and both settings above are enabled, the NVR will execute this setting only." Below the note is another note: "Note: A duration event is an event with start and end time and lasts for a period of time. It does not include the events related to status change, such as camera's connection failure or NVR recording failure." At the bottom right, there are three buttons: "Apply to All Events", "Apply", and "Cancel".

(7) User-defined Action

Add 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 to 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.

Add Action

Action Type: New Select from the list

Enter IP address, port, HTTP URL, user name, and password of another network surveillance device. The device will be activated when an event is triggered.

Action Name:

IP Address:

Port:

HTTP URL:

User Name:

Password:

6.6.5 Advanced Settings

Configure the advanced recording settings in this section.

The screenshot shows the 'Camera Settings' interface with the 'Advanced Settings' section selected. The settings are as follows:

- Maximum length of each recording file: 5 Minute(s)
- When the available storage is less than 4 GB:
 - overwrite the oldest recordings
 - stop writing recordings
- Keep alarm recordings for at least 10 day(s)
- Remove recordings after 50 day(s)

The 'Alarm Recordings' section is also visible:

- Start recording video (at minimum) 30 second(s) before the event occurs.
- Stop video recording 30 second(s) after the event ends.

An 'Apply' button is located at the bottom of the settings area. A note at the bottom states: "Note: All the settings will not take effect until you click the Apply button. When applying the changes, recording will stop for a while (maximum 1 minute) and then restart."

- Maximum period for each recording file: Specify the maximum length of each recording file (maximum 15 min).
- When the available storage is less than...GB: Specify if the NVR should overwrite the oldest recordings or stop recording when the available storage capacity is less than the specified size.
- Keep alarm recordings for at least...day(s): Specify the number of days that alarm recordings will be retained.
- Remove recordings after...day(s): Enter the number of calendar days for the NVR to keep the recording files.

Please make sure the storage capacity is enough to save the data for the number of calendar days specified. When the recording data has reached the expiry date, all the expired video files will be deleted. For example, if the NVR is configured 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 NVR 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.

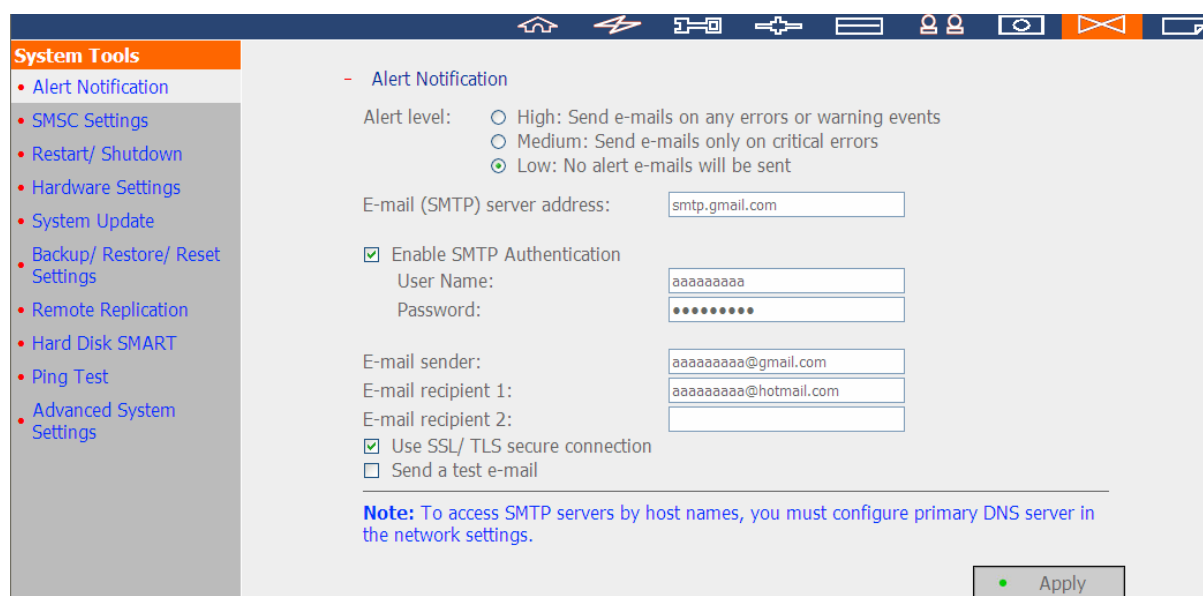
Note: All the settings will be effective only after clicking 'Apply'. When applying the changes, the recording will stop for a while (maximum 1 minute) and then restart.

6.7 System Tools

The System Tools help optimize the system maintenance and management. 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. To view the details of all the errors and warnings, go to 'Logs & Statistics' > 'System Event Logs'.



The screenshot shows the 'System Tools' interface with the 'Alert Notification' section selected in the left sidebar. The main content area displays the following configuration options:

- Alert level:** Three radio buttons are present: 'High: Send e-mails on any errors or warning events', 'Medium: Send e-mails only on critical errors', and 'Low: No alert e-mails will be sent'. The 'Low' option is selected.
- E-mail (SMTP) server address:** A text input field containing 'smtp.gmail.com'.
- Enable SMTP Authentication:** A checked checkbox.
- User Name:** A text input field containing 'aaaaaaaa'.
- Password:** A text input field with masked characters (dots).
- E-mail sender:** A text input field containing 'aaaaaaaa@gmail.com'.
- E-mail recipient 1:** A text input field containing 'aaaaaaaa@hotmail.com'.
- E-mail recipient 2:** An empty text input field.
- Use SSL/ TLS secure connection:** A checked checkbox.
- Send a test e-mail:** An unchecked checkbox.

Below the configuration fields, there is a blue **Note:** 'To access SMTP servers by host names, you must configure primary DNS server in the network settings.' At the bottom right of the configuration area, there is an 'Apply' button with a green dot icon.

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

6.7.2 SMSC Settings

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. Add an SMS service provider by selecting 'Add SMS Provider' from the drop-down menu.

When 'Add SMS service provider' is selected, enter the name of the SMS provider and the URL template text.

Note:

- Always follow the standard of the SMS service provider to receive the SMS properly.
- 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. 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
- 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: <http://www.clickatell.com>

Enable SSL Connection

SSL Port:

SMS Server Login Name:

SMS Server Login Password:

SMS Server API_ID:

[SMS Notification Settings]

Country Code:

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

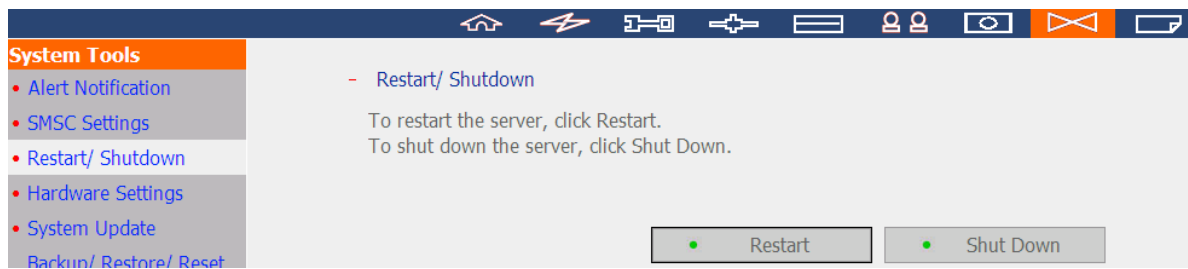
Interval of sending SMS text messages of the same events: Minute(s)

Apply

6.7.3 Restart/Shut Down

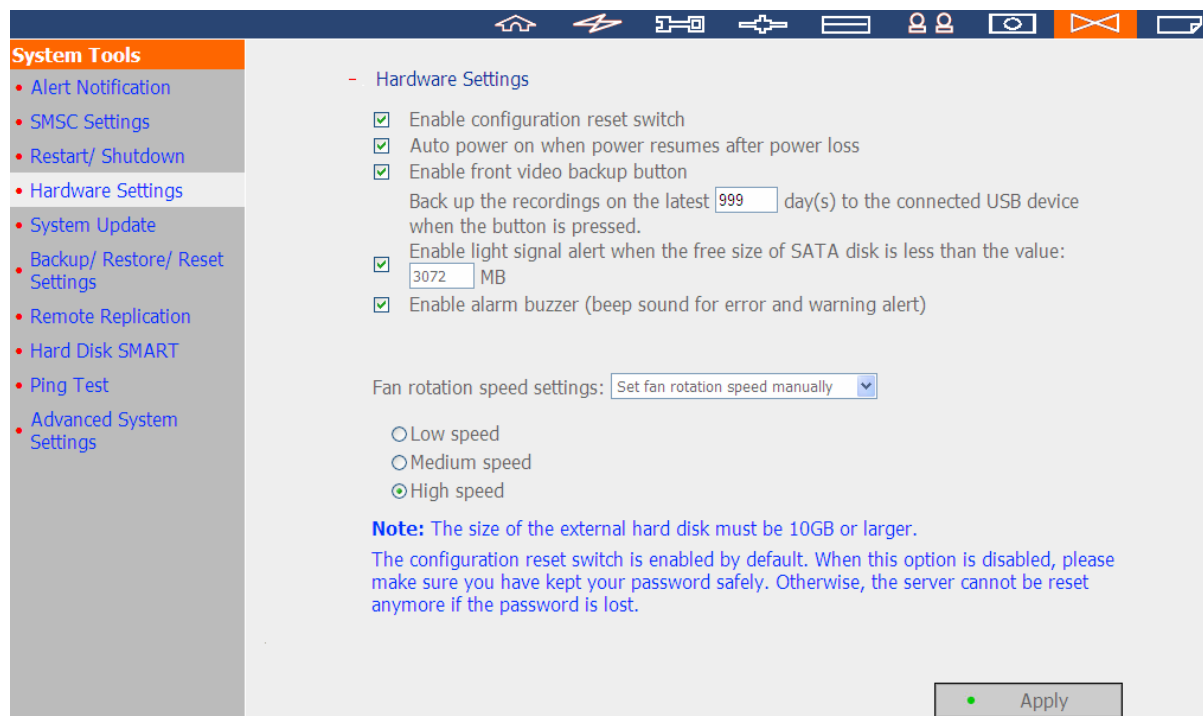
Follow the steps below to restart or shut down the server.

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

Enable or disable the hardware functions of the NVR.



Enable the configuration reset switch

By enabling this option, 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, keep the 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 NVR supports direct copy of the recording data on the NVR to the connected USB device via the USB port. 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 NVR.
3. Press and hold the video backup button for 3 seconds. The NVR 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 turn off after the data has been copied. 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.

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.

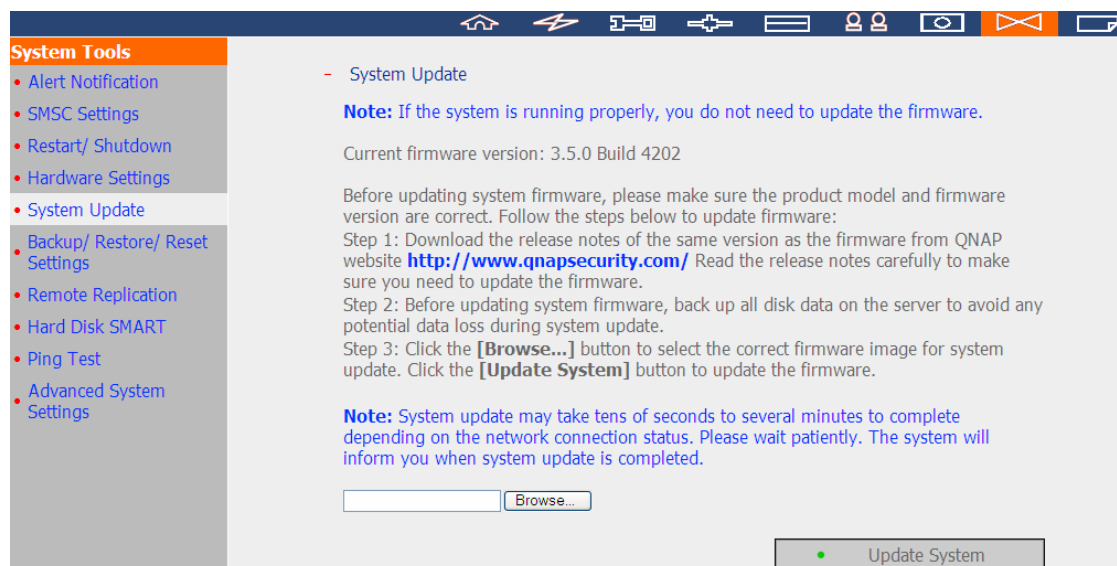
*This function applies to the models with redundant power supply only.

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.

6.7.5 System Update

QNAP provides new firmware release for the NVR from time to time to provide updated features and enhancements. Update the system firmware to use these new features. Before doing so, make sure the product model and the firmware version are correct.



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

Follow the steps below to update firmware:

1. Download the release notes of the firmware from the QNAP website <http://www.qnapsecurity.com>. Read the release notes carefully to make sure it is necessary to update the firmware.
2. Download and unzip the firmware file to the local computer.
3. Before updating the system firmware, it is 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.

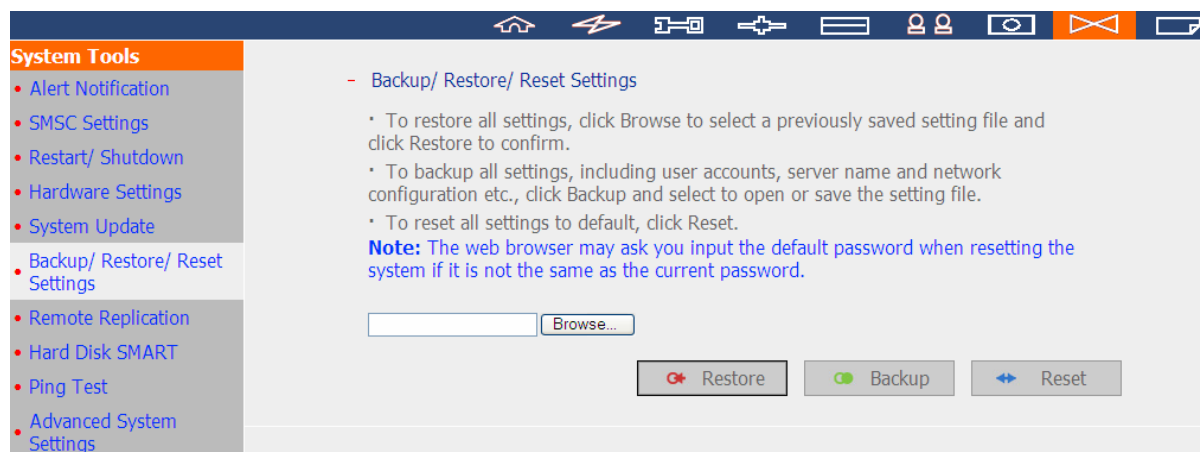
The system update may take several minutes to complete depending on the network connection status. Please wait patiently. The NVR will inform you when the system update is completed.

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 Back up/Restore/Reset Settings

To back up all the settings, including the user accounts, the server name and the network configuration, click 'Back up' 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 the 'Reset' button is clicked, all the drive data, user accounts, network shares, and the system settings will be cleared and restored to default. Please make sure all the important data and the system settings have been backed up before resetting the NVR.



6.7.7 Remote Replication

Use the remote replication feature to copy the recording data of the local NVR 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 NVR and go to 'System Tools' > 'Remote Replication'.

The screenshot shows the 'Remote Replication' configuration page in the NVR's System Tools. The left sidebar lists various system tools, with 'Remote Replication' selected. The main area contains the following settings:

- Remote Replication**
 - Enable Remote Replication
 - Back up alarm recordings only (instead of all recordings)
 - Back up the recordings of the latest day(s) only
- Remote Destination**
 - Remote Host IP Address:
 - Destination Path (Network Share/Directory): /
 - User Name:
 - Password:
 - Remote Host Testing: (Status: --)
- Replication Schedule
 - Daily: Hour : Minute
 - Weekly:
 - Monthly: Day
- Replication Now
- Overwrite the oldest recordings when the available storage on the remote host is less than 4GB
- Perform mirroring replication by deleting extra files on the remote destination

Note: When remote replication is in process, the recording performance will be decreased

Buttons at the bottom: and

2. Enable remote replication (support multiple choices)

- Remote Replication

- Enable Remote Replication
 - Back up alarm recordings only (instead of all recordings)
 - Back up the recordings of the latest day(s) only

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.
- 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.
- 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 the settings. If this option is unselected, the NVR will copy all the recording data to the remote storage device.

3. Configure the remote storage server

Enter the IP address, path, user name and password of the remote storage device.

Remote Destination

Remote Host IP Address	<input type="text" value="10.8.13.59"/>
Destination Path (Network Share/Directory)	<input type="text" value="Recordings"/> / <input type="text"/>
User Name	<input type="text" value="admin"/>
Password	<input type="password" value="•••••"/>
Remote Host Testing	<input type="button" value="Test"/> (Status: --)

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

The screenshot shows a configuration window for the remote replication schedule. It features a checked checkbox for 'Replication Schedule'. Below this, there are three radio button options: 'Daily' (selected), 'Weekly', and 'Monthly'. To the right of the 'Daily' option are two dropdown menus for 'Hour' and 'Minute', both set to '00'. Below the 'Weekly' option is a dropdown menu for the day of the week, set to 'Monday'. Below the 'Monthly' option is a dropdown menu for the day of the month, set to '01'.

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

The screenshot shows a configuration window for backup options. It features three checked checkboxes: 'Replication Now', 'Overwrite the oldest recordings when the available storage on the remote host is less than 4GB', and 'Perform mirroring replication by deleting extra files on the remote destination'. Below these options is a blue note: 'Note: When remote replication is in process, the recording performance will be decreased'. At the bottom of the window are two buttons: 'Stop running task' and 'OK'.

- Select 'Replication Now', the NVR will back up the recording data to the remote storage device immediately.
- 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.
- 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 remote replication is executed, 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.

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

Start Time	Finish Time	Replicated Data Size	Status
2011-06-07 15:08:26	2011-06-08 00:02:32	56.06 GByte(s)	Succeeded
2011-06-07 14:36:23	2011-06-07 15:04:04	2.68 GByte(s)	Aborted (The remote replication was cancelled)

In the above example:

- When the status is shown as 'Failed (Remote access error)': Check if the remote storage device is running or the network settings are correct.
- When the status is shown as 'Failed (An internal error occurred)': View the hard drive status of the NVR or view the Event Logs.

Note: The time required by the NVR 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, it is recommended to refer to the status messages to analyze the time required for the remote replication and adjust the replication schedule accordingly.

6.7.8 Hard Disk SMART

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 NVR will record the error logs. Configure the quick and complete test schedule. The latest test result is shown on the Summary 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

Monitor hard disk health, temperature, and usage status by the hard disk S.M.A.R.T. mechanism.

Select hard disk:

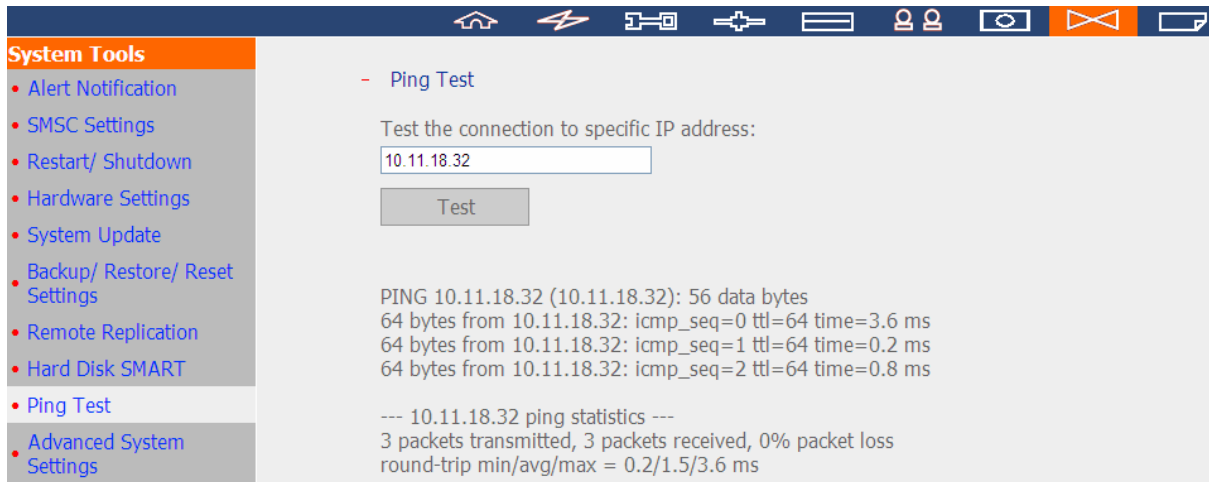
Summary | Hard Disk Information | SMART Information | Test | Settings

Good No errors were detected on the hard disk. Your hard disk should be operating properly.

Hard disk model	ATA WDC WD5001ABYS-059.0
Drive capacity	465.76 GB
Hard drive health	Good
Hard drive temperature	34 °C
Test time	---
Test result	Not tested

6.7.9 Ping Test

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



The screenshot displays the 'System Tools' window with the 'Ping Test' utility selected. The interface includes a navigation bar at the top with icons for home, refresh, back, forward, search, and window management. On the left, a sidebar lists various system tools, with 'Ping Test' highlighted. The main area shows the 'Ping Test' title, a prompt to 'Test the connection to specific IP address:', and a text input field containing '10.11.18.32'. Below the input is a 'Test' button. The output of the test is displayed as follows:

```
PING 10.11.18.32 (10.11.18.32): 56 data bytes
64 bytes from 10.11.18.32: icmp_seq=0 ttl=64 time=3.6 ms
64 bytes from 10.11.18.32: icmp_seq=1 ttl=64 time=0.2 ms
64 bytes from 10.11.18.32: icmp_seq=2 ttl=64 time=0.8 ms

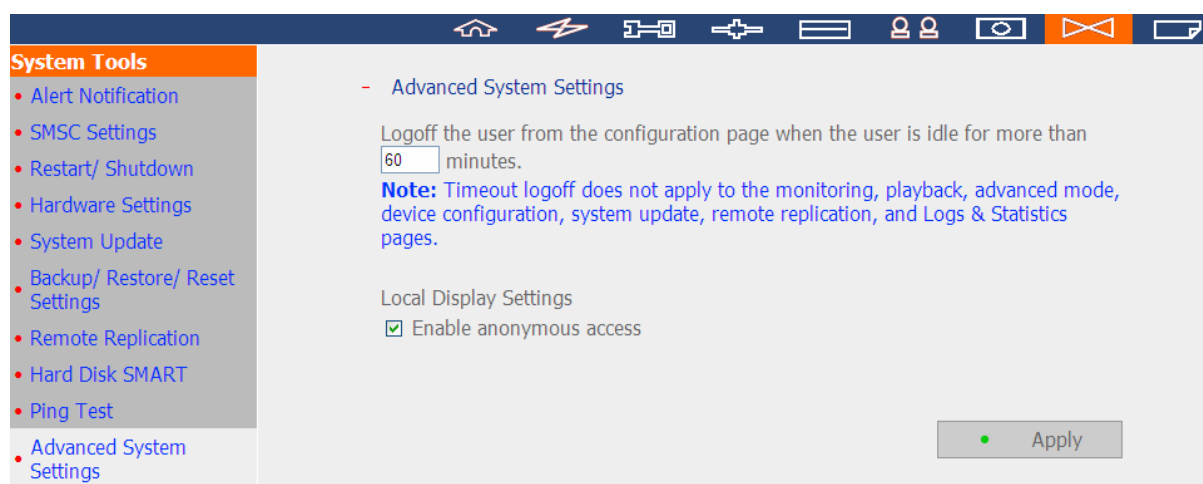
--- 10.11.18.32 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 0.2/1.5/3.6 ms
```

6.7.10 Advanced System Settings

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 'Enable anonymous access'.

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



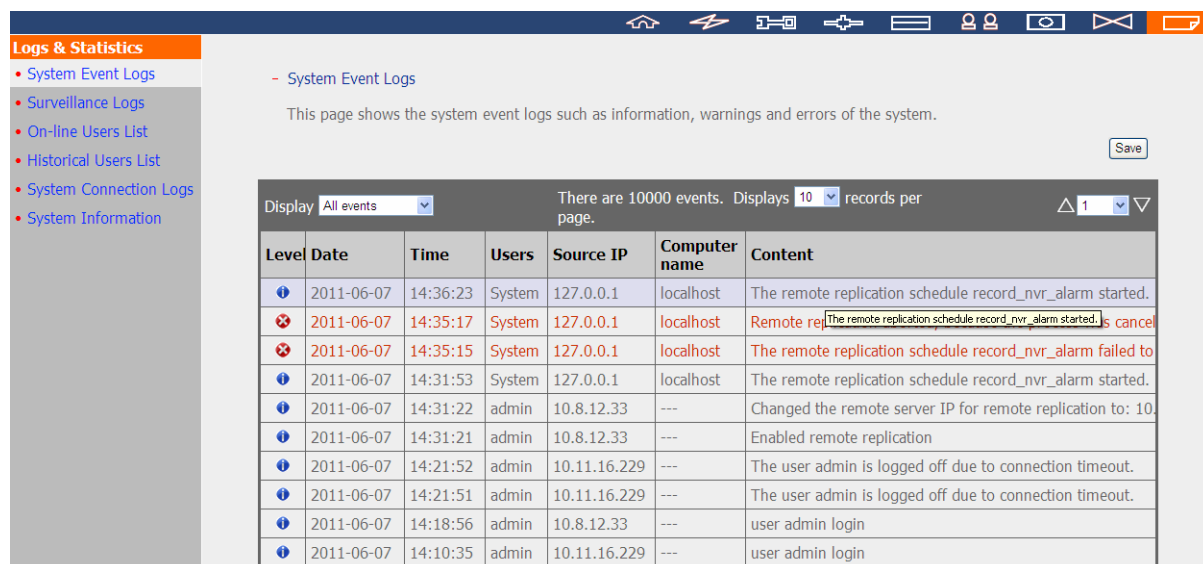
6.8 Logs & Statistics

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 analyze the system problems.

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

Note: The logs are only available in English.



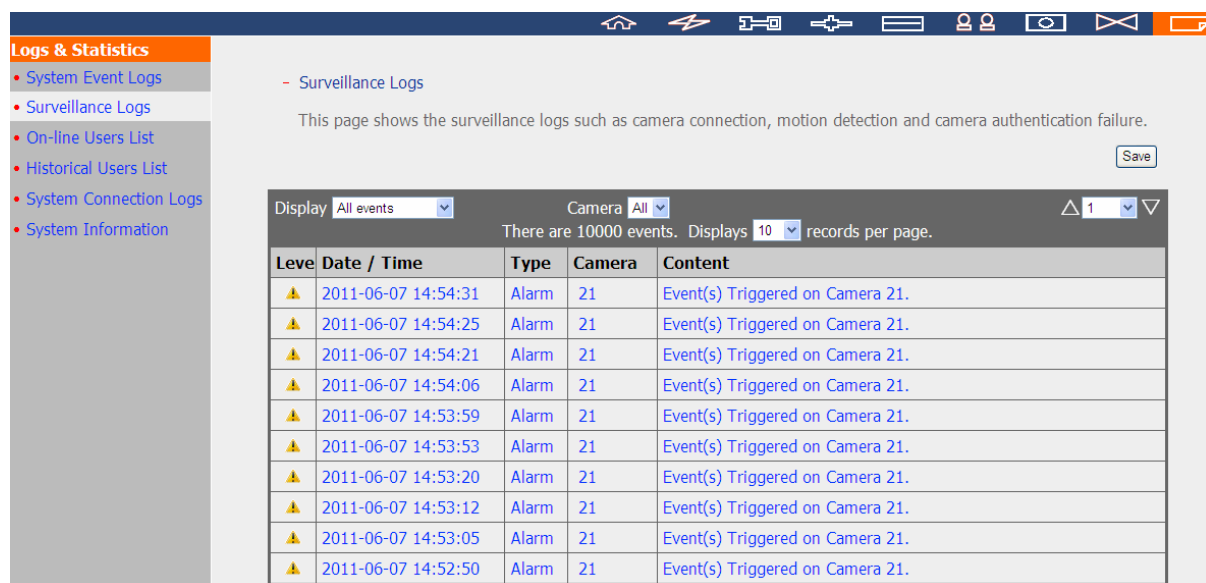
The screenshot displays the 'System Event Logs' interface. On the left, there is a navigation menu with the following items: 'Logs & Statistics', 'System Event Logs', 'Surveillance Logs', 'On-line Users List', 'Historical Users List', 'System Connection Logs', and 'System Information'. The main content area is titled '- System Event Logs' and includes a 'Save' button. Below the title, a message states: 'This page shows the system event logs such as information, warnings and errors of the system.' A summary bar indicates 'There are 10000 events. Displays 10 records per page.' The log entries are presented in a table with the following columns: Level, Date, Time, Users, Source IP, Computer name, and Content.

Level	Date	Time	Users	Source IP	Computer name	Content
Information	2011-06-07	14:36:23	System	127.0.0.1	localhost	The remote replication schedule record_nvr_alarm started.
Error	2011-06-07	14:35:17	System	127.0.0.1	localhost	Remote replication schedule record_nvr_alarm started. [cancel]
Error	2011-06-07	14:35:15	System	127.0.0.1	localhost	The remote replication schedule record_nvr_alarm failed to
Information	2011-06-07	14:31:53	System	127.0.0.1	localhost	The remote replication schedule record_nvr_alarm started.
Information	2011-06-07	14:31:22	admin	10.8.12.33	---	Changed the remote server IP for remote replication to: 10.
Information	2011-06-07	14:31:21	admin	10.8.12.33	---	Enabled remote replication
Information	2011-06-07	14:21:52	admin	10.11.16.229	---	The user admin is logged off due to connection timeout.
Information	2011-06-07	14:21:51	admin	10.11.16.229	---	The user admin is logged off due to connection timeout.
Information	2011-06-07	14:18:56	admin	10.8.12.33	---	user admin login
Information	2011-06-07	14:10:35	admin	10.11.16.229	---	user admin login

6.8.2 Surveillance Logs

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

Note: The logs are only available in English.



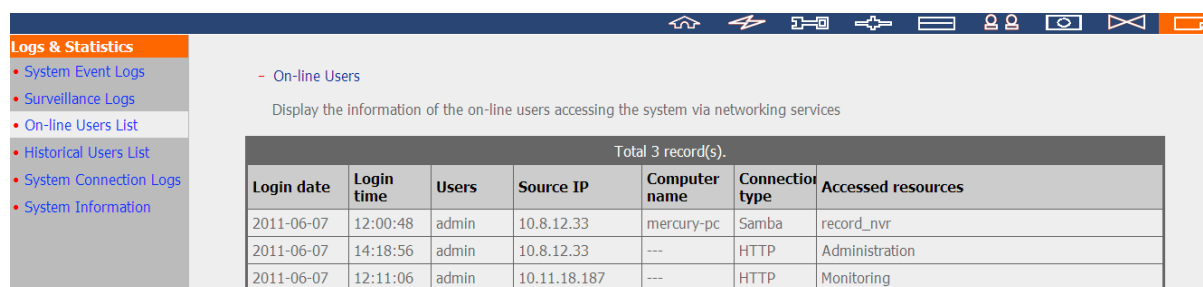
The screenshot displays a web interface for viewing surveillance logs. On the left is a navigation menu with the following items: **Logs & Statistics**, System Event Logs, Surveillance Logs, On-line Users List, Historical Users List, System Connection Logs, and System Information. The main content area is titled "Surveillance Logs" and contains the text: "This page shows the surveillance logs such as camera connection, motion detection and camera authentication failure." Below this text is a "Save" button. A filter bar shows "Display All events" and "Camera All". A status message reads: "There are 10000 events. Displays 10 records per page." Below the filter bar is a table with the following data:

Level	Date / Time	Type	Camera	Content
▲	2011-06-07 14:54:31	Alarm	21	Event(s) Triggered on Camera 21.
▲	2011-06-07 14:54:25	Alarm	21	Event(s) Triggered on Camera 21.
▲	2011-06-07 14:54:21	Alarm	21	Event(s) Triggered on Camera 21.
▲	2011-06-07 14:54:06	Alarm	21	Event(s) Triggered on Camera 21.
▲	2011-06-07 14:53:59	Alarm	21	Event(s) Triggered on Camera 21.
▲	2011-06-07 14:53:53	Alarm	21	Event(s) Triggered on Camera 21.
▲	2011-06-07 14:53:20	Alarm	21	Event(s) Triggered on Camera 21.
▲	2011-06-07 14:53:12	Alarm	21	Event(s) Triggered on Camera 21.
▲	2011-06-07 14:53:05	Alarm	21	Event(s) Triggered on Camera 21.
▲	2011-06-07 14:52:50	Alarm	21	Event(s) Triggered on Camera 21.

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.

Note: The logs are only available in English.



- On-line Users

Display the information of the on-line users accessing the system via networking services

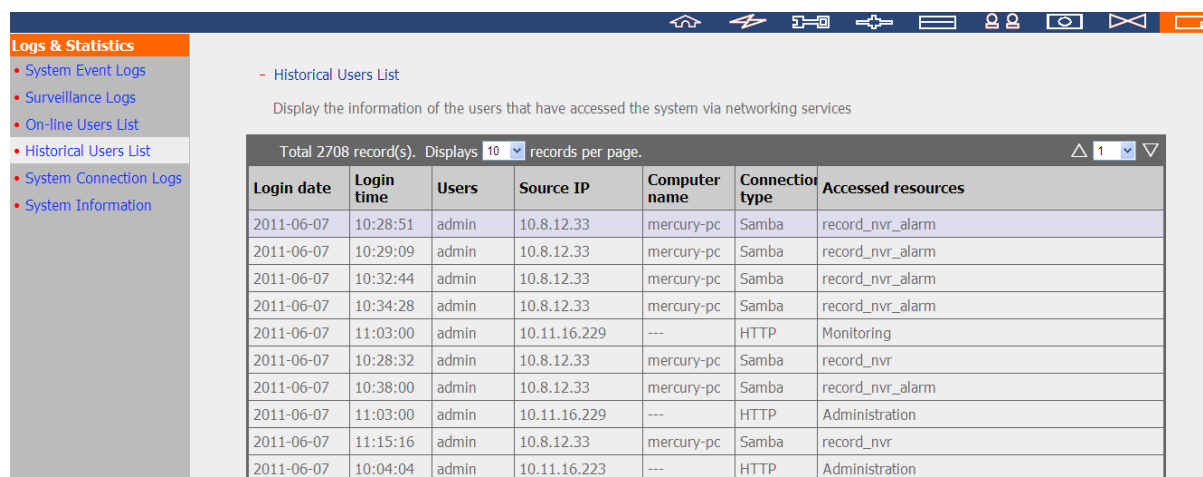
Total 3 record(s).

Login date	Login time	Users	Source IP	Computer name	Connection type	Accessed resources
2011-06-07	12:00:48	admin	10.8.12.33	mercury-pc	Samba	record_nvr
2011-06-07	14:18:56	admin	10.8.12.33	---	HTTP	Administration
2011-06-07	12:11:06	admin	10.11.18.187	---	HTTP	Monitoring

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.

Note: The logs are only available in English.



- Historical Users List

Display the information of the users that have accessed the system via networking services

Total 2708 record(s). Displays 10 records per page.

Login date	Login time	Users	Source IP	Computer name	Connection type	Accessed resources
2011-06-07	10:28:51	admin	10.8.12.33	mercury-pc	Samba	record_nvr_alarm
2011-06-07	10:29:09	admin	10.8.12.33	mercury-pc	Samba	record_nvr_alarm
2011-06-07	10:32:44	admin	10.8.12.33	mercury-pc	Samba	record_nvr_alarm
2011-06-07	10:34:28	admin	10.8.12.33	mercury-pc	Samba	record_nvr_alarm
2011-06-07	11:03:00	admin	10.11.16.229	---	HTTP	Monitoring
2011-06-07	10:28:32	admin	10.8.12.33	mercury-pc	Samba	record_nvr
2011-06-07	10:38:00	admin	10.8.12.33	mercury-pc	Samba	record_nvr_alarm
2011-06-07	11:03:00	admin	10.11.16.229	---	HTTP	Administration
2011-06-07	11:15:16	admin	10.8.12.33	mercury-pc	Samba	record_nvr
2011-06-07	10:04:04	admin	10.11.16.223	---	HTTP	Administration

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.

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

Note: The logs are only available in English.

System Connection Logs

Record the logs of connections to the system

Status: Logging

Stop logging Save

Display All events There are 10000 events. Displays 10 records per page.

Type	Date	Time	Users	Source IP	Computer name	Connective type	Accessed resources	Action
ⓘ	2011-06-07	12:00:49	admin	10.8.12.33	mercury-pc	SAMBA	---	Login OK
ⓘ	2011-06-07	12:00:48	guest	10.8.12.33	mercury-pc	SAMBA	---	Login OK
ⓘ	2011-06-07	11:39:17	admin	10.8.12.33	mercury-pc	SAMBA	record_nvr/channel5/2011-06-07/07/201	Read
ⓘ	2011-06-07	11:39:01	admin	10.8.12.33	mercury-pc	SAMBA	record_nvr/channel5/2011-06-07/07/201	Read
ⓘ	2011-06-07	11:38:20	admin	10.8.12.33	mercury-pc	SAMBA	record_nvr/channel5/2011-06-07/07/201	Read
ⓘ	2011-06-07	11:35:51	admin	10.8.12.33	mercury-pc	SAMBA	record_nvr/channel5/2011-06-07/07/201	Read
ⓘ	2011-06-07	11:35:48	admin	10.8.12.33	mercury-pc	SAMBA	record_nvr/channel5/2011-06-07/07/201	Read
ⓘ	2011-06-07	11:35:45	admin	10.8.12.33	mercury-pc	SAMBA	record_nvr/channel5/2011-06-07/07/201	Read
ⓘ	2011-06-07	11:35:44	admin	10.8.12.33	mercury-pc	SAMBA	record_nvr/channel5/2011-06-07/07/201	Read
ⓘ	2011-06-07	11:35:43	admin	10.8.12.33	mercury-pc	SAMBA	record_nvr/channel5/2011-06-07/07/201	Read

6.8.6 System Information

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

System Information

CPU Usage	84.8 %	CPU Temperature	56°C/132°F	
Total Memory	2017.7MB	System temperature	41°C/105°F	
Free Memory	1409.0MB	HDD 1 temperature	40°C/104°F	
LAN1 Packets Received	1857898321	HDD 2 temperature	39°C/102°F	
LAN1 Packets Sent	893416977	HDD 3 temperature	38°C/100°F	
LAN1 Error Packets	0	HDD 4 temperature	39°C/102°F	
LAN2 Packets Received	--	HDD 5 temperature	39°C/102°F	
LAN2 Packets Sent	--	HDD 6 temperature	38°C/100°F	
LAN2 Error Packets	--	HDD 7 temperature	39°C/102°F	
System Up Time	5 Day(s) 3 Hour(s) 25 Minute(s)	HDD 8 temperature	39°C/102°F	
		System fan1 speed	1757 RPM	
		System fan2 speed	1757 RPM	

Chapter 7. System Maintenance

This section provides a general overview of the system maintenance.

7.1 Reset the Administrator Password and Network Settings

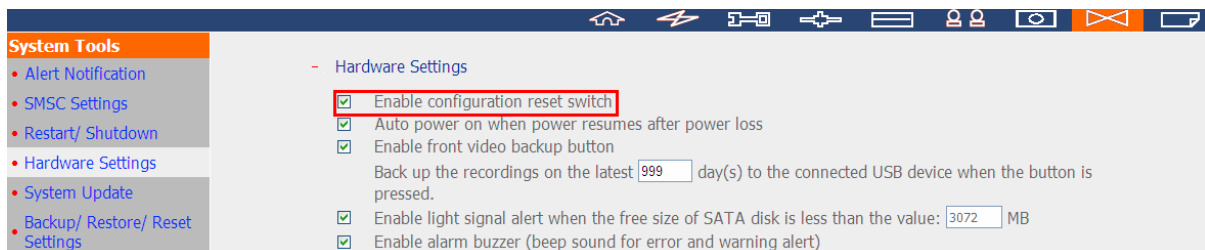
To reset the administrator password and the network settings, press the reset button of the server for five seconds. A beep sound will be heard.

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

Default user name: **admin**

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

Warning: It is strongly recommended to turn OFF the server before replacing the hard drive to reduce the risk of electric shock. The server should only be maintained by an authorized and trained technician.

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 users to perform the disk configuration and view the system information.

When the NVR has started up, the server name and the IP address will be shown:

```
N V R 5 F 4 D E 3
1 6 9 . 2 5 4 . 1 0 0 . 1 0 0
```

For the first time installation, the LCD panel shows the number of the hard disk drives detected and the IP address. Configure the hard drives accordingly.

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 five hard drives have been installed, the LCD panel shows:

C	o	n	f	i	g	.		D	i	s	k	s	?		
→	R	A	I	D	5										

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.

C	h	o	o	s	e		R	A	I	D	5	?			
→	Y	e	s			N	o								

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.

C	r	e	a	t	i	n	g	.	.	.					
R	A	I	D	5		F	a	i	l	e	d				

View the system information by the LCD panel

When the LCD panel shows the server name and the IP address, 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, the following options are available:

- 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', configure the IP address, subnet mask, gateway, and the DNS of LAN 1 and LAN 2.

2. Physical disk

In Physical disk, the following options are available:

- 2.1 Disk Info
- 2.2 Back to Main Menu

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

```
D i s k : 1   T e m p : 5 0 ° C
S i z e :   2 3 2   G B
```

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.

```
R A I D 5   7 5 0 G B
D r i v e   1 2 3 4
```

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.

C	P	U		T	e	m	p	:		5	0	°	C		
S	y	s		T	e	m	p	:		5	5	°	C		

S	y	s		F	a	n	:	8	6	5	R	P	M		

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.

C	h	a	n	g	e		P	a	s	s	w	o	r	d	
					Y	e	s	→	N	o					

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.

N	e	w		P	a	s	s	w	o	r	d	:			
														O	K

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.

S y s t e m E r r o r !
P l s . C h e c k L o g s

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 the ActiveX add-on has been installed when logging in the monitoring page of the NVR. Set the security level to 'Medium' or lower in Internet Options of the IE browser.
- b. The NVR is turned on and the network is correctly connected.
- c. The IP address of the NVR does not conflict with other devices in the same subnet.
- d. Check the IP address settings of the NVR and the 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. Use the 'Test' function to verify the connection.
- b. When the PC and the IP camera are on the same subnet, while the NVR is on another subnet, the monitoring screen cannot be viewed from the PC. Solve the problems by the following methods.

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

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. Install the hard drive(s) correctly in the NVR.
- b. Make sure each hard disk tray is correctly locked.
- 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 hard drive may be damaged or cannot be detected. In this case, turn off the NVR and install a new hard disk. If the problem persists, please contact the technical support.

<p>Note: When the configurations of the NVR are being updated, the recording will be stopped temporarily and restart again shortly.</p>
--

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

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

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 NVR, 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 NVR servers for recording at the same time.

6. The alarm recording does not function.

- a. Please login the NVR 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 NVR 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 the number of days that the alarm recordings will be retained have been specified 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 NVR supports E-map in JPEG only.

10. I cannot find the NVR by the QNAP Finder.

- a. Check if the NVR has been turned on.
- b. Connect the local PC and the NVR to the same subnet.
- c. Install the latest version of Finder from www.qnapsecurity.com.
- d. Run Finder again to search for the NVR. Make sure all the firewall software on the computer have been turned off; or add the Finder to the list of allowed programs in the firewall.
- e. If the NVR is not found, click "Refresh" on the Finder to try again.
- f. If the problem persists, contact the technical support.

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.

When 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 NVR.

- a. Login the NVR as an administrator. Go to 'Network Settings' > 'File Services' and check if these three functions are enabled.
- b. If the NVR 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.

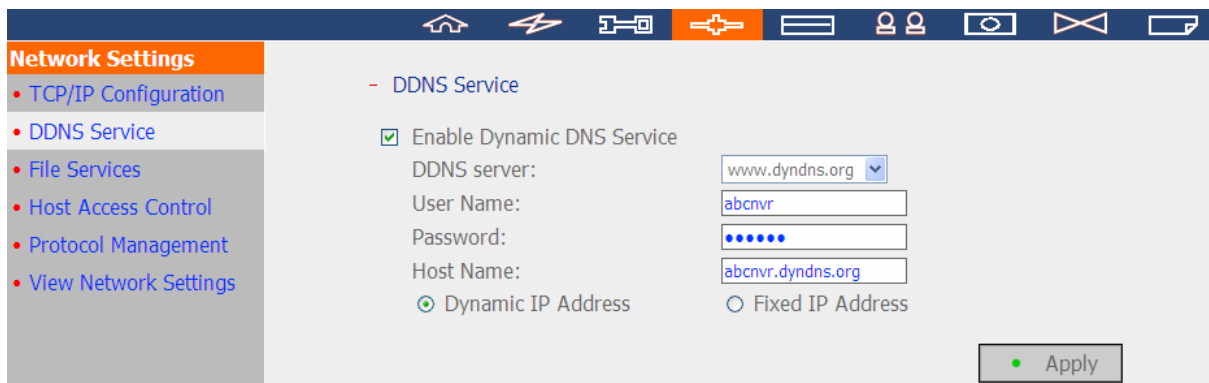
14. The NVR takes too long to restart.

When the NVR 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 NVR supports the DDNS service provided by DynDNS. 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 NVR by this dynamic domain name. When the ISP assigns a new WAN IP address, the NVR will update the new address to the DynDNS server automatically.



The screenshot shows the 'DDNS Service' configuration page in the NVR's web interface. The left sidebar lists 'Network Settings' with sub-items: TCP/IP Configuration, DDNS Service (selected), File Services, Host Access Control, Protocol Management, and View Network Settings. The main content area is titled 'DDNS Service' and contains the following settings:

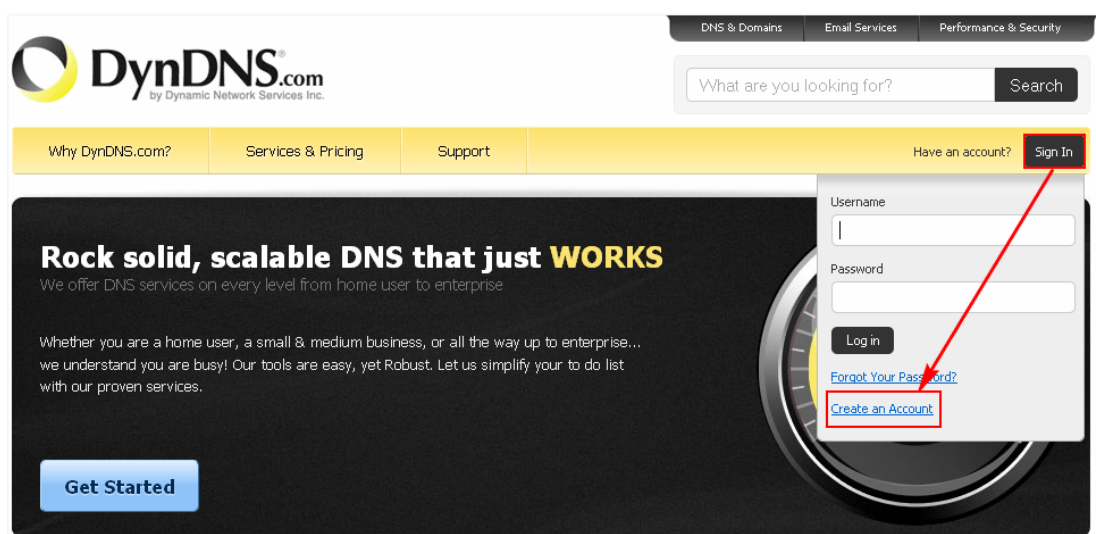
- Enable Dynamic DNS Service
- DDNS server:
- User Name:
- Password:
- Host Name:
- Dynamic IP Address Fixed IP Address

An 'Apply' button is located at the bottom right of the configuration area.

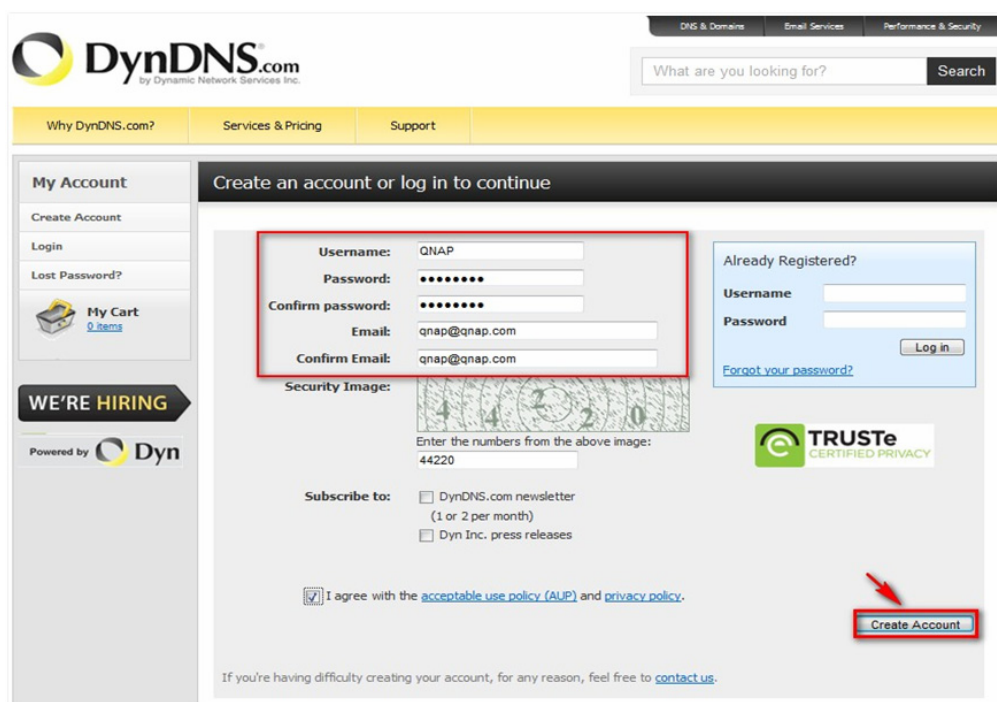
Registration Procedure

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.

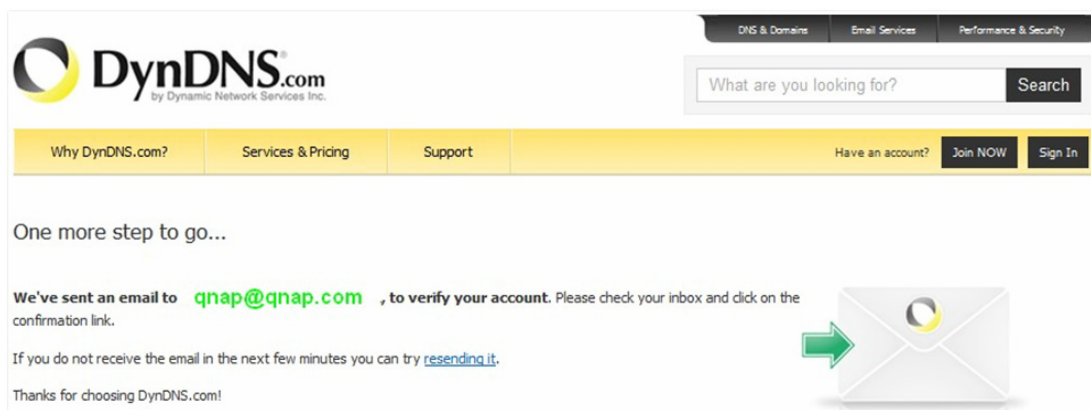
1. Visit <http://www.dyndns.org>. Click 'Sign In' and 'Create an Account' to register a DynDNS account.



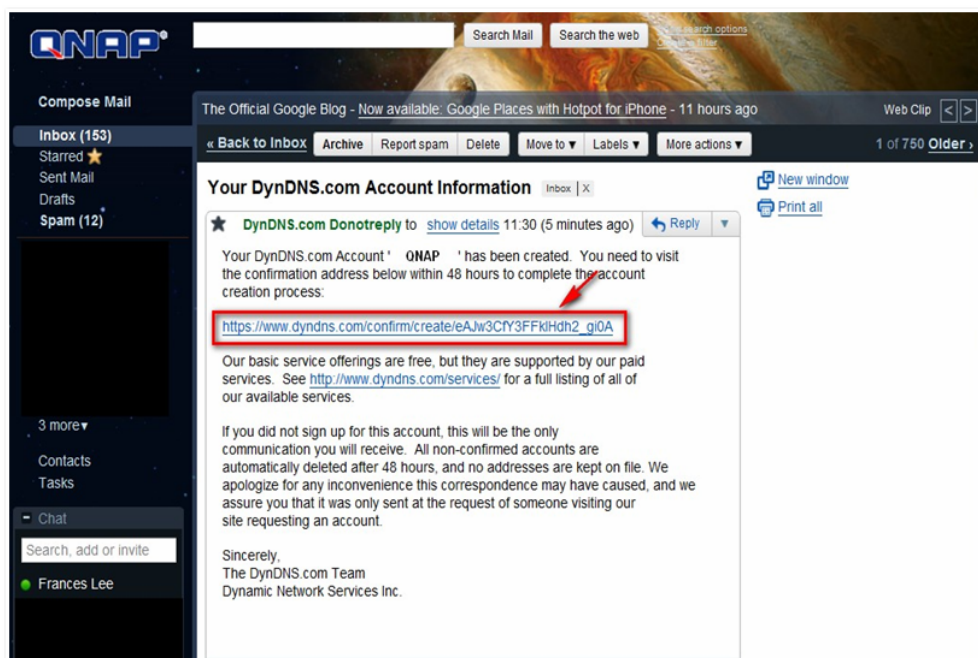
2. Enter the information required. Then click 'Create Account'.



3. A confirmation email will be sent to the registered email address.



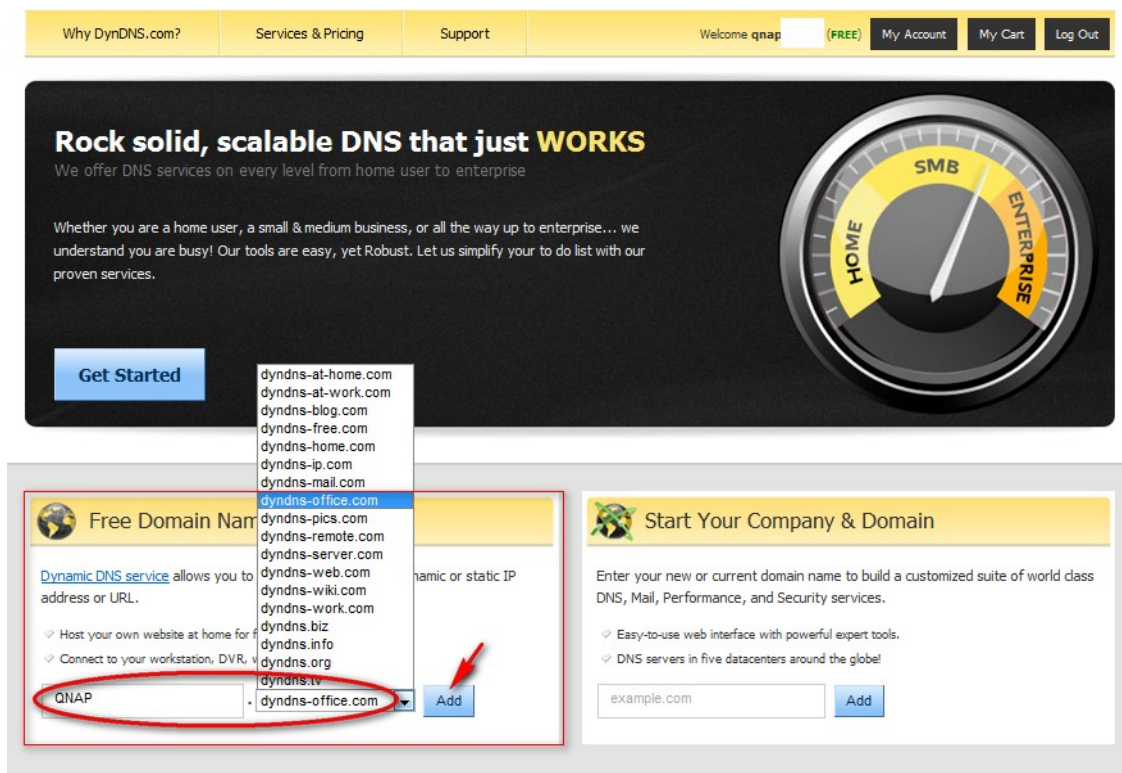
4. Click the link in the email to confirm the registration.



5. Click 'Confirm Account' and login DynDNS.



6. Register a host name for the NVR. A host name is a unique name that identifies the server. Then click 'Add'.



7. Activate the host name. The DDNS host name is ready for use.

The screenshot shows a web interface for "Host Services". At the top right, there is a link for "My Services". Below the title, a yellow message box states "gnap.dyndns-office.com successfully activated." Below this is a table with the following data:

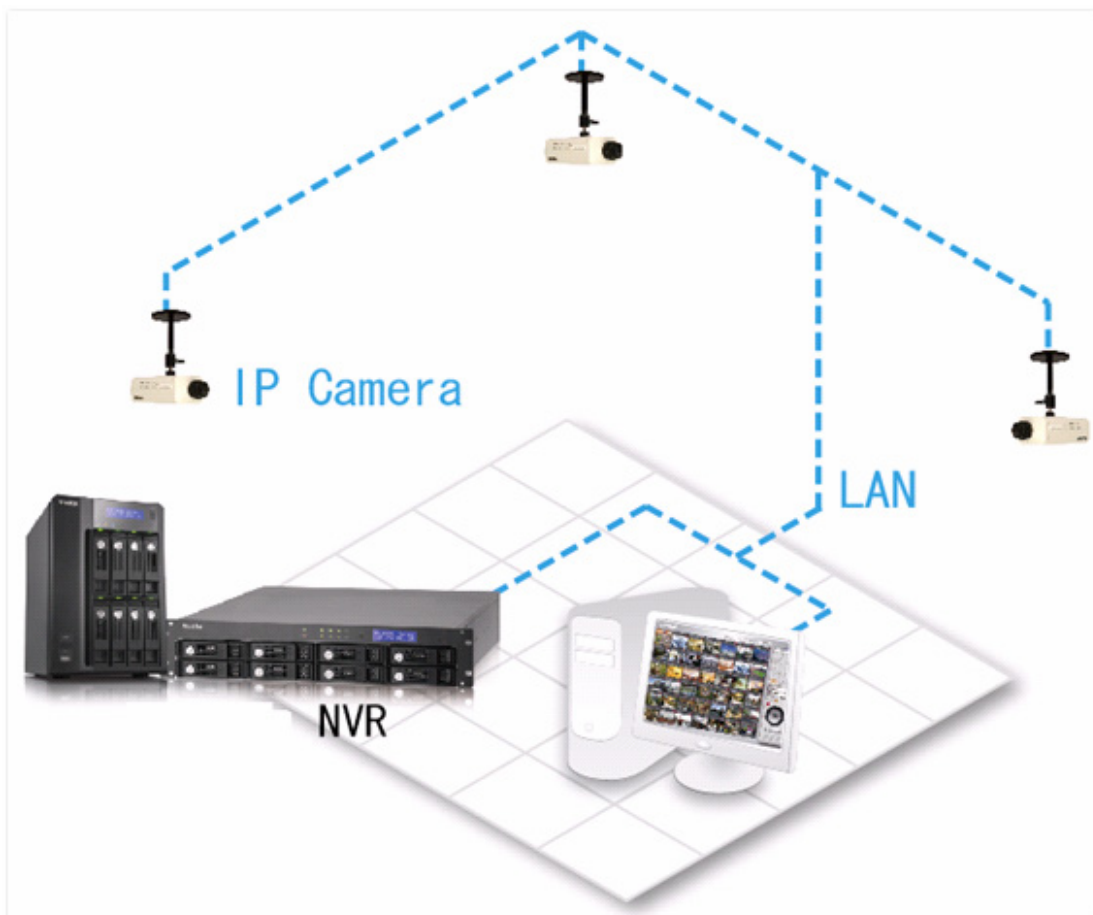
Hostname	Service	Details	Last Updated
gnap.dyndns-office.com	Host	219.	Jan. 12, 2011 11:01 PM

At the bottom left, there is a link for "Host Update Logs" and at the bottom right, there is a button labeled "Add New Host".

You can now login the NVR and set up the DDNS service.

Appendix B Configuration Examples

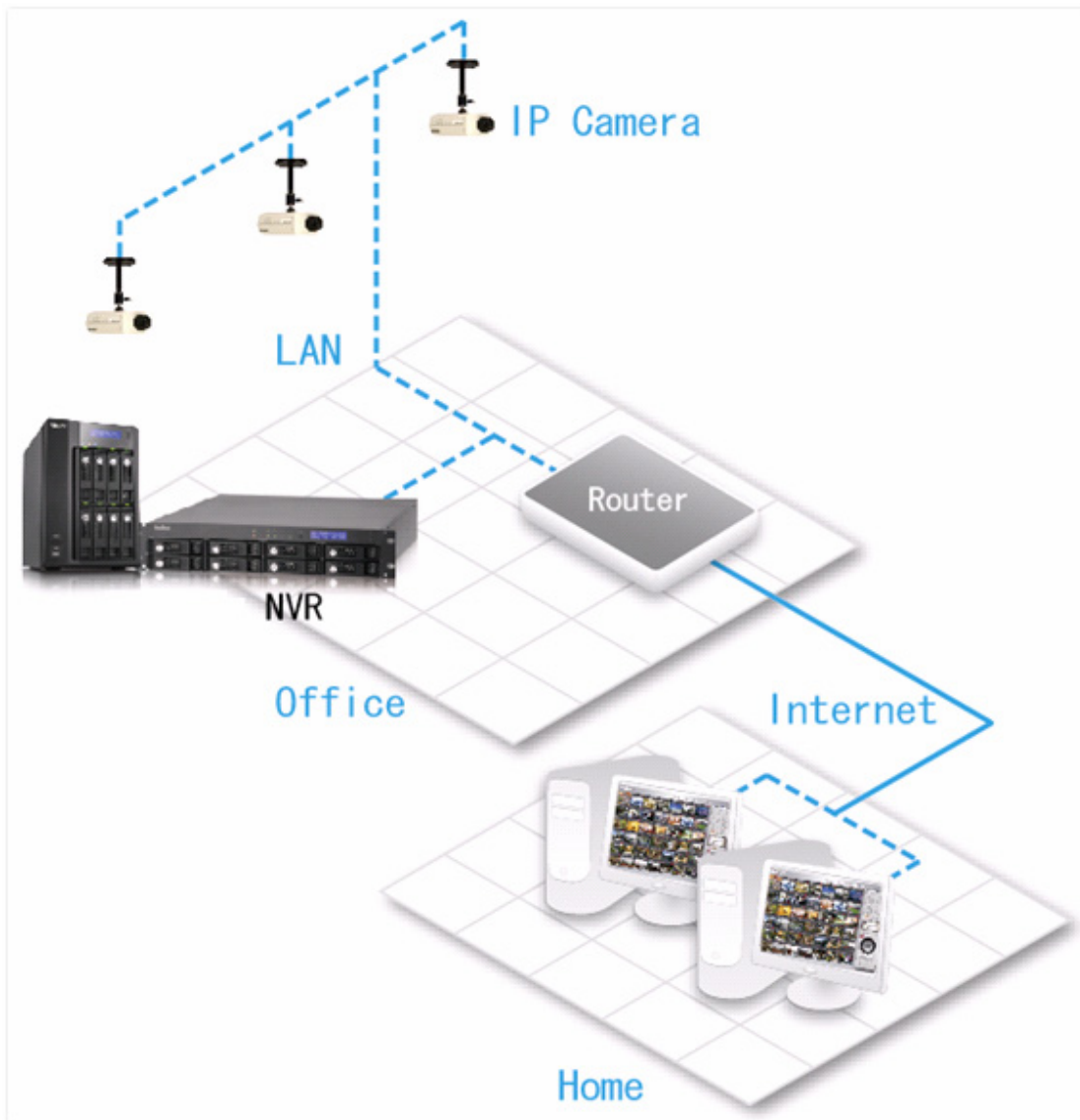
Environment 1: The NVR, the IP camera, and the monitoring PC are all on the same network



	IP address
NVR	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 NVR by entering the IP addresses of the IP cameras.

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



	IP address	Mapped port on the router
NVR	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 NVR and the IP cameras, do the following:

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 NVR 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 NVR on WAN, configure the following port mapping settings:

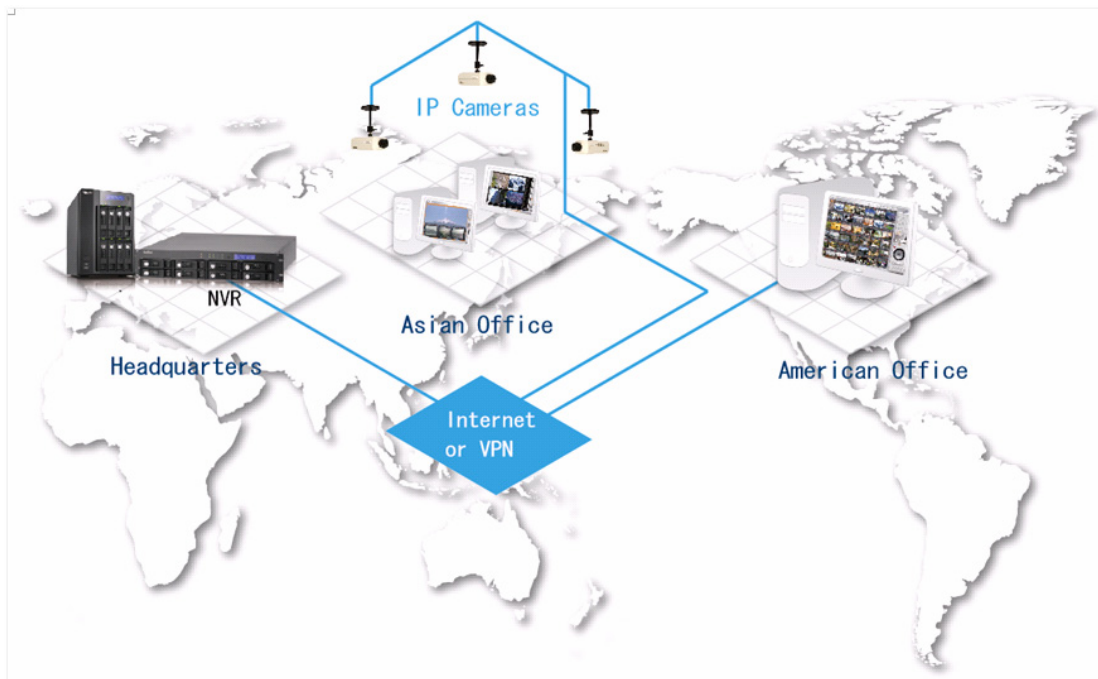
From	Forward to
219.87.144.205:21	192.168.1.1:21
219.87.144.205:139	192.168.1.1:139
219.87.144.205:445	192.168.1.1:445

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

If the port specified to the NVR is 80, enter <http://219.87.144.205> to connect to the NVR.

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

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



	IP address
NVR	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 NVR 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 NVR and the IP camera are installed behind the router

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

In the example, to allow a remote PC to connect to each NVR by FTP, do the following:

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

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

Connect to NVR 1 by ftp://219.87.145.205:2001

Connect to NVR 2 by ftp://219.87.145.205:2002

Connect to NVR 3 by ftp://219.87.145.205:2003

Step 2. Enable FTP port mapping on the NVR

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

	Mapped port
NVR 1	2001
NVR 2	2002
NVR 3	2003

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

Technical Support

QNAP provides dedicated online support and customer service via instant messenger.

Online Support: <http://www.qnapsecurity.com/onlinesupport.asp>

MSN: q.support@hotmail.com

Skype: qnapskype

Forum: <http://forum.qnapsecurity.com>

Technical Support in the USA and Canada:

Email: q_supportus@qnap.com

TEL: 909-595-2819

Address: 166 University Parkway, Pomona CA 9176

Service Hours: 08:00-17:00 (GMT- 08:00 Pacific Time, Monday to Friday)

GNU GENERAL PUBLIC LICENSE

Version 3, 29 June 2007

Copyright © 2007 Free Software Foundation, Inc. <<http://fsf.org/>>

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To “propagate” a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To “convey” a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays “Appropriate Legal Notices” to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The “source code” for a work means the preferred form of the work for making modifications to it. “Object code” means any non-source form of a work.

A “Standard Interface” means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The “System Libraries” of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A “Major Component”, in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The “Corresponding Source” for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify

the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

- a) The work must carry prominent notices stating that you modified it, and giving a relevant date.
- b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".
- c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.
- d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as

to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit.

Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source.

Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the

Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this

section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

“Additional permissions” are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

- a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or
- b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or
- c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or
- d) Limiting the use for publicity purposes of names of licensors or authors of the material; or
- e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or
- f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered “further restrictions” within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes

the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those

copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS