PLANET
Networking & Communication

User's Manual

8-/16-Channel Network Video Recorder with HDMI

► **NVR-820/NVR-1620**

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Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a 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:

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

FCC Caution

To assure continued compliance, for example, use only shielded interface cables when connecting to computer or peripheral devices. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Federal Communication Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

WEEE Regulation

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste; they should be collected separately.

Revision

User's Manual of PLANET Network Video Recorder with HDMI
Model: NVR-820/NVR-1620
Rev: 2.0 (July, 2015)
Part No. EM-NVR-820/NVR-1620

Table of Contents

Chapter 1. Product Introduction

1.1 Package Contents

The package should contain the following items:

- NVR unit x 1
- User's Manual CD x 1
- Quick Installation Guide x 1
- Power Adapter x 1
- Power Cord x 1
- HDD Screw Packet x 1
- HDD Bracket Screw Packet x 1
- HDD Bracket Set x 1
- SATA Cable x 2
- Feed Pad Set x 1

Note	1. If any of the above items are missing, please contact your dealer immediately. 2. Using the power supply that is not the one included in the NVR packet will cause damage and void the warranty for this product.

1.2 Overview

SMB Surveillance Solution

PLANET NVR-1620/NVR-820, a high-definition IP surveillance solution, is suitable for upgrading your CCTV system to IP system without re-cabling. The NVR-1620/NVR-820 is the 16-/8-channel Linux-embedded NVR with HDMI local display, bringing a stable and efficient system operation under a wide range of recording/network management/system settings. This latest NVR can be used as a control center to control and monitor up to 16/8 network cameras (ONVIF supported) connected to this NVR locally or remotely, and also supports image storage for evidentiary recording and data backup of up to 2 hard disks, perfectly designed for intelligent IP surveillance system. Users can just turn on the cameras and the NVR to easily protect their lives and properties under the IP networks. The recorded video files can be saved in the NVR without the need for an additional PC for file storage, thus bringing users a secure surveillance system at a lower total cost. It is fully compatible with iOS, Android and Internet Explorer on Windows operating system for multi-platform remote access.

High Resolution Local Display

The NVR-1620/NVR-820 provides both HDMI and VGA video output interfaces for dual local display, which can be connected to HDMI monitor or TV for doing monitoring in the full HD (1920 x 1080) resolution, and check NVR system status on VGA monitor at the same time, eliminating the need for a separate PC to view video from the unit. It also can be operated with the USB keyboard and mouse to configure and monitor all the systems easily.

Performing Real-time Remote Monitoring

Up to 16/8 IP cameras can be connected to the NVR-1620/NVR-820 via a connected IP network. With the NVR-1620/NVR-820, it delivers high performance to ensure stable recordings and smooth playbacks of multiple megapixel cameras. Users can view remote surveillance in real time and play back recorded videos via the web browser or the bundled CMS software.

Easy Configuration and Management

The NVR-1620/NVR-820 features smart setup wizard program to help users easily complete the device installation. It supports web-based management interface for the administrators to remotely manage the device via web browser without any concern. Furthermore, the NVR-1620/NVR-820 can automatically search and find the available cameras in the network so it greatly reduces user's effort when setting up the system. This state-of-the-art and powerful software/hardware made in one design fits in with various network environments.

1.3 Features

- **Hardware**
  - Linux-embedded, highly-reliable standalone NVR
  - Supports Gigabit Ethernet port
  - Supports VGA / HDMI dual local display
  - Supports 3.5" SATA x 2 HDDs

- **Video / Audio**
  - Supports M-JPEG / MPEG-4 / H.264 compressions
  - Auto configuration for PLANET IP camera
  - Video resolution up to 5 mega-pixel (2560 x 1920)
  - Supports up to 120fps @ 1080p (H.264)
  - 2-way audio support with enhanced audio quality

- **Video Recording / Backup**
  - Simultaneous recording and live video streams
  - Manual or scheduled recording of 16 / 8 IP cameras
  - Video recycling function records events 24/7
  - Exports recorded video files in AVI format to USB device or local storage
  - Instant event notification

- **Network Service**
  - Easy access with PLANET Dynamic DNS and built-in NTP Server

- Supports DHCP server/client (auto detection)
- Convenient data access (SMB / CIFS / HTTP / FTP)

➢ **Easy Installation & Management**
- ONVIF compliant for interoperability
- Supports multiple languages
- Automatically discovered by management software
- E-map interface in web and utility configuration
- Web-based and management utility for easy configuration
- Up to 16 NVRs, max. 256 channels with the central management software
- Supports USB keyboard and mouse
- Supports mobile phone remote view

1.4 Product Specifications

Product	NVR-820	NVR-1620
Hardware		
Ethernet	1 x RJ45, 10/100/1000BASE-T	
USB Interface	2 x USB 2.0 for backup device and firmware upgrade	
Video Interface	VGA / HDMI video interface	
Audio Interface	Mic-in, line-in and line-out	
Storage Device	2 x 3.5” SATA II hard disk connectors	
LED	Power, Status	
Button	Power, Reset	
Camera		
Max. Channels	8-channel IP Cameras	16-channel IP Cameras
Additional Camera	Manual/Smart Camera Search/Auto Setup	
Video		
Compression	H.264/MPEG-4/M-JPEG	
Resolution	5MP/3MP/1080p/720p/FD1/CIF/QCIF	
Max. Live Video Frame Rate (Local Display)	240fps@720p30 120fps@1080p30 80fps@3MP Max. 5MP/channel Supports 1080p60	480fps@D130 360fps@720p30 150fps@1080p30 Max. 5MP/channel Supports 1080p60
Max. Recording Frame Rate (Local Display)	240fps@1080p30, 4Mbps/channel, total 8 channels 120fps@3MP, 6Mbps/channel, total of 8 channels	480fps@1080p30, 4Mbps/channel, total of 16 channels
	* Real performance may vary in different environments.	
Audio		
Audio Type	2-way	
Audio format	G.711, G.726 (Camera dependent)	
Live Viewing		
Display Mode	Live View/Playback/Full/Screen/Sequence View/Saved Views	
Split Screen	1/4/9	1/4/9/16
Full Screen	1/4/9	1/4/9/16

Sequence Mode	Sequence all/manually selected cameras in 1/4 split view with configurable timer
Snapshot	Video snapshot in JPEG format
PTZ Support	Digital PTZ/ Auto Pan/Preset Point/Sequence view
Playback	
Split Screen	1/4
Play Method	Play/Pause/Stop/Forward/Reverse/Speed Adjust/Frame by Frame Search by time or event only
Bookmark	Intuitive timeline interface with bookmark function for easy file export
Monitor	
Dual Monitor	Main UI + Full screen live view/sequence view
Monitor Resolutions	1920 x 1080, 1280 x 1024, 1280 x 720, 1024 x 768
Network and Configuration	
Network Service	TCP/HTTP/SMTP/DHCP/DNS/ARP/P2P/NTP/UPnP/FTP
Streaming Protocols	Depending on the supported cameras
Triggering and Event	
Event type	**System Events –** ● System Start/Shutdown ● System Settings modified ● Camera Settings modified ● Start Recycle ● Disk Full **Camera Events –** ● Motion/Sensor Detection
Event Action	● Display red window on video of event channel ● Buzzer alarm ● Disable/enable event action ● Duration of event action ● Recording ● Mail/FTP notification ● E-map notification
Management	
Number of Groups	7 (Administrator/Guest/User Define * 5)
Privileges	Live View/Playback/System Configurations/Camera Configurations / Recording Configuration/Event Configuration/ Maintenance
User Interface	● Graphic local user interface (Operated by mouse, keyboard) ● Web browser (Internet explorer 7 or above) ● CMS Utility
Log Type	Alert/Event/User Access
Software Utility	Search utility/media player for exporting recorded files
Environment	
Power	19V DC, 4.74A
Consumption	60W
Operating Temperature	5~40 degrees C
Storage Temperature	-40~70 degrees C

Humidity	10~90% (non-condensing)
Weight	2.4 kg
Dimensions (W x D x H)	315 x 225 x 75 mm

Chapter 2. Hardware Interface

2.1 Physical Descriptions

Front Panel

NVR-1620

NVR-820

LED	Status	Definitions
Power	Green	Solid green - Normal operation Slow blinking in green after pressing and holding the reset button for 5 seconds indicates the device will enter the restore default process. Other LEDs remain unchanged during this state.
	Red	System off (power cord remains plugged in)
	Amber	Fast blinking in amber during system initializing/starting. Continuous blinking when system is unable to start properly (All other LEDs should be off when this LED is blinking in amber) Slow blinking indicates the system is shutting down.
Buttons	Status	Definitions
Power	ON	Press and hold for 2 seconds
	OFF	Press and hold for 2 seconds
Reset	Restore default	Press and hold for 5 seconds
	Restart	Press and hold for 2 seconds
Buzzer	Status	Definitions
Beep	Complete start	Beep once (Indicating the system is starting)
	Initiating restart	Beep once (Indicating the restart process has begun)
	Initiating shutdown	Beep once (Indicating the Power button is to be released as the shutdown process has begun)

Rear Panel

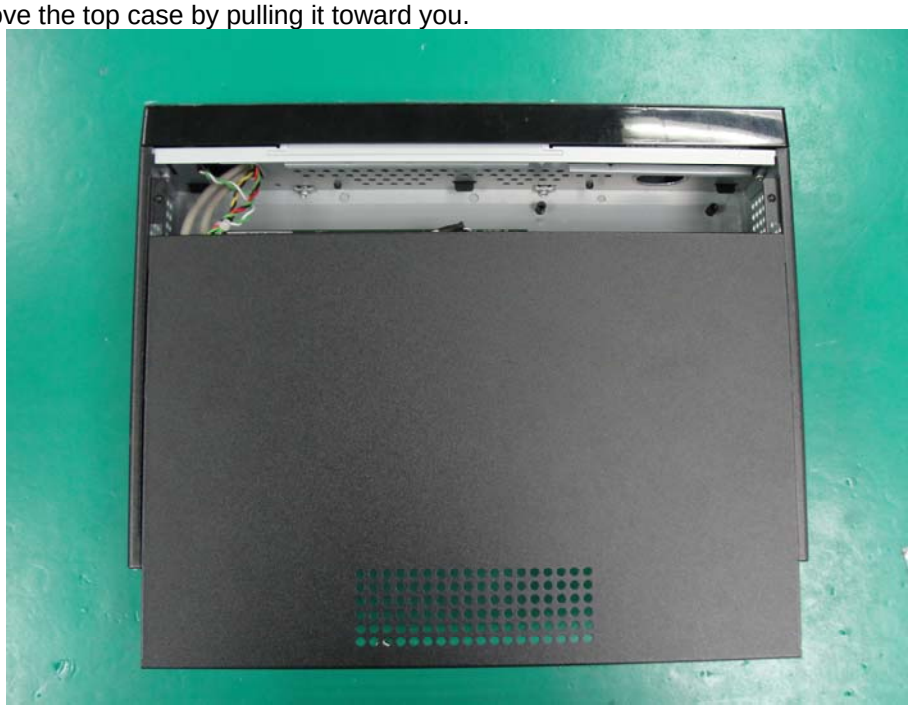
Connector	Description
Ethernet	10/100/1000Mbps network
Video	VGA / HDMI
Audio	Line in/Line out/Mic
Power Supply	19V AC, 3.42A, 50 / 60Hz

2.2 Hardware Installation

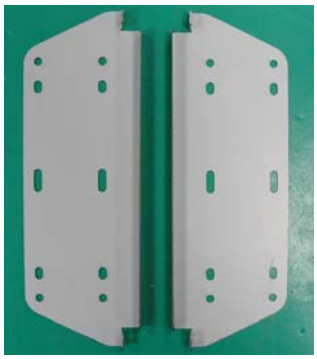
2.2.1 Installing Hard Disk

1. Remove the screws on back side.

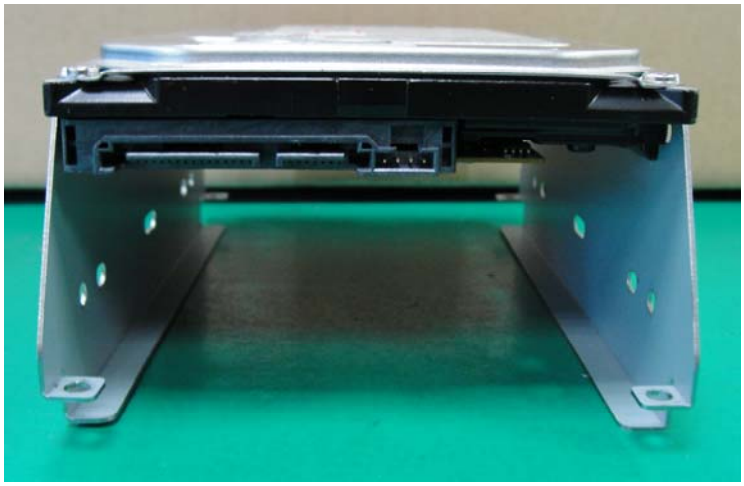
2. Remove the top case by pulling it toward you.



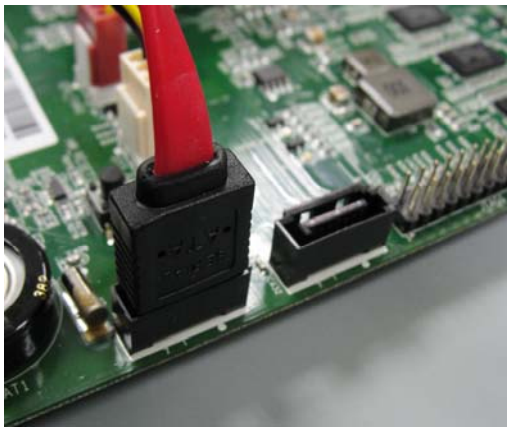
3. Prepare HDD brackets.



4. Screw bracket to HDD; two HDDs can be bracketed.

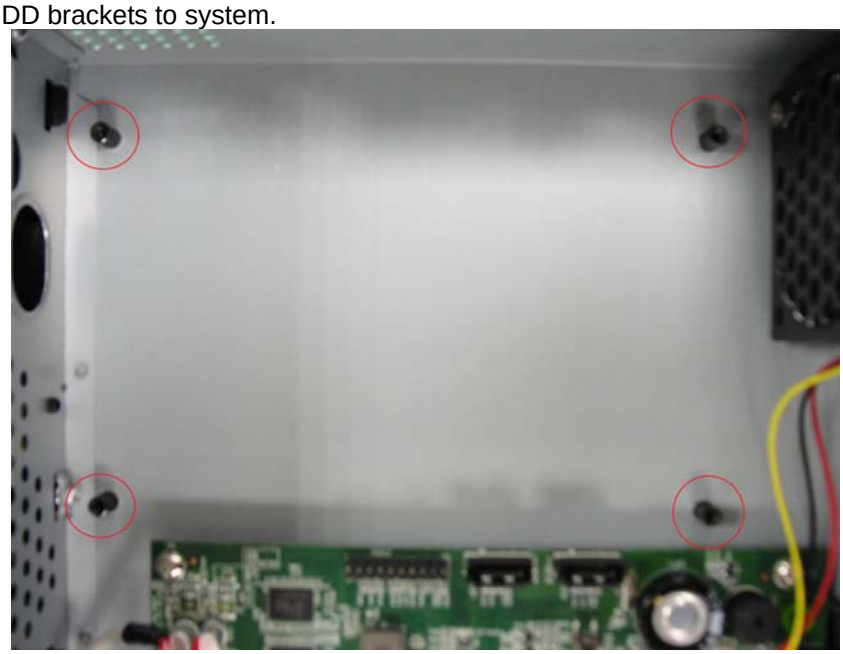


5. Prepare SATA cable and connect it to SATA data connector and SATA power connector.



6. SATA cable is fixed to the HDD.

7. Screw HDD brackets to system.



Chapter 3. Connecting to the NVR

There are various ways you can connect to the NVR and below are the suggested methods for different network setups:

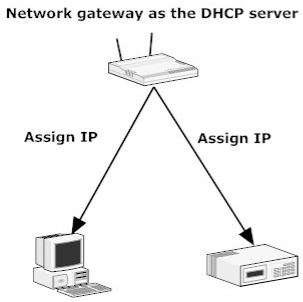
The NVR is placed in a network with a DHCP server: Connect to the NVR by using “Device Search” Utility.

The NVR is placed in a network without a DHCP server (or it can be connected directly): Access NVR with its default IP (192.168.0.20).

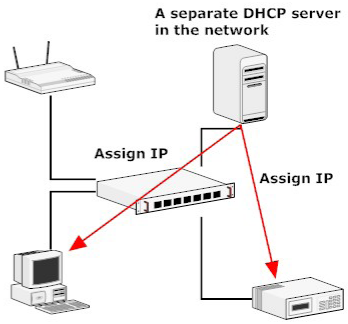
3.1 Using Device Search Utility

If the NVR is placed in a corporate network or a local area network where a DHCP server is already presented, please install the “Device Search” utility from the bundled CD disk.

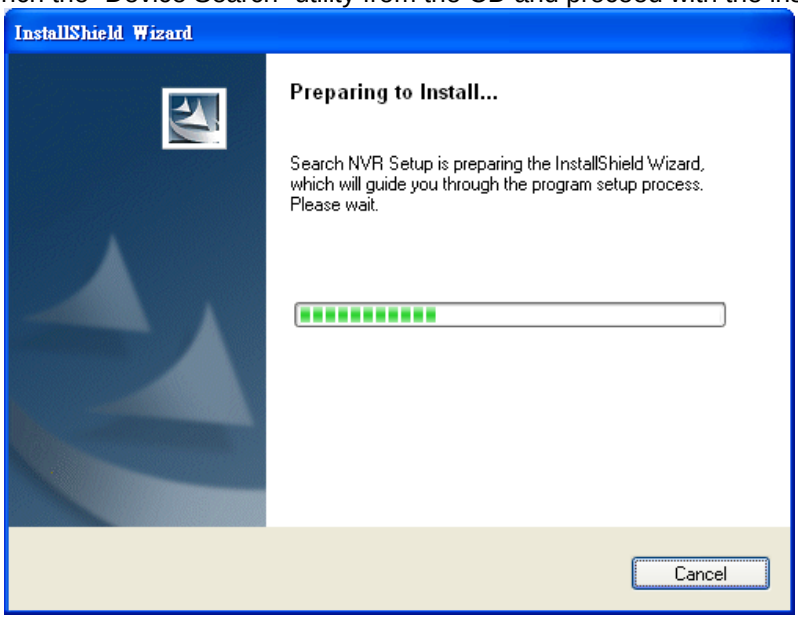
1.



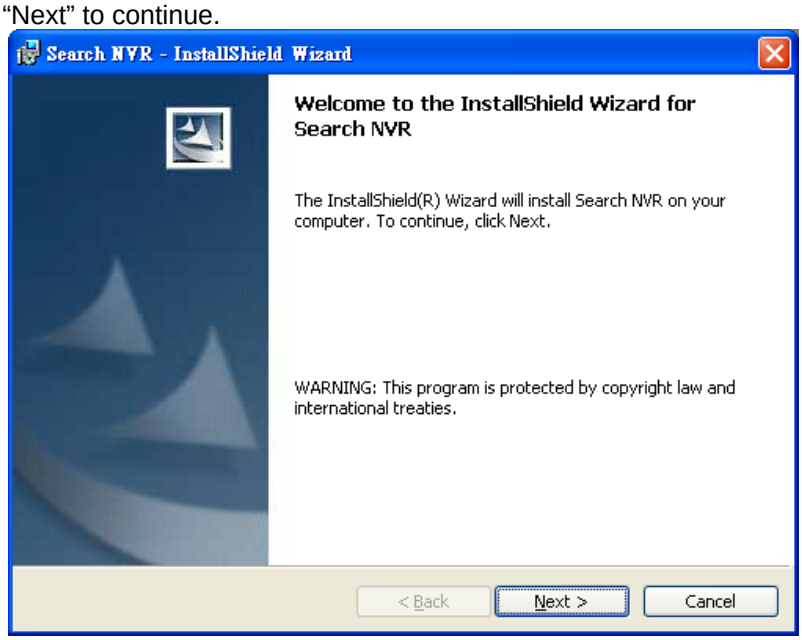
2.



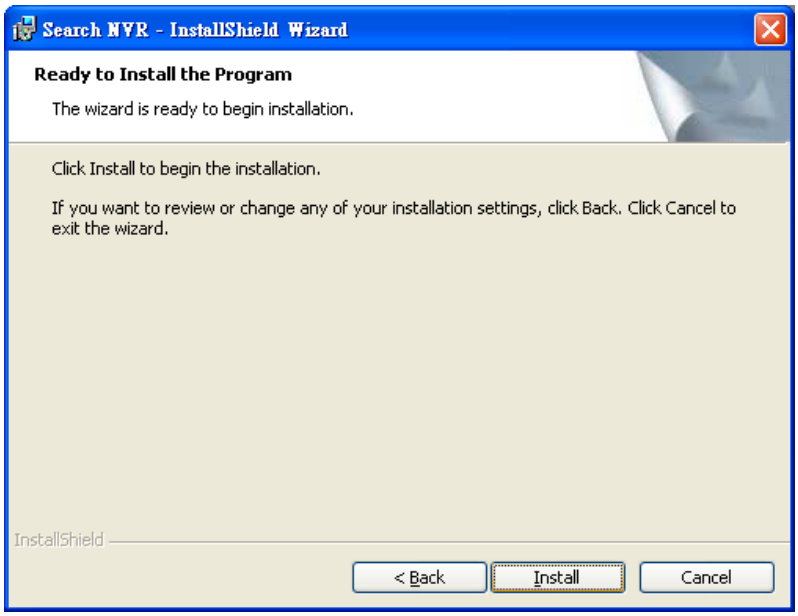
To begin, launch the “Device Search” utility from the CD and proceed with the installation.



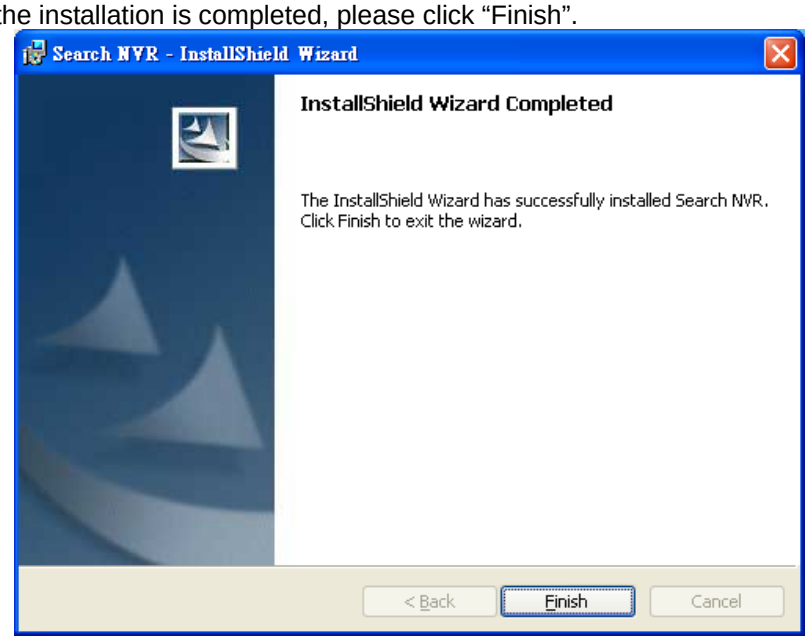
Please click “Next” to continue.



Please click “Install” to start the installation.

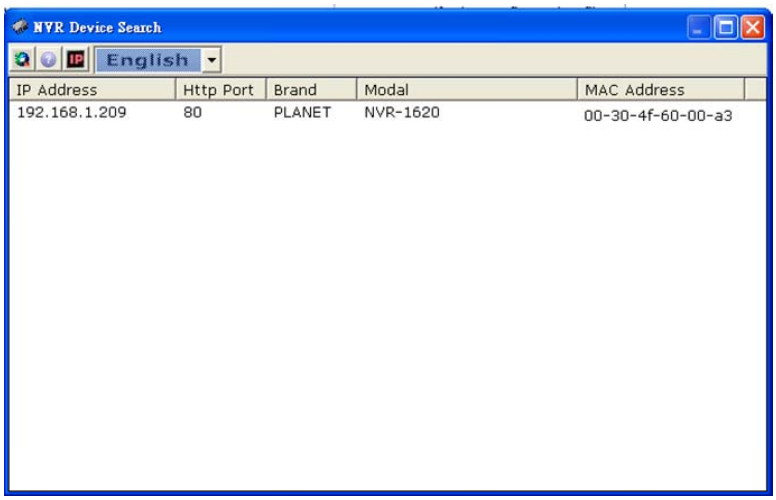


Once the installation is completed, please click “Finish”.



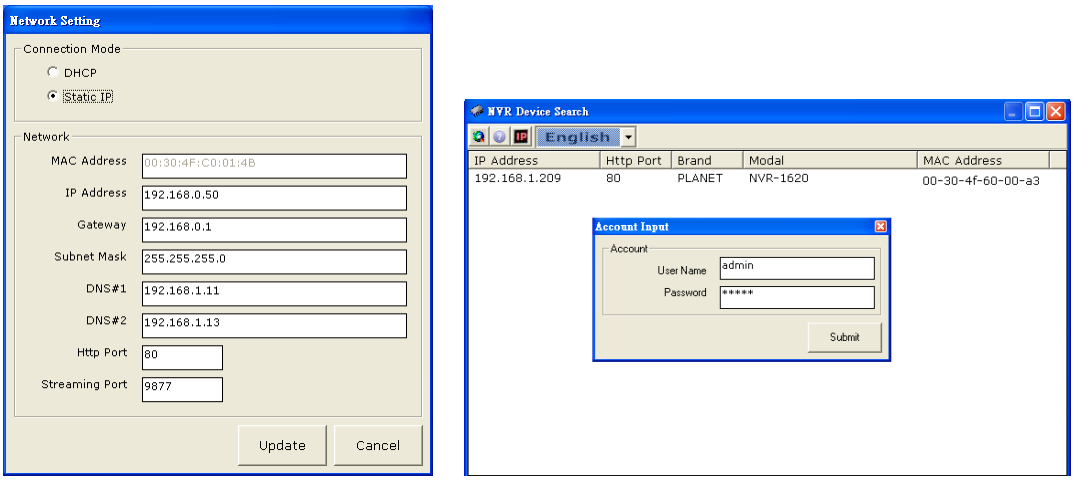
Please go to Start => Programs => NVR => Search NVR to run the search tool. Then you will see the utility start searching the network.

The NVR should be located and its IP address should be displayed: Double-click on it and the program should automatically access the NVR’s web administration page from your default browser.



You may change NVR’s IP address by clicking on the button highlighted below.

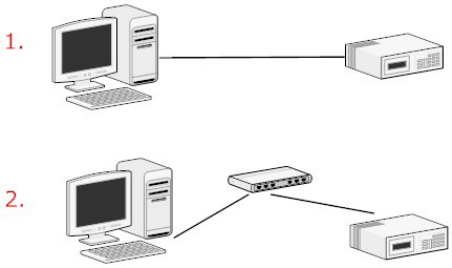
You will be prompted for the NVR's login information before proceeding to change device's IP address.



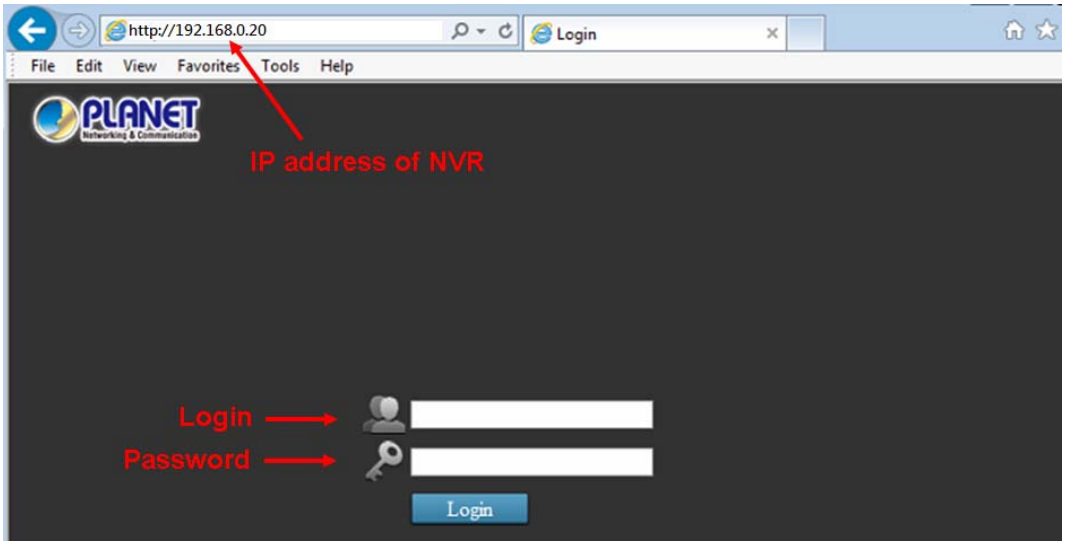
You may click on the button highlighted below to perform search again. Or double-click on any of the search results to access NVR's web administration page.

3.2 Accessing NVR with its Default IP Address

The NVR comes with a pre-configured static IP address "192.168.0.20". However, it is only used when there is no DHCP server presented in the network. Connect the NVR and PC to your switch or hub, or connect the PC directly to the NVR using a crossover cat5 Ethernet cable.

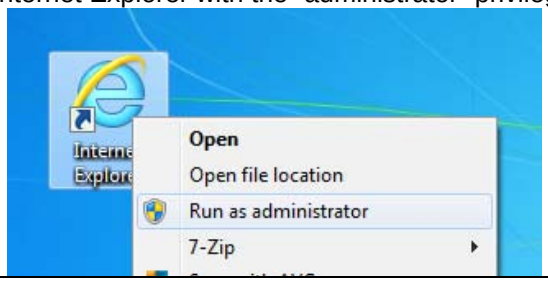


You can select utility or type the IP address to connect with NVR directly. After login window appears, you should be prompted for the NVR's username and password. Enter its **default username "admin" and password "admin"** and then click "OK" to enter the system.



Note

- Please make sure you are using Internet Explorer 7 or above.
- If you are running Windows Vista or 7, please make sure you are running Internet Explorer with the “administrator” privilege.



Chapter 4. Web-based Management

This chapter provides setup details of the Internet Camera's Web-based Interface.

4.1 Main/Live Viewing

The main/live view is the first interface displayed once you access to the NVR through the internet browser.

It displays the live video of all the cameras added to the NVR and following the pattern chosen by the user. The interface has many functions explained below.

The "Live View" page provides the following functions:

- **Retrieve camera's video stream**
- **Retrieve camera's status**
- **Perform Live Sequence Viewing**
- **PTZ Control (Click directly on the video)**
- **Perform PTZ Preset Sequence viewing**
- **Perform manual recording**
- **Take snapshot -** as soon as a snapshot selection is made, the snapshots are automatically saved to x:\SnapshotFolder ("x" represents the partition where Windows is installed, e.g., C:\)
- **Receive audio of a video stream**
- **Send audio**
- **Control "Buzzer"**
- **Change web UI display language**

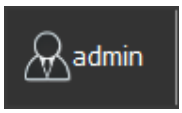
The UI's 5 main functions:

The bar displays the 5 main functions of the Web User Interface (UI).
The Live view is the main view .The other 4 views will be explained in each chapter.

4.1.1 Date and Time Display

The Date and the Time are defined by the user in the settings section of the NVR.

4.1.2 User's Configuration



It displays the name of the current user.
If you click on the name of the user, the context menu offers the functions below:

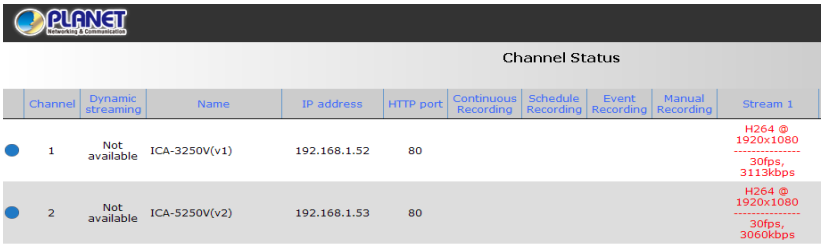
- Language settings
- User setting
- Locking the screen
- Logout function

4.1.3 Hardware Event Notification

In this section, you will receive notifications if a warning sound is triggered or if the hard drive of the NVR fails in recording data.

4.1.4 Channel Status

If you click on the icon, page tab will display the current status of the channels added to the NVR.



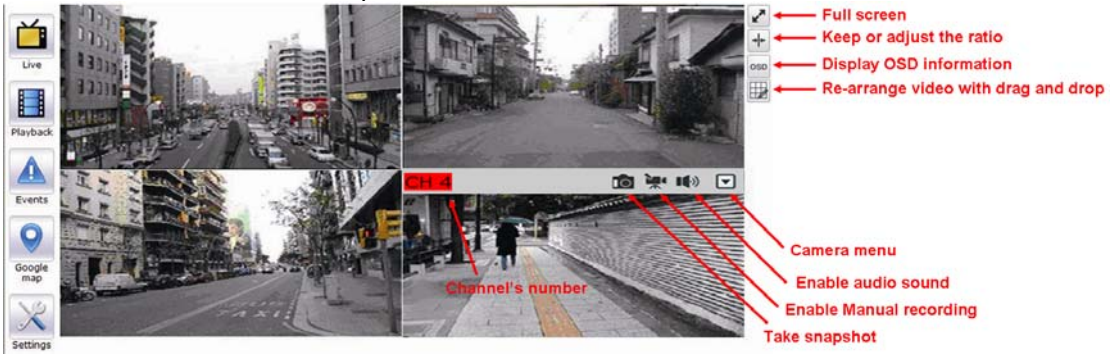
Channel Status

	Channel	Dynamic streaming	Name	IP address	HTTP port	Continuous Recording	Schedule Recording	Event Recording	Manual Recording	Stream 1
	1	Not available	ICA-3250V(v1)	192.168.1.52	80					H264 @ 1920x1080 30fps, 3113kbps
	2	Not available	ICA-5250V(v2)	192.168.1.53	80					H264 @ 1920x1080 30fps, 3060kbps

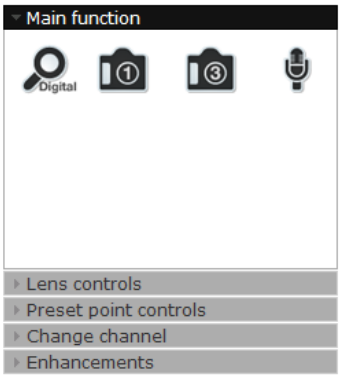
It can also display the current configuration used for the event recording or the configuration settled for the scheduled and manual recording. The channels status page is updated as long as the NVR's main user interface is open.

4.2 Video Frame

All the camera's videos are displayed in this frame. If the cursor is pointing at one of the cameras, it will show a bar at the top. The bar displays the channel's number and some functions as shown on the snapshot below.



If you click on the name of the user, the menu will display as shown below:



The camera menu offers the functions below:

- **Digital Zoom**

After clicking the digital zoom button, hold the mouse left button and draw a square on the video to specify the zoom in area

Once the image is digitally zoomed in, use the mouse scroll button to further zoom on or zoom out the image. Hold and left-click on the image and move the mouse to move the zoomed in video.

- **Take Snapshot 1 / 3**

User can select 1 or 3 continuous snapshots. As soon as a snapshot selection is made, the snapshots are automatically saved to x:\SnapshotFolder ("x" represents the partition where Windows is installed, e.g. C:\)

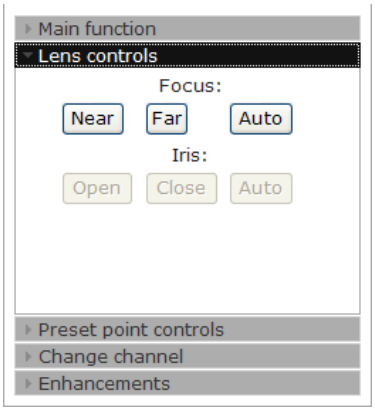
If the "3 continuous snapshots" option is chosen, the new window will display snapshots where you can view them individually by using the "Prev" and "Next" buttons as shown above.

- **Audio in**

Turn on/off audio of a live video.

- **Lens Control**

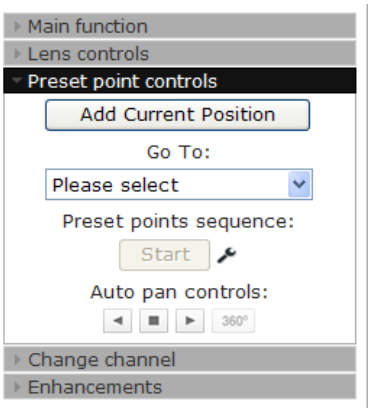
If this camera can control focus and iris, the button of the selection can be active; otherwise, it will be highlighted. There are three selections of focus and iris as shown below.



- **Preset Point Controls**

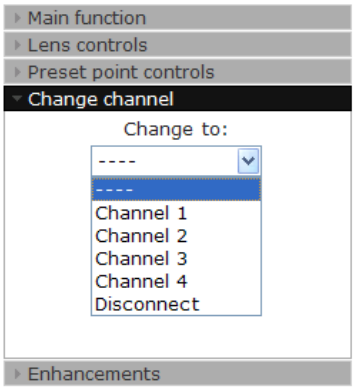
This page focuses on just PTZ camera, and here are some definitions below:

- **Add current position:** Click this button and current position will be added in the preset point selection.
- **Go to preset point:** Select the preset point and the PTZ camera will move to this position.
- **Preset point sequence:** Click the preset page will display; user can adjust the preset point on this page; the other settings will be explained in each chapter.
- **Auto pan controls:** User can use “right”, “stop”, ”left”, “360 degrees” button to control the PTZ auto pan function.



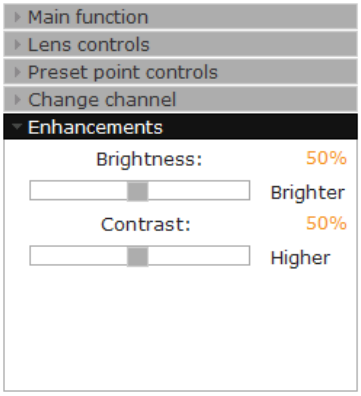
- **Changing Channel**

User can select another channel for another view or disconnect the current channel.

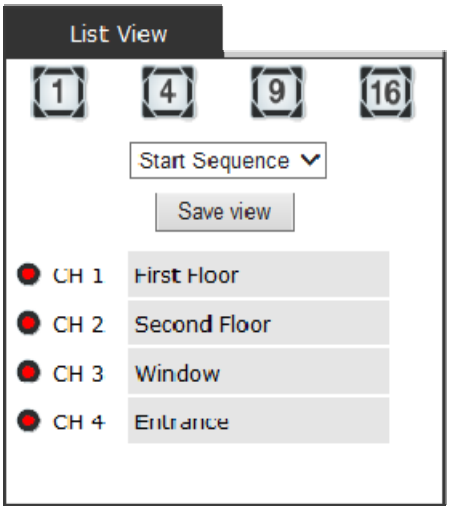


- **Enhancing Contrast**

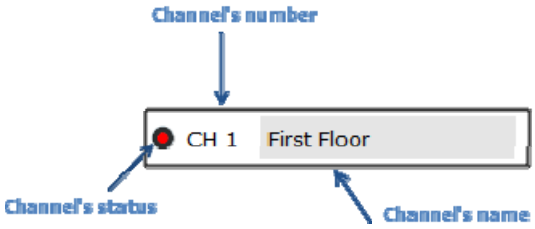
You are able to adjust brightness and contrast of the live video from the camera menu. The default values of two parameters are 50%. User can adjust those values from 0% to 100%. The layout of this bar is 10%.



4.3 List Viewing



It displays the list of channels added to the NVR. Each channel represents a camera with its name, the channel number and its currents status.



The channel status is defined by 3 colors:

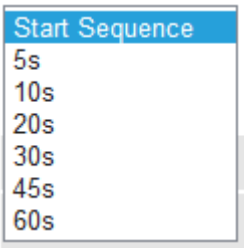
- Red: The channel is recording and the live view is available
- Blue: The channel is connected and the live view is available
- Grey: The camera is disconnected

4.3.1 Pattern View

Different patterns of live view can be displayed on the video frame. You can display 1, 4, 9, or 16 cameras at once. Every time you click on an “n” pattern icon, the live video of the next “n” camera will be displayed.

Note	The channel spilt of the NVR-820 is 1, 4 and 8.

4.3.2 Sequence Viewing

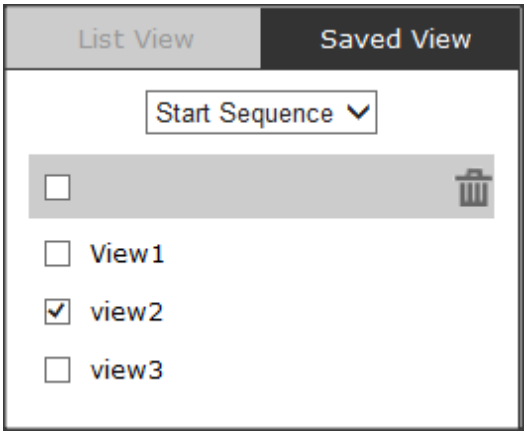


The sequence mode will automatically switch between a single and group of cameras every a certain period of time. You can define this period to 1 second to 60 seconds

4.3.3 Save Viewing

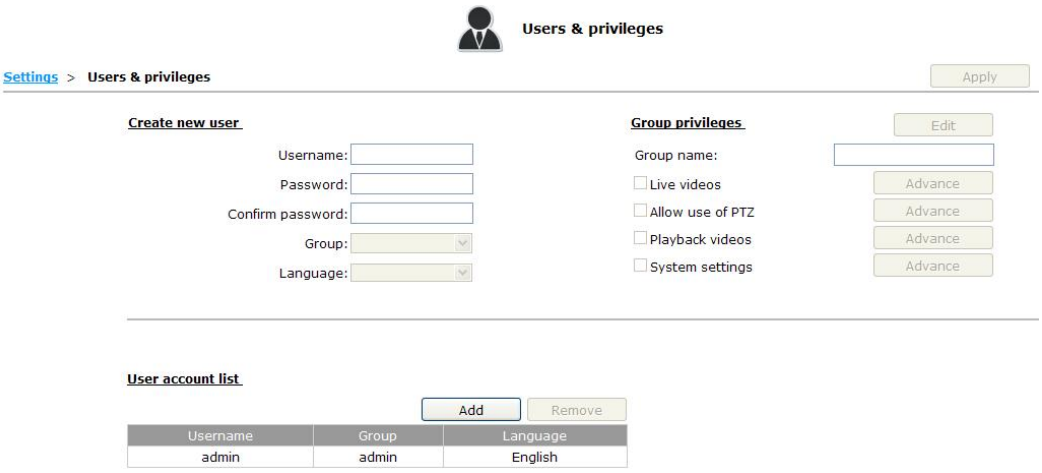
Click on the save view button and you will able to name the current view and save it.
This will help to quickly display your configured views when needed.

4.4 Saved Viewing



This section can display the views that you have already saved. You can choose the views from the list you have created. You are also able to switch between saved views every certain period of time by clicking on the “start sequence function”. If you check the box beside the name of the view, you can edit or delete the view.

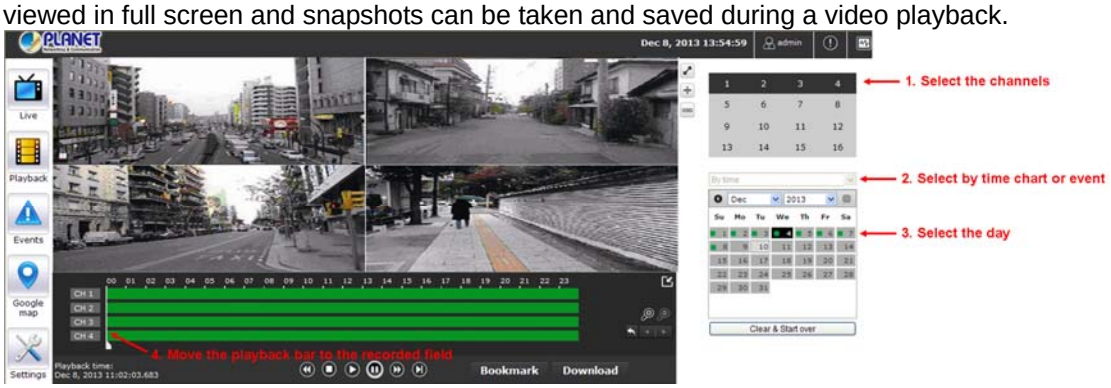
4.5 Setting Up Password



The default login username and password are admin and admin. To change the password of the admin account, go to “Settings” --> “Users & privileges”, click on the “admin” account in the account list and then press the “edit” button to change its password. Finally, click “Apply” to save the change.

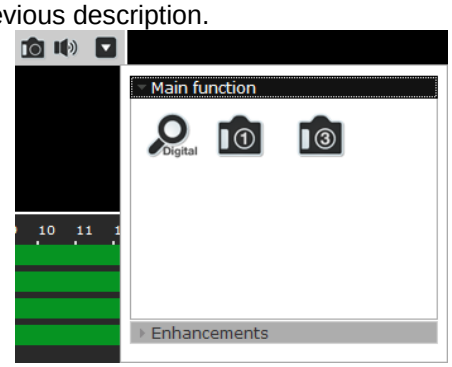
Chapter 5. Playback Viewing

Playback is a function that allows you to play one or more videos that were previously recorded by a chosen recording method or due to an event trigger. The NVR offers synchronized playback from up to 4 channels and various types of search methods are provided to help you find the footage you need quickly. You can turn on or off the audio of a recorded video at your choice if audio was also recorded during the recording of the video. Playback video can be viewed in full screen and snapshots can be taken and saved during a video playback.



5.1 Certain Functions of Playback Video

You can do the following by clicking camera menu on the playback video. It's similar with live view. User can refer the previous description.



- **Snapshot**

  As soon as a snapshot selection is made, the snapshots are automatically saved to x:\SnapshotFolder ("x" represents the partition where Windows is installed, e.g. C:\)

- **Play Audio**

  Turn on/off audio of a playback video.

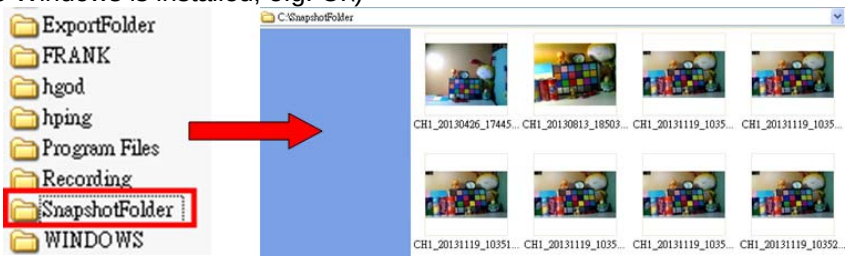
- **Digital Zoom**

  After clicking the digital zoom button, hold the mouse left button and draw a square on the video to specify the zoom in area

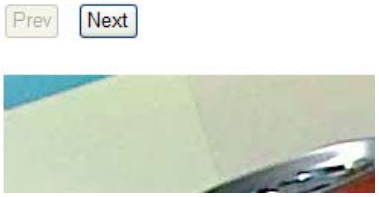
  Once the image is digitally zoomed in, use the mouse scroll button to further zoom in or zoom out the image. Hold and left-click on the image and move the mouse to move the zoom in video.

- **Take Snapshot 1 / 3**

  User can select 1 or 3 continuous snapshots. As soon as a snapshot selection is made, the snapshots are automatically saved to x:\SnapshotFolder ("x" represents the partition where Windows is installed, e.g. C:\)

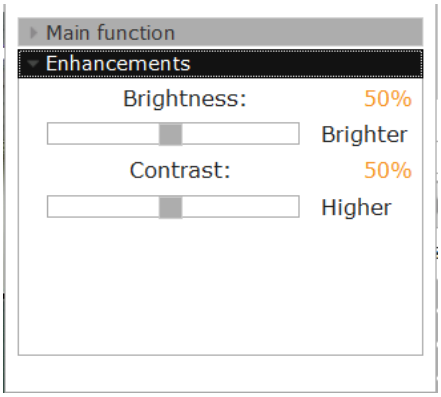


  If the "3 continuous snapshots" option is chosen, the new window will display snapshots and let you view them individually by using the "Prev" and "Next" buttons as shown above.



- Adjust Brightness/Contrast

  You are able to adjust brightness and contrast of the live video from the camera menu. The default values of two parameters are 50%. User can adjust those values for 0% - 100%. The layout of this bar is 10%.

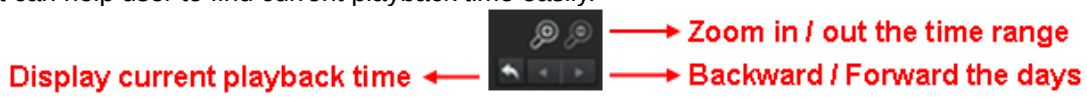


5.2 The Main Layout for Playback

Here is some explanation of other parts of playback page as shown below:

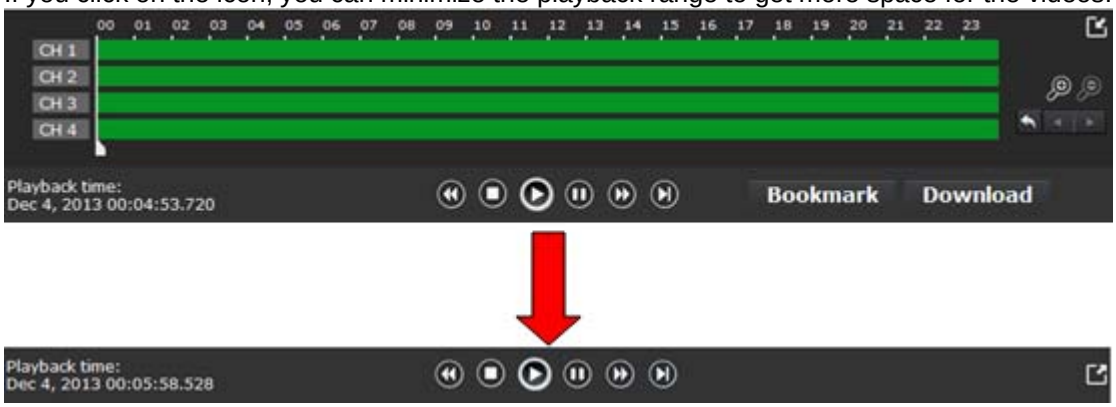
- **Zooming on a range of time**

If you click on the icon you can zoom on range of the time and get more details on the playback bar. The “display current playback time” button will display while the NVR plays the recording. It can help user to find current playback time easily.



- **Minimizing the Bar of the Playback**

If you click on the icon, you can minimize the playback range to get more space for the videos.

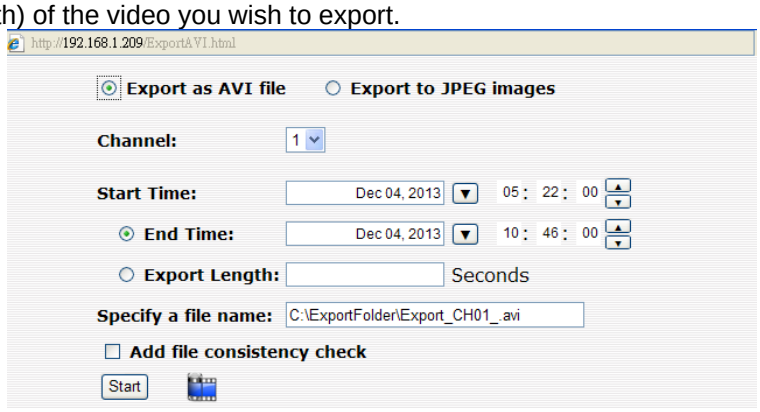


- **Exporting Playback Videos to AVI Files**

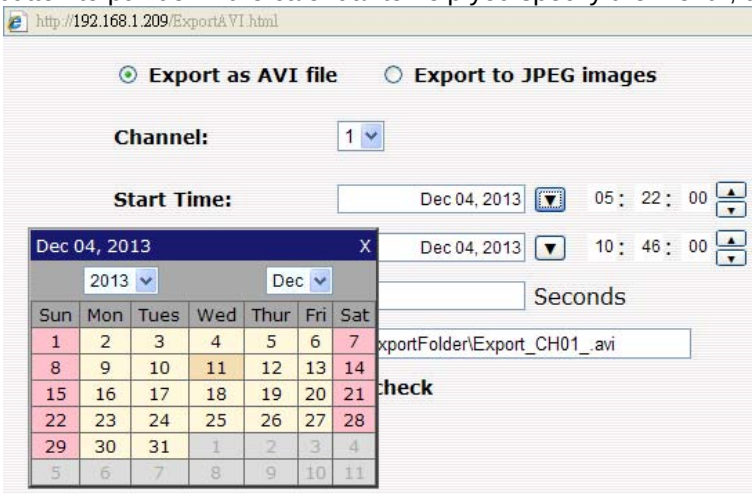
User can export the recorded playback videos stored on NVR to a local computer and save them in AVI file format. The files can then be played on the PC by a 3rd party media player such as VLC player or Windows Media player.

Once you locate the recorded videos with steps described in the previous section, move the time bar to the specific start time which you want to export and then click the “Bookmark” button. “Bookmark” is used to set a time range for this specific time will be marked by a blue line. Move the time bar to the end time and click the “Bookmark” button again. You can find that this button will be changed to the “Clear” button.

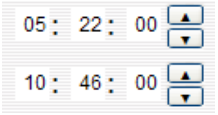
Click the “Download” button and a new dialog will pop up and allows you to specify the time frame (or length) of the video you wish to export.



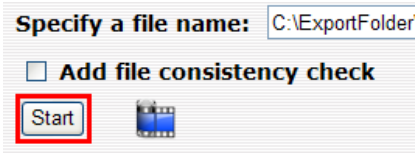
Click the  button to pull down the calendar to help you specify the month, date and year.



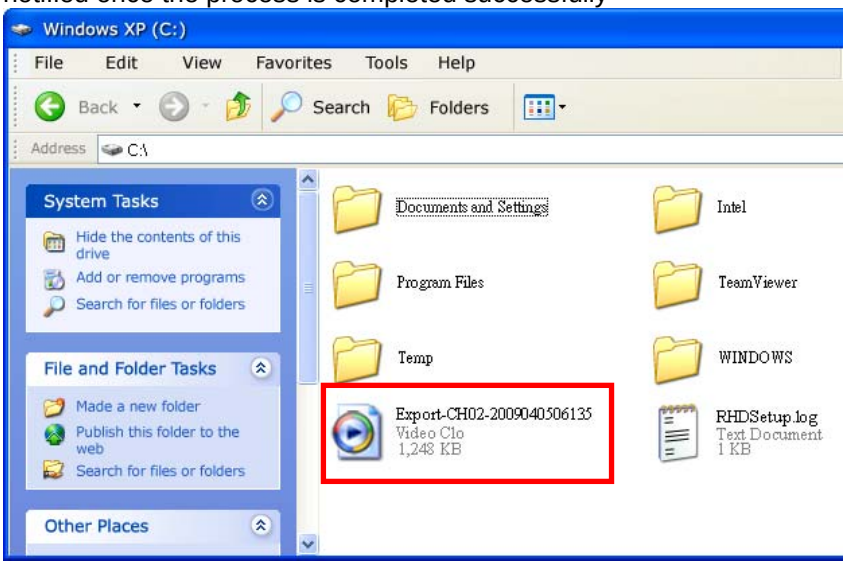
Specify the starting and ending hours of the video by entering numbers in the text boxes.



Hit the “Start” button to start exporting. The file will be automatically named and saved under the C:\ partition.



You will be notified once the process is completed successfully



The exported AVI file will be saved under the C partition (or the partition where Windows is installed)

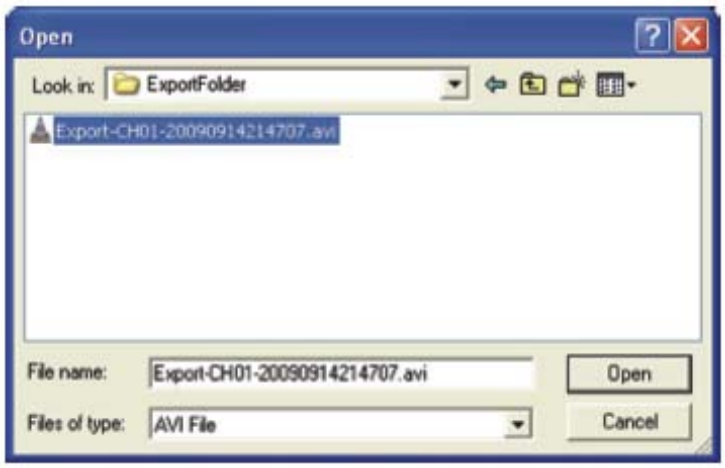
Note	*ffdshow is required in order to play the exported AVI file with Windows Media Player. You can get it at “http://sourceforge.net/projects/ffdshow/”*

5.3 Playing Exported Playback Videos with NVR Media Player

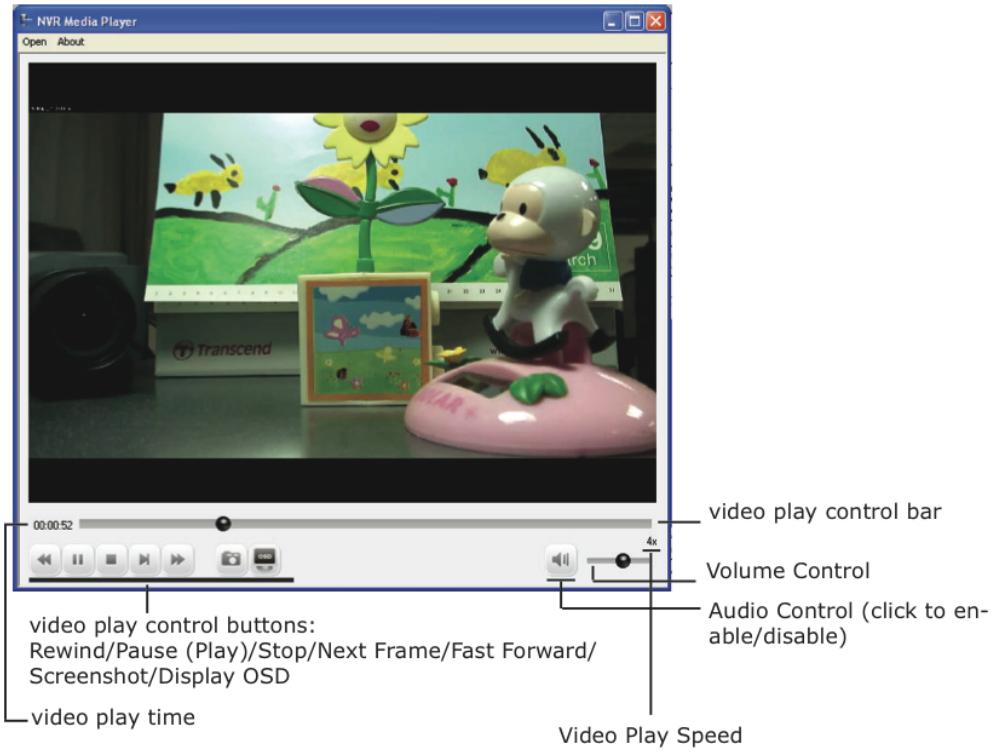
You can also use the NVR Media Player to play the exported AVI files. This can save you the trouble of installing third-party media player or codecs when playing the exported AVI videos.

The NVR Media Player will be automatically installed after the CMS software is installed. You can find it in the Windows Start menu. You also can click this  icon to download this software on the playback page.

Click “Open” >> “AVI File”



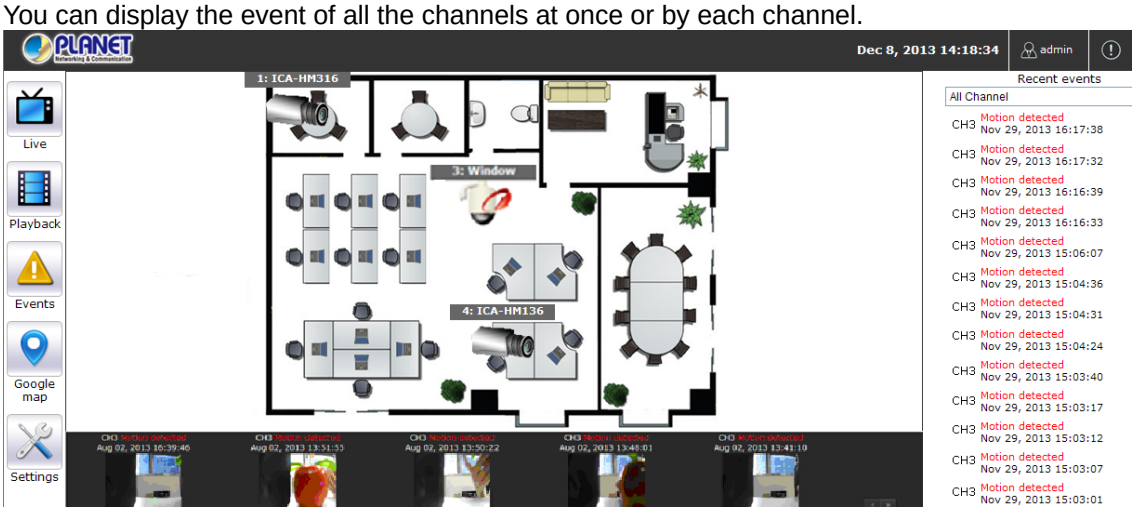
Locate the exported AVI file and click “open”. (Normally under “C:\ExportFolder)”



Chapter 6. Event Viewing

This section displays the last events recorded by the NVR.

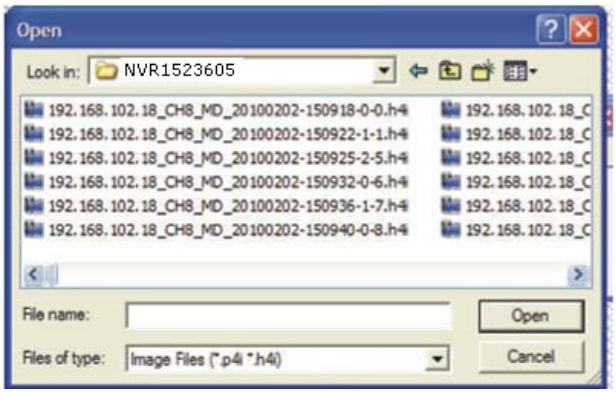
The events can only be detected and displayed if you have configured it on the NVR's settings. You can display the event of all the channels at once or by each channel.



You can click on one of the pictures on the bottom of the UI to display the event related to it. The event can also be displayed if you choose them from the list on the right side of the UI.

The video will then start playing

6.1 Opening Event Snapshot Images with NVR Media Player



The NVR sends snapshots that are taken when an event occurs to a destined FTP server or mail recipient. These types of snapshot images are saved in a proprietary image file format, h4i or p4i, and can only be opened by the NVR media player.

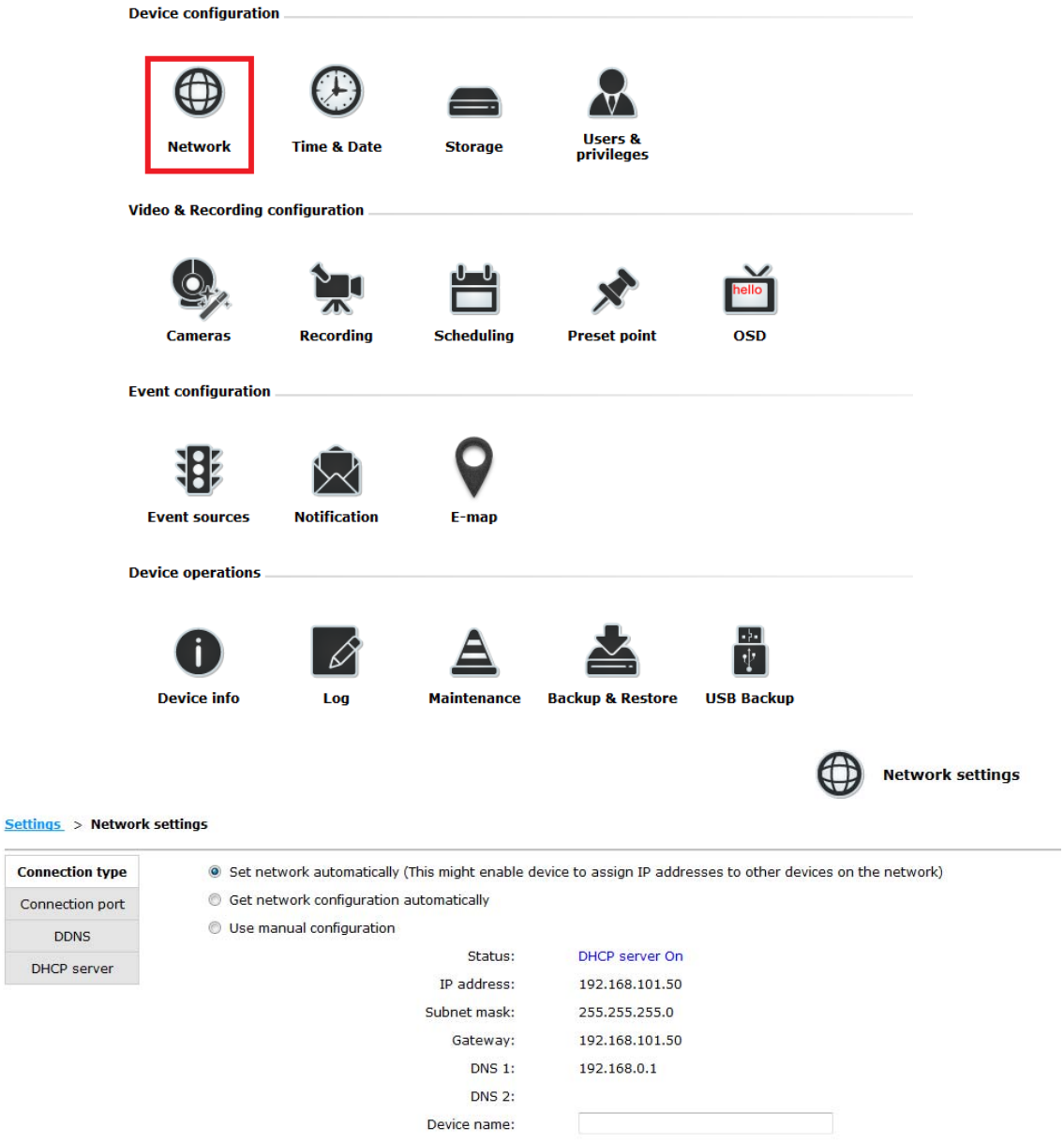
To do so, Select “Open” from the top menu and then select “Image File”. A new dialog should be displayed to enable you to locate the image file.

Chapter 7. NVR Setup – Device Configuration

7.1 Network Setup

The “Settings” page provides users with options to set up the device quickly and properly. After properly configuring all settings on all the sub-pages, users should expect a fully working network video recorder that is ready to manage cameras on the network. We will start by configuring its network settings to make sure it works correctly in your network.

7.1.1 Network Settings



The NVR supports three connection types that can be configured depending on how the network is set up:

Set network automatically
Set the NVR to configure network settings automatically
1) When no other DHCP server is in the network, the NVR should use the default IP: 192.168.0.20 and turn on built-in DHCP servers.
2) Users should not be able to change IP settings when this mode is selected.
3) Users cannot turn on/off built-in DHCP server.

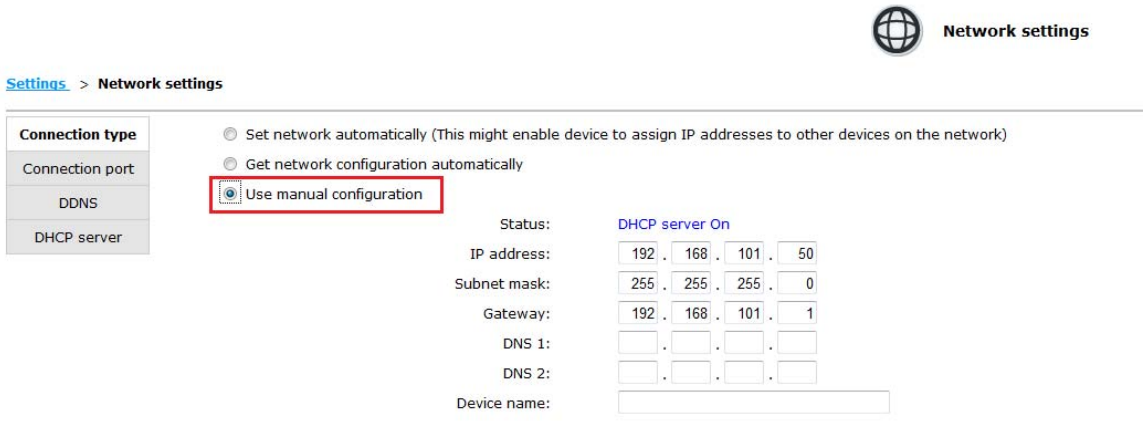
Get network configuration automatically
This sets the NVR as a DHCP client
1) If no other DHCP server is in the network, the NVR should change to use the auto mode automatically.
2) Users should not be able to change IP settings when this mode is selected.
3) Users cannot turn on/off built-in DHCP server.

3. Use manual configuration
Set the NVR to use static IP
1) Built-in DHCP server should be turned on when this mode is selected.
2) Use the NVR's default static IP when this mode is selected.
3) Users can change the IP settings.

Users can turn on/off built-in DHCP server.
You need to adjust settings on this page for the device to work properly in your network. It is critical that settings here are configured correctly based on your network configurations so that the recorder can be administered through the local area network and cameras can be connected from it.

By default, the recorder is set to "Set network automatically" which if there's a DHCP server in the same local network, the NVR can obtain IP address from DHCP server, and you can locate the NVR by using the NVR search utility.

If there's no DHCP server in the network, and the NVR is set to enable DHCP server, it will use its own default static IP 192.168.0.20.



If you wish to set the recorder to a static IP address in your local area network,

1. Choose "Use manual configuration"
2. Enter the IP address, subnet mask, default gateway address and DNS server address for the recorder

* The recorder can detect the presence of a DHCP server upon startup. It sets itself to static IP address if there is no DHCP server currently presented in the network. Its DHCP server function is also turned on at the same time to assign IP addresses to cameras that are later connected to

the network or you can manually turn off the DHCP server function if you wish to use a separate DHCP server.

7.1.2 DHCP Server

The built-in DHCP Server function is NOT always configurable and is greatly dependent to the connection type that is set to "Network Settings".

7.1.3 DDNS Service

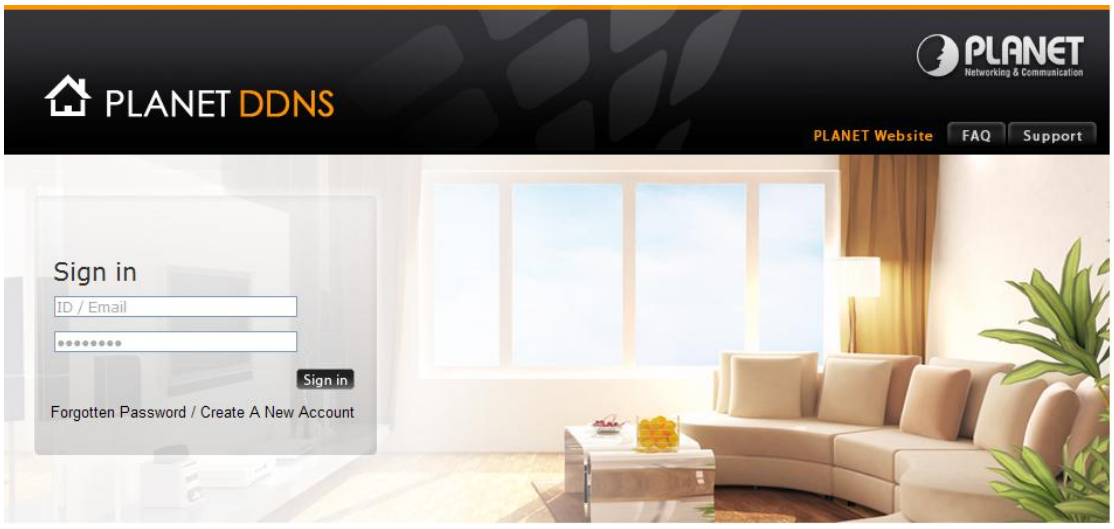
DDNS, which stands for “Dynamic DNS”, is a method, protocol, or network service that provides the capability for a networked device, such as a router or computer system (in this case, the NVR) using the Internet Protocol Suite, to notify a domain name server to change, in real time, the active DNS configuration of its configured host names, addresses or other information stored in DNS.

A popular application of dynamic DNS is to provide a residential user’s Internet gateway that has a variable, often changing, IP address with a well-known host name resolvable through standard DNS queries.

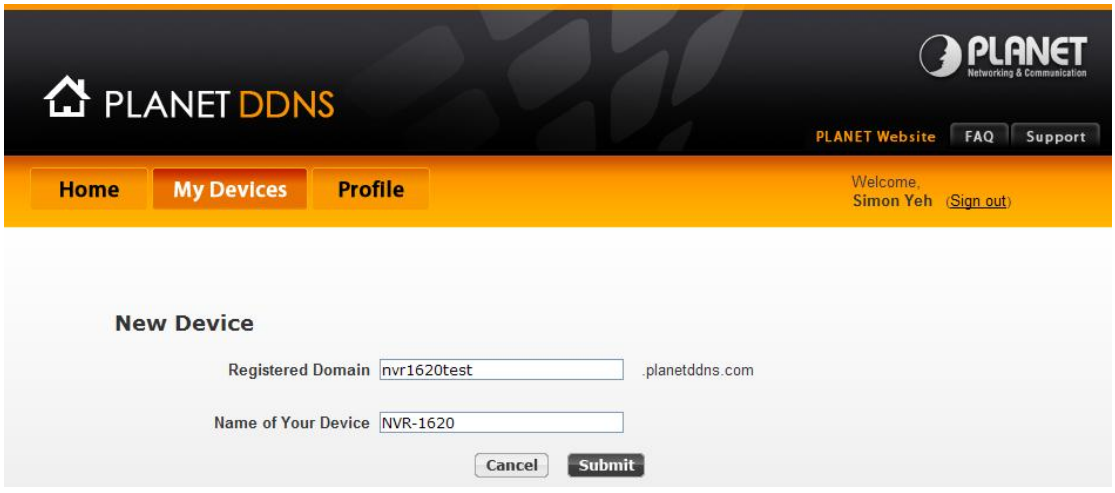
This is useful if the NVR is placed on the Internet with a dynamic public IP, which once the DDNS is properly set up, users can access the NVR remotely with the DDNS domain name without worrying if the IP has changed or not.

Note	* Please make sure a valid DNS server has been configured under the “Network Settings” in order for this function to work properly. * The NVR currently only works with free DDNS service provided by “PLANET DDNS”. For more information, please go to www.planetddns.com

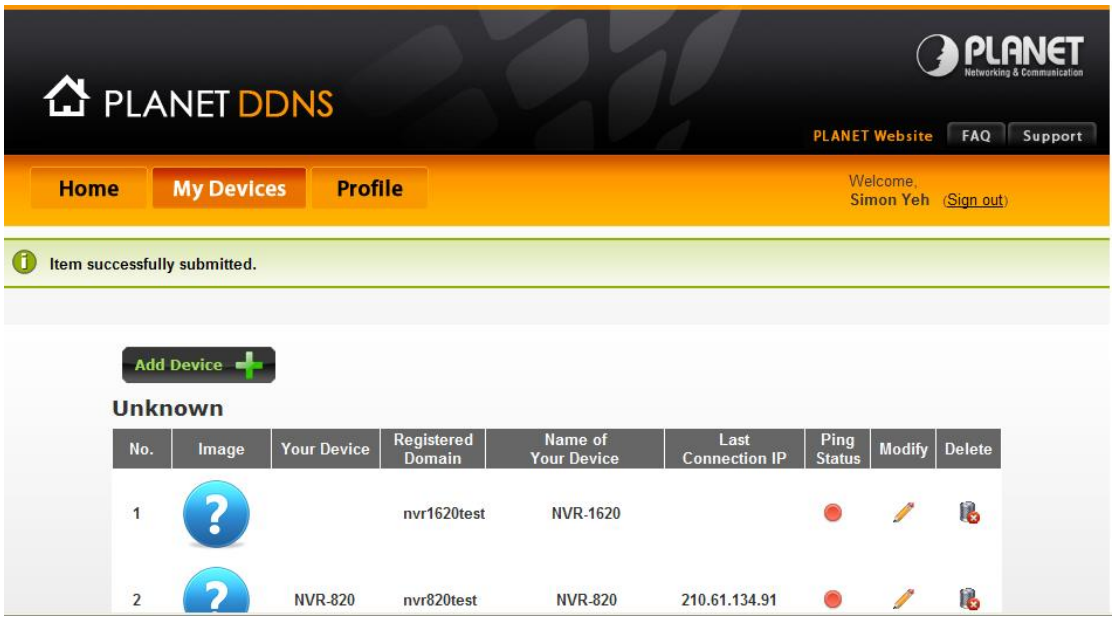
	* If the NVR is placed behind a router or Internet gateway, please make sure port forwarding for port 80 is configured on the router or the gateway in order for the DDNS function to properly register with the service. It's often suggested to use the DDNS function in the router/ gateway for such case instead. * Once you have the DDNS function successfully up and running, please DO NOT forget to configure port forwarding for the NVR web port (default 80) and the streaming port (default 9877) in the router/gateway for remote viewing. You can then type in http://yourddnsdomain in the browser to access the NVR remotely for live viewing.

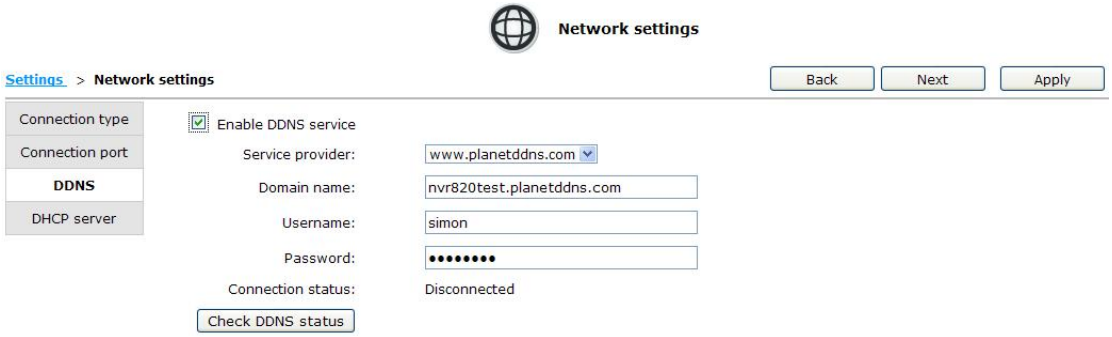


In order to properly configure the DDNS service function, please register a free DDNS domain name and account from PLANET DDNS first. Go to **http://www.planetddns.com** from the browser to do so.

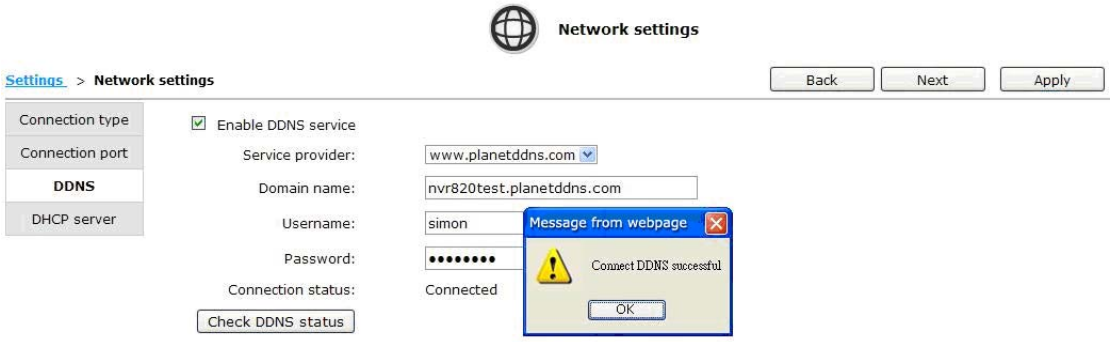


Fill in the necessary fields as illustrated above.
The page will check whether or not another user has used the host name you entered as soon as you click the "Submit" button. If you see the message below, it means the domain name is created successfully.



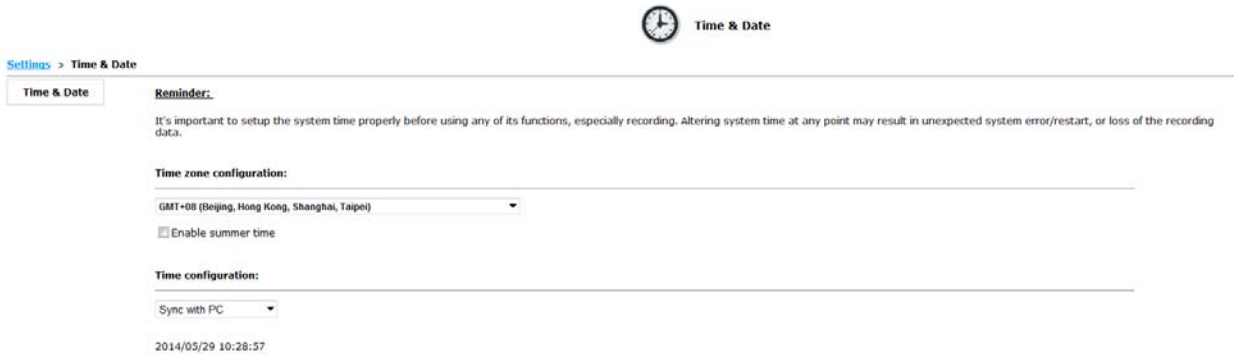


Go back to the NVR's DDNS service configuration page under "Settings" >> "Network settings" >> "DDNS". Fill in the domain name you picked during the registration in the "Domain Name" field and the username/password you created in the "User ID" and "Password" field and click "Apply" to finish



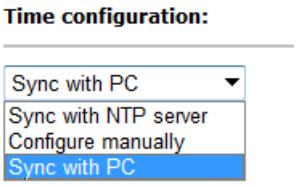
You can click the "Check DDNS Status" button to check the PLANET DDNS service status. If you are getting a "Disconnected" message, it means that DDNS service server is down or the NVR is not connected to the Internet. If everything is normal, you should be prompted with a success message

7.2 Time and Date

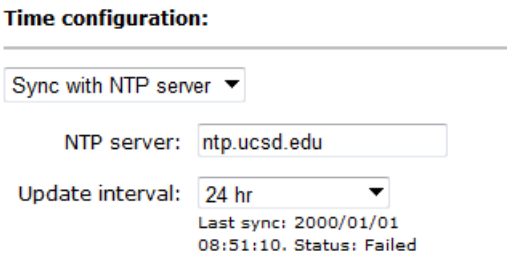


Set the time and date by selecting the time zone according to your location. It is imperative that you set the recorder's time correctly to avoid the following errors:

• Incorrect display time for playback videos
• Inconsistent display time of event logs and when they actually occur
After selecting the time zone, choose an option below to set the recorder time.



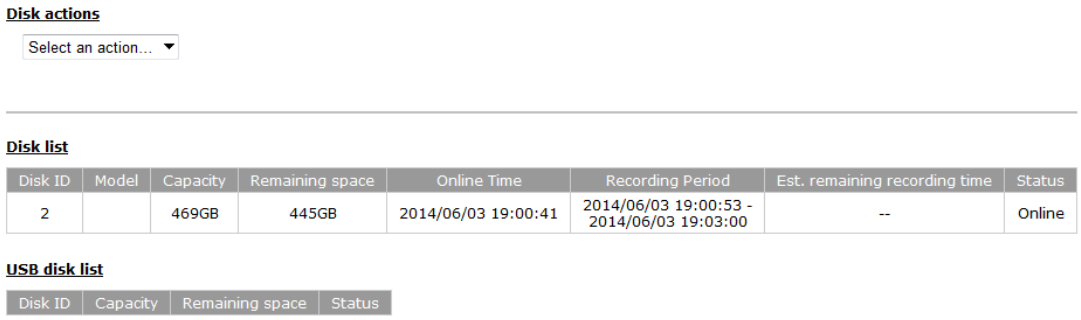
Sync with NTP server – enter the host name or IP address of a valid NTP server and set how often the recorder should synchronize the time with it by using the "Update interval" drop-down menu.



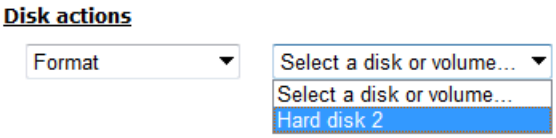
• **Configure manually** – Use the drop-down list and configure the time manually.

• **Sync with PC** – Check this option to synchronize the recorder time with the PC that you are currently using to access the recorder.

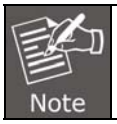
7.3 Storage



Once you install a hard disk to the recorder, you would need to initialize it so that it can be ready for recording. You can obtain basic information about the disk you installed on this page.



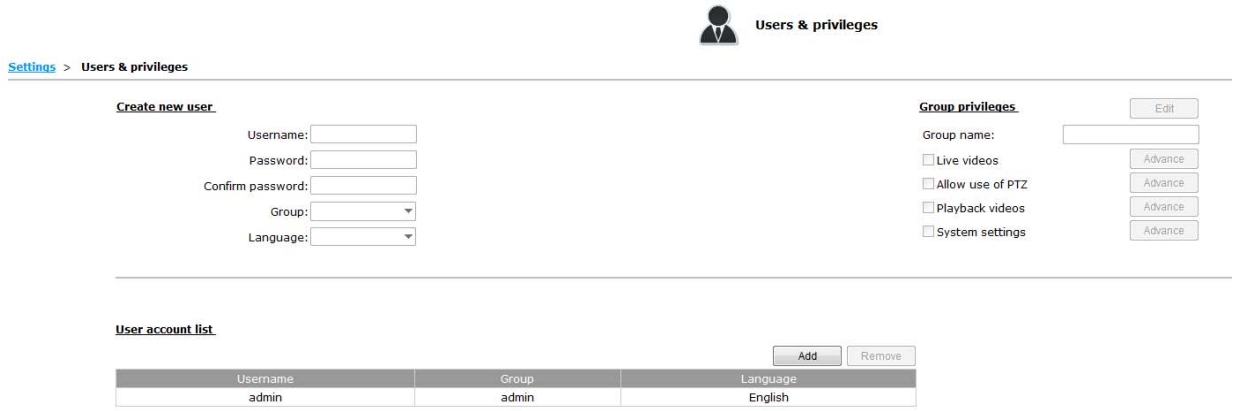
To initialize it, simply choose the “Format” and disk ID under Disk actions and then click “Apply”.



This page will list the Internal disks and the USB disk only. The HDD will be formatted in EXT4 file system.

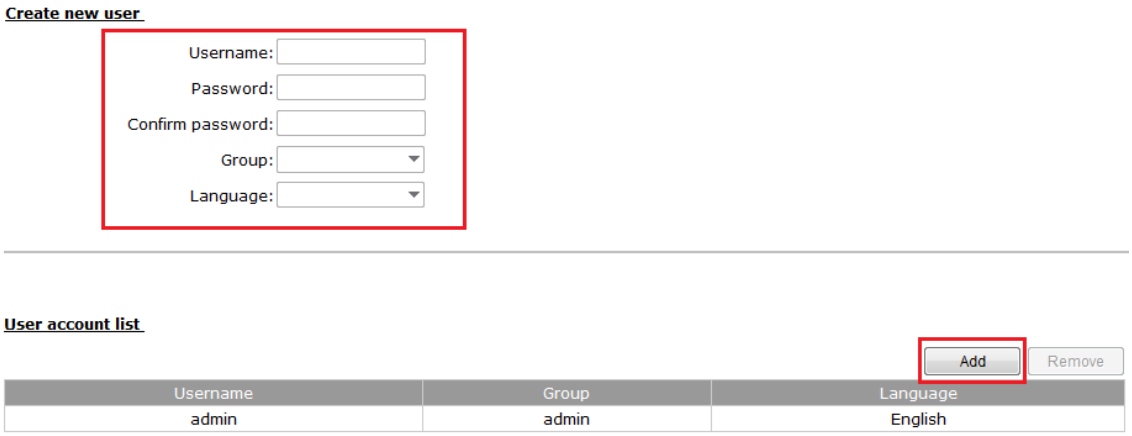
- Disk ID: Display disk ID
- Model: Display HDD model name
- Capacity: Display HDD capacity in “GB”
- Remaining Space: Display remaining space in “GB”
- Online Time: Display when it is formatted
- Recording Period: Display period of recording time that took place
- Establish remaining recording time: Calculate remaining recording time based on remaining disk space and current camera settings
- Status: Display HDD status

7.4 Users & Privileges



Multiple users can access the recorder simultaneously. You can add, remove, and edit users by using options provided on this page to keep user information organized. Each recorder comes with a built-in “admin” account with password “admin”. It’s highly recommended to change the password upon your initial login.

7.4.1 Adding a New User



• Click “Add” to add new user.

• Enter a username and password

• Select a group from the “Group” drop-down menu to assign the new user to a particular group.

• Click “Apply” to finish configuration.

7.4.2 Changing the Password of the “Admin” Account

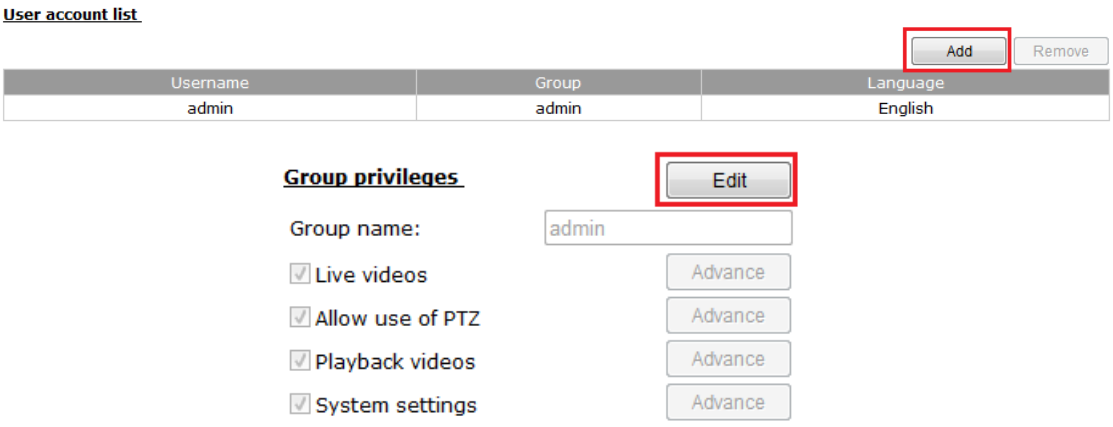
1. Click and highlight the “admin” account in the account list.
2. Its information should be displayed.
3. Enter a new password in the “Password” field and enter it again in “Confirm Password”.

7.4.3 Group Privilege

Group Privilege is where you can create multiple customized access policies for situations if you need the recorder to be accessed by users other than the administrator. There are 7 pre-defined user groups for privilege configurations. You can do so by creating a group, and then remove access privileges for certain configuration pages or cameras. Users that are created and assigned to this group will have limited access instead of full administration rights.

The recorder comes with seven built-in groups and five built-in privilege profiles, except the “admin” and the “guest” accounts; the other five groups are fully customizable or you can simply assign a group with one of the default privilege profiles. You can, however, assign more than one users to the “admin” account if you wish to do so. The guest account comes with a “view-only” privilege on the “Live View” page, and users in this group do not have the power to make any changes on the “Live View” page or have access to pages other than the “Live View” page.

To change a group configuration, after clicking “Add” to add new user account, press “Edit” to change group privileges.



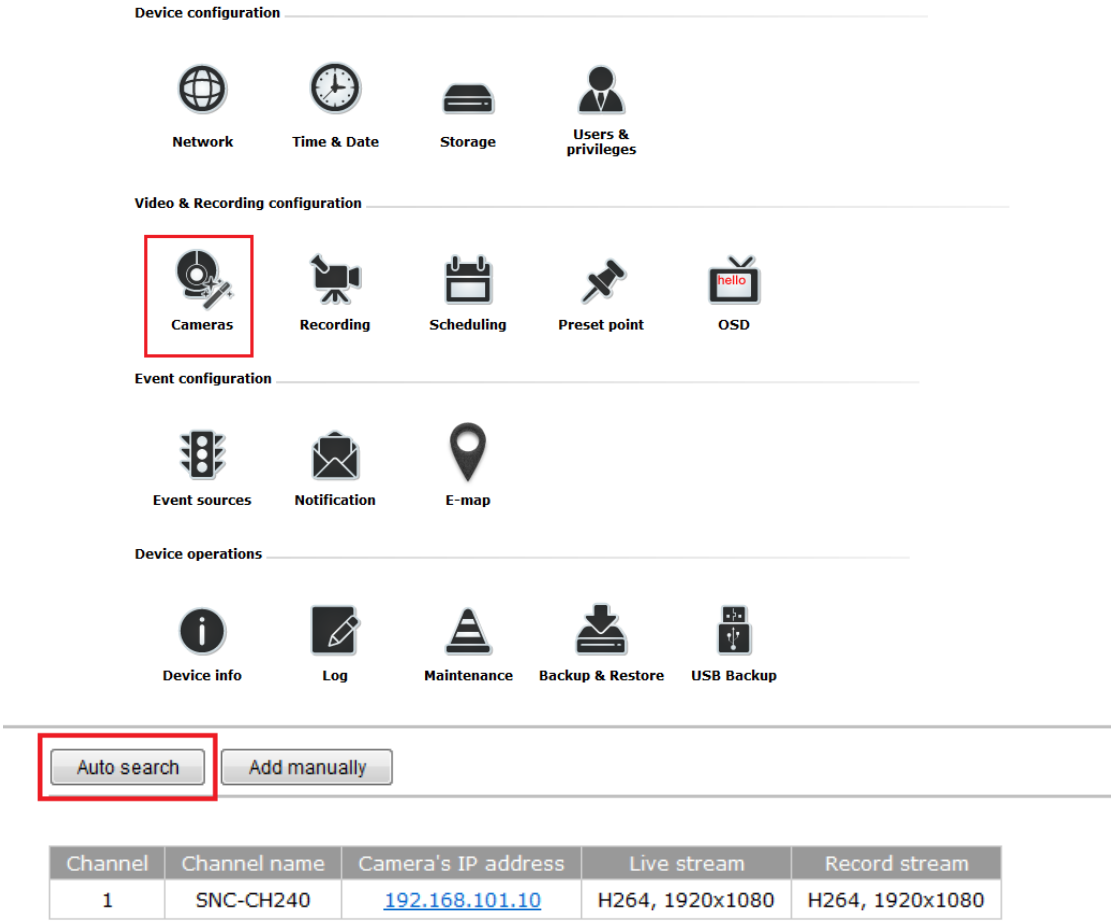
You can change the group name and privilege.

Chapter 8. NVR Setup -- Channel Configuration

8.1 Camera Setup

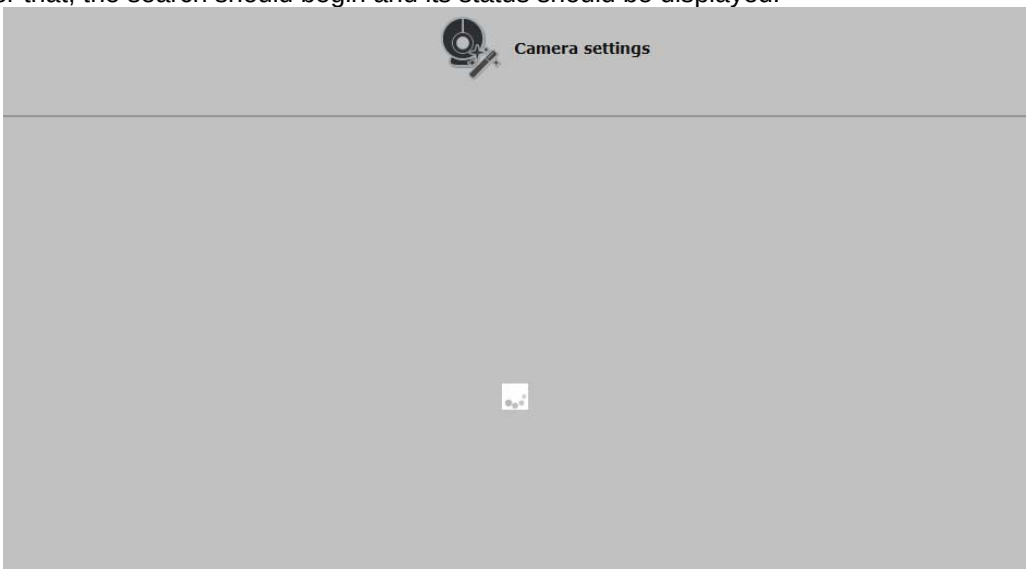
The NVR provides two options for adding a new camera. Users have the option to let the recorder automatically find the cameras or it is possible to enter camera's information and add it manually.

8.1.1 Adding a Camera via Automatic Search

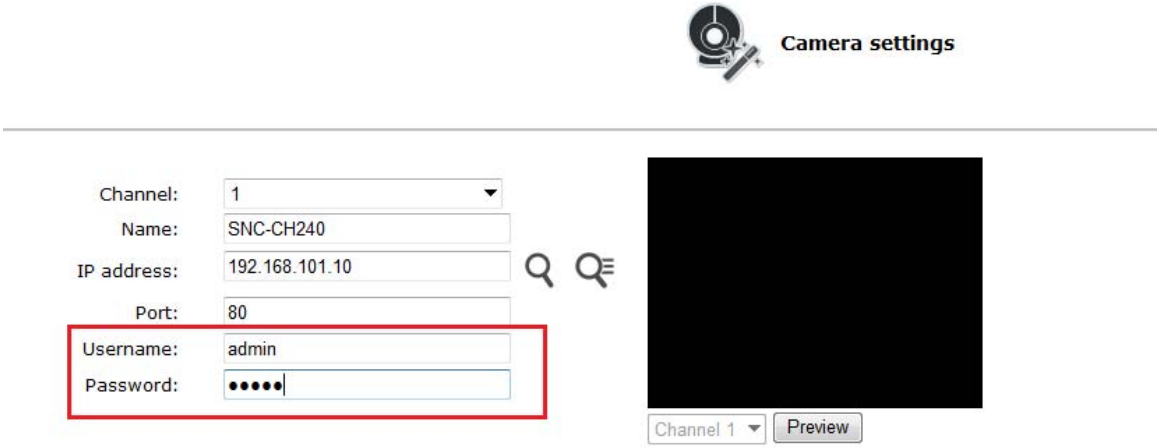


In "Settings" >> "Cameras", click the "Auto search" button to perform the camera search.

After that, the search should begin and its status should be displayed:



Cameras found should be listed and simply select a camera from the list.



Its corresponding information should be displayed in the “Camera Information” section. Enter

its username and password and press “Next” to detect this camera.

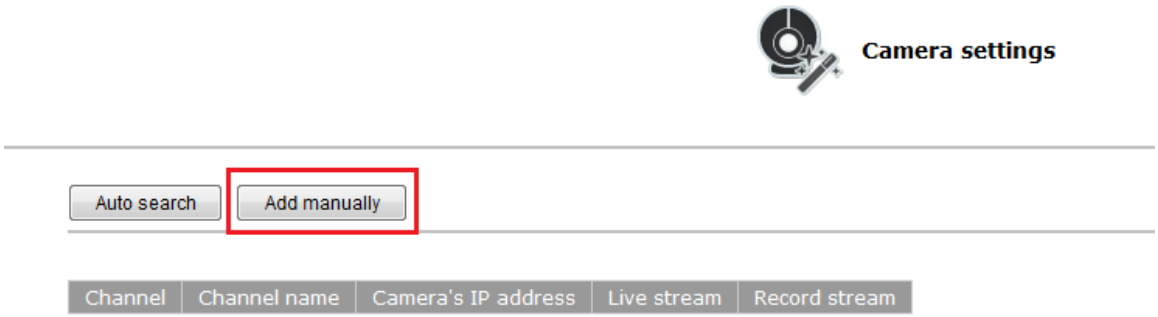
If connection establishes successfully, camera’s detailed information should be polled and displayed as shown below. Adjust its video format, frame rate, resolution or bitrate, etc. if you wish and then click “Apply” to finish adding the camera.

You can click “Next” to set up recording stream if dual stream is supported on this camera.

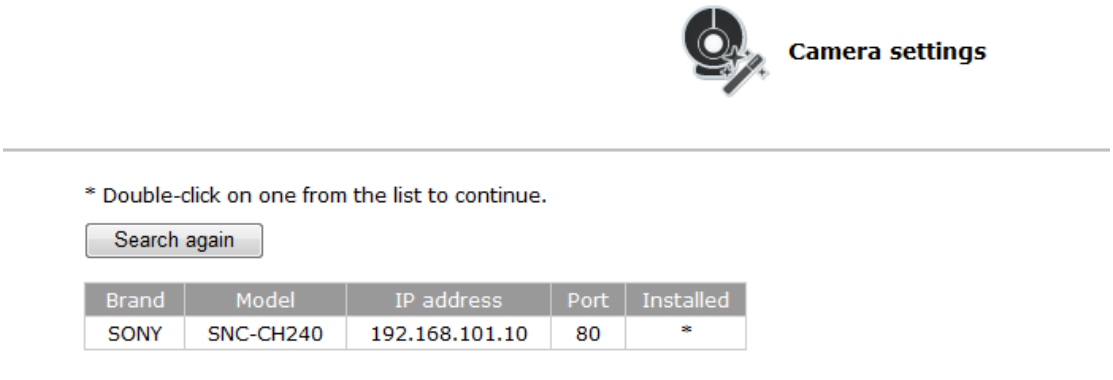
Some cameras are capable of dual streaming profiles, in which different video codecs are used for different purposes.

You will be able to use a different video format for continuous recording if it's a dual-stream capable camera.

8.1.2 Adding a Camera Manually



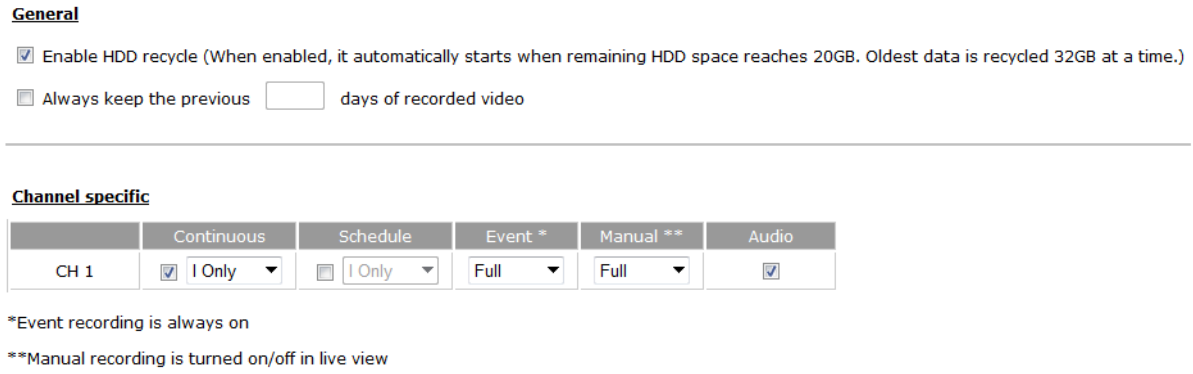
Simply follow the instruction described above but instead of using the “Add manually” function, enter the camera’s IP address and credential in the “Camera Information” manually.



Note	If cameras are marked with "*" in the search result, it means those cameras are already configured and connected to the NVR.

8.2 Recording

The “recording” gives users the overall control of how and when a recording is performed and the quality of different types of recordings performed on each channel. It can help the recorder to operate with sufficient system resource by performing recording only when it’s necessary with adjustable recording frame rate.



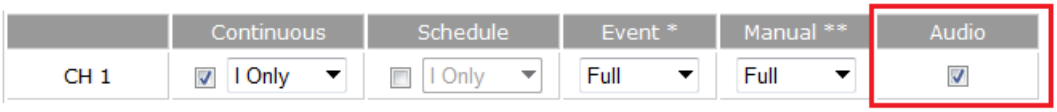
You can define the following in “General Settings”:

- Enable cycle recording or not
- Recording frame rate
- Define to always keep a number of days of previously recorded data
- Enable/disable different recording types on different cameras
- Enable/disable audio recording

Users can also set to keep a previous number of days of recording data by enabling the option below. This is quite often used in application such as banking which certain countries require to always keep a minimum previous number of days of recording data.

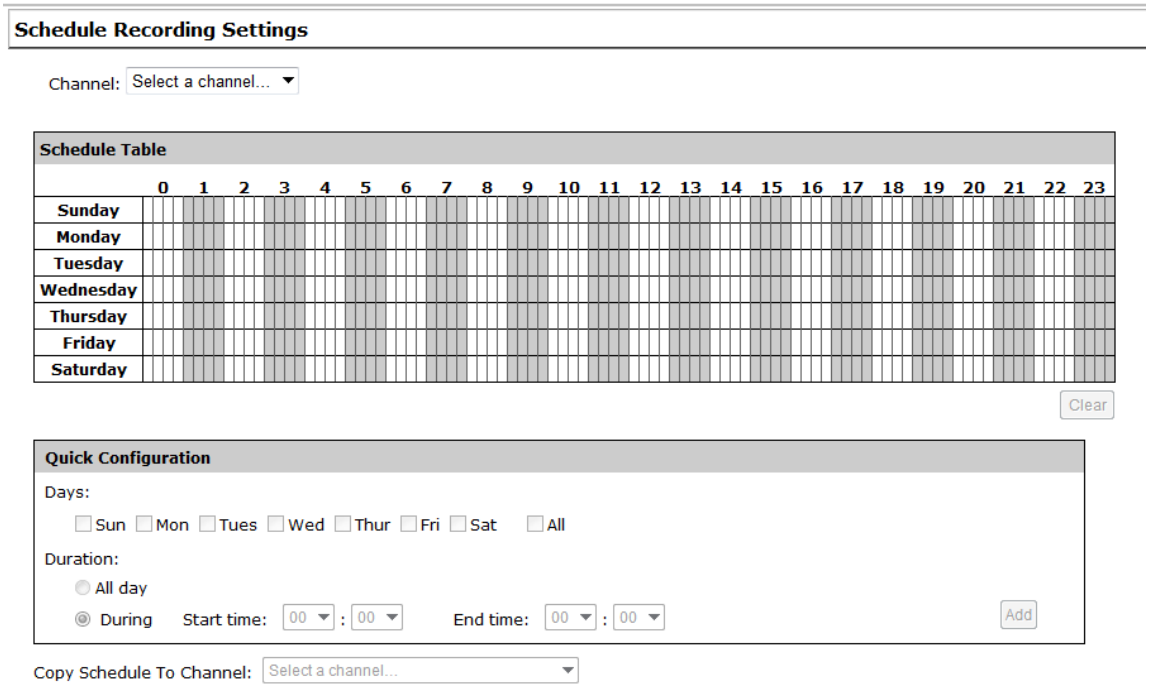
There are two types of fps settings here, one is the fps that NVR sets back to the camera, and this is the fps NVR will be receiving from the camera. The other is recording fps, which will be limited by the live fps. (e.g. if the live fps is set to 10, choosing "Full" in the recording fps means it will only record at the maximum of 10fps.

For MPEG/H.264, only i frame or full (i+p frame) can be selected for recording fps.

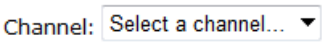


You also can disable audio recording (record video only) of particular channels.

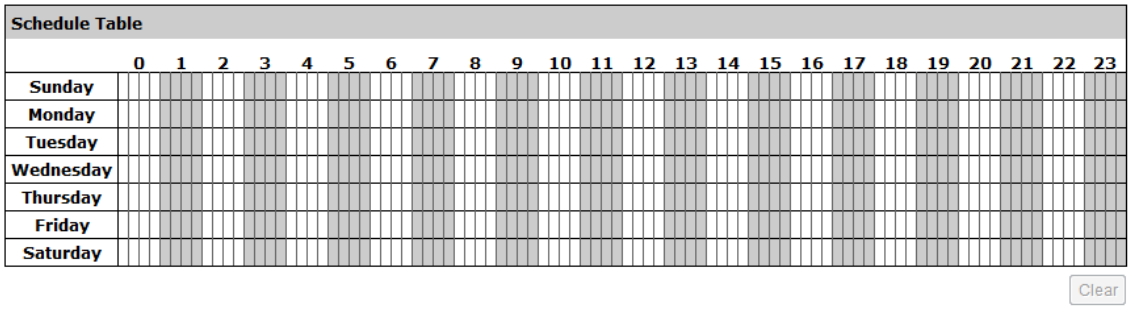
8.3 Scheduling



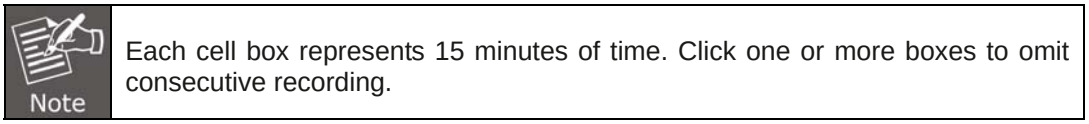
You can define the time range of the schedule recording for all channels on this page.

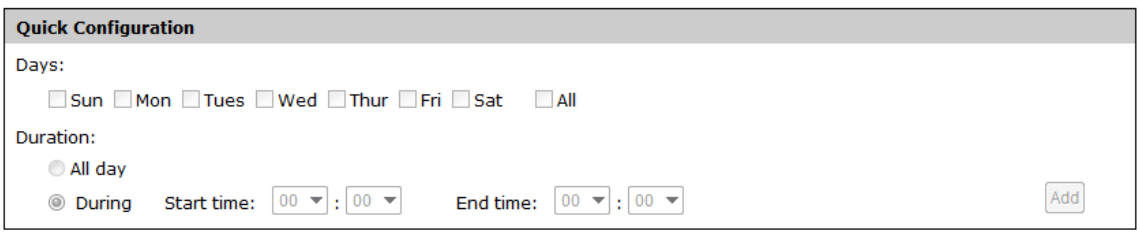


Use the “Channel” drop-down menu and select a camera first.

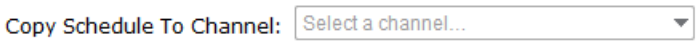


You can use the schedule table to set the time range. Click the cell boxes and then move horizontally to let you set what hours to perform recording during a day. Click and then move vertically to let you set what days to perform recording at a specific time.





You can also use the “Quick Configuration” to define recording time range instead of clicking cell boxes one by one on the timetable. Simply check what days you would like to perform recording and specify the recording duration by either choosing “All Day” or enter a start and end time for specific recording duration.

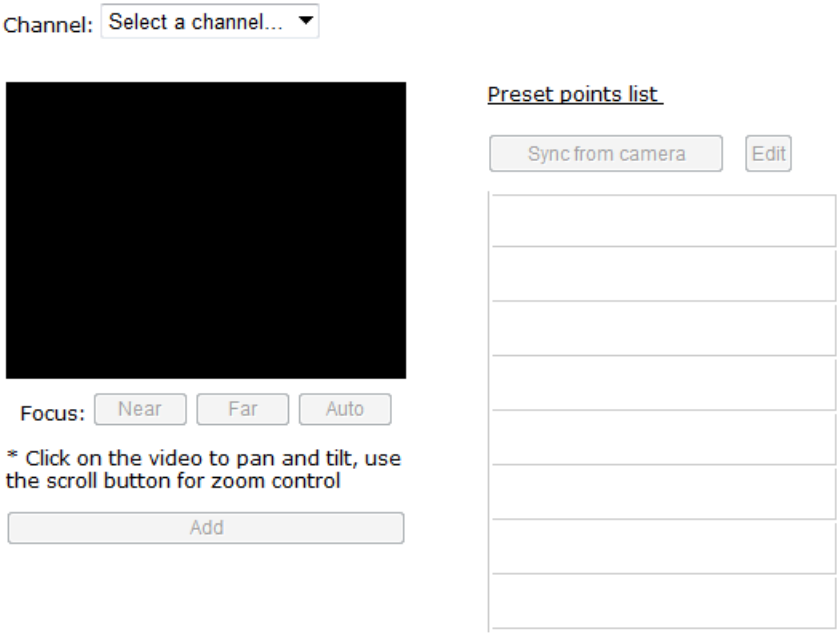


Select the “Copy Schedule to Channel:” Opt for this if you would like to set the same recording schedule to another camera.

8.4 Preset Point Setting

8.4.1 PTZ Preset Settings

The recorder supports PTZ cameras and can set multiple preset points or retrieve and manage preset points that are set in the camera. This is helpful if you need to monitor multiple spots in one area from a particular camera.



To set up PTZ preset points:

1. Select a camera from the “Channel” drop-down menu.

2. Use the PTZ control provided on the configuration page to set the preset point.

3. Press “Add” to add preset point.

Press “Edit” to enter edit mode to change preset point names or delete preset points.

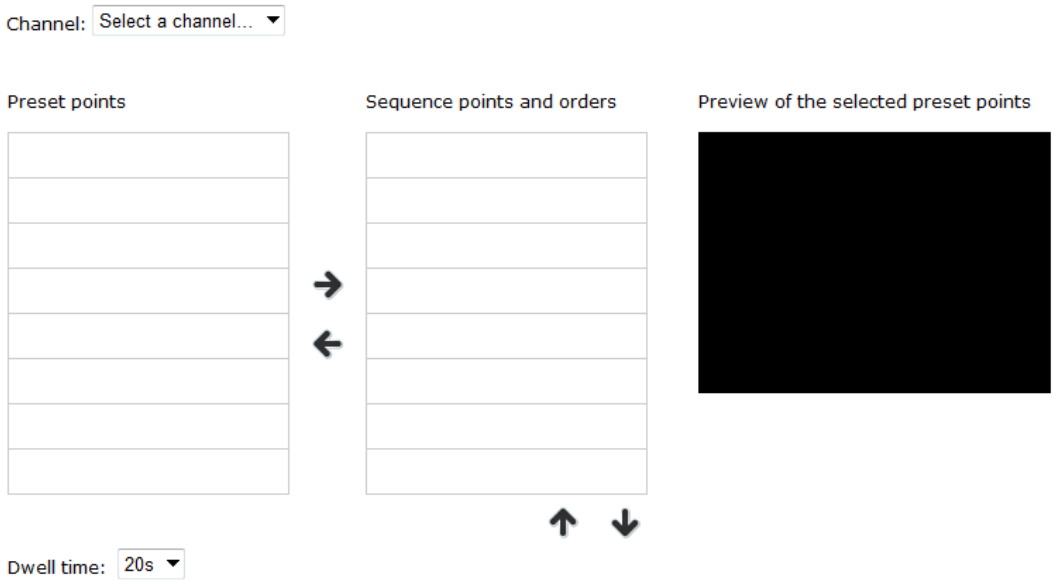
The function of “Sync from camera” is to retrieve preset points from camera.

You can choose to make this preset point a “Home” point among all other preset points, as well as making the camera to move to this particular point when an event is triggered.

Note

"Move Here when Event Triggers": In order for this function to work properly, please also complete configuration in "Event Configuration" >> "Event Trigger".

8.4.2 PTZ Preset Sequence



Once you have multiple preset points defined for a camera, it is convenient for monitoring to set up the sequencing viewing among those preset points and let the recorder automatically switch between them for you.

To configure preset sequence for a camera,

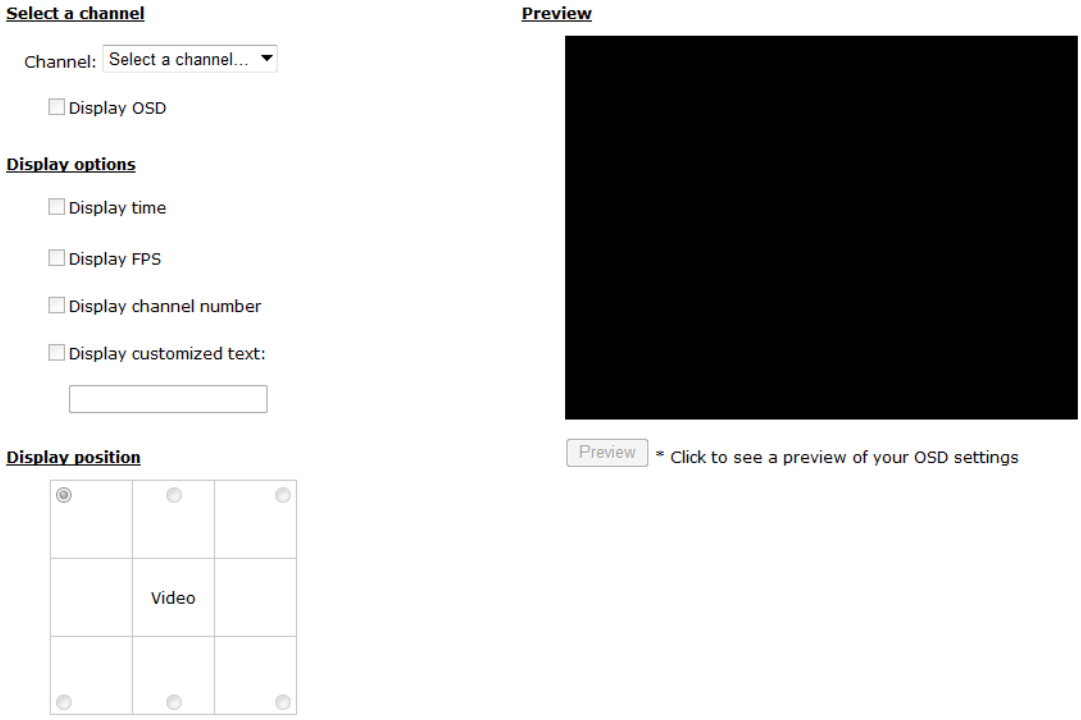
1. Select a channel from the "Channel" drop-down menu. The available preset points should be listed in "Camera Presets" section.

2. Pick the ones you like for sequence viewing and press the "->" button to move them to the "Preset Sequence" section.

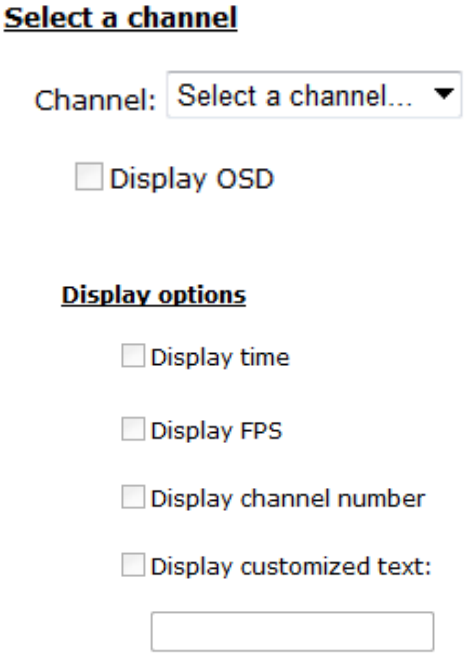
3. Use the up and down buttons to adjust their sequencing positions.

4. Finally, select a dwell time from the drop-down menu and click "Apply" to save the configuration

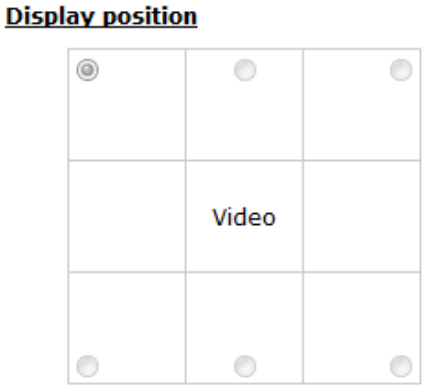
8.5 OSD Settings



The OSD (On Screen Display) allows users to add informational text message and embed it onto the video. By default, this function is turned off. To add texts to one or more videos, select a camera you would like to add text to and choose “Display OSD”



Choose one or more display options if you would also like the recorder to automatically embed the system time or the frame rate for you. Or simply choose to display a custom message of your own.



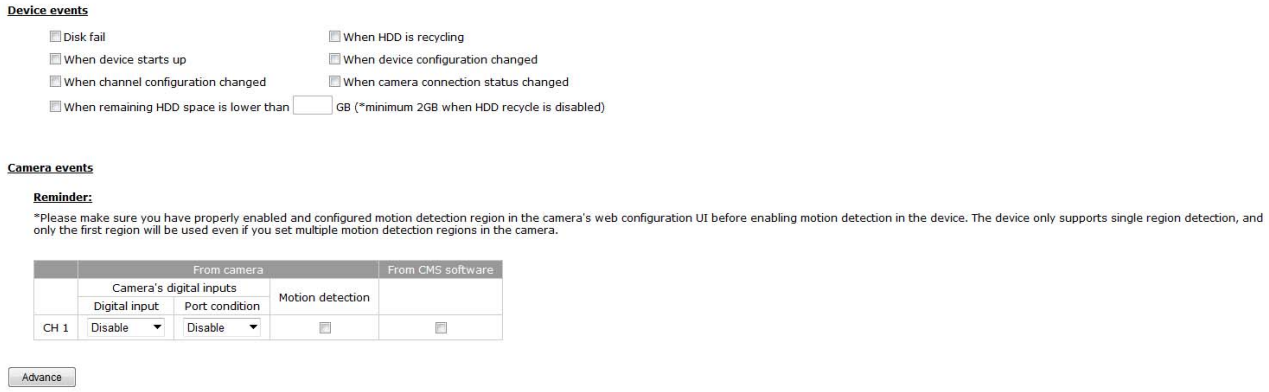
Next, define where the text will be displayed by either entering an X/Y value based on percentage or use the system pre-defined position from the drop-down menu.

Click on the “Preview” button to see the preview of your setting and click “Apply” to save the configuration.

Chapter 9. NVR Setup -- Event Configuration

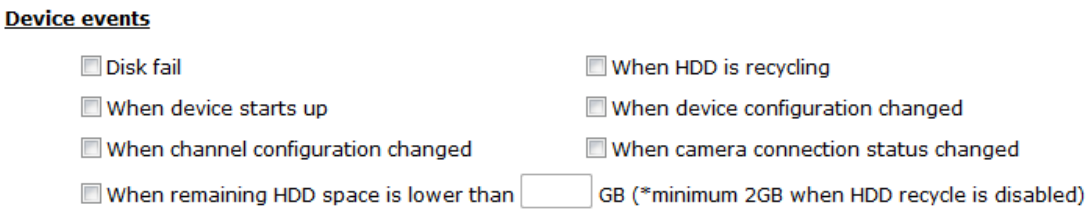
9.1 Event Sources

The “Event sources” section allows users to define conditions that constitute an event, its corresponding trigger action and when it will be triggered. Such setting can reduce the management overhead and notify the administrator only when it’s necessary.

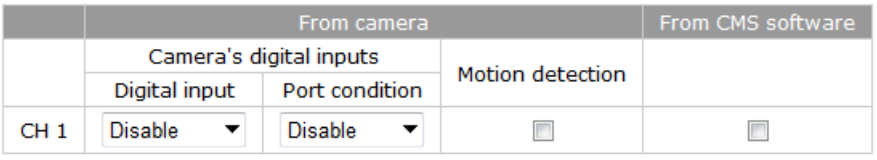


The 1st step is to define the condition to trigger event; we can finish up the event triggers by setting:

•Which channels will have event trigger function enabled?
•What is considered to be an event?



Define which system events should trigger the recorder to send out notifications.



Use the checkbox to enable event trigger on the desired channels.

Note	* Once motion detection is enabled on this page, please configure the motion area and enable motion detection in the corresponding channels (cameras) from camera's own web UI. The NVR only detects the first motion area set in the camera. The NVR recognizes the first motion area by its ID number set in the camera. * Enabling the “From CMS software” option allows the NVR to receive events from the CMS software and start recording; event such as the intelligent video detection in the CMS is one example.

You can set up the recorder to receive triggers from a particular camera’s digital input.

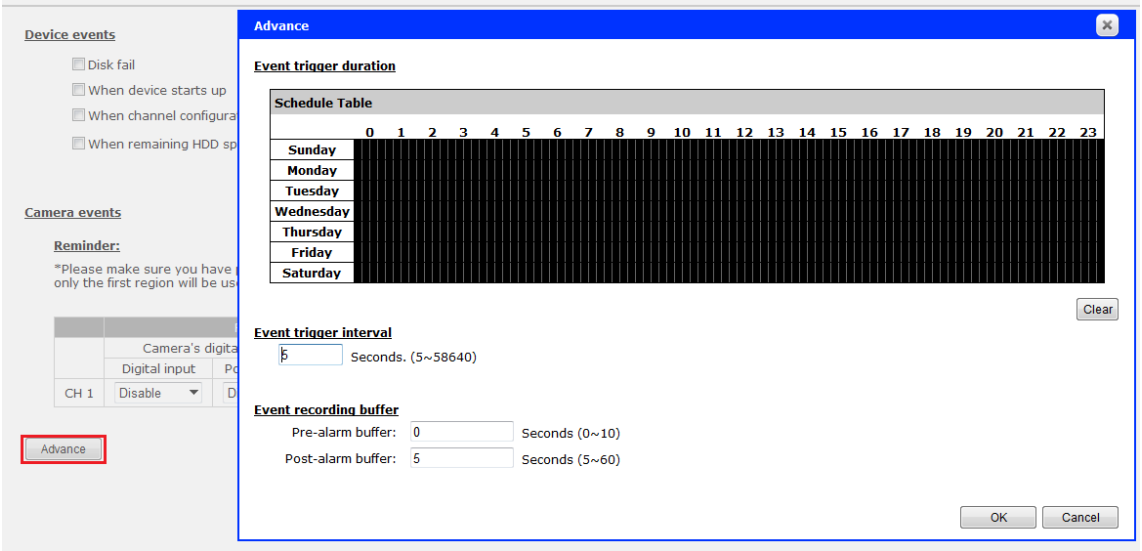
1. For cameras that come with physical digital input ports, their ports will be listed in the far left drop-down menu.
2. Pick the desired channel and then select the camera's input port from the drop-down menu.
3. Select the trigger condition from the "Port condition" drop-down menu.

*The recorder only acts as a medium for pairing up input/output ports between cameras and the recorder.

*Only connected cameras will be displayed in the list.

*Some cameras only allow one trigger source to be configured at a time, e.g.

If the camera has the motion detection function turned on, its digital input will be disabled and vice versa. Under such circumstance, if you set to use camera's digital input port as the event trigger source, you will not be able to select motion detection as the trigger source for this camera



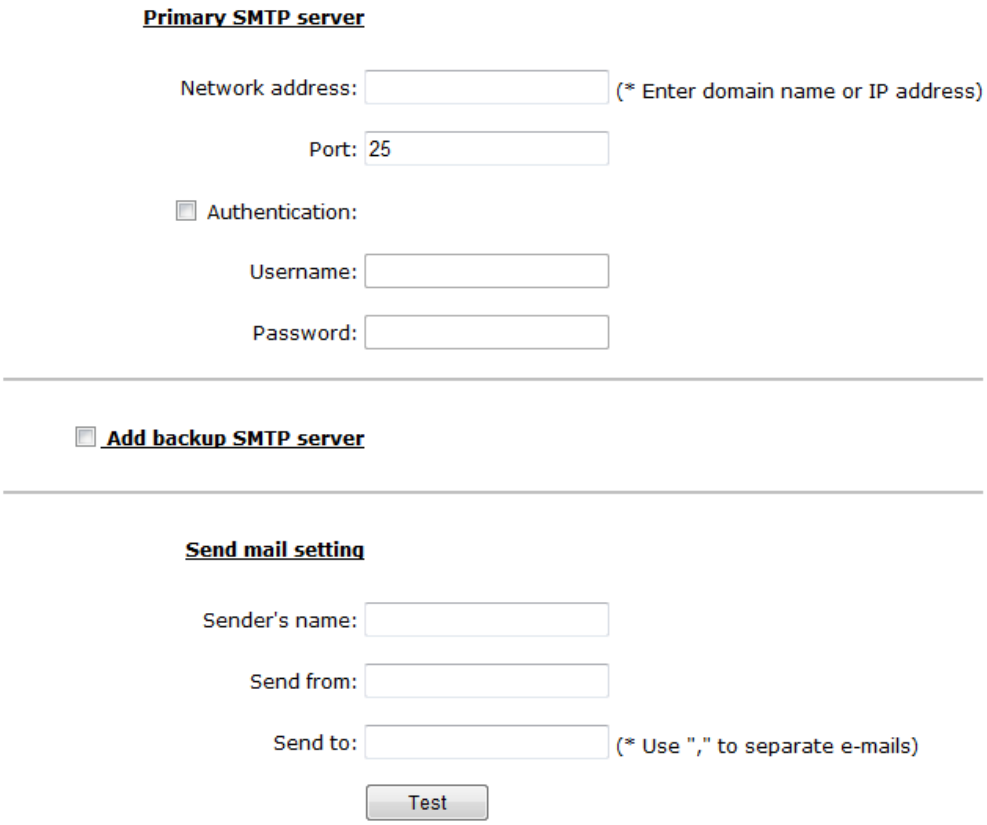
Click the "Advance" button to set up event schedule.

The "recording buffer" allows user to define "pre-alarm" and "post- alarm" time for event recordings. The "pre-alarm" time sets the NVR to record in advance when an event is triggered. The "post-alarm" time sets the NVR to continue recording for a period of time after an event trigger is finished.

9.2 Notification

Event servers are to be used with event trigger actions. In case of unusual motion detected by the camera or a disk failure, the recorder can send notification with the acceptable format (image/txt) to a destined event server according to the configuration.

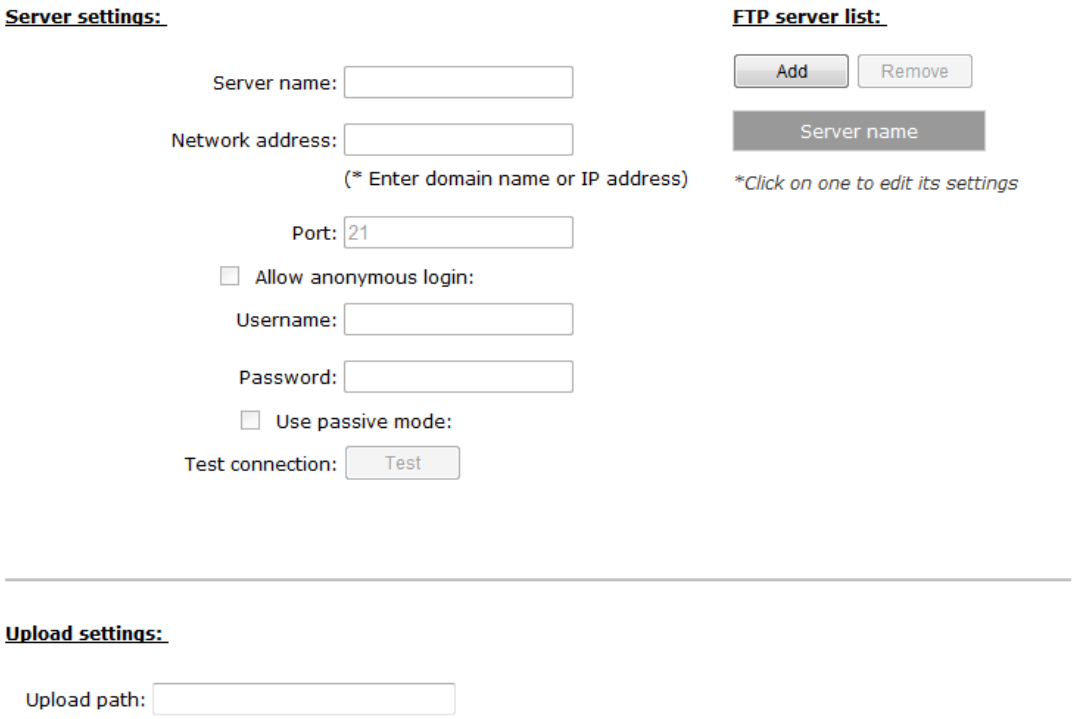
E-Mail Notification



1. Enter the hostname or the IP address of the SMTP server
2. Enter the port of the SMTP server
3. Specify the sender's name in the "Sender's name" field
4. Enter the sender's e-mail address
5. Check "Enable Authentication" and enter the username and password of the SMTP server if it requires authentication
6. Click "Apply" to save the configuration

- The NVR supports SMTP servers that use base64 or MD5 authentication methods.
- Free e-mail services of 3rd party are supported, such as gmail (open SSL).

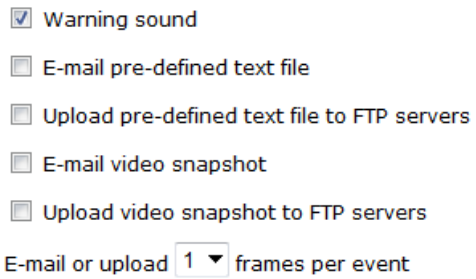
FTP Notification



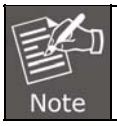
To add an FTP server,

1. Start by giving a name to the server that you are adding to the recorder
2. Enter the hostname or the IP address of the FTP server
3. Enter the communication port of the FTP server (usually port 21)
4. Enter the username and password of the FTP server if it's required
5. Check "Use Passive Mode" if it's required or leaves it unchecked to use active mode
6. Click "Test" to verify if all information is entered correctly and the connection to the FTP server can be established successfully
7. Click "Add" for the settings to take effect

Event Actions



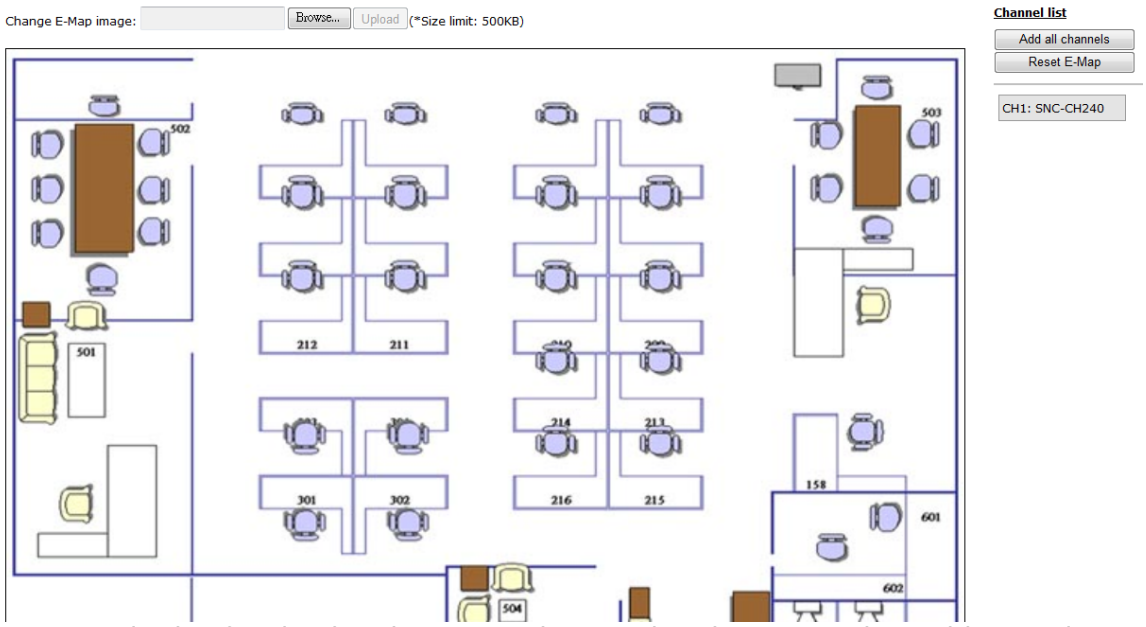
Define how the notifications will be sent and where they will be sent.



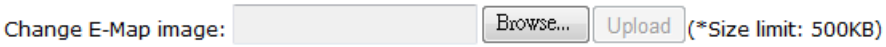
Event trigger may not work for cameras that are placed outside of your local network or on the Internet until the "UPnP Port Forwarding" is enabled in both the NVR and the router.

9.3 E-map

9.3.1 Local Map Setting

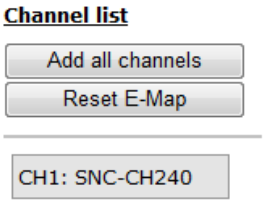


E-map monitor is a function that alerts users whenever there is an event triggered (e.g. motion detected) from a camera with a geographical perspective. With this function, users can quickly identify which camera has detected an unusual event and where this event is happening. This function works by incorporating the event detection function as well as the recording function, which, as a result, helps users take all the necessary actions when an unusual event occurs.

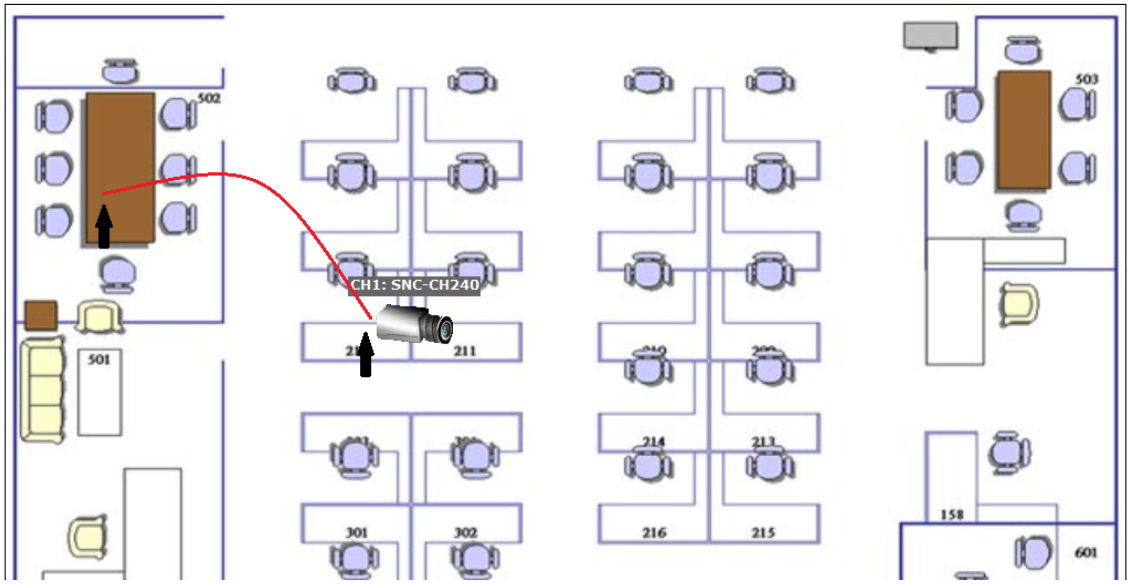


To replace the map, click the “Browse” button to locate the new map image file from the local PC and then click “Upload”.

Note	Only JPG, PNG, and GIF file formats are supported with file size under 500KB.

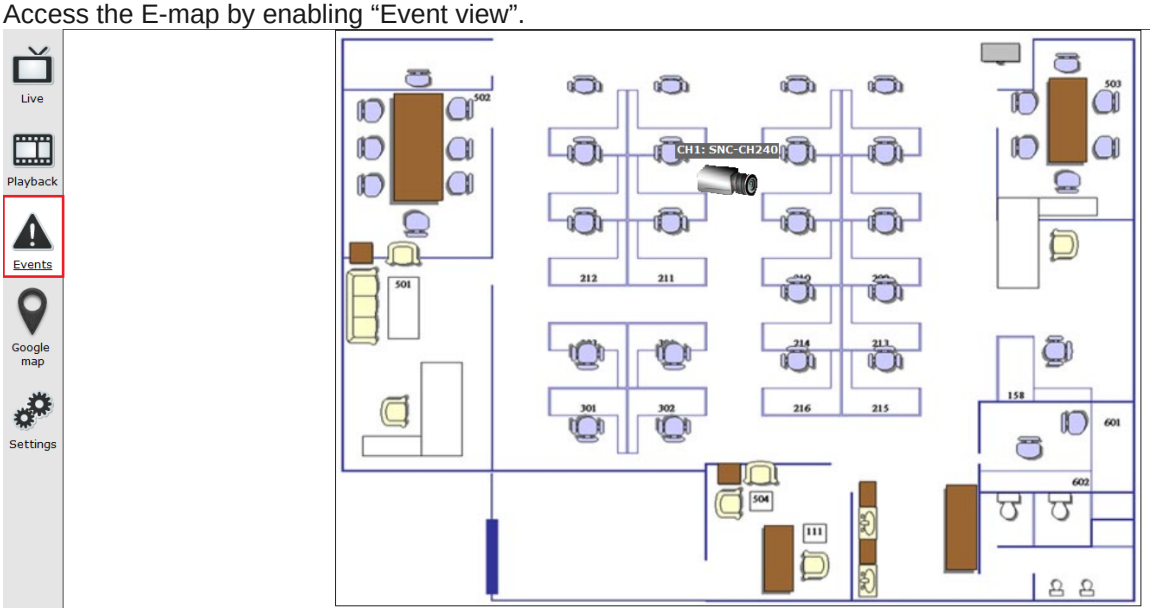


Add all channels: display all camera icons on E-map
Reset E-map: remove all camera icons on E-map
Click CH ID to display camera icon of this camera on E-map



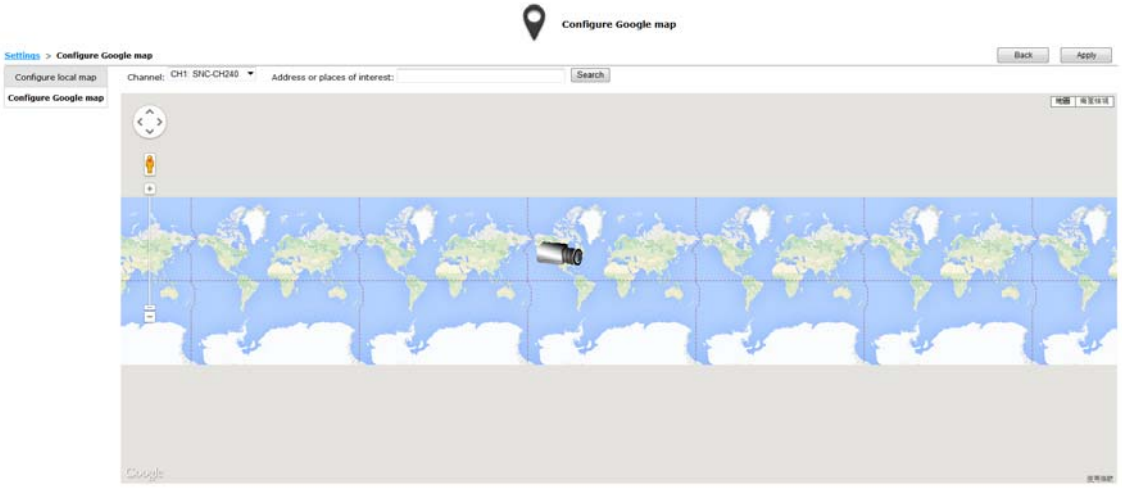
Then click and drag the camera icon to move the camera to define its location.

Access the E-map by enabling “Event view”.



You can click on the camera icon to display video.

9.3.2 Google Map Setting



The Google Map monitor is a similar function to the aforementioned E-Map monitor. It is useful if you are managing multiple cameras from different locations.

To configure locations of each camera, first determine the location you'd like to place the camera to on the map. You can do so by:

1. Zooming in to a smaller area by using the zoom control bar on the map
2. Zooming in to a smaller area by using the mouse scroll button

You can also go to a specific place on the map by entering its address or the name of the place in the "Address or places of interest" field

Once the location has been determined, click and drag the camera icon to move it to the desired location

* The Google Map Monitor requires active Internet connection and cannot be used in conjunction with the regular E-map monitor function.

Chapter 10. NVR Setup -- System Operations

10.1 Device Information

System Operations give users a glance of the overall system status and allow users to perform maintenance tasks such as upgrading firmware, restoring/backing up device settings or rebooting device, etc.

General information

Device name:	
Model name:	NVR-1620
Firmware version:	v1.5.0.72602
Device up since:	2014/12/17 16:28:50

Network information

Connection type:	Static IP
Device IP:	192.168.1.236
HTTP port:	80
Streaming port:	9877
MAC address:	00:30:4F:B9:F0:BC
DHCP server:	OFF
UPnP port forwarding:	OFF

The “Device Information” provides the general information of the device such as firmware version and system time. It also provides information of the current network settings and status.

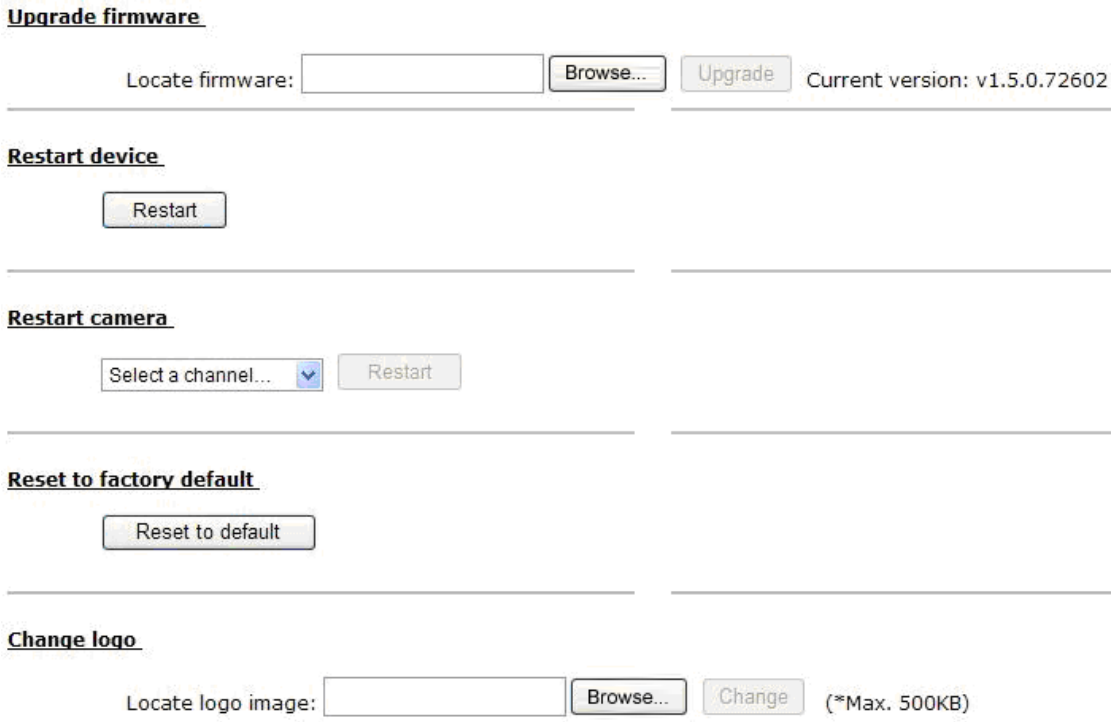
10.2 Log

System Logs

ID	Time	Type	Sub-type	CH	AP	IP	User
1	July 19, 2011 10:15:07	User	User login		Web		admin
2	July 19, 2011 09:47:20	User	User login		Web		admin
3	July 19, 2011 08:56:19	Recording	Stop recycling HDD space				
4	July 19, 2011 08:55:23	Recording	Start recycling HDD space				
5	July 18, 2011 20:21:40	User	User logout		TestClient	192.168.102.21	admin
6	July 18, 2011 20:20:38	User	User logout		TestClient	192.168.101.178	admin
7	July 18, 2011 19:54:46	User	User login		Web		admin
8	July 18, 2011 19:50:35	User	User login		Web		admin
9	July 18, 2011 19:45:14	Linux	Format hard disk				
10	July 18, 2011 19:44:55	Linux	Format hard disk				
11	July 18, 2011 19:44:33	Linux	Format hard disk				
12	July 18, 2011 19:44:15	Linux	Format hard disk				
13	July 18, 2011 19:43:59	Linux	Format hard disk				
14	July 18, 2011 19:43:38	Linux	Format hard disk				
15	July 18, 2011 19:41:06	Channel	Camera connected	17			
16	July 18, 2011 19:41:06	Channel	Camera connected	16			
17	July 18, 2011 19:41:05	Channel	Camera connected	15			
18	July 18, 2011 19:41:05	Channel	Camera connected	13			
19	July 18, 2011 19:41:05	Channel	Camera connected	14			
20	July 18, 2011 19:41:05	Channel	Camera connected	12			

“Log” keeps a record of what’s been happening to the device and provides basic information for troubleshooting.

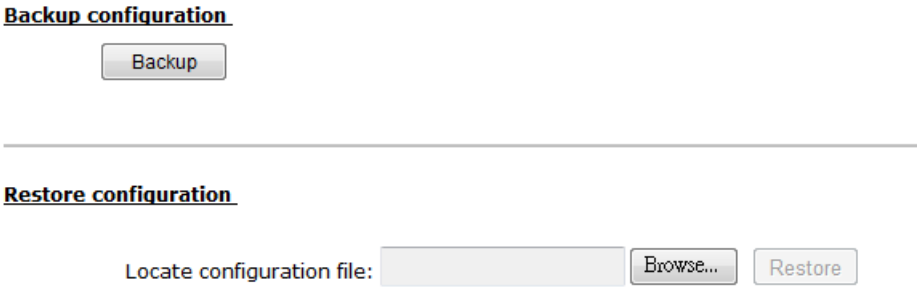
10.3 Maintenance



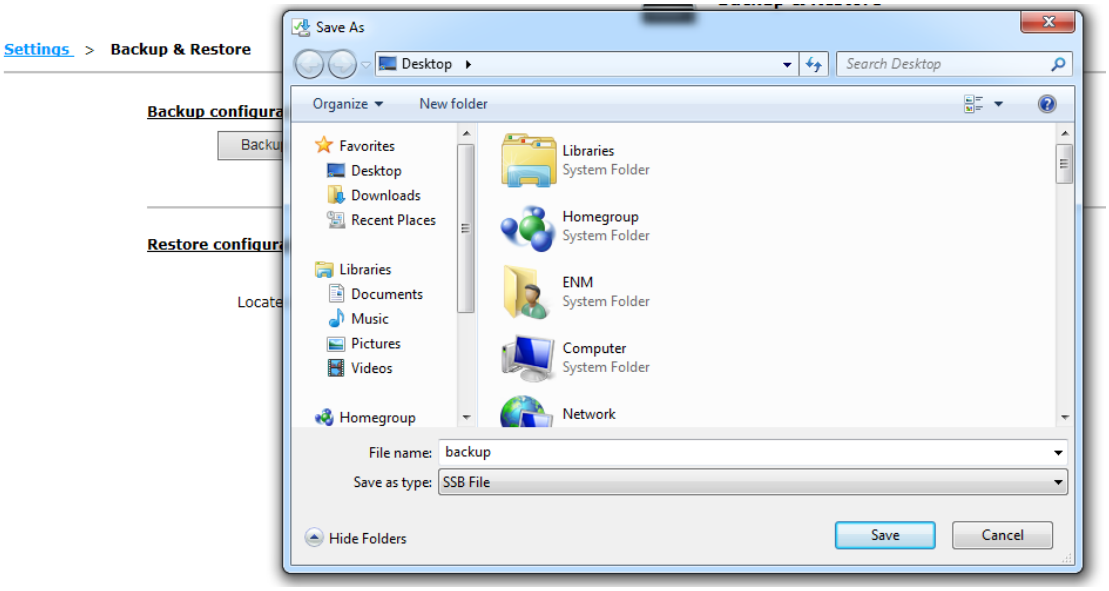
"Maintenance" provides functions for users to:

- Perform Firmware Upgrade (Only on Web UI)
- Restart the NVR when necessary
- Restart cameras directly from the NVR
- Reset the NVR's settings to their factory default values

10.4 Backup & Restore

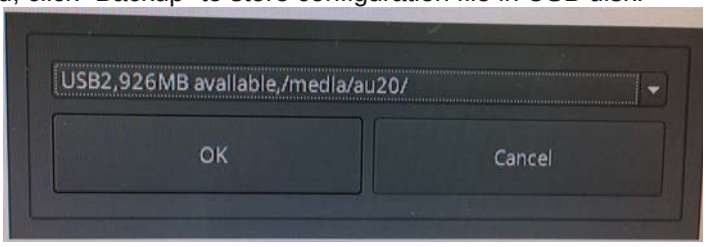


It is a function that allows users to back up the NVR's settings to a local hard drive. Users also can restore the NVR's settings from a previously-saved configuration file.

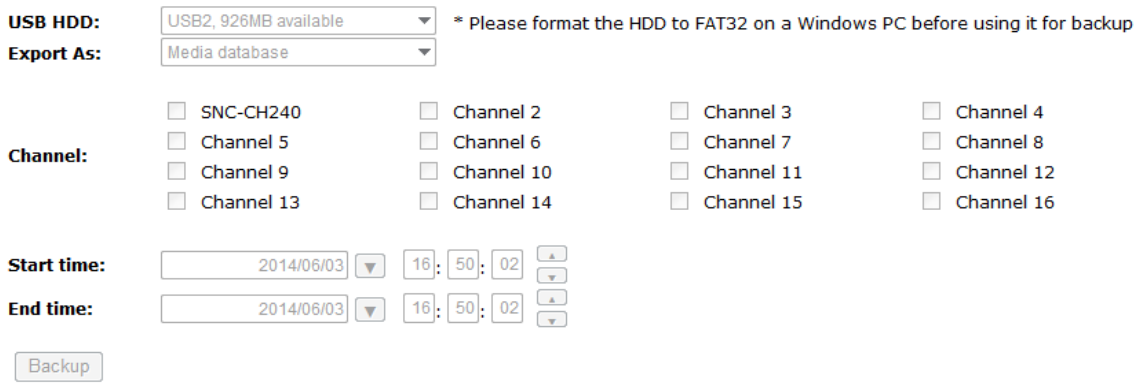


On Web UI, the configuration can be backed up to or restore from a local computer.
Click “Backup” to store configuration file in local computer.

On local UI, the configuration can be backed up to or restore from a USB disk. It is required to plug in a USB disk formatted in FAT32 prior to using the backup and restore functions.
Once it’s detected, click “Backup” to store configuration file in USB disk.

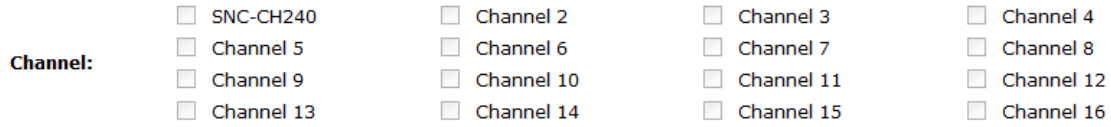


10.5 USB Backup

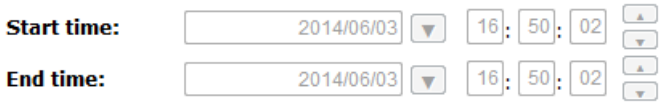


It’s a function that allows users to back up the recording data in its database file format as well as in AVI to the externally-connected USB hard disk.

The USB hard disk(s) will be listed in the drop-down menu displaying the remaining disk space. Make your selection from the drop-down menu if you have more than one disks connected to the NVR.



Next, select channels which you would like to back up the recording data from. Maximum 4 channels can be selected at once.



Configure the start and end time of the recording data you would like to back up and click the "Backup" button to begin.

10.5.1 Things to Pay Attention to for the USB Backup Function

Limitation:

- It does not support USB Hub that extend the number of HDDs connected to the NVR.
- Only one backup process can be performed at a time.
- Maximum 4 channels can be selected for backup.
- Only FAT32 USB hard disk is supported for backup.
- The USB hard disk needs to have more than 100MB remaining space.
- If multiple partitions are presented in one disk, only the first partition will be detected and used for backup.

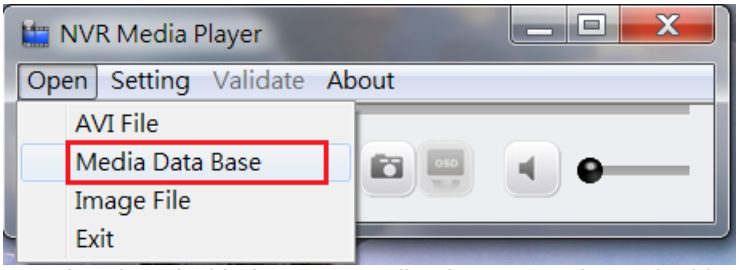
Process:

- Progress will be displayed on the UI.
- If the backup process gets interrupted, meaning the process stops before the "END Time" user defined, such time will be displayed on the UI.
- A folder will be automatically created in the USB hard disk with a name format like 0028687831_20100610151515_2010060511 0010_20100606110010 (MAC_backupbuttonclicktime_starttime_ endtime).

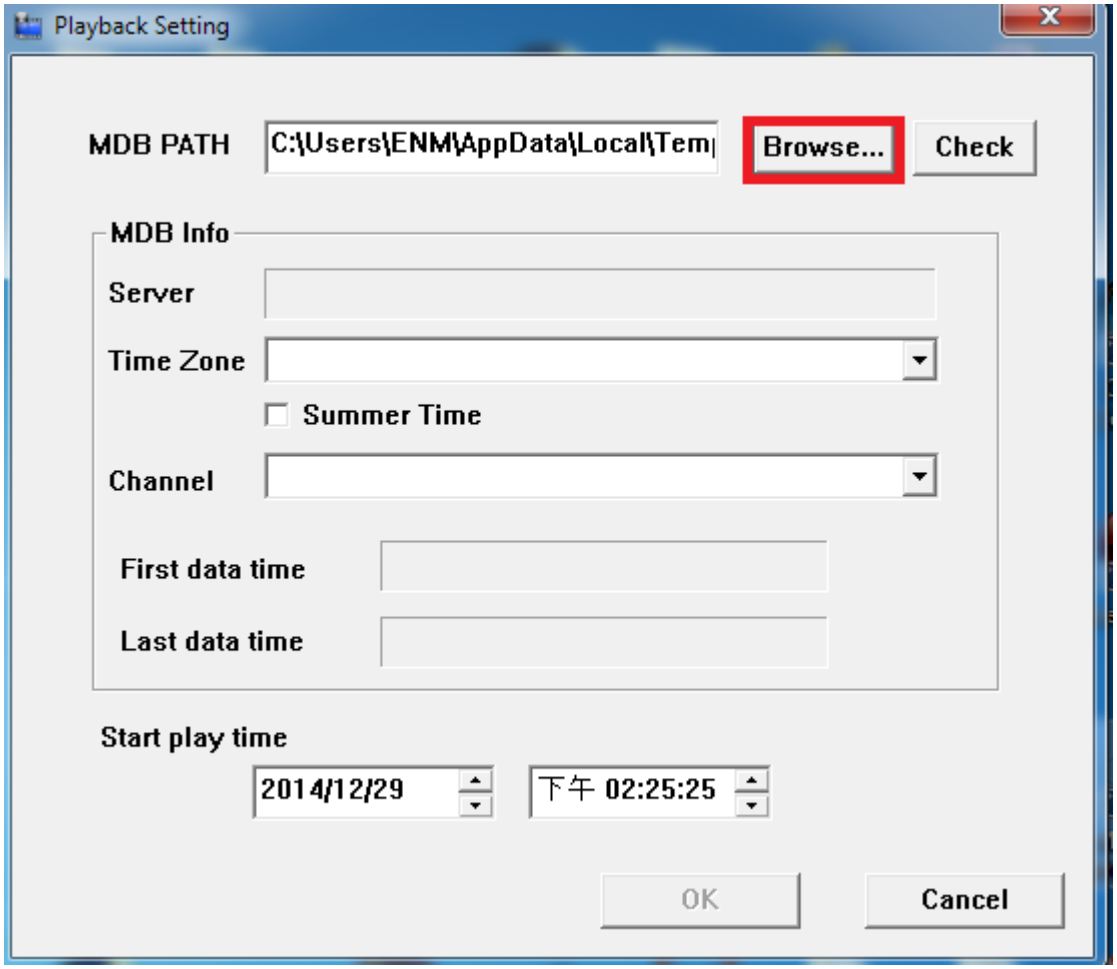
Note:

- Please plug in the USB HDD only after the NVR is fully started, or the HDDs will be incorrectly mounted.
- Play the backup files using the NVR media player.

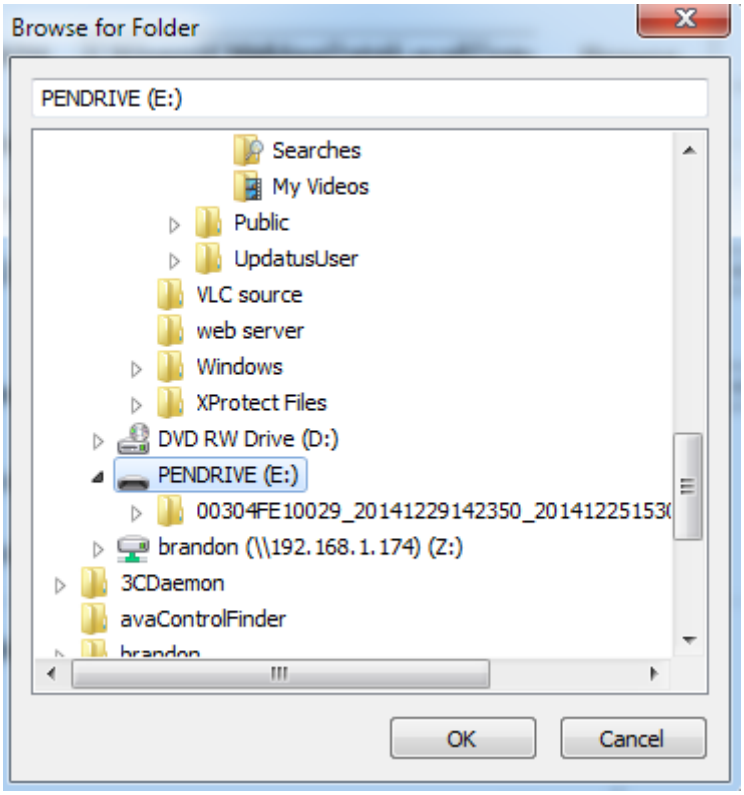
10.5.2 Playing the Backup File with the NVR Media Player



The backup files can be played with the NVR media player. In order to do this, open the player and select "Open" >> "Media Database".

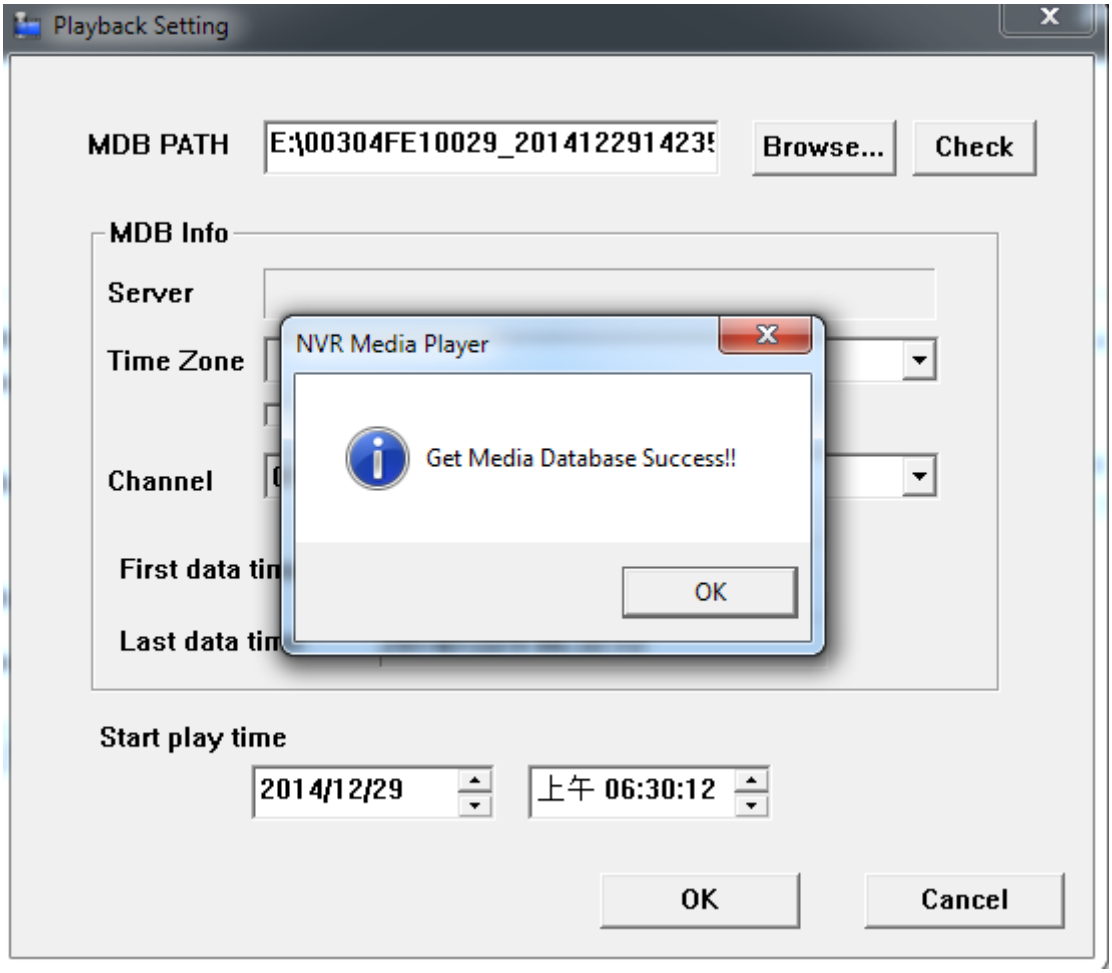


Click “Browse...” to select the file from the USB disk.



A new dialog should be prompted for you to select the file location.

When done, click “Check” to validate the file.



Once the file has been successfully verified, you should be prompted with the message shown below.

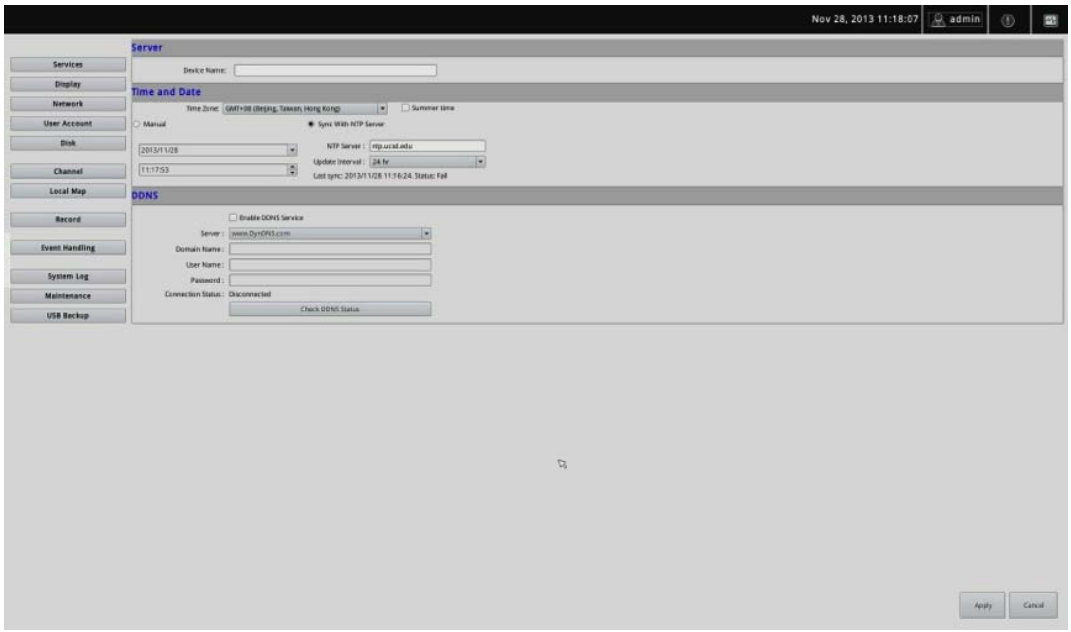
Select the time zone according to your current location.

Finally, click “OK” to begin playing. The player should now play the backup file.

Chapter 11. NVR Local Interface

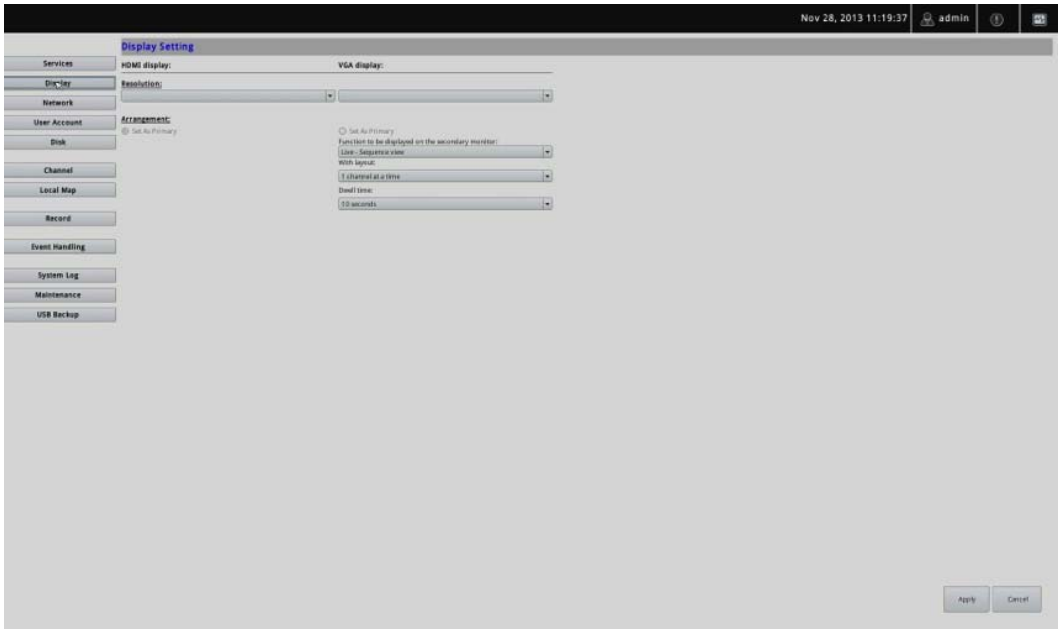
11.1 System Configuration

11.1.1 Service



You will the see the "Service" configuration page first when visiting the Configuration page. You are able to set a unique device name, set system time and configure DDNS on this page.

11.1.2 Display



The "Display" configuration page allows you to choose the most optimized display resolution for the monitor that's used with NVR, as there will be circumstances that the incorrect resolution may be used when the system first boots up.

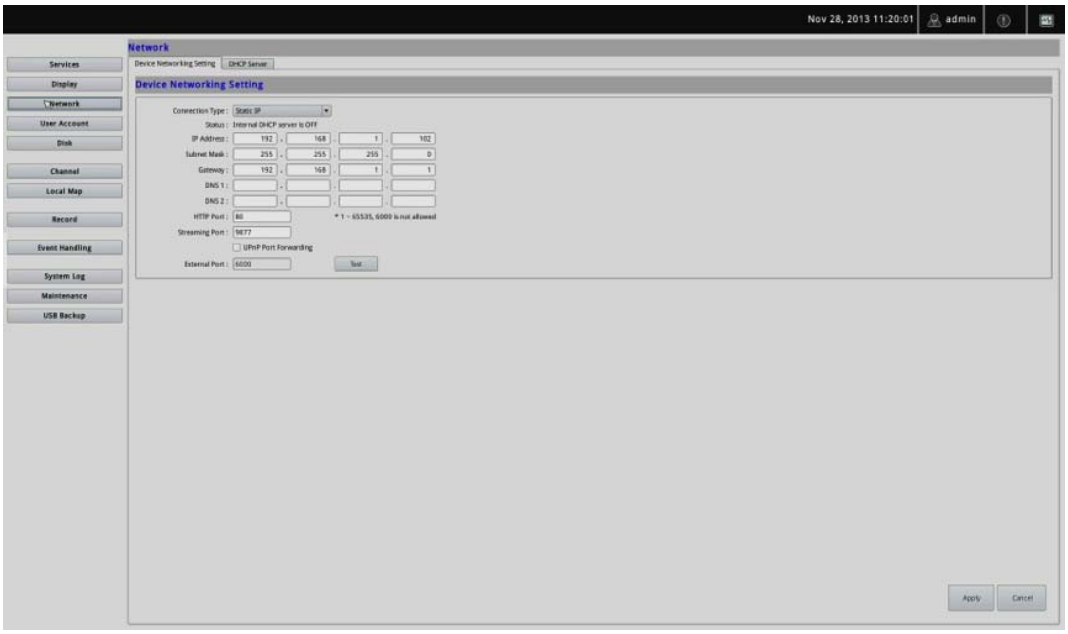
The NVR comes with two video outputs (HDMI: Primary as default, VGA: Secondary as default). You can set which to be used as primary and secondary on this page other than setting the resolution.

You are also able to set the function to be displayed on the secondary monitor on this page.

Currently you can configure the secondary monitor to display live videos with selected channels in desired layout, or live video in automatic sequence view.

Note	The NVR will reboot automatically upon change of resolution/or monitor for the new setting to take effect or be detected.

11.1.3 Network

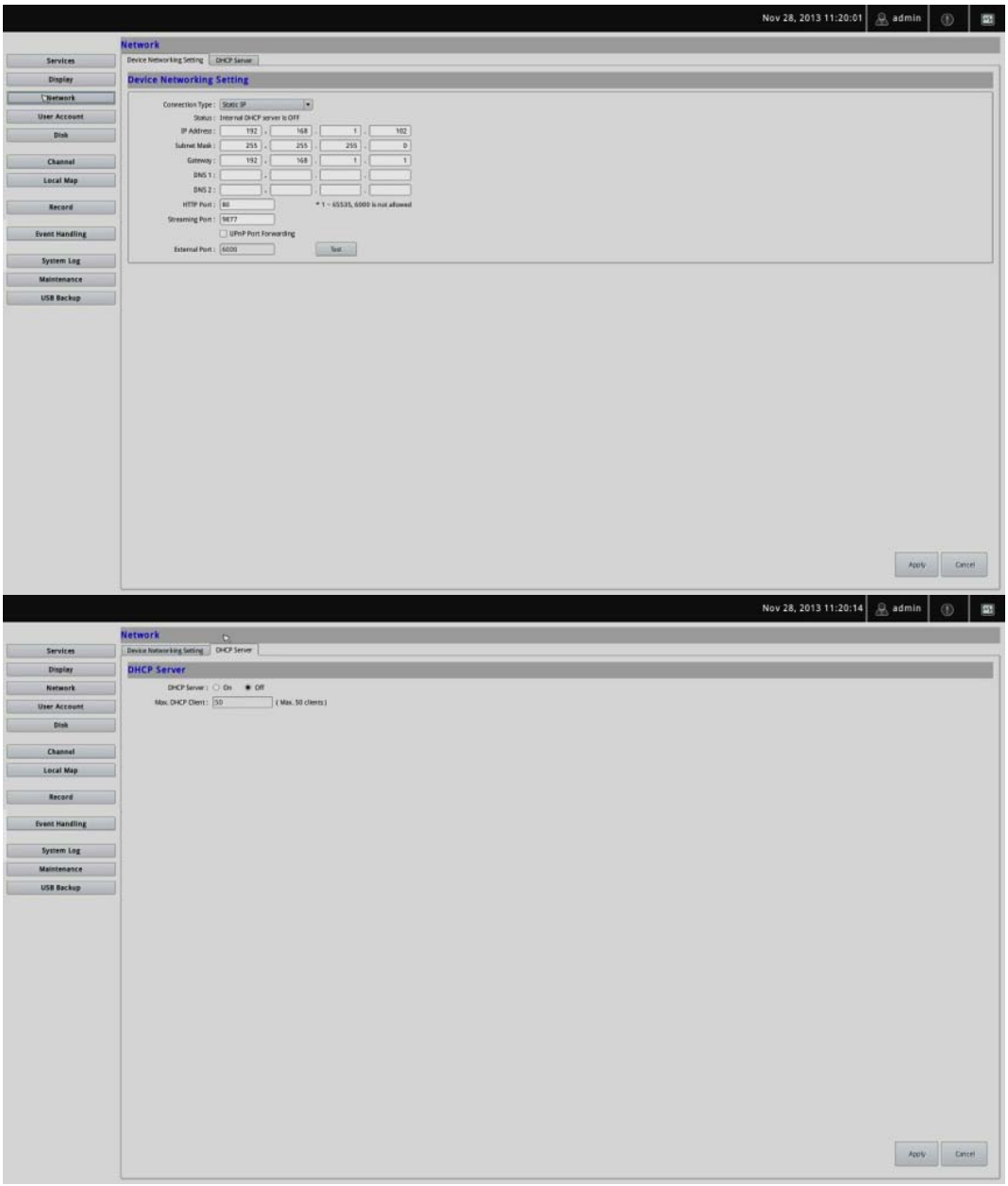


You need to adjust settings on this page for the device to work properly in your network. It is critical that settings here are configured correctly based on your network configurations so that the recorder can be administered through the local area network and cameras can be connected from it.

By default, the recorder is set to "Auto Mode" which if there's a DHCP server in the same local network, the NVR can obtain IP address from the DHCP server. And you can locate the NVR by using the NVR search utility.

If there's no DHCP server in the network, and the NVR is set to "Auto Mode", it will use its own default static IP **192.168.0.20**

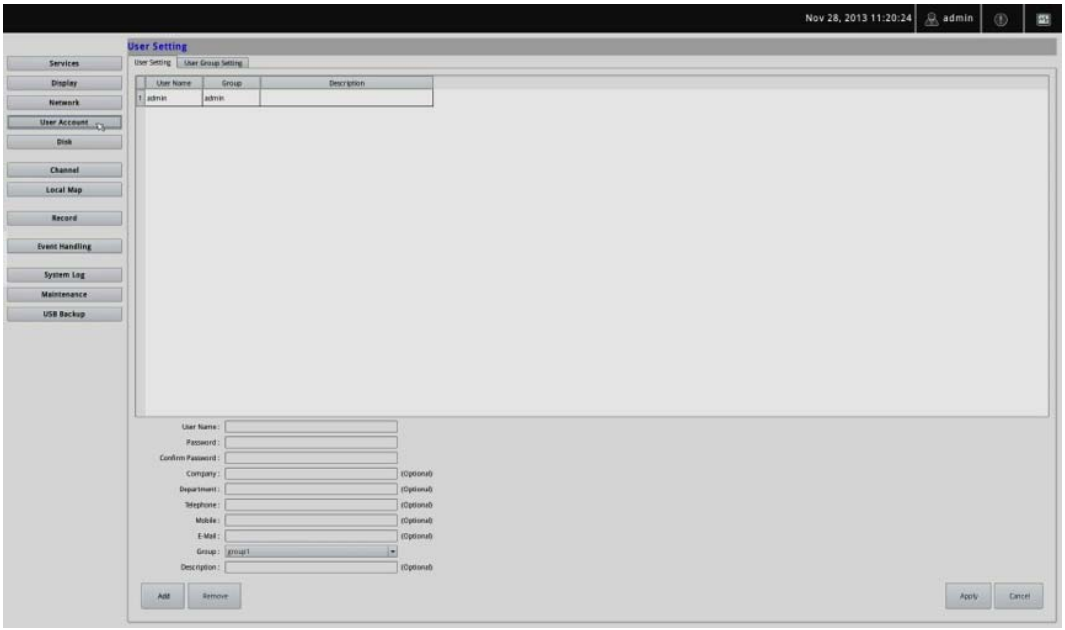
Note	* The recorder can detect the presence of a DHCP server upon startup. It sets itself to use static IP address if there is no DHCP server currently presented in the network. Its DHCP server function is also turned on at the same time to assign IP addresses to cameras that are later connected to the network or you can manually turn off the DHCP server function at the bottom of this page.



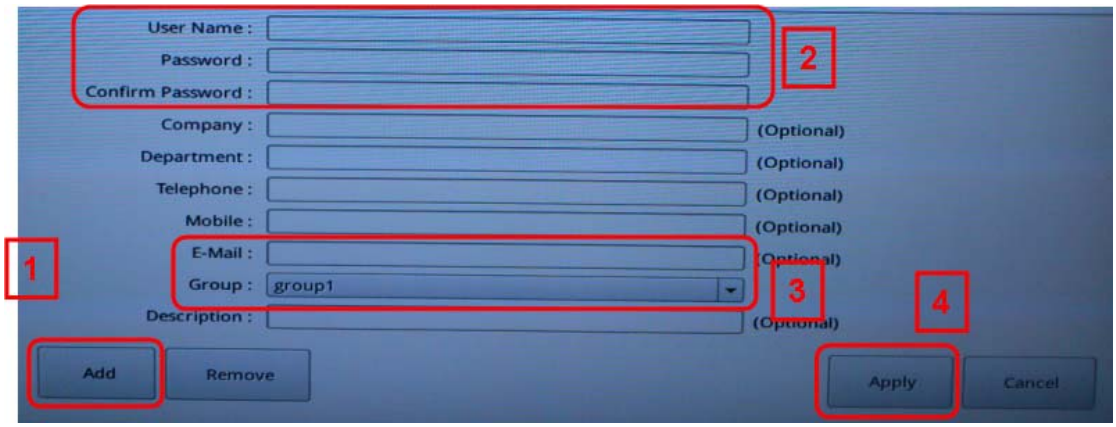
The built-in DHCP Server function is **NOT** always configurable and is greatly dependent to the connection type that is used:

1. If the connection type is "Auto Mode", the DHCP server function is NOT configurable. It will be ON if the NVR doesn't obtain an IP from a DHCP server in the local network and uses its own default static IP 192.168.0.20.
2. If the connection type is "Auto Mode", the DHCP server function is NOT configurable. It will be OFF if the NVR obtains an IP from a DHCP server in the local network.
3. If the connection type is "DHCP Client", the DHCP server function is NOT configurable. It will be OFF if the NVR obtains an IP from a DHCP server in the local network.
4. If the connection type is "DHCP Client", the DHCP server function is NOT configurable. It will be ON if the NVR doesn't obtain an IP from a DHCP server in the local network and uses its own default static IP 192.168.0.20.
5. If the connection type is "Static IP", the DHCP server function is configurable and can be turned on/off manually.

11.1.4 User Account -- User setting

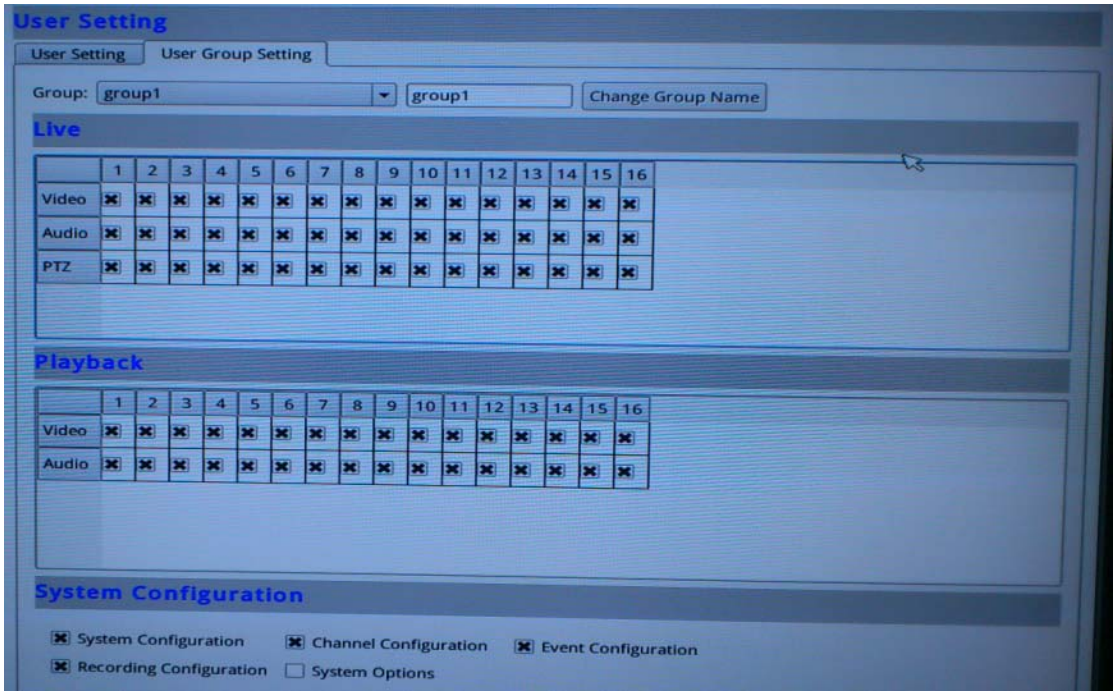


Multiple users can access the recorder simultaneously. You can add, remove, and edit users by using options provided on this page to keep user information organized. Each recorder comes with a built-in “admin” account with password “admin”. It’s highly recommended to change the password upon your initial login.



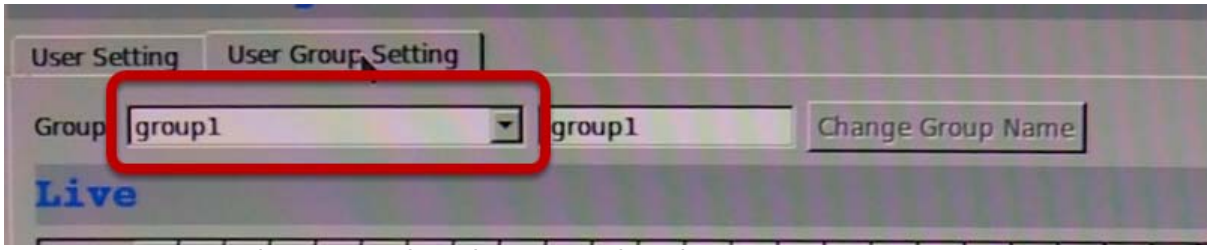
- Click "Add" to add a new user.
- Enter a user name and password. All other fields are optional for your own reference.
- Select a group from the “Group” drop-down menu to assign the new user to a particular group. Enter a short description for the account if you wish.
- Click “Apply” to finish configuration.

11.1.5 User Account -- User Group Setting

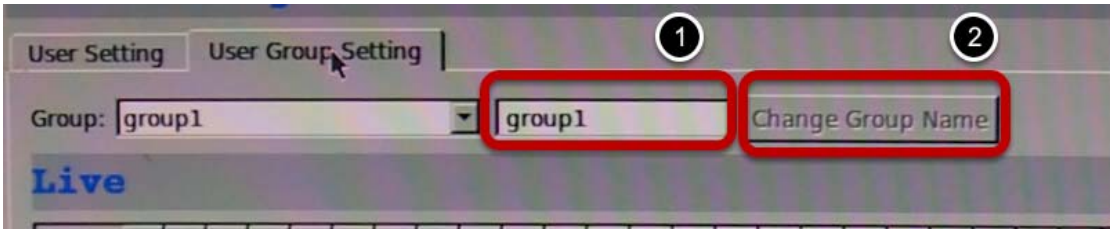


Group Privilege is where you can create multiple customized access policies for situations if you need the recorder to be accessed by users other than the administrator. You can do so by creating a group, and then remove access privileges for certain configuration pages or cameras. Users that are created and assigned to this group will have limited access instead of full administration rights.

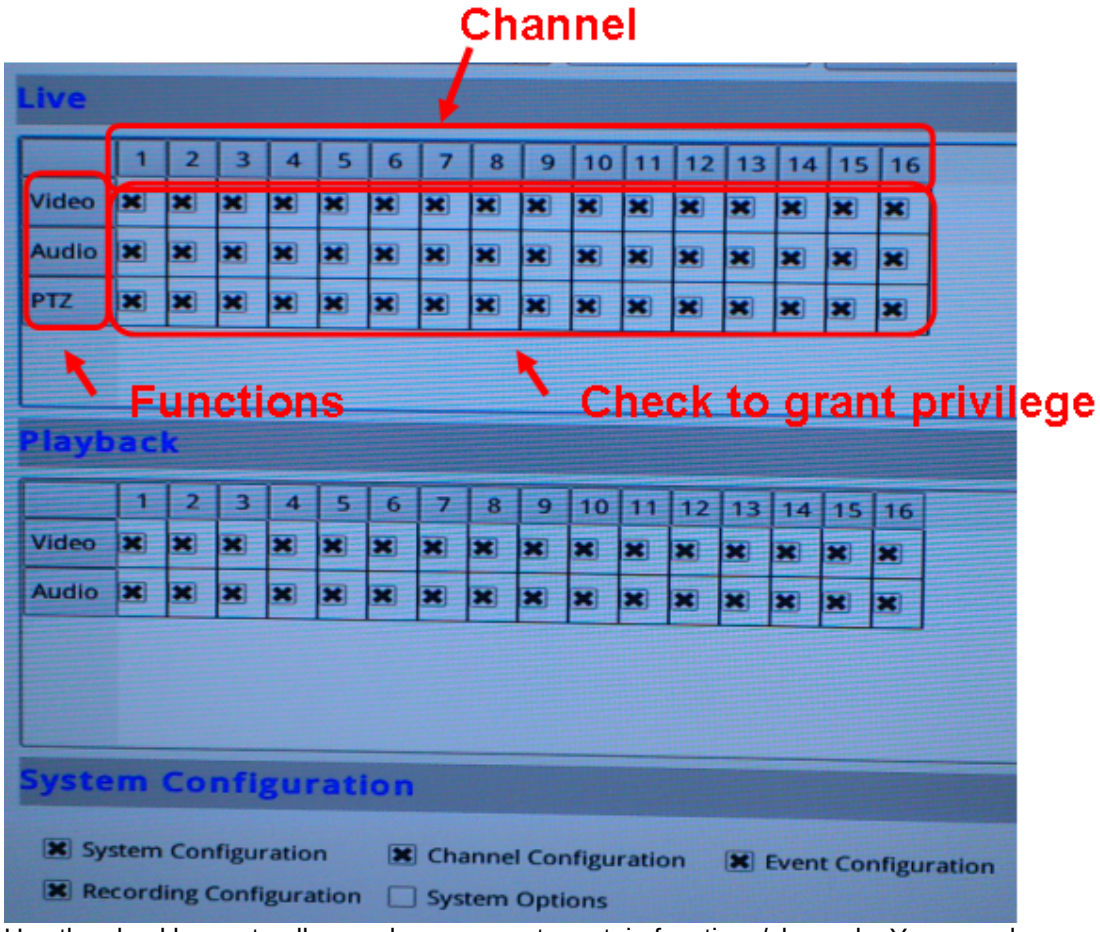
The recorder comes with seven built-in groups and five built-in privilege profiles, except the “admin” and the “guest” accounts; the other five groups are fully customizable or you can simply assign a group with one of the default privilege profiles. You can, however, assign more than one users to the “admin” account if you wish to do so. The guest account comes with a “view-only” privilege on the “Live View” page, and users in this group do not have the power to make any changes on the “Live View” page or have access to pages other than the “Live View” page.



To create a group, select a group from the “Group” drop-down menu.

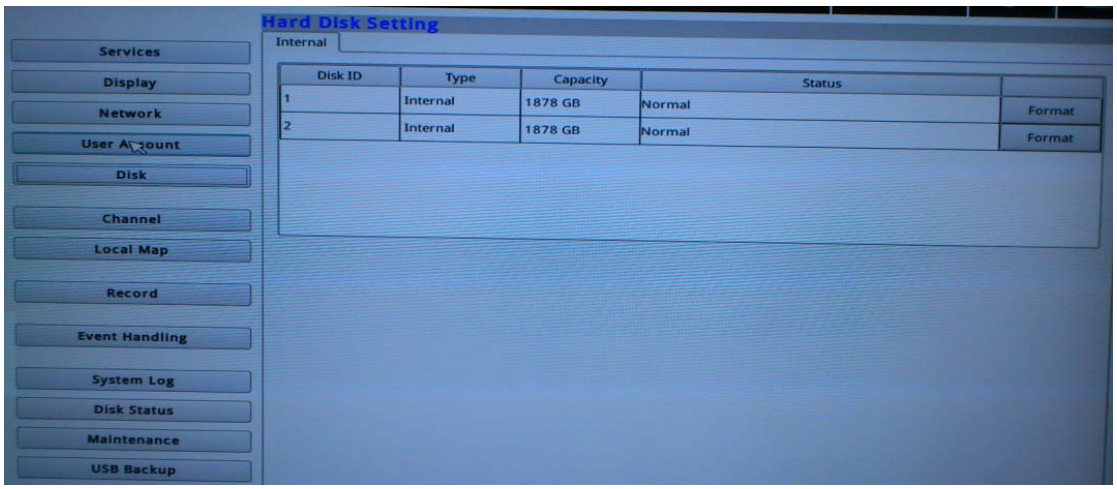


You can change the group name by typing in a new group name and click the “Change Group Name” button to finish.



Use the checkboxes to allow or deny access to certain functions/channels. You can also restrict access on the certain system wise configuration pages.

11.1.6 Disk



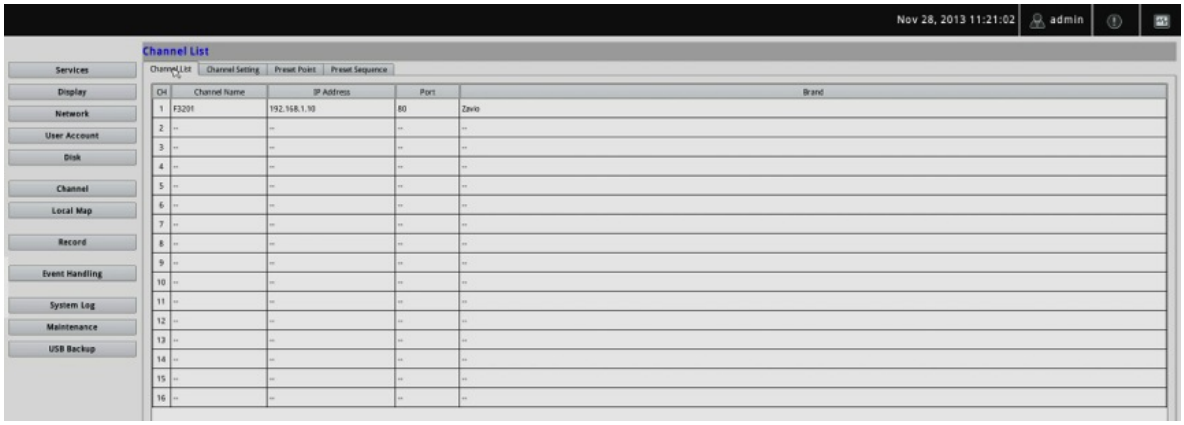
Once you install a new hard disk to the recorder, it will be listed on this page and shown status "offline". You would need to initialize it so that it can be ready for recording. You can obtain basic information about the disk you installed on this page.

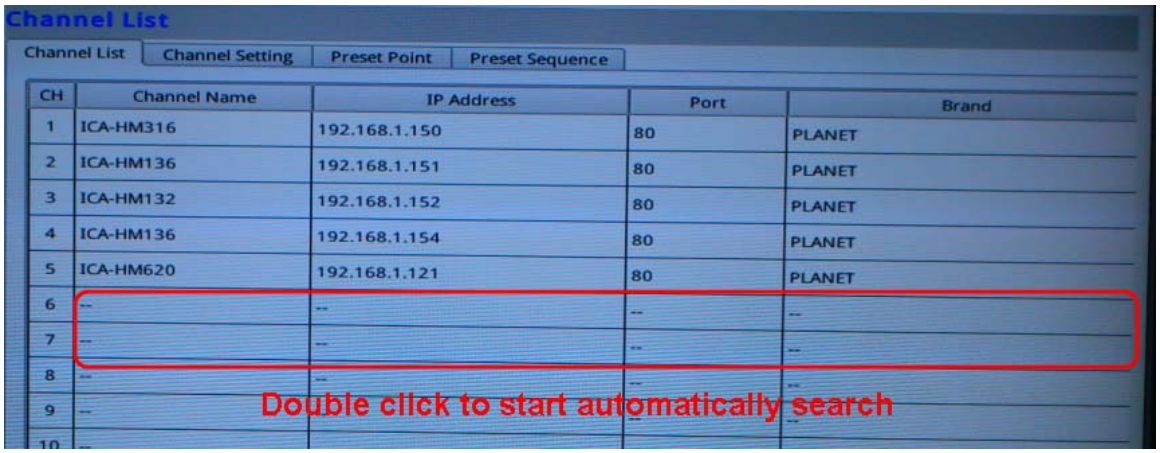
To initialize it, simply click the “Format” button.

**This page will list the Internal disks only. The HDD will be formatted in EXT3 file system.*

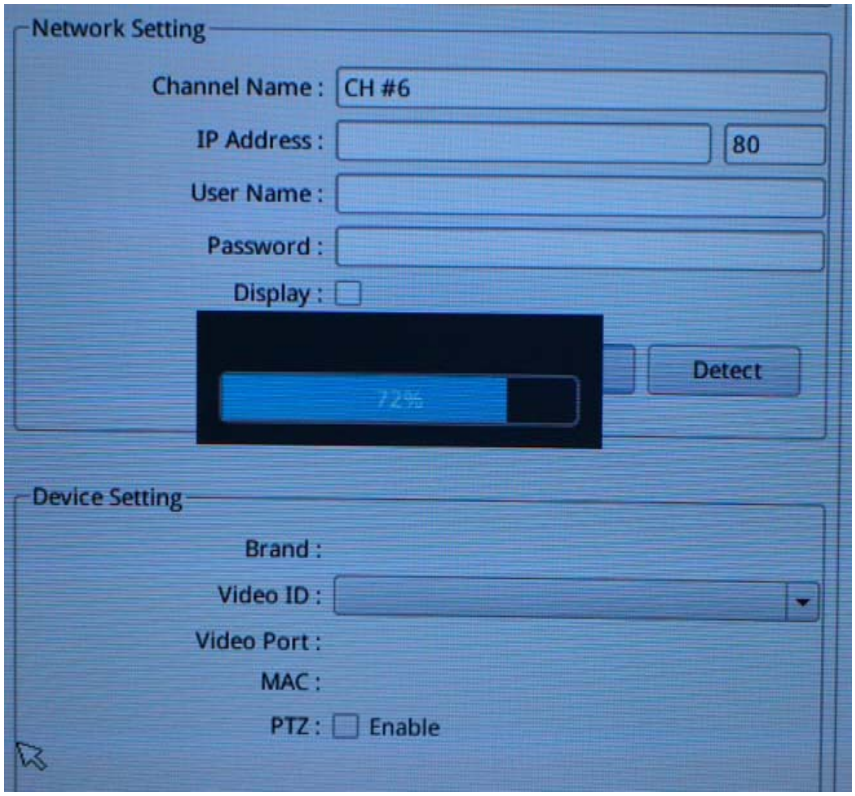
*The USB HDDs will only be listed on the "USB Backup" page. The USB HDDs have to be formatted in advance in FAT16/FAT32 or EXT3 file system. (FAT32 is recommended)
*The internal disks that are formatted in EXT3 or FAT32 elsewhere will be listed on this page and shown as "Online" after they are installed to the NVR. It's highly recommended that it's formatted by the NVR, which will be formatted to EXT3 file system to ensure best performance. FAT32 can be used but will result in a performance slowdown.
*HDDs formatted in file systems other than EXT2/3, or FAT32 will not be listed, and therefore cannot be used.

11.1.7 Channel Configurations -- Adding a Camera (Automatic Search)

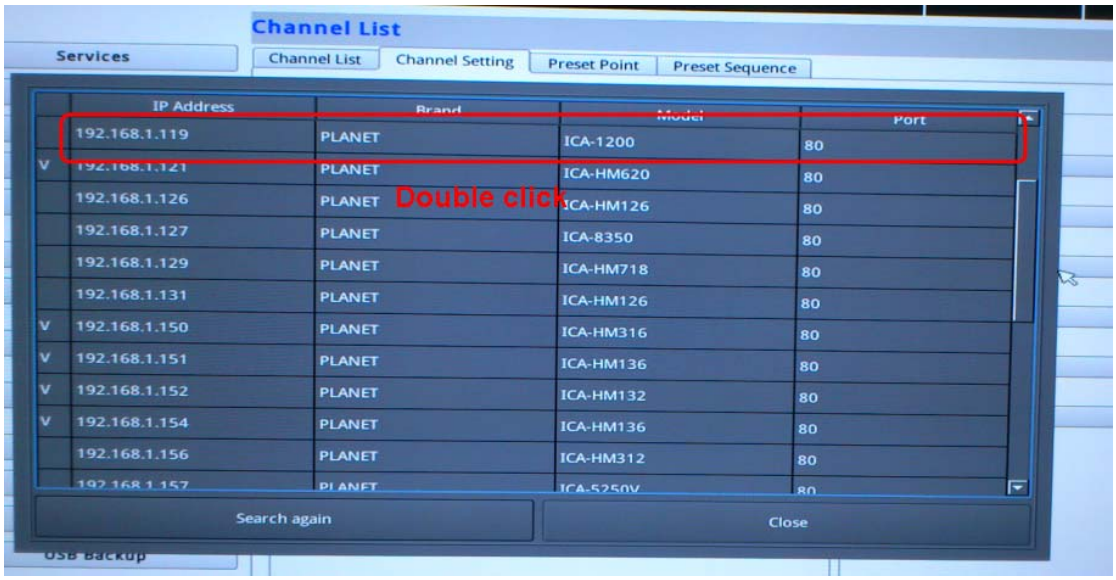




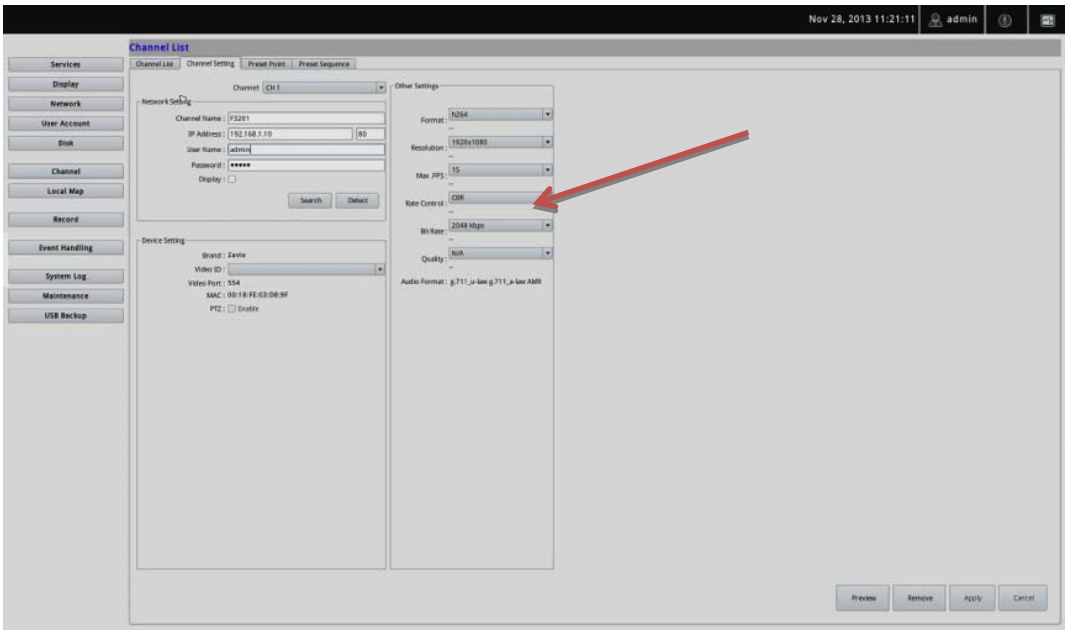
The NVR provides two options for adding a new camera. Users have the option to let the recorder automatically find the cameras or it is possible to enter camera's information and add it manually. You will be greeted with the "Channel List" page when you first enter the "Channel" configuration page. Simply double-click on any channel in the list to start automatic search and add camera to that channel.



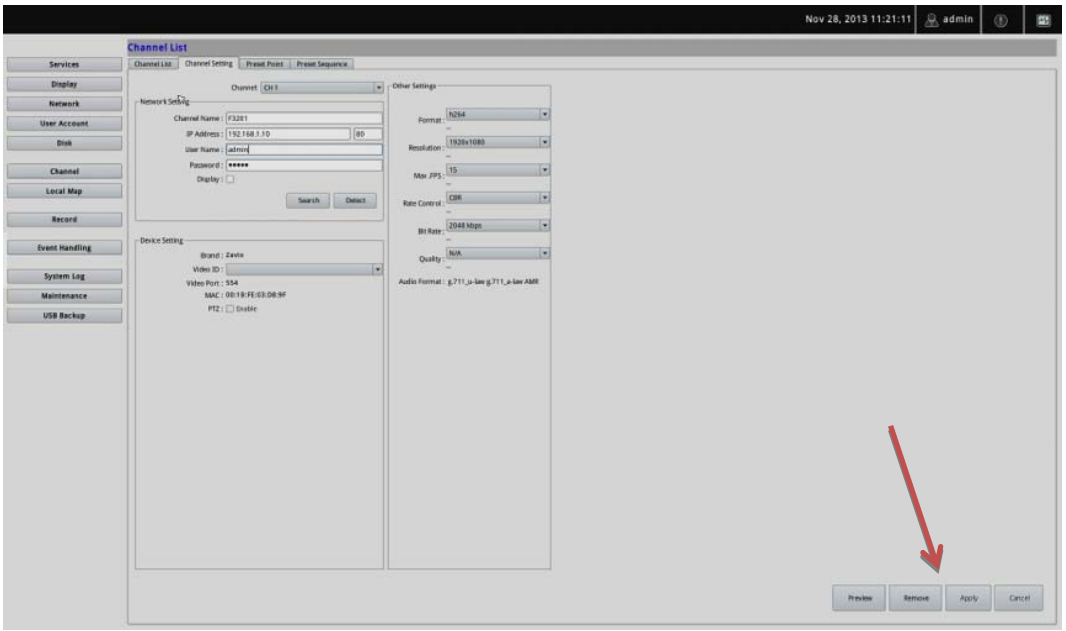
The progress will be displayed and you will be switched to the "Channel setting" page for more configurations.



Double-click on one from the search result to add it and for more detailed configurations.

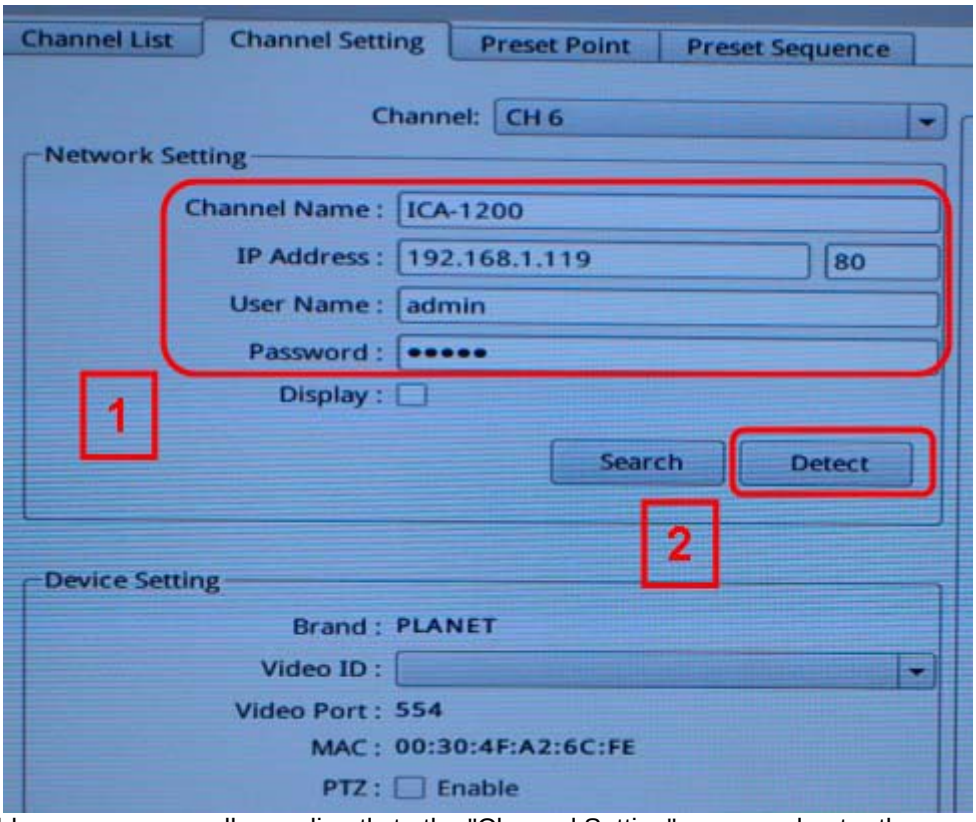


The camera's current settings will be displayed on the right and you can adjust settings such as "Format", "Resolution" or "FPS" before adding it to the NVR.

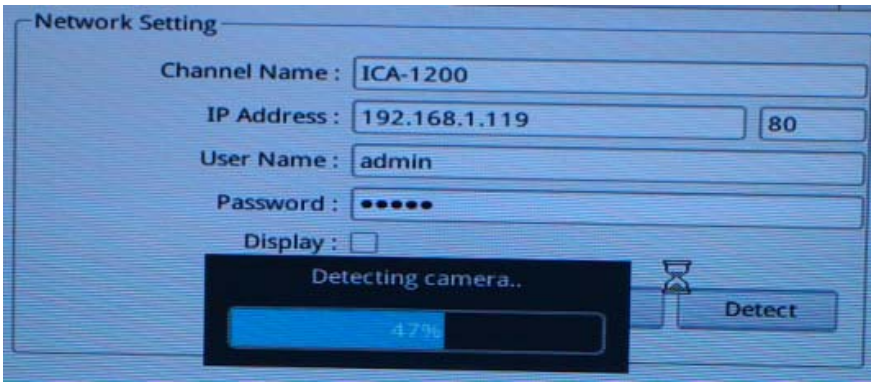


Click "Apply" to finish and save the settings.

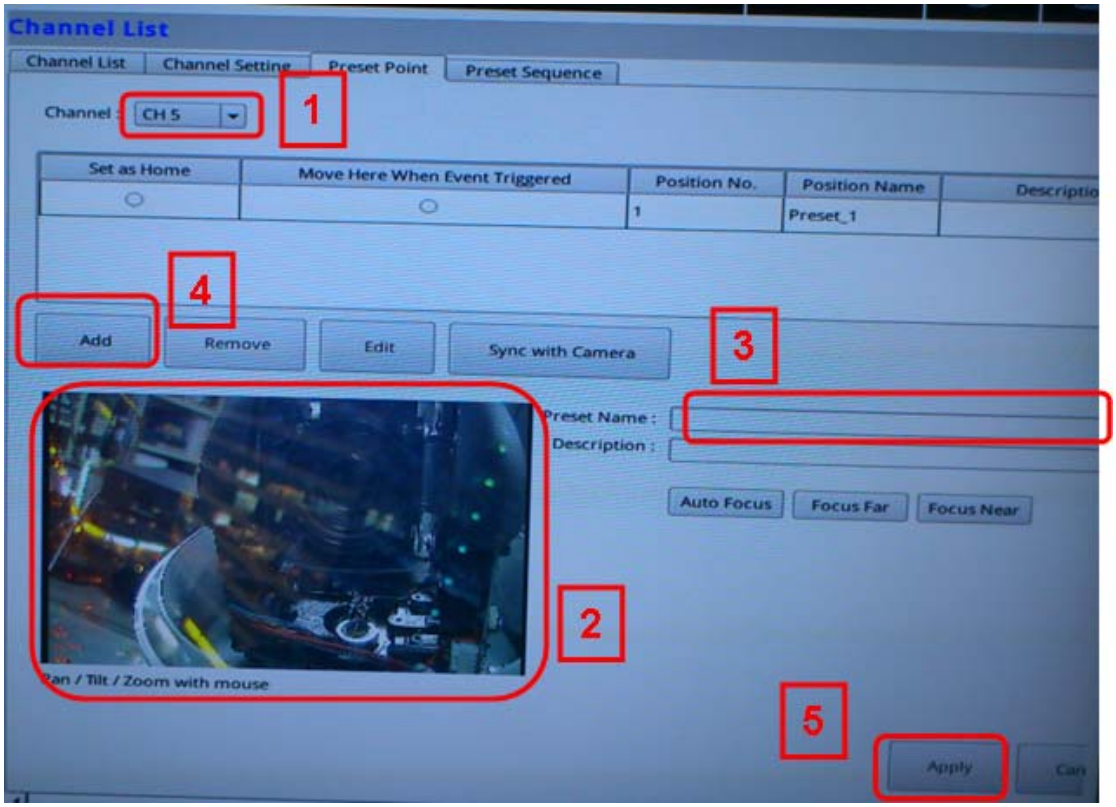
11.1.8 Channel Configurations -- Adding a Camera (Add manually)



To add a camera manually, go directly to the "Channel Setting" page, and enter the camera's IP address, HTTP port, user name and password. Click "Detect" to retrieve camera's settings.



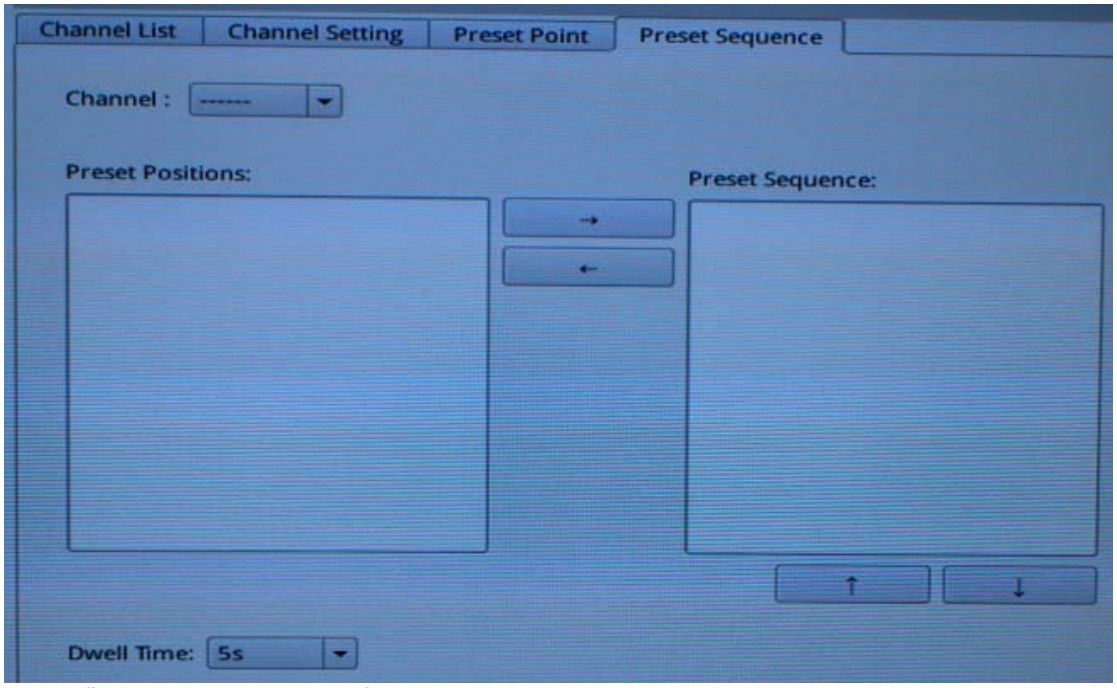
The progress will be displayed. Once it's successfully detected, follow the procedures described in the previous section to finish configuring and adding camera to the NVR.



You can create up to 8 preset points for each channel if it's a PTZ-capable camera. To add a preset point:

1. Select a channel from the "Channel" list and its video will be displayed at the lower-left hand corner.
2. Click on the video to change its pointing direction.
3. Assign a name to this preset position.
4. Click "Add" to add it.
5. Click "Apply" to save the settings.

Once you have multiple preset points defined for a camera, it is convenient for monitoring to set up the sequencing viewing among those preset points and let the recorder automatically switch between them for you.



To configure preset sequence for a camera,

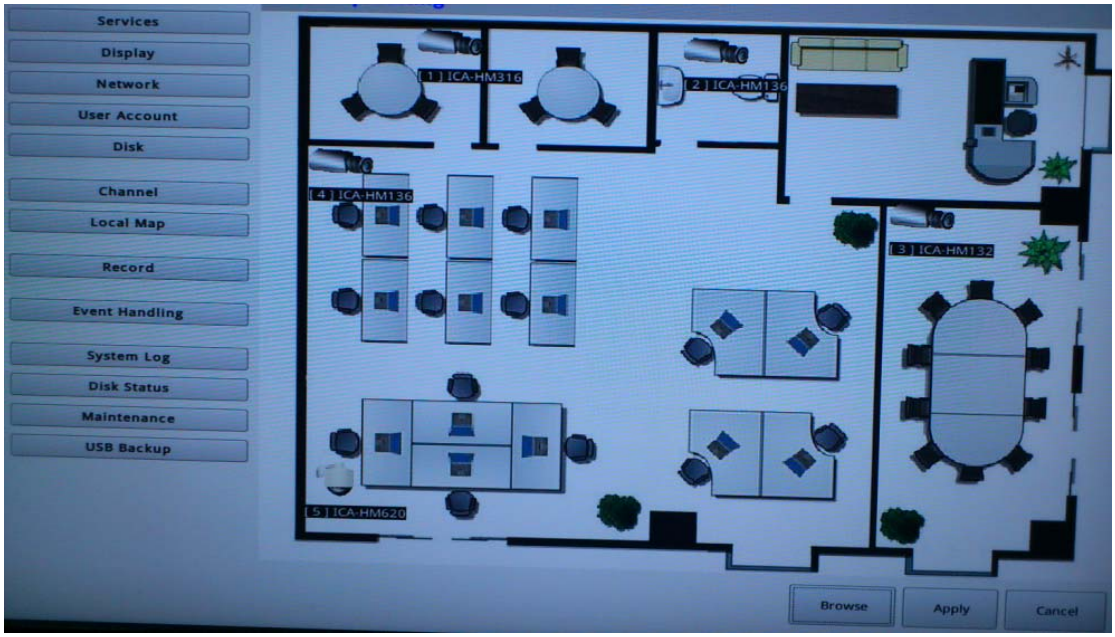
1. Select a channel from the “Channel” drop-down menu. The available preset points should be listed in the “Camera Presets” section.

2. Pick the ones you like for sequence viewing and press the “->” button to move them to the “Preset Sequence” section, and then

3. Use the Up and Down buttons to adjust their sequencing positions.

4. Finally, select a dwell time from the drop-down menu and click “Apply” to save the configuration.

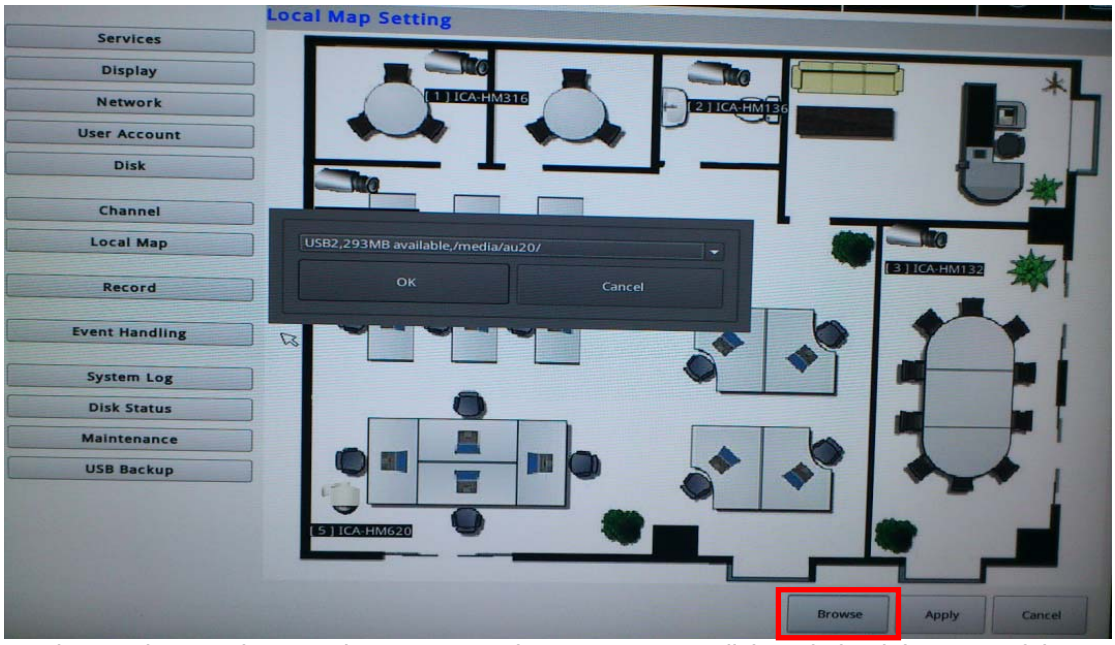
11.1.9 E-map



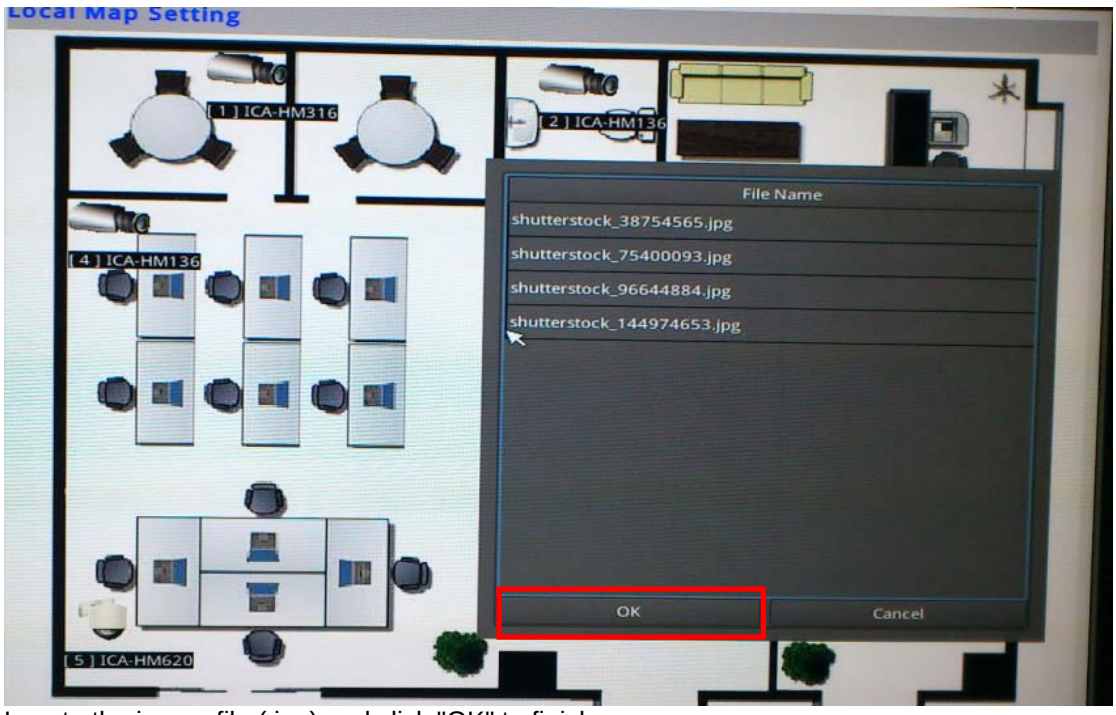
E-map monitoring is a function that alerts users whenever there is an event triggered (e.g. motion detected) from a camera with a geographical perspective. With this function, users can

quickly identify which camera has detected an unusual event and where this event is happening. This function works by incorporating the event detection function as well as the recording function, which, as a result, helps users take all the necessary actions when an unusual event occurs.

Note	E-map setting page in the local UI only allows you to configure the position of each camera (by using drag and drop). For detailed settings such as changing the E-map image, please do so in the web configuration UI.

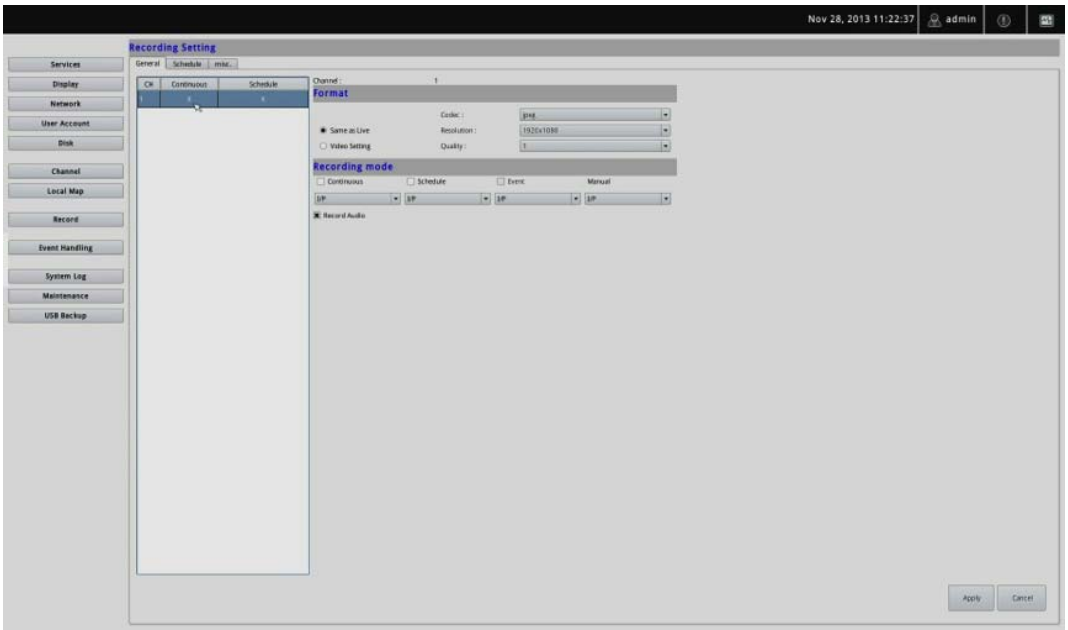


To change the map image, place your own image on a USB disk and plug it into one of the USB ports on the NVR. Click the "Browse" button and select the USB disk when prompted.

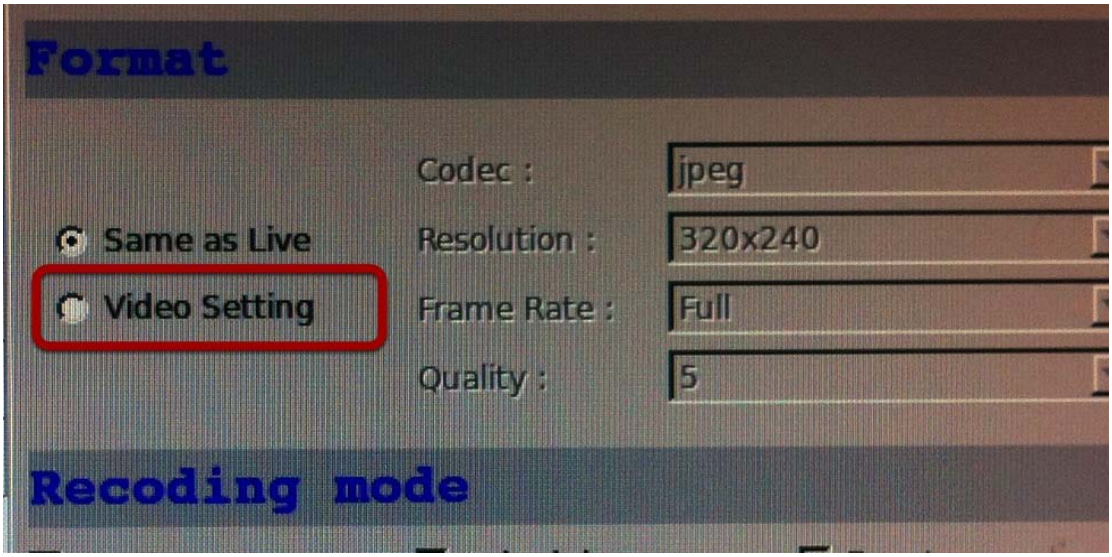


Locate the image file (.jpg) and click "OK" to finish.

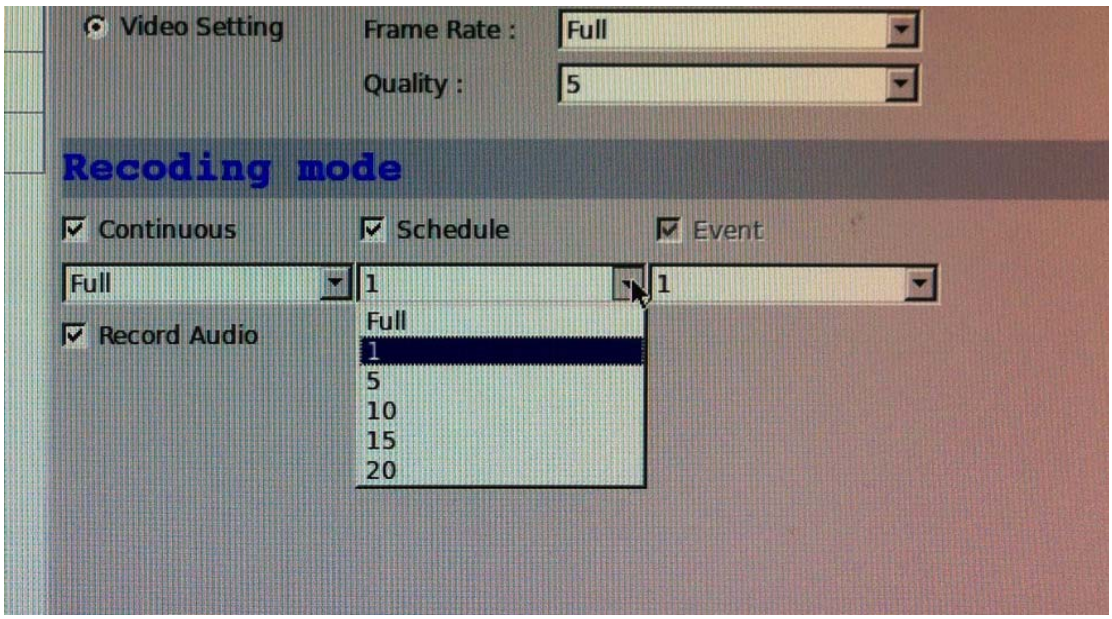
11.1.10 Recording



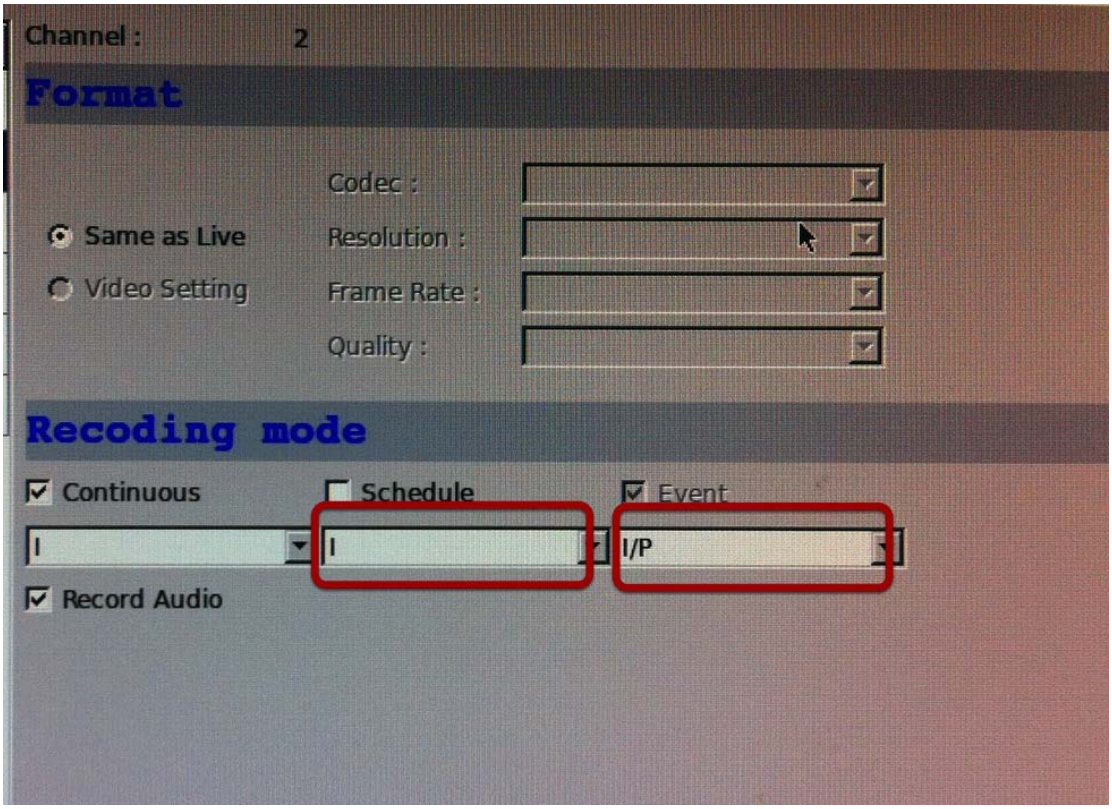
The “recording configurations” gives users the overall control of how and when a recording is performed and the quality of different types of recordings that will be performed on each channel. It can help the NVR to operate with sufficient system resource by performing recording only when it’s necessary with adjustable recording frame rate. The NVR supports displaying live video and recording with different video quality settings or format if camera supports outputting multiple video streams.



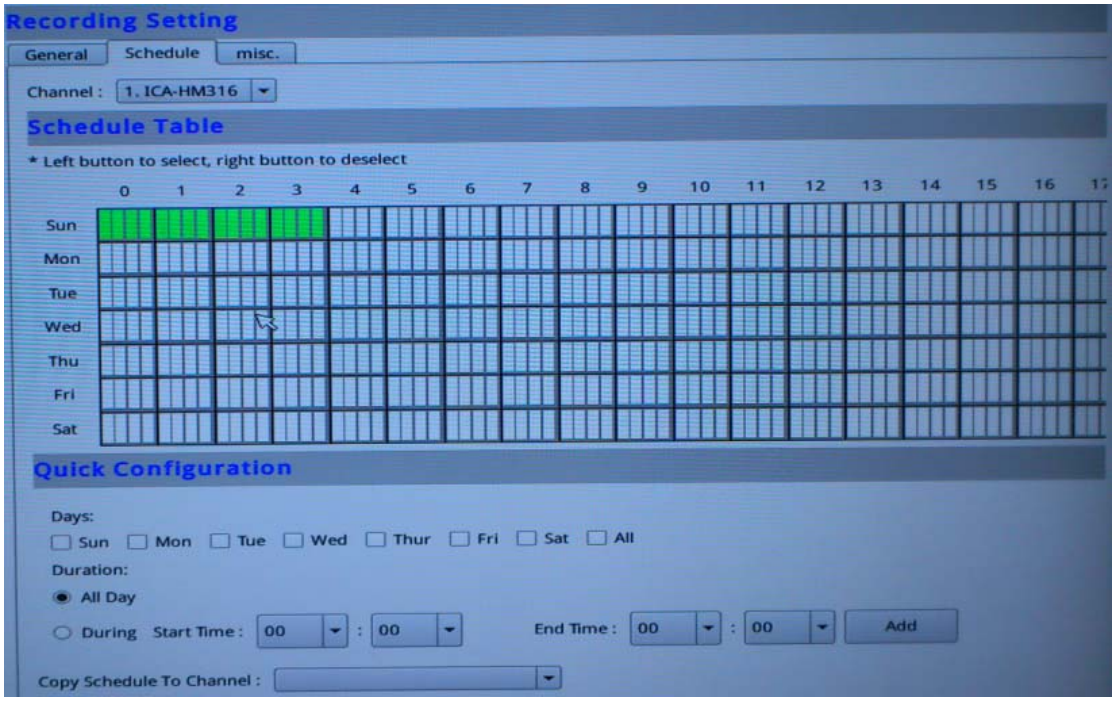
You can tell that you are configuring a multi-stream capable camera if the "Video setting" option is available.



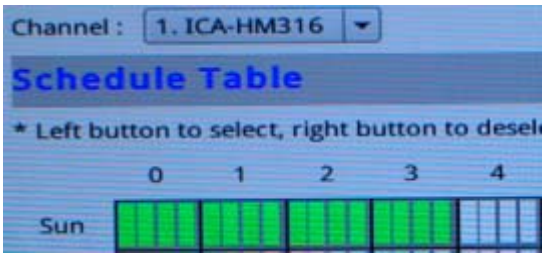
You can further configure the recording frame rate for different types of recordings, and choose whether to record audio or not.



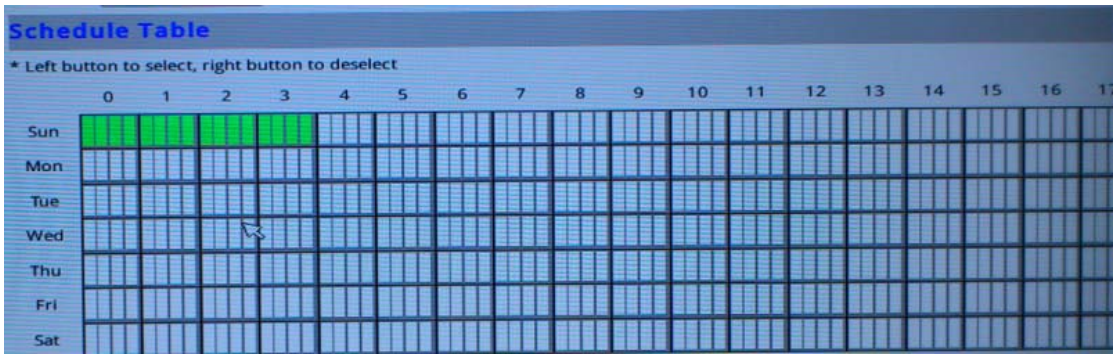
You will be given with options to record i frame only or i+p frames if the recording format is MPEG4 or H.264.



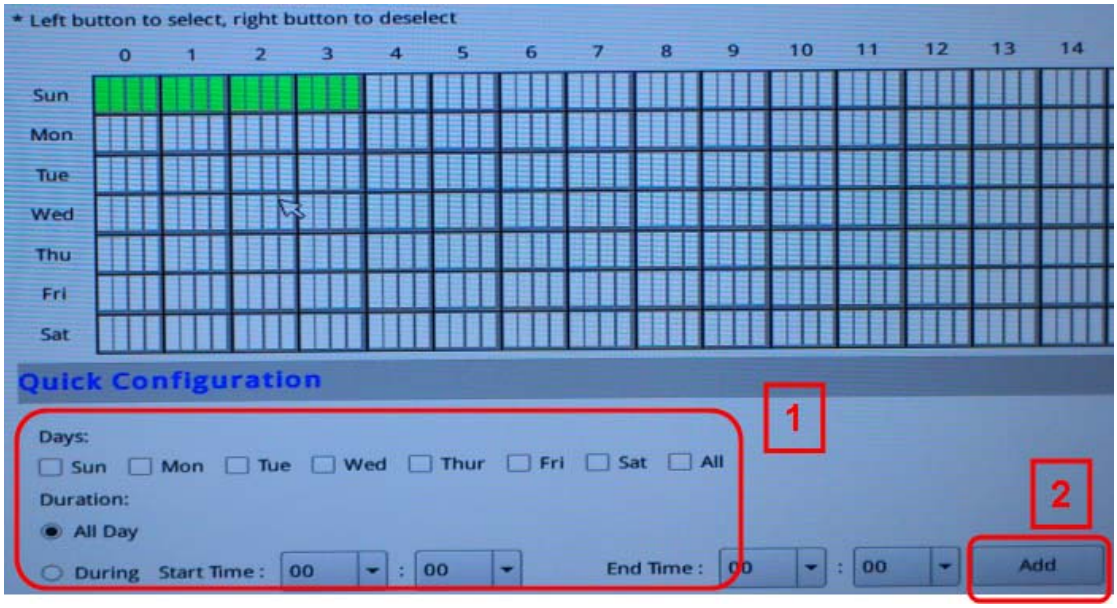
On the "Schedule" page, you are able to configure the NVR to record during a particular time frame for each channel.



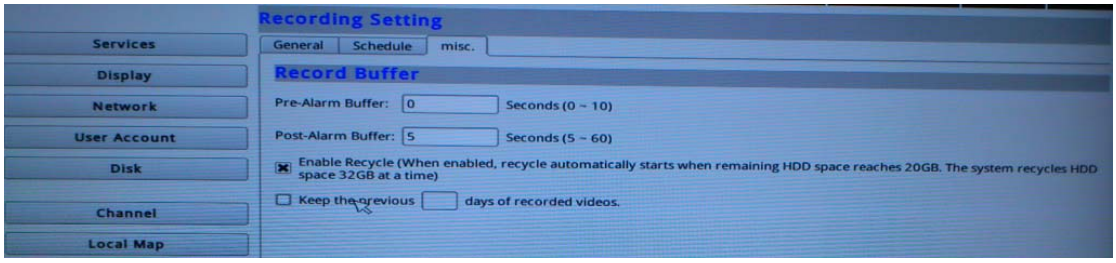
Start by selecting a channel for configuration from the upper-right hand corner.



Use the schedule table to define recording time frame. Each cell box represents 15 minutes. You can click one to select or click and hold down the mouse left button and drag horizontally to select consecutive hours of a particular day, or drag vertically to select a particular hour for multiple days.



You can also use the options in the "Quick Configuration" section to quickly define the recording time frame without using the schedule table.

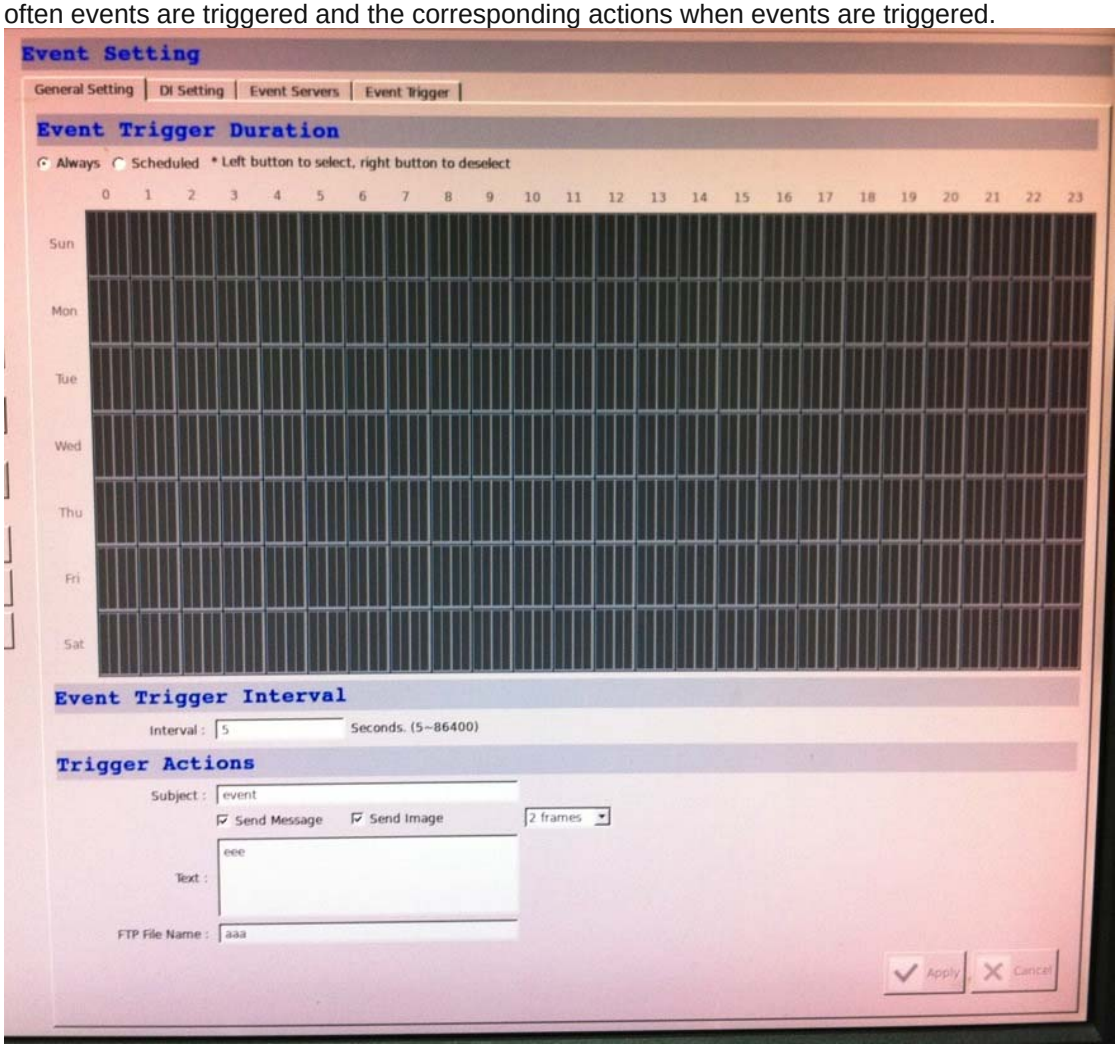


The record buffer allows you to set the NVR to start recording with a certain period of time before and after an event trigger.

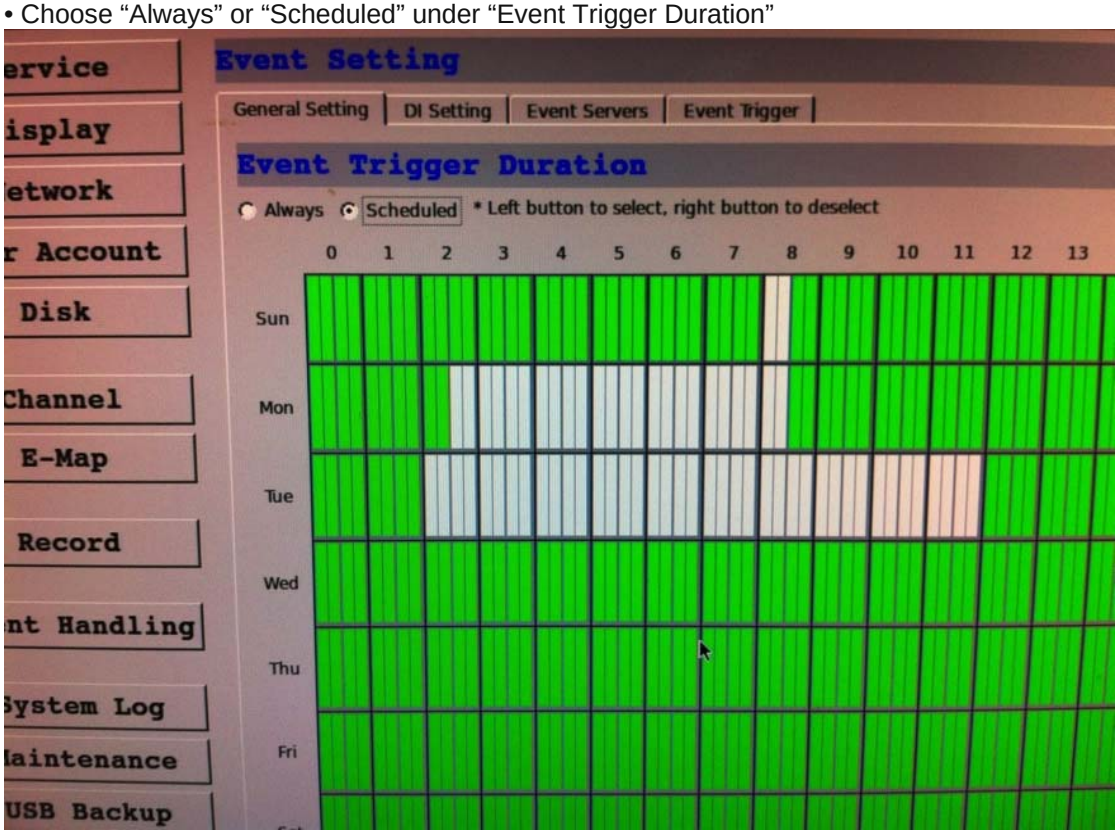
11.1.11 Event Setting

The “Event Handling” section allows users to define conditions that constitute an event, its corresponding trigger action and when it will be triggered. Such setting can reduce the management overhead and notify the administrator only when it’s necessary.

The general settings section can help you quickly configure when an event is triggered, how often events are triggered and the corresponding actions when events are triggered.



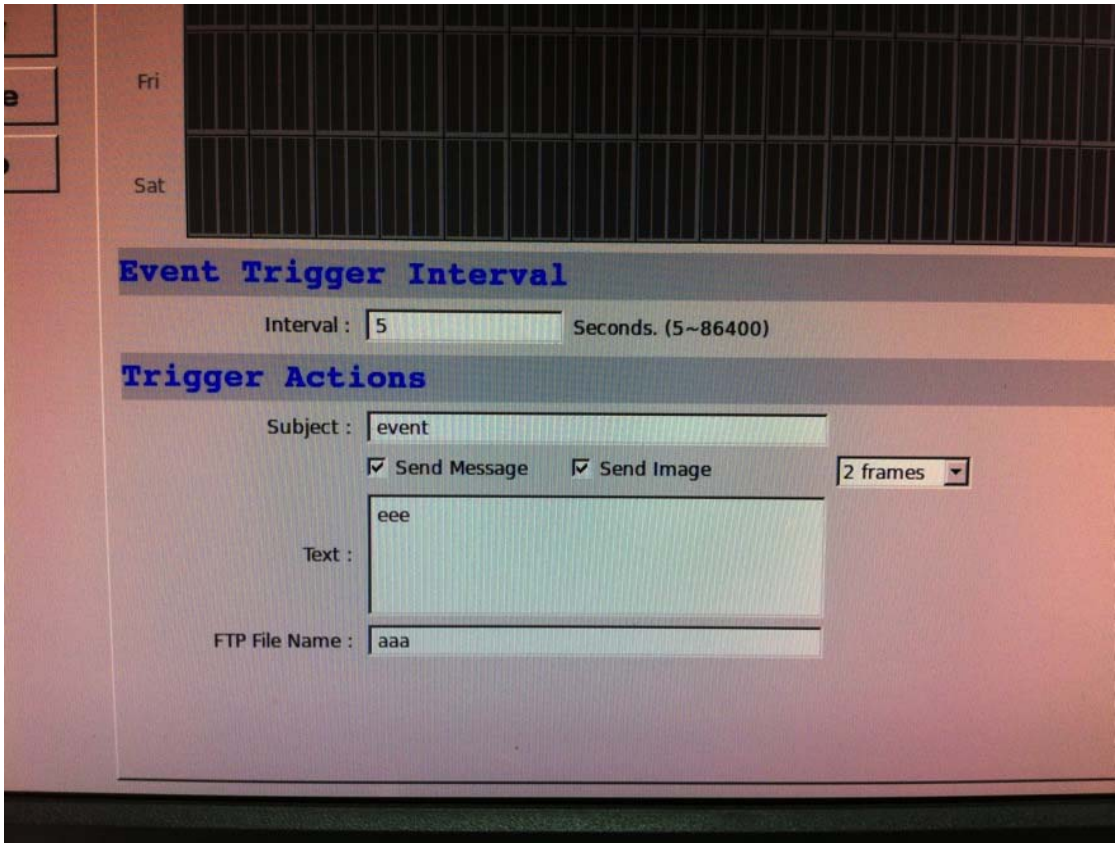
Start the configuration by defining the general settings:
Define when an event will be triggered
• Choose “Always” or “Scheduled” under “Event Trigger Duration”



• For the “Scheduled” option, use the table to define a range of time if you would like events to trigger corresponding actions only during a certain period of time.

Note

* Use the mouse left button to select and the right button to deselect.
* You can click and hold down the left button and drag horizontally to quickly select consecutive hours of a particular day, or drag vertically to select the same time for multiple days. Drag diagonally to select consecutive hours/days at once.
* Each cell box represents 15 minutes of time.



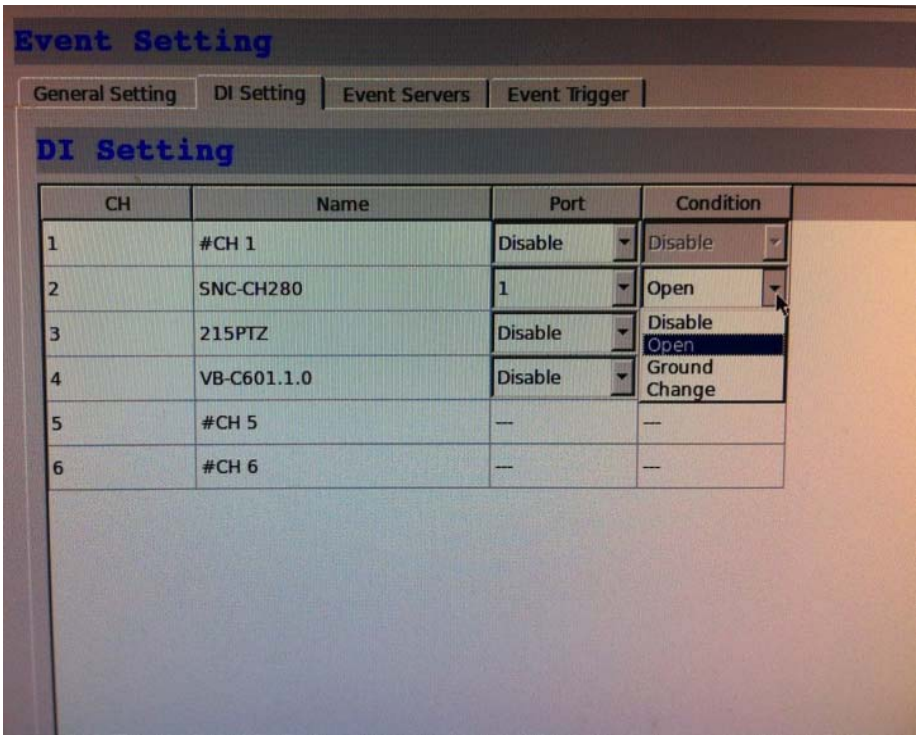
How often an event is triggered

- Set a time interval under “Event Trigger Interval” to define how often events are triggered.

Trigger action

Now that you have the event trigger duration and interval defined, choose what action to be taken during an event trigger:

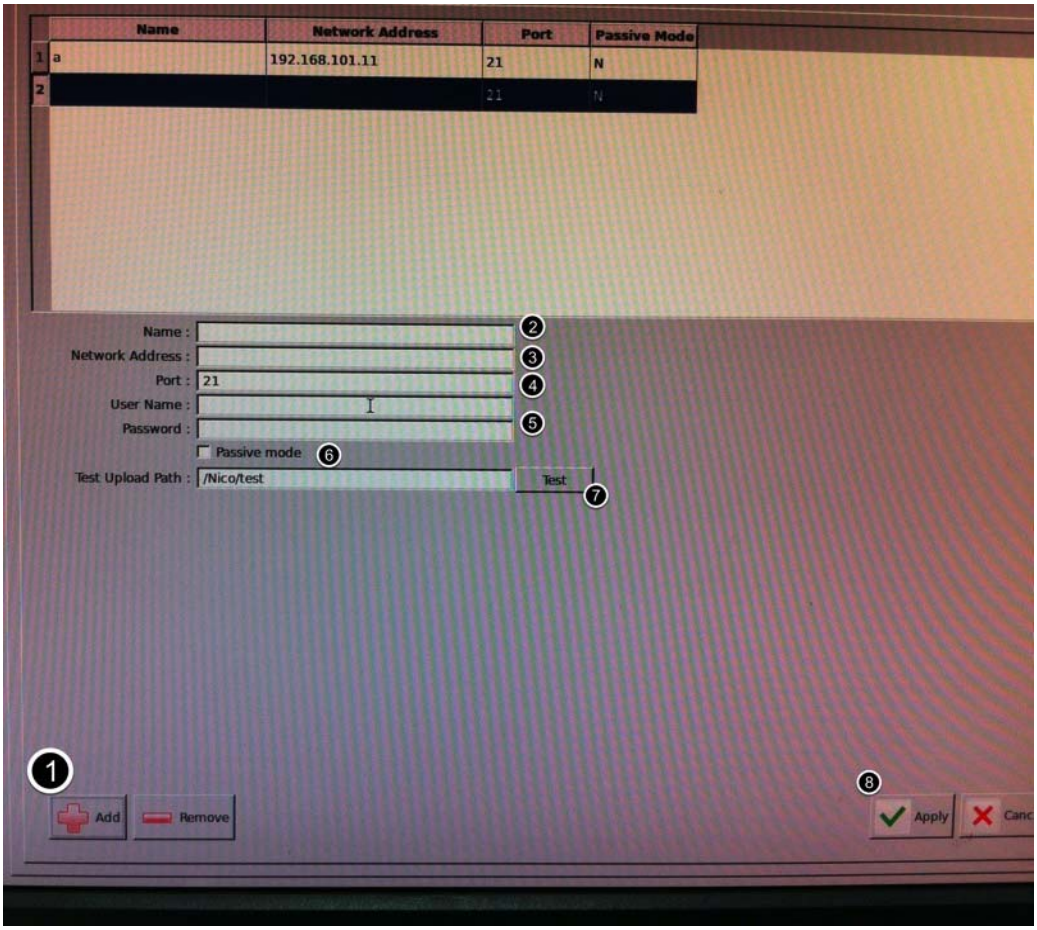
- You can choose to have the recorder sent out the first few frames of the video recorder upon an event is triggered.
- You can also choose to have the recorder sent out a warning message in e-mail or in txt file format and upload it to a destined FTP server.



This function allows users to use camera's digital input port from the recorder as source of an event. You can set up the recorder to receive events from a particular camera's input port and then trigger the NVR to start recording.

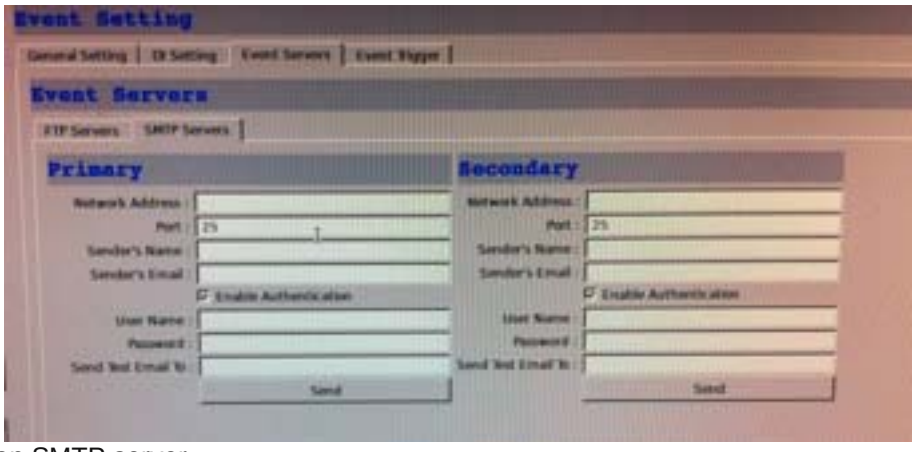
Note	* The recorder only acts as a medium for pairing up input/output ports between cameras and the recorder. * Only connected cameras will be displayed in the list. * Some cameras only allow one trigger source to be configured at a time, e.g., if the camera has the motion detection function turned on, its digital input will be disabled and vice versa. Under such circumstance, if you set to use camera's digital input port as the event trigger source, you will not be able to select motion detection as the trigger source for this camera under "Event Trigger" setup page. * The image(s) that are uploaded to the destined FTP server or emailed to a destined mail recipient are in their own proprietary image file format (.h4i or .p4i), which can only be opened by the NVR media player.

Event servers are to be used with event trigger actions. In case of unusual motion detected by the camera or a disk failure, the recorder can send notification with the acceptable format (image / txt) to a destined event server according to the configuration.



To add an FTP server,

1. Click "Add" to begin
2. Start by giving a name to the server that you are adding to the recorder
3. Enter the host name or the IP address of the FTP server
4. Enter the communication port of the FTP server (usually port 21)
5. Enter the user name and password of the FTP server if it's required
6. Check "Use Passive Mode" if it's required or leave it unchecked to use active mode
7. Click "Test" to verify if all information is entered correctly and the connection to the FTP server can be established successfully
8. Click "Apply" for the settings to take effect

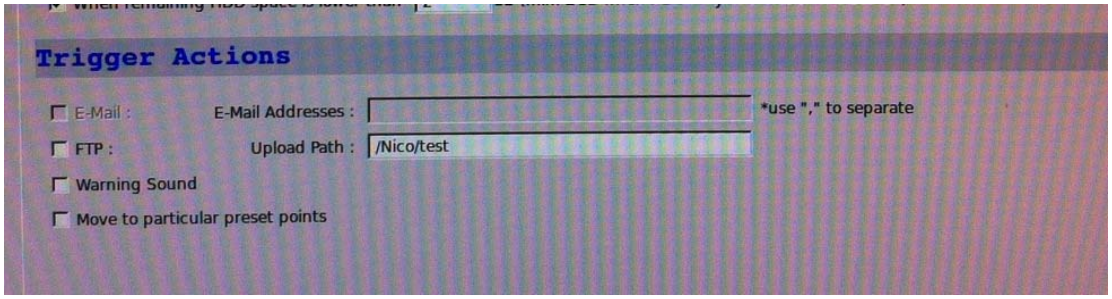


To add an SMTP server,

1. Enter the host name or the IP address of the SMTP server.
2. Enter the port of the SMTP server.

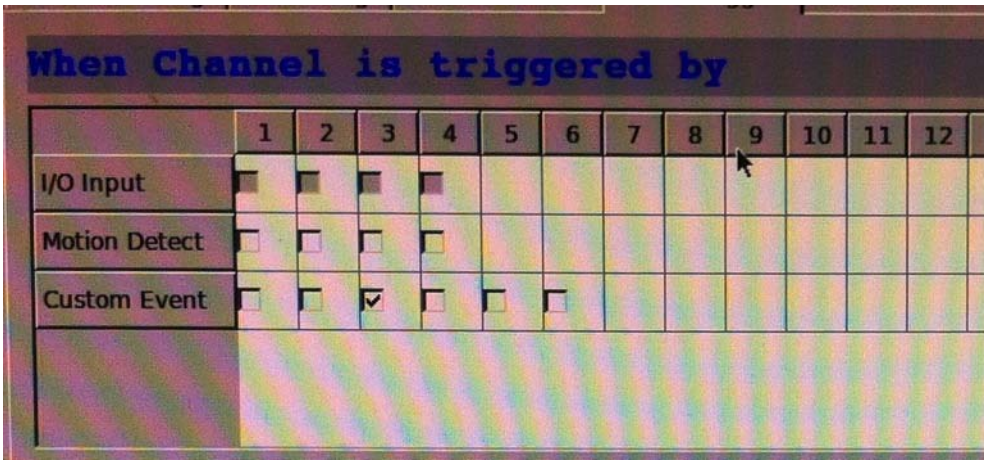
3. Specify the sender's name in the "Sender's name" field.
4. Enter the sender's e-mail address.
5. Check "Enable Authentication" and enter the user name and password of the SMTP server if it requires authentication.
6. Click "Apply" to save the configuration.

*The NVR supports SMTP servers that use base64 or MD5 authentication methods.



We have finished defining how an event will be triggered and which servers will be receiving notifications in the previous two sections, now we can finish up the event configuration by setting:

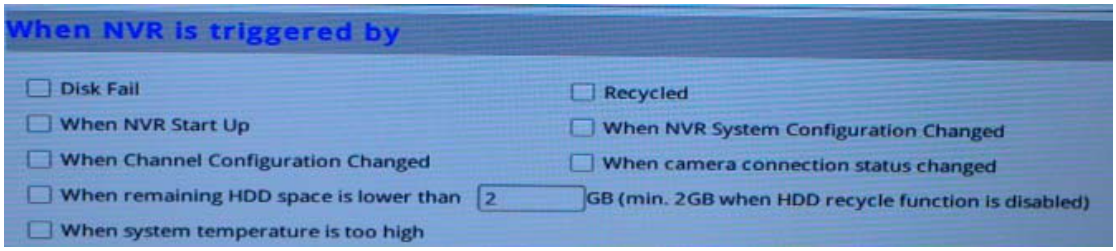
- Which channels will have event trigger function enabled
- Add system events if you will
- Where the warnings will be sent to and how they will be sent.



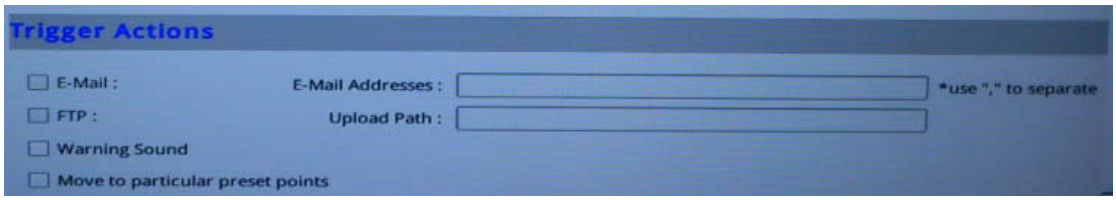
Use the checkbox to enable event trigger on the desired channels.

Note

* Once motion detection is enabled on this page, please configure the motion area and enable motion detection in the corresponding channels (cameras) from camera's own web UI. The NVR only detects the first motion area set in the camera. The NVR recognizes the first motion area by its ID number set in the camera.
* Grayed-out checkboxes represent the function that is either not available on the camera, or the event notification method used in the camera is not supported by the NVR.
* Enabling "Custom Event" allows events from the CMS software to trigger the NVR to start recording.



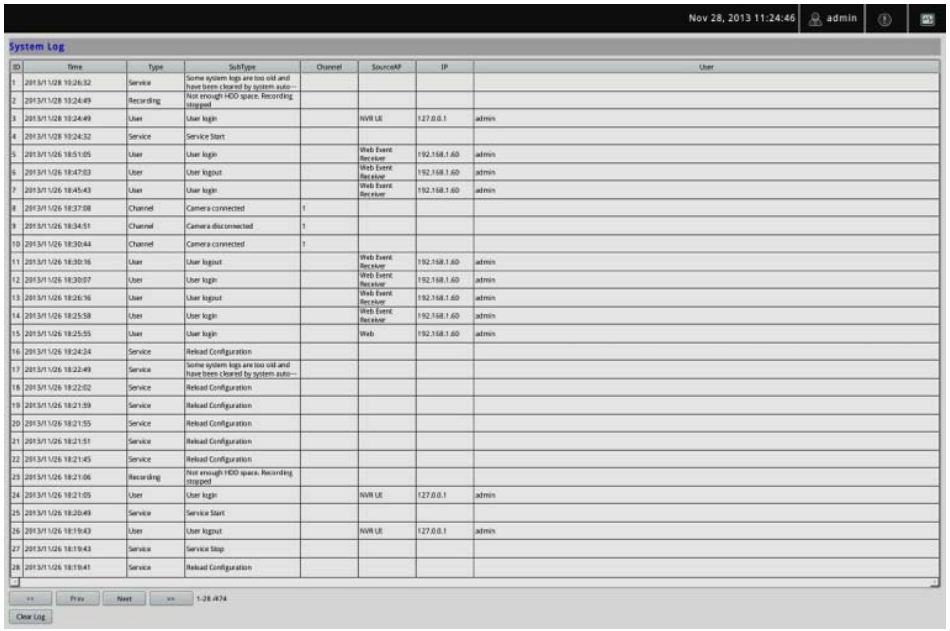
Define which system events should trigger the recorder to send out notifications if you will.



Define how the notifications will be sent and where they will be sent.

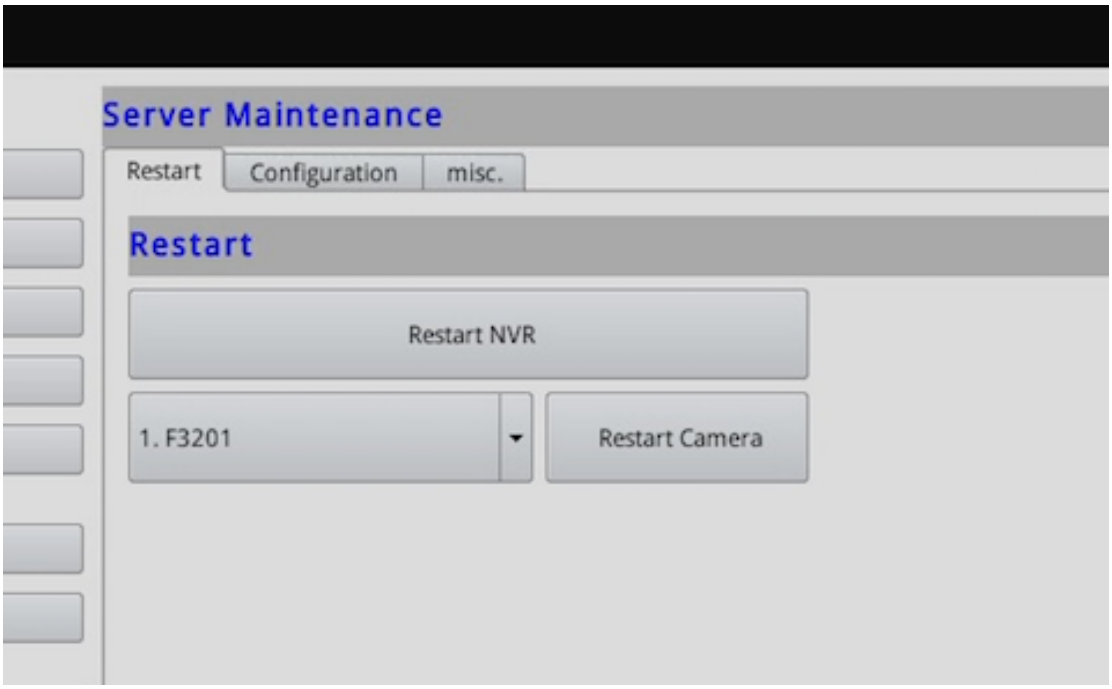
Note	Event trigger may not work for cameras that are placed outside of your local network or on the Internet until the “UPnP Port Forwarding” is enabled in both the NVR and the router.

11.1.12 System Log



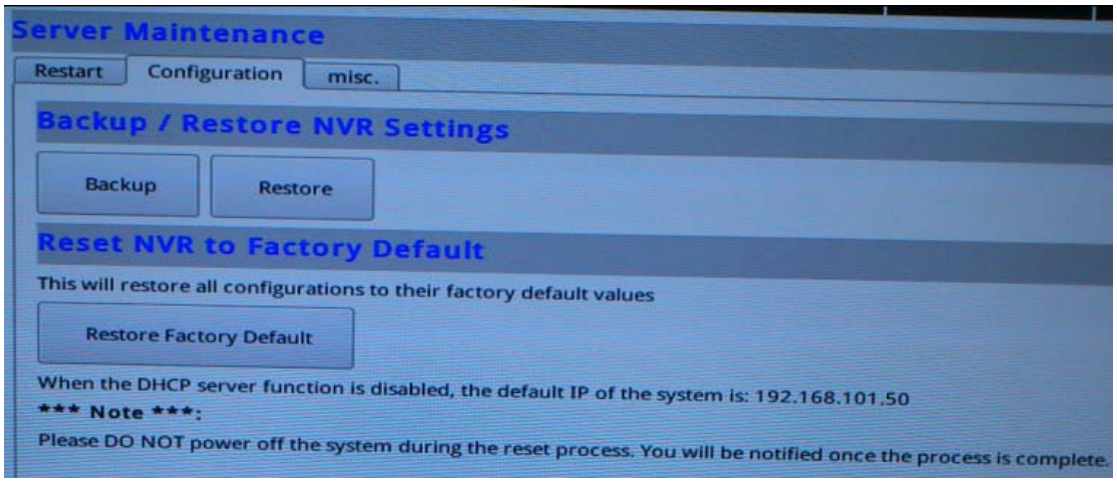
"System Log” keeps a record of what’s been happening to the device and provides basic information for troubleshooting.

11.1.13 Maintenance

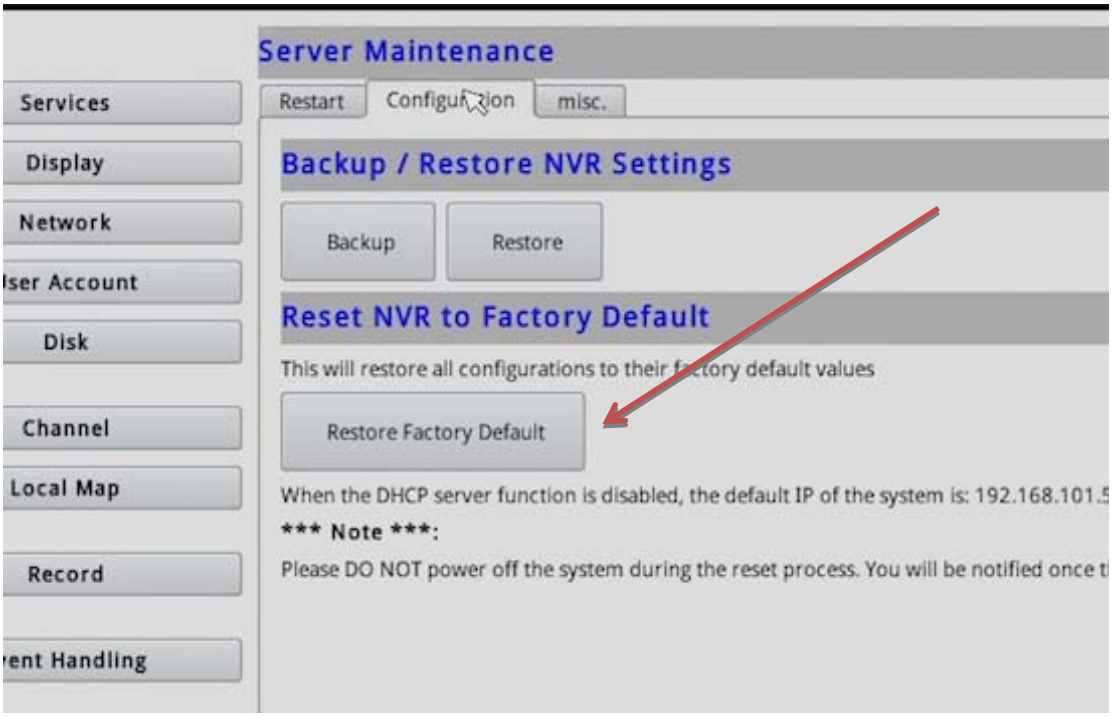


"Maintenance" provides functions for users to:

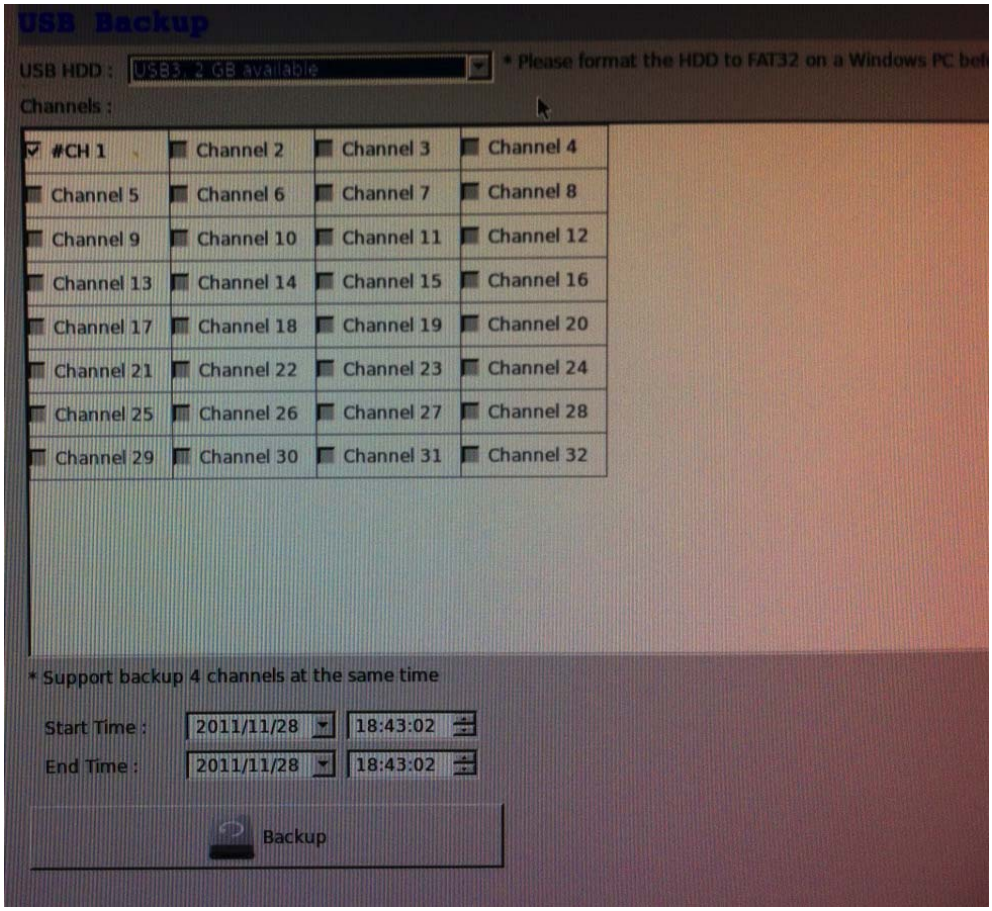
- Reboot the NVR when necessary
- Reboot cameras directly from the NVR
- Perform Firmware Upgrade
- Back up the NVR's settings to a local hard drive
- Restore the NVR's settings from a previously-saved configuration file
- Reset the NVR's settings to their factory default values



The configuration can be backed up to or restore from a USB disk. It is required to plug in a USB disk formatted in FAT32, EXT3, or EXT4 prior to using the backup and restore functions.

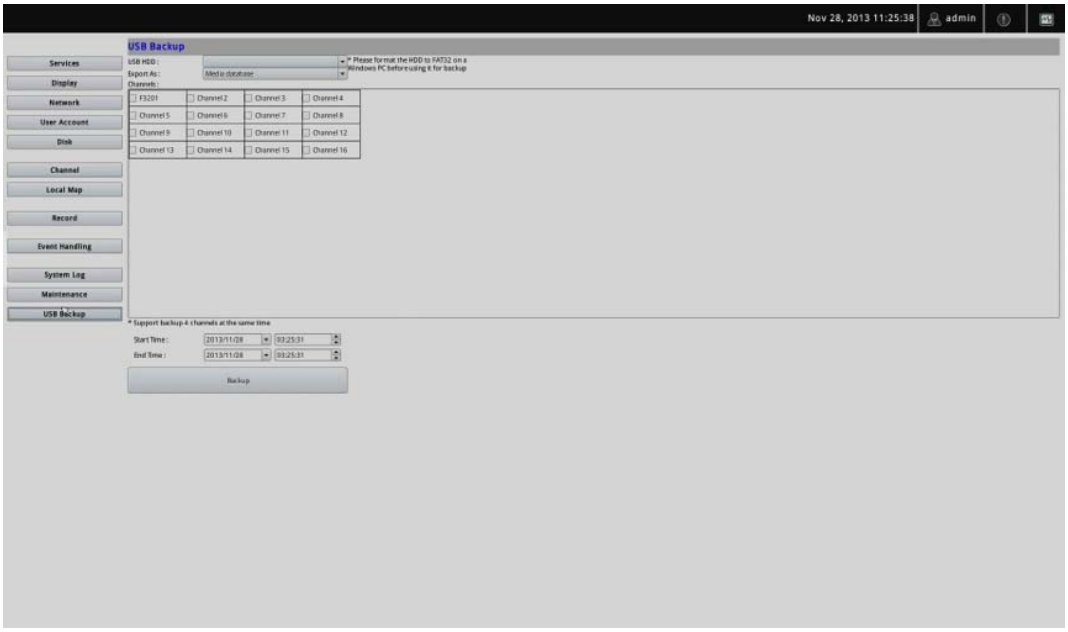


To reset the recorder back to its factory default, click the “Restore Factory Default” button and begin the process.

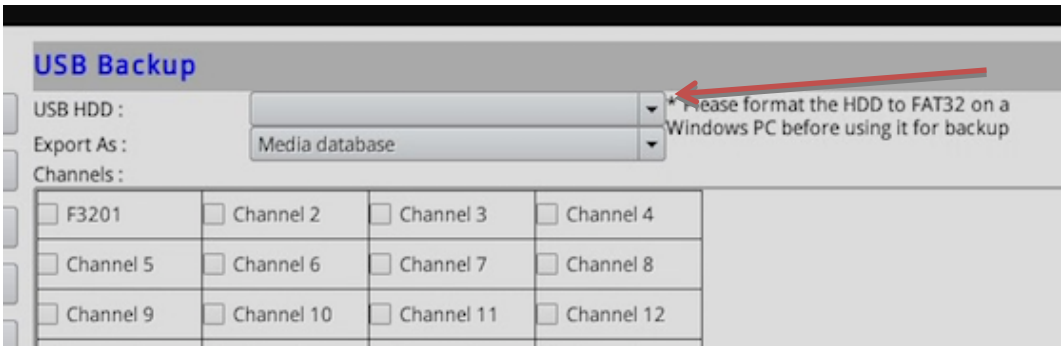


It’s a function that allows users to back up the recording data in its database file format as well as in AVI to the externally connected USB hard disk.

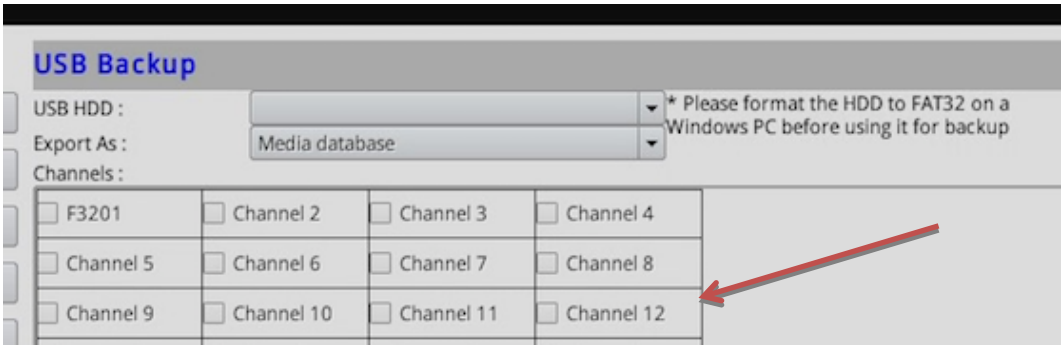
11.1.14 USB Backup



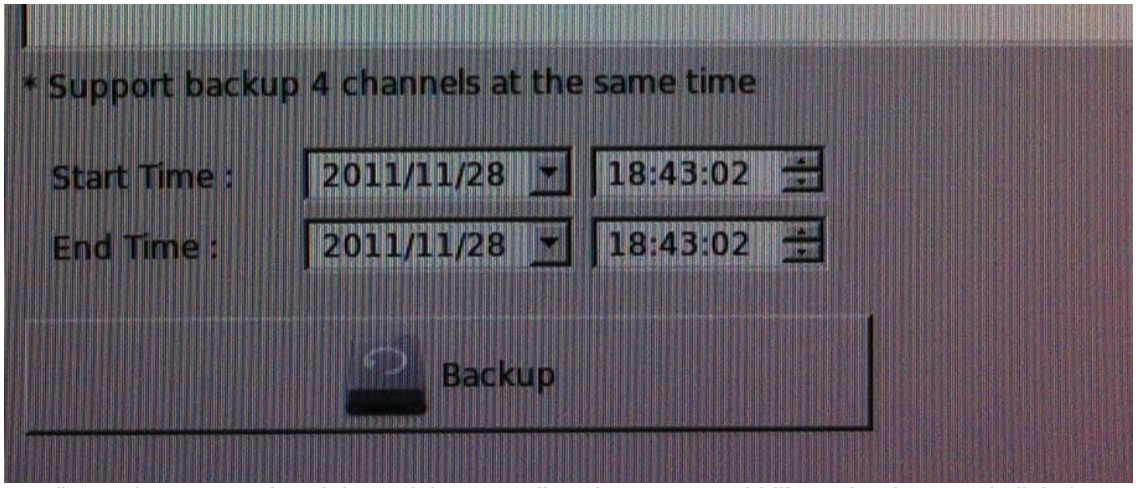
It's a function that allows users to back up the recording data in its database file format as well as in AVI to the externally-connected USB hard disk.



The USB hard disk(s) will be listed in the drop-down menu displaying the remaining disk space. Make your selection from the drop-down menu if you have more than one disk connected to the NVR.



Next, select channels which you would like to back up the recording data from. A maximum of 4 channels can be selected at once.



Configure the start and end time of the recording data you would like to back up and click the "Backup" button to begin.

Note

Things to pay attention for the USB Backup function

Limitation:
- It does not support USB Hub, extending the number of HDDs connected to the NVR.
- Only one backup process can be performed at a time.
- A maximum of 4 channels can be selected for backup.
- Only FAT32 USB hard disk is supported for backup.
- The USB hard disk needs to have more than 100MB remaining space.
- If multiple partitions are presented in one disk, only the first partition will be detected and used for backup.

Process:
- Progress will be displayed on the UI.
- If the backup process gets interrupted, meaning the process stops before the "END Time" user defined, such time will be displayed on the UI.
- A folder will be automatically created in the USB hard disk with a name format like 0028687831_20100610151515_2010060511 0010_20100606110010 (MAC_backupbuttonclicktime_starttime_endtime).

Note:
- Please plug in the USB HDD only after the NVR is fully started, or the HDDs will be incorrectly mounted.
- Play the backup files using the NVR media player.

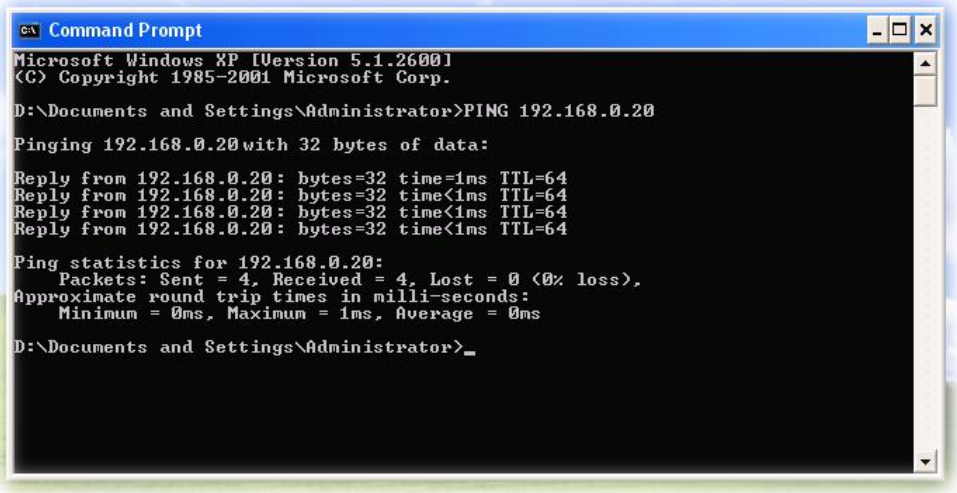
Appendix A: Ping IP Address

The ping (Packet Internet Groper) command is used to detect whether a specific IP address is accessible by sending a packet to the specific address and waiting for a reply. It's also a very useful tool to confirm whether or not Internet camera is installed or if the IP address conflicts with any other device over the network.

If you want to make sure the IP address of Internet camera is alright, utilize the ping command as follows:

- Start a DOS window.
- Type ping x.x.x.x, where x.x.x.x is the IP address of the Internet camera.

The replies, as illustrated below, will provide an explanation to the problem.



If you want to detect any other device that conflicts with the IP address of Internet camera, you also can utilize the ping command but you must disconnect the Internet camera from the network first.

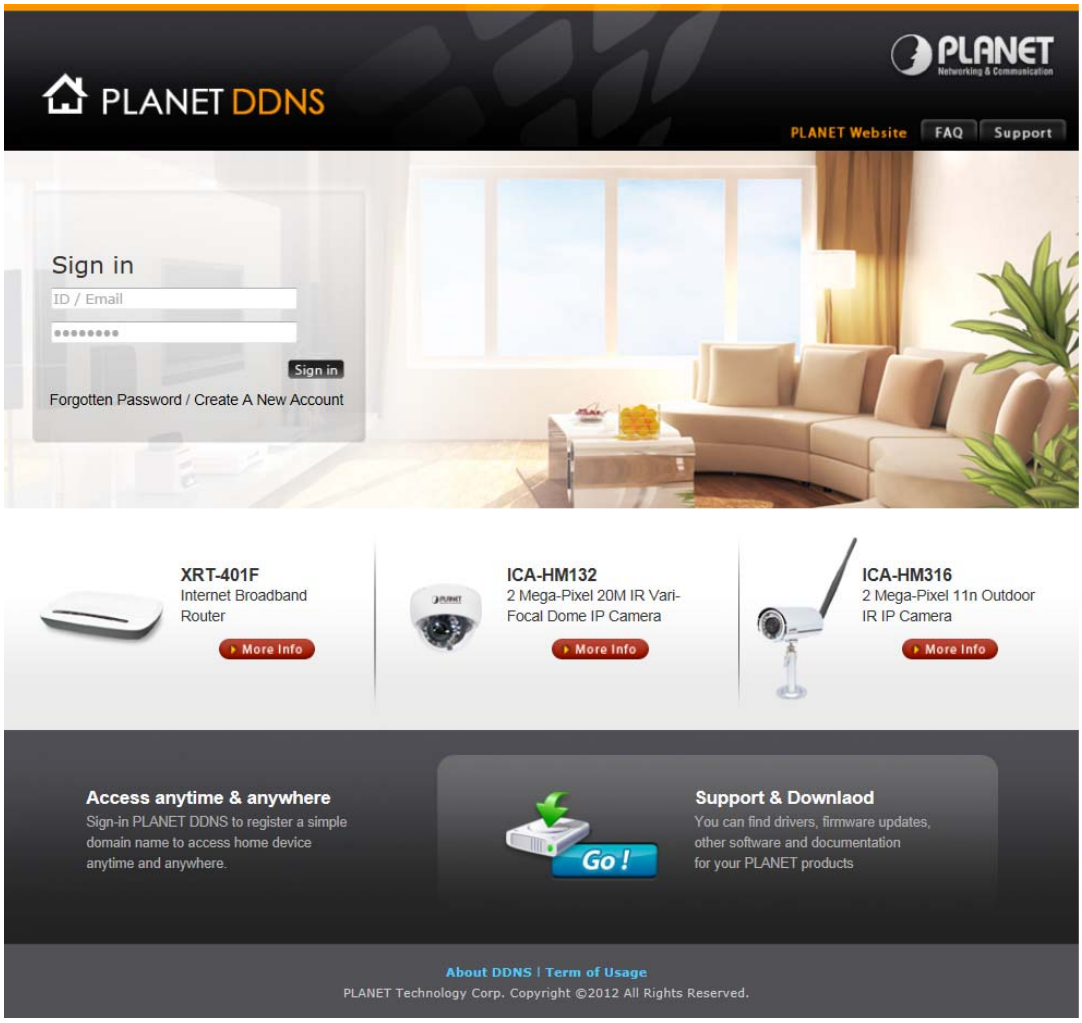
Appendix B: Planet DDNS Application

Configuring PLANET DDNS Steps:

Step 1 Enable DDNS option through accessing web page of the ICA-3200.

Step 2 Select on DDNS server provided, and register an account if you do not use yet.

Let's take dyndns.org as an example. Register an account at http://planetddns.com



Appendix C: Configuring Port Forwarding Manually

The device can be used with a router. If the device wants to be accessed from the WAN, its IP address needs to be set up as a fixed IP address. The port forwarding or Virtual Server function of router also needs to be set up. This device supports UPnP traversal function. Therefore, user could use this feature to configure port forwarding of NAT router first. However, if user needs to configure port forwarding manually, please follow the steps below:

Manually installing the device with a router on your network is an easy 3–step procedure as follows:

1. Assign a local/fixed IP address to your device
2. Access the Router with Your Web browser
3. Open/Configure Virtual Server Ports of Your Router

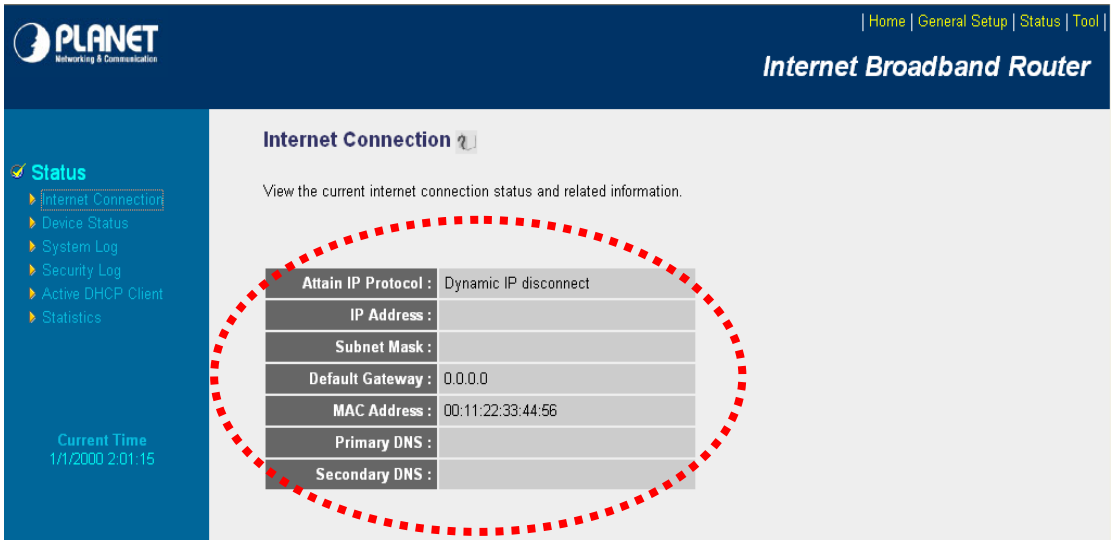
1. Assigning a local/fixed IP address to your device

The device must be assigned a local and fixed IP Address that allows it to be recognized by the router. Manually set up the device with a fixed IP address, for example, 192.168.0.100.

2. Accessing the Router with Your Web browser

The following steps generally apply to any router that you have on your network. PLANET WNRT-620 is used as an example to clarify the configuration process. Configure the initial settings of the router by following the steps outlined in the router's **Quick Installation Guide**.

If you have cable or DSL service, you will most likely have a dynamically assigned WAN IP Address. 'Dynamic' means that your router's WAN IP address can change from time to time depending on your ISP. A dynamic WAN IP Address identifies your router on the public network and allows it to access the Internet. To find out what your router's WAN IP Address is, go to the **Status** screen on your router and locate the WAN information for your router. As shown on the following page the WAN IP Address will be listed. This will be the address that you will need to type in your web browser to view your camera over the Internet. Be sure to uncheck the **Reset IP address at the next boot** button at the top of the screen after modifying the IP address. Failure to do so will reset the IP address when you restart your computer.



Your WAN IP Address will be listed here.

3. Opening/Setting Virtual Server Ports to enable remote image viewing

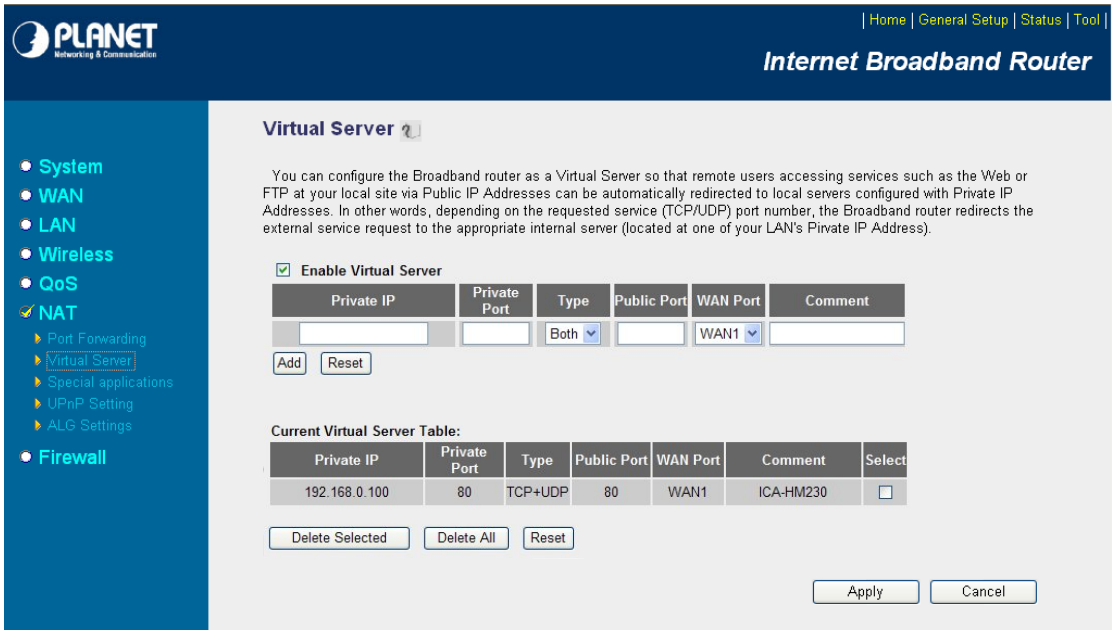
The firewall security features built into the router and most routers prevent users from accessing the video from the device over the Internet. The router connects to the Internet over a series of numbered ports. The ports normally used by the device are blocked from access over the Internet. Therefore, these ports need to be made accessible over the Internet. This is accomplished using the **Virtual Server** function on the router. The Virtual Server ports used by the camera must be opened through the router for remote access to your camera.

Follow these steps to configure your router's Virtual Server settings

- Click **Enabled**.
- Enter a unique name for each entry.
- Select **Both** under **Protocol Type** (**TCP** and **UDP**)
- Enter your camera's local IP Address (e.g., **192.168.0.100**) in the **Private IP** field.
- If you are using the default camera port settings, enter **80** into the **Public** and **the Private Port** section and click **Add**.

A checkmark appearing before the entry name will indicate that the ports are enabled.

Note	Some ISPs block access to port 80. Be sure to check with your ISP so that you can open the appropriate ports accordingly. If your ISP does not pass traffic on port 80, you will need to change the port the camera uses from 80 to something else, such as 8080. Not all routers are the same, so refer to your user manual for specific instructions on how to open ports.



Enter valid ports in the **Virtual Server** section of your router. Please make sure to check the box on this line to enable settings. Then the device can be accessed from WAN by the router's WAN IP Address.

By now, you have finished your entire PC configuration for this device.