LevelOne

NVR-0432

Network Video Recorder

User Manual

v1.0

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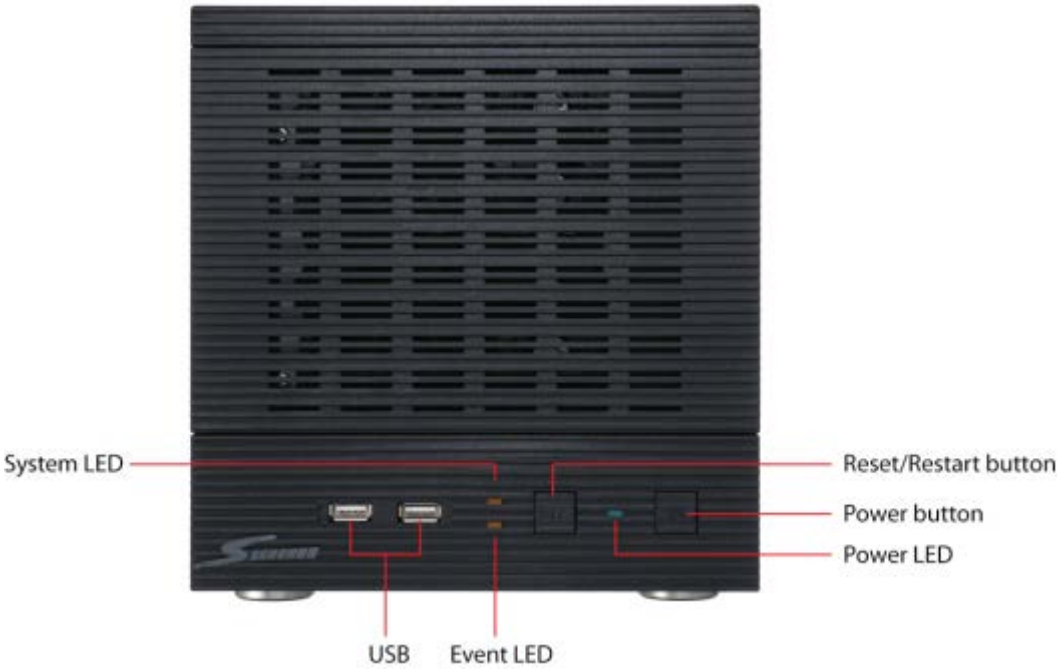
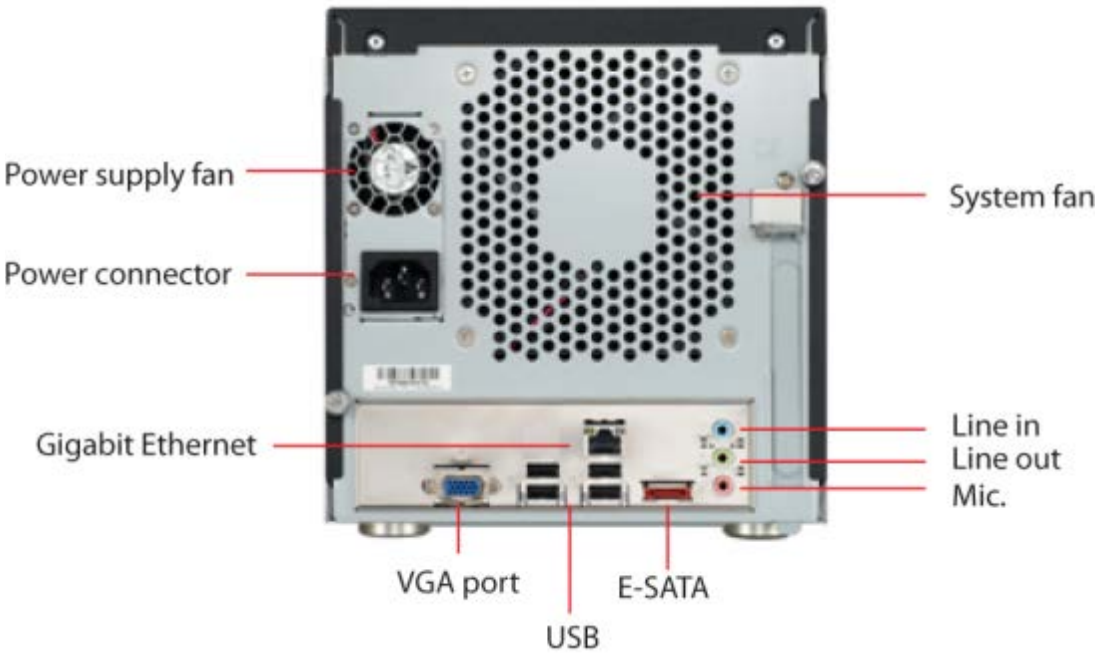
System Overview

Front View



Rear View

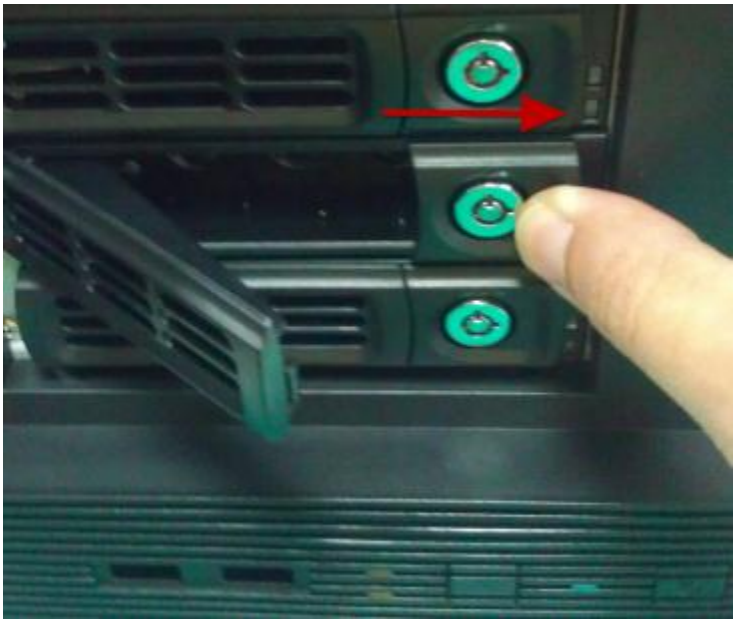


LED Definition

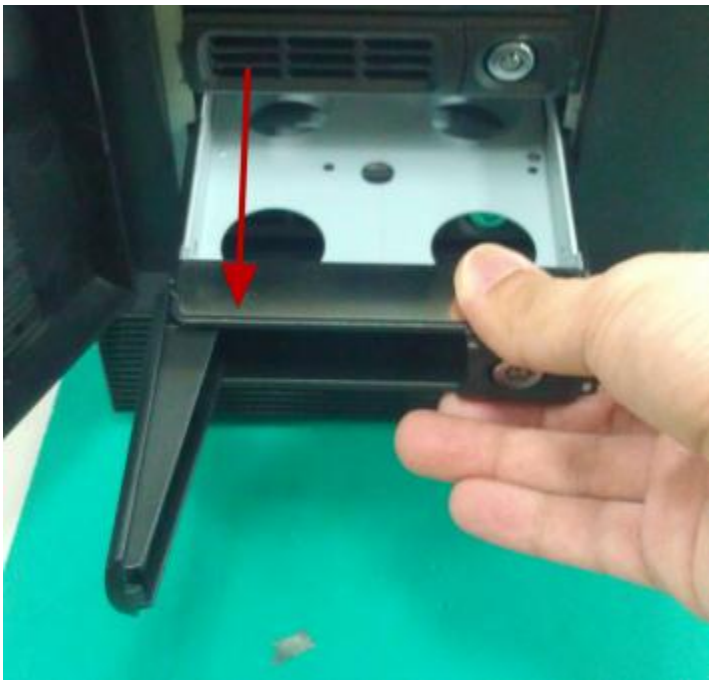
Buttons	
Power	
Reset/Restore default	• Press and release for restart • Press and hold for 3 seconds then release for restore to default, when 3 seconds is reached, System LED blinks until release of the button
LEDs	
Restore default	• System LED blinks during the process • Power LED stays solid
Restart	• Power LED stays solid • System LED off
Power	• Blue • During power on/restart/reset to default/OS fail: stays solid
System	• Amber • During firmware upgrade: blinking • System failure (AP fail): off • System Normal: Solid
Event	• Amber • During event recording: solid • No event: off

Installation

HDD Installation



Release the HDD tray by pulling the lock to the right.



Pull the HDD tray out of the case.

Place the HDD in the tray and

Put the HDD tray back to the case. Secure it with the screws at the bottom of the tray

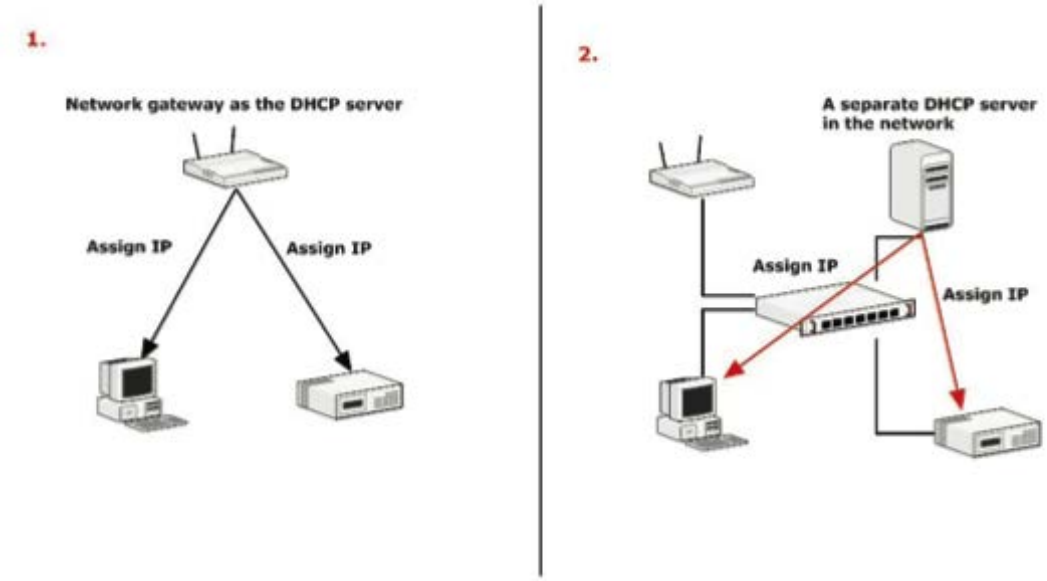
Push the tray door back to the case to secure it.

Connect to the NVR

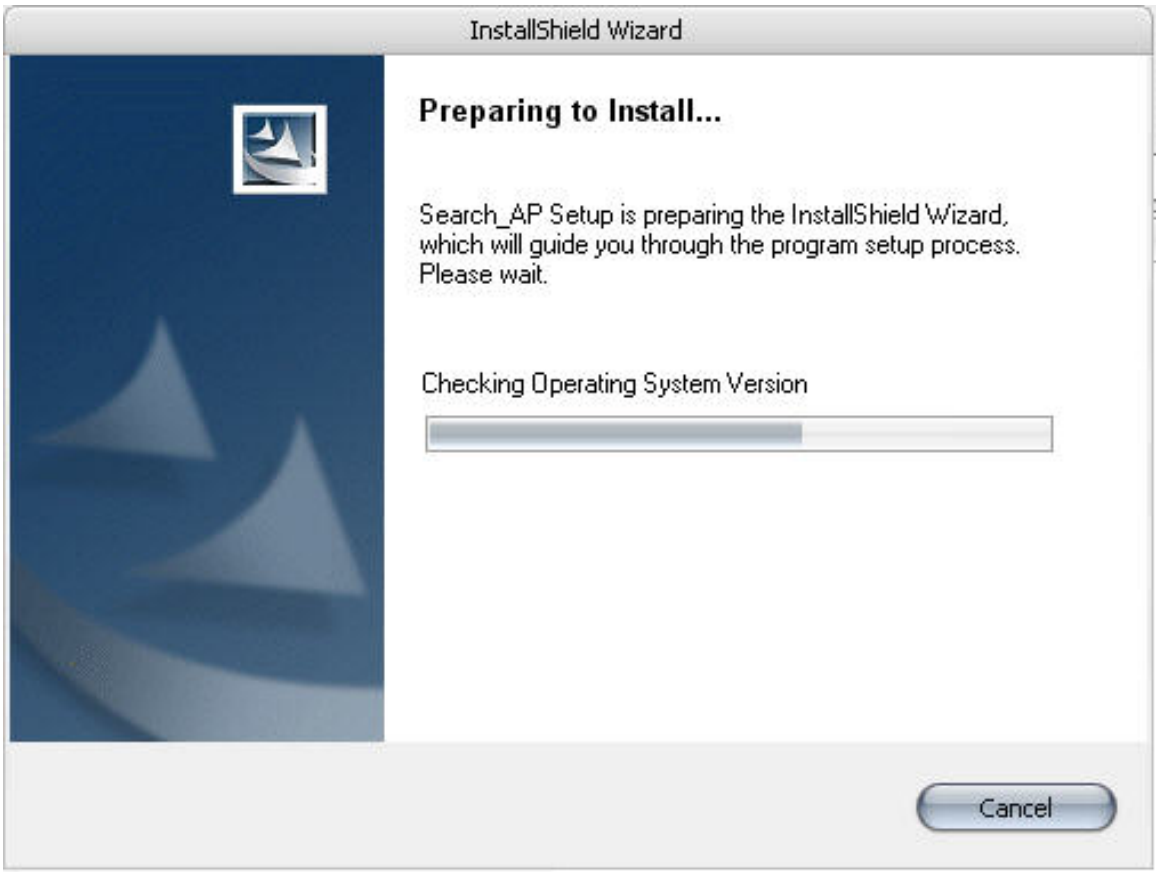
There are various ways you can connect to the NVR and below are the suggested methods for different network setup:

- 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 DHCP server (or you are connecting to it directly): **Access the NVR with its default IP**

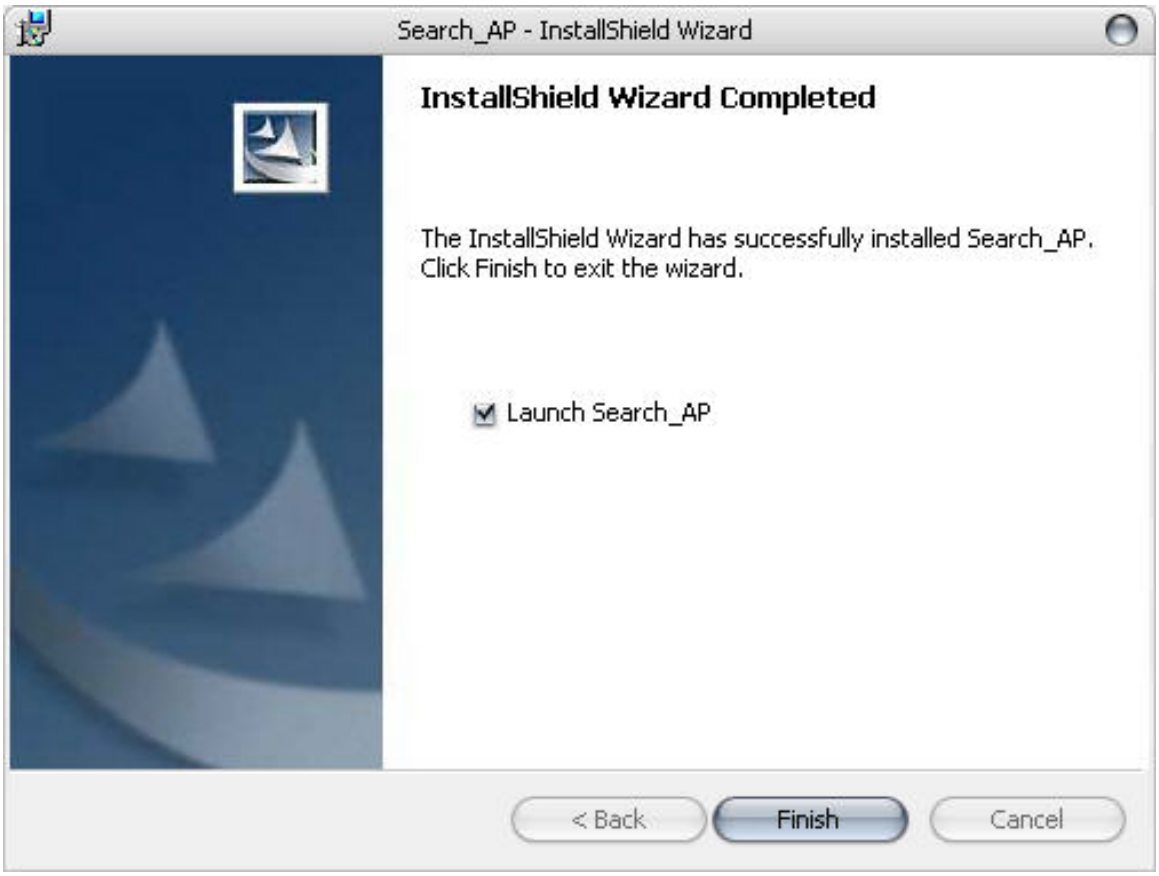
Use Device Search Utility



If the NVR is placed in a corporate network or a local area network where a DHCP server is already presented, run the “Device Search” utility from a computer that is on the same network and locate the NVR with its IP address that is assigned by the top-level DHCP server.

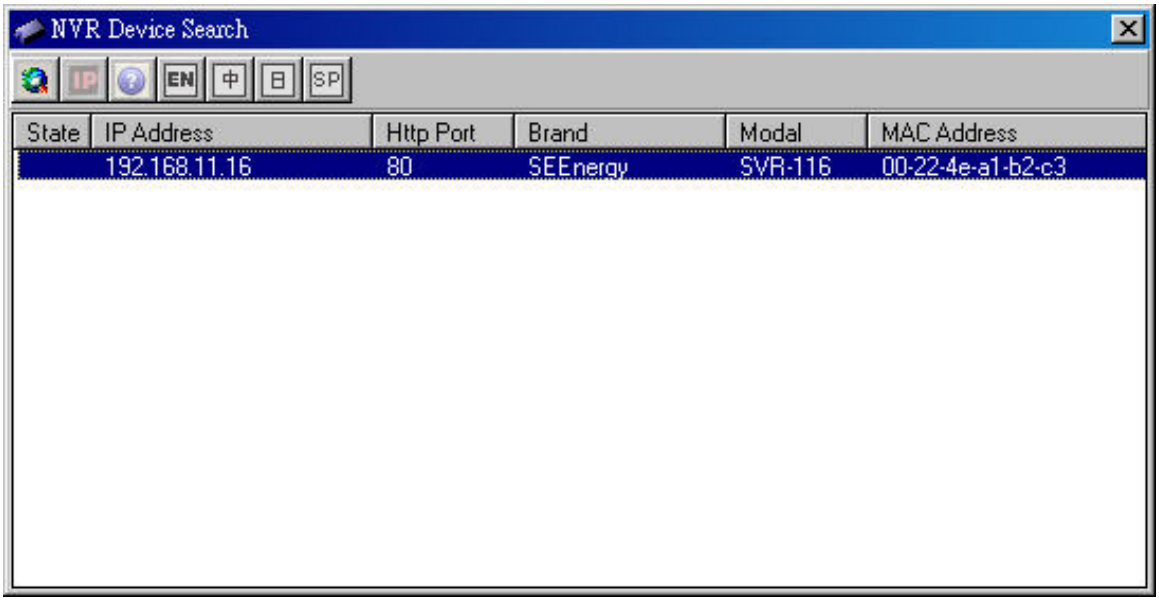


To begin, launch the “Deivce Search” utility from the CD and proceed with the installation:

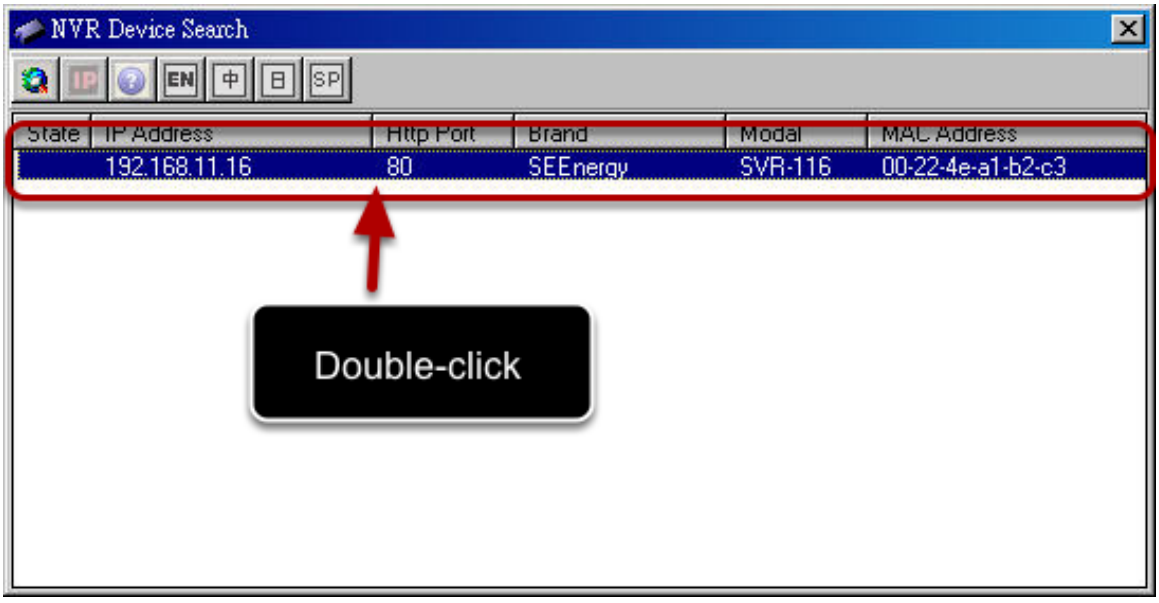


Once the installation is complete, check the “Launch the Search AP” option and click “Finish”.

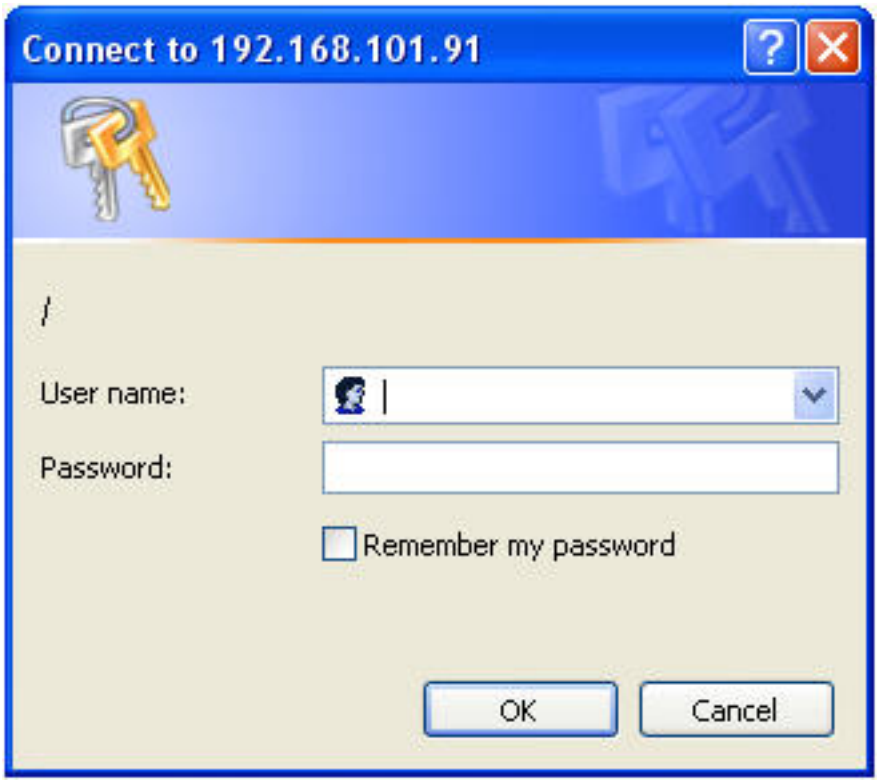
The search should start automatically and its status should be displayed.



The NVR should be located and its IP address should be displayed.

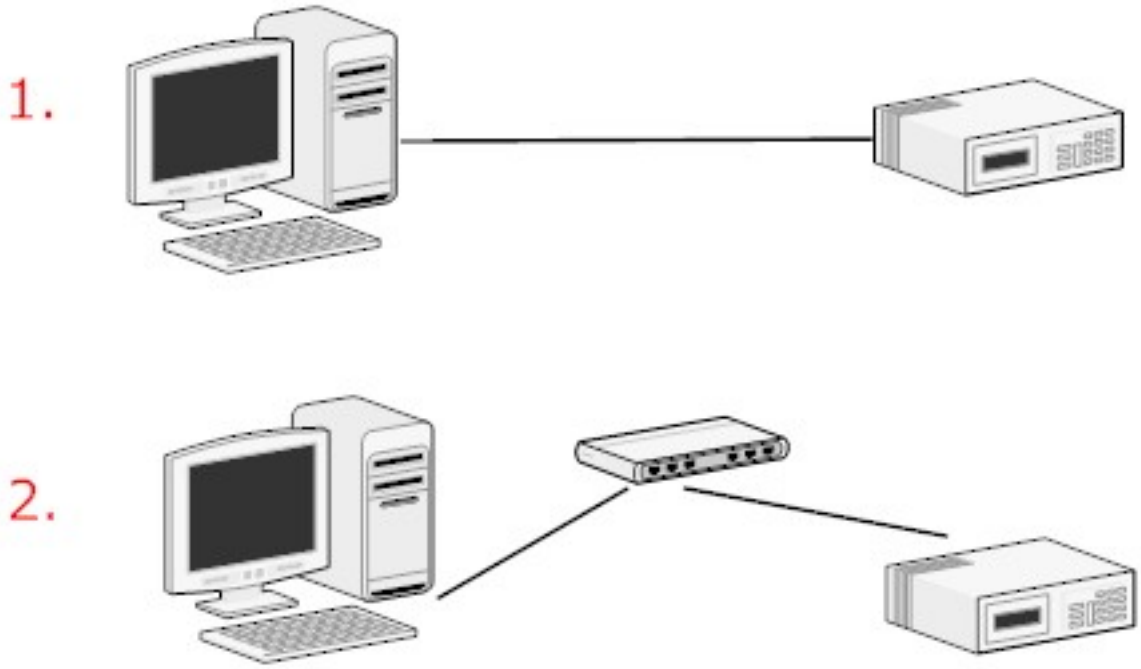


Double-click on an NVR and the search program should automati- cally access the NVR's web administration page from your default browser.

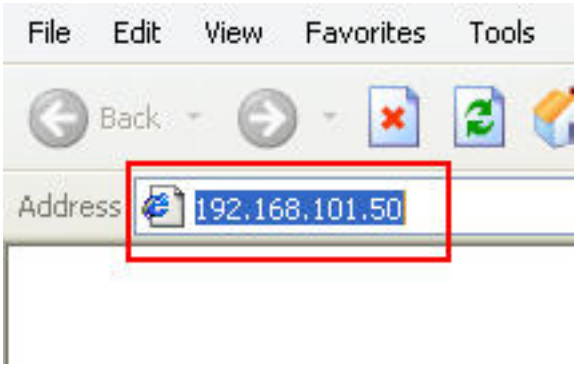


You should be prompted for the the NVR's username and password. Enter **its default username "admin" and password "admin"** and then click"OK" to enter the system

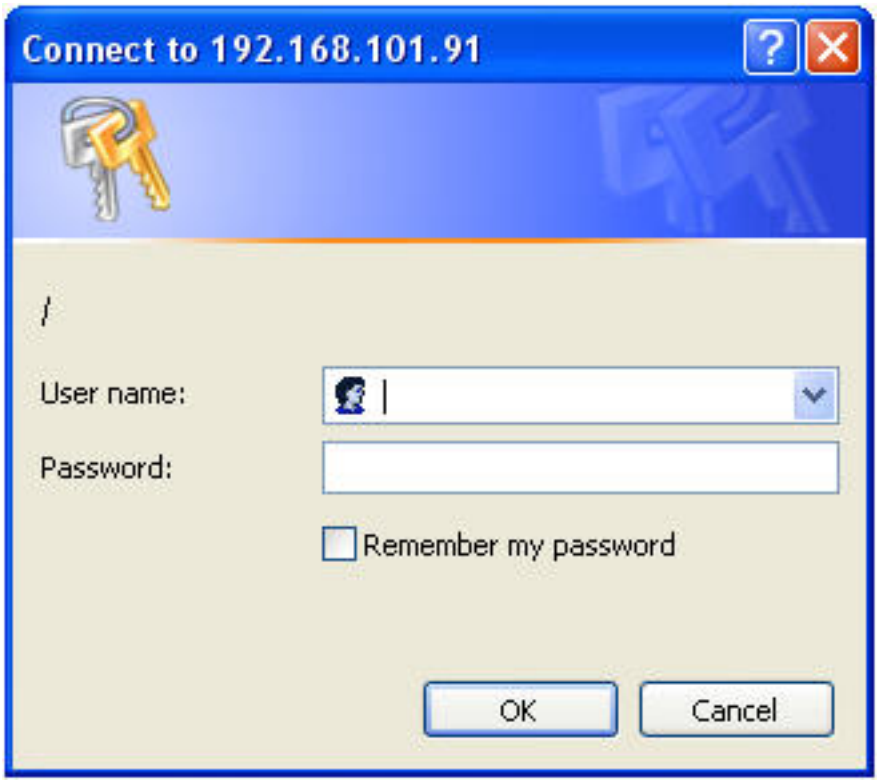
Access the NVR with its default IP address



The NVR comes with a pre-configured static IP "**192.168.101.50**". However, it is only used when there is no DHCP server presented in the network. The NVR will turn on its DHCP server function and act as the DHCP server in the network. To connect to the NVR, use a PC that is on the same network over a switch or hub, or connect the PC directly to the NVR using a crossover CAT5 Ethernet cable.

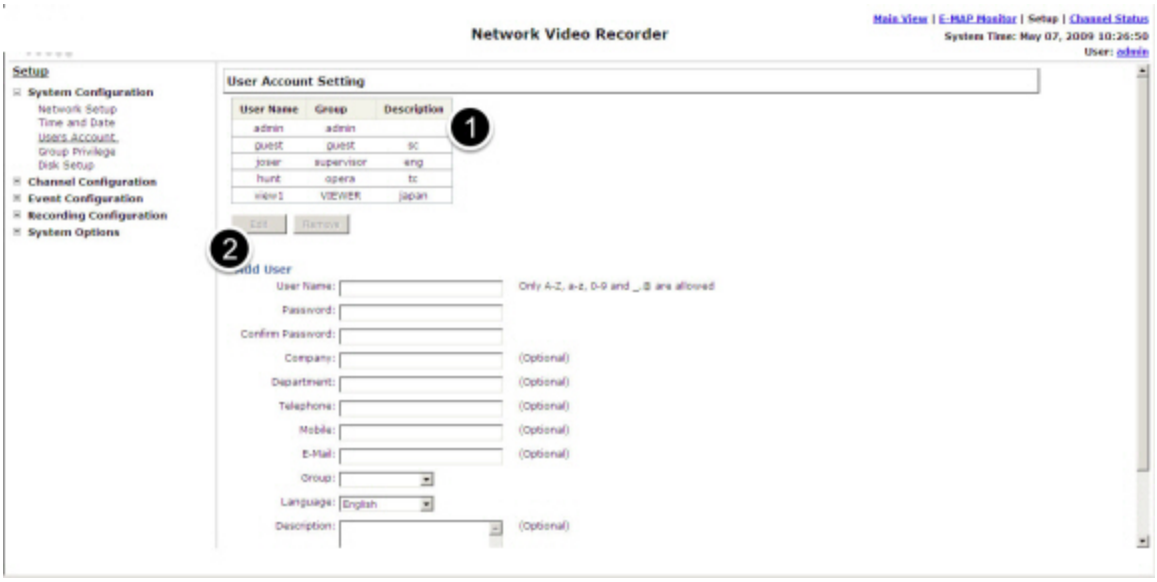


The PC that is connected directly to the NVR (or within the same local area network) should receive an IP from the NVR. Simply access the NVR from your web browser with its IP address



Again, you should be prompted for the username and password. Enter its default username “**admin**” and password “**admin**” and then click”OK” to enter the system

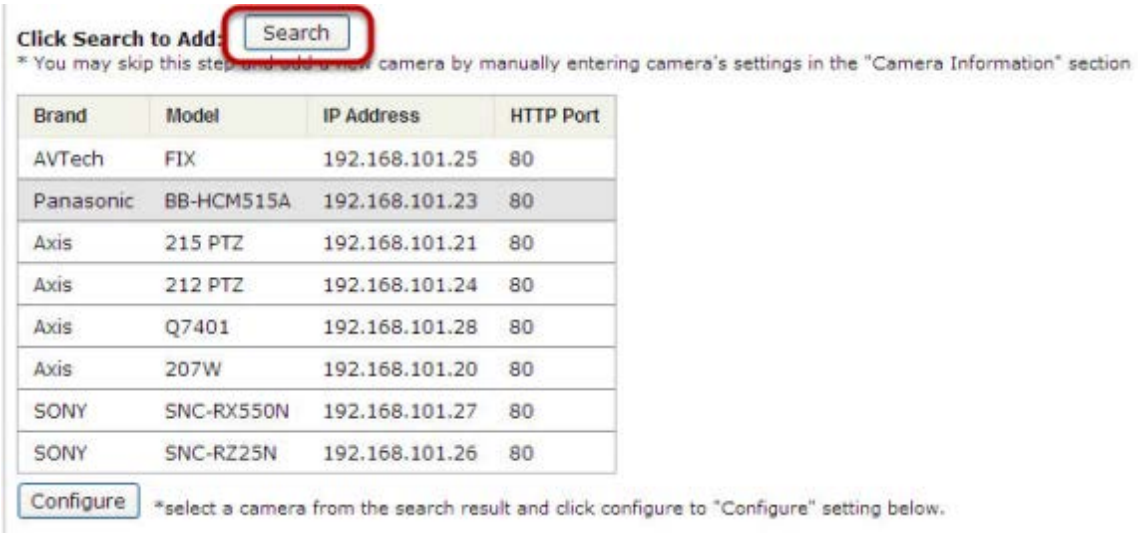
Set up Password



The default login username and password is admin/admin. To change the password of the admin account, go to “Setup” --> “System Configurations” --> “User Account”, click on the “admin” account in the account list then press the “edit” button to change its password. Finally, click “Apply” to save the change.

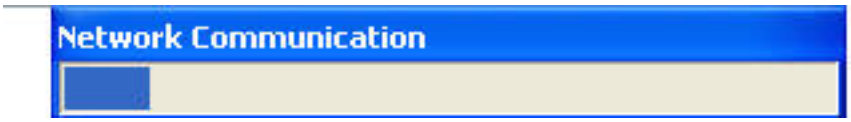
Camera Installation

Add a Camera -- Automatic Search

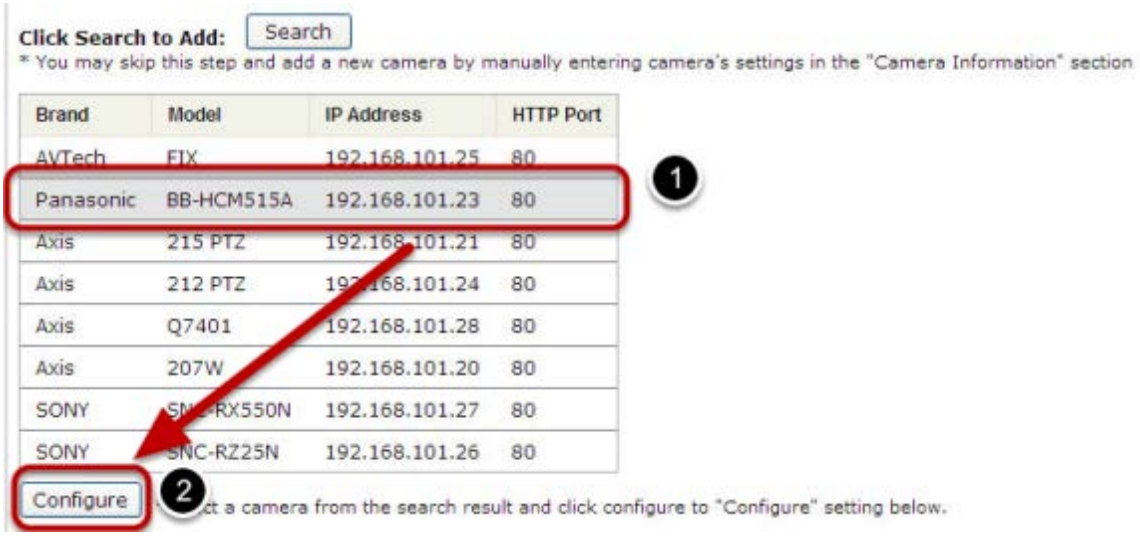


Click the “Search” button to perform the camera search.

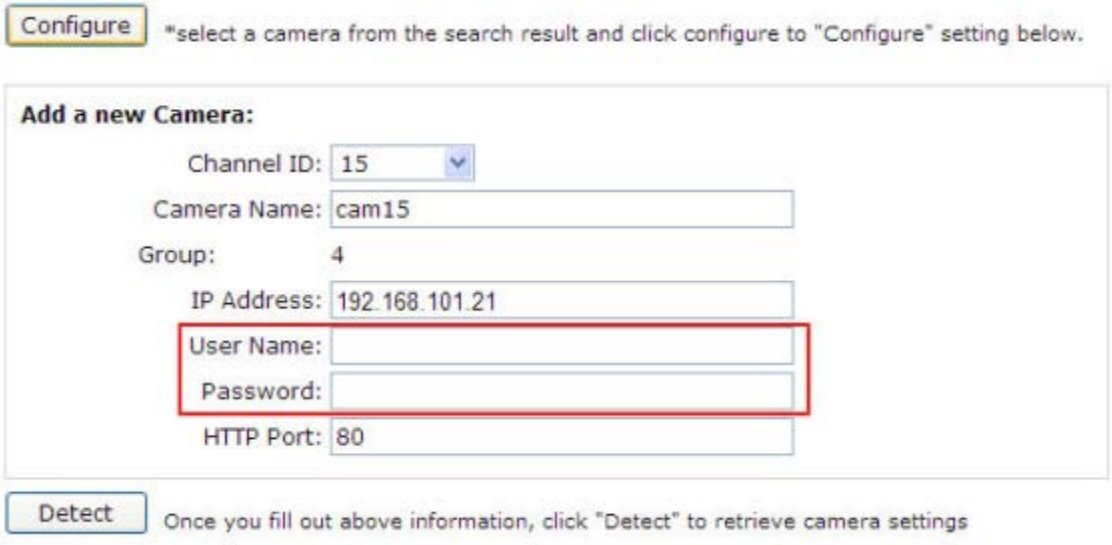
You should be prompted to install Active Control component in order for the search to function properly. Go ahead and click “Install”



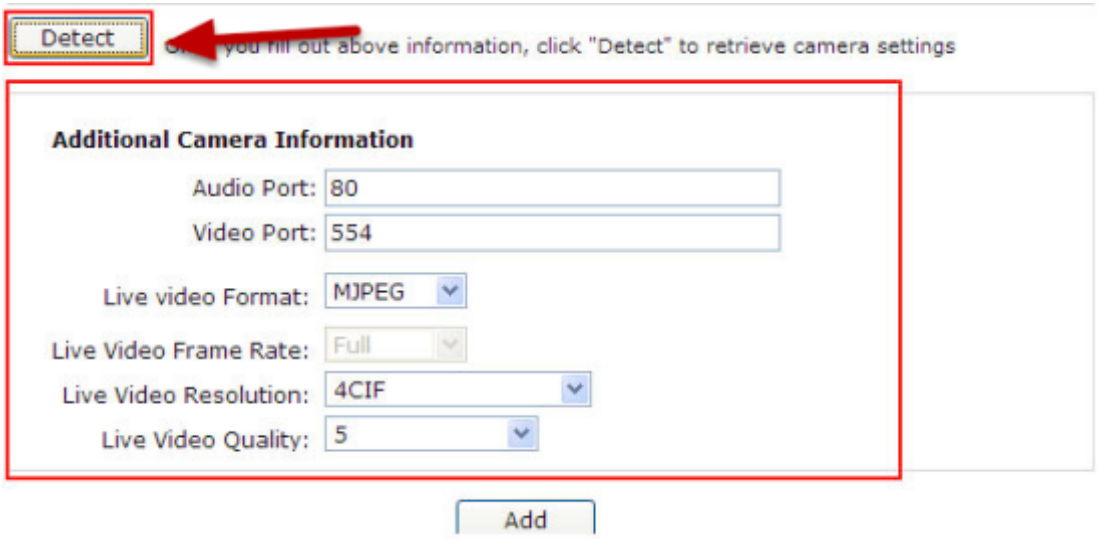
After that, the search should begin and its status should be displayed:



Found cameras should be listed and simply select a camera from the list and press “Configure”

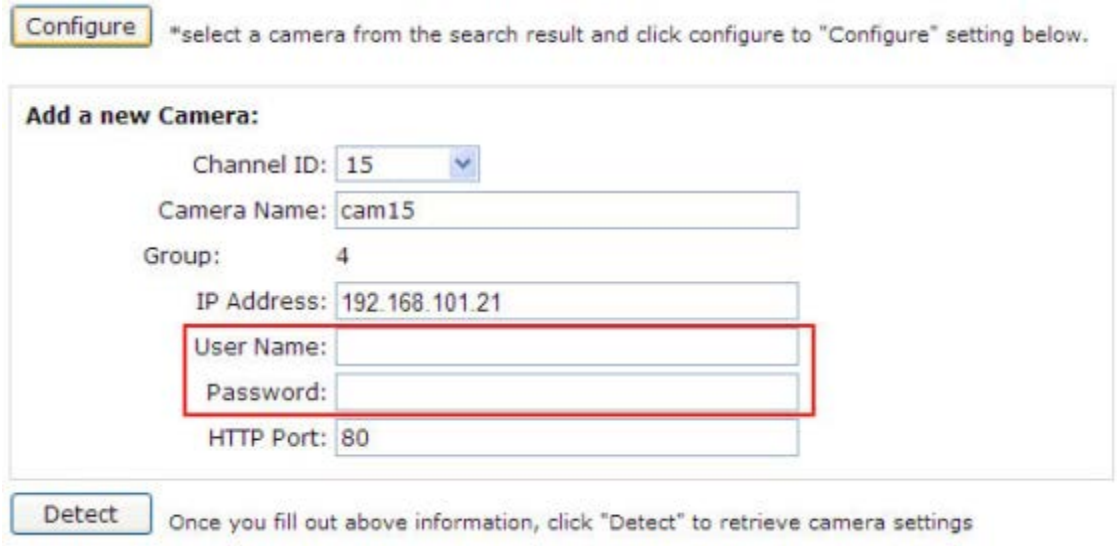


Its corresponding information should be displayed in the “Camera Information” section. Enter its username and password and select the channel ID and name the camera.



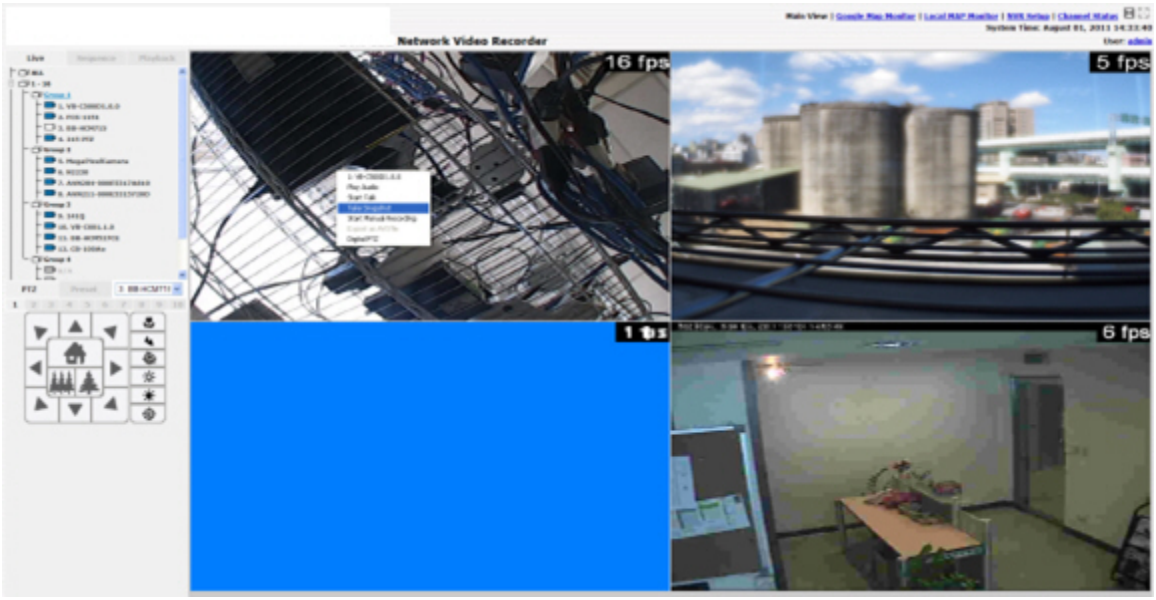
Click on “Detect” to establish connection between the recorder and the camera. If connection establishes successfully, camera’s detailed information should be polled and displayed as below.
Adjust its video format, frame rate, resolution or bitrate...etc if you wish and then click “Add” to finish adding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

Add a camera manually



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

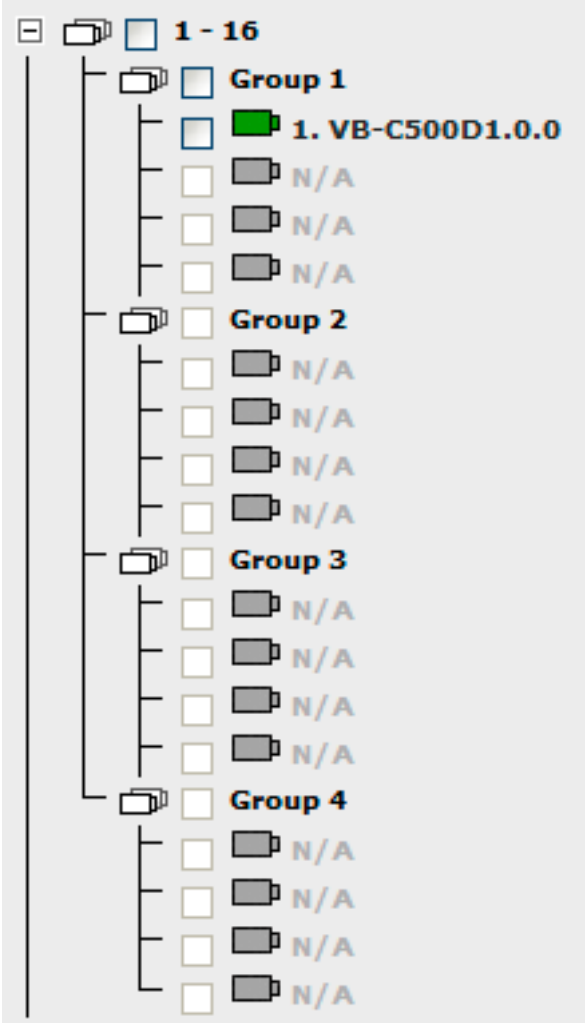
Live View



The “Live View” page provides the following functions:

- Retrieve camera’s video stream
- Retrieve camera’s status
- Perform Live Sequence Viewing
- PTZ Control
- Perform PTZ Preset Sequence viewing
- Perform manual recording
- Take snapshot
- Receive audio of a video stream
- Send audio
- Control “Buzzer”
- Change web UI display language

Retrieve camera's video stream



The camera list is expanded and displayed on the Live View page:

- Click "All" to display videos of all 32 channels
- Click "1-16" or "17-32" to display videos of in 16-video view
- Click on a "Group" (ex. Group 1) to display videos from cameras under that group in quad view
- Click on any camera to display video in single-view mode

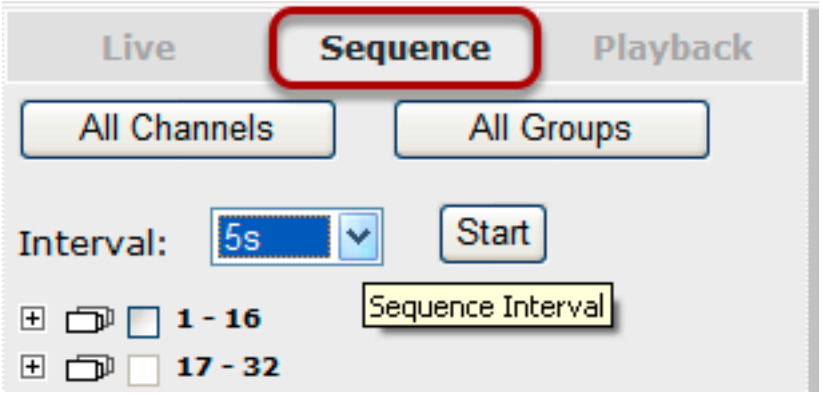
Retrieve camera's status

The camera list can show each camera's current status. Each status is represented with different colors:

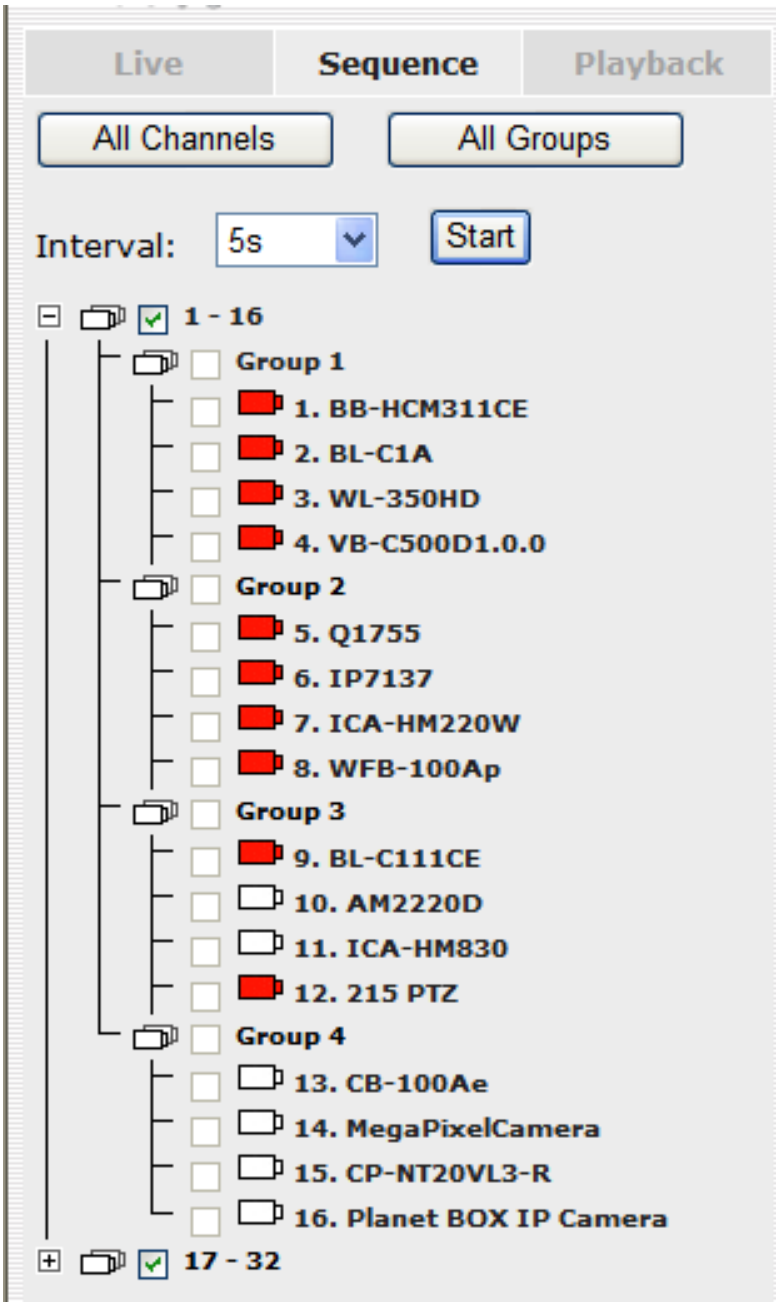
Blue: Connected
Gray: Disconnected

Red: Performing event recording
Green: Recording (manual/continuous/schedule)
White: This channel is not configured with any camera

Perform Sequence Viewing

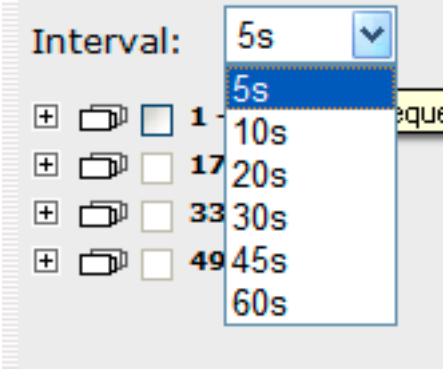


Sequence view is a function that allows you to view multiple video streams from certain cameras in sequence automatically without having to select them one by one. To perform sequence view, select “SEQ View” from the upper-left hand corner



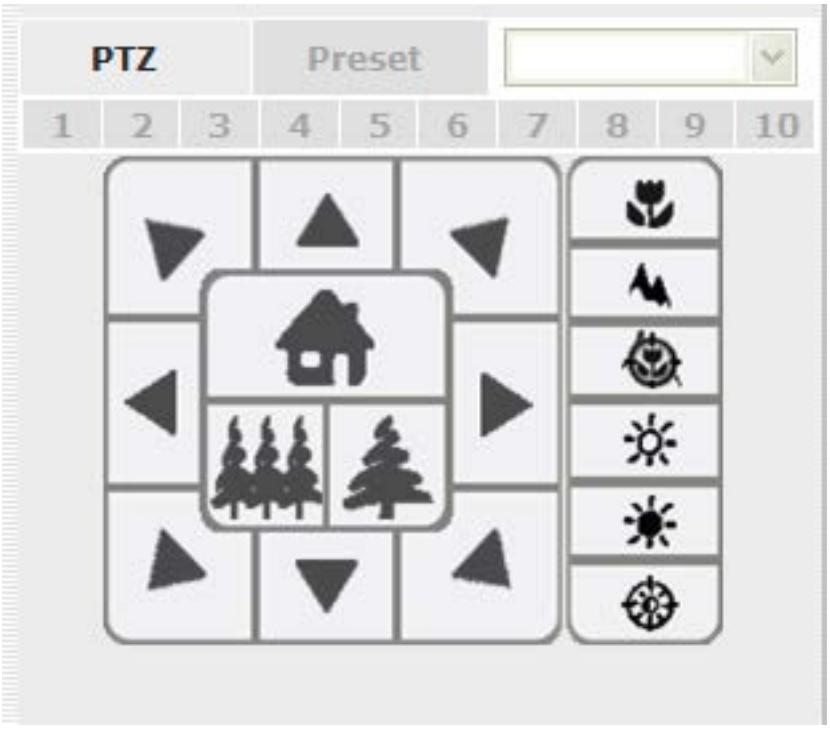
Next, select one or more camera(s) or camera group(s) for sequence viewing:

Select "1-16" and "17-32" to start sequence viewing in 16-video view
Select "Group(x)" to start sequence viewing in quad view
Select "cameras" to start sequence viewing in single video view

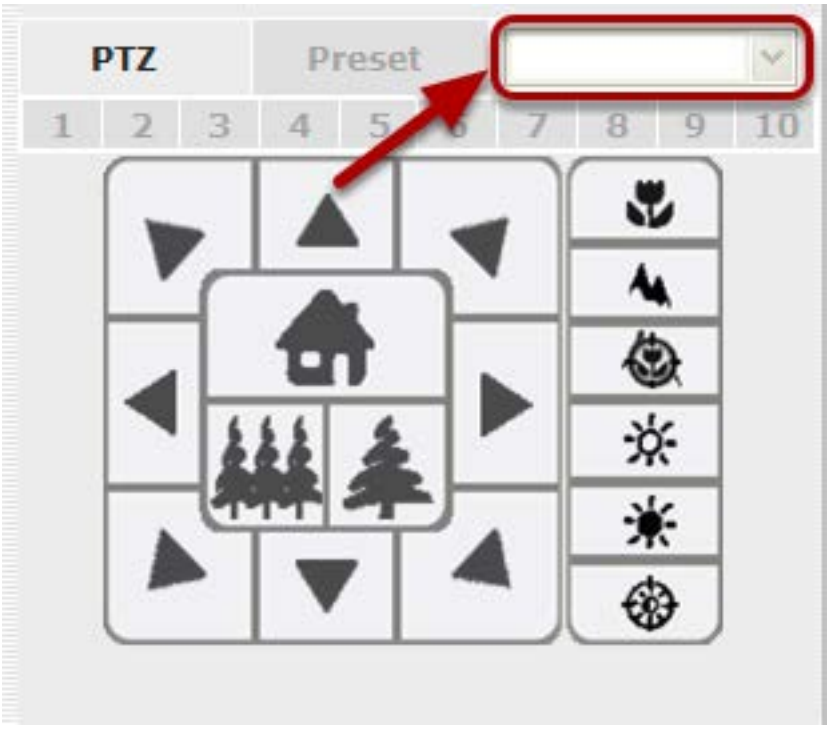


Then, select dwell interval from the drop-down menu and click "Start" to begin.

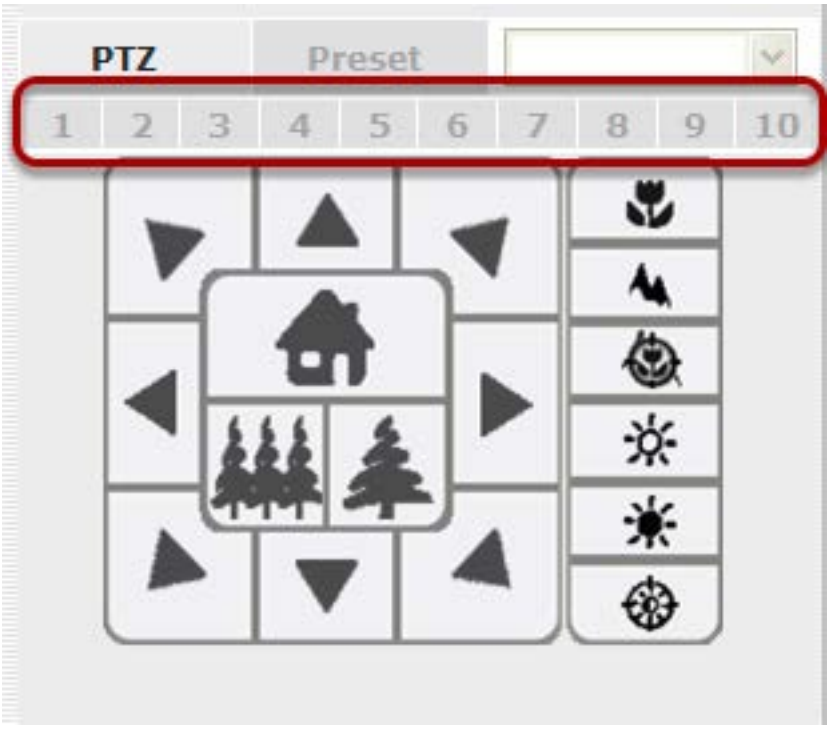
PTZ Control



PTZ control provides functions to pan, tilt, zoom a PTZ camera as well as the ability to adjust camera focus and iris.

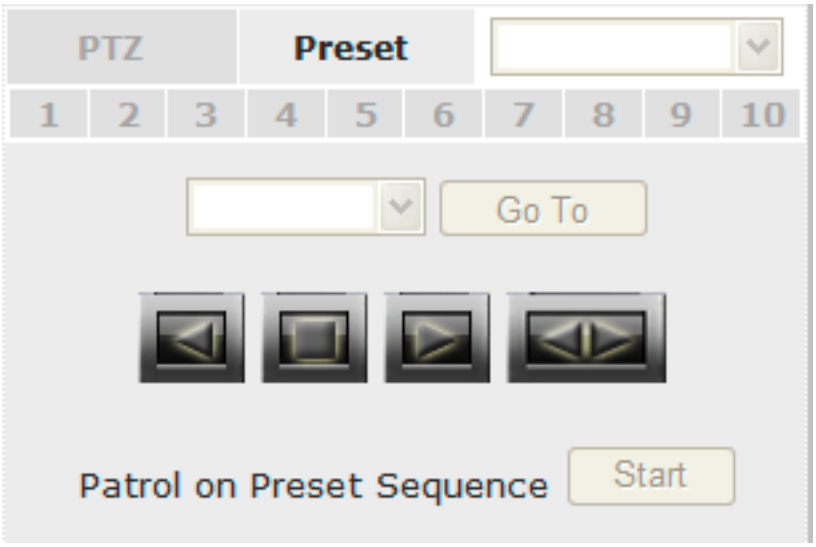


Only PTZ capable cameras will be listed in the drop-down menu



The bar highlighted above controls the moving angle. Larger number means bigger movement angle.

Perform PTZ Preset Viewing

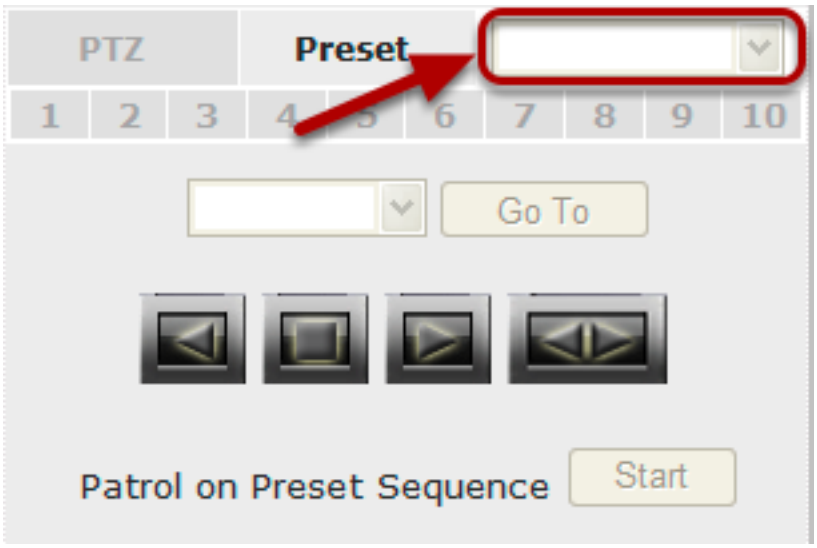


There are three functions provided in the “Preset” section:

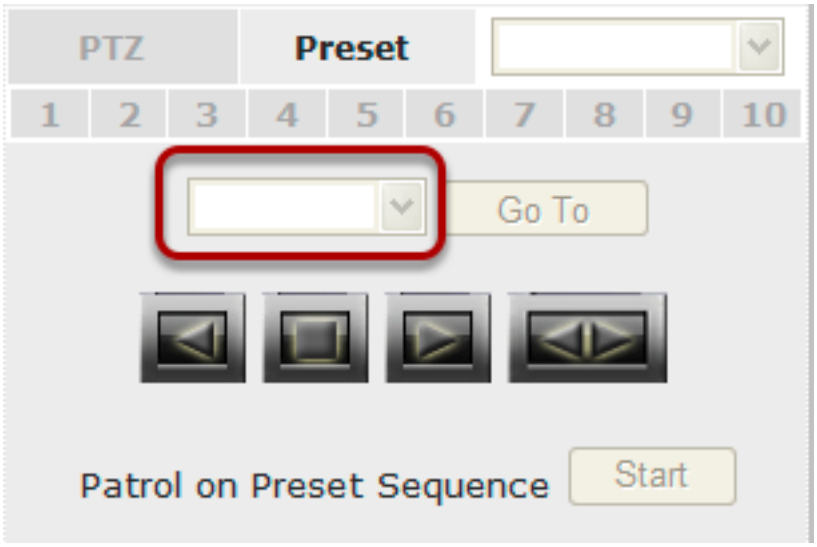
- Perform preset point viewing of a particular camera
- Auto pan a particular camera
- Perform preset point sequence viewing

(In order to use this function, one must configure camera's preset points in "NVR Setup" >> "Channl Configurations" >> "PTZ Preset" first)

Preset Point Viewing

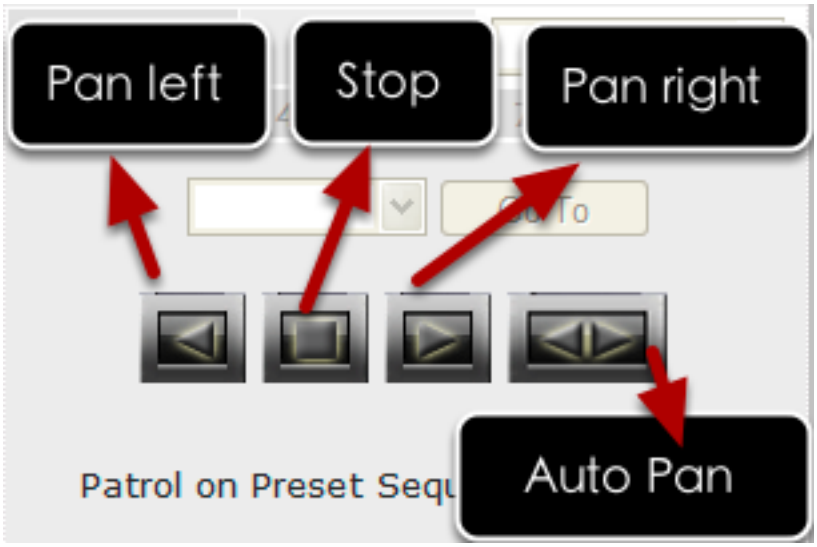


Start by selecting a PTZ camera from the drop-down list



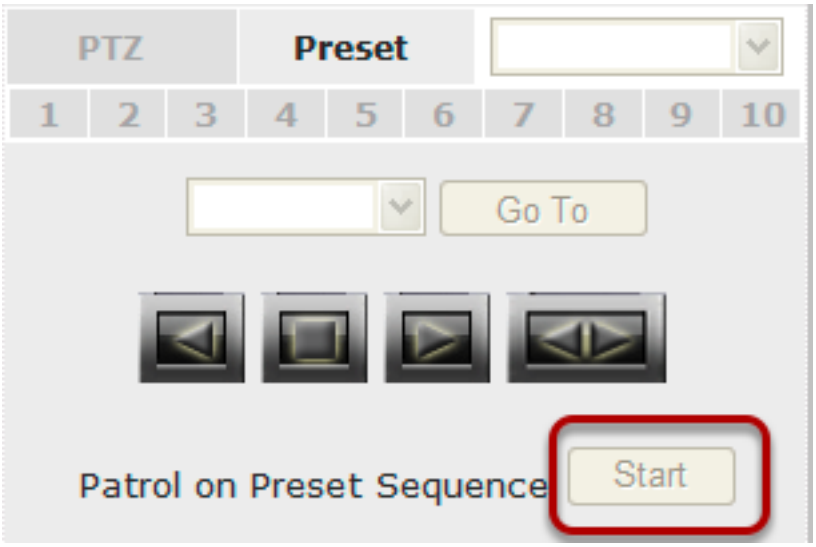
Its available PTZ preset points will be listed in the drop-down list shown below. Click "Go to" to move to the selected position.

Auto Pan Viewing



Use the Auto Pan control buttons to pan right, left and stop auto pan
**** Certain cameras do not support bi-directional pan movements. Use the "Autopan" button for such cameras***

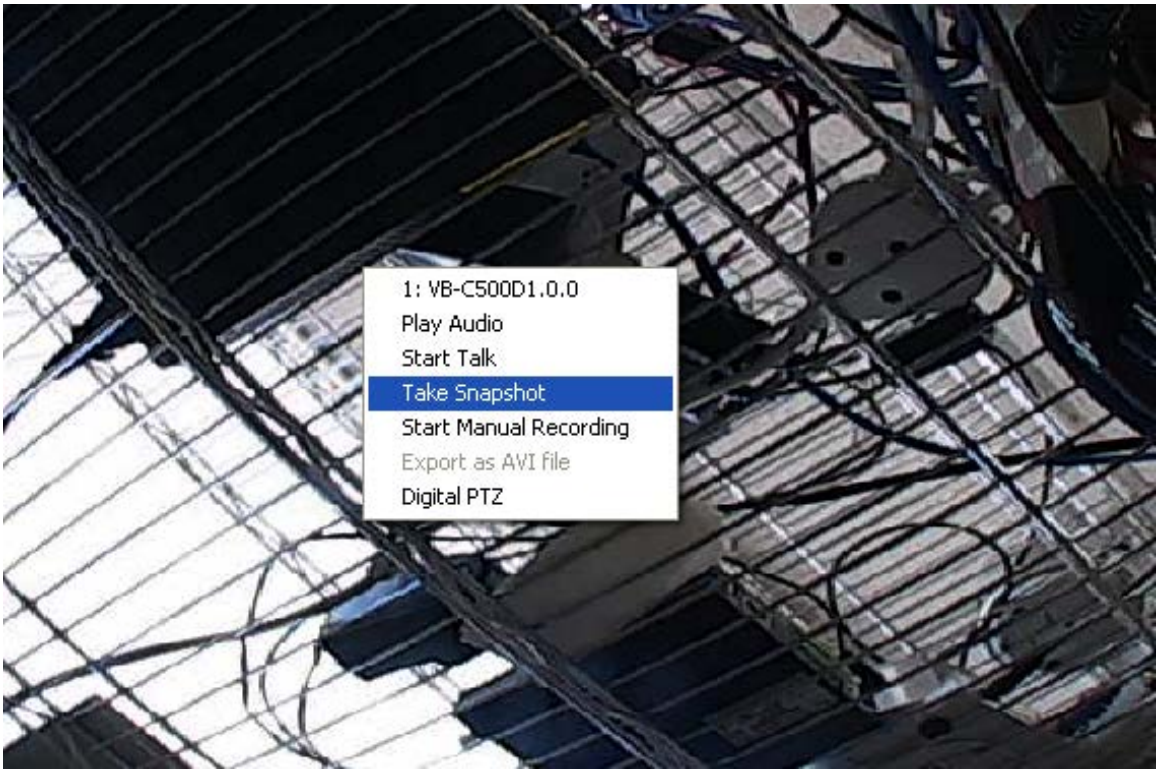
Preset Point Sequence Viewing



This function allows you to view multiple preset points from a video of a camera without having to select them one by one. Once you have defined the prefered preset points in "**Channel Configurations**" >> **"PTZ Setting"** >> "**PTZ Sequence**" under the "**Setup**" menu, click "Start" in the lower-left hand corner in Live View under "Preset" and

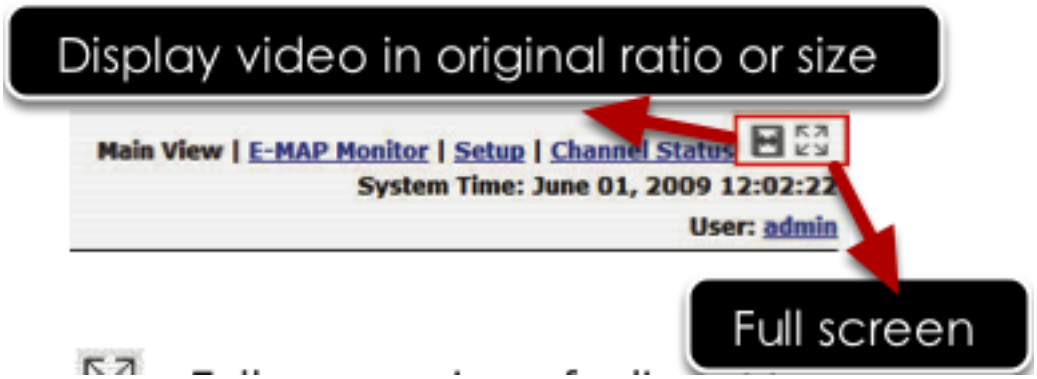
the recorder will begin to display videos from those preset points in sequence automatically until you click “Stop”

Live Video Controls



Users can perform certain functions to a live view video. They can be accessed by right-clicking on a video.

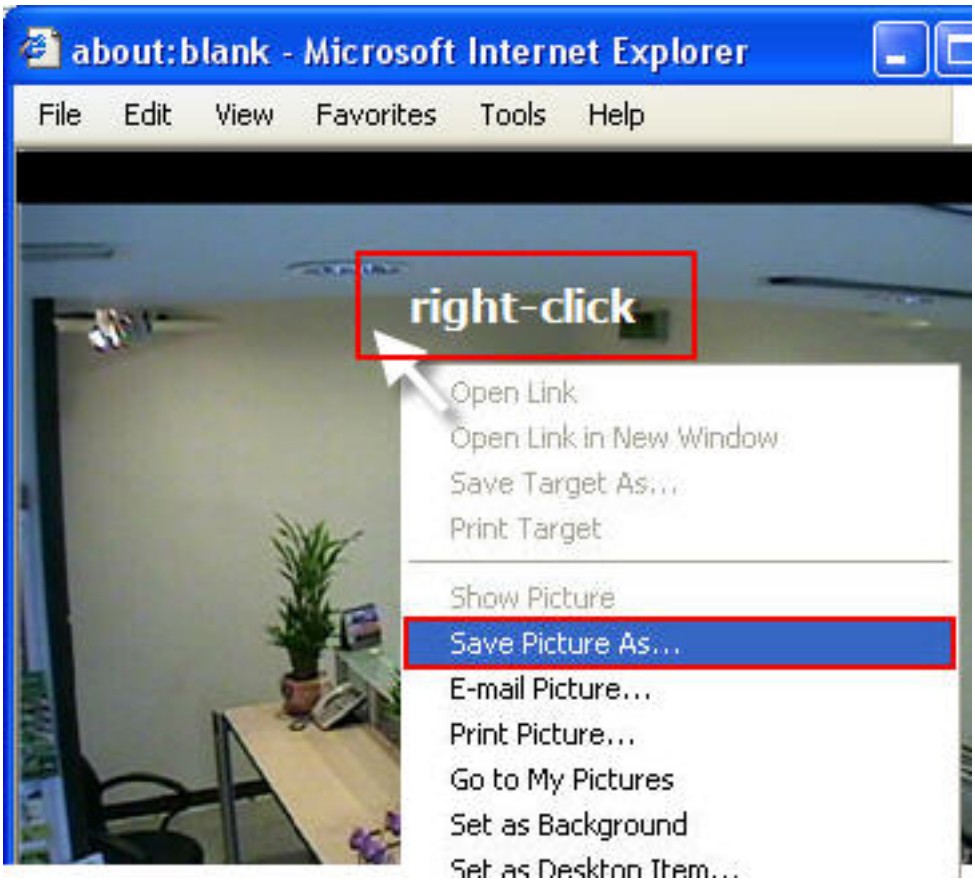
Display ratio and full screen



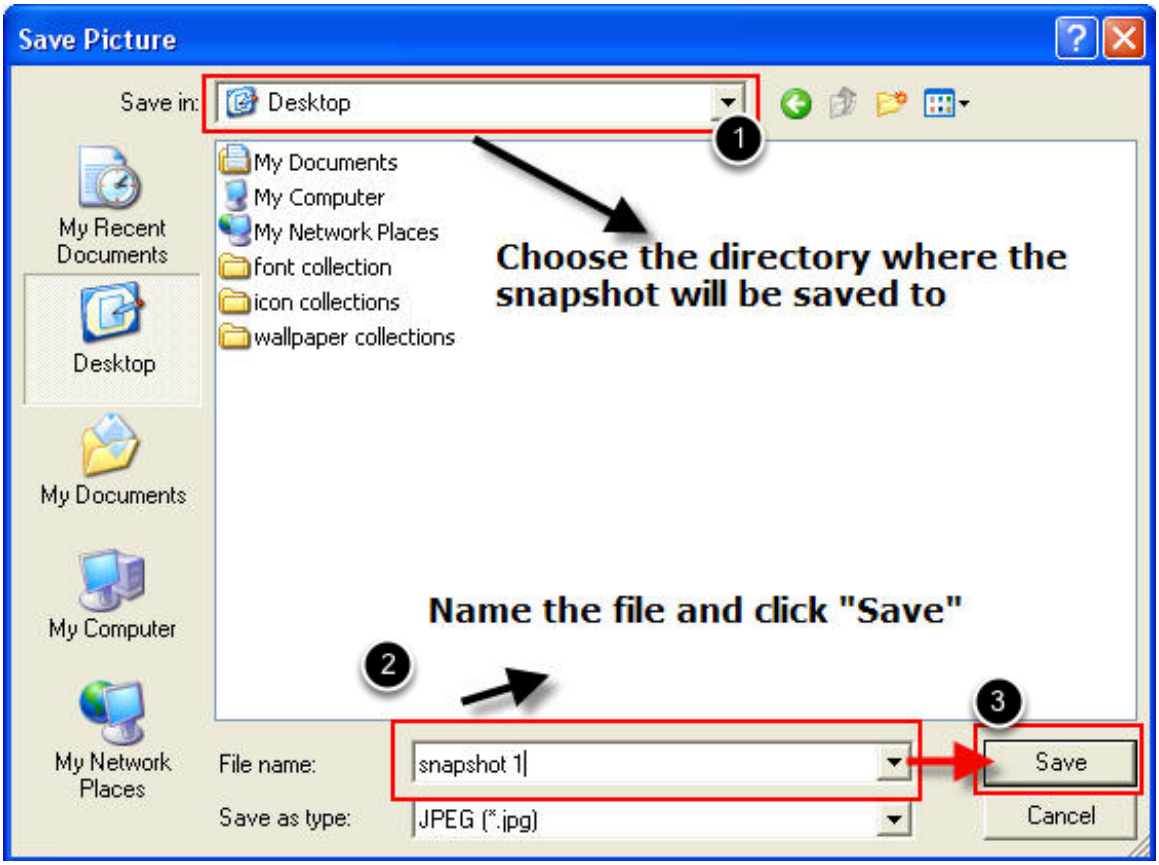
By default, the videos are set to fill the whole video window, to display its original size or ratio, use the button in the upper-right hand corner.

Take a snapshot of a live video

To take a snapshot of a live video, right-click on the video and select "Take Snapshot".

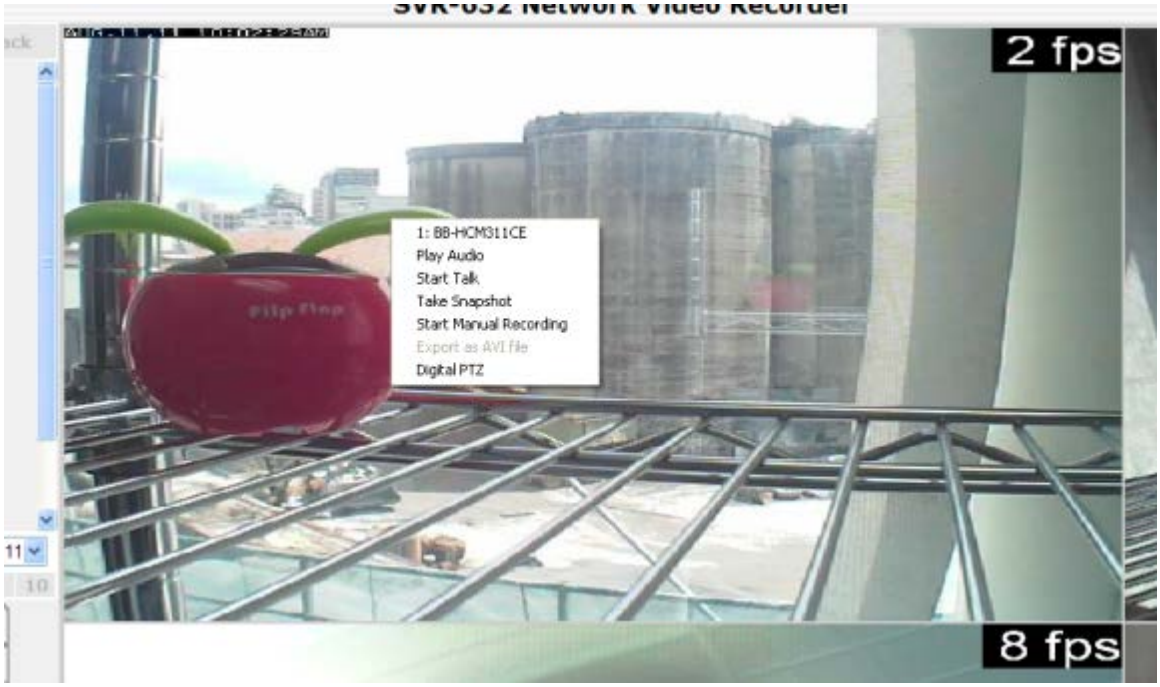


An additional window containing the captured image should be displayed. Right-click anywhere on the image and select "Save Picture As..." to save the image.

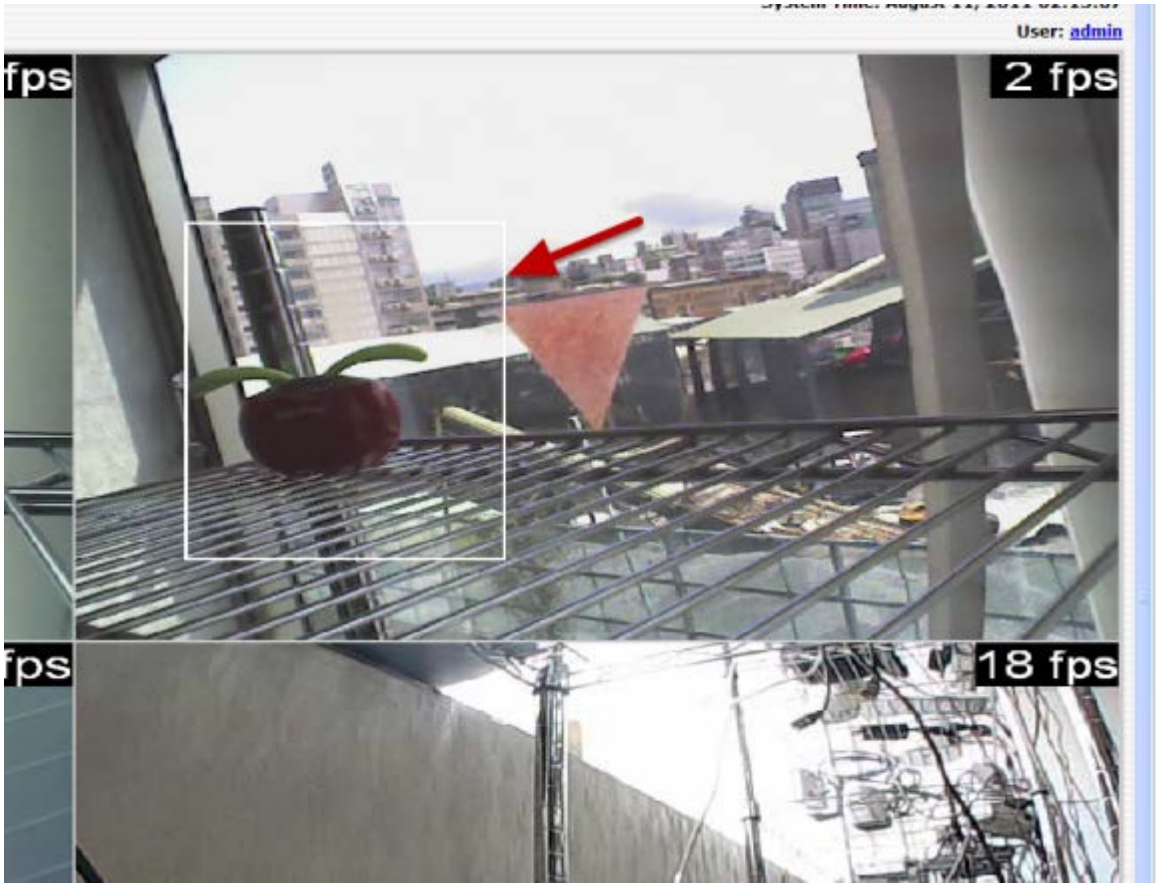


A dialog should be displayed that allows you to choose a directory/folder of where the snapshot will be saved to.

Perform Digital PTZ



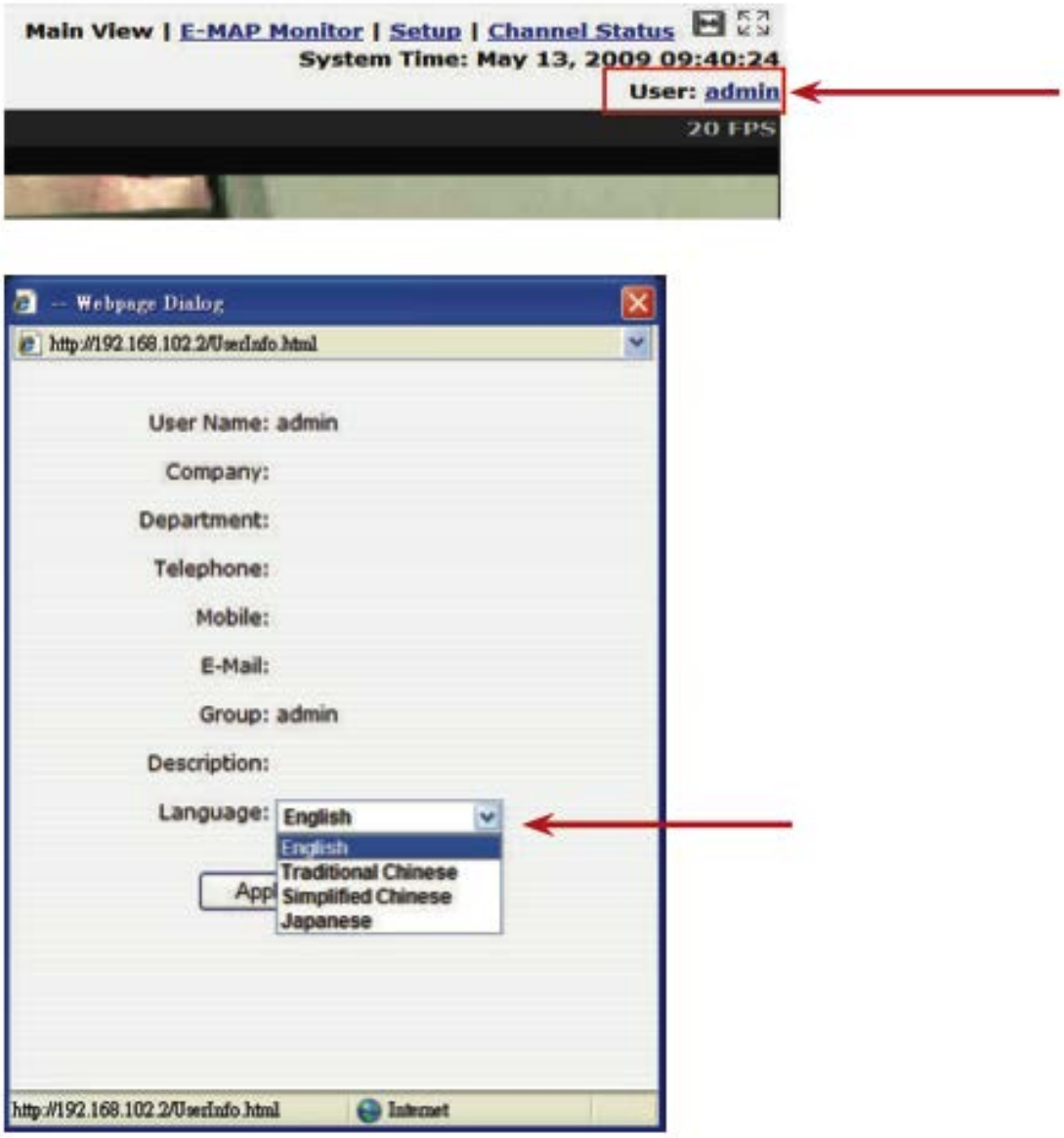
To perform digital PTZ on a particual channel, right-click anywhere on its video and select "Digital PTZ".



Next, 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.

Change Web UI Display Language

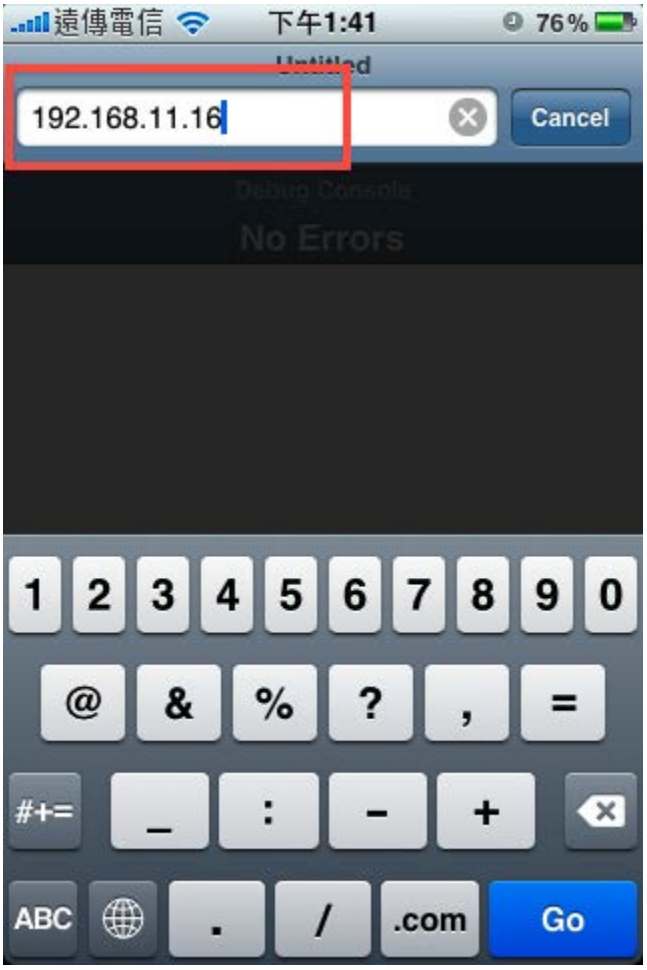


You can change the web UI display language from the current login username link located at the upper-right hand corner. Click on the link opens up a new window which displays detail infor- mation about the user as well as a drop-down menu which lets you change the displyay language.

Live View through iPhone Safari Browser

You can use iPhone and perform single channel live view to the NVR by using its Safari browser. To be able to view the live video through the Safari browser, make sure “javascript” is on under “Settings” >> “Safari” >> “Javascript”

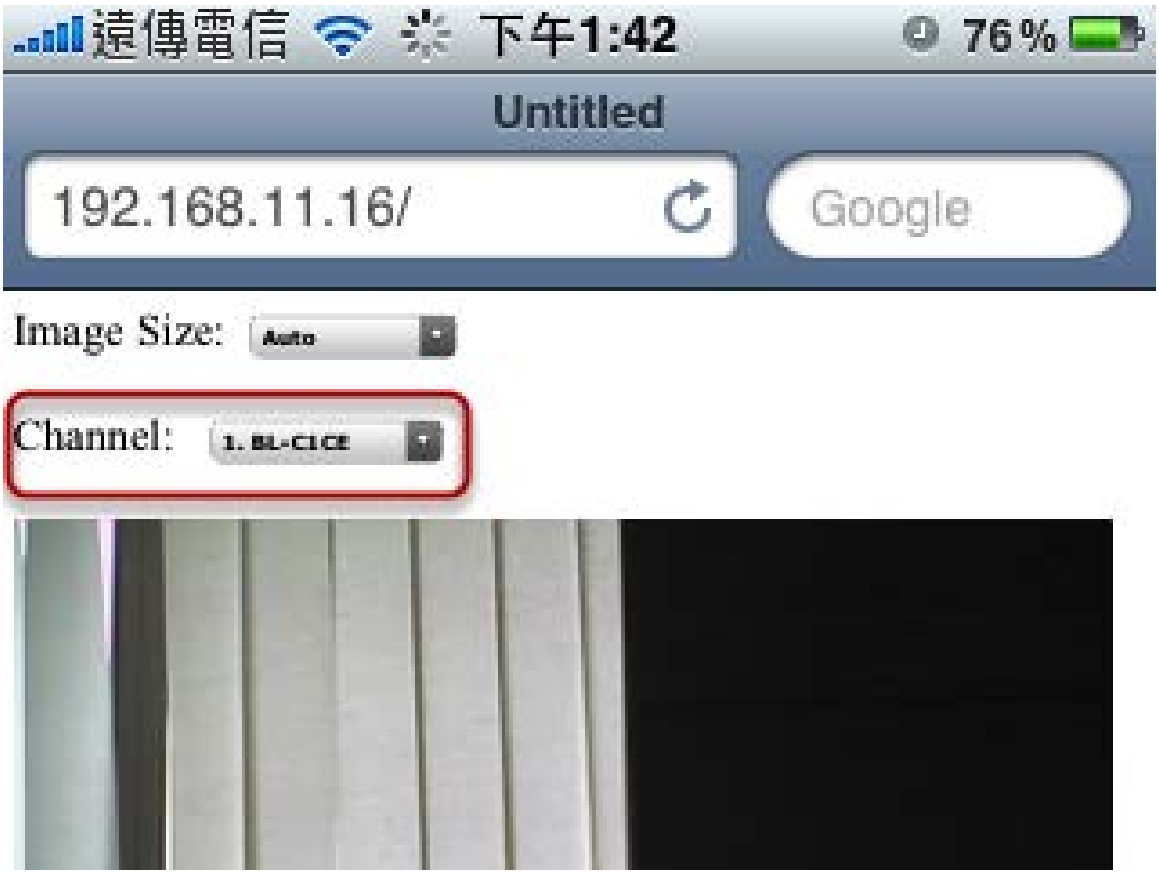
Once Javascript is enabled, click the “Home” button on the iPhone to go back to the home screen and open the Safari browser



Type in the IP address of the NVR in the address bar

You should be prompted to enter the username and password to access the NVR

Upon successful login, you should see the live view video of the first channel



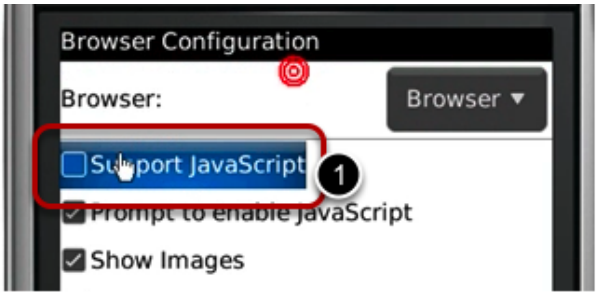
Click on the “Channel” drop-down menu to select other cameras

If a PTZ camera is selected, the corresponding control buttons will display (control PT only)

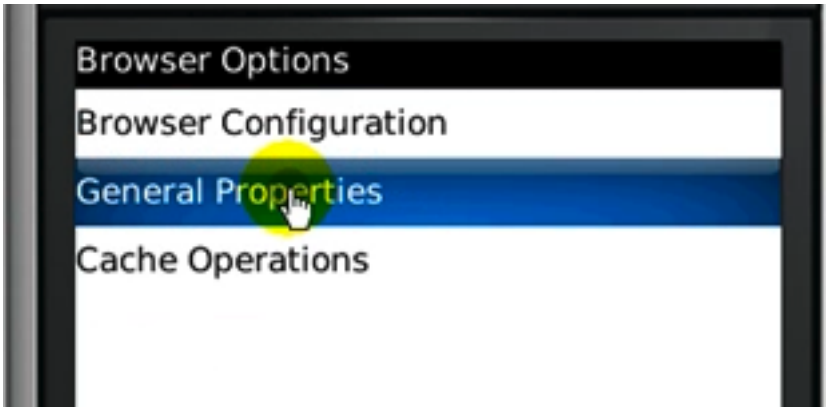
** Please note that this function is camera dependent and is not available to all cameras. Certain cameras do not allow adjusting image size and the selection "Auto" will be used.*

Live View through Blackberry Phones

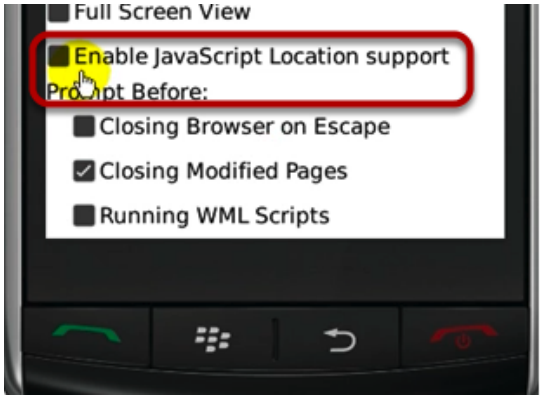
You can use Blackberry and perform single channel live view to the NVR by using its Safari browser. To be able to view the live video through its browser, make sure "javascript" is enabled under "Browser" >> "Menu button" >> "Options" >> "Browser Configuration"

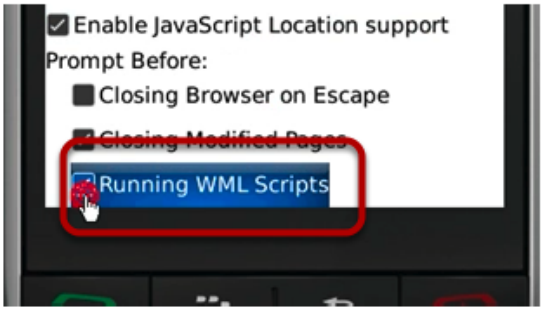


Enable the “Support Javascript” option and click the menu button and click “Save Options”



Go to “General Properties





Make sure two options illustrated above are enabled

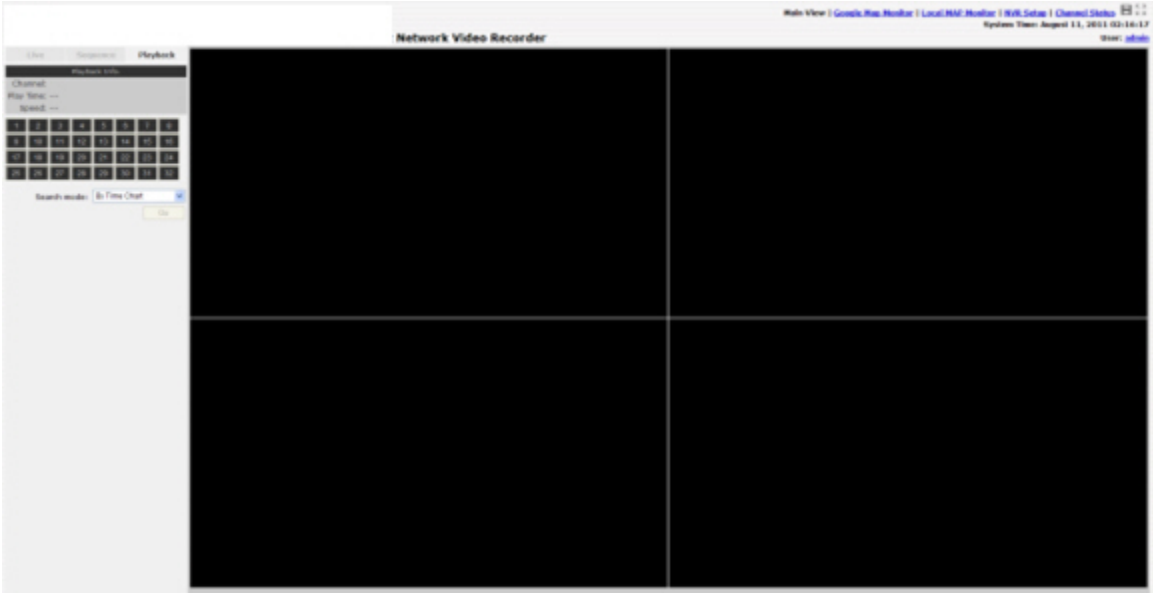
Press the menu button and click the “Save Options” to save settings

Press the button highlighted above to go back to the browser

Type in the IP address of the NVR in the address bar

You should be prompted to enter its username and password for access

Playback



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.

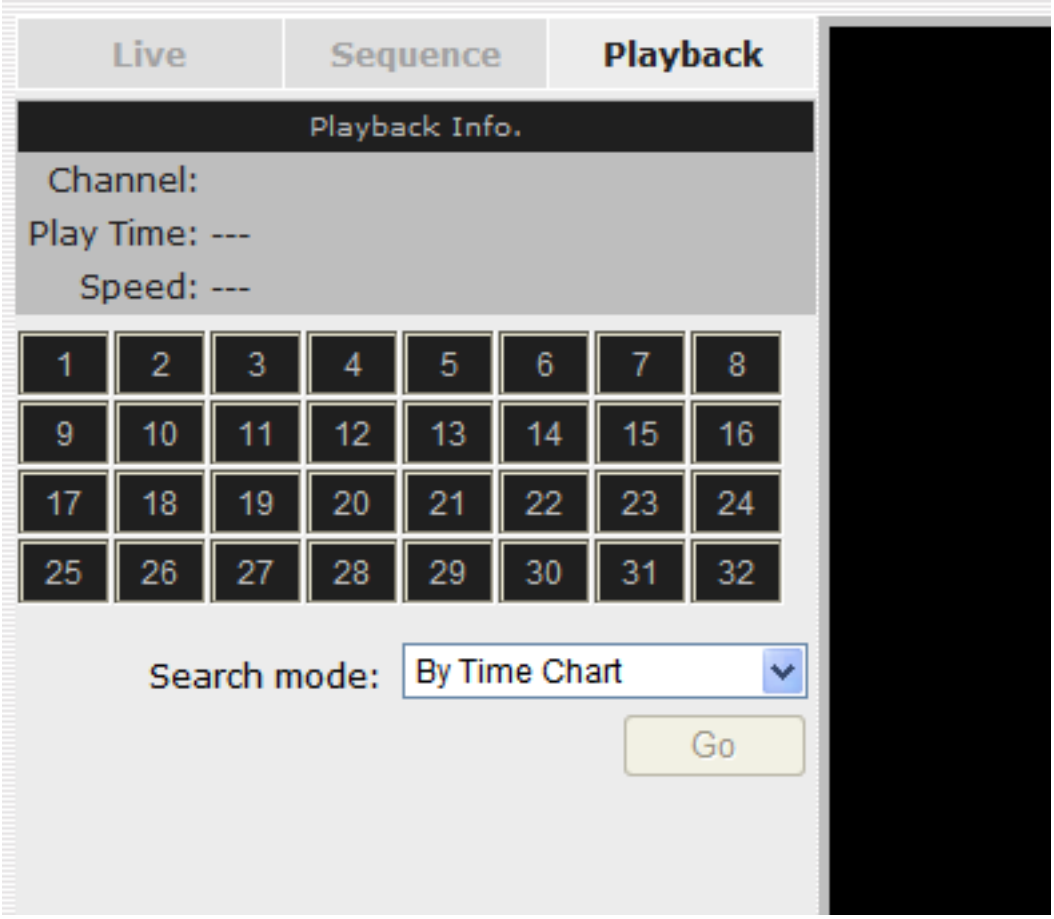
Playback video can be viewed in full screen and snapshots can be taken and saved during a video playback.

Methods to Search Playback Videos

The NVR offers three methods to quickly help users find videos that were previously recorded:

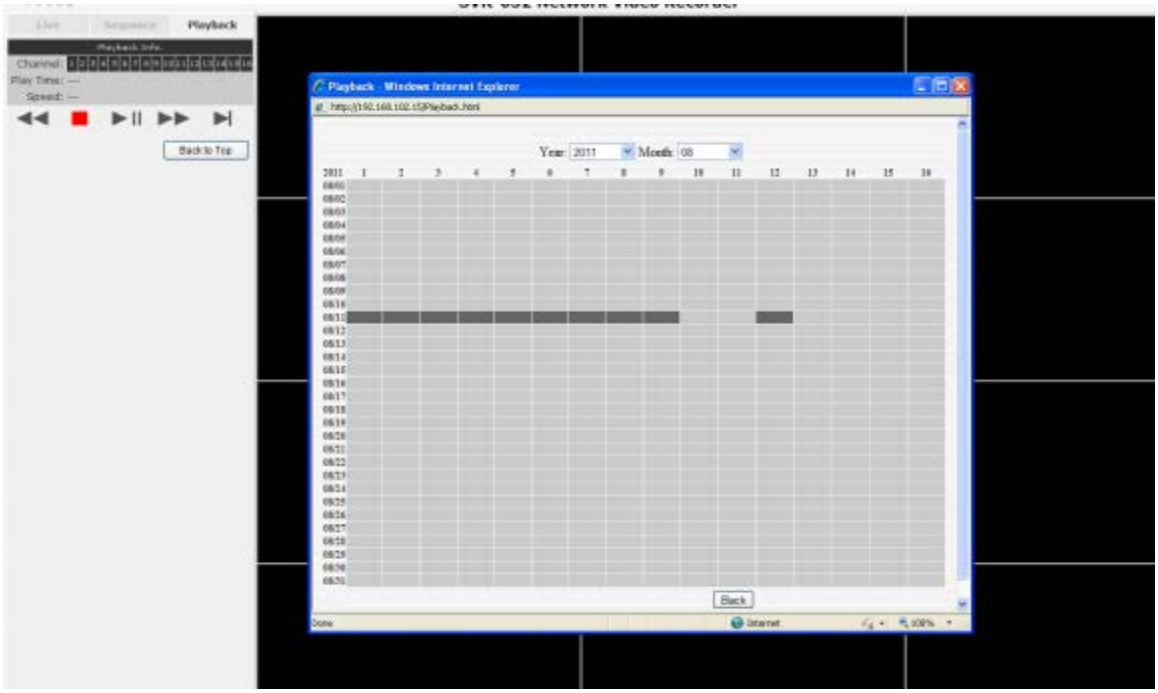
- **Search by time**: *Specifiy a time range and search videos recorded within that range*
- **Search by event**: *Find videos that were recorded due to event triggers*
- **Most Recent Events**: Displays the most recent 15 events
- **Play by start time**: *Enter a specific time a video was recorded to start playing back the video*

Search by time chart

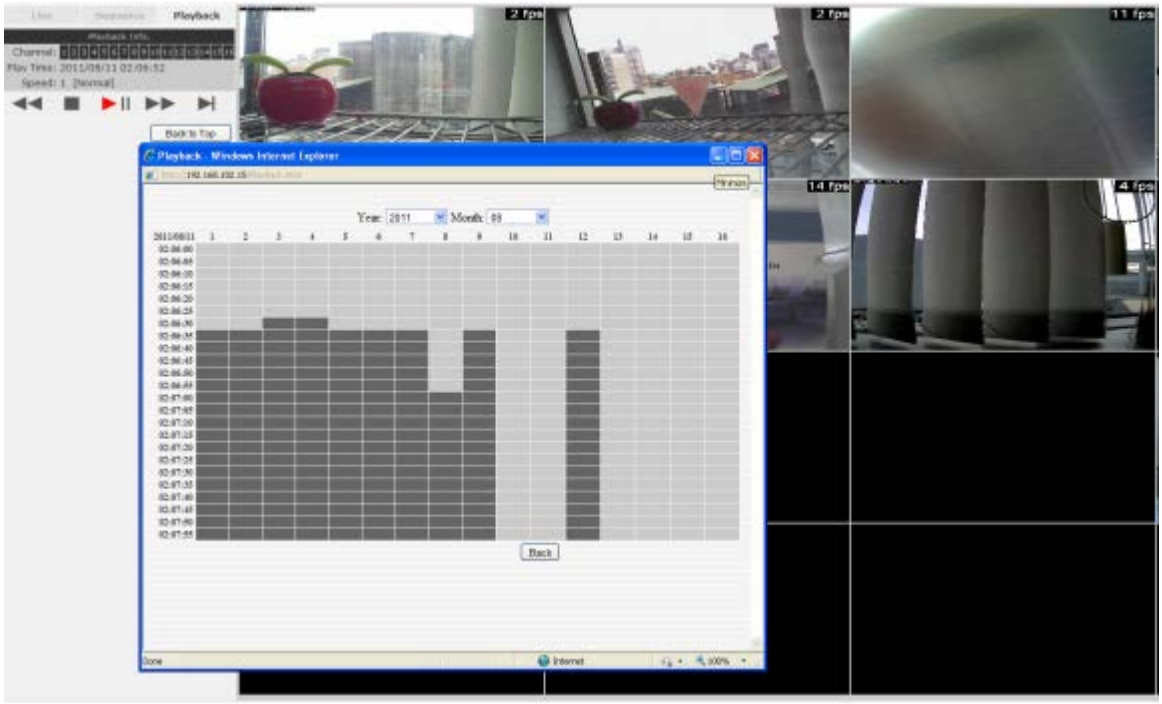


1. Start by selecting which channel(s) you would like to perform a search on.
2. Select “Search by time chart” from the “Search Method” drop-down list and click “Go” to start the search

** Selected channels will be marked in red*



Results will then be displayed in a new dialog with a “Month/Channel” table and boxes marked in dark gray represent videos found in those dates. (** Videos from other cameras that are recorded on the same date will also be displayed)*



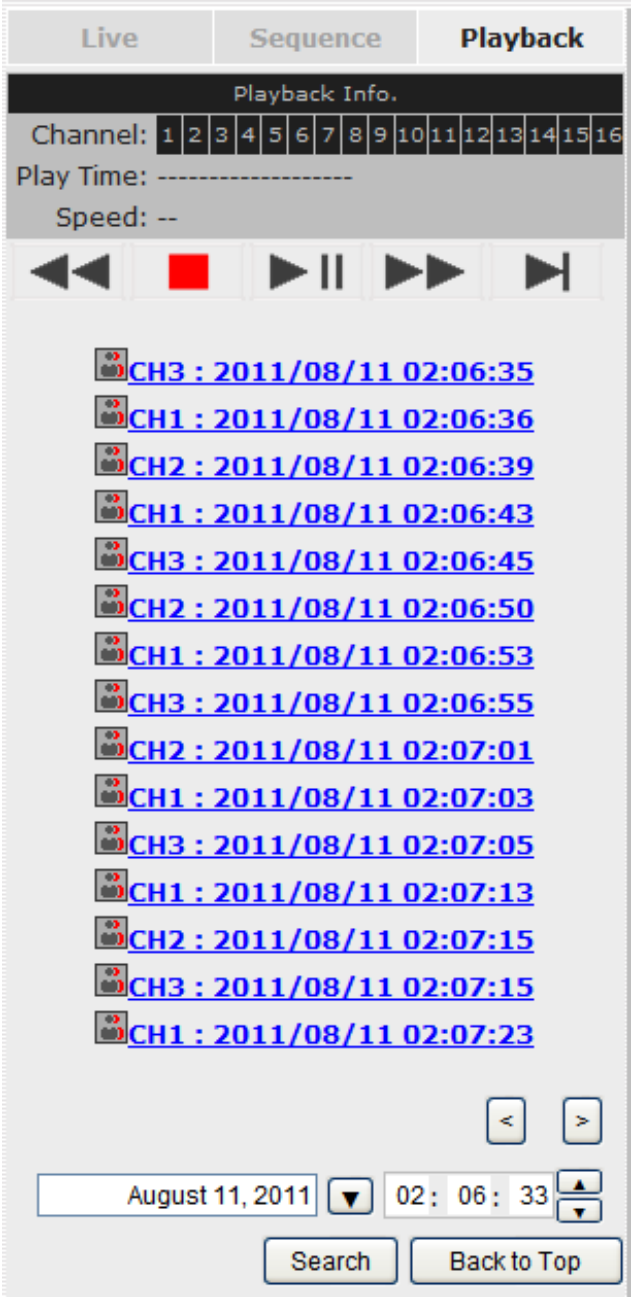
Clicking on a cell box marked with gray will take you to the "day" view of the selected month. Repeating the same step will eventually take you to the "second" view (5sec per cell box). Right-click anywhere or the "Back" button on the table will take you back to the previous view.

Click on the play button at anytime will start playing videos from the beginning of the current time view (ex. if the table is in the "month" view, click play will start playing from the first available clip of that month)

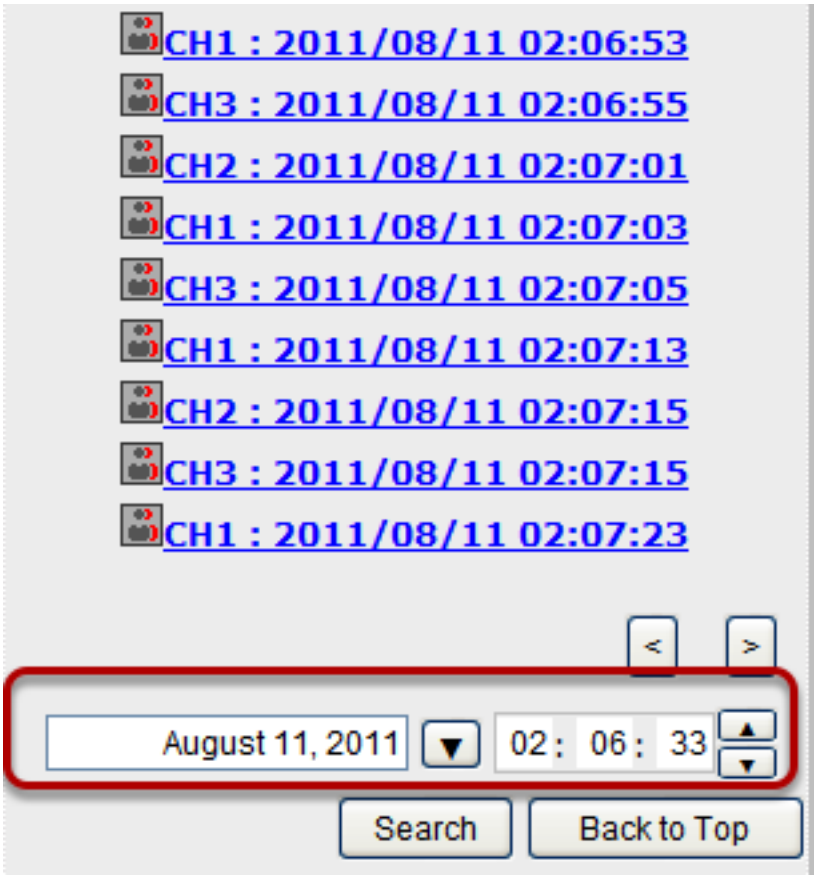
Search by event

Start by selecting which channel(s) you would like to perform a search on.

Select “Search by event” from the “Search Method” drop-down list and click “Go” to start the search



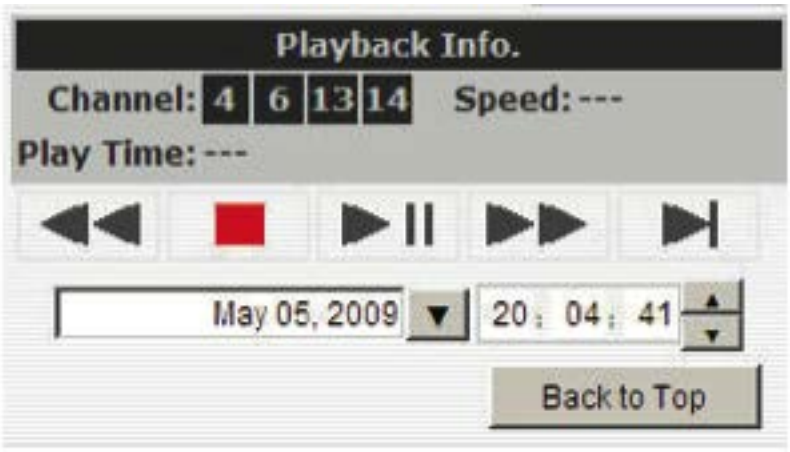
Results will then be listed like what is shown below (displays the oldest record top down). Click on a particular result to start the playback. (* *You can cilck “Next Search” to display the next 15 results.)*



You may also specify a new start time to search and display results from then on. You can restrict the number of results to be displayed at once (max. 30) and perform the search again

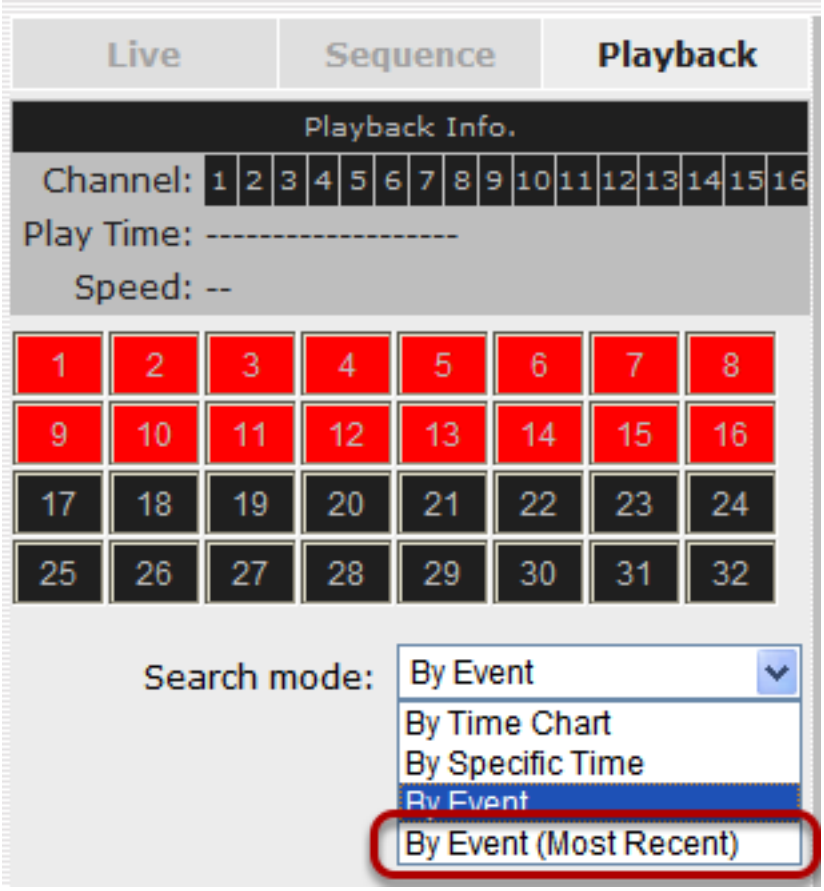
Play by specific time

If you know when a recording was taken place, you may choose the "Play by start time" from the "Search Method" drop-down list

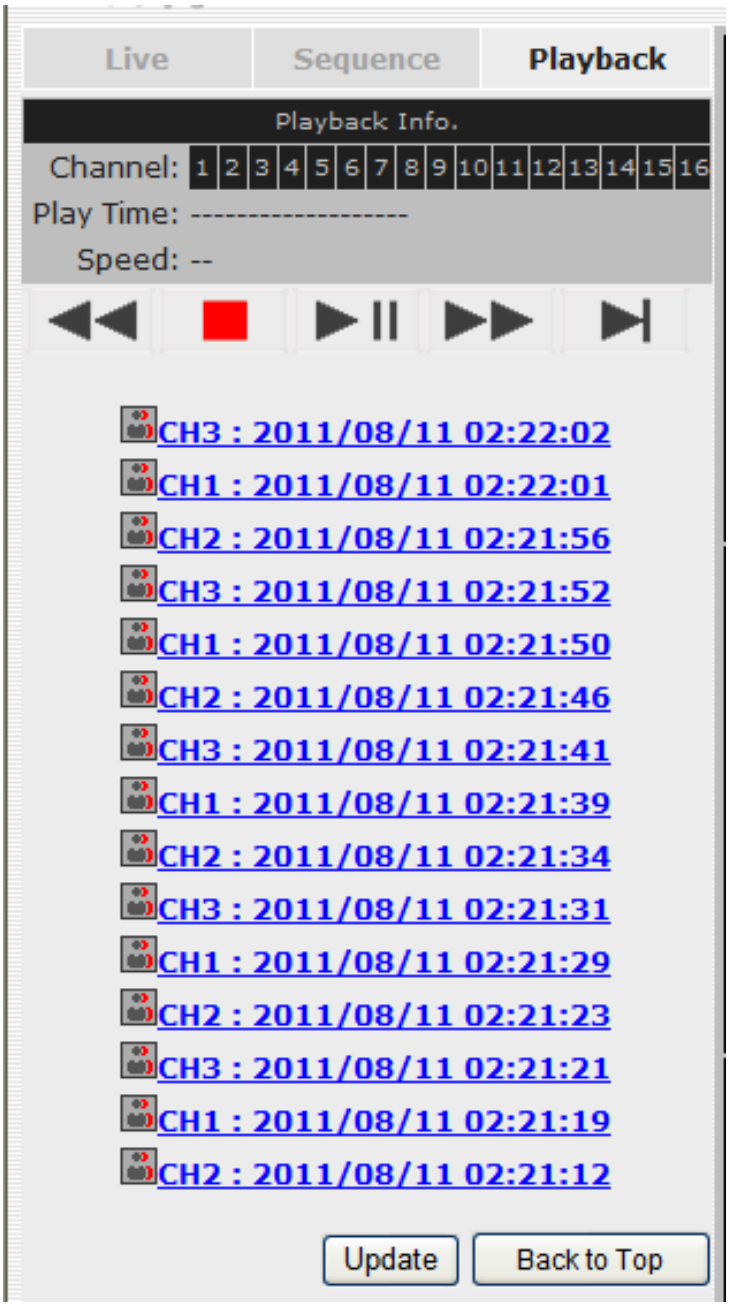


Then you will be prompted to enter a specific time and date for the recorded video.

Search by event (Most Recent)



This function quickly displays the most recent event recordings from the selected channels, displaying the most recent result top down.



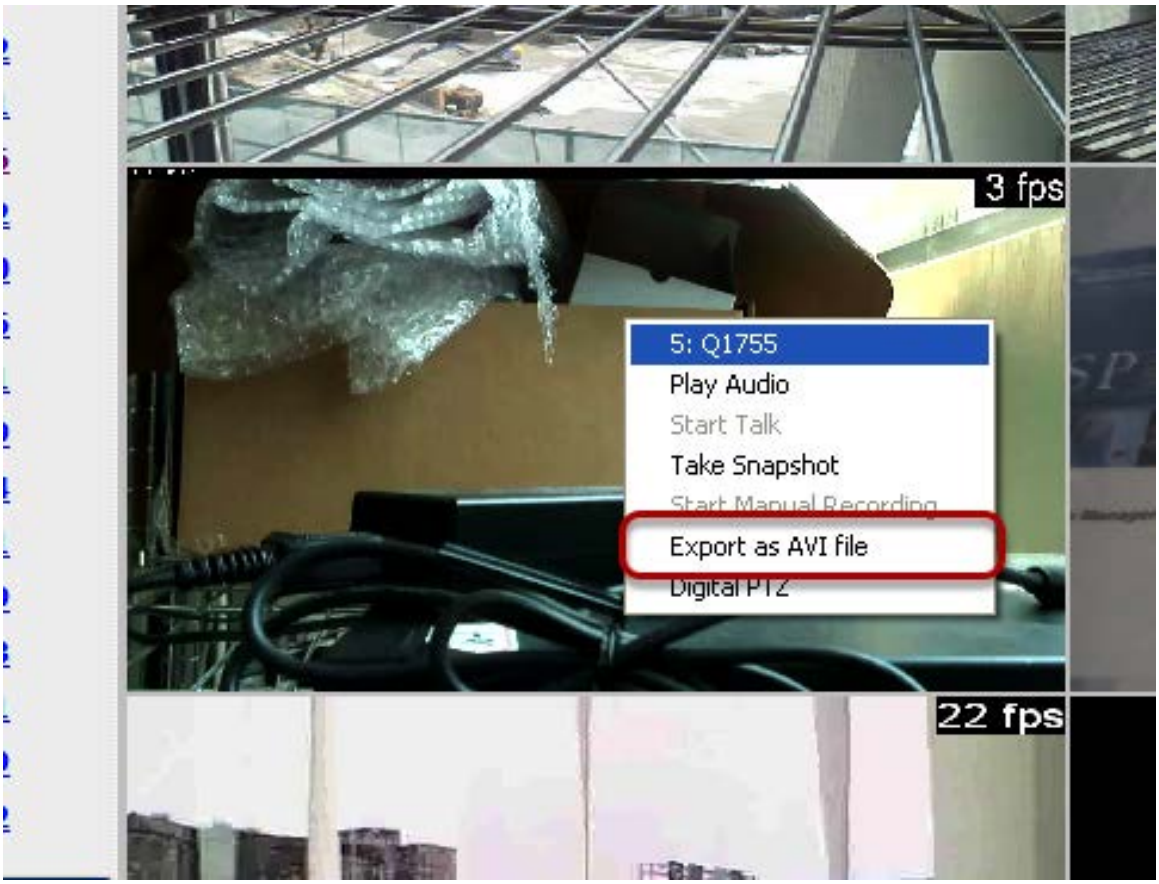
You may click “Update” to update the list to display the most recent results.

Certain functions you can perform to the playback video

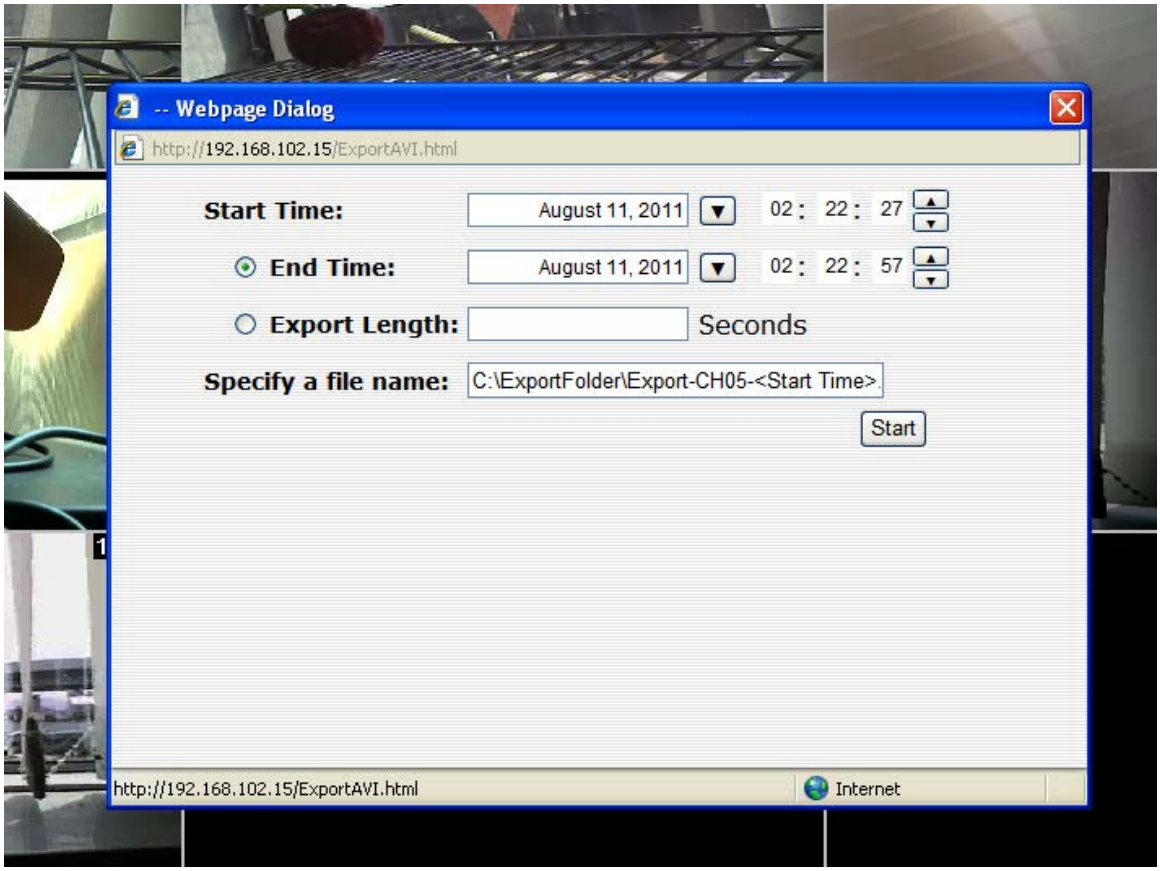
You can do the followings by right-clicking on the playback video:

1. Play Audio
2. Snapshot
3. Export as AVI file
4. Digital PTZ

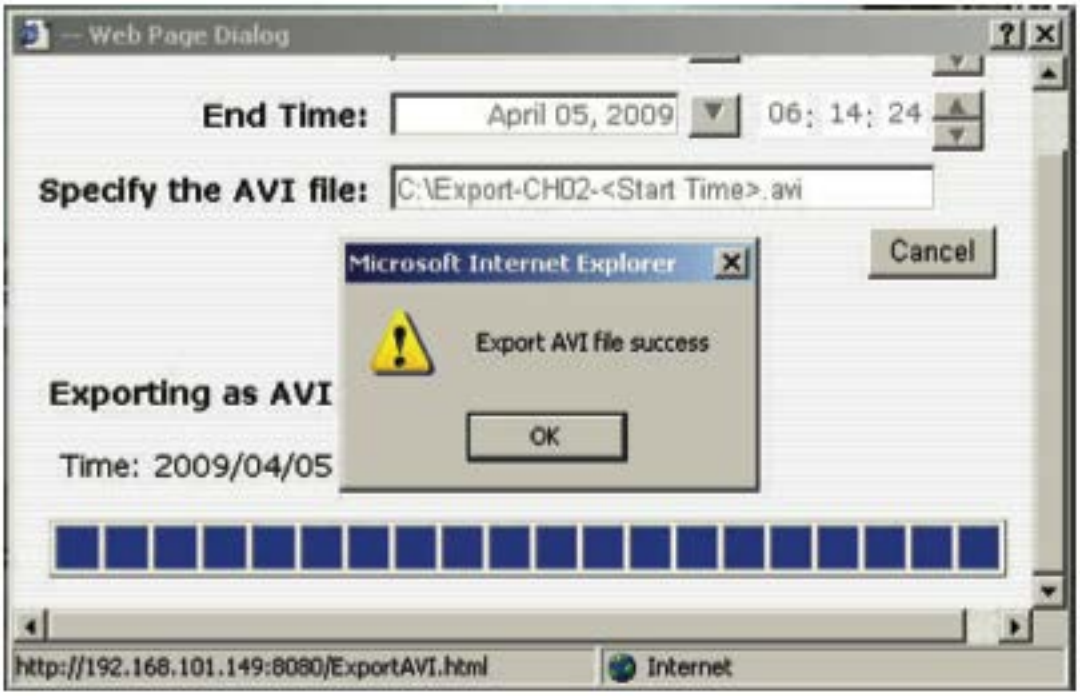
Export Playback Videos to AVI Files



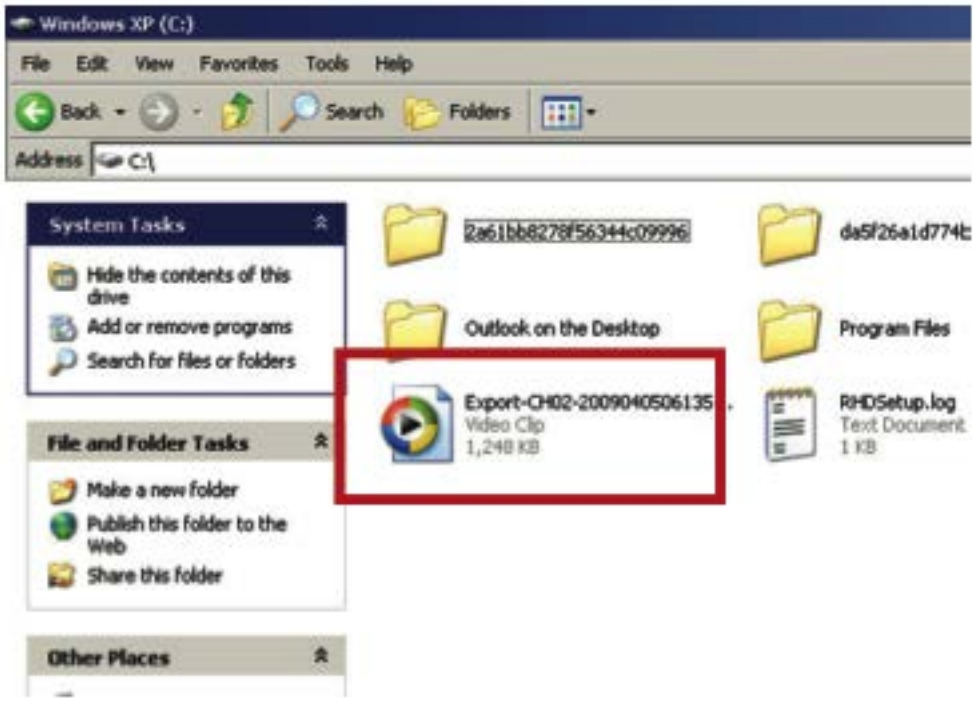
User can export the recorded playback videos stored on the NVR to a local computer and save them in AVI file format. The files can then be played on the PC by a 3rd party media player such as VLC player or Windows Media player.
Once you locate the recorded videos with steps described in the previous section, select "Export as AVI file"



A new dialog will pop up and allows you to speficy the time frame (or length) of the video you wish to export



Specify the Start time/End time (or export length) and click "Start" to begin exporting.
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)

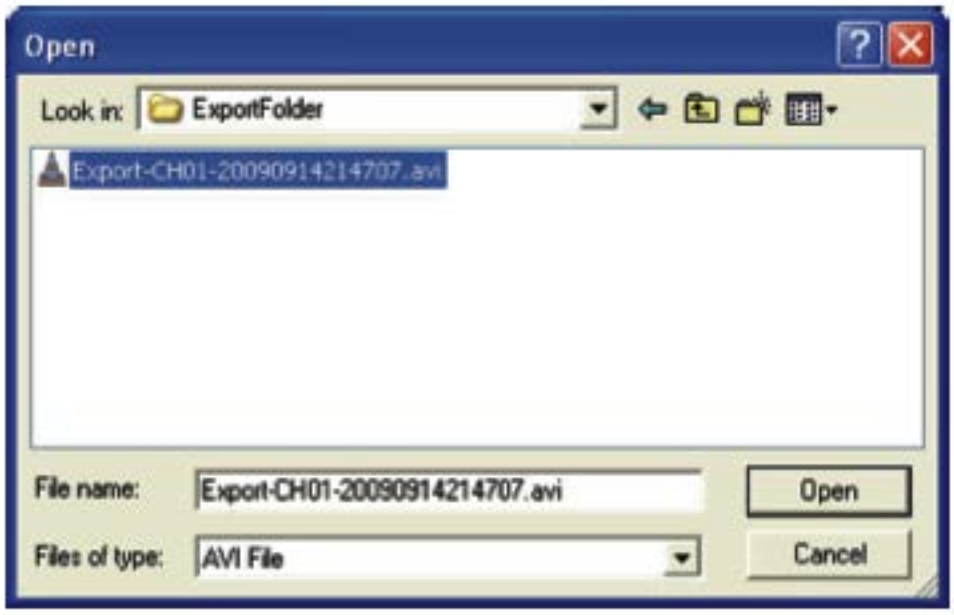
** ffdshow is required in order to play the exported AVI file with Windows Media Player. You can get it at "http://sourceforge.net/projects/ffd- show-tryout/" to download the "ffd- show_beta6_rev2527_20081219. exe"*

Play 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.

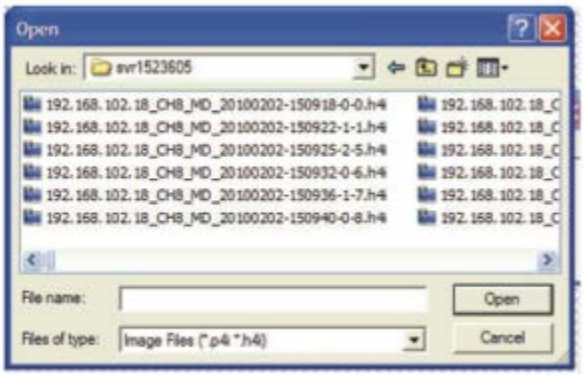
Click “Open” >> “AVI File”



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

The video will then start playing

Open 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 recepient. These type of snapshot images

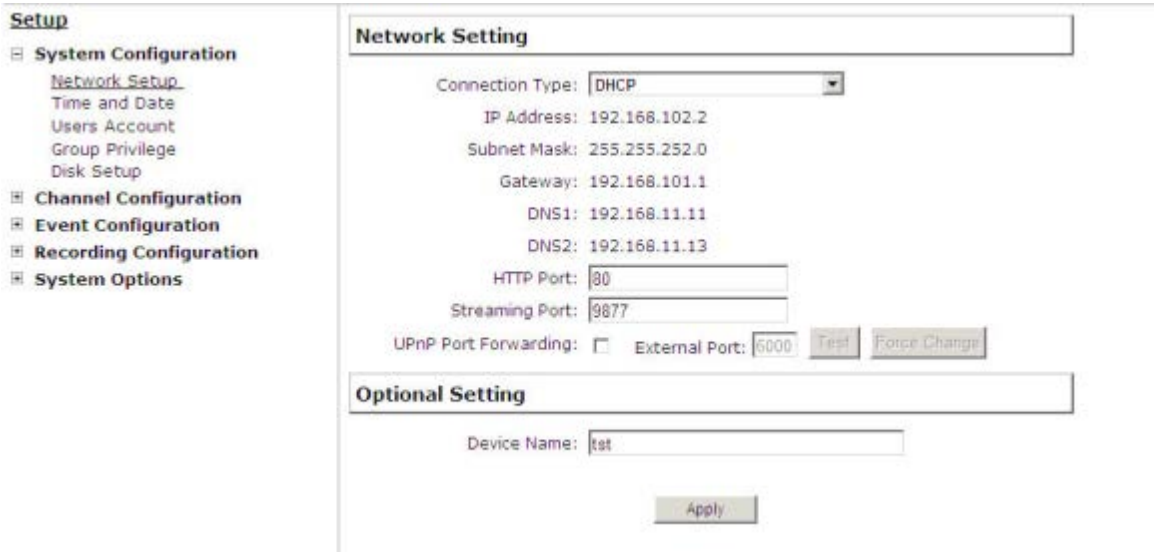
are saved in a proprietary image file format, h4i or p4i, and can only be opened by the NVR media player.
To do so, Select “Open” from the top menu then select “Image File”. A new dialog should be displayed which lets you locate the image file.

NVR Setup -- System Configurations

Network Setup

The “System Configurations” page provides users options to setup the device quickly and properly. After properly configuring all settings in 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. Next, we will help you adjust the system time so videos will be recorder with correct timestamp. To better secure the system for unwanted disturbance, we will guide you on setting up user’s account and privileges to prevent settings gets altered by users other than the system administrator. Lastly, we will tell you what you should expect after installing a hard disk and how to prepare the hard disk for the video recording.

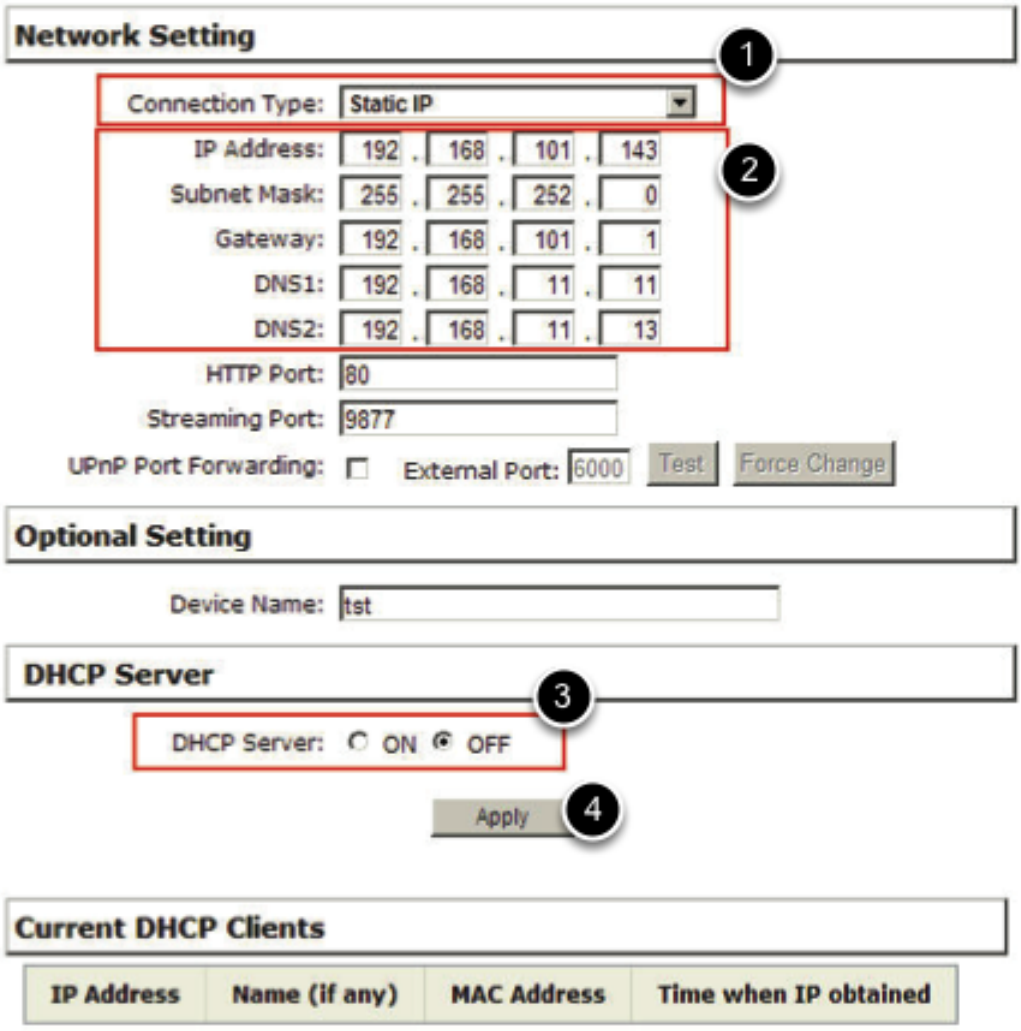
Network Settings



You need to adjust settings in 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 obtain IP address from DHCP server, it should be sufficient in most network environments, and most likely you should not need to alter anything in this page.



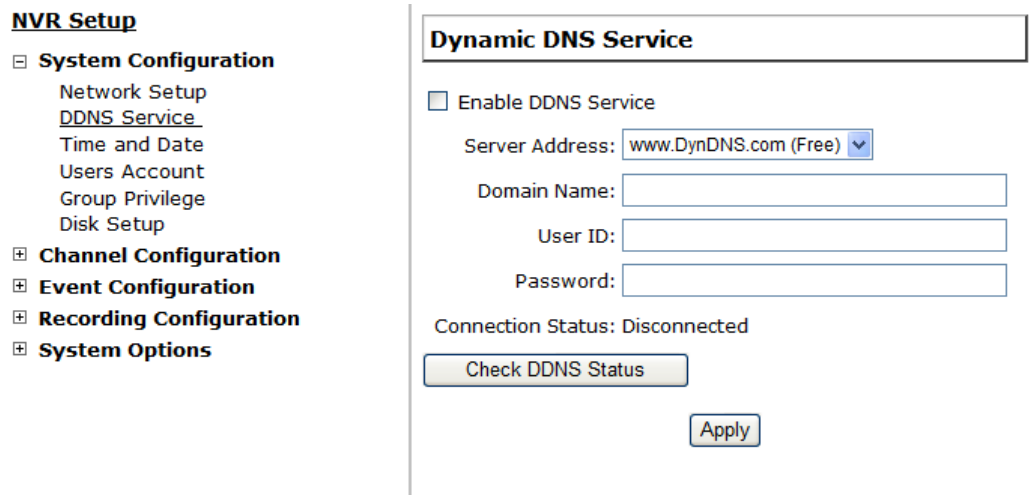
If you wish to set the recorder to use a static IP address in your local area network,

1. Choose “Static IP” from the “Connection Type” drop-down menu

2. Enter the IP address, subnet mask, default gateway address and DNS server address for the recorder
3. Enable “DHCP Server” under “DHCP Server” if you wish to use the recorder as a DHCP server, or leave it disabled if there is already a DHCP server in the network
4. Click Apply for the settings to take effect

** 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 if you wish to use a separate DHCP server*

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 hostnames, addresses or other information stored in DNS.

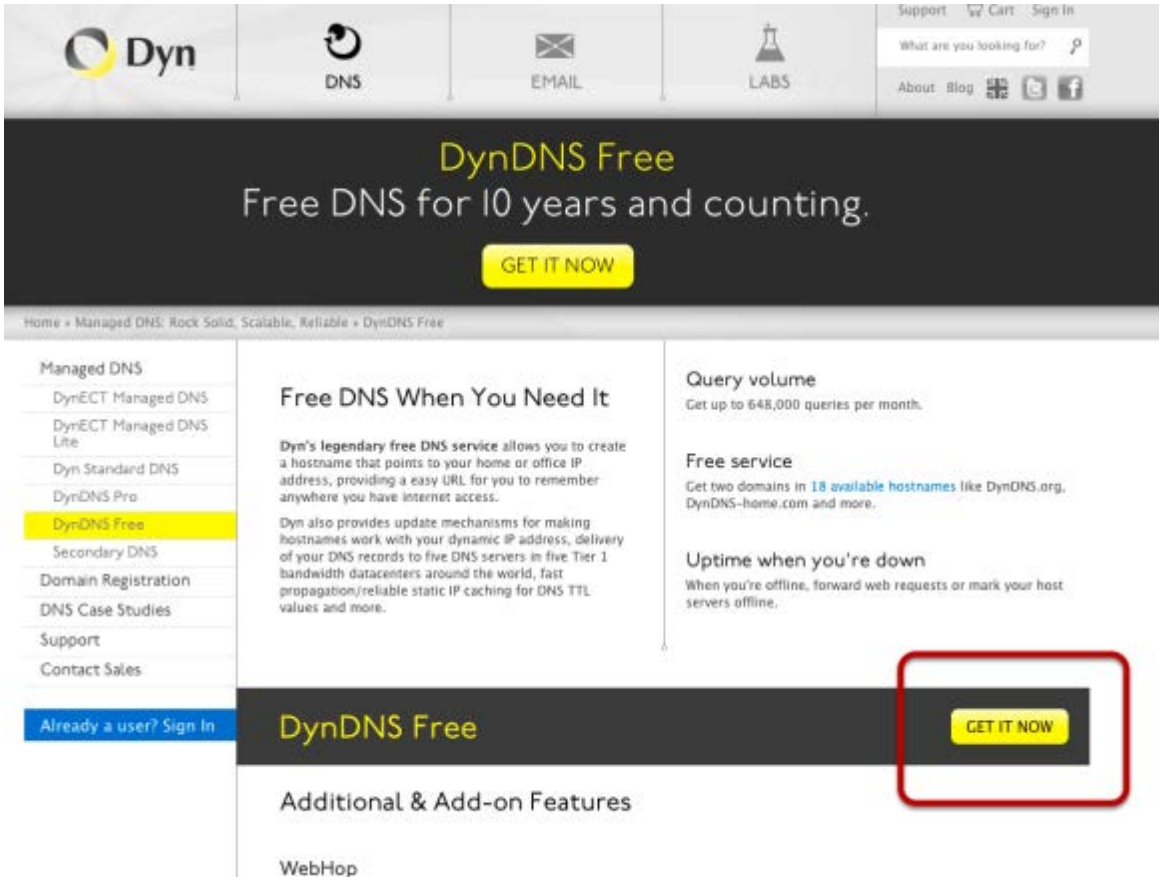
A popular application of dynamic DNS is to provide a residential user’s Internet gateway that has a variable, often changing, IP address with a well known hostname resolvable through standard DNS queries. This is useful if the NVR is placed on the Internet with a dynamic public IP, which once the DDNS is properly setup, users can access the NVR remotely with the DDNS domain name without worrying if the IP hs changed or not.

**Please make sure a valid DNS server has been configured under the "Network Setting" page in order for this function to work properly.*

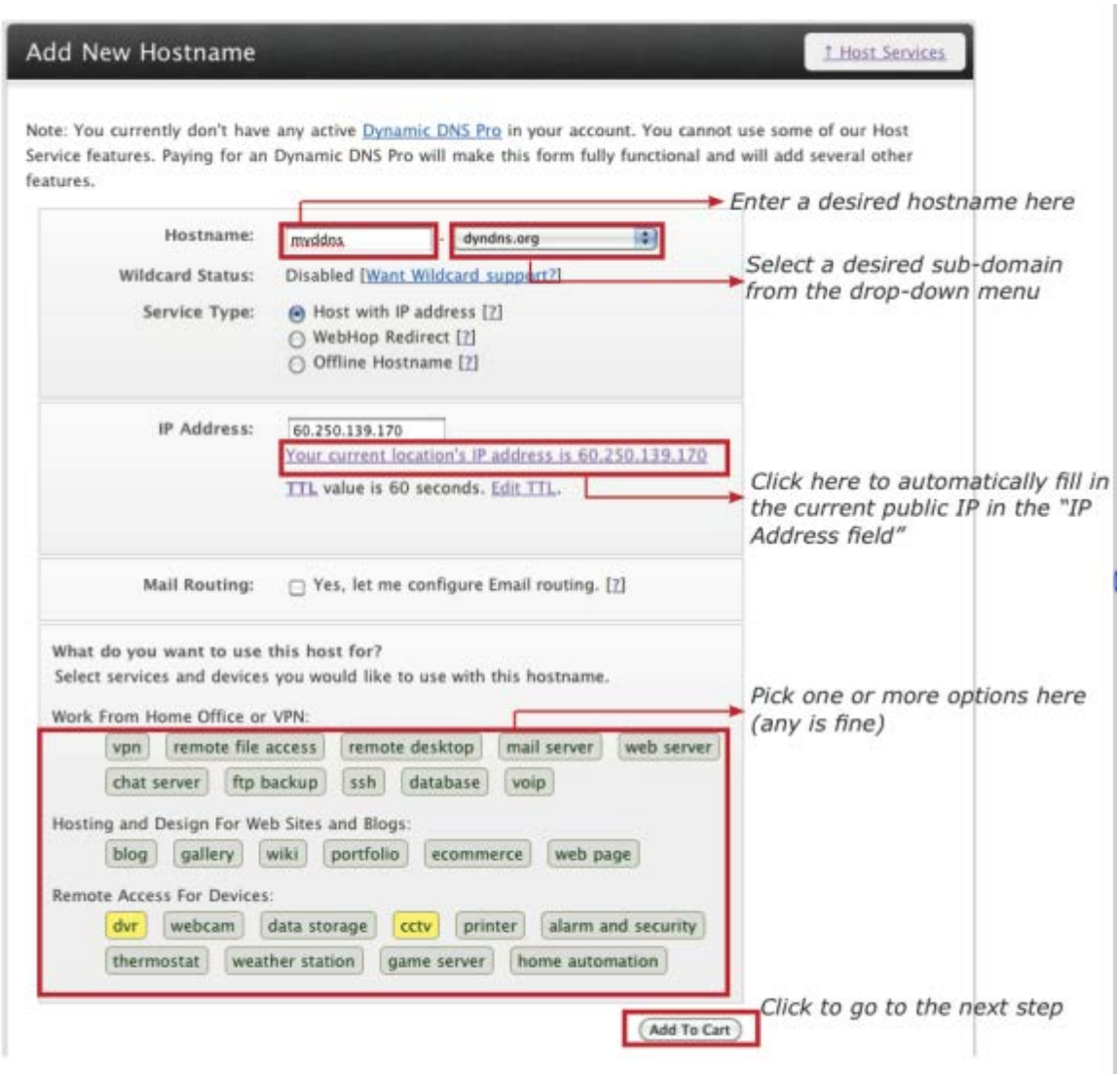
**The NVR currently only works with free DDNS service provided by "DynDNS". For more information, please go to www.dyndns.com*

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 gat- way 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 view.*



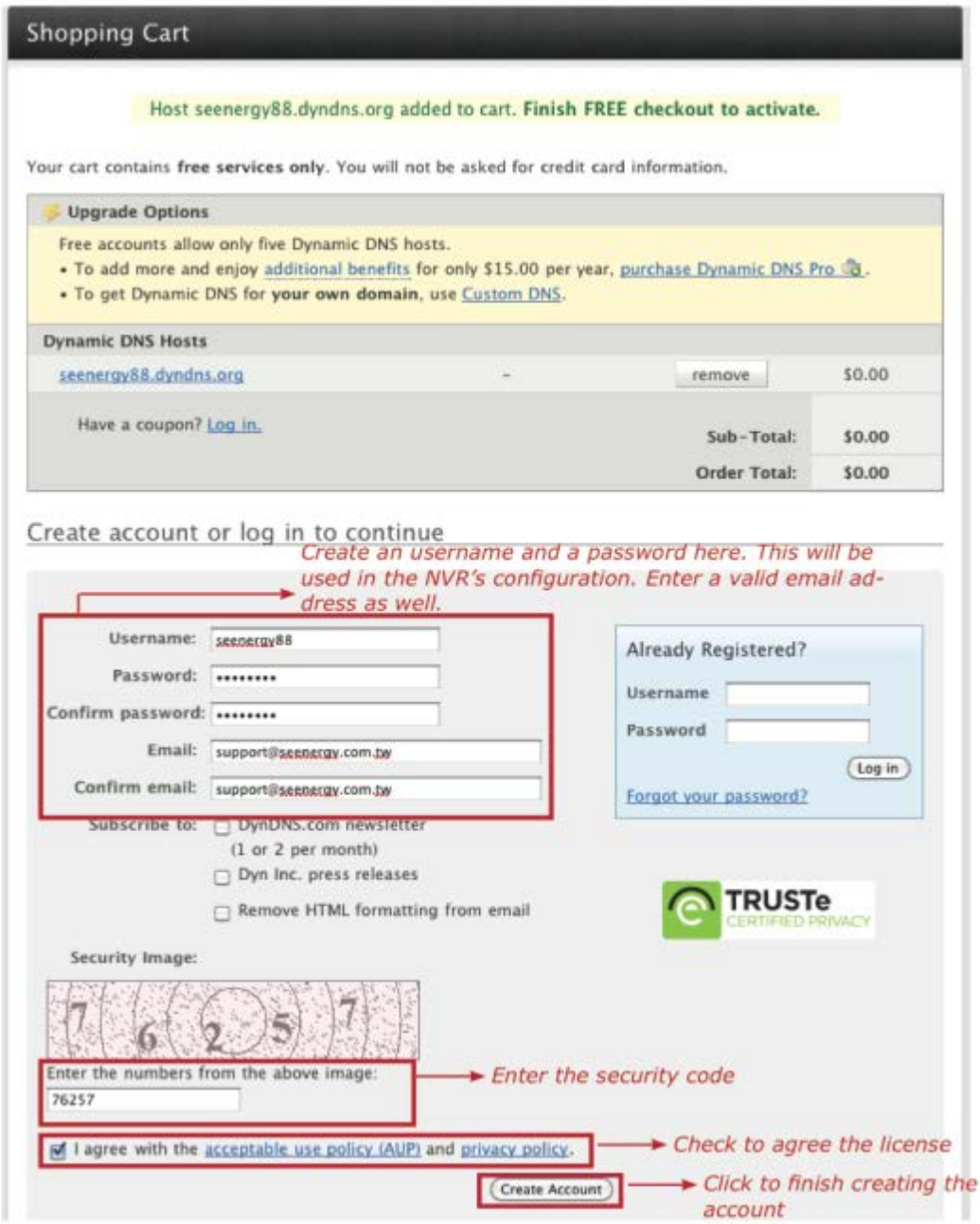
In order to properly configure the DDNS service function, please register a free DDNS domain name and account from DynDNS first. Go to **http://dyn.com/dns/dyndns-free/** from the browser to do so.



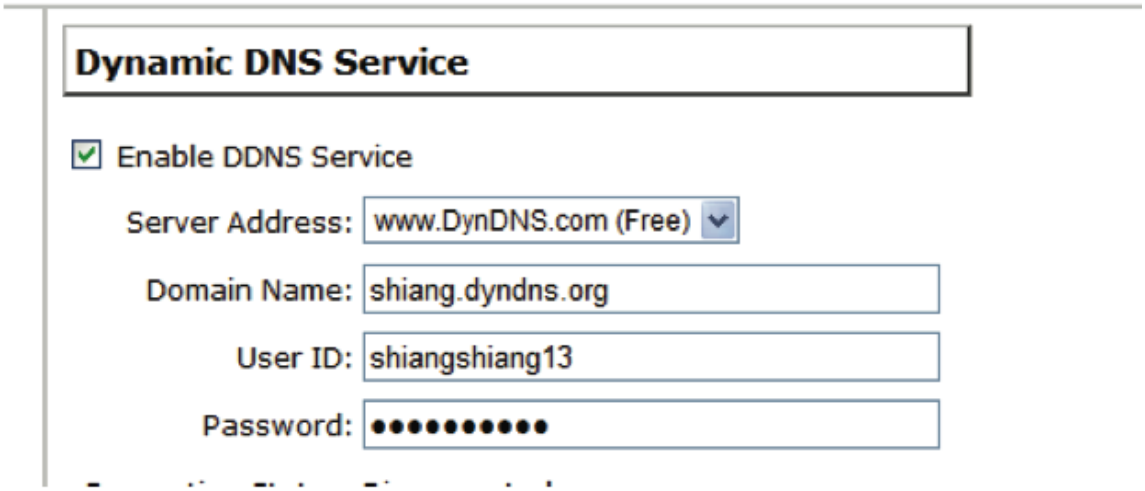
Fill in the necessary fields as illustrated above

The page will check whether the hostname you entered has been used by another user or not as soon as you click the “Add to Cart” button. If

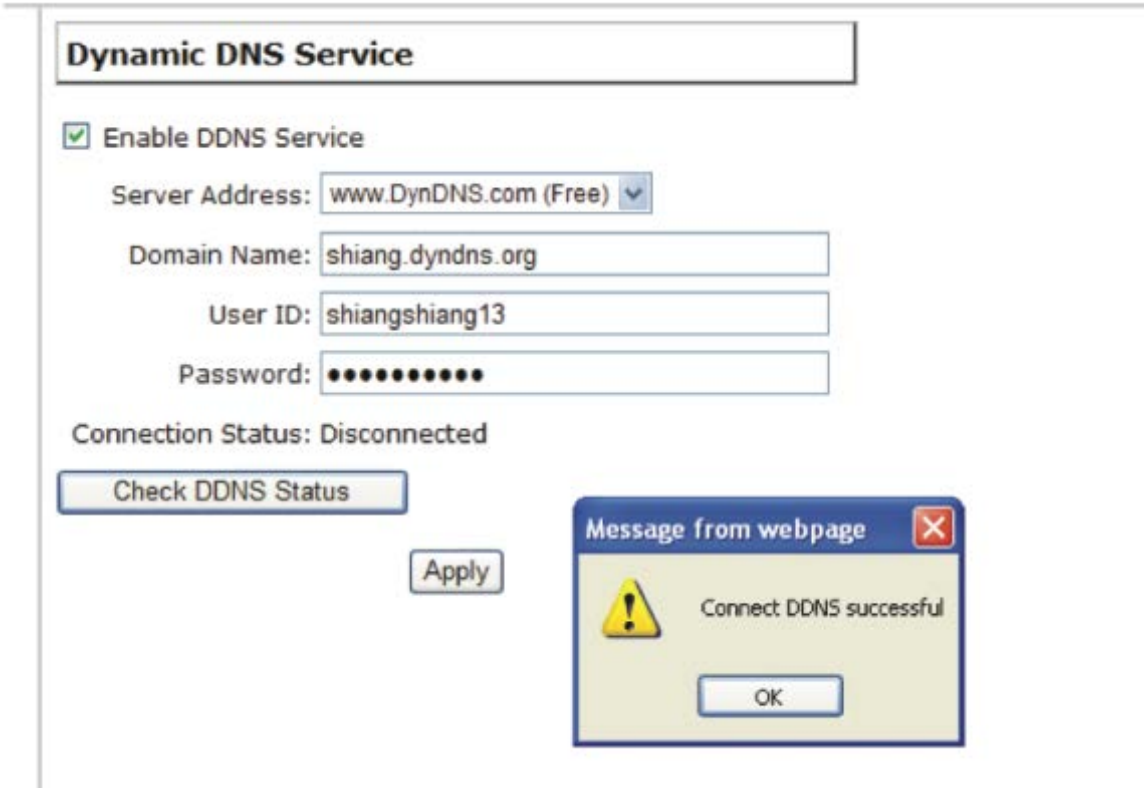
you see below message, simply enter a different and click “Add to Cart” again



Once you get to the next page, fill in the necessary fields as illustrated above

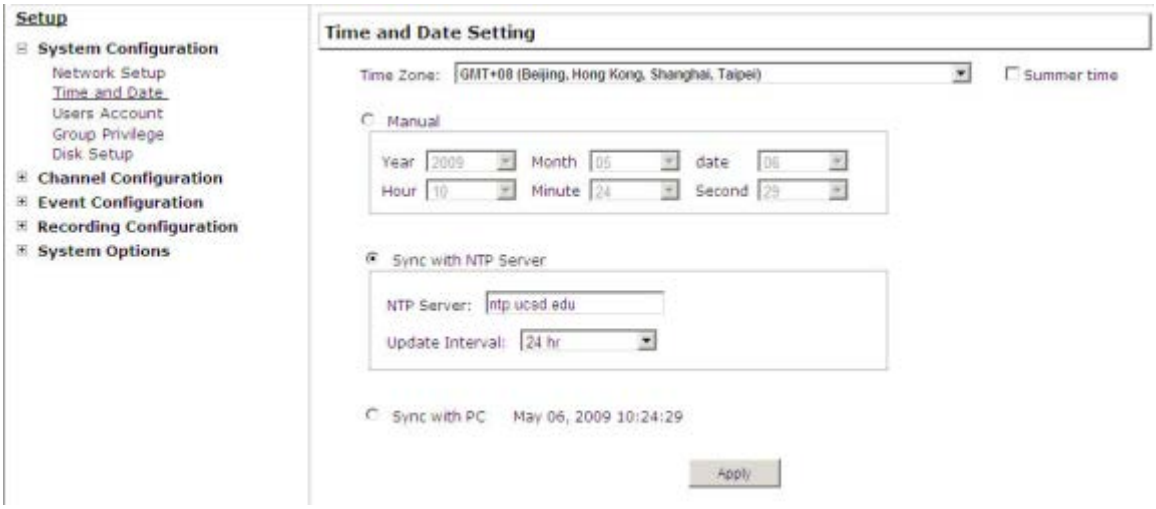


Go back to the NVR's DDNS service configuration page under "Setup" >> "System Configuration" >> "DDNS Service".
Fill in the domain name you picked during the registration in the "Domain Name" field and the username/password you created in the "User ID" and "Password" field and click "Apply" to finish



You can click the “Check DDNS Status” button to check the DynDNS 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 ok normally, you should be prompted with a success message

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:

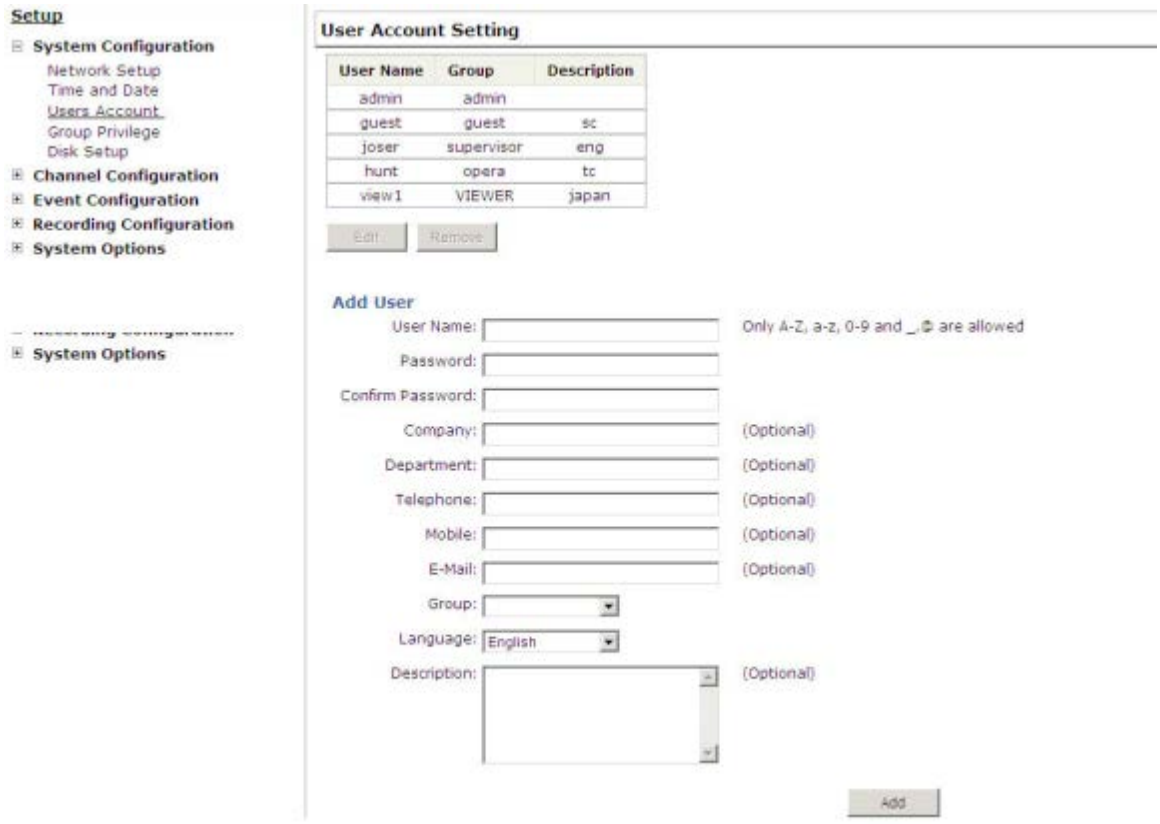
• Incorrect display time for playback videos
• Inconsistent display time of event logs and when they actually occur
After selecting the time zone, choose an option below to set the recorder time

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

• **Sync with NTP server** – enter the hostname 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

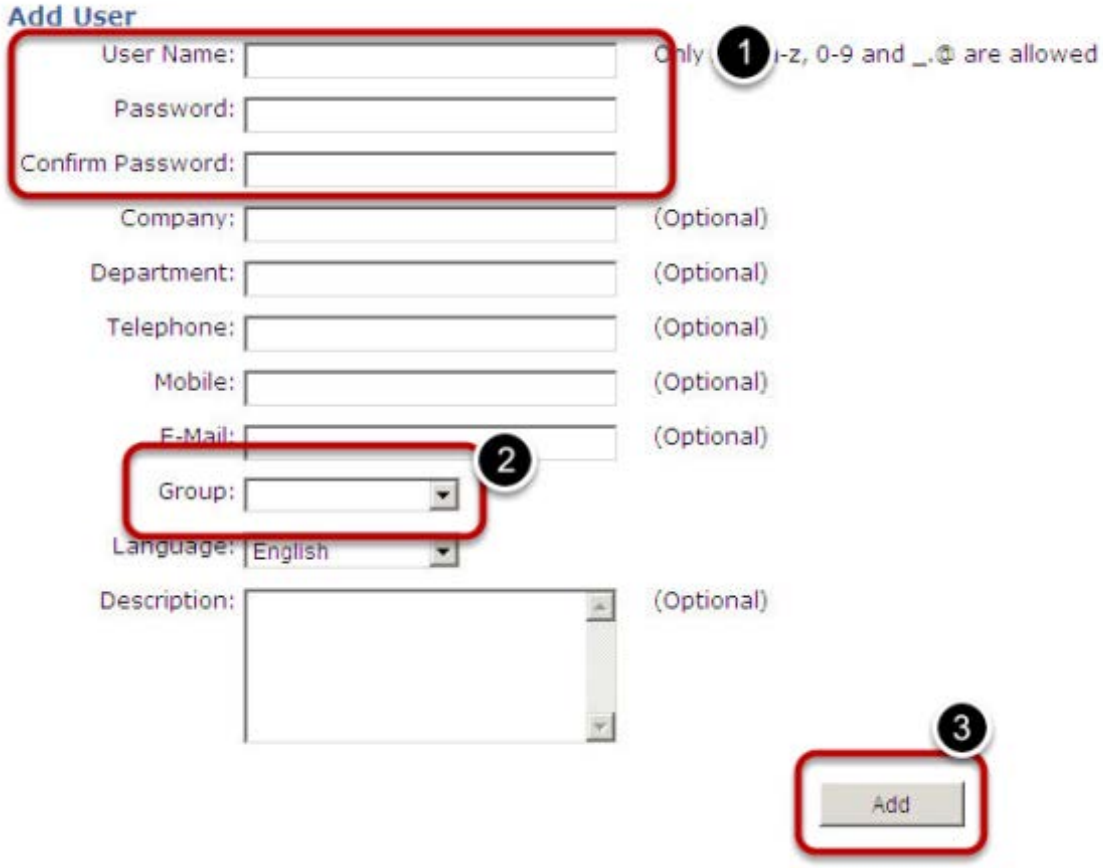
• **Sync with PC** – Check this option to synchronize the recorder time with the PC that you are currently using to access the recorder

User Account



The recorder can be accessed by multiple users simultaneously. You can add, remove, and edit users by using options provided in 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.

Add a new user

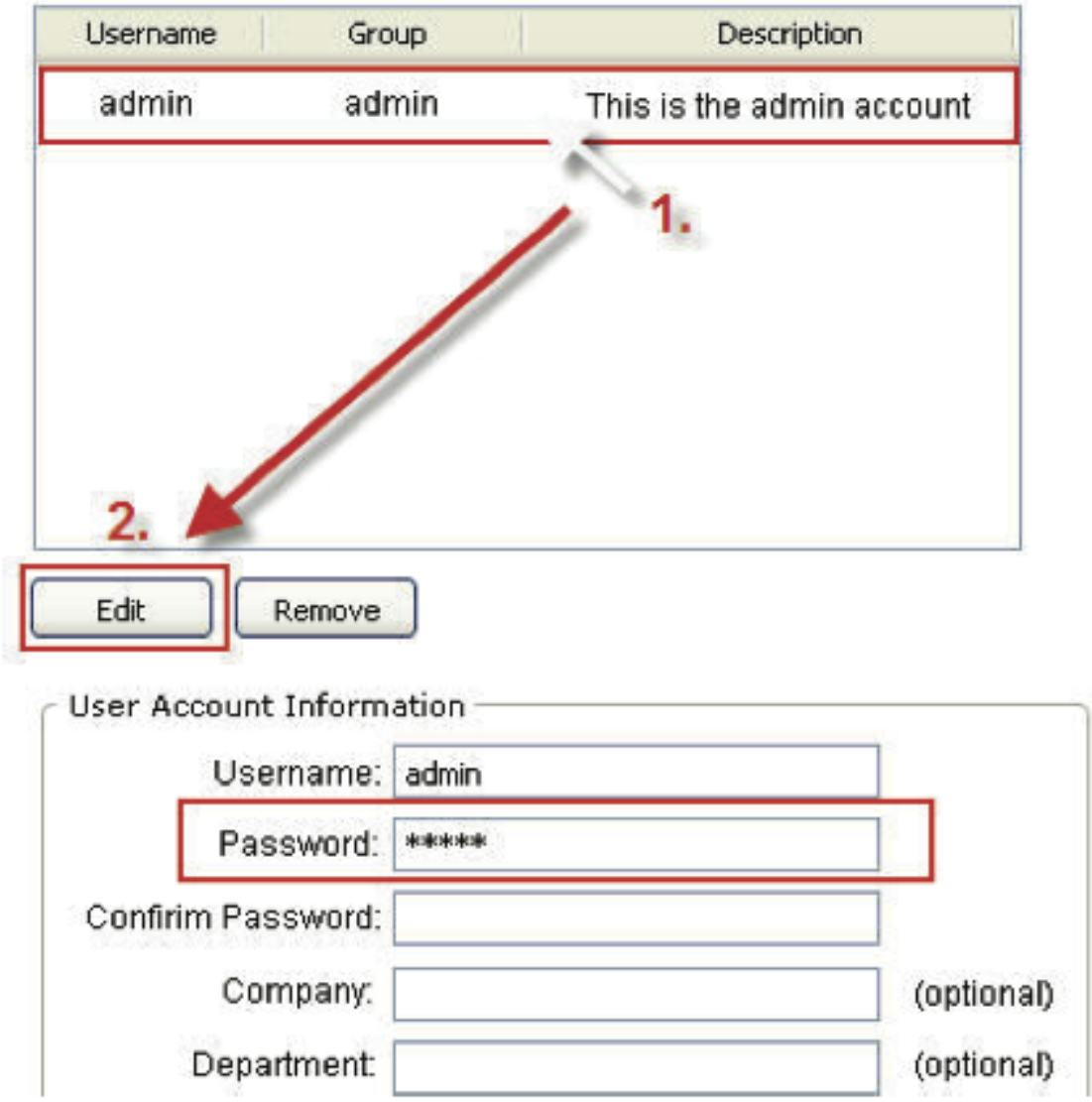


• Enter a username and password in “User Account Information”. All other fields are optional for your own reference.

• 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 “Add” to finish configuration

Change the password of the “admin” account

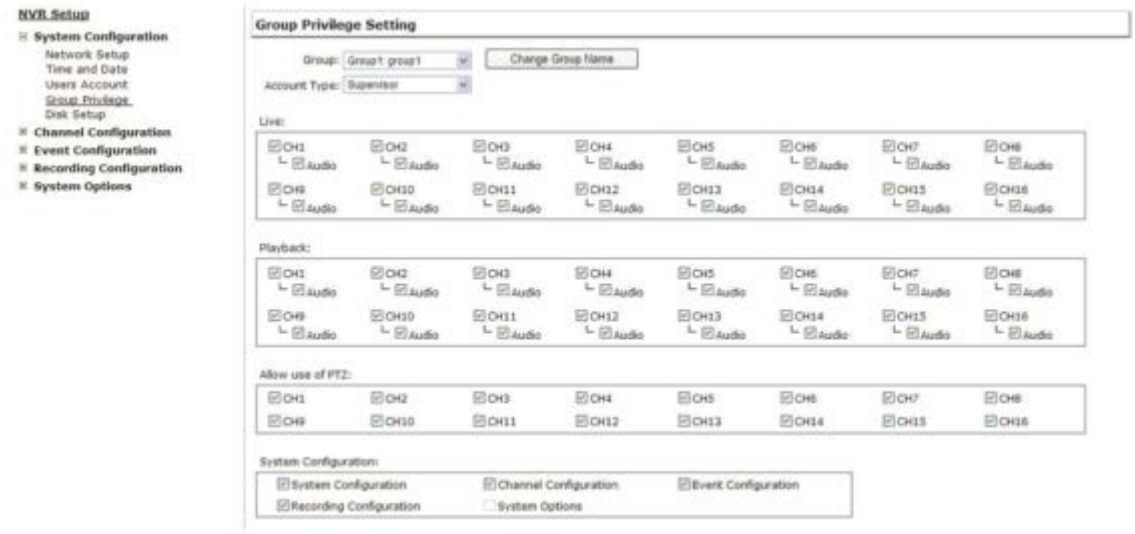


1. Click and highlight the “admin” account in the account list and click “Edit”

2. Its information should be displayed in “User Account Information”

3. Enter a new password in the “Password” field and enter it again in “Confirm Password”

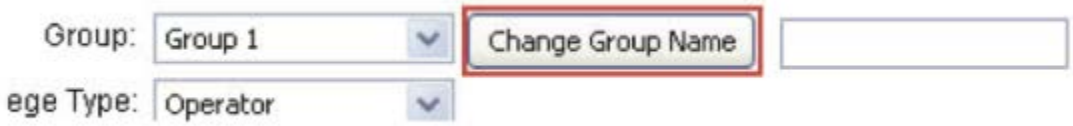
Group Privilege



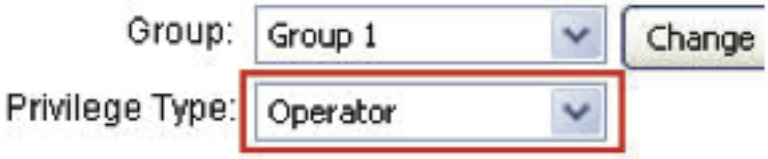
Group Privilege is where you can create multiple customized access policies for situations if you need the recorder to be accessed by users other than the administrator. You can do so by creating a group, and then remove access privileges for certain configuration pages or cameras. Users that are created 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 in the “Live View” page, and users in this group do not have the power to make any changes in the “Live View” page or have access to pages other than the “Live View” page.

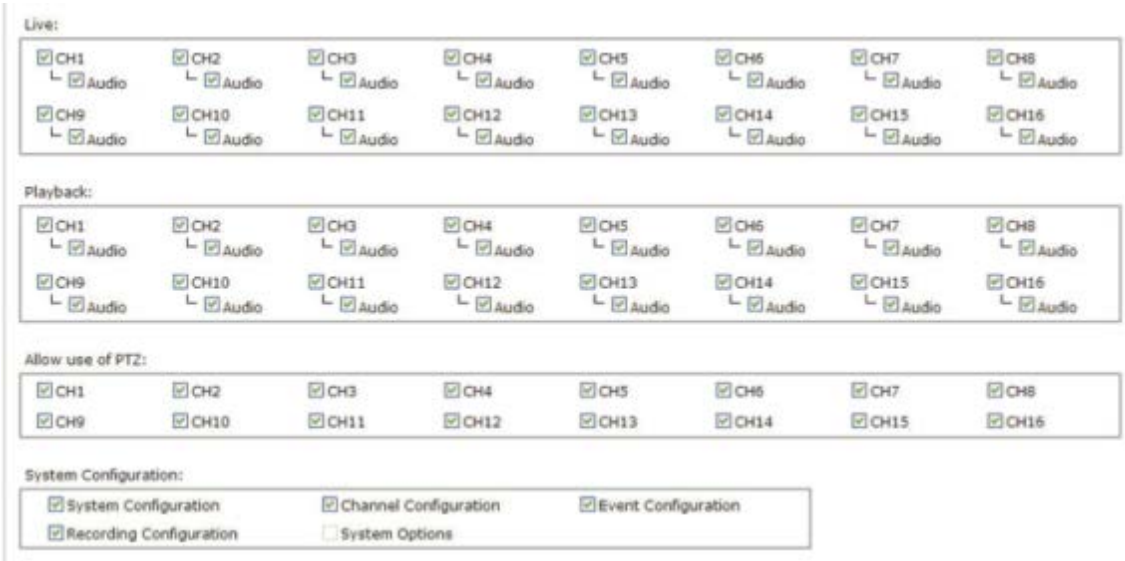
To create a group, select a group from the “Group” drop-down



You can change the group name by clicking the “Change Group Name” button. A text box will be displayed for you to enter the new group.

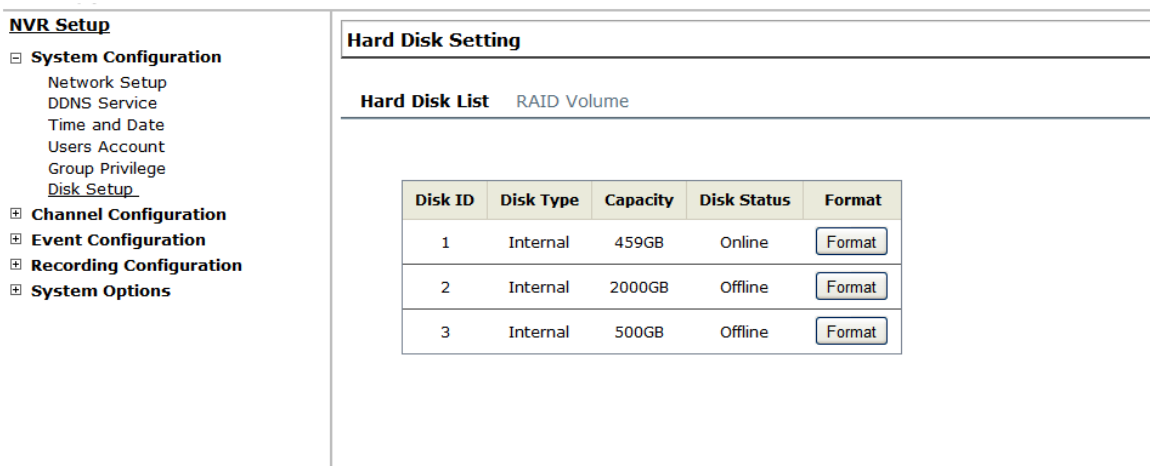


Choose what type of privilege you would like this group to have from the “Privilege Type” drop-down menu.



Its access privilege will then be displayed. You can alter its settings by allowing or denying access to other cameras using the checkboxes instead of accepting the defaults

Disk Setup



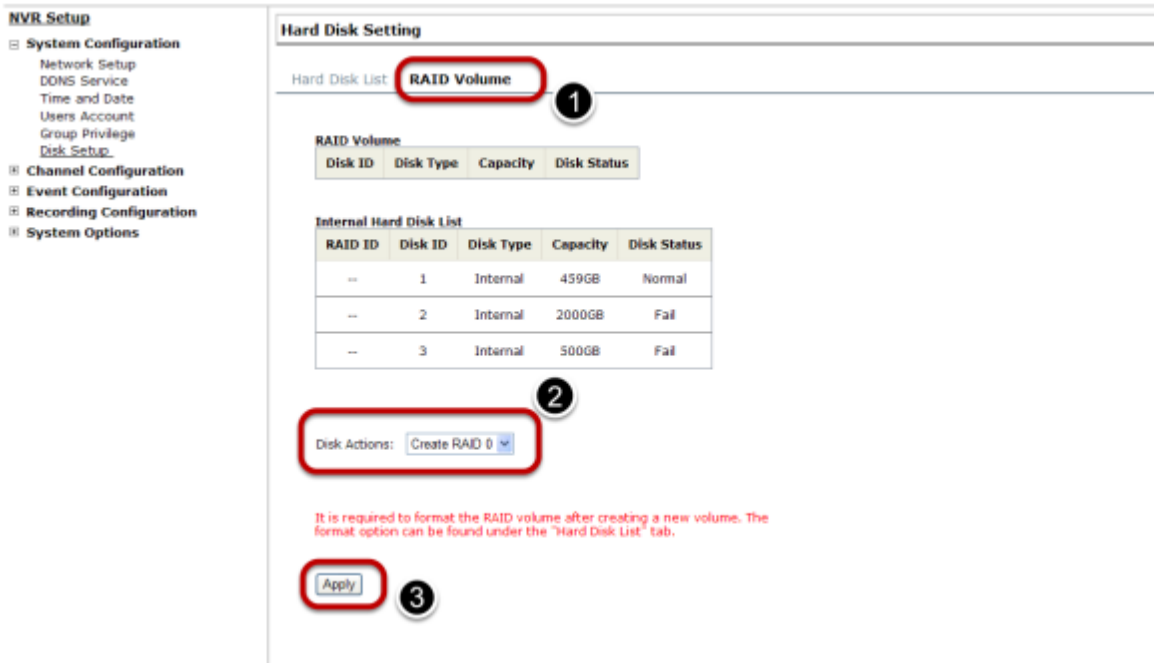
Once you install a hard disk to the recorder, you would need to initialize it so that it can be ready for recording. You can obtain basic information about the disk you installed in this page.

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

**This page will list the Internal disks (or RAID volumes), and the E-SATA disk only. The HDD will be formatted in EXT3 file system.*

**The USB HDDs will only be listed in the "USB Backup" and "Hard Disk Status pages in "System Options". The USB HDDs have to be formatted in advance in FAT16/FAT32 or EXT3 file system. (FAT32 is recommeded)*

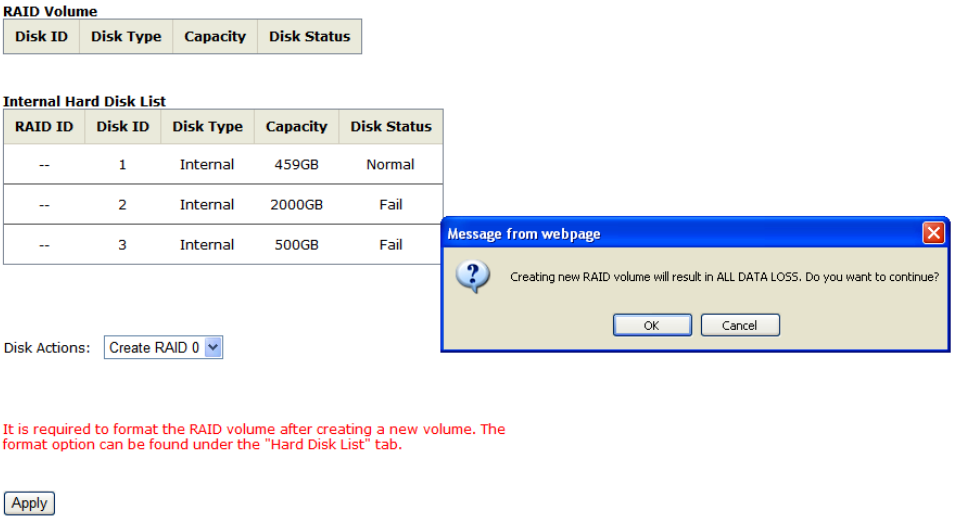
Build RAID Volume



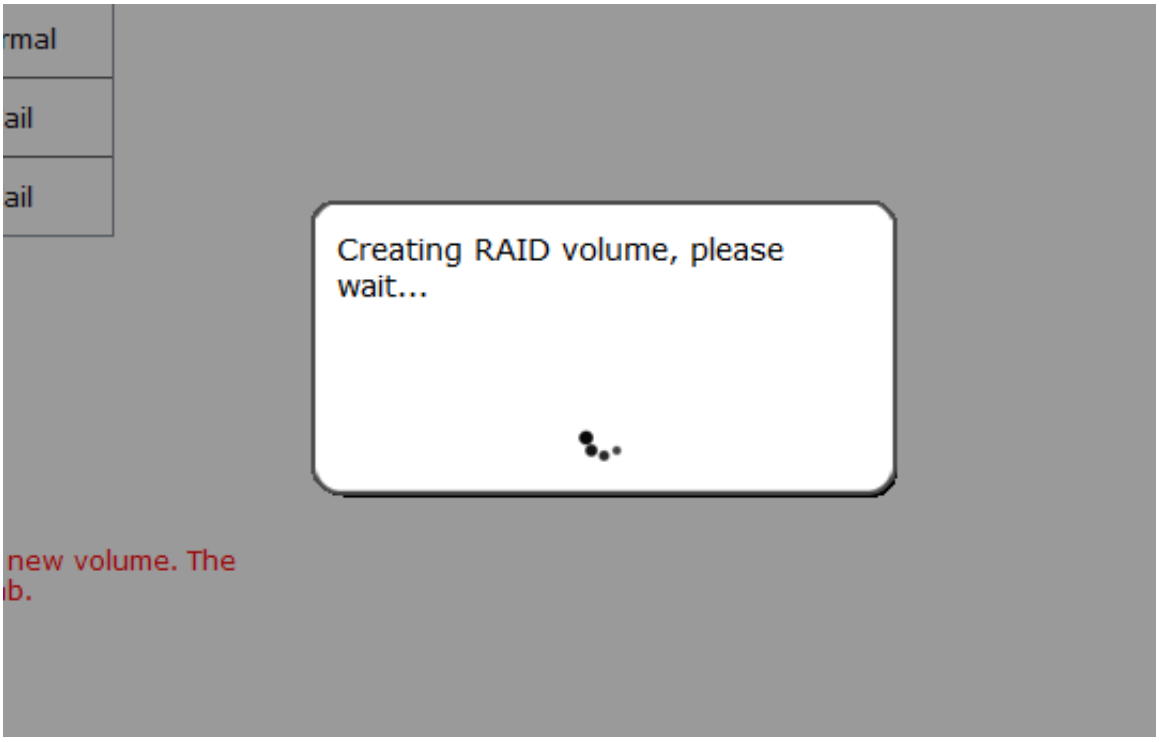
The internal HDDs can be used for RAID. To do so, go to "RAID Volume" in Disk Setup and choose the availabe disk action.

RAID Type	HDD #	Allow Failed HDD	Capacity
RAID 0	2-4	0	(HDD#) x (Smallest HDD size)
RAID 1	2-4	(HDD #) - 1	Smallest HDD Size
RAID 5	>=3	1	(HDD# -1) x (Smallest HDD size)
RAID 10	>=4	1 HDD within each RAID 1 group	(HDD# / 2) x (Smallest HDD size)

The "Disk Actions" drop-down menu displays available actions based on how many HDDs are installed in the NVR. For detail, please refer to the table above.

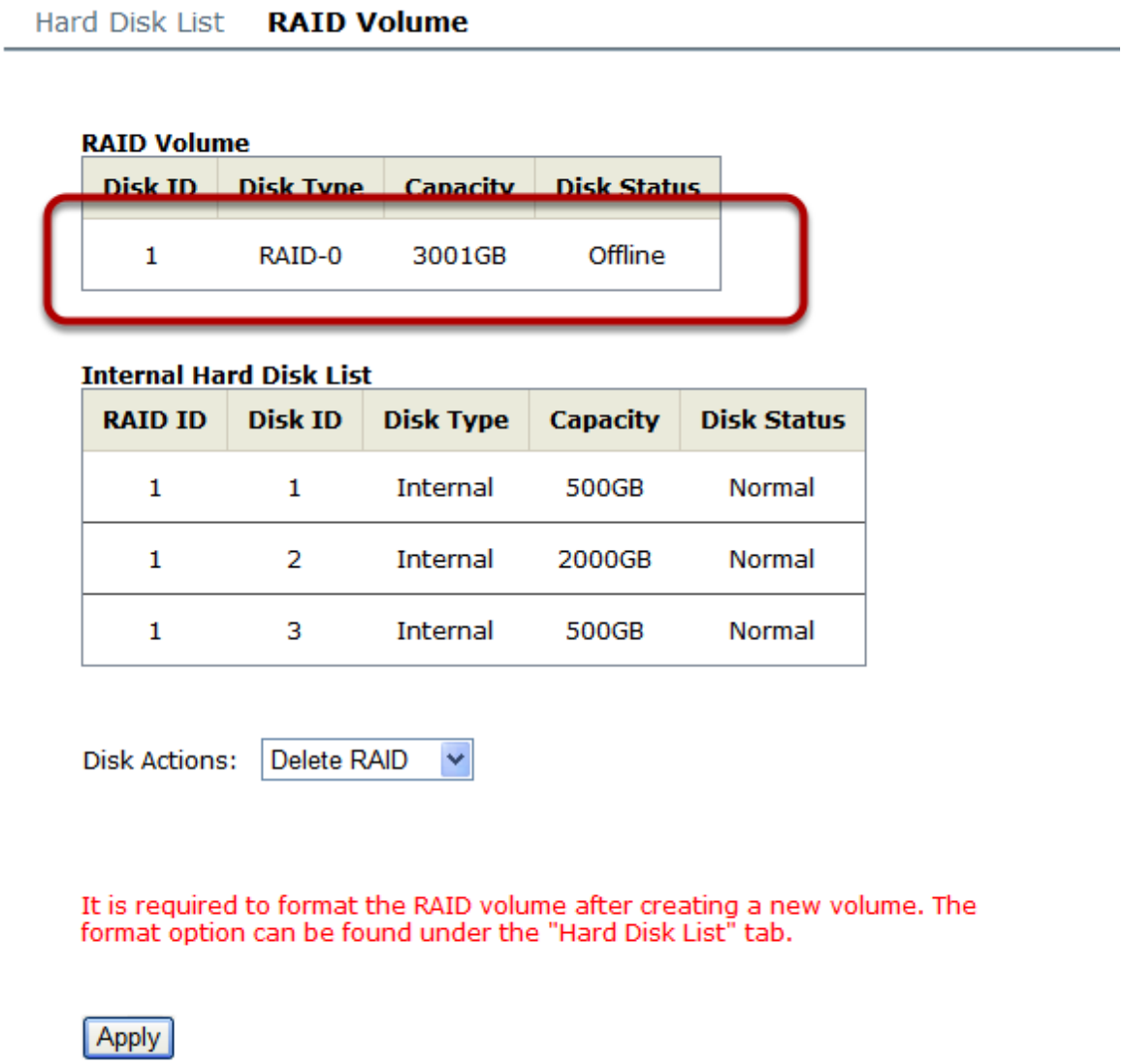


Select a disk action and click "Apply" to proceed. A warning dialog will be displayed as creating RAID volume will erase all existing data on the HDDs. Click "OK" to continue.

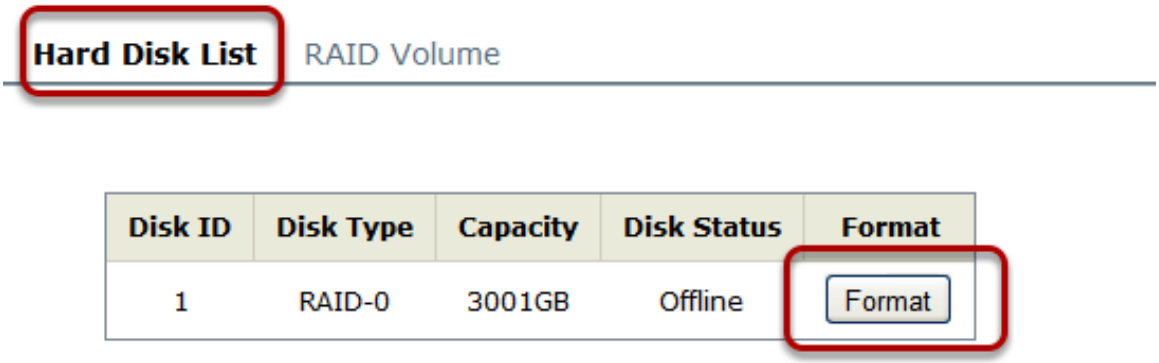


Please wait for a few moment while the NVR is creating the RAID volume.

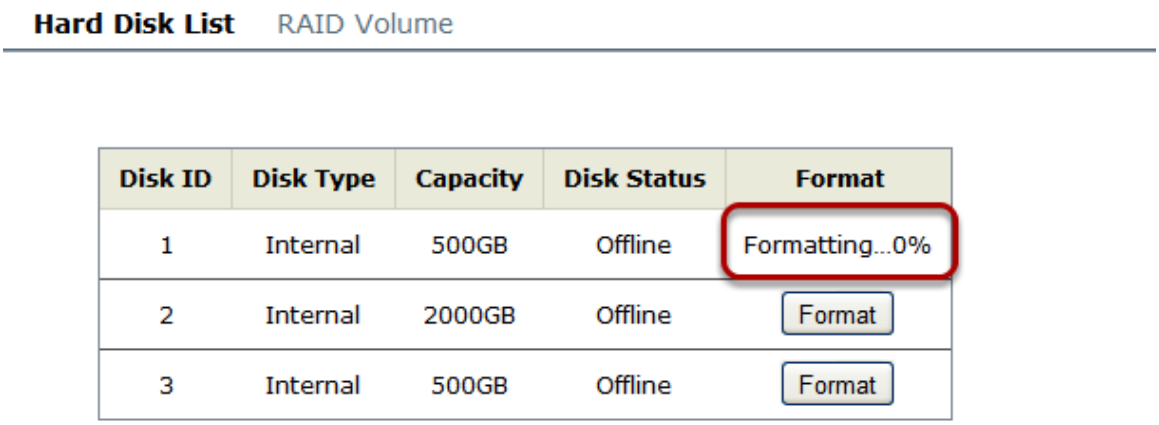
You will be prompted once the action is completed successfully.



Once the RAID volume is created, it will be listed in the "RAID volume list with the status of "Offline"

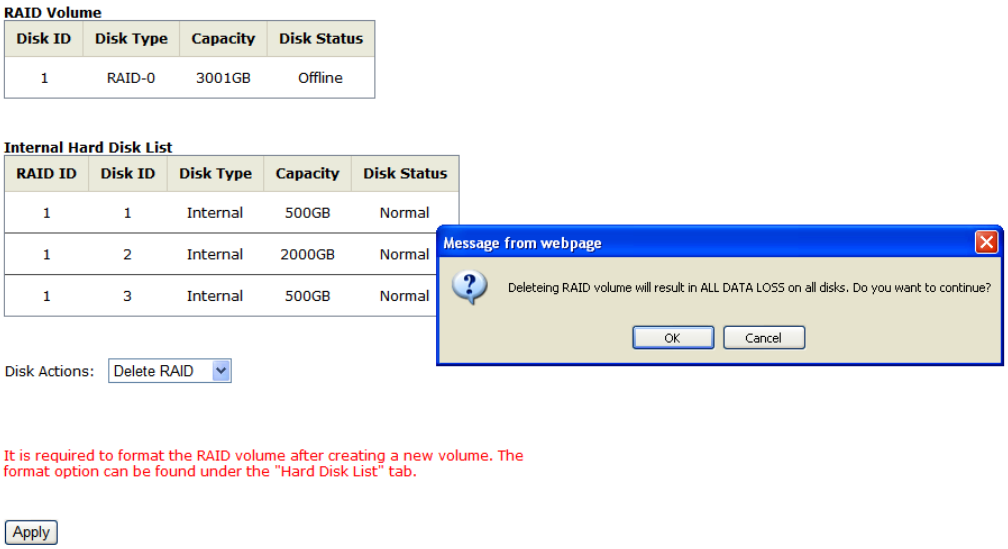


Go back to the "Hard Disk List" page and the RAID volume should be in the list. Click "Format" to bring the RAID volume online.



The status will be displayed just as if you were formating any internal HDDs

Deleting RAID



Once a RAID volume is created, it can be deleted at anytime by choosing the "Delete RAID" action in the RAID volume page. All existing data will be removed after the RAID volume is deleted.

All internal disks that were originally used for RAID volume will have to be formatted again after the RAID volume is deleted.

Notes for RAID function

* Once a RAID volume is created, the “Delete RAID" option should be presented in the “Disk Action” drop-down menu. (regardless the RAID volume has been formatted or not)

* Only RAID1 and RAID 5 have repair function

* The recording should continue even when RAID 1 or RAID 5 volume fails or is rebuilding.

* The replacement hard drive size must be larger or equal to the size of the smallest disk in the volume.

* The internal disks do not need to be formatted prior to creating RAID volume.

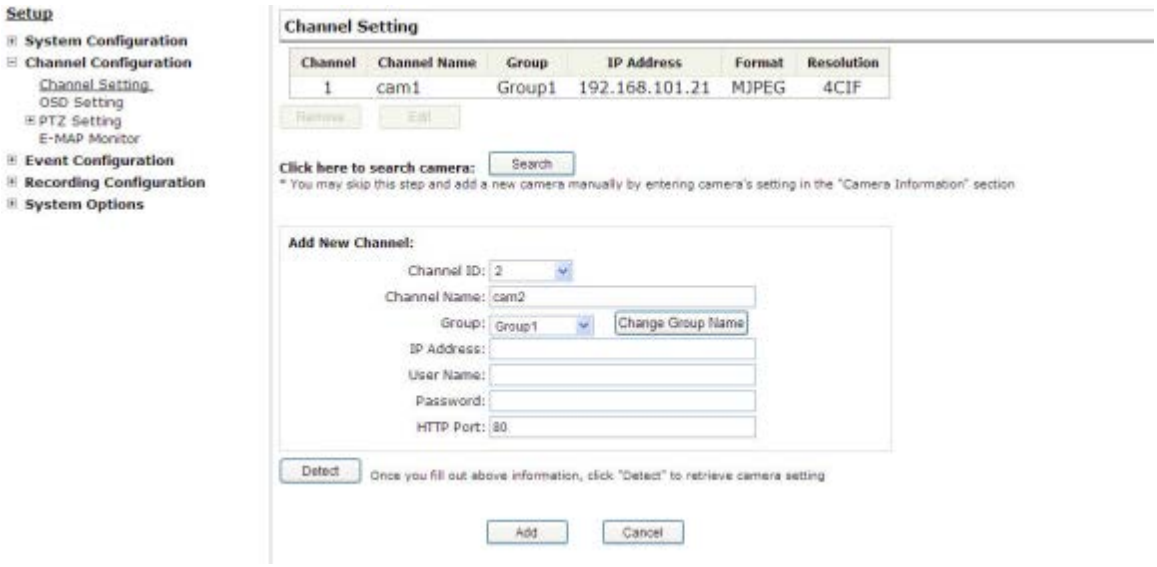
* Create RAID with an existing RAID volume is not allowed.

* Once a RAID volume is deleted, all internal disks within that RAID should become offline and need to be formatted again before they can be used individually.

* All internal disks (or RAID volumes) need to be formatted before they can be used.

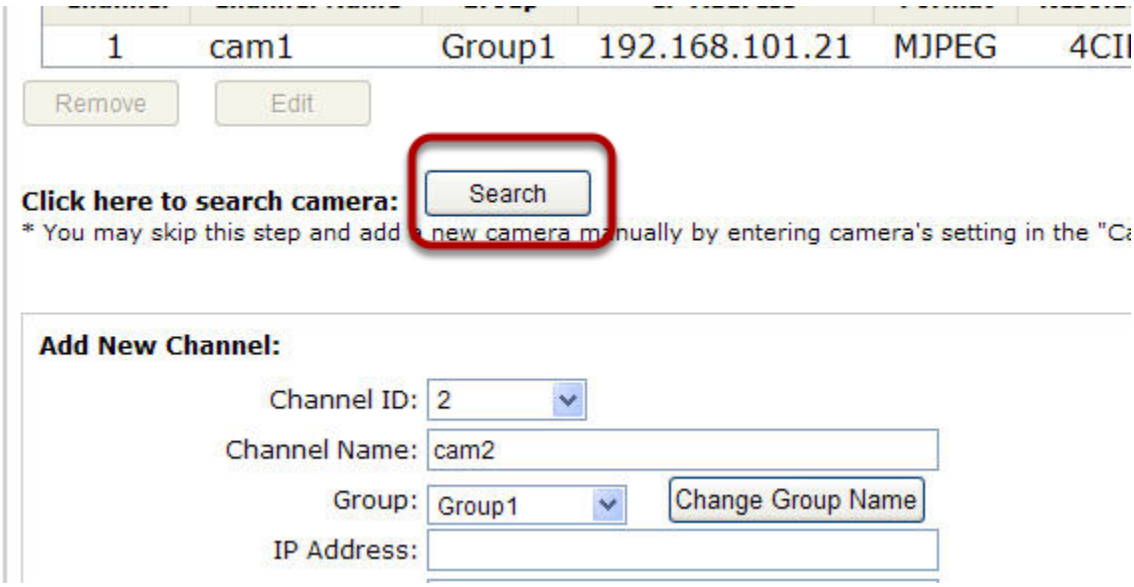
NVR Setup -- Channel Configurations

Add a camera



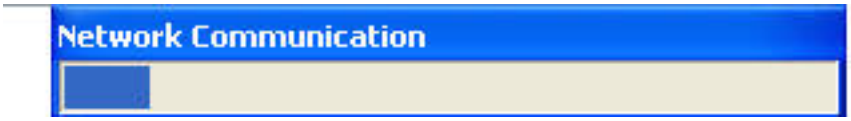
The NVR provides two options for adding a new camera. Users have the option to let the recorder automatically find the cameras or it is possible to enter camera's information and add it manually.

Automatic Search



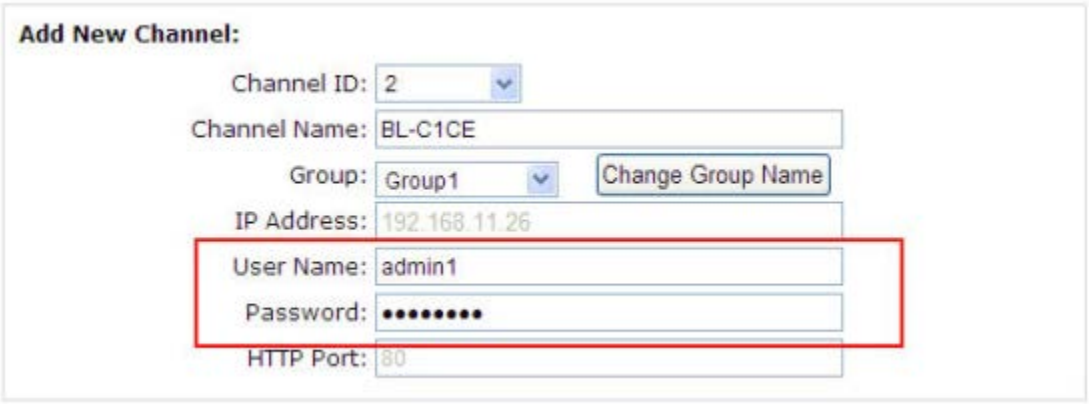
Click the “Search” button to perform the camera search.

You should be prompted to install Active Control component the first time you visit the page in order for the search to function properly. Go ahead and click “Install”

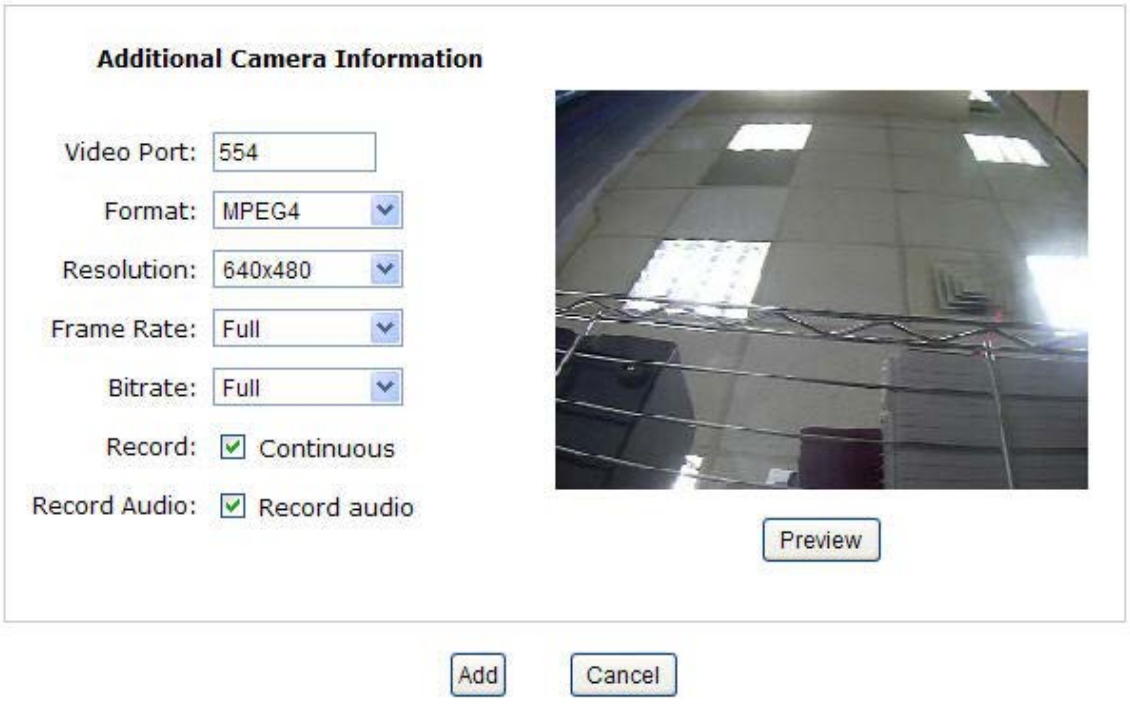


Once you have the ActiveX component installed, the search status should be displayed after clicking "Search"

Found cameras should be listed and simply select a camera from the list and press “Configure”



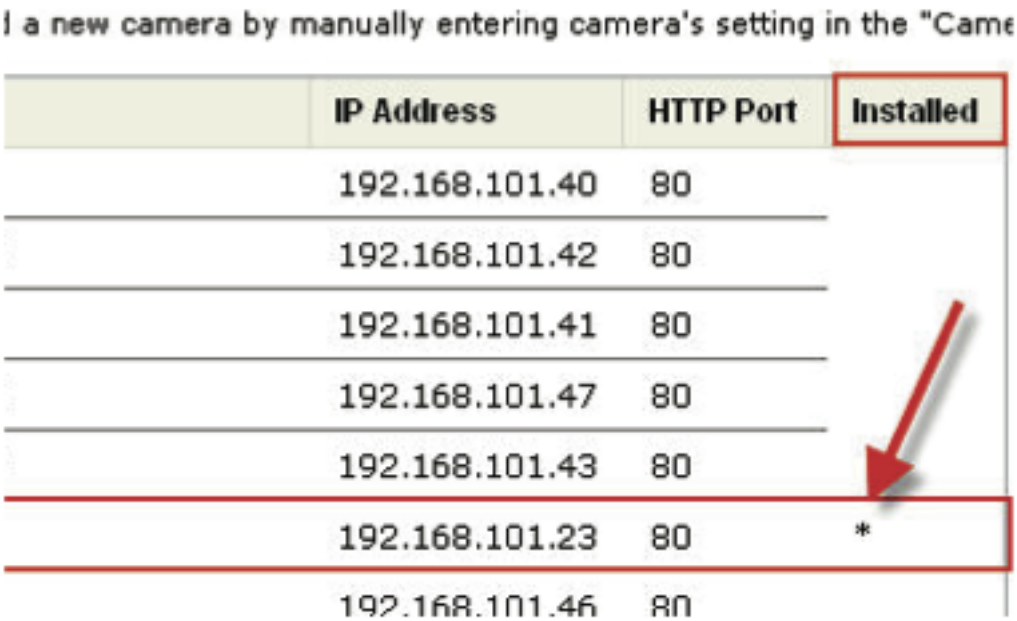
Its corresponding information should be displayed in the “Camera Information” section. Enter its username and password and select the channel ID and name the camera.



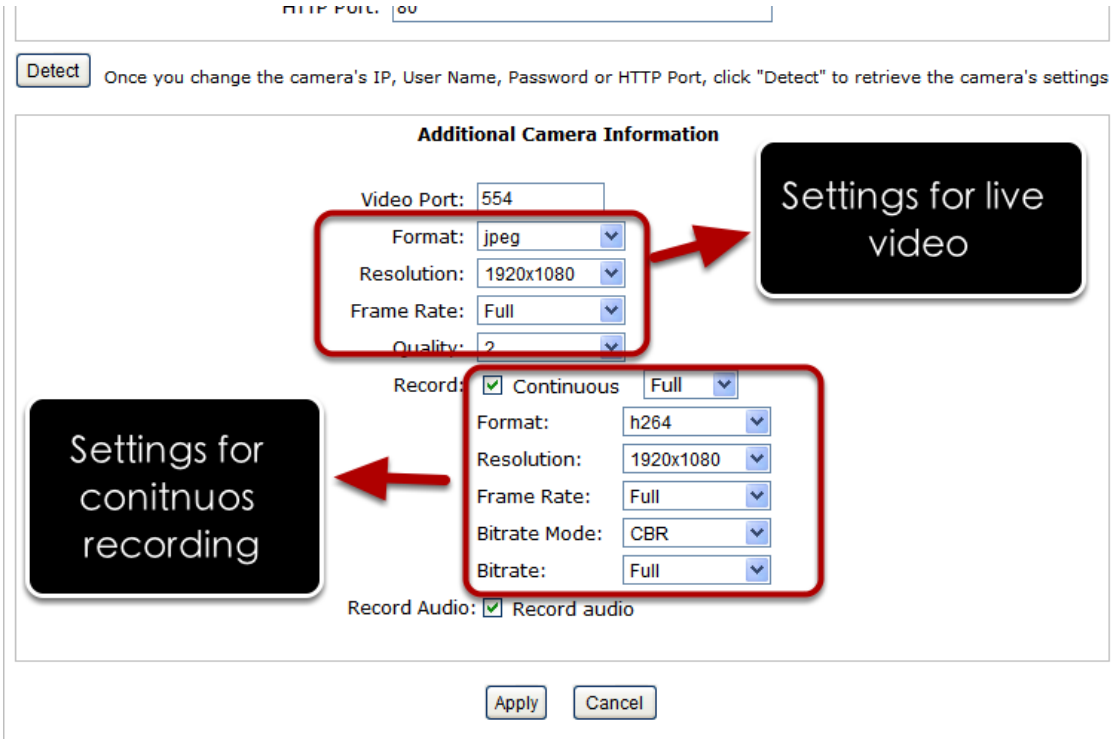
Click on “Detect” to establish connection between the recorder and the camera. If connection establishes successfully, camera’s detailed information should be polled and displayed as below.

Adjust its video format, frame rate, resolution or bitrate...etc if you wish. You can also click on the “Preview” to preview the live video of the camera.

Click “Add” to finish adding the camera



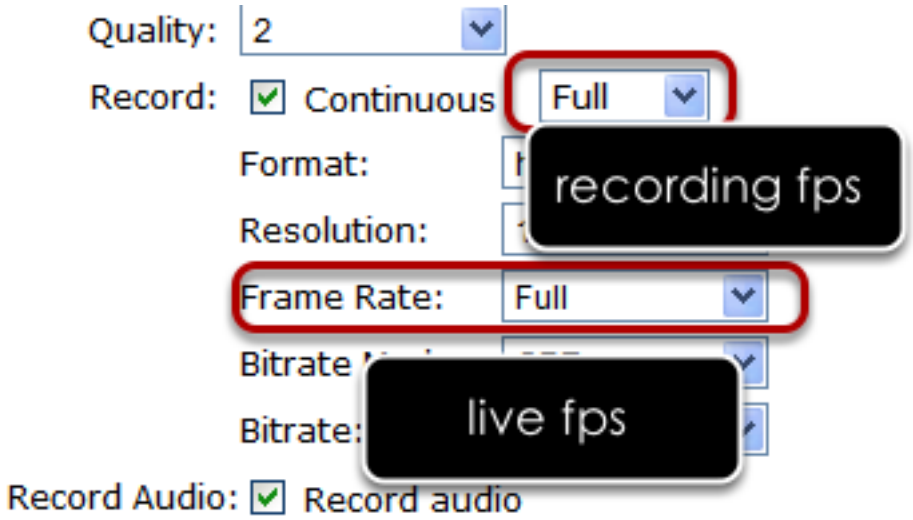
**If cameras are marked with "*" in the search result, it means those cameras are already configured and connected to the NVR.*



Once the camera's settings are polled and displayed, you can also enable "continuous" recording and adjust its recording quality settings before adding the camera.

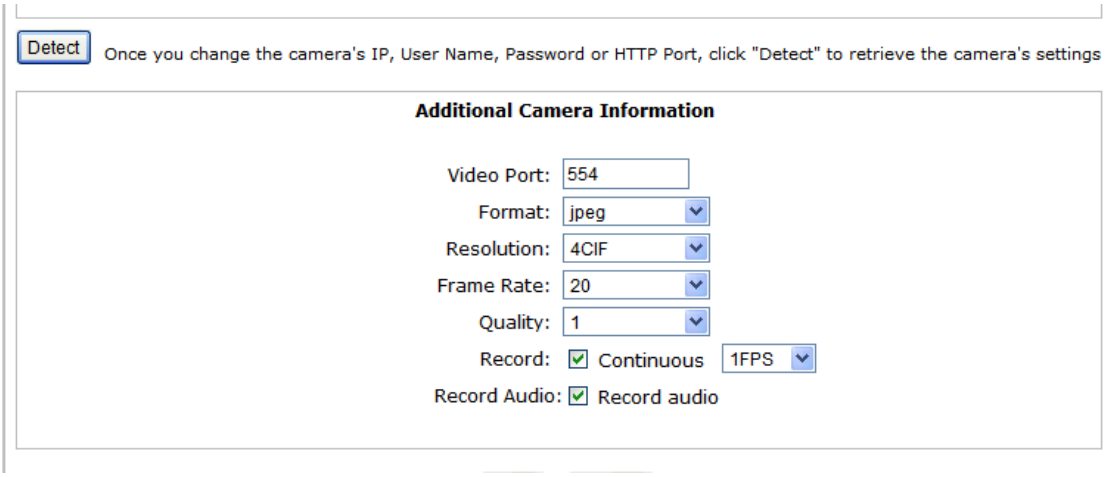
Some cameras are capable of multiple streaming profiles, in which different video codecs are used for different purposes.

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



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. (ex. if the live fps is set to 10, choosing "Full" in the recording fps meaning it will only record at 10fps maximum.

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



For single stream camera, only the recording fps can be adjusted.

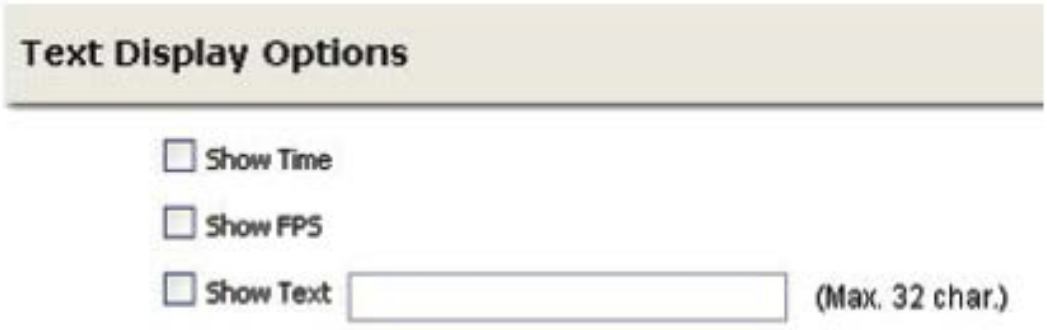
Add a camera manually

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

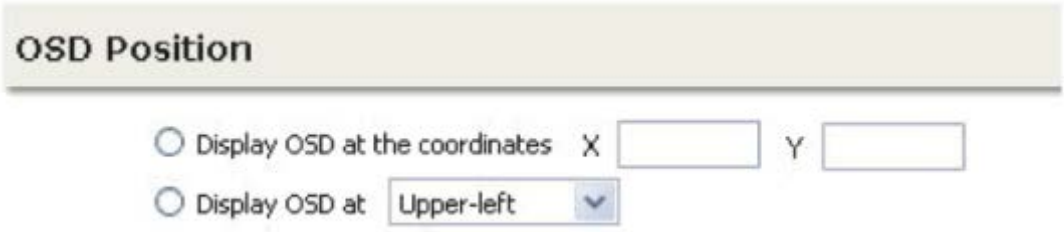
OSD Settings

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”

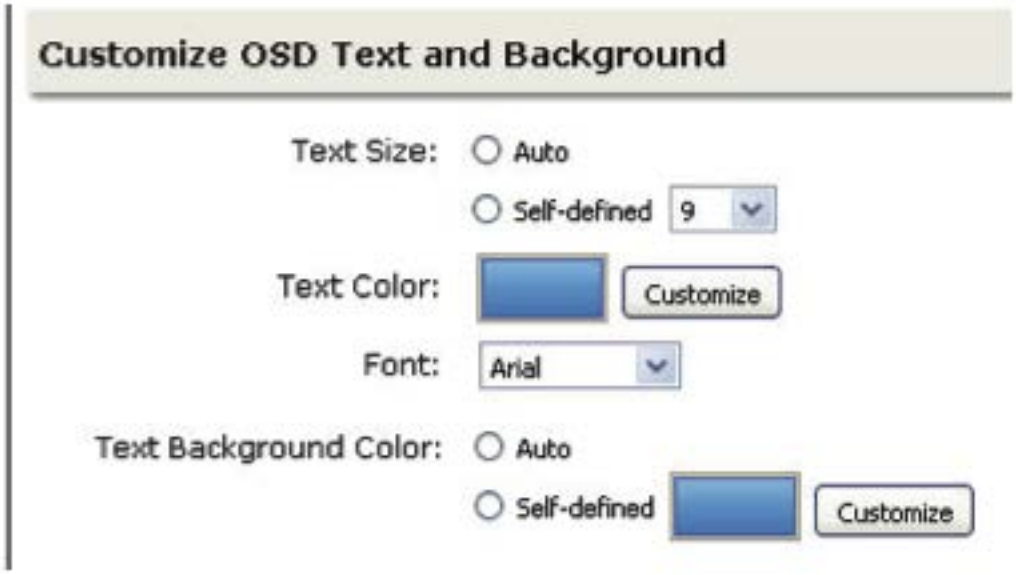


Choose one or more display options if you would also like the re-corder to automatically embed the system time or the frame rate for you. Or simply choose to display a custom message of your own.



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

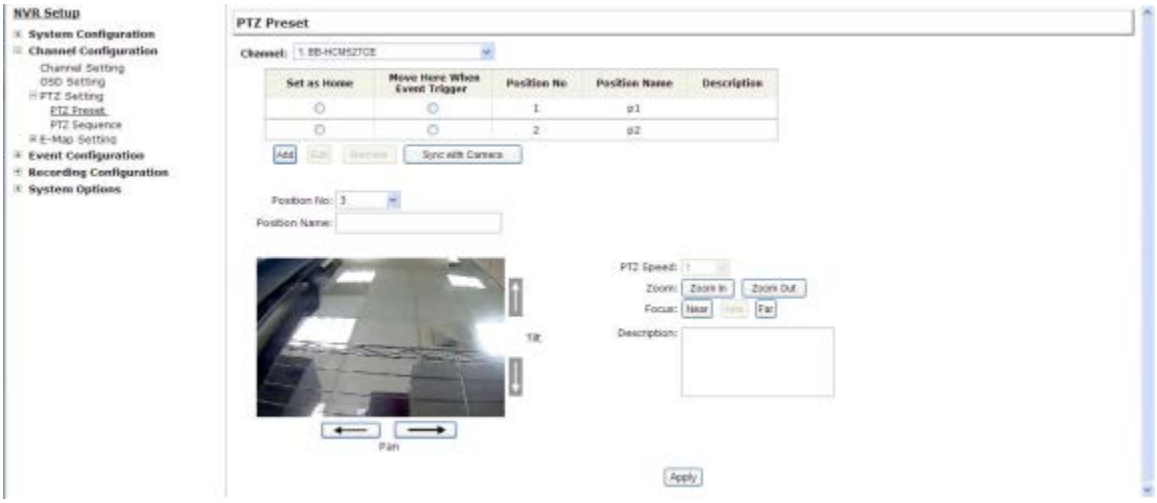
Click on the “Preview” button to see the preview of your setting and click “Apply” to save the configuration.



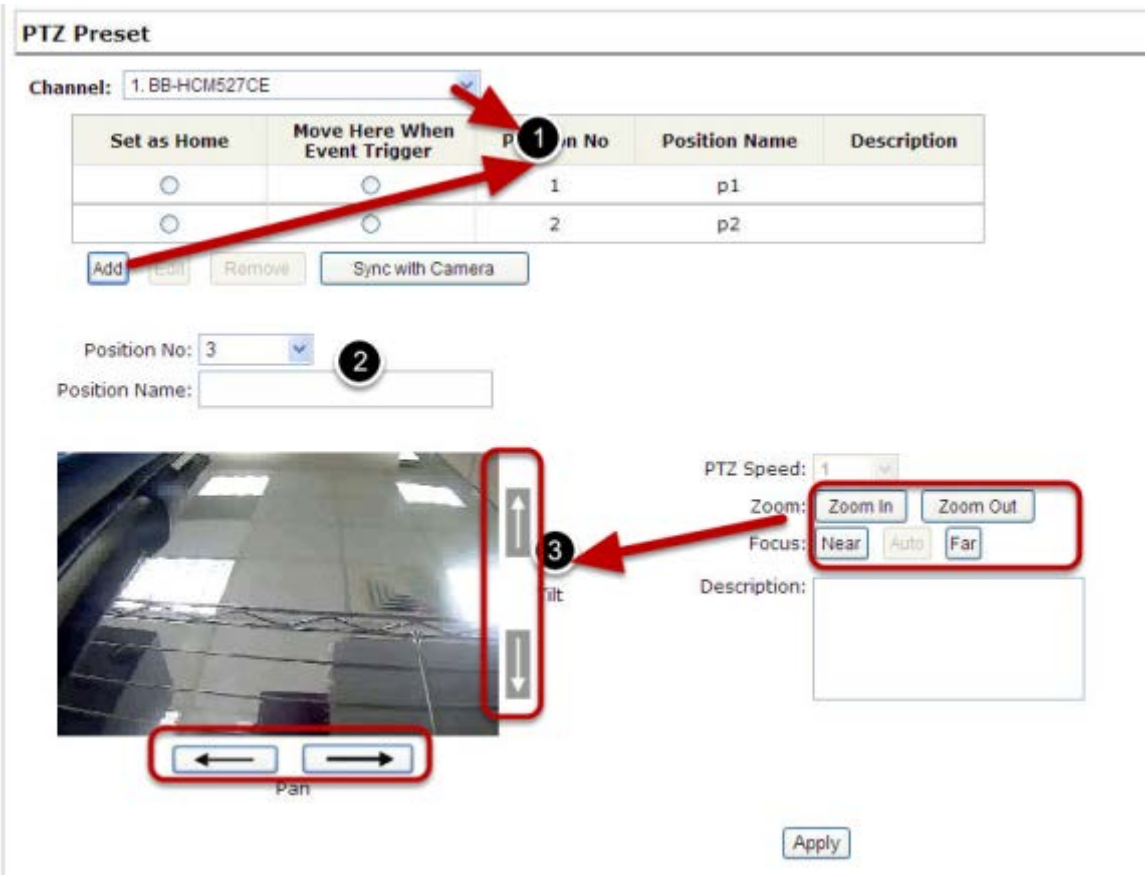
The texts can be further adjusted with changes to different size, color or font so they can be more visible on the video.

PTZ Setting

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 “Camera” drop-down menu and click “Add”.

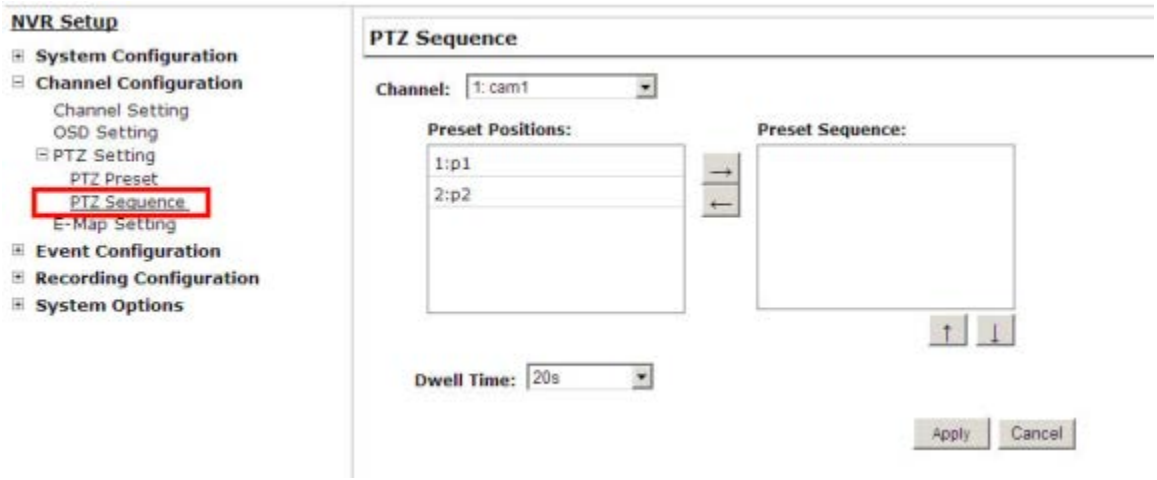
2. Select a position number for the preset point from the “Position Number” drop-down menu and fill in a name in the “Position Name” field for easier identification.

3. Use the PTZ control provided in the configuration page to set the preset point

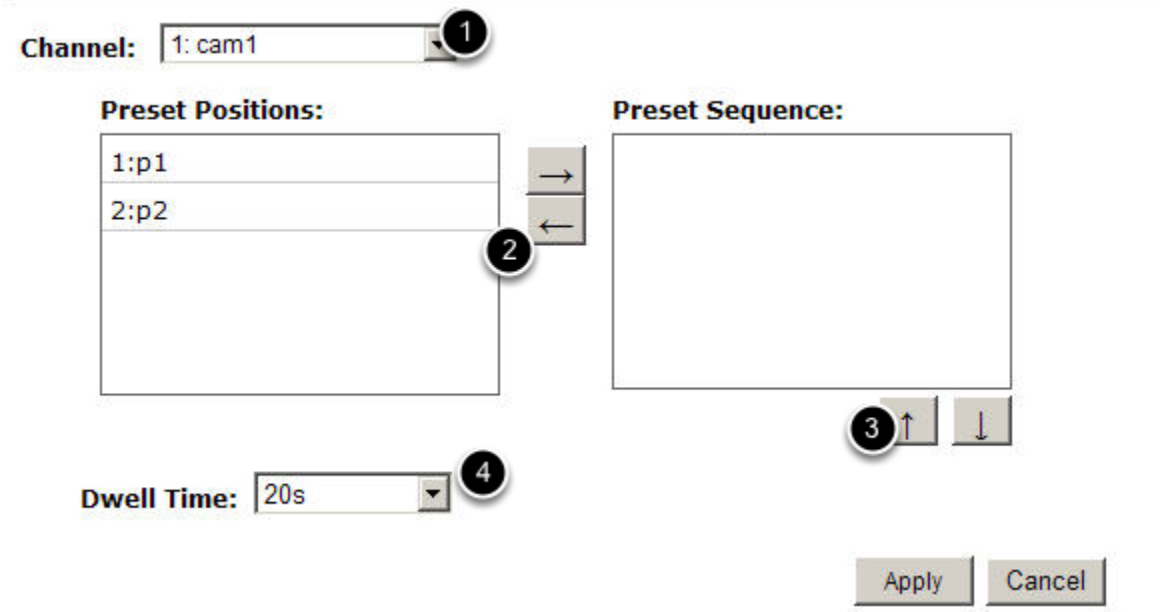
Ultimately, you can choose to make this preset point a “Home” point among all other preset points, as well as making the camera to move to this particular point when an event is triggered.

** “Move Here when Event Trigger”: In order for this function to work properly, please also complete configuration in “Event Configuration” >> “Event Trigger”*

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 point 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, then

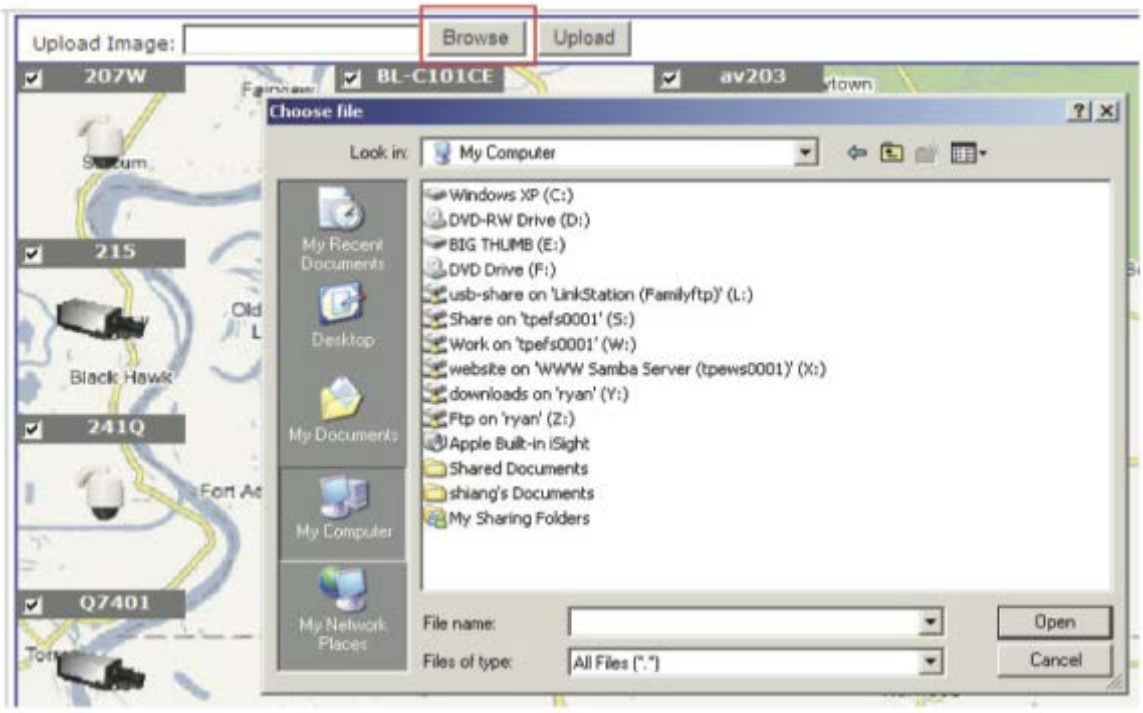
3. use the up and down buttons to adjust their sequencing positions.

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

E-Map Setting

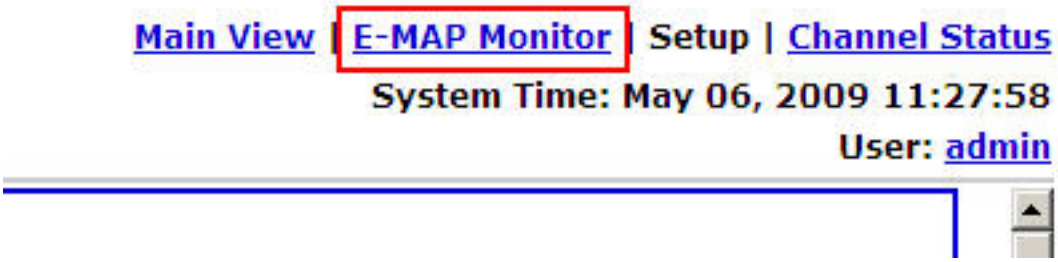
Local E-Map Setting

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 “Browse” button to locate the new map image file from the local PC and then click “Upload”.
** Only JPG, PNG, and GIF file formats are supported with file size under 100KB.*

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



Access the E-Map Monitor page from the upper-right hand corner menu.

When the NVR receives an event triggered from any of the cameras, their videos will be displayed on the E-Map and you can double-click on the video to enlarge it.

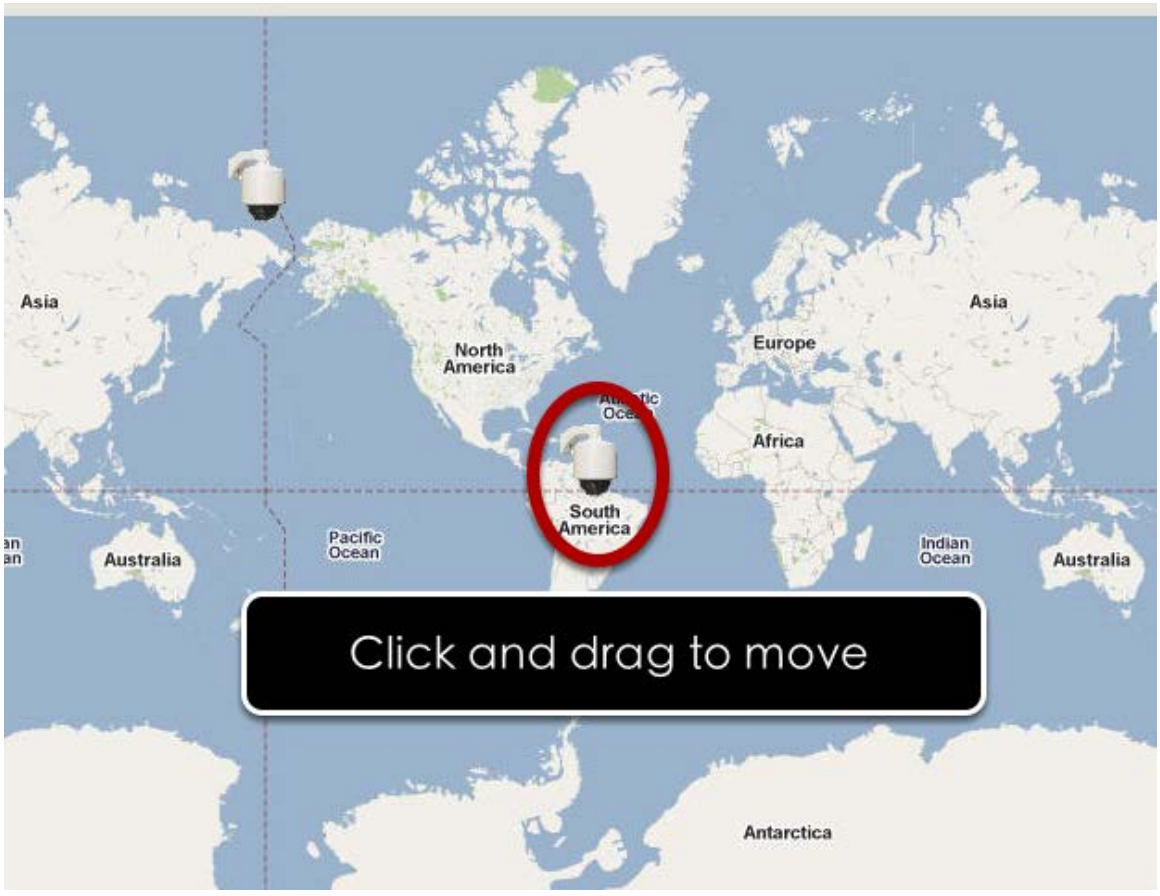
Google Map Setting

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. Zoom in to a smaller area by using the zoom control bar on the map
2. Zoom 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 can not be used in conjunction with the regular E-Map monitor function.*

NVR Setup -- Event Configurations

Event Configuration

The “Event Configurations” 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.

General Settings

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 event configuration by defining the general settings:

Define when an event will be triggered

• Choose “Always” or “Only during…” under “Event Trigger Duration”
• For the “Only during…” option, choose the days by using the check-box and then define the time range in those days in the “Start Time”

and “End Time” fields that you would like the event trigger function to be enabled.

How often an event is triggered

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

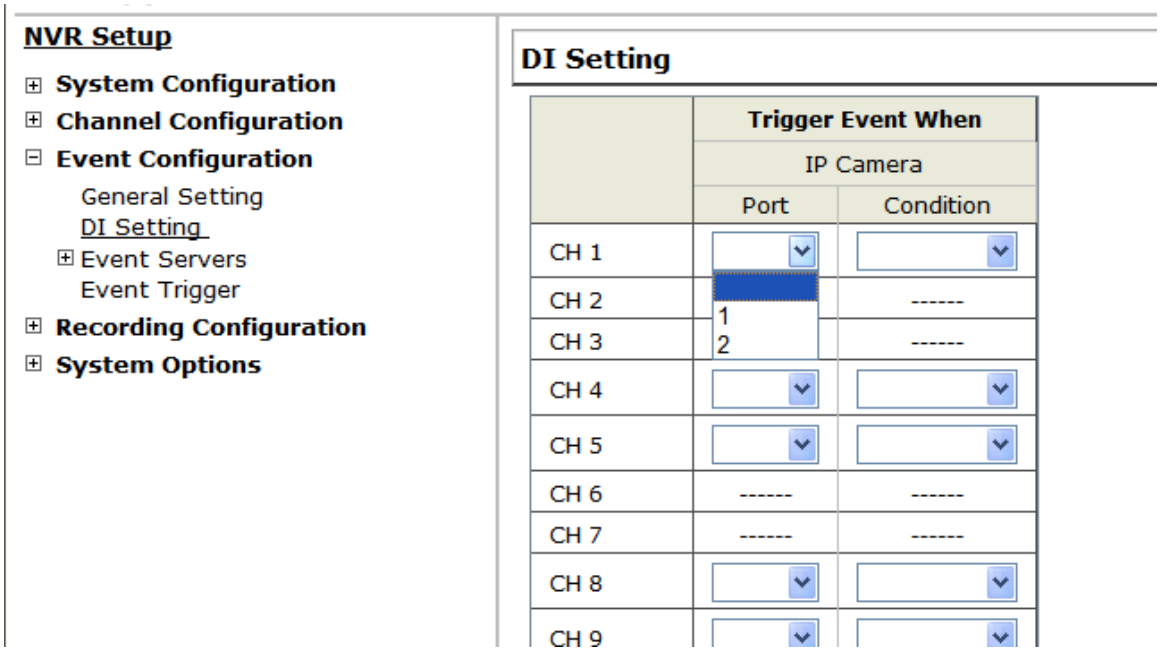
Trigger action

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

I/O Settings

This function allows users to manage camera's digital input and output ports right from the recorder. You can setup the recorder to receive triggers from a particular camera's input port and trigger a device, such as an alarm that is connected to the recorder or camera's output port. Cameras that do not have built-in digital input/output port can also be configured to pair with the recorder's DI/DO ports.



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 for I/O mapping, and then select the camera's input port from the drop-down menu.
3. Select the trigger condition from the "Condition" drop-down menu.

**The recorder does not control camera's input or output ports in a way to let you pair recorder itself with a camera's input or output port for event receiving or triggering.*

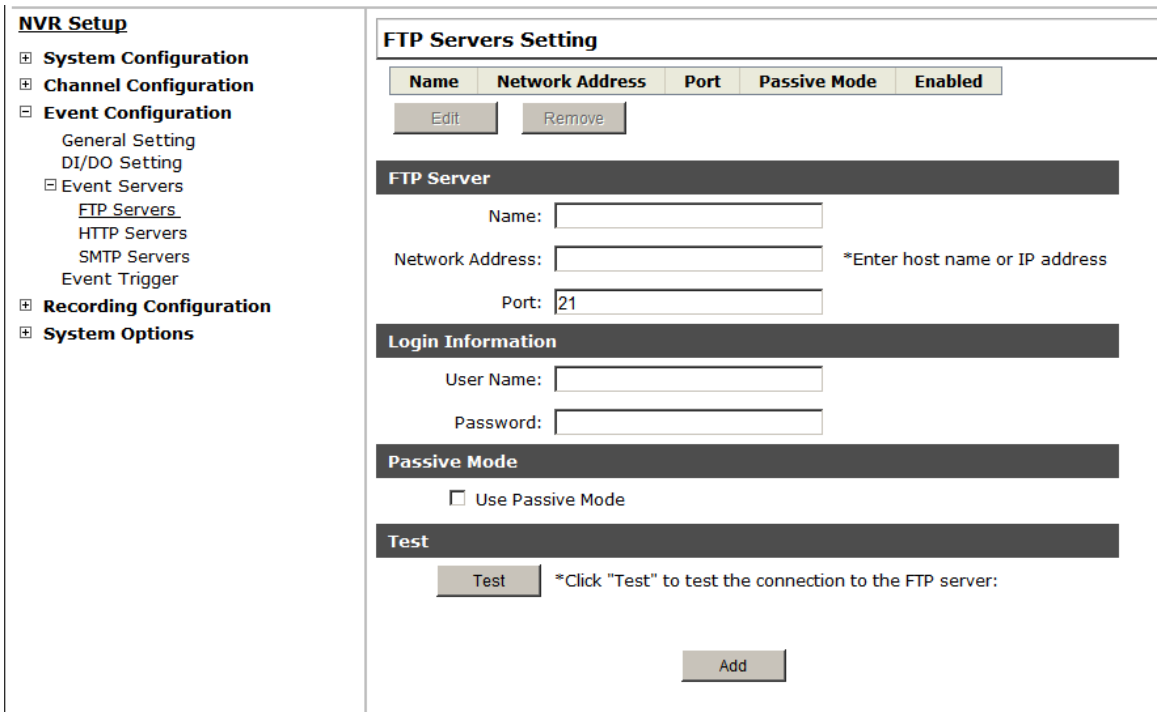
**The recorder only acts as a medium for pairing up input/output ports between cameras and the recorder.*

**Only connected cameras will be displayed in the list.*

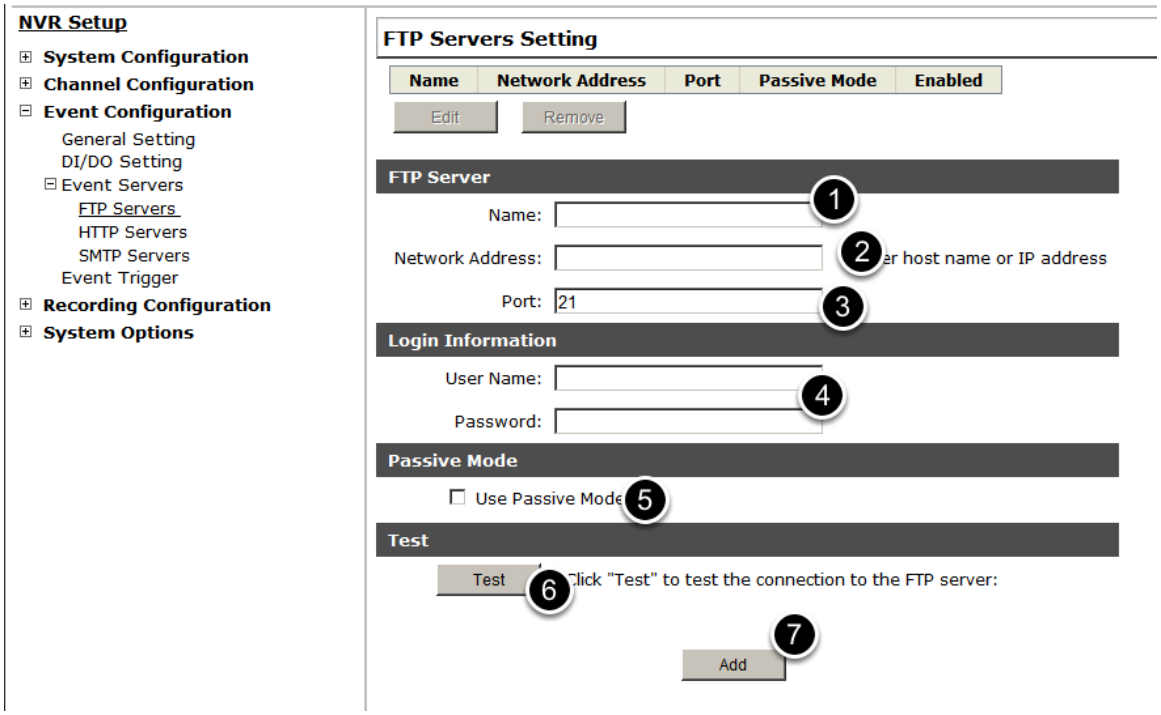
**Some cameras only allow one trigger source be configured at a time, e.g.:*
if the camera has the motion detection function turned on, its digital input will be disabled and vice versa. Under such circumstance, if you set to use camera's digital input port as the event trigger source, you will not be able to select motion detection as the trigger source for this camera under "Event Configurations" >> "Event Trigger" setup page.
** The image(s) that are uploaded to the destined FTP server or emailed to a des- tined mail recepient are in their own proprietary image file format (.h4i or .p4i), which can only be opened by the NVR media player.*

Event Servers

Configuring an FTP server



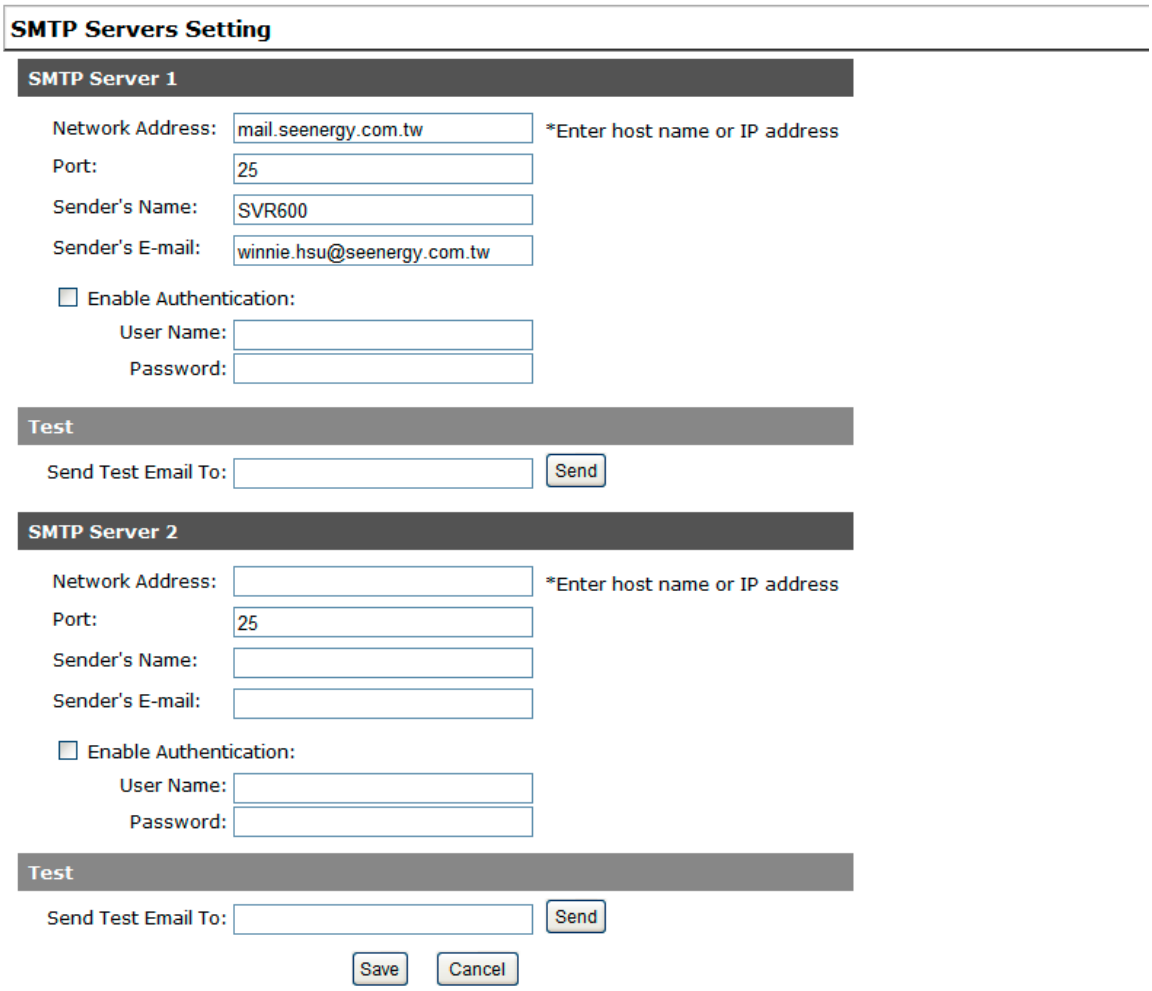
Event servers are to be used with event trigger actions. In case of unusual motion detected by the camera or a disk failure, the recorder can send notification with the acceptable format (image/txt) to a destined event server according to the configuration.



To add an FTP server,

1. 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 re- quired
5. Check "Use Passive Mode" if it's required or leave 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

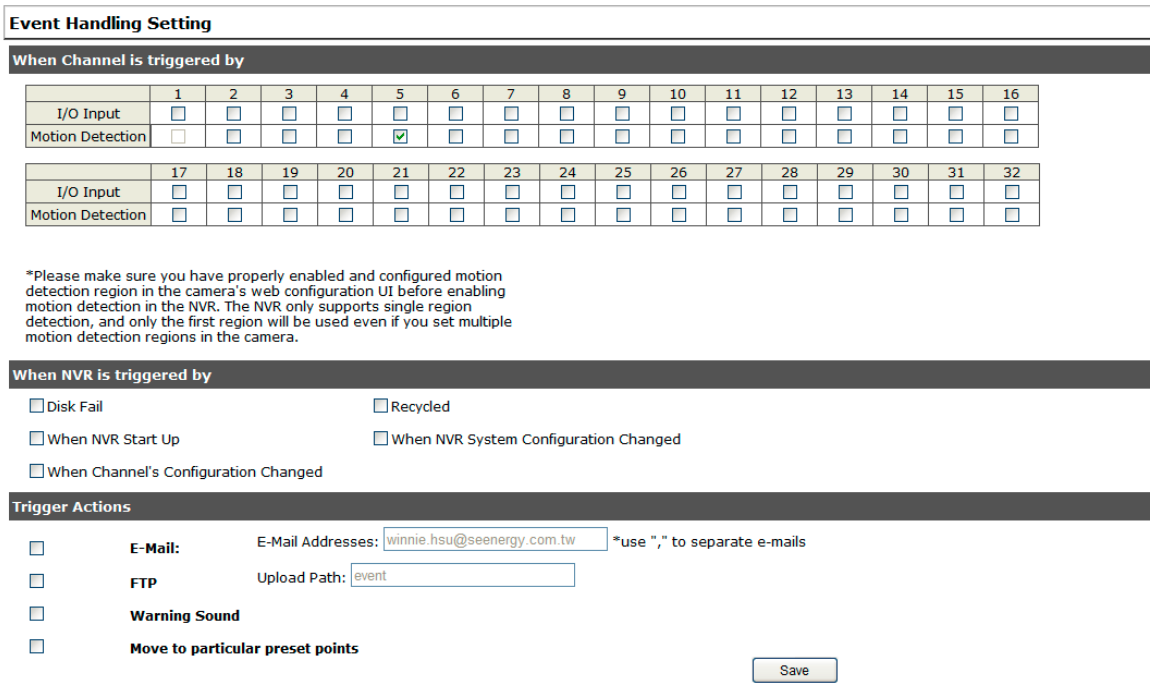
Configuring an SMTP server



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

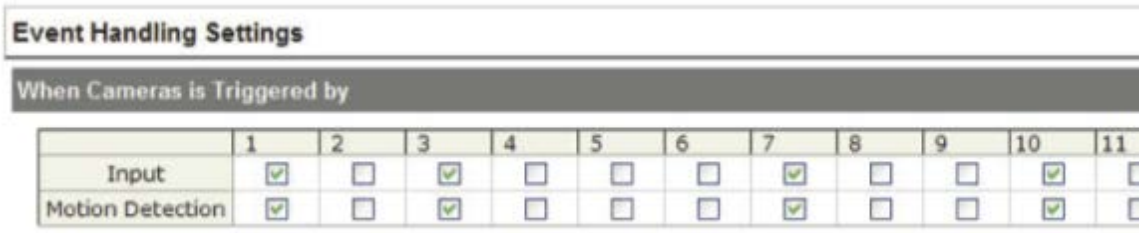
*The NVR supports SMTP servers that use base64 or MD5 authentication methods.

Event Triggers



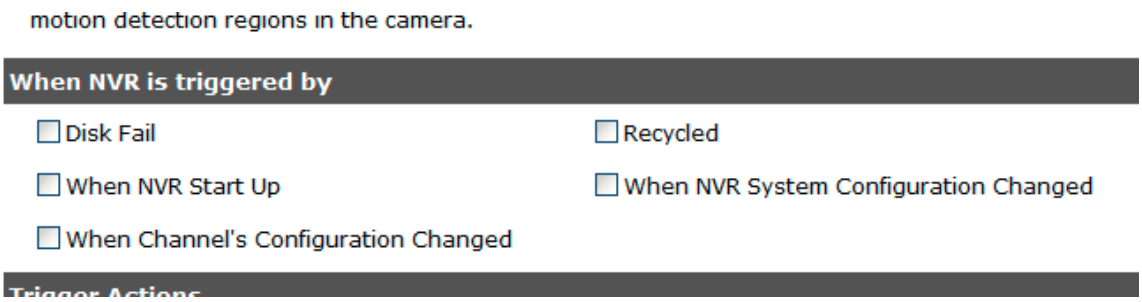
We have finished defining how an event will be triggered and which servers will be receiving notifications in the previous two sections, now we can finish up the event configuration by setting:

- which channels will have event trigger function enabled
- What is considered to be an event
- Where the warnings will be sent to and how they will be sent

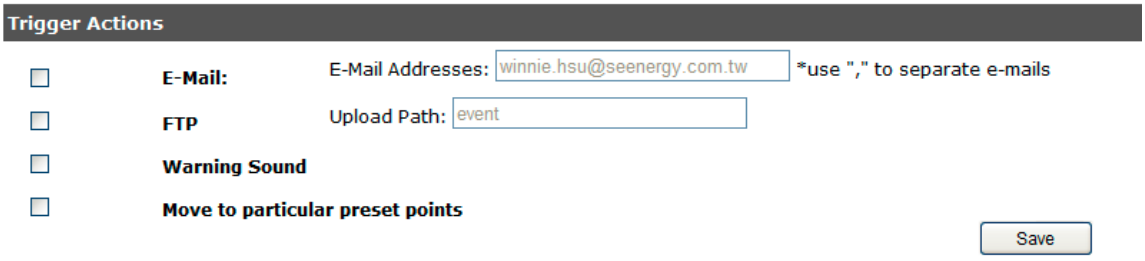


Use the checkbox to enable event trigger on the desired channels.

**Once motion detection is enabled in 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.



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



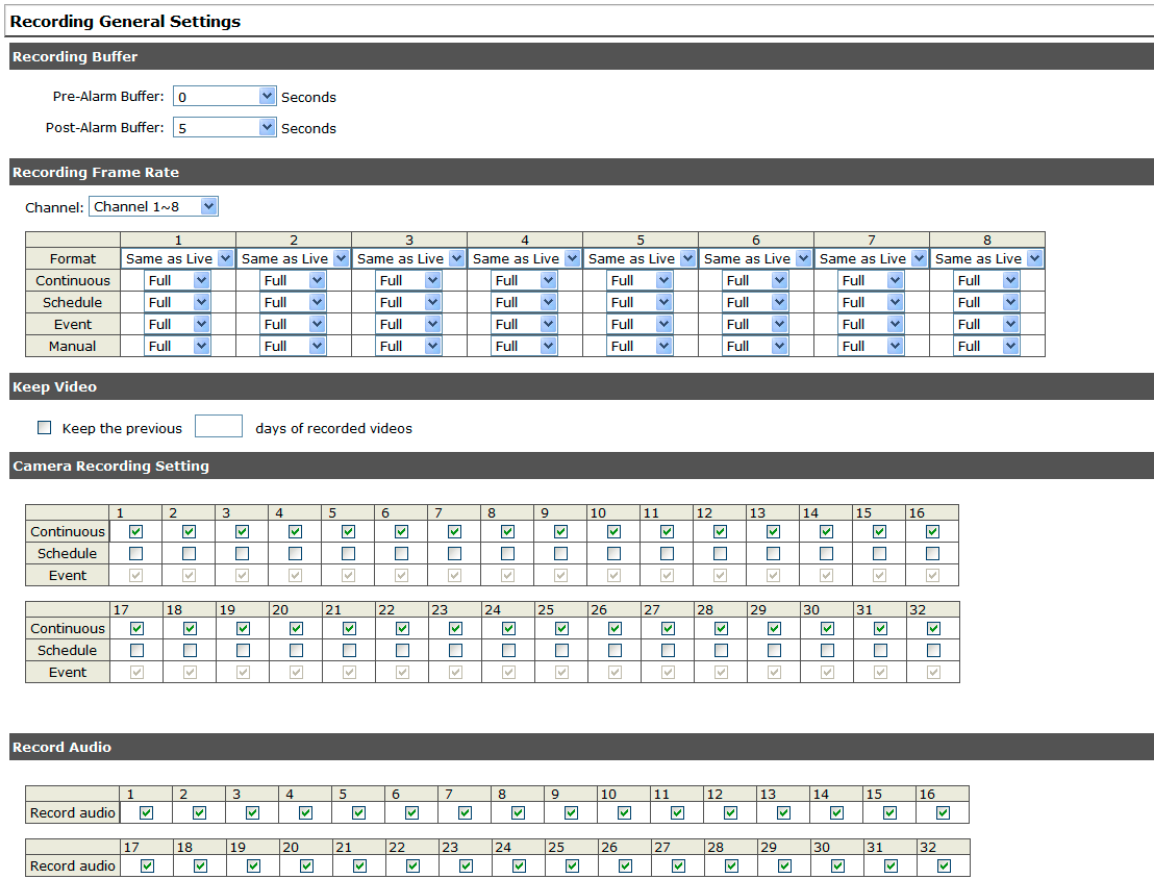
Define how the notifications will be sent and where they will be sent to.

** 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.*

NVR Setup -- Recording Configurations

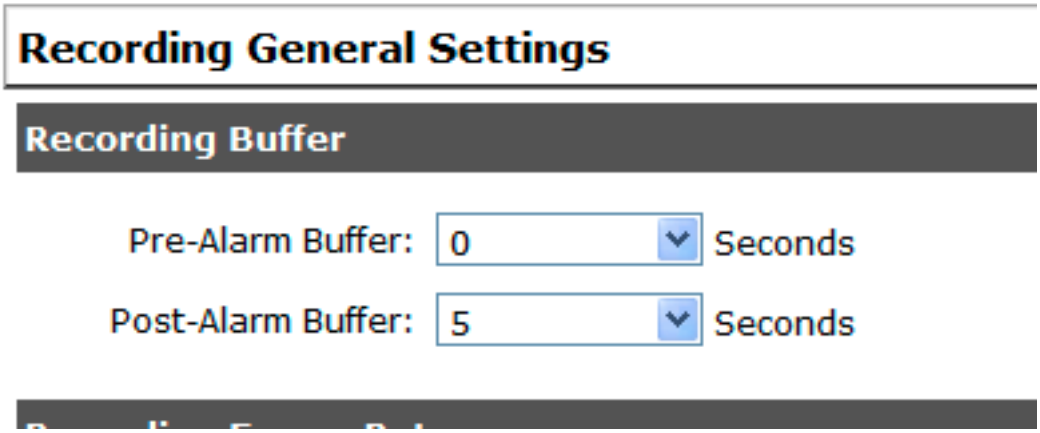
General Settings

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



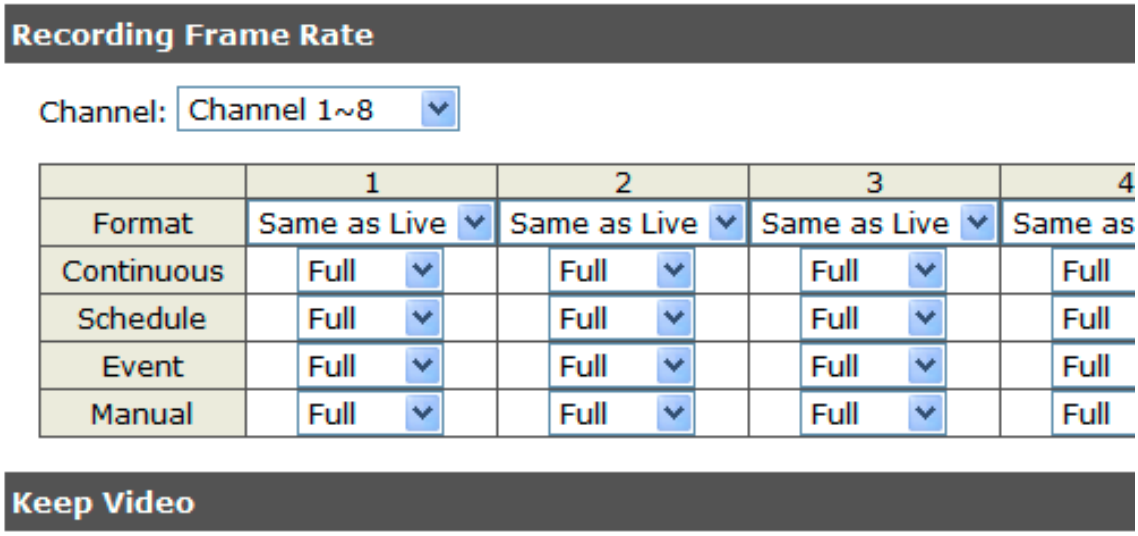
You can define the following in “General Settings”:

- Pre-Alarm/Post-Alarm recording length
- 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



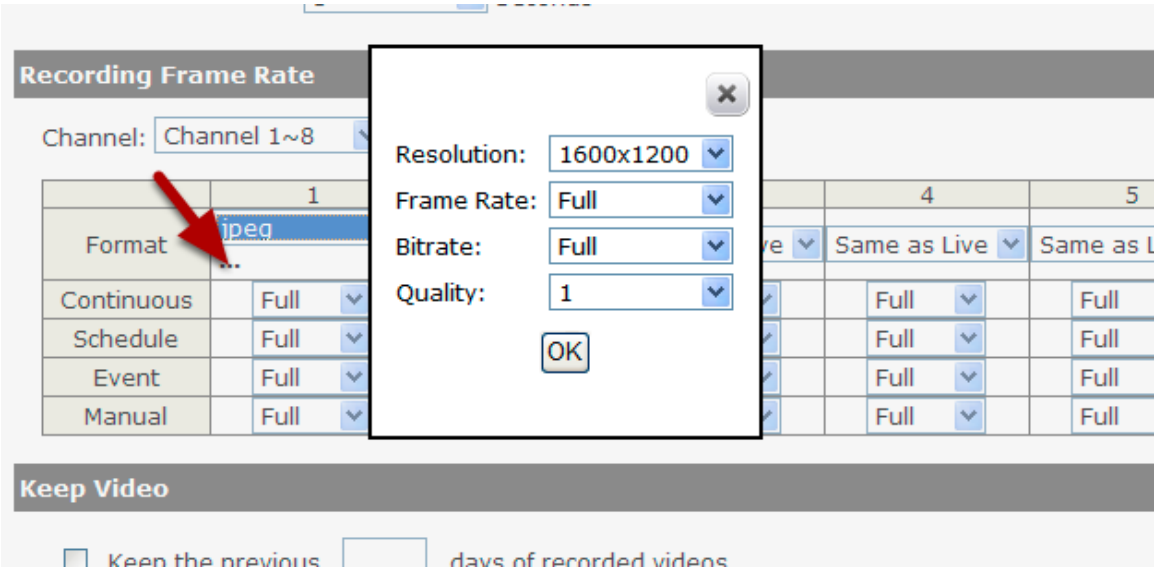
The “recording buffer” allows user to define “pre-alarm” and “post-alarm” time for event recordings. The “pre-alarm” time sets the NVR to record in advance when an event is triggered. The “post-alarm” time sets the NVR to continue recording for a period of time after an event trigger is finished.

** The “Pre-alarm” function only works when the “Continueous” recording is also activated.*



Recording frame rate allows you to set different frame rate for different types of recording instead of recording at one frame rate

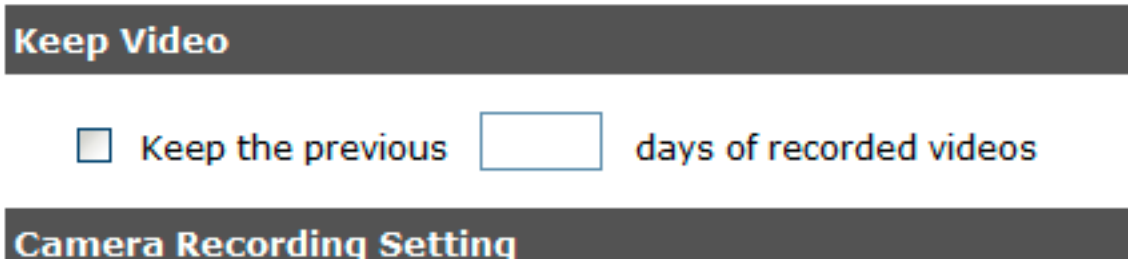
only. Use the drop-down menu and select one of the pre-defined frame rates for a particular recording type



You are able to use the same video format for recordings or you can choose other formats for different recording purposes if it's a multi-stream capable cameras.

If you chose to use a different video format for recording, you are able to adjust its detail settings by clicking on the **"..."**.

A new dialog will pop out for further detail configurations. Noticing the "Frame rate" in this dialog represents the live fps that will be set back to the camera for this particular video format. You can configure the recording fps for different types of recordings individually.



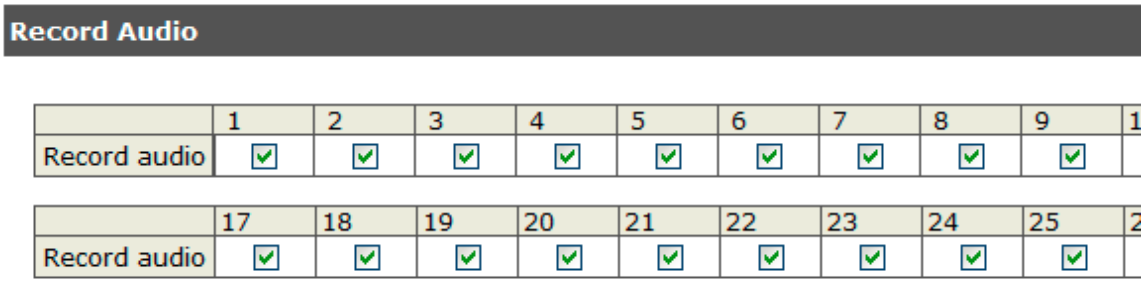
Users can also set to keep a previous number of days of recording data by enabling the option below. This is quite often used in application such as banking which certain countries requires to always keep a minimum previous number of days of recording data.

** If this option is enabled, once the hard drive is full, the recycle function will then start but it will ensure that the number of days of recording data defined here will stay in hard drive instead of wiping out 20GB of data at a time.*
** If the hard drive is not full, the NVR re-calculates twice a day (each at 2:30am and 2:30pm) to keep the defined number of days of recording data from these two particular point of time backward.*

Camera Recording Setting

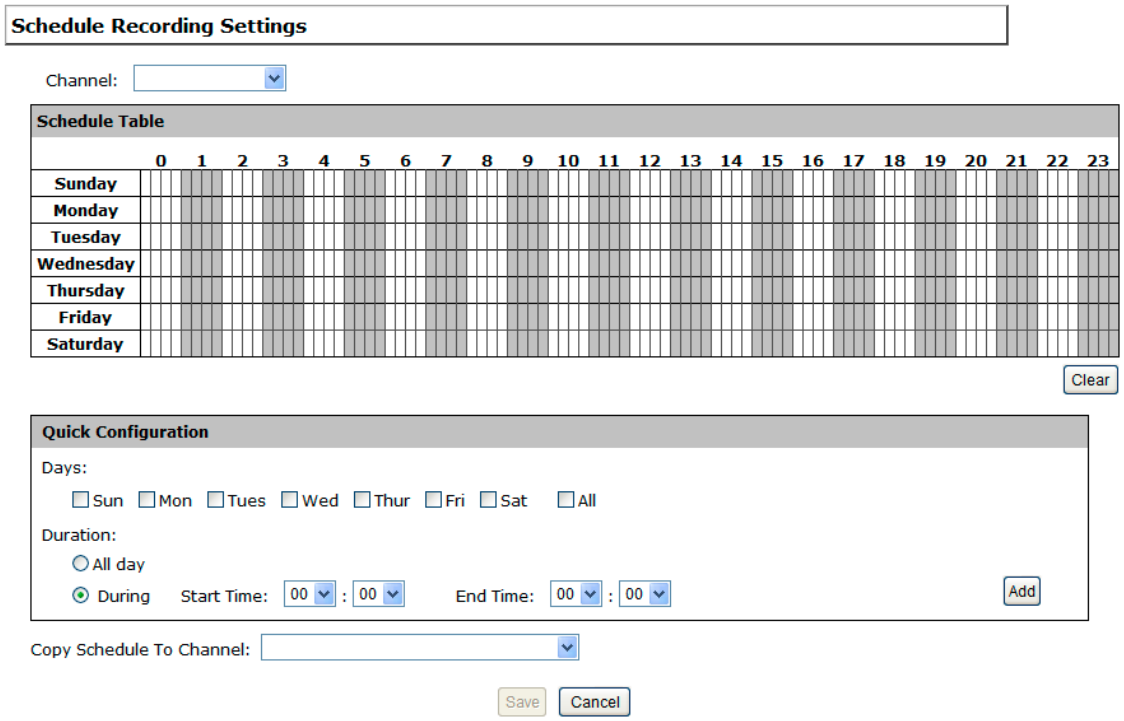
	1	2	3	4	5	6	7	8	9	10	11
Continuous	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Schedule	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Event	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑

	17	18	19	20	21	22	23	24	25	26	27
Continuous	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Schedule	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Event	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑



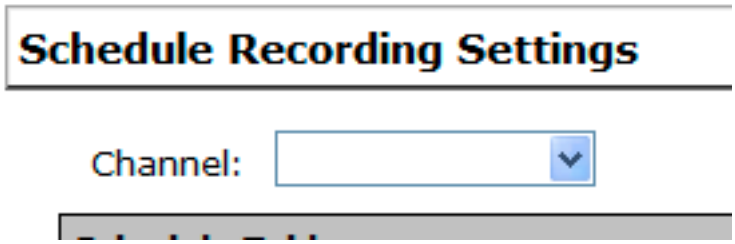
The section at the bottom of the page allows you to disable audio recording (record video only) of particular channels.

Schedule Recording

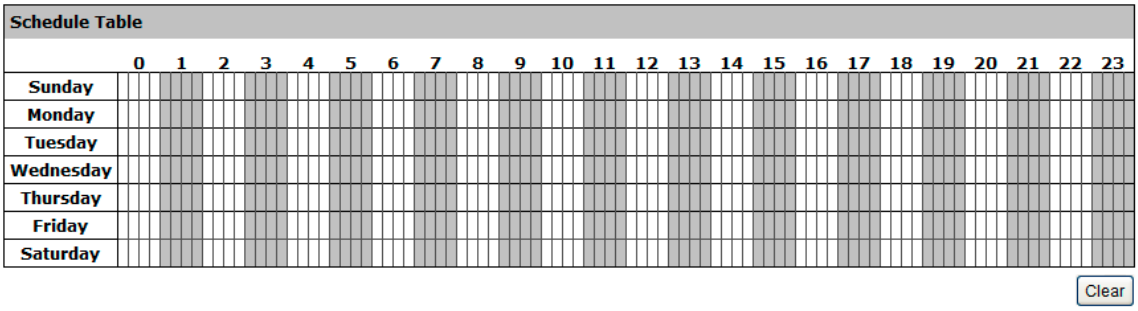


You can define the time range of the schedule recording for all channels in this page.

To configure a schedule recording

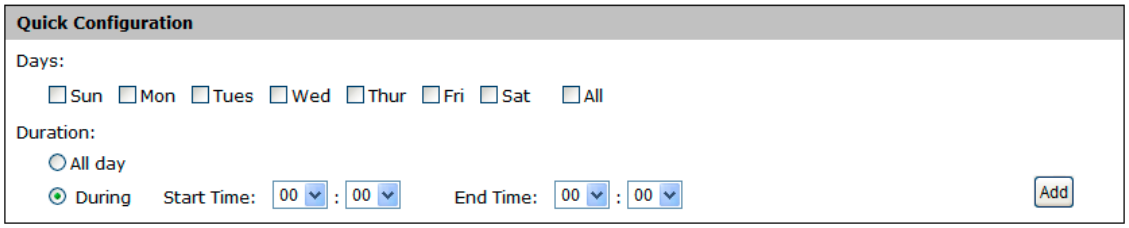


Use the “Channel” drop-down menu and select a camera first.



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

** Each cell box represents 15 minutes of time. Click one or more boxes to omit consecutive recording.*



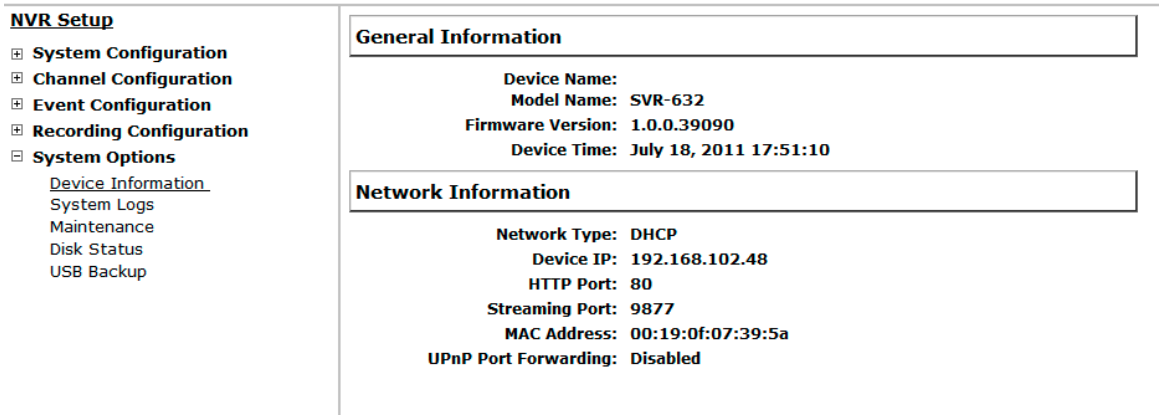
You can also use the “Quick Configuration” to define recording time range instead of clicking cell boxex one by one on the time table. Simply check what days you would like to perform recording and specify the recording duration by either choosing “All Day” or enter a start and end time for specific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

Select the “Copy to” option if you would like to set the same recording schedule to another camera.

NVR Setup -- System Options

Device Information

System Options gives users a glance of the overall system status and allows users to perform maintenance tasks such as upgrading firmware, restore/backup device settings or reboot device ....etc.



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.

Logs and Reports

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	31			
16	July 18, 2011 19:41:06	Channel	Camera connected	21			
17	July 18, 2011 19:41:05	Channel	Camera connected	18			
18	July 18, 2011 19:41:05	Channel	Camera connected	19			
19	July 18, 2011 19:41:05	Channel	Camera connected	17			
20	July 18, 2011 19:41:05	Channel	Camera connected	16			
21	July 18, 2011 19:41:05	Channel	Camera connected	15			
22	July 18, 2011 19:41:05	Channel	Camera connected	13			
23	July 18, 2011 19:41:05	Channel	Camera connected	14			
24	July 18, 2011 19:41:05	Channel	Camera connected	12			

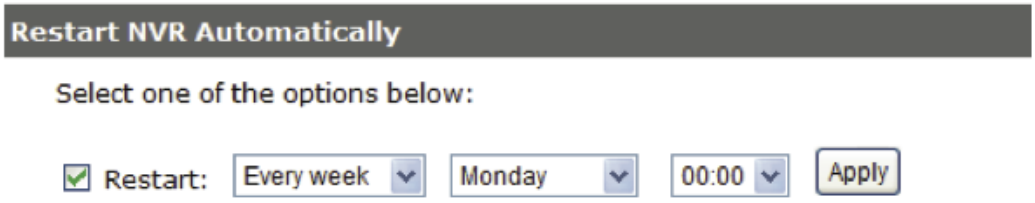
“Logs and Reports” keeps a record of what’s been happening to the device and provides basic information for troubleshooting.

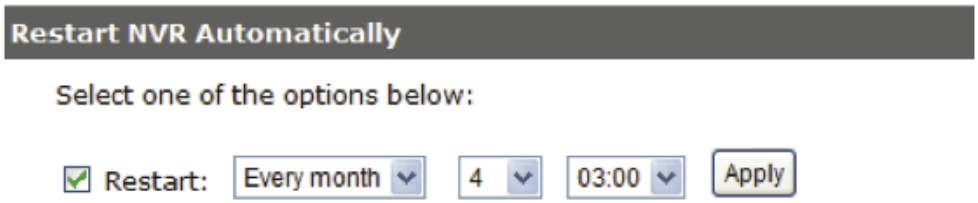
Maintenance

"Maintenance" provides functions for users to:

- Reboot the NVR when necessary
- Reboot cameras directly from the NVR
- Perform Firmware Upgrade
- Backup 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

Reboot the NVR at a specific time automatically



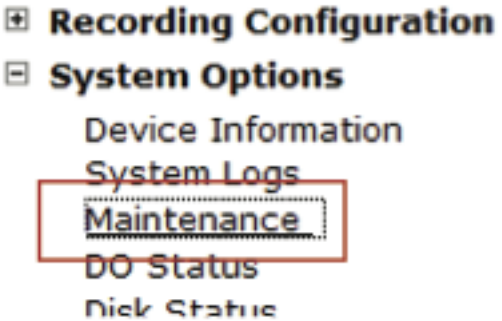


You can configure the NVR to restart automatically by using the options given in the web UI. You can set the NVR to restart at a particular hour of a specific day during a week or a month.

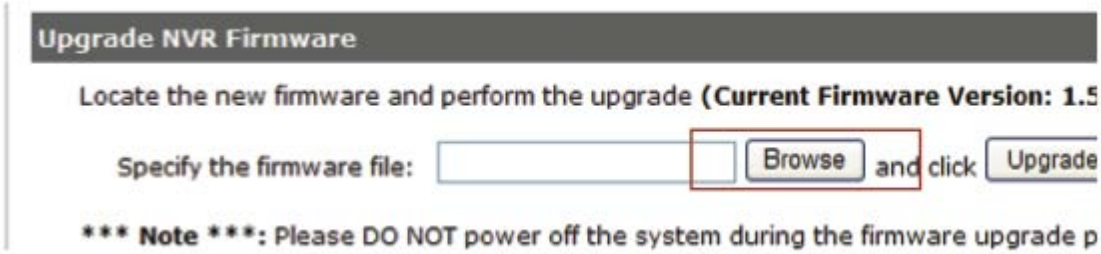
Firmware Upgrade

The firmware can be upgraded through web UI or USB. Before upgrading firmware, please backup configuration in advance.
***** the firmware file comes with a ".tar.gz" file extension, please use the file as is, DO NOT unzip it. It's normal that you may only see ".tar" as the file extension in Windows as the OS hide the known file extention by de-fault.***

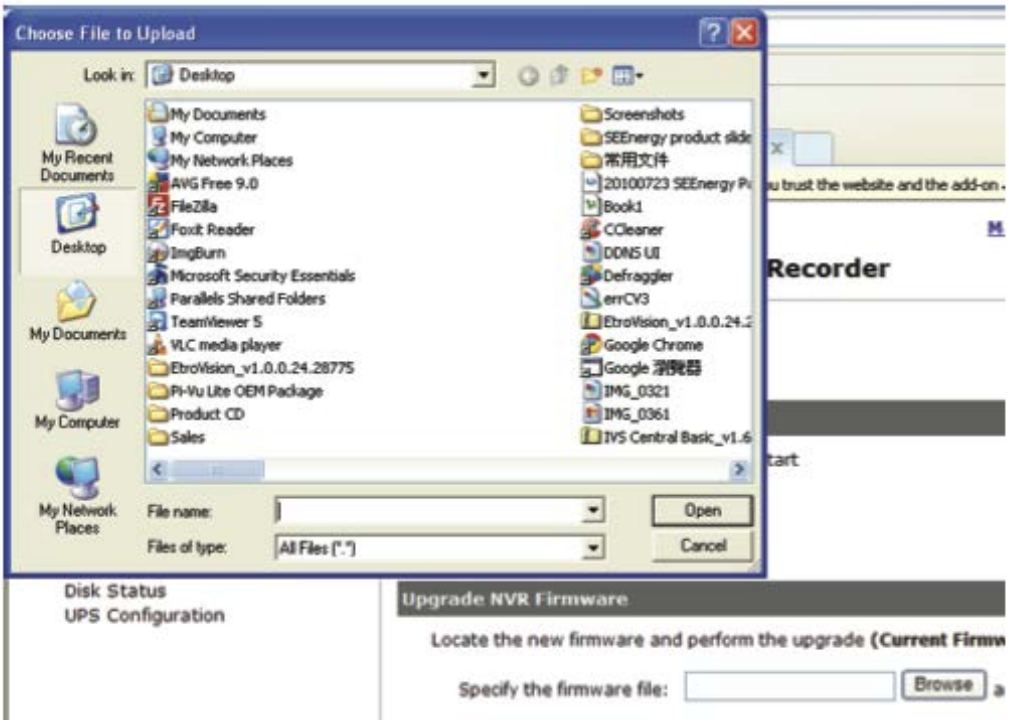
Through the web interface



Login into NVR’s web management UI. Go to "Setup" page and go to "System Options"->"Maintenance"

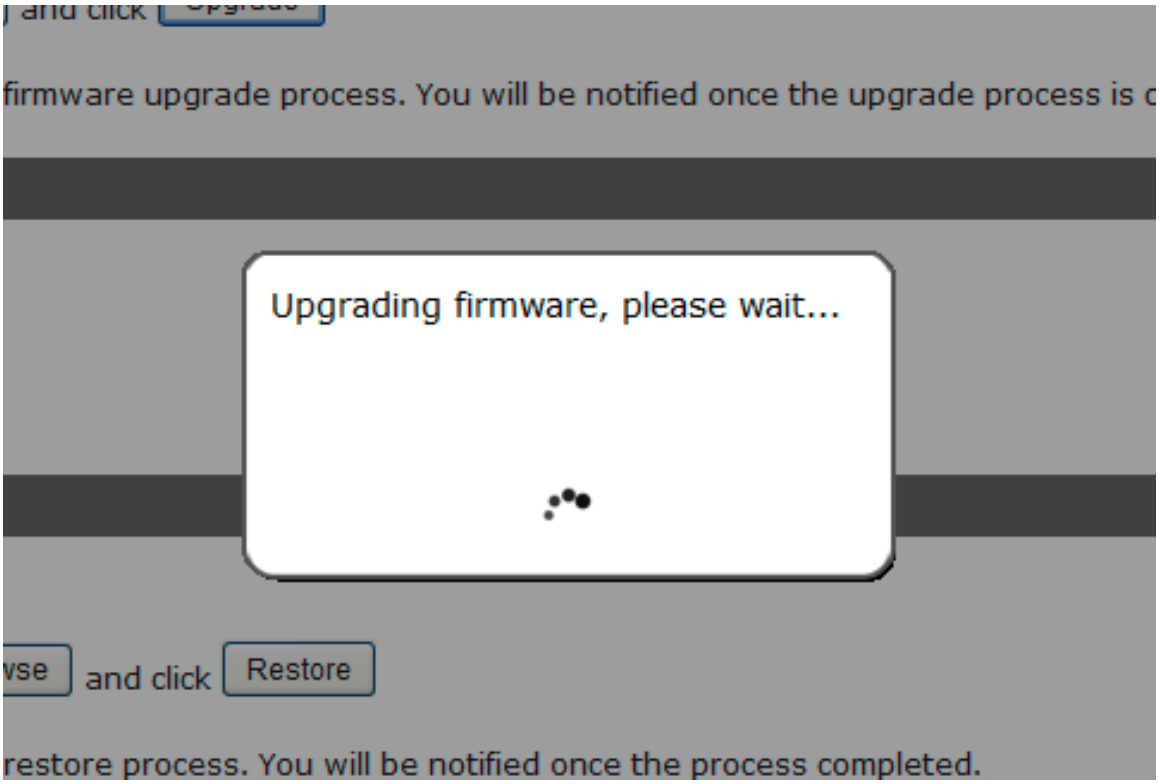


On "Upgrade NVR's Firmware" section, click "Browse" and select new firmware file



A new dialog should display and let you choose the location of the firmware file.

When done, click “Upgrade”.

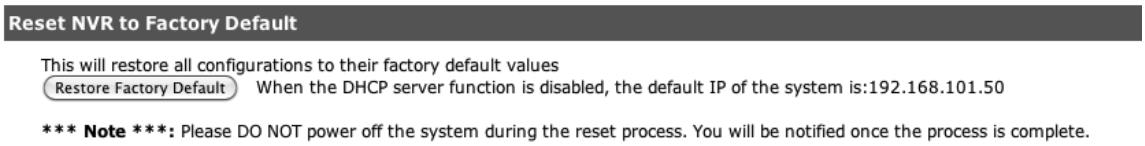


Follow the on screen instruction and wait for the process to finish (After upgrade, the system will reboot automatically, it’s part of the process)

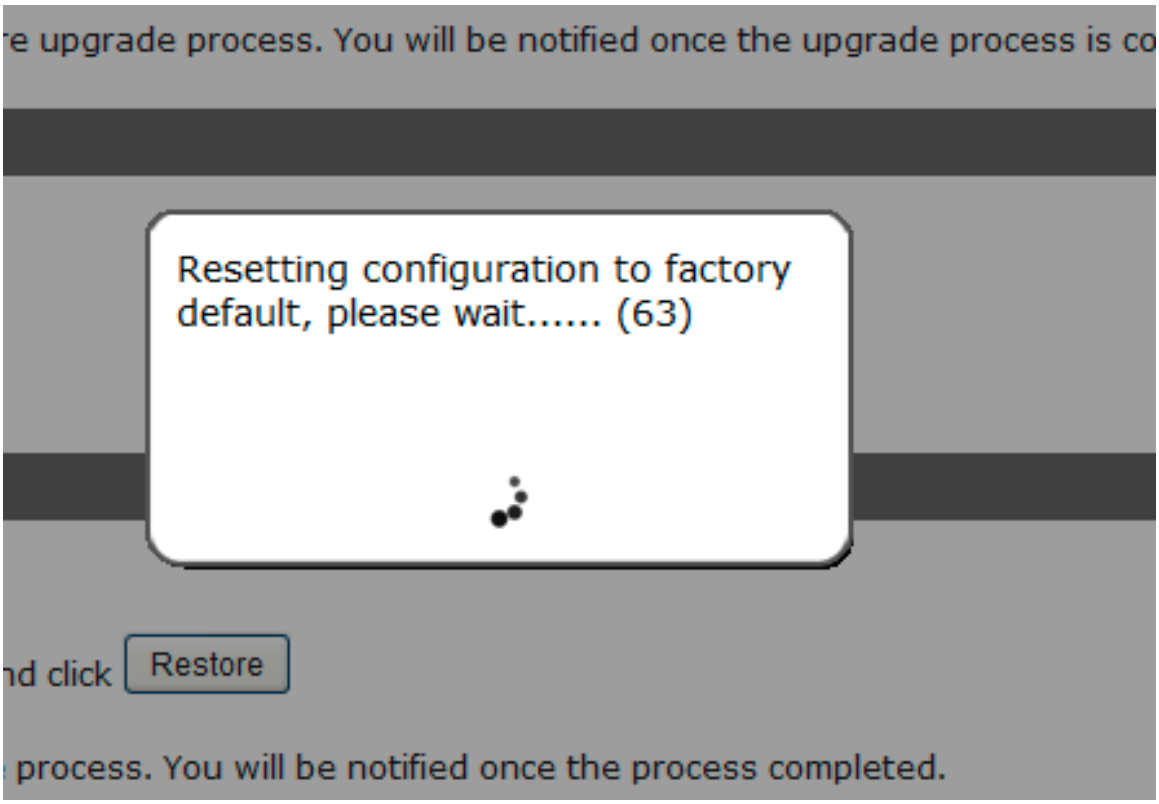
Upgrade through USB thumb drive

1. Prepare a USB flash disk and format with FAT or FAT32 format
2. Place the firmware in the USB flash disk and make sure it's placed at the top-level directory. Please do not place the file in a folder. **(make sure to change the firmware file name to "firmware" and leave its file extension ".tar.gz" as is before placing the file to the USB disk)**
3. Plug USB flash disk into USB port on the NVR
4. The System LED on the NVR will start to flash in amber. This indicates firmware upgrade is in process
5. *** Warning *** Please wait until upgrade process finished, interrupt the upgrade process may cause system not work anymore
6. Wait until System LED remains solid in amber. This indicates firmware upgrade is finished
7. Power off the NVR and remove the USB disk the power the unit back on again
8. Restore configuration file back if needed

Reset the NVR to Factory Default

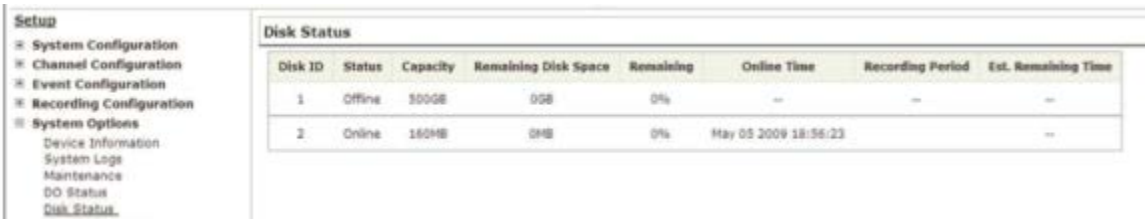


To reset the recorder back to its factory default, click "Restore Factory Default" button and begin the proces



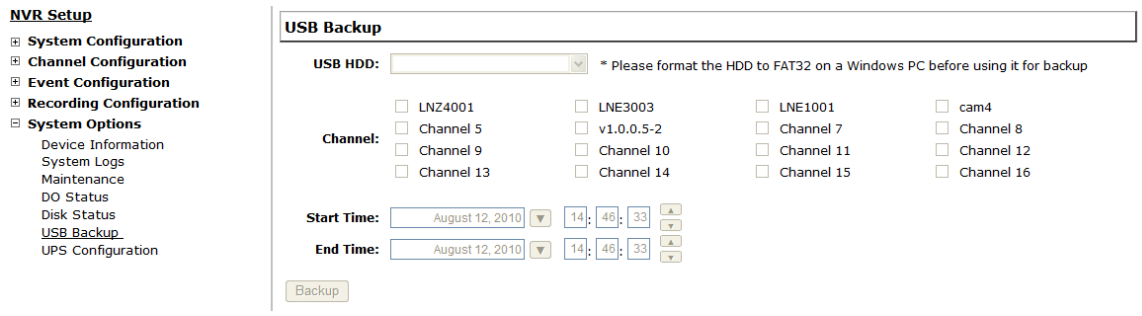
The process should be displayed and you should be prompted back to the “Live View” page after it is complete.

Disk Status

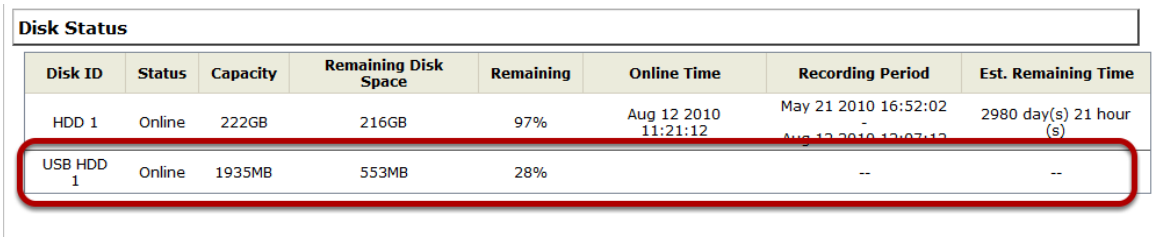


“Disk Status” gives you a more detailed information of the hard drive that is currently installed in the NVR.

USB Backup

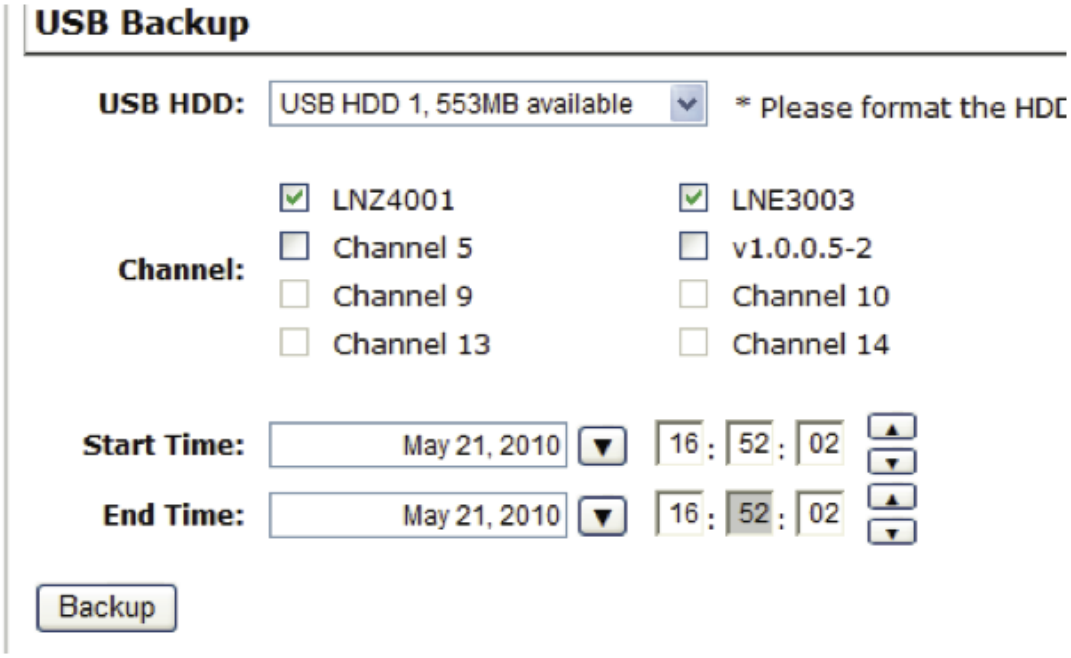


It's a function that allows users to backup the recording data in its database file format (not AVI) to the externally connected USB hard disk.

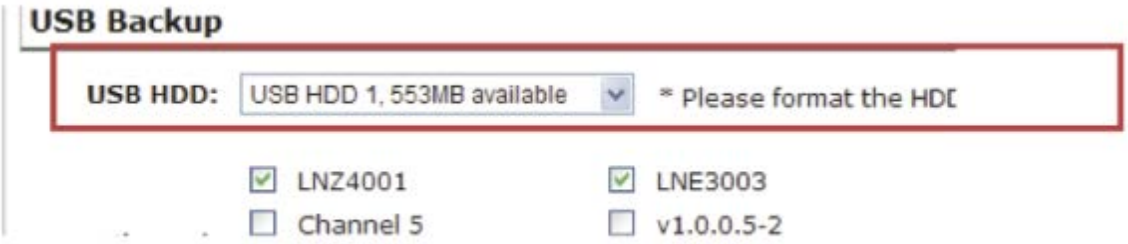


You can check the "Disk Status" page under "System Options" to see if the USB disk has been detected by the NVR. If it's available, it will also be in the USB HDD drop-down menu in the USB backup page.

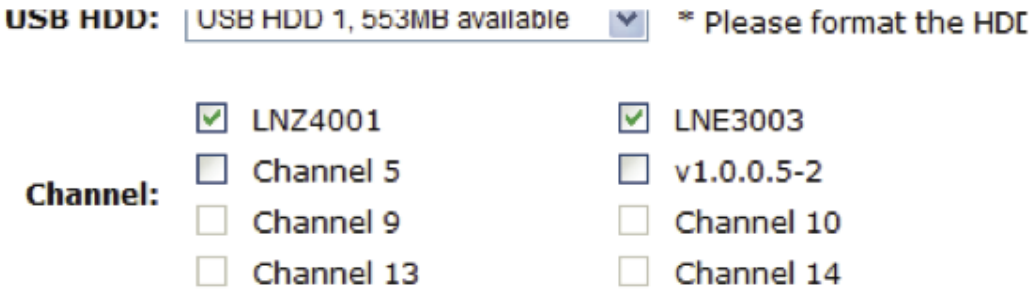
** It needs a USB disk containing free space larger than 100MB.*



Once it's detected, go back to the "USB Backup" page and it should be available for further configuration



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 backup 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 backup and click the “Backup” button to begin.

Things to pay attention to the USB Backup function

Limitation:

- It does not support USB Hub extend the number of HDD con- nected 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 par- tition will be detected and used for backup

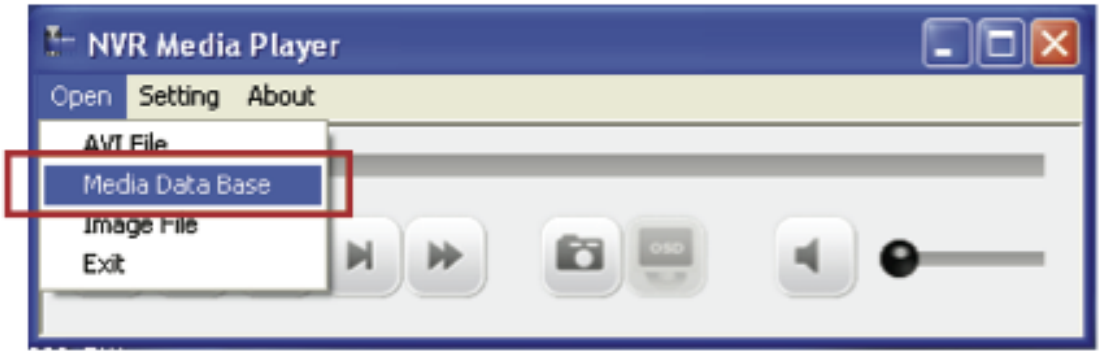
Process:

- Progress will be displayed on the UI
- If the backup process gets interrupted, which the process stops at a point of time that is 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)

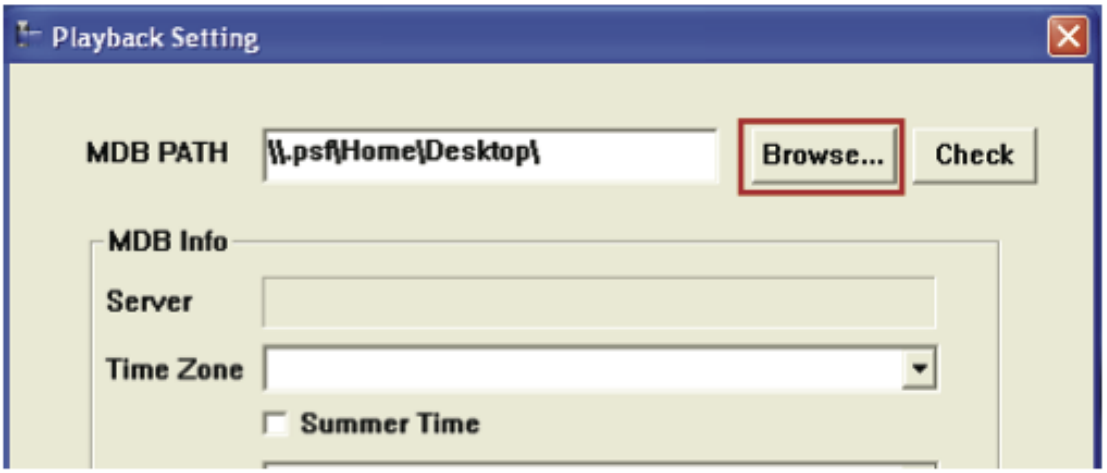
Note:

- Please plug in the USB HDD only after the NVR is fully started, or the HDDs will be incorrenctly mounted.

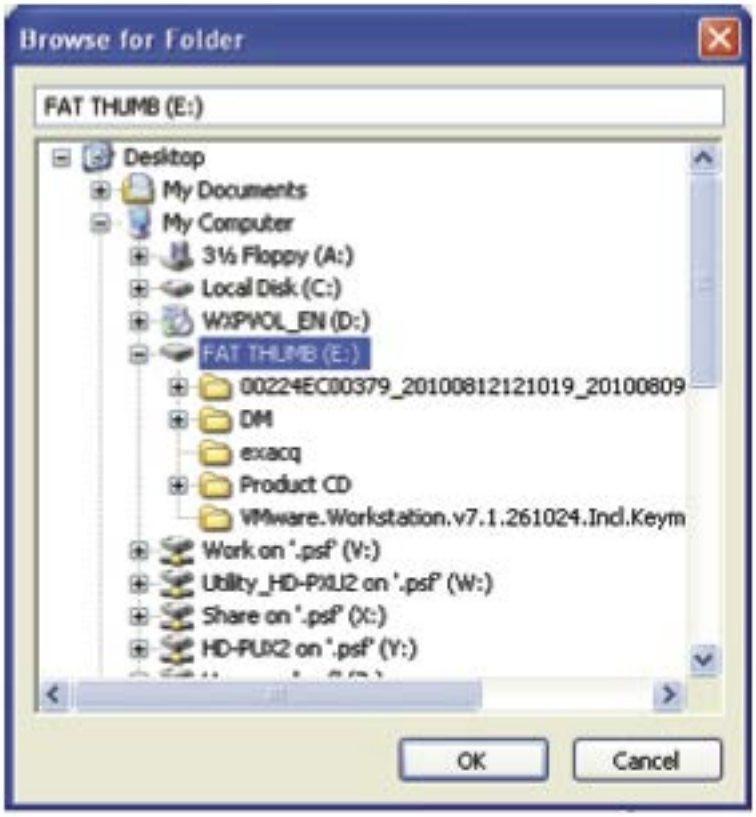
Play the backup file with the NVR Media Player



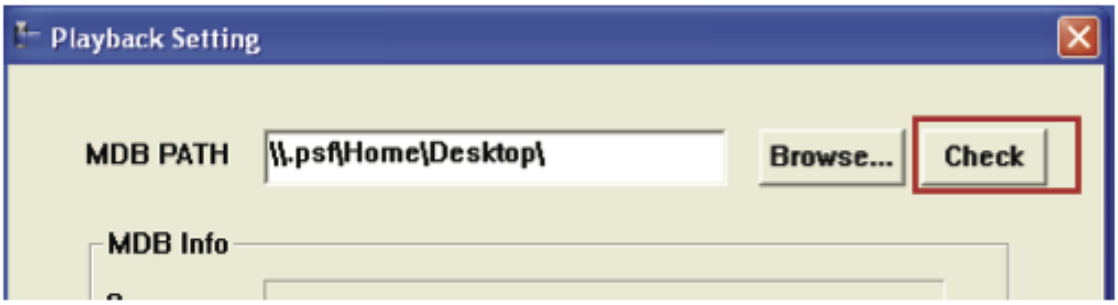
The backup files can be played with the NVR media player. To do, open the player and select “Open” >> “Media Database”



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 backed up file.

About LevelOne

LevelOne was established in 1998 in Dortmund, Germany by Digital Data Communications GmbH. By providing quality networking products and solutions, we've grown steadily throughout the years with Branch Offices in 18 countries around the world. The Internet has become a deeply integral part of both business and home life. Our years of experience have taught us that the only way to stay on top of the latest technology and trends is by listening carefully to what the customer says.

DDC was established in 1991 and is headquartered in Germany, and also maintains branches in Taiwan, Australia, Belgium, Brazil, Colombia, Denmark, Greece, Italy, Kenya, the Netherlands, Portugal, Slovenia, Spain, U.A.E. We are currently achieving year-on-year increase in turn-over. Our Production, Development, Distribution and Logistics Centers are growing in number and setting new quality standards throughout the world with powerful and recognizable brand names.

Please take a look through this brochune and if you have any questions or inquiries you can contact us at

sales@level1.com

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