

SMART

NVR & IP CAMERA PACKAGE

Full HD Network Video Recorder



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User's Manual ver.14.03

Safety Information

The safety information is provided for the wellness of the equipment and for the safety of the operator.

Please review and observe all instructions and warnings in this manual.

Note : Keep this manual handy every time you operate this equipment. Also, check with your dealer for further assistance and for the latest revision of this manual. Your dealer might provide you with a digital version of this manual. We also ask to keep the original box and packing materials in case of return and for long-term storage of the NVR unit.

Preparations before installation

To protect your NVR from damage and to optimize performance, be sure to keep the NVR away from dust, humidity, and area with high voltage equipment such as refrigerator.

Do not install or place equipment in areas where the air vents can be obstructed, such as in tight enclosures or small utility closet. Keeping the unit in a temperature-controlled room with ample regulated power is highly recommended. Do not overload the wall outlet, as this can result in the risk of fire or electric shock.

Uninterruptible power devices such as UPS power surge protectors are recommended, and the NVR units must at least be connected with UL, CUL, or CSA approved power surge protector. Avoid direct sun light and avoid heat.

FCC Information



This equipment has been tested and found to comply with the limits of Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and radiates radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment under FCC rules.

UL Information

- for pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible
- if the battery is placed elsewhere in the equipment, there shall be a marking close to the battery or statement in the servicing instructions.

CAUTION RISK OF EXPLOSION IF AN INCORRECT TYPE REPLACES BATTERY.

DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTION.

THIS EQUIPMENT IS FOR INDOOR USE, AND ALL THE COMMUNICATION WIRING IS LIMITED TO INSIDE OF THE BUILDING, OR ANY SIMILAR WORD.

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Chapter 1

NVR USER MANUAL

1 GETTING STARTED

1.1 Checking Supplied Items

Make sure that you have the following items supplied with your NVR. If any of these items are missing or damaged, notify your vendor immediately. Keep the packing utilities for moving or storage purposes afterwards.

Items	Photo	Quantity
Quick Start Guide		1 Set
CD (Manual & Software) Rubber Mount		1 Set 1 Set (4 Pieces)
12V 3A DC Adaptor Power Cable		1 Set
48V 1.4A PoE Adaptor Power Cable		Option
IR Remote Controller		1 Set
USB Mouse		1 Set

1.2 System Startup

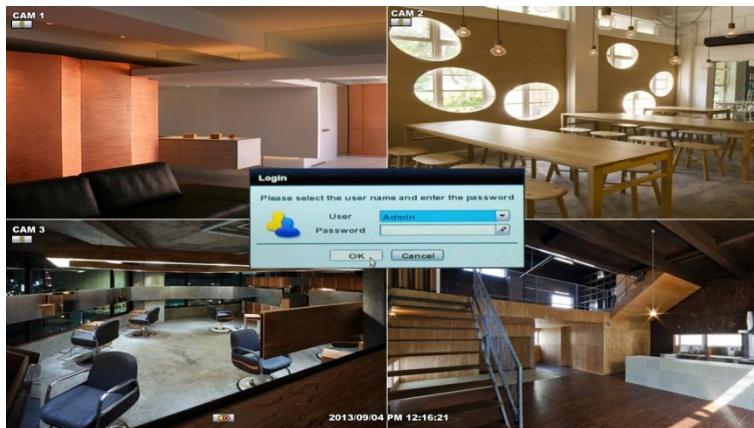
1.2.1 System Startup

After connecting peripheral devices such as cameras, monitors and a mouse to the NVR, power up the NVR by connecting DC12V 3A adaptor to the power jack on the rear panel. The boot logo will display as shown below. Please wait until the boot process completes. Optional PoE needs independent power input of 48VDC.



Login with 'User Name' at the login window which will appear as shown below.

There is only one Administrator Account configurable in the NVR system. It is assigned with an unchangeable User ID marked as 'admin'. The default password is empty (No Password). Administrator account has full access to the NVR and its configurable parameters. The Administrator Account also has the ability to create new users and to assign rights to the new user accounts. Those new users created by 'admin' account can also login with a specific password set by 'admin' account.



NOTE Do not forget the administrator's password that was set for the first time. In case the password is lost, contact your vendor.

NOTE The mouse is included. In case you need to replace it, it is highly recommended to choose well-known major brands such as DELL, MICROSOFT, LOGITECH, or SAMSUNG.

2 EXPLANATION FOR EACH FUNCTION

2.1 Front Panel

[4CH (W)280x(H)48x(D)273mm]



No.	Items	Functions
1	LED Indicator	Indicate System Status Power, Record, Network
2	USB Port	USB Port (Ver. 2.0) for Mouse Operation, Backup Device or Firmware Update

2.2 Rear Panel

[4CH (W)280x(H)48x(D)273mm]



*INR-4CH with Wi-Fi Antenna(Option)

No.	I/O	Functions
1	PoE Power	PoE Power Input (48V/1.4A)
2	Audio IN/OUT	Audio In/Out Port
4	ON/OFF	Power ON/OFF Switch
5	ALARM IN/OUT	Alarm Input/Output (1Relay output)
6	USB	Mouse Input
7	PoE	PoE Camera Input
8	Ethernet	WAN Port
9	HDMI	True HDMI Output
10	e-SATA	e-SATA
11	DC12V	Main Power Input (12V/3A)

NOTE Carefully check whether the specification of the peripheral devices match the NVR's specification.

2.3 IR Remote Controller

In order to use the IR Remote Controller, the ID of the IR Remote Controller must be same as the ID of the NVR.

(Default ID # for NVR and IR Remote Controller is "1".)

If you have more than two NVRs, you are able to control them individually with just one remote controller by setting up 'Remote ID'. (The Remote ID is adjustable from '1' up to '8'.)

The function buttons of the IR Remote Controller are as below.



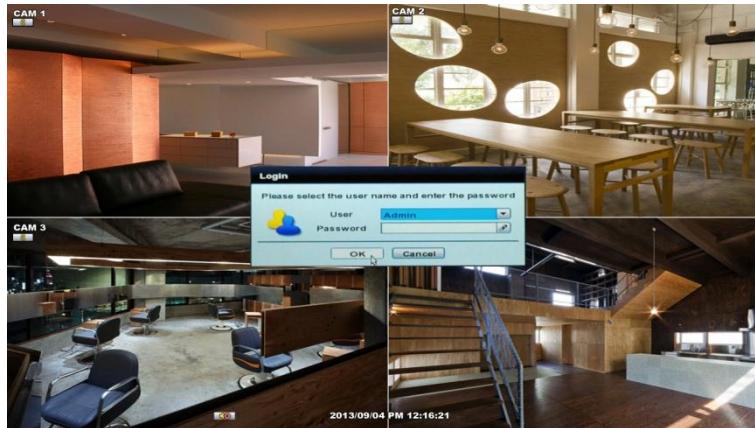
No.	Functions
1	Start Instant Emergency Record
2	Numeric Buttons
3	Auto-Sequence on Live Display Mode
4	Freeze Button to Pause Live Video
5	Call Monitor Activation
6	Channel Selection
7	Instant Playback
8	Search Button
9	OK (Select) Button
10	Audio Mute
11	Playback Control on Search Mode (Fast Backward/Playback/Stop/Fast Forward)
12	Exit Menu Setup
13	Display Mode
14	Zoom
15	PIP Mode
16	Bookmark
17	Zoom In & Out Button
18	Backup
19	PTZ Control
20	Directional Arrows Buttons (Up/Down/Right/Left)
21	Menu Setup

3 OPERATION

3.1 User Log-in

Check the power connection. The system can be used after power-on.

The NVR has various setting categories. The administrator can set the system password and <User> to prevent unauthorized changes to setting values and alteration of recorded file.



Enter the <Admin> or <User> password which has been set by using the virtual keyboard.



NOTE

- 1) <LOGIN> window will be permanently displayed in monitor as above picture until user logs in with the right ID and password. The default user ID is 'admin' and password is none(No password).
- 2) If it is set as Auto Log-In, NVR does not require LOG-IN. (Please refer to 4.1.2 User.)
- 3) Please be sure that the PoE Adapter should be connected to the NVR after the NVR is turned on so that the IP address can be allocated properly to NVR.

Help

The "HELP" button will help you understand how to setup several important settings, even without the user's manual book. For example, if you need help about how to set "Quick Setup", click "HELP" button at the right bottom of the 'Quick Setup' menu.

3.2 Quick Setup

3.2.1 NVR Setup

Quick Setup is specially designed to enable easier & faster configuration for the major NVR settings such as NVR network setup, IP camera search & registration. When the NVR boots up, the Quick Setup will be operated automatically after logging in. The Quick Setup pop-up is controllerable in the main menu. There are two ways for connecting to network setup: DHCP or Static IP.



The factory default setting is as follows:

[WAN Port]

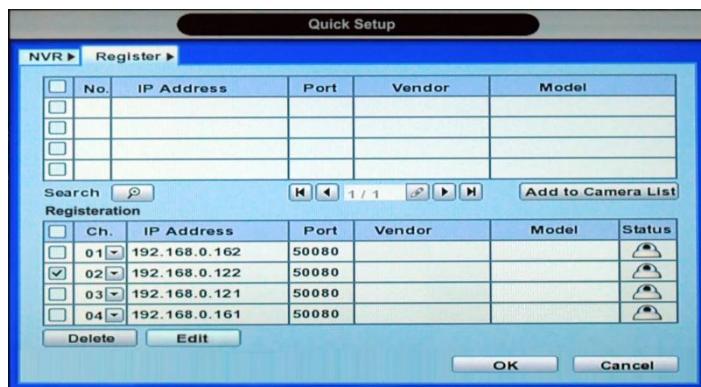
IP Address: 192.168.1.160
Subnet Mask: 255.255.255.0
Gateway: 192.168.1.1

[Local Port: Switch Setting]

IP Address: 10.10.1.1
Subnet Mask: 255.255.255.0
Gateway: 10.10.1.1

3.2.2 IP Camera Connection

When the IP cameras are connected to the NVR, the user can search the connected cameras by clicking the 'Search' button. Once the cameras are searched, check the box of each camera and click the 'Add to Camera List' button. Then the cameras will be shown in the list at the bottom. Click 'Save' button.



NOTE

In case of requiring the ID and Password for certain IP cameras for proper registration, please click the 'Edit' button. The ID and Password should be the one which are used for web configuration page.

3.3 Live Display Mode

3.3.1 Full HD(1080p) Live Display

Full HD Live Display is supported using the HDMI video output of the NVR.

NOTE In playback mode, the maximum resolution is 1920*1080(main) and 640*360(secondary)



<Full HD Live & Playback Display>

3.3.2 Display

Channel selection can be done on the remote controller by pressing the corresponding channel buttons (1,2,3,4) and display mode can be changed by using the MODE button.

The live images can be displayed in 1 and 4 channel mode. Whenever the left/right arrow button on the front panel or IR remote controller is pressed, the screen will be sequentially changed.



[1 Ch]



[4 Ch]

To select channel by mouse, click target channel to display in full screen live mode. Clicking the screen again is to return to previous display mode. Pop-up menu will be displayed by clicking right mouse button to select the display mode easily.

NOTE To properly select a channel using the mouse, the user is required to perform a slow and clear click of the left mouse button.

3.3.3 Icons Description

The live mode displays icons or messages on the screen to indicate the system mode or status.

Below are the icon categories that are indicated on the monitor.

Icon to be shown at Left-upper corner on each channel screen		Icon to be shown at Left-bottom corner on full screen.	
	Continuous Recording		Sequence display on
	Motion Detection Recording		Digital zoom on
	Sensor Activating Recording		Audio Channel
	Motion Detection + Sensor Activating Recording		
	Instant Recording (Emergency Rec)		
	Continuous Recording + Motion Recording		

The sliding menu for display will appear when the mouse cursor is moved to the bottom of the display and right clicking the mouse enables to a pop-up for menu access.



means "Instant (emergency) recording", which is useful to urgently start recording. In emergency recording, the system follows the instant record settings. The default settings for instant record are maximum performance recording of streaming from IP camera and applied for all channels.

means "PTZ" mode, which is useful to instantly switch to PTZ control. In PTZ mode, user can move pan/tilt and zoom-in/out by moving the mouse pointer, like a virtual joystick.

User can click the right-forwarded arrow button to automatically playback the latest video clip.

means the HDD usage percentage by video recording. If it shows 60%, then 60% of HDD space has been used up for recording.

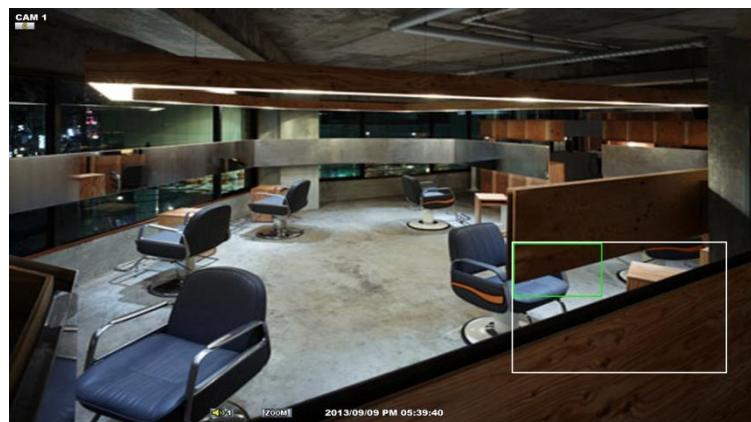
NOTE If you cannot find any colored-mark in the top right corner of the live screen mode, then it means that the system does not record any image. In this case, you need to check recording schedule or camera of the main setup menu.

3.3.4 Pop-up Menu

User can click the right button of the mouse to pop up a sub-menu as shown below.

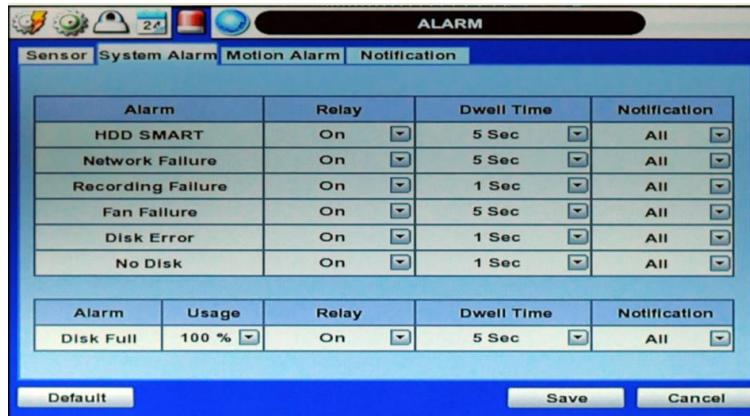


When “SEQUENCE” is selected,  icon is shown on the bottom left corner of the screen, and display screen will be sequentially changed.



User can select the “ZOOM” on a sub-menu by clicking the right mouse button on a full screen mode. When digital zoom function is activated,  icon will be shown and zoomed area will be displayed on the bottom left corner. User can select “Zoom-In size(x1.5, x2, x2.5 or x3)” on zoom pop-up menu. After selecting, move a yellow box by using the mouse to drag in the desired area of the camera to zoom. In order to go back to live display mode, please click “Zoom-In size” again.

When a camera is disconnected, a warning sound may be generated depending on the system settings. Users can set the warning sound from 'Network Failure' option in the System Alarm section of the Alarm menu.



Admin user can set different level of authorization for each user. If a certain user is not allowed to view a certain live and playback channel, then no image appears on the display screen. To setup, move to System menu and click 'User'.

The 'User Add/Edit' popup page will appear like the screenshot below when admin user clicks the button 'Add' at the right bottom. If the boxes are checked, the user is granted authorization to access each function and section.



3.3.5 Switch Stream

The NVR can perform dual recording from dual stream supported network cameras. The user can select a desired stream by network condition during Live and Playback mode.



NOTE Switch Stream function will only be available for 8CH and 16CH NVR.

3.3.6 Alarm Status

Intuitively, System alarm and Camera alarm will be displayed in icons. System alarm includes HDD S.M.A.R.T, Fan failure, Disk Error and No Disk and Recording failure. Camera alarm displays network connection status, motion event and sensor event from connected cameras. However, motion and sensor from camera will only be displayed when a network camera supports the motion and sensor.

[Alarm Deactivated]



[Alarm Activated]



3.4 PTZ Operation

The PTZ menu will only be available when a PTZ camera is connected to NVR.

The user can go to PTZ mode by right clicking the mouse and selecting “PTZ” in the pop-up menu as shown below or by

selecting the joystick button  in the menu bar located on the bottom of the main screen. The PTZ mode will only be activated while in full screen when a PTZ camera is connected.



In PTZ mode, the user can control the PTZ operations with a USB mouse.

While pressing the left button of the mouse, the user can drag the mouse pointer up/down or left/right to move the pan/tilt position of the camera. If the user moves the mouse pointer far away from the center position of the main screen, the PTZ camera will increase its pan/tilt speed. The user can also zoom-in/out by rolling the wheel of mouse up or down.



NOTE PTZ functions are available by using the USB mouse and the IR remote control.

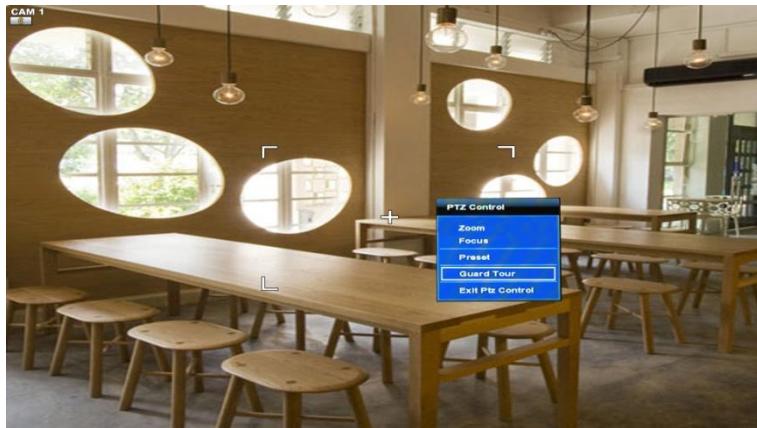
For focus control in PTZ screen mode, the user can right click the mouse to get the pop-up menu as shown below. The default mode is to “ZOOM”. The user can select “FOCUS” to switch the wheel function of mouse from zoom-in/out to focus. This will change the default behavior of the mouse wheel.

The user can also select the preset button or exit PTZ screen mode.



NOTE User will see numeric pad to select “Preset” number. The preset is defined by setting a PTZ protocol in the setting menu. The maximum number of preset is 255, but the max supported by the PTZ may be less.

User can automatically switch the PTZ camera positions according to the predefined preset settings by using GUARD TOUR function. The connected PTZ camera must support touring functions. “GUARD TOUR” on the pop-up menu can be enabled after the channel that the PTZ camera is connected to is changed to full screen. Please make sure that PTZ camera setting is correct, otherwise, “GUARD TOUR” is shown as disabled.



CAUTION Depending on PTZ camera, some preset positions might be skipped if, for example, the PTZ camera cannot mechanically move or control focus within the interval time required by the NVR. In this case, it is recommended to increase the interval setting to a value that allows for the cameras to finish its Pan & Tilt.

3.5 Freeze Mode

Click the right button on the mouse and select the Freeze mode while viewing a live image. In the Freeze mode, the image pauses; the date/ time information does not; and the system clock continues running. Press FREEZE to pause the live view. To resume the live view, press FREEZE again, or click the right button on the mouse and select the FREEZE again.



3.6 Registration

When the user wants to change the camera source, the registration menu allows the NVR to search and register connected network cameras easily. Click the right button on the mouse and select 'Registration' to move.



3.7 Instant Record

In the case of emergency, the user can enable the Instant Record feature. Click the right button on the mouse and select 'Instant Record' and the icon will be appeared and changed to Red ()



After clicking 'Instant Rec', the icon will be changed as seen in the picture below. Click 'Instant Rec' once again to escape.



3.8 Playback of Recorded Video

It is easy to use the USB mouse to playback recorded files. The recorded files can be seen backwards or forwards. Press the rewind and fast-forward buttons, and the playback speed can be controlled in steps of 2, 4, 8, 16, and 32 times real time when playing backwards (◀) or forwards (▶).

Users can also play 'Frame by Frame' by clicking the button (◀◀) or (▶▶). Please be aware that playing frame by frame in reverse will only display the I-frame (First recorded image for every second of video).

While viewing the live camera feed, the playback button (▶) can be used to automatically play the latest video clip. This can also be performed by using the pop-up menu.



The picture below shows the system playing back a video.

In the playback screen, the user has various playback options such as; make an instant manual backup (archive), go to calendar search mode, change channel, and change screen modes. By clicking the left mouse button in the colored-time bar, the user can jump to a different time in the recording. In addition, the vertical bar on the time bar can be dragged (hold left click) to quickly advance or reverse time while still displaying the related recorded video. Once at the desired position, release left click to begin your normal playback mode from that time.



3.9 Simultaneous Live and Playback (CAMEO)

The Cameo function allows viewing playback of a single channel, while viewing the live camera display simultaneously on other channels. In live view mode, right click the mouse on the channel that is desired to playback and then select Cameo to activate this function.



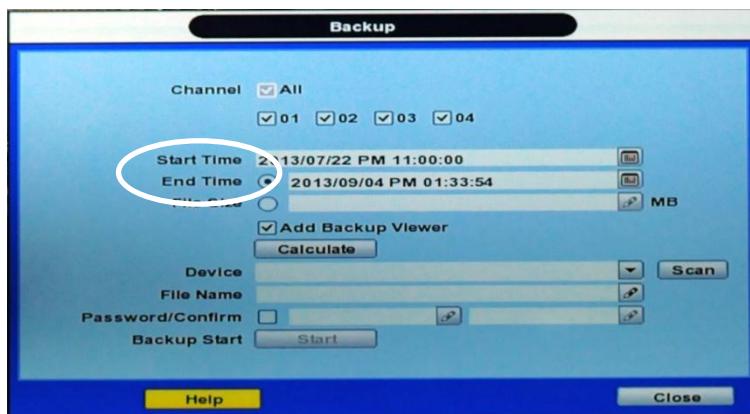
Users can see the blue frame on the CH1 screen when Cameo function is activated as shown below.



3.10 Quick Backup during Live & Playback

Video can be easily archived while viewing during live and playback mode.

In live & playback mode, the user can right click the mouse and the Backup menu will appear immediately. When desired playback period is decided, set the start time and end time with target channels. After plugging the USB stick into the NVR, left click "Scan" to allow the NVR to find the flash drive. After the USB flash drive is detected, enter a file name in the field below. A password and backup viewer can also be added to the backup for security and ease of use.



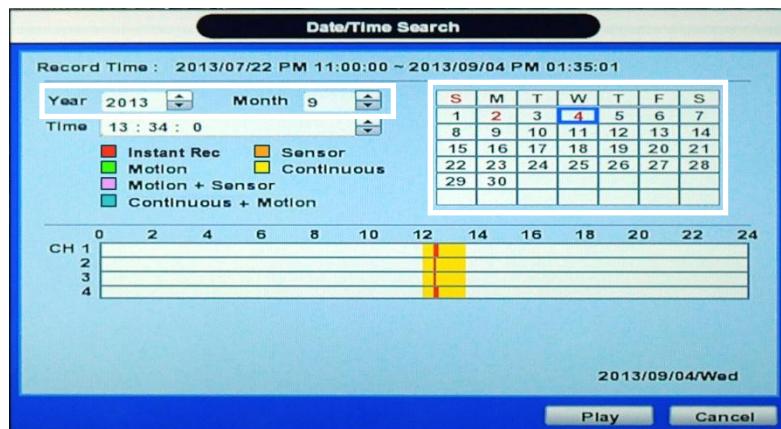
3.11 Search Recording Image

3.11.1 Date/Time Search

The user can select the date and time to search for a certain file within the recorded video.

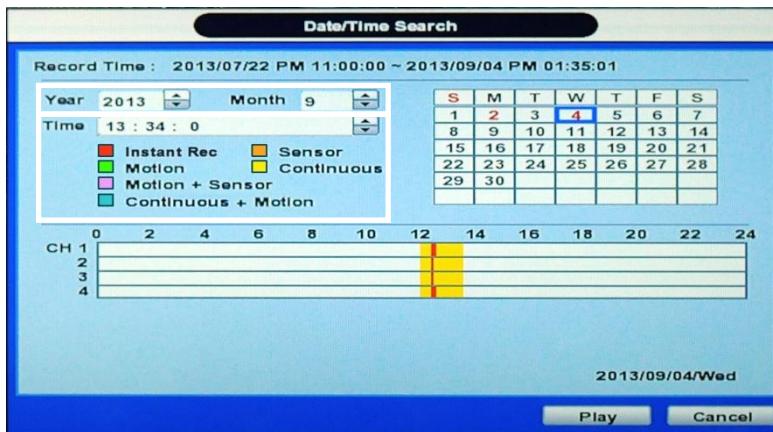


In the calendar, dates in RED means that there is recorded video data. Click a desired date in Red. Then, the recorded data for the selected date will be shown.



Once the recorded video data of the selected date is shown, the user can adjust the vertical search line to the time that the user wants to search by dragging the mouse. As the vertical line is moved back and forth, the user can see the "Search time" clock also changes. Once the search time is decided, click Play to see the selected video data.

The colors of the time bar are different, depending on the recording mode.



No color

- NONE

“NONE” means there is no recorded video for that time slot.

Red color

- Instant recording

Yellow color

- Continuous recording

Green color

- Motion-detection recording

In this mode, the system records only when motion is detected

The motion-recording configuration can be set in the camera menu from the NVR directly, or from the network camera configuration.

Orange color

- Sensor-activated recording

In sensor mode, the system will record when a sensor is triggered during the dwell time as set in “SENSOR” of the “ALARM” menu. Sensor input can be selected between camera input sensor and NVR input sensor. NVR input sensor is a direct alarm input to the NVR physically and a Camera input sensor is triggered by network. The user should verify if the specific network camera is integrated with the NVR to the manufacturer.

Pink color

- Motion detection + Sensor-activated recording

The system does not record without motion and sensor event. Motion event data comes from the network camera and can be set in “Camera” in “DEVICE” menu. This menu is for integrated network camera settings and sensor type need to included in “Sensor” in “ALARM” menu.

If user sets “OFF” in both “MOTION” and “SENSOR” in the “DEVICE” menu, then the system will neither record nor notify the Advanced Client Software or Central Management System.

Light Blue color

- Continuous + Motion recording

In this mode, the system records with the continuous recording mode settings when no motion is detected. However, if motion is detected, the system will start recording with the motion recording mode settings.

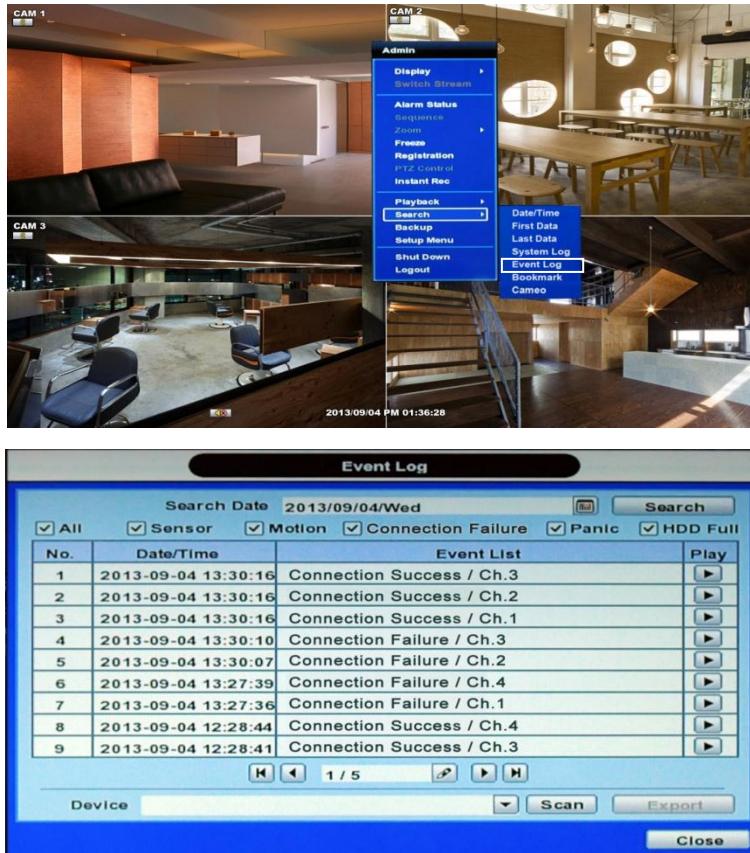
During continuous recording mode, the system records with 1 frame per second. When motion recording mode is activated, the system will follow the camera setting value which the user can set in the record setup menu.

*Record Setup is available only for approved camera models.

3.11.2 Event Log

The Event log search is used to find a particular event, quickly and easily. Click the right button on the mouse as shown below and select the 'Event Log' to move. Click  play icon to play back the selected event data. Users can copy this event list to a USB memory device in text file format.

Once a USB memory stick is inserted into the USB port, the user must press the "SCAN" button to detect the USB stick and then press "EXPORT" to copy the log information to the media.



To sort particular events, the user can select an event type with time & date by a mouse or remote controller.

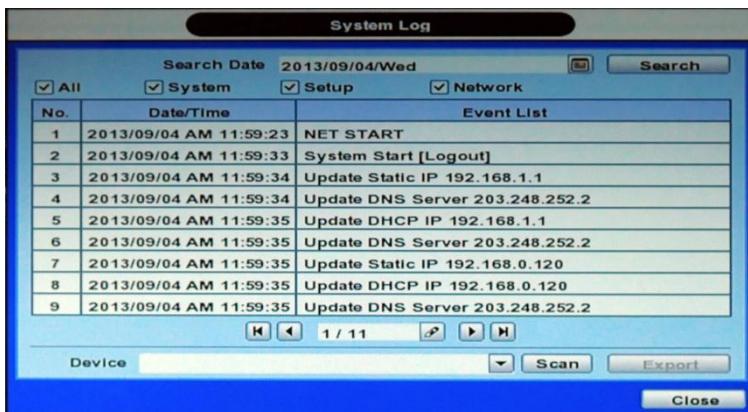
The following are the categories indicated on the Event Viewer.

1. Alarm by Sensor
2. Alarm by Motion
3. Alarm by Connection Failure
4. Alarm by Instant Record
5. Alarm by HDD Full

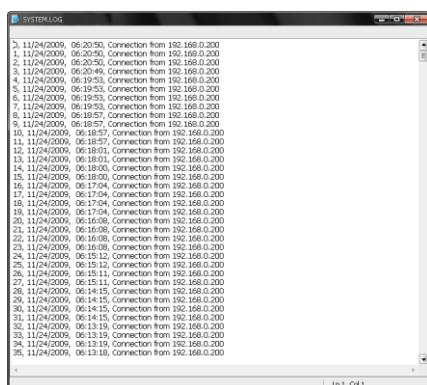
NOTE If the Alarm does not activate even though the alarm input setting has been made, check the alarm connection of the NVR rear panel and Network camera alarm.

3.11.3 System Log

The system log search can be used to find particular system log information, quickly and easily. The user can copy this event list to a USB memory device in text file format. Click the right button on the mouse as shown below and select the 'System Log' to move.



Once export is completed, the user can find a date folder created in USB thumb drive. There is "system.log" file stored in the date folder.



The following are the categories indicated on the system log viewer.

1. Log by system
2. Log by setup
3. Log by network

NOTE 20 numbers of log record will be shown on one page of the <System Log> and <Event Log> window. User can click the arrow icon to search the log records on another page.



3.11.4 First Data

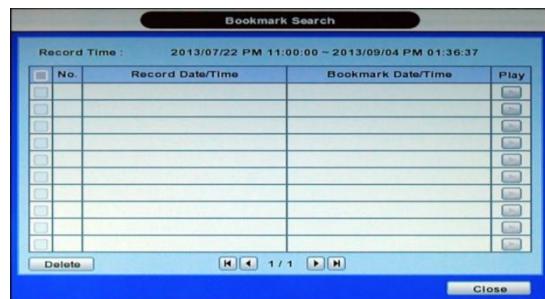
Go to the first screen of the recorded video. This is the oldest video recorded.

3.11.5 Last Data

Go to the last screen of the recorded video. This is the latest video recorded.

3.11.6 Bookmark

Go to the bookmark list to search the recorded video data in the bookmark list. Users can make their own bookmark list very simply by click  button, during playback. When you do a bookmark search, you can easily playback the bookmarked video data by clicking  button, right next to each list. The maximum number of bookmarks that can be kept is 32.



3.12 DST Setting and Screen Saver

DST starts at 2:00 local time on 2nd Sunday of March, and ends at 2:00 DST on 1st Sunday of November.

During DST (Daylight Saving Time) period, the NVR time clock has to be adjusted according to the regional time zone. That is, the NVR time clock will be shifted by one hour after the DST settings start, and the NVR will restore the time clock back to normal after DST finishes.

To enable the DST setting on the NVR, go to the menu: SYSTEM > SYSTEM INFO and click "DATE/TIME" to get the DST setting window as shown below. Users can setup DST "Begin & End" time after checking "USE DST" box.



Since the clock jumps from 2:00 to 3:00, when you go to search mode, you can clearly see there is no data in all channels for one hour due to DST.

DST ends at 2:00 DST, and the clock jumps backward to 1:00 standard time on 1st Sunday of November.

When DST finishes, there is an hour of overlapped video. The overlapped time video will be indicated in a blue color in the Intelli-Search Bar during playback mode.



When the user clicks on such overlapped period, a message titled "Recorded video Selection" will pop up. The user can then select whether to play DST data or Non-DST data.

Click OK to play DST image.



[“DST” image is displayed on screen]

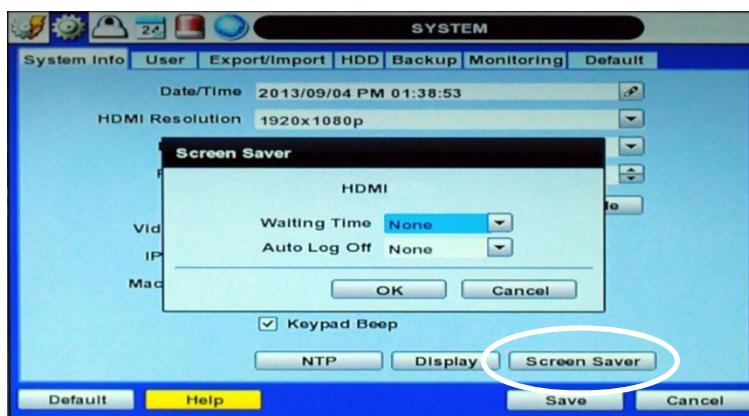
Click CANCEL to play Non-DST image.



[“Non-DST” image is displayed on screen]

To enable the SCREEN SAVER setting on the NVR, go to the menu setup: SYSTEM > SYSTEM INFO and click “SCREEN SAVER” to get the SCREEN SAVER setting window as shown below. Users can select CRT and/or VGA by checking the boxes. Users can set the WAITING TIME for when the monitor will automatically turn off.

Users can turn on the selected monitor by clicking a mouse, pressing any frontal key buttons, or pressing any buttons on the remote controller.



NOTE WAITING TIME: Users can select the WAITING TIME from NONE, 1,2,3,4,5,6,7,8,9,10,20,30,40,50, and up to 60 MIN. The SCREEN SAVER will not work when either WAITING TIME is set to “NONE” or both SPOT and VGA checkbox are unchecked. SCREEN SAVER may not work during system upgrade, HDD format, or data backup process. The system continues to record while the monitor is turned off.

When it comes to the “AUTO LOGOFF” setting, please refer to the USER setting.

4 SETTING

General setting structure consists of "Quick Setup", "System", "Device", "Record", "Alarm," and 'Network" as shown below.



Main MENU	Sub MENU
QUICK SETUP	NVR REGISTER SYSTEM INFO USER EXPORT/IMPORT HDD BACKUP MONITORING FACTORY DEFAULT
SYSTEM	REGISTER CAMERA PTZ AUDIO
DEVICE	SCHEDULE RECORD SETUP HOLIDAY
RECORD	SENSOR SYSTEM ALARM MOTION ALARM NOTIFICATION
ALARM	NETWORK DDNS IP FILTER
NETWORK	

4.1 System

The system menu button is selected by clicking the right mouse button.

Users can address the mouse pointer for the “System” menu icon, sub-menu window will be displayed and user can move into specific menu by selection of sub-menu to set up and/or edit.



4.1.1 System Info

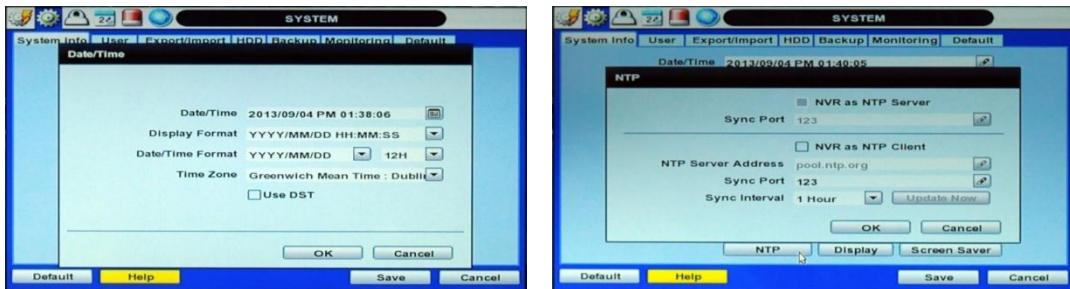
Use this sub-menu to check system information status or to change the system-related configuration.

Users can then move to other sub-menu of the System; System Info, User, Export/Import, HDD, backup, monitoring and Factory Default by moving mouse pointer or pressing the arrow buttons on the front panel.

Mac address is a unique network identification number for each system.



In "DATE/TIME SET," user can activate DST (Daylight Saving Time). Select the time synchronization server and other basic settings like time zone/time format.



NOTE There are two types of TIME SYNC MODE.

1) NVR as NTP Server mode

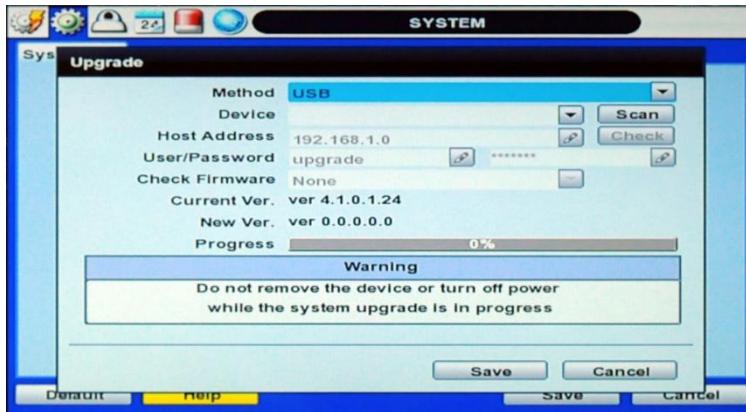
The operating NVR is set as a Time Sync Server, which can synchronize the time clock of another NVR(s) connected over the same network environment.

2) NVR as NTP Client Mode

The operating NVR is set as one of the client NVR(s). Input the IP No of designated NVR, Advanced Client Software (ACS), or Central Management System (CMS), as a Time Sync Server in "SYNC SERVER"; and then its time clock is synchronized with Time Sync Server by the setup time in "SYNC CYCLE".

Remote ID: users must setup the Remote ID to match the ID setting in the IR remote controller in order for the remote to function.

Upgrade: Users can easily upgrade the system in "Upgrade" menu via USB/FTP server, upon the selection as shown below:



PROCEDURE How to upgrade system firmware by using USB memory stick

- 1) Insert the USB thumb-drive formatted by FAT32 in any USB port of NVR (compatible with USB 2.0)
- 2) Once the system detects the thumb-drive, the user will see its brand or model name in the "DEVICE" field after pressing the "SCAN" button.
- 3) Click "OK" to confirm.

How to upgrade system firmware by using FTP server

- 1) Select FTP in the drop-down list and type a given IP address in the Host Address (FTP server IP address) field. Username and password is "none" (Default). *The FTP server address is subject to change without a prior notice.
- 2) Click 'Check' button then NVR will detect the latest Firmware version from the FTP server. If there is a new firmware, the NVR will ask you whether you want to upgrade it or not.
- 3) Click 'OK' to confirm it and then click 'START' to start upgrading.

CAUTION It is recommended to format the HDD after finishing the firmware upgrade because the data recorded by previous firmware may cause a malfunction of the NVR due to different a format.

It is possible to send the system firmware back to factory default. This may be useful if functionality takes a step backwards after a system upgrade. It is highly recommended to check all functions and menus after a firmware upgrade for proper layout and performance.

In "Display Setting", the user can set OSD information display in Live & Playback mode and Dwell time of set-up display, OSD and Sequence.

Transparency is the transparency level of the menu screen. 0% means no transparency at all.



NOTE NVRs support the following video resolutions: 640x360, 1280x720, 1280x1024, 1920x1080

User must set the proper resolution according to the monitor resolution.

Default HDMI resolution is set to 1024x768. Depends on resolution of monitor, it is recommended to change resolution to 1920x1080.

4.1.2 User

Master user of this system is always Admin with no factory default password.

Admin must change the password of the NVR for extra security.

Admin can designate a new user with different permission levels by functions, menu access and live & playback.

“Function” is to authorize the user to control certain functions, like search, PTZ control, backup and playback.

“Menu Access” is to authorize the user to access certain menu settings, like system, camera, record, network, alarm and quick setup. “Live & Playback” is to restrict a user to see both live display and a playback video for a certain camera channel.



NOTE Total number of users including administrator is 9 users.

User can change the setting, so the NVR does not require login or lock the NVR control. Click ‘Option’ button at the right bottom, then the ‘Option’ popup window appears.

No.	Authority	User	Description	Edit
01	Admin	Admin	Admin	Edit
02				Edit
03				Edit
04				Edit
05				Edit
06				Edit
07				Edit
08				Edit
09				Edit

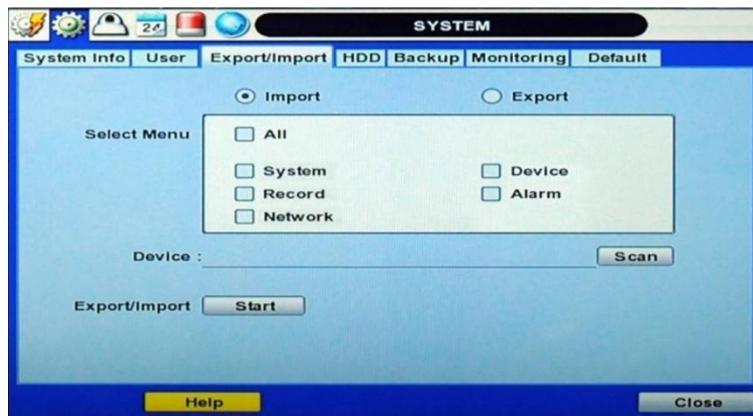


If user selects “On Boot” on the popup page, the NVR will not ask for an ID and Password input again even though the system reboots.

On the contrary, if the user selects Auto Log-off and sets the time, the NVR will automatically go to the live display mode that occurs after the set time. Then, the NVR will ask for an ID and Password input when user wants to control the NVR.

4.1.3 Export/Import

Users can copy and paste the system configuration values in this menu. “Export” allows the user to copy the settings for this system to USB memory devices. “Import” allows the user to recall the settings saved from other systems using USB memory devices. During import process, make sure that the firmware version of the source NVR is the same as the destination NVR.



4.1.4 HDD

Internal HDD information and External HDD information is displayed. External HDD information display is possible only with approved e-SATA storage.

User can select “Overwrite” or “Rec Stop” when the HDD is full.

Users also can easily format a new HDD or an existing HDD for each drive. In order to format an HDD, check the checkbox and then click the “HDD Clear” button in the HDD menu.

The maximum number of built-in HDD units varies across NVR models.



On the NVR system, NVR Health Check is represented in % sign as shown below. It indicates the lifetime and the temperature in Celsius of the hard disk drive.



If system resources are occupied with a task, such as making a network connection or performing video playback during the format process, the format may fail. If the format fails, reboot the NVR and then try to format again.



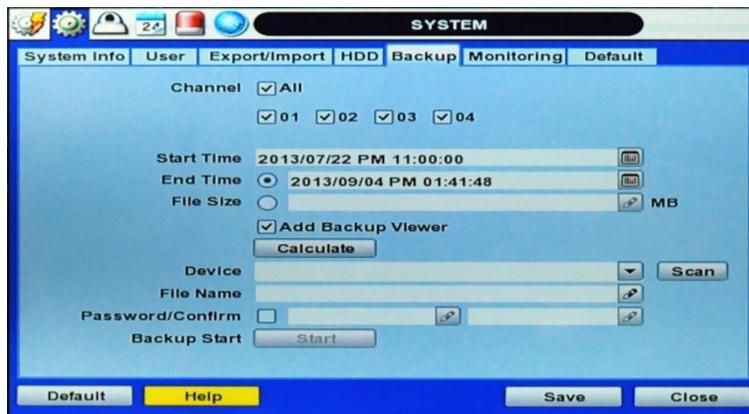
NOTE

- 1) Formatting may take around 40 sec for 320GB, 1 minute for 500GB, or 7 minutes for 2TB.
- 2) The system always reserves a maximum of 20GB of space in each built-in HDD to utilize the memory for archiving effectively.

4.1.5 Backup

Users can archive a video clip recorded for a certain period on a selected channel or channels as shown below.

Connect an appropriate USB memory device, like USB thumb drive, USB HDD and press “SCAN” button to get the system to recognize it before archiving. Necessary file size will be shown before burning.



NOTE Backup device shall be a well-known major brand of USB thumb drives formatted by FAT/FAT32 for proper backup.

NOTE User can easily backup video in “Quick Backup” during video playback.

NOTE User can click the “Calculate” button to learn the backup file size before executing backup.

NOTE User can rename the backup file name before starting backup process and also put a password in the backup file for security purpose. In order to playback the file, user should input the password.

- **Backup Video Player**

There will be a single file after archiving, if “Auto Player” was selected.

The user can double click “Player.exe” file to open the video data file (PSF format) in the folder.



Users can print out, capture a still image, zoom out, or make an ASF file format, by using the icons located on top of the player window.

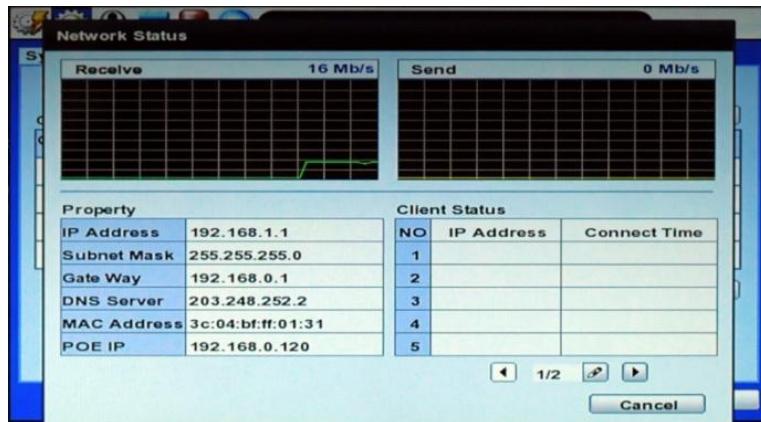
NOTE User also can play the backup-video clips by Advanced Client Software and Central Management System.

4.1.6 Monitoring

The monitoring menu enables the user to see the status information intuitively.

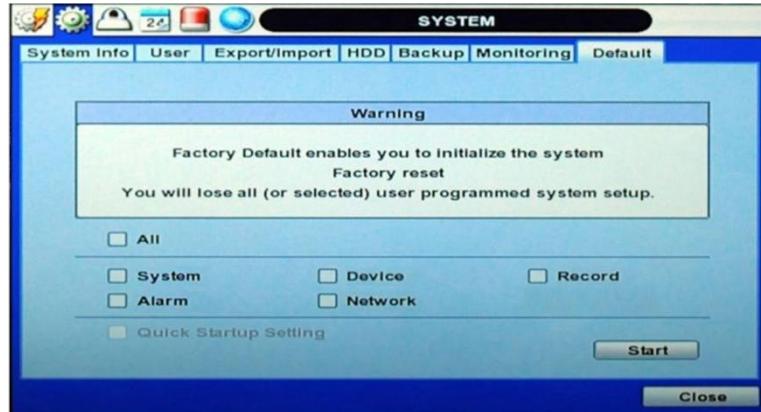
Network status displays the receiving bandwidth from cameras and transmitting bandwidth to external access in a graph. Property shows the NVR network information and the Client status displayed by external access through network. It keeps showing the time & date with IP address.

The connection log displays the camera connection and disconnection history log. It includes channel, time & date, and IP addresses for past connections.



4.1.7 Factory Default

With an authorized password, users can get the system back to factory default configuration.



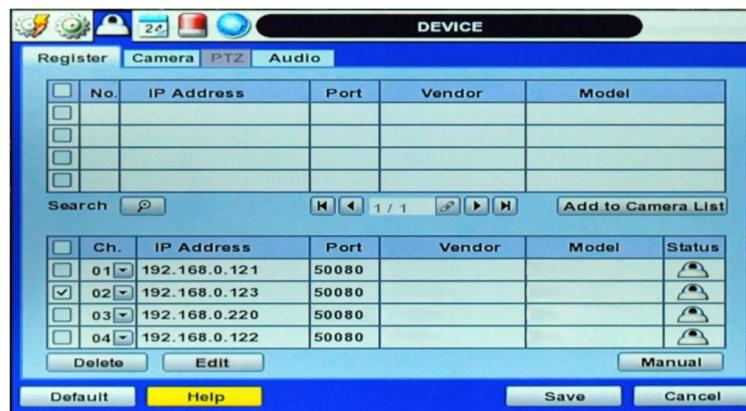
NOTE Upon clicking the "Start" button and entering the admin password, all the configuration values made by the user will be deleted. To proceed, select the boxes listed. The boxes that are chosen will be set to factory defaults. Factory defaulting the NVR does not delete recorded video data.

4.2 Device

The Device sub-menus are Register, Camera, PTZ and Audio.



4.2.1 Register



Network cameras should be registered in the NVR in order to transmit video. The Register menu allows the NVR to search for network camera easily. Cameras can be found in the local network by clicking the 'Search' button if cameras are connected. When cameras are searched, the user can assign the searched network camera a target channel of NVR by "Add to Camera list". If an added camera channel needs to be changed, please use the "CH" drop down menu and select desired channel.

The user can also search and register cameras manually in a WAN condition. To do so, assign the channel, IP address, login ID, and Password. The most important information is the RTST URL information from the network cameras. If the network cameras support dual stream, you are able to set up a secondary stream.

4.2.2 Camera

Users can setup camera title and covert-motion area. "Covert" is a feature that is used to hide a channel from view. Users can setup a camera on each channel by clicking Channel '01 ~ 04' button.



- **Motion Area Setup**

The default motion area setup relies on the network camera setting and direct control of network camera is supported for approved models. Choose the desired motion area by dragging a mouse while holding the left mouse button. All zones can be selected and desired areas are also partially selectable. Only 4 individual zone areas are consecutively available by dragging a mouse on the motion area. If users select the area one more time, the very first selection will be removed and the very last selection will be applied. To remove all selections made, click the right button on the mouse and choose 'Clear All'.

Select also "Sensitivity" from 'Lowest to Highest'.

- **Title**

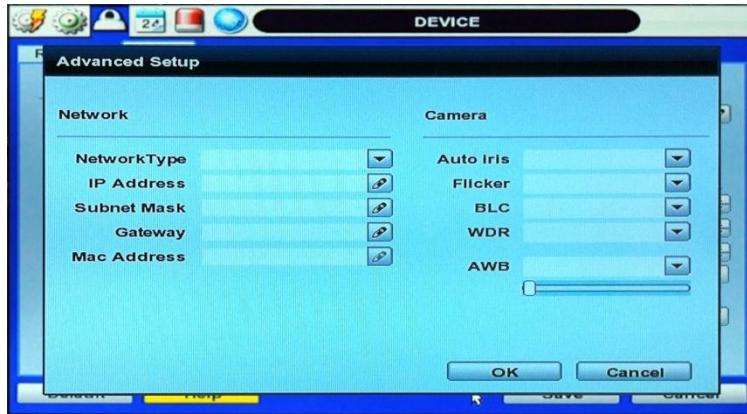
Users can name the camera title.

- **Covert**

"Covert," also called 'hidden camera' feature, hides camera display and playback as if there were no camera recording. Users can apply this covert function not only to Live view, but also to Playback view.

- **Brightness, Contrast, Hue**

Adjusting brightness, contrast and hue to camera is available. When setting is done, click the 'Apply' button.



- **Advanced Setup**

"Advanced Setup" can be supported by approved cameras only.

Network Type Choose DHCP or Static IP. When choosing Static IP, IP address, Subnet Mask and Gateway will be activated.

IP Address / Subnet Mask / Gateway Type the IP Address, Subnet Mask and Gateway.

Mac Address Mac Address of the IP camera is not activated.

Auto Iris	Adjusts light automatically by responding to external illuminance variation. Not activated.
Flicker	Available to set to Off, 50Hz or 60Hz.
BLC	Back Light Compensation. Available to set to On or Off.
WDR	Wide Dynamic Range. Available to set to On or Off.
AWB	Auto White Balance. Available to set to In-Door, Out-Door or Manually setting.

4.2.3 PTZ

PTZ function will be activated when PTZ camera is connected to NVR. Full control of the PTZ camera is available in this menu. For more details, please refer to Section 3.4 PTZ Operation.

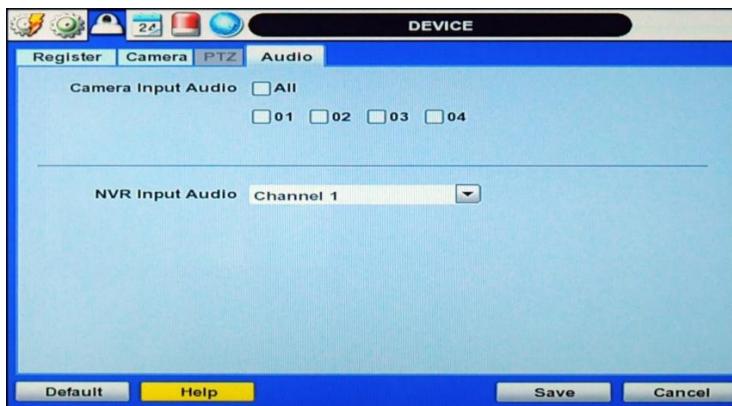


- **Protocol**

Select the proper protocol of the connected PTZ camera. The NVR only supports approved PTZ cameras.

4.2.4 Audio

Users can select the audio input from network cameras if it is supported or from the NVR audio input. However, each channel can accept only one audio input. Users should set up the audio of the camera to be activated as 8KHz / 16bits. Mapping is only available for either the Network camera audio or the local audio input of NVR on the same channel.



NOTE Users can listen to the audio on both live display and playback mode depending on the setting. In addition, users can listen to the audio for both live display and playback mode through the network using HD Central Management System (HD-CMS), and/or Internet Explorer web browser.

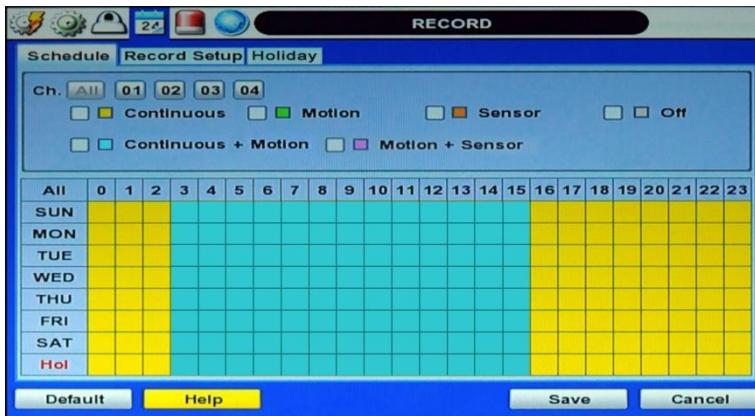
4.3 Record

Users can configure various record settings such as Continuous, Motion, and Sensor for each individual camera channel in the Record Setup Menu. Network Stream settings relies on the network camera for recording. Approved network camera settings will be set by the NVR menu and the user can set up the streaming video quality, FPS, and bitrates in network camera menu as well.



4.3.1 Schedule

Users can set up the record schedule by applying various record modes to each date and time. Simply select a record mode by mouse and drag it to the desired date and time. In a mode of Continuous and Motion, the NVR records data at 1 Frame Per Second(FPS) only before the motion occurs(C) and when the motion occurs(M), it records as set in the record setup.



4.3.2 Record Setup

Users can set the streaming setup of a network camera to record. Main stream record is possible up to 1920*1080 and secondary stream is up to 640*360 with adjustable FPS, Quality, Pre Alarm and Post Alarm.

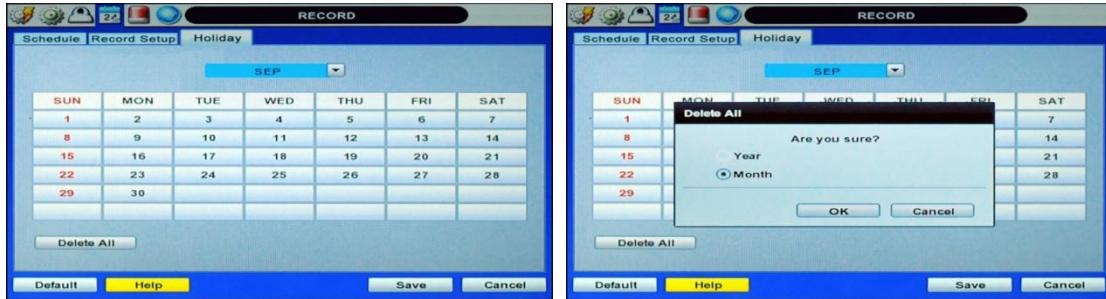


- **Channel** Select channel to set the registered network camera
- **Resolution** Select resolution up to 1920*1080(Full HD) for main stream and 640*360 for secondary stream.
- **Bit Rate type** Select between CBR(Constant Bit Rate) and VBR(Variable Bit Rate)
- **Quality** Select the desired Quality level(Lowest/Low/Normal/High/Highest)
- **FPS** Select desired FPS(Frame per Second) to record up to 30fps.
- **Pre/Post Alarm** Select desired Pre Alarm time within 5 seconds and Post Alarm time within 15 seconds.

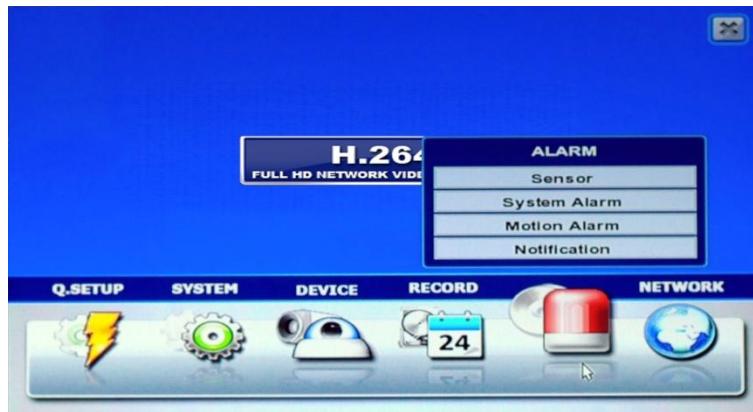
NOTE Due to system performance, Bitrates per channel must be limited to 4,000kbps/CH for Main Stream and 512Kbps/CH for Secondary Stream.

4.3.3 Holiday

Users can setup a specific day of a month or day of week as holiday as shown below. Once the holiday is selected, the recording setup for those holidays will be affected by the schedule setting in the schedule.

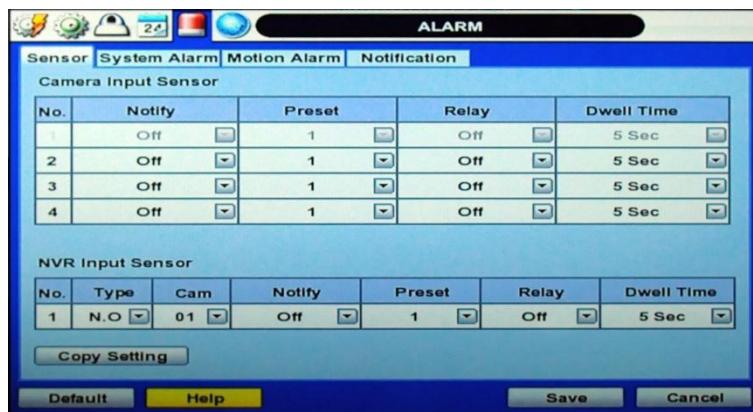


4.4 Alarm



4.4.1 Sensor

Users can select the sensor input between NVR and supported network cameras. Mapping is only available for either the Network camera sensor or the local sensor of the NVR on the same channel.



- Type**
OFF, N/O (Normal Open) , N/C (Normal Close)
- Cam**
Select the associated camera channel.
- Notify**
Users can select how to be alerted when a sensor is activated by pressing the “NOTIFY” button. The system can generate a buzzer sound and/or make a pop-up screen for the camera in alarm.
- Preset**
Users can select the camera to move to a preset position, once the sensor is triggered. (User should setup a preset position in the PTZ menu 4.2.3 in advance) In addition, users can set multi-preset with a single PTZ camera. Therefore, users can cover a multi-preset zone with a single PTZ camera.

CAUTION Relay contact can handle up to 24VDC/1A(or 125VAC/0.5A) of other devices. If connected to a circuit that is over 24VDC/1A(or 125VAC/0.5A), the system may experience problems.

- Relay**

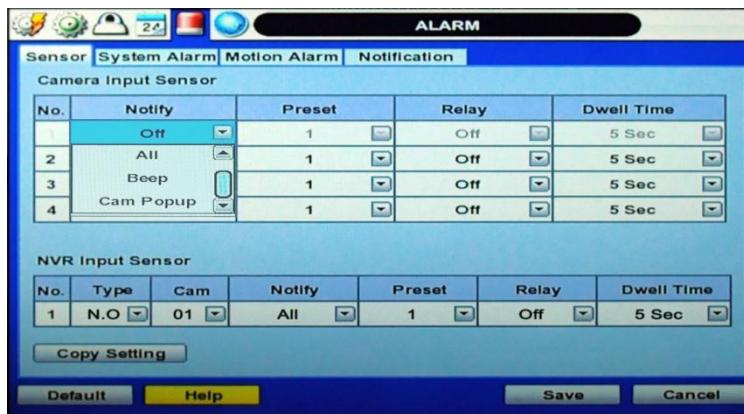
Off / Relay Output to trigger other device.

▪ **Dwell Time**

Set the recording period from the start of the sensor input activation. During this period, the corresponding camera video will record according to the frame and alarm (relay) output set. The recording stops and alarm output is turned off when the dwell time has elapsed.

▪ **Copy Setting**

Upon pressing Copy Settings button, Copy Settings popup will appear. In this popup, choose the sensor the user wants to copy from at the "From" field. Choose the parameters such as Type, Cam, Notify, Preset, Relay, and Dwell Time on the check box. Check on the checkbox next to the sensor numbers to apply the copy setting(s) to another channel on the "To" box.



NOTE "Sensor" here means the alarm connected to the NVR, which is triggered by a physical sensor input or transmitted data from network camera sensor input

NOTE If the sensor does not operate properly, check the setting of the sensor type (N/O or N/C). The alarm might not function if the actual connecting sensor type and the sensor type in the system setting are inconsistent.

NOTE There are three options to choose from to notify of Camera Input Sensor – All, Beep and Cam pop-up.
"Beep" means that beep sounds automatically when an alarm is triggered.

"Cam pop-up" means that multi-screen live video mode will be switched automatically to single channel mode when an alarm is triggered. This single channel video will be the channel triggered by alarm.

"All" means that "Beep" and "Cam pop-up" will be used simultaneously when an alarm is triggered.

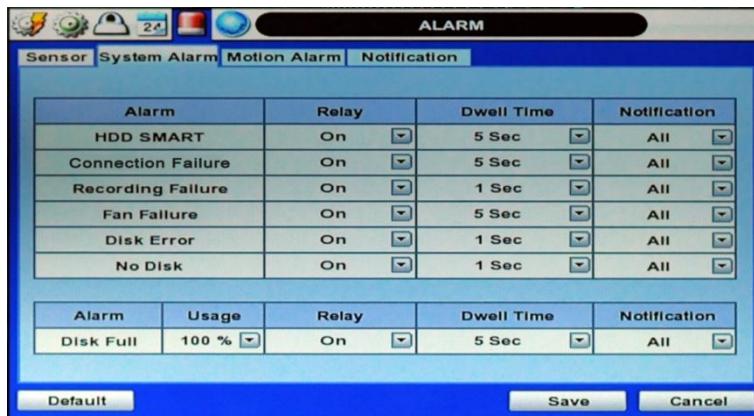
4.4.2 System Alarm

S.M.A.R.T. alarm is an alarm signal triggered when the HDD is about to be out of operation.

Connection Failure alarm is activated when a camera is disconnected.

Recording failure alarm is triggered when the NVR doesn't record normally.

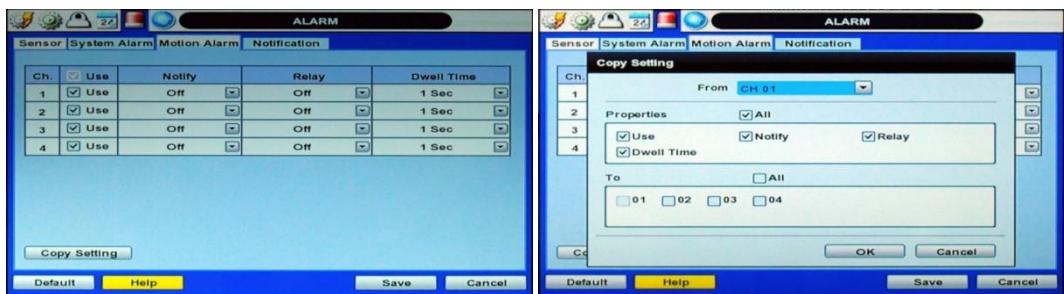
Fan Failure alarm is triggered when the internal fan is stopped.



Users can also set the percentage for HDD Usage. For example, when usage is 50%, the NVR will notify by a camera popup or a beep sound when HDD is 50%.

4.4.3 Motion Alarm

Select Motion alarm to record only when motion detection is triggered by the NVR S/W upon the users defined motion area. An alarm signal is sent via the selected sensor-out channel.



▪ COPY SETTINGS

Upon pressing the Copy Settings button, the Copy Settings popup will appear. In this popup, choose the camera the user wants to copy in the "From" field. Choose the parameters such as Use, Notify, Relay, and Dwell Time on the check box. Check on the checkbox next to the sensor numbers to apply the copy setting(s) to another channel on the "To" box.

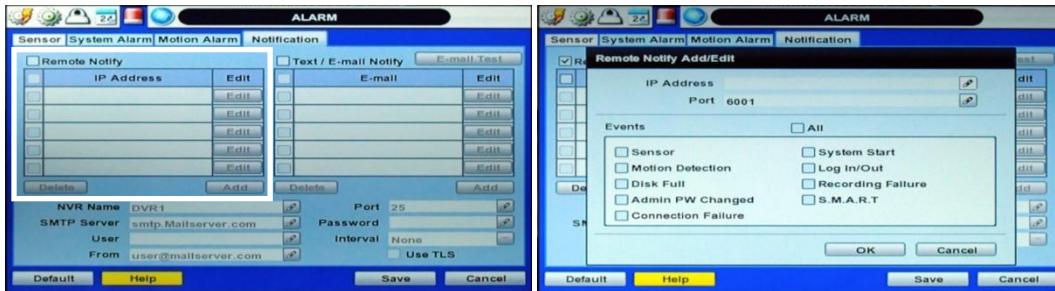
NOTE "Motion Alarm" here means alarm triggered by motion detection set by motion menu of Network Camera.

4.4.4 Notification

▪ Remote Notify

The system can notify an alarm message to the IP address of the Advanced Client Software over the network.

Users can choose from a selection of different kinds of alarms by pressing "ADD." Alarms can be generated by Sensor, Motion Detection, Disk Full, Admin PW Changed, Video Loss, and Power On/Off.



▪ E-Mail Notify

The system can send notifications to an Email address or Advanced Client Software and the Central Management System over the network. Users can choose from a selection of different kinds of alarms by pressing "ADD." Alarms can be generated by Sensor, Motion Detection, Disk Full, Admin PW Changed, Video Loss, and Power On/Off. By clicking "Use TLS", users can use a public email address such as Yahoo, Google, or Hotmail accounts. Type the NVR name in the "NVR Name" box. The NVR name will appear in the email so that users can recognize which NVR sent an email.



NOTE

Configurations first priority is always given to "Schedule Setup" of the "RECORD" menu.

Thus, the system will not send an alarm message or email notification upon motion alarm or sensor even though the user marks the checkbox of the above event selection, unless the user sets the "Schedule Setup" in the "RECORD" menu.

For example, if the user sets "Continuous" only for "Schedule Setup" of the "RECORD" menu and marks the "All" checkbox in "REMOTE NOTIFY", then the system will not send alarm messages. In this case, the user has to set "C + M", "MOTION", "SENSOR" or "C+ S" for REMOTE NOTIFY or E-Mail NOTIFY to function properly.

4.5 Network



4.5.1 Network

The system has a built-in web server.

- **Internet Protocol Version**

Not selectable. TCP / IP v4 support only.

- **Network Type**

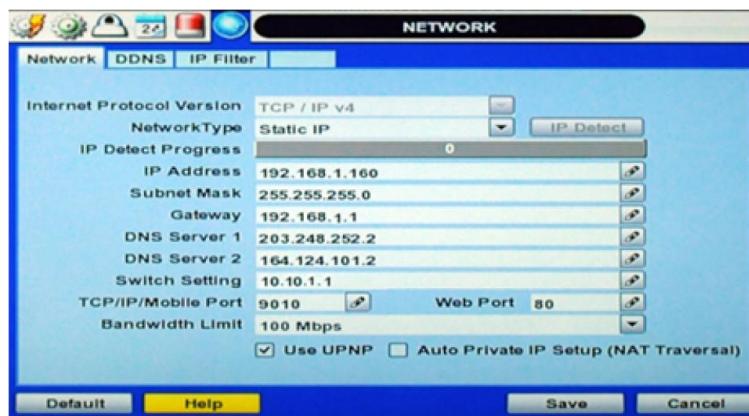
Select network connect type. Select either LAN for fixed (Static) IP or DHCP for dynamic IP. If DHCP is selected, click 'IP DETECT' button to detect IP address information.

- **Subnet Mask**

Subnet Mask address classifies the subnet that the system belongs to. Standard address is 255.255.255.0. For more information, please consult your network administrator or your internet service provider.

- **Gateway**

This is the IP address of the network router or gateway server. It is required when the user wants to connect through the external router from a remote location. For more information, please consult your network administrator or your internet service provider.



- **DNS Server**

Enter the IP address of the Domain Name Server. There are two DNS settings. (The preferred DNS and the alternative DNS)
 *You should enter the DNS Server information in order to use the internet. (Provided by your ISP)

- **Switch Setting**

When PoE option is applied, the user can put the camera into a PoE port directly. The network setting for a PoE port will be designed independently. This IP range should not be the same range as the NVR IP address.

- **TCP/IP Port**

Enter the port number to use when connecting locally or remotely.

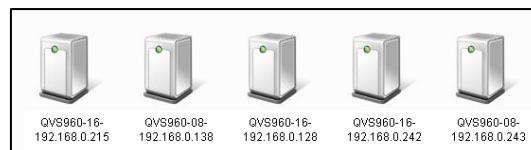
- **Web Port**

Enter the port number to use when connecting from the Web Browser.

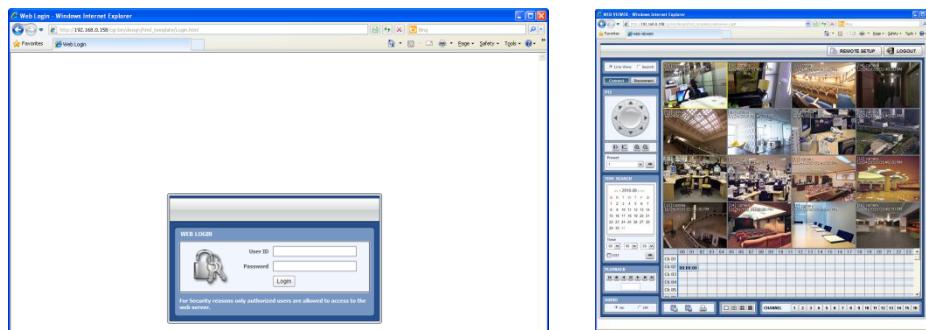
NOTE TCP/IP Port, Web Port should be a different number from each other.

- **UPnP (Universal Plug and Play) and Auto Private IP Setup (NAT Traversal)**

UPnP stands for Universal Plug and Play, which is a relatively new technology that indicates a universal protocol for widespread plug-and-play devices to ease the network implementation. When a PC and an NVR both support the UPnP function, the PC can automatically recognize the NVR in the same local area network. The advantage of this function is that a PC can connect to the NVR directly by clicking on the icon representing the NVR in the <My Network Places> folder as shown below. The first five characters of the file name of a detected NVR is subject to a firmware version.



Simply double click on the desired icon. Then, it will open an internet browser that connects to the NVR via the remote control software as shown below. Please type in your User ID and Password to login and click 'Connect' button to connect.



- **Auto Private IP Setup (NAT Traversal)**

The UPnP NAT Traversal function will help to automatically setup a router if the NVR connects to the internet via a router.

When a PC connects to the NVR, which is not in the same local area network, a real IPO address and corresponding port number is required. However if the NVR is behind a router, the communication between the PC and the NVR will be transmitted back and forth by the router. The router will need to setup port mapping (Port Forwarding) before images from the NVR is remotely viewed on the PC. For each individual NVR, the setting needs to be done individually.

If the NVR has UPnP NAT traversal function, the setting of the router will be done automatically when it is enabled.

Just check 'Auto IP (NAT Traversal)' check box in the UPnP setup menu. Then it will take care of Auto IP detect by itself.

NOTE The system transfers video images at real-time over the network even with recording off.

For example, user can monitor live video even when motion has not occurred during motion detection mode.

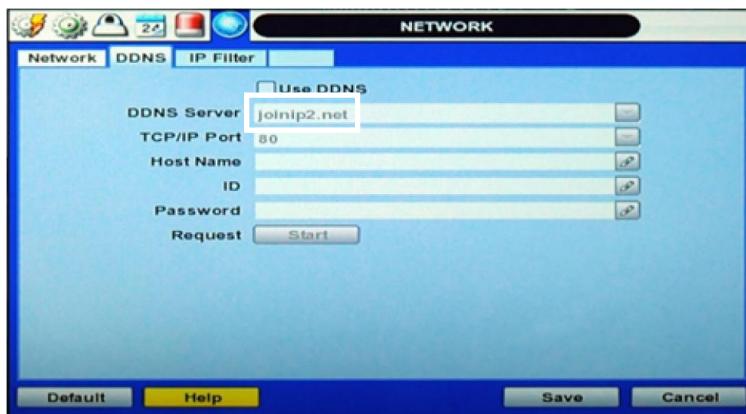
NOTE If there is no physical network connection, it may take a few minutes for the system to start working, since the network configuration in DHCP mode and the DHCP connection cannot be made.

4.5.2 DDNS

The User has to mark the "Use DDNS" check box to use it.

▪ DDNS Server

1. Please choose either **joinip.net** or **joinip2.net**, which are the fixed domain names of the DDNS servers.
2. Create your own Hostname.
3. Leave the ID and Password blank. (only used for DynDns. Please refer to page 63)
4. Press the **Start** button to register the DDNS.

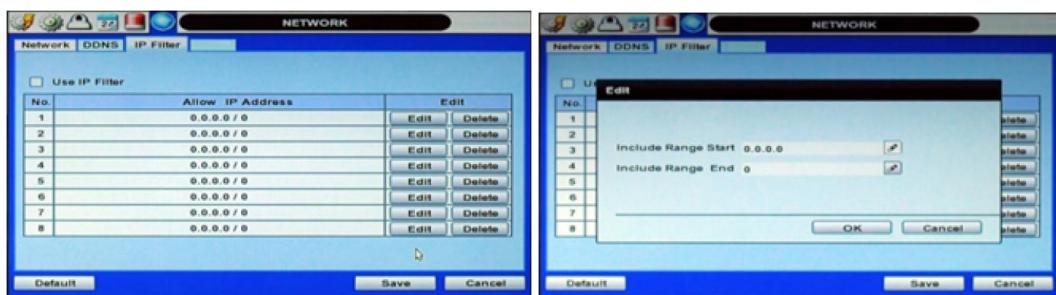


NOTE The standard DDNS domain name is joinip2.net, and users can use joinip.net or dyndns.com by using the drop-down list.

4.5.3 IP Filter

USERS CAN BLOCK OR ALLOW THE SPECIFIC IP ADDRESSES TO MANAGE. CHECK THE BOX 'USE IP FILTER' FIRST TO ALLOW SOME SPECIFIC IP ADDRESSES TO USE. THE DEFAULT IS 0.0.0.0 / 0.

SELECT 'EDIT' TO INPUT THE DESIRED IP ADDRESS RANGE. WHEN THE REGISTERED SETTING NEEDS TO BE CHANGED, THE USER CAN SELECT 'EDIT' OR 'DELETE'.



4.5.4 System Shutdown and change password

The system can be powered off with the 'Shut Down' button. The 'Shut Down' can also be done by right clicking the mouse.



The default password for the 'admin' account is none. Therefore, just click the 'OK' button on the popup window. If you change the password for 'admin' account, please type in the changed password to login.



NOTE Users can type in the password using the virtual keyboard or the numeric buttons on the IR remote controller.

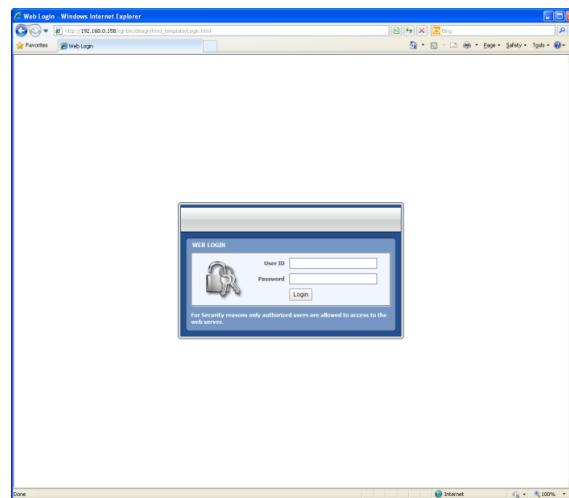
5 WEB SURVEILLANCE

The system has a built-in web server.

Using an ordinary web-browser over a network, users can always stay connected to the system for live monitoring, playback, or remote configuration without installing the Advanced Client Software (ACS).

5.1 Web Login

The user is required to input the correct IP address in the web browser after making the web port available in the router. After allowing the download of the Active-X file, users can find the login page view seen below. Default USER ID is "admin" and No password.

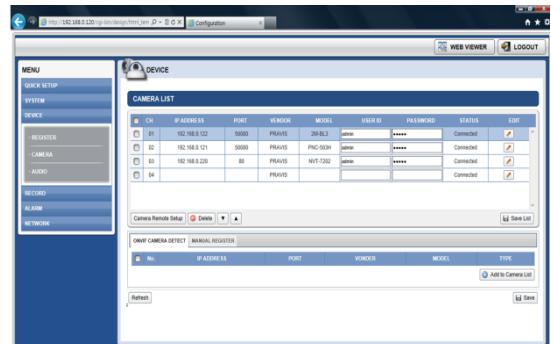
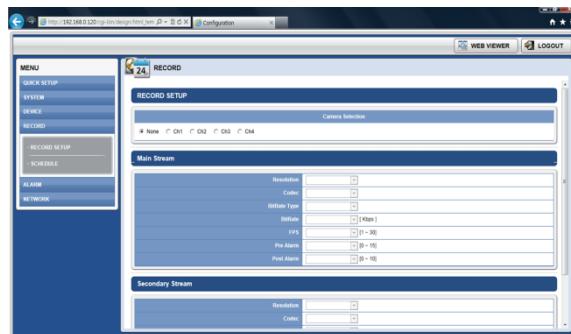
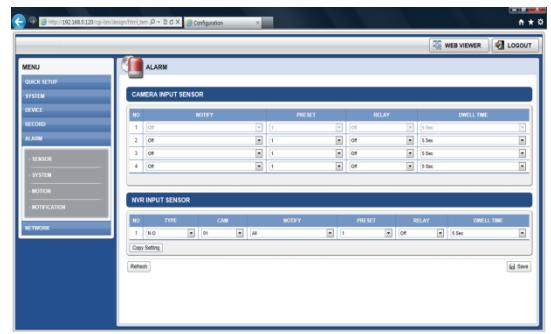
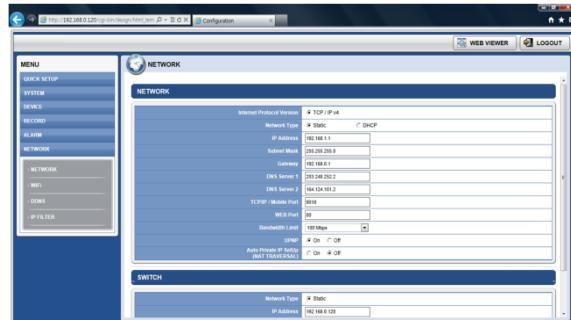


5.2 Web Configuration

Menu of Web Configuration

Main Classification	Sub Classification
QUICK SETUP	NVR
	REGISTER
SYSTEM	SYSTEM INFO.
	USER
	HDD
	DEFAULT
DEVICE	REGISTER
	CAMERA
	AUDIO
RECORD	RECORD SETUP
	SCHEDULE
ALARM	SENSOR
	SYSTEM
	MOTION
	NOTIFICATION
NETWORK	NETWORK
	DDNS
	IP FILTER

After logging in with the right ID and password, users can make various configuration changes in the Web Configuration window seen below. This Web Configuration menu is only available to the "admin" account.

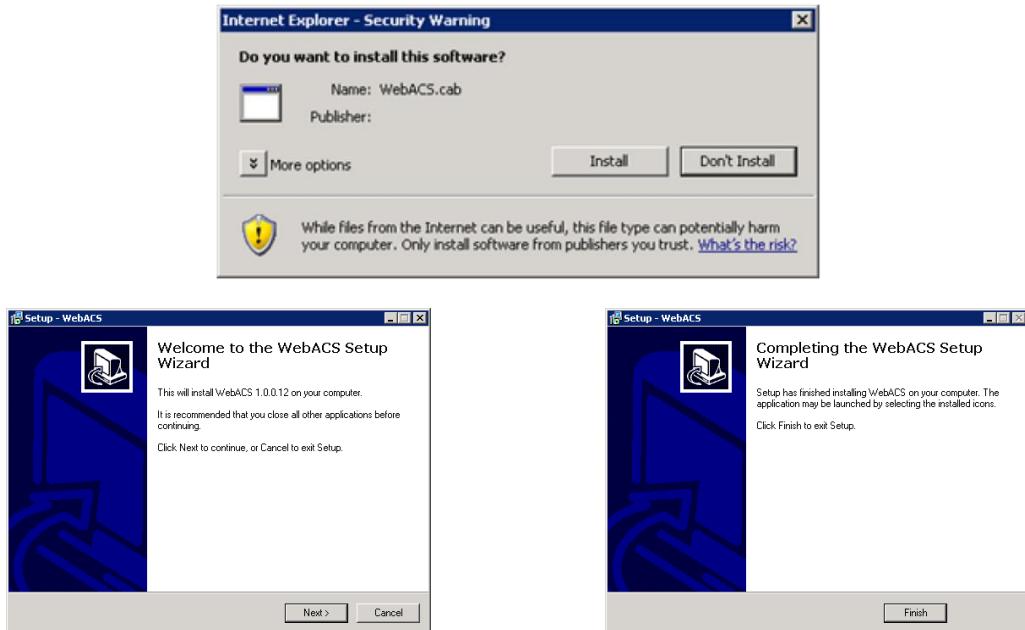
[System]**[Device]****[Record]****[Network]****[Quick Setup]**

NOTE This NVR system has its own built-in web server.

This web CGI screen is directly supported from the built-in web server in the NVR, regardless of Internet connection.

5.3 Web monitoring

The user has to download an Active-X file from the NVR and install it on the workstation PC before monitoring live video.



[Web Active X Install]

If you have a problem with downloading ActiveX due to the following reason, you can follow the steps below.

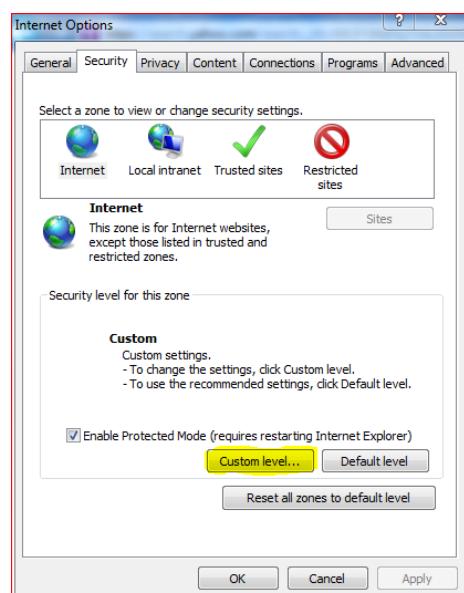
“Windows has blocked this software because it cannot verify the publisher”

You can temporarily disable this security feature to get the website run the required ActiveX and later on re-enable the security.

To disable this feature,

1. Open internet explorer, click **Tools – Internet Options**.

2. Click the **Security tab – Custom Level** button.



3.Under **ActiveX** ensure the following are set to **enabled**

Run ActiveX and plug-ins – Enabled

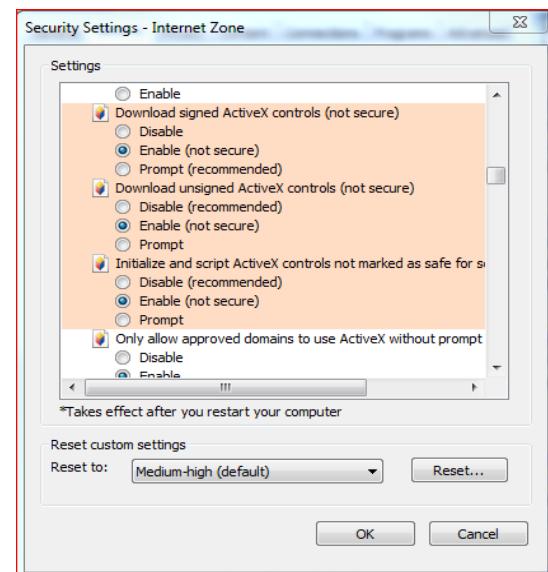
Download Signed ActiveX Control – Enabled

Script ActiveX controls marked as safe for scripting – Enabled

4.Set the following to “**Prompt**”

Download unsigned ActiveX Control – Prompt

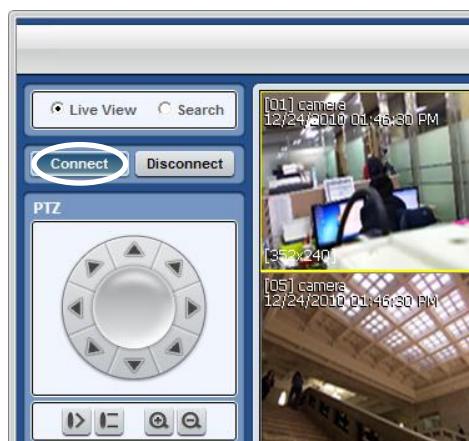
Initialize and script ActiveX controls not mark as safe – Prompt



5. Click OK and Apply and OK. Restart the browser.

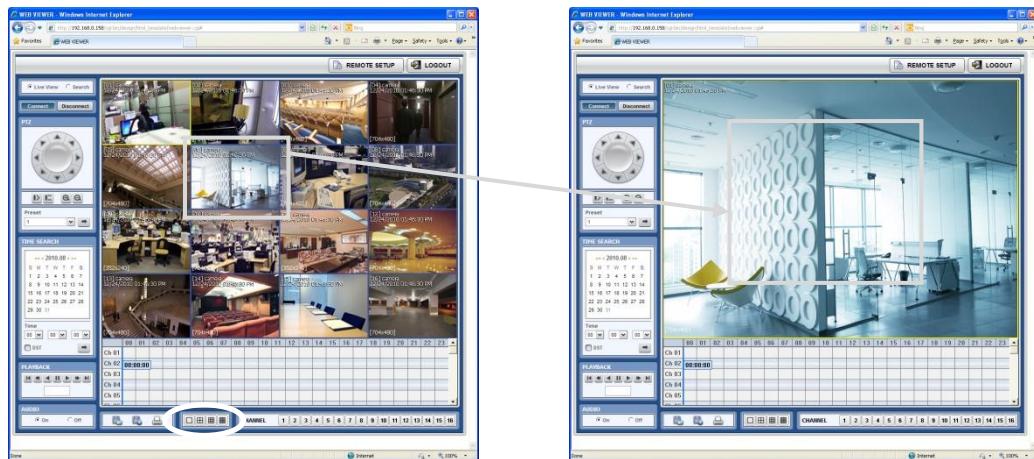
You should now be able to run the ActiveX control on the website

Users can get into web monitoring after log in as shown below. In order to connect to the NVR, the user has to click “**Connect**” button which is located at the top left corner.

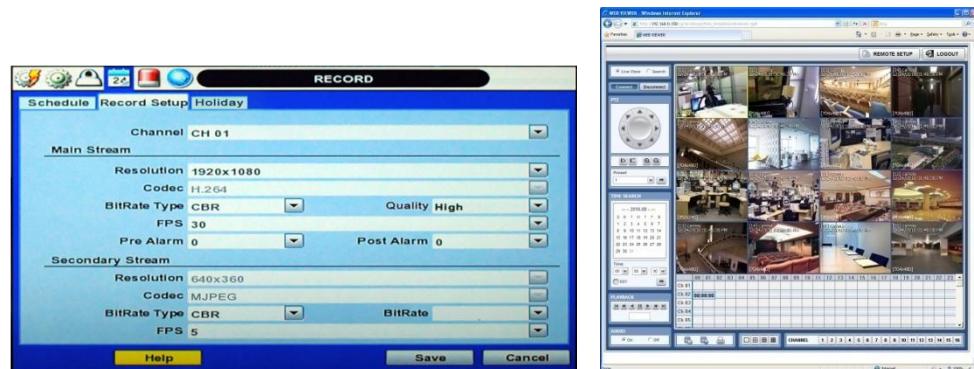


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Users can monitor live video in 1, 4, 9 or 16 screen modes. If the user wants to see a single channel in full screen, the user can double-click on the left mouse button when the cursor is positioned on the live video screen. The user can change to single mode by clicking the mode icon located at the bottom left.



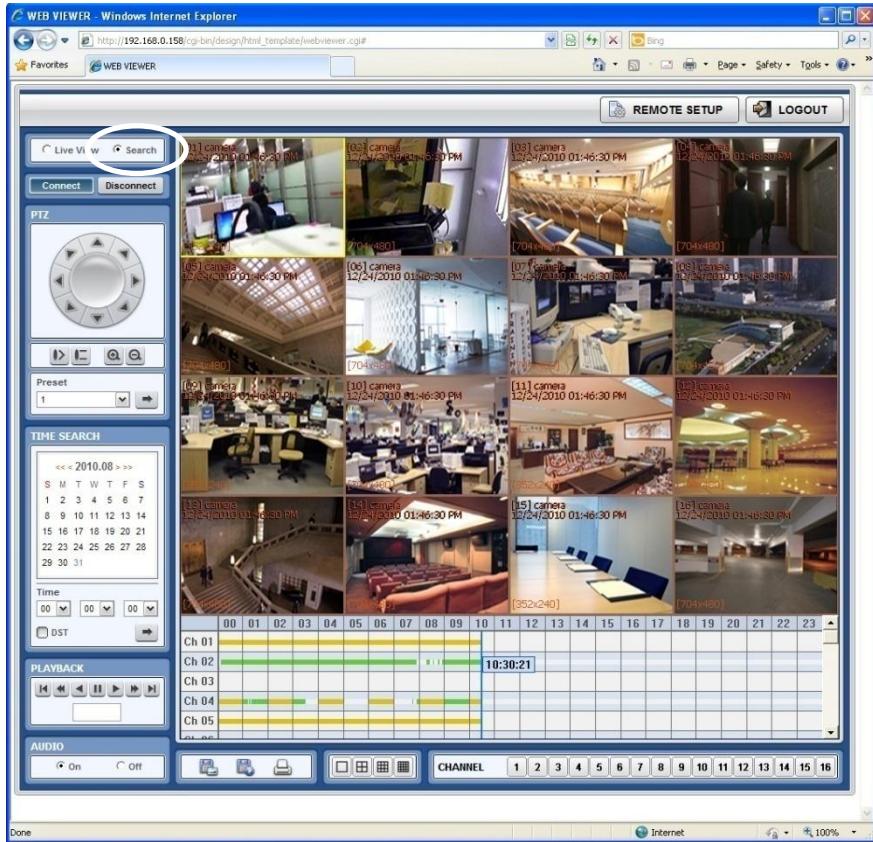
NOTE The image resolution in “Live monitoring” in this web browser is directly transferred from the NVR
(Live image over the web browser depends on the Live Stream value on Record mode of NVR)



NOTE If the live image is not properly shown on IE web browser due to network traffic jam or narrow bandwidth, it is recommended to close and re-open the IE web browser.

5.4 Web Playback

Users can remotely playback the NVR images by clicking the “SEARCH” button in the middle of the bottom window. In order to connect to the NVR, the user has to click “ Connect ” button which is located at the top left corner.



▪ Playback Time

Select the date and time on Time Search, located at the middle of left side of window, and click  button.

▪ Playback Icon

Play/Pause is toggled and playback speed is shown on the left box.

▪ Play DST

Check this box to play overlapped images during DST (Daylight Saving Time) period.

For further details, please refer to Section 3.7 (DST Setting and Image Playback).

▪ Search Bar

The user can move the blue vertical line to the time that the user wants to search.

The colors of the time bar are different depending on each recording mode. Please, refer to Section 4.3.2 for details on color.

Appendix : DynDNS Site Registration

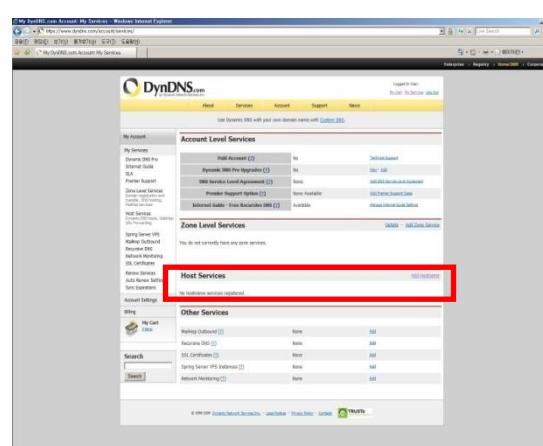
1) Go to www.dyndns.com



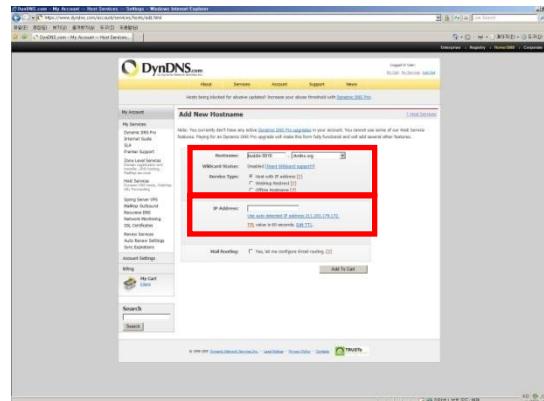
2) Log in to the Site after registration



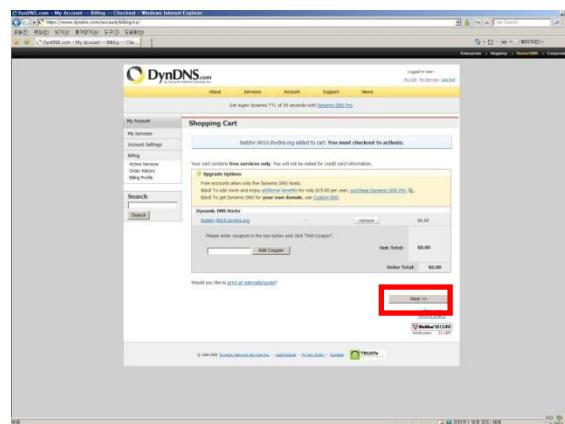
3) Click "Add Hostname" button on "Host Services"



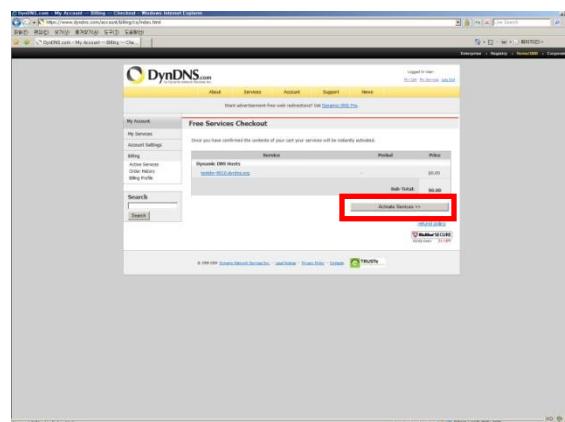
4) Put in the IP address and Host name on the blank



5) Click "NEXT" Button



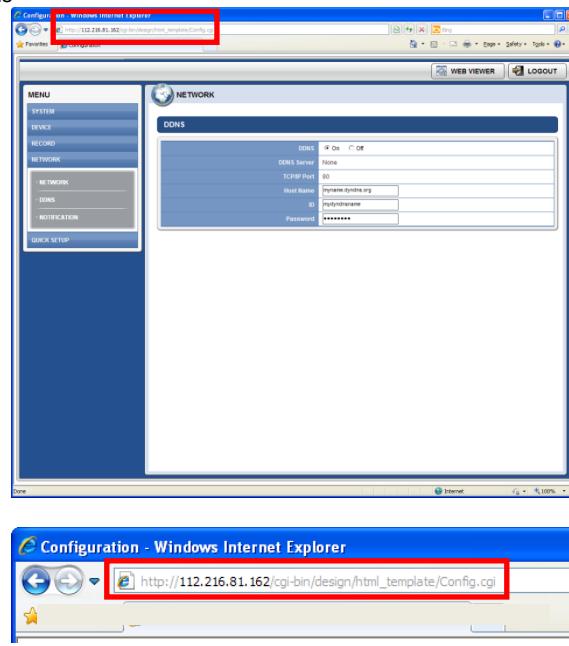
6) Click "Activate Services" button



7) Confirm the domain name and IP address



8) Check the connection status



● Tip

1. It may take a little time to be completely done for DNS deployment after changed sub domain.
2. Please recheck NVR's IP address registered in the My Service Menu, if you can't access NVR using dyndns.
3. If you are using dyndns to change the IP address for the NVR to the update request, dyndns update by the circumstances that may be late.
4. Dyndns domain is registered by the policy. If the update occurs frequently, it may be blocking. Please recheck NVR's service status registered in the My Service Menu, if you don't access dyndns.
5. If you don't access dyndns for a long time, domain will be deleted automatically. To prevent this, please access it regularly, or you will have to pay for it again. For more information, please contact to dyndns directly

APPENDIX : SPECIFICATION

NVR-4CH		
Photo		
Compression	Video	H.264 HP supported
	Audio	ADPCM, PCM supported
HDD Interface		1ea x SATA I / II / III
Operating System		Embedded Linux
Video output		HDMI (1920x1080p/1280x720p/1280x1024/1024x768)
Live & Playback	Decoding	Max 120fps @ 1080P, 16Mbps (Total)
	Display mode	1/4 auto sequence
	Search Mode	Date/Time, Record Table, Calendar, Event, Bookmark, Play from Search, System log
	De-Interlace	N/A
	3D DNR	N/A
Record	Main Stream	Max 120fps @ 1080P, 16Mbps (Total)
	2nd Stream	Real-time up to D1 (CIF, D1 selectable)
	mode	Continuous, Event, Pre-alarm, Post-alarm
Network	Interface	1x 10/100/1000Mbps WAN port
		N/A
	Protocol	TCP/IP, DHCP, NTP, HTTP, DDNS, RTP, RTSP, FTP, SMTP
External	NAS	N/A
Storage	e-SATA	Yes
Interface	USB	2 x USB 2.0
	Serial	N/A
PoE		4 ports (optional, 802.3 AT supported)
Mobile		iPhone, iPad, Android, Kindle fire
Audio In / Out		1 x Audio in, 1 x Audio out
Alarm		1/1
PTZ		Network Protocol
Power	Main: 12V / 3A	
	PoE : 48V / 1.4A	
etc		Mouse, IR receive, LED (Power, HDD, Network)
Operating Temperature		0°C ~ 40°C
Operating Humidity		0% ~ 90%
Accessories		Remote controller
Approvals		FCC, CE approval

NOTE The specification is subject to change without any notice.

Photo		
Video	Image Processor	SONY Xarina
	Memory	DDR3 256MB, NAND Flash 512MB
	Image Sensor	1/2.8" SONY IMX140LQJ Exmor CMOS
	Total Pixels	1952(H) x 1116(V) = 2.18M pixels(Full-HD mode)
	Effective pixels	1944(H) x 1104(V) = 2.14M pixels(Full-HD mode)
	Scanning system	Progressive
	Min. illumination	Color : 0.5 Lux / BW : 0 Lux(IR LED on)
	Video Compression	H264, MJPEG, XJPEG
	Resolution	1920x1080 to 160x120
	Frame rate	H.264 : 30fps@all resolution
Lens	Video Streaming	Multiple, individually configurable streams in H.264 and Motion JPEG Controllable frame rate and bandwidth VBR/CBR H.264, MJPEG, XJPEG
	S/N Ratio	more than 42dB (AGC off)
Lens	Focal Length	3.6mm
	Aperature	F1.8
	Field of View	113° x 86° x 65°
	Lens Type	Fixed
Operational	IR LED	24EA
	Day & Night	Auto (IR cutfilter)
	Wide Dynamic Range	Off / On(30frame)
	Digital Noise Reduction	Auto (2D/3D Dual streaming)
	Exposure	Auto(Shutter, Gain Control)
	White Balance	Auto
Audio	Blemish Compensation	On
	Audio In/Out	None
	Audio Steaming	None
Network	Audio Compression	None
	Ethernet	RJ-45(10/100BASE-T)
	Supported Protocols	IPv4, HTTP, FTP, TELNET, DNS, RTSP, RTP, TCP, UDP, DHCP
	Web Viewer	Through NVR
	Configuration Tool	NVR
	ONVIF	Through NVR
Electrical	Wireless Interface	None
	Power Source	DC 12V± 10%, PoE
	Power comsumption	Max. 6W
Environmental	Power Input	DC Jack Connector
	Operation Temperature	-10°C ~ +50°C
	Operating Humidity	0~96%(Non-condensing)
	Storage Temperature	-20°C ~ +60°C
Mechanical	Ingress Protection	IP66 Grade
	Dimension (W x H x D)	75(W) x 70(H) x 135(D)
	Weight	500g

NOTE The specification is subject to change without any notice.

**SMART
NVR & IP CAMERA
4PACKAGE**

Full HD Network Video Recorder

Future of Digital Video Recording at Hand

| **FCC** **CE** **RoHS** 