VMAX ip PLUS™
Complete IP Video Solutions

9ch w/4 PoE	12ch w/8 PoE	16ch w/16 PoE
DW-VP9P	DW-VP12P	DW-VP16P
DW-VP92T4P	DW-VP123T8P	DW-VP163T16P
DW-VP94T4P	DW-VP124T8P	DW-VP164T16P
DW-VP96T4P	DW-VP126T8P	DW-VP166T16P
DW-VP912T4P	DW-VP128T8P	DW-VP168T16P
	DW-VP1212T8P	DW-VP1612T16P
	DW-VP1218T8P	DW-VP1618T16P
	DW-VP1224T8P	DW-VP1624T16P

When logging into the NVR for the first time, you will be prompted to set up a new password. The new password must include a minimum 8 characters with at least four combinations of uppercase and lowercase letters, numbers, and special characters.

※ The picture might differ according to the specification and model.

※ Contents of this user manual are protected under copyrights and computer program laws.

Rev: 06/22

Before operating the system, please read this User Manual and retain it for future reference.

WARNING

TO REDUCE FIRE OR SHOCK HAZARD,
DO NOT EXPOSE THE UNIT TO RAIN OR MOISTURE.

The installation should be made by a qualified service
person and conformed to all local codes.

Cautions

Read Before System Operation. **Follow these details to prevent material damage or personal injury.**

Signs of Caution and Warning

⚠ **Warning: This sign indicates that the user could die or be seriously wounded if not used or installed properly.**

⚠ **Caution: This sign indicates that the user could be wounded or expect property damage if not used or installed properly.**

⚠ **Warning: Do not expose the product to fog, rain, or too much humidity to decrease the danger from electric shock or fire**.

General Warning

⚠ **Warning**

1. Use the power cord, which is supplied or recommended by the supplier, or it may cause a fire.
2. Do not disassemble or reassemble the product. It may cause malfunction or fire.
3. Enquire your vendor for repair. It may cause electric shock or fire if the repair is not done properly.
4. Do not touch the product with wet hands. It may cause malfunction or electric shock.
5. Product installation must be ensured by a professional for product installation, or it may cause malfunction, electric shock, or fire.
6. Ground applies to video products equipped with a 3-wire grounding type plug having a third (grounding) pin.   This plug only fits into a grounding-type power outlet. If grounding is not done, it may cause malfunction or electric shock.
7. Ground connection must not touch gas or water pipes or telephone lines. If grounding is not done properly, it may cause electric shock.
8. Prevent metallic foreign substances from going inside the product. It may cause malfunction or electric shock.
9. Do not spray insecticide or flammable spray while driving. It may cause a fire.
10. Place the system in an open place where air ventilation is guaranteed, or it may overheat and cause considerable damage to the system.
11. Prevent water from instilling inside electrical parts. Clean with a dry towel or malfunction or electric shock could result.

⚠ **Caution**

1. Use the power cord, which is supplied or recommended by the supplier. The internal fan rotates at high speed and may cause an accident.
2. Do not drop, give strong vibration, or shock the product. It may cause malfunction.
3. The air inhaler of the front panel and air outlet of the back panel must not be blocked during installation.
The internal temperature of the product would be greater than allowable and could cause malfunction or fire.
4. Do not touch the product or the power cord when there is thunder. It may cause an electric shock.
5. Do not install the product near or on top of the heating source. The internal temperature of the product would be greater than allowable and could cause malfunction or fire.
6. Do not install the product in an inclined or unstable location or where vibration could be committed. It may cause malfunction.

Cautions about the Power

⚠**Warning**

1. Must use the outlet of the grounding to connect the power cord, or it may cause a fire.
2. Do not connect in the middle of the power cord or use an extension cord. It may generate heat or cause a fire.
3. Do not touch the power cord with wet hands. It may cause an electric shock.
4. Keep the power cord dry and protect it from humidity. It may generate heat or cause a fire. The power cord is not waterproof.
5. Hold the body of the plug while removing the power. Do not pull the power cord. Damage to the power cord may cause overheating or a fire.
6. Check the power plug regularly. Humidity and moderation in smoking may cause a fire.
7. Remove the power cord from the outlet when the product is not used for a long time. It may cause short-circuit or electric shock.

⚠ **Caution**

1. Do not turn off the power by removing the power plug. To turn off the power, click the power button from the front panel. When the system stops abnormally, the power button might not work. Click the power button for 5 full seconds to turn the power off.
2. Do not cut off the power artificially, or shock or vibrate the unit while the HDD is active. It may cause hard disk failure or loss of data.

⚠ **Remarks**

※ Pictures and buttons, functions, or configurations are subject to change or modification per the different models.

DW

Table of Contents

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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 afterward.

Items	Photo	Quantity
Quick setup guide and download instruction card		1
9CH models: 48V D/C adaptor and power cable.\n\n12CH and 16CH models: a power cable.		1
USB mouse		1

1.2   System Startup

After connecting peripheral devices such as cameras, monitors and a mouse to the NVR, power up the NVR by connecting the DC48V adaptor/ power cable to the power jack on the rear panel. The boot logo will display. Please wait until the boot process completes.

When the system is starting, the password change window is displayed. When you log in to your unit for the first time, you will be asked to setup a new password. The password must be a minimum of 8 characters with at least 3 combinations of upper-case letters, lower case letters, numbers and special characters. Acceptable special characters are 『~'!$^()_-|{}[];.?/』. To login, right-click anywhere on the screen and enter the username and password in the popup screen. There is only one Administrator Account configurable in the NVR. It is assigned with an unchangeable User ID marked as 'admin'. The administrator account has full access to the NVR and its configurable parameters and can also create new users and assign rights to the new user accounts.

If NVR is set as AUTO LOGIN, the login process is not necessary.

Caution	1)	It may take a few minutes to start up the system after turning on the power, in case the user sets the network configuration as DHCP mode but under the situation that there is no DHCP server in the network or the network is not connected.
	2)	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.

Note	1) Do not forget the administrator's password that was set for the first time. In case you forget your password, contact your local dealer for help.
	2) Refer to "Section **Error! Reference source not found.** User" for AUTO LOGIN and AUTO LOGOFF.

![DW logo]

1.3   System Shutdown

To turn off the power, click the exit button [ ] the Toolbar and then click [SHUTDOWN] in the pop-up screen as below. Do not pull off the power by pulling the power plug.

Input the password and click [OK] to shut down the system. Click [YES] to confirm shutdown.

| Note	Users can input passwords by the virtual keyboard, IR remote control, or front numeric buttons (if available).

1.4   System Explanation

1.4.1.   Front Panel

** Front panel may differ according to the model.

1. Power button (On the back side)

2. LED indicator: indicates system status for power, record and network status.

3. USB port: for backup and upgrade.

1.4.2. **Back Panel Connection Diagram**
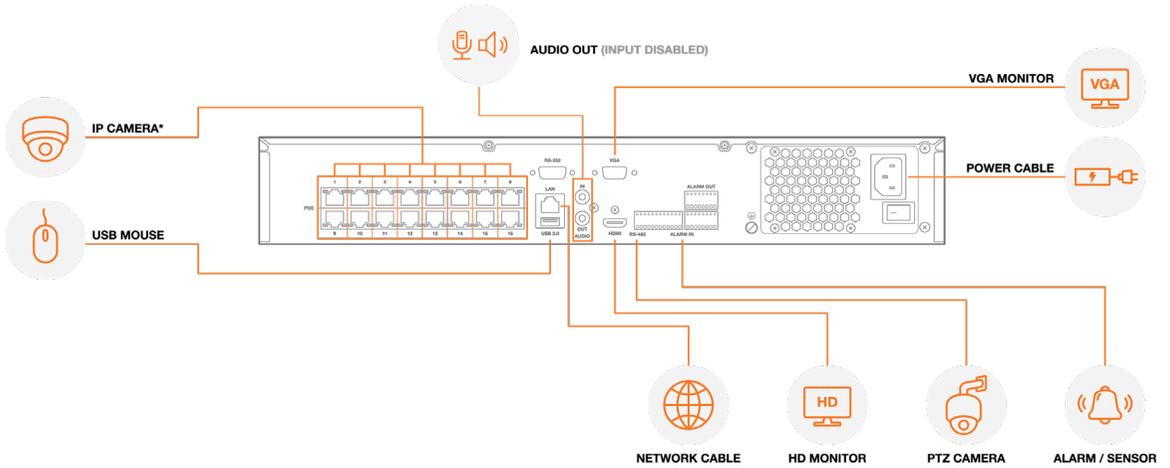
*   Back panel ports and location may differ according to the model. The model shown in the diagram above is the 16CH DW-VP16xT16P NVR.
** The audio input port in the NVR is disabled by default. For audio recording, use an audio input supported IP camera.

Note   On DW-VP9xT4P models, users must use the case's ground when connecting alarm inputs to the NVR.
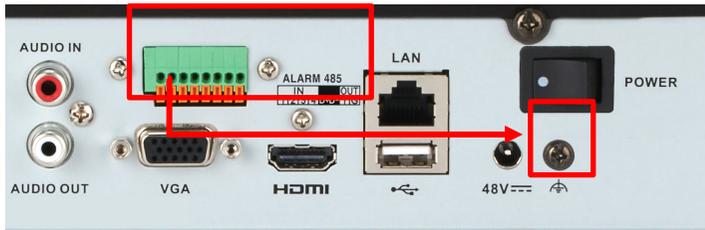
1.4.3. IR Remote Controller (DWSP-VACREMOTE - Optional Item)

1. Power: System ON/OFF
2. NVR ID Selection
3. Numeric Button: Channel selection or Password input
4. PTZ Button
5. Preset Button: Select Preset in PTZ mode
6. Focus Button: Focus IN/OUT in PTZ mode
7. ZOOM Button: Zoom IN/OUT in PTZ mode
8. Preset Tour: Tour ON/OFF in PTZ mode
9. Direction Button
10. Enter Button
11. Menu Button
12. Return Button
13. Playback Buttons on Search mode
14. Emergency Recording Button
15. Auto-Sequence Button in Live mode
16. Screen Mode Button
17. **Backup Button**

Note   Users can control multiple NVRs with one IR remote controller.
To control multiple NVRs, each NVR must have a different remote ID.
(The default remote ID is "0".)
To setup the ID # in the IR remote controller
1) Press and hold the ID selection button (②) for 5 seconds.
2) Set the new ID by pressing the numeric button on the IR remote controller. The ID number range is from 000 up to 255.
3) Press the numeric button in a three-digit number format. For example, press "000" for 0, "023" for 23, and "234" for 234.

1.4.4. **The Toolbar in Live Mode**
In live view, move the mouse cursor to the bottom of the screen to show the menu bar.

Menu
Click on the menu button to access NVR's main menu screen. See "3.12. Setting" for details.

Display Mode
Select the display split mode from the available options. Select 1CH, 4CH, 9CH, or 16CH mode.

Sequence
Start/stop the sequence mode in live mode. The sequence is disabled if all channels are displayed.

Channel
Switch to a single-channel view of a specific channel by pressing the corresponding number.

Emergency Recording
The system records all channels with the full-frame rate at the maximum resolution regardless of the recording setting. To stop the emergency recording, click the same icon again.

Backup
Backup recorded video to an external device. See "0 Backup" for details.

Playback
Switch to playback mode. See "3.7 Playback Recorded Image" for details.

Search
Open the search options screen. See "3.6 Search Recorded Image" for details.
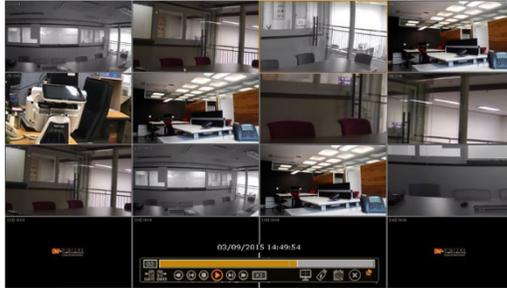
Exit
Exit the NVR with three different options: Log Off, Reboot and Shutdown.

Pin
When selected, the NVR's menu bar remains on the screen permanently.

1.4.5.   **The Toolbar in Playback Mode**

In the Playback view, move the mouse cursor to the bottom of the screen to show the menu bar.

Channel [01]

Indicates the currently selected channel.

Intelligent Search Bar

Shows recording status for the selected channel from 00:00 to 24:00. A white-vertical line indicates the time currently displayed. Moving the white-vertical line will update the video.

Previous/Next Date Search

Users can move to the previous date or the next date to search.

   Playback Controls

: Playback speed control. (x32 / x16 / x8 / x4 / x2).

: Move backward one frame

: Stop button

: Play button

: Move forward one frame

: Playback speed control. (x2 / x4 / x8 / x16 / x32)

[x1] : Current playback speed

Screen Display Mode

Select the display split mode from the available options. Select 1CH, 4CH, 9CH, or 16CH mode.

Backup

Backup recorded video to an external device. See "0 Backup" for details.

Playback

Switch to playback mode. See "3.7 Playback Recorded Image" for details.

Exit

Close playback mode and move to live mode.

Pin

When selected, the NVR's menu bar remains on the screen permanently.

2. Startup Wizard

When the NVR is launched for the first time, the STARTUP WIZARD will appear. This wizard helps you setup the NVR's most basic settings for proper functioning. You can access the Startup Wizard screen at any time by clicking the Startup Wizard [START] button in setting the "MENU>SYSTEM>SETTINGS" menu. (See "4.1.5 SETTINGS").

Note	Only the ADMIN user can access the startup wizard.

2.1   Language

Select the language according to the country or user's preference.

If "DISPLAY ON SYSTEM STARTUP" is selected, Startup Wizard will pop up every time the system is started.
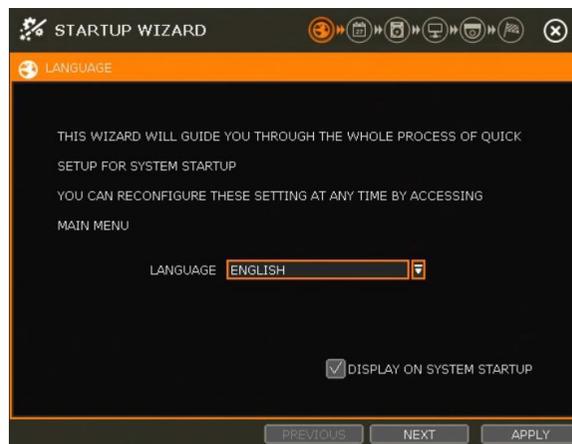
2.2   Date/Time

Select the NVR's date and time format, select the Time Zone, enable or disable daylight savings and sync the NVR with an NTP server or manually enter the date and time. You can also select to synchronize the NVR with an NTP server, which will automatically sync your NVR's date and time settings.

TIME SYNC MODE

There are three types of time sync modes:

- Server Mode: The operating NVR is set as a Time Sync Server, which can synchronize the time other NVR(s) are connected over the same network.
- Client Mode: Input the IP address of a designated NVR or Remote Software P/C (CMS) as a Time Sync Server in "SYNC SERVER". The NVR's time clock will be synchronized with the server by interval time set in the "TIME SYNC CYCLE".
- NTP Mode: "pool.ntp.org" is the recommended NTP Server. To activate, set the TIME ZONE of your local area and then click [SYNC NOW].
- GPS Mode: Connect USB type GPS device and click [SYNC NOW]

2.3   HDD Format

Digital Watchdog's NVRs are shipped with pre-installed HDDs that are formatted and ready to be used. There is no need to format the HDDs out of the box.

HDD FULL
Select "Overwrite" or "Stop recording" when HDD is full.
- Overwrite: NVR deletes the oldest data and records new data.
- Stop recording: NVR stops recording.

HDD CHECK
Click (CHECK) next to each HDD to view full information of each HDD such as model name, serial no, capacity, bad sector ratio, lifetime (used time) and temperature.

HDD FORMAT
Check the box next to the HDDs you wish to format and press the "FORMAT" button. If system resources are occupied such as network connection during the format process, the format process may fail. It is recommended to reboot the system to release system resources and then try to format again.
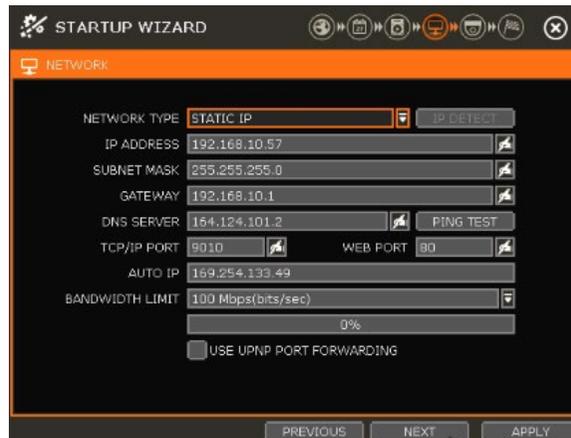
AUTO DELETE
Set the period when the HDD will automatically delete all recorded data. Select from None (default) up to 366 days.

Note	1.	It may take a few minutes to format HDD.
	2.	When the format is done, all data in the HDD will be deleted.
	3.	The system always reserves some space in each built-in HDD to effectively utilize archiving memory.

2.4 Network

Setup the NVR's network settings for remote connection.

NETWORK TYPE
Select either STATIC IP or DHCP for dynamic IP.
If DHCP is selected, the NVR will automatically configure the network settings according to the current network requirements. If DHCP is selected, click the 'IP DETECT' button to detect automatically all the network settings.
If Static IP is selected, manually enter all necessary network settings. For proper configuration, it is

recommended to assign the NVR a DHCP address and let it auto-discover all the proper network settings, and then change the Network Type back to Static IP and save the changes

IP ADDRESS
Displays the NVR's IP address. If DHCP is selected, the IP address will automatically adjust to match the network's requirements. You can also manually change the IP address as needed.

SUBNET MASK
Subnet Mask address classifies the subnet that the system belongs to. For more information, please consult your network administrator or your internet provider.

GATEWAY
This is the IP address of the router or gateway server. It is required when connecting to the NVR through the external router over the internet (from another network). For more information, consult your network administrator or your internet provider.

DNS SERVER
Enter the IP address of the Domain Name Server. You should input the DNS Server information to use DDNS, Email notifications and NTP Server. For more information, please consult your network administrator or your internet provider.

TCP/IP PORT
Input the port number to use when connecting to the NVR locally or remotely. The default is 9010. If your ISP blocks port # 9010, you need to input another valid   port number (ex, 9020).

WEB PORT
Input the port number to use when connecting from the Web Browser. The default is 80. If your ISP blocks port # 80, you need to input another valid web port number (ex, 8080).
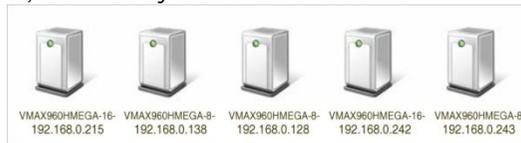
AUTO IP
Displays the system IP which is assigned through Auto-IP, automatically.

BANDWIDTH LIMIT
Depending on the setting made by the user, the system can control the data volume transmitted over a network ranging from 25 kbps up to 1Gbps. This function is effective, especially under narrow bandwidth network conditions or when the user wants to limit "network bandwidth occupied by video transmission" to a certain level. Default is 100 Mbps

USE UPnP (Universal Plug and Play)
UPnP is a plug-and-play feature that allows the NVR to be automatically discovered by a PC on the same network. To locate the NVR, go to "My Network" on your PC. The computer will scan your network for all supported devices. The first five characters of the file name of a detected NVR represent the model number, followed by the NVR's IP address

VMAX960HMEGA-16-192.168.0.215   VMAX960HMEGA-8-192.168.0.138   VMAX960HMEGA-8-192.168.0.128   VMAX960HMEGA-16-192.168.0.242   VMAX960HMEGA-8-192.168.0.243

Once the PC discovered the NVR, double-click on the icon to open the NVR's web client. Enter your User ID and Password to log in and click 'Connect' to connect.

Note	The maximum number of simultaneous connections is 15 users.
Note	For the other network settings, such as DDNS, Notification, Mobile Push & P2P Cloud, please refer to the "4.5 Network".

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2.5   Camera Management

The Camera Management menu allows you to search, register and manage your IP cameras. See "3.2 Camera Registration" for more information.
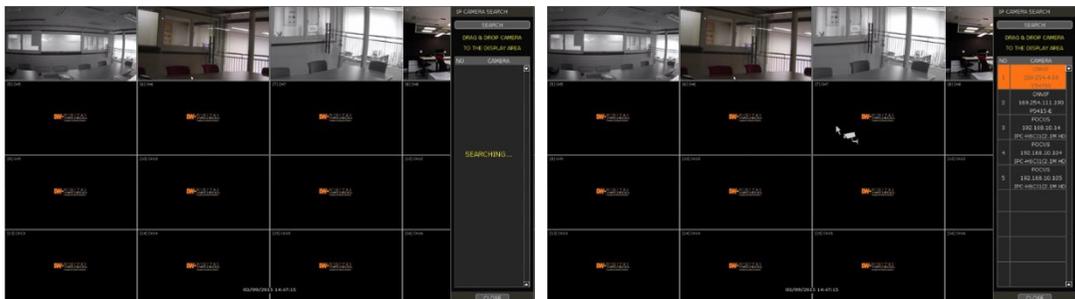

Auto-Configuration (1)
The NVR will scan the network for all supported cameras and automatically register them to the available channels. Select the recording mode to apply to all registered cameras and press [START]. The NVR will search all cameras under the same network (Router) and register them in order, automatically.
In a case where there are multiple NVRs on the network, it is recommended to use the Drag & Drop or advanced configuration options to avoid a camera being connected to multiple NVRs.

Drag & Drop Configuration (2)
The Drag & Drop Configuration scans the network for supported cameras, displaying the results in a table from which you can drag cameras to the viewing channel to assign them to channels.
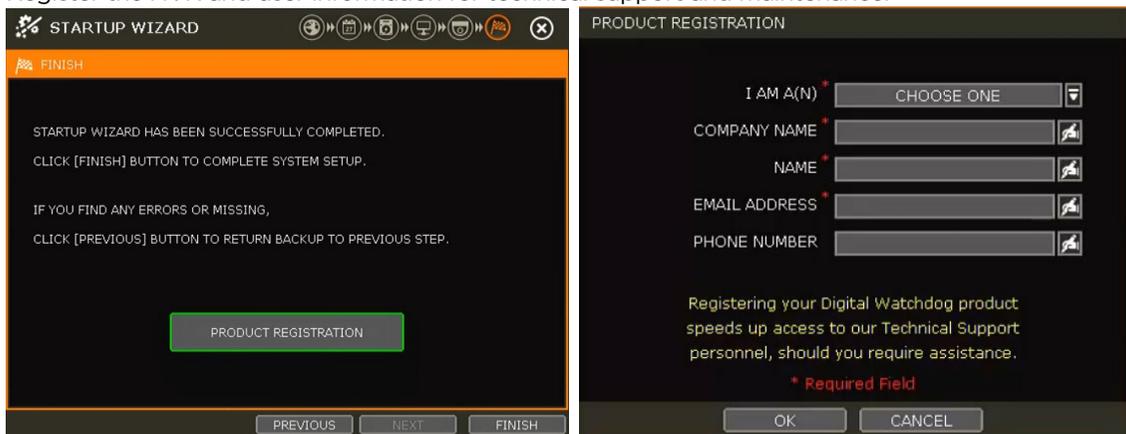1.   Click the [START] button to search the camera.

2.   Select a camera and while clicking on the camera, drag it to a channel to assign it.
3.   Click the [APPLY] button to finish the process.

Advanced Configuration (3)
Search the network for cameras and manually configure and register them to the NVR.

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2.6 Product Registration & Finish

Register the NVR and user information for technical support and maintenance.

When the setup wizard is completed, click "FINISH" to close and go to the live view screen.

3. Operation

3.1 User Log-in

Input USER and PASSWORD after turning on the system. If users forget the password, click the [?] icon to check the password hint

| Note | 1) LOGIN window will be permanently displayed until a user logs in with the right USER and password.
2) If NVR is set as AUTO LOGIN, the login process is not necessary. See "**Error! Reference source not found.** User" for more information. |

| Note | The [⋯] key in the virtual keyboard includes often used words, such as Admin, root, http://, rtsp://, www., .com, .net, .org etc. |

3.2 Camera Registration

The NVR can connect to any ONVIF® IP cameras over the network. If the cameras are connected to the PoE switch in the back of the NVR, the cameras will also receive power and send data to and from the NVR.

| Note | As part of the cybersecurity settings of the NVR, the VMAX IP Plus will assign passwords automatically to **DW IP cameras** added with a blank password. If a camera is added to the NVR for the first time, without having its password set from the IP Finder™, the NVR will automatically assign it a new password. If the camera then needs to be connected to another NVR or system, users will need to reset the camera's settings. |

3.2.1. PoE Camera Connection

PoE cameras are automatically connected when the camera is plugged into the PoE port. Channels assigned to cameras connected to the NVR's PoE switch will display the channel title in green.
Cameras connected to the NVR's PoE switch must be set to 'DHCP' before connecting to the NVR.
For cameras that support 'Auto IP', the NVR will automatically control its IP settings.

| Note | If the PoE camera is connected to the PoE channel while another camera is being assigned to that channel, the previously assigned camera moves to another channel and the PoE camera will be assigned to that channel. |

| Note | Zero-Configuration
It is the Link-Local IP address assignment method through Auto-IP, and it is for assigning IP, automatically, when the DHCP is not available or supported. The device that adopts this technology selects 169.254.xxx.xxx, in general, and assigns the IP address after checking the availability of the selected IP address |

Camera Connection through Network

The NVR supports three ways to search and register cameras to the NVR. The AUTO CONFIGURATION option allows the NVR to scan the network and automatically register the first cameras it finds to the available channels.

The DRAG & DROP CONFIGURATION option scans the network for supported cameras, displaying the results in a table from which you can drag cameras to the viewing channel to assign them to channels.

For advanced settings and manually adding cameras, select SEARCH.

3.2.2.1. **Auto Configuration**

1. Select a recording mode for the cameras. This recording option will be applied to all cameras registered to the NVR.
2. Click [START]. The NVR will search all cameras under the same network (subnet) and register them in order, automatically.
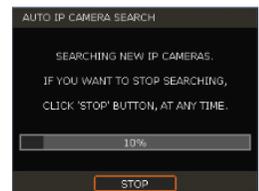
3.2.2.2. **Drag and Drop Configuration**

1. Click the [START] button to search the camera. The NVR will search the network for cameras and display all results in the table on the right.
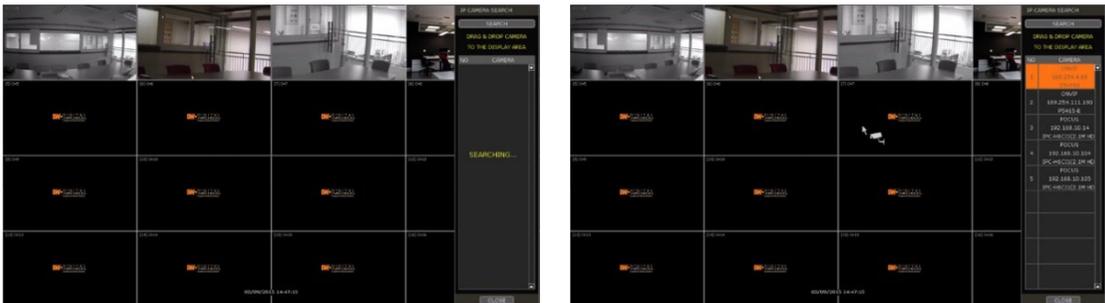
2. Select the camera in the list and drag and drop it to the channel you want to assign to the camera. (While moving, the mouse pointer is changed to   .)
3. Click [APPLY] to save all changes.

3.2.2.3. Advanced Search

The Advanced Configuration menu allows you to search for cameras with advanced configuration options, manage assigned cameras and manually add cameras using individual URLs.

1. Click [SEARCH] to automatically search all cameras on the network.

2. Select a camera from the list and click [GET STREAM] to read the streams of the camera.
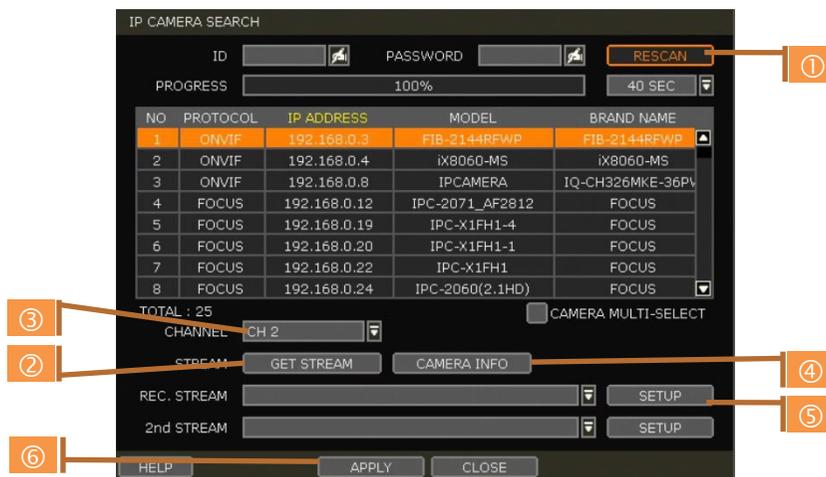
3. When [GET STREAM] is selected, the NVR will assign a channel number to the selected camera. Users can also select a specific channel number from the drop-down options.
4. [CAMERA INFO] shows the camera's basic information such as model name, IP address, Port number, and Mac address in detail.
5. [SETUP] allows users to control the camera's settings such as Resolution/Frame/Bitrate/Image Quality etc.
6. Click [APPLY] to register the selected camera to the NVR.

3.2.2.4. Multi-Select
1. Check the box next to [CAMERA MULTI SELECT] to select multiple cameras from the search results. Selected cameras will be highlighted in green.

2. Once all search results are displayed, the user can sort the table by the different columns such as protocol, IP Address, Hardware and Name, by clicking each property tab. The selected property will be highlighted in yellow.
3. Check the box next to [CAMERA MULTI SELECT] to select multiple cameras from the search results. Selected cameras will be highlighted in green.
4. When the [APPLY] button is clicked, cameras will be registered one by one starting from the top. Cameras that are already registered will be shown as unselected.

Note	During the registration process of Camera Multi-Select, if there is a camera that has a different IP range or requires ID & Password, the process is paused, and the NVR will request the required information.

3.2.2.5. Manually add Cameras
If a user wants to connect to an IP camera in a different network, the cameras can be added manually using the [ADD CAMERAS MANUALLY] button.
1. Click [ADD CAMERAS MANUALLY] to open the camera property window.
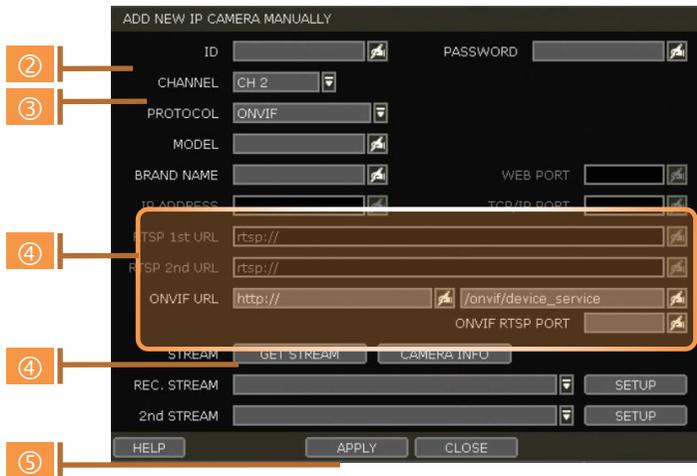
2. Select the channel number to register.
3. Select the protocol (ONVIF, RTSP, FOCUS and VHT) of the camera. Registration is available with one of the following. – IP Address, RTSP URL, or ONVIF URL
4. Input necessary information with the [icon] button and click the [GET STREAM] button to get stream information.
5. Click the [APPLY] button to register the camera.

3.3 Deleting Cameras

Go to Advanced Configuration by clicking [ADVANCED] in Camera Management (Menu > Record).

1. Non-PoE Camera - Delete ([icon]) button is always activated. Click [icon] on the camera to delete it from the NVR's channels.
2. PoE Camera - PoE cameras cannot be deleted while connected to the NVR's PoE switch.
   To delete a PoE camera, unplug the camera from the NVR and click the [icon] button when it is activated.
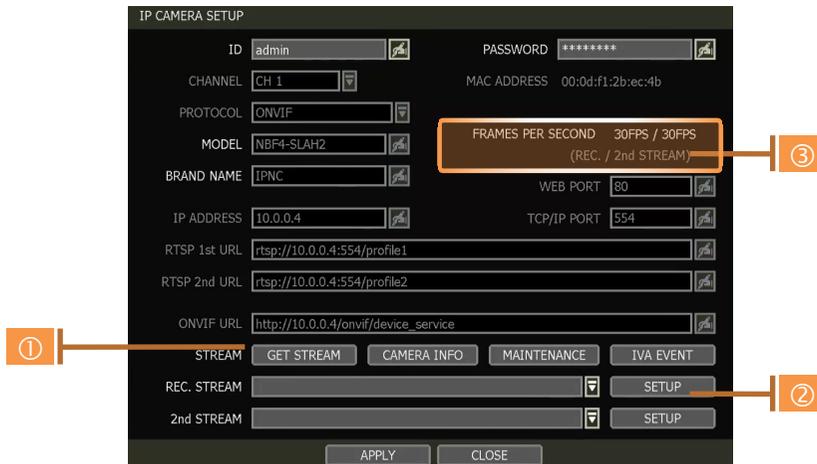
3.4   Camera Setup

Users can change the setup of the registered camera.

3.4.1.   Setup for Each Camera

Go to Advanced Configuration by clicking [ADVANCED] in Camera Management (Menu > Record).
Go to setup mode by clicking the [SETUP] button next to the desired camera.
You can also access the camera's setup menu by right-clicking anywhere on the screen during live view and selecting [CAMERA SETUP].

1. Click the [GET STREAM] button and get the current camera status.
2. Click the [SETUP] button to change resolution, frame rate, image quality, etc.

   • **RESOLUTION:** Select the rescoring resolution from the available drop-down options.
   • **FRAMES PER SECOND:** Set the stream's frames per second speed from 0 to 30.
   • **BITRATE:** The maximum bitrate that the camera used for image transmission.
   • **QUALITY:** Image quality for recording. The higher the quality, the larger the recording file size will be.
   • **GOP:** Group of pictures. The interval of I-Frame.
   • **H.264 I-REFERENCE:** Recording frame interval out of transmitted frames. (ex. x2 means records one frame out of two frames) If it is not used, NVR records all transmitted frames. (Check your camera's manual to make sure it supports this setting)

3. Current Streaming conditions – This will display the camera's recording mode and FPS in real-time.

   • **FRAMES PER SECOND:** It shows the current transmission frame.
   • **REC.:** It shows the stream that NVR records for the camera.

Note I-REFERENCE

Different from DVR, NVR records all data which comes from the IP camera. That is, the frame rate of the live display should be the same as that of the recording.

However, if the user uses an IP camera that supports I-REFERENCE, the user can make it different. That is, the user can monitor the live display with a full frame and record it with a lower frame.

- If the user sets 'H.264 I-Reference' as "4X", means that 1 frame out of 4 frames is recorded.
- If the user sets 'H.264 I-Reference' as "2X", means that 1 frame out of 2 frames is recorded.
- It is also related to the setting of frame rate and GOP (Group of Picture).

   Ex 1) FPS: 30, GOP: 30, I-Reference: 4X → recording frame will be about 7.5fps
   Ex 2) FPS: 15, GOP: 30, I-Reference: 4X → recording frame will be about 3.7fps

- It is useful for extending the recording period without dropping of live monitoring frame rate.

Note CCIP™ Encryption Option

CCIP™ (Closed Circuit Internet Protocol) System Encryption Protects Your Surveillance System from Out of Network Attacks.

Digital Watchdog's CCIP feature encrypts the RTSP stream, adding a layer of security. The CCIP encryption works when the VMAX IP Plus system sends a request to encrypt the stream from the camera. The camera then encrypts its RTSP stream a second time, over the user ID and password. The result is a secured and encrypted RTSP stream that can be read-only by the requesting VMAX IP Plus NVR.

If you are using a Digital Watchdog camera that supports the CCIP encryption option, check the button on the camera's setup page as shown (※).

When enabled, images from the camera will be seen through the current NVR only.

3.4.2. **Quick Setup**

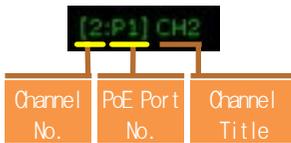Users can setup multiple cameras with the same recording at once.

1. Select the model or camera multi-select to setup. When selecting the 'Model' method, all cameras with the same model's name will be selected.
2. When selecting 'Camera multi-select', the user can select the camera wanted to set. If you set the desired camera to 'ON', the user can setup the settings of the cameras set to ON.
3. Click the [GET STREAM] button and get the current stream information.
4. Click the [Get INFO] button and check the current setup for the cameras.
5. Change setup and click [SAVE].
6. "CAMERAS ARE SUCCESSFULLY APPLIED" message will appear when the process is completed.

3.4.3. Change channel

ADMIN users can change the channel by dragging & dropping it from the live display screen.
Select a camera by clicking on it and dragging it to its new channel. During the dragging, the mouse pointer will change to [icon]. In the case of a PoE camera, the channel title will be shown as in the example below.

In Live mode, users can check the status of PoE cameras by selecting the [PoE STATUS] menu in the pop-up menu window.

Note	Only the ADMIN user can change the channel allocation.

3.5   Live Display Mode

3.5.1. Channel Selection

The live image can be seen by easy button operation after power-up. The images can be seen in 1, 4, 9 and 16 screen splits (some split options may not be available according to the NVR's number of channels). Whenever the up/down arrow button on the front panel or IR remote controller is pressed, and whenever the screen display mode button ([icon]) on the Toolbar is clicked, the screen will change to display the next channel or sequence of channels.

To switch from a multi-channel view to a single camera, click on the selected channel. To return to the previous screen mode, click the left mouse button again.

"VIDEO LOSS" is shown on the display screen when no camera is connected or disconnects suddenly. When a camera is disconnected, a warning sound shall be generated depending on the system setting. Admin users can set various levels of authorization for each user, granting them specific access to specific channels. If a certain user is not authorized to view a channel, no image is shown on the display screen as below.
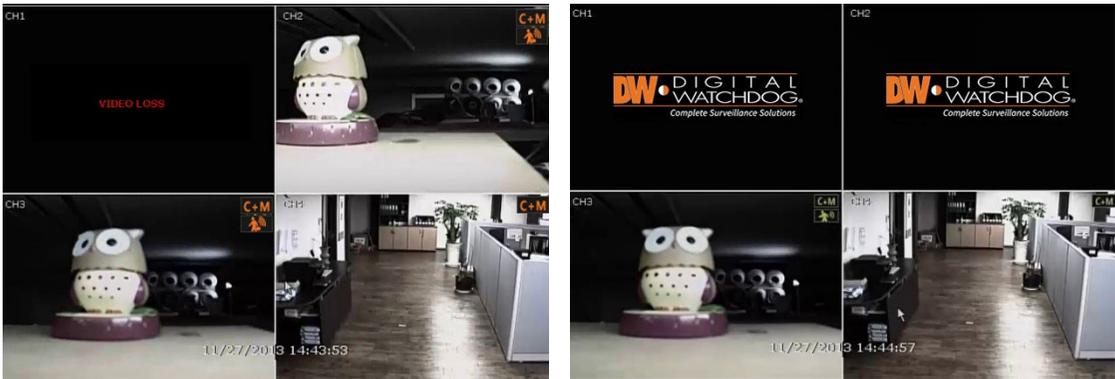
3.5.2. Icons

In live mode, icons will appear on the screen to notify of the system mode or status.

The icons shown at the right-upper corner of each channel screen		The icons shown at the right-bottom corner on full-screen mode	
C	Continuous Recording	HDD	No HDD detected
M	Motion Detection Recording	E-REC	Emergency Recording is in use
S	Sensor Activated Recording	PTZ	PTZ is enabled
C+M	Continuous + Motion Alarm Recording	CHECK FAN	Warning for exceeding temperature
C+S	Continuous + Sensor Activated Recording	SEQ	Sequence mode is enabled
M+S	Motion Detection + Sensor Activated Recording	ZOOM	Digital zoom is enabled
C	Emergency Recording		
(alarm)	Sensor Activated		
(motion)	Motion Detected		
(audio)	Audio Channel		
(ptz)	PTZ Camera		
S	Transaction Verification		

Note   If you cannot find any recording icon in the right corner of the screen, then the system is not recording. Check the recording schedule or camera in the main setup menu.

3.5.3. Pop-up Menu

Users can click the right button of the mouse to pop up the sub-menu as below. If the user wants to

control a specific channel, put the mouse cursor on that channel and then click the right button.

DISPLAY MODE
Change the screen display mode from the available split options.

CHANGE NEXT CH
View the next channel or next group of cameras in the current split mode.

SEQUENCE
When "SEQUENCE" is selected, **SEQ** an icon will appear on the right-bottom corner of the screen. The display screen will be sequentially changed.

DIGITAL ZOOM
- Digital Zoom is available in a single-channel view only. When "ZOOM" is selected, **ZOOM** an icon will appear on the right-button corner of the screen and digital zoom control is available.
- To zoom in, drag the mouse's cursor on the desired area to create a zoom square. You can also control zoom-in & zoom-out by mouse scrolling the mouse's wheel up and down. Once the image is zoomed in, the user can move the zoom area by clicking on the edge of the square and dragging it.
- To exit from the zoom mode, click the right and select "ZOOM EXIT' on the menu.

IMAGE ADJUSTMENT
View the adjusted camera image menu (Please refer to "4.2.1 Camera"). Users can adjust images such as brightness, contrast, color, etc. The available options depend on the camera's ONVIF integration. See the camera's manual for more information.

PTZ
Enable PTZ mode. (Please refer to "3.6 PTZ Operation" for detail.) The available PTZ options depend on the camera's ONVIF integration. See the camera's manual for more information.

CAMERA SETUP
View the setup camera menu. (Please refer to "3.4.1 Setup for each camera")
Users can setup resolution, frame, etc. The available options depend on the camera's ONVIF integration. See the camera's manual for more information.

FREEZE
Freeze the current live view. The system clock (date/time information) will continue running at the bottom of the screen. Select "FREEZE" again to resume the live view.

ADD BOOKMARK
Add a bookmark with a description of the currently displayed image. Enter a description and click OK to save.
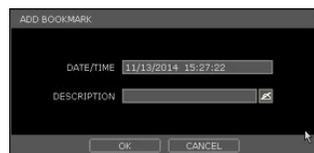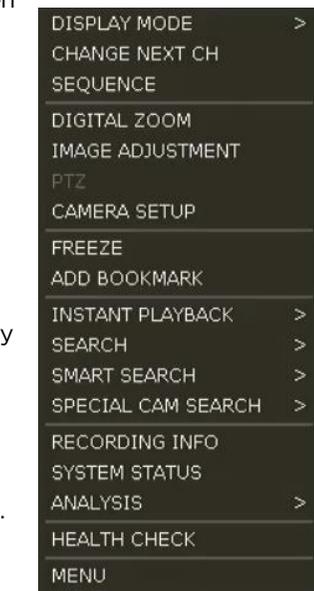
INSTANT PLAYBACK
Select from the time options (1 second to 5 minutes) to instantly switch to playback mode.

SEARCH
Search recorded video using the calendar, date/time, first and last data, system log, event log, transaction verification and bookmarks. (Please refer to "3.6. Search Recorded Image" for details.)

SMART SEARCH

Search recorded video in preview search or advanced preview search modes. See 3.10 Smart Search for more information.

SPECIAL CAM SEARCH
Search a special camera log for video analytics. See 3.11 Special Cam Search for more information.

RECORDING INFO
Check the recording status of the NVR, such as Recording Period, Daily Recording Size (Average), Recording Days and Remaining Recording Days.

SYSTEM STATUS
See the system status, network condition, the number of clients currently connected to the NVR, PoE camera connection, etc. A green line means the connection is live and working.
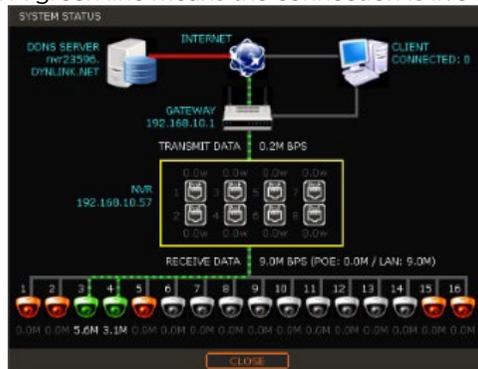
ANALYSIS
Check the system's performance, general and network conditions for each channel and the entire system, the status of cameras connected directly to the NVR's PoE switch and event status.
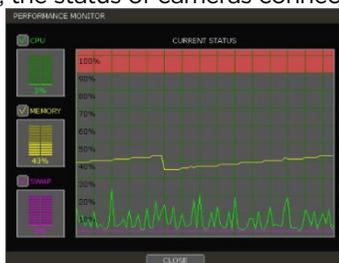
[Performance monitor]   [Network monitor]
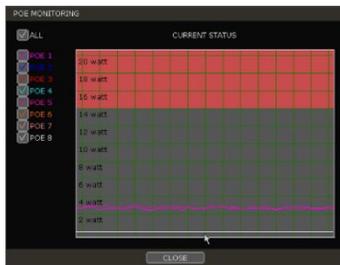
[POE Monitoring]

[Event Monitor]

HEALTH CHECK
Display the NVR's system, network, camera, and HDD information as text. Select what information to display and setup the check cycle time.
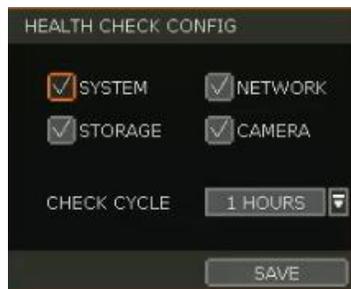
MENU
Open the main menu setup screen.

3.6   PTZ Operation

To operate a PTZ camera, the channel which is connected to a PTZ camera should be in full-screen mode. To activate PTZ control, right-click and select "PTZ" in the pop-up menu. When in PTZ mode, **PTZ** will appear on the right-button corner of the screen.

PTZ Control
In PTZ mode, the user can control the PTZ camera using the USB mouse. While pressing the left button, drag the mouse cursor up/down or left/rightward to move the camera's pan/tilt position. The further away from the center the mouse's cursor moves, the faster the PTZ camera will move. To move the camera to a preset position, click the preset position number at the bottom of the screen to move the camera accordingly. The presets must be set before selection.
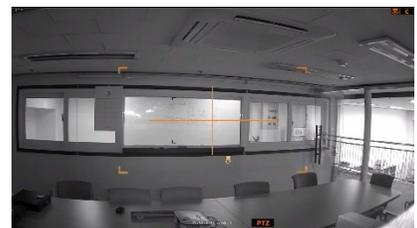
| Note | Full PTZ functions are available by using the USB mouse, IR remote control, or keyboard controller. The availability of functions depends on the camera's ONVIF integration. Consult the camera's manual for more information. |

ZOOM/FOCUS

Move zoom-in/out by rolling the wheel of the mouse up/down. If the mode is changed to "Focus", the camera's focus can be controlled by rolling the wheel of the mouse.

PRESET

When the preset menu pops up, select the preset number and click "Enter" to move to the corresponding preset position. The maximum Preset number supported is 255.

TOUR

Enable the TOUR function. When 'TOUR' is on, the camera will move to preset positions in order. To turn the tour off, right-click on the screen and select 'Tour'.

GUARD TOUR

When enabled, the camera will automatically switch positions according to the sequence of presets set in the GUARD TOUR settings. See "4.2.3 PTZ" for more information.

| Caution | Users can set an interval for each preset position. Some presets might be skipped in case the camera cannot <u>mechanically</u> move or control focus within the interval time. |

GOTO HOME

The camera moves to the original position that is memorized in the PTZ device.

SETUP

Go to the PTZ setup menu (Please refer to "4.2.3. PTZ").

PTZ EXIT

Close PTZ control mode.

3.7 Playback Recorded Images

To playback the recorded image, press the Play button on the IR remote controller or playback icon (⬛) in the menu bar. When the NVR transitions to playback mode, it will automatically playback the latest recording image.

DW

Date/Time (1)

Shows the date & time of the image that is being displayed.

Toolbar (2)

Contains playback control, recorded data check, screen mode, etc. (See "1.3.4. Toolbar on Playback Mode" for more information.)

Pop-up Menu (3)

- Display mode: Change display mode (1, 4, 9, 16 screen mode)
- Change Next CH: Change to the next playback channel
- Digital zoom: Enable or disable digital zoom (available in a single-channel view).
- Backup: Open the backup window.
- Add Bookmark: Add a bookmark to the current image.
- Search: Search recorded data by various conditions (Please refer to "3.8 Search Recorded Image" for detail.)
- Smart Search: Search recorded data with Preview search and advanced preview search. (Please refer to "3.10 Smart Search" for detail)
- Live Mode: Go to live mode.

Exit Playback Mode (4)

Clicking the Exit icon ![icon] in the menu bar will return you to the live view.

3.8   Search Recorded Image

Search recorded images by date and time, first and last data, events, bookmarks, etc.

Note   To enter the search options menu:

1.   In Playback mode, right-click to enter the popup menu and select the search menu.

2.   In Live mode, press the Search button 🔍 in the Toolbar at the bottom of the screen.
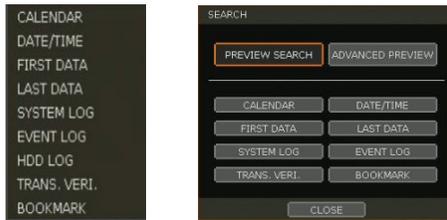
3.8.1. Calendar Search
To search for data for a specific date and time, select the date and time.
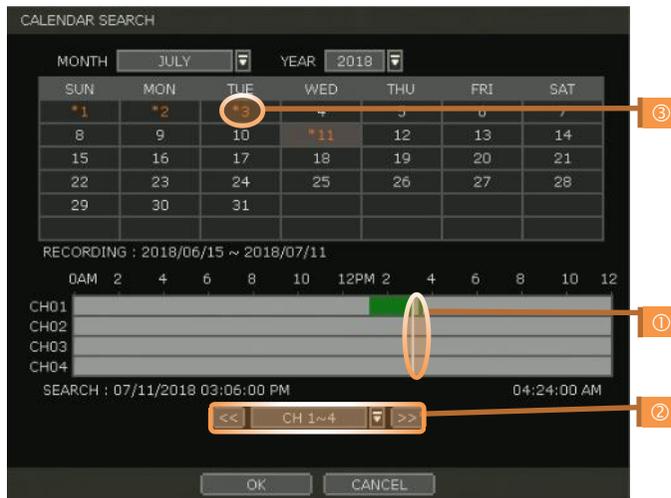
Move the white-vertical line (①) to the time you want to search.
The colors of the time bar represent the different recording modes. See "4.4.2" for more information.
The time bar displays four channels at a time. To check the next 4 channels, change the group at the bottom of the window (②).
"*" mark on dates (③) indicates days with recorded videos available.

3.8.2. Search Date/Time

Enter the desired date and time on the calendar screen.
Use the arrow button or mouse to move to each day/month/year and time category for selecting second/minute/hour/month/year.
Days with recorded data will be highlighted in red and "*" next to them.
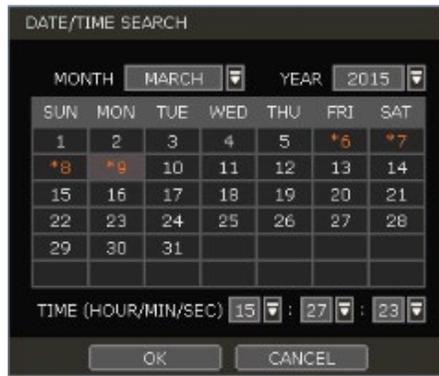
3.8.3. First Data

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

3.8.4. Last Data

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

3.8.5. System Log

Find system log information such as System, Setup, or network events.

1. Select a date to search.
2. Select log type to search. Users can search for individual events or all at once.
3. Click [SEARCH] to show the search results in the list.
4. Click [EXPORT] to copy the list to an external device such as a USB flash drive as a ".txt" file.
   Once the export is completed, the user can find a date folder created in the USB flash drive.
   There is a "system.log" file stored in a "Date" folder.

3.8.6. Event Log
Find events such as sensor activation, motion detection, video loss, HDD full, or keyword.
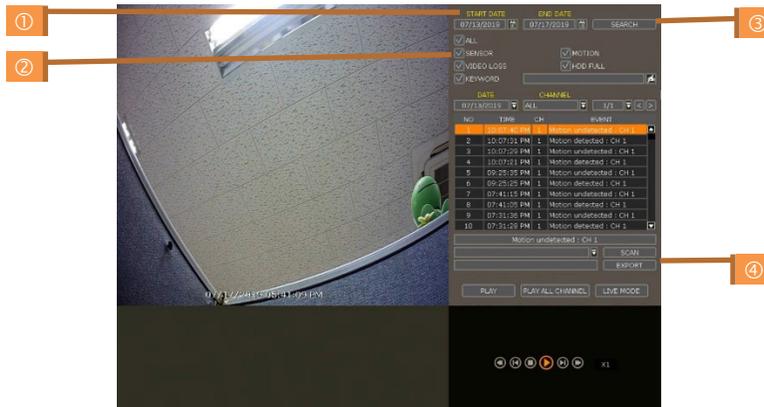
1.   Select a date to search.
2.   Select log type to search. Users can search for individual events or all at once.
3.   Click [SEARCH] to show the search results in the list.
4.   Click [EXPORT] to copy the list to an external device such as a USB flash drive as a ".txt" file.

Note	50 records will be shown on one page. Click the arrow buttons ( ) to search the log records on another page.

3.8.7. HDD Log
Users can search for HDD logs such as mount failure and record failure.
If there is no problem with HDD, there is no log.
Click [EXPORT] to copy the list to an external device such as a USB flash drive as a ".txt" file.
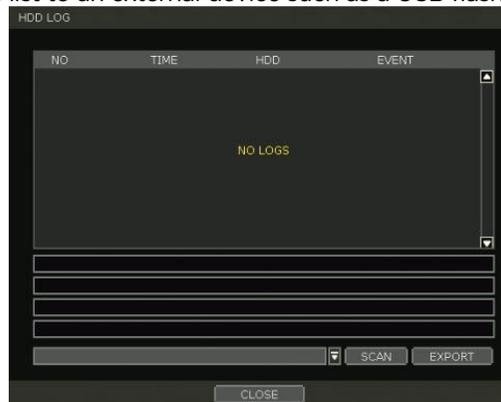
3.8.8. Transaction Verification

Search text from a Transaction Verification™ integration such as a POS device. Input the search information (channel #, date, time & keyword) and then click [SEARCH] to view search results. Enter a keyword to filter the results. Click [PLAY] to go to playback video and transaction data.
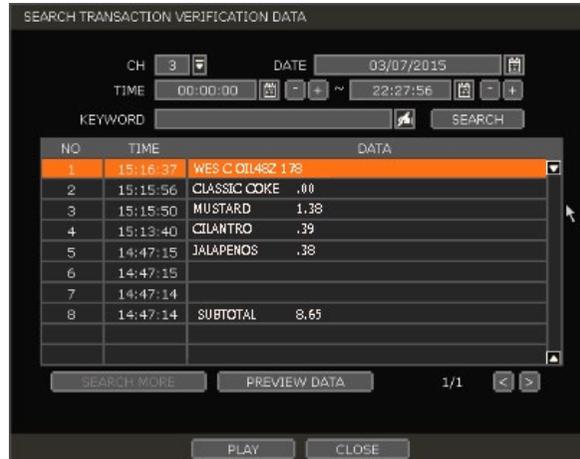
3.8.9. Bookmark

Bookmark search allows you to can check, modify and delete bookmarks. Select a bookmark from the search results list and [PLAY] to display the corresponding video image.
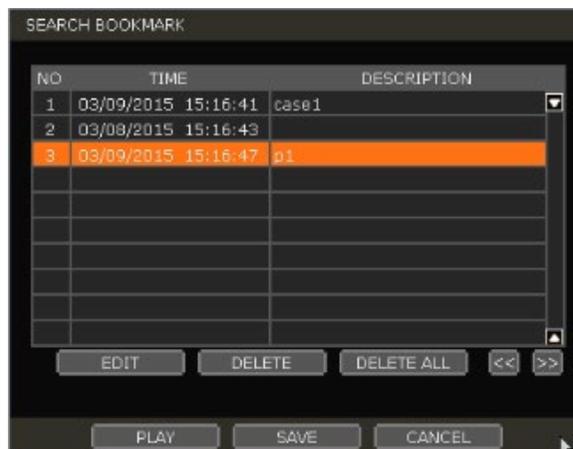
3.9   Smart Search

Users can search recorded video in split-screen mode by the hour or minute units.
Smart Search supports two different modes – Preview Search and Advanced Preview Search.

3.9.1.   Preview Search

Preview search breaks down a day's worth of recorded video for a camera into 12 still images, one for each hour. You can then "zoom" into the hour to display images for every minute of that hour.
To use this search: "
1. Right-click on the selected channel and go to Smart Search > Preview Search
2. Select the date you wish to search for. Days with recorded video will appear in orange.
3. Click Search. The NVR will display 24 screen images (1-hour unit) of the channel on that day.
4. Double-click on a specific image or press the minute button to display 60 screen images (1-minute unit) on that hour.

Users can easily search substantial amounts of video for specific events with this preview search, allowing you to playback the recorded image of that moment.
The number of thumbnail images and the size of each image can be increased/decreased, and the maximum no. is 196(14 x 14), depending on the resolution.
In the preview search mode, the user can change the search date, and the display unit (time/minute) and go to playback mode directly.
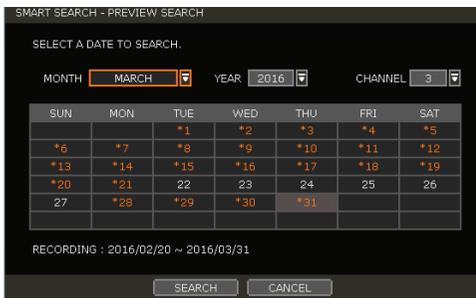
3.9.2.   Advanced Preview Search
Advanced Preview Search allows you to search a camera's data across multiple days, checking for abnormalities or events at a specific time of the day. To use the Advanced Preview Search:
1. Right-click on the selected channel and go to Smart Search > Advanced Preview Search.
2. Select the start and end dates you wish to search for. Days with recorded video will appear in orange.
3. Select the time interval you wish to search for. The interval can be set from 1 minute to 1 day. Once the interval is selected, set the time of the search. For example, if 1 day is selected, select the time of the day you want to search (e.g., every day at 5 PM).
4. Press Search. The NVR will playback the recorded image of the selected channel with the selected interval on the multiple screen mode, simultaneously.

3.10 Special Camera Search

3.10.1. Video Analytics

Search video analytics log for events such as object removal, scene change, video blur, video case, line crossing, intrusion, crowd density, people intrusion, people counting and face detection.
NOTE: To view the special camera search, users must be in single-channel view mode.
NOTE: The camera must support video analytics capabilities.
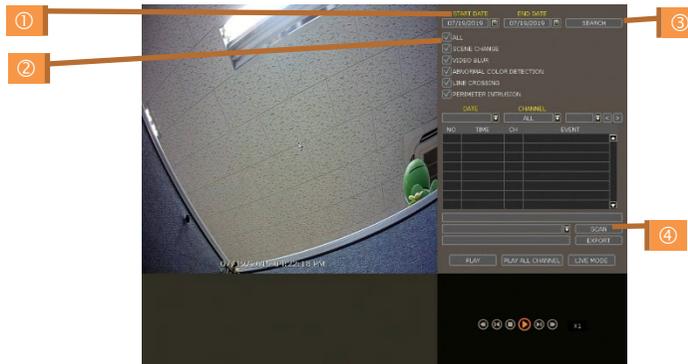
1. Select a date to search.
2. Select the log type to search. Search individual events or all events.
3. Click [SEARCH] to show the search results in the list.
4. Click [EXPORT] to copy the list to an external device such as a USB flash drive as a ".txt" file.

3.11   DST Setting and Image Playback

Daylight Saving Time (DST) starts at 2:00 AM local time on the 2nd Sunday of March and ends at 2:00 AM DST on the 1st Sunday of November. During DST, the NVR's clock will be adjusted according to the regional time zone. The NVR's time will shift one hour after DST starts and restore the time clock to normal after DST ends.

3.11.1.   DST Setting

To enable DST on the NVR, go to SYSTEM > INFORMATION and click "DATE/TIME 🗒". Select "USE DST" to apply the DST time change. (Select the proper Time Zone to activate DST)

3.11.2.   DST Image Playback

When there is overlapped data due to DST, the overlapping hour will appear blue in the search bar during playback.

To play back data from the overlapped hour, select a time in the Intelli-search bar. A "Data Selection" message will appear. Select whether to play DST data or non-DST data.

3.12 MEGApix® IVA™ Analytics

3.12.1. IVA Settings

When a MEGApix IVA or IVA+ IP camera is connected to the NVR, the system will display [IVA EVENT] at the bottom of the screen. The camera's preview will include the existing rules' zones and when an IVA event occurs, an event notification icon will appear on the top right of the camera's display.

(*IVA rules can be created and managed from the camera's Web Client, accessible through a web browser. To create, edit or delete IVA rules, please refer to the IVA user manual.)

MEGApix IVA camera settings are enabled in [IP CAMERA SETUP] - [IVA EVENT]. Click on the IVA EVENT button to enable the camera as a MEGApix IVA camera and select the appropriate OSD settings.
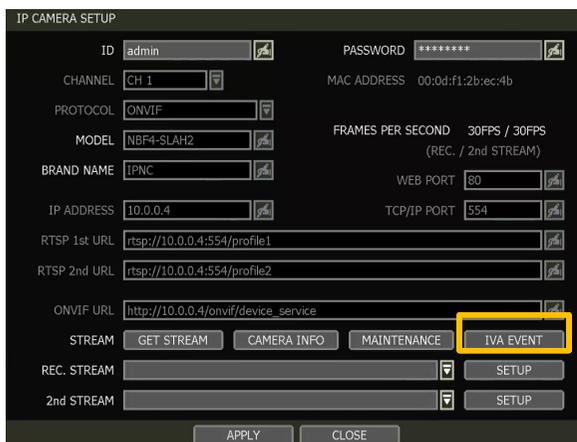
- SHOW OBJECT AREA: This shows the area of a detected object.
  NOTE: To enable the SHOW EVENT AREA, this option must be disabled.

- SHOW OBJECT TRAIL: This shows the trail when detected object is moving

- SHOW OBJECTED ID: This shows the ID of a detected object

- SHOW EVENT AREA: When checked, the event area is displayed only when an event occurs. To use this option, SHOW OBJECT AREA must be disabled.

- SHOW RULE AREA: This shows the 'RULE' area. (Refer to the camera's manual for the RULE setting.)

3.12.2. ALARM MANAGER
Set the IVA EVENT ALRAM

IVA EVENT - ALARM MANAGER

NO	USE	NAME	CH	POPUP	BUZZER	RELAY	NOTIFY
1	X	---	-	X	X	X	X
2	X	---	-	X	X	X	X
3	X	---	-	X	X	X	X
4	X	---	-	X	X	X	X
5	X	---	-	X	X	X	X

NAME [＿＿＿＿＿] 🖉 ☑ USE

TYPE [---] ▼
CH [ ] [CH1] ▼

POPUP [NOT USED] ▼
BUZZER [NOT USED] ▼
RELAY [NOT USED] ▼ [1 SEC] ▼
NOTIFY [ ] REMOTE [ ] E-MAIL [ ] MOBILE

[EDIT]

[APPLY] [CLOSE]

If the user checks 'USE', the setting window is activated and the user can set the event alarm name, type, and notification type (pop-up, buzzer, relay, etc.).
- Set the alarm event type.
- Set the channel on which the alarm is displayed.
- (Alarms can be set for channels other than the channel to which the camera is connected)
- Set alarm type. Set whether to use pop-up/buzzer/relay.
- Set NOIFY alarm: REMOTE/ EMAIL / MOBILE alarm.
 (For more information, please refer to MENU-NETWORK-NOTIFICATION / MOBILE NOTIFY menu.)

INTRUSION
LINE CROSSING
ENTER
EXIT
APPEAR
DISAPPEAR
STOPPED
LOITERING
DIRECTION VIOLATION

POPUP	NOT USED	▼
BUZZER	NOT USED	▼
RELAY	NOT USED	▼ 1 SEC ▼
NOTIFY	☐ REMOTE ☐ E-MAIL ☐ MOBILE	

※ To set REMOTE / EMAIL / MOBILE NOTIFY, the user must check 'META DATA'.

REMOTE NOTIFY ADD/EDIT

IP ADDRESS [0.0.0.0] 🖉
PORT [8003] 🖉

EVENT ☐ ALL
☐ LOGIN/OUT   ☐ SETUP
☑ SYSTEM START   ☑ SHUTDOWN
☑ SENSOR   ☐ MOTION ALARM
☑ VIDEO LOSS   ☑ S.M.A.R.T
☑ DISK ERROR   ☐ HDD FULL
☐ META DATA

[OK] [CANCEL]

E-MAIL NOTIFY ADD/EDIT

E-MAIL [＿＿＿＿＿] 🖉

EVENT ☐ ALL   [SNAPSHOT NOTIFY SETUP]
☐ LOGIN/OUT   ☐ SETUP
☑ SYSTEM START   ☑ SHUTDOWN
☑ SENSOR   ☐ MOTION ALARM
☑ VIDEO LOSS   ☑ S.M.A.R.T
☑ DISK ERROR   ☑ HDD FULL
☐ HEALTH CHECK   ☐ META DATA

VIDEO CLIP ATTACHMENT
☐ SENSOR   ☐ MOTION ALARM

[OK] [CANCEL]

3.12.3. MEGApix IVA EVENT SEARCH

To search for IVA analytics events, go to the popup menu > SPECIAL CAM SEARCH > IVA EVENT. Select IVA EVENT from the drop-down list options. Use the date and type filters to narrow down search results.

Double-click the event from the event results list to view the video associated with the event.

4. Setting

The general setting structure consists of "System", "Device", "Event", "Record", "Network" and "Backup". Each Setup menu consists of sub-menus and additional categories.

Main Classification	Sub Classification
SYSTEM	INFORMATION
	USER
	DISPLAY
	HDD
	SETTINGS
DEVICE	CAMERA
	AUDIO
	PTZ
	TRANS. VERI.
	KEYBOARD
EVENT	SENSOR
	CAMERA ALARM
	EXTRA ALARM
RECORD	CAMERA MANAGEMENT
	RECORDING SCHEDULE
	QUICK SETUP
NETWORK	NETWORK
	DDNS
	NOTIFICATION
	MOBILE NOTIFY
	PATHFINDER
EXPORT	EXPORT

To access the setup menu, click the ▣ button in the menu bar or right-click anywhere and select the Setup Menu.

4.1   System

4.1.1.   Information
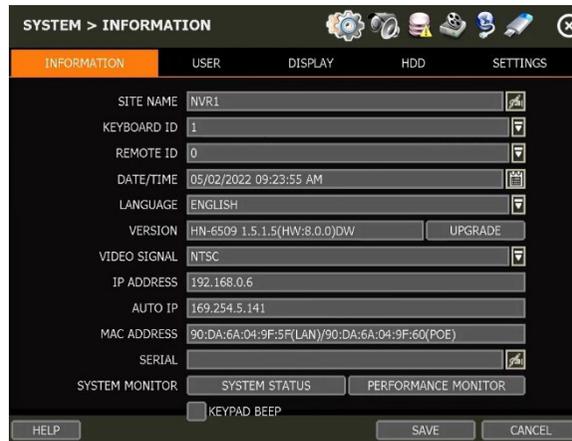
SITE NAME
Enter a site name to differentiate the NVR from other sites.

KEYBOARD ID
Setup SITE ID to match the ID settings of a keyboard controller. The keyboard model and BUAD RATE must be setup in "MENU > DEVICE > KEYBOARD" (See "4.2.5 Keyboard").

REMOTE ID
Users must setup a REMOTE ID to match with the ID setting of the IR remote controller if the user wants to use it to control NVR.

DATE/TIME
Using the available options, manually adjust the date and time, select the display mode for the time and the date, and select the appropriate time zone. If applicable, check the 'USE DST' box.
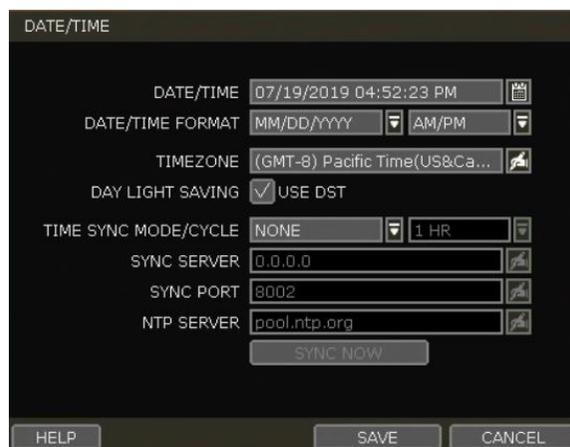
There are three types of time sync modes.
- Server Mode: The operating NVR is set as a Time Sync Server, which can synchronize the time other NVR(s) are connected over the same network.
- Client Mode: Input the IP address of a designated NVR or PC running Remote Software as a

Time Sync Server in "SYNC SERVER". The NVR's time clock will be synchronized with the server by interval time set in the "TIME SYNC CYCLE".
- NTP Mode: "pool.ntp.org" is the recommended NTP Server. To activate, set the TIME ZONE of your local area and then click [SYNC NOW].
- GPS Mode: Connect USB type GPS device and click [SYNC NOW]

For the DST setting, please refer to "3.11 DST Time Setting".

LANGUAGE
Select the display language from the available options.

VERSION
View the NVR's current firmware version and update it to a newer version via DVD/CD/USB Memory Stick/FTP server.

VIDEO SIGNAL
Check the right video signal (NTSC or PAL). This setting should match the [NTSC/PAL] Selection Switch located on the rear panel. Video images might heavily shake and blink if NTSC/PAL is not properly set.

IP ADDRESS
Shows the NVR's current IP Address. It can be set at 'MENU>NETWORK>NETWORK'.

AUTO IP
Shows AUTO IP Address of the NVR.

MAC ADDRESS
Shows the unique identity number for the NVR.

SERIAL
Input or edit the unit's serial number to provide additional identification information.

SYSTEM MONITOR
Monitor the system performance and condition.

KEYPAD BEEP
Users can turn on or off the beeping sound of the keypad.

Caution	Do not click CANCEL during firmware upgrade. It may cause considerable damage to the system.
	Settings may be changed to factory default. It is recommended to check the settings and operating conditions of the NVR after the firmware upgrade.

Upgrading system using USB memory stick:
1. Insert a USB drive with the firmware file formatted by FAT/FAT32 in any USB port of the NVR (compatible with USB 2.0).
2. Select 'USB' from the Method drop-down options and press the 'Scan' button.
3. Once the system detects the USB drive, it will display the firmware file under 'CURRENT VER' and the 'NEW VER'.
4. Click START to begin the upgrade process.

Upgrading system using Digital Watchdog's Automatic Firmware Upgrade via FTP server:
1. Select FTP in the drop-down options under 'Method'.
2. Enter the FTP's address: FTP.dwcc.tv and enter the username and password (these should be filled out automatically). Username: vmaxipplus, password: vmaxipplus.

NOTE	The FTP server address is subject to change without a prior notice

3. Enter Check Time. The system will automatically check the FTP server for newer firmware every day at set hours.
4. Click the [OK] button to proceed with the automatic firmware upgrade. After completion, the system will reboot.
5. Click 'Check' to allow the NVR to connect to the FTP server and check the latest Firmware version. If a new firmware is available, the NVR will ask you whether you want to upgrade it or not.
6. Click 'OK' to confirm and click 'START' to start upgrading.

To setup the NVR to check for new firmware automatically:
1. Select FTP from the METHOD drop-down options.
2. Make sure the FTP information is entered correctly (see the section above).
3. Enter your convenient time at CHECK TIME and then click the [SAVE] button.
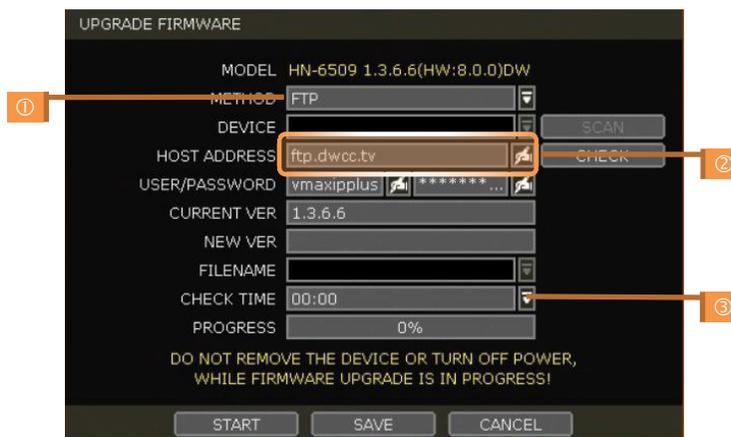
User

The ADMIN user has full authority for system settings and can change the system password or add/delete users and assign different permission levels to them.

| **Note** | The maximum number of users including an administrator is 16. |

User Management

Admin users can control authorization for each function. This authorization is applied when the user connects to the NVR from remote software as well.

1. Add User
   a. Click [ADD].
   b. In the new setup window, set the new user's ID, description, password and password hint.
   c. Select which functions and menu options the user will have access to by checking the box next to the corresponding functions.
   d. In Live and Playback mode, only the selected channels are visible to the user.
   e. To change the setting, select the user and click [Edit].
2. Delete User
   a. Select a user in the list by highlighting their name and clicking [Delete].
3. Option
   a. If Auto Logon "On Boot" is enabled, the NVR will not request ID and password after power-up.
   b. If "Auto Logoff" is enabled, the NVR will log off the current user after the set time of inactivity.
   c. If "show live" is checked, the live image will be shown after logging off.

Setting Authorized Level at the Remote Software (CMS)

The level of authority for the user is linked between the NVR and remote software. If a user has been restricted in the NVR, those restrictions will also be applied when operating the remote software.

DW.

4.1.3. **Display**

Set the sequence to dwell time, Display Resolution, OSD display options and spot-out channel & dwell time as below picture.

SEQUENCE
Set the dwell time for the sequence channel display.

DISPLAY RESOLUTION
The system supports the following kinds of resolutions: 800x600, 1024x768, 1280x1024 and 1920x1080. Set the proper resolution per the monitor resolution.

OSD
Select what information will appear over the display by checking the corresponding boxes.

SCREEN SAVER
The Screen Saver features to protects the screen and data of the NVR by turning it off after a set time of inactivity. Set the screen saver's waiting time for when the monitor will automatically turn off. Set in between 1 minute and 180minutes. If applicable, select to log off the current user when the screen saver is on.

CHANNEL SWAP
Check for swapping the channel by drag and drop.

4.1.4. HDD

HDD FULL
When an HDD is full, select whether to "Overwrite" or "Stop recording".
- Overwrite Record new data over the old data in the drive.
- Stop record: Stop recording when the HDD is full.

HDD CHECK
Click [CHECK] next to each HDD to open the health check window. See full information for each HDD such as model name, port, serial no, capacity, bad sector ratio, lifetime (used time) and temperature.

Caution	WARNING MESSAGE
	To achieve high-level system stability, a warning message of elevated temperature will be popped up when the temperature inside the system exceeds the optimum range. This problem may be driven by the malfunction of ventilation fans. Inspect if the cooling fan is properly working, or if the temperature around the system is meticulously kept.

HDD FORMAT
When the new HDD is installed or there seems to be a problem with the HDD, formatting the HDD is recommended.
If system resources are occupied such as during a network connection while the HDD format is in process, the formatting may fail. Reboot the system to release system resources and then try to format again.

Check the box next to the HDD name to select it. Press the "format" button to format the HDD.

AUTO DELETE
Set the period when the HDD will automatically delete all recorded data. Select from None (default) up to 366 days.

Note	1) It may take a few minutes to format an HDD.
	2) When the format is done, all data in the HDD will be deleted.
	3) The system always reserves some space in each built-in HDD to effectively utilize archiving memory.

4.1.5. **Settings**

STARTUP WIZARD
User can register their information on the DW server. It makes you speed up when the user needs technical support from DW.

FACTORY DEFAULT
Reset the system to its factory configuration. All the configurations will be deleted, and the system setting will return to its original factory default. The recorded video will not be deleted.

EXPORT/IMPORT
Save the system settings from this NVR or copy them to another NVR.
- Export: Copy the settings of this system to a USB memory device.
- Import: apply settings from another NVR via CD/DVD/USB memory device.

NOTE: Make sure the F/W version of the sourced NVR is the same as the target NVR's.

4.2 Device

4.2.1. **Camera**

Set each camera's title, covert channel settings, privacy masks and general camera adjustments.

Note To be able to setup these functions from the NVR, the settings must be integrated by OnVIF.

If the camera is OnVIF but the settings were not integrated via OnVIF, you will have to setup the camera's settings from the camera's menu.

TITLE

Designate a name for each channel. The name will appear both in the NVR and remote software.

COVERT

"Covert," also called 'hidden camera', hides camera display and playback as if there were no camera recording. Covert settings apply to both Live and Playback views in both the NVR and remote software.

Note	Only the ADMIN user can setup a covert menu.

PRIVACY MASK

Hide specific areas in the camera's Field of View (FoV) in live and playback mode. Please check that your camera supports this feature.
1. Click [SET] to get into the setup mode.
2. Using the popup menu on the bottom right, select where to place the privacy mask and assign a color and index number to it. Click 'Save' to save the changes and 'Exit' to return to the main setup page.

CAMERA ADJUST

Set the camera's brightness, contrast, color, etc.
1. Click [SET] in the 'CAMERA ADJUST' section to get into the setup screen.

2. Adjust the applicable options using the drop-down menu options.
3. Click 'Save' to save the changes.
4. Switch to the next channel using the arrow buttons ( ).
5. Changes will apply to the camera's view automatically.
6. [Apply All] makes all channels have the same value.
7. Click [EXIT] to exit.

4.2.2. Audio (Live and Recording)

Select an audio input and output during live display and match it to a specific channel. The number of audio channels may differ depending on the NVR model. When enabled, the channel will start recording video with the associated audio channel, allowing users to playback recorded video with audio.

4.2.3. PTZ

Full control of the PTZ camera is available on this menu. Please refer to the "3.6 PTZ Operation" for more information on operating a PTZ camera.

1. If the camera is connected to the NVR via ONVIF protocol, make sure ONVIF PTZ is selected in the Protocol field.
2. If the camera is connected via RS-485 cables, make sure of serial communication with the PTZ camera through the RS-485 port is setup properly. The Protocol, baudrate and camera address set in the NVR must match the ones set in the camera's setting.

PROTOCOL
Select the proper protocol of the connected PTZ camera. This field does not apply if the camera is connected to the NVR over the network via the OnVIF protocol.

BAUD RATE
Select the baud rate level from 2,400bps up to 57,600bps. This field does not apply if the camera is connected to the NVR over the network via the OnVIF protocol.

ADDRESS
Set the P/T/Z driver address of the connected camera. It should be the same as that of the PTZ. This field does not apply if the camera is connected to the NVR over the network via the OnVIF protocol.

CONTROL(The functions depends on the camera's model and supported features)
When the [SET] button is clicked, the OSD menu of the camera will appear on the monitor. Set the PTZ's speed, preset, tour, auto-pan, etc.

Direction buttons: move camera up/down & left/right.
M (depends on the PTZ model): Show/ hide the camera's OSD menu on the NVR monitor. Use the directional arrows to navigate the menu options.

ZOOM/FOCUS/IRIS: Control IN (+)/OUT (-) for each function. (Depending on the camera's model and supported features).
Speed: Change the PTZ speed (0~100). This sets the speed at which the camera will move when controlled from the NVR using the virtual joystick. Save the changes by clicking [SET].
Preset

- ADD: Move the camera's position and zoom to the desired position. Select the preset number using the ⬛ button. Press [ADD] to save the new preset. (The system supports preset the number of presets from 1 to 255.)
- DEL: delete the preset currently selected.
- Move: Enter a present number and press [Move] to move the camera to the preset position of that number.

TOUR: Set the camera to move between preset positions in order. The camera will keep running the tour until it manually is disabled.
AUTO-PAN: Set the camera to move 360 ° in one direction. The camera will keep running the auto-pan until it manually is disabled.
GUARD-TOUR: Set the camera to move between selected presets in a set order and interval. The camera will keep running the guard tour until it is manually disabled.

- Set: Set the Interval (Sec) and select the preset position. Add to Sequence by clicking the ⬛ button. The preset will appear in the Sequence column indicating the preset number and the set interval time.
- Delete: To delete a preset position from the sequence, select the preset in the Sequence column and click the ⬛ button.
- MOVE: Start GUARD TOUR.

HOME: Set the camera to move to an original position memorized by the camera.
In case the PTZ is directly connected to the rear panel of NVR, the AUX control button (AUX) is shown. Users can control additional settings such as Power, Light, Wiper and Pump, etc.
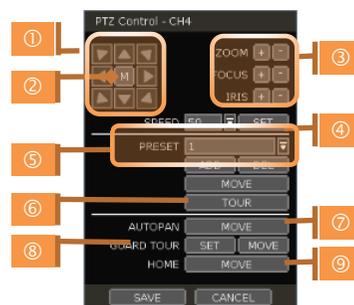
4.2.4. **Transaction Verification Settings**
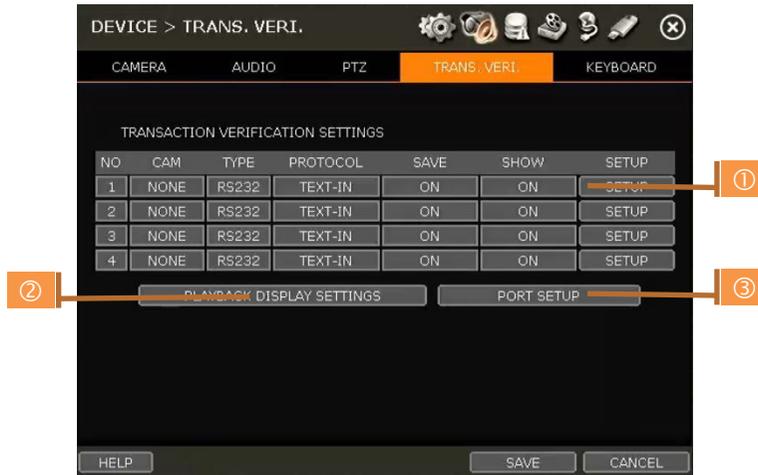Transaction verification equipment can be connected to NVR through the RS-232 port or LAN.

NO
Port Number of the Serial connection. For example: NO1 = COM1, NO4 = COM4.

CAM
Assign a camera to the Transaction Verification device.

TYPE
Connection type between NVR and Transaction Verification device.

PROTOCOL
The communication protocol between NVR and Transaction Verification device.

SAVE
Enable or disable the NVR to save the transaction data.

SHOW
Enable or disable the NVR to display the transaction data.

SETUP (1)

Transaction Verification Settings
- NO: ID# of Transaction Verification device.
- CAMERA: Select the camera to assign to the Transaction Verification device.
- TYPE: Select COM (RS-232) or TCP/IP (LAN)
- DEVICE IP: Input the IP address of the Transaction Verification device when it is connected through the network.
- PROTOCOL: Communication protocol between NVR and the Transaction Verification device.
  1. TEXT-IN: Receive an ASCII character.
  2. SNVR-POS: Manufacturer's protocol.
  Contact your Transaction Verification dealer for information.
- START CHARACTER: Input the assigned character
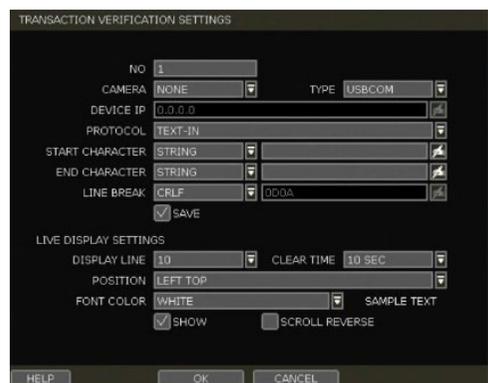
to start display and save. If there is no input, the system will display and save all data without classification per transaction.
- END CHARACTER: Input the assigned character to terminate display and save. It must have START **CHARACTER** to work correctly.
- LINE BREAK: Set the line change character. (It should be 16 digits HEX Value.)
  1. [CRLF] / [CR] / [LF]: The character that is generally used in ASCII-type Transaction Verification. (Please contact the Transaction Verification manufacturer for the detail.)
  2. [Custom]: It can be used except for the above general character. Only numbers (0~9) and alphabet (A ~ F) can be used and even numbers should be input.
        ex) Hexadecimal: 0x0D 0x0A → 0D0A.
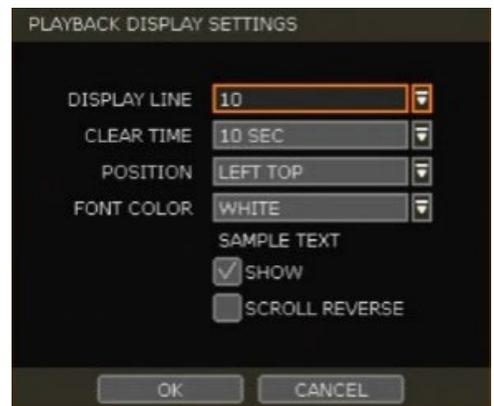- SAVE: Save the transaction verification data.

Live Display Settings
- DISPLAY LINE: Set the number of lines to display on the screen.
- CLEAR TIME: Set the period to display text on the screen. Data will be deleted from the screen if no new data is entered after the set time. If it is set as "0", the data will not be deleted (If there is Start Character and the character is input, current data will be deleted regardless of the Clear Time setting).
- POSITION: Designate the display position of transaction data.
- FONT COLOR: Select the font color which will be displayed on the screen. It will be displayed with the color that is shown on "SAMPLE TEXT"
- SHOW: Select to display transaction data in the live mode.
- SCROLL REVERSE: Select to change the direction of scrolling. If it is selected, you can scroll from the bottom to the top, the latest data is displayed on the top.

PLAYBACK DISPLAY SETTINGS (2)
Open setup screen for playback mode
- DISPLAY LINE: Set the number of lines to display on the screen.
- CLEAR TIME: Set the period to display text on the screen. Data will be deleted from the screen if no new data is entered after the set time. If it is set as "0", the data will not be deleted (If there is Start Character and the character is input, current data will be deleted regardless of the Clear Time setting).
- POSITION: Designate the display position of transaction data.
- FONT COLOR: Select the font color which will be displayed on the screen. It will be displayed with the color that is shown on "SAMPLE TEXT"
- SHOW: Select to display transaction data in the playback mode.
- SCROLL REVERSE: Select to change the direction of scrolling. If it is selected, you can scroll from the bottom to the top, the latest data is displayed on the top.

PORT SETUP (3)
Open the setup screen for the communication port.
- TYPE: Setup the type of communication port.
  - o SERIAL: It is for a 1-to-1 connection between NVR and Transaction Verification device without Serial Mux.
  - o MUX: It is for a 1-to-Multi connection between NVR and Transaction Verification device
- BAUDRATE: Set BAUDRATE according to the Transaction Verification device.
- PARITY: Set the parity according to the connected device.
- DATA BIT: Set DATABIT according to the connected Transaction Verification device.
- STOP BIT: Set STOPBIT according to the connected Transaction Verification device.
- TCP/IP PORT: Set the TCP/IP Port number.

4.2.5. **Keyboard**
When an external keyboard is used, select the model and corresponding baud rate from the drop-down options. The baudrate must match the one set in the keyboard itself. Make sure the Keyboard ID in the SYSTEM> INFORMATION setup page matched the one set on the keyboard.

4.3 Alarm

4.3.1. Sensor

Users can install multiple sensors on the system to get the pre & post-alarm recording and intensive recording functions as well.
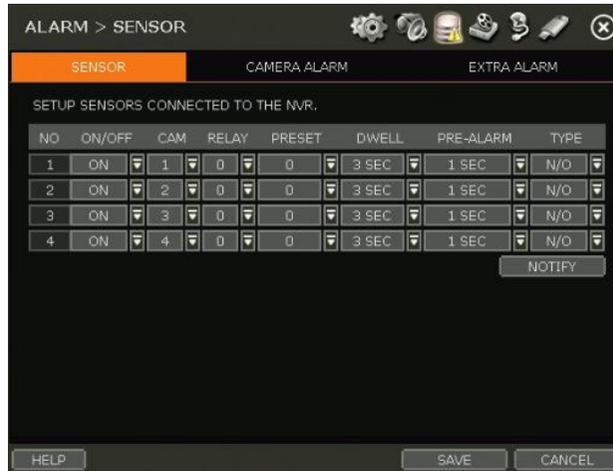
ON/OFF
Turn on or turn off the sensor

CAM
Select the associated camera.

RELAY
Select the associated alarm output.

Caution	Relay contacts can stand up to 24V/1A. In case it is connected to the external circuit which is over 24V/1A, it can cause a problem in the system.

PRESET
Set a PTZ camera to move to a preset position when the sensor is triggered.

DWELL (Post Alarm)
Set the recording period from when the sensor is activated. During this period, the selected camera will record according to the record-setting. The recording stops and the alarm output is turned off when the set period is completed.

PRE-ALARM
Set a recording period in seconds just before a sensor is activated. Input up to 5 seconds. The pre-alarm recording mode is always "continuous" at the recording speed that the user sets in the "Record" menu.

TYPE
Select the sensor type as N/O (Normal Open) or N/C (Normal Close). The circuit of a N/O sensor type is usually open, and the activation of the sensor occurs at the time of close, and the N/C type works the reverse way.

Note	Check the setting of the sensor type (N/O or N/C). It is recommended to use "Dry Contact Type" while "Wet Contact Type" may cause damage to the system.

DW

NOTIFY
Enable sensor notification via a buzzer sound and/or a pop-up warning.

Note   When "Camera pop-up" is enabled, in a multi-screen mode, the system will switch to single-channel mode automatically when the alarm is triggered.

4.3.2. **Camera Alarm**
Setup the NVR to start recording when motion is detected. The system can also trigger an alarm signal via the selected sensor-out channel.

RELAY
Select related output.

Caution   Relay contacts can bear up to 24V 1A other devices. If it is connected to a power source of more than 24V 1A, the system may have a problem with it.

DWELL
Set sensor operation time between 1 and 15 seconds.

PRE-ALARM
Set a recording period in seconds just before motion is detected. Input up to 5 seconds. The pre-alarm recording mode is always "continuous" at the recording speed that the user sets in the "Record" menu.

MOTION AREA
Set the camera's motion area and sensitivity. The area can be selected by clicking on a specific block or dragging the mouse's cursor across the screen to select multiple blocks. Areas, where motion detection is activated, will appear with a green border. Unselected areas will be shown with a grey border.

Click [SET] in the 'MOTION AREA' section to set the area.
Select the motion detection area and click [SAVE] and then [EXIT] to save the changes.
Clicking on SELECT ALL will enable motion detection in the entire camera's FoV.
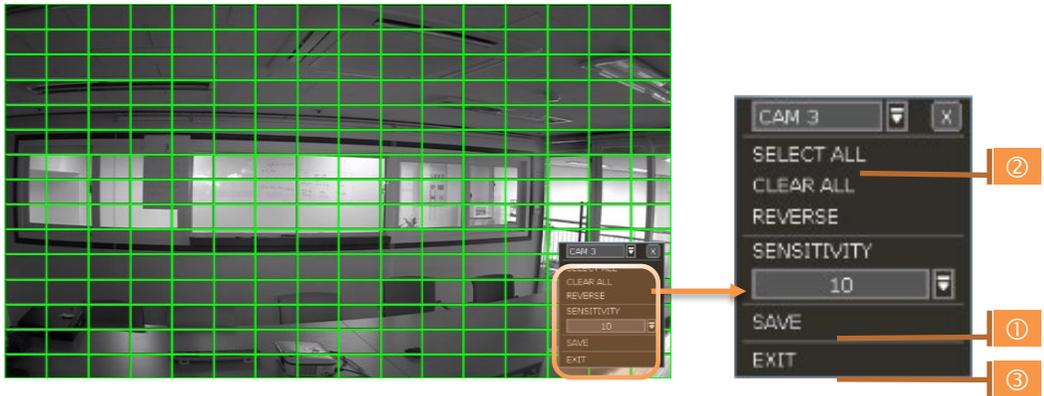
Note	Motion detection area and sensitivity should be set, properly, in consideration of the actual motion that happened on the site.

COPY SETTING

To apply the settings to all cameras connected to the NVR, click on the Copy Settings button:

1. Select the channel to get the setting from
2. Select the property(s) to copy.
3. Select the target channel(s) to apply the setting.
4. Click [OK] to apply the setting to all the other selected channel(s).

EVENT MONITOR

Show the event number for each camera. It shows check count number, motion detection and sensor detection.

4.3.3. **Extra Alarm**
Setup alarms for additional NVR abnormalities such as SMART HDD check, VIDEO LOSS, RECORDING FAILURE and DISK FULL.

S.M.A.R.T.
Trigger an alarm signal when HDD is about to be out of operation. Please refer to "4.1.4 HDD" to check the HDD status.

VIDEO LOSS
Trigger an alarm signal when a camera signal is disconnected.

RECORDING FAILURE
Trigger an alarm signal when the system does not record images due to an error in HDD or system.

DISK FULL
Trigger an alarm signal when the HDD is occupied with a certain percentage of its capacity. If the user sets HDD FULL as STOP RECORDING and the HDD is occupied with the certain percentage set here, NVR stops recording and the alarm trigger.

Note   The extra alarm will appear in the event log only when it is set as "ON".

4.4 Record

4.4.1. Camera Management

Users can register/delete/setup cameras by letting the NVR scan and register cameras automatically or manually search and add cameras.

[DEFAULT MODE]   [ADVANCED CONFIGURATION MODE]

SETUP
Set the camera (Please refer to "3.4 Camera Setup").

DEL
Delete the camera ("3.3. Camera Deletion").

DELETE PAGE (2)
It deletes cameras on the current page (Please refer to "3.3 Camera Deletion".)

DELETE ALL (3)
It deletes all cameras (Please refer to "3.3. Camera Deletion").

CAMERA REGISTRATION (4, 5, 6, 7)
Users can register cameras using the AUTO CONFIGURATION, DRAG & DROP CONFIGURATION and ADVANCED CONFIGURATION. (Please refer to "3.2. Camera Registration").

4.4.2. **Recording Schedule**

Set a recording schedule for each camera. Select the camera to set a schedule or "All". Recording can be set by each hour from 00 through 23 a day, for all days of the week. You can also setup a special recording mode for holidays.

NO COLOR (Off)
No recording. Even though user-set recording frames in the "CAMERA" setup menu, the system will not record anything if the user sets "OFF" in the schedule table.

YELLOW (Continuous Recording)
Record all the time as set in the "CAMERA" settings.

GREEN (Motion-Detection Recording)
The system records only when motion is detected.
If "EVNET > MOTION ALARM" is disabled, then the system will record when motion is detected but the motion alarm will not be activated.

ORANGE (Sensor-Activated Recording)
The system records only when a sensor is triggered as set in the "EVNET > SENSOR" menu.
If "EVNET > SENSOR" is disabled, then the system will record when a sensor is triggered but the sensor alarm will not be activated.

SKY BLUE (Continuous + Motion Detection Recording)
The system records continuously as set by the "RECORD > CAMERA" menu.
When motion is detected according to the settings in "EVENT > MOTION ALARM", the NVR will switch recording mode to motion configuration. If "EVNET > MOTION ALARM" is disabled, then the system will record when motion is detected but the motion alarm will not be activated.

BROWN (Continuous + Sensor-Activated Recording)
The system records continuously as set by the "RECORD > CAMERA" menu.
When a sensor is triggered according to the settings in "EVNET > SENSOR", the NVR will switch recording mode to motion configuration. If "EVNET > SENSOR" is disabled, then the system will record when a sensor is triggered but the sensor alarm will not be activated.

PINK (Motion Detection + Sensor-Activated Recording)
The system records only when motion is detected AND when a sensor is triggered at the same time.
If both "EVNET > SENSOR" and "EVENT > MOTION ALARM" is disabled, then the system will record

when a sensor is triggered, and motion is detected but neither sensor nor motion detection alarms will be activated

Note	In case the recording schedule is set by "CONT + MOT" or "MOT + SENS", the system records by continuous or motion detection mode in normal operation. However, when motion occurs in the motion area or an alarm is activated, then the recording mode will switch to recording as set by "MOTION ALARM" or "SENSOR" of the "EVENT" menu.

Note	**Dark Blue Color**
	The data recorded during DST (Daylight Saving Time) will be indicated in Dark Blue color in Intelli-Search Bar on playback mode.

HOLIDAY SETUP

Setup specific days as "holidays" in HOLIDAY SETUP to assign a special recording schedule for those days. The system supports up to 32 holidays.

Press the [DATE] button (⌨) write a description, and press [ADD] to save the data as a holiday.

Note	**Instant Recording (Emergency Recording)**
	In the case of an emergency, the user enables Instant Record by pressing the panic recording button in the menu bar. The system will instantly start recording all the channels with the full-frame rate at the maximum resolution regardless of the recording mode setting. **E-REC** will appear in live mode and a red-colored bar is shown in the time search bar for video recorded by instant recording.

RECORD 1FPS CONTINUOUS WITH 'CONT+' MODE.

Check the box to set continuous recording to 1FPS when selecting "continuous + xx" modes.

LIMIT EMERGENCY RECORDING TIME

Set a limit to how long the system will record in emergency recording mode. Select from 30sec/60sec/90sec/2min/5min/10min.

4.4.3. Quick Setup

Users can setup multiple cameras with the same recording at once.

1. Select the model or camera multi-select to setup. When selecting the 'Model' method, all cameras with the same model's name will be selected.
2. When selecting 'Camera multi-select', the user can select the camera wanted to set. If you set the desired camera to 'ON', the user can setup the settings of the cameras set to ON.
3. Click the [GET STREAM] button and get the current stream information.
4. Click the [Get INFO] button and check the current setup for the cameras.
5. Change setup and click [SAVE].
6. "CAMERAS ARE SUCCESSFULLY APPLIED" message will appear when the process is completed.

4.5   Network

NVR can be connected to the network or internet through either fixed IP or dynamic IP by the proper setting of the NVR and router.

4.5.1.   Network

NETWORK TYPE
Select either STATIC IP or DHCP for dynamic IP.
If DHCP is selected, the NVR will automatically configure the network settings according to the current network requirements. If DHCP is selected, click the 'IP DETECT' button to detect automatically all the network settings.
If Static IP is selected, manually enter all necessary network settings. For proper configuration, it is recommended to assign the NVR a DHCP address and let it auto-discover all the proper network settings, and then change the Network Type back to Static IP and save the changes

IP ADDRESS
Displays the NVR's IP address. If DHCP is selected, the IP address will automatically adjust to match the network's requirements. You can also manually change the IP address as needed.

SUBNET MASK
Subnet Mask address classifies the subnet that the system belongs to. For more information, please consult your network administrator or your internet provider.

GATEWAY
This is the IP address of the router or gateway server. It is required when connecting to the NVR through the external router over the internet (from another network). For more information, consult your network administrator or your internet provider.

DNS SERVER
Enter the IP address of the Domain Name Server. You should input the DNS Server information to use DDNS, Email notifications and NTP Server. For more information, please consult your network administrator or your internet provider.

TCP/IP PORT
Input the port number to use when connecting to the NVR locally or remotely. The default is 9010. If your ISP blocks port # 9010, you need to input another valid   port number (ex, 9020).

WEB PORT

Input the port number to use when connecting from the Web Browser. The default is 80. If your ISP blocks port # 80, you need to input another valid web port number (ex, 8080).
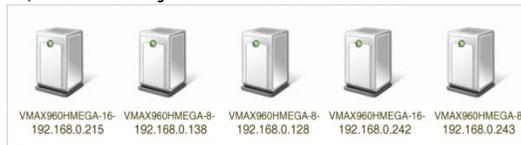
AUTO IP

Displays the system IP which is assigned through Auto-IP, automatically.

BANDWIDTH LIMIT

Depending on the setting made by the user, the system can control the data volume transmitted over a network ranging from 25 kbps up to 1Gbps. This function is effective, especially under narrow bandwidth network conditions or when the user wants to limit "network bandwidth occupied by video transmission" to a certain level. Default is 100 Mbps

USE UPnP (Universal Plug and Play)

UPnP is a plug-and-play feature that allows the NVR to be automatically discovered by a PC on the same network. To locate the NVR, go to "My Network" on your PC. The computer will scan your network for all supported devices. The first five characters of the file name of a detected NVR represent the model number, followed by the NVR's IP address

Once the PC discovered the NVR, double-click on the icon to open the NVR's web client. Enter your User ID and Password to log in and click 'Connect' to connect.

Note   The maximum number of simultaneous connections is 15 users.

POE SETTING

1. SETUP: Manually configure the IP address and subnet mask for the cameras connected directly to the NVR's PoE switch.
2. STATUS: his option decides the speed mode of the network (10Mbps or 100Mbps) at each POE port. Users can check the status of the cameras connected directly to the NVR's PoE switch and reset all PoE cameras as needed. Select from the options Auto (default), Normal, or Type-H. When cameras experience a long ping delay or connectivity issues, try settings the PoE's setting to Type-H. It is not recommended to have all ports set to Type-H.
    NOTE: this option is not available on 16CH Models. All ports work at 100Mbps mode only.

MAINTENANCE

Check the network status and setup the Mac address filter, IP address filter and HTTPS certificate.
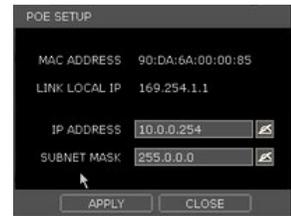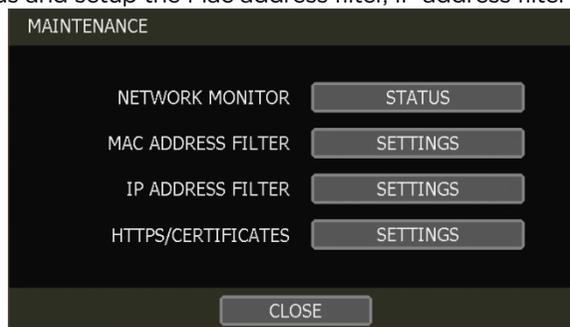
NETWORK MONITOR
Check the network status for each camera and data flow information for the NVR and cameras.

MAC ADDRESS FILTER
Blocks or allow specific Mac addresses from a C3 client or mobile app from accessing the NVR.
NOTE: This function works only on the local network and will not work on web Login.

IP ADDRESS FILTER
This function allows or blocks a specific IP address. When the user registers a specific IP address to allow, only that address can access the module. Or when the user registers a specific IP address to block, that address can't access the module. This function is not working on web Login.

HTTPS/CERTIFICATES

An HTTPS connection is recommended when accessing the NVR remotely, from another network. An HTTPS connection offers secure access through encrypted communication.

The user must register a certificate for an HTTPS connection. The NVR provides two registration methods:

- Self-signed certificate: generate a certificate at the NVR.
- External certificate: register a certificate issued through an accredited authority.

To register a self-signed certificate, click 'Generate' and fill out the information required. Fields marked with an '*' are mandatory.

Note	The NVR's time zone must be set BEFORE generating the certificate. The time on the NVR and network must match. Skipping this step may impact the validity of the generated certificate and the application time may vary.

When generating a self-signed certificate, a warning may appear when using an HTTPS connection because this certificate is not authenticated through an official authority. There is no problem with the encrypted communication whether you register the certificate to the PC or continue with the warning ignored. To access the NVR via an HTTPS connection without the warning, you can import and use the certificate issued through an accredited certification authority.

To register an external certificate, click 'Import'. Locate and upload the certificate from a USB stick.

4.5.2. DDNS

Use a public DDNS server or the DDNS server run by the NVR maker (dynlink.net).

DDNS SERVER

Digital Watchdog® offers free and dependable DDNS service support. This allows you to assign the NVR a URL address rather than a long-complicated IP Address. This simplified the connection process to the NVR. The DDNS service is supported by Digital Watchdog® and is free of charge for our customers. To setup DDNS

Input necessary information based on your network environment. And then click the [SAVE] button.

- Enable Use DDNS box
- DDNS SERVER: Select MYDWDDNS.NET or DYNLINK.NET
- TCP/IP PORT: The default is 80.
- HOSTNAME: Assign a domain name for your NVR (ex, NVROFFICE). If the same domain name is assigned, the message still pops up when you click [CHECK]. The hostname can be automatically assigned by clicking [AUTO GENERATE]

IP MAPPING and EXTERNAL IP

If you are using IP Mapping and Port Forwarding (e.g., using a router for internet connection), enable both [Use Device IP Mapping] and [Use External IP] for proper connection.

SETTING UP THE REMOTE SOFTWARE (CMS)

In the menu of [Option > Setting], input DDNS Address and Port number.
The address of the DDNS SERVER is "mydwddns.net / dynlink.net" and the Port is "80".

SETTING AT M/S I/E

Users can type the NVR's mac address + mydwddns.net / dynlink.net.
In case you are using a subdomain name, type the domain name + mydwddns.net / dynlink.net
Ex) 1. If Mac address is "00:1C: 84:01:00:02" ➔ input as http://001c84010002.mydwddns.net or "http://001c84010002.dynlink.net"
2. If the domain name is "DVROFFICE" ➔ input as "http:// DVROFFICE.mydwddns.net" or "http:// DVROFFICE.dynlink.net"

4.5.3. **Notification**

REMOTE NOTIFY
The system can send an alarm message to the IP address of a Remote Software P/C.
Select REMOTE NOTIFY to use this function and set IP address & events.

ADD / EDIT / DELETE

- IP ADDRESS: Input the IP address of the Remote Software PC which will receive events notification.

- PORT: Input the port number which is set at the Remote Software PC. The default is 8003.

- EVENT: Select events to be notified. When "ALL" is selected, all the events will be notified.

EMAIL NOTIFY
The system can send a notification to an email address. Select EMAIL NOTIFY to use this function and set email addresses and events.

ADD / EDIT / DELETE

- EMAIL: Enter the email address that will receive the events notification.
- EVENT: Select events to be notified. When "ALL" is selected, all the events will be notified.
- Outgoing mail SMTP server: Input SMTP server address.
- Your email account username: Input the email username from which the notifications are sent.
- Your email address: Input the email address from which the notifications are sent.
- Option: Set the authentication method supported by the server. There are 'None/Use Plain Auth/No Auth' options.

- Connection: Set the connection type supported by the server. There are 'Unsecure Connection/Use SSL Authentication/Use TLS Authentication' options.
- Port: Input the port number that will be used for email sending.
- Password: Input the password of the sending account.
- Interval: For email notification, select how often the system will send out an update email.
- Email test: Check if the settings were entered correctly. The DVR will send an email and inform you of the result. The SMTP server may not send an email if the email is received.
- Use SSL AUTHENTICATION: In case the SMTP server requires SSL authentication (e.g., Gmail, Yahoo mail, etc.), select this option.

Snapshot Notify: Send a live snapshot image of a selected channel to the email address. You can setup the notification to be sent periodically, every setup amount of time.

- SENDER Setting (SMTP): Enter the sender settings
- Need to set the sender to send an email notification.
- Outgoing mail SMTP server: Input SMTP server address
- PORT: Input the port number that will be used for email sending.
- Email Account Username: Input the username of the sending account (your email).
- PASSWORD: Input the password of the sending account.
- FROM: Input the sender's email address.
- EMAIL TEST: Check if the settings were entered correctly. The NVR will send an email and inform you of the result. The SMTP server may not send an email if the email is received.

- Use SSL AUTHENTICATION: Incase the SMTP server requires SSL authentication (e.g., Gmail, Yahoomail, etc.), select this option.

| Note | Configuration priority is always on the "RECORD > SCHEDULE" menu. Thus, the system will not email alarm messages upon motion alarm or sensor even though the checkbox of the above event is checked. To receive motion and sensor email notifications, set the "SCHEDULE > RECORD", "EVENT > MOTION ALARM" and "EVENT > SENSOR" accordingly. |

4.5.4. **Mobile Push**

The system can send an event notification to the mobile device registered in the DVR.
The mobile app DW Mobile Plus™ must be installed on your smartphone device before registration.
Select USE MOBILE NOTIFY to use this function and select the event to notify.

In the mobile app, add your DVR using the IP address or DDNS by clicking the + sign on the top right side of the app.

Once the site has been added to the device list on the app, highlight the DVR in the list and press the Setup button on the bottom right side of the app. Make sure USE PUSH CHECK is enabled.

The mobile device's ID will appear in the Mobile Notify table in the DVR.

NOTE	1. The mobile Push Notification function is available with iPhone, iPad & Android devices. 2. Registration for Mobile Push Notification is available when it is set on the mobile device. 3. The deletion of the list will be available when you click the DELETE button in the DVR menu or when you select to disable the Push Notify function on the mobile device. 4. The maximum number of mobile devices is 50.

- Delete: When the mobile device is registered to the DVR correctly, it shows on the list. The device ID is a unique ID of the mobile device. If you want to delete it, select the device and click the Delete button. Then, the push notification setup in the mobile device will be disabled.
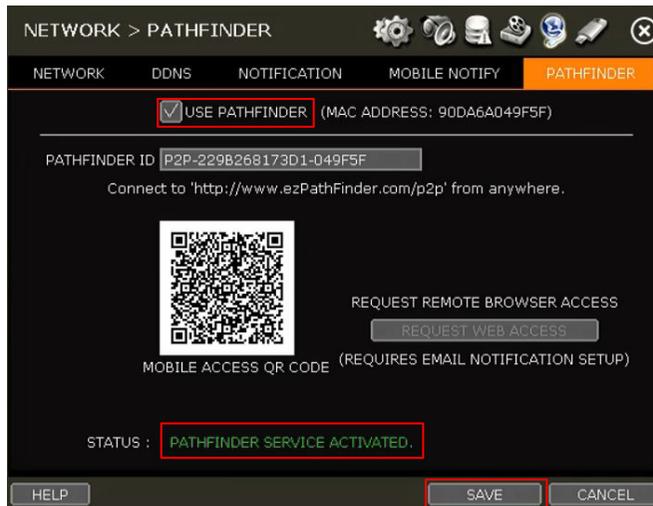
NOTE	Push Notification only works when the DVR & mobile device has a network connection to the internet.

4.5.5. PathFinder™

The system supports QR reading. When the PathFinder Use is selected, the PathFinder service is being used.

QR code menu (PATHFINDER service is not in use)

QR code menu (PATHFINDER service is in use)

When users scan the QR code with DW's mobile application (DW Mobile Plus™), they can easily register the system and monitor it. Users can also check the PathFinder status for their devices at the bottom of the screen. STATUS will display "PATHFINDER SERVICE IS STOPPED" or "PATHFINDER SERVICE ACTIVATED" according to the system's status.

4.6   Export

4.6.1.   Manual Export

Users can easily archive videos while viewing the video playback.
1.   In live mode, click the [EXPORT] icon in the menu bar to open the backup menu.
2.   In playback mode, press the [QUICK EXPORT] icon in the menu bar. Pressing it once will indicate the start time for the backup file. Click the icon again to indicate the end time for the backup clip. The backup menu screen will appear.


3.   Connect an appropriate USB memory drive and press [SCAN] to recognize it before starting the backup process.
4.   Adjust the following options as needed:
   a.   Select the channels to be included in the backup file.
   b.   Adjust the start and end times of the backup file.
   c.   Select to include the Backup Viewer with the archived file.
   d.   Press the 'Estimate' button to see the expected size of the backup file.
   e.   Check the box next to [ADD VIEWER] to add the backup player to the backup file. The backup player allows us to play the video clip without installing any programs.
   f.   Edit the file name and add a protection password if needed.
   g.   Press 'Start' to start the backup process. A progress bar will appear on the screen.

| NOTE	A user, who is not an ADMIN user, can access the Export menu only when the user has both the Export function and menu access authorization.

4.6.2. Backup Video Playback

If [ADD VIEWER] is selected, the backup image can be reviewed on a PC with no need for additional installation. Once the backup device (USB, CD/DVD.) is connected to a PC, the files will appear in the USB's folder.

To play recorded data, double click the "MultiBackupPlayer.exe" file. In the backup player, open the video data file (SSF format) you wish to playback in the data folder.
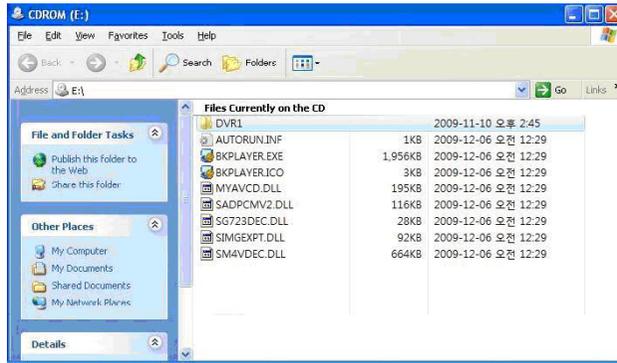
To playback a single channel, click the [SINGLE CH] tab (①) and select an SSF file to playback and drag it to the viewing area. To playback, multiple channels, click the [MULTI CH] tab and 'Search" to open the folder that keeps all SSF files.
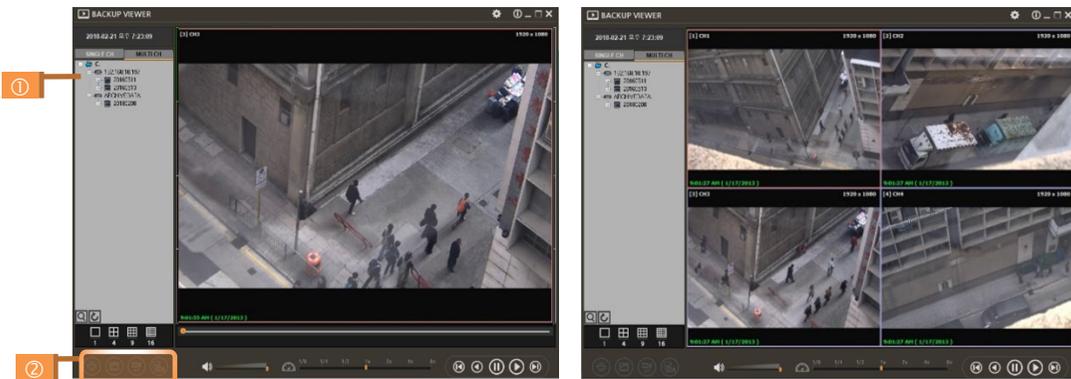

You can print, export an image, and zoom by using the icons (②) at the bottom-left of the player window.

Option MENU
Various settings are available in the OPTIONS window of the backup player software.


- **Use DirectDraw**
- Some PCs do not support "Direct Draw". In this case, the user can uncheck the DirectDraw checkbox in the "Option" menu.
- **Show Image Info on Snapshot**
- The image information will be added as a text overlay when exporting an image.
- **Show POS Data on the video channel**
- POS data that has been backed up can be displayed during playback.
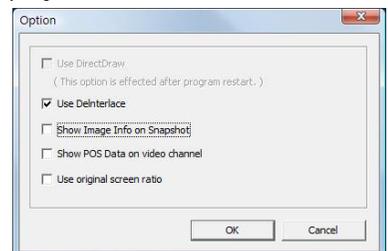
WATERMARK Verification on AVI File

Convert the backup file to an AVI file to play the file in ordinary media players.

1. Playback the SSF file in Single CH mode and click [Pause].
2. Click [AVI Convert].
3. Define the start and end times.
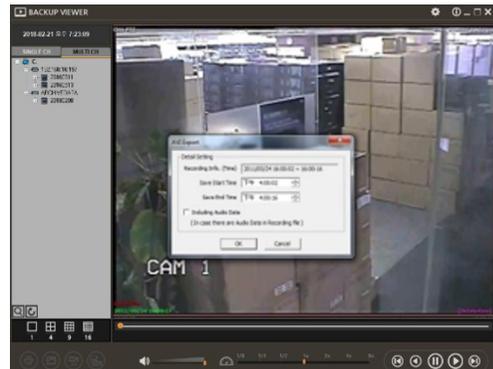
When the AVI file is played back in the BackupPlayer, verify whether the file has been altered or not

by pressing the [Watermark] button ( ). If the file has been altered, a popup message will appear
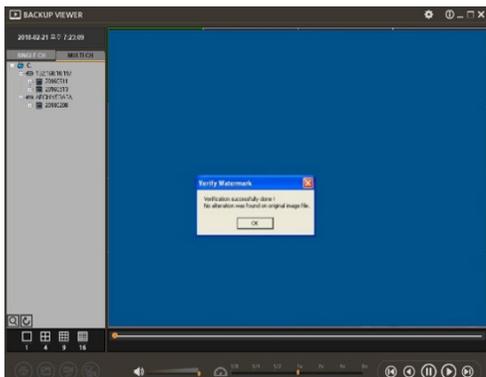
| No alteration was found | AVI video clip has been altered |

5. Web Surveillance through Internet Explorer

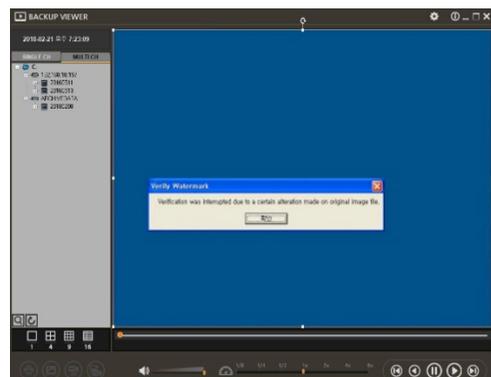The VMAX IP Plus has a built-in web server by itself. This allows you to access the system by an ordinary web browser via the network for live monitoring, playback, or remote configuration without installing any additional software.

5.1   Web Login

On an Internet Explorer page, type the NVR's IP Address or DDNS address in the address bar. When the login page appears, enter the user ID and password. Once you are connected to the NVR, you will be prompted to download and install the Active-X file.

Active-X Installation
1. If the P/C doesn't have Active-X installed, an installation guide message will appear automatically.
2. Click 'install' and follow the installation wizard to complete the ActiveX installation.

3. To avoid download restrictions for the Active X file, make sure that Active X controls are enabled in the web browser's security settings. Go to "Tools > Internet Options > Security > Internet > Custom Level" and enable all Active-X controls and plug-in.
4. Failing to install the Active X files properly may result in no video showing from the NVR.

5.2 Web Monitoring

Once the Active X files are installed, the live view from the NVR will appear on the web page automatically. Users can select other menus such as PLAYBACK and SETUP, or LOGOUT.
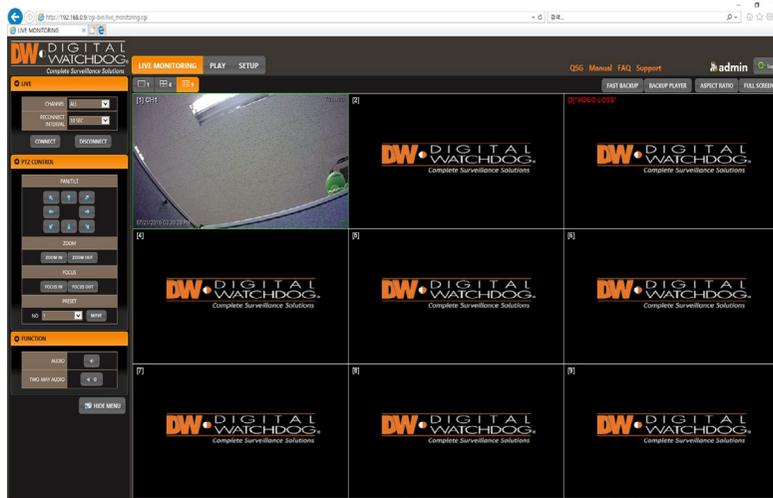
LIVE
Users can select which channels to view in live mode, set the reconnection time interval in case of connection loss, and connect or disconnect all channels.

PTZ CONTROL
Users can control Pan/Tilt, Zoom In/Out, Focus In/Out and Preset buttons to control PTZ cameras connected to the NVR.

FUNCTION
Enable or disable audio from the camera.
Enabled or disabled interlace function to improve image quality.

HIDE /SHOW MENU
To hide the menu bar, press the "HIDE MENU" button. To view the menu bar again, press the "SHOW MENU" button.

POP-UP MENU
Right-click to open additional options:
- Display Mode: change the current split-view option from 1x, 4x, 9x, or 16x options.
- Fullscreen: View the current split view in the full-screen view. Right-click anywhere on the screen to exit the full-screen view.
- Display TRANS. VERI: show Transaction Verification text.
- Original Screen Ratio: view the cameras in their original aspect ratio.
- Archive: Back up a clip to your PC. Click the screen once to start the backup. Select the directory where you want the files to be stored. Click the Archive option again to end the backup process. A popup screen will ask you to save the archive or not.
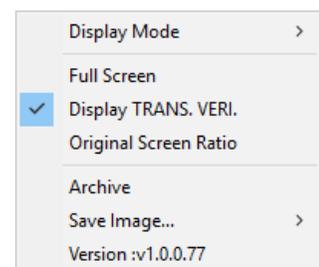
ASPECT RATIO
Manually select the size ratio of the image either the original ratio or monitor ratio.

FULLSCREEN
Users can change the view to full screen. Right-click on the screen to exit full-screen mode.

5.3 Web Playback

To remotely playback video from the NVR, click "PLAY" on the top of the window.

PLAYBACK TIME
Select the date and time and click "GO" to view the video from the selected time.

PLAYBACK ICON
Use the Fast Forward, Rewind and Play/ Pause buttons to control the playback video.

PLAY DST
Check this box to play overlapped images during DST (Daylight Saving Time) period.
For details, please refer to Section "3.11.DST Setting and Image Playback" menu.
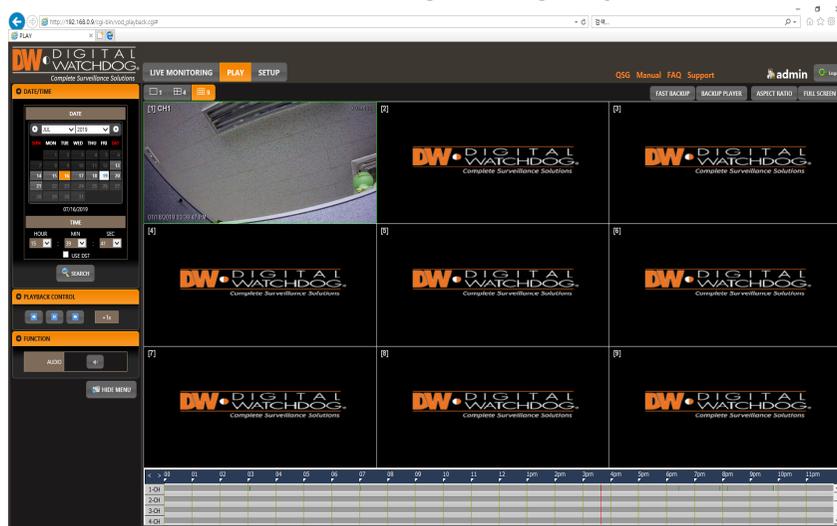
INTELLI-SEARCH BAR
Move the red-vertical line to the time that the user wants to search. The colors of the time bar indicate the different recording modes. Refer to "4.4.2" for more information.

5.4   **Setup**

[Menu of Setup]

Main Classification	Sub Classification
SYSTEM	INFORMATION
	USER
	DISPLAY
	HDD
	UPGRADE
	CONFIGURATION
DEVICE	CAMERA
	AUDIO
	KEYBOARD
EVENT	SENSOR
	CAMERA ALARM
	EXTRA ALARM
RECORD	CAMERA MANAGEMENT
	REGISTRATION
	SCHEDULE
NETWORK	NETWORK
	DDNS
	NOTIFICATION
	HTTPS/CERTIFICATES
	CERTIFICATE
LOG	SYSTEM LOG
	EVENT LOG
	ELEVATOR LOG
	VIDEO ANALYTICS LOG

Note   This NVR system has a built-in web server.
Therefore, this web CGI screen is directly supported by the built-in web server of NVR
regardless of the Internet connection.

Note   <**System Reboot**> enables the user to reboot the system without any change to the setup.
Users can use this function when the network is disconnected due to abnormal operation of
the system and try to reconnect. IP number assigned to the system may be changed in the
case of DHCP mode.

6. Web Surveillance through Browsers (other than Internet Explorer)

6.1 Web Login

When accessing the unit from a web browser other than Internet Explorer (Chrome, Safari, etc.), enter the NVR's IP Address or DDNS address in the address bar. When the login page appears, enter the user ID and password.
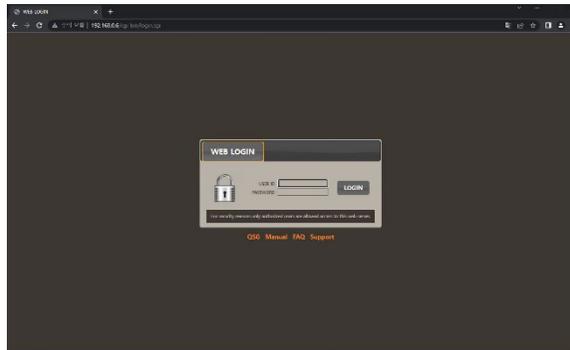
6.2 Web Monitoring

After login, the live view from the NVR will appear on the web page automatically. Users can also select Playback, Setup, QSG, Manual, FAQ, Support, or Logout.
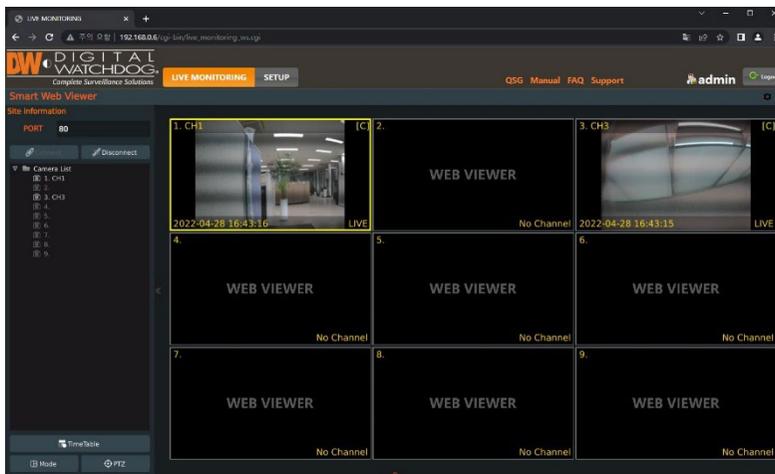
LIVE
Users can connect or disconnect all channels and select a specific channel to view in live or playback mode.

TIME TABLE
Users can open the timetable and playback at any time they want.

MODE
Users can change screen mode.

PTZ
Users can control Pan/Tilt, Zoom In/Out, Focus In/Out and Preset buttons to control PTZ cameras connected to the NVR.

POP-UP MENU
Right-click to open additional options:
- Close all Channels: Close all channels
- Close the selected channels: Close the selected channels.
- Go To Live / Playback: Change to Live or Playback mode.
- Panoramic View: Change to screen mode to horizontal, vertical, or quad-screen mode.
- Stream Type: Set the stream type. (Auto / 1st/ 2nd)
- Show Text: Set the information to display. (Channel title / Mode [Live/Playback] / Date / Time / Resolution)
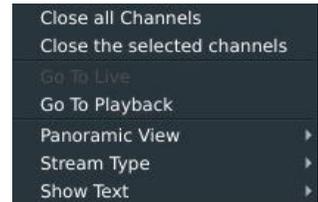
6.3 Web Playback

To remotely playback video from the NVR, click time table or [Go To Playback] from the pop-up menu.

PLAYBACK TIME
Select the date and time from the timetable.

6.4 Setup

[Menu of Setup]

Main Classification	Sub Classification
SYSTEM	INFORMATION
	USER
	DISPLAY
	HDD
	UPGRADE
	CONFIGURATION

DEVICE	CAMERA
	AUDIO
	KEYBOARD
EVENT	SENSOR
	CAMERA ALARM
	EXTRA ALARM
RECORD	CAMERA MANAGEMENT
	REGISTRATION
	SCHEDULE
NETWORK	NETWORK
	DDNS
	NOTIFICATION
	P2P
	HTTPS/CERTIFICATES
	CERTIFICATE GENERATION
	CERTIFICATE IMPORT
LOG	SYSTEM LOG
	EVENT LOG
	VIDEO ANALYTICS LOG
	IVA LOG

7. Q & A

1. NVR does not record images in sensor mode and/or motion mode.
1) It records images only when there is an event for the corresponding mode.
2) Check that the settings are correct in the menus: [Event > Sensor],
   [Event > Motion Alarm], and [Record > Schedule].

2. There is an HDD installed but the "No HDD" icon () is still shown on the screen.
1) Check the cable connection of the HDD again.
2) If you can see the HDD list at [System > HDD] but the capacity indicates "0", the HDD requires format.

3. There is nothing displayed on the HDMI / VGA monitor though electric power is supplied to the NVR.
1) Check if the power is supplied properly. You should be able to hear the noise from the fan and HDD operation.
2) Check the HDMI / VGA cable connection with the NVR. Remove all the cable connections, except for the monitor cable, and then apply power to the NVR again.
3) In case the display screen is stopped at the logo screen, please contact Digital Watchdog's technical support for additional information.

4. Is it necessary to open the port when using DDNS?
Yes, it is. DDNS is the function that lets remote connections acknowledge the changed address of the NVR (dynamic IP provided by ISP) or allow connection to the NVR by the domain (domain.dynlink.net) without memorizing IP.

5. The remote software connection to the NVR works fine but the WEB connection doesn't work.
1) Some ISP blocks port number 80. Please try again after changing the WEB port.
   (8080 is recommended.)
2) Check whether port 80 is opened or not.

6. Image is not shown after login at WEB monitoring
TCP Base port should be opened. The default of the TCP base port is 9010.

7. **The image on the remote software has suddenly disappeared after displaying it for a brief time.**
    1) Some ISPs restrict upload data/traffic volume. Please contact your ISP.
    2) Upload traffic restrictions can be easily checked with the following steps.
        > Turn off the power of your Modem & Router.
        > After 60seconds, turn on the power of your Modem first and then Router.
        > After reconnection, if it is disconnected again after a brief time (in a similar period later), it means that the ISP restricts upload traffic.

8. **A backup or firmware upgrade through a USB memory stick cannot be made though it is detected by the NVR.**
    1) USB memory stick should be formatted by FAT or FAT 32.
    2) It is not allowed to use a partitioned or password-encoded USB memory.

9. **Time sync through the NTP server does not work.**
    The NTP server requires a DNS server address. Check if the DNS server address is correct at the [Network] setup page.

10. **Email transmission does not work in using the Email to notify function.**
    1) The Email notification function works based on the SMTP service.
    2) Check if the sending mail address is correct and if the mail server supports the SMTP service.
    3) If you are using an SMTP service that is based on TLS authentication (including SSL) such as Gmail and yahoo mail, enable [Use SSL Authentication] at the [Notification] setup page.
    4) SMTP service is provided based on DNS. Check if the DNS server address is correct at the [Network] setup page.

DW

8. Specifications

MODELS		DW-VP9xT4P	DW-VP12xT8P	DW-VP16xT16P
Operating system		Embedded Linux®		
System	channel	9 channels	12 channels	16 channels
	No. of PoE	4 Ch	8 Ch	16Ch
	Supported resolution	IP cameras maximum 4K (3840×2160)		
	Communication protocol	ONVIF®		
	PoE type	100Mbps, 802.3af		
Local display output	Speed	270fps	360fps	480fps
	Screen mode	1, 4 and 9	1, 4, 9 and 12	1, 4, 9 and 16
	Monitor	True HD and VGA		
	Resolution	1024x768, 1280x720, 1280x1024, 1920x1080, 2560x1600, 3840×2160 (4K)		
Recording speed		Up to 270fps up to 4K resolution	Up to 360fps up to 4K resolution	Up to 480fps up to 4K resolution
Max. throughput		80 Mbps	80 Mbps	160 Mbps
Max. HDD Bay		1 x SATA HDD	4 x SATA HDD	4 x SATA HDD
Max. storage		12TB	24TB	24TB
Recording resolution		Dual-stream		
Recording modes		Continuous, C+M, C+S, scheduled, sensor and motion detection recording		
		Pre-alarm recording, emergency recording, quick backup		
Playback and search	Speed	x1, x2, x4, x8, x16, x32		
	Function	Intelli-search by time bar, calendar (date and time) and event search		
Audio input / output		1 Ch output	1 Ch output	1 Ch output
Alarm input / relay output		4 Ch / 1 Ch	16 Ch / 4 Ch	16 Ch / 4 Ch
PTZ control		RS-485, ONVIF		
Transaction verification		TCP and USB-serial interface		
LAN		1x Gigabit Ethernet (RJ45) – fixed IP, DHCP and DDNS		
Access	Web viewer	Live, playback and configuration of up to 10 multiple connections		
	Client monitoring software	Mac® (Apple® S/W), C3™ (CMS S/W), myDW® web portal and mobile app		
Backup device		Local backup by USB, network backup by CMS		
System recovery after power failure		Auto-reboot and journaling file system		
Other function	Firmware upgrade	FTP, USB		
	Back-up	Remote, USB		
	Special features	Local PoE switch		
	Mobile client	DW Mobile Plus™ app for Apple® and Android® smartphones and tablets		

	Health check	Real-time system, network and PoE status monitoring		
System operation		IR remote controller (optional), USB mouse, PTZ control by keyboard (optional)		
Power requirements		48V DC	110~240V A/C	110~240V A/C
Power consumption		90W total power budget, 1.875A 19W per PoE channel (simultaneous)	360 W total power budget, 5.5A, 18.75W per PoE channel (simultaneous)	300 W total power budget, 5.5A, 9.37W per PoE channel (simultaneous)
Total PoE power budget		76W	150W	150W
Maximum power per port		30W	30W	30W
Operating temperature and humidity		41~104 °F (5~40 °C) / 20~90% RH		
Dimension (W x D x H)		14.96" x 12.4" x 2.02" (380 × 315 × 51.5 mm), 1U	17.32" x 15.66" x 2.79" (440 × 397.8 ×70 mm), 1.5U	17.32" x 15.66" x 2.79" (440 × 397.8 ×70 mm), 1.5U
Certification		CE, FCC, KCC, WEEE, RoHS		
Warranty		5 year limited		

* Specifications are subject to change without notice.

9. Warranty Information

Go to https://digital-watchdog.com/page/rma-landing-page/ to learn more about Digital Watchdog's warranty and RMA.

To obtain warranty or out of warranty service, please contact a technical support representative at: 1+ (866) 446-3595, Monday through Friday from 9:00 AM to 8:00 PM EST.

A purchase receipt or other proof of the date of the original purchase is needed before warranty service is rendered. This warranty only covers failures due to defects in materials and workmanship which arise during normal use. This warranty does not cover damages that occur in shipment or failures which are caused by products not supplied by the Warrantor or failures which result from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, modification, faulty installation, setup adjustments, improper antenna, inadequate signal pickup, maladjustments of consumer controls, improper operation, power line surge, improper voltage supply, lightning damage, rental use of the product or service by anyone other than an authorized repair facility or damage that is attributable to acts of God.

10. Limits and Exclusions

There are no express warranties except as listed above. The Warrantor will not be liable for incidental or consequential damages (including without limitation, damage to recording media) resulting from the use of these products or arising out of any breach of the warranty. All express and implied warranties, including the warranties of merchantability and fitness for a particular purpose, are limited to the applicable warranty period set forth above.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights from vary from state to state.
If the problem is not handled to your satisfaction, then write to the following address:
Digital Watchdog, Inc.
ATTN: RMA Department
16220 Bloomfield Ave
Cerritos, CA 90703

Service calls that do not involve defective materials or workmanship as determined by the Warrantor, in its sole discretion, are not covered. The cost of such service calls is the responsibility of the purchaser.

DW.

DW® East Coast office and warehouse: 5436 W Crenshaw St, Tampa, FL USA 33634
DW® West Coast office and warehouse: 16220 Bloomfield Ave, Cerritos, CA USA 90703
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www.Digital-Watchdog.com
technicalsupport@digital-watchdog.com
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International 1+ 813-888-9555
French Canadian: + 1-904-999-1309
Technical Support Hours: Monday-Friday 9 a.m. to 8 p.m. Eastern Time