WISENET

NETWORK VIDEO RECORDER

User Manual

TRM-1610S
TRM-1610M

Network Video Recorder
User Manual

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Disclaimer

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❖ **Design and specifications are subject to change without prior notice.**

❖ **The initial administrator ID is "admin" and the password should be set when logging in for the first time.**
Please change your password every three months to safely protect personal information and to prevent the damage of the information theft.
Please, take note that it's a user's responsibility for the security and any other problems caused by mismanaging a password.

IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully before using the unit.
Follow all the safety instructions listed below.
Keep these operating instructions handy for future reference.

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean the contaminated area on the product surface with a soft, dry cloth or a damp cloth. (Do not use a detergent or cosmetic products that contain alcohol, solvents or surfactants or oil constituents as they may deform or cause damage to the product.)
7) Do not block any ventilation openings, Install in accordance with the manufacturer's instructions.
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding- type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. if the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11) Only use attachments/accessories specified by the manufacturer.
12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Standards Approvals

- Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
  This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

BEFORE START

This manual provides operational information necessary for using the product and contains a description about each component part and its function as well as menu or network settings.
You have to keep in mind the following notices :

- Hanwha Techwin retains the copyright on this manual.
- This manual cannot be copied without Hanwha Techwin's prior written approval.
- We are not liable for any or all losses to the product incurred by your use of non-standard product or violation of instructions mentioned in this manual.
- Prior to opening the case, please consult a qualified technician first. Whenever this is needed power must be removed from the unit.
- Before adding a hard disk drive or external storage (USB memory, USB HDD, etc), check if it is compliant with this product. For the compatibility list, contact the retailer.

Warning

Battery

The following are the specifications of the battery you are using now.

- Normal capacity : 3mA
- Continuous standard load : 0.015mA
- Operating temperature : -40°C ~ 85°C (-40°F ~ +176°F)

CALIFORNIA USA ONLY
This Perchlorate warning applies only to primary CR (Manganese Dioxide) Lithium coin cells in the product sold or distributed ONLY in California USA.
"Perchlorate Material - special handling may apply,
See www.dtsc.ca.gov/hazardouswaste/perchlorate."

Caution

- Connect the power cord into a grounded outlet.
- The Mains plug is used as a disconnect device and shall stay readily operable at any time.
- Batteries shall not be exposed to excessive heat such as sunshine, fire or the like.
- Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions.

System Shutdown

Turning off the power while the product is in operation, or undertaking improper actions may cause damage or malfunction to the hard drive or the product.
To safely power off, select Exit from the menu and click <**OK**> on the pop-up screen, then unplug the power cable.
You may want to install a UPS system for safe operation in order to prevent damage caused by an unexpected power stoppage. (Any questions concerning UPS, consult your UPS retailer.)

- If powered off abnormally, restarting may take more time for restoring data from hard disk drive for proper operation.

Operating Temperature

If left unused for an extended period of time at low temperatures of -40°C to 70°C(-40°F ~ 158°F) (when an industrial SSD is used), the heater operation time will increase.
As the operating temperature of the hard disk is 5°C to 55°C(41°F ~ 131°F), be careful to avoid using the product in low temperature conditions as it may cause HDD damage.

Ethernet Port

This equipment is in door use and all the communication wirings are limited to inside of the building.

Security Precautions

The initial administrator ID is "**admin**" and the password should be set when logging in for the first time.
Please change your password every three months to safely protect personal information and to prevent the damage of the information theft.
Please, take note that it's a user's responsibility for the security and any other problems caused by mismanaging a password.

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FEATURES

The product records video and audio from network cameras to a hard disk, and enables playback from the hard disk. It also provides remote monitoring environment for video and audio over the network using a remote computer.

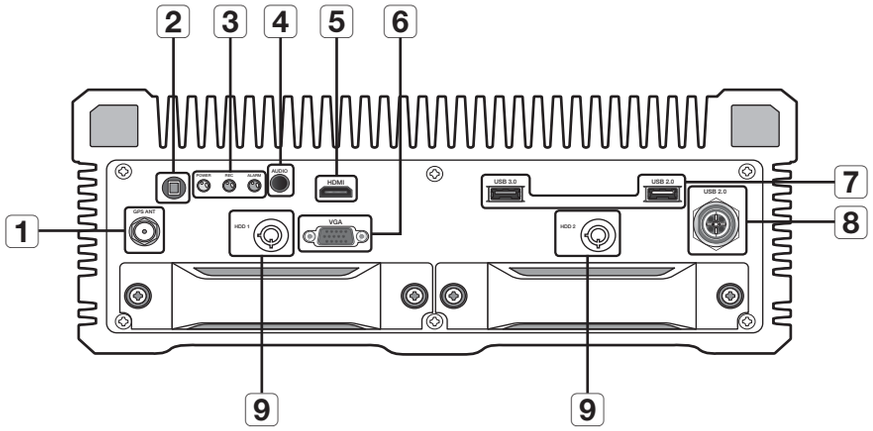
- User-friendly UI
- Supports a range of 4K camera resolutions (3840X2160, 4096X2160, 4000X3000)
- Outputs a 4K high definition image using HDMI
- Record and play video
- Record and play audio
- Supports ONVIF Profile S standard and RTP / RTSP protocols
- Display the HDD operation status by HDD SMART
- HDD overwrite enabled
- Backup using USB 2.0, 3.0 protocols and external HDD
- Simultaneous play of 16 channels
- Various Search Modes (Time, Event, Smart Search)
- Various Recording Modes (Normal, Event, Scheduled Recording, Emergency recording)
- Alarm Input / Output
- Remote Monitoring function by Windows Network Viewer
- Live monitoring of the network camera
- Installation Wizard Function (Easy Setup, Quick Setup)

Package Contents

Please unwrap the product, and place the product on a flat place or in the place to be installed.
Please check the following contents are included in addition to the main unit.

NVR	Power cable	Network Viewer Software / User Manual CD
User Manual or Quick Manual	Wi-Fi antenna	Mounting bracket
Screw for bracket assembly	Mounting screws	HDD fixing screws
HDD lock key	M12 to USB cable	GPS antenna
Control box	Control box connection cable	Alarm cable

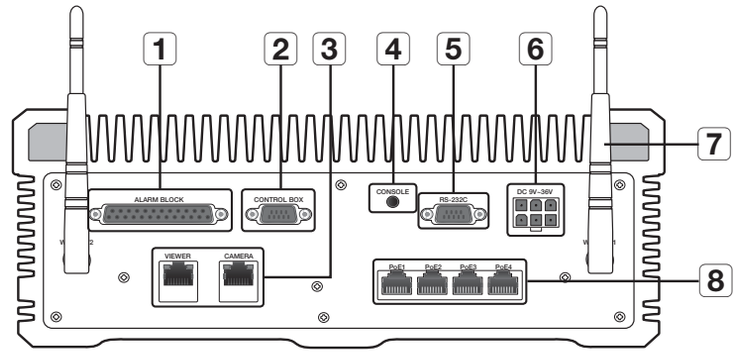
PART NAMES AND FUNCTIONS (FRONT)



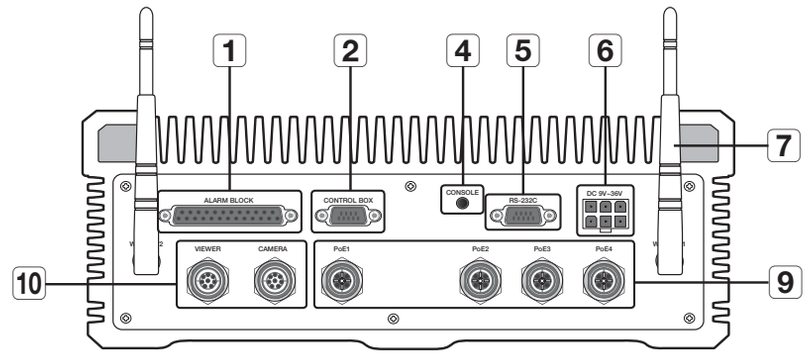
Part Names		Functions
1	GPS ANT	Connects the GPS antenna.
2	Power Switch	As the switch is a push type, it is turned off when it is pushed. While it is on, if it is pressed and held for 5 seconds, the system will stabilize and then turn off automatically. (Maximum 60 seconds) ■ If the ACC yellow line on the power cable is not connected to the power or to the car's ACC terminal, the power will not turn on.
3	LED lamp	**POWER** : Shows the power On/Off status.
		REC : Turned on when recording is in progress.
		ALARM : Turned on when an event occurs.
4	AUDIO	Voice signal output terminal (earphone jack).
5	HDMI	HDMI video output terminal.
6	VGA	VGA video output terminal.
7	USB	Used to connect a USB type device. (USB 2.0, USB 3.0)
8	USB 2.0	This is an M12 type, and is connected with a USB device.
9	HDD door lock key	This is a lock device to restrict access to the hard disk. Use the key that was provided with the product.

PART NAMES AND FUNCTIONS (REAR)

TRM-1610S



TRM-1610M

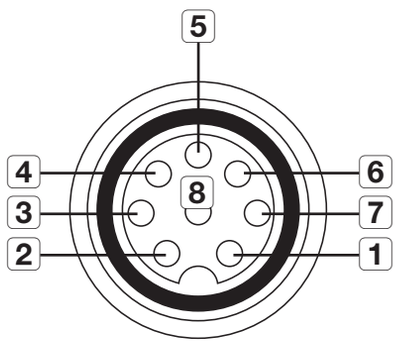


Part Names		Functions
1	ALARM BLOCK	Alarm input/output terminal. ■ The Alarm Block consists of six inputs and six outputs, and is connected externally via the supplied alarm cable. Each output consists of an open collector circuit.
2	CONTROL BOX	Terminal to connect control box.
3	NETWORK	**VIEWER** : Port recommended for connection with a network, web viewer.
		CAMERA : Port recommended for camera connection, which receives an image from the camera.
4	CONSOLE	Console is designed for the service repair purpose only.
5	RS-232C	Cable terminal for serial communication.
6	DC 9V~36V	Terminal to connect power. Use the power cable that was provided with the product.
7	Wi-Fi Antenna	Antenna for Wi-Fi use. Connect and use the antenna that was provided with the product.

Part Names		Functions
8	PoE	Power supply port to connect camera. ▪ The maximum power supply of PoE1 - PoE4 is 32W. ▪ Please connect/install the camera in a manner that ensures that 32W is not exceeded. ▪ When 32W is exceeded, the power of the last connected PoE is turned off. ▪ If the power consumption of cameras connected to the set (eg., PoE1 - PoE4) is less than 24W, PoE cameras can be connected to the powered-off port.
9	M12 PoE	This is an M12 type port, and is a power supply port for connection to a camera.
10	M12 Network	This is an M12 type port, and is a terminal to connect to the network.
		CAMERA : Port recommended for camera connection, which receives an image from the camera.
		VIEWER : Port recommended for connection with a network, web viewer.

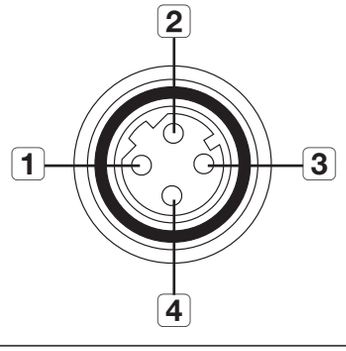
HOW TO CHECK M12 TERMINAL PINS

Gigabit Ethernet (M12 8pin A-Code Pinout)



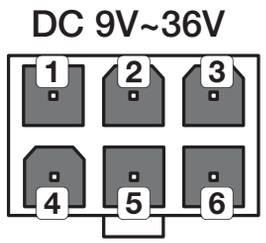
1	pin - 1	Orange - White	TX_D1+	RJ-45 pin 1
2	pin - 2	Orange	TX_D1-	RJ-45 pin 2
3	pin - 3	Green - White	RX_D2+	RJ-45 pin 3
4	pin - 4	Green	RX_D2-	RJ-45 pin 6
5	pin - 5	Brown - White	BI_D4+	RJ-45 pin 7
6	pin - 6	Brown	BI_D4-	RJ-45 pin 8
7	pin - 7	Blue - White	BI_D3-	RJ-45 pin 5
8	pin - 8	Blue	BI_D3+	RJ-45 pin 4

PoE (M12 4pin D-Code Pinout)



1	pin - 1	Orange - White	TX_D+	RJ-45 pin 1
2	pin - 2	Green - White	RX_D+	RJ-45 pin 3
3	pin - 3	Orange	TX_D-	RJ-45 pin 2
4	pin - 4	Green	RX_D-	RJ-45 pin 6

DC POWER CONNECTOR WIRING DIAGRAM

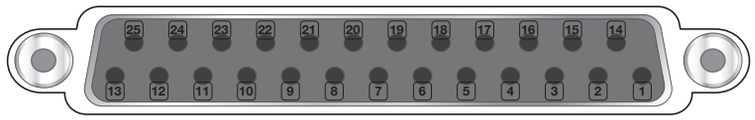


1	GND	Ground signal of the set.
2		
3		
4	PWR (DC_IN)	It receives DC 9 - 36V input as the power signal of the set.
5		
6	ACC	This is a terminal to connect to the car's ACC power. When the ACC power is on, the set operates.

! ▪ If the ACC yellow line on the power cable is not connected to the power or the car's ACC terminal, the power will not turn on.

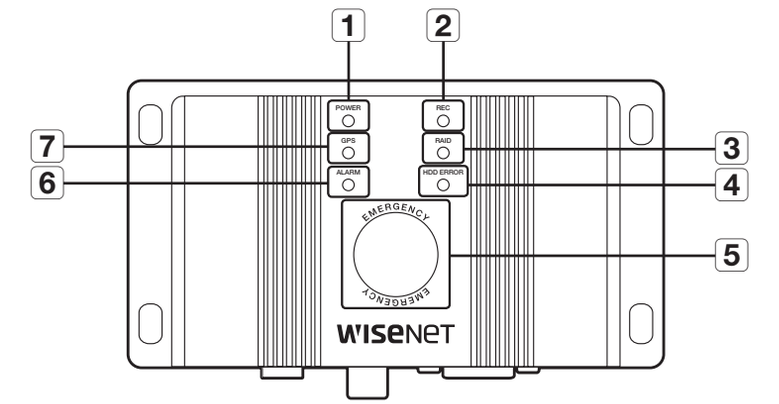
ALARM INPUT/OUTPUT WIRING DIAGRAM

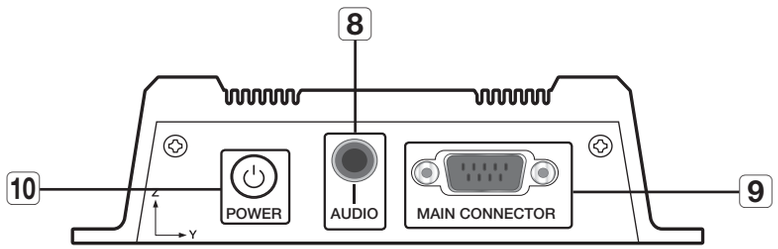
ALARM BLOCK



1	Alarm In 1	8	Alarm In 8	15	Alarm In 14	22	Alarm Out 4
2	Alarm In 2	9	Alarm In 9	16	Alarm In 15	23	Alarm Out 5
3	Alarm In 3	10	Alarm In 10	17	Alarm In 16	24	Alarm Out 6
4	Alarm In 4	11	Alarm In 11	18	GND	25	GND
5	Alarm In 5	12	Alarm In 12	19	Alarm Out 1		
6	Alarm In 6	13	Alarm In 13	20	Alarm Out 2		
7	Alarm In 7	14	GND	21	Alarm Out 3		

CONTROL BOX NAME AND FUNCTION





Part Names		Functions
1	POWER	Shows the power status. ■ In a delayed boot state, the LED blinks until the system starts up.
2	REC	Shows the REC status. ■ LED blinks during emergency recording.
3	RAID	Shows the RAID status. ■ When the RAID is OK, the LED is on. The LED blinks when RAID is in a Degraded or Rebuilding state. The LED is off when RAID is unused or in RAID Fail.
4	HDD ERROR	Shows HDD error. ■ When HDD is checked, replaced, or there is RAID Fail, the LED illuminates.
5	EMERGENCY	Performs emergency recording. ■ The REC LED blinks when recording is in progress. You can set an alarm occurrence to indicate that emergency recording is on/off. For emergency recording buzzer setting, refer to "**Settings**". (page 28)

Part Names		Functions
6	ALARM	Shows the alarm status.
7	GPS	Shows GPS reception status. ■ The LED is off before GPS reception is active. If the GPS reception is good, the LED illuminates. If the GPS reception is poor, the LED blinks.
8	AUDIO	Outputs audio to the RCA jack.
9	MAIN CONNECTOR	Connected to the main unit via the control box connecting cable.
10	POWER	As the switch is a push type, it is turned off when it is pushed. While it is on, if it is pressed and held for 5 seconds, the system will stabilize and then turn off automatically.

installation

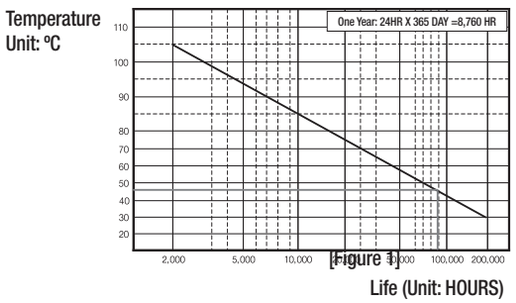
Please take note of the followings before using this product.

- Do not use the product outdoor.
- Do not spill water or liquid in the connection part of the product.
- Do not impose the system to excessive shock or force.
- Do not pull out the power plug forcefully.
- Do not disassemble the product on your own.
- Do not exceed the rated input/output range.
- Use a certified power cord only.
- For the product with an input ground, use a grounded power plug.
- Do not move the product using the HDD bracket handle on the front of the product as it may cause damage to the HDD.

CHECKING THE INSTALLATION ENVIRONMENT

This product is a top-notch security device that is equipped with a high-capacity HDD and other key circuit boards.

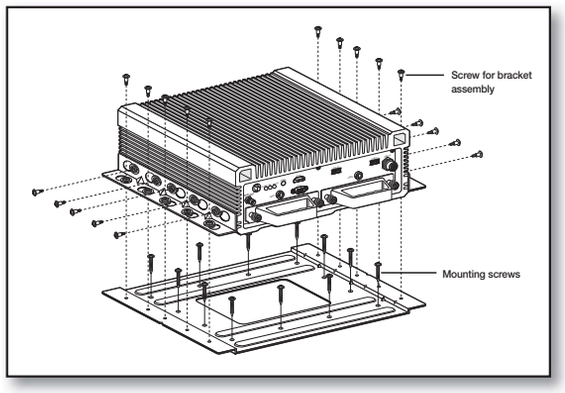
Note that an excessive internal temperature of the product may cause a system failure or a shortened product life (see the right figure). Keep in mind the following instructions before installing the product.



[Figure 1]

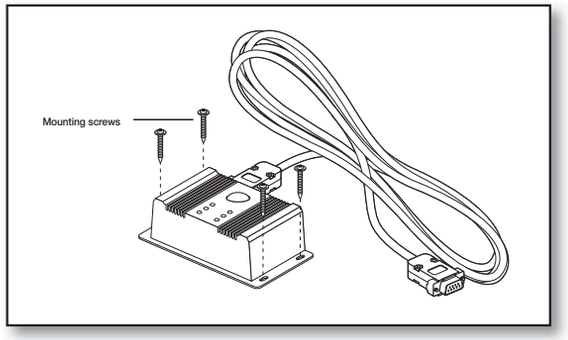
HOW TO INSTALL THE BRACKET

1. After removing the product from the box, disconnect the bottom bracket by removing the bracket assembly screws (10 pieces), as shown in the figure.
2. Place the floor bracket on a flat surface and fasten it with the mounting screws (12 pieces) included in the product, as shown in the figure.
3. Reassemble the main unit and floor bracket.
   - This is a shock absorber to protect the HDD from vehicle vibration.



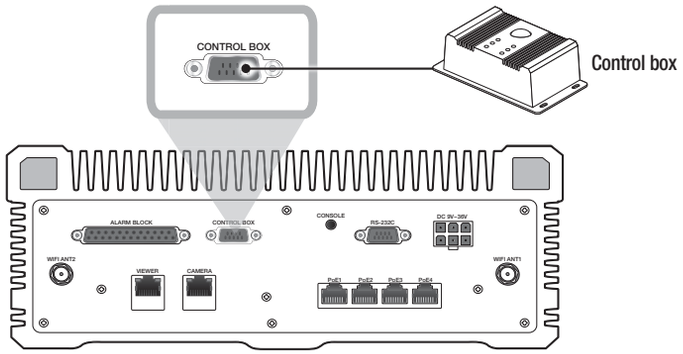
HOW TO INSTALL THE CONTROL BOX

Assemble mounting screws and install the camera on a wall/floor/ceiling as shown in the figure.



HOW TO CONNECT THE CONTROL BOX

Connect to the main unit via the control box connection cable.



HDD ADDITION

Make sure to unplug the power cord from the wall outlet to prevent possible electric shock, injury or product damage. Please consult your provider for further information on HDD installation since improper installation or settings may damage the product.

- Number of HDDs supported : Up to 2 HDDs supported
- Make sure to unplug the power cord from the wall outlet before proceeding with the installation.

- **Cautions for data loss (HDD care)**
  Please pay attention so that the data inside the HDD is not damaged.
  Before adding a HDD, please check the compatibility with this product.
  HDD is vulnerable to malfunction due to its sensitive nature especially against shock when operating.
  Please ensure that the HDD is free from such shock.
  We are not liable for any damage to the HDD incurred by user's carelessness or miss use.
- **Cases might cause damage to HDD or recorded data**
  To minimize the risk of data loss from a damaged HDD, please backup data as often as possible.
  If exposed to shock when disassembling or installing, data stored in the hard disk may be damaged.
  A sudden power failure or turning off the product while in HDD operation may damage the hard disk drive.
  HDD or files stored inside may be damaged if the main body is moved or impacted during the HDD operation.

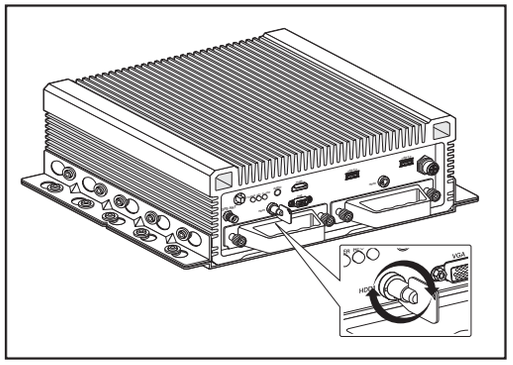
Cautions when installing a HDD

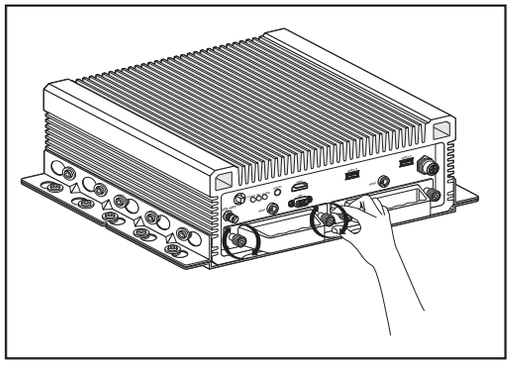
1. Do not apply excessive force to the HDD.
2. Pay attention so as not to lose the disassembly screws or accessories.
   - If the screws or accessories are not put together correctly, the product may breakdown or not operate properly.
3. Please check the HDD compatibility before adding a HDD.
   - Please contact your nearest dealer to obtain the list of compatible devices.

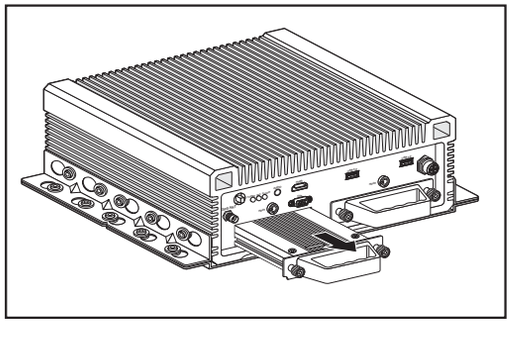
Installing the HDD

- If you are adding a new or previously used HDD to this product in addition to the HDD(s) originally installed, format the new HDD manually in the set before use.
  For information on how to format an HDD, refer to "**Device/Format**". (page 36)

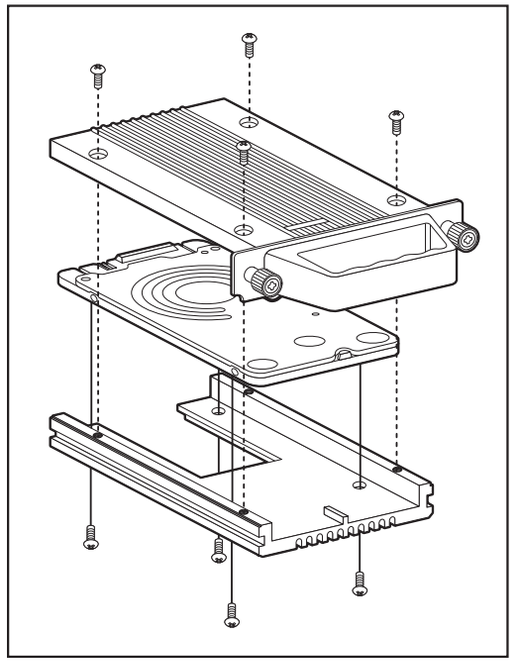
1. Unscrew the HDD bracket fixing screws on the front of the set and pull it to the front to separate the HDD.
   - If the lock on the front is locked, open the lock using the key that was provided when you purchased the product.



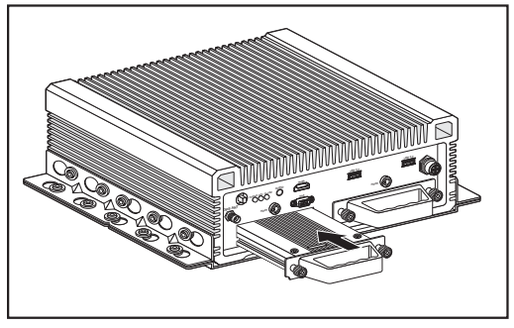




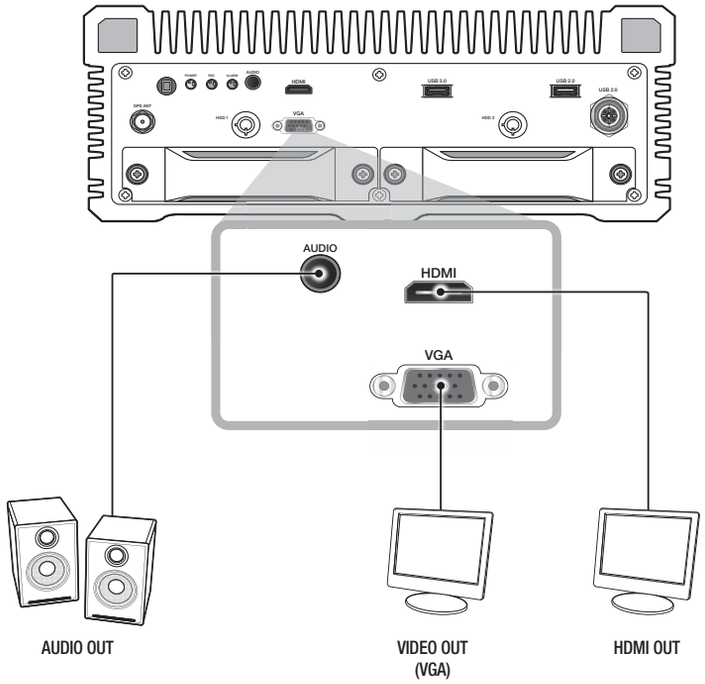
2. Loosen the screws on the front/rear of the bracket and separate the bracket.
3. After replacing/installing the HDD, fix the HDD and bracket with screws.



4. Slide the bracket with the HDD into the main body, and tighten the screws to fix it.



CONNECTING TO AN EXTERNAL DEVICE

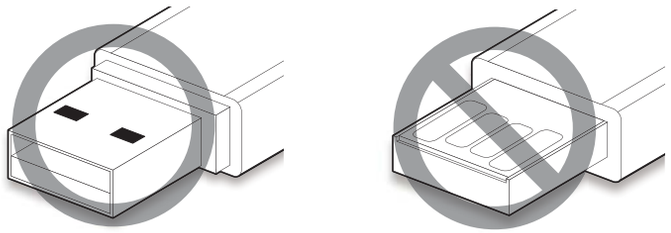


- Unrated or improper power source may cause damage to the system. Ensure that you use only the rated power source before pressing the POWER button.

CONNECTING THE USB

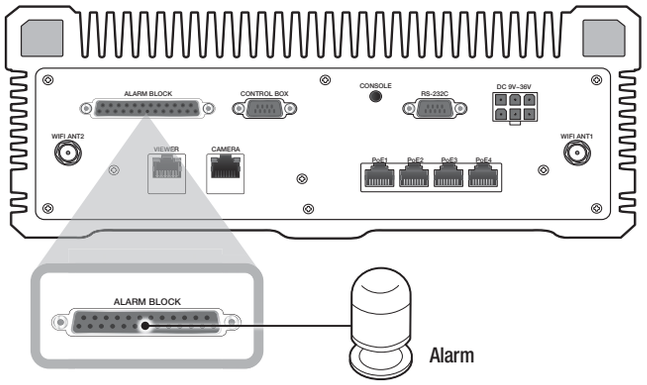
1. On the front of the product, there is a USB port.
2. You can connect a USB HDD, USB memory or mouse to the USB port.
3. If a USB HDD is connected to the system, recognition and settings are available in "**Menu** > **Device** > **Storage Device**". (Page 36)
4. The product supports hot plugging function that enables connecting/disconnecting USB devices while in operating the system.

- If you use the USB device for Backup purposes, format it with FAT32 on PC if it is not formatted on the NVR.
- Some USB devices may fail to function properly due to compatibility issue, please check the device before using.
- Only USB storage devices that comply with the standards (having a metal cover) are guaranteed for data transfer.
- In case if the USB device's electric contacts have been worn out, data transfer between the devices may not properly function.



CONNECTING THE ALARM INPUT/OUTPUT

The Alarm In/Out port at the back is composed of the following.

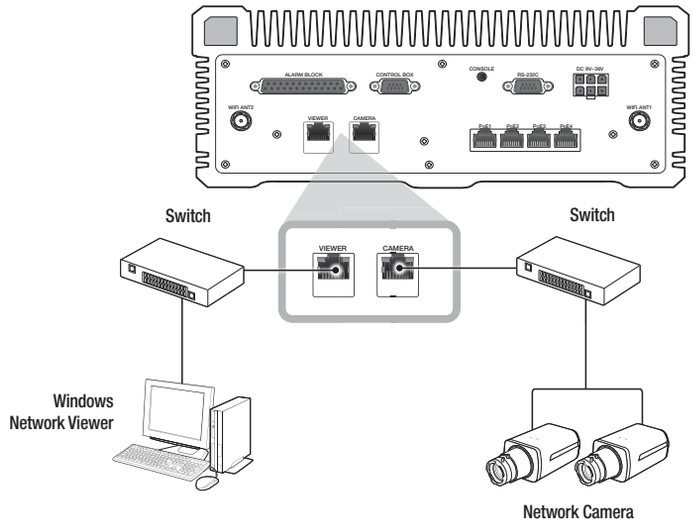


- ALARM IN 1 ~ 16 : Alarm Input Port
- ALARM OUT 1 ~ 6 : Alarm Output Port

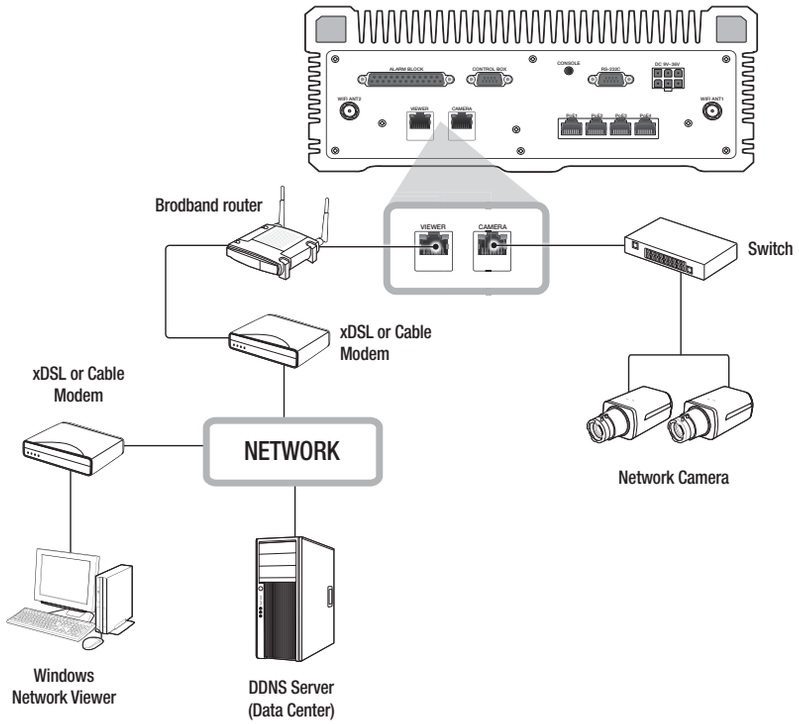
CONNECTING THE NETWORK

- For more information about network connection, refer to "**Network Configuration**". (Page 43)

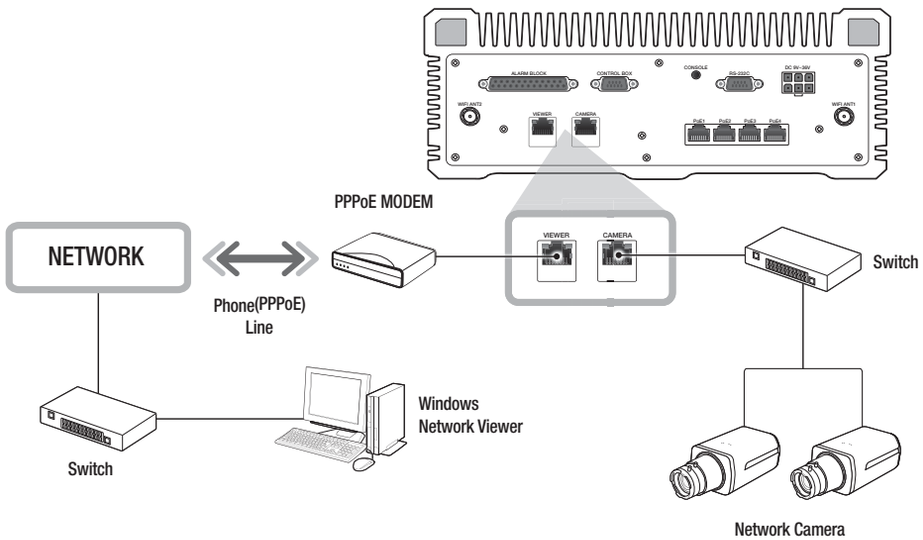
Network connection via Ethernet (10/100/1000BaseT)



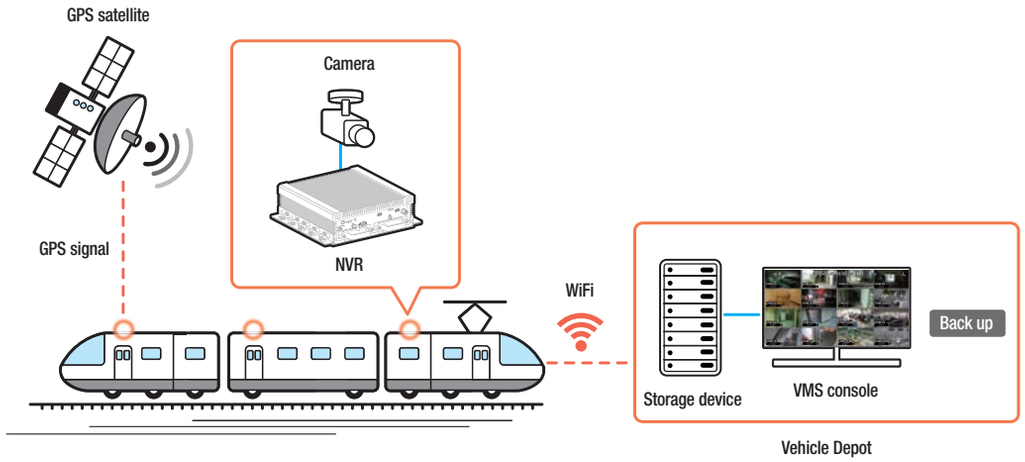
Network connection via router



Connecting to Internet through PPPoE



How to back up via Wi-Fi



GETTING STARTED

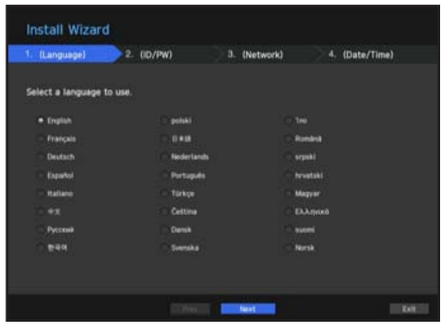
Starting the system

1. Connect the power cable of the NVR to the wall outlet.
2. You will see the initialization screen.
   The initialization process will last about 2 minute.
   If a new HDD is installed, the initialization process may take longer.
3. The live screen appears with a beep.

Install Wizard

As shown below, proceed through each step of the <**Install Wizard**>.

1. In the <**Language**> screen, select the language and press the <**Next**> button.
2. In the <**ID/PW**> screen, set the password and press <**Next**>.



• **Setting Camera Password**

You can change the password of the camera en bloc if the camera password is in a factory reset state.
If the camera password is not in a factory reset state, please enter the password of the current camera to register the camera.

- New Password : Input a new password according to the password setting rules.
- Confirm Password : Input the new password again.

- A camera password registered with ONVIF and RTSP cannot be changed.

• **Password setting guide**

When you click < ⓘ >, a basic guide for setting a password is displayed.
Check the password setting rules.

3. In the <**Network**> screen, set the network access method and the access environment. To use a simple intranet, click <**Next**>.

• DHCP server : If the DHCP server is set to enable, an IP is automatically assigned to the camera.
  For more information, please refer to "**DHCP Server**" in the menu settings. (Page 49)

• Network 1 (Camera) : Connects to the camera and receives the video feed from the camera

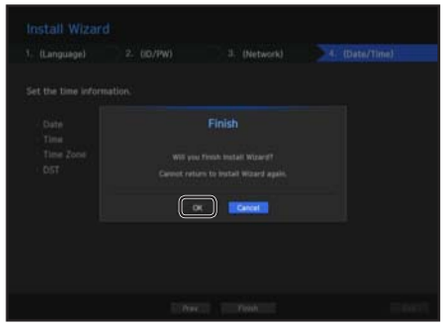
• Network 2 (Viewer) : This is a port for transmitting an image to the webviewer.

• Network 3 (Wi-Fi) : Port for connecting to external Wi-Fi.
  The Wi-Fi port is used for backup.

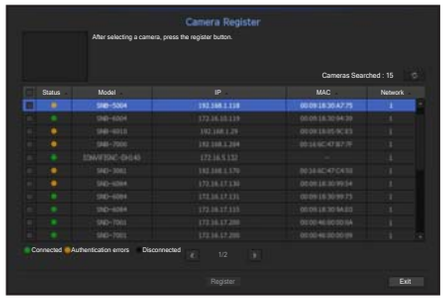
• Network 1 (Camera) / Network 2 (Viewer) Setup
  - IP Type : Choose the network connection method.
  - IP Address, Subnet Mask, Gateway, DNS
    - Network 3 (Wi-Fi) can be set after the installation wizard is closed.

- If the LAN cable is not connected to the port, the setting button will not be activated for use. Check the LAN cable connection.
- The built-in DHCP Server in NVR will turn on automatically at stage 3. At this stage, using the existing DHCP server in the same network may cause a problem, as two DHCP servers would be simultaneously operating.
- For more details on network settings, refer to the user manual.

4. After setting the date/time settings in the <**Date/Time**> screen, click on the <**Finish**> button to launch the setting completion window.
5. In the setting completion window, click on the <**OK**> button to finish camera setting and launch the camera registration screen.



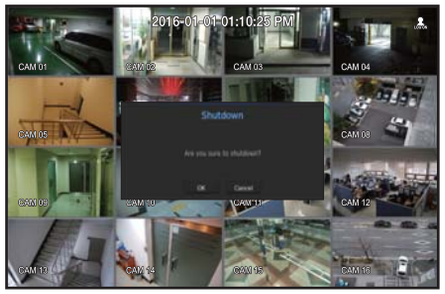
6. Cameras connected to the PoE port are automatically registered and displayed in the camera registration list. Select the cameras to be registered from the list of cameras, and click the <**Register**> button.
   - The camera may not be shown in the list if there is no response from the camera. You can re-import the list by pressing the < ⟲ > button.



7. When camera registration is finished, the frame rate of the set recording profile is displayed. After you click the <**Manual Setting**> button, you can modify the frame rate value.

Shutting Down the System

1. In the live screen menu, select <**Shutdown**>.
2. The "**Shutdown**" confirmation pop-up window will appear.
3. Click on <**OK**>.
   The system will shut down.

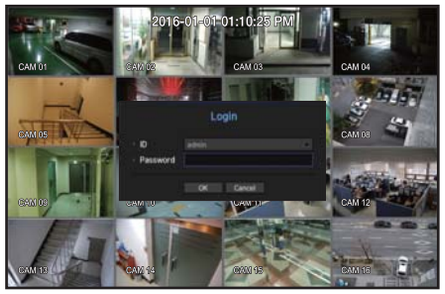


- Only the user with the "**shutdown**" permission can shut down the system.
- For the permission management, refer to "**User** > **Setting Permissions**". (Page 27)

Login

To use the NVR menu, you are required to login as a user that is authorized to access the applicable menu.

1. Right click with your mouse button on the live mode screen.
   You will see the context menu on the screen as shown.
2. Select <**Login**>.
   The login dialog appears.



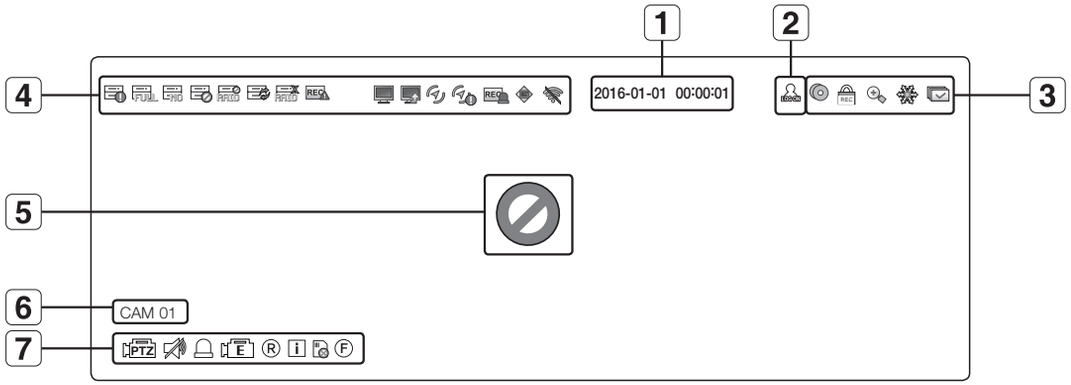
- The initial administrator ID is set to "**admin**" and you will need to configure the password in the installation wizard.
- Please change your password every three months to safely protect personal information and to prevent the damage of the information theft.
  Please, take note that it's a user's responsibility for the security and any other problems caused by mismanaging a password.

- For the restricted permission, refer to "**User** > **Setting Permissions**". (Page 27)

LIVE SCREEN CONFIGURATION

Icons on the Live Screen

You can check the status or operation of the NVR with the icons on the live screen.



	Name		Description
1	Current Date, Time		Displays the current time and date.
2	Login Information		When you are logged in, the "**LOG ON**" icon will be displayed.
3	Screen Mode		It is displayed when there is ongoing backup in the live condition.
			If access to the recording canceling menu is restricted, then it is only displayed when there is ongoing manual recording. ▪ Only a user with the right to cancel recording can do so.
			It is displayed when the magnifying function is in operation.
			This icon is displayed when you press the Freeze button.
			It is displayed when all the channels are switched at the set time interval.
4	System Operation		It is displayed when the recording data cannot be received properly due to a device problem.
			Displayed if the HDD is full and the NVR has an insufficient space to record.
			Displayed if no HDD is installed or the existing HDD should be replaced.
			Displayed if the HDD needs a technical examination.
			It is displayed when there is a malfunctioning HDD in the RAID. ▪ There are one or two HDD malfunctions but you can still read or write to it.
			It is displayed when recovering a RAID Error.

Name			Description
4	System Operation		It is displayed when you cannot write RAID due to a malfunction of HDD.
			It is displayed when the max permitted amount of data for each channel is exceeded.
			It is displayed when the network is overloaded. ▪ It occurs when the max receiving allowance is exceeded, causing an overload to the CPU. It will disappear if you modify the camera settings or delete a camera to reduce the performance burden.
			It is displayed when there is firmware to update the server.
		/	Shows GPS reception/no reception.
			Appears when emergency recording is in progress.
			Shows the vehicle shake state.
		/	Displays the Wi-Fi connection status when <**Wi-Fi Enable**> is set.
5	Video Input Status		Displayed if no input is entered in the condition that the camera is set to <**ON**>.
			Displayed when the live image with the camera turned <**ON**> exceeds the supported resolution.
		WISENET	Displayed if no permission to live view is granted.
			If a camera is <**OFF**>, or if no camera is registered, or it is in <**Covert2**> mode, nothing will be displayed on the screen. If the camera is set to <**Covert1**>, the video will be displayed but the OSD menus will not be displayed.
6	Camera Title / Channel		Display the camera title and channel number.
7	Camera Operation		This icon is displayed for a channel that a PTZ-featuring camera is connected to.
			Displays AUDIO ON/MUTE. Not displayed in video mode if deactivated.
			If the sensor is set to <**ON**>, the input signal will be displayed on the screen of the connected channel.
			This icon is displayed when Motion Detection is set to <**ON**> and a camera motion or camera event occurs.
		Ⓡ / Ⓔ / Ⓢ	It displays the status of general/event/scheduled recording.
			It is displayed when it fails to decode all the frames due to limited decoding performance and in this case only the I-Frame is decoded.
			RED - Displayed when there is any abnormality in the RED-SD card. **YELLOW** - Displayed when there is no storage space in the SD card.
			Flickers when a defocus event occurs. When you click the icon, a simple focus command is sent to the camera.

Error Information

- If the built-in HDD is not connected, the “NO HDD” icon ( ) will be displayed in the top left corner. In this case, the recording, playback and backup functions do not work. If a new HDD is installed, format the HDD using the "**Device** > **Storage Device**" menu.

▪ If you see the icon for NO HDD ( ) or HDD FAIL ( ) after HDD formatting, be sure to contact your service center.

Live Screen Menu

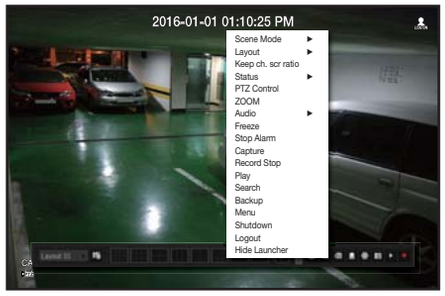
If you right click with your mouse button in live screen mode, it will launch the live screen menu where you can access each menu.

The context menu differs depending on the state of Log in/out, split mode, and NVR operation status.

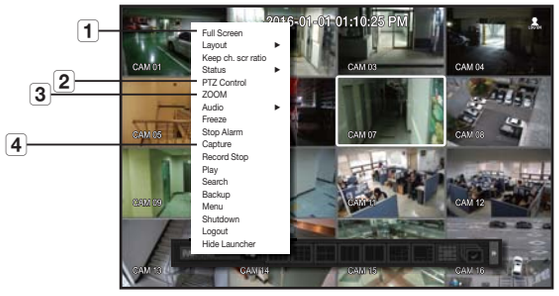
▪ Depending on the user permissions, you may have limited access to menu items of Live View, Backup, Stop Recording, Search, PTZ, Remote Alarm Output, and Exit.

Single Mode Menu

The single mode menu is available only in Single Mode.
If the menu is displayed as <**Screen Mode**> in the single screen, it is displayed as a <**Full Screen**> in the menu where only one channel is selected in the split screen.



< Single Mode Menu >

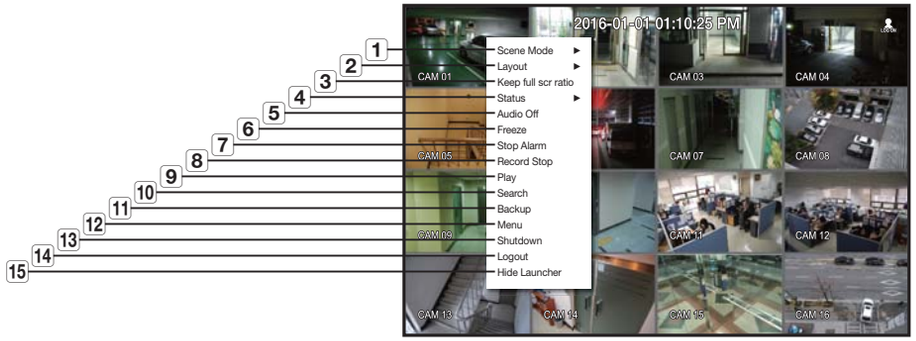


< One channel selection menu in the split screen >

Menu		Description
1	Full Screen	Select and click a desired channel in Split mode to switch to the full screen of the selected channel.
2	PTZ Control	Accesses the PTZ Control menu. The PTZ menu will be active on the Live screen after you select a single channel. (Page 23)
3	ZOOM	You can enlarge the selected screen. (Page 21)
4	Capture	Captures the screen of the selected channel. (Page 22)

Split Mode Menu

In Live split mode, right-click to display this context menu as shown.
The context sensitive menu in split mode differs, depending on the login/logout status.



Menu		Description
1	Screen Mode	Select a screen mode for the Live screen. Refer to "**Live screen mode**". (Page 18)
2	Layout	Set the layout of each channel. Refer to "**Layout**". (Page 21)
3	Keep full scr ratio/ Keep ch. scr ratio	Channel screen ratio is changed. Refer to "**Maintain the Screen Ratio**". (Page 23)
4	Status	Shows the connection information of camera connected to each channel as well as live and recording status. Refer to "**Status**". (Page 19)
5	Audio On/Off	Turns ON/MUTE the sound of the selected channel. Refer to "**Audio ON/OFF**". (Page 22)
6	Freeze	Stop playing the video temporarily. Refer to "**Freeze**". (Page 22)
7	Stop Alarm	Stop the alarm output, deactivate the event icon and release the auto sequencing. Refer to "**Event Monitoring**". (Page 22)
8	Record/Stop	Starts/stops the standard recording.
9	Play	Refer to "**Search & Play** > **Play**". (Page 52)
10	Search	Refer to "**Search & Play** > **Search**". (Page 51)

Menu		Description
11	Backup	Searches for a backup device and runs backup for each channel or schedule backup later at a more preferable time. (Page 24)
12	Menu	Enter the main menu. Refer to the menu settings. (Page 25)
13	Shutdown	The system shutdown dialog will appear.
14	Login/Logout	You can log in or out.
15	Show/Hide Launcher	Shows or hides the launcher. Refer to "**View the Launcher Menu**". (Page 18)

View the Launcher Menu

The Launcher menu appears on the bottom of the live screen.

1. Select <**Show Launcher**> in the context menu of the Live screen.
2. Move the cursor to the bottom and click a desired item in the Launcher menu.

- If no input is entered for 10 seconds, the menu will disappear.
- The Launcher menu can be accessed only by using the mouse.

Menu		Description
1	Layout	Select the layout to be displayed on the screen.
2	Layout Setup	You can set, change or delete the new layout of each channel.
3	Screen Mode	Displays a list of split modes available in a bar type. The current screen mode will be displayed grey.
4	Menu Expansion Button	Click to display the hidden menu to the right.
5	Backup	Searches for a backup device and runs backup of each channel or schedule it for later at a more desirable time.
6	Zoom	Enlarges the selected area. This is available only in Single Live mode.
7	PTZ	If the network camera connected to the selected channel supports the PTZ operations, this will run the PTZ control launcher. This is active only in Live single mode.
8	Alarm	Stops the alarm if it's activated.
9	Freeze	Freezes the Live screen temporarily.
10	Capture	Captures the screen of the selected channel.
11	Play	Enters Play mode if a file to play exist, and if not, enters Search mode.
12	Record	Start/End recording the Live screen.

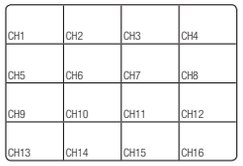
LIVE SCREEN MODE

You can play up to 16 live video channels in single, 8-split, or auto sequence mode.

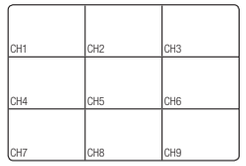
- When you register a camera, the Live4NVR profile is created to set H.264 800*600 30fps as default. If necessary, you can change it in **Menu** > **Device** > **Camera** > **Camera Settings**. If the performance is exceeded, it may play I frame only.
  If you cannot create an additional profile for the camera specifications, then sometimes you cannot create Live4NVR. In this case, you need to modify the camera profile. Refer to "**Camera Setting**". (Page 33)

Method for displaying screen mode

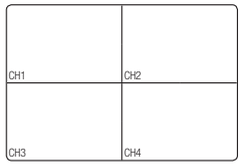
If you want to change the split mode, select a screen mode suggested in the launcher menu or right click with the mouse button and select a split mode in the screen mode menu.



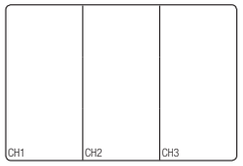
16-split mode



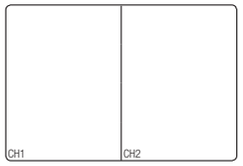
9-split mode



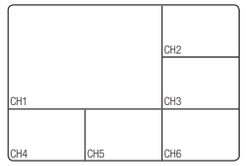
4-split mode



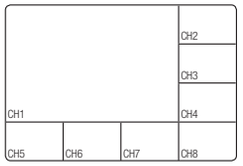
3-split mode



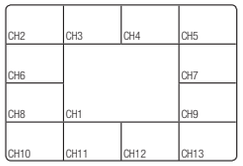
2-split mode



6-split mode



8-split mode



13-split mode

Auto Sequence

Single mode

Switching the split mode

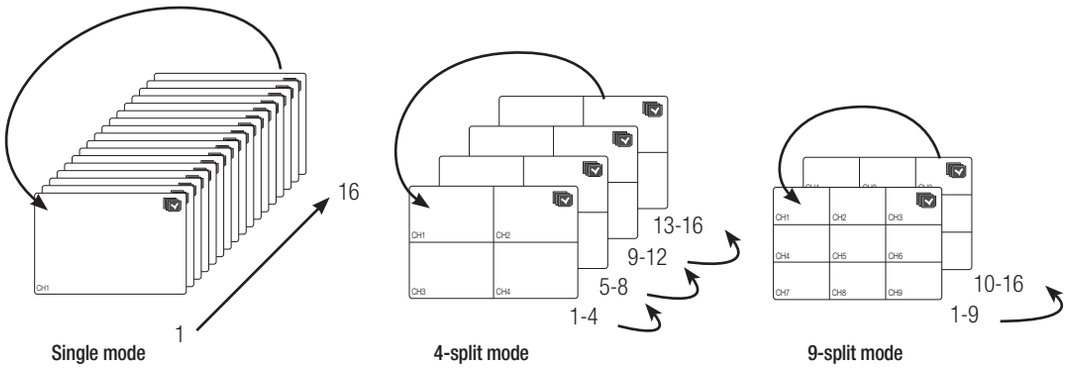
You can also play 16 Live channels in the sequence of: Single, 4-split, 9-split and 16-split mode.

Press the button in the launcher or use the right menu to automatically switch the screen.

Mouse right button menu ➞ Screen mode ➞ Auto switching mode

If you reach the end of the steps as outlined in the previous page, you will be moved to the first page and no automatic switching will be performed.

Auto Sequence

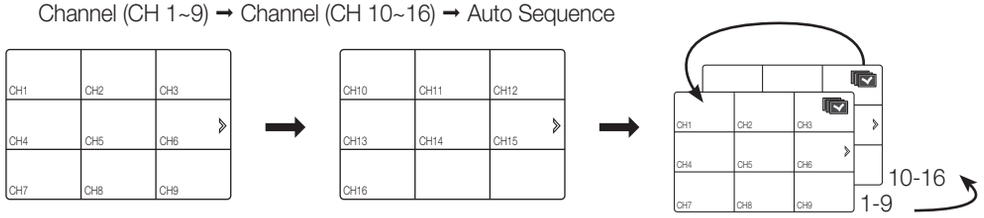


- In a split mode, If you have set <**Sequence switching time**> in "**Setting the Device** > **Monitor**", Auto Sequence will be conducted at the set interval. (Page 39)
- When you switch the channel, the video may be delayed depending on the network condition.

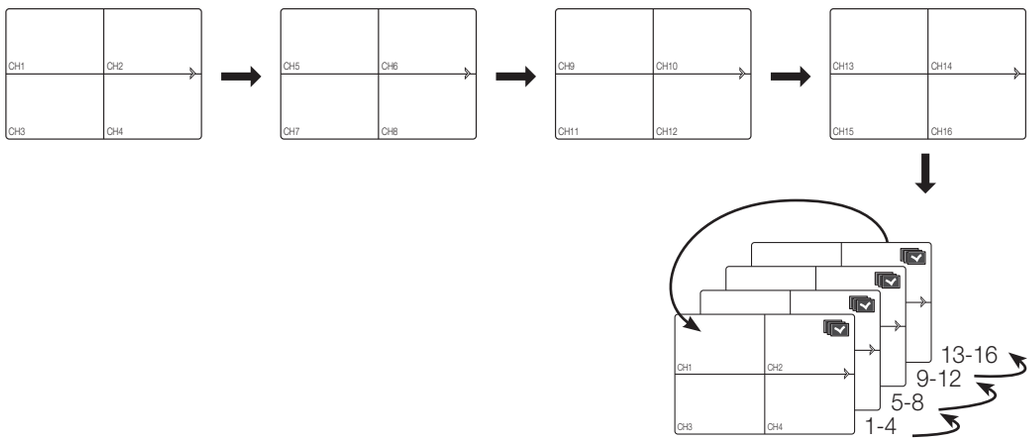
Manual Switching

Click the arrow <◄/►> key to move to the next split mode.

- If pressing the right [►] button in 9-split mode :
  Channel (CH 1~9) ➞ Channel (CH 10~16) ➞ Auto Sequence



- If pressing the right [►] button in 4-split mode :
  Channel (CH 1~4) ➞ Channel (CH 5~8) ➞ Channel (CH 9~12) ➞ Channel (CH 13~16) ➞ Auto Sequence

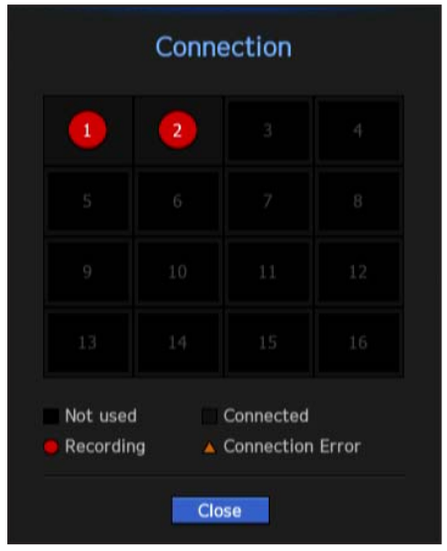


Status

You can check the connection information of the camera to be connected to each channel on the live screen.

Connection

If you select <**Connection**> in the <**Status**> menu on the live screen, you can check the connection state of the camera connected to each channel.



Live Status

If you select <**Live**> in the <**Status**> menu on the live screen, you can check the transmisson information and state of the camera connected to each channel.

- Model : Displays the camera model name connected to each channel.
- Status : Displays the status of camera connection set to each channel.
- IP Address : Displays the IP address of a camera set to each channel.
- Codec : Displays the live profile codec information for a camera set to each channel.
- Resolution : Displays the live profile resolution of a camera set to each channel.
- Frame Rate : Displays the number of live profile frames of the camera set for each channel.

Record Status

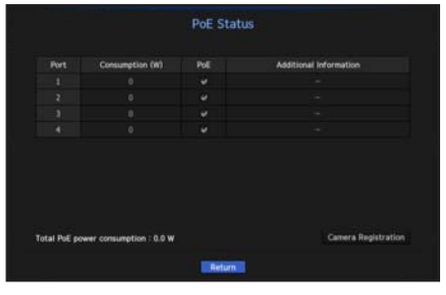
If you select <**Record**> under the <**Status**> menu on the live screen, you can check a channel's video type, recording type, number of input/recording frames, allowed/input/recording data volume.

- Total Bitrate (Record/Max) : Record bitrate shows the amount of actual data recording while Total bitrate shows the maximum data transfer allowed by the NVR.
- Profile : Shows the video profile configured to each channel.
- Frame (fps) : Show the input/record frames per second for each channel.
- Bitrate (bps)
  - Limit / Input / Record : Shows the amount of limit/input/recording data for each channel.
  - Input / Limit : Shows the data ratio of actual data transferred from the camera and allowed maximum defined by user.
- View all : You can view the recording status of all channels. Click the button to choose a group, and you can view the recording status of the selected group.
- Current : Shows the recording status information of currently transferred data.
- MAX : Shows recording information of the most biggest recording data out of configured standard and event recordings.
- : Reloads the recording information.
- Record Setup : The menu screen will switch to the record setting screen.

- The warning message on the list's bottom means the NVR replaced the selected recording profile with other available profile, since the selected one does not produce video data which prohibits screen saving. If the screen displays video, it automatically resets to the selected profile and its name turns to yellow in the list.
- If Key Frame recording exceeds the allowed data amount specified by limit bitrate, a popup alert and icon appear on the screen.
  The limited recording alert popup does not repeat after displaying once unless camera or recording settings are changed; it may appear again if settings were changed to notify such status.
  If you want to set the alert popup not to appear, change your setting of <**Setup Warnings**> not to display a message popup.
  For further information on bitrate limit of recording data, refer to "**Record Setting**". (Page 40)

PoE Status

When <**PoE**> is selected in the <**Status**> menu of the live screen, the PoE status in each port can be determined.



1. Select the <**PoE Status**>.
   PoE status view window is displayed.

- Consumption(W) : Displays the power consumption in PoE.
  - 0 : No device is connected to the port or a device is using its own power supply.
  - **–** : Trouble in the port (More detailed trouble information can be displayed in additional information.)

- The full PoE power rating is 32W. If the power for all ports exceeds the PoE specification, power to the ports is blocked in order.

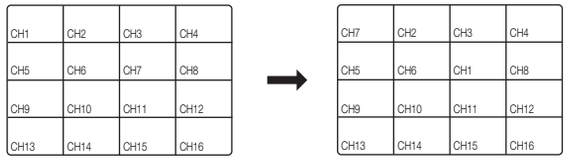
- PoE : Turns on/off the power supply to the camera.
  If checked, it means the power supply is On; if not checked, it means it is Off.
- Additional information : If there is a problem in the power supply, it is explained here.
  Power supply problems include excessive power (class 1 to 4) and voltage errors.
- Total PoE power consumption : Display the sum of power consumption for all the ports.

2. Press <**Return**> to move to the previous screen.

Channel Setting

You can display the channel in a desired area of a split screen.

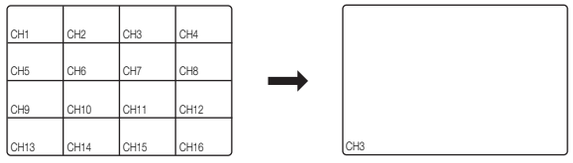
1. Place the cursor over the camera name of each channel to display the <▼> key to the right on the screen.
2. Click a camera name to display a channel list where you can select a different channel.
3. Select a desired channel and click it.
   The current channel will be switched to the selected one.
   Use the cursor to select a channel to move, and drag and drop it to a desired channel; this can also change the channel position.
   - Ex : if switching CH 1 to CH 7



Switching to Single Mode

When in split mode, select and double-click a desired channel to switch to its Single mode.

- Ex : If double-clicking CH 3.



ZOOM

This is activated only in Live Single mode.
After selecting a single screen, if you use the Magnify function, the selected area will be magnified by 3.

1. In the live screen menu, select <**ZOOM**>.
   You can also click on < 🔍 > in the launcher menu.
   The Magnify icon in the middle of the screen will be displayed.
2. Drag and drop with your mouse to select the area to magnify.
3. Double click on it to magnify the selected area by 3.
   - In the magnified screen, you can drag and drop the selected area for magnification.
4. In the live screen menu, select <**Zoom Out**>.
   Click on < 🔍 > in the launcher menu to release the magnification function.

<Normal>

<Enlarged 3x>

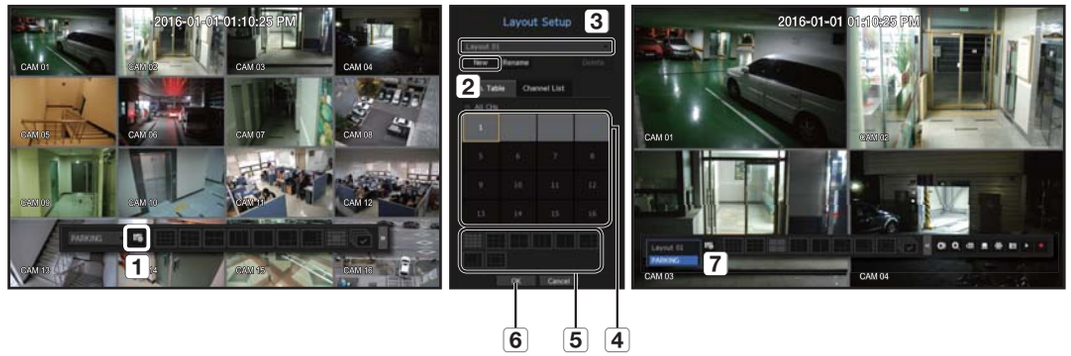
LAYOUT

In the live screen, you can set the layout for each channel.

Setting Up the Live Layout

This section outlines how to select a series of channels based on their purpose/accessibility and monitor them in a single layout.

Example) Layout "Lobby" - Lobby camera 1, Lobby camera 2, Front entrance camera 2
Layout "VIP" - Directors' meeting room 1, Directors' meeting room 2, Directors' lounge 1, Corridor camera on the 7th floor



To create a new layout, follow these steps:

1 Open the channel layout setup menu.
2 Click <**New**>.
3 Enter a name for the selected channels (e.g., PARKING).
4 Select the channels that you want to add to the layout (e.g., 1, 2, 3, 4).
5 Choose a split mode to apply (e.g., 4-way split).
6 Click <**OK**>.
7 Choose a layout to view it on the screen (e.g., change to PARKING).

1. Select the < >.
   The layout setting screen will appear.

- New : You can set the new layout.
- Rename : You can make changes to the selected layout.
  When the layout is changed, the channel order is initialized.
- Delete : You can delete the selected layout.
- Channel Table : You can select channels in the table to be registered in, or removed from the layout.
- Channel List : You can select channels in the list to be registered in, or removed from the layout.

2. Press the <**New**> button and enter the name of layout to add.
3. In the <**Ch. Table**> or <**Channel List**>, click and select the channel to be displayed on the layout screen.
4. Click on <**OK**> to save the selected layout.

- The layout for each user is saved separately.

AUDIO ON/OFF

You can turn the sound on/off corresponding to the channel in Live mode.

AUDIO ON/OFF in Single mode

Click on the audio icon (🔊) on the screen to turn it ON/OFF.

- If there is no sound even though the output settings have been properly configured, confirm that the connected network camera supports the audio function, and check to ensure that the audio settings are properly configured.
  The sound icon can be displayed if the sound signal fails to output from noise.
- Only the channel where <**AUDIO**> is set to <**ON**> in "**Setting the Device** > **Camera**" displays the audio icon (🔊) in Live mode that you can use to turn the sound on/off.

FREEZE

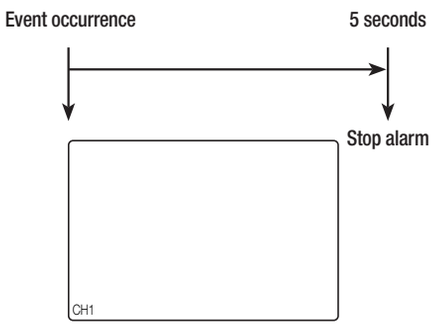
This is available only in Live mode, this pauses playing the Live image temporarily.

1. Click < ❄ > of the launcher mode.
   Video playing is paused.
2. Click on < ❄ >.
   Pause is canceled. Playing is resumed.

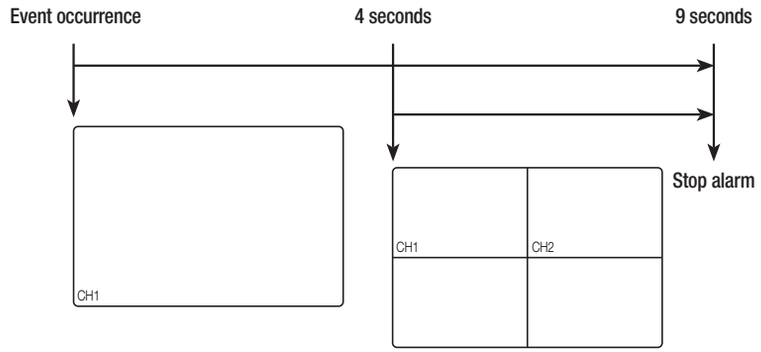
EVENT MONITORING

This will display the channel in sync with a specific event (Sensor/Motion/Video Loss) if it occurs.
In "**Monitor** > **Event Display**", set the event monitoring to ON/OFF and specify the event display time. (Page 39)

- If multiple events occur simultaneously, the screen will switch to a split mode.
  - 2~4 events : 4-split mode
  - 5~9 events : 9-split mode
  - 10~16 events : 16-split mode
- If the second event occurs within the set time of <**Event Display**>, the first event will last until the second one is terminated.
  - Ex : If you set <**Event Display**> to 5 seconds, and only one event occurs in CH 1.



- Ex : If you set <**Event Display**> to 5 seconds, and the second event occurs in CH 2 within the set time after the first event occurred in CH 1.



- Select <**Stop Alarm**> to initialize the status of alarm output and release the event function.
- If an alarm is output with the pre-event and post-event times specified together with the event recording settings, the event recording will perform according to the specified recording type (pre event or post event).

- In case of continuous events such as motion detection, switching to another split mode display may not immediate if concatenating events follow, even when you stopped alarm of the event.
- The video may be delayed depending on the network condition.
- The event output can be delayed as the transfer of the alarm event from the network camera takes time.

CAPTURE

You can capture a screen selected on the live screen.
Function to perform in single channel mode on the live screen or when selecting a channel.

1. Select <**Capture**> from the live screen menu.
   You can click on < 📷 > in the launcher menu.
2. Select the output information to be displayed on the captured screen.
   - When you select the <**Description**> check box, a window to enter a description is opened and you can enter up to 50 Korean letters.
3. Select a device to save a captured file, file path and file name.
4. Complete the settings and click <**OK**>, then the image captured from the screen is saved to the selected device.
   - If there is no video in the channel, the capture function will fail. If you do not retry, the capture function will automatically terminate after 5 seconds.

MAINTAIN THE SCREEN RATIO

The screen ratio for a live video can be changed.

Maintain a screen ratio for all channels

Video screen ratio for all channels can be changed in live split screen mode.

1. Select <**Keep full scr ratio**> from the live screen menu.
   The screen ratio for all channels will be changed.
2. If you want to go back to the previous screen ratio, check the menu option for <**Keep full scr ratio**>.

Maintain a channel screen ratio

If you select a channel from a live single screen or split screen, you can change its video screen ratio.

1. Select <**Keep ch. scr ratio**> from the live screen menu.
   The screen ratio of a specified channel will be changed.
2. If you want to go back to a previous screen ratio, select <**Keep ch. scr ratio**> again.

Using the PTZ camera

You can use a single PTZ camera to perform the Pan, Tilt and Zoom operations to monitor multiple places, and configure the custom settings of the presets in a desired mode.

1. Open the <**PTZ Control**> menu.
   The <PTZ> icon in the left bottom of the screen will turn yellow, indicating that the system accesses "**PTZ Control**" mode. You will see the "**PTZ Control**" launcher menu.

   ■ The PTZ working (active) mark can be active even if the PTZ operation is not available in normal mode. So ensure that you have completed the PTZ settings before proceeding.

2. Use the PTZ Wheel in the launch menu to adjust the location of recording by a camera.

- Sensitivity : Adjust sensitivity for Pan, Tilt controls.
- PTZ Wheel : Click a near area from the center to move the camera lens slowly; clicking a far area will move it fast.
  ■ If clicking and holding the mouse in the left will turn the camera counterclockwise; if clicking and holding the mouse in the right will move the camera lens clockwise.
- Zoom : Activate the Zoom operation of the PTZ camera.
- Iris : Adjust the amount of light incoming to the camera.
- Focus : You can adjust the focus manually.
- Swing : Swing is a monitoring function that moves between two preset points and enables you to trace the motion.
- Group : The group function enables you to group various presets before calling them in sequence.
- Trace : Tracking remembers the trace of movements that you instructed and reproduces it for your reference.
- Tour : Monitor all the groups created by a user in turn.
  ■ Some cameras may differ in the menu title and operation with regard to Swing, Group, Tour and Trace.

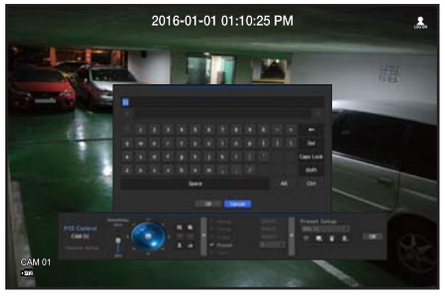
■ Even if the network camera supports the PTZ operations by default, the PTZ control can be enabled only if the applicable menu is active in the launcher menu.

Using Digital PTZ (D-PTZ) function

1. Register a camera that supports the D-PTZ profile.
   - In cameras that support the D-PTZ profile, you can use the D-PTZ function.
2. Both cameras that support general PTZ and cameras that support D-PTZ can control the live image using some of the <**PTZ control**> function menus.
   ■ For more information about the supported functions, please refer to the camera manual.

Preset

Preset is a specific position remembered by the PTZ camera. You can use the Preset function to define up to 300 presets for a single PTZ camera.



To add a preset

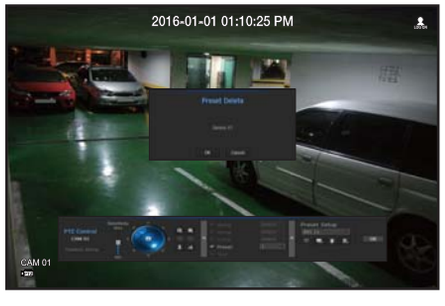
1. Check the preset checkbox.
2. Select < >.
   The virtual keyboard will appear on the screen. Use it to provide the preset name.
   - Refer to "**Using Virtual Keyboard**". (Page 26)

- : You can change the preset settings to your preference.
- : Delete a selected preset.
- : Delete all the existing preset settings.

- You can add up to 300 presets, which is the max count supported by the NVR.
- If you replace a camera that saves your preset settings with a different one, you must configure the preset settings again.

3. Select <**OK**>.
   The preset setting will be saved in the provided name.

To change or delete a registered preset



1. Check the preset checkbox and select a preset to change or delete.
2. Press < > or < > as needed.

- : Delete all the existing preset settings.

- If you delete the entire presets, the default presets specified in the network camera can be deleted accordingly.

3. Provide a new name and press <**OK**>.

BACKUP

You can check the backup device and set the backup schedule by channel or by time.

1. Select <**Backup**> from the live screen menu.
   You can click on < > in the launcher menu.
2. The backup settings screen will be opened.

- Channel : Sets the channel to backup.
  - You can select multiple channels.
    If you select <**All CHs**>, all channels will be selected.
- Backup Range : Sets the <**Start**> and <**End**> time for the backup.
- Overlapped Data : Shows a list of overlapping data on a same time according to the number of data.
  It appears when one channel has multiple data on a certain time point due to changing of time or time zone settings, etc.
  - Refer to time and time zone of "**Setting the Date/Time/Language**". (Page 25)
- Device : Select a backup device from the recognized devices.
- Type : Saves data in the proprietary format with built-in viewer, which supports immediate playback on a PC.
  - If you select the SEC format, you can select whether or not to "**Set Password**".
- Path : displays the location of the folder in which the backup file is to be saved.
- Check capacity : Shows the size of the selected backup data, used and available capacity of the selected backup device.

3. When the backup setup is done, press <**OK**>.
   - If no available device is recognized for backup, <**OK**> button is not activated.

- The application may slow down during the backup.
- You can switch to the menu screen during the backup in operation, but playback of data is not available.
- The data can be played back on a Webviewer while the backup is in progress but audio does not function.
- If backup has failed, select "**Device** > **Storage Device**" and check the free space of the HDD and check also if the HDD is properly connected.

- Pressing the <**Exit**> during the backup will return to the previous menu, while the backup progresses.

You can setup the system, devices, and options for recording, event and network.

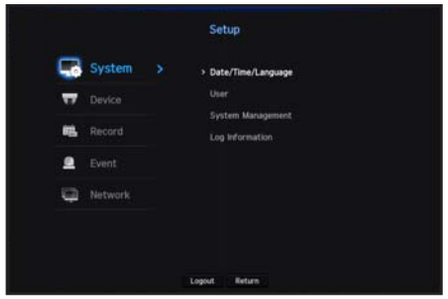
SYSTEM SETUP

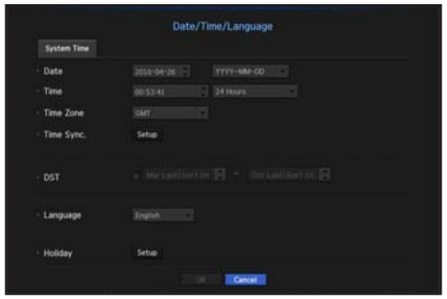
You can setup Date/Time/Language, User, System Properties and Log.

Date/Time/Language

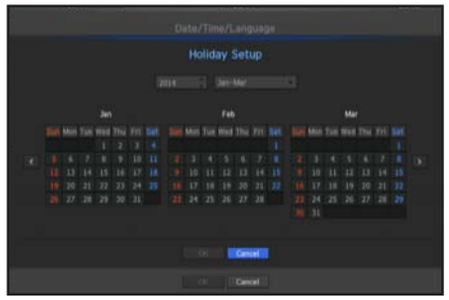
Setting the Date/Time/Language

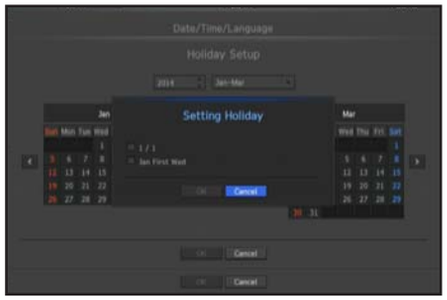
You can check and setup the current Date/Time and time related properties, as well as the language used for the interface on the screen.





- Date : Sets the date and its format that will appear on the screen.
- Time : Sets the time and its format that will appear on the screen.
- Time Zone : Sets the time zone of your area based on the Greenwich Mean Time (GMT).
  - GMT (Greenwich Mean Time) is standard World Time and the basis of world time zone.
- Time Sync. : Specify the use of synchronization with the time server.
  Click the <**Setup**> button to display time synchronization setup screen.
  If you select to use the <**Time Server**>, the current time will be synchronized on a regular basis by the server defined as <**Time Server**>.
  If this is the case, you cannot change the time setting manually.
  - Synchronization : Select whether to use time synchronization and the time synchronization source (GPS or NTP).
  - Time Server : Enter an IP or URL address of the time server.
  - Last Sync Time : Displays the most recent synchronization time from the selected time server.
  - Activate as Server : Set to <**Use**> to allow the NVR to act as a Time Server for other NVRs.
- DST : Set up Daylight Saving Time with its period to make the time earlier than the GMT of its time zone by 1 hour during the set period.
- Language : Select your language. Sets the language for the interface.
  English, French, German, Spanish, Italian, Chinese, Russian, Korean, Polish, Japanese, Dutch, Portuguese, Turkish, Czech, Danish, Swedish, Thai, Romanian, Serbian, Croatian, Hungarian, Greek, Finnish, and Norwegian are supported.
- Holiday : A user can select specific dates as holidays according to their own preferences.
  Holidays are applied in the <**Recording Schedule**> or <**Alarm Schedule**> setting too.





  - e.g. every first day of a year is set to be a holiday if you select January 1 and check <**1/1**>, and every first day of a year and every first Wednesday of January are set to be holidays if you check <**1/1**> and <**Jan First Wed**>.

To use the calendar

1. Select year and month.
   Select the < > key on both ends of year and month to move back/forward to the previous/next year or previous/next three month.
2. Select a date and click on the <**OK**> button.
   - A date is marked in gray if there exist data for search for system log, event log, time search and event search.

User

You can set permissions of each user over the NVR's specific function and settings.

Setting the Administrator

You can set and change Administrator's ID and password.
The administrator can use and set all menu items and functions.

- ID : Change the admin ID.
- Password : Checks the current password.
- New P/W : Enter new password.
- Confirm P/W : Confirms the new password.
  - If <**View password**> is selected, the password will no longer be hidden on the screen when you type it.

- The initial administrator ID is set to "**admin**" and you will need to configure the password in the installation wizard.
- Please change your password every three months to safely protect personal information and to prevent the damage of the information theft.
  Please, take note that it's a user's responsibility for the security and any other problems caused by mismanaging a password.
- If you click < ⓘ >, a basic guide for password setup is displayed.

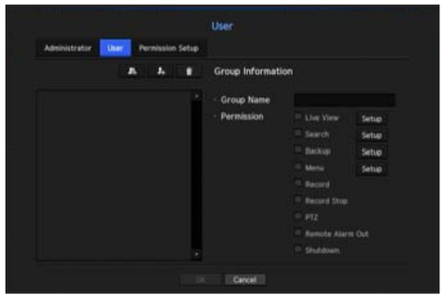
Using Virtual Keyboard

1. For alphanumeric inputs, the virtual keyboard window appears.
2. Using a mouse, click on the desired character tab.
3. In the upper text input box of the virtual keyboard, there displays a list of candidate words containing the selected character.
4. Select a word from the list, or use the keyboard to enter the whole word.
   - If there are many of candidate words, use < ❮ ❯ > buttons to move between them forward and backward.

5. Select <**OK**>.
   Entered word is applied.
   - For upper case letters, use <**Caps Lock**> button.
   - For special characters, use <**Shift**> button.
   - Using the virtual keyboard is the same to a normal keyboard use in your region.
   - ID allows alphanumeric characters only.
   - The password should at a minimum be an 8-digit combination of alphabetical letters and numbers.

User setting

You can create a group or set permissions for each group.
You can add a user and edit the registered user information.



If you want to add a group

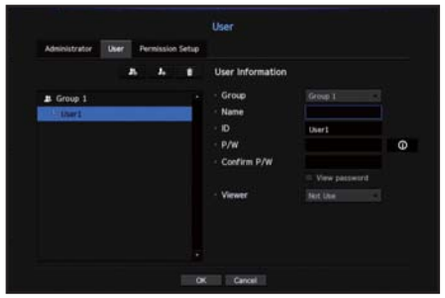
1. Click on the [👥] button to launch the Group Addition popup window.
   If you want to add a group, click on <**OK**>.
2. Press the group name item to launch the virtual keyboard used to enter group names.
   Enter the group name to register.
   - You can add a maximum of 10 groups.

If you want to set group permission

Set permission to access each group.
Each group's users can only access items with a check mark beside them.

1. Select the menu to set group permissions.
   The menu with access permissions will appear when a user of the group logs in.
   - Live View : You can set permissions to access the live screen for each channel.
   - Search : You can set permissions to access the search menu for each channel.
   - Backup : You can set permissions to access the backup menu for each channel.
   - Menu : You can select and set the setting menu that can be accessed. A group user can only access the menu selected. If you select the menu, the menu permission setting screen will be displayed.
   - Record Stop, PTZ, Remote Alarm Out, Shutdown : You can select these functions to add to a group's permissions.
2. Click <**OK**>.
   Check a group user to give them the permission to access the selected item.

If you want to register a user



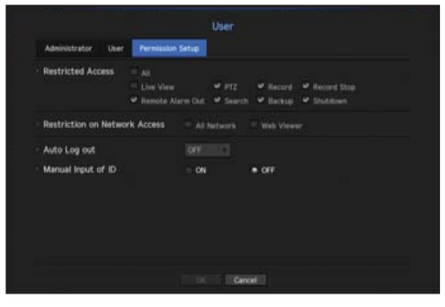
1. Click on the [ ] button to launch the user addition popup window.
   To add a user, click on <**OK**>.
2. Select a group.
   When registering a user, the selected group will be automatically registered.
   - A group can be changed after inputting all required information.
3. Enter name, ID, password and select whether to use the viewer.
   If you activate use of <**Viewer**>, you will have the right to use the web viewer and the network viewer.
4. Click <**OK**>.
   Registered user information will be saved.

When you want to delete the group and user information

1. To delete, click on the [ ] button.
2. The deletion confirmation window will appear and you can select an item to delete and click on <**Delete**>.

Setting Permissions

You can set restricted access for all general users.
Items with restrictions will require logging in for use.



- Restricted Access : All menu items allowed for a user can be set with restricted access.
  - Checked ( ) : Restricted
  - Not checked ( ) : Accessible
  - If it is not checked ( ) in <**Restricted Access**>, any user can access the item no matter what the <**Permission**> setting.
  - If it is checked ( ) in <**Restricted Access**>, a user can access the item only if the user has permission in <**Permission**> setting.
- Restriction on Network Access : Restricts remote access from a <**Restricted Access**> network.
  - All Network : Restricts all access instances via Network Viewer and Web Viewer.
  - Web Viewer : Restricts access via the Web Viewer.
- Auto Log out : A user will be automatically logged out if there is no operation on NVR for over set period of time.
- Manual Input of ID : In the login window, select whether to enter ID.

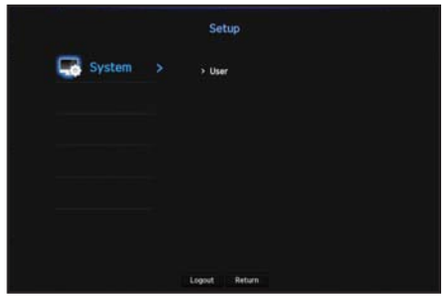
If the user has restricted access

If a new group is restricted to access the entire menus, the users belonging to the group can access only the basic menus and can change only their respective password.

If all permissions are restricted, you will see only some menu items accessible in the Live screen menu.

To change the user password

If you log in with the user account of a group with restricted access, you just can change your own password.



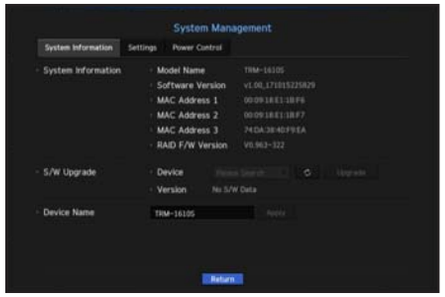
1. Provide the login information.
2. Select <**User Menu**>.
   The Permission Management screen appears.
3. Select <**User**>.
   The Password dialog shall appear.
4. Provide a new password.
5. Select <**OK**>.
   The old password will be changed to a new one.

System Management

You can check the system version, update to a newer version, as well as data backup and initialization.

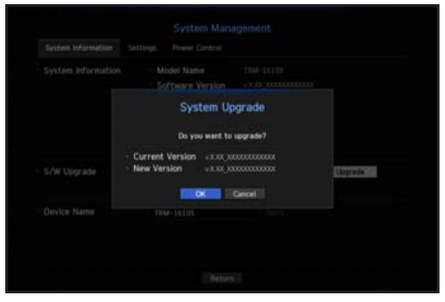
Checking the System Information

You can check the current software version and MAC address before proceeding with the upgrade.



- System Information : Shows the current system's information.
  The values can not be changed by a user.
- S/W Upgrade : Updates the NVR's software up to date.
  - Press the < > button to search for and display the equipment to upgrade.
- Device Name : Displayed if the network viewer is connected to NVR.

To upgrade the current software version



1. Connect a device storing the software to be updated.
   - It may take about 10 seconds to recognize the device.
   - Upgradeable devices include USB memory, and network device.
   - To update the network, the current NVR should have been connected to the network.
     Upgrade via the proxy server may not be enabled due to the restricted access.
2. Select <**System Management**> from <**System**> window.
3. Select <**System Information**>.
4. When the recognized device appears, select <**Upgrade**>.
   - If you connect a device in the upgrade menu window, you can press the < > button to search for available software.
   - If there is an upgrade image on the network, the popup window will appear.
   - The <**Upgrade**> button will be activated only if the current <**Software Version**> of the <**System Information**> is same to or older than that of <**S/W Upgrade**>.
5. Press <**OK**> in the "**S/W Upgrade**" window.
   - While updating, it shows the progress.
6. When the updating is done, it automatically restarts.
   Do not turn the power off until it finishes restarting.

- If "**Upgrade Failed**" appears, retry from the step 4.
  When you experience continued failure, consult the service center for assistance.

Settings

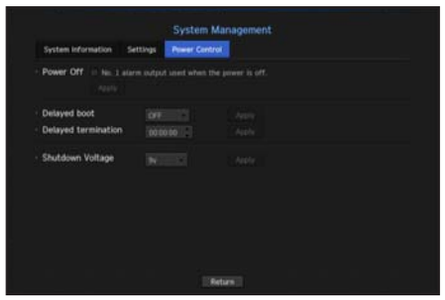
You can copy and import the NVR settings by using a storage media.

- Storage Device : Shows the connected storage device.
  - Press the < > button to view the list of storage devices.
- NVR → USB : Exports NVR settings to the connected storage device.
- USB → NVR : Imports NVR settings from the storage device and applies to the NVR.
  - Uncheck the checkbox of an item(s) that you want to import.
    Only the other items than the selected one will be applied to the NVR.
  - <**Export**> and <**Import**> settings should be used in the same software version.
- Load Factory Default : Restore the factory default settings of NVR.
  Uncheck the checkbox of an item(s) that you want to reset. Then, only the other items than the selected one will return to the factory default.
  If <**Initialization**> is selected, a confirmation dialog for "**Load Factory Default**" prompts. Press <**OK**> to initialize the system to the factory default.
- Emergency recording Buzzer: You can set whether or not to generate a buzzer when the emergency recording button in the control box is pressed.

- If you want to initialize the <**Authority Setting**>, you need to reset the password.
  In case you reboot, reset it the Installation Wizard and if not, use the guide screen to reset it.

How to control power

NVR power-related settings are applied.



- Power off : If the power is off, the first alarm is generated. After checking the checkbox, if the <**Apply**> button is pressed, all event alarms that are set to the first alarm output are released, and then the first alarm cannot be selected by other alarm output.
  - If that function is set, the first alarm-out checkbox and all alarms in the alarm setup screen are deactivated, to Off.
- Delayed boot : Sets boot to occur after a certain period of time rather than immediately booting the NVR after power is applied.
- Delayed termination : You can set the time so that NVR is not terminated during backup after the vehicle has stopped.
- Shutdown Voltage : NVR is terminated when the battery voltage of the vehicle drops below the set voltage. The voltage value can be set between 9v and 33v.

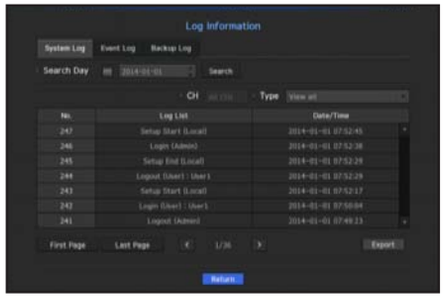
- This function will work once 3 minutes has passed after booting. If you set it incorrectly, change the setting value within 3 minutes.

Log Information

You can browse logs on the system and events.

Checking the system log

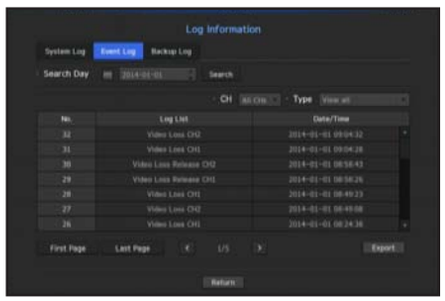
System Log shows log and timestamp on every system start up, system shutdown, and changes on system settings.



- Search Day : Click the Calendar icon to display the calendar window, or use the direction buttons to specify the search period of the system log.
  - For using the calendar, refer to "**To use the calendar**". (Page 25)
- Search : Specify the date and press this button to display the search result in the log list.
- Type : When there are too many logs, you can display logs of the desired format by selecting the type.
- Export : Save all the logged information recorded in the NVR into the storage media.

Checking the event log

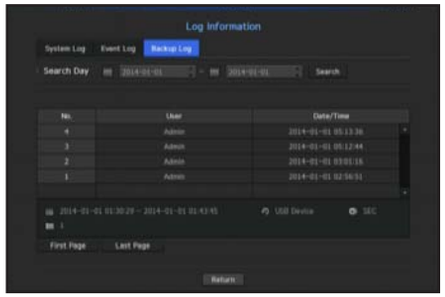
You can search recorded events including alarms, camera events and video loss.
It also shows the log and its timestamp.



- Search Day : Click the Calendar icon to display the calendar window, or use the direction buttons to specify the search period of the system log.
  - For using the calendar, refer to "**To use the calendar**". (Page 25)
- Search : Specify the date and press this button to display the search result in the log list.
- Type : When there are too many logs, you can display logs of the desired format by selecting the type.
- Export : Save all the logged information recorded in the NVR into the storage media.

Checking the backup log

You can find out who backed up and the details (backup time, channel, device to use, file format, etc.).



- Search Day : Click the Calendar icon to display the calendar window, or use the direction buttons to specify the search period of the system log.
  - For using the calendar, refer to "**To use the calendar**". (Page 25)
- Search : Specify the date and press this button to display the search result in the log list.

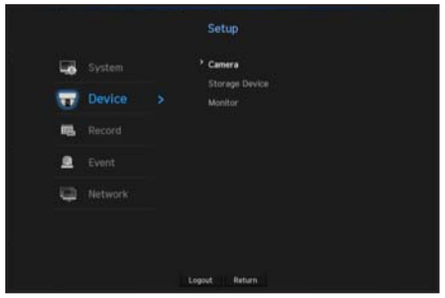
SETTING THE DEVICE

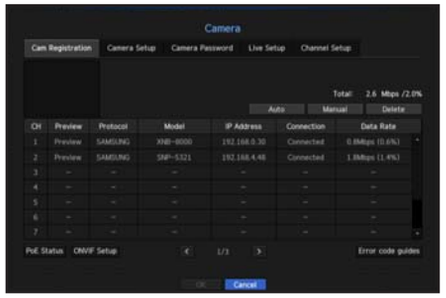
You can configure settings related to camera, storage media, monitor.

Camera

To register a camera

You can register a network camera for each channel and make connection between.





- Preview : View the video of the channel as a current image.
  - Camera searched with ONVIF does not provide previews.
- Protocol : Show the protocol information of a registered network camera.
- Model : Show the camera model name.
- IP Address : Display the IP address of a network camera.
- Connection : Display the connection status.
- Data Rate : Displays the total amount of data received by the channel.
- PoE Status : Displays connected PoE status information.
- ONVIF Setup : You can additionally set up ONVIF protocol camera.
- Error code guides : You can check the details of generated error codes.

- If the NVR has been initialized, it may not connect to cameras. Configure the network settings first and add cameras. For more information on network settings, refer to "**Network Configuration**". (Page 43)

If you want to register a camera in PoE mode

- The camera connected to the PoE port of the NVR must be set to DHCP mode.
- Samsung cameras are registered for Samsung protocols and other cameras are registered by using the Onvif protocol.
- A device in which the DHCP server is running should not be connected to the PoE port or camera configuration port. (e.g., Wi-Fi hub)

To auto-search for and register a network camera

1. In the <**Cam Registration**> field, click on the <**Auto**> button.
2. Search for a network camera connected.
   - An already registered camera will be marked in blue in the list.
   - If you search for the camera again or if the IP is an old IP that was not assigned by the DHCP server (such as -192.168.1.100), then press the < > button to check if a new IP has been assigned. If the IP is still the same, then select Assign IP to assign the IP manually.
3. Select a camera from the camera list to see a preview of its current video feed.
   - Camera searched with ONVIF does not provide previews.
4. Check the checkbox next to a network camera that you want to connect to.
   - You can select all of the network cameras in the list and provide <**ID**> and <**Password**> all at once.
   - Click a header at the top of the list to sort the list according to that header.

- Registering camera with user account other than admin may restrict camera function.
- When you change the camera ID/password in the camera web viewer, if the camera is already registered in NVR, you also have to change the camera ID/passowrd information registered in NVR.

5. Click on the <**ID/PW**> button to enter the selected network camera's <**ID**> and <**Password**>.
6. Press the <**Connection Test**> button to make a connection to a camera.
7. Press <**Register**> to register the selected camera.

To manually search for and register a network camera

1. In the <**Cam Registration**> menu, click on the <**Manual**> button.
2. The manual search window will appear.
3. Select a channel and protocol used to connect to a camera.
   The input items may differ depending on the selected protocol.

- SAMSUNG : Comply with the internal network protocols adopted by Hanwha Techwin.
- ONVIF : Means the camera supports ONVIF protocols. When connecting a camera that its name cannot be found from the list, select <**ONVIF**>.

■ Time difference between the ONVIF camera and NVR exceeds more than 2 minutes, the camera cannot be connected. In this case, synchronize the ONVIF camera's time to the NVR or set times of both camera and NVR to a same NTP server (if in the same time zone), or make the NVR an NTP server.

- RTSP : Comply with RFC 2326, one of "Real Time Streaming Protocol (RTSP)" for real-time streaming.

4. If you select the <**SAMSUNG**> protocol, check options as necessary.

- Model : Select a camera model.
  - Samsung Network Camera/Encoder : Means the camera/encoder supports Hanwha Techwin's SUNAPI, SVNP protocol. When connecting a camera that does not appear in the camera list, select Samsung Netowrk Camera/Encoder.
- Address type : Select an address type of the camera.
  ■ Address type can be different dependingon connected product model.
  - Static(IPv4) : Used to provide the IP address of the camera manually.
  - iPOLiS DDNS : This is available only if the camera is registered with the iPOLiS DDNS(www.samsungipolis.com) server. Provide the registered domain for DDNS ID.
    ■ Ex) http://www.samsungipolis.com/snb5000 ➞ provide "snb5000" for iPOLiS DDNS
  - URL : Used for URL address input.

■ Refer to the user manual of the connected camera and check the DDNS specification that is supported by the camera.

- IP Address : Provide the IP address of the camera.
- Device Port : Provide the device port of the camera.
- HTTP Port : Provide the HTTP port of the camera.
- ID : Provide the ID of the camera that you want to register.
- Password : Enter the password of the camera to be registered.

5. Select <**ONVIF**> or <**RTSP**> for the protocol and enter your input for each field appears.

- ONVIF Address / RTSP URL : Enter the camera's RTSP access address that supports ONVIF or RTSP. For more information about the RTSP address, refer to the manual of each applicable network camera.
- ID : Enter the ID for accessing via ONVIF/RTSP protocol.
- Password : Enter the password for accessing via ONVIF/RTSP protocol.
- Mode : If <**More Detail**> button clicked, setup window will appear. Select a mode that is supported by the network camera in RTSP connection mode.
  - TCP : The connection type with the network camera will switch to "RTP over TCP".
  - UDP : The connection type with the network camera will switch to "RTP over UDP".
  - HTTP : The connection type with the network camera will switch to "RTP over TCP (HTTP)".
  - HTTPS : The connection type with the network camera will switch to "RTP over TCP (HTTPS)".

If you want to check the error details of camera registration

If you failed to register a camera, the reason for the failure will be displayed.

- **Connection failed due to unknown error.** : This message appears if the camera has failed to be registered due to unknown connection status.
- **Due to the camera account locking, access has failed.** : When you enter a wrong ID/password 5 times to login to the camera account, this message is displayed.
  Try to log in again after 30 seconds. If the same message appears, you may need to check whether someone has tried to access your camera account from the outside.
- **Connected successfully.** : This message appears if the camera is connected successfully.
- **Incorrect model information. Provide the correct model information.** : This message appears if the model information provided for registering the camera is incorrect.
- **Authentication has failed** : This message appears if the ID or password provided for registering the camera is incorrect.
- **Connection has failed due to excessive concurrent users.** : This message appears if the concurrent user count exceeds the upper limit.
- **Connection has failed due to incorrect HTTP port information.** : This message appears if the HTTP port number of the camera is invalid.
- **Connection has failed. Unknown connection status.** : This message appears if the camera has failed to be connected due to a unknown error.
- **User Model Modification** : When registering a new camera, it is named according to the device's default if user set the model to <**Samsung Network Camera/Encoder**>. In case if automatic registration fails, user can change the model name of camera to be registered.

To edit camera profile

When a camera is added for the first time, it is added as the default profile of H.264, H.265 and MJPEG in order temporarily.
To change its profile, refer to "**Setting the network camera's recording profile**" (Page 40) or "**Live Setting**" (Page 35).

- In case of NVR, if you set 3 different profiles for live, recording and network profile, one camera will produce video streams accordingly, having different stream formats. Especially, note that the live profile may vary depending on the used screen split mode.
- For cameras, if applied with one profile only, the produced frame rate is fixed as the profile specifies; if applied with multiple profiles, produced video stream's frame rate is not guaranteed. For example, if applied with 2 profiles of 30fps, the camera may transmit streams at 20fps.

ONVIF Setup

In the bottom of the camera addition screen, click on the <**ONVIF Setup**> button to set additional settings for cameras with the ONVIF protocol.

- You can change the information only if the user account (camera account used for camera registration) is used to read the user information and a connection is made with the admin privilege.

Profile

- CH : It shows the list of registered camera with the ONVIF setting.
- Add Profile : You can add camera profile.
  After adding a profile, click on the <**OK**> button to add it to the list.
- Delete : After selecting the profile to delete, click on the <**Delete**> button to delete the selected profile.
- Profile information : You can set the details of the selected profile.

After finishing setting each item, click on the <**OK**> button to save changes.

User

- Add User : You can add a camera user.
  After adding a user, click on the <**OK**> button to add them to the list.
- Delete : After selecting the user to delete, click on the <**Delete**> button to delete the selected user.
- User Information : You can set the details of the selected user.

Network

You can set the details of the network.

- IP Type : The network is IPv4 type.
- DHCP : Select whether to use the DHCP.
- DNS / NTP Server : Only if the DHCP setting is <**ON**>, the DHCP checkbox will be activated.
  - If the DHCP is checked, you can manually enter the IP address.

Relay

You can set details of the relay.

- Digital Output : You can select a digital output channel.
- Relay Mode : Select either bi or mono stable modes.
- Relay Idle State : Select either open or closed relay standby modes.
- Delay Time : Select the relay operation waiting time.

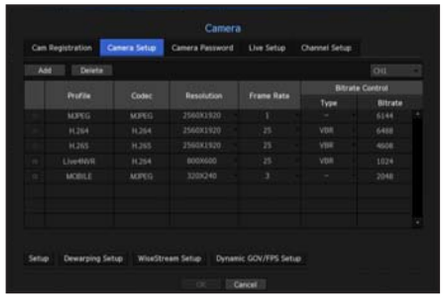
Event

You can set details of the event.

- Available events (camera) : It shows the list of all the events supported by a camera by using the ONVIF protocol.
- NVR supported events : You can map the list of events supported by a camera to events that the NVR can detect. There is no default value. It only shows the value sent by a camera.

Camera Setting

You can change the video settings of a registered network camera for each channel.

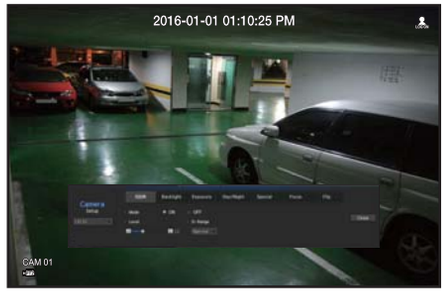


- Add : You can add camera profile. Click on the Add button to launch the addition window. Enter the information and click on the <**OK**> button to add it to the list.
- Delete : You can delete the selected profile from the list.
- Select Camera : Select the camera channel to change the video transmission settings.
- Profile : Show a video profile for the connected camera.
- Codec : Show the codec information for the selected profile.
- Resolution : You can change the resolution of the selected profile.
- Frame Rate : You can change the baud rate of the selected profile.
- Bitrate Control : You can change the bit rate for video transmission of the selected profile.

- If you change the settings of a specific profile for each model, the effective range of the baud rate may be changed accordingly. Ex) if you set the baud rate of the first profile to 30fps, the send rate of the second profile will be changed to 15fps.
- Menu options other than codec, resolution and transmission rate can be configured in the settings menu of the network camera.
- If you change the current profile settings, you may encounter an interrupted playback on the recording or live screen for a certain time.
- Changes made in Camera Setup page are applied immediately, while changes made through the camera's web page may require up to 3 minutes.

Setup

In the bottom of the camera setting screen, press the <**Setup**> button to set your camera while watching the live video of the selected camera.



- SUNAPI : Camera that supports the communication protocols provided by Hanwha Techwin
  1. Camera supporting SUNAPI.
  2. A camera connected with admin privileges.
  3. A camera connected to Samsung protocols.
  In the above cases, you can use the function.
- For more details on camera settings, refer to the camera user manual.
  Settings and operational spec vary depending on each camera.
- This function is not supported in some models.

SSDR

If there is a significant difference between the dark and the bright areas, increase the brightness of the dark areas to maintain the level of brightness of the entire area.
Mode, level, D-Range can be set.

Backlight

You can view both bright and dark areas.
Mode, WDR level, WDR black/white levels can be set.

Exposure

You can adjust the exposure of your camera.
Brightness control, shutter, SSNR, Sens-up, shutter/lens, and gains can be set.

Day/Night

You can change the mode to adjust the color and contrast.
Mode, switching time, brightness change, alarm time, alarm input/output, negative color, daytime/nighttime switching and simple focus, and activation time can be set.

Special

DIS (shaking compensation), use of Defog levels can be set.

Focus

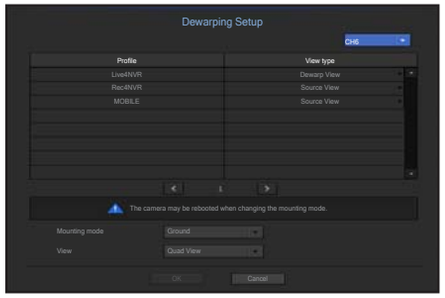
You can adjust the focus of you camera's video.
Items of Simple Focus and Focus-Initialize Setting can be set.

Flip

Mirror and flip modes can be set.
After finishing with setting camera, click on the <**Close**> button to move back to the previous screen.

Dewarping Setup

Press <**Dewarping Setup**> at the bottom of the camera settings screen and a distortion correction settings window for each channel is prompted.



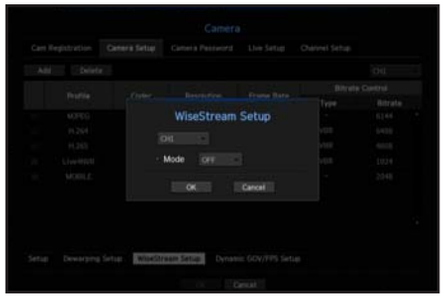
- Profile/View type : You can select the view type of profiles, except for fixed profiles (SourceMJPEG, SourceH264, DewarpMJPEG, DewarpH264) whose settings can't be changed, in the profile list on the distortion correction settings pop-up window.
- Mounting mode : You can change the fisheye installation type. You can select a view mode from among CEILING/GROUND/WALL depending on the installation location.
- View : You can change the fisheye view mode of the current screen according to each split section.

■ If there is no camera registered in the NVR that supports fisheye view, <**Dewarping Setup**> will not be available.

How to set WiseStream

Function to analyze the complexity of the video and effectively reduce the data size while maintaining the quality. For details, refer to the camera's help or the product's user guide.

Press the <**WiseStream Setup**> button at the bottom of the camera setup screen to display the WiseStream setting popup window for that channel.



- Channel : You can select the channel to set WiseStream.
- Mode : You can choose the degree of video compression. You can choose either OFF, Low, Medium, or High.

■ <**WiseStream Setup**> cannot be executed if there is no camera registered in NVR that supports WiseStream.

How to set the variable GOV/FPS

Variable GOV is a function that automatically changes GOV length according to the video situation. For details, refer to the camera's help or the product user's guide.

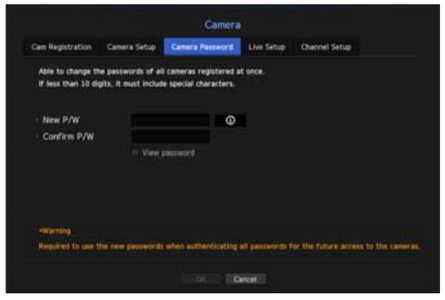
Press the <**Dynamic GOV/FPS Setup**> button at the bottom of the camera setup screen to display the Variable GOV/FPS setting popup window for that channel.

- Profile : Shows the video profile of the connected camera setting.
- Dynamic FPS : Set the FPS value to automatically change to the setting value of the maximum dynamic FPS.
- Dynamic GOV
  - Mode : Set the GOV length to change automatically.
  - Length : Enter the maximum GOV length value to be applied when there is no motion in the video. Minimum GOV value can be set on the camera web page.
  - Range : The range of the input value of <**Length**> is displayed.

■ Profiles that do not support variable GOV/FPS setting are displayed as <**-**>.

Setting Camera Password

You can change the passwords of all registered cameras at once.



- New P/W : Input a new password according to the password setting rules.
- Confirm P/W : Input the new password again.

- If you click < ⓘ >, a basic guide for password setup is displayed.
- If <**View password**> is selected, the password is no longer hidden on the screen when you type it.
- A camera password registered with ONVIF and RTSP cannot be changed.

Password setting guide

The length and limitations of a password are as follows.

- Uppercase letters/lowercase letters/numbers/special characters, containing at least 3 out of the 4 character types mentioned: 8 or 9 digit combination
- Uppercase letters/lowercase letters/numbers/special characters, containing at least 2 out of the 4 character types mentioned: 10 to 15 digit combination
- The password shall not be identical to the user ID.
- To enhance security, it is not recommended to use repeated digits or letters, or keyboard patterns as a password.
- Special characters accepted for a password : ~`!@#$%^*()_-+=|{}[].?/

Live Setting

You can change the live transfer settings of the network camera.

- Live Replacement : You can select the live profile setup mode.
  If you select <**Manual**>, the profile setup items are enabled, and you can change settings manually.
  - Auto : In case of split mode, the profile for live monitoring shows the Live4NVR profile(basic: H.264 800*600 30fps) created at the time of registration and it automatically selects the second profile in case of single mode.
  - Manual : Live monitoring is performed with the profile selected by the user from the registered camera profiles.
  - Record : Live monitoring is performed with the profile set for recording.
- Profile : You can select the video profile of the connected camera setting.
- Codec : Show the codec of the selected recording profile.
- Resolution : Show the resolution of the selected profile.
- Frame Rate : Show the frame rate of the selected profile.

Channel Setting

You can configure the video settings for each channel.

- Apply to CH : If you select <**Apply to CH**>, the "**Apply to CH**" confirmation window will appear.
  After selecting channels that the settings will be applied to, click on <**OK**> to apply them to the selected channels.
- Video
  - <**ON/OFF**> : You can turn ON/OFF the selected channel's camera.
  - <**Covert1**> : Shows information other than the video of the selected channel.
    For privacy protection, it does not display the video while the recording continues.
  - <**Covert2**> : Shows nothing but an empty screen while the recording continues.

- If the channel is set to <**Covert1**> or <**Covert2**> mode, the channel's sound is not hearable.
  However, the channel's sound is recorded if its Audio setting is set to <**ON**>, even the sound is not heard in Live mode.

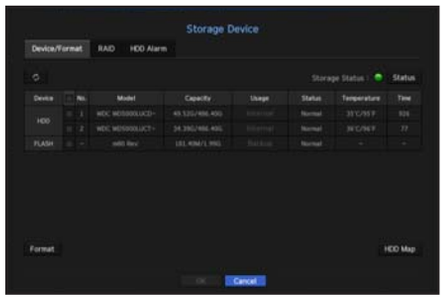
- Audio
  - If set to <**ON**>, you can turn the audio of the channel ON/OFF on the Live screen.
  - If set to <**OFF**>, the channel's audio is off on the Live screen and not recorded.
- Camera Name : Provide a camera Name.
  - You can enter up to 15 characters including space.

Storage Device

You can check information on storage devices.

Device/Format

You can check storage devices and their capacity, usage as well as status.
HDD, USB (memory or HDD) can be connected as a storage device.



- Storage Status : Displays the working status of a storage device.
  - Red : Displays the situation of video loss.
  - Green : Displays the normal situation without video recording losses.
  - Status
    - Full BPS : Displays the current rate of recording.
    - Current Loss Rate : Displays the current recording loss rate.
    - Max Loss Amount : Displays the maximum amount of losses up until now.
    - If loss is continuously generated, check the following.
      For more information, refer to the "**Troubleshooting**". (page 82)
      - When data is received due to a system malfunction (reset the video transmission volume of the camera)
      - When there is a problem in HDD recording performance due to an HDD malfunction (check the HDD error or replace the HDD)
- No. : You can check the designated number for the built-in HDD.
  - If you want the find out about the location corresponding to the HDD number, refer to the <**HDD Map**>.
- Capacity : Displays the amount of storage device use and the full capacity.
- Usage : Designate the purpose of use for a storage device.
  - If the state of use is in "**Not Defined**", format the HDD before use.

- Status : Displays the current working condition of a storage device.
  For inspection or replacement of HDD alarms, please refer to "**HDD Alarm Setting.**" (Page 38)
  - Normal : It is displayed during normal operation.
  - Inspection : Operating with partial problems.
  - Replacement : It is displayed when you can no longer use it.
- Temperature : You can check the temperature of the HDD mounted in the NVR.
- Time : Displays the use time of an HDD.
- Format : Select a device and click on format after which a format confirmation window appears.
  Click on the <**OK**> button to format the selected storage device.

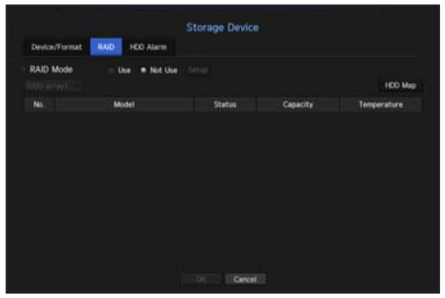
- Formatting will delete all the recording data that has been saved. Be careful.
- While formatting is ongoing, you cannot record video.
- Do not remove a formatting device until it is finished.
- After installing an HDD, if the state of use of the HDD is "**Not Defined**", format the HDD before use. (If the warning message persists after formatting, replace the HDD with a new one)

- HDD Map : You can check the location according to the assigned number for the HDDs installed inside.
  - Refer to this when servicing or installing an additional HDD.

- Do not add or remove an HDD while NVR is running.

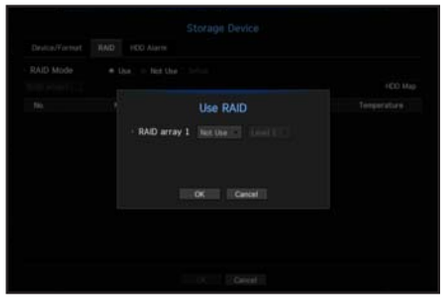
RAID mode setting

If you enable the RAID (Redundant Array of Independent Disks) mode, when a system HDD is damaged you can restore data safely. This NVR supports RAID Level1. The RAID Level1 supported by this NVR maintains the same data on the two HDDs that constitute the RAID Array. This means that even when one HDD fails, the stored data can be used and recovered.



- Status : Displays the operational status of the RAID.
  - Active : Signals the fact that the RAID is operating normally.
  - Degraded: This is displayed when one of two HDDs constituting the RAID array has a fault. Replace the HDD and proceed with recovery before the remaining HDD fails.
    - For more on how to replace the HDD and to restore the RAID, refer to "**Recovering RAID Array**". (Page 38)
  - Rebuilding : It means that a RAID is being restored.
  - Fail : This means that the RAID cannot be used or restored.
- Status : Displays the current operating condition of the HDDs installed in a RAID.
  - Active : Displays that the HDD is operating normally.
  - Faulty : It displays that the HDD is malfunctioning. You need to immediately replace the HDD for smooth recovery of the RAID.
  - Check : A problem occurs on the HDD, requiring replacement or inspection.
- Capacity : It shows the total capacity of the HDDs that composes a RAID.
- Temperature : You can check the temperature of HDD(s) that compose a RAID.

RAID mode setting



1. Click on the <**Use**> or <**Setup**> button.
2. In the use RAID window, select settings of RAID and click on the <**OK**> button.

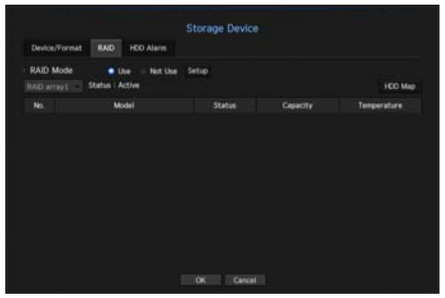
- Use/Not Used : You can select whether or not to use the RAID mode.
- Level1 : It shows the type of RAID supported by the NVR.

3. Click the <**OK**> button on the RAID screen.
4. The data deletion and system rebooting message window will appear. You can click on the <**OK**> button to reboot the system for RAID mode setting.
5. When RAID building is complete, select <**Setup**> - <**Device**> - <**Storage Device**> - <**RAID**> to check the build.

- When you select the Disable button in RAID mode or change the RAID Array to unused in the setting window, RAID Array is released.
- If the status of HDD is displayed as inspected/replaced in the device/format page, you cannot use it to build a RAID.
- A RAID configuration can consist only of HDDs of the same type and same capacity.

- If you enable or disable the RAID mode, existing data will be deleted.
  You make sure to backup your data.

Recovering RAID Array



1. If the number of HDDs for which the Faulty/Check indicator is displayed on the <**Status**> is identified, check the position of the HDD to be replaced on the HDD map.
2. Remove the failed HDD and replace it with a new HDD.
3. The <**Device**> - <**Storage Device**> - <**RAID**> menu will show the progress of recovery.

- Replace it with the same model of HDD or an HDD of the same capacity from the same manufacturer.
- A HDD used to build the RAID should be one of the recommended models.
  If it's not possible to use the same model of HDD, then use the HDD with the same capacity from the same manufacturer should be used.
- If you remove the power cord while using the RAID, it can damage it, so be careful.
  For reliable power, it is recommended you use the UPS.
- A new HDD to be replaced should be one that is not RAID configured.

HDD Alarm Setting

For HDD malfunctions, you can set the inspection alarm output terminal, the replacement alarm output terminal and the alarm time. You can set the alarm behavior for abnormal HDD temperature.

- Alarm
  - If <**All**> was selected, both beep sound and alarm signal through rear side ports will output.
  - If <**BEEP**> was selected, a beep will sound.
  - Alarm signal will output through the alarm out port on the rear side when selected <**1**>, <**2**>, <**3**>, <**4**>, <**5**> and <**6**>.
- Check Alarm Output Port : If HDD generates check alarm, the alarm signal will output to the specified alarm output port.
- HDD Temperature Alarm : When the HDD temperature increases higher than the set temperature, a signal is output to the check alarm output terminal.
- Replace Alarm Output Port : If HDD generates replace alarm, the alarm signal will output to the specified alarm output port.
- Duration : Sets the alarm duration for the alarm signal and beep sound.

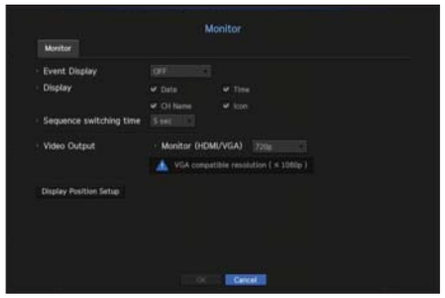
- <**Check**> status means that the HDD is operating but it has problems that require technical examination. ( ) appears on the Live screen.
- <**Replace**> status means that the HDD has defect and requires immediate replacement.

Monitor

You can set the information displayed on the monitor as well as the output system.

Monitor settings

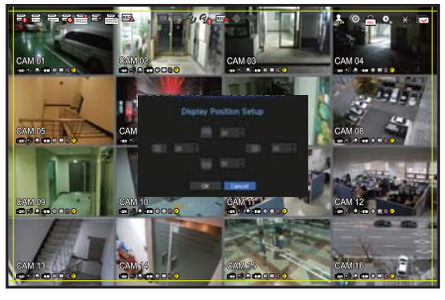
You can configure the monitor output-related settings including the displayed information, dwell time and output system.



- Event Display : Sets the dwell time of the event channel display on the monitor when an event occurs. If you set <**Continuous**>, it will keep displaying until you cancel it.
- Display : Displays only checked items on the monitor screen.
- Sequence switching time : Set the automatic switching time for the segmented screen in live mode.
- Video Output : Sets resolution for video output.

To adjust the display position

Some monitors many not display information (camera name, icon, time information, etc.) about the NVR, depending on the condition. Then, you can change the display position of the data.



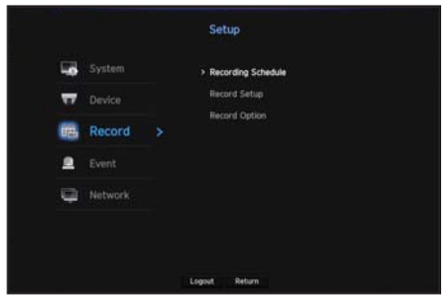
1. From the monitor setup menu, select <**Display Position Setup**>.
2. Using the number button to adjust the screen that is cut off.
3. Press <**OK**>.
   - For the icon information, refer to "**Live Screen Configuration** > **Icons on the Live Screen**". (page 15)

SETTING THE RECORDING

You can setup scheduled recording, event recording and other recording related settings.

Recording Schedule

Make your reservation on a date and time to schedule the recording on specified time.



- All : The entire time range (Monday through Sunday including holidays, AM 0~ PM 23) will be reserved with the same recording schedule
- Apply to CH : If you select <**Apply to CH**>, the "**Apply to CH**" confirmation pop-up window will appear. After selecting channels that the settings will be applied to, click on <**OK**> to apply them to the selected channels.

- Event recording and scheduled recording starts about 3 seconds prior to the event/schedule for guaranteed recording.

Record setting by the color

Color	Function	Description
No Color	No Recording	No schedule / event recording
Green	Continuous	Scheduled recording only
Orange	Event	Event recording only
White	Both(Cont&Evnt)	Both scheduled / event recordings

Each press of a selected cell will cycle through <**No Recording**>-<**Continuous**>-<**Event**>-<**Both(Cont&Evnt)**>.

Record Setting

You can set resolution, IPS, and quality of recordings by channel, and by recording type of standard / event.

You can check frame rates and data transfer amount of Full Frame and Key Frame recordings for each channel, and set the transfer limit for recordings.

- Apply to CH : If you select <**Apply to CH**>, the "**Apply to CH**" confirmation window will appear.
  After selecting channels that the settings will be applied to, click on <**OK**> to apply them to the selected channels.
- Standard, Event : Configures Standard recording and Event recording.
  - FULL : Records all frames fed by the camera.
  - KEY : Records only key frames fed by the camera.
    Actual recording rate may differ from camera settings. In general, 1 to 2 frames per second are recorded.
  - OFF : No recording is made.
- Frame
  - FULL : Shows the amount of data for all the scene recordings.
  - KEY : Shows the amount of data for the main scene recordings.
- Limit : Set the amount of data allowed for input for each channel.
- Event : When an event occurs, you can set which point you will start or stop recording.
  - Pre : When an event occurs, recording will be started regardless of the time set.
    If you set it to 5 seconds, recording will start at 5 seconds before an event occurs.
  - Post : When an event occurs, recording will continue after the time set.
    If you set it to five seconds, recording will continue for a further five seconds after an event is finished.
- Audio : Specify whether to record the sound received from the camera or not.

- If a channel's data transfer exceeds defined allowed limit, then it may affect to other channels, and may force switching to <**KEY**> recording even when the channel is configured to <**FULL**> recording mode. For Key Frame recording channels, the icon for limited recording appears on the live screen's top side.
  But if the sum of the limits is below the max limit, you can still receive the entire frames despite exceeding the permitted bitrates for each channel.
- A channel displayed in yellow indicates that the recorded data is not being transferred from the camera and that the recording is being performed temporarily using another profile on the camera.
  Check the channel information to see the applied profile to the channel listed in yellow.
  A channel displayed in orange indicates that the amount of inputted data is greater than the permitted data amount.
  In this case, it is impossible to record all of the incoming frames.
  Instead, only part of the frames (1 or 2 frames per second) can be recorded. To resolve this issue, you must set the permitted data amount to be greater than the amount of inputted data.
  Refer to notes on "**Record status**". (Page 20)

Setting the network camera's recording profile

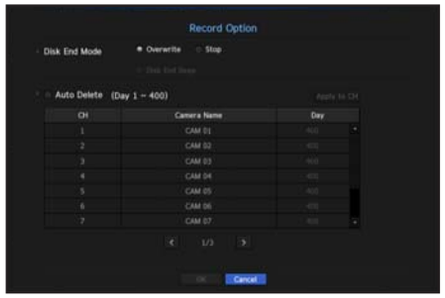
You can configure the video profile settings for instructing the network camera (connected to each channel) to make recording.

- You can configure the settings only for the profiles that are supported by the camera.
- If the profiles used for recording and network are different, camera's video feed may not comply with the frame rate as specified in the camera.

- Profile : Select a record profile for the connected camera.
- Codec : Show the codec information for the selected record profile.
- Resolution : Display the resolution for the selected record profile.
- Frame Rate : Display the baud rate for the selected record profile.

Record Option

When the HDD capacity is full, you can set whether to stop recording or start overwriting.



- Disk End Mode : Selects the HDD repeat recording method.
  - Overwrite : If the HDD is full, this will overwrite the existing data and keep recording.
  - Stop : If the HDD is full, this will stop recording automatically.
- Disk End Beep : If you select <**Stop**> for the disk end mode, this button will be active. Specify the use of beep when the HDD recording ends.
  If you check it, the beep will sound on the disk full and the recording stops.
- Auto Delete : If you check this option, the period list box is active. Specify the deletion period to delete any earlier data than the specified date. However, you can search for data from the current time to the selected date.
  - ▪ You can select a channel and set a different recording duration for each channel.
- Apply to CH : If you select <**Apply to CH**>, a confirmation dialog window is opened.
  Select a channel to apply the applicable settings then press <**OK**>. The settings will be applied to the selected channel.

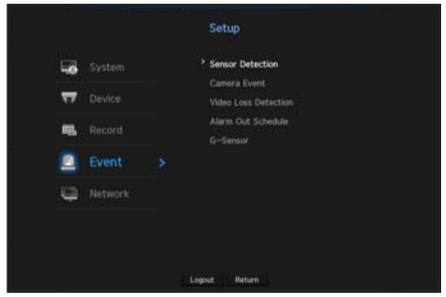
- ▪ If you press <**OK**> when you have completed your settings, all the existing data earlier than the specified period will be deleted automatically. So it is recommend to backup the previous data if necessary for later use.

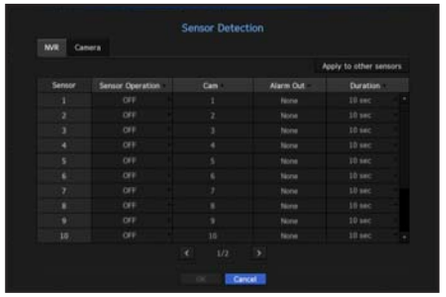
SETTING THE EVENT

You can make the setup for record in case of sensor detection, camera event or video loss detection.

Sensor Detection

You can set the sensor's operating condition and connected camera, as well as alarm output and its duration.



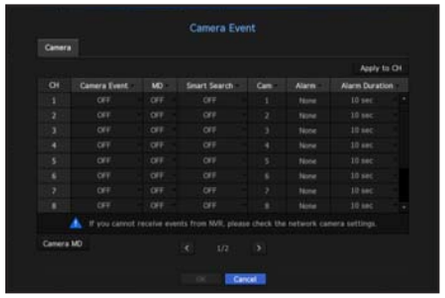


- Apply to other sensors : If you select <**Apply to other sensors**>, the "**Apply to other sensors**" confirmation window will appear.
  After selecting channels that the settings will be applied to, click on <**OK**> to apply them to the selected channels.
- Sensor Operation : Sets the operation mode of sensors.
  - ▪ In the <**Camera**> tab, you can set whether or not to use a sensor.
  - <**N.O (Normal Open)**> : Sensor is opened. If the sensor is closed, it generates alarm.
  - <**N.C (Normal Close)**> : Sensor is closed. If the sensor is open, it generates alarm.
- Cam : Select a channel to be connected to the sensor.
  If selected camera, "**Cam Preset setup**" window appears.
  Select a channel and setup the preset.
  - ▪ Preset setup can be done in PTZ mode.
- Alarm out : Sets the alarm output method.
  - ▪ For further information on alarm output, refer to "**HDD Alarm** > **Alarm**". (Page 38)
- Duration : Sets the duration of alarm signal and alarm sound.

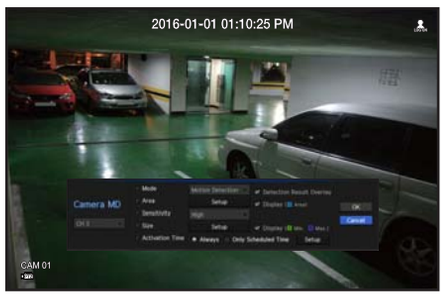
- ▪ If you select <**Camera**> tab, you can configure the sensor operation settings of the network camera connected to each channel.
- ▪ If the connected network camera that has configured the alarm in/out settings triggers an alarm, NVR will perform the alarm out.

Camera Event

You can set the activation of events (motion detection, video analysis, audio event) sent from the camera, alarm output method and alarm time.



- Apply to CH : If you select <**Apply to CH**>, the "**Apply to CH**" confirmation window will appear.
  After selecting channels that the settings will be applied to, click on <**OK**> to apply them to the selected channels.
- Camera Event : Select whether to use an event detection.
- MD : Select whether or not to use motion detection from camera.
- Smart Search : Enables or disables the Smart Search option.
  - To use the smart search function, the smart search option must be set to <**ON**>. Refer to "**Smart Search**" (page 52).
- Cam : Select an event detection channel.
  If you select a camera item, the "**Camera preset**" screen will appear. Select a channel to connect and set the preset.
  - You can set the preset in PTZ mode.
- Alarm : Select the method for alarm output.
  - For more details, refer to "**HDD alarm** > **Alarm**". (Page 38)
- Alarm Duration : Set the duration of alarm.
- Camera MD : You can set the detailed setting of motion detection for a network camera connected.



- Mode : Set the motion detection mode.
- Area : Click on <**Setup**> and when the detailed setup menu appears, set the motion detection area.
- Sensitivity : Set the sensitivity for motion detection. (very low/low//medium/high/very high).
- Size : Click on <**Setup**>. When the detailed setup menu appears, set the max/min size of the object to be detected.
- Activation Time : Select the operation time of motion detection.

After finishing with setup, click on the <**OK**> button to move back to the previous screen after saving the setup.

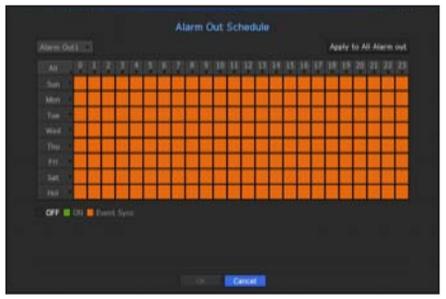
Video Loss Detection

You can set the camera so that the camera can trigger the alarm if it is disconnected or the video is lost due to unstable network connection.

- Apply to CH : If you select <**Apply to CH**>, the "**Apply to CH**" confirmation window will appear.
  After selecting channels that the settings will be applied to, click on <**OK**> to apply them to the selected channels.
- Video Loss State : Specify the use of video loss detection.
- Alarm Out : Select an alarm output method.
  - For further information on alarm output, refer to "**HDD Alarm** > **Alarm**". (Page 38)
- Alarm Duration : Specify the duration of the alarm output with the beep.

Alarm Out Schedule

You can set the conditions and operating hours for scheduled alarms.



- Alarm Out : Sets the alarm output method.
  - For further information on alarm output, refer to "**HDD Alarm** > **Alarm**". (Page 38)
  - <**ON**> : Marked in green, and always generates alarm on scheduled time.
  - <**OFF**> : Marked in black, no alarm is generated even if an event occurs.
  - <**Event Sync**> : Marked in orange, generates alarm only when an event occurs.
- Apply to All Alarm out : Applies the configured schedule to all alarms.

- When the alarm is generated on the scheduled time, you can stop the alarm by canceling the schedule.

G sensor

This function sets events and alarms to be generated according to vehicle movement.

- The time of occurrence can be checked in the event log. (Page 29)
- After the email setting, G sensor event occurrences can be sent. (Page 47)

- G Sensor is used. : Checks whether G sensor is used or not.
- Sensitivity : Sets the sensitivity level (Low/Medium/High) for G sensor output. The higher the sensitivity level, the more frequent the G sensor events.
- Alarm out Setup
  - If <**All**> was selected, both beep sound and alarm signal through rear side ports will output.
  - If <**BEEP**> was selected, a beep will sound.
  - Alarm signal will output through the alarm out port on the rear side when selected <**1**>, <**2**>, <**3**>, <**4**>, <**5**> and <**6**>.
- Alarm Duration : Sets the alarm duration for the alarm signal and beep sound.

- The G sensor event does not occur if the control box is not connected to the vehicle.

NETWORK CONFIGURATION

It provides networked monitoring of Live screen from a remote place, and supports mail forwarding function with events. You can configure the network environment which enables such functions.

Interface

You can set the network connection route and protocol.

Setting a network connection

Sets the protocol and environment of the network.

- Network 1 (Camera) : Port recommended for camera connection, which receives a image from the camera.
- Network 2 (Viewer) : Port recommended for connection with a network, web viewer.
- Network 3 (Wi-Fi) : Port for connecting to external Wi-Fi.
  The Wi-Fi port is used for backup. (Up to 120Mbps is available.)
- Network 1 (Camera) / Network 2 (Viewer) / Network 3 (Wi-Fi) setup
  - IP Type : Select a network connection type.
  - IP Address, Subnet Mask, Gateway, DNS
    <**Static**> : You can manually enter IP address, subnet mask, gateway and DNS.
    <**DHCP**> : IP address, subnet mask and gateway values will be automatically set.
    <**PPPoE**> : IP address, subnet mask and gateway values will be automatically set.
  - For Network 3 (Wi-Fi), the SSID is displayed above the IP address.
  - User ID, Password : If you set the connection mode to PPPoE, you need to enter "**User ID**" and "**Password**" to register in PPPoE.
- Transfer bandwidth : Enter the maximum amount of upload data bandwidth.
  Check the assigned setting in Connection Mode before entering your value.
  - Up to 256Mbps is available for wired networks.
- Default Gateway : Set the basic gateway by using Network1 / Network2 / Network3 setup.

- You can manually input DNS of <**DHCP**> and <**PPPoE**> when it selected to <**Manual**>.

Connecting and Setting the Network

Networking may differ from the connection method, check your environment before setting the connection mode.

When no router is used

• **Static mode**

- Internet connection : Static IP, leased line, and LAN environments allows connection between the NVR and remote user.
- NVR Network Settings : Set the <**Network**> in <**Interface**> menu of the connected NVR to <**Static**>.

■ Consult your network manager for IP, Gateway and Subnet Mask.

• **DHCP mode**

- Internet connection : Connect the NVR directly to a cable modem, DHCP ADSL modem or FTTH network.
- NVR Network Settings : Set the <**Network**> in <**Interface**> menu of the connected NVR to <**DHCP**>.

• **PPPoE**

- Internet connection : An PPPoE modem is directly connected to the NVR, where the PPPoE connection requires user ID and password.
- NVR Network Settings : Set the <**Network**> in <**Interface**> menu of the connected NVR to <**PPPoE**>.

■ PPPoE <**User ID**> and <**Password**> should be the same to the PPPoE user information.
If you don't know the ID and password, consult your PPPoE service provider.

When a router is used

■ To avoid IP address conflict with the NVR's static IP, check followings :

• **Setting the NVR with a static IP**

- Internet connection : You can connect the NVR to a router which is connected to an PPPoE/Cable modem or a router in a Local Area Network (LAN) environment.

• **Setting the NVR Network**

1. Set the <**Network**> in <**Interface**> menu of the connected NVR to <**Static**>.
2. Check whether the set IP address is in the static IP range provided by the Broadband Router.
   IP Address, Gateway, and Subnet Mask : Consult your network manager.
   ■ Check whether the set IP address is in the static IP range provided by the Broadband Router.

■ If a DHCP server is configured with starting address (192.168.0.100) and end address (192.168.0.200), you should set the IP address out of the configured DHCP range (192.168.0.2 ~ 192.168.0.99 and 192.168.0.201 ~ 192.168.0.254).

3. Check the Gateway address and subnet mask are equal to those set in the Broadband Router.

• **Setting the DHCP IP Address of the Broadband Router**

1. To access the Broadband Router's configurations, open a web browser on the local PC that is connected to the Broadband Router and enter the router's address (ex : http://192.168.1.1).
2. At this stage, make the local PC's windows network configurations to the below example :
   Ex) IP : 192.168.1.2
   Subnet Mask : 255.255.255.0
   Gateway : 192.168.1.1
   - Once connected to the Broadband Router, it prompts with password. While entering nothing to the User Name field, enter "**admin**" into the password field and press <**OK**> to access the router configurations.
   - Access the router's DHCP configuration menu and set its DHCP server activation, and provide the start and end address.
     Set the start address (192.168.0.100) and end address (192.168.0.200).

■ Above steps may differ from the router devices depending on the manufacturer.

Wi-Fi Setup

1. Click the <**Setup**> button.
   ■ If the Settings button is disabled, tick the <**Wi-Fi Enable**> checkbox on the right.
2. Select the IP type and click the <**Wi-Fi Setup**> button.
   A list of discovered Wi-Fi networks is displayed.
3. If you select a Wi-Fi network to connect to from the list, the password input window appears.
4. Enter the password and click <**OK**>. Wi-Fi is connected.

■ The transmission range of the wireless signal may weaken if heavy obstructions, such as concrete, brick, or metal walls are between the NVR and Router.

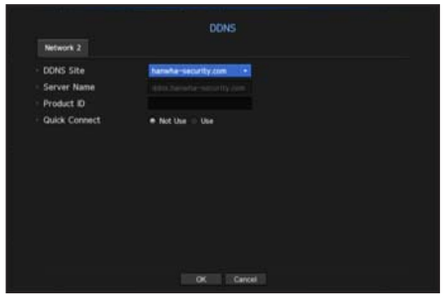
■ If there are multiple Wi-Fi routers and devices in your environment, it may reduce the wireless bandwidth available. Weak network bandwidth may reduce the videoquality or video loss.

Port Setting

- Device Port : Enter the connectable port number. Initially, <**554**> is set.
  - TCP : It has better stability and lower speed when compared to UDP, and recommended for internet environments.
- UDP Port : Initially, <**8000~8159**> is set. It increases / decreases by 160.
  - UDP : It has less stability and faster speed when compared to TCP, and recommended for local area network (LAN) environments.
- Multicast IP Address : User can directly input.
- Multicast TTL : Select from 0 ~ 255. Initial value for the TTL is set to <**5**>.
- HTTP Port : Enter the port number for the Web Viewer. Initially, it is set to <**80**>.
- Send SSL : Select this option to send SSL.
- Backup Bandwidth : Select the degree of backup bandwidth.

DDNS

If a remote user accesses the network, you can set whether or not to use DDNS and the site to be connected.



- DDNS Site : Specify the use of DDNS and select a site that you registered.
- Server Name : Provide the host name that you registered with the DDNS site.
- Product ID : Provide the user ID that you registered with the DDNS Site.
- Password : Provide the password that you registered with the DDNS site.
- Host Name: Enter the host name registered on the DDNS site.
- User Name: Enter the user name registered on the DDNS site.

- Refer to "**Using Virtual Keyboard**". (Page 26)
- If you select <**OFF**>, the input box will be inactive.
- If you select <**hanwha-security.com**>, the host name input box will be inactive.

- Quick Connect : Select whether or not to use.
  To use the function, set to <**Use**> after connecting the NVR to a UPnP router.

- If canceled during Quick Connect configuration, it automatically switches to <**Not Use**> and saved.
- If you are setting a port that is already in use, the connection may not be established. Check the port setting of the router.
- The server name, manufacturing ID, and quick connect appear when <**DDNS site**> is selected as <**hanwha-security.com**>.

To check Quick Connect status

A progress bar and its message appears for a Quick Connect.

- **Quick Connect Success** : Message for a successful connection.
- **Invalid Network Configuration** : Message appears if the network configuration is not valid. Check the configuration.
- **Please enable UPnP function of the router** : Message appears if the router requires UPnP function enabled.
- **Failed to find the router** : Message appears if the router is not found. Check the router's configurations.
- **Please restart the router** : Message appears if the router should be restarted.

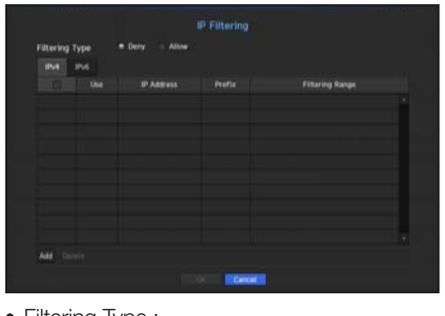
DDNS Setting

DDNS is a short form of Dynamic Domain Naming System.
DNS (Domain Name System) is a service that routes a domain name consisting of user friendly characters (ex : www.google.com) to an IP address consisting of numbers (64.233.189.104).
DDNS (Dynamic DNS) is a service that registers a domain name and the floating IP address with the DDNS server so that the domain name can be routed to the IP address even if the IP is changed in a dynamic IP system.

- **Setting DDNS in the NVR**
  Set <**Protocol Type**> in the <**Protocol**> menu of the connected NVR to the following :
  Ex) Protocol Type : TCP
  Port (TCP) : 554, 555, 556, 557, 558
  DDNS Site : hanwha-security.com
- **DDNS Settings of the Router**
  Select the corresponding menu for the network transfer protocol of the router.
- **Setting up UPnP of Router**
  Refer to the router's documentation to enable the UPnP function of the router.

IP Filtering

You can prepare the list of IP addresses to allow or block access to a specific IP address.

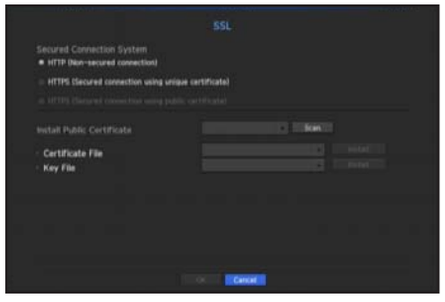


- Filtering Type :
  - Deny : If you select reject, access to the registered IP address will be limited.
  - Allow : If you choose permit, then they can only access the registered IP addresses.
- Use : Select the checkbox for the IP address that will use IP filtering.
- IP Address : Enter the IP address for filtering.
- Filtering Range : If you enter an IP address or prefix, then the range of IP addresses blocked or permitted will be displayed.

- If a camera's IP address is not included in the Permit list or is in the Reject list access to it will be rejected.

SSL

You can select a security connection system or install public certificates.



- Secured Connection System : You can select a type of security connection system.
  - HTTP (Non-secured connection)
  - HTTPS (Secured connection using unique certificate)
  - HTTPS (Secured connection using public certificate)

- If the NVR device is connected to the external internet or installed in an environment with high priority for security, making a secure connection is recommended.

- Install Public Certificate : You can scan and register public certificates to be installed.
  If you want to use a certificate, you need to install a certificate file along with and an encryption file.
  - The <**HTTPS (Secured connection using public certificate)**> menu can be selected only if there is a registered public certificate.

802.1x

When connecting to a network, you can select whether to use the 802.1x protocol and install a corresponding certificate.

802.1x is a certificate system for the server and the client. It can guarantee robust performance against hacking into the Tx/Rx network data, virus or information leaks.

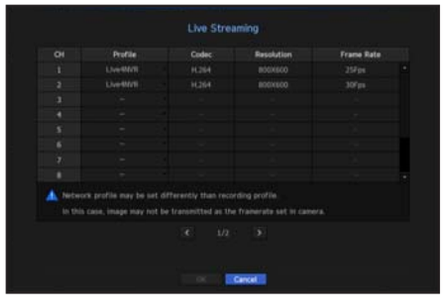
By using this system, you can block access from a client who is not certified and only allow communication to certified users and thus increase the level of security.

- EAPOL Version : Select the EAPOL version to be used as protocol.
  - Some switch hubs will not operate if you set them to version <**2**>. Select version <**1**>.
- ID : Enter the ID provided by the RADIUS server administrator.
  - If the entered ID does not match the ID of the client's certificate, it won't be processed properly.
- Password : Enter the password provided by the RADIUS server administrator.
  - If the password you entered does not match that of the client's private key, it won't be processed properly.
- Certificates : Search for a device. Click on <**Rescan**> to search for a device again.
- CA Certificate : Select this only if your public certificate includes the public key.
- Client Certificate : Select if the public certificate includes a client's authentication key.
- Client Private Key : Select it if the public certificate contains the client private key.

- For successful implementation of the 802.1x operating environment, the administrator must use the RADIUS server.
  In addition, the switch hub connected to the server must be a device that supports 802.1x.
- If the time setting of the RADIUS server, the switch hub and an NVR device do not match, communication between them can fail.
- If a password is assigned to the client's private key, the server administrator should confirm the ID and password.
  The ID and password allow up to 30 characters each. (But it only supports letters, numbers and special characters ("-", "_", "." 3 types) only.
  Accessing non password-protected files is allowed without entering a password.
- The 802.1x protocol adopted by the NVR is EAP-TLS.
- You need to install all three certificates to use 802.1x.
- <**Enable IEEE 802.1x**> When this option is deselected, the disconnection may not work depending on the settings of the switch hub connected. Configure settings to let switch hub update the authentication at regular intervals.

Live Streaming Setting

You can set the video profile to be transmitted to the network.



- Profile : Select a network profile for the connected camera.
- Codec : Show the codec information for the selected network profile.
- Resolution : Display the resolution for the selected network profile.
- Frame Rate : Display the baud rate for the selected network profile.

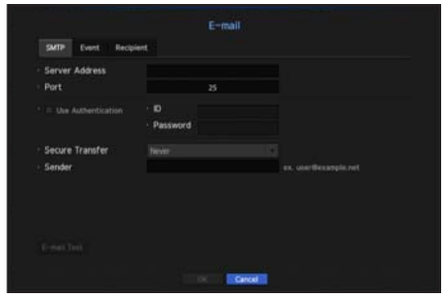
- If the profiles used for network and recording are different, camera's video feed may not comply with the frame rate as specified in the camera.

E-mail

You can send an e-mail to a NVR-registered user at a specific time interval, or if an event occurs.

SMTP Setting

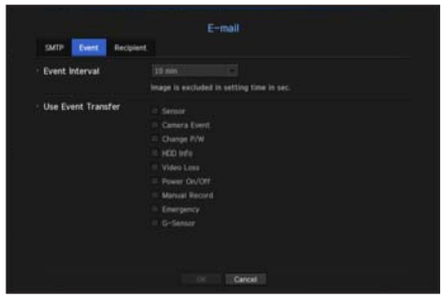
Sets the SMTP mail server.



- Server Address : Enter the SMTP server address to connect to.
- Port : Sets the communication port.
- Use Authentication : Check this if the SMTP server uses user authentication.
  The account input box will be activated.
- ID : Enter a ID to use authentication when connecting to the SMTP server.
- Password : Enter the password of the SMTP server user.
- Secure Transfer : Select one from <**Never**> and <**TLS (if available)**>.
- Sender : Use the virtual keyboard to enter the sender's e-mail address.
  - Refer to "**Using Virtual Keyboard**". (Page 26)
- E-mail Test : Conducts the test on the server settings.

Event Setting

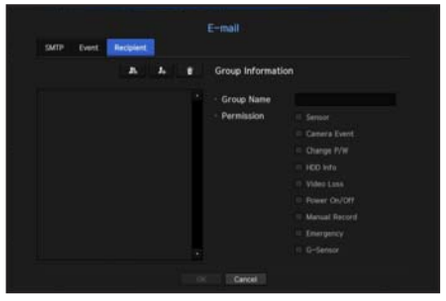
You can set the interval and type of the event that will be sent to the user.



- Event Interval : Set the event interval.
  - If a series of events occurs, the e-mail will be sent at the specified interval, not on each event.
- Use Event Transfer : Select an event type to send if an event occurs.
  If the selected event occurs, the e-mail will be sent to the group that has the recipient authority.

Recipient Setting

You can create a group and add users to it or; you can delete users and change a group.



- Click on < > to add a group.
  Select a group name and the privilege.
- Select a recipient group to receive emails.
  If a group is added, it will appear in the group list.
- Click on < > to add a recipient.
  Select a group and enter names and email addresses.
  If a group is created, you can add a recipient.
  - For inputting the recipient name and email address, refer to "**Using Virtual Keyboard**". (Page 26)

SNMP

Using the SNMP protocol, the system or network administrator can monitor the network devices remotely as well as the operating environment.

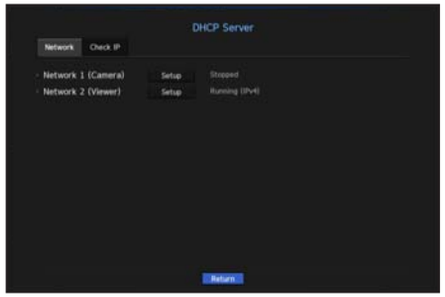
- Enable SNMP v1 : SNMP version 1 is used.
- Enable SNMP v2 : SNMP version 2 is used.
  - Read Community : Enter the name of read-only community to access the SNMP information. By default it is set to <**private**>.
  - Write Community : Enter the name of write-only community to access the SNMP information. By default, it is set to <**public**>.
- Enable SNMP v3 : SNMP version 3 is used.
  - Password : Set the initial user password for SNMP version 3.
- Enable SNMP Traps : SNMP trap is used to send important events and conditions to the Admin System.
  - Trap Manager : Enter the IP address to which messages will be sent.

- SNMP v3 can be set only if the security connection method is set to HTTPS mode.
  Refer to "**SSL**" for more details. (Page 46)

DHCP Server

You can set the internal DHCP server and assign an IP address to the network camera.

Network Setting



• Network 1/2 : Select <**Setup**>, and you can set the IP range operated by the server and time.

To set the DHCP server

1. On the DHCP Server Setup window, click <**Setup**>.
2. Select <**Run**> in the <**Status**> field.
3. Enter the starting IP and end IP in the <**IP Range**> field.
4. Fill in the <**IP Lease Time**> field.
5. Click <**OK**>.
   The IP range entered is set as the DHCP server address of the network.

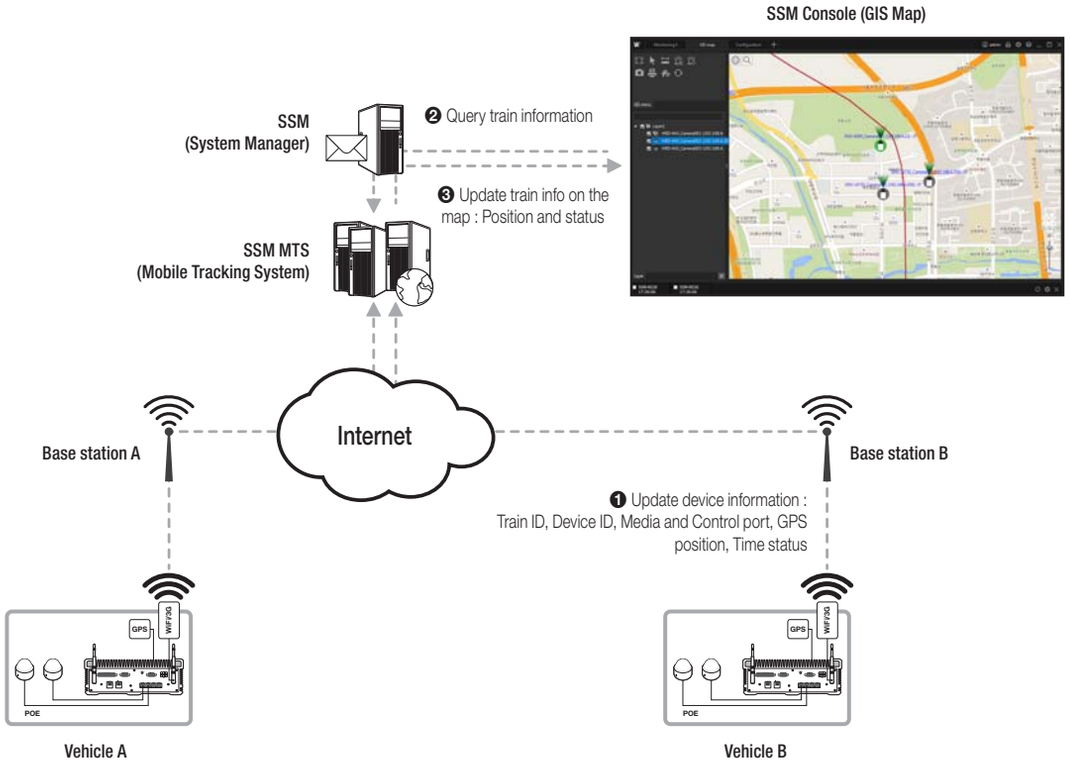
Check IP

You can check the IP Address and Mac currently used through the DHCP server, and the connected network port.

• Network : Select the network port to check the information on IP and others.

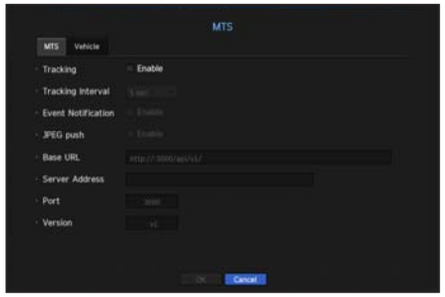
MTS

Vehicle information, real-time location, events and video are transmitted to SSM-MTS (Mobile Tracking System).



MTS

Sets the MTS server address and whether tracking, event notification, and JPEG push are enabled.



- Tracking : Chooses whether or not to send location.
- Tracking Interval : Selects the location transmission interval.
- Event Notification : Selects whether to send events.
- JPEG Push : When live monitoring is requested from a remote site, the video is transmitted in JPEG format. The fps and resolution of the transmitted video follow the settings of the first profile (MJPEG) of a selected channel on transmission request.
- Base URL : The MTS server address configured when <server address>, <port>, and <version> are entered.
- Server Address : The URL of the MTS server.
- Port : The port number of MTS.
- Version : Enter the communication protocol version of MTS.

- Operates only when NVR is registered in MTS. If the information is not being delivered even though the NVR was registered, check the default URL.
- If no location information is received at system startup, the latitude and longitude are delivered as 0 degrees, 0 minutes, and 0 seconds.
- If the location information reception is lost, the last received location information is transmitted.
- Only cameras that support SUNAPI provide the JPEG push function.

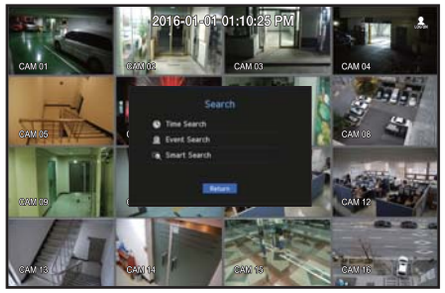
Vehicle

Sets the vehicle information to be transferred to MTS.

- Company's name : Enter the company name where the vehicle is registered.
- Vehicle manufacturer : Enter the manufacturer name of the vehicle.
- Vehicle model : Enter the vehicle model.
- Vehicle ID : Enter the license plate number.
- Driver's license : Enter the driver's license number.
- Driver's name : Enter the driver name.

SEARCH

You can perform the search for recorded data by the time or by the search criteria such as an event.
You can access the <**Search**> menu directly in Live mode.

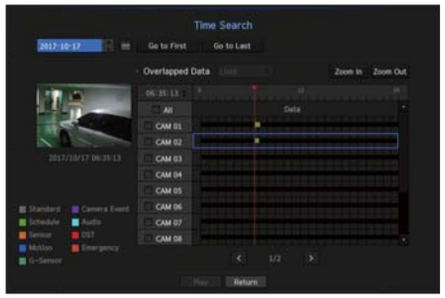


1. In live mode, right click with your mouse button.
   The Live menu appears.
2. Select <**Search**>.
3. The Search menu should appear.
4. The search can be restricted by the Auto Delete function.
   Refer to "**Setting the Recording** > **Record Option**". (Page 41)

- Overlapped data : It only appears if there exists overlapped data on a certain time, produced due to the change of NVR's time setup. The latest data comes first, from <**List0**>.
- The search time is based on the time specified by NVR.

Time Search

You can search for recorded data of a desired time.
The displayed time is based on the local time zone and the daylight saving time (DST). Therefore, data recorded at the same time from different areas may differ based on the time zone and the DST.



1. Select <**Time Search**> in the <**Search**> menu.
2. In the date selection window, click on the < ⬍ > button to select a search date.
   - For using the calendar, refer to "**To use the calendar**". (Page 25)
3. The record data on the specific date will be listed.
   The display bar is different according to the data type. So check the data type for the color in the left pane.

- If DST (Daylight Saving Time) is configured, overlapping multiple recordings may be produced for a certain moment of time. Such a time section is distinguished with red color to mark DST section.

- Go to First : Move to the earliest recording date.
- Go to Last : Move to the latest recording date.
- Time : Enter a time to perform the search or use the up/down button <⬍> to select one.
- Zoom In : The map enlarges in detail.
  It will switch in the sequence of 24hours - 12 hours - 6 hours - 2hours - 1hour.
- Zoom Out : The map will switch in the reverse order of the detailed mode above.
  It will switch in the sequence of 1hour - 2 hours - 6 hours - 12 hours - 24 hours.
- Preview : Click <**Channel**> and select (click, drag) a time in <**Duration**> to display a still image for the portion.
  - If the selected channel does not contain any recorded data, it will be marked black.

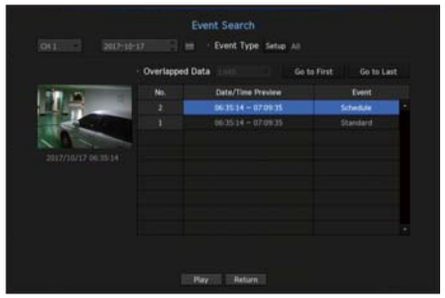
4. Select a data item and click <**Play**>.
   The screen switches to the data playback mode.

Color indications depending on current recording status

The recorded data types are represented through the use of different colors. Each color corresponds to a certain recording type.

Event Search

You can search for events by the channel and play them.



1. Select <**Event Search**> in the <**Search**> menu.
2. Configure the channel, search date and event type settings.
   - Only recordings corresponding to the selected event type are searched.

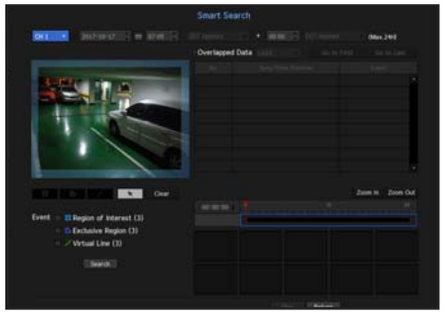
- Date/Time Preview : If you select a data item in the list, the still image of the selected data will be displayed in the left preview pane.
- Event : Displays the type of the event that occurred.

3. Select a data item and click <**Play**>.
   The screen switches to the event data playback mode.

Smart Search

You can select a specific area of the image as an area of interest or exclusion using a virtual line to perform a search of events that have occurred in a specific time period.

- To perform smart search, the <**Smart Search**> option in <**Camera Event**> should be turned <**ON**> and the camera motion event option must be set to the entire area (page 42).



1. In the <**Search**> menu, select <**Smart Search**>.
2. Configure the channel, search date and time settings.

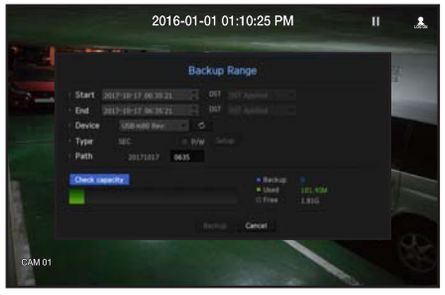
- Go to First : Moves to the oldest smart search result.
- Go to Last : Moves to the most recent smart search result.
- Event : Displays the type of event generated.
- Region of Interest : The entire screen is set as a non-detection area and a specific area designated as a detection area. Click and drag on the image or select 4 vertexes to designate a desired detection area.
- Exclusive Region : The entire screen is set as a detection area and a specific area designated as a non-detection area. Click and drag on the image or select 4 vertexes to designate a desired non-detection area.
- Virtual Line : Detects a motion towards a marked direction based on the virtual line. At a desired position on the screen, click or drag the start point and end point of the line.
  - Up to 3 areas of interest, areas of exclusion and virtual lines can be set, respectively.

3. Click the <**Search**> button.
   - Search results displayed include a list, timeline and thumbnail.
   - When you double-click a list or thumbnail displayed as search results, the applicable data can be played back.
4. Select data to play and click <**Play**>.
   Moves to the playback screen for the data searched.

PLAYBACK

Play

You can play data stored in the HDD and backup a desired portion of the data.



1. In the live screen menu, select the <**Play**> menu or click on < ▶ > in the launcher menu.
2. Select a menu for searches.
   - If this is the first time you try to play, you will start with the data search window.
     For data search, refer to "**Search**". (Page 51)
3. Select a data item and click <**Play**> in the Search menu.
   The selected data is played and the play launcher appears on the screen.
   - If there is an existing data, <**Play**> will start immediately without performing the search.

- Playback Information : Displays the date and time of the current data in the top corner.
- Backup : Click < ◉ > to set the current time to the start time of backup; you can specify a backup area using the mouse (yellow triangle).
  Click < ◉ > again to set the current time to the end time of the backup and the "**Backup Range**" window appears.
  - Type : Supports formats of NVR and SEC.
  - Device : Select a backup device.
  - Check Capacity : Enables you to check the capacity of the selected storage device.

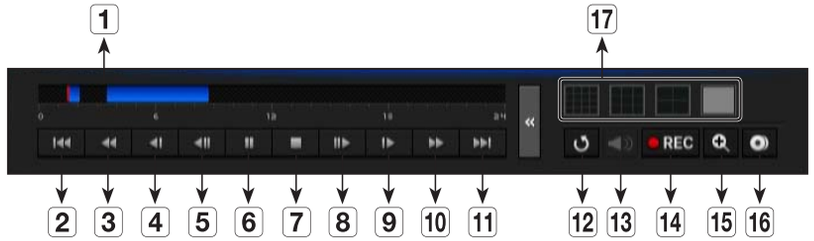
4. If you want to go back to the live screen during plays, then click on < ■ > of the launcher menu.

Checking menu while playing a video

1. Right-click on the play screen.
   Screen menu appears on the play screen.
2. Select a menu to run.
   For more information about each menu, please refer to the "**Split Mode Menu**". (Page 17)

- Rotate mode only appears in single screen mode. You can rotate the play screen by 90 degrees.

Using the Playback Button

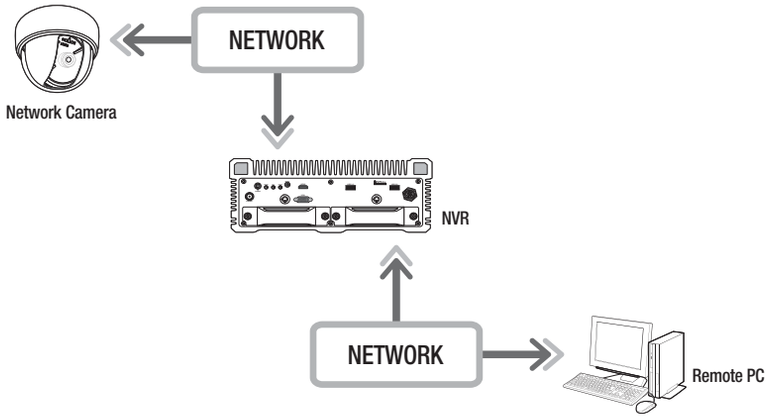


	Name	Description
1	Play Timeline	Indicates the current playback point, and can be used to move.
2	Skip Backward	Moves backward by unit time.
3	Backward Fast Play	Used for quick backward search while in Play.
4	Backward Slow Play	Used for backward frame-by-frame search while in PAUSE.
5	Step Backward	Moves backward by one frame at a time.
6	Pause	Stops playing the current video temporarily.
7	Stop	Stops playback and moves to the live screen.
8	Step Forward	Moves forward by one frame at a time.
9	Forward Slow Play	In a split mode, the real time playback may not be supported, depending on the record quality, resolution and number of channels. And some frame rates may be supported.
10	Forward Fast Play	Used for quick forward playback.
11	Skip Forward	Moves forward by unit time.
12	Return	Return to the search setup screen.
13	Audio	Sets Audio ON/OFF.
14	REC	Records all channels in Live mode.
15	ZOOM	This is available in Single mode, which will enlarge the video from a selected channel. To cancel the zooming, simply double-click the enlarged image or select <**Close Zoom**> in the Live screen menu.
16	Partial Backup	Begins backup of the selected section of the video being played, with the specified starting/ending point.
17	Mode Switch	Click on a desirable play mode to change the screen segmentation mode.

starting web viewer

WHAT IS WEB VIEWER?

WebViewer is a software program with which the operator can access a remote NVR (Network Video Recorder) for real-time monitoring, PTZ control (if configured) or search.



Product Features

- Remote connection using the browser
- PTZ camera control enabled
- 4:3 mode : supports 1, 4, 9, 16, 1+5, 1+7, 1+12, 1+9, 1+11, and 2+8 channels (up to 16 cameras)
- 16:9 mode : supports 2, 3, 6, 12, and 20 channels (up to 16 cameras)
- Saving function in JPEG/BMP/PNG image format for printing and storage.
- Record video in AVI format-compatible with popular media players. (The integrated codec is needed)
- To play the video in Windows Media Player, you must download and install the relevant codec from www.windows7codecs.com. (version 4.0.3 or higher)

System Requirements

The following lists the minimum suggested hardware and operating system requirements needed to run the Web Viewer.

Item	Minimum	Recommended
CPU	Intel Core 2 Quad 2.5GHz or higher	Intel i7 (3.5GHz) or more
RAM	3GB or more	4GB or more
HDD	200GB or more	500GB or more
VGA Memory	512MB or more	1GB or more
Display Resolution	1280 x 1024 or higher	
OS	- Supported OS : Windows 7, 8.1, 10, Mac OS X 10.9, 10.10, 10.11 - Plug-in free web viewer Supported web browsers : Google Chrome 47, MS Edge 38 - Plug-in Webviewer Supported web browsers : MS Explorer 11, Apple Safari 9 ※ Mac OS X only	
Network	10/100/1000 Ethernet NIC	

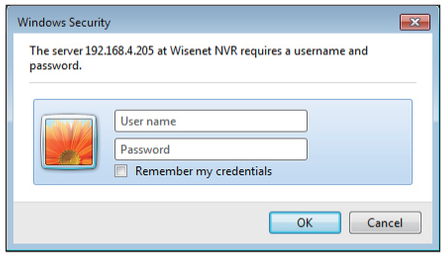
- It is recommended to install the latest version of graphic driver.

CONNECTING WEB VIEWER

1. Open your web browser and type the IP address or URL of NVR into the URL address box.

- Accesses the web viewer by connecting to Network 2 (recommended).
- "**192.168.2.200**" is set to IP by default.
- You must have specified the IP address in "**Network** > **Interface**".
- The URL connection will be enabled only when the DDNS connection settings have been completed. For more information, refer to "**Network Configuration** > **DDNS**". (Page 45)

2. A user with the admin permissions should provide the admin ID and password. A registered user should provide the user ID and password.

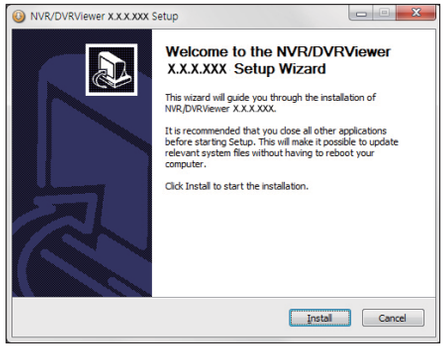


- All settings are applied according to the NVR settings.
- To log in with a different ID, quit your Internet browser and log back in.
- The initial ID and password for webviewer is "**admin**" and "**4321**". When an initial password is entered, while partially resetting to access a web viewer, a pop up window will appear that will guide the user to change the password and when doing a whole reset to access a web viewer, a pop up window will appear that will guide the user to complete the settings for the Install Wizard. Set a new password when a pop up window appears.
- Please change your password every three months to safely protect personal information and to prevent the damage of the information theft. Please, take note that it's a user's responsibility for the security and any other problems caused by mismanaging a password.

- It allow s up to 10 simultaneous access including the Admin and general users.
- Password of the Admin and general users can be changed in <**User**> menu of the NVR.
- Normal users should have set <**Webviewer**> under <**Restriction on Network Access**> to Use before connecting to the Web Viewer. (Page 27)
- All settings are applied by the NVR's settings.

3. The plugin installation confirmation pop-up window will appear.

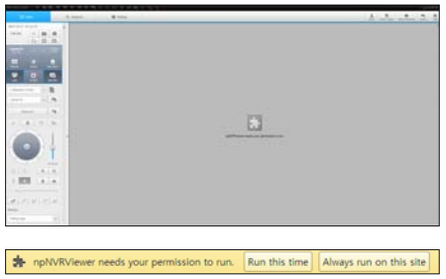
4. When a program installation wizard window appears, press the [**Install**] button to install the program.
   - The version of the program installed may vary depending on the update version.
5. When program installation is complete, click on the [**Finish**] button.
6. After completing installation and successfully logging in, the main live viewer screen appears.



If you want to access the web viewer with multiple browsers

Set auto execution of plugin (npNVRViewer) in the browser menu that you first access and refresh the screen after activating the plugin or selecting plugin reliability.

- Each time the browser is upgraded in the future, the plugin activation method can be changed. Plug in setting menu can be referred to in the browser manual.

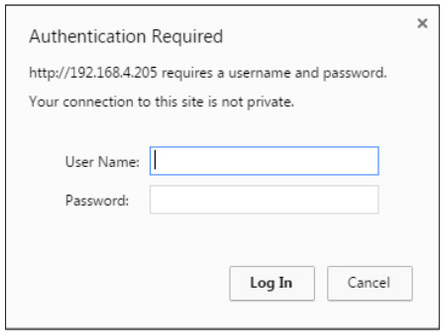


- On a browser in the latest version that does not support plug-ins, please refer to the descriptions about the plug-in free web viewer stated below.

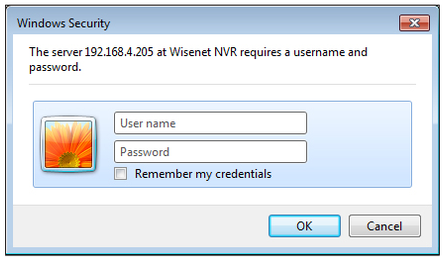
Accessing the Plug-in Free Webviewer from a web browser

Internet browsers that do not use plug-ins will automatically connect to the plug-in free web viewer. (e.g.: Chrome, Edge Browser)

- As the plug-in free webviewer has lower performance than the plug-in webviewer, it has a limit on the monitoring of high quality profiles.
  To monitor high quality profiles, use either a plug-in webviewer or network Viewer.

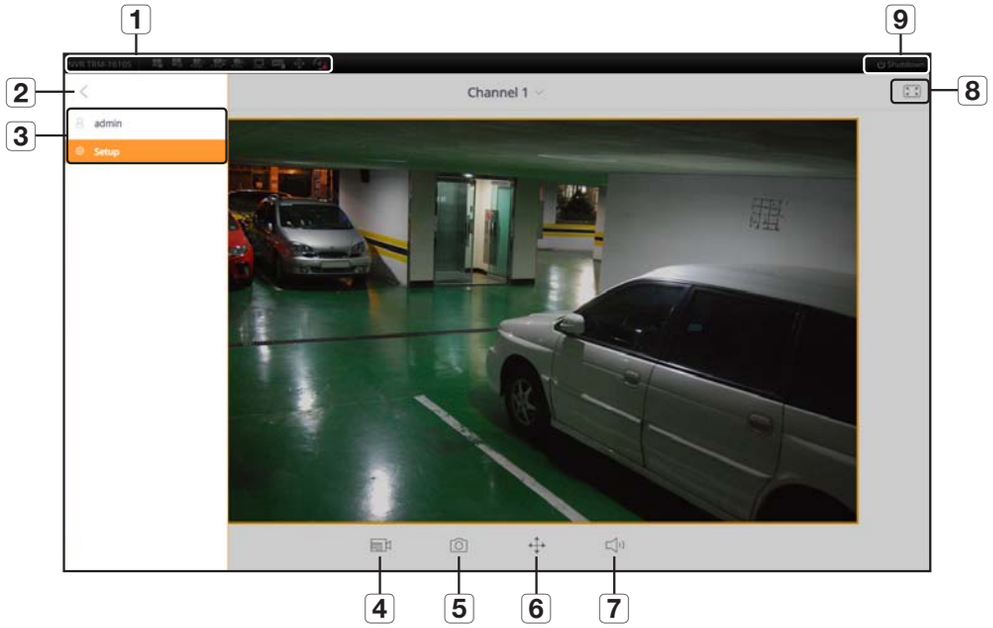


< Chrome, Edge Browser >



< Internet Explorer >

Live viewer screen layout



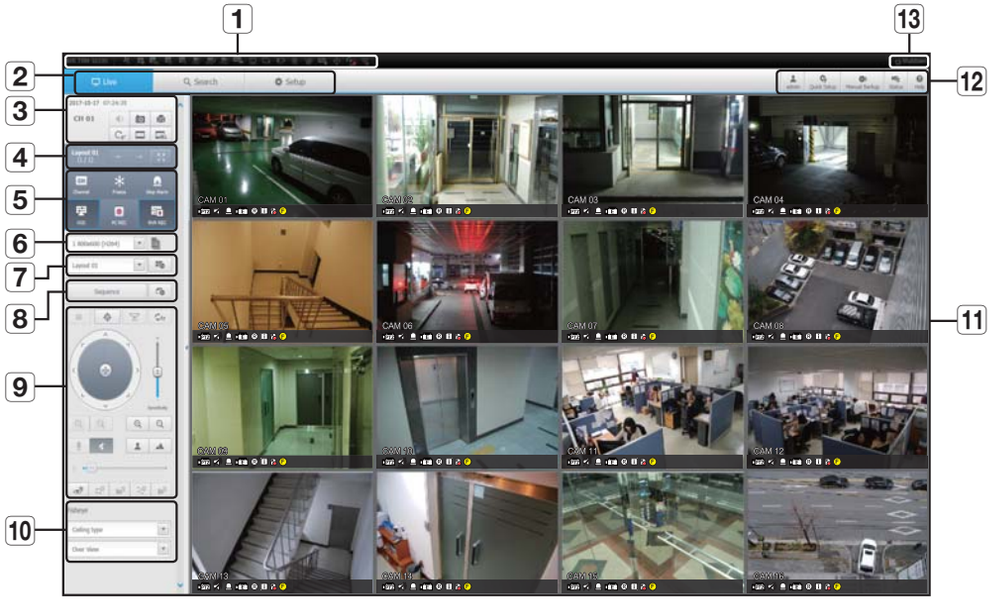
Menu		Description
1	System Status Display	Displays icons that indicate the screen state of system status. ■ For more information about each icon, please refer to "**System Status**". (Page 57)
2	View Menu	Enables or disables View Menu.
3	Select Menu	Displays the user login ID and moves to the setup page. ■ The way that you configure settings is identical to the existing web viewer settings. Please refer to <**Setup Viewer**>. (Page 65)
4		Changes the camera profile.
5		Captures the current video and saves it in a designated path.
6		Supports the PTZ Digital Zoom function.
7		Turns the sound ON/OFF.
8		Changes the aspect ratio.
9	Shutdown	Turns off the power of the NVR system.

- Plug-in Free Webviewer only supports a single split live screen. However, output of only up to 720p resolution is available. Resolution exceeding 720p will not be displayed. (Exception - H.265 codec is not output if the resolution and frame rate exceed 720P 26fps.)
- You can change the live screen by selecting <**Channel 1**>.

LIVE VIEWER

You can check the video from camera registered in the NVR connected from a remote PC. Also, you can adjust the camera and check the network transfer status.

Live Viewer Screen



Menu		Description
1	System Stauts Indicator	Displays icons to display the screen or system status.
2	Menu Selection	Switches into corresponding menu screen by clicking each menu.
3	Date/channel	Shows the access date/time and the selected channel.
	Sound	Sets the sound connected to each channel to either ON/OFF.
	Capture	Saves current video for the selected channel in the path designated by the user.
	Print	Prints current video image for the selected channel through designated printer.
	Rotate Video	Rotates the screen of a selected channel by 90 degrees.
	Keep ch. scr ratio	Changes screen ratio of the selected channel.
	Keep full scr ratio	Changes screen ratio for all channels.
4	Channel change	Switches to the previous/next channel group.
	Full screen	Switch from the full screen to the split screen. Press the [ESC] key on the keyboard to exit full screen mode. ▪ Safari for Mac does not support full screen mode.

Menu		Description
5	Channel information	Shows the channel information selected. ▪ If the user's PC monitor does not support 60Hz at a specific high resolution, or the HDMI cable does not support HDMI 2.0, 60fps or higher will not be output from the channel information.
	Pause	Temporarily stops the videos in all the channels or deactivates the Pause function in suspending status.
	Stop Alarm	Deactivates an alarm when it occurs.
	OSD	Check the OSD item to display the OSD screen information in the web viewer window.
	PC recording	Saves the real-time video, in AVI format, from the selected channel in a designated folder on the PC.
	NVR recording	Start and stop NVR recording.
6	Profile selection	Sets a desired profile for each channel.
7	Layout setting	Set the layout.
8	Switching	Set the sequence.
9	PTZ	Controls connect PTZ camera(s).
10	Fisheye	Runs the fisheye settings for the selected channel. (Configures the mounting mode and the view mode to correct the screen distortion.)
11	Display Pane	Displays the video of camera connected to NVR.
12	ID	Display the ID of user connected.
	Quick setup	Simple camera registration and recording settings.
	Manual backup	Manually backup the video of the camera connected.
	Status	Shows the camera live and recording status.
	Help	Move to the help window.
13	Shutdown	Turn off the NVR system.

LIVE SCREEN CONFIGURATION

System Status

You can check the status or operation of the NVR with the icons on the live screen.

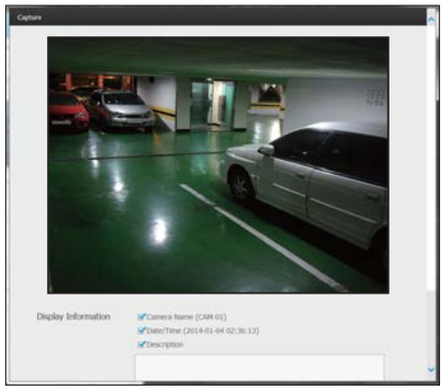
- On a plug-in free web viewer, the status information icon is not displayed.

Item		Description
System Operation		It is displayed when there is a problem with the fan.
		It is displayed when there is an issue with the recording conditions.
		Displayed if the HDD is full and the NVR has an insufficient space to record.
		Displayed if no HDD is installed or the existing HDD should be replaced.
		Displayed if the HDD needs a technical examination.
		It is displayed when there is a malfunctioning HDD in the RAID. ■ There are one or two HDD malfunctions but you can still read or write to it.
		It is displayed when recovering a RAID Error.
		It is displayed when you cannot write RAID due to a malfunction of HDD.
		It is displayed when the max permitted amount of data for each channel is exceeded.
		It is displayed when the network is overloaded. It is displayed when the network is overloaded. ■ It occurs when the max receiving performance is exceeded, causing an overload to the CPU. It will disappear if you modify the camera setting or delete a camera to reduce the level of performance overload.
		It is displayed when there is firmware to update the server. It is displayed when there is firmware to update the server.
		Displayed when the battery that enables time information to be saved in the NVR equipment is empty.
		If you press the screen stop button, it is displayed.

Item		Description
System Operation		It is displayed when all the channels are switched at the set time interval.
		Appears when emergency recording is in progress.
		Shows the vehicle shake state.
		Shows GPS reception/no reception.
		Displays the Wi-Fi connection status when <**Wi-Fi Enable**> is set.

To capture a screen

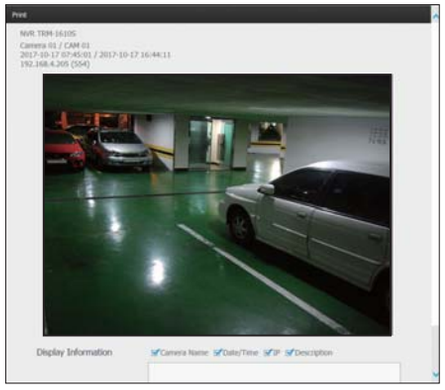
1. Click < > button.
   When a pop-up window appears, select the saving path for captured image.
2. Select the path and name the file. And then click the <**OK**> button.
3. Save current camera's video image as .bmp, .jpg or .png file.



- If the viewer is running without the administrator's permission in Windows 7, you may not save the captured image as .bmp, .jpg or .png file.

To print a screen

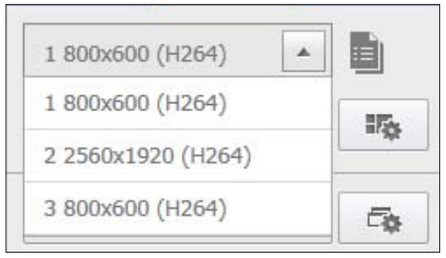
1. Click < > button.
2. Print current camera's video image with the printer connected to the PC operating the Web Viewer.



How to choose a profile

You can select a desired profile for each channel.

1. Multi-split screen is connected to profile 1 by default.
2. One-split screen is connected to profile 2 by default.
3. The user can change the profile through selection.
   - PC performance or network bandwidth may cause problems such as lack of connection or poor video output.



Setting the layout

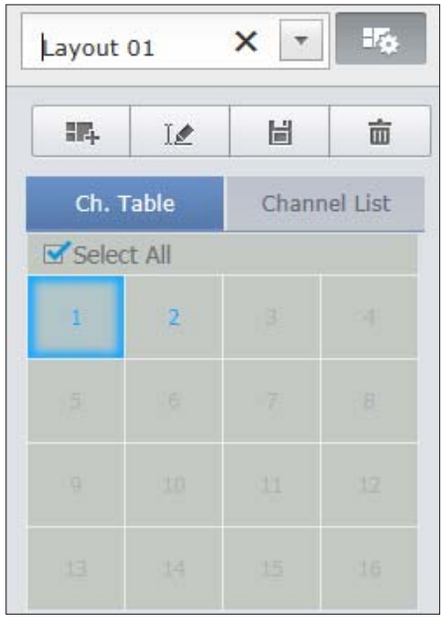
If you don't add or save it in the layout after registering a camera, the live screen will not be displayed.
Click on the < > button to launch the layout setting screen.

If you want to add a layout

Click on < >.
Set the layout name to add and click on the <**OK**> button to add it.

If you want to change the layout name

Select the layout name to change and click on < >.
After changing the name, click on the outside of the layout window to change the name.



If you want to save the layout

Click on < >.
The changed layout will be saved.

- The layout for each user is saved separately.

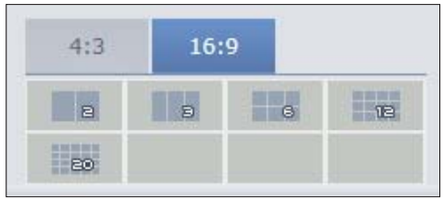
If you want to delete the layout

After selecting the layout to delete, click on < >.
The selected layout will be deleted.

- Unless you press the Save or Delete button, changes will not be saved.

Changing Split Mode

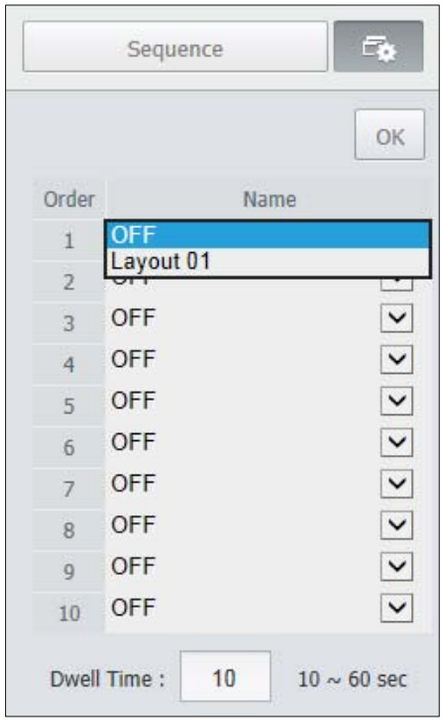
When clicking the Split Mode selection button, the screen is changed into the selected split mode.



Setting screen switching

If you don't register the layout, the screen switching function will not operate.
You can view the layouts one by one.
Click on the < > button to launch the switching setting window.

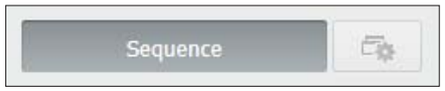
1. Select the layouts to be shown in turn by pressing < >.
2. Enter the screen switching time.



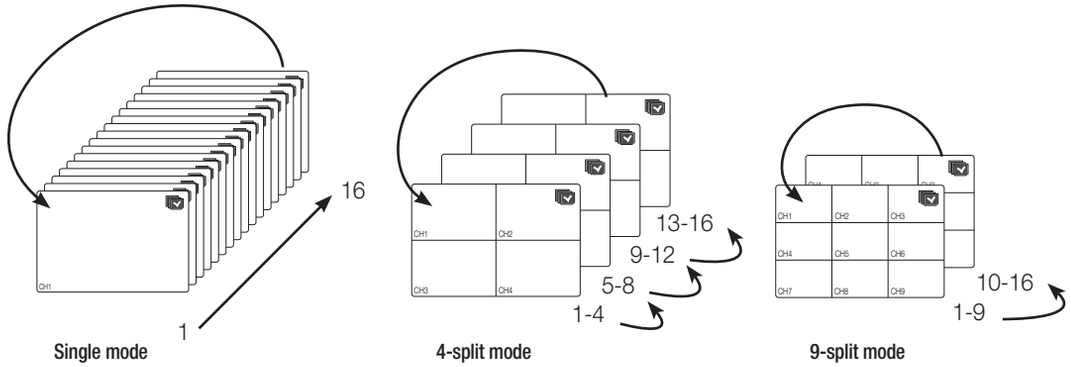
3. Click on the <**OK**> button to save the designated sequence.

To perform switching

Click on the <**Sequence**> button to activate the switching mode and run a sequence.



Auto Sequence

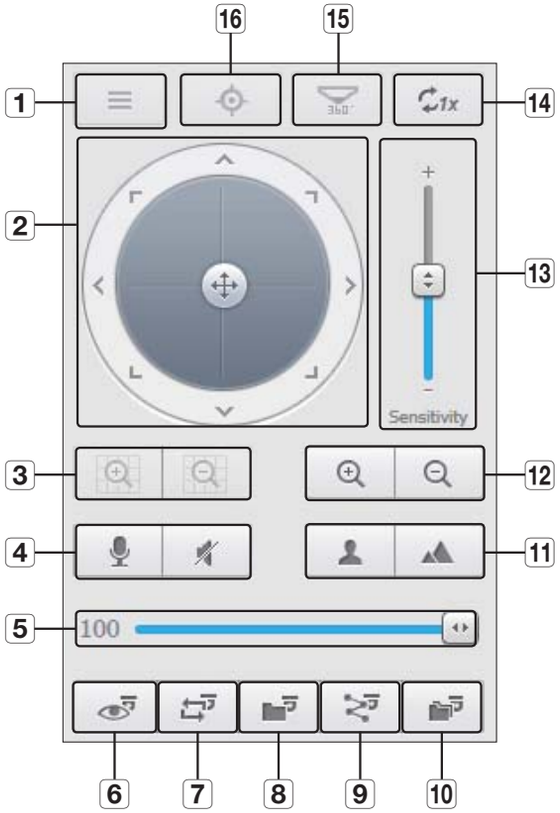


- In a split mode, If you have set <**Sequence switching time**> in "**Device** > **Monitor**", Auto Sequence will be conducted at the set interval. (Page 39)
- When switching to another channel, the video may be slightly delayed depending on network status.
- If you perform automatic switching of a single screen, the layout setting menu will be deactivated during operation.

CONTROLLING A CONNECTED NETWORK CAMERA

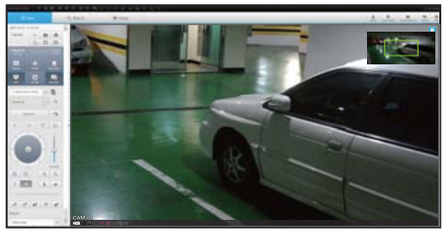
Controlling PTZ

If PTZ camera is connected, the < PTZ > icon appears on screen. When selecting corresponding camera channel, the PTZ tab is provided to allow you to control the PTZ.



Item		Description
1	Camera menu	Displays the camera settings menu.
2	Direction Adjustment	Use this to adjust the direction of the camera or click the crosshair in the center to use it as an OK button.
3	Digital zoom	Adjust digital zooming to make an image larger or smaller.
4	Sound	You can set the camera audio torque and mute.
5	Volume control	Change the PC volume between 0 and 100.
6	Preset	Sets the preset position for camera framing and moves to designated preset position when selecting a desired preset.
7	Swing	Moves between the preset start point and end point.
8	Group	Moves in the path specified by combining the preset.
9	Trace	Moves camera's framing in the predefined path.
10	Tour	Moves in the path specified by combining multiple groups.
11	Focus	Adjusts the focus of the camera.
12	Zoom	Zooms in/out the image by controling camera's zoom.
13	Sensitivity	Adjust the sensitivity of your camera operation.
14	Digital Zoom Off	Returns to the original size from the zoomed state.
15	Fisheye D-PTZ	Provides the digital PTZ function for the distortion corrected screen.
16	Simple focus	Automatically adjusts the camera focus.

To activate digital zoom



1. Press the < > button and the screen will be zoomed in by 50% per click.
2. Press the < > button and the screen will be zoomed out by 50% per click.
   - You can zoom in or out by 10% with the mouse wheel.
3. Click the < 1x > button and the screen returns to 100% size.

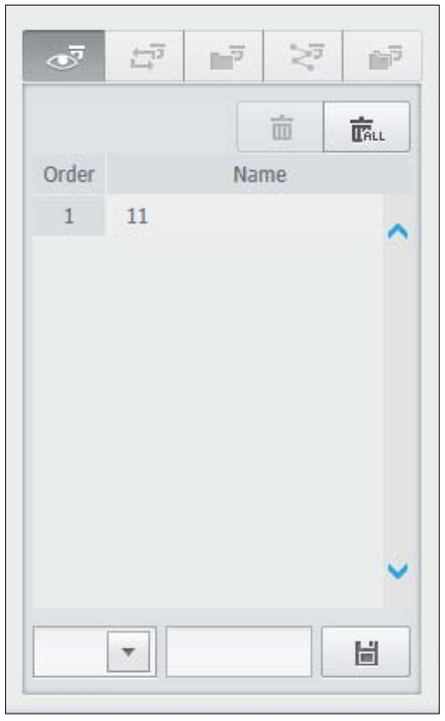
- Digital zoom function is only available in the single model.

To use the digital PTZ function on a distortion corrected screen

1. Click the icon on the distortion corrected screen.
2. Mouse over the screen and drag to control.

To set a preset

1. Click < > button to display "**Preset**" window.
2. Click on < > to select the preset order.
3. Enter the name of preset.
4. Use direction keys to adjust the direction which camera aims at.
5. Click the < > button.



To activate the preset

1. Click < > button to display "**Preset**" window.
2. Select a desired preset to activate from the list.
   The camera's framing moves to the preset position.

To activate Swing(Auto-pan), Group(Scan), Trace(Pattern) and Tour

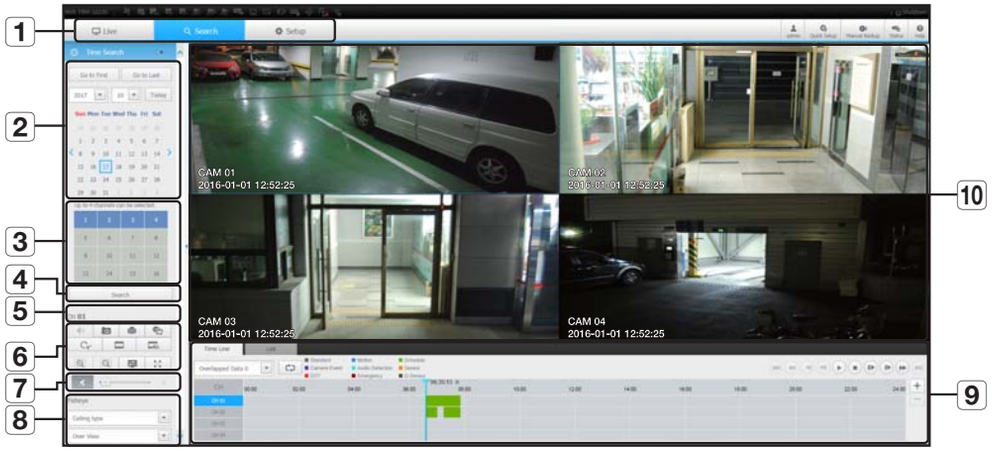
You can activate listed functions in the same manner as using a preset. For more information, refer to corresponding user manul of applicable camera.

- Only selective functions of the camera can be supported, depending on camera.

SEARCH VIEWER

You can search and play the video record saved in NVR by accessing NVR remotely.

Search Viewer Screen



Item		Description
1	Menu Selection	Switches to the corresponding menu screen by clicking each menu.
2	Calendar	Displays the video-recorded date in blue and today in red. Click the date in blue color to display the recorded video information in timeline.
3	Channel selection	Displays the search channels.
4	Search	Search for the user designated channel for the selected date.
5	Channel displays	Display the selected channel number.
6	Sound	Sets the sound connected to each channel to either ON/OFF.
	Capture	Saves current video for selected channel in the designated path.
	Print	Prints current video image for selected channel through the assigned printer.
	Section backup	Backup the video for the selected section.
	Rotate Video	Rotates the screen of a selected channel by 90 degrees.
	Keep ch. scr ratio	Changes screen ratio of the selected channel.
	Keep full scr ratio	Changes screen ratio for all channels.
	Magnify/Shrink	Magnify or shrink the current video for the selected channel.
	OSD	Displays the channel information.
	Full screen	Show the four way split screen in the full screen.
7	Sound control	Adjust the audio for the video searched.
8	Fisheye	Runs the fisheye settings for the selected channel. (Configures the mounting mode and the view mode to correct the screen distortion.)
9	Recording Color	Displays the corresponding color depending on recorded data type if you place your mouse cursor on that area.
10	Display Pane	Plays corresponding data on the screen if you select a search result.

Time Search

You can search recorded data by setting date and time.

To search by date

You can select the search date by using calendar.

1. Click on < <, > > to select the year/month for your search.
   If a date has data associated with it, it is displayed in blue. The current date is displayed as a blue box.
2. Click the date to search in calendar.
   The first image of searched video data on the date is displayed on screen and the data is displayed in the timeline.
3. To search video data on today, click <**Today**>.
   Today's date is selected.

Color indications depending on current recording status

Displays the corresponding color according to the recorded data type.

- If 2 or more kinds of recording type are mixed for the same timeline, only the recording type with higher priority is displayed. (Priority: Emergency > G-Sensor > DST > Audio Detection > Camera Event > Sensor > Schedule > Motion > Standard)

To adjust timeline

If searched data are overlapping, you can select a desired data, move its playback time point, and zoom in/out the timeline.

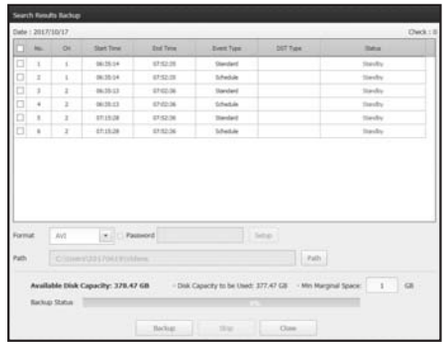
1. Select the number of data to search if data is overlapping.
   It appears only when data are overlapped and assigns <**0**> to the most recent data.
2. Click your desired time point to play on the timeline.
   The playback start point is moved.
3. Click <**+**> / <**-**> to zoom in/out the zoom factor to display time.
4. When magnified, if you want to view the pre/post timeline, click on the timeline and drag it in the direction you want to move it.

If you want to check the recording list

The results for each recording section will be displayed.

To back up the search results

You can back up the search results in the list.



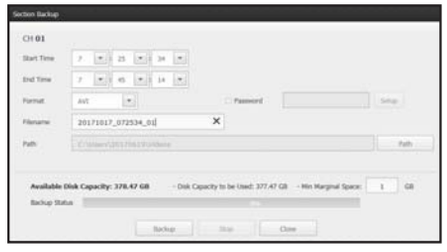
1. Click the [ ] button.
2. From the search results, select the check box of the item you wish to back up.

- Format : Select the format of the file to back up.
  - AVI : Codec information provided from the NVR is saved together and can be played in a separate viewer (Windows Media Player, etc.) on the PC.
  - SEC : Proprietary file format, which can be played on the PC immediately as it is saved with a dedicated viewer.
    - If you select the SEC format, you can select whether or not to "**Set Password**".
- Path : displays the location of the folder in which the section backup file is to be saved.

3. After completing the backup settings, click the <**Backup**> button.
   - If you press the <**Stop**> button during the backup process, the backup will be suspended.

To run the section backup function

You can select and back up a desired section in the timeline or list of video(s) being played.

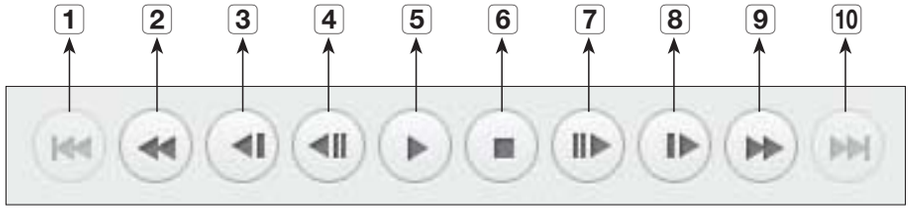


1. Click the [ ] button.
2. On the timeline of a video being played, select the start point and the end point of the section to back up.
   Section backup settings screen will open.

- Channel : Displays the channel for the section backup.
- Backup section : Displays the <**Start time**> and the <**End time**> of a section to back up.
- Format : Selects the format of a section to back up.
  - AVI : Codec information provided from the NVR is saved together and can be played on a separate viewer (Windows Media Player, etc..) on the PC.
  - SEC : Proprietary file format, which can be played on the PC immediately as it is saved with a dedicated viewer.
    - If you select the SEC format, you can select whether or not to "**Set Password**".
- File name : Sets the name of a section backup file.
- Path : displays the location of the folder in which the section backup file is to be saved.

3. After completing the section backup settings, click the <**Backup**> button.
   - If you press the <**Stop**> button during the section backup process, the backup will be suspended.

Names and Functions of Play Buttons

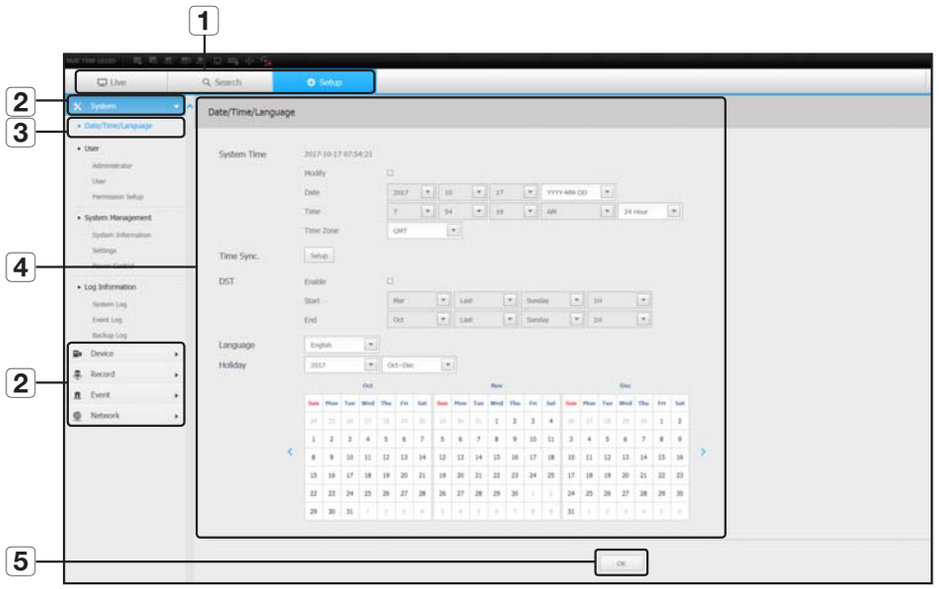


Item		Description
1	Back	Returns to the previous event.
2	Rewind	Used to rewind a video. (Supports x1, x2, x4, x8, x16, x32, x64, x1, x2 and x4 speed)
3	Slow Rewind	Used to rewind the video at a slow speed. (supports x1/2, x1/4, x1/8, x1/2 and x1/4 speed)
4	Previous frame	Move to the frame in reverse direction.
5	Play/Pause	Video is played and paused.
6	Stop	Terminates the video play.
7	Next frame	Move to the frame in the forward direction.
8	Slow Play	Used to play the video forward at a slow speed. (supports x1/2, x1/4, x1/8, x1/2 and x1/4 speed)
9	Slow Forward	Used to play a video forwards. (Supports x1, x2, x4, x8, x16, x32, x64, x1, x2 speed)
10	Move forward	Proceeds to the next event.

SETUP VIEWER

You can configure the NVR settings remotely on the network.
To configure the NVR settings, click <**Setup**>.

Settings Screen



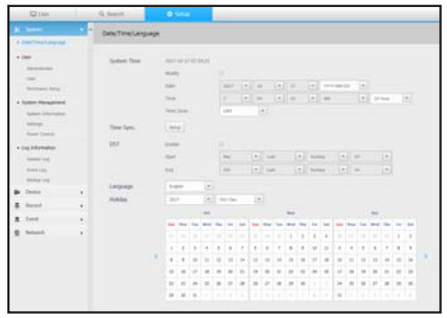
Item		Description
1	**Menu Selection**	Click each menu to switch into corresponding menu screen.
2	**Parent Menu**	Configure the settings or select a parent item to change the existing settings.
3	**Sub-Menu**	Among the sub-menus of selected parent menu, select a desired item to set.
4	**Detailed Menu**	Click desired item's input field to change and enter a desired value.
5	**OK**	Apply the modified settings.

System

You can configure the various settings of the NVR system.

Date/Time/Language

For more information, refer to "**Date/Time/Language**" in the "**System**" menu. (Page 25)



Date/Time

Set the date and time.

Time Synchronization Setup

Set the time synchronization.

DST (Daylight Saving Time)

During the summer, Daylight Saving Time (DST) advances clocks one hour forwards from the standard local time zone.

Language

Select a preferred language for the NVR.

Holiday

A user can select specific dates as holidays according to their own preferences.

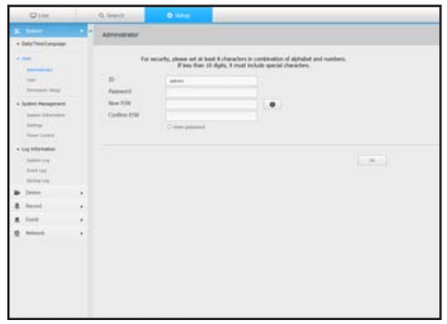
User

For more information, refer to "**User**" in the "**System Setup**" menu. (Page 26)

Administrator

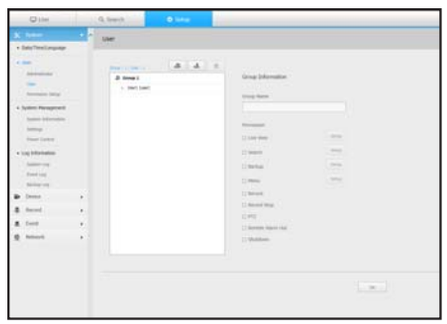
You can change the admin ID or the password.

- ID allows alphanumeric characters only.
- If the admin ID is not used for access, you cannot change the ID.
- If the ID being used is changed, you will be automatically logged out.



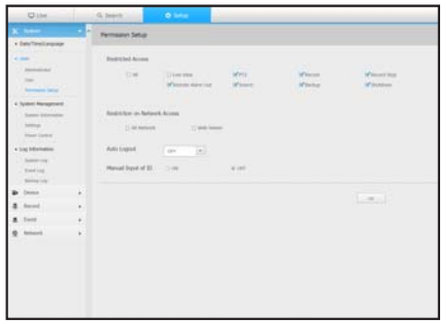
User

You can add, change or remove a user or users.



Permission Setup

You can set the user permission.

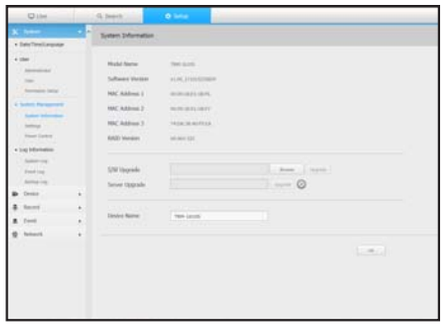


System Management

For more information, refer to "**System Management**" in the "**System**" menu. (Page 28)

System Information

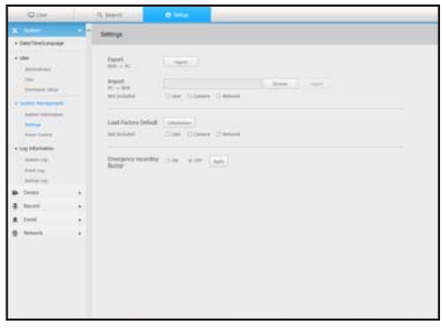
You can see information of the current system.
Check the software version and MAC address.
You can search for a file from the storage device connected to the PC to perform an upgrade.



Settings

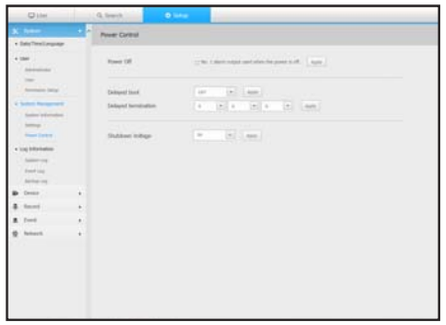
Using a storage device, you can apply the current configuration of NVR to another NVR.

Press the Initialize button to return the network settings to their factory default state. Items in the <**Not Included**> category are excluded from the initialization.



Power Control

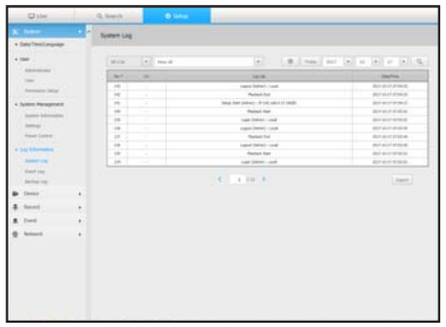
You can set the use of power shutdown, delayed boot, shutdown time, and shutdown voltage.



Log information

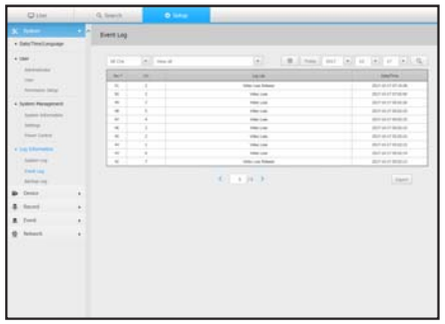
System log

Data recorded in the system log displays various system-related logs/date/time such as system starts, system ending and menu setting changes.



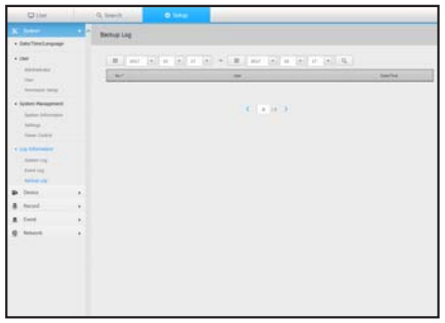
Event log

The event log lists recorded events, such as sensor events, camera events, or image losses.



Backup log

You can inquire about a user who performed a backup, execution time, details (backup time, channel, backup device, backup file type).



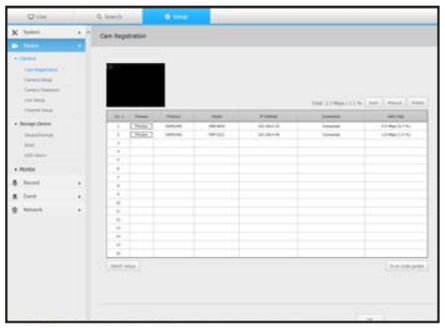
Device

You can check a list of devices that are connected to the NVR and configure the necessary settings.
Click <**Device**> in the menu screen.
For more information, refer to "**Setting the Device**". (Page 30)

Camera

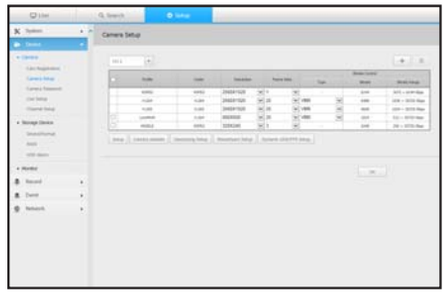
Cam Registration

You can add a network camera(s).



Camera Setup

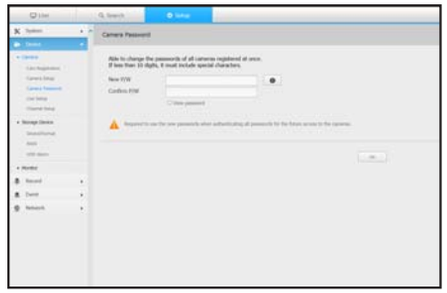
You can change the settings of a connected network camera.



- When you click the [**Camera website**] button, a new camera web browser window is opened.
  - Not supported if the camera is connected using the RTSP protocol.
  - Not supported if the camera is connected using DDNS, URL, MAC Address.
  - It supports the version specified below or later for each Q/P/X series camera.
    (QND-7010R series: 1.04, QND-7080R series: 1.02, QND-6010R series: 1.02, QND-6070R series: 1.01, P series: 1.01)
  - It supports only when the camera is connected to IPv4 and is not set to HTTPS.
  - When connecting to the camera web page on a closed network, a camera that does not support the universal web cannot output an image.
  - When trying to connect, if the plugin does not get installed, try again after setting the compatibility view from the web page of the NVR web viewer.
  - It only supports Google Chrome browser.

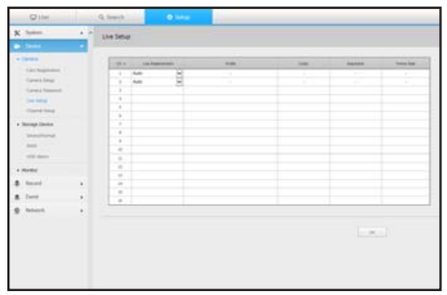
Camera Password

You can change the passwords of all registered cameras at once.



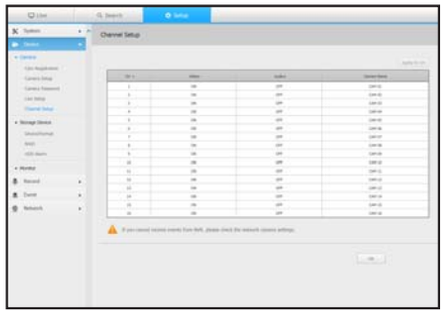
Live Setup

You can change the life transfer settings of the network camera.



Channel Setup

You can configure the video settings for each channel.

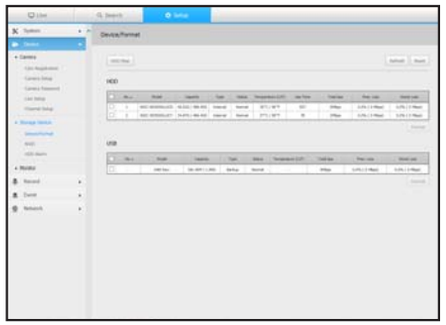


Storage Device

You can check and change the settings related to the data storage device.

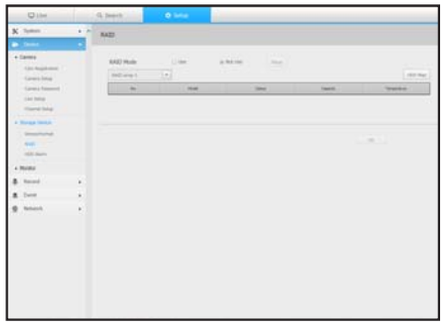
Device/format

You can check a storage device, amount of use, type of use and status of storage device.



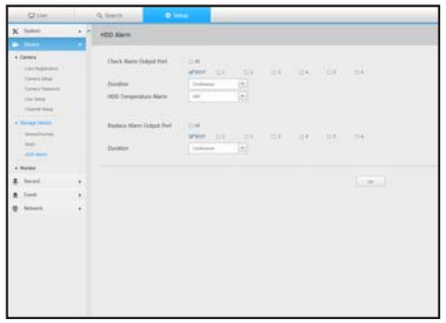
RAID

If RAID mode is set, you can safely recover data even when the system HDD is damaged.



HDD Alarm

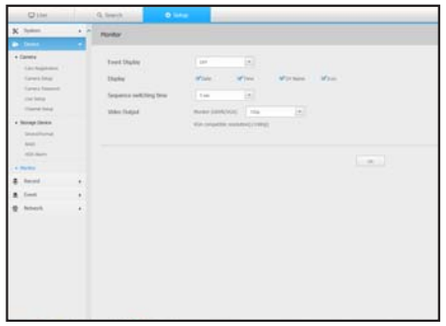
You can set the inspection alarm output terminal, replacement alarm output terminal, alarm time, etc. on a bad HDD.
You can set the alarm behavior for abnormal HDD temperature.



Monitor

Monitor

You can configure the monitoring screen settings and set the output system.



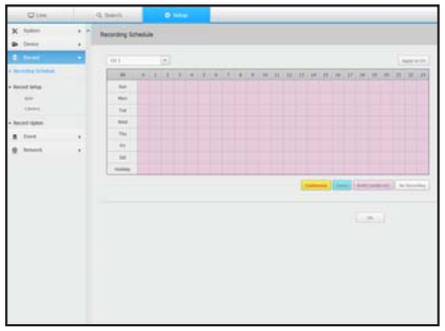
- If the video is not played properly, refer to the troubleshooting section later in this manual. (Page 82)
- The Monitor Setup settings control the monitor connected to the NVR.

Record

For more information, refer to "**Setting the Recording**". (Page 39)

Recording Schedule

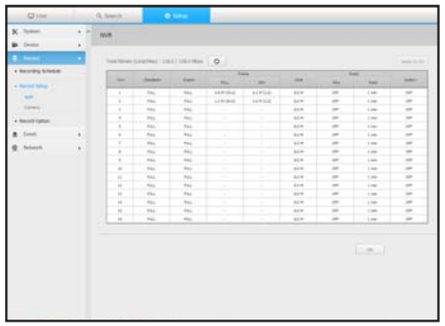
If you set a recording schedule for a specific date and time, the recording will start at that specific time.



Record Setup

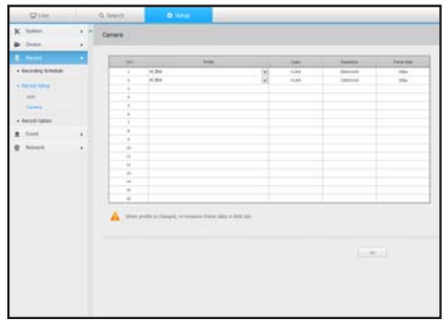
NVR

Select a type of the normal/event recording frame rate for each channel.



Camera

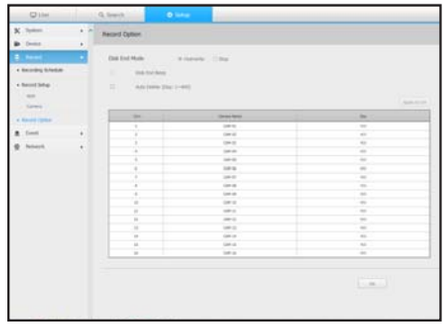
You can set the recording profile for a network camera.



Record Option

You can set the Disk End Mode.

- You can set the recording duration separately for each channel.



Event

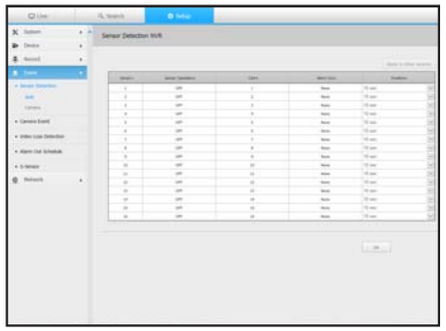
For more information, refer to "**Setting the Event**". (Page 41)

Sensor Detection

NVR / Camera

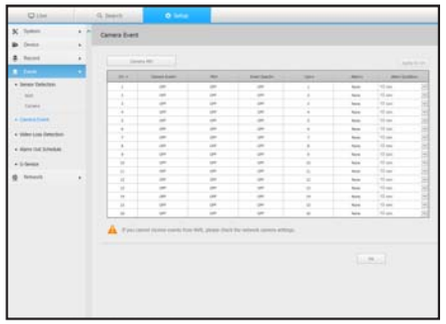
You can set the sensor operation mode and the synchronized camera as well as the alarm output type and the duration.

- If the connected network camera that has configured the alarm in/out settings triggers an alarm, NVR will perform the alarm out.



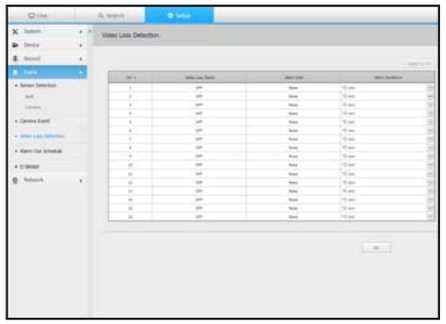
Camera Event

You can set NVR and camera event mode, alarm output type and alarm time.



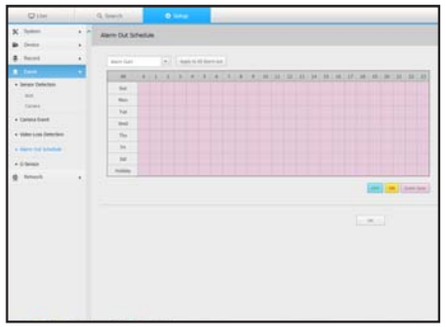
Video Loss Detection

You can set to trigger the alarm if a video loss occurs.



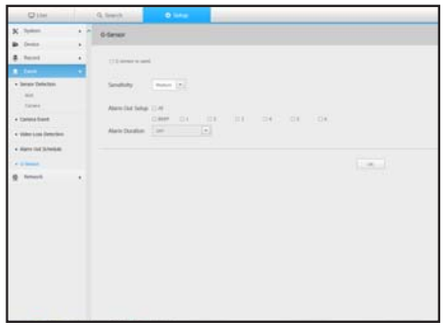
Alarm Out Schedule

You can schedule the alarm output according to the day of the week and the time.
The default setting is Event Sync, which activates the alarm only if an event occurs.



G-Sensor

You can set G sensor events and alarms to operate depending on vehicle movement.



Network

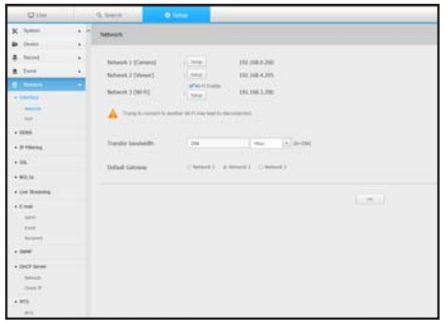
For more information, refer to "**Network Configuration**". (Page 43)

Interface

A remote user can access the NVR via the network to check the current mode and the IP address.

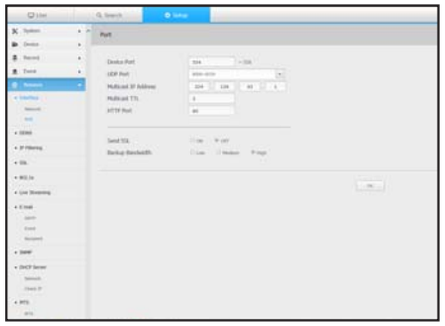
Network

Specify the network connection path.



Port

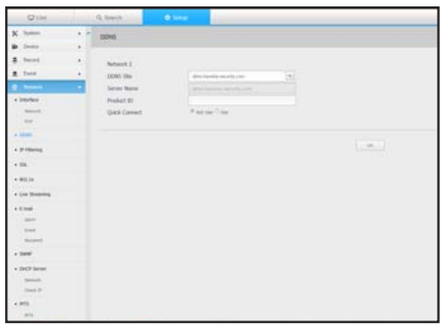
You can configure the protocol related settings.



DDNS

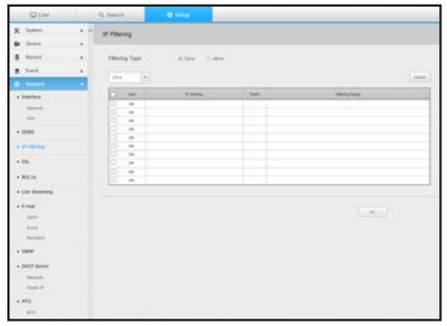
Network 2

You can check the DDNS settings.



IP Filtering

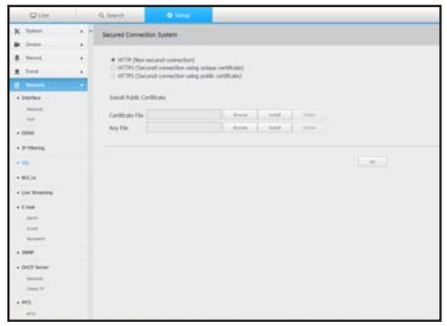
You can prepare the list of IP address to allow or block accesses to a specific IP address.



SSL

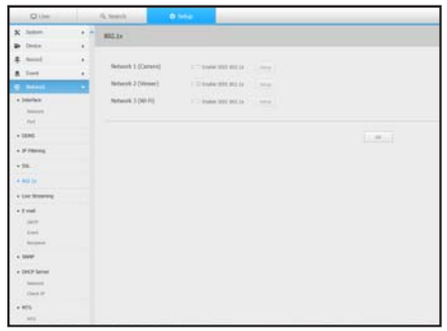
You can select a security connection system or install public certificates.

- While using HTTPS, if you want to switch to HTTP, then abnormal operation can take place as the browser contains the setting values. You need to change the URL to HTTP and reconnect or initialize the cookie setting of the browser.



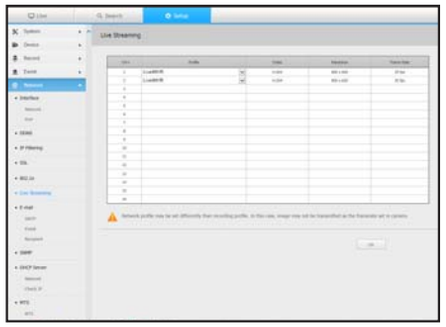
802.1x

When connecting to a network, you can select whether to use the 802.1x protocol and install corresponding certificate.



Live Streaming

You can set the video profile transmitted to the network and the expansion monitor.

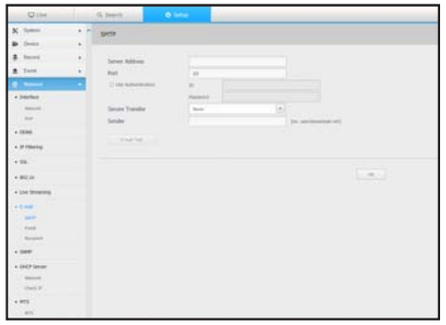


E-mail

You can specify the SMTP server that sends a mail if an event occurs and set the recipient group and users.

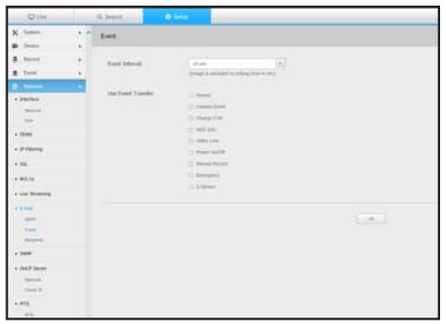
SMTP

You can set the server that sends mails and specify if you use the authentication process.



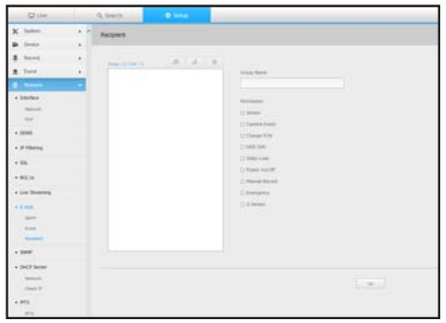
Event

You can set the event interval and specify which events the server sends mails for.



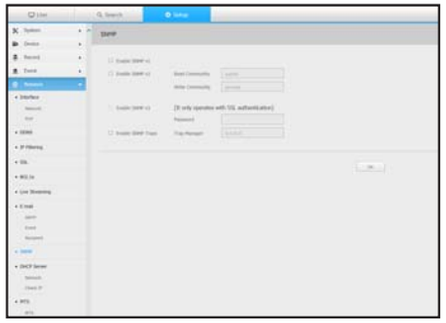
Recipient

You can set groups and recipients to receive emails.



SNMP

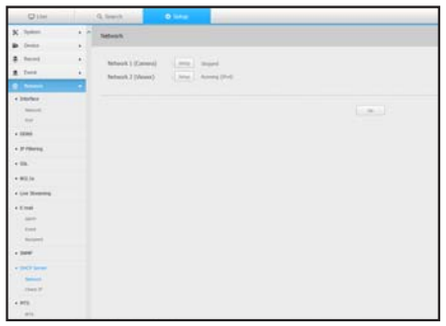
Using the SNMP protocol, the system or network administrator can remotely monitoring the network devices and sets the environment.



DHCP Server

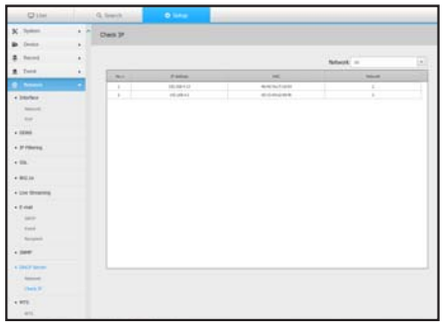
Network

You can set the internal DHCP server and assign an IP address to the network camera.



Check IP

You can check the IP and MAC currently used through the DHCP server, and the connected network port.

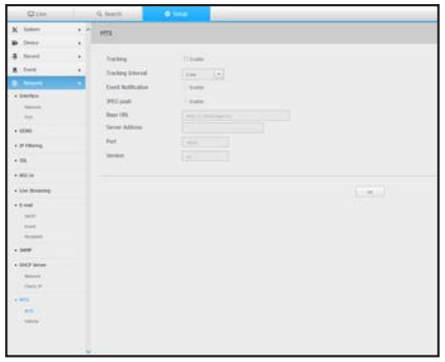


MTS

Vehicle information, real-time location, events and video are transmitted to SSM-MTS (Mobile Tracking System).

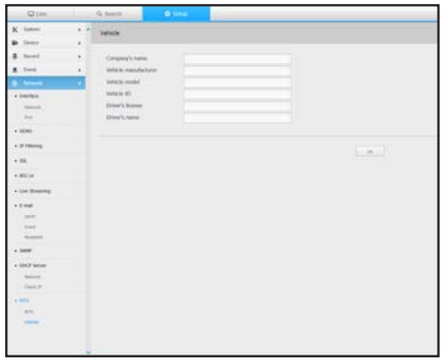
MTS

Sets the MTS server address and whether tracking, event notification, and JPEG push are enabled.

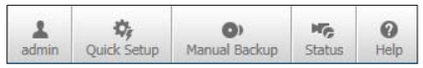


Vehicle

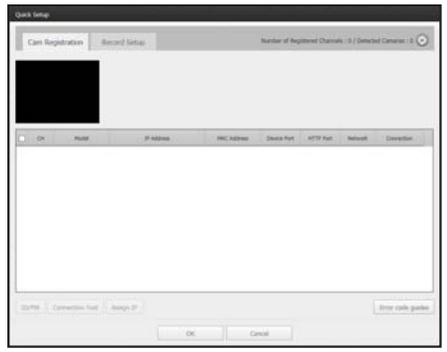
Sends vehicle information to MTS.



Using the setting icons

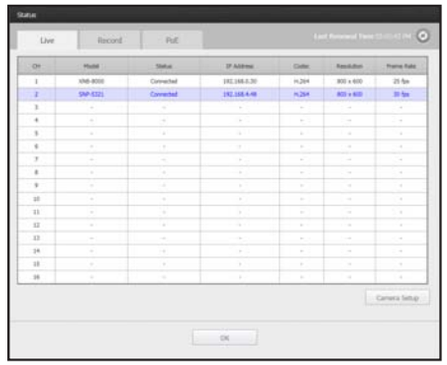


- admin : Display the ID of user connected.
- Quick Setup : You can register a network camera for each channel and easily set the resolution and the number of shots in case of event occurrence or manaual recording.
  - For more on how to register a camera, refer to "**To register a camera**". (Page 30)



- Manual Backup : You can manually enter the desired backup channel and time/date to backup the recorded video.
  - If you select the SEC format, you can select whether or not to "**Set Password**".

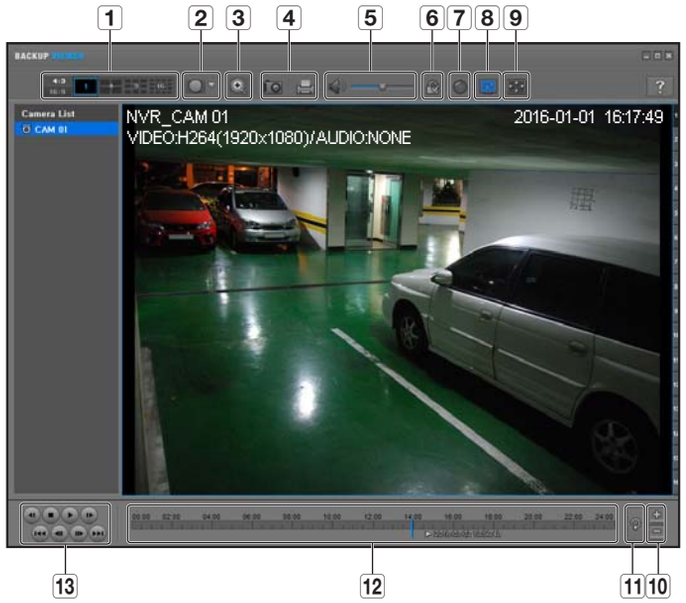
- Status : You can check the recording status and the status of camera connected.
  - Live : Select <**Live**> to check the status of camera connected to each channel and the transmission information.
  - Recording : Select <**Record**> to check the following for each channel : profile, recording type, inputs / recording transmission rate, settings / inputs / amount of recorded data.
  - PoE : Select <**PoE**> to check the consumption by PoE connected to each channel.



- < Help > : You will be immediately directed to the homepage of Hanwha Techwin.

SEC BACKUP VIEWER

You can play a file that is backed up in the format of SEC.
Backup in SEC format produces backup data file, library file and self-executable viewer file.
If you run the backup file viewer, the backup data file will be played.



Recommended System Requirements

PCs with a lower specification than the recommended below may not fully support forward/backward and high-speed playback.

- OS : Windows 7
- CPU : Intel Core 2 Quad 2.5GHz or higher
- RAM : 3GB or more
- VGA : Geforce 6200 or higher

Item			Description
1	Split screen	4:3 16:9	Selects screen ratio to display.
		1 4 9 16	The screen is changed to a split screen.
2	Fish eye view mode	WALL GROUND CEILING	If < > is pushed, it is possible to change to a fish eye installation type. It is possible to select WALL/GROUND/CEILING mode according to the installation place.
			The fish eye view mode on the current screen can be changed independently on each split.

Item			Description
3	Digital Zoom		Enlarge the image by up to 100 times as big as the current one. Press the Zoom In ( ) button the enlarge the image; press the Zoom Out ( ) button to shrink the image. You can also use the slide bar ( ) in the pop-up window to zoom in/out. Press ( ) on a size-changed video to restore the default zoom factor (100%). If you enlarge the image by more than 200%, the enlarged area will be marked on the digital zooming screen. Click on the marked area and move it to a desired position. The digital zooming is applied to all backup viewer. When the digital zooming is canceled, the video size will restore the default rate of 100%.
4	Screen Printout		Saves the current video's image as in an image file. Supports JPEG file format.
			Prints out the current screen. You should have installed the appropriate printer driver before you can print out the screen.
5	Audio	/	A toggle button. Each time you press this button, the audio output will toggle between activated and deactivated.
			You can adjust the volume level from 0 to 100.
6	Watermark	/	Press the button to enable file tampering detection, to detect data file forging.
7	Deinterlace		You can enable the De-interlace function.
8	Show OSD		Check the OSD checkbox to display the OSD information on the backup playback screen. Information such as backup date, day of the week, time, model name, and channel number will be displayed on the screen.
9	Maintain aspect ratio/Full screen		Maintains the aspect ratio of the playback screen.
			Plays the video on a full screen.
10	Enlarge / Reduce Timeline		Collapses the time range that is displayed on the range bar of the storage time. You can collapse the range bar until the overall range is shortened to 24 hours.
			Enlarges the time range that is displayed on the range bar of the storage time. You can enlarge the range bar until the overall range is extended to 1 minute.
11	Restore Timeline		Restores the timeline to the default.
12	Display of storage time range		Displays the time range of a stored video file. You can move the gridline of the range bar to select a time point to play.
13	Playback Control		You can adjust the video playback of the timeline.

PRODUCT SPECIFICATION

Item		Details	
		TRM-1610S	TRM-1610M
Display			
Network Camera	Inputs	Max. 16CH (4 PoE,RJ-45)	Max. 16CH (4 PoE, M12)
	Resolution	CIF ~ 12MP	
	Protocols	SUNAPI, ONVIF	
Live	Local Display	HDMI / VGA	
	Multi-Channel Display	Local Monitor : 1 / 2V / 3V / 4 / 6 / 8 / 9 / 13 / 16 / Auto sequence Web : 1 / 4 / 9 / 16 / Auto sequence	
	Performance	[Local Monitor] - 12M (30fps) - 8.3M(120fps) - 1080p(480fps)	
Performance			
Operating System	Embedded	Linux	
Record	Compression	H.265, H.264, MJPEG, WiseStream(H.265, H.264)	
	Recording Bandwidth	Max. 128Mbps	
	Resolution	CIF ~ 12MP	
	Type	Normal, Schedule(Continuous/Event), Event (Pre/Post), Emergency	
	Retention	Retention per channel (1~400 days)	
	Event Trigger	Alarm Input (16), Video Loss, Camera Event(Sensor, MD, Video Analytics, Defocus Camera)	
	Event Action	e-Mail, Alarm Out, Buzzer, Monitor Out, VMS transmission	

Item		Details	
		TRM-1610S	TRM-1610M
Search & Play	Playback Bandwidth	32Mbps(16ch simultaneously)	
	User	Max. 4 Users (Local 1, Remote 3)	
	Mode	Date & Time(Calendar)/Event Log list, Smart Search(Virtual Line w/ direction, Enter/Exit)	
	Simultaneous playback	Max. 16 channels(Local Monitor, CMS)	
Search & Play	Resolution	CIF ~ 12MP	
	Fisheye Dewarping	Web / CMS	
	Playback Control	Fast/Slow Forward/Backward, Move one step up/down	
Storage	Built-In	0TB ~ 4TB (2TB 2EA)	
	Internal HDD	2 SATA(Front-Swap) - Max. 4TB(HDD, Non-RAID Mode) - Max. 1TB(SSD, Non-RAID Mode)	
	RAID	RAID-1	
Backup	File backup	Exe(GUI), JPG/AVI(excluding GPS information)(Network)	
	Function	Multi channel(Upto 16CH) Play, Date-Time/Title/GPS display	
	Type	Auto(Wifi), Manual(HDD)	
	Wifi Backup Performance	MAX. 150Mbps (IEEE802.11ac)	
Sensor	I/O	16/6	
Audio	Input	16 channels (network)	
	Compression	G.711, G.726, AAC(16/48KHz)	
	Audio Communication	2-Way	

Item		Details	
		TRM-1610S	TRM-1610M
Network			
Interface		RJ-45 (Gigabit Ethernet x2)	M12 (Gigabit Ethernet x2)
Protocol		TCP/IP, UDP/IP, RTP (UDP), RTP (TCP), RTSP, NTP, HTTP, DHCP (Server, Client), PPPoE, SMTP, ICMP, IGMP, ARP, DNS, DDNS, uPnP, HTTPS, SNMP, ONVIF (Profile-S), SUNAPI(Server, Client)	
DDNS		Hanwha DDNS	
Transmission Bandwidth	Wired (LAN)	MAX. 256Mbps	
Max Remote Users		Search(3) / Live unicast(10) / Multicast(20)	
IP Version		IPv4	
Security		User access Log, IP Filtering, 802.1x, Encryption	
Wireless	Wi-Fi	Internal (802.11 n(2.4G)/ac(5G), Dual antenna(MIMO)	
Language		English, French, German, Italian, Spanish, Russian, Turkish, Polish, Dutch, Swedish, Czech, Portuguese, Danish, Rumanian, Serbian, Croatian, Hungarian, Greek, Norwegian, Finnish, Korean, Chinese, Japanese, Thai	
OS		Window 7, 8, 10, Mac OS X(10.8 or above)	
Web Browser		MS IE, Google Chrome, Mac Safari	
Viewer Software	Type	SSM TR, Webviewer, Wisenet mobile viewer	
	CMS Support	Support SDK/CGI(SUNAPI) for integration to 3'rd party VMS(eg. Genetec)	
Functions			
Camera Setup	Register	Auto, Manual	
	Setup Items	IP address, Add profile edit, Bitrate, Compression, Camera MD setup Camera video setup (Simple focus, Brightness/Contrast, Flip/Mirror, IRIS, WDR, D&N, SSNR, Shutter, SSDR, DIS), Fisheye Dewarping Mode, Hallway View Setup, Camera Webpage Wisestream On/Off	

Item		Details	
		TRM-1610S	TRM-1610M
Camera Control	PoE Power Control	Monitor PoE/PoE+ power consumption, On/Off control for each PoE/ PoE+ camera, Remote reset for each PoE/PoE+ camera	
	Time Sync.	NVR time protocol for PoE/PoE+ camera (Time sync based on NVR time), GPS time sync	
		GPS time sync	
PTZ	Control	Via GUI, Webviewer	
	Preset	300 Presets	
Smart phone	Support Model	Android, iOS	
	Protocol Support	RTP, RTSP, HTTP, CGI(SUNAPI)	
	Control	Live(16ch) : Multi-Profile Support Playback(1ch)	
	Max. Remote Users	Search(3) / Live unicast(10) / Live Multicast(20)	
System Control		Mouse, Web	
Remote Management (SSM-TR, ISV)	Metadata TX	GPS, Speed(GPS) Internal Metadata: Transport company, vehicle type / car number / license number / driver name	
		Health Check (Status, Rec, Event,..)	
		Support Vehicle ID, Driver Name	
Indicator/Interface			
Front	Indicator	3 LED status indicators : Power 1, Alarm 1, Record 1	
	Switch	Support (PW Clear)	
	HDMI / VGA	2 (Live screen is supported up to 16-div. mode, clone) HDMI : Maximum 4K (3840 x 2160), VGA : maximum 1080p	
	USB	3 (1 x M12, 2 x USB-A), except for M12 with built-in LTE module	
	GPS/GNSS	1 EA SMA	
	HDD Key Lock	2 EA	

Item		Details	
		TRM-1610S	TRM-1610M
Connectors	Audio	Out(1EA, RCA, Line)	
	Ethernet	LAN / WAN : 2ea (1Gbps, RJ-45) PoE Camera Input : 4ea(100Mbps, RJ-45)	LAN / WAN : 2ea (1Gbps, M12) PoE Camera Input : 4ea(100Mbps, M12)
	Control I/O	DB15 1ea (External Control Box) (1) Status LED (2) Impact Sensor (3) Emergency Recording button (4) Power Switch	
	Alarm	DB25 1ea (1) In(16EA) (2) Out(6EA)	
	Reset	Switch(1EA)	
	Power Cord	One 6-pin connector	
System			
Power Management	Shutdown Delay	0min ~ 72Hrs (User selectable)	
		Support CGI shutdown	
	Startup Delay	0(default) min ~ 10 min (User selectable)	
Log	Log List	Max. 20,000 (System Log, Event Log each)	
Environmental			
Operating Temperature / Humidity		TX compliant (-25 to +55 °C, -13 to +131 °F, HDD in use) TX compliant (-40 to +70 °C, -40 to +158 °F, Industrial SSD in use)	
Humidity		20% ~ 85% RH	

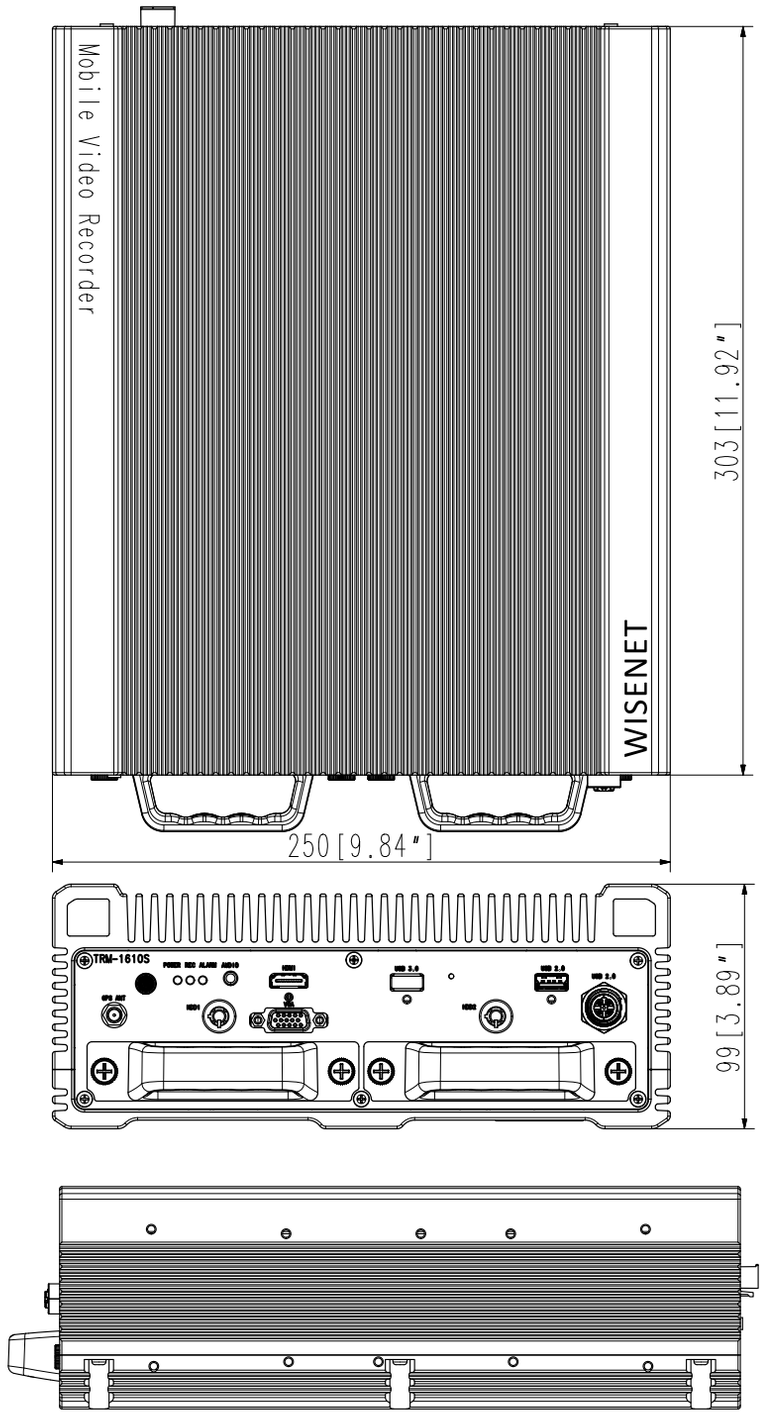
Item		Details	
		TRM-1610S	TRM-1610M
Electrical			
Power		9 ~ 36V DC	
		Battery Power Detection & Low Power Limit Setup	
Power Consumption		Low temperature at start: 144W, Low temperature in use: 93W, Room temperature: 67W (maximum)	
PoE Budget		Max. 32W	
Mechanical			
Color / Material		Black / Aluminium	
Dimension (WxHxD)		Main unit : Approx. 250 x 99 x 303 (9.84" x 3.89" x 11.92") Control box : Approx. 118 x 29.2 x 70mm (4.64" x 1.15" x 2.75")	
Weight		Main unit : 7.35Kg Control box : 0.2Kg	
Standard Approvals	Basic	CE, FCC, cUL, KC	
	EMC	EN-55022	
	Safety	UL-60950-1	
	Shock/Vibration	MIL STD-810F(SSD Terms of Use)	
	Rail(Temp,Humid,shock, vib)	EN-50155	
	Rail(EMC)	EN-50121-3-2	
	Rail(EMI)	EN-50121-4	
	Rail(Shock, vib)	EN-61373	
	Vehicle(EU)	e-Mark	

Item		Details	
		TRM-1610S	TRM-1610M
Accessory	Supplied	Control Box 1pc	
		Control Box Cable 1pc (DB9)	
		Alarm I/O Cable 1pc (DB25)	
		Key 2pcs	
		Power Input Cable 1pc	
		Wifi Antenna 2pc	
		GPS Antenna 1pc	
		M12-USB cable	
		CD(Manual)	
		Screws(HDD Tray, Mounting)	
		Mounting Bracket (Damper)	
	Optional	Ext. PoE Switch(RJ-45, 8PoE, 64W)	Ext. PoE Switch(M12, 8PoE, 64W)
		SSD bracket (no damper) for MIL	
		HDD Tray	
		100V DC Adapter	

PRODUCT OVERVIEW

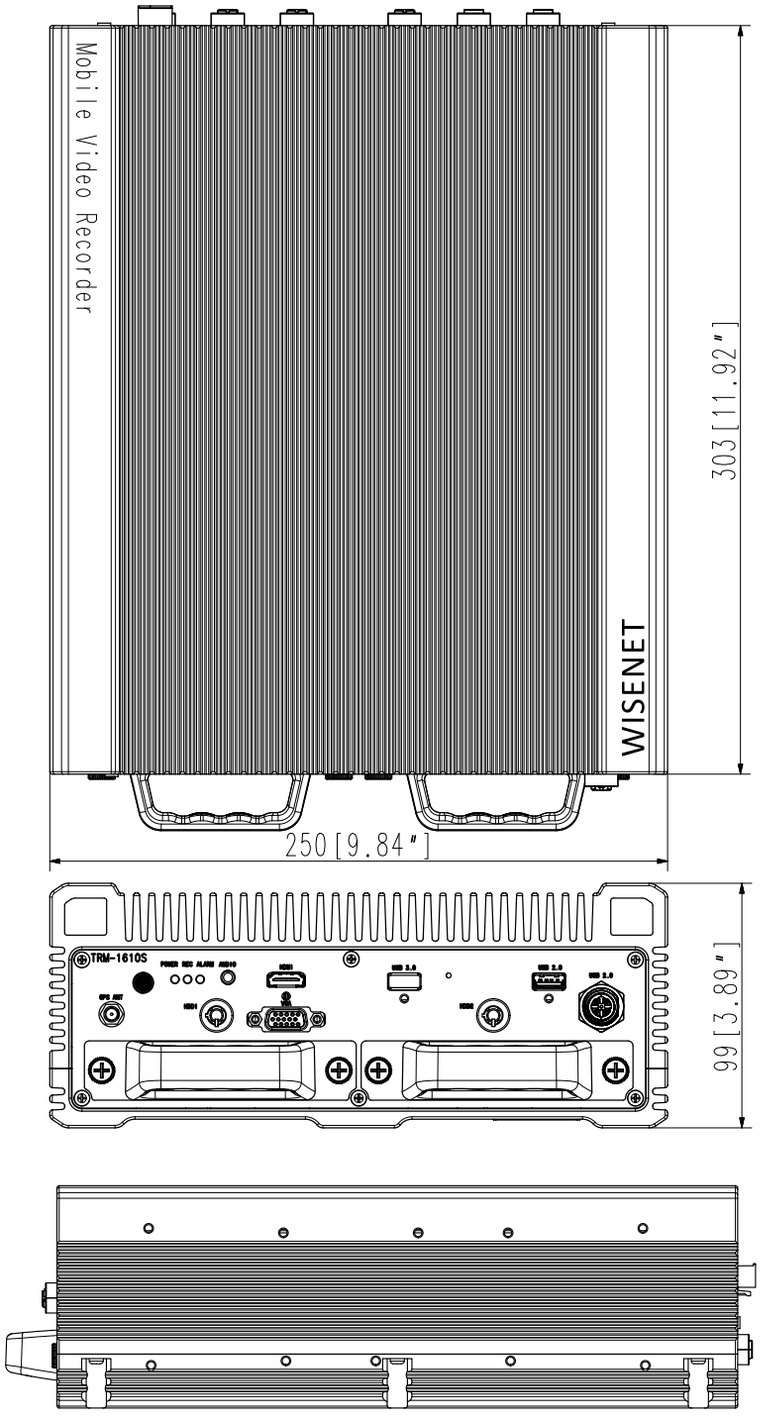
• TRM-1610S

unit : mm (inches)



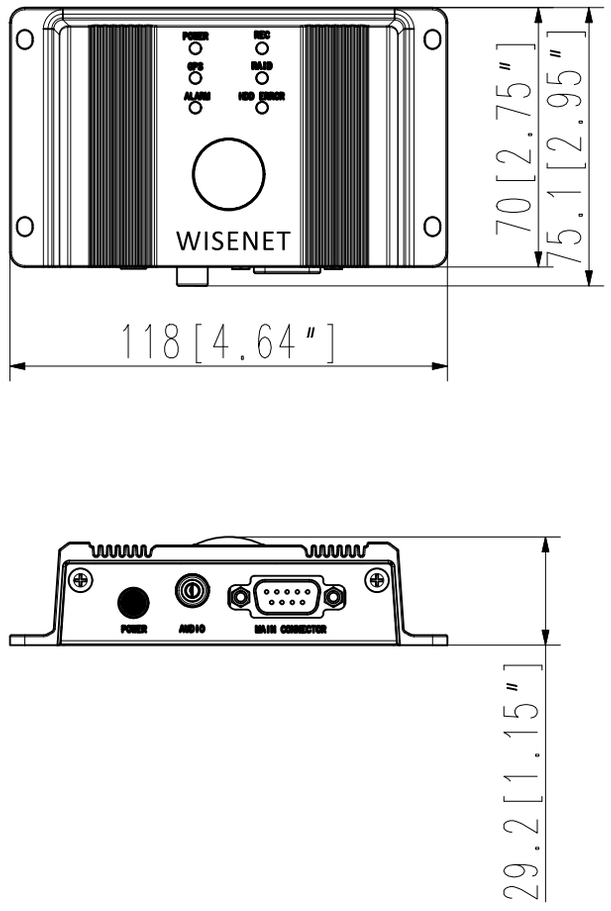
• TRM-1610M

unit : mm (inches)



• Control box

unit : mm (inches)



DEFAULT SETTING

To reset the system, move to "**System Management** > **Settings** > **Load Factory Default**" and press the <**Initialization**> button.

This returns the factory default settings.

- When you initialize with the <**Authority Management Settings**> included, you are required to reboot the camera and reset the password.
- The default settings are based on TRM-1610S.
- The initial administrator ID is "**admin**" and the password should be set when logging in for the first time.
- Please change your password every three months to safely protect personal information and to prevent the damage of the information theft. Please, take note that it's a user's responsibility for the security and any other problems caused by mismanaging a password.

Category	Details			Factory Default
System	Date/Time/Language	Date/Time/Language	Date	YYYY-MM-DD
			Time	24 hours
			Time Zone	GMT
			Time Sync.	OFF
			DST	OFF
			Language	English
	User	Admin	ID	admin
		Permission Setup	Restricted Access	Backup/Record/Record Stop/Search/PTZ/Remote Alarm Out/Shutdown
			Restriction on Network Access	None
			Auto Log out	3 Min
			Manual Input of ID	OFF
	System Management	System Information	Device Name	TRM-1610S
	Log Information	System Log	Type	View all
		Event Log	Type	View all
		Backup Log		OFF
Device	Camera	Camera Register		OFF
		Set Camera		OFF
		Camera Password		OFF
		Live Setup		OFF
		Channel Setup	Video	ON
			Audio	OFF
			Camera Name	CAM 01 ~ CAM 16
	Storage Device	Device/Format	Device	HDD
			Usage	Internal
			Status	Normal
			Temperature	-
			Use Time	-

Category	Details			Factory Default
Device	Storage Device	RAID		No use
		HDD Alarm	Check Alarm Output Port	BEEP
			Duration	Continuous
			HDD Temperature Alarm	OFF
			Replace Alarm Output Port	BEEP
			Duration	Continuous
		Distributed Recording		Normal
	Monitor	Monitor	Event Display	OFF
			Display	All
			Sequence switching time	5 sec
			Video Output	1280x1024
			Display Position Setup	30
Record	Recording Schedule	CH1~CH16		Both(Cont&Evnt)
	Record Setup	Standard		Full
		Event		Full
		Pre Event		OFF
		POST Event		1 min
		Audio		OFF
	Record Option	Disk End Mode		Overwrite
			Disk End Beep	OFF
		Auto Delete		OFF
Event	Sensor Detection	NVR	Sensor Operation	OFF
			Cam	Camera No.
			Alarm Out	None
			Duration	10 sec
		Camera	Sensor Operation	OFF
			Cam	Camera No.
			Alarm Out	None
			Duration	10 sec
	Camera Event	Camera	Camera Event	OFF
			MD	OFF
			Smart Search	OFF
			Cam	Camera No.
			Alarm	None
			Alarm Duration	10 sec
	Video loss detection		Video loss status	OFF
			Alarm Out	None
			Alarm Duration	10 sec

Category	Details			Factory Default
Event	Alarm Out Schedule		Alarm Out1	Event Sync
	G-Sensor		G sensor is used.	OFF
			Sensitivity	Medium
			Alarm Out Setup	OFF
			Duration	OFF
Network	Interface	Network	IP Type	Static IP
			Network 1(Camera)	192.168.1.200
			Network 2(Viewer)	192.168.2.200
			Network 3((Wi-Fi)	192.168.3.200
			Subnet Mask	255.255.255.0
			Gateway	192.168.1.1
			DNS	168.126.63.1
		Port	Device Type	554
			UDP Port	8000~8159
			Multicast IP Address	224.126.63.1
			Multicast TTL	5
			HTTP Port	80
			Send SSL	OFF
			Backup Bandwidth	High
	DDNS	Network2	DDNS Site	OFF
	IP Filtering		Filtering Type	Deny
	SSL		Secured Connection System	HTTP (Non-secured connection)
	802.1x	Network1/2/3	Enable IEEE 802.1x	OFF
	Live Streaming			OFF
	E-Mail	SMTP	Port	25
			Use Authentication	OFF
			Secure Transfer	Never
		Event	Event Interval	10 min
			Use Event Transfer	OFF
		Recipient	Group Name	OFF
			Permission	OFF

Category	Details			Factory Default
Network	SNMP		Enable SNMP v1	OFF
			Enable SNMP v2	OFF
			Enable SNMP v3	OFF
			Enable SNMP Traps	OFF
	DHCP Server	Network 1(camera)	IP Address	192.168.1.200
			Subnet Mask	255.255.255.0
			IP Range	192.168.1.1 ~ 192.168.1.254
			IP Lease time	86400
		Network 2(Viewer)	IP Address	192.168.2.200
			Subnet Mask	255.255.255.0
			IP Range	192.168.2.1 ~ 192.168.2.254
			IP Lease time	86400
	MTS	MTS		OFF
		Vehicle		OFF

TROUBLESHOOTING

Problem	Action
Live video will be slow or cut off.	• The frame number set for multiple data transmission set in camera or network environment could differ from the actual rate of transmission. Right click with the mouse button and select <**Channel Information**> to check the number of incoming frames for each channel and the actual number of framed played. Basically, when you register a camera, the Live4NVR profile is created and the rate is set to H.264.800*600fps. If necessary, go to <**Menu**> ➞ <**Device**> ➞ <**Camera**> ➞ <**Camera Setting**> and change the number of frames. • If you keep seeing video slow down or cut off, then check the network environment or camera condition.
The system does not turn on and the indicator on the front panel does not work at all.	• Check if the power supply system is properly connected. • Check the system for the input voltage from the power source. • If the problem persists even after you have taken the above actions, check the power supplier and replace it with a new one if neccessary. • Check inside if the cables are properly connected. (SMPS, FRONT)
Some channels display just a black screen even if they receive video sources.	• Check if the camera is properly supplied with power. • Check the video output connecting the camera's webviewer. • Check if the network port is properly connected and the network setting is set correctly. • Change the hub supporting Gigabit, it may solves.
The screen displays the logo image repeatedly.	• This may occur from a problem with the main board, or the related software is corrupt. Contact the nearest service center for more information.
The Channel button does not work on the Live screen.	• The Channel button does not work if the current screen is in the event monitoring mode.
The cursor will not move to the Start button when I start the calendar search.	• Check if the channel and the date that you want to play are marked with the V symbol. Both channel and date should be checked before you can start playing with the Start button.
No video is played on the connected monitor.	• Check if the necessary cables are connected to the monitor properly. • Some monitors do not support the NVR output (HDMI or VGA). (NVR output resolution : VGA : 1280*720, 1280*1024, 1920*1080, HDMI : 720P, 1080P, 1440P, 2160P) Check the monitor resolution • In case of a 4K video, check whether the cable in use supports HDMI 2.0.

Problem	Action
No response controlling PTZ in the live viewer.	• Check the registered Camera if it support PTZ function.
The camera is not connected or the PC fails to connect to the product.	• Check if the network cable is connected properly. • Ensure that you have set Network – Connection Mode. • Check the IP setting of the PC or camera. • Try the Ping Test. • Check if there is a different device near the product uses the same IP.
I registered a camera, but the web viewer does not show live video.	• After registering a camera, a user need to edit/save the desired layout, before the screen split mode and live screen fit for the setting appears.
In the web viewer, the screen does not switch automatically.	• You need to select the desired layout for sequence operation, in the automatic switching menu.
The Live screen is too bright or too dark.	• Check the video settings of the registered camera.
A message of "Need to reset date/time." Is displayed on the screen.	• This message is displayed if there occurs a problem with the time setting of the internal clock or an error in the clock itself. Contact the retailer or the service center for more information.
The time bar is not displayed in Search mode.	• The timeline can switch between normal and extension mode. In extension mode, the time bar may not be displayed in the current timeline. Switch to normal mode or use the left or right button to navigate through the time bar.
The "NO HDD" icon and an error message are displayed.	• Check the HDD for connection. If the problem persists in a normal condition, contact the nearest service center to have the HDD checked by the service personnel.
I have installed an additional HDD on the NVR but it does not recognize the HDD.	• See the compatibilty list to check if the additional HDD is supported by the NVR. For the compatibility list, contact the retailer where you purchased the NVR.
I have connected an external storage device (USB Memory, USB HDD) to the NVR but the NVR seems not to recognize it.	• See the compatibility list of external storage devices to check if the connected device is supported by the NVR. For the compatibility list, contact the retailer where you purchased the NVR.
If I press the ESC key in full screen mode of the WebViewer, the system does not switch to a normal split mode.	• Press the ALT+TAB keys to select 'ACTIVE MOVIE' and press the ESC key again. The system will switch to a normal split mode.
I found it difficult to configure the network settings if using the default search, backup and router settings.	• For more information, refer to the user manual. • If you want to check the basics of the product for a quick start, refer to the quick start guide (backup, search). • If you use the router for network connection, refer to the "**Connecting and Setting the Network**" section in this manual.

Problem	Action
I forgot the password.	• Contact the NVR administrator for help.
Recording does not work.	• If your player does not display a Live image at all, that indicates recording does not work so first check if you see an image on the screen. • Recording does not work if the recording settings are not properly configured Scheduled Record: Specify a desired time in Menu – Record – Recording Schedule. Recording will start at the specified time. - <**Continuous**> Record: Recording will proceed in any conditions at the specified time. - <**Event**> Record: When an event occurs, recording will perform only if the event is of alarm, motion detection and video loss. If there is no event found, recording will not perform. - <**Continuous / Event**> Record: If there is no event found, Continuous recording will perform. Whereas, if an event occurs, Event recording will perform.
The image quality of the recording data is not good.	• Increase the resolution and quality level in Menu – Record – Quality / Resolution. 1) Resolution: Select a bigger size when specifying the recording size. The recording image in the CIF format shows a deteriorated quality as it is enlarged from a small-sized image. 2) Record Quality: Specify a bigger level for the recording quality. • If you increase the resolution and the recording quality, the data size increases accordingly. So the HDD will be filled faster. Overwriting will overwrite the existing data so recording will proceed at a shorter interval.
Frame rate of the actual recording does not match that of configured to the camera.	• If multiple profiles were applied to one camera for video transmission, the actual video stream can be serviced by the camera at a lower frame rate than specified. Configure your camera to use one profile for data streaming as possible. For example, if you set the same profile for recording and network profiles, the actual recording is made at the specified frame rate. Still, live video display using split screen mode may apply yet another profile to camera in accordance with the used screen mode. Note that allowed limit bitrate for recording / recording settings should be set to be bigger values than that of camera's feed.

Problem	Action
In the recording setting screen, the permitted level for a specific channel is displayed in orange.	• If the input data is greater than the permitted level for each channel, it is displayed in orange. Set the permitted data limit to higher than the amount of input data. • If the sum of input data for each channel exceeds the limit, the alarm icon will be displayed. In this case, the channel exceeding the input limit does not record the entire frame, but it records the main frame only(one or two per sec).
In the live screen, the [REC] icon is displayed and the message window saying " recording data load exceeds the limit. Check it in the record setting." pops up.	• If the sum of input data for each channel exceeds the limit, the alarm icon and the pop up window will be displayed. In this case, the channel exceeding the input limit does not record the entire frame, but it records the main frame only(one or two per sec). • Set the permitted data limit to higher than the amount of input data entered in the record setting menu (page 40).
Recording is not performed in accordance with the settings.	• If the recording status displays 'Exceeds the maximum hard disc performance', set the recording size according to the recording performance specifications for each HDD condition. (Refer to "**Record Settings**" in the menu settings. (Page 39))
The recording screen will slow down.	• Check whether the recording performance specifications for each HDD condition match the actual recording settings. (Refer to "**Record Settings**" in the menu settings. (Page 39)) • If the data volume of a video exceeds the playing performance, only the main frame is played. (Refer to "**Product Specifications**" in the appendix. (Page 75))
If recording loss persists continuously	• Reset the camera recording profile to let the entire recording bps size fit the recording performance for each HDD condition. (Refer to "**Record Settings**" in the menu settings. (Page 39)) ▪ Check the HDD status and determine whether inspection or replacement is necessary. (Refer to "**Storage Device**" in the menu settings. (Page 36))
Booting log screen does not proceed further in the [ ] state.	• HDD may be problematic. Please visit your nearest customer center to check the HDD.

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2. [2]Bernd Altmeier <altmeier@atlsoft.de> hopf Elektronik serial line and PCI-bus devices
3. [3]Viraj Bais <vbais@mailman1.intel.com> and [4]Clayton Kirkwood <kirkwood@striderfm.intel.com> port to WindowsNT 3.5
4. [5]Michael Barone <michael,barone@lmco.com> GPSVME fixes
5. [6]Karl Berry <karl@owl.HQ.ileaf.com> syslog to file option
6. [7]Greg Brackley <greg.brackley@bigfoot.com> Major rework of WINNT port. Clean up recvbuf and iosignal code into separate modules.
7. [8]Marc Brett <Marc.Brett@westgeo.com> Magnavox GPS clock driver
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9. [10]Reg Clemens <reg@dwf.com> Oncore driver (Current maintainer)
10. [11]Steve Clift <clift@ml.csiro.au> OMEGA clock driver
11. [12]Casey Crellin <casey@csc.co.za> vxWorks (Tornado) port and help with target configuration
12. [13]Sven Dietrich <sven_dietrich@trimble.com> Palisade reference clock driver, NT adj. residuals, integrated Greg's Winnt port.
13. [14]John A. Dundas III <dundas@salt.jpl.nasa.gov> Apple A/UX port
14. [15]Torsten Duwe <duwe@immd4.informatik.uni-erlangen.de> Linux port
15. [16]Dennis Ferguson <dennis@mrbill.canet.ca> foundation code for NTP Version 2 as specified in RFC-1119
16. [17]Glenn Hollinger <glenn@herald.usask.ca> GOES clock driver
17. [18]Mike Iglesias <iglesias@uci.edu> DEC Alpha port
18. [19]Jim Jagielski <jim@jagubox.gsfc.nasa.gov> A/UX port
19. [20]Jeff Johnson <jbj@chatham.usdesign.com> massive prototyping overhaul
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21. [23]Poul-Henning Kamp <phk@FreeBSD.ORG> Oncore driver (Original author)
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PARSE <GENERIC> driver (14 reference clocks), STREAMS modules for PARSE, support scripts, syslog cleanup

23. [26]William L. Jones <jones@hermes.chpc.utexas.edu> RS/6000 AIX modifications, HPUX modifications
24. [27]Dave Katz <dkatz@cisco.com> RS/6000 AIX port
25. [28]Craig Leres <leres@ee.lbl.gov> 4.4BSD port, ppsclock, Magnavox GPS clock driver
26. [29]George Lindholm <lindholm@ucs.ubc.ca> SunOS 5.1 port
27. [30]Louis A. Mamakos <louie@ni.umd.edu> MD5-based authentication
28. [31]Lars H. Mathiesen <thorinn@diku.dk> adaptation of foundation code for Version 3 as specified in RFC-1305
29. [32]David L. Mills <mills@udel.edu> Version 4 foundation: clock discipline, authentication, precision kernel; clock drivers: Spectracom, Austron, Arbiter, Heath, ATOM, ACTS, KSI/Odetics; audio clock drivers: CHU, WWV/H, IRIG
30. [33]Wolfgang Moeller <moeller@gwdgv1.dnet.gwdg.de> VMS port
31. [34]Jeffrey Mogul <mogul@pa.dec.com> ntptrace utility
32. [35]Tom Moore <tmoore@fievel.daytonoh.ncr.com> i386 svr4 port
33. [36]Kamal A Mostafa <kamal@whence.com> SCO OpenServer port
34. [37]Derek Mulcahy <derek@toybox.demon.co.uk> and [38]Damon Hart-Davis <d@hd.org> ARCRON MSF clock driver
35. [39]Rainer Pruy <Rainer.Pruy@informatik.uni-erlangen.de> monitoring/trap scripts, statistics file handling
36. [40]Dirce Richards <dirce@zk3.dec.com> Digital UNIX V4.0 port
37. [41]Wilfredo Sánchez <wsanchez@apple.com> added support for NetInfo
38. [42]Nick Sayer <mrapple@quack.kfu.com> SunOS streams modules
39. [43]Jack Sasportas <jack@innovativeinternet.com> Saved a Lot of space on the stuff in the html/pic/ subdirectory
40. [44]Ray Schnitzler <schnitz@unipress.com> Unixware1 port
41. [45]Michael Shields <shields@tembel.org> USNO clock driver
42. [46]Jeff Steinman <jss@pebbles.jpl.nasa.gov> Datum PTS clock driver
43. [47]Harlan Stenn <harlan@pfcs.com> GNU automake/ autoconfigure makeover, various other bits (see the ChangeLog)
44. [48]Kenneth Stone <ken@sdd.hp.com> HP-UX port
45. [49]Ajit Thyagarajan <ajit@ee.udel.edu>IP multicast/anycast support
46. [50]Tomoaki TSURUOKA <tsuruoka@nc.fukuoka-u.ac.jp>TRAK clock driver
47. [51]Paul A Vixie <vixie@vix.com> TrueTime GPS driver, generic TrueTime clock driver
48. [52]Ulrich Windl <Ulrich.Windl@rz.uni-regensburg.de> corrected and validated HTML documents according to the HTML DTD

[53]gif

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