

NETWORK VIDEO RECORDER

User Manual

Network Video Recorder

User Manual

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❖ Design and specifications are subject to change without prior notice.
You can download the latest version from the Hanwha Vision web site. (www.HanwhaVision.com)

❖ 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.

Hanwha Vision Co., Ltd. is a surveillance camera manufacturer that provides video information equipment with various functions.
Users must comply with local laws when using our devices.
Users are solely responsible for any illegal use of our products.

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

PRODUCT USER MANUAL DESCRIPTION

- This document is a user manual for Recorder product. Before using this product, please read this document carefully in order to use it properly.
- This user manual explains how to use the product based on the defaults and default screens of this product.
 - The content of this manual is subject to change depending on the product software updates and the company policies. It is subject to partial changes without prior notification to users.

TARGET AUDIENCE

This user manual contains contents for Recorder users.

HOW TO USE THE PRODUCT

- Users of this product can perform the following:
- Monitor cameras registered to Recorder in real time
 - Search for or play videos saved in Recorder
 - Monitor text data being transmitted to the POS device connected to Recorder in real time
 - Search for text data from the POS device connected to Recorder
 - Monitor real time events that occur in Recorder, sensors, and cameras or search through logs

Before using this product, check if the latest version of this software is installed. Go to Hanwha Vision's website (www.HanwhaVision.com) to check the software version and download necessary files.

CAUTION

- RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.
- Do not ingest battery, Chemical Burn Hazard.
- This product contains a coin / button cell battery. If the coin / button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death.
- Keep new and used batteries away from children. If the battery compartment does not close securely, stop using the product and keep it away from children.
If you think batteries might have been swallowed or placed inside any part or the body, seek immediate medical attention.
- Batteries (battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the like.
- Do not install and use the wrong type of battery.
- Do not leave the battery in a mechanically crush or cut it because it can explode.
- Do not leave the battery in a high temperature environment.
- Do not leave the battery in a low-pressure environment.

ATTENTION

- IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS.
- Ne pas ingérer la pile, risque de brûlure chimique.
- Ce produit contient une pile de type bouton/pièce de monnaie. Si la pile de type bouton/pièce de monnaie est avalée, elle peut causer de graves brûlures internes en seulement 2 heures et peut entraîner la mort.
- Gardez les piles neuves et usagées hors de portée des enfants. Si le compartiment de la pile ne se ferme pas correctement, cessez d'utiliser le produit et gardez-le d'atteinte des enfants.
Si vous suspectez que des piles ont été avalées ou insérées dans une partie du corps, consultez un médecin sans tarder.
- Les batteries (bloc-batterie ou batteries installées) ne doivent pas être exposées à une chaleur excessive telle que le soleil, le feu ou autre.
- N'installez pas et n'utilisez pas le mauvais type de batterie.
- Ne laissez pas la batterie dans un endroit où elle pourrait être écrasée ou découpée mécaniquement, car elle pourrait exploser.
- Ne laissez pas la batterie dans un environnement à haute température.
- Ne laissez pas la batterie dans un environnement à basse pression.

FUNCTIONS SUPPORTED BY MODEL

Function \ Model name		XRN-6420DB4	XRN-6420B4 XRN-3220B4 XRN-6420RB2 XRN-3220RB2	XRN-6420B2 XRN-3220B2
Fan		Y	Y	Y
P2P		Y	Y	Y
Joystick		Y	Y	Y
Extended monitor		Y	Y	Y
Failover		Y	Y	Y
Alarm		Y	Y	Y
RAID		Y	Y	N
Minimum number of RAID hard disks		4	4	-
Distributed recording		Y	Y	Y
iSCSI		Y	Y	Y
AI compatible function	AI search	Y	Y	Y
AI recognition function	Object detection	N	N	N
	LPR search	N	N	N
Power supply redundancy		Y	N	N
PoE		N	N	N
Dewarping		Y	Y	Y

Y : Yes, N : No

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STARTING THE SYSTEM

- 1. Connect the power cable of the recorder 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.

The following symptoms might be observed when starting the system.

- If the HDD number is displayed at the bottom of the screen along with <HDD> while the product is booting up, it indicates that the HDD is in recovery, and for this reason booting up may take longer.



- If the progress stalls while in <HDD> state, it indicates that the HDD has problems. Visit your nearest customer service center to check the HDD.



INSTALLATION WIZARD

As shown below, proceed through each step of the <Installation wizard>.

Install Wizard can only be accessed at factory reset. If you do not want to proceed, click <Exit>.

- It will automatically change to the optimal monitor resolution and run the install wizard.
- If the install wizard does not run, remove the monitor connection from the back of the recorder, reboot the recorder and reconnect the monitor.

- 1. In the <Language> screen, select the language and press the <Next> button.



- 2. Set the video recording method on the <Storage> screen, and then click <Next>.



- Distributed mode : This function is only available for products that support distributed recording. <Distributed mode> can be selected when there are two or more hard disks. This mode distributes the data and saves it after the hard disk is formatted.
- RAID mode : This function is only available for products that support RAID. <RAID mode> saves data by configuring the hard disk in the RAID format.
- Single group mode : Saves data on one hard disk. If the hard disk is recognized as an unusable hard disk in the recorder, the data can be saved after formatting the hard disk.

getting started

3. Set the network connection type and the connection environment on the <Network> screen, and then click the <Next>.



Setting up the DHCP server

If you set up the DHCP server to <Run>, the IP address is automatically assigned to your camera.

For more details, refer to the "Setup > Setting the Network > DHCP Server" page in the Table of Contents.

- 
- Depending on the camera's state, no IP may be automatically assigned to the camera. After exiting the installation wizard, go to the menu to assign an IP to DHCP, or set the IP manually.

Setting up the network

Each product supports a different number of network ports. If it supports two or more network ports, you can set the network for each function as follows. Click <Setup> of the network connected to the recorder.

- Network 1 (Camera) : Can be used as a port for connecting a camera. If you connect a camera, then the camera video will be transmitted.
- Network 2 (Viewer) : Can be used as a port transmitting video to the web viewer. If you access the network information on your browser, then you can remotely monitor video in your web viewer.
- Network 3 (iSCSI) : Can be used as a port for an iSCSI connection.
 - Only provided for products that support Network 3.
- Network (All) : Can be used as a common port for connecting camera, web viewer, and iSCSI.
 - IP type : Allows you to select the type of network access.
 - IP Address, Subnet Mask, Gateway, DNS
 - Manual : IP address, subnet mask, gateway, and DNS can be directly entered.
 - DHCP : IP address, subnet mask, gateway, and DNS can be automatically set.

- 
- If the LAN cable is not connected to the port, <Setup> button will not be activated for use. Check the LAN cable connection. (In case of a PoE product, Network 1 is activated.)
- The built-in DHCP Server in Recorder will turn on automatically at stage 1. At this stage, using the existing DHCP server in the same network may cause a problem, as two DHCP servers would be simultaneously operating.
- A product with multiple network ports cannot use a single bandwidth for all of them.

Example)

- Port 1 : 192.168.100.199 / Port 2 : 192.168.100.198 (X)
- Port 1 : 192.168.100.199 / Port 2 : 192.168.101.198 (O)

Setting the camera registration method

This function is only available for products that support PoE. For products that support PoE, refer to the "Functions Supported by Model" page.

- Enable PnP mode: Cameras connected to the PoE port of the product will automatically be registered for each channel in order of port number.
 - When the camera resets to factory default, it defaults to the ID and password set during the <Camera ID/ PW> step. If the camera ID and password are not set, the recorder ID and password will be set automatically.
 - If the camera's ID and password have already been set, the information that matches the ID and password set during the <Camera ID/PW> step will be registered (up to 3 sets).
If your camera uses a manual IP, its bandwidth should match with that of Network 1 IP for registration.
 - If manual mode is used, it automatically detects and registers cameras connected to the recorder's PoE port and cameras connected to a separate switch.

Online Upgrade

<

5. Set the camera password in factory reset on the **<Camera ID/PW>** screen.

If ID/PW is already set in the camera, register the ID/PW and click **<Next>**.



- When the password is in factory reset, it can be changed and managed in a batch.
- Up to 3 sets of camera ID with password and password can be registered.
- You may change the passwords of registered cameras all at once in the "Setup > Camera > Camera password" menu.
- You cannot change the password for cameras registered with ONVIF and RTSP.

6. Set the date, time, and daylight saving time on the **<Date & Time>** screen, and then click the **<Next>**.



- The time zone setup might differ depending on the region that the product is released.

7. On the **<Camera register>** screen, select a camera to register from the searched camera list and click **<Register>**.

Select a camera to register from the list and click **<Change IP>**.

After completing camera register click **<Next>**.



- After entering the ID and password set in the camera, the connection test must be completed to successfully register.

8. On the **<Channel setup>** screen, you can view the camera videos registered to each channel in thumbnails along with thumbnail information. To change the camera video position, select a video and drag and drop it to the desired location.

After completing channel setup, click **<Next>**.



getting started

9. On the <Easy connect> screen, a remote user can network a recorder in a dynamic IP system.
Click <Enable> to test the connection to see if the current recorder can be connected remotely. When the connection is successful, a QR code is created.
To connect a recorder via a viewer, select the viewer you want to use. You can check the connection method of the selected viewer in the popup window.



- It connects to Wisenet DDNS first. If it does not connect to DDNS, it automatically connects to P2P.

10. Click <Finish> to complete the Installation wizard.

CAMERA SETTING PALETTE

When the installation wizard closes, the camera setting palette screen automatically appears.
Based on the registered camera's record profile information, you can check the total bandwidth, expected space, and expected days.
You can change camera setup and the record schedule, and apply the same settings to other channels.

- The camera setting palette screen is also displayed when registering a camera for the first time in the "Setup > Camera > Channel setup" menu.



- Bandwidth/Expected space/Expected days : Displays the total bandwidth, expected space, and the expected days of the registered camera.
(This may differ from the actual recording content.)
- Dual recording : You can select whether to use dual recording or not.
- Apply to other channels : You can apply the settings of the selected channel to other channels in the same way. Select the desired channel in the "Apply to other channels" confirmation window and click <Ok>.
 - Applicable only for channels registered with the same camera model.
- Apply : The motion detection is enabled for cameras and recorders.
 - If the motion detection area is not set on a camera, it is created in the maximum size that can be set.
 - Depending on the camera settings, the motion detection may be unavailable.
- Exit : Ends the camera setting palette function.
The motion detection is enabled by clicking <Apply>. If you click <Exit> without clicking <Apply>, the motion detection is not enabled.

Configuring the Video Environment

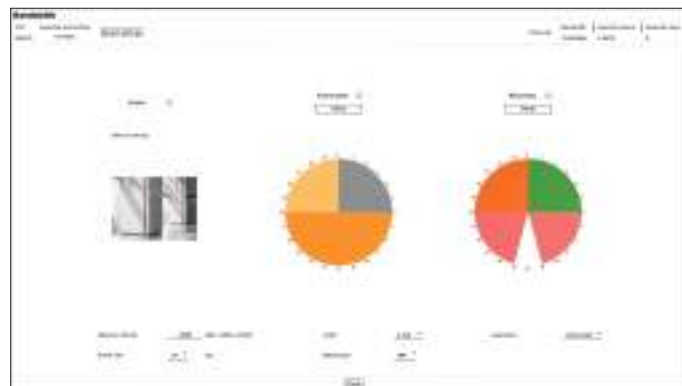
Select the thumbnail of the channel whose settings you want to change and click . The example screen is displayed according to the camera installation environment. The example screen provides the camera settings appropriate for the environment.



You can select items that are relevant to your channel. A video with more motion may have a higher bitrate, resulting in a larger expected space and fewer expected days.



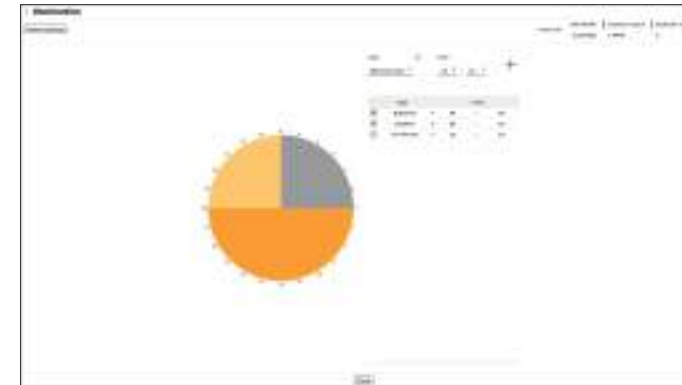
You can click  to change to the setting you want.



- Expected space/1Day : Displays the expected space based on one day.
- Revert settings : Reverts to the settings that were set before the user modifies them.

Configuring the Illumination

You can click **<Setting>** to change to the setting you want.



Set up the desired type and time.

- The bitrate is higher in the following order : **Nighttime** > **Illuminated** > **Daytime**.
- Revert settings : Reverts to the settings that were set before the user modifies them.

Setting the Recording

You can click **<Setting>** to change to the setting you want.



Set up the desired type and time.

- Not recording : Do not record for the set time.
- Continuous, Continuous/Event : Recording is executed for the set time.
- Event : When an event occurs at the set time, a recording will be executed.
You can set the occupancy (10 to 90) indicating the frequency of movement.
- Revert settings : Reverts to the settings that were set before the user modifies them.

Checking the System Status

The icon at the top of the screen indicates the status of the system.



Item	Description
	It is displayed when there is a problem with the fan. ■ Only provided for products that support fans. (Refer to the " Functions Supported by Model " page.)
	It is displayed when there is a problem with the power supply. ■ Only provided for products that support power supply redundancy. (Refer to the " Functions Supported by Model " page.)
	Display when recording data is not properly saved.
	Displayed if the HDD is full and the Recorder has an insufficient space to record.
	Displayed when there is no HDD or HDD is not detected.
	Displayed if the HDD needs a technical examination.
	It is displayed when RAID contains a malfunctioning HDD or cannot be used due to HDD malfunction. ■ Only provided for products that support RAID. (Refer to the " Functions Supported by Model " page.)
	It is displayed when recovering a RAID Error. ■ Only provided for products that support RAID. (Refer to the " Functions Supported by Model " page.)
	Appears when input data rate per channel exceeds the specified data rate limit.
	It is displayed when an iSCSI device is disconnected. ■ Only provided for products that support iSCSI. (Refer to the " Functions Supported by Model " page.)
	It is displayed when the network is overloaded. ■ It occurs when the max receiving allowance is exceeded, causing an overload to the CPU. It disappears when you modify the Delete Camera or Set Camera to reduce the data rate.

Item	Description
	Displayed if the server has firmware to update.
	It is displayed when the system is overloaded. ■ Limit the number of users remotely monitored by Web Viewer or VMS, or control the number of events displayed in the event list of the recorder.
	Displayed when manually recording a video while the access restriction for stop recording is enabled. Only a user with the permission to stop recording is allowed to stop recording.
	Displayed when exporting a recorded video in live mode.
	Displayed when there is software to update on the camera.
	Displayed when playing the layout sequence.
	Displayed when running automatic switching of the split screen.
	Displayed when an error occurs in the internal memory.

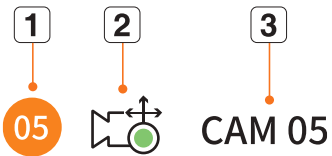
Error Information

- If the built-in HDD is not connected, the "NO HDD" icon () will be displayed. You must contact the service center since the Recording, Play, Export, and Upgrade functions do not work while doing this.
- If you do not format a purchased HDD in a format supporting Recorder, a "NO HDD" icon () will be displayed. If the "No HDD" icon is displayed, check the hard disk connection status in "**Setup > Device > Storage device**" and format the hard disk.
- If a product with a fan does not work or has a problem with the fan, <Fan Information Window> appears and the fan malfunction icon () is displayed. In this case, check the fan inside the product. If the fan is defective, it can shorten the product life cycle, so please make sure to contract service center nearby.

■ If an abnormal fan () icon or NO HDD () icon, HDD FAIL () icon is displayed, contact our customer service.

Check Camera List

Displays the camera type, status, and name registered in the recorder.

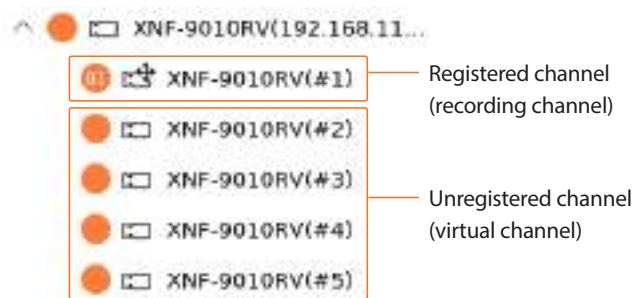


Item		Description
1	Channel information	Displays channel information (channel number, video window assignment, and color indication).
2	Camera type	 Displays a normal camera.
		 Displays a camera that supports the PTZ feature.
	Camera status	 Recording an event video.
		 Recording a general video.
3	Camera name	 Displays the camera error status.
		Displays the name set for the camera.

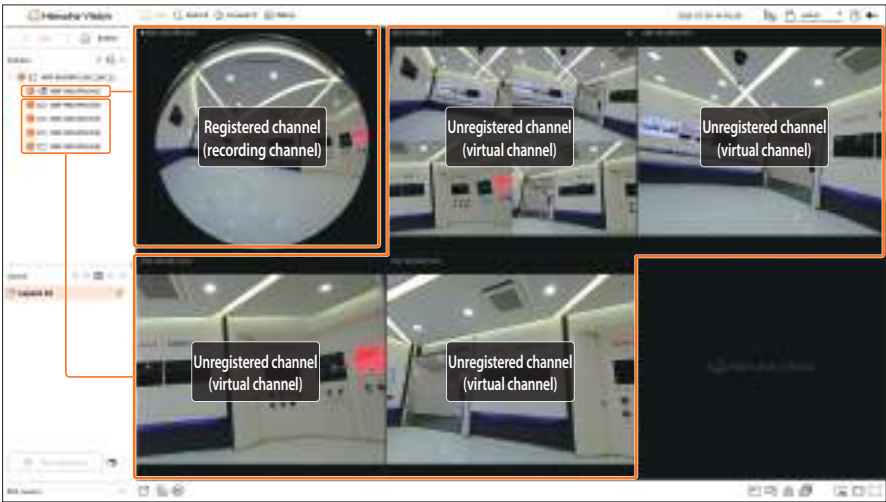
- If a camera connection error occurs, it is disabled in the list.
- The camera status display information changes according to the network connection status and settings.

Check Multichannel Cameras List

For multichannel cameras registered with the Wisenet protocol, the channel information will be displayed under the model name of the multichannel camera.



In case of multichannel cameras, only one main channel can be registered for recording. Subchannels in which recording is not required do not need to be registered on the recorder, as they can be monitored real time. However, recording, event reception, or camera settings are not available.

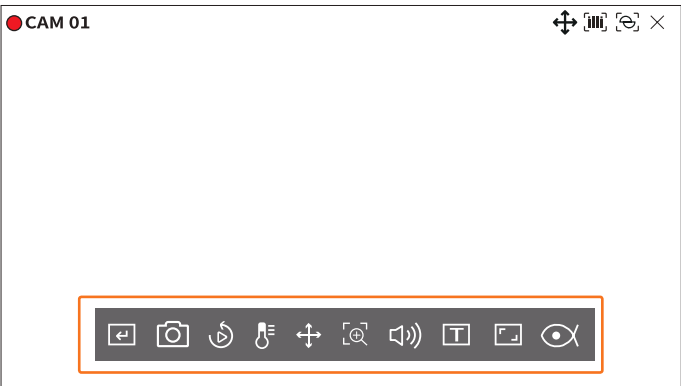


Live Screen Menu

After selecting the desired channel on the split mode, roll the mouse cursor over the screen to see the live screen menu.

The live screen menu appears differently depending on the recorder operation status or the type of the registered camera.

- Each function may be restricted depending on the type of camera and the user's authority.
- For more detailed information about each function, refer to the table of contents "Live > Camera Video Control".

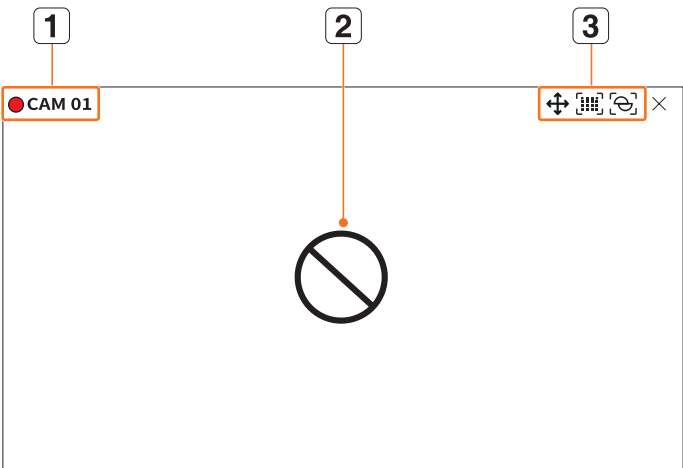


Item		Description
	Manual trigger	If the event action for <Manual trigger> is set for the selected channel, the event rule name is displayed when you hover the mouse over <Manual trigger>. Click <Manual trigger> to activate the set event.
	Capture	You can take a screenshot of the selected channel.
	Instant Viewer	You can rewind 30 seconds while monitoring the video.
	Temperature Detection	For images that support the thermal imaging camera function, you can click the desired point to check the temperature information.
	PTZ control	If the network camera connected to the selected channel supports the PTZ function, it changes to the PTZ control mode.
	Zoom in	You can zoom in or zoom out the video.
	Audio	Turns the audio on or off when the audio is connected.
	Display Text	Turns the text output on or off.
	Channel aspect ratio	Shows the video in actual proportions.
	Dewarping	Enters the setup mode for dewarping the fisheye camera. It works only when the video resolution is 1:1. Some models do not support this function.

Icons on the Live Screen

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

- The icons displayed on the screen may differ depending on the type of camera and the user's authority.



Item		Description
1	Recording status and camera name	Displays camera's recording status and name. - Red dot: Displays the event recording. - Green dot: Displays the normal recording.
2	Video input status	Displayed when there is no input while the camera is on.
		Displayed when the resolution of the live video exceeds the supported range while the camera is on.
		Displayed if no permission to live view is granted.
		Displayed when the camera is not registered. If you set the channel setup to <Covert2>, nothing will be displayed on the live screen. If you set the channel setup to <Covert1>, the video will not displayed on the live screen, but only the OSD will be displayed.

Item		Description
3	Event Display	Events from the recorder and camera are displayed in icons. For details, refer to the "Setup > Setting the Event > Event rule setup" page in the Table of Contents.
	Status Display	 It is displayed on the channels that can enable the PTZ mode.
		 Displays AUDIO ON/OFF. It will not be displayed when <Off> is selected for the audio in the channel setup.
		 If the alarm in is set, it is displayed on the connected channel when an external signal is entered.
		 If the event detection is set for each channel, it is displayed when a camera event occurs.
		 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.
		 This is displayed when a POS (text) event occurs.
		 Displayed when there is an error with the SD card.
		 Displayed when the SD card capacity is full.
		 Displayed when a defocus event occurs.
		 Displayed when a fog detection event occurs.
		 Displayed if the Wisenet camera's certificate is valid.



- The 'Live4NVR' profile is added automatically with network camera auto registration, and settings can be changed according to user environment.
- Depending on camera specification, you may not be able to add a profile or if you have the PLUGINFREE profile, you will not be able to add the Live4NVR profile.
- When system overloaded and the performance is down, network camera may play only main frame(I-frame).
- To set profiles, refer to "Setup > Setting the Camera > Setting the Profiles" page in the Table of Contents.

OSD Information Display

You can show or hide the recording status, camera status, event display, etc. in the video window.

To show or hide the OSD information, click <  > at the bottom of the screen.



Record Status

If you select **<Record>** in the **<Status>** menu, you can check the profile, record type, frame rate (Input/Record), and bit rate (Limit/Input/Record) for each channel.

CH	Profile	Type	Frame	Receive	Record	Limit	Receive	Record	Receive/Limit
1	H.264	Continuous	Full	30.0	30.0	11.3M	1.5M	1.5M	13.8%
2	H.264	Event	Full	30.0	30.0	11.3M	0.5M	0.5M	4.4%
3	H.264	Continuous	Full	25.0	25.0	11.3M	0.8M	0.8M	7.1%
4	H.264	Continuous	Full	30.0	30.0	11.3M	0.8M	0.8M	7.1%
5	H.264	Continuous	Full	25.0	25.0	11.3M	0.8M	0.8M	7.1%
6	H.264	Continuous	Full	30.0	30.0	11.3M	0.8M	0.8M	7.1%

- Total bitrate (record/max) : Record shows the amount of data currently being recorded, and Max shows the amount of recorded data allowed for the recorder.
- 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.
- Profile : Shows the video profile configured to each channel.
- Record : View the record type according to normal or event recording.
- Frame rate (fps) : Shows the receive/record frames per second for each channel.
- Bitrate (bps)
 - Limit / Receive / Record : Shows the amount of limit/receive/record data for each channel.
 - Receive/Limit : Shows the data ratio of actual data transferred from the camera and allowed maximum defined by user.
- Record setup : You can set detailed recording settings.
For more details, refer to the "**Setup > Setting the Recording > Record Setup**" page in the Table of Contents.



- If an error occurs during recording, the channel's profile column turns yellow.
This profile error indicates that when a recording profile cannot be used to receive video from camera, an alternative profile is used to record the video. When the recording profile resumes, the camera video can record by using the set recording profile.
- If Recorder exceeds the recording limit, only the key frame will be recorded. In that case, a restricted recording popup and an icon will appear.
The restricted recording popup appears only once. If you change the camera setup and record setup, the restricted recording popup may appear once more to confirm the status.
If you don't want to see it again, then check Do not show this again in the popup.
For the maximum allowed number of recording, refer to the "**Setup > Setting the Recording > Record Setup**" page in the Table of Contents.
- For dual recording, the bitrate is shown as the sum of recording and remote profiles.
However, the **<Enable dual recording>** box in the "**Record > Record options**" menu must be checked.
The recording profile and remote profile can be set

Event Search

You can search events by camera, alarm input (recorder), and event type.
To search for a specific event, click <  > to select the event type and camera to browse.

Event filter

Displays only selected events in the event list.



- Common event : Searches for event types that have occurred in general cameras such as motion detection and IVA.
- AI event : Searches for AI event types such as face, person, and vehicle.
 - AI events are only activated when an AI camera is connected.
 - AI events are displayed only after setting event rules. For details, refer to the "Setup > Setting the Event > Event rule setup" page in the Table of Contents.

Camera filter

Displays events for the selected camera only.



Alarm input filter

Displays the only events for the alarm input numbers of the selected recorder.



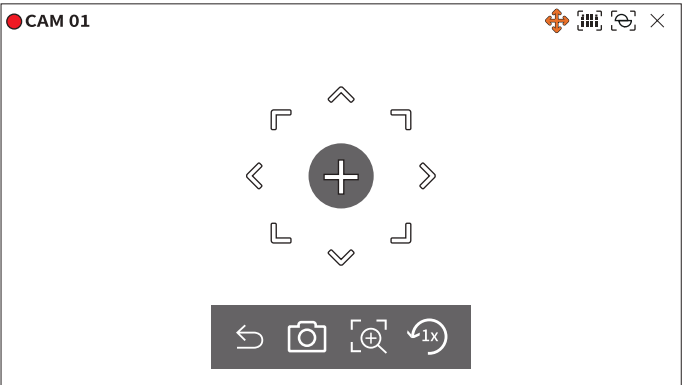
PTZ Mode

You can run PTZ control of the selected channel.

Select the desired channel and click <⬆⬇⬇⬆>.

Enters the PTZ control mode.

 ■ Depending on the camera, the PTZ control function and speed may be different.



-  : The PTZ mode is closed.
-  : Captures video of the current state.
-  : After clicking the digital zoom icon, you can use <⊕ / ⊖> to zoom in or zoom out the video.
-  : Returns to the 1x zoom screen.

Adjusting the Camera Direction

When you rolls over the mouse to <⬆⬇⬇⬆>, the 8-way key appears, and when the mouse leaves the area of the direction key, the direction key disappears. You can fine-tune the camera direction by clicking the 8-direction key once. Keep clicking the arrow keys to move in the desired direction and release the mouse to stop.

To quickly adjust the direction of the camera, click <⬆⬇⬇⬆> and drag. The screen moves quickly in the desired direction. You can adjust the screen movement speed according to the drag distance.

Moving to the Center of the Screen

Click a specific location on the screen to move the video at that location to the center of the screen.

Zooming the Selected Area

Drag a specific area of the screen, to move and the selected area to the center of the screen and zoom in.

Zooming In and Out of Images

You can zoom in or out using the mouse wheel. Click <⌂> to go back to the original size.

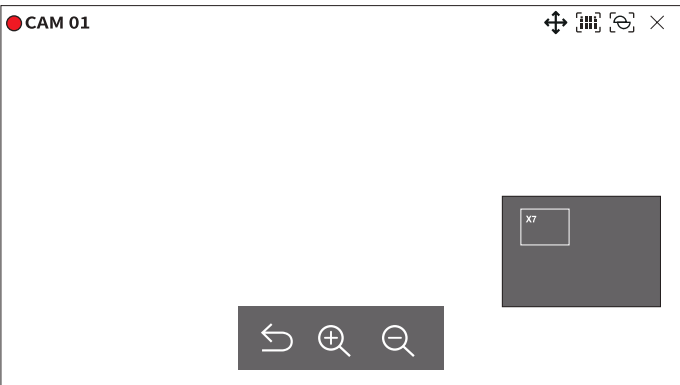
Zoom In

You can zoom in or out the video via digital zoom.

Select the desired channel and click <⬆⬇⬇⬆>.

Enters the digital zoom mode.

 ■ In PTZ mode, click <⬆⬇⬇⬆> to run the digital zoom.

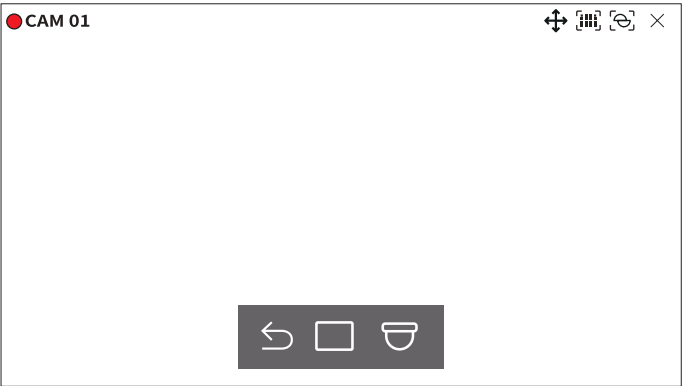


-  : Exits the digital

Dewarping

You can correct distorted images from the fisheye camera by running dewarping.
Select the channel you want and click <👁️>.
It will enter the setup mode for dewarping.

-
- This function is not supported in some models.
 - This works only when the video resolution is 1:1.
 - The set dewarping mode is cleared when the layout is changed, so set it again.
 - Dewarping will be applied only to the selected channel.
 - In dewarping mode, the frame rate of the video is limited depending on the resolution (3-30 fps).



- : Dewarping mode is closed.
- : You can select from <Single>, <Quad view>, <Single panorama>, and <Double panorama> for the view mode.
 - Single, Quad view : You can use the PTZ function by dragging the mouse up/down/left/right or by using the mouse wheel.
 - Single panorama : You can select when the mounting mode is <Wall>
 - Double panorama : You can select when the mounting mode is <Ground> or <Ceiling>. You can use the PAN function by dragging the mouse left or right.
- : You can select the mounting mode from <Ground>, <Wall>, and <Ceiling>.

PTZ CONTROL

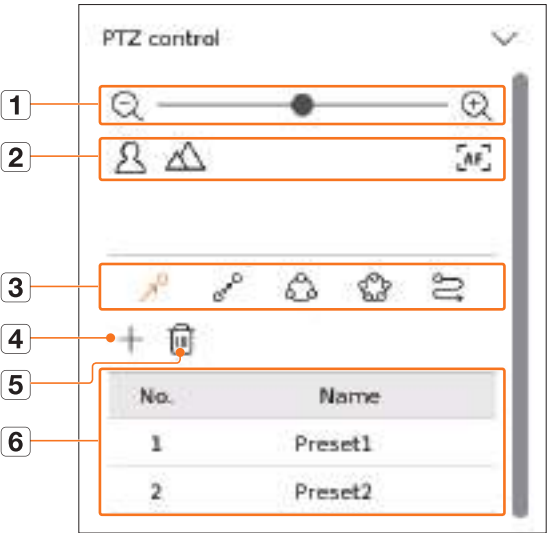
With this Recorder, you can configure the settings of a PTZ camera as well as commercial cameras in the market to your preference.
This is active only if a channel that a PTZ camera is connected to is selected.

Getting Started with PTZ Operations

- The PTZ camera will be activated only if the channel of the PTZ camera is selected. After selecting the desired channel, click <👁️> on the live screen menu.
-
- This is available only if a PTZ camera is connected and the <👁️> icon is displayed on the screen.
 - Even if the connected network camera does not support the PTZ operations, you can configure the PTZ control settings (if possible) by installing the PTZ driver (physical device).
 - It only supports a network camera with Hanwha Vision's PTZ function and a camera registered in the ONVIF.

PTZ Control Menu

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.
Click <PTZ control ^> on the bottom left of the live screen to display the PTZ camera control menu as shown below.



Item		Description
1		Zoom out/Zoom in Activate the Zoom operation of the PTZ camera.
2		Near/Far You can adjust the focus manually.
		Auto focus You can adjust the focus automatically.
3		Preset Set the preset position to move the camera, and then select the desired preset to move to the set position.
		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.
		Tour Monitor all the groups created by a user in turn.
		Trace Tracking remembers the trace of movements that you instructed and reproduces it for your reference.
4		The preset you set is saved and displayed in the list.
5		Deletes the selected preset list.
6	Preset List	Shows a list of saved presets.

 ■ 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.

■ Some cameras may differ in the menu title and operation with regard to Swing, Group, Tour and Trace.

 ■ Even if your network camera supports the function, you can use it only if the button is activated in the PTZ control launcher.

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 set of saved data specifying the locations of a PTZ camera. A single PTZ camera can save up to 300 locations.

 ■ The max. number of presets may vary depending on the number of presets supported by the camera.

To add a preset

1. Select the desired channel and click <↕>.
 - The PTZ control screen appears.
2. Use the arrow keys to adjust the camera to the point.
3. Click <↻>.
4. If you click <+>, the <Preset setup> window will appear.

To delete a registered preset

- 1. Click <🔗>.
- 2. Click <🗑️>. <Delete preset> window will appear.



- 3. Click <1: Preset1> to select the preset to delete.
- 4. Click <Delete>. The selected preset will be deleted.

Running Preset

- 1. Click <🔗>.
- 2. Click the preset you want to run from the list.
The camera lens moves to the set position.

Running Swing (auto pan), Group (scan), Tour, or Trace (pattern)

The running method of each function is the same as the preset operation method. For details on how to use it, refer to the camera's user manual.

📝 ■ Depending on the camera's capabilities, only some features may be available.

EXPORTING THE RECORDED VIDEO

You can search the storage device to be exported and export the recorded video of the desired time by layout or channel.

- 1. Click <📁> at the bottom of the screen.
- 2. The export setup screen will appear.



- Select a layout : Select a desired layout from the layout list.
- Channel : Select a channel to export.
 - You can select multiple channels. If you select <All channels>, all channels will be selected.
- Export section : Set the <Start> and <End> time to run the export select to.
 - Start : You can set the start time for the export to the desired time.
Click <Start> to set the export start time to the first time the video was recorded.
 - End : You can set the end time for the export to the desired time.
Click <End> to set the export end time to the last time the video was recorded.
- Overlap : Shows a list of overlapping data on a same time according to the number of data.
This is displayed when there are duplicate data in the same channel due to changes in the time or time zone.
 - For more details, refer to the "Setup > Setting the System > Date/Time/Language" page in the Table of Contents.
- Device : Select a device to export the among the searched devices.
- Format : If you click <Format>, the format confirmation window will appear. Click <Yes> to format the selected storage device.
- File type : Select the export format.
 - SEC : You can export in your own file format that can be played directly on your PC. You can play with the viewer included in the export folder.
 - If you select SEC format, you can choose whether to include "PW Setup" and "Include text data".
 - Recorder : You can export to a file that can be played only on the recorder.
 - AVI : You can export to an AVI format-compatible with popular media players.
- Path : Displays the folder location where the export file will be saved. You cannot change the storage folder, only the file name to be saved.
- Check capacity : You can check the selected export capacity and the current and remaining capacity of the export device.

3. After completing the export setup, select <Start>.

- If there is no device to export, the <Start> button will be deactivated.
- If you click <Stop> during the export progress, which is the export will be canceled.

4. Click <OK> on the export completion confirmation window to finish.



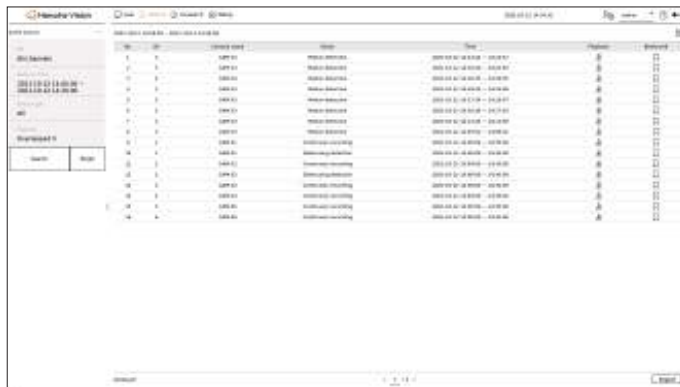
- Exporting will not be able to start when a USB with insufficient free space is inserted.
Format the memory stick or delete some of the data on the memory stick to secure adequate storage space.
- The operation speed of the product may slow down if the export is in which is a progress.
- You can switch to the menu screen during export progress, but data playback will not be possible.
- If the export fails, check the current capacity and status to see if the hard disk is connected properly in the "Device > Storage device" menu.



- If <Hide> is selected while the export is in progress, the screen changes to the upper menu, but the export continues.

EVENT SEARCH

You can search for various events by channel.



1. Select **<Event search>** in the **<Search>** menu.
2. Select a channel to search.
 - If you select a channel to search, you can change the channel display mode by clicking . You can select a desired channel by clicking or dragging it from the channel table, and clicking the channel in the channel list.
3. Select a date and time to search.
 - The search runs only for a maximum of 1 minute, so if the event search section is long, events may not be searched. In this case, reset the section and search again.
4. Please select an event type. When you click the item, the event type selection window will appear.
 - Event type options : Motion detection, IVA, Face detection, Auto tracking, Tampering detection, Defocusing detection, Fog detection, Audio detection, Sound classification, Alarm input(camera), Continuous recording, Manual recording
 - Event type options may vary depending on the camera model.
5. Select the overlap.

It will be displayed when there is overlapped data in one channel by changing the time or time zone at the selected time.
6. Click the **<Search>** button.

The search results list will be displayed.

 - To stop the search, click **<Stop>** in the search pop-up window. You can check the search results up until now.
 - CH : Displays the channel where the event occurred.
 - Camera name : Displays the camera name.
 - Event : Displays the event type of the recorded video.
 - Time : Displays the start time and end time of the recorded video.
 - Playback : Plays the recorded video with an instant viewer.
 - Bookmark : Specifies a bookmark to the recorded video.
7. If you double-click an item to play in the search list, the recorded video will be played.

TEXT SEARCH

You can search the data input to the POS device connected to the recorder.



1. Select **<Text search>** in the **<Search>** menu.
2. Select a date and time to search.
3. Set the keyword item. When you click an item, the keyword setting window appears.
 - You can search with a narrower range by entering specific characters.
 - Text search keyword : Enter the text to search.
 - Match case sensitivity : When checked, the entered characters will be searched with case-sensitivity.
 - Match whole words : When checked, only data that exactly matches the entered character will be searched.
 - Event keywords : You can search for text with preset event keywords. For more information about event keyword settings, refer to the "**Setup > Setting the Device > Text > Text Event Settings**" page in the Table of Contents.
4. Select the overlap.

It will be displayed when there is overlapped data in one channel by changing the time or time zone at the selected time.
5. Click the **<Search>** button.

The search results list will be displayed.

 - To stop the search, click **<Stop>** in the search pop-up window. You can check the search results up until now.
 - Device : Displays the name of the POS device connected to the recorder.
 - CH : Displays the channel where the event occurred.
 - Keyword : Displays the searched text.
 - Time : Displays the start time of the recorded video.
 - Playback : Plays the recorded video with an instant viewer.
 - Bookmark : Specifies a bookmark to the recorded video.
6. If you double-click an item to play in the search list, the recorded video will be played.

EXPORT SEARCH

You can search the exported data on the connected storage device. Only data saved in recorder file format when exported will be retrieved.



1. Select **<Export search>** in the **<Search>** menu.
2. When you click **<Select storage device>**, the device search window is displayed. Click **<↺>** to search for storage device.
3. Click **<Search>**.
Exported file information will be displayed.
 - Folder : Displays the folder where files are stored.
 - Name : Displays the folder where files are stored (named by time).
 - CH : Displays the channel of the recorded video.
 - Time : Displays the start time and end time of the exported video.
 - Playback : Plays the exported video with an instant viewer.
4. If you double-click an item to play in the search list, the recorded video will be played.

ARB SEARCH

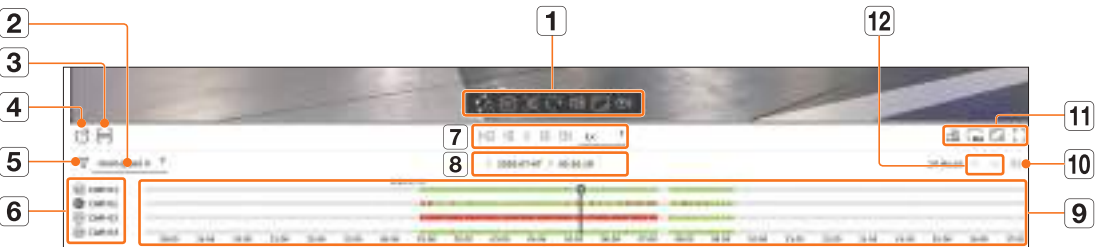
You can search auto-recovery backup data stored on ARB storage devices.



1. Select **<ARB search>** in the **<Search>** menu.
 - For more information about ARB search, refer to the "**Setup > Setting the Device > Storage device**" page in the Table of Contents.
2. When you click **<Select storage device>**, the device search window is displayed. Click **<↺>** to search for storage device.
The model name of the ARB storage device will be displayed.
3. Click **<Search>**.
The ARB file information stored on the device will be displayed.
 - Folder : Displays the folder where ARB data is stored.
 - Name : Displays the file name stored on the ARB device.
 - CH : Displays the recorded channel.
 - Time : Displays the start time and end time of the backed up video recording.
 - Playback : Plays the recorded video with an instant viewer.
4. If you double-click an item to play in the search list, the recorded video will be played.

You can play the recorded data and export the video you want during playback.

SCREEN LAYOUT OF THE PLAY



Item		Description
1	Video control	You can use the video control function. 🔍 : Runs a smart search by specifying an area in the video window. 📷 : Saves the video screen as an image. 🔍 : Zooms in the selected area on the screen. It only runs on a single split screen. 🔄 : Displays the image rotated 90 degrees. (This function is not supported in some models.) 🔊 : Turns the sound on or off. ⌂ : Changes the video display ratio. 👁 : Enters the setup mode for dewarping the fisheye camera. It works only when the video resolution is 1:1. Some models do not support this function.
2	Overlap	The list will be displayed according to the number of overlapped data in the same time zone. It will appear when a video is overlapped in one channel due to time or time zone change at the selected time.
3	Export section	Turns the export section setting on or off. You can select a start time and end time for exporting.
4	Export	You can export the video of the channel you are playing.
5	Filter	You can filter the event items to see the time line.
6	Channel	The channel and camera name will be displayed.

Item		Description
7	Playback control	You can control video playback.
8	Date/Time	Set the date/time.
9	Time line	Move the playback position and display event data.
10	Show/Hide Channel	You can change the number of channels displayed in the time line. Up to 4 channels of time line can be displayed.
11	Status	You can check the live, recording, and network status.
	Remove all tiles	Removes all screens from the video window.
	Full aspect ratio	Change the video display ratio.
12	Full screen	Display the image enlarged to full screen.
	Previous/Next Channel	You can check the time line of the previous/next channel.

PLAY SEARCH RESULTS

Time Line Adjustment

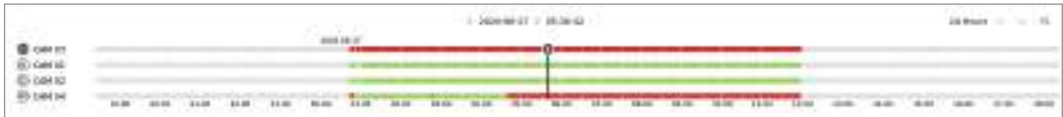
You can move the playback position and zoom the time line in and out.



- Click the desired play position in the time line.
The playback start position will be moved.
 - Click the start point on the left side of the time line to move the playback position to the start point of the first video.
 - Place your mouse over the time line to see the corresponding thumbnail of the recorded video.
- Click the time line and use the mouse wheel to zoom in or out on the time scale.
It will change in the order of 24 hours-12 hours-6 hours-3 hours-1 hour-30 minutes-15 minutes-5 minutes-1 minutes.
 - The time line magnification of the time line will be displayed at the top right of the time line.
- To see the time line previous or next zooming in, zoom in and drag the time line left or right.

Open Time Line Channel

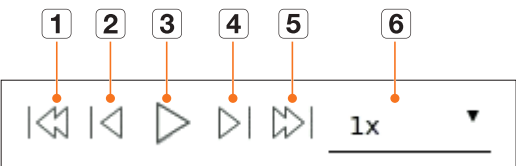
You can display the time line of multiple channels.



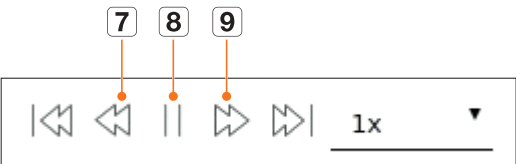
- You can click <≡↑>, <≡↓> to display 1 to 4 channels in the time line. The time line will be displayed as many channels as selected.
- Click <^ v> to move to the previous or next channel.
- Place your mouse over the time line to see the corresponding thumbnail of the recorded video.

Play Button Name and Function

Paused state



Playback state



Item		Description
1	Previous event	Go to the previous event video.
2	Previous frame	Moves backward to the key frame (I-frame).
3	Playback	Play the video.
4	Next frame	Moves forward one frame or more.
5	Next event	Go to the next event video.
6	Speed	Select the video playback speed. Speed : x1/8, x1/4, x1/2, x1, x2, x4, x8, x16, x32, x64, x128, x256
7	Fast backward	It is used for reverse playback. Speed : -x1/8, -x1/4, -x1/2, -x1, -x2, -x4, -x8, -x16, -x32, -x64, -x128, -x256 ■ Depending on the split screen, the maximum speed may be limited.
8	Pause	Pause the video.
9	Fast forward	It is used for forward playback. Speed : x1/8, x1/4, x1/2, x1, x2, x4, x8, x16, x32, x64, x128, x256 ■ Depending on the split screen, the maximum speed may be limited.

SEARCH RESULTS EXPORT

You can export the search results to a file.

1. Click the <  > button.
2. Select a layout and channel to export.

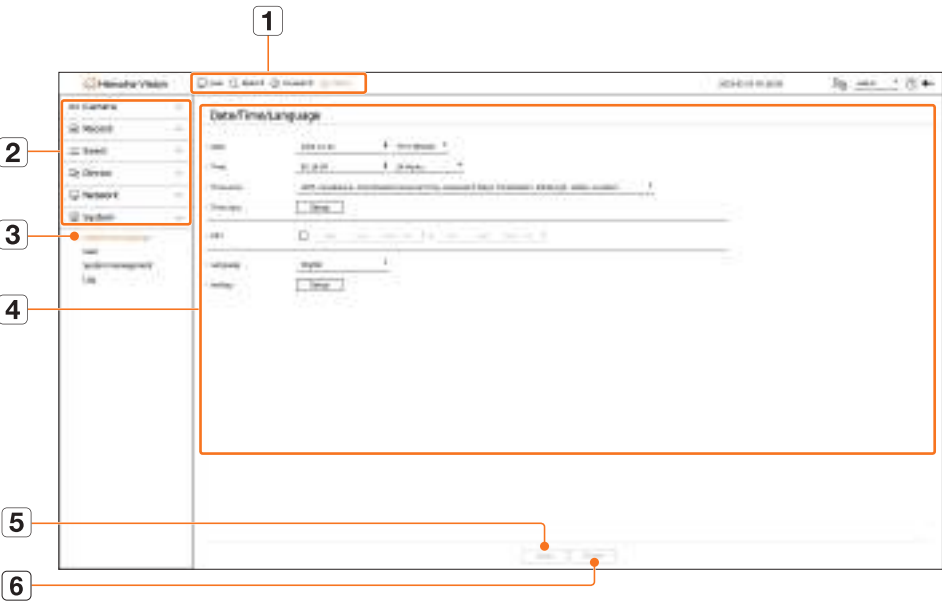


3. Select a start date/time and an end date/time.
 - If you changed the time zone of the recorder, select whether to apply DST.
4. Select the overlap.
It will be displayed when there is overlapped data in one channel by changing the time or time zone at the selected time.
5. Click <  > to select a storage device.
 - If you click <Format>, the format confirmation window will appear. Click <Yes> to format the selected storage device.
6. Please select a storage file type.
 - SEC : You can export in your own file format that can be played directly on your PC. You can play with the viewer included in the export folder.
 - Click <Setup> to set a password for the exported video.
 - If you check <Include text data>, you can save text data in the exported video.
 - Recorder : You can export to a file that can be played only on the recorder.
 - AVI : You can export to an AVI format-compatible with popular media players.
7. Check the path to save the file to be exported. Only the file name to be saved can be changed.
8. Click <Check capacity> to check the storage capacity.
9. Click <Start>.
When the export is complete, a confirmation window will be displayed.
10. Click <OK> to exit.
 - If you click <Stop> while exporting, the export action is canceled.

setup

Sets the camera, recording, event, device, network, and system environment.

SCREEN LAYOUT OF THE SETUP



Item		Description
1	Menu	Click each menu to go to the menu screen.
2	Top menu list	Configure the settings or select a parent item to change the existing settings.
3	Sub-menu list	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	Apply	Apply the modified settings.
6	Revert	Revert to the settings used before the change.

SETTING THE CAMERA

You can access to the channel setup, camera settings, and profiles and camera password-related settings.

Setting the Channel

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

Setup > Camera > Channel setup



- When you register a camera for the first time in the "Setup > Camera > Channel setup" menu, the camera setup screen will be displayed. For details, refer to the "Getting Started > Camera Setup" page of the table of contents.
- : Displays the camera of the corresponding channel as a list or a thumbnail.
- Camera name : Provide a camera Name. You can enter up to 15 letters including spaces.
- IP address : Display the IP address of a network camera.
- Model : Show the camera model name.
- Protocol : Show the protocol information of a registered network camera.
- Video
 - On/Off : You can turn ON/OFF the selected channel's camera. If the camera video is turned off, a blank screen is displayed.
 - 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.

Dewarping Setup

Press the **<Dewarping>** button at the bottom of the **<Detailed profile configuration>** window to go to the distortion correction setup popup window for each channel.



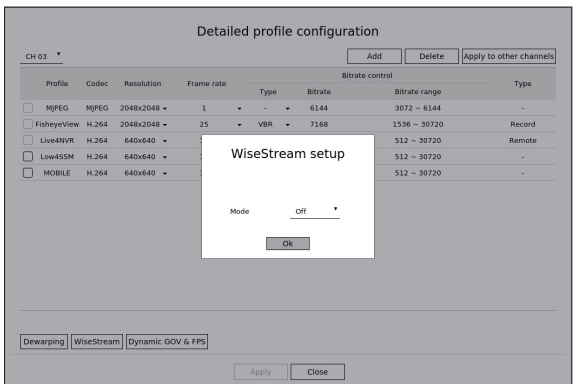
- Profile : Displays the profile type.
- Video output / Dewarp view: You can set **<Video output>** and **<Dewarp view>** for each profile type.
 - Fisheye view : If you select **<Fisheye view>** from **<Video output>**, the **<Fisheye view>** is automatically selected for **<Dewarp view>**.
 - Dewarp view : If you select **<Dewarp view>** from **<Video output>**, you can set **<Quad view>**, **<Panorama>**, or **<Quad view 1 - 4>** for **<Dewarp view>**.
 - You can select view modes supported by your camera.
- Resolution : You can set the resolution of the profile.
- 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.

■ If there is no camera registered in the Recorder 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>** button at the bottom of the **<Detailed profile configuration>** screen to go to the WiseStream setup popup window for the channel.



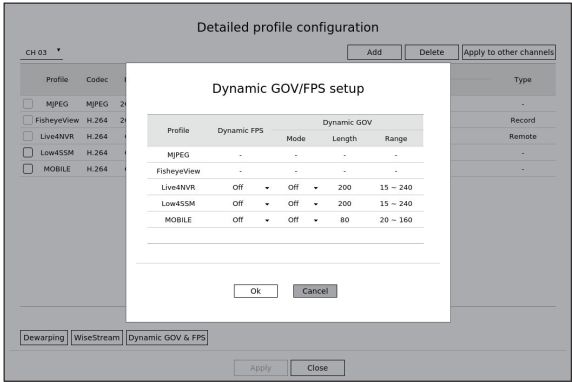
- Mode : You can choose the degree of video compression. You can choose **<Off>**, **<Low>**, **<Medium>**, or **<High>**.

■ WiseStream setup cannot be executed if there is no camera registered in Recorder that supports WiseStream.

Dynamic GOV/FPS setup

Dynamic GOV can be used to automatically change the length of GOV depending on the video condition. For details, refer to the camera's help or the product's user guide.

At the bottom of the <Detailed profile configuration> screen, press the <Dynamic GOV & FPS> button to open the dynamic GOV/FPS setup popup for the channel.



- Profile : Shows the video profile of the connected camera setting.
- Dynamic FPS : Automatically adjusts the frame rate (frames per second) based on the video conditions.
- 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.

 ■ Any profile not supported with the dynamic GOV/FPS setting is marked with '-'.

Setting Camera Password

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

You can register the camera's ID and password.

Setup > Camera > Camera password



- Password : Enter the new password for the factory default camera according to the password setting rules. The initial password for the camera must be entered.
- Confirm password : Input the new password again.
- ID : Enter the ID of the camera whose ID and password are set.
- Password : Enter the password of the camera whose ID and password are set.

-  ■ When the password is in factory reset, it can be changed and managed in a batch.
- If you click < ⓘ >, a basic guide for password setup is displayed.
- If you select <Show password>, the current password is displayed as the actual input characters.
- If you check the <Change the password of all registered cameras>, the passwords of all cameras are changed with the entered password.
- Up to 3 sets of camera ID with password and password can be registered.
You can use the registered camera ID/PW to automatically discover and register the camera from the "Channel setup > Auto detect" screen.
- A camera password registered with ONVIF and RTSP cannot be changed.

- Mobile push notification : When an event occurs, the event push notification will be displayed on the connected smart phone.
- Monitor event : When an event occurs, the screen of the corresponding channel will be displayed by switching to the live screen. When selecting event monitoring, set the alarm duration in consideration of network conditions.
- Shutdown: When an event occurs, a pop-up window will appear. You can select <Shutdown> or <Cancel>.
- User coding: It can be selected when <Manual trigger> is set. You can set the WISENET camera to execute the SUNAPI command entered in <User coding> when an event occurs. Click <Test> to test the execution of the entered SUNAPI command.



■ The <User coding> can only be set when <Manual trigger> is selected.

- Event action will run only when all set event triggers occur. If only one of the multiple events set has occurred, the event action will not run.
- Set the event action only when necessary.

4. Click <OK> at the bottom of the setting window to register the event rule.

Alarm Input

You can set the operation of the alarm sensor.



■ This function is not supported in some models.

Setup > Event > Alarm input



- Type : Set the mode in which the alarm sensor will operate.
 - Off : Alarm sensor is disabled. Alarm is not used.
 - 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 opened, it generates alarm.
- Channel : You can set the channel to execute an event action when a signal is input to the selected alarm. This is possible when <Alarm input (Recorder)> trigger and event action are set up in the "Event > Event rule setup" menu.

ONVIF Setup

You can set the details related to camera events registered with the ONVIF protocol.

Setup > Event > ONVIF setup



- No. : Select the channel to which the ONVIF camera is registered.
- Camera event : It shows the list of all the events supported by a camera by using the ONVIF protocol.
- Recorder event : You can map the list of events supported by a camera to events that the Recorder can detect. There is no default value. It only shows the value sent by a camera.

- ARB : Video that was not recorded due to a camera disconnection can be backed up after the connection with the camera is re-established. Press the button and an **<Auto recovery backup (ARB)>** window is opened.
 - Select HDD : Select a HDD to be set to ARB.
 - Capacity : Shows the capacity of the HDD to be set as ARB.
 - Select channel : Select a channel to run the ARB.
 - You can select multiple channels. If you select **<All channels>**, all channels will be selected.
 - ARB bandwidth : Select a bandwidth for the ARB function.
- The ARB feature is available only when your video is saved in the SD card after registering your Wisenet camera using the Wisenet protocol. This is only supported in SUNAPI 2.3.2 or later.
- Set the profile bitrate used for recording a video in the SD card of camera to 6144 kbps or below. For more information on how to set the SD card recording profile, see your camera manual.
- To use the ARB function correctly, both the camera and Recorder should be time synchronized with the time server. Refer to the "**Setup > Setting the System > Date/Time/Language**" page in the Table of Contents.
- ARB function is activated when Recorder starts/when the channel camera set is reconnected/when an Recorder recording missing section recurs at regular intervals after Recorder starts.
- Recorder recording missing section that can be restored with the ARB function is for 24 hours backwards from the point when the ARB function is activated.
- You can check which channels have ARB function activated through the message on each channel screen that is displayed when selecting a channel. Refer to the "**Live > Live screen mode > Channel Information Display**" page in the Table of Contents.
- For automatically recovered files through ARB, refer to the "**Search > ARB Search**" page in the Table of Contents.
- ARB storage capacity is recommended to be at least one day.
Example) If you saved 64 channels with 1 Mbps each, the ARB capacity should be set to 0.7 TB or higher.
- 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 Recorder is running.

Connecting the iSCSI

This function is only available for products that support iSCSI. For products that support iSCSI, refer to the "**Functions Supported by Model**" page.

When connecting an iSCSI device to the recorder, you can search for the iSCSI device and connect and disconnect it.

Setup > Device> Storage device > iSCSI



- Add : Add an iSCSI device.
- Delete : Delete the registered iSCSI device.
- Model : Displays the iSCSI model name.
- iSCSI name : It displays the name of iSCSI in compliance with the iSCSI protocol format.
- Capacity : It displays the currently used amount/total capacity of iSCSI devices.
- Status : Displays the status of an installed iSCSI device.

List of products supported

Promise Technology vessRAID 1740i / 1840i / 2600i 1ea JBOD 3ea / SRB-160S

