



EN

User Manual

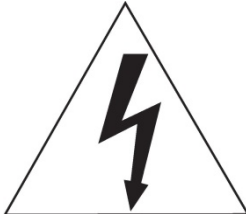

**Multisignal HD Video Recorder,
HD-TVI, AHD, 960H, H.265,
2xSATA, HDMI**

MSR-24N160005A

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECT THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

CAUTION

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
<p>WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL</p>		

EXPLANATION OF GRAPHICAL SYMBOLS



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of dangerous voltage within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

FCC COMPLIANCE STATEMENT

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.

FCC INFORMATION: 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.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

CE COMPLIANCE STATEMENT

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

IMPORTANT SAFETY INSTRUCTIONS

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 only with dry cloth.
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 is 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.
15. **CAUTION – THESE SERVICING INSTRUCTIONS ARE FOR USE BY QUALIFIED SERVICE PERSONNEL ONLY. TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE OPERATING INSTRUCTIONS UNLESS YOU ARE QUALIFIED TO DO SO.**
16. **Use satisfy clause 2.5 of IEC60950-1/UL60950-1 or Certified/Listed Class 2 power source only.**
17. ITE is to be connected only to PoE networks without routing to the outside plant.



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1. Overview

This chapter describes DVR overview, components and their terms and features.

This manual introduces a digital video recorder (DVR) which monitors or record, controls images a camera.

Multiple users may monitor video at the same time, and many cameras can be controlled simultaneously by a manager. Also, through a PC or a smartphone, video might be monitored by transmitting video and audio using a network.

The device features include the following:

Support H.264 and H.265 compression

Convenient UI from user's viewpoint

Composite input port for 4/8/16 channels

Providing AHD, TVI, 960H, and D1

4K (3840x2160) HDMI output

4Mega pixel screen recording, audio recording and playing

HDD information and status presentation

HDD overwriting

USB Data Back-up

Simultaneous recoding and playing of 4/8/16 channels

Various search mode (time, event, thumbnail, smart search and text)

Various recording mode (manual, event, timed recording, panic recording)

Remote monitoring through a network viewer, a web viewer, and a mobile viewer

1.1 Package Contents

The device package contents consist of the following:

 **Note** Please check all components involved.

Table 1-1 Package contents

No	Name	No	Name
1	DVR	5	SATA cable
2	DC Power Adapter & Power cord	6	SATA power cable
3	Mouse	7	HDD fixing screw
4	Quick guide	8	Program CD

1.2 DVR Description

Each part is listed in the below:

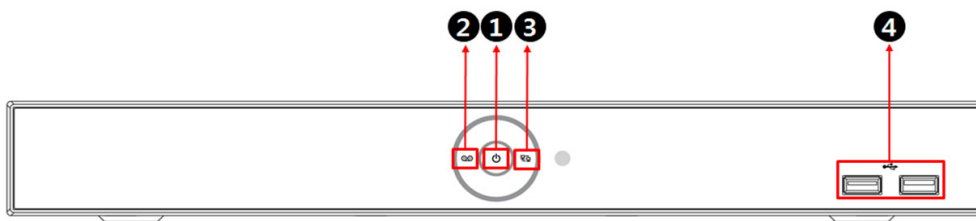
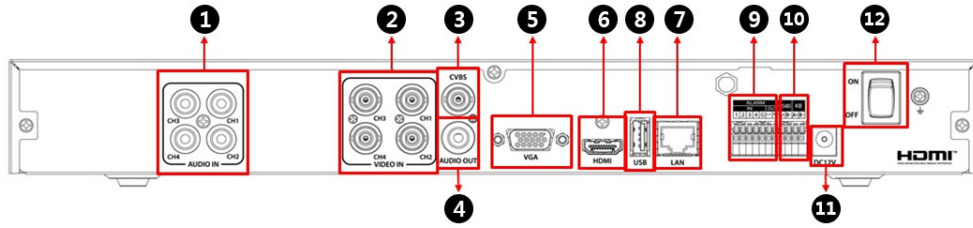


Figure 1-1 Name and Connection of each front section

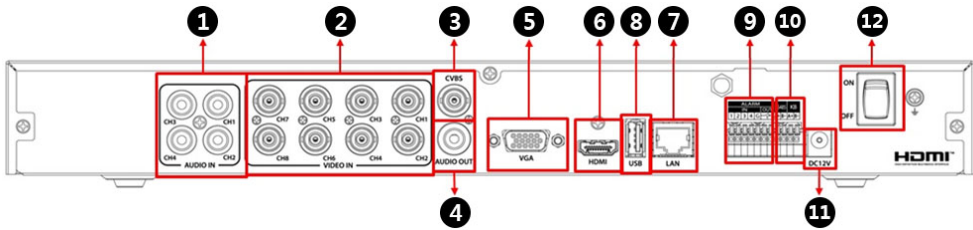
Table 1-2 Name and Function of each front section

No.	Name	Function
1	Power status LED	Pointing out device on/off.
2	Recording status LED	Pointing out recording in process.
3	Network LED	With a network viewer, pointing out network in connection.
4	USB port	USB port is connected for USB mouse or firmware upgrade, and data back-up.

4ch DVR(2HDDs)



8ch DVR(2HDDs)



16ch DVR(2HDDs)

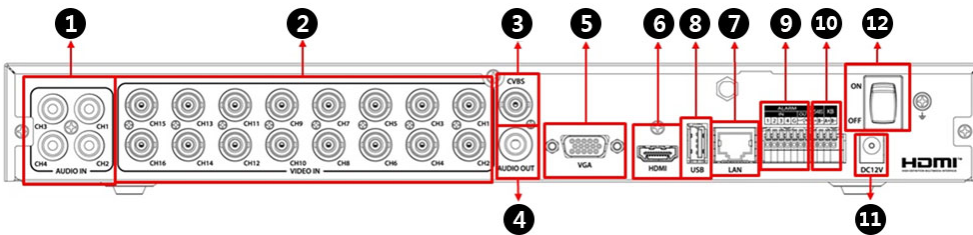


Figure 1-2 Name and Connection of each rear section of 4ch, 8ch and 16ch DVR**Table 1-3 Name and Function of each rear section of 4ch, 8ch and 16ch DVR**

No.	Name	Function
1	Audio In	Camera audio input port.
2	Video In	Camera video input port.
3	CVBS	CVBS output port.
4	Audio Out	Audio output port.
5	VGA	VGA output port.
6	HDMI	HDMI output port.
7	LAN	Network connector.
8	USB	USB port is connected for USB mouse or firmware upgrade, and data back-up.
9	Alarm In/Out	Alarm connector.
10	RS485	RS-485 communication connector.
11	DC12V	Connector with power supply.
12	Power Switch	Power On-Off.

2. Installation

This chapter describes the way to install DVR.

When installing a device, connect rear of the device with each port on the basis of below

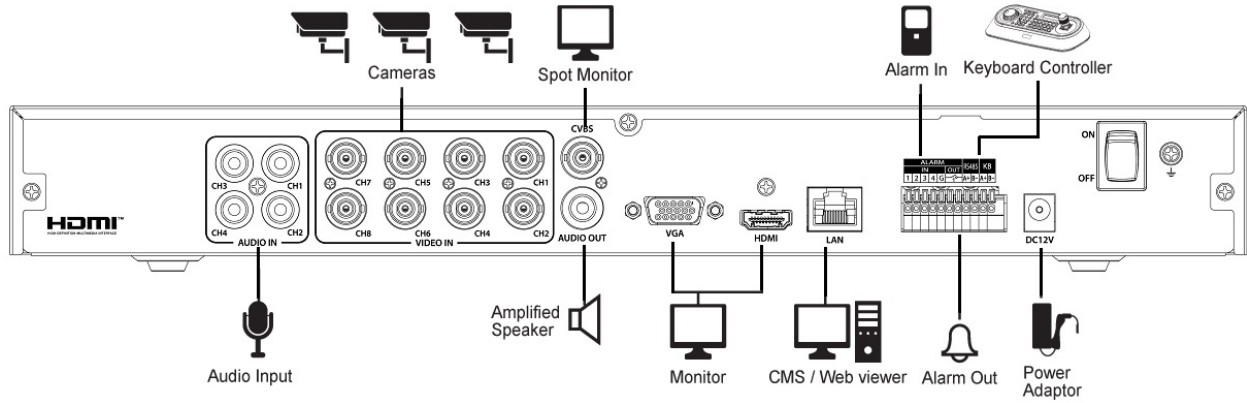


Figure 2-1 Connection map

The device starts first like below sequences:

- 2 Installing HDD.
- 3 Connecting with an exterior device.
- 4 Starting a system.
- 5 Setting a quick setup.

2.1 Installing HDD

How to install HDD in the device:



- Withdraw the mains plug before installing HDD to reduce the risk of injury or electrical shock, or device malfunction.
- Make sure to check the compatibility of HDD with the device.

- 1 Always switch off and unplug the unit.
- 2 Unscrew with a screw driver (+) and open the unit cover.
- 3 Install HDD in the bottom case.
- 4 Connect a data cable and power cable with HDD.
- 5 Close the cover and tighten screws.

2.2 Connecting with Exterior Device

How to connect each port to rear section of the unit:

- 1 Place the unit in a stable flat surface.
- 2 Make a room between front/rear sides of the device not to break connectors.



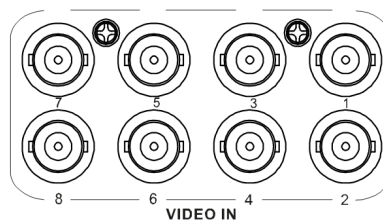
Do NOT install the device too close to the wall. Protrusive connects rear the unit may be forcedly curved or pressed, which cause fires, electric shocks, or injury.

- 3 Check to switch off and unplug the unit.



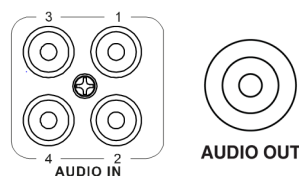
Make sure to withdraw the mains plug before installing the device.

- 4 Connect input ports of camera.



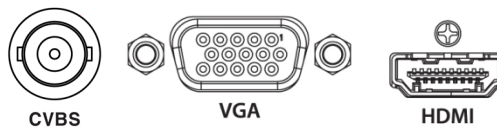
Note Connecting a camera port with the unit automatically detects the camera.

- 5 Connect an audio input port with a Mic and output port with a speaker.

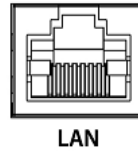


Note Assure regulations in the area whether recording to be legal or not.

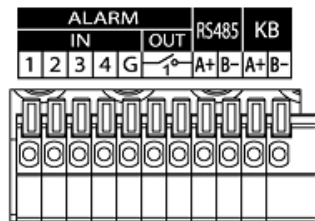
6 Connect a monitor with VGA, HDMI or CVBS port.



7 Connect a network port.



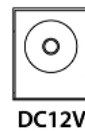
8 Connect an alarm and RS485 devices.



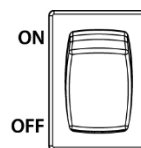
9 Connect USB port in front or rear section of the unit with a mouse or other USB devices.



10 Connect DC12V adapter.



11 Turn on the switch after completion.




Attention

Before connection, match socket with adapter pins.

2.3 Starting System

Power supply begins with system operation as follows:

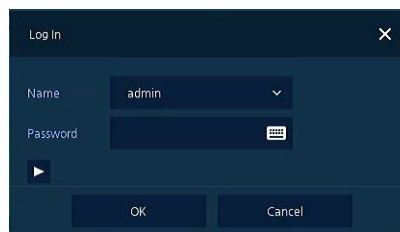
- 1 Switching on initialize with below icons in order.



Note Installing new HDD might take more initialize time.


- 2 With buzzer sounds, the start screen is presented.

- 3 In **Log in** screen, enter the **ID, Password** and press **OK**.



Default ID & Password is admin/admin.

Note

Click  to see the MAC address.

If lost password, inform the MAC address to supplier to create temporary password.



Please change password after login due to security.

2.4 Quick Setup

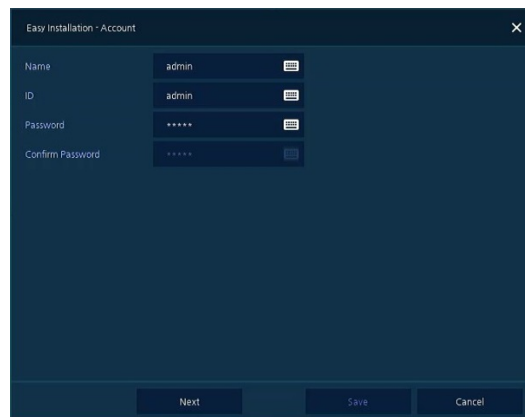
First start of the system operates Easy Installation as follows:

- 1 Account
- 2 System
- 3 Network
- 4 Time/Date
- 5 Record

2.4.1 Account

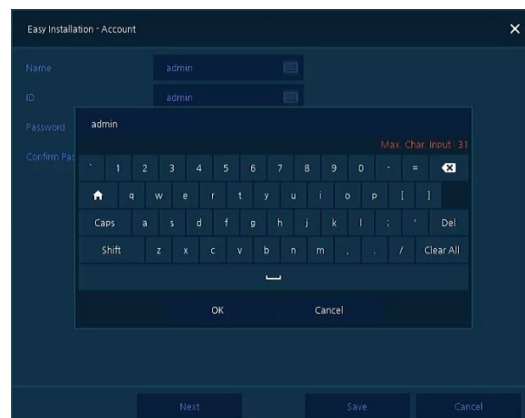
How to set Account of Easy Installation:

- 1 Click the keyboard icon to set **ID** and **Password** users want.



The screenshot shows a window titled "Easy Installation - Account". It contains four input fields: "Name" with the value "admin", "ID" with the value "admin", "Password" with masked characters "*****", and "Confirm Password" with masked characters "*****". Each field has a small keyboard icon to its right. At the bottom of the window, there are three buttons: "Next", "Save", and "Cancel".

- 2 With keyboard UI, set the **ID** and **Password**, and press **OK**.



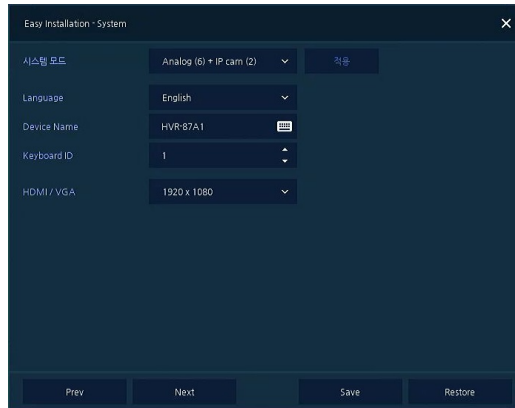
The screenshot shows the same "Easy Installation - Account" window. A keyboard overlay is visible in the foreground, covering the "Password" and "Confirm Password" fields. The keyboard has a numeric keypad at the top, followed by rows of letters and symbols. The "OK" and "Cancel" buttons are visible at the bottom of the keyboard overlay. The "Next", "Save", and "Cancel" buttons are still visible at the bottom of the main window.

- 3 Press the **Save** button to save newly set **ID** and **Password**.
- 4 Press **Next** button to end Account setting and move the next setting phase.

2.4.2 System

How to set the system of Easy Installation:

1 Set each item in **System** setting screen.



- System Mode: Select input video type(Analog Only or Analog+IP cam)
- Language: Select system language.
- Device Name: Enter the device name.
- Keyboard ID: To identify device usages in controlling DVR with RS485 through a keyboard
Selecting the device ID. In case of simultaneous use of equipment, set ID with difference.
- HDMI/VGA: Set resolution of a monitor connected to the device.

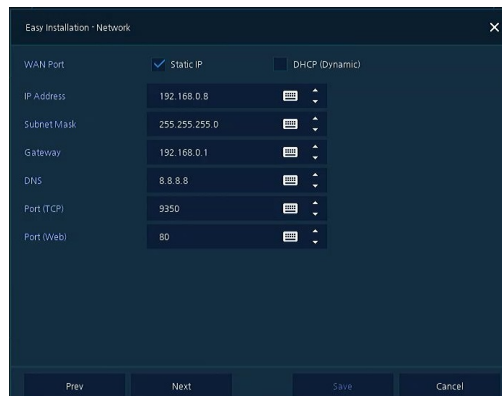
2 Press **Save** button to save set value.

3 Press **Next** to end System setting and move the next setting phase.

2.4.3 Network

How to set the network of Easy Installation:

1 Set each item in **Network** setting screen.



- WAN Port: Select whether to use static IP or dynamic IP.
- IP Address, Subnet Mask, Gateway, DNS, and Port: As for dynamic IP, enter information in each space.

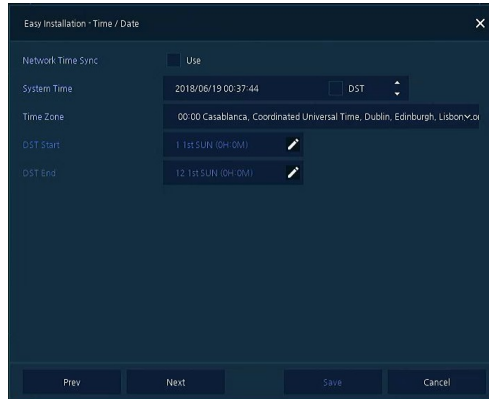
2 Press **Save** button to save set value.

3 Press **Next** to end Network setting and move the next setting phase.

2.4.4 Time/Date

How to set the time/date of Easy Installation:

1 Set each item in **Time/Date** setting screen.



- Network Time Sync: Select network for synchronizing with time server.
- System Time: Not for synchronizing with network time server, set the device time; otherwise (applying for Daylight saving time), select DST.
- Time Zone: Select time zone for the system being installed.
- DST Start/End: For applying Daylight saving time, set the application period.

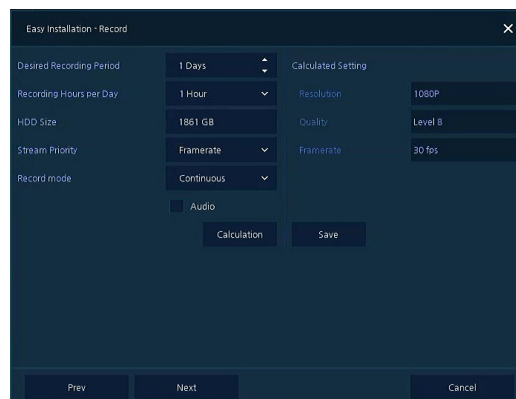
2 Press **Save** button to save set value.

3 Press **Next** to end Time/Date setting and move the next setting phase.

2.4.5 Record

How to set the record of Easy Installation:

1 Set each item in **Record** setting screen.

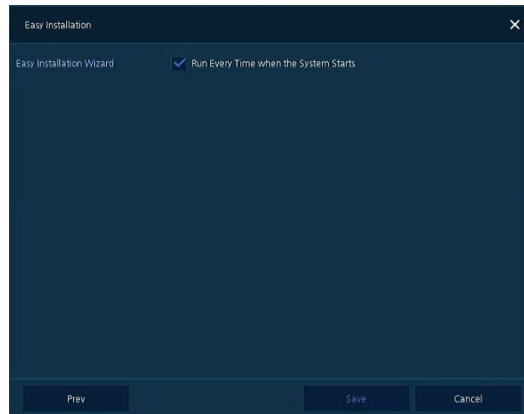


- Select desired recording period and daily recording hours.
- HDD size will be displayed automatically.
- Select priority of frame rate or resolution.
- Select recording modes as continuous or event.

- Select if audio record or not.
 - Click **Calculation** to see recommended frame rate and resolution.
- 2 Press **Save** button to save set value.
 - 3 Press **Next** to end Network setting and move the next setting phase.

2.4.6 Easy Installation Wizard

Select to run Easy Installation every time when the system start.



- 4 Press Save button to save set value and end Easy Installation.

3. Live Screen Configuration

UI screen is configured like below figure.

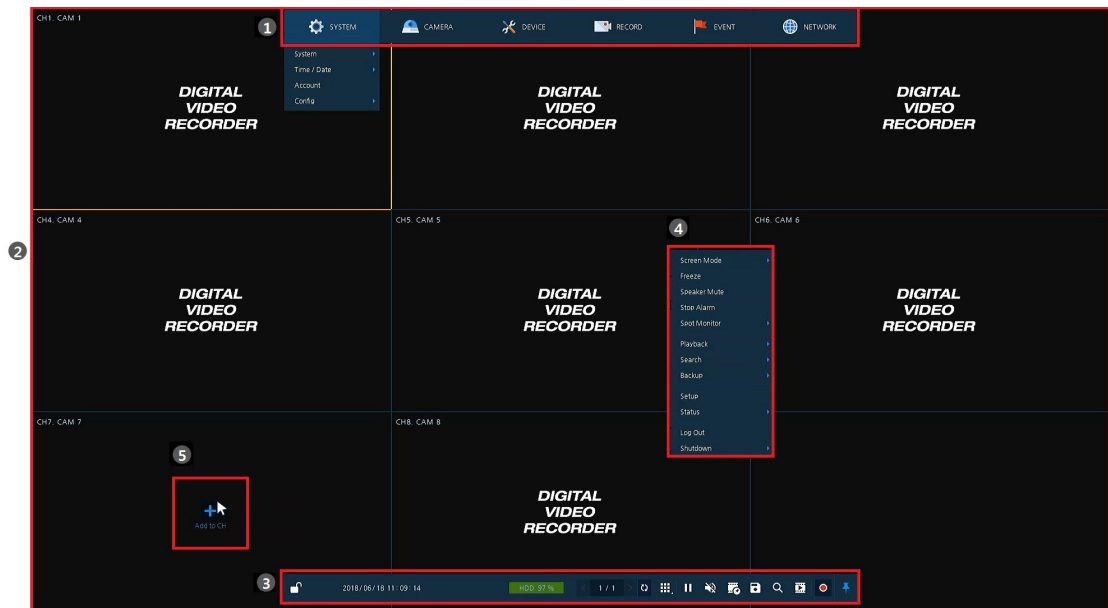


Figure 3-1 UI Screen Configuration

Table 3-1 Items and Description of UI Screen Configuration

No.	Item	Description
1	Setup menu	Setting menu is located in the corner of upper screen. See "4 Setup menu" to display detailed information about the setting menu.
2	Live screen	Show live video of connected cameras.
3	Launcher menu	Launcher menu is located in the corner of below screen. See "3.2 Live Launcher " to display detailed information about the launcher menu.
4	Quick menu	Clicking the right button of a mouse displays Quick menu. See "3.3 Quick menu" to display detailed information about the quick menu.
5	Add to CH	It is manual registration menu when the mouse pointer is placed in the center of the channel that the camera is not registered in Analog+ IP cam mode. See "3.3.2 Camera Registration" to display detailed information about Add to CH.

3.1 Icons in Live screen

Each icon in the live screen displays a present setting status or a function. UI screen consists of like below.

Note

Chosen live screen is marked as a blue frame; mouse-located live screen is marked as yellow one.

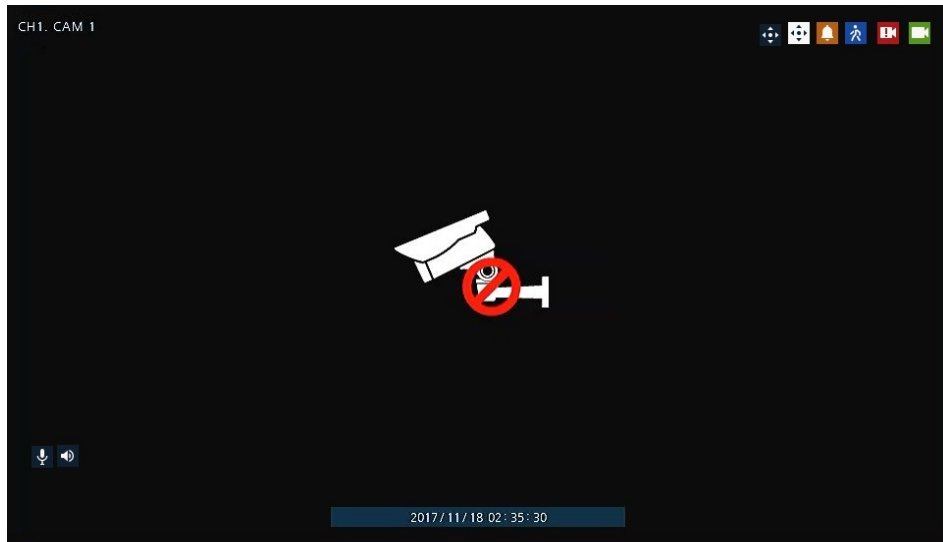


Figure 3-2 Live screen icon

Table 3-2 Live screen icon and its description

No.	Icon	Description
1	CH1 CAM1	Channel numbers and camera titles.
2		A camera with PTZ function.
3		PTZ control function in process.
4		Recording in alarm event mode.
5		Recording in motion event mode.
6		Recording in panic recording mode.
7		Recording in consecutive recording mode.
8		Video loss icon.
9		Mic on/off.
10		Speaker on/off.
11		Displaying present time and date.













3.2 Live Launcher menu

This chapter describes Launcher menu in the bottom of the screen.



Figure 3-3 Launcher menu

Table 3-3 Launcher menu Item and Description

No.	Item	Description
1		Log in/out status and logged in ID.
2	Date & Time	Displaying present date and time.
3	HDD	Displaying HDD capacity in use.
4		Moving to previous/next partition screen.
5		Displaying live screen in order set (toggle).
6		Selecting partition mode to mark in live screen (single screen, 4- and 9-partition).
7		Stopping or replaying selected live screen images (toggle).
8		Audio on or mute chosen live screen(toggle).
9		Save the bookmark.
10		Make a backup video of users want. See "3.2.1 Backup" to display detailed information about back-up.
11		Searching recording data (time, event, thumbnail, smart search and text). See "5.1 Search" to display detailed information about search.
12		Playback recorded data.
13		Starting immediate recording of selected channel.
14		Locking or releasing launcher menu (toggle).

3.2.1 Backup

The device provides a back-up function of live screen.

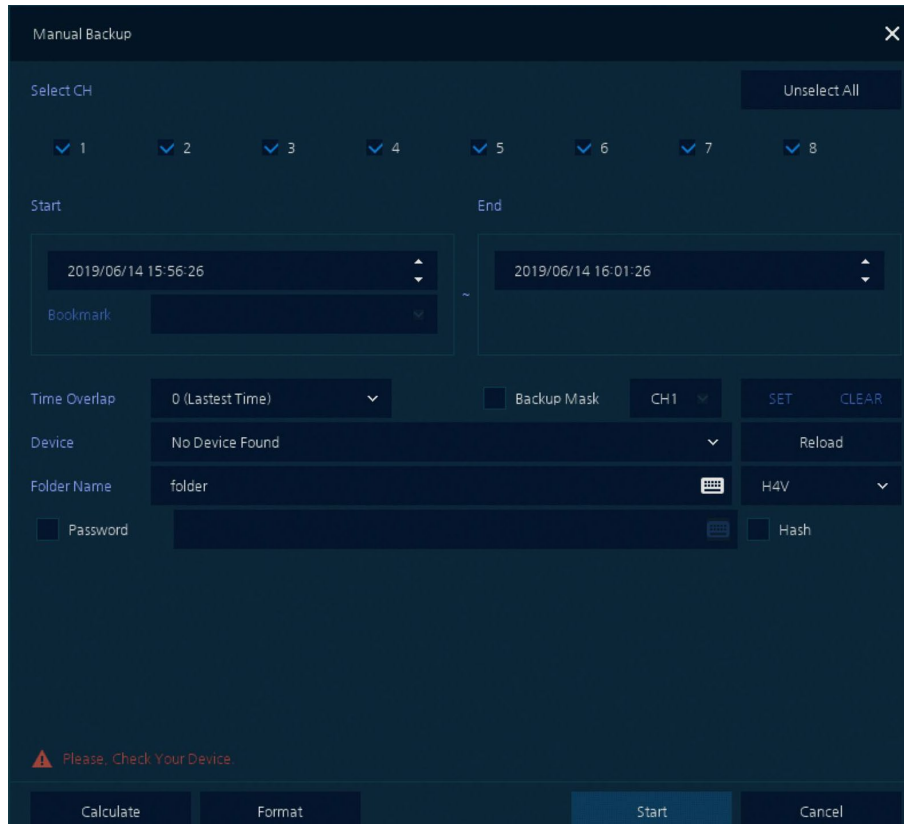


Figure 3-4 Backup

Table 3-4 Backup Item and Description

No.	Item	Description
1	Select CH	Selecting a channel users want to back-up.
2	Select All/ Unselect All	Select or clear all channels.
3	Start	Setting back-up start time (Bookmark: bookmark list).
4	End	Setting back-up ending time (Bookmark: bookmark list).
5	Time Overlap	Selecting time if there are two recorded data in the same time.
6	Backup Mask	User can mask selected area. It works H4V format only.
7	Device	Selecting the device to save back-up files.
8	Reload	Opening the device information.
9	Folder Name	Entering a folder name to save back-up files.
10	AVI/H4V	Selecting a file format to back-up.
11	Password	Set password on the backup file.
12	Hash	Insert Hash information into the backup file.

		The hash information can be used to verify the forgery of the backup file.
13	Calculate	Calculating data capacity to back-up.
14	Format	Formatting the device to back-up.
15	Start	Starting back-up.
16	Cancel	Closing the backup screen.

Select **Backup Mask** and click **SET** button to open the Privacy Mask pop-up window.

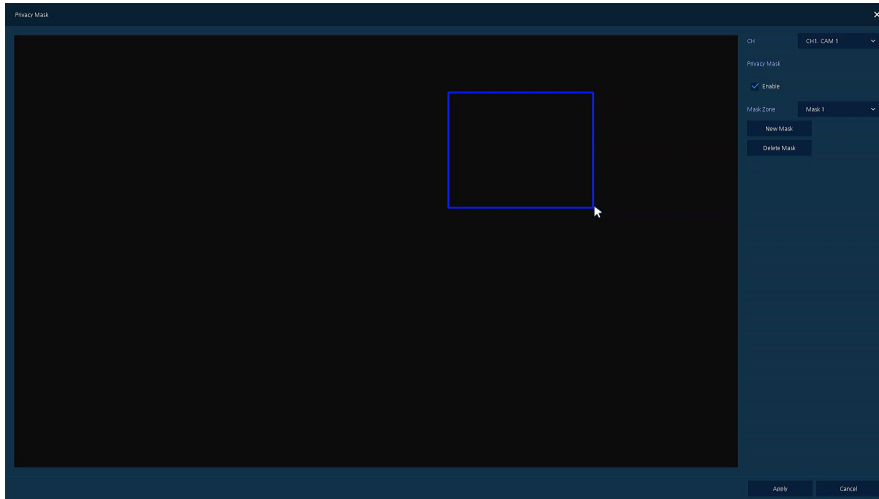


Figure 3-5 Backup Mask

Table 3-5 Backup Mask Item and Description

No.	Item	Description
1	Select CH	Select the channel to set the privacy zone.
2	Privacy Mask Enable	Select whether to use the Privacy Mask.
3	Mask Zone	Apply all or only the selected mask.
4	New Mask	Create a new privacy zone. Up to 4 masks can be created.
5	Delete Mask	Delete all or selected privacy zones.

3.3 Quick menu

This chapter depicts Quick menu when users click the right button of the mouse in live screen.

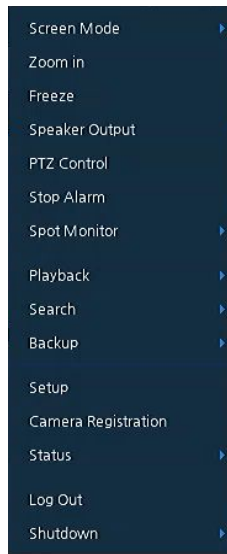


Figure 3-6 Quick menu

Table 3-6 Quick menu Item and Description

No.	Item	Description
1	Screen Mode	Selecting the partition mode of live screen (Full, 2X2, 3X3, and 4x4).
2	Zoom in	Magnifying selected live screen (Zoom out, 2 times, 4 times, and 8 times).
3	Freeze	Freezes the video selected live screen images (toggle on/off).
4	Speaker Output/Mute	Turning on/off a sound speaker.
5	PTZ Control	Controlling PTZ function.
6	Stop Alarm	Stopping monitoring alarm output and event.
7	Spot Monitor	Set the output mode of a spot monitor (Auto, Full, and 2x2), (Auto, Full, and 3x3), (Auto, Full, and 4x4).
8	Playback	Playing selected live screen images (from 30 sec ago, 1 min ago, 5 min ago, 10 min ago, 30 min ago, 1-hour ago, Go to first, and Go to last.).
9	Search	Searching recording data (time, event, thumbnail, text and VCA). See "5.1 Search" to display detailed information about search.
10	Backup	Backup video users want. See "3.2.1 Backup" to display detailed information about back-up.
11	Setup	Opens the DVRs main set up menu.. For more information about setting menu, see section "4 Setup menu".
12	Camera Registration	Opens a pop-up menu for IP camera registration.
13	Status	Opens a pop-up menu showing: device system log, event, and recording status (system log, event, record and disk).
14	Log in/Log out	Log in/Log out.

No.	Item	Description
15	Shutdown	Shuts down or restarts the device (shutdown).

3.3.1 PTZ Control

The location of images may be moved to monitor with PTZ ball.

Note PTZ Control menu can be displayed if relevant channel's protocol is set in **DEVICE > PTZ** in the upper live screen.

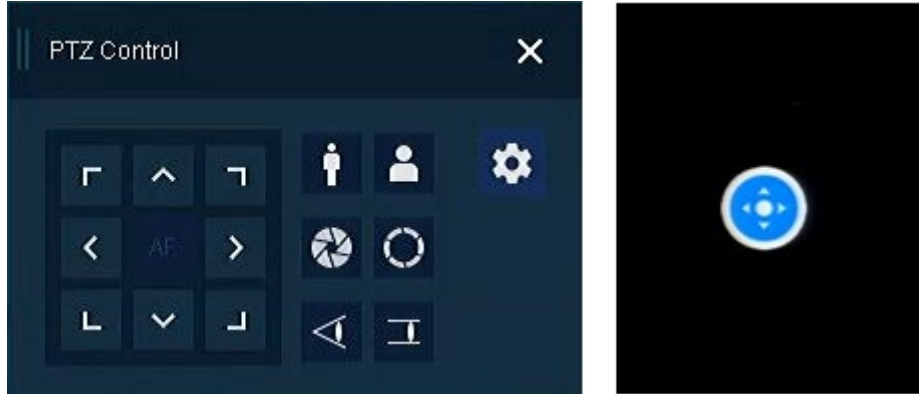











Figure 3-7 Quick menu > PTZ Control

Table 3-7 Quick menu > PTZ Control Item and Description

No.	Item	Description
1		Moving images with direction buttons.
2		Moving images with PTZ ball.
3	AF	Adjusting screen focus automatically.
4	 Zoom Out	Zoom function of PTZ camera.
5	 Zoom In	
6	 IRIS OFF	Adjusting iris in the camera.
7	 IRIS On	
8	 Focus Far	Manual focus adjustment.
9	 Focus Near	
10		Open camera menu.

In PTZ Control screen, clicking the right button of the mouse displays Quick menu.

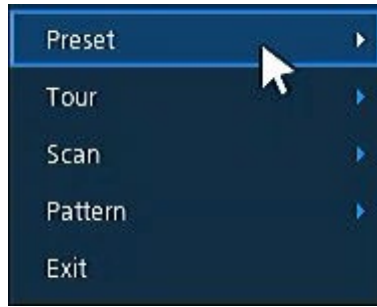


Figure 3-8 PTZ Control Quick menu

Table 3-8 PTZ Control Item and Description in Quick menu

No.	Item	Description
1	Preset, Tour, Scan, Pattern	Run PTZ functions.
2	Exit	Transforming to live screen menu in PTZ Control menu.

3.3.2 Camera Registration

Users can register the IP cameras if user select Analog+IP mode.

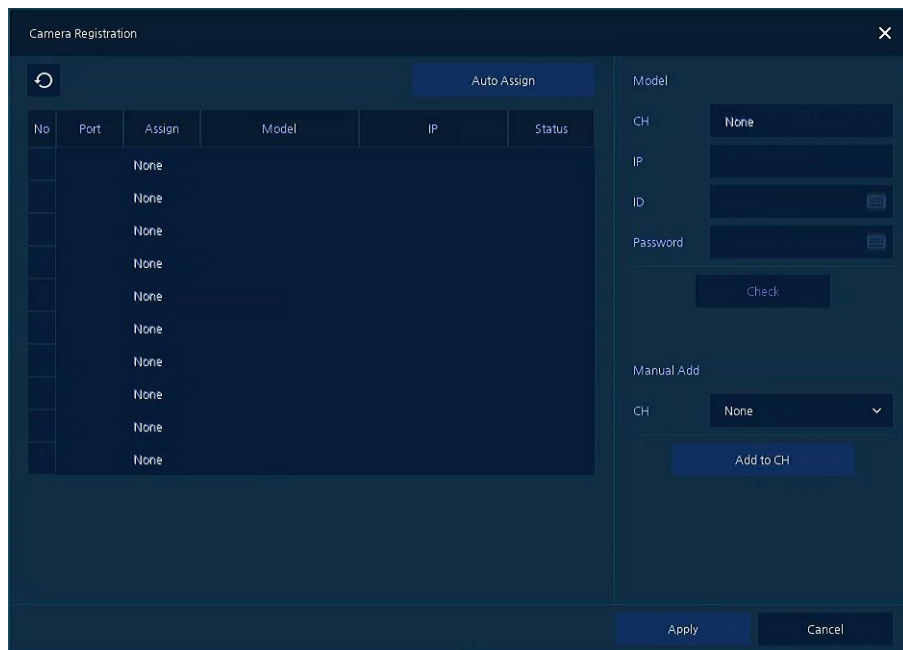




Figure 3-9 Camera Registration

Table 3-9 Camera Registration

No.	Item	Description
1		Search the connected IP cameras.
2	Auto Assign	Automatically assign the channel windows.
3	Port	Show the detected camera port.
4	Assign	Selecting the channel windows manually.
5	Model	Show detected camera model number.
6	IP	Show detected camera IP address.
7	Status	Show connection status.
8	Priority	If IP camera has both IP address and Zero-Conf. IP address, only one address will be searched according to the selected priority.
9	Add Manually	Select channel and click  to open manual add window

Add Manually

Click  to open Camera Registration.

Or move the mouse point at the middle of channel on the live screen and click the

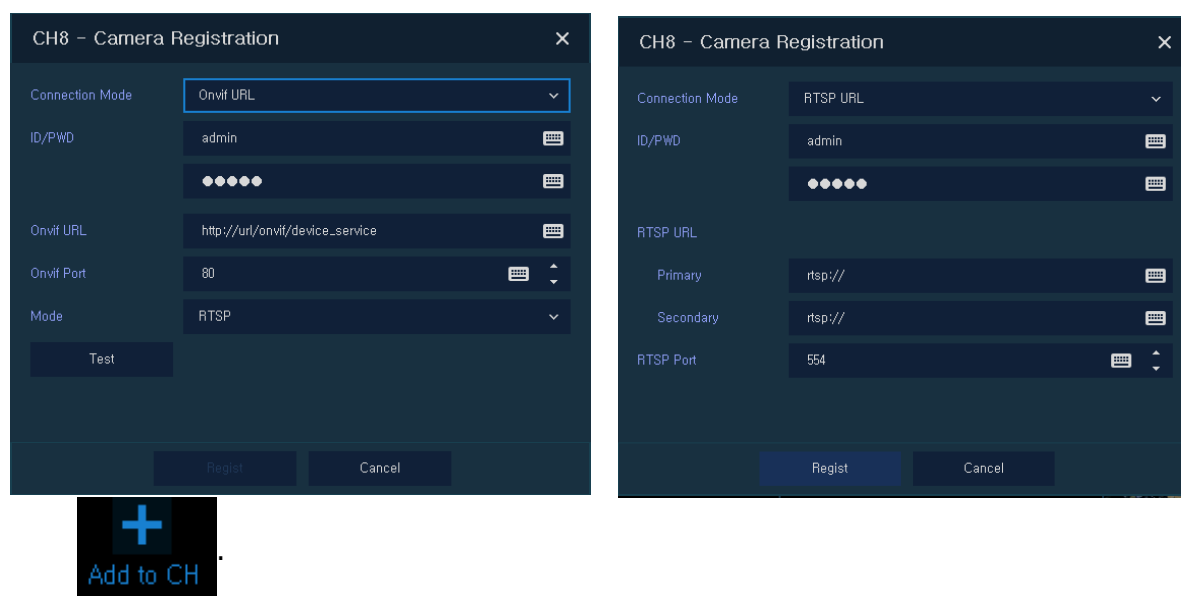


Figure 3-10 Camera Registration(manual add)

Table 3-10 Camera Registration(manual add)

No.	Item	Description
1	Connection Mode	Select connection mode as Onvif or RTSP.
2	ID/PWD	Enter ID and password of IP camera.

No.	Item	Description
3	Onvif URL	Enter camera IP address.
4	RTSP URL	Enter Primary and Secondary RTSP IP address and URL.
5	Onvif Port	Enter web port. Default port is 80.
6	RTSP Port	Enter RTSP port. Default port is 554.
7	Mode	Select video stream format (RTSP/HTTP).

3.3.3 Status > System log

Users can see the system log information in **System log** tap in **Status** screen.

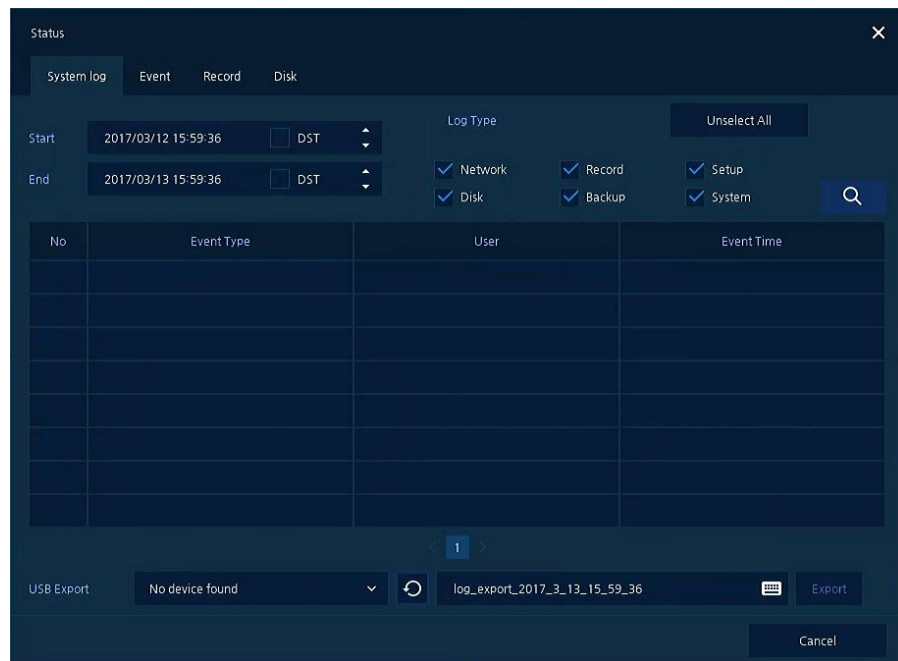


Figure 3-11 Status > System log in Quick menu

Table 3-11 Status of Quick menu > System log Item and Description

No.	Item	Description
1	Start	Setting starting time of system log to search.
2	End	Setting ending time of system log to search.
3	Log Type	Selecting log types (Network, Record, Setup, Disk, Backup, and System).
4	Select All /Unselect All	Selecting or clearing all log types (toggle).
5	Search	Pressing search button search on the basis of set condition.
6	System log list	Displaying system log list.
7	Cancel	Completing the status screen.

3.3.4 Status > Event

Users can see the real-time event information of the unit in **Event** tap in **Status** screen.

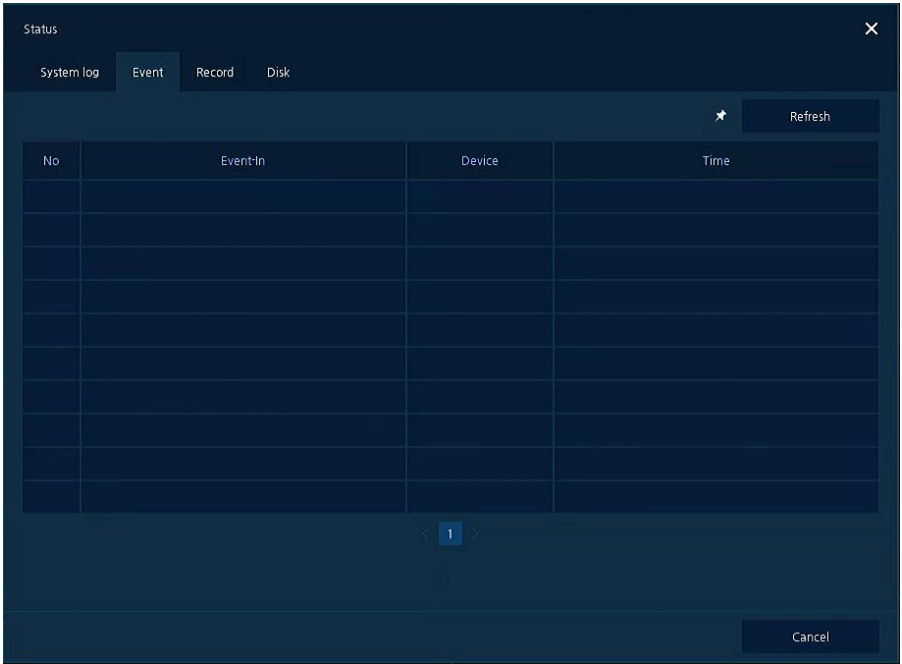



Figure 3-12 Status > Event in Quick menu

Table 3-12 Status > Event Item and Description in Quick menu

No.	Item	Description
1		Temporary fixing or releasing an event list (toggle).
2	Refresh	Deleting the event list.
3	Event list	Displaying the event list.
4	Cancel	Completing the status screen.

3.3.5 Status > Record

Users can see the recording status in **Record** tap in **Status** screen.

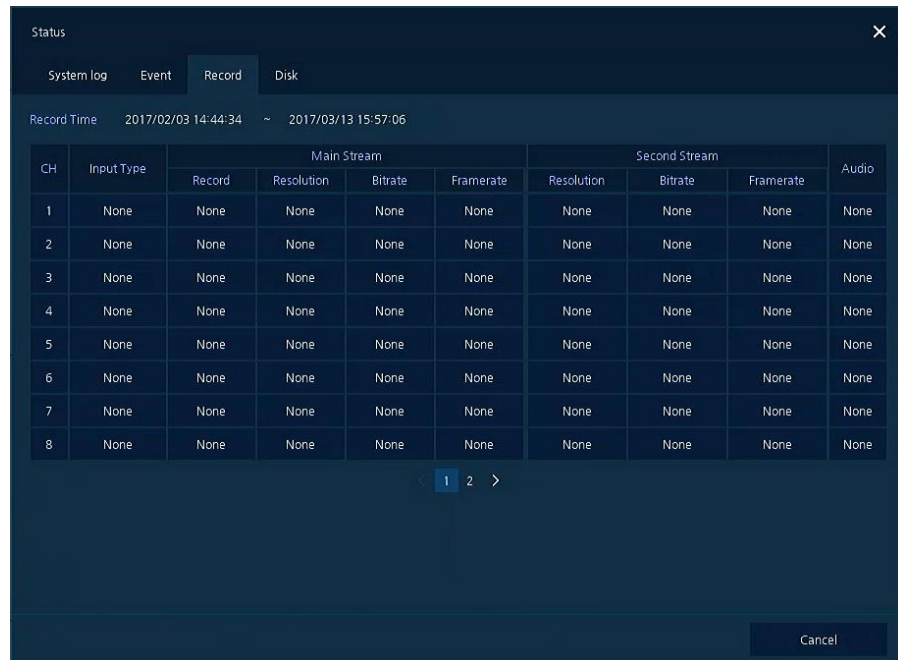


Figure 3-13 Status > Record in Quick menu

Table 3-13 Status > Record Item and Description in Quick menu

No.	Item	Description
1	Record time	Marking recorded period.
2	Record list	Displaying the record setting status.
3	Cancel	Completing the status screen.

3.3.6 Status > Disk

Users can see the disk status in **Disk** tap in **Status** screen.

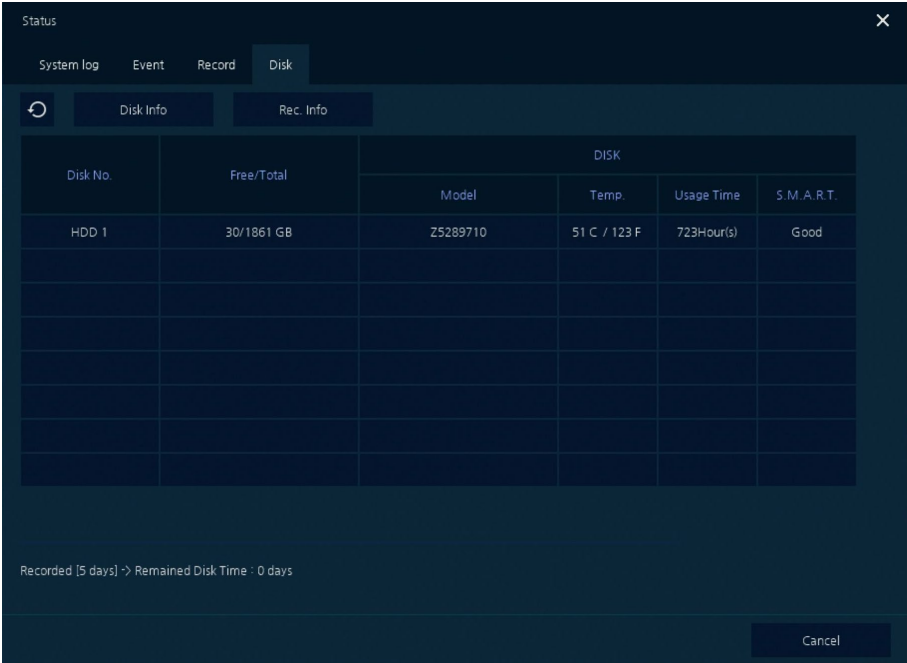


Figure 3-14 Status > Disk in Quick menu

Table 3-14 Status > Disk Item and Description in Quick menu

No.	Item	Description
1	Disk Info	Display disk temperature and S.M.A.R.T information.
2	Rec. Info	Display recording period.
3	Cancel	Completing the status screen.

4. Setup menu

This chapter describes Setup menu in the upper side of the screen.



Figure 4-1 Setup menu

Selecting the menu opens the setting screen.

Note **Setup** screen is available to click **Setup** in Quick menu by clicking the right button of the mouse.

Table 4-1 Setup menu Item and Description

No.	Item	Description
1	SYSTEM	Setting the system environment.
2	CAMERA	Setting the camera.
3	DEVICE	Setting the non-camera device connected with the DVR.
4	RECORD	Setting the recording parameters.
5	EVENT	Setting each event.
6	NETWORK	Setting the network environment.

Setup menu includes:

Table 4-2 Setup menu tree

1 Depth	2 Depth	3 Depth
SYSTEM	System	System
		F/W Upgrade
	Time/Date	Time/Date
		Holiday
	Account	User
	Configuration	Export/Import
Factory Default		
CAMERA	Basic	Basic
		Audio In/Out
	Advanced	Scan Mode
		Advanced
DEVICE	Display	Display
		Spot
		OSD
		Sequence
	Disk	Setup
		iSCSI
	PTZ	PTZ
Serial Device	Serial Device	
TEXT	TEXT	
RECORD	Schedule	Schedule
		Quick
	Stream	Main Stream
		Second Stream
		Panic
EVENT	System/Disk	System
		Disk
	Alarm In	Setup
		Schedule
	Motion	Setup
		Schedule

1 Depth	2 Depth	3 Depth
	Video Loss	Setup
	Notification	Periodic
		Schedule
NETWORK	Basic	WAN Port
	DVRNS/DDNS	DVRNS/Dashboard
		DDNS
	E-Mail	E-Mail
	FTP	FTP
	P2P	P2P
	Notification Server	Notification Server
Notification Message		

4.1 General buttons in Setup menu

This section depicts General buttons in Setup menu.

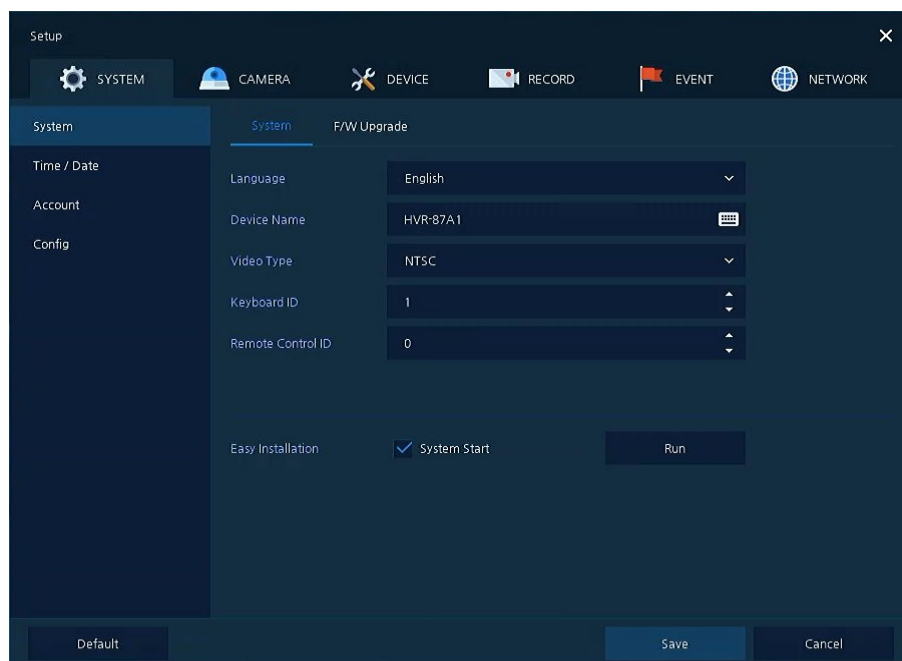


Figure 4-2 General buttons in Setup menu

Table 4-3 Item and Description of General buttons in Setup menu

No.	Item	Description
1	Default	Reverse changed setting value to default in factory.
2	Save	Save the set content.
3	Cancel	Cancel the set value.

No.	Item	Description
4	Restore	Cancel the set value, and reverse it to default.
5	Apply	Apply the content set.

4.2 SYSTEM

In **SYSTEM**, basic system environment is set.

4.2.1 System

Set and upgrade the basic items of the system.

System > System

Set the basic items in the System.

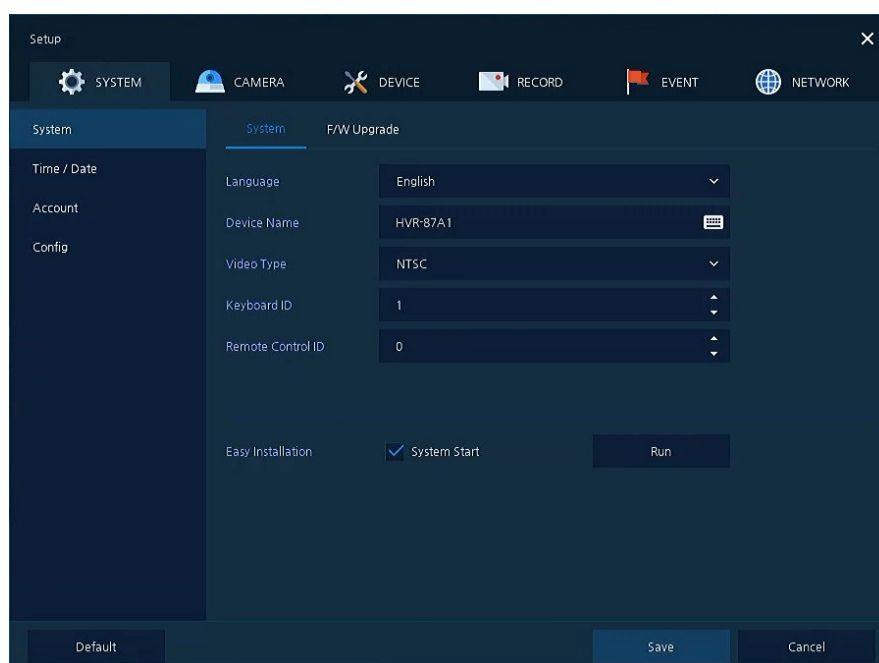


Figure 4-3 SYSTEM > System > System

Table 4-4 SYSTEM > System > System Item and Description

No.	Name	Function
1	Language	Set the system language.
2	Device Name	Enter the device name (Only English is possible).
3	Video Type	Select image standard types (NTSC, PAL).
4	Keyboard ID	Select keyboard ID (1~255).
5	Remote Control ID	Select wireless remote control ID (1~99).
6	System start	Select Easy Installation in starting the system.
7	Run	Run Easy Installation.



If change video type, system will reboot and all setup go to factory default.

System > F/W Upgrade

Set the upgraded items of the system.

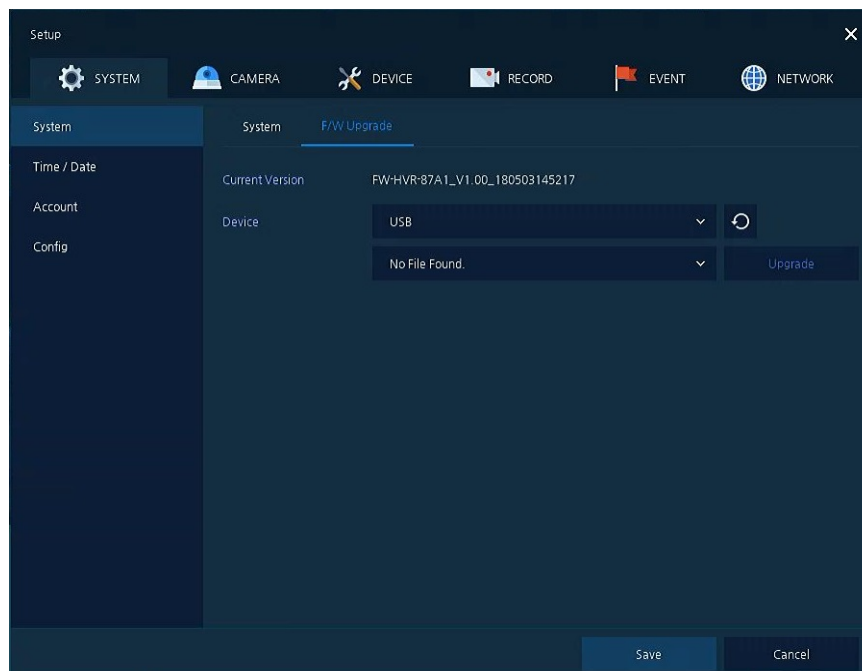


Figure 4-4 SYSTEM > System > F/W Upgrade

Table 4-5 SYSTEM > System > F/W Upgrade Item and Description

No.	Name	Function
1	Current Version	Displaying the present tool version.
2	Device	Connect USB memory that has files to upgrade to the USB port, select files to upgrade.

Note

- If firmware version in the USB drive is lower than present system version, system does not display the firmware in the USB drive.
- To upgrade through network, recorder must have HDD.

4.2.2 Time/Date

Set the date, time, and holidays of the system.

Time/Date > Time/Date

Set the date, time, and holidays of the system.

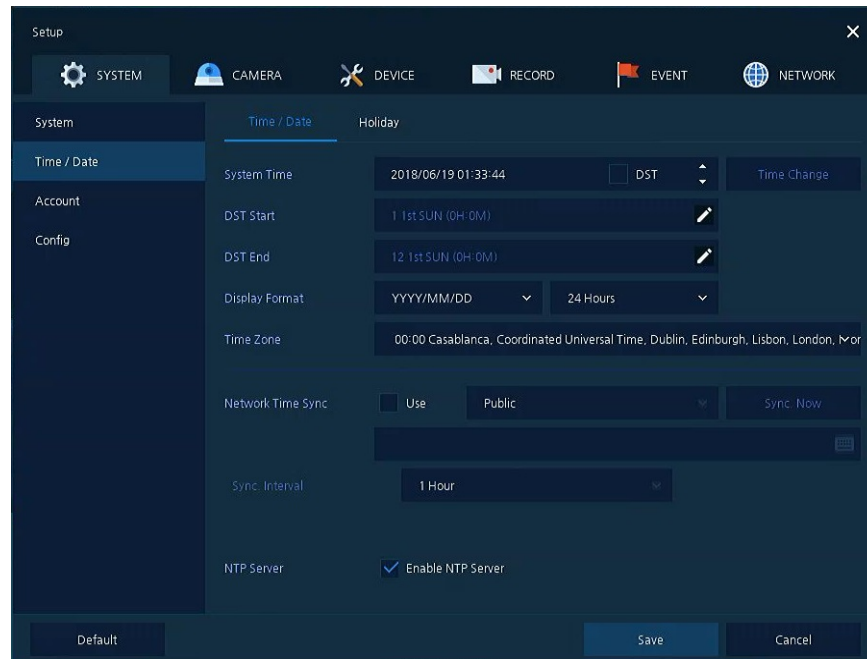


Figure 4-5 SYSTEM > Time/Date > Time/Date

Table 4-6 SYSTEM > Time/Date > Time/Date Item and Description

No.	Name	Function
1	System Time	Set the date and time. <ul style="list-style-type: none"> ▪ DST: Select whether to use summer time. ▪ Time change: Save changed time.
2	DST Start	Set the starting date of summer time
3	DST End	Set the ending date of summer time
4	Display Format	Select the format to present date and time.
5	Time Zone	Select time zone.
6	Network Time Sync	For using a specific network time server, click the Use checkbox and enter the server address. <ul style="list-style-type: none"> ▪ Sync. Interval: Select synchronization period (1~7-hour). ▪ Last Sync. Time: Displaying the final synchronized time.
7	NTP Server	Select whether to use NTP server.

Time/Date > Holiday

Set holidays of the system.

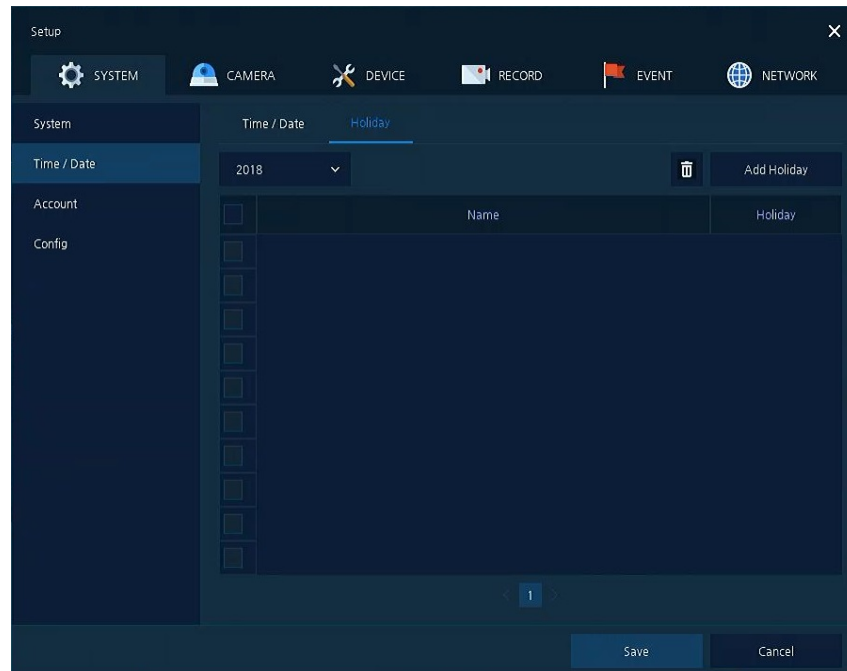



Figure 4-6 SYSTEM > Time/Date > Holiday

Table 4-7 SYSTEM > Time/Date > Holiday Item and Description

No.	Name	Function
1	Year	Select years to set holidays.
2		Delete selected holidays.
3	Add Holiday	Add holidays.
4	List	Display added holiday lists.

Clicking **Add Holiday** displays holiday addition screen like below.

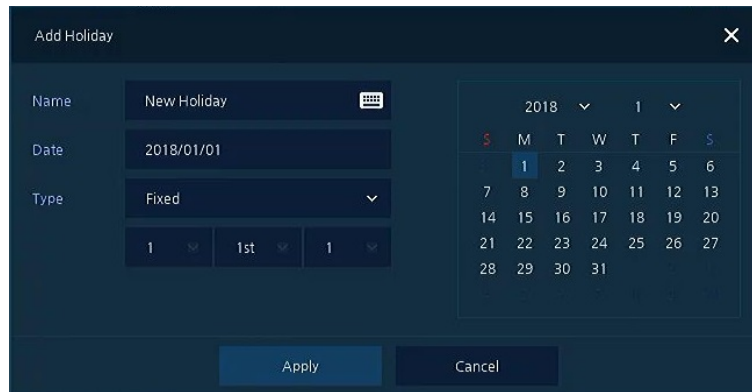


Figure 4-7 SYSTEM > Time/Date > Holiday > Add Holiday

Table 4-8 SYSTEM > Time/Date > Holiday > Add Holiday Item and Description

No.	Name	Function
1	Name	Enter the holiday name.
2	Date	Display chosen date.
3	Type	Select the holiday types. e.g.,) Selecting Relative and 1, first , and Sun , which designates annual January of the 1 st Sunday as a holiday.
4	Calendar	Select the holiday to add.

4.2.3 Account > User

Set the user's account of the system.

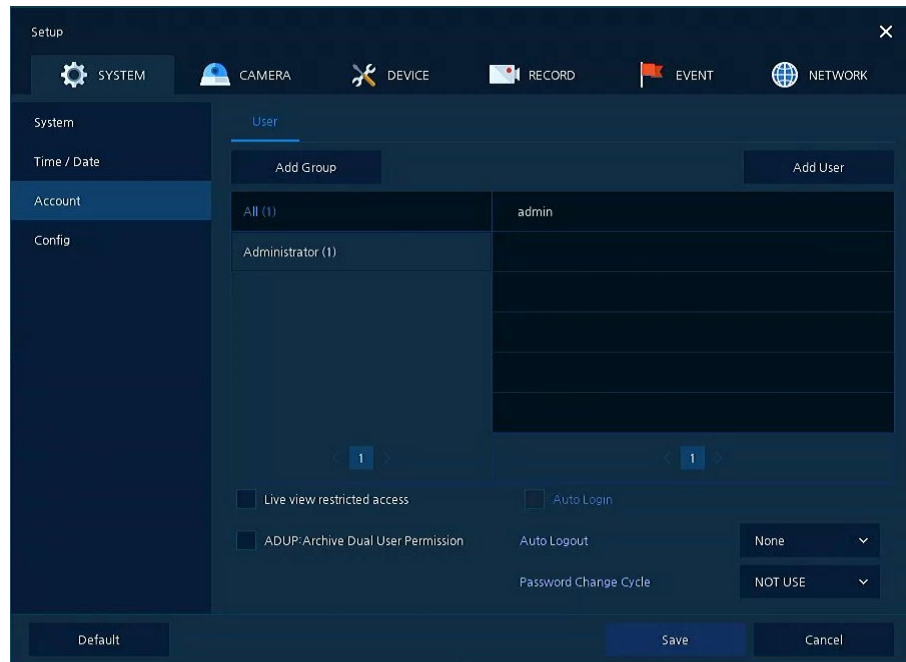


Figure 4-8 SYSTEM > Account > User

Table 4-9 SYSTEM > Account > User Item and Description

No.	Name	Function
1	Add Group	Add users' group.
2	Add User	Add users.
3	Group List	Display a total group list.
4	User List	Display user lists across groups.
5	Live view restricted access	Do not display live video if log it out.
6	ADUP(Archive Dual User Permission)	Two users should access to search, playback and back-up.
7	Auto Login	Click/clear the automatic login checkbox.
8	Auto Logout	Select automatic logout time (Null, 1 min, 2 min, 3 min, 4 min, 5 min, 6 min, 7 min, 8 min, 9 min, 10 min, and 30 min).
9	Password Change Cycle	If enable, user should change the password periodically.

Press **Add Group** button, then **Add Group** screen displays.

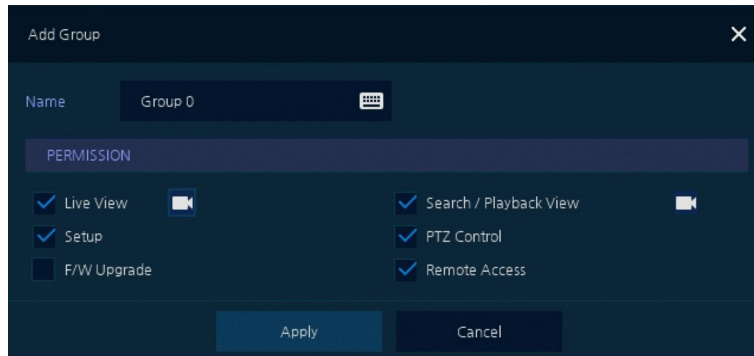



Figure 4-9 SYSTEM > Account > User > Add Group

Table 4-10 SYSTEM > Account > User > Add Group Item and Description

No.	Name	Function
1	Name	Enter the group name.
2	PERMISSION	Select items to permit access.
3		Select channels to permit access.

Press **Add User** button, then **Add User** screen displays.

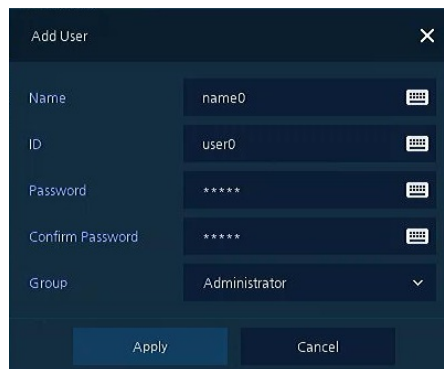


Figure 4-10 SYSTEM > Account > User > Add User

Table 4-11 SYSTEM > Account > User > Add User Item and Description

No.	Name	Function
1	Name	Enter the user name.
2	ID	Enter the user ID.
3	Password	Enter the password.
4	Confirm Password	Confirm the password.
5	Group	Select to the group to which belongs.

4.2.4 Configuration (Config)

Set Export/Import and Factory Default of the system.

Config > Export/Import

Through a save medium, users may apply information set to other devices identically.

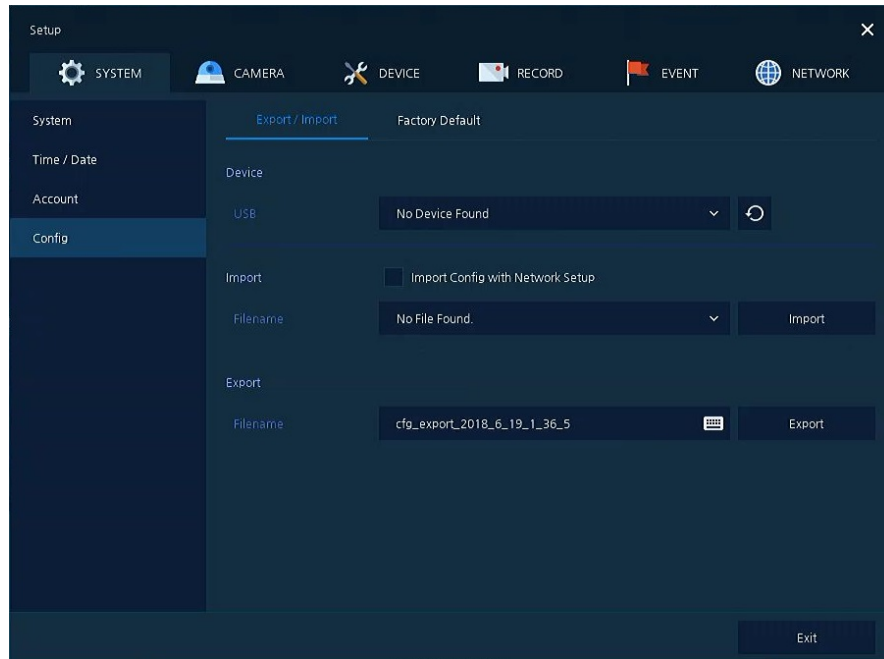


Figure 4-11 SYSTEM > Config > Export/Import

Table 4-12 SYSTEM > Config > Export/Import Item and Description

No.	Name	Function
1	Device	Select an exterior connector with USB. <ul style="list-style-type: none"> USB: Displays the USB device connected. Refresh button: Re-recognize the device.
2	Import	Apply information saved in USB to the device. <ul style="list-style-type: none"> Import Config with network setup: The network setting information is brought from the setting information. Import button: The file in USB is brought to the designated device.
3	Export	Save the set information in the USB. <ul style="list-style-type: none"> Export Config with network setup: Save the information including network setting one from the setting information to be exported. Export button: Save the set information in the USB.

Config > Factory Default

Default the setting value of the device.

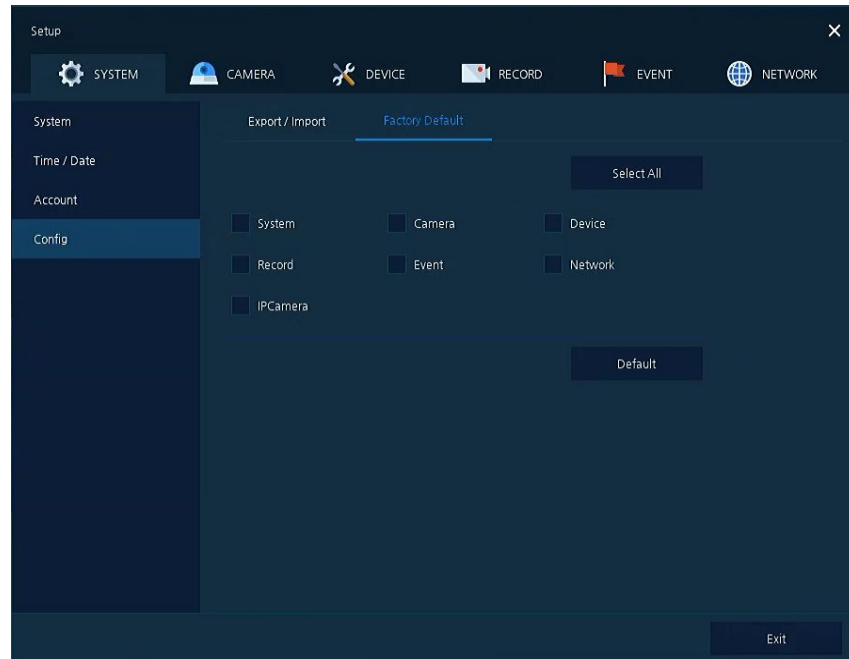


Figure 4-12 SYSTEM > Config > Factory Default

Table 4-13 SYSTEM > Config > Factory Default Item and Description

No.	Name	Function
1	Select All /Unselect All	Select/deselect all items to be defaulted.
2	Default Item	Select/deselect related items to be defaulted.
3	Default button	Default the system to the basics.

4.3 CAMERA

In **CAMERA** section, set the camera to be connected with the device.

4.3.1 Basic

Set the fundamental functions of camera and audio.

Basic > Basic

Set the basic items of camera by channels.

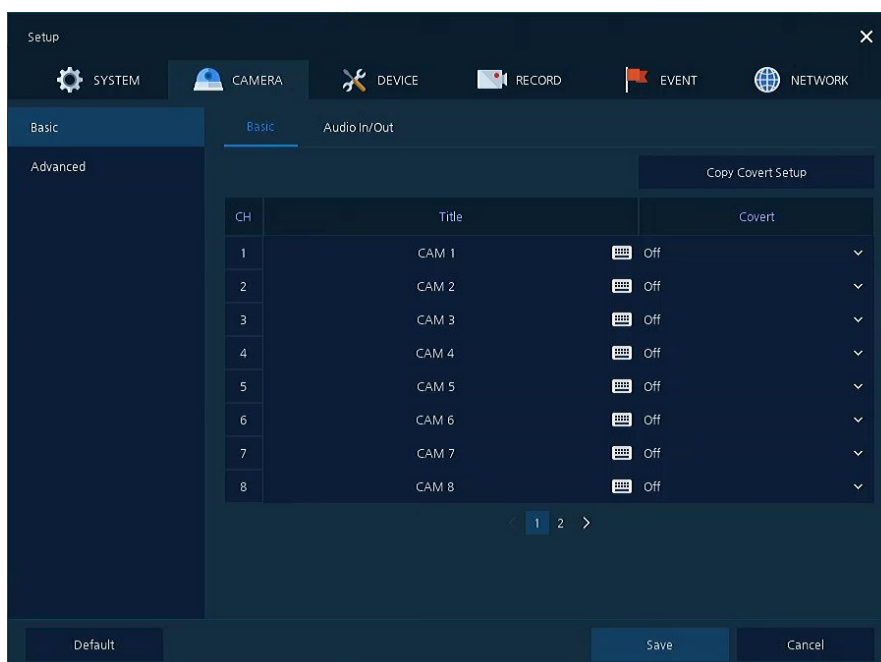


Figure 4-13 CAMERA > Basic > Basic

Table 4-14 CAMERA > Basic > Basic Item and Description

No.	Name	Function
1	CH	Display the channel name.
2	Title	Enter the camera name of relevant channels.
3	Covert	Select images to be shown in the Live screen by channels and whether to mark a status message or not (Off, Video Only, Video/State All).
4	Copy Covert Setup	In Covert, set items can be duplicated to other channels.

Press **Copy Covert Setup** button, then **Copy Covert Setup** screen displays.

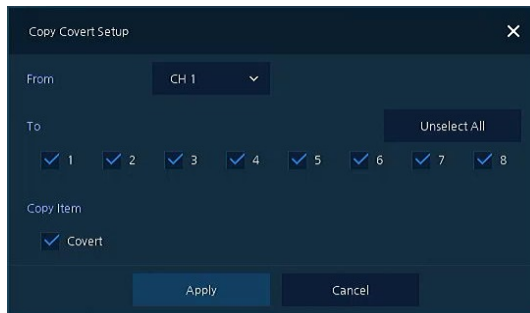


Figure 4-14 CAMERA > Basic > Basic > Copy Covert Setup

Table 4-15 CAMERA > Basic > Basic > Copy Covert Setup Item and Description

No.	Name	Function
1	From	Select a channel converted setting.
2	To	Select a channel to be copied.
3	Select All /Unselect All	Select/deselect all channels.

Basic > Audio In/Out

How to set audio of camera across channels

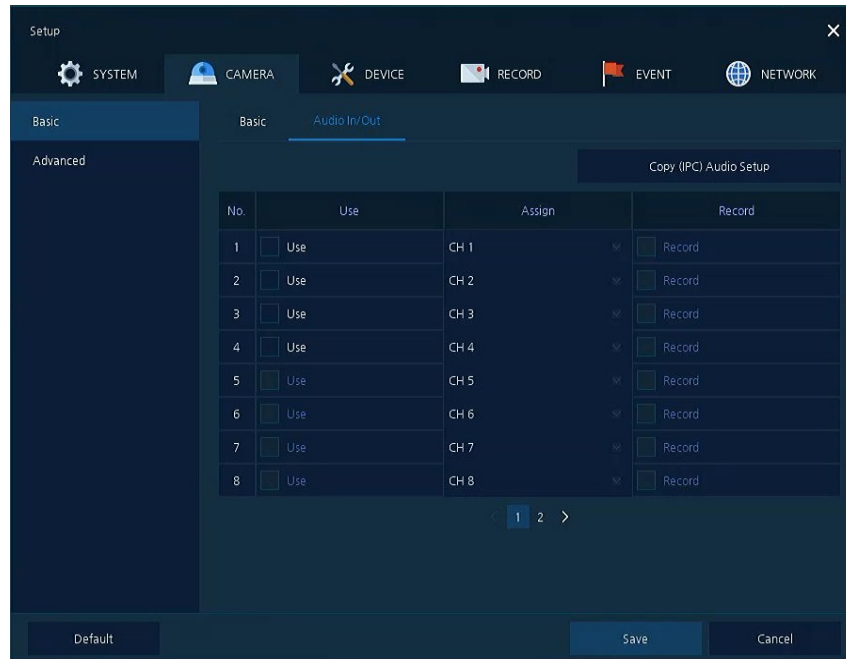


Figure 4-15 CAMERA > Basic > Audio In/Out

Table 4-16 CAMERA > Basic > Audio In/Out Item and Description

No.	Name	Function
1	No	Display channels of audio
2	Use	Select/deselect whether to use audio.
3	Assign	Displays the channels to which audio is assigned.
4	Record	Select/deselect whether to save audio when recording.

4.3.2 Advanced

Set camera video, stream and privacy mask.

Advanced > Scan Mode

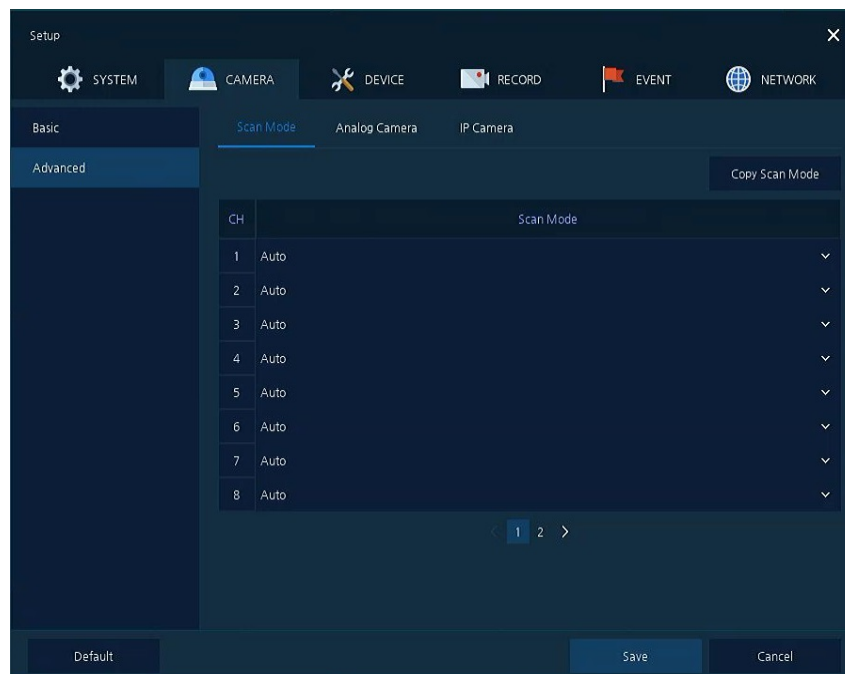


Figure 4-16 CAMERA > Advanced > Scan Mode

Table 4-17 CAMERA > Advanced > Scan Mode Item and Description

No.	Name	Function
1	CH	Display channels.
2	Scan Mode	Automatically detects the camera input type or fixes the input video format to the selected type (Auto, AHD, TVI).
3	Copy Scan Mode	Copies the currently set scan mode settings to another channels.

Advanced > Analog Camera

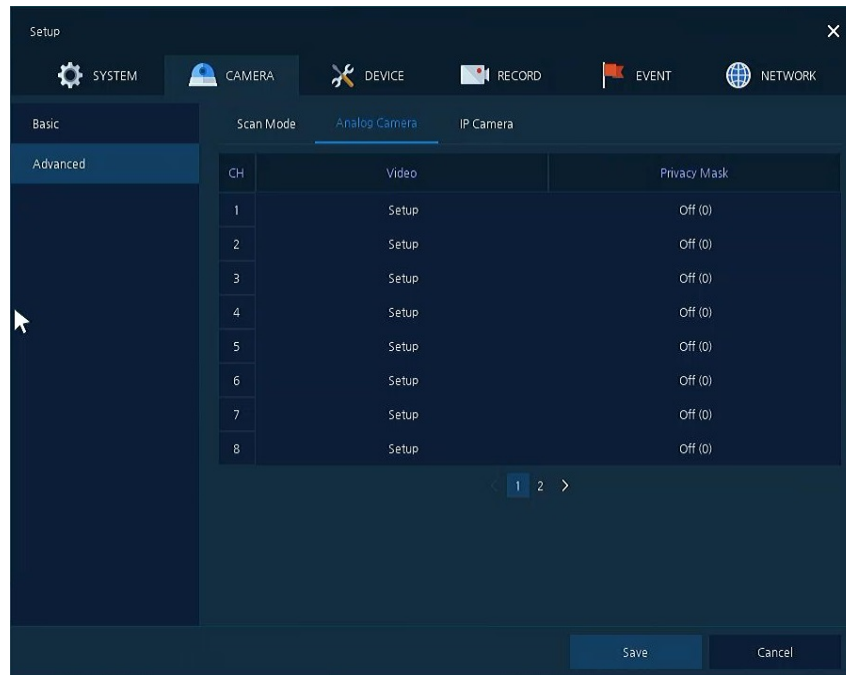


Figure 4-17 CAMERA > Advanced > Analog Camera

Table 4-18 CAMERA > Advanced > Analog Camera Item and Description

No.	Name	Function
1	CH	Display channels.
2	Video	Set brightness, contrast, and color of the camera.
3	Privacy Mask	Set the privacy field; display field numbers set in parenthesis (at most 4 setting available).


Locate the mouse in the Privacy Mask field, and then click Editing Icon () in the right corner, then Privacy Mask screen displays.



Figure 4-18 CAMERA > Advanced > Privacy Mask

Table 4-19 CAMERA > Advanced > Privacy Mask Item and Description

No.	Name	Function
1	CH	Select channels to set privacy field.
2	Privacy Mask	Select/deselect whether to use privacy field.
3	New Mask	Select privacy field again.
4	Delete Mask	Delete selected privacy field.

How to set Privacy Mask

Users might set 4 Privacy Masks, and the way to set Privacy Mask is as follows:

- 1 Press **New Mask** button. **Mask Zone** is automatically set as **Mask1**.
- 2 Drag the area you want in the screen with a mouse.
 - Revision: Select Mask No. in **Mask Zone** and drag the area you want in the screen with a mouse.
 - Deletion: Select Mask No. in **Mask Zone** and click **Delete Mask**.
- 3 Press **Apply** button to complete setting.

Advanced > IP Camera

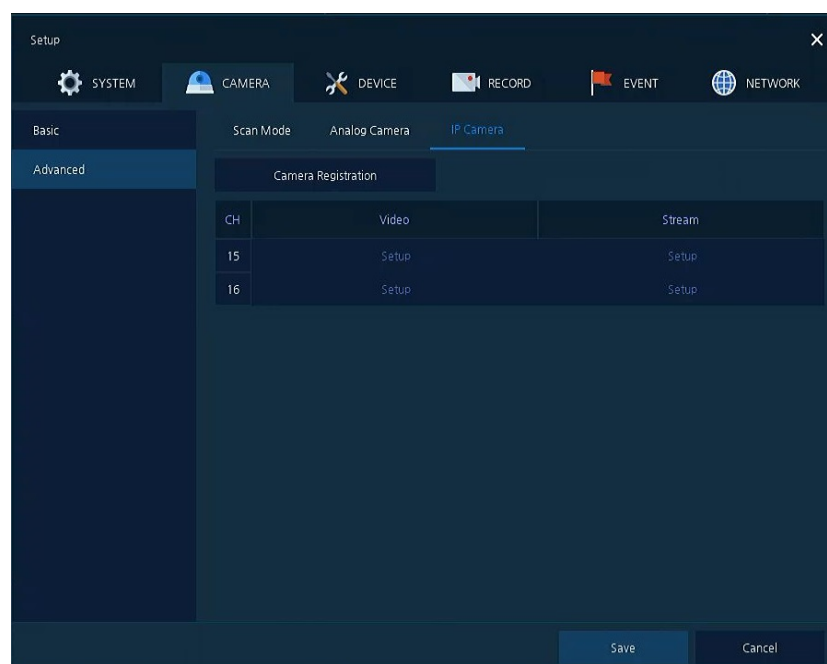


Figure 4-19 CAMERA > Advanced > IP Camera

Table 4-20 CAMERA > Advanced > IP Camera Item and Description

No.	Name	Function
1	Camera Registration	Opens a pop-up menu for IP camera registration.
2	CH	Display channels.
3	Video	Set brightness, contrast, and color of the camera.
4	Stream	Setup camera stream such as Resolution, Framerate, Bitrate and etc.

Note This menu will be appeared when Analog+IP cam mode is selected.

4.4 DEVICE

In **DEVICE**, set the device to connect with the unit.

4.4.1 Display

Set matters related to a display device and live screen.

Display > Display

Set the display device.

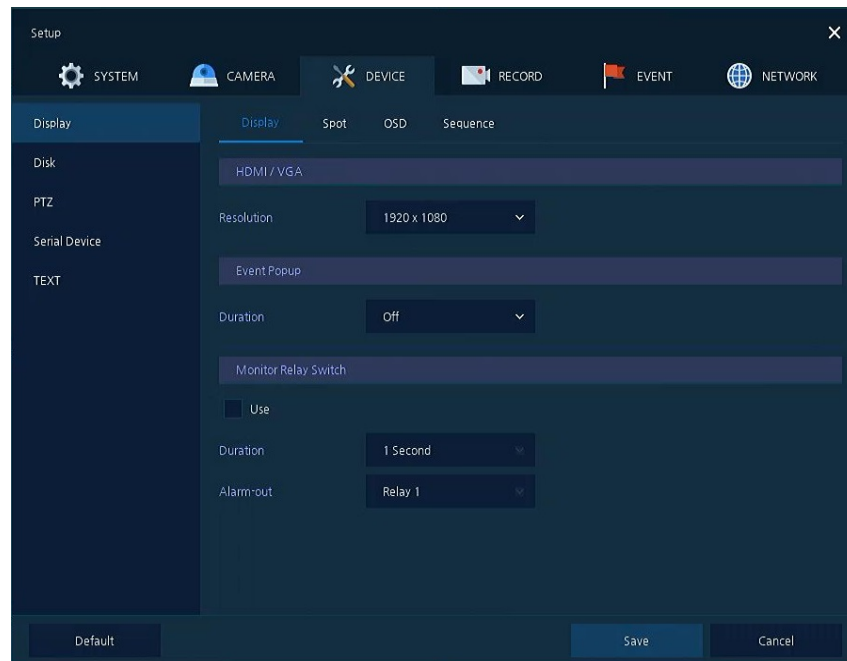


Figure 4-20 DEVICE > Display > Display

Table 4-21 DEVICE > Display > Display Item and Description

No.	Name	Function
1	HDMI/VGA	Select the resolution of the display device. (1024x768, 1280x720, 1920x1080, 3840x2160).
2	Event Popup	Set duration of event popup.
3	Monitor Relay Switch	Send alarm out when screen layout changed.

Display > Spot

Set the output of the Spot monitor.

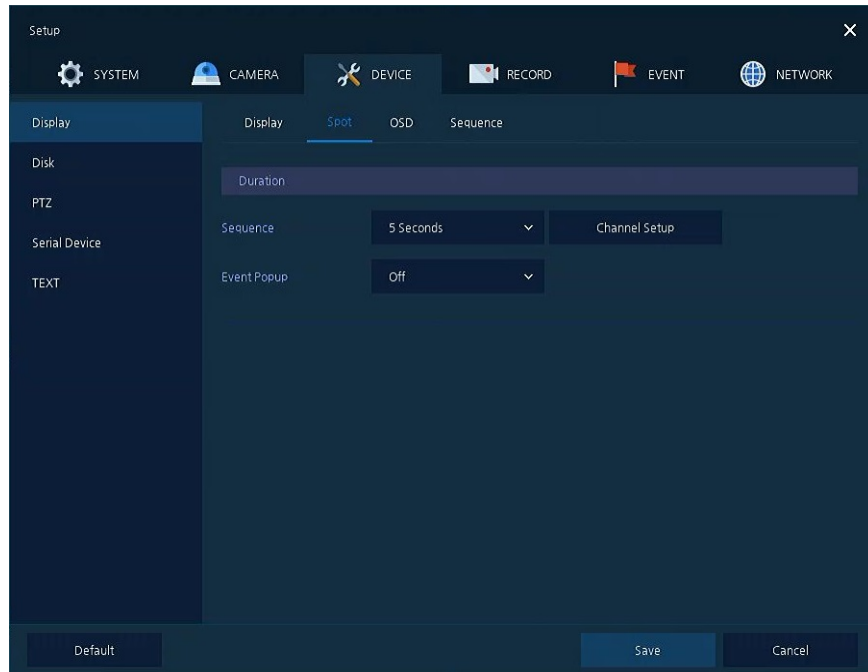


Figure 4-21 DEVICE > Display > Spot

Table 4-22 DEVICE > Display > Spot Item and Description

No.	Name	Function
1	Sequence	Set the channel and dwell time (5, 10, 20, 30sec) when the Auto mode of Spot Monitor is selected.
2	Event Popup	Sets the hold time of the full screen image of the channel where the event occurred (Off, 5, 10, 20, 30sec, Continuous). If multiple channels have an event at the same time, the event channel is shown as a spilt screen.

Display > OSD

Set the OSD of the display device.

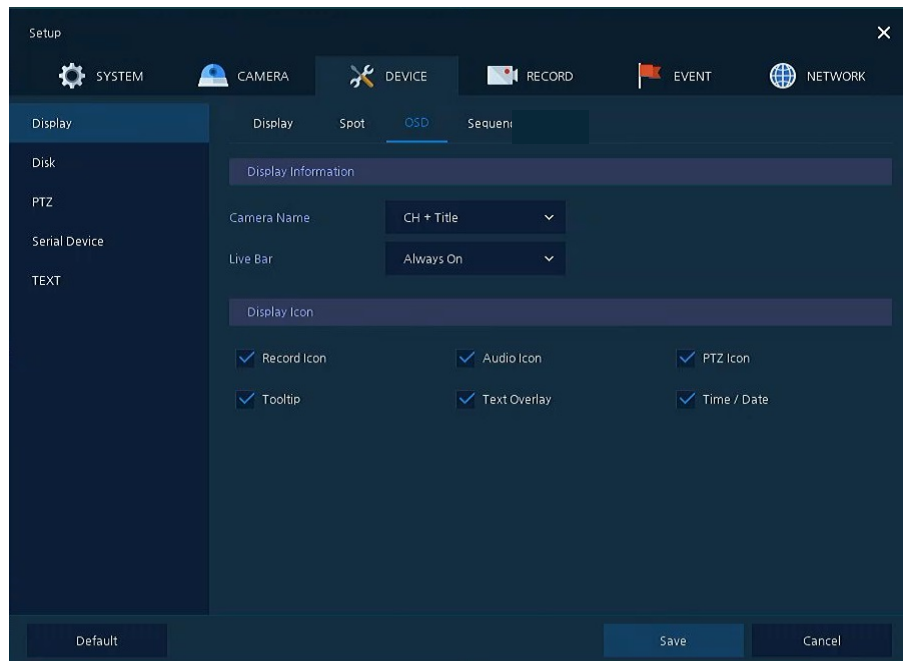


Figure 4-22 DEVICE > Display > OSD

Table 4-23 DEVICE > Display > OSD Item and Description

No.	Name	Function
1	Camera Name	Select the way to display camera in live screen (Off, CH+Title, CH).
2	Live Bar	Select the way to display the live bar (Always On, Auto Hide).
3	Display Icon	Select/deselect icons to display in the live screen.

Display > Sequence

How to set the play sequence of live screen.

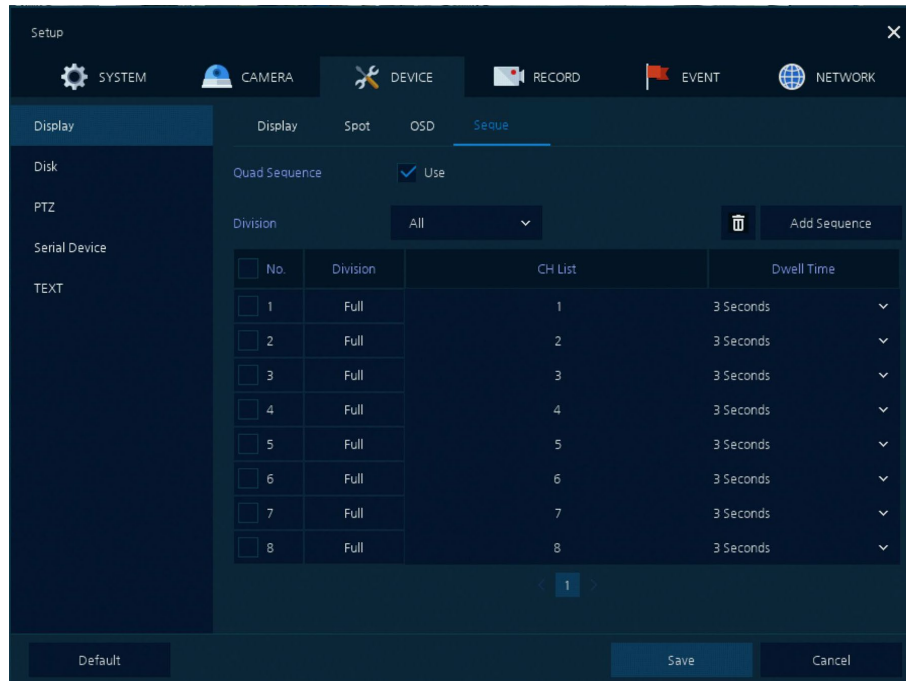




Figure 4-23 DEVICE > Display > Sequence

Table 4-24 DEVICE > Display > Sequence Item and Description

No.	Name	Function
1	Quad Sequence	Set to convert automatically as 4-partition screen on the time basis.
2	Division	Select screen partition mode to be marked in the below table (All, Full, and Quad).
3	Sequence List	Display the sequence list based on division selected value.
4	Add Sequence	Add items to be included in the play sequence.
5	No.	Automatically controvert screens in number order.
6	Division	Displays as full, 2X2 (Quad).
7	CH List	Set automatic conversion CHs. In case of choosing CH3 in No. 1, CH3 is shown in advance.
8	Dwell Time	Set the remaining time for automatic conversion (3 sec~30 sec).
9	Default	Reverse to changed set value in default.
10		Revise the list.
11		Delete the list.

Clicking **Add Sequence** displays **Add Sequence** screen.

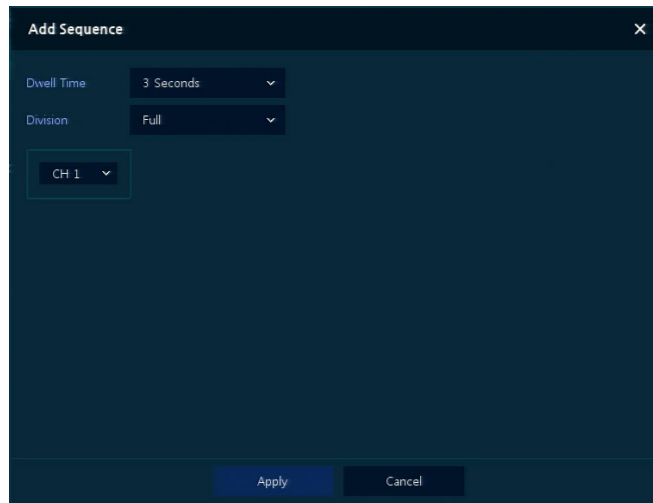


Figure 4-24 DEVICE > Display > Sequence > Add Sequence

Table 4-25 DEVICE > Display > Sequence > Add Sequence Item and Description

No.	Name	Function
1	Dwell Time	Select time to play (3 sec, 5 sec, 10 sec, 15 sec, and 30 sec).
2	Division	Select the partition screen to play (Full).

4.4.2 Disk

Disk > Setup

The way to set the disk

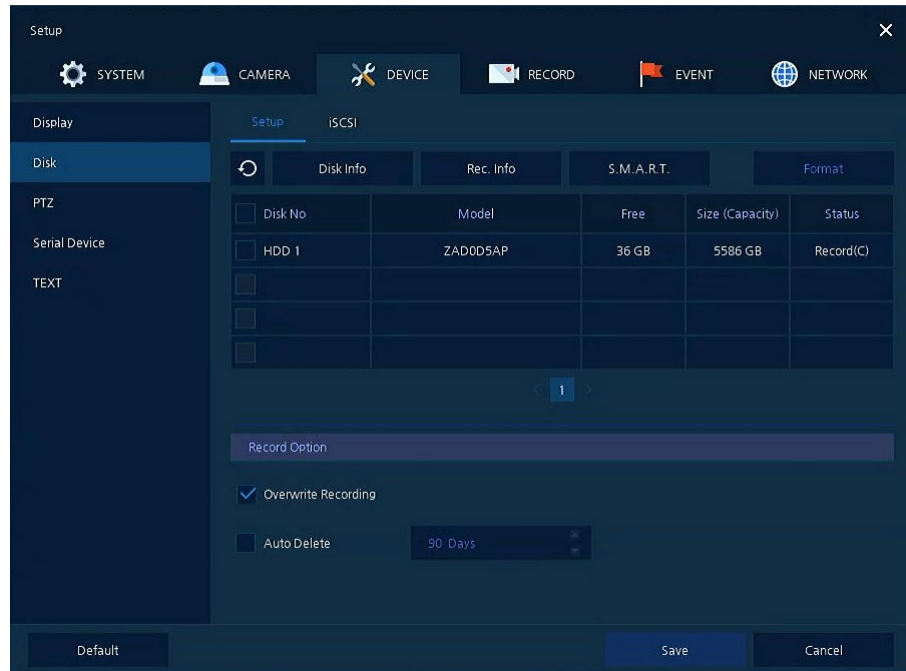



Figure 4-25 DEVICE > Disk > Setup

Table 4-26 DEVICE > Disk > Setup Item and Description

No.	Name	Function
1		Refresh disk information.
2	Disk Info	Display the basic disk information in disc list. <ul style="list-style-type: none"> Model: disk model name Free: disk capacity to save Size (Capacity): total disk capacity Status: disk status
3	Rec. Info	Display saved disk information in disc list. <ul style="list-style-type: none"> Start Recording Time: starting time for saving information in the disk End Recording Time: ending time to stop saving information in the disk Status: disk status
4	S.M.A.R.T.	Display S.M.A.R.T. information in disc list. <ul style="list-style-type: none"> Model: disk model name Temp.: disk temperature Alive Time: running time after turning on the disk S.M.A.R.T.: a presenter of disk's malfunction
5	Disk List	Display the disk list select/deselect disk to be formatted.
6	Format	Format the disk selected.

No.	Name	Function
7	Overwrite Recording	Select/deselect to rewrite new data on the existing disk in case of insufficient saving space remained.
8	Auto Delete	Select/deselect to use the function to delete saved data automatically (1-365 days).

Disk > iSCSI

The way to set the iSCSI

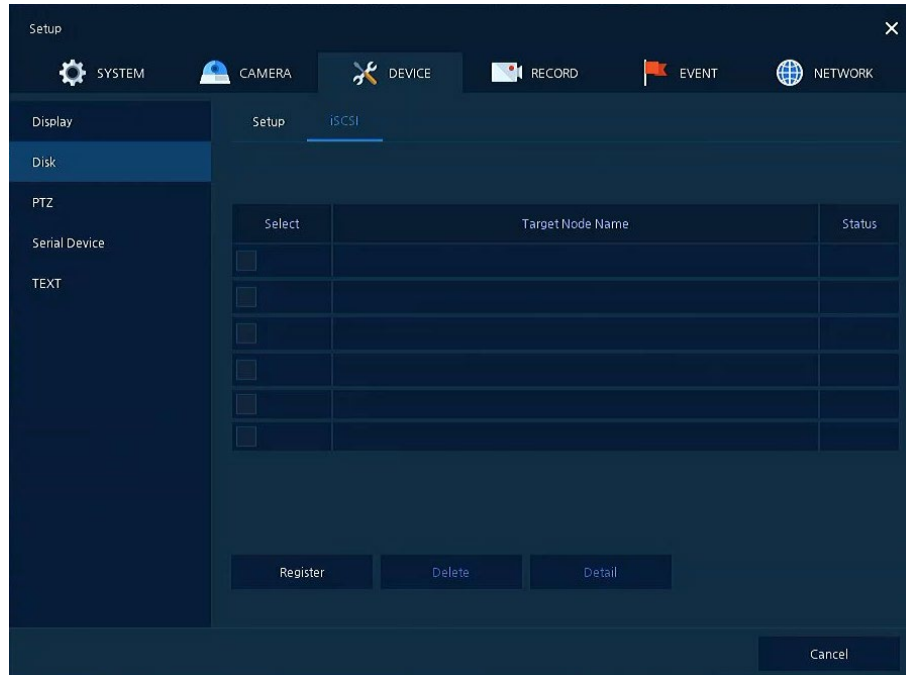


Figure 4-26 DEVICE > Disk > iSCSI

Table 4-27 DEVICE > Disk > iSCSI Item and Description

No.	Name	Function
1	Register	Opens a pop-up menu for iSCSI registration.
2	Delete	Delete registered iSCSI storage.
3	Detail	Display selected iSCSI IP address and port number.

Note Recorder support Max. 6 volumes (Target Node).
Each volume supports Max. 16TB.

Clicking **Register** displays **iSCSI Register** screen.

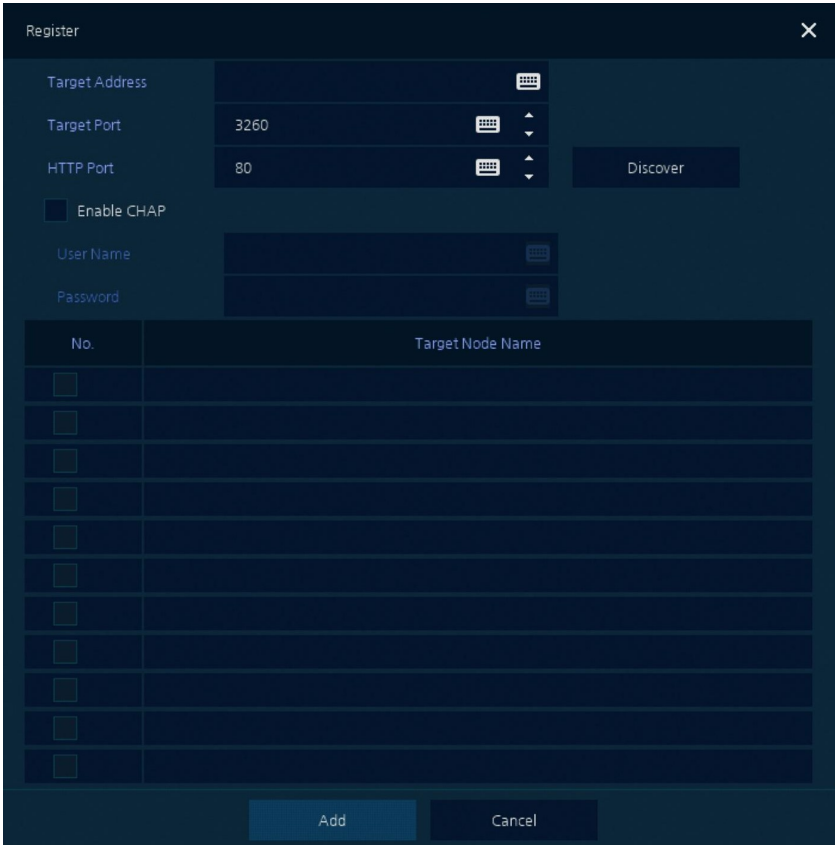


Figure 4-27 DEVICE > Disk > iSCSI > Register

Table 4-28 DEVICE > Disk > iSCSI > Register Item and Description

No.	Name	Function
1	Target Address Target Port HTTP Port	Input IP address and port for iSCSI.
2	Discover	Click to search iSCSI storage.
3	User Name	Enter the user name.
4	Password	Enter the password
5	Add	Click to register the discovered iSCSI storage.

4.4.3 PTZ > PTZ

To use PTZ Function of the device, users need to match ID, protocol, and speed with each camera.

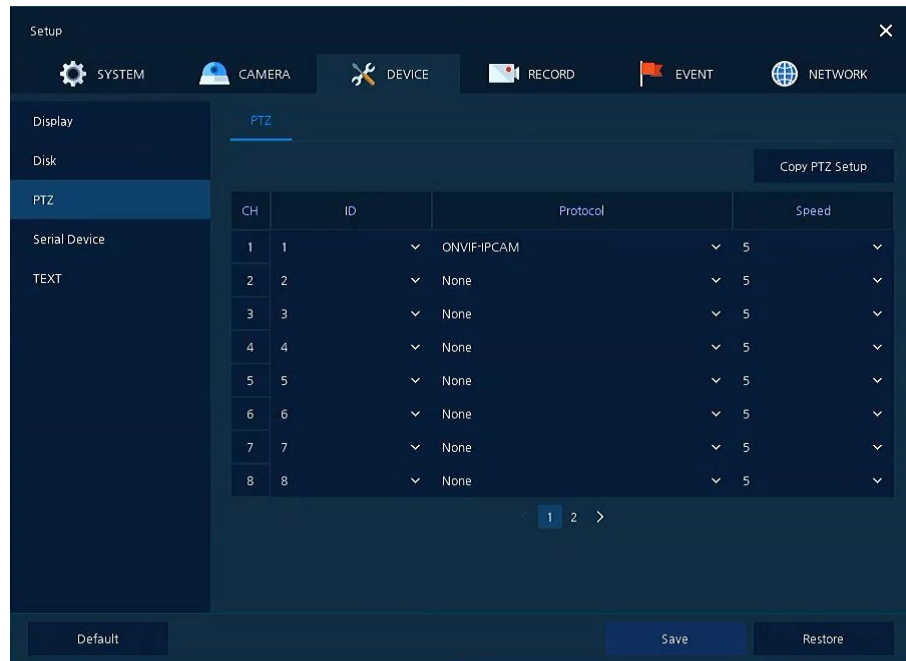


Figure 4-28 DEVICE > PTZ > PTZ

Table 4-29 DEVICE > PTZ > PTZ Item and Description

No.	Name	Function
1	Copy PTZ Setup	Apply setting history to all or selected channels in the same way.
2	CH	Display channels.
3	ID	Select camera ID connected to relevant channels (1-255).
4	Protocol	Select protocol of camera connected to relevant channels.
5	Speed	Select pan-tilt of camera connected to relevant channels (1-5).

Note For more information about camera ID, protocol information, and details, see Instruction of relevant PTZ function camera.

4.4.4 Serial Device > Serial Device

Users need to set Serial Device to connect PTZ camera, USB device with the unit.

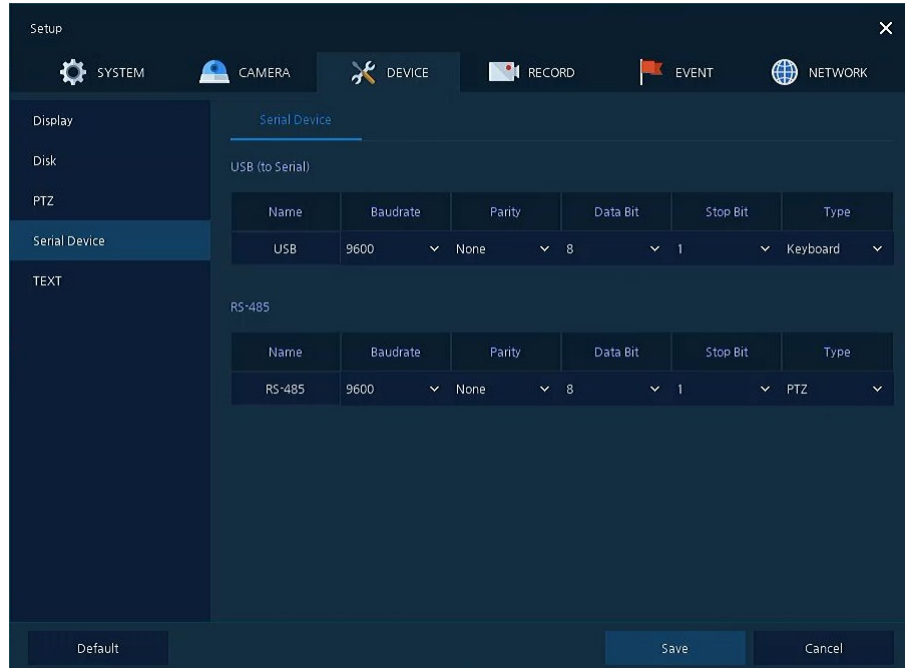


Figure 4-29 DEVICE > Serial Device > Serial Device

Table 4-30 DEVICE > Serial Device > Serial Device Item and Description

No.	Name	Function
1	USB (to Serial)	Set communication transmission value of USB device.
2	RS-485	Set communication transmission value of RS-485 connector.

4.4.5 TEXT > TEXT

Set the input device such as ATM or POS, etc.

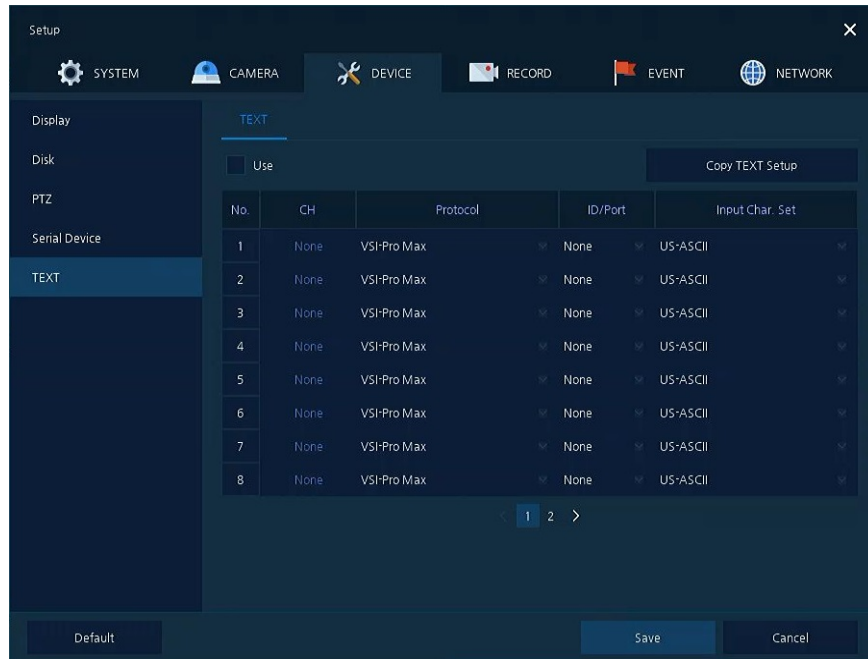


Figure 4-30 DEVICE > TEXT > TEXT

Table 4-31 DEVICE > TEXT > TEXT Item and Description

No.	Name	Function
1	Use	Select/deselect whether to use text function.
2	CH	Select camera channels to connect with the text input device.
3	Protocol	Select protocol to correspond with the text input device.
4	ID/Port	Select ID and port no. to correspond with the text input device.
5	Input Char. Set	Select a character format of the text input device.
6	Copy TEXT Setup	As for connecting multiple units, duplicate set value to others.

Press **Copy TEXT Setup** button, then **Copy TEXT Setup** screen displays.

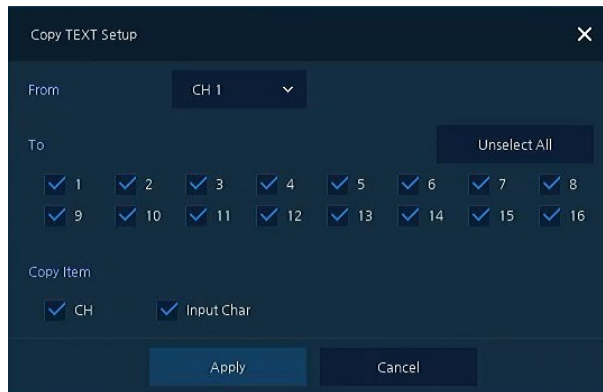


Figure 4-31 DEVICE > TEXT > TEXT > Copy TEXT Setup

Table 4-32 DEVICE > TEXT > TEXT > Copy TEXT Setup Item and Description

No.	Name	Function
1	From	Select channels set.
2	To	Select the device to be copied.
3	Select All /Unselect All	Select/deselect all channels.
4	Copy Item	Select/deselect items to be copied.

4.5 RECORD

In **RECORD**, users may set matters related to recording.

4.5.1 Schedule

Schedule > Schedule

Recording types can be set across channels and time.

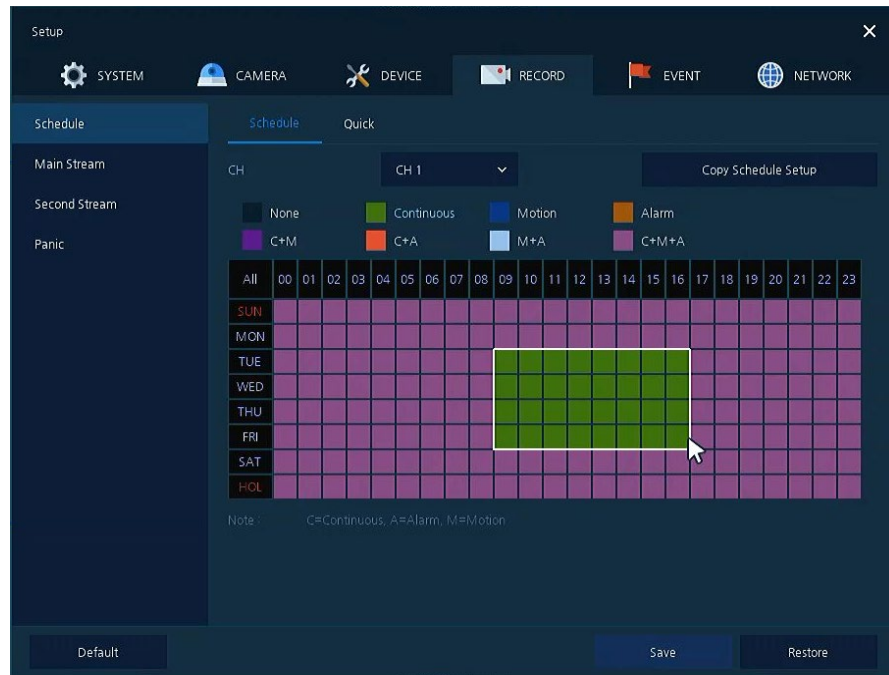










Figure 4-32 RECORD > Schedule > Schedule

Table 4-33 RECORD > Schedule > Schedule Item and Description

No.	Name	Function
1	CH	Select channels to set schedules.
2	Schedule Type Selection	Select the types of schedules.
3	Schedule Table	Display the schedule users set.
4	Drag Field	Display the area dragged with a mouse.
5	Copy Schedule Setup	Copy set recording schedule to other channels.

The function of each scheduling type involves:

Table 4-34 Function of each scheduling type

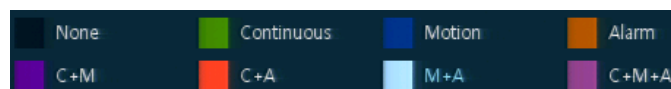
Color	Scheduling type	Function
	None	Do not record.
	Continuous	Record on consecutive mode when time set.
	Motion	Record on event recording mode when motion sensitive event occurs.
	Alarm	Record on event recording mode when alarm occurs.
	C+M	Record on event recording mode when motion sensitive event occurs during consecutive mode recording.
	C+A	Record on event recording mode when alarm occurs during consecutive mode recording.
	M+A	Record on event recording mode when only alarm and motion sensitive event occur.
	C+M+A	Record on event recording mode when only alarm and motion sensitive event occur during consecutive mode recording.

The way to schedule recording across channels.

- 1 Select channels to schedule.

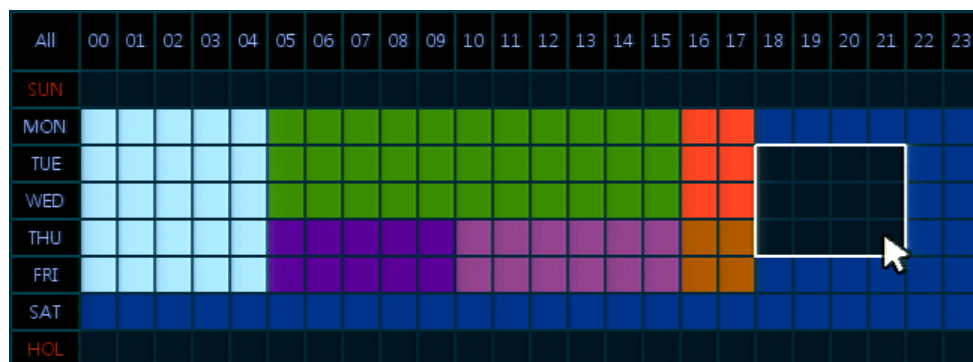


- 2 Select items in scheduling types.



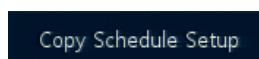
- 3 Position the mouse to the schedule table.

- 4 Drag the area to be scheduled with a mouse.

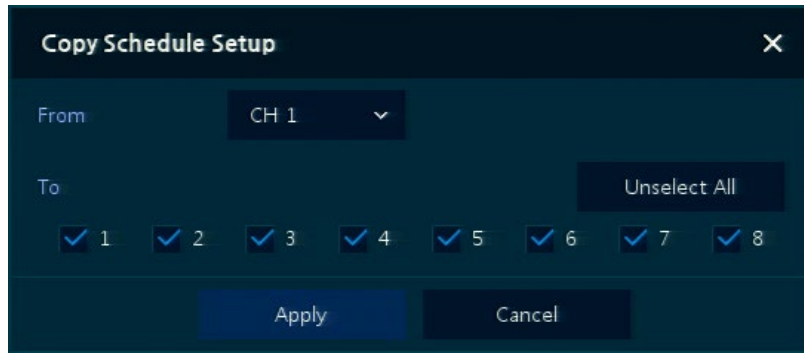


- 5 Selected field is presented as scheduling type colors.

- 6 Click **Copy Schedule Setup** if you want to copy the schedule to other channels.



7 **Copy Schedule Setup** screen displays.



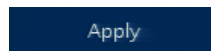
8 Select channels to be copied.



9 Select channels to apply copied content.



10 Copy the schedule by pressing **Apply**.



11 Press **Save** to save the schedule.

Schedule > Quick

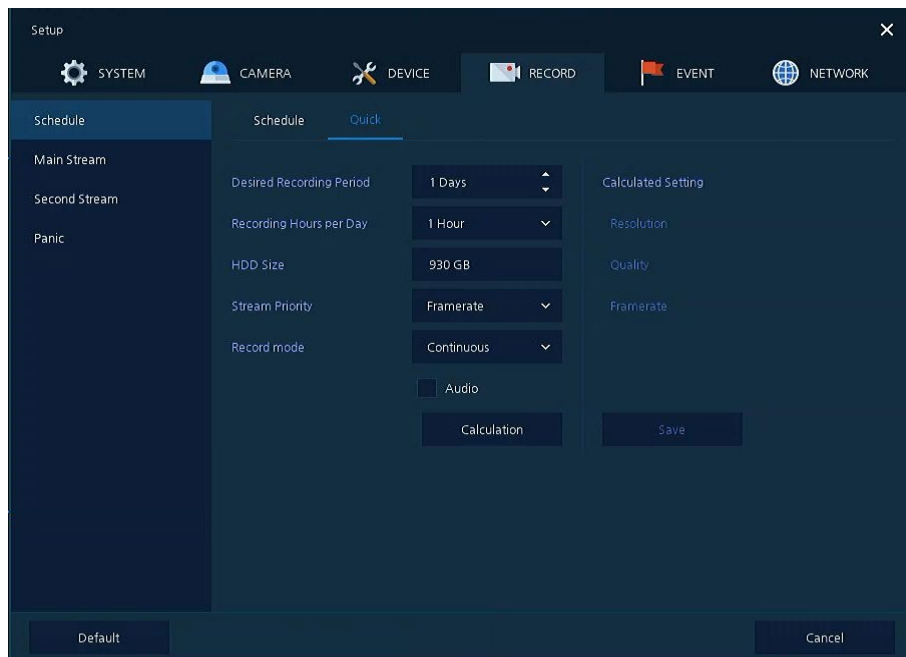


Figure 4-33 RECORD > Schedule > Quick

Table 4-35 RECORD > Schedule > Quick Item and Description

No.	Name	Function
1	Desired Recording Period	Select desired recording period.
2	Recording Hours per Day	Select recording hours per day.
3	HDD Size	It is automatically displayed.
4	Stream Priority	Select Framerate or Resolution.
5	Recording mode	Select recording mode as Continuous or Event.
6	Audio	Enable if audio is recorded.
7	Calculation	User can see recommended resolution and frame rate to meet recording period.

4.5.2 Main Stream

To set the image resolution when event occurs across channels or general recording is in process.

Main Stream > Analog Camera

To set the image quality and resolution of Main Stream

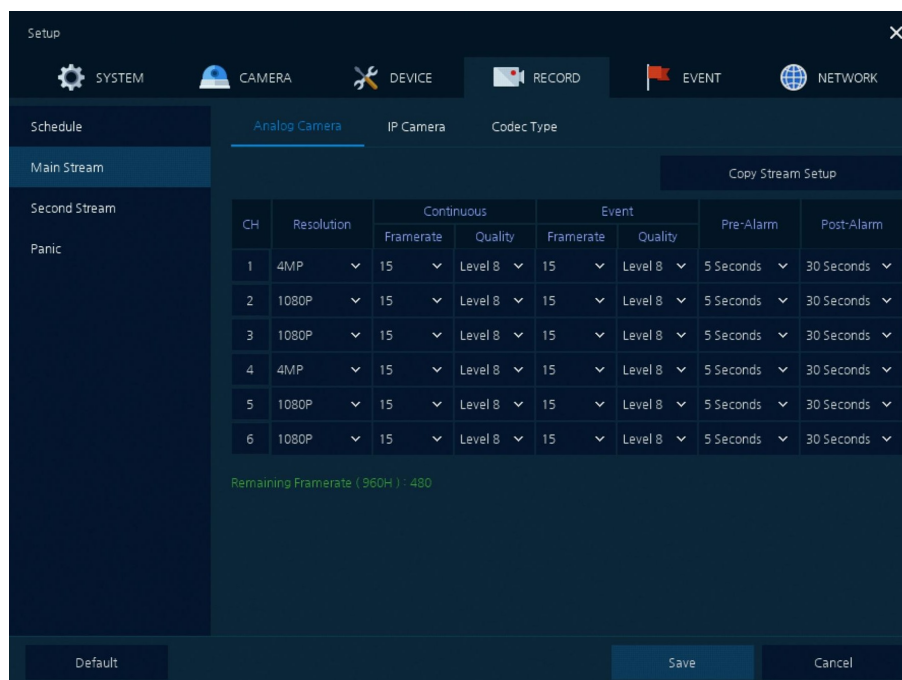


Figure 4-34 RECORD > Stream > Main Stream

Table 4-36 RECORD > Stream > Main Stream Item and Description

No.	Name	Function
1	CH	Display channels.
2	Resolution	Set the resolution of video clips (4MP, 1080P, 720P, and 960H).
3	Continuous	Select recording FPS and image quality in consecutive recording. <ul style="list-style-type: none"> Frame Rate: recording FPS selection (1-30) Quality: recording image quality selection (Level 1-8)
4	Event	Select recording FPS and image quality in event recording. <ul style="list-style-type: none"> Frame Rate: recording FPS selection (1-30) Quality: recording image quality selection (Level 1-8)
5	Pre-Alarm	Start recording before set time, if event occurs (null, 1 sec, 2 sec, 3 sec, 4 sec, and 5 sec).
6	Post-Alarm	Recording after set time until event ends (null, 5 sec, 10 sec, 30 sec, 1 min, 5 min, and 10 min).
7	Copy Stream Setup	Copy main recording image set value to other channels.

Clicking **Copy Stream Setup** opens **Copy Stream Setup**.

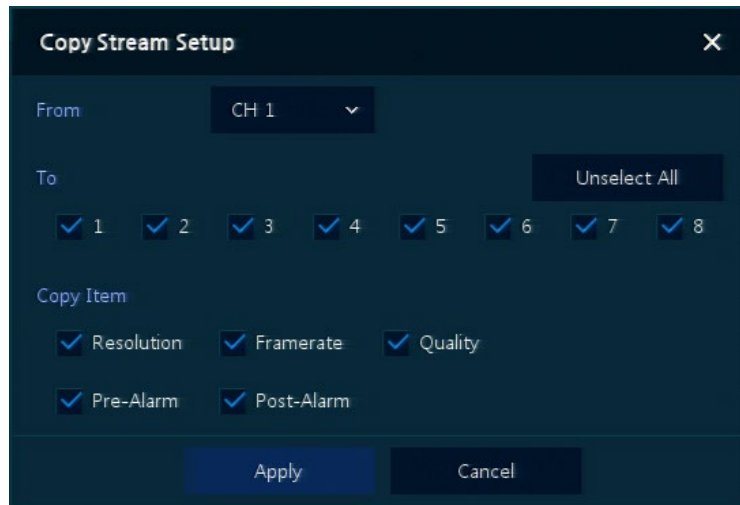


Figure 4-35 RECORD > Stream > Main Stream > Copy Stream Setup

Table 4-37 RECORD > Stream > Main Stream > Copy Stream Setup Item and Description

No.	Name	Function
1	From	Select the channel set.
2	To	Select the device to be copied.
3	Select All /Unselect All	Select/deselect all channels.
4	Copy Item	Select/deselect items to be copied.

Main Stream > IP Camera

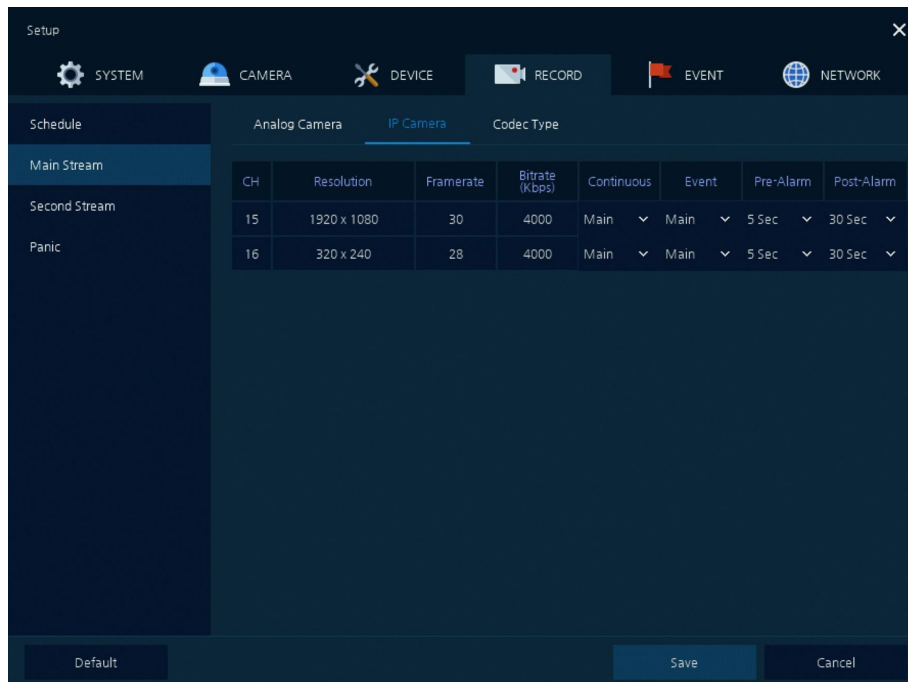


Figure 4-36 RECORD > Main Stream > IP Camera

Table 4-38 RECORD > Main Stream > IP Camera Item and Description

No.	Name	Function
1	CH	Display channels.
2	Resolution Framerate Bitrate	Show camera main stream setup status.
3	Continuous	Select recording stream in case of Continuous mode.
4	Event	Select recording stream in case of Event mode.
5	Pre-Alarm	Start recording before set time, if event occurs (null, 1 sec, 2 sec, 3 sec, 4 sec, and 5 sec).
6	Post-Alarm	Recording after set time until event ends (null, 5 sec, 10 sec, 30 sec, 1 min, 5 min, and 10 min).

Note This menu will be appeared when Analog+IP cam mode is selected.

Main Stream > Codec Type

To set the video compression way.

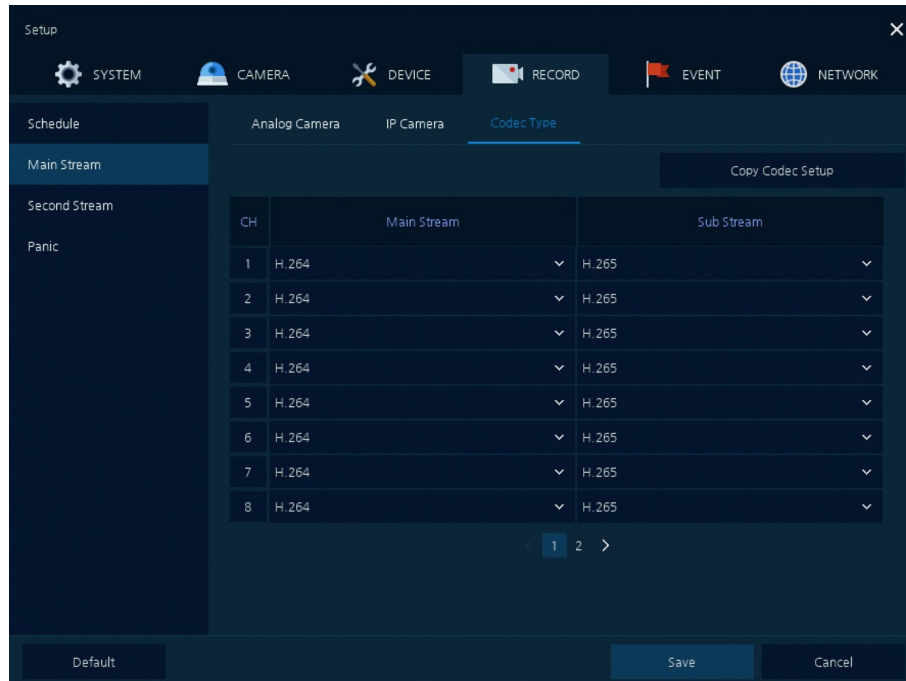


Figure 4-37 RECORD > Main Stream > Codec Type

Table 4-39 RECORD > Main Stream > Codec Type Item and Description

No.	Name	Function
1	CH	Display channels.
2	Main Stream	Select the main stream codec (H.264, H.265).
3	Sub Stream	Select the sub stream codec (H.264, H.265).
4	Copy Codec Setup	Copy current selected codec to other channel.

Clicking **Copy Codec Setup** opens **Copy Stream Setup**.

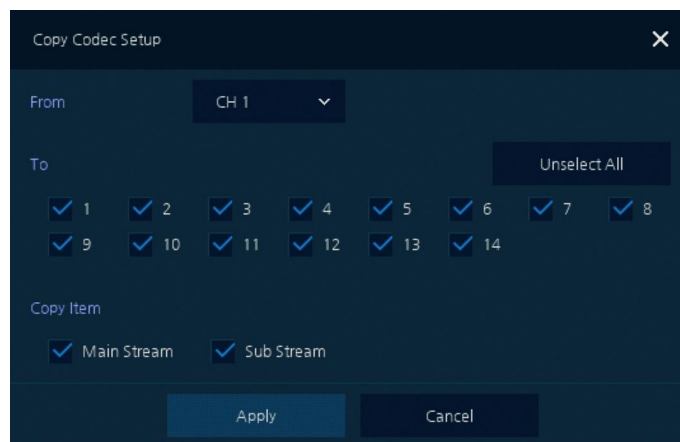


Figure 4-38 RECORD > Main Stream > Codec Type > Copy Codec Setup

Table 4-40 RECORD > Main Stream > Copy Codec Setup Item and Description

No.	Name	Function
1	From	Select the channel to be copied.
2	To	Select the channel copied the same content.
3	Select All /Unselect All	Select/deselect all channels.
4	Copy Item	Select the stream to be copied.
5	Copy	Select the list to be copied.

4.5.3 Second Stream

Second Stream > Analog Camera

To set the image quality and resolution of Second Stream

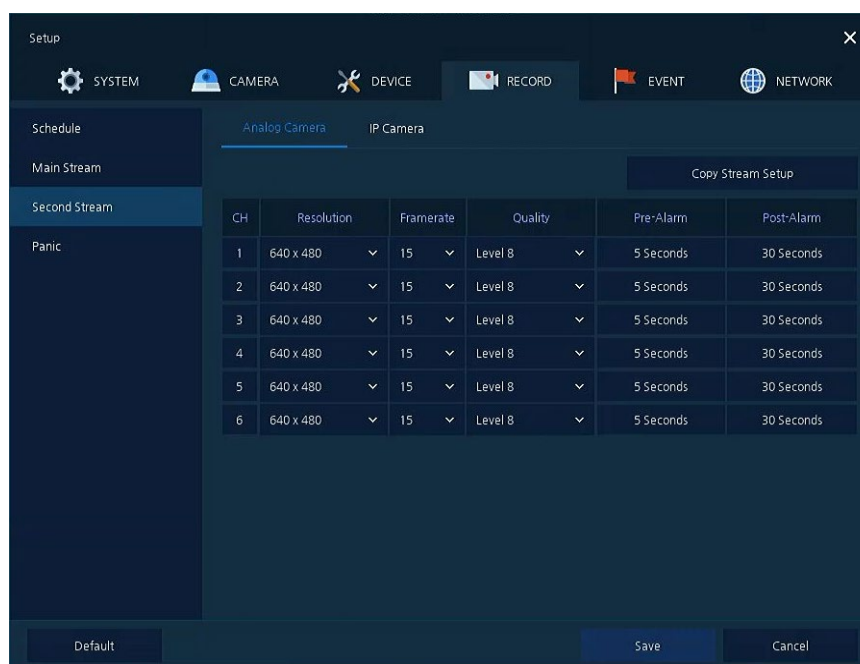


Figure 4-39 RECORD > Stream > Second Stream

Table 4-41 RECORD > Stream > Second Stream Item and Description

No.	Name	Function
1	CH	Display channels.
2	Resolution	Set the resolution of video clips (640X480).
3	Frame Rate	Select recording FPS (1-30).
4	Quality	Select image quality (Level 1-8).
5	Pre-Alarm	Start recording before set time, if event occurs.
6	Post-Alarm	Recording after set time until event ends.

No.	Name	Function
7	Copy Stream Setup	Copy main recording image set value to other channels. For more information about set value copy, see section "4.5.2 Stream > Main Stream in Main Stream."

Second Stream > IP Camera

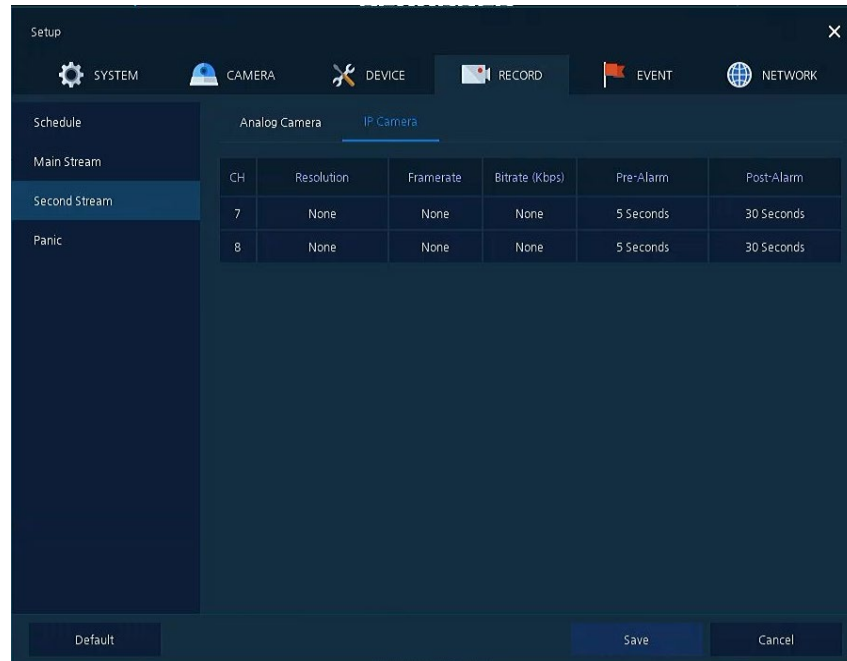


Figure 4-40 RECORD > Second Stream > IP Camera

Table 4-42 RECORD > Second Stream > IP Camera Item and Description

No.	Name	Function
1	CH	Display channels.
2	Resolution Framerate Bitrate	Show camera main stream setup status.
3	Pre-Alarm	Start recording before set time, if event occurs.
4	Post-Alarm	Recording after set time until event ends.

Note This menu will be appeared when Analog+IP cam mode is selected.

4.5.4 Panic

How to set immediate recording

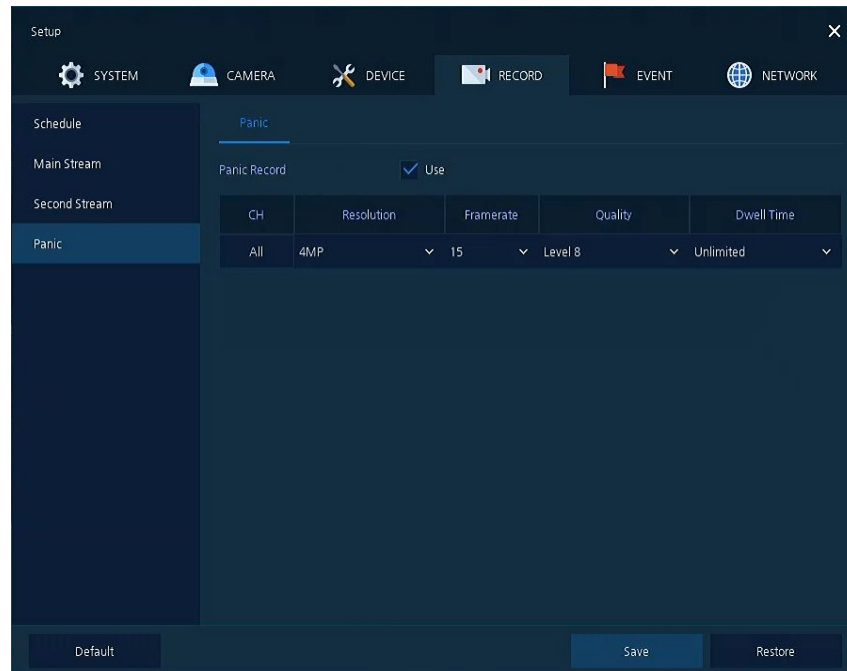


Figure 4-41 RECORD > Stream > Panic

Table 4-43 RECORD > Stream > Panic Item and Description

No.	Name	Function
1	Panic Record	Select/deselect to use immediate recording function.
2	CH	Display channels.
3	Resolution	Set the resolution of video clips (4MP, 1080P, 720P, 960H).
4	Frame rate	Select recording FPS (1-30).
5	Quality	Select image quality (Level 1-8).
6	Dwell Time	Select recording duration (No limits, 10 sec, 30 sec, 1 min, 5 min, 10 min, and 30 min).

4.6 EVENT

In **EVENT**, users may set each event of the device.

4.6.1 System/Disk

To set the system and disk event

System/Disk > System

To set the system event of the device

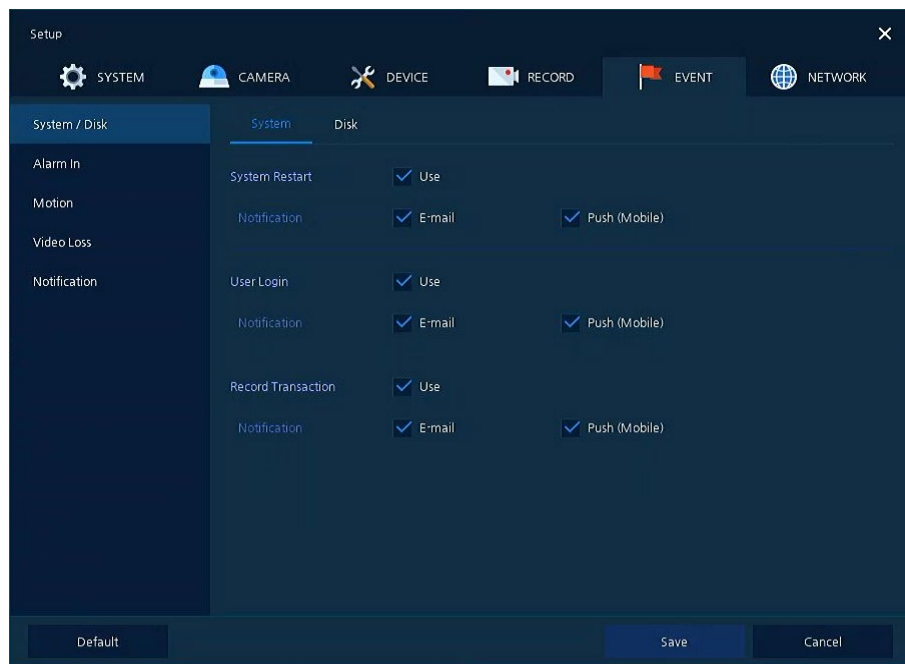


Figure 4-42 Event > System/Disk > System

Table 4-44 Event > System/Disk > System Item and Description

No.	Name	Function
1	System Restart	Select/deselect whether to use system restart event.
2	Notification	Select/deselect whether to use mailing or mobile push in case of event.
3	User Login	Select/deselect whether to use user-login event.
4	Record Transaction	Select/deselect whether to use record transaction event.

System/Disk > Disk

To set disk event

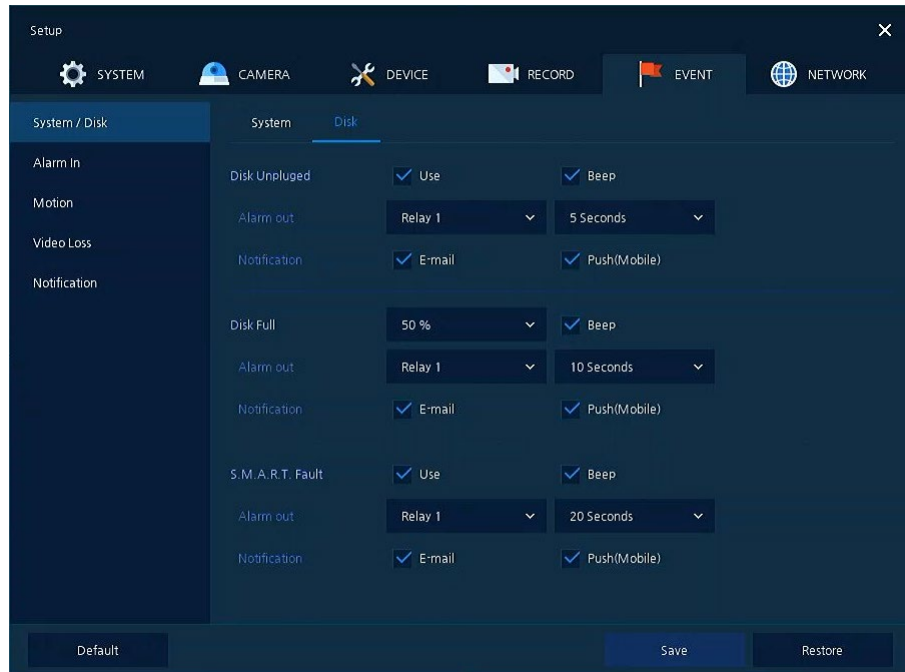


Figure 4-43 Event > System/Disk > Disk

Table 4-45 Event > System/Disk > Disk Item and Description

No.	Name	Function
1	Disk Unplugged	Select/deselect whether to use disk unplugged event.
2	Beep	Select/deselect whether to use buzzer sound in case of event.
3	Alarm out	Select to end alarm time (null, Relay1-Keep, 5 sec, 10 sec, 20 sec, 30 sec, 1 min, 10 min, 30 min, and 1 hour).
4	Notification	Select/deselect whether to use mailing or mobile push in case of event.
5	Disk Full	Set disk capacity for disk full event (Off, 50%, 60%, 70%, 80%, 90%, and 100%).
6	S.M.A.R.T. Fault	Select/deselect whether to use S.M.A.R.T. Fault event of HDD.

4.6.2 Alarm In

To set sensor alarms and schedule

Alarm In > Setup

To set sensor alarms

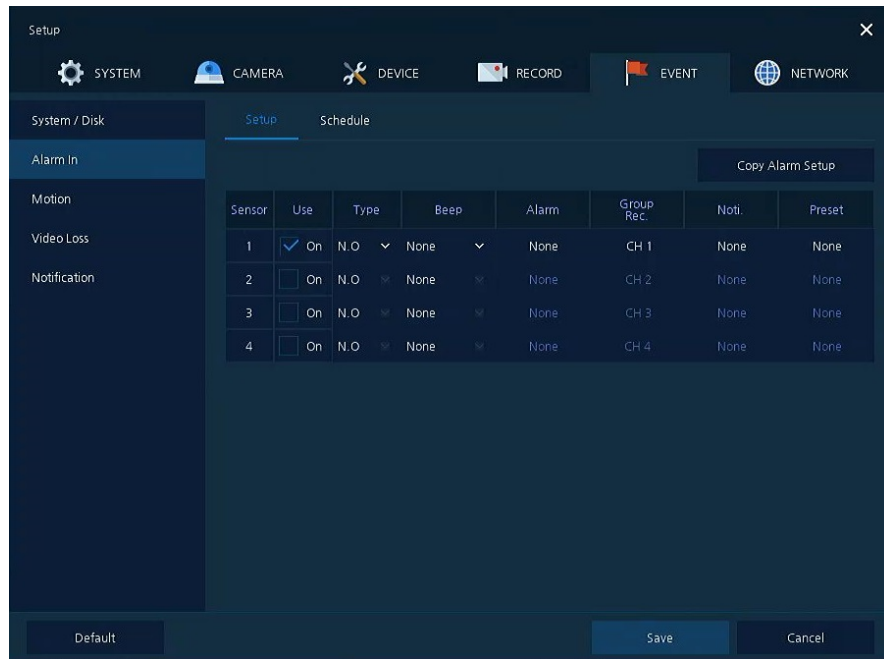


Figure 4-44 Event > Alarm In > Setup

Table 4-46 Event > Alarm In > Setup Item and Description

No.	Name	Function
1	Sensor	Display sensor numbers.
2	Use	Select/deselect whether to use alarm in the sensor.
3	Type	Select sensor types (N.O, N.C).
4	Assign	Select camera channels to designate a sensor (CH 1~4/8/16, immediate recording).
5	Beep	Select use time of buzzer sound (null, 5 sec, 10 sec, 20 sec, 30 sec, 1 min, 10 min, 30 min, and 1 hour).
6	Alarm	Set alarm output.
7	Group Rec.	Select the camera to record simultaneously.
8	Noti.	Set email notices.
9	Preset	Set preset of PTZ camera.
10	Copy to Alarm Setup	Copy alarm set value to other channels. For more information about set value copy, see section "4.5.2 Stream > Main Stream in Main Stream."

Placing your mouse on **Alarm, Group Rec, Noti., Preset** and clicking editing Icon() in right corner displays Event : Alarm screen.

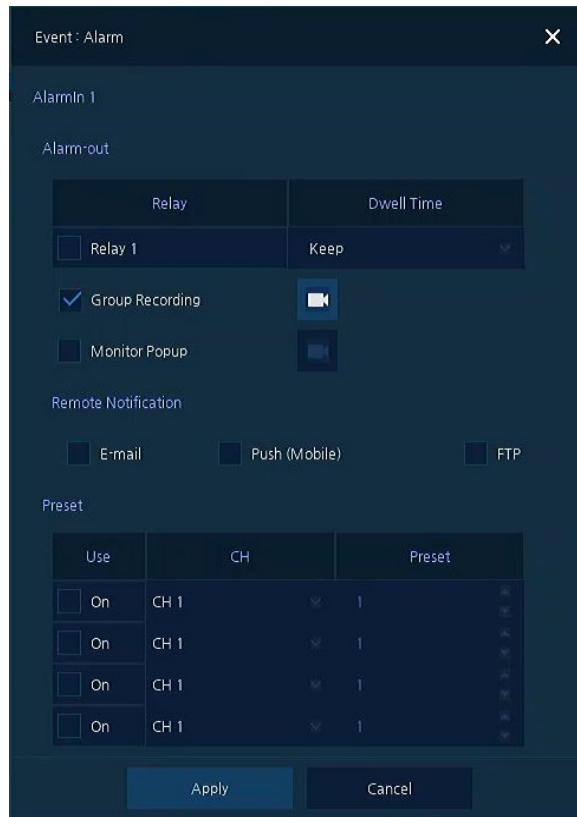




Figure 4-45 Event > Alarm In > Setup > Event : Alarm

Table 4-47 Event > Alarm In > Setup > Event : Alarm Item and Description

No.	Name	Function
1	Alarm-out	Set the alarm. <ul style="list-style-type: none"> Relay: Select/clear the Relay output checkbox. Dwell Time: Selecting alarm duration(Keep, 5 sec, 10 sec, 20 sec, 30 sec, 1 min, 10 min, 30 min, and 1 hour)
2	Group Recording	Select/deselect whether to use Group Recording.
3		Simultaneous recording camera channel screen opens.
4	Monitor Popup	Select/deselect whether to use Monitor Popup.
5		Channel selection screen opens.
6	Remote Notification	Select/deselect whether to use remote mailing.
7	Preset	Preset of PTZ camera is running. <ul style="list-style-type: none"> Use: Select/deselect whether to use preset. CH: Select channels. Preset: Set preset value.

Alarm In > Schedule

To schedule recording time when alarm occurs across device sensors

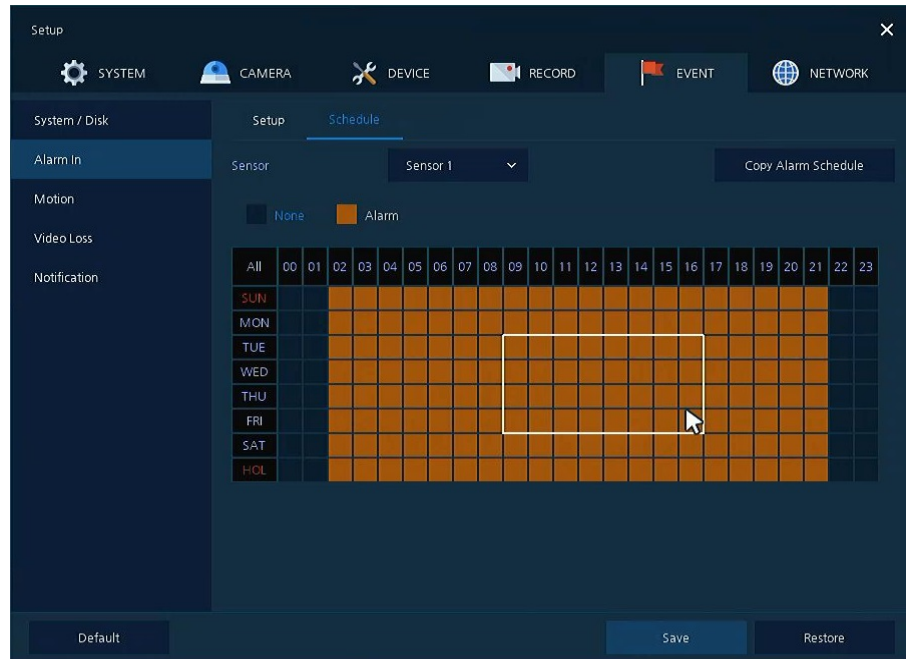


Figure 4-46 Event > Alarm In > Schedule

Table 4-48 Event > Alarm In > Schedule Item and Description

No.	Name	Function
1	Sensor	Select the sensor to set the schedule.
2	Schedule Type Selection	Select the types of schedules.
3	Schedule Table	Display the schedule users set.
4	Drag Field	Display the area dragged with a mouse.
5	Copy Alarm Schedule	Copy the schedule on alarm set to other sensors. For more information about set value copy, see section "4.5.2 Stream > Main Stream in Main Stream."

Note For more details about scheduling recording time when alarm occurs across sensors, see section "4.5.1 Schedule."

4.6.3 Motion

To set and schedule motions across channels

Motion > Setup

To set motions across channels.

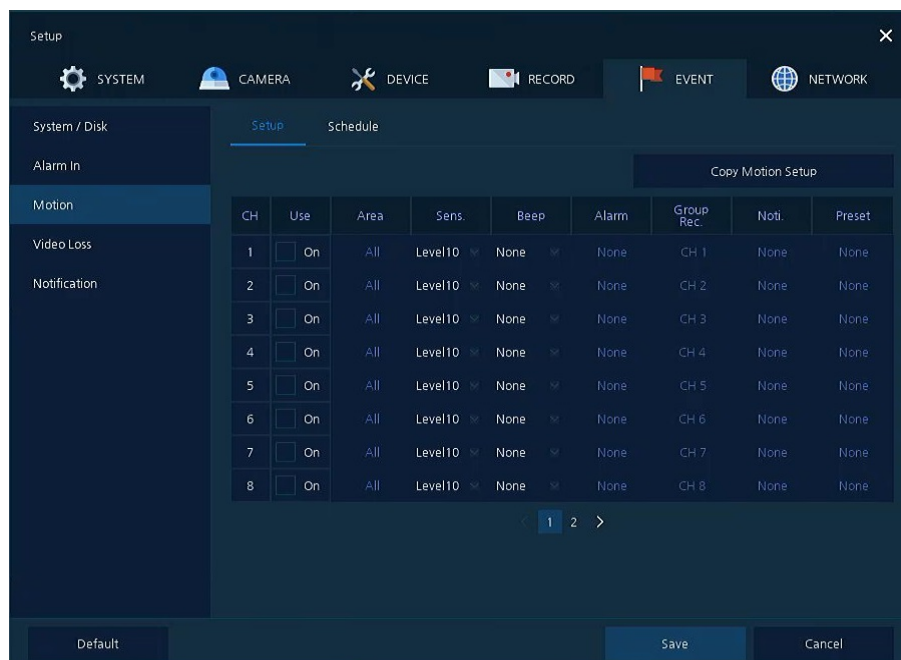


Figure 4-47 Event > Motion > Setup

Table 4-49 Event > Motion > Setup Item and Description

No.	Name	Function
1	CH	Display channels.
2	Use	Select/deselect whether to use motion function in the channel.
3	Area	Display the motion area.
4	Sens.	Select the sense level of the motion sensor (Level 1~10).
5	Beep	Select use time of buzzer (null, 5 sec, 10 sec, 20 sec, 30 sec, 1 min, 10 min, 30 min, and 1 hour).
6	Alarm	Set alarm output.
7	Group Rec.	Select the camera to record simultaneously.
8	Noti.	Set email notices.
9	Preset	Set preset of PTZ camera.
10	Copy to Motion Setup	Copy motion set value to other channels. For more information about set value copy, see section "4.5.2 Stream > Main Stream in Main Stream."

Note

Placing your mouse on **Alarm, Group Rec, Noti., Preset** and clicking editing icon(✎) in right corner displays Event : Alarm screen. For more information about **Event : Motion** screen, see section "4.6.2 Alarm In > Setup in Alarm In."

Motion > Schedule

To schedule record time when the motion sensor detects across channels

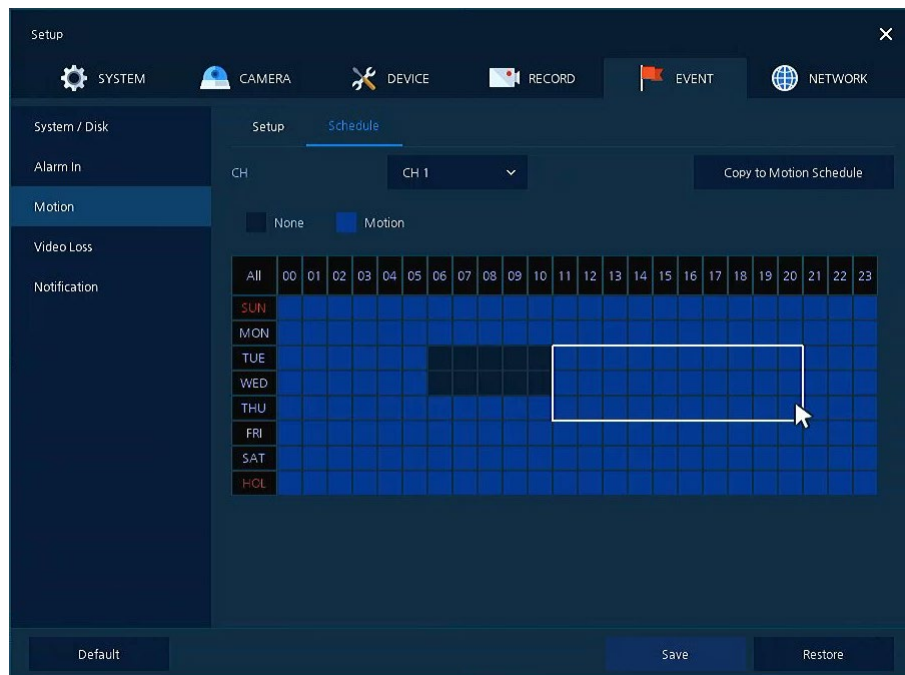


Figure 4-48 Event > Motion > Schedule

Table 4-50 Event > Motion > Schedule Item and Description

No.	Name	Function
1	CH	Select channels to set schedules.
2	Schedule Type Selection	Select the types of schedules.
3	Schedule Table	Display the schedule users set.
4	Drag Field	Display the area dragged with a mouse.
5	Copy to Motion Schedule	Copy the motion detection schedule to other channels. For more information about set value copy, see section "4.5.2 Stream > Main Stream in Main Stream."

Note

For more information how to schedule record time when the motion sensor detects across channels, see section "4.5.1 Schedule."

4.6.4 Video Loss

To set Video Loss across channels

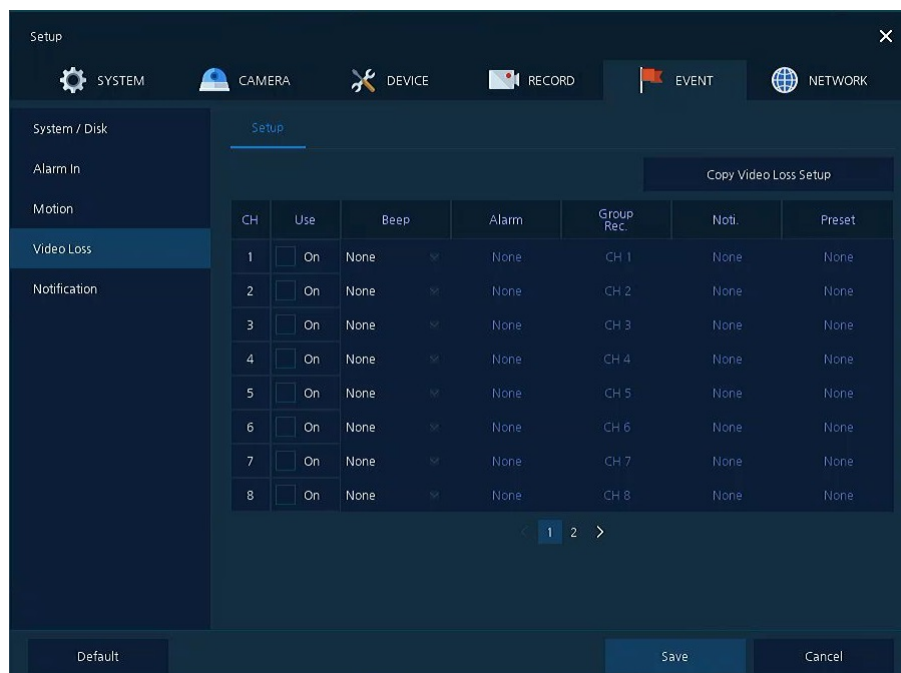


Figure 4-49 Event > Video Loss > Setup

Table 4-51 Event > Video Loss > Setup Item and Description

No.	Name	Function
1	CH	Display channels.
2	Use	Select/deselect whether to use Video Loss in the channel.
3	Beep	Select use time of buzzer sound (null, 5 sec, 10 sec, 20 sec, 30 sec, 1 min, 10 min, 30 min, and 1 hour).
4	Alarm	Set alarm output.
5	Group Rec.	Select the camera to record simultaneously.
6	Noti.	Set email notices.
7	Preset	Set preset of PTZ camera.
8	Copy Video Loss Setup	Copy the Video Loss set value to other channels. For more information about set value copy, see section "4.5.2 Stream > Main Stream in Main Stream."

Note Placing your mouse on **Alarm**, **Group Rec**, **Noti.**, **Preset** and clicking editing icon (✎) in right corner displays Event : Video Loss screen. For more information about **Event : Video Loss** screen, see section "4.6.2 Alarm In > Setup in Alarm In."

4.6.5 Notification

To set and schedule periodical alarms

Notification > Periodic

To set periodical alarms

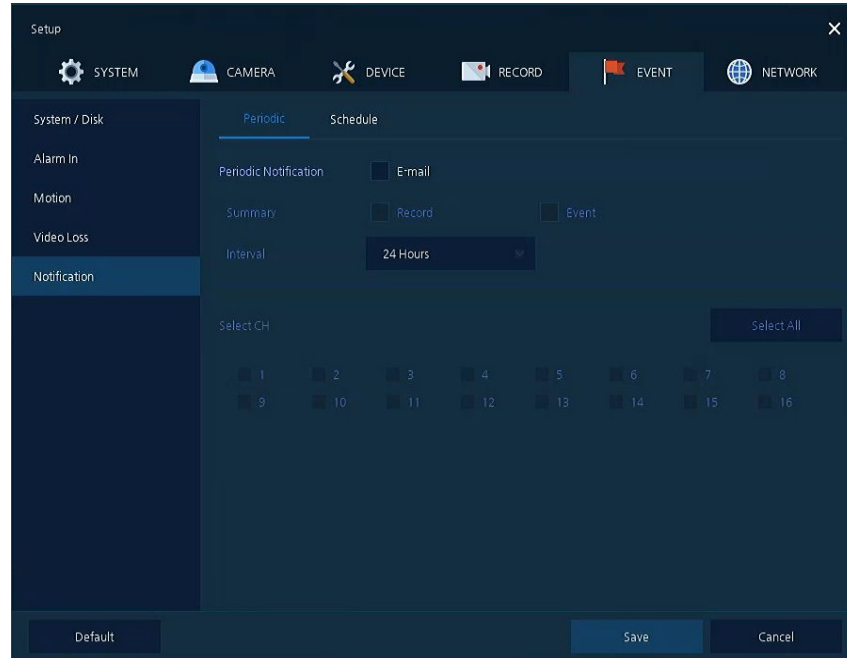


Figure 4-50 EVENT > Notification > Periodic

Table 4-52 EVENT > Notification > Periodic Item and Description

No.	Name	Function
1	Periodic Notification	Select/deselect whether to use periodical alarms.
2	Summary	Send the save or event information. Record: sending the save information Event: sending the event information
3	Interval	Set the alarm interval (5 min, 10 min, 30 min, and 1 hour, 2-hour, 6-hour, 8-hour, 12-hour, and 24-hour).
4	Select CH	Select channels users want.
5	Select All /Unselect All	Select/deselect all channels.

Notification > Schedule

To schedule remote notification (alarm & motion)

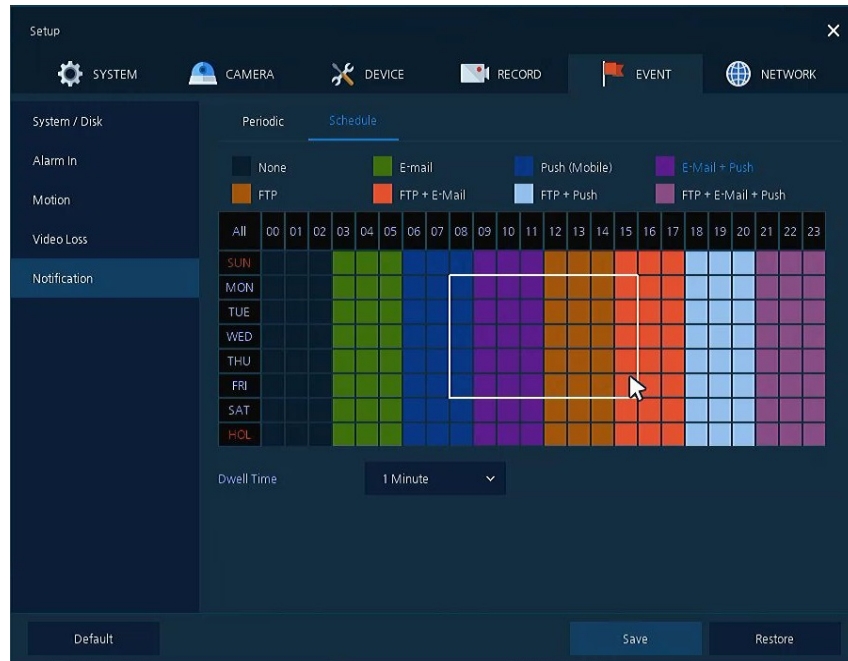


Figure 4-51 EVENT > Notification > Schedule

Table 4-53 EVENT > Notification > Schedule Item and Description

No.	Name	Function
1	Schedule Type Selection	Select the types of schedules.
2	Schedule Table	Display the schedule users set.
3	Drag Field	Display the area dragged with a mouse.

Note For more information how to schedule record time when the alarm is detected, see section "4.5.1 Schedule."

4.7 NETWORK

In **NETWORK**, users may set the network environment.

4.7.1 Basic > WAN Port

To set the network environment

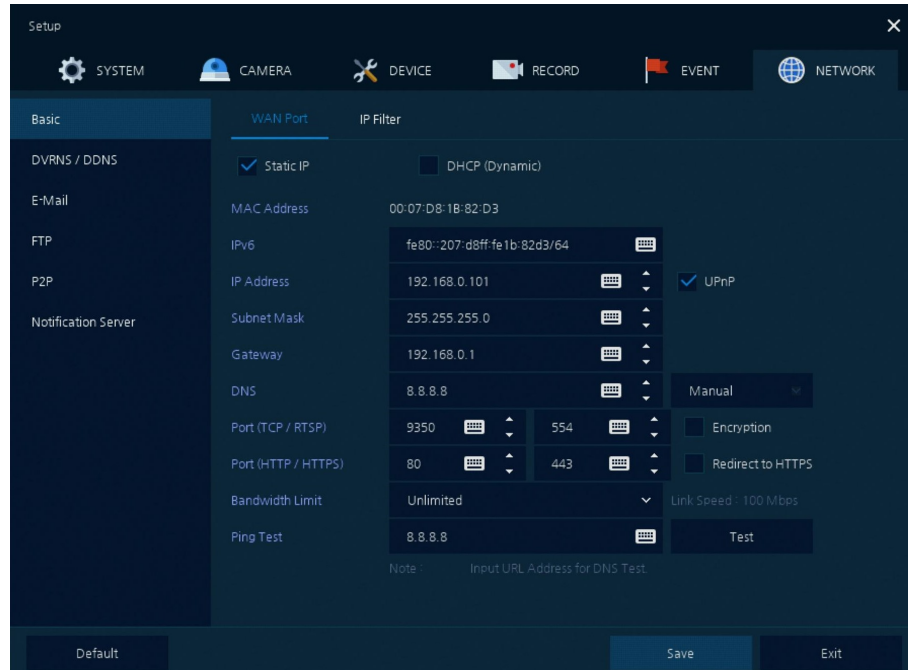


Figure 4-52 NETWORK > Basic > WAN Port

Table 4-54 NETWORK > Basic > WAN Port Item and Description

No.	Name	Function
1	Static IP	Check if you use static IP. For using static IP, enter IP address, Subnet Mask, and Gateway.
2	DHCP (Dynamic)	Select whether to use DHCP (Dynamic).
3	MAC Address	Display the MAC Address.
4	DNS	Select manual and enter DNS; otherwise choose automatic function.
5	Port (TCP)	Enter TCP port.
6	Encryption	Select the Encryption box for video data by using TCP port. Select to encrypt for video data through TCP port.
7	Port (HTTP/HTTPS)	Enter HTTP/HTTPS port.
8	Redirect to HTTPS	Select to allow HTTPS connect by request.
9	Bandwidth Limit	Select bandwidth to limit (no limits, 50Mbps, 10Mbps, 5Mbps, 2Mbps, 1Mbps, 500Kbps, 400Kbps, 300Kbps, 200Kbps, and 100Kbps).
10	Ping Test	Enter IP in Ping test and implement the text.

4.7.2 Basic > IP Filter

To set the IP connection restriction function.

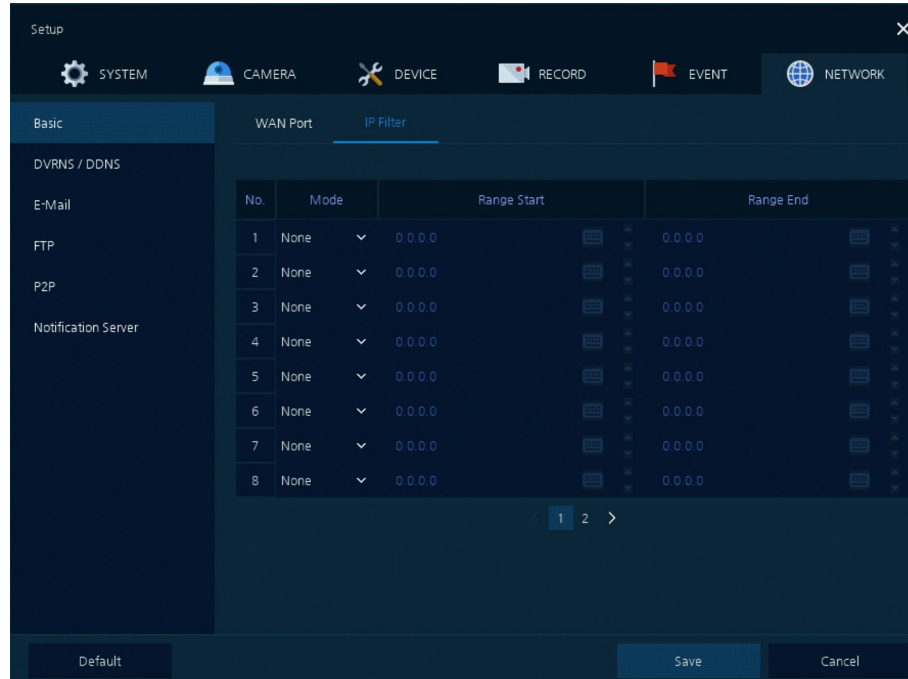


Figure 4-52 NETWORK > Basic > IP Filter

Table 4-54 NETWORK > Basic > IP Filter Item and Description

No.	Name	Function
1	Mode	Select None to disable. Select Access to access IP address range. Select Deny to restrict IP address range.
2	Range Start	Enter the Start IP address to Access or to Deny.
3	Range End	Enter the End IP address to Access or to Deny.

4.7.3 DVRNS/DDNS

To set DVRNS/DDNS

DVRNS/DDNS > DVRNS/Dashboard

To register DVRNS/Dashboard account

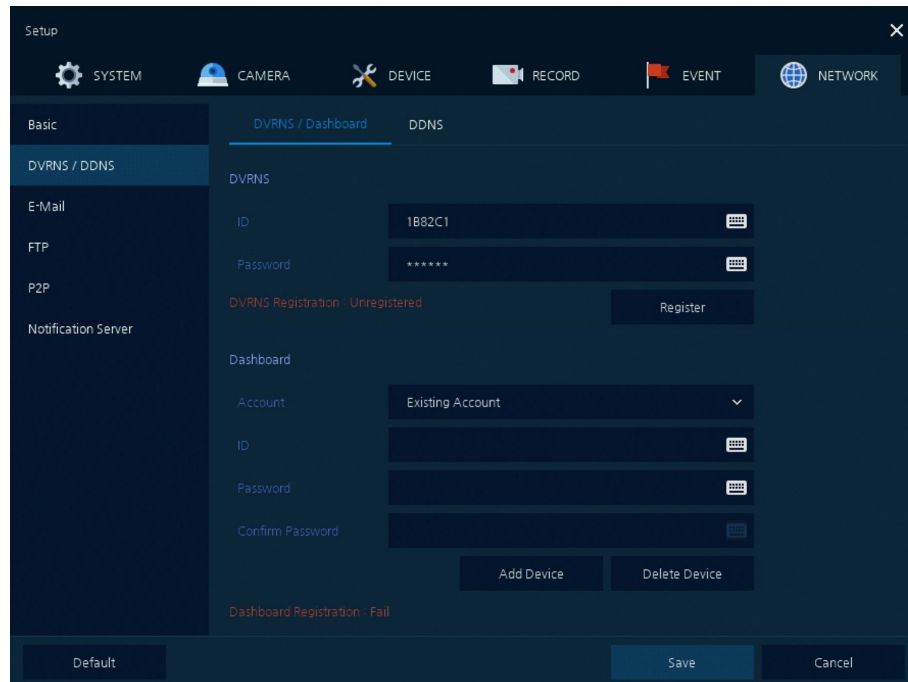


Figure 4-53 NETWORK > DVRNS/DDNS > DVRNS/Dashboard

Table 4-55 NETWORK > DVRNS/DDNS > DVRNS/Dashboard Item and Description

No.	Name	Function
1	DVRNS	Register DVRNS account. <ul style="list-style-type: none"> ▪ ID: Enter DVRNS ID (default: MAC address of the unit) ▪ Password: Enter DVRNS password ▪ Register: Register DVRNS account
2	Dashboard	Add/delete Dashboard account. <ul style="list-style-type: none"> ▪ Account: Select the types of account (Existing Account or New Account) ▪ ID: Enter Dashboard ID ▪ Password: Enter Dashboard password ▪ Add Device: Add Dashboard account ▪ Delete Device: Delete Dashboard account

DVRNS/DDNS > DDNS

To set DDNS site for remote users to access in networking

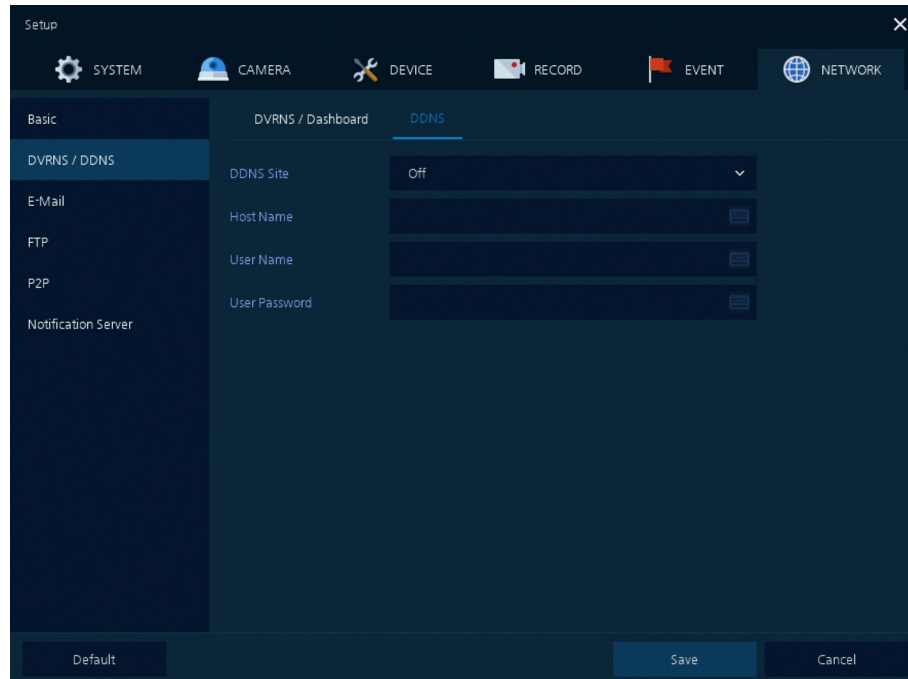


Figure 4-54 NETWORK > DVRNS/DDNS > DDNS

Table 4-56 NETWORK > DVRNS/DDNS > DDNS Item and Description

No.	Name	Function
1	DDNS Site	Select DDNS site.
2	Host Name	Enter the host name.
3	User Name	Enter the user name.
4	User Password	Enter the user password.

4.7.4 E-Mail

To set email server to send email on the occasion of event

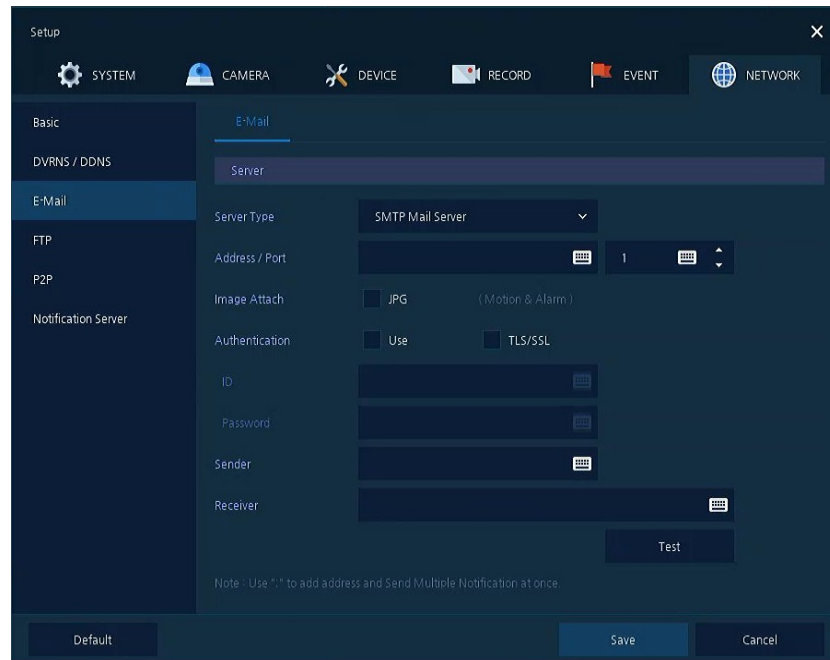


Figure 4-55 NETWORK > E-Mail > E-Mail

Table 4-56 NETWORK > E-Mail > E-Mail Item and Description

No.	Name	Function
1	Server Type	Select SMTP server. <ul style="list-style-type: none"> ▪ gmail.com ▪ hotmail.com ▪ aol.com ▪ naver.com ▪ daum.com
2	Address/Port	Enter server address and port number.
3	Image Attach	Select/deselect whether to attach JPG image.
4	Authentication	Select/deselect using authentication and password.
5	ID	Enter the email ID.
6	Password	Enter the email password.
7	Sender	Write the sender.
8	Receiver	Write the receiver.
9	Test	Verify whether the email server is set normally.

4.7.5 FTP

Set up FTP server to send video to FTP server. The file format is AVI file.

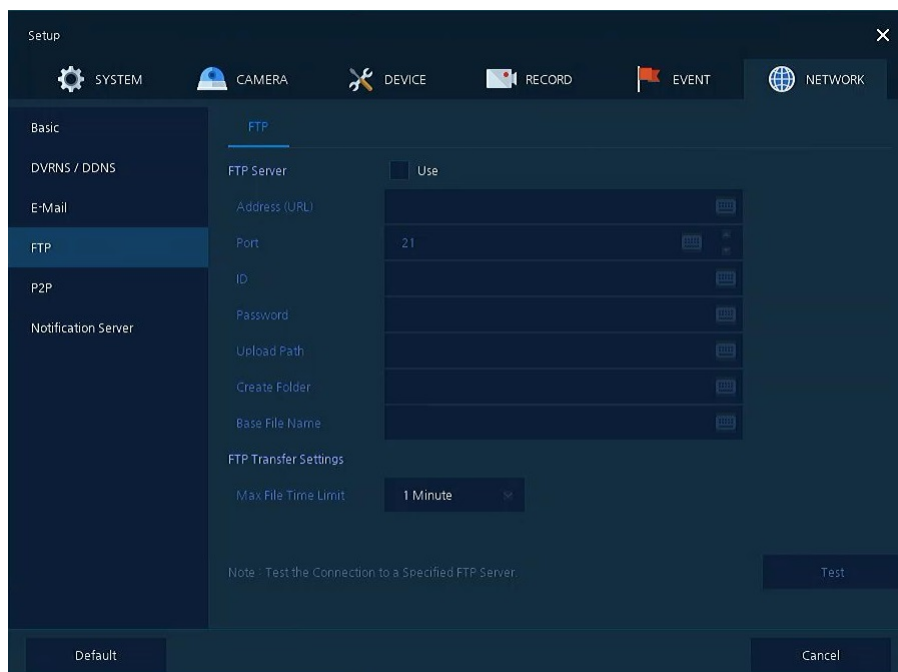


Figure 4-57 NETWORK > FTP > FTP

Table 4-57 NETWORK > FTP > FTP

No.	Name	Function
1	FTP Server	Select whether to use FTP.
2	Address(URL)/Port	Enter server address and port.
3	ID, Password	Enter ID & Password of server.
4	Upload Path	Enter upload directory.
5	Create Folder	Enter desired folder name.
6	Base File Name	Enter desired file name.
7	FTP Transfer Settings	Select max file time (1, 5, 10, 15minutes). The file format is AVI file.
8	Test	Verify whether the FTP server is set normally.

4.7.6 P2P

User can connect recorder from mobile app using QR code scan.

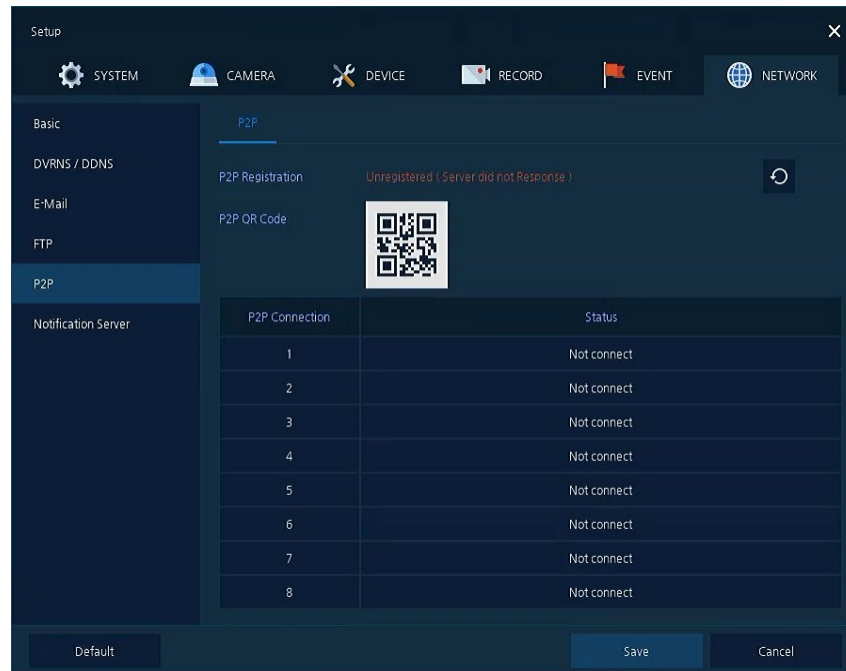



Figure 4-58 NETWORK > P2P > P2P

Table 4-58 NETWORK > P2P > P2P

No.	Name	Function
1	P2P Registration	Click  button to check up registration status.
2	P2P QR Code	Scan QR code using mobile app to connect recorder.
3	P2P Connection	Display connection status.

4.7.7 Notification Server

Notification Server > Notification Server

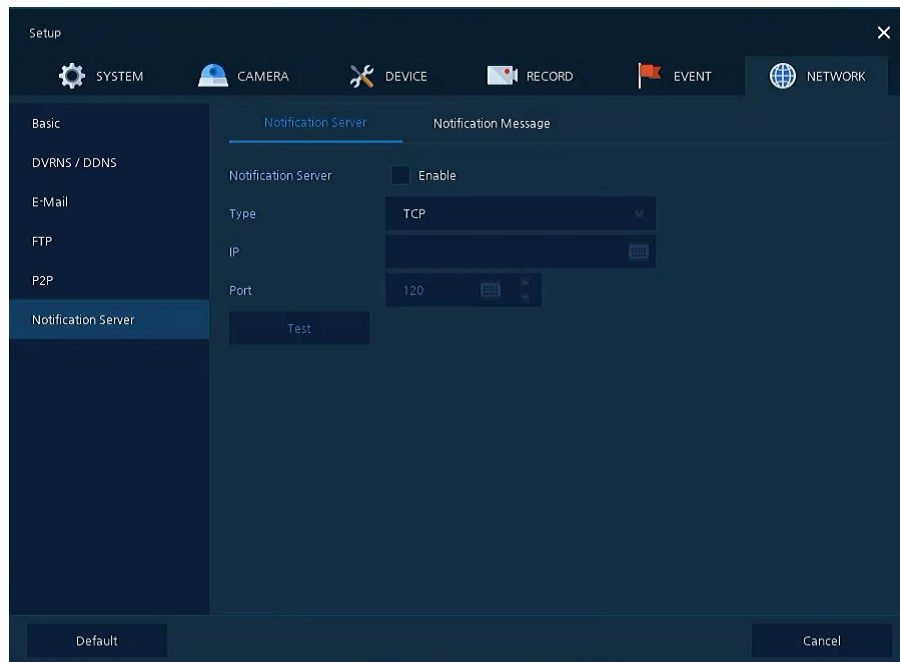


Figure 4-59 NETWORK > Notification Server > Notification Server

Table 4-59 NETWORK > Notification Server > Notification Server

No.	Name	Function
1	Notification Server	Select/deselect whether to use Notification Server.
2	Type	Select TCP or UDP Protocol.
3	IP	Enter the server IP address or host name.
4	Port	Enter the server port.
5	Test	Send a test message to the server to check the connection status. Click Save button when the transmission is successful. TCP can check the results in the recorder, but UDP should be checked in the notification server.

Notification Server > Notification Message

Set up the message to be sent to the notification server when event occurs.

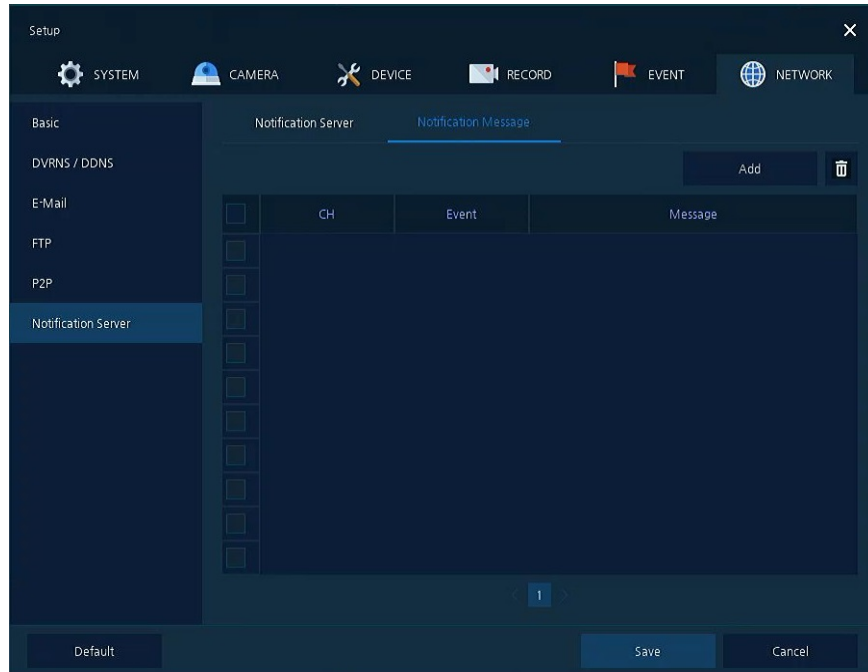



Figure 4-60 NETWORK > Notification Server > Notification Message

Table 4-60 NETWORK > Notification Server > Notification Message

No.	Name	Function
1		Deleted registered notification message.
2	Add	Notification message edit window pop-up.
3	CH	Camera channel.
4	Event	Display event type as Motion, Alarm or Video Loss.
5	Message	Display notification message.

Clicking **Add** opens **Add Message**

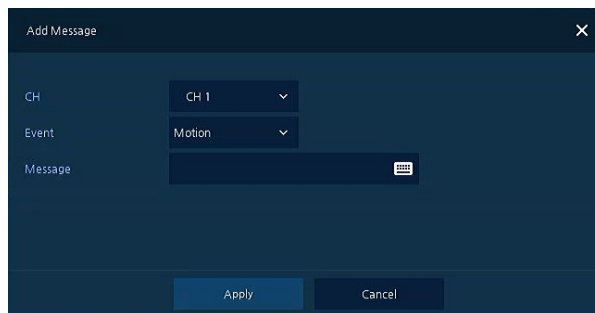


Figure 4-61 NETWORK > Notification Server > Notification Message > Add Message

Table 4-59 NETWORK > Notification Server > Notification Message > Add Message

No.	Name	Function
1	CH	Select the channel to add a message.
2	Event	Select the event type (motion, alarm, video loss).
3	Message	Create a message to send.

5. Search/Playback

This chapter describes Live Launcher search and play menu in the below screen bar.

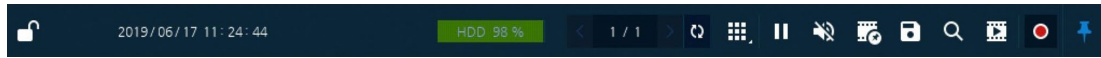


Figure 5-1 Live Launcher Search, Play menu

Table 5-1 Item and Description of Live Launcher Search, Play menu

No.	Item	Description
1		Search recorded data (time, event, thumbnail, smart search and text).
2		Playback recorded data.

5.1 Search

This function searches recorded data as Time, Event, Thumbnail, Smart Search and Text.

Search > Time

Recording data is searched by date and time.

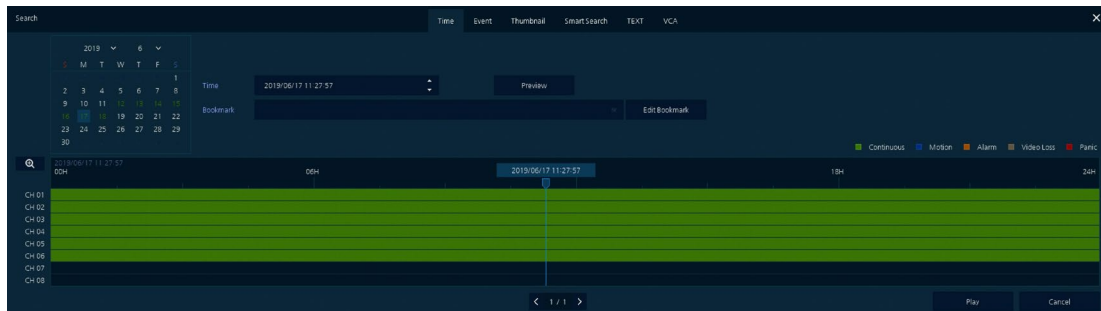


Figure 5-2 Search: Time

Table 5-2 Search: Time Item and Description

No.	Item	Description
1	Calendar	Selecting the date to search.
2	Time	Setting time to search.
3	Bookmark	Selecting a bookmark to search.
4	Timeline	Display timelines across channels.
5	Preview	Previewing video clips searched.
6	Play	Playing video clips. For more information about Live bar, see section "5.2 Playback".
7	Cancel	Ending search screen.

Search > Event

Recording data is searched by event type.

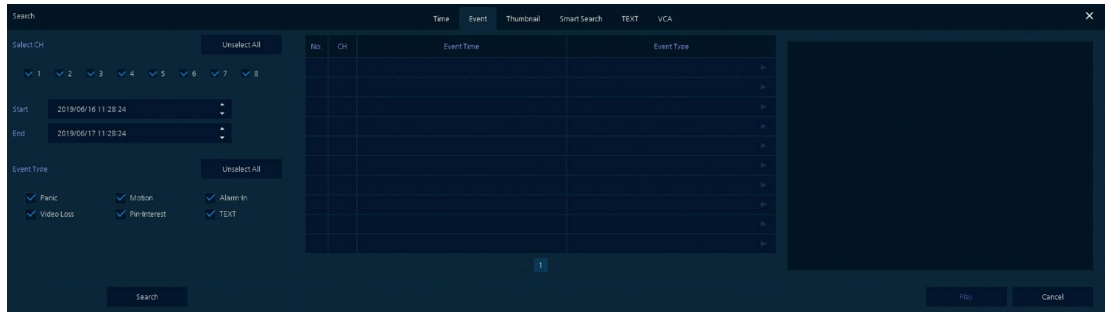


Figure 5-3 Search: Event

Table 5-3 Search: Event Item and Description

No.	Item	Description
1	Select CH	Select channels to search.
2	Select All /Unselect All	Select/deselect all channels.
3	Start	Setting starting time to search.
4	End	Setting ending time to search.
5	EVENT TYPE	Selecting the types of event (immediate recording, motion, Alarm-In, Video Loss, and bookmark).
6	Search	Searching the event.
7	Event List	Displaying event list searched.
8	Thumbnail Field	Displaying thumbnail images of selected event.
9	Play	Playing video clips selected. For more information about Live bar, see section "5.2 Playback".
10	Cancel	Ending search screen.

Search > Thumbnail

Recording data is searched and played back as a thumbnail image at intervals of time.

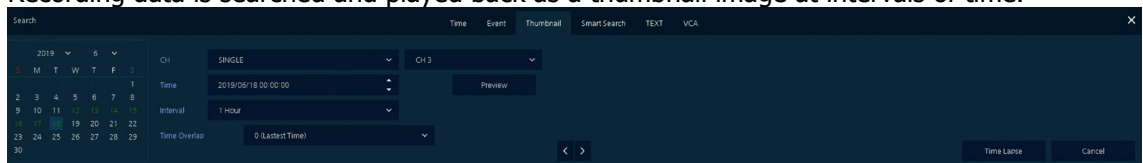


Figure 5-4 Search: Thumbnail

Table 5-4 Search: Thumbnail Item and Description

No.	Item	Description
1	Calendar	Selecting dates to search.
2	CH	Selecting channels to search.

No.	Item	Description
3	Time	Selecting time to search.
4	Interval	Setting time interval for searching images.
5	Time Overlap	Selecting the overlapping section to play if there is a duplicate of the same time by changing the time.
6	Time Lapse/Pause	Playing or stopping videos searched.
7	Cancel	Ending search screen.

Search > Smart Search

Recording data is searched by detecting change of specific area.

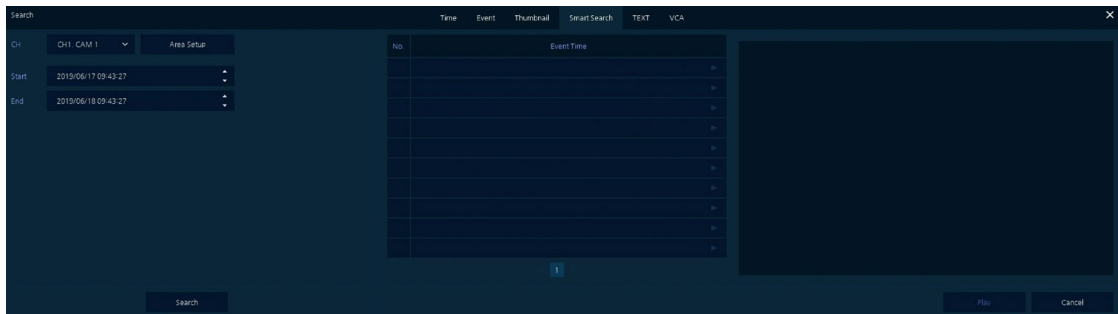


Figure 5-5 Search: Smart Search

Table 5-5 Search: Smart Search Item and Description

No.	Item	Description
1	CH	Selecting channels to search.
2	Area Setup	Select area to search motion event.
3	Start	Setting starting time to search.
4	End	Setting ending time to search.

Search > TEXT

Recording data is searched by keyword.

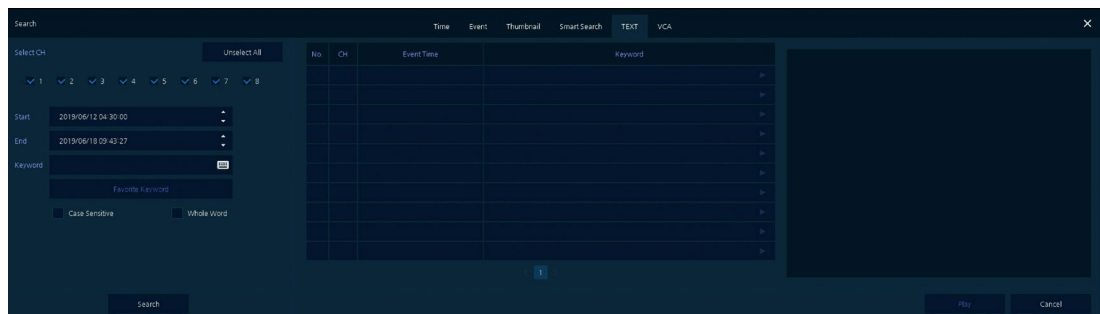


Figure 5-6 Search: TEXT

Table 5-6 Search: TEXT Item and Description

No.	Item	Description
1	Select CH	Select channels to search.
2	Select All /Unselect All	Select/deselect all channels.
3	Start	Setting starting time to search.
4	End	Setting ending time to search.
5	Keyword	Entering keyword to search.
6	Case Sensitive	Searching items in case-sensitive.
7	Whole Word	Searching items that include all words.
8	Search	Searching the event.
9	Event List	Displaying event list searched.
10	Thumbnail Field	Displaying thumbnail images of selected event.
11	Play	Playing video clips selected. For more information about Live bar, see section "5.2 Playback".
12	Cancel	Ending search screen.

Search > VCA

Recording data is searched by VCA event type.

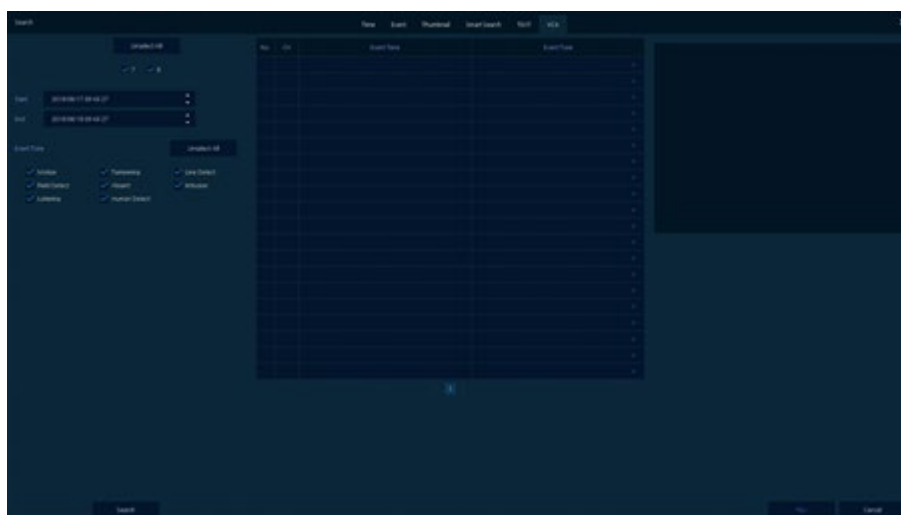


Figure 5-7 Search: VCA

Table 5-7 Search: VCA Item and Description

No.	Item	Description
1	Select CH	Selecting channels to search
2	Start, End	Set start time and end time.
3	Event Type	Selecting VCA event type.

No.	Item	Description
4	Search	Search VCA event.
5	Event List	Displaying event list searched
6	Thumbnail Field	Displaying thumbnail images of selected event
7	Play	Playback selected event.
8	Cancel	Ending search screen

5.2 Playback

To play recorded data.



Figure 5-8 Playback Launcher

Table 5-8 Playback Launcher Item and Description




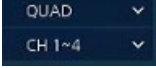

No.	Item	Description
1		Displaying present play status.
2	Date and Time	Displaying date and time of playing videos.
3		Moving to the first section of the video.
4		Playing the videos with multiplied speed in reverse (2~64x).
5		Playing the videos with lower speed in reverse (1/2~1/8x).
6		Play backward, forward and pause the videos.
7		Play forward step.
8		Play fast forward (2~64x).
8		Go to last section of the video.
9		Moving to previous/next partition screens.
10		Selecting the partition mode to mark in the screen.
11		Audio output on-off (toggle).
12		Searching the recorded data (time, event, thumbnail, smart search and text). For more information about search, see section "5.1 Search".
13		Closing playing videos and moving to live screen.
14		Opening or closing the record timelines.
15		Activating/deactivating automatic hidden function of Launcher menu.

Clicking opens **Record Time-Line**.



Figure 5-9 Playback Launcher > Record Time-Line

Table 5-9 Playback Launcher > Record Time-Line Item and Description

No.	Name	Function
1	Time lines	Shows the recording status. Select the desired time with the mouse to playback.
2		Add bookmarks at the selected time in the Time line.
3		Run a Manual backup. See "3.2.1 Backup" to display detailed information about back-up.
4		Open the calendar window and select a date from the calendar.
5		Show time bar by single channel, 4channels or all channels.
6		Show time line by 1hour or 24hours (toggle).

Click mouse right button to open **quick menu** in the playback mode.

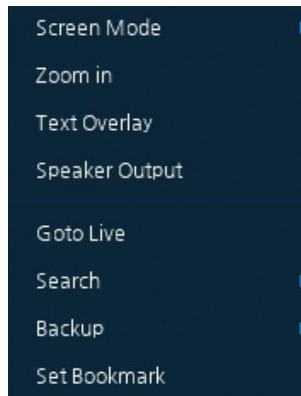


Figure 5-10 Playback Quick menu

Table 5-10 Playback Quick menu

No.	Item	Description
1	Screen Mode	Select the partition mode of live screen (Full, 2X2, 3X3, and 4x4).
2	Zoom in	Magnify selected live screen (2x, 4x, and 8x). This menu is shown full screen mode only.
3	Text Overlay	POS text overlay on the screen. This menu is shown when enable Text menu.
4	Speaker Output	Recorded audio output.
5	Goto Live	Stop playback and return to live mode.
6	Search	Open Search window.
7	Backup	Open manual backup menu.

No.	Item	Description
8	Set Bookmark	Save the bookmark.

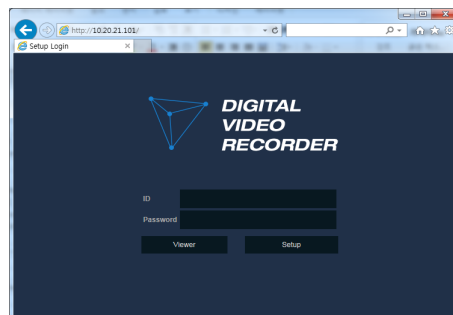
6. Webviewer

This chapter describes webviewer for monitoring videos through a PC in remote mode.
How to monitor with webviewer.

Table 6-1 System Requirement for Webviewer

Item	Recommended	Minimum
OS	Microsoft® Windows® 10 x86(64bit) (Home Premium, Professional, Ultimate) Microsoft® Windows® 8(pro, Enterprise)	Microsoft® Windows® XP Home SP3
CPU	Intel Core™ i5-2550 3.30GHz or higher	Intel Core™ 2 Duo E7200 2.53GHz or higher
RAM	2GB or higher	1.5GB or higher
VGA	ATI Radeon™ HD 3650 or NVIDIA GeForce 8400GS or higher(1280x1024, 32bpp or Higher), Multi Monitor	ATI Radeon™ HD 2400 or NVIDIA GeForce FX5500 or higher(1024x768, 24bpp or higher)
HDD	Over 6GB	Over 1GB
LAN	Gigabit Ethernet	10/100 Mbps Ethernet

- Enter IP address of a recorder in
- Internet browser.

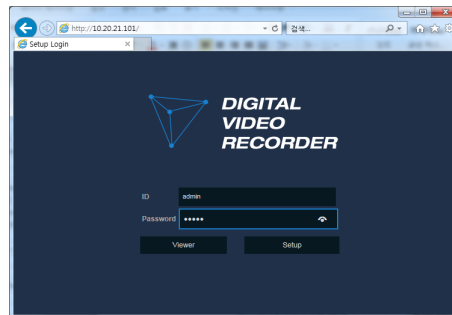


- 2 Enter ID and Password, and then click the button.
 - Viewer: playing NVR Live images
 - Setup: setting menu in similar ways with NVR connected monitor.

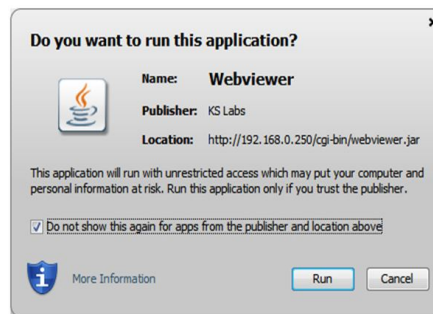
For using Viewer, users need to download Java. The way to download is shown as follows:

In case of selecting Viewer(Internet Explorer)

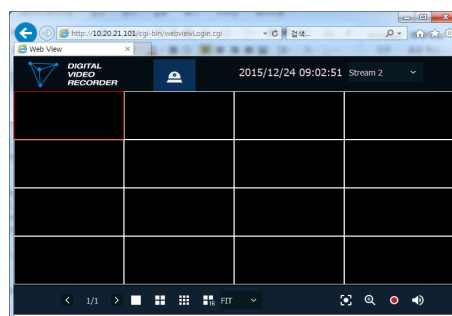
- 1 **Click Viewer.**



- 2 When Java download screen opens, download and install JAVA.

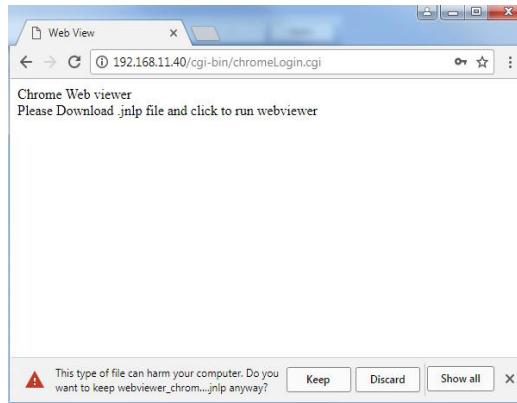


- 3 **Live images may be monitored.**

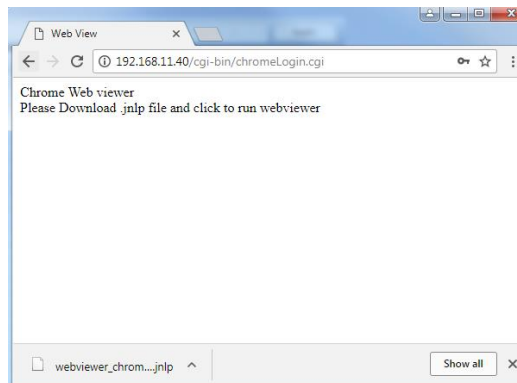


In case of selecting Viewer(Chrome)

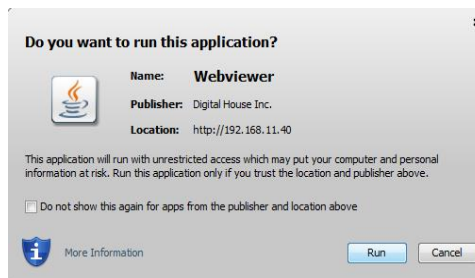
- 1 **After click Viewer**, .jnlp file can be downloaded.
Click **Keep** button.



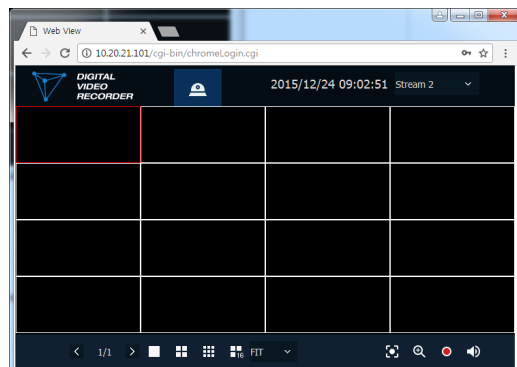
- 2 **Click webviewer_chrome.jnlp.**



- 3 When Java download screen opens, download and install JAVA.



- 4 **Live images may be monitored.**



In case of selecting Setup

Users can set the menu in similar ways with NVR connected monitor.

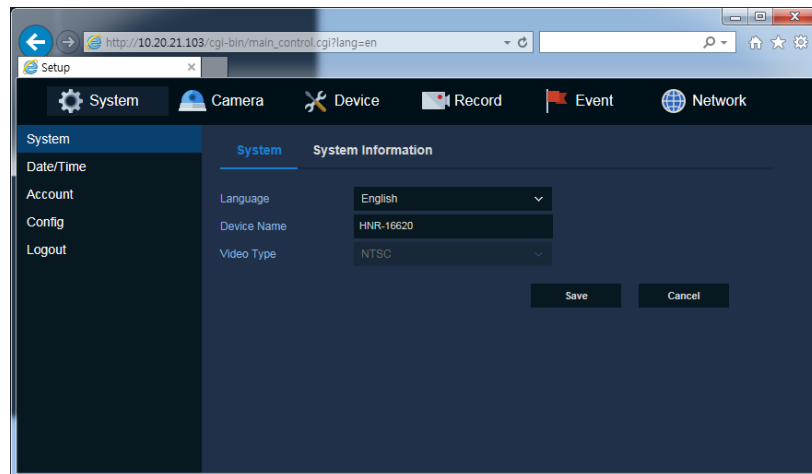


Figure 6-1 Setup screen

7. Products Specifications

Channel		4CH(2HDDs)	8CH(2HDDs)	16CH(2HDDs)
Video Input Channel		Up to 4ch (4 BNC, 1 IP configurable)	Up to 8ch (8 BNC, 2 IP configurable)	Up to 16ch (16 BNC, 4 IP configurable)
Video Input Type		AHD, TVI, CVBS, IP	AHD, TVI, CVBS, IP	AHD, TVI, CVBS, IP
Video Input Resolution	BNC	5M, 4M, 1080p, 720p, 960H, D1(CVBS)	5M, 4M, 1080p, 720p, 960H, D1(CVBS)	5M, 4M, 1080p, 720p, 960H, D1(CVBS)
	IP	Up to 3M	Up to 3M	Up to 3M
Display Output		1 VGA, 1 HDMI, 1 BNC(Spot, CVBS)	1 VGA, 1 HDMI, 1 BNC(Spot, CVBS)	1 VGA, 1 HDMI, 1 BNC(Spot, CVBS)
Display Resolution	HDMI	3840x2160, 1920x1080, 1280x720, 1024x768	3840x2160, 1920x1080, 1280x720, 1024x768	3840x2160, 1920x1080, 1280x720, 1024x768
	VGA	3840x2160, 1920x1080, 1280x720, 1024x768	3840x2160, 1920x1080, 1280x720, 1024x768	3840x2160, 1920x1080, 1280x720, 1024x768
	Spot	1.0 Vp-p (75 ohm, Composite)	1.0 Vp-p (75 ohm, Composite)	1.0 Vp-p (75 ohm, Composite)
Display Speed		Up to 120fps (80fps @ 5M)	Up to 240fps (160fps @ 5M)	Up to 480fps (320fps @ 5M)
Display Mode	VGA, HDMI	1/4 Split, Sequence	1/4/9/16 Split, PIP, Sequence	1/4/9 Split, PIP, Sequence
	Spot	1/4 Split, Sequence	1/16 Split, Sequence	1/9 Split, Sequence
Compression		H.264 / H.265	H.264 / H.265	H.264 / H.265
Recording Resolution	BNC	5M, 4M, 1080p, 720p, 960H	5M, 4M, 1080p, 720p, 960H	5M, 4M, 1080p, 720p, 960H
	IP	Up to 3M	Up to 3M	Up to 3M
Recording Speed		Main stream : 48fps@5M, 60fps@4M, 120fps@1080p Sub Stream : 120fps@VGA	Main stream : 96fps@5M , 120fps@4M, 240fps@1080p Sub Stream : 240fps@VGA	Main stream : 192fps@5M, 240fps@4M, 480fps@1080p Sub Stream : 480fps@VGA
Recording Mode		Continuous, Motion, Alarm, C+M, C+A, M+A, C+M+A, Panic	Continuous, Motion, Alarm, C+M, C+A, M+A, C+M+A, Panic	Continuous, Motion, Alarm, C+M, C+A, M+A, C+M+A, Panic
Pre Alarm		1sec ~ 5sec	1sec ~ 5sec	1sec ~ 5sec
Post Alarm		5sec ~ 1Hour	5sec ~1Hour	5sec ~1Hour
Simultaneous Playback		1/4 Split	1/4/9 Split	1/4/9/16 Split
Playback Mode		Backward, Forward 2x~64x	Backward, Forward 2x~64x	Backward, Forward 2x~64x
Search Mode		Time, Event, Thumbnail, Text, Smart(motion)	Time, Event, Thumbnail, Text, Smart(motion)	Time, Event, Thumbnail, Text, Smart(motion)
Internal HDD		2 SATA Interfaces	2 SATA Interfaces	2 SATA Interfaces
External Storage		iSCSI	iSCSI	iSCSI

Backup	USB	USB	USB
Backup File Format	AVI, H4V	AVI, H4V	AVI, H4V
PTZ & OSD Control	RS485, UTC	RS485, UTC	RS485, UTC
Text In	POS/ATM (Network, RS485, USB)	POS/ATM (Network, RS485, USB)	POS/ATM(Network, RS485, USB)
User Interface	Mouse, USB/RS485 Keyboard	Mouse, USB/RS485 Keyboard	Mouse, USB/RS485 Keyboard
Ethernet	1 RJ45 10/100/1000 Base-T	1 RJ45 10/100/1000 Base-T	1 RJ45 10/100/1000 Base-T
Max. Network Throughput	Unlimited (Guarantee 72Mbps, Support Bandwidth Control)	Unlimited (Guarantee 144Mbps, Support Bandwidth Control)	Unlimited (Guarantee 288Mbps, Support Bandwidth Control)
Remote Monitoring	CMS, Mobile, Web, Dashboard	CMS, Mobile, Web, Dashboard	CMS, Mobile, Web, Dashboard
Audio	4 RCA Input 1 RCA, 1HDMI Output	4 RCA Input 1 RCA, 1HDMI Output	4 RCA Input 1 RCA, 1 HDMI Output
Alarm	4 Input / 1 Output (Terminal block)	4 Input / 1 Output (Terminal block)	4 Input / 1 Output (Terminal block)
Serial Port	2 RS485(Terminal block)	2 RS485(Terminal block)	2 RS485(Terminal block)
USB	3 USB (Front : 2 / Rear : 1)	3 USB (Front : 2 / Rear : 1)	3 USB (Front : 2 / Rear : 1)
Operating Humidity	0 ~ 90% RH (Non-condensing)	0 ~ 90% RH (Non-condensing)	0 ~ 90% RH (Non-condensing)
Operating Temperature	'0°C ~ +40°C	0°C ~ +40°C	'0°C ~ +40°C
Power Supply	12VDC, 3.3A	12VDC, 5A	12VDC, 5A
Power Consumption	Max. 30W(Include 2HDD)	Max. 35W(Include 2HDD)	Max. 37W(Include 2HDD)
Dimension(WxHxD)	375x44.9x318.2mm	375x44.9x318.2mm	375x44.9x318.2mm
Net Weight	2.3Kg(Exclude HDD)	2.3Kg(Exclude HDD)	2.5Kg(Exclude HDD)

※ Specifications are subject to change without notice.



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