



# Technical news letter

2022 Collection

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# 1. NVR / DVR

# P/X series NVR function overview table

Info. Type

Quality  Settings  Repair  Firmware  Etc

## 1. Applicable to:

- 64CH/32CH/16CH/8CH/4CH P/X series NVR



## 2. Product feature table

P series

Model		PRN-6400DB4	PRN-6405DB4	PRN-6400B4 PRN-3200B4/B2 PRN-1600B2	PRN-6405B4 PRN-3205B4/B2 PRN-1605B2
Features					
	Cooling Fan	o	o	o	o
	P2P	o	o	o	o
	Joystick	o	o	o	o
	Extended Monitor	o	o	o	o
	Failover(FO)	o	o	o	o
	Alarm	o	o	o	o
	RAID	o	o	o	o
	Distributed Recording	o	o	o	o
	iSCSI	o	o	o	o
AI Compatibility	AI Search	o	o	o	o
AI Recognition	Object Detection	o	o	o	o
	LPR Search	o	x	o	x
Redundant Power		o	o	x	x
PoE		x	x	x	x
Fisheye Dewarping		o	o	o	o

X series

Model		XRN-6410DB4	XRN-6410B4/RB2 XRN-3210B4/RB2	XRN-6410B2 XRN-3210B2	XRN-1620B2	XRN-1620SB1 XRN-820S	TBD
Features							
	Cooling Fan	o	o	o	o	o	o
	P2P	o	o	o	o	o	o
	Joystick	o	o	o	o	o	o
	Extended Monitor	o	o	o	o	o	o
	Failover(FO)	o	o	o	o	o	o
	Alarm	o	o	o	o	o	o
	RAID	o	o	x	x	x	x
	Distributed Recording	o	o	o	x	x	x
	iSCSI	o	o	o	x	x	x
AI Compatibility	AI Search	o	o	o	o	o	o
AI Recognition	Object Detection	x	x	x	x	x	x
	LPR Search	x	x	x	x	x	x
Redundant Power		o	x	x	x	x	x
PoE		x	x	x	x	o	o
Fisheye Dewarping		o	o	o	x	x	x

# Info on RAID levels

Info. Type  Quality  Settings  Repair  Firmware  Etc

## 1. RAID-applied model

- X86 NVR: PRN-6410B4/6400DB4/6400B4/3200B4/6405DB4/6405B4/3210B4/3205B4  
XRN-6410B2/6410DB4/6410B4/3210B4/3210RB4/1620B2
- Appliance: PRO-7410B6, PRP-4000H8/5000H16, XRP-4010B2/4110B2/4310DB4/4210B4
- Legacy: PRN-4011, XRN-2011/2011A(RAID5), XRN-811S(RAID1), HRD-443(RAID1)

## 2. RAID Level List

division		RAID 0 Striping	RAID 1 Mirroring	RAID 5 Stripe + Parity	RAID 6 Double Parity
Minimum Qty (HDD)	X86 NVR, Appliance	Inoperable	Inoperable	5	5
	Legacy	2	2	5 (* XRN-2011(A): 4)	6
Array operation status in case of HDD failure	1 unit failure	Inoperable	Operable ※ Replacement required	Operable ※ Replacement required	Operable ※ Replacement required
	2 unit failure	Inoperable	Inoperable	Inoperable	Operable ※ Replacement required
	3 unit failure	Inoperable	N/A	Inoperable	Inoperable
Faulty Tolerance		Low	High	Medium	High
Array Speed		Fast	Slow	Fast	Medium
Storage Usage ※ N = HDD configuration Qty [Example in case of N=6 ]		N [100%]	N/2 [50%]	(N-1)/N [83%]	(N-2)/N [66%]

## 3. Service guide

- It is recommended to periodically check the RAID status.
  - In case of degradation, the bad HDD should be replaced immediately to prevent array data loss.
- It is recommended to carry out periodic backup management of important data.
- It is recommended to replace the HDD that has been used in RAID configuration over the HDD continuous operation lifespan (usually 2 years).

### ※ RAID status value

NVR Menu > Device > Storage Media > Check

- Degraded: Indicates that a HDD constituting the RAID Array is faulty.  
(HDD replacement is required immediately)
- Rebuilding: Indicates that RAID recovery is in progress when replacing the number of failed HDDs allowed by the RAID levels.
- Fail : Indicates that the RAID array cannot be used/recovered.

# About Dynamic Layout

Info. Type

- Quality  Settings  Repair  Firmware  Etc

1. **Applicable To** : 25 types of x86 series NVR (PRN-6410B4 etc.)

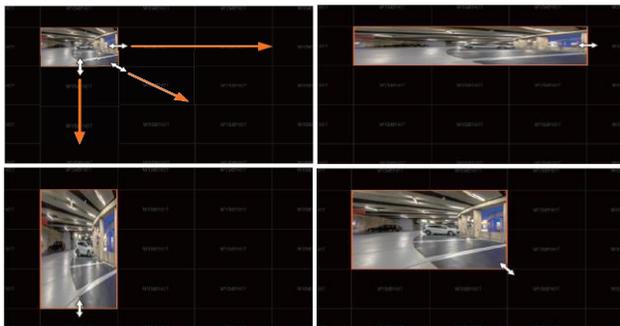
2. **Purpose** : Introducing highly useful functions among 4.10.10 Integrated F/W improvements

### 3. Dynamic Layout?

- This function is to freely set the number, size, and position of videos to be assigned to the layout

### 4. Feature Information

#### [Video Zoom-In/-Out Function]



- It is possible to zoom in by dragging the corners or vertices of the video in the desired direction.
- It is possible to zoom out step by step by double-clicking the edge or vertex of the enlarged video.
- It is possible to zoom in only when there is an empty area around the video allocated.

#### [Video Moving Function]



- Click the video, and then drag and drop it to the desired location.
- Dragging the video outside its layout area to expand the layout.
- The enlarged video can be moved only when there is an empty area big enough to cover its size.

### 5. Example of Function Application (Setting 6ch Camera Layout from 16 Layout)

Existing Settings				Improvements Applied		
1	2	3	4	1		2
5	6					5
				3	4	
				6		

◆ After updating the firmware , it is recommended to delete the existing layout and then perform the reset operation.

# Introduction to and use of Manual Trigger functions

Info. Type

Quality  Settings  Repair  Firmware  Etc

## 1. Applicable To

- All x86 NVRs (based on search on the website)

TYPE	Model
Dual SMPS + 16Bay	PRN-6400DB4, XRN-6410DB4
16 Bay	PRN-6400B4, PRN-3200B4, XRN-3210B4, XRN-6410B4
8 Bay	PRN-3200B2, PRN-1600B2, XRN-6410B2, XRN-3210B2, XRN-1620B2
Raid For B2 model	XRN-6410RB2, XRN-3210RB2
PoE Switch	XRN-1620SB1, XRN-820S

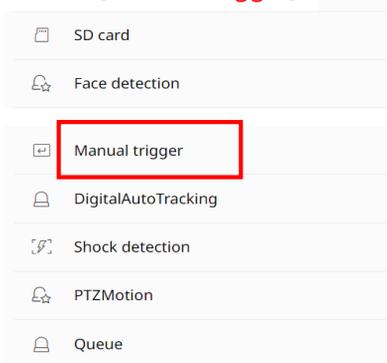
## 2. Purpose

- In order to make it simple for the user to manually execute a preset operation on a specific channel (Convenience ↑)
- Examples of actions used: alarm output, e-mail, system shutdown, monitor event, mobile push, FTP (When user coding is used) fan, heater, wiper, auto tracking, preset, reboot, etc.)

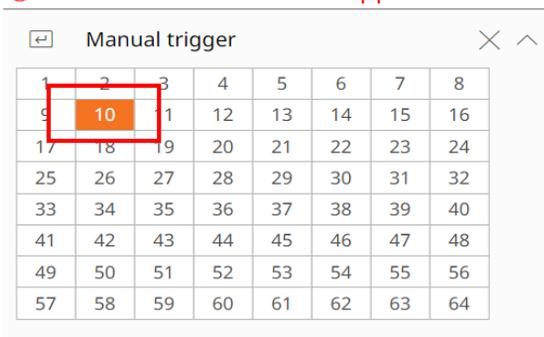
## 3. How to set

- Settings → Events → Event rule settings → Click the [Add] button to set in the following order:

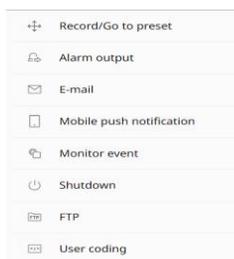
### ① Select [Manual Trigger]



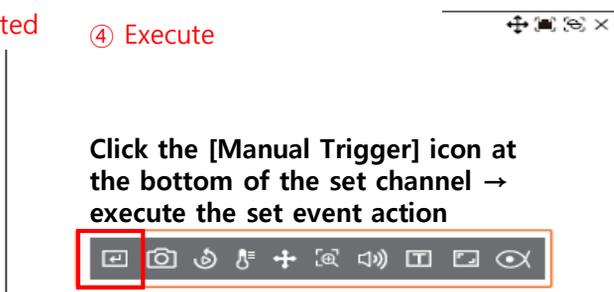
### ② Select the channel to be applied



### ③ Select the event action to be executed



### ④ Execute



## 4. User Coding ※ You can check the SUNAPI commands used for user coding on our STEP site.

- User Coding in the event action options, is a function used for setting the SUNAPI command that you want to send to the camera and for making the camera operate according to the set SUNAPI command when the [Manual Trigger] button is clicked.

# A Guide to New NVR Dust Filter Replacement

Info. Type  Quality  Settings  Repair  Firmware  Etc

## 1. Application Object and Filter Part No.

- Dust Filter Function: It has a function of filtering foreign substances at the time of influx of outside air through the front cover.

Representative Model	Product Name (Application Model)	Filter Part No
PRN-3210B2 Series	PRN-3210B2/1610B2/3200B2/3205B2/1600B2/1605B2 XRN-6410RB2/3210RB2/XRN-3210R	HP04-001964A
PRN-6410DDB4 Series	PRN-6410B4/6400B4/6405B4 PRN-3210B4/3200B4/3205B4 PRN-6410DB4/6400DB4/6405DB4	HP04-001868A
XRN-6410B4 Series	XRN-6410B4/3210B4 XRN-6410DB4/6410DR	
XRP-4310DB4 Series	XRP-4310DB4/4210B4	

## 2. Filter Replacement method & arrangement

(1) Type having a locking system: There is a Dust Filter at the back when opening a lock



(2) Type having no locking system: There is a Dust Filter at the back of removed Front Case when pressing a red circle part.



## 3. Dust Filter Maintenance Method

- Dust Filter is made of MESH material, and it is reusable after wash.

MESH material is liable to be torn when it is given a violent jerk. A user is advised to wash it in the running water like dusting.

A user is advised to replace Dust Filter in 2~3-year cycle, and supply is available with service materials.

# Guide to XRP series NVR setting tool

Info. Type

Quality  Settings  Repair  Firmware  Etc

## 1. Applicable models

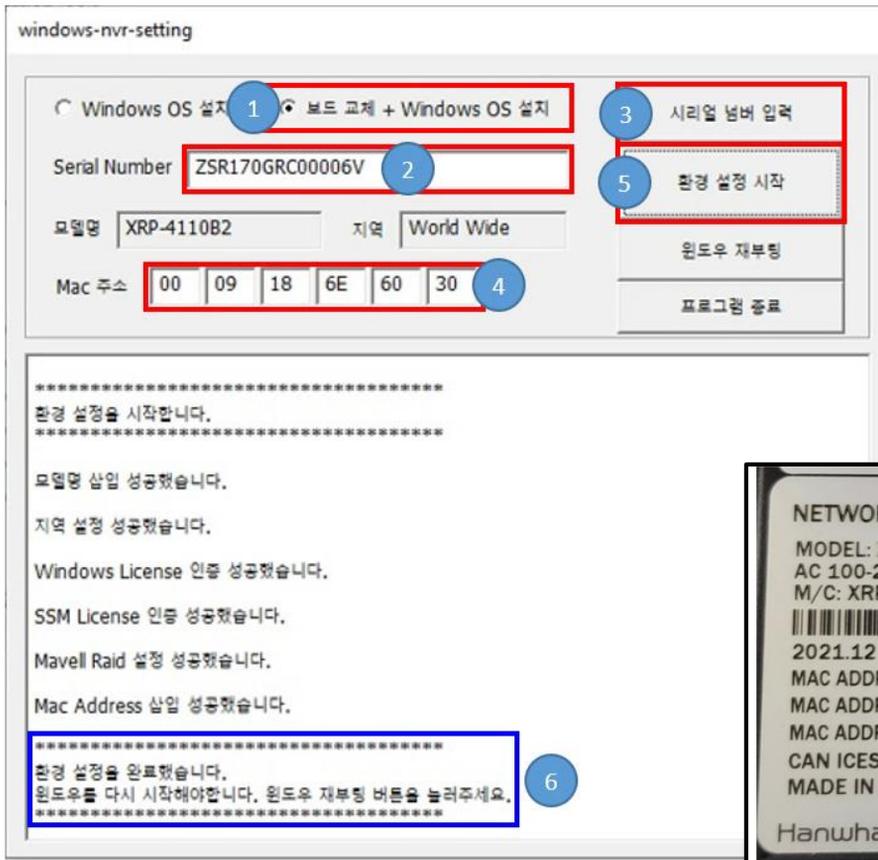
- XRP-4010B2/4110B2/4210B4/4310DB4

## 2. Purpose

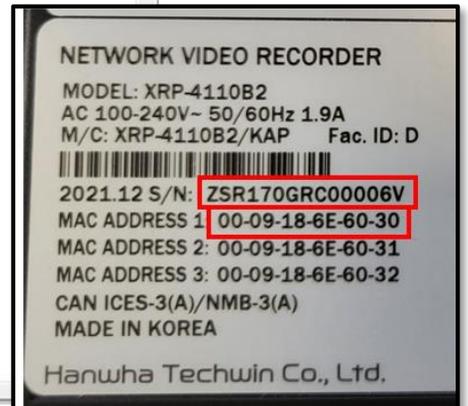
- To input S/N and MAC ADDRESS after replacing the main board,

## 3. Procedures for using the tool

- ① Select board replacement
- ② Serial number: Enter the serial number shown on the device label
- ③ Input the serial number: Press the button to check the output model name and region
- ④ Mac address: Enter the MAC ADDRESS 1 shown on the device label.
- ⑤ Start configuration: Run the configuration set with the information input in the system.
- ⑥ After confirming the completion message “Configuration is complete”, reboot the system.



[Information on the label]



※ Download the Windows-NVR-setting tool : [www.4cust.net](http://www.4cust.net) → Information Plaza → Archive

# Info on x86 NVR firmware update

Info. Type  Quality  Settings  Repair  **Firmware**  Etc

**1. Applicable to:** Intel chipset applied x86 NVR 30 model (Based on the basic model name))

**- Names of applied models and firmware version**

Model names	Old version	New version
PRN-6410DB4, PRN-6400DB4, PRN-6405DB4, PRN-6410B4, PRN-6400B4 PRN-6405B4, PRN-3210B4, PRN-3200B4, PRN-3205B4 PRN-3210B2, PRN-3200B2, PRN-3205B2, PRN-1610B2, PRN-1600B2, PRN-1605B2  XRN-6410DB4, XRN-6410B4, XRN-3210B4 XRN-6410RB2, XRN-3210RB2, XRN-6410B2, XRN-3210B2 XRN-1620B2, XRN-1620SB1, XRN-820S	v 4.10.10 211125133213	<b>v 5.20.10</b>

**- Precautions for Firmware Update**

- . To upgrade from the initial version, please update the Bridge version first.  
( Example : For PRN-6410DB4 v 4.02.00 → Bridge v 4.06.22 → v 4.10.10 or v 5.20.10 )

**2. Release Schedule:** October 2022

**3. Revisions** (Refer to the release note for details.)

Categories	Details
<b>Function &amp; Specs</b>  <b>New Functions</b>	<ul style="list-style-type: none"> <li>- Camera Setup (Installation Wizard)                             <ul style="list-style-type: none"> <li>. After registering the camera, selecting a scene and applying channel</li> <li>. Applying the recording schedule and bitrate of the standard installation scene of Toolbox+</li> <li>. Calculating the number of recording days by calculating the expected amount of recording</li> </ul> </li> <li>- Storage setup (Installation Wizard)                             <ul style="list-style-type: none"> <li>. Adding storage media settings to the installation wizard</li> <li>. Applying normal, distributed recording, and RAID settings</li> <li>. Supporting format and operation without reboot</li> </ul> </li> <li>- Vehicle access management                             <ul style="list-style-type: none"> <li>. Implementation of functions (e.g., license plate search support, list input, gate alarm, etc.) by strengthening interworking with ANPR camera (Duricomtech / Hanwha Techwin) and event search (Korea-oriented function: compatible with the XNO-6085RA camera)</li> </ul> </li> <li>- Adding the live screen 1-split channel movement function: Moving to previous/next channel by double-clicking</li> <li>- Software upgrade reservation: Automatic upgrade reservation/ cancellation</li> </ul>

# Info on x86 NVR firmware update

Info. Type  Quality  Settings  Repair  Firmware  Etc

## 3. Revisions (Refer to the release note for details.)

Categories		Details
Function & Specs	New Functions	<ul style="list-style-type: none"> <li>- Applying the default dark theme to the entire web page setting menu</li> <li>- Instant Browser               <ul style="list-style-type: none"> <li>. Supporting camera webpage acces, and trying ONVIF connection as well</li> <li>. Displaying a pop-up including necessary information in case of the following restrictions                   <ol style="list-style-type: none"> <li>1) In case of no user channel permissions</li> <li>2) In case of a covert channel</li> <li>3) In case of no access right to the <i>Camera_Profile_Event Setup</i> page</li> </ol> </li> </ul> </li> <li>- Adding the alarm setting function               <ul style="list-style-type: none"> <li>. Alarm setting in case of video loss : Adding user setting</li> <li>. NVR alarm input and channel mapping</li> <li>. Event - mapping channel to alarm input</li> <li>. Alarm function (e-mail, Push MSG) in case of failed login attempts consecutively (5 times)</li> </ul> </li> </ul>
	Improvements	<ul style="list-style-type: none"> <li>- Released restrictions on display layout</li> <li>- Changed the layout supporting the 64CH model's expand mode               <ul style="list-style-type: none"> <li>. For X-series 64CH models, supporting 64CH monitoring in expand mode Old (52CH) : 36CH + 16CH → New (64CH) : 32CH + 32CH</li> </ul> </li> <li>- Improved Wisenet protocol camera HTTPS registration scenario               <ul style="list-style-type: none"> <li>. Made changes to support https connection by selecting a secure TLS connection like manual ONVIF protocol camera registration.</li> </ul> </li> <li>- Improved Audio/Video sync.               <ul style="list-style-type: none"> <li>. Fixed 1 second difference in audio/video sync when playing for more than 1 hour and playing backup</li> </ul> </li> <li>- Fixed display fps drop when zooming in high resolution video</li> <li>- Supported the ability to cancel or stop the process during event search               <ul style="list-style-type: none"> <li>. In case of stopping due to an event search option incorrectly input or prolonged search time</li> </ul> </li> <li>- Fixed an error in SSM smart search linkage</li> <li>- Added distributed storage support for 16CH P-series NVR (PRN-1610),</li> <li>- Changed the min number of HDDs in RAID configuration: Old: 6→New: 5</li> <li>- Changed P2P Server: Old: TUTK P2P solution → New: HTW Hummingbird</li> <li>- Changed the default IP address : For W/W PoE port, applied the default IP Add: 192.168.200.200</li> <li>- Adjusted live4NVR resolution (640x480, 640x360, 480x480) to 512Kbps.</li> </ul>

※ The firmware can be downloaded from the website: <https://www.hanwha-security.com>

# Changing the NVR CSLOG download path

Info. Type  Quality  Settings  Repair  Firmware  Etc

## 1. Applicable to : Intel chipset-applied x86 NVR 30 models (Based on basic model names)

Model Name	Old Version	New Version
PRN-6410DB4, PRN-6400DB4, PRN-6405DB4, PRN-6410B4, PRN-6400B4 PRN-6405B4, PRN-3210B4, PRN-3200B4, PRN-3205B4 PRN-3210B2, PRN-3200B2, PRN-3205B2, PRN-1610B2, PRN-1600B2, PRN-1605B2  XRN-6410DB4, XRN-6410B4, XRN-3210B4 XRN-6410RB2, XRN-3210RB2, XRN-6410B2, XRN-3210B2 XRN-1620B2, XRN-1620SB1, XRN-820S	v 4.10.10 211125133213	<b>v 5.20.10</b>

## 2. Changing the CSLOG download path after firmware update

- It is possible to extract CSLOG by accessing the changed URL after updating the firmware

(Ver. 5.20.10)

Version	CSLOG Download Path
Old Version V 4.10.10	URL : <a href="http://(IP address)/cslog.php">http://(IP address)/cslog.php</a>
New Version V 5.20.10	URL : <a href="http://(IP address )/uwa/#/ cslog">http://(IP address )/uwa/#/ cslog</a>  

## 3. Precautions

- The CORE file is created only when there is a reboot issue.
- Please send the password you entered when downloading CSLOG.

# Info on PRN-4011 Firmware Update

Info. Type

Quality  Settings  Repair  Firmware  Etc

## 1. Applicable To

- Model name : PRN-4011
- F/W Upgrade Version : v2.50\_210826120202)

## 2. Changes

Categories	Contents
Improvements	. Fixed the problem that decoding was not performed at a specific resolution in the clone mode of the monitor
	. Fixed the character truncation error when outputting Group ID in Wisenet Mobile
	. Fixed the problem that unrecoverable video loss occurred when changing the IP address of a URL-registered camera
	. Fixed the problem that booting took a longer time intermittently when the system was booted abnormally.
	. Fixed the problem that the Time Bar of Timeline on the time search page does not appear
	. Fixed the problem of ONVIF camera UI hang

# Info on XRP-4310DB4/4210B4 Firmware Update

## 1. Applicable to

- Model Name : XRP-4310DB4/4210B4
- F/W Upgrade version : XRP-4310DB4\_2.10.12

## 2. Changes

Categories	Contents
Improvements	. Made improvements to enable clustering operation

## 3. How to Patch

- How to take action
  - 1) Stop starting the entire System Manager
  - 2) Run the Patch file
    - . Download from the website ( [hanwha-security.com](http://hanwha-security.com) )
  - 3) Try clustering after starting the entire System Manager

# Info on Pentabrid III DVR Firmware update

Info. Type  Quality  Settings  Repair  Firmware  Etc

1. **Applicable to** : 6 Pentabrid III series models (based on basic model names)

- **Applied model name and firmware version**

Model Name	Old Version	New Integrated Version
HRX-1634 , HRX-1635 , HRX-835A HRX-1635-TE, HRX-835-TE	v 5.07.12_ 220808182258	<b>v 5.09.11_221014192035</b>
HRX-435FN-TE		<b>V 5.09.11_221014192012</b>

2. **Release Schedule** : Nov. 1, 2022

3. **Revisions** ( refer to Release Note for details )

Categories		Details
Function & Specs	New Functions	<ul style="list-style-type: none"> <li>- Added the video loss retention time setting function (prevents frequent alarm output)                             <ul style="list-style-type: none"> <li>. In case of 1-10 video loss retention seconds (configurable), the corresponding event is triggered</li> </ul> </li> <li>- Added alarm-linked channel setting function                             <ul style="list-style-type: none"> <li>. The function is used to set the channel linked to the sensor event.</li> </ul> </li> <li>- Add an event to recover the system after video loss and to stop manual recording</li> <li>- Added online software upgrade scheduling function                             <ul style="list-style-type: none"> <li>. It is possible to do monthly/weekly/daily online software upgrade and to set the inspection and execution time.</li> </ul> </li> <li>- Added an option to resize the camera CH name displayed on the screen (3 Steps)</li> <li>- Added regional information to GMT: Old: Korea GMT+9 → New: Korea (Seoul) GMT+9</li> </ul>
	Performance Improvement	<ul style="list-style-type: none"> <li>- Additionally improved the performance of the camera video transmission part in the storage system</li> <li>- Corrected the guide text for automatic login support when entering automatic camera registration</li> <li>- Reduced the time to enter the camera/event setup (8 → 2 seconds)</li> <li>- Made modifications not to allow automatically checked UPnP when selecting a WiseNet DDNS.                             <ul style="list-style-type: none"> <li>. Fixed the problem that certain routers are blocked during automatic UPnP connection.</li> </ul> </li> </ul>
Bug Fix		<ul style="list-style-type: none"> <li>- Fixed an issue where certain channels were missing during export                             <ul style="list-style-type: none"> <li>. Event storage data (backup start time) not included at the start of export</li> </ul> </li> </ul>

※ The firmware is downloadable on our website: <https://www.hanwha-security.com>

# How to install a public SSL/TLS certificate

Info. Type

Quality  Settings  Repair  Firmware  Etc

1. Applicable to : All NVR products

2. Purpose :

- To guide our customers on how to register a public certificate when they want to use a HTTPS public certificate.

※ If the storage device is connected to the external Internet network or is installed in an environment where security is important, it is recommended to use HTTPS connection.

3. How to register

1) Access the NVR web page and move to the Setup screen

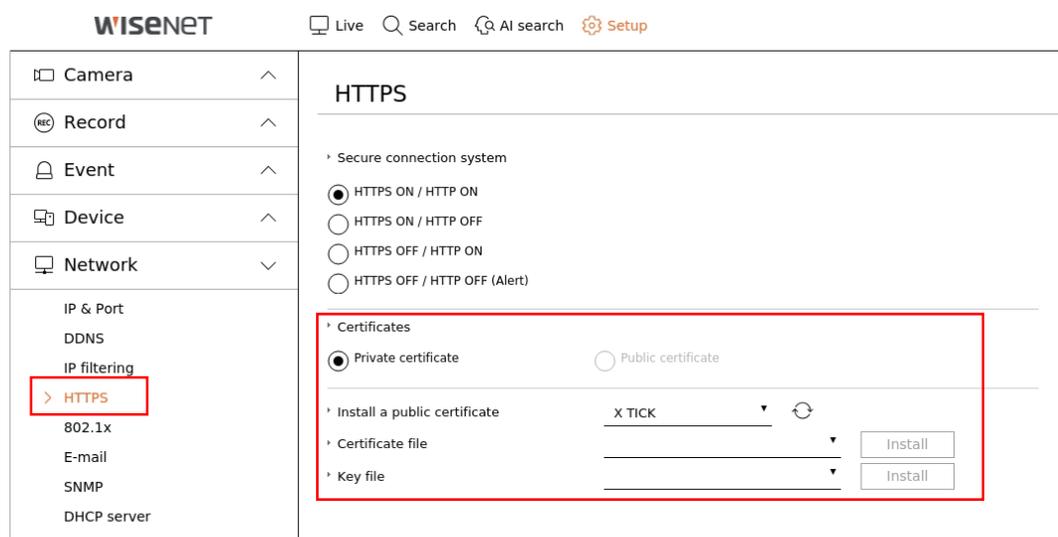
※ Setup > Network > HTTPS

2) Select a certificate type : < Private certificate > < Public certificate >

- If the “Private Certificate” option is selected, secure connection will be made using the self-certificate provided by the storage device..

- You can select the “Public certificate” option after installing a public certificate first.

※ Install a certificate file/key file issued by a certificate authority



4. Precautions

- If the certificate’s extension is “cer”, modify it to “crt” and then install it.

Filename ( Example )	OS	Remarks
security.hanwha.com. cer	Window	NVR cannot be installed
security.hanwha.com. crt	Linux	NVR can be installed



## 2. NW / Analog Camera

# Network Camera Power Priority

Info. Type

Quality  Settings  Repair  Firmware  Etc

## 1. Applicable To : All Network Cameras

## 2. Power Supply Priority

- In case of simultaneous operation, the power is divided in half and supplied at the same time.
- The power supply ratio can be changed according to the DC / AC / PoE input voltage situation. When one power source is removed, 100% of the remaining power is supplied.

Product Category	Representative Model Name		Power Type					Power Supply Priority
			HPoE	PoE+	PoE	AC24V	DC12V	
Q Series 2M	All Models	QND-6012R QNO-6082R	-	-	O	-	O	Adapter First
	Mobile	QNV-6024RM	-	-	O	-	-	PoE only
Q Series 5M	All Models	QNV-8080R QND-8010R	-	-	O	-	-	PoE only
Q BOX	BOX	QNB-6002	-	-	O	-	O	Adapter First
WN5 Basic	Bullet	XNO-6080R	-	-	O	O	O	Adapter First
	Dome	XND-6080RV	-	-	O	-	O	
	Vandal	XNV-6080R	-	-	O	O	O	
	FISHEYE	XNF-8010R	-	-	O	-	O	
WN5 X-Plus	Dome	XND-6081RV	-	-	O	-	O	1. DC/PoE: Simultaneous Op. 2. AC/PoE: Adapter First
	Vandal	XNV-6081R	-	-	O	O	O	
WNLite	All Models	XND-L6080V	-	-	O	-	-	PoE only
L Series	All Models	LND-6012R	-	-	O	-	-	PoE only
Multi Imager	Model-Specific	PNM-9084QZ PNM-9322VQP	O	-	-	-	-	HPoE only
		PNM-9084RQZ	O	-	-	-	O	Adapter First
		PNM-7002VD PNM-9000VD	-	-	O	-	-	PoE only
		PNM-9022V	-	O	-	-	O	DC/PoE+: Simultaneous Op.
		PNM-9002VQ PNM-8082VT	-	O	-	-	-	PoE+ Only
WN7 4K, 6M	Bullet	XNO-9082R	-	-	O	O	O	Adapter First
	Vandal	XNV-8082R	-	-	O	O	O	1. DC/PoE: Simultaneous Op. 2. AC/PoE: Adapter First
	Dome	XND-8082R	-	-	O	-	O	
	FISHEYE	XNF-9010RV	-	-	O	-	O	DC/PoE: Simultaneous Op.
WN7 X Core	All Models	XND-C6083RV	-	-	O	-	O	Adapter First
WN7 X Plus	All Models	XNV-6123R	-	O	-	-	O	DC/PoE+: Simultaneous Op.
	BOX	XNB-6003	-	-	O	-	O	Adapter First
WN7 PTZ	WIPER	XNP-6400RW	O	-	-	-	-	HPoE only
	DOME IR	XNP-6400R						
	DOME	XNP-6400	-	O	-	-	-	PoE+ only
PoE+ PTZ		QNP-6230	-	O	-	O	-	first-in-first-out
AI Camera	All Models	PNV-A9081R PNO-A9081R	-	O	-	-	O	DC/PoE+: Simultaneous Op.

# About a new Moisture Absorbent

Info. Type

Quality  Settings  Repair  Firmware  Etc

**1. Applicable to:** All types of machines , to which a moisture absorbent is applied

**2. Application Schedule**

- Scheduled to apply the new moisture absorbent in order starting in March

**3. Expected Effect of the new Moisture Absorbent**

- Improvement of more than 3 times the product moisture absorption lifespan in comparison with the existing moisture absorbent

- Available for a moisture absorbent replacement cycle extension for unsold inventory by virtue of moisture absorption lifespan extension while they are in storage

**4. Comparison of Moisture Absorbent Characteristic**

- Existing moisture absorbent (Bentonite of clay material) → New moisture New moisture absorbent( Combined with special polymer)

Classification	Existing Moisture Absorbent	New Moisture Absorbent
Photo		
Characteristic	<ul style="list-style-type: none"> <li>. It is made of natural clay mineral-Bentonite. (Expansible mineral composed of silica and aluminum )</li> <li>. It has a characteristic, in which absorbed moisture is emitted outside again through the drying process.</li> <li>. It absorbs moisture about 20~30% of the self weight, and emits about 50% of the amount of absorbed moisture again.</li> </ul>	<ul style="list-style-type: none"> <li>. It exists in the form of granule through the composition of natural mineral-Bentonite and calcium chloride</li> <li>. It minimizes the amount of moisture re-emission at the time of the drying process by solidifying moisture through the chemical reaction when absorbing moisture.</li> <li>. It absorbs moisture up to 80~110% of self weight, and re-emission amount is low at the level of 20~30% of the moisture absorption amount.</li> </ul>
Replacement deadline	Long-term inventory moisture absorbent for more than 6 months in in need of replacement	Long-term inventory moisture absorbent for more than 12 months is in need of replacement

**5. New Moisture Absorbent Material Nu.**

- **PM02-003026A (6g existing ) → PM02-006173A (6g new)**

※ Request for service material is available starting in June..

# Guide to how to maintain and purchase N/W CAM SD cards

Info. Type  Quality  Settings  Repair  Firmware  Etc

## 1. Target Models

- Network PTZ , Network Camera (models with microSD Card support)

## 2. Service Guide

- 1) It is recommended to replace your SD card after 6 months of its use (the lifespan varies depending on the data storage method of each SD card)
  - Read/Write lifespan: MLC (up to 10,000 times) , TLC (up to 500 times)
  - It is recommended to format the SD card every 1 month.
- 2) It is recommended to use products from SanDisk and Transcend manufacturers
- 3) It is recommended to use an SD card with MLC, Class 10 or higher, and **high endurance**

Memory Card		SLC (Single-Level Cell)	MLC (Multi-Level Cell)	TLC (Triple-Level Cell)	QLC (Quad-Level Cell)
Speed	Read	Fastest	Fast	Mid	Slow
	Write	Fastest	Fast	Mid	Slow
Storage Density		1 bit per cell	2 bits per cell	3 bits per cell	4 bits per cell
Price		Very Expensive	Mid	Cheap	Very Cheap
Lifespan		About 100,000 cycles	About 10,000 cycles	About 500 cycles	About 100 cycles

※ SLC memory cards have not been pervasive due to its high unit cost.

QLC memory cards have been avoided in the market due to its low stability.

Currently, the types of memory cards mainly used in the market are MLC and TLC.

It is recommended to use the MLC type for security equipment and to use the TLC type for mobile use.

It is recommended to use an highly endurance SD card allowing 24HR continuous recording.

## 3. Precautions

- Potential problems when using SD cards, not the MLC type
  - There is a concern that an event has occurred according to the System LOG but hasn't been recorded on such SD cards.
  - There is a concern that some cameras may not recognize such SD cards.

# Info on improved PTZ Camera FAN noise reduction

Info. Type  Quality  Settings  Repair  Firmware  Etc

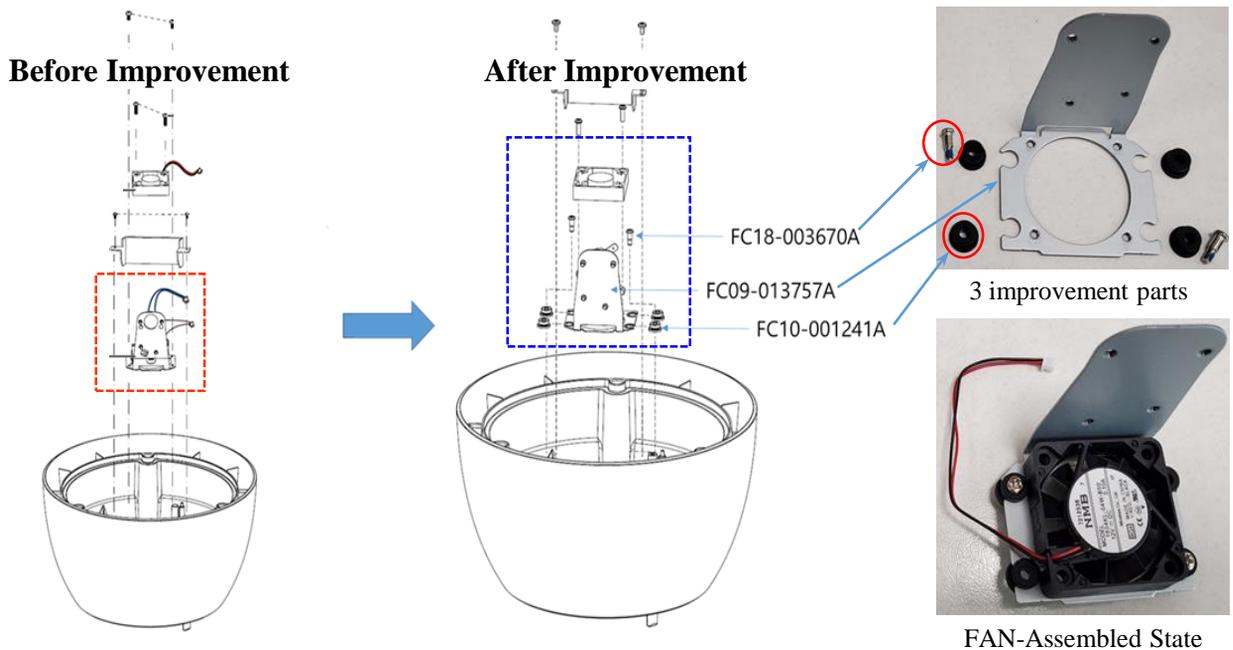
**1. Applicable To:** IR PTZ Camera

. XNP-62xxRH,XNP-63xxRH(G),PNP-9200RH,QNP-6230RH,SNP-6320\_6230RH,SNP-L6233RH

**2. Application Schedule:** Manufacturing after July 2022

**3. Improvements:** FAN noise & vibration damping structure applied

- A damper is applied to attenuate noise and vibration generated during fan rotation.



- Noise measurement result (improvement effect): about 20% reduction (there is a deviation depending on the assembly state)

**4. Service Response Standards**

- Response to the VOC caused by noise generation related to the installation environment or replacement in case of FAN failure

- Parts information (1set)

No.	Part Name	Before change, Part No.	After change, Part No.	Qty.
1	BRACKET-FAN HEATER MOUNT	FC09-000627A	FC09-013757A	1
2	RUBBER-RH PTZ FAN DAMPER	-	FC10-001241A	4
3	SCREW	Z6001053501A	FC18-003670A	2

# PTZ camera motion detection/IVA setup guide

Info. Type  Quality  **Settings**  Repair  Firmware  Etc

## 1. Target models

- Network PTZ cameras that support motion detection and intelligent video analytics(IVA) (XNP-6400R, XNP-8250, etc.)

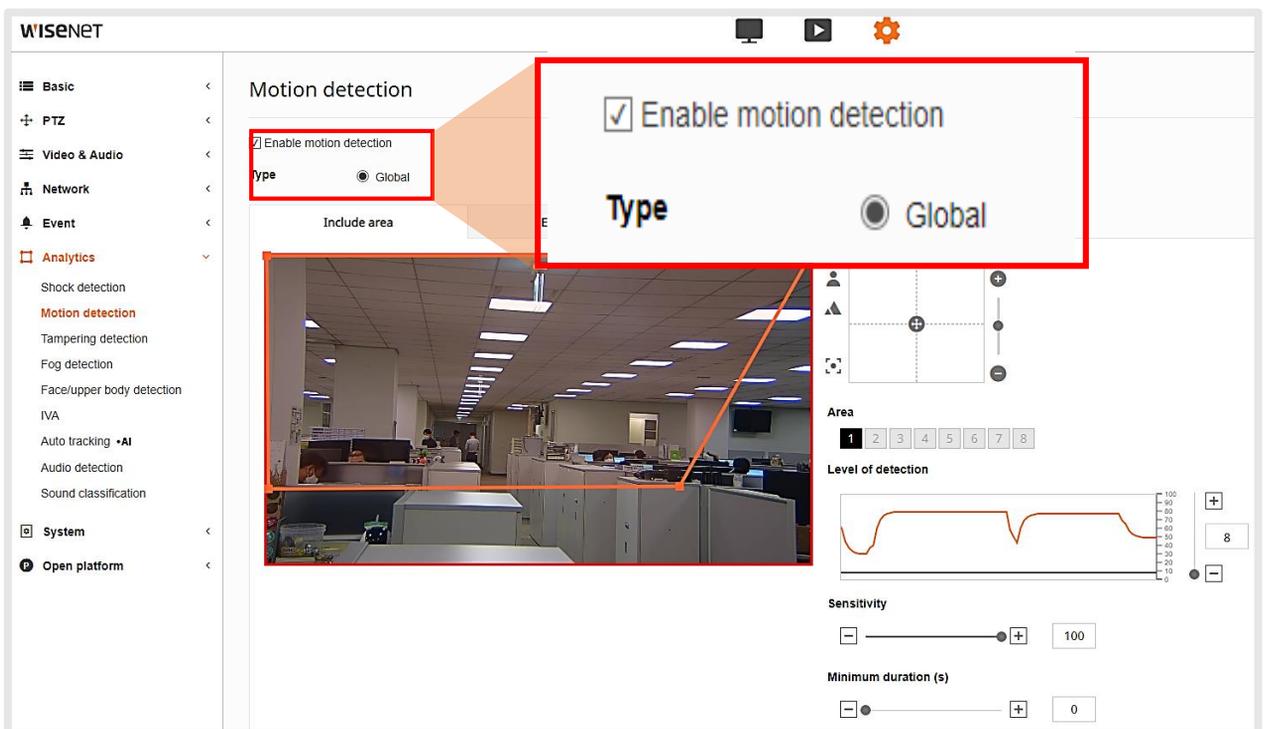
## 2. Background

- To guide you through setting for analysis(Motion Detection/IVA) of PTZ camera's normal screen and preset screen videos

## 3. How to set up

1) General screen control

**Camera Setup** > **Analytics** > **Motion Detection/IVA** > Check the 'Enable Motion Detection /IVA' option  > Select the 'Global' option



2) Preset screen control

**Camera Setup** > **PTZ** > **PTZ Setup** > **Preset Tab** > Select the 'Preset' option > **Apply**

-After setting the Home and preset area, select the desired number-specific follow-up action.

-Activate both preset settings and general settings. Refer to the manual for the details.

# PTZ camera motion detection/IVA setup guide

Info. Type

Quality

Settings

Repair

Firmware

Etc

## 2) Preset screen control

- Detailed Preset settings

- Follow-up action: Select the follow-up action to be executed after go to the 'Preset' menu

Auto Run/Auto Tracking/Video Analytics, not applicable to the Swing function

- Video analytics: Follow-up action > Video analytics > select the 'Motion detection/IVA' option

Click the navigation key ▶ on each preset number in order to move to the general setting window, and then activate the desired functions.

Follow-up action	Tracking time	Go to menu
Video analytics	10 seconds	Motion detection
Auto tracking	10 seconds	Camera setup

No.	Name	Follow-up action	Tracking time	Go to menu
1	1	Video analytics	10 seconds	Motion detection
2	2	Auto tracking	10 seconds	Camera setup

Enable motion detection

Type:  Global  Preset 2:2

Include area Exclude area Common



※ **Caution:** Check the function enabling box  to activate the function for each Preset number

# Guide to setting up the camera's SMB connection to a NAS

Info. Type  Quality  Settings  Repair  Firmware  Etc

## 1. Applicable to:

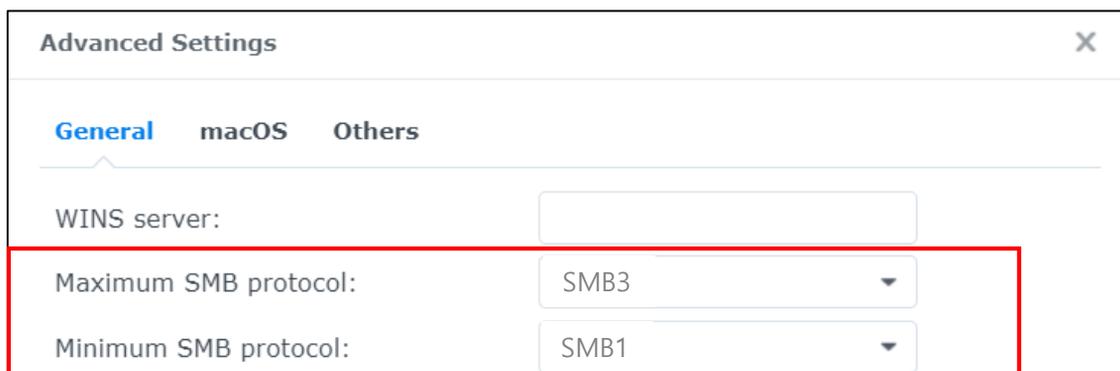
- Camera : All models of cameras
- NAS: Products (QNAP, Synology) recommended by HTW

## 2. SMB (Server Message Block) Protocol?

- The Server Message Block protocol (SMB protocol) is a client-server communication protocol used for sharing access to files or documents across nodes on a network of systems running DOS or Windows. The SMB protocol can be used for printer/port/other message sharing across PCs.
- Depending on the Windows OS version, you can update the version from SMBv1.0 to the latest version, SMBv3.1.1.

## 3. Setting up the camera's SMB connection to a NAS

- It is possible to set SMB Versions from 1.0 to 3.0 on a NAS.
- In order to link the camera, its SMB version must match with the NAS.
- Our cameras can support SMB v1.0 to v3.0 depending on the platform.



▶ Caution : SMB 1.0 is vulnerable to ransomware and other malware so that you need to pay special attention to security .

## 4. Support for SMB Protocol versions in Windows

- Depending on the Windows OS, there may be SMB protocols disabled.
- In that case, it is necessary to enable them manually.

SMB Version \ Windows OS	2000	2008	2008 R2	2012	2012 R2	2016	
	XP	VISTA SP1	7	8	8.1	10	
v1.0	support	support	support	support	Support (disabled)	Support (disabled)	
v2.0	X				support	support	support
v2.1	X	X					
v3.0	X	X	X				
v3.0.2	X	X	X	X	X		
v3.1.1	X	X	X	X			

## 5. Others

- For technical support of a NAS product, contact its manufacturer.

# Info on [Wisenet 5] Network Camera

Info. Type  Quality  Settings  Repair  Firmware  Etc

1. **Applicable To** : Wisenet 5 SoC-applied Network Camera 121 Model
2. **S/W Version Information**: New Firmware Ver. 2.10.02\_2022xxxx\_Rxxx ( F/W 42 sorts)
3. **Release Date**: April 1, 2022
4. **Revised Contents** (For further information, please refer to the Release Note )

Categories		Contents
Function & Specifications	New Function	<ul style="list-style-type: none"> <li>- Addition of integrated certificate management function</li> <li>- Additional function support of a virtual channel which will output the distortion correction image of FISHEYE Camera</li> <li>- Addition of [PTZ monopoly control] function                             <ul style="list-style-type: none"> <li>· PTZ control authority is preferentially given to a specific user, and restriction of other user's control command</li> </ul> </li> <li>- Addition of new options such as [Handover] a setting word [Query String], [TCP message], etc.</li> <li>- Addition of ICMP (Internet Control Message Protocol) Timestamp Request message activation option</li> </ul>
	Function Improvement	<ul style="list-style-type: none"> <li>- The storage route is modified so that a user can specify the storage route as a subdirectory as well when storing recorded video in NAS.</li> <li>- Offering of the option which enables a user to indicate Camera IP address and MAC information in visual display</li> <li>- Improvement of Network Camera environment to make it possible for a user can freely adjust the overlay image location</li> <li>- Addition of PEAPv0/MSCHAPv2 Option to EAP form of 802.1x</li> <li>- When selecting [Double Panorama] mode, only PTZ pan operation was supported, but now tilt operation is also possible (FISHEYE camera)</li> <li>- When setting a privacy area, a user can set up it in the form of general quadrangle rather than a rectangle.</li> <li>- Improvement the Web Viewer UI to select the TLS Protocol Version to be used for encryption communication.</li> </ul>
Error Correction		<ul style="list-style-type: none"> <li>- Fixed the issue that [Day/Night Mode] did not work on some cameras after firmware upgrade, depending on previous camera settings.</li> <li>- Improvement of the problem in which an image breaks intermittently at the specific decoder</li> </ul>

※ Available for download at the company Website-<https://www.hanwha-security.com>.

# Info on [Wisenet 5] Network Camera

Info. Type

Quality  Settings  Repair  Firmware  Etc

## 5. Cameral Model & Firmware

FW No	Basic Model Name	Model	FW Version
1	QNP6230RH_WW_ALL	QNP-6230RH	2.10.02_20220324_R229
2	XNP6040_WW_ALL	XNP-6040H	2.10.02_20220324_R611
3	XNP6120_WW_ALL	KNP-2120HN	2.10.02_20220324_R696
		XNP-6120H	
4	XNP6320RH_WW_ALL	KNP-2320RH	2.10.02_20220324_R414
		KNP-2320RHA	
		XNP-6250RH	
		XNP-6320RH	
5	XNP6341RH_KOR_ALL	XNP-6341RH	2.10.02_20220324_R178
6	XNP6371RH_WW_ALL	XNP-6371RH	2.10.02_20220324_R637
7	XNP6550RH_WW_ALL	KNP-2550RHA XNP-6550RH	2.10.02_20220324_R523
8	XNP6320H_WW_ALL	QNP-6230	2.10.02_20220324_R614
		QNP-6230H	
		XNP-6320	
		XNP-6320H	
		XNP-6320HS	
		XNP-6321	
		XNP-6321H	
9	XNB6005_WW_ALL	XNB-6005	2.10.02_20220329_R589
		XNO-6085R	
10	XNB8000_WW_ALL	KNB-5000N	2.10.02_20220329_R702
		KNO-5080RN	
		XNB-8000	
		XNO-8080R XNO-8080RW	
11	XND6011_WW_ALL	XND-6011F	2.10.02_20220401_R602
		XND-8020F	2.10.02_20220401_R602
12	XND6020R_WW_ALL	KND-2020RN	2.10.02_20220401_R596
		XND-6020R	
		XNV-6020R	
13	XND8020R_WW_ALL	KND-5020RN	2.10.02_20220401_R599
		XND-8020R	
		XND-8020RW	
		XND-8030R	
		XND-8040R	
		XNV-8020R	
		XNV-8020RMN	
		XNV-8020RMP	
		XNV-8030R	
XNV-8040R			
14	XND8080R_WW_ALL	KND-5080RN	2.10.02_20220401_R615
		XND-8080R	
		XND-8080RV	
		XND-8080RW	
		XNV-8080R	
		XNV-8080RS	
		XNV-8080RSA XNV-8080RW	
15	XNO6020R_WW_ALL	KNO-2010RN	2.10.02_20220401_R639
		XNO-6010R	
		XNO-6020R	
16	XNO8040R_WW_ALL	KNO-5020RN	2.10.02_20220401_R586
		XNO-8020R	
		XNO-8030R	
		XNO-8040R	
17	XNV6010_WW_ALL	XND-6010	2.10.02_20220401_R609
		XNV-6010	
18	XNZ6320_WW_ALL	XNZ-6320	2.10.02_20220324_R454
19	XNZL6320_WW_ALL	XNZ-L6320	2.10.02_20220401_R249

FW No	Basic Model Name	Model	FW Version
20	XNO6120_WW_ALL	XNO-6120	2.10.02_20220401_R215
21	XNOL6120R_KOR_ALL	XNO-L6120R	2.10.02_20220401_R316
22	XND6081VZ_WW_ALL	XND-6081FZ	2.10.02_20220329_R501
		XND-6081VZ	
		XNV-6081Z	2.10.02_20220329_R501
		XND-8081FZ	
		XND-8081VZ XNV-8081Z	
23	TNO6010M_WW_ALL	TNO-6010M	2.10.02_20220401_R347
24	TNV7010RC_WW_ALL	TNV-7010RC	2.10.02_20220401_R453
25	XNV-6081_WW_ALL	XNV-6081	2.10.02_20220329_R469
		XNV-6081R	
		XND-6081F	
		XND-6081RF	
		XND-6081RV	
		XND-6081V	
		XND-8081RF	
XND-8081RV XNV-8081R	2.10.02_20220329_R469		
26	XNDL6020R_KOR_ALL	XND-L6020R	2.10.02_20220401_R291
27	XNOL6020R_KOR_ALL	XNO-L6020R	2.10.02_20220401_R441
28	XNOL6085R_KOR_ALL	XNO-L6085R	2.10.02_20220401_R270
29	XNVL6080R_WW_ALL	XND-L6080R	2.10.02_20220401_R578
		XND-L6080RV	
		XND-L6080V	
		XNO-L6080R	
		XNV-L6080	
		XNV-L6080R	
30	XNVL6080A_KME_WW_ALL	XND-L6080RVA	2.10.02_20220401_R332
		XND-L6080VA	
		XNO-L6080RA	
		XNV-L6080A XNV-L6080RA	
31	QNF8010_WW_ALL	QNF-8010	2.10.02_20220401_R411
32	TNB6030_WW_ALL	TNB-6030	2.10.02_20220324_R599
33	XND8081REV_WW_ALL	XND-6081REV XNV-6081RE	2.10.02_20220324_R263
34	XND6081REV_WW_ALL	XND-8081REV XNV-8081RE	2.10.02_20220325_R97
35	TNO4040TR_WW_ALL	TNO-4030TR	2.10.02_20220328_R506
		TNO-4040TR	
		TNO-4041TR	
36	TNO4050T_WW_ALL	TNO-4030T	2.10.02_20220401_R793
		TNO-4040T	
		TNO-4041T	
		TNO-4050T	
		TNO-4051T	
37	TNU4041T_WW_ALL	TNU-4041T TNU-4051T	2.10.02_20220328_R472
38	TNO3030T_WW_ALL	TNO-3030T	2.10.02_20220328_R295
		TNO-3020T	
		TNO-3010T	
39	TNO3050T_WW_ALL	TNO-3040T TNO-3050T	2.10.02_20220328_R183
40	XNO6085RA_KOR_ALL	XNO-6085RA	2.10.02_20220328_R205
41	XNOL6085RA_KOR_ALL	XNO-L6085RA	2.10.02_20220328_R202
42	XNV6012_WW_ALL	XNV-6012	2.10.02_20220328_R591
		XNV-6012M	
		XNV-6013M	
		XNV-6022R	
		XNV-6022RM	

# Camera flare phenomenon

Info. Type

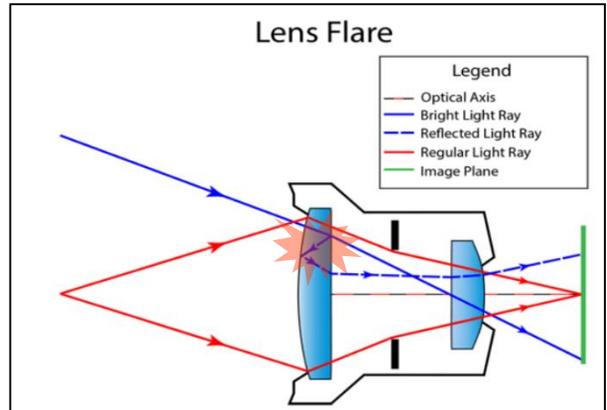
Quality  Settings  Repair  Firmware  Etc

## 1. Flare?

- Flare is a phenomenon in which a bright light source (sun, fluorescent lamp) enters a single point strongly between the general light sources entering the lens and is reflected on the inside, surface, and body tube of the lens, leaving a haze, polygonal/semicircle/circle afterimage on the image.
- Flare occurs in most cameras, and the angle at which flare occurs is different for each camera.



Ghosting, a typical phenomenon of Flare



Principle of Flare Occurrence (Blue Dotted Line)

## 2. Flare Prevention Measures

- Location change : Avoid from strong incoming bright light sources
- Model change : Each camera has a different location and angle at which the flare occurs.  
Thus, first test it with a model supporting similar specifications and then do model replacement.
- Others: lens coating, using a hood or using prime lenses  
(difficult to apply to CCTV cameras )

## 3. Flare Market Cases

- Symptoms
  - 1) A red circular afterimage occurs
  - 2) The phenomenon occurs only at sunrise time every day
  - 3) The same symptom occurs even after replacing the camera (same model).
- Installation Environment
  - 1) The position where the sun and the camera face each other
  - 2) The site conditions make it impossible to correct the position and angle.



# IR Diffuse Reflection on the Dome Cover

Info. Type  Quality  Settings  Repair  Firmware  Etc

## 1. Symptoms of Diffuse Reflection

- When the dome cover surface of a camera is contaminated/damaged and its nighttime IR of is turned on, the screen will be stained.

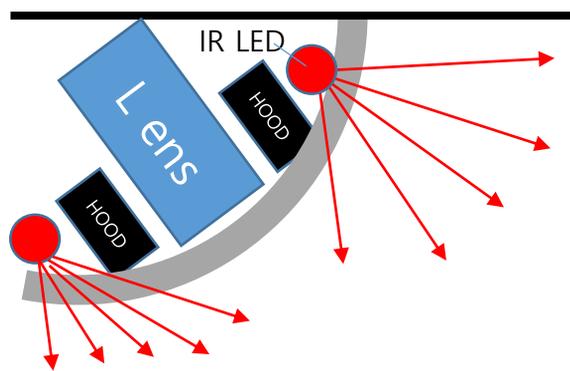


<IR off - Normal screen >

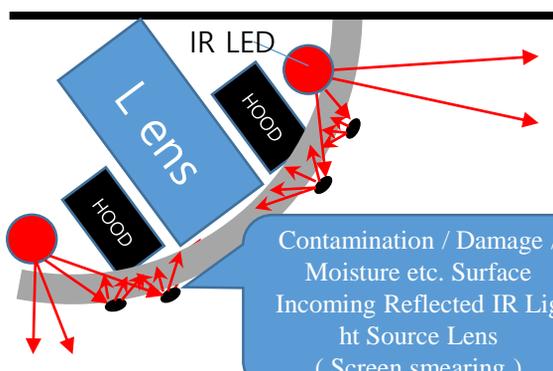


<IR on – Overall Screen Smearing>

## 2. Occurrence Mechanism



<Dome Cover: Good – IR: Normal >



<Dome Cover: Contaminated/Damaged – Surface IR Reflection

Contamination / Damage / Moisture etc. Surface Incoming Reflected IR Light Source Lens ( Screen smearing )

## 3. Dome Cover Damage Prevention Guide

- Cleaning Management
  - 1) Use a soft cloth (dry or wet ) for the surface.
  - 2) Do not use cleaners containing oil, benzene, bleach, etc.
  - 3) Use an air blower to remove surface particles and then do the cleaning in a dusty environment
- Installation Notes
  - 1) Remove the protective film on the surface of the dome cover after installation is complete
  - 2) Install a camera in a place where there is no reflector (e.g., metal, glass, mirror) around the IR light source
  - 3) Install a camera in the correct position so that its dome cover doesn't have any gap.



Example: Air Blower

# Wall Mount Installation Guide

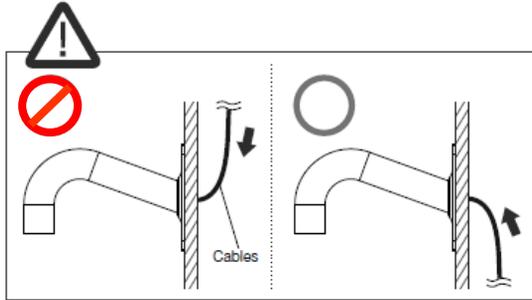
Info. Type

Quality  Settings  Repair  Firmware  Etc

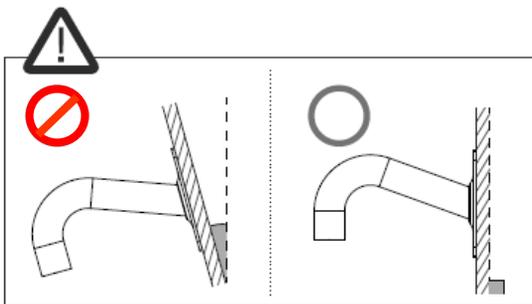
## 1. Applicable to

- SBP-300WM/WMW , SBP-300WM1/WMW1 , SBP-390WM2/WMW2

## 2. Wall Mount Installation Guide



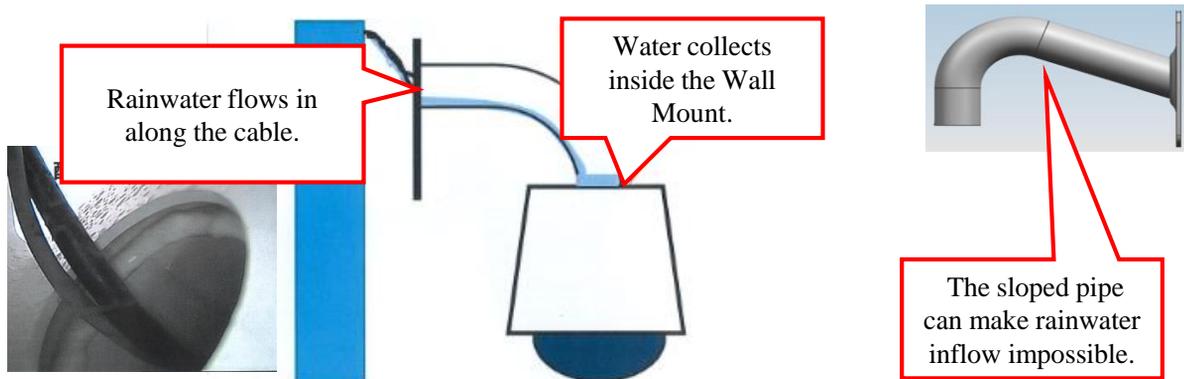
Install the cable downwards to prevent water from flowing in.



Install in a place where the ground and wall are at right angles to the ground at 90 degrees so that the pipe slope can be maintained.

## 3. Precautions

- It is necessary to follow the Wall Mount Installation Guide to prevent water from flowing into the mounted area.
- In case of wall mount, the pipe has a slope to prevent the inflow of water inside the pipe. It is necessary to install the pipe with its slope maintained.



# About Camera LDC (Lens Distortion Correction)

Info. Type

Quality  Settings  Repair  Firmware  Etc

## 1. Camera Lens Distortion

- A distortion phenomenon in which the screen is stretched or convex to the outer part from the center.



## 2. Causes

- The magnification of the image gradually decreases from the center to the periphery, and it is a symptom that occurs when the image secured with a wide viewing angle of the lens is compressed and contained in a two-dimensional plane.
- The closer the distance between the lens and the subject becomes, the greater the distortion gets.
- It is necessary to adjust the camera position, zoom and focus.

## 3. LDC(Lens Distortion Correction) Function

- Wisenet7 corrects image distortion (warping) caused by wide-angle lenses.
- The Wisenet7 product lineup with new Lens Distortion Correction (LDC) technology can correct even severe image distortion to deliver distortion-free images close to the real human field of view.





### 3. Etc

# Info on IK and IP standards

Info. Type

Quality 
  Settings 
  Repair 
  Firmware 
  Etc

## Dustproof (IK) and Waterproof (IP) Standards

- The IK (Impact protection) and IP (Ingress Protection) ratings are issued by the International Electro technical Commission (IEC), international standards indicating the degree of dustproof and waterproof protection offered by electronic devices, respectively.

- Understanding the notation of levels certified by actual product testing for each device.

. IP: Two-digit number. The first digit indicates the degree of protection against solid objects (dust), and the second digit indicates the degree of protection against liquids.

. IK: 11 levels from 00 to 10. The higher the level is, the stronger the impact protection is.

FIRST NUMBER Degree of Solid Particle Protection PROTECTION AGAINST SOLID OBJECTS		SECOND NUMBER Degree of Liquid Ingress Protection LIQUIDS		THIRD NUMBER Degree of Mech. Impact Protection	
IP	TEST	IP	TEST	IK	TEST
0	no protection	0	no protection	00	no protection
1	Protection against a solid object greater than 50mm, such as hand.	1	Protection against water drops.	01-05	[impact < 1 joule]
2	Protection against a solid object greater than 12mm, such as finger.	2	Protection against water drops at 15 degree angle.	06	Protection against if an object weighing 500g is dropped from a distance of 20cm.
3	Protection against a solid object greater than 2mm, such as wire.	3	Protection against water spray at 60 degree angle.	07	Protection if an object weighing 500g is dropped from a distance of 40cm..
4	Protection against a solid object greater than 1mm, such as wire.	4	Protection against water splashing from any angle.	08	Protection if an object weighing 1.7kg is dropped from a distance of 29.5cm.
5	Protection from limited dust ingress.	5	Protection against water jets from any angle.	09	Protection if an object weighing 5kg is dropped from a distance of 20cm.
6	Dust tight no ingress of dust.	6	Protection against powerful water jets from any angle.	10	Protection if an object weighing 5kg is dropped from a distance of 40cm.
		7	Protection against the effects of temporary submersion in water. (15cm min, 1m)		
		8	Protection from prolonged immersion in water. (1m)		

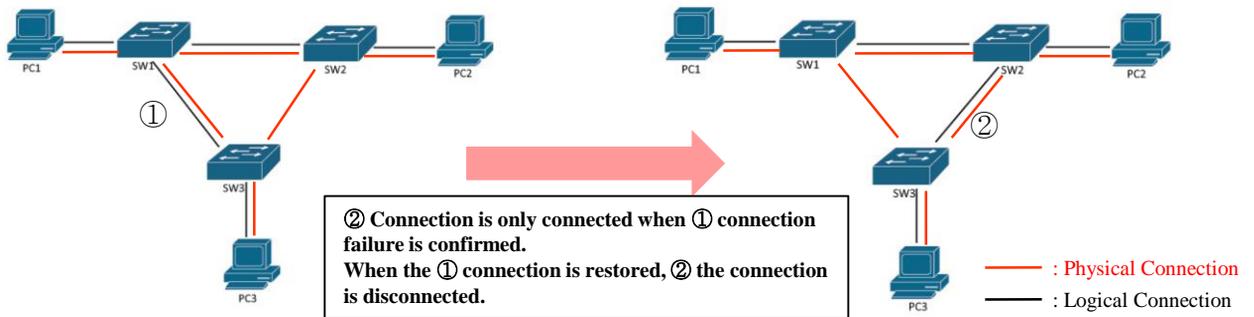
# About Spanning Tree Protocol

Info. Type

- Quality
- Settings
- Repair
- Firmware
- Etc

## 1. Spanning Tree Protocol (STP) Configuration ?

- STP refers to a network protocol that logically maintains only one active connection in a duplex network and activates another connection only when it is recognized that the existing connection is broken.

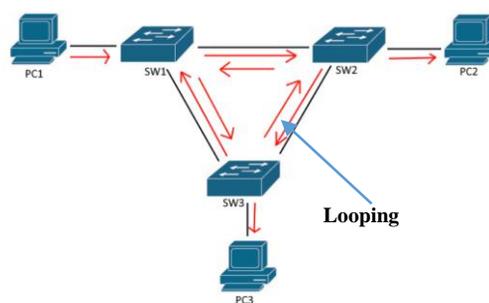


<STP Configuration : There are physical topology loops, but it builds loop-free logical topology >

## 2. Effects of STP Configuration

- It can logically prevent the loop topology by changing a specific port to a blocked state in the loop topology network
- It can prevent repeated flooding of broadcasts on the network when it goes out of the loop topology.
- Since it is possible to change the route when the network connection in a direction is disconnected, the maintenance is easy.

## 3. Problems without STP Configuration



<STP not configured : There are physical and logical topology loops >

- In the loop topology network, the switch repeats receiving the broadcast it has sent and sending the broadcast packet again
- Existing packets are continuously sent and received, and new packets from the device are also transmitted
- Explosive increase in the number of packets handled → Increase in CPU occupancy → Network overload → The network goes down

# Info on NetBoardManager v3.2 update

Info. Type

- Quality 
  Settings 
  Repair 
  Firmware 
  Etc

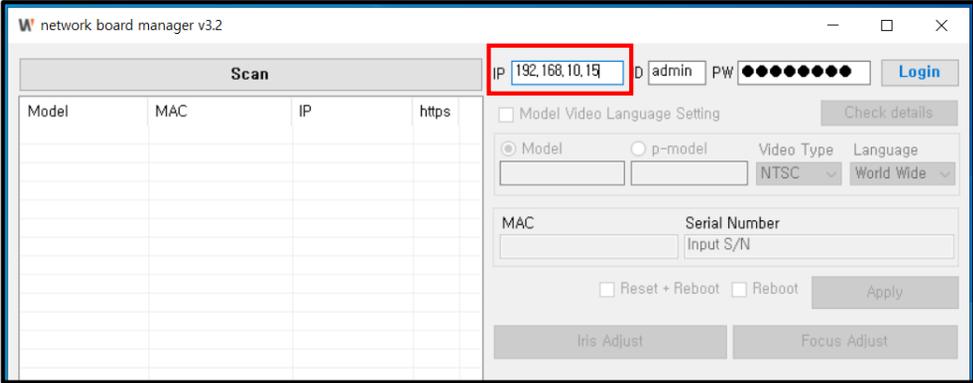
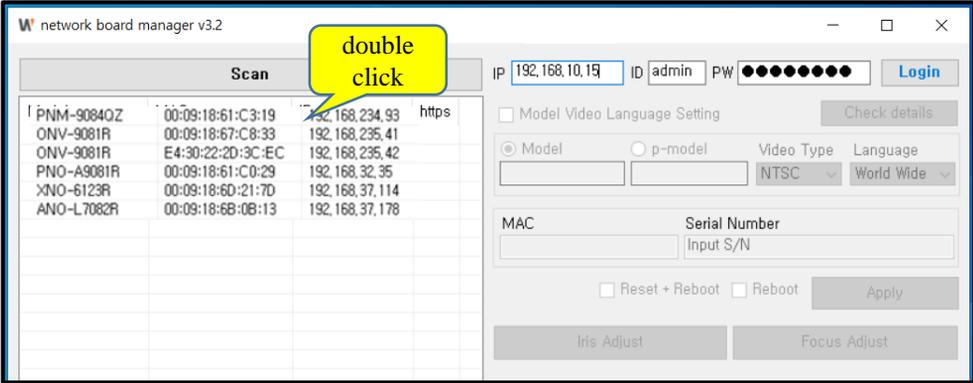
## 1. Applicable to: Network camera repair software

- After replacing the network board of the camera, use **NetBoardManager v3.2** to enter the following information: Mac. Add, Serial Number, Model Name, etc.

## 2. Software version info: Ver. 3.0 → Ver.3.2

## 3. Release schedule: July 20, 2022

## 4. Revisions

Category	Details
<b>Function &amp; Spec.</b>	<p><b>1. Making it possible to input the IP address of a connectable device from the keyboard.</b></p> <ul style="list-style-type: none"> <li>You can connect to the camera's IP address by directly entering it in the IP input field.</li> </ul>  <p>※ It is also possible to connect to a specific device by scanning the existing devices.</p> <p><b>2. Adding a new function which allows you to access the camera web page(CHROME) by double-clicking a device in the scan list.</b></p> 

※ Note: Please use **.Net Framework 4.7.2** or higher according to the security protocol TLS 1.2 up date. (For details, refer to the June issue of Technical Information)

※ downloaded : [www.4cust.net](http://www.4cust.net)→Information pool → Library

# Info on Smart Security Manager update (Ver. 2.11.00 )

Info. Type

Quality  Settings  Repair  Firmware  Etc

1. **Applicable to** : Smart Security Manager

2. **Software version information** : Ver. 2.10.13 → 2.11.00 (Issuance date : September )

3. **Revision contents** ( refer to Release Note for details )

Categories		Details
Function & Specs	New Functions	- Supporting Wise Detector linkage . Dynamic metadata display . Real-time event display and search . Object Detection event detailed type addition error fixed
		- Displaying the shortest period on the dashboard . Show the least recorded period
		- Displaying a warning message when multi-channel cameras are over-assigned
		- Supporting license plate recognition within the object search supported by Hanwha Techwin's AI camera (with P/T, Vision-in App installed )
		- Adding a notification function to indicate the moment the recording bandwidth is exceeded
	Improvements	- [ANPR] White / Black List SSM UI/UX improvement . Improving convenience in modifying vehicle management data . Making all columns editable except the car license number
		- Changing the name notation (NVR ALARAM IN, CAMERA ALARAM IN)
		- Changing the license notation . Changed "16CH" to "Recording 16CH"
		- Making improvements to enable Camera Talk connected over the LTE network
Error (Bug) Correction	Functions	- Fixed the abnormal display of the Total channel value on the dashboard . Fixed the phenomenon that the number of sensors and relays is displayed
		- Fixed problems with Wisenet mobile assignment . Displayed the [Retry] icon when checking the Live/Playback function on an unauthorized channel . Fixed the phenomenon that the camera CH is displayed as #1 unconditionally when selecting a push message . Fixed the phenomenon of noise output during two-way talk
		- Made modifications to log in to the system manager with a private certificate when the device certificate password is wrong
		- Fixed the issue of the system manager's interworking with the electronic display board
		- Fixed an error in the NVR channel status of Media Server
		- Made improvements to the freeze phenomenon when playing at 4x speed in the low-resolution always save and high-resolution event storage state
		- Fixed not to execute ExAux list acquisition command during NVR playback
		- Fixed the problem that the system got slower when restarting the server because the unnecessary data was accumulated as the SVM Wall Layout was used more.
Others	Language	- Supporting Hebrew language
	Compatibility	- Secure compatibility with SSM-VM Windows 11

# Wisenet Viewer 1.0 Newly Released

Info. Type

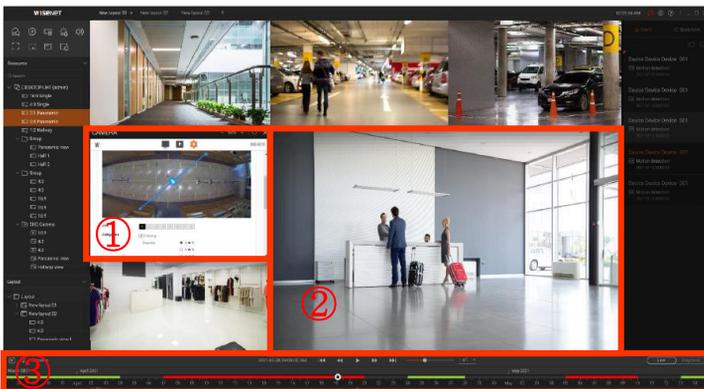
Quality  Settings  Repair  Firmware  Etc

- Supports various operating systems (Windows, Mac OS)
- Easy and intuitive UI
- Flexible channel division and custom layout
- Multiple output on multiple monitors
- Web page display (NVR Web viewer, Tutorial)
- Media file (AVI, MKV, MP4, WNM) playback
- Event trigger and action rule setting function
- Log search function (event, system, audit)

## Wisenet viewer 1.0 NEW



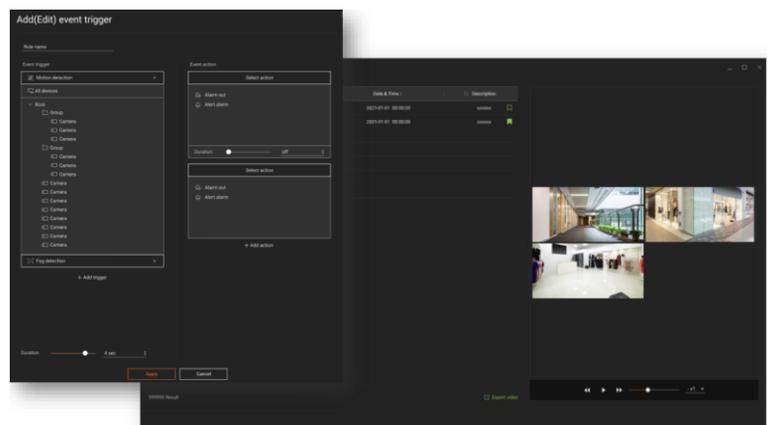
### 1. Free-Form Layout : Custom Screen Size , Media files in Layout, Webpage Registration



- ① Web-page(URL) Registration
    - Device Webpage, Internet site
  - ② Media/Image File Registration/Playback
    - Media : AVI, MKV, MP4, WNM
    - Image : JPG, PNG, BMP
  - ③ Full Period Timeline
    - Indicates the entire recording section at once
- ※ Layout
- Custom Positioning / Resizing

### 2. Event Search

- Event search
  - . Conditional Search by device, time, and event
- Event Action
  - . Select a device-specific event
  - . Perform the triggered event function
  - . Alarm Out/Alert Alarm function



### 3. Tutorial video

- Link: <https://youtube.com/playlist?list=PLG7UogTGksTonxXaBIOqfsgiU8jIscf4O>

# Wisenet Viewer 1.0 Newly Released

Info. Type

Quality  Settings  Repair  Firmware  Etc

## 4. System Requirements

Items	Minimum Specifications	Recommended Specifications
CPU	CPU: Intel i3 or faster	CPU: Intel i7 or faster
RAM	RAM: 4 GB or higher	RAM: 16 GB or higher
HDD	HDD: 128GB or higher	HDD: Performance SSD, 128GB or higher
VGA	VGA : 512MB or higher ( OpenGL 2.1 support is required)	VGA: NVIDIA GeForce GTX 1050 ( OpenGL 2.1 support is required) Video memory 1GB or higher
LAN	LAN: Gigabit NIC recommended	
Display	1366X768 above, OpenGL compatible	FHD , 4K supported(High DPI Display) Multi monitors support
OS	Windows 8.1/10/11 64bit, Mac OS 11.0/12.0 * For Apple M1 CPU, first install Rosetta 2 to use the system.	

## 5. Product Key Specifications

Items		Details
Media	Video Format	H.265, H.264, MJPEG
	Audio Format	G.711 u-law (PCM), G.726 (ADPCM), AAC
Video	Functions	PTZ, Focus, Brightness/Contrast, Crop area, Capture, Video status
	PTZ Control	Pan, Tilt, Zoom, Preset, Focus control
	Live Local Recording	Up to 2hours, MKV , WNM Wisenet media file)
Playback	Video Control	Start/Pause, Forward/Backward playback, Previous/Next event, keyboard shortcut
	Playback Speed	1x , 2x, 4x, 8x, 16x, 32x, 64x, 128x
	Export	Up to 24hours, Single/Multi channel export, MKV/WNM (Wisenet media file), Encryption Password (WNM only )
Performance	Channels	Up to 3000 channels (no limitations in s/w)
	DDNS/P2P channels	Up to 128 channels
	channels per layout	Up to 64 videos
Log		Event log/System log/Audit log, Export log data to file (CSV)
Language		Total 23 languages supported
Compatible devices		Wisenet NVR / DVR (SUNAPI)

※ For detailed specifications, please refer to the product specifications on the website:

[www.hanwha-security.com](http://www.hanwha-security.com).

# Info on Wisenet Viewer update (Ver. 1.02.00)

Info. Type  Quality  Settings  Repair  Firmware  Etc

## Highlights of Wisenet viewer update

1. Applicable to: Wisenet Viewer v1.02.00
2. Revisions (Refer to the release note for details.)

Categories		Details
Function & Specs	New Functions	- Wisenet Player development
		- SEC file video/audio playback
		- Digital signature
		- Event rule scheduling
		- Auto-run at Windows startup
		- Hardware decoding (Windows OS)
		- Device FW (NVR, sub-camera ) update server linkage
		- Video Sequence management
		- Event action e-mail addition
		- Smart search
		- Audio talk
	Function Changes	- Application of HTW version rules (Old: v1.2.0 → New: v1.02.00)
		- Automatic fisheye camera setting
		- Improvement to AI auto speed
		- Multi-channel backup file foldering
		- Restrictions on the versions earlier than macOS 11
		- Folding the left side of the setting page
		- Automatic update of file status in the media file tree
		- Adding the search scope when searching on the monitoring event page
		- Can move shortcut boxe Dynamically when resizing the monitoring left tab
Error (Bug) Correction	Functions	- Fixed the problem that the previous value remains when changing the network type on the device setting page
		- Fixed some translation errors
		- Fixed the problem with in-group layout sharing
		- Fixed the problem of duplicate output of the same device when switching users
		- Fixed the problems with event display
		- Fixed the crash phenomenon during long run in certain cases
		- Fixed the problem that the Wisenet Viewer does not run on some PCs

- The Wisenet Viewer is downloadable on our website:  
<https://www.hanwha-security.com>

# Models supporting Wisenet viewer(v1.02.00)’s smart search

Info. Type  Quality  Settings  Repair  Firmware  Etc

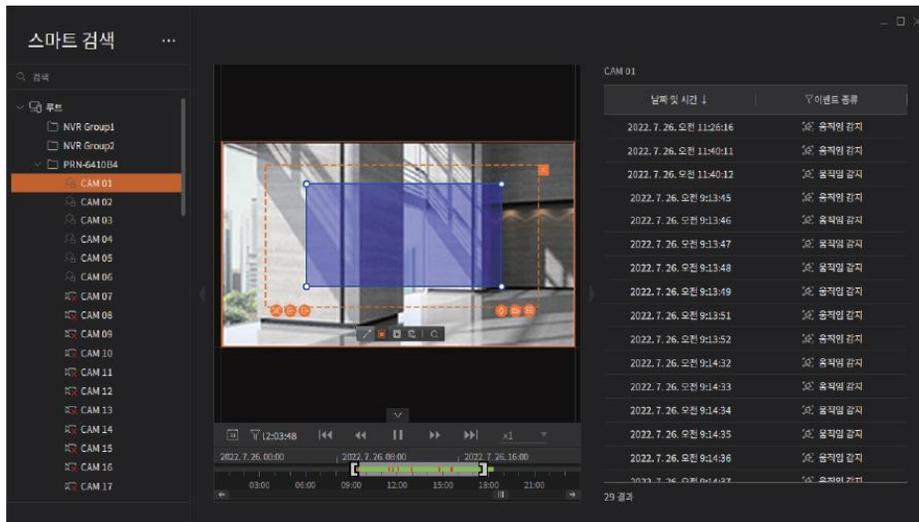
**1. Target model :** Wisenet viewer (v1.02.00 or later) + NVR (v5.20.10 or later)

**2. Purpose :** To enable smart search after Wisenet viewer update (v1.02.00)

(Only for NVRs supporting the smart search function)

※ Smart Search : This function allows you to search for events by setting the area of interest, exclusion area, and virtual line in the recorded video at a specific time.

(Manual 140p)



### 3. Model classification by smart search support

Category	Model Group	Model Name
Support (v5.20.10 or later)	4CH NVR	ARN-410S , XRN-420S , QRN-430S
	8CH NVR	ARN-810S , XRN-820S/815S, QRN-830S
	16CH NVR	ARN-1610S , XRN-1620SB1/1620B2, QRN-1630S
	32CH NVR	XRN-3210RB2/3210B4/3210B2
	64CH NVR	XRN-6410RB2/6410DB4/6410B4/6410B2 ,
	AI NVR	PRN-64 <b>XX</b> DB4/B4 , PRN-32 <b>XX</b> B4/B2 , PRN-16 <b>XX</b> B2
Not support	4CH NVR	XRN-410S , QRN-420S/410S, QRN-410, LRN-410S
	8CH NVR	XRN-810S , QRN-820S/810S, QRN-810, LRN-810S, KRN-V810S
	16CH NVR	XRN-1610S/SA , XRN-1610/A, QRN-1620S/1610S, LRN-1610S
	32CH NVR	XRN-2011/A , XRN-2010/A
	64CH NVR	PRN-4011 , XRN-3010/A
	Pentabrid	HRX-4 <b>XX</b> /FN , HRX-8 <b>XX</b> /A, HRX-16 <b>XX</b>

# Guide to product model naming rules and standards

Info. Type

Quality  Settings  Repair  Firmware  Etc

## 1. Camera model naming rules

<b>P</b>	<b>N</b>	<b>M</b>	<b>-</b>	<b>C</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>8</b>	<b>3</b>	<b>R</b>	<b>V</b>	<b>Q</b>	<b>P</b>	
<b>Series Name</b>	<b>Product Type</b>	<b>Shape</b>		<b>Grade</b>	<b>Total Resolution</b>			<b>Lens</b>	<b>Version</b>	<b>Features</b>				
P : Premium X : Versatile Q : Quality H : HD+ L : Entry T : Vertical(Special) A : Alpha E : China only K : VPM Z : India only O : Ossa J : JDM S : Legacy <b>Customized Product</b> SK : SKO, SKD... CJ : CJO, CID... VS : VSO	N : Network cam C : Analog cam U : UTP Camera	B : Box D : Dome F : Fisheye M : Multi-Sensor O : Bullet P : PTZ U : Positioning V : Vandal Z : Zoom box E : Flateye C : Chass Bundle		Null : Basic A : AI E : Entry L : Lite K : Korea Online V : Value <b>I : India</b> <b>C : Core AI</b>	1 : Small sensor 2 : QQVGA 3 : QVGA 4 : VGA 5 : 1M 6 : 2M 7 : 3 ~ 4M 8 : 5 ~ 7M 9 : 8M↑ <b>12 : 12MP</b> <b>15 : 15MP</b> <b>24 : 24MP</b> <b>32 : 32MP</b> <b>34 : 34MP</b> <b>36 : 36MP</b> <b>40 : 40MP</b>	10 : No Lens 11 : 3mm ↓ fixed 12 : 3.1 ~ 4mm fixed 13 : 4.1 ~ 6mm fixed 14 : 6.1 ~ 9.9mm fixed 15 : 10mm↑ fixed 16 : 2X V/F 17 : 2X ~ 9X V/F 18 : 2X ~ 9X M-V/F 09 : 10X↑ V/F xx : Zoom (PTZ, Zoom)			0 ~ 9	A : Revision B : Black Color C : Counting or Corner D : Dual eye E : Explosion Proof or PoE extender F : Flush or SFP LC (Fiber Channel) G : Government/TTA H : Housing I : White LED L : BLE M : Mobile NB : No Battery OP : Open platform 1 : option change P : PTZ (for multi)	Q : Quad eye R : IR or Radiometric S : Stainless Steel T : Thermal or Triple eye U : Dummy V : Vandal W : Wiper, White Color X : Radar Y : Body Temp Z : PTRZ LP : License plate FR : Face recognition RU : Dummy with IR R1 : Legacy code R2 : Legacy BOM mode RV : IR + vandal SSD : Built-in SSD			
				※ A : AI with object classification + attributes C : AI with object classification	※ example : 6MP x 2CH = 12MP 8MP x 4CH + 2MP PTZ = 34MP									

## 2. Numbering rules for recorder model naming

<b>P</b>	<b>R</b>	<b>N</b>	<b>-</b>	<b>6</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>D</b>	<b>B</b>	<b>4</b>	<b>-</b>	<b>1</b>	<b>0</b>
<b>Series Name</b>	<b>Product Type</b>	<b>Type</b>		<b>[NVR: Channel / Mbps]</b>			<b>Version</b>	<b>Function</b>		<b>Performance</b>		<b>Capacity</b>	
P : Premium X : Versatile Q : Quality H : HD+ L : Entry T : Vertical(Special) S : Legacy (Existing) A : Alpha Series E : Exclusive K : Korea(VPM) Z : Ultra Low(India) W : Wave Recorder	R : Recorder W : Workstation	D : DVR X : Pentabrid M : Mobile N : NVR S : S/W P : PC NVR O : recording Only V : Viewer A:Appliance		4 : 4CH 8 : 8CH 16 : 16CH 32 : 32CH 64 : 64CH 128 : 128CH 256 : 256CH		0 ~ 9	Null : Null S : PoE Switch M : PoE Switch with M12 Connector A : A revision D : Dual SMPS G : Government B : HDD Bay R : RAID for B2 W : Wifi U : UTP(Hybrid)		1 ~ 9 : Major Version 0 : down grade		Null : Null 1 : 4 Bay 2 : 8 Bay 3 : 12 bay 4 : 16 Bay 5 : 20Bay 6 : 24Bay	3G : 320GB 5G : 520GB 1T ~ 9T : 1 ~ 9 TB 10 ~ 99 : 10 ~ 99 TB	
				<b>[Recorder : Max Mbps]</b> 1 <sup>st</sup> Digit : 100 ~ 199Mbps 2 : 200 ~ 299Mbps 3 : 300 ~ 399Mbps 4 : 400 ~ 499Mbps 5 : 500 ~ 599Mbps 6 : 600 ~ 699Mbps 7 : 700 ~ 799Mbps 8 : 800 ~ 899Mbps 9 : 900 ~ 999Mbps	<b>[Workstation]</b> 10 : Core I3 CPU (low-level CPU) 20 : Core I5 CPU (mid-range CPU) 30 : Core I7 CPU (high-end CPU)		<b>[Appliance]</b> 90 : Xeon CPU 2-way or above (server CPU) 80 : Xeon CPU (server CPU) 70 : Core I7 CPU (high-end desktop CPU) ↑ 50 : Core I5 CPU (mid-range desktop CPU) 40 : Pentium 30 : Core I3 CPU (low-level desktop CPU) ↓ 20 : AMD EPYC 10 : null						

# Info on replacing corner and pole mount accessories

Info. Type  Quality  Settings  Repair  Firmware  Etc

## 1. Applicable To :

- BOX-type camera installed with the SBH-9000H housing
- **Not compatible** with SBP-300NB PTZ camera mount connection / installation box

## 2. Product Name

	Corner Mount	Pole Mount
Photos		
Existing Products	SBP-300KMW	SBP-300PMW
New Products	SBP-300KMW1	SBP-300PMW1

## 3. Bonding Form Diagram



※ **Caution:** Install the product in a place that can bear a weight 4 times its total weight or more.