

# Technical Newsletter

FEB.2024 Service Operation Team

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### Technical Information

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- Understanding camera lens focal length and magnification
- HDD file storage structure and types of format

### Latest Firmware Information

# Security enhanced FW updates for recorders

Info. Type

 Quality  Settings  Repair  S/W  Etc

- **Models** : Legacy NVR/Pentabrid/Decoder 50 models

- **Purpose**

- 'Bridge FW' update is required in order to update the FW version to security enhanced version or higher version



Without 'Bridge FW' update, security enhanced FW or higher versions can not be run successfully

Category	Model	FW	Bridge FW	Security enhanced FW
P/X/Q Series + Derived models	PRN-4011, XRN-3010A/3010 ARN-6450/3250/1650 XRN-2010A/2011A/2010/2011 XRN-1610SA/1610A/1610S/1610 ERN-1610A KRN-3200/1600 XRN-811S/810S/410S QRN-810/410/1610S/810S/410S KRN-V1610S/V810S	2.46	2.60	<b>2.70 or later</b>
Pentabrid	HRX-1621/1620/821/820/421/420 HRX-1621/TE, 821/TE, 421/TE	3.05.62	3.05.62	<b>3.05.72</b>
LQ series	LRN-1610S/810S/410S, QRN-1620S QRN-820S, QRN-420S	3.06.22 3.07.22	3.06.32 3.07.32	<b>3.06.42</b> <b>3.07.42</b>
Mobile, Decoder	TRM-1610S SPD-1660R SPD-150 SPD-151 TRM-810S/410S	2.32 2.12 1.06 1.04 1.02	2.34 2.14 1.08 1.06 1.04	<b>2.36</b> <b>2.16</b> <b>1.10</b> <b>1.08</b> <b>1.06</b>

- **Update process**

- 1) NVR connected with internet [Recommended]
  - . NVR UI → Run FW updates as two steps (1<sup>st</sup> 'Bridge FW', 2<sup>nd</sup> Security enhanced FW)
- 2) NVR without internet connection
  - (1) FW download from the website (Update in order 'Bridge FW' → Security enhanced FW)
  - (2) Wisenet Device Manager → Download FW
    - (Update in order 'Bridge FW' → Security enhanced FW)

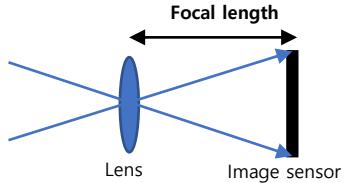
## Understanding camera lens focal length and magnification

Info. Type

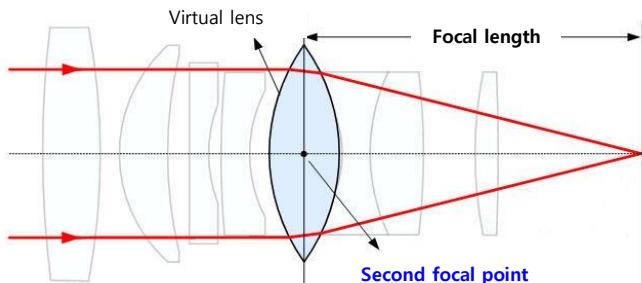
 Quality  Settings  Repair  S/W  Etc

### ● Camera lens focal length

- Focal length means the distance from the lens to the image sensor



- The focal length of a compound lens, composed of a series of simple lenses, is the distance from the **second focal point** to the image sensor



#### Second focal point?

It is a point on the principal axis, such that rays coming parallel to the principal axis after refraction through the lens actually meet here

### ● Focal length and magnification

- The lens magnification is determined as the ratio between the minimum and maximum focal lengths

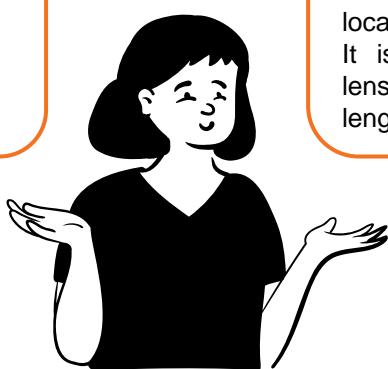
Eg.) 20-100mm For zoom lenses with variable focal lengths, it is expressed as "5x optical zoom"

**Q1. For 20x optical zoom camera, shouldn't it be like showing an object as 20x magnified?**

Zoom magnification is only an indicator of a camera's performance, and it does not mean that the subject appears to be zoomed in at magnification ratio. The actual size of the subject can be vary depending on outside factors.

**Q2. How come the focal length is longer than the camera body length?**

The second main point can also be located outside the lens. Telephoto lenses are designed in such a way that the second main point is located outside the lens. It is mostly applied to telephoto lenses because it can reduce the length of the lens.



# HDD file storage structure and types of format

Info. Type

 Quality  Settings  Repair  S/W  Etc

## ● Definition of file system

- A **structure** used by an operating system to organize and manage files on a storage device
- Structure or logical rules that name fragmented data and make it easier to identify the data
- The file system is divided into different types depending on the operating system and HDD capacity, and the act of configuring the file system to fit the environment for data storage is called '**format**'

## ● HDD Area structure



- HDD area can be divided into two, file system area and data storage area
- Depending on the type of format, the file system area and data storage area processing method can be differ

## ● Types of format

Types	Quick Format	*Recommend* High Level Format	Low Level Format
Method	<ul style="list-style-type: none"> <li>* Reset only file system area</li> <li>* Remain data storage area</li> <li>* Existing data is deleted as new data is overwritten</li> </ul>	<ul style="list-style-type: none"> <li>* Reset only file system area</li> <li>* Data storage area is Zero Fill</li> </ul>	<ul style="list-style-type: none"> <li>* Disk factory reset</li> <li>* Initialize each sector on the disk one by one</li> </ul>
Process	Proceeded in the operating system	Proceeded in the operating system	Require separate software
Note	<ul style="list-style-type: none"> <li>* Formatting is very fast because it only resets the file system</li> <li>* Because data storage area is preserved, most of past data can be recovered if it was formatted in recent time</li> </ul>	<ul style="list-style-type: none"> <li>* Able to detect bad sectors while performing disk inspection (Non-recoverable)</li> <li>* Difficult to recover past data as it fills up the data storage area with '00'</li> <li>* It takes quite a long time to fill up data storage with '00'</li> </ul>	<ul style="list-style-type: none"> <li>* Detects bad sectors and can recover if they are logical bad sectors</li> <li>* Unable to recover past data as it becomes factory reset status</li> <li>* Causes significant stress on HDDs as it reviews all sectors</li> </ul>



If a bad sector is detected, it is recommended to replace the HDD. Low formatting does not allow physical bad sectors to recover, and can cause significant stress on the HDD to create a larger number of bad sectors.

## DVR

Model	File	Date	Ver.	Remark
HRX-421	HRX-421_3.05.72 _231213160115	2024/01/02	3.05.72	- Security improved
HRX-434/435	HRX-435_4.52.42 _231023103139			
HRX-835/1632	HRX-1632_4.52.42 _231023103853			
HRX-835A HRX-1634/1635	HRX-1635_5.31.42 _231023102331	2023/11/02	4.52.42	<ul style="list-style-type: none"> <li>- Corrected an error where an analog camera intermittently displayed a channel number like a multi-directional camera (MDC)</li> <li>- Corrected an error where the video recording device mistakenly assumed that no video signal was received when the analog camera had a low signal</li> <li>- Corrected an error that caused the video recording device to reboot</li> </ul>

## NVR

Model	File	Date	Ver.	Remark
PRN-1600B2 PRN-3200B2/B4 PRN-6400B4/DB4				
XRN-820S XRN-1620B2/SB1 XRN-3210 (B2,B4,RB2) XRN-6410 (B2,B4,DB4,RB2)	PRN-6400DB4_5.30.72 _231107202437	2023/11/14	5.30.72	<ul style="list-style-type: none"> <li>- Corrected an issue that caused the [Dynamic layout] feature to malfunction</li> <li>- Fixed mouse-click errors in some pop-up windows</li> <li>- Corrected an issue that prevented you from inserting spaces in the [NVR name] entry box in the Web viewer</li> <li>- Corrected the howling issue that intermittently happened when you played videos using an AAC codec on Wisenet mobile</li> <li>- Changed the domain name from hanwha-security to hanwhavision to reflect the new company name</li> <li>- Improved the backup speed of remote clients (SSM, NVR, Web viewer, SMV, etc.)</li> </ul>
QRN-830S QRN-1630S XRN-815S	QRN-1630S_5.06.52 _230626173233	2023/08/10	5.06.52	<ul style="list-style-type: none"> <li>- Removed support for fan-related events and logs</li> </ul>
QRN-430S XRN-420S	XRN-420S_5.01.62 _231128194047	2023/12/11	5.01.62	- Security improved
XRN-810S	xrn-x10x-pkg_v2.70 _231213065458	2024/01/02	2.70	- Security improved

## Network Camera

Model	File	Date	Ver.	Remark
LND/V-6012R LND-6022R LNV-6072R	LNO-6072R_1.41.13 _20231109_R165	2023/11/28	1.41.13	- Fixed a problem that the NTP server time was not reset to match the changed NTP server when the NTP server address setting was changed
PNM-12082RVD	PNM-12082RVD_2.22.01 _20240103_R165	2024/01/10	2.22.01	- Changed the corporate name to Hanwha Vision in the web viewer as the name changed to Hanwha Vision
	PNM-7082RVD_2.22.01 _20240103_R136	2024/01/10	2.22.01	
PNM-9031RV	PNM-9031RV_2.22.01 _20231101_R542	2023/11/28	2.22.01	- Fixed language errors in Japanese version [v2.22.00, PNM]
PNM-9084RQZ1 PNM-9085RQZ1	PNM-9084QZ_2.22.02 _20231109_R380	2023/11/28	2.22.02	- Fixed an issue where video streaming was interrupted for the live and recording in the camera registered to NVR or Genetec
PNM-C12083RVD	PNM-C12083RVD_2.21.03 _20231025_R352	2023/11/23	2.21.03	- Added support for the Cisco Discovery Protocol (CDP) used in CISCO switches
PNV-A9081R	PNO-A9081R_2.21.13 _20230414_R782	2023/10/10	2.21.13	- Added a function where you can select attributes to send to object metadata
QNF-9010	QNF-9010_2.11.03 _20230509_R444	2022/06/20	2.11.03	- Added an option to choose a TLS version
QND-6011 QND/O/V-6012R QND/O/V-6022R QND/O/V-6072R QND/O/V-6082R	QNO-6082R_1.41.16 _20231109_R401	2023/11/28	1.41.16	- Fixed a problem that the NTP server time was not reset to match the changed NTP server when the NTP server address setting was changed
QND/O/V-6012R1 QND/O/V-6022R1 QND/O/V-6082R1	QNO-6082R1_1.41.05 _20230426_R32	2023/05/09	1.41.05	- Fixed a problem that the NTP server time was not reset to match the changed NTP server when the NTP server address setting was changed
QND/O/V-7012R QND-7022R QND/O/V-7082R	QNO-7082R_1.41.16 _20231109_R171	2023/11/28	1.41.16	- Added the DLL auto tune function to address the camera rebooting issue caused by the fixed DLL value
QND/O/V-8010R QND/E-8011R QND/O/V-8020R QND/O/V-8080R	QNO-8080R_1.41.16 _20231109_R364	2023/11/28	1.41.16	- Added options to configure GOV, dynamic GOV, and dynamic FPS settings of the recording profile. In case of configuration, however, the video may not be recorded properly
QNP-6250(H)	QNP-6320H_2.21.04 _20230623_R205	2023/06/28	2.21.04	- Added auto tracking function

## Network Camera

Model	File	Date	Ver.	Remark
QNO-C8083R QNV-C8083R	QNV-C8083R_2.21.10 _20230908_R311	2023/09/20	2.21.10	- Added video analytics features ([People counting], [Heatmap], [Queue management], and [Vehicle counting])
XNB-6000	XNB-6000_2.10.05 _20230516_R685	2023/05/16	2.10.05	
XNB-6001	XNB-6001_2.10.04 _20230516_R574	2023/06/02	2.10.04	- Added setting option to enable or disable simple focus function after [Day/Night] mode operation
XND-6020R	XND-6020R_2.10.02 _20220401_R596	2022/04/20	2.10.02	- Added certificate management function
XND/V-6080R XND/V-6080(V)	XND-6080_2.22.00 _20231106_R584	2023/11/16	2.22.00	- Corrected an issue where the [Time schedule] feature did not intermittently work after the camera rebooted
XND-8020R	XND-8020R_2.10.02 _20220401_R599	2022/04/20	2.10.02	- Added certificate management function
XND/V-C6083RV XND/V-C7083RV	XND-C7083RV_2.22.03 _20231025_R410	2023/11/14	2.22.03	
XNV-C8083R XNV-C9083R	XND-C9083RV_2.22.03 _20231025_R429	2023/11/14	2.22.03	- Corrected an issue where the [Time schedule] feature did not intermittently work after the camera rebooted - Corrected an issue where the admin password wasn't changed when you tried changing the admin password using the ONVIF protocol
XNF-8010R(RV)	XNF-8010R_2.10.04 _20230328_R640	2023/05/11	2.10.04	- When setting the H.264/H.265 codec, you can set the minimum bitrate to 10 kbps
XNF-9010RV	XNF-9010RV_2.22.03 _20231025_R448	2023/11/14	2.22.03	- Fixed an issue where the web page was not opened after a virtual channel was added to it
XNP-6400(R)	XNP-9250R_2.22.01 _20231031_R344	2023/11/14	2.22.01	- Added a function to configure the MTU size between 1,280 and 1,500 in [Setup] > [Basic] > [IP & Port] > [IP address]
XNV-6011	XNV-6011_2.10.02 _20220117_R573	2022/02/07	2.10.02	- Added certificate management function
XND/O/V-8082R	XNV-9082R_2.22.03 _20231025_R472	2023/11/14	2.22.03	- Fixed an issue where the web page was not opened after a virtual channel was added to it

## Encoder / Decoder

Model	Filename	Date	Version	Release Note
SPD-152	SPD-152_5.10.32 _230508130731	2023/05/10	5.10.32	<ul style="list-style-type: none"> <li>- Deleted the function of synchronizing a decoder SPD-152 with a camera audio</li> <li>- Enable the sequence to operate in the latest layout configuration when the decode restarts after it reboots in operation of layout sequence functions</li> <li>- Increased the maximum number of layouts from 10 to 20 for layout configuration and operation of layout sequence</li> </ul>
SPD-260B SPD-1660R	SPD-1660R-PKG_v2.12 _210114194116	2021/02/01	2.12	<ul style="list-style-type: none"> <li>- Fixed an issue where some H.265 resolutions could not be decoded in Wisenet 7 cameras.</li> <li>- Fixed an issue where video is not displayed once in a while when switched to layout after connecting to SSM.</li> </ul>
SPE-110	SPE110_1.31 _200310_1700	2020/03/25	1.31	<ul style="list-style-type: none"> <li>- Supports video output setup</li> <li>- Provides the notification message "Live video cannot be played" on maximum streaming</li> </ul>
SPE-1620	SPE-1620_2.21.02 _20230807_R198	2023/08/11	2.21.02	<ul style="list-style-type: none"> <li>- Fixed an issue that caused the encoder to reboot when disconnected from the camera on the firmware v2.21.01</li> </ul>
SPE-420	SPE-420_2.21.02 _20230803_R152	2023/08/11	2.21.02	
SPE-1630	SPE-1630_2.21.01 _20230309_R149	2023/03/24	2.21.01	<ul style="list-style-type: none"> <li>- Added a function to display the time in "Month-Day-Year Hour:Minute" format if H.264 or H.265 codec is applied</li> <li>- Fixed an error where ONVIF discovery communication was not available between a camera and Wisenet Device Manager in a certain circumstance</li> </ul>

## Software

Model	Filename	Date	Version
Wisenet SSM	2.14.02	2023/12/15	- Bug fixes and functional improvements
Wisenet Viewer	1.04.00	2023/02/23	- Bug fixes and functional improvements
Smart Viewer	4.9.13	2022/05/18	- Bug fixes and functional improvements
Wisenet mobile	2.07.02	2023/12/20	- Bug fixes and functional improvements

## HDD Compatibility List

Revision 11.24

Release date : 2023.12.14

[Hanwhavision.com](http://Hanwhavision.com) > Support > Data Center > HDD Compatibility

**Major change**

1. New model : XRN-6420DB4

- ST6000VX008-2ZP1, ST4000VX015-3CU1, ST8000VX009-2ZP1, WD8001PURA-64B6VY0

2. WD PURU Series Restrictions Added: XRN-6420DB4

- WD42PURU-64C4CY0, WD63PURU-64C4FY0

- Only products produced after July 15, 2023