

Hanwha Vision

# Network Camera

## Release Notes

2025-07-02

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# Network Camera Version 25.01

This document describes the new and changed features of Hanwha Vision network camera version 25.01

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## Common Features

### [New Features]

- Added support for the [Edge recording] function in Cloud Connector
  - Applies to:
    - [v25.01.06, PNM-C16083RVQ, PNM-C32083RVQ]
    - [v25.01.02, PNM-C16083RQZ, PNM-C32083RQZ]
    - [v25.01.06, PNM-C16083RVQ, PNM-C32083RVQ]
    - [v25.01.07, PNM-C34404RQPZ]
    - [v25.01.03, PNM-C16083RQZ, PNM-C32083RQZ]
- Removed support for the recording and playback functions of the camera when the [Edge recording] feature of Cloud Connector is enabled (The recording and playback menus in the camera web viewer will disappear).
  - Applies to:
    - [v25.01.06, PNM-C16083RVQ, PNM-C32083RVQ]
    - [v25.01.02, PNM-C16083RQZ, PNM-C32083RQZ]
    - [v25.01.06, PNM-C16083RVQ, PNM-C32083RVQ]
    - [v25.01.07, PNM-C34404RQPZ]
    - [v25.01.03, PNM-C16083RQZ, PNM-C32083RQZ]
- Changed to the FE binary where Onsemi motor driver IC was replaced with VM107 due to the discontinuation of the driver IC
  - Applies to:
    - [v25.01.06, PNM-C16083RVQ, PNM-C32083RVQ]
- Changed the PTR motor position logic due to the application of VM107
  - Applies to:
    - [v25.01.06, PNM-C34404RQPZ]
    - [v25.01.02, PNM-C32083RQZ, PNM-C16083RQZ]
    - [v25.01.02, PNM-C32084RQZ]
- Added support for Cloud Connector

- Applies to:  
[v25.01.03, XNO-A9084R, XNV-A9084R, XND-A9084RV, XNO-A8084R, XNV-A8084R, XND-A8084RV]
- Reduced time to generate files required for playback
  - Applies to:  
[v25.01.06, PNM-C16083RVQ, PNM-C32083RVQ]  
[v25.01.07, PNM-C34404RQPZ]  
[v25.01.03, PNM-C16083RQZ, PNM-C32083RQZ]
- The WiseAI app now automatically terminates when the Cloud Connector app is authenticated
  - Applies to:  
[v25.01.06, PNM-C16083RVQ, PNM-C32083RVQ]  
[v25.01.07, PNM-C34404RQPZ]  
[v25.01.03, PNM-C16083RQZ, PNM-C32083RQZ]
- Fixed the issue where image specifications were different for each channel when uploading overlay images, and changed it so that all channels support the same image specifications
  - Applies to:  
[v25.01.07, PNM-C34404RQPZ]
- Added "Red," "Green," and "Blue" to the existing "Black," "White," and "Gray" options, now supporting a total of six colors for privacy area masks and OSD
  - Applies to:  
[v25.01.06, PNM-C16083RVQ, PNM-C32083RVQ]  
[v25.01.07, PNM-C34404RQPZ]  
[v25.01.03, PNM-C16083RQZ, PNM-C32083RQZ]
- Added an [SFTP] option to [Protocol] in [FTP configuration] under [Events] > [FTP/E-mail] in the web viewer
  - Applies to:  
[v25.01.06, PNM-C16083RVQ, PNM-C32083RVQ]  
[v25.01.07, PNM-C34404RQPZ]  
[v25.01.03, PNM-C16083RQZ, PNM-C32083RQZ]
- Improved NAS settings to allow SMB version configuration
  - Applies to:  
[v25.01.06, PNM-C16083RVQ, PNM-C32083RVQ]  
[v25.01.07, PNM-C34404RQPZ]

[v25.01.03, PNM-C16083RQZ, PNM-C32083RQZ]

- Added the [Remote log transmission] option under the [Access log] tab in the [System]>[Log] of the web viewer so that you can send camera log information via a remote system
  - Applies to:  
[v25.01.03, PNM-C16083RQZ, PNM-C32083RQZ]

## **[Improvement]**

- Optimized bitrate usage through detailed control based on nighttime environmental information
  - Applies to:  
[v25.01.01, TNO-A26081]
- Displays an error popup when an invalid license key or activation code is entered
  - Applies to:  
[v25.01.01, TNO-A26081]
- Improved the logic of the execution command for the LLDPd (Link Layer Discovery Protocol daemon) within the camera by adding "-ccc", allowing it to forcefully send CDP (Cisco Discovery Protocol) packets even if CDP switches are not detected
  - Applies to:  
[v25.01.01, TNO-A26081]
- Added detailed app information and improved the layout of the Open platform page in the web viewer
  - Applies to:  
[v25.01.01, TNO-A26081]
- Extended the maximum loitering time from 600 seconds to 900 seconds in the [Detection conditions] section under [Analytics] > [IVA area] in the WiseAI app
  - Applies to:  
[v25.01.01, TNO-A26081]
- Changed specifications to prevent the deleted WiseAI app from being reinstalled when you upgrade camera firmware
  - Applies to:  
[v25.01.02, TNO-A26081]
- Added description for DPM in the video profile and corrected an issue where the name of the option of the WDR menu "Motion artifact reduction" was not displaying correctly
  - Applies to:  
[v25.01.01, XNO-A9084R, XNV-A9084R, XND-A9084RV, XNO-A8084R, XNV-A8084R, XND-A8084RV]

- Improved codec performance
  - Applies to:  
[v25.01.01, XNO-A9084R, XNV-A9084R, XND-A9084RV, XNO-A8084R, XNV-A8084R, XND-A8084RV]
- Improved codec bit-saving performance in WDR mode in low-light environments
  - Applies to:  
[v25.01.02, XNO-A9084R, XNV-A9084R, XND-A9084RV, XNO-A8084R, XNV-A8084R, XND-A8084RV]
- Made HTTPS default
  - Applies to:  
[v25.01.06, PNM-C16083RVQ, PNM-C32083RVQ]  
[v25.01.07, PNM-C34404RQPZ]  
[v25.01.03, PNM-C16083RQZ, PNM-C32083RQZ]
- The SNMP community string has been changed to be left empty by default so that the value can be entered by users.
  - Applies to:  
[v25.01.06, PNM-C16083RVQ, PNM-C32083RVQ]  
[v25.01.07, PNM-C34404RQPZ]  
[v25.01.03, PNM-C16083RQZ, PNM-C32083RQZ]

## [Bug Fixes]

- Corrected an issue where clicking [Analytics] > [WiseAI] in the web viewer did not navigate to the WiseAI app when the app status was "Running" displayed on the Open platform page of the web viewer
  - Applies to:  
[v25.01.01, TNO-A26081]
- Corrected an issue where some events were missing when SSM received [Slip & fall detection] events after the camera is connected to SSM
  - Applies to:  
[v25.01.01, TNO-A26081]

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## Security Improvements

- Open source version updates and patches (improvements to known open source



vulnerabilities)

- Applies to:  
[v25.01.02, TNO-A26081]

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## Firmware Upgrade and Downgrade

### PNM-C16083RVQ, PNM-C32083RVQ (v25.01.06)

- To upgrade from versions 23.01.03 or earlier to versions 24.01.05 or later, you must first upgrade to version 23.01.04.
- Versions 23.01.04 and 23.01.05 cannot be downgraded to versions 23.01.03 or earlier.

### PNM-C34404RQPZ (v25.01.07)

- To upgrade from versions 23.01.03 or earlier to versions 24.01.05 or later, you must first upgrade to version 23.01.04.
- Versions 23.01.04 and 23.01.05 cannot be downgraded to versions 23.01.03 or earlier.
- Versions 25.01.06 or later cannot be downgraded to versions 24.01.05 or earlier.

### PNM-C16083RQZ, PNM-C32083RQZ (v25.01.03)

- Versions 25.01.02 or later cannot be downgraded to versions 24.01.01 or earlier.

### PNM-C32084RQZ (v25.01.02)

- Versions 25.01.02 or later cannot be downgraded to versions 24.01.01 or earlier.

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## Affected Products

Table 1. Product Family Based On Version 25.01

Major Model	Model Name
TNO-A26081	TNO-A26081
PNM-C32083RVQ	PNM-C16083RVQ PNM-C32083RVQ
PNM-C32083RQZ	PNM-C16083RQZ

Major Model	Model Name
	PNM-C32083RQZ
XNO-A9084R	XNO-A9084R XNV-A9084R XND-A9084RV XNO-A8084R XNV-A8084R XND-A8084RV

# Network Camera Version 24.01

This document describes the new and changed features of Hanwha Vision network camera version 24.01

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## Common Features

### [New Features]

- Integrated the WiseAI application supporting AI functionality
  - Applies to:  
[v24.01.01, PNM-C32084RQZ]
- Added a checkbox, respectively, to the [Bridge] and [Port mapping] options in the [Jetson port] section under the [Port] tab in [Basic]>[IP & Port] of the web viewer to allow you to enable or disable these options
  - Applies to:  
[v24.01.01, PNM-C32084RQZ]
- Displays icons indicating object properties in [Analysis]>[BestShot & Attributes] of the WiseAI application
  - Applies to:  
[v24.01.05, PNM-C16083RVQ, PNM-C32083RVQ]  
[v24.01.05, PNM-C34404RQPZ]
- Added support for the ONVIF profile M function
  - Applies to:  
[v24.01.05, PNM-C16083RVQ, PNM-C32083RVQ]  
[v24.01.05, PNM-C34404RQPZ]
- Added the DetectionShot feature (PTZ channel only)
  - Applies to:  
[v24.01.05, PNM-C16083RVQ, PNM-C32083RVQ]  
[v24.01.05, PNM-C34404RQPZ]
- Displays the Docker installation status in the top right corner of the Open platform page
  - Applies to:  
[v24.01.05, PNM-C16083RVQ, PNM-C32083RVQ]  
[v24.01.05, PNM-C34404RQPZ]
- Added the [Upload bitmap] feature to the [OSD] tab in [Video & Audio]>[Camera settings] of the web viewer so that the bitmap image can be shown as overlay.

- Applies to:  
[v24.01.05, PNM-C16083RVQ, PNM-C32083RVQ]  
[v24.01.05, PNM-C34404RQPZ]
- Added the [Admin login timeoutt] feature in [Basic]>[Users] of the web viewer to automatically log out the admin account if there is no activity during the set time after logging in
  - Applies to:  
[v24.01.05, PNM-C16083RVQ, PNM-C32083RVQ]  
[v24.01.05, PNM-C34404RQPZ]
- Added the [Remote log transmission] option under the [Access log] tab in the [System]>[Log] of the web viewer so that you can send camera log information via a remote system
  - Applies to:  
[v24.01.05, PNM-C16083RVQ, PNM-C32083RVQ]  
[v24.01.05, PNM-C34404RQPZ]
- Added a function of creating an FTP file name by selecting [IPAddress], [YY], [MM], [DD], [hh], [mm], [ss], or [RuleIndex] in [Event]>[FTP/E-mail]
  - Applies to:  
[v24.01.05, PNM-C16083RVQ, PNM-C32083RVQ]  
[v24.01.05, PNM-C34404RQPZ]

## **[Improvement]**

- Improved the Jetson flashing upgrade functionality. Now validates the uploaded image file for the upgrade; if the image is determined to be invalid, the Jetson flashing upgrade will not proceed. Additionally, if the upgrade fails due to network issues or other reasons, the upgrade will be re-attempted automatically
  - Applies to:  
[v24.01.01, PNM-C32084RQZ]
- Optimized CPU utilization to enhance the performance and efficiency of the application
  - Applies to:  
[v24.01.01, PNM-C32084RQZ]  
[v24.01.05, PNM-C16083RVQ, PNM-C32083RVQ]  
[v24.01.05, PNM-C34404RQPZ]
- Reflected improvement in manufacturing and process efficiency (no impact on users and product usability)
  - Applies to:

[v24.01.01, PNM-C20000QB]

### [Bug Fixes]

- Corrected an issue that caused the camera to reboot intermittently due to failure in capturing video frames
  - Applies to:
    - [v24.01.01, PNM-C32084RQZ]
    - [v24.01.05, PNM-C16083RVQ, PNM-C32083RVQ]
    - [v24.01.05, PNM-C34404RQPZ]
  
- Corrected an issue where only information for channel 1 was being received instead of information for all channels when requesting videocodecinfo-related SUNAPI
  - Applies to:
    - [v24.01.01, PNM-C16083RQZ]
    - [v24.01.01, PNM-C32083RQZ]
  
- Corrected an issue where motion detection events were not triggered when connecting cameras via ONVIF
  - Applies to:
    - [v24.01.01, PNM-C16083RQZ]
    - [v24.01.01, PNM-C32083RQZ]

---

## Affected Products

Table 2. Product Family Based On Version 24.01

Major Model	Model Name
PNM-C32084RQZ	PNM-C32084RQZ
PNM-C16083RQZ	PNM-C16083RQZ
PNM-C32083RQZ	PNM-C32083RQZ
PNM-C32083RVQ	PNM-C16083RVQ PNM-C32083RVQ
PNM-C34404RQPZ	PNM-C34404RQPZ

# Network Camera Version 23.01

This document describes the new and changed features of Hanwha Vision network camera version 23.01

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## Common Features

### [New Features]

- Added support for the ONVIF profile M function
  - Applies to:  
[v23.01.03, PNM-C16083RVQ, PNM-C32083RVQ]  
[v23.01.03, PNM-C34404RQPZ]
- Enables dockerized apps to run in [Open platform]
  - Applies to:  
[v23.01.03, PNM-C16083RVQ, PNM-C32083RVQ]  
[v23.01.03, PNM-C34404RQPZ]
- Added the [Power mode] feature to [System]. You can choose the power mode between [PoE+] and [PoE++].
  - Applies to:  
[v23.01.03, PNM-C16083RVQ, PNM-C32083RVQ]
- Applied an updated web page
  - Applies to:  
[v23.01.04, PNM-C16083RVQ, PNM-C32083RVQ]  
[v23.01.04, PNM-C34404RQPZ]
- Changed the PTR motor position logic due to the application of VM107
  - Applies to:  
[v2.23.06, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]  
[v2.23.06, XNV-6083RZ, XNV-6083Z]

### [Improvement]

- Allows event triggers from PTZ channels to be registered as event rules
  - Applies to:  
[v23.01.03, PNM-C34404RQPZ]

- Allows you to mark 4 points on video to create a square or rectangle privacy area in [video & Audio] > [video setup]
  - Applies to:
    - [v23.01.03, PNM-C16083RVQ, PNM-C32083RVQ]
    - [v23.01.03, PNM-C34404RQPZ]

## [Bug Fixes]

- Corrected an issue that caused the [Exclusive PTZ control] feature malfunction
  - Applies to:
    - [v23.01.02, PNM-C34404RQPZ]
- Corrected an issue where the [External] option didn't appear when you clicked the [Mode] dropdown list under the [Day/Night] tab in [video & Audio] < [Camera setup] after you connect an I/O box to the camera
  - Applies to:
    - [v23.01.03, PNM-C34404RQPZ]
- Corrected an issue that slowed down Zoom and caused the [Simple focus] feature to malfunction
  - Applies to:
    - [v23.01.03, PNM-C34404RQPZ]
- Corrected an issue where the [Handover] feature did not work properly when you selected the [IPv6] option for the [IP type] list in the [Add Camera] window in [Event]>[Handover]
  - Applies to:
    - [v23.01.03, PNM-C16083RVQ, PNM-C32083RVQ]
    - [v23.01.03, PNM-C34404RQPZ]
- Corrected an issue that caused WiFi Dongle to malfunction
  - Applies to:
    - [v23.01.04, PNM-C16083RVQ, PNM-C32083RVQ]
    - [v23.01.04, PNM-C34404RQPZ]

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## Affected Products

Table 3. Product Family Based On Version 23.01

Major Model	Model Name
PNM-C34404RQPZ	PNM-C34404RQPZ
PNM-C32083RVQ	PNM-C16083RVQ

Major Model	Model Name
	PNM-C32083RVQ



# Network Camera Version 2.23

This document describes the new and changed features of Hanwha Vision network camera version 2.23

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## Common Features

### [New Features]

- Added an [SFTP] option to [Protocol] in [FTP configuration] under [Events] > [FTP/E-mail] in the web viewer
  - Applies to:
    - [v2.23.00, XNB-8002, XNB-9002]
    - [v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]
    - [v2.23.00, XNB-6002]
    - [v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.23.00, XNF-9013RV]
    - [v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]
    - [v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]
    - [v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]
    - [v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]
    - [v2.23.00, XNO-6123R, XNV-6123R]
    - [v2.23.00, XNV-6083RZ, XNV-6083Z]
    - [v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]
    - [v2.23.00, TNV-C7013RC]
    - [v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]
    - [v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
    - [v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
    - [v2.23.00, XNP-C7310R, XNP-C9310R]
    - [v2.23.00, PNM-C9022RV] [v.2.23.01, PNM-C9022RV]
    - [v.2.23.00, PNM-9031RV]
    - [v.2.23.01, PNM-9031RV]

[v2.23.00, PNB-A9001LP]

[v2.23.01, PNB-A9001LP]

[v2.23.00, PNO-A9081RLP, PNV-A9081RLP]

[v2.23.01, PNO-A9081RLP, PNV-A9081RLP]

- Added a function where you can send video footage related to an event occurrence via FTP/SFTP when you set the profile of H.264 or H.265 codec as the event profile

- Applies to:

[v2.23.00, XNB-8002, XNB-9002]

[v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]

[v2.23.00, XNB-6002]

[v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]

[v2.23.00, XNF-9013RV]

[v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]

[v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]

[v2.23.00, XNO-6123R, XNV-6123R]

[v2.23.00, XNV-6083RZ, XNV-6083Z]

[v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]

[v2.23.00, TNV-C7013RC]

[v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]

[v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]

[v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]

[v2.23.00, XNP-C7310R, XNP-C9310R]

[v2.23.00, PNM-C9022RV] [v2.23.01, PNM-C9022RV]

[v2.23.00, PNM-9031RV]

[v2.23.01, PNM-9031RV]

- Added an AI-based vehicle counting feature

- Applies to:

[v2.23.00, XNF-9013RV]

[v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]

[v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]

[v2.23.00, XNO-6123R, XNV-6123R]

[v2.23.00, XNV-6083RZ, XNV-6083Z]

[v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]

[v2.23.00, TNV-C7013RC]

- Added a [Simple focus schedule] feature in [video & Audio]>[PTRZ setup] or in [video & Audio]>[Focus setup] so that the simple-focus function can run on the scheduled date and time

- Applies to:

[v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]

[v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]

[v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.23.00, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XND-9083RV, XNO-9083R, XNV-9083R]

[v2.23.00, XNO-6123R, XNV-6123R]

[v2.23.00, XNV-6083RZ, XNV-6083Z, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]

[v2.23.00, PNM-C9022RV] [v2.23.01, PNM-C9022RV]

[v2.23.00, PNM-9031RV]

[v2.23.01, PNM-9031RV]

- Added a [Vendor class] entry box in [Basic]>[IP & Port]>[IP address] (The entry box appears only when you select [DHCP] under [IP type].)

- Applies to:

[v2.23.00, XNB-8002, XNB-9002]

[v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]

[v2.23.00, XNB-6002]

[v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]

[v2.23.00, XNF-9013RV]

[v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R,

XNV-C7083R, XNV-C6083]

[v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]

[v2.23.00, XNO-6123R, XNV-6123R]

[v2.23.00, XNV-6083RZ, XNV-6083Z]

[v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]

[v2.23.00, TNV-C7013RC]

[v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]

[v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]

[v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]

[v2.23.00, XNP-C7310R, XNP-C9310R]

[v2.23.00, PNM-C9022RV] [v2.23.01, PNM-C9022RV]

[v2.23.00, PNM-9031RV]

[v2.23.01, PNM-9031RV]

- Added a function of creating an FTP file name by selecting [IPAddress], [YY], [MM], [DD], [hh], [mm], [ss], or [RuleIndex] in [Event]>[FTP/E-mail]

- Applies to:

[v2.23.00, XNB-8002, XNB-9002]

[v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]

[v2.23.00, XNB-6002]

[v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]

[v2.23.00, XNF-9013RV]

[v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]

[v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]

[v2.23.00, XNO-6123R, XNV-6123R]

[v2.23.00, XNV-6083RZ, XNV-6083Z]

[v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]

[v2.23.00, TNV-C7013RC]

[v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]

[v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]

[v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]

[v2.23.00, XNP-C7310R, XNP-C9310R]

[v2.23.00, PNM-C9022RV] [v2.23.01, PNM-C9022RV]

[v2.23.00, PNM-9031RV]

[v2.23.01, PNM-9031RV]

- Allows you to select an object type in [Analytics]>[Motion detection]>[Include area] as the motion detection feature has changed to AI-based feature

- Applies to:

[v2.23.00, XNF-9013RV]

[v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]

[v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]

[v2.23.00, XNO-6123R, XNV-6123R]

[v2.23.00, XNV-6083RZ, XNV-6083Z]

[v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]

[v2.23.00, TNV-C7013RC]

[v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]

[v2.23.00, XNP-C7310R, XNP-C9310R]

- Allows you to choose a [Base64 image encoding] option when sending DetectionShot in [Analytics]>[Object detection]>[DetectionShot]

- Applies to:

[v2.23.00, XNF-9013RV]

[v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]

[v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]

- [v2.23.00, XNO-6123R, XNV-6123R]
- [v2.23.00, XNV-6083RZ, XNV-6083Z]
- [v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]
- [v2.23.00, TNV-C7013RC]
- [v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
- [v2.23.00, XNP-C7310R, XNP-C9310R]
- [v2.23.00, PNM-C9022RV] [v.2.23.01, PNM-C9022RV]
- Added an option to type GPS coordinates (longitude, latitude). (For PTZ models, go to [video & Audio]>[Location setup]; for non-PTZ models, go to [System]>[Product information]).
  - Applies to:
    - [v2.23.00, XNB-8002, XNB-9002]
    - [v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]
    - [v2.23.00, XNB-6002]
    - [v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.23.00, XNF-9013RV]
    - [v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]
    - [v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]
    - [v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]
    - [v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]
    - [v2.23.00, XNO-6123R, XNV-6123R]
    - [v2.23.00, XNV-6083RZ, XNV-6083Z]
    - [v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]
    - [v2.23.00, TNV-C7013RC]
    - [v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]
    - [v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
    - [v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
    - [v2.23.00, XNP-C7310R, XNP-C9310R]
    - [v2.23.00, PNM-C9022RV] [v.2.23.01, PNM-C9022RV]
    - [v2.23.00, PNM-9031RV]
    - [v2.23.01, PNM-9031RV]

- Added an [Auto tracking] option to [Event action settings] in [Event]>[Event rule]
  - Applies to:
    - [v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]
    - [v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
    - [v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
    - [v2.23.00, XNP-C7310R, XNP-C9310R]
- Allows you to set auto-run up to 30 minutes in [PTZ]>[PTZ setup]>[Auto run]
  - Applies to:
    - [v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]
    - [v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
    - [v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
    - [v2.23.00, XNP-C7310R, XNP-C9310R]
- Added the [Day/Night mode > Day] and [Day/Night mode > Night] options to [Follow-up action] under [Preset setup] in [PTZ]>[PTZ setup]>[Preset]. (The [IR] mode in [video & Audio]>[Camera setup] changes automatically depending on Night or Day setting.)
  - Applies to:
    - [v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]
    - [v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
    - [v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
    - [v2.23.00, XNP-C7310R, XNP-C9310R]
- Allows you to set a font size between 1 and 100 in [video & Audio]>[Camera setup]>[Image preset mode]>[OSD]>[System info]
  - Applies to:
    - [v2.23.00, XNB-8002, XNB-9002]
    - [v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]
    - [v2.23.00, XNB-6002]
    - [v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.23.00, XNF-9013RV]
    - [v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]
    - [v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]

[v2.23.00, XNO-6123R, XNV-6123R]

[v2.23.00, XNV-6083RZ, XNV-6083Z]

[v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]

[v2.23.00, TNV-C7013RC]

[v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]

[v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]

[v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]

[v2.23.00, XNP-C7310R, XNP-C9310R]

- Added a function where a rule you created in [Analytics]>[Motion detection] can become an option for [Event trigger] in [Event]>[Event rule]

- Applies to:

[v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]

[v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]

[v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]

[v2.23.00, XNP-C7310R, XNP-C9310R]

- Added a function where an option you selected in [Category] in [Analytics]>[Sound classification] can become an option for [Event trigger] in [Event]>[Event rule]

- Applies to:

[v2.23.00, XNB-8002, XNB-9002]

[v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]

[v2.23.00, XNB-6002]

[v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]

[v2.23.00, XNF-9013RV]

[v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]

[v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]

[v2.23.00, XNO-6123R, XNV-6123R]

[v2.23.00, XNV-6083RZ, XNV-6083Z]



[v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]

[v2.23.00, TNV-C7013RC]

[v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]

[v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]

[v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]

[v2.23.00, XNP-C7310R, XNP-C9310R]

[v2.23.00, PNM-C9022RV] [v2.23.01, PNM-C9022RV]

[v2.23.00, PNM-9031RV]

[v2.23.01, PNM-9031RV]

- Added a [PTZ motion] option to [Event trigger] in [Event]>[Event rule]

- Applies to:

[v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]

[v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]

[v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]

[v2.23.00, XNP-C7310R, XNP-C9310R]

- Added a function where a rule you created in [Analytics]>[IVA] can become an option for [Event trigger] in [Event]>[Event rule]

- Applies to:

[v2.23.00, XNB-8002, XNB-9002]

[v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]

[v2.23.00, XNB-6002]

[v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]

[v2.23.00, XNF-9013RV]

[v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]

[v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]

[v2.23.00, XNO-6123R, XNV-6123R]

[v2.23.00, XNV-6083RZ, XNV-6083Z]

[v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]

[v2.23.00, TNV-C7013RC]

- [v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]
- [v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
- [v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
- [v2.23.00, XNP-C7310R, XNP-C9310R]
- Added [Auto release], [Re-detect missing objects], and [Action after auto tracking] features in [Analytics]>[Auto tracking]
  - Applies to:
    - [v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]
    - [v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
    - [v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
    - [v2.23.00, XNP-C7310R, XNP-C9310R]
- Added support for Cloud Connector
  - Applies to:
    - [v2.23.01, XNB-8002, XNB-9002, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]
    - [v2.23.01, XNB-6002]
    - [v2.23.01, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.23.01, XNF-9013RV]
    - [v2.23.01, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]
    - [v2.23.01, XND-C8083RV, XND-C9083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]
    - [v2.23.01, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]
    - [v2.23.01, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]
    - [v2.23.01, XNO-6123R, XNV-6123R]
    - [v2.23.01, XNV-6083RZ, XNV-6083Z]
    - [v2.23.01, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]
    - [v2.23.01, XNP-9300RW, XNP-8300RW, XNP-6400RW]
    - [v2.23.01, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
    - [v2.23.01, XNP-C7310R, XNP-C9310R]
    - [v2.23.01, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
    - [v2.23.01, TNV-C7013RC]
- Ensured that the default applications pre-installed on the camera remain intact after a factory

reset and are set to automatically start. The default applications run at high priority.

- Applies to:
  - [v2.23.01, XNB-8002, XNB-9002, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]
  - [v2.23.01, XNB-6002]
  - [v2.23.01, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
  - [v2.23.01, XNF-9013RV]
  - [v2.23.01, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]
  - [v2.23.01, XND-C8083RV, XND-C9083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]
  - [v2.23.01, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]
  - [v2.23.01, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]
  - [v2.23.01, XNO-6123R, XNV-6123R]
  - [v2.23.01, XNV-6083RZ, XNV-6083Z]
  - [v2.23.01, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]
  - [v2.23.01, XNP-9300RW, XNP-8300RW, XNP-6400RW]
  - [v2.23.01, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
  - [v2.23.01, XNP-C7310R, XNP-C9310R]
  - [v2.23.01, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
  - [v2.23.01, TNV-C7013RC]
- Increased the number of options for [Event trigger] in [Events] > [Event rules] in the web viewer from 64 to 256
  - Applies to:
    - [v2.23.00, PNM-C9022RV] [v2.23.01, PNM-C9022RV]
    - [v2.23.00, PNM-9031RV]
    - [v2.23.01, PNM-9031RV]
- Added individual rule (line, area) options in IVA to the [Event trigger] section of [Event]>[Event rule] in the web viewer
  - Applies to:
    - [v2.23.00, PNM-C9022RV] [v2.23.01, PNM-C9022RV]
    - [v2.23.00, PNM-9031RV]
    - [v2.23.01, PNM-9031RV]
- Added an option to select the Ethernet connection type
  - Applies to:

[v.2.23.00, PNM-C9022RV] [v.2.23.01, PNM-C9022RV]

[v.2.23.00, PNM-9031RV]

[v.2.23.01, PNM-9031RV]

- Added a feature to integrate I/O box
  - Applies to:
    - [v.2.23.00, PNM-C9022RV] [v.2.23.01, PNM-C9022RV]
    - [v.2.23.00, PNM-9031RV]
    - [v.2.23.01, PNM-9031RV]
- Added a [Day/Night mode] option to the [Event trigger] section of [Event] > [Event rule] in the web viewer
  - Applies to:
    - [v.2.23.00, PNM-C9022RV] [v.2.23.01, PNM-C9022RV]
    - [v.2.23.00, PNM-9031RV]
    - [v.2.23.01, PNM-9031RV]
- Updated the Ambarella Chip SDK version from v2 to v3
  - Applies to:
    - [v.2.23.00, PNB-A9001LP]
    - [v.2.23.01, PNB-A9001LP]
    - [v.2.23.00, PNO-A9081RLP, PNV-A9081RLP]
    - [v.2.23.01, PNO-A9081RLP, PNV-A9081RLP]
- Added the [Manual] option to the [Mode] drop-down list under the [IR] tab in [video & Audio]>[Camera settings] in the web viewer
  - Applies to:
    - [v.2.23.00, PNO-A9081RLP, PNV-A9081RLP]
    - [v.2.23.01, PNO-A9081RLP, PNV-A9081RLP]
- Added the [Night exposure] feature under the [Exposure] tab in [video & Audio]>[Camera settings] in the web viewer
  - Applies to:
    - [v.2.23.00, PNB-A9001LP]
    - [v.2.23.01, PNB-A9001LP]
    - [v.2.23.00, PNO-A9081RLP, PNV-A9081RLP]
    - [v.2.23.01, PNO-A9081RLP, PNV-A9081RLP]
- Updated the [Video profile] section in [Basic]>[Video profile] in the web viewer to allow you to configure [GOV length], [Entropy coding], [Dynamic GOV], and [Dynamic FPS] options in

the [Advanced] section, even when you select the [Edge recording profile] option in the [Profile type] list

- Applies to:
  - [v2.23.00, PNB-A9001LP]
  - [v2.23.01, PNB-A9001LP]
  - [v2.23.00, PNO-A9081RLP, PNV-A9081RLP]
  - [v2.23.01, PNO-A9081RLP, PNV-A9081RLP]
- Removed support for SD card-related CGI to prevent functionality conflicts within a camera equipped with Wisenet Road AI (an app installed on the open platform) using dedicated SD cards (Using the SD card for purposes other than Wisenet Road AI functionality will cause functionality conflicts.)
  - Applies to:
    - [v2.23.00, PNB-A9001LP]
    - [v2.23.01, PNB-A9001LP]
    - [v2.23.00, PNO-A9081RLP, PNV-A9081RLP]
    - [v2.23.01, PNO-A9081RLP, PNV-A9081RLP]
- Updated the version of Open platform's AppHelper library
  - Applies to:
    - [v2.23.00, PNB-A9001LP]
    - [v2.23.01, PNB-A9001LP]
    - [v2.23.00, PNO-A9081RLP, PNV-A9081RLP]
    - [v2.23.01, PNO-A9081RLP, PNV-A9081RLP]
- Updated the version of Wisenet Road AI according to the version update of Ambarella Chip SDK
  - Applies to:
    - [v2.23.00, PNB-A9001LP]
    - [v2.23.01, PNB-A9001LP]
    - [v2.23.00, PNO-A9081RLP, PNV-A9081RLP]
    - [v2.23.01, PNO-A9081RLP, PNV-A9081RLP]
- Added the [Data storage] option to [SETTINGS]>[Recognition setup] in [Wisenet Road AI] so that you can choose where to store data. (To navigate to the [Wisenet Road AI] application, click [Go App] in the [Wisenet Road AI] section of the app list in [Open platform] of the web viewer)
  - Applies to:
    - [v2.23.00, PNB-A9001LP]

[v2.23.01, PNB-A9001LP]

[v2.23.00, PNO-A9081RLP, PNV-A9081RLP]

[v2.23.01, PNO-A9081RLP, PNV-A9081RLP]

- Added a [Certificate management] option to [Network] in the web viewer to allow you to manage certificates
  - Applies to:
    - [v2.23.00, PNB-A9001LP]
    - [v2.23.01, PNB-A9001LP]
    - [v2.23.00, PNO-A9081RLP, PNV-A9081RLP]
    - [v2.23.01, PNO-A9081RLP, PNV-A9081RLP]
- Added the [Event rule] option to [Event] of the web viewer. You can add a trigger for each event rule and set an event action for the camera when an event occurs.
  - Applies to:
    - [v2.23.00, PNB-A9001LP]
    - [v2.23.01, PNB-A9001LP]
    - [v2.23.00, PNO-A9081RLP, PNV-A9081RLP]
    - [v2.23.01, PNO-A9081RLP, PNV-A9081RLP]
- Added the [MQTT] option to [Event] in the web viewer to provide support for the MQTT protocol
  - Applies to:
    - [v2.23.00, PNB-A9001LP]
    - [v2.23.01, PNB-A9001LP]
    - [v2.23.00, PNO-A9081RLP, PNV-A9081RLP]
    - [v2.23.01, PNO-A9081RLP, PNV-A9081RLP]
- Changed to the FE binary where Panasonic motor driver IC was replaced with VM117 due to the discontinuation of the driver IC
  - Applies to:
    - [v2.23.05, XNB-6003]
- Impossible to downgrade the firmware using VM117 to the earlier firmware using the Panasonic motor driver IC
  - Applies to:
    - [v2.23.05, XNB-6003]
- Added support for the [Edge recording] function in Cloud Connector
  - Applies to:

[v2.23.05, XNP-C9303RW, XNP-C9253R, XNP-C9253, XNP-C8303RW, XNP-C8253R, XNP-C8253, XNP-C6403RW, XNP-C6403R, XNP-C6403]

[v2.23.05, XNP-C9310R, XNP-C7310R]

[v2.23.07, XND-C9083RV, XNO-C9083R, XNV-C9083R, XNO-C8083R, XNV-C8083R, XND-C8083RV]

[v2.23.07, XND-9083RV, XNO-9083R, XNV-9083R, XNB-9003, XNO-8083R, XNV-8093R, XNV-8083R, XND-8093RV, XND-8083RV, XND-8083RVX, XNB-8003, XNV-8083RX]

[v2.23.06, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]

[v2.23.07, XNF-9013RV] [v2.23.06, XNF-9013R]

[v2.23.05, XND-C7083RV, XNO-C7083R, XNV-C7083R, XND-C6083RV, XNV-C6083R, XNV-C6083, XNO-C6083R]

[v2.23.04, XND-6083RV, XNV-6083R, XNO-6083R]

[v2.23.05, XNB-6003]

[v2.23.06, XNV-6083RZ, XNV-6083Z]

[v2.23.05, XNV-6123R, XNO-6123R]

[v2.23.07, XNV-9082R, XNO-9082R, XND-9082RF, XND-9082RV, XNB-9002, XNB-8002, XNV-8082R, XNO-8082R, XND-8082RF, XND-8082RV]

[v2.23.07, XNF-9010RV, XNF-9010RVM, XNF-9010RS]

[v2.23.07, XNB-6002]

[v2.23.07, TNV-C7013RC]

[v2.23.03, PNO-A9081R, PND-A9081RV, PND-A9081RVX, PNV-A9081R, PNV-A9081RX, PND-A9081RF]

[v2.23.03, PNO-A9311R]

[v2.23.03, PNB-A9001]

[v2.23.03, PNO-A6081R, PND-A6081RV, PNV-A6081R, PND-A6081RF]

[v2.23.03, PNB-A6001]

[v2.23.03, PNM-C9022RV]

- Removed support for the recording and playback functions of the camera when the [Edge recording] feature of Cloud Connector is enabled (The recording and playback menus in the camera web viewer will disappear)

- Applies to:

[v2.23.05, XNP-C9303RW, XNP-C9253R, XNP-C9253, XNP-C8303RW, XNP-C8253R, XNP-C8253, XNP-C6403RW, XNP-C6403R, XNP-C6403]

[v2.23.05, XNP-C9310R, XNP-C7310R]

[v2.23.07, XND-C9083RV, XNO-C9083R, XNV-C9083R, XNO-C8083R, XNV-C8083R, XND-C8083RV]

[v2.23.07, XND-9083RV, XNO-9083R, XNV-9083R, XNB-9003, XNO-8083R, XNV-8093R, XNV-8083R, XND-8093RV, XND-8083RV, XND-8083RVX, XNB-8003, XNV-8083RX]

[v2.23.06, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]

[v2.23.07, XNF-9013RV] [v2.23.06, XNF-9013R]  
 [v2.23.05, XND-C7083RV, XNO-C7083R, XNV-C7083R, XND-C6083RV, XNV-C6083R, XNV-C6083, XNO-C6083R]  
 [v2.23.04, XND-6083RV, XNV-6083R, XNO-6083R]  
 [v2.23.05, XNB-6003]  
 [v2.23.06, XNV-6083RZ, XNV-6083Z]  
 [v2.23.05, XNV-6123R, XNO-6123R]  
 [v2.23.07, XNV-9082R, XNO-9082R, XND-9082RF, XND-9082RV, XNB-9002, XNB-8002, XNV-8082R, XNO-8082R, XND-8082RF, XND-8082RV]  
 [v2.23.07, XNF-9010RV, XNF-9010RVM, XNF-9010RS]  
 [v2.23.07, XNB-6002]  
 [v2.23.07, TNV-C7013RC]  
 [v2.23.03, PNO-A9081R, PND-A9081RV, PND-A9081RVX, PNV-A9081R, PNV-A9081RX, PND-A9081RF]  
 [v2.23.03, PNO-A9311R]  
 [v2.23.03, PNB-A9001]  
 [v2.23.03, PNO-A6081R, PND-A6081RV, PNV-A6081R, PND-A6081RF]  
 [v2.23.03, PNB-A6001]  
 [v2.23.03, PNM-C9022RV]

- Reduced time to generate files required for playback

- Applies to:

[v2.23.05, XNP-C9303RW, XNP-C9253R, XNP-C9253, XNP-C8303RW, XNP-C8253R, XNP-C8253, XNP-C6403RW, XNP-C6403R, XNP-C6403]  
 [v2.23.05, XNP-C9310R, XNP-C7310R]  
 [v2.23.07, XND-C9083RV, XNO-C9083R, XNV-C9083R, XNO-C8083R, XNV-C8083R, XND-C8083RV]  
 [v2.23.07, XND-9083RV, XNO-9083R, XNV-9083R, XNB-9003, XNO-8083R, XNV-8093R, XNV-8083R, XND-8093RV, XND-8083RV, XND-8083RVX, XNB-8003, XNV-8083RX]  
 [v2.23.06, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]  
 [v2.23.07, XNF-9013RV] [v2.23.06, XNF-9013R]  
 [v2.23.05, XND-C7083RV, XNO-C7083R, XNV-C7083R, XND-C6083RV, XNV-C6083R, XNV-C6083, XNO-C6083R]  
 [v2.23.04, XND-6083RV, XNV-6083R, XNO-6083R]  
 [v2.23.05, XNB-6003]  
 [v2.23.06, XNV-6083RZ, XNV-6083Z]  
 [v2.23.05, XNV-6123R, XNO-6123R]  
 [v2.23.07, XNV-9082R, XNO-9082R, XND-9082RF, XND-9082RV, XNB-9002, XNB-8002, XNV-8082R, XNO-8082R, XND-8082RF, XND-8082RV]



- [v2.23.07, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
- [v2.23.07, XNB-6002]
- [v2.23.07, TNV-C7013RC]
- [v2.23.03, PNO-A9081R, PND-A9081RV, PND-A9081RVX, PNV-A9081R, PNV-A9081RX, PND-A9081RF]
- [v2.23.03, PNO-A9311R]
- [v2.23.03, PNB-A9001]
- [v2.23.03, PNO-A6081R, PND-A6081RV, PNV-A6081R, PND-A6081RF]
- [v2.23.03, PNB-A6001]
- [v2.23.03, PNM-C9022RV]
- Changed to the FE binary where Onsemi motor driver IC was replaced with VM107 due to the discontinuation of the driver IC
  - Applies to:
    - [v2.23.06, XNF-9010RV, XNF-9010RS, XNF-9010RVM]
    - [v2.23.06, XNF-9013RV]
    - [v2.23.05, XND-6083RV, XNV-6083R]
    - [v2.23.02, XNF-9013RVG]
    - [v2.23.06, XNV-6123R, XNO-6123R]
    - [v2.23.03, XNP-9250R, XNP-6400, XNP-6400R, XNP-8250, XNP-8250R, XNP-9250]
    - [v2.23.03, XNP-9300RW, XNP-6400RW, XNP-8300RW]
    - [v2.23.06, XNP-C9303RW, XNP-C6403, XNP-C6403R, XNP-C6403RW, XNP-C8253, XNP-C8253R, XNP-C8303RW, XNP-C9253, XNP-C9253R]
    - [v2.23.06, XNP-C9310R, XNP-C7310R]
    - [v2.23.06, XND-6083RV, XNO-6083R, XNV-6083R]
    - [v2.23.06, XND-C7083RV, XNV-C7083R, XNO-C7083R, XND-C6083RV, XNV-C6083, XNV-C6083R, XNO-C6083R]
    - [v2.23.01, XNO-C6083RG01, XND-C6083RVG01]
    - [v2.23.06, XNV-8093R, XND-8093R]
    - [v2.23.06, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.23.03, PNO-A9311R]
  - Impossible to downgrade the firmware using VM107 to the earlier firmware using the Onsemi motor driver IC
    - Applies to:
      - [v2.23.06, XNF-9010RV, XNF-9010RS, XNF-9010RVM]

[v2.23.06, XNF-9013RV]

[v2.23.05, XND-6083RV, XNV-6083R]

[v2.23.02, XNF-9013RVG]

[v2.23.06, XNV-6123R, XNO-6123R]

[v2.23.03, XNP-9250R, XNP-6400, XNP-6400R, XNP-8250, XNP-8250R, XNP-9250]

[v2.23.03, XNP-9300RW, XNP-6400RW, XNP-8300RW]

[v2.23.06, XNP-C9303RW, XNP-C6403, XNP-C6403R, XNP-C6403RW, XNP-C8253, XNP-C8253R, XNP-C8303RW, XNP-C9253, XNP-C9253R]

[v2.23.06, XNP-C9310R, XNP-C7310R]

[v2.23.06, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.06, XND-C7083RV, XNV-C7083R, XNO-C7083R, XND-C6083RV, XNV-C6083, XNV-C6083R, XNO-C6083R]

[v2.23.06, XNV-8093R, XND-8093R]

[v2.23.06, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]

[v2.23.03, PNO-A9311R]

- Optimized iris and day/night mode operation for VM107

- Applies to:

- [v2.23.06, XNV-8093R, XND-8093R]

- [v2.23.06, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]

- [v2.23.03, PNO-A9311R]

- Resolved the iris adjustment and flicker issues that arose following the application of VM107

- Applies to:

- [v2.23.06, XND-6083RV, XNO-6083R, XNV-6083R]

- [v2.23.06, XND-C7083RV, XNV-C7083R, XNO-C7083R, XND-C6083RV, XNV-C6083, XNV-C6083R, XNO-C6083R]

- [v2.23.01, XNO-C6083RG01, XND-C6083RVG01]

- [v2.23.07, XNV-6083RZ, XNV-6083Z]

- Added support for SRTP (Secure Real-time Transport Protocol)

- Applies to:

- [2.23.00, PNM-9080VQ, PNM-9081VQ]

- [2.23.00, PNM-7000VD]

- [2.23.00, PNM-9000VQ]

[2.23.00, PNM-9320VQP]

[2.23.00, PNM-9000VD]

[2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]

[2.23.00, PNM-9321VQP]

[2.23.00, PNM-7002VD]

[2.23.00, PNM-9002VQ]

[2.23.00, PNM-9322VQP]

- Added [Auto tracking > Home] and [Auto tracking > Auto run] options to the PTZ preset follow-up action
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]
    - [2.23.00, PNM-7002VD]
    - [2.23.00, PNM-9002VQ]
    - [2.23.00, PNM-9322VQP]
- Added support for PKCS#12 authentication for 802.1x network authentication
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]
    - [2.23.00, PNM-7002VD]

- [2.23.00, PNM-9002VQ]
- [2.23.00, PNM-9322VQP]
- Added a feature to change the administrator account name
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]
    - [2.23.00, PNM-7002VD]
    - [2.23.00, PNM-9002VQ]
    - [2.23.00, PNM-9322VQP]
- Added a feature where SD cards can be formatted individually for each channel
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]
    - [2.23.00, PNM-7002VD]
    - [2.23.00, PNM-9002VQ]
    - [2.23.00, PNM-9322VQP]

### **[Improvement]**

- Upgraded the version of Open platform
  - Applies to:
    - [v2.23.00, XNB-8002, XNB-9002]

[v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]

[v2.23.00, XNB-6002]

[v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]

[v2.23.00, XNF-9013RV]

[v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]

[v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]

[v2.23.00, XNO-6123R, XNV-6123R]

[v2.23.00, XNV-6083RZ, XNV-6083Z]

[v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]

[v2.23.00, TNV-C7013RC]

[v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]

[v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]

[v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]

[v2.23.00, XNP-C7310R, XNP-C9310R]

[v2.23.00, PNM-C9022RV] [v2.23.01, PNM-C9022RV]

[v2.23.00, PNM-9031RV]

[v2.23.01, PNM-9031RV]

- Changed the specifications so that you can continuously try reconnecting a NAS when the NAS was disconnected

- Applies to:

[v2.23.00, XNB-8002, XNB-9002]

[v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]

[v2.23.00, XNB-6002]

[v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]

[v2.23.00, XNF-9013RV]

[v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]

[v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]

- [v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]
- [v2.23.00, XNO-6123R, XNV-6123R]
- [v2.23.00, XNV-6083RZ, XNV-6083Z]
- [v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]
- [v2.23.00, TNV-C7013RC]
- [v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]
- [v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
- [v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
- [v2.23.00, XNP-C7310R, XNP-C9310R]
- Allows you to create passwords up to 64 characters
  - Applies to:
    - [v2.23.00, XNB-8002, XNB-9002]
    - [v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]
    - [v2.23.00, XNB-6002]
    - [v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.23.00, XNF-9013RV]
    - [v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]
    - [v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]
    - [v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]
    - [v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]
    - [v2.23.00, XNO-6123R, XNV-6123R]
    - [v2.23.00, XNV-6083RZ, XNV-6083Z]
    - [v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]
    - [v2.23.00, TNV-C7013RC]
    - [v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]
    - [v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
    - [v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
    - [v2.23.00, XNP-C7310R, XNP-C9310R]
    - [v2.23.00, PNM-C9022RV] [v2.23.01, PNM-C9022RV]
    - [v2.23.00, PNM-9031RV]
    - [v2.23.01, PNM-9031RV]

- Improved the performance of the audio-noise-reduction function
  - Applies to:
    - [v2.23.00, XNB-8002, XNB-9002]
    - [v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]
    - [v2.23.00, XNB-6002]
    - [v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]
    - [v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]
    - [v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]
    - [v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]
    - [v2.23.00, XNO-6123R, XNV-6123R]
    - [v2.23.00, PNM-9031RV]
    - [v2.23.01, PNM-9031RV]
- Improved alarm performance for AI events to reduce false alarms that could occur when the PTZ is moved
  - Applies to:
    - [v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
    - [v2.23.00, XNP-C7310R, XNP-C9310R]
- Reduced time to register cameras in Genetec programs
  - Applies to:
    - [v2.23.00, XNB-8002, XNB-9002]
    - [v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]
    - [v2.23.00, XNB-6002]
    - [v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.23.00, XNF-9013RV]
    - [v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]
    - [v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]
    - [v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]
    - [v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-

- 8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]
- [v2.23.00, XNO-6123R, XNV-6123R]
- [v2.23.00, XNV-6083RZ, XNV-6083Z]
- [v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]
- [v2.23.00, TNV-C7013RC]
- [v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]
- [v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
- [v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
- [v2.23.00, XNP-C7310R, XNP-C9310R]
- [v2.23.00, PNM-C9022RV] [v.2.23.01, PNM-C9022RV]
- [v2.23.00, PNM-9031RV]
- [v2.23.01, PNM-9031RV]
- Increased the camera's CPU usage limit from 70% to 95% to address resource shortages caused by the embedded Cloud Connector app
  - Applies to:
    - [v2.23.01, XNB-8002, XNB-9002, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]
    - [v2.23.01, XNB-6002]
    - [v2.23.01, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.23.01, XNF-9013RV]
    - [v2.23.01, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]
    - [v2.23.01, XND-C8083RV, XND-C9083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]
    - [v2.23.01, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]
    - [v2.23.01, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]
    - [v2.23.01, XNO-6123R, XNV-6123R]
    - [v2.23.01, XNV-6083RZ, XNV-6083Z]
    - [v2.23.01, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]
    - [v2.23.01, XNP-9300RW, XNP-8300RW, XNP-6400RW]
    - [v2.23.01, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
    - [v2.23.01, XNP-C7310R, XNP-C9310R]
    - [v2.23.01, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
    - [v2.23.01, TNV-C7013RC]
- Improved system stability



- Applies to:  
 [2.23.01, XNP-C9303RWG, XNP-C8303RWG, XNP-C6400RWG] [2.23.01, XNP-C6403G, XNP-C6403RG, XNP-C8253G, XNP-C8253RG, XNP-C9253G, XNP-C9253RG] [2.23.01, XNP-C9310RG, XNP-C9310RG01, XNP-C7310RG, XNP-C7310RG01] [2.23.01, XNF-9013RVG] [2.23.01, XNO-6123RG01]
- Improved the logic of the execution command for the LLDPd (Link Layer Discovery Protocol daemon) within the camera by adding "-ccc", allowing it to forcefully send CDP (Cisco Discovery Protocol) packets even if CDP switches are not detected.
- Applies to:  
 [v2.23.03, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]  
 [v2.23.03, XNV-6123R, XNO-6123R]  
 [v2.23.03, XNF-9013RV]  
 [v2.23.04, XNB-8002, XNB-9002, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]  
 [v2.23.04, XNB-6002]  
 [v2.23.04, XNF-9010RV, XNF-9010RVM, XNF-9010RS]  
 [v2.23.04, XNF-9013RV]  
 [v2.23.04, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]  
 [v2.23.04, XND-C8083RV, XND-C9083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]  
 [v2.23.04, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]  
 [v2.23.04, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]  
 [v2.23.04, TNV-C7013RC]
- Added the function to send relevant metadata to SightMind for queue management integrations
- Applies to:  
 [v2.23.04, TNV-C7013RC]  
 [v2.23.04, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]  
 [v2.23.04, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]  
 [v2.23.04, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R,

XNV-C7083R, XNV-C6083]

[v2.23.04, XND-C8083RV, XND-C9083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R,  
XNV-C9083R]

[v2.23.04, XNF-9013RV]

- Modified T-Kernel to match in VPS/SPS/PPS/I-Frame order to resolve GOV mismatching issue that occurred when enabling both H.265 and dynamic GOV on Genetec players connected to cameras

- Applies to:

[v2.23.04, XNB-8002, XNB-9002, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R,  
XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]

[v2.23.04, XNB-6002]

[v2.23.04, XNF-9010RV, XNF-9010RVM, XNF-9010RS]

[v2.23.04, XNF-9013RV]

[v2.23.04, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R,  
XNV-C7083R, XNV-C6083]

[v2.23.04, XND-C8083RV, XND-C9083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R,  
XNV-C9083R]

[v2.23.04, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.04, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-  
8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]

[v2.23.04, TNV-C7013RC]

- Added the [Remote log transmission] option under the [Access log] tab in the [System]>[Log] of the web viewer so that you can send camera log information via a remote system

- Applies to:

[v2.23.00, PNM-C9022RV] [v2.23.01, PNM-C9022RV]

[v2.23.00, PNM-9031RV]

[v2.23.01, PNM-9031RV]

- Corrected an issue where the camera failed to reconnect to a NAS device after disconnecting from it. It now tries to reconnect every 30 seconds for 10 minutes and every 10 minutes thereafter

- Applies to:
  - [v.2.23.00, PNM-C9022RV] [v.2.23.01, PNM-C9022RV]
  - [v.2.23.00, PNM-9031RV]
  - [v.2.23.01, PNM-9031RV]
- Improved the performance of IP speaker integration on cameras that support the [Handover] feature
  - Applies to:
    - [v.2.23.00, PNM-C9022RV] [v.2.23.01, PNM-C9022RV]
    - [v.2.23.00, PNM-9031RV]
    - [v.2.23.01, PNM-9031RV]
- Improved the performance of the Wisenet Road AI application by applying the Convolutional Neural Network or CNN
  - Applies to:
    - [v.2.23.02, PNB-A9001LP]
    - [v.2.23.02, PNO-A9081RLP, PNV-A9081RLP]
    - [v.2.23.02, PNO-A9311RLP]
- 지원 Added support for simultaneous per-channel backup on multi-channel cameras
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]
    - [2.23.00, PNM-7002VD]
    - [2.23.00, PNM-9002VQ]
    - [2.23.00, PNM-9322VQP]
- Fixed an issue where the privacy mask area shifted during PTZ operation
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]

- [2.23.00, PNM-9000VQ]
- [2.23.00, PNM-9320VQP]
- [2.23.00, PNM-9000VD]
- [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
- [2.23.00, PNM-9321VQP]
- [2.23.00, PNM-7002VD]
- [2.23.00, PNM-9002VQ]
- [2.23.00, PNM-9322VQP]
- Fixed an issue where DNS setting values disappeared
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]
    - [2.23.00, PNM-7002VD]
    - [2.23.00, PNM-9002VQ]
    - [2.23.00, PNM-9322VQP]
- Improved the delay when controlling PTZ with a mouse and joystick via ONVIF
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]
    - [2.23.00, PNM-7002VD]

- [2.23.00, PNM-9002VQ]
- [2.23.00, PNM-9322VQP]
- Fixed an operation error when using SUNAPI CGI for MJPEG streaming
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]
    - [2.23.00, PNM-7002VD]
    - [2.23.00, PNM-9002VQ]
    - [2.23.00, PNM-9322VQP]
- Improved camera live video interruption in Bosch VMS
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]
    - [2.23.00, PNM-7002VD]
    - [2.23.00, PNM-9002VQ]
    - [2.23.00, PNM-9322VQP]
- Improved an issue where ACC camera registration would fail in the Avigilon VMS environment, and improved a time OSD display error
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]

- [2.23.00, PNM-9000VQ]
- [2.23.00, PNM-9320VQP]
- [2.23.00, PNM-9000VD]
- [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
- [2.23.00, PNM-9321VQP]
- [2.23.00, PNM-7002VD]
- [2.23.00, PNM-9002VQ]
- [2.23.00, PNM-9322VQP]
- Improved an issue where external network FTP connection would fail by increasing the timeout period
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]
    - [2.23.00, PNM-7002VD]
    - [2.23.00, PNM-9002VQ]
    - [2.23.00, PNM-9322VQP]
- Improved an LLDP negotiation failure issue
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]

- [2.23.00, PNM-7002VD]
- [2.23.00, PNM-9002VQ]
- [2.23.00, PNM-9322VQP]
- Expanded the time range for PTZ auto-run settings
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]
    - [2.23.00, PNM-7002VD]
    - [2.23.00, PNM-9002VQ]
    - [2.23.00, PNM-9322VQP]
- Fixed an issue where PTZ would not stop after releasing the mouse click when continuously moving it via ONVIF
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]
    - [2.23.00, PNM-7002VD]
    - [2.23.00, PNM-9002VQ]
    - [2.23.00, PNM-9322VQP]
- Resolved an issue where the "+" symbol in URLs was not being encoded
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]

- [2.23.00, PNM-7000VD]
- [2.23.00, PNM-9000VQ]
- [2.23.00, PNM-9320VQP]
- [2.23.00, PNM-9000VD]
- [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
- [2.23.00, PNM-9321VQP]
- [2.23.00, PNM-7002VD]
- [2.23.00, PNM-9002VQ]
- [2.23.00, PNM-9322VQP]
- Fixed an issue where SMTP transmission failed due to a timestamp error
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]
    - [2.23.00, PNM-7002VD]
    - [2.23.00, PNM-9002VQ]
    - [2.23.00, PNM-9322VQP]
- Added a feature to apply individual motion detection settings regardless of global settings
  - Applies to:
    - [2.23.00, PNM-9080VQ, PNM-9081VQ]
    - [2.23.00, PNM-7000VD]
    - [2.23.00, PNM-9000VQ]
    - [2.23.00, PNM-9320VQP]
    - [2.23.00, PNM-9000VD]
    - [2.23.00, PNM-9084QZ, PNM-9084QZ1, PNM-9084RQZ, PNM-9084RQZ1, PNM-9085RQZ, PNM-9085RQZ1]
    - [2.23.00, PNM-9321VQP]



[2.23.00, PNM-7002VD]

[2.23.00, PNM-9002VQ]

[2.23.00, PNM-9322VQP]

## [Bug Fixes]

- Resolved discrepancies in people and vehicle counting values between the web viewer and SightMind due to duplicate transmission of RTP metadata from the camera
  - Applies to:
    - [v2.23.01, XNB-8002, XNB-9002, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]
    - [v2.23.01, XNB-6002]
    - [v2.23.01, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.23.01, XNF-9013RV]
    - [v2.23.01, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]
    - [v2.23.01, XND-C8083RV, XND-C9083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]
    - [v2.23.01, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]
    - [v2.23.01, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]
    - [v2.23.01, XNO-6123R, XNV-6123R]
    - [v2.23.01, XNV-6083RZ, XNV-6083Z]
    - [v2.23.01, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]
    - [v2.23.01, XNP-9300RW, XNP-8300RW, XNP-6400RW]
    - [v2.23.01, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]
    - [v2.23.01, XNP-C7310R, XNP-C9310R]
    - [v2.23.01, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]
    - [v2.23.01, TNV-C7013RC]
- Corrected an issue in the web viewer where the [Person] option could not be selected unless the [Clothes color] option was selected under [Analytics] > [IVA] > [virtual Line] > [Object]
  - Applies to:
    - [v2.23.01, TNV-C7013RC]
- Corrected an issue where the "Ping" command occasionally got omitted
  - Applies to:

[2.23.01, XNO-6123RG01]

- Corrected an issue where graphs were intermittently invisible in [Wisenet Road AI] > [STATISTICS]. (To navigate to the [Wisenet Road AI] application, click [Go App] in the [Wisenet Road AI] section of the app list in [Open platform] of the web viewer.)
  - Applies to:  
[v2.23.00, PNB-A9001LP]
  - [v2.23.01, PNB-A9001LP]  
[v2.23.00, PNO-A9081RLP, PNV-A9081RLP]  
[v2.23.01, PNO-A9081RLP, PNV-A9081RLP]
- Corrected an issue where the VMS recognized the event occurrence timestamp as being in the future due to incorrect timestamp information (indicated by the imageRef metadata element) sent from the camera
  - Applies to:  
[v2.23.00, PNB-A9001LP]  
[v2.23.01, PNB-A9001LP]  
[v2.23.00, PNO-A9081RLP, PNV-A9081RLP]  
[v2.23.01, PNO-A9081RLP, PNV-A9081RLP]
- Fixed an issue where the microphone level automatically reduced when the input sound exceeded the PC's microphone setting value
  - Applies to:  
[2.23.02, PNO-A9311R]

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## Security Improvements

- Enhanced RTSP security
  - Applies to:  
[v2.23.00, XNB-8002, XNB-9002]  
[v2.23.00, XNV-8082R, XNV-9082R, XNO-8082R, XNO-9082R, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV]  
[v2.23.00, XNB-6002]  
[v2.23.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]  
[v2.23.00, XNF-9013RV]  
[v2.23.00, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R, XNV-C6083]

[v2.23.00, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.23.00, XNB-6003, XND-6083RV, XNO-6083R, XNV-6083R]

[v2.23.00, XNB-8003, XND-8083RV, XND-8083RVX, XND-8093RV, XNO-8083R, XNV-8083R, XNV-8083RX, XNV-8093R, XNB-9003, XND-9083RV, XNO-9083R, XNV-9083R]

[v2.23.00, XNO-6123R, XNV-6123R]

[v2.23.00, XNV-6083RZ, XNV-6083Z]

[v2.23.00, XNV-8083RZ, XNV-8083Z, XNV-9083RZ]

[v2.23.00, TNV-C7013RC]

[v2.23.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]

[v2.23.00, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]

[v2.23.00, XNP-C6403RW, XNP-C8303RW, XNP-C9303RW, XNP-C6403R, XNP-C8253R, XNP-C9253R, XNP-C6403, XNP-C8253, XNP-C9253]

[v2.23.00, XNP-C7310R, XNP-C9310R]

[v2.23.00, PNM-C9022RV] [v2.23.01, PNM-C9022RV]

[v2.23.00, PNM-9031RV]

[v2.23.01, PNM-9031RV]

## Affected Products

Table 4. Product Family Based On Version 2.23

Major Model	Model Name
XNV-9082R	XNB-8002 XNB-9002 XNV-8082R XNV-9082R XNO-8082R XNO-9082R XND-8082RF XND-8082RV XND-9082RF XND-9082RV
XNB-6002	XNB-6002
XNF-9010RV	XNF-9010RV XNF-9010RVM XNF-9010RS
XNF-9013RV	XNF-9013RV
XND-C7083RV	XND-C6083RV

Major Model	Model Name
	XNO-C6083R XNV-C6083R XND-C7083RV XNO-C7083R XNV-C7083R XNV-C6083
XND-C9083RV	XND-C9083RV XND-C8083RV XNO-C8083R XNV-C8083R XNO-C9083R XNV-C9083R
XND-6083RV	XNB-6003 XND-6083RV XNO-6083R XNV-6083R
XND-9083RV	XNB-8003 XND-8083RV XND-8083RVX XND-8093RV XNO-8083R XNV-8083R XNV-8083RX XNV-8093R XNB-9003 XND-9083RV XNO-9083R XNV-9083R
XNV-6123R	XNO-6123R XNV-6123R
XNV-6083RZ	XNV-6083RZ XNV-6083Z
XNV-9083RZ	XNV-8083RZ XNV-8083Z XNV-9083RZ
TNV-C7013RC	TNV-C7013RC
XNP-9300RW	XNP-9300RW

Major Model	Model Name
	XNP-8300RW XNP-6400RW
XNP-9250R	XNP-9250R XNP-9250 XNP-8250R XNP-8250 XNP-6400R XNP-6400
XNP-C9303RW	XNP-C6403RW XNP-C8303RW XNP-C9303RW XNP-C6403R XNP-C8253R XNP-C9253R XNP-C6403 XNP-C8253 XNP-C9253
XNP-C9310R	XNP-C7310R XNP-C9310R
XNP-C9303RWG	XNP-C9303RWG XNP-C8303RWG XNP-C6400RWG
XNP-C9253RG	XNP-C6403G XNP-C6403RG XNP-C8253G XNP-C8253RG XNP-C9253G XNP-C9253RG
XNP-C9310RG	XNP-C9310RG XNP-C9310RG01 XNP-C7310RG XNP-C7310RG01
XNF-9013RVG	XNF-9013RVG
XNO-6123RG01	XNO-6123RG01
PNM-C9022RV	PNM-C9022RV
PNM-9031RV	PNM-9031RV
PNO-A9081R	PNO-A9081R

Major Model	Model Name
	PND-A9081RV PND-A9081RVX PNV-A9081R PNV-A9081RX PND-A9081RF
PNO-A9311R	PNO-A9311R
PNB-A9001	PNB-A9001
PNO-A6081R	PNO-A6081R PND-A6081RV PNV-A6081R PND-A6081RF
PNB-A6001	PNB-A6001

# Network Camera Version 2.22

This document describes the new and changed features of Hanwha Vision network camera version 2.22

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## Common Features

### [New features]

- Added the [Event rule] option to [Event] of the web viewer. You can add a trigger for each event rule and set an event action for the camera when an event occurs.
  - Applies to:
    - [v2.22.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.00, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.00, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.00, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.00, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
    - [v2.22.00, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XND-6083RV]
    - [v2.22.00, XNO-6123R, XNV-6123R]
    - [v2.22.00, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
    - [v2.22.00, XNV-6083RZ, XNV-6083Z]
- Added support for the ONVIF profile M function.
  - Applies to:
    - [v2.22.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.00, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.00, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.00, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.00, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
    - [v2.22.00, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XND-6083RV]

- [v2.22.00, XNO-6123R, XNV-6123R]
- [v2.22.00, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
- [v2.22.00, XNV-6083RZ, XNV-6083Z]
- Added the [MQTT] option to [Event] in the web viewer to provide support for the MQTT protocol.
  - Applies to:
    - [v2.22.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.00, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.00, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.00, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.00, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
    - [v2.22.00, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XND-6083RV]
    - [v2.22.00, XNO-6123R, XNV-6123R]
    - [v2.22.00, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
    - [v2.22.00, XNV-6083RZ, XNV-6083Z]
- Added support for the CDP protocol used in CISCO switches.
  - Applies to:
    - [v2.22.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.00, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.00, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.00, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.00, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
    - [v2.22.00, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XND-6083RV]
    - [v2.22.00, XNO-6123R, XNV-6123R]
    - [v2.22.00, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
    - [v2.22.00, XNV-6083RZ, XNV-6083Z]
    - [v2.22.00, PNM-7000VD]
    - [v2.22.02, PNM-7000VD]
    - [v2.22.00, PNM-9000VQ]
    - [v2.22.02, PNM-9000VQ]



- [v2.22.00, PNM-9080VQ]
- [v2.22.02, PNM-9080VQ]
- [v2.22.00, PNM-9081VQ]
- [v2.22.02, PNM-9081VQ]
- [v2.22.00, PNM-9320VQP]
- [v2.22.02, PNM-9320VQP]
- [v2.22.00, PNM-9321VQP]
- [v2.22.02, PNM-9321VQP]
- Added support for Japanese in OSD.
  - Applies to:
    - [v2.22.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.00, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.00, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.00, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.00, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
    - [v2.22.00, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XND-6083RV]
    - [v2.22.00, XNO-6123R, XNV-6123R]
    - [v2.22.00, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
    - [v2.22.00, XNV-6083RZ, XNV-6083Z]
- If you select the edge record profile, you can select GOV length, dynamic GOV and entropy coding.
  - Applies to:
    - [v2.22.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.00, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.00, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.00, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.00, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
    - [v2.22.00, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XND-6083RV]
    - [v2.22.00, XNO-6123R, XNV-6123R]
    - [v2.22.00, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]

[v2.22.00, XNV-6083RZ, XNV-6083Z]

- Added an item to control camera functions by users since the user authority is enhanced.
  - Applies to:
    - [v2.22.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.00, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.00, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.00, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.00, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
    - [v2.22.00, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XND-6083RV]
    - [v2.22.00, XNO-6123R, XNV-6123R]
    - [v2.22.00, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
    - [v2.22.00, XNV-6083RZ, XNV-6083Z]
- Added a function to configure the MTU (Maximum Transmission Unit) size between 1,280 and 1,500 in [Setup] > [Basic] > [IP & Port] > [IP address]
  - Applies to:
    - [v2.22.00, PNM-7002VD]
    - [v2.22.02, PNM-7002VD]
    - [v2.22.00, PNM-9002VQ]
    - [v2.22.02, PNM-9002VQ]
    - [v2.22.00, PNM-9000VD]
    - [v2.22.02, PNM-9000VD]
    - [v2.22.00, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]
    - [v2.22.02, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]
    - [v2.22.00, PNM-9322VQP]
    - [v2.22.01, PNM-9322VQP]
    - [v2.22.02, PNM-9322VQP]
- Added the [Event rule] and [MQTT] features
  - Applies to:
    - [v2.22.00, QNV-C9083R, QNV-C8083R, QNO-C9083R, QNO-C8083R, TNO-C8083E]
    - [v2.22.00, QNV-C9011R, QNV-C8011R, QNV-C8012]
- Added the [Open SDK] feature

- Applies to:  
 [v2.22.00, QNV-C9083R, QNV-C8083R, QNO-C9083R, QNO-C8083R, TNO-C8083E]  
 [v2.22.00, QNV-C9011R, QNV-C8011R, QNV-C8012]  
 [v2.22.00, SMT-3231PV, SMT-2731PV, SMT-3221PV, SMT-2721PV, SMT-1031PV, SMT-1031PVW]
- Added support for Cloud Connector
  - Applies to:  
 [v2.22.00, QNV-C9083R, QNV-C8083R, QNO-C9083R, QNO-C8083R, TNO-C8083E]  
 [v2.22.00, QNV-C9011R, QNV-C8011R, QNV-C8012]  
 [v2.22.00, SMT-3231PV, SMT-2731PV, SMT-3221PV, SMT-2721PV, SMT-1031PV, SMT-1031PVW]  
 [v2.22.00, QNE-C9013RL, QNE-C8013RL]  
 [v2.22.00, TNV-C8011RW]  
 [v2.22.00, QNV-C6083R, QNO-C6083R] [2.22.01, QNE-C9013RL, QNE-C8013RL]
- Added [Profile setup], [video setup], and [Camera setup] items to the [Current user] table in [Basic] > [Users] in the web viewer
  - Applies to:  
 [v2.22.00, MGC-F9010LI]  
 [v2.22.00, MGC-D8080LI, MGC-D8080]
- Added [vendor class] option to [IPv4 setup] in [Basic] > [IP & Port] > [IP address] in the web viewer
  - Applies to:  
 [v2.22.00, MGC-F9010LI]  
 [v2.22.00, MGC-D8080LI, MGC-D8080]
- Added an [SFTP] option to [Protocol] in [FTP configuration] under [Events] > [FTP/E-mail] in the web viewer
  - Applies to:  
 [v2.22.00, MGC-F9010LI]  
 [v2.22.00, MGC-D8080LI, MGC-D8080]  
 [v2.22.00, PNO-A9311R]  
 [v2.22.00, PNB-A9001]  
 [v2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]  
 [v2.22.00, PNB-A6001]  
 [v2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]

[v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]

[v.2.22.00, PNM-C7083RVD]

[v.2.22.00, PNM-C12083RVD]

[v.2.22.00, PNM-C16013RVQ]

- Added a [GPS coordinates] option to [Location] under [System] > [Product Information] in the web viewer
  - Applies to:  
[v.2.22.00, MGC-F9010LI]  
[v.2.22.00, MGC-D8080LI, MGC-D8080]
- Added a [Status] item to the [Integrated LED] list in [Events] > [LED preset] in the web viewer
  - Applies to:  
[v.2.22.00, MGC-D8080LI, MGC-D8080]
- Added [Simple focus schedule] option in [video & Audio] > [Focus setup] in the web viewer
  - Applies to:  
[v.2.22.00, MGC-D8080LI, MGC-D8080].
- Added 90-degree rotation function to [Parking area]>[PTZ] in [Parking detection]>[Analytics] in the application
  - Applies to:  
[v.2.22.00, MGC-F9010LI]
- Added a [No parking area] option to [Parking detection]>[Analytics] in the application [v.2.22.00, MGC-F9010LI]
  - Applies to:  
[v.2.22.00, MGC-D8080LI, MGC-D8080]
- Added [No parking area violation detection] and [Double parking detection] features to the application
  - Applies to:  
[v.2.22.00, MGC-F9010LI]  
[v.2.22.00, MGC-D8080LI, MGC-D8080]
- Added a feature to detect a blue license plate for electric vehicles [v.2.22.00, MGC-F9010LI]
  - Applies to:  
[v.2.22.00, MGC-D8080LI, MGC-D8080]

- Added a feature to overlay parked vehicles within a parking area with a rectangle on the application's [Live] screen and display recognized license plate information in the upper left corner of the overlay
  - Applies to:
    - [v2.22.00, MGC-F9010LI]
    - [v2.22.00, MGC-D8080LI, MGC-D8080]
- Added a feature to view the status of the [LED preset] to the application
  - Applies to:
    - [v2.22.00, MGC-F9010LI]
- Added a function where you can send video footage related to an event occurrence via FTP/SFTP when you set the profile of H.264 or H.265 codec as the event profile
  - Applies to:
    - [v2.22.00, PNO-A9311R]
    - [v2.22.00, PNB-A9001]
    - [v2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v2.22.00, PNB-A6001]
    - [v2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v2.22.00, PNM-C7083RVD]
    - [v2.22.00, PNM-C12083RVD]
    - [v2.22.00, PNM-C16013RVQ]
- Added a [vendor class] entry box in [Basic]>[IP & Port]>[IP address] (The entry box appears only when you select [DHCP] under [IP type].)
  - Applies to:
    - [v2.22.00, PNO-A9311R]
    - [v2.22.00, PNB-A9001]
    - [v2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v2.22.00, PNB-A6001]
    - [v2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v2.22.00, PNM-C7083RVD]
    - [v2.22.00, PNM-C12083RVD]

[v.2.22.00, PNM-C16013RVQ]

- Added a function of creating an FTP file name by selecting [IPAddress], [YY], [MM], [DD], [hh], [mm], [ss], or [RuleIndex] in [Event]>[FTP/E-mail]
  - Applies to:
    - [v.2.22.00, PNO-A9311R]
    - [v.2.22.00, PNB-A9001]
    - [v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v.2.22.00, PNB-A6001]
    - [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v.2.22.00, PNM-C7083RVD]
    - [v.2.22.00, PNM-C12083RVD]
    - [v.2.22.00, PNM-C16013RVQ]
- Allows you to choose a [Base64 image encoding] option when sending DetectionShot in [Analytics]>[Object detection]>[DetectionShot])
  - Applies to:
    - [v.2.22.00, PNO-A9311R]
    - [v.2.22.00, PNB-A9001]
    - [v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v.2.22.00, PNB-A6001]
    - [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v.2.22.00, PNM-C7083RVD]
    - [v.2.22.00, PNM-C12083RVD]
    - [v.2.22.00, PNM-C16013RVQ]
- Added an option to type GPS coordinates (longitude, latitude). (For PTZ models, go to [video & Audio]>[Location setup]; for non-PTZ models, go to [System]>[Product information]).
  - Applies to:
    - [v.2.22.00, PNO-A9311R]
    - [v.2.22.00, PNB-A9001]
    - [v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v.2.22.00, PNB-A6001]

- [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- [v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
- [v.2.22.00, PNM-C7083RVD]
- [v.2.22.00, PNM-C12083RVD]
- [v.2.22.00, PNM-C16013RVQ]
- Added a function where an option you selected in [Category] in [Analytics]>[Sound classification] can become an option for [Event trigger] in [Event]>[Event rule] in the web viewer
  - Applies to:
    - [v.2.22.00, PNO-A9311R]
    - [v.2.22.00, PNB-A9001]
    - [v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v.2.22.00, PNB-A6001]
    - [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v.2.22.00, PNM-C7083RVD]
    - [v.2.22.00, PNM-C12083RVD]
    - [v.2.22.00, PNM-C16013RVQ]
- Added the [PTZ motion] option to the [Event trigger] section under [Event]>[Event rule] in the web viewer
  - Applies to:
    - [v.2.22.00, PNO-A9311R]
- Added the [Remote log transmission] option under the [Access log] tab in the [System]>[Log] of the web viewer so that you can send camera log information via a remote system
  - Applies to:
    - [v.2.22.00, PNO-A9311R]
    - [v.2.22.00, PNB-A9001]
    - [v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v.2.22.00, PNB-A6001]
    - [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v.2.22.00, PNM-C7083RVD]
    - [v.2.22.00, PNM-C12083RVD]

[v.2.22.00, PNM-C16013RVQ]

- Increased the number of options for [Event trigger] in [Events] > [Event rules] in the web viewer from 64 to 256
  - Applies to:
    - [v.2.22.00, PNB-A9001]
    - [v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v.2.22.00, PNB-A6001]
    - [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v.2.22.00, PNM-C7083RVD]
    - [v.2.22.00, PNM-C12083RVD]
    - [v.2.22.00, PNM-C16013RVQ]
- Added individual rule (line, area) options in IVA to the [Event trigger] section of [Event]>[Event rule] in the web viewer
  - Applies to:
    - [v.2.22.00, PNB-A9001]
    - [v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v.2.22.00, PNB-A6001]
    - [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v.2.22.00, PNM-C7083RVD]
    - [v.2.22.00, PNM-C12083RVD]
    - [v.2.22.00, PNM-C16013RVQ]
- Added an option to select the Ethernet connection type
  - Applies to:
    - [v.2.22.00, PNB-A9001]
    - [v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v.2.22.00, PNB-A6001]
    - [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v.2.22.00, PNM-C7083RVD]



- [v.2.22.00, PNM-C12083RVD]
  - [v.2.22.00, PNM-C16013RVQ]
- Added a feature to integrate I/O box
  - Applies to:
    - [v.2.22.00, PNB-A9001]
    - [v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v.2.22.00, PNB-A6001]
    - [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v.2.22.00, PNM-C7083RVD]
    - [v.2.22.00, PNM-C12083RVD]
    - [v.2.22.00, PNM-C16013RVQ]
- Added a [Day/Night mode] option to the [Event trigger] section of [Event] > [Event rule] in the web viewer
  - Applies to:
    - [v.2.22.00, PNB-A9001]
    - [v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v.2.22.00, PNB-A6001]
    - [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v.2.22.00, PNM-C7083RVD]
    - [v.2.22.00, PNM-C12083RVD]
    - [v.2.22.00, PNM-C16013RVQ]
- Added a [Simple focus schedule] feature in [video & Audio]>[PTRZ setup] or in [video & Audio]>[Focus setup] so that the simple-focus function can run on the scheduled date and time.
  - Applies to:
    - [v.2.22.00, PNB-A9001]
    - [v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v.2.22.00, PNB-A6001]
    - [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]

[v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]

[v.2.22.00, PNM-C7083RVD]

[v.2.22.00, PNM-C12083RVD]

[v.2.22.00, PNM-C16013RVQ]

- Makes the WAVE app run automatically when the camera boots up
  - Applies to:  
[v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
- Added [Back up license] and [Restore license] options to the [App installation] section of [Event]>[WAVE/SSD] in the web viewer to allow you to back up and restore licenses
  - Applies to:  
[v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
- Changed the format of host name to "SolidEDGE-MAC Address" under the [IP address] tab in [IP & Port] of the web viewer
  - Applies to:  
[v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
- Displays the version of the WAVE server in the [App installation] section in [Event]>[WAVE/SSD] of the web viewer
  - Applies to:  
[v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
- Added support for the [Edge recording] function in Cloud Connector
  - Applies to:  
[v2.22.03, QNV-C9083R, QNO-C9083R]  
[v2.22.03, QNV-C9011R]  
[v2.22.03, QNV-C8083R, QNO-C8083R]  
[v2.22.03, QNV-C8011R]  
[v2.22.03, QNV-C8012]  
[v2.22.03, QNE-C9013RL]  
[v2.22.03, QNE-C8013RL]  
[v2.22.03, QNV-C6083R, QNO-C6083R]  
[v2.22.03, TNV-C8011RW]  
[v2.22.01, PNM-C16013RVQ]  
[v2.22.01, PNM-C12083RVD]  
[v2.22.01, PNM-C7083RVD]  
[v2.22.05, PNM-12082RVD]

[v2.22.05, PNM-7082RVD]

- Removed support for the recording and playback functions of the camera when the [Edge recording] feature of Cloud Connector is enabled (The recording and playback menus in the camera web viewer will disappear)

- Applies to:

[v2.22.03, QNV-C9083R, QNO-C9083R]

[v2.22.03, QNV-C9011R]

[v2.22.03, QNV-C8083R, QNO-C8083R]

[v2.22.03, QNV-C8011R]

[v2.22.03, QNV-C8012]

[v2.22.03, QNE-C9013RL]

[v2.22.03, QNE-C8013RL]

[v2.22.03, QNV-C6083R, QNO-C6083R]

[v2.22.03, TNV-C8011RW]

[v2.22.01, PNM-C16013RVQ]

[v2.22.01, PNM-C12083RVD]

[v2.22.01, PNM-C7083RVD]

[v2.22.05, PNM-12082RVD]

[v2.22.05, PNM-7082RVD]

- Reduced time to generate files required for playback

- Applies to:

[v2.22.03, QNV-C9083R, QNO-C9083R]

[v2.22.03, QNV-C9011R]

[v2.22.03, QNV-C8083R, QNO-C8083R]

[v2.22.03, QNV-C8011R]

[v2.22.03, QNV-C8012]

[v2.22.03, QNE-C9013RL]

[v2.22.03, QNE-C8013RL]

[v2.22.03, QNV-C6083R, QNO-C6083R]

[v2.22.03, TNV-C8011RW]

[v2.22.01, PNM-C16013RVQ]

[v2.22.01, PNM-C12083RVD]

[v2.22.01, PNM-C7083RVD]

[v2.22.05, PNM-12082RVD]

[v2.22.05, PNM-7082RVD]

- Added text boxes where you can enter the classification code and parking spot no. under [Enable/Disable] tab in the [Analytics] > [Parking detection] menu of the Open platform in order to provide you convenience of operating the parking guidance server
  - Applies to:
    - [v2.22.02, MGC-F9010LI]
    - [v2.22.02, MGC-D8080LI]
- Added a function to trigger a virtual event to provide you convenience of checking the camera LED operation and event operation
  - Applies to:
    - [v2.22.02, MGC-F9010LI]
    - [v2.22.02, MGC-D8080LI]
- Changed to the FE binary where Onsemi motor driver IC was replaced with VM107 due to the discontinuation of the driver IC
  - Applies to:
    - [v2.22.05, PNM-12082RVD]
    - [v2.22.05, PNM-7082RVD]
    - [v2.22.01, PNM-C12083RVD]
    - [v2.22.01, PNM-C7083RVD]
    - [v2.22.02, XND-6080, XND-6080R, XND-6080RV, XND-6080V, XNV-6080, XNV-6080R, XNV-6080RSA]
    - [v2.22.01, XNO-8080RG]
- Impossible to downgrade the firmware using VM107 to the earlier firmware using the Onsemi motor driver IC
  - Applies to:
    - [v2.22.05, PNM-12082RVD]
    - [v2.22.05, PNM-7082RVD]
    - [v2.22.01, PNM-C12083RVD]
    - [v2.22.01, PNM-C7083RVD]
    - [v2.22.03, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]
    - [v2.22.02, XND-6080, XND-6080R, XND-6080RV, XND-6080V, XNV-6080, XNV-6080R, XNV-6080RSA]
    - [v2.22.01, XNO-8080RG]
- Optimized iris and day/night mode operation for VM107

- Applies to:  
[v2.22.01, XNO-8080RG]
- Changed the PTR motor position logic due to the application of VM107
  - Applies to:  
[v2.22.03, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]
- Resolved the iris adjustment and flicker issues that arose following the application of VM107
  - Applies to:  
[v2.22.02, XND-6080, XND-6080R, XND-6080RV, XND-6080V, XNV-6080, XNV-6080R, XNV-6080RSA]

### [Improvement]

- Changed the corporate name to Hanwha Vision in the web viewer as the name changed to Hanwha Vision
  - Applies to:  
[v2.22.00, PNM-7002VD]  
[v2.22.02, PNM-7002VD]  
[v2.22.00, PNM-9002VQ]  
[v2.22.02, PNM-9002VQ]  
[v2.22.00, PNM-9000VD]  
[v2.22.02, PNM-9000VD]  
[v2.22.00, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]  
[v2.22.02, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]  
[v2.22.00, PNM-9322VQP]  
[v2.22.00, XNF-9013RV]  
[v2.22.01, XNF-9013RV]  
[v2.22.00, PNM-7000VD]  
[v2.22.02, PNM-7000VD]  
[v2.22.00, PNM-9000VQ]  
[v2.22.02, PNM-9000VQ]  
[v2.22.00, PNM-9080VQ]  
[v2.22.02, PNM-9080VQ]  
[v2.22.00, PNM-9081VQ]  
[v2.22.02, PNM-9081VQ]  
[v2.22.00, PNM-9320VQP]

- [v2.22.02, PNM-9320VQP]
- [v2.22.00, PNM-9321VQP]
- [v2.22.02, PNM-9321VQP]
- [v2.22.01, PNM-9322VQP]
- [v2.22.02, PNM-9322VQP] [2.22.01, PNM-12082RVD] [2.22.01, PNM-7082RVD]
- [v2.22.00, MGC-F9010LI]
- [v2.22.00, MGC-D8080LI, MGC-D8080]
- When setting the H.264/H.265 codec, you can set the minimum bitrate to 10 kbps.
  - Applies to:
    - [v2.22.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.00, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.00, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.00, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.00, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
    - [v2.22.00, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XND-6083RV]
    - [v2.22.00, XNO-6123R, XNV-6123R]
    - [v2.22.00, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
    - [v2.22.00, XNV-6083RZ, XNV-6083Z]
    - [v2.22.00, PNM-7002VD]
    - [v2.22.02, PNM-7002VD]
    - [v2.22.00, PNM-9002VQ]
    - [v2.22.02, PNM-9002VQ]
    - [v2.22.00, PNM-9000VD]
    - [v2.22.02, PNM-9000VD]
    - [v2.22.00, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]
    - [v2.22.02, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]
    - [v2.22.00, PNM-9322VQP]
    - [v2.22.01, PNM-9322VQP]
    - [v2.22.02, PNM-9322VQP]
    - [v2.22.01, PNM-9000QB]
- Changed default on object detection and LLDP to On.
  - Applies to:

- [v2.22.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
- [v2.22.00, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
- [v2.22.00, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
- [v2.22.00, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
- [v2.22.00, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
- [v2.22.00, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XND-6083RV]
- [v2.22.00, XNO-6123R, XNV-6123R]
- [v2.22.00, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
- [v2.22.00, XNV-6083RZ, XNV-6083Z]
- Enhanced the web viewer UI so users who have administrator authority on the web viewer can edit common user information.
  - Applies to:
    - [v2.22.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.00, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.00, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.00, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.00, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
    - [v2.22.00, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XND-6083RV]
    - [v2.22.00, XNO-6123R, XNV-6123R]
    - [v2.22.00, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
    - [v2.22.00, XNV-6083RZ, XNV-6083Z]
- Removed support for Swedish in the web viewer.
  - Applies to:
    - [v2.22.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.00, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.00, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.00, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]

- [v2.22.00, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
- [v2.22.00, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XND-6083RV]
- [v2.22.00, XNO-6123R, XNV-6123R]
- [v2.22.00, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
- [v2.22.00, XNV-6083RZ, XNV-6083Z]
- Fixed a problem where certain colors are not shown in models with the IMX462 sensor.
  - Applies to:
    - [v2.22.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.00, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.00, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.00, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.00, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
    - [v2.22.00, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XND-6083RV]
    - [v2.22.00, XNO-6123R, XNV-6123R]
    - [v2.22.00, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
    - [v2.22.00, XNV-6083RZ, XNV-6083Z]
  - Updated the open-source library version
    - Applies to:
      - [v2.22.00, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
      - [v2.22.00, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
      - [v2.22.00, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
      - [v2.22.00, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
      - [v2.22.00, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
      - [v2.22.00, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XND-6083RV]
      - [v2.22.00, XNO-6123R, XNV-6123R]
      - [v2.22.00, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
      - [v2.22.00, XNV-6083RZ, XNV-6083Z]
      - [v2.22.01, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
      - [v2.22.01, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV,



XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]

[v2.22.01, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]

[v2.22.01, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]

[v2.22.01, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]

[v2.22.01, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XNO-6083R]

[v2.22.01, XNO-6123R, XNV-6123R]

[v2.22.01, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]

[v2.22.01, XNV-6083RZ, XNV-6083Z]

- Fixed an issue where video streaming was interrupted for the live and recording in the camera registered to NVR or Genetec

- Applies to:

[v2.22.00, PNM-7002VD]

[v2.22.02, PNM-7002VD]

[v2.22.00, PNM-9002VQ]

[v2.22.02, PNM-9002VQ]

[v2.22.00, PNM-9000VD]

[v2.22.02, PNM-9000VD]

[v2.22.00, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]

[v2.22.02, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]

[v2.22.00, PNM-9322VQP]

[v2.22.00, PNM-7000VD]

[v2.22.02, PNM-7000VD]

[v2.22.00, PNM-9000VQ]

[v2.22.02, PNM-9000VQ]

[v2.22.00, PNM-9080VQ]

[v2.22.02, PNM-9080VQ]

[v2.22.00, PNM-9081VQ]

[v2.22.02, PNM-9081VQ]

[v2.22.00, PNM-9320VQP]

[v2.22.02, PNM-9320VQP]

[v2.22.00, PNM-9321VQP]

[v2.22.02, PNM-9321VQP]

[v2.22.01, PNM-9322VQP]

[v2.22.02, PNM-9322VQP]

- Corrected an issue where firmware issued after 2022 did not upgrade properly
  - Applies to:
    - [v2.22.00, PNM-7002VD]
    - [v2.22.02, PNM-7002VD]
    - [v2.22.00, PNM-9002VQ]
    - [v2.22.02, PNM-9002VQ]
    - [v2.22.00, PNM-9000VD]
    - [v2.22.02, PNM-9000VD]
    - [v2.22.00, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]
    - [v2.22.02, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]
    - [v2.22.00, PNM-9322VQP]
    - [v2.22.00, PNM-7000VD]
    - [v2.22.02, PNM-7000VD]
    - [v2.22.00, PNM-9000VQ]
    - [v2.22.02, PNM-9000VQ]
    - [v2.22.00, PNM-9080VQ]
    - [v2.22.02, PNM-9080VQ]
    - [v2.22.00, PNM-9081VQ]
    - [v2.22.02, PNM-9081VQ]
    - [v2.22.00, PNM-9320VQP]
    - [v2.22.02, PNM-9320VQP]
    - [v2.22.00, PNM-9321VQP]
    - [v2.22.02, PNM-9321VQP]
    - [v2.22.01, PNM-9322VQP]
    - [v2.22.02, PNM-9322VQP]
- Fixed a problem where the certificate was not used normally when uploading a certificate with a '+' sign
  - Applies to:
    - [v2.22.00, PNM-7002VD]
    - [v2.22.02, PNM-7002VD]
    - [v2.22.00, PNM-9002VQ]
    - [v2.22.02, PNM-9002VQ]
    - [v2.22.00, PNM-9000VD]
    - [v2.22.02, PNM-9000VD]
    - [v2.22.00, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-

- 9084RQZ1, PNM-9085RQZ1]  
[v2.22.02, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]  
[v2.22.00, PNM-9322VQP]  
[v2.22.01, PNM-9322VQP]  
[v2.22.02, PNM-9322VQP]
- Improved functionality to obtain TTA security certification
  - Applies to:  
[v2.22.00, PNM-C9022RV]  
[v2.22.01, PNM-C9022RV]  
[v2.22.02, PNM-C9022RV]  
[v2.22.00, PNM-9031RV]  
[v2.22.01, PNM-9031RV]  
[v2.22.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]  
[v2.22.00, XNP-9250R, XNP-8250R, XNP-6400R, XNP-9250, XNP-8250, XNP-6400]  
[v2.22.00, XNB-6002]  
[v2.22.01, XNB-6002]
- Fixed language errors in Japanese version
  - Applies to:  
[v2.22.00, PNM-C9022RV]  
[v2.22.01, PNM-C9022RV]  
[v2.22.02, PNM-C9022RV]  
[v2.22.00, PNM-9031RV]  
[v2.22.01, PNM-9031RV]  
[v2.22.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]  
[v2.22.00, XNP-9250R, XNP-8250R, XNP-6400R, XNP-9250, XNP-8250, XNP-6400]
- Fixed an issue where Pan and Tilt operate beyond the maximum Pan/Tilt movement range set in the [PT Limit] menu
  - Applies to:  
[v2.22.00, PNM-C9022RV]  
[v2.22.01, PNM-C9022RV]  
[v2.22.02, PNM-C9022RV]  
[v2.22.00, PNM-9031RV]  
[v2.22.01, PNM-9031RV]  
[v2.22.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]  
[v2.22.00, XNP-9250R, XNP-8250R, XNP-6400R, XNP-9250, XNP-8250, XNP-6400]
- Fixed an issue where [Loitering] event was continuously sent to the NVR even though the

loitering event had ended

- Applies to:
  - [v2.22.00, PNM-C9022RV]
  - [v2.22.01, PNM-C9022RV]
  - [v2.22.02, PNM-C9022RV]
  - [v2.22.00, PNM-9031RV]
  - [v2.22.01, PNM-9031RV]
  - [v2.22.00, XNP-9300RW, XNP-8300RW, XNP-6400RW]
  - [v2.22.00, XNP-9250R, XNP-8250R, XNP-6400R, XNP-9250, XNP-8250, XNP-6400]
- Fixed the problem that the SD card status becomes "SD Error" when encrypting the SD card
  - Applies to:
    - [v2.22.01, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.01, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.01, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.01, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.01, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
    - [v2.22.01, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XNO-6083R]
    - [v2.22.01, XNO-6123R, XNV-6123R]
    - [v2.22.01, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
    - [v2.22.01, XNV-6083RZ, XNV-6083Z]
- Fixed an issue where bicycles or motorcycles were detected as people
  - Applies to:
    - [v2.22.01, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.01, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.01, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XNO-6083R]
    - [v2.22.01, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
    - [v2.22.01, XNO-6123R, XNV-6123R]
    - [v2.22.01, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
    - [v2.22.01, XNV-6083RZ, XNV-6083Z]
- TLS1.0/TLS1.1 not supported for SRTP (port:322)

- Applies to:
  - [v2.22.01, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
  - [v2.22.01, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
  - [v2.22.01, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
  - [v2.22.01, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
  - [v2.22.01, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
  - [v2.22.01, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XNO-6083R]
  - [v2.22.01, XNO-6123R, XNV-6123R]
  - [v2.22.01, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
  - [v2.22.01, XNV-6083RZ, XNV-6083Z]
  - [v2.22.00, XNF-9013RV]
  - [v2.22.01, XNF-9013RV]
- Updated the curl library to the latest
  - Applies to:
    - [v2.22.01, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.01, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.01, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.01, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.01, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]
    - [v2.22.01, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XNO-6083R]
    - [v2.22.01, XNO-6123R, XNV-6123R]
    - [v2.22.01, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
    - [v2.22.01, XNV-6083RZ, XNV-6083Z]
- Supports items corresponding to number 60 among DHCP options
  - Applies to:
    - [v2.22.01, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.01, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.01, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]

[v2.22.01, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]

[v2.22.01, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003, XNO-9083R]

[v2.22.01, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003, XNO-6083R]

[v2.22.01, XNO-6123R, XNV-6123R]

[v2.22.01, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]

[v2.22.01, XNV-6083RZ, XNV-6083Z]

- Fixed an issue where the web page was not opened after a virtual channel was added to it

- Applies to:

[v2.22.02, XNF-9010RV, XNF-9010RVM, XNF-9010RS]

[v2.22.02, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]

[v2.22.02, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]

[v2.22.02, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]

[v2.22.02, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003]

[v2.22.02, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003]

[v2.22.02, XNO-6123R, XNV-6123R]

[v2.22.02, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]

[v2.22.02, XNV-6083RZ, XNV-6083Z]

[v2.22.03, XNV-6083RZ, XNV-6083Z]

[v2.22.03, XNV-9083RZ, XNV-8083RZ]

[v2.22.03, XNO-6123R, XNV-6123R]

[v2.22.03, XNO-8083R, XNO-9083R, XNV-8093R, XNV-8083R, XNV-9083R, XND-9083RV, XND-8093RV, XND-8083RV, XNB-9003, XNB-8003]

[v2.22.03, XNO-6083R, XNV-6083R, XND-6083RV, XNB-6003]

- Fixed an issue with non-fixed index values

- Applies to:

[v2.22.02, XNF-9010RV, XNF-9010RVM, XNF-9010RS]

[v2.22.02, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]

[v2.22.02, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]

[v2.22.02, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]

- [v2.22.02, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003]
- [v2.22.02, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003]
- [v2.22.02, XNO-6123R, XNV-6123R]
- [v2.22.02, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
- [v2.22.02, XNV-6083RZ, XNV-6083Z]
- [v2.22.03, XNV-6083RZ, XNV-6083Z]
- [v2.22.03, XNV-9083RZ, XNV-8083RZ]
- [v2.22.03, XNO-6123R, XNV-6123R]
- [v2.22.03, XNO-8083R, XNO-9083R, XNV-8093R, XNV-8083R, XNV-9083R, XND-9083RV, XND-8093RV, XND-8083RV, XNB-9003, XNB-8003]
- [v2.22.03, XNO-6083R, XNV-6083R, XND-6083RV, XNB-6003]
- Fixed an issue where the IP Wisenet speaker was not connected to the camera
  - Applies to:
    - [v2.22.02, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.02, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
    - [v2.22.02, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]
    - [v2.22.02, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.22.02, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003]
    - [v2.22.02, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003]
    - [v2.22.02, XNO-6123R, XNV-6123R]
    - [v2.22.02, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]
    - [v2.22.02, XNV-6083RZ, XNV-6083Z]
    - [v2.22.03, XNV-6083RZ, XNV-6083Z]
    - [v2.22.03, XNV-9083RZ, XNV-8083RZ]
    - [v2.22.03, XNO-6123R, XNV-6123R]
    - [v2.22.03, XNO-8083R, XNO-9083R, XNV-8093R, XNV-8083R, XNV-9083R, XND-9083RV, XND-8093RV, XND-8083RV, XNB-9003, XNB-8003]
    - [v2.22.03, XNO-6083R, XNV-6083R, XND-6083RV, XNB-6003]
- Fixed an issue where Wise stream did not work in the record profile
  - Applies to:
    - [v2.22.02, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
    - [v2.22.02, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]

[v2.22.02, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R, XNV-C6083]

[v2.22.02, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]

[v2.22.02, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R, XNB-9003, XNB-8003]

[v2.22.02, XND-6083R, XNV-6083R, XNO-6083R, XNB-6003]

[v2.22.02, XNO-6123R, XNV-6123R]

[v2.22.02, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]

[v2.22.02, XNV-6083RZ, XNV-6083Z]

[v2.22.03, XNV-6083RZ, XNV-6083Z]

[v2.22.03, XNO-6123R, XNV-6123R]

[v2.22.03, XNV-9083RZ, XNV-8083RZ]

[v2.22.03, XNO-8083R, XNO-9083R, XNV-8093R, XNV-8083R, XNV-9083R, XND-9083RV, XND-8093RV, XND-8083RV, XNB-9003, XNB-8003]

[v2.22.03, XNO-6083R, XNV-6083R, XND-6083RV, XNB-6003]

- Fixed an issue where a privacy area was not properly created

- Applies to:

[v2.22.01, XNP-C9303RW, XNP-C8303RW, XNP-C6400RW, XNP-C9253R, XNP-C8253R, XNP-C6403R, XNP-C9253, XNP-C8253, XNP-C6403]

[v2.22.02, XNP-C8303RW, XNP-C9303RW, XNP-C8253R, XNP-C8253, XNP-C9253R, XNP-C9253, XNP-C6403R, XNP-C6403]

- Corrected an issue where the [Time schedule] feature did not intermittently work after the camera rebooted

- Applies to:

[v2.22.00, XND-6080RV, XND-6080R, XND-6080V, XND-6080, XNV-6080R, XNV-6080]

[2.22.00, PNM-12082RVD] [2.22.00, PNM-7082RVD]

[v2.22.03, XNF-9010RV, XNF-9010RVM]

[v2.22.03, XNV-9082R, XND-8082RV, XND-9082RF, XND-8082RF, XNO-9082R, XNB-8002, XNB-9002, XNV-8082R, XND-9082RV, XNO-8082R]

[v2.22.02, XNB-6002]

[v2.22.03, XND-C7083RV, XNV-C7083R, XNO-C7083R, XND-C6083RV, XNV-C6083R, XNO-C6083R]

[v2.22.03, XND-C9083RV, XNV-C9083R, XNO-C9083R, XND-C8083RV, XNV-C8083R, XNO-C8083R]

[v2.22.03, XNV-C6083]

[v2.22.04, XND-9083RV, XNV-9083R, XNO-9083R, XNB-9003, XND-8083RV, XND-8093RV, XNV-8083R, XNV-8093R, XNO-8083R, XNB-8003]



[v2.22.04, XND-6083RV, XNV-6083R, XNO-6083R, XNB-6003]  
 [v2.22.02, XNF-9013RV]  
 [v2.22.04, XNV-6123R, XNO-6123R]  
 [v2.22.04, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]  
 [v2.22.04, XNV-6083RZ, XNV-6083Z]  
 [v2.22.01, TNV-C7013RC]  
 [v2.22.01, XNP-9250R, XNP-6400R, XNP-8250R, XNP-9250, XNP-6400, XNP-8250]  
 [v2.22.01, XNP-9300RW, XNP-8300RW, XNP-6400RW]  
 [v2.22.00, XNP-8300RWG, XNP-9300RWG, XNP-6400RWG]  
 [v2.22.00, XNP-9300RWG01]  
 [v2.22.01, XNP-9300RWG01]  
 [v2.22.03, XNP-C6402R, XNP-C9303RW, XNP-C6403RW, XNP-C9253R, XNP-C6403R, XNP-C6403, XNP-C8253, XNP-C8253R, XNP-C8303RW, XNP-C9253]  
 [v2.22.04, XNV-8083RX]  
 [v2.22.00, PNM-8082VT]  
 [v2.22.00, PNM-9000QB]  
 [v2.22.00, PNM-9022V]

- Corrected an issue where the admin password wasn't changed when you tried changing the admin password using the ONVIF protocol

- Applies to:

[2.22.00, PNM-12082RVD] [2.22.00, PNM-7082RVD]  
 [v2.22.03, XNF-9010RV, XNF-9010RVM]  
 [v2.22.03, XNV-9082R, XND-8082RV, XND-9082RF, XND-8082RF, XNO-9082R, XNB-8002, XNB-9002, XNV-8082R, XND-9082RV, XNO-8082R]  
 [v2.22.03, XND-C7083RV, XNV-C7083R, XNO-C7083R, XND-C6083RV, XNV-C6083R, XNO-C6083R]  
 [v2.22.03, XND-C9083RV, XNV-C9083R, XNO-C9083R, XND-C8083RV, XNV-C8083R, XNO-C8083R]  
 [v2.22.03, XNV-C6083]  
 [v2.22.04, XND-9083RV, XNV-9083R, XNO-9083R, XNB-9003, XND-8083RV, XND-8093RV, XNV-8083R, XNV-8093R, XNO-8083R, XNB-8003]  
 [v2.22.04, XND-6083RV, XNV-6083R, XNO-6083R, XNB-6003]  
 [v2.22.02, XNF-9013RV]  
 [v2.22.04, XNV-6123R, XNO-6123R]  
 [v2.22.04, XNV-9083RZ, XNV-8083RZ, XNV-8083Z]  
 [v2.22.04, XNV-6083RZ, XNV-6083Z]  
 [v2.22.01, XNP-9250R, XNP-6400R, XNP-8250R, XNP-9250, XNP-6400, XNP-8250]  
 [v2.22.01, XNP-9300RW, XNP-8300RW, XNP-6400RW]

[v2.22.03, XNP-C6402R, XNP-C9303RW, XNP-C6403RW, XNP-C9253R, XNP-C6403R, XNP-C6403, XNP-C8253, XNP-C8253R, XNP-C8303RW, XNP-C9253]

[v2.22.04, XNV-8083RX]

- Increased the Open Platform's capacity to 150MB. The WiseAI application now supports the existing AI features.

- Applies to:

[v2.22.00, PNB-A900101],

[v2.22.00, PNO-A9081R01, PNV-A9081R01, PND-A9081RV01]

- Supports SLA-T28XX lens

- Applies to:

[v2.22.01, PNM-9000QB]

**Note:** SLA-T28XX lenses are not supported when you downgrade the firmware to a version lower than 2.22.01. Change to an existing lens or perform a factory reset before downgrading.

- Improved SUNAPI API of Events status

- Applies to:

[v2.22.01, XND-6080R, XND-6080, XND-6080V, XND-K6080, KND-2080R, XNV-6080, XNV-6080R, XNV-6080RS, XNV-6080RSA]

- Improved the resolution of the heatmap

- Applies to:

[v2.22.00, QNV-C9083R, QNV-C8083R, QNO-C9083R, QNO-C8083R, TNO-C8083E]

[v2.22.00, QNV-C9011R, QNV-C8011R, QNV-C8012]

[v2.22.00, SMT-3231PV, SMT-2731PV, SMT-3221PV, SMT-2721PV, SMT-1031PV, SMT-1031PVW]

- Changed the [Resolution] option in [Profile properties] from [800x800] to [640x640] in [Basic] > [video profile] in the web viewer

- Applies to:

[v2.22.00, MGC-F9010LI]

- Changed the default value of [Maximum bitrate] in [Profile Properties] from "7168" to "5120" in [Basic] > [video profile] in the web viewer

- Applies to:

[v2.22.00, MGC-F9010LI]

- The [Event trigger] list only displays the events selected in [Events] > [Event rules] in the web viewer

- Applies to:

[v2.22.00, MGC-F9010LI]

[v2.22.00, MGC-D8080LI, MGC-D8080]

- Added 2 rules (No parking area violation detection, Double parking detection) to [Events] > [Event Rules] in the web viewer. App installation is required to view the added items
  - Applies to:  
[v2.22.00, MGC-F9010LI]
- Add [PTZMotion] to [Log Type] in [System]>[Log]>[Event log] in the web viewer
  - Applies to:  
[v2.22.00, MGC-F9010LI]
- Made the feature be applied to the [Analytics] video when you select a feature in the application. A feature you select is enabled in the video by default
  - Applies to:  
[v2.22.00, MGC-F9010LI]  
[v2.22.00, MGC-D8080LI, MGC-D8080]
- Improved the logic of the execution command for the LLDPd (Link Layer Discovery Protocol daemon) within the camera by adding "-ccc", allowing it to forcefully send CDP (Cisco Discovery Protocol) packets even if CDP switches are not detected.
  - Applies to:  
[v2.22.03, PNM-C9022RV]  
[v2.22.01, PNM-8082VT]
- Enhanced functionality to ensure CDP operates normally even when LLDP is disabled.
  - Applies to:  
[v2.22.04, PNM-7082RVD]  
[v2.22.04, PNM-12082RVD]
- Upgrade the version of Open platform.
  - Applies to:  
[v2.22.00, PNO-A9311R]  
[v2.22.00, PNB-A9001]  
[v2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]  
[v2.22.00, PNB-A6001]  
[v2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]  
[v2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]  
[v2.22.00, PNM-C7083RVD]

[v.2.22.00, PNM-C12083RVD]

[v.2.22.00, PNM-C16013RVQ]

- Corrected an issue where the camera failed to reconnect to a NAS device after disconnecting from it. It now tries to reconnect every 30 seconds for 10 minutes and every 10 minutes thereafter.

- Applies to:

[v.2.22.00, PNO-A9311R]

[v.2.22.00, PNB-A9001]

[v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]

[v.2.22.00, PNB-A6001]

[v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]

[v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]

[v.2.22.00, PNM-C7083RVD]

[v.2.22.00, PNM-C12083RVD]

[v.2.22.00, PNM-C16013RVQ]

- Improved the performance of the audio-noise-reduction function

- Applies to:

[v.2.22.00, PNO-A9311R]

[v.2.22.00, PNB-A9001]

[v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]

[v.2.22.00, PNB-A6001]

[v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]

[v.2.22.00, PNM-C7083RVD]

[v.2.22.00, PNM-C12083RVD]

[v.2.22.00, PNM-C16013RVQ]

- Reduced time to register cameras in Genetec programs

- Applies to:

[v.2.22.00, PNO-A9311R]

[v.2.22.00, PNB-A9001]

[v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]

[v.2.22.00, PNB-A6001]

- [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- [v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
- [v.2.22.00, PNM-C7083RVD]
- [v.2.22.00, PNM-C12083RVD]
- [v.2.22.00, PNM-C16013RVQ]
- Improved the performance of IP speaker integration on cameras that support the [Handover] feature
  - Applies to:
    - [v.2.22.00, PNB-A9001]
    - [v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v.2.22.00, PNB-A6001]
    - [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v.2.22.00, PNM-C7083RVD]
    - [v.2.22.00, PNM-C12083RVD]
    - [v.2.22.00, PNM-C16013RVQ]
- Allows you to create passwords up to 64 characters
  - Applies to:
    - [v.2.22.00, PNB-A9001]
    - [v.2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v.2.22.00, PNB-A6001]
    - [v.2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v.2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v.2.22.00, PNM-C7083RVD]
    - [v.2.22.00, PNM-C12083RVD]
    - [v.2.22.00, PNM-C16013RVQ]
- Updated the [Profile type] selection in [Basic] > [Video profile] of the web viewer to allow you to configure [Dynamic GOV] and [Dynamic FPS] settings in the [Advanced] section, even when [Edge recording profile] is selected
  - Applies to:
    - [v.2.22.03, QNV-C9083R, QNO-C9083R]
    - [v.2.22.03, QNV-C9011R]

[v2.22.03, QNV-C8083R, QNO-C8083R]

[v2.22.03, QNV-C8011R]

[v2.22.03, QNV-C8012]

[v2.22.03, QNE-C9013RL]

[v2.22.03, QNE-C8013RL]

[v2.22.03, QNV-C6083R, QNO-C6083R]

[v2.22.03, TNV-C8011RW]

- Removed the [LED preset] menu in the [Event] section from the web viewer since the feature of the menu is the same as that of the [LED color] tab in the [Analytics] > [Parking detection] menu of the Open platform
  - Applies to:
    - [v2.22.02, MGC-F9010LI]
    - [v2.22.02, MGC-D8080LI, MGC-D8080]
- Removed the [Parking area setup] menu in the [Video & Audio] section from the web viewer since the feature of the menu is the same as that of the [Parking area] tab in the [Analysis] > [Parking detection] menu of the Open platform
  - Applies to:
    - [v2.22.02, MGC-F9010LI]
- Increased the WAVE package's maximum upload size limit from 250MB to 2GB
  - Applies to:
    - [v2.22.01, PNV-A6081R-E1T, PNV-A6081R-E2T]

## [Bug Fixes]

- Corrected an issue that disabled streaming and stopped Common Gateway Interface (CGI) working in certain circumstances when you access the web viewer after adding a camera to Genetec using the ONVIF protocol
  - Applies to:
    - [v2.22.01, XND-6080R, XND-6080, XND-6080V, XND-K6080, KND-2080R, XNV-6080, XNV-6080R, XNV-6080RS, XNV-6080RSA]
- Corrected an issue where the RTP timestamp appearing on the NVR's recorded video didn't match the actual time when you use an external company's VMS (video management system) to stream multicast video
  - Applies to:
    - [v2.22.01, XND-6080R, XND-6080, XND-6080V, XND-K6080, KND-2080R, XNV-6080,

XNV-6080R, XNV-6080RS, XNV-6080RSA]

- Corrected an issue where Chinese text didn't appear in the UI even after you chose the language as Chinese
  - Applies to:
    - [v2.22.02, PNM-7082RVD]
    - [v2.22.02, PNM-12082RVD]
    - [v2.22.03, PNM-7082RVD]
    - [v2.22.03, PNM-12082RVD]
- Corrected an issue where objects were not detected when the LED light was in [Light alarm] mode
  - Applies to:
    - [v2.22.00, QNE-C9013RL, QNE-C8013RL] [2.22.01, QNE-C9013RL, QNE-C8013RL]
- Corrected an issue where Channel-3 area was not displayed within the fisheye screen
  - Applies to:
    - [v2.22.00, MGC-F9010LI]
- Corrected an issue where an 802.1x certificate did not function after rebooting the camera after installing the 802.1x certificate.
  - Applies to:
    - [v2.22.04, PNM-7082RVD]
    - [v2.22.04, PNM-12082RVD]
- Corrected the ping timeout issue that occurred when a 1Gbps switch port was connected.
  - Applies to:
    - [v2.22.04, PNM-7082RVD]
    - [v2.22.04, PNM-12082RVD]
    - [v2.22.01, PNM-8082VT]

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## Security Improvements

- Fixed an error where commands operate with a modified packet
  - Applies to:
    - [v2.22.00, PNM-7002VD]
    - [v2.22.02, PNM-7002VD]
    - [v2.22.00, PNM-9002VQ]
    - [v2.22.02, PNM-9002VQ]

- [v2.22.00, PNM-9000VD]
- [v2.22.02, PNM-9000VD]
- [v2.22.00, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]
- [v2.22.02, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]
- [v2.22.00, PNM-9322VQP]
- [v2.22.00, XNF-9013RV]
- [v2.22.01, XNF-9013RV]
- [v2.22.01, PNM-9322VQP]
- [v2.22.02, PNM-9322VQP]
- Addressed the vulnerability of DoS of WS Discovery and Hanwha proprietary discovery services where the discovery function may be disabled after EMPTY packets are injected into the 3702 / 7701 ports used for device discovery of ONVIF/Device Manager. (Issued CVE-2023-31994)
  - Applies to:
    - [v2.22.00, PNM-7002VD]
    - [v2.22.02, PNM-7002VD]
    - [v2.22.00, PNM-9002VQ]
    - [v2.22.02, PNM-9002VQ]
    - [v2.22.00, PNM-9000VD]
    - [v2.22.02, PNM-9000VD]
    - [v2.22.00, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]
    - [v2.22.02, PNM-9084QZ, PNM-9084RQZ, PNM-9085RQZ, PNM-9084QZ1, PNM-9084RQZ1, PNM-9085RQZ1]
    - [v2.22.00, PNM-9322VQP]
    - [v2.22.00, XNF-9013RV]
    - [v2.22.01, XNF-9013RV]
    - [v2.22.00, PNM-7000VD]
    - [v2.22.02, PNM-7000VD]
    - [v2.22.00, PNM-9000VQ]
    - [v2.22.02, PNM-9000VQ]
    - [v2.22.00, PNM-9080VQ]
    - [v2.22.02, PNM-9080VQ]
    - [v2.22.00, PNM-9081VQ]
    - [v2.22.02, PNM-9081VQ]
    - [v2.22.00, PNM-9320VQP]



- [v2.22.02, PNM-9320VQP]
- [v2.22.00, PNM-9321VQP]
- [v2.22.02, PNM-9321VQP]
- [v2.22.01, PNM-9322VQP]
- [v2.22.02, PNM-9322VQP] [2.22.00, PNM-12082RVD] [2.22.00, PNM-7082RVD]
- Addressed the vulnerability of Authenticated Command Injection where a Linux command may be executed after a command is randomly injected into the folder mount point of the NAS function (Issued CVE-2023-31996)
  - Applies to:
    - [v2.22.00, PNM-7000VD]
    - [v2.22.02, PNM-7000VD]
    - [v2.22.00, PNM-9000VQ]
    - [v2.22.02, PNM-9000VQ]
    - [v2.22.00, PNM-9080VQ]
    - [v2.22.02, PNM-9080VQ]
    - [v2.22.00, PNM-9081VQ]
    - [v2.22.02, PNM-9081VQ]
    - [v2.22.00, PNM-9320VQP]
    - [v2.22.02, PNM-9320VQP]
    - [v2.22.00, PNM-9321VQP]
    - [v2.22.02, PNM-9321VQP]
- Addressed the vulnerability of Authenticated XSS where the script may be executed after it is injected into the imageData/backupfileData parameters of /home/setup/imagedownload.cgi (Issued CVE-2023-31995)
  - Applies to:
    - [v2.22.00, PNM-7000VD]
    - [v2.22.02, PNM-7000VD]
    - [v2.22.00, PNM-9000VQ]
    - [v2.22.02, PNM-9000VQ]
    - [v2.22.00, PNM-9080VQ]
    - [v2.22.02, PNM-9080VQ]
    - [v2.22.00, PNM-9081VQ]
    - [v2.22.02, PNM-9081VQ]
    - [v2.22.00, PNM-9320VQP]
    - [v2.22.02, PNM-9320VQP]
    - [v2.22.00, PNM-9321VQP]
    - [v2.22.02, PNM-9321VQP]

- Addressed the issue caused by the use of a weak block cipher mode by excluding CIPHER suites or converting the mode into compatibility mode
  - Applies to:
    - [v2.22.00, PNM-7000VD]
    - [v2.22.02, PNM-7000VD]
    - [v2.22.00, PNM-9000VQ]
    - [v2.22.02, PNM-9000VQ]
    - [v2.22.00, PNM-9080VQ]
    - [v2.22.02, PNM-9080VQ]
    - [v2.22.00, PNM-9081VQ]
    - [v2.22.02, PNM-9081VQ]
    - [v2.22.00, PNM-9320VQP]
    - [v2.22.02, PNM-9320VQP]
    - [v2.22.00, PNM-9321VQP]
    - [v2.22.02, PNM-9321VQP]
- Made HTTPS default
  - Applies to:
    - [v2.22.00, PNM-7000VD]
    - [v2.22.02, PNM-7000VD]
    - [v2.22.00, PNM-9000VQ]
    - [v2.22.02, PNM-9000VQ]
    - [v2.22.00, PNM-9080VQ]
    - [v2.22.02, PNM-9080VQ]
    - [v2.22.00, PNM-9081VQ]
    - [v2.22.02, PNM-9081VQ]
    - [v2.22.00, PNM-9320VQP]
    - [v2.22.02, PNM-9320VQP]
    - [v2.22.00, PNM-9321VQP]
    - [v2.22.02, PNM-9321VQP]
- Excluded TLS 1.0 & 1.1 from default settings
  - Applies to:
    - [v2.22.00, PNM-7000VD]
    - [v2.22.02, PNM-7000VD]
    - [v2.22.00, PNM-9000VQ]
    - [v2.22.02, PNM-9000VQ]
    - [v2.22.00, PNM-9080VQ]
    - [v2.22.02, PNM-9080VQ]

- [v2.22.00, PNM-9081VQ]
- [v2.22.02, PNM-9081VQ]
- [v2.22.00, PNM-9320VQP]
- [v2.22.02, PNM-9320VQP]
- [v2.22.00, PNM-9321VQP]
- [v2.22.02, PNM-9321VQP]
- Fixed an error where the SNMP port opened while SNMP did not operate
  - Applies to:
    - [v2.22.00, PNM-7000VD]
    - [v2.22.02, PNM-7000VD]
    - [v2.22.00, PNM-9000VQ]
    - [v2.22.02, PNM-9000VQ]
    - [v2.22.00, PNM-9080VQ]
    - [v2.22.02, PNM-9080VQ]
    - [v2.22.00, PNM-9081VQ]
    - [v2.22.02, PNM-9081VQ]
    - [v2.22.00, PNM-9320VQP]
    - [v2.22.02, PNM-9320VQP]
    - [v2.22.00, PNM-9321VQP]
    - [v2.22.02, PNM-9321VQP]
- Enhanced RTSP security
  - Applies to:
    - [v2.22.00, PNO-A9311R]
    - [v2.22.00, PNB-A9001]
    - [v2.22.00, PND-A9081RF, PND-A9081RV, PND-A9081RVX, PNO-A9081R, PNV-A9081R, PNV-A9081RX]
    - [v2.22.00, PNB-A6001]
    - [v2.22.00, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v2.22.00, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v2.22.00, PNM-C7083RVD]
    - [v2.22.00, PNM-C12083RVD]
    - [v2.22.00, PNM-C16013RVQ]

## Affected Products

Table 5. Product Family Based On Version 2.22

Major Model	Model Name
XNF-9010RV	XNF-9010RV XNF-9010RVM XNF-9010RS
XNV-9082R	XNB-8002 XNB-9002 XND-8082RF XND-8082RV XND-9082RF XND-9082RV XNO-8082R XNO-9082R XNV-8082R XNV-9082R
XND-C7083RV	XND-C6083RV XND-C7083RV XNV-C6083R XNV-C7083R XNO-C6083R XNO-C7083R XNV-C6083
XND-C9083RV	XND-C8083RV XND-C9083RV XNV-C8083R XNV-C9083R XNO-C8083R XNO-C9083R
XND-9083RV	XNV-9083R XNV-8093R XNV-8083R XND-9083RV XND-8093RV XND-8083RV XNO-9083R XNO-8083R XNB-9003

Major Model	Model Name
	XNB-8003 XNO-9083R
XND-6083RV	XND-6083R XNV-6083R XNO-6083R XNB-6003 XND-6083RV
XNV-6123R	XNO-6123R XNV-6123R
XNV-9083RZ	XNV-9083RZ XNV-8083RZ XNV-8083Z
XNV-6083RZ	XNV-6083RZ XNV-6083Z
PNM-7002VD	PNM-7002VD
PNM-9002VQ	PNM-9002VQ
PNM-9000VD	PNM-9000VD
PNM-9084QZ	PNM-9084QZ PNM-9084RQZ PNM-9085RQZ PNM-9084QZ1 PNM-9084RQZ1 PNM-9085RQZ1
PNM-9322VQP	PNM-9322VQP
PNM-C9022RV	PNM-C9022RV
PNM-9031RV	PNM-9031RV
XNP-9300RW	XNP-9300RW XNP-8300RW XNP-6400RW
XNP-9250R	XNP-9250R XNP-8250R XNP-6400R XNP-9250 XNP-8250 XNP-6400
XNB-6002	XNB-6002
XNP-C9303RW	XNP-C9303RW

Major Model	Model Name
	XNP-C8303RW XNP-C6400RW XNP-C9253R XNP-C8253R XNP-C6403R XNP-C9253 XNP-C8253 XNP-C6403 XNP-C6403RW XNP-C6402R
XNF-9013RV	XNF-9013RV
TNV-C7013RC	TNV-C7013RC
PNM-7000VD	PNM-7000VD
PNM-9080VQ	PNM-9080VQ
PNM-9081VQ	PNM-9081VQ
PNM-9320VQP	PNM-9320VQP
PNM-9321VQP	PNM-9321VQP
XND-6080R	XND-6080RV XND-6080R XND-6080V XND-6080 XNV-6080R XNV-6080 XND-K6080 KND-2080R XNV-6080RS XNV-6080RSA
PNM-12082RVD	PNM-12082RVD
PNM-7082RVD	PNM-7082RVD
XNV-8083RX	XNV-8083RX
XNP-9300RWG	XNP-9300RWG XNP-8300RWG XNP-6400RWG
XNP-9300RWG01	XNP-9300RWG01
PNM-8082VT	PNM-8082VT
PNM-9000QB	PNM-9000QB
PNM-9022V	PNM-9022V

Major Model	Model Name
PNM-9000VQ	PNM-9000VQ
PNB-A900101	PNB-A900101
PNO-A9081R01	PNO-A9081R01 PND-A9081RV01 PNV-A9081R01
QNV-C9011R	QNV-C9011R
QNV-C8011R	QNV-C8011R
QNV-C8012	QNV-C8012
TNB-C6005	SMT-3231PV SMT-2731PV SMT-3221PV SMT-2721PV SMT-1031PV SMT-1031PVW
QNE-C9013RL	QNE-C9013RL
QNE-C8013RL	QNE-C8013RL
TNV-C8011RW	TNV-C8011RW
QNV-C9083R	QNV-C9083R QNO-C9083R
QNV-C8083R	QNV-C8083R QNO-C8083R
TNO-C8083	TNO-C8083
MGL-D8080	MGL-D8080
MGC-F9010LI	MGC-F9010LI
MGC-D8080LI	MGC-D8080LI MGC-D8080
PNB-A9001	PNB-A9001
PNO-A9081R	PND-A9081RF PND-A9081RV PND-A9081RVX PNO-A9081R PNV-A9081R PNV-A9081RX
PNO-A6081R	PNO-A6081R PND-A6081RF PND-A6081RV PNV-A6081R

Major Model	Model Name
PNV-A6081R-E	PNV-A6081R-E1T PNV-A6081R-E2T
PNM-C7083RVD	PNM-C7083RVD
PNM-C12083RVD	PNM-C12083RVD
PNM-C16013RVQ	PNM-C16013RVQ
QNV-C6083R	QNV-C6083R QNO-C6083R



# Network Camera Version 2.21

This document describes the new and changed features of Hanwha Vision network camera version 2.21

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## Common Features

### [New features]

- Added the icon at the top right of the web viewer to display the status of the recording devices
  - Applies to:  
[v2.21.01, PNM-C7083RVD]  
[v2.21.01, PNM-C12083RVD]
- Added auto tracking function
  - Applies to:  
[v2.21.02, QNP-6320, QNP-6250, QNP-6320H, QNP-6250H]  
[v2.21.02, QNP-6320R, QNP-6250R]  
[v2.21.04, QNP-6320, QNP-6250, QNP-6320H, QNP-6250H, QNP-6320H1]
- Supports SLA-T2880BA lens
  - Applies to:  
[v2.21.01 XNB-6002]
- The existing AI functions are now supported in the WiseAI application.
  - Applies to:  
[v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]  
[v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- Added the [Event rule] option to [Event] of the web viewer. You can add a trigger for each event rule and set an event action for the camera when an event occurs.
  - Applies to:  
[v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]  
[v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]

- Increased the installation space of the WiseAI application to 150MB. To update the firmware, you need a bridge firmware. Once updated, the firmware cannot be downgraded.
  - Applies to:
    - [v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- Added a [Wise detector] function to the WiseAI application, where it displays a bestshot out of the objects detected by Wise Detector.
  - Applies to:
    - [v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- Added the [MQTT] option to [Event] in the web viewer to provide support for the MQTT protocol
  - Applies to:
    - [v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v2.21.00, TNO-4030TR, TNO-4040TR, TNO-4041TR]
    - [v2.21.00, TNO-L4030TR]
- Added support for Encoding From Memory (EFM)
  - Applies to:
    - [v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- An alarm now goes off in case of changes in WiseAI settings.
  - Applies to:
    - [v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- You can now type Japanese in OSD.

- Applies to:
  - [v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
  - [v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
  - [v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
  - [v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- Added support for LLDP for POE+.
  - Applies to:
    - [v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- Added a [Slip & fall detection] function to the WiseAI application.
  - Applies to:
    - [v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- Added AI features to the thermal image channel. Setting the camera sensor mode to 30 or 25 fps enables AI in only one of the real or thermal channels, while setting it to 15 fps enables AI in both the channels. (Only applied when Opensdk\_App\_WiseAIBi\_1.09.00\_R708 is installed)
  - Applies to:
    - [v2.21.01, TNM-C4940TD]
    - [v2.21.01, TNM-C4950TD, TNM-C4960TD]
- Added 15fps, 25 fps, and 30fps values to the sensor mode settings
  - Applies to:
    - [v2.21.01, TNM-C4940TD]
    - [v2.21.01, TNM-C4950TD, TNM-C4960TD]
- Added video analytics features ([People counting], [Heatmap], [Queue management], and [vehicle counting])
  - Applies to:
    - [v2.21.10, QNV-C9083R, QNO-C9083R]
    - [v2.21.10, QNV-C8083R, QNO-C8083R]
    - [v2.21.10, QNV-C9011R]
    - [v2.21.10, QNV-C8011R]
    - [v2.21.10, QNV-C8012]

- Added WiseStream 3 features
  - Applies to:
    - [v2.21.10, QNV-C9083R, QNO-C9083R]
    - [v2.21.10, QNV-C8083R, QNO-C8083R]
    - [v2.21.10, QNV-C9011R]
    - [v2.21.10, QNV-C8011R]
    - [v2.21.10, QNV-C8012]
- Added a [Customize] option to the [Duration] list under the [Day/Night] tab
  - Applies to:
    - [v2.21.10, QNV-C9083R, QNO-C9083R]
    - [v2.21.10, QNV-C8083R, QNO-C8083R]
    - [v2.21.10, QNV-C9011R]
    - [v2.21.10, QNV-C8011R]
    - [v2.21.10, QNV-C8012]
- Added a video overlay feature
  - Applies to:
    - [v2.21.10, QNV-C9083R, QNO-C9083R]
    - [v2.21.10, QNV-C8083R, QNO-C8083R]
    - [v2.21.10, QNV-C9011R]
    - [v2.21.10, QNV-C8011R]
    - [v2.21.10, QNV-C8012]
- Made TLS version optional
  - Applies to:
    - [v2.21.10, QNV-C9083R, QNO-C9083R]
    - [v2.21.10, QNV-C8083R, QNO-C8083R]
    - [v2.21.10, QNV-C9011R]
    - [v2.21.10, QNV-C8011R]
    - [v2.21.10, QNV-C8012]
- Added the [Noise reduction] feature that reduces audio noise
  - Applies to:
    - [v2.21.10, QNV-C9083R, QNO-C9083R]
    - [v2.21.10, QNV-C8083R, QNO-C8083R]
- Enables the Wisenet RoadAI app installed on the TNO-7180RLP model to recognize US license plates
  - Applies to:
    - [v2.21.01, TNO-7180RLP]

- Added the [Feet (ft)] option to [Unit] on the [LPR setup] page
  - Applies to:  
[v2.21.01, TNO-7180RLP]
- Added the [Night exposure] feature to the [Camera setup] page. You can configure the settings for minimum shutter, maximum shutter, prefer shutter, iris, iris F-No, AGC, and levels (manual & max. gain).
  - Applies to:  
[v2.21.01, TNO-7180RLP]
- Added support for the Cisco Discovery Protocol (CDP) used in CISCO switches
  - Applies to:  
[v2.21.03, PNM-C12083RVD]  
[v2.21.04, PNM-C7083RVD]
- Added a banner feature to SMT-series PVM monitors that displays banner images on the video screen
  - Applies to:  
[v2.21.10, SMT-3231PV, SMT-2731PV]
- Added support for AI Pack. Note that you need an individual license to install each application. [2.21.15, PNB-A9001] [2.21.15, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R] [2.21.08, PNB-A6001] [2.21.08, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
  - Applies to:
- Added a feature to view the status of the [LED preset] to the application [v2.21.10, MGL-D8080]
  - Applies to:
- Added the [Manual] option to the [Mode] drop-down list under the [IR] tab in [video & Audio]>[Camera settings] in the web viewer
  - Applies to:  
[v2.21.01, PNO-A9311RLP]
- Added the [Night exposure] feature under the [Exposure] tab in [Video & Audio]>[Camera settings] in the web viewer
  - Applies to:  
[v2.21.01, PNO-A9311RLP]
- Added the [PTZMotion] option to the [Log type] drop-down list under the [Event log] tab in

[System]>[Log] in the web viewer

- Applies to:  
[v2.21.01, PNO-A9311RLP]
- Updated the [Video profile] section in [Basic]>[Video profile] in the web viewer to allow you to configure [GOV length], [Entropy coding], [Dynamic GOV], and [Dynamic FPS] options in the [Advanced] section, even when you select the [Edge recording profile] option in the [Profile type] list
  - Applies to:  
[v2.21.01, PNO-A9311RLP]
- Removed support for SD card-related CGI to prevent functionality conflicts within a camera equipped with Wisenet Road AI (an app installed on the open platform) using dedicated SD cards (Using the SD card for purposes other than Wisenet Road AI functionality will cause functionality conflicts.)
  - Applies to:  
[v2.21.01, PNO-A9311RLP]
- Downgraded from version 5.00\_240111 to version 5.00\_230629 to stabilize the Open platform version
  - Applies to:  
[v2.21.01, PNO-A9311RLP]
- Added the [Data storage] option to the [Recognition setup] section under the [SETTINGS] tab on the page that appears after clicking [Open platform]>[Go App] in the web viewer
  - Applies to:  
[v2.21.01, PNO-A9311RLP]
- Added support for the [Edge recording] function in Cloud Connector
  - Applies to:  
[v2.21.11, QND-C8013R, QNV-C8013R, QNO-C8013R]  
[v2.21.11, QND-C8023R, QNV-C8023R, QNO-C8023R]  
[v2.21.11, TNV-C8014RM]  
[v2.21.11, TNV-C8034RM]  
[v2.21.11, QNF-C9010]  
[v2.21.11, QNF-C9010V]
- Removed support for the recording and playback functions of the camera when the [Edge recording] feature of Cloud Connector is enabled (The recording and playback menus in the camera web viewer will disappear)

- Applies to:
  - [v2.21.11, QND-C8013R, QNV-C8013R, QNO-C8013R]
  - [v2.21.11, QND-C8023R, QNV-C8023R, QNO-C8023R]
  - [v2.21.11, TNV-C8014RM]
  - [v2.21.11, TNV-C8034RM]
  - [v2.21.11, QNF-C9010]
  - [v2.21.11, QNF-C9010V]
- Reduced time to generate files required for playback
  - Applies to:
    - [v2.21.11, QND-C8013R, QNV-C8013R, QNO-C8013R]
    - [v2.21.11, QND-C8023R, QNV-C8023R, QNO-C8023R]
    - [v2.21.11, TNV-C8014RM]
    - [v2.21.11, TNV-C8034RM]
    - [v2.21.11, QNF-C9010]
    - [v2.21.11, QNF-C9010V]
- Added the feature to generate virtual parking events.
  - Applies to:
    - [v2.21.10, MGC-F9011LI]
- Added the option to set parking location identification numbers
  - Applies to:
    - [v2.21.10, MGC-F9011LI]
- Changed to the FE binary where Onsemi motor driver IC was replaced with VM107 due to the discontinuation of the driver IC
  - Applies to:
    - [v2.21.06, QNP-6320H, QNP-6320, QNP-6250H, QNP-6250]
    - [v2.21.06, QNP-6320R, QNP-6250R]
    - [v2.21.06, QNP-6251H, QNP-6251]
    - [v2.21.06, QNP-6320HS]
    - [v2.21.02, PNO-A9311RLP]
- Impossible to downgrade the firmware using VM107 to the earlier firmware using the Onsemi motor driver IC
  - Applies to:
    - [v2.21.06, QNP-6320H, QNP-6320, QNP-6250H, QNP-6250]
    - [v2.21.06, QNP-6320R, QNP-6250R]

[v2.21.06, QNP-6251H, QNP-6251]

[v2.21.06, QNP-6320HS]

[v2.21.02, PNO-A9311RLP]

- Optimized iris and day/night mode operation for VM107
  - Applies to:  
[v2.21.02, PNO-A9311RLP]

## **[Improvement]**

- When you set the privacy zone, the privacy zone now becomes transparent while setting the zoom threshold.
  - Applies to:  
[v2.21.02, QNP-6320, QNP-6250, QNP-6320H, QNP-6250H]  
[v2.21.02, QNP-6320R, QNP-6250R]  
[v2.21.04, QNP-6320, QNP-6250, QNP-6320H, QNP-6250H, QNP-6320H1]
- Improved the phenomenon of object saturation in IR LED proximity conditions
  - Applies to:  
[v2.21.01, PNV-A6081R-E1T, PNV-A6081R-E2T]  
[v2.21.02, PNV-A6081R-E1T, PNV-A6081R-E2T]  
[v2.21.02, PNM-C12083RVD]  
[v2.21.03, PNM-C7083RVD]
- If you click the [Delete] button while Wisenet WAVE app is installed, a warning message is displayed
  - Applies to:  
[v2.21.01, PNV-A6081R-E1T, PNV-A6081R-E2T]  
[v2.21.02, PNV-A6081R-E1T, PNV-A6081R-E2T]
- When the camera time zone changes, it is automatically reflected and synchronized in the Wisenet WAVE app
  - Applies to:  
[v2.21.01, PNV-A6081R-E1T, PNV-A6081R-E2T]  
[v2.21.02, PNV-A6081R-E1T, PNV-A6081R-E2T]
- Updated some time zones and DST information to the latest
  - Applies to:  
[v2.21.01, PNV-A6081R-E1T, PNV-A6081R-E2T]



[v2.21.02, PNV-A6081R-E1T, PNV-A6081R-E2T]

- Changed the corporate name to Hanwha Vision in the web viewer as the name changed to Hanwha Vision
  - Applies to:
    - [v2.21.01, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v2.21.02, PNV-A6081R-E1T, PNV-A6081R-E2T]
    - [v2.21.01, XNF-9013RV]
    - [v2.21.01, TNM-C4940TD]
    - [v2.21.01, TNM-C4950TD, TNM-C4960TD]
    - [v2.21.10, MGL-D8080]
- Improved functionality to obtain TTA security certification
  - Applies to:
    - [v2.21.02, PNM-C9022RV]
- Fixed language error in Japanese version
  - Applies to:
    - [v2.21.02, PNM-C9022RV]
- Fixed HTTPS bugs
  - Applies to:
    - [v2.21.01, MGL-D8080]
    - [v2.21.01, MGC-F9010LI]
    - [v2.21.01, MGC-D8080LI, MGC-D8080]
- Changed the default value of [Day/Night] from [Auto] to [Color] after factory reset
  - Applies to:
    - [v2.21.01, MGC-D8080LI, MGC-D8080]
- When setting the H.264/H.265 codec, you can set the minimum bitrate to 10 kbps.
  - Applies to:
    - [v2.21.02, PNM-C7083RVD]
- TLS1.0/TLS1.1 not supported for SRTP (port:322)
  - Applies to:
    - [v2.21.01, XNF-9013RV]
- Added a function where you can select attributes to send to object metadata.
  - Applies to:
    - [v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
    - [v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]

[v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]

- Improved analysis performance in object detection.
  - Applies to:  
[v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]  
[v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- The [Face mask detection], [social distance detection], and [People counting] functions that were supported in [Analytics] are now supported in the WiseAI application.
  - Applies to:  
[v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]  
[v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- Added support for Profile M of ONVIF.
  - Applies to:  
[v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]  
[v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- Deleted a PTZ channel. A PTZ profile is now supported.
  - Applies to:  
[v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
- Improved the image quality of low light images.
  - Applies to:  
[v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]  
[v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- Changed default bitrate values from 12MB to 8MB.
  - Applies to:  
[v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
- Changed default bitrate values from 4MB to 2MB.
  - Applies to:  
[v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]

[v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]

- Allows you to create passwords up to 64 characters
  - Applies to:  
[v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]  
[v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- You can now give administrative rights to other users.
  - Applies to:  
[v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]  
[v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- Added a function where you can designate a specific application as a default application out of the applications you installed.
  - Applies to:  
[v2.21.13, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.06, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]  
[v2.21.14, PNB-A9001, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
[v2.21.07, PNB-A6001, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- Added a shortcut icon and Open App list to the toolbar in the web viewer
  - Applies to:  
[v2.21.01, TNM-C4940TD]  
[v2.21.01, TNM-C4950TD, TNM-C4960TD]
- Expanded the ROI area for temperature detection and improved the functionality
  - Applies to:  
[v2.21.00, TNO-4030TR, TNO-4040TR, TNO-4041TR]  
[v2.21.00, TNO-L4030TR]
- Provide temperature data and coordinate values
  - Applies to:  
[v2.21.00, TNO-4030TR, TNO-4040TR, TNO-4041TR]  
[v2.21.00, TNO-L4030TR]
- Added setting conditions for temperature detection
  - Applies to:  
[v2.21.00, TNO-4030TR, TNO-4040TR, TNO-4041TR]

[v2.21.00, TNO-L4030TR]

- Added rule-based event settings
  - Applies to:  
[v2.21.00, TNO-4030TR, TNO-4040TR, TNO-4041TR]  
[v2.21.00, TNO-L4030TR]
- Added a live reading feature to provide temperature data of the whole area and the ROI area for temperature detection
  - Applies to:  
[v2.21.00, TNO-4030TR, TNO-4040TR, TNO-4041TR]  
[v2.21.00, TNO-L4030TR]
- Added a pixel reading feature to provide temperature data of pixels
  - Applies to:  
[v2.21.00, TNO-4030TR, TNO-4040TR, TNO-4041TR]  
[v2.21.00, TNO-L4030TR]
- Added a one-time reading request feature to provide temperature data when requested
  - Applies to:  
[v2.21.00, TNO-4030TR, TNO-4040TR, TNO-4041TR]  
[v2.21.00, TNO-L4030TR]
- Stabilized the event-triggered performance in case of the detection of parking-area occupancy
  - Applies to:  
[v2.21.02, MGC-F9010LI]  
[v2.21.02, MGC-D8080LI, MGC-D8080]
- Fixed an error with UI text on the [Temperature detection] page
  - Applies to:  
[v2.21.01, TNO-4030TR, TNO-4040TR, TNO-4041TR]  
[v2.21.01, TNO-L4030TR]  
[v2.21.10, TNO-L4030T]  
[v2.21.10, TNO-L4030TR]  
[v2.21.11, TNO-L4030T]  
[v2.21.11, TNO-L4030TR]
- Improved SUNAPI API of the [Temperature detection] feature
  - Applies to:  
[v2.21.01, TNO-4030TR, TNO-4040TR, TNO-4041TR]  
[v2.21.01, TNO-L4030TR]

- [v2.21.10, TNO-L4030T]
- [v2.21.10, TNO-L4030TR]
- [v2.21.11, TNO-L4030T]
- [v2.21.11, TNO-L4030TR]
- Made the [Privacy mask] feature available even if the [DetectionShot] feature is activated
  - Applies to:
    - [v2.21.10, QNV-C9083R, QNO-C9083R]
    - [v2.21.10, QNV-C8083R, QNO-C8083R]
    - [v2.21.10, QNV-C9011R]
    - [v2.21.10, QNV-C8011R]
    - [v2.21.10, QNV-C8012]
- Corrected an error where the IP speaker wasn't connected to the cameras that support the [Handover] feature
  - Applies to:
    - [v2.21.10, QNV-C9083R, QNO-C9083R]
    - [v2.21.10, QNV-C8083R, QNO-C8083R]
    - [v2.21.10, QNV-C9011R]
    - [v2.21.10, QNV-C8011R]
    - [v2.21.10, QNV-C8012]
- Corrected an issue where the admin password wasn't changed when you tried changing the admin password using the ONVIF protocol
  - Applies to:
    - [v2.21.03, PNM-C12083RVD]
    - [v2.21.04, PNM-C7083RVD]
- Improved the sync performance to ensure that overlay boxes that are drawn according to metadata are in sync with the video while the camera is connected to Wisenet WAVE
  - Applies to:
    - [v 2.21.01, PNM-C16013RVQ]
- Added AI features to the WAVE application
  - Applies to:
    - [v2.21.03, PNV-A6081R-E1T, PNV-A6081R-E2T]
- Changed the setting so that [Mode] both under [Day/Night] and [IR] is automatically set to [Auto] when you select [Off] under [Mode] in [Camera setup]<[LED light]
  - Applies to:
    - [v2.21.01, QNE-C9013RL]

[v2.21.01, QNE-C8013RL]

- Changed the setting so that [Mode] both under [Day/Night] and [IR] is automatically set to [Auto] when you select [Light alarm] under [Mode] in [Camera setup]<[LED light]
  - Applies to:  
[v2.21.01, QNE-C9013RL]  
[v2.21.01, QNE-C8013RL]
- Added an LED-flashing feature to allow you to visually check whether the camera is booting up. The LED will flash when the camera boots up and stop blinking when the boot is complete.
  - Applies to:  
[v2.21.01, TNS-9050IBC]
- Displays UI text in 16 languages, including French, Russian. To change the language, go to [System]>[Product information]>[Language].
  - Applies to:  
[v2.21.01, TNS-9050IBC]
- Improved system stability
  - Applies to: [2.21.02, TNV-C7013RCG]
- Added [Detection reference] and [Precise temperature compensation] options to [Analytics]>[Temperature detection]
  - Applies to:  
[v2.21.02, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA]  
[v2.21.02, TNO-C3012TRA, TNO-C3022TRA, TNO-C3032TRA]
- Added the [Tank level detection] to [Analytics]>[Temperature detection]
  - Applies to:  
[v2.21.02, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA]  
[v2.21.02, TNO-C3012TRA, TNO-C3022TRA, TNO-C3032TRA]
- Added support for Cloud Connector
  - Applies to:  
[v2.21.02, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA]  
[v2.21.02, TNO-C3012TRA, TNO-C3022TRA, TNO-C3032TRA]
- Improved the temperature detection event not to trigger consecutively when the conditions for the event to occur are maintained
  - Applies to:  
[v2.21.02, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA]  
[v2.21.02, TNO-C3012TRA, TNO-C3022TRA, TNO-C3032TRA]

- Changed the range of [Maximum bitrate] that can be set in [Profile properties] from 512-40960 to 200-40960 when the codec is set to H.264/H.265 in [video profile]
  - Applies to:  
[v2.21.02, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA]  
[v2.21.02, TNO-C3012TRA, TNO-C3022TRA, TNO-C3032TRA]
- Improved the applications' processing speed for events
  - Applies to:  
[v2.21.02, MMA-S1010, MMA-S1010R, MMA-D1010]  
[v2.21.02, MMC-O6080R]
- Renamed [Network disconnection] to [Device alarm UI]
  - Applies to:  
[v2.21.02, TNS-9050IBC] [v2.21.03, TNS-9050IBC, TNS-9040IBC, TNS-9060IBC]
- Added support for the ONVIF profile M function
  - Applies to:  
[v2.21.02, TNS-9050IBC] [v2.21.03, TNS-9050IBC, TNS-9040IBC, TNS-9060IBC]
- Added support for the MQTT function
  - Applies to:  
[v2.21.02, TNS-9050IBC] [v2.21.03, TNS-9050IBC, TNS-9040IBC, TNS-9060IBC]
- Added barcode types: Data Matrix, Maxicode, QR code, PDF417 (for WiseBCR v1.01.03)
  - Applies to:  
[v2.21.02, TNS-9050IBC] [v2.21.03, TNS-9050IBC, TNS-9040IBC, TNS-9060IBC]
- Increased the number of barcodes you can set from 12 to 192 (for WiseBCR v1.01.03)
  - Applies to:  
[v2.21.02, TNS-9050IBC] [v2.21.03, TNS-9050IBC, TNS-9040IBC, TNS-9060IBC]
- Changed the number of the last N codes from 12 to 100 you can enter in [Don't re-read the last N codes] (for WiseBCR v1.01.03)
  - Applies to:  
[v2.21.02, TNS-9050IBC] [v2.21.03, TNS-9050IBC, TNS-9040IBC, TNS-9060IBC]
- Updated the [Profile type] selection in [Basic] > [Video profile] of the web viewer to allow you to configure [Dynamic GOV] and [Dynamic FPS] settings in the [Advanced] section, even when [Edge recording profile] is selected
  - Applies to:  
[v2.21.11, QND-C8013R, QNV-C8013R, QNO-C8013R]  
[v2.21.11, QND-C8023R, QNV-C8023R, QNO-C8023R]

[v2.21.11, TNV-C8014RM]

[v2.21.11, TNV-C8034RM]

[v2.21.11, QNF-C9010]

[v2.21.11, QNF-C9010V]

- Changed a UI term from "Detection reference" to "Target distance" in [Analysis] > [Temperature detection] of the web viewer and corrected an issue where another UI term "Precise temperature compensation" was displayed only in Korean even when you changed the language
  - Applies to:
    - [v2.21.02, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA]
    - [v2.21.02, TNO-C3012TRA, TNO-C3022TRA, TNO-C3032TRA]
- For channel 1, changed the initial value of "Profile 3" to PanoramaView and the initial value of "Profile 10" to Live4NVR
  - Applies to:
    - [v2.21.10, MGC-F9011LI]

## [Bug fixes]

- Corrected an issue that delayed triggering temperature-detection events
  - Applies to:
    - [v2.21.01, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA]
    - [v2.21.01, TNO-C3012TRA, TNO-C3022TRA, TNO-C3032TRA]
- Corrected an issue where the "Ping" command occasionally got omitted
  - Applies to:
    - [v2.21.12, QNV-C8011RMG]
- Fixed the problem that the temperature of the [Include area] which is ROI was displayed incorrectly
  - Applies to:
    - [v2.21.10, TNO-L4030T]
    - [v2.21.10, TNO-L4030TR]
    - [v2.21.11, TNO-L4030T]
    - [v2.21.11, TNO-L4030TR]
- Corrected an issue where a message "Unknown USB device is inserted" appeared even when no USB device was connected
  - Applies to:



[2.21.16, PNB-A9001] [2.21.16, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]  
 [2.21.09, PNB-A6001] [2.21.09, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]

- Corrected an issue that didn't generate BestShot of the detected object that is small
  - Applies to:  
 [v2.21.02, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA]  
 [v2.21.02, TNO-C3012TRA, TNO-C3022TRA, TNO-C3032TRA]
- Corrected an issue where the camera did not return to the home position after rebooting the camera, even after clicking the [Set home] button under the [Preset] tab in [PTZ]>[Preset setup] in the web viewer
  - Applies to:  
 [v2.21.01, PNO-A9311RLP]
- Corrected an issue where the VMS recognized the event occurrence timestamp as being in the future due to incorrect timestamp information (indicated by the imageRef metadata element) sent from the camera
  - Applies to:  
 [v2.21.01, PNO-A9311RLP]
- Corrected an issue where graphs were intermittently invisible in [Wisenet Road AI] > [STATISTICS]. (To navigate to the [Wisenet Road AI] application, click [Go App] in the [Wisenet Road AI] section of the app list in [Open platform] of the web viewer.)
  - Applies to:  
 [v2.21.01, PNO-A9311RLP]
- Corrected an issue that rebooted when sensor mode was changed
  - Applies to:  
 [v2.21.02, TNS-9050IBC] [v2.21.03, TNS-9050IBC, TNS-9040IBC, TNS-9060IBC]
- Corrected an issue that displayed a solid color for an extended period and an issue where the screen tearing occurred when you changed the gain table
  - Applies to:  
 [v2.21.02, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA]  
 [v2.21.02, TNO-C3012TRA, TNO-C3022TRA, TNO-C3032TRA]

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## Application Improvements

- Added [People counting],

[vehicle counting], and [Crowd counting] features (Only applied when Opensdk\_App\_WiseAI\_1.02.01\_R728 is installed [installable only for P-AI series cameras])

- Applies to:

- [v2.21.13, PNB-A9001],
- [v2.21.13, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
- [v2.21.06, PNB-A6001],
- [v2.21.06, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- [v2.21.14, PNB-A9001],
- [v2.21.14, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
- [v2.21.07, PNB-A6001],
- [v2.21.07, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]

- Added attributes that show 8 directions of object movement to the [BestShot] feature (Only applied when Opensdk\_App\_WiseAI\_1.02.01\_R728 is installed [installable only for P-AI series cameras])

- Applies to:

- [v2.21.13, PNB-A9001],
- [v2.21.13, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
- [v2.21.06, PNB-A6001],
- [v2.21.06, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]
- [v2.21.14, PNB-A9001],
- [v2.21.14, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
- [v2.21.07, PNB-A6001],
- [v2.21.07, PNO-A6081R, PND-A6081RF, PND-A6081RV, PNV-A6081R]

- Added a feature to encode BestShot to Base64 format, allowing metadata to be transmitted via Real-Time Streaming Protocol (RTSP). (Only applied when Opensdk\_App\_WiseAI\_1.02.04\_R1605 is installed [installable only for P-AI series cameras])

- Applies to:

- [v2.21.15, PNB-A9001]
- [v2.21.15, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
- [v2.21.08, PNB-A6001]
- [v2.21.08, PNO-A6081R, PND-A6081RV, PNO-A6081RV, PND-A6081RF, PNV-A6081R]

- Added an add-on license feature. (Note: To use this feature, ensure that an add-on application is activated.) (Only applied when Opensdk\_App\_WiseAI\_1.02.04\_R1605 is installed [installable only for P-AI series cameras])

- Applies to:

- [v2.21.15, PNB-A9001]

[v2.21.15, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]

[v2.21.08, PNB-A6001]

[v2.21.08, PNO-A6081R, PND-A6081RV, PNO-A6081RV, PND-A6081RF, PNV-A6081R]

- Added a [FLEX AI] feature. You can link this feature with [Object detection], [Line crossing], [IVA area], and [BestShot] features when you assign the models trained in the Cloud to the WiseAI application. (Note: To use the [FLEX AI] feature, ensure that an add-on license is activated.) (Only applied when Opensdk\_App\_WiseAI\_1.02.04\_R1605 is installed [installable only for P-AI series cameras])
  - Applies to:
    - [v2.21.15, PNB-A9001]
    - [v2.21.15, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.08, PNB-A6001]
    - [v2.21.08, PNO-A6081R, PND-A6081RV, PNO-A6081RV, PND-A6081RF, PNV-A6081R]
- Added a [Blocked exit detection] feature, which detects objects obstructing the entrance within a designated area. (Note: To use this feature, ensure that an add-on license is activated.) (Only applied when Opensdk\_App\_WiseAI\_1.02.04\_R1605 is installed [installable only for P-AI series cameras])
  - Applies to:
    - [v2.21.15, PNB-A9001]
    - [v2.21.15, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.08, PNB-A6001]
    - [v2.21.08, PNO-A6081R, PND-A6081RV, PNO-A6081RV, PND-A6081RF, PNV-A6081R]
- Added a [ATM hook & chain event detection] feature, which helps you deter crimes in which criminals rip the ATM open with a hook and chain attached to a vehicle in order to steal cash. (Only applied when Opensdk\_App\_WiseAI\_1.02.05\_R24 is installed [installable only for P-AI series cameras])
  - Applies to:
    - [v2.21.15, PNB-A9001]
    - [v2.21.15, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]
    - [v2.21.08, PNB-A6001]
    - [v2.21.08, PNO-A6081R, PND-A6081RV, PNO-A6081RV, PND-A6081RF, PNV-A6081R]
- Added a [Loitering detection] feature, which detects people staying in an area you set longer than the amount of time you set. (Only applied when Opensdk\_App\_WiseAI\_1.02.05\_R24 is installed [installable only for P-AI series cameras])
  - Applies to:

[v2.21.15, PNB-A9001]

[v2.21.15, PNO-A9081R, PND-A9081RF, PND-A9081RV, PNV-A9081R]

[v2.21.08, PNB-A6001]

[v2.21.08, PNO-A6081R, PND-A6081RV, PNO-A6081RV, PND-A6081RF, PNV-A6081R]

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## Security Improvements

- Addressed the vulnerability of DoS of WS Discovery and Hanwha proprietary discovery services where the discovery function may be disabled after EMPTY packets are injected into the 3702 / 7701 ports used for device discovery of ONVIF/Device Manager. (Issued CVE-2023-31994)
  - Applies to:
    - [v2.21.01, XNF-9013RV]
    - [v2.21.00, TNO-4030TR, TNO-4040TR, TNO-4041TR]
    - [v2.21.00, TNO-L4030TR]
    - [v2.21.03, QNP-6320R, QNP-6250R]
    - [v2.21.05, QNP-6320R, QNP-6250R]
- Addressed the vulnerability of Authenticated Command Injection where a Linux command may be executed after a command is randomly injected into the folder mount point of the NAS function (Issued CVE-2023-31996)
  - Applies to:
    - [v2.21.03, QNP-6320R, QNP-6250R]
    - [v2.21.05, QNP-6320R, QNP-6250R]
- Addressed the vulnerability of Authenticated XSS where the script may be executed after it is injected into the imageData/backupfileData parameters of /home/setup/imagedownload.cgi (Issued CVE-2023-31995)
  - Applies to:
    - [v2.21.03, QNP-6320R, QNP-6250R]
    - [v2.21.05, QNP-6320R, QNP-6250R]
- Fixed an error where commands operate with a modified packet
  - Applies to:
    - [v2.21.01, XNF-9013RV]
- Addressed the issue caused by the use of a weak block cipher mode by excluding CIPHER suites or converting the mode into compatibility mode

- Applies to:  
[v2.21.03, QNP-6320R, QNP-6250R]  
[v2.21.05, QNP-6320R, QNP-6250R]
- Made HTTPS default
  - Applies to:  
[v2.21.03, QNP-6320R, QNP-6250R]  
[v2.21.05, QNP-6320R, QNP-6250R]
- Excluded TLS 1.0 & 1.1 from default settings
  - Applies to:  
[v2.21.03, QNP-6320R, QNP-6250R]  
[v2.21.05, QNP-6320R, QNP-6250R]
- Fixed an error where the SNMP port opened while SNMP did not operate
  - Applies to:  
[v2.21.03, QNP-6320R, QNP-6250R]  
[v2.21.05, QNP-6320R, QNP-6250R]
- Strengthened security by verifying the digital signature when you install WAVE server packages. Packages that fail the digital-signature verification won't be installed.
  - Applies to:  
[v2.21.03, PNV-A6081R-E1T, PNV-A6081R-E2T]

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## Affected Products

Table 6. Product Family Based On Version 2.21

Major Model	Model Name
PNM-C7083RVD	PNM-C7083RVD
PNM-C12083RVD	PNM-C12083RVD
XNB-6002	XNB-6002
PNV-A6081R-E1T	PNV-A6081R-E1T PNV-A6081R-E2T
PNM-C9022RV	PNM-C9022RV
MGL-D8080	MGL-D8080
MGC-F9010LI	MGC-F9010LI
MGC-D8080LI	MGC-D8080LI MGC-D8080

Major Model	Model Name
XNF-9013RV	XNF-9013RV
QNP-6320H	QNP-6320 QNP-6250 QNP-6320H QNP-6250H QNP-6320H1
TNM-C4940TD	TNM-C4940TD
TNM-C4950TD	TNM-C4950TD TNM-C4960TD
TNO-4040TR	TNO-4030TR TNO-4040TR TNO-4041TR
TNO-L4030TR	TNO-L4030TR
TNO-L4030T	TNO-L4030T
PNO-A9081R	PND-A9081RF PND-A9081RV PNO-A9081R PNV-A9081R
PNB-A9001	PNB-A9001
PNO-A6081R	PND-A6081RF PND-A6081RV PNO-A6081R PNV-A6081R
PNB-A6001	PNB-A6001
QNV-C9083R	QNV-C9083R QNO-C9083R
QNV-C8083R	QNV-C8083R QNO-C8083R
QNV-C9011R	QNV-C9011R
QNV-C8011R	QNV-C8011R
QNV-C8012	QNV-C8012
TNO-7180RLP	TNO-7180RLP
TNO-C3010TRA	TNO-C3010TRA TNO-C3020TRA TNO-C3030TRA
TNO-C3012TRA	TNO-C3012TRA TNO-C3022TRA

Major Model	Model Name
	TNO-C3032TRA
QNE-C9013RL	QNE-C9013RL
QNE-C8013RL	QNE-C8013RL
SMT-3231PV	SMT-3231PV SMT-2731PV
QNV-C8011RMG	QNV-C8011RMG
TNS-9050IBC	TNS-9050IBC
TNV-C7013RCG	TNV-C7013RCG
PNO-A9311RLP	PNO-A9311RLP
MMA-S1010	MMA-S1010 MMA-S1010R MMA-D1010
MMC-O6080R	MMC-O6080R
QND-C8013R	QND-C8013R QNV-C8013R QNO-C8013R
QND-C8023R	QND-C8023R QNV-C8023R QNO-C8023R
TNV-C8014RM	TNV-C8014RM
TNV-C8034RM	TNV-C8034RM
QNF-C9010	QNF-C9010

# Network Camera Version 2.12

This document describes the new and changed features of Hanwha Vision network camera version 2.12

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## Common Features

### [New features]

- Added support for Genetec Sipelia 2.13
  - Applies to:  
[v2.12.00, TID-600R]
- Added the feature to send video via SRTP when making SIP calls
  - Applies to:  
[v2.12.01, TID-600R] [v2.12.02, TID-600R]

### [Improvement]

- Corrected an issue where the [Time schedule] feature did not intermittently work after the camera rebooted
  - Applies to:  
[v2.12.00, TNF-9010]
- Corrected an issue where the admin password wasn't changed when you tried changing the admin password using the ONVIF protocol
  - Applies to:  
[v2.12.00, TNF-9010]
- Changed the corporate name to Hanwha Vision in the web viewer as the name changed to Hanwha Vision
  - Applies to:  
[v2.12.01, TID-600R] [v2.12.02, TID-600R]
- Applied [AAC] as a default value for audio codec
  - Applies to:  
[v2.12.01, TID-600R] [v2.12.02, TID-600R]
- Improved audio quality, including microphone input and speaker output



- Applies to:  
[v2.12.01, TID-600R] [v2.12.02, TID-600R]
- Improved algorithms to enhance the accuracy of parking-area-occupancy detection
- Applies to:  
[v2.12.10, TNF-9010]

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## Affected Products

Table 7. Product Family Based On Version 2.12

Major Model	Model Name
TID-600R	TID-600R
TNF-9010	TNF-9010

# Network Camera Version 2.11

This document describes the new and changed features of Hanwha Vision network camera version 2.11

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## Common Features

### [New features]

- Added an input and output selection function to [Alarm I/O]
  - Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]  
[v2.11.02, PNO-A6081R, PNB-A6001, PND-A6081RF, PNV-A6081R, PND-A6081RV]
- Added a function to be able to add or delete channel 2
  - Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]
- Added [AI-based prefer shutter control] function
  - Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]
- Added [Wise NR II] function
  - Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]
- Added [WiseStream III] function
  - Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]
- ONVIF profile M support
  - Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]
- The [Comparison view] function to view the video before and after changing the setup will be provided in the [Camera setup] menu.
  - Applies to:  
[v2.11.02, PNO-A6081R, PNB-A6001, PND-A6081RF, PNV-A6081R, PND-A6081RV]
- Added the Detection Shot feature
  - Applies to:

[v2.11.01, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R]

[v2.11.01, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]

[v2.11.01, XNV-9083R, XND-9083RV, XNO-9083R, XNB-9003, XNV-8083R, XND-8083RV, XNO-8083R, XNB-8003, XNV-8093R, XND-8093RV]

[v2.11.01, XNV-6083R, XND-6083RV, XNO-6083R, XNB-6003]

[v2.11.01, XNV-6123R, XNO-6123R]

[v2.11.02, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R]

[v2.11.02, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]

[v2.11.02, XNO-C8083R, XNO-C9083R]

[v2.11.02, XNB-9003]

[v2.11.02, XNB-8003]

[v2.11.02, XNB-6003]

[v2.11.03, XNV-C9083R, XND-C9083RV, XNO-C9083R, XNV-C8083R, XND-C8083RV, XNO-C8083R]

[v2.11.03, XNV-C7083R, XND-C7083RV, XNO-C7083R, XNV-C6083R, XND-C6083RV, XNO-C6083R, XNV-C6083]

- Added the [Direct Point] function to adjust the DPTZ position in the quad view
  - Applies to:  
[v2.11.02, QNF-9010]
- Added the UI to adjust the video image position of each sensor in order to correct the alignment of the video images
  - Applies to:  
[v2.11.02, PNM-9031RV]  
[v2.11.03, PNM-9031RV]
- Added a [Certificate management] option to [Network] in the web viewer to allow you to manage certificates
  - Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]  
[v2.11.02, TID-600R]
- Added new options such as [Query string] and [TCP message], etc. for [Handover] settings
  - Applies to:  
[v2.11.02, TID-600R]

- Added SIP proxy server setting and call test function
  - Applies to:  
[v2.11.02, TID-600R]
- Added the function to connect web relay device to camera
  - Applies to:  
[v2.11.03, TID-600R]
- Added the function to set the audio codecs for SIP calls
  - Applies to:  
[v2.11.03, TID-600R]
- Changed to the FE binary where Onsemi motor driver IC was replaced with VM107 due to the discontinuation of the driver IC
  - Applies to:  
[v2.11.02, XNZ-6320A]  
[v2.11.02, XNZ-L6320A]  
[v2.11.02, TNO-7180R]  
[v2.11.04, TNO-7180RLP]
- Impossible to downgrade the firmware using VM107 to the earlier firmware using the Onsemi motor driver IC
  - Applies to  
[v2.11.02, XNZ-6320A]  
[v2.11.02, XNZ-L6320A]  
[v2.11.02, TNO-7180R]  
[v2.11.04, TNO-7180RLP]

### **[Improvement]**

- Changed the default minimum duration for defocus detection to 30 seconds.
  - Applies to:  
[v2.11.01, PNO-A6081R, PNB-A6001, PND-A6081RF, PNV-A6081R, PND-A6081RV]
- Output support for Goodshot instead of Bestshot
  - Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]  
[v2.11.02, PNO-A6081R, PNB-A6001, PND-A6081RF, PNV-A6081R, PND-A6081RV]
- Changed the minimum/maximum default value of object size

- Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]
- Added AI library version to product version information
- Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]  
[v2.11.02, PNO-A6081R, PNB-A6001, PND-A6081RF, PNV-A6081R, PND-A6081RV]
- Improved object tracking performance
- Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]
- Improved [Social distancing detection] performance
- Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]  
[v2.11.02, PNO-A6081R, PNB-A6001, PND-A6081RF, PNV-A6081R, PND-A6081RV]
- Supported 3 additional types of Wi-Fi USB dongle (When installing the camera, you can connect from the camera via Wi-Fi communication using a smartphone application through Wi-Fi USB dongle)
- Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]
- Added [TCP] option for [IP Type] in Handover
- Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]
- Added [Reference] option in Heatmap
- Applies to:  
[v2.11.06, PNO-A9081R, PNB-A9001]
- The SNMP community string has been changed to be left empty by default so that the value can be entered by users.
- Applies to:  
[v2.11.02, PNO-A6081R, PNB-A6001, PND-A6081RF, PNV-A6081R, PND-A6081RV]
- Added [Focal length] option to set the focal length of lens
- Applies to:  
[v2.11.02, PNO-A6081R, PNB-A6001, PND-A6081RF, PNV-A6081R, PND-A6081RV]
- Fixed an error in the certificate management function
- Applies to:  
[v2.11.07, PNO-A9081R, PNB-A9001]

- Fixed an error when setting up WDR
  - Applies to:
    - [v2.11.01, XND-C6083RV, XNO-C6083R, XNV-C6083R, XND-C7083RV, XNO-C7083R, XNV-C7083R]
    - [v2.11.01, XND-C9083RV, XND-C8083RV, XNO-C8083R, XNV-C8083R, XNO-C9083R, XNV-C9083R]
    - [v2.11.01, XNV-9083R, XND-9083RV, XNO-9083R, XNB-9003, XNV-8083R, XND-8083RV, XNO-8083R, XNB-8003, XNV-8093R, XND-8093RV]
    - [v2.11.01, XNV-6083R, XND-6083RV, XNO-6083R, XNB-6003]
    - [v2.11.02, XND-C6083RV, XND-C7083RV, XNV-C6083R, XNV-C7083R, XNO-C6083R, XNO-C7083R]
    - [v2.11.02, XNO-C6083R, XNO-C7083R]
    - [v2.11.02, XND-C8083RV, XND-C9083RV, XNV-C8083R, XNV-C9083R, XNO-C8083R, XNO-C9083R]
    - [v2.11.02, XNO-C8083R, XNO-C9083R]
    - [v2.11.02, XNB-9003]
    - [v2.11.02, XNB-8003]
    - [v2.11.02, XNB-6003]
    - [v2.11.03, XNV-C9083R, XND-C9083RV, XNO-C9083R, XNV-C8083R, XND-C8083RV, XNO-C8083R]
    - [v2.11.03, XNV-C7083R, XND-C7083RV, XNO-C7083R, XNV-C6083R, XND-C6083RV, XNO-C6083R, XNV-C6083]
- Adjusted the RTP Payload buffer to improve compatibility with specific NVRs
  - Applies to:
    - [v2.11.01, XNV-6123R, XNO-6123R]
- Improved the handover function so that its camera is compatible with WAVE (video management software)
  - Applies to:
    - [v2.11.01, XNV-6123R, XNO-6123R]
- Improved the problem that the camera's day/night mode does not switch from [Black & White] to [Color] in an LED fluorescent lamp (high-color light source) environment
  - Applies to:
    - [v2.11.01, XNV-6123R, XNO-6123R]
- Modified to create a profile for each channel
  - Applies to:
    - [v2.11.02, QNF-9010]

- Improved to apply circle mask to remove unnecessary image data around fisheye source view
  - Applies to:  
[v2.11.02, QNF-9010]
- Reflected improvement in manufacturing and process efficiency (no impact on users and product usability)
  - Applies to:  
[v2.11.01, QNP-6250R, QNP-6320R]  
[v2.11.01, QNP-6250, QNP-6320, QNP-6250H, QNP-6320H]
- Replaced LED driver IC
  - Applies to:  
[v2.11.02, XNV-9083R, XNV-8093R, XNV-8083R, XND-9083RV, XND-8093RV, XND-8083RV, XNO-9083R, XNO-8083R]  
[v2.11.02, XND-6083RV, XNV-6083R, XNO-6083R]  
[v2.11.02, XNO-6123R, XNV-6123R]
- Modified termination resistor settings for RS-485
  - Applies to:  
[v2.11.01, XNZ-L6320A]
- Added functions related to TTA authentication
  - Applies to:  
[v2.11.00, PNB-A900101]  
[v2.11.00, PNO-A9081R01, PNV-A9081R01, PND-A9081RV01]
- Improved Web UI for selecting TLS protocol version to use for encrypted communication
  - Applies to:  
[v2.11.02, TID-600R]
- Improved interworking between SIP call and VMS
  - Applies to:  
[v2.11.02, TID-600R]
- Improved [Tampering switch] event settings
  - Applies to:  
[v2.11.02, TID-600R]
- Improved [Touchless call] event settings
  - Applies to:  
[v2.11.02, TID-600R]

- Improved audio qualities (echo cancellation and noise reduction)
  - Applies to:  
[v2.11.02, TID-600R]
- Deleted the [Sound classification] feature
  - Applies to:  
[v2.11.02, TID-600R]
- Reduced one-point NUC calculation time
  - Applies to:  
[v2.11.10, TNO-3010T, TNO-3020T, TNO-3030T, TNO-3040T, TNO-3050T, TNO-4030T, TNO-4040T, TNO-4041T, TNO-4050T, TNO-4051T, TNO-L3030T, TNU-4041T, TNU-4051T]  
[v2.11.10, TNO-4030TR, TNO-4040TR, TNO-4041TR]  
[v2.11.10, TNO-L4030TR]  
[v2.11.10, TNO-L4030T]
- Improved pan/tilt speed
  - Applies to:  
[v2.11.10, TNU-4041T, TNU-4051T]
- Supports alarm output event actions for [Call button push] event and [Touchless call detection] event
  - Applies to:  
[v2.11.03, TID-600R]
- Added the [Microphone operation] option which includes a [Only during a call] option in which the microphone works only during a call and an [Always] option in which the microphone is always in operation
  - Applies to:  
[v2.11.03, TID-600R]
- Improved functionality to obtain TTA security certification
  - Applies to:  
[v2.11.05, PNM-9031RV]
- Fixed language error in Japanese version
  - Applies to:  
[v2.11.05, PNM-9031RV]
- Added an option to choose a TLS version
  - Applies to:  
[v2.11.03, QNF-9010]



- Improved the logic of the execution command for the LLDPd (Link Layer Discovery Protocol daemon) within the camera by adding "-ccc", allowing it to forcefully send CDP (Cisco Discovery Protocol) packets even if CDP switches are not detected
  - Applies to:  
[v2.11.01, TNO-7180R]  
[v2.11.03, TNO-7180RLP]

### [Bug fixes]

- When streaming the video of the DPTZ profile in the camera web viewer, object detection area is not displayed and BestShot information is not updated
  - Applies to:  
[v2.11.02, PNO-A6081R, PNB-A6001, PND-A6081RF, PNV-A6081R, PND-A6081RV]
- Corrected an issue where the "opensdk\_dynamicEvent()" API worked abnormally when the network was disconnected and reconnected
  - Applies to:  
[v2.11.02, PNB-A9001ROP, PNO-A9081ROP, PNV-A9081ROP]
- Corrected an issue where the IPCameraManifest.xml file could not be read and written intermittently when the camera was powered on or off
  - Applies to:  
[v2.11.02, PNB-A9001ROP, PNO-A9081ROP, PNV-A9081ROP]
- Corrected the issue of CVBS output
  - Applies to:  
[v2.11.02, QNF-9010]  
**Note:** When the firmware is upgraded from a version earlier than 2.11.02, it is necessary to first upgrade to QNF-9010\_2.10.00b\_20220513\_cvbs.img and then upgrade to the latest firmware.
- Corrected timestamp errors
  - Applies to:  
[v 2.11.10, PNO-A9081R, PNV-A9081R, PND-A9081R, PND-A9081RV, PND-A9081RF]  
[v2.11.03, PNO-A6081R, PNV-A6081R, PND-A6081R, PND-A6081RV, PND-A6081RF]  
[v2.11.03, PNO-A9081ROP, PNV-A9081ROP, PND-A9081ROP, PND-A9081RVOP, PND-A9081RFOP]  
[v2.11.03, PNB-A6001]

- [v2.11.10, PNB-A9001]
- [v2.11.01, PNB-A9001/KMC]
- [v2.11.03, PNB-A9001OP]
- [v2.11.01, XNZ-6320A, XNZ-L6320A]
- Corrected an issue where the temperature of the [Include area] which is ROI was displayed incorrectly
  - Applies to:
    - [v2.11.11, TNO-4030T, TNO-4040T, TNO-4041T, TNO-4050T, TNO-4051T]
    - [v2.11.11, TNO-3040T, TNO-3050T]
    - [v2.11.11, TNO-3010T, TNO-3020T, TNO-3030T]
    - [v2.11.11, TNU-4041T, TNU-4051T]
    - [v2.11.11, TNO-4030TR, TNO-4040TR, TNO-4041TR]
    - [v2.11.11, TNO-L3030T]
    - [v2.11.11, TNO-L4030T]
    - [v2.11.11, TNO-L4030TR]
- Corrected an issue with SD card not overwriting
  - Applies to:
    - [v2.11.04, PNM-9031RV]
- Corrected an issue that prevented you from accessing the camera's web viewer after the camera's power was unstable but even when it started working properly
  - Applies to:
    - [v2.11.01, TNO-7180R]
    - [v2.11.03, TNO-7180RLP]

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## Security Improvements

- Addressed the vulnerability of Authenticated Command Injection where a Linux command may be executed after a command is randomly injected into the folder mount point of the NAS function (Issued CVE-2023-31996)
  - Applies to:
    - [v2.11.03, QNF-9010]
- Addressed the vulnerability of DoS of WS Discovery and Hanwha proprietary discovery services where the discovery function may be disabled after EMPTY packets are injected into the 3702 / 7701 ports used for device discovery of ONVIF/Device Manager. (Issued CVE-

2023-31994)

- Applies to:  
[v2.11.03, QNF-9010]
- Addressed the vulnerability of Authenticated XSS where the script may be executed after it is injected into the imageData/backupfileData parameters of /home/setup/imagedownload.cgi (Issued CVE-2023-31995)
- Applies to:  
[v2.11.03, QNF-9010]
- Addressed the issue caused by the use of a weak block cipher mode by excluding CIPHER suites or converting the mode into compatibility mode
- Applies to:  
[v2.11.03, QNF-9010]
- Made HTTPS default
- Applies to:  
[v2.11.03, QNF-9010]
- Excluded TLS 1.0 & 1.1 from default settings
- Applies to:  
[v2.11.03, QNF-9010]

## Affected Products

Table 8. Product Family Based On Version 2.11

Major Model	Model Name
PNO-A6081R	PNO-A6081R PND-A6081R PND-A6081RF PNV-A6081R PND-A6081RV
PNB-A6001	PNB-A6001
PNO-A9081R	PNO-A9081R PNV-A9081R PND-A9081R PND-A9081RV PND-A9081RF
PNB-A9001	PNB-A9001

Major Model	Model Name
PNB-A9001OP	PNB-A9001OP
XND-C9083RV	XNV-C9083R XND-C9083RV XNO-C9083R XNV-C8083R XND-C8083RV XNO-C8083R
XND-C7083RV	XNV-C7083R XND-C7083RV XNO-C7083R XNV-C6083R XND-C6083RV XNO-C6083R XNV-C6083
XND-9083RV	XNV-9083R XND-9083RV XNO-9083R XNB-9003 XNV-8083R XND-8083RV XNO-8083R XNB-8003 XNV-8093R XND-8093RV
XND-6083RV	XNV-6083R XND-6083RV XNO-6083R XNB-6003
XNV-6123R	XNV-6123R XNO-6123R
QNF-9010	QNF-9010
QNP-6320H	QNP-6320 QNP-6250 QNP-6320H QNP-6250H
QNP-6320R	QNP-6320R QNP-6250R

Major Model	Model Name
PNM-9031RV	PNM-9031RV
PNB-A9001ROP	PNB-A9001ROP
PNO-A9081ROP	PNO-A9081ROP PNV-A9081ROP PND-A9081ROP PND-A9081RVOP PND-A9081RFOP
XNZ-6320A	XNZ-6320A
XNZ-L6320A	XNZ-L6320A
PNB-A900101	PNB-A900101
PNO-A9081R01	PNO-A9081R01 PND-A9081RV01 PNV-A9081R01
TID-600R	TID-600R
TNO-3010T	TNO-3010T TNO-3020T TNO-3030T
TNO-3050T	TNO-3040T TNO-3050T
TNO-4030T	TNO-4030T TNO-4040T TNO-4041T TNO-4050T TNO-4051T
TNO-4040TR	TNO-4030TR TNO-4040TR TNO-4041TR
TNO-L3030T	TNO-L3030T
TNO-L4030T	TNO-L4030T
TNO-L4030TR	TNO-L4030TR
TNU-4041T	TNU-4041T TNU-4051T
TNO-7180R	TNO-7180R
TNO-7180RLP	TNO-7180RLP

# Network Camera Version 2.10

This document describes the new and changed features of Hanwha Vision network camera version 2.10.

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## Common Features

### [New features]

- Added a [Certificate management] option to [Network] in the web viewer to allow you to manage certificates

- Applies to:

[v2.10.00, XNV-9082R, XND8082RV, XND-9082RF, XND8082RF, XNO-9082R, XNB-8002, XNB-9002, XNV8082R, XND-9082RV, XNO-8082R]

[v2.10.00, XNF-9010RV, XNF-9010RVM]

[v2.10.01, KNB-2000, KNO-2080RN, XNB-6000, XNO-6080R, XNO-6080RS, XNB-6001, KND-2080RN, XND-6080, XND-6080R, XND-6080RV, XND-6080RW, XND-6080V, XND-K6080N, XNV-6080, XNV-6080R, XNV-6080RS, XNV-6080RSA, XNV-6080RW, XND-6085, XND-6085V, XNV-6085, XNF-8010R, XNF-8010RV, XNF-8010RVM, XNF-8010RVW, XNF-8010RW, KNO-2120RN, XNO-6120R, XNO-6120RS, XNV-6120, XNV-6120R, XNV-6120RS, QNP-6230, QNP-6230H, XNP-6320, XNP-6320H, XNP-6320HS, XNP-6321, XNP-6321H, XNV-6011, XNV-6011W]

[v2.10.02, QNP-6230RH]

[v2.10.02, XNP-6040H]

[v2.10.02, KNP-2120HN, XNP-6120H]

[v2.10.02, KNP-2320RH, KNP-2320RHA, XNP-6250RH, XNP-6320RH]

[v2.10.02, XNP-6341RH]

[v2.10.02, XNP-6371RH]

[v2.10.02, KNP-2550RHA, XNP-6550RH]

[v2.10.02, QNP-6230, QNP-6230H, XNP-6320, XNP-6320H, XNP-6320HS, XNP-6321, XNP-6321H]

[v2.10.02, XNB-6005, XNO-6085R]

[v2.10.02, XNO-6085]

[v2.10.02, KNB-5000N, KNO-5080RN, XNB-8000, XNO-8080R, XNO-8080RW]

[v2.10.02, XND-6011F, XND-8020F]

[v2.10.02, KND-2020RN, XND-6020R, XNV-6020R]

[v2.10.02, KND-5020RN, XND-8020R, XND-8020RW, XND-8030R, XND-8040R, XNV-

8020R, XNV-8020RMN, XNV-8020RMP, XNV-8030R, XNV-8040R]

[v2.10.02, KND-5080RN, XND-8080R, XND-8080RV, XND-8080RW, XNV-8080R, XNV-8080RS, XNV-8080RSA, XNV-8080RW]

[v2.10.02, KNO-2010RN, XNO-6010R, XNO-6020R]

[v2.10.02, KNO-5020RN, XNO-8020R, XNO-8030R, XNO-8040R]

[v2.10.02, XND-6010, XNV-6010]

[v2.10.02, XNZ-6320]

[v2.10.02, XNZ-L6320]

[v2.10.02, XNO-6120]

[v2.10.02, XNO-L6120R]

[v2.10.02, XND-6081FZ, XND-6081VZ, XNV-6081Z, XND-8081FZ, XND-8081VZ, XNV-8081Z]

[v2.10.02, TNO-6010M]

[v2.10.02, TNV-7010RC]

[v2.10.02, XNV-6081, XNV-6081R, XND-6081F, XND-6081RF, XND-6081RV, XND-6081V, XND-8081RF, XND-8081RV, XNV-8081R]

[v2.10.02, XND-L6020R]

[v2.10.02, XNO-L6020R]

[v2.10.02, XNO-L6085R]

[v2.10.02, XND-L6080R, XND-L6080RV, XND-L6080V, XNO-L6080R, XNV-L6080, XNV-L6080R]

[v2.10.02, XND-L6080RVA, XND-L6080VA, XNO-L6080RA, XNV-L6080A, XNV-L6080RA]

[v2.10.02, QNF-8010] v2.10.02, TNB-6030]

[v2.10.02, XND-6081REV, XNV-6081RE]

[v2.10.02, XND-8081REV, XNV-8081RE]

[v2.10.02, TNO-4030TR, TNO-4040TR, TNO-4041TR]

[v2.10.02, TNO-4030T, TNO-4040T, TNO-4041T, TNO-4050T, TNO-4051T]

[v2.10.02, TNU-4041T, TNU-4051T]

[v2.10.02, TNO-3030T, TNO-3020T, TNO-3010T]

[v2.10.02, TNO-3040T, TNO-3050T]

[v2.10.02, XNO-6085RA]

[v2.10.02, XNO-L6085RA]

[v2.10.02, XNV-6012, XNV-6012M, XNV-6013M, XNV-6022R, XNV-6022RM]

- Added a function to add virtual channels to show the dewarped video of the fisheye camera
  - Applies to:  
[v2.10.01, XNF-8010R, XNF-8010RV, XNF-8010RVM, XNF-8010RVW, XNF-8010RW]
- Added the [Exclusive PTZ control] function that restricts multiple users from controlling the PTZ at the same time

- Applies to:

[v2.10.00, XNV-9082R, XND8082RV, XND-9082RF, XND8082RF, XNO-9082R, XNB-8002, XNB-9002, XNV8082R, XND-9082RV, XNO-8082R]

[v2.10.00, XNF-9010RV, XNF-9010RVM]

[v2.10.01, KNB-2000, KNO-2080RN, XNB-6000, XNO-6080R, XNO-6080RS, XNB-6001, KND-2080RN, XND-6080, XND-6080R, XND-6080RV, XND-6080RW, XND-6080V, XND-K6080N, XNV-6080, XNV-6080R, XNV-6080RS, XNV-6080RSA, XNV-6080RW, XND-6085, XND-6085V, XNV-6085, XNF-8010R, XNF-8010RV, XNF-8010RVM, XNF-8010RVW, XNF-8010RW, KNO-2120RN, XNO-6120R, XNO-6120RS, XNV-6120, XNV-6120R, XNV-6120RS, QNP-6230, QNP-6230H, XNP-6320, XNP-6320H, XNP-6320HS, XNP-6321, XNP-6321H, XNV-6011, XNV-6011W]

[v2.10.02, QNP-6230RH]

[v2.10.02, XNP-6040H]

[v2.10.02, KNP-2120HN, XNP-6120H]

[v2.10.02, KNP-2320RH, KNP-2320RHA, XNP-6250RH, XNP-6320RH]

[v2.10.02, XNP-6341RH]

[v2.10.02, XNP-6371RH]

[v2.10.02, KNP-2550RHA, XNP-6550RH]

[v2.10.02, QNP-6230, QNP-6230H, XNP-6320, XNP-6320H, XNP-6320HS, XNP-6321, XNP-6321H]

[v2.10.02, XNB-6005, XNO-6085R]

[v2.10.02, XNO-6085]

[v2.10.02, KNB-5000N, KNO-5080RN, XNB-8000, XNO-8080R, XNO-8080RW]

[v2.10.02, XND-6011F, XND-8020F]

[v2.10.02, KND-2020RN, XND-6020R, XNV-6020R]

[v2.10.02, KND-5020RN, XND-8020R, XND-8020RW, XND-8030R, XND-8040R, XNV-8020R, XNV-8020RMN, XNV-8020RMP, XNV-8030R, XNV-8040R]

[v2.10.02, KND-5080RN, XND-8080R, XND-8080RV, XND-8080RW, XNV-8080R, XNV-8080RS, XNV-8080RSA, XNV-8080RW]

[v2.10.02, KNO-2010RN, XNO-6010R, XNO-6020R]

[v2.10.02, KNO-5020RN, XNO-8020R, XNO-8030R, XNO-8040R]

[v2.10.02, XND-6010, XNV-6010]

[v2.10.02, XND-6081FZ, XND-6081VZ, XNV-6081Z, XND-8081FZ, XND-8081VZ, XNV-8081Z]

[v2.10.02, TNO-6010M]

[v2.10.02, TNV-7010RC]

[v2.10.02, XNV-6081, XNV-6081R, XND-6081F, XND-6081RF, XND-6081RV, XND-6081V, XND-8081RF, XND-8081RV, XNV-8081R]

[v2.10.02, XND-L6020R]



[v2.10.02, XNO-L6020R]

[v2.10.02, XNO-L6085R]

[v2.10.02, XND-L6080R, XND-L6080RV, XND-L6080V, XNO-L6080R, XNV-L6080, XNV-L6080R]

[v2.10.02, XND-L6080RVA, XND-L6080VA, XNO-L6080RA, XNV-L6080A, XNV-L6080RA]

[v2.10.02, QNF-8010] v2.10.02, TNB-6030]

[v2.10.02, XND-6081REV, XNV-6081RE]

[v2.10.02, XND-8081REV, XNV-8081RE]

[v2.10.02, TNO-4030TR, TNO-4040TR, TNO-4041TR]

[v2.10.02, TNO-4030T, TNO-4040T, TNO-4041T, TNO-4050T, TNO-4051T]

[v2.10.02, TNU-4041T, TNU-4051T]

[v2.10.02, TNO-3030T, TNO-3020T, TNO-3010T]

[v2.10.02, TNO-3040T, TNO-3050T]

[v2.10.02, XNO-6085RA]

[v2.10.02, XNO-L6085RA]

[v2.10.02, XNV-6012, XNV-6012M, XNV-6013M, XNV-6022R, XNV-6022RM]

- Added new options such as [Query string] and [TCP message], etc. for [Handover] settings

- Applies to:

[v2.10.00, XNV-9082R, XND8082RV, XND-9082RF, XND8082RF, XNO-9082R, XNB-8002, XNB-9002, XNV8082R, XND-9082RV, XNO-8082R]

[v2.10.00, XNF-9010RV, XNF-9010RVM]

[v2.10.01, KNB-2000, KNO-2080RN, XNB-6000, XNO-6080R, XNO-6080RS, XNB-6001, KND-2080RN, XND-6080, XND-6080R, XND-6080RV, XND-6080RW, XND-6080V, XND-K6080N, XNV-6080, XNV-6080R, XNV-6080RS, XNV-6080RSA, XNV-6080RW, XND-6085, XND-6085V, XNV-6085, XNF-8010R, XNF-8010RV, XNF-8010RVM, XNF-8010RVW, XNF-8010RW, KNO-2120RN, XNO-6120R, XNO-6120RS, XNV-6120, XNV-6120R, XNV-6120RS, QNP-6230, QNP-6230H, XNP-6320, XNP-6320H, XNP-6320HS, XNP-6321, XNP-6321H, XNV-6011, XNV-6011W]

[v2.10.02, QNP-6230RH]

[v2.10.02, XNP-6040H]

[v2.10.02, KNP-2120HN, XNP-6120H]

[v2.10.02, KNP-2320RH, KNP-2320RHA, XNP-6250RH, XNP-6320RH]

[v2.10.02, XNP-6341RH]

[v2.10.02, XNP-6371RH]

[v2.10.02, KNP-2550RHA, XNP-6550RH]

[v2.10.02, QNP-6230, QNP-6230H, XNP-6320, XNP-6320H, XNP-6320HS, XNP-6321, XNP-6321H]

[v2.10.02, XNB-6005, XNO-6085R]

[v2.10.02, XNO-6085]

[v2.10.02, KNB-5000N, KNO-5080RN, XNB-8000, XNO-8080R, XNO-8080RW]  
[v2.10.02, XND-6011F, XND-8020F]  
[v2.10.02, KND-2020RN, XND-6020R, XNV-6020R]  
[v2.10.02, KND-5020RN, XND-8020R, XND-8020RW, XND-8030R, XND-8040R, XNV-8020R, XNV-8020RMN, XNV-8020RMP, XNV-8030R, XNV-8040R]  
[v2.10.02, KND-5080RN, XND-8080R, XND-8080RV, XND-8080RW, XNV-8080R, XNV-8080RS, XNV-8080RSA, XNV-8080RW]  
[v2.10.02, KNO-2010RN, XNO-6010R, XNO-6020R]  
[v2.10.02, KNO-5020RN, XNO-8020R, XNO-8030R, XNO-8040R]  
[v2.10.02, XND-6010, XNV-6010]  
[v2.10.02, XNZ-6320]  
[v2.10.02, XNZ-L6320]  
[v2.10.02, XNO-6120]  
[v2.10.02, XNO-L6120R]  
[v2.10.02, XND-6081FZ, XND-6081VZ, XNV-6081Z, XND-8081FZ, XND-8081VZ, XNV-8081Z]  
[v2.10.02, TNO-6010M]  
[v2.10.02, TNV-7010RC]  
[v2.10.02, XNV-6081, XNV-6081R, XND-6081F, XND-6081RF, XND-6081RV, XND-6081V, XND-8081RF, XND-8081RV, XNV-8081R]  
[v2.10.02, XND-L6020R]  
[v2.10.02, XNO-L6020R]  
[v2.10.02, XNO-L6085R]  
[v2.10.02, XND-L6080R, XND-L6080RV, XND-L6080V, XNO-L6080R, XNV-L6080, XNV-L6080R]  
[v2.10.02, XND-L6080RVA, XND-L6080VA, XNO-L6080RA, XNV-L6080A, XNV-L6080RA]  
[v2.10.02, QNF-8010] v2.10.02, TNB-6030]  
[v2.10.02, XND-6081REV, XNV-6081RE]  
[v2.10.02, XND-8081REV, XNV-8081RE]  
[v2.10.02, TNO-4030TR, TNO-4040TR, TNO-4041TR]  
[v2.10.02, TNO-4030T, TNO-4040T, TNO-4041T, TNO-4050T, TNO-4051T]  
[v2.10.02, TNU-4041T, TNU-4051T]  
[v2.10.02, TNO-3030T, TNO-3020T, TNO-3010T]  
[v2.10.02, TNO-3040T, TNO-3050T]  
[v2.10.02, XNO-6085RA]  
[v2.10.02, XNO-L6085RA]  
[v2.10.02, XNV-6012, XNV-6012M, XNV-6013M, XNV-6022R, XNV-6022RM]

- Added the option to use the Internet Control Message Protocol (ICMP) timestamp request message

- Applies to:
  - [v2.10.02, QNP-6230RH]
  - [v2.10.02, XNP-6040H]
  - [v2.10.02, KNP-2120HN, XNP-6120H]
  - [v2.10.02, KNP-2320RH, KNP-2320RHA, XNP-6250RH, XNP-6320RH]
  - [v2.10.02, XNP-6341RH]
  - [v2.10.02, XNP-6371RH]
  - [v2.10.02, KNP-2550RHA, XNP-6550RH]
  - [v2.10.02, QNP-6230, QNP-6230H, XNP-6320, XNP-6320H, XNP-6320HS, XNP-6321, XNP-6321H]
  - [v2.10.02, XNB-6005, XNO-6085R]
  - [v2.10.02, XNO-6085]
  - [v2.10.02, KNB-5000N, KNO-5080RN, XNB-8000, XNO-8080R, XNO-8080RW]
  - [v2.10.02, XND-6011F, XND-8020F]
  - [v2.10.02, KND-2020RN, XND-6020R, XNV-6020R]
  - [v2.10.02, KND-5020RN, XND-8020R, XND-8020RW, XND-8030R, XND-8040R, XNV-8020R, XNV-8020RMN, XNV-8020RMP, XNV-8030R, XNV-8040R]
  - [v2.10.02, KND-5080RN, XND-8080R, XND-8080RV, XND-8080RW, XNV-8080R, XNV-8080RS, XNV-8080RSA, XNV-8080RW]
  - [v2.10.02, KNO-2010RN, XNO-6010R, XNO-6020R]
  - [v2.10.02, KNO-5020RN, XNO-8020R, XNO-8030R, XNO-8040R]
  - [v2.10.02, XND-6010, XNV-6010]
  - [v2.10.02, XNZ-6320]
  - [v2.10.02, XNZ-L6320]
  - [v2.10.02, XNO-6120]
  - [v2.10.02, XNO-L6120R]
  - [v2.10.02, XND-6081FZ, XND-6081VZ, XNV-6081Z, XND-8081FZ, XND-8081VZ, XNV-8081Z]
  - [v2.10.02, TNO-6010M]
  - [v2.10.02, TNV-7010RC]
  - [v2.10.02, XNV-6081, XNV-6081R, XND-6081F, XND-6081RF, XND-6081RV, XND-6081V, XND-8081RF, XND-8081RV, XNV-8081R]
  - [v2.10.02, XND-L6020R]
  - [v2.10.02, XNO-L6020R]
  - [v2.10.02, XNO-L6085R]
  - [v2.10.02, XND-L6080R, XND-L6080RV, XND-L6080V, XNO-L6080R, XNV-L6080, XNV-L6080R]
  - [v2.10.02, XND-L6080RVA, XND-L6080VA, XNO-L6080RA, XNV-L6080A, XNV-L6080RA]
  - [v2.10.02, QNF-8010] v2.10.02, TNB-6030]

- [v2.10.02, XND-6081REV, XNV-6081RE]
- [v2.10.02, XND-8081REV, XNV-8081RE]
- [v2.10.02, TNO-4030TR, TNO-4040TR, TNO-4041TR]
- [v2.10.02, TNO-4030T, TNO-4040T, TNO-4041T, TNO-4050T, TNO-4051T]
- [v2.10.02, TNU-4041T, TNU-4051T]
- [v2.10.02, TNO-3030T, TNO-3020T, TNO-3010T]
- [v2.10.02, TNO-3040T, TNO-3050T]
- [v2.10.02, XNO-6085RA]
- [v2.10.02, XNO-L6085RA]
- [v2.10.02, XNV-6012, XNV-6012M, XNV-6013M, XNV-6022R, XNV-6022RM]
- Added the [Simple focus schedule] function
  - Applies to:  
[v2.10.03, XNF-8010R, XNF-8010RV, XNF-8010RVM, XNF-8010RVW, XNF-8010RW]
- Changed to the FE binary where Panasonic motor driver IC was replaced with VM117 due to the discontinuation of the driver IC
  - Applies to:  
[v2.10.07, XNB-6000]
- Impossible to downgrade the firmware using VM117 to the earlier firmware using the Panasonic motor driver IC
  - Applies to:  
[v2.10.07, XNB-6000]
- Changed to the FE binary where Onsemi motor driver IC was replaced with VM107 due to the discontinuation of the driver IC
  - Applies to:  
[v2.10.07, XNO-6080R]  
[v2.10.05, XNO-6120R, XNV-6120R, XNV-6120]  
[v2.10.03, XNO-L6120R]  
[v2.10.03, XNO-6120]  
[v2.10.03, XNP-6120H]  
[v2.10.03, XNP\_6550RH]  
[v2.10.04, XNP6371RH, XNP-6341RH]  
[v2.10.08, XNO-6080R]  
[v2.10.03, XNV-6081, XNV-6081R, XND-6081RF, XND-6081RV, XND-6081V]  
[v2.10.03, XNV-6081RE, XND-6081REV]  
[v2.10.03, XNP-6040H, XNP-6040HW]

- [v2.10.05, XND-8080R, XND-8080RV, XNV-8080R, XNV-8080RSA]
- [v2.10.07, XNO-8080R]
- [v2.10.03, XND-8081RV, XND-8081RF, XNV-8081R]
- [v2.10.03, XNV-8081RE, XND-8081REV]
- [v2.10.05, XNF-8010R, XNF-8010RV, XNF-8010RVM]
- Impossible to downgrade the firmware using VM107 to the earlier firmware using the Onsemi motor driver IC
  - Applies to:
    - [v2.10.07, XNO-6080R]
    - [v2.10.05, XNO-6120R, XNV-6120R, XNV-6120]
    - [v2.10.03, XNO-L6120R]
    - [v2.10.03, XNO-6120]
    - [v2.10.03, XNP-6120H]
    - [v2.10.03, XNP\_6550RH]
    - [v2.10.04, XNP6371RH, XNP-6341RH]
    - [v2.10.08, XNO-6080R]
    - [v2.10.03, XNV-6081, XNV-6081R, XND-6081RF, XND-6081RV, XND-6081V]
    - [v2.10.03, XNV-6081RE, XND-6081REV]
    - [v2.10.03, XNP-6040H, XNP-6040HW]
    - [v2.10.05, XND-8080R, XND-8080RV, XNV-8080R, XNV-8080RSA]
    - [v2.10.07, XNO-8080R]
    - [v2.10.03, XND-8081RV, XND-8081RF, XNV-8081R]
    - [v2.10.03, XNV-8081RE, XND-8081REV]
    - [v2.10.05, XNF-8010R, XNF-8010RV, XNF-8010RVM]
- Optimized iris and day/night mode operation for VM107
  - Applies to:
    - [v2.10.05, XND-8080R, XND-8080RV, XNV-8080R, XNV-8080RSA]
    - [v2.10.07, XNO-8080R]
    - [v2.10.03, XND-8081RV, XND-8081RF, XNV-8081R]
    - [v2.10.03, XNV-8081RE, XND-8081REV]
    - [v2.10.05, XNF-8010R, XNF-8010RV, XNF-8010RVM]
- Resolved the iris adjustment and flicker issues that arose following the application of VM107
  - Applies to:
    - [v2.10.08, XNO-6080R]

[v2.10.03, XNV-6081, XNV-6081R, XND-6081RF, XND-6081RV, XND-6081V]

[v2.10.03, XNV-6081RE, XND-6081REV]

[v2.10.03, XNP-6040H, XNP-6040HW]

## [Improvements]

- Modified so that the storage path can also be specified as a subdirectory when saving recorded video on the NAS
  - Applies to:

[v2.10.00, XNV-9082R, XND8082RV, XND-9082RF, XND8082RF, XNO-9082R, XNB-8002, XNB-9002, XNV8082R, XND-9082RV, XNO-8082R]

[v2.10.00, XNF-9010RV, XNF-9010RVM]
- Added the option to display the IP address and MAC information of the camera
  - Applies to:

[v2.10.00, XNV-9082R, XND8082RV, XND-9082RF, XND8082RF, XNO-9082R, XNB-8002, XNB-9002, XNV8082R, XND-9082RV, XNO-8082R]

[v2.10.00, XNF-9010RV, XNF-9010RVM]
- Fixed to move the location of the overlay image using the cursor
  - Applies to:

[v2.10.00, XNV-9082R, XND8082RV, XND-9082RF, XND8082RF, XNO-9082R, XNB-8002, XNB-9002, XNV8082R, XND-9082RV, XNO-8082R]

[v2.10.00, XNF-9010RV, XNF-9010RVM]

[v2.10.02, QNP-6230RH]

[v2.10.02, XNP-6040H]

[v2.10.02, KNP-2120HN, XNP-6120H]

[v2.10.02, KNP-2320RH, KNP-2320RHA, XNP-6250RH, XNP-6320RH]

[v2.10.02, XNP-6341RH]

[v2.10.02, XNP-6371RH]

[v2.10.02, KNP-2550RHA, XNP-6550RH]

[v2.10.02, QNP-6230, QNP-6230H, XNP-6320, XNP-6320H, XNP-6320HS, XNP-6321, XNP-6321H]

[v2.10.02, XNB-6005, XNO-6085R]

[v2.10.02, XNO-6085]

[v2.10.02, KNB-5000N, KNO-5080RN, XNB-8000, XNO-8080R, XNO-8080RW]

[v2.10.02, XND-6011F, XND-8020F]

[v2.10.02, KND-2020RN, XND-6020R, XNV-6020R]

[v2.10.02, KND-5020RN, XND-8020R, XND-8020RW, XND-8030R, XND-8040R, XNV-8020R, XNV-8020RMN, XNV-8020RMP, XNV-8030R, XNV-8040R]

[v2.10.02, KND-5080RN, XND-8080R, XND-8080RV, XND-8080RW, XNV-8080R, XNV-8080RS, XNV-8080RSA, XNV-8080RW]

[v2.10.02, KNO-2010RN, XNO-6010R, XNO-6020R]

[v2.10.02, KNO-5020RN, XNO-8020R, XNO-8030R, XNO-8040R]

[v2.10.02, XND-6010, XNV-6010]

[v2.10.02, XNZ-6320]

[v2.10.02, XNZ-L6320]

[v2.10.02, XNO-6120]

[v2.10.02, XNO-L6120R]

[v2.10.02, XND-6081FZ, XND-6081VZ, XNV-6081Z, XND-8081FZ, XND-8081VZ, XNV-8081Z]

[v2.10.02, TNO-6010M]

[v2.10.02, TNV-7010RC]

[v2.10.02, XNV-6081, XNV-6081R, XND-6081F, XND-6081RF, XND-6081RV, XND-6081V, XND-8081RF, XND-8081RV, XNV-8081R]

[v2.10.02, XND-L6020R]

[v2.10.02, XNO-L6020R]

[v2.10.02, XNO-L6085R]

[v2.10.02, XND-L6080R, XND-L6080RV, XND-L6080V, XNO-L6080R, XNV-L6080, XNV-L6080R]

[v2.10.02, XND-L6080RVA, XND-L6080VA, XNO-L6080RA, XNV-L6080A, XNV-L6080RA]

[v2.10.02, QNF-8010] v2.10.02, TNB-6030]

[v2.10.02, XND-6081REV, XNV-6081RE]

[v2.10.02, XND-8081REV, XNV-8081RE]

[v2.10.02, TNO-4030TR, TNO-4040TR, TNO-4041TR]

[v2.10.02, TNO-4030T, TNO-4040T, TNO-4041T, TNO-4050T, TNO-4051T]

[v2.10.02, TNO-3030T, TNO-3020T, TNO-3010T]

[v2.10.02, TNO-3040T, TNO-3050T]

[v2.10.02, XNO-6085RA]

[v2.10.02, XNO-L6085RA]

[v2.10.02, XNV-6012, XNV-6012M, XNV-6013M, XNV-6022R, XNV-6022RM]

- Add the [PEAPv0/MSCHAPv2] option to EAP type for 802.1x

- Applies to:

[v2.10.00, XNV-9082R, XND8082RV, XND-9082RF, XND8082RF, XNO-9082R, XNB-8002, XNB-9002, XNV8082R, XND-9082RV, XNO-8082R]

[v2.10.00, XNF-9010RV, XNF-9010RVM]

- In [Double Panorama] mode, tilt operation of PTZ is supported (Only PTZ pan operation was supported in the earlier version)
  - Applies to:  
[v2.10.00, XNF-9010RV, XNF-9010RVM]
- Fixed the problem that [Day/Night] mode did not work in some cameras depending on the camera settings after upgrading the firmware
  - Applies to:  
[v2.10.01, XNV-9082R, XNF-9010RV]  
[v2.10.03, XNF-9010RV, XNF-9010RVM, XNF-9010RS]
- When setting the privacy area, the area can be set to a quadrilateral shape instead of a rectangle
  - Applies to:  
[v2.10.01, QNP-6230, QNP-6230H, XNP-6320, XNP-6320H, XNP-6320HS, XNP-6321, XNP-6321H]  
[v2.10.02, KNP-2120HN, XNP-6120H]
- Fixed the issue where the video was intermittently broken in some decoders
  - Applies to:  
[v2.10.02, XNB-9002, XNB-8002, XND-9082RV, XND-9082RF, XND-8082RV, XND-8082RF, XNV-9082R, XNV-8082R, XNO-9082R, XNO-8082R] [2.10.03, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]
- Adjusted the RTP Payload buffer to improve compatibility with specific NVRs
  - Applies to:  
[v2.10.02, XNB-9002, XNB-8002, XND-9082RV, XND-9082RF, XND-8082RV, XND-8082RF, XNV-9082R, XNV-8082R, XNO-9082R, XNO-8082R]  
[v2.10.02, QNP-6230RH]  
[v2.10.02, XNP-6040H]  
[v2.10.02, KNP-2120HN, XNP-6120H]  
[v2.10.02, KNP-2320RH, KNP-2320RHA, XNP-6250RH, XNP-6320RH]  
[v2.10.02, XNP-6341RH]  
[v2.10.02, XNP-6371RH]  
[v2.10.02, KNP-2550RHA, XNP-6550RH]  
[v2.10.02, QNP-6230, QNP-6230H, XNP-6320, XNP-6320H, XNP-6320HS, XNP-6321, XNP-6321H]  
[v2.10.02, XNB-6005, XNO-6085R]  
[v2.10.02, XNO-6085]



[v2.10.02, KNB-5000N, KNO-5080RN, XNB-8000, XNO-8080R, XNO-8080RW]  
[v2.10.02, XND-6011F, XND-8020F]  
[v2.10.02, KND-2020RN, XND-6020R, XNV-6020R]  
[v2.10.02, KND-5020RN, XND-8020R, XND-8020RW, XND-8030R, XND-8040R, XNV-8020R, XNV-8020RMN, XNV-8020RMP, XNV-8030R, XNV-8040R]  
[v2.10.02, KND-5080RN, XND-8080R, XND-8080RV, XND-8080RW, XNV-8080R, XNV-8080RS, XNV-8080RSA, XNV-8080RW]  
[v2.10.02, KNO-2010RN, XNO-6010R, XNO-6020R]  
[v2.10.02, KNO-5020RN, XNO-8020R, XNO-8030R, XNO-8040R]  
[v2.10.02, XND-6010, XNV-6010]  
[v2.10.02, XNZ-6320]  
[v2.10.02, XNZ-L6320]  
[v2.10.02, XNO-6120]  
[v2.10.02, XNO-L6120R]  
[v2.10.02, XND-6081FZ, XND-6081VZ, XNV-6081Z, XND-8081FZ, XND-8081VZ, XNV-8081Z]  
[v2.10.02, TNO-6010M]  
[v2.10.02, TNV-7010RC]  
[v2.10.02, XNV-6081, XNV-6081R, XND-6081F, XND-6081RF, XND-6081RV, XND-6081V, XND-8081RF, XND-8081RV, XNV-8081R]  
[v2.10.02, XND-L6020R]  
[v2.10.02, XNO-L6020R]  
[v2.10.02, XNO-L6085R]  
[v2.10.02, XND-L6080R, XND-L6080RV, XND-L6080V, XNO-L6080R, XNV-L6080, XNV-L6080R]  
[v2.10.02, XND-L6080RVA, XND-L6080VA, XNO-L6080RA, XNV-L6080A, XNV-L6080RA]  
[v2.10.02, QNF-8010] v2.10.02, TNB-6030]  
[v2.10.02, XND-6081REV, XNV-6081RE]  
[v2.10.02, XND-8081REV, XNV-8081RE]  
[v2.10.02, TNO-4030TR, TNO-4040TR, TNO-4041TR]  
[v2.10.02, TNO-4030T, TNO-4040T, TNO-4041T, TNO-4050T, TNO-4051T]  
[v2.10.02, TNU-4041T, TNU-4051T]  
[v2.10.02, TNO-3030T, TNO-3020T, TNO-3010T]  
[v2.10.02, TNO-3040T, TNO-3050T]  
[v2.10.02, XNO-6085RA]  
[v2.10.02, XNO-L6085RA]  
[v2.10.02, XNV-6012, XNV-6012M, XNV-6013M, XNV-6022R, XNV-6022RM] [2.10.03, XNB-8002, XNB-9002, XND-8082RF, XND-8082RV, XND-9082RF, XND-9082RV, XNO-8082R, XNO-9082R, XNV-8082R, XNV-9082R]

- Improved Web UI for selecting TLS protocol version to use for encrypted communication

- Applies to:

- [v2.10.02, QNP-6230RH]

- [v2.10.02, XNP-6040H]

- [v2.10.02, KNP-2120HN, XNP-6120H]

- [v2.10.02, KNP-2320RH, KNP-2320RHA, XNP-6250RH, XNP-6320RH]

- [v2.10.02, XNP-6341RH]

- [v2.10.02, XNP-6371RH]

- [v2.10.02, KNP-2550RHA, XNP-6550RH]

- [v2.10.02, QNP-6230, QNP-6230H, XNP-6320, XNP-6320H, XNP-6320HS, XNP-6321, XNP-6321H]

- [v2.10.02, XNB-6005, XNO-6085R]

- [v2.10.02, XNO-6085]

- [v2.10.02, KNB-5000N, KNO-5080RN, XNB-8000, XNO-8080R, XNO-8080RW]

- [v2.10.02, XND-6011F, XND-8020F]

- [v2.10.02, KND-2020RN, XND-6020R, XNV-6020R]

- [v2.10.02, KND-5020RN, XND-8020R, XND-8020RW, XND-8030R, XND-8040R, XNV-8020R, XNV-8020RMN, XNV-8020RMP, XNV-8030R, XNV-8040R]

- [v2.10.02, KND-5080RN, XND-8080R, XND-8080RV, XND-8080RW, XNV-8080R, XNV-8080RS, XNV-8080RSA, XNV-8080RW]

- [v2.10.02, KNO-2010RN, XNO-6010R, XNO-6020R]

- [v2.10.02, KNO-5020RN, XNO-8020R, XNO-8030R, XNO-8040R]

- [v2.10.02, XND-6010, XNV-6010]

- [v2.10.02, XNZ-6320]

- [v2.10.02, XNZ-L6320]

- [v2.10.02, XNO-6120]

- [v2.10.02, XNO-L6120R]

- [v2.10.02, XND-6081FZ, XND-6081VZ, XNV-6081Z, XND-8081FZ, XND-8081VZ, XNV-8081Z]

- [v2.10.02, TNO-6010M]

- [v2.10.02, TNV-7010RC]

- [v2.10.02, XNV-6081, XNV-6081R, XND-6081F, XND-6081RF, XND-6081RV, XND-6081V, XND-8081RF, XND-8081RV, XNV-8081R]

- [v2.10.02, XND-L6020R]

- [v2.10.02, XNO-L6020R]

- [v2.10.02, XNO-L6085R]

- [v2.10.02, XND-L6080R, XND-L6080RV, XND-L6080V, XNO-L6080R, XNV-L6080, XNV-L6080R]

- [v2.10.02, XND-L6080RVA, XND-L6080VA, XNO-L6080RA, XNV-L6080A, XNV-L6080RA]

- [v2.10.02, QNF-8010] v2.10.02, TNB-6030]
- [v2.10.02, XND-6081REV, XNV-6081RE]
- [v2.10.02, XND-8081REV, XNV-8081RE]
- [v2.10.02, TNO-4030TR, TNO-4040TR, TNO-4041TR]
- [v2.10.02, TNO-4030T, TNO-4040T, TNO-4041T, TNO-4050T, TNO-4051T]
- [v2.10.02, TNU-4041T, TNU-4051T]
- [v2.10.02, TNO-3030T, TNO-3020T, TNO-3010T]
- [v2.10.02, TNO-3040T, TNO-3050T]
- [v2.10.02, XNO-6085RA]
- [v2.10.02, XNO-L6085RA]
- [v2.10.02, XNV-6012, XNV-6012M, XNV-6013M, XNV-6022R, XNV-6022RM]
- Added setting option to enable or disable simple focus function after [Day/Night] mode operation
  - Applies to:  
[v2.10.03, XNB-6000, XNB-8000]
- Changed the initial value of [Zoom speed] from [Fast] to [Medium]
  - Applies to:  
[v2.10.03, XNP-6371RH, XNP-6341RH]
- When setting the H.264/H.265 codec, you can set the minimum bitrate to 10 kbps.
  - Applies to:  
[v2.10.04, XNB-6001]  
[v2.10.04, XNO-6120R]  
[v2.10.04, XNV-6080R, XND-6080RV]  
[v2.10.05, XNO-6080R]  
[v2.10.04, XNF-8010R, XNF-8010RW, XNF-8010RV, XNF-8010RVM] [2.10.05, XNB-6001]
- Improved SUNAPI API of Events status
  - Applies to:  
[v2.10.03, XND-8080R, XND-8080RV, KND-5080R, XNV-8080R, XNV-8080RS, XNV-8080RSA]  
[v2.10.04, XNB-8000, KNB-5000, TNC-8090RH, XNO-8080R, ANO-X5080R, KNO-5080R]  
[v2.10.06, XNB-6000, KNB-2000, XNO-6080R, ANO-X2080R, KNO-2080R]
- Applied SUNAPI API improvements for event status to models that were not previously affected
  - Applies to:  
[v2.10.03, XNO-8020R]  
[v2.10.03, XND-8020R]

- Improved compatibility with 1TB SD card (512GB x 2), specifically addressing issues related to the card encryption feature
  - Applies to:  
[v2.10.06, XNB-8000, KNB-5000, TNC-8090RH, XNO-8080R, ANO-X5080R, KNO-5080R]

## [Bug fixes]

- Resolved an issue of a response error in the SUNAPI API for event status
  - Applies to:  
[v2.10.04, XND-8080R, XND-8080RV, KND-5080R, XNV-8080R, XNV-8080RS, XNV-8080RSA]  
[v2.10.05, XNB-8000, KNB-5000, TNC-8090RH, XNO-8080R, ANO-X5080R, KNO-5080R]
- Fixed language error in Japanese version
  - Applies to:  
[v2.10.04, XNB-6001]  
[v2.10.04, XNO-6120R]  
[v2.10.04, XNV-6080R, XND-6080RV]  
[v2.10.05, XNO-6080R]  
[v2.10.04, XNF-8010R, XNF-8010RW, XNF-8010RV, XNF-8010RVM]  
[v2.10.05, XNB-6001]
- Corrected an issue where the [Time schedule] feature did not intermittently work after the camera rebooted
  - Applies to:  
[v2.10.05, XND-6080RV, XND-6080R, XND-6080V, XND-6080, XNV-6080R, XNV-6080]  
[v2.10.05, KND-2080R]
- Corrected an issue that disabled streaming and stopped Common Gateway Interface (CGI) working in certain circumstances when you access the web viewer after adding a camera to Genetec using the ONVIF protocol
  - Applies to:  
[v2.10.03, XND-8080R, XND-8080RV, KND-5080R, XNV-8080R, XNV-8080RS, XNV-8080RSA]  
[v2.10.04, XNB-8000, KNB-5000, TNC-8090RH, XNO-8080R, ANO-X5080R, KNO-5080R]  
[v2.10.06, XNB-6000, KNB-2000, XNO-6080R, ANO-X2080R, KNO-2080R]
- Corrected an issue where the RTP timestamp appearing on the NVR's recorded video didn't match the actual time when you use an external company's VMS (video management system)

to stream multicast video

- Applies to:  
 [v2.10.03, XND-8080R, XND-8080RV, KND-5080R, XNV-8080R, XNV-8080RS, XNV-8080RSA]  
 [v2.10.04, XNB-8000, KNB-5000, TNC-8090RH, XNO-8080R, ANO-X5080R, KNO-5080R]  
 [v2.10.06, XNB-6000, KNB-2000, XNO-6080R, ANO-X2080R, KNO-2080R]

## Affected Products

Table 9. Product Family Based On Version 2.10

Major Model	Model Name
XNV-9082R	XNV-9082R XND-8082RV XND-9082RF XND-8082RF XNO-9082R XNB-8002 XNB-9002 XNV-8082R XND-9082RV XNO-8082R
XNF-9010RV	XNF-9010RV XNF-9010RVM XNF-9010RS
XNB-6000	KNB-2000 KNO-2080RN XNB-6000 XNO-6080R XNO-6080RS ANO-X2080R KNO-2080R
XNB-6001	XNB-6001
XND-6080R	KND-2080RN XND-6080 XND-6080R XND-6080RV XND-6080RW XND-6080V

Major Model	Model Name
	XND-K6080N XNV-6080 XNV-6080R XNV-6080RS XNV-6080RSA XNV-6080RW
XND-6085	XND-6085 XND-6085V XNV-6085
XNF-8010R	XNF-8010R XNF-8010RV XNF-8010RVM XNF-8010RVW XNF-8010RW
XNO-6120R	KNO-2120RN XNO-6120R XNO-6120RS XNV-6120 XNV-6120R XNV-6120RS
XNP-6320H	QNP-6230 QNP-6230H XNP-6320 XNP-6320H XNP-6320HS XNP-6321 XNP-6321H
XNV-6011	XNV-6011 XNV-6011W
QNP-6230RH	QNP-6230RH
XNP-6040	XNP-6040H
XNP-6120	KNP-2120HN XNP-6120H
XNP-6320RH	KNP-2320RH KNP-2320RHA XNP-6250RH XNP-6320RH

Major Model	Model Name
XNP-6341RH	XNP-6341RH
XNP-6371RH	XNP-6371RH
XNP-6550RH	KNP-2550RHA
	XNP-6550RH
XNB-6005	XNB-6005
	XNO-6085R
XNO-6085	XNO-6085
XNB-8000	KNB-5000N
	KNO-5080RN
	XNB-8000
	TNC-8090RH
	KNB-5000
	XNO-8080R
	XNO-8080RW
	ANO-X5080R
	KNO-5080R
XND-6011	XND-6011F
	XND-8020F
XND-6020R	KND-2020RN
	XND-6020R
	XNV-6020R
XND-8020R	KND-5020RN
	XND-8020R
	XND-8020RW
	XND-8030R
	XND-8040R
	XNV-8020R
	XNV-8020RMN
	XNV-8020RMP
	XNV-8030R
	XNV-8040R
XND-8080R	KND-5080RN
	XND-8080R
	XND-8080RV
	XND-8080RW
	XNV-8080R

Major Model	Model Name
	XNV-8080RS
	XNV-8080RSA
	XNV-8080RW
XNO-6020R	KNO-2010RN
	XNO-6010R
	XNO-6020R
XNO-8040R	KNO-5020RN
	XNO-8020R
	XNO-8030R
	XNO-8040R
XNV-6010	XND-6010
	XNV-6010
XNZ-6320	XNZ-6320
XNZ-L6320	XNZ-L6320
XNO-6120	XNO-6120
XNO-L6120R	XNO-L6120R
XND-6081VZ	XND-6081FZ
	XND-6081VZ
	XNV-6081Z
	XND-8081FZ
	XND-8081VZ
	XNV-8081Z
TNO-6010M	TNO-6010M
TNV-7010RC	TNV-7010RC
XNV-6081	XNV-6081
	XNV-6081R
	XND-6081F
	XND-6081RF
	XND-6081RV
	XND-6081V
	XND-8081RF
	XND-8081RV
	XNV-8081R
XND-L6020R	XND-L6020R
XNO-L6020R	XNO-L6020R
XNO-L6085R	XNO-L6085R



Major Model	Model Name
XNV-L6080R	XND-L6080R
	XND-L6080RV
	XND-L6080V
	XNO-L6080R
	XNV-L6080
	XNV-L6080R
XNV-L6080A_KME	XND-L6080RVA
	XND-L6080VA
	XNO-L6080RA
	XNV-L6080A
	XNV-L6080RA
QNF-8010	QNF-8010
TN-B6030	TNB-6030
XND-6081REV	XND-6081REV
	XNV-6081RE
XND-8081REV	XND-8081REV
	XNV-8081RE
TNO-4040TR	TNO-4030TR
	TNO-4040TR
	TNO-4041TR
TNO-4050T	TNO-4030T
	TNO-4040T
	TNO-4041T
	TNO-4050T
	TNO-4051T
TNU-4041T	TNU-4041T
	TNU-4051T
TNO-3030T	TNO-3030T
	TNO-3020T
	TNO-3010T
TNO-3050T	TNO-3040T
	TNO-3050T
XNO-6085RA	XNO-6085RA
XNO-L6085RA	XNO-L6085RA
XNV-6012	XNV-6012
	XNV-6012M

Major Model	Model Name
	XNV-6013M
	XNV-6022R
	XNV-6022RM
KND-2080R	KND-2080R

# Network Camera Version 2.01

This document describes the new and changed features of Hanwha Vision network camera version 2.01.

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## Common Features

### [New Features]

- Supports LLDP
  - Applies to:  
[v2.01.02, XNP-9300RW, XNP-8300RW, XNP-6400RW]
- Supports to connect an external I/O box to the camera (The alarm input/out and audio input/output features can be used when I/O box is conned to camera)
  - Applies to:  
[v2.01.03, XNP-9300RW, XNP-8300RW, XNP-6400RW]
- When setting the privacy area, the area can be set to a quadrilateral shape instead of a rectangle
  - Applies to:  
[v2.01.03, XNP-9300RW, XNP-8300RW, XNP-6400RW]
- Added [IR shift] option to [Focus save] function (When [IR shift] is enabled, the focus is moved to match the location of the saved focus on visible light)
  - Applies to:  
[v2.01.03, XNP-9300RW, XNP-8300RW, XNP-6400RW]
- Added a function to change the order where each privacy mask area is saved
  - Applies to:  
[v2.01.04, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]  
[v2.01.06, XNP-9300RW, XNP-8300RW, XNP-6400RW]
- Added a function to set the permission to control the PTZ for each user account
  - Applies to:  
[v2.01.04, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]  
[v2.01.06, XNP-9300RW, XNP-8300RW, XNP-6400RW]
- Supports SLA-T28XX lens
  - Applies to:

[v2.01.03, PNM-9000QB]

**Note:** SLA-T28XX lenses are not supported if you downgrade the firmware to a version lower than 2.01.03. Change to an older lens or perform a factory reset before downgrading.

- Allows you to create passwords up to 64 characters
  - Applies to:  
[v2.01.02, XNP-6400R (for WellsFargo)]

## [Improvements]

- Changed SD file system default to EXT4
  - Applies to:  
[v2.01.01, XNV-9082R, XND-8082RV, XND-9082RF, XND-8082RF, XNO-9082R, XNB-8002, XNB-9002, XNV-8082R, XND-9082RV, XNO-8082R]
- Enhanced stability of high capacity SD card
  - Applies to:  
[v2.01.01, XNV-9082R, XND-8082RV, XND-9082RF, XND-8082RF, XNO-9082R, XNB-8002, XNB-9002, XNV-8082R, XND-9082RV, XNO-8082R]
- Fixed an out-of-focus issue when zoom ratio reaches out 32x
  - Applies to:  
[v2.01.01, TNU-6321]
- Improved temperature display accuracy for subjects with high temperature in the [Estimated body temperature detection] mode
  - Applies to:  
[v2.01.01, TNM-3620TDY]
- Improved temperature display accuracy when compensating for temperature using blackbody in the [Estimated body temperature detection] mode
  - Applies to:  
[v2.01.01, TNM-3620TDY]
- Modified the firmware in accordance with the change of Gyro sensor module
  - Applies to:  
[v2.01.02, XNV-9082R]  
[v2.01.02, TNM-3620TDY]  
[v2.01.03, XNP-9300RW, XNP-8300RW, XNP-6400RW]
- Improved auto tracking performance

- Applies to:  
[v2.01.03, XNP-9300RW, XNP-8300RW, XNP-6400RW]
- Downgrade to version 2.01.02 is not possible, if the firmware is updated to version 2.01.03.
- Applies to:  
[v2.01.03, XNP-9300RW, XNP-8300RW, XNP-6400RW]
- Improved the issue of camera time failing to periodically sync with that of the NTP server
- Applies to:  
[v2.01.02, TNM-3620TDY]  
[v2.01.04, XNP-9300RW, XNP-6400RW]  
[v2.01.02, XNP-9250R, XNP-6400R, TNU-6321]  
[v2.01.01, SPM-4210, TNV-8010C, TNF-1200, PNM-9000QB]  
[v2.01.01, PNM-9022V]  
[v2.01.01, PNM-8082VT]  
[v2.01.02, PNM-9000QB]
- Improved accuracy in displaying Fahrenheit temperature values
- Applies to:  
[v2.01.02, TNM-3620TDY]
- Improved RTC driver setting error
- Applies to:  
[v2.01.01, QNV-6012RG]  
[v2.01.02, QNV-6012RG]  
[v2.01.03, QNV-6012RG]
- Improved the issue of camera time failing to periodically sync with that of the NTP server
- Applies to:  
[v2.01.01, QNV-6012RG]
- Renewed UL CAP (Cybersecurity Assurance Program) authentication
- Applies to:  
[v2.01.05, XNP-9300RW, XNP-8300RW, XNP-6400RW]  
[v2.01.03, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]  
[v2.01.07, XNP-9300RW, XNP-8300RW]  
[v2.01.10, XNP-6400RW]  
[v2.01.05, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250]  
[v2.01.06, XNP-6400R, XNP-6400]
- Adjusted the RTP Payload buffer to improve compatibility with specific NVRs
- Applies to:

[v2.01.04, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250, XNP-6400R, XNP-6400]

[v2.01.06, XNP-9300RW, XNP-8300RW, XNP-6400RW]

- Reflected improvement in manufacturing and process efficiency (no impact on users and product usability)
  - Applies to:  
[v2.01.01, XNP-9300RWG, XNP-8300RWG, XNP-6400RWG]  
[v2.01.02, XNP-9300RWG, XNP-8300RWG, XNP-6400RWG]
- Added function that goes back to the "Set home" automatically if the Digital PTZ function is not being used during setup
  - Applies to:  
[v2.01.11, TNF-9010]
- Added a caution message about using the [Set home] button on the setup web page
  - Applies to:  
[v2.01.11, TNF-9010]
- Improved PTZ response when controlling PTZ with ONVIF
  - Applies to:  
[v2.01.07, XNP-9300RW, XNP-8300RW]  
[v2.01.10, XNP-6400RW]  
[v2.01.05, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250]  
[v2.01.06, XNP-6400R, XNP-6400]  
[v2.01.02, XNP-9300RWG, XNP-8300RWG]  
[v2.01.03, XNP-6400RWG]
- Improved functionality to obtain TTA security certification
  - Applies to:  
[v2.01.11, XNP-9300RW, XNP-8300RW, XNP-6400RW]  
[v2.01.07, XNP-9250R, XNP-8250R, XNP-6400R, XNP-9250, XNP-8250, XNP-6400]
- Fixed language error in Japanese version
  - Applies to:  
[v2.01.11, XNP-9300RW, XNP-8300RW, XNP-6400RW]  
[v2.01.07, XNP-9250R, XNP-8250R, XNP-6400R, XNP-9250, XNP-8250, XNP-6400]
- Fixed an issue where Pan and Tilt operate beyond the maximum Pan/Tilt movement range set in the [PT Limit] menu
  - Applies to:  
[v2.01.11, XNP-9300RW, XNP-8300RW, XNP-6400RW]  
[v2.01.07, XNP-9250R, XNP-8250R, XNP-6400R, XNP-9250, XNP-8250, XNP-6400]

- Fixed an issue where [Loitering] event was continuously sent to the NVR even though the loitering event had ended
  - Applies to:  
[v2.01.11, XNP-9300RW, XNP-8300RW, XNP-6400RW]  
[v2.01.07, XNP-9250R, XNP-8250R, XNP-6400R, XNP-9250, XNP-8250, XNP-6400]
- When setting the H.264/H.265 codec, you can set the minimum bitrate to 10 kbps.
  - Applies to:  
[v2.01.04, PNM-9000QB]  
[v2.01.02, PNM-9022V]

## **[Bug fixes]**

- Fixed timestamp errors
  - Applies to:  
[v2.01.01, TNU-6322E, TNU-6322ER]  
[v2.01.01, TNO-6322ER]  
[v2.01.03, TNU-6321]  
[v2.01.07, XNP-9300RW, XNP-8300RW]  
[v2.01.10, XNP-6400RW]  
[v2.01.05, XNP-9250R, XNP-9250, XNP-8250R, XNP-8250]  
[v2.01.06, XNP-6400R, XNP-6400]  
[v2.01.02, XNP-9300RWG, XNP-8300RWG]  
[v2.01.03, XNP-6400RWG]
- Corrected an issue where zoom-in operation caused the pan and tilt operation to malfunction
  - Applies to:  
[v2.01.04, XN-6400RWG]
- Corrected an issue that caused the [Auto focus] feature to malfunction at high temperatures
  - Applies to:  
[v2.01.10, XNP-6400RW]  
[v2.01.06, XNP-6400R, XNP-6400]  
[v2.01.03, XNP-6400RWG]
- Corrected an issue where firmware issued after 2022 did not upgrade properly
  - Applies to:  
[v2.01.02, XNP-6400R (for WellsFargo)]
- Corrected an issue where the [Motion detection] feature did not work

- Applies to:  
[v2.01.02, XNP-6400R (for WellsFargo)]

## Affected Products

Table 10. Product Family Based On Version 2.01

Major Model	Model Name
XNV-9082R	XNV-9082R XND-8082RV XND-9082RF XND-8082RF XNO-9082R XNB-8002 XNB-9002 XNV-8082R XND-9082RV XNO-8082R
TNU-6321	TNU-6321
XNP-9300RW	XNP-9300RW XNP-8300RW XNP-6400RW
TNM-3620TDY	TNM-3620TDY
XNP-9250R	XNP-9250R XNP-6400R XNP-9250 XNP-8250R XNP-8250 XNP-6400
SPM-4210	SPM-4210
TNV-8010C	TNV-8010C
TNF-1200	TNF-1200
TNF-9010	TNF-9010
PNM-9000QB	PNM-9000QB
PNM-8082VT	PNM-8082VT
PNM-9022V	PNM-9022V
QNV-6012RG	QNV-6012RG
XNP-9300RWG	XNP-9300RWG



Major Model	Model Name
	XNP-8300RWG
	XNP-6400RWG
TNO-6322ER	TNO-6322ER
TNU-6322ER	TNU-6322E TNU-6322ER

# Network Camera Version 1.42

This document describes the new and changed features of Hanwha Vision network camera version 1.42

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## Common Features

### [New Features]

- Allows you to create passwords up to 64 characters
  - Applies to:  
[v1.42.00, XND-6081RV (for WellsFargo)]  
[v1.42.00, XND-8080R (for WellsFargo)]
- 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.
  - Applies to:  
[v1.42.01, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNO-8081R, QNV-8081R, QND-8011, QND-8021, QNE-8011R, QNE-8021R, QND-8012, QND-8022]

### [Improvements]

- Added the DLL auto-tune function to address the camera-rebooting issue caused by the fixed DLL value
  - Applies to:  
[v1.42.01, ANE-L7012L]  
[v1.42.02, ANE-L7012L]
- Addressed an issue where activating the camera's WDR feature resulted in too much noise in dark areas of the video image
  - Applies to:  
[v1.42.01, ANE-L7012L]  
[v1.42.02, ANE-L7012L]
- Corrected an issue where the camera failed to reconnect to a NAS device after disconnecting from it. It now tries to reconnect every 30 seconds for 10 minutes and every 10 minutes

thereafter.

- Applies to:  
[v1.42.01, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNO-8081R, QNV-8081R, QND-8011, QND-8021, QNE-8011R, QNE-8021R, QND-8012, QND-8022]

## [Bug fixes]

- Corrected an issue where firmware issued after 2022 did not upgrade properly
  - Applies to:  
[v1.42.00, XND-6081RV (for WellsFargo)]  
[v1.42.00, XND-8080R (for WellsFargo)]
- Corrected an issue where the [Motion detection] feature did not work
  - Applies to:  
[v1.42.00, XND-6081RV (for WellsFargo)]  
[v1.42.00, XND-8080R (for WellsFargo)]
- Corrected an issue where the [Help] icon to navigate to the Online Help page was not visible in the top right corner of the web viewer
  - Applies to:  
[v1.42.01, QNO-6012RG, QNO-6082RG, QND-6012RG, QND-6082RG]  
[v1.42.01, QNO-8080RG, QND-8080RG, QNO-8010RG, QND-8010RG]
- Fixed an issue where the Factory Reset button was not working correctly
  - Applies to:  
[v1.42.03, QNO-8080R, QNV-8010R, QNO-8010, QNV-8020, QND-8020, QND-8010, QND-8030, QNV-8030, QNO-8020, QNV-8080, QND-8080, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]

## Affected Products

Table 11. Product Family Based On Version 1.42

Major Model	Model Name
ANE-L7012L	ANE-L7012L
QNO-8080R	QNO-8010R QNO-8020R

Major Model	Model Name
	QNO-8030R QNO-8080R QNV-8010R QNV-8020R QNV-8030R QNV-8080R QND-8010R QND-8020R QND-8030R QND-8080R QNE-8011R QNE-8021R QND-8011 QND-8021 QNO-8081R QNV-8081R QND-8012 QND-8022
QNO-6012RG	QNO-6012RG QNO-6082RG QND-6012RG QND-6082RG
QNO-8080RG	QNO-8080RG QND-8080RG QNO-8010RG QND-8010RG

# Network Camera Version 1.41

This document describes the new and changed features of Hanwha Vision network camera version 1.41.

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## Common Features

### [New Features]

- Supports Open Platform event: NUC Active state
  - Applies to:  
[v1.41.02, TNO-3010T, TNO-3020T, TNO-3030T]
- Updated to ANPR application version 2.16 (application version is shown in the [Open Platform] menu)
  - Applies to:  
[v1.41.02, XNO-L6085RA, XNO-6085RA]
- After a factory reset, the motion detection setting is enabled by default
  - Applies to:  
[v1.41.02, QNV-6024RM, QNV-6023R]  
[v1.41.11, LNO-6072R, LND-6012R, LNO-6032R, LNV-6032R, LND-6022R, LND-6072R, LNO-6022R, LNV-6012R, LNV-6072R, LND-6032R, LNV-6022R, LNO-6012R]
- Analyzes after sorting age groups and gender when linking with Retail Insight
  - Applies to:  
[v1.41.02, PNO-A9081R, PND-A9081RV, PND-A9081RF, PNV-A9081R, PNB-A9001]
- Supports the function of uploading and playing back audio clip
  - Applies to:  
[v1.41.02, PNO-A9081R, PND-A9081RV, PND-A9081RF, PNV-A9081R, PNB-A9001]
- Analyzes after sorting age groups and gender when linking with Retail Insight
  - Applies to:  
[v1.41.02, PNO-A9081R, PND-A9081RV, PND-A9081RF, PNV-A9081R, PNB-A9001]
- Supports the function of uploading and playing back audio clip
  - Applies to:  
[v1.41.02, PNO-A9081R, PND-A9081RV, PND-A9081RF, PNV-A9081R, PNB-A9001]
- Added face mask detection function

- Applies to:  
[v1.41.03, PNO-A9081R, PNB-A9001]
- Added mask attributes in AI metadata
  - Applies to:  
[v1.41.03, PNO-A9081R, PNB-A9001]
- Added [Social distancing detection] function
  - Applies to:  
[v1.41.05, PNO-A9081R, PNB-A9001]
- SLA-C-I3910 lens additionally supported
  - Applies to:  
[v1.41.05, PNB-A9001]
- Added Dynamic FPS Function
  - Applies to:  
[v1.41.01, ANO-L6012R, ANO-L6022R, ANV-L6012]  
[v1.41.02, ANE-L6012R, ANO-L6082R, ANV-L6082R]
- 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.
  - Applies to:  
[v1.41.06, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]  
[v1.41.16, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]  
[v1.41.06, QND-7082R, QNV-7082R, QND-7012R, QND-7022R, QNV-7022R, QNV-7032R, QND-7032R, QNO-7022R, QNV-7012R, QNO-7032R, QNO-7012R, QNO-7082R]  
[v1.41.06, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021, QNO-8081R, QNV-8081R]  
[v1.41.16, QND-8010R, QND-8020R, QND-8030R, QND-8080R, QNO-8010R, QNO-8020R, QNO-8030R, QNO-8080R, QNV-8010R, QNV-8020R, QNV-8030R, QNV-8080R, QNV-8081R, QNO-8081R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]  
[v1.41.15, QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QNO-6072R, QND-6072R, QNV-6072R, QNV-6082R, QND-6082R, QND-6011, QND-6021, QND-6073R, QND-6083R, QNO-6073R, QNO-6083R, QNV-6073R, QNV-6083R, AND-2010R, AND-2020R, KND-L2010R, KNO-L2022R]  
[v1.41.16, QND-6012R, QND-6022R, QND-6032R, QND-6072R, QND-6082R, QNO-6012R, QNO-6022R, QNO-6032R, QNO-6072R, QNO-6082R, QNV-6012R, QNV-6022R, QNV-6032R, QNV-6072R, QNV-6082R, QND-6011, QND-6021, QND-6073R, QND-6083R,

QNO-6073R, QNO-6083R, QNV-6073R, QNV-6083R]

- Allows you to create passwords up to 64 characters
  - Applies to:  
[v1.41.07, XNF-8010R (for WellsFargo)]
- Changed to the FE binary where Panasonic motor driver IC was replaced with VM117 due to the discontinuation of the driver IC
  - Applies to:  
[v1.41.03, QNB-7002]  
[v1.41.04, QNB-7002]
- Impossible to downgrade the firmware using VM117 to the earlier firmware using the Panasonic motor driver IC
  - Applies to:  
[v1.41.03, QNB-7002]
- Changed the default setting of [Codec] from "H.264" to "H.265" in the web viewer's [Basic] > [Video profile] and changed the default setting of [Mode] from "Off" to "High" in [Video & Audio] > [WiseStream]
  - Applies to:  
[v1.41.17, KNV-K7012R]  
[v1.41.17, KNO-K7012R]  
[v1.41.18, ANO-L7012R(KNO-K7012R), ANO-L7022R, ANV-L7012R(KNV-K7012R)]
- Changed the camera model names (ANV-L7012R -> KNV-K7012R | ANO-L7012R -> KNO-K7012R)
  - Applies to:  
[v1.41.17, KNV-K7012R]  
[v1.41.17, KNO-K7012R]  
[v1.41.18, ANO-L7012R(KNO-K7012R), ANO-L7022R, ANV-L7012R(KNV-K7012R)]
- Changed to the FE binary where Onsemi motor driver IC was replaced with VM107 due to the discontinuation of the driver IC
  - Applies to:  
[v1.41.08, XND-6080RG01]  
[v1.41.08, XNO-6080RG01]  
[v1.41.07, XND-6080RG]  
[v1.41.07, XNO-6080RG]  
[v1.41.07, XND-6080RG]

- [v1.41.08, XND-6080RG01]
- [v1.41.07, XNO-6080RG]
- [v1.41.08, XNO-6080RG01]
- [v1.41.06, XNP-6040HG]
- [v1.41.04, XND-8080RG]
- [v1.41.03, XNO-8080R01]
- Impossible to downgrade the firmware using VM107 to the earlier firmware using the Onsemi motor driver IC
  - Applies to:
    - [v1.41.08, XND-6080RG01]
    - [v1.41.08, XNO-6080RG01]
    - [v1.41.07, XND-6080RG]
    - [v1.41.07, XNO-6080RG]
    - [v1.41.04, XND-8080RG]
    - [v1.41.03, XNO-8080R01]
- Optimized iris and day/night mode operation for VM107
  - Applies to:
    - [v1.41.04, XND-8080RG]
    - [v1.41.03, XNO-8080R01]
- Resolved the iris adjustment and flicker issues that arose following the application of VM107
  - Applies to:
    - [v1.41.07, XND-6080RG]
    - [v1.41.08, XND-6080RG01]
    - [v1.41.07, XNO-6080RG]
    - [v1.41.08, XNO-6080RG01]
    - [v1.41.06, XNP-6040HG]
- Added support for the [Edge recording] function in Cloud Connector
  - Applies to:
    - [v1.41.20, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]
- Removed support for the recording and playback functions of the camera when the [Edge recording] feature of Cloud Connector is enabled (The recording and playback menus in the camera web viewer will disappear)



- Applies to:  
[v1.41.20, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]
- Reduced time to generate files required for playback
  - Applies to:  
[v1.41.20, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]
- Changed the PTR motor position logic due to the application of VM107
  - Applies to:  
[v1.41.12, XNP-6371RHG01]

## [Improvements]

- Improved motion detection sensitivity.
  - Applies to:  
[v1.41.01 QNO-6072R, QNO-6073R, QNO-6082R, QNO-6083R, QND-6072R, QND-6073R, QND-6082R, QND-6083R, QNV-6072R, QNV-6073R, QNV-6082R, QNV-6083R, QND-6012R, QND-6022R, QND-6032R, QNO-6012R, QNO-6022R, QNO-6032R, QNV-6012R, QNV-6022R, QNV-6032R, QND-6011, QND-6021, QNO-8010R, QNO-8020R, QNO-8030R, QNO-8080R, QNV-8010R, QNV-8020R, QNV-8030R, QNV-8080R, QND-8010R, QND-8020R, QND-8030R, QND-8080R, QNE-8011R, QNE-8021R, QND-8011, QND-8021, LNO-6072R, LND-6012R, LNO-6032R, LNV-6032R, LND-6022R, LND-6072R, LNO-6022R, LNV-6012R, LNV-6072R, LND-6032R, LNV-6022R, LNO-6012R]
- Fixed an issue where HTTPS behavior error in Chrome browser version 80.
  - Applies to:  
[v1.41.01 QNO-6072R, QNO-6073R, QNO-6082R, QNO-6083R, QND-6072R, QND-6073R, QND-6082R, QND-6083R, QNV-6072R, QNV-6073R, QNV-6082R, QNV-6083R, QND-6012R, QND-6022R, QND-6032R, QNO-6012R, QNO-6022R, QNO-6032R, QNV-6012R, QNV-6022R, QNV-6032R, QND-6011, QND-6021, QNO-8010R, QNO-8020R, QNO-8030R, QNO-8080R, QNV-8010R, QNV-8020R, QNV-8030R, QNV-8080R, QND-8010R, QND-8020R, QND-8030R, QND-8080R, QNE-8011R, QNE-8021R, QND-8011, QND-8021, LNO-6072R, LND-6012R, LNO-6032R, LNV-6032R, LND-6022R, LND-6072R, LNO-6022R, LNV-6012R, LNV-6072R, LND-6032R, LNV-6022R, LNO-6012R]
- Changed the default value of Flip / Mirror for the Flat Eye model.

- Applies to:  
[v1.41.01 QNO-8010R, QNO-8020R, QNO-8030R, QNO-8080R, QNV-8010R, QNV-8020R, QNV-8030R, QNV-8080R, QND-8010R, QND-8020R, QND-8030R, QND-8080R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]
- Modified the distance range of auto focus in [Quick Focus] mode
  - Applies to:  
[v1.41.02 QNO-6072R, QNO-6073R, QNO-6082R, QNO-6083R, QND-6072R, QND-6073R, QND-6082R, QND-6083R, QNV-6072R, QNV-6073R, QNV-6082R, QNV-6083R, QND-6012R, QND-6022R, QND-6032R, QNO-6012R, QNO-6022R, QNO-6032R, QNV-6012R, QNV-6022R, QNV-6032R, QND-6011, QND-6021, QNO-8010R, QNO-8020R, QNO-8030R, QNO-8080R, QNV-8010R, QNV-8020R, QNV-8030R, QNV-8080R, QND-8010R, QND-8020R, QND-8030R, QND-8080R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]
- Supports the original image of Open Platform in the Hallway view mode
  - Applies to:  
[v1.41.02, TNO-3010T, TNO-3020T, TNO-3030T]
- Supports Stratocast
  - Applies to:  
[v1.41.10, LNO-6072R, LND-6012R, LNO-6032R, LNV-6032R, LND-6022R, LND-6072R, LNO-6022R, LNV-6012R, LNV-6072R, LND-6032R, LNV-6022R, LNO-6012R, QNO-6072R, QNO-6073R, QNO-6082R, QNO-6083R, QND-6072R, QND-6073R, QND-6082R, QND-6083R, QNV-6072R, QNV-6073R, QNV-6082R, QNV-6083R, QND-6012R, QND-6022R, QND-6032R, QNO-6012R, QNO-6022R, QNO-6032R, QNV-6012R, QNV-6022R, QNV-6032R, QND-6011, QND-6021]
- Added a function to configure the administrator account ID
  - Applies to:  
[v1.41.03, PNM-9030V]
- Applied Genetec requests regarding Audio track and audio multicast
  - Applies to:  
[v1.41.03, PNM-9030V]
- Supports two more types of lenses (THEIA-SL410P/SL1250P)
  - Applies to:  
[v1.41.02, PNB-A9001]
- Supports four highest resolution modes (32M, 24M, 15M, 8M)
  - Applies to:  
[v1.41.01, TNB-9000]

- Supports 4K video output on the Live screen of Web Viewer
  - Applies to:  
[v1.41.01, TNB-9000]
- Fixed an issue where network IP and DNS settings were changed after firmware update
  - Applies to:  
[v1.41.04, PNM-9030V]
- Adjusted the size of QVGA IR sensor window
  - Applies to:  
[v1.41.03, TNO-3030T, TNO-3020T, TNO-3010T]
- Improved audio sensitivity of the internal microphone
  - Applies to:  
[v1.41.10, QNO-6072R, QNO-6073R, QNO-6082R, QNO-6083R, QND-6072R, QND-6073R, QND-6082R, QND-6083R, QNV-6072R, QNV-6073R, QNV-6082R, QNV-6083R, QND-6012R, QND-6022R, QND-6032R, QNO-6012R, QNO-6022R, QNO-6032R, QNV-6012R, QNV-6022R, QNV-6032R, QND-6011, QND-6021]  
[v1.41.02, QNB-8002]
- 4 mega camera mode supports 16:9 resolution (2560\*1440, 320\*240 or 320\*180)
  - Applies to:  
[v1.41.03, QNO-8010R, QNO-8020R, QNO-8030R, QNO-8080R, QNV-8010R, QNV-8020R, QNV-8030R, QNV-8080R, QND-8010R, QND-8020R, QND-8030R, QND-8080R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]  
[v1.41.02, QNB-8002]
- Modified the firmware in accordance with the change of Gyro sensor module
  - Applies to:  
[v1.41.02, QNP-6230RH]  
[v1.41.01, XNO-L6085R, XNO-L6085RA, XNO-6085RA, XND-6081REV, XND-8081REV]  
[v1.41.03, XNP-6320HG, XNP-6371RHG01]  
[v1.41.02, XNP-6320RHG]  
[v1.41.01, XNP-6341RH]
- Improved RTC driver setting error
  - Applies to:  
[v1.41.02, QNV-6025RM]
- Improved the issue of camera time failing to periodically sync with that of the NTP server
  - Applies to:  
[v1.41.02, QNV-6025RM]

- Supports ONVIF Test Tool v20.06
  - Applies to:
    - [v1.41.03, XNP-6320HG]
    - [v1.41.02, XNP-6320RHG]
    - [v1.41.01, XNO-L6120RG, XND-8080RG, XNO-6120RG]
    - [v1.41.03, XNO-6120RG]
    - [v1.41.03, XND-8080RG]
    - [v1.41.04, XNO-6120RG]
- Logs are provided when changing presets in [Camera setup]
  - Applies to:
    - [v1.41.11 QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QND-6083R, QNO-6072R, QNV-6072R, QND-6072R, QND-6073R, QNV-6083R, QNV-6082R, QNO-6073R, QNV-6073R, QNO-6083R, QND-6082R, QND-6011, QND-6021]
    - [v1.41.04 QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]
    - [v1.41.12 QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QND-6083R, QNO-6072R, QNV-6072R, QND-6072R, QND-6073R, QNV-6083R, QNV-6082R, QNO-6073R, QNV-6073R, QNO-6083R, QND-6082R, QND-6011, QND-6021]
- Improved compatibility with NVR
  - Applies to:
    - [v1.41.11 QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QND-6083R, QNO-6072R, QNV-6072R, QND-6072R, QND-6073R, QNV-6083R, QNV-6082R, QNO-6073R, QNV-6073R, QNO-6083R, QND-6082R, QND-6011, QND-6021]
    - [v1.41.04 QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]
    - [v1.41.12 QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QND-6083R, QNO-6072R, QNV-6072R, QND-6072R, QND-6073R, QNV-6083R, QNV-6082R, QNO-6073R, QNV-6073R, QNO-6083R, QND-6082R, QND-6011, QND-6021]
- Modified the firmware in accordance with the change of a real-time clock IC (RTC IC)
  - Applies to:
    - [v1.41.04, XNP-6320HG]

[v1.41.06, XNP-6320HG]

- Adjusted the RTP Payload buffer to improve compatibility with specific NVRs
  - Applies to:
    - [v1.41.02, QNV-6024RM, QNV-6023R]
    - [v1.41.11, LNO-6072R, LND-6012R, LNO-6032R, LNV-6032R, LND-6022R, LND-6072R, LNO-6022R, LNV-6012R, LNV-6072R, LND-6032R, LNV-6022R, LNO-6012R]
    - [v1.41.01, XNB-6000G01, XNP-6120HG]
    - [v1.41.02, XNP-6120HG]
    - [v1.41.02, KND-5080RG, XNO-6120RG]
    - [v1.41.03, XNP-6320RHG, XNO-L6120RG]
    - [v1.41.04, XNP-6320RHG]
    - [v1.41.04, XND-6080RG, XND-6080RG01, XNO-6080RG, XNO-6080RG01, XNO-6085RG, XNO-6085RG01]
    - [v1.41.06, XNO-6085RG]
    - [v1.41.05, XNP-6302HG, XNP-6371RHG01]
    - [v1.41.05, XNO-L6120RG]
    - [v1.41.07, XNO-6085RG]
- Supports two more types of lenses (THEIA-SL410P/SL1250P)
  - Applies to:
    - [v1.41.02, PNB-A9001]
- Fixed an issue that does not send metadata when BestShot is disabled
  - Applies to:
    - [v1.41.04, PNO-A9081R, PNB-A9001]
- [Handover] function added to [Object detection] settings
  - Applies to:
    - [v1.41.05, PNO-A9081R, PNB-A9001]
- [No. of people] and [Occupancy] parameters added to [Queue management] function
  - Applies to:
    - [v1.41.05, PNO-A9081R, PNB-A9001]
- The Open Platform API 'Upload File Data' and 'App Command 2' have been added, and the overall API execution speed has been improved
  - Applies to:
    - [v1.41.02, PNB-A9001LP, PNO-A9081RLP, PNV-A9081RLP]
- Fixed an error in the Open Platform API opensdk\_getMountSize when mounting ext4 format SD card

- Applies to:  
[v1.41.02, PNB-A9001LP, PNO-A9081RLP, PNV-A9081RLP]
- 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
- Applies to:  
[v1.41.05, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]  
[v1.41.12, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]  
[v1.41.13, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]  
[v1.41.05, QND-7082R, QNV-7082R, QND-7012R, QND-7022R, QNV-7022R, QNV-7032R, QND-7032R, QNO-7022R, QNV-7012R, QNO-7032R, QNO-7012R, QNO-7082R]  
[v1.41.05, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]  
[v1.41.05, QNV-6024RM, QNV-6023R]  
[v1.41.16, QNV-6024RM, QNV-6023R]  
[v1.41.05, QNB-8002]  
[v1.41.16, QNB-8002]  
[v1.41.05, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]  
[v1.41.16, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]
- Added option to grant user permission to access and set settings on [video profile], [Camera setup], and [video and focus setup] ([video setup] for models that do not support focus function) pages
- Applies to:  
[v1.41.05, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]  
[v1.41.12, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]  
[v1.41.13, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]  
[v1.41.05, QND-7082R, QNV-7082R, QND-7012R, QND-7022R, QNV-7022R, QNV-7032R,

QND-7032R, QNO-7022R, QNV-7012R, QNO-7032R, QNO-7012R, QNO-7082R]

[v1.41.05, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]

[v1.41.05, QNV-6024RM, QNV-6023R]

[v1.41.16, QNV-6024RM, QNV-6023R]

[v1.41.05, QNB-8002]

[v1.41.16, QNB-8002]

[v1.41.05, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]

[v1.41.16, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]

[v1.41.13, QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QNO-6072R, QND-6072R, QNV-6072R, QNV-6082R, QND-6082R, QND-6011, QND-6021]

- Fixed language error in Japanese version

- Applies to:

- [v1.41.05, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]

- [v1.41.14, QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QNO-6072R, QND-6072R, QNV-6072R, QNV-6082R, QND-6082R, QND-6011, QND-6021, QND-6073R, QND-6083R, QNO-6073R, QNO-6083R, QNV-6073R, QNV-6083R, AND-2010R, AND-2020R, KND-L2010R, KNO-L2022R]

- [v1.41.03, ANO-L6012R, ANO-L6022R, ANV-L6012R]

- [v1.41.16, ANO-L6012R, ANO-L6022R, ANV-L6012R]

- [v1.41.03, ANO-L7012R, ANO-L7022R, ANO-L7072R, ANV-L7012R, ANV-L7072R]

- [v1.41.03, ANE-L6012R, ANO-L6082R, ANV-L6082R]

- [v1.41.16, ANE-L6012R, ANO-L6082R, ANV-L6082R]

- [v1.41.03, ANE-L7012R, ANO-L7082R, ANV-L7082R]

- [v1.41.12, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]

- [v1.41.13, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]

- [v1.41.05, QND-7082R, QNV-7082R, QND-7012R, QND-7022R, QNV-7022R, QNV-7032R, QND-7032R, QNO-7022R, QNV-7012R, QNO-7032R, QNO-7012R, QNO-7082R]

- [v1.41.05, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]

- [v1.41.05, QNV-6024RM, QNV-6023R]

[v1.41.16, QNV-6024RM, QNV-6023R]

[v1.41.05, QNB-8002]

[v1.41.16, QNB-8002]

[v1.41.05, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]

[v1.41.16, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]

- Fixed an error where [Tampering detection] function did not operate after a certain time

- Applies to:

[v1.41.05, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]

[v1.41.14, QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QNO-6072R, QND-6072R, QNV-6072R, QNV-6082R, QND-6082R, QND-6011, QND-6021, QND-6073R, QND-6083R, QNO-6073R, QNO-6083R, QNV-6073R, QNV-6083R, AND-2010R, AND-2020R, KND-L2010R, KNO-L2022R]

[v1.41.03, ANO-L6012R, ANO-L6022R, ANV-L6012R]

[v1.41.16, ANO-L6012R, ANO-L6022R, ANV-L6012R]

[v1.41.03, ANO-L7012R, ANO-L7022R, ANO-L7072R, ANV-L7012R, ANV-L7072R]

[v1.41.03, ANE-L6012R, ANO-L6082R, ANV-L6082R]

[v1.41.16, ANE-L6012R, ANO-L6082R, ANV-L6082R]

[v1.41.03, ANE-L7012R, ANO-L7082R, ANV-L7082R]

[v1.41.12, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]

[v1.41.13, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]

[v1.41.05, QND-7082R, QNV-7082R, QND-7012R, QND-7022R, QNV-7022R, QNV-7032R, QND-7032R, QNO-7022R, QNV-7012R, QNO-7032R, QNO-7012R, QNO-7082R]

[v1.41.05, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]

[v1.41.05, QNV-6024RM, QNV-6023R]

[v1.41.16, QNV-6024RM, QNV-6023R]

[v1.41.05, QNB-8002]

[v1.41.16, QNB-8002]

[v1.41.05, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]



- [v1.41.16, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]
- Added the ability to set the minimum bitrate of a profile to 10 kbps
    - Applies to:
      - [v1.41.05, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]
      - [v1.41.14, QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QNO-6072R, QND-6072R, QNV-6072R, QNV-6082R, QND-6082R, QND-6011, QND-6021, QND-6073R, QND-6083R, QNO-6073R, QNO-6083R, QNV-6073R, QNV-6083R, AND-2010R, AND-2020R, KND-L2010R, KNO-L2022R]
      - [v1.41.03, ANO-L6012R, ANO-L6022R, ANV-L6012R]
      - [v1.41.16, ANO-L6012R, ANO-L6022R, ANV-L6012R]
      - [v1.41.03, ANO-L7012R, ANO-L7022R, ANO-L7072R, ANV-L7012R, ANV-L7072R]
      - [v1.41.03, ANE-L6012R, ANO-L6082R, ANV-L6082R]
      - [v1.41.16, ANE-L6012R, ANO-L6082R, ANV-L6082R]
      - [v1.41.03, ANE-L7012R, ANO-L7082R, ANV-L7082R]
      - [v1.41.12, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]
      - [v1.41.13, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]
      - [v1.41.05, QND-7082R, QNV-7082R, QND-7012R, QND-7022R, QNV-7022R, QNV-7032R, QND-7032R, QNO-7022R, QNV-7012R, QNO-7032R, QNO-7012R, QNO-7082R]
      - [v1.41.05, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]
      - [v1.41.05, QNV-6024RM, QNV-6023R]
      - [v1.41.16, QNV-6024RM, QNV-6023R]
      - [v1.41.05, QNB-8002]
      - [v1.41.16, QNB-8002]
      - [v1.41.05, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]
      - [v1.41.16, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]
  - Fixed an issue where the camera failed to reconnect to a NAS device after disconnecting from it. It now tries to reconnect every 30 seconds for 10 minutes and every 10 minutes

thereafter.

- Applies to:
  - [v1.41.06, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]
  - [v1.41.16, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]
  - [v1.41.06, QND-7082R, QNV-7082R, QND-7012R, QND-7022R, QNV-7022R, QNV-7032R, QND-7032R, QNO-7022R, QNV-7012R, QNO-7032R, QNO-7012R, QNO-7082R]
  - [v1.41.06, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021, QNO-8081R, QNV-8081R]
  - [v1.41.16, QND-8010R, QND-8020R, QND-8030R, QND-8080R, QNO-8010R, QNO-8020R, QNO-8030R, QNO-8080R, QNV-8010R, QNV-8020R, QNV-8030R, QNV-8080R, QNV-8081R, QNO-8081R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]
  - [v1.41.15, QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QNO-6072R, QND-6072R, QNV-6072R, QNV-6082R, QND-6082R, QND-6011, QND-6021, QND-6073R, QND-6083R, QNO-6073R, QNO-6083R, QNV-6073R, QNV-6083R, AND-2010R, AND-2020R, KND-L2010R, KNO-L2022R]
  - [v1.41.16, QND-6012R, QND-6022R, QND-6032R, QND-6072R, QND-6082R, QNO-6012R, QNO-6022R, QNO-6032R, QNO-6072R, QNO-6082R, QNV-6012R, QNV-6022R, QNV-6032R, QNV-6072R, QNV-6082R, QND-6011, QND-6021, QND-6073R, QND-6083R, QNO-6073R, QNO-6083R, QNV-6073R, QNV-6083R]
- Added the DLL auto-tune function to address the camera-rebooting issue caused by the fixed DLL value
  - Applies to:
    - [v1.41.07, QND-7082R, QNO-7082R, QNV-7082R, QND-7012R, QND-7022R, QND-7032R, QNO-7012R, QNO-7022R, QNO-7032R, QNV-7012R, QNV-7022R, QNV-7032R]
    - [v1.41.16, QND-7082R, QNO-7082R, QNV-7082R, QND-7012R, QND-7022R, QND-7032R, QNO-7012R, QNO-7022R, QNO-7032R, QNV-7012R, QNV-7022R, QNV-7032R]
    - [v1.41.04, ANO-L7012R, ANO-L7022R, ANO-L7072R, ANV-L7012R, ANV-L7072R]
    - [v1.41.16, ANO-L7012R, ANO-L7022R, ANO-L7072R, ANV-L7012R, ANV-L7072R]
    - [v1.41.04, ANE-L7012R, ANO-L7082R, ANV-L7082R]
    - [v1.41.16, ANE-L7012R, ANO-L7082R, ANV-L7082R]
    - [v1.41.18, ANE-L7012R, ANO-L7082R, ANV-L7082R]
- Improved functionality of the session timeout to obtain TTA security certification
  - Applies to:
    - [v1.41.06, XNO-6080RG01]
    - [v1.41.06, XND-6080RG01]

- [v1.41.07, XNO-6085RG01]
- [v1.41.10, XNP-6371RHG01]
- [v1.41.07, XND-6080RG01]
- [v1.41.07, XNO-6080RG01]
- [v1.41.10, XNO-6085RG01]
- [v1.41.11, XNP-6371RHG01]
- Upgraded to the latest firmware
  - Applies to:  
[v1.41.17, QNB-8002]
- Upgraded to the latest firmware. You cannot downgrade to a firmware lower than the following firmware, respectively.
  - QNO6082R\_WW\_ALL: 1.41.12\_20211026\_R286
  - QNO6082R1\_WW\_ALL: 1.41.01\_20211012\_R19
  - QNO7082R\_WW\_ALL: 1.41.02\_210907\_R102
  - QNO6084R\_WW\_ALL: 1.41.01\_20210907\_R81
  - Applies to:  
[v1.41.17, QND-6012R, QND-6022R, QND-6032R, QNO-6012R, QNO-6022R, QNO-6032R, QNV-6012R, QNV-6022R, QNV-6032R, QNO-6072R, QNO-6082R, QNO-6082R, QNO-6083R, QND-6072R, QND-6082R, QND-6082R, QND-6083R, QNV-6072R, QNV-6082R, QNV-6082R, QNV-6083R, QND-6011, QND-6021]  
[v1.41.17, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]  
[v1.41.17, QND-7012R, QND-7022R, QND-7032R, QND-7082R, QNO-7012R, QNO-7022R, QNO-7032R, QNO-7082R, QNV-7012R, QNV-7022R, QNV-7032R, QNV-7082R]  
[v1.41.17, QNO-6014R, QNO-6084R, QNV-6014R, QNV-6084R]

## [Bug fixes]

- Fixes a problem that occurs when the camera integrates with Retail Insight.
  - Applies to:  
[v1.41.00 QNO-6072R, QNO-6073R, QNO-6082R, QNO-6083R, QND-6072R, QND-6073R, QND-6082R, QND-6083R, QNV-6072R, QNV-6073R, QNV-6082R, QNV-6083R, QND-6012R, QND-6022R, QND-6032R, QNO-6012R, QNO-6022R, QNO-6032R, QNV-6012R, QNV-6022R, QNV-6032R, QND-6011, QND-6021, QNO-8010R, QNO-8020R, QNO-8030R, QNO-8080R, QNV-8010R, QNV-8020R, QNV-8030R, QNV-8080R, QND-

8010R, QND-8020R, QND-8030R, QND-8080R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]

- Fixed an error where the pan does not reset when the pan is driven more than 3,000 times in one direction and out of step.
  - Applies to:  
[v1.41.01 QNP-6230RH]
- Fixed an issue where the size of the object is not set in the motion detection when [Hallway view] is set to [90] or [270].
  - Applies to:  
[v1.41.01, TNO-3030T]
- Improved the camera booting issue incurred by memory leak
  - Applies to:  
[v1.41.02, XNO-L6085RA, XNO-6085RA]
- Improved the issue of camera failing to boot due to Gyro sensor recognition error
  - Applies to:  
[v1.41.02, XNO-6085RA]
- Fixed the problem that if a smart codec is set while a profile that does not support smart codec is being played, the smart codec setting is applied even to a profile that does not support smart codec
  - Applies to:  
[v1.41.11 QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QND-6083R, QNO-6072R, QNV-6072R, QND-6072R, QND-6073R, QNV-6083R, QNV-6082R, QNO-6073R, QNV-6073R, QNO-6083R, QND-6082R, QND-6011, QND-6021]  
[v1.41.04 QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]  
[v1.41.12 QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QND-6083R, QNO-6072R, QNV-6072R, QND-6072R, QND-6073R, QNV-6083R, QNV-6082R, QNO-6073R, QNV-6073R, QNO-6083R, QND-6082R, QND-6011, QND-6021]
- Fixed issue of IR setting option not being visible on the camera setting menu
  - Applies to:  
[v1.41.02, XNO-L6120RG]
- Fixed the problem that the Wisenet logo and online help icon were not visible in the camera

web viewer

- Applies to:
  - [v1.41.05, XND-6080RG, XNO-6080RG, XNO-6085RG]
  - [v1.41.06, XND-6080RG]
  - [v1.41.06, XNO-6080RG]
- Fixed timestamp errors
  - Applies to:
    - [v1.41.01, PNB-A9001LP]
    - [v1.41.01, PNO-A9081RLP, PNV-A9081RLP, PND-A9081RLP, PND-A9081RVLP, PND-A9081RFLP]
- 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
  - Applies to:
    - [v1.41.03, QNO-7082R]
    - [v1.41.02, QNO-6084R]
    - [v1.41.13, QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QNO-6072R, QND-6072R, QNV-6072R, QNV-6082R, QND-6082R, QND-6011, QND-6021]
- Fixed an issue that, when [video Rotation]'s [Hallway View] option is set to [90°] or [270°] and one of the [Flip] or [Mirror] options had been applied, the [Overlay] which displays the locations detected in IVA malfunctions.
  - Applies to:
    - [v1.41.01, ANO-L7012R, ANO-L7022R, ANV-L7012R]
    - [v1.41.01, ANE-L7012R, ANO-L7082R, ANV-L7012R]

**Note:** On the ANO-L7012R, ANO-L7022R, and ANV-L7012R models, be sure to reset [Image preset mode] on the [Camera setup] page or perform a factory reset on the [Upgrade/Restart] page after upgrading from version 1.41.00 to another version.
- Corrected an issue where firmware issued after 2022 did not upgrade properly
  - Applies to:
    - [v1.41.07, XNF-8010R (for Wells Fargo)]
- Corrected an issue where the [Motion detection] feature did not work
  - Applies to:
    - [v1.41.07, XNF-8010R (for Wells Fargo)]
- Corrected an issue where the Wisenet Road AI application failed to transfer the vehicle image (BestShot) to the VMS after detecting vehicles and triggering an event

- Applies to:  
[v1.41.03, PNB-A9001LP, PNO-A9081RLP, PNV-A9081RLP]
- Fixed an issue where the Factory Reset button was not working correctly
- Applies to:  
[v1.41.18, QND-6012R, QND-6022R, QND-6032R, QND-6072R, QND-6082R, QNO-6012R, QNO-6022R, QNO-6032R, QNO-6072R, QNO-6082R, QNV-6012R, QNV-6022R, QNV-6032R, QNV-6072R, QNV-6082R, QND-6011, QND-6021, QND-6073R, QND-6083R, QNO-6073R, QNO-6083R, QNV-6073R, QNV-6083R]  
  
[v1.41.18, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]  
  
[v1.41.18, QND-7082R, QNV-7082, QNO-7082, QND-7012, QND-7022, QNV-7022, QNV-7032, QND-7032, QNO-7022, QNV-7012, QNO-7032, QNO-7012R]  
  
[v1.41.01, ANE-L8082R]

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## Security Improvements

- Applied the X Series 1.4 software patch for security enhancement.
- Applies to:  
[v1.41.00 QNO-8010R, QNO-8020R, QNO-8030R, QNO-8080R, QNV-8010R, QNV-8020R, QNV-8030R, QNV-8080R, QND-8010R, QND-8020R, QND-8030R, QND-8080R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]
- Added a function to control Pan and Tilt individually in [Setup] > [video & Audio] > [PTRZ Setup].
- Added a function to configure the administrator account ID (admin).
- Added a function to configure the MTU (Maximum Transmission Unit) size between 1,280 and 1,500 in [Setup] > [Basic] > [IP & Port] > [IP address].
- Added the [Change host name] option to use the Common Name of a unique certificate instead of the host name of the camera, when the secure connection system is to HTTPS (Secure connection mode using a unique certificate).
- Improved motion detection algorithm to increase the detection rate of recognize objects.
- Changed the Moscow time zone from UTC+4 to UTC+3.
- Allowed to use special characters (spaces # \* + - / ( ) \_ ,) for the camera OSD title in [Setup] > [video & Audio] > [Camera Settings] > [OSD].
- Supported for using TL-WN823N (v2, v3) as a Wi-Fi dongle.

- Fixed an issue where the system restarts intermittently more than 49 days after starting the camera system.
- Added function to send email about the account lockout event to administrators if login fails more than 5 consecutive times (SMTP email must be enabled).
  - Applies to:  
[v1.41.03, PNM-9030V]
- Added encryption function to use SD card after authentication with password when saving video to SD card.
  - Applies to:  
[v1.41.05, PNM-9030V]
- Applied X series 3rd and 4th changes
  - Applies to:  
[v1.41.02, PNO-A9081R, PND-A9081RV, PND-A9081RF, PNV-A9081R, PNB-A9001]
- Saves sensitive information (password) in plain text
- Executes system command using SNMP setup logic
- Uses a low version of the net-snmp open source
- Cannot enter snmp community string special characters
- Uses the 3DES Cipher suite during the communication through TLS encryption
- Added the ability to use HTTP and HTTPS at the same time
  - Applies to:  
[v1.41.05, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]  
[v1.41.14, QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QNO-6072R, QND-6072R, QNV-6072R, QNV-6082R, QND-6082R, QND-6011, QND-6021, QND-6073R, QND-6083R, QNO-6073R, QNO-6083R, QNV-6073R, QNV-6083R, AND-2010R, AND-2020R, KND-L2010R, KNO-L2022R]  
[v1.41.03, ANO-L6012R, ANO-L6022R, ANV-L6012R]  
[v1.41.16, ANO-L6012R, ANO-L6022R, ANV-L6012R]  
[v1.41.03, ANO-L7012R, ANO-L7022R, ANO-L7072R, ANV-L7012R, ANV-L7072R]  
[v1.41.03, ANE-L6012R, ANO-L6082R, ANV-L6082R]  
[v1.41.16, ANE-L6012R, ANO-L6082R, ANV-L6082R]  
[v1.41.03, ANE-L7012R, ANO-L7082R, ANV-L7082R]

[v1.41.12, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]  
 [v1.41.13, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]  
 [v1.41.05, QND-7082R, QNV-7082R, QND-7012R, QND-7022R, QNV-7022R, QNV-7032R, QND-7032R, QNO-7022R, QNV-7012R, QNO-7032R, QNO-7012R, QNO-7082R]  
 [v1.41.05, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]  
 [v1.41.05, QNV-6024RM, QNV-6023R]  
 [v1.41.16, QNV-6024RM, QNV-6023R]  
 [v1.41.05, QNB-8002]  
 [v1.41.16, QNB-8002]  
 [v1.41.05, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]  
 [v1.41.16, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]

- Fixed an error where the SNMP port opened while SNMP did not operate

- Applies to:

[v1.41.05, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]  
 [v1.41.14, QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QNO-6072R, QND-6072R, QNV-6072R, QNV-6082R, QND-6082R, QND-6011, QND-6021, QND-6073R, QND-6083R, QNO-6073R, QNO-6083R, QNV-6073R, QNV-6083R, AND-2010R, AND-2020R, KND-L2010R, KNO-L2022R]  
 [v1.41.03, ANO-L6012R, ANO-L6022R, ANV-L6012R]  
 [v1.41.16, ANO-L6012R, ANO-L6022R, ANV-L6012R]  
 [v1.41.03, ANO-L7012R, ANO-L7022R, ANO-L7072R, ANV-L7012R, ANV-L7072R]  
 [v1.41.03, ANE-L6012R, ANO-L6082R, ANV-L6082R]  
 [v1.41.16, ANE-L6012R, ANO-L6082R, ANV-L6082R]  
 [v1.41.03, ANE-L7012R, ANO-L7082R, ANV-L7082R]  
 [v1.41.12, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]  
 [v1.41.13, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]  
 [v1.41.05, QND-7082R, QNV-7082R, QND-7012R, QND-7022R, QNV-7022R, QNV-7032R, QND-7032R, QNO-7022R, QNV-7012R, QNO-7032R, QNO-7012R, QNO-7082R]



- [v1.41.05, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]
- [v1.41.05, QNV-6024RM, QNV-6023R]
- [v1.41.16, QNV-6024RM, QNV-6023R]
- [v1.41.05, QNB-8002]
- [v1.41.16, QNB-8002]
- [v1.41.05, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]
- [v1.41.16, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]
- Fixed an error where commands operate with a modified packet
  - Applies to:
    - [v1.41.05, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]
    - [v1.41.14, QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QNO-6072R, QND-6072R, QNV-6072R, QNV-6082R, QND-6082R, QND-6011, QND-6021, QND-6073R, QND-6083R, QNO-6073R, QNO-6083R, QNV-6073R, QNV-6083R, AND-2010R, AND-2020R, KND-L2010R, KNO-L2022R]
    - [v1.41.03, ANO-L6012R, ANO-L6022R, ANV-L6012R]
    - [v1.41.16, ANO-L6012R, ANO-L6022R, ANV-L6012R]
    - [v1.41.03, ANO-L7012R, ANO-L7022R, ANO-L7072R, ANV-L7012R, ANV-L7072R]
    - [v1.41.03, ANE-L6012R, ANO-L6082R, ANV-L6082R]
    - [v1.41.16, ANE-L6012R, ANO-L6082R, ANV-L6082R]
    - [v1.41.03, ANE-L7012R, ANO-L7082R, ANV-L7082R]
    - [v1.41.12, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]
    - [v1.41.13, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]
    - [v1.41.05, QND-7082R, QNV-7082R, QND-7012R, QND-7022R, QNV-7022R, QNV-7032R, QND-7032R, QNO-7022R, QNV-7012R, QNO-7032R, QNO-7012R, QNO-7082R]
    - [v1.41.05, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]
    - [v1.41.05, QNV-6024RM, QNV-6023R]
    - [v1.41.16, QNV-6024RM, QNV-6023R]
    - [v1.41.05, QNB-8002]
    - [v1.41.16, QNB-8002]
    - [v1.41.05, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-

6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]

[v1.41.16, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]

- Fixed an error where ONVIF discovery communication was not available between a camera and Wisenet Device Manager in a certain circumstance

- Applies to:

[v1.41.05, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]

[v1.41.14, QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QNO-6072R, QND-6072R, QNV-6072R, QNV-6082R, QND-6082R, QND-6011, QND-6021, QND-6073R, QND-6083R, QNO-6073R, QNO-6083R, QNV-6073R, QNV-6083R, AND-2010R, AND-2020R, KND-L2010R, KNO-L2022R]

[v1.41.03, ANO-L6012R, ANO-L6022R, ANV-L6012R]

[v1.41.16, ANO-L6012R, ANO-L6022R, ANV-L6012R]

[v1.41.03, ANO-L7012R, ANO-L7022R, ANO-L7072R, ANV-L7012R, ANV-L7072R]

[v1.41.03, ANE-L6012R, ANO-L6082R, ANV-L6082R]

[v1.41.16, ANE-L6012R, ANO-L6082R, ANV-L6082R]

[v1.41.03, ANE-L7012R, ANO-L7082R, ANV-L7082R]

[v1.41.12, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]

[v1.41.13, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]

[v1.41.05, QND-7082R, QNV-7082R, QND-7012R, QND-7022R, QNV-7022R, QNV-7032R, QND-7032R, QNO-7022R, QNV-7012R, QNO-7032R, QNO-7012R, QNO-7082R]

[v1.41.05, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]

[v1.41.05, QNV-6024RM, QNV-6023R]

[v1.41.16, QNV-6024RM, QNV-6023R]

[v1.41.05, QNB-8002]

[v1.41.16, QNB-8002]

[v1.41.05, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]

[v1.41.16, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-

6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]

- Removed unnecessary PHP scripts

- Applies to:

- [v1.41.05, QNO-8080R, QNV-8010R, QNO-8010R, QNV-8020R, QND-8020R, QND-8010R, QND-8030R, QNV-8030R, QNO-8020R, QNV-8080R, QND-8080R, QNO-8030R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]

- [v1.41.14, QND-6012R, QNO-6012R, QNV-6032R, QND-6022R, QNV-6012R, QND-6032R, QNO-6022R, QNO-6032R, QNV-6022R, QNO-6082R, QNO-6072R, QND-6072R, QNV-6072R, QNV-6082R, QND-6082R, QND-6011, QND-6021, QND-6073R, QND-6083R, QNO-6073R, QNO-6083R, QNV-6073R, QNV-6083R, AND-2010R, AND-2020R, KND-L2010R, KNO-L2022R]

- [v1.41.03, ANO-L6012R, ANO-L6022R, ANV-L6012R]

- [v1.41.16, ANO-L6012R, ANO-L6022R, ANV-L6012R]

- [v1.41.03, ANO-L7012R, ANO-L7022R, ANO-L7072R, ANV-L7012R, ANV-L7072R]

- [v1.41.03, ANE-L6012R, ANO-L6082R, ANV-L6082R]

- [v1.41.16, ANE-L6012R, ANO-L6082R, ANV-L6082R]

- [v1.41.03, ANE-L7012R, ANO-L7082R, ANV-L7082R]

- [v1.41.12, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]

- [v1.41.13, LND-6012R, LND-6022R, LND-6032R, LND-6072R, LNV-6012R, LNV-6022R, LNV-6032R, LNV-6072R, LNO-6012R, LNO-6022R, LNO-6032R, LNO-6072R]

- [v1.41.05, QND-7082R, QNV-7082R, QND-7012R, QND-7022R, QNV-7022R, QNV-7032R, QND-7032R, QNO-7022R, QNV-7012R, QNO-7032R, QNO-7012R, QNO-7082R]

- [v1.41.05, QNV-6014R, QNV-6084R, QNO-6014R, QNO-6084R]

- [v1.41.05, QNV-6024RM, QNV-6023R]

- [v1.41.16, QNV-6024RM, QNV-6023R]

- [v1.41.05, QNB-8002]

- [v1.41.16, QNB-8002]

- [v1.41.05, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]

- [v1.41.16, QND-6012R1, QND-6022R1, QND-6032R1, QND-6072R1, QND-6082R1, QNO-6012R1, QNO-6022R1, QNO-6032R1, QNO-6072R1, QNO-6082R1, QNV-6012R1, QNV-6022R1, QNV-6032R1, QNV-6072R1, QNV-6082R1]

## Protocol Improvements

- Supports ONVIF Profile T (with ONVIF protocol to delete the default video profile).
  - Applies to:  
[v1.41.03, PNM-9030V]

## Open Platform Version 3.52 Patch

- Added NUC Active state event for Thermal cameras (The version 3.52 patch file should be installed in the Open Platform SDK with the 3.52 version installed.).
  - Applies to:  
[v1.41.02, TNO-3010T, TNO-3020T, TNO-3030T]

## Affected Products

Table 12. Product Family Based On Version 1.41

Major Model	Model Name
XNP-6320RH	QNP-6230RH
TNO-3030T	TNO-3030T TNO-3020T TNO-3010T
QNO-6082R	QNO-6072R QNO-6073R QNO-6082R QNO-6083R QND-6072R QND-6073R QND-6082R QND-6083R QNV-6072R QNV-6073R QNV-6082R QNV-6083R QND-6012R QND-6022R

Major Model	Model Name
	QND-6032R QNO-6012R QNO-6022R QNO-6032R QNV-6012R QNV-6022R QNV-6032R QND-6011 QND-6021 AND-2010R AND-2020R KND-L2010R KNO-L2022R
QNO-8080R	QNO-8010R QNO-8020R QNO-8030R QNO-8080R QNV-8010R QNV-8020R QNV-8030R QNV-8080R QND-8010R QND-8020R QND-8030R QND-8080R QNE-8011R QNE-8021R QND-8011 QND-8021 QNO-8081R QNV-8081R
LNO-6072R	LNO-6072R LND-6012R LNO-6032R LNV-6032R LND-6022R LND-6072R LNO-6022R

Major Model	Model Name
	LNV-6012R LNV-6072R LND-6032R LNV-6022R LNO-6012R
PNM-9030V	PNM-9030V
TNB-9000	TNB-9000
QNB-8002	QNB-8002
XNO-L6085R	XNO-L6085R
XNO-L6085RA	XNO-L6085RA
XNO-6085RA	XNO-6085RA
XND-6081REV	XND-6081REV
XND-8081REV	XND-8081REV
XNP-6320HG	XNP-6320HG
XNP-6320RHG	XNP-6320RHG
XNP-6371RHG01	XNP-6371RHG01
QNV-6025RM	QNV-6025RM
XNP-6341RH	XNP-6341RH
XNO-L6120RG	XNO-L6120RG
QNV-6024RM	QNV-6024RM QNV-6023R
XNB-6000G01	XNB-6000G01
XNP-6120HG	XNP-6120HG
KND-5080RG	KND-5080RG
XNO-6120RG	XNO-6120RG
XNO-L6120RG	XNO-L6120RG
XND-6080RG	XND-6080RG
XND-6080RG01	XND-6080RG01
XNO-6080RG	XNO-6080RG
XNO-6080RG01	XNO-6080RG01
XNO-6085RG	XNO-6085RG
XNO-6085RG01	XNO-6085RG01
XNP-6302HG	XNP-6302HG
XNP-6371RHG01	XNP-6371RHG01
PNO-A9081R	PNO-A9081R PND-A9081RV PND-A9081RF

Major Model	Model Name
	PNV-A9081R PNB-A9001
PNO-A9081RLP	PNO-A9081RLP PNV-A9081RLP PND-A9081RLP PND-A9081RVLP PND-A9081RFLP
PNB-A9001LP	PNB-A9001LP
QNO-7082R	QNO-7082R QND-7082R QNV-7082R QND-7012R QND-7022R QNV-7022R QNV-7032R QND-7032R QNO-7022R QNV-7012R QNO-7032R QNO-7012R
QNO-6084R	QNO-6084R QNV-6014R QNV-6084R QNO-6014R
ANO-L6012R	ANO-L6012R ANO-L6022R ANV-L6012R
ANO-L7012R	ANO-L7012R ANO-L7022R ANO-L7072R ANV-L7012R ANV-L7072R
ANO-L6082R	ANE-L6012R ANO-L6082R ANV-L6082R
ANO-L7082R	ANE-L7012R ANO-L7082R

Major Model	Model Name
	ANV-L7082R
QNO-6082R1	QND-6012R1 QND-6022R1 QND-6032R1 QND-6072R1 QND-6082R1 QNO-6012R1 QNO-6022R1 QNO-6032R1 QNO-6072R1 QNO-6082R1 QNV-6012R1 QNV-6022R1 QNV-6032R1 QNV-6072R1 QNV-6082R1
QNB-7002	QNB-7002
KNV-K7012R	KNV-K7012R
KNO-K7012R	KNO-K7012R



# Network Camera Version 1.40

This document describes the new and changed features of Hanwha Vision network camera version 1.40.

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## Common Features

### [New Features]

- Added a function to control Pan and Tilt individually in [Setup] > [video & Audio] > [PTRZ Setup].
- Added a function to configure the administrator account ID (admin).
- Added a function to configure the MTU (Maximum Transmission Unit) size between 1,280 and 1,500 in [Setup] > [Basic] > [IP & Port] > [IP address].
- Added a [Set pan ground position] function to set the current pan angle to zero degrees in [Setup] > [PTZ] > [PT limit].
  - Applies to:  
[v1.40.00, XNP-6120H, XNP-6371RH, XNP-6550RH, XNP-6320, XNP-6320H, XNP-6320HS, XNP-6320RH, XNP-6250RH]  
[v1.40.04, XNP-6321, XNP-6321H]
- Added a [Location setup] function that enables you to set to display direction information on the camera video.
  - Applies to:  
[v1.40.00, XNP-6120H, XNP-6040H, XNP-6371RH, XNP-6550RH, XNP-6320, XNP-6320H, XNP-6320HS, XNP-6320RH, XNP-6250RH]  
[v1.40.04, XNP-6321, XNP-6321H]
- Added an overlay option to display azimuth over the camera images in [Setup] > [video & Audio] > [Camera Settings] > [OSD]. (PTZ cameras)
- Added a function to set up a trace using a preset already specified in [Setup] > [PTZ] > [PTZ setup] > [Trace]. (PTZ cameras)
- Added the [Change host name] option to use the Common Name of a unique certificate instead of the host name of the camera, when the secure connection system is to HTTPS (Secure connection mode using a unique certificate).

- Added the [Event activation time] function so that the people counting events are only received on a specific schedule in [Setup] > [Statistics] > [People counting] > [Setup]. (People counting supported cameras)
- Added a Rainbow 2 mode to the color palette. (Add purple to existing Rainbow mode) [v1.40.02]
- Supports Open Platform event: NUC Active state
  - Applies to:  
[v1.40.05 TNO-4030T, TNO-4040T, TNO-4041T, TNO-4050T, TNO-4051T, TNU-4041T, TNU-4051T]  
[v1.40.05, TNO-4030TR, TNO-4040TR, TNO-4041TR]
- Added a slide show function, which plays a slide show on the monitor screen
  - Applies to:  
[v1.40.03, TNB-6030]
- Enabled the [CVBS] option in the camera Web viewer
  - Applies to:  
[v1.40.04, XNV-8081R, XND-8081RV, XND-8081RF]
- Default value of [Face detection] is set to off
  - Applies to:  
[v1.40.05, TNB-6030, TNB-6031]
- Default value of [OSD] is set to off
  - Applies to:  
[v1.40.05, TNB-6030, TNB-6031]
- Changed to the FE binary where Onsemi motor driver IC was replaced with VM107 due to the discontinuation of the driver IC
  - Applies to:  
[v1.40.04, XNV-6080RG]  
[v1.40.04, XNV-6080RG]
- Impossible to downgrade the firmware using VM107 to the earlier firmware using the Onsemi motor driver IC
  - Applies to:  
[v1.40.04, XNV-6080RG]
- Resolved the iris adjustment and flicker issues that arose following the application of VM107
  - Applies to:

[v1.40.04, XNV-6080RG]

### [Improvements]

- Improved motion detection algorithm to increase the detection rate of recognized objects.
- Changed the Moscow time zone from UTC+4 to UTC+3.
- Allowed to use special characters (spaces # \* + - / ( ) \_ ,) for the camera OSD title in [Setup] > [video & Audio] > [Camera Settings] > [OSD].
- Supported for using TL-WN823N (v2, v3) as a Wi-Fi dongle.
- Increased the maximum number of multicast connections from 20 to 128. (PTZ cameras)
- Increased the maximum number of privacy areas from 24 to 32. (PTZ cameras)
- Changed the default WDR level for WDR mode from Medium to High. [v1.40.02]
- Improved auto-correction algorithms so that normal lines on objects captured by the camera are not regarded as defective lines.
  - Applies to:  
[v1.40.03 TNO-4030T, TNO-4040T, TNO-4041T, TNO-4050T, TNO-4051T, TNU-4041T, TNU-4051T]  
[v1.40.03, TNO-4030TR, TNO-4040TR, TNO-4041TR]
- Modified the distance range of auto focus in [Quick Focus] mode
  - Applies to:  
[v1.40.03, XNO-L6080R, XNV-L6080, XNV-L6080R, XND-L6080V, XND-L6080R, XND-L6080RV, XNO-L6080RA, XNV-L6080A, XNV-L6080RA, XND-L6080VA, XND-L6080RVA]
- Supports the original image of Open Platform in the Hallway view mode
  - Applies to:  
[v1.40.05 TNO-4030T, TNO-4040T, TNO-4041T, TNO-4050T, TNO-4051T, TNU-4041T, TNU-4051T]  
[v1.40.05, TNO-4030TR, TNO-4040TR, TNO-4041TR]
- Fixed an issue where focus was lost when restoring settings using the setting backup file of a camera of the same model
  - Applies to:  
[v1.40.03 XNO-6080R, XNB-6000, XND-6080, XND-6080R, XNV-6080, XNV-6080R, XND-6080V, XND-6080R, XNF-8010R, XNF-8010RV, XNF-8010RVM]
- Fixed an issue where the F-number value changed when simple focus was activated after setting the F-number in Iris manual mode

- Applies to:  
[v1.40.03 XNO-6080R, XNB-6000, XND-6080, XND-6080R, XNV-6080, XNV-6080R, XND-6080V, XND-6080RV]
- Fixed a case where no sound may be heard when setting ANR (audio noise reduction)
- Applies to:  
[v1.40.04, XNV-6080, XNV-6080R, XND-6080, XND-6080R, XND-6080V, XND-6080RV, XNF-8010R, XNF-8010RV, XNF-8010RVM]
- Modified the firmware in accordance with the change of Gyro sensor module
- Applies to:  
[v1.40.03, XND-6081RV, XND-8081RV, TNV-7010RC, XNZ-6320, XNP-6120H, XNP-6550RH, XNP-6371RH, XNP-6320, XNP-6320RH, XNP-6320RH, XNP-6250RH, XND-6085]
- Enhanced the stability of open application
- Applies to:  
[v1.40.04, XNB-6000, XNO-6080R]  
[v1.40.03, XNB-6005, XNO-6085R, XNB-8000, XNO-8080R]
- Supports ONVIF Test Tool v20.06
- Applies to:  
[v1.40.02, XNP-6040HG]  
[v1.40.04, XNP-6040HG]  
[v1.41.05, XNP-6040HG]
- Modified the firmware in accordance with the change of a real-time clock IC (RTC IC)
- Applies to:  
[v1.40.05, QNP-6230, XNP-6321H, QNP-6230H, XNP-6320H, XNP-6320, XNP-6321, XNP-6320HS]
- Adjusted the RTP Payload buffer to improve compatibility with specific NVRs
- Applies to:  
[v1.40.02, XNV-6080RG]  
[v1.40.03, XNP-6040HG]  
[v1.40.03, XNV-6080RG]

### [Bug fixes]

- Fixed an issue where the system restarts intermittently more than 49 days after starting the camera system.
- Fixed an issue where the camera system restarts intermittently when installing certificates in

[HTTPS] or [802.1x]. [v1.40.02]

- Fixed an issue where the detected face area is not displayed in the video when a face detection event occurs. [v1.40.02]
- Fixed an issue where the alarm inputs do not work properly when setting multiple alarm inputs. [v1.40.02]
- Fixed an issue where fast-forward and fast-backward do not work properly when playing video recorded with MJPEG on the web viewer. [v1.40.02]
- Fixed an issue where the size of the object is not set in the motion detection when [Hallway view] is set to [90] or [270].
  - Applies to:  
[v1.40.04, TNO-4050T, TNO-4040TR, TNU-4051T]
- Fixed an issue where the detected area was not displayed in HDMI video when detecting a face after power was supplied for the first time.
  - Applies to:  
[v1.40.04, TNB-6030]
- Fixed an issue where the lens did not return to its previous position intermittently after initializing the lens.
  - Applies to:  
[v1.40.03, XNP-6320RH, XNP-6250RH]
- Fixed issue of IR setting option not being visible on the camera setting menu
  - Applies to:  
[v1.40.05, XNO-L6120R]
- Fixed issue of moving to PTZ preset location and moving to home functions when PTZ is in motion.
  - Applies to:  
[v1.40.05, XNO-L6120R]

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## Security Improvements

- Revised security vulnerability by filtering special characters. [v1.40.02]

## Open Platform Version 3.52 Patch

- Added NUC Active state event for Thermal cameras (The version 3.52 patch file should be installed in the Open Platform SDK with the 3.52 version installed.).
- Applies to:  
 [v1.40.05 TNO-4030T, TNO-4040T, TNO-4041T, TNO-4050T, TNO-4051T, TNU-4041T, TNU-4051T]  
 [v1.40.05, TNO-4030TR, TNO-4040TR, TNO-4041TR]

## Affected Products

Table 13. Product Family Based On Version 1.40

Major Model	Model Name
XNB-6000	XNB-6000 KNB-2000
XNB-6001	XNB-6001
XNB-6005	XNB-6005
XNB-8000	XNB-8000 KNB-5000N
XND-6010	XND-6010
XND-6011F	XND-6011F
XND-6020	KND-2020RN
XND-6020R	XND-6020R
XND-6080	XND-6080 XND-K6080N
XND-6080R	XND-6080R KND-2080RN
XND-6080RV	XND-6080RV
XND-6080V	XND-6080V
XND-6081RV	XND-6081V XND-6081RV XNV-6081 XNV-6081R XND-6081RF XND-6081F
XND-6085	XND-6085

Major Model	Model Name
XND-6085V	XND-6085V
XND-8020F	XND-8020F
XND-8020R	KND-5020RN XND-8020R XND-8020RW
XND-8030R	XND-8030R
XND-8040R	XND-8040R
XND-8080R	KND-5080RN XND-8080R XND-8080RW
XND-8080RV	XND-8080RV
XND-8081RV	XND-8081RV XNV-8081R XNV-8081 XND-8081RF
XND-L6020R	XND-L6020R
XND-L6080R	XND-L6080R
XND-L6080RV	XND-L6080RV
XND-L6080V	XND-L6080V
XNF-8010R	XNF-8010R XNF-8010RW
XNF-8010RV	XNF-8010RV XNF-8010RVW
XNF-8010RVM	XNF-8010RVM
XNO-6010R	XNO-6010R KNO-2010RN
XNO-6120R	XNO-6020R KNO-2120RN
XNO-6080R	XNO-6080R XNO-6080RA KNO-2080RN
XNO-6080RS	XNO-6080RS
XNO-6085R	XNO-6085R
XNO-6120R	XNO-6120R KNO-2120RN
XNO-6120RS	XNO-6120RS
XNO-8020R	XNO-8020R

Major Model	Model Name
	KNO-5020RN
XNO-8030R	XNO-8030R
XNO-8040R	XNO-8040R
XNO-8080R	XNO-8080R XNO-8080RW KNO-5080RN
XNO-L6020R	XNO-L6020R
XNO-L6120R	XNO-L6120R
XNP-6040H	XNP-6040H
XNP-6120H	XNP-6120H KNP-2120HN
XNP-6320	XNP-6320 QNP-6230 QNP-6230H XNP-6321 XNP-6321H
XNP-6320H	XNP-6320H
XNP-6320HS	XNP-6320HS
XNP-6320RH	XNP-6320RH XNP-6250RH
XNP-6371RH	XNP-6371RH
XNP-6550RH	XNP-6550RH
XNV-6010	XNV-6010
XNV-6011	XNV-6011 XNV-6011W
XNV-6012	XNV-6012
XNV-6012M	XNV-6012M
XNV-6013M	XNV-6013M
XNV-6020R	XNV-6020R
XNV-6022R	XNV-6022R
XNV-6022RM	XNV-6022RM
XNV-6080	XNV-6080
XNV-6080R	XNV-6080R
XNV-6080RS	XNV-6080RS
XNV-6081Z	XNV-6081Z XND-6081VZ XND-6081FZ



Major Model	Model Name
XNV-6085	XNV-6085
XNV-6120	XNV-6120
XNV-6120R	XNV-6120R
XNV-6120RS	XNV-6120RS
XNV-8020R	XNV-8020R
XNV-8020RM	XNV-8020RMN XNV-8020RMP
XNV-8030R	XNV-8030R
XNV-8040R	XNV-8040R
XNV-8080R	XNV-8080R XNV-8080RW
XNV-8080RS	XNV-8080RS
XNV-8081Z	XNV-8081Z XND-8081VZ XND-8081FZ
XNV-L6080	XNV-L6080 XNO-L6080R
XNV-L6080A	XNO-L6080RA XND-L6080RVA XNV-L6080RA XND-L6080VA XNV-L6080A
XNV-L6080R	XNV-L6080R
XNZ-6320	XNZ-6320
TNV-7010RC	TNV-7010RC
TNB-6030	TNB-6030 TNB-6031
TNO-6010M	TNO-6010M
TNO-4050T	TNO-4030T TNO-4040T TNO-4050T TNO-4041T TNO-4051T
TNO-4040TR	TNO-4030TR TNO-4040TR TNO-4041TR
TNU-4051T	TNU-4041T

Major Model	Model Name
	TNU-4051T
XNP-6040HG	XNP-6040HG
XNO-L6120RG	XNO-L6120RG
XNV-6080RG	XNV-6080RG
XNP-6040HG	XNP-6040HG

# Network Camera Version 1.31

This document describes the new and changed features of Hanwha Vision network camera version 1.31

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## Common Features

### [Improvements]

- Improved functionality of the session timeout to obtain TTA security certification  
[v1.31.02, KNP-2550RHG01]  
[v1.31.04, KNP-2550RHG01]  
[v1.31.02, KNP-2550RHG]  
[v1.31.03, KNP-2550RHG]

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## Affected Products

Table 14. Product Family Based On Version 1.31

Major Model	Model Name
XNP-6550RHG	KNP-2550RHG01 KNP-2550RHG

# Network Camera Version 1.30

This document describes the new and changed features of Hanwha Vision network camera version 1.30.

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## Caution

- Please note that you need to follow the steps below when you upgrade to 1.30 version from previous versions. [TNO-4050T, TNO-4051T, TNO-4040T, TNO-4041T, TNO-4030T, TNU-4041T, TNU-4051T]
  - 1) Upgrade to the bridge firmware. (Please do not use this version firmware other than upgrade purpose. We cannot guarantee anything with this version firmware)
  - 2) Upgrade to version 1.30 or later.
    - Please note that OSD configuration values will be reset when you upgrade 1.30 version from previous versions. [TNO-4050T, TNO-4051T, TNO-4040T, TNO-4041T, TNO-4030T, TNU-4041T, TNU-4051T]
    - Please note that OSD font change in all resolutions is not supported and OSD is not supported in 320x240 resolution from the version 1.30 or later. [TNO-4050T, TNO-4051T, TNO-4040T, TNO-4041T, TNO-4030T, TNU-4041T, TNU-4051T]
    - Please note that firmware downgrade from version 1.30 or later to lower version is not allowed. [TNO-4050T, TNO-4051T, TNO-4040T, TNO-4041T, TNO-4030T, TNU-4041T, TNU-4051T]
- Please note that downgrading to a version earlier than 1.30.01 may cause the following constraints [1.30.01 XNP-6320, XNP-6320H, XNP-6320HS, XNP-6371RH]:
  - More than 25 privacy zones can not be deleted or modified.
  - If the camera name contains special characters (space # \* + - / ( ) ,), you can not delete or modify the camera name.

Please fix them before downgrading the system, or reset the system to factory default with [Except network parameter & open platform] selected.

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## Common Features

### [New Features]

- Added a handover function in accordance with temperature detection event.

- Applies to:  
[TNO-4050T, TNO-4051T, TNO-4040T, TNO-4041T, TNO-4030T, TNU-4041T, TNU-4051T]  
[TNO-4030TR, TNO-4040TR, TNO-4041TR]

## [Improvements]

- Supported a production automation function (nothing changed in user perspective). [1.30.01]
- Added a [Set pan ground position] function under [Setup] > [PTZ] > [PTlimit] to set the current pan angle to zero degrees.
  - Applies to:  
[1.30.01 XNP-6320, XNP-6320H, XNP-6320HS, XNP-6371RH]
- Increased the maximum number of privacy areas from 24 to 32.
  - Applies to:  
[1.30.01 XNP-6320, XNP-6320H, XNP-6320HS, XNP-6371RH]
- Increased the maximum number of multicast connections from 20 to 128.
  - Applies to:  
[1.30.01 XNP-6320, XNP-6320H, XNP-6320HS, XNP-6371RH]
- Allowed a user to use special characters (space # \* + - / ( ) \_ ,) as camera name under [Setup] > [Camera setup] > [OSD] > [Title overlay].
  - Applies to:  
[1.30.01 XNP-6320, XNP-6320H, XNP-6320HS, XNP-6371RH]
- Added a function to save the predefined preset paths when setting the trace path for auto tracking.
  - Applies to:  
[1.30.01 XNP-6320, XNP-6320H, XNP-6320HS, XNP-6371RH]

## [Bug fixes]

- Fixed an issue where white or black pixels appear on the upper right of the image due to an error in the image calibration algorithm.
  - Applies to:  
[1.30.02 TNO-4030T, TNO-4040T, TNO-4050T, TNO-4041T, TNO-4051T, TNU-4041T, TNU-4051T] [1.30.02, TNO-4030TR, TNO-4040TR, TNO-4041TR]

## Security Improvements

- Supported ONVIF Profile T (with ONVIF protocol to delete the default video profile).
- Added function to email account lockout events to administrators if login fails more than 5 consecutive times (SMTP email must be enabled).
- Added encryption setting function to use SD card after password authentication when saving video to SD card.

## Affected Products

Table 15. Product Family Based On Version 1.30

Major Model	Model Name
XNB-6000	XNB-6000 KNB-2000
XNB-6001	XNB-6001
XNB-6005	XNB-6005
XNB-8000	XNB-8000 KNB-5000N
XND-6010	XND-6010
XND-6011F	XND-6011F
XND-6020	KND-2020RN
XND-6020R	XND-6020R
XND-6080	XND-6080 XND-K6080N
XND-6080R	XND-6080R KND-2080RN
XND-6080RV	XND-6080RV
XND-6080V	XND-6080V
XND-6081RV	XND-6081V XND-6081RV XNV-6081 XNV-6081R XND-6081RF XND-6081F
XND-6085	XND-6085
XND-6085V	XND-6085V

Major Model	Model Name
XND-8020F	XND-8020F
XND-8020R	XND-8020R KND-5020RN
XND-8030R	XND-8030R
XND-8040R	XND-8040R
XND-8080R	XND-8080R KND-5080RN
XND-8080RV	XND-8080RV
XND-8081RV	XND-8081RV XNV-8081R XNV-8081
XND-L6080R	XND-L6080R
XND-L6080RV	XND-L6080RV
XND-L6080V	XND-L6080V
XNF-8010R	XNF-8010R XNF-8010RW
XNF-8010RV	XNF-8010RV XNF-8010RVW
XNF-8010RVM	XNF-8010RVM
XNO-6010R	XNO-6010R KNO-2010RN
XNO-6020R	XNO-6020R
XNO-6080R	XNO-6080R XNO-6080RA KNO-2080RN
XNO-6080RS	XNO-6080RS
XNO-6085R	XNO-6085R
XNO-6120R	XNO-6120R KNO-2120RN
XNO-6120RS	XNO-6120RS
XNO-8020R	XNO-8020R KNO-5020RN
XNO-8030R	XNO-8030R
XNO-8040R	XNO-8040R
XNO-8080R	XNO-8080R XNO-8080RW KNO-5080RN

Major Model	Model Name
XNO-L6020R	XNO-L6020R
XNO-L6120R	XNO-L6120R
XNP-6040H	XNP-6040H
XNP-6120H	XNP-6120H KNP-2120HN
XNP-6230	XNP-6230
XNP-6230H	XNP-6230H
XNP-6320	XNP-6320 XNP-6320H XNP-6320HS QNP-6230 QNP-6230H XNP-6321 XNP-6321H
XNP-6371RH	XNP-6371RH
XNP-6550RH	XNP-6550RH
XNV-6010	XNV-6010
XNV-6011	XNV-6011 XNV-6011W
XNV-6012	XNV-6012
XNV-6012M	XNV-6012M
XNV-6013M	XNV-6013M
XNV-6020R	XNV-6020R
XNV-6022R	XNV-6022R
XNV-6022RM	XNV-6022RM
XNV-6080	XNV-6080
XNV-6080R	XNV-6080R
XNV-6080RS	XNV-6080RS
XNV-6081Z	XNV-6081Z XND-6081VZ XND-6081FZ
XNV-6085	XNV-6085
XNV-6120	XNV-6120
XNV-6120R	XNV-6120R
XNV-6120RS	XNV-6120RS
XNV-8020R	XNV-8020R
XNV-8020RM	XNV-8020RMN



Major Model	Model Name
	XNV-8020RMP
XNV-8030R	XNV-8030R
XNV-8040R	XNV-8040R
XNV-8080R	XNV-8080R
XNV-8080RS	XNV-8080RS
XNV-8081Z	XNV-8081Z XND-8081VZ XND-8081FZ
XNV-L6080	XNV-L6080 XNO-L6080R
XNV-L6080A	XNO-L6080RA XND-L6080RVA XNV-L6080RA XND-L6080VA XNV-L6080A
XNV-L6080R	XNV-L6080R
XNZ-6320	XNZ-6320
TNO-4050T	TNO-4050T TNO-4051T TNO-4040T TNO-4041T TNO-4030T
TNU-4041T	TNU-4041T TNU-4051T
TNO-4040TR	TNO-4041TR TNO-4040TR TNO-4030TR
TNB-6030	TNB-6030
TNV-7010RC	TNV-7010RC

# Network Camera Version 1.22

This document describes the new and changed features of Hanwha Vision network camera version 1.22

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## Common Features

### [New Features]

- Allows you to create passwords up to 64 characters
  - Applies to:  
[v1.22.00, XNB-6001 (for WellsFargo)]  
[v1.22.00, XND-6080 (for WellsFargo)]

### [Bug fixes]

- Corrected an issue where firmware issued after 2022 did not upgrade properly
  - Applies to:  
[v1.22.00, XNB-6001 (for WellsFargo)]  
[v1.22.00, XND-6080 (for WellsFargo)]
- Corrected an issue where the [Motion detection] feature did not work
  - Applies to:  
[v1.22.00, XNB-6001 (for WellsFargo)]  
[v1.22.00, XND-6080 (for WellsFargo)]

# Network Camera Version 1.21

This document describes the new and changed features of Hanwha Vision network camera version 1.21.

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## Common Features

### [Improvements]

- Added function to push BI (People Counting / Queue Management / Heatmap) meta data to Wisenet Retail Insight.
  - Applies to:  
[1.21.12 XND-6010/XNV-6010, XNF-8010R/XNF-8010RV/XNF-8010RVM]
- Fixed an issue where the web page menu would not change after upgrading firmware due to remained browser cache. In some case, cache refresh (F5 reload key) is required to display properly. [1.21.10]
- Added automatic correction function for horizontal noise that appears intermittently in image.
  - Applies to:  
[1.21.01 TNO-4040TR, TNO-4041TR, TNO-4030TR]
- Changed the maximum shutter value to 1/5000, when [video & Audio] > [Camera Setup] > [Backlight] mode is set to WDR.
  - Applies to:  
[1.21.02 QNO-6072R, QNO-6073R, QNO-6082R, QNO-6083R, QND-6072R, QND-6073R, QND-6082R, QND-6083R, QNV-6072R, QNV-6073R, QNV-6082R, QNV-6083R, QND-6012R, QND-6022R, QND-6032R, QNO-6012R, QNO-6022R, QNO-6032R, QNV-6012R, QNV-6022R, QNV-6032R, QND-6011, QND-6021, QNO-8010R, QNO-8020R, QNO-8030R, QNO-8080R, QNV-8010R, QNV-8020R, QNV-8030R, QNV-8080R, QND-8010R, QND-8020R, QND-8030R, QND-8080R, QNE-8011R, QNE-8021R, QND-8011, QND-8021]
- Fixed an issue where the camera image appears in upside down or side to side.
  - Applies to:  
[1.21.02 QNE-8011R, QNE-8021].

### [Bug fixes]

- Fixed an issue where in some case, an SD card was not recognized after booting.
  - Applies to:

[1.21.12 TNO-4050T, TNO-4051T,TNO-4040T,TNO-4041T,TNO-4030T,TNU-4041T,TNU-4051T]

- Fixed an issue where an SD card error happened with EXT4 file system.
  - Applies to:  
[1.21.12 TNU-4041T, TNU-4051T]
- Fixed an issue where the live monitoring page would be stuck on the IE11 / Windows 10 OS in case Plugin-Free profile configuration is higher than 20fps / 1920x1080 resolution. Now it will be reverted to 20fps automatically. [1.21.10]
- Fixed an issue where with 1.20 and 1.21 version, Genetec VMS didn't receive IVA events. [1.21.11]
- Fixed an issue where in some cases, creating a profiles didn't work through SUNAPI. [1.21.11]
- Fixed an issue of incorrect CropAreaCoordinate value in attributes.cgi through SUNAPI. [1.21.11]
- Fixed an issue where with 1.20 and 1.21 version, Genetec VMS didn't draw overlay boxes through metadata. [1.21.11]
- Fixed an issue where a camera would restart when a user changes sensitivity value in Camera [setup] > [video & Audio] > [Audio setup] > [Audio in] > [Noise reduction] after upgrading to version 1.20 or 1.21.
  - Applies to:  
[1.21.11 TNO-4040T, TNO-4050T, TNO-4051T, TNO-4041T, TNO-4030T]

## Affected Products

Table 16. Product Family Based On Version 1.21

Major Model	Model Name
XNB-6000	XNB-6000 KNB-2000 KNO-2080RN XNO-6080R
XNO-6010R	XNO-6010R KNO-2010RN XNO-6020R

Major Model	Model Name
XND-6010	XND-6010 XNV-6010
XND-6020	KND-2020RN
XND-6080	XND-6080 XND-K6080N KND-2080RN XND-6080R XND-6080RV XND-6080V XNV-6080 XNV-6080R XNV-6080RS
XNB-8000	XNB-8000 KNB-5000N
XNO-8020R	XNO-8020R XNO-8030R XNO-8040R
XND-8020R	XND-8020R KND-5020RN XND-8030R XND-8040R KNO-5020RN XNV-8020R XNV-8030R XNV-8040R
XND-8080R	XND-8080R KND-5080RN XND-8080RV XNV-8080R XNV-8080RS

Major Model	Model Name
XNF-8010R	XNF-8010R XNF-8010RW XNF-8010RV XNF-8010RVW XNF-8010RVM
XNO-6120R	XNO-6120R KNO-2120RN XNO-6120RS XNV-6120 XNV-6120R XNV-6120RS
XND-L6080R	XND-L6080R XND-L6080RV XND-L6080V XNV-L6080 XNV-L6080R
XNV-6012	XNV-6012 XNV-6012M XNV-6013M XNV-6022R XNV-6022RM
XNB-6001	XNB-6001 XNB-6005 XND-6085 XND-6085V XNO-6085R
XNB-6005	XNB-6005 XND-6085 XND-6085V XNO-6085R
XND-6011F	XND-6011F
XND-8020F	XND-8020F
XNP-6040H	XNP-6040H
XNP-6120H	XNP-6120H KNP-2120HN

Major Model	Model Name
XNP-6320	XNP-6320 XNP-6320H XNP-6320HS QNP-6230 QNP-6230H
XNP-6371RH	XNP-6371RH
XNV-6011	XNV-6011 XNV-6011W
XNV-6085	XNV-6085 XND-6085 XND-6085V
TNB-6030	TNB-6030
XNZ-6320	XNZ-6320
TNO-4050T	TNO-4050T TNO-4051T TNO-4040T TNO-4041T TNO-4030T
TNU-4041T	TNU-4041T TNU-4051T
TNO-4040TR	TNO-4041TR TNO-4040TR TNO-4030TR
QNO-6082R	QNO-6072R QNO-6073R QNO-6082R QNO-6083R QND-6072R QND-6073R QND-6082R QND-6083R QNV-6072R QNV-6073R QNV-6082R QNV-6083R QND-6012R QND-6022R

Major Model	Model Name
	QND-6032R QNO-6012R QNO-6022R QNO-6032R QNV-6012R QNV-6022R QNV-6032R QND-6011 QND-6021
QNO-8080R	QNO-8010R QNO-8020R QNO-8030R QNO-8080R QNV-8010R QNV-8020R QNV-8030R QNV-8080R QND-8010R QND-8020R QND-8030R QND-8080R QNE-8011R QNE-8021R QND-8011 QND-8021



# Network Camera Version 1.20

This document describes the new and changed features of Hanwha Vision network camera version 1.20.

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## Common Features

### [New Features]

- Added a function called Frame Lock to always maintain the number of frames/sec (fps) of one user selected profile when multi profiles are used.
- Added a function to configure the codec of profiles 1, 2 and 3.
- Added a hostname function.
- Supported LLDP as a steady-state power device.
- Added a function to configure overlay box for detected objects in motion detection, IVA, and face detection.
- Added a function to configure minimum/maximum object size in motion detection.
- Added a function to configure minimum duration in motion detection and Intrusion detection (up to 5 secs).
- Added an audio noise reduction function under Setup – Audio Setup – Audio Setup – Audio in.
- Added the USB connect/disconnect message in SNMP Trap Service.
- Added a function to enable/disable USB port under the Setup – Video & Audio - Video Setup.
- Added a function to configure home position and execute auto run (optical zoom cameras).
- Added queue management, heatmap, people counting (Mobile cameras).
- Added an option of new P-IRIS Tamron lens (P-IRIS supported cameras).
- Added a function to control pan/tilt, area zoom by mouse drag and control zoom by mouse wheel scroll in web viewer (optical zoom cameras and PTZ cameras).
- Added a shock detection function
  - Applies to:

(XNV-6085, XND-6085, XND-6085V, XNP-6120H, XNP-6320H).

### [Improvements]

- Improved a function to configure pan/tilt control speed (PTZ cameras).
  - Increased proportional PT mode options to 8 stages and setting is applied at 1x zoom ratio.
- Changed the factory defaults values of UPnP, Bonjour, and Link-Local IPv4 address to disable.
- Improved a function to configure all image parameters other than sensor mode for predefined image preset mode and added 2 UserPreset options.
  - After upgrading firmware from prior to 1.2 version, the previous UserPreset configuration will be applied to UserPreset1 and all schedule configurations will be reset.
- Improved the schedule configuration.
  - Expressed day of the week instead of date.
  - Changed the image preset schedule configuration to same as other schedule configuration.
- Improved indoor representation of WDR low and middle levels.
- Changed the default value of minimum shutter speed to provide optimized value to keep framerate.
- Improved day/night switching timing (Built-in IR LED models).

### [Bug fixes]

- Fixed an issue that anti flicker configuration in UserPreset mode is not be applied after reboot.
- Fixed an issue that a certain key data does not work correctly in 802.1x certificate.
- Fixed an issue that the focus does not work correctly via Pelco-D protocol. (External RS-485 control supported models.)
- Fixed an issue that AF operation does not work due to Gyro sensor (PTZ cameras having Gyro sensor).

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## Security Improvements

- Removed Active-X/NPAPI plug-ins from the web viewer.

- Removed the PHP module from the web viewer.
- Added an SRTP function (TCP /UDP unicast).

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## Protocol Improvements

- Added a feature to send time data whit UTC format when a user searches recorded data in SD/NAS via SUNAPI protocol.
- Added an attribute that specifies the DPTZ, PTZ, and Zoom capabilities via SUNAPI protocol.
- Improved ONVIF features.
  - Supported motion area configuration in VideoAnalytics service.
  - Supported VideoSourceModes in Media service.
  - Supported UTF-8 format OSD control in Media service.
  - Supported PTZ PresetTour in PTZ service.
  - Supported firmware upgrade.
  - Supported "tns1: VideoSource/MotionAlarm" event.
- Applied the unified SNMP MIB. (Keep backward compatibility, the previous MIB files can be used.)
- Added the likelihood data of sound classification via metadata streaming.

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## Open Platform Version 3.50 Upgrade

- Added a function to create a profile.
  - Added APIs to use the SUNAPI protocol.
  - Added a feature to write and save system/event log data.
- ※ Open Platform SDK should be upgraded to 3.50 version.

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## Affected Products

Table 17. Product Family Based On Version 1.20

Major Model	Model Name
XNB-6000	XNB-6000 KNB-2000 KNO-2080RN XNO-6080R XNO-6080RA XNO-6080RS
XNO-6010R	XNO-6010R KNO-2010RN XNO-6020R
XND-6010	XND-6010 XNV-6010
XND-6020	XND-6020R KND-2020RN XNV-6020R
XND-6080	XND-6080 XND-K6080N KND-2080RN XND-6080R XND-6080RV XND-6080V XNV-6080 XNV-6080R XNV-6080RS
XNB-8000	XNB-8000 KNB-5000N KNO-5080RN XNO-8080R XNO-8080RW
XNO-8020R	XNO-8020R XNO-8030R XNO-8040R

Major Model	Model Name
XND-8020R	XND-8020R KND-5020RN XND-8030R XND-8040R KNO-5020RN XNV-8020R XNV-8020RMN XNV-8020RMP XNV-8030R XNV-8040R
XND-8080R	XND-8080R KND-5080RN XND-8080RV XNV-8080R XNV-8080RS
XNF-8010R	XNF-8010R XNF-8010RW XNF-8010RV XNF-8010RVW XNF-8010RVM
XNO-6120R	XNO-6120R KNO-2120RN XNO-6120RS XNV-6120 XNV-6120R XNV-6120RS
XND-L6080R	XND-L6080R XND-L6080RV XND-L6080V XNV-L6080 XNV-L6080R
XNV-6012	XNV-6012 XNV-6012M XNV-6013M XNV-6022R XNV-6022RM

Major Model	Model Name
XNB-6001	XNB-6001 XNB-6005 XND-6085 XND-6085V XNO-6085R
XNB-6005	XNB-6005 XND-6085 XND-6085V XNO-6085R
XND-6011F	XND-6011F
XND-8020F	XND-8020F
XNP-6040H	XNP-6040H
XNP-6120H	XNP-6120H KNP-2120HN
XNP-6320	XNP-6320 XNP-6320H XNP-6320HS QNP-6230 QNP-6230H
XNP-6371RH	XNP-6371RH
XNV-6011	XNV-6011 XNV-6011W
XNV-6085	XNV-6085 XND-6085 XND-6085V
TNO-4050	TNO-4050 TNO-4040 TNO-4051 TNO-4041 TNO-4030
TNB-6030	TNB-6030

# Attachment A. Camera version management

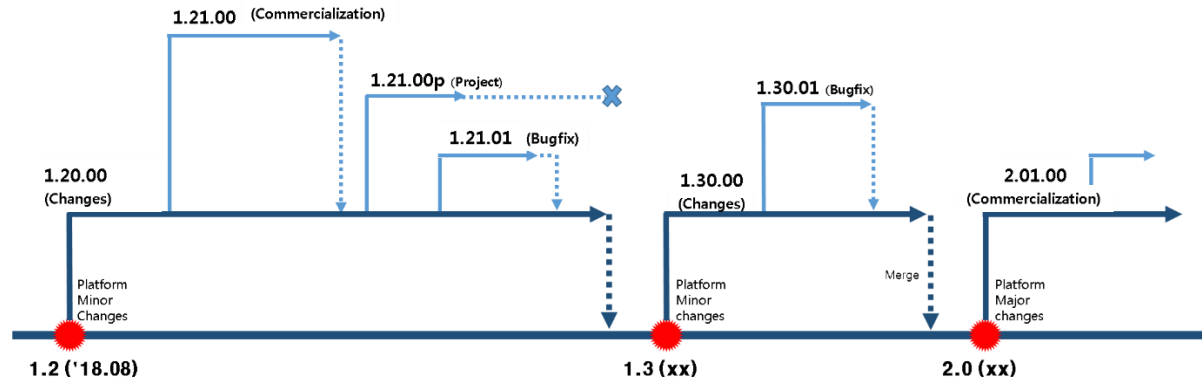
This describes the Hanwha Vision network camera version rule. A camera version is updated when new features are added or bugs are fixed, and there are the following two categories:

- Platform change: Version update due to changes in the software platform structure and major feature changes
- Product change: Version update to fix reported bugs and solve potential problems

## Camera Version Management Procedure

The firmware of Hanwha Vision camera products is being developed based on the common platform, and this is developed across all camera product development.

Any features developed for a product firmware will be consolidated into the common platform and applied to new camera products accordingly.



## Camera Version Rules

The camera version is structured as below and it is generated using the following rules.

**<PlatformMajor>.<PlatformMinor> <ProductMajor>.<ProductMinor>**

Platform: Specifies the release version of the common platform

- Major: Reflects any changes in platform structure and major feature changes.
- Minor: Reflects upgrade with new features and consolidated changes that apply to all models.

Product: Specifies the product release version

- Major: Reflects the addition of major product features and changes.
- Minor: Reflects firmware changes for minor fixes that solve reported bugs and potential problems

Each firmware release is displayed using a unique number given to each release type and is a combination of a platform version and a product version. The following examples explain the version rules.



Version 1.20.00 indicates the combination of platform version 1.2 and product version 0.00. It represents the first product that is applied with the common platform version 1.2.



Version 1.22.10 indicates the combination of platform version 1.2 and product version 2.10. It represents a product that is applied with the common platform version 1.2 and updated twice.