NUUO Crystal™ Family

Release Version 3.19.0 Dec 17, 2025

Version Overview

Item	Description	Version
Crystal™ Firmware	Firmware for all Crystal™ servers, BIN file	3.19.0.84
Crystal™ Image	Crystal™ virtual appliance for VMware deployment, OVA file	
Device Pack for Crystal™	Device Pack for Crystal™ servers, BIN file	25.12.0.4
Client Application	Crystal™ NuClient for Windows	4.1.0.6

New Features

- Support SNMP protocol v1 and v2c for server status monitoring.
  Particular OIDs are custom-defined MIB formats.

Enhancements

Crystal

1. Updated the RAID card driver for improved compatibility with R3 and R4 models previously using v3.18.3.
2. Improved the loading process and startup time for the operating system, network devices, and RAID controllers.
3. Improved DHCP disconnection timeout detection and enhanced gateway routing validation logic.
4. Changed the network device numbering sequence to be determined by hardware identifiers (Hardware IDs) to ensure consistent ordering.
5. Fixed a vulnerability where specific HTTP content on certain ports was incorrectly flagged as malicious traffic by the firewall.

NuClient
1. Upgraded to Qt 5 and HTML 5 to provide higher stability and enhanced network capabilities.
2. Adopted an updated OpenGL rendering architecture for smoother image and video playback.
3. Added full support for Windows High DPI displays to improve UI clarity.
4. Updated to FFmpeg 7.1 for better decoding performance and improved compatibility.
5. Optimized overall system architecture, reducing CPU usage by approximately 30%.

Bugs Fixed

Crystal

1. Resolved an issue that caused some R2-0800CT units to list Network Interface Cards incorrectly.
2. Fixed an issue where S.M.A.R.T. reports for the rear 2.5-inch HDDs in R3-1600CT-HR and R4-2400CT-HR units failed to display after clicking '*Download All*' in the *Disk Health Report* (z52999).
3. Resolved a connection issue where Crystal could not receive I/O status from NUUO A10 devices under certain conditions (z53147).
4. Resolved an issue where the SataDom status was displayed incorrectly on the web interface of R3-1600CT-HR and R4-2400CT-HR.
5. Fixed a bug where the File System Info page displayed incorrect disk information.
6. Resolved a bug that caused the network restart command to stop functioning.

NuClient

1. Fix display errors on the disk health check page and tighten the risk index criteria for more accurate predictions.
2. Updated in-app support links to ensure valid redirection.

Known Issues

1. An blank error message pops up after clicking System Information in the Crystal web interface of virtual appliances, which can be ignored after clicking Ok.
2. If NuClient fails to start properly, please remove the legacy Qt 3.x installation before reinstalling.
   Removal path: `C:\Program Files\NUUO\Crystal Series`

Applied Models - Crystal

- R1-0400CT
- R2-0800CT series
- R3-1600CT-HR
- R4-2400CT-HR
- Crystal™ virtual appliance for VMware

Release Version 3.18.0 Jul 30, 2025

Version Overview

Item	Description	Version
Crystal™ Firmware	Firmware for Crystal™ R1 & R2 series, BIN file	3.18.0.206
Crystal™ Image	Crystal™ virtual machine for VMware deployment, OVA file	3.18.0.8
Device Pack for Crystal™	Device Pack for all Crystal™ servers, BIN file	24.3.0.5
Client Application	Crystal™ NuClient for Windows	3.18.0.52

Enhancements

1. Optimized the failover process, reducing the takeover time by up to 70% in typical scenarios.
2. Optimized memory management to prevent system instability when replaying recorded data in certain situations (z52403).

Known Issues

- An issue has been identified that may cause certain R2 units (silver chassis with 7th Gen Core) to list Network Interface Cards incorrectly. Please contact express@nuuo.com to request an alternative firmware that addresses this issue.

Applied Models

- R1-0400CT
- R2-0800CT series
- R3-1600CT-HR
- R4-2400CT-HR

Release Version 3.18.0 Jan 26ᵗʰ ,2024

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	3.18.0000.0175
FW	All in One Firmware	3.18.0000.0175
	Device Pack	23.06.0000.0012
Application	Crystal NuClient - Windows	3.18.0000.0044

New Updates:

1. New Features

a. Introduced a new event-triggering feature - HTTP Notify

- Automatic transition to a specified Public view when an event occurs.

- Sending HTTP Notify messages to third-party devices when an event is detected.

- Integrates HTTP receive functionality into the plugin, allowing keyword filtering to determine what constitutes an event.

- Distributing LINE messages to smartphones or other mobile devices when an event occurs.

b. If the camera stream bitrate surpasses the Bandwidth Limit Event settings, customers will receive an email warning to prevent insufficient recording time.

c. Users can view the public view of other management servers when using the System Navigator feature.

d. Introduced key-frame functionality to the NuClient playback page to reduce CPU loading during high-speed playback.

2. Enhancements

a. File system load time has been optimized, making it suitable for individual volumes exceeding 128TB of storage space.

b. Updated the drivers for the 10Gbps network cards in R3-1600CT and R4-2400CT models.

c. A DDOS attack will not result in the IP ban mechanism depleting the

allocated configuration storage space.

d. Augmented the visible choices within the Filter Configuration to align with the capabilities of contemporary, spacious monitors.

e. Added a new tracking view mode that allows for the addition of several directional arrows within the view to guide the switch to another screen. In this mode, it becomes convenient to track the movement routes of vehicles and personnel.

f. Optimized the RAID volume to ensure a more stable condition in the R3-1600CT series.

3. Security Updates

a. Upgraded PHP version to 7.4.32.

4. Issues Resolved

a. The monitor number displayed in NuClient corresponds to the Windows screen number.

b. NuClient has resolved the abnormal display issue on the Hard Disk Health Check page.

c. NuClient has fixed the issue where the text within the view of metadata in OSD was displaying abnormally.

d. NuClient has resolved the issues causing time jumps and stuttering during playback.

e. NuClient has resolved the abnormal issue experienced on the Device Group Edit page during saving.

f. Resolved the issue in NuClient where the channel ID would be incorrect when executing a snapshot.

g. NuClient has resolved the issue of random crashes occurring at UTC 00:00.

h. NuClient has resolved the issue where the View List name could only display in English, and other languages would appear as garbled text.

i. NuClient has resolved the issue where file names would display as garbled text when exporting and saving backup recording data in non-English languages.

j. Resolved the issue where NuClient could potentially experience timeouts and failures when committing a larger amount of data.

k. Resolved the issue where a full NTP Log led to root file system space exhaustion, causing login failures.

l. Resolved the abnormal state issue occurring when triggering digital

output on SCB-A10 IO Box devices.

m. Resolved the issue in NuClient where the instant playback feature could not be operated and metadata information could not be displayed when Crystal Server is using WAN IP.

n. Resolved the issue where using the System Navigator feature in NuClient could potentially cause a crash during login.

o. Resolved the bug where invalid settings caused abnormal priority sorting in the Metadata filter.

p. Web page time setting now extends the year selection limit beyond 2023.

Release Version v3.17.0 (2023/04/11)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.17.0000.0069
FW	All in One Firmware	03.17.0000.0069
	Device Pack	21.02.0000.0007
Application	Crystal NuClient - Windows (64bit)	3.17.0.6
	Crystal NuClient - Mac	3.17.0.6

Enhancement:

A. Advanced disk management features:

- When the disk risk prediction exceeds the warning value, an alert will be issued via NuClient and an email notification will be sent to the user.

- Friendly graphical disk slot information interface.

- The RAID hot spare function is realized, giving users more option. (Volume must be rebuilt)

- Unplug the HDD event be able to trigger digital output and email notification.

B. Optimize the NuClient operation interface:

- A simpler and efficient video export interface.

- Consolidating the export files to one multi-channel video for easy tracking.

C. Web server support certificate authority of comodo. (Only support comodosslstore.com)

D. Nuclient supports configuring the Solo and Mini series via the embedded web page.

E. NuClient added permission to control iViewer snapshots.

F. The management server has both NTP Server and client functions, which can synchronize time with the external NTP server, and also share time let local site recording server and camera sync device time.

G. The default gateway is automatically selected when LAN1 and LAN2 same of local LAN.

H. IVS motion event provide users with email notifications to preview the

snapshot.

I. For security reasons, some of the hidden software version information.

J. For security reasons, prohibit some local user of host login.

Issue Solved:

A. Installation wizard batch upgrade bug fixes.

B. Fix bug of Connection test page response fail.

C. The two way audio port number foolproof.

D. Disk S.M.A.R.T data query fail.

E. Fix the problem that Nuclient always show Name: on the title bar of the viewer

F. Fix the problem that a quick click on the hardware settings will cause a crash.

G. Fix NTP issue.

Release Version v3.16.0 (2021/04/06)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.16.0000.0089
FW	All in One Firmware	03.16.0000.0089
	Device Pack	20.09.0000.0030
Application	Crystal NuClient - Windows (64bit)	3.16.0.19
	Crystal NuClient - Mac	3.16.0.19

Enhancement:

A. NuClient two-way audio support:

- Windows OS microphone input format (2 channel stereo/16bit/44100Hz)
- Mac OS microphone input format (2 channel stereo/16bit/32000.0Hz)

B. Add a time-lapse delayed export application.

C. The management server can periodically update time from the NTP server.

D. PHP version upgrade to 7.4.16 and security enhancement.

E. The second stream can be exported from Nuclient.

F. NuClient supports two-factor from email when logging in, which can be configured from the hardware settings page.

G. NuClient device tree can be customized with different colors for better management:

- Windows OS (Ctrl key + Right mouse button)
- Mac OS (Command key + Right mouse button)
- Ctrl + mouse left button to select multiple
- Reset button in the Client Configuration.

H. NuClient view tour increased to 64.

I. NuClient display camera information of font, color and size can be adjusted.

J. Add Herta filter for third party plugin.

K. Https support Comodo certificate authority.

L. IVS event action supports attaching a snapshot to the email.

M. Add user privilege setting of snapshot for iViewer use.

N. System daily report support full ports.

Issue Solved:

A. The value of the risk of disk damage is abnormal.

B. NuClient use domain name connect issue.

C. Fix bug of metadata database recycle issue.

D. Fix bug of I/O device configuration random disable issue.

E. Fix bug of recording server random enable fail.

F. Fix bug of metadata port setting issue.

G. Fix bug of hardware RAID tool write log make root filesystem full.

Release Version v3.15.0 (2020/03/16)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.15.0000.0017
FW	All in One Firmware	03.15.0000.0017
	Device Pack	20.1.0000.0030
Application	Crystal NuClient - Windows (64bit)	3.15.0.5
	Crystal NuClient - Mac	3.15.0.5

Enhancement:

A.   Add dual-stream recording functions:

- Live View Page: Add second stream recording status icon.

- Playback Page: Modify display panel for change playback streams easily.

- Config Page: Video device add radio button for recording stream type setting; Recording Schedule page add second stream schedule parameters.

B.   Hikvision ANPR metadata plugin upgrade for digest access authentication, automatic number-plate recognition. Plugin version from 2.3.0.2 to 2.3.0.5.

C.   New product support: SCB-A10.

D.   Web page for Https certificate setting manually, server will restart to enable these https configuration.

E.   PHP version upgrade to 7.3.7.

F.   NuClient :

- Login option into the empty window.

- Clear button added in LiveView event list.

- Increace function for keyword search at system overview page.

- Device output (DO) can trigger event action.

Issue Solved:

A. Server fixed: Web RAID status should show "Disk Damage Risk" when

the product is not R3-1600CT or R4-2400CT.

B. Server fixed: Web iSCSI initiator address make storage saved abnormally. Add regular expression filter illegal input.

Release Version v3.14.0 (2019/10/21)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.14.0000.0019
FW	All in One Firmware	03.14.0000.0019
	Device Pack	19.10.0000.0036
Application	Crystal NuClient - Windows (64bit)	3.14.0.4
	Crystal NuClient - Mac	3.14.0.4

Enhancement:

A. Reduce searching time of metadata.

B. Optmize metadata code for reduce CPU loading.

C. Optmize database's compatibility with elder version table.

Issue Solved:

A. Server fixed: Playback sometimes can't find metadata.

B. Server fixed: System daily report is empty issue

C. Server fixed: Server's setting repeated after import config.

D. Server fixed: Black/white list will invalid after import config.

Release Version v3.13.0 (2019/07/09)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.13.0000.0010
FW	All in One Firmware	03.13.0000.0010
	Device Pack	19.06.0000.0033
Application	Crystal NuClient - Windows (64bit)	3.13.0.16
	Crystal NuClient - Mac	3.13.0.16

Enhancement:

A. Modify VM trial license rule. If the license does not register, the video data only can keep the last 3 days.

B. System navigator client can modify different server display name.

C. Enhance the added hash of the second password.

D. Force a password change when logging in for the first time.

E. The hard disk S.M.A.R.T displays more information.

F. Modified hardware setting password length(8-20).

Bug fix:

A. Bug fix of memory leak on install wizard.

B. Bug fix of disk damage is always showing 75%.

C. Bug fix of metadata random do not show any data .

D. Bug fix of user scheduler error in Kathmandu time zone.

Release Version v3.12.0 (2019/04/22)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.12.0000.0025
FW	All in One Firmware	03.12.0000.0025
	Device Pack	18.11.0000.0018
Application	Crystal NuClient - Windows (64bit)	3.12.0.47
	Crystal NuClient - Mac	3.12.0.47

New Feature:

A. Client/Server:

- Playback bookmark

- Cross RS event action.

- GDPR enhancement:

- Increasing password complexity for NuClient Login.

- Forced password change at the 1st user login (logically must be default 'admin' account).

- Optional user account dual password checking feature (also affect system navigator related UI/configuration).

- Login password expiration and renewal function

- New privilege to allow users to Modify User Account

B. Server:

- Iptables enhancement.

- Support Mircosemi CLI.

C. Client:

- Implement tasks of Event Search Play and Jump and auto-replay on Nuclient Playback.

Enhancement:

A. Server:

- Prevent the port of the specified service from being set to the used port (MS, RS, MDS, IVS, Lighttpd)

B. Client:

- Add warning message while backup data size is empty.

- Support x128 option to playback UI.

- Add the description parameter for the backup/export request for the server to log with time and file encryption password for the user to query.

- Add custom name feature of interconnecting MC/Solo server in the device list (also affect system navigator related UI/configuration, include central password update feature rule check).

- Nuclient playback time span Next/Previous Event will search in focus channel on 1st priority.

Issue Solved:

A. Server:

- Fix Can't send system daily report if server hardware(web) password changed.
- Fix CT-8000EX can't upgrade issue.

B. Client:

- Fix issue HiSilicon logo watermark attached on Liveview and Playback

- Fix Video audio sync problem

- Fix Export system configuration will delete the target folder when focus on it and click open.

- Fix IVS channel couldn't commit successfully with substreams, the function can't use DNS => call windows API to change the domain name to IP.

- Fix NuClient Crashing due to Memory

C. InstallWizard:

- Fix Can't search solo server on MAC.

Release Version v3.11.0 (2018/12/13)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.11.0000.0057
FW	All in One Firmware	03.11.0000.0061
	Device Pack	18.11.0000.0018
Application	Crystal NuClient - Windows (64bit)	3.11.0.56
	Crystal NuClient - Mac	3.11.0.56

New Feature:

A. Server/Client support Sunell Camera Edge event.

Enhancement:

A. NFS auto reconnect enhancement.

B. Enhance configure device performance.

C. LDAP security enhancement.

D. R3-1600CT Support 2.5 inch HDD for Management Server configuration volume.

E. Adding risk statistic of disk for system daily report.

Bug fix:

A. Fix NuClient commit setting error randomly.

B. Fix NuClient crash when playback times span zoom in/out ratio.

C. IVS display counter bug fix.

D. Fix Playback freeze issue.

E. Fix randomly Volume disappear after NVR reboot issue.

Release Version v3.10.0 (2018/9/6)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.10.0000.0042
FW	All in One Firmware	03.10.0000.0042
	Device Pack	18.08.0000.0020
Application	Crystal NuClient - Windows (64bit)	3.10.0.69
	Crystal NuClient - Mac	3.10.0.69

New Feature:

A. Support encryptable user privilege and permission data export for **General Data Protection Regulation (GDPR) (EU) 2016/679** compliance and audit purpose

B. Improve server streaming out capability to 1024 channels

C. Support centralized server upgrade for Firmware and Device Pack in Manual Mode via Crystal™ Installation Wizard, including Crystal™, NVRTitan, NVRsolo (Plus) Series and NVRmini2 Series

D. Support SMTP service for sending email notification of server disconnection via Crystal™ NuClient

E. Support centralized user account password modification via System Navigator

F. Support interconnection to Mainconsole, NVRsolo (Plus) Series and NVRmini2 Series for PTZ control

G. Support disk decay rate calculation in web > RAID & File System > RAID Status > Disk > Status > Disk Damage Risk

Enhancement:

A. Enhance Crystal™ Server Redis security

B. Improve NuCient stability

C. Enhance security of web service (PHP version update)

D. Enhance security of web login mechanism

E. Optimize loading performance of NuClient Config tab

F. Improve device list update performance of NuClient

G. Support manual device list update in NuClient to allow device list to be updated at preferred time

H. Improve volume creation process with volume format mechanism for HDDs which have been used to create RAID in any other operating systems

I. Improve commitment procedure for Web > Network Setup > Setup to prevent incomplete configuration modification

Issue Solved:

A. Failure to execute NuClient on non-English Windows operating system

B. Inability to search cameras using non-standard HTTP port (80)

C. Inability to playback backup videos via Backup Player

D. Failure to show IVS OSD in Live View

E. Inability to show metadata OSD in Live View if consist of Transaction End doesn't include following characters such as <CR><LF>

F. Inability to search Motion Started event under source: All search criteria in Event List

G. Improve user experience for Metadata Search and Counting Search under source: All search criteria

H.
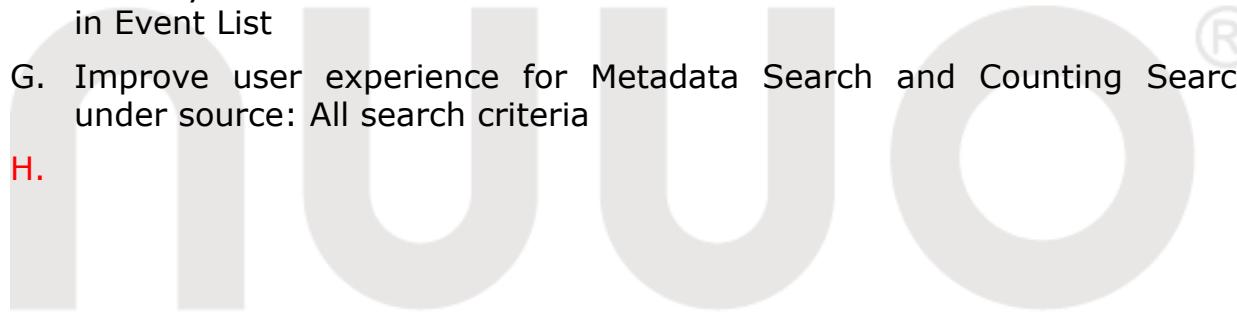
Release Version v3.9.0 (2018/3/15)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.09.0000.0064
FW	All in One Firmware	03.09.0000.0062
	Device Pack	18.01.0000.0013
Application	Crystal NuClient - Windows (64bit)	3.9.0.44
	Crystal NuClient - Mac	3.9.0.44

New Feature:

A. Improve recording capability to 128 channels for 2U Series (Performance Report)

B. Support software RAID 6 (At least 4 hard drive disks) for all models

C. Support interconnection to NVRsolo (Plus) Series and NVRmini2 Series for live viewing and playback (User Manual)

D. Support built-in traffic analytics system (For North America only)

Enhancement:

A. Support automatically monitoring and blocking brute-force SSH login attempts

B. Support more than 140 different UPS (Uninterrupted Power Supply) brands and thousands of models by applying the latest NUT driver (Supported List)

C. Support automatically password synchronization between Management Server, Recording Server and Metadata Server

D. Support daily recording server system report (Report file format is compatible with Gmail, Outlook and Yahoo Mail)

E. Improve playback viewing experience

F. Support non-stop recording when hot-plugging hard disk drive in RAID 1, 5, 6 or 10

G. Improve stream connection mechanism for video popup to provide continuous live streaming experience

H. Improve monitor detection mechanism to avoid re-opening NuClient and re-adjusting Monitor View Setting when re-powering monitor

I. Support interconnection to Mainconsole sharing the same WAN IP

address with Crystal via System Navigator

J.   Support daily synchronization with internet time server on Server Web Date/ Time Setting Page

K.   Adjust size of event popup dialog window

Issue Solved:

A.   Failure to import system configuration

B.   Inability to record due to continuous volume repair

C.   Failure to fully display Channel ID in Playback when adjusting NuClient to larger text size

D.   Failure to access Web Client in Internet Explorer

E.   Inability to search IVS Counting data in Event List

F.   Counting Report shows incorrect time and overlapping data

G.   Inability to get complete debug information via Diagnostic Tool

H.   Audio-to-video non synchronization when using Bolide cameras
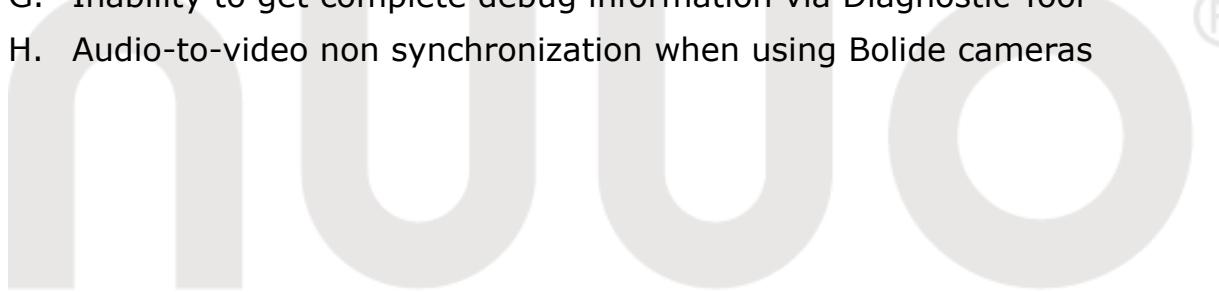
Release Version v3.8.0 (2017/10/3)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.08.0000.0024
FW	All in One Firmware	03.08.0000.0024
	Device Pack	05.11.0000.0018
Application	Crystal NuClient - Windows (64bit)	3.8.0.45
	Crystal NuClient - Mac	3.8.0.45

New Feature:

A.   Support centralized server upgrade for Firmware and Device Pack via Crystal™ Installation Wizard, including Crystal™, NVRTitan, NVRsolo (Plus) Series and NVRmini2 Series

B.   Support sending email with snapshot when IVS Tamper event is triggered

C.   Support LPR 3rd Party: Hikvision ANPR Camera and Neural Labs Traffic Analytics System

Enhancement:

A.   Support NUUO Generic Fisheye Dewarp calibration setting into NUUO Backup Player

B.   Support to do digital PTZ in Perimeter mode

C.   Support hardware watchdog for 4-bay models

D.   Enhance streaming connection speed for instant video pop-up

Issue Solved:

A.   After 64bit NuClient is logged in, 32bit version on the same PC cannot work normally/be logged in.

B.   NUUO Backup Player crashes when opening backup videos

C.   Failure to commit client configuration and to close NuClient

D.   Failure to set password & watermark for backup videos

E.   Failure to resume live streaming after camera re-connection

F.   Inability to check Mainconsole video stream status after Mainconsole re-connection, resulting in disappeared timeline in Playback

Release Version v3.7.0 (2017/7/11)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.07.0000.0015
FW	All in One Firmware	03.07.0000.0015
	Device Pack	05.09.0000.0033
Application	Crystal NuClient - Windows (64bit)	3.7.0.29
	Crystal NuClient - Mac	3.7.0.29

New Feature:

A. Support 64bit NuClient (32bit version can be released by requests)

B. Support CT-8000EX (R2 with i7 CPU)

C. Support to copy stream settings to same camera model

D. Support to arrange multiple rows in Matrix Dock

E. Support to connect and disconnect all matrixes at once

F. Support users with privilege to be able to change own password

G. Support to display server name along with IP address in login dialog

H. Support to lock floating panels in client configuration

Enhancement:

A. Enhance system booting mechanism

B. Fine-tune NuClient title bar UI

C. Enhance network connection mechanism

D. Enhance Login Dialog not to close when pressing Cancel button

E. Enhance Search Tool to be able to sort by column

F. Enhance Installation Wizard to be back to Search Tool when pressing OK or Cancel button

Issue Solved:

A. Fix metadata filtered result unable to apply to Live View

B. Fix LPR Plugin unable to edit channel ID

C. Fix LPR Plugin channel ID unable to type "0"

D. Fix LPR tag filter template

E.   Fix Samsung Q series camera integration issue with Device Pack v5.9

F.   Fix connection issue with Starwind iSCSI running on Windows Server 2012 R2

Known Issue:

A.   Cameras using Hisilicon H.265 encoder will have display issue in NuClient with Device Pack v5.9 (Only v3.7.0 Windows NuClient has fixed this issue)

Release Version v3.6.0 (2017/5/2)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.06.0000.0023
FW	All in One Firmware	03.06.0000.0023
	Device Pack	05.07.0000.0029
Application	Crystal NuClient - Windows	3.6.0.57
	Crystal NuClient - Mac	3.6.0.57

New Feature:

A. Support edge storage on integrated cameras (Depend on Device Pack integration) with Ultimate License

B. Support LDAP (MSAD) server to access NuClient by existed account databases with user privilege Ultimate License

C. Support Web check tool for evaluate connection quality between server and camera

D. Support audio allocation to associate video with different audio from other channel

E. Support 1X1 layout video popup

F. Support to mirror image in grid toolbar

G. Support Axis T8312 Video Surveillance Keypad

H. Support to show real brand name and model name for Axis generic cameras

Enhancement:

A. Enhance web security

B. Enhance audit log of Management Server and Recording Server to record account and IP address login and operation information

C. Enhance "About" in NuClient menu to provide detailed debug information

Issue Solved:

A. Upgrade to Device Pack v5.7 to fix Hikvision Generic model name issue

B. Fix inconsistent NTP setting after server firmware upgrade

C. Fix NuMatrix unable to display live streaming from Mainconsole

Notice:

A. Unable to support Web Client in Firefox .42 and above version for Firefox officially not supporting related development tool ([Workaround User Guide](#))

Release Version v3.5.0 (2016/12/26)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.05.0000.0003
FW	All in One Firmware	03.05.0000.0003
	Device Pack	05.02.0000.0020
Application	Crystal NuClient - Windows	3.5.0.1
	Crystal NuClient - Mac	3.5.0.1

New Feature:

A. Support IVS Import/ Export

B. Support Video pop-up windows to 30

C. Support more camera icons on E-map

D. Support record IP and Username in service log when Export or Backup video

Enhancement:

A. Enhance the usage of CPU and Memory

B. Enhance stability of system

Issue Solved:

A. When server runs for a long time, playback might be malfunction-solved

B. Action-Play sound can't copy to-solved

C. When disable camera, the protocol would be back to http-solved

D. Nuface doesn't work on nologo VM-solved

Release Version v3.4.0 (2016/10/12)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	03.04.0000.0017
FW	All in One Firmware	03.04.0000.0017
	Device Pack	05.00.0000.0022
Application	Crystal NuClient - Windows	3.4.0.5
	Crystal NuClient - Mac	3.4.0.5

New Feature:

A.   Support Windows 10

B.   Support interconnect Mainconsole (v6.4.0 and above)– Playback

C.   Support IVS license online transfer, offline activation and offline transfer

D.   Support search and export IVS counting events

E.   Support watermark on exported videos

F.   Support customized default stream profile (auto)

G.   Support font size adjustment in Client Configuration

Enhancement:

A.   Enhance web security

B.   Enhance firmware upgrade mechanism

C.   Enhance recording mechanism

D.   Enhance IVS stability

Release Version v3.3.0 (2016/08/22)

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Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	-
FW	All in One Firmware	03.03.0000.0009_20160810_1131
	Device Pack	v04.08.0000.0032
Application	Crystal NuClient - Windows	v3.3.0.50

Enhancement:

A. Enhance server security

B. Enhance server log recycle mechanism to ensure stability

C. Upgrade Diagnostic Tool

Release Version v3.2.0 (2016/06/04)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	-
FW	All in One Firmware	03.02.0000.0086_20160602_1443.bin
	Device Pack	v04.08.0000.0032
Application	Crystal NuClient - Windows	v3.2.0.24

New Feature:

A.   Support Interconnect Mainconsole (v6.4.0 and above)– Liveview only

Enhancement:

A.   Failover server could take over recording task while recording server is fixing Database.

B.   Better memory management for Recording Module.

C.   Enhance log recycling algorithm to enhance stability of system.

D.   Enhance client connection mechanism to increase tolerance of multi-connection.

E.   Enhance server shut down procedure to increase server stability and server initial time.

Issue Solved:

A.   Fix the compatibility issue with v3.1 and before.

B.   Fix the inaccurate usage display of volume group if volume size exceeds 41.9T.

C.   Fix inaccurate playback calendar display while switching recording server.

D.   Fix Nuclient random crash while user continuously operates on playback tab.

Release Version v3.2.0 (2016/04/07)

Modules:

Type	Item	Version
VM Image	Compatible with vSphere 5.5 and above	-
FW	All in One Firmware	03.02.0000.0083_20160330_1005.bin
	Device Pack	v4.8.0
Application	Crystal NuClient - Windows	v3.2.0

New Feature:

A.   Support H.265 codec in Crystal Servers and NuClient

B.   Embedded TeamViewer for remote help

C.   Manually close event action in NuClient - play alarm sound, video pop-out and video edge display

D.   Camera network failover (support 2nd IP address)

E.   Web Bookmark Editor

F.   APP Launcher Editor

G.   Upgrade Access Control Gallagher plugin

H.   Default LPR VIT plugin

Enhancement:

A.   Embedded browser for hardware setting

B.   IVS counting report - counting log and report setting

C.   Export the result of searching event/ metadata

D.   Add IP address in the camera overview tabbed page

E.   Maximize the window of E-map/ Image Fusion/ Device Group/ Web Bookmark/ APP Launcher editor to full screen

New Known Issue:

A.   Counting report only supports single IVS server data collection

B.   Management Server could not send out counting report if report includes any disabled IVS server

C.   Manually close event action cannot be used in NuMatrix

D. Web Bookmark may not support HTML5 and CSS3 web pages

E. Web Client cannot be directly displayed in Firefox (Please refer to the document: Crystal Web Client login Management Server in Firefox for work around)

F. Config client may not correctly display IVS preview image (little chance)

G. User need to re-login NuClient if deleting/adding IVS channel behavior caused abnormal IVS preview

H. **Management Server v3.2 is not compatible with Recording/Metadata Server v3.1 and before.**

Release Version v3.1.0 (2015/10/16)

Modules:

Item		Version
VM Image	Compatible with vSphere 5.5 and above	-
FW	All in one firmware	CT-03.1.0.0095_1714.bin
	VM	-
	Device Pack	V4.5
Application	Crystal NuClient - Windows	V3.1.0.25
	Crystal NuClient - Mac	V3.1.0.25

New Feature:

A.   IVS license type: support 4 IVS license type:

- IVS Presence

- IVS Counting

- IVS Surveillance

- IVS Advance

B.   IVS features:

- Counting/Tamper/Calibration/Object classification/shake elimination/Presence/Enter/Exit/Appear/Disappear/Dwell/Tailgating/Stop/Direction/Abandoned object/ Removed Object

C.   Device Group - apply to Nuclient content list and joystick control

D.   IVS & Metadata display on NuMatrix

Enhancement:

A.   Backup/Export in playback.

B.   Multi-channel export

C.   Thumbnail enable/disable and seek/zoom in

D.   Multi-Metadata display on Nuclient/NuMatrix

Release Version v3.0.4 (2015/08/26)

Modules:

Item		Version
VM Image	Compatible with vSphere 5.5 and plus	None
FW	All in one firmware	CT-03.00.0047_20150824_1131.bin
	VM	none
	Device Pack	V4.0
Application	Crystal NuClient - Windows	V3.0.4.5a
	Crystal NuClient - Mac	V3.0.4.5a

New Feature:

A. Device Group.

Enhancement:

A. Backup/Export in playback.

B. Multi-channel export

C. Thumbnail enable/disable and seek/zoom in

Release Version v3.0.0 (2015/05/08)

Modules:

Item		Version
VM Image	Compatible with vSphere 5.5 and plus	CT-VM_2.2.0.0035_1445.ova
FW	CT-4000/ CT-4000R	CT-4000(R)_3.0.0.0023_1924.bin
	CT-8000R/ CT-8000RP	CT-8000R(P)_3.0.0.0023_1927.bin
	VM	CT-VM_3.0.0.0023_1900.bin
	Device Pack	V4.0
Application	Crystal NuClient - Windows	V3.0.0.20a
	Crystal NuClient - Mac	V3.0.0.20a

New Feature:

A.   Crystal Nuclient Interconnect NVRTitan series.

B.   2 in one : Nuclient + Installation Wizard

C.   Video Device Utility: Auto setup & bulk import

D.   Thumbnail in Playback Timeline

E.   Server upgrade to 64 bit

F.   Support NFS network storage

Enhancement:

A.   Video device overview; allow user directly modify camera setting in overview page

B.   IO device overview

C.   The limitation of 16TB as maximum size of single Volume has been removed

D.   UI enhancement (Event Filter, Metadata search indicator, language switch)

Issue Solved:

A.   Memory leak of DevicePack 3.10 - solved.

B.   Config client crash in Axis setting page - solved.

C.   NTP server upgraded to prevent DoS attack.

D.   C31A Plugin crash issue - solved

Version Compatibility Notice:

A.   It is recommended that servers and clients should be with identical version.

B.   NVRTitan should be v.1.6.x .

C.   Crystal 3.0 and later will be backward compatible to v2.2.

Known Issue:

New known issue of v3.0.0

[Server]

A.   The disconnection between Recording server and Storage server would cause recording server failed to record in storage even if the storage server get reconnected.

B.   Memory leak issue when applying metadata customized event.

[Client]

A.   Backup Player may not function on OSX10.10.x

B.   Client has issues with Vivotek fisheye dewarp, please apply NUUO Generic Dewarp for vivotek fisheye camera.

[NuMatrix]

A.   Auto-start of NuMatrix does not work if name of matrix is not in English

B.   NuMatrix may crash on Mac.

Release Version v2.2.1 (2015/1/8)

Modules:

Item		Version
VM Image	Compatible with vSphere 5.5 and plus	CT-VM_2.1.8_0063_1115.ova
FW	CT-4000/ CT-4000R	CT-4000(R)_2.2.1_0027_1726.bin
	CT-8000R/ CT-8000RP	CT-8000R(P)_2.2.1_0027_1722.bin
	VM	CT-VM_2.2.1_0027_1731.bin
	Device Pack	v3.10
Application	Crystal NuClient - Windows	v2.2.1.0
	Crystal NuClient - Mac	v2.2.1.0

Special Notice:

A. Crystal v2.2.1 solves two issues found after release of Crystal v2.2.0. There is no new feature added in Crystal v2.2.1, and its specification and compatibility list are totally identical to those of Crystal v2.2.0.

B. Crystal v2.2.1 and Crystal v2.2.0 are fully compatible to each other.

Issue Solved:

A. TitanNVR 4-ch embedded license is not functional after upgrading to Crystal v2.1.8 and later.

B. Several temporary folders were created under "C:\" after executing "Test connection" in System Navigator Configuration of NuClient, which is annoying to users.

Release Version v2.2.0 (2014/12/30)

Modules:

Item		Version
VM Image	Compatible with vSphere 5.5 and plus	CT-VM_2.1.8_0063_1115.ova
FW	CT-4000/ CT-4000R	CT-4000(R)_2.2.0_0025_1939.bin
	CT-8000R/ CT-8000RP	CT-8000R(P)_2.2.0_0025_1942.bin
	VM	CT-VM_2.2.0_0025_1945.bin
	Device Pack	v3.10
Application	Crystal NuClient - Windows	v2.2.0.19
	Crystal NuClient - Mac	v2.2.0.19

New Feature:

A. New **CT-PRO** license (Crystal Professional) is introduced, and Video Wall is supported by enterprise-level license. Crystal VM does not support professional-level license.

License Level / Function	Ultimate: CT-ULT CV-ULT (VM)	Enterprise: CT-ENT CV-ENT (VM)	Professional: CT-PRO
Recording Failover	O		
Video Wall	O	O	

Table 1: License level specification

B. NUUO Crystal™ allows having hybrid licenses (both CT and CV) in one management server. Please see release note of v2.1.8 for details.

C. One video server only charges 1-ch license.

D. Multi-site support by **System Navigator**: cameras from different management servers can be watched in one NuClient. Configuration among multiple management servers can be achieved in one NuClient.

E. **Fisheye Dewarp Calibration**: each fisheye camera can be calibrated manually for precise dewarp result.

F. **Diagnostic Service**: collect important server and client logs from NuClient to improve troubleshooting process, especially when NUUO Crystal™ is deployed in a closed LAN environment.

G. **Multi-stream Settings**: configure each stream of camera in NuClient.

H.   Support ***Videotec DCZ Keyboard*** and ***CH Products VM Desktop*** joystick.

Enhancement:

A.   Motion Search enhancement: found motion events are listed while motion search is carrying on.

B.   PTZ enhancement: support joystick control mode with speed.

C.   Support auto-pan.

D.   WAN enhancement: reduce possibility of login failure due to unstable network environment.

E.   Support multiple PTZ-motor for multiple channel video servers.

F.   Context-sensitive user manual.

Issue Solved:

1.   Recording server crashed due to large amount concurrent event log querying operations.

2.   System hanged when activating license.

3.   Hotfix of ShellShock vulnerability.

4.   Red recording indicator was not triggered due to very long key-frame interval.

5.   Metadata search failed for special characters like æ, ø and å.

6.   Daylight-saving process crashed due to integer overflow.

Version Compatibility Notice:

A.   It is recommended that servers and clients should be with identical version.

B.   Backward compatibility will be fulfilled since NUUO Crystal™ v3.0.

Known Issue:

New known issue of v2.2.0

[Server]

A.   CPU temperature from CT-4000 series will be displayed as (<50℃) due to new behavior of driver of CT-4000 series mainboard.

B.   NIC may crash and recover in a short time due to TSO of network driver. Disable TSO can prevent this.

[NuClient]

A.   Avoid login identical management server multiple times when configuring **System Navigator**.

B.   Control privilege is dominated by user who login the main management server when using **System Navigator**.

C.   Default fisheye calibration parameters are not retrievable when connecting v2.1.4 server by v2.2 NuClient.

D.   Using Vivotek Dewarp for Vivotek FE8174 Fish Eye Mode is poor in performance. Please use NUUO Generic Dewarp instead.

[NuMatrix]

A.   In a rare case, NuMatrix kept disconnected after connecting for a long time. This issue will be solved in NUUO Crystal™ v3.0.

Known issue from previous version

[Server]

A.   C31A plugin v2.0.1.1 embedded with Crystal v2.1.4 did not function. Please downgrade C31A plugin to v2.0.0.9 (POS_C31A_2.0.0.9.nmp).

[NuClient]

A.   Digital PTZ is not compatible with Vivotek Dewarp. Please use NUUO Generic Dewarp instead.

B.   Playback on Mobotix Q24M-Sec on MxPEG is not smooth.

[NuMatrix] N/A

Release Version v2.1.8 (2014/12/08)

Modules:

Item		Version
VM Image	Compatible with vSphere 5.5 and plus	CT-VM_2.1.8_0063_1115.ova
FW	CT-4000/ CT-4000R	CT-4000(R)_2.1.8_0063_1646.bin
	CT-8000R/ CT-8000RP	CT-8000R(P)_2.1.8_0063_1643.bin
	VM	CT-VM_2.1.8_0068_1157.bin
	Device Pack	v3.8
Application	Crystal NuClient - Windows	v2.1.8.6
	Crystal NuClient - Mac	v2.1.8.6

New Feature:

A. Support pure software distribution on VMware vSphere hypervisor.

B. Support VMWare's HA, FT, vMotion, and HA-App capabilities.

C. New CV-ENT and CV-ULT licenses are required when deploying recording server on virtual machine. The detailed license requirements are shown in Table 1. NUUO Crystal™ allows having hybrid licenses (both CT and CV) in one management server.

Recording Server / Management Server	On CT-4000 or CT-8000	On VM
On CT-4000 or CT-8000	CT-ENT or CT-ULT	CV-ENT or CV-ULT
On VM	CT-ENT or CT-ULT	CV-ENT or CV-ULT

Table 1: License requirement for different deployment

D. Sixty-four (64) 30 days free-trial licenses (Ultimate-level) are included in the VMware distribution.

E. Features only available in VMware distribution:

a. Allow local configuration of network IP address.

b. Local display window now includes:

- NVR and device pack firmware version information,
- Network address information,
- System integrator contact information.

Enhancement:

A. Boost network connection speed between NVR and all IP cameras.

B.   Update sensor drivers for both fan and CPU temperature indicators to handle Intel's bug which may result in wrong temperature readouts.

Issue Solved: N/A.

Version Compatibility Notice: N/A.

Known Issue:

New known issue from v2.1.8

[Server] N/A

[NuClient]

A.   Possible text overlaid problem when displaying trial license expiration information. (Low replication rate)

[NuMatrix]N/A

Known issue from previous version

 [Server]

A.   It will export a period without video and metadata of the exported file if the period doesn't have video.

B.   When multiple servers log in one LUN in iSCSI, sometimes the volume in iSCSI can't be identified correctly.

C.   [Arecont] If the connection of some Arecont 4-lens cameras is not stable, please upgrade to Device pack v3.7.

[NuClient]

A.   Sometimes display of the device status is not synchronized on Liveview/Playback/Config/System Overview tab.

B.   Sometimes when user import configuration or update device update on IE 11, web client will stop.

C.   When choose ASCII encoding on Metadata string filter setting, and there are some special text sending from Metadata device, NuClient might stop.

D.   When there are huge event send to NuClient (>850 event/second),

NuClient might need to wait for a long time to keep operation.

[NuMatrix]

A.   Sometimes when operating digital PTZ of fisheye camera on NuMatrix, the video won't update.

Release Version v2.1.4 (2014/8/25)

Modules:

Item		Version
FW	CT-4000/ CT-4000R	CT-4000(R)_2.1.4_0047_1507.bin
	CT-8000R/ CT-8000RP	CT-8000R(P)_2.1.4_0047_1511.bin
	Device Pack	v3.6
Application	Crystal NuClient - Windows	v2.1.4.14
	Crystal NuClient - Mac	v2.1.4.14

New Feature:

A. Support Video Popup-- a new action for events (available on NuClient and NuMatrix)

B. NUUO Dewarp v2.0 for fisheye cameras:

   a. GPU acceleration to improve the dewarp performance and quality

   b. Generic dewarp for Onvif-integrated fisheye cameras

   c. Dewarp pre-calibration for integrated fisheye camera*

C. Support new event: IO box connection lost

D. New language supported: Germany

   * Supported camera: ACTi E96, Axis M3007, Brickcom 30xN, Mobotix Q25M_Secure, Sony SNC_HM662, Vivotek FE8174, FE8174

Enhancement:

A. Add new actions for recording related events (Fail to write to drive, Volume operation error, Volume group no functional volume, Recording module error, Metadata DB error)

   New Action for the event:

   a. DO trigger

   b. Play alert sound on NuClient

B. Enhance smart fan mechanism

C. Improve NuClient login lead time and error handling

D. Improve PTZ response time

E. Improve Recording Server initialization time to speed up the time period of Recording Failover to Recording Server

    F.   Enhance string translation of Russian

Issue Solved:

    A.   Solve the issue that when Management Server doesn't connect to Internet, the NTP server function will be disabled.

    B.   Solve the issue that when Crystal operates over 49 days, the daylight-saving function and NTP time synchronization function might stop work.

Version Compatibility Notice:

    A.   Please use Installation Wizard v2.1 to search v2.1 or above Crystal server; use Installation Wizard v2.0 to search v2.0 server.

    B.   Once upgrading system to Crystal v2.1.4, it is not supported to downgrade to Crystal v2.1.0 or previous version.

    C.   Please ensure all servers and clients(Management Server/ Recording Server/ Metadata Server/ NuClient/ NuMatrix) in the system are in the same product version(v2.0.0 or v2.1.0, or v2.1.4).

Suggested upgrade SOP:

1) Backup all configuration in the system

2) Upgrade Management Server

3) Upgrade Recording Server and Metadata Server

4) Upgrade NuClient and NuMatrix application

5) Make sure all servers and clients are in the same version

Known Issue:

New known issue from v2.1.4

[Server]

    A.   It will export a period without video and metadata of the exported file if the period doesn't have video.

    B.   When multiple servers log in one LUN in iSCSI, sometimes the volume in iSCSI can't be identified correctly.

    C.   [Arecont] If the connection of some Arecont 4-lens cameras is not stable, please upgrade to Device pack v3.7.

[NuClient]

A.   Sometimes display of the device status is not synchronized on Liveview/Playback/Config/System Overview tab.

B.   Sometimes when user import configuration or update device update on IE 11, web client will stop.

C.   When choose ASCII encoding on Metadata string filter setting, and there are some special text sending from Metadata device, NuClient might stop.

D.   When there are huge event send to NuClient (>850 event/second), NuClient might need to wait for a long time to keep operation.

[NuMatrix]

A.   Sometimes when operating digital PTZ of fisheye camera on NuMatrix, the video won't update.

Known issue from previous version

[Server]

A.   [License] The maximum number of license serial number activation is 178 serial numbers.

Ex. If one the system has 200ch camera, it is suggest activating one 200ch serial number, rather than 200 1ch licenses.

B.   [Recording Failover Server] When Recording Server activate manual record and then server disconnected, the Recording Failover Server taking over the Recording Server will keep the target Recording Server original recording settings, rather than manual record operating.

C.   Please shut down Crystal server before plug out hard drive from hardware.

D.   Sometimes, switch between Recording Server "Recording" mode and "Recording Failover" type and then commit immediately, "commit fail" message will popup but it succeed.

E.   Some languages not supported will still be able to choose on web client entrance page and display string in English.

F.   [Mobotix] Camera resolution width more than 2560 pixel or height more than 1536 pixel from Mobotix camera is not supported.

G.   [Web] When "modifying" HDD and the bandwidth is not enough, it is possible to popup "modify fail" message, but the modification is success.

H.   [Management Server] Users shall export/ import whole system

configuration into new system, or "associated camera" configuration can't be copy to the target server.

I. [Management Server] If pull out HDD suddenly when system operating, some system event will not be triggered normally.

J. For "DO trigger" and "camera go to preset" action, it doesn't not support system automatically close these actions after assigned time period.

K. [Web][Firefox] The web port should be "80". (Firefox limitation)

L. [Camera] [Sony_SNC_DS60] Motion event won't be triggered

M. [Camera] [Sony_SNC_DS60] When trying to trigger camera DO2, the DO1 will be triggered, rather than DO 2.

[NuClient]

A. After upgrading device pack, please re-login NuClient so that the device pack version on system overview will be refreshed.

B. [VIVOTEK FE8174] When NuClient dewarp the camera by VIVOTEK SDK in full-view panorama mode, motion on the video will cause broken video frame.

C. On Playback timeline, all events available to set up in the system will display event log line on timeline, even the event is not assigned by user or not in event schedule.

D. If camera video frame is 1 fps, sometimes the live viewing of the video will stop.

E. Some nVIDIA VGA card(9600GSO, 9800GT) will cause NuClient CPU loading increase.

F. [Mac] Sometimes if editing and then committing a lot of view on Mac, the commit will fail.

G. [WAN] On WAN environment, sometimes NuClient will popup RPC error when logging in Management Server due to the network connection is not stable or the bandwidth is not enough. The issue will happen more frequently in Windows XP.

H. [WAN] On WAN environment, sometimes live view will stop due to the network connection is not stable or the bandwidth is not enough.

I. When the network connection is not stable, sometimes the video exists but video timeline/event sign on timeline/calendar view will not display video record sign.

J. [Metadata] Need to wait for a while for metadata timeline display when there are a lot of channels of metadata.

K. Not support metadata export as mov and original AVI file.

L. If video is recycled, users shall re-login so that the timeline on playback will be clear.

M. Not support cross resolution export. Please export video cross resolution into different videos.

N. It can't export video in H.264 format with SPS/PPS header to .mov file. Honeywell_HD3MDIH/ Sony-SNC_RX530 utilize this format, so on Mac OS, the video cannot be exported in H.264 because Mac only supports .mov export.

O. When the network connection is not stable, and commit multiple Views to server, it might fails and popup RPC error (-1) message.

P. If using joystick to control optical PTZ on popup video, sometimes the NuClietn might automatically close.

Q. [Web Client] On web NuClient, after installing metadata plugin in the first time, users should press "F5" to refresh the interface to view the plugin.

R. [Mac] When event triggering audio notification on NuClient, and manual stop the audio or change audio file, NuClient might be closed on Mac OS.

S. [Mac] The number of total connection per Mac client shall be under 500ch.

T. [Camera] When rename preset point for some camera, it might add another preset point, rather than modify the assigned one. (Camera preset point settings format limitation.)

U. [Camera] [Axis_P1354/ Axis M1054] In AAC audio codec, the voice can't be heard.

V. [Camera] [Santec] In H.264, AAC audio codec, the voice is not clear.

W. [Camera] [Sony_SNC-CH280/ Sony_SNC-EP52] When using G.711_64K, the voice might be lag or not clear.

X. [Camera] [LG_LW352] G.726 24K audio codec doesn't work.

Y. [Camera] [LG_LW130W] Audio codec "G.711 PCMA" and "G.726 24K" is not clear.

Z. [Camera] [Everfocus_EMN 2220/Messoa_NCR875PRO] Audio on playback is not smooth.

AA. [Camera] [Zavio_P5116] The H.264 format is not smooth on Playback.

BB. [Camera] [Fine_TCP-VM559] H.264 can't be export as .mov.

CC. [Language] Some words on the interface will display in English, not

the chosen language.

DD. [Language] Installation wizard not support Thai.

[NuMatrix] (Available in Ultimate level)

A. When camera disconnect and then automatically connect, users need to manually disconnect and then connect the camera on NuMatrix tool bar to update the status. (Video live viewing will operate normally.)

Release Version v2.1.0 (2014/5/28)

Modules:

Item		Version
FW	CT-4000/ CT-4000R	CT-4000(R)_2.1.0_0024_1823.bin
	CT-8000R/ CT-8000RP	CT-8000R(P)_2.1.0_0024_1826.bin
	Device Pack	v3.3
Application	Crystal NuClient - Windows	v2.1.0.19
	Crystal NuClient - Mac	v2.1.0.19

New Feature:

A. Support N+M Recording Failover group

B. Support system status monitoring (System Overview)

C. Support NUUO A08 IO box

D. Support new system event

- Volume operation error (Recording Server)
- Volume Group no functional volume (Recording Server)
- Recording Module error (Recording Server)
- Power Failed (Redundant power CT-8000RP model)
- No available Failover Server for disconnected Recording Server (Ultimate level)

E. New language supported: French, Swedish, Simplified Chinese

F. Support Recording Server local display

Enhancement:

A. Handle SSL heartbleed security issue

B. Volume Group Self-Failover: In the unlikely event of volume group

failure, cameras are automatically distributed across the remaining volume groups, providing volume group failover

    C.   Support selecting channel on Backup Player

    D.   Improve error handling in hard disk failure issue

Issue Solved:

    A.   [FAE] Solve the issue that on the calendar of NuClient Playback, sometimes the date with video record will not be highlighted.

    B.   [FAE] Solve the issue that on the "Normal" status of boosting record (record in low frame rate), audio from the camera is not recorded.

    C.   Solve the issue that sometimes Metadata Search by regular expression will cause Metadata Server stop receiving data for several minute.

Version Compatibility Notice:

    A.   Please use Installation Wizard v2.1 to search v2.1 Crystal server; use Installation Wizard v2.0 to search v2.0 server.

    B.   Once upgrading system to Crystal v2.1, it is not supported to downgrade to Crystal v2.0.

    C.   Please ensure all servers and clients(Management Server/ Recording Server/ Metadata Server/ NuClient/ NuMatrix) in the system are in the same product version(v2.0 or v2.1).

        Suggested upgrade SOP:

        6) Backup all configuration in the system

        7) Upgrade Management Server

        8) Upgrade Recording Server and Metadata Server

        9) Upgrade NuClient and NuMatrix application

        10)   Make sure all servers and clients are in the same version

Known Issue:

New known issue from v2.1.0

[Server]

    A.   [License] The maximum number of license serial number activation is 178 serial numbers.

        For example, if one the system has 200ch camera, it is suggest

activating one 200ch serial number, rather than 200 1ch licenses.

B.   [Event Action] DO trigger action is not supported on disk abnormal event but it available on Config tab for setup.

C.   [Recording Failover Server] When Recording Server activate manual record and then disconnect, the Recording Failover Server taking over the Recording Server will keep the target Recording Server original recording settings, rather than manual record operating.

D.   Please shut down Crystal server before plug out hard drive from hardware.

E.   Sometimes, switch between Recording Server "Recording" mode and "Recording Failover" type and then commit immediately, "commit fail" message will popup but it succeed.

F.   Some languages not supported will still be able to choose on web client entrance page and display string in English.

G.   [Mobotix] Camera resolution width more than 2560 pixel or height more than 1536 pixel from Mobotix camera is not supported.

[NuClient]

A.   After upgrading device pack, please re-login NuClient so that the device pack version on system overview will be refreshed.

B.   [VIVOTEK FE8174] When NuClient dewarp the camera by VIVOTEK SDK in full-view panorama mode, motion on the video will cause broken video frame.

C.   On Playback timeline, all events available to set up in the system will display event log line on timeline, even the event is not assigned by user or not in event schedule.

D.   If camera video frame is 1 fps, sometimes the live viewing of the video will stop.

E.   Some nVIDIA VGA card(9600GSO, 9800GT) will cause NuClient CPU loading increase.

F.   [Mac] Sometimes if editing and then committing a lot of view on Mac, the commit will fail.

G.   [WAN] On WAN environment, sometimes NuClient will popup RPC error when logging in Management Server due to the network connection is not stable or the bandwidth is not enough. The issue will happen more frequently in Windows XP.

H.   [WAN] On WAN environment, sometimes live view will stop due to the network connection is not stable or the bandwidth is not enough.

Known issue from v2.0.4

[Server]

A. [Web] When "modifying" HDD and the bandwidth is not enough, it is possible to popup "modify fail" message, but the modification is success.

B. [Management Server] Users shall export/ import whole system configuration into new system, or "associated camera" configuration can't be copy to the target server.

C. [Management Server] If pull out HDD suddenly when system operating, some system event will not be triggered normally.

D. For "DO trigger" and "camera go to preset" action, it doesn't not support system automatically close these actions after assigned time period.

E. [Web][Firefox] The web port should be "80". (Firefox limitation)

F. [Camera] [Sony_SNC_DS60] Motion event won't be triggered

G. [Camera] [Sony_SNC_DS60] When trying to trigger camera DO2, the DO1 will be triggered, rather than DO 2.

[NuClient]

A. When the network connection is not stable, sometimes the video exists but video timeline/event sign on timeline/calendar view will not display video record sign.

B. [Metadata] Need to wait for a while for metadata timeline display when there are a lot of channels of metadata.

C. If system only has one volume but shared by Recording Server and Management Server, sometimes on NuClient Properties widget, the volume name will show "volume 2".

D. Not support metadata export as mov and original AVI file.

E. If video is recycled, users shall re-login so that the timeline on playback will be clear.

F. Not support cross resolution export. Please export video cross resolution into different videos.

G. It can't export video in H.264 format with SPS/PPS header to .mov file. Honeywell_HD3MDIH/ Sony-SNC_RX530 utilize this format, so on Mac OS, the video cannot be exported in H.264 because Mac only supports .mov export.

H. When the network connection is not stable, and commit multiple Views to server, it might fails and popup RPC error (-1) message.

I.   If using joystick to control optical PTZ on popup video, sometimes the NuClietn might automatically close.

J.   [Web Client] On web NuClient, after installing metadata plugin in the first time, users should press "F5" to refresh the interface to view the plugin.

K.   [Mac] When event triggering audio notification on NuClient, and manual stop the audio or change audio file, NuClient might be closed on Mac OS.

L.   [Mac] The number of total connection per Mac client shall be under 500ch.

      *If one camera utilizes multiple stream, each stream will count for one connection, so the total number of device connected shall be lower than 500ch.

M.   [Camera] When rename preset point for some camera, it might add another preset point, rather than modify the assigned one. (Camera preset point settings format limitation.)

N.   [Camera] [Axis_P1354/ Axis M1054] In AAC audio codec, the voice can't be heard.

O.   [Camera] [Santec] In H.264, AAC audio codec, the voice is not clear.

P.   [Camera] [Sony_SNC-CH280/ Sony_SNC-EP52] When using G.711_64K, the voice might be lag or not clear.

Q.   [Camera] [LG_LW352] G.726 24K audio codec doesn't work.

R.   [Camera] [LG_LW130W] Audio codec "G.711 PCMA" and "G.726 24K" is not clear.

S.   [Camera] [Everfocus_EMN 2220/Messoa_NCR875PRO] Audio on playback is not smooth.

T.   [Camera] [Zavio_P5116] The H.264 format is not smooth on Playback.

U.   [Camera] [Fine_TCP-VM559] H.264 can't be export as .mov.

V.   [Language] Some words on the interface will display in English, not the chosen language.

W.   [Language] Installation wizard not support Thai.

X.   [Language] The system only support 12 languages, but some other languages() are available to be chosen and display in English.

[NuMatrix] (Available in Ultimate level)

A.   When camera disconnect and then automatically connect, users need to manually disconnect and then connect the camera on

NuMatrix tool bar to update the status. (Video live viewing will operate normally.)

Release Version v2.0.4 (2014/2/25)

Modules:

Item		Version
FW	CT-4000/ CT-4000R	CT_4000(R)_2.0.4_0086_1450.bin
	CT-8000R/ CT-8000RP	CT_8000R(P)_2.0.4_0086_1453.bin
	Device Pack	2.20
Application	Crystal NuClient - Windows	2.0.4.7
	Crystal NuClient - Mac	2.0.4.7

*For WAN project suggestion, please refer to http://www.nuuo.com/wiki.php#

New Feature:

A. Support Windows 8.1 and IE 11

B. Support NUUO Retail Gateway (wide POS software support, US only)

C. Support Spanish

D. Support device pack upgrade independently from server firmware

Enhancement:

A. Speed up PTZ send command speed

B. Improve NUUO generic fisheye dewarp quality by enhancing algorithm

C. Video playback will be switch to i-frame mode when bandwidth is not enough

D. Built in NUUO C31A as default metadata plugin

E. Improve redundant power signal control

Support Language: (12 languages)

A. Czech

B. Chinese (Traditional)

C. English

D. Finnish

E. Japanese

F. Korean

G. Polish

H. Portuguese (Brazil)

I. Russian

J. Spanish

K. Thai

L. Turkish

Issue Solved:

A. Solve the issue that if cameras use specific audio codec, the audio playback might be not smooth, e.x Samsung SND-5080N.

B. Solve the issue that NuClient and NuMatrix might disconnect when operate View Tour on NuMatrix

C. Solve the issue that NuMatrix may disconnect with NuClient matrix control console

D. Solve the issue that on Backup Player, when reverse playback in more than 2x speed and then reverse playback in 1x speed, the AP will stop.

E. [Mac] On Mac OS, when snapshot and print it from NuClient's interface, NuClient might be possible to stop for a while.

F. Solve the issue that after importing configuration to the system, sometimes the Metadata Server needs to restart to connect.

Known Issue:

[Server]

A. [Web] When upgrading firmware, the network bandwidth should be more than 4 mbps.

B. [Web] When "modifying" HDD, it is possible that the modification time out so display modify fail, but the modification is success due to not enough network bandwidth.

C. [Management Server] Users shall export/ import whole system configuration into new system, or "associated camera" configuration can't be copy to the target server.

D. [Management Server] If pull out HDD suddenly when system operating, some system event will not be triggered normally.

E. For "DO trigger" and "camera go to preset" action, it doesn't not

support system automatically close these actions after assigned time period.

F.   [Web][Firefox] The web port should be "80". (Firefox limitation)

G.   [Camera] [Sony_SNC_DS60] Motion event won't be triggered

H.   [Camera] [Sony_SNC_DS60] When trying to trigger camera DO2, the DO1 will be triggered, rather than DO 2.

[NuClient]

A.   When the connection status is not stable, sometimes the video exists but video timeline, event sign on timeline, and calendar view will not display video record sign.

B.   [Metadata] Need to wait for a while for metadata timeline display when there are a lot of channels of metadata.

C.   If system only has one volume but shared by Recording Server and Management Server, sometimes on NuClient Properties widget, the volume name will show "volume 2".

D.   Not support metadata export as mov and original AVI file.

E.   If video is recycled, users shall re-login so that the timeline on playback will be clear.

F.   Not support cross resolution export. Please export video cross resolution into different videos.

G.   It can't export video in H.264 format with SPS/PPS header to .mov file. Honeywell_HD3MDIH/ Sony-SNC_RX530 utilize this format, so on Mac OS, the video cannot be exported in H.264 because Mac only supports .mov export.

H.   When the network connection is not stable, and commit multiple Views to server, it might fails and popup RPC error (-1) message.

I.   If using joystick to control optical PTZ on popup video, sometimes the NuClietn might automatically close.

J.   [Web Client] On web NuClient, after installing metadata plugin in the first time, users should press "F5" to refresh the interface to view the plugin.

K.   [Mac] When event triggering audio notification on NuClient, and manual stop the audio or change audio file, NuClient might be closed on Mac OS.

L.   [Mac] The number of total connection per Mac client shall be under 500ch.

       *If one camera utilizes multiple stream, each stream will count for one connection, so the total number of device connected shall be

lower than 500ch.

M.   [Camera] When rename preset point for some camera, it might add another preset point, rather than modify the assigned one. (Camera preset point settings format limitation.)

N.   [Camera] [Axis_P1354/ Axis M1054] In AAC audio codec, the voice can't be heard.

O.   [Camera] [Santec] In H.264, AAC audio codec, the voice is not clear.

P.   [Camera] [Sony_SNC-CH280/ Sony_SNC-EP52] When using G.711_64K, the voice might be lag or not clear.

Q.   [Camera] [LG_LW352] G.726 24K audio codec doesn't work.

R.   [Camera] [LG_LW130W] Audio codec "G.711 PCMA" and "G.726 24K" is not clear.

S.   [Camera] [Everfocus_EMN 2220/Messoa_NCR875PRO] Audio on playback is not smooth.

T.   [Camera] [Zavio_P5116] The H.264 format is not smooth on Playback.

U.   [Camera] [Fine_TCP-VM559] H.264 can't be export as .mov.

V.   [Language] Some words on the interface will display in English, not the chosen language.

W.   [Language] Installation wizard not support Thai.

X.   [Language] The system only support 12 languages, but some other languages() are available to be chosen and display in English.

[NuMatrix] (Ultimate only)

A.   When camera disconnect and then automatically connect, users need to manually disconnect and then connect the camera on NuMatrix tool bar to update the status. (Video live viewing will operate normally.)

Release Version v2.0.3 (2013/11/4)

Modules:

Item		Version
FW	CT-4000/ CT-4000R	CT-4040_2.0.0_0074_1042.bin
	CT-8000R/ CT-8000RP	CT-8000R_2.0.0_0074_1044.bin
	Device Pack	v2.18
Application	Crystal NuClient	MAC: Crystal_2.0.3_AP_MacOSX.zip Windows: Crystal_2.0.3_AP_Windows.zip

Main Features:

[Server]

A. Centralized management to manage unlimited devices and events on unified NuClient.

B. Built-in Management Server, Recording Server and Metadata Server in one Crystal Titan

C. 3rd party integration for Metadata Server—POS via TCP client or C31A, Falco Access Control

D. Onvif ProfileS compatible

E. Record up to 64 megapixel cameras per recording server

F. High throughput (250Mbps) supporting up to 64x 5-Megapixel cameras (based on H.264, 10 fps, moderate traffic)

   *Please refer to NUUO calculator: http://www.nuuo.com/calculator/

G. Volume group to distribute cameras to assigned volumes

H. Individual recycle condition (IRC) per device

I. Support RAID 0,1, 5, and 10

J. Camera multiple stream support

K. Stream up to 256ch live viewing connections per server to multiple clients simultaneously

L. Camera edge motion detection

M. Support continuous, scheduled, event based and I/O based recording

N. Synchronized audio and video recording

O. Dual gigabit Ethernet ports

P. Centralized I/O and event respond systems

Q.   PTZ control priority

R.   Powerful authorization for device permission and function privilege

S.   Schedule-based user management

T.   Scheduled Backup video to FTP location

U.   Multiple codec support : H.264, MJPEG, MPEG4 and MxPEG

V.   Watermark for video verification

W.   Support NTP (Internet Time Server)

X.   Support hardware watchdog (CT-8000R and CT-8000RP)and software watchdog

Y.   Support redundant power (CT-8000RP)

Z.   Support up to 256 NUUO I/O boxes per server (SCB-C24/C26/C28)

AA.   Support APC Uninterrupted Power Supply

[Client]

A.   All in one NuClient for remote configuring and viewing

B.   Unlimited channels of NuMatrix Video Wall (Ultimate)

C.   Up to 400CH of video live view for each NuClient application

*Refer to http://www.nuuo.com/calculator/

D.   Centralized E-map

E.   Centralized I/O Panel and Event Panel

F.   NUUO Image Fusion Technology–stitch up to 10 cameras together

G.   Generic Fisheye Dewarp technology for all fisheye cameras

H.   Support digital and optical PTZ

I.   Support preset and patrol

J.   Support multiple stream profile

K.   Support automatically and simultaneously switch stream profile for View

L.   Public and private view/ view profile for each user

M.   Instant Playback on live view, e-map and event list

N.   Save video clips into Original AVI, AVI ASF, and MOV.

O.   Export video on AVI format with 3rd part data overlay

P.   Intelligent Search in playback

Support Language: (11 languages)

A. Czech

B. Chinese (Traditional)

C. English

D. Finnish

E. Japanese

F. Korean

G. Polish

H. Portuguese (Brazil)

I. Russian

J. Thai

K. Turkish

Known Issue:

[Server]

A. [Web] When upgrading firmware, the network bandwidth should be more than 4 mbps.

B. [Web] When "modifying" HDD, it is possible that the modification time out so display modify fail, but the modification is success due to not enough network bandwidth.

C. [Management Server] Users shall export/ import whole system configuration into new system, or "associated camera" configuration can't be copy to the target server.

D. [Management Server]During hot swap HDD, some system event will not be triggered.

E. When assign one volume for recording, and then go to the Metadata Sever in the same Crystal Titan soon, it is possible that the volume can be assign as metadata volume, and record both of video and metadata stream in one volume and affect the throughput and recycle.

F. Automatically close action after n sec. function is not supported on "DO trigger" and "camera go to preset" action.

G. It is possible that after import configuration to the system, Metadata Server need to restart to connect.

H. [Web][Firefox] The web port should be "80". (Firefox limitation)

I. [Camera] [Sony_SNC_DS60] Motion event won't be triggered

J.   [Camera] [Sony_SNC_DS60] When trying to trigger camera DO2, the DO1 will be triggered, rather than DO 2.

[NuClient]

A.   [Metadata] Need to wait for a while for metadata timeline display when there are a lot of channels of metadata.

B.   Not support metadata export as .mov and original AVI file, so on Mac environment, it cannot export metadata stream because it only supports .mov export. (Format decode limitation)

C.   After recycle, users shall re-login so that the timeline on playback will be clear.

D.   When server throughput or CPU loading is high, or bandwidth is not enough, Playback will not smooth.

E.   Not support cross resolution export. Please export video cross resolution into different videos.

F.   Crystal not supports export H.264 SPS/PPS format as .mov file. Honeywell_HD3MDIH/ Sony-SNC_RX530 utilize this format, so on Mac OS, the video cannot be exported in H.264 because Mac only supports .mov export.

G.   When the network connection is not stable, and commit multiple Views to server, it might fails and popup RPC error (-1) message.

H.   If using joystick to control optical PTZ on popup video, the NuClietn might close sometimes.

I.   On Backup Player, it not supports reverse playback in more than 2x speed and then reverse playback in 1x speed.

J.   [Web Client] On web NuClient, after installing metadata plugin in the first time, users should press "F5" to refresh the interface to view the plugin.

K.   [Mac] When "print" snapshot from NuClient's interface, NuClient might be possible to hang on Mac OS.

L.   [Mac] When event triggering audio notification on NuClient, and manual stop the audio or change audio file, NuClient might be closed on Mac OS.

M.   [Mac] When using joystick to control next or previous grid on playback, it might be possible to focus to other grid first, and then the assigned grid on Mac OS.

N.   [Mac] It is suggested that the number of total connection per Mac client shall be under 500ch.

   *If one camera utilizes multiple stream, each stream will count for

one connection, so the total number of device connected shall be lower than 500ch.

O.   [Camera] When rename preset point for some camera, it might add another preset point, rather than modify the assigned one. (Camera preset point settings format limitation.)

P.   [Camera] [Axis_P1354/ Axis M1054] In AAC audio codec, the voice can't be heard.

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T.   [Camera] [LG_LW130W] Audio codec "G.711 PCMA" and "G.726 24K" is not clear.

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X.   [Language] Some words on the interface will display in English, not the chosen language.

Y.   [Language] Installation wizard not support Thai.

[NuMatrix] (Ultimate only)

A.   When camera disconnect and then automatically connect, users need to manually disconnect and then connect on NuMatrix tool bar to update the status. (Live view will operate normally.)

B.   It's not recommend to use View tour on NuMatrix.

Remote Client PC Requirement:

Client PC Minimum Requirements		
Operating System	Windows XP (32-bit)/Windows 7 (32/64-bit)/Windows 8(32/64-bit) Mac OSX (v10.6/10.7/10.8)	
CPU	Intel Core 2 Duo, 2.6GHz	
Display Card	nVidia or ATI with 1GB memory (OpenGL 2.0 and later)	
OS Supported	Windows XP 32 bit	Windows 7 32/64 bit Windows 8(32/64-bit) Windows 8.1(32/64-bit) Mac OS X 10.6/10.7(64-bit)
RAM	1GB	2GB
LAN Transmission Speed	10/100/1000 Mbps (RJ45)	
Web Client	Internet Explorer 8, 9, 10, 11 Firefox 4.0-9.0 (Windows version)	

*It is suggested to use 64 bit system for best system performance.