QNAP
SECURITY

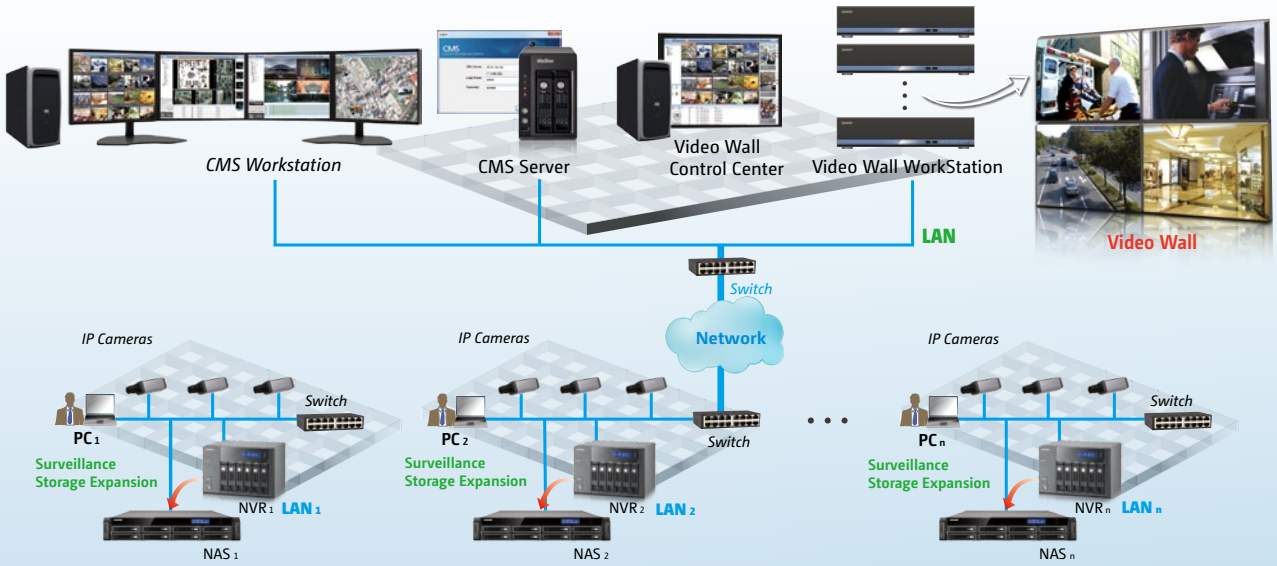
Innovative Network Video Recorder and Total Surveillance Solution

- VioStor NVR
- VioStor CMS Server, CMS Workstation, Video Wall Control Center, Video Wall Workstation
- Turbo NAS for NVR storage expansion & backup

Linux-embedded

Environment Friendly

QNAP Surveillance Solution



QNAP VioStor NVR

NVR Innovative Network Video Recorder
VS-12164U-RP/12156U-RP/ 12148U-RP/12140U-RP Pro+

- 12-bay, 48TB, 2U chassis,64/56/48/40-channel
- Dual-core Intel® 3.3GHz CPU
- Redundant power supply available
- Remarkable high definition(HD) local display
- High quality megapixel recording
- Max network throughput: 450 Mbps*

NVR Innovative Network Video Recorder
VS-8148U-RP/8140U-RP/ 8132U-RP/8124U-RP Pro+

- 8-bay, 32TB, 2U chassis, 48/40/32/24-channel
- Dual-core Intel® 3.3GHz CPU
- Redundant power supply available
- Remarkable high definition(HD) local display
- High quality megapixel recording
- Max network throughput: 400 Mbps*

NVR Innovative Network Video Recorder
VS-8148/8140/8132/8124 Pro+

- 8-bay, 32TB, 48/40/32/24-channel
- Dual-core Intel® 3.3GHz CPU
- Remarkable high definition(HD) local display
- High quality megapixel recording
- Max network throughput: 400 Mbps*

NVR Innovative Network Video Recorder
VS-6120/6116/6112 Pro+

- 6-bay, 24TB, 20/16/12-channel
- Dual-core Intel® CPU
- Remarkable high definition(HD) local display
- High quality megapixel recording
- Max network throughput: 330 Mbps*

NVR Innovative Network Video Recorder
VS-4016U-RP/4012U-RP/ 4008U-RP Pro

- 4-bay, 16TB, 1U chassis, 16/12/8-channel
- Dual-core Intel® Atom™ CPU
- Redundant power supply available
- Network surveillance by high definition (HD) local display
- High quality megapixel recording
- Max network throughput: 176 Mbps*

NVR Innovative Network Video Recorder
VS-4116/4112/4108 Pro+

- 4-bay, 16TB, 16/12/8-channel
- Dual-core Intel® CPU
- Remarkable high definition(HD) local display
- High quality megapixel recording
- Max network throughput: 250 Mbps*

NVR Innovative Network Video Recorder
VS-2112/2108/2104 Pro+

- 2-bay, 8TB, 12/8/4-channel
- Dual-core Intel® CPU
- Remarkable high definition(HD) local display
- High quality megapixel recording
- Max network throughput: 180 Mbps*

NVR Innovative Network Video Recorder
VS-2008L/2004L

- 2-bay, 6TB, 8/4-channel
- Marvell® 1.2 GHz CPU
- Max network throughput: 28 Mbps*
- Power-saving design, consumes only 13W

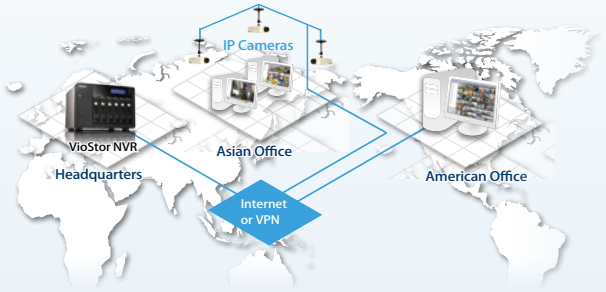
QNAP SECURITY is a member of ONVIF

▶ The standard system is shipped without hard drives.
* Based on QNAP's laboratory tests. Actual performance may vary depending on the network environment.

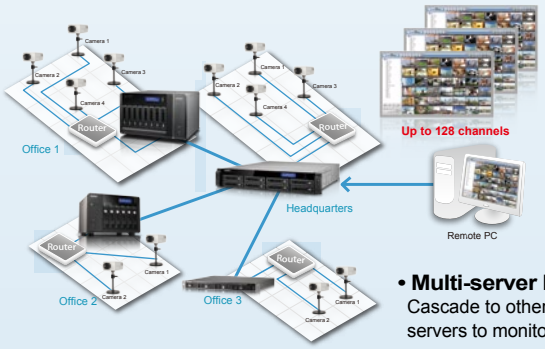
Powerful NVR Features

Why QNAP NVR

QNAP NVR VioStor NVR is designed for multi-site application with high quality megapixel recording and remarkable local display. It is a reliable standalone NVR with powerful surveillance features and mass storage capacity. Based on Linux OS, the NVR supports H.264, MPEG-4, M-JPEG and MxPEG recording from over 1,800 network camera models from popular brands. With QNAP's multi-server monitoring feature, multiple VioStor NVRs can be cascaded together for central monitoring of up to 128 channels of video surveillance. The VioStor NVR is an ideal solution for small, medium, and large facilities that integrate IP cameras, advanced intelligent video analytics and RAID storage technologies to help companies provide a safe environment for employees and protect company assets.



Real-time Remote Monitoring



- **Multi-server Monitoring**
  Cascade to other VioStor NVR servers to monitor up to 128 IP cameras.

- **Diversified Remote Monitoring Modes**
  – Multiple display modes
  – Sequential display mode
  – Dual display mode

- **E-map**
  The VioStor NVR provides an E-map function for users to upload digital maps and indicate the locations of the IP cameras of a monitoring location or region.

- **Event Notification on Monitoring**
  When alarm recording is enabled and an event occurs, an alarm icon is shown instantly on monitoring page. Click the icon to view the alert details.

- **Preset Position Control and Auto Cruising**
  View different preset positions of the IP cameras and configure auto cruising settings on the VioStor NVR for periodic monitoring of the preset positions of the PTZ cameras.

- **Smart Control of PTZ & Speed Dome Cameras**
  Adjust the PTZ cameras directly by the web-based and local display interface of the NVR.

- **Digital Zoom**
  The VioStor NVR supports digital zoom for flexible monitoring and playback. It is a powerful function for megapixel IP cameras.

- **Video Snapshot**
  The VioStor NVR provides real-time monitoring and snapshot. Users can take a snapshot of the monitoring screen anytime.

Mobile Surveillance

The VMobile app is a mobile surveillance application for users to monitor the IP cameras configured on the VioStor NVR remotely by iPhone, iPad, iPod touch, Android phones, Android tablets, or Window phone (6.1~6.5). The users will be notified by instant SMS when specified events are triggered at the monitored areas.

Remarkable High Definition(HD) Local Display

- **Intuitive Local Display Interface**
  Configure the NVR, monitor the IP cameras and play the video conveniently via a USB mouse and a full HD (1920 x 1080) VGA monitor connected to VioStor NVR.

  * For VioStor Pro(+) series NVR only.

Complete Recording Functions

- **High Quality H.264, MPEG-4, M-JPEG, and MxPEG Recording**
  Simultaneous multi-channel H.264, MPEG-4, M-JPEG, and MxPEG video recording of IP cameras.

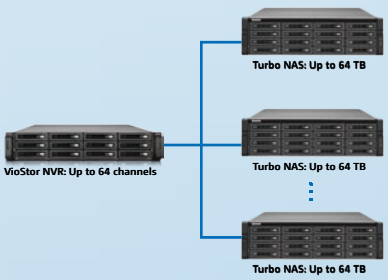
- **Various Recording Functions**
  – Continuous, manual, and scheduled recording
  – Alarm recording (by multiple alarm events)
  – Multiple alarm recording schedules
  – Pre-alarm and post-alarm recording
  – Audio recording

- **High Performance Megapixel Recording**
  The VioStor NVR supports high performance megapixel recording (up to 10-megapixel cameras supported) from various IP cameras.

- **Auto Snapshot**
  Create maximum 15 schedules for automatic snapshot taking or configure the NVR to take snapshots (max 60) of an IP camera automatically every hour.

- **ONVIF conformant Cameras Support**
  Connect to ONVIF network devices for monitoring, video recording, and playback on the NVR.

Innovative Storage Expansion & Video Backup Solution



- **Storage Expansion**
  The storage capacity of the VioStor NVR can be expanded by connecting to multiple QNAP Turbo NAS servers.

- **Scheduled Remote Replication**
  The VioStor NVR supports scheduled remote replication for secure recording backup to a remote NAS on LAN.

- **Video Backup to External USB Storage***
  Configure and press the one touch auto video backup button to copy the recording data instantly from the NVR to an external storage device via the front USB interface.

  * VS-12164U-RP/12156U-RP/12148U-RP/12140U-RP Pro+ & VS-8148U-RP/8140U-RP/8132U-RP/8124U-RP Pro+ do not support this feature.

Advanced Event Management

Advanced event management can be divided into two parts:

Events

The VioStor NVR supports different event types, including motion detection, alarm input, connection failure, recording failure, and user-defined event to trigger follow-up actions.

- **Motion Detection**
  When the IP camera detects any movement, the defined actions will be activated.
- **Alarm Input**
  When the VioStor NVR receives a signal from the IP camera's alarm input, the defined actions will be activated.
- **Connection Failure**
  When the VioStor NVR fails to connect to the IP camera, the defined actions will be triggered.
- **Recording Failure**
  When the VioStor NVR fails to record video due to hard drive failure or system crash, the defined actions will be triggered.
- **User-defined Event***
  The VioStor NVR supports user-defined events.The administrator can enter the CGI command in the browser to trigger the event, and the defined actions will be activated.
  * The administrator can enter the following URL in the browser to trigger the event:
  http://NVR IP/cgi-bin/logical_input.cgi?name=**User-defined Event Name**

Actions

The NVR supports different actions when an event is triggered. These actions include multi-channel recording, adjusting the PTZ camera to the preset position, alarm output, built-in buzzer, email & SMS alert, and user-defined action.

- **Recording**
  When an event is triggered, the VioStor NVR starts recording one or more channels at the same time.
- **Camera Control**
  When an event occurs, the PTZ camera will be adjusted to the specified preset position for monitoring and recording. Use HTTP URL to activate further actions.
- **Alarm Output**
  When an event occurs, the alarm output from the IP cameras will trigger other alert systems, such as lighting system, auto phone dialing system, security system and so on.
  * The VioStor NVR supports the alarm output of AXIS, Panasonic, SONY, ACTi, and VIVOTEK camera models.
- **SMS**
  The VioStor NVR sends an SMS message to inform the specified recipients when an event occurs.
- **Email**
  When an event occurs, the VioStor NVR sends an email with snapshot to notify the specified recipients.
- **Buzzer**
  The buzzer of the VioStor NVR will sound when an event occurs.
- **User-defined Action**
  The VioStor NVR supports user-defined actions. Enter the HTTP URL from other surveillance systems. When an alert occurs, the NVR will activate other systems, such as extinguishing system, electronic control system, and air conditioning control system.

Playback Features

- **Multi-view Playback**
  Use the multi-view playback feature to divide a video equally into multiple sessions for playback in a multi-view window, or play the videos of multiple IP cameras in the multi-view window simultaneously.

- **Real-time Digital Watermarking**
  The VioStor NVR supports digital watermarking to protect the videos from unauthorized modification.

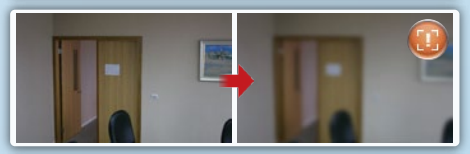
- **Data Search by Date & Time, Timeline, Event, and Intelligent Video Analytics (IVA)**
  The VioStor NVR supports quick search of recording data by date and time, timeline, event, and intelligent video analytics (IVA), including motion detection, foreign object, missing object, out of focus, and camera occlusion.

Motion Detection:
Detects movement in the video. The moving objects of the search area are highlighted in red brackets.

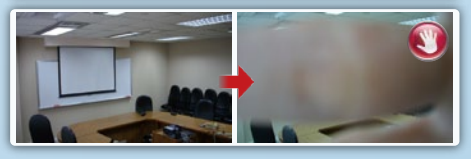
Foreign Object:
Detects a new object in the video. The foreign objects of the search area are highlighted in yellow brackets.

Missing Object:
Detects a missing object in the video. The missing objects of the search area are highlighted in yellow brackets.

Out of Focus:
Detects if the IP camera is out of focus.



Camera Occlusion:
Detects if the IP camera is obstructed.



High Reliability and Smart Features

- **Intelligent Auto Power on after Power Recovery**
  The VioStor NVR turns on automatically when the power recovers after an outage.

- **UPS Support for 24/7 Service**
  The VioStor NVR supports APC, CyberPower, MGE, and YEC UPS devices to enable stable and continuous recording 24/7.

- **Advanced RAID Management**
  The VioStor NVR supports RAID 0, 1, 5, 6, 5+hot spare, 6+hot spare, single, and JBOD disk configurations.
  * The RAID levels supported depend on the NVR models and number of hard drives installed.

- **Online RAID Capacity Expansion**
  The storage capacity of a RAID disk volume of the NVR can be expanded by replacing the hard drives with larger ones.

- **Online RAID Level Migration**
  Upgrade the disk configuration of the NVR to a higher RAID level with the data retained. There is no need to turn off the server during the process.

- **S.M.A.R.T. & Advanced HDD Health Scanning (HHS)**
  S.M.A.R.T. (Self-Monitoring Analysis and Reporting Technology) helps monitor the hard disk drives status. The VioStor NVR supports HHS (Hard Disk Drive Health Scan) for disk checking and bad blocks scanning.

Network Services

- **Dual Gigabit LAN Ports for Failover, Load Balancing, or Multi-IP Settings***

  * VS-2008L and VS-2004L support one Gigabit RJ-45 Ethernet port only.

  ▸ **Failover**
  Failover allows the VioStor NVR to sustain the failure of one network port to provide continuous services.

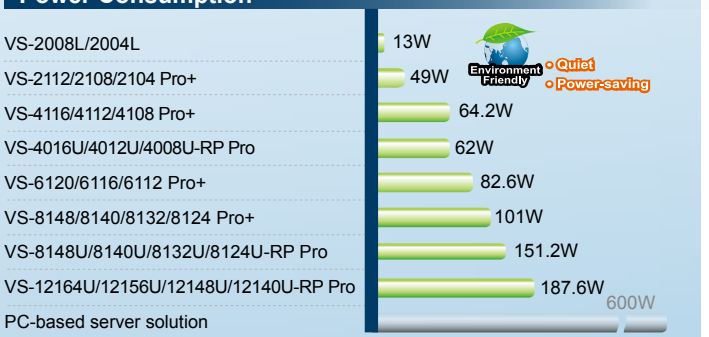
  ▸ **Load Balancing**
  Bandwidth aggregation is supported to boost the file transfer speed (works with managed Ethernet switch with 802.3ad configured).

  ▸ **Multi-IP Settings**
  Two IP settings can be configured on the NVR to allow network access from two different subnets.

Green NVR Solution

The Linux-based VioStor NVR is more power-saving than PC-based surveillance solutions.

Power Consumption



NVR Software Specifications

Recording

Video Compression:
• H.264, MPEG-4, M-JPEG, MxPEG (options available depend on the IP cameras)

Recording Mode:
• Continuous, manual, and scheduled recording
• Alarm recording, multiple alarm recording schedule
• Pre-alarm and post-alarm recording
• Auto snapshot (scheduled or hourly snapshot)
• Real-time digital watermarking

Recording Performance: (*1)
• Supports megapixel cameras
• Up to 30 fps at HD (720P) for each channel
* Actual performance may vary depending on the environment and individual settings.

Recording Settings:
• Video compression, resolution, frame rate, quality, and audio recording

File Format:
AVI (QNAP codec is required for playback)

Local Display (*2)

Display Mode: (*1)
• 1, 4, 6, 8, 9, 10, 12, 16-channel display, sequential display mode

Advanced Monitoring Features:
• Full screen display, event notification, PTZ control, and digital zoom

Local Playback:
• Single-view playback

Search Mode: By date & time

Playback Control:
• Play, pause, stop, reverse play, play next/previous video file, and speed control

Advanced Playback Features:
• Full screen display
• Digital zoom

Remote Monitoring

Multi-server Monitoring:
• Up to 128 channels monitoring from multiple VioStor NVR servers

Display Mode:
• 1, 4, 6, 8, 9, 10, 12, 16, 20, 25, 36, 42, 64-channel display, sequential mode, dual display mode

Advanced Monitoring Features:
• Full screen display, video snapshot, manual recording, event notification, PTZ control, and digital zoom

E-map: Upload digital maps and indicate the locations of the IP cameras of a monitoring location or region.

Remote Playback

Search Mode:
• By date & time, timeline, event, and intelligent video analytics (IVA)

Intelligent Video Analytics (IVA):
• Motion detection, missing object, foreign object, out of focus, and camera occlusion

Playback Channel:
• Maximum 16-view playback from multiple NVR servers simultaneously

Playback Mode:
• Play, pause, stop, reverse play, next/previous frame, next/previous video file, and speed control

Advanced Playback Features:
• Full screen display, video snapshot, digital zoom, and digital watermarking

Export:
• Multiple files export to an AVI file

Download:
• Video files and snapshots can be accessed by Web File Manager (HTTP), FTP, or SMB/CIFS

Storage

Disk Management:
• Single disk, RAID 0, RAID 1, RAID 5, RAID 5+hot spare, RAID 6, RAID 6+hot spare, and JBOD (*1)
• Online RAID capacity expansion and online RAID level migration
• Hard disk S.M.A.R.T. and bad blocks scanning

LCD Panel (*3)

• PC-less RAID configuration for the first-time setup
• System and disk information checking, system shutdown and reboot, etc.

Network

Support:
• HTTP, TCP/IP, SMTP, DHCP, Static IP, DNS, DDNS, FTP, and NTP

Dual Gigabit LAN: (*4)
• Failover, load-balancing, multi-IP settings

Security Control

Access Right Management:
• Multiple accounts creation with different rights of monitoring, playback, PTZ control, and audio monitoring

Host Access Control: Control of allowed and denied access to the NVR

Auto Logoff: Automatic user logoff from idling configuration pages

Online Users List: Logon status display of active users and logon history

UPS: APC, CyberPower, MGE, YEC (USB)

Event Logs: Detailed event logs

Languages

Czech, Danish, Dutch, English, French, Finnish, German, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish, Simplified Chinese, Traditional Chinese, Turkish

Client PC Requirements

(Suggested system requirements)

Operation System: Microsoft Windows 8, 7, Vista

Web Browser: Google Chrome 23.0.1271.64 m, Microsoft Internet Explorer 8/9/10 (desktop mode, 32-bit), Mozilla Firefox 17.0.1

Network Interface: 10/100/1000 Mbps

Display Resolution:
• Suggested 1280 x 720 pixels or above
* For higher surveillance performance, please select more advanced PC models.

(*1) Features may vary by models
(*2) VioStor Pro NVR series only
(*3) LCD-equipped models only
(*4) Dual LAN models only

QNAP Central Management System (CMS)

CMS Professional

- Comprehensive centralized management solution
- Supports high-definition video surveillance and playback
- Intuitive and friendly user interface for effective operation
- Real-time alarm list for immediate management
- Turnkey solutions guarantee performance of integrated systems

CMS-2000

Comprehensive CMS Features

The real-time monitoring interface of the CMS Professional is highly flexible and user friendly. The user-defined camera views feature allows the administrators to customize and manage onscreen views for different surveillance operators. The multi-layered electronic map (E-map) feature enables users to upload E-map, which supports the function to graphically indicate the exact position of the IP cameras and the alarm devices. When an event occurs, an instant alarm will show on the E-map to alert the users.

The CMS Professional reserves the capability for future expansion of the surveillance system installed, offering the administrators flexibility on deployment with regards to changing needs. While each NVR server can support up to 64 channels, CMS Professional makes it possible to manage a maximum of 1024 channels collectively. By connecting multiple NVR servers and centrally managed through a single server, QNAP NVR is the ideal solution for large scale surveillance systems.

Presented in the global market, the CMS client software offers a multilingual user interface to satisfy users from different countries. Pairing up CMS Professional along with QNAP NVR servers brings the convenience for surveillance and efficiency for system management over the network.

System Dashboard

- Unique graphical charts with important statistics presented in a smart and simple way, providing administrators all the necessary information at a glance.
- Categorized system information, helps administrator with tracing each individual problem and troubleshooting.
- Current status of User/NVR/Camera, gives administrator a thorough understanding of whole system.
- Providing 1/3/7 days of system information, facilitates administrator to analyze and respond to any event.

Comprehensive Event Management

- Flexible event handling settings
- Real-time event display
- Customizable E-maps to indicate IP cameras location
- Show live video by clicking on the camera icons
- Indicate the locations of the IP cameras when the alarm occurs

Intuitive and Friendly User Interface

- Supports multi-screen display to optimize operating efficiency
- Trouble-free VioStor NVR server configuration
- Flexible user defined live video monitoring layout
- Customizable E-maps to indicate IP cameras location
- Prompt event notification on monitoring screen
- PTZ speed dome cameras and preset points control
- Powerful alarm list for real-time alarm image and event handling

Industry-leading Turnkey Video Wall Solution (Optional)

- Turnkey solutions guarantee performance of integrated systems
- Real time dynamic control of display layout and content via remote control station

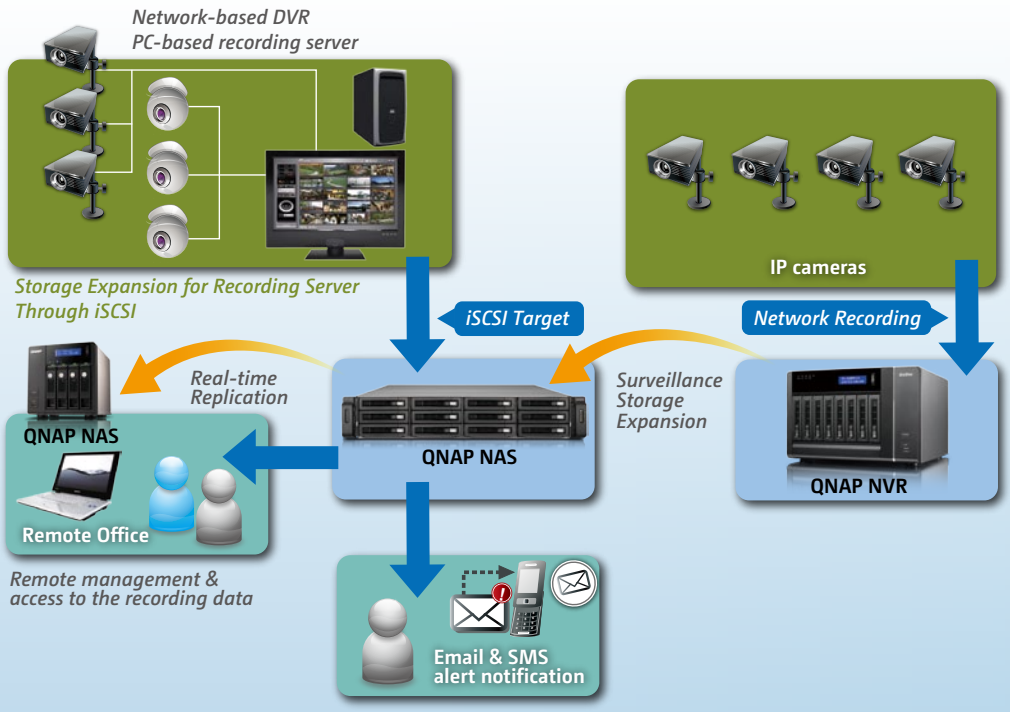
High-definition Video Surveillance and Playback

- Compatible with more than 1,600 IP cameras and video servers from 72 popular brands
- Search video from multiple cameras/ ervers simultaneously
- Synchronized playback of multiple cameras

Powerful Client Station

- Supports maximum four monitors for independent playback and display control
- Up to 64 IP cameras can be viewed on one monitor
- Unique video management interface which supports single-channel display, multi-channel display in sequential mode, and E-map in each view

QNAP Network Attached Storage (NAS) Solution for Surveillance Applications



High Capacity, Reliability, and Availability Storage Solutions for Video Recording

Turbo NAS Series for Recording Storage Expansion

- 2, 4, 5, 6, 8, and 10 drive tower models and 4-bay 1U, 8-bay 2U, 12-bay 2U, 16-bay 3U rackmount models
- Secure, reliable, scalable iSCSI and virtualization deployment with high capability/price value

System Management Tools

- Comprehensive event logs
- Email, SMS, and Instant Messaging alert
- SNMP (Simple Network Management Protocol)
- S.M.A.R.T. & Advanced Hard Drive Health Scan (HHS)
- Touch-N-Go PC-less installation
- Scheduled power on/off
- Wake on LAN

Local Backup

- Storage expansion for PC-based DVR
- Video backup from a NAS to another NAS on the local network
- Real-time or scheduled data backup

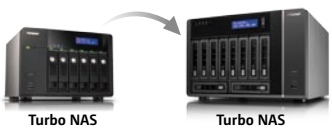
High Reliability and Smart Features

- RAID 0, 1, 5, 6, 10, 5+hot spare, 6+hot spare, 10+hot spare, JBOD
- Online RAID capacity expansion & online RAID level migration
- Dual Gigabit LAN for network fail-over or load-balancing
- Redundant Power Supply (for rackmount models)
- Linux-embedded DOM-based architecture

Linux-embedded

Remote Replication

- Real-time Remote Replication (RTRR) provides real-time or scheduled data replicationbackup to a remote QNAP NAS, an FTP server, or an external drive
- Remote replication to an rsync server
- Encrypted Remote Replication by Rsync



Storage Expansion for Video Recording

- iSCSI target for storage expansion of video recording serve
- Real-time remote replication to back up new and modified files immediately to a remote NAS
- Surveillance storage expansion onto multiple Turbo NAS servers

TurboNAS

Total Storage Solution for Surveillance Applications

Comparison of VioStor NVR Series

Product Photo				
NVR Model	**VS-12164U-RP/12156U-RP/ 12148U-RP/12140U-RP Pro+**	**VS-8148U-RP/8140U-RP/ 8132U-RP/8124U-RP Pro+**	**VS-8148/8140/8132/8124 Pro+**	**VS-6120/6116/6112 Pro+**
Operation System	Linux-embedded	Linux-embedded	Linux-embedded	Linux-embedded
Max. number of supported IP cameras/channels (recording)	64/56/48/40	48/40/32/24	48/40/32/24	20/16/12
Video server support	Yes	Yes	Yes	Yes
High-definition local display	Yes	Yes	Yes	Yes
Multi-server monitoring	Yes (up to 128 channels)	Yes (up to 128 channels)	Yes (up to 128 channels)	Yes (up to 128 channels)
Video compression (IP camera)	H.264, MPEG-4, M-JPEG & MxPEG (depending on the camera models)	H.264, MPEG-4, M-JPEG & MxPEG (depending on the camera models)	H.264, MPEG-4, M-JPEG & MxPEG (depending on the camera models)	H.264, MPEG-4, M-JPEG & MxPEG (depending on the camera models)
Max. network throughput tested (1)	450 Mbps	400 Mbps	400 Mbps	330 Mbps
Megapixel recording	Yes (up to 10-megapixel)	Yes (up to 10-megapixel)	Yes (up to 10-megapixel)	Yes (up to 10-megapixel)
Multi-view playback	16-view	16-view	16-view	16-view
Intelligent video analytics (IVA)	Motion detection, missing object, foreign object, out of focus, and camera occlusion	Motion detection, missing object, foreign object, out of focus, and camera occlusion	Motion detection, missing object, foreign object, out of focus, and camera occlusion	Motion detection, missing object, foreign object, out of focus, and camera occlusion
Advanced event management	Yes	Yes	Yes	Yes
Max. number of hard drives supported (2)	12 x 3.5-inch SATA, 2.5-inch SATA, SSD	8 x 3.5-inch SATA, 2.5-inch SATA, SSD	8 x 3.5-inch SATA, 2.5-inch SATA, SSD	6 x 3.5-inch SATA, 2.5-inch SATA, SSD
Max. raw capacity	48TB (12 x 4TB hard drives)	32TB (8 x 4TB hard drives)		24TB (6 x 4TB hard drives)
RAID	RAID 0, 1, 5, 5+hot spare, 6, 6+hot spare			
Processor	Dual-core Intel® 3.3GHz CPU	Dual-core Intel® 3.3GHz CPU	Dual-core Intel® 3.3GHz CPU	Dual-core Intel® CPU
LCD panel	---	Yes	Yes	Yes
Number of Gigabit LAN ports	4	4	2	2
Number of USB ports	2 x USB 3.0 4 x USB 2.0	2 x USB 3.0 4 x USB 2.0	2 x USB 3.0 4 x USB 2.0	2 x USB 3.0 5 x USB 2.0
Redundant power supply	Yes	Yes	---	---
Hardware dimensions (HxWxD)	88 x 439 x 520 mm/ 3.46 x 17.28 x 20.47 inch	88 x 439 x 520 mm/ 3.46 x 17.28 x 20.47 inch	217.5 x 327 x 321.2 mm/ 8.56 x 12.8 x 12.65 inch	175 x 257 x 235 mm/ 6.89 x 10.12 x 9.25 inch
Gross weight	22.92Kg /50.53lb	20.76Kg /45.78lb	13.98Kg /30.79lb	6.96Kg /15.34lb

Product Photo				
NVR Model	**VS-4016U-RP/ 4012U-RP/4008U-RP Pro**	**VS-4116/4112/4108 Pro+**	**VS-2112/2108/2104 Pro+**	**VS-2008L/2004L**
Operation System	Linux-embedded	Linux-embedded	Linux-embedded	Linux-embedded
Max. number of supported IP cameras/channels (recording)	16/12/8	16/12/8	12/8/4	8/4
Video server support	Yes	Yes	Yes	Yes
High-definition local display	Yes	Yes	Yes	---
Multi-server monitoring	Yes (up to 128 channels)	Yes (up to 128 channels)	Yes (up to 128 channels)	Yes (up to 128 channels)
Video compression (IP camera)	H.264, MPEG-4, M-JPEG & MxPEG (depending on the camera models)	H.264, MPEG-4, M-JPEG & MxPEG (depending on the camera models)	H.264, MPEG-4, M-JPEG & MxPEG (depending on the camera models)	H.264, MPEG-4 & M-JPEG (depending on the camera models)
Max. network throughput tested (1)	176 Mbps	250 Mbps	180 Mbps	28 Mbps
Megapixel recording	Yes (up to 10-megapixel)	Yes (up to 10-megapixel)	Yes (up to 10-megapixel)	Yes
Multi-view playback	16-view	16-view	16-view	16-view
Intelligent video analytics (IVA)	Motion detection, missing object, foreign object, out of focus, and camera occlusion	Motion detection, missing object, foreign object, out of focus, and camera occlusion	Motion detection, missing object, foreign object, out of focus, and camera occlusion	Motion detection, missing object, foreign object, out of focus, and camera occlusion
Advanced event management	Yes	Yes	Yes	Yes
Max. number of hard drives supported (2)	4 x 3.5-inch SATA, 2.5-inch SATA, SSD	4 x 3.5-inch SATA, 2.5-inch SATA, SSD	2 x 3.5-inch SATA, 2.5-inch SATA, SSD	2 x 3.5-inch SATA
Max. raw capacity	16TB (4 x 4TB hard drives)		8TB (2 x 4TB hard drives)	6TB (2 x 3TB hard drives)
RAID	RAID 0, 1, 5, 5+hot spare, 6		RAID 0, 1	
Processor	Dual-core Intel® Atom™	Dual-core Intel® CPU	Dual-core Intel® CPU	Marvell 1.2 GHz
LCD panel	---	Yes	---	---
Number of Gigabit LAN ports	2	2	2	1
Number of USB ports	5 x USB 2.0	2 x USB 3.0 5 x USB 2.0	1 x USB 3.0 4 x USB 2.0	3 x USB 2.0
Redundant power supply	Yes	---	---	---
Hardware dimensions (HxWxD)	44 x 439 x 499 mm/ 1.73 x 16.97 x 19.65 inch	177 x 180 x 235 mm/ 6.97 x 7.09 x 9.25 inch	150 x 102 x 216 mm/ 5.91 x 4.02 x 8.5 inch	165.5 x 85 x 218.4 mm/ 6.52 x 3.35 x 8.60 inch
Gross weight	12.06Kg /26.59lb	5.58Kg /12.30lb	3.68Kg /8.11lb	1.9Kg /4.19 lb

(1) Based on QNAP's laboratory tests. Actual performance may vary depending on the network environments.
(2) The standard system is shipped without hard disk drives.

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