QNAP Surveillance Solution

2010
VioStor NVR
- Dedicated hardware
- Closed operating system

2012
Surveillance Station
- A NAS App
- Lightweight surveillance system

2018
QVR Pro
- Opened surveillance platform system
Challenges in NVR and Surveillance Station

- Supports fewer hardware models
- Hardware can only be used as NVR
- No backup solution
- Performance bottleneck in storage
- Closed operating system
- Unable to support newer cameras in time
- Uneasy to expand storage capacity
QVR Pro – Opened Surveillance Platform System

A “Software defined”, “Opened” Platform
QVR Pro – Opened Surveillance Platform System

**QVR Pro**
- Camera Management
- Privilege Management
- Recording space
- App Center
- IFETA Engine
- API

**QVR Client**
- Windows
- Linux
- Mac OS
- QTS
- iOS
- Android

**QVR Center**
- Central management system

**QVR Guard**
- Failover tolerance
Software Defined Surveillance System

QVR Pro
QVR Center
QVR Guard
QIoT Suite
VM 1
VM 2
Container Station
Virtualization Station
Application Framework
Storage Management
Network Management
NAS Applications
App Center
OpenCL Library
QTS Operating System
QNAP NAS Hardware
Break the Hardware Barriers

- Diversified hardware solutions (100+ SKUs)
- One hardware unit with professional surveillance system and NAS
- Seamlessly leverage NAS advanced functions
Opened APIs Link Endless Possibilities

- IP Camera partners
- ONVIF ready IP camera
- 3rd party IVA program
- 3rd party application

- IP Camera API
- ONVIF
- QVR Pro API

- IFETA Engine
- QVR Pro
- RTSP/RTMP API

- Sensors
- CO2 sensor
- Access control system

- 360-degree cameras
- Temperature sensor
- Humidity sensor

QIoT Suite

QVR Pro

Sensors

3rd party IVA program

QVR Pro

Open APIs Link Endless Possibilities
Opened Platform with Versatile Applications in a Box

QTS OS

- 3rd party face recognition app
- 3rd party access control system
- 3rd party license plate recognition software
- Windows VM
- Virtualization Station

Container Station

Recording videos and data
Live Demo

Step-by-step installation of QVR Pro

David Tsao
QVR Pro Installation Steps

1. Download/Install QVR Pro App
2. Configure Recording Storage
3. IP Camera Setup
4. Install QVR Pro Client
Where to Get the QVR Pro App

1. QTS App Center on-line install

2. Install QVR Pro manually
Easy to Install with 5 Steps

1. Welcome page
2. Check system requirements
3. Date and time settings
4. Install QVR Pro
5. Installation completed
Welcome to QNAP QVR Pro Beta

QVR Pro is a professional video management system that provides real-time remote monitoring and recording. It offers various management features to help safeguard your properties. This wizard will guide you through the installation process.

Start
Step 1: Terms and Conditions

Check “I agree to the QVR Pro Beta Terms of Use”

Enter contact information

Terms and Conditions of QVR Pro Beta

1. QNAP may require the user’s name and email address when using QVR Pro Beta.
2. This trial version is valid until 2017/12/31. Some functionality of QVR Pro features may no longer be available after the trial period expires.
3. Recorded files stored on a NAS may only be viewed using the QVR Pro Client. If you select and purchase the official version, please note that the QVR Pro Client features will depend on the number of purchased licenses.
4. The beta version of QVR Pro will automatically upload the data of an IP to the development team for support.

*Name:*

The name must be 1 to 64 characters

*Email address:*
Step 2: Check System Requirements

- QTS version requirement:
  - Install version: QTS Version 4.3.3.20170901
  - ✔️

- Container Station requirement:
  - Install version: Container Station Version 1.7.2502
  - ✔️

- Memory requirement: at least 4GB
  - RAM: 4 GB RAM (Installed: 16 GB RAM)
  - ✔️
Step 3: Set System Date and Time

Date/Time settings will affect all recording videos and data

- Check date, time and time zone
- Modify date, time and time zone
- Confirm the information is correct

Important
Step 4: Installing QVR Pro
Step 5: Installation Completed

QVR Pro has been successfully installed. You can open the QVR Pro web console or click Finish to exit the wizard. You can click the QVR Pro icon from the QTS desktop later to start QVR Pro.
Login QVR Pro in QTS

1. Click QVR Pro icon on the QTS desktop
2. Open a new window for QVR Pro

QTS-like desktop
Login QVR Pro Directly

Enter:
http://your.ip.address:8080/qvrpro/
QVR Pro Event Notification

Notification with event picture

- Motion detected on camera 3.
  2017-03-16 23:42:35

- Motion detection stopped on camera 3.
  2017-03-16 23:42:34

- Motion detected on camera 3.
  2017-03-16 23:42:31

- Camera 3 reconnected successfully.
Install QVR Pro Client (Windows/Mac)

- If not installed: Click to download and install QVR Pro Client
- If installed: Click to run QVR Pro Client
# QVR Pro Free vs. QVR Pro Gold

<table>
<thead>
<tr>
<th>Feature</th>
<th>QVR Pro Free</th>
<th>QVR Pro Gold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. recording day</td>
<td>No limit</td>
<td>No limit</td>
</tr>
<tr>
<td>Built-in free camera channels</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Expand camera channels</td>
<td>Not supported</td>
<td>Yes</td>
</tr>
<tr>
<td>Play back recordings via QVR Pro Client</td>
<td>Recent 14 days videos</td>
<td>No limitation</td>
</tr>
<tr>
<td>Privilege management</td>
<td>Basic</td>
<td>Full function (Windows AD, LDAP)</td>
</tr>
<tr>
<td>QVR Center</td>
<td>2</td>
<td>No limitation</td>
</tr>
<tr>
<td>MSRP(USD)</td>
<td>Free</td>
<td>$399</td>
</tr>
</tbody>
</table>
Thank you
Camera Settings

- One click for all camera search

Add Camera

Camera Selection

The following table lists the cameras found in this NAS network. Select the camera(s) and click Next, or use the advanced search feature to find cameras on other networks. You can also use the filter feature to only display cameras of a specific brand and model. If the camera you want to add is not on the list, click Next to manually add the camera.

<table>
<thead>
<tr>
<th>Cameras</th>
<th>Brand</th>
<th>Model</th>
<th>IP Address</th>
<th>MAC Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panasonic</td>
<td>BB-ST162</td>
<td>10.65.14.14</td>
<td>08:00:23:e6:e9:8b</td>
<td></td>
</tr>
<tr>
<td>VIVOTEK</td>
<td>PT8133</td>
<td>10.65.14.17</td>
<td>00:02:d1:16:33:9f</td>
<td></td>
</tr>
<tr>
<td>HUNT</td>
<td>HLC-85ED</td>
<td>10.65.14.25</td>
<td>00:0f:0d:29:86:6e</td>
<td></td>
</tr>
<tr>
<td>ONVIF</td>
<td>ONVIF QUSBCam2 (ch3)</td>
<td>8080</td>
<td>00:08:9b:7f:82:2a</td>
<td></td>
</tr>
<tr>
<td>AXIS</td>
<td>Q1615</td>
<td>10.65.14.31</td>
<td>ac:c0:fe:44:83:83</td>
<td></td>
</tr>
<tr>
<td>ONVIF</td>
<td>ONVIF ProfileS Cameras</td>
<td>10.65.14.44</td>
<td>db:d4:3c:12:34:43</td>
<td></td>
</tr>
</tbody>
</table>

Cameras selected: 0, Cameras that can be selected: 122

Scanning [ ] 20% [ ] Stop

Cancel [ ] Next [ ]
Camera Support

- 140+ brands & ONVIF supported
- Highly integrated camera functions
  - Fisheye / dewarp
  - Pan-tilt-zoom (PTZ)
  - Smart codec
  - IVA (cross line, audio detection, tampering detection......)
  - 2-way audio
  - Digital input / digital output
  - Edge recording
  - ...............and more
Support Wi-fi IP Camera

- Easy to set up (no network cabling required)
- Deploy with QNAP WirelessAP Station
- Isolated network for guaranteed bandwidth and security
Support USB Camera

- QUSBCam2: turns USB cameras into IP cameras with ONVIF capability
Open Video Input Platform

- Using RTSP/RTMP link to record into QVR Pro. No integration effort needed
- IP cameras as video sources and lots more

RTSP
RTMP
Live Demo
Easy Search Cameras

- Search cameras from different network
- Greater convenience for enterprises with multi-network
Camera Search Filter

- Search the cameras of same brand/model
  (having the same settings options)
- Optimize batch adding camera efficiency
Batch Adding Camera

- Save time in deploying large amount of cameras (cameras of the same brand/model can be added with the same settings.)

Single adding:
- 1 minute
- 100 units
- 100 no. = 100 minutes
- 1 minute
- 150 units
- 150 no. = 150 minutes

Batch adding:
- 1 minute
- 150 units
- 1 time (150 no.) = 1 minute
- 1 minute
- 100 units
- 1 time (100 no.) = 1 minute
Multi Stream Application

- Assign different recording applications to use different recording streams ➔ allocate recording resource for important events
- Assign different recording applications to use different recording spaces ➔ improve recording efficiency
Partitioning Recording

- Assign different cameras to different recording spaces
- Assign important cameras to larger recording space and regular cameras to smaller recording space
Network Interface Assignment

- Bandwidth management, smoother recordings
Share Live View as a Link

- Easy share, easy view (no plug-in needed)
  - Web
  - Mobile
LIVE DEMO
Thank you
Brand-new QVR Pro Client

Alan Kuo
The QVR Pro Client Family

Desktop

Mobile

macOS Sierra
Windows
HD Station
How to Install (Windows & macOS)

The QVR Pro Client enables you to monitor live video streams or playback recordings conveniently. You can install QVR Pro Client on Windows and Mac computers, or on an QNAP HD Station.

QVR Pro Client:

For Windows 📘 For Mac 📘

Download Download
How to Install (HD Station)

1. Install HD Station
2. Install QVR Pro Client for HD Station
3. Launch QVR Pro Client by clicking the icon on the HD Station desktop
4. Client open now
How to launch QVR Pro Client

From Web
Click the QVR Pro Client icon on the QTS desktop, and QVR Pro Client will launch. Input of IP, username and password is not necessary.

From OS
Double-click the QVR Pro Client icon on the Windows/macOS desktop, and the login screen will be displayed.
QVR Pro Client User Interface

1. Toolbar
2. List Pane
3. Time Control Pane
4. View Layout
5. Notification Pane
Major Features

1. Unified Live/Playback user interface
2. Dynamic View Layout
3. Instant Playback & Sync. Playback
4. Various Notification Method
5. Rotating View & Rotating Channel
6. Performance Improvements
7. Timeline Control (Export, Playback)
Unified Live/Playback

Conventional
- Separated, cannot be done simultaneously, lack of flexibility

QVR Pro
- Simultaneously manipulated, intuitive, easy overview of everything
Dynamic View Layout

- Multi-Sensor Panoramic Camera: Best Choice: ROI
- Fisheye Camera: Best Choice Function: Fisheye dewarp, Click & Go
- Normal Camera: Best Choice: ROI
Multifunctional Timeline Control

Click any position on the timeline, playback will start automatically.

Select a specific range on the blue timeline zone to export that period of recording.

Select a specific range on the black timeline zone to zoom in on the timeline to the specified period.
Various Notification Method

- Event Notification List
- Flashing red border of the camera
- Alert Buzzer
- Motion icon on the e-map
The combination of Event Notification & Dynamic View Layout

1. Receive Event Notification
2. Draw the notification to the current view
3. See the whole event recording in the view immediately
View Sequential & Channel Sequential

View Sequential

Auto change view at specified intervals

Channel Sequential

Auto change channel list by same layout setting at specified intervals

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
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</thead>
<tbody>
<tr>
<td>3</td>
<td>4</td>
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<td>5</td>
<td>6</td>
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<td>7</td>
<td>8</td>
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<tr>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>
Performance Improvements

Faster Playback
10 times faster than previous versions

Faster Export
5 times faster than previous versions (with a video of 30 min., file size 110MB)
Special: Real-time 360 degree panoramic stitching and dewarp technologies

Luna 360

Video Stream

Double Original Fisheye Video

Client Stitching

Equirectangular

Dewarp

Dewarping Video
Brand-new mobile QVR Pro

1. Unified Live/Playback UI
   Users could quick switch between live and playback, and the built-in default live layout.

2. E-map
   E-map function is also available on the mobile client. You will know which camera triggered the event, and view camera from e-map.

3. PTZ and camera preset point control
   Control the PTZ camera and preset point by mobile app

4. Instant Event Notification
   You could receive push notification on QVR Pro Client for Mobile, and get the notification list on the app.

5. Low-Bandwidth Mode
   When network is slow, you could choose low-bandwidth mode, which will reduce the loading time.
QVR Pro Client - Conclusion

- Provides cross platform, cross device support.
- All new user interface brings whole new user experience
- Easy-to-use timeline design, intuitive control and responsive
- Various notification method, helps stay in full control
- Supports 360 panoramic camera
Thank you
Planning Storage Space for Recording & Recording Setting

Alan Kuo
Existing Problems of Recording Storage

1. Supports only a single recording location
   All cameras must store to the same volume.

2. Support only same keeping days setting
   All cameras need to use the same recording maximum days and minimum days setting.

3. Could not guarantee available size
   Other application or other user could write data to the same volume, and desired recording keeping plans could not be achieved.

4. Difficult to expand
   If total size is not enough, you could only expand volume or switch to a larger volume.

5. Poor performance
   When newer recording data start to overwrite old data, the I/O performance will start to degrade significantly.
1. QVR Pro specific concept: Recording Space
2. 3 Steps to create recording space
   - Choose the volume(s) and set a size
   - Choose the single volume for spare recording if you need.
   - Confirm the setting and Apply setting
3. A single volume could only be used by single recording space
4. A single recording space could use single or multiple volume(s)
Storage Manager and Recording Storage

QTS – Storage Manager

- Manage RAID
- Manage Storage Pool
- Manage Volume
- Manage information of all disks

QVR Pro – Recording Storage

- Manage the recording space of QVR Pro
- Manage information of all QVR Pro recording space
- Setting the recording location of channels
- Setting the up to / at least recording days
Recording Location & Days

Management all information of all channel(s) in a list:

1. Recording Location
2. At Least Recording Days (Normal, Event)
3. At Most Recording Days (Normal, Event)
4. At Most Size Setting
5. Enabled / Disable overwrite
Recording Data Architecture

QVR Pro Index Location: QVR Pro System Installation Location
Index Parameter including:
1. Timestamp
2. Channel Number
3. Frame data path
Independent Recording Space

Storage is shared with other applications

QVR Pro recording space
Allocated capacity is dedicated for surveillance application

Volume
- Surveillance
- Photo
- Music
- Video
- Log

Volume
- Music
- PDF
- Log
- Video
- Music
- Photo

QVR Pro Recording Space (3 TB)
Expandable Recording Space

QVR Pro Management Scope

QTS Management Scope

Raid1

Raid2

Raid3

Storage Pool1

Volume1

Volume2

Recording Space1

Recording Space 2

QVRProIndex

QVRProSpace1

QVRProSpace2

Index

Public

Home

Shared

Shared

Shared

Shared

Recording Frame

Recording Frame

Recording Frame

System Folder

Index

Public Shared

Home Shared

Recording Space1

Recording Space 2

Expand

Recording Frame

Recording Frame

Recording Frame
Recording Space Across Multiple Volumes

QVR Pro Management Scope

QTS Management Scope

System Folder  QVRProIndex Shared  Index  Public Shared  Recording Space1

Volume1  Storage Pool1  Recording Frame

Volume2

Raid1  Raid2  Raid3
Support all kinds of QNAP JBOD

- REXP-1620U-RP
- UX-800P
- TX-800P
- TS-853A
Separated Storage for normal and event recording

QVR Pro Management Scope

QTS Management Scope

Storage Pool1

Volume1

Volume2

Raid3

Raid2

Raid1
A failover recording space for 24/7 recording

Without spare volume
When any volume in the recording space fails, recording fails

With spare volume
When any volume in the recording space fails, recording will be stored to the spare volume
How to retrieve recording files

Get recording from shared folder QVRProRecording
it's required to enable the Recording File Explorer before accessing recording files in File Station

Main folder and format
QVI Format, QNAP Format
Standard Format, Standard Format

Export standard recording on QVR Pro Client
1. Enhance the video exporting efficiency
2. Overlay time stamp on exported videos
1. Expandable Recording Space
2. Dedicated recording space
3. Support spare volume
4. Enhanced recording performance
5. Manage recording settings by camera
6. Standard recording file format
Thank you