QVP

User Guide

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1. Introduction

About QVP

QVP is the system designed for the QVR Pro appliance, a QNAP NAS device dedicated to the comprehensive surveillance system QVR Pro.

Integrated with storage, network, and file management utilities, QVP enables you to easily leverage the surveillance features of QVR Pro.

QVP includes the following components.

Component	Description
QVR Pro	QVR Pro allows you to create a surveillance and recording environment on the QVP NAS, which can function as a dedicated surveillance server. For details, see Surveillance Settings.
QVR Pro Client	QVR Pro Client allows you to monitor live views and play back recordings on Windows or Mac devices, or in HD Station on a QNAP NAS. **Note** For more information on QVR Pro Client, see the QVR Pro Client User Guide.
System utilities	QVP includes many system utilities, allowing you to configure settings, manage content, and control access according to your needs. For details, see the following chapters: • Control Panel • Storage Manager • Privilege Settings • myQNAPcloud • File Station • Network & Virtual Switch • License Center

Key Features and Benefits

QVP provides the following features and benefits.

Feature	Description
Dedicated recording space	QVR Pro supports creating recording spaces using volumes. You can decide how much space to allocate for surveillance recordings.
Spare volume or shared folder	QVR Pro allows you to assign a spare volume or a shared folder to ensure the continuity of recording even when the current storage space is unavailable.

Feature	Description
Expandable storage	QVR Pro provides a scalable solution. You can expand existing recording spaces without losing your data by allocating more volumes using different types of storage.
Recording backup	QVR Pro allows you to back up recordings from the QVR Pro server to a remote NAS, helping safeguard important data.
Recording import	QVR Pro allows you to import existing recordings to a specified destination.
Batch adding and camera management	QVR Pro allows you to add and access multiple cameras at the same time to simplify camera management.
Advanced camera search	QVR Pro allows you to search and add cameras that are on another network. Even if your network environment uses multiple LANs, you can still use QVR Pro to quickly locate and add IP cameras.
Individual camera recording management	QVR Pro allows you to modify the recording settings of each camera to better manage your resources. For example, you can assign 4K ultra-high resolution streams to event recording tasks and save the footage to SSDs for optimal video quality.
Network interface assignment	QVR Pro allows you to assign a specific network interface for each camera to improve bandwidth load balancing and ensure video recording quality.
Real-time messaging protocol (RTMP) support	QVR Pro supports RTMP, which creates an open video input platform where you can receive and record RTMP streams from a third-party application.
Share live channel views	QVR Pro allows you to share a live channel view without requiring viewers to install any plug-ins.
External events and actions	QVR Pro is an open event management system that supports external events and actions. You can receive custom external events and trigger external actions using an HTTP URL.
Storage management	Storage Manager allows you to manage and configure disks, volumes, RAID groups, and external storage devices on the QVP NAS, providing a secure and flexible storage environment for your recording data.
File management	File Station is a file management center for your recording data, allowing you to easily browse files, manage content, and configure permissions.
Privilege management	QVP enables you to configure user privilege settings and control access to your recording data.
Network management	Network & Virtual Switch allows you to manage physical network interfaces, virtual adapters, and Wi-Fi connections. You can also configure DHCP, DDNS, and gateway services.
License management	License Center allows you to manage and monitor the licenses of your applications running on the QVP NAS.

Getting Started

1. Install QVP.
   For details, see QVP Installation.

2. Add a volume.
   For details, see Creating a Static Volume.

3. Add a recording space.

For details, see Adding a Recording Space.

4. Add a camera.
   For details, see Adding Cameras.

5. Add an event rule.
   For details, see Adding a Rule.

6. Install QVR Pro Client.

   a. Go to the QVP desktop.

   b. Click the QVR Pro Client shortcut or go to **Main Menu** > **QVR Pro Client** .

   c. Select an operating system.

   d. Click **Download**.

   e. Run the installer.

2. Overview and Basic Operations

QVP Installation

Installing QVP Using Qfinder Pro

> ⚠️ **Warning**
> Installing QVP deletes all data on the drives. Back up your data before proceeding.

1. Power on the NAS.

2. Connect the NAS to your local area network.

3. Run Qfinder Pro on a computer that is connected to the same local area network.

> 💬 **Note**
> To download Qfinder Pro, go to https://www.qnap.com/utilities.

4. Locate the NAS on the list and then double-click the name or IP address.
   The **Smart Installation Guide** opens in the default web browser.

5. Click **Start Smart Installation Guide**.

6. Specify the following information.

   - **NAS name**: Specify a name with 1 to 14 characters. The NAS name can contain the following characters:

     - Letters (A to Z, a to z)

     - Numbers (0 to 9)

     - Hyphens (-)

> 💬 **Note**
> The NAS name cannot end with a hyphen.

   - **Password**: Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.

7. Click **Next**.

8. Specify the time zone, date, and time.

> 💡 **Tip**
> QNAP recommends connecting to an NTP server to ensure that the NAS follows the Coordinated Universal Time (UTC) standard.

9. Click **Next**.

10. Select **Obtain an IP address automatically (DHCP)**.

11. Click **Next**.

12. Select the types of devices that you will use to access shared folders on the NAS.

13. Click **Next**.

14. Configure the disk settings.

    a. Select disks for creating a volume.

    b. Select a RAID type.

15. Click **Next**.

16. Review the settings.

17. Click **Apply**.
A confirmation message appears.

> ⚠️ **Warning**
> Clicking **Confirm** deletes all data on the drive before starting the installation.

18. Click **Confirm**.

QVP is installed.

Installing QVP Using an HDMI Connection

> ⚠️ **Warning**
> Installing QVP deletes all data on the drives. Back up your data before proceeding.

1. Connect an HDMI display to the NAS.

2. Connect a USB keyboard to the NAS.

3. Power on the NAS.
The **Welcome** screen of the Smart Installation Guide appears.

4. Select **Start Smart Installation Guide**.
The disk configuration screen appears.

5. Select disks for creating a storage pool.

6. Click **Next**.

7. Select the RAID type.

8. Click **Next**.

9. Review the settings.

10. Click **Next**.
The **Confirm** screen appears.

> ⚠️ **Warning**
> Clicking **Next** deletes all data on the drive before starting the installation.

11. Click **Next**.

QVP is installed.

QVP Navigation

Desktop

Manage and run applications, check notifications, and more. The desktop gives you direct access to the main menu, toolbar, dashboard, and desktop space, enabling you to take full advantage of the QVP features.

Task Bar

No.	Element	Possible User Actions
1	**Show Desktop**	Click the button to minimize or restore all open windows.
2	**Main Menu**	Click the button to open the **Main Menu** panel on the left side of the desktop.
3	**Search**	Type key words to locate settings, applications, and help content.
4	**Background Tasks**	• Position the mouse pointer over the button to see the number of background tasks that are running. • Click the button to see the following details for each background task: • Task name • Task description • Progress (percentage of completion) • Click ⊙ to stop a task. **Note** To manage a recording backup task, you need to go to **Recording Storage** > **Recording Backup** .

No.	Element	Possible User Actions

5	**Event Notifications**	• Position the mouse pointer over the button to see the number of recent errors, warnings, and notices.
		
		• Click the button to view the following details for each event:
		
		    • Event type
		
		    • Description
		
		    • Timestamp
		
		    • Number of instances
		
		• Click a list entry to view the related utility or application screen.
		Clicking a warning or error log entry opens the **System Logs** window.
		
		• Click **More>>** to open the **System Logs** window.
		
		• Click **Clear All** to delete all list entries.

6	**Options**	Click your profile picture to open the **Options** screen.

7	**[USER_NAME]**	Click the button to view the last login time and the following menu items:
		
		• **Options**: Opens the **Options** window
		
		• **Restart**: Restarts the NAS
		
		• **Shutdown**: Shuts down QVR Pro and then powers off the NAS
		
		  📬 **Note**
		  You can also power off the NAS using one of the following methods:
		
		    • Press and hold the power button for 1.5 seconds.
		
		    • Open Qfinder Pro, and then go to **Tools** > **Shut down Device** .
		
		• **Logout**: Logs the user out of the current session

No.	Element	Possible User Actions
8	**More**	Click the button to view the following menu items: • **Help**: Displays links to the Quick Setup Tutorial, Help Center, and Tutorials. • **Language**: Opens a list of supported languages and allows you to change the language of the operating system • **Desktop Preferences**: Opens a list of display modes and allows you to select your preferred mode of displaying the QVR Pro desktop based on your device type • **Help Request**: Opens the Helpdesk window • **Data & Privacy**: Displays the QNAP privacy policy. • **About**: Displays the following information: • QVR Pro application version
9	**Dashboard**	Click the button to display the dashboard.

10	**QVR Pro Event Notification**	• Position the mouse pointer over the button to see the number of recent errors, warnings, and notices.
		
		• Click the button to view the following details for each event:
		
		    • Event type
		
		    • Camera IP
		
		    • Camera name
		
		    • Content
		
		    • Timestamp
		
		    • Users
		
		• Click a list entry to view the related utility or application screen.
		
		• Click a warning or error log entry to open the **Logs** window.
		
		• Click **More>>** to open the **Logs** window.

Options

#	Tab	Possible User Actions

1	**Profile**	• Specify the following optional information:
		
		    • Profile picture
		
		    • E-mail
		
		    • Phone number
		
		• Click **Apply** to save all changes.

2	**Wallpaper**	• Select a wallpaper from the built-in options or upload a photo. • Click **Apply** to save all changes.

3	**Change Password**	• Specify the following information:
		
		    • **Old password**
		
		    • **New password**: Specify a password with a maximum of 64 characters. QVR Pro recommends using passwords with at least 6 characters.
		
		• Click **Apply** to save all changes.

#	Tab	Possible User Actions
4	**Miscellaneous**	• Enable the following settings. • **Auto logout after an idle period of**: You can specify the duration of inactivity after which the user is automatically logged out. • **Warn me when leaving QVR Pro**: When enabled, QVR Pro displays a confirmation message whenever you try to leave the desktop (by clicking the **Back** button or closing the browser). QVR Pro recommends enabling this setting. • **Reopen windows when logging back into QVR Pro**: When enabled, the current desktop settings (including all open windows) are retained until the next session. • **Show the desktop switching button**: When enabled, QVR Pro displays the desktop switching buttons **< >** on the left and right sides of the desktop. • **Show the link bar on the desktop**: When enabled, QVR Pro displays the link bar on the bottom of the desktop. • **Show the Dashboard button**: When enabled, QVR Pro displays the **Dashboard** button on the task bar. • **Show the QVR Pro time on the desktop**: When enabled, QVR Pro displays the server date and time on the desktop. • **Keep Main Menu open after selection**: When enabled, QVR Pro keeps the main menu pinned to the desktop after you open it. • Click **Apply** to save all changes.

Dashboard

The dashboard opens in the lower right corner of the desktop.

> 💡 **Tip**
> You can click and drag a section onto any area of the desktop.

#	Section	Displayed Information	User Actions
1	System Health	• NAS name • Uptime (number of days, hours, minutes and seconds) • Health status	Click the heading to open the **System Information** screen in the **System Status** window. If disk-related issues occur, clicking the heading opens the **Storage Manager** window.
2	Hardware Information	• System temperature • CPU fan speed • System fan speed	Click the heading to open the **Hardware Information** screen in the **System Status** window.
3	Resource Monitor	• CPU usage in % • Memory usage in % • Network upload and download speeds/rates	Click the heading to open the **Overview** screen in the **Resource Monitor** window.
4	Disk Health	• Number of installed disks • Health status of installed disks	• Click the heading to open the **Disk Health** screen in the **Storage Manager** window. • Click 📋 to view the following information for each installed disk: • Capacity/size • Temperature • Health status • Click **Details** to open the **Overview** screen in the **Storage Manager** window.
5	Recording Space Settings	• Status • Total number of recording spaces • Number of recording spaces not used for normal recording • Number of recording spaces not used for event recording	• Click the heading to open the **Recording Storage** window. • Select the recording space to modify the displayed information.
6	Online Users	• User name • Session duration • IP address	Click the heading to open the **Online Users** screen in the **System Logs** window.
7	Camera Settings	• Channel recording status	Click the heading to open the **Camera Settings** window.

Main Menu

No.	Section	Description	Possible User Actions
1	NAS Information	Displays the NAS name and model number.	N/A

2	System	Displays a list of system utilities and other programs that enable you to manage the NAS.
		The following are the default system utilities:
		
		• Control Panel
		
		• Storage Manager
		
		• Privilege
		
		• Network & Virtual Switch
		
		• Resource Monitor
		
		• myQNAPcloud
		
		• Helpdesk
			• Open a system utility or application on the QVR Pro desktop
			
			  • Click a menu item.
			
			  • Right-click a menu item and then select **Open**.
			
			• Open an application in a new browser tab (only for certain apps)
			
			• Create a shortcut on the desktop
			
			  • Right-click a menu item and then select **Create shortcut**.
			
			  • Click and drag a menu item to the desktop.

No.	Section	Description	Possible User Actions

3	Surveillance Settings	• Camera Settings
		
		• Recording Storage
		
		• Event Management
		
		• Recovery Management
		
		• Logs
		
		• Metadata Vault
		
		• Plug-in Center
		
		• Motion Detection
			• Open a surveillance application in the QVR Pro desktop
			
			  • Click a menu item.
			
			  • Right-click a menu item and then select **Open**.
			
			• Create a shortcut on the desktop
			
			  • Right-click a menu item and then select **Create shortcut**.
			
			  • Click and drag a menu item to the desktop.

4	Applications	When an app is installed, it is automatically added to the applications list. The following are the default applications: • File Station • QVR Pro Client • License Center	

3. Control Panel

General Settings

The **General Settings** screen includes the following tabs.

Tab	Possible User Actions

System Administration	• Specify the following information.
	
	    • **Server name**
	
	    • **System port**
	
	• Select any of the following.
	
	    • **Enable secure connection (HTTPS)**
	
	    • **Force secure connection (HTTPS) only**
	
	• Click **Apply** to save all changes.
	
	🛑 **Important**
	These settings are applied to all NAS services.

Time	• Review the current date and time. • Specify the time zone. • Specify the date and time format. • Specify whether to manually set the time or synchronize the NAS time with a Network Time Protocol (NTP) server. • Click **Apply** to save all changes.
Daylight Saving Time	• Select **Adjust system clock automatically for daylight saving time**. • Select **Enable customized daylight saving time table** and then add the daylight savings time data. • Click **Apply** to save all changes.
Codepage	• Select the filename encoding for non-Unicode filename conversion. • Click **Apply** to save all changes.

Security

The **Security** page includes the following tabs.

Tab	Possible User Actions

Allow/Deny List	• Select one of the following.
	
	    • Allow all connections
	
	    • Deny connections from the list
	
	    • Allow connections from the list only
	
	• Add IP addresses or network domains.
	
	• Click **Apply All** to save all changes.
	
	⊘ **Important**
	Blocking an IP address prevents connections to the server regardless of the connection ports used.

Network Access Protection	• Select **Enable Network Access Protection** and then select and configure the following settings.
	
	    • SSH
	
	    • Telnet
	
	    • HTTP(S)
	
	    • FTP
	
	    • SAMBA
	
	    • AFP
	
	• Click **Apply All** to save all changes.

Certificate & Private Key	• Replace the certificate • Download the certificate For details, see Certificate & Private Key.
Password Policy	• Select the requirements for password strength. • Force NAS users to regularly change their password. ♡ **Tip** You can choose to send a notification email to users before their passwords expire. • Click **Apply All** to save all changes.

Certificate & Private Key

Certificates are used to verify the identity of a QNAP NAS and to create SSL/TLS encrypted communications between users and their NAS services (including web sites, FTP, and more).

Button	Description
Download Certificate	Click to download a certificate, private key (or intermediate certificate).

Button	Description
Replace Certificate	Click to replace the original certificate. You can choose one of following methods: • Import certificate: Upload a certificate and private key (or intermediate certificate) from your PC. • Get from Let's Encrypt: Obtain a free certificate from an open certificate authority. **Note** Let's Encrypt is not affiliated with QNAP, and QNAP cannot not guarantee its safety, browser compatibility, or quality. If you have any concerns about using a Let's Encrypt certificate, use a myQNAPcloud SSL certificate instead. • Create self-signed certificate: Enter the required information to create a self-signed certificate.

Hardware

The **Hardware** screen includes the following tabs.

Tab	Possible User Actions

General	• Select one or more of the following settings.
	
	  • **Enable configuration reset switch**
	
	  • **Turn on LED light**
	
	• Click **Apply All** to save all changes.

Audio Alert	• Select one or more of the following events for playing a system notification sound.
	
	  • **System operations (startup, shutdown, and firmware upgrade)**
	
	  • **System events (error and warning)**
	
	  • **Enable speech notification**
	
	• Click **Apply All** to save all changes.

Smart Fan	After enabling Smart Fan, the fan rotation speed will be automatically adjusted according to the server temperature. QNAP recommends enabling this option. You can define the system temperatures to trigger high speed or low speed rotation of the fan. By manually setting the fan rotation speed, the fan will rotate at the defined speed continuously. **Note** The available smart fan settings vary depending on the NAS model.

Power

The **Power** screen includes the following tabs.

Tab	Possible User Actions

EuP Mode Configuration	• Select one of the following options.
	
	    • **Enable**
	
	    • **Disable**
	
	• Click **Apply** to save the changes.
	
	For details, see EuP Mode Configuration.

Wake-on-LAN	• Select one of the following options.
	
	    • **Enable**
	
	    • **Disable**
	
	• Click **Apply** to save the changes.
	
	For details, see Wake-on-LAN.

Power Recovery	• Select one of the following.
	
	    • **Restore the previous NAS power state**
	
	    • **Turn on the NAS automatically**
	
	    • **Keep the NAS turned off**
	
	• Click **Apply** to save the changes.

EuP Mode Configuration

EuP (also Energy-using Products) is a European Union (EU) directive designed to improve the energy efficiency of electrical devices, reduce use of hazardous substances, increase ease of product recycling, and improve environment-friendliness of the product.

Option	Description
Enable	When EuP is enabled, the following settings will be affected so that the server maintains low power consumption (less than 1W) when the server is powered off: • Wake on LAN: Disabled. • AC power resumption: The server will remain off after the power restores from an outage. • Schedule power on/ off/ restart settings: Disabled.
Disable (default)	When EuP is disabled, the power consumption of the server is slightly higher than 1W when the server is powered off. EuP is disabled by default so that you can use the functions Wake on LAN, AC power resumption, and power schedule settings properly.

Wake-on-LAN

This option allows you to enable or disable the Configure Wake on LAN feature. If enabled, this feature allows the NAS to be powered on remotely from the LAN by the NSS Discovery Tool found in the set-up wizard CD or by a user-generated program incorporating a magic packet in the code.

> **Note**
> The function or its content is only applicable on some models.

Notification

The **Notification** screen includes the following tab.

Tab	Possible User Actions
Push	**Important** To receive push notifications, you must first sign in to myQNAPcloud and add push notification as an action in **Event Management**. • Download the QVR Pro Client mobile application and then enable push notification. • View the list of paired devices. **Note** After you sign in to QVR Pro Client from your mobile device, the device will be automatically paired with the NAS and added to the **Paired Devices** list.

Firmware Update

QNAP recommends keeping your QVP version up to date. This ensures that your NAS can benefit from new features, enhancements, and bug fixes.

Updating the Firmware Manually

> **Important**
>
> • QNAP recommends backing up all data on the NAS before updating QVP.
>
> • The update may require several minutes or longer, depending on your hardware configuration and network connection. Do not power off the NAS during the update.

1. Download the firmware.

   a. Go to https://www.qnapsecurity.com.

   b. Select **Support** and then select **Download**

> **Note**
> If you are not able to find the download page on https://www.qnapsecurity.com. You can go to https://www.qnap.com/download.

   c. Select the number of drive bays on your NAS model.

    d. Select your NAS model.

    e. Read the release notes and confirm the following:

        • The NAS model matches the firmware version.

        • Updating the firmware is necessary.

    f. Ensure that the product model and firmware version are correct.

    g. Download the firmware package.

    h. Extract the firmware image file.

2. Go to **Control Panel** > **System** > **Firmware Update** > **Firmware Update** .

3. Click **Browse** and then select the extracted firmware image file.

4. Click **Update System**.

Updating the Firmware Using Qfinder Pro

> **Important**
>
> • QNAP recommends backing up all data on the NAS before updating QVP.
>
> • The update may require several minutes or longer, depending on your hardware configuration and network connection. Do not power off the NAS during the update.

1. Download the firmware.

    a. Go to https://www.qnapsecurity.com.

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> **Note**
> If you are not able to find the download page on https://www.qnapsecurity.com. You can go to https://www.qnap.com/download.

    c. Select the number of drive bays on your NAS model.

    d. Select your NAS model.

    e. Read the release notes and confirm the following:

        • The NAS model matches the firmware version.

        • Updating the firmware is necessary.

    f. Ensure that the product model and firmware version are correct.

    g. Download the firmware package.

    h. Extract the firmware image file.

2. Open Qfinder Pro.
Qfinder Pro displays a list of NAS devices on your network.

3. Select a NAS model from the device list.

4. Go to **Tools** > **Update Firmware** .

> 💡 **Tip**
> You can also right-click the NAS model on the list and then select **Update Firmware**.

The **Firmware Update** window appears.

5. Specify your QVP username and password.
   To update the firmware, you must be the administrator of the selected NAS.
   Qfinder Pro displays the **Update Firmware** screen.

6. Click **Browse** and then select a firmware image file.

7. Perform one of the following actions:

Action	Steps
Update a single NAS device	Select the NAS that you want to update.
Update multiple NAS devices of the same model	**a.** Select a NAS model from the list. **b.** Select **Update all the devices with the same model number within the network**. **c.** Select the NAS devices that you want to update.

8. Click **Start**.

QVR Pro Backup / Restore

Back Up Surveillance Settings

Click **Backup** to back up the surveillance settings, including recording storage, network settings, camera settings, event management, users, privileges, e-maps, and views.

Restore Surveillance Settings

Click **Browse** to select the backup file and then click **Restore**.

System Reset

QVP provides several options for resetting or restoring the NAS to its default state.

> ❗ **Important**
> QNAP recommends backing up your data before performing this task.

Option	Description	Steps

Basic system reset	This resets the following settings to the default values without deleting the user data stored on the disks.
	
	• System administrator password: MAC address of adapter 1 without special characters (all letters must be uppercase). For example, if the MAC address of adapter 1 is 11:22:33:AA:BB:CC then the default admin password will be 112233AABBCC.
	
	Tip
	You can find the MAC address of adapter 1 using Qfinder Pro. It is also printed on a sticker on the device as "MAC1".
	
	• TCP/IP configuration:
	
	   • Obtain IP address settings automatically via DHCP
	
	   • Disable jumbo frames
	
	• System port: 8080 (system service port)
	
	• Security level: Low (Allow all connections)
	
	• LCD panel password: (blank)
	
	• VLAN: Disabled
	
	• Service binding: All NAS services can run on all available network interfaces.
		1. Power on the NAS.
		
		2. Press and hold the reset button for 3 seconds.

Option	Description	Steps

Advanced system reset	This performs a basic system reset and then restores the QVP default settings, deleting all users, user groups, and shared folders previously created. The user data stored on the disks is retained.
	
	Note
	To retrieve old data after an advanced system reset, re-create the previous folder structure on the NAS.
		Perform an advanced system reset using one of the following methods.
		
		• Using QVP:
		
		   a. Go to **Control Panel** > **System** > QVR Pro Backup/ Restore > **Restore to Factory Default** .
		
		   b. Click **Reset Settings**.
		
		   c. Choose to restart or shut down the NAS after the system is reset.
		
		   d. Click **OK**.
		
		• Using the reset button:
		
		   a. Power on the NAS.
		
		   b. Press and hold the reset button for 10 seconds.

Reinitialize the NAS	This deletes all data on the disks and reinstalls QVP.	1. Go to **Control Panel** > **System** > **QVR Pro Backup/Restore** > **Restore to Factory Default** . 2. Click **Reinitialize NAS**. 3. Choose to restart or shut down the NAS after the NAS is reinitialized. 4. Click **OK**.

External Device

The **External Devices** screen includes the following tabs.

Tab	Possible User Actions

UPS	• Select one of the following.
	
	   • **USB connection**
	
	   • **SNMP connection**
	
	   • **Network UPS slave**
	
	• Click **Apply All** to save all changes.
	
	For details, see UPS Settings.

UPS Settings

Enable UPS (Uninterruptible Power Supply) support to protect your NAS from abnormal system shutdown caused by power disruption. There are two options provided for the NAS during a power failure:

- Turn off the server after the AC power fails: The NAS shuts itself down after the specified time.

- Enter the auto-protection mode after the AC power fails: The NAS stops all running services and unmounts all volumes after the specified time.

However, regardless of the specified time, the NAS automatically turns itself off or enters the auto-protection mode 30 seconds after a power outage if the remaining UPS battery charge is less than 15%.

System Status

The **System Status** screen includes the following tabs.

Tab	Possible User Actions
System Information	View the following information. - Server name - Model name - CPU - Serial number - Total number - Dual channel supported - Memory slots - Firmware version - System up time - Time zone - Filename encoding **Note** This page refreshes every 6 seconds.

Tab	Possible User Actions
Network Status	View the following information for each Ethernet port. • Link • IP address • MAC address • Subnet mask • DNS • Packets received • Packets sent • Error packets
Hardware Information	View the overview of the CPU and memory usage, system and disk drive temperatures, and fan speed.

Logs

QVR Pro displays the following logs:

Log	Description
System events	Displays a list of system-related events such as volume creation, application installation, and firmware updates.
System connections	Displays a list of connection attempts to the system.
Surveillance events	Displays a list of surveillance-related events such as motion detection, recording space full, and event URL.
Surveillance connections	Displays a list of connection attempts to the QVR Pro Client.
Surveillance settings	Displays a list of the changes made to the surveillance settings.

Resource Monitor

The **Resource Monitor** displays the following tabs.

Tab	Possible User Actions
Overview	View the following information. • Average CPU Usage • Memory Usage • Total Physical Network Usage • Processes

Tab	Possible User Actions
System Resource	View the following information. • CPU • Memory • Network
Storage Resource	View the following information. • Volume/LUN activity • Pool activity • RAID activity • Disk activity • Storage space
Processes	View the list of processes and the following information. • Process name • User • PID • Status • CPU usage • Memory

4. Storage Manager

Global Settings

You can access global settings by clicking ⚙ in the Storage Manager window.

Storage Global Settings

Setting	Description
RAID Resync Priority	Specify the minimum speed of the following RAID operations: • Rebuild • Migration • Scrubbing • Sync You can select one of the following priorities: • **Service First**: QVP performs RAID operations at lower speeds in order to maintain NAS storage performance. • **Default**: QVP performs RAID operations at the default speed. • **Resync First**: QVP performs RAID operations at higher speeds. Users may notice a decrease in NAS storage performance while RAID operations are in progress. ⊗ **Important** This setting only affects RAID operation speeds when the NAS is in use. When the NAS is idle, all RAID operations are performed at the highest possible speeds.
RAID Scrubbing Schedule	Enable this feature to periodically scan for and fix bad sectors on RAID 5 and RAID 6 groups. For details, see Running RAID Scrubbing on a Schedule.

Disk Health Global Settings

Setting	Description
Activate Predictive S.M.A.R.T. Migration	Enable this feature to regularly monitor disk health. If S.M.A.R.T. errors are detected on a disk, QVP displays a warning and then begins migrating data from the faulty disk to a spare disk. After the migration is finished, the healthy disk is used in place of the faulty disk. This process is safer than manually initiating a full RAID rebuild after a disk has failed.
S.M.A.R.T. polling time	Specify how often QVP checks disks for S.M.A.R.T. errors in minutes.
Disk Temperature Alarm	Enable this feature to monitor the disk temperatures. QVP displays a warning when the disk temperature is equal to or above the specified threshold. You can set separate thresholds for hard disk drives and solid state drives.

Setting	Description
TLER/ERC Timer	Enable this feature to specify a maximum response time of all disks in seconds. When a disk encounters a read or write error, it may become unresponsive while the disk firmware attempts to correct the error. QVP might interpret this unresponsiveness as a disk failure. Enabling this feature ensures that a disk has sufficient time to recover from a read or write error before QVP marks it as failed and initiates a RAID group rebuild. **Tip** • This setting is also known as Error recovery control (ERC), Time-limited error recovery (TLER) or Command completion time limit (CCTL). • When this feature is disabled, QVP uses the default TLER/ERC settings specified by the disk manufacturer.

Storage

QVP provides a flexible volume architecture that enables you to easily manage, store, and share files.

Disks

Disk Types

QVP restricts which type of disk can be used to create SSD cache, storage pools, and static volumes.

Important
For compatibility reasons, PCIe form-factor SSDs and PCIe M.2 SSDs installed in third-party adapter cards can no longer be used to create new storage pools and static volumes. If you are already using NVMe PCIe SSDs for data storage, then your existing storage configuration will not be affected after upgrading to the latest version of QVP.

Disk Type	Installation Method	SSD Cache	Storage Pools/Static Volumes
SATA/SAS/NL-SAS 3.5" HDD	NAS drive bay	No	Yes
SATA/SAS 2.5" HDD	NAS drive bay	No	Yes
SATA/SAS 2.5" SSD	NAS drive bay	Yes	Yes
PCIe NVMe M.2 SSD	QM2 card	Yes	Yes
PCIe NVMe M.2 SSD	Third-party M.2 to PCIe adapter card	Yes	No
SATA M.2 SSD	QM2 card	Yes	Yes
SATA M.2 SSD	NAS internal M.2 slot	Yes	Yes
PCIe form-factor SSD	PCIe slot	Yes	No

Disk Management

You can manage disks at **Main Menu** > **Storage Manager** > **Disks** . Select a disk to view its status and hardware details.

Disk Status

Status	Color	Description
Cache		The disk is used as an SSD cache.
Data		The disk contains data and is part of a static volume or storage pool.
Spare		The disk is configured as a hot spare. For details, see RAID Spare Disks.
Free		The disk is not in use.
None		There is no disk in the drive bay.
Warning		QVP has detected S.M.A.R.T. errors. Run a full S.M.A.R.T. test and a disk scan.
Error		QVP has detected I/O errors. You must replace the disk immediately.

Disk Information

Information	Description
Disk Health Status	The general health status of the disk • Good: The disk is healthy. • Warning: QVP has detected an error. Run a full S.M.A.R.T. test and a disk scan. • Error: QVP has detected a critical error. You must replace the disk immediately.
Manufacturer	The manufacturer of the disk
Model	The disk model

Information	Description
Disk Capacity	The capacity of the disk, in both binary and decimal formats **Note** • Binary format assumes that 1 GB = 1,073,741,824 bytes. This is the true capacity of the disk and is used by computers and operating systems such as QVP. • Decimal format assumes that 1 GB = 1,000,000,000 bytes. This format is used by disk manufacturers and appears in advertising, on the disk's box, and in the disk's hardware specifications. • Due to differences in the number of bytes per gigabyte, a disk's binary capacity will be slightly lower than its decimal capacity. For example, a disk advertised as 500 GB (decimal) has a true capacity of 456 GB (binary).
Bus Type	The interface that the disk uses
Status	The hardware status of the disk
Current Speed	The speed at which the disk is connected to the enclosure
Maximum Speed	The maximum transfer speed supported by the drive bay or slot that the disk is installed in
Temperature	The current temperature of the disk Disk temperature is retrieved from the disk's firmware using S.M.A.R.T.
Disk Access History (I/O)	• Good: QVP has not detected any I/O errors on the disk. • Error: QVP has detected one or more I/O errors on the disk.
Disk SMART Information	**Important** If any of the S.M.A.R.T. attribute values reach the threshold set by the disk manufacturer or a predefined threshold determined by QVP, this field will change to `Warning`.
Estimated Life Remaining	The remaining life of the disk, as calculated by the disk's firmware. When the value reaches 0, you should replace the disk. This information is only available for solid-state drives (SSDs).

Disk Actions

Action	Description
Disk Info	View disk details, including the disk manufacturer, model, serial number, disk capacity, bus type, firmware version, ATA version, and ATA standard.
Disk Health	View disk S.M.A.R.T information. For details, see Disk Health Information.

Action	Description
Scan Now	Scan the disk for bad blocks. 💡 **Tip** Run this scan if the disk's status changes to `Warning` or `Error`. If QVP does not detect any bad blocks, the status changes back to `Ready`. To view the number of bad blocks, see **Disk Health** > **Summary** .
Locate	Prompt the drive LEDs to blink so that you can locate the drive in a NAS or expansion unit.
Detach	Remove the disk from its RAID group. The group must be of type: RAID 1, RAID 5, RAID 6, RAID 10.
Set as Enclosure Spare	Assign the disk as a global hot spare for all RAID groups within the same enclosure (NAS or expansion unit). For details, see Configuring a Global Hot Spare.
Disable Spare	Unassign the disk as a global hot spare.
New Volume	Create a new volume.
Secure Erase	Permanently erase all data on a disk. For details, see Secure Erase.
RAID Group	Select a RAID group to view its RAID type, capacity, and member disks.

Disk Health Information

Tab	Description	Actions
Summary	Displays an overview of S.M.A.R.T. disk information and the results from the most recent disk scan and S.M.A.R.T. test.	No actions
SSD Features List	Displays all supported SSD ATA features.	No actions
SMART Information	Displays S.M.A.R.T. disk information and supported attributes. 🛑 **Important** If the value of a S.M.A.R.T. attribute reaches the threshold set by the disk manufacturer or a predefined threshold determined by QVP, the SMART attribute's status will change to `Warning`.	No actions

Tab	Description	Actions
Test	Run a S.M.A.R.T. disk self-test.	Select one of the following options: • **Rapid Test**: Tests the electrical and mechanical properties of the disk, and a small portion of the disk surface. The test takes approximately one minute. • **Complete Test**: Tests the electrical and mechanical properties of the disk, and the full disk surface. This test duration varies depending on the storage environment.
Settings	Disk settings can be applied individually, or to multiple disks at once.	Configure the following settings: • **Enable temperature alarm**: QVP displays a warning when the disk temperature is equal to or above the specified threshold. • **S.M.A.R.T. Test schedule**: Schedule periodic rapid and complete S.M.A.R.T. disk tests. The results are displayed on the **Summary** screen. **Tip** You can apply these settings to the current disk, all disks, or to disks with the same type as the current disk (HDD or SSD).

Disk Performance Tests

QVP can test the sequential and random read speeds of your disks.

Important

- The results provided by these tests are specific to the NAS being tested.

- For accurate results, do not use any resource-intensive applications while the tests are running.

Testing Disk Performance

1. Go to **Main Menu** > **Storage Manager** > **Disks** .

2. Click **Performance Test**.

The **Performance Test** screen appears.

3. Select one or more disks.

4. Click **Performance Test** and then select a test type.

Test Type	Description	Test Results Format
Sequential read	Test sequential read speed.	MB/s
IOPS read	Test random read speed.	IOPS

A confirmation message appears.

5. Click **OK**.

6. Optional: Schedule a weekly sequential read test for all disks. The weekly test runs every Monday at 6:30 AM.

    a. Click **Weekly Test**.

    b. Click **OK**.

QVP runs the test and then displays the results on the **Performance Test** screen. To see detailed results for the IOPS read test, select one or more disks and then select **Result** > **IOPS read result** .

Secure Erase

Secure erase permanently deletes all data on a disk, ensuring that the data is unrecoverable. Using secure erase on an SSD also restores the disk's performance to its original factory state.

Securely Erasing a Disk

> **Important**
> Do not disconnect any disks or power off the NAS while secure erase is running.

1. Go to **Main Menu** > **Storage Manager** > **Disks** .

2. Select a free disk.

3. Select **Action** > **Secure Erase** .
   The **Secure Erase** window opens.

4. Optional: Select additional disks to erase.

5. Click **Next**.

6. Select an erase mode.

Mode	Description
Complete	QVP writes over all blocks on the disk with zeros or ones. This mode is the most secure but can take a long time to finish. Select **Customized** to configure the following the erase settings. • Number of rounds: QVP writes over all blocks on the disk the specified number of times. • Overwrite with: Overwrite all blocks with zeros, ones, or a random zero or one.

Mode	Description
SSD	QVP issues a solid state drive (SSD) secure erase ATA command. The SSD firmware then erases all data and restores the disk to its original factory performance. 🛑 **Important** This feature is only supported on specific SSD models.
Fast	QVP overwrites the partition and RAID configuration data on the disk with zeros. This mode is the quickest but is less secure than the other modes.

7. Click **Next**.

8. Enter the administrator password.

9. Click **Apply**.

QVP starts erasing the disk. You can monitor the progress in **Background Tasks**.

Expansion Units

Expansion units are designed to expand the storage capacity of a QNAP NAS by adding extra drive bays. Expansion units can be connected to the NAS via various interfaces. For details, see hardware specifications on https://www.qnapsecurity.com and https://www.qnap.com.

💡 **Tip**
Expansion units used to be known as JBODs.

Expansion Unit Actions

Go to **Main Menu** > **Storage Manager** > **Disks** and select an expansion unit to perform one of the following actions.

Action	Description
Enclosure Info	View full hardware details of the expansion unit, including the model, serial number, firmware version, BUS type, CPU temperature, system temperature, power status, and fan speeds.
Action > **Locate**	Prompt the expansion unit chassis LEDs to blink, so that you can locate the device in a server room or rack.
Action > **Safely Detach**	Stop all activity and safely unmount the enclosure from the host NAS.
Action > **Update Firmware**	Update the expansion unit's firmware.
Action > **Rename Enclosure**	Rename the selected expansion unit.
RAID Group	View details about each RAID group on the expansion unit, including its RAID type, capacity, and member disks.

Expansion Unit Recovery

Go to **Main Menu** > **Storage Manager** > **Disks** , select an expansion unit, and then click **Recover** to perform one of the following actions.

Action	Description
Recover Enclosure	Recover storage pools or static volumes on an enclosure that was accidentally disconnected from the NAS, for example by an unscheduled shutdown or disconnected cable. from the NAS host. **Note** When an expansion unit is accidentally disconnected: • The status of all storage pools on the expansion unit will change to `Error`. • The status of all RAID groups on the expansion unit will change to `Not Active`.
Reinitialize enclosure ID	Reset all expansion unit IDs, and then give each unit a new ID number starting from 1 based on the order than they are physically connected. **Tip** Use this action if the expansion unit IDs appear out of sequential order in the enclosure list.
Scan and Recover Storage Space	Scan all free disks on the NAS and all connected expansion units for existing volumes and storage pools. **Tip** Perform this action after moving disks between NAS devices.

Volumes

A volume is a storage space created from a storage pool or RAID group. Volumes are used to divide and manage your NAS storage space.

Creating a Static Volume

1. Go to **Main Menu** > **Storage Manager** > **Storage Space** .

2. Perform one of the following actions.

NAS State	Action
No volumes or storage pools	Click **New Volume**.
One or more volumes or storage pools	Click **Create** > **New Volume** .

The **Volume Creation Wizard** window opens.

3. Select **Static Volume**.

4. Click **Next**.

5. Optional: Select an expansion unit from the **Enclosure Unit** list.

> (!) **Important**
>
> - You cannot select disks from multiple expansion units.
>
> - If the expansion unit is disconnected from the NAS, the storage pool will become inaccessible until it is reconnected.

6. Select one or more disks.

7. Select a RAID type.
QVP displays all available RAID types and automatically selects the most optimized RAID type.

Number of disks	Supported RAID Types	Default RAID Type
One	Single	Single
Two	JBOD, RAID 0, RAID 1	RAID 1
Three	JBOD, RAID 0, RAID 5	RAID 5
Four	JBOD, RAID 0, RAID 5, RAID 6, RAID 10 (!) **Important** RAID 10 requires an even number of disks.	RAID 5
Five	JBOD, RAID 0, RAID 5, RAID 6	RAID 6
Six or more	JBOD, RAID 0, RAID 5, RAID 6, RAID 10, RAID 50	RAID 6
Eight or more	JBOD, RAID 0, RAID 5, RAID 6, RAID 10, RAID 50, RAID 60	RAID 6

> (?) **Tip**
> Use the default RAID type if you are unsure of which option to choose.
> For details, see RAID Types.

8. Optional: Select the disk that will be used as a hot spare for this RAID group.
The designated hot spare automatically replaces any disk in the RAID group that fails.
For details, see RAID Spare Disks.

9. Optional: Select the number of RAID 50 or RAID 60 subgroups.
The selected disks are divided evenly into the specified number of RAID 5 or 6 groups.

   - A higher number of subgroups results in faster RAID rebuilding, increased disk failure tolerance, and better performance if all the disks are SSDs.

   - A lower number of subgroups results in more storage capacity, and better performance if all the disks are HDDs.

> (!) **Warning**
> If a RAID group is divided unevenly, the excess space becomes unavailable. For example, 10 disks divided into 3 subgroups of 3 disks, 3 disks, and 4 disks will provide only 9 disks of storage capacity.

10. Click **Next**.

11. Optional: Specify an alias for the volume.
The alias must consist of 1 to 64 characters from any of the following groups:

    - Letters: A to Z, a to z

- Numbers: 0 to 9

- Special characters: Hyphen (-), underscore (_)

12. Optional: Configure SSD over-provisioning.
Over-provisioning reserves a percentage of SSD storage space on each disk in the RAID group to improve write performance and extend the disk's lifespan. You can decrease the amount of space reserved for over-provisioning after QVP has created the RAID group.

> 💡 **Tip**
> To determine the optimal amount of over-provisioning for your SSDs, download and run SSD Profiling Tool from App Center.

13. Specify the number of bytes per inode.
The number of bytes per inode determines the maximum volume size, and the number of files and folders that the volume can store. Increasing the number of bytes per inode results in a larger maximum volume size, but a lower maximum number of files and folders.

14. Optional: Configure advanced settings.

Setting	Description	User Actions
Alert threshold	QVP issues a warning notification when the percentage of used volume space is equal to or above the specified threshold.	Specify a value.
Encryption	QVP encrypts all data on the volume with 256-bit AES encryption.	• Specify an encryption password containing 8 to 32 characters, with any combination of letters, numbers and special characters. Spaces are not allowed. • Select **Save encryption key** to save a local copy of the encryption key on the NAS. This enables QVP to automatically unlock and mount the encrypted volume when the NAS starts up. If the encryption key is not saved, you must specify the encryption password each time the NAS restarts. ⚠️ **Warning** • Saving the encryption key on the NAS can result in unauthorized data access if unauthorized personnel are able to physically access the NAS. • If you forget the encryption password, the volume will become inaccessible and all data will be lost.
Accelerate performance with SSD cache	QVP adds data from this volume to the SSD cache to improve read or write performance.	No actions

Setting	Description	User Actions
Create a shared folder on the volume	QVP automatically creates the shared folder when the volume is ready. Only the NAS admin account can access the new folder.	• Specify a folder name. • Select **Create this folder as a snapshot shared folder**. A snapshot shared folder enables faster snapshot creation and restoration.

15. Click **Next**.

16. Click **Finish**.
    A confirmation message appears.

> ⚠️ **Warning**
> Clicking **OK** deletes all data on the selected disks.

QVP creates and initializes the volume, and then creates the optional shared folder.

Volume Management

Deleting a Volume

1. Go to **Main Menu** > **Storage Manager** > **Storage Space** .

2. Select a volume.

> ⚠️ **Warning**
> All data on the selected volume will be deleted.

3. Click **Manage**.

4. Select **Remove** > **Remove Volume** .
   The **Volume Removal Wizard** window opens.

5. Click **Apply**.

Configuring a Volume Space Alert

1. Go to **Storage Manager** > **Storage** > **Storage Space** .

2. Select a volume.

3. Click **Manage**.

4. Select **Actions** > **Set Threshold** .

5. Enable or disable volume space alerts.

6. Specify an alert threshold.
   QVP issues a warning notification when the percentage of used volume space is equal to or above the specified threshold.

7. Click **Apply**.

Volume File System Check

A file system check scans for and automatically repairs errors in the file system of a thick, thin, or static volume. QVP will prompt you to start a file system check if detects file system errors on one or more volumes. You can also a run file system check manually or schedule a one-time check.

Running a File System Check Manually

> **Warning**
>
> - A volume is unmounted and becomes inaccessible while its file system is being checked.
>
> - This process might take a long time, depending on the size of the volume.

> **Important**
> QVP will scan the specified volume, even if QVP has not detected any errors on the volume's file system.

1. Go to **Main Menu** > **Storage Manager** > **Storage Space** .

2. Select a volume.

3. Click **Manage**.
   The **Volume Management** window opens.

4. Click **Actions**, and then select **Check File System**.
   The **Check File System** window opens.

5. Click **OK**.

QVP creates a background task for the file system check. The status of the volume changes to `Checking....`

Volume Expansion

Expanding a volume increases its maximum capacity so that it can store more data.

Expanding a Static Volume by Adding Disks to a RAID Group

The total storage capacity of a static volume can be expanded by adding one or more additional disks to a RAID group in the static volume. This extra capacity can be added online, without any interruption to data access.

> **Important**
>
> - Adding disks to a RAID 1 group changes the RAID type of the group to RAID 5.
>
> - To expand a RAID 50 or RAID 60 group, every sub-group must be expanded with the same number of disks.

1. Verify the following:

   - The storage pool you want to expand contains at least one RAID group of type: RAID 1, RAID 5, RAID 6, RAID 50 or RAID 60.

- The NAS contains one or more free disks. Each free disk must be the same type as the other disks in the RAID group (either HDD or SSD), and have a capacity that is equal to or greater than the smallest disk in the group.

- The status of the RAID group that you want to expand is `Ready`.

2. Go to **Main Menu** > **Storage Manager** > **Storage Space** .

3. Select a static volume.

4. Click **Manage**.
   The **Volume Management** window opens.

5. Click **Expand**.
   The **Expand Static Volume Wizard** window opens.

6. Select **Add new disk(s) to an existing RAID group**.

7. Select a RAID group.
   The group must be of type: RAID 1, RAID 5, RAID 6, RAID 50, RAID 60.

8. Click **Next**.

9. Select one or more disks.

   > ⚠ **Warning**
   > All data on the selected disks will be deleted.

10. Click **Next**.

11. Optional: Configure SSD over-provisioning.
    Over-provisioning reserves a percentage of SSD storage space on each disk in the RAID group to improve write performance and extend the disk's lifespan. You can decrease the amount of space reserved for over-provisioning after QVP has created the RAID group.

    > 💡 **Tip**
    > To determine the optimal amount of over-provisioning for your SSDs, download and run SSD Profiling Tool from App Center.

12. Click **Next**.

13. Click **Expand**.
    A confirmation message appears.

14. Click **OK**.

15. Optional: For a RAID 50 or RAID 60 volume, repeat these steps for each sub-group.

QVP starts rebuilding the RAID group. The storage capacity of the volume increases after RAID rebuilding is finished.

Expanding a Single Static Volume By Adding a New RAID Group

The storage capacity of a static volume can be expanded by creating a new RAID group and then adding it to the volume. This operation can be performed while the volume is online and accessible to users. QVP writes data linearly to storage pools containing multiple RAID groups. This means that it writes data to a RAID group until is it full before writing data to the next RAID group.

> ⚠ **Warning**
>
> - If a static volume contains multiple RAID groups and one RAID group fails, all data on the volume will be lost. Ensure that you have a complete data backup plan.
>
> - To expand a RAID 50 or RAID 60 pool, you must create a new RAID 50 or 60 group with the same number of disks and sub-groups as the original pool. It is not possible to add additional sub-groups.

1. Go to **Main Menu** > **Storage Manager** > **Storage Space** .

2. Select a static volume.

3. Click **Manage**.
   The **Volume Management** window opens.

4. Click **Expand**.
   The **Expanding Static Volume Wizard** window opens.

5. Select **Create and add a new RAID group**.

6. Click **Next**.

7. Optional: Select an expansion unit from the **Enclosure Unit** list.

> ❗ **Important**
>
> If the expansion unit is disconnected from the NAS, the storage pool will become inaccessible until it is reconnected.

8. Select one or more disks.

> ⚠ **Warning**
>
> All data on the selected disks will be deleted.

9. Select a RAID type.
   QVP displays all available RAID types and automatically selects the most optimized RAID type.

> ❗ **Important**
>
> - If the storage pool contains a RAID 1, RAID 5, RAID 6 or RAID 10 group, the new RAID group must also have one of the mentioned RAID types.
>
> - For RAID 50 or RAID 60, you cannot select a different RAID type.

10. Optional: Select the disk that will be used as a hot spare for this RAID group.
    For details, see Configuring a RAID Group Hot Spare.

11. Click **Next**.

12. Optional: Configure SSD over-provisioning.
    Over-provisioning reserves a percentage of SSD storage space on each disk in the RAID group to improve write performance and extend the disk's lifespan. You can decrease the amount of space reserved for over-provisioning after QVP has created the RAID group.

> 💡 **Tip**
>
> To determine the optimal amount of over-provisioning for your SSDs, download and run SSD Profiling Tool from App Center.

13. Click **Next**.

14. Click **Expand**.
   A confirmation message appears.

15. Click **OK**.

QVP creates the new RAID group and then starts rebuilding the volume. The capacity of the volume increases after RAID rebuilding is finished.

The System Volume

The system volume is a regular static or thick volume that QVP uses to store system data such as logs, metadata, and thumbnails. By default, applications are installed to the system volume. If no system volume exists, either because the NAS has recently been initialized or the system volume was deleted, QVP will assign the next static or thick volume that you create as the system volume.

> **Important**
> QNAP recommends creating a system volume of at least 10 GB. This is to prevent errors caused by insufficient system volume space

RAID

Redundant array of independent disks (RAID) combines multiple physical disks into a single storage unit, and then distributes data across the disks in one of several predefined methods.

The following features make RAID ideal for use with data storage and NAS applications.

RAID Feature	Description	Advantages	Disadvantages
Grouping	Disks that are combined using RAID form a RAID group, which QVP considers one large logical disk.	Managing the storage space of one large disk is simpler and more efficient than multiple small disks.	Initial configuration can be more complicated.
Striping	Data is split into smaller pieces. Each piece is stored on a different disk in the RAID group. QVP can then access that data by reading from or writing to multiple disks simultaneously, increasing read and write speeds.	• Greater read/write speeds, compared to a single disk • Speeds can be increased further by adding disks	If one disk in the RAID group fails, and the RAID group has no redundancy, all data will be lost.
Redundancy	Each disk in the RAID group can store the following: • Complete copy of the stored data • Metadata that allows reconstruction of lost data	• Disks can fail or be removed from the RAID group without any loss of data • Users can access data while failed disks are being replaced	Total storage capacity of the RAID group is reduced.

RAID Types

QVP supports several RAID types. Each type provides a different combination of performance and redundancy.

> ⊙ **Important**
>
> - If disks with different capacities are combined in one RAID group, all disks function according to the capacity of the smallest disk. For example, if a RAID group contains five 2 TB disks and one 1 TB disk, QVP detects six 1 TB disks.
>   QNAP recommends the following when mixing disks of different capacities.
>
>   a. Create a separate RAID group for each capacity.
>
>   b. Combine the RAID groups using storage pools.
>
> - If different types of disk (HDD, SSD, SAS) are combined in one RAID group, the RAID group will function according to the speed of the slowest disk.

RAID Type	Number of Disks	Disk Failure Tolerance	Capacity	Overview
Single	1	0	Total disk capacity	• Uses a single disk for storage. • Provides no disk failure protection or performance benefits. • Suitable for single disk configurations that have a data backup plan in place.
JBOD (just a bunch of disks)	≥ 2	0	Total combined disk capacity	• Combines disks together in a linear fashion. QVP writes data to a disk until it is full before writing to the next disk. • Uses the total capacity of all the disks. • Not a real RAID type. It provides no disk failure protection or performance benefits. • Unless you have a specific reason to use JBOD, you should use RAID 0 instead.

RAID Type	Number of Disks	Disk Failure Tolerance	Capacity	Overview
RAID 0	≥ 2	0	Total combined disk capacity	• Disks are combined together using striping. • RAID 0 offers the fastest read and write speeds, and uses the total capacity of all the disks. • Provides no disk failure protection. This RAID type must be paired with a data backup plan. • Recommended for high-performance applications such as video editing.
RAID 1	2	1	Half of the total combined disk capacity	• An identical copy of data is stored on each disk. • Half of the total disk capacity is lost, in return for a high level of data protection. • Recommended for NAS devices with two disks.
RAID 5	≥ 3	1	Total combined disk capacity minus 1 disk	• Data and parity information are striped across all disks. • The capacity of one disk is lost to store parity information. • Striping means read speeds are increased with each additional disk in the group. • Recommended for a good balance between data protection, capacity, and speed.
RAID 6	≥ 4	2	Total combined disk capacity minus 2 disks	• Data and parity information are striped across all disks. • The capacity of two disks are lost to store parity information. • Recommended for critical data protection, business and general storage use. It provides high disk failure protection and read performance.

RAID Type	Number of Disks	Disk Failure Tolerance	Capacity	Overview
RAID 10	≥ 4 (Must be an even number)	1 per pair of disks	Half of the total combined disk capacity	• Every two disks are paired using RAID 1 for failure protection. Then all pairs are striped together using RAID 0. • Excellent random read and write speeds and high failure protection, but half the total disk capacity is lost. • Recommended for applications that require high random access performance and fault tolerance, such as databases.
RAID 50	≥ 6	1 per disk subgroup	Total combined disk capacity minus 1 disk per subgroup	• Multiple small RAID 5 groups are striped to form one RAID 50 group. • Better failure protection and faster rebuild times than RAID 5. More storage capacity than RAID 10. • Better random access performance than RAID 5 if all of the disks are SSDs. • Recommended for enterprise backup with ten or more disks.
RAID 60	≥ 8	2 per disk subgroup	Total combined disk capacity minus 2 disks per subgroup	• Multiple small RAID 6 groups are striped to form one RAID 60 group. • Better failure protection and faster rebuild time than RAID 6. More storage capacity than RAID 10. • Better random access performance than RAID 6 if all of the disks are SSDs. • Recommended for business storage and online video editing with twelve or more disks.

RAID Spare Disks

Configuring a RAID Group Hot Spare

Assigning a hot spare gives extra protection against data loss. In normal conditions, a hot spare disk is unused and does not store any data. When a disk in the RAID group fails, the hot spare disk automatically replaces the faulty disk. QVP copies the data to the spare disk in a process called RAID rebuilding.

1. Verify that the NAS contains one or more free disks.

2. Go to **Main Menu** > **Storage Manager** > **Storage Space** .

3. Select a storage pool or single static volume.

4. Click **Manage**.

5. Select a RAID 1, RAID, 5, RAID 6, or RAID 10 group.

6. Select **Manage** > **Configure Spare Disk** .

7. Select one or more disks.

> ⚠️ **Warning**
> All data on the selected disks will be deleted.

8. Click **Apply**.
   A confirmation message appears.

9. Click **OK**.

The spare disks are added to the RAID group. The disk appears as a green `Spare` in the disks summary at **Disks/VJBOD**.

Configuring a Global Hot Spare

A global spare disk acts as a hot spare for all RAID groups in a NAS or a connected expansion unit. Under normal conditions, the disk is unused and does not store any data. When a disk in any RAID group fails, the hot spare disk automatically replaces the faulty disk. QVP copies the data to the spare disk in a process called RAID rebuilding.

> 🔴 **Important**
> Storage enclosures (the NAS and connected expansion units) cannot share global spare disks. A unique global hot spare disk must be assigned to each storage enclosure.

1. Go to **Storage Manager** > **Storage** > **Disks**

2. Optional: Select a connected expansion unit.

3. Select a free disk.

> ⚠️ **Warning**
> All data on the selected disk will be deleted.

4. Select **Action** > **Set as Enclosure Spare** .
   A confirmation message appears.

5. Click **OK**.

The disk appears as a green `Spare` on the **Disks/VJBOD** screen.

RAID Bitmaps

If a disk is temporarily disconnected from its RAID group and then reconnected, the RAID group must synchronize all of its data. This process may take a long time. If the RAID group has a bitmap then only changes that were made after the disk was disconnected need to be synchronized, greatly speeding up the process.

A disk can become temporarily disconnected in the following situations.

- A disk is accidentally removed from the NAS while the NAS is powered on.

- The NAS unexpectedly shuts down because of a hardware or software error.

- A user presses the power button for 10 seconds or disconnects the power cable while the NAS is powered on.

> **Important**
>
> - You can only create bitmaps for RAID 1, RAID 5, RAID 6, and RAID 10 groups.
>
> - Enabling a RAID bitmap may slightly decrease the read and write performance of the RAID group.
>
> - A bitmap improves synchronization time only if the same disk is disconnected then reconnected. Having a bitmap does not improve synchronization time when a new disk is added to the RAID group.

Creating a RAID Bitmap

1. Go to **Main Menu** > **Storage Manager** > **Storage Space** .

2. Select a storage pool or single static volume.

3. Click **Manage**.

4. Select a RAID 1, RAID 5, RAID 6, or RAID 10 group.

5. Select **Manage** > **Enable Bitmap** .
   A confirmation message appears.

QVP creates a bitmap for the RAID group.

RAID Management

Expanding a RAID Group by Replacing all Disks

You can increase the maximum storage capacity of a RAID group by replacing all member disks with higher-capacity disks. This operation can be performed while the RAID group is online and accessible to users.

1. Go to **Main Menu** > **Storage Manager** > **Storage Space** .

2. Select a storage pool or static volume.

3. Click **Manage**.

4. Select a RAID group of type: RAID 1, RAID 5, RAID 6, RAID 10.

5. Disable all hot spares and global hot spares assigned to the RAID group.

6. Select **Manage** > **Replace Disks One by One** .

7. Select a disk to replace.
   Ensure that the capacity of the new disk is greater than the capacity of the disk that it is replacing.

8. Click **Change**.
   The disk description changes to `Please remove this drive`.

9. Remove the disk from the NAS drive bay.
   The NAS beeps twice. Then the disk description changes to `Please insert the new disk`.

10. Insert a new disk into the same bay.
     The NAS beeps twice. Then the status of the disk and RAID group change to `Rebuilding`.

11. Wait for rebuilding to finish.

⚠️ **Warning**
Do not remove any disks while the RAID group is rebuilding.

The disks status changes back to `Good`.

12. Repeat the previous steps until all disks in the RAID group have been replaced.
     The **Expand Capacity** button is enabled after all disks have been replaced and rebuilding has finished.

13. Click **Expand Capacity**.
     A confirmation message appears.

14. Click **OK**.
     The NAS beeps and the RAID group status changes to `Synchronizing`.

⚠️ **Warning**
Do not power off the NAS or remove any disks while synchronization is in progress.

The RAID group status changes to `Ready`.

Changing the RAID Type of a RAID Group

You can change the RAID type of an existing RAID group online, without losing access to data or any interruption to NAS services. Changing the RAID type of a RAID group is called RAID migration. QVP allows the following migrations.

Original RAID Type	New RAID Type	Additional Disks Required
Single	RAID 1	One
RAID 1	RAID 5	One or more
RAID 5	RAID 6	One or more

💡 **Tip**
Migration from a single disk to RAID 6 is performed in stages. First migrate the group to RAID 1, then to RAID 5, and then finally to RAID 6.

1. Go to **Main Menu** > **Storage Manager** > **Storage Space** .

2. Verify the following:

    • The NAS contains one or more available disks.

    • The capacity of each available disk is greater than or equal to the smallest disk in the RAID group.

3. Select a storage pool or static volume.

4. Click **Manage**.

5. Select a RAID group.

6. Select **Manage** > **Migrate** .

7. Select one or more disks.

> ⚠️ **Warning**
> All data on the selected disks will be deleted.

8. Click **Apply**.
   A confirmation message appears.

9. Click **OK**.
   The RAID group status changes to `Rebuilding....`

The RAID type changes to the new type and the RAID group status changes to `Ready` after migration has finished.

Recovering a RAID Group

RAID recovery enables you to recover a RAID group in the event of accidental disk removal or SATA connector failure. When several disks are removed or disconnected from a RAID group:

- The status of the group changes to `Error`.

- The statuses of all volumes and storage pools using the RAID group change to `Inactive`.

- All data on the affected volumes and LUNs becomes inaccessible.

  > ❗ **Important**
  > RAID recovery only helps when disks are temporarily disconnected and then reconnected. It does not help in the event of disk failure.

1. Reconnect all disconnected disks.

> ❗ **Important**
> Ensure that each disk is reinserted into its original drive bay.

2. Go to **Main Menu** > **Storage Manager** > **Storage Space** .

3. Select a storage pool or single static volume with the status `Inactive`.

4. Click **Manage**.

5. Select a RAID group with the status `Error`.

6. Select **Manage** > **Recover** .

QVP starts to rebuild the RAID group.

RAID Scrubbing

RAID scrubbing helps maintain the consistency of data on the NAS. QVP scans the sectors of a RAID 5 or RAID 6 group and automatically attempts to repair any detected errors. You can run RAID scrubbing manually, or on a schedule.

> 💡 **Tip**
> QNAP recommends performing RAID scrubbing at least once a month to maintain system health and prevent data loss.

Running RAID Scrubbing Manually

> ⚠ **Warning**
> The read/write speeds of the RAID group may decrease while RAID scrubbing is in progress.

1. Go to **Main Menu** > **Storage Manager** > **Storage Space** .

2. Select a storage pool or static volume.

3. Click **Manage**.

4. Select a RAID 5 or RAID 6 group.
   The RAID group status must be `Ready`.

5. Select **Manage** > **RAID Scrubbing** .

The RAID group status changes to `Scrubbing`.

Running RAID Scrubbing on a Schedule

You can schedule periodic RAID scrubbing of all RAID 5 and RAID 6 groups.

> ⚠ **Warning**
> The read/write speeds of the RAID group may decrease while RAID scrubbing is in progress.

1. Go to **Main Menu** > **Storage Manager** .

2. Click the **Global Settings** icon ⚙ .
   The **Global Settings** menu opens.

3. Enable **RAID Scrubbing Schedule**.

4. Specify how often data scrubbing will run.

   - Daily

   - Weekly

   - Monthly

5. Specify when data scrubbing will run.

> 💡 **Tip**
> QNAP recommends specifying a time when the NAS is not in use, such as after business hours or on weekends.

6. Click **Apply**.

Data scrubbing will run according to the specified schedule. When data scrubbing is running on a RAID groups, the status of the group changes to `Scrubbing`.

Self-Encrypting Drives (SEDs)

A self-encrypting drive (SED) is a drive with encryption hardware built into the drive controller. An SED automatically encrypts all data as it is written to the drive and decrypts all data as it is read from the drive.

Data stored on an SED is always fully encrypted by a data encryption key (DEK). The DEK can also be encrypted by a user-specified authentication key (AK) that allows the SED to be locked and unlocked. Both encryption keys are stored in the drive's hardware and cannot be accessed by the host operating system or unauthorized users.

Creating an SED Secure Static Volume

1. Go to **Main Menu** > **Storage Manager** > **Storage Space** .

2. Perform one of the following actions.

NAS State	Action
No volumes or storage pools	Click **New Volume**.
One or more volumes or storage pools	Click **Create** > **New Volume** .

    The **Volume Creation Wizard** window opens.

3. Select **Static volume**.

4. Click **Next**.

5. Optional: Select an expansion unit from the **Enclosure Unit** list.

> **Important**
>
> - You cannot select disks from multiple expansion units.
>
> - If the expansion unit is disconnected from the NAS, the storage pool will become inaccessible until it is reconnected.

6. Select **Create SED secure static volume**.
   The list of disks only displays SED disks.

7. Select one or more disks.

8. Select a RAID type.
   QVP displays all available RAID types and automatically selects the most optimized RAID type.

Number of disks	Supported RAID Types	Default RAID Type
One	Single	Single
Two	JBOD, RAID 0, RAID 1	RAID 1
Three	JBOD, RAID 0, RAID 5	RAID 5
Four	JBOD, RAID 0, RAID 5, RAID 6, RAID 10 **Important** RAID 10 requires an even number of disks.	RAID 5
Five	JBOD, RAID 0, RAID 5, RAID 6	RAID 6
Six or more	JBOD, RAID 0, RAID 5, RAID 6, RAID 10, RAID 50	RAID 6
Eight or more	JBOD, RAID 0, RAID 5, RAID 6, RAID 10, RAID 50, RAID 60	RAID 6

> **Tip**
> Use the default RAID type if you are unsure of which option to choose.
> For details, see RAID Types.

9. Optional: Select the disk that will be used as a hot spare for this RAID group.
   The designated hot spare automatically replaces any disk in the RAID group that fails.
   For details, see RAID Spare Disks.

10. Optional: Select the number of RAID 50 or RAID 60 subgroups.
    The selected disks are divided evenly into the specified number of RAID 5 or 6 groups.

    • A higher number of subgroups results in faster RAID rebuilding, increased disk failure tolerance, and better performance if all the disks are SSDs.

    • A lower number of subgroups results in more storage capacity, and better performance if all the disks are HDDs.

> **Warning**
> If a RAID group is divided unevenly, the excess space becomes unavailable. For example, 10 disks divided into 3 subgroups of 3 disks, 3 disks, and 4 disks will provide only 9 disks of storage capacity.

11. Click **Next**.

12. Optional: Specify an alias for the volume.
    The alias must consist of 1 to 64 characters from any of the following groups:

    • Letters: A to Z, a to z

    • Special characters: Hyphen (-), underscore (_)

13. Optional: Configure SSD over-provisioning.
    Over-provisioning reserves a percentage of SSD storage space on each disk in the RAID group to improve write performance and extend the disk's lifespan. You can decrease the amount of space reserved for over-provisioning after QVP has created the RAID group.

> **Tip**
> To determine the optimal amount of over-provisioning for your SSDs, download and run SSD Profiling Tool from App Center.

14. Specify the number of bytes per inode.
    The number of bytes per inode determines the maximum volume size, and the number of files and folders that the volume can store. Increasing the number of bytes per inode results in a larger maximum volume size, but a lower maximum number of files and folders.

15. Specify the SED password.

> **Warning**
> Remember this password. If you forget the password, the pool will become inaccessible and all data will be unrecoverable.

16. Optional: Save the encryption key to the local NAS
    Saving the encryption key enables QVP to automatically unlock and mount the SED pool when the NAS starts up. If the encryption key is not saved, you must specify the encryption password every time the NAS restarts.

> **Warning**

> Saving the encryption key can result in unauthorized data access if unauthorized personnel are able to physically access the NAS.

17. Optional: Configure advanced settings.

Setting	Description	User Actions
Alert threshold	QVP issues a warning notification when the percentage of used volume space is equal to or above the specified threshold.	Specify a value.
Accelerate performance with SSD cache	QVP adds data from this volume to the SSD cache to improve read or write performance.	No actions
Create a shared folder on the volume	QVP automatically creates the shared folder when the volume is ready. Only the NAS admin account can access the new folder.	• Specify a folder name. • Select **Create this folder as a snapshot shared folder**. A snapshot shared folder enables faster snapshot creation and restoration.

18. Click **Next**.

19. Click **Finish**.
A confirmation message appears.

> **Warning**
> Clicking **OK** deletes all data on the selected disks.

QVP creates and initializes the volume, and then creates the optional shared folder.

SED Storage Pool and Static Volume Actions

Go to **Main Menu** > **Storage Manager** > **Storage Space** , select a SED pool or volume, click **Manage**, then select **Actions** > **SED Settings** to perform the following actions.

Action	Description
Change SED Pool Password Change SED Volume Password	Change the SED security password. You can also choose to save the encryption key to the local NAS. ⚠️ **Warning** Remember this password. If you forget the password, the pool will become inaccessible and all data will be unrecoverable. Saving the encryption key enables QVP to automatically unlock and mount the SED pool when the NAS starts up. If the encryption key is not saved, you must specify the encryption password every time the NAS restarts. ⚠️ **Warning** Saving the encryption key can result in unauthorized data access if unauthorized personnel are able to physically access the NAS.
Lock	Lock the pool or volume. All volumes, LUNs, snapshots, and data will become inaccessible until it is unlocked.
Unlock	Unlock a locked SED pool or volume. All volumes, LUNs, snapshots, and data will become accessible.
Disable SED Security	Remove user password and disable the ability to lock and unlock the volume or pool.
Enable SED Security	Add user password and enable the ability to lock and unlock the volume or pool.

Removing a Locked SED Pool or Volume

1. Go to **Main Menu** > **Storage Manager** > **Storage Space** .

2. Select a locked SED storage pool or static volume.

3. Select **Manage** > **Remove**
   The **Removal Wizard** window opens.

4. Select a removal option.

Option	Description
Enter the password of the pool	QVP will unlock the SED disks in the pool or volume, and then delete all data.
Forget password	QVP will remove the storage pool or static volume. The SED disks will remain locked, and cannot be used until they have been unlocked using Find and Recover Storage Space or erased using SED Erase.

5. Click **Apply**.

SED Erase

SED Erase erases all of the data on a locked or unlocked SED disk and removes the SED security password.

Erasing a Disk Using SED Erase

1. Go to **Main Menu** > **Storage Manager** > **Disks** .

2. Select an SED disk.

3. Click **Actions** and then select **SED Erase**.
   The **SED Erase** window opens.

4. Enter the disk's PSID.

> **Tip**
> The PSID can usually be found on the front of the disk.

5. Click **Apply**.

External Storage

QVP supports various external storage devices, such as flash drives, portable hard drives, and storage enclosures. After connecting external storage device to the NAS, the device and all of its readable partitions will be displayed on this page. QVP will also create a shared folder for each readable partition on the device. For details on supported external device types, see hardware specifications on https://www.qnap.com and https://www.qnapsecurity.com.

> **Note**
> To access partitions formatted using the exFAT file system, you must purchase an exFAT driver license in License Center.

External Storage Device Actions

Action	Description
Erase	Delete all data and partitions on the device.
Eject	Safely unmount the external storage device from the NAS, so that you can disconnect it.

External Storage Partition Actions

Action	Description
Storage Information	View details about the selected partition, including partition name, capacity, used space, and file system type.
Format	Format the partition. For details, see Formatting an External Storage Partition.
Eject	Unmount the partition. The external storage device and other partitions on it will continue working.

Formatting an External Storage Partition

1. Go to **Main Menu** > **Storage Manager** > **External Storage** .

2. Select a storage partition.

3. Click **Action**, and then select **Format**.
   The **Format Partition** window opens.

4. Select a file system.

File System	Recommended Operating Systems and Devices
NTFS	Windows
HTS+	macOS
FAT32	Windows, macOS, NAS devices, most cameras, mobile phones, video game consoles, tablets **⊙ Important** The maximum file size is 4 GB.
exFAT	Windows, macOS, some cameras, mobile phones, video game consoles, tablets **⊙ Important** • Using exFAT on QVP requires an exFAT driver license. You can purchase the license in License Center. • Verify that your device is compatible with exFAT before selecting this option.
EXT3	Linux, NAS devices
EXT4	Linux, NAS devices

5. Specify a disk label.
   The label must consist of 1 to 16 characters from any of the following groups:

   - Letters: A to Z, a to z

   - Numbers: 0 to 9

   - Special characters: Hyphen "-"

6. Optional: Enable encryption.

   a. Select an encryption type.
      Select one of the following options:

      - AES 128 bits

      - AES 192 bits

      - AES 256 bits

   b. Specify an encryption password.

The password must consist of 8 to 16 characters from any of the following groups:

- Letters: A to Z, a to z

- Numbers: 0 to 9

- All special characters (excluding spaces)

  c. Confirm the encryption password.

  d. Optional: Select **Save encryption key**.
Select this option to save a local copy of the encryption key on the NAS. This enables QVP to automatically unlock and mount the encrypted volume when the NAS starts up. If the encryption key is not saved, you must specify the encryption password each time the NAS restarts.

> ⚠ **Warning**
>
> - Saving the encryption key on the NAS can result in unauthorized data access if unauthorized personnel are able to physically access the NAS.
>
> - If you forget the encryption password, the volume will become inaccessible and all data will be lost.

7. Click **Format**.
A warning message appears.

8. Click **OK**.

5. Surveillance Settings

Camera Settings

The **Camera Settings** screen enables you to manage the cameras in your network.

You can modify the following settings.

Setting	Description
Connection	QVR Pro automatically detects the settings of added cameras. You can modify the connection settings as required. For details, see Connection Settings.
Stream and Recording	QVR Pro automatically detects the video stream settings and displays the information for all available streams. One camera can support up to three video streams depending on a camera's capabilities. QVR Pro allows you to configure various recording settings, including normal recording, event recording, and Autosnap. For details, see Stream and Recording Settings.
Event	QVR Pro allows you to specify which digital input status is considered an event. The options vary depending on the camera.

Adding Cameras

> **Note**
> The maximum number of cameras allowed depends on the NAS model and the number of camera licenses installed.

There are several ways to add a camera:

- Add a camera that is connected to the network. For details, see Adding a Camera Connected to the Network.

- Add a camera manually. For details, see Adding a Camera Manually.

- Batch add multiple cameras. For details, see Batch Adding Multiple Cameras.

Adding a Camera Connected to the Network

QVR Pro displays the list of added cameras on the **Camera Settings** screen. Perform the following task to add a camera that is connected to the network.

1. Open **Camera Settings** from the desktop or from the main menu.

2. Click one of the following buttons.

Option	Description
+	Click to add your first camera.
Add	Click to add more cameras.

The **Camera Selection** screen appears.

3. Select a camera from the list.

   - QVR Pro automatically scans the network for available cameras.

   - To add a camera from a different network, use the Advanced Search feature. To add a camera of a specific brand or model, use the Filter feature.
     For details, see Using Search Filters and Using the Search Features.

4. Click **Next**.
   The **Edit Camera Selection** screen appears.

5. Specify the camera information, including the account name and password.

> **Tip**
> You can click **Test** to verify the camera connection.
> For details, see Testing the Camera Connection.

6. Click **Next**.
   A confirmation message appears.

7. Select one of the following options and then click **OK**.

Option	Description
Edit now	Immediately modify the camera settings.
Edit later	Use the default camera settings. You can modify the settings later.

8. Depending on your selection in the previous step, perform one of the following steps.

   - Modify the camera settings.
     For details on the camera settings, see Editing the Camera Settings.

   - Proceed to the next step.

9. Click **Finish**.

The camera is added to the QVR Pro server.

Adding a Camera Manually

1. Open **Camera Settings** from the desktop or from the main menu.

2. Click one of the following buttons.

Option	Description
+	Click to add your first camera.
Add	Click to add more cameras.

   The **Camera Selection** screen appears.

3. Click **Next**.

4. Click **Add Manually**.
   A new entry is added to the list.

5. Specify the following information.

Field	Task
Name	Specify a name for the camera.
Brand	Select the camera brand.
Model	Select the camera model.
IP Address	Specify the IP address.
Port	Modify the port number. The default value is 80.
RTSP Port	Modify the real time streaming protocol (RTSP) port number. The default value is 554.
Account	Specify the camera username.
Password	Specify the camera password.

> **Tip**
> You can click **Test** to verify the camera connection.
> For details, see Testing the Camera Connection.

6. Click **Next**.
   A confirmation message appears.

7. Select one of the following options and then click **OK**.

Option	Description
Edit now	Immediately modify the camera settings.
Edit later	Use the default camera settings. You can modify the settings later.

8. Depending on your selection in the previous step, perform one of the following steps.

   - Modify the camera settings.
     For details on the camera settings, see Editing the Camera Settings.

   - Proceed to the next step.

9. Click **Finish**.

The camera is added to the QVR Pro server.

Batch Adding Multiple Cameras

You can batch add multiple cameras to the QVR Pro server if they share the same login credentials.

1. Open **Camera Settings** from the desktop or from the main menu.

2. Click one of the following buttons.

Option	Description
+	Click to add your first camera.
Add	Click to add more cameras.

The **Camera Selection** screen appears.

3. Select the cameras from the list.
   To add cameras from a different network, use the Advanced Search feature. To add cameras of specific brands or models, use the Filter feature.
   For details, see Using Search Filters and Using the Search Features.

4. Click **Next**.
   The **Edit Camera Selection** screen appears.

5. Select the cameras that share the same login credentials.

6. Click **Batch Login**.

7. Specify the following information.

Field	Task
Username	Specify the camera username.
Password	Specify the camera password.
Port	Specify the port number.
RTSP Port	Specify the real time streaming protocol (RTSP) port number.

8. Click **Apply**.

9. Click **Next**.
   A confirmation message appears.

10. Select one of the following options and then click **OK**.

Option	Description
Edit now	Immediately modify the camera settings.
Edit later	Use the default camera settings. You can modify the settings later.

11. Depending on your selection in the previous step, perform one of the following steps.

    • Modify the camera settings.
      For details on modifying the camera settings, see Editing the Camera Settings.

    • Proceed to the next step.

12. Click **Finish**.

The cameras are added to the QVR Pro server.

Editing the Camera Settings

• After adding a camera, you can click **Edit** (✎) to modify its connection, stream, recording, and event settings.

Connection Settings

The following settings are available on the **Connection** tab.

Field	Description
Preview	Displays a snapshot of the video feed if the camera connection to QVR Pro has been established.

Field	Description
Name	Displays the name of cameras that have been added to QVR Pro using the following format: `<brand>_<model>`. The default name of a manually added camera is `Camera`.
Brand	Displays the camera brand.
Model	Displays the camera model.
IP Address	Displays the camera IP address.
Port	Displays the camera port number. The default value is 80.
RTSP Port	Displays the real time streaming protocol (RTSP) port number. The default value is 554.
Account	A text field where you can type the camera account name.
Password	A text field where you can type the camera password. **Tip** You can hide or display the password by clicking **Password** ( ).
Action	Displays the **Test** button. For details, see Testing the Camera Connection.

Editing the Camera Connection Settings

1. Open **Camera Settings** from the desktop or from the main menu.

2. Locate the camera in the list and then click **Edit** (✎).
   The **Edit** screen appears.

3. On the **Connection** tab, modify the following settings as required.

Field	Task
Name	Type a name for the camera.
Brand	Select the camera brand.
Model	Select the camera model.
IP Address	Type the IP address.
Port	Modify the port number. The default value is 80.
RTSP Port	Modify the real time streaming protocol (RTSP) port number. The default value is 554.
Account	Type the camera account name.
Password	Type the camera password.

4. Click **Test** to test the connection.

5. Click **Apply**.

Stream and Recording Settings

The following settings may be available on the **Stream & Recording** tab, depending on the model of the selected camera.

Stream Settings

Field	Description
Fisheye mount type	Displays the specified mount type. The mount type determines the location of the fisheye camera.
Stream mode	Displays the specified stream mode. The options are hidden when a camera only supports the single stream mode.
Name	The default format of a stream name is `Stream<number>`. The number changes depending on the number of supported streams.
Video compression	Displays the default video compression settings of the stream.
Resolution	Displays the default resolution of the stream. In cases where a camera has multiple streams and two or all streams use the same resolution, QVR Pro checks the video compression settings of each stream. When a camera has multiple streams, QVR Pro automatically assigns different resolutions to different streams.
Frame rate	Displays the frame rate or frequency in the number of frames per second (FPS).
Bitrate control	Displays the default bitrate control. You can choose to use one of the following options. • VBR: variable bit rate • CBR: constant bit rate
Bit rate	Displays the bit rate when CBR is selected.
Quality	Displays the quality when VBR is selected.

Recording Settings

Option	Description
Enable video recording	Selecting this option allows you to enable and configure the following features. • Normal recording: QVR Pro records videos based on the specified schedule. **Note** The schedule indicates the hours and days when QVR Pro records videos. **Workdays** are days from every Monday to Friday. **Weekends** include every Saturday and Sunday. • Event recording: QVR Pro only records video streams when an event is detected. • Audio recording: QVR Pro captures the audio when recording videos. • Edge recording recovery: QVR Pro records and saves the selected stream directly to a camera SD card. The recorded stream can be used for recording recovery in the future. **Note** This feature only supports using Stream 1 and H.264 codec. For details, see Enabling Video Recording.
Enable Autosnap	Selecting this option allows QVR Pro to take snapshots at regular intervals. For details, see Enabling Autosnap.

Editing the Stream Settings

> **Important**
> QVR Pro hides the features that the selected camera does not support. Some of the options may not be available to your camera.

1. Open **Camera Settings** from the desktop or from the main menu.

2. Locate the camera in the list and then click **Edit** (✎).
   The **Edit** screen appears.

3. Select the **Stream & Recording** tab.

4. Optional: Select the stream mode.

   • Single stream

   • Multiple stream

5. Click **Edit** (✎) beside **Stream Settings**.
   The **Stream Settings** screen appears.

6. Optional: Configure the fisheye settings.

   a. Select **Enable fisheye lens**.

b. Select the fisheye mount type.

- Wall mount

- Ceiling mount

- Table mount

c. Select the display mode.

> **Note**
> Ensure that the camera fisheye lens has been installed before enabling this feature. After installing the lens, you must also verify that the camera displays a circular video image. Otherwise, the dewarped image would be incorrect.

7. Configure the bitrate reduction settings.

a. Click **Edit** (✎) beside **Bitrate Reduction**.
The **Codec Optimization** screen appears.

b. Select the following options if needed.

Option	Description
Enable bitrate reduction	Bitrate reduction is a compression method that lowers the bitrate, and reduces the number of keyframes and frames per second (FPS). This feature works best with still videos. When this feature is enabled, you can customize the dynamic keyframe interval. You can also enable dynamic FPS to decrease the number of frames per second for still videos.
Enable dynamic keyframe interval	Dynamic keyframe interval increases the interval between keyframes to reduce the video size. This feature works best with still videos.

c. Click **Apply**.

8. Modify the following settings if needed.

Field	Task
Video compression	Select the video compression.
Resolution	Select the resolution.
Frame rate	Select the frame rate.
Bitrate control	Select one of the following bitrate controls. • VBR: variable bit rate • CBR: constant bit rate
Bit rate	Select the bitrate. This option is only available when CBR is selected.
Quality	Select the quality. This option is only available when VBR is selected.

9. Optional: Click **Preview**

> **Note**
>
> • To see the stream preview, ensure that you allow pop-ups in your browser settings.
>
> • Depending on the camera model, you may need to restart the camera to see the preview. Restarting the camera may affect recording sessions that are using the selected stream.

QVR Pro displays a preview of the camera stream.

10. Click **Apply**.

Enabling Video Recording

1. Click **Camera Settings** from the desktop or from the main menu.

2. Locate the camera from the list and then click **Edit** (✎).
   The **Edit** window opens.

3. Select the **Stream & Recording** tab.

4. Select **Enable video recording**.

5. Modify the following settings as required.

Option	Possible User Actions
Normal Recording	• Select one or multiple streams. • Specify the schedule. > **Tip** > The schedule indicates the hours and days when QVR Pro performs normal recording. **Workdays** are days from every Monday to Friday. **Weekends** include every Saturday and Sunday. > You can use the default schedule or click **Add** (+) to create a custom schedule and specify active and inactive time slots.

Event Recording	• Select one stream or multiple streams
	
	• Click **Edit** (✎) to configure the following settings:
	
	    • Pre-recording: the duration (seconds) of video recording before the actual alarm event.
	
	    • Post-recording: the duration (seconds) of video recording after the actual alarm event.

6. Optional: Select **Enable audio recording on this camera** and **Edge Recording Recovery**.

7. Click **Apply**.

Enabling Autosnap

1. Click **Camera Settings** from the desktop or from the main menu.

2. Locate the camera from the list and then click **Edit** (✎).
   The **Edit** window opens.

3. Select the **Stream & Recording** tab.

4. Select **Enable Autosnap**.

5. Select a stream.

6. Specify the schedule.

> **Tip**
> The schedule indicates the hours and days when QVR Pro performs normal recording. **Workdays** are days from every Monday to Friday. **Weekends** include every Saturday and Sunday.
> You can use the default schedule or click **Add** (+) to create a custom schedule and specify active and inactive time slots.

7. Click **Edit** (✎) beside **Enable Autosnap**.
   The **Autosnap** window appears.

8. Specify the interval between every snapshot.

9. Specify the location to save the snapshots.

   - NAS folder

   - Remote destination

      1. Remote host IP address

      2. Destination path

      3. User name

      4. Password

> **Tip**
> You can click **Test** to test the connection.

10. Click **Apply**.
    QVR Pro applies the Autosnap settings and closes the **Autosnap** window.

11. Click **Apply**.

Event Settings

> **Note**
> Only specific camera models support this feature.

The following settings are available on the **Event** tab.

Feature	Possible User Tasks
Alarm Input	Select the alarm input for each camera.
Alarm Output	Select the alarm output for each camera.

Assigning a Network Interface to a Camera

QVR Pro allows you to assign a network interface to each camera. This ensures that the bandwidth is load-balanced.

1. Open **Camera Settings** from the desktop or from the main menu.

2. Locate the camera in the list and then click **Network Interface** (⬚).
   The **Network Interface Assignment** screen appears.

3. Select an interface from the list.

4. Click **Apply**.
   The changes are saved.

Testing the Camera Connection

Test the camera connection to verify that the settings are correct.

QVR Pro displays the following connection status icons.

Connection Status Icons

Icon	Description
✅	QVR Pro successfully connected to the camera.
⚠	QVR Pro was unable to connect to the camera. **Tip** You can mouse over the warning icon to display additional information.

1. Open **Camera Settings** from the desktop or from the main menu.

2. Locate the camera in the list and then click **Edit**.
   The **Edit** screen appears.

3. On the **Connection** tab, locate the camera in the list.

4. Under the **Action** column, click **Test**.
   QVR Pro tests the connection and displays the connection status.

Deleting a Camera

Delete cameras to remove them from the list.

1. Open **Camera Settings** from the desktop or from the main menu.

2. Locate the camera in the list and then click **Delete** (🗑).
   A confirmation message appears.

3. Click **OK**.
   The selected camera is deleted from the list.

Sharing a Channel

QVR Pro allows you to share a live channel view without requiring the viewers to install a plug-in.

1. Open **Camera Settings** from the desktop or from the main menu.

2. Locate the camera in the list and then click **Share** (⌘).

The **Share Channel** screen appears.

3. Select **Share this channel**.
    The available streams for the selected channel are displayed.

4. Select the stream.

5. Optional: Enable the validation code.

    a. Select **Enable**.

    b. Enter a validation code.

6. Click **Apply**.
    QVR Pro creates the shareable link.

Customizing the Camera List

The camera list displays all the cameras that have been added to QVR Pro. You can choose to modify the camera list in two ways.

*   Click ▽ .

    a. Specify the search parameters or type the camera name.

        *   Camera Brand

        *   Camera Model

        *   Status

        *   Camera Name

    Tip
    You can specify one or all options, as required.

    b. Click **Apply**.

    The search results appear.

*   Click + to display the list of available camera information.

    a. Select or deselect any of the following to customize the table columns.

        *   Channel

        *   Status

        *   Recording Settings

        *   Days Recorded

        *   Brand

        *   Camera Model

        *   IP Address

        *   MAC Address

- Firmware Version

The selected items are added to the camera list table.

Using the Search Features

QVR Pro provides the following search methods.

- Use advanced search.
  For details, see Using Advanced Search.

- Use search filters.
  For details, see Using Search Filters.

Using Advanced Search

Tip
When searching a different network, use the camera's login username, password, or port number for more accurate search results.

1. Open **Camera Settings** from the desktop or from the main menu.

2. Click one of the following buttons.

Option	Description
+	Click to add your first camera.
Add	Click to add more cameras.

The **Camera Selection** screen appears.

3. Click **Advanced Search** (🔍).
   The advanced search options appear.

4. Specify the search parameters.

Option	Description
Search this NAS network	QVR Pro searches for cameras connected to the network.
Search a different network	QVR Pro searches for cameras connected to another network. Specify the search parameters by providing the following information. • Start IP - Type the first IP address in the search range. • End IP - Type the last IP address in the search range. • Optional: Port - Type the camera port number. • Optional: Username - Type the camera user name.

	• Optional: Password - Type the camera password.

> **Tip**
> You can select one or both options, as required.

5. Click **Apply**.
   The search results appear.

Using Search Filters

> **Tip**
> Use the filter feature to only display cameras of a specific brand and model. For best results, add cameras of the same brand and model by batch.

1. Open **Camera Settings** from the desktop or from the main menu.

2. Click one of the following buttons.

Option	Description
+	Click to add your first camera.
Add	Click to add more cameras.

The **Camera Selection** screen appears.

3. Click **Filter** (▽).
   The filter options appear.

4. Specify the search parameters.

   • Camera Brand

   • Camera Model

> **Tip**
> You can specify one or both options, as required.

5. Click **Apply**.
   The search results appear.

Importing or Exporting Camera Settings

You can import or export the profiles of your surveillance cameras to quickly configure or back up camera connection settings.

> **Note**
>
> • QVR Pro only supports importing CSV files in the UTF-8 format.
>
> • You can edit the CSV files using Microsoft Excel or other software programs that support the CSV format.

1. Open **Camera Settings** from the desktop or the main menu.

2. Click **Export/Import Camera Settings**.

3. Perform one of the following tasks.

Task	Steps
Export Camera Settings	a. Click **Export Camera Settings**. b. Choose whether to include camera passwords in the exported CSV configuration file. c. Click **Export**.
Import Camera Settings	a. Click **Import Camera Settings**. b. Click **Browse** and select a CSV configuration file. c. Click **Next**. d. Select the camera profiles that you want to import. e. Click **Apply**.

Recording Storage

The **Recording Storage** screen provides an overview of recording spaces and cameras as well as several configuration options for managing your storage space.

Overview

Recording Space

A recording space is composed of one or more volumes allocated for video surveillance. By creating a dedicated storage space for video recordings, QVR Pro transforms your NAS into a powerful video recording device.

Adding a Recording Space

You can add a recording space to allocate a fixed amount of storage space for video recordings.

> **Warning**
> Modifying, moving, or deleting the files in the `QVRProDB` and `QVRProSpace_[volume name]` folders will cause QVR Pro to malfunction.

1. Open **Recording Storage** from the desktop or main menu.

2. Go to **Recording Space**.

3. Click one of the following buttons.

Button	Description
+	Click to add your first recording space.
Add	Click to add more recording spaces.

The **Add Recording Space** screen appears.

4. Select **Local**.

5. Specify the following information.

Field	Task
Name	Specify a name for the recording space. 📝 **Note** Name requirements: • Length: 1-30 characters. • Valid characters: A-Z, a-z, 0-9 • Valid special characters: space ( ), hyphen (-), underscore (_), and period (.)
Overwrite Trigger Threshold	Select the overwrite trigger threshold. 📝 **Note** QVR Pro starts overwriting the oldest recording data when the percentage of used recording space exceeds the specified threshold.
Pre-allocated	Select this option to pre-allocate storage space for recording data. ❗ **Important** If you choose not to enable this option, ensure that you have enough storage space and the overwrite mechanism can be triggered as expected. Otherwise, QVR Pro would stop recording due to insufficient space.

6. Select a volume.

7. Specify the estimated size of allocated space.

8. Click **Next**.

9. Optional: Assign a spare volume if available.

   a. Select a volume.

   b. Specify the amount of allocated space.

10. Click **Next**.

11. View the summary of the recording space.

💡 **Tip**
Click **Back** to return to earlier steps and modify settings.

12. Click **Apply**.
    A confirmation message appears.

13. Click **Apply**.

14. Click **Finish**.
The new recording space is created. QVR Pro creates a shared folder using the name
`QVRProSpace_[volume name]`.

Editing Recording Space Settings

You can edit the recording space name, change the retention ratio, expand the allocated volume, or add a spare volume.

1. Open **Recording Storage** from the desktop or main menu.

2. Go to **Recording Space**.

3. Select a recording space.

4. Under **Action**, click **Edit** (✎).
The **Edit Recording Space Settings** screen appears.

5. Under **Allocated Volume(s)**, modify any of the following information.

Field	Task
Name	Specify a name for the recording space. **Note** Name requirements: • Length: 1-30 characters. • Valid characters: A-Z, a-z, 0-9 • Valid special characters: space ( ), hyphen (-), underscore (_), and period (.)
Overwrite trigger threshold	Specify the overwrite trigger threshold. **Note** QVR Pro starts overwriting the oldest recording data when the percentage of used recording space exceeds the specified threshold.

6. Optional: Expand the estimated size of allocated space.

> **Important**
> The new volume size must be larger than the current size.

    a. Under the **Allocated Size** column, click **Expand Size** ( ).

    b. On the **Expand Size** screen, select the new volume size.

    c. Click **Apply**.

7. Optional: Add a new volume.

> ⓘ **Important**
> Deleting an existing volume is not allowed.

    a. Select a volume from the list of available volumes.

    b. Specify the allocated amount.

8. Optional: Assign a spare volume if available.

    a. Select a volume.

    b. Specify the amount of allocated space.

9. Click **Apply**.

Viewing the Recording Space Dashboard

Check the health status of the recording spaces and review the list of recording spaces.

1. Open **Recording Storage** from the desktop or from the main menu.

2. Go to **Recording Space**.

3. Check the following widgets.

Widget	Description
Storage Overview	Displays each recording space as a slice in the pie chart. The pie chart is a visual representation of how each recording space relates to other recording spaces.
Camera Overview	Displays the overall status of the cameras in QVR Pro. The widget also lists the following information: • Total: the total number of cameras that have been added to QVR Pro • Without recording space assigned: the number of cameras to which no recording space is assigned • Overwrite disabled: the number of cameras where QVR Pro does not delete the oldest recordings to make room for new recordings.

4. Check the recording space list.

Column	Description
Name	Displays the specified recording space name.

Column	Description
Status	Displays the status of the recording space health. The status can be any of the following: • Normal: the recording space is available and in use • Idle: the recording space is available but not in use. • Allocating: QVR Pro is creating the recording space • Spare Enabled: the spare volume is in use • Deleting: QVR Pro is deleting the recording space • Error: the recording space has encountered an issue and is not available • Warning: QVR Pro has detected an issue that might result in an error • Normal (Expanding): QVR Pro is increasing the recording space size
Recording space capacity	Displays the following information: • Total: total storage space • Used: total storage space used • Reserved: the percentage of the reserved volume that remains unused before overwriting starts
Recording status	Displays the total number of channels recording to the space.
Action	Displays the following buttons: • Edit: click to modify the recording space settings • Remove: click to delete a volume You must provide the password and confirm the action before QVR Pro deletes the volume. • Details: click to view the recording space details For details, see Viewing Recording Space Details.

Viewing Recording Space Details

The **Details** screen gives you a quick overview of the recording space information.

1. Open **Recording Storage** from the desktop or from the main menu.

2. Go to **Recording Space**.

3. Select the recording space and then click 👁 under the **Action** column.
   The **Details** screen appears.

4. Review the following information.

Field	Description
Name	Displays the recording space name

Field	Description
Number of allocated volume(s)	Displays the total number of allocated volumes
Overwrite trigger threshold	Displays the percentage of the reserved volume that will remain unused before overwriting the recording files
Total allocated size	Displays the total size of the allocated volume(s)
Allocated volume(s)	Displays the volume name, RAID Type/Disk, storage space name, comparison between the allocated size and the total size, and the space status of the allocated volumes
Spare volume(s)	Displays the volume name, RAID Type/Disk, storage space name, comparison between the allocated size and the total size, and the space status of the spare volumes

5. Click **OK**.

Deleting a Recording Space

Delete an existing recording space if you no longer need the space or if you want to re-allocate the volume.

> ⚠️ **Warning**
> Deleting a recording space also deletes the recording information. The deleted space cannot be recovered.

1. Open **Recording Storage** from the desktop or from the main menu.

2. Go to **Recording Space**.

3. Select the recording space and then click 🗑 under the **Action** column.
   A confirmation message appears.

4. Review the recording space details and then click **Delete**.
   A warning message appears.

5. Type the password and then click **OK**.
   The recording space is deleted.

Recording Location and Days

QVR Pro allows you to specify where to save recorded videos. You can also specify the number of days that normal and event recording streams are recorded, the maximum file size for the saved files, and whether or not to overwrite files older files to make space for new recordings.

Editing the Channel Recording Settings

1. Open **Recording Storage** from the desktop or from the main menu.

2. Go to **Recording Location and Days**.

3. Click ✎ beside any camera on the list.
   The **Edit Channel Recording Settings** screen appears.

4. Select **Use custom settings** and then modify the following settings as required.

Stream Type	Possible User Actions
Normal Event	• Select the recording location. • Specify the minimum and maximum number of days. • Specify the maximum file size. • Select **Enable** or **Disable** to specify whether or not to overwrite older files. **⊘ Important** Specifying the minimum number of days and selecting **Disable** may cause conflict. In such cases, QVR Pro still overwrites the oldest recording and creates a log entry for this action.

5. Click **Apply**.
   The changes are applied.

Editing the Default Channel Settings

> **📋 Note**
> Changes to the default settings only apply to the currently selected channel. You must manually repeat the process for other channels.

1. Open **Recording Storage** from the desktop or from the main menu.

2. Go to **Recording Location and Days**.

3. Click ✎ beside any camera on the list.
   The **Edit Channel Recording Settings** screen appears.

4. Click **Edit Default Settings**.
   The **Edit Default Settings** screen appears.

5. Select **Use default settings** and then modify the following settings as required.

Stream Type	Possible User Actions
Normal Event	• Select the recording location. • Specify the minimum and maximum number of days. • Specify the maximum file size. • Select **Enable** or **Disable** to specify whether or not the overwriting of older files is allowed. **⊘ Important** Specifying the minimum number of days, and **Disable** may cause conflict. In such cases, QVR Pro still overwrites the oldest recording and creates a log entry for this action.

6. Click **Apply**.
   The default channel settings are modified.

Recording Management

Recording Import

Importing Recording Data

You can import recording data to QVR Pro from the local or a remote NAS.

1. Open **Recording Storage** from the desktop or main menu.

2. Go to **Recording Import**.

3. Click **Import Recording**.
   The **Import Recording** window appears.

4. Click **Browse**.

5. Perform one of the following tasks.

Task	Action
Import recordings from the local NAS	a. Select **Local NAS**. QVR Pro displays the folders on the local NAS. b. Select a folder. ⊙ **Important** You must select a `QVI_Format` folder to import recording data. c. Click **Next**.
Import recordings from a remote NAS	a. Click **Remote NAS**. The **Remote NAS Login** window appears. b. Specify the following information. • **Host name/IP address** • **Port number** • **Username** • **Password** c. Click **Connect**. QVR Pro displays the folders on the remote NAS. d. Select a folder. ⊙ **Important** You must select a `QVI_Format` folder to import recording data. e. Click **Next**.

6. Select a source channel.

7. Select a destination channel.

8. Select a recording space.

9. Specify a time range for the imported recording.

10. Click **Apply**.
    The **Important Notice** window appears.

11. Read the Important Notice.

12. Select a policy for handling duplicate recordings.

      • **Keep the recording on the destination**

      • **Overwrite the recording on the destination**

13. Select **I have read and understood this import notice**.

14. Click **OK**.

QVR Pro starts importing recording data to the specified destination. You can view import tasks in **Import History**.

Recording Backup

Backing Up Recording Data

1. Open **Recording Storage** from the desktop or main menu.

2. Go to **Recording Backup**.

3. Click **Create Task**.

4. Specify the following information for the destination NAS.

Field	Action
Task name	Specify a name for the backup task. **Note** Name requirements: • Length: 1-64 characters. • Valid characters: A-Z, a-z, 0-9 • Valid special characters: space ( ), hyphen (-), underscore (_), and period (.)
Name or IP address	Specify the name or the IP address of the destination NAS.
Port number	Specify a port number for the connection.
Username	Specify a username for the destination NAS.
Password	Specify the password.
Path	Specify a path for the backup recording data.

5. Optional: Click **Test**.
    QVR Pro tries to connect to the destination NAS with the specified credentials and then displays the test result.

6. Click **Next**.

7. Select camera channels from the channel list.

8. Click **Next**.

9. Select one of the following backup plans.

Plan	Action
Back up recording data in the last few days	a. Select **Back up recording data in the last few days**. b. Specify the number of days.
Back up recording data in a specific time range	a. Select **Back up recording data in a specific time range**. b. Specify the start time and end time.

10. Specify a backup schedule.

    a. Click **Backup Schedule**.
       The **Backup Schedule** window appears.

    b. Select one of the schedule options.

    c. Specify the backup time or the interval between every backup.

    d. Click **Apply**.

11. Optional: Select **Perform the backup task immediately**.

12. Select a recording type.

    • **Back up normal recordings only**

    • **Back up event recordings only**

    • **Back up both normal and event recordings**

13. Select a recording format.

    • **Standard format (mp4)**

    • **QVR Pro format (can be imported to other QVR Pro servers)**

14. Configure backup rules.

    a. Optional: Specify a retention period for the recording data.

    b. Specify a storage policy in the event that the destination space is full.

15. Click **Finish**.

QVR Pro creates the recording backup task. You can view and manage tasks on the task list.

Editing Recording Backup Settings

1. Open **Recording Storage** from the desktop or main menu.

2. Go to **Recording Backup**.

3. Locate a recording backup task from the task list.

4. Click ✎
The **Edit Recording Backup Task** window appears.

5. Specify the following information for the destination NAS.

Field	Action
Task name	Specify a name for the backup task. 📝 **Note** Name requirements: • Length: 1-64 characters. • Valid characters: A-Z, a-z, 0-9 • Valid special characters: space ( ), hyphen (-), underscore (_), and period (.)
Name or IP address	Specify the name or the IP address of the destination NAS.
Port number	Specify a port number for the connection.
Username	Specify a username for the destination NAS.
Password	Specify the password.
Path	Specify a path for the backup recording data.

6. Optional: Click **Test**.
QVR Pro tries to connect to the destination NAS with the specified credentials and then displays the test result.

7. Click **Next**.

8. Select camera channels from the channel list.

9. Click **Next**.

10. Select one of the following backup plans.

Plan	Action
Back up recording data in the last few days	**a.** Select **Back up recording data in the last few days**. **b.** Specify the number of days.
Back up recording data in a specific time range	**a.** Select **Back up recording data in a specific time range**. **b.** Specify the start time and end time.

11. Specify a backup schedule.

    a. Click **Backup Schedule**.
    The **Backup Schedule** window appears.

    b. Select one of the schedule options.

    c. Specify the backup time or the interval between every backup.

    d. Click **Apply**.

12. Optional: Select **Perform the backup task immediately**.

13. Select a recording type.

    • **Back up normal recordings only**

    • **Back up event recordings only**

    • **Back up both normal and event recordings**

14. Select a recording format.

    • **Standard format (mp4)**

    • **QVR Pro format (can be imported to other QVR Pro servers)**

15. Configure backup rules.

    a. Optional: Specify a retention period for the recording data.

    b. Specify a storage policy in the event that the destination space is full.

16. Click **Finish**.

QVR Pro saves changes to the recording backup task.

Managing Recording Backup Tasks

1. Open **Recording Storage** from the desktop or main menu.

2. Go to **Recording Backup**.

3. Select a recording backup task from the task list.

4. Perform any of the following actions.

Action	Step
Start a task	Click ▷ .
Stop a task	Click ◉ .

Delete a task	**a.** Perform one of the following actions.
	
	    • Click 🗑 .
	
	    • Click **Delete**.
	
	A confirmation message appears.
	
	b. Click **OK**.

Enable a task	Click ⬭ .
Disable a task	Click 🟢 .

Action	Step
View task logs	Click **Logs**. The **Recording Backup Task Logs** window appears. 💡 **Tip** You can click **Export** to download the logs to your device.

Recording File Explorer

Recording File Explorer allows you to access video recordings in File Station. You may play, copy, or download the recording files in the `QVRProRecording/File` folder.

QVR Pro uses an index and frame data to generate media files instead of storing traditional recording files.

> ⛔ **Important**
> If you enable this feature, you might not be able to retrieve some recorded data if QVR Pro stops working unexpectedly.

File Station supports the following formats:

Object	QVI Format	Standard Format
Folder name	QVI_Format	Standard_Format
File extension	`.qvi`	`.mp4` or `.avi`
Video player	Windows Media Player	Third-party player
Limitations	This format is only supported on Windows.	This format does not support the following: • MxPEG • Digital watermark

Enabling Recording File Explorer

You must enable Recording File Explorer to view recordings in the QVR Pro recording folder (`QVRProRecording/file`).

> ⛔ **Important**
> • If you delete recording files from the `QVRProRecording` folder, you will not be able to access the deleted recordings in QVR Pro.
>
> • The `QVRProRecording/file` folder only provides shortcuts to recording files and does not take up storage space.

1. Open **Recording Storage** from the desktop or main menu.

2. Go to **Recording Management** > **Recording File Explorer** .

3. Select **Use Recording File Explorer to access recordings**.

Using Recording File Explorer

1. Open **Recording Storage** from the desktop or from the main menu.

2. Go to **Recording Management** > **Recording File Explorer** .

3. Click **Open Recording File Explorer**.
   File Station opens in a new tab or window.

4. Specify the duration of a single recording file.

You can play, copy, or download the recording files in the `QVRProRecording/File` folder. Recording files are read-only.

> ⚠ **Warning**
> Modifying, moving, or deleting the files in the `QVRProDB` and `QVRProSpace_[volume name]` folders will cause QVR Pro to malfunction.

Advanced Settings

Rebuilding the Recording Index

QVR Pro allows you to rebuild the recording index to repair corrupted data. The index usually becomes corrupted when removing a volume with stored recordings.

1. Open **Recording Storage** from the desktop or from the main menu.

2. Go to **Advanced Settings** > **Rebuild Recording Index** .
   The **Rebuild Recording Index** screen appears.

3. Click **Rebuild Recording Index**.

4. Select the channel of the recording indexes that you want to rebuild.

5. Click **Rebuild**.

Event Management

The **Event Management** screen enables you to define rules that identify the types of events and actions that will be monitored in your organization.

Rules

A rule follows a schedule, and a set of events and actions. When the specified events occur within the specified schedule, QVR Pro performs the corresponding actions.

Each rule must have at least one event and one action.

Component	Description
Name	A rule name briefly describes the purpose of the rule. For example, `Start recording after detecting movement - lobby`.
Schedule	A schedule specifies the days of the week and the hours of the day that QVR Pro monitors. There are default schedules available. However, you can create custom schedules as needed.
Event	A predefined behavior or activity that usually signals a problem. Each event triggers a corresponding action or set of actions. For details, see Events.

Component	Description
Action	A predefined response to an event. Each action is triggered by an event or set of events. For details, see Actions.

Adding a Rule

Add a rule to monitor events and assign actions. Each rule follows a specified schedule, and a set of events and actions. When the events occur within the selected schedule, QVR Pro performs the corresponding actions.

You can also decide whether all events are required to occur within a specified period before applying the actions.

> **Tip**
> You can add up to 128 rules.

1. Open **Event Management** from the desktop or from the main menu.

2. Click one of the following buttons.

Option	Description
+	Click to add your first rule.
Add	Click to add more rules.

The **Add Rule** screen appears.

3. Under **Name**, type the following information.

Field	Task
Name	Type a name for the rule.
Description	Type a description that provides more detailed information about the rule.

4. Select **Enable rule**.

5. Under **Schedule**, select a schedule.

> **Note**
> The schedule indicates the hours and days when an event is considered valid. You can use the default settings or create custom schedules by clicking **Add** (+).

6. Click **Next**.
   The **Add Events and Actions** screen appears.

7. Add an event.

   a. Under **If**, click **Add**.
      The **Add Event** screen appears.

   b. Complete the following information.

Field	Task
Name	Type a name for the event.

Field	Task
Type	Select an event type. For details, see Event Types. **Tip** You can also copy an existing event from the events list. For details, see Events List.
Source	Select the camera, server, or other event source to be monitored for the specified events. **Note** The options vary depending on the selected event type.

    c. Click **OK**.
      You can add multiple events to one rule.

8. Add an action.

    a. Under **Then**, click **Add**.
      The **Add Action** screen appears.

    b. Complete the following information.

Field	Task
Name	Type a name for the action.
Type	Select an event type. For details, see Action Types. **Tip** You can also copy an existing action from the actions list. For details, see Actions List.
Target	Select the target that receives the specified actions. **Note** The options vary depending on the selected action type. You can choose to send the camera action to individual cameras or to all cameras on the selected server. You can also send an email or SMS message to the specified recipients.

    c. Click **OK**.
      You can add multiple actions to one rule.

9. Optional: Select **All events must occur within the specified period**.

10. Click **Next**.

11. Click **Finish**.

Enabling or Disabling a Rule

Enable or disable rules as required. Disabling a rule does not delete it from the rule list. You can choose to enable a rule again at a later time.

> **Tip**
> You can also enable or disable a rule from the **Edit Rule** screen.

1. Open **Event Management** from the desktop or from the main menu.

2. Locate the rule from the list.

3. Under **Status**, perform one of the following steps.

Option	Task
Enable	Move the slider to the right.
Disable	Move the slider to the left.

Editing a Rule

Modify the rule information, events, and actions.

1. Open **Event Management** from the desktop or from the main menu.

2. Locate a rule from the list and then click **Edit** (✎).
   The **Edit Rule** screen appears.

3. Optional: Perform any of the following tasks.

   • Modify the rule name.

   • Modify the description.

   • Select or deselect **Enable rule**.

   • Modify the schedule.

> **Tip**
> You can also add, edit, or delete a schedule from this screen.

4. Modify the list of events and actions. For details, see Editing Events and Actions.

5. Click **Apply**.

Editing Events and Actions

1. Go to **Event Management** > **Edit** > **Events and Actions** .
   The **Events and Actions** tab appears.

2. Optional: Under **If**, you can perform any of the following tasks.

   • Click **Add** and then follow the steps for adding an event.

   • Click **Edit** (✎) and then modify the event details.

   • Click **Remove** (🗑) or select the event and then click **Remove**.

3. Optional: Under **Then**, you can perform any of the following tasks.

- Click **Add** and then follow the steps for adding an action.

- Click **Edit** (✎) and then modify the action details.

- Click **Remove** (🗑) or select an action and then click **Remove**.

4. Click **Apply**.

Deleting a Rule

Delete a rule to remove it from the rule list.

1. Click **Event Management** from the desktop or from the main menu.

2. Locate a rule from the list and then click **Remove** (🗑).
   A confirmation message appears.

3. Click **OK**.
   The rule is deleted from the list.

Events

In QVR Pro, an event is a predefined behavior or activity that usually signals a problem. Each event triggers a corresponding action or set of actions.

Event Types

QVR Pro supports the following event types detected by the camera.

Camera

Event	Description
Motion Detection	Triggers the specified actions when a moving object is detected.
Alarm Input	Triggers the specified actions when the camera's alarm sensors go off.
Audio Detection	Triggers the specified actions when the audio exceeds the specified decibel level. You must configure the settings on the camera web page.
Cross Line	Triggers the specified actions when an object crosses the specified line. You must configure the settings on the camera web page.
Intrusion Detection	Triggers the specified actions when an object intrudes the specified area. You must configure the settings on the camera web page.
Tampering Detection	Triggers the specified actions when the camera is tampered with.
PIR Detection	Triggers the specified actions when the camera's embedded passive infrared sensor (PID) detects an object. You must configure the settings on the camera web page.
Connection Error	Triggers the specified actions when QVR Pro encounters issues connecting to a camera.
Reconnection	Triggers the specified actions when QVR Pro successfully reconnects to a camera after disconnection.

QVR Pro supports the following event types detected by the recording storage.

Recording Storage

Event	Description
Recording Space Error	Triggers the specified actions when a recording space error occurs.
Recording Space Warning	Triggers the specified actions when a recording space warning is displayed.
Recording Space Full	Triggers the specified actions when the recording space is full.
Recording Space Restored	Triggers the specified actions when the recording space has been restored after an error.

QVR Pro supports the following customized event types.

Customized Event

Event	Description
Event URL	Triggers the specified actions when QVR Pro receives an event notification from a third-party interface.

Events List

The **Events List** screen displays all events that are already in use. You can reuse and modify any event from the list without affecting the original event.

Actions

In QVR Pro, an action is a predefined response to an event. Each action is triggered by an event or set of events.

Action Types

QVR Pro supports the following action types.

Camera

Action	Description
Event Recording	Starts recording when the specified event or set of events is triggered
Alarm Output	Performs the specified alarm output type when the specified event or set of events is triggered For details on modifying the alarm output settings, see Event Settings.
Camera Control	Adjusts the PTZ (pan, tilt, zoom) camera to the specified preset position

Notification

Action	Description
Push Notification	Displays messages on a mobile device when a warning or error event occurs To use this feature, you must first set up myQNAPcloud.

Action	Description
Email	Sends an email to the predefined list of recipients You can take and attach event snapshots to emails from up to 16 channels.
SMS	Sends an SMS message to the predefined list of recipients

Custom

Action	Description
Action URL	Sends QVR Pro event notifications to third-party applications

Actions List

The **Actions List** screen displays all actions that are already in use. You can reuse and modify any action from the list without affecting the original action.

Motion Detection

Motion Detection enables you to detect moving objects or people in the monitored area. You can choose either QVR Pro or the camera itself as the detector (if the camera supports motion detection). This feature supports up to 2 camera channels.

Editing Motion Detection Settings

1. Open **Motion Detection** from the desktop or from the main menu.
   The **Motion Detection** screen appears.

2. Under **Detection Settings**, click **Edit**.

> **Note**
> **Edit** becomes **Completed** after the detection settings are configured.

   The **Motion Detection Settings** screen appears.

3. Select a motion detector.

   • Using the camera itself as the detector

      1. Select **Camera**.

      2. Optional: Click **Camera Settings**.

      3. Optional: Specify your username and password for the camera.

      4. Optional: Modify the settings.

   • Using QVR Pro as the detector

      1. Select **QVR Pro**.

      2. Specify the sensitivity.

      3. Select the minimum detectable movement.

      4. Specify the detection zone.
         Select **Full** to enable motion detection on the entire frame.

Select **Regional** and click **Edit** to specify one or more detection zones. You can then create, resize, or delete detection zones.

> **Note**
> For cameras that do not support motion detection, QVR Pro is the only detector option.

4. Click **Apply**.

After detection settings are configured, motion detection can be used in event rules as an event that triggers specified actions. For details, see Rules.

Recovery Management

The **Recovery Management** screen displays the following information when edge recording is enabled.

Tab	Description
Recording Status	• Displays the list of cameras that have edge recording enabled • Displays the edge recording status
Recovery Status	Displays the recovery status of lost videos

Metadata Vault

The **Metadata Vault** screen includes the following tabs.

Tab	Possible User Actions
Data Source List	• Click **Add Data Source** to select a data source that will send metadata to QVR Pro. • Click **Camera Pairing** ( ) beside a data source to configure camera pairing. • Click **OSD Settings** ( ) to configure the on-screen display (OSD) settings for the metadata. • Click **Edit** ( ) to modify the data source settings. • Click **Remove** ( ) to delete a data source from the list. • Enable or disable the data source.
Metadata List	View the list of metadata from data sources connected to QVR Pro.

6. Privilege Settings

Users

Creating a Local User

1. Go to **Control Panel** > **Privilege** > **Users** .
   The **Users** screen appears.

2. Click **Create**, and then select **Create a User**.
   The **Create a User** window opens.

3. Specify the following information:

Field	Description
Username	Specify a username that contains 1 to 32 characters from any of the following groups: • Letters: A to Z, a to z • Numbers: 0 to 9 • Multi-byte characters: Chinese, Japanese, Korean, and Russian • Special characters: ~ ! @ # $ ^ & ( ) - _ . { }
Password	Specify a password that contains 1 to 64 ASCII characters.
Phone number (optional)	The information is for your reference and is not used by QVR Pro.
Email (optional)	QVR Pro sends a notification to this email address when the account password is going to expire.
(Optional) Send a notification mail to the newly created user	When selected, QVR Pro sends a message that contains the following information to the specified email address. • URLs for connecting to the NAS • Username and password

4. Optional: Add the user to one or more user groups.

   a. Under **User Groups**, click **Select User Group**.

   b. Select one or more user groups.
      QVR Pro provides two default user groups.

User Group	Description
Administrators	Users in this group can configure settings, create users, and install applications.
Everyone	All users created from QVR Pro are automatically assigned to this group. By default, users in this group do not have access to QVR Pro settings.

> **Tip**
> You can click **Create User Group** to add a new user group.
> For details, see Creating a User Group.

   c. Click **OK**.

5. Optional: Specify the user privileges.

   a. Under **User Privileges**, click **Specify User Privileges**.

   b. Specify the features that the user can access.
      For details, see Editing User Privileges.

   c. Click **OK**.

6. Optional: Specify the user role.

   a. Under **Role**, click **Select User Role**.

   b. Select one or more roles.

> **Tip**
>
> • You can click **Preview User Privilege** to view the privileges currently granted to this user.
>
> • You can click **Create** to add a new role.
> For details on creating a new role, see Creating a Role.

   c. Click **OK**.

7. Click **Create**.

QVR Pro creates and adds the user to the user list.

Creating Multiple Users

1. Go to **Control Panel** > **Privilege** > **Users** .
The **Users** screen appears.

2. Click **Create** and then select **Create Multiple Users**.
The **Create Multiple Users** window opens.

3. Specify the following information:

Field	Description
User Name Prefix	Specify the prefix that will be used for the user names.
User Name Start No.	Specify the start number. The numbers are automatically appended to the specified user name prefix.
Number of Users	Specify the number of users that you want to create.
Password	Specify a password that contains 1 to 64 ASCII characters.
Verify Password	Type the previously specified password.
Show password	When selected, QVR Pro displays the password.

4. Optional: Specify the user privileges.

   a. Under **User Privileges**, click **Edit**.

   b. Specify the features that the user can access.
      For details, see Editing User Privileges.

   c. Click **OK**.

5. Optional: Specify the user roles.

    a. Under **Role**, click **Edit**.

    b. Select one or more roles.

> **Tip**
>
> • You can click **Preview User Privilege** to view the privileges currently granted to this user.
>
> • You can click **Create** to add a new role.
>   For details on creating a new role, see Creating a Role.

    c. Click **OK**.

6. Click **Create**.

QVR Pro creates and adds the users to the user list.

Importing or Exporting Users

1. Go to **Control Panel** > **Privilege** > **Users** .
   The **Users** screen appears.

2. Click **Create** and then select **Import/Export Users**.
   The **Import/Export Users** window opens.

3. Perform one of the following tasks.

Task	Steps
Importing user and user group settings	**a.** Select **Import user and user group settings** **b.** Click 🗁 and then select a TXT, CSV, or BIN file that contains the user information. **c.** Optional: Select **Overwrite duplicate users**. **d.** Click **Next**. A confirmation message appears. **e.** Click **Next**. **f.** Click **Finish**. QVR Pro imports the user and user group settings specified in the uploaded file.
Exporting user and user group settings	**a.** Select **Export user and user group settings**. **b.** Click **Next**. QVR Pro downloads a file that contains the user and user group settings on this server.

Editing User Privileges

1. Go to **Control Panel** > **Privilege** > **Users** .
   The **Users** screen appears.

2.
Click **Edit User Privilege** ( ).

Note
You are not able to modify the user privileges of the admin account.

The **Edit User Privilege** screen appears.

3. Select **Allow** or **Deny** for each of the following privileges.

Important
Allow: grants users access to features or operations.
Deny: denies users access to features or operations.
When none of the options is selected, the privilege is not enabled.
The access rights of users depend on their user privileges, roles, and user groups. **Deny** permissions always override any other **Allow** permissions when conflicts arise between the settings.

Privilege	Description
System Management	Specify whether users are allowed to manage the following management settings. • System management • Surveillance management • E-map management • View management • Logs and Metadata Vault
Camera	Specify whether users are allowed to access the following features on each camera. • Live view • Playback • Audio • PTZ control
E-maps	Specify the e-maps that users can access.
Views	Specify the layouts that users can access.

4. Click **OK**.

User Groups

Creating a User Group

1. Go to **Control Panel** > **Privilege** > **User Groups** .
The **User Groups** screen appears.

2. Click **Create**.
The **Create a User Group** window opens.

3. Specify the following information:

- **User group name**: The name must contain 1 to 128 characters, and cannot include the following characters: ` * @ = + [ ] \ | ; : " , < > / ? % ' SPACE.

- **Description**: The description must contain 1 to 128 ASCII characters.

4. Optional: Add users to the user group.

   a. Under **Assign users to this group**, click **Select Group Members**.

   b. Select one or more users.

   c. Click **Apply**.

5. Optional: Specify the group privileges.

   a. Under **Group Privilege**, click **Edit Group Privileges**.

   b. Specify the privileges for the user group.

   c. Click **Apply**.

6. Optional: Specify the group role.

   a. Under **Role**, click **Select Group Role**.

   b. Select one or more roles.

> **Tip**
>
> - You can click **Preview Group Privilege** to view the privileges currently granted to this user group.
>
> - You can click **Create** to add a new role.
>   For details on creating a new role, see Creating a Role.

   c. Click **Apply**.

7. Click **Create**.

QVR Pro creates and adds the user group to the group list.

Roles

Administrators can create roles to quickly assign privileges to different users.

Creating a Role

1. Go to **Control Panel** > **Privilege** > **Roles** .
   The **Roles** screen appears.

2. Click **Create**.
   The **Create Role** screen appears.

3. Specify the following information:

Field	Description
Role	Specify a role name that contains 1 to 32 characters from any of the following groups: • Letters: A to Z, a to z

	• Numbers: 0 to 9
	• Special characters: ~ ! @ # $ ^ & ( ) - _ . { }
Description	The description must contain 1 to 128 ASCII characters.

4. Select **Allow** or **Deny** for each of the following privileges.

Privilege	Description
System Management	Specify whether users are allowed to manage the following management settings. • System management • Surveillance management • E-map management • View management • Logs and Metadata Vault
Camera	Specify whether users are allowed to access the following features on each camera. • Live view • Playback • Audio • PTZ control
E-maps	Specify the e-maps that users can access.
Views	Specify the layouts that users can access.

5. Click **OK**.
QVR Pro creates and adds the role to the role list.

Privilege Summary

QVR Pro provides privilege summaries for users, user groups, roles, cameras, e-maps, and views.

Generating a Privilege Summary

1. Go to **Control Panel** > **Privilege** > **Privilege Summary** .
The **Privilege Summary** screen appears.

2. Specify the search criteria.

> **Important**
> The options vary depending on the selected information.

3. Click **OK**.
QVR Pro generates the privilege summary.

4. Optional: Click **Export**.
QVR Pro exports the report as an HTML file and then downloads a copy to your computer.

7. myQNAPcloud

myQNAPcloud is a service that allows you to access, manage, and share files stored on your QNAP devices remotely through the internet.

Getting Started

1. Create a QNAP ID.
   For details, see Creating a QNAP ID.

2. Add a NAS to myQNAPcloud.
   For details, see Registering a Device to myQNAPcloud.

3. Optional: Configure any of the following settings.

Settings	Description
Port forwarding	Port forwarding allows you to access your device on the internet through a UPnP router. For details, see Configuring Port Forwarding.
My DDNS	My DDNS allows you to specify a dedicated myQNAPcloud subdomain name that you can use to access your device on the internet. For details, see Configuring My DDNS Settings.
Published services	You can publish QNAP services on your device, such as the QNAP desktop and File Station, so they can be accessible on myQNAPcloud. For details, see Configuring Published Services.
myQNAPcloud Link	myQNAPcloud Link allows you to access your device on the myQNAPcloud website or through mobile apps and client utilities without changing your router settings. Using shared links, you can also simultaneously download and sync files to a remote NAS without needing to first save them to client device. For details, see Enabling myQNAPcloud Link.
Access controls	Access controls allow you to configure device access permissions for myQNAPcloud users. For details, see Configuring Device Access Controls.
SSL certificates	myQNAPcloud allows you to add SSL certificates to help secure your network communication. You can either download and install a myQNAPcloud or Let's Encrypt ceritificate. For details, see Installing an SSL Certificate.

Creating a QNAP ID

1. Go to https://www.myqnapcloud.com.

2. Click **Sign up**.
   The **Create Account** screen appears.

3. Specify a nickname, a valid email address or phone number, and a password.

4. Read and acknowledge the Terms of Service and Privacy Policy.

5. Click **Sign Up**.
   The **Data Privacy Notice** box appears.

6. Read the notice, and then click **I Agree**.
   myQNAPcloud sends a verification email or message.

7. Confirm the registration.
   Your QNAP ID is activated.

Registering a Device to myQNAPcloud

1. Log on to QVP as administrator.

2. Go to **myQNAPcloud** > **Overview** .

3. Click **Get Started**.
   The **myQNAPcloud wizard** appears.

4. Click **Start**.

5. Specify your QNAP ID and password.

6. Click **Next**.

7. Specify a device name containing up to 30 alphanumeric characters.
   You may reuse an existing device name. The device currently using this name will be deregistered from myQNAPcloud.

8. Click **Next**.

9. Select the services you want to enable.
   QNAP recommends selecting all services.

Service	Description
Auto Router Configuration	This allows you to configure port forwarding. For details, see Configuring Port Forwarding.
DDNS	This allows you to access your device on the internet using a dedicated address. For details, see Configuring My DDNS Settings.
Published Services	This allows you to select which services you want to publish on the myQNAPcloud website. For details, Configuring Published Services.
myQNAPcloud Link	myQNAPcloud Link allows you to access your device on the myQNAPcloud website or through mobile apps and client utilities without changing your router settings. Using shared links, you can also simultaneously download and sync files to a remote NAS without needing to first save them to client device. For details, see Enabling myQNAPcloud Link. If you enable this option and your device does not have myQNAPcloud Link, myQNAPcloud Link will automatically be downloaded and installed after you click **Next**.

10. Select an access control option.

Option	Description
Public	All users can search for your device and view the published services on the myQNAPcloud website.
Private	Your device will not appear in the search results. Only you can access your device on the myQNAPcloud website.
Customized	Your device will only be visible to you and invited users. Other users will not be able to access your device even with a SmartURL.

11. Click **Next**.
    myQNAPcloud applies your settings.
    The **Summary** screen appears.

12. Review the details, and then click **Finish**.

Overview

The **Overview** screen displays your basic myQNAPcloud settings, as well as the device network connectivity and DDNS status.

Status Icon	Description
✓	The item is enabled and functioning properly.
⊖	The item is disabled.
⚠	One or more settings need to be configured for the item to function properly.
✗	There is no network connectivity.

Button	Description
ⓘ	Click this to view your QNAP ID details.
⮕	Click this to sign out of myQNAPcloud.
✎	Click this to modify your device name.
▤	Click this to copy the SmartURL to your clipboard.
❓	Click this to open the myQNAPcloud FAQ page on your browser.
✖	Click this to diagnose connection problems.
Test	Click this to test the internet connectivity.

Configuring Port Forwarding

Port forwarding is only available if your router supports UPnP.

1. Go to **Auto Router Configuration**.

2. Select **Enable UPnP port forwarding**.
Your device scans for UPnP routers on the network.

> **Tip**
> If your device cannot locate the router, click **Rescan**. If the issue persists, click **Diagnostics**, and then verify your network configuration or contact QNAP support through **Helpdesk**.

3. Optional: Add a new service to the **Forwarded Services** table.

    a. Click **Add NAS Service**.
        The **Add NAS Service** window appears.

    b. Specify a NAS service name that contains 1 to 64 ASCII characters.

    c. Specify a port number.

    d. Select an external port setting.

        • **Auto**: myQNAPcloud automatically selects an available external port.

        • **Manual**: You can specify a new port if the current service port is being used by other services.

    e. Select a protocol.
        If you are unsure about this setting, select **TCP**.

    f. Click **OK**.

4. In the **Forwarded Services** table, select the services you want to forward.

5. Click **Apply to Router**.

> **Tip**
> You can go to **Overview** to verify that there are no connectivity errors.

Configuring My DDNS Settings

1. Open myQNAPcloud.

2. Go to **My DDNS**.

3. Enable **My DDNS**.

4. Perform any of the following tasks.

Task	User Action
Change the myQNAPcloud DDNS domain name	**a.** Click **here**. The **Change Device Name Wizard** appears. **b.** Specify a device name containing up to 30 alphanumeric characters. **c.** Click **Apply**.
Update myQNAPcloud	Click **Update**.

Task	User Action
Manually configure the DDNS IP address	**a.** Click **Click here to manually configure your DDNS IP address.** The **Public IP Address** window appears. **b.** Select an option. • **Assign a static IP address** • **Obtain an IP address automatically** **c.** Click **Apply**.

Configuring Published Services

1. Open myQNAPcloud.

2. Go to **Published Services**.

3. In the **Publish** column, select all the services you want published.
   Published services are accessible through the myQNAPcloud website.

4. Optional: In the **Private** column, select all the services you want publish privately.
   Private services are only available to specified users with the access code.

   a. Specify an access code containing 6 to 16 alphanumeric characters.

   b. In the **User Management** table, select the users you want to grant access to.
      You can select a maximum of 9 users.

   > **Tip**
   > Click **Add Users** to add users to the list.
   > Click **Delete** to remove users from the list.

   c. Optional: Modify user access privileges.

Option	Description
myQNAPcloud Connect (VPN)	Select this option to grant users access to private NAS services when they use the myQNAPcloud Connect utility. Users can download myQNAPcloud Connect from the QNAP Utilities page (https://www.qnap.com/en/utilities/essentials).
myQNAPcloud Website	Select this option to grant users access to private NAS services published in the myQNAPcloud website (https://www.myqnapcloud.com/).

5. Click **Apply**.

Enabling myQNAPcloud Link

1. Open myQNAPcloud.

2. Go to **myQNAPcloud Link**.

3. Enable **myQNAPcloud Link**.

   > **Tip**
   > If there are issues with the connection, click **Reconnect**.

Configuring Device Access Controls

1. Open myQNAPcloud.

2. Go to **Access Control**.

3. Select an access control option.

Option	Description	User Action
Public	All users can search for your device and view the published services on the myQNAPcloud website.	Select **Public**.
Private	Your device will not appear in the search results. Only you can access your device on the myQNAPcloud website.	Select **Private**.

Customized	Your device will only be visible to you and invited users. Other users will not be able to access your device even with a SmartURL	a. Select **Customized**.
		
		b. Optional: Add a user.
		
		    1. Click **Add**.
		
		    2. Specify the user's email address or phone number.
		
		    3. Click .
		
		c. Optional: Remove a user.
		
		    • From the list of users, identify a user you want to remove.
		
		    • Click ✕.

4. Click **Apply**.

Installing an SSL Certificate

> ⊘ **Important**
> myQNAPcloud SSL web service and Let's Encrypt certificates can only be used with the myqnapcloud domain.

1. Open myQNAPcloud.

2. Go to **SSL Certificate**.

3. Download and install a certificate.

Type	Description	User Action
myQNAPcloud SSL web service certificate	This certificate provides a secure environment for exchanging confidential information online and confirms the identity of your site to employees, business partners, and other users. You can purchase certificates on the myQNAPcloud website.	a. Under **myQNAPcloud SSL Certificate**, click **Download and install**. The **Download & Install SSL Certificate** window appears. b. Select a license from the list. A notification appears if you have not yet purchased a myQNAPcloud certificate.
Let's Encrypt certificate	Let's Encrypt is a free, automated, and open certificate authority that issues domain-validated security certificates. You can install Let's Encrypt certificates with the myQNAPcoud DDNS service. You can choose to automatically renew this certificate before it expires.	a. Under **Let's Encrypt**, click **Download and install**. The **Download & Install SSL Certificate** window appears. b. Specify a valid email address. This address is required for the Let's Encrypt account registration. c. Optional: Select **Automatically renew domain before expiration.**

4. Click **Confirm**.

myQNAPcloud applies the certificate and displays the details.

Tip
To delete the certificate from the device, click **Release** and then **Confirm**.

8. File Station

Overview

About File Station

File Station is a file management application that allows you to access files on the NAS. You can quickly locate files and folders, manage access permissions, play media files, and share data with other users.

System Requirements

Category	Detail
Web browser	• Microsoft Internet Explorer 9 or later • Microsoft Edge • Mozilla Firefox 3.6 or later • Apple Safari 5 or later • Google Chrome
Java program	Java Runtime Environment (JRE) 7 or later
Flash player	Adobe Flash Player 9 or later is required for viewing media files.

Supported File Formats

Category	File Extension
Image	• BMP • JPG • JPE • PNG • TGA • GIF
Music	• MP3 • FLAC • OGG • WAV • AIF • AIFF
Video	• AVI • MP4

Parts of the User Interface

Left Panel

Label	UI Element	Description
1	Volume	Displays all the folders on the volume, including shared folders. Default shared folders vary depending on the NAS model.
2	Favorites	Displays bookmarked folders.
3	Share link management	Displays links to NAS files shared by the current user account. **Note** Administrators see links shared by all NAS users.
4	Shared with me	Displays files and folders shared with the current user account.
5	Recycle Bin	Displays deleted files and folders.

Toolbar

Label	Item	Description
1	Search	Search files and folders by their name or type. **Tip** You can select **Advanced Search** to specify more criteria.
2	Refresh	Refresh the current page.
3	Smart Filter	Filter files and folders based on the specified criteria.
4	More Settings	Configure File Station settings, open the Help guide, or view application information.
5	Browsing Mode	Select a browsing mode.
6	Create folder	Create a folder
7	Copy	Copy the selected files and folders. **Note** This button only appears when a file or folder is selected.
8	Upload	Upload files or folders to the selected shared folder.
9	More Actions	Perform different tasks. **Note** Some task options only appear when you select certain types of files.
10	Share	Share the selected files and folders. **Note** This button only appears when a file or folder is selected.

Settings

Modifying General Settings

1. Click ⋮ on the top-right corner.

2. Select **Settings**.
   The **Options** window appears.

3. Select **General**.

4. Modify the following settings.

Option	Description
Show hidden files on NAS	File Station displays files and folders.
Allow all users to create shared links	All users can share data from the NAS using shared links.
Show Network Recycle Bin(s)	File Station displays the `@Recycle` folder in all user folders.

5. Click **Close**.

Modifying File Transfer Settings

1. Click ⋮ on the top-right corner.

2. Select **Settings**.
   The **Options** window appears.

3. Select **File Transfer**.

4. Under **Duplicate File Name Policy**, specify policies for handling duplicate files.

Scenario	Policy
When uploading files	• **Always ask me** • **Rename duplicate files** • **Skip duplicate files** • **Overwrite duplicate files**
When copying or moving files	• **Always ask me** • **Rename duplicate files** • **Skip duplicate files** • **Overwrite duplicate files**

5. Optional: Select **Always merge all file transfer processes into one task**.

6. Under **Google Drive File Transfer Policy**, specify policies for handling Google Drive files.

Scenario	Policy
When downloading or moving Google Drive files	• Always ask me • Download as Microsoft Office file formats (.docx, .pptx, .xlsx) • Keep Google Drive file formats

Scenario	Policy
When downloading a single Google Drive file to my PC	• Always ask me • Download as Microsoft Office file formats (.docx, .pptx, .xlsx) • Keep Google Drive file formats

7. Click **Apply**.

8. Click **Close**.

Modifying Document Settings

1. Click ⋮ on the top-right corner.

2. Select **Settings**.
   The **Options** window appears.

3. Select **Documents**.

4. Under **Microsoft Office File Policy**, specify policies for handling Microsoft Office files.

File Format	Policy
For .doc, .ppt, .xls files	• Always ask me • View in Google docs • Open with Chrome Extension • Open with web browser
For .docx, .pptx, .xlsx files	• Always ask me • Edit with Office Online • View in Google docs • Open with Chrome Extension • Open with web browser

5. Click **Apply**.

6. Click **Close**.

File Operations

File Station enables you to perform the following tasks.

Operation	Task
Store	• Uploading a File

Operation	Task
Access	• Downloading a File • Opening a File • Opening Microsoft Word, Excel, and PowerPoint Files Using the Chrome Extension • Viewing a File in Google Docs • Viewing a File in Microsoft Office Online • Viewing File Properties • Modifying File Permissions
Organize	• Sorting Files • Copying a File • Moving a File • Renaming a File • Deleting a File • Restoring a Deleted File • Compressing a File • Extracting Compressed Files or Folders
Share	• Sharing a File or Folder Using Share Links
Play	• Playing an Audio File • Playing a Video File • Opening a 360-degree Image or Video File

Uploading a File

1. Open File Station.

2. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Click ⊼ and then select **File**. The **File Upload** window opens. b. Select the file and then click **Open**.
Use drag and drop	a. Locate the file on your computer. b. Drag and drop the file to the File Station window.

A confirmation message appears.

3. Select one of the following policies for handling duplicate files.

Option	Description
Rename duplicate files	Upload and rename a file if another file with the same name and extension already exists in the destination folder.
Skip duplicate files	Do not upload a file if another file with the same file name and extension already exists in the destination folder.
Overwrite duplicate files	Upload the file and then overwrite an existing file with the same name and extension in the destination folder.

> **Tip**
> You can set the selected option as the default policy. File Station will not ask again after remembering the setting. You can still change the policy in **File Station** > **More Settings** > **Settings** > **File Transfer** .

4. Click **OK**.
   File Station uploads the file.

Downloading a File

1. Open File Station.

2. Locate the file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	**a.** Select the file. **b.** Click ⚒ . **c.** Select **Download**. **d.** Click **OK**.
Use the context menu	Right-click the file and then click **Download**.

Depending on your browser, a confirmation message appears before the file is downloaded to your computer.

Opening a File

1. Open File Station.

2. Locate the file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the file. b. Click ![wrench]. c. Select **Open**.
Use the context menu	Right-click and then select **Open**.

Open the file directly	Double-click the file.
	
	![note icon] **Note**
	
	• File Station performs various actions depending on the type of the selected file.
	
	• For document files, you can choose an action from the following options.
	
	    • **Edit with Office Online**
	
	    • **View in Google Docs**
	
	    • **Open with Chrome Extension**
	
	    • **Open with web browser**

File Station opens the selected file.

Opening Microsoft Word, Excel, and PowerPoint Files Using the Chrome Extension

This task requires that you use the Google Chrome browser and install the Office Editing for Docs, Sheets & Slides extension.

1. Open File Station.

2. Locate the file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the file. b. Click ![wrench]. c. Select **Open with Chrome Extension**.
Use the context menu	Right-click the file and then select **Open with Chrome Extension**.

File Station opens an editable file on Google Docs, Sheets, or Slides.

Viewing a File in Google Docs

This task requires that you use the Google Chrome browser and enable myQNAPcloud Link on myQNAPcloud.

You can open and view files in Google Docs. To use this feature, your web browser must allow pop-up windows.

1. Open File Station.

2. Locate the file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	**a.** Select the file. **b.** Click . **c.** Select **View in Google docs**.
Use the context menu	Right-click and then select **View in Google docs**.

File Station opens a preview of the file in Google Docs.

Viewing a File in Microsoft Office Online

This task requires that you enable myQNAPcloud Link on myQNAPcloud.

You can open and edit Microsoft Word, Excel, and Powerpoint files using Office Online. To use this feature, your web browser must allow pop-up windows.

> **Note**
> Editing a file in Microsoft Office Online overwrites the file saved on the NAS.

1. Open File Station.

2. Locate the file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	**a.** Select the file. **b.** Click . **c.** Select **Edit with Office Online**.
Use the context menu	Right-click the file and then select **Edit with Office Online**.

File Station opens the file in Microsoft Office Online.

Viewing File Properties

1. Open File Station.

2. Locate the file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the file. b. Click ⚒ . c. Select **Properties**.
Use the context menu	a. Right-click the file. b. Select **Properties**.

The **Properties** window opens and displays the following information.

Field	Description
Type	Displays the file type.
Size	Displays the file size.
File Path	Displays the folder location.
Modified Date	Displays the date that the file was last modified.
Owner	Displays name of the NAS user who uploaded the file.
Group	Displays the name of the NAS group that can access the file.
Storage Pool	Displays the name of the storage pool on which the volume is located.
Volume	Displays the name of the volume on which the file is stored.
View Access Logs	Keeps track of access to the file. 💡 **Tip** To enable this feature, click **Start Logging** in **Control Panel** > **System** > **System Logs** > **System Connection Logs** .

Modifying File Permissions

This task requires that you enable advanced folder permissions in **Control Panel** > **Privilege** > **Shared Folders** > **Advanced Permissions** .

1. Open File Station.

2. Locate the file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the file. b. Click ⚒ . c. Select **Properties**.
Use the context menu	a. Right-click the file. b. Select **Properties**.

The **Properties** window opens.

4. Click 🔑.

5. Enable or disable the following permissions for the owner, group, or other users on the list.

Permission	Description
Read Only	Allows a user to view the file.
Read/Write	Allows a user to view and make changes to the file.
Deny	Denies any access to the file.

> **Tip**
> You can click **+** to add users to the list and click **-** to remove users from the list.

6. Optional: Select the access rights for guest users.

7. Optional: Specify the ownership of the file.

    a. Click ✎.

    b. Select a user.

    c. Click **Set**.

8. Click **Apply**.

Sorting Files

1. Open File Station.

2. Locate the folder.

3. Click ☰.

4. Select **List**.
File Station displays files in a list view.

5. Click a column title.
File Station sorts files in an ascending or descending order based on the selected column.

Copying a File

1. Open File Station.

2. Locate the file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	**a.** Select the file. **b.** Click 🔧. **c.** Select **Copy to/Move to** and then select **Copy to**. **d.** Select the destination folder.

Use the context menu	a. Right-click the file.
	b. Select **Copy**.
	c. Go to the destination folder.
	d. Right-click inside the folder and then select **Paste**.
Use keyboard shortcuts	a. Select the file.
	b. Press **CTRL + C** or **Command-C**.
	c. Go to the destination folder.
	d. Press **CTRL + V** or **Command-V**.
Use drag and drop	a. Select the file.
	b. Drag and drop to the destination folder. Step result: A context menu appears.
	c. Select one of the following actions.
	• Copy and skip
	• Copy and overwrite
	• Copy and rename automatically

File Station creates a copy of the selected file.

Moving a File

1. Open File Station.

2. Locate the file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the file.
	b. Click 🔧.
	c. Select **Copy to/Move to** and then select **Move to**.
	d. Select the destination folder.
	e. Click **OK**.
	a. Select the file.
	b. Click 🔧.
	c. Select **Cut**.
	d. Select the destination folder.

Action	Steps
	e. Click .
	f. Select **Paste**.
Use the context menu	a. Right-click the file and then select **Copy to/Move to** and **Move to**.
	b. Select the destination folder.
	c. Click **OK**.
	a. Right-click the file and then select **Cut**.
	b. Select the destination folder.
	c. Right-click inside the folder and then select **Paste**.
Use keyboard shortcuts	a. Select the file.
	b. Press **CTRL + X** or **Command-X**.
	c. Go to the destination folder.
	d. Press **CTRL + V** or **Command-V**.
Use drag and drop	a. Select the file.
	b. Drag and drop to the destination folder.
	c. Step result: A context menu appears.
	d. Select one of the following actions.
	• Move and skip
	• Move and overwrite
	• Move (and rename if a file exists with the same name)

File Station moves the selected file to the specified folder.

Renaming a File

1. Open File Station.

2. Locate the file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the file.
	b. Click .
	c. Select **Rename**.
Use the context menu	a. Right-click the file.
	b. Select **Rename**.

| Use a keyboard shortcut. | Press **F2**. |

4. Specify the file name and then click **OK**.
   File Station renames the file.

Deleting a File

1. Open File Station.

2. Locate the file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	**a.** Select the file. **b.** Click [icon] . **c.** Select **Delete**.
Use the context menu	**a.** Right-click the file. **b.** Select **Delete**.
Use the keyboard	Press **Delete**.

   A confirmation message appears.

4. Specify how to delete the file.

   • Move to Network Recycle Bin

   • Delete permanently

5. Click **OK**.
   File Station either moves the selected file to the Recycle Bin or deletes it permanently.

Restoring a Deleted File

1. Open File Station.

2. Go to **Recycle Bin**.

3. Locate the file.

4. Perform one of the following actions.

Action	Steps
Use the toolbar	**a.** Select the file. **b.** Click [icon] . **c.** Select **Recover**.
Use the context menu	**a.** Right-click the file. **b.** Select **Recover**.

A confirmation message appears.

5. Click **Yes**.
   File Station restores the selected file.

Compressing a File

1. Open File Station.

2. Locate the file or folder.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the file or folder. b. Click . c. Select **Compress(Zip)**.
Use the context menu	a. Right-click the file or folder. b. Select **Compress(Zip)**.

4. Configure the file compression settings.

Option	Task
Archive name	Specify a name for the compressed file.
Compression level	Select the type of compression method. • Normal - Standard compression • Maximum compression - Prioritizes compression quality • Fast compression - Prioritizes compression speed
Archive format	Select the format of file compression. • zip • 7z
Update mode	Specify how the files should be updated. • Add and replace files - Add and replace the specified files. • Update and add files - Update old files and add new files. • Update existing files - Update older versions of existing files. • Synchronize files - Update old files, add new files, and remove files that are no longer in the folder.

5. Optional: Specify a password to encrypt the file.

6. Click **OK**.
   File Station compresses the selected file and creates a archive file.

Extracting Compressed Files or Folders

1. Open File Station.

2. Locate the compressed archive file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the file. b. Click . c. Select **Extract**.
Use the context menu	a. Right-click the file. b. Select **Extract**.

4. Select one of the following extraction options.

Option	Description
Extract files	Select specific files to extract.
Extract here	Extract all files in the current folder.
Extract to /<new folder>/	Extract all files in a new folder. The new folder uses the file name of the compressed file.

   File Station extracts the compressed files to the specified folder.

Sharing a File or Folder Using Share Links

1. Open File Station.

2. Locate the file or folder.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the file or folder. b. Click **Share**. c. Select **Create share link only**.
Use the context menu	a. Right-click the file or folder. b. Select **Share** and then select **Create share link only**.

   The **Share** window appears.

4. Configure the following settings.

Field	Task
Link Name	Type a name for the link or use the current file or folder name.

Domain name/IP	Select the domain name or IP address.
Show SSL in URL	Use an HTTPS URL.
File upload	Allow users to upload files to this folder 📘 **Note** This setting only appears when you share a folder.
Expire in	Specify the expiration date. 📘 **Note** This setting only appears when you share a folder.
Password	Require a password to access the link.

5. Click **Create Now**.
   File Station generates a link.

Playing an Audio File

1. Open File Station.

2. Locate the file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the file. b. Click 🔧 . c. Select **Play**.
Use the context menu	a. Right-click the file. b. Select **Play**.

File Station plays the selected audio file using Media Viewer.

Playing a Video File

1. Open File Station.

2. Locate the file.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the file. b. Click 🔧 . c. Select **Play**. d. Select a resolution.
Use the context menu	a. Right-click the file.

	b. Select **Play**.
	c. Select a resolution.

File Station plays the selected file using Media Viewer.

Opening a 360-degree Image or Video File

1. Open File Station.

2. Locate the folder.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	**a.** Select the file. **b.** Click 🔧 . **c.** Select **Play**.
Use the context menu	**a.** Right-click the file. **b.** Select **Play**.

4. Optional: Select the resolution.

File Station opens the selected file using the Media Viewer. You can click **360 Panorama Mode** (🔘360) on Media Viewer to view the photo or video in Panorama Mode.

Folder Operations

File Station enables you to perform the following tasks.

Operation	Task
Store	• Uploading a Folder • Uploading a Folder Using Drag and Drop
Access	• Viewing Folder Properties • Viewing Storage Information • Modifying Folder Permissions • Managing Share Links • Viewing Files and Folders Shared with Me

Operation	Task
Organize	• Creating a Folder • Copying a Folder • Adding a Folder to Favorites • Removing a Folder from Favorites • Compressing a Folder

Uploading a Folder

Note
This feature is only available on Google Chrome browsers.

1. Open File Station.

2. Open the destination folder.

3. Click ⬆ and then select **Folder**.
   The **Browse for Folder** window opens.

4. Select the folder to upload.
   A confirmation message appears.

5. Select one of the following policies for handling duplicate files.

Option	Description
Rename duplicate files	Upload and rename a file if another file with the same name and extension already exists in the destination folder.
Skip duplicate files	Do not upload a file if another file with the same file name and extension already exists in the destination folder.
Overwrite duplicate files	Upload the file and then overwrite an existing file with the same name and extension in the destination folder.

Tip
You can set the selected option as the default policy. File Station will not ask again after remembering the setting. You can change the policy later in **File Station** > **More Settings** > **Settings** > **File Transfer** .

6. Click **OK**.
   File Station uploads the selected folder.

Uploading a Folder Using Drag and Drop

Note
This feature is only available on Google Chrome browsers.

1. Open File Station.

2. Drag and drop the local folder to File Station.

3. Select one of the following policies for handling duplicate files.

Option	Description
Rename duplicate files	Upload and rename a file if another file with the same name and extension already exists in the destination folder.
Skip duplicate files	Do not upload a file if another file with the same file name and extension already exists in the destination folder.
Overwrite duplicate files	Upload the file and then overwrite an existing file with the same name and extension in the destination folder.

4. Click **OK**.
   File Station uploads the selected folder.

Viewing Folder Properties

1. Open File Station.

2. Locate the folder.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the folder. b. Click [wrench icon] . c. Select **Properties**.
Use the context menu	a. Position the mouse pointer inside the folder. b. Right-click the folder. c. Select **Properties**.
Use the left panel	a. Right-click the folder. b. Select **Properties**.

The **Properties** window opens and displays the following information.

Field	Description
Type	Displays the folder type.
Size	Click [icon] to display the folder size and total file count.
File Path	Displays the folder location.
Modified Date	Displays the date that the folder was last modified.
Owner	Displays name of the NAS user who uploaded the folder.
Group	Displays the name of the NAS group that can access the folder.
Storage Pool	Displays the name of the storage pool on which the volume is located.
Volume	Displays the name of the volume on which the folder is stored.

Field	Description
View Access Logs	Keeps track of access to the folder. 💡 **Tip** To enable this feature, click **Start Logging** in **Control Panel** > **System** > **System Logs** > **System Connection Logs** .

4. Click **Apply**.

Viewing Storage Information

1. Open File Station.

2. Locate the folder.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the folder. b. Click 🔧 . c. Select **Storage Info**.
Use the context menu	a. Right-click the folder. b. Select **Storage Info**.

The **Storage Info** window opens and displays the following information.

Information	Description
Shared folder	Displays the names of shared folders.
Used size	Displays the total storage size currently in use.
Volume	Displays the volume name.
Capacity	Displays the total storage capacity of the shared folder.
Free size	Displays the total available storage space in the shared folder.
Volume status	Displays the volume status.

Modifying Folder Permissions

This task requires that you enable advanced folder permissions in **Control Panel** > **Privilege** > **Shared Folders** > **Advanced Permissions** .

1. Open File Station.

2. Locate the folder.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the folder.

	b. Click 🔧 .
	c. Select **Properties**.
Use the context menu	a. Right-click the folder.
	b. Select **Properties**.

The **Properties** window opens.

4. Click 🔑 .

5. Enable or disable the following permissions for the owner, group, and other users on the list.

Permission	Description
Read Only	Allows a user to view the folder.
Read/Write	Allows a user to view and make changes to the folder.
Deny	Denies a user any access to the folder

> **Tip**
> You can click **+** to add users to the list and click **-** to remove users from the list.

6. Optional: Select the access right for guest users.

7. Optional: Specify the ownership of the folder.

   a. Click ✎ .

   b. Select a user.

   c. Click **Set**.

8. Optional: Enable one or more of the following settings if needed.

   • Only the owner can delete the contents

   • Only admin can create files and folders

   • Apply changes to files and subfolders

   • Apply and replace all existing permissions

9. Click **Apply**.

Managing Share Links

1. Open File Station.

2. On the left panel, click **Share link management**.
   File Station displays the list of shared files and folders.

3. Select an item from the list and then perform one of the following tasks.

Task	Steps

Re-share	Click and then select the following share method. • Sharing a File or Folder Using Share Links
Stop sharing	Click ✕ .
Copy the link to the clipboard	Click .

File Station performs the specified task.

Viewing Files and Folders Shared with Me

1. Open File Station.

2. On the left panel, click **Shared with me**.

File Station lists the files and folders shared with the current account. You can copy, open, or download a selected file or folder.

Creating a Folder

1. Open File Station.

2. Locate the destination folder.

3. Perform one of the following tasks.

Task	Steps
Use the toolbar	**a.** Click **b.** Select **Folder**. The **Create folder** window opens. **c.** Specify the folder name. **d.** Click **OK**.
Use the context menu	**a.** Right-click inside the folder and then select **Create folder**. **b.** Specify the folder name. **c.** Click **OK**.

File Station creates a new folder.

Copying a Folder

1. Open File Station.

2. Locate the folder.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the folder. b. Click 🔧 . c. Select **Copy to/Move to** and then select **Copy to**. d. Select the destination folder. e. Click **OK**.
Use the context menu	a. Right-click the folder. b. Select **Copy**. c. Go to the destination folder. d. Right-click inside the folder and then select **Paste**.

File Station creates a copy of the selected folder.

Adding a Folder to Favorites

1. Open File Station.

2. Locate the folder.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the folder. b. Click 🔧 . c. Select **Add to Favorites**.
Use the context menu	a. Right-click the folder. b. Select **Add to Favorites**.
Use the Favorites button	a. Select the folder. b. Click ♡ .

File Station adds the selected folder to the Favorites folder.

Removing a Folder from Favorites

1. Open File Station.

2. Locate the folder.

3. Perform one of the following actions.

Action	Steps

Use the toolbar	**a.** Select the folder. **b.** Click . **c.** Select **Remove from Favorites**.
Use the context menu	**a.** Right-click the folder. **b.** Select **Remove from Favorites**.
Use the Favorites button	**a.** Select the folder. **b.** Click ♡ .

File Station removes the selected folder from the Favorites folder.

Compressing a Folder

1. Open File Station.

2. Locate the folder.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	**a.** Select the folder. **b.** Click . **c.** Select **Compress(Zip)**.
Use the context menu	**a.** Right-click the folder. **b.** Select **Compress(Zip)**.

4. Configure the folder compression settings.

Option	Task
Archive name	Specify a name for the compressed file.
Compression level	Select the type of compression method. • Normal - Standard compression • Maximum compression - Prioritizes compression quality • Fast compression - Prioritizes compression speed
Archive format	Select the format of file compression. • zip • 7z
Update mode	Specify how the files should be updated. • Add and replace files - Add and replace the specified files. • Update and add files - Update old files and add new files.

	• Update existing files - Update older versions of existing files.
	• Synchronize files - Update old files, add new files, and remove files that are no longer in the folder.

5. Optional: Specify a password to encrypt the file.

6. Click **OK**.
   File Station compresses the selected folder and creates an archive file.

Deleting a Folder

1. Open File Station.

2. Locate the folder.

3. Perform one of the following actions.

Action	Steps
Use the toolbar	a. Select the folder. b. Click . c. Select **Delete**.
Use the context menu	a. Right-click the folder. b. Select **Delete**.
Use the keyboard	Press **Delete**.

A confirmation message appears.

4. Specify how to delete the folder.

   • Move to Network Recycle Bin

   • Delete permanently

5. Click **OK**.
   File Station either moves the selected folder to the Recycle Bin or deletes it permanently.

9. Network & Virtual Switch

About Network & Virtual Switch

Network & Virtual Switch is a QVP utility that centralizes the creation, configuration, and control of network connections. Network & Virtual Switch also manages physical network interfaces, virtual adapters, Wi-Fi, and Thunderbolt connections in addition to controlling DHCP, DDNS,and gateway services.

Basic and Advanced Mode

Network & Virtual Switch features two separate usage modes. Switch between these modes by clicking **Basic** or **Advanced** in the Network & Virtual Switch menu pane.

Mode	Description
Basic	This mode is well-suited for most users, and requires minimal configuration of network settings. • Virtual Switch functions are disabled. • Static Route functions are disabled.
Advanced	This mode is best-suited for power-users who need more control over the configuration of network settings. • Virtual Switch functions are enabled. • Static Route functions are enabled.

Overview

This screen provides a general overview of the network topology, IP address, status, and usage information for each device on the network.

Interfaces

This screen provides access to basic network settings and allows the configuration of physical adapters. This screen also contains settings related to IPv4, IPv6, DNS, port trunking, and VLAN.

IP Address

Configuring IPv4 Settings

1. Go to **Control Panel** > **Network & Virtual Switch** .
   The **Network & Virtual Switch** window opens.

2. Go to **Network** > **Interfaces** .

3.
   Identify the adapter that you want to configure, then click ⋮ > **Configure** .
   The **Configure** window opens.

4. Configure the IPv4 settings.

Setting	Description
Obtain IP address settings automatically via DHCP	If the network supports DHCP, the adapter automatically obtains the IP address and network settings.
Use static IP address	Manually assign a static IP address. You must specify the following information: • Fixed IP Address • Subnet Mask • Default Gateway
Jumbo Frame	Jumbo Frames are Ethernet frames that are larger than 1500 bytes. They are designed to enhance Ethernet networking throughput, and to reduce CPU usage when transferring large files. QVP supports the following MTU sizes: • 1500 bytes (default) • 4074 bytes • 7418 bytes • 9000 bytes **Important** • All connected network devices must enable Jumbo Frames and use the same MTU size. • Only certain NAS models support Jumbo Frames. • Using Jumbo Frames requires a network speed of 1000 Mbps or faster.
Network Speed	Select the network transfer rate allowed by the NAS network environment. **Tip** Selecting **Auto-negotiation** will automatically detect and set the transfer rate. **Important** The Network Speed field is automatically set to **Auto-negotiation** and hidden when configuring 10GbE & 40GbE adapters.

5. Click **Apply**.

Configuring IPv6 Settings

1. Go to **Control Panel** > **Network & Virtual Switch** .
   The **Network & Virtual Switch** window opens.

2. Go to **Network** > **Interfaces** .

3. Identify the adapter that you want to configure and then click ✎ > **Configure** .
   The **Configure** window opens.

4. Go to the **IPv6** tab.

5. Configure the IPv6 settings.

Setting	Description
Disable	Do not assign an IPv6 address.
IPv6 Auto-Configuration (Stateful)	The adapter automatically acquires an IPv6 address and DNS settings from the DHCPv6-enabled server. **Important** This option requires an available DHCPv6-enabled server on the network.
IPv6 Auto-Configuration (Stateless)	The adapter automatically acquires an IPv6 address and DNS settings from the router. **Important** This option requires an available IPv6 RA(router advertisement)-enabled router on the network.
Use static IP address	Manually assign a static IP address to the adapter. You must specify the following information: - Fixed IP Address - Prefix length **Tip** Obtain the prefix length information from your network administrator. - Default Gateway

6. Click **Apply**.

Configuring DNS Settings

1. Go to **Control Panel** > **Network & File Services** > **Network & Virtual Switch** .
   The **Network & Virtual Switch** window opens.

2. Go to **Network** > **Interfaces** .

3. Identify the adapter that you want to configure, then click ⋮ > **Configure** .
   The **Configure** window opens.

4. Go to the **DNS** tab.

5. Select one of the following options:

Setting	Description
Obtain DNS server address automatically	Automatically obtain the IP address using DHCP.
Use the following DNS server address	Manually assign the IP address for the primary and secondary DNS servers. **Important** QNAP recommends specifying at least one DNS server to allow URL lookups.

6. Click **Apply**.

Configuring Port Trunking

Important
Before configuring Port Trunking, ensure at least two network interfaces are connected to the same switch.

1. Go to **Control Panel** > **Network & File Services** > **Network & Virtual Switch** .
   The **Network & Virtual Switch** window opens.

2. Go to **Network** > **Interfaces** .

3. Click **Port Trunking**.
   The **Port Trunking** window opens.

4. Click **Add**.
   The **Port Trunking (Add)** window opens.

5. Select two or more network interfaces to add to the trunking group.

6. Click **Next**.

7. Select a switch type.

8. Click **Next**.

9. Select a trunking mode.

Important
Some port trunking modes must be supported by your network switches. Selecting an unsupported mode may affect network performance or cause the network interface to freeze.

Mode	Description
Fault Tolerance (Failover)	
Active-Backup	All traffic is sent and received using the interface that was first added to the trunking group. If this primary interface becomes unavailable, the secondary interface will become active.
Broadcast	Transmits the same network packets to all the network interface cards.
Load balancing & Failover	

Mode	Description
Balance-tlb	Incoming traffic is received by the current interface. If the interface fails, a slave interface takes over the MAC address of the failed interface. Outgoing traffic is distributed based on the current load for each interface relative to the interface's maximum speed.
Balance-alb	Similar to Balance-tlb, but offers additional load balancing for incoming IPv4 traffic.
Balance-rr	Transmits network packets sequentially to each network interface card in order to distribute the internet traffic among all the NICs.
Balance-xor	Transmits network packets using the Hash algorithm, which selects the same NIC slave for each destination MAC address.
802.3ad dynamic	Uses a complex algorithm to aggregate NICs and configure speed and duplex settings.

10. Click **Apply**.

System Default Gateway

The system default gateway serves as the network access point for the NAS. By default, all external network traffic will pass through the gateway. A network interface must be specified for the default gateway.

Configuring the System Default Gateway

1. Go to **Control Panel** > **Network & File Services** > **Network & Virtual Switch** .
   The **Network & Virtual Switch** window opens.

2. Go to **Network** > **Interfaces** .

3. Click **System Default Gateway**.
   The **System Default Gateway** window opens.

4. Configure the system default gateway.

Setting	Description
Auto-select system default gateway	QVP automatically detects all adapter, virtual switch, PPPoE, and VPN connections that can be used to connect to the internet. It selects one of these connections and then sets it as the default gateway.
Select the system default gateway	Manually assign an adapter to serve as the system default gateway. Optionally, set a backup failover gateway. The failover default gateway field is only available when multiple interfaces are connected. **Tip** When assigning a PPPoE or VPN connection as the default gateway, ensure a stable physical connection is also set as the failover default gateway.

5. Optional: Disable the NCSI service.

Tip
The QVP Network Connectivity Status Indicator (NCSI) periodically performs tests to check the speed and status of NAS network connections.

6. Click **Apply**.

Virtual LANs (VLANs)

A Virtual LAN (VLAN) is a group of hosts which communicate as if they were attached to the same broadcast domain even if they are in different locations. You can use VLANs to increase security and flexibility, while decreasing network latency and load.

Adding an Interface to a VLAN

> **Important**
> When using both port trunking and a VLAN, port trunking must be configured first.

1. Go to **Control Panel** > **Network & File Services** > **Network & Virtual Switch** .
   The **Network & Virtual Switch** window opens.

2. Go to **Network** > **Interfaces** .

3. Identify the adapter that you want to configure, then click ⋮ > **Configure** .
   The **Configure** window opens.

4. Go to the **VLAN** tab.

5. Select **Enable VLAN**.

6. Specify a VLAN ID.

> **Important**
>
> • The VLAN ID must be between 1 and 4094.
>
> • Make a note of the VLAN ID before completing this process. If the VLAN ID is lost, the network settings will need to be reset.

7. Click **Apply**.

Virtual Switches

This screen controls the configuration and management of virtual switches running on the NAS. Virtual Switches allow physical interfaces and virtual adapters to communicate with each other.

QVP supports three different virtual switch modes.

Mode	Description
Basic	This mode is well-suited for most users, and requires minimal configuration of network settings.
Advanced	This mode is best-suited for power-users who need more control over the configuration of network settings.
Software-Defined Switch	This mode is suited for power-users who need to simulate an L2 physical switch. **Important** Packet forwarding rates are limited when using this mode.

Tip

To access this page, Network & Virtual Switch must be operating in Advanced Mode.

Creating a Virtual Switch in Software-defined Switch Mode

Important

To avoid bridge loops, ensure that any Ethernet cables are connected to the same switch before configuring a Software-defined Switch.

1. Go to **Control Panel** > **Network & File Services** > **Network & Virtual Switch** .
    The **Network & Virtual Switch** window opens.

2. Go to **Network** > **Virtual Switch** .

3. Click **Add**.
    The **Create a Virtual Switch** window opens.

4. Select **Software-defined Switch Mode**.

5. Select one or more adapters.

6. Optional: Select **Enable the Spanning Tree Protocol**.

Tip

Enabling this setting prevents bridge loops.

7. Click **Apply**.

Creating a Virtual Switch in Basic Mode

1. Go to **Control Panel** > **Network & File Services** > **Network & Virtual Switch** .
    The **Network & Virtual Switch** window opens.

2. Go to **Network** > **Virtual Switch** .

3. Click **Add**.
    The **Create a Virtual Switch** window opens.

4. Select **Basic Mode**.

5. Select one or more adapters.

6. Optional: Select **Enable the Spanning Tree Protocol**.

Tip

Enabling this setting prevents bridge loops.

7. Click **Apply**.

Creating a Virtual Switch in Advanced Mode

1. Go to **Control Panel** > **Network & File Services** > **Network & Virtual Switch** .
    The **Network & Virtual Switch** window opens.

2. Go to **Network** > **Virtual Switch** .

3. Click **Add**.

The **Create a Virtual Switch** window opens.

4. Select **Advanced Mode**.

5. Select one or more adapters.

6. Optional: Select **Enable the Spanning Tree Protocol**.

> 💡 **Tip**
> Enabling this setting prevents bridge loops.

7. Click **Next**.

8. Configure the virtual switch IP address.

Address Type	Description
DHCP Client	Assigns a dynamic IP address to the virtual switch.
Static IP	Assigns a static IP address to the virtual switch. 💡 **Tip** Examine your network setup for guidance on how to best configure these settings.
Do not assign IP Addresses	Does not assign an IP address to the virtual switch after creation. 💡 **Tip** This setting should be used when creating a virtual switch for special purposes, such as when building an external or isolated network.

9. Click **Next**.

10. Configure the virtual switch services.

    a. Enable the NAT service.

> ⛔ **Important**
>
> - The virtual switch must be configured with a static IP address. The IP address cannot be within the subnet of an interface that is currently in use.
>
> - The IP address of the virtual switch cannot be in a reserved range that doesn't support forwarding:
>   - 127.xxx.xxx.xxx
>   - 169.254..xxx.xxx
>   - 192.0.2.xxx
>   - 198.51.100.xxx
>   - 203.0.113.xxx

    b. Optional: Enable the DHCP Server.

> ⊘ **Important**
>
> - The virtual switch must be configured with a static IP address. The IP address cannot be within the subnet of an interface that is currently in use.
>
> - To avoid IP address conflicts, do not enable DHCP server if there is another DHCP server running on the local network.

Setting	Description
Start IP Address	Specify the starting IP address in a range allocated to DHCP clients.
End IP Address	Specify the ending IP addresses in a range allocated to DHCP clients.
Subnet Mask	Specify the subnet mask used to subdivide your IP address.
Lease Time	Specify the length of time that an IP address is reserved for a DHCP client. The IP address is made available to other clients when the lease expires.
Default Gateway	Specify the IP address of the default gateway for the DHCP server.
Primary DNS Server	Specify a DNS server for the DHCP server.
Secondary DNS Server	Specify a secondary DNS server for the DHCP server. ⊘ **Important** QNAP recommends specifying at least one DNS server to allow URL lookups.
WINS Server	Specify the WINS server IP address. 💡 **Tip** Windows Internet Naming Service (WINS) converts computer names (NetBIOS names) to IP addresses, allowing Windows computers on a network to easily find and communicate with each other.
DNS Suffix	Specify the DNS suffix. 💡 **Tip** The DNS suffix is used for resolving unqualified or incomplete host names.
TFTP Server	Specify the public IP address for the TFTP server. 💡 **Tip** QVP supports both PXE and remote booting of devices.
Boot File	Specify location and file name of the TFTP server boot file. 💡 **Tip** QVP supports both PXE and remote booting of devices.

11. Click **Next**.

12. Configure the virtual switch IPv6 address.

Setting	Description
Disable	Do not assign an IPv6 address.
IPv6 Auto-Configuration (Stateful)	The adapter automatically acquires an IPv6 address and DNS settings from the DHCPv6-enabled server. **Important** This option requires an available DHCPv6-enabled server on the network.
IPv6 Auto-Configuration (Stateless)	The adapter automatically acquires an IPv6 address and DNS settings from the router. **Important** This option requires an available IPv6 RA(router advertisement)-enabled router on the network.
Use static IP address	Manually assign a static IP address. You must specify the following information: • Fixed IP Address • Prefix length **Tip** Obtain the prefix length information from your network administrator. • Default Gateway

13. Click **Next**.

14. Configure the DNS settings.

Setting	Description
Obtain DNS server address automatically	Automatically obtain the DNS server address using DHCP.
Use the following DNS server address	Manually assign the IP address for the primary and secondary DNS servers. **Important** QNAP recommends specifying at least one DNS server to allow URL lookups.

15. Click **Next**.

16. Confirm the virtual switch settings.

17. Click **Apply**.

DHCP Server

This screen controls the creation and management of Dynamic Host Configuration Protocol (DHCP) servers. DHCP servers can assign IPv4 addresses to clients on the network, while RADVD servers assign IPv6 addresses.

> **Important**
> Do not create a new DHCP server if one already exists on the network. Enabling multiple DHCP servers on the same network can cause IP address conflicts or network access errors.

Creating a DHCP Server

1. Go to **Control Panel** > **Network & File Services** > **Network & Virtual Switch** .
   The **Network & Virtual Switch** window opens.

2. Go to **Network** > **DHCP Server** .

3. Click **Add**.
   The **DHCP Server** window opens.

4. Select an interface.

5. Click **Next**.

6. Select the network environment for the DHCP server.

Option	Description
Enable DHCP server on the current network.	• The adapter keeps the existing IP address and subnet mask. • The DHCP server shares the subnet mask with the adapter and is assigned the next available IP address.
Reassign an IP address to the adapter and enable a DHCP server on a new subnet.	• The adapter is assigned a new IP address and subnet mask. • The DHCP server uses a different subnet mask and IP address.
Enable DHCP server for another subnet.	• The adapter keeps the existing IP address and subnet mask. • The DHCP server uses a different subnet mask and IP address.

7. Click **Next**.

8. Configure a static IP address for the adapter.

> **Important**
> A static IP address must be configured when creating a DHCP server.

   a. Click **Yes**.

   b. Configure IP address settings.

Setting	Description
Fixed IP Address	Specify a fixed IP address. **Tip** Examine your network setup for guidance on how to best configure these settings.
Subnet Mask	Specify the subnet mask used to subdivide your IP address.
Default Gateway	Specify the IP address of the default gateway for the adapter.
Jumbo Frame	Jumbo Frames are Ethernet frames that are larger than 1500 bytes. They are designed to enhance Ethernet networking throughput, and to reduce CPU usage when transferring large files. QVP supports the following Jumbo Frame sizes: • 1500 bytes (default) • 4074 bytes • 7418 bytes • 9000 bytes **Important** • Jumbo Frames are only supported by certain NAS models. • Using Jumbo Frames requires a network speed of 1000 Mbps or faster. All connected network devices must enable Jumbo Frames and use the same MTU size.
Network Speed	Specify the speed at which the adapter will operate. **Tip** **Auto-negotiation** will automatically detect and set the transfer rate.
Primary DNS Server	Assign an IP address for the primary DNS server.
Secondary DNS server	Assign an IP address for the secondary DNS server. **Important** QNAP recommends specifying at least one DNS server to allow URL lookups.

    c. Click **Next**.

9. Configure DHCP settings.

Setting	Description
Start IP Address	Specify the starting IP address in a range allocated to DHCP clients.

Setting	Description
End IP Address	Specify the ending IP addresses in a range allocated to DHCP clients.
Subnet Mask	Specify the subnet mask used to subdivide your IP address.
Lease Time	Specify the length of time that an IP address is reserved for a DHCP client. The IP address is made available to other clients when the lease expires.
Default Gateway	Specify the IP address of the default gateway for the DHCP server.
Primary DNS Server	Specify a DNS server for the DHCP server.
Secondary DNS Server	Specify a secondary DNS server for the DHCP server. **Important** QNAP recommends specifying at least one DNS server to allow URL lookups.
WINS Server	Specify the WINS server IP address. **Tip** Windows Internet Naming Service (WINS) converts computer names (NetBIOS names) to IP addresses, allowing Windows computers on a network to easily find and communicate with each other.
DNS Suffix	Specify the DNS suffix. **Tip** The DNS suffix is used for resolving unqualified or incomplete host names.
TFTP Server	Specify the public IP address for the TFTP server. **Tip** QVP supports both PXE and remote booting of devices
Boot File	Specify location and file name of the TFTP server boot file. **Tip** QVP supports both PXE and remote booting of devices

10. Click **Apply**.

RADVD

This screen controls the creation and management of Router Advertisement Daemon (RADVD) servers. This service sends messages required for IPv6 stateless auto-configuration. This service periodically sends router advertisement (RA) messages to devices on the local network, and can also send a router solicitation messages when requested from a connected node.

Creating an RADVD Server

1. Go to **Control Panel** > **Network & File Services** > **Network & Virtual Switch** .
   The **Network & Virtual Switch** window opens.

2. Go to **Network** > **DHCP Server** .

3. Go to the **RADVD** tab.

4. Click **Add**.
   The **RADVD - Outgoing Interface** window opens.

5. Select the outgoing interface.

6. Click **Next**.

7. Configure a static IP address for the adapter.

   ⚠ **Important**
   A static IP address must be configured when creating a RADVD server.

   a. Click **Yes**.

   b. Optional: Configure Static IP address settings.

Setting	Description
Fixed IP Address	Specify a fixed IP address. 💡 **Tip** Examine your network setup for guidance on how to best configure these settings.
Prefix Length	Specify the prefix length for the adapter. 💡 **Tip** Obtain the prefix and the prefix length information from your ISP.
Default Gateway	Specify the IP address of the default gateway for the DHCP server.
Primary DNS Server	Assign an IP address for the primary DNS server.
Secondary DNS server	Assign an IP address for the secondary DNS server. ⚠ **Important** QNAP recommends specifying at least one DNS server to allow URL lookups.

   c. Click **Next**.

8. Select a second adapter for the RADVD service interface.

9. Click **Next**.

10. Optional: Configure a static IP address for the second RADVD adapter.

> ⓘ **Important**
> Creating an RADVD interface requires that the adapter use a static IP address. If the adapter already uses a static IP address, skip this step.

    a. Click **Yes**.

    b. Configure Static IP address settings.

Setting	Description
Fixed IP Address	Specify a fixed IP address. 💡 **Tip** Examine your network setup for guidance on how to best configure these settings.
Prefix Length	Specify the prefix length for the adapter. 💡 **Tip** Obtain the prefix and the prefix length information from your ISP.
Default Gateway	Specify the IP address of the default gateway for the adapter.
Primary DNS Server	Specify the DNS server address.
Secondary DNS server	Specify the DNS server address. ⓘ **Important** QNAP recommends specifying at least one DNS server to allow URL lookups.

    c. Click **Apply**.

11. Configure the RADVD server settings.

Setting	Description
Prefix	Specify the routing prefix for the adapter. 💡 **Tip** Examine your network setup for guidance on how to best configure these settings.
Prefix Length	Specify the prefix length for the adapter. 💡 **Tip** Obtain the prefix and the prefix length information from your ISP.
Lease Time	Specify the length of time that an IP address is reserved for a DHCP client. The IP address is made available to other clients when the lease expires.
Primary DNS Server	Specify the DNS server address.

Setting	Description
Secondary DNS server	Specify the DNS server address. ⛔ **Important** QNAP recommends specifying at least one DNS server to allow URL lookups.

12. Click **Apply**.

Route

This screen controls the creation of static routes. Under normal circumstances, QVP automatically obtains routing information after it has been configured for Internet access. Static routes are only required in special circumstances, such as having multiple IP subnets located on your network.

Creating a Static Route

1. Go to **Control Panel** > **Network & Virtual Switch** .
The **Network & Virtual Switch** window opens.

2. Go to **Network** > **Route** .

3. Click **Add**.
The **Static Route (IPv4)** window opens.

4. Configure the IP address settings.

Setting	Description
Destination	Specify a static IP address where connections are routed to.
Netmask	Specify the IP address of the destination's netmask.
Gateway	Specify the IP address of the destination's gateway.
Metric	Specify the number of nodes that the route will pass through. 💬 **Note** Metrics are cost values used by routers to determine the best path to a destination network.
Interface	Select the interface that connections should be routed through.

5. Click **Apply**.

DDNS

This screen controls the management of Dynamic Domain Name System (DDNS) services. DDNS allows access to the NAS from the internet using a domain name rather than an IP address.

Adding a DDNS Service

1. Go to **Control Panel** > **Network & Virtual Switch** .
The **Network & Virtual Switch** window opens.

2. Go to **Network** > **DDNS** .

3. Click **Add**.
   The **DDNS (Add)** window opens.

4. Configure the DDNS settings.

Setting	Description
Select DDNS server	Select the DDNS service provider.
Username	Specify the username for the DDNS service.
Password	Specify the password for the DDNS service.
Hostname	Specify the hostname or domain name for the DDNS service.
Check the External IP Address	Specify how often to update the DDNS record.

5. Click **Apply**.

10. License Center

License Activation

You can activate QNAP or QNAP-affiliated licenses using the following methods.

Activation Method	Description
Using a product key	The 25-character product key is purchased together with the product from either QNAP or an authorized reseller. The product key is normally printed on the product package. You can use product keys to activate licenses in License Center. For details, see Activating a License Using a Product or License Key.
Using a license key	You can generate the 25-character license key after purchasing licenses. For details, see Generating a License Key You can use license keys to activate licenses in License Center. For details, see Activating a License Using a Product or License Key. License details for licenses activated using license keys are not displayed on the QNAP License Store.
Using a product authorization key (PAK)	The 24-character PAK is purchased together with the product from either QNAP or an authorized reseller. The product key is normally printed on the product package. If you are using NAS devices running QVP version 4.3.4.0435 or older, use PAKs to activate licenses through App Center. If you are using NAS devices running QVP version 4.3.4.0483 or later, you can transfer PAKs purchased from the Old QNAP License Store to NAS devices. For details, see Activating a License Using a PAK.
Offline	Use this method when the NAS is not connected to the internet. For details, see Activating a License Offline.

Activating a License Using a Product or License Key

Before activating your license using a product or license key, ensure the following.

- Your NAS is connected to the internet.
- You are signed in to myQNAPcloud.

1. Open License Center.
2. Go to **My Licenses**.
3. Click **Add**.
   The **License Activation** window appears.
4. Select **Use a product or license key**.
5. Click **Next**.
6. Specify the key.

Key	Description
Product key	The product key is purchased together with the product from either QNAP or an authorized reseller. The product key is normally printed on the product package.
License key	Users can generate a license key from the QNAP Store. For details, see Generating a License Key.

7. Read and agree to the terms of service.

8. Click **Activate**.
   A notification message appears.

9. Click **Activate**.
   License Center activates the license.
   A confirmation message appears.

10. Click **Close**.
    The license appears on the list of active licenses.

Generating a License Key

1. Open your web browser.

2. Go to https://license.qnap.com.

3. Sign in with your QNAP ID.

4. Go to **My Licenses**.

5. From the list of licenses, select the license you want to generate a key for.

6. In the table below, click **Activation and Installation** > **Activate on QTS** .
   The **Activate License** window appears.

7. Select **Activate using the license key**.

8. Click **Next**.
   License Store generates the license key.

> **Tip**
> Click **Renew License Key** to generate a new key.

9. Click .
   Your system copies the license.

10. Click **Done**.

Activating a License Using a PAK

Before activating a license using a product authorization key (PAK), ensure the following.

- Your NAS is connected to the internet.

- You are signed in to myQNAPcloud.

1. Open License Center.

2. Go to **My Licenses**.

3. Click **Add**.
   The **License Activation** window appears.

4. Select **Use product authorization key (PAK)**.

5. Click **Next**.

6. Specify the PAK.

7. Click **Next**.
   License Center transfers and activates the license.
   A confirmation message appears.

8. Click **Close**.
   The license appears on the list of active licenses.

Activating a License Offline

1. Open License Center.

2. Go to **My Licenses**.

3. Click **Add**.
   The **License Activation** window appears.

4. Select **Offline Activation**.

5. Click **Next**.

6. Read the instructions, and then click **Download**.
   License Center downloads the device identity file (DIF) file to your computer.

7. Read and agree to the terms of service.

8. Click **Next**.

9. Read the instructions, and then click **Go to License Store**.
   Your web browser opens the **QNAP License Store**.

10. Sign in with your QNAP ID.

11. Go to **My Licenses**.

12. From the list of licenses, select the license you want to activate.

13. In the table below, click **Activation and Installation**.
    The license activation details appear.

14. Click **Activate on QTS**.
    The **Activate License** dialog box appears.

15. Select **Offline Activation**.

16. Click **Next**.

17. Click **Browse**.
    The file browser appears.

18. Locate and select the DIF from your computer.

19. Click **Upload**.
License Store activates the license.
A confirmation message appears.

20. Click **Download**.
The **QNAP License Store** downloads the license install file (LIF) to your computer.

21. Click **Done**.

22. Go back to License Center.

23. In the **License Activation** window, click **Next**.

24. Click **Browse Files**.
The file browser appears.

25. Locate and select the LIF from your computer.

26. Click **Next**.
License Center uploads the LIF and displays the license summary.

27. Click **Activate**.
The license appears on the list of active licenses.

Generating a License Key

1. Open your web browser.

2. Go to https://license.qnap.com.

3. Sign in with your QNAP ID.

4. Go to **My Licenses**.

5. From the list of licenses, select the license you want to generate a key for.

6. In the table below, click **Activation and Installation** > **Activate on QTS** .
The **Activate License** window appears.

7. Select **Activate using the license key**.

8. Click **Next**.
License Store generates the license key.

> **Tip**
> Click **Renew License Key** to generate a new key.

9. Click [icon].
Your system copies the license.

10. Click **Done**.

License Deactivation

You can deactivate QNAP or QNAP-affiliated licenses using the following methods.

Activation Method	Description
Using QNAP ID	Purchased licenses are stored in your QNAP ID account, and can be accessed through both License Center and the online License Store. To deactivate this type of license, see Deactivating a License Using QNAP ID.
Offline	Use this method when the NAS is not connected to the internet. For details, see Deactivating a License Offline.

Deactivating a License Using QNAP ID

1. Open License Center.

2. Go to **My Licenses**.

3. Identify the license you want to deactivate, and then click 🗎.
   The **License Deactivation** window appears.

4. Select **Use QNAP ID**.

5. Read and acknowledge the warning.

6. Click **Next**.
   License Center deactivates the license.
   A confirmation message appears.

7. Click **Close**.
   License Center removes the license from the list of active licenses.

Deactivating a License Offline

1. Open License Center.

2. Go to **My Licenses**.

3. Identify the license you want to deactivate, and then click 🗎.
   The **License Deactivation** window appears.

4. Select **Offline Deactivation**.

5. Read and acknowledge the warning.

6. Click **Next**.

7. Read the instructions, and then click **Download**.
   License Center downloads the license uninstall file (LUF) to your computer.

8. Click **Next**.

9. Read the instructions, and then click **Finish**.

10. Open your web browser.

11. Go to https://license.qnap.com.

12. Sign in with your QNAP ID.

13. Go to **My Licenses**.

14. From the list of licenses, select the license you want to deactivate.

15. In the table below, click **Activation and Installation**.
The license activation details appear.

16. Under **Advanced Options**, click ⛔.
The **Deactivate License** window appears.

17. Click **Offline Deactivation**.

18. Click **Browse**.
The file browser appears.

19. Locate and select the LUF from your computer.

20. Click **Upload**.
License Store deactivates the license.
A confirmation message appears.

21. Click **Done**.

> **Tip**
> If the license is still listed in **My Licenses**, click 🗑 to remove it from the list. If the license has not yet expired, this action does not permanently delete the license from License Center.

License Extension

License Center will notify you 30 days before any of your subscription-based licenses expire. You can extend your QNAP or QNAP-affiliated licenses using the following methods.

Activation Method	Description
Offline using an unused license	If you have a valid, unused subscription-based license and your NAS is not connected to the internet, you can use this method to extend your expiring license. For details, see Extending a License Offline Using an Unused License.
Offline using a product key	The 25-character product key is purchased together with the product from either QNAP or an authorized reseller. The product key is normally printed on the product package. If you have a valid, unused product key for a subscription-based license, and your NAS is not connected to the internet, you can use this method to extend your expiring license. For details, see Extending a License Offline Using a Product Key.

Extending a License Offline Using an Unused License

1. Open License Center.

2. Go to **My Licenses**.

3. Identify the license you want to extend, and then click 💾.

> **Tip**
> If a license is expiring in 30 days or less, its status is `Expires soon`.

The **License Extension** window appears.

4. Read the instructions, and then click **Download**.
   License Center downloads the device identity file (DIF) file to your computer.

5. Read and agree to the terms of service.

6. Click **Next**.

7. Read the instructions, and then click **Go to License Store**.
   Your web browser opens the QNAP License Store.

8. Sign in with your QNAP ID.

9. Go to **My Licenses**.

10. From the list of licenses, select the license you want to activate.

11. In the table below, click **Activation and Installation**.
    The license activation details appear.

12. Click **Extend on QTS**.
    The **Extend License** window appears.

13. Select **Use an unused license**, and then click **Next**.
    The list of unused licenses appears.

14. Select an unused license.

    > ⚠️ **Warning**
    > License Center will use this license to extend your expiring license. This process is irreversible.
    > Once this license is used for extension, you cannot use it for anything else.

15. Click **Next**.

16. Click **Browse**.
    The file browser appears.

17. Locate and select the DIF from your computer.

18. Click **Upload**.
    A confirmation message appears.

19. Click **Download**.
    The QNAP License Store downloads the license install file (LIF) to your computer.

20. Click **Done**.

21. Go back to License Center.

22. In the **License Extension** window, click **Next**.

23. Click **Browse Files**.
    The file browser appears.

24. Locate and select the LIF from your computer.

25. Click **Next**.
    License Center uploads the LIF and displays the license summary.

26. Click **Extend**.

A confirmation message appears.

27. Click **Close**.
The license appears on the list of active licenses.

Extending a License Offline Using a Product Key

1. Open License Center.

2. Go to **My Licenses**.

3. Identify the license you want to extend, and then click 📇.

> 💡 **Tip**
> If a license is expiring in 30 days or less, its status is `Expires soon`.

The **License Extension** window appears.

4. Read the instructions, and then click **Download**.
A notification message appears.

5. Click **Download**.
License Center downloads the device identity file (DIF) file to your computer.

6. Read and agree to the terms of service.

7. Click **Next**.

8. Read the instructions, and then click **Go to License Store**.
Your web browser opens the QNAP License Store.

9. Sign in with your QNAP ID.

10. Go to **My Licenses**.

11. From the list of licenses, select the license you want to activate.

12. In the table below, click **Activation and Installation**.
The license activation details appear.

13. Click **Extend on QTS**.
The **Extend License** window appears.

14. Select **Use a product key**, and then click **Next**.

15. Specify the product key.

16. Click **Next**.
A confirmation message appears.

17. Click **Download**.
The QNAP License Store downloads the license install file (LIF) to your computer.

18. Click **Done**.

19. Go back to License Center.

20. In the **License Extension** window, click **Next**.

21. Click **Browse Files**.

The file browser appears.

22. Locate and select the LIF from your computer.

23. Click **Next**.
    License Center uploads the LIF and displays the license summary.

24. Click **Extend**.
    A confirmation message appears.

25. Click **Close**.
    The license appears on the list of active licenses.

License Management

License Center allows you to perform any of the following license management tasks. For license management tasks that are not included in this list, contact customer support through the QNAP Helpdesk.

Task	Description
Recover a license	Restoring QNAP NAS devices to factory settings causes licenses to become unavailable. To recover licenses, see Recovering Licenses.
Transfer a license to the new QNAP License Server	When upgrading older versions of QTS to QTS 4.3.4.0483 build 20180213 and above, valid PAKs purchased from the old QNAP License Store are deactivated. These PAKs are accessible on License Center and can be transferred to and activated on the new QNAP License Server. For details, see Transferring a License to the New QNAP License Server.
Delete a license	You can delete expired subscription-based licenses from the **My Licenses** screen. For details, see Deleting a License.

Recovering Licenses

Before recovering licenses, ensure the following.

• Your NAS is connected to the internet.

• You are signed in to myQNAPcloud.

1. Open License Center.

2. Go to **Recover Licenses**.

3. Click **Get Started**.
   The **License Recovery** dialog box appears.

4. Read and agree to the terms of service.

5. Click **Recover**.
   License Center automatically recovers all available licenses for applications installed on your NAS.

Transferring a License to the New QNAP License Server

Before transferring licenses, ensure the following.

• Your NAS is connected to the internet.

- You are signed in to myQNAPcloud.

1. Open License Center.

2. Go to **My Licenses**.

3. Identify the license you want to transfer, and then click ⬚.
   A confirmation message appears.

4. Read the terms of service, and then click **Transfer & Activate**.

> ⚠ **Warning**
> After you register a license with your current QNAP ID, it will no longer be transferable.

   License Center transfers the license.
   A confirmation message appears.

5. Optional: Click **QNAP License Store** to review the license details.

6. Click **Close**.

Deleting a License

1. Open License Center.

2. Go to **My Licenses**.

3. Identify the license you want to delete, and then click 🗑.
   A confirmation message appears.

4. Click **Yes**.
   License Center deletes the license.

> 💡 **Tip**
> If the license has not yet expired, the license will still be listed in the **License Activation** table.