

# QTS 4.2.1

- ▶ Hybrid Backup Sync: a comprehensive strategy of local, remote-site, cloud backup, and synchronization
- ▶ Qsirch: the all-new Chrome™ extension for accelerated search
- ▶ VPN + Proxy: the best solution for secure communication
- ▶ MyMail: integrated and secure mail services
- ▶ OceanKTV: in-home Karaoke entertainment on QNAP NAS
- ▶ QPulse: centralized remote server management
- ▶ Network & Virtual Switch: a complete overview of network configuration
- ▶ Linux Station: Operate your NAS as a Linux® PC with enhanced QNAP virtualized Personal Computer (QvPC) Technology



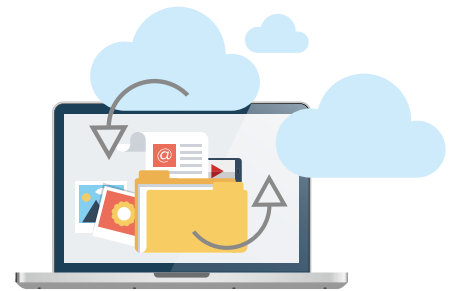
# Getting rid of external drives and embracing QNAP NAS

1

## Huge capacity, multiple backups

QNAP NAS comes with intuitive management features and a large potential storage capacity. The NAS supports multiple RAID levels to provide options for safeguarding data from potential hard disk failures and provides data recovery features.

\*Data recovery capabilities depend on the RAID configuration of the NAS.



2

## Always online, sharing anywhere

QNAP NAS works as centralized storage with quick access across devices such as mobile devices and computers via the Internet. Sharing files is also much easier in lieu of external drives and not hindered by the size of email attachments.



3

## Multiple layers of data protection

QNAP NAS can protect against data breaches with enhanced data protection mechanisms and user privilege controls. With this robust protection, you can have complete peace of mind that your data is 100% safe.



4

## In-home entertainment and streaming

In addition its data storage capabilities, a QNAP NAS can also be the center of your home entertainment. Stream your multimedia files to HDMI, DLNA®, AirPlay®, iTunes® and Chromecast™ devices. You can also control media playback with your mobile phones, enjoying a lavish multimedia feast at home and at your leisure.



5

## Qsirch, built on a full-text, real-time search engine

Powered by a full-text and near real-time search engine, Qsirch makes searching and browsing through voluminous data a lot faster, while highlighted keywords found within documents further helps you to quickly find what you're looking for. Save your searches and browse through them later to assist your next search while the auto-complete gives you more accurate suggestions for greater efficiency.



Sounds exciting? The all-new QTS 4.2.1 has a major renovation of the user interface, allowing you to operate it just like a PC. Moreover, the App Center encompasses a wide range of applications, including file management, backup, download, multimedia and entertainment, productivity tools, surveillance and many more. Why wait?



In addition to storing increasingly enormous amounts of data, Network-attached Storage (NAS) is further leveraging ROI and increasingly adding value to collaboration and simplified processes enhancing convenience in the workplace. NAS is enabling synchronization, communication, and collaboration for large, distributed teams while providing better data security. NAS users are finding fast, always available access to data and support for effective collaboration among team members are key priorities.

As the Internet of Things (IoT) and more "smart" devices emerge, smart homes, cities, and manufacturing are all entering this wave of industry transformation. Making good use of IoT - in conjunction with the proliferation of big data and mobile communications has become another critical focus for businesses in recent years.

QNAP NAS gives you the power to integrate your hardware with a complete cloud solution and IoT server. Add features to your NAS on the fly by installing apps from the App Center. All the apps are developed and shared in the Linux open source community, enabling you to leverage customizability and flexibility. All the App Center apps can be installed and run with just one click.

QNAP's NAS OS "QTS" has been re-engineered and redesigned to empower users with the flexibility and control they need. QTS is specifically architected to support and enable your workflow. QTS is designed and built with your work in mind, to help you increase your productivity from anywhere at any time. QTS 4.2.1 seamlessly integrates with your existing public cloud services to enhance data sharing and backup with better efficiency and reliability, and enabling boundless opportunities for NAS capacity expansion.

The International Data Corporation™ (IDC) state that the number of vendors offering Big Data services will triple over the next three years. The IDC also state that 70% of large organizations purchased public cloud storage and that will rise to 100% by 2019. Storage is no longer an afterthought. It is increasingly seen as a strategic investment priority for all companies regardless of their size, industry, or geography. In this era of big data, your data is key to opening new avenues of business opportunities.

QNAP has established a long and distinguished pedigree as a provider of storage infrastructure. Our professionalism and dedication to storage technology enables us to provide better hardware, software, and cloud solutions to align perfectly with your business requirements, whether a personal office or a large enterprise. We believe that the next-generation of NAS should embrace a broad range of enterprise management technologies and processes and utilize a high degree of software-hardware integration. In addition, we believe NAS should also connect to any public cloud providers and exhibit the following characteristics:

- The QNAP hybrid cloud fully supports both public and private cloud models – enabling a hybrid approach to managing cloud resources from the start and aims to optimize workloads and maximize ROI (return on investment).
- QNAP Tiering Technology enables the storage of data on different storage media according to its importance to the organization. Using data tiering, migration and snapshot technology balances the needs of capacity, performance, data protection, and total cost of ownership.
- A management platform that allows for a high degree of service flexibility. QNAP NAS is a converged platform and has the advantages of easy deployment, maintenance, expansion opportunities, virtualization-readiness, and more. The platform also improves IT operations with its scalability and built-in resilience, and delights developers with open APIs, freeing them to spend more time coding and focusing on innovation.
- An intelligent and agile platform. QNAP NAS offers utilities that accelerate big data processing involving cloud computing to speed up time-to-value and maximize IT impact on businesses and users. It employs an advanced file decoder and near real-time search engine to obtain real time results that can be used to keep you ahead of Big Data marketing and business opportunities.

If you want to advance to the technological frontier with smarter lifestyles and safer connectivity, please join us to travel through the cutting-edge of smart living technology with QTS 4.2.1.

# QTS 4.2.1

Design of QTS 4.2.1 Operating System – Experience a simple and perfect design.....	4
Storage Management and Data Protection –	
Tiered storage and cloud backup management platform.....	6
Qtier™ Technology – QNAP's auto-tiering technology	
Local Snapshot and Snapshot Replica – An Efficient and economical way to protect files	
Network & Virtual Switch – A complete overview of your network configuration	
File Station 4.2 – Manage all files from a single interface	
Comprehensive Backup/Synchronization – Hybrid cloud for a consolidated backup solution	
Data Security – Secure your data with six protection mechanisms.....	26
Comprehensive Virtualization Technology – VM or Container? You can have both! .....	32
Virtualization Station 2.1 – Support for GPU pass-through, shared network interfaces	
Container Station 1.3 – Rapidly deploy containers	
QNAP QvPC Technology – Use your NAS as a PC	
App Center – Customize your QNAP NAS for endless possibilities.....	46
Multimedia Center – Enjoy home entertainment with cloud technology.....	48
Photo Station 5.1 – Record the precious moments in your life	
Video Station 2.4 – Entertainment beyond the limits of devices	
Music Station 4.8 – Build your own music cloud	
One-to-multiple streaming playback – Unleash an intelligent home entertainment lifestyle	
HD Station 3.1 – Use a QNAP NAS as a home theater center	
OceanKTV – Enjoy karaoke in the privacy of your home	
Download Station 4.2 – Your 24/7 download center	
Plex Media Server – Professional media server	
Qmedia – A player designed for Roku®	
Productivity Tools – Maximize the value of your QNAP NAS.....	64
myQNAPcloud 2.0 cloud access service – Helps you easily create your NAS cloud	
Qsync Central Station 2.0 – Centrally manage and sync your files and devices	
QPulse™ Beta – Unified Remote Server Management solution	
Q'center central management system – Visual management platform for multi-NAS management	



# Table of Contents

Qmail Agent 1.0 – Unified, secure, and convenient email with privacy protection	
Gmail Backup 1.3 – Dedicated storage for email backup	
Notes Station 2.1 – A handy notepad on your private cloud	
Signage Station 2.1 –The ultimate Do-It-Yourself signage solution	
Qsirch 2.1 – Search for everything on your QNAP NAS	
<b>Surveillance Station 5.1 – Build a professional surveillance system .....</b>	<b>84</b>
QUSBCam2 – A handy surveillance tool	
<b>QNAP Mobile App – Conveniently access your QNAP NAS from your mobile devices.....</b>	<b>89</b>
Qfile 2.0 – Access files stored on your NAS remotely	
Qmanager 2.0 – Remotely manage and monitor your QNAP NAS	
Qphoto 2.0 – Share photos on your NAS on the go	
Qmusic 2.0 – Listen to music stored on your NAS	
Qvideo 2.0 – Watch videos stored on your NAS	
Qnote 1.1 – Taking and sharing notes on the go	
Qget 1.3 – Remotely manage download tasks	
Vmobile 2.0 – Professional mobile surveillance app	
Vcam 1.0 – Turn your mobile device into an IP cam	
Qremote 1.1 – Control HD Station with your mobile phone	
<b>Computer Utilities – Boost your Productivity .....</b>	<b>102</b>
Qfinder Pro – Search, connect and set up your QNAP NAS	
myQNAPcloud Connect – VPN portal to your QNAP NAS	
Qsync – Sync files anytime and everywhere	
NetBak Replicator – Free PC backup software	
Q´center Virtual Appliance – Use Q´center to monitor multiple NAS	
QNAP Snapshot Agent – Ensures consistent snapshots	
vSphere Client plug-in – Manage QNAP NAS within vSphere Client	
QNAP SMI – S Provider Manage NAS directly through Microsoft SCVMM	
Qsnap – Take screenshots, quickly and easily	
<b>QNAP Product Overview .....</b>	<b>105</b>

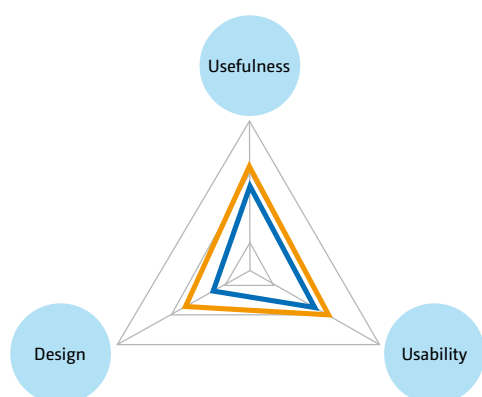
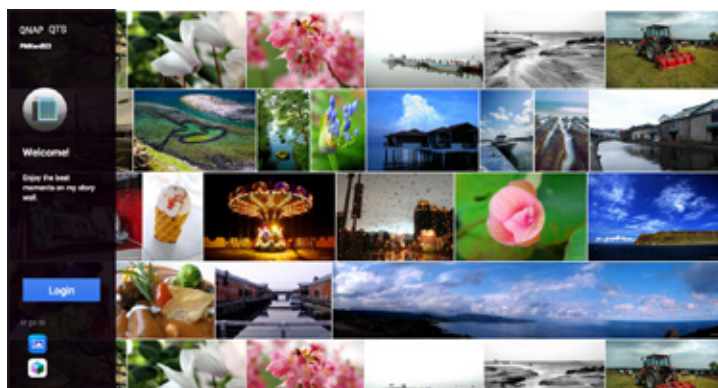
# Design of QTS 4.2.1 Operation System

## Experience a simple and perfect design

The completely redesigned QTS combines extensive user feedback, Human factors engineering reviews, and adheres to the principles of cognitive ergonomics. Simply put, QTS 4.2.1 looks tidy, works smoothly, and enables an easy NAS user experience on computers and mobile devices.

The QNAP operating system, QTS, has been re-engineered and optimized to perform elegantly, with a familiar PC feel. It is more intuitive, convenient and polished. Simply, more beautiful. Equipped with a variety of applications, QTS is simply designed to meet all your needs for storage, management, backup, multimedia, and surveillance.

Following positive feedback from over 10,000 users, we assembled a team of world-class UX designers to refine every QTS user interface. Now let's take an extensive look at the all-new QTS 4.2.1.



## Improved design

Every QTS screen is designed to minimize unnecessary interference and clutter.

## Improved usability

In a branch and root redesign, all QTS UX elements including buttons, links and icons, were carefully refined, ensuring users are able to intuitively use the system without prior learning. The simplified design style and optimized apps enable users familiar with QTS to vastly improve their user experience.

## Improved utilization

Intelligent, concurrent multi-tasking with enhanced modal windowing introduced in QTS 4.2.1 enables users to amplify their productivity. Remote monitoring, background tasks, and centralized management features ensure the highest utilization rate and optimal operation of the QNAP NAS.

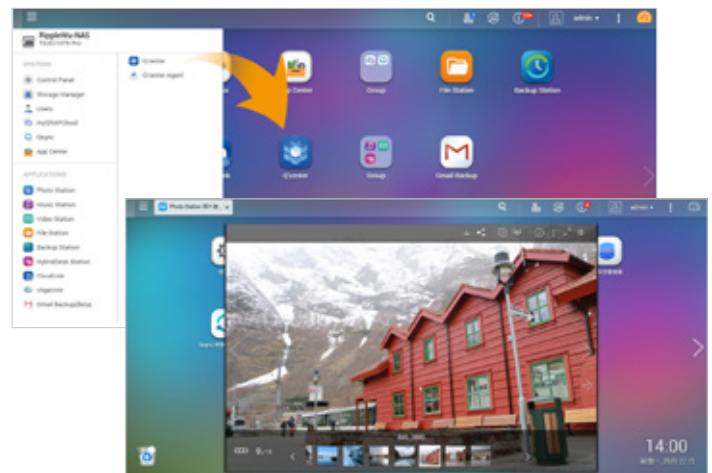
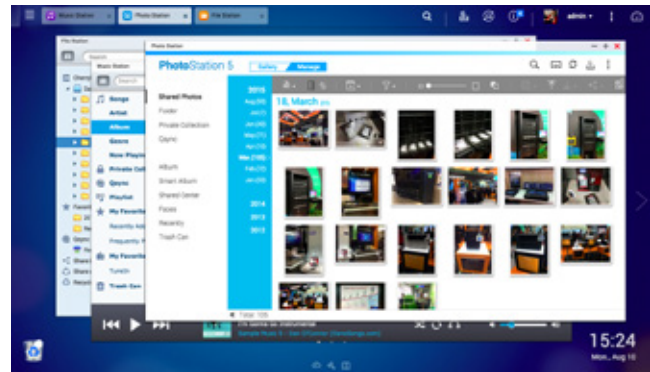


## Multitasking, multi-window, multi-desktop, and multi-display modes

The new QTS operating system dramatically improves your efficiency with multitasking, multi-window, multi-desktop, and multi-display modes enabling you to begin new tasks without waiting for the previous one to end. Similar to a traditional PC environment, you can minimize running apps onto the task bar and switch between them. For example, you can browse photos in Photo Station while listening to songs played in Music Station and download files to a local computer to make the most of your NAS.

The multi-desktop design of QTS enables drag-and-drop shortcut icons from the Control Panel or Main Menu to the desktop to suit your preferences. You can drag and drop a desktop icon on top of another one to group them together to create a personalized desktop for greater efficiency.

QTS consists of 3 modes: Tab, Window, and Frameless. The Tab mode allows more convenient switching among screens when using QTS with tablets. The exclusive Frameless mode improves visibility when viewing photos.



## Smart dashboard

The system status displays immediately with a single click on the upper-right corner of the desktop. Open the smart dashboard to obtain a quick view of important information including system health, disk information and health, resource monitoring, storage space, scheduled tasks, device information, and firmware information. Drag and drop dashboard functions to the desktop to monitor them at any time. Moreover, in the event of a critical failure (hard disk corruption, etc.) the smart dashboard will flash and prompt a system administrator to take immediate action to recover data and to prevent the loss of data.



## Recycle Bin

The Recycle Bin enables you to recover files that have been unintentionally or accidentally deleted. Right-click on the Recycle Bin on the desktop to empty it or open it to see the full range of functions available.



# Storage Management and Data Protection

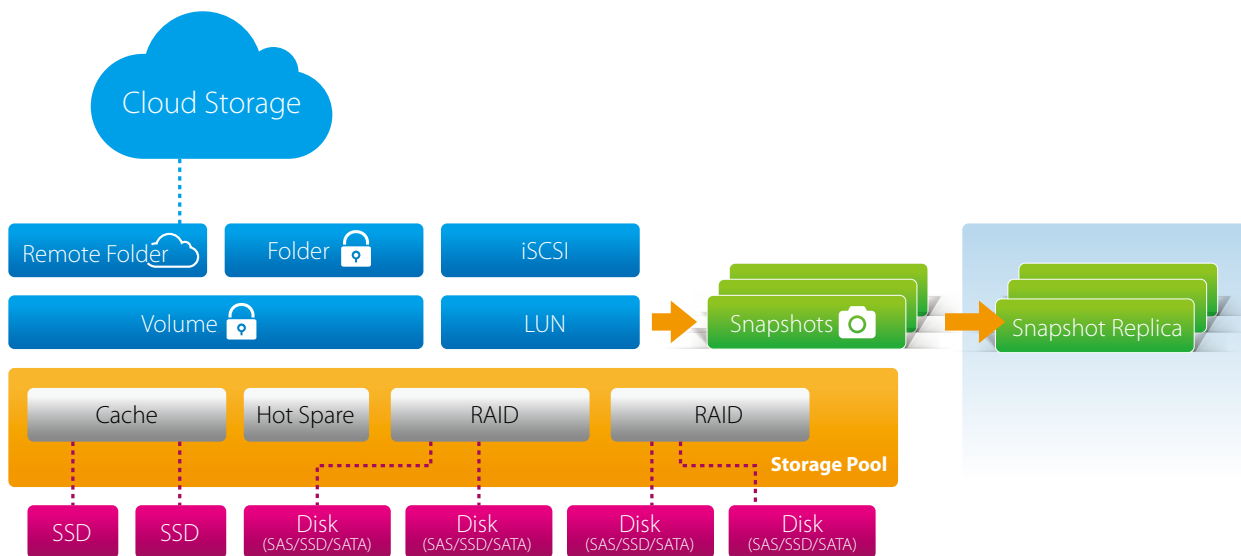
## Tiered storage and cloud backup management platform

In addition to existing storage management and backup functions, the new Snapshot and Backup Versioning help you improve data security while lowering storage expenses. By integrating public cloud storage and backup services, your QNAP NAS is a converged storage management platform offering on-premise, private, offsite, and cloud services.



### Intelligent Storage Manager Unified storage management

The QTS Storage Manager neatly presents tools and options for managing system storage with an intuitive graphical interface. From reviewing the system storage allocation in the Dashboard, to managing volumes, Storage Pools, disks and iSCSI storage, or even the new Snapshot function, the Storage Manager provides a centralized place to simplify hard drive management and to maximize storage usage.

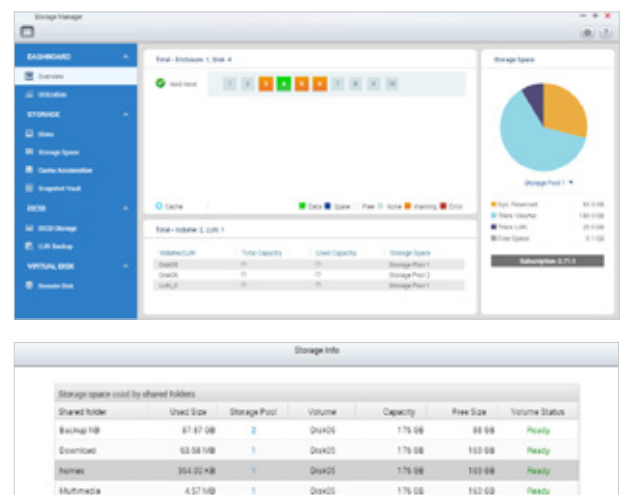


## Dashboard

The Storage Manager dashboard provides an overview for IT administrators to easily monitor and manage storage allocations. QTS 4.2.1 provides a more secure and flexible way to store and manage data stored on your NAS. This next generation, enterprise-grade volume management toolset offers powerful features such as storage pooling with multiple RAID groups, thin-provisioned volumes with space reclamation, and online capacity expansion.



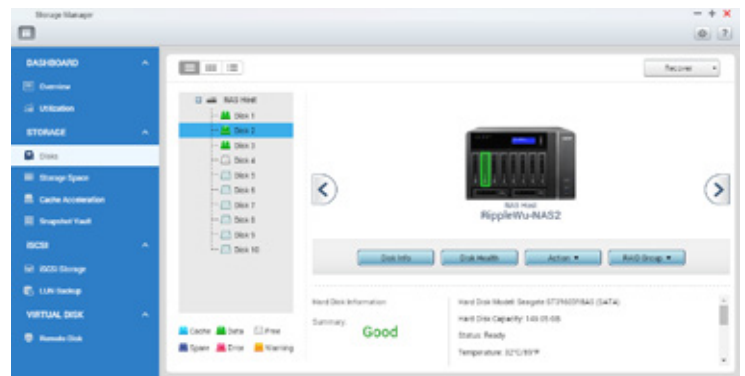
In addition to Storage Manager, IT administrators can also check volume status of shared folders with File Station.





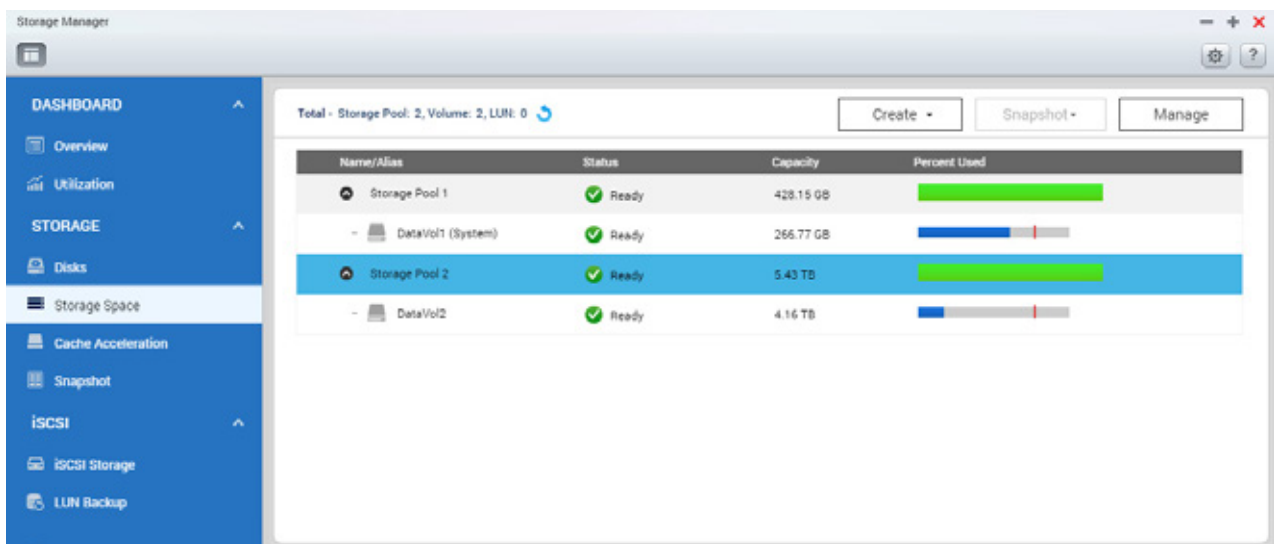
## Storage management

IT administrators can monitor HDD allocation status for RAID groups in addition to individual HDD information. This ensures that there are no idle HDDs, maximizing utilization of the storage resources. IT administrators can aggregate multiple RAID groups into a single storage pool to flexibly utilize the storage capacity as a whole and protect them using redundancy, allowing for better protection against multiple disk failures for large-capacity environments. Multiple volumes can now be created on the Storage Pool to provide flexible deployment.



## Volume

QTS 4.2.1 supports the creation of multiple volumes within a Storage Pool. View all available storage pools, volumes, and iSCSI LUNs on the same screen including multiple RAID groups. This enables the expansion or removal of current pools and volumes, setting of threshold values for capacity consumption alerts, and RAID group management. Data volumes and LUNs can also be extended without interrupting services.

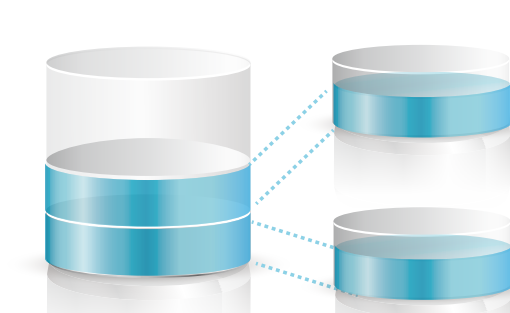


### Thin provisioning

Over-allocation enables a server to view more storage capacity than has been allocated in a storage pool. Further, the physical storage capacity is used only when files are written by the application, improving utilization rates.

### Thick provisioning

Physical storage capacity is dedicated during the initial allocation of the storage volume.



Dynamically and efficiently, use storage spaces with incremental allocation.



Specifically define all storage space that cannot be used by other volumes or LUNs.

## iSCSI LUN

QTS 4.2.1 supports two types of LUNs for efficient storage utilization: block-level and file-level iSCSI LUNs. The QNAP NAS also supports multiple types of configurations for server connections:

- Single LUN or multiple LUNs per iSCSI target.
- Multiple iSCSI targets for a single LUN, for clustered environments.

**Block-Level iSCSI LUN:** Deploy block-level iSCSI LUN as volumes to reduce overhead and improve overall read/write performance.

**File-Level iSCSI LUN:** File-level iSCSI LUNs can be used to create a disk image for an iSCSI LUN where storage space is a premium.

➤ Both block-level and file-level iSCSI LUNs support thin provisioning, space reclamation, and online capacity expansion. QNAP recommends using block-level iSCSI LUNs unless there is a limitation on space usage.

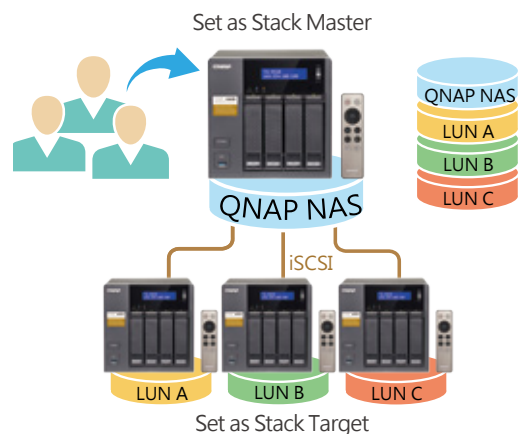
## Virtual Disk Drives increase storage expansion flexibility

Virtual disks provide a flexible way for IT administrators to expand storage. By using an iSCSI initiator to connect to the iSCSI target on the QNAP NAS, you can create a virtual disk on the local server. The QNAP NAS can act as a stack master to connect up to 8 virtual disks or stack targets, aggregating storage space from multiple NAS systems. NAS users then only need to connect to a single target to access the space from all of the network storage devices.

➤ Every virtual disk on the local server will be seen as a single drive of arrayed disks.

## Support for a variety of external storage devices

IT administrators can connect external storage devices to a QNAP NAS to back up shared folders and critical data using eSATA, USB or Thunderbolt® ports. Multiple backup methods, email notifications, and scheduled backup options while supporting many disk formats such as EXT3, EXT4, FAT32, HFS+, NTFS, etc., enable you to migrate data to a Mac or Windows computer. IT administrators can set up replication jobs to back up data to designated volumes on external devices. Even when multiple external storage devices are designated as destinations for replication jobs, you can rest assured that the scheduled jobs will run smoothly no matter how many times the external devices have been connected or disconnected.



## QNAP high-performance unified and tiered storage solutions

Data used by enterprises continues to grow exponentially and with greater diversity in data types and importance. It is imperative to offer a secure and efficient storage solution that can process this enormous amount of data while minimizing the total cost of ownership.

Establishing a tiered storage system based on efficiency and capacity greatly aids in improving overall processing efficiency. Enterprises can classify data accordingly by sharing folders with a file-based storage system and processing files that require more demanding data throughput with a block-based storage system to accommodate different usage models.

The QNAP business series NAS flexibly configures different tiers to different hard drive types within a single unit according to different data usage needs, delivering the best unified and tiered storage solution.



## Tiered storage and SSD cache for better efficiency

In the cloud era, enterprises need a storage architecture that can provide rapid access to dynamically scalable and virtualized IT resources. Classifying data into Hot Data (frequently accessed), and Cold Data (rarely accessed) to store them in a tiered storage can help achieve this goal efficiently, and cost effectively. Businesses often use SSD to improve the overall workflow of random IOPS-demanding applications such as databases and virtualization. Different types of storage media are used for different purposes. As such, it is better to utilize different storage media according to the system requirements.

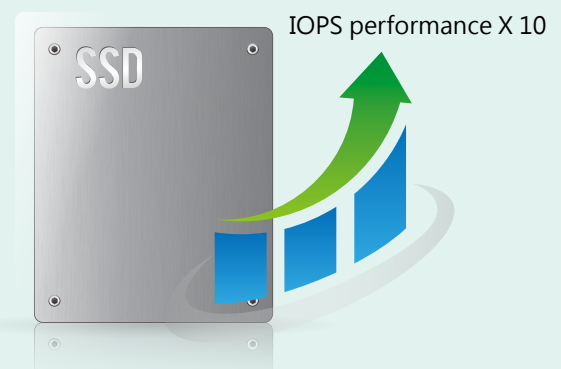
	Tier 1	Tier 2
Storage Type	SSD	SATA HDD
Characteristic	Balance of efficiency, capacity, and usability	Ubiquitous, convenient, and inexpensive
Usage Scenario	Online transaction processing (OLTP) Systems and ERP databases	Archiving, online and offline backup storage, disaster recovery
Usage Example	Data, audio, email, database table, video creation, and demanding workflow operations in a virtualized environment	Low cost and energy saving
Typical Use	A wide variety of users and environments where performance is crucial	Typical for data at rest
Criterion	Weights more on IOPS, throughput and resiliency	Weights more on data volume and low cost per TB

The following is a comprehensive comparison of general tiered storage devices:

Hard Drive	Solid State Drive (SSD)	SATA Hard Drive
Features	Low power consumption, no noise, anti-vibration, low heat, fast speed	Large capacity, lower reliability, and performance
Price	Expensive	Cheap
Capacity	80GB - 2TB	500GB - 8TB
Performance	Very high	Moderate-low
Interface	SATA (Single Port) 6 Gb/s	SATA (Single Port) 6 Gb/s
RPM	N/A	7200-RPM
External Continuous Transfer Performance	400-500 MB/s	100-170 MB/s
Average Response Time (Milliseconds)	< 1ms	R:9.5/W:8.5
Input/Output Operations Per Second (IOPS)	120,000/40,000	Less than 100
Unrecoverable bit read error	1 LBA per 10E16	1 LBA per 10E14
Mean Time Between Failures (MTBF, hours)	Depend	0.8 million

## SSD cache acceleration

The QNAP NAS business series support using SSDs for read/write or read-only caching. The random IOPS performance can be dramatically improved by up to 10 times and the I/O delay of storage volumes reduced by three times. It is an excellent solution for improving the overall workflow of random IOPS-demanding applications. The SSD cache supports configuration of RAID 1 with two SSDs and RAID 10 with 4 SSDs or more.



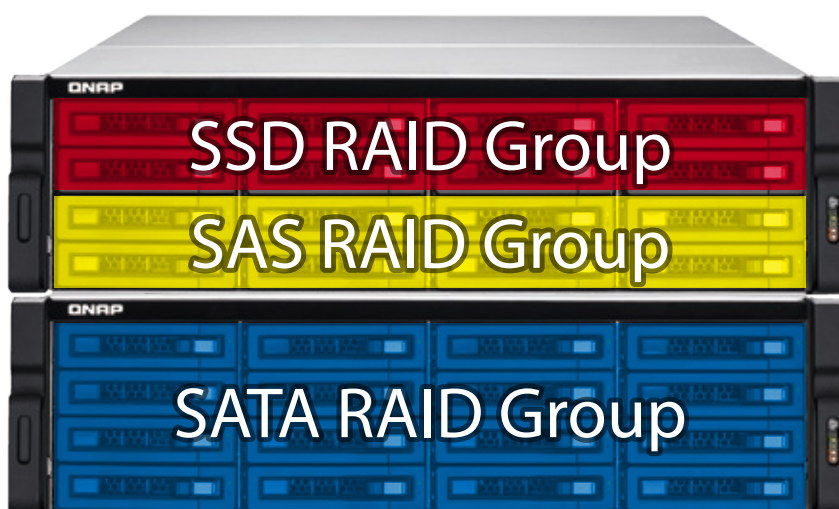


## Qtier™ Technology QNAP's auto-tiering technology

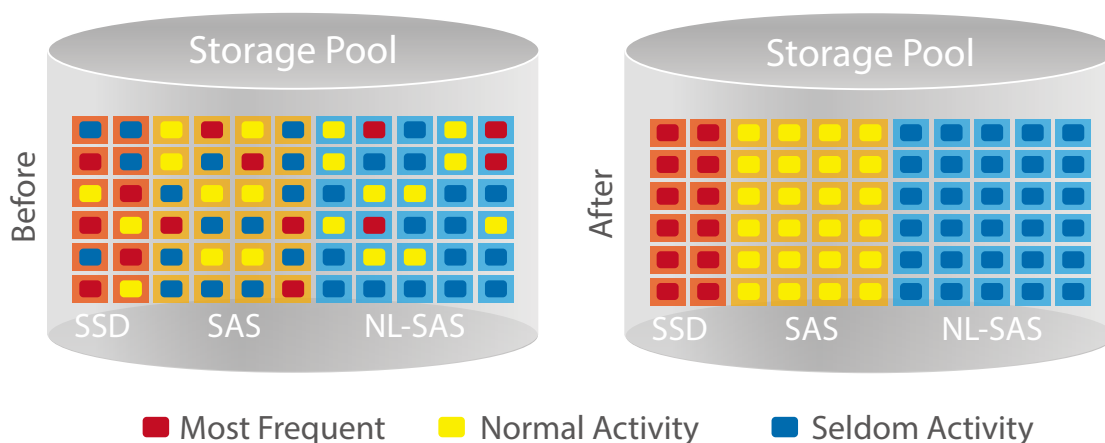
Qtier™, is a multi-tier storage management system. Qtier™ automatically moves the most active data to the high-performance drives while less active data is migrated to high-capacity drives. This alleviates the burden on administrators by supporting tasks of performance pre-estimation, layout design, and relocation of data according to performance and budgets.



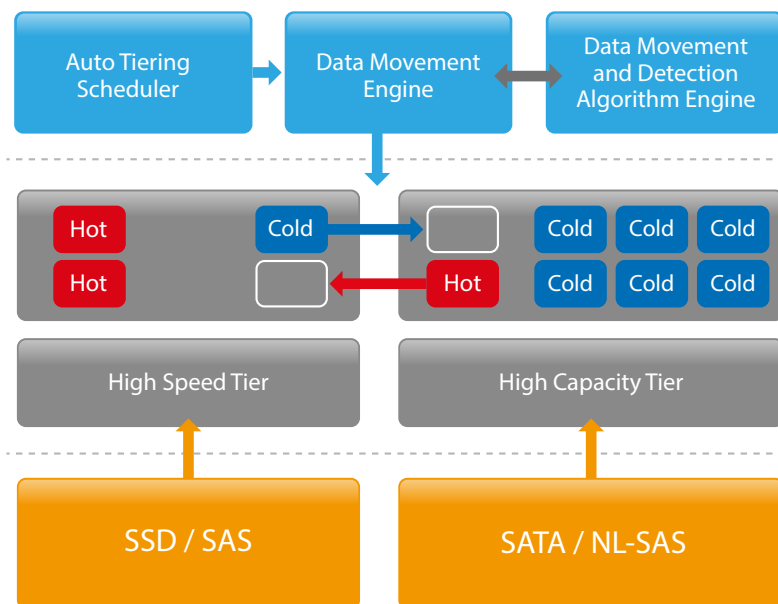
This function is available only on the TVS-ECx80U-SAS-RP Series and TS-ECx80U Series.



Please enable Auto-tiering when creating a Storage Pool.



## Data migration based on Transaction-based B-tree Update



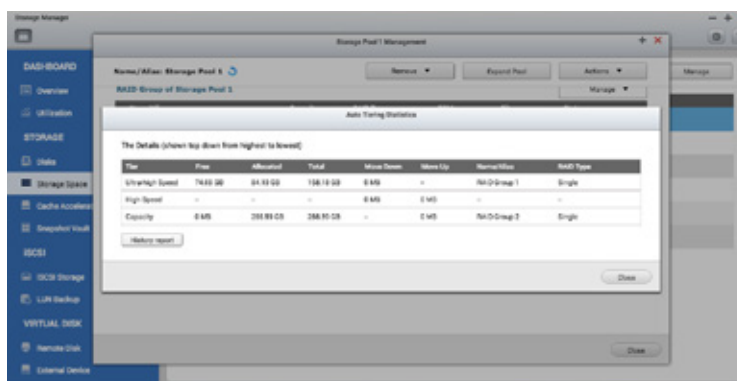
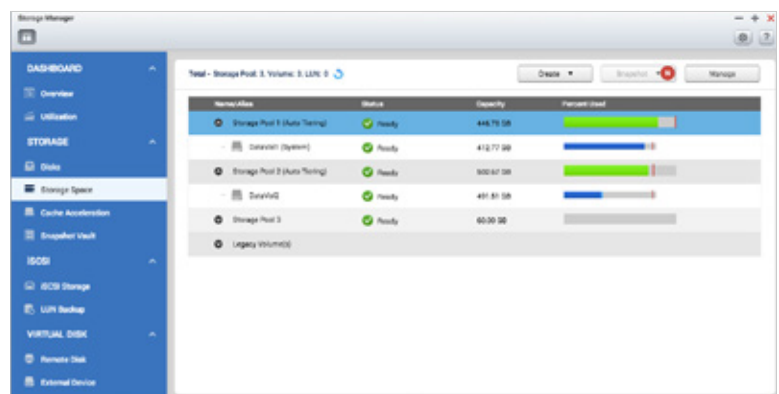
Based on the results of B-tree calculations, the NAS will automatically move data blocks with higher weights to higher tiers (e.g. moving data blocks from the HDD RAID Group to the SSD RAID Group). Data migration and metadata updating does not interfere with normal I/O meaning transaction-based B-tree updating does not introduce data integrity problems.

You can get the statistics of all data waiting to be processed as well as finishing processed in this phase. If the administrators need to do administrative tasks or there are bandwidth requirements for external connections, they can stop data migration in this phase. Furthermore, assigning weights can help adjust bandwidth allocation or alleviate congestion between external I/O and internal data migration.

The goal of the auto-tiering function on the QNAP NAS is to optimize the use of the storage infrastructure by simultaneously balancing storage utilization and performance:

- Move frequently used data onto fast disks for high-availability or high I/O cache throughput
- Move less frequently used data onto low-cost, high-capacity disks for better cost efficiency

To achieve the required level of performance and cost benefits, data is categorized based on access frequency. Service levels such as response times or runtime must be measured and evaluated in advance to decide which data must be stored at a given time in a certain tier.

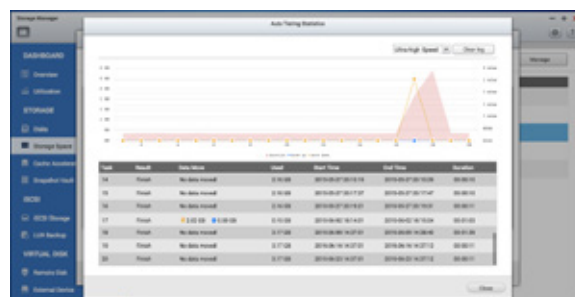


## 3 levels of tiered storage

- Tier 1 (Ultra-high Speed): SSD drives
- Tier 2 (High Speed): SAS drives
- Tier 3 (High Capacity): SATA or NL-SAS

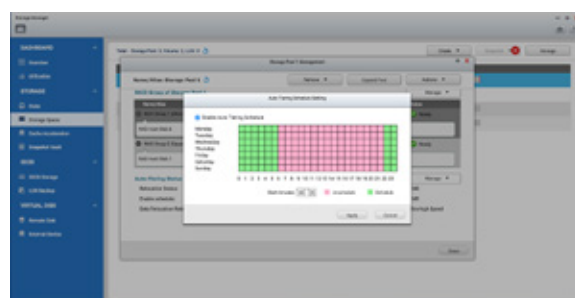
## Detailed and visualized statistics for performance analysis

Historical data assists users in performance tuning and storage provisioning, enabling accurate adjustment of auto-tiering policies.



## User-defined policies for better auto-tiering efficiency

Policy defined auto-tiering enables dynamic reallocation of data corresponding to the performance requirements of the data or applications in addition to scheduling and prioritization of data migration.



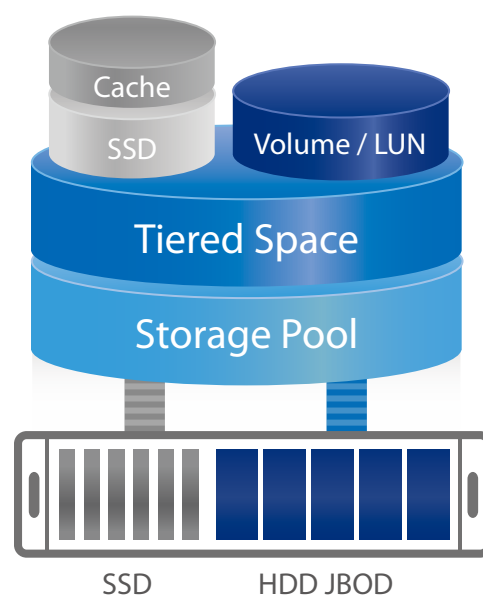
The following is a comprehensive comparison of storage technologies:

	Qtier™	Full SSD	SSD Cache
Costs	\$	\$\$	\$
Storage space	Big	Small	Big
Available SSD space	Extends as needed	Extends as needed	Limited by available memory
Data migration method	Scheduled	No	Automatic
Data migration mechanism	Moves data according to access frequency	All data is in SSD storage	Replicates frequently accessed data to SSD storage
Application scenarios	Typically used for predictable I/O workloads such as file/web/e-mail servers and application virtualization or video editing	Typically used for applications requiring fast/intensive I/O such as databases or virtualized environments	Typically used in a highly frequent data access environment such as virtualized applications or high-resolution video or audio processing

## Qtier™ with SSD Cache for around-the-clock acceleration

Qtier™ fully supports concurrent tiering and SSD caching. In this mode, Qtier™ constantly monitors I/O activity and keeps active data that requires small, mostly random, read and write operations in an SSD Read-only or Read-write cache. Other data is kept in the tiered storage and automatically moved between the appropriate tiers. QNAP unified and tiered storage is an intelligent, automated storage system for managing data placement to help optimize performance and cost requirements in multi-tier configurations.

Qtier™ Technology is a convenient, economical, and insightful way to store and balance your active (hot) and archived (cold) data. The intelligent Auto-tiering feature allows you to have your frequently-accessed data on high-speed SSD in the NAS for quick access and high performance. At the same time, you still have access to your archived and seldom-used data on the NAS SAS and SATA drives. This provides the versatility of extreme performance, a large storage capacity, and a lower cost per gigabyte to store and balance your data.







# Local Snapshot and Snapshot Replica

## An Efficient and economical way to protect files

QNAP's Whole Volume/LUN Snapshot Agent records the status of files using the Copy on Write mechanism. This helps in recovering files to a previously saved state in case of accidental deletion or modification and meeting enterprise requirements of improving Recovery Point Objective (RPO) and Recovery Time Objective (RTO).

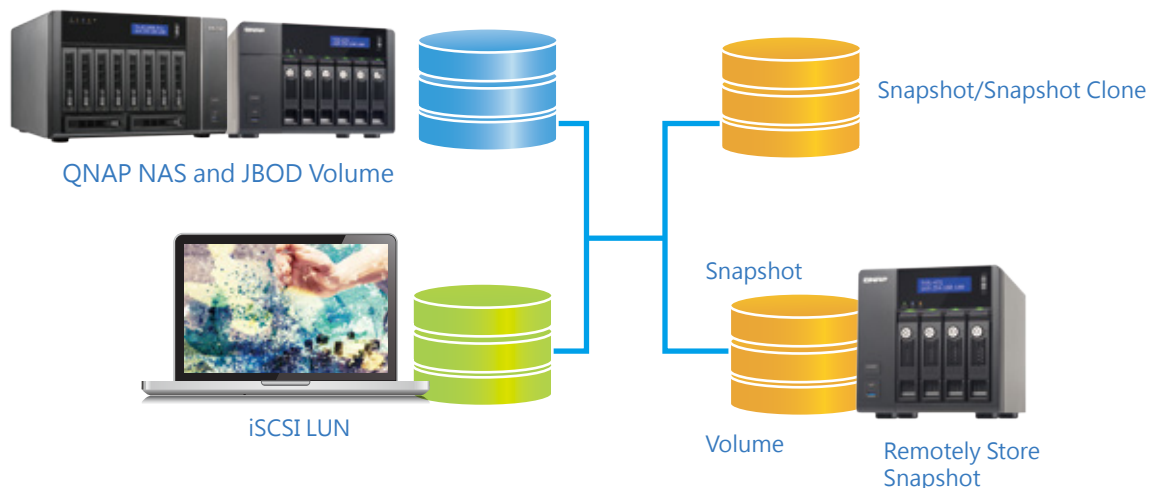


The Snapshot function is only available for certain models and requires a minimum of 4GB RAM.

## Benefits of QNAP Snapshot

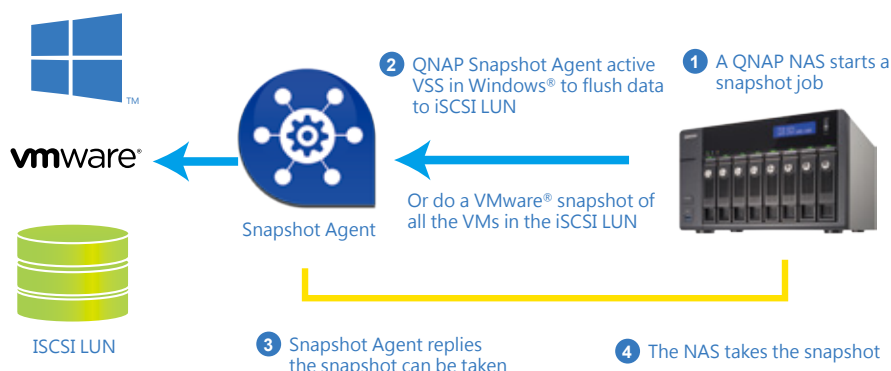
### 1. High Flexibility

Snapshots can be used with iSCSI LUNs and Volumes in QNAP NAS and Expansion Units to achieve full protection. On the other hand, Snapshot Replica allows you to transfer your snapshot to a remote QNAP NAS for backup.



### 2. Application Consistent Snapshots with QNAP Snapshot Agent

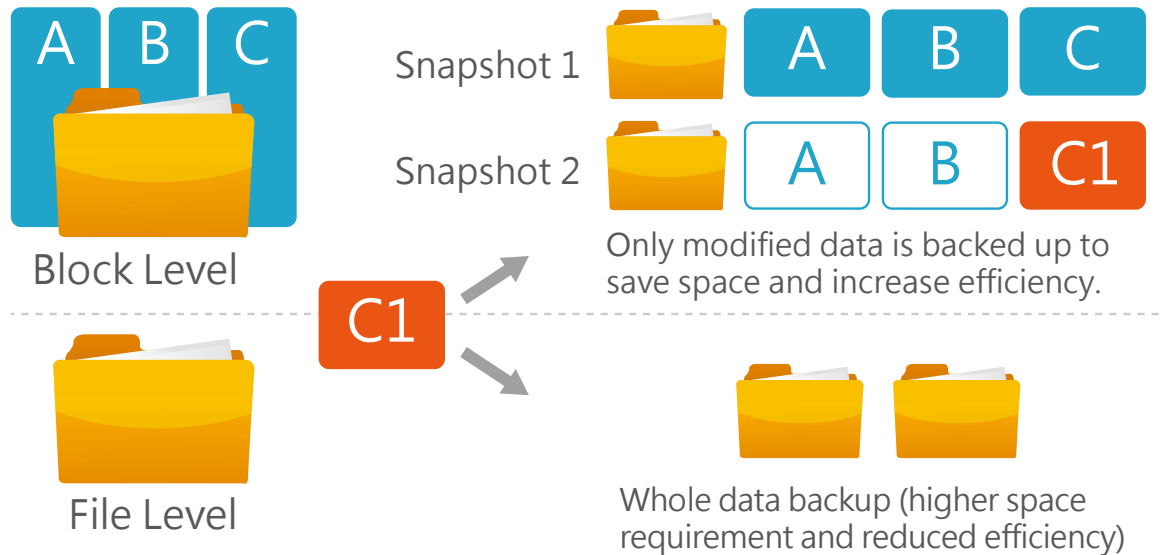
QNAP Snapshot Agent (used for iSCSI LUN) allows connecting the QNAP NAS to remote servers (VMware vCenter™ or Windows Server®) to ensure consistent snapshots. On those remote servers, the running applications (VMware® virtual machines, Hyper-V® virtual machines ) will write/flush the data from the memory to the iSCSI LUN prior to the snapshot being taken. The application will then be consistent and include all necessary data. In case of snapshot restoration, no data will be missing.



\* The system may temporarily suspend operations when flushing data to an iSCSI LUN

### 3. Space Usage

The block-based QNAP snapshot technology can assist in saving space and reserve snapshots for future use. QNAP snapshot technology supports up to 256 snapshots for each volume or LUN, up to 1024 snapshots for the whole system.



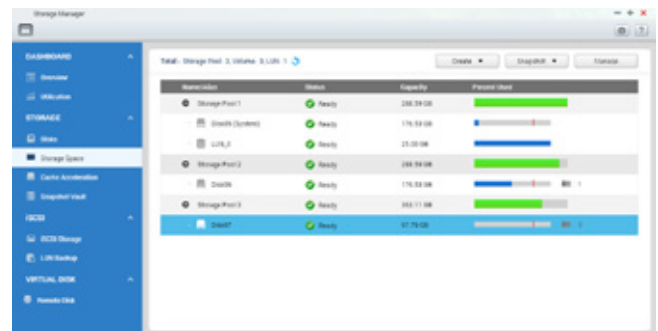
### Local Snapshot to provide continuous data protection

#### File-level recovery

The low-impact, small-sized, and user recoverable snapshots offer more benefits of storage administration compared to traditional file copies, which are often stored as a single large data file. For instance, you can choose to recover a file in a folder or the entire folder instantly with a few clicks.

#### Data visibility

The QNAP Snapshot provides tools in Storage Manager to help you find specific files to recover. You can easily view files and folders in a snapshot and browse through different snapshots displayed in chronological order. In addition, file recovery just takes a few clicks, increasing operational efficiency.

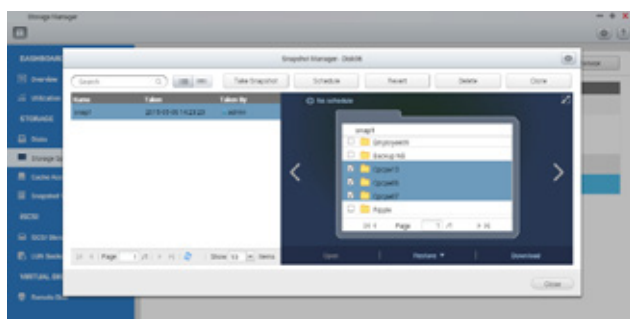


#### Rsync/RTRR integration

The Rsync/RTRR functions in Backup Station automatically detect whether the system supports Snapshots. The RTRR/Rsync functions take snapshots of the volume before starting replication and then back up snapshots to a remote server. This greatly enhances data integrity.

#### VMware® / Microsoft® VSS integration

QNAP Snapshot also supports virtual machine snapshots on VMware® or deployment with Microsoft® Volume Shadow Copy Service (VSS). Before taking snapshots, the Snapshot Agent notifies VMware® or Microsoft® VSS to stop accessing iSCSI LUNs to ensure data integrity and to reduce system overhead.



**The files in a snapshot clone can be freely edited by users.**

Clone a snapshot as a volume or LUN for quick file access, eliminating long restore times and reserving sizeable space for storing backups.

## Windows Previous Versions Supports

Snapshots enables Windows users to restore files directly using the Windows previous versions feature in Windows explorer, to save time and effort without requiring IT administrators' support.

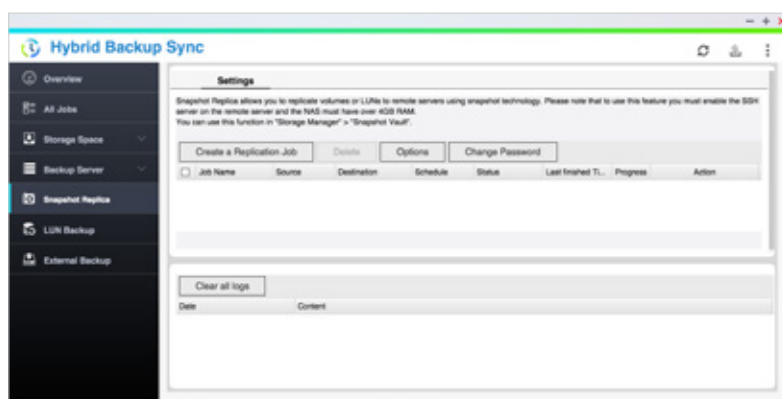
➤ The maximum versions allowed depends on the storage space. QNAP Snapshot Technology supports up to 256 snapshots for each volume or LUN, up to 1024 snapshots.



## Remote Snapshot Replica prevents data loss

### Snapshot Replica

The Remote Snapshot Replica enables you to replicate Volumes/LUNs between different remote servers using snapshot technology, which helps to reduce storage consumption and bandwidth. Either take the snapshot immediately or set up a snapshot schedule. It is considered one of the most comprehensive strategies for data backup.



### Snapshot Vault

Snapshot Vault is the backup center for storing and managing every snapshot created remotely from another QNAP NAS. It is also capable of cloning a snapshot (with specified files in a snapshot) as a local volume for data access.

### Managing snapshots remotely from another NAS

Use the Clone function to clone (or mount) a snapshot from the Snapshot Vault as a volume or iSCSI LUN on a QNAP NAS. Directly access these files through File Station or Backup Station. Use an iSCSI initiator to connect to a cloned iSCSI LUN from another computer.

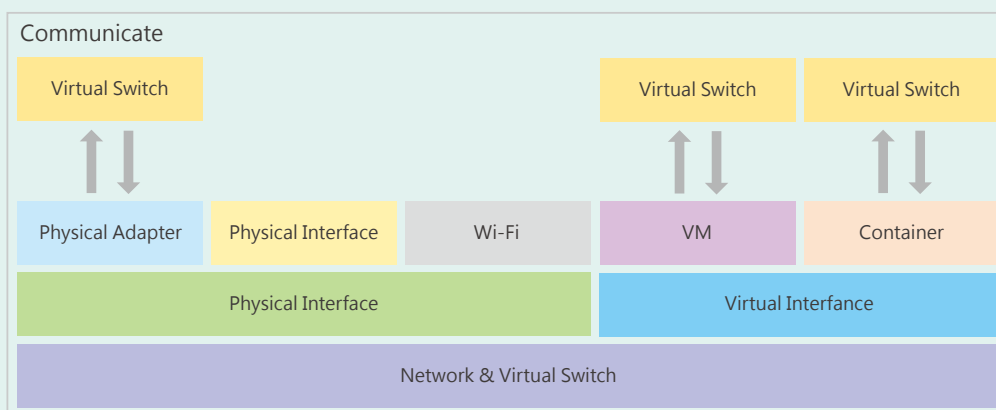
### Replication Settings

To minimize the risk of data breach, Snapshot Replica provides the option of file encryption. It also provides file compression and transfer rate adjustment to lower bandwidth consumption.

➤ If your system updates to QTS 4.2 from a previous version, you will need to rebuild the volume in order to use Snapshot. Please go to the QNAP website for more information on data migration and backup.

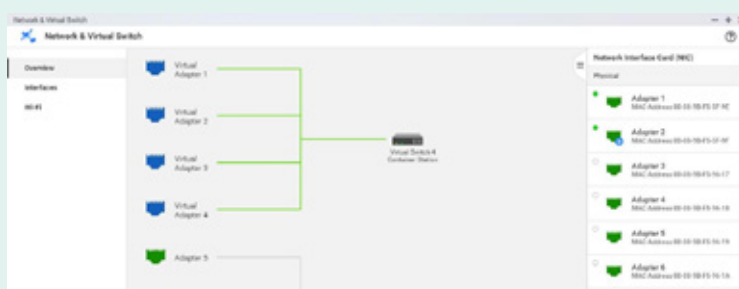
## Network & Virtual Switch - A complete overview of your network configuration

The all-new Network & Virtual Switch integrates the powerful QTS network management functionality, i.e., TCP/IP, Wi-Fi, IPv6, and Thunderbolt management into an overview page incorporating software-designed virtual switch technology. This logically centralized control provides complete visibility across your network enabling you to responsively provision and intelligently steer traffic to achieve the optimized network configuration.



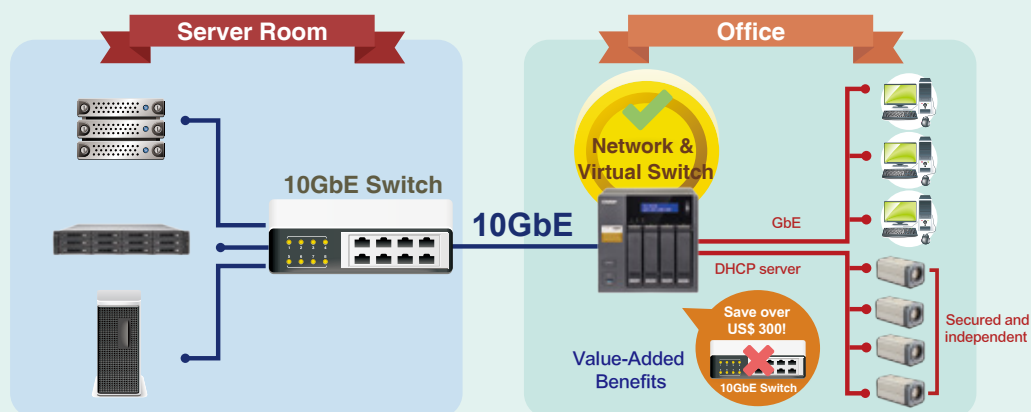
### The all-new Network Manager Overview page makes complicated networking easier

The powerful overview visualization provides you with the most current connection status regardless of the complexity of your network infrastructure. Use the all-new QTS Network & Virtual Switch Overview page to quickly and easily analyse your entire network for rapid troubleshooting. View realtime traffic flows and identify bottlenecks to ensure your mission critical applications have the bandwidth they require. This level of oversight helps reduce both capital expenditure (CapEx) for adapters, switches and cables, and operational expenditure (OpEx) for IT administration.



### Decouple hardware and software networking for lower capex, opex, and increased ROI.

Virtual Switches enable greater flexibility and agility in deployment configurations with enhanced centralized management control. Deploy Virtual Switches to easily bridge Gigabit and 10 Gigabit networks removing the need for expenditure on 1/10Gbps Ethernet switches. Simply connect 10GbE network devices and your NAS will seamlessly bridge your 1GbE and 10GbE networks to unleash super-low latency bandwidth across your infrastructure. Use a virtual switch to build an isolated LAN environment with the built-in DHCP server for accessing IP camera surveillance footage with better data security.



This function is available for x86-based NAS model (do not support TS-269H, TS-269L, TS-569 Pro, and TS-1269U-RP).

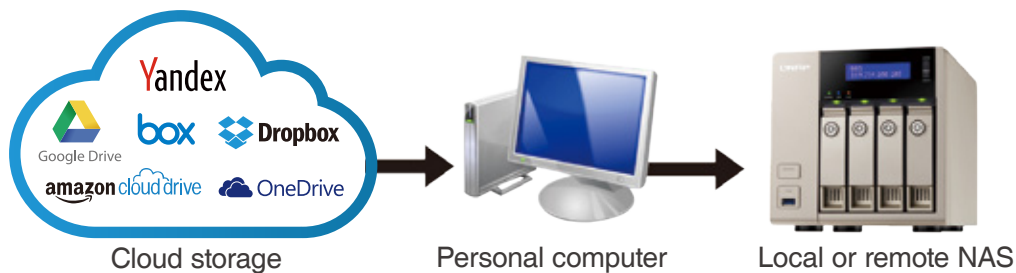




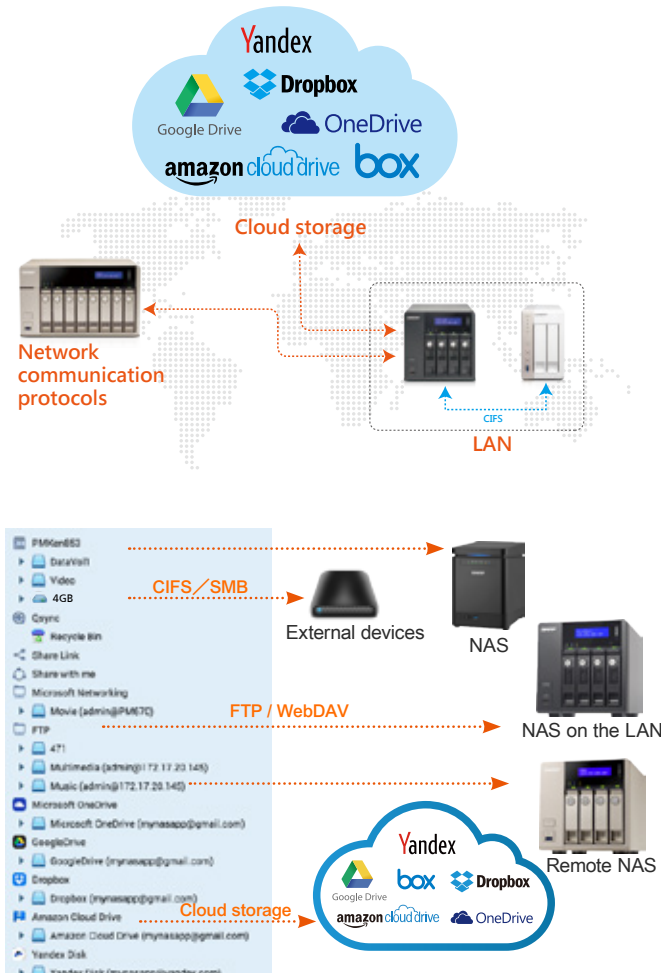
## File Station 4.2

### Manage all files from a single interface

With the new remote connection function, the File Station now enables management of files on local, remote, and cloud storage across geographical boundaries and platforms from a single window.



### Now, File Station supports remote connection.



File Station remote connection support six cloud services and three network protocols:

#### cloud services

Google Drive™, Dropbox™, Microsoft® OneDrive®, Box, Amazon Cloud Drive™, and Yandex Disk™

#### Three remote device network protocols:

- 1.CIFS: Supports online streaming and thumbnail display when Microsoft® Networking (SMB/ CIFS) is selected. Allows a single folder to be mounted on your local network or when the NAS connects to a VPN service.
- 2.FTP: Allows every folder to be mounted when using he FTP service for easy access to remote data.
- 3.WebDAV: Allows a single folder to be mounted on local network or over the Internet. WebDAV uses the HTTP protocol over the standard HTTP port, making accessing files via WebDAV similar to downloading files from a webpage.

### Manage all files from a single management program

File Station supports searching for devices on the same network via FTP or CIFS and allows for centralized management of all connected devices.



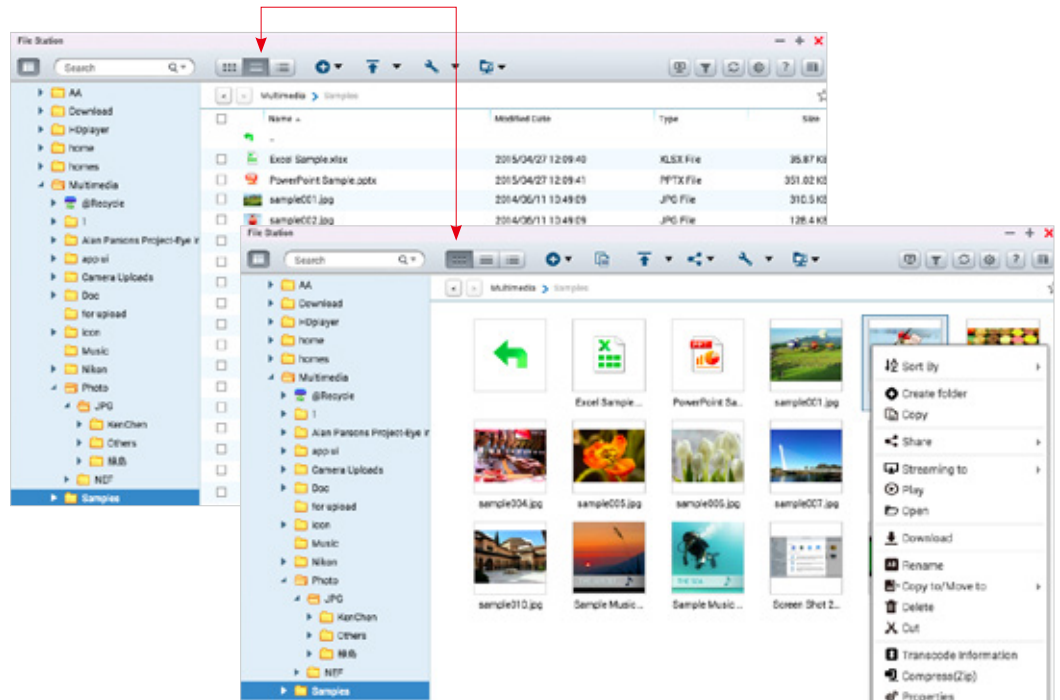
Please install Connect to Cloud Drive from the App Center before connecting to cloud services.

## File Station interface

Three browsing modes are available: icon, list, and detailed list.

### Folders in tree structure:

Presents the locations of data in an easy-to-read format.



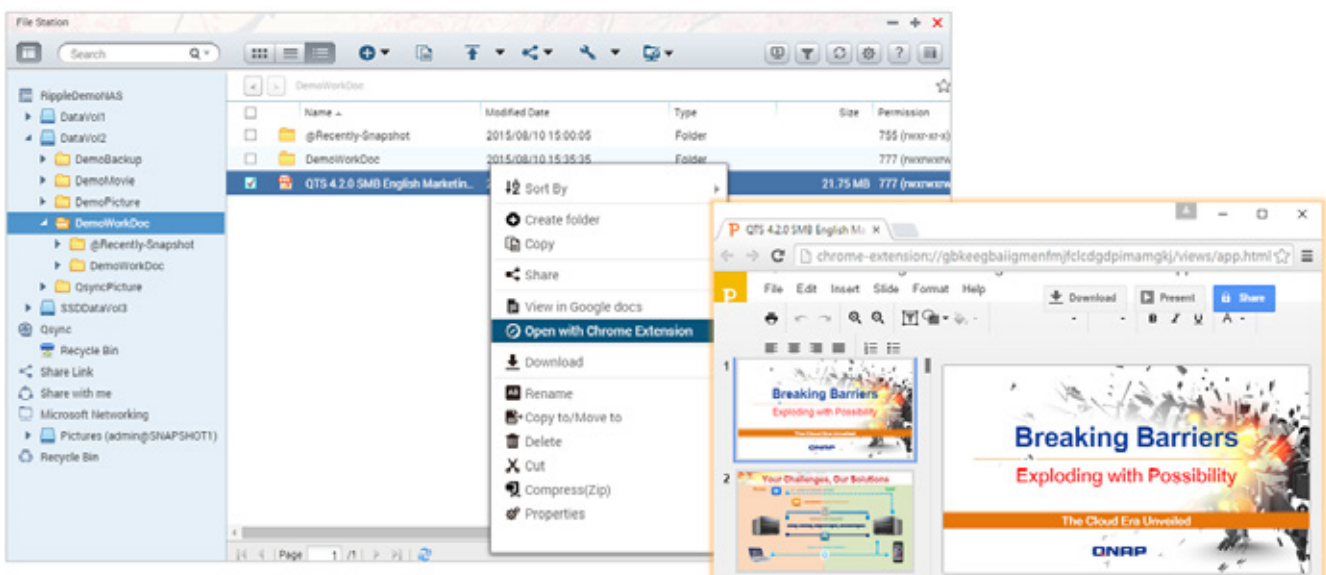
## Preview for Microsoft Office® files:

- Preview Microsoft Office® files offline with a Chrome™ browser extension (Chrome™ browser only and with the Office Editing for Docs, Sheets & Slides Chrome extension installed from Chrome™ Web Store) in the File Station.



Support for file types: .doc, .docx, .xls, .xlsx, .ppt, and .pptx.

Also supports the online preview of Microsoft Office® files with Office Online and Google Docs™ in the File Station.



## Media Viewer for media streaming and playback

Media Viewer is the built-in multimedia player that supports streaming and playing media files in addition to playing using VLC™ player. It enhances playback quality with improved compatibility without needing to install additional add-ons.

### Video

On-the-fly transcoding: Watch a video while it is being converted in real time.\*



On-the-fly transcoding is only available on certain models.



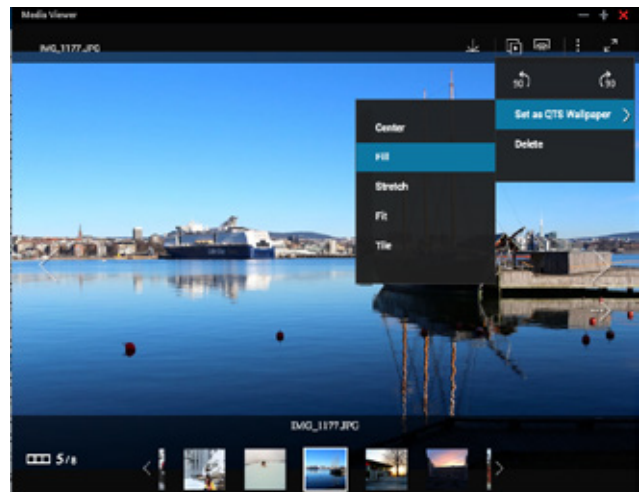
### Photo

All new inter face with added support for viewing a wider range of picture formats.

Play back photos as a slideshow, or rotate photos while viewing them. Additional, set a photo as the QTS wallpaper directly from the Media Viewer.

### Music

Added support for direct playback of a variety of music formats.



## Smart zonal streaming

Stream multimedia files to different devices via Apple® TV, DLNA®, or Chromecast™ from File Station. Select the desired file for streaming and click “Network Media Player” from the menu bar and select the device to start playing on it.



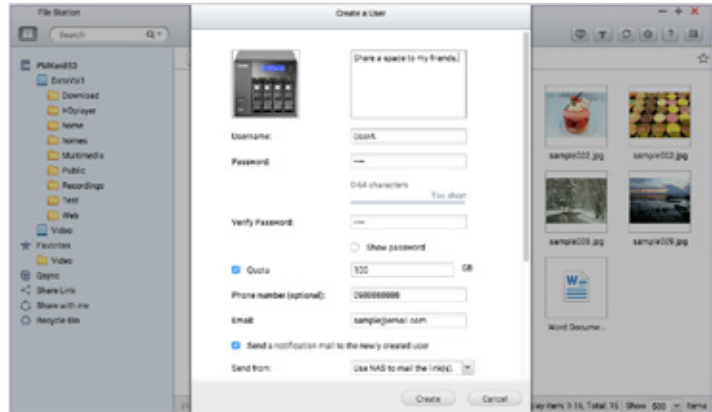
Please install Media Streaming Add-On from App Center first.

## Newly added sharing functions

- Share space with a user: System administrators can allocate space to NAS users, and specify a storage quota in File Station.



Send users a notification of the access link via email when sharing space with a user to streamline the process.



- Directly share with other NAS users: Share files directly to selected NAS users rather than setting shared folder permissions.
- CloudLink: enables file sharing from anywhere especially when your network environment does not support port forwarding. Just log in to myQNAPcloud from your NAS, create a share link with CloudLink, and then share the link with others.
- Share download links via email:
  - Users can share links from their own email account.
  - Supports multiple email accounts.
- Share with social networks: You can paste the Share Links on social networks of your choice.
- Create share links only: Create a share link for files or folders and copy & paste it into forums, websites, and instant messengers for others to access it.
- Mutual file sharing: You can easily share several files in a shared folder with friends via a Share Link. By enabling the “Allow file upload to this folder” option, your friends will be able to upload files to your File Station without a user account. Set an expiration time for shared files.

## File or folder operations and management

With File Station, you can easily carry out common tasks like uploading, downloading, and managing files.

- Streamlined file operations such as rename, copy, move, and delete.
- Compress/Extract multiple files: Choose multiple files in File Station and select “More Actions” > “Compress (Zip)” to compress the files to a Zip file. Alternatively, you can extract content from a Zip file.
- Instant photo preview: File Station displays thumbnails of photos, album covers, and videos to aid in categorizing and organizing multimedia files.
- File/Folder Property inspection: You can quickly inspect a file or folder’s detailed properties from its Properties window.
- Auto transcoding: Set a folder as an auto-transcoding folder with its Properties window on the right pane. The QNAP NAS will automatically convert the videos in this folder to the resolution you have set.
- Media Folders: Similarly, you can designate a folder as a media folder and specify the type of files (photos, videos, music, etc.) that the media scanner should index from the Properties window.
- File upload: Move files from a local PC/Mac to File Station by drag-and-drop to upload the files to the QNAP NAS easily.





## Comprehensive Backup/Synchronization Hybrid cloud for a consolidated backup solution

Businesses are increasingly warehousing huge volumes of data across disparate storage infrastructure at disparate locations and across disparate devices. QNAP offer a comprehensive backup and recovery solution to back up all devices from within the LAN and from remote-site NAS and servers. QNAP NAS solutions consist of applications and utilities that enable data from PCs, public clouds, virtual machines, and external drives to be backed up and seamlessly synchronized to the NAS. Additionally, QNAP NAS solutions provide disaster recovery to back up data from the NAS to external devices or remote servers.

### Local backup and synchronization

- External devices
- Backup to a local folder



NAS to DAS

### Remote backup and synchronization on the NAS:

- RTRR
- Rsync
- FTP
- CIFS/SMB



NAS to NAS

### NAS cloud backup:

- Support for a variety of enterprise-class cloud storage



NAS to cloud

## Local backup and synchronization

Hybrid Backup Sync allows you to back up your data locally without network connections. Back up your data to a folder on the NAS or an attached device for better data safety.

### Backup to a local folder

By using the backup to a local folder on the NAS, you can prevent files from being mistakenly overwritten or accidentally deleted.

### Backup to an external device

Connect a USB device such as a camera, camcorder, or USB storage to the front-panel USB port and press the “Copy” button to instantly back up data to or from external USB devices.

## Remote-site backup

Using the Real-Time Remote Replication (RTRR) service on your QNAP NAS to back up data to your NAS is a simple and easy process. Your computer or your NAS can be the source, destination, or relay server during the backup process. It also gives you the option of (CIFS/SMB) or FTP service when setting up RTRR remote replication in Backup Station.

### RTRR with smart version control

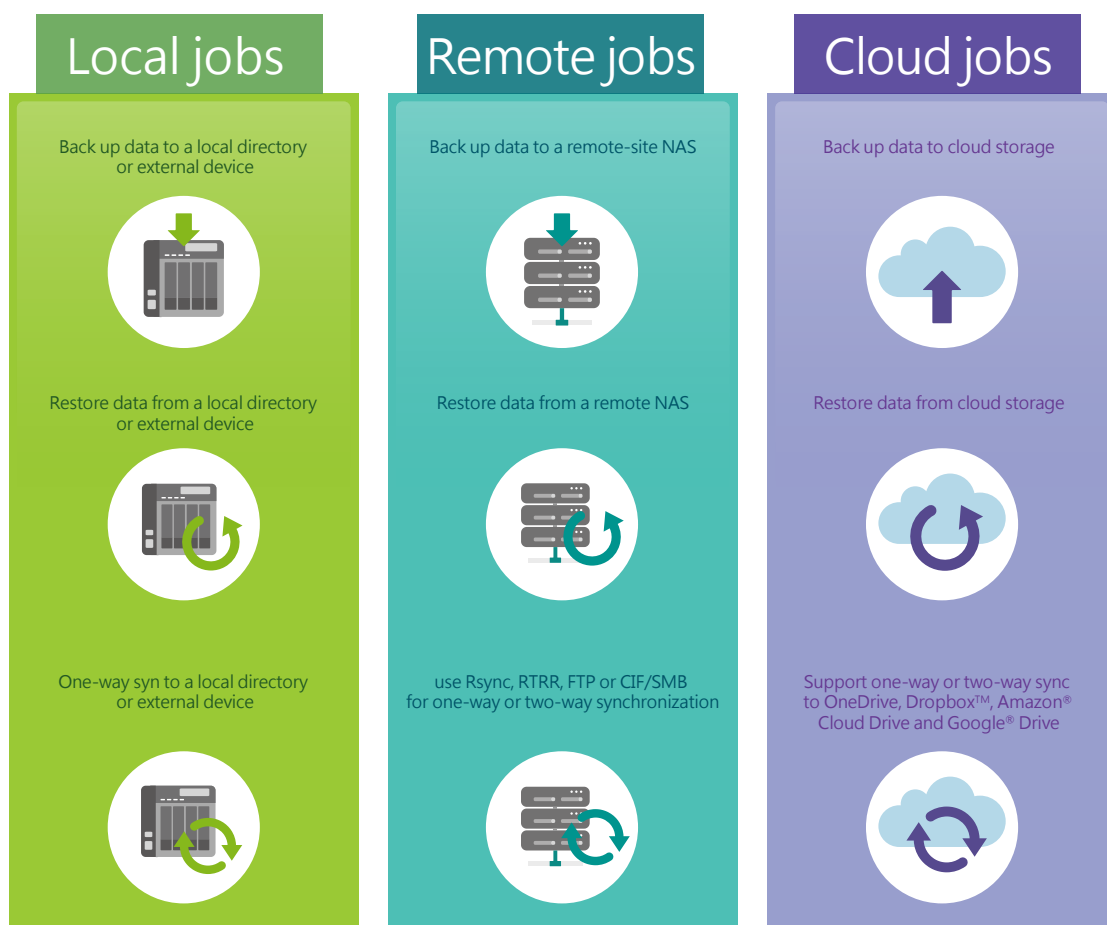
RTRR enables saving backup files to time-based versions. In case of an incident, files can be restored to earlier backed-up versions specified by time and date. Smart versioning enables you to create backup versions hourly, daily, weekly, or monthly to dynamically control the number of backups accordingly to your recovery objective. Alternatively, simple versioning keeps a fixed number of versions for a given period and automatically rotates stored versions.

### Remote backup monitoring

System administrators can now monitor backup jobs from remote servers in Hybrid Backup Sync. The Incoming List displays the status of backup jobs from other NAS servers that use the current NAS as a target destination for their backup.

### Two-way shared folder synchronization

Use the RTRR service to set up real-time or scheduled synchronization of shared folders between two NAS units. With two-way synchronization, file backup consistency is improved and is especially helpful in synchronization and collaboration across departments and branch offices.



## Hybrid Backup Sync

HybridCloud Sync supports major cloud storage services and synchronization with designated folders. The HybridCloud Sync supports Amazon® Cloud Drive, Google™ Drive, Dropbox™, Microsoft® OneDrive®, Yandex.Disk, Box and more for continuous synchronization between your QNAP NAS and cloud storage.



### Microsoft® OneDrive for Business

Microsoft® OneDrive synchronizes personal files to their free online storage space while its commercial counterpart provides online storage space for enterprise users and use of Office online.



### Amazon Cloud Drive's Unlimited Photo Storage Plan

This service can save not only photos but also videos and other files.



### Google™ Drive for Work

This service enables users to save all their work in a secured cloud environment to allow access from anywhere and at anytime, convenient sharing among colleagues with unlimited storage space.



### Microsoft Office® for Dropbox™

This service enables editing of Office files (Word, PowerPoint and Excel) directly from Dropbox™ on the web.



### Yandex.Disk for data synchronization across different devices

Yandex.Disk is offered by a Russian Internet company. Supported operating systems include Windows, Mac, iOS and Android.

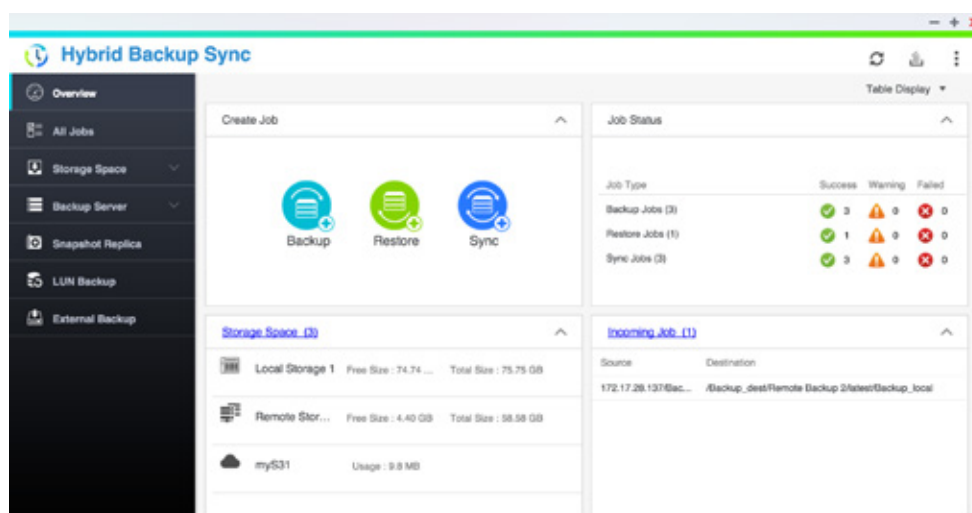


### Box offers secure content and online file sharing for businesses

Box provides flexible and secure file management and collaboration for individuals, teams and businesses, enabling secure file sharing and online access to your files.

## Centralized file storage and management

Hybrid Backup Sync is a comprehensive backup solution to efficiently manage storage space for all devices on the LAN, across remote-site NAS units and cloud services. QNAP NAS also supports backup from the NAS to cloud storage while recording and encrypting all remote connections to accelerate remote-site or cloud backup jobs.



## Cloud backup made simple

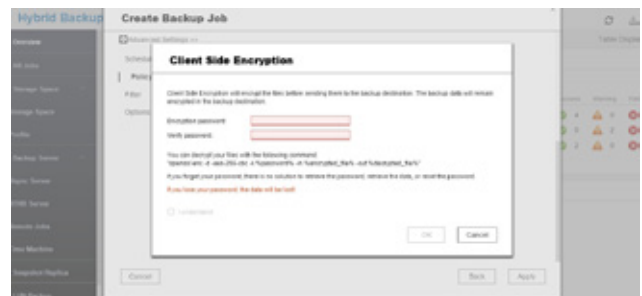
### 1 Compress

The Hybrid Backup Sync supports compressed backup files, scheduled file deletion according to users' specifications and sparse file detection to avoid backing up unnecessary files. You can screen files by type, size, and date to ensure only the required files are saved on the cloud for greater storage and cost efficiencies.



### 2 Select folder and encrypt

The Hybrid Backup Sync features an SSL-secured connection and military-grade AES 256-bit data encryption to protect your data in transmission and at rest on the cloud.

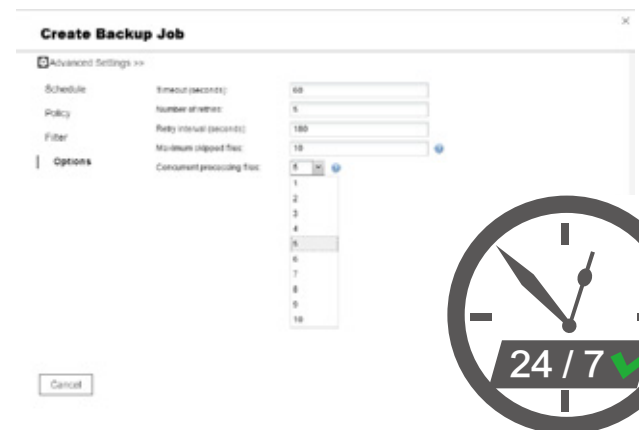


### 3 Multi-thread transmission

The Hybrid Backup Sync supports multi-task processing and multi-threaded data transfer\*. The latter improves file transmission speed and enhances work efficiency by segmenting large files into smaller ones before uploading. You can preview files in the cloud and download individual files instead of the entire folder.



WebDAV app does not support multi-threaded data transfer.



## Cloud Backup

Protecting against potentially disastrous data loss is of paramount importance for all businesses regardless of size. A QNAP NAS is a comprehensive backup and recovery solution to back up not only files for all devices on the LAN, but also for remote-site NAS units and servers. Furthermore, QNAP NAS fully supports backup from the NAS to online cloud storage services (e.g. Amazon® S3, Amazon® Glacier, Microsoft® Azure, Google® Cloud Storage\*, and others compatible to S3, OpenStack Swift, and WebDAV). The QTS powerful and comprehensive Hybrid Backup Sync makes backup and recovery simpler for all business's disaster recovery plan.





## Backup from computer to NAS

Windows users can install the free QNAP NetBak Replicator utility to back up files from Windows® to QNAP NAS. Mac users can use Time Machine to back up files in Mac. A variety of other backup tools and software are also supported.



### NetBak Replicator

The QNAP NetBak Replicator is free for anyone with a QNAP NAS and helps you easily back up files from Windows® PC - entire disk drives, documents, pictures, music, videos, fonts, emails, and more - to the QNAP NAS. The operation is very simple. With simple clicks, you can set up real-time backup, scheduled backup and auto-backup. You can set power off after the backup is finished to save energy; file filtering to exclude files not to back up; and email notification when backup is completed.

### Virtualization backup server

The NAS is compatible with VMware® ESX server, Citrix® XenServer, and Microsoft® Hyper-V, able to be seamlessly integrated to a virtualized environment as an extended storage for data backup.

### 3rd party backup software

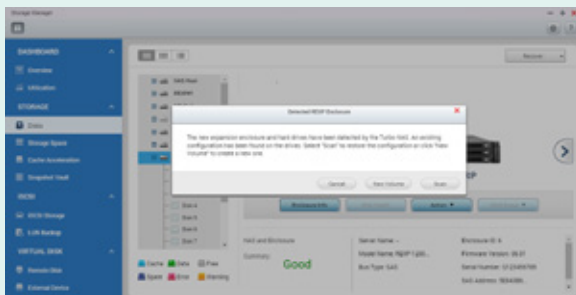
QNAP NAS is compatible with various renowned backup software such as Acronis® True Image, Symantec® Backup Exec, and so on. Users that have adopted such backup software can immediately back up data from other sources to the NAS.

## QJBOD Express for fast data migration without a network

The new QJBOD Express enables quick back up or migration of large amounts of data to local or to remote sites without using any network bandwidth. The following example illustrates how easy it is to migrate data from a headquarters in San Francisco to a branch office in Los Angeles.

San Francisco to Los Angeles: Initial transfer costs for 50TB data

Method	Time	Bandwidth cost
100Mbps network	About 45 days	50TB
QJBOD Express	In one day	0



### 1 Back up data to the JBOD

Connect the JBOD and create an encrypted volume for backup. "Safely Detach" the JBOD after the backup job is completed.

### 2 Transport

Transport the JBOD to a remote site.

### 3 Finish the backup job

Connect and scan the JBOD. Create the final incremental backup job.



San Francisco

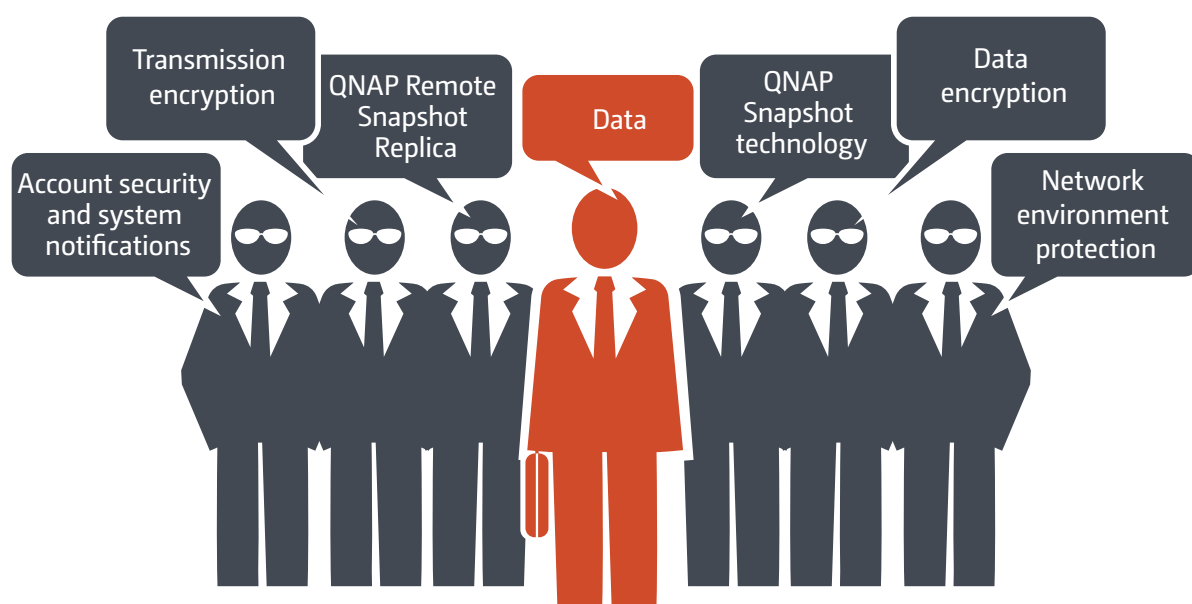


Los Angeles

# Data Security

## Secure your data with six protection mechanisms

Organizations may face insurmountable financial liabilities if they lose sensitive data. With increasing risks of data breaches and leaks, network storage security is more and more under the spotlight. Personal data including private photos and videos in addition to business data also need protection against unauthorized access. QNAP helps you to minimize the risk of data breaches with our six data protection mechanisms, allowing you to focus more on using your data rather than worrying about it.



### 1. Network environment protection

#### Connection management (black/white list)

Allow or deny specific IP addresses or subnets to connect to the NAS. This increases connection safety by creating lists of allowed and blocked IP addresses. For example, block an IP address from accessing the NAS for one hour, one day, or permanently based on the criteria that it has over five failed login attempts in the last minute. Servers of the blocked IP will be unable to connect to the NAS. Block a user who has stayed online for too long or logged in from suspicious IPs to enhance system security further.

#### Service binding

QNAP NAS are equipped with multiple Ethernet ports, and can permit data access through every port. Service binding allows users to bind network interfaces with certain services (e.g. critical company data can be accessed only by specific personnel through specific protocol or allowed internal IPs) to enhance system security. In addition to security protection, service binding with LAN ports can ensure critical services get dedicated bandwidth.



## 2. Account security and system notifications

### Two-Step Verification

The Two-Step Verification\* requires a user to log in to the QNAP NAS with both a password and a 6-digit one-time password (OTP) generated by an authenticator app. To simplify the log in process, trusted devices (e.g. home computer) can be "remembered" and only the password will be required from future log in attempts from that device.

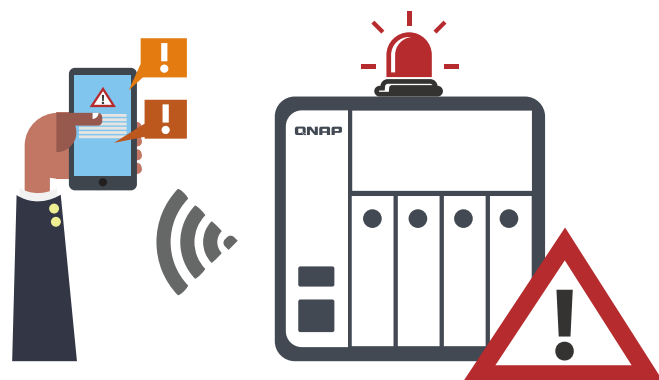


➤ This requires the installation of one of the following authenticator apps on your mobile device: Google Authenticator™ (Android™, iOS®, BlackBerry®) or Authenticator (Windows® Phone).

### Push service

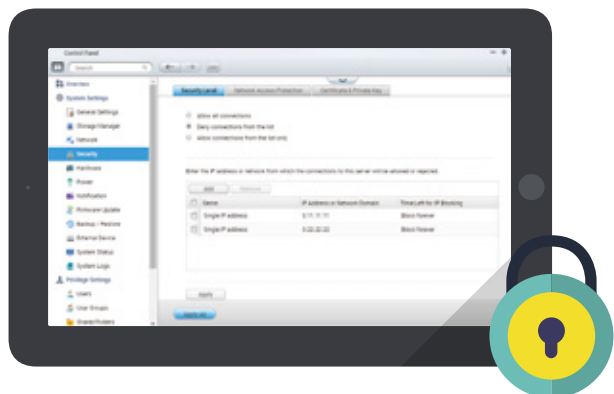
In addition to email and SMS, you can get messages sent to your mobile devices in the event of a system failure or other warnings\*. This keeps you updated with the latest system status so that you can take immediate action to rectify the situation and reduce the risk of data loss.

➤ Requires installing Qmanager on your mobile device.



## 3. Protection by transmission encryption

### Network transmission encryption



Advanced AES encryption ensures the security of shared folders. Without the key, no one can access the data in encrypted folders or files. Data transmitted over the Internet can also be encrypted to protect data security when using services such as FTP, WebDAV or in File Station. QNAP NAS provides SSL connectivity, and SSH encryption to secure data transmission and authentication. System administrators can restrict access to HTTPS (SSL over HTTP) encrypted connections. SFTP is also supported for transmission security and file access. The SSH encrypted connection provides another layer of protection for data transmission over public networks.

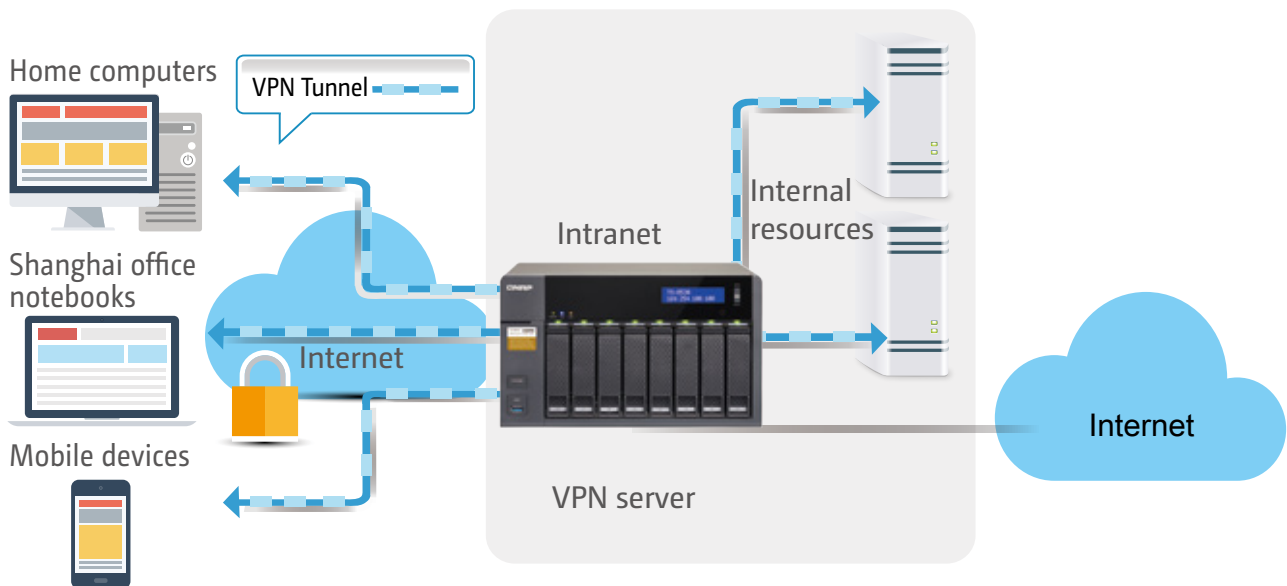
The following services provide encryption:

rsync backup (SSH encryption), RTRR backup (SSL encryption), SFTP: FTP (SSH encryption)  
 HTTPS: SSL/ TLS encryption, web server (SSL encryption), share access (SSH encryption)

## VPN Server

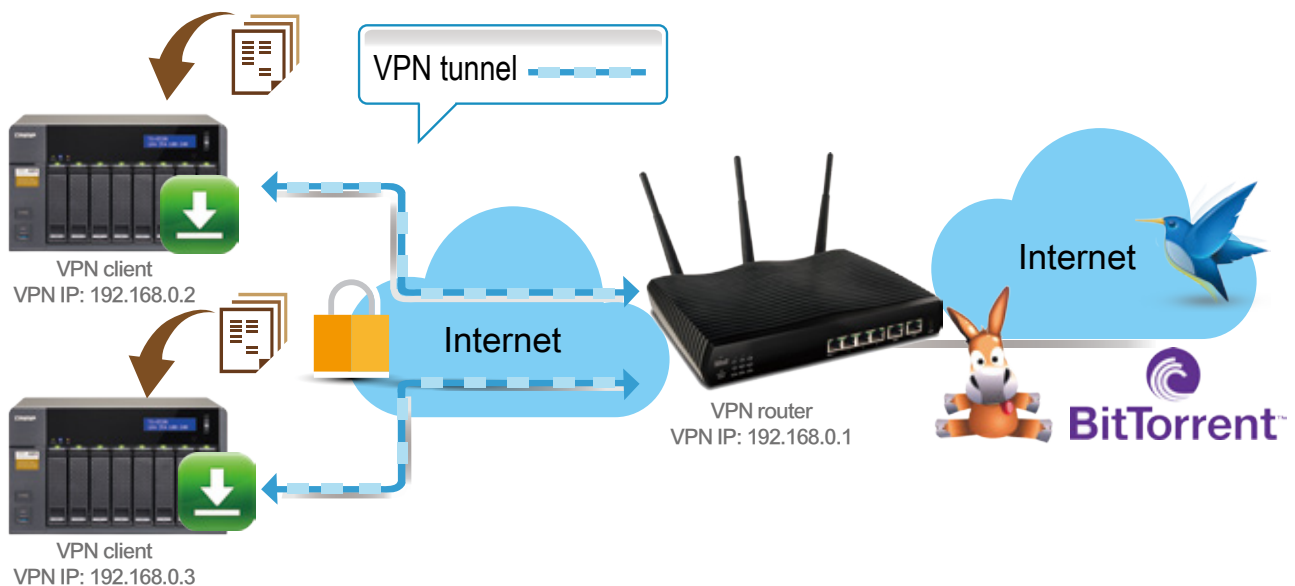
A Virtual private network (VPN) enables secure connections to access network resources and services across a public network. A VPN offers a convenient solution for NAS users to build end-to-end encrypted tunnels to your QNAP NAS. Whether you are an individual user or an IT administrator, you can use the built-in VPN server (L2TP/IPsec, PPTP, or OpenVPN) or VPN client (PPTP or OpenVPN) on the NAS for such purposes.

The VPN server also comes with user and connection management to help you manage VPN services. Furthermore, a VPN can help gain access to resources that may otherwise be restricted by your network environment.



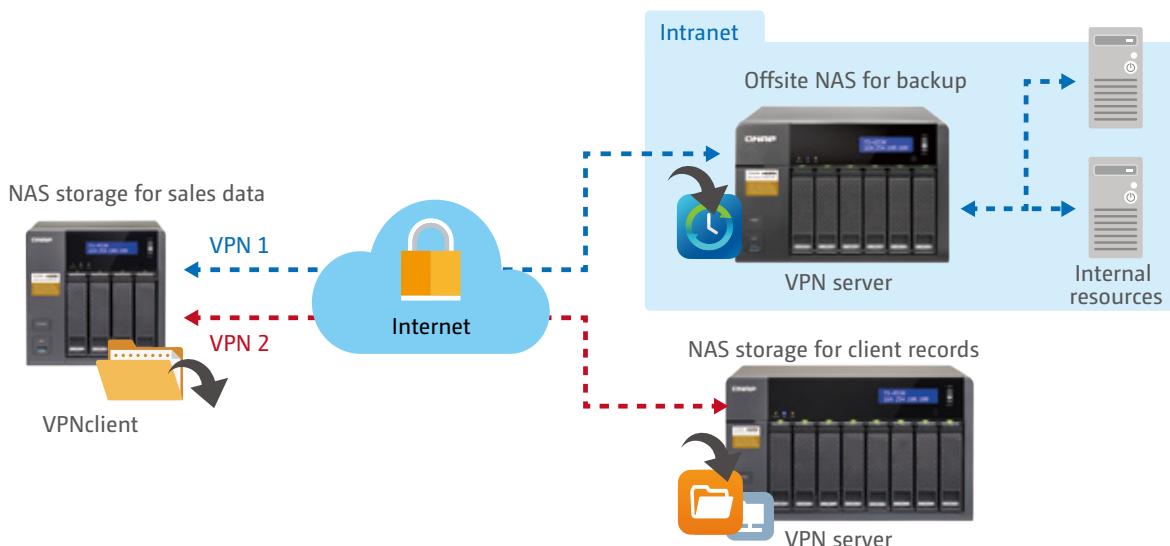
## VPN Client

When the QNAP NAS acts as a VPN client, VPN can better protect your data when you use services like BitTorrent and eMule. By using this type of configuration, you can set up remote site backup with secure data transmission. For example, configure the NAS to be a VPN client for secure data transmission when setting up backup or other services to branch offices at remote locations.



## Support for multi-connection VPN Clients

QTS 4.2.1 introduces full support for multi-connection VPN Clients. A single VPN Client now supports multiple VPN connections to different VPN servers. For example, a NAS can simultaneously tunnel to a VPN server on both an enterprise and a client site. This enables simplified backup administration jobs in Backup Station or remote connections using Samba in File Station while ensuring secure data transmission.



## Simultaneous VPN server and VPN client roles

QTS 4.2.1 (and later) fully support simultaneous VPN server and VPN client roles. For example, the VPN server can facilitate other devices not on the local LAN to connect to it, while also enabling the VPN client to connect to other VPN servers. For example, configure the NAS to be a VPN server to allow secure access of Intranet resources from remote devices while setting up the NAS to connect with other VPN server to use services such as Netflix and Hulu via HD Station, bypassing regional restrictions on these services.



## Proxy Server

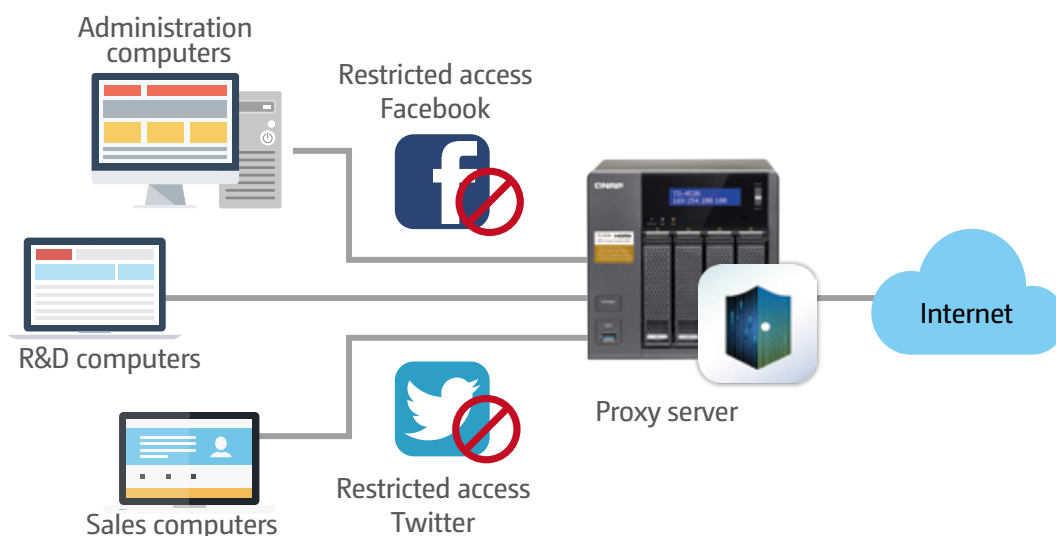
The Proxy Server application provides an intuitive interface to simplify proxy server settings on your NAS, enabling you to operate your own proxy server in just a few clicks. The proxy server provides cache and connection controls for Internet services. For companies that need a boost to web response time and security, this application can be leveraged to make your NAS a web proxy server to protect other devices in your local network from Internet attacks. The following are the highlighted features:



- Caching: Improves response times and saves bandwidth required for web access by caching visited web content and other web resources.
- Access Control: blocks access to certain websites or restricts access for Internet connections.
- Logging: logs visits to web sites for generating statistics to aid in network management.
- Anti-virus: QNAP NAS integrate SquidClamav, an anti-virus designed exclusively for proxy servers. SquidClamav performs packet inspection on traffic from the proxy server to ensure non-malicious traffic. SquidClamav also supports white listing of both file types and account names enabling users to configure allowed content types and trusted connections.

 Anti-virus function is available for x86-based NAS model.

- Advanced Settings: Besides settings provided by the graphic user interface, you can enter Squid commands in the advanced settings to customize your proxy server, edit cache settings, and access control without an SSH connectivity tool.

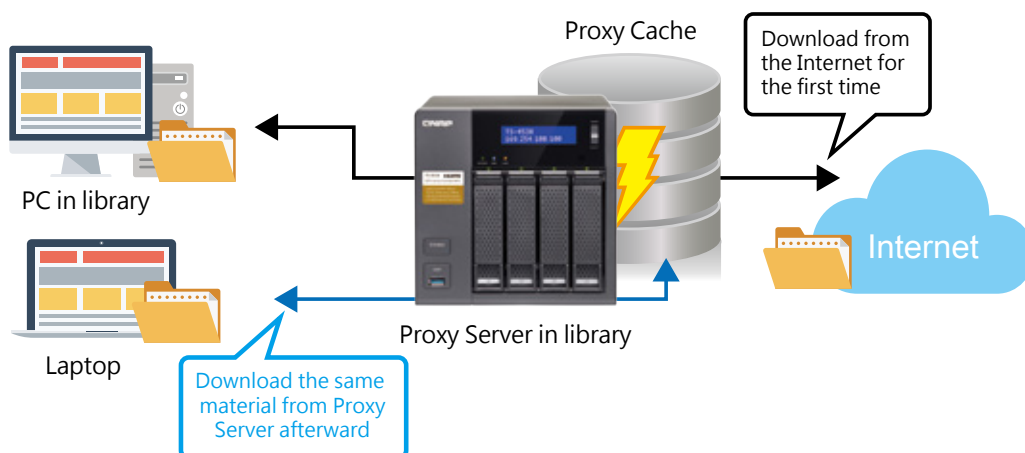


## QNAP NAS offers the best Proxy Server implementation

Caching proxies keep local copies of frequently requested resources, enabling large organizations to save upstream bandwidth, increasing efficiency. A proxy server is a server that acts as an intermediary by retaining copies of popular documents, web pages, or other resources for requests from its clients. This is an ideal role for a NAS server since NAS have a tremendous amount of storage space in conjunction with the option of allocating memory to dedicated cache functions. Moreover, caching proxies can further benefit from typical RAID and/or SSD in a RAID configuration for very significant performance improvements.

## Application scenario: Proxy Caching - bandwidth savings and application acceleration

In a library, a client computer often requests download of large-sized published journals and research papers. This consumes a lot of available bandwidth while taking a lot of time to complete the download. The Proxy Server on a QNAP NAS can solve this problem with its dedicated cache storage, saving Internet bandwidth while increasing the speed of the download.



## 4. Data encryption

### Internal hard drive encryption for the entire system

QTS offers volume encryption to protect the data stored on the NAS. The system will ask for the encryption key when mounting the encrypted volume and the data is inaccessible without it. This function effectively protects data from being accessed if the entire NAS or individual drives are stolen.

### External hard drive encryption

External storage devices are convenient for data migration. QTS also supports AES-256 encryption to protect against unauthorized access of external USB/eSATA drives.

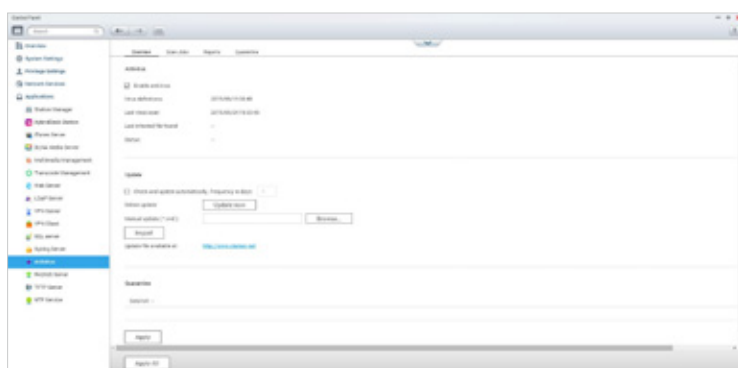
### Folder encryption

Additionally, the NAS also offers folder encryption — to encrypt data in a specific folder to protect it from being accessed by unauthorized users.

### Anti-Virus protection

QTS integrates the ClamAV™ antivirus toolkit to defend against the latest viruses, malware, worms, and Trojan horses with continuous free virus database updates, ensuring continuous business operation. Email notification upon task completion or virus detection is built-in.

QTS also supports McAfee™ virus scanner (which is available in the QTS App Center with a free 30-day trial). You can install McAfee™ to safeguard against the latest viruses or malware with automatic software and virus database updates.



The McAfee virus scanner is only available on x86 NAS models.

## 5. QNAP Snapshot Agent

QNAP's whole volume/ LUN Snapshot Agent employs Copy-on-Write technology to record file state. If system failures occur, you can immediately revert the system to a specific state earlier in time.

## 6. Remote Snapshot Replica

By using the Snapshot Replica function in Backup Station, you can also backup snapshots to a remote site. With so many layers of protection, you will never worry about data loss again.



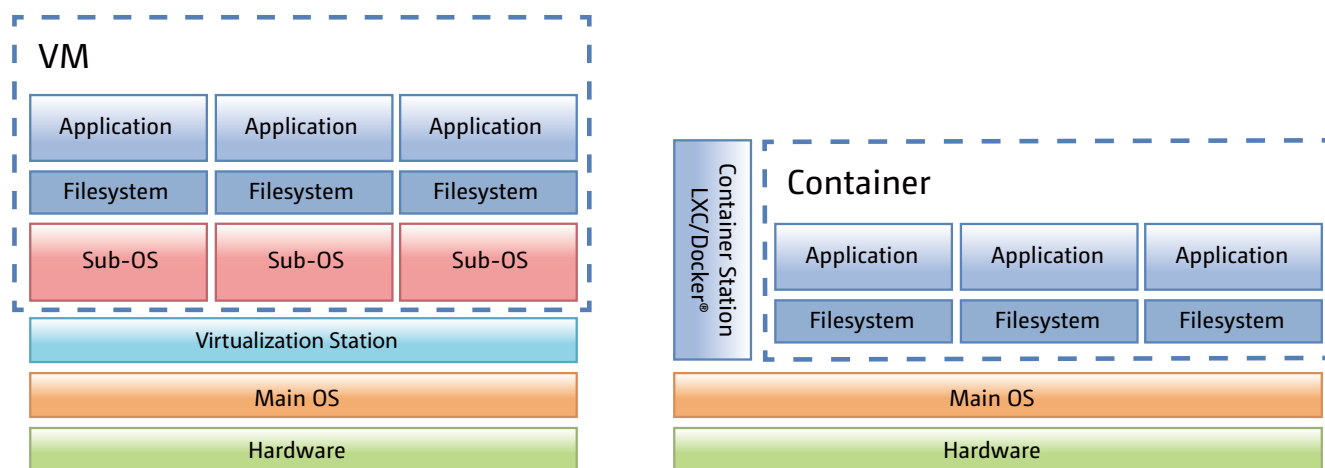
Snapshot is only available on certain models and requires a minimum of 4GB RAM.

# Comprehensive Virtualization Technology

## VM or Container? You can have both!

For enterprise storage deployment, QNAP offers both Virtualization Station and lightweight virtualization technology – the Container Station. Virtualization Station has an upgraded underlying network architecture and improved network performance. Create virtual machines running with independent operating systems for virtual desktop environments, or for virtual servers to install software or offer services or applications with fixed resources on each guest OS. Alternatively, deploy lightweight virtualized containers, which share the kernel with the host system and do not require a full operating system to enable the rapid deployment of highly focused application-oriented virtualization, and run the container-based applications on any cloud that supports Docker® or LXC.

For personal or home uses, we offer the exclusive QNAP virtualized Personal Computer (QvPC) Technology that allows you to use the NAS as a PC. All you need to do is plug in a monitor, keyboard and mouse to be able to operate the system and access files on it in lieu of network connections.



### Virtualization Station:

- Requires a full operating system and specifies computing performance (CPU cores, RAM, etc.).
- Supports non-Linux OS virtualized environments.
- Independent and dedicated operating environment (dedicated here means VMs can maintain full isolation from each other as if it was running natively on a dedicated CPU with Intel® VT-x).
- Move existing physical computers into virtual machines, i.e., physical to virtual (P2V).
- Required in an environment running backup tasks or restoring the entire OS or an application server.

### Container Station:

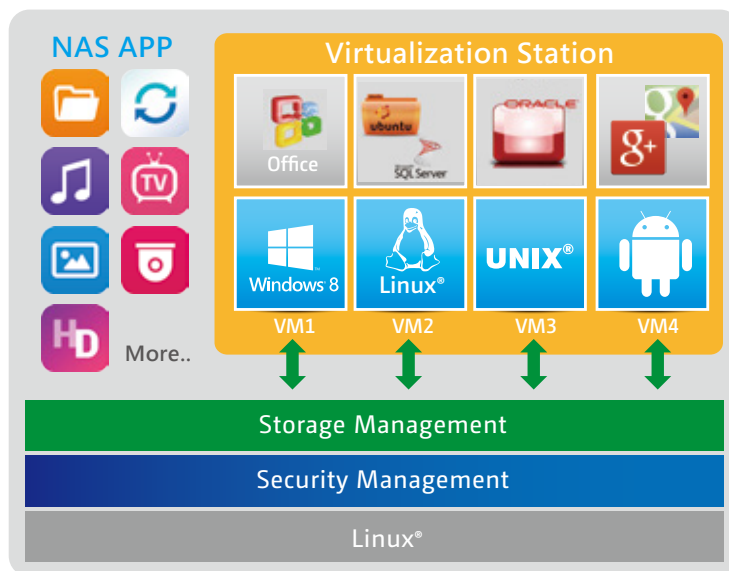
- Extremely lightweight operating system, e.g. any Linux® OS from as little as 200MB.
- Easy to migrate, upload or download applications to the cloud anytime.
- Runs development applications on any version of Linux® without compatibility concerns.
- Adopts JeOS (just enough operating system) to fit the needs of the particular application.
- Easy transfer ability among teammates and rapid-rebuilds make software containers ideal for software development.



## Virtualization Station 2.1

### Supports GPU pass-through, shared network interfaces

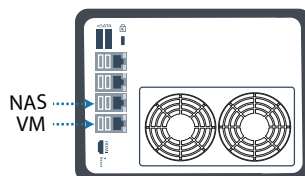
Virtualization Station eliminates the constraints that exist on conventional VMs (slow network speeds) to provide a better user experience. Create multiple VMs on a QNAP NAS and install Windows®, Linux®, Android™, and UNIX® based VMs so that every VM can serve in a different role. One QNAP NAS can literally be every type of computer you need.



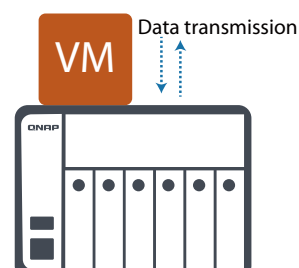
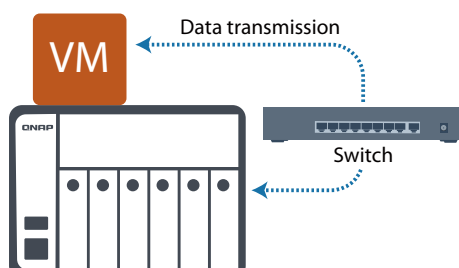
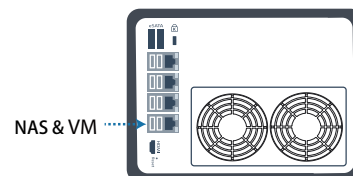
### QNAP advances in VM network structure, again — the Software Defined Network

A dedicated 10 GbE LAN port for VM Ethernet is no longer needed. By adopting a Software Defined Networking approach, VMs can now share the network interface with the QNAP NAS to maintain the best data transmission speed without being limited by hardware resources.

Previously,  
virtual machines required dedicated network ports.



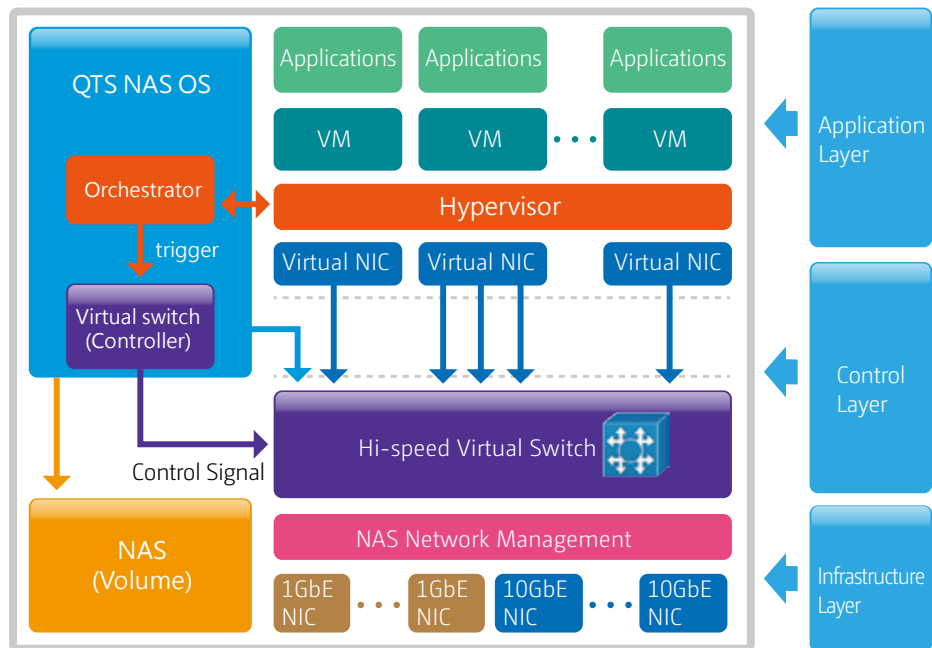
Now,  
virtual machines can share network ports with the NAS.



VM orchestrator manages workload schedules through communication with the Hypervisor at the Application Layer.

When the Virtualization Station orchestrator receives a transmission request from the Hypervisor, the orchestrator will signal the vSwitch Controller (as the QNAP NAS's network control), and then the vSwitch Controller of the control layer will dynamically adjust the Hi-speed Virtual Switch so that VMs can connect with the Physical Networks or NAS storage for data communication.

By employing a high-performance virtual switch VMs are no longer confined to the limits of the transmission speed of the physical NICs when transmitting data between VMs or between VMs and the NAS. This additionally frees up 10GbE network ports for other services instead.

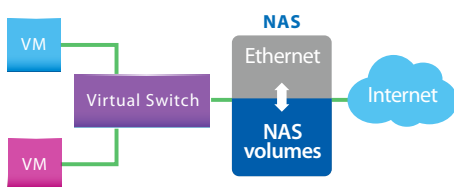


## Virtual Switch

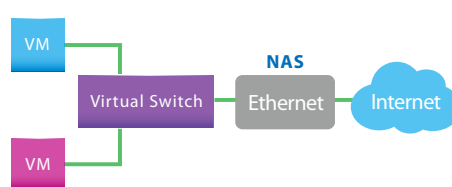
Virtual Switch is the new network architecture employed by Virtual Station. Virtual Switches are an efficient and effective network design when compared to dedicated network ports. Virtual Switches enable VMs' to share Ethernet interfaces removing the need for a dedicated VM network. Bypassing the need to transfer data through the physical network equipment also boosts the transfer rate between VMs and the NAS. The Virtual Switch is capable of 10 GbE and port-trunking, enabling you to obtain a fast and secure network environment.

### Different Networking modes of Virtual Switch

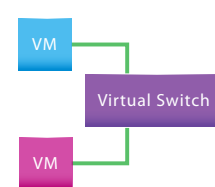
- Bridged Networking
- External-only Networking
- Isolated Networking



Attaching an Ethernet interface (Port-trunking available) to a Virtual Switch creates a bridged network. The NAS and the Virtual Switch can share the same Ethernet interface without occupation and supports high-speed data transfer via internal routing.



Specify an Ethernet interface for a Virtual Switch to enable dedicated routing between virtual switches and external networks. Enable DHCP to automatically assign an IP address to a Virtual Switch or choose to manually assign an IP address.



Not attaching any Ethernet interface to a Virtual Switch creates an isolated network. Manually setting IP address of VMs can enable communication between VMs connected to the same Virtual Switch.

 Available port-trunking modes: Active Backup, IEEE 802.3ad, Balance-tlb.



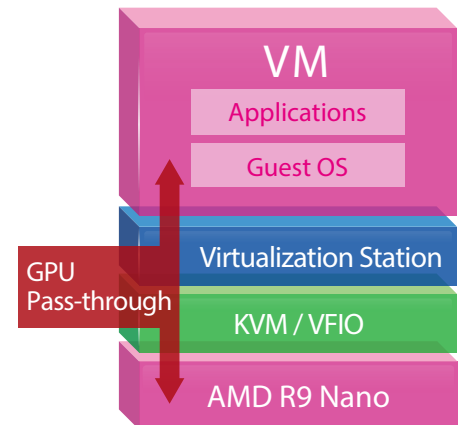
## GPU Pass-through

QNAP NAS adopts Intel® processor and leverages Intel® Virtualization Technology to run virtualized platforms. The built-in hardware-assisted Intel® Virtualization Technology drastically increases performance and introduces ring-based privilege security at the silicon level. In addition, improved I/O performance and availability is achieved through Intel® TV-d technology and its direct assigning of I/O devices to virtual machines. Assign a PCIe external graphic card\* directly to a virtual machine via GPU Pass-through to achieve near native capability of a GPU on a virtual machine with full support for OpenGL and DirectX.

➤ GPU Pass-through is only available on TDS-16489U and TVS-ECX80U-SAS Series models

➤ Supports AMD Radeon™ R7 and R9 Series (Please take note of the length and height of a graphic card and the need of external power supply when purchasing one.)

The GPU pass-through involves establishing communication between Linux's KVM/VFIO and a GPU and then reaching the VM via Virtualization Station. Test results establish that this architecture achieves 80% of the native performance of the GPU. The DirectX performance comparison between a physical system and a virtual machine using an AMD Radeon™ R9 Nano on TDS-16489U is shown in the following diagram.



## GPU Pass-through – TDS-16489U & R9 Nano

CPU: Dual Intel® Xeon® E5-2620 (2.4 GHz)

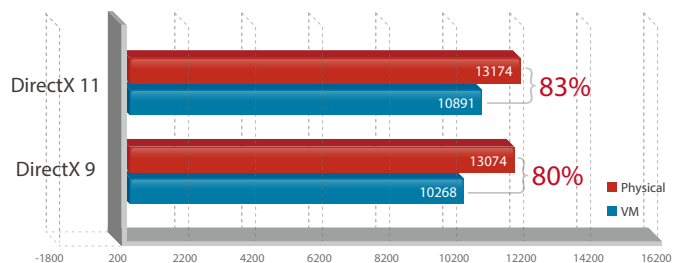
External graphics card: AMD Radeon™ R9 Nano (PCIe x16 Slot)

HDDs: Seagate® 1TB HDD

Memory: 16GB DDR4 registered

### AMD R9 Nano

● AMD R9 Nano  
API support: DirectX® 12, Mantle, OpenGL® 4.5, Vulkan™, OpenCL™ 2.0  
PCIe® version: 3.0  
4K resolution: yes  
GPU clock speed: up to 1000MHz  
External power supply: 1x8-pins  
Dimension: Full-height, compact, and dual-slot



## QVM supports 4K displays, audio output

QVM in the HybridDesk Station enables the use of a VM as a PC simply by connecting an HDMI® monitor, keyboard, and a mouse. QVM offers 4k resolution and virtualized audio output to support a wide variety of applications. Using a browser with HTML5 is limited to 1080P without audio. This makes QVM ideal for video applications.

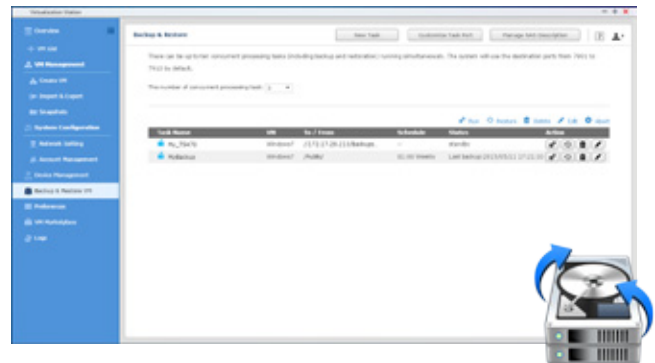
➤ Applicable models: TVS-x80, TVS-x71, TVS-x63 (excluding TVS-563), and TS-x53A.

➤ noVNC is an HTML5-based remote desktop web client that can communicate with a VM. noVNC does not support audio transmission. For audio output, use Windows® Remote Desktop or the SPICE® Client to connect to the VMs.



## VM backup and restore

With Virtualization Station, it is effortless to manage multiple virtual machines on a QNAP NAS. They can be backed up/restored centrally using an easy-to-use interface, and users can obtain scheduled tasks/status, and manually start or stop backup tasks. The online backup tasks run in the background without interrupting VM operations and/or powering off the system. Furthermore, you can set the schedule for backup tasks and maximum number of backup copies. When restoring, the system will automatically start up the restored VM, simplifying the whole process and reducing system downtime.



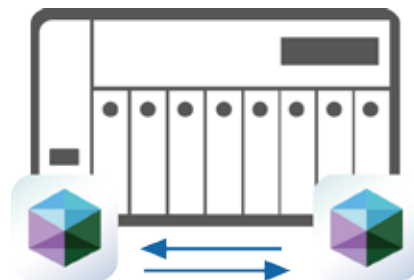
## Device management

The Device Management screen provides an overview of all VMs, keeping you informed of the storage capacity, network interface, and USB devices of the NAS as well as letting you connect or remove a new device.




## Virtual machine import/export

Virtual machines of various formats can be easily imported to and exported from the Virtualization Station. IT administrators can get VMs up and running quickly on a QNAP NAS or other Hypervisors.



## USB devices (USB Pass-through)

Virtualization Station supports connecting USB devices to virtual machines. Commonly used USB devices such as storage devices and card readers can be connected to virtual machines, and you can select a specific device using Virtualization Station. This can be used together with QVM Desk just like a PC. You can also connect USB card readers/scanners to a QNAP NAS via Virtualization Station and store scanned data directly to the NAS without taking up Internet bandwidth. Further, with the advent of USB 3.0, higher data transmission can be easily achieved.

 Please note that this function is only available on Windows® 8, Windows® 8.1, Windows® Server 2008 R2, Windows® Server 2012 and Windows® Server 2012 R2.

## Seven advantages of QNAP's exclusive virtualization technology

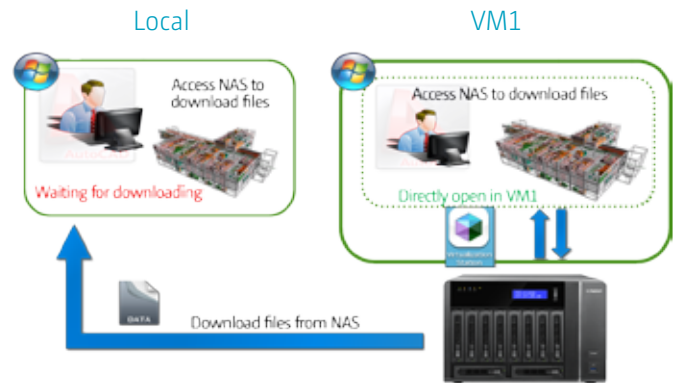
### Visibility and direct access to files

Specific file formats cannot be opened directly by the QNAP NAS, but the Virtualization Station makes it possible. This saves bandwidth and access time. Administrators can install Windows®, Linux®, UNIX®, and Android™ based VMs on the QNAP NAS to run any supported application or file.



## Save bandwidth & time

Downloading a large amount of data to a local PC can take a long time and use up network bandwidth. When accessing data on the QNAP NAS through virtual machines on the Virtualization Station, you can enjoy secure data transmission and save bandwidth & time as the data is not transmitted via physical network cables.



## Enhanced security

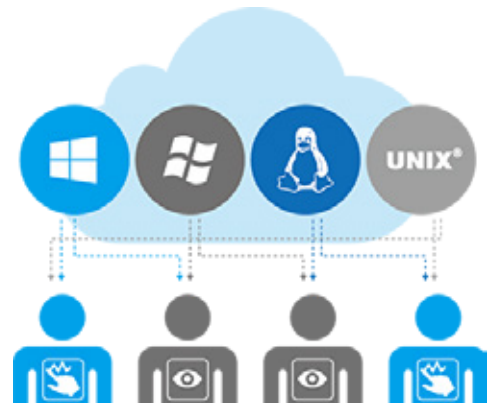
When accessing files & data on a virtual machine they are not transmitted outside of the QNAP NAS. This provides a secure environment that prevents sensitive data from being intercepted and saves bandwidth and network resources when accessing large files.



## User-based permissions settings

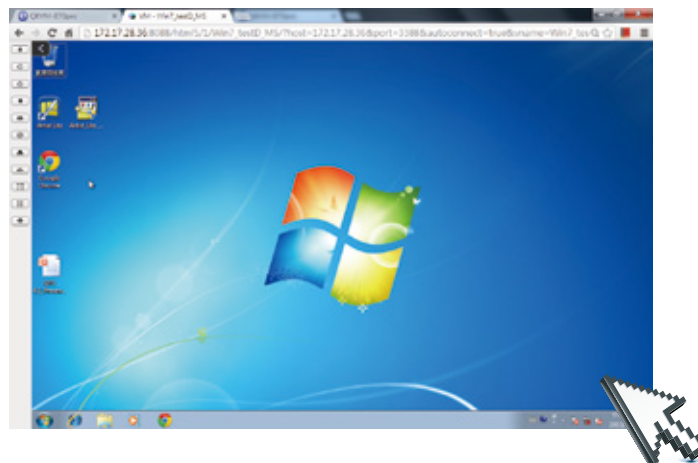
The Virtualization Station administrator can create users and set granular permissions for each Virtual Machine (VM), helping to efficiently manage and allocate VM resources for users with different needs. With these permissions, users can work independently on their VM without worrying about their work being interrupted or data being lost because another user has accidentally powered-off the VM.

- **User-based permissions include:**
  - Console permissions: Control and View-only
  - VM controls: Snapshot and Advanced



## Operate VMs as Remote Desktops

Enjoy the convenience of operating Windows®, Linux®, UNIX®, and Android™ based VMs as remote desktops. A list of buttons is provided on the left side of each individual VM display, allowing users to suspend, shutdown, force shutdown, reset, bring up key combinations: Ctrl +Alt+ Del and function keys, and take snapshots of the VMs.





## Container Station 1.3

### Rapidly deploy containers

Virtualization is key to maximizing IT resource utilization in the era of big data and IoT (Internet of Things). Container Station is developed following the Just enough OS, or JeOS, philosophy. This lightweight virtualization technology can instantly and truly create a ready-to-use environment on PC's, QNAP NAS and the Cloud for RD developers and IT administrators.

For example, build a project in Container Station on your home computer and after the completion of each stage of the development, upload the container to Docker Hub™ or export and save it on the NAS. Your coworkers can then download the container and continue with the next development stage. With a container-based application, on QNAP NAS, virtualized servers, OpenStack, or on the cloud, developers can deploy and share any app on any of these platforms, quickly and reliably.



### A growing number of popular apps

Container Station offers the most up-to-date and top-of-technology applications for rapid deployment with just a click. The following apps are now available: LibreOffice, MongoDB, Nginx, Node.js, Redis, MySQL, WordPress, Deluge, Minecraft, Wine, Jenkins, GitLab, Redmine, Joomla! and OpenERP.

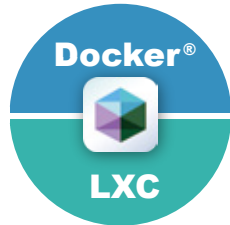


Container Station is available in the App Center.

Docker and the Docker logo are trademarks or registered trademarks of Docker, Inc. in the United States and/or other countries. Docker, Inc. and other parties may also have trademark rights in other terms used herein. Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries.

## Integrate LXC and Docker® to bring even more value to your NAS

LXC: the lightweight Linux Container enables a high-performance lightweight virtualized Linux® environment on your NAS. Install a lightweight version of Linux® (e.g. Ubuntu, Debian, Fedora) as the base for your containerized application with LXC.



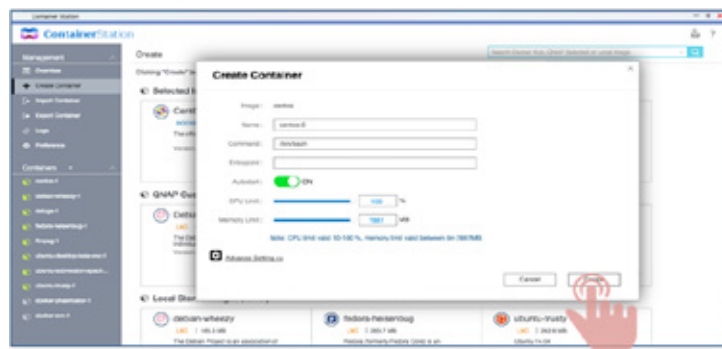
## Install-on-demand applications

Use the Docker Hub™ to search for publicly shared applications, whether they are databases, web servers, programming languages, or development tools; install it as you would an app on your smartphone.



## One-click installation

Forget complicated configuration and simply enjoy the benefits of software containers. Just click “Create” and the system will automatically download and install the applications.



## Containers on ARM-based NAS

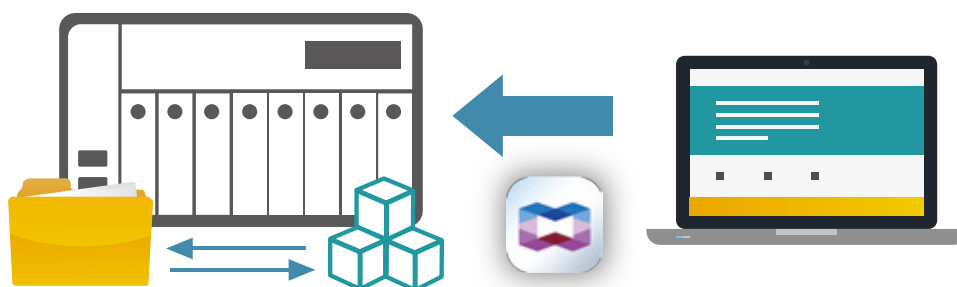
Entry-level NAS models, e.g., TS-231+, TS-431+ can enable Linux® virtualization on QTS 4.2.1. Just download the default Linux® version from Container Station and you can have the only virtualization-ready with LXC and Docker® on the ARM® based NAS.

## Access shared folders

Shared folders mounted in a container (or from other containers) save data to the NAS at comparable access speeds to that of bare metal environment.

## Export/import software containers

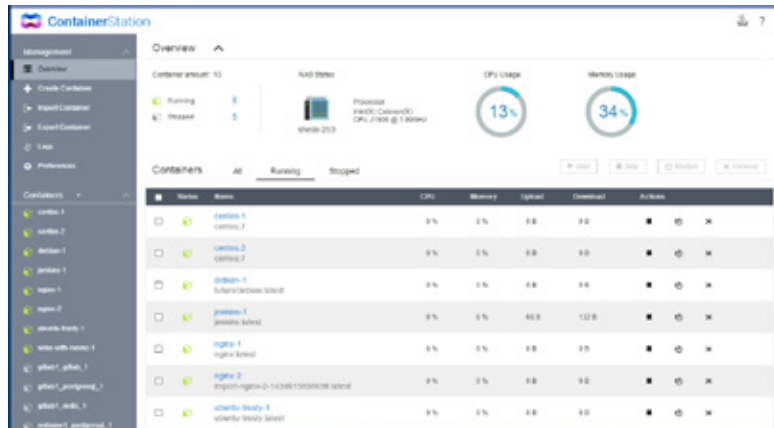
You can export software containers along with data contained in it to a given shared folder. You can also import software containers from a PC or shared folders. Containers can also be easily backed up and transferred to other QNAP NAS units.





## Resource management

Specify host CPU/memory resources allocated to a software container and monitor the host in addition to each container's performance from a single screen. The visualized presentation with graphics provides a quick overview of resource consumption and aids in resource management.



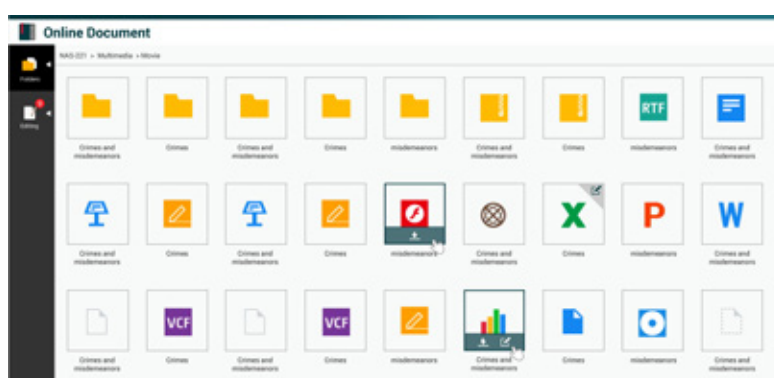
## Online Document - Online document preview and editing

The increasing risks of breaches and leaks mean both business and personal data needs greater protection against unauthorized access.

With a traditional NAS, you must download files from the NAS to your computer, open and edit them, and then upload them to the NAS again.



With Container Station's Online Document function, you can directly preview, edit, and save (Office documents, photos, and text files) files on the NAS from anywhere.



## Supports a wide range of file types used by LibreOffice®, Pinta, Emacs, and more.

### LibreOffice® - a powerful office suite

The suit has many applications: Writer (word processor), Calc (spreadsheet application), Impress (presentation engine), Draw (drawing and flowcharting application), Base (database and database frontend), and Math for editing mathematics.

### Pinta - a program for drawing and image editing

It offers a simple yet powerful way to draw images with file formats such as JPEG/JPG, Tiff, TGA, PNG, ICO, BMP and OpenRaster. It is surely more powerful than Windows Paint.

### Emacs – a customizable text editor

Emacs is a powerful text editor with extensibility and customizability. It is popular among programmers and computer technicians.

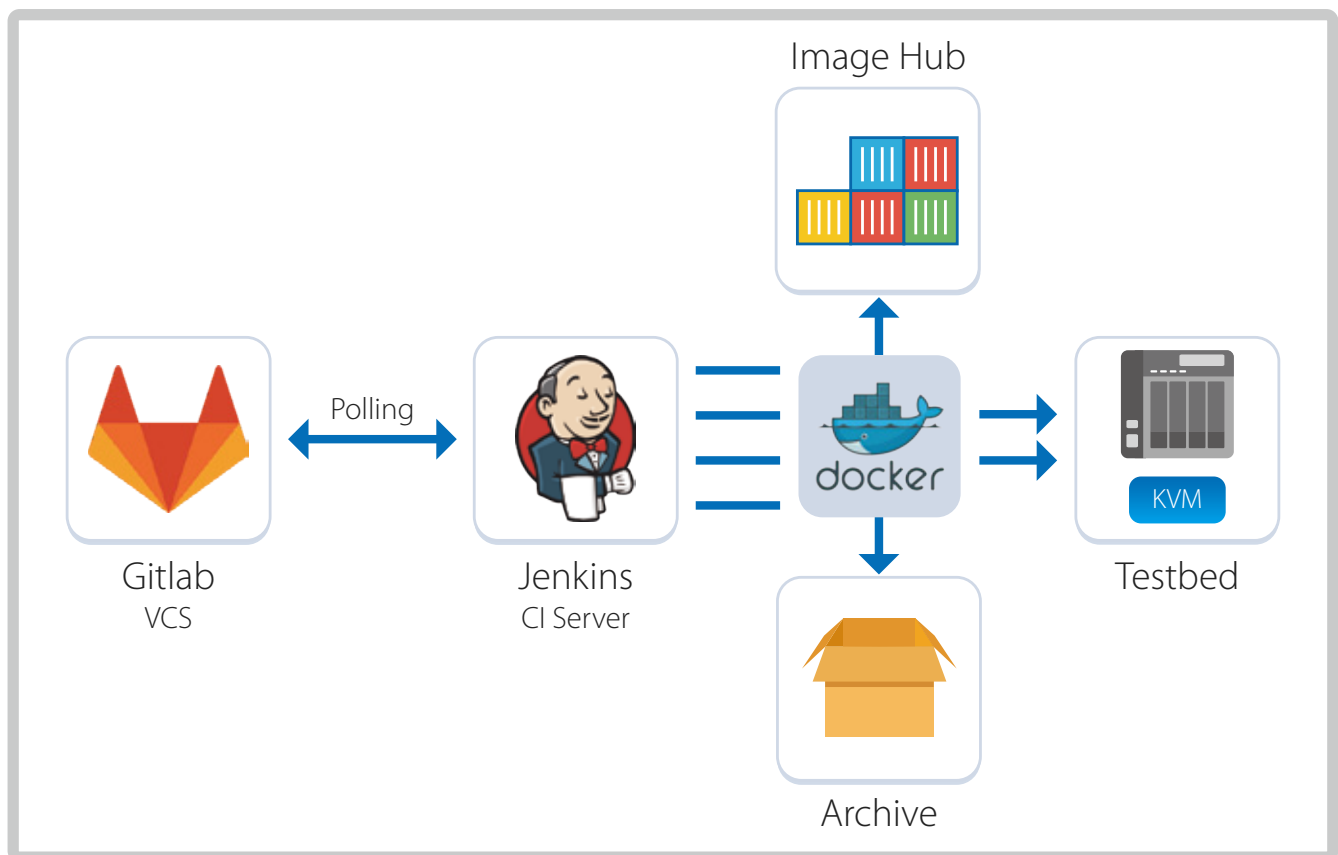


Container Station 1.4 or later (available Q1 2016) is supported.

## The emergence of DevOps ("Development Operations") – Utilize Container Station to establish a continuously integrated development environment

No need to memorize complicated software configurations, just install the necessary apps on demand with one click and the system will automatically finish the set-up process, quickly facilitating a development environment suited for collaboration.

### A continuously integrated development environment

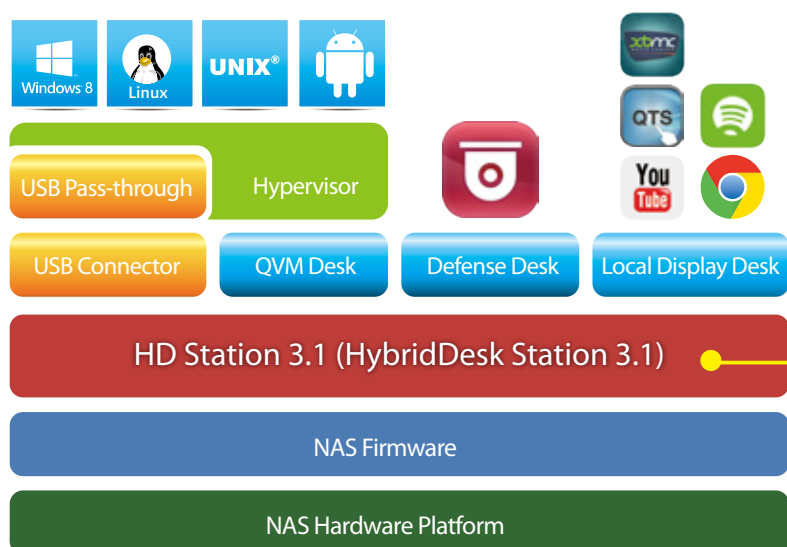


Recommended apps for quick installation: Private Registry, GitLab, Jenkins.



## QNAP QvPC Technology Use your NAS as a PC

With the growing trend of "Software-defined Everything (SDx)" in today's IT environments, QNAP has taken the lead in seamless hardware-software integration and offering the exclusive QNAP virtualized Personal Computer (QvPC) Technology that allows you to use the QNAP NAS as a PC. All you need to do is plug in a monitor, keyboard and mouse to be able to operate the system via "HD Station (HybridDesk Station)" on the screen.



Connect a monitor with an HDMI® cable, and you can enjoy a variety of applications with HD Station 3.1. You can initiate the service in QTS system and install different applications according to your needs.



\*All trademarks in this brochure are the property of their respective owners.



QvPC Technology features HybridDesk Station (HD Station) as the user interface, which consists of QVM Desk, Defense Desk, and Local Display Desk and provides SMBs numerous software applications.

## The highlights of QNAP's exclusive QvPC Technology



HD Station 3.1 is a monitor-based user interface based on QNAP's exclusive QvPC Technology. Simply plug in a keyboard, mouse, and an HDMI® monitor to a QNAP NAS and you can start the installation process and access data without connecting to a PC, tablet, or smartphone. A variety of applications are available on HD Station including QTS, Mozilla® Firefox®, Google Chrome™, QVM, XBMC®, and Surveillance Station. To increase data safety, HD Station 3.0 employs controls on user login to allow only authorized users to access data on the QNAP NAS using QvPC Technology.

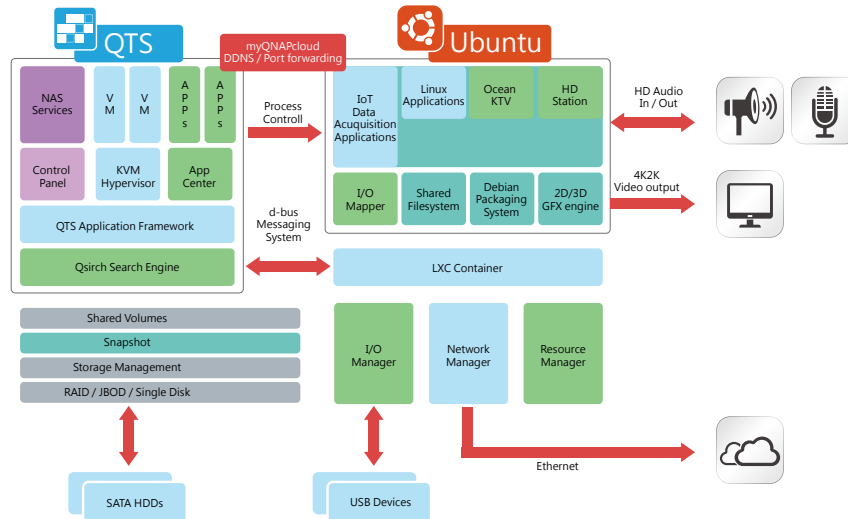


HD Station also supports touch panels to control the system directly through a screen.

## QTS with Integrated Linux for IoT Development

QNAP has employed advanced virtualization technologies to seamlessly integrate Linux with QTS, enabling you to use QTS while simultaneously using a Linux OS on an HDMI display. Expand the functionalities of your NAS with the QTS App Center, and exploit the incredibly popular open source Linux to leverage your NAS as a complete IoT development platform.

Use Linux Station to switch the output resolution freely or enable remote desktop connection to send the display to a web browser.



**➤** Install and enable Container Station, before installing Linux Station.  
4GB RAM and HDMI output required. Remote desktop does not support audio output.

## Seamlessly switch between HD Station and Linux Station

Select to output HD Station using the either the simple or the advanced mode. Go to [Control Panel] > [Apps] > [HybridDesk Station] to set the current display mode and switch the output on your HDMI display.

### HD Station simple mode

Enjoy the multitude of supported apps, such as Kodi®, HD Player, YouTube®, JRiver®, and many more via a simple and intuitive interface. Use your NAS as a multimedia player and use your smartphone with QNAP app Qremote, an infrared remote control, or connect a keyboard or mouse for completely convenient playback and control.

### Linux Station advanced mode

Install various applications on the Linux Station, an open-source platform. Customize a 3D desktop with thousands of desktop themes to choose from. It operates just like a PC.

## Run Windows, Linux and Android virtual machines on a HDTV

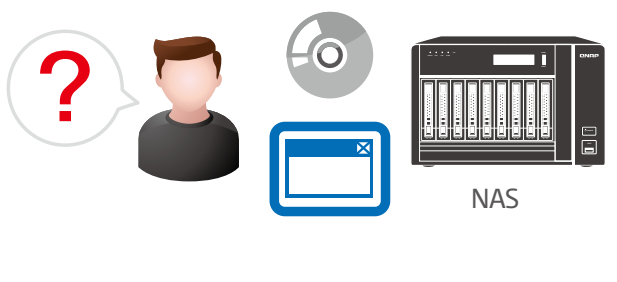
Leveraging virtualization technology, QNAP QVM Desk supports local display for a virtual machine and turns the QNAP NAS into a PC when connected to an HDMI® monitor, keyboard, and mouse. Any files on the QNAP NAS can be opened using virtual machines running Windows®, Linux®, UNIX®, and Android™ through QVM Desk. You can also instantly switch between different virtual machines to meet different computing needs, similar to using multiple PCs at the same time. Compared to the operations via a webpage, it is smoother, more secure, and worry-free on a QNAP NAS. Even when the Internet connectivity is limited, you can still access data and run virtual machines on a QNAP NAS.



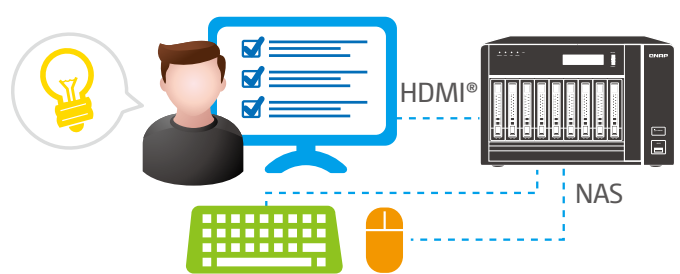
## Streamlined installation: No complicated procedures necessary to install your QNAP NAS

After purchasing a NAS, users usually install firmware from an installation disc and search for the NAS on their network, or log in to the NAS manufacturer's website to complete the installation process. For users without relevant networking knowledge, this installation process may be difficult.

A QNAP NAS is an ideal solution for storing data. With QvPC Technology users only need to plug in an HDMI® monitor, keyboard, mouse and follow on-screen instructions to complete their NAS installation. Even users without any network knowledge can easily set up and install a QNAP NAS. All files stored on a QNAP NAS are have redundant copies through RAID technology and are accessible via the Internet anytime.



Conventional installation: You need a disc or to log in to a website to complete the installation, and it can be complicated for general users.



Streamlined installation: simply plug in a monitor, keyboard and mouse and follow the on-screen instructions to complete the installation.

## Defense Desk 24/7 safeguards your office and property

### Live-view

QvPC Technology supports local display of live surveillance feeds on-screen with a QNAP remote control. You don't need an additional PC for live-view, nor do you need an Internet connection to check the stored video recordings. You can monitor up to 36 channels simultaneously, adjust PTZ functions, and conduct audio surveillance. QvPC also supports instant notification functions and will show alerts on the monitoring page should any incident happen. This ensures you are able to respond to incidents immediately and more efficiently.

### Playback

Connect your QNAP NAS to a monitor to playback recordings. Just select a timeframe and you can search the recordings within that period. It also supports video fast-forwarding and rewinding (up to 16x speed). You can quickly look for detailed images with the zoom function, and listen to audio for key background sounds during the playback.





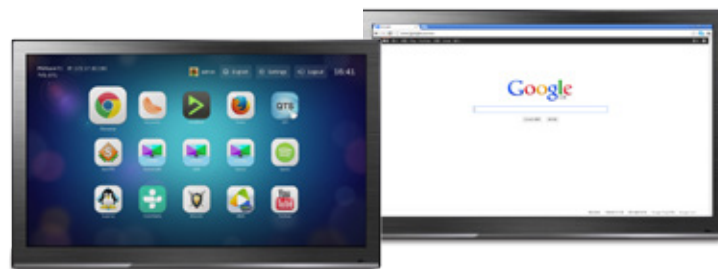
## Local Display Desk

HybridDesk (HD) Station (enabled by going to “Control Panel” > “Applications”) makes it possible to use the NAS as a PC by simply connecting an HDMI® monitor and a USB keyboard & mouse. The local display ensures output and access to media files without being connected to a network for more stable viewing experience and easier NAS operation.



## Install web browsers to freely surf the Internet

Surf the Internet on the NAS by downloading Chrome™/Firefox in HD Station. It is the easiest way to get online and find the information you need on the NAS.



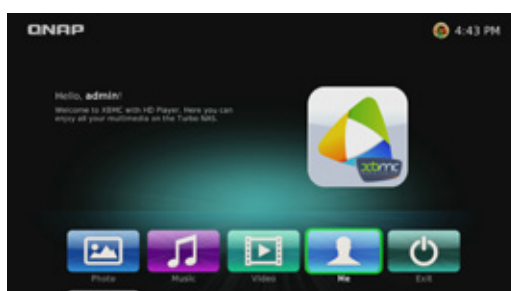
## Multimedia entertainment

Enjoy a multitude of apps including Spotify®, YouTube®, and multimedia players such as Plex, KODI®, JRiver® and many more. With HD Station you can enjoy the ultimate entertainment experience.



## Qremote for convenient control

Download the Qremote app to your Apple iOS® and Android™ devices to remotely control playback of multimedia files including videos, music, photos, etc. Alternatively, you can download the Official Kodi Remote app for the same purpose.



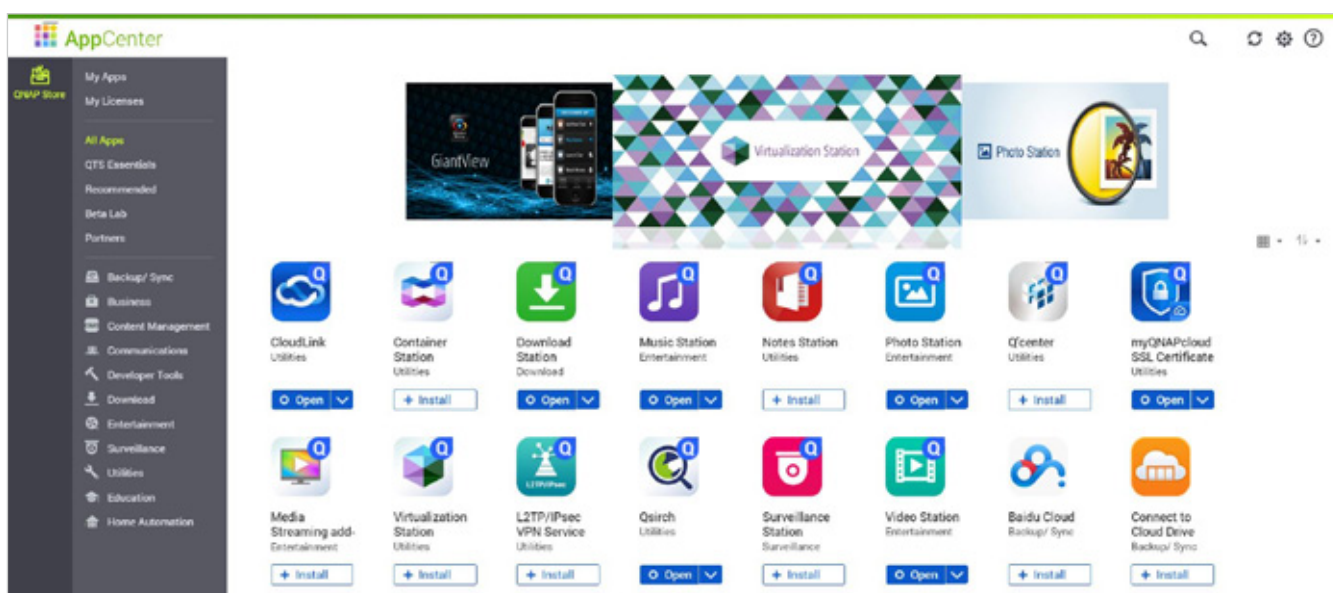
# App Center

## Customize your QNAP NAS for endless possibilities

Extend the functionality of your QNAP NAS to enrich your work and home life. QTS App Center provides various install-on-demand apps ranging from cloud backup/sync, home entertainment to ERP tools for you to enjoy more applications and to increase the total value of the NAS.

### Newly designed App Center interface

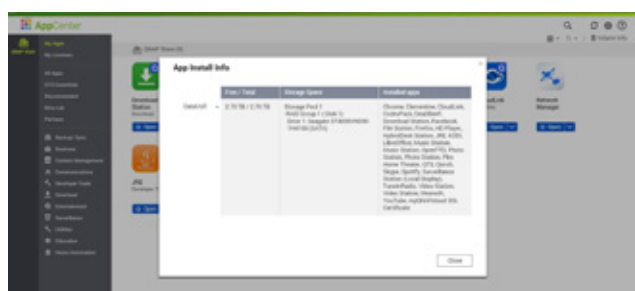
The App Center has been redesigned to be simpler and easier for you to use. Search by category, by keyword, or try a suggested app from the live scrolling QNAP recommended app ticker. Alternatively, view the app selection by list to get detailed information about all the available applications. The App Center now supports multiple languages to suit your language preferences.



### App management and upgrade reminder

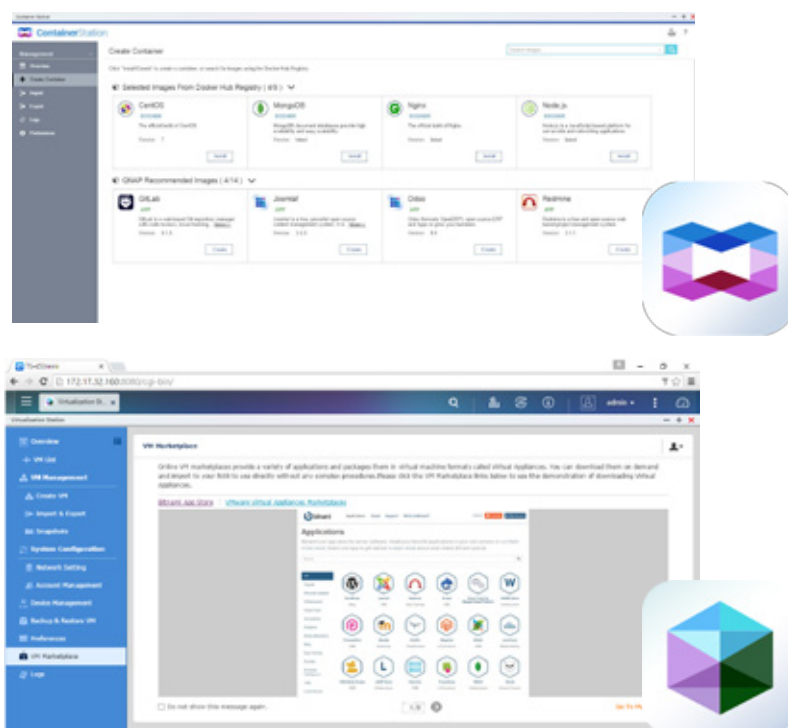
Click the "My Apps" category on the left to browse, open, start, stop, or remove and manage all of your installed apps. When there is an update to any of your installed apps, an upgrade reminder will show on the QTS desktop to help you keep your NAS applications up-to-date.

1. Click "Volume Info" to view the information about the volume on which the app is installed.
2. Create and display an app shortcut on the login screen, enabling users to access the app directly from the login screen.



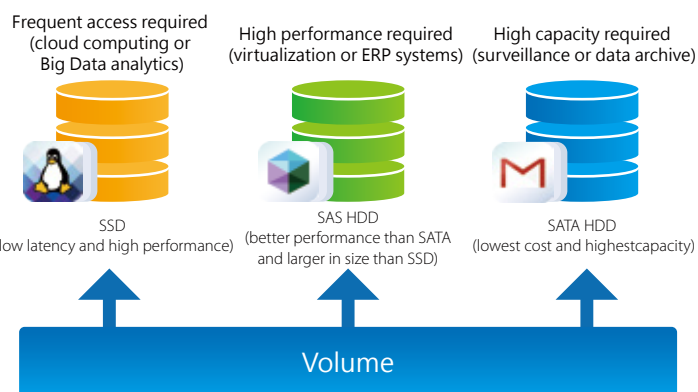
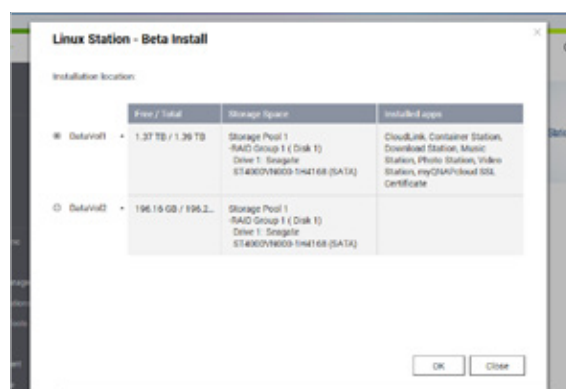
## Functionality expansion without limits

The QTS App Center provides more than 100 add-on apps in several categories including Backup and Synchronization, Business, Content Management, Communication, Developer Tools, Download, Entertainment, Surveillance, and general purpose Utilities. Download applications from the QTS App Center to customize your NAS to suit your needs. Alternatively, download and deploy apps from public repositories for use in Container Station or Virtualization Station.



## Utilize tiered storage architecture to optimize application efficiency

Leveraging the tiered storage architecture of the QNAP NAS, applications can be installed on a specific volume or freely migrated between different volumes. This enables the flexibility to manage applications based on performance and capacity requirements. For example, separately install frequently used applications on volumes consisting of SSDs and install performance-demanding applications on volumes consisting of SAS drives efficiently maximizing storage utilization and improving application performance.



Linux Station is the first app to support this function, others will follow soon.

# Multimedia Center

## Enjoy home entertainment with cloud technology

A QNAP NAS is an ideal way to safely store and search through huge collections of videos, photos, and music. QNAP provides feature rich applications that enable you to enjoy your digital collections, empowering your NAS as a multimedia center for you to collect, share, and enjoy. Aside from viewing media files over the internet, you can enjoy them on a large TV screen in full HD quality with DLNA®, AirPlay®, Chromecast™, or a direct HDMI® connection. You can also use the powerful Download Station to enrich your collections for even more fun.



### Photo Station 5.1

## Record the precious moments in your life

QTS Photo Station helps you archive, easily manage, and share your precious memories. The Photo Station functions as your private photo hub while safeguarding your memories with the very highest levels of protection.

### Switch between Gallery and Management

Switch between Gallery and Management mode to view and organize your photos easily. Photo Station provides three quick configuration menus to adjust the look and feel of how your photos are displayed.



Switch between display modes, and select the photos to display.



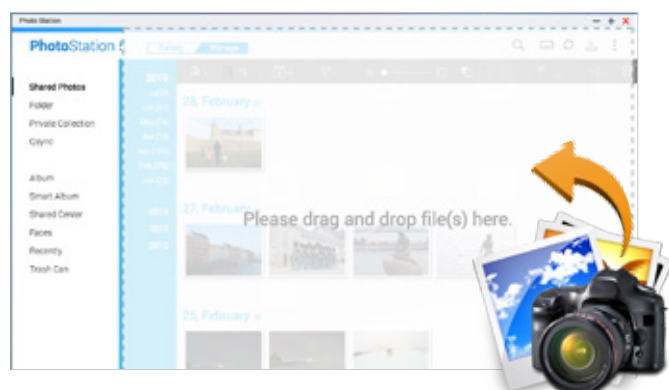
Customize the background music in gallery mode. The background music can be chosen from playlists in the Music Station.



Play your selected photos in a slideshow.

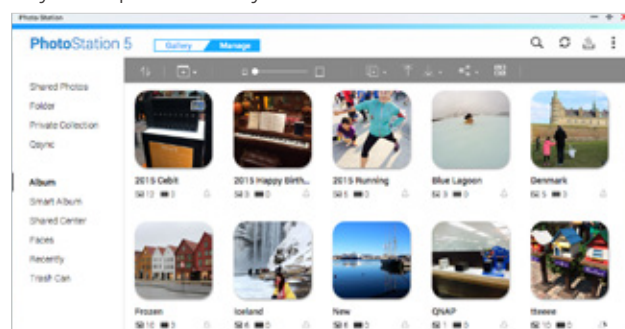
### Centrally manage all your pictures on your NAS

Whether you upload your photos directly, or by synchronizing with the Qsync utility, using Photo Station to manage your photos (including very high-resolution photos) from multiple sources is a very effective way to organize massive volumes of photos.



### Create photo albums and smart albums

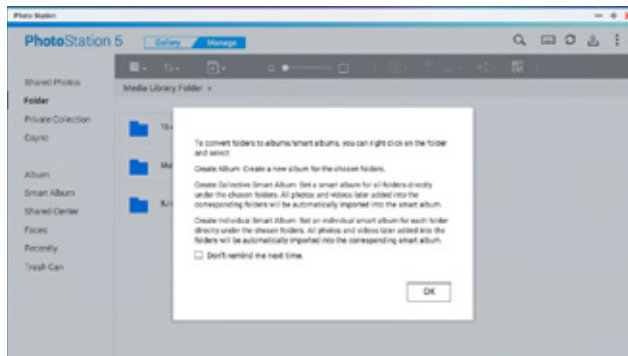
Create a virtual album and add photos to the album without moving the physical files. Alternatively, create a smart album that automatically searches and adds photos that match the search criteria such as today in history, a specific period, or tags. Creating a smart album with a specific period is an easy way to keep a record of your travels.





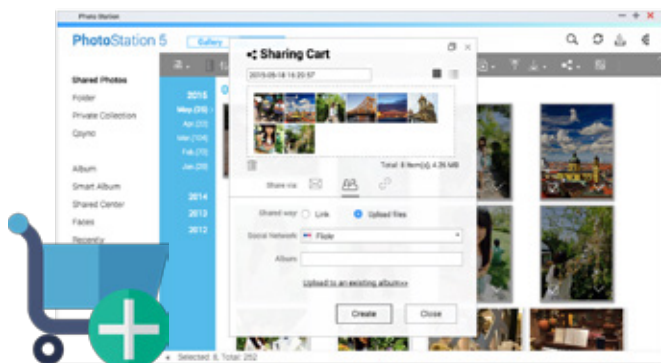
## Convert folders to albums or smart albums

Instantly and easily, convert a folder to an album or a smart album. Folders that have been converted to smart albums will automatically import new photos to be displayed in their respective smart albums.



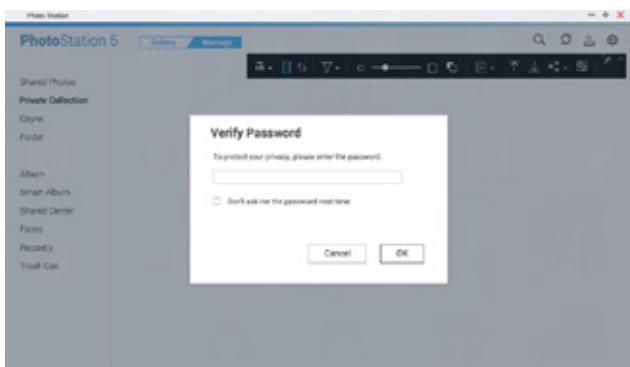
## Share with your preferences

Use the Sharing Cart to add and modify shared content as well as specify sharing settings such as a validity period. Share by email, social networks, or create a sharing link.



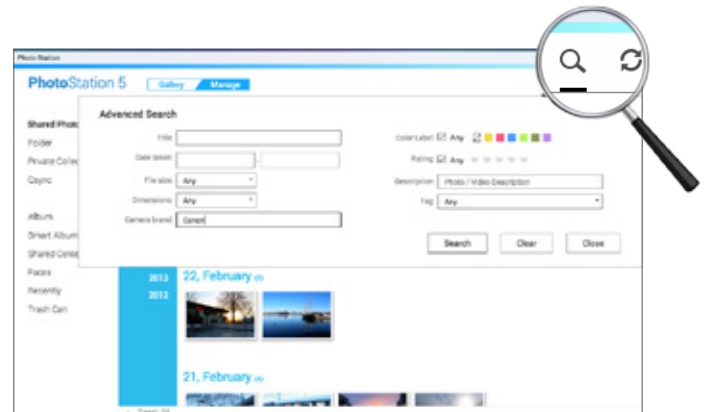
## Create a Private Collection

Secure your important, private photos and videos in your own private collection with a password. Access to the private collection can then only be gained by entering the password.



## Advanced search

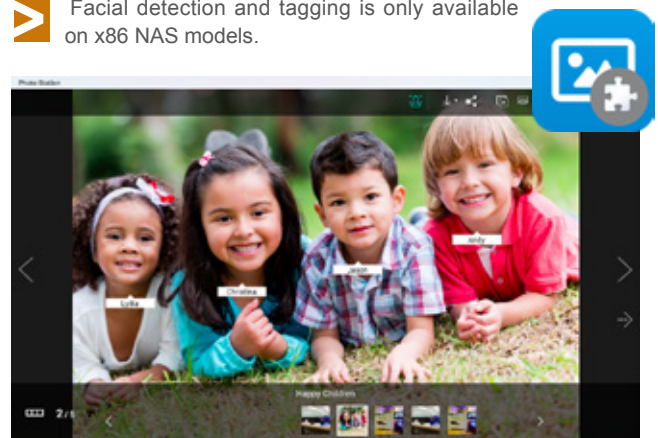
Photo Station provides an advanced search function to search photos based on specific properties such as title, date taken, label, tags, and camera manufacturer.



## Facial detection and tagging

Photo Station supports face detection making it easy to tag people in your photos. In addition, it also supports converting of PDF file into pictures to view PDF files on any device.

Facial detection and tagging is only available on x86 NAS models.



## Play photos in a slideshow

View the photos by slideshow with dazzling transition effects. Create a playlist of your favorite tracks in the Music Station and enjoy background music to go with your slideshow.



[illegible]

Video Station features an excellent platform for you to create your personal video website. All of the videos on the QNAP NAS can get categorized by Video Station and converted into different resolutions and universal formats for smooth viewing across any network bandwidth or any device.

You can set up video categories including movie, TV series, home video, and music video then create smart collections in terms of category, label, ratings, and more. The smart collection folder will gather similar videos for better management and to make it easier and faster to find videos you want to watch.

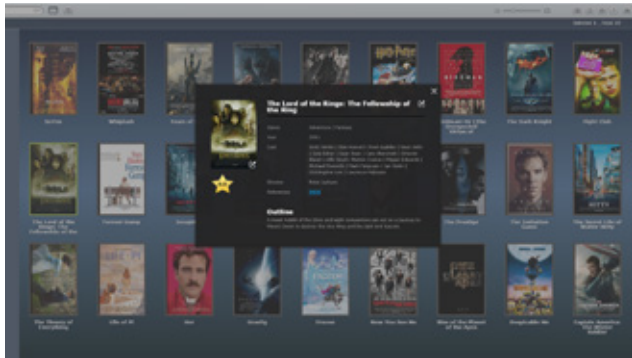
It's easy to share videos with Video Station. Share your exclusive videos via email; on social networks like Facebook™, Google+™, and Twitter™; or give sharing links to friends and relatives. Best of all, you can bind a Facebook™ account to share your collections with friends without them needing to have an account on your NAS.





## Automatically retrieve movie information

The system will automatically gather posters and other movie information from the Internet (genre, director, actors, etc) to enrich your collections and viewing experiences.



## Film playback around the home

The NAS supports DLNA®, AirPlay®, Chromecast™ streaming, allowing different videos to be played on different devices simultaneously. This enables you to play the kids' learning film in the living room, while streaming other movies throughout the rest of the home.



## Keyboard hot key support

Videos can easily be fast-forwarded, rewind, and have the volume adjusted if needed using keyboard hot keys.

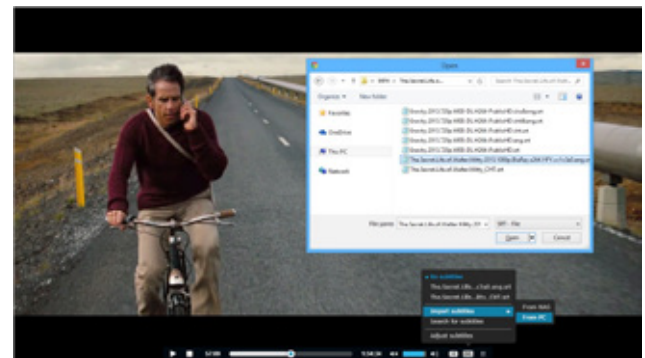


## Comprehensive subtitles support

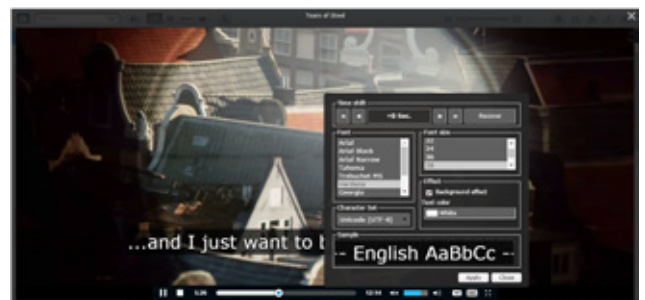
Subtitles can now be uploaded from a computer or searched for and downloaded from an Internet database, allowing viewers to enjoy videos in their native language or a language they are studying.



Import a subtitles file from your PC or NAS without needing to rename or relocate it.



The display of subtitles can be adjusted to change the font, size, color and display time, enabling you to customize them to your liking.



➤ Supporting .srt, .ssa and .ass subtitles files, and also supporting more languages, it frees you from worrying about format incompatibility and display issues.

➤ Subtitles can also be embedded into videos when sharing with your friends.



## Music Station 4.8

### Build your own music cloud

Build your very own music cloud for your home with Music Station. With the Qmusic mobile app, you can bring your favorite music with you wherever you go.

### Easily organize large music collections

Music lovers often face the problem of organizing and managing huge music collections. Music Station offers a number of categories and browsing modes and allows you to create up to 200 playlists. You will never miss your favorite music again.



### Your personal music cloud

The Music Station allows you to play stored music on the PC and mobile devices via the Internet, acting as your personal music cloud. With the Internet, you can enjoy all your music on your QNAP NAS anywhere.

### Share your taste of music

Simply choose the music to share, and enjoy the flexibility of being able to share it via email, a download link, or social networking sites such as Facebook™, Google+™, and Twitter™.

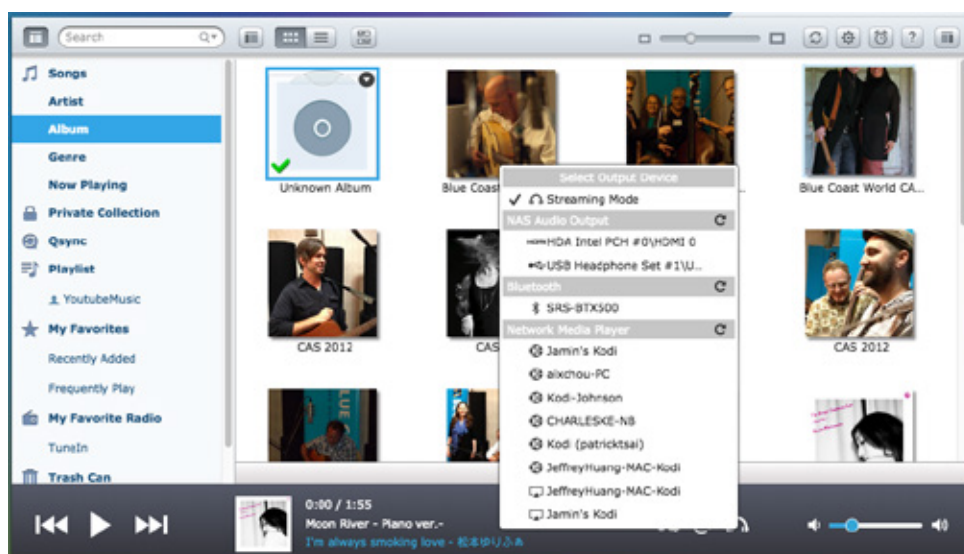
## Customized album covers

Album covers can be automatically found for your music, allowing you to organize your music better. If an appropriate cover cannot be found, you can also import your own image to use as the album cover.



## The perfect music center for universal playback

Music Station no longer just plays the music through web browsers. Now, it can easily stream across different devices using DLNA®, AirPlay®, Chromecast™, HDMI®, Bluetooth®, USB, and more. Simply click the earphone icon on the lower control, and you can stream music to your home amplifier, Apple TV®, Chromecast™, smart TV, Bluetooth® speakers or even USB speakers. You can play back music on multiple devices, making QNAP NAS your home music playback hub!





# One-to-multiple streaming playback

## Unleash an intelligent home entertainment lifestyle

QNAP NAS supports multiple streaming playback protocols and modes, enabling users to easily stream files to various multimedia playback devices.



## Supports multiple playback devices:

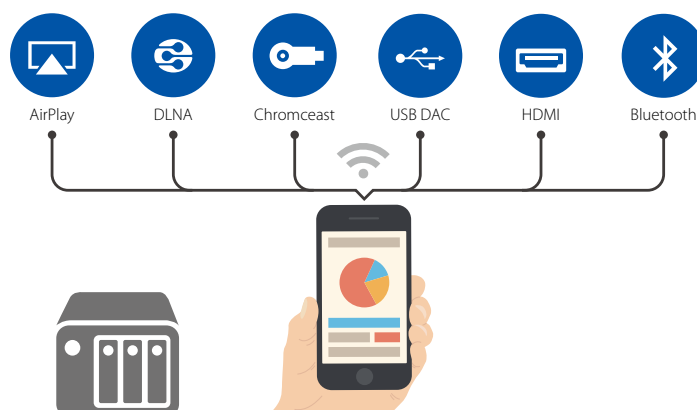
Photos and videos: DLNA®, AirPlay®, and Chromecast™ devices.

Music: Bluetooth® and USB speakers.

You can utilize the browser-based File Station, Music Station, Photo Station or Video Station to directly play back a variety of multimedia, or stream the files via these stations to various devices. You can also utilize your smart phone or tablet to stream the playback.



The Media Streaming Add-On must first be installed from the App Center on the NAS.





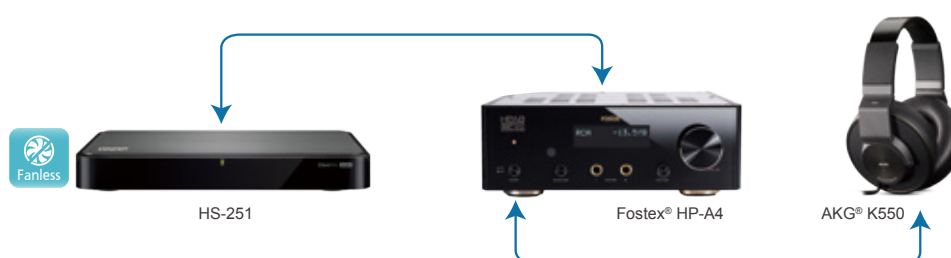
## Mobile remote control on multimedia playback

By installing a QNAP App on your iOS®, Android™ or Windows Phone® device, you can easily access and enjoy everything stored on your QNAP NAS. If you are connected via the Internet, you can also use Qfile, Qphoto, Qmusic and Qvideo to remotely control multimedia files to be streamed to your selected DLNA® equipment, Apple TV® and Chromecast™ for playback.



## How to use USB DAC to enjoy high-quality music?

### Equipment example

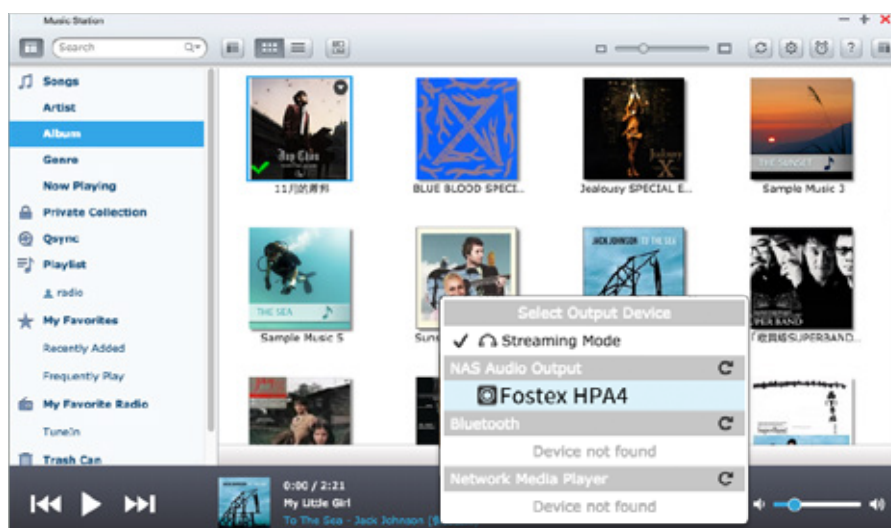


### Instructions:

1. Connect Fostex® HP – A4 to NAS.
2. Open Music Station.
3. Select “NAS Audio Output” (as shown below) and then any music selected will be played through the Fostex® HP-A4.



After installing Qmusic, you can also use your mobile devices to play music stored on your QNAP NAS files to connected USB DAC devices.





## HD Station 3.1

### Use a QNAP NAS as a home theater center

Simply plug in an HDMI monitor to your NAS, and you can start playing media files from the NAS. QNAP NAS also supports next-generation 4K display\* and streamlined installation via the HDMI output. (Users only need to plug in a HDMI monitor, keyboard, mouse and follow on-screen instructions to complete their NAS installation.) This avoids complicated settings of network media players and instability of network conditions, allowing you have a better viewing experience with large-screen TVs.



Not all models support 4K display.

#### A wealth of apps

In addition QNAP's native applications, we support a number of common multimedia players (Kodi®, HD Player, Plex Home Theater®, DeaDBeeF, Clementine®, JRiver®), browser (Chrome™, Firefox), and other multimedia streaming platforms (YouTube®, Spotify®, TuneIn Radio®) to provide you with home cinema entertainment.

#### Qremote easy to get started

Qremote is QNAP's exclusive remote control, enabling you to control your HD Station from your mobile devices. Qremote offers four modes: application shortcuts, simple remote control, touch screen, or keyboard mode to enter text. Use your smart phone or other mobile device to download the Qremote App from the App Store or Google Play® Store.

#### Multilingual input and improved multitasking

HD Station 3 supports multi-lingual input, enabling you to search from a web browser in your native language. Additionally, HD Station 3 now supports multitasking with a desktop PC-like taskbar enabling you to switch between different applications.

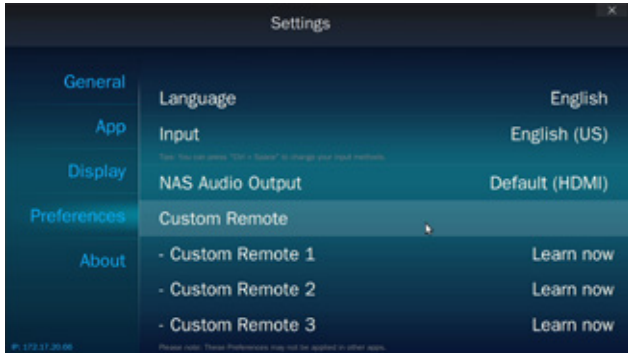




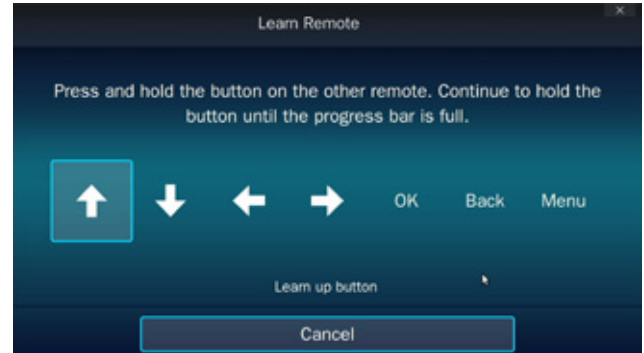
## Custom Remote – Use your existing IR remote controls with HD Station

HD Station supports remote control learning enabling you to use your existing IR remote controls with HD Station. Matching your existing remote control with HD Station only requires two steps, and helps reduce clutter in your living room.

1. Enter “Settings” > “Preferences” in HD Station. Find “Custom Remote” and select a slot for the new remote control.



2. Follow the on-screen instructions and press and the button you want to match. Hold the button until the progress bar is complete.



## System requirements

- HD Station 3.1.1 or later
- Supports TS-x53A series NAS
- Supports up to 3 simultaneous custom remote controls
- Some IR remote controls are not supported

## JRiver® Media Center - Powerful media management

JRiver Media Center is a jukebox style multimedia player capable of managing several large media libraries within the same domain. JRiver® Media Center supports a variety of multimedia streaming formats and multi-room streaming, and is capable of indexing album covers for a variety of metadata to provide efficient multimedia management. Additionally, JRiver® Media Center also supports a number of professional music processing features such as an equalizer, rhythm, pitch, and sampling rate to further meet the needs of video enthusiasts and significantly enhance your QNAP NAS multimedia streaming experience. For more information, please refer to <http://www.jriver.com/>





## OceanKTV Beta

### Enjoy karaoke in the privacy of your home

QNAP's breakthrough innovation is simply beyond outstanding with the introduction of the first Karaoke TV system - OceanKTV. With the HDMI output, it transforms your NAS instantly into a in-home Karaoke system that will be popular among adults and children alike.



#### The exclusive songbook lets you select songs in advance

Using the OceanKTV Song Library Management, you can add your favorite songs into your personal songbook. Taking a lot of time choosing what songs to sing next? With "My Favorite Songbook", you can create a list of your favorite songs by connecting to the NAS through your browser. You can also create song lists according to the occasion or party themes. Planning beforehand to eliminate a waste of time thinking about what songs to sing next.

#### Wonderful themes and user experience

The OceanKTV employs the most advanced UI/UX design from QNAP. We even have Karaoke specialists to be the consultants of this project. The aim is to provide you with the ultimate Karaoke experience. What's more, there are four modern themes in the OceanKTV to choose from. Vary the background theme according to the mood of the song, and sing to your heart's content!



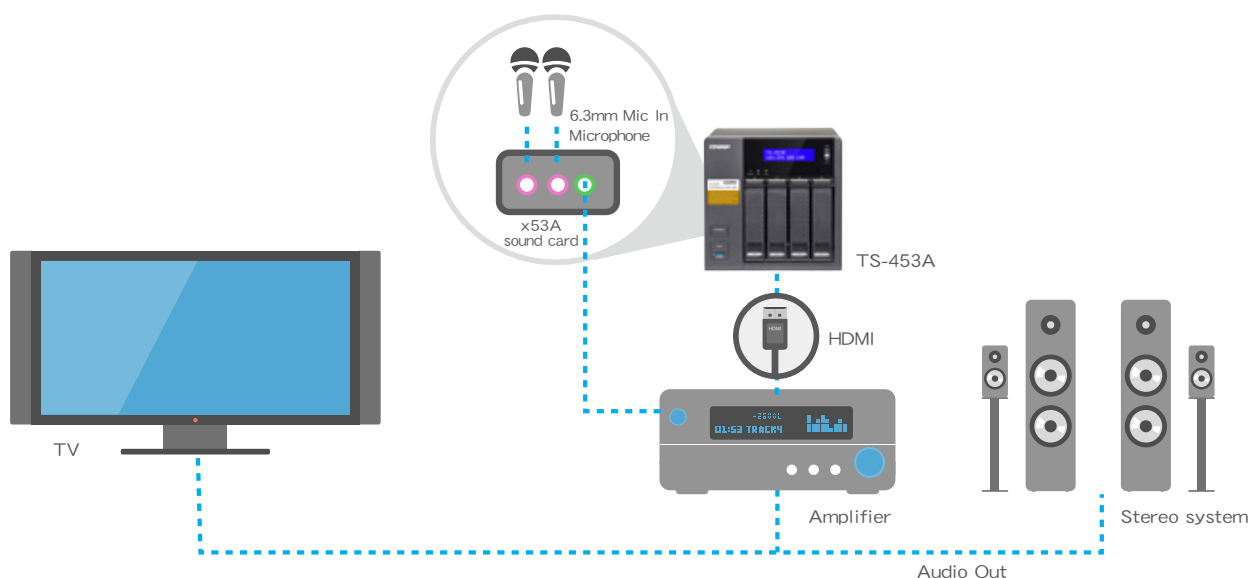
Please go to "QTS" > "App Center" and search for "OceanKTV" and install. The OceanKTV runs on the HybridDesk Station of QTS, the QNAP NAS operating system. After finishing NAS basic setup, go to "Control Panel" > "Applications" > "HybridDeskStation", and then install it.



Minimum NAS requirements: Equipped with an HDMI port/ at least 4GB Memory/ built-in sound card (or purchase a USB external mixer separately)/ The microphone must be a dynamic microphone.

## Convenient home entertainment with HDMI screen

QNAP NAS with HDMI outputs has proven to be very popular among home users. Simply connect the NAS to a TV with an HDMI output to enjoy the massive amount of multimedia content stored on the NAS. It could not be easier! Run the integrated Karaoke TV on HybridDesk Station and enjoy free Karaoke TV. You're now ready to invite your friends over for the ultimate Karaoke experience offered by your QNAP NAS!



## Use your mobile phone or tablet as a remote control

The OceanKTV is compatible with both iOS and Android, and you can control OceanKTV remotely via your mobile devices. Just connect your mobile phone or tablet to the same network as your NAS, and download the OceanKTV for iOS or Android from the app store of your mobile device. Then you can log into your NAS and get the party going. Through this app, all basic Karaoke features, such as enabling singing guide, echo, song change, volume adjustment, pause and even sound effects, are readily accessible on your mobile device.

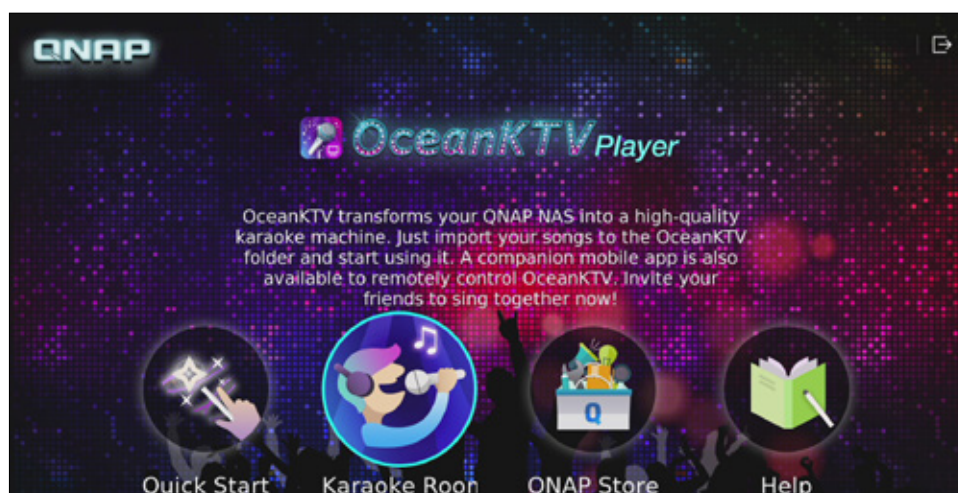
**>** To download the OceanKTV app: for iOS users, go to "App Store", and then search for and download "OceanKTV"; for Android users, go to "Google Play Store", and then search for and download "OceanKTV".





## The OceanKTV Song Library Management

In addition to the OceanKTV app that runs on the Linux Station/HD Station and the iOS/Android app, we are also launching an application that runs on QTS. All operation and management features are available here; you can select or insert songs, adjust volume, add in sound effects and enable the singing Guide, etc. Can't reach the high note? Adjust the pitch of the song using the integrated pitch adjustment feature. Now you can be a Karaoke superstar!



## Importing songs into the NAS

After installing OceanKTV, you'll find the "OceanKTV" folder that is automatically created in File Station. All you have to do is to add your favorite songs to this folder and you'll be able to sing these songs using OceanKTV.

## OceanKTV dedicated remote control

We will soon launch a dedicated remote control for OceanKTV: RM-RF001. The RMRF001 is specifically designed with the buttons and features that you need for operating a Karaoke TV system. This enables you to operate the OceanKTV effortlessly!



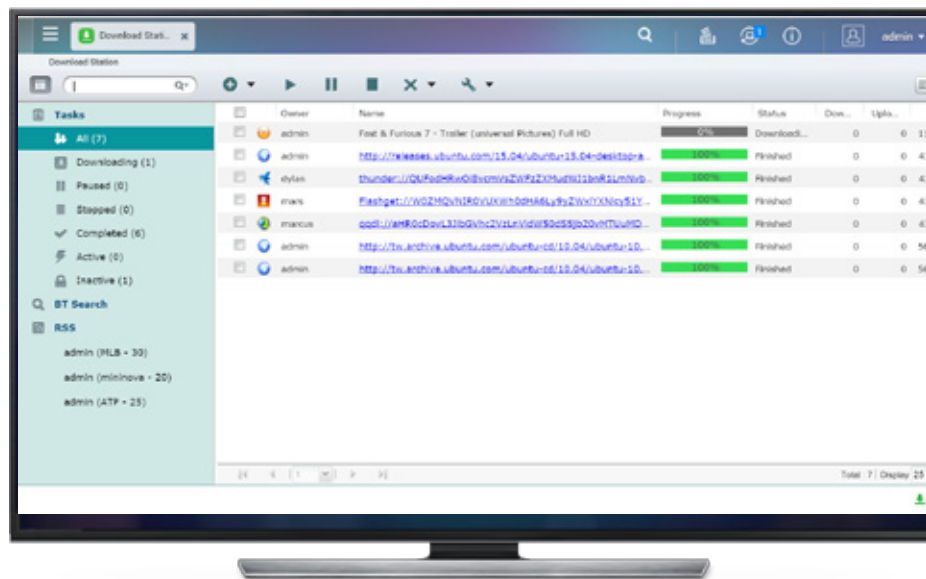
RM-RF001 is sold separately. For further information about the function keys, go to the "Help" page of OceanKTV.



## Download Station 4.2

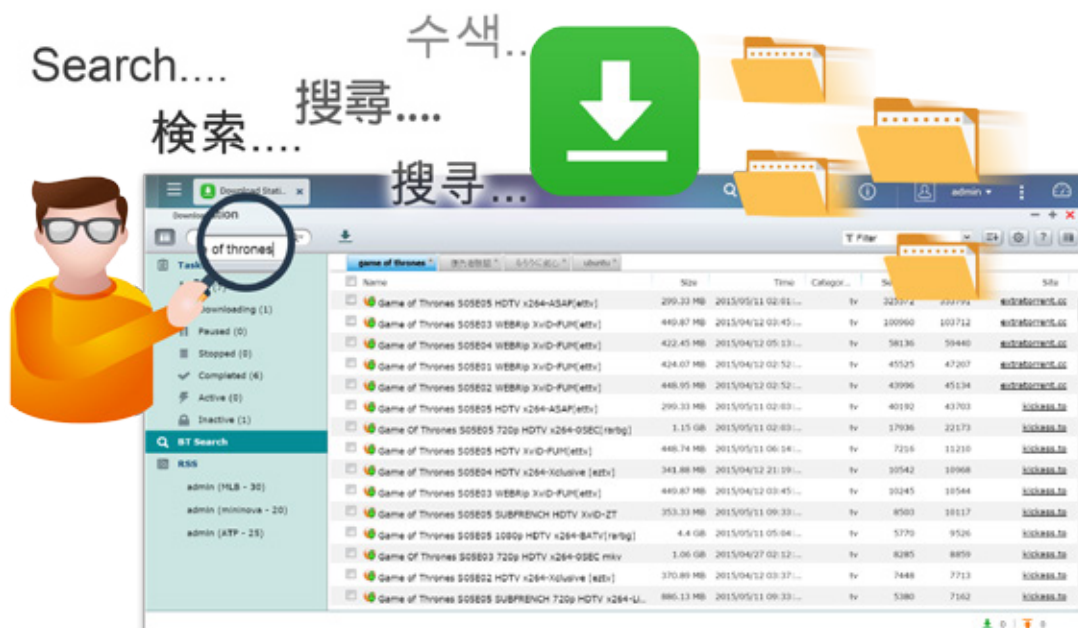
### Your 24/7 download center

Once you finish managing download tasks, just turn off the computer. The download tasks will keep going until they are finished. Easy, and power-saving.



## Built-in search engine with multi-language support for BitTorrent® sites

Download Station has a built-in torrent search engine and supports searching BitTorrent® sites in a number of languages. This saves you the trouble searching for BitTorrent® seeds on the Internet and you can directly search for files in Download Station.



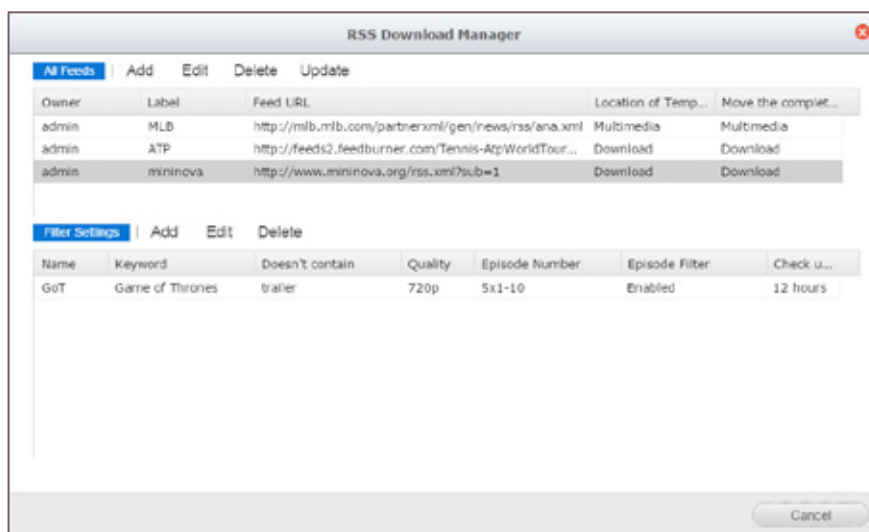
## Wide range of download types

Supports HTTP/HTTPS, FTP/FTPS, BitTorrent®, PT\*, Magnet Xunlei®, FlashGet®, qqdl as well as Baidu® Cloud downloads.

➤ For PT download, supported client applications vary based on PT sites. If Download Station (libtorrent) is not in the client application list recommended by your PT sites, please search for an alternative one (ex. Transmission™) in the App Center.

## RSS subscription and automatic download

You can subscribe to RSS feeds, also set filters and download criteria, and Download Station will automatically download subjects that interest you, enabling you to grasp all of the latest information.



## Sharing by multiple users

Under your control, you, as a system administrator, can grant the access of Download Station to NAS users\*, enabling all your friends and family members to enjoy the convenience brought by Download Station.

➤ Please grant application privileges for Download Station to users in "Control Panel" > "Users" > "Actions" > "Edit Application Privilege" button.



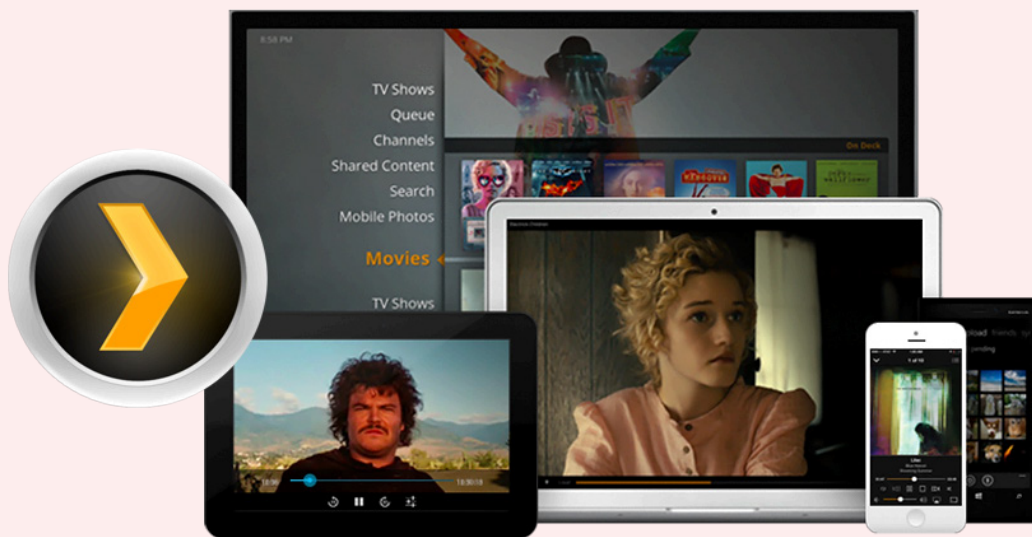
## Online download settings and scheduling management

You can set the download/upload speed limits according to your personal needs with a flexible download schedule, allowing you to optimize your bandwidth distribution.



## Plex Media Server – professional media server

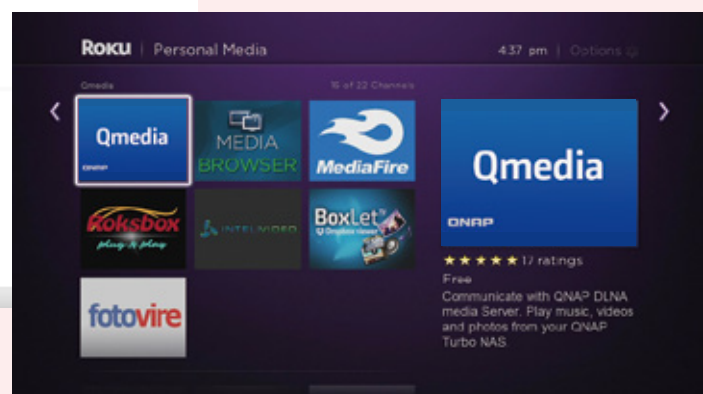
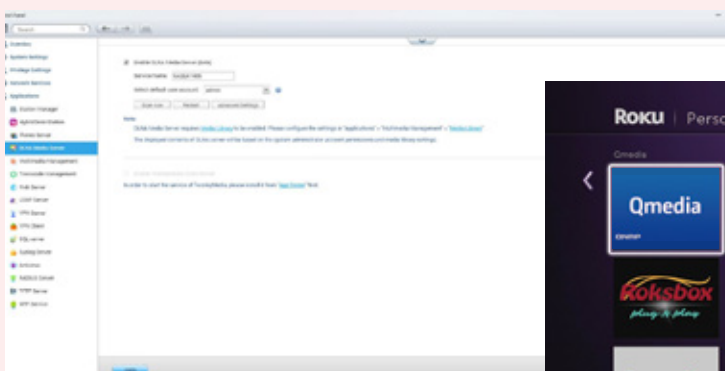
Plex is a well-known media server and media center application. Video streaming is made easy with Plex Media Server. Use Plex Media Server to enjoy easy management and instant playback of all your media on your NAS wherever you are. Plex apps for Android, iOS, Windows, and Windows Phone let you browse and enjoy your media on your choice of device. Plex Media Theater can directly display your media via an HDMI output or via a stream to Plex mobile app clients, either on the same machine, the same local area network, or over the Internet. Configure Plex Media Server to index and transcode content in any directory on your NAS to reduce bandwidth and increase playback device compatibility. It allows extensibility through the addition of plug-ins. Plex Media Server can be downloaded and installed from the App Center. For more information about Plex Media Server, visit <https://plex.tv>



## Qmedia - a player designed for Roku®

Qmedia is a customized channel for Roku®, which enables you to browse and play the media stored on your NAS via Roku. Qmedia enables users to easily stream photos, music, and videos from a QNAP NAS to a TV. With full support for on-the-fly transcoding on your NAS, users can transcode media files to formats that can be streamed by Roku. Improve transcoding performance by installing CodexPack if your NAS supports hardware acceleration.

Roku uses DLNA to retrieve media from the NAS. To enable the QNAP DLNA Media Server go to "Control Panel" > "Application" > "DLNA Media Server" and check "Enable DLNA Media Server". Then add the Qmedia channel on your Roku. Search for it on the menu or go to "Streaming Channels" > "Personal Media" to find Qmedia and add it to your Roku. Now you can enjoy media content streamed from QNAP NAS on your TV.



# Productivity Tools

## Maximize the value of your QNAP NAS

To enhance the value of your QNAP NAS, we constantly improve the capability and management services of the NAS to assist you in managing multiple QNAP NAS units. In addition, we innovate a wide range of apps to allow you to utilize the services on the NAS too boost your productivity, making your NAS a safe and highly accessible center for you data.

### Cloud access service – myQNAPcloud 2.0

myQNAPcloud Offers an easy-to-use management interface, enabling you to check online information of multiple QNAP NAS. Operating through the browser, you can download move, copy and share files via QNAP NAS.

### Data synchronization – Qsync Central Station 2.0

Qsync provides you with the unlimited ability to synchronize and share files across multiple devices, free of charge.

### NAS central management system – Q'center 1.1

Using the summary charts and other visual reporting tools on the Q'center server, you can easily manage the disk capacity, view system health status and configure server settings on multiple QNAP NAS units.

### The ultimate advertising tool – Signage Station 2.1

Signage Station can easily create and deploy attractive and engaging multimedia signs and ads.

### Centralized mail service – Qmail Agent 1.0 Beta

Qmail Agent supports different email accounts to allow for central management of all of your email services. It also supports SSL encryption in mail retrieval to enhance data privacy and security.

### IPMI remote management – QPulse™Beta

QPulse™ is a centralized remote server management solution designed for IT administrators.

### Notetaking with cloud-based services – Notes Station 2.0

One workspace for all your writing activities. Quickly compile meeting minutes and marketing reports and collaborate and share in real-time with anyone in the world.

### NAS search engine – Qsirch2.1

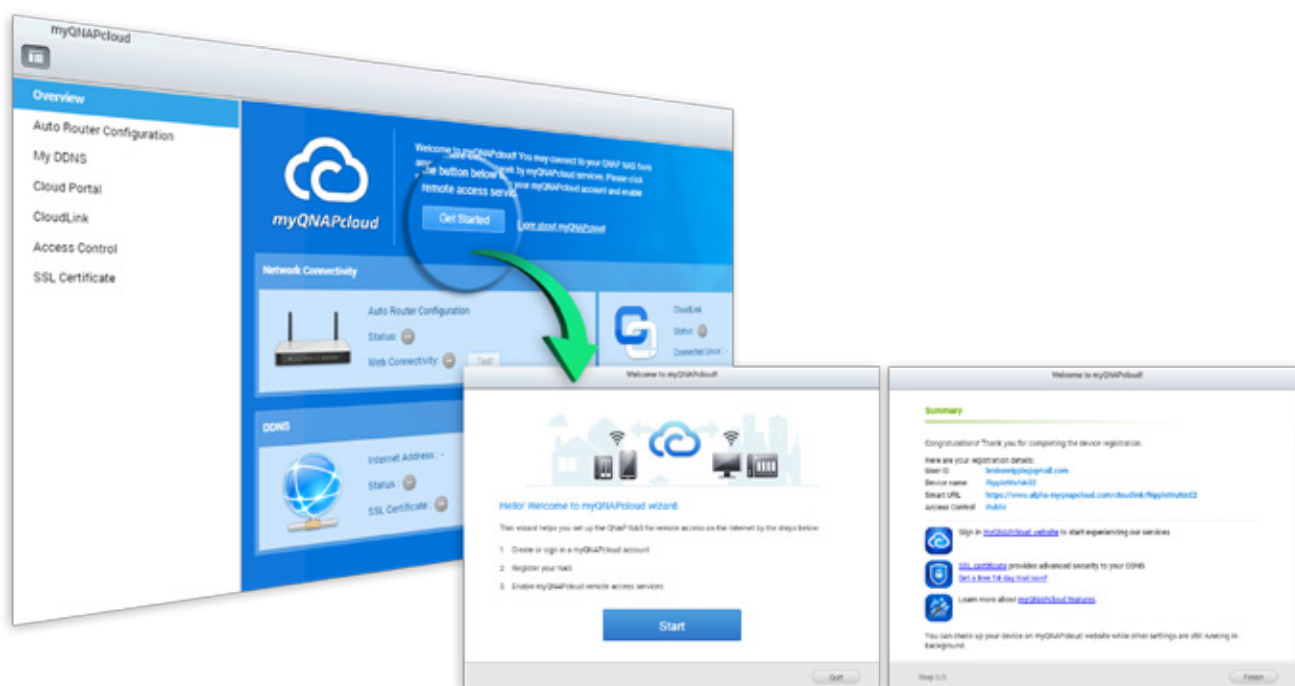
Qsirch is a full-text, domain-wide search tool. With a single keyword, Qsirch can help you locate relevant files or content on a NAS. Qsirch enables users to search while typing and sort through files faster and more precisely.





## myQNAPcloud 2.0 cloud access service Helps you easily create your NAS cloud

Cloud access is greatly simplified in QTS 4.2.1. Following the setup wizard you can effortlessly create your personal or private cloud. With myQNAPcloud 2.0, you can always enjoy the services of your QNAP NAS safely and conveniently.



Just follow the wizard's instructions to set up the cloud access.

## myQNAPcloud ID (QID)

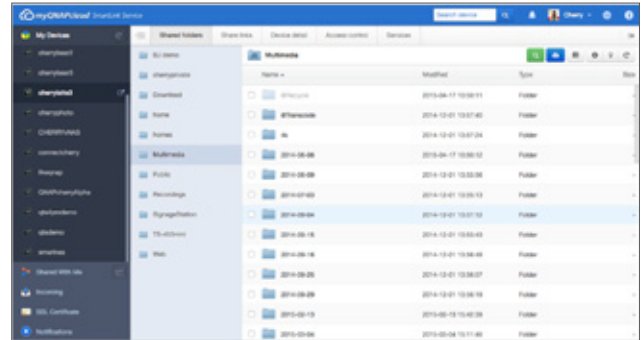
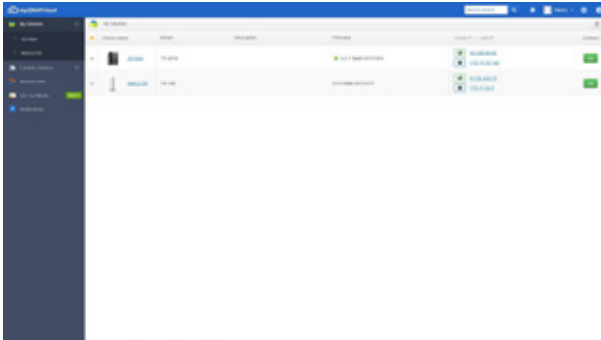
Access your QNAP NAS by signing into your myQNAPcloud portal ([www.myqnapcloud.com](http://www.myqnapcloud.com)), mobile Apps, or the PC utility Qsync with "QID", a unique ID for you to access your NAS and securely share your private data and files. When you start the myQNAPcloud App in QTS 4.2.1 for the first time, the myQNAPcloud wizard will help you register a QID.



To use the services described in the following page, please first activate the cloud services using the myQNAPcloud wizard.

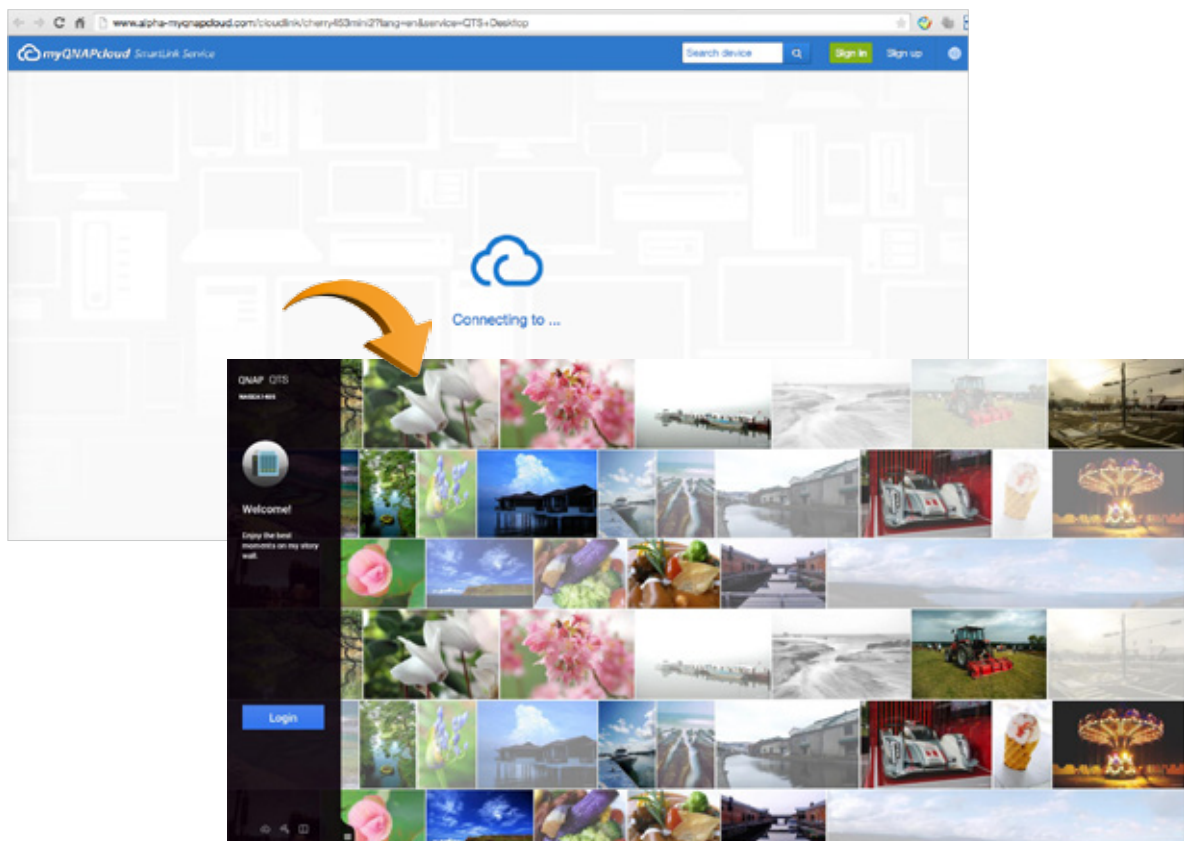
## Manage files and multiple NAS devices with your web browser

The myQNAPcloud web portal ([www.myqnapcloud.com](http://www.myqnapcloud.com)) is a user-friendly interface that allows you to check available and connected NAS servers. You can download, move, copy and share files stored on your NAS servers with your web browser and enjoy the convenience of accessing multiple NAS servers from a central Internet portal.



## CloudLink

CloudLink is the remote access service provided by myQNAPcloud and allows you to connect to your device via the Internet using the myQNAPcloud website ([www.myqnapcloud.com](http://www.myqnapcloud.com)). No complicated port forwarding settings on the router are required: just sign in using your myQNAPcloud ID (QID). Then, you can access files from the myQNAPcloud website. CloudLink will automatically select the best connection for you according to your network environment. In addition to the web-based connection, CloudLink also allows you to connect to your QNAP device with the QNAP mobile apps Qfile and Qmanager as well as the PC utility Qsync. CloudLink greatly simplifies remote connectivity.





## QID access control

To enhance remote access flexibility, you can set access privileges of published services in myQNAPcloud in QTS 4.2.1 or the myQNAPcloud website:

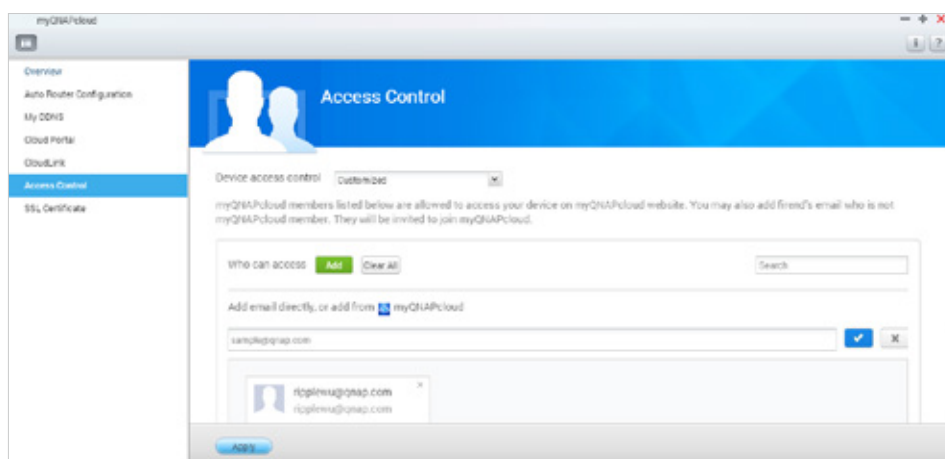
**Public:** Everyone can search for your device on myQNAPcloud website and access your public services.

**Private:** Only you can access your QNAP NAS remotely on myQNAPcloud website or with mobile apps via CloudLink service.

**Customized:** You can specify who is allowed to access your device on myQNAPcloud website or with mobile apps by entering their registered accounts here. Or you can add the email addresses of your friends who are not currently members of myQNAPcloud to send them an automated invitation message.

## Secured data storage and access

myQNAPcloud supports SSL 2048-bit online encryption to strengthen data security during transmission, ensuring your peace of mind.



## Supports myQNAPcloud SSL authentication


myQNAPcloud SSL certificates are used to provide a secured connection between the QNAP NAS and web browsers, providing authorization as well as encrypting the connection to secure data and transactions.

## Why do I need myQNAPcloud SSL authentication

When not using myQNAPcloud SSL authentication and linking using HTTPS to a QNAP NAS (i.e. <https://xxxx.myqnapcloud.com>), the browser will display a security alert. You will not be able to ensure that the NAS you are trying to connect to is genuine, and you run risks of potentially having the data that you are transmitting being intercepted.

Upon purchasing and installing a myQNAPcloud SSL certificate, you will be able to ensure that the web page you are connecting to is genuine when using DDNS to access a QNAP NAS.



 Please go to the myQNAPcloud website and log in using myQNAPcloud ID to purchase it, where the QTS installation authentication is on this webpage. myQNAPcloud SSL authentication is only available when used with QTS 4.2 or newer version.



## Qsync Central Station 2.0

### Centrally manage and sync your files and devices

Large volumes of data are transmitted and used by businesses and between departments on a daily basis. While public cloud services like Dropbox™ can fulfill easy sync and sharing needs, their low data allowances and potential security and ownership issues can leave a lot to be desired. With Qsync, QNAP provides a complete file sync solution that allows businesses and organizations to ensure that team members always have the most up-to-date files for greater working efficiency.



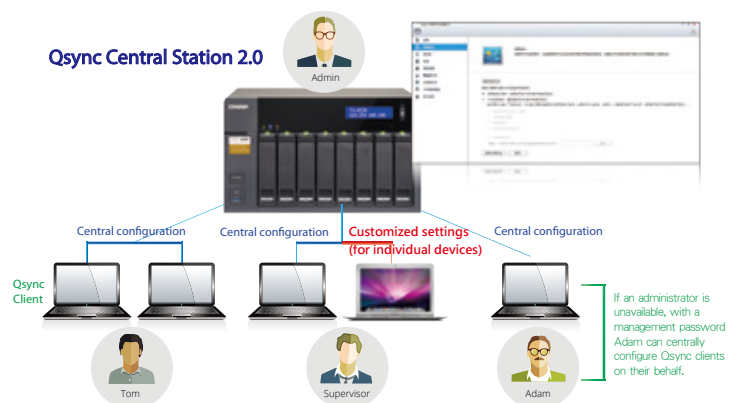
### Synchronization as a better file management and collaboration approach



Qsync Central Station 2.0 supports file synchronization between multiple devices, and you can utilize a smart phone, tablet, computer or webpage to browse through synchronized files. When your computer is offline, you can edit the files offline or view the files on the local Qsync folder, and as soon as the network resumes, online, Qsync will resume the data synchronization. You can also choose to keep the files stored on your QNAP NAS un-deleted to save the storage space of your local device.

### Enhance management efficiency by monitoring equipment settings

The administrator can create default settings on Qsync Central Station 2.0 and also apply them to Qsync clients, which helps to not only save time and effort setting up individual clients, but also allows administrators to monitor user settings, thereby strengthening enterprise-wide IT management and file filtering control and avoiding the risk of deleting files on a QNAP NAS by mistake due to synchronization. Also, by using permission settings, administrators can flexibly adjust individual user's equipment settings, where it not only retains the above advantages, but further enhances the flexibility and convenience of the centralized management approach.





## Supports shared folder synchronization and seamless file sharing for each other

Besides the Qsync folder, now you can synchronize shared folders on a QNAP NAS to the Qsync client on your computer, enabling synchronization among multiple shared folders on the NAS and elevating the level of file sync and sharing efficiency to a higher level.



## Share team folders to improve collaborative and teamwork efficiency

Qsync Central Station 2.0 supports sharing team folders to improve work efficiency, making teamwork simple and easier. Deploying the private cloud synchronization solution on the intranet can help to ensure security of data storage, and the Version Control feature of the shared folder can effectively solve file conflicts or accidental deletion.

## Remotely delete shared folders to prevent data leaks



In the event where a computer/device is stolen or lost, the Qsync folder can be remotely erased\* to ensure that sensitive or confidential data is not accessed by unauthorized users or leaked. Once the computer/device is recovered, Qsync can easily restore the data that was deleted, ensuring the perfect balance between security and convenience.



The data will still be retained on the QNAP NAS.

## Advanced system database and algorithms for enhancing system performance

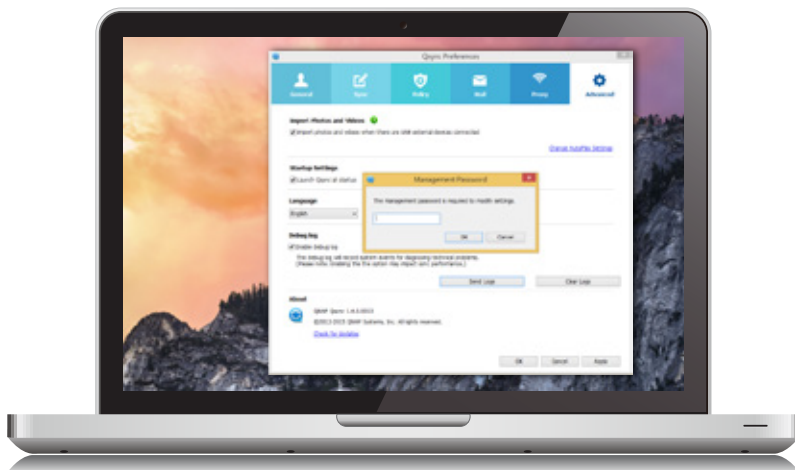
On QTS 4.2.1, a brand-new database system and refined algorithms are incorporated into Qsync Central Station 2.0 to greatly improve the overall system performance and reduce the burden on the NAS and computers/devices using it. When accessed by a single user, Qsync Central Station 2.0's upload efficiency nearly doubles. With 20 users, the upload efficiency further increases by nearly 20 times. All the improvement can maximize collaborative efficiency while minimizing the wait time for the team.

Single user

2x

Multiple users

20x



## An array of user settings to choose from

Qsync Client's easy-to-use interface is very user-friendly and comes with a number of handy and practical features (i.e. sharing files through the computer's mail server, connection test, help center.) With Qsync Client, managing all tasks becomes a piece of cake.

## Qsync Smart Version Control

Enable Qsync version control and all file revisions (up to 64 versions) are saved as a copy for future retrieval. In the event of accidental deletion or unintended modification, previous versions always remain available, even files that have been deleted from the recycle bin.



## The Qsync utility

With the Qsync utility, you have all the files you want on the computer, server, or mobile devices you use without spending a lot of time copying files manually.



Available for Windows® and Mac.



## Share team folders with different groups of people

Your life is connected with different groups of people. You can create sub-folders within the Qsync folder, and share them with different groups of QNAP NAS users.

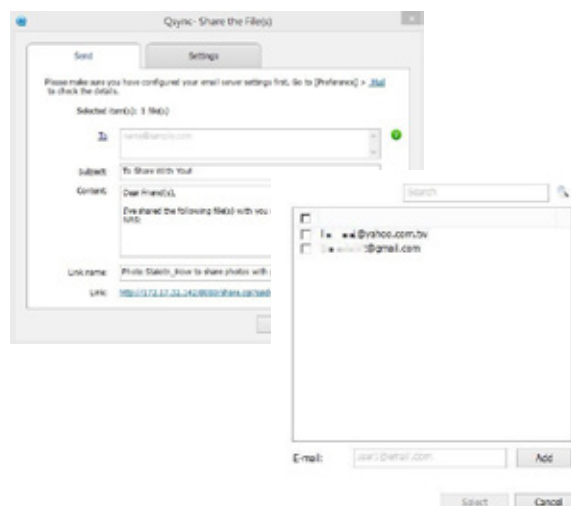
## Sync selective sub-folders

When synchronizing files, you can choose to only sync specific sub-folders within the Qsync folder, which is useful if your computers have limited storage.



## Streamlined file sharing with previous contacts

Qsync has been updated to save and display contact details from previous file sharing occasions. As such, when you share a new file the process of sharing a file is simpler and more streamlined without having to look-up and enter contact information.

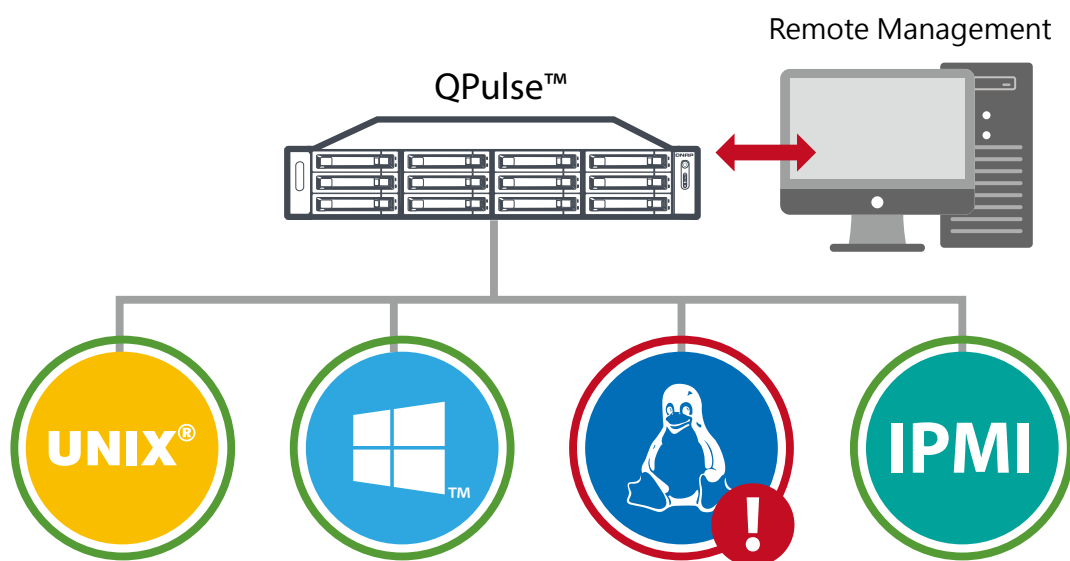




## QPulse™ Beta

# Unified remote PC and server management solution

QPulse™ is QNAP's Centralized Remote Server Management solution designed for IT Teams. QPulse™ Monitors and controls the pulse/health of all the mission critical servers in your network. QPulse™ provides single point solution to discover, map, monitor and manage all the critical computing devices (servers/PCs/thin clients etc) in your network. Manage your servers from multiple clients with-in or from outside of the same network.



## Key benefits

- Increases an IT department's visibility of the health of mission critical servers.
- Discovers, maps, monitors, and controls computing resources on your network from a single platform.
- Centralized web-based solution.
- Supports both Agent-based (QPulseAgent) and Agentless(IPMI) monitoring. Supports IPMI 2.0
- Keeps track of all mission-critical device settings and provides state of art alert/event management.
- Helps analyze the performance of network resources.
- Supports multiple platforms including Windows® and Linux™ with QNAP's QPulseAgent- A lightweight remote management agent
- Fast, easy implementation and maintenance reducing trouble shooting time. Helps bring systems up quickly.
- Reduces system administration and operation costs and maximizes an IT department's productivity.
- Increases system availability by identifying problems early.



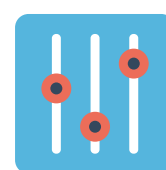
Discover



Map



Monitor

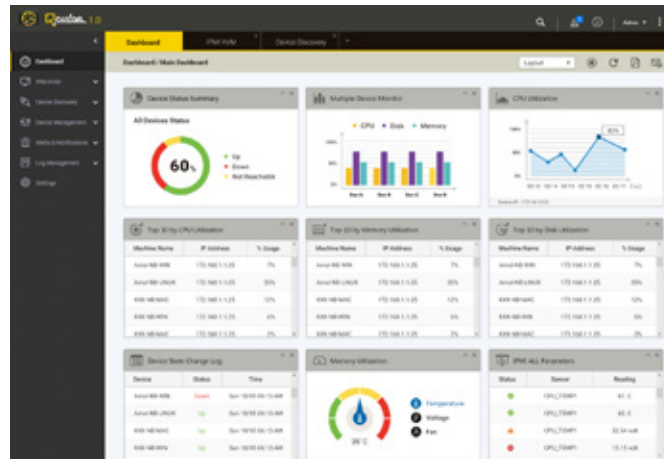


Control

## Customizable dashboards

QPulse™ has customizable dashboards offering useful, timely, consistently presented information that aid in efficient decision-making for IT administrators.

Multiple graphic and informative widgets make system monitoring simple. Quicker single-point access across your entire infrastructure removes the time-wasting friction of several web-browser tabs and multiple interfaces enabling you to seamlessly monitor and manage your devices.



## Device discovery and topology

QPulse™ identifies all the devices on your network including routers, switches, printers, servers, workstations, and mobile devices. Discover all the devices on your network using an IP Range scan. QPulse™ maps discovered devices into a network topology. Network maps are a powerful trouble shooting tool that assist you in visualizing your networks and quickly isolating the root cause of a problem.



## Web-based management

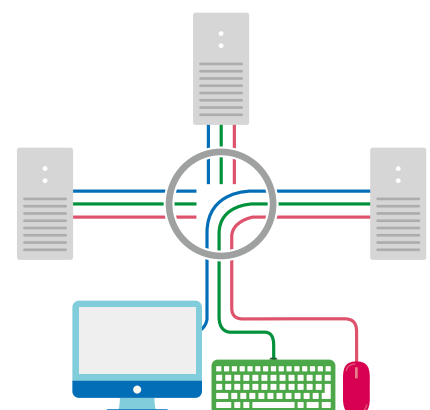
QPulse™ is a centralized, web-based solution accessible to your IT administrators from any web browser. QPulse™ supports monitoring multiple components in your system, including CPU, memory and disk utilization, CPU temperature, CPU Fan speed, and many more. This gives complete visibility of all mission critical computing devices.

## Remote KVM solution for IPMI

The QNAP proprietary KVM Proxy solution for IPMI compatible servers enables you to remotely control a server even if the server is turned off or in BIOS mode. QPulse™ KVM solution supports multichannel access enabling more than one client to connect to the remote server using KVM at the same time. QPulse™ supports Remote desktop for non-IPMI devices based on noVNC technology. QPulse™ also supports remote SSH.

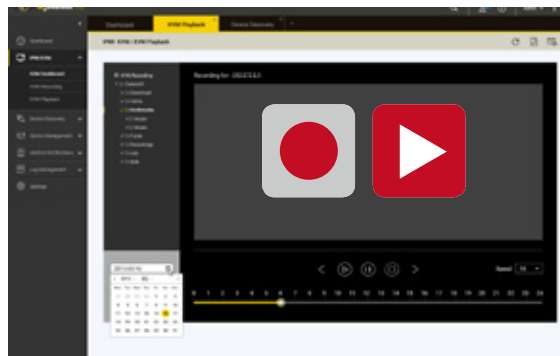


Remote KVM over IP in Browser.



## Remote KVM Recording and Playback

Enable KVM recording and all the KVM data will be recorded in video format to the NAS. This enables playback of the recording based on Date and Time to track specific events. This provides a unique way for administrators to log each action taken on server improving security.



## Alarms and Notifications

Use QPulse™ Alerts and Notifications detailed telemetry to receive rich, frequent, monitoring and diagnostics data about your resources. QPulse™ Alerts and Notifications enable IT departments to deploy an intelligent management system to monitor the health, performance, availability, and usage of services. This monitoring and control reduces maintenance costs through early detection, triage, and diagnosis of issues before they happen.

## Security

- Mission-critical servers and computing resources require extra security considerations. QPulse™ fully supports:
- Two-Step Authentication: 2-step verification enhances the security of user accounts. Once enabled, users will need to enter a one-time security code (6 digits) in addition to your password whenever you sign in to QPulse™.
- Role based user management (Admin, Power User, Viewer): Easily manage and assign user access levels with user roles.
- SSL access: Access QPulse™ using SSL (Secured Socket Layer) to ensure secure network communications.

## Log Management

QPulse™ is capable of logging device settings, alarm notifications, and IPMI events. This enables administrators to view current and historic data about each device. This analytical information enables an IT team to find resource utilization patterns, alert patterns and in turn make use of the relevant information for disaster mitigation and future capacity planning.



To use QPulse™, please install Container Station and download QPulse™ from the QTS App Center.  
Minimum system requirements: Intel® Core i5 processor and 4GB of memory.



## QPulseAgent

Developed by QNAP, QPulseAgent is an agent program installed on workstations and allows QPulse to monitor and manage them. After you add a device to the QPulse server, the system will automatically install this agent program to that device. Or, you can choose to manually install QPulseAgent on the workstation if you prefer.

QPulseAgent currently supports the following operating systems (more to be added later):

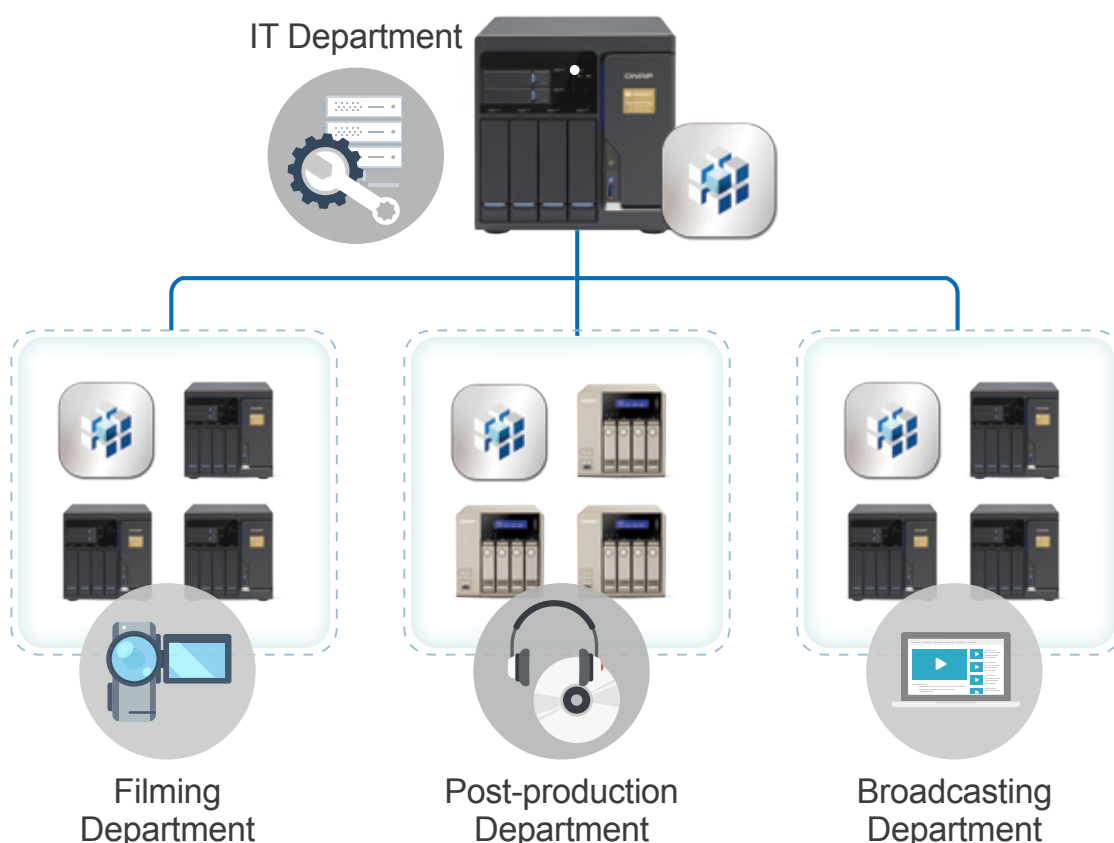
Platform	Operating System
1. x86 - Windows	Windows XP/7/Vista/8/8.1/10, Windows Server 2008/2012
2. AMD64 - Windows	Windows XP/7/Vista/8/8.1/10, Windows Server 2008/2012
3. X86 - Linux	Ubuntu 12.x/14.x/15.x





## Q'center central management system Intuitive multi-NAS management GUI

Previously, IT administrators needed to log in to QNAP NAS units individually to check their status. The QNAP Q'center CMS (Central Management System) offers a platform to centrally manage multiple NAS units. The simple setup, cost effective, convenient and flexible approach that Q'center delivers greatly improves management efficiency for IT administrators.

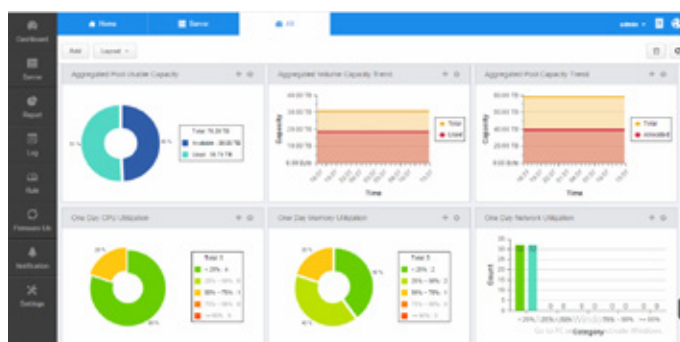


### The Best Utility for IT Administrators

Q'center is a powerful QNAP NAS management tool. You can view the status and system information of multiple NAS units at the same time from the Q'center Server. You only need to install Q'center on the master NAS and set all other QNAP NAS units as managed stations, and all their relevant system information can be easily checked on the Q'center Server. Q'center can greatly assist IT administrators and QNAP NAS users in system resource allocation and future capacity planning.

### Central Management Platform

The "Dashboard" screen provides you with tools to conveniently inspect and monitor system status for all connected NAS units and allows you to efficiently review system logs of selected NAS units. You can customize dashboards to get a quick overview of specific system information or statuses and alerts.



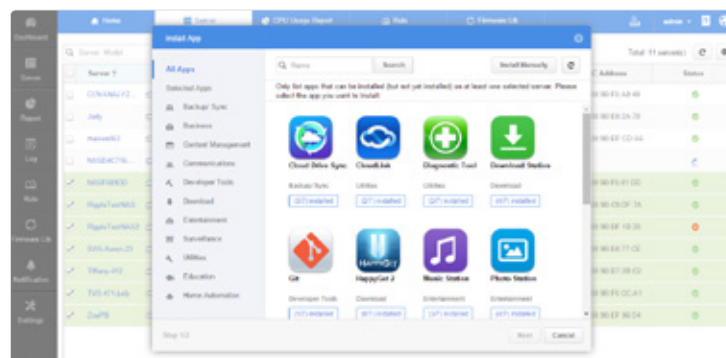
## Visualized Statistics

The visualized statistics and messages allow you to rapidly gain a clear picture on the system status of all QNAP NAS units, including disk usage, shared folder space usage, HDD IOPS, HDD delays, and CPU usage for use as the basis of your system utilization trend analysis.



## Centralized platform

You can use Q'center as a centralized platform to enable network services and other settings on a group of NAS units at once or a specific NAS unit. Q'center can also act as a firmware storage center and be used to store historical firmware versions or schedule firmware updates for all NAS units or a specific NAS unit to improve efficiency for IT operations.

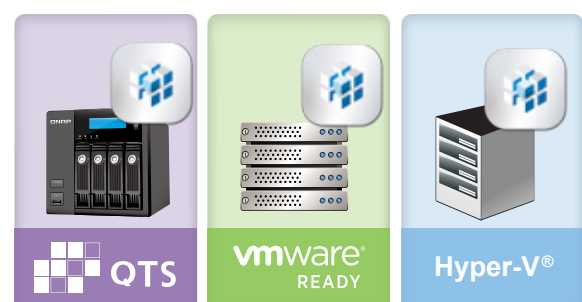


## Manage QNAP NAS behind firewalls

The exclusive firewall traversal technology from QNAP enables Q'center to connect different QNAP NAS units in different geographic locations and subnets. Using Q'center Agent, you can quickly establish connections between NAS clients and the Q'center server, saving you the trouble of complicated router and VPN settings.

## Q'center for VM

QNAP also offers a version of Q'center for VMware® and Windows® Hyper-V® enabling installation to a virtual machine without needing a QNAP NAS, adding flexibility to your setup choices.

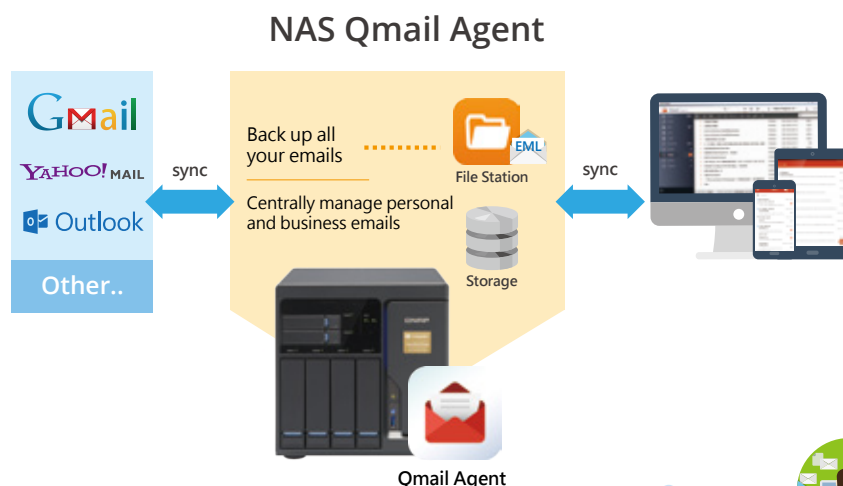




# Qmail Agent 1.0 Beta

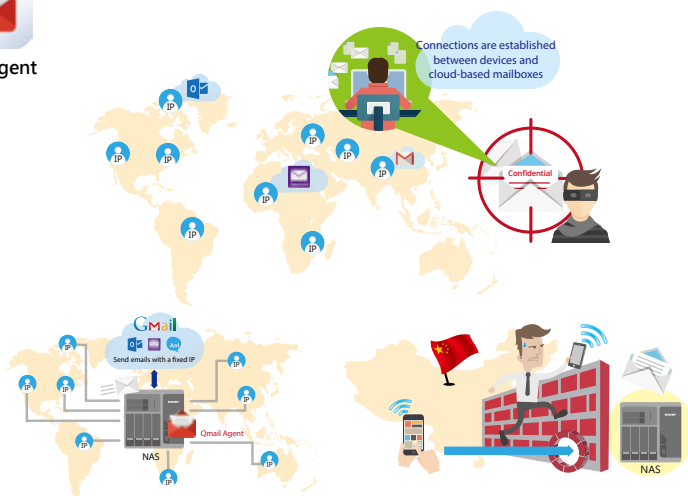
## For all your NAS-based email operations

Easily manage your all of your accounts using the Qmail Agent simple and intuitive interface. Add email accounts with customized settings on a per user basis. Qmail Agent fully supports fast access to contacts, preferences, sorting, deleting, tagging and integrates a powerful search function.



## Send and receive emails in restrictive countries

Email is a core part of everyday life and wherever you send an email, your IP address along with your login credentials are recorded for email operations on the Internet. This not only exposes your location, leaving yourself vulnerable to malicious monitoring, but also opens a potential loophole for breaching your privacy. To address these issues, QNAP introduces Qmail Agent, an app developed to protect your email privacy and help you efficiently manage your email accounts. With Qmail Agent, your IP address will no longer be recorded or blocked and you can also use Gmail in privacy-restrictive countries (such as China.)



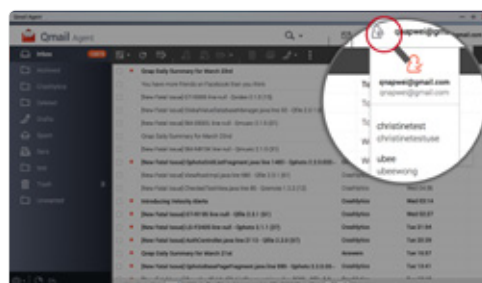
## Conveniently attach files from the NAS

Qmail Agent allows you to attach files, documents or photos stored on the QNAP NAS to the email. Likewise, the attachments you receive can be saved directly to the NAS for safekeeping.



## Easily switch accounts

Qmail Agent is an online mail client that allows users to access all of their email accounts and switch accounts easily. Whether it's Gmail, Outlook, Yahoo!, or other IMAP and POP3 mailbox services, Qmail Agent supports them all. It provides complete functionality for composing, reading and organizing email messages. It can also attach files, photos and documents from the NAS and works with Gmail Backup to review archived emails.

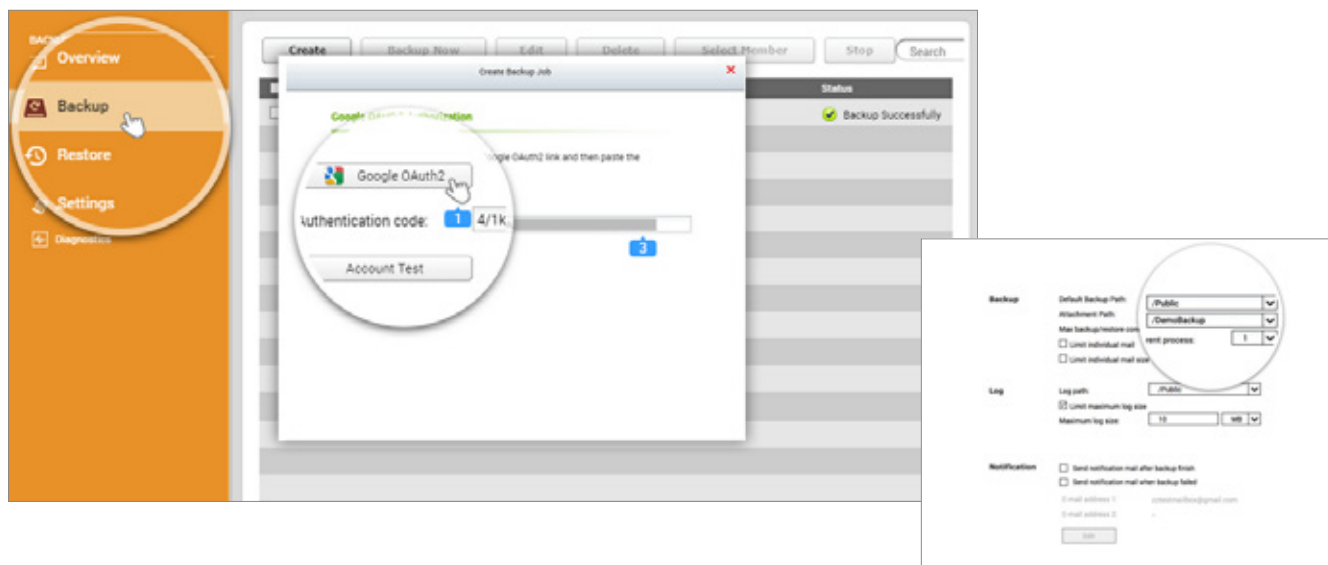




## Gmail Backup 1.3

### Dedicated storage for email backup

The QNAP Gmail Backup app provides Gmail backup and recovery functionality, allowing users to search and organize archived emails and their attachments.



### Complete email backup

Gmail Backup supports OAuth 2 authentication for individual and domain account email backup and migration. The application can be configured with a dedicated folder for each backup task for single or domain accounts, assisting users in quickly backing up, searching and managing their emails.

### Separately access and search attachments from an email

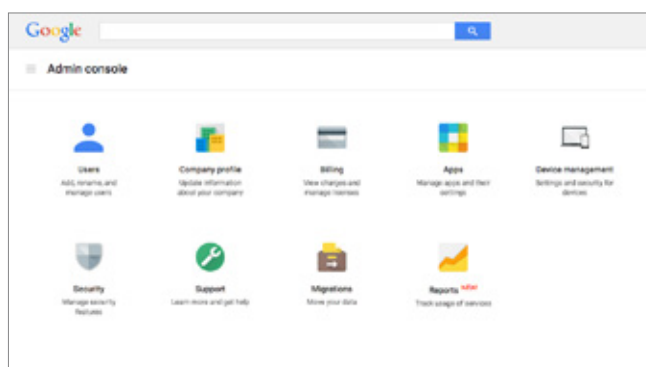
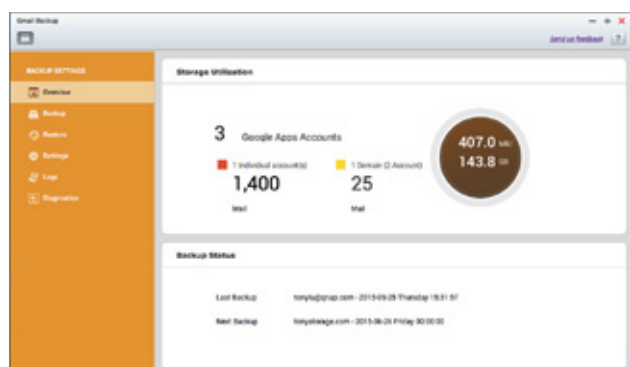
Back up attachments to a separate backup folder that can be designated when setting up an email account for better organization of archived data. And finding attachments can also be more efficient with NAS's search utility- Qsirch.

### Efficient Gmail recovery

If emails are mistakenly deleted, the recovery function can restore them to their original email account without needing additional tools. Users can also choose to restore a specific email or all emails from an account.

### Complete operation logging

Gmail Backup is capable of logging all of the activities and backup status for users to view their backup process in detail.





## Notes Station 2.1

### A handy notepad on your private cloud

QNAP has leveraged its private cloud functionalities to introduce Notes Station 2.1. It provides the convenience of notetaking on cloud-based services but with the privacy and security of QNAP NAS. Users do not have to worry about risks from public storage, and are able to enjoy easier data access at all times.

### Single workspace for all notetaking activity

With its 3-level structure (Notebooks, Sections, and Notes), Notes Station 2.1 allows you to manage all your notes systematically and flexibly whether it is a note you write to yourself or for work. You can jot your valuable ideas in Notes Station 2.0 and keep them safely accessible through your own devices wherever you are.

### Powerful editing

Notes Station 2.1 is capable of advanced editing. You can style the text by changing the size, font, or color. You can also edit inserted images with the built-in photo editor to enrich your content.



### Diverse backup styles

Notes Station 2.1 offers several backup options. Users can choose to back up files to their PC or NAS. Additionally, system administrators can use the backup features of the NAS to periodically and remotely replicate everyone's notes.

	Notes Station 1.0	Notes Station 2.1
Snapshots for version control		v
Notebook backup	v	v
Full backup		v
NAS to NAS backup		v

\*Notebook backup: A user can choose to back up his or her notebook.

\*Full backup: This feature is for administrators only. Administrators can back up notebooks for all users of the NAS.

\*NAS to NAS backup: Administrators can back up notebooks to a different NAS for all users.

### Google Calendar Support

An event in the Notes Station Calendar links to the note you created it from. You can update the calendar from Notes Station 2.1 to your Google Calendar with a single click, so you will be reminded for every event.





## Protect notes with military-grade encryption

Notes Station 2.1 can secure your notes using the highly-efficient AES 256-bit encryption specification. By encrypting your notes, you can rest easy knowing that only authorized users can access confidential and sensitive information.



## Import & export PDF and epub files

Notes Station 2.1 allows you to directly import contents (such as comic books, eBooks, and scholarly articles) from PDF or epub files to assist in putting information together before editing, commenting, and marking. Existing notes on the Notes Station can also be exported as PDF or epub files for backup and sharing.



Some imported files may not be displayed as their original layout.

## Preview attached files

You can directly preview inserted documents (including PDF, Microsoft® Word, and PowerPoint® files) on Google Docs™ and Office Online™, and even play inserted multimedia files with the built-in media player without needing to download any files.



## Subscribe to RSS live feeds

Notes Station 2.1 includes RSS support that helps gather subscribed online content from websites and blogs. All of the latest RSS contents are effortlessly centralized on the Notes Station for easy note-taking.



## Restore notes to a previous version

Notes Station 2.1 features snapshots for version control, which can be used to retain different versions of notes at different time points. You can easily restore a note to a previous version whenever needed without worrying about frequent changes to notes.



## Share notes for teamwork

Notes Station 2.1 is helpful for communication and teamwork in work and life. You can create sharing links to share your notes via social networks and messenger apps on mobile devices, or invite other users to read and edit notes for productive communication and teamwork.



## Back up content from Evernote

Notes Station 2.1 supports backing up your notes from Evernote™, allowing you to directly import them from the Evernote™ public cloud to the secure private cloud provided by your QNAP NAS. You can further edit these imported notes with Notes Station's powerful editing tools and easily share with others.





# Signage Station 2.1

## The ultimate Do-It-Yourself signage solution

Signage Station is a free app for QNAP NAS. It allows businesses to create attractive menu boards, advertising posters and business profiles and easily publish them to monitors and tablet devices to attract more customers. For home users, they can edit their own multimedia content, and publish them to Facebook™ and other websites. There are no complicated steps involved, and by using simple drag & drop operations you can create content and dynamic resumes with iArtist Lite and publish them using your QNAP NAS.



## Drive business growth and increase revenue

Your content can be presented on a web browser and when on the go, and you can even show your profile, business card and product catalogs on mobile devices and share on Facebook. A QNAP NAS with Signage Station is the ideal tool to present creativity and drive business growth.

## Instantly publish and conveniently revise

With iArtist Lite you can save your designs as different projects and upload them to multiple QNAP NAS with Signage Station installed. Whenever you want to revise the content, just open iArtist Lite to update and publish instantly. You can fully control all your content in a timely way.

## Absolutely easy-to-use

iArtist Lite provides a drag-and-drop interface that allows you to flexibly embed videos, marquees, pictures, and PowerPoint® slides on the canvas panel. With the layered playlist and timeline features, you can freely arrange the order of media objects. iArtist Lite also offers numerous templates for various scenarios, saving you lots of time & effort. Useful widgets such as audio, clock, RSS are also available to add to the designed content.

## Collaboration increasing efficiency

The original content can be saved on a local computer or a QNAP NAS with the help of the connection wizard. Content saved on a QNAP NAS is accessible for every authorized user to increase the work efficiency in projects involving multiple members.

## Ready-to-use templates

It offers professional, quality templates that differ from the bland playback effects of most other animated signs. With an animation display mode, and high-resolution audiovisual playback, you only need to click on your mouse to download free advertisement templates, which will help to create attractive signs to improve your business.

## Selected QNAP template examples

### Sports bar

Inform customers about special deals and the TV schedule for sporting events.



### Healthcare center

Advice and notices can be easily shared and broadcasted throughout the health center to inform patients and staff alike.



### Selected furniture

Showcase the available furniture with attractive graphics and animations.



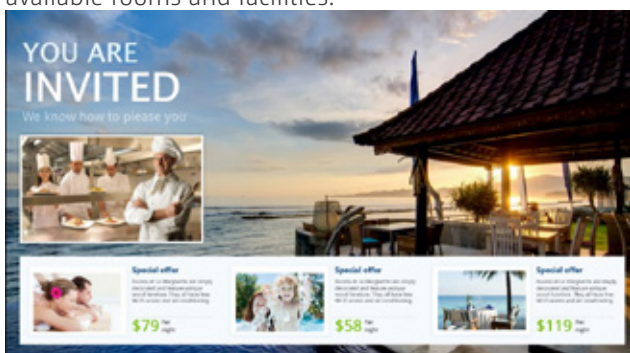
### Trendsetter

Allow your customer to get the latest trends and fashion information.



### Dream hotel

Introduce visitors to an animated walkthrough of available rooms and facilities.



## Easily create ad contents with iArtist Lite (For PC):

You only need to drag and drop media files on the iArtist Lite canvas, where you can quickly produce professional content. First select the device to be displayed on (tablet, TV, etc) and then resolution and layout (portrait or landscape) depending on how the device will be placed.





## Qsirch 2.1

# Search for everything on your QNAP NAS

A QNAP NAS is a converged storage solution required to store huge volumes of data and provide users with the tools and utilities to make use of that data. The first utility users need is the ability to find their data. Qsirch is designed to simplify and accelerate searching for files on a QNAP NAS. Finding your files couldn't be easier.



## QNAP exclusive, smarter search engine

Qsirch uses fine-grained indexing conditions in combination with its full-text search capabilities to support searching over 6,000 file types. Powered by TF-IDF (Term frequency - Inverse document frequency) algorithm and a near real-time search engine, the Qsirch enables users to search while typing and sort through files faster and more precisely. Moreover, the real-time suggestions ease your search and improve the overall user experience.

## Qsirch browser add-on for Google Chrome™

Install the Qsirch add-on to enable Qsirch from your web browser. Simply click on the Qsirch icon on the right of the address bar to search Google and your QNAP NAS simultaneously. Your Qsirch and Google search results will appear side-by-side for time-saving convenient comparison.



• Chrome add-on Qsirch Helper

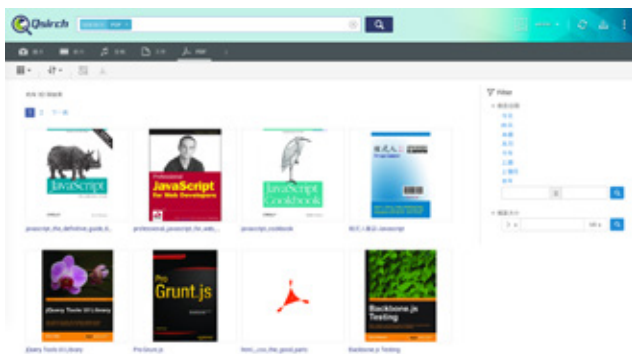


• Simultaneous search on Google®



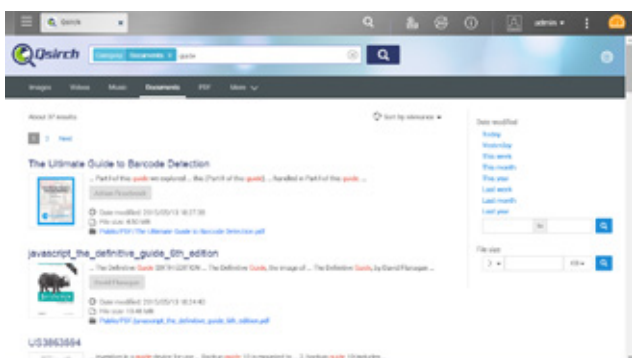
## Organization of results by type, and other attributes

Your search results can be filtered and organized by various types including photos, music, videos, and documents. This organization enables you to locate your desired results faster. Results can also be organized based on criteria such as date modified, file size, and many other standard file descriptors.



## Content Preview

Thumbnail previews for photo, videos, and PDFs makes searching and browsing through voluminous data a lot faster, while the highlighted keywords found within documents further helps you to quickly find what you're looking for. Moreover, the Gmail preview function enables you to preview emails and your Gmail backup files easily and quickly.



## Share directly from your search results

Qsirch 2.1 displays previews of your search results. Save time and share the content of your search results, directly from the previews. It could not be easier!

## File Indexing Status

File indexing runs as a background task, enabling you to oversee the indexing progress and status. This feature can also be used to exclude folders from indexing.

### Indexing

Public/test/11-87921.eml

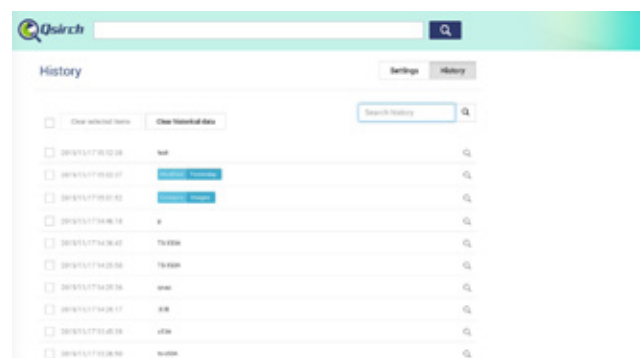
262 of 566 - 46%

241 file were indexed

Share folder	File(s)
✓ Download	14
✓ Multimedia	6
Public	529
Recordings	3
Web	4

## Saved searches for records

Save your search records browse through them later to assist your search. Frequently-used search criteria is saved automatically to improve the auto-complete giving you more accurate suggestions for your search terms every time.





# Surveillance Station 5.1

## Build a professional surveillance system

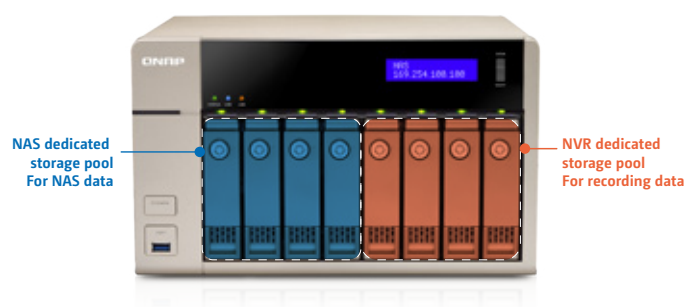
QNAP Surveillance Station 5.1 is a professional network surveillance video management system. One of the QNAP NAS flagship applications, Surveillance Station turns your NAS into a professional Network Video Recorder (NVR) that can be operated from a PC, mobile device, or with an HDMI® local display. Supporting real-time monitoring, recording, playback, alarm notifications, Intelligent Video Analytics (IVA), and management, Surveillance Station safeguards your assets and property when used with supported IP cameras. Every QNAP NAS comes with a minimum of 2 free camera channels as standard, is ONVIF® compliant, and compatible with over 100 camera brands (and more than 3000 camera channels,) allowing you to easily build a professional video recording and monitoring system.



Before using Surveillance Station, please install the Surveillance Station App from the App Center. For a list of compatible cameras, please refer to [www.qnap.com](http://www.qnap.com).

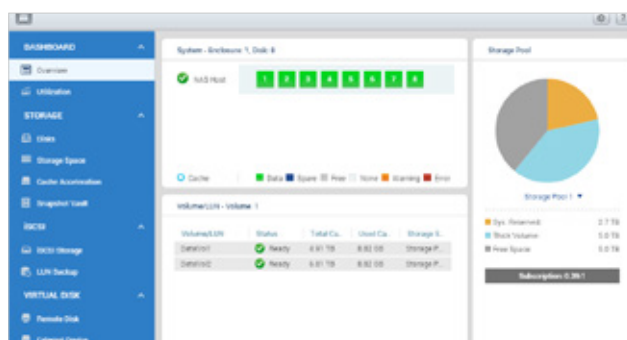
## Tiered Storage for Hybrid NAS and NVR Operations

Empowered with a tiered storage architecture, QTS can now separately store NAS and NVR data in different storage pools that consist of dedicated hard drives. Additionally, you can designate dedicated network ports for NVR or NAS traffic to achieve the best data write/read performance.



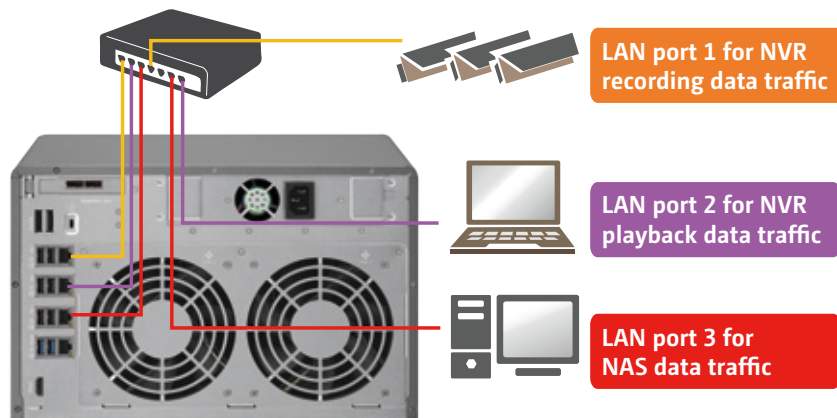
## Set Dedicated Storage Pools for NVR

Using Storage Manager, it is possible to set dedicated storage pools for Surveillance Station to isolate disk arrays to ensure that NAS and NVR operations are separate.



## Network Tap

In addition to tiered storage, QNAP have also added a “network tap” capability to Surveillance Station. Activate this function on a QNAP NAS with more than one network port and easily reroute the monitoring network flow to other QNAP NAS network ports, optimizing the read/write performance for NAS and NVR traffic.



## Quickly Build a Professional Surveillance System in 3 Easy Steps

### 1. Choose where Surveillance Station recordings are saved

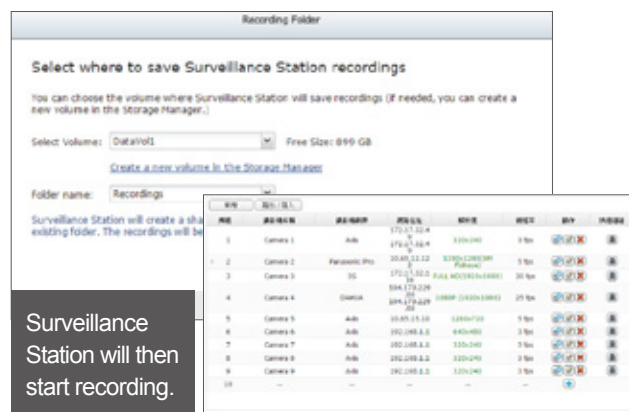
During the initial setup of Surveillance Station, designate a location to save Surveillance Station recordings. QNAP advises a dedicated storage pool for recordings.



➤ We recommend using hard drives specifically designed for NVR/surveillance purposes. Please refer to [www.qnap.com](http://www.qnap.com) for the compatibility list.

### 2. Set up the cameras

Complete the camera installation and confirm the cameras are on the same LAN, click “Add” and Surveillance Station will search for available cameras.



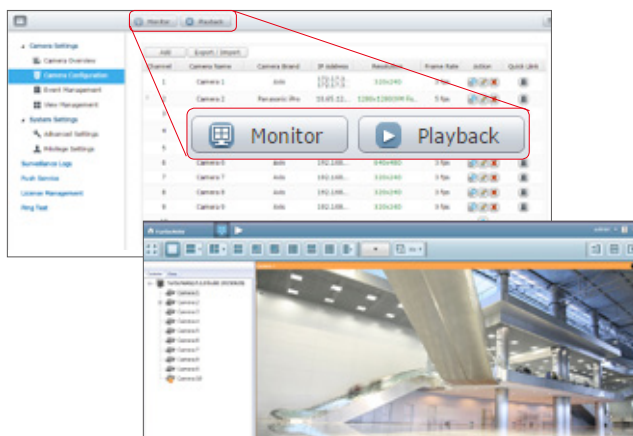
➤ In addition to IP cameras, USB cameras are supported by installing the QUSBCam app. Using USB cameras is an inexpensive way to extend surveillance coverage offering a huge array of camera form factors for suitable for a wide array of deployment scenarios.

### 3. Start monitoring or playback.

There are several ways to playback recordings or to monitor cameras with QNAP surveillance solutions. Click “Playback” or “Monitor” in Surveillance Station, or use the Vmobile App or QvPC to monitor the camera feeds.

➤ For NAS models with an HDMI® port and memory larger than 4GB, QvPC Surveillance Station (Local Display) can display monitored camera feeds on Smart TVs.

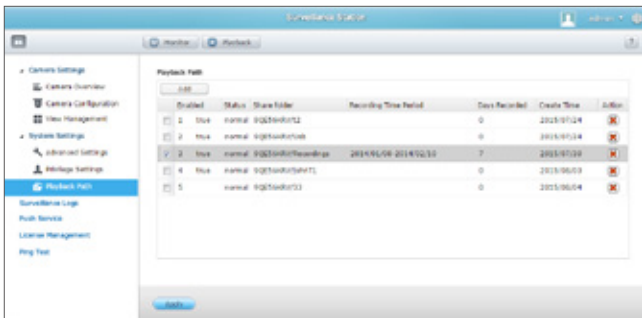
➤ If you are using a PC or Mac, please install the client utility first. Click “Monitor” or “Playback” and the wizard will show up to guide you through the installation process. Clients are able to log into different surveillance stations to monitor their subset of cameras.



## Never miss any recordings

### Playback path management

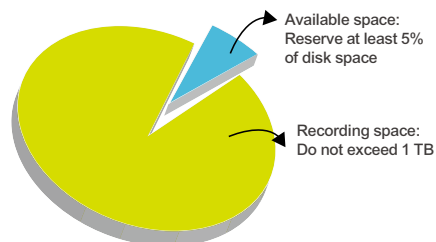
Following a configuration change of the recording location, Surveillance Station 5.1 will automatically register the old recordings path in the Playback Path list. With this feature, Surveillance Station 5.1 maintains all recordings are readily available for convenient playback.



### Automatically configuration updating

Surveillance Station 5.1 with a double video space usage threshold default settings, will not let you save images remaining space is less than 5%, or image space than 1TB. If you construct more than 1TB hard disk space for image storage monitoring, it is recommended to adjust the video size of the space and you can use the larger storage space.

Upper and lower storage limits for fine-tuned administrative control



Threshold values can be adjusted on-the-fly.

## Flexible monitoring modes

### Diverse layout choices for playback and monitoring

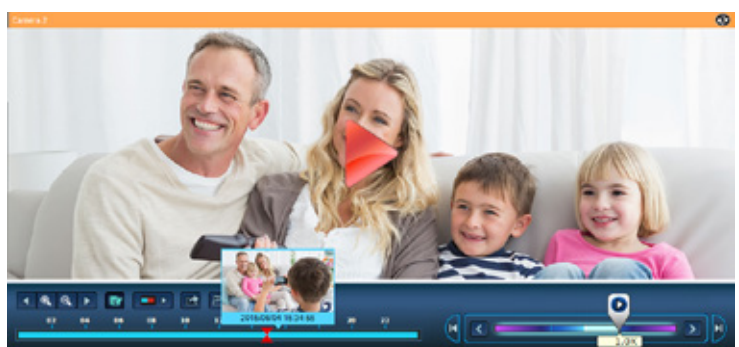
Surveillance Station 5.1 supports various monitoring modes to display 1, 2, 3, 4, 6, 8, 9, 10, 12, 16, 20, 25, 36, 49 and 64 channels on a single screen. Choose to display each channel sequentially, or use dual displays for a wider view.



Click "Refresh" to view the adjusted layout.


### Playback speed control with the shuttle bar

With the speed-control shuttle bar, users are able to fast forward and rewind playback by dragging the bar to find the desired capture quickly.



## Virtual camera

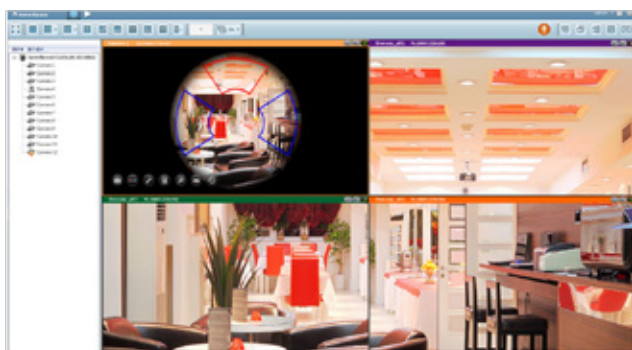
Very high-resolution cameras often lose details in playback display of huge coverage areas, presenting a problem for surveillance users. Using virtual camera technology, users are able to focus on defined sub-areas within the area captured. Virtual cameras do not require additional licenses, making them ideal for deployment in areas requiring expansive coverage

 The support of digital watermarking assists in verifying the authenticity of exported videos and snapshots by showing the exact recording date & time, camera name, and QNAP NAS model name, making it essential when videos are needed as verifiable evidence.

## Qdewarp and ROI

### QNAP Qdewarp

Fisheye lenses are ideal for wide-angle scenes. With de-warping technology, users are able view detailed images without distortion. Qdewarp is compatible with every fisheye camera that QNAP supports, and enables users to de-warp images at any time point in a recording. Qdewarp supports real-time monitoring and recording playback, ensuring there are no blind spots.



### PTZ control (Pan/ Tilt/ Zoom)

Directly adjust the vertical tilt, left/right panning angles, and zoom on cameras with compatible PTZ (Pan/Tilt/Zoom) functions. The “Click Go” PTZ control feature greatly enhances the convenience of remote surveillance.

### Region of Interest

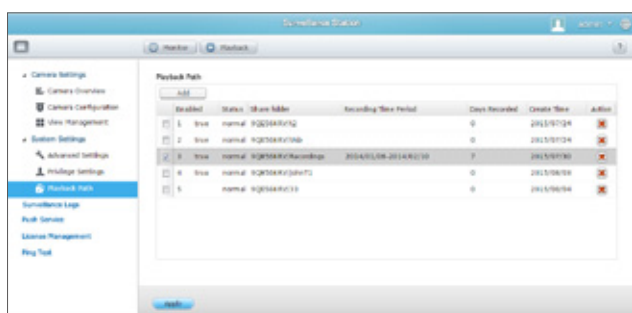
The 4K era is upon us and a huge number of cameras on the market now support 4K HD images. The ROI function is excellent for high definition cameras and enables users to freely enlarge, adjust, or move the region of interest on any recording channel. Surveillance Station 5.1 retains ROI settings for each session so it is ready at the next log in.



## Immediate alerts for events

### Set alert and notifications

When cameras detect motion or alerts are triggered, Surveillance Station will automatically send notifications to up to 5 email addresses.



### Digital floor plan for camera locations

Uploading a floor plan to Surveillance Station enables users to map out where cameras are located. Based on alarm settings, the camera icons will then alert users to assist in decision making for appropriate action to be taken.

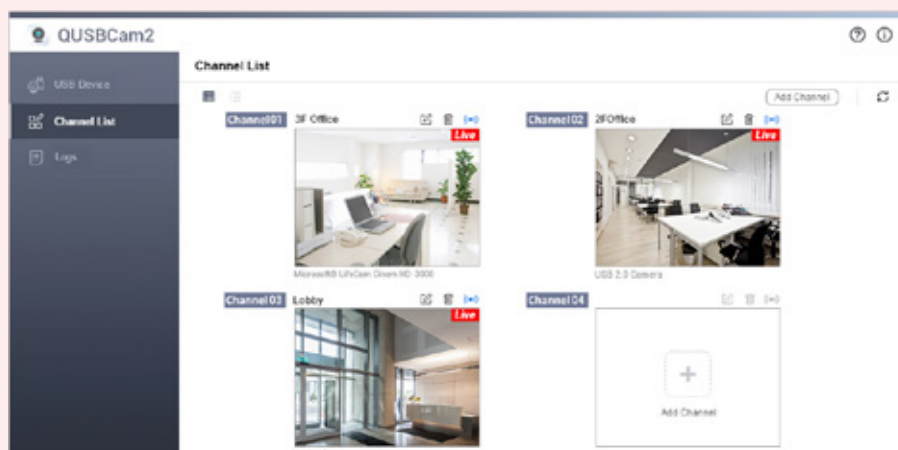




## QUSBCam2– A handy surveillance tool

### All-new QUSBCam2 supports ONVIF and RTSP

The all-new QUSBCam2 transforms a USB webcam in to an IP camera with full ONVIF compatibility and full support for the RTSP protocol. Use Surveillance Station to view real-time images from USB cameras via QUSBCam2. Use QUSBCam2 to build an inexpensive home surveillance system to monitor and record the images and sound captured by the deployed webcams.



### Improve CPU performance with CodexPack

USBCam2 supports up to 4 USB cameras offering a wide range of flexible deployment options for a variety of usage scenarios. Coupled with QNAP NAS hardware-transcoding function, QUSBCam2 helps to reduce CPU usage to improve overall NAS performance.



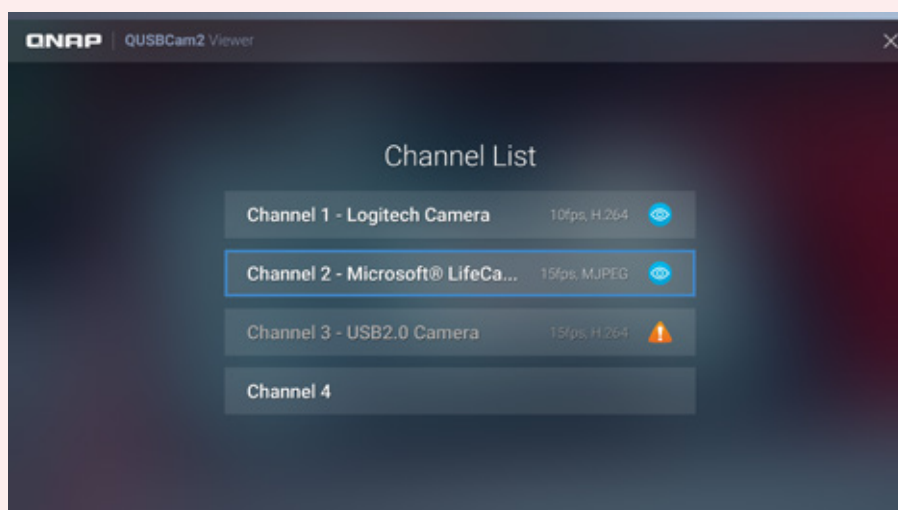
Please visit the QNAP website to find the QUSBCam2 USB camera compatibility list.

### Direct view via webpage and HDMI output

View footage directly from your USB cameras in HD Station or via a web browser to assist in various tasks such as adjusting the camera's angle. Or use Surveillance Station to connect to QUSBCam2 to capture the entire camera screen from USB cameras.



Depending on the environment and usage models (such as streaming to multiple clients, or native support for MJPEG), the effectiveness and quality of direct access of images via a web browser may be affected.

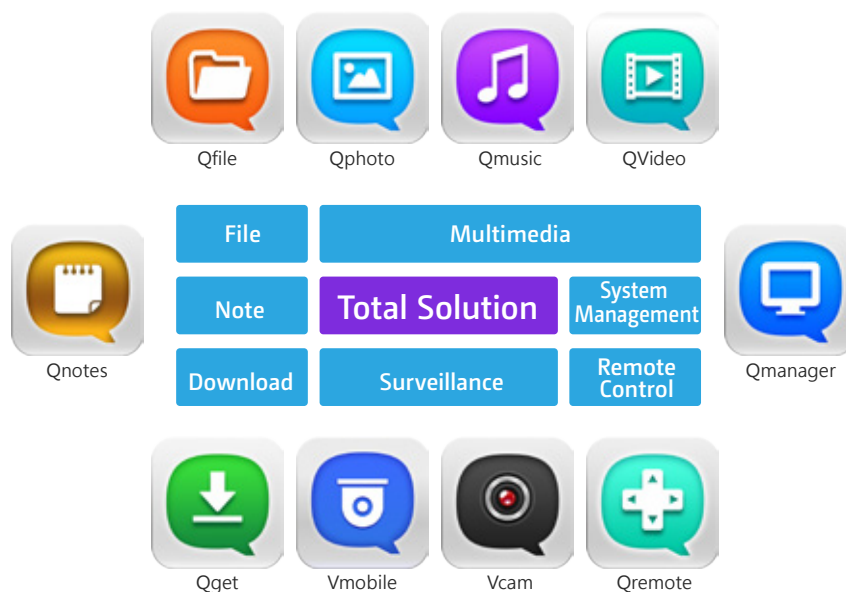




# QNAP Mobile App

## Conveniently access your QNAP NAS from your mobile devices

Mobile devices have become the increasingly preferred method for Internet and NAS access. QNAP has introduced a suite of mobile apps to help users access their NAS from mobile devices.



## Automatically upload your vacation photos from your smart phone

Photos on your mobile device can be automatically uploaded to your NAS, allowing you to focus on your vacation instead of worrying about running out of space on your mobile device.

## Easily share large files with friends and families

Sharing huge files is extremely easy with QNAP mobile apps. Share them from wherever, and whenever you want.

## Browse files stored on your NAS

Access your multimedia (photos, videos and music) and office documents (Microsoft® Word, Excel®, or PDF) stored on your NAS using your mobile device.

## Manage services on your NAS with ease

Check the status of your NAS and enable or disable application services remotely from your mobile device.





## Qfile 2.0

# Access files stored on your NAS remotely



Supports iOS (iPhone and iPad), Android™ devices (phone and tablet), and Window® phones.

## Versatile and real-time file management

Remotely upload/download, share, manage, and stream files from your QNAP NAS and synchronize files between the NAS and your mobile device.

## Remote file access

File thumbnails help you easily identify file types at a glance, allowing you to locate music, videos, and photos rapidly. Stream multimedia files to your mobile device, turning it into a mobile media player.

## Efficient storage use for your mobile phone

Manually or automatically back up photos and music stored on your mobile phone to your QNAP NAS and download documents to your mobile devices for offline reading.



## Folder and file sharing

Create download links for shared folders or files to share via email, SMS or mobile apps, or email the files as attachment



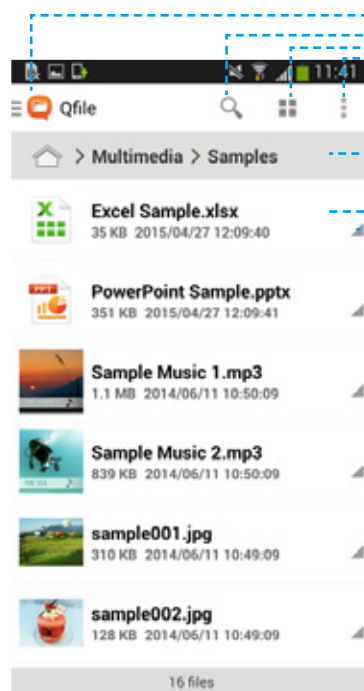
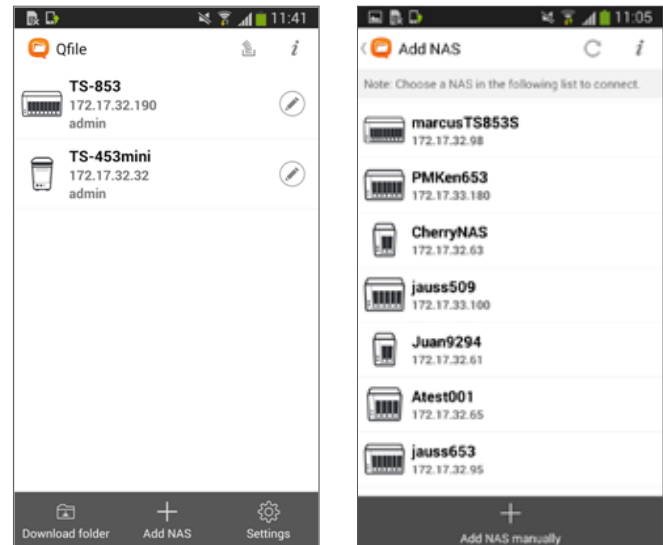
## Using Qfile

Tap “+” to add a NAS.

Qfile will search for a QNAP NAS on your LAN. Tap on one of the NAS to add it.

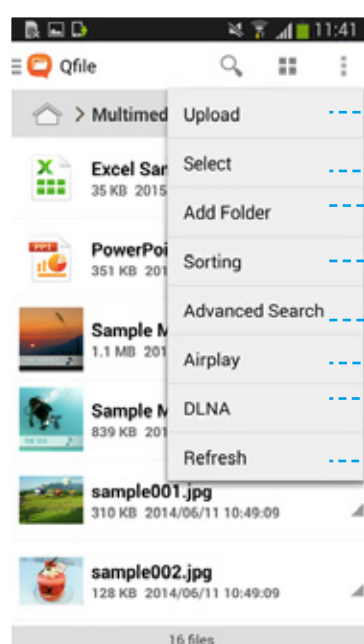
Tap “Add NAS manually” if you are not at your home.

Qfile will save your login details after you successfully log in to a NAS the first time, and you won’t need to enter login details later.

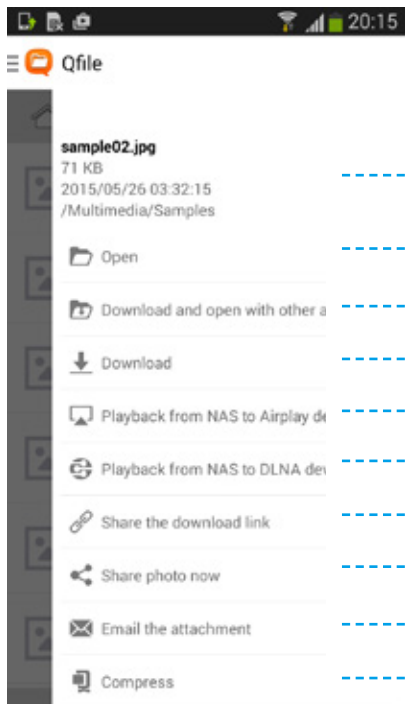


Access files and folders on your NAS after your login.

- 1 Tap to open a file.
- 2 File path: Click to quickly change your location.
- 3 Switch between shared folders, check background tasks or Qfile settings.
- 4 Search files.
- 5 Menu and thumbnail modes.
- 6 More functions.



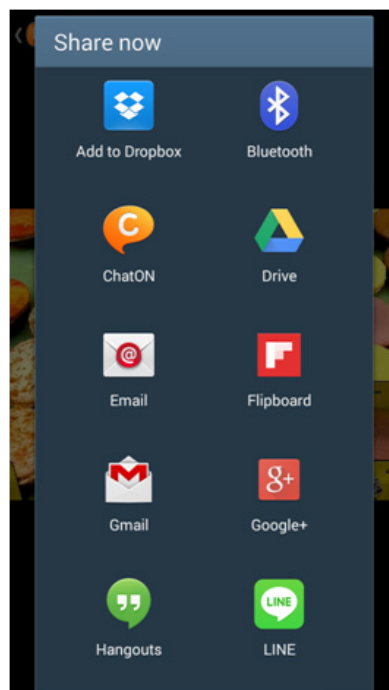
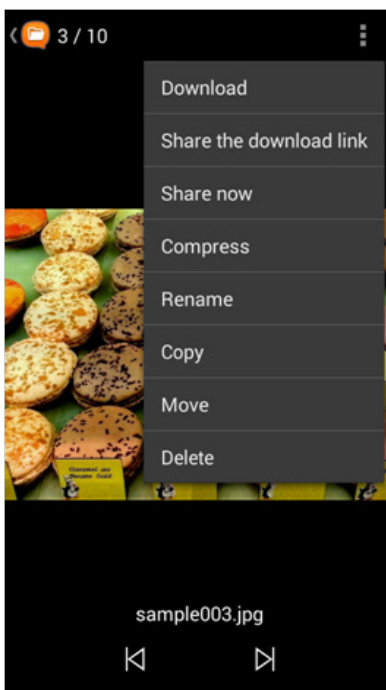
- 7 Upload files to the NAS and supported upload options: Upload photos from the photo library or camera, upload files from the Qfile download folder, and upload files from the local download folder (this option is only supported for Android™ devices.)
- 8 Enable multi-select mode.
- 9 Add a new folder.
- 10 Sort: Sort files by filename, size, modified date or file attribute.
- 11 Advanced search: Quickly locate files you are looking for based on file size, modified date, filename or user. The thumbnail preview feature allows you to instantly preview the file in a simpler and intuitive approach.
- 12 Stream multimedia files to Airplay® devices.
- 13 Stream multimedia files to DLNA® devices.
- 14 Refresh the current page.
- 15 Show available actions for the selected file.



- 1 File details.
- 2 Open the file.
- 3 Open the file using a different mobile app.
- 4 Download the file to the Qfile download folder.
- 5 Playback the streamed file on an Airplay device.
- 6 Playback the streamed file on a DLNA® device.
- 7 Share a download link.
- 8 Share the photo using a different mobile app.
- 9 Email the file as an attachment.
- 10 Zip the file.

## Three file sharing methods:

1. Directly share photos you are browsing on social networks using apps such as Line™ or Facebook™ (as below).
2. Share files as email attachments.
3. Create download links. To share a large file, you can create a download link in Qfile and share that download link on social network sites, in an email, or an SMS message. The recipient will be able to directly download the shared file using the link you provided.



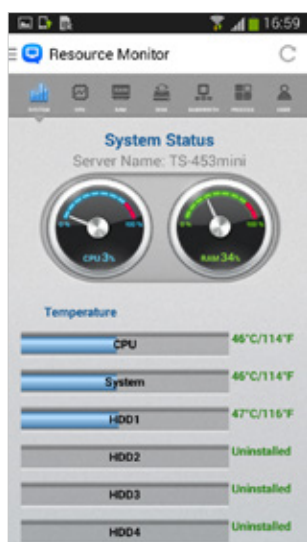


## Qmanager 2.0

# Remotely manage and monitor your QNAP NAS



Supports iOS® (iPhone® and iPad®) and Android™ devices (phone and tablet).



**Users**

User	Description	Quota
admin	administrator	—
123	—	—
admin1	—	—
Friend01	—	—
Friend02	—	—
Friend03	—	—
Friend04	—	—

## Manage your private cloud

Monitor your system information, check backup tasks, system events, and manage services.

## Manage system services

Get up to date about system status. Remotely pause/run backup tasks and enable/disable application services or third-party Apps.

## Manage users and shared folder privileges

Check user settings, user group settings, and shared folder status. The intuitive interface enables simple management efficiency.

## Manage download/backup tasks

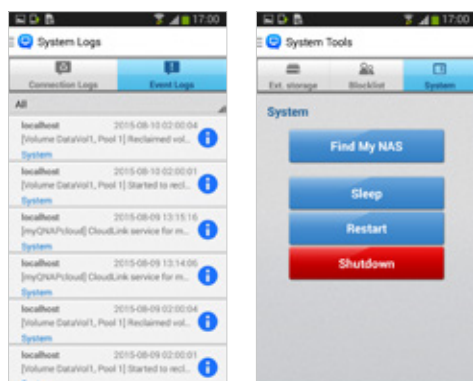
Check backup task information and initiate saved backup tasks.

## Monitor system status

Review system and connection records, restart or shutdown your QNAP NAS remotely, wake up your NAS with WOL, and safely unmount external devices.

## Push notification

Check system events, real-time updates, and receive important push notifications on your mobile device.



Windows Phone



Available on the App Store



Google play





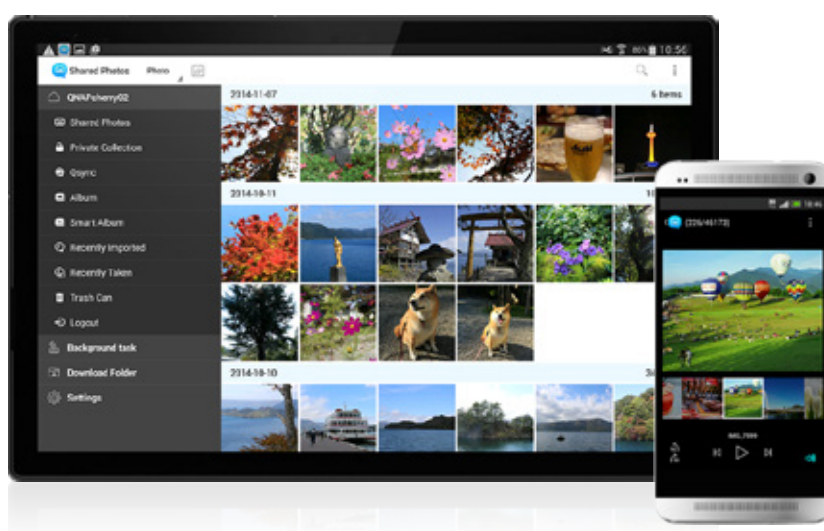


# Qphoto 2.0

## Share photos on your NAS on the go



**NEW** Supports iOS (iPhone and iPad), Android™ devices (phone and tablet), and Windows® phones.



### Photo browsing

Browse your photo collection using a timeline view, thumbnails, detailed list view, and folders.

### Easily search for photos

Use keywords or tags to easily find specific photos & videos on your QNAP NAS.

### Enjoy slideshows

Create and enjoy slideshows with photos and background music from your mobile devices.

### Save your great moments

Upload photos directly to your QNAP NAS from your device camera, camera roll, or from the SD card to save your great moments.

### Private Collection

Archive personal photos in the password-protected "Private Collection". Your private photos cannot be accessed by other NAS users.

### Instant photo sharing

Share photos from your QNAP NAS via Facebook™, Twitter™, Google+™, WhatsApp®, Line™, Instagram™, Gmail™, and more.

### Sync photos with NAS

Qphoto supports Qsync file synchronization across Qsync-enabled devices/applications and a QNAP NAS. If photos or videos are accidentally deleted from your mobile devices, you can recover them from the "Trash Can".

Windows Phone



Available on the App Store



Google play



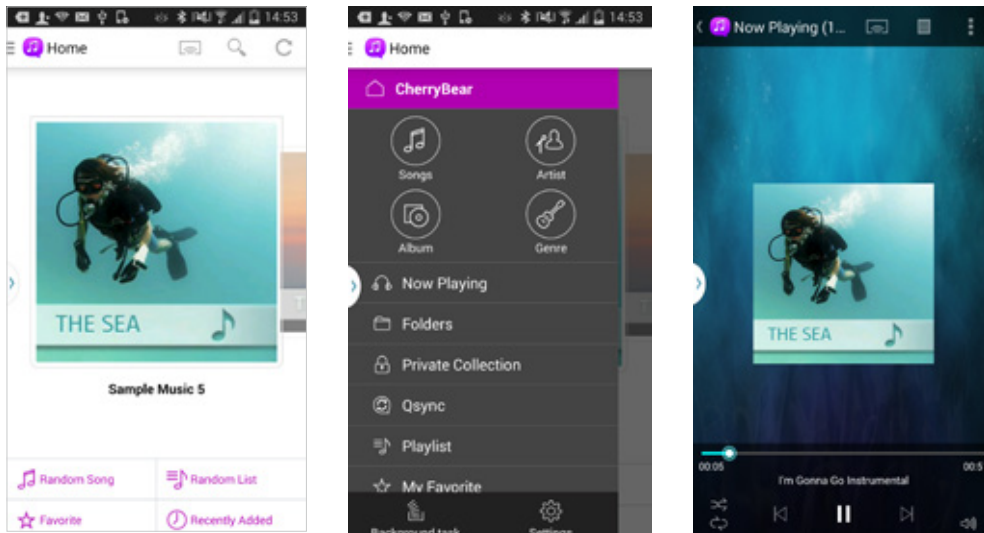


## Qmusic 2.0

# Listen to music stored on your NAS



Supports iOS® (iPhone® and iPad®), Android™ devices (phone and tablet), and Windows Phone®.



## Play music on demand

Easily connect to your QNAP NAS and play your music collection from the intuitive interface.

## Browse your music library remotely

Browse your music collection on your QNAP NAS by song, artist, album, or folder.

## Play music offline

Click the “Download” button to instantly download the music from your QNAP NAS to your mobile device for offline listening. The music never stops even when the Internet is not available.

## Enjoy music with one click

Various ways to play music immediately: Random song, Random playlist, My favorites, and Recently added.

## Edit playlists online

You can easily create playlists, edit the playlist contents, or add the songs in the “Now playing” list to the playlist.

Windows Phone



Available on the App Store



Google play





## Qvideo 2.0

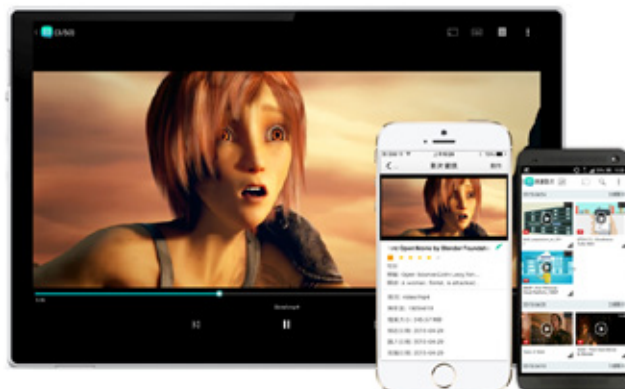
### Watch videos stored on your NAS



Supports iOS (iPhone and iPad), Android™ devices (phone and tablet), and Windows® phones.

### Friendly user interface

Qvideo is a free mobile video management tool for Video Station and allows you to enjoy and share your videos and movies stored on your QNAP NAS with friends and family. Since it adopts the same UI style as Video Station, you can intuitively use it if you are already familiar with Video Station.



### Supports streaming to DLNA®, AirPlay®, and Chromecast™ devices

Use Qvideo as a remote control to enjoy videos with the ones you love.



### Miniplayer

With the new Miniplayer feature supported, you can continue to add videos during playback.



### Download and watch videos anywhere you go

Download videos on your NAS to Qvideo at home and you can then watch them during your trip.

### Share video collections

Qvideo is integrated with popular social networks and messenger apps. Sharing videos with friends and family using Qvideo cannot be any easier.

Windows Phone



Available on the App Store



Google play





## Qnote 1.1

# Taking and sharing notes on the go

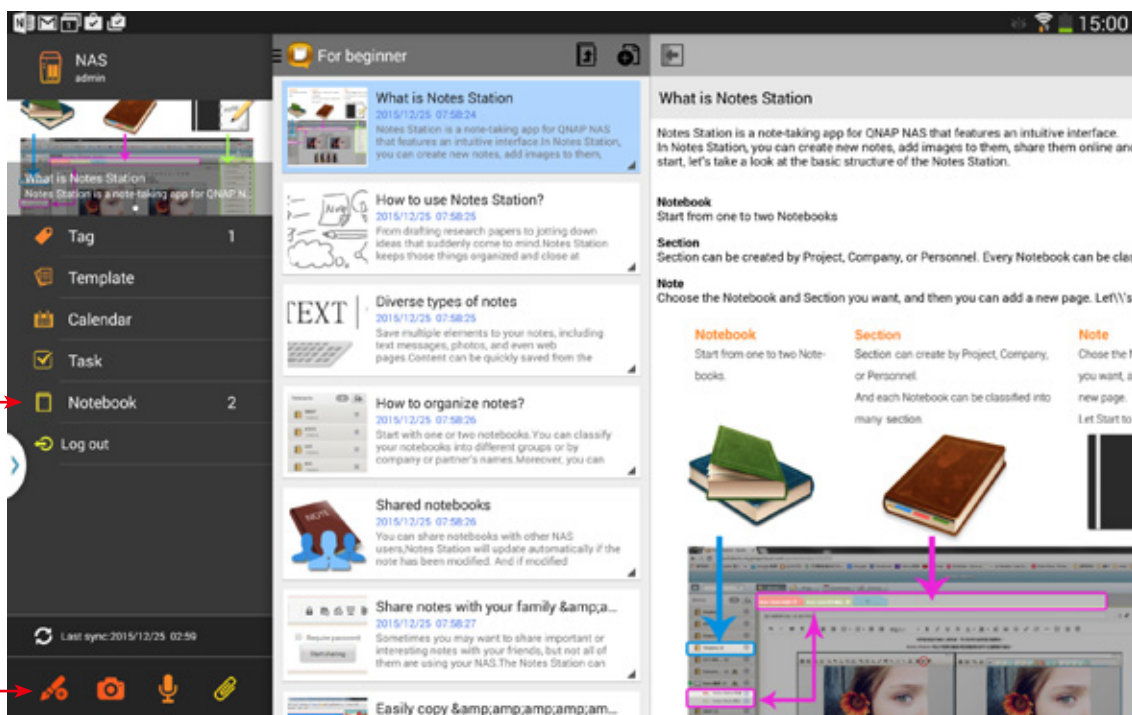
Qnotes provides an effective way to take notes with high privacy. It is the only Android note taking app that supports a private cloud. Qnotes can either sync data with other devices via QNAP NAS or works alone without any NAS or Internet.



Supports iOS (iPhone and iPad), AndroidTM devices (phone and tablet), and Window® phones.

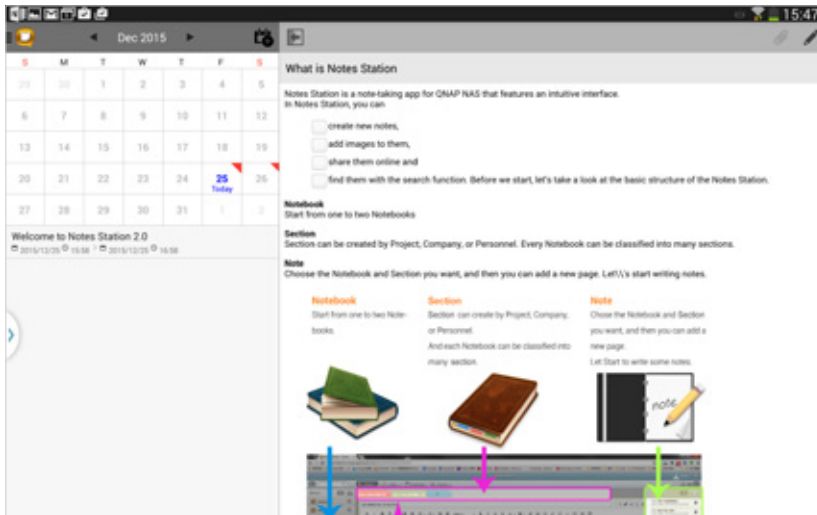
## Three tier architecture

The three-tier architecture adopted in Notes Station enables you to effectively manage, organize and find your notes. You can start from a notebook and then systematically work your way through a section and a note to easily find the note you look for.



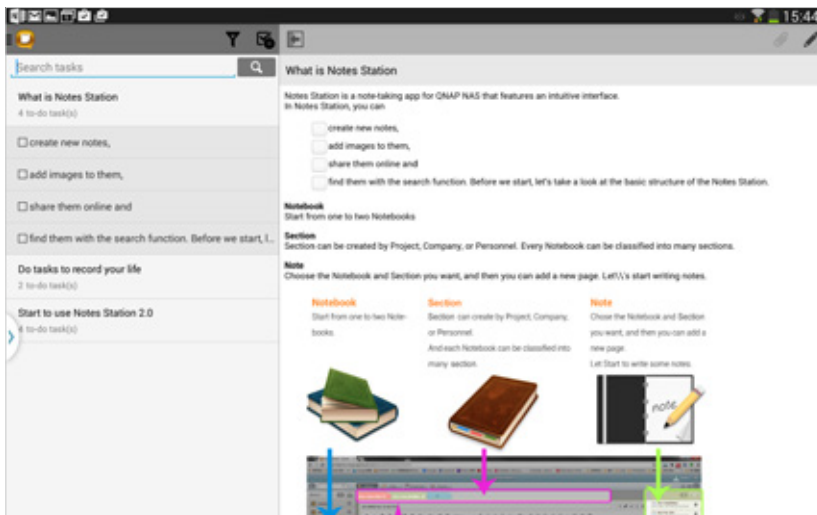
## Three note taking styles

There are three note forms available in Qnotes : text, picture, and voice memo. Users can choose the form as needed to take notes. Additionally, you can add documents as attachments to a note.



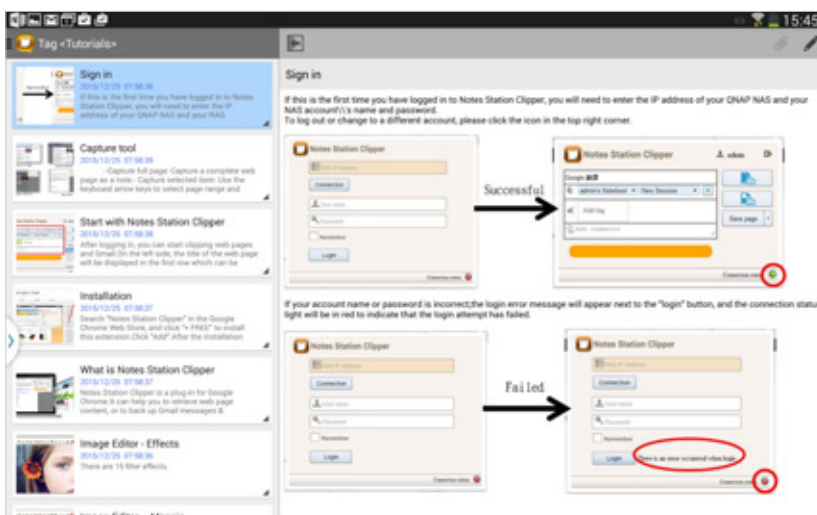
## Calendar

Calendar is very handy for busy users. With Qnotes, you don't have to switch pages just to add an event to Calendar. Just a tap and you can combine a calendar and note and review them together.



## To-do list

You can directly add an item into a To-do list as you edit a note without your thoughts being interrupted.



## Tag

Qnotes supports note tagging making it easy to find notes later. This feature is especially useful if you create lots of notes.

Windows Phone



Available on the App Store



Google play







## Qget 1.3

### Remotely manage download tasks



Supports Android™ devices (phone and tablet).

### Manage download tasks

Conveniently review and manage all of your download tasks (including running, pausing, and removing tasks.) You will receive a notification from Qget after a download task is complete.

### Back up videos from video sharing sites

With a single tap, you can back up YouTube™ videos to your QNAP NAS with HappyGet™\*

\* HappyGet is a third-party application available in QNAP App Center for backing up videos from video sharing sites.

### Download files on the go

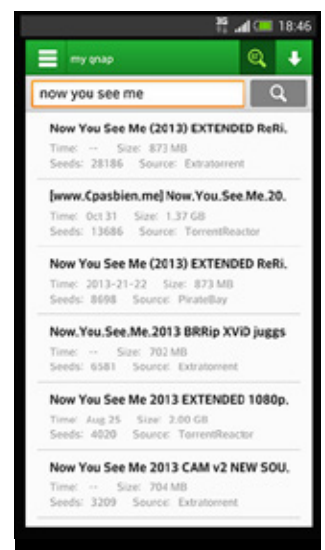
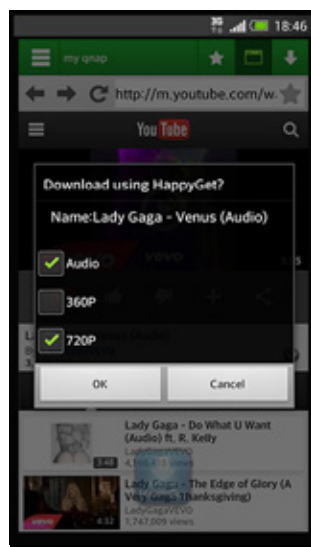
Using the built-in web browser, you can add tasks to the Download Station with a direct download link (HTTP/FTP/Magnet/Thunder®/FlashGet™/qqdl link).

### Add download tasks

Manually enter download links or directly upload torrent files in Qget to create download tasks in Download Station.

### BitTorrent® search

Search desired BitTorrent® files in a few seconds and add them to the Download Station.





# Vmobile 2.0

## Professional mobile surveillance app

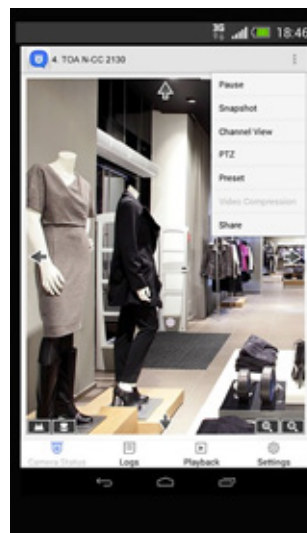
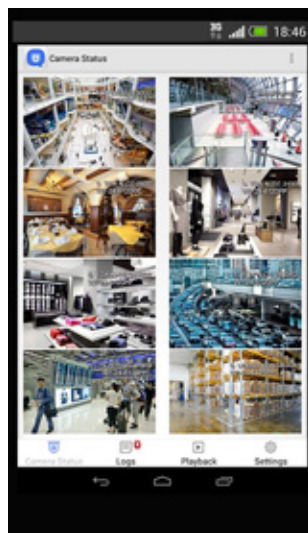
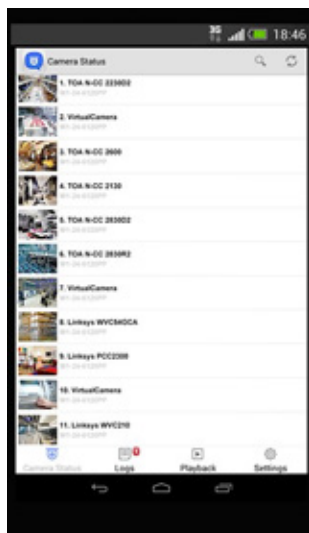
 Supports iOS® (iPhone® and iPad®) and Android™ devices (phone and tablet).

### Mobile surveillance

Access surveillance system to manage and monitor IP cameras anytime, anywhere.

### Profile management

Create multiple profiles with different sets of VioStor NVR/ QNAP NAS and IP cameras, and efficiently switch between different monitoring views from the profile list.



### PTZ control and preset position control

PTZ (Pan/Tilt/Zoom) cameras can be controlled directly from mobile devices. Easily adjust the monitoring angles and preset monitoring position on the go.

### Event notification

When an event occurs, Vmobile can notify by ringtone, push notifications, or vibration to alert you immediately.



### Recording playback

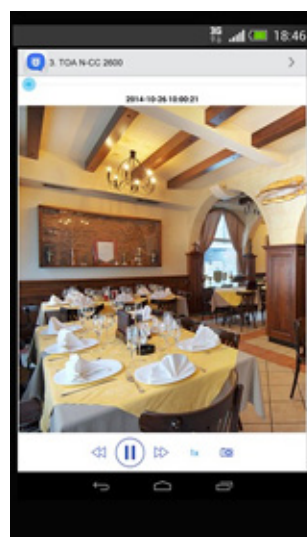
After you receive event notifications, you can tap the event logs to directly play them and to see the incident for yourself.

### Low bandwidth mode

If you have a slow Internet connection, you can select a stream optimized for low bandwidth to provide smoother video playback. The quality of the video recording will not be affected.

### Video playback

Slide the timeline to playback recorded videos conveniently. Also choose to playback alarm events only for quick review.



### Quick search by date and time

Search a specific video section by date and time, quickly and precisely.





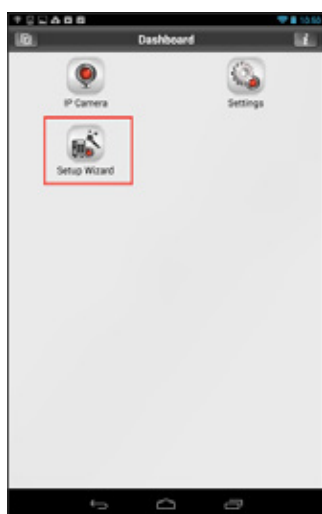
## Vcam 1.0

### Turn your mobile device into an IP cam

 Supports iOS® (iPhone® and iPad®) and Android™ devices (phone and tablet).

#### Vcam mobile app

With Vcam, you can directly record your surroundings using your mobile device's camera to your QNAP NAS anywhere you go without having to purchase professional IP cameras.



## Qremote 1.1

### Control HD Station with your mobile phone

 Supports iOS® (iPhone® and iPad®) and Android™ devices (phone and tablet).

#### Multimedia content playback

Remotely control playback of videos, music and photos stored in a QNAP NAS, stream and enjoy multimedia files on a TV with Qremote (installed on your mobile device) without needing additional peripherals like a controller, USB keyboard or mouse.



#### Switch among applications

Enjoy the convenience of switching among applications including Kodi™, YouTube™, Google Chrome™, and QTS with ease.



# Computer Utilities

## Boost your productivity

QNAP offers many computer utilities for you to connect to your NAS effortlessly. With all these utilities, you'll be able to install a QNAP NAS quickly, set up backup jobs, upload files to the NAS or synchronize files across all of your devices.



### Qfinder Pro

## Search, connect and set up your QNAP NAS

Qfinder Pro assists in finding, setting up and accessing a QNAP NAS on local network. Install Qfinder Pro on your computer, open it, and double click your QNAP NAS name, and the login page is ready for you.

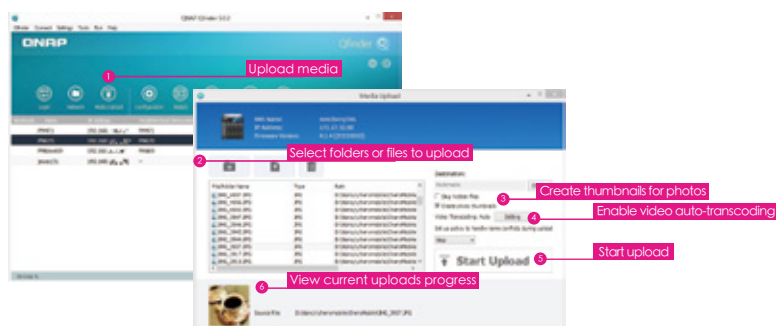
 Available for Windows®, Mac, Linux®, and the Google Chrome™ Browser.

### Easily access the NAS by Storage Plug & Connect

The Windows version of Qfinder Pro provides a convenient way to connect to QNAP NAS and map a network drive or a virtual disk. By creating a shared folder on the QNAP NAS and mapping it as a network drive, you can use it as an additional drive and store files on it as it is a local drive of the computer.

### Use Qfinder Pro for media uploading


Qfinder Pro helps you find and access a QNAP NAS in the LAN and can be used to generate thumbnails for media files in advance of file upload, accelerating media file processing and improving user experience.



### myQNAPcloud Connect

## VPN portal to your QNAP NAS

myQNAPcloud Connect is a VPN application designed for all Windows® users and supports all VPN options to connect to a QNAP NAS (including L2TP/IPsec, PPTP and OpenVPN®). By installing and setting up myQNAPcloud Connect, you will be able to connect to the QNAP NAS and easily manage files by drag-and drop actions.

 Available for Windows®.







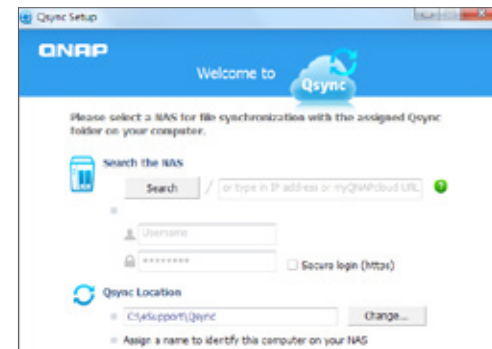
## Qsync

### Sync files anytime and everywhere

Qsync is a useful tool to synchronize files across multiple computers and supports Windows and Mac. It creates a specific “Qsync folder” in your devices that you can simply drop files in, and synchronizes the files to all your devices linked to the QNAP NAS. For more information, refer to the Qsync Center Station 2.0 section in this catalog.



Available for Windows® and OS X®.



## NetBak Replicator

### Free PC backup software

The QNAP NetBak Replicator is free for anyone with a QNAP NAS and helps you easily back up files from Windows® PC - entire disk drives, documents, pictures, music, videos, fonts, emails, and more - to the QNAP NAS. The operation is very simple. You can set up the backup task in just a few clicks using NetBak Replicator by the setting real-time synchronization, scheduled backup and auto-backup from multiple PCs to the QNAP NAS. NetBak Replicator also supports backing up to a remote server via FTP and WebDAV through the Internet. Imagine that you can backup new photos whenever on vacation. Even you are away from home, the convenient backup supports your memories.



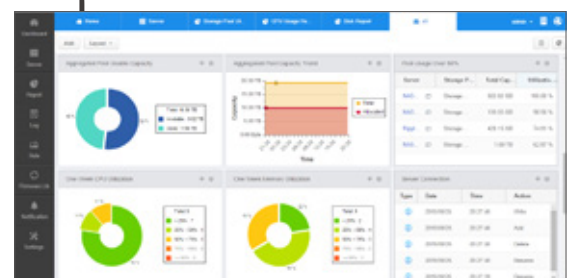
Available for Windows®.



## Q'center Virtual Appliance

### Use Q'center to monitor multiple NAS

Q'center is a powerful QNAP NAS management system. The Q'center Virtual Appliance can be easily deployed in Microsoft® Hyper-V™ or VMware® ESXi™ to increase its flexibility and connectivity for large storage environments

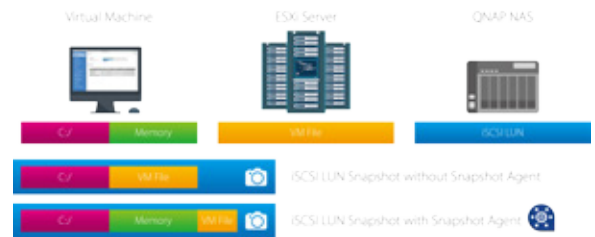






## QNAP Snapshot Agent Ensures consistent snapshots

When creating a LUN snapshot, QNAP Snapshot Agent for Windows Server or VMware vCenter allows the NAS to communicate with the remote server when taking snapshots and ensures application-consistent LUN snapshots.



## vSphere Client plug-in Manage QNAP NAS within vSphere Client

QNAP NAS supports VMware vSphere® Client Plug-in that allows managing VMware® datastores on the NAS directly from the VMware vSphere® client console. In a large-scale server virtualization environment, management is centralized and straightforward. Administrators can easily control the status of the QNAP NAS and datastores and create additional datastores to multiple VMware ESXi™ hosts in just a few clicks.



Available for Windows®. The TS-x51 series doesn't support the VMware vSphere® Client plug-in.



## QNAP SMI-S provider

The QNAP SMI-S provider allows you to manage the QNAP NAS directly through Microsoft System Center Virtual Machine Manager 2012 (SCVMM).



## Qsnap Take screenshots, quickly and easily

Qsnap is a handy utility assisting you to quickly capture screenshots on your PC, and easily edit, save, and share, enabling quick note-taking or productive communication in your work and leisure.


- Hotkey capturing: Taking PC screenshots without complicated mouse operations.
- Easy editing: Add emphasis or remove unnecessary elements with a range of editing tools.
- Instant sharing: Simply drag and drop the screenshots to instant messengers and emails as attachments to share.










Available for Windows®.






# QNAP Product Overview






	TDS-16489U	TVS-ECx80U-SAS R2 Series			
NAS Model	TDS-16489U	TVS-EC2480U-SAS-RP R2	TVS-EC1680U-SAS-RP R2	TVS-EC1580MU-SAS-RP R2	TVS-EC1280U-SAS-RP R2
					
CPU	Intel® Xeon® 4-core Processor E5-2623 v3 Intel® Xeon® 6-core Processor E5-2620 v3 Intel® Xeon® 8-core Processor E5-2630 v3 Intel® Xeon® 8-core Processor E5-2640 v3	Intel® Xeon® E3-1246 V3 Quad-core 3.5GHz			
Memory	64GB/128GB/256GB/512GB/1TB RDIMM	16GB DDR3 non-ECC RAM/8GB DDR3 ECC RAM (Max 32GB)			
Drive *	16 x 3.5" / 2.5"	24 x 3.5" / 2.5"	16 x 3.5" / 2.5"	9 x 3.5" / 2.5" and 6 x 2.5"	12 x 3.5" / 2.5"
Drive type	SATA/SAS 3Gb/s, or SAS 12Gb/s, 6Gb/s (hot swappable)	SATA/SAS 3Gb/s, or SAS 12Gb/s, 6Gb/s (hot swappable)			
LAN Port	2 x GbE and 4 x SFP+ (10 GbE)	4 x GbE (expandable up to 8 x GbE, or 4 x 10GbE + 4 x GbE)			
PCI-E Port	4	2			
HDMI / USB 3.0 / USB 2.0 / eSATA	0/4/0/0	1 / 4 / 4 / 0			
Users / Groups / Shared Folders	4096 / 512 / 512	4096 / 512 / 512			
Max Concurrent Connections (CIFS)	1500	1500			
Max IP Cameras	Default 8 / Max 80 (Optional)	Default 8 / Max 80 (Optional)			
QNAP Expansion Enclosure	Max 8 (REXP-1620U-RP / REXP-1220U-RP)	Max 8 (REXP-1620U-RP / REXP-1220U-RP)			
SSD Cache	✓	✓			
Hardware Encryption Engine	✓	✓			
Hardware Transcoding	✓	✓			
Virtualization Station	✓	✓			

	SS-ECx79U-SAS-RP Series			TS-ECx80U R2 Series			
NAS Model	SS-EC2479U-SAS-RP	SS-EC1879U-SAS-RP	SS-EC1279U-SAS-RP	TS-EC2480U R2	TS-EC1680U R2	TS-EC1280U R2	TS-EC880U R2
							
CPU	Intel® Xeon® E3-1245 v2 Quad-core 3.4GHz			Intel® Xeon® E3-1246 v3 Quad-core 3.5GHz / Intel® Core i3-4150 Qual-core			
Memory	8GB DDR3 ECC (Max 32GB)			8GB DDR3 non-ECC RAM/4GB DDR3 ECC RAM (Max 32 GB)			
Drive *	24 x 2.5"	18 x 2.5"	12 x 2.5"	24 x 3.5" / 2.5"	16 x 3.5" / 2.5"	12 x 3.5" / 2.5"	8 x 3.5" / 2.5"
Drive Type	SATA/SAS 3Gb/s, 6Gb/s (hot swappable)			SATA/SAS 3Gb/s, 6Gb/s (hot swappable)			
LAN Port	4 x GbE (expandable up to 8 x GbE, or 4 x 10GbE + 4 x GbE)			4 x GbE (expandable up to 8 x GbE, or 4 x 10GbE + 4 x GbE)			
PCI-E Port	2			2			
HDMI / USB 3.0 / USB 2.0 / eSATA	1 / 2 / 4 / 0			1 / 4 / 4 / 0			
Users / Groups / Shared Folders	4096 / 512 / 512			4096 / 512 / 512			
Max Concurrent Connections (CIFS)	1200			1500			
Max IP Cameras	Default 4 / Max 72 (Optional)			Default 8 / Max 80 (Optional)			
QNAP Expansion Enclosure	Max 8 (REXP-1620U-RP / REXP-1220U-RP)			Max 8 (REXP-1620U-RP / REXP-1220U-RP)			
SSD Cache	✓			✓			
Hardware Encryption Engine	✓			✓			
Hardware Transcoding	✓			✓			
Virtualization Station	✓			✓			









\* The standard system is shipped without hard drives. Check [www.qnap.com](http://www.qnap.com) for HDD compatibility list.

All specifications are subject to change without notice

	TVS-x71U Series		
NAS Model	TVS-1271U-RP	TVS-871U-RP	TVS-471U TVS-471U-RP
			
CPU	Intel® Core™ i7-4790S Quad-core 3.2GHz / Intel® Core™ i5-4590S Quad-core 3.0GHz / Intel® Core™ i3-4150 Qual-core 3.5GHz / Intel® Pentium® G3250 Qual-core 3.1GHz	Intel® Core™ i5-4590S Quad-core 3.0 GHz / Intel® Core™ i3-4150 Qual-core 3.5GHz / Intel® Pentium® G3250 Qual-core 3.1GHz	Intel Core™ i3-4150 Qual-core 3.5GHz / Pentium® G3250 Qual-core 3.1GHz
Memory	32GB/16GB/8GB/4GB DDR3 (Max 32GB)	8GB/4GB DDR3 (Max 32GB)	4 GB DDR3 RAM
Drive *	12 x 3.5" / 2.5"	8 x 3.5" / 2.5"	4 x 3.5" / 2.5"
Drive Type	SATA 3Gb/s, 6Gb/s (hot swappable)		
LAN Port	4 x GbE (expandable up to 8 x GbE, or 4 x 10 GbE + 4 x GbE)		
PCI-E Slot	2		1
HDMI / USB 3.0 / USB 2.0 / eSATA	1 / 4 / 4 / 0		
Users / Groups / Shared Folders	4096 / 512 / 512		
Max Concurrent Connections (CIFS)	1500		
Max IP Cameras	Default 4 / Max 72 (Optional)		
QNAP Expansion Enclosure	Max 8 (REXP-1620U-RP / REXP-1220U-RP)		
SSD Cache	✓		
Hardware Encryption Engine	✓ (Only support i3, i5, i7 CPU)		
Hardware Transcoding	✓		
Virtualization Station	✓		

	TVS-ECx80 Series			TVS-871T	
NAS Model	TVS-EC1080+	TVS-EC1080	TVS-EC880	TVS-871T	TVS-871
					
CPU	Intel® Xeon® E3 Quad-core 3.4GHz	Intel® Xeon® E3-1245 v3 Quad-core 3.4GHz / Intel® Core™ i3-4150 Qual-core 3.5GHz	Intel® Xeon® E3-1245 v3 Quad-core 3.4GHz	Quad-core Intel® Core™ i5-4590S 3.0GHz/ Quad-core Intel® Core™ i7-4790S 3.2GHz	Intel® Core™ i7-4790S Quad-core 3.2GHz / Intel® Core™ i5-4590S Quad-core 3.0GHz Intel® Core™ i3-4150 Qual-core 3.5GHz / Intel® Pentium® G3250 Qual-core 3.1GHz
Memory	32GB DDR3	16GB/8GB (Max 32GB)	16GB/8GB DDR3 (Max 32GB)	16 GB	16GB/8GB/4GB DDR3 (Max 16GB)
Drive *	10 x 3.5" / 2.5"		8 x 3.5" / 2.5"	8 x 3.5" / 2.5"	8 x 3.5" / 2.5"
Drive Type	SATA 3Gb/s, 6Gb/s (hot swappable)			SATA 6Gb/s,3Gb/s HDD or SSD	SATA 3Gb/s, 6Gb/s (hot swappable)
LAN Port	4 x GbE and 2 x 10GbE	4 x GbE (expadable up to 6 x GbE, or 2 x 10GbE + 4 x GbE)		2xThunderbolt™ 2GbE 2x10GbE (10G Based-T) 4x1GbE	4 x GbE (expandable up to 8 x GbE, or 4 x 10GbE + 4 x GbE)
PCI-E Slot	1 (occupied by a dual-port 10 GbE network adapter)	1		2 (pre-installed Thunderbolt and 10GbE network adapter)	2
HDMI / USB 3.0 / USB 2.0 / eSATA	1 / 3 / 6 / 2			1 / 3 / 2 / 0	1 / 3 / 2 / 0
Users / Groups / Shared Folders	4096 / 512 / 512			4096 / 512 / 512	4096 / 512 / 512
Max Concurrent Connections (CIFS)	1500			1500	1500
Max IP Cameras	Default 8 / Max 80 (Optional)			Default 4 / Max 72 (Optional)	Default 4 / Max 72 (Optional)
QNAP Expansion Enclosure	Max 4 (REXP-1000 Pro)			Max 6 TX-800P / TX-500P	Max 4 (REXP-1000 Pro), or Max 2 (UX-800P / 500P)
SSD Cache	✓			✓	✓
Hardware Encryption Engine	✓			✓	✓ (Only support i3, i5, i7 CPU)
Hardware Transcoding	✓			✓	✓
Virtualization Station	✓				✓

\* The standard system is shipped without hard drives. Check [www.qnap.com](http://www.qnap.com) for HDD compatibility list.

TS-x63U Series			TS-x53U Series			TS-451U	TS-431U
TS-1263U / TS-1263U-RP	TS-863U / TS-863U-RP	TS-463U / TS-463U-RP	TS-1253U TS-1253U-RP	TS-853U TS-853U-RP	TS-453U TS-453U-RP	TS-451U	TS-431U
							
AMD Quad-core 64-bit 2.0GHz			Intel® Celeron® Quad-core 2.0GHz (up to 2.42GHz)		Intel® Celeron® Quad-core 2.0GHz (up to 2.42GHz)	Intel® Celeron® Qual-core 2.41 GHz (up to 2.58GHz)	Freescall Qual-core 1.2GHz
4GB (Max 16GB)			4GB DDR3L (Max 8GB)		4GB DDR3L (Max 8GB)	1GB DDR3L (Max 8GB)	1GB
12 x 2.5" / 3.5"	8 x 2.5" / 3.5"	4 x 2.5" / 3.5"	12 x 3.5" / 2.5"	8 x 3.5" / 2.5"	4 x 3.5" / 2.5"	4 x 3.5" / 2.5"	4 x 3.5" / 2.5"
SATA 6Gb/s, 3Gb/s HDD or SSD (hot swappable)			SATA 3Gb/s, 6Gb/s (hot swappable)			SATA 3Gb/s, 6Gb/s (hot swappable)	SATA 3Gb/s, 6Gb/s (hot swappable)
4 x GbE			4 x GbE		4 x GbE	2 x GbE	2 x GbE
1 (Pre-installed SFP+ NIC)			---		---	---	---
0 / 2 / 2 / 0			1 / 4 / 0 / 0		1 / 4 / 1 / 0	1 / 4 / 1 / 0	0 / 4 / 1 / 0
4096 / 512 / 512			4096 / 512 / 512		4096 / 512 / 512	4096 / 512 / 512	4096 / 512 / 512
800			800		800	600	200
Default 4 / Max 40 (Optional)			Default 2 / Max 40 (Optional)		Default 2 / Max 40 (Optional)	Default 2 / Max 32 (Optional)	Default 2 / Max 8 (Optional)
Max1 (UX-800P / UX-500P)			Max 1 (UX-800U-RP / UX-1200U-RP)			Max 1 (UX-800U-RP / UX-1200U-RP)	----
✓			✓		✓	✓	----
✓			----		----	----	----
----			✓		✓	✓	----
✓			✓		✓	✓	----




TVS-x71 Series		TVS-x63 Series			
TVS-671	TVS-471	TVS-863+	TVS-863	TVS-663	TVS-463
					
Intel® Core™ i5-4590S Quad-core 3.0GHz / Intel® Core™ i3-4150 Qual-core 3.5GHz / Intel® Pentium® G3250 Qual-core 3.1GHz	Intel® Core™ i3-4150 Qual-core 3.5GHz / Intel® Pentium® G3250 Qual-core 3.1GHz	AMD G-Series Quad-core 2.4GHz			
8GB/4GB DDR3 (Max 16GB)	4GB DDR3 (Max 16GB)	16GB / 8GB (Max 16GB)	8GB / 4GB (Max 16GB)		
6 x 3.5" / 2.5"	4 x 3.5" / 2.5"	8 x 3.5" / 2.5"	8 x 3.5" / 2.5"	6 x 3.5" / 2.5"	4 x 3.5" / 2.5"
SATA 3Gb/s, 6Gb/s (hot swappable)		SATA 3Gb/s, 6Gb/s (hot swappable)			
4 x GbE (expandable up to 8 x GbE, or 4 x 10GbE + 4 x GbE)		2 x GbE + 1 x 10GbE (expandable up to 4 x GbE / 2 x 10GbE + 2 x GbE)	2 x GbE (expandable up to 4 x GbE / 2 x 10GbE + 2 x GbE)		
2		1 (Pre-installed 10GbE network adapter)	1		
1 / 3 / 2 / 0		2 / 5 / 0 / 0			
4096 / 512 / 512		4096 / 512 / 512			
1500		1050			
Default 4 / Max 72 (Optional)		Default 4 / Max 40 (Optional)			
Max 4 (REXP-1000 Pro), or Max 2 (UX-800P / 500P)		Max 2 (UX-800P / UX-500P)			
✓		✓			
✓ (Only support i3, i5, i7 CPU)		✓			
✓		✓			
✓		✓			










	TS-563	TS-x53A Series				TS-x53 Pro Series	
NAS Model	TS-563	TS-853A	TS-653A	TS-453A	TS-253A	TS-853S Pro	TS-453S Pro
							
CPU	AMD G-Series Quad-core 2.0GHz	Intel® Celeron® Quad-core N3150 1.6GHz (up to 2.08GHz)				Intel® Celeron® Quad-core 2.0GHz (up to 2.42GHz)	
Memory	8GB / 2GB (Max 16GB)	8GB / 4GB (Max 8GB)				4GB DDR3L (Max 8GB)	
Drive *	5 x 3.5" / 2.5"	8 x 3.5" / 2.5"	6 x 3.5" / 2.5"	4 x 3.5" / 2.5"	2 x 3.5" / 2.5"	8 x 2.5"	4 x 2.5"
Drive Type	6Gb/s or 3Gb/s SATA (hot swappable)	SATA 6Gb/s, 3Gb/s HDD or SSD (hot swappable)				6Gb/s or 3Gb/s SATA (hot swappable)	
LAN Port	2 x GbE (expandable up to 4 x GbE, or 2 x 10GbE + 2 x GbE)	4 x GbE			2 x GbE	4 x GbE	2 x GbE
PCI-E Slot	1	---				---	
HDMI / USB 3.0 / USB 2.0 / eSATA	0 / 5 / 0 / 0	2 / 4 / 0 / 0				1 / 3 / 2 / 0	1 / 3 / 0 / 0
Users / Groups / Shared Folders	4096 / 512 / 512	4096 / 512 / 512				4096 / 512 / 512	
Max Concurrent Connections (CIFS)	800	800				800	
Max IP Cameras	Default 4 / Max 40 (Optional)	Default 4 / Max 40 (Optional)				Default 2 / Max 40 (Optional)	
QNAP Expansion Enclosure	Max 2 (UX-800P / UX-500P)	Max1 (UX-800P / UX-500P)				Max 1 (UX-800P / UX-500P)	
SSD Cache	✓	✓				✓	
Hardware Encryption Engine	✓	✓				---	
Hardware Transcoding	---	✓				✓	
Virtualization Station	✓	✓				✓	

	Slient NAS	TBS-453A Series	TS-531P	TS-x31+ Series	
NAS Model	HS-251+	TBS-453A	TS-531P	TS-431+	TS-231+
					
CPU	Intel® Celeron® Quad-core 2.0GHz (up to 2.42GHz)	14nm Intel® Celeron® N3150 Quad-core 1.6GHz (up to 2.08GHz)	Annapurna Labs Alpine AL-314 Quad-core 1.4 GHz Cortex-A15	Annapurna Labs AL-212 Quad-core 1.4GHz	
Memory	2GB	8 GB/ 4GB (Max 8 GB)	8GB / 2GB (Max 16GB)	1GB	
Drive *	2 x 3.5" / 2.5"	4 x M.2 2280/2260/2242	5 x 3.5" / 2.5"	4 x 3.5" / 2.5"	2 x 3.5" / 2.5"
Drive Type	SATA 3Gb/s HDD or SSD (hot swappable)	SATA 6Gb/s or SSD	SATA 6Gb / s, 3Gb / s HDD or SSD (hot swappable)	SATA 3Gb/s, 6Gb/s (hot swappable)	
LAN Port	2 x GbE	5 x GbE (LAN port 2-1, 2-2, 2-3, 2-4 are designed as switch ports)	4 x GbE (expandable up to 2 x 10GbE + 4 x GbE)	2 x GbE	
PCI-E Slot	---	---	1	---	
HDMI / USB 3.0 / USB 2.0 / eSATA	1 / 2 / 2 / 0	2 / 4 / 1 / 0	0 / 3 / 0 / 0	0 / 3 / 0 / 0	
Users / Groups / Shared Folders	4096 / 512 / 512	4096 / 512 / 512	4096 / 512 / 512	4096 / 512 / 512	
Max Concurrent Connections (CIFS)	700	800	700	400	
Max IP Cameras	Default 2 / Max 40 (Optional)	Default 4 / Max 40 (Optional)	Default 2 / Max 30 (Optional)	Default 2 / Max 25 (Optional)	
QNAP Expansion Enclosure	Max 1 (UX-800P / UX-500P)	Max 1 (UX-800P / UX-500P)	Max 2 (UX-800P / UX-500P)	---	
SSD Cache	✓	✓	✓	✓	
Hardware Encryption Engine	---	---	✓	✓	
Hardware Transcoding	✓	✓	---	---	
Virtualization Station	✓	✓	---	---	

\* The standard system is shipped without hard drives. Check [www.qnap.com](http://www.qnap.com) for HDD compatibility list.



TS-453mini	TS-x51+ Series		TS-x51 Series		
TS-453mini	TS-251+	TS-451+	TS-451	TS-251	TS-251C
					
Intel® Celeron® Quad-core 2.0GHz (up to 2.42GHz)	Intel® Celeron® Quad-core 2.0GHz (up to 2.42GHz)		Intel® Celeron® Quad-core 2.41GHz (up to 2.58GHz)		
8GB / 2GB DDR3L (Max 8GB)	8GB / 2GB (Max 8GB)		4GB / 1GB DDR3L (Max 8GB)		1GB DDR3L
4 x 3.5" / 2.5"	4 x 3.5" / 2.5"	2 x 3.5" / 2.5"	4 x 3.5" / 2.5"	2 x 3.5" / 2.5"	2 x 3.5"
6Gb/s or 3Gb/s SATA (hot swappable)	SATA 6Gb/s, 3Gb/s HDD or SSD (hot swappable)		6Gb/s or 3Gb/s SATA (hot swappable)		SATA 6Gb/s or 3Gb/s
2 x GbE	2 x GbE		2 x GbE		1 x GbE
---	---		---		---
1 / 3 / 2 / 0	1 / 2 / 2 / 0		1 / 2 / 2 / 0		1 / 1 / 2 / 0
4096 / 512 / 512	4096 / 512 / 512		4096 / 512 / 512		4096 / 512 / 512
800	800		600		600
Default 2 / Max 40 (Optional)	Default 2 / Max 40 (Optional)		Default 2 / Max 32 (Optional)		Default 2 / Max 24 (Optional)
Max 1 (UX-800P / UX-500P)	Max 1 (UX-800P / UX-500P)		Max 1 (UX-800P / UX-500P)		Max 1 (UX-800P / UX-500P)
✓	✓		✓		✓
---	---		---		---
✓	✓		✓		✓
✓	✓		✓		✓

TS-x31 Series			TS-x28 Series		TAS-x68 Series		TS-x12 Series	
TS-431	TS-231	TS-131	TS-128	TS-228	TAS-168	TAS-268	TS-212P	TS-112P
								
Freescale Qual-core 1.2GHz			ARM®v7 Qual-core 1.1GHz		ARM®v7 Qual-core 1.1GHz		Marvell 1.6GHz	
512MB			1GB		2GB		512MB	
4 x 3.5" / 2.5"	2 x 3.5" / 2.5"	1 x 3.5" / 2.5"	1 x 3.5"	2 x 3.5"	1 x 3.5"	2 x 3.5"	2 x 3.5"	1 x 3.5"
SATA 3Gb/s, 6Gb/s (hot swappable)			SATA 3Gb/s		SATA 3Gb/s		SATA 6Gb/s or 3Gb/s	
2 x GbE		1 x GbE	1 x GbE		1 x GbE		1 x GbE	
---			---		---		---	
0 / 3 / 0 / 1			0 / 1 / 1 / 0		1 / 1 / 4 / 0		0 / 2 / 1 / 0	0 / 2 / 1 / 1
4096 / 512 / 512			600 / 128 / 256		600 / 128 / 256		2048 / 256 / 256	
200			128		128		130	
Default 2 / Max 8 (Optional)			Default 2 / Max 8 (Optional)		---		Default 2 / Max 8 (Optional)	
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✓			---		---		---	
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# TS-x53A Series

QTS-Linux Combo, for both entertainment and productivity



- »» Powered by quad-core Intel® Celeron® N3150 processor
- »» AES-NI hardware acceleration engine for full NAS encryption
- »» Two microphone inputs and one Line Out audio output
- »» Dual HDMI outputs for an extended display or mirrored mode

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