

Turbo NAS for Business

Scalable iSCSI SAN and NAS Storage

The background image is a collage. On the left, a computer screen displays a 'Turbo NAS' app center with various application icons like 'Surveillance Station', 'Video Station', 'Download Station', 'Photo Station', 'HappyGet 2', and 'QAirplay'. In the center, a group of business professionals (three men and one woman) are shown in an office setting, cheering and celebrating. On the right, a large server rack is visible, filled with multiple QNAP NAS units. At the bottom, two smaller QNAP NAS units are shown on a desk next to a small potted plant and a mug.

TS-ECx79U-SAS Series

TS-ECx80 Pro Series

SS-ECx79U-SAS Series

TS-ECx80U Series

- VMware® Ready, Citrix® Ready, and Microsoft® Hyper-V compatible
- Scale-up storage over 700 TB raw capacity
- 10GbE ready reaching over 3,700 MB/s and 500,000 IOPS
- Intel Xeon 3.4GHz Quad-core CPU, DDR3 ECC RAM

QNAP

SAS SSD storage
for IO intensive operations

SAS HDD storage
for mission critical applications

TS-EC1679U-SAS



for backup data requiring large storage
NL SAS / SATA HDD storage

Creating unified and tiered storage with QNAP SAS-enabled NAS



3.4
GHz CPU

8GB
DDR3
ECC

SAS/
SATA
6 Gbps

10GbE
ready

Quad
LAN

SSD
cache

700+
TB

- Tiered storage for maximum data efficiency
- Unified iSCSI SAN and NAS storage
- Flexible storage media configurations
- Supports four 10GbE ports, delivering throughput of 3700+ MB/s

SAS SSD for hot data (OLTP)

15K SAS HDD for hot data (mission critical data)



→ NL-SAS HDD for cold data (archived data)

QNAP

Turbo NAS TS-ECx80 Pro Series

*High performance
NAS on your desk*



3.4
GHz CPU

2 GB
DDR3
ECC

SATA
6 Gbps

10GbE
ready

Quad
LAN

SSD
cache

250+
TB

- ◆ Intel Quad-core Xeon 3.4 GHz processor with DDR3 ECC RAM
- ◆ SATA 6Gbps HDD and SSD
- ◆ 10GbE ready delivers 2000+ MB/s throughput
- ◆ SSD acceleration cache boosting system performance
- ◆ Scalable design, over 250 TB raw capacity

QNAP

Turbo NAS **TS-ECx80U** Series

Cost-effective high capacity storage



3.4
GHz CPU

4GB
DDR3
ECC

SATA
6 Gbps

10GbE
ready

Quad
LAN

SSD
cache

700+
TB

- ◆ iSCSI SAN/ NAS unified storage
- ◆ Quad-core Xeon 3.4 GHz processor with DDR3 ECC RAM
- ◆ Scalable design, over 700 TB raw capacity
- ◆ SSD acceleration cache boosting system performance
- ◆ 10GbE network ready



SATA Storage

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Introduction

The growth of digital data is increasing dramatically as time progresses. According to an international research institute, eight out of the ten major technology trends in 2014 are related to the growth of information (diversification and management of mobile devices, mobile app and traditional application programs, Internet of Things, hybrid cloud and IT as a service agency, cloud/client architecture, personal cloud era, software-defined everything, web-scale IT). What can be foreseen is that data growth will become increasingly rapid, and that relative issues such as data processing performance, big data storage and virtual storage capacity will soon become challenges we will have to face. Therefore, offering solutions that are cost-effective and are able to satisfy diverse business needs is a goal that we must achieve.

The structure of data centers are also changing with trends from physical to virtual environments and data storage space of hosts changing from traditional DAS to mainly SAN and NAS. In addition, businesses provide more and more services, and therefore have different needs for their infrastructure. In response to virtualized environments, we need to provide applicable solutions for these different needs. This is why QNAP Turbo NAS provides a complete solution that not only supports different hard drive types, but also provides iSCSI SAN and NAS services to meet various business needs.

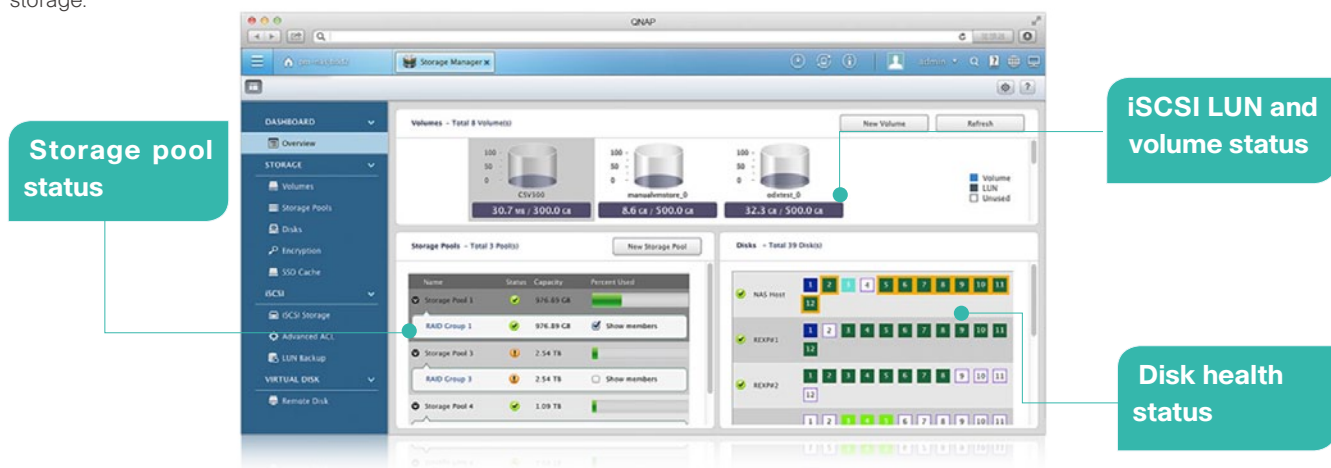


Unified storage management

QNAP Turbo NAS business series is unified storage which can serve as iSCSI SAN storage and NAS. The powerful Storage Manager assist you to manage iSCSI LUN and volume efficiently.

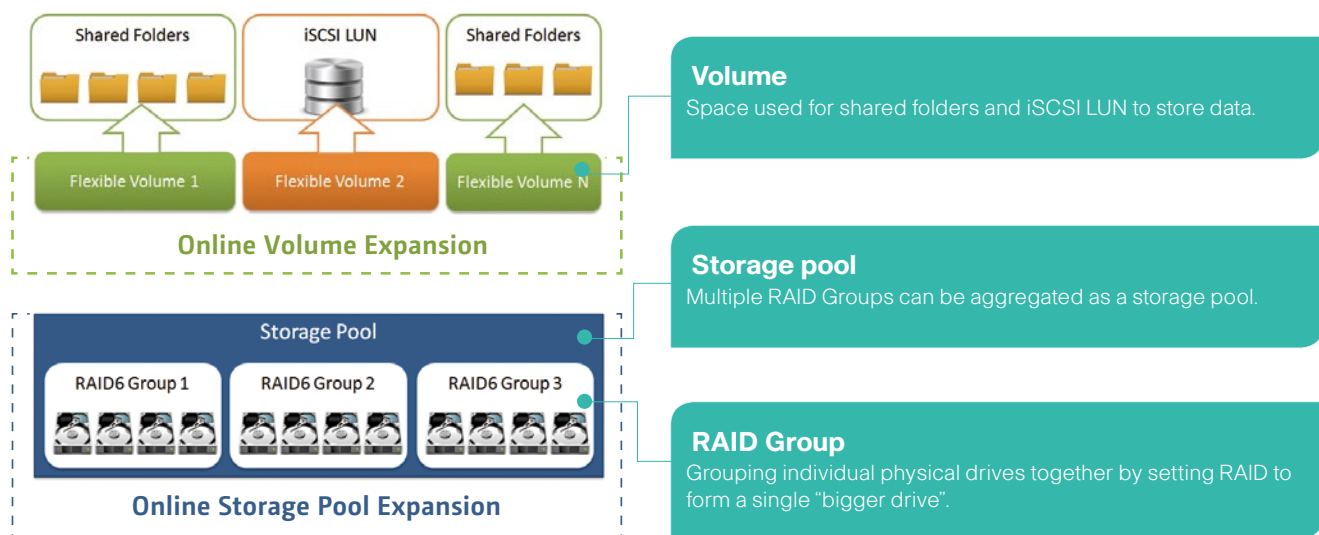
Intelligent Storage Manager

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, the Storage Manager provides a centralized place to easily manage different hard drives (e.g. SAS HDD and SATA HDD) and to maximize storage usage of the tiered and unified storage.



QNAP flexible volume

QNAP Flexible Volume provides a more secure and flexible way to store and manage the NAS data. This next generation volume offers powerful features such as storage pooling with multiple RAID, thinprovisioned volume with space reclaim, and online capacity expansion.



Secured storage pool for over 100-disk deployment

To ensure the safety of valuable business data, QNAP Flexible Volume provides a secured way to deploy a large volume. The logical volume is allocated from a Storage Pool, which is composed of multiple RAID Groups to gain higher redundancy and reduce the risk of data crash from failed hard drives since the data is dispersed throughout multiple RAID arrays.

Online capacity expansion

Increase the capacity size of the LUNs, volumes, and storage pools on the fly. The Turbo NAS allows you to add more hard drives to increase the storage capacity of the storage pool on demand. The LUN and volumes can also be expanded online without interrupting the services.

Block-based iSCSI LUN

In addition to storing data, the QNAP Flexible Volume can be utilized as an iSCSI LUN at the same time. The block-based iSCSI LUN provides less overhead which improves the overall read/write performance. The block-based iSCSI LUN takes advantages of Flexible Volume such as thin-provisioning LUN with Space Reclaim and online capacity expansion.

Thin-provisioned volume

Pre-allocate storage to give the appearance of having more capacity than actually available. This allows you to consume storage on demand as data is written to disk, instead of having capacity ahead of time.

iSCSI LUN



NAS Volume



iSCSI SAN/ NAS unified storage

Alert for volume/ LUN threshold

An alert can be created once a LUN or volume reaches a particular threshold size with email and SMS notifications. This prevents the storage or volume from running out of space, and the administrator can add more storage space or expand an existing volume if necessary.

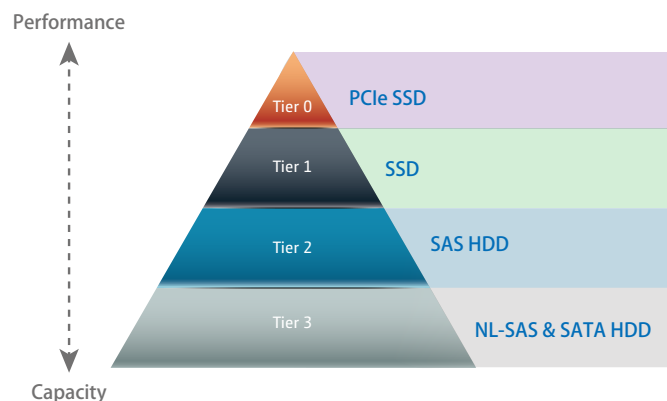
Space reclaim

Space reclaim complements thin provisioning so storage can be recovered and used for other NAS applications. Normally when data is deleted in a volume the storage capacity cannot be transferred back to the overall storage pool. But with space reclaim, space can be recovered and allocated back to the overall storage pool. This provides a much more efficient space usage.

Creating tiered storage with QNAP SAS-enabled series

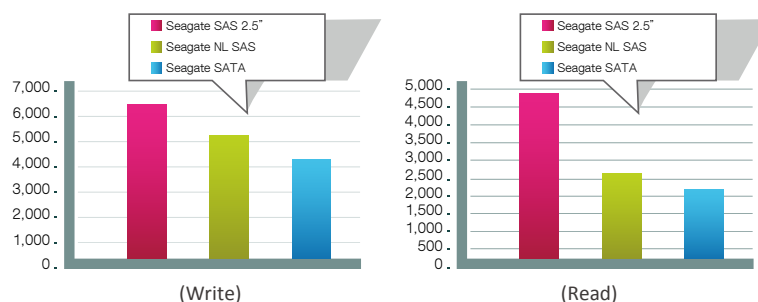
Storage media selection

Solid state drives (SSDs) and 15K SAS hard drives offer exceptional performance; however, compared to SATA hard disk drives (HDDs) they have much less capacity per drive and are much more expensive. Additionally, each enterprise application workload has different capacity and performance requirements. Consequently, the challenge before IT departments is to navigate the price, performance, and capacity trade-offs between SSDs, SAS HDDs and SATA HDDs to determine the best, most cost effective drive type for each application workload type.



SAS and SATA storage system performance comparison

SAS-enabled storage systems deliver better IOPS performance and are ideal for applications requiring large amounts of random accessing such as online transaction processing (OLTP) and Mail Servers.



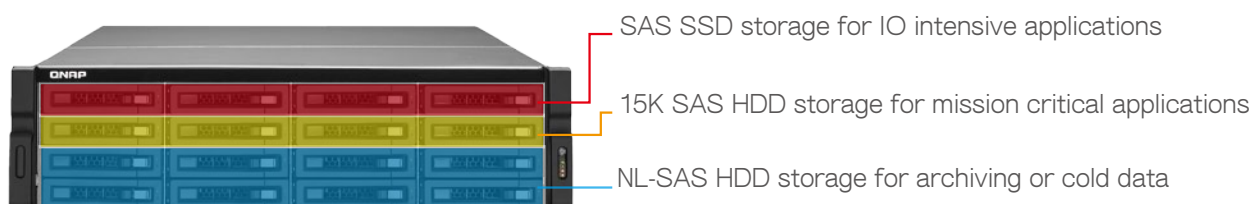
MB/S	Hard drive	Seagate SAS 2.5"	Seagate NL SAS	Seagate SATA
Random IOPS	Write	6527	5195	4300
	Read	4835	2832	2441

* Testing environment:

1. NAS model : TS-EC1679U-SAS-RP
2. HDD : Seagate TS9300653SS (2.5"SAS) x8, Seagate TS4000NM0023 (NL-SAS) x8, Seagate ST4000NM0033 (SATA) x 8
3. RAID Type : RAID5

Use QNAP SAS-enabled NAS as a tiered storage

To balance the price and cost, a "tiered" (according to performance and capacity) data storage system is helpful to process various tier-types of data more efficiently and thus significantly increase the overall operational efficiency of the business. QNAP's SAS-enabled Turbo NAS models can flexibly configure different tiers to hard drives on a single unit according to different data usage needs, delivering the best unified and tiered storage solutions for businesses.



QNAP scale-up solutions

With QTS storage management coupled with the scale-up solution, businesses can balance the costs and benefits when deploying storage systems for big data storage.



700TB



QNAP Turbo NAS business series supports QNAP RAID expansion enclosures to expand the total storage of over 700TB raw capacity*. The RAID expansion enclosures support Missing Mode protection to well protect the data.

* Available maximum raw capacity is varied by NAS models.

QNAP RAID Expansion Enclosure

QNAP provides three RAID expansion enclosure models, REXP-1600U-RP, REXP-1200U-RP and REXP-1000 Pro. All RAID Expansion Enclosures supports SAS/SATA 6Gbps hard drives and SSD. These RAID expansion enclosure units provide mini SAS 24Gbps bandwidth per host connection which delivers unprecedented performance when daisy chaining multiple RAID expansion enclosures.



REXP-1200U-RP



REXP-1600U-RP



REXP-1000 Pro

Turbo NAS Model	RAID Expansion Enclosure	Max. No. of RAID Expansion Enclosure	Total HDD No. (NAS + Enclosure)	Max. Raw Capacity ¹ (TB)
SS-EC2479U-SAS-RP	REXP-1600U-RP	8 ²	152	664
	REXP-1200U-RP	8 ²	120	504
SS-EC1879U-SAS-RP	REXP-1600U-RP	8 ²	146	658
	REXP-1200U-RP	8 ²	114	498
SS-EC1279U-SAS-RP	REXP-1600U-RP	8 ²	140	652
	REXP-1200U-RP	8 ²	108	492
TS-EC2480U-RP ³	REXP-1600U-RP	8	152	760
TS-EC1679U-SAS-RP	REXP-1200U-RP	8	120	600
TS-EC1680U-RP ³	REXP-1600U-RP	8	144	720
TS-EC1279U-SAS-RP	REXP-1200U-RP	8	112	560
TS-EC1280U-RP ³	REXP-1600U-RP	8	140	700
TS-EC880U-RP ³	REXP-1200U-RP	8	108	540
TS-EC880U-RP ³	REXP-1600U-RP	8	136	680
TS-EC1080 Pro ³	REXP-1200U-RP	8	104	520
TS-EC1080 Pro ³	REXP-1000 Pro	4 ⁴	50	250
TS-EC880 Pro ³	REXP-1000 Pro	4 ⁴	48	240

1. The maximum capacity is calculated by 3.5" 5TB HDDs and 2.5" 1TB HDD.

2. An optional purchase SAS expansion card is required for connecting over 4 RAID expansion enclosures.

3. An optional purchase SAS expansion card is required.

4. 4GB memory is required to connect over two REXP-1000 Pro.

Locate hardware easily

With just a click, IT administrators can easily locate the NAS, RAID expansion enclosures, hard drives, and RAID groups in the server room by the beep sound or lighting on the NAS. It is especially useful when managing a big server room with multiple NAS systems.



Missing mode protection

When the disconnection of a RAID expansion enclosure is detected, the Turbo NAS blocks IO access to protect data. The system can recover from the missing mode to the normal state with data staying intact.



SSD cache acceleration

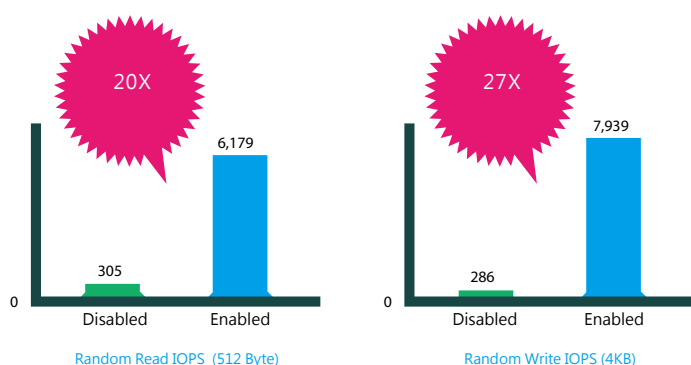
The Turbo NAS business series supports SSDs which can be used for caching. The random IOPS performance of storage volumes can remarkably boost. It is perfect for improving overall workflow of random IOPS demanding applications such as database and virtualization. The TS-ECx80 series supports two extra internal cache ports to install mSATA flash module (optional purchase). The internal cache port design reserves the space of hard drive tray for more storage capacity.



TS-ECx80 series supports two extra internal cache ports.

SSD acceleration cache boosting system performance

SSD caching can greatly boost IOPS performance. It is perfect for improving the overall workflow of IOPS-demanding applications such as File Servers and online transaction processing (OLTP) systems. SSD caching allows SSDs to work with HDDs on the same NAS to achieve higher random access performance with lower cost.



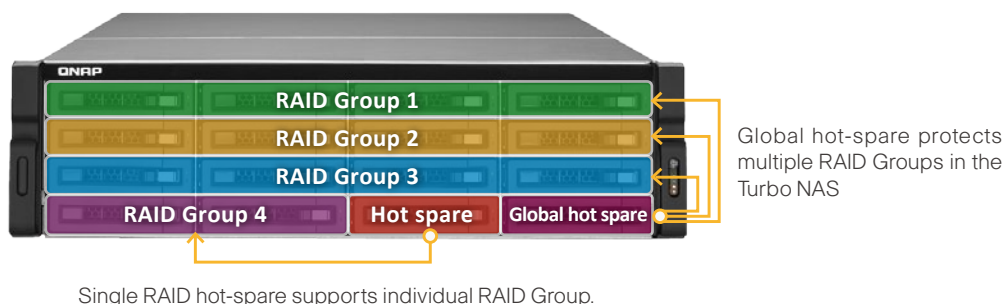
RAID rebuild performance comparison

When a hard drive fails, a RAID configuration will enter a degraded mode that risks data protection. During this time if more hard drives fail, depending on the RAID level used, the data stored in the RAID group will be risking a data corruption crisis. It takes time for RAID rebuild no matter by manual or by hot-spare drive to replace the failed hard drive(s). The shorter the RAID rebuild time, the shorter the RAID configuration will be in degraded mode and the less risk for data corruption. Here we will list the common RAID rebuild time for comparison. When using eight 4TB SATA HDD in RAID 6, the RAID rebuild time after replacing a failed hard drive is approximately 3-7 days; but it takes only 12-24 hours when using SAS hard drives with SSD caching. Using SAS-enabled NAS systems with SAS hard drives can effectively shorten the RAID rebuilt time. Coupled with an SSD acceleration cache to share the IO process loading, the RAID rebuild time can be significantly shortened, meaning lower risk of data corruption to safeguard your important data.

Proactive data protection

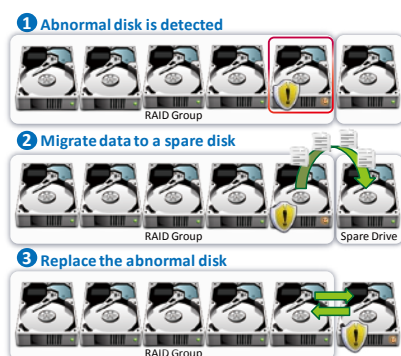
RAID hot-spare and Global hot-spare drives

A hot spare drive can be configured so that if a hard drive in a specific RAID group fails, the hot spare drive will operate automatically. Moreover, the QNAP storage also supports global hot spare drives which allow the administrator to share the spare drives efficiently among multiple RAID Groups.



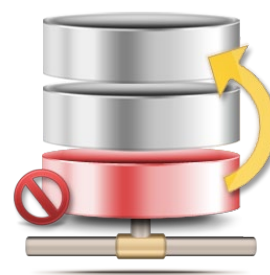
QNAP SMART data migration

With the SMART data migration function enabled, the QTS constantly monitors the disks on the Turbo NAS. If a possible drive failure or abnormal health status is detected, the data will be proactively migrated to a new spare drive, reducing potential data loss and skipping the process of RAID rebuilding.



Advanced RAID read error recovery technology

When read errors occur due to bad blocks on a hard drive, the correct data on the bad blocks are automatically recovered with other healthy hard drives. Users are guaranteed to always obtain correct data. The process is run in the background, providing users with a hassle-free experience.



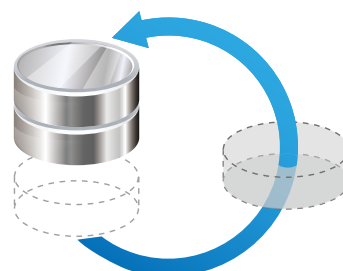
TLER and ERC support

TLER (Time-Limited Error Recovery) and ERC (Error Recovery Control) are now supported with compatible hard drives, improving drive error handling in RAID applications. This further prevents the hard drives from prematurely failing and forcing rebuilds & RAID volume loss. The data will be retrieved more quickly when a hard drive takes too long to respond from bad blocks.



RAID recovery

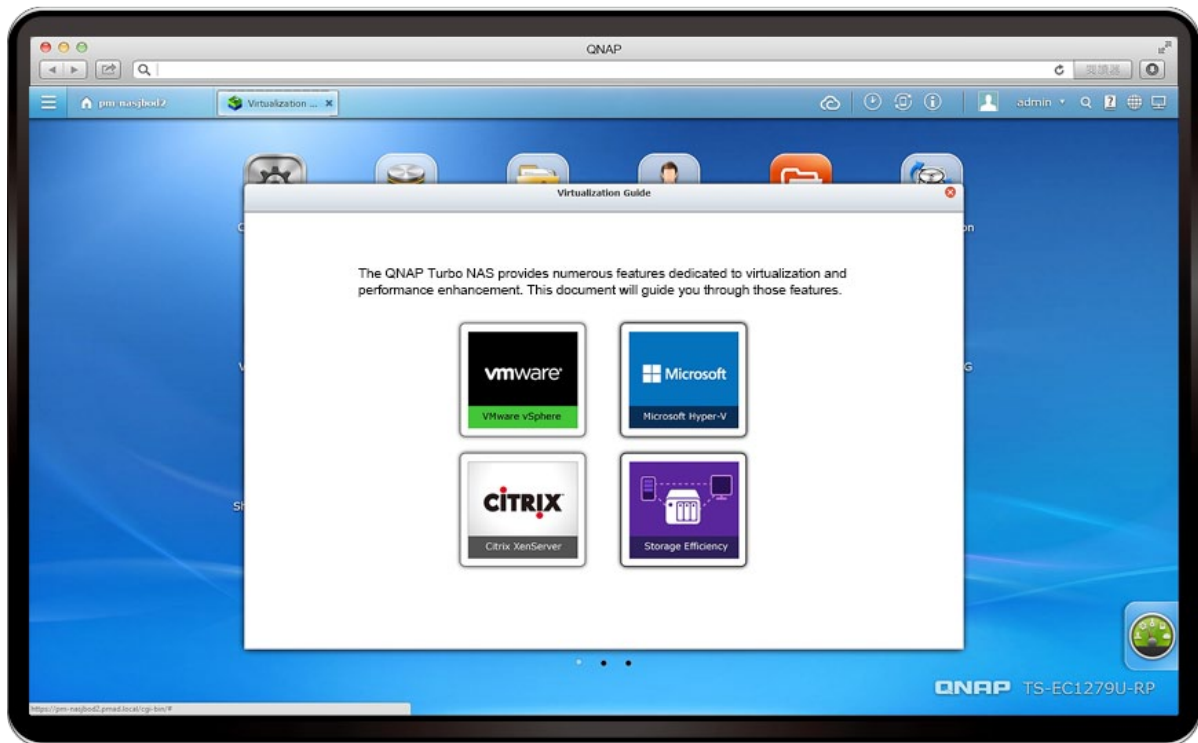
With QNAP NAS exclusive RAID recovery technology, the RAID can be recovered to a previous condition when more than the allowed disks are removed from a RAID volume. On the other hand, the RAID recovery technology is also helpful if the valid disk is removed by mistake instead of the failed one, especially for businesses with high-end Turbo NAS with many hard drives. The system will recover to the degraded mode with just one click after all of the hard drives are inserted back into the system.



Applications

Unified storage and virtualization applications

The Turbo NAS supports iSCSI and NFS protocols, and is virtualization ready - VMware® Ready™, Citrix® Ready™, and Microsoft® Hyper-V™ compatible, to provide businesses with powerful and flexible storage solutions for virtualization applications.



Virtualization ready

The Turbo NAS supports VMware® Ready™ vSphere 5, VAAI; Citrix® Ready XenServer™ 6.0, and is compatible for Microsoft® Hyper-V, supporting ODX and Windows Server 2012.

Secure and flexible storage utilization

The Turbo NAS offers flexible management through creating and allocating iSCSI LUNs (Logical Unit Numbers), mapping and un-mapping LUNs to and from the iSCSI targets, and thin provisioning function. The support of CHAP authentication and LUN masking reinforces secured deployment in virtualization applications.

NAS/iSCSI SAN unified storage

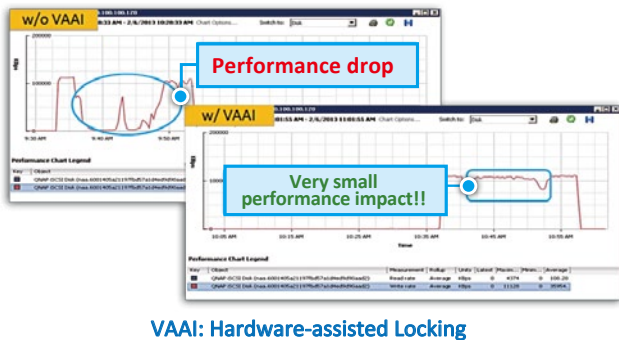
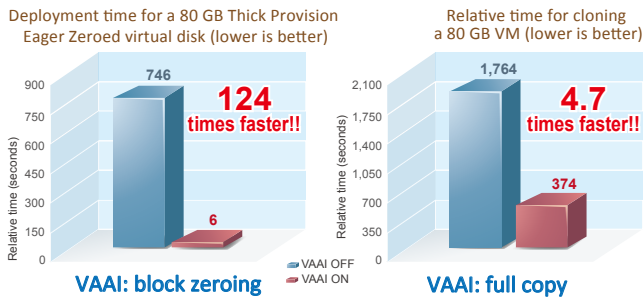
QTS supports NFS and iSCSI SAN storage solution that can be utilized as a network shared storage of the virtualization environments. It helps achieve efficient cost-saving, energy-saving and utilization of storage capacity.



"We're glad that we have reached a balance of performance and budget by upgrading to the QNAP Turbo NAS." - Mr. Toyama, manager of the information media center at Kaetsu University (Japan)

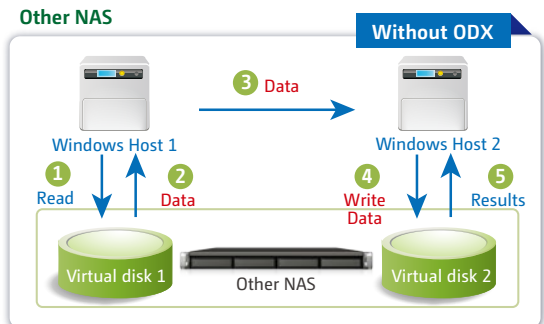
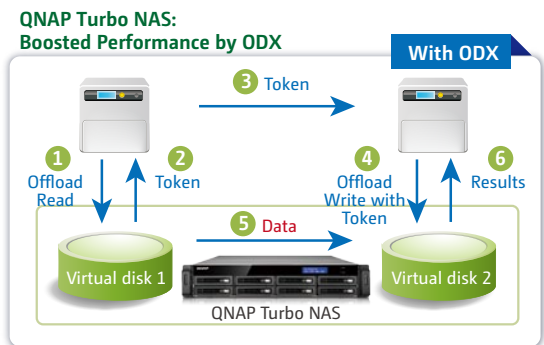
VAAI for iSCSI, VAAI for NAS

The QNAP NAS, VAAI iSCSI and VAAI NAS are VMware certified. Businesses can either select iSCSI or NFS as a centralized storage to boost performance. VAAI for iSCSI supports Full Copy (hardware-assisted copy), Block Zeroing (hardware-assisted zeroing), Hardware-assisted Locking, and Thin Provisioning with space reclaim. VAAI for NAS supports Full File Clone, Extended Statistics, and Reserve Space. The QNAP NAS uniquely supports VAAI iSCSI and VAAI NAS to enhance storage performance in a virtualized environment.



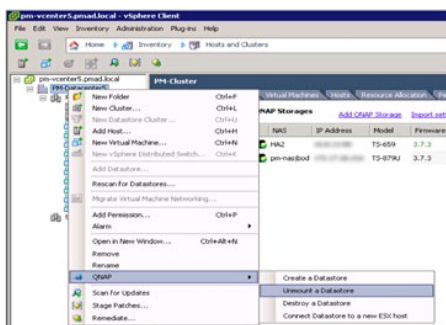
Storage for Microsoft Hyper-V

With ODX support, the QNAP Turbo NAS becomes a high performance iSCSI storage solution under Windows Server 2012, including Hyper-V virtualized environment. QNAP storage enables full copies of virtual machines within the NAS without requiring the Windows hosts to read and write the data. This highly reduces the loading of Windows hosts and improves the performance of copy and move operations for Windows 2012 hosts using the QNAP iSCSI storage. When providing QNAP storage to a Windows 2012 file server, the end user using Windows 8 client workstation will also benefit from the Offloaded copy process for large file transfers.



vSphere plug-in

The vSphere plug-in allows users to manage the QNAP Turbo NAS directly on the vSphere client, making datastore management more effective.



NAS management via SCVMM

The QNAP SMI-S provider enables management of the QNAP Turbo NAS directly through Microsoft System Center Virtual Machine Manager 2012 (SCVMM).



Centralized file storage, management and sharing

QTS provides comprehensive cross-platform file storage and sharing. The web-based management interface of File Station allows you to remotely manage, store and share files via web browser from anywhere.

Cross-platform access

QTS supports Windows SMB, Mac AFP and Linux NFS protocols to easily access and share files on the Turbo NAS.

QTS supports UPnP and Bonjour protocols that allow zero networking configuration of computers and mobile devices to easily access the Turbo NAS via the network.

Near/Remote access

QTS provides complete functions for users to access files through mobile devices or web browsers in the Intranet or over the Internet.

Data security

Privileges settings

You can create multiple user accounts and shared folders, and authorize each user to different shared folders with the system support of privilege settings and Windows ACL advanced permissions.

User home folders

With the user "Home Folder" feature turned on, a personal folder will be created automatically when a user logs on to the Turbo NAS for the first time. It effectively saves the time to create personal folders for each individual user.



File Station

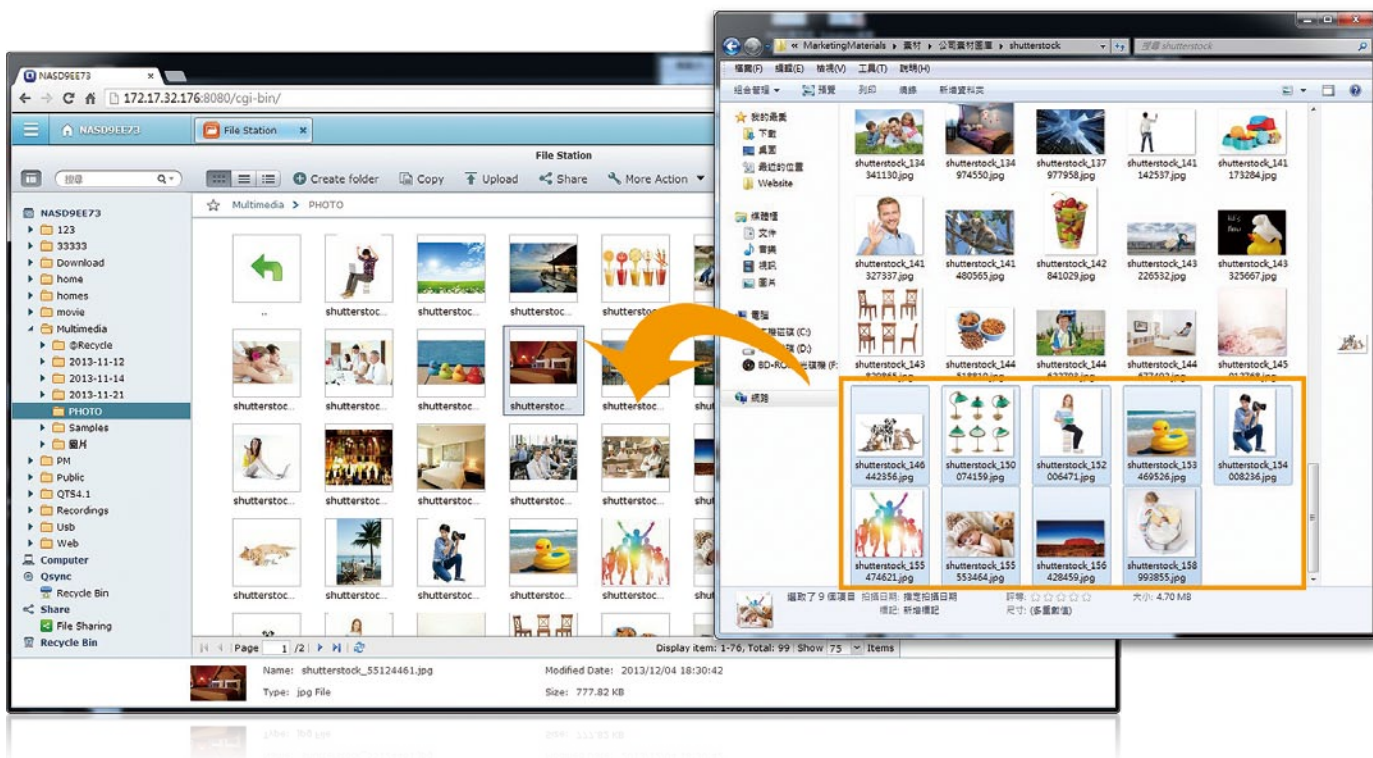
With the File Station, you can easily manage, upload, download, share files, and enjoy media playback anywhere with a web browser. The File Station brings conventional file operations performed on the computer desktop to the web browser.

File upload

Move files from local PC/Mac to File Station by drag-and-drop to easily upload the files to the Turbo NAS.

Mutual file sharing

You can easily share a bunch of files in a shared folder with friends via a Share Link. By activating the file upload function, your friends will be granted the privilege to upload files to your File Station without a user account required. You can even set an expiration time for shared files.



Managing by right clicking and hot keys

Use mouse right clicking and the keyboard hot keys to rename, move, delete, zip, and unzip files, and even create and delete folders.

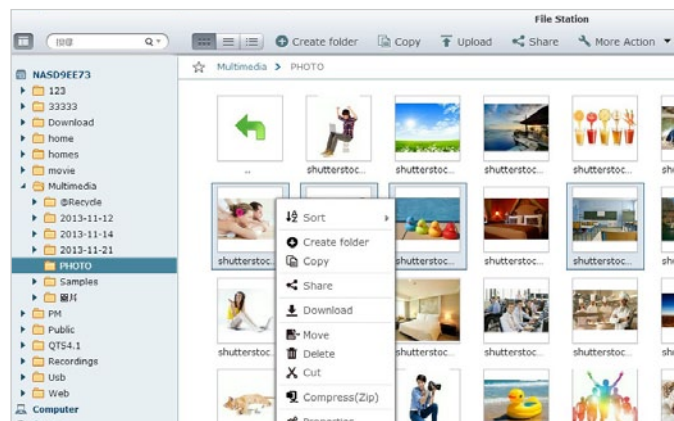


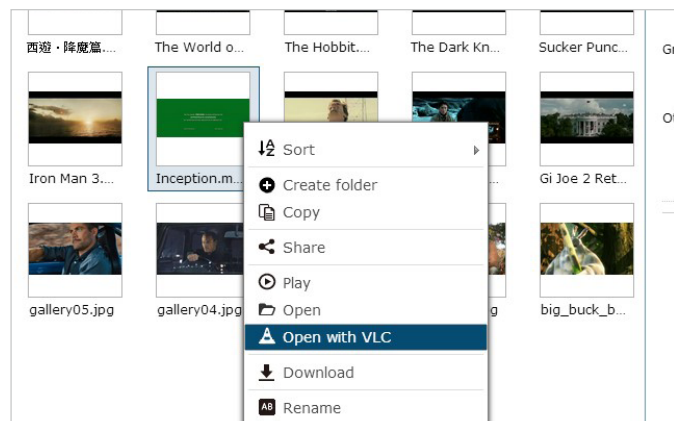
Photo slideshow

Right-click the selected photos to play the slideshow smoothly.



Media streaming & playing

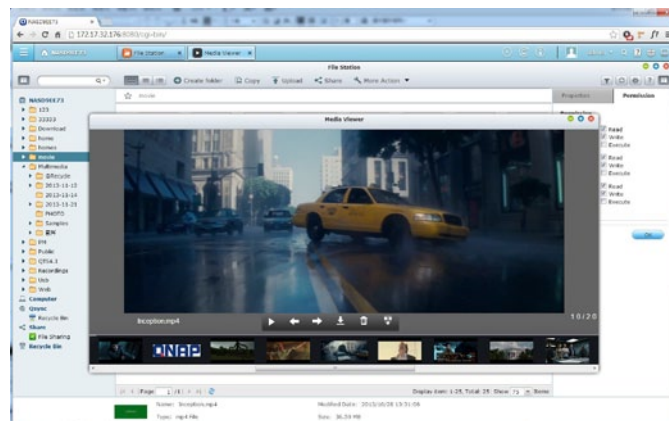
The File Station supports VLC for multimedia streaming. Just click on your photos, music and videos to directly play the contents. The slideshow display helps gather the media files in an organized manner for you to preview and play.



Click and play the videos*

Real-time transcoding allows immediate and smooth video, music, and photo playback. No need to wait for the files to be converted in advanced.

* Supported by specific Turbo NAS models



Advanced quick search

The File Station provides smart filters for file searching and browsing by file size, modified date, file name, and so on. The pop-up thumbnails enable you to quickly and clearly preview the files. File browsing is more intuitive and effortless with the File Station.



Photo thumbnails preview

The File Station shows thumbnails of photos, music and videos, making management easier.



Recycle bin

The recycle bin helps retrieve files accidentally deleted. It is categorized by shared folders to increase efficiency on file retrieval.

Data backup/disaster recovery

The QTS allows data on PCs, servers, virtual machines, and external drives to be backed up to the Turbo NAS; and provides disaster recovery solutions to back up data on the Turbo NAS to external devices or remote servers.

Backup Center

Backup from computer to NAS

> PC backup

Windows users can install the free QNAP NetBak Replicator utility to back up files from Windows PC - entire disk drives, documents, pictures, music, videos, fonts, emails, and more - to one or multiple Turbo NAS units.

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.

> Mac backup

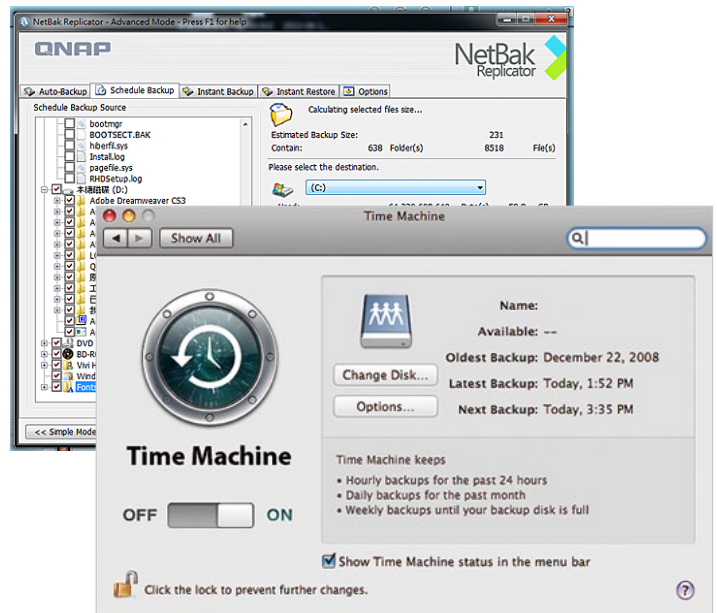
Mac users can use the Mac Time Machine to back up data to the Turbo NAS. You only need to set the Turbo NAS as the backup destination on the Time Machine management page, and it's done.

3rd party backup software

QTS 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 Turbo NAS.

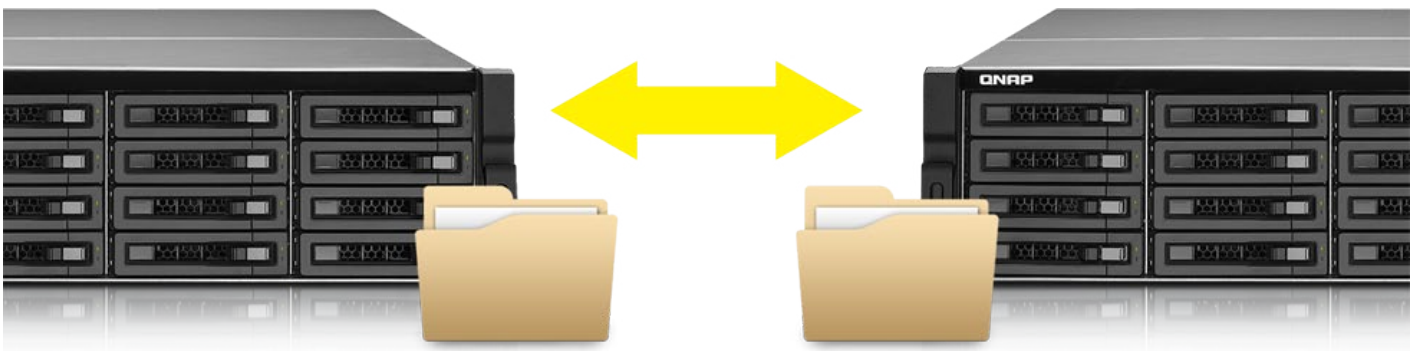
Backup from server to NAS

Users can use rsync protocol to conduct scheduled backup, or use RTRR (Real-Time Remote Replication) services for real time or scheduled data backup from a remote Turbo NAS or FTP server.



Virtualization backup server

The Turbo 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.



USB backup

One-touch-copy

Connect a USB device such as digital camera, digital camcorder, or USB disk to the front-panel USB port and tap on the "Copy" button to instantly back up data to the Turbo NAS.

Smart import

Just connect the digital camera to the USB port on the front of the Turbo NAS, and all the photos and videos will be imported automatically in a newly created folder named "Smart Import".



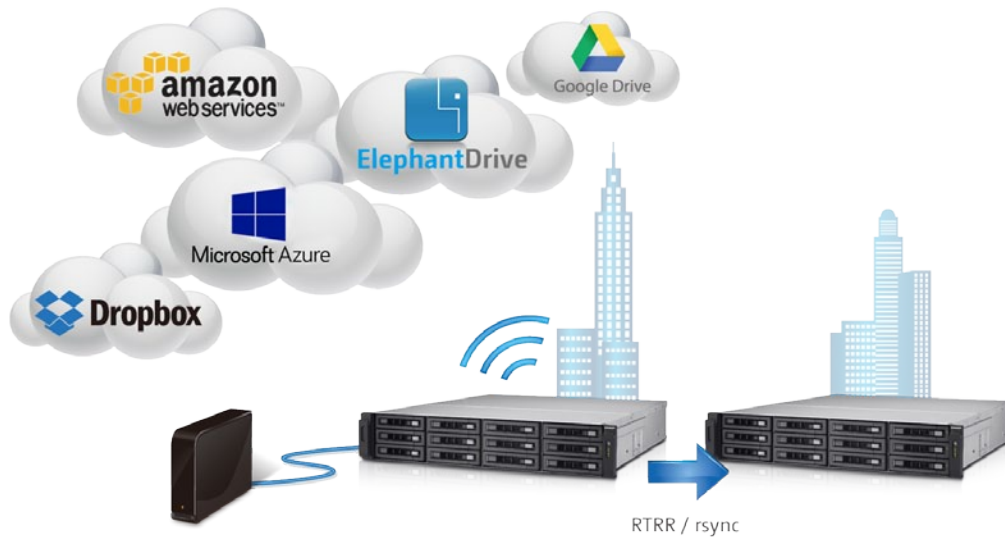
Disaster recovery

Backup to remote server

- Use rsync protocol to execute scheduled backup to remote rsync server
- Use RTRR (Real-Time Remote Replication) services for real time data backup to a remote Turbo NAS or FTP server.
- Use RTRR to sync shared folders between two Turbo NAS units.

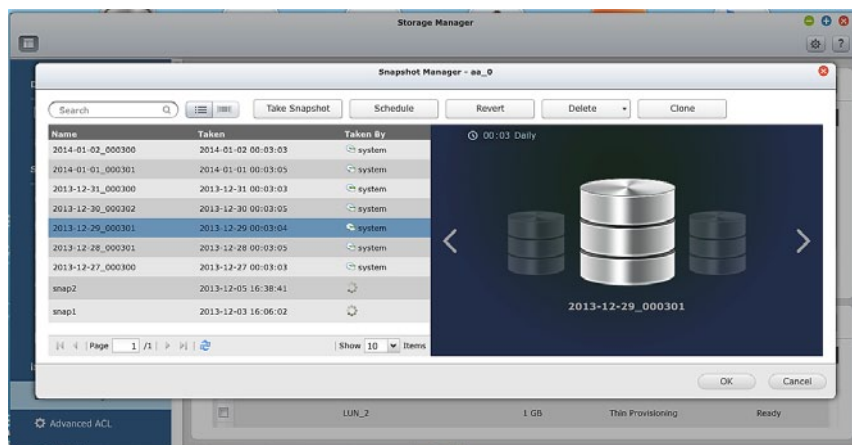
Backup to cloud storage

Users can back up the data from the Turbo NAS to online cloud storage services, such as Amazon® S3, Amazon Glacier, ElephantDrive®, Microsoft® Azure, Symform®, Google® Drive, and Dropbox®, and restore the data to your Turbo NAS anytime.



Snapshot*

The QTS Snapshot is a great solution to record the state of files at a particular point of time. You can create up to 1,024 snapshots manually or by schedule on the Turbo NAS. It is easy to retrieve files at a specific time point in case they are broken or mistakenly deleted.



iSCSI LUN Snapshot

On the Storage Manager, you can take multiple LUN snapshots at different time points. Whenever needed, just promote the LUN snapshot as readable space for easy data retrieval.

In addition, installing the QNAP VSS Hardware Provider on Windows/Hyper-V will allow Microsoft® Volume Shadow Copy Service (VSS) to initiate the LUN snapshot directly on the Turbo NAS, greatly offloading the computing power of Windows/Hyper-V. Companies that have already adopted backup software such as Acronis® True Image, CA® ARCserve Backup and Symantec® Backup Exec can easily adopt the QNAP solution in their backup infrastructure.

Volume Snapshot

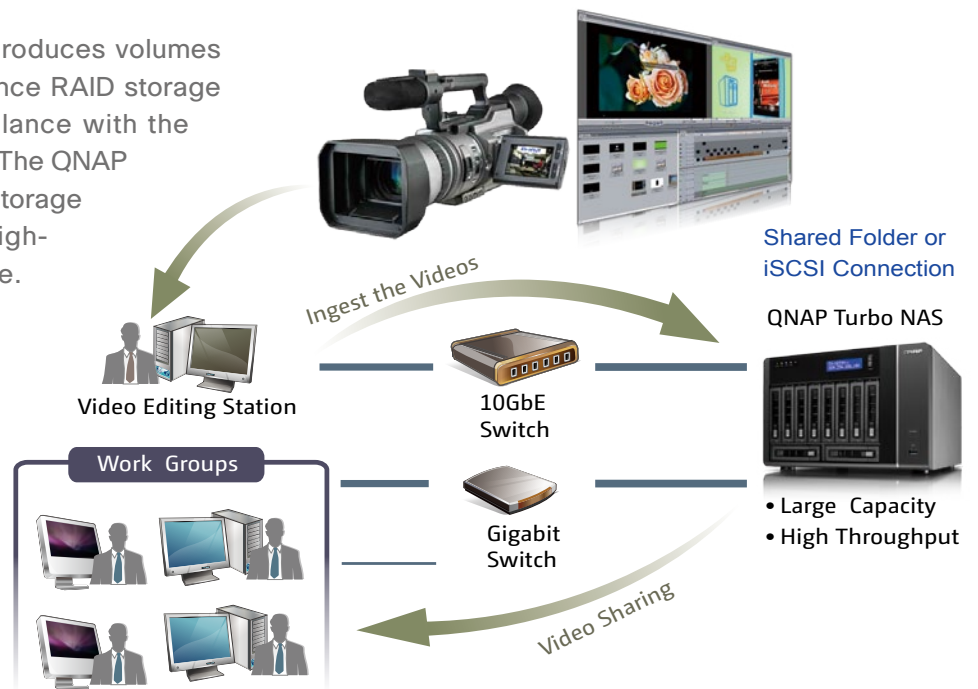
You can take snapshots of a volume at different time points. Whenever needed, go to the Storage Manager to directly restore or download files by choosing a desired snapshot.

The volume snapshot supports Windows "Previous Versions". You can easily retrieve data through Microsoft Previous Versions in the Windows Explorer (Or File Explorer in Windows 8) even without administrator's help, enjoying more flexibility.

* Available in Q4 2014

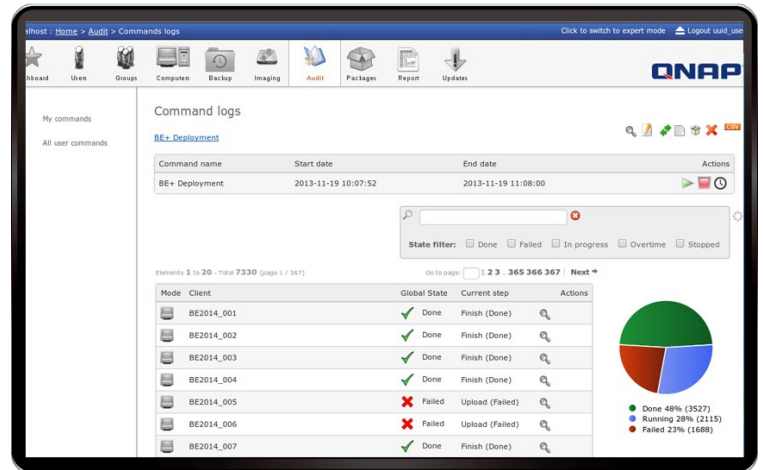
Video editing

Digital film and video production produces volumes of data that require high performance RAID storage with sustainable throughput to balance with the demanding output of video editing. The QNAP Business Series Turbo NAS fulfills storage and video editing needs with a high-speed 10GbE network interface. Digital videos can be quickly stored and edited on the Turbo NAS directly over the network. The Turbo NAS supports various network file sharing protocols such as NFS, AFP, and SMB/CIFS, so sharing files among PCs with different operating systems is easy. The scalable design of the Turbo NAS allows for the capacity to be expanded on the fly so the Turbo NAS can grow as the business data does.



IT Management Station

QNAP IT Management Station is powered by Mandriva® Pulse, and is designed to simplify daily tasks and IT asset management for businesses of all sizes. Your Turbo NAS becomes an IT system management server to help you centrally manage multi-OS and multi-site IT resources, applications and security with greater flexibility.



Web interface for management and reporting

The web-based management interface provides utmost convenience for you to access the IT Management Station via PCs, mobile devices or tablets and is protected by a secure SSH tunnel. You can easily check important information on the dashboard and keep track of hardware & software inventory, system status, and the system's activity history. Handling diverse workstations and applications on a single site is hassle free.

Comprehensive inventory & remote control

Mastering your IT infrastructure with the IT Management Station couldn't be more efficient. The comprehensive inventory provides an overview of your IT assets, so you can easily keep track of all your hardware & software information. You can also remotely deploy operating systems, applications and system settings spread across multiple sites, and use remote access to provide user support. The IT Management Station makes client management, server management, and IT project management effortless, especially for large organizations with multiple users & workgroups.

Cloning & mastering

The IT Management Station supports cloning & mastering to improve your productivity. Cloning allows full replication of hard drives on computers & workstations, and you can also create generic disk images for quickly deploying operating systems from a cloned image to multiple computers or workstations.

Convenient backup & restore

The IT Management Station supports full backup & daily incremental backup to protect your organization's IT assets. As accidental or unexpected data loss can have a potentially devastating effect on a company, the IT Management Station offers powerful backup features that safeguards important data & provides copies for data recovery if data loss occurs.

Centralized software deployment & management

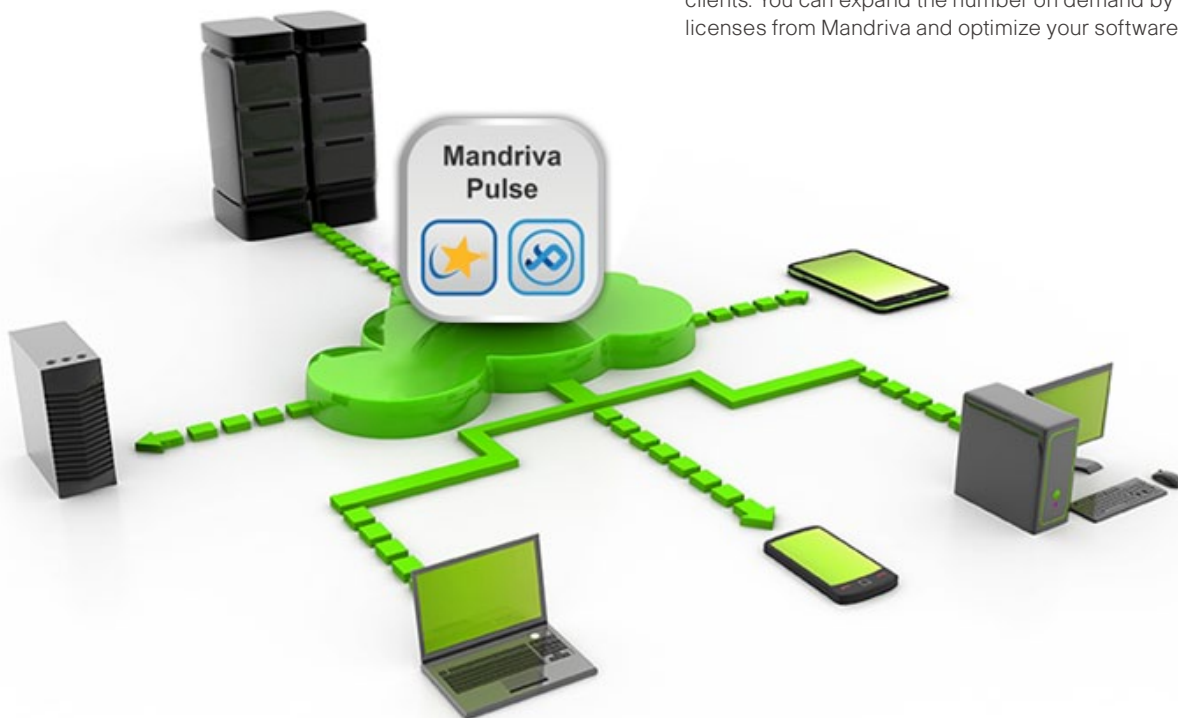
Optimize your work efficiency with centralized software deployment and maintenance. The IT Management Station allows you to schedule & implement software installation and settings on all of your IT assets. You can also easily conduct Windows updates and software updates from a single point of view to control your endpoint security.

User management & security

You can easily grant permission to allow other users to administrate the IT Management Station. Using LDAP to access your user directory and secure access to the IT Management Station through a single authentication source is also supported.

Expandable license management

The IT Management Station comes with 5 free licenses to manage 5 clients. You can expand the number on demand by purchasing additional licenses from Mandriva and optimize your software assets usage.





Surveillance Station

The Surveillance Station is professional network surveillance Video Management System (VMS). Being one of the Turbo NAS standard applications, the Surveillance Station can be activated on the QTS App Center to turn the Turbo NAS into a professional Network Video Recorder (NVR) system for real-time monitoring, recording, playback, alarm notifications, Intelligent Video Analytics (IVA), and management to safeguard your assets and property when used with supported IP cameras.



The most professional NVR system

Wide range of supported IP cameras

The Surveillance Station is compatible with over 2,600 IP camera models of over 90 brands and ONVIF specifications, including those that support advanced features such as multi-streaming and fisheye-dewarping.

Comprehensive Turbo NAS product spectrum

The Turbo NAS comes in a full range of product spectrum from single-bay to 24-bays. Each model offers 2 or 4 free IP camera channels, and can be expanded to 8, 16, 24, 40, or 72 channels depending on models, fulfilling all kinds of surveillance deployment needs.

Cross-platform support

The Surveillance Station works with all major web browsers such as Google Chrome, Mozilla Firefox and Internet Explorer. With QNAP Surveillance Client for Mac, users can also enjoy a similar experience on their Macs.

Advanced RAID storage technology

The Surveillance Station is installed on the Turbo NAS platform and is protected against loss, theft, and damage of recorded videos with the help of QTS security features and RAID technology.

Advanced recording

High-quality codec recording

The Surveillance Station supports H.264, MPEG-4, M-JPEG, and MxPEG recording, ensuring high-quality recording videos for future playback and reference.

Manual recording

On the Live-view panel, you can click the record button to start recording the live camera feeds and click the stop button whenever you want to finish recording. Manual recording helps you to capture critical moments on a real-time basis.

Smart recording

Smart recording intelligently records standard resolution videos in regular recording, and switches to high resolution automatically when alarms are triggered. This greatly saves your cost spent on hard drives and provides you with high resolution video evidence when needed.

Live-view

Various remote monitoring modes

The Surveillance Station supports various monitoring modes to display 1, 4, 6, 8, 9, 10, 12, 16, 20, 25, 36, 42, and 64 channels on a single screen. Users can also choose to sequentially display each channel or use dual displays to have a wider view.

PTZ (Pan/Tilt/Zoom) control

On the Surveillance Station web interface, you can directly adjust the PTZ (Pan/Tilt/Zoom) functions of supported cameras, greatly enhancing the convenience in remote monitoring of desired corners.

Instant playback

On the Live-view page, whenever you want to look back to check suspicious events of a camera channel you just missed, just hit 'Instant Playback' button to bring up the window to review recent feeds.

Visual aid by E-map

Just upload the pictures of the monitoring locations to the Surveillance Station and drag and drop the IP camera icons to the right place on the E-map. Once an alarm event happens, the camera icons will flash to indicate the event type for you to be alerted immediately and take necessary actions.

Instant notification

When the alarm recording is enabled and an event occurs, an alarm icon will be shown instantly on the monitoring page. The alert details can be viewed by clicking the icon.

Scheduled recording

With the intuitive drag-n-drop scheduled recording panel, you are able to define the time to record feeds for each IP camera, allowing you to flexibly set up a suitable recording plan with your existing storage capacity.

Alarm recording

The alarm recording will only be triggered when motion detections and camera input events occur, ensuring the critical events are properly saved for future use.

Playback

Preview recordings by thumbnails

You can move the mouse cursor over the timeline to preview the video thumbnails to quickly identify and search the event. No need to play the video from the start and wait long just to find a short video clip.

Intelligent Video Analytics (IVA)

IVA is an advanced way to quickly search videos corresponding to particular modes, greatly saving the time & effort of manually screening out matching videos. IVA includes motion detection, foreign object, missing object, out-of-focus and camera occlusion.

Real-time watermarking

The support of digital watermarking helps prove that the exported videos and snapshots are genuine without any falsification. The Watermark Proof utility developed by QNAP can verify the credibility of the exported videos and snapshots by showing the exact recording date and time, camera name and the Turbo NAS model name. This is rather useful when the videos could be raised as evidence in a relative investigation or in court.

Playback and speed control by shuttle bar

With the speed control shuttle bar, you are able to fast-forward the video playback by dragging the button to the right and rewind to the left at the speed you like, helping you quickly find the desired screenshots.



Flexible management

Flexible camera access control

You can create up to 32 user accounts on the Surveillance Station and flexibly assign them to different user groups with different rights for monitoring, playback, PTZ control, and audio monitoring.

Expendable license management

The Surveillance Station comes with at least one free IP camera license for each Turbo NAS by default. Administrators can expand the channel number based on demands by purchasing additional licenses. This provides a flexible and cost-effective way of scaling the surveillance needs.

Advanced event management

The system starts alarm recording when alarm events occur. Administrators can configure events and assign 7 types of event actions, including recording, PTZ Control, alarm output, email notification, SMS notification, buzzer notification, and user-defined actions, ensuring to be alerted immediately.

Manage large-scale camera

By connecting multiple Turbo NAS units, you can manage, monitor and play back up to 128 IP cameras managed by the Turbo NAS at the same time from a single unit.

Low resolution stream



High resolution stream



Mobile apps

VMobile – Anytime anywhere surveillance

The VMobile mobile app enables you to monitor the Surveillance Station anytime and anywhere using iOS and Android devices. It provides camera live-view, PTZ control, instant event notifications, video snapshot, video playback, and video search by date and time.

Vcam – Turn your mobile device into camera

The Vcam mobile app can turn your mobile device into a network camera. With the Vcam mobile app, you could record any moment around you to your Turbo NAS, saving the budget of expensive IP cameras.



Intuitive & simple

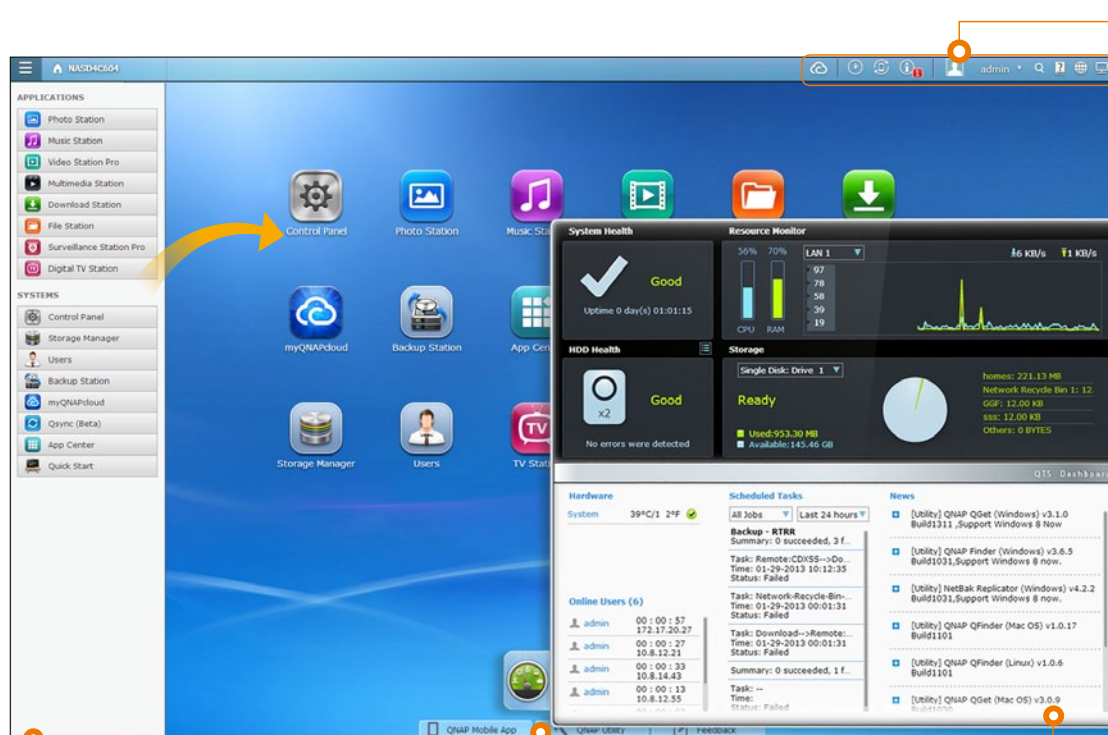
Based on Linux, QTS is designed to be simple and flexible, and centralizes multiple applications efficiently in the App Center.

QTS kernel highlights:

- > Multi-Window: Simultaneous multi-window operation, ease of usage.
- > Multi-Task: Perform multiple tasks at the same time, improve work efficiency.
- > Multi-Device: Synchronize cross multiple devices anytime, anywhere.
- > Multi-App: Download apps, easy to manage.

Intelligent desktop

The QTS 4.1's intelligent desktop offers an intuitive, sleek, and easy-to-follow graphic user interface, simplifying the whole Turbo NAS experience. It allows you to open multiple application windows and run multiple tasks simultaneously. Application windows can be minimized to the toolbar which allows you to see an overview of the opened applications and switch between running applications.



Main menu

All your applications, system preferences, and additional apps installed from the App Center are neatly presented for you to find your desired app quickly. Drag and drop frequently used icons to the desktop as shortcuts for quick access.

Multiple desktops

This extended desktop workspace is designed specifically to improve your productivity. You can separate the apps onto different desktops according to their nature or genre and switch between the desktops freely.

Smart dashboard

In one click the smart dashboard presents all important system information in a single panel. Drag any status to the desktop for constant monitoring.

Smart toolbar

Background tasks

Displays all the active tasks and scheduled jobs performed in the background.

External device

Access the connected storage devices and eject the devices safely with only one click.

Event notifications

Displays constant updates of system information such as system warnings and other error messages.

Quick search

Quickly search the system settings and QTS Help content using relevant keywords.

Main menu

Neatly presenting the enabled applications, system preferences, and any additional apps installed from the App Center to help you find the desired item quickly.



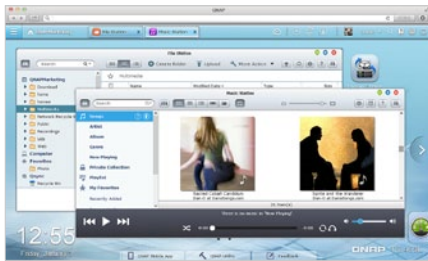
Smart toolbar

Providing necessary support, including QTS online resources, quick search, event notification, background tasks, and more.



Multi-tasking design

Allowing you to open multiple Windows and run multiple tasks to increase working efficiency.



Multiple desktops

The unique multiple desktops feature allows you to separate particular applications onto different desktops and switch between the desktops freely.



Smart dashboard

Graphically presenting system health, HDD health, resource monitoring, hardware information, storage status, scheduled tasks along with news feeds that inform you of the latest product and software information.



Personalized wall

For desktop and login screen, you can upload your favorite pictures or choose photos in the Photo Station to create a personalized wall to make your own style.



Group and shortcuts

You can flexibly arrange frequent-used icons on the desktop as shortcuts or group them simply by dragging-and-dropping.



Easy operations on tablet devices

QTS provides window mode and tab mode. When operating on a tablet device, the mode will automatically switch to tab mode.



Security management

QTS offers various options for security management to prevent the system from hacking, and data from interception, theft, and loss. QTS security management meets the electronic requirements of HIPAA (Health Insurance Portability and Accountability Act), performing as an ideal storage solution to store medical records.

Privilege Settings

Windows AD/ACL

QTS supports Windows AD/ACL to help IT administrators manage user account more effectively, and to simplify the process of privilege settings in large-scale organizations.

Besides, QTS supports SAMBA v4 that enables the Turbo NAS to serve as a Windows domain controller to manage privilege settings.

LDAP Directory Service

QTS supports LDAP protocol, integrating the Turbo NAS into networks that have deployed an LDAP-based directory service such as OpenLDAP and greatly simplifying the efforts of managing a large amount of user accounts. QTS makes Turbo NAS a LDAP server too.

Radius Server

QTS RADIUS Server provides centralized authentication and authorization management for computers to connect and use a network service.

QTS RADIUS Server maintains a list of user accounts that are authorized for remote network access through dial-up equipment, Wi-Fi access point, or VPN connections. IT administrators can easily apply access policies to multiple access points for a fine-grained control of network access.



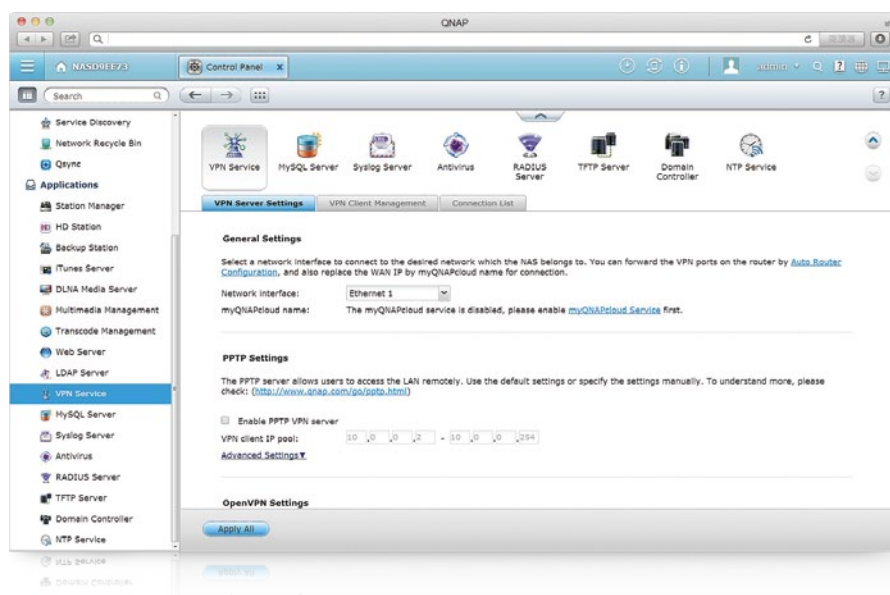
Anti-interception

VPN

QTS supports VPN Server, with VPN connections secured with up to 256-bit encryption. It is easy to configure, and is seamless integrated with the QNAP myQNAPcloud service and Auto Router Configuration. Complicated port forwarding settings for PPTP and OpenVPN are therefore simplified.

Encrypted access

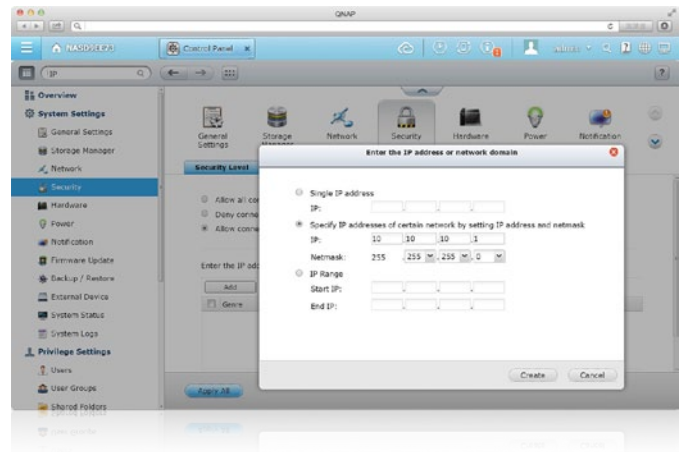
QTS supports SSL, SSH and SFTP for secure connection and data transfer. IT administrators can host websites on the Turbo NAS and only allow access via the HTTPS (SSL over HTTP) secure channel.



Anti-hacking

IP blocking

IT administrators can set up the black or white list to grant the proper access from different users to the Turbo NAS by IP address. It operates as a policy-based automatic IP blocking by enabling the network access protection command.

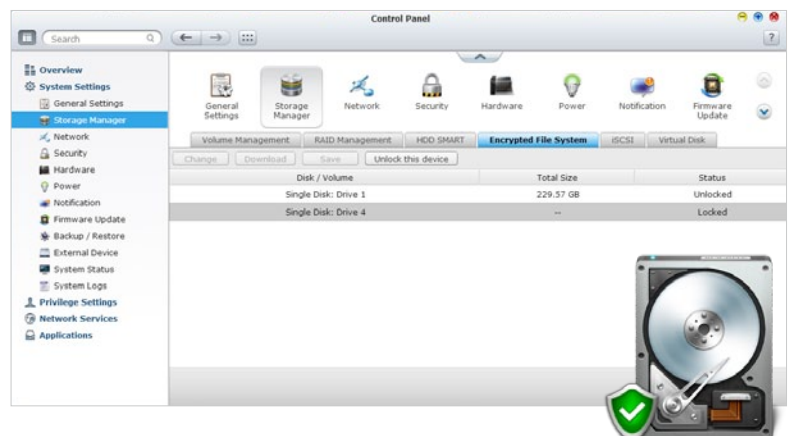


Anti-theft

Hard drive encryption

QTS supports up to AES 256-bit encryption for internal drives and external USB/eSATA drives, and adopts a military level FIPS 140-2 validated encryption, which is considered to be the highest security certification for compliance.*

* Supported by specific Turbo NAS models.



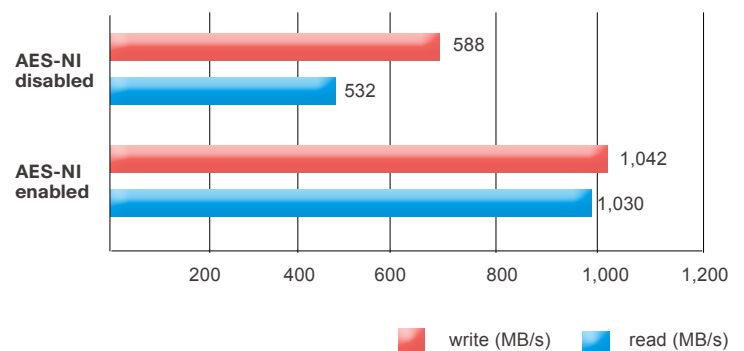
Hardware-accelerated AES encryption

The QNAP Turbo NAS business series supports Intel Advanced Encryption Standard New Instructions (AES-NI) which ensures security without compromising access performance.

Test environment:

Client PC configurations: Intel(R) Core(TM) i7-2600 CPU, 16GB DDR3 RAM, Windows 7 professional 64-bit, Dual-port Intel X520 10GbE Server Adapter, copy a 10GB file from/to an encrypted volume.
NAS configurations: TS-EC2480U-RP, OCZ Vertex4 VTX4-25SAT3-128G SSDs with RAID 5 configuration, QNAP LAN-10G2T-U dual-port 10GBase-T network adapter*1.

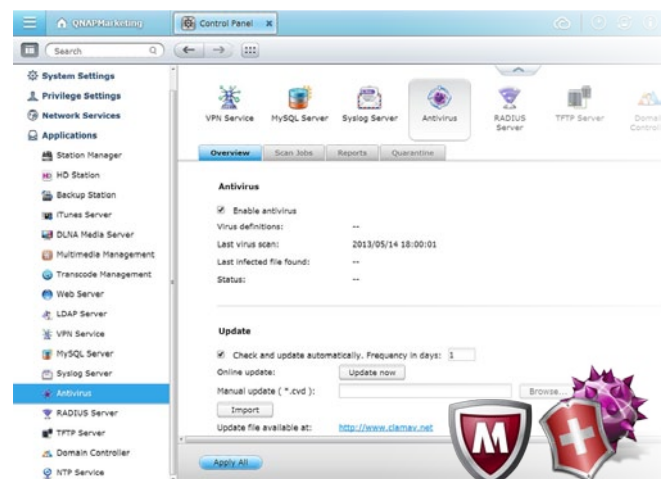
Copy a 10GB file from/to an encrypted volume



Anti-virus

QTS integrates ClamAV antivirus toolkit to detect against the latest viruses, malware, worms, and Trojan horses with continuous free virus database updates, ensuring continuous business operation. An E-mail notification upon task completion or virus detection is provided.

QTS also supports McAfee virus scanner which is available in the QTS App Center with 30-day free trial.



System management

QTS has comprehensive system management options to greatly decrease time and cost in IT management. The user-friendly QTS graphic interface is easy to operate and can be done without IT expertise required.

Hard disk status check

The hard disk S.M.A.R.T. (Self-Monitoring Analysis and Reporting Technology) test and bad block scanning help prevent data loss or damage due to hard disk failure.

Resource monitor

QTS's graphical interface presents CPU usage, memory usage, disk usage status, bandwidth usage, and running processes of the Turbo NAS to help IT administrators quickly get the status information.

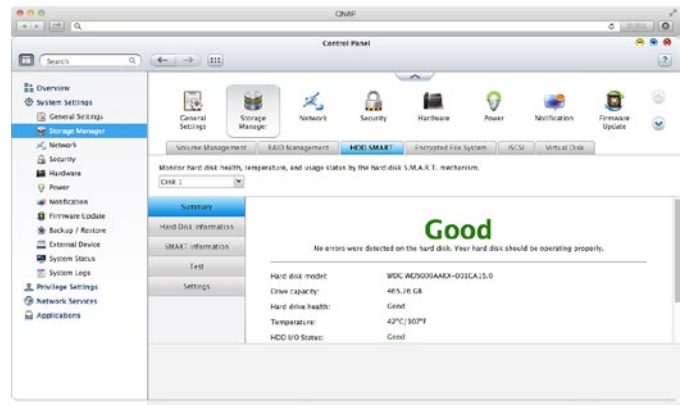


Alert notification

QTS supports email and SMS alerts notification about system errors, warnings, and alert events.

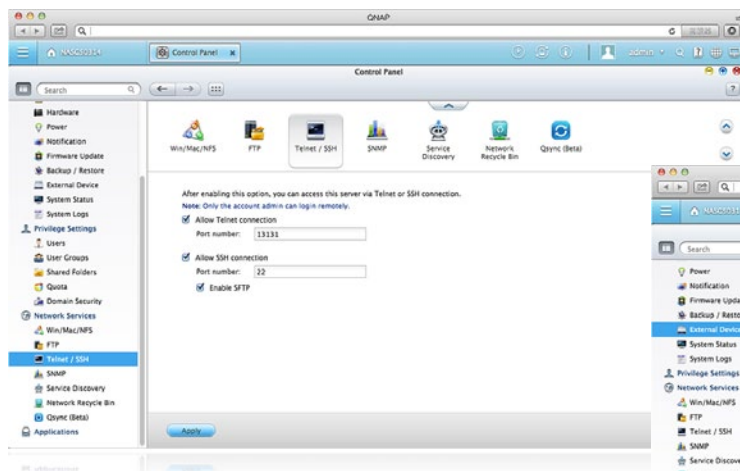
Comprehensive log system

QTS provides useful system event logs and system connection logs. QTS also supports Syslog Server to conveniently collect logs from other network devices.



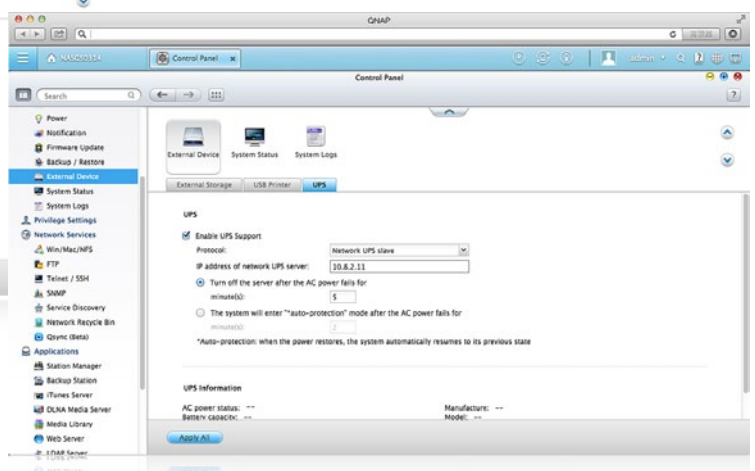
Telnet/SSH

IT administrators can remotely access the Turbo NAS via Telnet or the encrypted Secure Shell (SSH); and execute commands for advanced programming or troubleshooting.



Network UPS

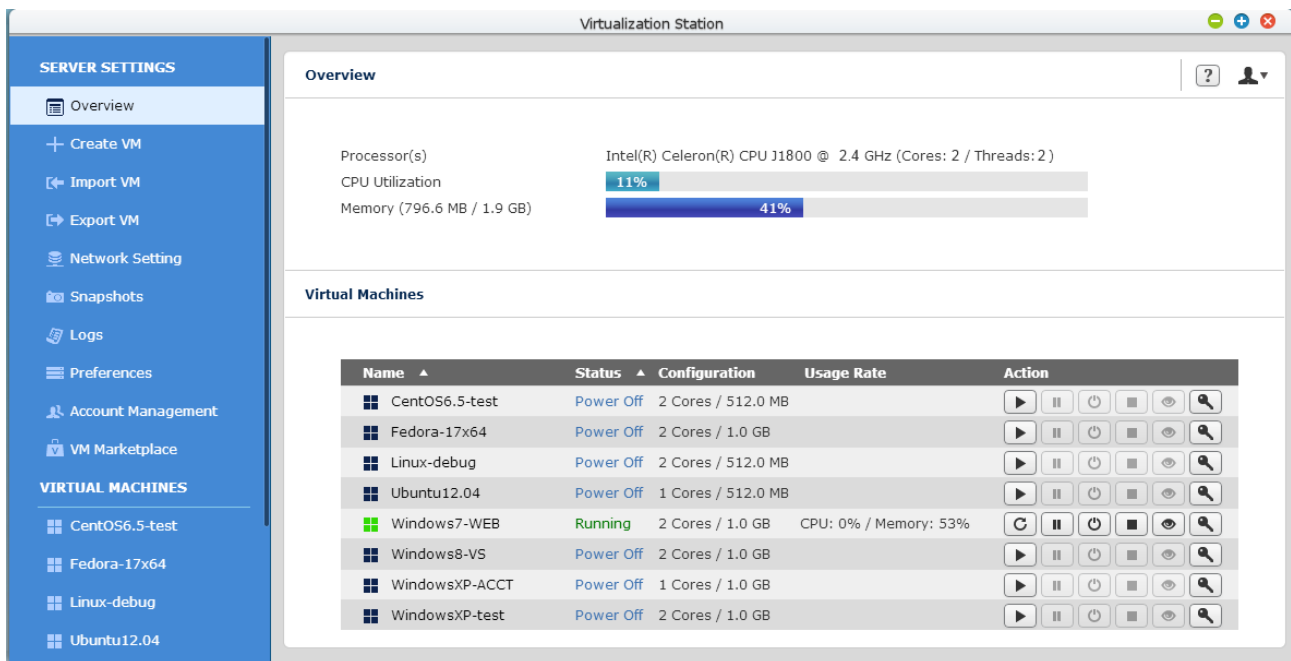
QTS supports UPS that allows multiple Turbo NAS units on the same TCP/IP network can be protected by a single UPS. The USB/SNMP standalone UPS mode is also supported.





Virtualization Station

With Virtualization Station, it is effortless to create multiple virtual machines on the Turbo NAS and manage them centrally with the easy-to-use interface, helping businesses save more and work faster in IT management.



Multiple OS support

With the Virtualization Station, you can create multiple virtual machines to run various operating systems such as Windows, Linux, and UNIX on the Turbo NAS, and separate network resources for each virtual machine to ensure uninterrupted network traffic.

Fast virtual machine creation

The Virtualization Station provides several default templates for quickly choosing a proper one to create a virtual machine. Advanced users can create custom templates, or manually create a virtual machine without choosing from the templates.

Snapshot

The Virtualization Station provides snapshot feature to record the virtual machine system status at a point of time. At the event of virtual machine failure, users can quickly roll it back to the snapshot time to ensure continual system operation.

Operate VMs as remote desktops

Enjoy utmost convenience by operating Windows, Linux and UNIX-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 (incl. Ctrl+Alt+Del) & function keys, and even take snapshots for the VMs.

Virtual machine import/export

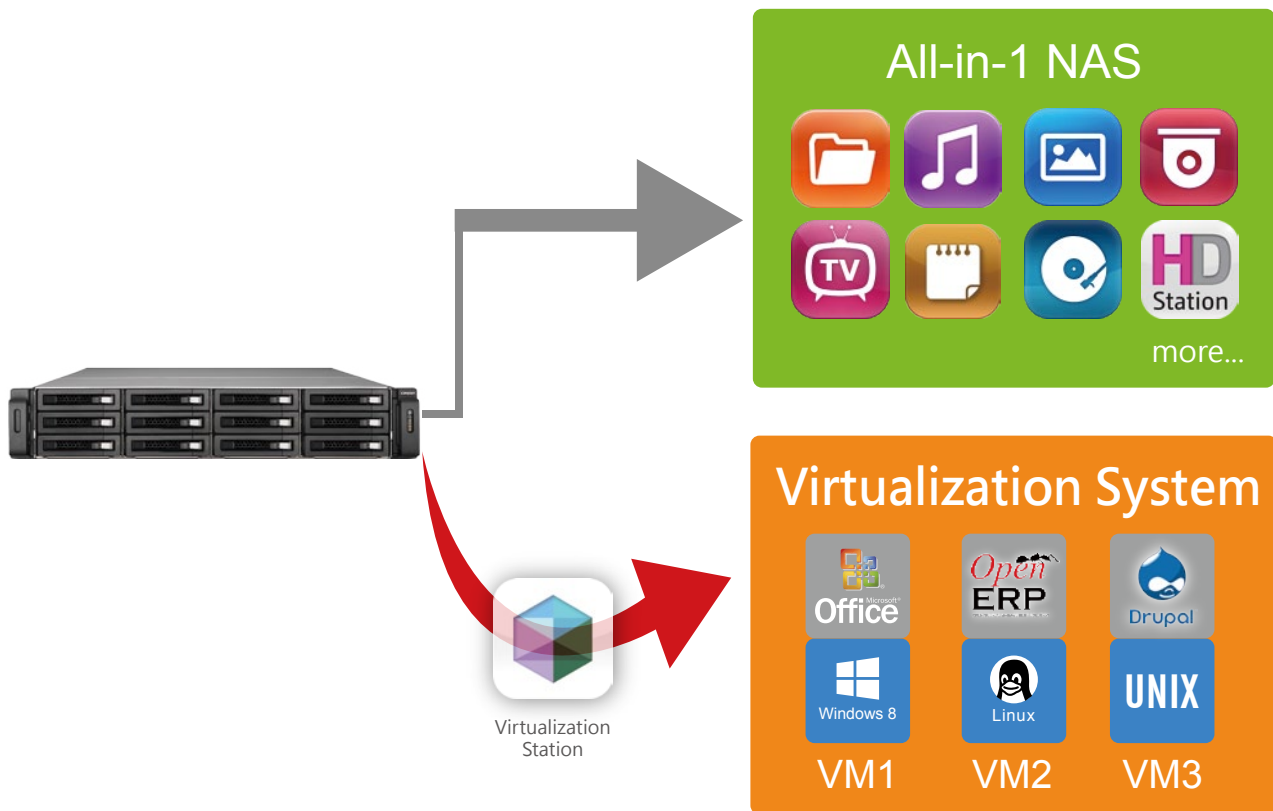
Virtual machines of various formats can be easily import to and export from the Virtualization Station with simple steps. IT administrators will enjoy extreme flexibility in arranging IT resources across machines.

Energy-saving & Eco-friendly

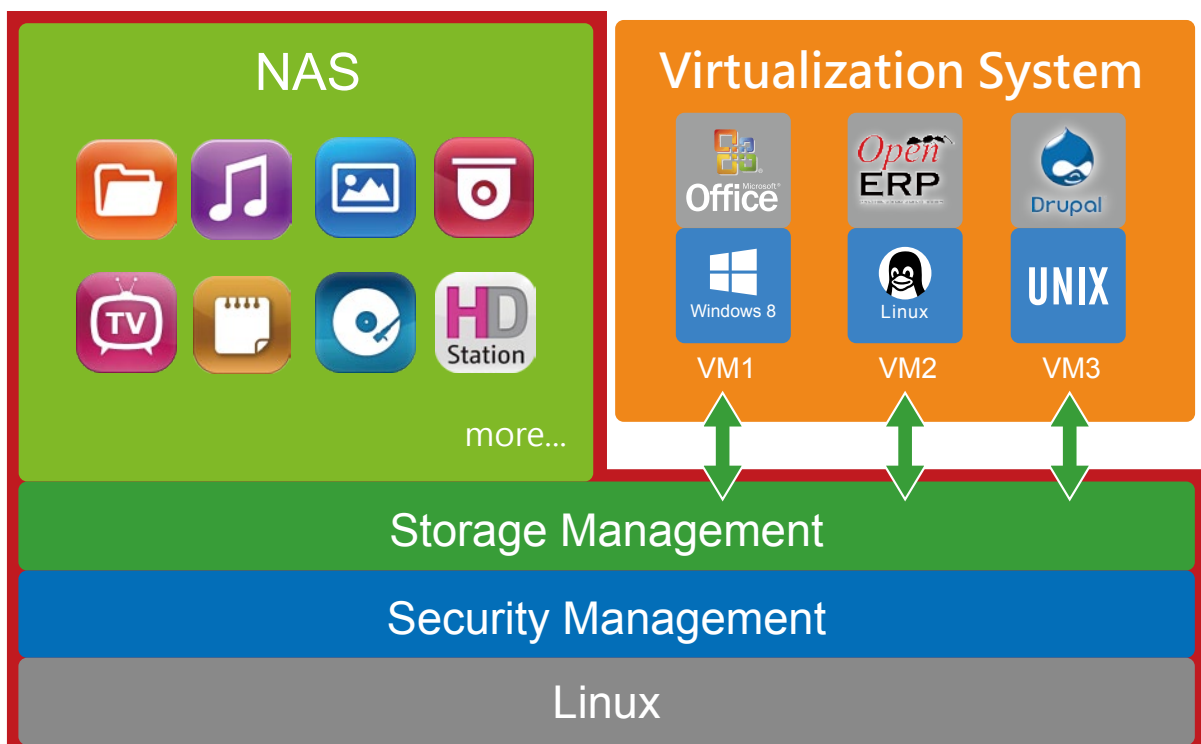
With the Virtualization Station, you no longer need to purchase a computer or server just to run a single OS, meaning the electricity bills spent on the hardware and even air-conditioning are all saved.

2-in-a-box platform

The Virtualization Station transforms the Turbo NAS into a 2-in-a-box NAS that can function as an all-in-one NAS and a virtualization system.



System architecture



Application server

QTS integrates numerous server functions, including Web Server and Printer Server.



Web/MySQL server

QTS supports built-in web server, together with PHP/MySQL support, allowing hosting multiple websites and running famous web applications on the Turbo NAS such as Joomla online shop and phpBB forum.

FTP server

Large file sharing

Use FTP high-speed data transfer to increase the efficiency of large file sharing.

Flexible settings

Use anonymous login, read/write, read-only control or bandwidth control to flexibly manage the access right control.

Secure access

Use the safe FTPS (FTP over SSL/TLS) connection to ensure the secure data transmission.

VPN server

Your Turbo NAS can be a VPN Server too. You can share files and any resource with your families and friends via the secured private network, and access websites without the Internet blocking mechanism in certain countries.

Printer server

QTS supports Printer Server, with the support for IPP (Internet Printing Protocol), Samba, print job management, and Bonjour printing on Mac OS X.

By connecting a compatible USB printer to the Turbo NAS, members can instantly share the printer resources over the network at the same time (Max. 3 USB printers).



“QNAP Turbo NAS is the key to deliver our readers a much faster browsing speed and better experience on our website.” - Dennis Bode, editor in chief (Germany)

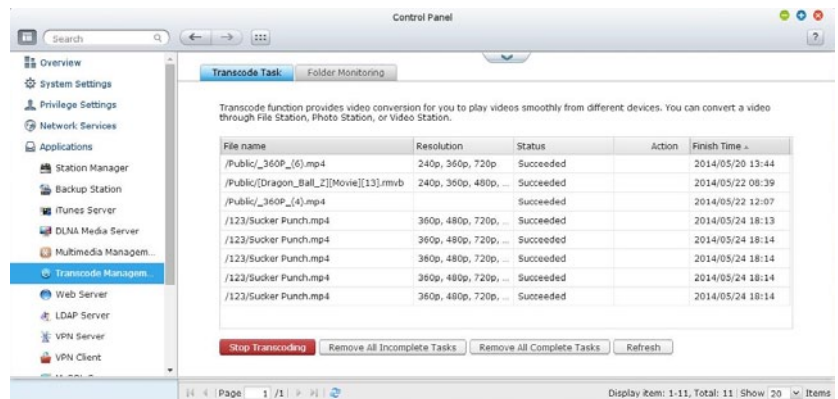


Comprehensive hardware accelerated transcoding center

Due to the increasing use of HD videos (720p, 1080p), video files are becoming increasingly large in size and can use lots of network bandwidth to share or play them over a network.

Transcode management

On-the-fly Transcoding and Background Transcoding allows you to convert videos to lower resolutions to accommodate slower/restricted network environments and device limitations.



Why we need transcoding?

With the popularity of high-definition smartphones and digital cameras, the resolution of videos is getting higher. A higher resolution means larger file sizes and more bandwidth. Transcoding can provide lower resolution videos when sharing and watching, saving bandwidth, but also retains the unaltered original video on the Turbo NAS.

Smart transcoding adapts to suit different bandwidth

The QNAP Turbo NAS business series provides a range of resolutions to play/share videos according to different bandwidth limits. Higher resolutions need more bandwidth, and you can select the right resolution for your network environment to get the best viewing experience.

Resolution Network	240P	360P	480P	720P	1080P
Ethernet					
Wi-Fi					
4G (LTE)					
3G					

Multi-mode transcoding function

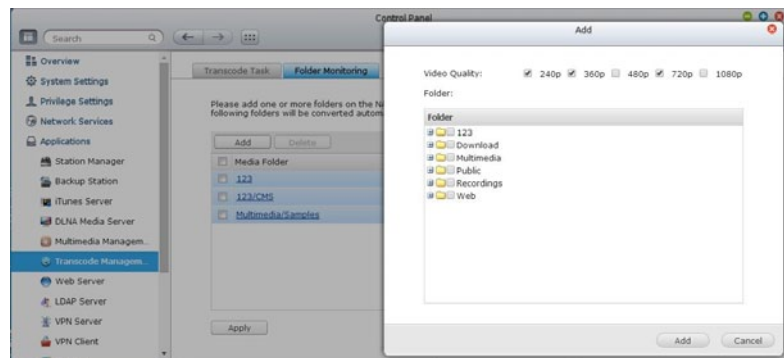
The QNAP Turbo NAS business series provide multiple transcoding functions for you to have the best video experience.

Background hardware accelerated transcoding

You can add videos to a transcoding list and use the Turbo NAS to convert the original high resolution video for use with multiple resolutions. Then you can select an appropriate resolution to match your environment when sharing or watching.

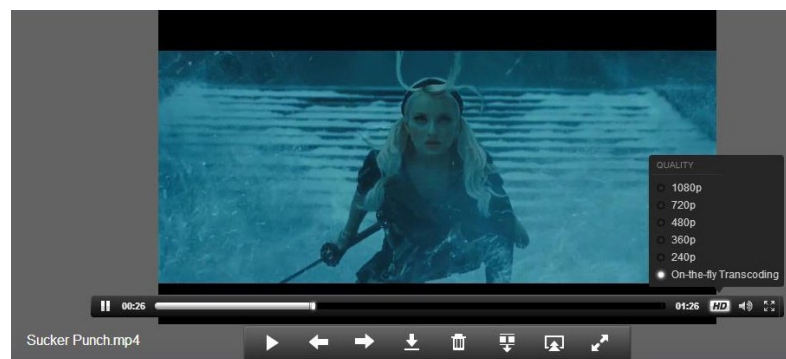
Auto transcoding

When you set a Turbo NAS folder as an auto transcoding folder, the Turbo NAS will automatically convert the videos in this folder to the resolution you have set. For example, if you set the folder to 360P, the video will auto transcode to this resolution when you upload to this folder as a background task.



On-the-fly transcoding

If you have many high-resolution videos, but did not transcode in advance, you can use on-the-fly transcoding. This will adapt to meet bandwidth limits, with the Turbo NAS transcoding in real time for watching the video directly. For this hardware based transcoding technology, up to users can watch videos streamed simultaneously from the same Turbo NAS.



Hardware-accelerated transcoding technology

With Intel® HD Graphics video creation & conversion is faster, easier and can significantly reduce transcoding time while handling multiple on-the-fly transcode tasks.

Mobile apps & utilities



Mobile apps Enjoy mobile life anytime, anywhere

Qfile



Access files conveniently

Upload, access, zip/unzip, move, copy, rename or delete files on the Turbo NAS with your mobile devices, without computer required.

Stream multimedia contents

Browse and play the music, photos and videos on the Turbo NAS. No more worries about the space limitation of your mobile device.

Auto-upload photos

Automatically upload photos to your Turbo NAS whenever you take new photos. It works as a real-time backup of your precious photos.

Offline file reading

Download documents, photos or music from the Turbo NAS to your mobile devices for offline reading.

Folder & file sharing

Create download links for shared folders or files to share via email or SMS. You can also share by email as attachments.

VMobile



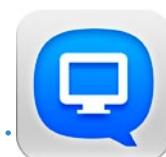
Mobile surveillance with ease

VMobile is a professional surveillance mobile app for remotely managing the Surveillance Station of linked Turbo NAS or the IP cameras of VioStor NVR.

More advanced functions

Besides real-time monitoring, the VMobile allows you to remotely control the recording, snapshots, and playback. Once alarm events occur, an instant notification is also provided.

Qmanager



Manage multiple NAS units

Add multiple Turbo NAS units on Qmanager, and conveniently manage anyone of them anytime and anywhere.

Monitor system status

Monitor your system information, such as CPU usage, memory usage, system event information online users, etc. You can also check connection status to prevent suspicious invasion.

Remotely manage

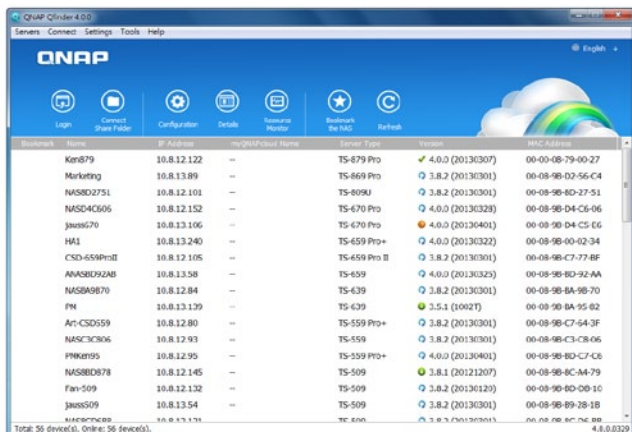
With one click, you can use Qmanager to turn on/off or restart the Turbo NAS, open or close Turbo NAS services, and set up Wake on LAN.

Utilities

Work efficiently and manage the Turbo NAS smartly with the various easy-to-use and practical utilities.

Qfinder

Qfinder is available for Windows, Mac, and Linux users to quickly find and access the Turbo NAS over the LAN. You can also update the firmware or set up Wake on LAN through the Qfinder.



myQNAPcloud Connect

myQNAPcloud Connect is designed for Windows PC users to connect to the Turbo NAS and easily manage files by drag-and-drop within the Windows Explorer.



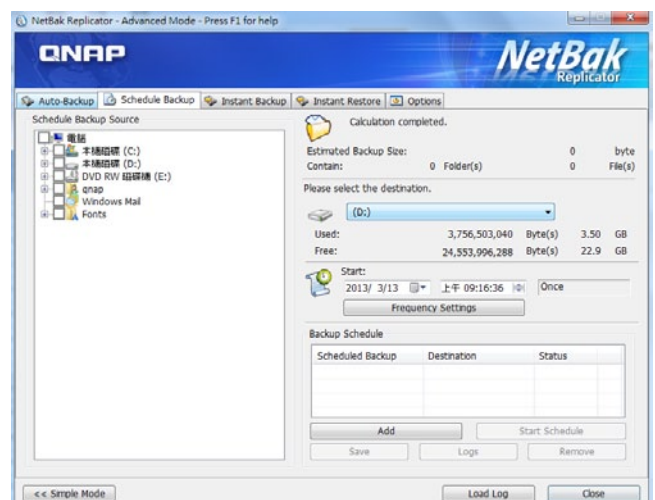
Qsync

Qsync provides cross-platform synchronization. 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 Turbo NAS.



NetBak Replicator

QNAP NetBak Replicator helps you easily back up files or the entire hard drive data from Windows PC to the Turbo NAS. It also supports backing up to a remote server via FTP and WebDAV through the Internet.



App center & development platform

Extend the functionality of the Turbo NAS to enrich your work and recreation life. QTS App Center provides various apps for you to install on demand, enjoying more applications and lowering the cost of purchase.

Powerful and, rich-in-content

The App Center provides more than 100 add-on apps, including backup/sync, business, content management, communications, developer tools, download, entertainment, surveillance and utilities.

1-click Install on demand

Find what you need and install it immediately with just one click.

Upgrade reminder

Once your installed apps have upgrade version, an upgrade reminder will show on the QTS desktop to help keep your NAS applications up-to-date.



3rd party development platform

The open-source Linux kernel of the QTS makes it a friendly development platform with features including RAID technology, backup security and cloud storage, allowing software developers to develop all kinds of applications. Coupled with rich applications of QTS and the leading Turbo NAS hardware design, developers can enjoy the much more efficient process for R&D.

Fully supportive customer services, sales and R&D

QNAP NAS applications can be developed using the following three approaches:

Development toolkit (API & SDK)

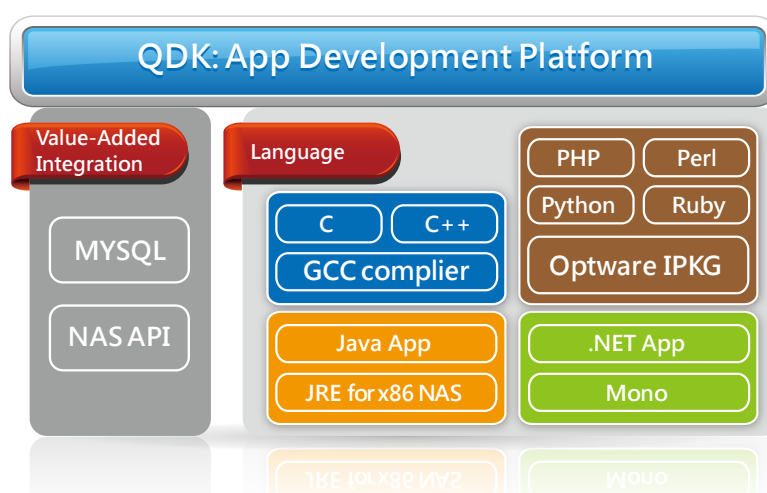
Developers can use QNAP Development Toolkit (API & SDK) to design applications that can run on a client's device (such as a smart phone or PC), and remotely manage and access files and documents stored on the NAS.

NAS app (QPKG) development

Developers can design add-ons or applications running on the Turbo NAS and have the applications and related data integrated on the same platform. Also, through the built-in App Center on QNAP Turbo NAS, users can easily install and manage those applications.

VM Integration

Ever wanted to run non-Linux based applications on the Turbo NAS? No problem! VM integration is the solution for you to install a different OS and non-Linux based applications on the Turbo NAS.



QNAP NAS App



Photo Station



Music Station



Video Station



Download Station



Surveillance Station



TV Station



Notes Station



HD Station



DJ Station



Multimedia Station

Backup / Sync



HiDrive - Beta



Wonder Box



Google Drive Sync



Dropbox



BitTorrent Sync

Business



osCommerce - Beta



Cloud M2M



Magento - Beta



GLPI



EZPhone



eyeOS

Content management



BIGACE - Beta



CMS Made Simple



Concrete 5



DokuWiki - Beta

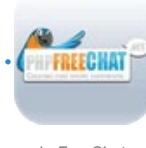


Dolphin - Beta



Drupal

Communications



phpFreeChat

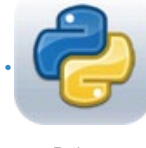


XMail



Xeams

Developer tools



Python



Optware IPKG



Git



Node.js



Mono



Mantis - Beta

Download



NZBGet



MLDonkey



aria2



Headphones - Beta



HappyGet 2

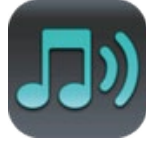


Download Station

Entertainment



Multimedia Station



Logitech Media Server



DJ Station



IceStation



Gallery



DVbLink TV Server - Beta

Utilities



AjaXplorer



Feng Office - Beta



eTicket



eFinder



Collabtive



Asterisk

QNAP business series specifications



	SS-EC2479U-SAS-RP	SS-EC1879U-SAS-RP	SS-EC1279U-SAS-RP	TS-EC1679U-SAS-RP	TS-EC1279U-SAS-RP
CPU	Quad Core Intel® Xeon® E3-1245 v2 (3.4 GHz)			Quad Core Intel® Xeon® E3-1245 v2 (3.4 GHz)	
RAM	8GB DDR3 ECC (expandable RAM, up to 32GB **)				
USB 2.0/3.0	4/2				
eSATA	No				
Number of Internal Hard Drives	24 x 2.5" SAS/SATA 6Gb/s hard drive or SSD	18 x 2.5" SAS/SATA 6Gb/s hard drive or SSD	12 x 2.5" SAS/SATA 6Gb/s hard drive or SSD	16 x 2.5"/3.5" SAS/SATA 6Gb/s hard drive or SSD	12 x 2.5"/3.5" SAS/SATA 6Gb/s hard drive or SSD
Maximum Raw Capacity	24 TB	18 TB	12 TB	80 TB	60 TB
Hard Drive Interface	SAS/SATA 6Gb/s (backward compatible with SAS/SATA 3Gb/s)				
10/100/1000 Mbps LAN Port	4 (Max. 8)				
10Gbps LAN Port	Yes (optional)				
No. of PCIe Expansion Slots	2 (for network and storage expansion)				
Internal Cache Port	No				
Form Factor	2U, Rackmount			3U, Rackmount	2U, Rackmount
Dimensions	88 (H) x 439 (W) x 520 (D) mm 3.46 (H) x 17.28 (W) x 20.47 (D) inch			130 (H) x 442.4 (W) x 528.3 (D) mm 5.12 (H) x 17.42 (W) x 20.80 (D) inch	88 (H) x 439 (W) x 520 (D) mm 3.46 (H) x 17.28 (W) x 20.47 (D) inch
Weight	16.28 kg/35.89 lb (Net) 25.26 kg/55.69 lb (Gross)	15.92 kg/35.10 lb (Net) 24.9 kg/54.89 lb (Gross)	15.56 kg/34.3 lb (Net) 24.54 kg/54.10 lb (Gross)	18.3 kg/40.34 lb (Net) 27.38 kg/60.36 lb (Gross)	16.04 kg/35.36 lb (Net) 24.78 kg/54.63 lb (Gross)
Power	600W redundant power supply				
Fan	Smart fan: 3 (6cm, 12V DC)				
LCD Screen	No				
Noise Level	66.1 dB(A)	64.9 dB(A)	64.5 dB(A)	62.2 dB(A)	69.4 dB(A)
Power Consumption	HDD Standby: 252W In operation: 270W (with 24 x Seagate SEAGATE ST9300653SS hard drive installed)	HDD Standby: 168W In operation: 206W	HDD Standby: 139.1W In operation: 157W	In operation: 368W (with 16 x Seagate ST3600057SS hard drive installed)	In operation: 296W

All specifications are subject to change without notice.

*The standard system is shipped without hard drives.

** When upgrading RAM to more than 24GB, the original 4GB RAM modules must be removed.



	TS-EC2480U-RP	TS-EC1680U-RP	TS-EC1280U-RP	TS-EC880U-RP	TS-EC1080 Pro	TS-EC880 Pro
CPU	Quad-core Intel® Xeon 3.4 GHz Processor				Quad-core Intel® Xeon 3.4 GHz Processor	
RAM	4GB DDR3 ECC RAM (expandable RAM, up to 32GB**)				2GB DDR3 ECC RAM (expandable RAM, up to 32GB**)	
USB 3.0/2.0	4/4				3/6	3/6
eSATA	0				2	
Number of Internal Hard Drives*	24 x 2.5"/3.5" SATA 6Gb/s hard drive or SSD	16 x 2.5"/3.5" SATA 6Gb/s hard drive or SSD	12 x 2.5"/3.5" SATA 6Gb/s hard drive or SSD	8 x 2.5"/3.5" SATA 6Gb/s hard drive or SSD	10 x 2.5"/3.5" SATA 6Gb/s hard drive or SSD	8 x 2.5"/3.5" SATA 6Gb/s hard drive or SSD
Maximum Raw Capacity	120 TB	80 TB	60 TB	40 TB	50 TB	40 TB
Hard Drive Interface	SATA 6Gb/s (backward compatible with SATA 3Gb/s)				SATA 6Gb/s (backward compatible with SATA 3Gb/s)	
10/100/1000 Mbps LAN Port	4 (Max. 8)				4 (Max. 6)	
10Gbps LAN Port	Yes (optional, max. 4)				Yes (optional, max. 2)	
No. of PCIe Expansion Slots	2 (1 x PCIe Gen3 x 8, 1* PCIe Gen3 x 4)				1 (1 x PCIe Gen3 x 8)	
Internal Cache Port	Two mSATA port on board for read caching ***				Two mSATA port on board for read caching ***	
Form Factor	4U, Rackmount	3U, Rackmount	2U, Rackmount		Tower	
Dimensions	176.15(H) x 442.5(W) x 530.5(D) mm 6.94(H) x 17.42(W) x 20.89(D) inch	130(H) x 442.5(W) x 530.5(D) mm 5.12(H) x 17.42(W) x 20.89(D) inch	88(H) x 442.5(W) x 530.5(D) mm 3.46(H) x 17.42(W) x 20.89(D) inch	88(H) x 442.5(W) x 530.5(D) mm 3.46(H) x 17.42(W) x 20.89(D) inch	217.5 (H) x 327 (W) x 321.2 (D) mm 8.56 (H) x 12.8 (W) x 12.65 (D) inch	
Weight	23.08 kg/ 50.88 lb (Net) 30.6 kg/ 67.46 lb (Gross)	17.88 kg/ 39.42 lb (Net) 24.2 kg/ 53.35 lb (Gross)	14.18 kg/ 31.26 lb (Net) 20.74 kg/ 45.7 lb (Gross)	14.39 kg/ 31.72 (Net) 20.57 kg/ 45.35 (Gross)	12.52 kg/ 27.61 lb (Net) 19.75 kg/ 43.54 lb (Gross)	12.52 kg/ 27.61 lb (Net) 19.75 kg/ 43.54 lb (Gross)
Power	650W redundant power supply		400W redundant power supply		350W power supply	
Fan	Smart fan: 4 (8cm, 12V DC)		Smart fan: 4 (6cm, 12V DC)		Smart fan: 2 (12cm, 12V DC)	
LCD Screen	No				Yes	
Noise Level	48.3 dB(A)	48.0 dB(A)	45.0 dB(A)	41.9 dB(A)	54.57 dB(A)	54.57 dB(A)
Power Consumption	HDD Standby: 129.43W In Operation: 263.81W	HDD Standby: 119.80W In Operation: 209.47W	HDD Standby: 69.42W In Operation: 121.18W	HDD Standby: 64.04W In Operation: 104.26W	HDD Standby: 44.21W In Operation: 130W	HDD Standby: 42.21W In Operation: 122W

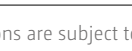
All specifications are subject to change without notice.

* The standard system is shipped without hard drives.

** When upgrading RAM to more than 28GB, the original 4GB RAM modules must be removed.

*** The standard system is shipped without mSATA flash.

Accessories

Category		Order P/N	Product Description	Applied Models
RAID Expansion Enclosure		REXP-1600U-RP	A01 series 3U 16-bay RAID expansion enclosure	TS-EC1279U-SAS-RP, TS-EC1679U-SAS-RP, SS-EC2479U-SAS-RP, SS-EC1879U-SAS-RP, SS-EC1279U-SAS-RP, TS-EC880U-RP, TS-EC1280U-RP, TS-EC1680U-RP, TS-EC2480U-RP,
		REXP-1200U-RP	A01 series 2U 12-bay RAID expansion enclosure	TS-EC1279U-SAS-RP, TS-EC1679U-SAS-RP, SS-EC2479U-SAS-RP, SS-EC1879U-SAS-RP, SS-EC1279U-SAS-RP, TS-EC880U-RP, TS-EC1280U-RP, TS-EC1680U-RP, TS-EC2480U-RP,
		REXP-1000 Pro	Tower 10-bay RAID expansion enclosure	TS-EC880 Pro, TS-EC1080 Pro
SAS Card		SAS-6G2E-D	Dual-wide-port storage expansion card, SAS 6Gbps, for tower model, desktop bracket	TS-EC880 Pro, TS-EC1080 Pro
		SAS-6G2E-U	Dual-wide-port storage expansion card, SAS 6Gbps, for A01 series rack mount model, low-profile bracket	TS-EC1279U-SAS-RP, TS-EC1679U-SAS-RP, SS-EC2479U-SAS-RP, SS-EC1879U-SAS-RP, SS-EC1279U-SAS-RP, TS-EC880U-RP, TS-EC1280U-RP, TS-EC1680U-RP, TS-EC2480U-RP
Rail Kit		RAIL-A01-35	A01 series (chassis) rail kit, max. load 35kg	TS-EC1279U-SAS-RP, TS-EC1679U-SAS-RP, SS-EC2479U-SAS-RP, SS-EC1879U-SAS-RP, TS-EC1279U-SAS-RP, TS-EC880U-RP, TS-EC1280U-RP, TS-EC1680U-RP
		RAIL-A02-90	A02 series (chassis) rail kit, max. load 90kg	TS-EC2480U-RP
LAN Card		LAN-1G2T-D	Dual-port 1 GbE network expansion card for tower model, desktop bracket	TS-EC880 Pro, TS-EC1080 Pro
		LAN-1G2T-U	Dual-port 1 GbE network expansion card for A01 series rack mount model, low-profile bracket	TS-EC1279U-SAS-RP, TS-EC1679U-SAS-RP, SS-EC1879U-SAS-RP, SS-EC1279U-SAS-RP, TS-EC880U-RP, TS-EC1280U-RP, TS-EC1680U-RP, TS-EC2480U-RP
mSATA Flash		FLASH-256GB-MSATA	128 GB mSATA flash module x 2	TS-EC880U-RP, TS-EC1280U-RP, TS-EC1680U-RP, TS-EC2480U-RP, TS-EC880 Pro, TS-EC1080 Pro
Cable		RAM-4GDR3EC-LD-1600	4GB DDR3 ECC RAM, 1600MHz, long-DIMM	TS-EC1279U-SAS-RP, TS-EC1679U-SAS-RP, SS-EC1279U-SAS-RP, SS-EC1879U-SAS-RP, SS-EC2479U-SAS-RP, TS-EC880U-RP, TS-EC1280U-RP, TS-EC1680U-RP, TS-EC2480U-RP, TS-EC880 Pro, TS-EC1080 Pro
		RAM-8GDR3EC-LD-1600	8GB DDR3 ECC RAM, 1600 MHz, long-DIMM	TS-EC1279U-SAS-RP, TS-EC1679U-SAS-RP, SS-EC2479U-SAS-RP, SS-EC1879U-SAS-RP, SS-EC1279U-SAS-RP, TS-EC880U-RP, TS-EC1280U-RP, TS-EC1680U-RP, TS-EC2480U-RP, TS-EC880 Pro, TS-EC1080 Pro
Cable		CAB-SAS10M-8088	MiniSAS external cable (SFF-8088 to SFF-8088), 1.0m	REXP-1000 Pro, REXP-1200U-RP, REXP-1600U-RP, SAS-6G2E-D, SAS-6G2E-U
		CAB-SAS05M-8088	MiniSAS external cable (SFF-8088 to SFF-8088), 0.5m	REXP-1000 Pro, REXP-1200U-RP, REXP-1600U-RP, SAS-6G2E-D, SAS-6G2E-U

All specifications are subject to change without notice.

10GbE network adapter compatibility list

10GBASE-T interface

Brand		Model	Specification	Applied Models
QNAP		LAN-10G2T-D	Dual-port 10 GbE network expansion card for tower models, desktop bracket, cat6A cable	TS-EC880 Pro, TS-EC1080 Pro
		LAN-10G2T-U	Dual-port 10 GbE network expansion card for rack mount models, low-profile bracket, cat6A cable	TS-EC1279U-SAS-RP, TS-EC1679U-SAS-RP, SS-EC2479U-SAS-RP, SS-EC1879U-SAS-RP, SS-EC1279U-SAS-RP, TS-EC880U-RP, TS-EC1280U-RP, TS-EC1680U-RP, TS-EC2480U-RP
Emulex		Oce11102-NT	Dual port 10 Gigabit network adapter, 10GBASE-T, cat6 cable	TS-EC1279U-SAS-RP, TS-EC1679U-SAS-RP, SS-EC2479U-SAS-RP, SS-EC1879U-SAS-RP, SS-EC1279U-SAS-RP, TS-EC880U-RP, TS-EC1280U-RP, TS-EC1680U-RP, TS-EC2480U-RP, TS-EC880 Pro, TS-EC1080 Pro
Intel		X520-T2 (E10G42BT)*	Dual-port 10 Gigabit network adapter, cat6A cable	

SFP+ OPTIC interface

Brand		Model	Specification	Applied Models
Emulex		OCe11102-NM	Dual port 10 Gigabit network adapter , short range optical cable	TS-EC1279U-SAS-RP, TS-EC1679U-SAS-RP, SS-EC2479U-SAS-RP, SS-EC1879U-SAS-RP, SS-EC1279U-SAS-RP, TS-EC880U-RP, TS-EC1280U-RP, TS-EC1680U-RP, TS-EC2480U-RP, TS-EC880 Pro, TS-EC1080 Pro
		OCe11102-IM	Dual port 10 Gigabit network adapter, short range optical cable	
Intel		X520-SR2 (E10G42BFSR)*	Dual-port 10 Gigabit network adapter, short range optical cable	

SFP+ DAC (Direct Attach Copper) interface

Brand		Model	Specification	Applied Models
Emulex		OCe11102-NX	Dual port 10 Gigabit network adapter, SFP+ direct attach copper cable	TS-EC1279U-SAS-RP, TS-EC1679U-SAS-RP, SS-EC2479U-SAS-RP, SS-EC1879U-SAS-RP, SS-EC1279U-SAS-RP, TS-EC880U-RP, TS-EC1280U-RP, TS-EC1680U-RP, TS-EC2480U-RP, TS-EC880 Pro, TS-EC1080 Pro
		OCe11102-IX	Dual port 10 Gigabit network adapter, SFP+ direct attach copper cable	
Intel		X520-DA2 (E10G42BTD)*	Dual-port 10 Gigabit network adapter, SFP+ direct attach copper cable	

* A specific bracket is required on the TS-EC880 Pro, TS-EC1080 Pro models. For the information of network card installation, please refer the Turbo NAS Hardware Manual.

Software Specifications

Operating System

QTS

Supported Clients

- Windows XP, Vista, Windows 7 (32/64-bit), Windows 8 (32/64-bit), Windows Server 2003/2008 R2/2012
- Apple Mac OS X
- Linux & UNIX

Supported Browsers

- Microsoft Internet Explorer 10
- Mozilla Firefox 8+
- Apple Safari 4+
- Google Chrome

Multilingual Support

- Chinese (Traditional & Simplified), Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese (Brazil), Romanian, Russian, Spanish, Swedish, Thai, Turkish

File System

- Internal Hard Drive: EXT3, EXT4
- External Hard Drive: EXT3, EXT4, NTFS, FAT32, HFS+

Networking

- TCP/IP (IPv4 & IPv6: Dual Stack)
- Dual Gigabit NICs with Jumbo Frame*
 - Failover
 - Multi-IP Settings
 - Port Trunking/NIC Teaming (Modes: Balance-RR, Active Backup, Balance XOR, Broadcast, IEEE 802.3ad/Link Aggregation, Balance-TLB and Balance-ALB)
- Optional Dual-port 10GbE and 1 GbE Network Expansion Cards*
- Service Binding Based on Network Interfaces*
- Proxy Client, Proxy Server
- DHCP Client, DHCP Server
- Protocols: CIFS/SMB, AFP (v3.3), NFS (v3), FTP, FTPS, SFTP, TFTP, HTTP(S), Telnet, SSH, iSCSI, SNMP, SMTP, and SMC
- UPnP & Bonjour Discovery
- USB Wi-Fi Adapter Support

Security

- IP Filter & Policy-based Automatic IP Blocking
- Network Access Protection with Auto-blocking: SSH, Telnet, HTTP(S), FTP, CIFS/SMB, AFP
- Encrypted Access: HTTPS, FTP with SSL/ TLS (Explicit), SSH/SFTP (admin only), Encrypted Remote Replication (Rsync over SSH)
- CIFS Host Access Control for Shared Folders
- Antivirus Protection
- FIPS 140-2 Validated AES 256-bit Volume-based Data Encryption**
- AES 256-bit External Drive Encryption*
- Importable SSL Certificate
- Instant Alert via E-mail, SMS, Beep, and LCD Panel*

Disk Management

- QNAP Flexible Volume with thin provisioning and space reclaim supported
- Supports Storage Pool
- Online Volume Expansion
- Online Storage Pool Expansion
- Online RAID Capacity Expansion and Online RAID Level Migration
- SMART Data Migration
- Bad Block Scan and Hard Drive S.M.A.R.T.
- Bad Block Recovery
- RAID Recovery
- Bitmap Support

Power Management

- Wake on LAN*
- Internal Hard Drive Standby Mode
- Scheduled Power on/off

- Automatic Power on after Power Recovery
- USB and Network UPS Support with SNMP Management

Access Right Management

- Batch Users Creation
- Import/Export Users
- User Quota Management
- Local User Access Control for CIFS, AFP, FTP, and WebDAV
- Subfolder Permissions Support for CIFS/SMB, AFP, FTP and Web File Manager

Domain Authentication Integration

- Microsoft Active Directory (AD)
- LDAP Server
- LDAP Client
- Domain Users Login via CIFS/SMB, AFP, FTP, and File Station

Web Administration

- Multi-window, Multi-tasking based System Management
- Movable Icons and Personalized Desktop
- Smart Toolbar and Dashboard for Neat Display on System Status
- Smart Fan Control
- Dynamic DNS (DDNS)
- SNMP (v2 & v3)
- Resource Monitor
- Network Recycle Bin for File Deletion via CIFS/SMB and AFP
- Automatic Cleanup
- File Type Filter
- Comprehensive Logs (Events & Connection)
- Syslog Client
- Firmware Live Update
- System Settings Backup and Restore
- Restore to Factory Default
- Mobile App Qmanager for Remote Monitoring

File Server

- File Sharing across Windows, Mac, and Linux/UNIX
- Protocols: CIFS/SMB, AFP, NFS, FTP/FTPS, HTTP/HTTPS (Web File Manager), WebDAV
- Windows ACL
- Advanced Folder Permission for CIFS/SMB, AFP, FTP
- Shared Folder Aggregation (CIFS/SMB)

File Station

- Supports ISO Mounting (Up to 256 ISO Files)
- Creates and Sends Download Links for Sharing Public Files with Expiration Time and Password Protection
- Drag-n-drop Files via Chrome and Firefox Browsers
- Photo, Music, and Video Preview and Playback Empowered by Built-in Transcoding Technology
- File Compression (ZIP or 7z)
- Advanced Search
- Mobile App: Qfile for File Browsing and Management

FTP Server

- FTP over SSL/TLS (Explicit)
- Concurrent Connections: Max 256
- Passive FTP Port Range Control
- FTP Bandwidth & Connection Control
- Supports FXP & Unicode

Backup Station

- Remote Replication Server (over Rsync)
- Real-time Remote Replication (RTRR) to another QNAP NAS or FTP Server
- Works as Both RTRR Server & Client with Bandwidth Control
- Real-time & Scheduled Backup
- Encryption, Compression, File Filter, and Transfer Rate Limitation
- Encrypted Replication between QNAP NAS Servers

- Desktop Backup by QNAP NetBak Replicator for Windows
- Apple Time Machine Support with Backup Management
- Data Backup to Multiple External Storage Devices
- Synchronizes with Cloud Storage: Amazon S3, ElephantDrive, Symform, Dropbox, and Google Drive
- Third Party Backup Software Support: Veeam Backup & Replication, Acronis True Image, ARCserve Backup, EMC Retrospect, Symantec Backup Exec, LaCie SilverKeeper, etc.

iSCSI (IP SAN)

- iSCSI Target
- Multi-LUNs per Target
- Up to 256 Targets/LUNs
- Supports LUN Mapping & Masking
- Block-based LUN
- Thin-provisioned LUN with Space Reclaim Supported
- Online LUN Capacity Expansion
- Supports SPC-3 Persistent Reservation
- Supports MPIO & MC/S
- iSCSI LUN Backup, One-time Snapshot, and Restore
- iSCSI Connection and Management by QNAP Finder (Windows)
- Virtual Disk Drive (via iSCSI Initiator)
- Stack Chaining Master
- Max No. of Virtual Disk Drives: 8

Server Virtualization & Clustering

- VMware vSphere (ESX/ESXi 4.x, 5.x)
- VMware VAAI for iSCSI and VAAI for NAS
- vSphere Plug-in
- Citrix XenServer (6.0)
- Windows Server 2012 Hyper-V
- Supports Microsoft ODX
- QNAP SMI-S Provider for Microsoft SCVMM
- Windows Server 2012 Failover Clustering

Storage Plug & Connect via Windows Qfinder by QNAP

- Create and Map Shared Folders
- Create and Connect to iSCSI Target/LUN

Web Server

- HTTP/HTTPS Connections
- Built-in MySQL Server
- Web-based Management via phpMyAdmin (QPKG)
- Virtual Hosts: Max 32

Database Server

- Built-in MySQL Server
- Web-based Management via phpMyAdmin

Print Server

- Max No. of Printers: 3
- Supports Internet Printing Protocol
- Print Job Display and Management
- IP-based and Domain Name-based Privilege Control
- Supports Apple Bonjour Printing

Syslog Server

- Centralized Log Monitoring and Archiving
- Immediate Email Alerts
- Supports Log Filtering

RADIUS Server

- Centralized Account Management and Authentication for Network Access
- Supports 802.1x Security Authentication
- TFTP Server with PXE Booting (Read-only)

VPN Server

- Secure Remote Access: PPTP & OpenVPN VPN services
- Remote Access to Other Resources on Local Network
- Max No. of Clients: 30

Antivirus

- Protection against Viruses, Trojans, and Other Threats
- Free Virus Databases Update on Manual or Scheduled Basis
- Multiple Scan Tasks (Max: 64, Concurrent: 5) with Custom Folder Selection and Scheduled Scanning
- Email Notification upon Task Completion or Virus Detection
- Quarantines or Deletes Infected Files

Surveillance Station Pro

- Supports over 2,900 IP Cameras
- Includes 4 Free Camera License
- Up to 72 Camera Channels via Additional License Purchase*
- Intelligent Video Analytics (IVA) for Advanced Video Search
- Visual Aid by E-map
- Surveillance Client for Mac
- Mobile App: VMobile (iOS and Android)

myQNAPcloud Service

- Private Cloud Storage and Sharing
- Free Host Name Registration (DDNS)
- Auto Router Configuration (via UPnP)
- CloudLink for Remote Access without Complicated Router Setup
- myQNAPcloud Connect for Easy VPN Connection (Windows VPN Utility)

Qsync

- Syncs Files among Multiple Devices through the NAS
- Option for Not Removing Files on the NAS during Synchronization
- Selective Synchronization
- Shares Securely with SSL
- Team Folder
- Shares Files by Links via E-mail
- Uploads Photos or Videos to Qsync Folder Automatically via Qfile
- Restores Files from Network Recycle Bin
- File Name Conflict Policy
- Option for Filter Settings
- Privilege Control for Qsync Users
- Supports Windows & Mac OS

APP Center

- Add New Features by Online Installation of over 90 Official and Community Software Add-ons
- (The actual available software add-ons may vary depending on the NAS platform)

* This feature may vary according to different models.

** The data encryption functions "may not be available in accordance with the legislative restrictions of some countries.

Design and specifications are subject to change without notice.



QNAP Systems, Inc.

TEL : +886-2-2641-2000 FAX : +886-2-2641-0555 Email: qnapsales@qnap.com
 Address : 3F, No.22, Zhongxing Rd., Xizhi Dist., New Taipei City, 221, Taiwan

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Netherlands (Warehouse Services)

Email: nlsales@qnap.com
 TEL: +31(0)107600830

Germany

Email: desales@qnap.com
 TEL: +49-89-381562991

China

Email: cnsales@qnap.com
 TEL: +86-400-628-0079

India

Email: indiasales@qnap.com

US

Email: usasales@qnap.com
 TEL: +1-909-595-2782



P/N: 51000-023610-RS
 201405 (ENG)