

TS-412 Turbo NAS – Specifications and Features

Features

Multimedia Station: Home Entertainment Center for Sharing Photos, Music, Movies and Videos

An easy-to-use storage center for new digital home experience

Introducing the QNAP TS-412 NAS server for home use, an easy to use networked storage center for the ultimate digital home entertainment experience. QNAP Turbo NAS servers are a new approach for sharing digital photos, music, and movies/videos, and keeping home computers backed up. You can easily view photos, listen to music, and even watch Full HD 1080p movies on a widescreen TV or projector streamed from the NAS over the network through PS3, Xbox 360, or other network media players. You can share multimedia content with family and friends wherever they are on the Internet by web browsers. iPhone/iPod touch/iPad and Android users can browse shared photos or listen to their music collections anywhere with 3G or Wi-Fi connection by streaming content directly to the device – no sync required. QNAP NAS brings to life the ultimate in digital home theater enjoyment.

- View precious photos with slideshows and even background music
- Listen to your favourite music using customized playlists
- Enjoy HD movies or family videos on TV when streamed through various network players
- Anytime, anywhere access to your digital media over the Internet by web browsers or iPhone/iPod touch/iPad, or Android mobile devices

Home Photo Center

Back up and share your digital photos

QNAP NAS is an ideal device for photo backup, archiving, and sharing. Simply upload your photos to the NAS, you can create and organize beautiful albums by a web browser and share with your family and friends. You can view the entire albums through UPnP-compatible players. Browsing your pictures on widescreen TV with your family has never been easier!

- View photo slideshow with background music
- Display photo details from EXIF: date, exposure time, aperture, etc.
- Publish photos in a few clicks to social networking sites such as Facebook, Twitter, MySpace, and more.
- Share photos with your friends by email
- Browse photos via QMobile app for iPhone, iPad, and Android devices

Home Music Center

Build your own home music library and enjoy it anywhere

You can use the QNAP NAS as a music server to easily store music files and share them to your PC or various media players.

- Enjoy your stored music on your PC
You can listen to your favorite MP3 songs streamed from [iTunes Server](#), or play music by web browsers on your PC.
- Play your music on Logitech Squeezebox players
With [SBS \(Squeezebox Server\)](#) QPKG plugin, you can efficiently manage and play them with Logitech music players without even turning on the PC.
- Experience high-quality music directly on Hi-Fi system
Stream music to your UPnP Hi-Fi system and indulge in high-quality sound experience.
- Listen to your music on iPhone/iPod touch/iPad and Android devices anywhere you have a 3G or Wi-Fi connection. Put tons of music right in your pocket! You can play the music files via QMobile app on iPhone, iPad, and Android devices remotely without taking up the storage space of the handheld devices.

Home Movie/Video Center

QNAP home Turbo NAS with large storage capacity and high performance for your home theater

QNAP NAS is an ideal video storage center for you to store numerous home videos, movies, and ripped Blu-ray or DVDs. Not only that, you can enjoy Full HD movies on your TV streamed from the NAS through PS3, Xbox 360, and other network media players.

The NAS features high-speed data transfer of exceeding 70MB/s*, fast enough to support multiple 1080p HD streams. The whisper-quiet design brings you the best cinema-grade home theater experience right in your living room.

Home Data Backup

Complete Backup Server

With QNAP's backup utility NetBak Replicator, you can automatically back up your important files from Windows PC to a QNAP NAS over the network. You can execute real-time synchronization and scheduled backup from multiple PCs to the NAS, and also restore the data to the original location or to a new directory in the

event of a PC crash. In addition, QNAP NAS are compatible with many third-party backup software applications including [Apple Time Machine](#).

Home File Server

You never have to worry about the PC's hard drive crashing and data loss, because it is easy for everyone to centrally store, protect, and recover files on the NAS with advanced data protection. You can conveniently share all the photos, music, and movies/videos with your family and friends. Furthermore, different family members can be assigned to access specific share folders for privacy. All the advanced software features are built-in without extra effort and cost.

[Home Printer Server](#)

You can connect up to 3 USB printers to the QNAP NAS and share the printers with family members for network (LAN or Internet) printing.

Wireless Home Networking Integration

[Convenient Wi-Fi Connection](#)**

Connect the Turbo NAS to the home wireless network through a USB Wi-Fi dongle for convenient access. The NAS is compatible with fast 802.11n and 802.11g dongles for Wi-Fi connection.

Remote Access Anytime, Anywhere

[MyCloudNAS Service](#)**

MyCloudNAS is a service which allows you to connect to your NAS remotely from anywhere. Various NAS services can be easily published and accessed on the Internet. You can download and upload files, back up and share your photos and music instantly, and even back up important files from the NAS to other cloud storage providers.

[Web File Manager](#)

QNAP Turbo NAS provides Web File Manager for you to access and manage the server data anytime, anywhere by a web browser. Web File Manager supports intelligent data search, batch files upload and download, file extraction, [mounting ISO files](#), file-level permission settings, and more.

[FTP Server](#)

You can set up QNAP NAS as an FTP server and share large files conveniently with others.

[Wireless Data Access by Apple iPhone and Android Phones](#)

QMobile is an application dedicated to iPhone, iPod touch, iPad, and Android users. You can view and play Terabytes of photos, music, and video files on the NAS by QMobile from anywhere regardless of the actual storage size of your mobile devices. You can also upload photos to QNAP NAS straightway from your iPhone for instant sharing.

Easy to Install, Easy to Use

The easy-to-use wizard is included in the product CD. Just a few clicks to go through the steps, and you can complete the installation in few minutes. The NAS is designed with user-friendly AJAX web interface, you can easily enjoy all the features - No IT expertise required.

Secure Network Access Protection

- Auto network attack prevention:
To prevent the QNAP NAS succumbing to external malicious attacks, you can create an IP filter policy to allow, deny, or auto-block the IP address or network domain which attempts to connect to the NAS via SSH, Telnet, HTTP(S), FTP, Samba, and AFP.
- [Instant SMS and email alert](#):
You can configure the SMTP server and SMSC server settings on the NAS in order to receive instant system warning or error messages by email or SMS.
- Comprehensive event logs:
Detailed logs of file-level data access to the NAS via Samba, FTP, AFP, HTTP, HTTPS, Telnet, and SSH, and networking services accessed by online users are all recorded.
- SSL security (HTTPS):
The NAS can be accessed and configured by web browser securely.
- Remote login to the NAS by SSH (secure shell) or Telnet connection is supported.
- Secure FTP:
The data can be transmitted with SSL/TLS (explicit) encryption. Passive FTP port range setup is also supported.
- Write-only access right on FTP server:
The third party partners are allowed to upload data to the NAS but not able to read or edit the data on the NAS via FTP.

Green Design

QNAP NAS features the latest green technologies to protect the environment and save your electricity bill. The smart fan monitors the server and hard drive temperature and automatically adjusts the fan speed for quiet 24/7 operation. The hard drives can also be set to enter sleep mode after a period of idling to reduce power consumption and extend their lifespan. The NAS can also be scheduled for automatic power on and off to save energy when no data access is required.

Low Power Consumption



1. Client PC: Intel Core 2 Quad 2.50GHz CPU, 4GB DDR2/800 RAM, Intel Dual Port Server B2571 Networking Controller, Windows 7 Enterprise 32bit
2. Testing Method: Connect the TS-412 and PC to switch, upload/download 3GB file.
FTP program: FileZilla 3.3.4

Class-leading Performance
High-speed data sharing for home network

With the Gigabit Ethernet interface and advanced processor, the NAS delivers ultra-high-speed home network data transfer. You

can quickly store large amount of movies, photos, and music within a short period of time.



Other Applications for Digital Home

Download Station

QNAP NAS is a perfect download center for high speed BT, eMule, FTP, HTTP download. You can use the Download Station with the QGet utility to manage your download tasks remotely on the local network or the Internet. The NAS also supports continuous NZB download, and eMule download by installed QPKG without turning on a PC.

Surveillance Station

Surveillance Station of QNAP NAS enables you to connect to multiple IP-based security cameras for real-time monitoring, recording, and playback. It supports leading network camera brands such as AXIS, D-Link, IPUX, LevelOne, Linksys, Panasonic, and VIVOTEK. By using particular models, you can use two-way video and audio monitoring and recording, and smart PTZ control to control the monitoring direction of the IP cameras by a web browser.

Virtual Host Supported Web Server

You can host multiple websites on QNAP NAS with the web server and virtual host feature. The NAS supports PHP, MySQL, HTTPS connection, and SSL authentication. It is the ideal solution for you to create your own websites, e-shops, blogs, content management system (CMS), wiki, and so on.

MySQL Server

The NAS can be flexibly applied in various deployments such as a database server of another web server in remote site or as an additional backup database server.

Network UPS

This feature allows multiple QNAP NAS servers on the same physical network to be protected by a single UPS via receiving UPS notification about abnormal power supply.

Built-in iSCSI Target Service

The TS-412 is both a NAS and an iSCSI target server, ideal for cost-efficient IP-SAN setup. You can make use of the built-in iSCSI target service to add up to 256 iSCSI devices. Different iSCSI Target LUNs (Logical Unit Number) can be defined as storage expansion or backup destination of the existing application servers, such as database servers and mail servers.

Furthermore, the "Virtual Space Allocation" (Thin Provisioning) feature is provided which allows you to flexibly allocate the capacity of iSCSI LUN (Logical Unit Number). When the physical storage capacity of the volume is going to be full, you can easily expand the storage capacity by adjusting/removing the currently unused volume space.

Virtual Disk Drive (VDD)

The NAS supports flexible storage expansion by stacking other iSCSI targets on the network via its built-in iSCSI initiator. The connected iSCSI targets are turned into "virtual disk drives" of the NAS to provide more storage capacity.

Windows Active Directory (AD)

You can import the user accounts* from a Windows AD domain to the NAS to let the domain users access the domain and the NAS with the same login settings. The NAS also supports setup of large amount of users and user groups.(200,000 domain users and user groups can be imported according to QNAP's lab test.)

Software Expansion via OPKG Plugins

You can maximize the usage of QNAP NAS by installing additional QPKG software packages developed by the users and community worldwide.

* Actual performance varies by models

** Available on firmware v3.4

Hardware Spec.

CPU	Marvell 6281 1.2GHz
DRAM	256MB DDRII RAM
Flash Memory	16MB
Hard Disk Drive	4 x 3.5" or 2.5" SATA I/II hard disk drive (HDD) NOTE: <ol style="list-style-type: none">1. The system is shipped without hard disk drives.2. For the HDD compatibility list, please visit http://www.qnap.com/pro_compatibility.asp
HDD Tray	4 x hot-swappable tray
LAN Port	2 x Gigabit RJ-45 Ethernet port

LED Indicators	Status, LAN, USB, eSATA, HDD 1, HDD 2, HDD 3, HDD 4
USB	4 x USB 2.0 port (Front: 1; Back: 3) Supports USB printer, disk, pen drive, USB hub, and USB UPS, etc.
eSATA	2 x eSATA port (Back)
Buttons	Power button, USB one-touch-backup button, reset button
Alarm Buzzer	System warning
Form Factor	Tower
Dimensions	177(H) x 180(W) x 235(D) mm 6.97(H) x 7.09(W) x 9.25(D) inch
Weight	Net weight: 3 Kg (6.61 lbs) Gross weight: 4.6 Kg (10.14 lbs)
Power Consumption (W)	Sleep mode: 11W In operation: 26W (with 4 x 500GB HDD installed)
Temperature	0-40°C/ 32-104°F
Relative Humidity	0-95% R.H.
Power Supply	Input: 100-240V AC, 50/60Hz, Output: 12V DC, 10A, 120W
Secure Design	K-Lock security slot for theft prevention
Fan	1 x quiet cooling fan (9 cm, 12V DC)



Software Spec.

Operating System

- Embedded Linux

Supported Operating System

- Microsoft Windows 2000, XP, Vista (32/ 64 bit), Windows 7 (32/ 64 bit), Windows Server 2003/ 2008
- Apple Mac OS X
- Linux & Unix

Supported Web Browsers

- Internet Explorer 7 & 8 or later
- Firefox 3 or later
- Safari 3 & 4 or later
- Google Chrome

Multilingual Support

- Chinese (Traditional & Simplified), Czech, Danish, Dutch, English, Finnish, French, German, Italian, Japanese, Korean, Norwegian, Polish, Russian, Spanish, Swedish, Turkish.

File System

- Internal HDD: EXT3, EXT4
- External HDD: EXT3, EXT4, NTFS, FAT32, HFS+

Power Management

- Scheduled Power on/off (Max 15 settings)
- Automatic Power on after Power Recovery

Access Right Management

- Max User Accounts: 4,096
- Max Groups: 512
- Max. Share Folder: 512
- Batch Creating Users
- Import/ Export User
- User Quota Management
- Subfolder Permissions Support

Windows AD Support

- Domain Users Login via CIFS/SMB, AFP, FTP and Web File Manager
- Supports NTLMv2 Authentication

Web Administration

- AJAX-based User Interface
- HTTP/HTTPS Connections
- Alert Notification (Email & SMS)
- Smart Fan Control
- DDNS & MyCloudNAS Remote Access
- SNMP (v2 & v3)
- UPS Support with SNMP Management (USB)

Networking

- TCP/IP (IPv4 & IPv6: Dual Stack)
- Dual Gigabit NICs with Jumbo Frame
- Multi-IP Setting, Port Trunking/ NIC Teaming (Modes: Balance-rr, Active Backup, Balance XOR, Broadcast, IEEE 802.3ad/ Link Aggregation, Balance-tlb and Balance-alb.)
- DHCP Client, DHCP Server
- Protocols: CIFS/SMB, AFP (3.1), NFS, FTP, HTTP, HTTPS, Telnet, SSH, iSCSI and SNMP.
- Network Service Discovery (UPnP, Bonjour)
- USB Wi-Fi 802.11n Adapter Support (Optional Purchase)

Network File Sharing

- CIFS/SMB (Plus DFS Support)
- AFP
- NFS
- FTP
- WebDAV

Backup Solution

- USB One Touch Backup (Import/Export)
- Apple Time Machine Support with Backup Management
- Block-level Remote Replication
 - Work as Both Rsync Server & Client
 - Supports Encrypted Replication between QNAP NAS Servers
- Back up to External Storage Device
- Back up to Cloud Storage (Amazon S3 & ElephantDrive)

Security

- IP Filter & Policy-based Automatic IP Blocking
- Network Access Protection with Auto-blocking
- Encrypted Access: HTTPS, FTP with

- Supports Network UPS
- Resource Monitor
- Network Recycle Bin for CIFS/SMB and AFP
- Comprehensive Logs (Events & Connection)
- Real-time Online User List
- Syslog Client
- Firmware Update with Live Update Notification
- Backup and Restore System Settings
- Restore to Factory Default

Applications

- Web File Manager
- Multimedia Station
- Download Station
- Surveillance Station
- iTunes Server
- Apache Web Server
- MySQL Server

Mobile App

- QMobile for iPhone/ iPad/ Android
- 3rd Party UPnP Media Player

QPKG

- Web Applications
 - Joomla!
 - phpMyAdmin
 - WordPress
 - AjaXplorer
 - vtigerCRM
 - eyeOS
 - Magento
 - GLPI
- P2P Applications
 - MLDonkey (eMule)
 - SABnzbd+
 - NZBGet
- Server Applications
 - Asterisk
 - XDove (Mail Server)
 - OpenLDAP
- Media Server
 - Squeezebox Server

- SSL/TLS (Explicit), SSH/ SFTP (admin only), Encrypted Remote Replication (Rsync over SSH)
- CIFS Host Access Control for Shared Folders
- Importable SSL Certificate
- Instant Alert via E-mail, SMS
- IceStation
- Misc.
 - Optware IPKG
 - Python
 - iStat
- ...and more

Disk Management

- Single Disk, JBOD, RAID 0 / 1 / 5 / 5+Hot Spare / 6 / 10
- Online RAID Capacity Expansion & Level Migration
- Bad Block Scan & HDD S.M.A.R.T
- RAID Recovery
- Bitmap Support
- Supports ISO Mounting (via Web File Manager)

iSCSI (IP SAN)

- iSCSI Target
 - Multi-LUNs per Target
 - Up to 256 LUNs
 - Supports LUN Mapping & Masking
 - Supports SPC-3 Persistent Reservation
 - Supports MPIO & MC/S
- Virtual Disk Drive (via iSCSI Initiator)
 - Stack Chaining Master
 - Max. Virtual Disk Drives: 8

Powerful All-in-one server

File Server

- File Sharing Across Windows, Mac OS and Linux/ Unix Platforms
- Protocols: CIFS/SMB, AFP(3.1), NFS, FTP, HTTP, HTTPS
- QNAP Web File Manager
 - Supports ISO Mounting
 - Direct File Viewing via

Printer Server

- Network Printer Sharing (USB)
- Max Printers: 3
- Supports Internet Printing Protocol
- Supports Apple Bonjour Printing
- Advanced Printer Management
 - Displays and Manages the Print Jobs
 - Access Right Control (IP & Domain Names)

FTP Server

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

Web Server

- HTTP/ HTTPS Connections
- Supports WebDAV Connection
- Supports Virtual Host
- Importable SSL Certificate

Database Server

- Built-in MySQL Server
- Web-based Management via phpMyAdmin (QPKG)

Backup Server

- Remote Replication Server (over Rsync)
- Apple Time Machine Support
- QNAP Client Backup Application-NetBak Replicator
- 3rd Party Backup Software Support: Acronis True Image, CA Brightstor, ARCserve Backup, EMC Retrospect, Symantec Backup Exec, LaCie Silverkeeper

iTunes Server

- Audio and Video Sharing
- Smart Playlist for iTunes Client (Windows & Mac OS)

UPnP Media Server

- Built-in TwonkyMedia Server

- Supports Photo, Audio and Video
- Image Slide Show and Rotation
- Automatic & Schedule Thumbnail Generation for Easy Browsing
- Display Photo Details from EXIF: Date, Exposure Time, Aperture, etc.
- Display Audio Details from ID3 Tag: Album Cover, Title, Artist, Album, etc.
- Access Authority Management
- Multimedia (Video & Audio) Streaming
- Supports Cooliris
- Supports Web Publishing (Facebook, MySpace, MSN Live, Twitter, Plurk, Blogger)
- Supports E-mail Publishing
- Supported Formats:
 - Photo - JPG/JPEG, GIF, PNG
 - Audio - MP3
 - Video
 - Playback: FLV, MPEG-4 Video (H.264 + AAC)
 - Transcode: AVI, M4V, MPG/MPEG, RM/RMVB, WMV
- QNAP Exclusive iPhone & iPad App - QMobile

Download Station

- PC-less BitTorrent/ FTP/ HTTP Download (up to 500 tasks)
- BitTorrent Download
 - Supports TCP/ UDP Tracker Protocol
 - Schedule Download
 - Configurable Port Range
 - Bandwidth Control
 - UPnP NAT Port Forwarding
 - Subscribes to RSS Feeds
 - RSS Download (Broadcatching)
 - Selectable Download Files
- HTTP/ FTP Download
 - Configurable Saving Directory
 - Bulk Download with Wildcard Setting
 - RapidShare Download Support
- QNAP Download Management Software:

- Real-time & Background Photo Transcoding
 - Supports UPnP Media Player
 - Game Console: PlayStation 3, PSP and Xbox 360
 - Digital Media Adapter/Player
 - Mobile Device (e.g. iPhone, iPod touch with UPnP Applications)
 - Supported Formats:
 - ASF - Windows Media Video (Codecs: WMV video and WMA audio)
 - BMP - Bitmap Image
 - FLV, F1V, F4V - Standard Quality YouTube Video (Codec: Flash, Video: Sorenson Spark H.263 Video Codec & MP3 Audio Codec)
 - GIF - Graphics Interchange Format
 - JPG, JPEG, JPE - Joint Photographic Experts Group Image
 - MP3 - MPEG Audio Layer 3 (Codec: MPEG Audio)
 - MP4 - High Quality YouTube Video (Codecs: MP4: H.264 Video & HE-AAC audio)
 - MP4 - MPEG-4 Video (Codecs: Microsoft MPEG-4 v1, Microsoft MPEG-4 v2, Microsoft MPEG-4 v3 & ISO MPEG-4 v1)
 - MPEG, .MPG, .MLV - MPEG-1 (Codecs: MPEG-1 Video & MP2 Audio)
 - PNG - Portable Network Graphics
 - WAV - Linear Audio
- QGet
- For Both Windows & Mac OS
 - Manage the Download Tasks of Multiple QNAP NAS Remotely over LAN or WAN
- Surveillance Station**
- Supports 4 IP Cameras (Optional Purchase) for Network Surveillance

(Codecs: Uncompressed
PCM-encoded &
ADPCM-encoded)

Design and specifications are subject to change without notice.