

# TS-439U Series Turbo NAS

High Performance NAS with iSCSI & Redundant Power Supply for Business

- **4-bay, 1U Chassis, Hot-swappable**
- **RAID 0/1/5/6/5+Hot Spare/JBOD**
- **Built-in iSCSI Target Service**
- **AES 256-bit Volume-based Encryption**
- **Online RAID Capacity Expansion**
- **Online RAID Level Migration**
- **Dual Gigabit LAN: Failover, Load-balancing & Multiple IP Setting**
- **Redundant Power Supply**
- **Virtual Disk for Storage Expansion**
- **Most Advanced Backup Solution (Auto-Sync, Instant, Schedule Backup)**



## Available Models

2.5" & 3.5" HDD dual support



### TS-439U-RP:

Includes redundant power supply

### TS-439U-SP:

Single power supply, upgradable to RP model

### SP-4Bay1U-R-PSU:

Optional power supply, upgrades SP model to RP model



## Abundant Business Server Features

- **RAID Server**
- **iSCSI Target**
- **Web Server**
- **MySQL Server**
- **Remote Replication (Rsync)**
- **File Server**
- **Backup Server**
- **FTP Server**
- **Printer Server (Max. 3 sets)**
- **and more...**



# TS-439U Series Turbo NAS

## Overview

QNAP TS-439U Series is the new generation 1U rackmount model of the worldwide award-winning Turbo NAS Series, providing superior performance for massive data sharing, powerful all-in-one business server features, advanced RAID data protection, built-in iSCSI target service, AES 256-bit volume-based encryption, and rock-solid hot-swappable hard drive design for business.

### Superior Performance and Advanced RAID Redundancy

The TS-439U Series is featured with Intel® Atom 1.6 GHz CPU and 1GB DDRII memory. It supports RAID 0/ 1/ 5/ 6/ 5 + hot spare, JBOD, Online RAID Capacity Expansion, and Online RAID Level Migration.

### Flexible iSCSI and Virtual Disk Solution

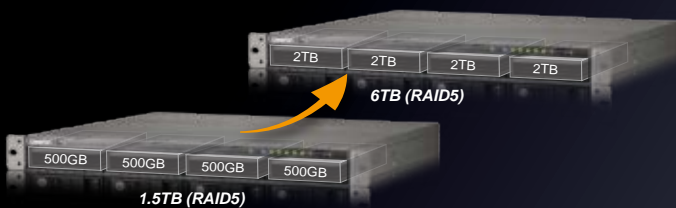
The TS-439U series can serve as a NAS, an iSCSI target server or an iSCSI initiator. The built-in iSCSI target feature provides an affordable IP-SAN (Storage Area Network) alternative for business. You can set up the NAS to expand the storage capacity of the existing application servers, such as database server and mail server in an economic way. Moreover, the VDD (Virtual Disk Drive) feature is supported on the TS-439U series that you can use the built-in iSCSI initiator to connect to other iSCSI targets on the network to expand the storage capacity of the NAS.

## Advanced RAID Management

The NAS offers advanced RAID 0, 1, 5, 6, 5 + hot spare, single, and JBOD disk configurations. It also supports hot-swap design that a failed drive can be replaced by hot swapping without turning off the server. Besides, the best-in-class RAID on the NAS brings users a higher level of data security by allowing one more hard drive failure than other NAS of the same level.

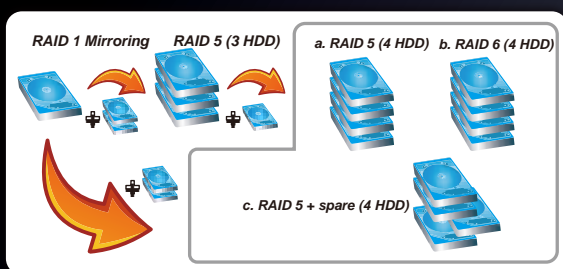
### Online RAID Capacity Expansion

The storage capacity of a RAID configuration can be expanded by replacing the hard drives with larger ones. All the data will be kept and seamlessly moved to the newly installed hard drives. There is no need to turn off the server during the process.



### Online RAID Level Migration

You can upgrade the disk configuration to higher RAID level with the data retained. There is no need to turn off the server during the process.



## AES 256-bit Volume-based Data Encryption

The encrypted file system feature enables you to build encrypted disk volumes on the NAS for the first time installation. The disk volume is securely protected by AES 256-bit encryption. An encryption key is required to unlock the encrypted volume to access the server data. This prevents data leakage if the server or the hard drives were stolen.

## Virtual Disk Expansion

Virtual Disk Drive (VDD) adds flexibility to storage expansion along with ease of management. The unique "Virtual Disk Drive" adds flexibility to expand the capacity of NAS. By using the built-in iSCSI initiator, the NAS can connect to other iSCSI targets on the network and turn them into virtual disks, which become multiple single volumes on the NAS. Up to 8 virtual disks can be stacked. The NAS serves as the storage stack chaining master. The user only needs to connect to this single entry (QNAP NAS) and is able to reach and use all the iSCSI target storages on the network.

### Redundant Power Supply for Higher Reliability (TS-439U-RP only)

The TS-439U-RP is designed with two 150W power supply units which prevent the server from downtime, in the event of a short circuit of one power supply. Even if one of the power supplies fails, the other one will take over to supply the full power and the TS-439U-RP can operate as usual.

### Secure Data Protection by AES 256-bit Volume-based Encryption

The TS-439U Series's dominant "volume-based encryption" feature secures the server data by AES 256-bit encryption. Even if the hard drives were stolen, there is no need to fear the confidential data would be leaked since the data can only be accessed by an authorized password.

### Versatile Applications for Business

The TS-439U Series supports file sharing across Linux, UNIX, Mac, and Windows platforms. Versatile business are supported, e.g. file server, FTP server with encryption, printer server, PHP/MySQL supported web server, encrypted remote replication, Windows AD (Active Directory) SSH login and web page SSL login.

## Virtual Space Allocation (Thin Provisioning)

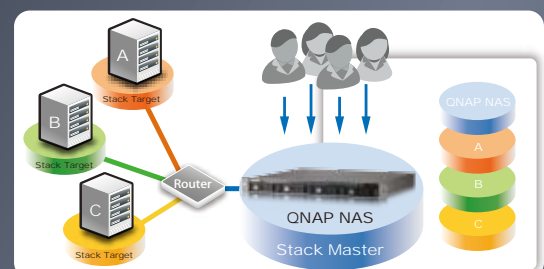
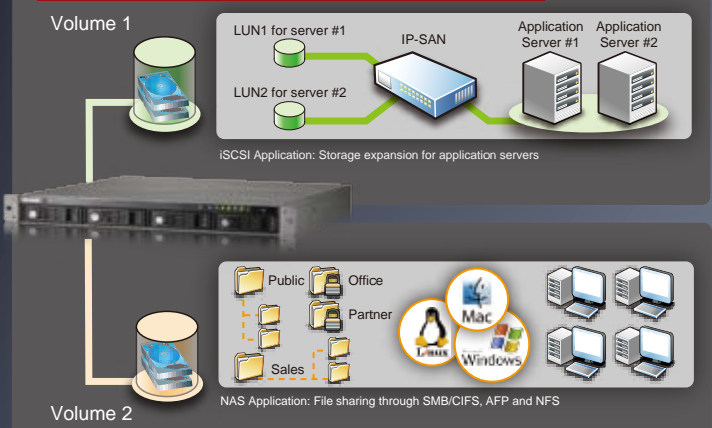
The "Virtual Space Allocation" (Thin Provisioning) feature is provided which allows you to flexibly allocate the capacity of iSCSI LUN (Logical Unit Number) at the beginning regardless of the physical volume capacity. When the physical storage capacity of the volume is going to be full, you can easily expand the storage capacity of the NAS by "Online RAID Capacity Expansion".

## Flexible Built-in iSCSI Solution

For business, a high-performance and flexible storage expansion solution for the existing application servers is required. However, DAS (Direct Attached Storage) is not an efficient solution and a Fiber Channel SAN is too expensive and complicated to implement.

The TS-439U Series can act as a NAS and iSCSI target server at the same time. It provides a cost-efficient iSCSI solution to set up an IP-SAN. You can make use of the built-in iSCSI target service to add up to 8 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.

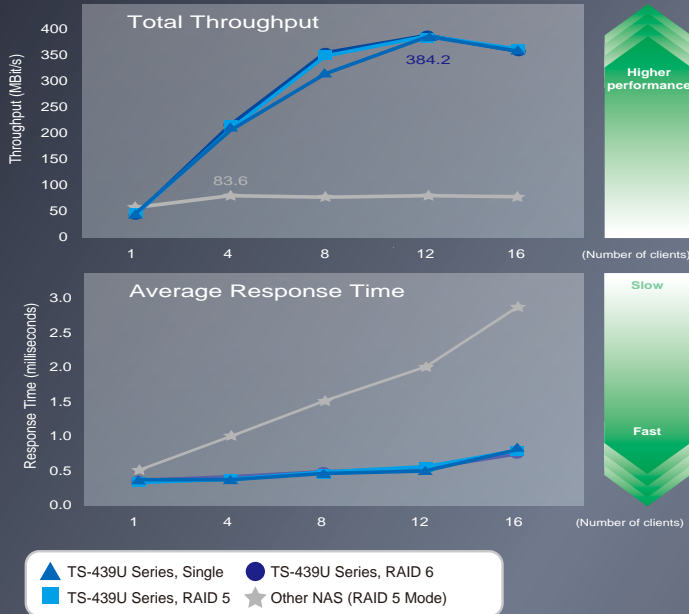
### Application Diagram of NAS Plus iSCSI All-in-one System





# All-in-one Turbo NAS Applications for Business

## Class-leading Performance for Concurrent Data Access



## Complete Backup Solution

**NetBak Replicator (no license account limitation)**  
 The backup software, NetBak Replicator, is provided for the NAS users to perform real-time synchronization or schedule backup from multiple PCs to the NAS.

**Remote Replication by Rsync**  
 The data on the Turbo NAS can be backed up to or from another Turbo NAS or Rsync server over the network.

**3rd Party Backup Software Ready**  
 Acronis True Image, CA BrightStor ARCserve Backup, EMC Retrospect, Symantec Backup Exec, and LaCie Silverkeeper.

**USB One Touch Auto Copy**  
 The USB one touch copy button can be configured to trigger instant data backup from the external USB device to the NAS or the other way round (applies to the USB device connected to the front USB port of the Turbo NAS only).

## Secure Measures for Data Storage and Access

- Policy-based Unauthorized IP Blocking:** You can allow, deny or auto block specified IP address or network domain which attempts to connect to Turbo NAS via SSH/ Telnet/ HTTP(S)/ FTP/ samba/ AFP.
- Comprehensive Event Log System:** Detailed logs of file-level data access to the Turbo NAS via samba, FTP, AFP, HTTP, HTTPS, Telnet, iSCSI, and SSH, and networking services accessed by online users are all recorded.
- Syslog Setting:** All the system event logs and connection logs can be saved to a remote syslog server.
- Remote Login** by SSH (secure shell) or Telnet connection is supported.
- SSL Security (HTTPS):** The Turbo NAS can be accessed and configured by the web browser securely. You can upload a secure certificate and RSA private key in X.509PEM format issued by a trusted provider for the users to access the Turbo NAS by secure SSL login.
- 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 via FTP.
- Encrypted Remote Replication:** The data on the NAS can be backed up to or from another Turbo NAS over the network securely.
- Share Folder Management:** For the security of Windows network environment, you can hide or show network share folders.
- User Authority Management:** You can create user ID and password, and define the authority and quota for each user.

## Smart Power Management

**Redundant Power Supply**  
 The TS-439U Series supports two power supply units, each of which is capable of supplying the power for the NAS independently. If one of the units fails, the other one will take over to supply the power. You can replace the failed power supply unit without turning off the server.

**Hard Disk Standby**  
 The hard disks can be configured to enter standby mode if there is no disk access within the specified period.

**Schedule Power on/off**  
 The flexible schedule power on/off feature is provided for you to manage the NAS server's up time according to the working hours.

**UPS Support**  
 The NAS supports the majority of USB UPS devices which enables you to store the data in time and avoid critical data loss when power outage occurs during data transfer.

## Practical System Management Tools

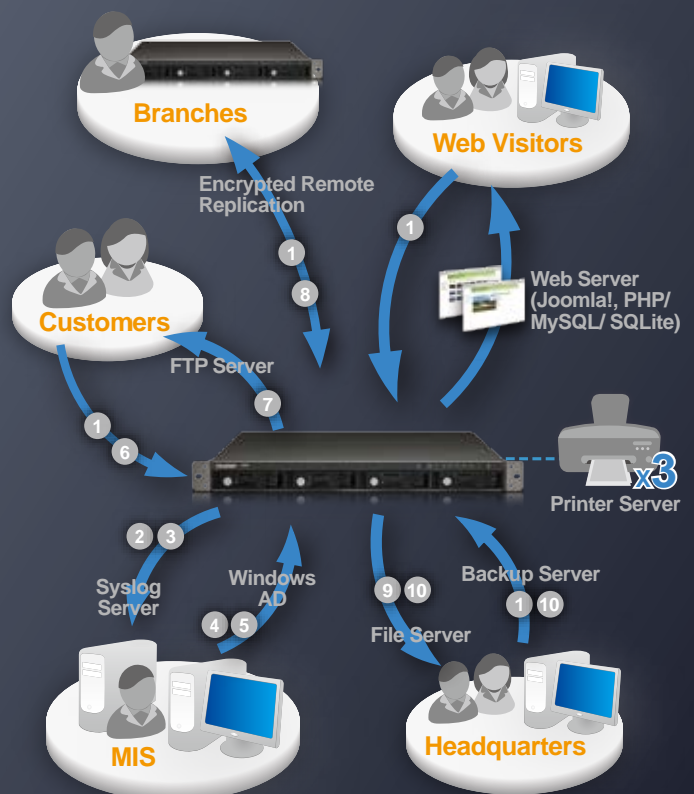
**Wake on LAN**  
 Enable this option to power on the NAS remotely by Wake on LAN. Wake on LAN helps you manage your NAS conveniently.

**S.M.A.R.T. & Advanced HDD Health Scanning (HHS)**  
 The NAS supports Hard Disk Drive S.M.A.R.T. (Self-Monitoring Analysis and Reporting Technology) for monitoring the HDD status. Moreover, the NAS is embedded with HHS which supports disk checking and bad blocks scanning.

**Smart Fan**  
 The fan rotation speed is automatically adjusted according to the server's temperature. You can also define the system temperatures to trigger high speed or low speed rotation of the fan. By manually setting the fan rotation speed, the fan will rotate at the defined speed continuously.

**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.

**SNMP (Simple Network Management Protocol)**  
 Enable SNMP service on the NAS to actively send the information, warning or error of the NAS to max 3 SNMP trap addresses installed SNMP management tool. Moreover, MIB of NAS can be downloaded and imported to your PC with SNMP tool. Your PC can then acquire the info of the NAS actively, e.g. cpu-usage, temperature.



## Hardware Specifications

### Processor

- Intel Atom 1.6GHz

### Memory

- 1GB DDRII RAM, 128MB flash (DOM)

### HDD Capacity

- 4 x 3.5" SATA I/II HDD or 4 x 2.5" SATA HDD (the standard package is shipped without HDD)

### HDD Tray

- 4 x hot-swappable and lockable tray

### LAN Port

- 2 x Gigabit RJ-45 Ethernet port

### LED Indicators

- USB, Status, HDD 1, HDD 2, HDD 3, HDD 4, LAN

### Power Indicators

- Green (left): The power supply unit is in normal status
- Red (right): The power supply unit is in abnormal status

### USB

- 3 x USB 2.0 (front: 1; back: 2)
- Supports USB printer, disk, pen drive, USB hub, and USB UPS etc.

### Buttons

- System: Power button, reset button, one touch copy button, mute power alarm button

### Alarm Buzzer

- System warning

### Form Factor

- Rackmount

### Dimensions

- 44(H) x 439(W) x 499(D) mm
- 1.73(H) x 16.97(W) x 19.65(D) inch

### Weight

- TS-439U-RP  
Net weight: 7.6 kg/ 16.76 lb  
Gross weight: 12.08 kg/ 26.63 lb
- TS-439U-SP  
Net weight: 7 kg/ 15.73 lb  
Gross weight: 11.48 kg/ 25.31 lb

### Operation Environment

- Temperature: 0~40°C/ 32~104°F
- Humidity: 0~95% R.H.

### Power Supply

- TS-439U-RP: ATX 150W x 2, Input: 100-240 Vac~, 50-60Hz, 2A
- TS-439U-SP: ATX 150W x 1, Input: 100-240 Vac~, 50-60Hz, 2A

### VGA

- Reserved for maintenance

### Fan

- 4 x cooling fan (4 cm, 12V DC; internal: 3; external: 1)

## Powerful All-in-one Server

### File Server

- File sharing across Windows/ Mac/ Linux/ Unix and centralized management

### FTP Server

- Supports data access from remote location via FTP (max. 256 concurrent connections)
- FTP with SSL/ TLS (explicit) mode
- FTP bandwidth control and connection control
- Passive FTP port range control

### Backup Server

- QNAP client-side backup software - NetBak Replicator supports instant, schedule, and auto-sync backup
- 3rd party backup software support: Acronis True Image, CA Brightstor ARCserve Backup, EMC Retrospect, Symantec Backup Exec, LaCie Silverkeeper

### Printer Server

- Network printer sharing via USB (Windows & Mac)
- Supports all-in-one printer (max. 3 sets)

### Remote Replication

- Block-level remote replication supports instant, schedule backup management; supports synchronization mode

### Web Server

- Built-in phpMyAdmin, Joomla!, editable php.ini, SQLite and MySQL

### MySQL Server

- Supports MySQL database server

### UPnP Media Server (built-in TwonkyMedia)

- Supports UPnP or DLNA technology; the video, music, and photos on the NAS can be played by digital media players over the local network
- Internet radio (built-in TwonkyMedia)

### LED Indicators: USB, Status, HDD1, HDD2, HDD3, HDD 4 & LAN

- Media playing with PS3, Xbox360, PSP game consoles

### iTunes Server

- iTunes server for music sharing
- Smart playlist for iTunes software

### Multimedia Station

- Image slide show and rotation (+90°, -90°)
- Display photo details: date, exposure time, aperture, etc.
- Automatic thumbnail generation for easy browsing
- Photo album access authority management
- Multimedia files (video and audio) local playing
- Automatic file categorization

### Download Station

- PC-less BitTorrent/ FTP/ HTTP download
- QNAP remote download control software: QGet (Windows & Mac), allows you to control the download tasks of multiple Turbo NAS on one PC via LAN/ WAN
- BitTorrent download supports TCP/ UDP, DHT
- BT schedule download
- BT tasks download (up to 500 tasks)
- Download configuration (current seed number, configurable port range, bandwidth control, download percentage, UPnP NAT port forwarding for BitTorrent download)
- Download status list management (download percentage)
- Supports access from Mac by Mozilla Firefox

### Surveillance Station

- Supports 4 IP cameras (optional purchase) for network surveillance

## Software Specifications

### Operating System

- Linux-embedded system

### Networking

- TCP/IP, DHCP Client, DHCP Server, CIFS/SMB, AFP, NFS, HTTP, HTTPS, FTP, DDNS, NTP
- Multi-IP setting
- Port trunking
- Network service discovery (UPnP & Bonjour)

### File System

- EXT3 (Internal/ external HDD)
- EXT4 (Internal/ external HDD)
- FAT (External HDD)
- NTFS (External HDD)

### Supported Operating Systems

- Microsoft® Windows® 98/ ME/ NT/ 2000/ XP/ 2003/ Vista
- Mac OS X
- Linux & Unix

### Disk Management

- Single disk, RAID 0 (Disk Striping), RAID 1 (Disk Mirroring), RAID 5, RAID 5+ hot spare, RAID 6, and JBOD (Linear Disk Volume)
- Multiple RAID
- RAID recovery
- Online RAID Capacity Expansion
- Online RAID Level Migration
- Disk usage status management
- Check disk (Check Linux file system)
- HDD S.M.A.R.T.
- Bad blocks scan
- AES 256-bit volume-based encryption
- Built-in iSCSI target service
- Virtual Disk Drive (VDD) for storage expansion (max. 8 Volumes)
- Bitmap support for faster RAID rebuild (RAID 1/5/6)

### User Management

- User quota management (per user)
- Windows AD
- User account management (max. 4,096 users)
- User group management (max. 512 groups)
- Batch creating users

### File System Management

- Network share management (max. 512 shares)
- Network volume status management
- Share folder level ACL support
- Hide share folder on Windows network

- Unicode support
- Journaling file system
- Web File Manager

### System Tools

- E-mail alert (SMTP authentication)
- SMS alert
- SNMP
- HDD standby mode
- Disk usage alert
- Automatic power on after power loss
- QPKG add-on firmware supported
- System firmware upgrade
- Back up, restore, reset system settings
- Smart fan setting
- Configurable management port
- Policy-based unauthorized IP blocking
- Secure remote login by SSH connection; remote login by Telnet connection
- USB, SNMP UPS support
- Wake on LAN
- Schedule on/ off (max. 15 settings)
- Network recycle bin
- Import SSL certificate
- Real-time Resource Monitor

### Event Logs

- Complete system logs (file level): system events management, connection logs, current connection of on-line users

### Multilingual Support

- English, Traditional Chinese, Simplified Chinese, Japanese, Korean, French, German, Italian, Spanish, Russian, Swedish, Norwegian, Finnish, Danish, and Polish

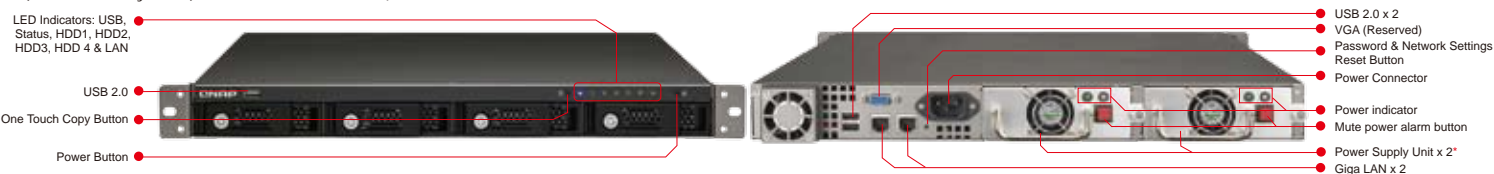
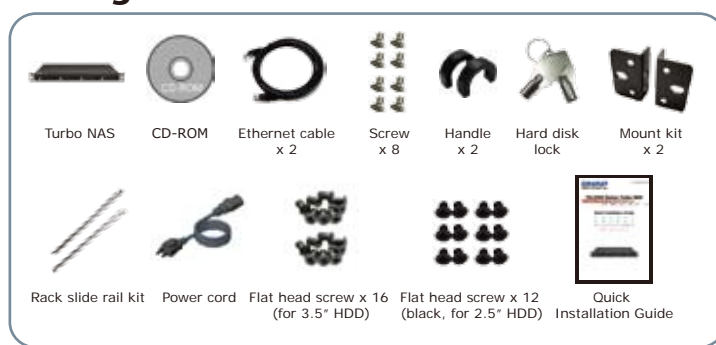
### Backup Management

- PC-client backup software-NetBak Replicator: Instant/ Schedule/ Auto-sync backup
- Remote replication supports Rsync
- Encrypted remote replication
- Data backup to external storage devices
- USB one touch copy backup

### Multi-browser Support

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

## Package Contents



TS-439U-RP: 2 power supply units included TS-439U-SP: 1 power supply unit included (Redundant power supply unit is also available as an optional purchase)

## QNAP Systems, Inc.

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