



Turbo NAS

User Manual (Version: 3.2.0)

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Thank you for choosing QNAP products! This user manual provides detailed instructions of using the Turbo NAS. Please read carefully and start to enjoy the powerful functions of the Turbo NAS!

NOTE

- The "Turbo NAS" is hereafter referred to as the "NAS".
- This manual provides the description of all the functions of the Turbo NAS. The product you purchased may not support certain functions dedicated to specific models.
- All the features, functionality, and other product specifications are subject to change without prior notice or obligation.
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CAUTION

1. Back up your system periodically to avoid any potential data loss. QNAP disclaims any responsibility of all sorts of data loss or recovery.
2. Should you return any components of the NAS package for refund or maintenance, make sure they are carefully packed for shipping. Any form of damages due to improper packaging will not be compensated.

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Safety Warnings

1. The NAS can operate normally in the temperature of 0°C–40°C and relative humidity of 0%–95%. Please make sure the environment is well-ventilated.
2. The power cord and devices connected to the NAS must provide correct supply voltage (100W, 90–264V).
3. Do not place the NAS in direct sunlight or near chemicals. Make sure the temperature and humidity of the environment are in optimized level.
4. Unplug the power cord and all the connected cables before cleaning. Wipe the NAS with a dry towel. Do not use chemical or aerosol to clean the NAS.
5. Do not place any objects on the NAS for the server's normal operation and to avoid overheat.
6. Use the flat head screws in the product package to lock the hard disk drives in the NAS when installing the hard disk drives for proper operation.
7. Do not place the NAS near any liquid.
8. Do not place the NAS on any uneven surface to avoid falling off and damage.
9. Make sure the voltage is correct in your location when using the NAS. If you are not sure, please contact the distributor or the local power supply company.
10. Do not place any object on the power cord.
11. Do not attempt to repair your NAS in any occasions. Improper disassembly of the product may expose you to electric shock or other risks. For any enquiries, please contact the distributor.
12. The chassis NAS models should only be installed in the server room and maintained by the authorized server manager or IT administrator. The server room is locked by key or keycard access and only certified staff is allowed to enter the server room.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Chapter 1 Install the NAS

For the information of the hardware installation, please refer to the "Quick Installation Guide" in the product package.

1.1 Hard Disk Compatibility List

This product works with 2.5-inch/ 3.5-inch SATA hard disk drives from major hard disk brands. For the HDD compatibility list, please visit <http://www.qnap.com/>.



QNAP disclaims any responsibility for product damage/ malfunction or data loss/ recovery due to misuse or improper installation of hard disks in any occasions for any reasons.

Note that if you install a hard drive (new or used) which has never been installed on the NAS before, the hard drive will be formatted and partitioned automatically and all the disk data will be cleared.

1.2 Check System Status

LED Display & System Status Overview

LED	Colour	LED Status	Description
USB	Blue	Flashes blue every 0.5 sec	1) A USB device (connected to front USB port) is being detected 2) A USB device (connected to front USB port) is being removed from the NAS 3) The USB device (connected to the front USB port) is being accessed 4) The data is being copied to or from the external USB or the eSATA device
		Blue	1) A front USB device is detected (after the device is mounted) 2) The NAS has finished copying the data to or from the USB device connected to the front USB port
		Off	No USB device can be detected
eSATA*	Orange	Flashes	The eSATA device is being accessed
		Off	No eSATA device can be detected
System Status	Red/ Green	Flashes green and red alternately every 0.5 sec	1) The hard drive on the NAS is being formatted 2) The NAS is being initialised 3) The system firmware is being updated 4) RAID rebuilding is in process* 5) Online RAID capacity expansion is in process* 6) Online RAID level migration is in process*

		Red	1) The hard disk drive is invalid 2) The disk volume has reached its full capacity 3) The disk volume is going to be full 4) The system fan is out of function* 5) An error occurs when accessing (read/write) the disk data 6) A bad sector is detected on the hard drive 7) The NAS is in degraded read-only mode (2 member drives fail in a RAID 5 or RAID 6 configuration, the disk data can still be read)* 8) (Hardware self-test error)
System Status	Red/ Green	Flashes red every 0.5 sec	The NAS is in degraded mode (one member drive fails in RAID 1, RAID 5 or RAID 6 configuration)
		Flashes green every 0.5 sec	1) The NAS is starting up 2) The NAS is not configured 3) The hard drive is not formatted
		Green	The NAS is ready
		Off	All the hard disk drives on the NAS are in standby mode
HDD	Red/ Green	Flashes red	The hard drive data is being accessed and a read/ write error occurs during the process
		Red	A hard drive read/ write error occurs
		Flashes green	The hard drive data is being accessed
		Green	The hard drive can be accessed
LAN	Orange	Orange	The NAS is connected to the network
		Flashes orange	The NAS is being accessed from the network

* This function is applicable to some models only. Please refer to the comparison table for more details:

http://www.qnap.com/images/products/comparison/Comparison_NAS.html

Beep Alarm (beep alarm can be disabled in "System Tools" > "Hardware Settings")

Beep sound	No. of Times	Description
Short beep (0.5 sec)	1	1) The NAS is starting up 2) The NAS is being shut down (software shutdown) 3) The user presses the reset button to reset the NAS 4) The system firmware has been updated
Short beep (0.5 sec)	3	The NAS data fails to be copied to the external storage device from the front USB port
Short beep (0.5 sec), long beep (1.5 sec)	3, every 5 min	The system fan is out of function*
Long beep (1.5 sec)	2	1) The disk volume is going to be full 2) The disk volume has reached its full capacity 3) The hard drives on the NAS are in degraded mode 4) The user starts the HDD rebuilding process
	1	1) The NAS is turned off by force shutdown (hardware shutdown) 2) The NAS has been turned on successfully and is ready

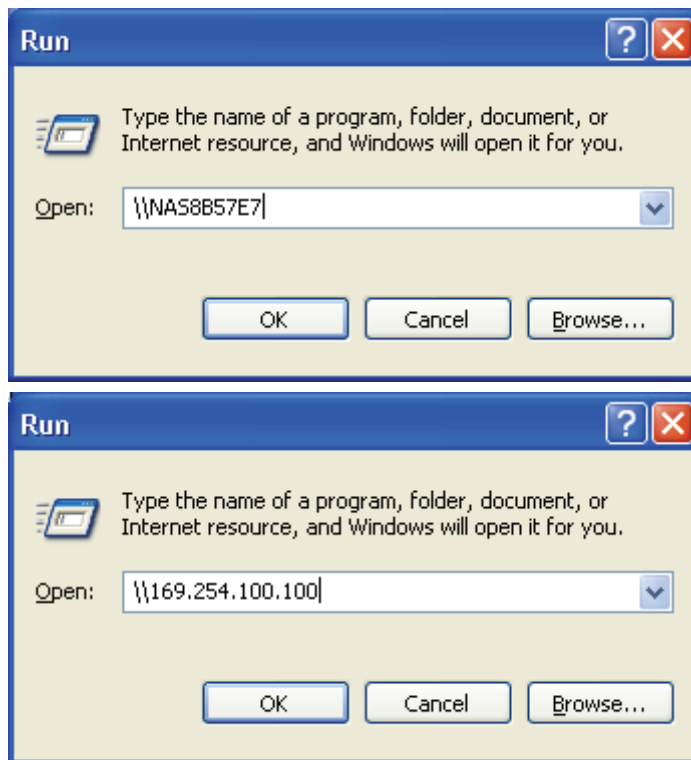
* This function is applicable to some models only. Please refer to the comparison table for more details:

http://www.qnap.com/images/products/comparison/Comparison_NAS.html

Chapter 2 Use the Powerful Services of NAS

A. Use the network shares

1. You can access the network shares of the NAS by the following means:
 - a. Open My Network Places and find the workgroup of the NAS. If you cannot find the server, browse the whole network to search for the NAS. Double click the name of the NAS for connection.
 - b. Use the Run function in Windows. Enter **\\[NAS name]** or **\\[NAS IP]** to access the share folders on the NAS.



2. Enter the default user name and password.

Default user name: **admin**

Password: **admin**

3. You can upload the files to the network shares.

B. Manage the NAS

■ Manage the NAS by the web browser on Windows or Mac

1. You can access the web administration page of the NAS by the following methods:
 - a. Use Finder to find the NAS.
 - b. Open a web browser and enter **http://NAS IP:8080**

The default NAS IP is 169.254.100.100:8080. If you have configured the NAS to use DHCP, you can use Finder to check the IP address of the NAS. Make sure the NAS and the computer that runs Finder are connected to the same subnet.

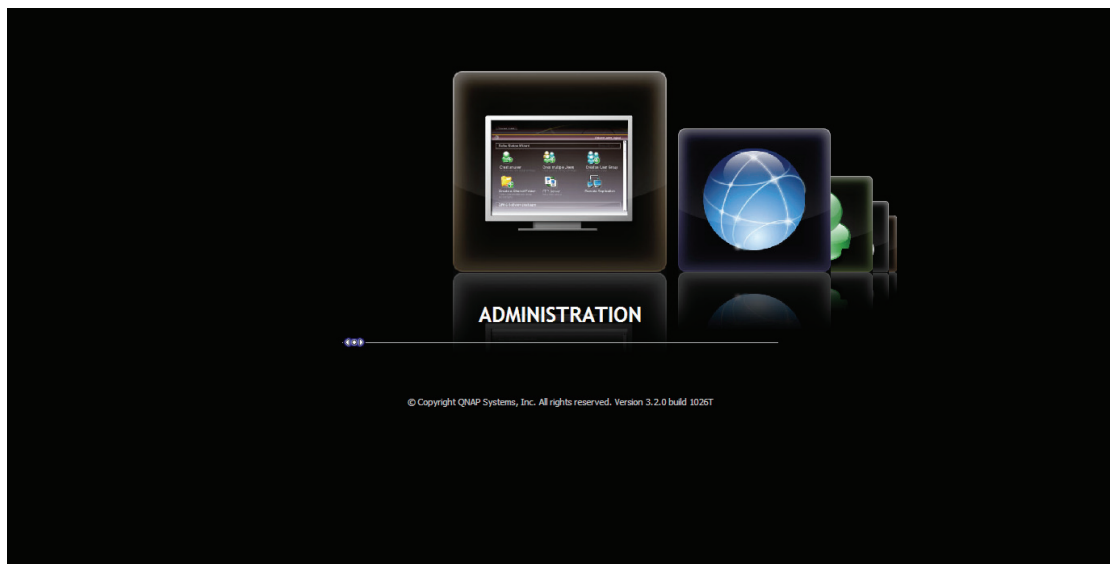
If you cannot search for the NAS IP, try to connect the NAS to your computer directly and run Finder again.

2. When the administration page of the NAS is shown, click "ADMINISTRATION". Enter the user name and password to login.

Default user name: **admin**

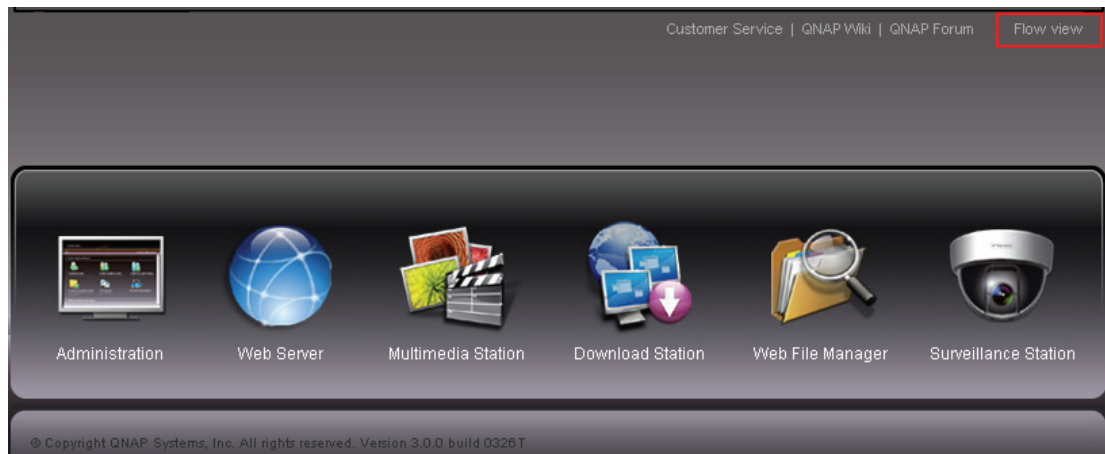
Password: **admin**

Note that if you login the administration interface with a user account without the administration right, you can only change your login password.



3. You can browse the NAS UI by the Standard view or the Flow view.

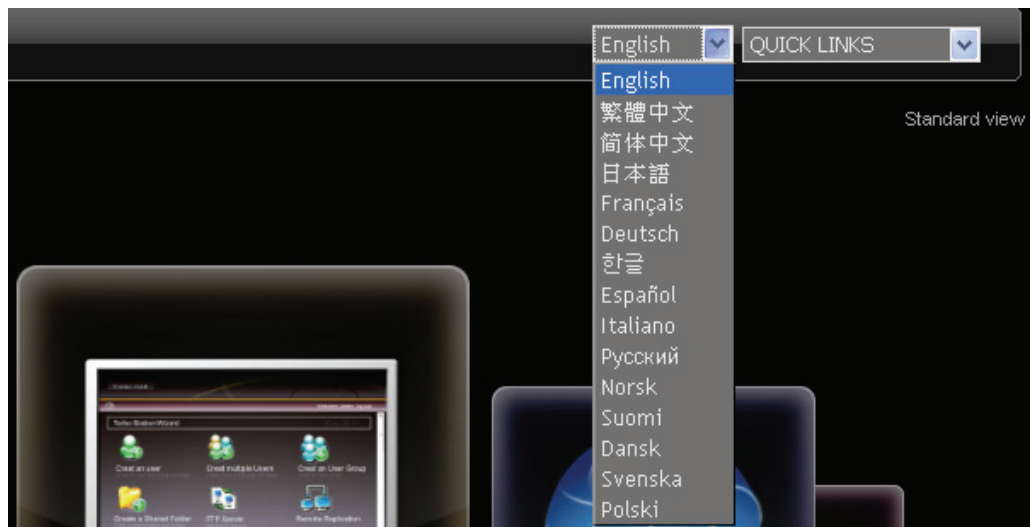
Standard view:



Flow view:



4. Choose the display language on the drop-down menu on the login page of the NAS or after you login the NAS.



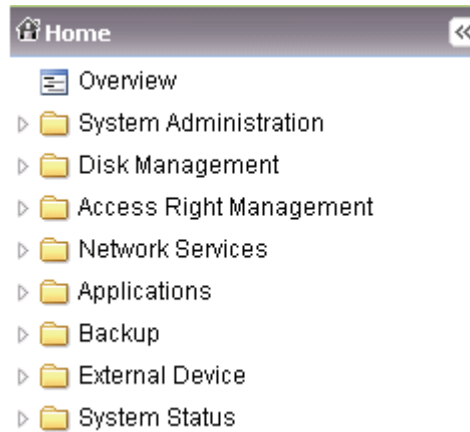
5. The NAS supports SSL secure login which enables you to configure and manage the server by encrypted transfer. To use this function, select the option "SSL login" on the administration page and login the server.

Note: If your NAS is placed behind an NAT gateway and you want to access the NAS by secure login from the Internet, you must open the port 443 on your NAT and forward this port to the LAN IP of the NAS.

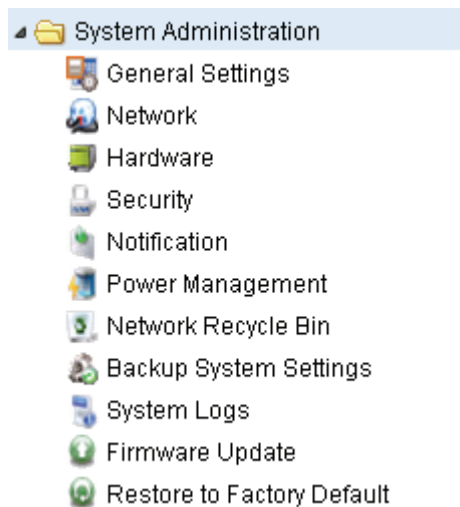
A screenshot of the NAS login form. On the left is a green 3D user icon. To its right are the labels 'User Name' and 'Password'. The 'User Name' field contains the text 'admin'. The 'Password' field is filled with seven dots. Below the password field are two unchecked checkboxes: 'Remember user name' and 'Remember password'. Below these is a checked checkbox labeled 'SSL login', which is highlighted with a red rectangular box. At the bottom of the form are two buttons: 'SUBMIT' and 'CANCEL'. The top right corner of the form has a 'Close | X' link.

Chapter 3 Server Administration

There are 8 main sections in the server administration.



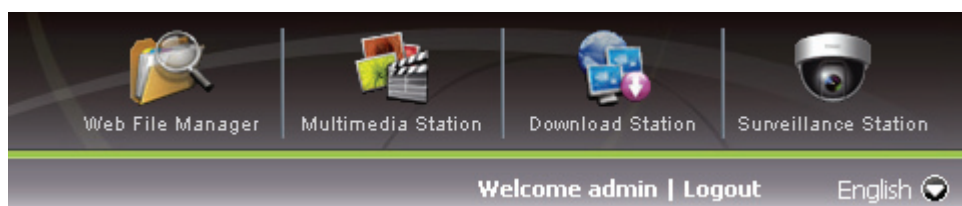
Click the triangle icon next to the section name to expand the tree and view the items listed under each section.



To access the services such as Web File Manager, Download Station, Multimedia Station, and Surveillance Station, you can choose the services from the drop-down menu or click the icons on the login page.

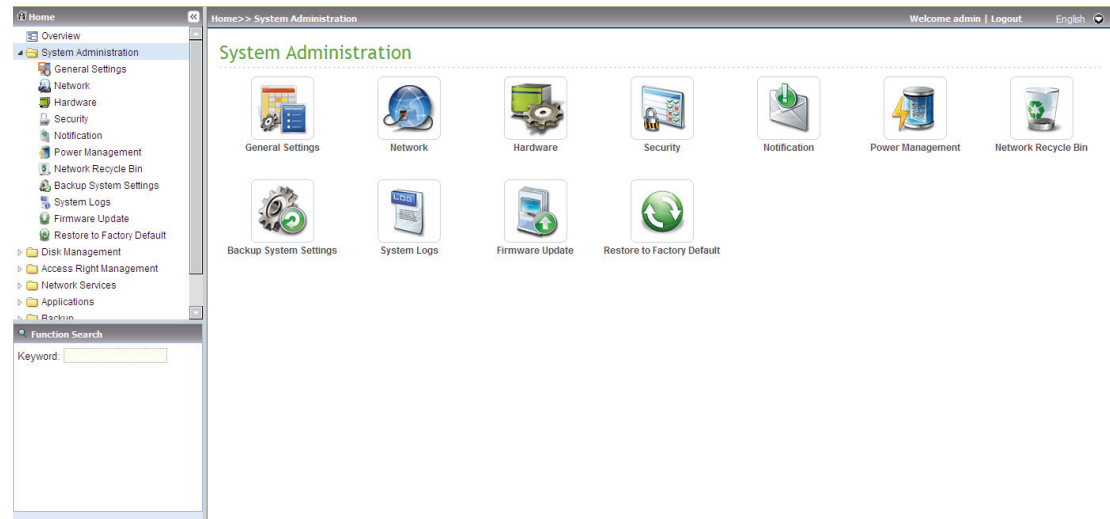


After you login the NAS, you can click the icons on top of the page to access the services.

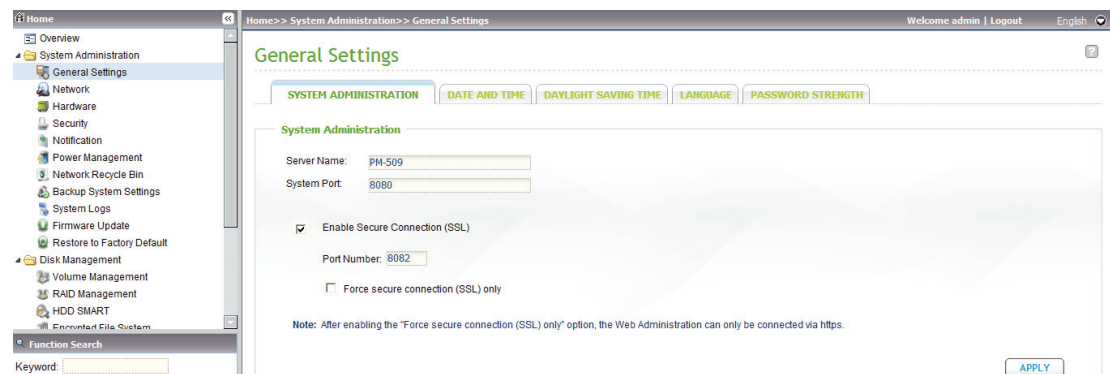


3.1 System Administration

You can configure the general system settings, network settings, and hardware settings, update the firmware, etc. in this section.



3.1.1 General Settings



3.1.1.1 System Administration

Enter the name of the NAS. The server name supports maximum 14 characters long at maximum, which can be a combination of the alphabets, numbers, and hyphen (-). The server does not accept the names with space, period (.), or names in pure number.

Assign a port for the system management. The default port is 8080. The services which use this port include: System Management, Web File Manager, Multimedia Station, and Download Station.

✓ Enable Secure Connection (SSL)

To allow the users to access the NAS by https, enable secure connection (SSL) and enter the port number. If you enable the option "Force secure connection (SSL) only", the users can only access the web administration page by https connection.

3.1.1.2 Date and Time

Set the date, time, and time zone according to your location. If the settings are incorrect, the following problems may occur:

- When using a web browser to access the server or save a file, the display time of the action will be incorrect.
- The time of event log displayed will be inconsistent with the actual time when an action occurs.

✓ **Synchronize with an Internet time server automatically**

You can enable this option to update the date and time of the system automatically with specified NTP (Network Time Protocol) server. Enter the IP address or domain name of the NTP server, e.g. time.nist.gov, time.windows.com. Then enter the time interval for adjusting the time.

Note: The first time you enable NTP server, it may take several minutes for time synchronization before the time is correctly adjusted.

3.1.1.3 Daylight Saving Time

If your region adopts daylight saving time (DST), you can enable “Adjust system clock automatically for daylight saving time”. Click “Apply”. The latest DST schedule of the time zone you select in the “Date and Time” section will be shown. The system time will be adjusted automatically according to the DST.

Note that if your region does not adopt DST, the options on this page will not be available.

The screenshot shows the 'Daylight Saving Time' configuration page. At the top, there are tabs: 'SYSTEM ADMINISTRATION', 'DATE AND TIME', 'DAYLIGHT SAVING TIME' (selected), 'LANGUAGE', and 'PASSWORD STRENGTH'. Below the tabs, the 'Daylight Saving Time' section is displayed. It includes the following information: Time Zone: (GMT+09:00) Yakutsk; Recent daylight saving time: Start time: 2010/03/28, 02:00; End time: 2010/10/31, 03:00; Offset: +60 minutes. There are two checkboxes: 'Adjust system clock automatically for daylight saving time.' (checked) and 'Enable customized daylight saving time table.' (unchecked). An 'APPLY' button is located at the bottom right of the section.

To enter the daylight saving time table manually, select the option “Enable customized daylight saving time table”. Click “Add Daylight Saving Time Data” and enter the daylight saving time schedule. Then click “Apply” to save the settings.

The screenshot shows the 'Daylight Saving Time' configuration page with the 'Enable customized daylight saving time table.' checkbox checked. The 'APPLY' button is still visible. Below the main configuration section, there is a 'Customized Daylight Saving Time Tables' section. It contains a table with columns: Start Time, End Time, Offset, and Action. A red box highlights the 'Add Daylight Saving Time Data' button in the top right corner of this section. Below the table, there is a 'Delete' button.

3.1.1.4 *Language*

Select the language the NAS uses to display files and directories.

Note: All the files and directories on the NAS will be created using Unicode encoding. If your FTP clients or the OS of your PC does not support Unicode, e.g. Windows 95/98/ME, select the language the same as your OS here in order to view the files and directories on the server properly.

3.1.1.5 *Password Strength*


You can specify the password setting rules here. After the setting has been applied, the system will automatically check the validity of the password.

3.1.2 Network

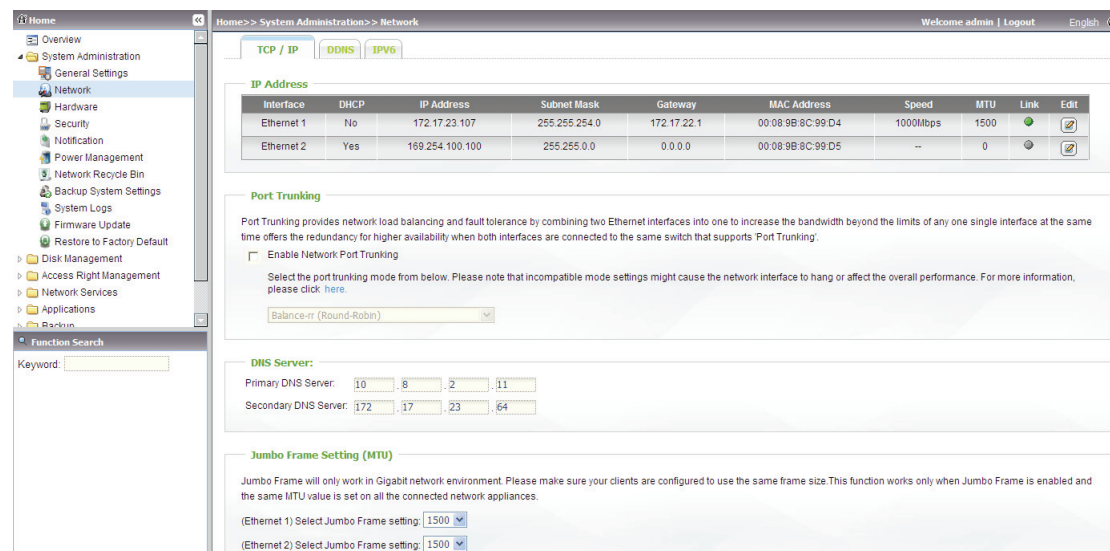
3.1.2.1 TCP/IP

i. IP Address

You can configure the TCP/IP settings of the NAS on this page. Click the Edit button

() to edit the network settings.

For the NAS which supports two LAN ports, you can connect both network interfaces to the same switch and configure the TCP/IP settings. The NAS will acquire two IP addresses and this is known as multi-IP setting. To use port trunking mode for dual LAN connection, see section (iii).



The screenshot shows the 'System Administration > Network' page. The left sidebar contains a navigation menu with options like Overview, System Administration, General Settings, Network, Hardware, Security, Notification, Power Management, Network Recycle Bin, Backup System Settings, System Logs, Firmware Update, Restore to Factory Default, Disk Management, Access Right Management, Network Services, Applications, and Racktop. The main content area has tabs for TCP/IP, DDNS, and IPV6. The 'TCP/IP' tab is active, showing an 'IP Address' table with two interfaces: Ethernet 1 and Ethernet 2. Below the table are sections for 'Port Trunking', 'DNS Server', and 'Jumbo Frame Setting (MTU)'.

Interface	DHCP	IP Address	Subnet Mask	Gateway	MAC Address	Speed	MTU	Link	Edit
Ethernet 1	No	172.17.23.107	255.255.254.0	172.17.22.1	00:08:9B:8C:99:D4	1000Mbps	1500		
Ethernet 2	Yes	169.254.100.100	255.255.0.0	0.0.0.0	00:08:9B:8C:99:D5	--	0		

Port Trunking
Port Trunking provides network load balancing and fault tolerance by combining two Ethernet interfaces into one to increase the bandwidth beyond the limits of any one single interface at the same time offers the redundancy for higher availability when both interfaces are connected to the same switch that supports 'Port Trunking'.
☐ Enable Network Port Trunking
Select the port trunking mode from below. Please note that incompatible mode settings might cause the network interface to hang or affect the overall performance. For more information, please click [here](#).
Balance-r (Round-Robin)

DNS Server:
Primary DNS Server: 10 . 8 . 2 . 11
Secondary DNS Server: 172 . 17 . 23 . 64

Jumbo Frame Setting (MTU)
Jumbo Frame will only work in Gigabit network environment. Please make sure your clients are configured to use the same frame size. This function works only when Jumbo Frame is enabled and the same MTU value is set on all the connected network appliances.
(Ethernet 1) Select Jumbo Frame setting: 1500
(Ethernet 2) Select Jumbo Frame setting: 1500

TCP/IP - Property

Network Speed: 1000Mbps full-duplex

☒ Obtain IP address settings automatically via DHCP

☐ Use static IP address

Fixed IP Address: 169 . 254 . 100 . 100

Subnet Mask: 255 . 255 . 0 . 0

Default Gateway: 169 . 254 . 100 . 100

☐ Enable DHCP Server

Start IP Address: 169 . 254 . 144 . 100

End IP Address: 169 . 254 . 144 . 200

Lease Time: 1 Day 0 Hour

Step 1 of 1

APPLY CANCEL

On the TCP/IP Property page, configure the following settings:

- **Network Speed**

Select the network transfer rate according to the network environment to which the NAS is connected. Select auto negotiation and the NAS will adjust the transfer rate automatically.

- **Obtain the IP address settings automatically via DHCP**

If your network supports DHCP, the NAS will use the DHCP protocol to retrieve the IP address and related information automatically.

- **Use static IP address**

To use a fixed IP address for network connection, enter the IP address, subnet mask, and default gateway.

- **Enable DHCP Server**

If no DHCP is available on the LAN where the NAS locates, you can enable this function to enable the NAS as a DHCP server. The NAS will allocate dynamic IP address to the DHCP clients on the LAN.

You can set the range of IP addresses allocated by the DHCP server and the lease time. The lease time refers to the time that an IP address is leased to the

clients by the DHCP server. When the lease time expires, the client has to acquire an IP address from the DHCP server again.

For example, to establish a DLNA network and share the multimedia files on the NAS to the DLNA digital media players by UPnP while there is no NAT gateway that supports DHCP server, you can enable the DHCP server feature of the NAS.

The NAS will allocate dynamic IP address to the media players or other clients automatically.

Note: If there is an existing DHCP server on your LAN, do not enable this function. Otherwise, there will be IP address allocation and network access errors.

This option is available to Ethernet 1 only when both LAN ports of dual LAN NAS models are connected to the network.

ii. Default Gateway

Select the gateway settings to use if you have connected both LAN ports to the network (dual LAN NAS models only).

Network

TCP / IP

DDNS

IPv6

IP Address

Interface	DHCP	IP Address	Subnet Mask	Gateway	MAC Address	Speed	MTU	Link	Edit
Ethernet 1	Yes	172.17.22.56	255.255.254.0	172.17.22.1	00:08:9B:8A:00:31	1000Mbps	1500		
Ethernet 2	Yes	192.168.1.118	255.255.255.0	0.0.0.0	00:08:9B:8A:00:30	1000Mbps	1500		

Default Gateway

Use the settings from:

Ethernet 1

Ethernet 1

Ethernet 2

iii. Port Trunking

Applicable to the models with two LAN ports only. Please refer to the comparison table for more details:

http://www.qnap.com/images/products/comparison/Comparison_NAS.html

The NAS supports port trunking which combines two Ethernet interfaces into one to increase the bandwidth and offers load balancing and fault tolerance (also known as failover). Load balancing is a feature which distributes the workload evenly across two Ethernet interfaces for higher redundancy. Failover is the capability to switch over to a standby network interface (also known as the slave interface) when the primary network interface (also known as the master interface) does not correspond correctly to maintain high availability.

To use port trunking on the NAS, make sure both LAN ports of the NAS are connected to the same switch and you have configured the settings described in sections (i) and (ii).

Follow the steps below to configure port trunking on the NAS:

1. Select the option "Enable Port Trunking Mode".
2. Choose a port trunking mode from the drop-down menu. The default option is "Active Backup (Failover)".

Port Trunking

Port Trunking provides network load balancing and fault tolerance by combining two Ethernet interfaces into one to increase the bandwidth beyond the limits of any one single interface at the same time offers the redundancy for higher availability when both interfaces are connected to the same switch that supports 'Port Trunking'.

☒ Enable Network Port Trunking

Select the port trunking mode from below. Please note that incompatible mode settings might cause the network interface to hang or affect the overall performance. For more information, please click [here](#).

Active Backup(Fail Over)
Balance-rr (Round-Robin)
Active Backup(Fail Over)
Balance XOR

DNS Broadcast

Prim: IEEE 802.3ad 89


Balance-tlb (Adaptive Transmit Load Balancing)

Balance-alb (Adaptive Load Balancing)

Secondary DNS Server: 0.0.0.0



APPLY

3. Click "Apply".
4. The Ethernet interfaces will be combined as Ethernet 1+2. Click the Edit

button () to edit the network settings.

TCP / IPDDNSIPv6

IP Address

Interface	DHCP	IP Address	Subnet Mask	Gateway	MAC Address	Speed	MTU	Link	Edit
Ethernet 1+2	No	10.8.13.2	255.255.254.0	10.8.12.1	00:08:9B:BE:23:DA	100Mbps	1500		

5. After applying the settings, make sure the network cables of the two Ethernet interfaces are connected to the correct switch and the switch has been configured to support the port trunking mode selected on the NAS.

Refer to the table below about the port trunking options available on the NAS.

Field	Description	Switch Required
Balance-rr (Round-Robin)	Round-Robin mode is good for general purpose load balancing between two Ethernet interfaces. This mode transmits packets in sequential order from the first available slave through the last. Balance-rr provides load balancing and fault tolerance.	Supports static trunking. Make sure static trunking is enabled on the switch.
Active Backup	Active Backup uses only one Ethernet interface. It switches to the second Ethernet interface if the first Ethernet interface fails. Only one slave in the bond is active. The bond's MAC address is only visible externally on one port (network adapter) to avoid confusing the switch. Active Backup mode provides fault tolerance.	General switch
Balance XOR	Balance XOR balances traffic by splitting up outgoing packets between the Ethernet interfaces, using the same one for each specific destination when possible. It transmits based on the selected transmit hash policy. The default policy is a simple slave count operating on Layer 2 where the source MAC address is coupled with destination MAC address. Alternate transmit policies maybe selected via the xmit_hash_policy option. Balance XOR mode provides load balancing and fault tolerance.	Supports static trunking. Make sure static trunking is enabled on the switch.
Broadcast	Broadcast sends traffic on both network interfaces. Balanced XOR mode provides fault tolerance.	Supports static trunking. Make sure static trunking

		is enabled on the switch.
IEEE 802.3ad (Dynamic Link Aggregation)	Dynamic Link Aggregation uses a complex algorithm to aggregate adapters by speed and duplex settings. It utilizes all slaves in the active aggregator according to the 802.3ad specification. Dynamic Link Aggregation mode provides load balancing and fault tolerance but requires a switch that supports IEEE 802.3ad with LACP mode properly configured.	Supports 802.3ad LACP
Balance-tlb (Adaptive Transmit Load Balancing)	Balance-tlb uses channel bonding that does not require any special switch. The outgoing traffic is distributed according to the current load on each Ethernet interface (computed relative to the speed). Incoming traffic is received by the current Ethernet interface. If the receiving Ethernet interface fails, the other slave takes over the MAC address of the failed receiving slave. Balance-tlb mode provides load balancing and fault tolerance.	General Switch
Balance-alb (Adaptive Load Balancing)	Balance-alb is similar to balance-tlb but also attempts to redistribute incoming (receive load balancing) for IPV4 traffic. This setup does not require any special switch support or configuration. The receive load balancing is achieved by ARP negotiation sent by the local system on their way out and overwrites the source hardware address with the unique hardware address of one of the Ethernet interfaces in the bond such that different peers use different hardware address for the server. Balance-rlb mode provides load balancing and fault tolerance.	General Switch

iv. DNS Server

- **Primary DNS Server:** Enter the IP address of the primary DNS server.
- **Secondary DNS Server:** Enter the IP address of the secondary DNS server.

Note:

1. Please contact your ISP or network administrator for the IP address of the primary and the secondary DNS servers. When the NAS plays the role as a terminal and needs to perform independent connection, e.g. BT download, you must enter at least one DNS server IP for proper URL connection. Otherwise, the function may not work properly.
2. If you select to obtain the IP address via DHCP, there is no need to configure the primary and the secondary DNS servers. In this case, enter "0.0.0.0".

v. Jumbo Frame Settings (MTU)

This function is applicable to certain models only. Please refer to the comparison table for more details:

http://www.qnap.com/images/products/comparison/Comparison_NAS.html

"Jumbo Frames" refer to the Ethernet frames that are larger than 1500 bytes. It is designed to enhance Ethernet networking throughput and reduce the CPU utilization of large file transfers by enabling more efficient larger payloads per packet.

Maximum Transmission Unit (MTU) refers to the size (in bytes) of the largest packet that a given layer of a communications protocol can transmit.

The NAS uses standard Ethernet frames: **1500 bytes** by default. If your network appliances support Jumbo Frame setting, select the appropriate MTU value for your network environment. The NAS supports 4074, 7418, and 9000 bytes for MTU.

Note: The Jumbo Frame setting is valid in Gigabit network environment only. All the network appliances connected must enable Jumbo Frame and use the same MTU value.

3.1.2.2 DDNS

To set up a server on the Internet and enable the users to access it easily, a fixed and easy-to-remember host name is often required. However, if the ISP provides only dynamic IP address, the IP address of the server will change from time to time and is difficult to recall. You can enable the DDNS service to solve the problem.

After enabling the DDNS service of the NAS, whenever the NAS restarts or the IP address is changed, the NAS will notify the DDNS provider immediately to record the new IP address. When the user tries to connect the NAS via the host name, the DDNS will transfer the recorded IP address to the user.

The NAS supports the DDNS providers: members.dyndns.org, update.ods.org, members.dhs.org, www.dyns.cx, www.3322.org, www.no-ip.com.

Check the External IP Address Automatically: Enable this option if your NAS is located behind a gateway. The NAS checks the external (WAN) IP automatically and if the IP address is changed, the NAS will inform the DDNS provider automatically to ensure it can be accessed via the host name.

For the information of setting up the DDNS and port forwarding on the NAS, please refer to the online tutorial: http://www.qnap.com/pro_features.asp.

Network 

TCP / IP DDNS IPV6

DDNS Service

After enabling DDNS Service, you can connect to this server by domain name.

☒ Enable Dynamic DNS Service

Select DDNS server:

Enter the account information you registered with the DDNS provider

User Name:

Password:

Host Name:


☐ Check the External IP Address Automatically

Current WAN IP: 219.87.144.205

3.1.2.3 IPv6

The NAS supports IPv6 connectivity with “stateless” address configurations and RADVD (Router Advertisement Daemon) for IPv6, RFC 2461 to allow the hosts on the same subnet to acquire IPv6 addresses from the NAS automatically. The services on the NAS that support IPv6 include:

- Remote replication
- Web Server
- FTP
- iSCSI (Virtual disk drives)
- SSH (putty)

Network 

TCP / IP DDNS IPv6


IP Address

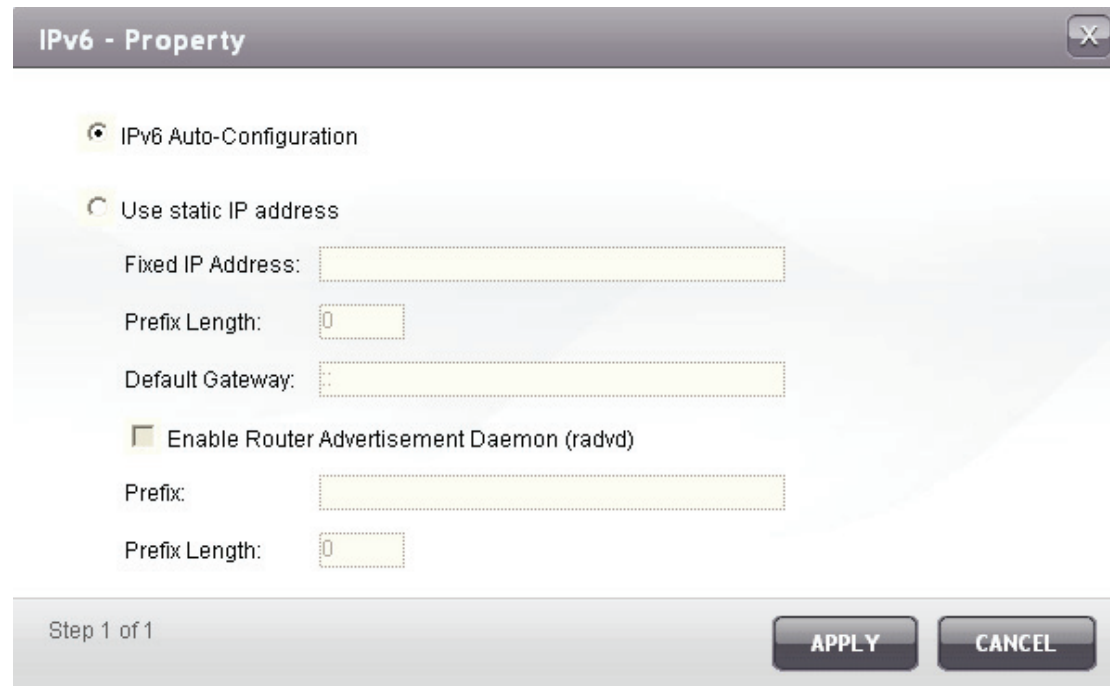
☒ Enable IPv6

Interface	Auto Configuration	IPv6 Address	Prefix Length	Gateway	Link	Edit
-----------	--------------------	--------------	---------------	---------	------	------

DHIS Server:

APPLY

To use this function, select the option "Enable IPv6" and click "Apply". The NAS will restart. After the system restarts, login the IPv6 page again. The settings of the IPv6 interface will be shown. Click  to edit the settings.



The image shows a configuration window titled "IPv6 - Property" with a close button (X) in the top right corner. It contains two radio button options: "IPv6 Auto-Configuration" (selected) and "Use static IP address". Under "Use static IP address", there are input fields for "Fixed IP Address:", "Prefix Length:" (with a dropdown showing "0"), and "Default Gateway:". Below these is a checkbox labeled "Enable Router Advertisement Daemon (radvd)". If checked, there are input fields for "Prefix:" and "Prefix Length:" (with a dropdown showing "0"). At the bottom, it says "Step 1 of 1" and has "APPLY" and "CANCEL" buttons.

- **IPv6 Auto Configuration**

If you have an IPv6 enabled router on the network, select this option to allow the NAS to acquire the IPv6 address and the configurations automatically.

- **Use static IP address**

To use a static IP address, enter the IP address (e.g. 2001:bc95:1234:5678), prefix length (e.g. 64), and the gateway address for the NAS. You may contact your ISP for the information of the prefix and the prefix length.

- ✓ **Enable Router Advertisement Daemon (radvd)**

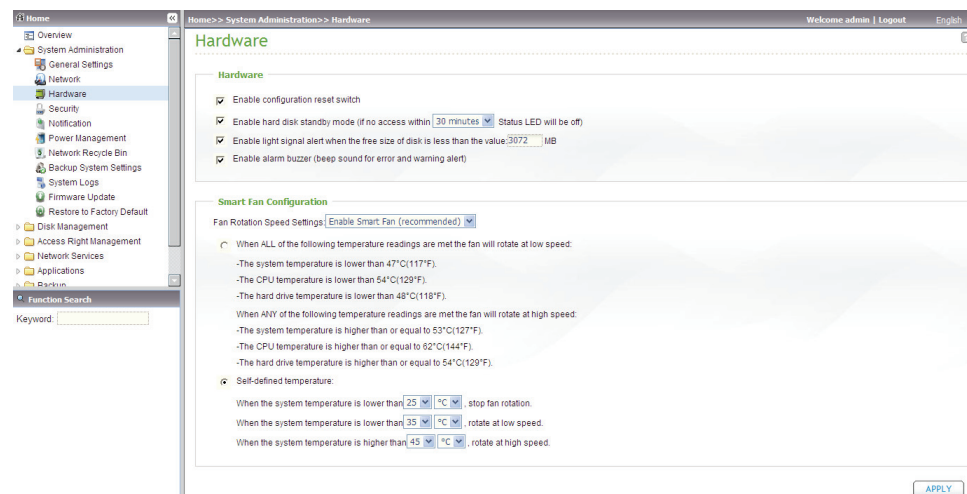
To configure the NAS as an IPv6 host and distribute IPv6 addresses to the local clients which support IPv6, enable this option and enter the prefix and prefix length.

- **IPv6 DNS server**

Enter the preferred DNS server in the upper field and the alternate DNS server in the lower field. You may contact your ISP or network administrator for the information. If you select IPv6 auto configuration, leave the fields as "::".

3.1.3 Hardware

You can enable or disable the hardware functions of the NAS.



- Enable configuration reset switch
You can press the reset button for 3 seconds to reset the administrator password and the system settings to default.
- Enable hard disk standby mode
When this function is enabled, the hard disk drive(s) enters standby mode if there is no access within the specified period.
- Enable light signal alert when the free size of SATA disk is less than the value:
The status LED flashes red and green when this function is enabled and the free space of the SATA disk is less than the value. The range of the value is 1-51200 MB.
- Enable alarm buzzer
Enable this option. The system will sound when an error occurs.
- Smart fan configuration
 - (i) Enable smart fan (recommended)
Select to use the default smart fan settings or define the settings manually.
When the system default settings are selected, the fan rotation speed is automatically adjusted when the server temperature, CPU temperature, and hard drive temperature meet the criteria. It is recommended to enable this option.
 - (ii) Set fan rotation speed manually
By manually setting the fan rotation speed, the fan rotates at the defined speed continuously.

Enable warning alert for redundant power supply on the web-based interface:

If you have installed two power supply units (PSU) on the NAS and connected them to the power sockets, both PSU will supply the power to the NAS (applied to 1U and 2U models). You can enable redundant power supply mode in "System Administration" > "Hardware" to receive warning alert for the redundant power supply. The NAS will beep and record the error messages in "System Logs" when the PSU is plugged out or fails.

If you have installed only one PSU on the NAS, you are suggested NOT to enable this option.

* This function is disabled by default.

Hardware

Hardware

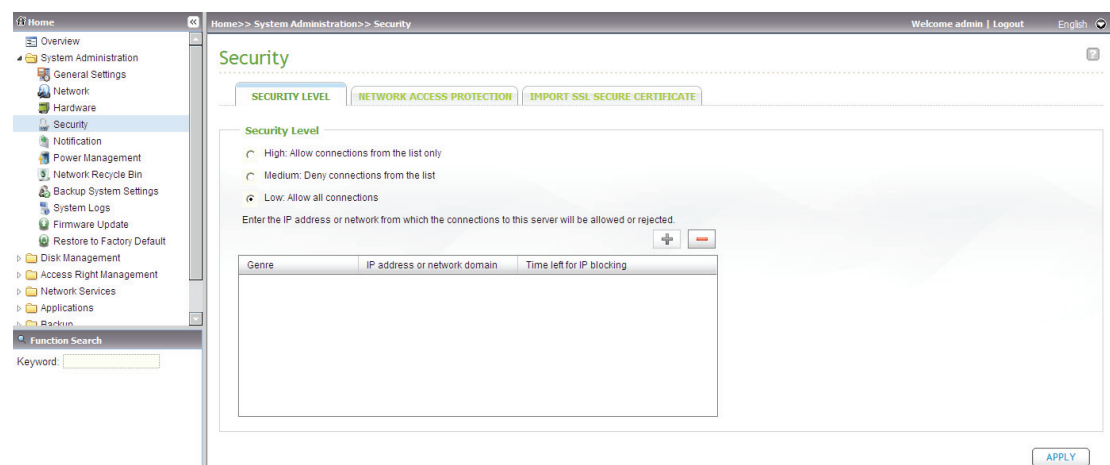
- ☒ Enable configuration reset switch
- ☒ Enable hard disk standby mode (if no access within Status LED will be off)
- ☒ Enable light signal alert when the free size of disk is less than the value: MB
- ☒ Enable alarm buzzer (beep sound for error and warning alert)
- ☒ Enable Redundant Power Supply Mode

3.1.4 Security

3.1.4.1 Security Level

Enter the IP address or network from which the connections to this server are allowed or rejected. When the connection of a host server is denied, all the protocols of that server are not allowed to access the local server.

After changing the settings, click "Apply" to save the changes. The network services will be restarted and current connections to the server will be disconnected.



3.1.4.2 Network Access Protection

The network access protection enhances the security of the system and prevents unwanted intrusion. You can select to block the IP for a certain period of time or forever if the IP fails to login the server from a particular connection method.

SECURITY LEVEL

NETWORK ACCESS PROTECTION

IMPORT SSL SECURE CERTIFICATE

Network Access Protection

☒ Enable network access connection

☒ SSH:

In 10 minutes

, after unsuccessful attempts for 10 time(s)

, block the IP for 5 minutes

☒ Telnet:

In 10 minutes

, after unsuccessful attempts for 10 time(s)

, block the IP for 5 minutes

☒ HTTP(S):

In 10 minutes

, after unsuccessful attempts for 10 time(s)

, block the IP for 5 minutes

☒ FTP:

In 10 minutes

, after unsuccessful attempts for 10 time(s)

, block the IP for 5 minutes

☒ SAMBA:

In 10 minutes

, after unsuccessful attempts for 10 time(s)

, block the IP for 5 minutes

☒ AFP:

In 10 minutes

, after unsuccessful attempts for 10 time(s)

, block the IP for 5 minutes

APPLY

3.1.4.3 Import SSL Secure Certificate

The Secure Socket Layer (SSL) is a protocol for encrypted communication between web servers and browsers for secure data transfer. You can upload a secure certificate issued by a trusted provider. After you have uploaded a secure certificate, you can access the administration interface by SSL connection and there will not be any alert or error message. The system supports X.509 certificate and private key only.

SECURITY LEVEL

NETWORK ACCESS PROTECTION

IMPORT SSL SECURE CERTIFICATE

Import SSL Secure Certificate

You can upload a secure certificate issued by a trusted provider. After you have uploaded a secure certificate successfully, you can access the administration interface by SSL connection and there will not be any alert or error message.

If you upload an incorrect secure certificate, you may not be able to login the server via SSL. To resolve the problem, you can restore the secure certificate to default and access the system again.

Status: Default secure certificate being used

Certificate: Please enter a certificate in X.509PEM format below.

View sample

Private Key: Please enter a certificate or private key in X.509PEM format below.

View sample

CLEAR

UPLOAD

37

3.1.5 Notification

3.1.5.1 Configure SMTP Server

The NAS supports email alert to inform you about the system errors and warning.

To receive the alert by email, configure the SMTP server.

- SMTP Server: Enter the SMTP server name, e.g. smtp.gmail.com.
- Port Number: Enter the port number for the SMTP server. The default port number is 25.
- Sender: Enter the sender information.
- Enable SMTP Authentication: If this function is enabled, the system will request the authentication of the mail server before the message is sent.
- User Name and Password: Enter your login information of your email account, e.g. your Gmail login name and password.
- Use SSL/ TLS secure connection: If the SMTP server supports this function, you can enable it.

The screenshot shows the 'Notification' configuration page in the NAS web interface. The left sidebar contains a navigation menu with options like Overview, System Administration, General Settings, Network, Hardware, Security, Notification, Power Management, Network Recycle Bin, Backup System Settings, System Logs, Firmware Update, Restore to Factory Default, Disk Management, Access Right Management, Network Services, Applications, and Backup. The main content area is titled 'Notification' and has three tabs: 'CONFIGURE SMTP SERVER', 'CONFIGURE SMSC SERVER', and 'ALERT NOTIFICATION'. The 'CONFIGURE SMTP SERVER' tab is selected. It contains the following fields and options:

- SMTP Server:
- Port Number:
- Sender:
- ☐ Enable SMTP Authentication
 - User Name:
 - Password:
- ☐ Use SSL/TLS secure connection

An 'APPLY' button is located at the bottom right of the configuration area.

3.1.5.2 *Configure SMSC Server*

You can configure the SMS server settings to send SMS messages from the NAS. The default SMS service provider is Clickatell. You may also add your own SMS service provider by selecting "Add SMS Provider" on the drop down menu.

When you select "Add SMS service provider", you need to enter the name of the SMS provider and the URL template text.

Note: You will not be able to receive the SMS properly if the URL template text entered does not follow the standard of your SMS service provider.

Configure SMSC Server

You can configure the SMSC settings to send instant system alerts via the SMS service provided by the SMS provider.

SMS Service Provider Clickatell <http://www.clickatell.com>

☒ Enable SSL Connection

SSL Port:

SMS Server Login Name

SMS Server Login Password

SMS Server API_ID

APPLY

3.1.5.3 Alert Notification

You can configure to receive instant SMS or email alert when a system error or warning occurs. Enter the email address and mobile phone number to receive the alerts. Make sure you have entered the correct SMTP server and the SMSC server settings. If you do not want to receive any alerts, select "No alert" for both settings.

For the online tutorial, please visit http://www.qnap.com/pro_features.asp.

CONFIGURE SMTP SERVER

CONFIGURE SMSC SERVER

ALERT NOTIFICATION

Alert Notification
When a system event occurs, an alert email/SMS will be sent automatically.
Send system error alert by:
Send system warning alert by:

E-mail Notification Settings
E-mail address 1:
E-mail address 2:

Note: The SMTP server must be configured first for alert mail delivery.

SMS Notification Settings
Country Code:
Cell Phone No. 1: +886
Cell Phone No. 2: +886

Note: You must configure the SMSC server to be able to send SMS notification properly.

3.1.6 Power Management

This section enables you to restart or shut down the server immediately, define the behavior of the server when the power resumes after a power outage, and set schedule for automatic system power on/ off/ restart.

- **Restart/ Shutdown**

Restart or shut down the server immediately.

If you try to restart or turn off the NAS from the web-based interface or the LCD panel when a remote replication job is in process, the NAS will prompt you to ignore the running replication job or not.

Enable the option "Postpone the restart/shutdown schedule when replication job is in process" to allow the scheduled system restart or shutdown to be carried out after a running replication job completes. Otherwise, the NAS will ignore the running replication job and execute scheduled system restart or shutdown.

- **Wake on LAN**

Enable this option to power on the NAS remotely by Wake on LAN. Note that if the power connection is physically removed when the NAS is turned off, Wake on LAN will not function whether or not the power supply is reconnected afterwards.

This function is applicable to certain models only. Please refer to the comparison table for more details:

http://www.qnap.com/images/products/comparison/Comparison_NAS.html

- **Power resumption settings**

Configure the NAS to resume to the previous power-on or power-off status, turn on or remain off when the AC power resumes after a power outage.

- **Power on/ power off/ restart schedule**

You can select every day, weekdays, weekend, or any days of the week and set the time for automatic system power on, power off, or restart. Weekdays stand for Monday to Friday; weekend stands for Saturday and Sunday. Up to 15 schedules can be set.

Home

Overview

System Administration

General Settings

Network

Hardware

Security

Notification

Power Management

Network Recycle Bin

Backup System Settings

System Logs

Firmware Update

Restore to Factory Default

Disk Management

Access Right Management

Network Services

Applications

Backup

Function Search

Keyword:

Home>> System Administration>> Power Management

Welcome admin | Logout English

Power Management

Restart/ Shutdown

Execute system restart/ shutdown immediately.

RESTART SHUTDOWN

Configure Wake on LAN

☒ Enable
 ☐ Disable

When the AC power resumes:

☐ Resume the server to the previous power-on or power-off status.
 ☒ Turn on the server automatically.
 ☐ The server should remain off.

Set power on/ power off/ restart schedule

☐ Enable schedule

☐ Postpone the restart/shutdown schedule when replication job is in process.

Turn on the server

Daily

11

32

*

*

*

Turn on the server

Daily

12

31

*

*

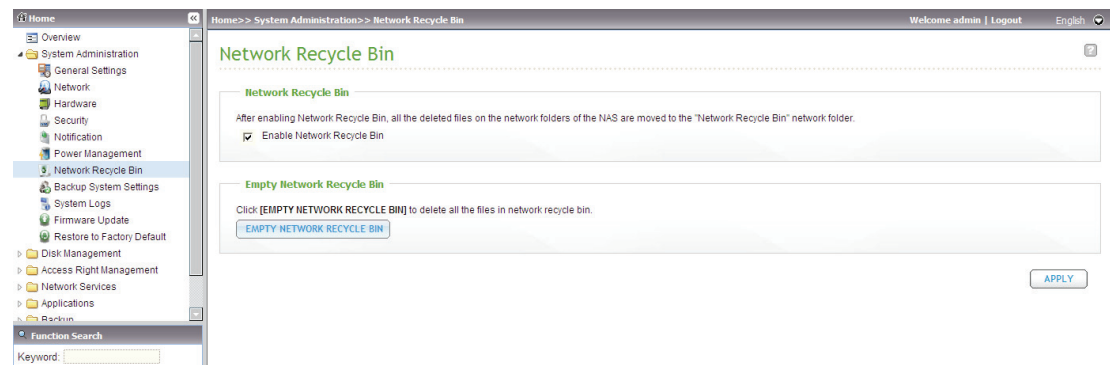
*

APPLY

3.1.7 Network Recycle Bin

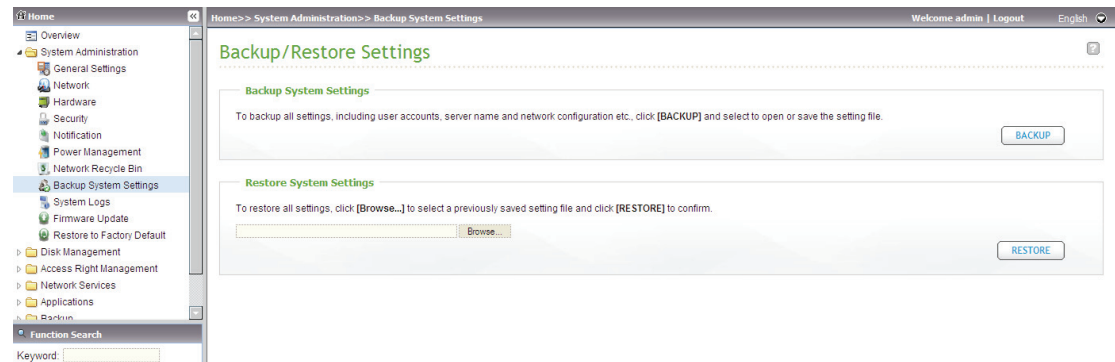
This function enables the files deleted on the shares of the NAS to be removed to Network Recycle Bin to reserve the files temporarily. To enable this function, select the option "Enable Network Recycle Bin" and click "Apply". The system will create a network share "Network Recycle Bin" automatically.

To delete all the files in network recycle bin, click "Empty Network Recycle Bin".



3.1.8 Backup/ Restore Settings

- To back up all the settings, including the user accounts, server name and network configuration etc., click "Backup" and select to open or save the setting file.
- To restore all the settings, click "Browse" to select a previously saved setting file and click "Restore".

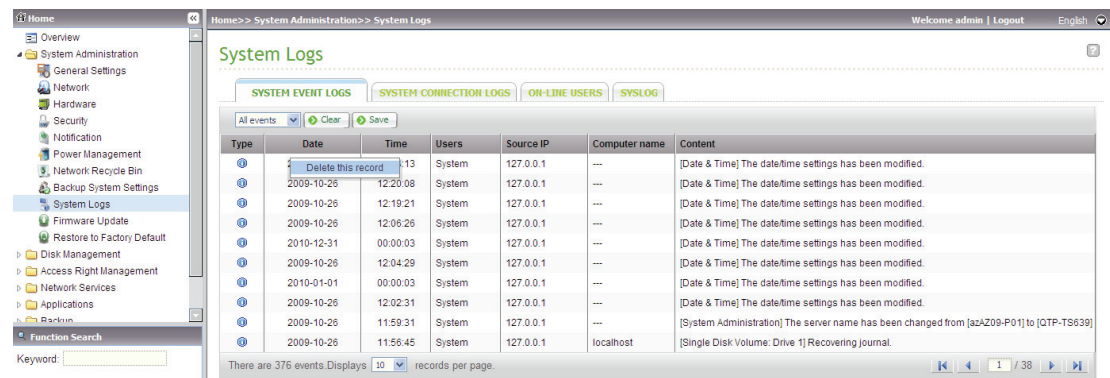


3.1.9 System Logs

3.1.9.1 System Event Logs

The NAS can store 10,000 recent event logs, including warning, error, and information messages. In case of system malfunction, the event logs can be retrieved to analyze the system problems.

Tip: You can right click a log and delete the record.



The screenshot displays the 'System Logs' interface. On the left is a navigation menu with categories like Overview, System Administration, Network, Hardware, Security, Notification, Power Management, Network Recycle Bin, Backup System Settings, System Logs (selected), Firmware Update, Restore to Factory Default, Disk Management, Access Right Management, Network Services, Applications, Rack, and Function Search. The main area shows 'System Logs' with tabs for SYSTEM EVENT LOGS, SYSTEM CONNECTION LOGS, ON-LINE USERS, and SYSLOG. Below the tabs are 'All events', 'Clear', and 'Save' buttons. A table lists events with columns: Type, Date, Time, Users, Source IP, Computer name, and Content. The first row is highlighted, and a context menu is open with the option 'Delete this record'. The table contains 10 rows of log entries. At the bottom, it states 'There are 376 events. Displays 10 records per page.' with pagination controls.

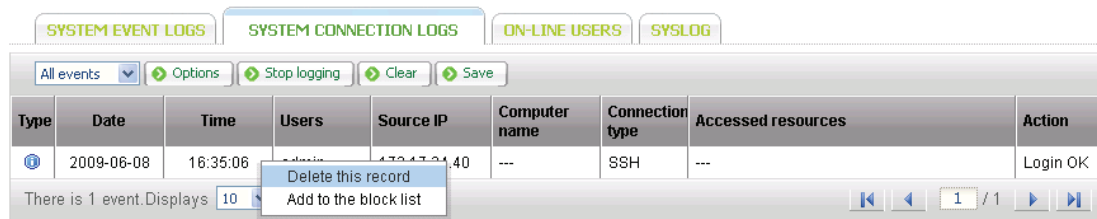
Type	Date	Time	Users	Source IP	Computer name	Content
13			System	127.0.0.1	---	[Date & Time] The date/time settings has been modified.
2009-10-26	12:20:08	System	127.0.0.1	---	[Date & Time] The date/time settings has been modified.	
2009-10-26	12:19:21	System	127.0.0.1	---	[Date & Time] The date/time settings has been modified.	
2009-10-26	12:06:26	System	127.0.0.1	---	[Date & Time] The date/time settings has been modified.	
2010-12-31	00:00:03	System	127.0.0.1	---	[Date & Time] The date/time settings has been modified.	
2009-10-26	12:04:29	System	127.0.0.1	---	[Date & Time] The date/time settings has been modified.	
2010-01-01	00:00:03	System	127.0.0.1	---	[Date & Time] The date/time settings has been modified.	
2009-10-26	12:02:31	System	127.0.0.1	---	[Date & Time] The date/time settings has been modified.	
2009-10-26	11:59:31	System	127.0.0.1	---	[System Administration] The server name has been changed from [azA209-P01] to [QTP-TS639]	
2009-10-26	11:56:45	System	127.0.0.1	localhost	[Single Disk Volume: Drive 1] Recovering Journal.	

3.1.9.2 System Connection Logs

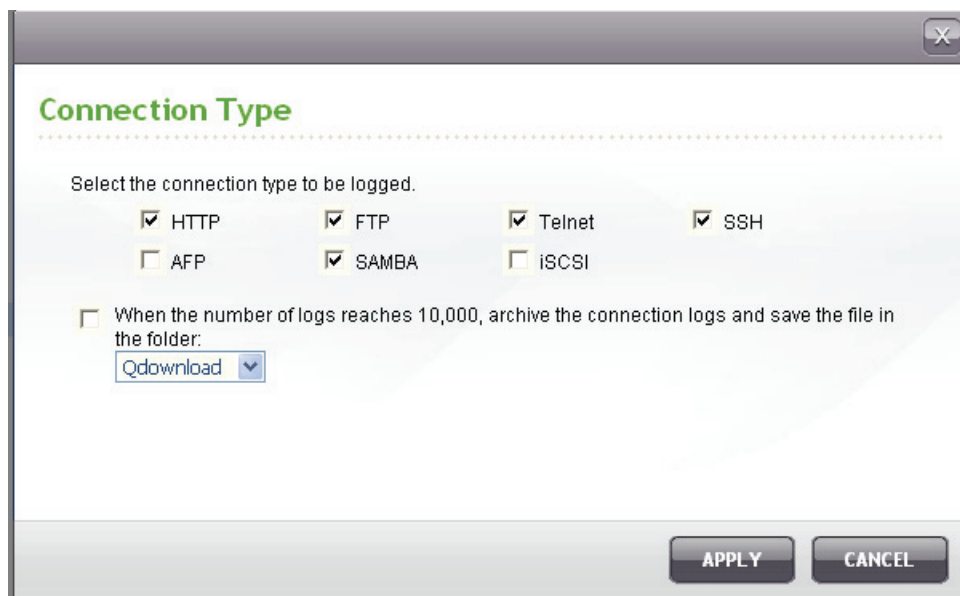
The system supports logging HTTP, FTP, Telnet, SSH, AFP, NFS, SAMBA, and iSCSI connections. Click "Options" to select the connection type to be logged.

The file transfer performance can be slightly affected by enabling the event logging.

Tip: You can right click the log on the list of connection logs and select to delete the record or add the IP to banned list and select how long the IP should be banned.



Archive logs: Enable this option to archive the connection logs. The system generates a csv file automatically and saves it to a specified folder when the number of logs reaches the upper limit.



3.1.9.3 On-line Users

The information of the on-line users accessing the NAS via networking services is shown on this page.

Tip: You can right click a log and select to disconnect the IP connection and/or add the IP to the block list.

SYSTEM EVENT LOGS SYSTEM CONNECTION LOGS ON-LINE USERS SYSLOG							
Type	Login date	Login time	Users	Source IP	Computer name	Connection type	Accessed resource
⊕	2009-06-08	16:26:06	admin	10.8.10.122	---	HTTP	Administration
⊕	2009-06-08	16:26:06	admin	172.17.34.40	---	SSH	---
There are 2 events.							

Disconnect this connection

Add to the block list

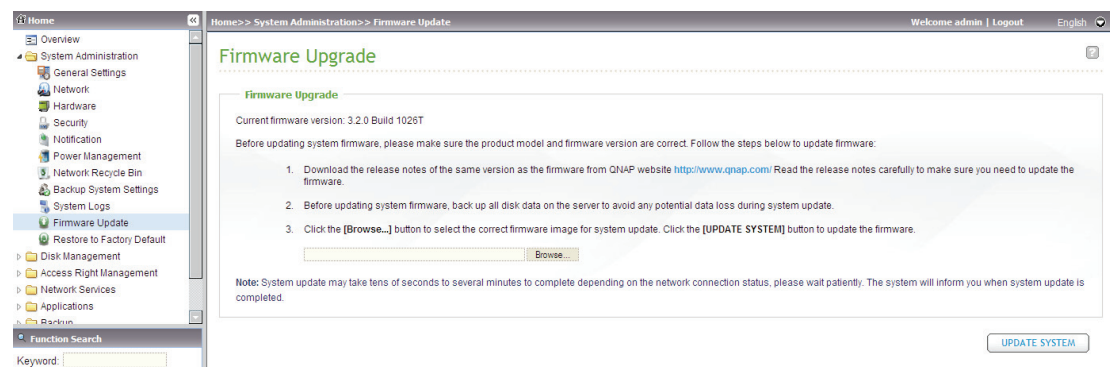
Disconnect this connection and block the IP

3.1.9.4 Syslog

Syslog is a standard for forwarding the log messages on an IP network. You can enable this option to save the event logs and connection logs to a remote syslog server.

SYSTEM EVENT LOGS SYSTEM CONNECTION LOGS ON-LINE USERS SYSLOG	
<div><div>Syslog Settings</div><div><div><input checked="" type="checkbox"/> Enable syslog</div><div>You can enable this option to save the event logs and connection logs to a remote syslog server.</div><div>Syslog Server IP: <input type="text"/></div><div>UDP Port: <input type="text" value="514"/></div><div>Select the logs to record</div><div><input checked="" type="checkbox"/> System Event Logs</div><div><input type="checkbox"/> System Connection Logs (You must enable system connection logs to use this option.)</div></div></div>	
<div>APPLY</div>	

3.1.10 Firmware Update



Note: If the system is running properly, you do not need to update the firmware.

Before updating the system firmware, make sure the product model and firmware version are correct. Follow the steps below to update firmware:

Step 1: Download the release notes of the firmware from the QNAP website <http://www.qnap.com>. Read the release notes carefully to make sure you need to update the firmware.

Step 2: Download the NAS firmware and unzip the IMG file to your computer.

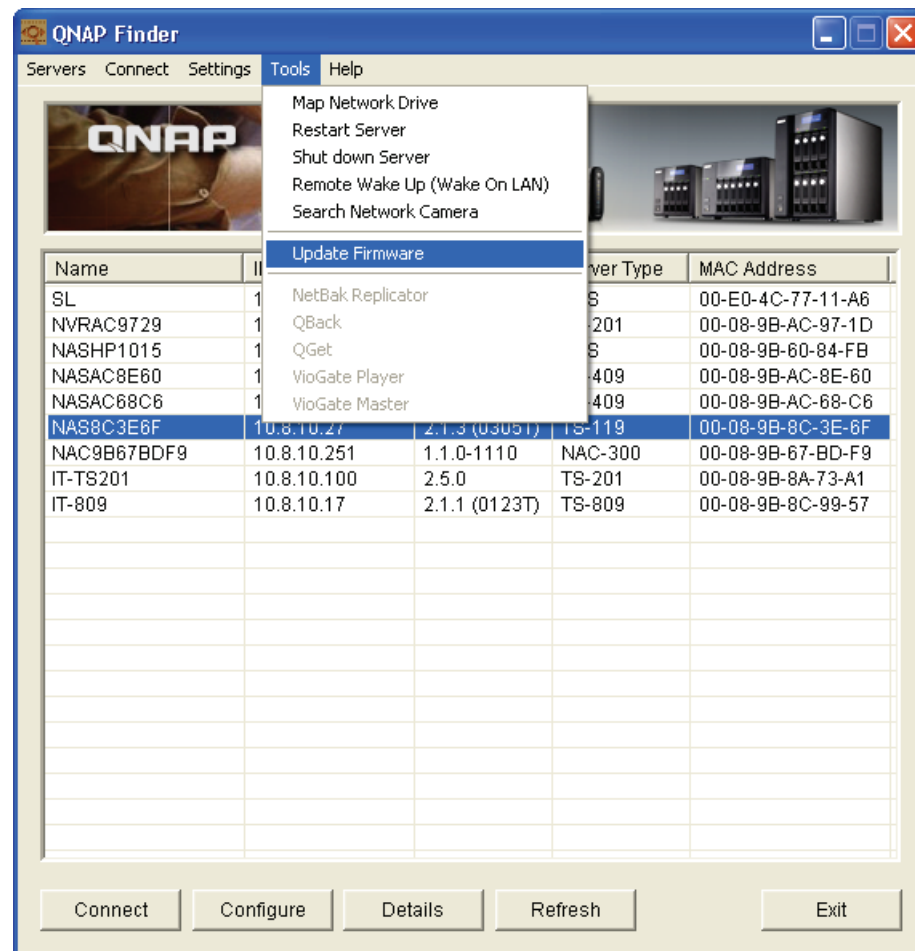
Step 3: Before updating the system firmware, back up all the disk data on the server to avoid any potential data loss during the system update.

Step 4: Click "Browse" to select the correct firmware image for the system update. Click "Update System" to update the firmware.

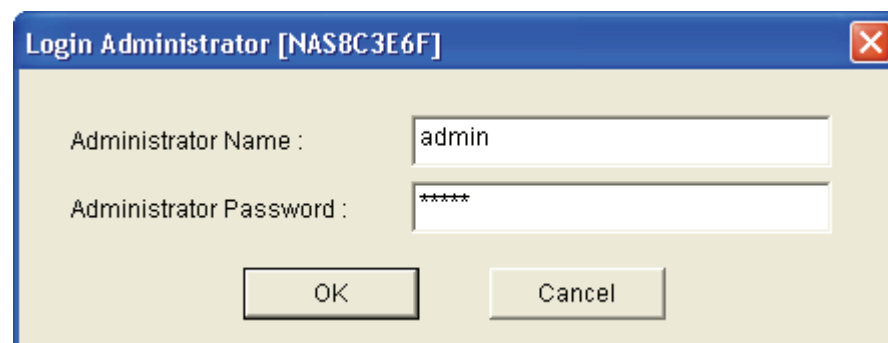
The system update may take tens of seconds to several minutes to complete depending on the network connection status. Please wait patiently. The system will inform you when the system update has completed.

Update the system firmware by Finder

You can update the system firmware by the QNAP Finder. Select a NAS model and click "Update Firmware" from the "Tools" menu.



Login the NAS as a user with an administrator account.



Browse and select the firmware for the NAS. Click "Start" to update the system.

Update Firmware

Select the system firmware to be installed or updated to the system hard disk.

Path of system firmware image file:
C:\Documents and Settings\Administrator\Desktop\TS-119_20090313-2.1.4.i Browse...

Firmware Model: TS-119, Version: 2.1.4.

Server Name	Model Name	Version	MAC Address	Pro...	Status
<input checked="" type="checkbox"/> NAS8C3E6F	TS-119	2.1.3 (0305T)	00-08-9B-8C-3E-6F		

☒ Update all the servers with the same model number within the network

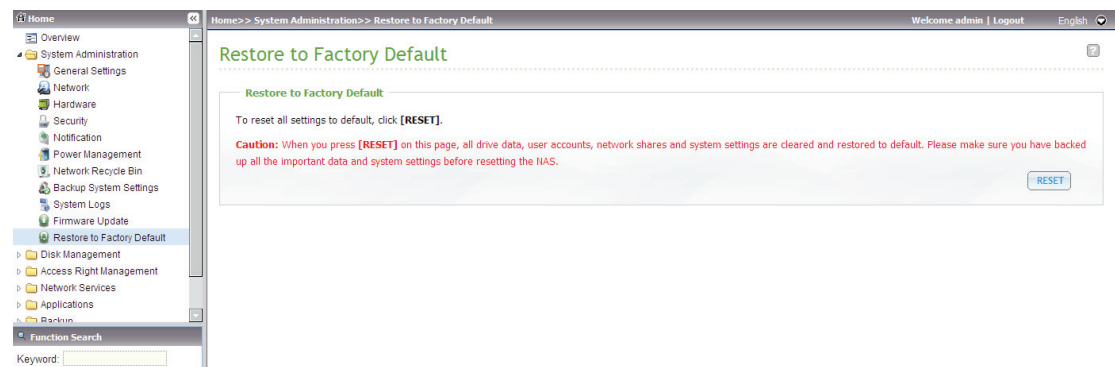
Start Cancel

Note: You can use Finder to update all the servers of the same model on the same local network. Make sure you have administrator access to all the servers you want to update.

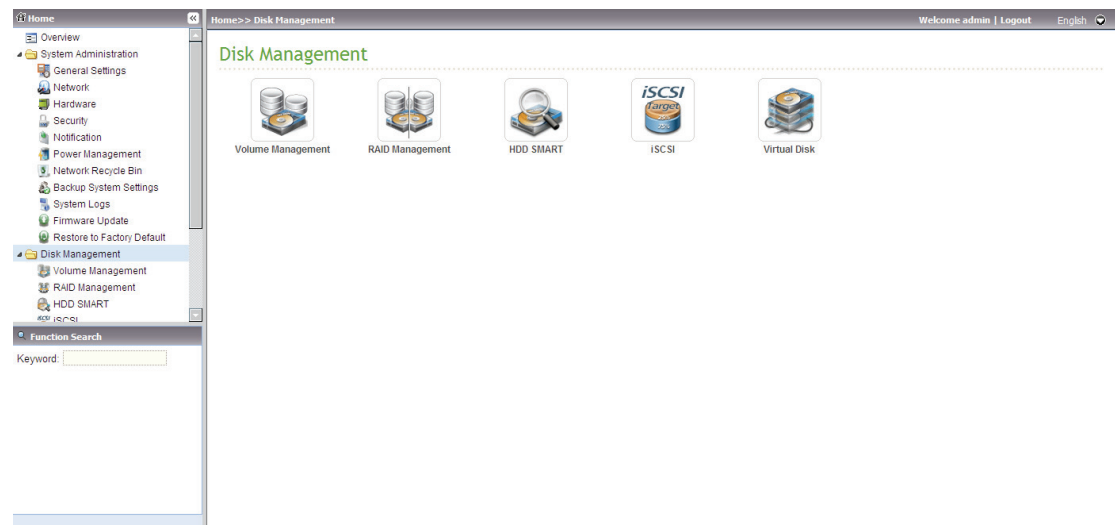
3.1.11 Restore to Factory Default

To reset all the settings to default, click "RESET".

Caution: When you press "RESET" on this page, all the drive data, user accounts, network shares, and system settings are cleared and restored to default. Make sure you have backed up all the important data and system settings before resetting the NAS.



3.2 Disk Management



3.2.1 Volume Management

This page shows the model, size, and current status of the disk on the NAS. You can format and check disk, and scan bad blocks on the disk. When the disk is formatted, the NAS will create the following default share folders:

- ✓ Public: Network share for file sharing
- ✓ Qdownload/ Download*: The default network share for Download Station.
- ✓ Qmultimedia/ Multimedia*: The default network share for Multimedia Station.
- ✓ Qusb/ Usb*: The default network share for data copy function via USB ports.
- ✓ Qweb/ Web*: The default network share for Web Server.
- ✓ Qrecordings/ Recordings*: The default network share of Surveillance Station.

*TS-259/ TS-459/ TS-659/ TS-859 series only.

Note: The default shares are created on the first disk volume and the directory cannot be changed.

Home

Overview

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RAID Management

HDD SMART

Encrypted File System

iSCSI

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System Status

Function Search

Keyword:

Home>> Disk Management>> Volume Management

Welcome admin | Logout | English

Volume Management

Single Disk Volume
 Create single disk volume(s).

RAID 1 Mirroring Disk Volume
 Create mirroring disk volume(s).

RAID 0 Striping Disk Volume
 Create one striping disk volume.

Linear Disk Volume
 Create one linear disk volume.

RAID 5 Disk Volume
 Combine 3 or more disks to create a disk volume with data protection (1 disk crash is allowed).

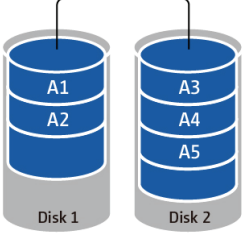
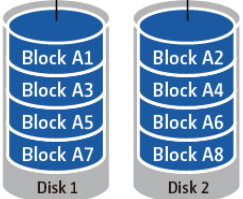
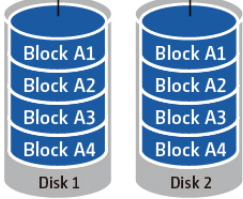
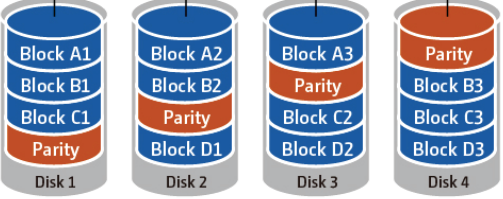
RAID 6 Disk Volume
 Combine 4 or more disks to create a disk volume with data protection (2 disk crash is allowed).

Current Disk Volume Configuration: Physical Disks					
Disk	Model	Capacity	Status	Bad Blocks Scan	SMART Information
Drive 1	Hitachi HDT725032VLA360 V540	298.09 GB	Ready	SCAN NOW	GOOD
Drive 2	Seagate ST3250620AS 3.5A	232.89 GB	Ready	SCAN NOW	GOOD
Drive 3	Seagate ST3250620AS 3.5A	232.89 GB	Ready	SCAN NOW	GOOD
Drive 4	--	--	No Disk	SCAN NOW	---
Drive 5	--	--	No Disk	SCAN NOW	---

Current Disk Volume Configuration: Logical Volumes				
Volume	File System	Total Size	Free Size	Status
RAID 5 Disk Volume: Drive 1 2 3	EXT4	455.52 GB	440.81 GB	Ready

[FORMAT NOW](#)
[CHECK NOW](#)
[REMOVE NOW](#)

Disk Configuration	Applied NAS Models
Single disk volume	All models
RAID 1, JBOD (just a bunch of disks)	2-bay models or above
RAID 5, RAID 6, RAID 5+hot spare	4-bay models or above
RAID 6+hot spare	5-bay models or above

<p>Single Disk Volume</p> <p>Each hard disk drive is used as a standalone disk. If a disk is damaged, all the data will be lost.</p>	
<p>JBOD (Just a bunch of disks)</p> <p>JBOD is a collection of hard disk drives that does not offer any RAID protection.</p> <p>The data are written to the physical disks sequentially. The total storage capacity equals to the sum of the capacity of all the member drives.</p>	<p style="text-align: center;">JBOD</p> 
<p>RAID 0 Striping Disk Volume</p> <p>RAID 0 (striping disk) combines 2 or more hard disk drives into one larger volume. The data is written to the hard disk drives without any parity information and no redundancy is offered. The disk capacity equals the number of hard disk drives in the array times the size of the smallest hard drive.</p>	<p style="text-align: center;">RAID 0 striping</p> 
<p>RAID 1 Mirroring Disk Volume</p> <p>RAID 1 duplicates the data between two hard disk drives to provide disk mirroring. To create a RAID 1 array, a minimum of 2 hard drives are required.</p>	<p style="text-align: center;">RAID 1 mirroring</p> 
<p>RAID 5 Disk Volume</p> <p>The data are striped across all the drives in a RAID 5 array. The parity information is distributed and stored across each drive. If a member drive fails, the array enters degraded mode.</p> <p>After installing a new drive to replace the failed one, the data can be rebuilt from other member drives that contain the parity information.</p>	<p style="text-align: center;">RAID 5 parity across disks</p> 

To create a RAID 5 disk volume, a minimum of 3 hard disks are required.

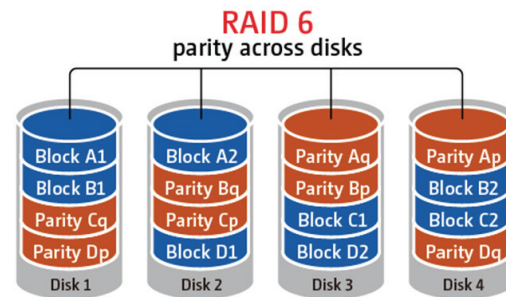
The storage capacity of a RAID 5 array equals $(N-1)$. N is the total number of drive members in the array.

RAID 6 Disk Volume

The data are striped across all the drives in a RAID 6 array. RAID 6 differs from RAID 5 that a second set of parity information is stored across the member drives in the array. It tolerates failure of two member drives.

To create a RAID 6 disk volume, a minimum of 4 hard disks are required.

The storage capacity of a RAID 6 array equals $(N-2)$. N is the total number of drive members in the array.



3.2.2 RAID Management

* This function does not apply to one-bay model, and TS-210.

You can perform RAID capacity expansion (RAID 1/ 5/ 6), RAID level migration (single disk/ RAID 1/ RAID 5), or configure the spare drive (RAID 5/ 6) with the data retained.

Bitmap improves the time for RAID rebuilding after an unexpected error, or removing or re-adding a member drive of the RAID configuration. If an array has a bitmap, the member drive can be removed and re-added and only blocks changes since the removal (as recorded in the bitmap) will be re-synchronized.

Note: Bitmap support is only available for RAID 1, 5, and 6.

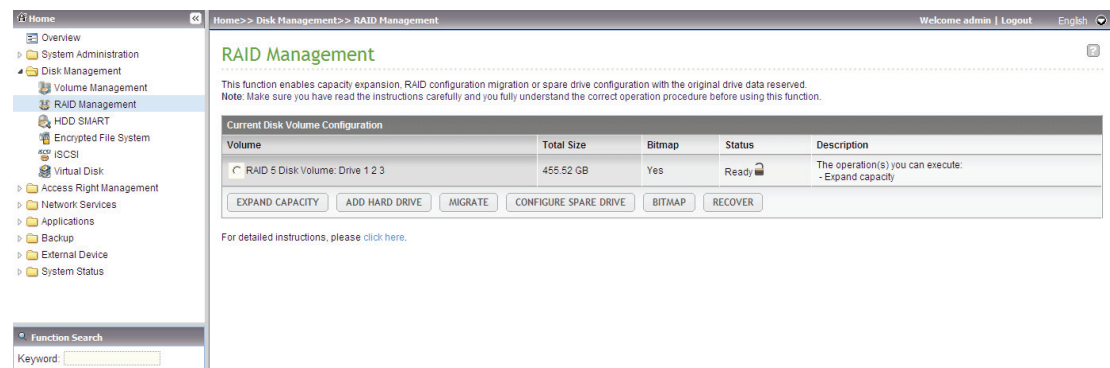
RAID Recovery: When the NAS is configured as RAID 5 (or RAID 6) and 2 (or 3) hard drives are unplugged from the server accidentally, you can plug in the same hard drives into the same drive slots and click "Recover" to recover the volume status from "Not active" to "Degraded mode".

If the disk volume is configured as RAID 0 or JBOD and one or more of the drive members are disconnected, you can use this function to recover the volume status from "Not active" to "Normal". The disk volume can be used normally after successful recovery.

Note: If the disconnected drive member is damaged, the RAID recovery function will not work.

RAID recovery is not supported by TS-110, TS-210, TS-119.

For the online tutorial, please visit http://www.qnap.com/pro_features.asp.



RAID Level \ RAID Status	Traditional RAID 5	QNAP RAID 5	Traditional RAID 6	QNAP RAID 6
Degraded mode	N-1	N-1	N-1 & N-2	N-1 & N-2
Read Only Protection (for immediate data backup & HDD replacement)	N/A	N-1, bad blocks found in the surviving drives of the array.	N/A	N-2, bad blocks found in the surviving drives of the array.
RAID Recovery (RAID Status: Not Active)	N/A	If re-inserting all the original hard disk drives to the NAS and they can be spun up, identified, accessed, and the HDD superblock is not damaged.	N/A	If re-inserting all the original hard disk drives to the NAS and they can be spun up, identified, accessed, and the HDD superblock is not damaged).
RAID Crash	N-2	N-2 failed HDD and any of the remaining HDD cannot be spun up/ identified/ accessed.	N-3	N-3 and any of the remaining HDD cannot be spun up/ identified/ accessed.

N = Number of hard disk drives in the array

The NAS supports the following actions according to the number of hard drives and disk configurations supported. Please refer to the following table for the details.

Original Disk Configuration * No. of HDD	No. of New HDD	Action	New Disk Configuration * No. of HDD
RAID 5 * 3	1	Add HDD member	RAID 5 * 4
RAID 5 * 3	2	Add HDD member	RAID 5 * 5
RAID 5 * 3	3	Add HDD member	RAID 5 * 6
RAID 5 * 3	4	Add HDD member	RAID 5 * 7
RAID 5 * 3	5	Add HDD member	RAID 5 * 8
RAID 5 * 4	1	Add HDD member	RAID 5 * 5
RAID 5 * 4	2	Add HDD member	RAID 5 * 6
RAID 5 * 4	3	Add HDD member	RAID 5 * 7
RAID 5 * 4	4	Add HDD member	RAID 5 * 8
RAID 5 * 5	1	Add HDD member	RAID 5 * 6
RAID 5 * 5	2	Add HDD member	RAID 5 * 7
RAID 5 * 5	3	Add HDD member	RAID 5 * 8
RAID 5 * 6	1	Add HDD member	RAID 5 * 7
RAID 5 * 6	2	Add HDD member	RAID 5 * 8
RAID 5 * 7	1	Add HDD member	RAID 5 * 8
RAID 6 * 4	1	Add HDD member	RAID 6 * 5
RAID 6 * 4	2	Add HDD member	RAID 6 * 6
RAID 6 * 4	3	Add HDD member	RAID 6 * 7
RAID 6 * 4	4	Add HDD member	RAID 6 * 8
RAID 6 * 5	1	Add HDD member	RAID 6 * 6
RAID 6 * 5	2	Add HDD member	RAID 6 * 7
RAID 6 * 5	3	Add HDD member	RAID 6 * 8
RAID 6 * 6	1	Add HDD member	RAID 6 * 7
RAID 6 * 6	2	Add HDD member	RAID 6 * 8
RAID 6 * 7	1	Add HDD member	RAID 6 * 8
RAID 1 * 2	1	Online RAID Capacity Expansion	RAID 1 * 2
RAID 5 * 3	1	Online RAID Capacity Expansion	RAID 5 * 3
RAID 5 * 4	1	Online RAID Capacity Expansion	RAID 5 * 4

RAID 5 * 5	1	Online RAID Capacity Expansion	RAID 5 * 5
RAID 5 * 6	1	Online RAID Capacity Expansion	RAID 5 * 6
RAID 5 * 7	1	Online RAID Capacity Expansion	RAID 5 * 7
RAID 5 * 8	1	Online RAID Capacity Expansion	RAID 5 * 8
RAID 6 * 4	1	Online RAID Capacity Expansion	RAID 6 * 4
RAID 6 * 5	1	Online RAID Capacity Expansion	RAID 6 * 5
RAID 6 * 6	1	Online RAID Capacity Expansion	RAID 6 * 6
RAID 6 * 7	1	Online RAID Capacity Expansion	RAID 6 * 7
RAID 6 * 8	1	Online RAID Capacity Expansion	RAID 6 * 8
Single * 1	1	Online RAID Level Migration	RAID 1 * 2
Single * 1	2	Online RAID Level Migration	RAID 5 * 3
Single * 1	3	Online RAID Level Migration	RAID 5 * 4
Single * 1	4	Online RAID Level Migration	RAID 5 * 5
Single * 1	5	Online RAID Level Migration	RAID 5 * 6
Single * 1	6	Online RAID Level Migration	RAID 5 * 7
Single * 1	7	Online RAID Level Migration	RAID 5 * 8
Single * 1	3	Online RAID Level Migration	RAID 6 * 4
Single * 1	4	Online RAID Level Migration	RAID 6 * 5
Single * 1	5	Online RAID Level Migration	RAID 6 * 6

Single * 1	6	Online RAID Level Migration	RAID 6 * 7
Single * 1	7	Online RAID Level Migration	RAID 6 * 8
RAID 1 * 2	1	Online RAID Level Migration	RAID 5 * 3
RAID 1 * 2	2	Online RAID Level Migration	RAID 5 * 4
RAID 1 * 2	3	Online RAID Level Migration	RAID 5 * 5
RAID 1 * 2	4	Online RAID Level Migration	RAID 5 * 6
RAID 1 * 2	5	Online RAID Level Migration	RAID 5 * 7
RAID 1 * 2	6	Online RAID Level Migration	RAID 5 * 8
RAID 1 * 2	2	Online RAID Level Migration	RAID 6 * 4
RAID 1 * 2	3	Online RAID Level Migration	RAID 6 * 5
RAID 1 * 2	4	Online RAID Level Migration	RAID 6 * 6
RAID 1 * 2	5	Online RAID Level Migration	RAID 6 * 7
RAID 1 * 2	6	Online RAID Level Migration	RAID 6 * 8
RAID 5 * 3	1	Online RAID Level Migration	RAID 6 * 4
RAID 5 * 3	2	Online RAID Level Migration	RAID 6 * 5
RAID 5 * 3	3	Online RAID Level Migration	RAID 6 * 6
RAID 5 * 3	4	Online RAID Level Migration	RAID 6 * 7
RAID 5 * 3	5	Online RAID Level Migration	RAID 6 * 8

3.2.3 HDD SMART

This page enables the users to monitor the hard drive health, temperature, and the usage status by the hard disk S.M.A.R.T. mechanism.

Select the hard drive and you can view the following information by clicking the corresponding buttons.

Field	Description
Summary	Displays the hard drive S.M.A.R.T. summary and the latest test result.
Hard disk information	Displays the hard drive details, e.g. model, serial number, drive capacity.
SMART information	Displays the hard drive S.M.A.R.T. Any items that the values are lower than the threshold are regarded as abnormal.
Test	To perform quick or complete hard drive S.M.A.R.T. test and display the results.
Settings	Configure the temperature alarm. When the hard drive temperature is over the preset values, the NAS records the error logs. You can also configure the quick and complete test schedule. The latest test result is shown on the Summary page.

The screenshot shows a web management console with a sidebar on the left containing a tree view of system functions. The main content area is titled 'HDD SMART' and includes a breadcrumb trail 'Home >> Disk Management >> HDD SMART'. Below the title is a description: 'Monitor hard disk health, temperature, and usage status by the hard disk S.M.A.R.T. mechanism.' A dropdown menu 'Select hard disk' is set to 'Disk 1'. There are five tabs: 'SUMMARY' (active), 'HARD DISK INFORMATION', 'SMART INFORMATION', 'TEST', and 'SETTINGS'. The 'SUMMARY' tab displays a 'Good' status with a green checkmark. A message states: 'No errors were detected on the hard disk. Your hard disk should be operating properly.' To the right, a table lists disk details: Hard disk model (Hitachi Deskstar TTK500), Drive capacity (298.09 GB), Hard drive health (Good), Hard drive temperature (40 °C), Test time (---), and Test result (Not tested). The sidebar includes a 'Function Search' box with a 'Keyword:' input field.

Field	Description
Summary	Displays the hard drive S.M.A.R.T. summary and the latest test result.
Hard disk information	Displays the hard drive details, e.g. model, serial number, drive capacity.
SMART information	Displays the hard drive S.M.A.R.T. Any items that the values are lower than the threshold are regarded as abnormal.
Test	To perform quick or complete hard drive S.M.A.R.T. test and display the results.
Settings	Configure the temperature alarm. When the hard drive temperature is over the preset values, the NAS records the error logs. You can also configure the quick and complete test schedule. The latest test result is shown on the Summary page.

3.2.4 Encrypted File System

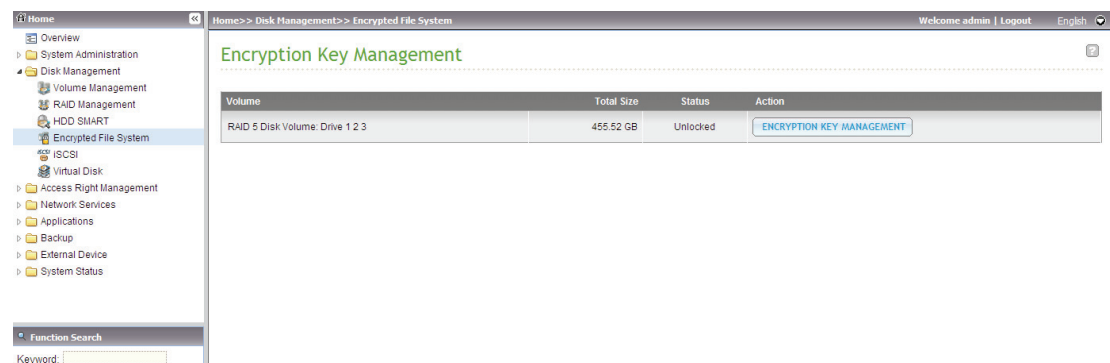
This function is applicable to certain models only. Please refer to the comparison table for more details:

http://www.qnap.com/images/products/comparison/Comparison_NAS.html

You can manage the encrypted disk volumes on the NAS on this page. Each encrypted disk volume is locked by a particular key. The encrypted volume can be unlocked by the following methods:

- Encryption Password: Enter the encryption password to unlock the disk volume. The default password is "admin". The password must be 8-16 characters long. Symbols (! @ # \$ % ^ & * () _ + = ?) are supported.
- Encryption Key File: You can upload the encryption file to the server to unlock the disk volume. The key can be downloaded from "Encryption Key Management" page after you have unlocked the disk volume successfully.

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



3.2.5 iSCSI

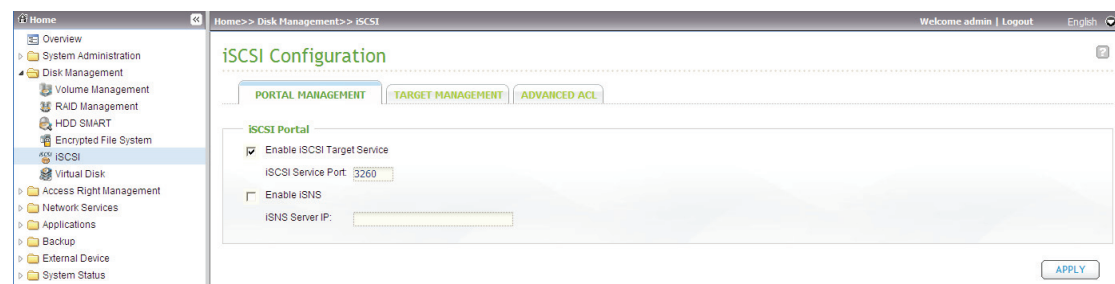
The NAS supports built-in iSCSI service for server clustering and virtualized environments.

Note: The NAS supports 8 iSCSI devices at maximum.

3.2.5.1 iSCSI Target

Follow the steps below to configure the iSCSI target service on the NAS.

6. Click the “Portal Management” tab and enable iSCSI target service. Apply the settings.



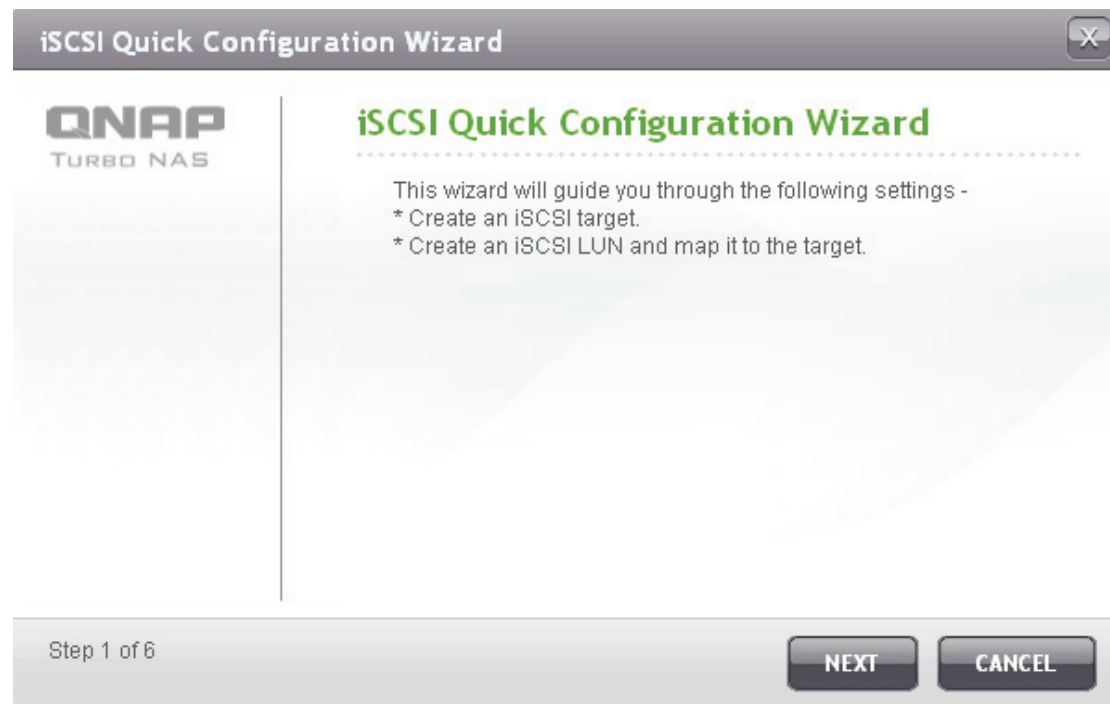
7. When the service is enabled, go to the “Target Management” tab to create iSCSI targets on the NAS.

If you have not created any iSCSI targets, the Quick Installation Wizard will show up and prompt you to create iSCSI targets and/or LUN (Logical unit number). Click “OK”.

8. When the wizard is shown, select to create an iSCSI target with a mapped LUN, an iSCSI target only, or an iSCSI LUN only. Click "Next".



9. Create iSCSI target with a mapped LUN:
Click "Next".



10. Enter the target name and target alias. You may select the options "Data Digest" and/or "Header Digest" (optional). These are the parameters that the iSCSI initiator will be verified when it attempts to connect to the iSCSI target.



The image shows a screenshot of the 'iSCSI Quick Configuration Wizard' window. The title bar at the top reads 'iSCSI Quick Configuration Wizard' with a close button on the right. The main content area is titled 'Create New iSCSI Target' in green. On the left side, there is a logo for 'QNAP TURBO NAS'. The wizard is currently at 'Step 2 of 6'. The configuration fields are as follows:

- iSCSI Target Profile**
 - Target Name:
 - iSCSI Target IQN:
 - Target Alias:
- CRC/Checksum (optional)**
 - ☐ Data Digest
 - ☐ Header Digest

At the bottom right, there are three buttons: 'BACK', 'NEXT', and 'CANCEL'. The 'NEXT' button is highlighted, indicating the next step in the wizard.

11. Enter the CHAP authentication settings. If you enter the user name and password settings under "Use CHAP authentication" only, only the iSCSI target authenticates the initiator, i.e. the initiators have to enter the user name password settings here to access the target.

Mutual CHAP: Enable this option for two-way authentication between the iSCSI target and the initiator. The target authenticates the initiator using the first set of user name and password. The initiator authenticates the target using the "Mutual CHAP" settings.

Field	User name limitation	Password limitation
Use CHAP authentication	<ul style="list-style-type: none">● The only valid characters are 0-9, a-z, A-Z● Maximum length: 256 characters	<ul style="list-style-type: none">● The only valid characters are 0-9, a-z, A-Z● Maximum length: 12-16 characters
Mutual CHAP	<ul style="list-style-type: none">● The only valid characters are 0-9, a-z, A-Z, : (colon), . (dot), and - (dash)● Maximum length: 12-16 characters	<ul style="list-style-type: none">● The only valid characters are 0-9, a-z, A-Z, : (colon), . (dot), and - (dash)● Maximum length: 12-16 characters

iSCSI Quick Configuration Wizard

QNAP
TURBO NAS

CHAP Authentication Settings

☒ Use CHAP authentication

User Name:

Password:

Re-enter Password:

☒ Mutual CHAP

User Name:

Password:

Re-enter Password:

Step 3 of 6

BACK NEXT CANCEL

12. Create an iSCSI LUN

An iSCSI LUN is a logical volume mapped to the iSCSI target. Select one of the following modes to allocate the disk space to the LUN:

- Thin Provisioning: Select this option to allocate the disk space in a flexible manner. You can allocate the disk space to the target anytime regardless of the current storage capacity available on the NAS. Over-allocation is allowed since the storage capacity of the NAS can be expanded by Online RAID Capacity Expansion.
- Instant Allocation: Select this option to allocate the disk space to the LUN instantly. This option guarantees the disk space assigned to the LUN but may take more time to create the LUN.

Enter the LUN name and specify the LUN location (disk volume on the NAS). Enter the capacity for the LUN. Click "Next".



The image shows a screenshot of the 'iSCSI Quick Configuration Wizard' window, specifically the 'Create an iSCSI LUN' step. The window has a title bar with the text 'iSCSI Quick Configuration Wizard' and a close button. On the left side, there is a logo for 'QNAP TURBO NAS'. The main area is titled 'Create an iSCSI LUN' in green text. Below the title, there are two radio buttons for 'LUN Allocation': 'Thin-Provisioning' (selected) and 'Instant Allocation'. Below this, there is a text field for 'LUN Name' containing '001'. Then, there is a dropdown menu for 'LUN Location' showing '/share/HDB_DATA' and a 'Free Size: 281.6GB' label. Finally, there is a 'Capacity' section with a slider and a text field showing '50 GB'. At the bottom of the window, there is a status bar indicating 'Step 4 of 6' and three buttons: 'BACK', 'NEXT', and 'CANCEL'.

iSCSI Quick Configuration Wizard

QNAP
TURBO NAS

Create an iSCSI LUN

LUN Allocation: ☒ Thin-Provisioning ☐ Instant Allocation ⓘ

LUN Name: 001

LUN Location: /share/HDB_DATA Free Size: 281.6GB

Capacity: 50 GB

Step 4 of 6

BACK NEXT CANCEL

13. Confirm the settings and click "Next".



The screenshot shows the 'Confirm Settings' screen of the iSCSI Quick Configuration Wizard. The window title is 'iSCSI Quick Configuration Wizard'. On the left is the QNAP TURBO NAS logo. The main area is titled 'Confirm Settings' and lists the following configuration details: Target Name: target01, Target IQN: iqn.2004-04.com.qnap:ts-809:iscsi.target01.8a000f, Target Alias: target, Data Digest: Yes, Header Digest: Yes, CHAP authentication: No, CHAP Username: one2345, Mutual CHAP authentication: Yes, Mutual CHAP Username: ddr11111, LUN Allocation: Thin-Provisioning, and LUN Name: 001. A vertical scrollbar is on the right side of the list. At the bottom, it says 'Step 5 of 6' and has three buttons: BACK, NEXT, and CANCEL.

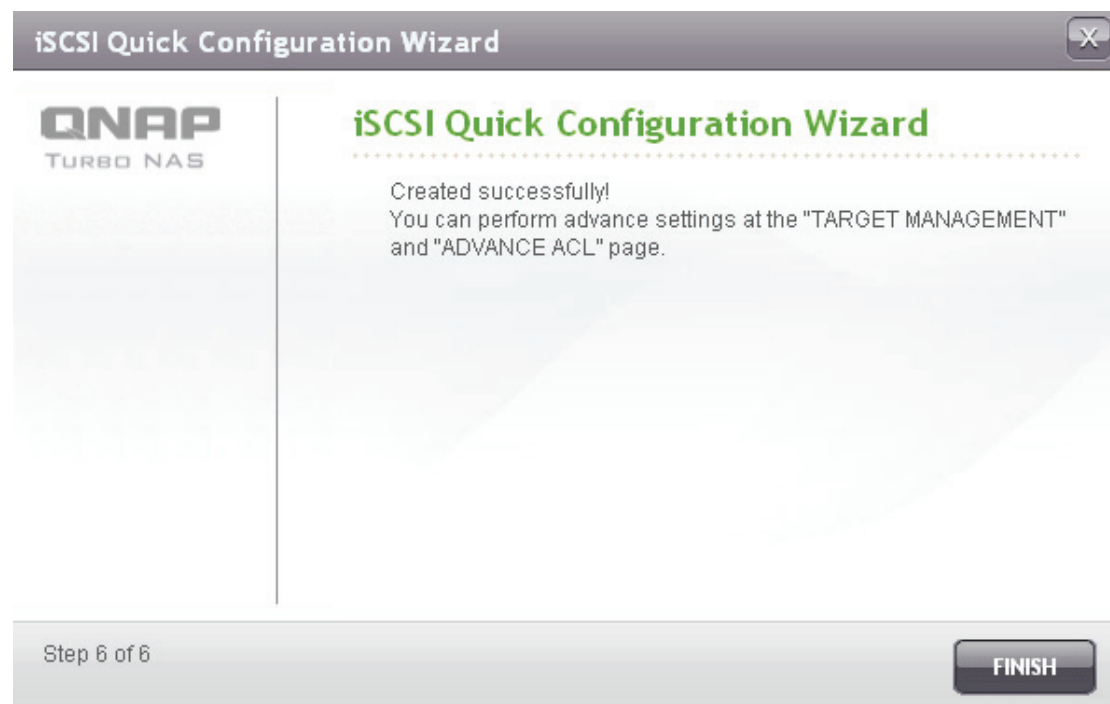
Confirm Settings

Target Name: target01
Target IQN: iqn.2004-04.com.qnap:ts-809:iscsi.target01.8a000f
Target Alias: target
Data Digest: Yes
Header Digest: Yes
CHAP authentication: No
CHAP Username: one2345
Mutual CHAP authentication: Yes
Mutual CHAP Username: ddr11111
LUN Allocation: Thin-Provisioning
LUN Name: 001

Step 5 of 6

BACK NEXT CANCEL

14. When the target and the LUN have been created, click "Finish".



The screenshot shows the final 'Success' screen of the iSCSI Quick Configuration Wizard. The window title is 'iSCSI Quick Configuration Wizard'. On the left is the QNAP TURBO NAS logo. The main area is titled 'iSCSI Quick Configuration Wizard' and contains the message: 'Created successfully! You can perform advance settings at the "TARGET MANAGEMENT" and "ADVANCE ACL" page.' At the bottom, it says 'Step 6 of 6' and has a single button: FINISH.

iSCSI Quick Configuration Wizard

Created successfully!
You can perform advance settings at the "TARGET MANAGEMENT" and "ADVANCE ACL" page.

Step 6 of 6















FINISH

15. The target and LUN are shown on the list under the "Target Management" tab.

Target Management





QUICK CONFIGURATION WIZARD Quick Configuration Wizard will assist you to create an iSCSI target and LUN.


iSCSI Target List

Alias (IQN)	Status	Action
a (iqn.2004-04.com.qnap:ts-809:iscsi.a.8a000f)	Ready	  
allen (iqn.2004-04.com.qnap:ts-809:iscsi.allen.8a000f)	Ready	  
david (iqn.2004-04.com.qnap:ts-809:iscsi.rrr.8a000f)	Ready	  
target (iqn.2004-04.com.qnap:ts-809:iscsi.target01.8a000f)	Ready	  
└ id:0 - 001 (50.00 GB)	Enabled	 

Total: 4 | Display 10 entries per page.

Un-Mapped iSCSI LUN List

Name	Capacity	Action
22	1.00 GB	 
52	281.68 GB	 

 Total: 2 | Display 10 entries per page.

Create more LUN for a target

You can create multiple LUN for an iSCSI target. Follow the steps below to create more LUN for an iSCSI target.

1. Click "Quick Configuration Wizard" under "Target Management".















iSCSI Configuration

PORTAL MANAGEMENT **TARGET MANAGEMENT** **ADVANCED ACL**

Target Management

QUICK CONFIGURATION WIZARD Quick Configuration Wizard will assist you to create an iSCSI target and LUN.

iSCSI Target List

Alias (IQN)	Status	Action
a (iqn.2004-04.com.qnap:ts-809:iscsi.a.8a000f)	Ready	  
allen (iqn.2004-04.com.qnap:ts-809:iscsi.allen.8a000f)	Ready	  
david (iqn.2004-04.com.qnap:ts-809:iscsi.rrr.8a000f)	Ready	  
target (iqn.2004-04.com.qnap:ts-809:iscsi.target01.8a000f)	Ready	  
└ id:0 - 001 (50.00 GB)	Enabled	 

Total: 4 | Display 10 entries per page.

2. Select "iSCSI LUN only" and click "Next".



The screenshot shows the "Quick Configuration Wizard" window for QNAP Turbo NAS. The title bar says "Quick Configuration Wizard" with a close button. The main area is titled "iSCSI Quick Configuration Wizard". Below the title, it says "I want to create" followed by three radio button options: "iSCSI Target with a mapped LUN", "iSCSI Target only", and "iSCSI LUN only". The "iSCSI LUN only" option is selected. At the bottom right, there are "NEXT" and "CANCEL" buttons.

3. Select the LUN allocation method. Enter the LUN name, select the LUN directory, and specify the capacity for the LUN. Click "Next".



The screenshot shows the "iSCSI Quick Configuration Wizard" window, specifically the "Create an iSCSI LUN" step. The title bar says "iSCSI Quick Configuration Wizard" with a close button. The main area is titled "Create an iSCSI LUN". Below the title, there are four fields: "LUN Allocation:" with two radio buttons, "Thin-Provisioning" (selected) and "Instant Allocation" (with an info icon); "LUN Name:" with a text box containing "002"; "LUN Location:" with a dropdown menu showing "/share/HDB_DATA" and "Free Size: 281.6GB"; and "Capacity:" with a slider and a text box showing "1 GB". At the bottom left, it says "Step 1 of 4". At the bottom right, there are "NEXT" and "CANCEL" buttons.

4. Select the target to map the LUN to. You can also select not to map the LUN for now.



The screenshot shows the 'iSCSI Quick Configuration Wizard' window, specifically the 'Map to Target (Optional)' step. The window has a title bar with the text 'iSCSI Quick Configuration Wizard' and a close button. On the left side, there is a QNAP TURBO NAS logo. The main content area is titled 'Map to Target (Optional)' in green. Below the title, there is a radio button labeled 'Do not map it to a target for now.' which is currently unselected. To the right of this radio button is a table with two columns: 'Target Alias' and 'Target ION'. The table contains four rows of data. The first row has 'a' as the alias and 'iqn.2004-04.com.qnap.ts-809:iscsi.a.8a000f' as the ION. The second row has 'allen' as the alias and 'iqn.2004-04.com.qnap.ts-809:iscsi.allen.8a000f' as the ION. The third row has 'target' as the alias and 'iqn.2004-04.com.qnap.ts-809:iscsi.target01.8a000f' as the ION, and this row is selected with a radio button. The fourth row has 'david' as the alias and 'iqn.2004-04.com.qnap.ts-809:iscsi.rrr.8a000f' as the ION. At the bottom of the window, there is a status bar that says 'Step 2 of 4' and three buttons: 'BACK', 'NEXT', and 'CANCEL'.

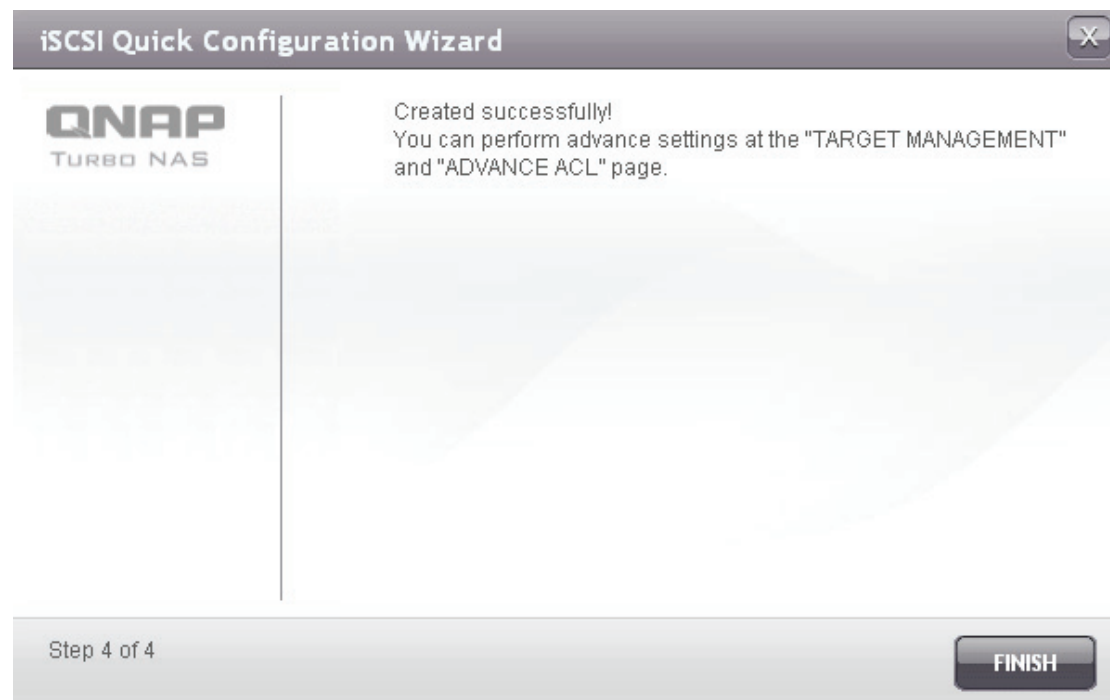
	Target Alias	Target ION
<input type="radio"/>	a	iqn.2004-04.com.qnap.ts-809:iscsi.a.8a000f
<input type="radio"/>	allen	iqn.2004-04.com.qnap.ts-809:iscsi.allen.8a000f
<input checked="" type="radio"/>	target	iqn.2004-04.com.qnap.ts-809:iscsi.target01.8a000f
<input type="radio"/>	david	iqn.2004-04.com.qnap.ts-809:iscsi.rrr.8a000f

5. Confirm the settings and click "Next".

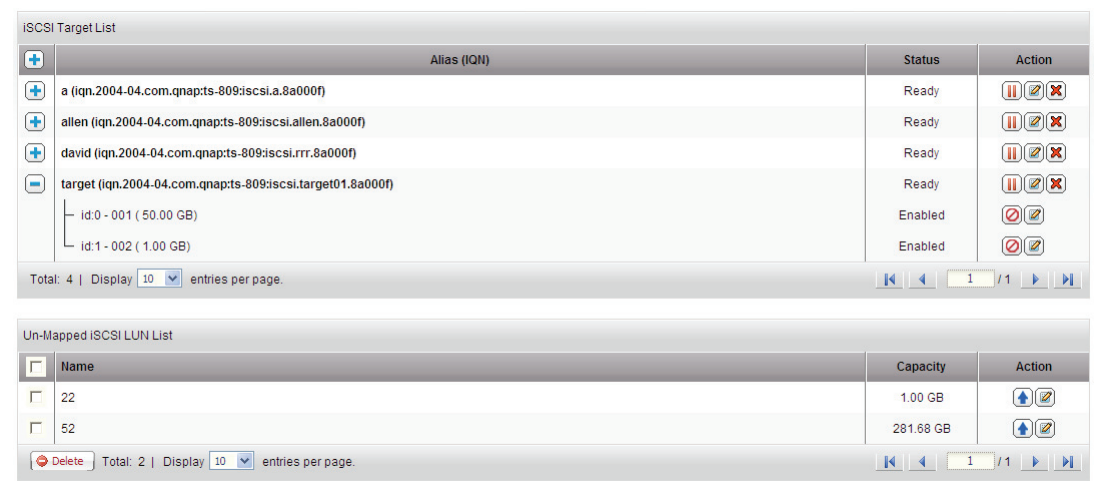


The screenshot shows the 'iSCSI Quick Configuration Wizard' window, specifically the 'Confirm Settings' step. The window has a title bar with the text 'iSCSI Quick Configuration Wizard' and a close button. On the left side, there is a QNAP TURBO NAS logo. The main content area is titled 'Confirm Settings' in green. Below the title, there is a list of settings: 'LUN Allocation: Thin-Provisioning', 'LUN Name: 002', 'LUN Location: /share/HDB_DATA', and 'LUN Capacity: 1GB'. Below these settings, there is a line that says 'Map to Target: iqn.2004-04.com.qnap.ts-809:iscsi.target01.8a000f'. At the bottom of the window, there is a status bar that says 'Step 3 of 4' and three buttons: 'BACK', 'NEXT', and 'CANCEL'.










6. When the LUN has been created, click "Finish" to exit the wizard.



7. The LUNs created can be mapped to and unmapped from the iSCSI target anytime. You can also unmap the LUN from a target and map it to another target.




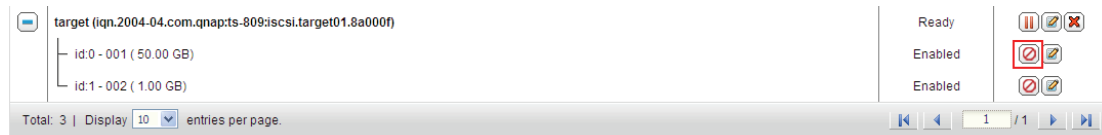
Item	Status	Description
iSCSI target	Ready	The iSCSI target is ready but no initiator has connected to it yet.
	Connected	The iSCSI target has been connected by an initiator.
	Disconnected	The iSCSI target has been disconnected
	Offline	The iSCSI target has been inactive and cannot be connected by the initiator.
LUN	Enabled	The LUN is active for connection and is visible to authenticated initiators.
	Disabled	The LUN is inactive and is invisible to the initiators.



Button	Description
	Deactivate a ready or connected target. Note that the connection from the initiators will be removed.
	Activate an offline target.
	Modify the target settings: target alias, CHAP information, and checksum settings. Modify the LUN settings: LUN allocation, name, disk volume directory, etc.
	Delete an iSCSI target. All the connections will be removed.
	Disable an LUN. All the connections will be removed.
	Enable an LUN.
	Unmap the LUN from the target. Note that you must disable the LUN first before unmapping the LUN. When you click this button, the LUN will be moved to "Un-Mapped iSCSI LUN List".
	Map the LUN to an iSCSI target. This option is only available on the "Un-Mapped iSCSI LUN List".
	View the connection status of an iSCSI target.

Switch the mapping of an LUN

Follow the steps below to switch the mapping of an LUN.

1. Select an LUN to unmap from an iSCSI target and click  (Disable).



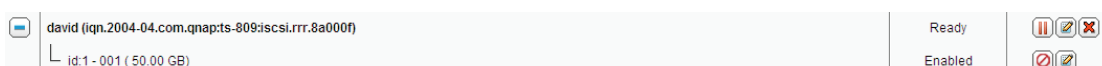
2. Next, click  to unmap the LUN. The LUN will appear on the Un-Mapped iSCSI LUN List. Click  to map the LUN to another target.

Un-Mapped iSCSI LUN List		
<input type="checkbox"/>	Name	Capacity
<input type="checkbox"/>	001	50.00 GB

3. Select the target to map the LUN to and click "Apply".



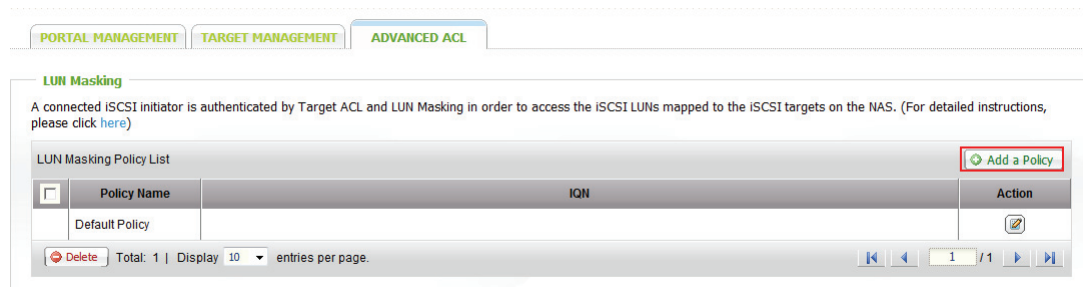
4. The LUN is mapped to the target.



After creating the iSCSI targets and LUN on the NAS, you can use the iSCSI initiator installed on your computer (Windows PC, Mac, or Linux) to connect to the iSCSI targets and LUN and use the disk volumes as the virtual drives on your computer. For the online tutorial, please refer to http://www.qnap.com/pro_features.asp.

3.2.5.2 ADVANCED ACL

You can create LUN masking policy to configure the permission of the iSCSI initiators which attempt to access the LUN mapped to the iSCSI targets on the NAS. To use this feature, click "Add a Policy" on "ADVANCED ACL".



Enter the policy name, the initiator IQN, and assign the access right for each LUN created on the NAS.

- Read-only: The connected initiator can only read the data from the LUN.
- Read/Write: The connected initiator has read and write access to the LUN.
- Deny Access: The LUN is invisible to the connected initiator.

Add a Policy


Define the LUN Masking policy for the initiator you input below.

Policy Name:

Initiator IQN:

Name	Read Only	Read/Write	Deny Access
000	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
001	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
002	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
abb	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

APPLY

If no LUN masking policy is specified for a connected iSCSI initiator, the default policy will be applied. The system default policy allows read and write access from all the connected iSCSI initiators. You can click  on the LUN masking list to edit the default policy.


Note: Make sure you have created at least one LUN on the NAS before editing the default LUN policy.

LUN Masking

A connected iSCSI initiator is authenticated by Target ACL and LUN Masking in order to access the iSCSI LUNs mapped to the iSCSI targets on the NAS. (For detailed instructions, please click [here](#))

LUN Masking Policy List

Add a Policy

<input type="checkbox"/>	Policy Name	IQN	Action
<input type="checkbox"/>	Default Policy		

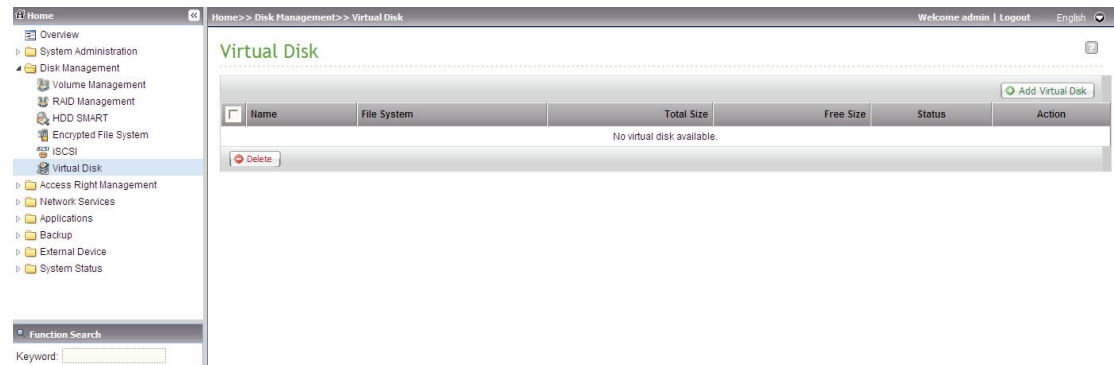
Delete

Total: 1 | Display 10 entries per page.

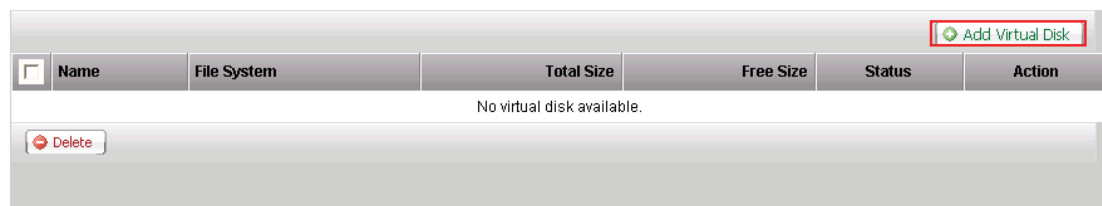
1 / 1

3.2.6 Virtual Disk

You can use this function to add the iSCSI targets of other QNAP NAS or storage servers to the NAS as the virtual disks for storage capacity expansion.



To add a virtual disk to the NAS, make sure an iSCSI target has been created. Click "Add Virtual Disk".



Enter the target server IP and port number (default: 3260). Click "Get Remote Disk". If authentication is required, enter the user name and the password. Then, click "Apply".

Add Virtual Disk

Add Virtual Disk

Target Server IP: Port :

[GET REMOTE DISK](#)

Remote Disk Device

ign.2004-04.com.qnap:SS-839:iscsi.test.AABB1A



☐ Authentication

User Name:

Password:

[APPLY](#) [CANCEL](#)

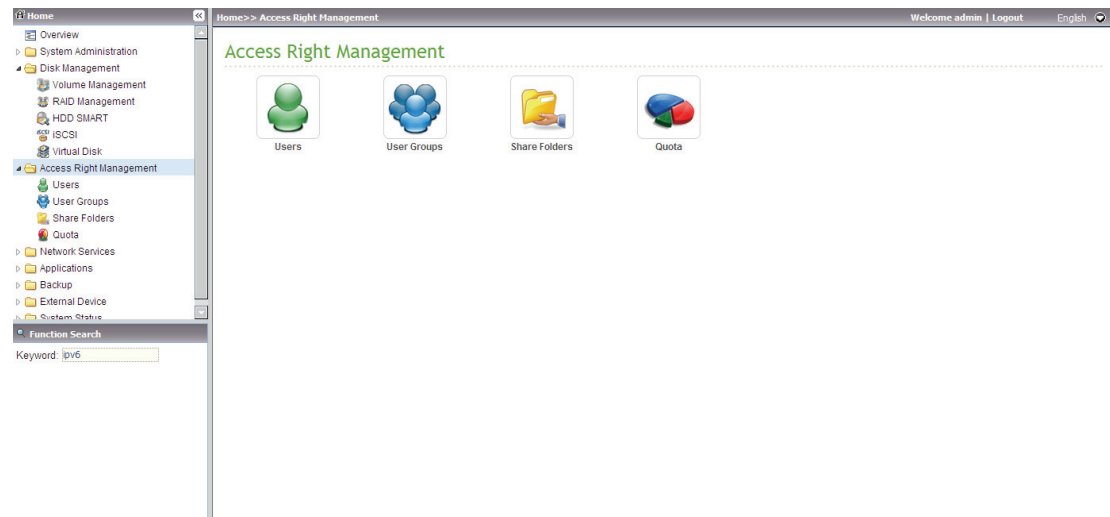
Click  to format the virtual disk.

Add Virtual Disk						
<input type="checkbox"/>	Name	File System	Total Size	Free Size	Status	Action
<input type="checkbox"/>	VirtualDisk1	Unknown	5 GB	0 MB	Unmounted	 
Delete						

When the status of the virtual disk is "Ready", you can start to use the virtual disk as a disk volume of the NAS. The NAS supports maximum 8 virtual disks.

3.3 Access Right Management

The files on the NAS can be shared among multiple users. For easier management and better control of users' access right, you have to organize the users, user groups and their access right control.



3.3.1 Users

The NAS has created the following users by default:

- **admin**
By default, the administrator "admin" has the access right to the system administration and cannot be deleted.
- **guest**
This is a built-in user and will not be displayed on the "User Management" page.
A guest does not belong to any user group. The login password for the guest is "guest".
- **anonymous**
This is a built-in user and will not be displayed on the "User Management" page.
When you connect to the server by the FTP service, you can use this name to login as a guest.

The number of users you can create on the NAS varies according to the NAS models.

Please refer to

http://www.qnap.com/images/products/comparison/Comparison_NAS.html for further information.

The following information is required to create a new user:

✓ **User name**

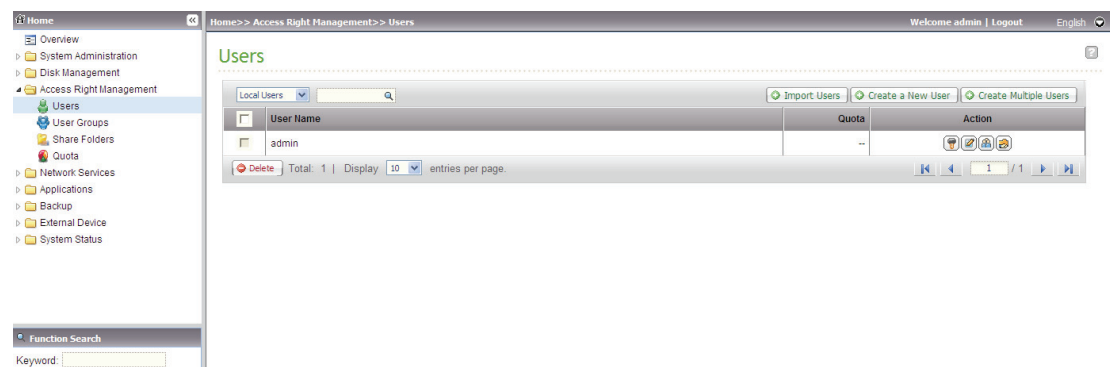
The user name must not exceed 32 characters. It is case-insensitive and supports double-byte characters, such as Chinese, Japanese, and Korean.

The invalid characters are listed below:

" / \ [] : ; | = , + * ? < > ` ' .

✓ **Password**

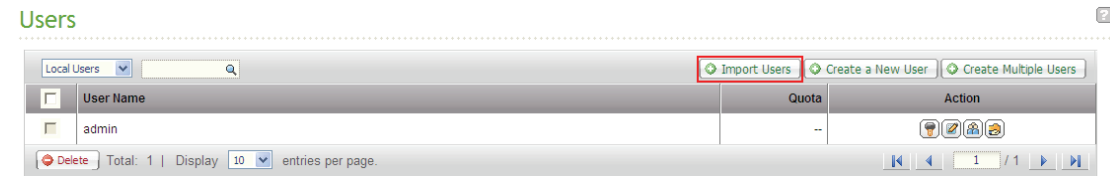
The password is case-sensitive and supports maximum 16 characters. It is recommended to use a password of at least 6 characters.



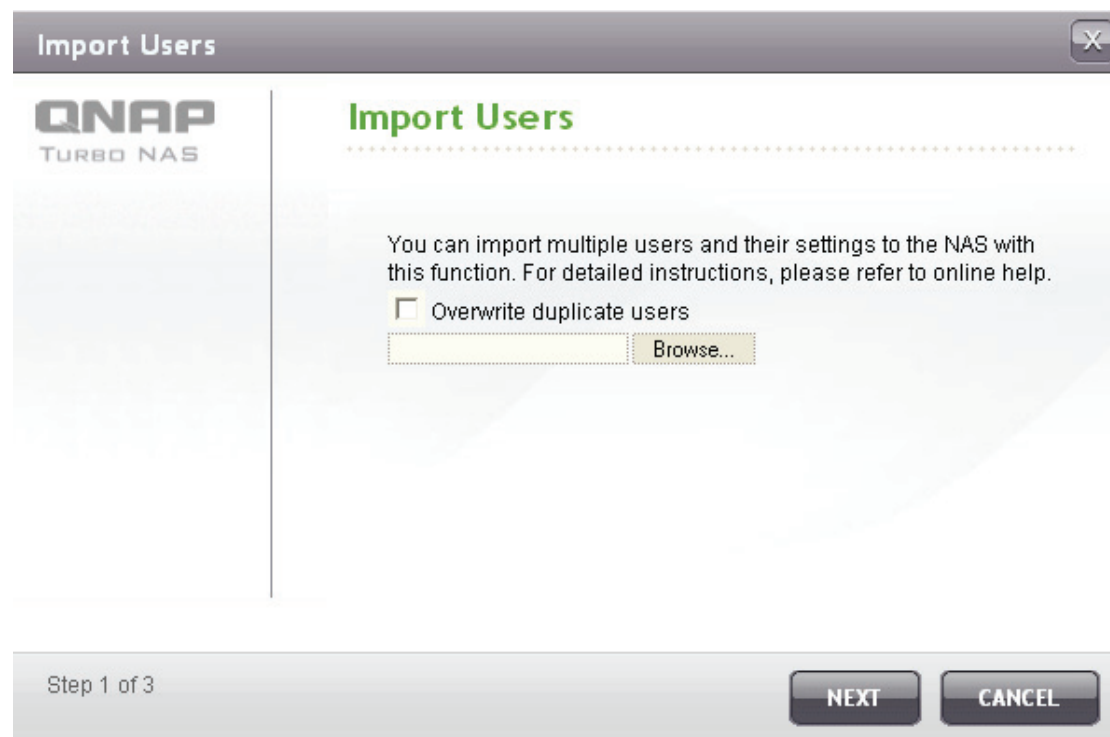
Import Users

You can import multiple user accounts to the NAS with this feature. To import multiple users, follow the steps below:

1. Click "Import Users".



2. Select the option "Overwrite duplicate users" if you want to replace the existing users.
3. Select the file of users and click "Next".



4. A list of imported users will be shown. Abnormal or incorrect entries will be skipped. Click "Next".

Import Users

Import User Preview

User Name	Password	Quota	Group Name	Status
test	test	2000	test	--
user01	user01	2000	test	--
user02	user02	2000	test	--
user03	user03	No limit	test	--
user04	user04	2000	test	--
user05	user05	2000	test	--
--	user06	2000	test	Please enter User Name.
user07	user07	2000	test	--

Step 2 of 3

BACK

NEXT

CANCEL

5. The imported user accounts will be shown.

























Users

Local Users

Import Users

Create a New User

Create Multiple Users

User Name	Quota	Action
admin	--	  
test	--	  
user01	--	  
user02	--	  
user03	--	  
user04	--	  
user05	--	  
user07	--	  

Delete

Total: 8 | Display 10 entries per page.

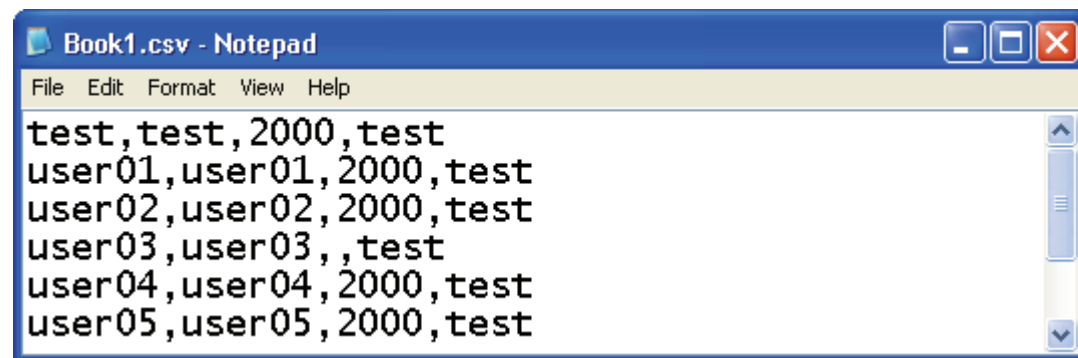
1 / 1

The NAS supports importing the user accounts from txt or csv files. To create a list of user accounts with these file types, follow the steps below.

txt

1. Open a new file with a text editor.
2. Enter a user's information in the following order and separate them by ",":
Username, Password, Quota (MB), Group Name
3. Go to the next line and repeat the previous step to create another user account.
Each line indicates one user's information.
4. Save the file in **UTF-8 encoding** if it contains double-byte characters.

An example is shown as below. Note that if the quota is left empty, the user will have no limit in using the disk space of the NAS.



csv (Excel)

1. Open a new file with Excel.
2. Enter a user's information in the same row in the following order:
Column A: Username
Column B: Password
Column C: Quota(MB)
Column D: Group name
3. Go to the next row and repeat the previous step to create another user account.
Each row indicates one user's information. Save the file in csv format.
4. Open the csv file with Notepad and save it in **UTF-8 encoding** if it contains double-byte characters.

An example is shown as below:

	A	B	C	D
1	test	test	2000	test
2	user01	user01	2000	test
3	user02	user02	2000	test
4	user03	user03		test
5	user04	user04	2000	test
6	user05	user05	2000	test

3.3.2 User Groups

A user group is a collection of users with the same access right to the files or folders.

The NAS has created the following user groups by default:

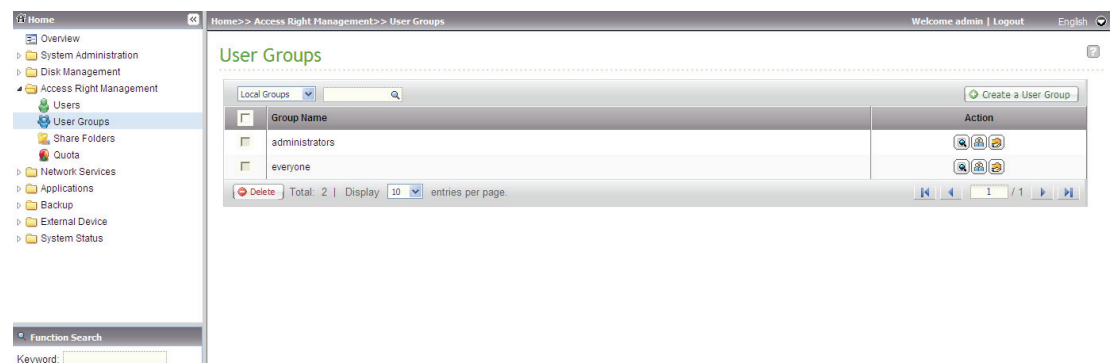
- **administrators**
All the members in this group have the administration right of the NAS. You cannot delete this group.
- **everyone**
All the registered users belong to the everyone group. You cannot delete this group.

The number of user groups you can create on the NAS varies according to the NAS models. Please refer to

http://www.qnap.com/images/products/comparison/Comparison_NAS.html for further information.

A group name must not exceed 256 characters. It is case-insensitive and supports double-byte characters, such as Chinese, Japanese, and Korean, except the following ones:

" / \ [] : ; | = , + * ? < > ` ' .



3.3.3 Share Folders

3.3.3.1 Share Folder

You can create different network share folders for various types of files, and provide different file access rights to the users or user groups.

The number of share folders you can create on the NAS varies according to the NAS models. Please refer to

http://www.qnap.com/images/products/comparison/Comparison_NAS.html for further information.

The screenshot shows the QNAP web interface for managing share folders. The main content area is titled 'Share Folders' and contains a table with the following data:

Folder Name	Size	Folders	Files	Hidden	Action
Network Recycle Bin 1	4 KB	0	0	No	[Icons]
Public	4 KB	0	0	No	[Icons]
Qdownload	12 KB	5	1	No	[Icons]
Qmultimedia	8 KB	3	0	No	[Icons]
Qrecordings	4 KB	0	0	No	[Icons]
Qusb	4 KB	0	0	No	[Icons]
Qweb	17 MB	803	5901	No	[Icons]

At the bottom of the table, it says 'Total: 7 | Display 10 entries per page.' The interface also includes a sidebar with navigation options and a top navigation bar.

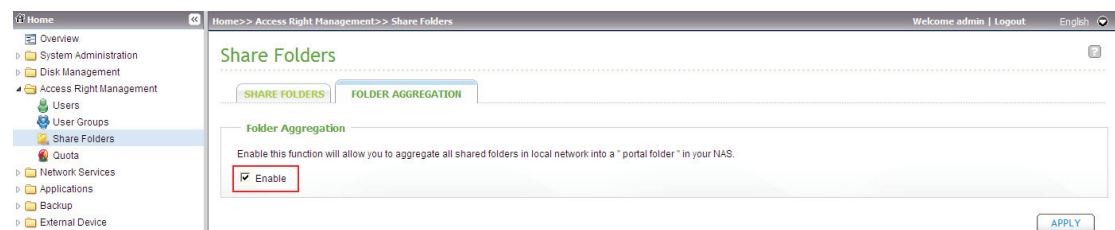
3.3.3.2 Folder Aggregation

You can aggregate the share folders on the Microsoft network as a portal folder on the NAS and let the NAS users access the share folders through your NAS. Up to 10 share folders can be linked to a portal folder.

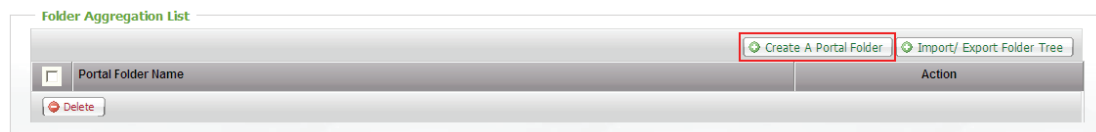
Note: This function is supported only in Microsoft networking service.

To use this function, follow the steps below.

1. Enable folder aggregation.




2. Click "Create A Portal Folder".



3. Enter the portal folder name. Select to hide the folder or not, and enter an optional comment for the portal folder.

The screenshot shows a dialog box titled 'Create A Portal Folder'. On the left is the QNAP TURBO NAS logo. The main area has the title 'Create A Portal Folder' and three fields: 'Folder Name' with the value 'Shares' and a green checkmark icon, 'Hide Folder:' with radio buttons for 'Yes' and 'No' (the 'No' button is selected), and a 'Comment:' text area. At the bottom left, it says 'Step 1 of 1'. At the bottom right are 'APPLY' and 'CANCEL' buttons.

- Click  and enter the remote folder settings. Make sure the share folders are open for public access.

Note: If there is permission control on the share folders, you need to join the NAS and the remote servers to the same AD domain.

Folder Aggregation List

☐ Portal Folder Name
 ☐ Shares

Remote Folder Link

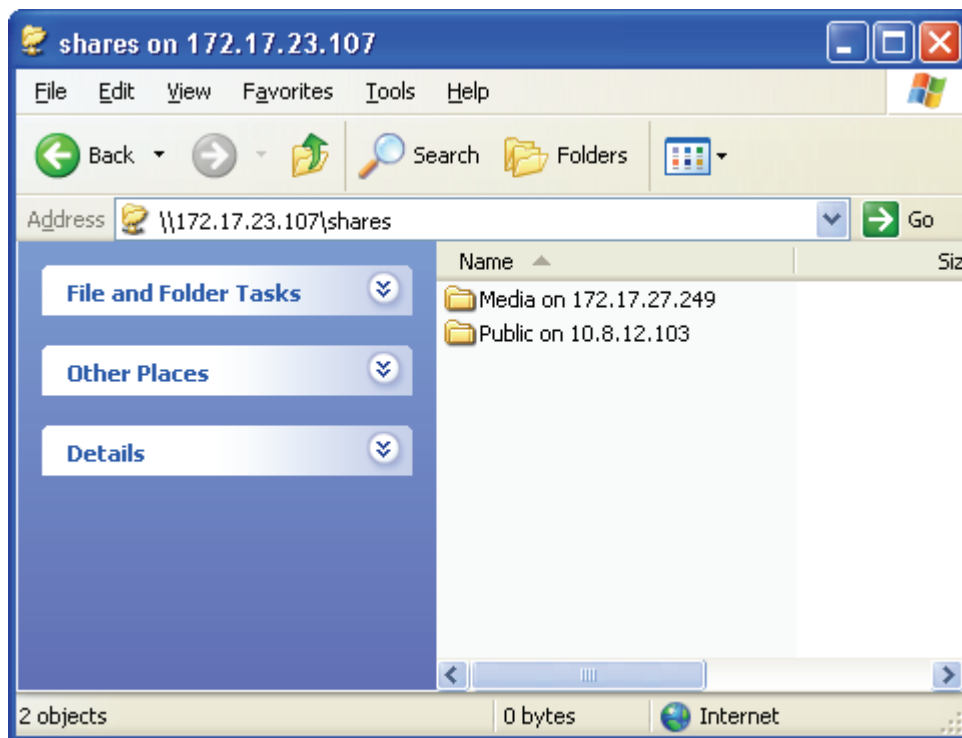
Remote Folder Link

Portal Folder Name: Shares

Link	Name	Host Name	Remote Share Folder
1	Public on 10.8.12.103	10.8.12.103	Public
2	Media on 172.17.27.249	172.17.27.249	Media
3			
4			
5			
6			
7			
8			
9			
10			

Step 1 of 1

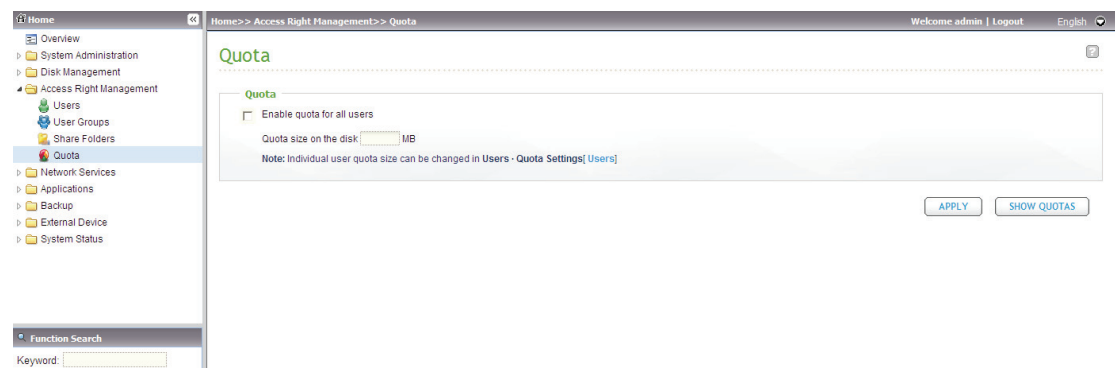
5. Upon successful connection, you can access the remote folders through the NAS.



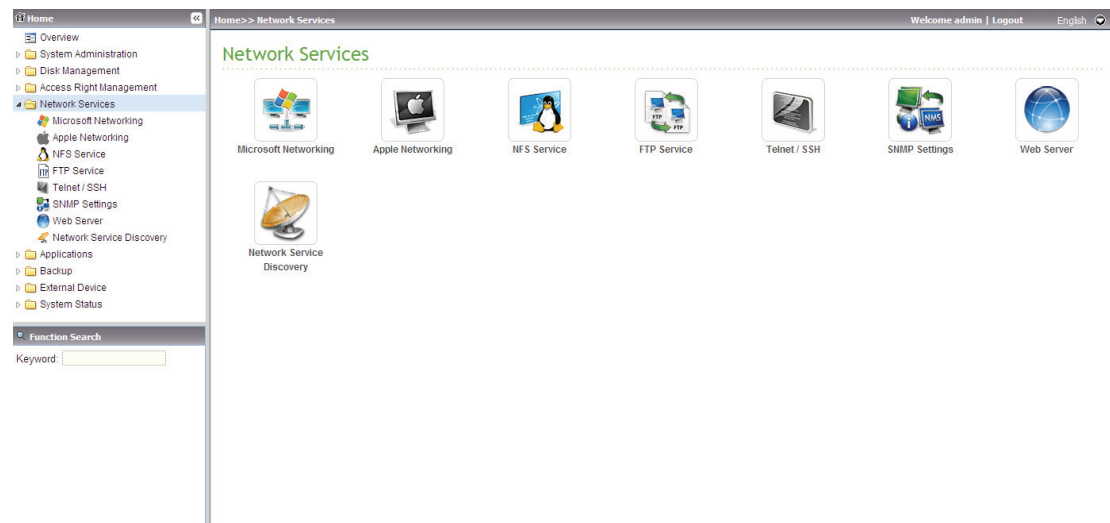
3.3.4 Quota

To allocate the disk volume efficiently, you can specify the quota that can be used by each user. When this function is enabled and a user has reached the disk quota, the user cannot upload any data to the server anymore. By default, no limitations are set for the users. You can modify the following two options:

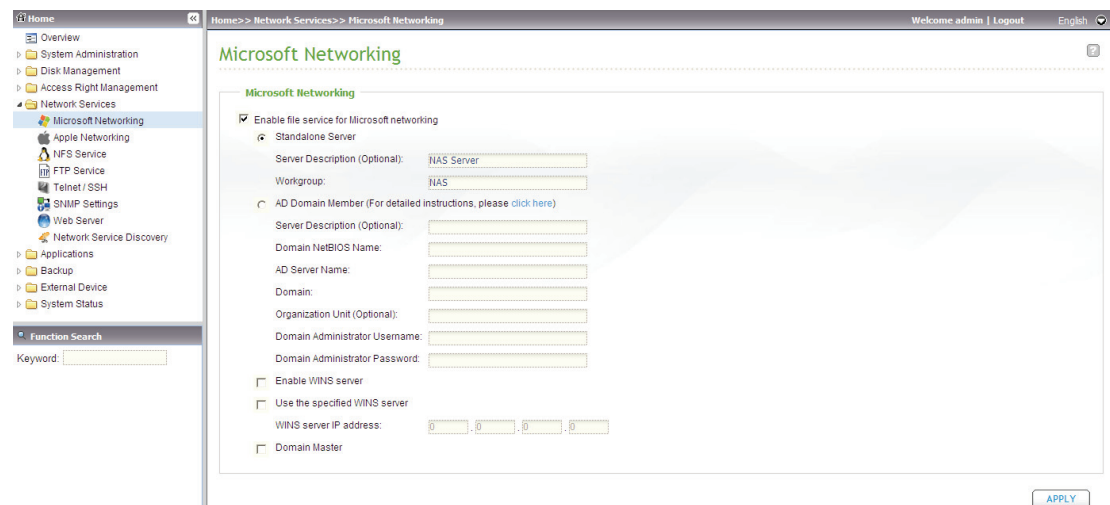
- ✓ Enable quota for all users
- ✓ Quota size on each disk volume



3.4 Network Services



3.4.1 Microsoft Networking



Enable file service for Microsoft networking: If you are using Microsoft Windows, enable this service to access the files on the network share folders. Assign a workgroup name.

✓ **Standalone Server**

Use local users for user authentication.

✓ **AD Domain Member**

The NAS supports Windows 2003 AD (Active Directory) to provide quick and direct import of the user accounts to the existing AD server available on your

network. This function helps you save the time and effort on creating the user accounts and passwords and lowers the IT maintenance cost by automatic configuration procedure.

➤ **Server Description**

Describe the NAS for the users to identify the server. To use the NAS on the Microsoft Windows OS, you must enable Microsoft Network Services.

➤ **Workgroup**

Specify the workgroup the NAS belongs to. The workgroup is a computer group unit on Microsoft Windows network for network sharing.

➤ **AD Server Name**

Enter the name of the AD server when the AD domain is selected for authentication.

➤ **Domain Name**

The name of the Microsoft domain. When you select AD domain, you must enter the domain name, the login user name, and the password.

✓ **WINS server**

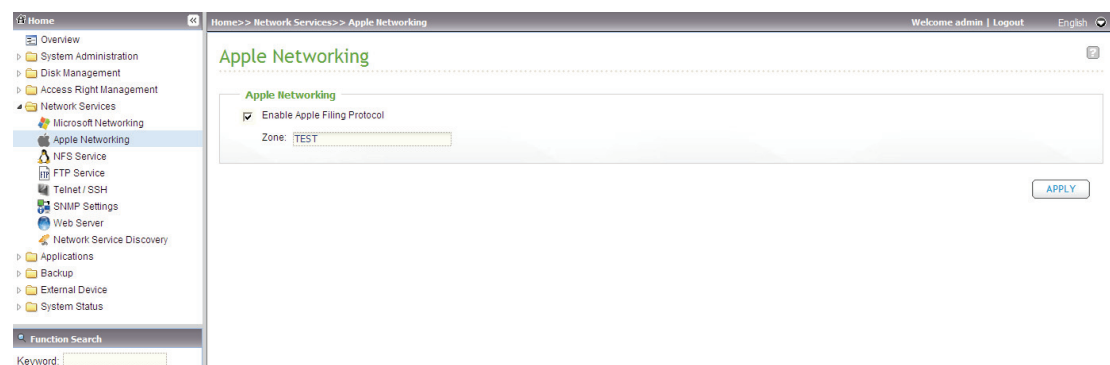
If the local network has a WINS server installed, specify the IP address. The NAS will automatically register its name and IP address with WINS service. If you have a WINS server on your network and want to use this server, enter the WINS server IP.

✓ **Domain Master**

There is a unique Domain Master Browser for collecting and recording resources and services available for each PC on the network or a workgroup of Windows. When you find the waiting time for accessing the Network Neighborhood/ My Network Places too long, it may be caused by failure of an existing master browser or a missing master browser on the network. If there is no master browser on your network, select the option "Domain Master" to configure the NAS as the master browser to enhance the speed of accessing the information on Network Neighborhood/ My Network Places.

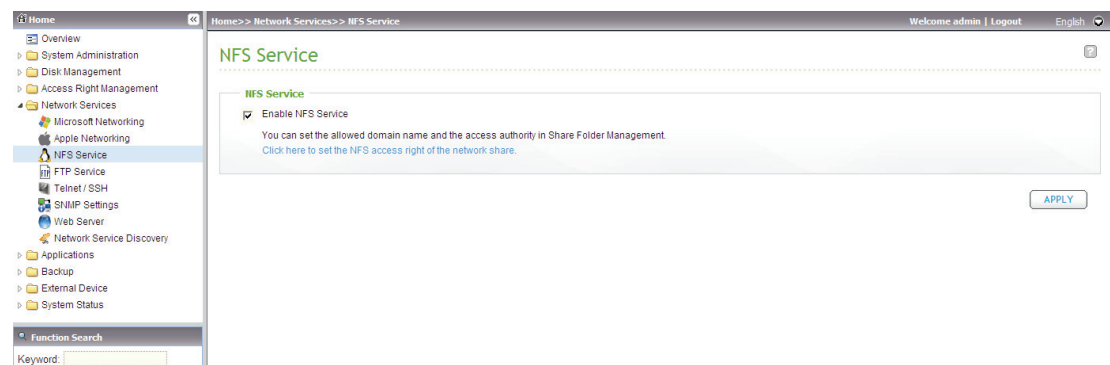
3.4.2 Apple Networking

To access the NAS from Mac, enable Apple Filing Protocol. If your AppleTalk network uses extended networks and is assigned with multiple zones, assign a zone name to the NAS. If you do not want to assign a network zone, enter an asterisk (*) to use the default setting. This setting is disabled by default.



3.4.3 NFS Service

To access the NAS from Linux, enable the NFS service. For the information of connecting to the NAS via NFS on Linux, please refer to Chapter 9.



3.4.4 FTP Service

When you enable the FTP service, you can define the port number for the service and the maximum number of users connected to the FTP at the same time.

The screenshot shows the 'FTP Service' configuration page. On the left is a navigation menu with categories like System Administration, Network Services, and Applications. The 'FTP Service' option is selected. The main content area has a title bar 'Home >> Network Services >> FTP Service' and a user greeting 'Welcome admin | Logout'. The configuration is divided into three sections: 1. 'Enable FTP Service' with checkboxes for 'FTP (standard)' (checked) and 'FTP with SSL/TLS (Explicit)', a 'Port Number' field set to 21, and radio buttons for 'Unicode Support' (set to 'No') and 'Enable Anonymous' (set to 'No'). A note explains that 'No' for Unicode requires selecting a filename encoding. 2. 'Connection' section with fields for 'Maximum Number of all FTP connections' (30) and 'Maximum Number of Connections For a Single Account' (10), and an 'Enable FTP transfer limitation' checkbox with fields for 'Maximum upload rate (KB/s)' and 'Maximum download rate (KB/s)'. 3. 'Advanced' section with radio buttons for 'Passive FTP Port Range' (set to 'Use the default port range(5536 - 5559)') and 'Define port range' (5530 - 5560), and a checkbox for 'Respond with external IP address for passive FTP connection request' with an 'External IP address' field. An 'APPLY' button is at the bottom right.

To use the FTP service of the NAS, enable this function. Open an IE browser and enter `ftp://NAS IP`. Enter the user name and the password to login the FTP service.

✓ Select Protocol Type

Select to use standard FTP connection or SSL/TLS encrypted FTP. Select the corresponding protocol type in your client FTP software to ensure successful connection.

"SFTP" requires SSH to be enabled. Only the "admin" user account can access the NAS via SFTP.

✓ Unicode Support

Select to enable or disable Unicode Support. The default setting is No. Since most FTP clients do not support Unicode currently, it is recommended that you disable Unicode support here and select the same language as your OS in "General Settings" > "Language" so that the folders and files on the FTP can be properly shown. If your FTP client supports Unicode, make sure you have enabled Unicode support for both your client and the NAS.

✓ Anonymous Login

You can enable anonymous login to allow anonymous access to the FTP server of the NAS. The users can access the files and folders which are opened for

public access. If this option is disabled, the users must enter an authorized user name and password to access the server.

✓ **Passive FTP Port Range**

You can use the default port range (55536-56559) or define a port range larger than 1023. When using this function, make sure you have opened the ports on your router or firewall.

✓ **FTP Transfer Limitation**

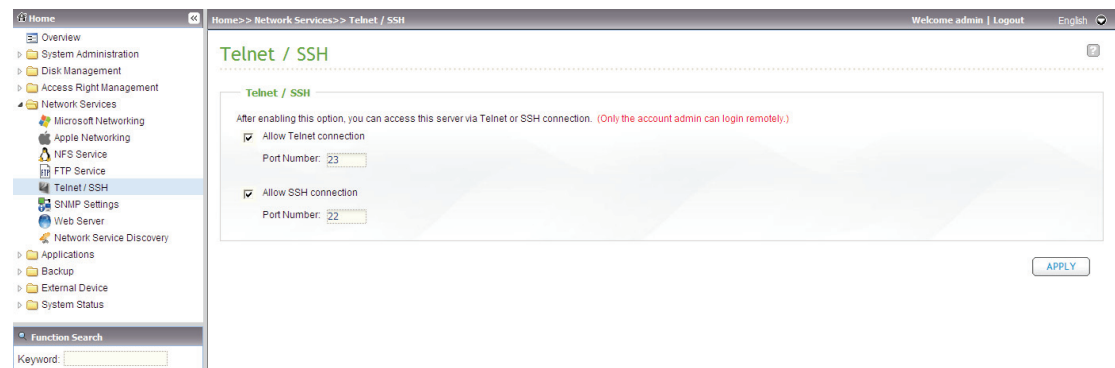
You can configure the maximum number of FTP connections, maximum connections of a single account and the maximum upload/ download rates of a single connection.

✓ **Respond with external IP address for passive FTP connection request**

When passive FTP connection is in use, the FTP server is configured under a router, and the remote computer cannot connect to the FTP server over the WAN, enable this function. By enabling this function, the FTP service replies the manually specified IP address or automatically detects the external IP address so that the remote computer is able to connect to the FTP server.

3.4.5 Telnet/SSH

After enabling this option, you can access this server via Telnet or SSH encrypted connection (only the account “admin” can login remotely). You can use certain Telnet or SSH connection clients for connection, e.g. putty. Make sure you have opened the corresponding ports on your router or firewall when using this function.



3.4.6 SNMP Settings

You can enable SNMP (Simple Network Management Protocol) service on the NAS and enter the trap address of the SNMP management stations (SNMP manager), e.g. PC with SNMP software installed. When an event, warning, or error occurs on the NAS, the NAS (as an SNMP agent) reports the real-time alert to the SNMP management stations.

The fields are described as below:

Field	Description
SNMP Trap Level	Select the kind of information to be sent to the SNMP management stations.
Trap Address	The IP address of the SNMP manager. You can enter up to 3 trap addresses.
SNMP MIB (Management Information Base)	The MIB is a type of database in ASCII text format used to manage the NAS in the SNMP network. The SNMP manager uses the MIB to determine the values or understand the messages sent from the agent (NAS) within the network. You can download the MIB and view it with any word processor or text editor.
Community (SNMP V1/V2)	An SNMP community string is a text string that acts as a password. It is used to authenticate messages that are sent between the management station and the NAS. The community string is included in every packet that is transmitted between the SNMP manager and the SNMP agent.
SNMP V3	The NAS supports SNMP version 3. You can enter the authentication and privacy settings if available.

Home

Overview

System Administration

Disk Management

Access Right Management

Network Services

Microsoft Networking

Apple Networking

NFS Service

FTP Service

Telnet / SSH

SNMP Settings

Web Server

Network Service Discovery

Applications

Backup

External Device

System Status

Function Search

Keyword

Home>> Network Services>> SNMP Settings

Welcome admin | LogoutEnglish

SNMP Settings

SNMP

After enabling this service, the NAS will be able to report information via SNMP to the managing systems.

Enable SNMP Service

Port Number:161

SNMP Trap Level:☒ Information ☐ Warning ☐ Error

Trap Address 1:192.0.255.1

Trap Address 2:172.17.20.1

Trap Address 3:172.17.20.0

SNMP Version:SNMP V1/V2

Community: Public

APPLY

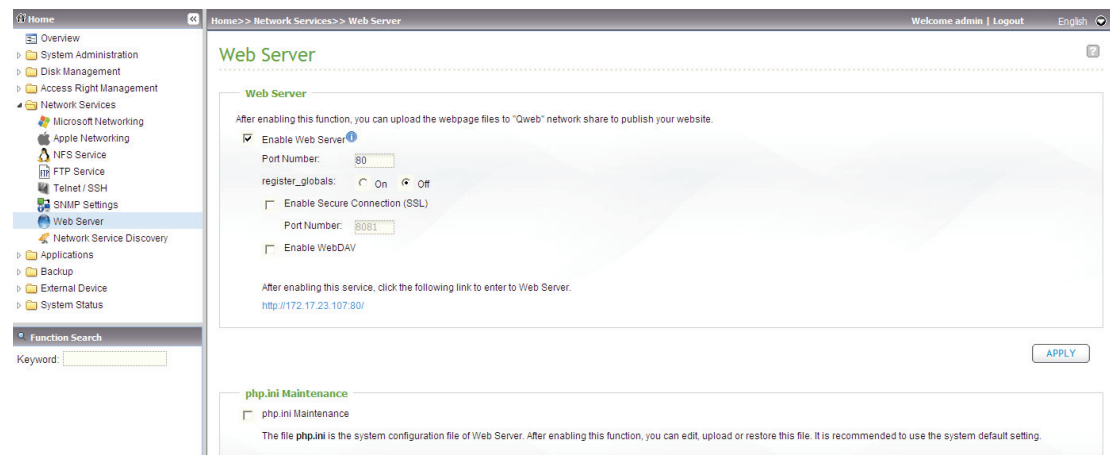
SNMP MIB

To install the MIB to your managing systems, click [Download].

DOWNLOAD

3.4.7 Web Server

The NAS enables you to upload the web pages and manage your own website easily by the Web Server. It also supports PHP and MySQL/ SQLite for you to establish an interactive website.



To use the Web Server, follow the steps below.

1. Enable the service and enter the port number. The default number is 80.

2. Configure other settings:

- **Configure register_globals**

Select to enable or disable register_globals. The setting is disabled by default. When the web program prompts you to enable php register_globals, enable this option. However, for system security concerns, it is recommended to disable this option.

- **php.ini Maintenance**

Select the option "php.ini Maintenance" and select to upload, edit or restore php.ini.

Note: To use the PHP mail() function, you can go to "System Administration" > "Notification" > "Configure SMTP Server" to configure the SMTP server settings.

- **Secure Connection (SSL)**


Enter the port number for SSL connection.

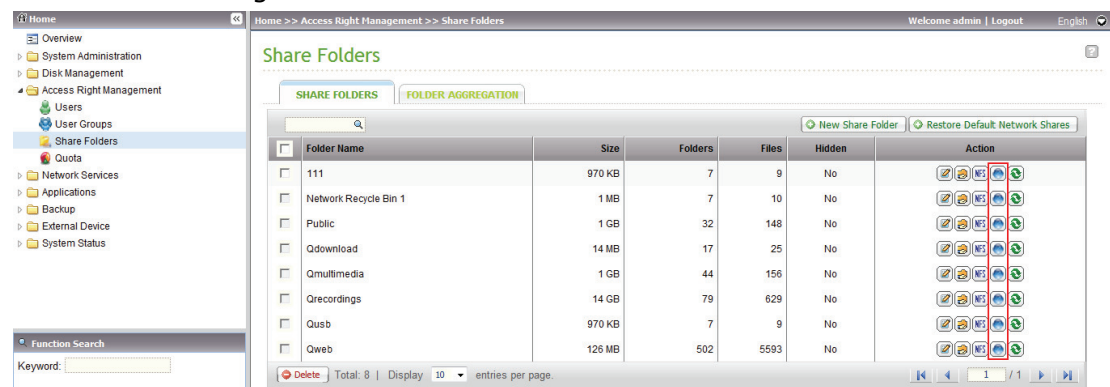
3. Upload the HTML files to the share folder (Qweb/ Web) on the NAS. The file index.html, index.htm or index.php will be the home path of your web page.
4. You can connect to the web page by entering http://NAS IP/ in the web browser.
Note that when the Web Server is enabled, you have to enter http://NAS IP:8080 in your web browser to connect to the login page of the NAS.









3.4.7.1 WebDAV

WebDAV (Web-based Distributed Authoring and Versioning) is a set of extensions to the HTTP(S) protocol that allows the users to edit and manage the files collaboratively on the remote World Wide Web servers. After enabling this function, you can map the share folders of your NAS as the network drives of a remote PC over the Internet. To edit the access right settings, go to "Access Right Management" > "Share Folders" page.

To map a share folder on the NAS as the network drive of your PC, enable WebDAV on the NAS and follow the steps below.

Go to "Access Right Management" > "Share Folders" > "Share Folder". Click the "WebDAV Access Control" button  in the "Action" column, and set up the WebDAV access right of the users to the share folders.

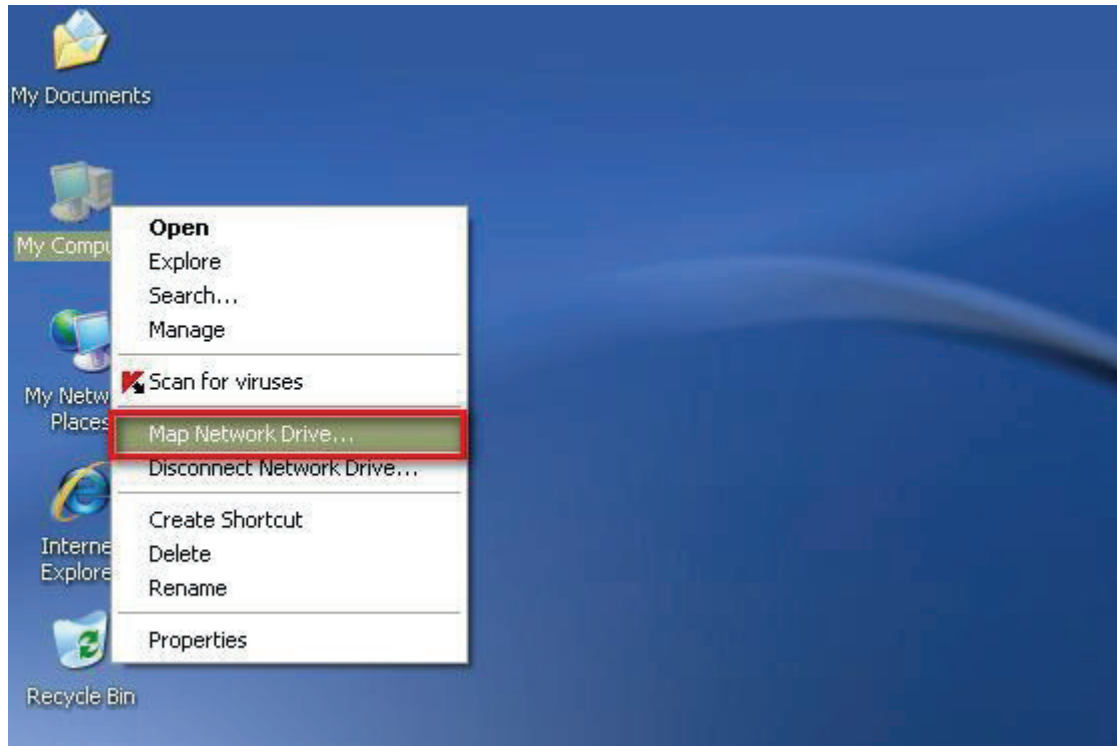


Folder Name	Size	Folders	Files	Hidden	Action
111	970 KB	7	9	No	
Network Recycle Bin 1	1 MB	7	10	No	
Public	1 GB	32	148	No	
Qdownload	14 MB	17	25	No	
Qmultimedia	1 GB	44	156	No	
Qrecordings	14 GB	79	629	No	
Qusb	970 KB	7	9	No	
Qweb	126 MB	502	5593	No	

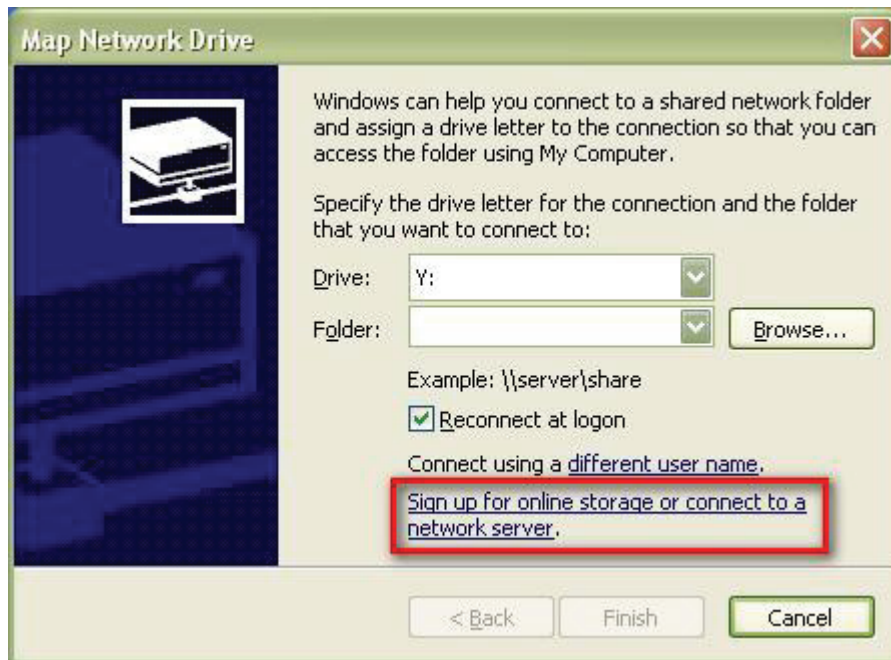
Next, mount the network share folders of the NAS as the network shares on your operating systems by WebDAV.

Windows XP:

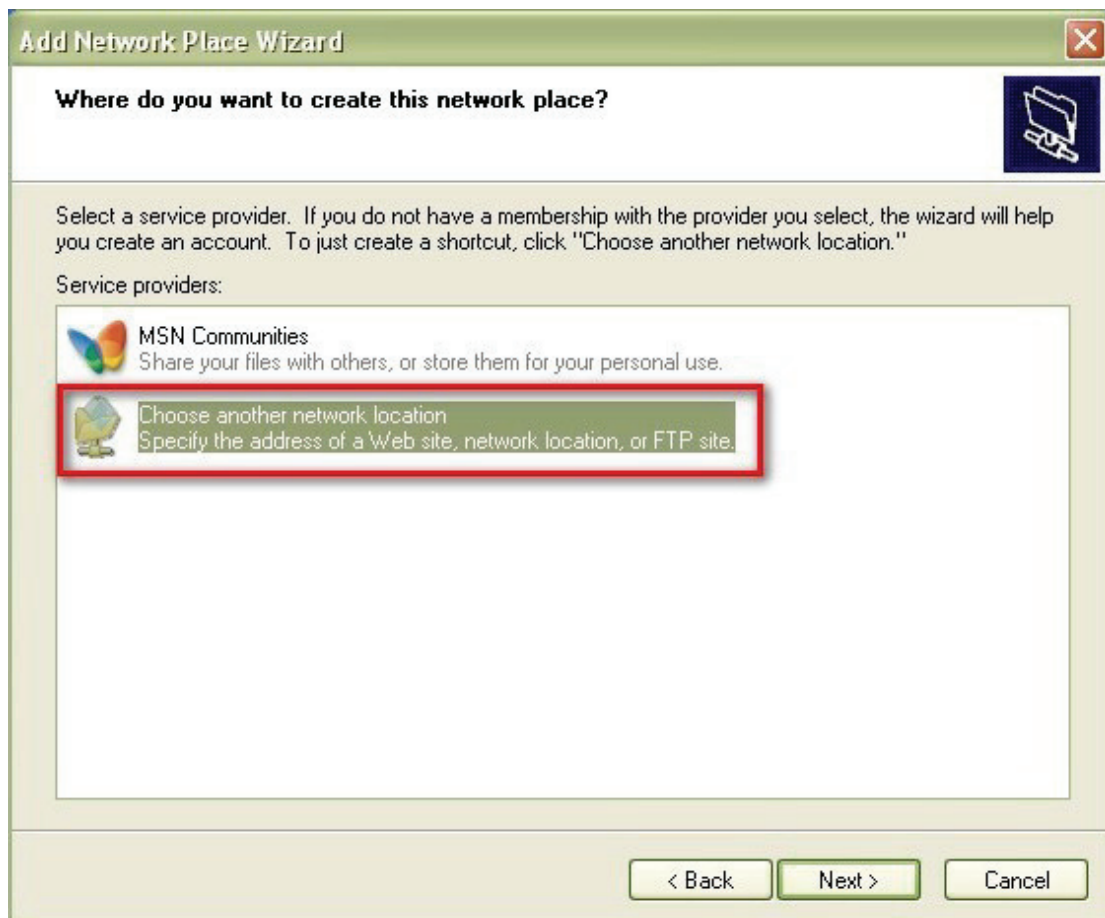
1. Right click "My Computer" and select "Map Network Drive..."



2. Click "Sign up for online storage or connect to a network server".

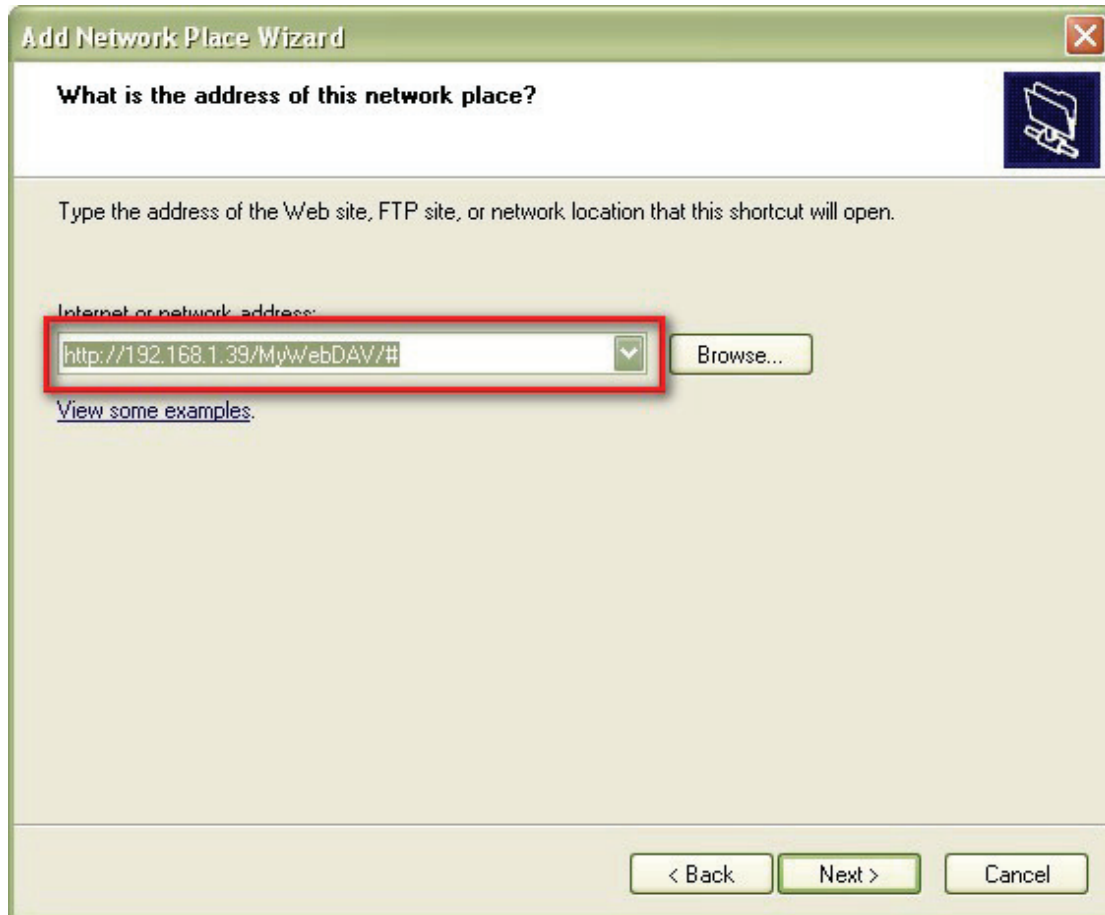


3. Select "Choose another network location".



4. Enter the URL of your NAS with the share folder name. Note that you should put the “#” at the end of the URL. Click “Next”.

Format: `http://NAS_IP_or_HOST_NAME/SHARE_FOLDER_NAME/#`



Add Network Place Wizard

What is the address of this network place?

Type the address of the Web site, FTP site, or network location that this shortcut will open.

Internet or network address:

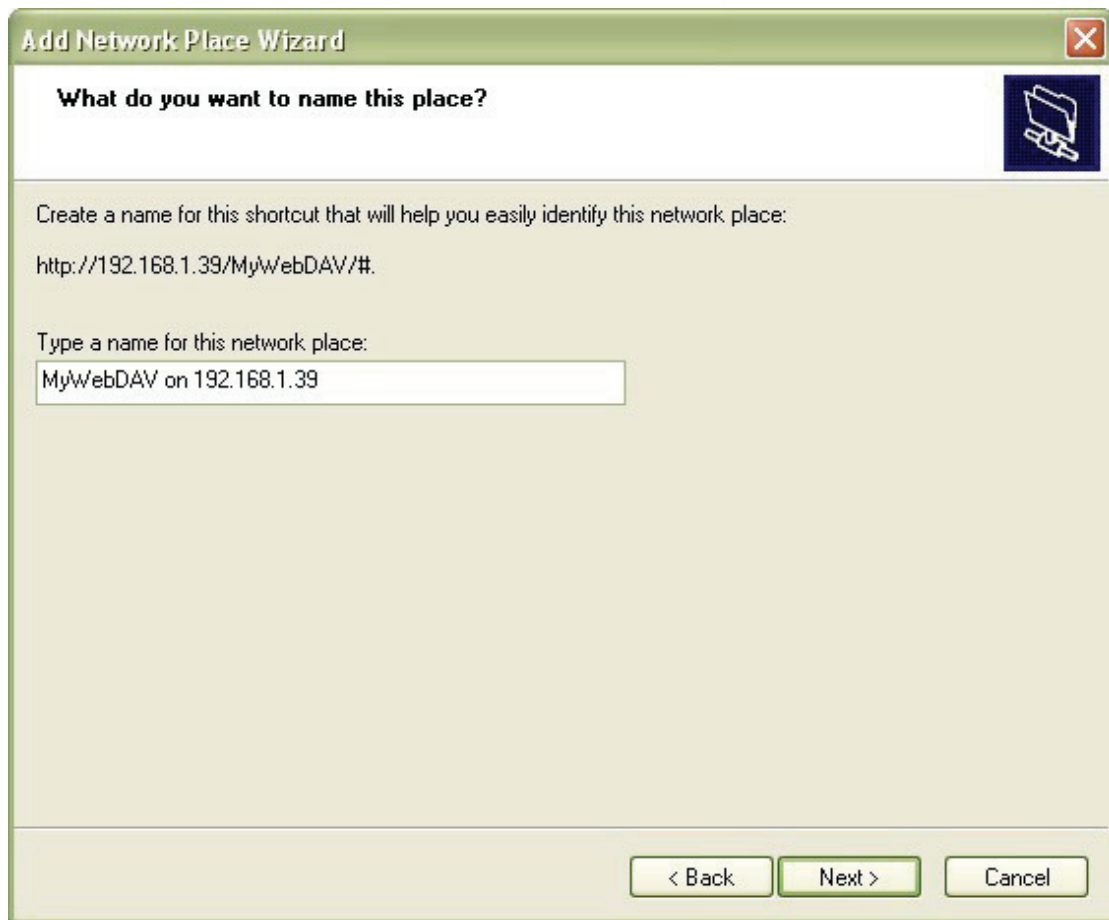
Browse...

[View some examples.](#)

< Back Next > Cancel

5. Enter the user name and its password which has the WebDAV privilege to connect to the share folder.

6. Type a name for this network place.



The image shows a Windows XP-style dialog box titled "Add Network Place Wizard". The title bar is green with a close button (X) on the right. The main area has a light beige background. At the top, a white header bar contains the text "What do you want to name this place?" and a small blue icon of a folder with a plus sign. Below this, the text "Create a name for this shortcut that will help you easily identify this network place:" is followed by the URL "http://192.168.1.39/MyWebDAV/#.". Then, the text "Type a name for this network place:" is followed by a text input field containing "MyWebDAV on 192.168.1.39". At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

Add Network Place Wizard

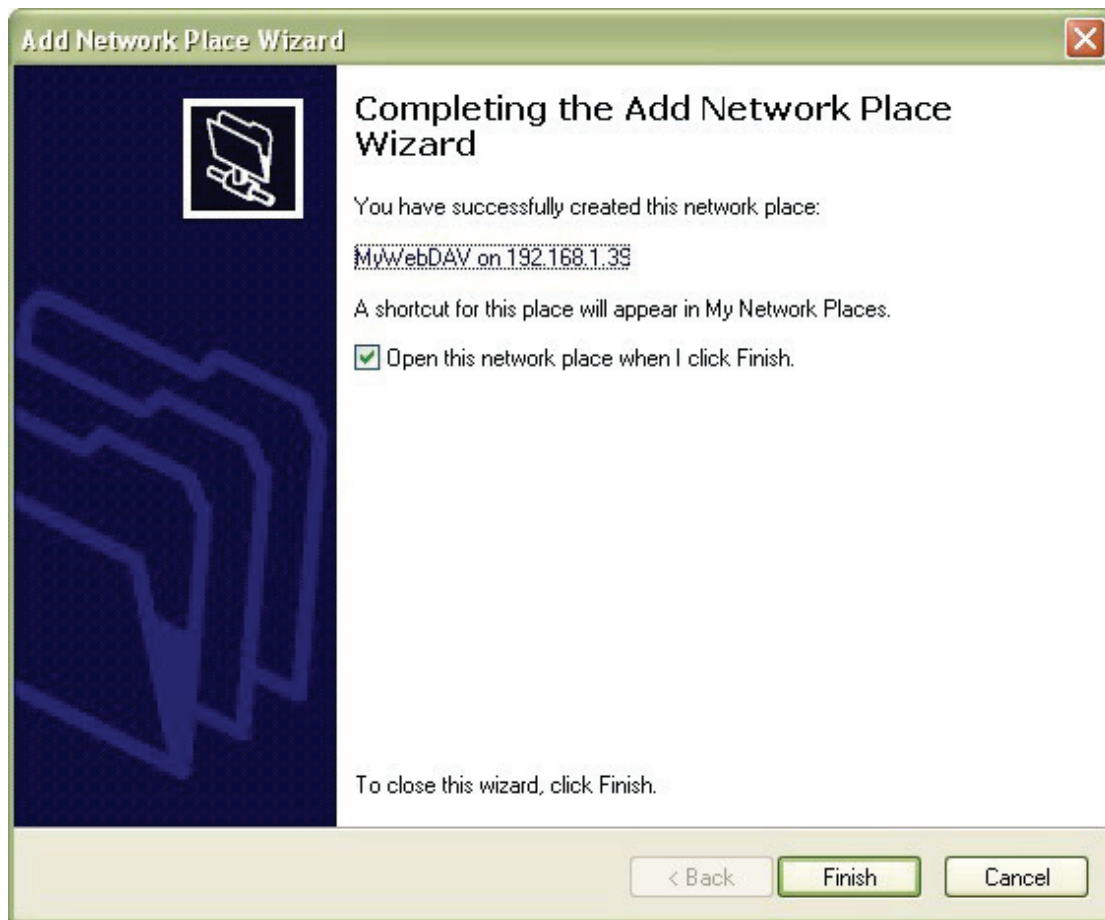
What do you want to name this place?

Create a name for this shortcut that will help you easily identify this network place:
http://192.168.1.39/MyWebDAV/#.

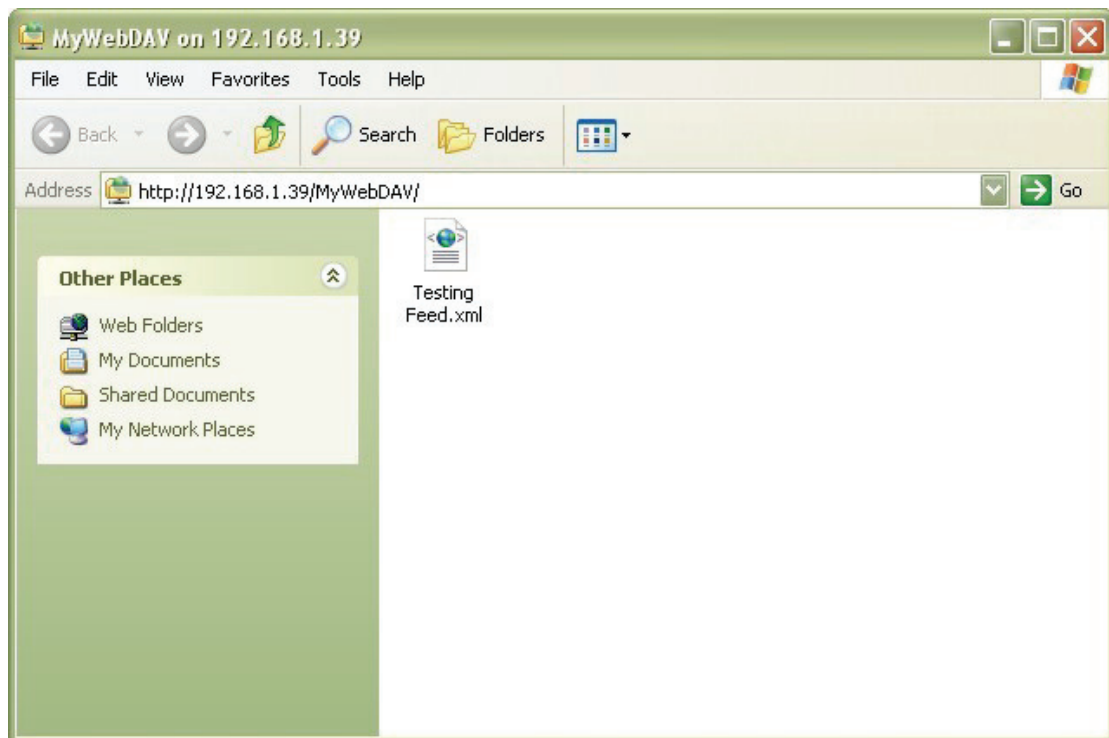
Type a name for this network place:
MyWebDAV on 192.168.1.39

< Back Next > Cancel

7. The network place has been created and is ready to be used.



8. Now you can connect to this share folder anytime through WebDAV. A shortcut has also been created in "My Network Places".

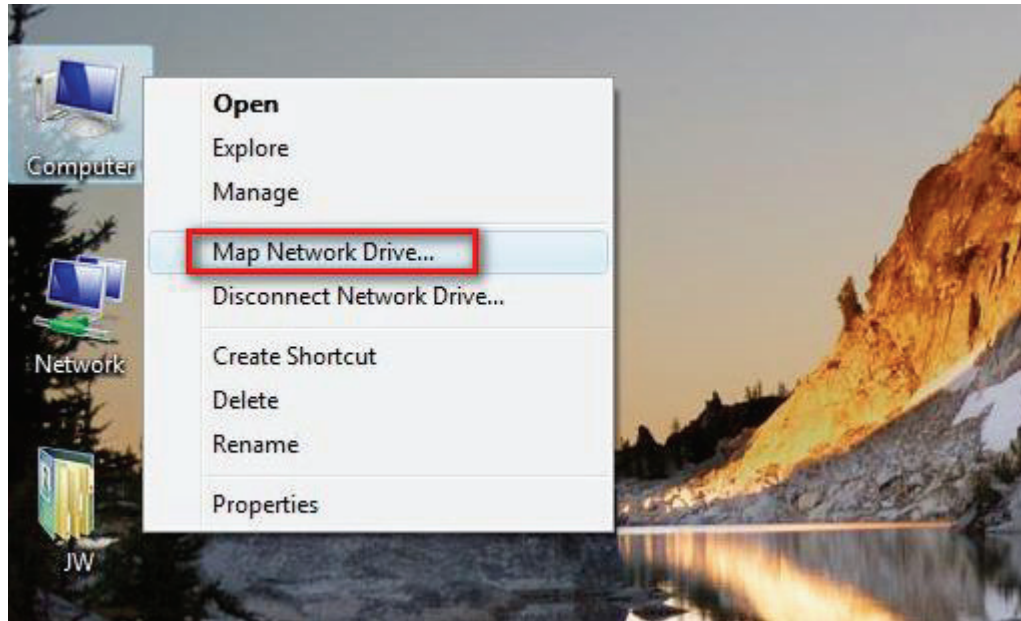


Windows Vista

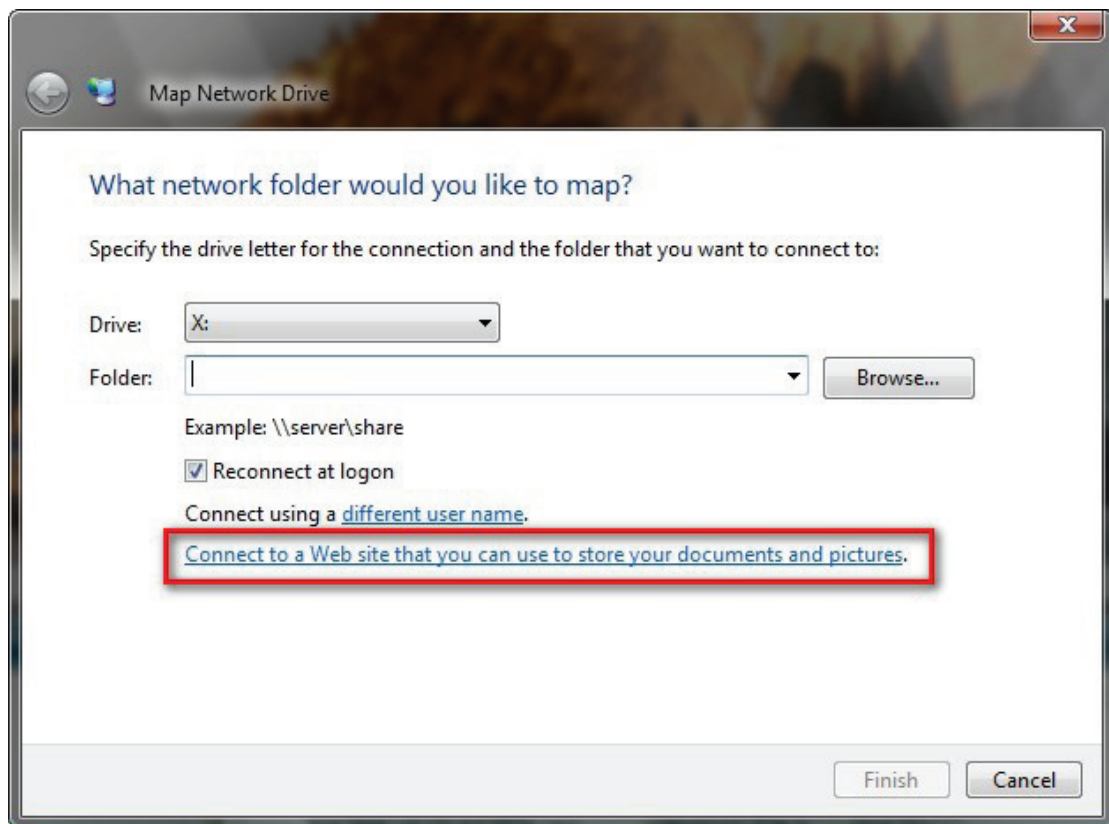
If you are using Windows Vista, you might need to install the "Software Update for Web Folders (KB907306)" and this update is for 32-bit Windows OS only.

<http://www.microsoft.com/downloads/details.aspx?FamilyId=17c36612-632e-4c04-9382-987622ed1d64&displaylang=en>

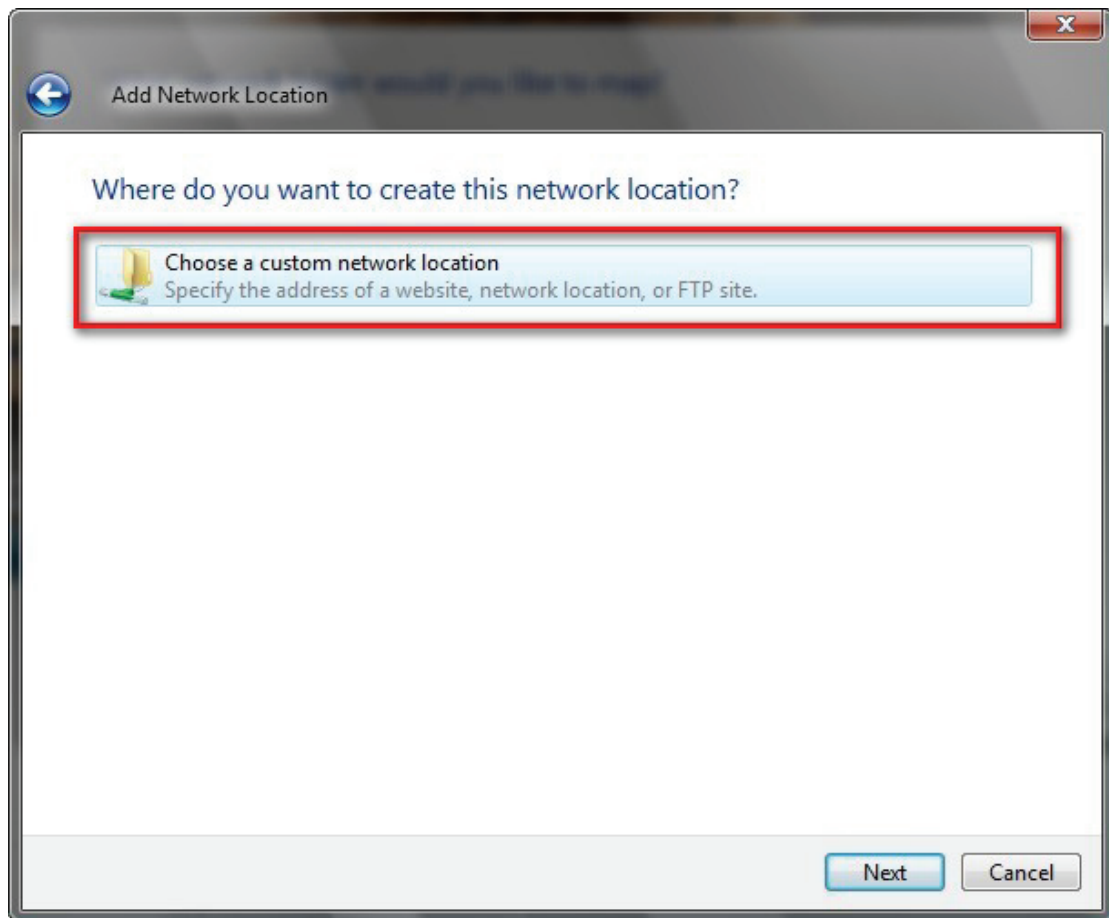
1. Right click "Computer" and select "Map Network Drive..."



2. Click "Connect to a Web site that you can use to store your documents and pictures".

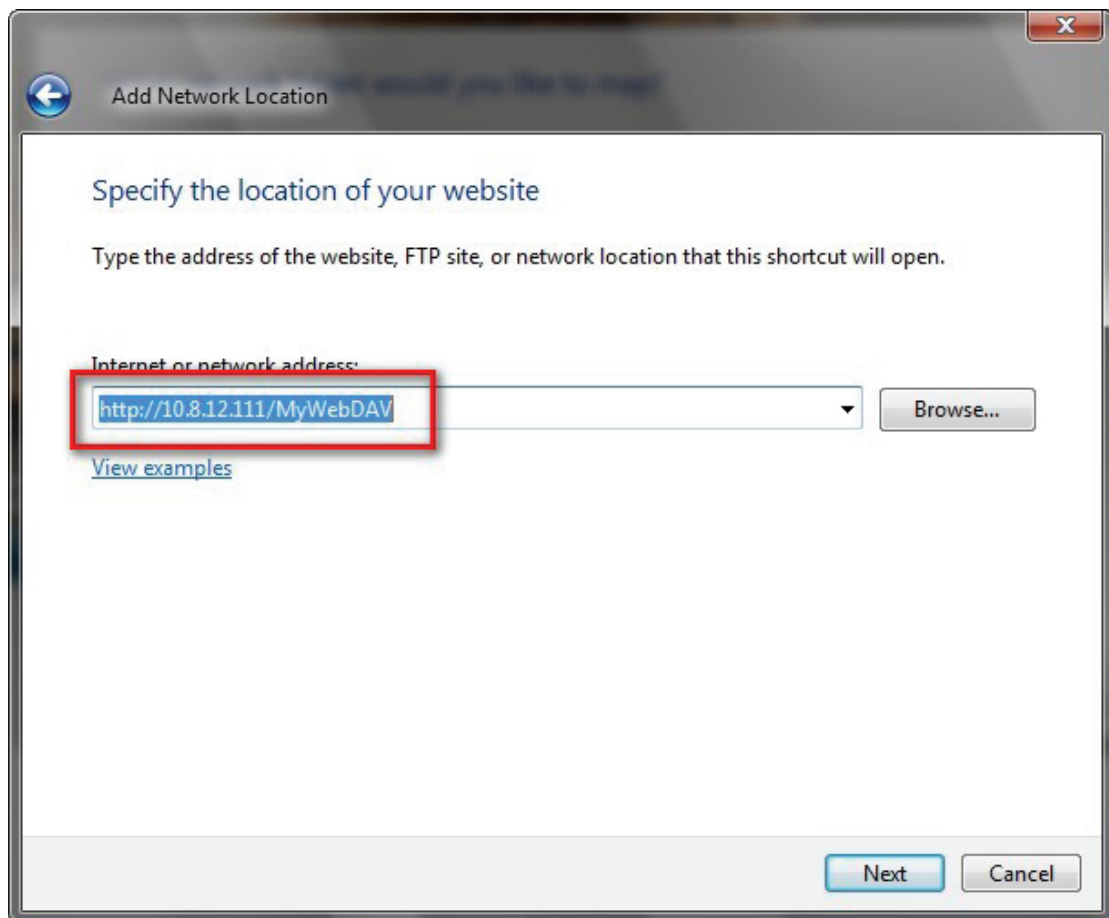


3. Select "Choose a custom network location".



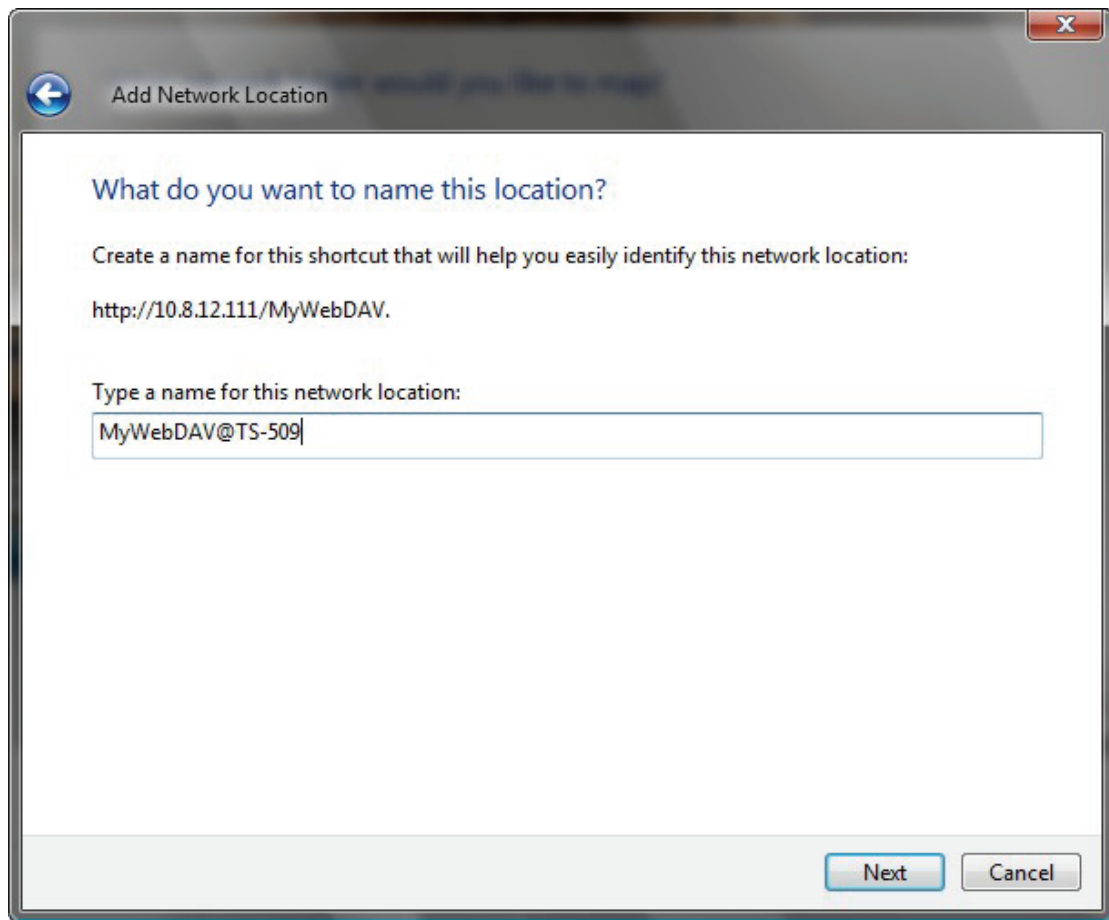
4. Enter the URL of your NAS with the share folder name.

Format: `http://NAS_IP_or_HOST_NAME/SHARE_FOLDER_NAME`

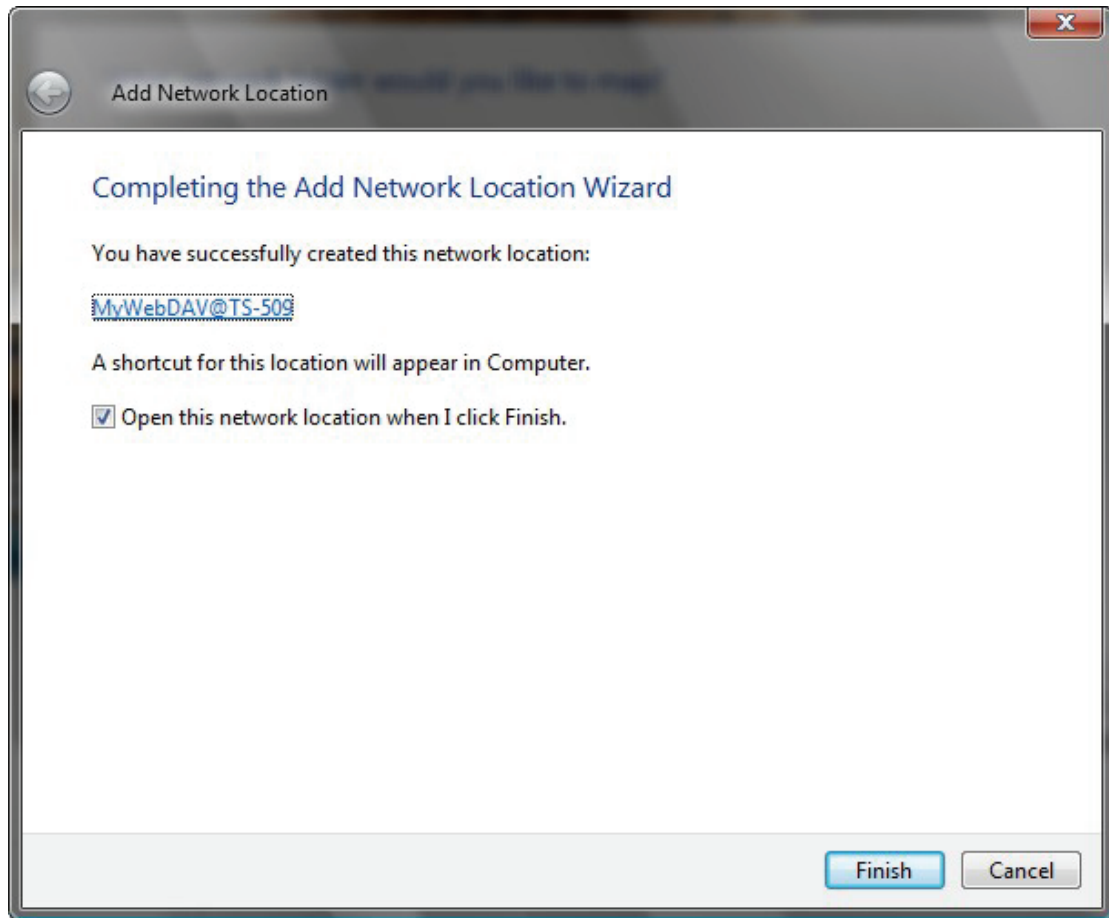


5. Enter the user name and its password which has the WebDAV privilege to connect to this share folder.

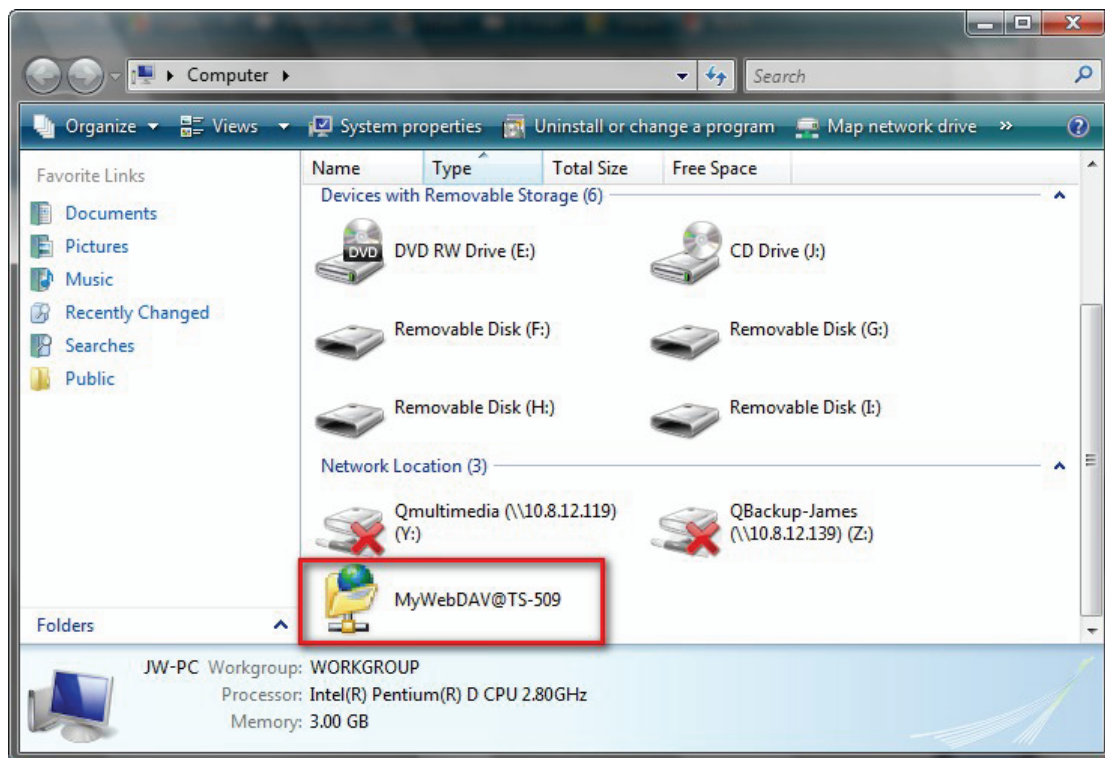
6. Type a name for this network location.



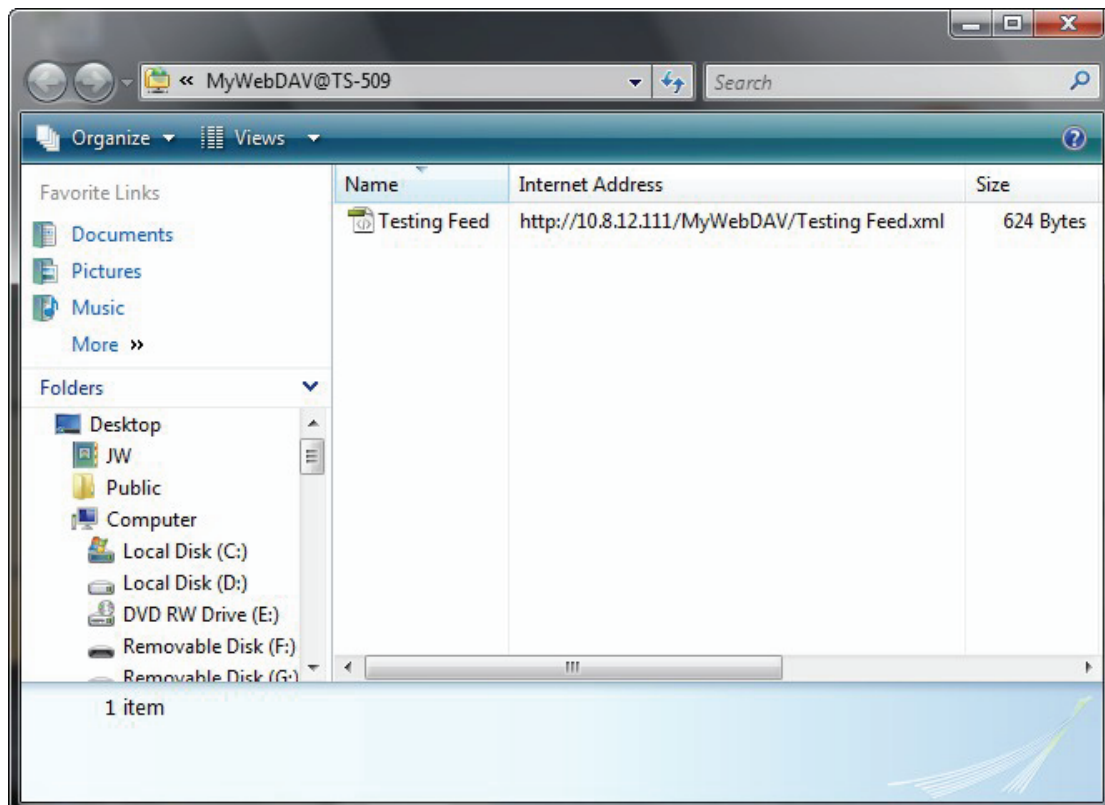
7. The Web folder has been successfully created.



8. You can locate the web folder in the "Network Location" section in "Computer".



9. You can connect to the share folder though this link via HTTP/WebDAV.



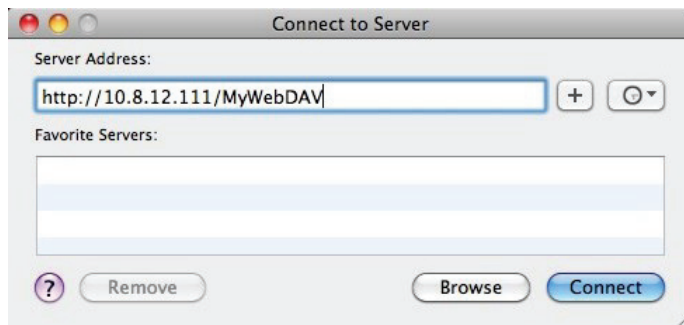
Mac OS X

Follow the steps below to connect to your NAS via WebDAV on Mac OS X.

Client Operating System: Mac OS X Snow Leopard (10.6.1)

1. Open "Finder" > "Connect to Server", and enter the URL of the share folder.

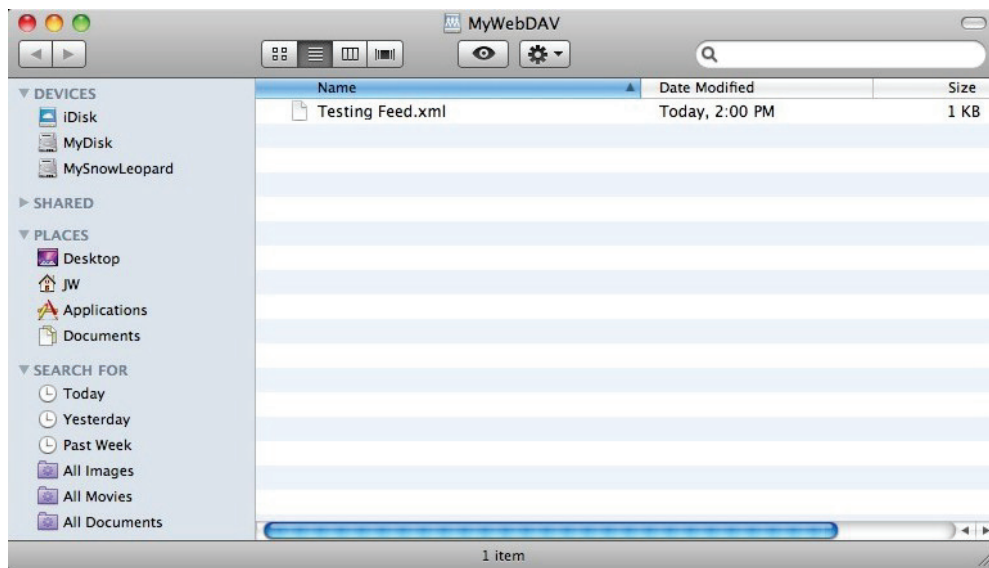
Format: `http://NAS_IP_or_HOST_NAME/SHARE_FOLDER_NAME`



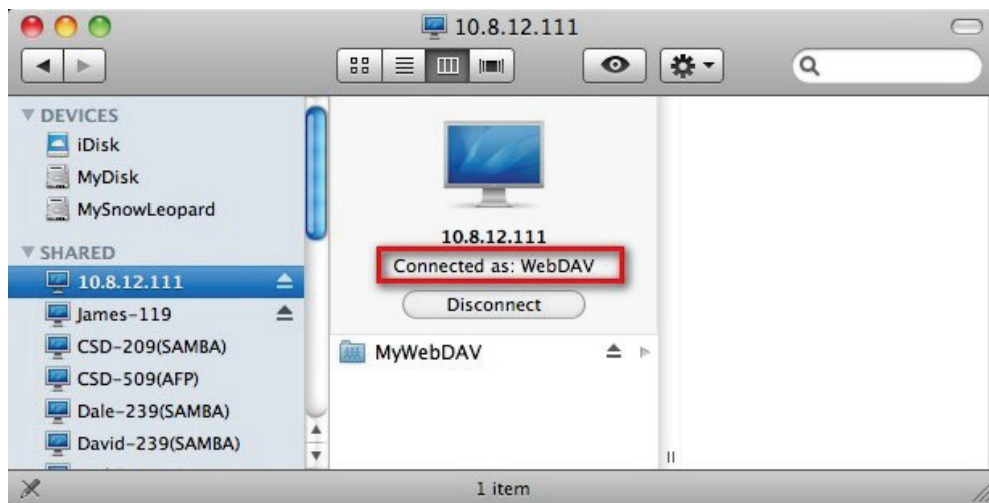
2. Enter the user name and its password which has the WebDAV privilege to connect to this share folder.



3. You can connect to the share folder through this link via HTTP/WebDAV.



4. You can also find the mount point in the "SHARED" category in Finder and make it one of the login items.



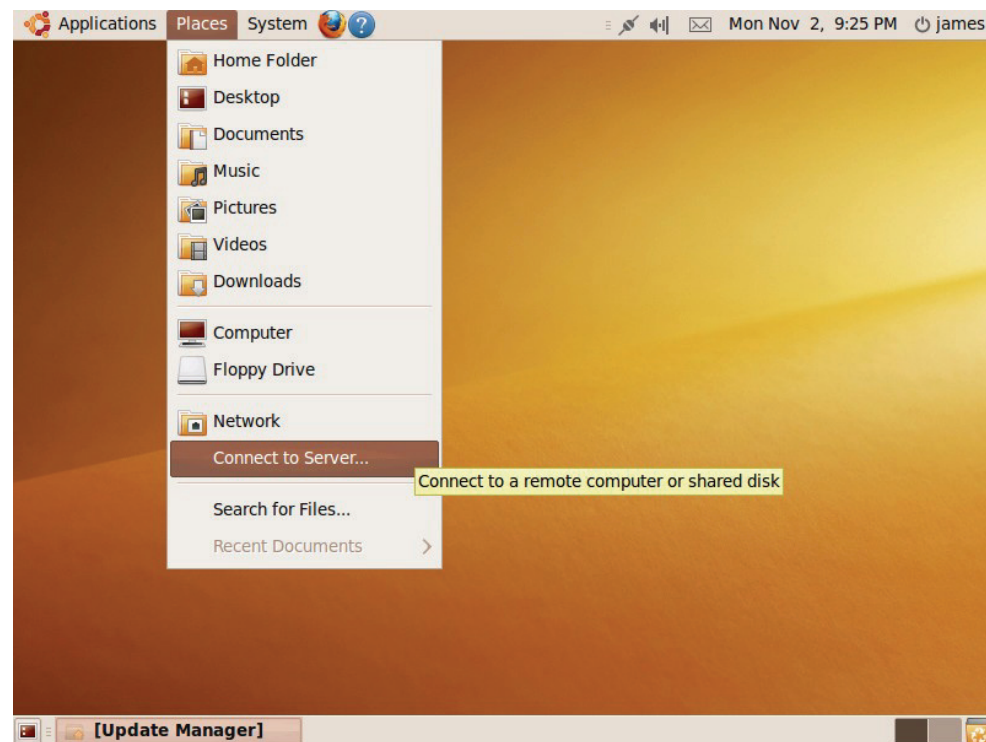
Note that the instructions above are based on Mac OS X 10.6, and can be applied to 10.4 or later.

Ubuntu

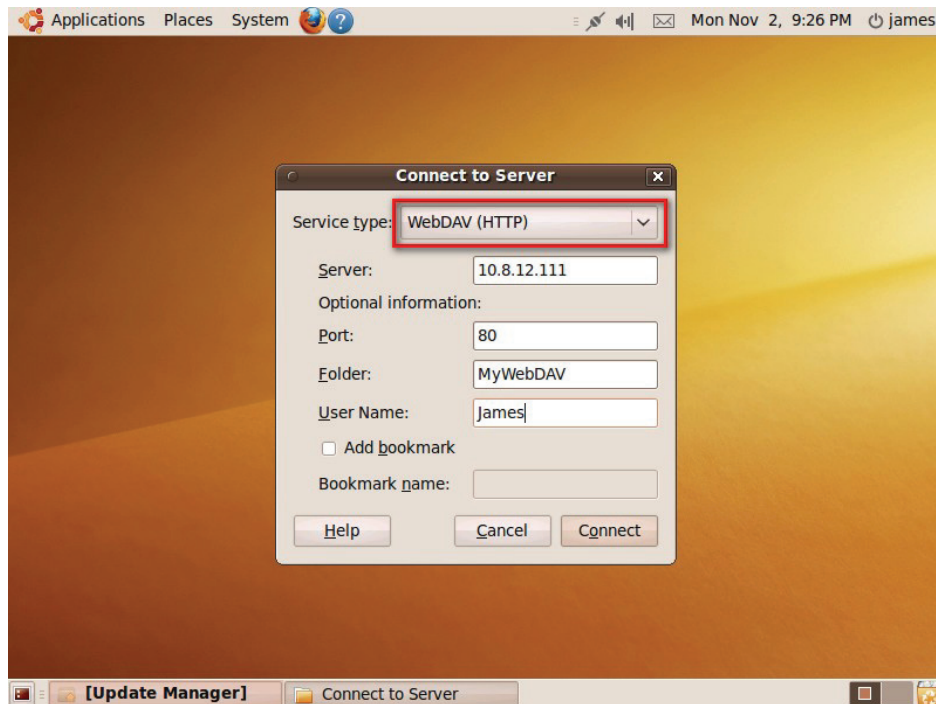
Follow the steps below to connect to your NAS via WebDAV on Ubuntu.

Client Operating System: Ubuntu 9.10 Desktop

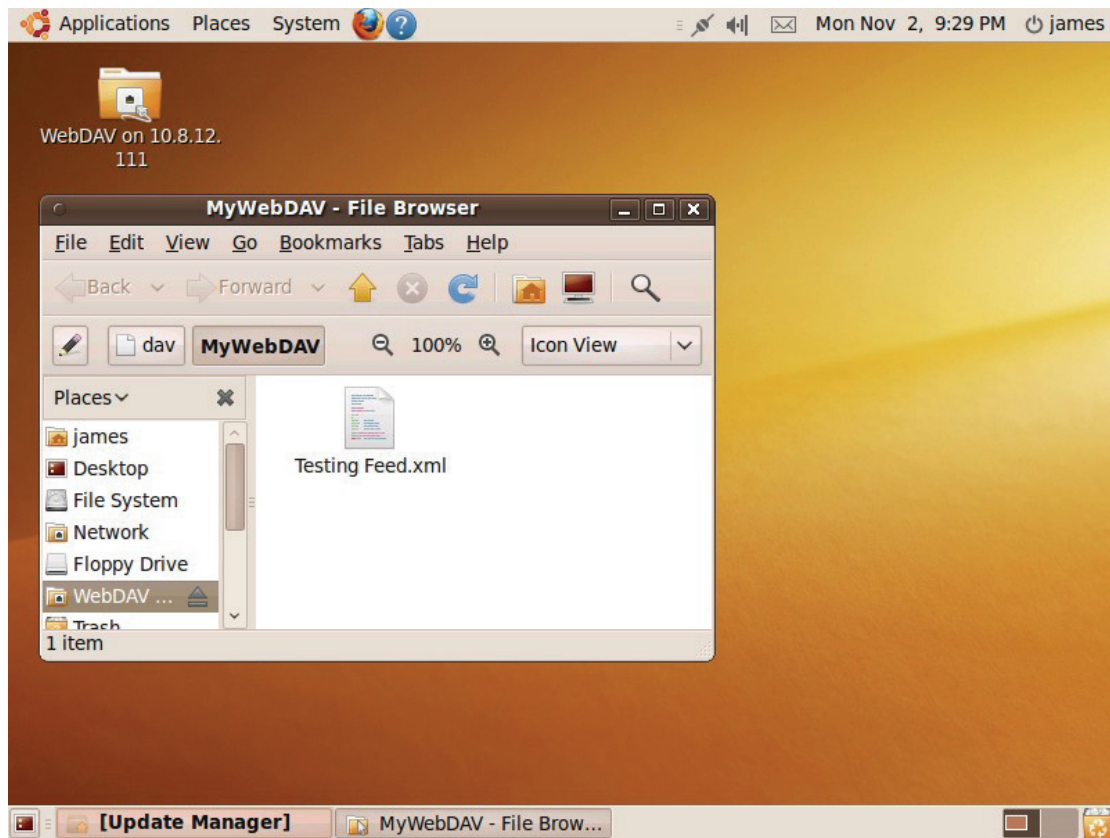
1. Open "Places" > "Connect to Server..."



2. Select "WebDAV (HTTP)" or "Secure WebDAV (HTTPS)" for the Service type according to your NAS settings and enter your host information. Enter the user name and the password which has the WebDAV privilege to connect to this share folder. Click "Connect" to initialize the connection.



3. This WebDAV connection has been established successfully, a linked folder will be created on the desktop automatically.



MySQL Management

You may install phpMyAdmin software and save the program files in the "Web" share folder of the NAS. You can change the folder name and connect to the database by entering the URL in the browser.

Note: The default user name of MySQL is "root". The password is "admin". Please change your root password immediately after logging in to the phpMyAdmin management interface.

SQLite Management

SQLiteManager is a multilingual web-based tool to manage SQLite databases and can be downloaded from <http://www.sqlitemanager.org/>.

Follow the steps below or refer to the INSTALL file in the downloaded SQLiteManager-*.tar.gz[?] to install the SQLiteManager.

- (1) Unpack your downloaded file SQLiteManager-*.tar.gz.
- (2) Upload the unpacked folder **SQLiteManager-*** to **\\NAS IP\Web** or **\\NASIP\Qweb**.
- (3) Open your web browser and go to **http://NAS IP/SQLiteManager-*/**.

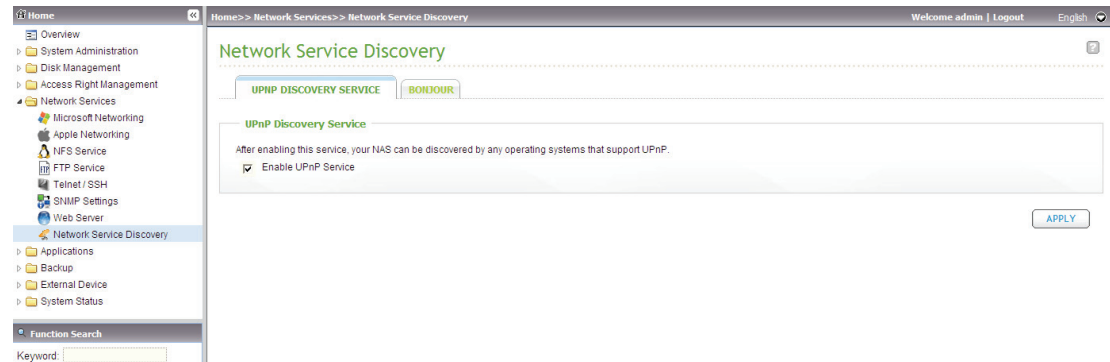
[?]: The symbol "*" refers to the version number of SQLiteManager.

3.4.8 Network Service Discovery

3.4.8.1 UPnP Discovery Service

When a device is added to the network, the UPnP discovery protocol allows the device to advertise its services to the control points on the network.

By enabling the UPnP Discovery Service, the NAS can be discovered by any operating systems that support UPnP.



3.4.8.2 Bonjour

By broadcasting the network service(s) with Bonjour, your Mac will automatically discover the network services (e.g. FTP) which are running on the NAS without the need to enter the IP addresses or configure the DNS servers.

Note: You have to activate each service (e.g. FTP) on its setup page and then enable the service on the Bonjour page so that the NAS will advertise this service with Bonjour.

UPNP DISCOVERY SERVICEBONJOUR

Bonjour

Before broadcasting the following services through Bonjour, please DO NOT forget to enable these services first.

☒ Web Administration
Service Name:

☒ SAMBA (Server Message Block over TCP/IP)
Service Name:

☐ AFP (Apple File Protocol over TCP/IP)
Service Name:

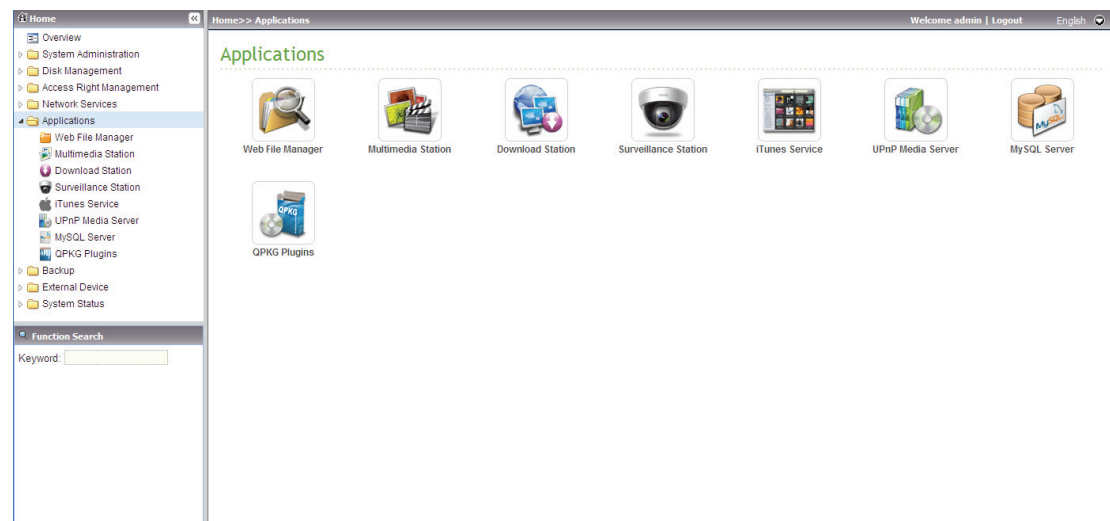
☐ SSH
Service Name:

☐ FTP (File Transfer Protocol)
Service Name:

☐ HTTPS (Secure web server)
Service Name:

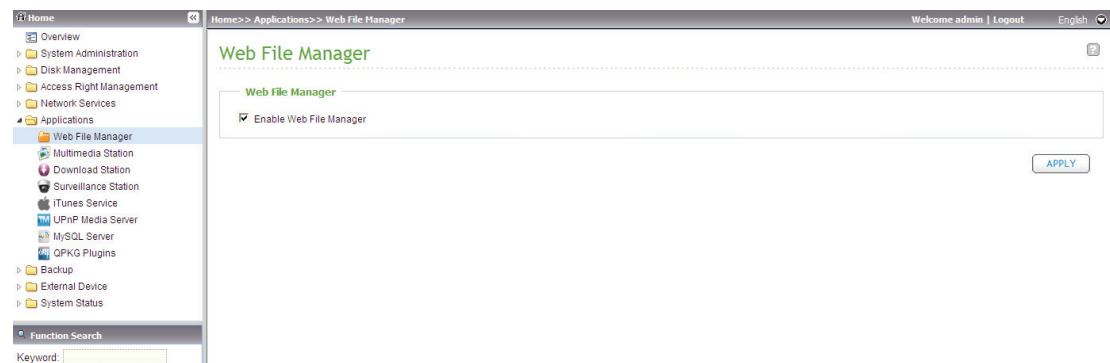
☐ UPNP (DLNA media server)
Service Name:

3.5 Applications



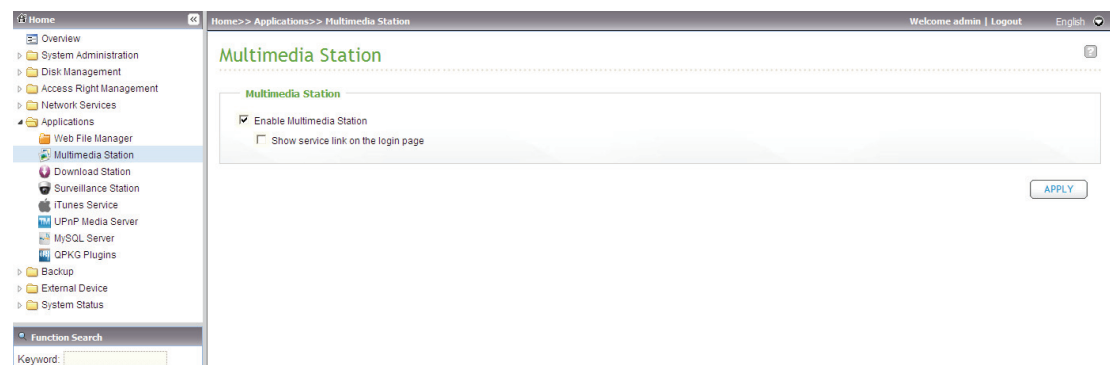
3.5.1 Web File Manager

To connect to the files on the NAS by a web browser, enable Web File Manager. If the NAS is connected to the Internet and uses a valid IP address, you can access the files on the server by the web browser from anywhere. For more information, please refer to Chapter 6.



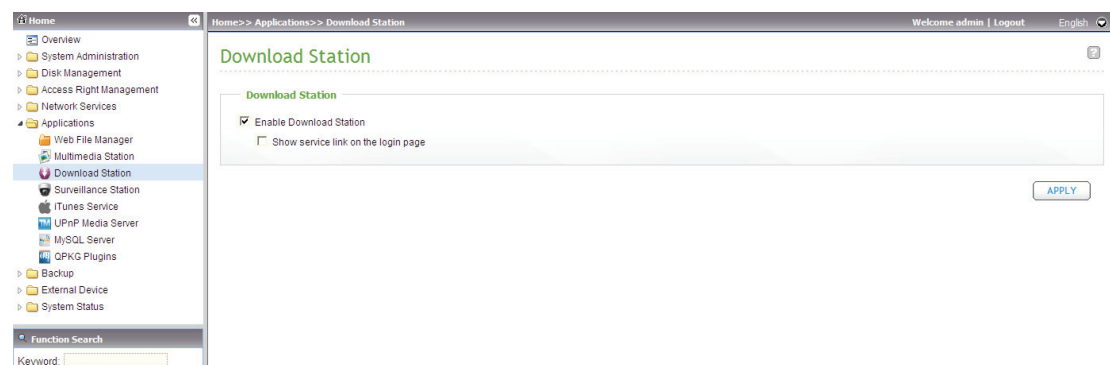
3.5.2 Multimedia Station

To share the photos, music or video files on the NAS over the network, enable Multimedia Station. For further information of Multimedia Station, iTunes service and UPnP Media Server, please refer to Chapter 4.



3.5.3 Download Station

The NAS supports PC-less BT, HTTP, and FTP download. To use the download function of the NAS, enable Download Station. For further information, please refer to Chapter 5.



Warning: Please be warned against illegal downloading of copyrighted materials. The Download Station functionality is provided for downloading authorized files only. Downloading or distribution of unauthorized materials may result in severe civil and criminal penalty. Users are subject to the restrictions of the copyright laws and should accept all the consequences.

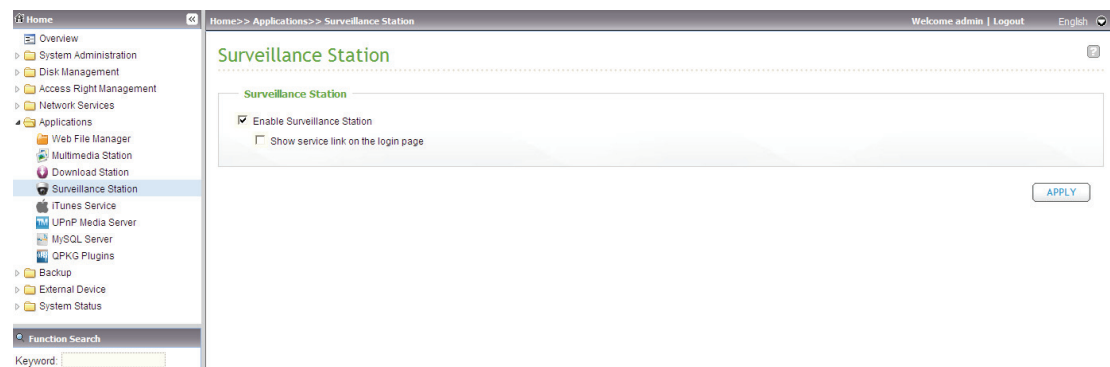
3.5.4 Surveillance Station

The Surveillance Station enables you to monitor and record the live video of maximum 2-4* network cameras available on the network (LAN or WAN).

*This function is applicable to some models only. Please refer to the comparison table for more details:

http://www.qnap.com/images/products/comparison/Comparison_NAS.html

Note: To use this feature on the TS-x39/509/809 series, please update the system firmware with the image file enclosed in the product CD or download the latest system firmware from <http://www.qnap.com/>.



Click "Surveillance Station" on the top or on the login page of the NAS to connect to the Surveillance Station. If you login the service from the login page of the NAS, you are required to enter the user name and password.

Note: The Surveillance Station is only supported by IE browser 6.0 or later.

To set up your network surveillance system by the NAS, follow the steps below:

1. Plan your home network topology
2. Set up the IP cameras
3. Configure the camera settings on the NAS
4. Configure your NAT router (for remote monitoring over the Internet)

1. Plan your home network topology

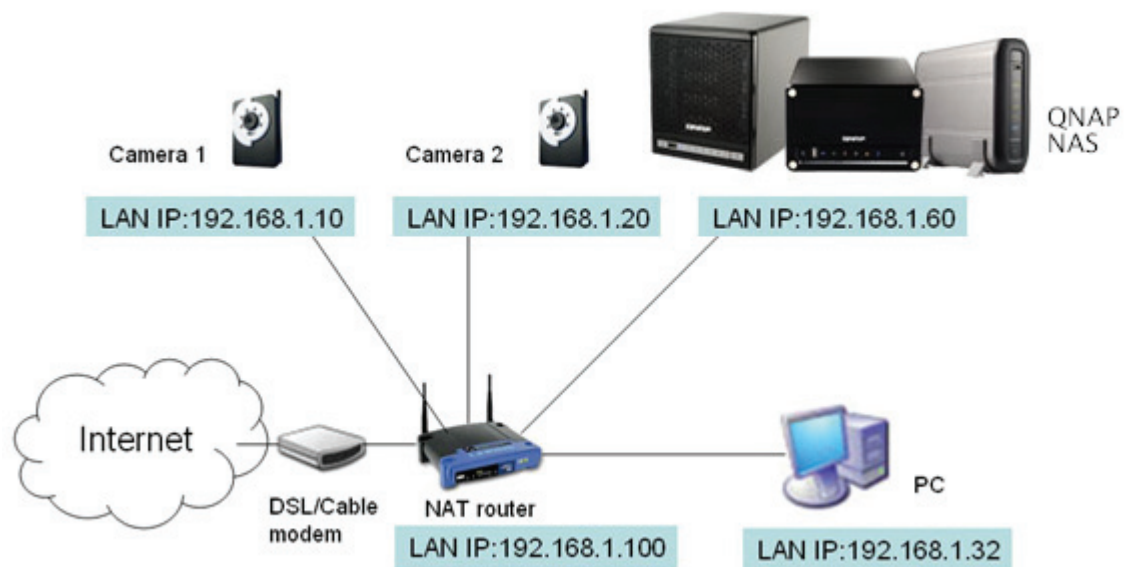
Write down your plan of the home network before setting up the surveillance system.

Consider the following when doing so:

- i. The IP address of the NAS
- ii. The IP address of the IP cameras

Your computer, the NAS, and the IP cameras should be connected to the same router on the LAN. Assign fixed IP addresses to the NAS and the IP cameras. For example,

- The LAN IP of the home router: 192.168.1.100
- Camera 1 IP: 192.168.1.10 (fixed IP)
- Camera 2 IP: 192.168.1.20 (fixed IP)
- NAS IP: 192.168.1.60 (fixed IP)



2. Set up the IP cameras

In this example, two IP cameras will be installed. Connect the IP cameras to your home network. Then set the IP address of the cameras so that they are in the same LAN as the computer. Login the configuration page of the Camera 1 by IE browser.

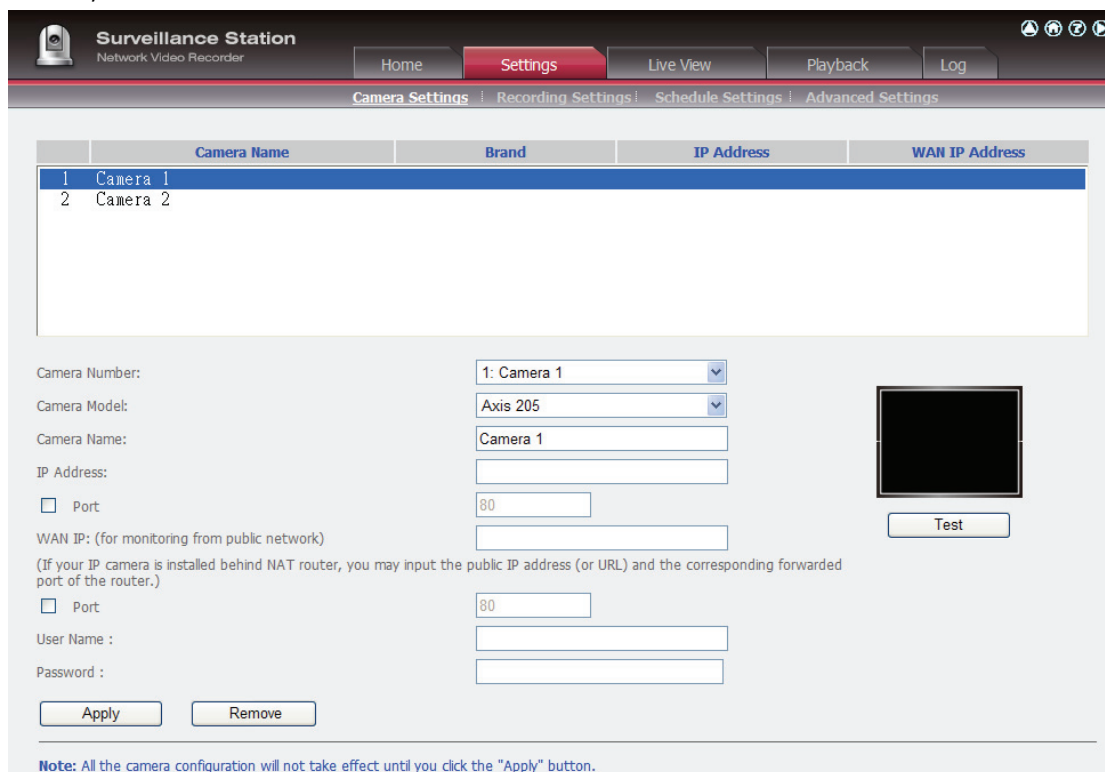
Enter the IP address of the first IP camera as 192.168.1.10. The default gateway should be set as the LAN IP of the router (192.168.1.100 in this example). Then configure the IP address of the second IP camera as 192.168.1.20.

Some IP cameras provide a utility for IP configuration. You may refer to the user manual of the cameras for further details.

* Please refer to <http://www.qnap.com/> for the supported network camera list.

3. Configure the camera settings on the NAS

Login the Surveillance Station by the IE browser to configure the IP cameras. Go to "Settings" > "Camera Settings". Enter the IP camera information, e.g. name, model, and IP address.



	Camera Name	Brand	IP Address	WAN IP Address
1	Camera 1			
2	Camera 2			

Camera Number: 1: Camera 1

Camera Model: Axis 205

Camera Name: Camera 1

IP Address:

☐ Port: 80

WAN IP: (for monitoring from public network)

(If your IP camera is installed behind NAT router, you may input the public IP address (or URL) and the corresponding forwarded port of the router.)

☐ Port: 80

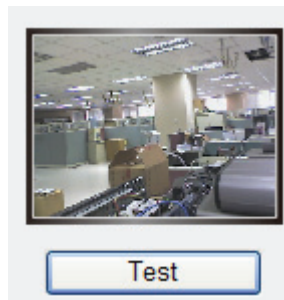
User Name :

Password :

Apply Remove

Note: All the camera configuration will not take effect until you click the "Apply" button.

Click "Test" on the right to ensure the connection to the IP camera is successful.



If your IP camera supports audio recording, you may enable the option on the "Recording Settings" page. Click "Apply" to save the changes.

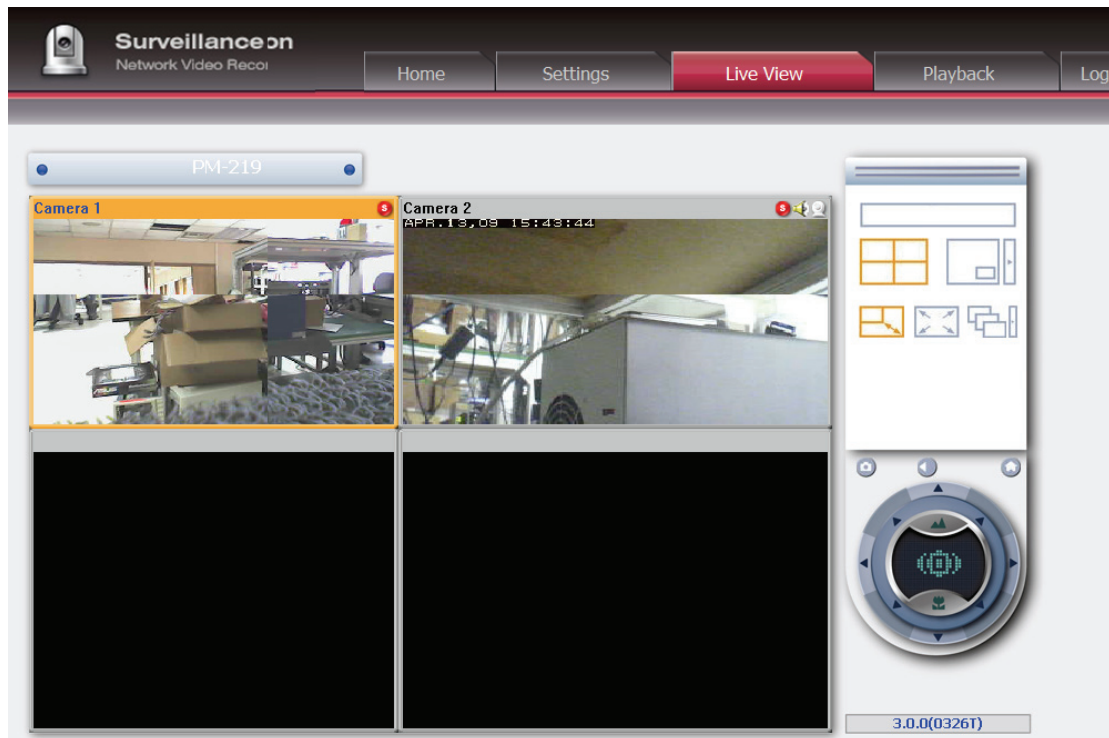
Camera Number:	2: Camera 2
Video Compression:	Motion JPEG
Resolution:	QVGA
Frame Rate:	20
Quality:	Normal
<input checked="" type="checkbox"/> Enable audio recording on this camera	
Estimated Storage Space for Recording: 6760 GB	
<input type="button" value="Apply"/>	

Configure the settings of the IP camera 2 following the above steps.

After you have added the network cameras to the NAS, go to the "Live View" page.

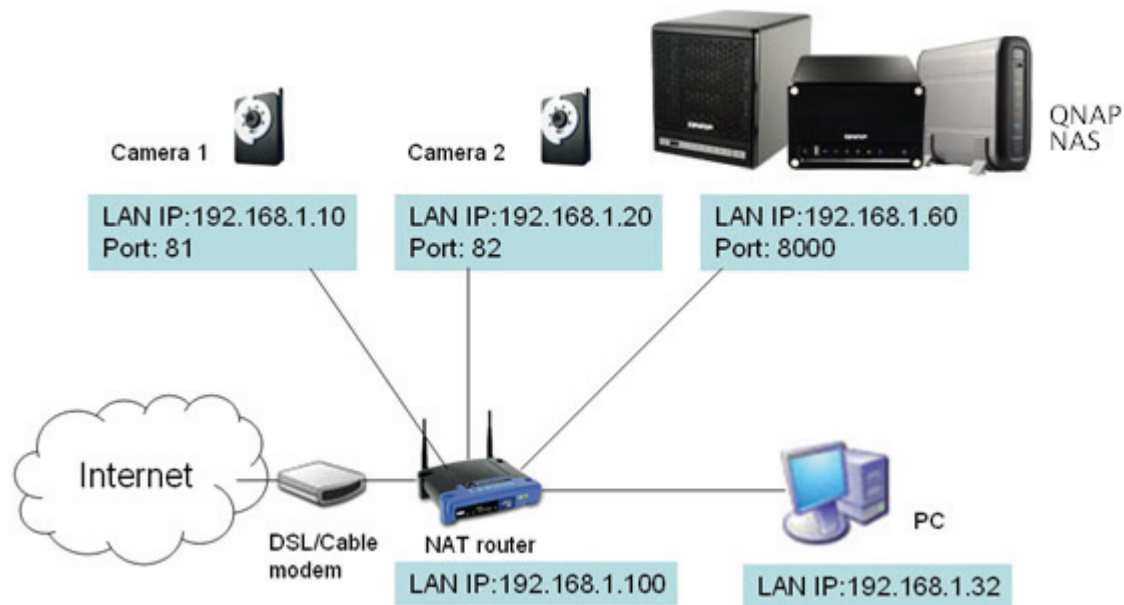
The first time you connect to this page by the IE browser, you have to install the ActiveX control in order to view the images of the IP camera 1 and IP camera 2. You can start to use the monitoring and recording functions of the Surveillance Station.

To use other functions such as motion detection recording, scheduled recording, and video playback, please refer to the online help.



4. Configure your NAT router (for remote monitoring over the Internet)

To view the monitoring video and connect to the NAS remotely, you need to change the network settings by forwarding different ports to the corresponding LAN IP on your NAT router.



Change the port settings of the NAS and the IP cameras

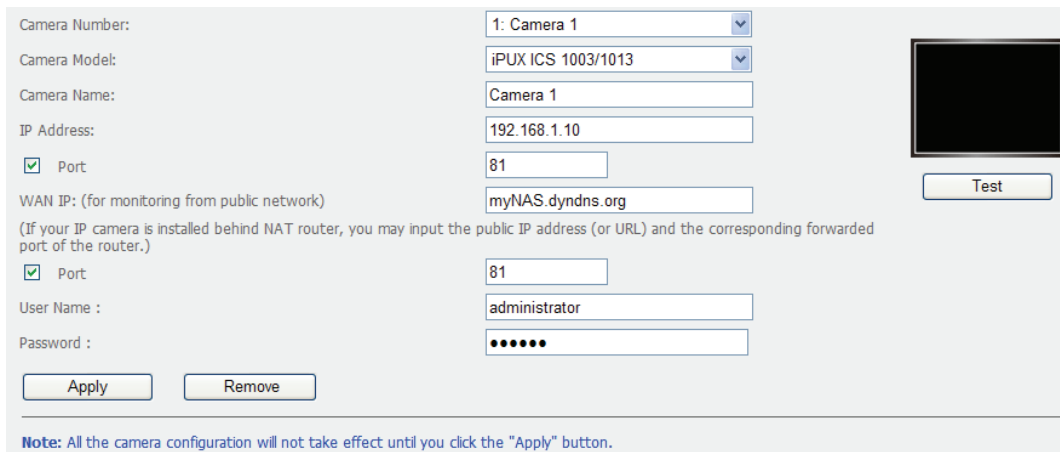
The default HTTP port of NAS is 8080. In this example, the port is changed to 8000.

Therefore, you have to connect to the NAS via **http://NAS IP:8000** after applying the settings.

Then login the network settings page of the IP cameras. Change the HTTP port of the IP camera 1 from 80 to 81. Then change the port of the IP camera 2 from 80 to 82.

Next, login the Surveillance Station. Go to "Settings" > "Camera Settings". Enter the port numbers of the IP camera 1 and the IP camera 2 as 192.168.1.10 **port 81** and 192.168.1.20 **port 82** respectively. Enter the login name and the password for both IP cameras.

Besides, enter the WAN IP address (or your domain address on the public network, e.g. MyNAS.dyndns.org) and the port on the WAN for the connection from the Internet. After finishing the settings, click "Test" to verify the connection.



Camera Number: 1: Camera 1

Camera Model: iPUX ICS 1003/1013

Camera Name: Camera 1

IP Address: 192.168.1.10

☒ Port 81

WAN IP: (for monitoring from public network) myNAS.dyndns.org

(If your IP camera is installed behind NAT router, you may input the public IP address (or URL) and the corresponding forwarded port of the router.)

☒ Port 81

User Name : administrator

Password :

Apply Remove

Note: All the camera configuration will not take effect until you click the "Apply" button.

Go to the configuration page of your router and configure the port forwarding as below:

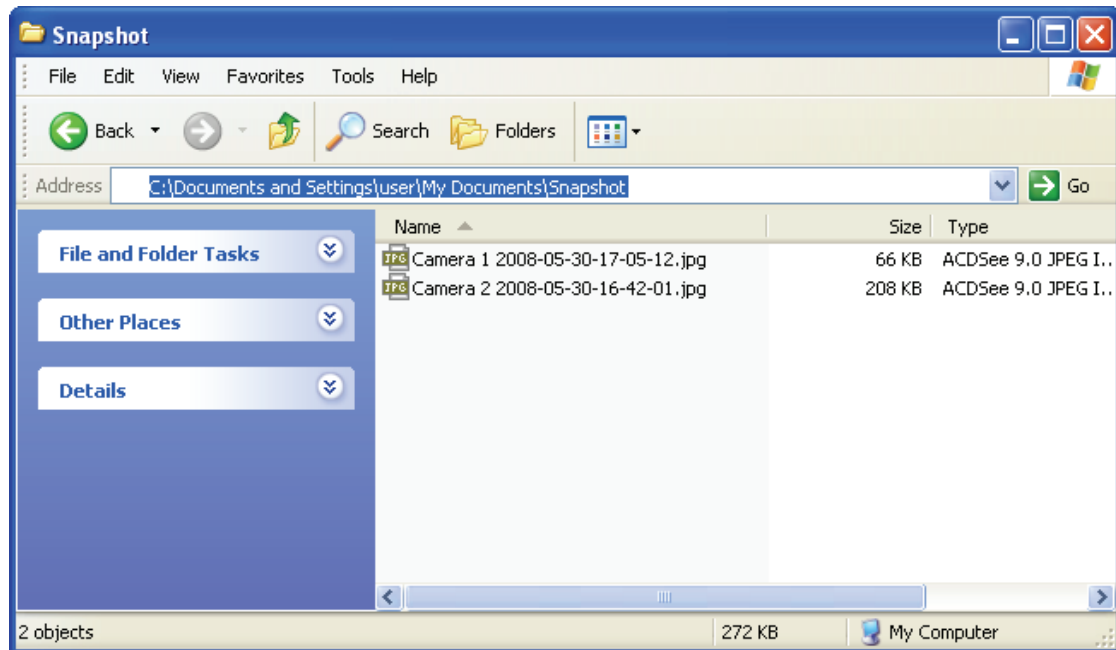
- Forward the port 8000 to the LAN IP of the NAS: 192.168.1.60
- Forward the port 81 to the LAN IP of the IP camera 1: 192.168.1.10
- Forward the port 82 to the LAN IP of the IP camera 2: 192.168.1.20

Note: When you change the port settings, make sure remote access is allowed. For example, if your office network blocks the port 8000, you will not be able to connect to your NAS from the office.

After you have configured the port forwarding and the router settings, you can start to use the Surveillance Station for remote monitoring over the Internet.

Connect to the snapshots and video recordings of Surveillance Station

All the snapshots are saved in "My Documents" > "Snapshot" (Windows XP) in your computer. If you are using Windows 7 or Vista, the default directory is "Documents" > "Snapshot".



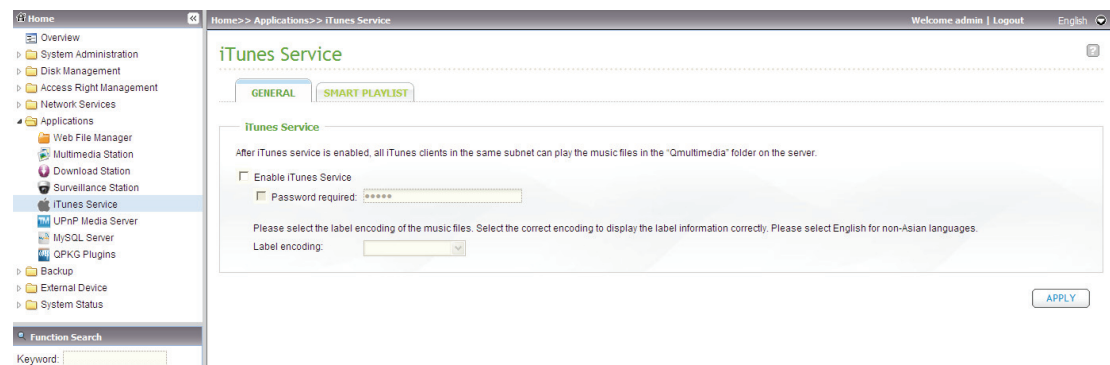
The video recordings will be saved in \\NASIP\Qrecordings or [\\NASIP\Recordings](#).

The general recordings are saved in the folder "record_nvr" and the alarm recordings are saved in the folder "record_nvr_alarm".

3.5.5 iTunes Service

The MP3 files on the Qmultimedia/ Multimedia folder of the NAS can be shared to iTunes by this service. All the computers with iTunes installed on LAN are able to find, browse, and play the shared music files on the NAS.

To use the iTunes service, make sure you have installed the iTunes program on your computer. Enable this service. Then upload the music files to the Qmultimedia/ Multimedia folder of the NAS.



Password required: To allow the users to connect to the data only by entering the correct password, select this option and enter the password.

Click "Smart Playlist" to enter the smart playlist page. You can define the playlist rules to categorize the songs into different playlists. If there is no song that matches the rules on the playlist, the iTunes client will not show the playlist. For detailed operation, refer to the online help.

iTunes Service



GENERAL

SMART PLAYLIST

Smart playlist - Add

Name:

Album Title

contains

+

-

CANCEL

APPLY

When you open iTunes, it detects the NAS automatically. All the songs on the Qmultimedia/ Multimedia folder will be shown.



Click the triangle icon next to the NAS name. The smart playlists defined earlier will be shown. The songs are categorized accordingly. You can start to use iTunes to play the music on your NAS.

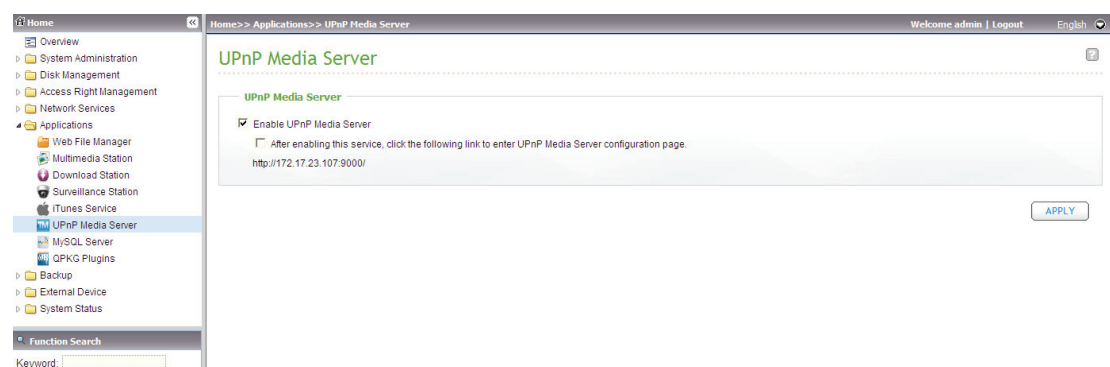


Note: You can download the latest iTunes software from official Apple website <http://www.apple.com/>.

3.5.6 UPnP Media Server

The NAS is built-in with TwonkyMedia, DLNA compatible UPnP media server. Enable this function and the NAS will share particular music, photos, or video files to the DLNA network. You can use DLNA compatible digital media players to play the multimedia files on the NAS on your TV or acoustic sound system.

To use UPnP Media Server, enable this function and click the following link (<http://NAS IP:9000/>) to enter the configuration page of the UPnP Media Server.



Click the link <http://NAS IP:9000/>. Go to “TwonkyMedia Settings” > “Basic Setup” to configure the basic server settings.

The contents on the Qmultimedia or Multimedia folder of the NAS will be shared to the digital media players by default. You can go to “Basic Setup” > “Sharing” > “Content Locations” to change the share folder or add more share folders.

After configuring the settings, you can upload MP3, photos, or video files to the specified share folders on the NAS.

Note: If you upload multimedia files to the default share folder but the files are not shown on Media Player, click “Rescan content directories” or “Restart server” on the Media Server configuration page.

For the online tutorial, please visit http://www.qnap.com/pro_features.asp.

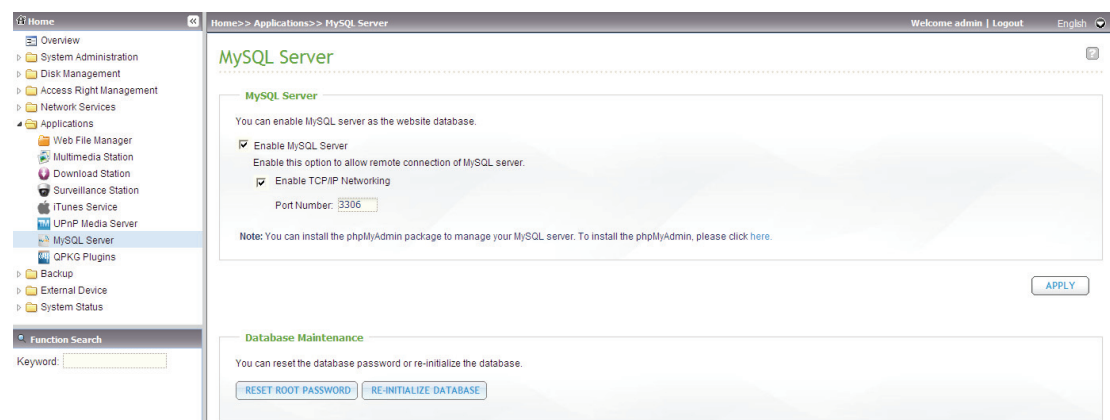
About UPnP and DLNA

Universal Plug and Play (UPnP) is a set of computer network protocols promulgated by the UPnP Forum. The purpose of UPnP is to allow the devices to connect seamlessly and to simplify the implementation of the networks at home and in the corporate environment. UPnP achieves this by defining and publishing UPnP device control protocols built upon open, Internet-based communication standards.

The term UPnP is gleaned from Plug-and-play, a technology for dynamically attaching devices to a computer directly.

The Digital Living Network Alliance (DLNA) is an alliance of a number of consumer electronics, mobile and personal computer manufacturers. Its aim is to establish a home network in which the electronic devices from all companies are compatible with each other under an open standard. The alliance also tries to promote the idea of digital home by establishing DLNA certification standard. All DLNA certified products connected to the home network can be connected to seamlessly to enable the consumers to enjoy the digital life conveniently.

3.5.7 MySQL Server



Note: To use this feature on the TS-x39/509/809 series, please update the system firmware with the image file enclosed in the product CD or download the latest system firmware from <http://www.qnap.com/>.

You can enable MySQL Server as the website database.

Enable TCP/IP Networking

You can enable this option to configure MySQL server of the NAS as a database server of another web server in remote site through Internet connection. When you disable this option, your MySQL server will only be configured as local database server for the web server of the NAS.

After enabling remote connection, assign a port for the remote connection service of MySQL server. The default port is 3306.

After the first-time installation of the NAS, a folder phpMyAdmin is created in the Qweb/ Web network folder. You can enter `http://NAS IP/phpMyAdmin/` in the web browser to enter the phpMyAdmin page and manage the MySQL database.

Note:

- Do not delete the phpMyAdmin folder. You can rename this folder but the link on the MySQL server page will not be updated. To connect to the renamed folder, you can enter the link `http://NAS IP/renamed folder` in the web browser.
- The phpMyAdmin folder is created after the first-time installation. When you update the firmware, the folder remains unchanged.

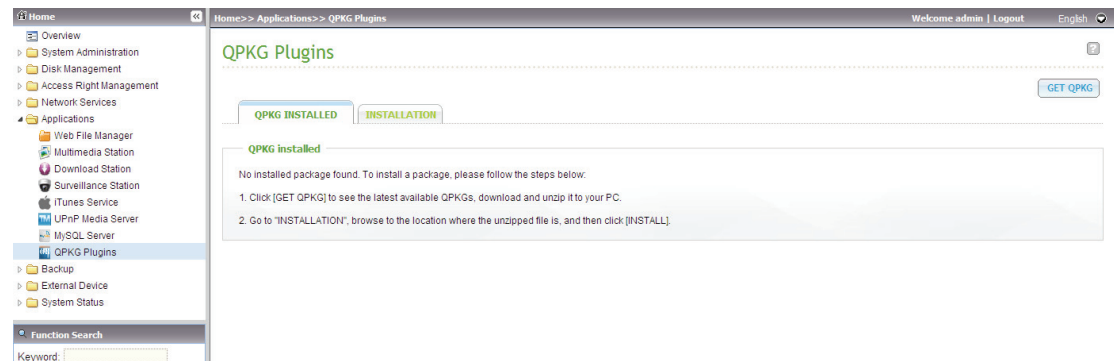
Database Maintenance

- Reset root password: Execute this function to reset the password of MySQL root as "**admin**".
- Re-initialize database: Execute this function to delete all the data on MySQL database.

For the online tutorial, please refer to http://www.qnap.com/pro_features.asp.

3.5.8 QPKG Plugins

You can install the QPKG packages to add more functions to the NAS. Click "GET QPKG".



Before you install the packages, make sure the files are correct, read the instructions carefully, and back up all the important data on the NAS. Download the package you want to install on the NAS to your computer.

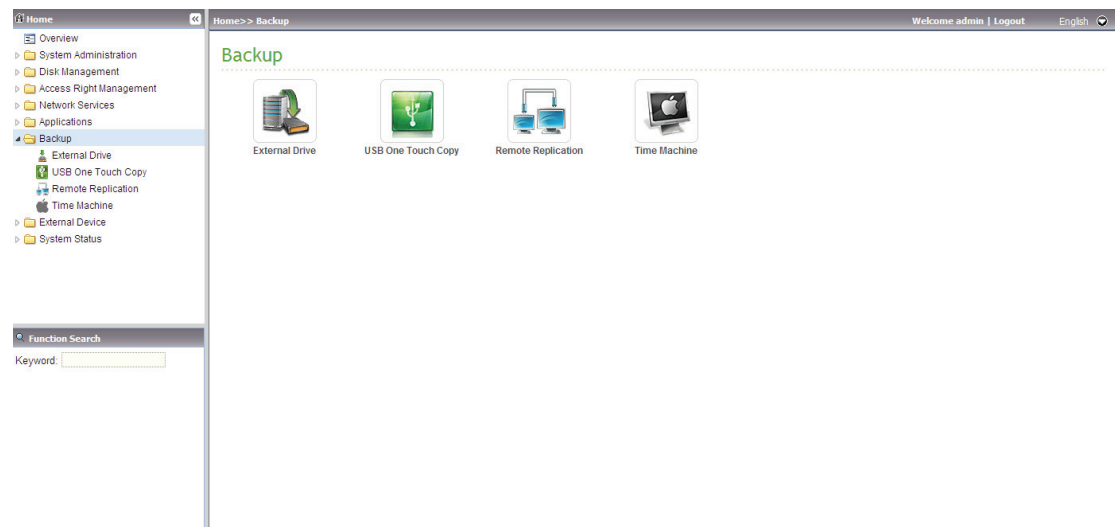
Before installing the QPKG package, unzip the downloaded file. To install the QPKG, browse to select the correct QPKG file and click "INSTALL".

After uploading the QPKG packages, the details are shown. Click the link to connect to the web page of the installed package and start to configure the settings.

To remove the package from the NAS, click "REMOVE".



3.6 Backup



3.6.1 External Drive

You can back up the local drive data to an external storage device. Select to execute instant, automatic, or scheduled backup, and configure the settings.

- Backup Now: To back up the data to the external storage device immediately.
- Schedule Backup: To back up the data by schedule. You can select the weekday and time to execute the backup.
- Auto-backup: To execute the backup automatically once the storage device is connected to the NAS.

Copy Options:

You can select "Copy" to copy the files from the NAS to the external device. Select "Synchronize" to synchronize the data between the NAS and the external storage device. Any differentiated files on the external device will be deleted.

Note: During the data copy or synchronization, the identical files on both sides will not be copied. If there are files in the same name but different in size or modified dates on NAS and the external device, the files on the external device are overwritten.

Home

Overview

System Administration

Disk Management

Access Right Management

Network Services

Applications

Backup

External Drive

USB One Touch Copy

Remote Replication

Time Machine

External Device

System Status

Home >> Backup >> External Drive

Welcome admin | LogoutEnglish

External Drive

Back up to an external storage device

Back up the local disk data to an external storage device. You can select instant, automatic, or schedule backup.

Directory to back up

Directory not to back up

Back up to an External Storage Device: USBdisk1

No external device is detected currently.

Free Size/Total Size:--

Backup Method: Do not backup

Do not execute any backup.

Copy options: Copy

Back up data to the destination drive.

Current Backup Status: No backup operations.

Last Backup Time:

Last Backup Result:

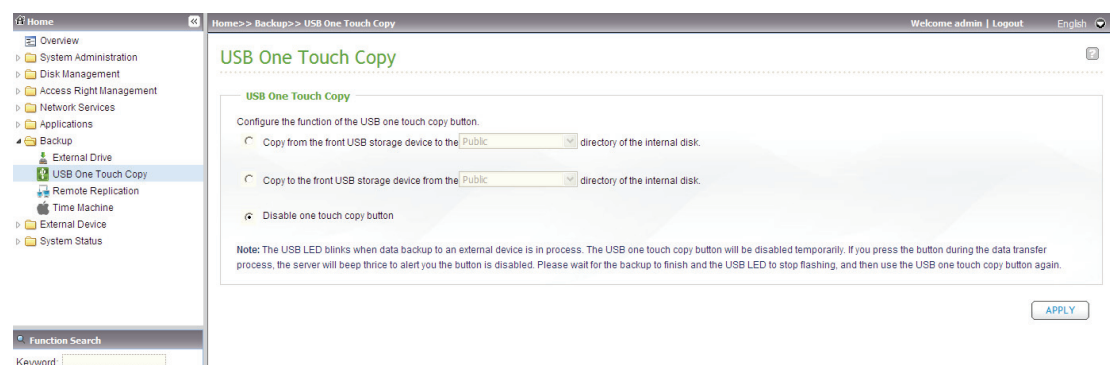
APPLY

3.6.2 USB One Touch Copy

You can configure the behaviour of the USB one touch copy button on this page.

The following three functions are available:

- Copy from the front USB storage to a directory of the internal drive of the NAS.
- Copy to the front USB storage from a directory of the internal drive of the NAS.
- Disable the one touch copy button



Data Copy by the Front USB Port

The NAS supports instant data backup from the external USB device to the NAS or the other way round by the front one touch copy button. To use this function, follow the steps below:

1. Make sure a hard drive is installed and formatted on the NAS. The default network share Qusb/ Usb has been created.
2. Turn on the NAS.
3. Configure the behavior of the Copy button on "Backup" > "USB one touch copy" page.
4. Connect the USB device, e.g. digital camera or flash, to the front USB port of the NAS.
5. Press the Copy button once. The data will be copied according to your settings on the NAS.

Note: Incremental backup is used for this feature. After the first time data backup, the NAS only copies the changed files since the last backup.

3.6.3 Remote Replication

3.6.3.1 Remote Replication

You can use this option to back up the files on the NAS to another QNAP NAS or Rsync server over LAN or the Internet.

Make sure a network share has been created before adding a remote replication task.

- ✓ **Port Number:** Specify a port number for remote replication. The default port number is 873.

Note: If this server connects to the Internet through a router, make sure the specified port for remote replication is opened on the router.

- ✓ **Enable backup from a remote server to the local host:** Select this option to allow the remote server to back up data to the local host via remote replication.
- ✓ **Allow remote Rsync server to back up data to NAS:** Enable this option to allow a remote Rsync server to back up the data to the NAS by remote replication.

Home > Backup > Remote Replication

Welcome admin | Logout English

Remote Replication

REMOTE REPLICATION AMAZON S3

Remote Replication

By using this function, you can back up the data on the local server to a remote server of the same NAS series, and also allow backup from remote server to the local server.

Port Number: 873

☒ Enable backup from a remote server to the local host

☒ Allow remote Rsync server to back up data to NAS

APPLY

Current Jobs

Create New Replicating Job

Job Name	Schedule	Status	Action
backup	00:00 - Monthly: 1	Ready	

Delete

Follow the steps below to create a remote replication job for backup from the NAS to another QNAP NAS.

1. Click "Create New Replicating Job" to create a new task.
2. Select the server type and enter the job name.
3. Enter the IP address or domain name (if any) of the remote server, the port number of the remote server, the user name and password with write access to the remote server. Click "Test" to check if the connection is successful or not.

Note:

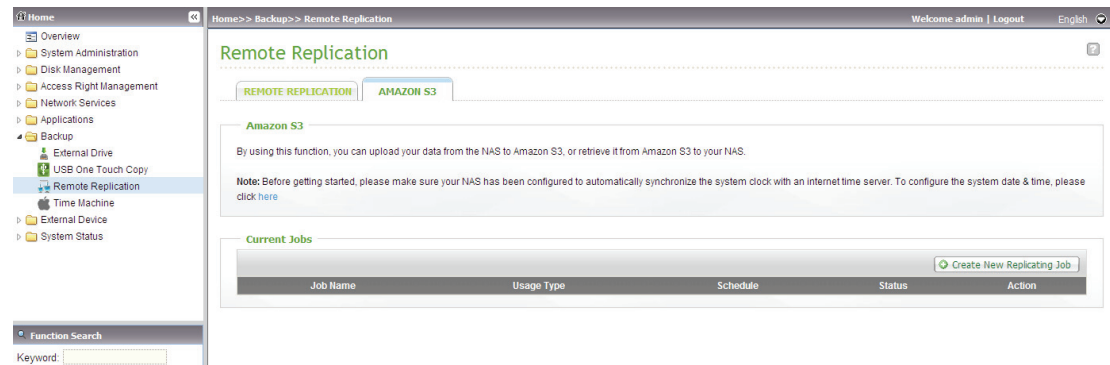
- To use remote replication, enable Microsoft Networking service, make sure the destination network share and directory have been created, and the user name and password are valid to login the destination folder.
- The share folder name (network share or directory) is case-sensitive.

4. Enter the destination path. The share folder name (network share or directory) is case-sensitive.
5. Enter the source path. You can select to back up the whole network share and a folder in the share.
6. Define the replication schedule.
7. Set up other options for the remote replication job. Then click "Finish".

3.6.3.2 Amazon S3

Amazon S3 (Simple Storage Service) is an online storage web service offered by AWS (Amazon Web Services). It provides a simple web services interface that can be used to store and retrieve the data from anywhere on the web. With Amazon S3, you can upload the data from your NAS to Amazon S3 or download the data from Amazon S3 to your NAS.


Note that you need to register an AWS account from <http://aws.amazon.com/> and pay for the service. After signing up for an account, you need to create at least one bucket (root folder) on Amazon S3 by an Amazon S3 application. We recommend the Mozilla Firefox add-on "S3Fox" for beginners.



After setting up the Amazon S3 account, follow the steps below to back up the data to or retrieve the data from Amazon S3 using the NAS.

1. Click "Create New Replicating Job".
2. Enter the remote replication job name.
3. Select the usage type: "Upload" or "Download" and enter other settings. A bucket is the root directory on Amazon S3. You can test the connection to the remote host testing by clicking "TEST". Other settings are optional.

Remote Replication



Amazon S3

Usage Type:

Access Key:

Private Key:

Remote Path (Bucket/Directory): /

Remote Host Testing:

Step 2 of 5

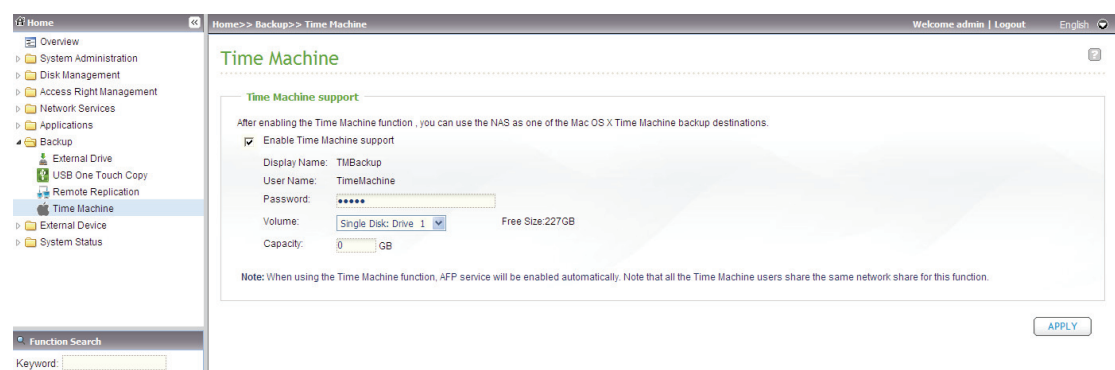
4. Specify the local directory on the NAS for replication.
5. Enter the replication schedule.
6. Click "Finish". The replication job will be executed according to your schedule.

3.6.4 Time Machine

You can enable Time Machine support to use the NAS as a backup destination of multiple Mac by the Time Machine feature on OS X.

This function is applicable to some models only. Please refer to the comparison table for more details:

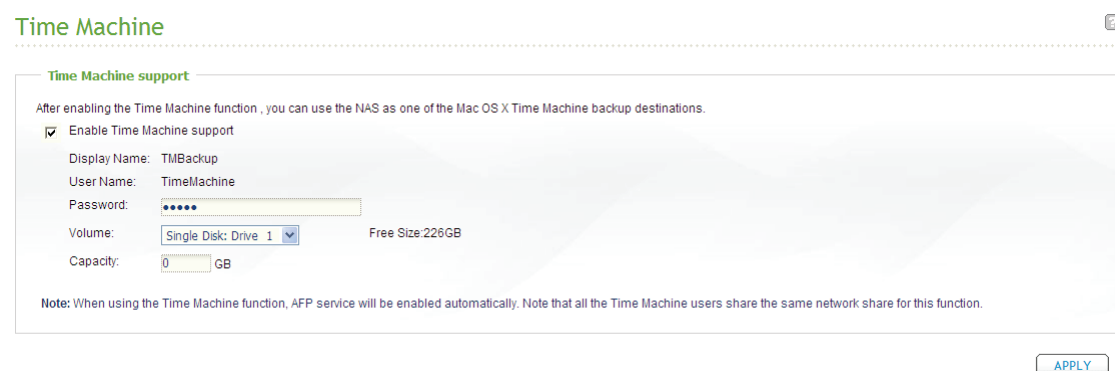
http://www.qnap.com/images/products/comparison/Comparison_NAS.html



To use this function, follow the steps below.

Configure the settings on the NAS:

1. Enable Time Machine support.



2. Enter the Time Machine password. The password is empty by default.
3. Select a volume on the NAS as the backup destination.
4. Enter the storage capacity that Time Machine backup is allowed to use.
5. Click "Apply" to save the settings.

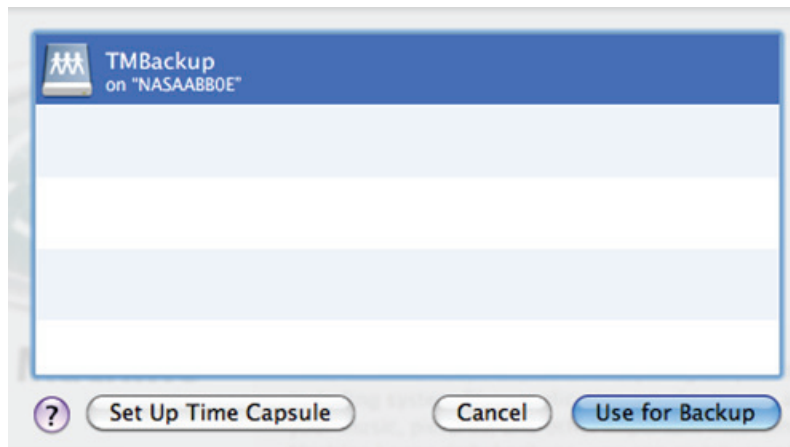
All the Time Machine users share the same network share for this function.

Configure the backup settings on Mac:

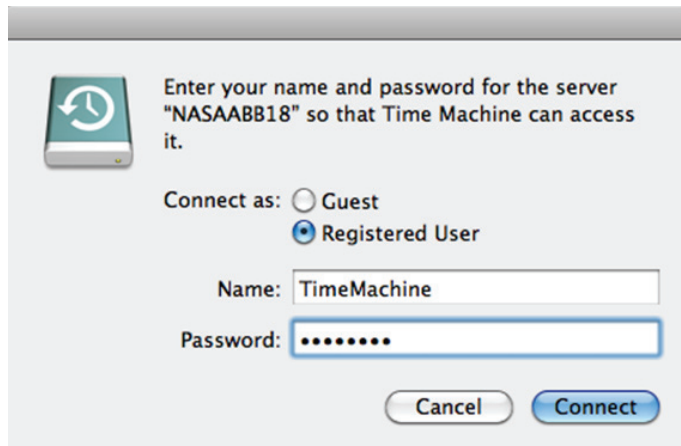
1. Open Time Machine on your Mac and click "Select Backup Disk".



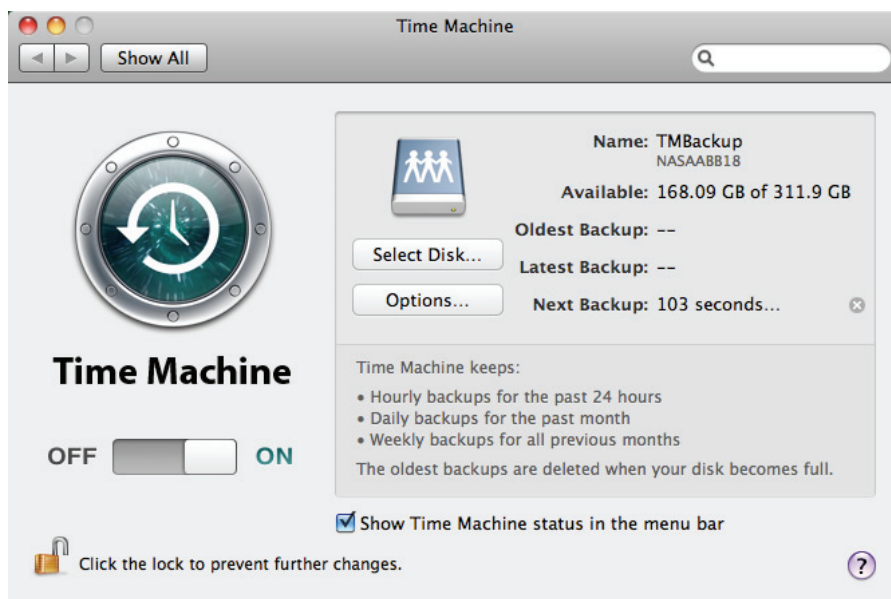
2. Select the TMBBackup on your NAS from the list and click "Use for Backup".



3. Enter the user name and password to login the QNAP NAS. Then click "Connect".
Registered user name: TimeMachine
Password: The password you have configured on the NAS. The password is empty by default.

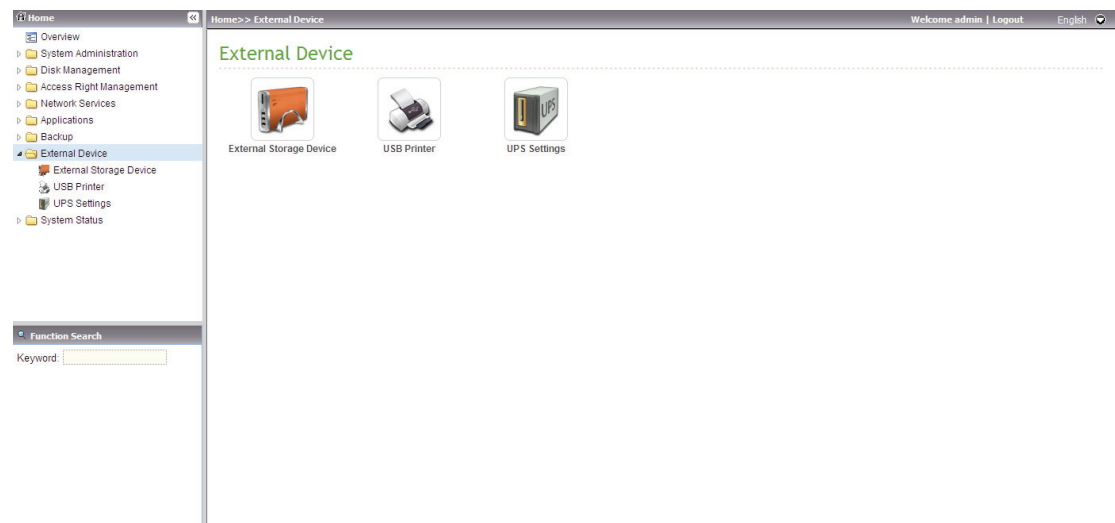


4. Upon successful connection, the Time Machine is switched "ON". The available space for backup is shown and the backup will start in 120 seconds.



The first time backup may take more time according to the data size on Mac. To recover the data to the Mac OS, please refer to the tutorial on <http://www.apple.com/>.

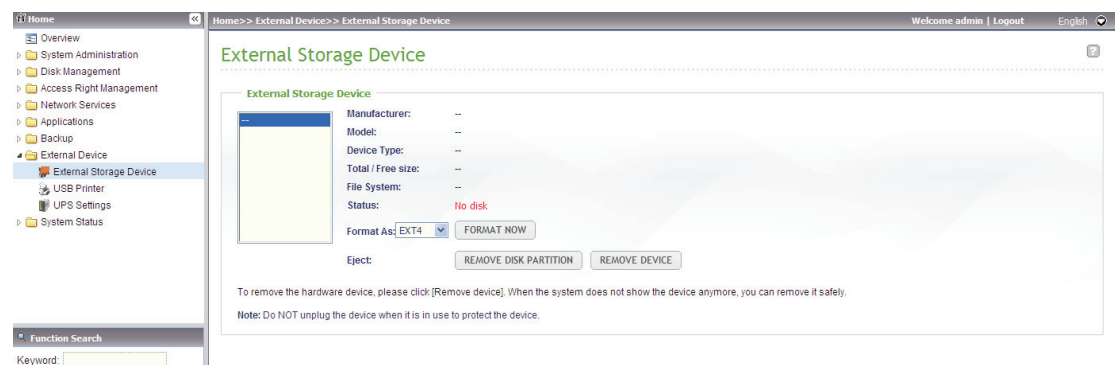
3.7 External Device



3.7.1 External Storage Device

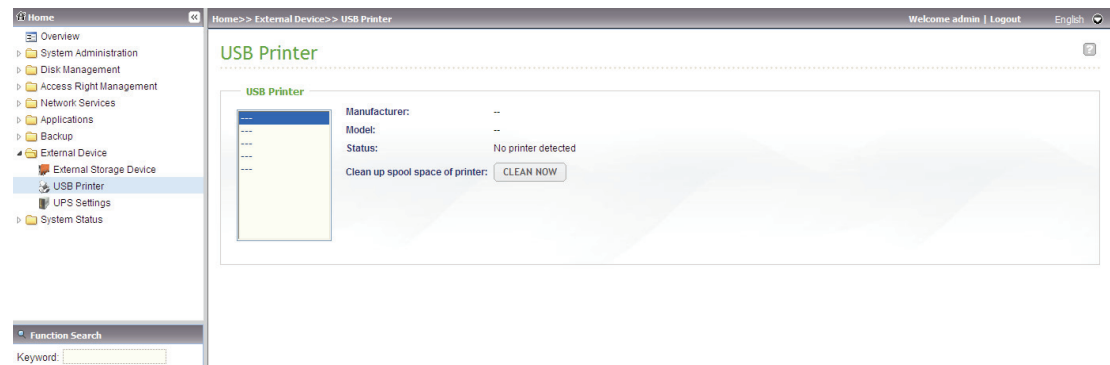
The NAS supports USB disks and thumb drives for extended storage. Connect the USB device to the USB port of the NAS, when the device is successfully detected, the details are shown on this page.

It may take tens of seconds for the NAS server to detect the external USB device successfully. Please wait patiently.



3.7.2 USB Printer

To provide printer sharing function for the network users, you can simply connect a USB printer to the USB port of the NAS. The NAS detects the printer automatically. Up to 3 printers are supported.



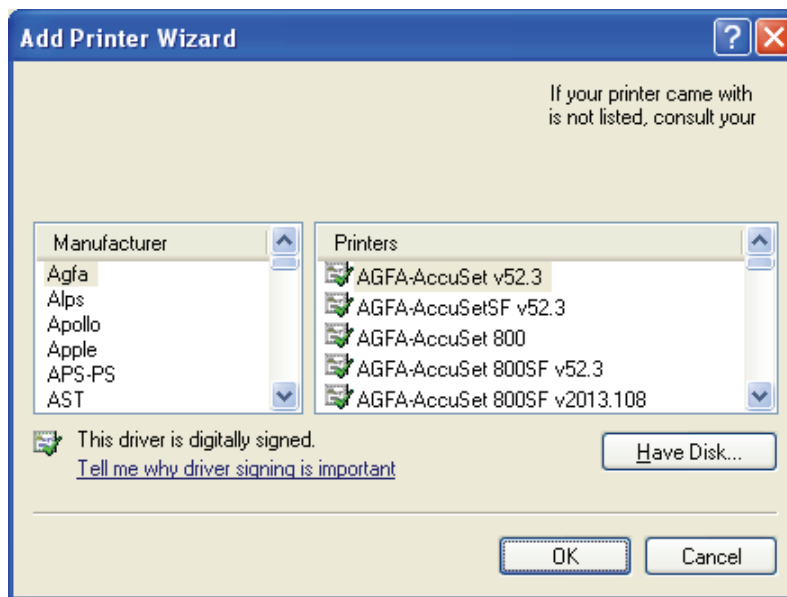
Note:

- Please connect a USB printer to the NAS after the software configuration is completed.
- The NAS does not support multifunction printer.
- For the information of the supported USB printer models, please visit <http://www.qnap.com/>.

3.7.2.1 *Windows XP Users*

Method 1

1. Enter \\WAS IP in Windows Explorer.
2. A printer icon is shown as a network share on the server. Double click the icon.
3. Install the printer driver.



4. When finished, you can start to use the network printer service of the NAS.

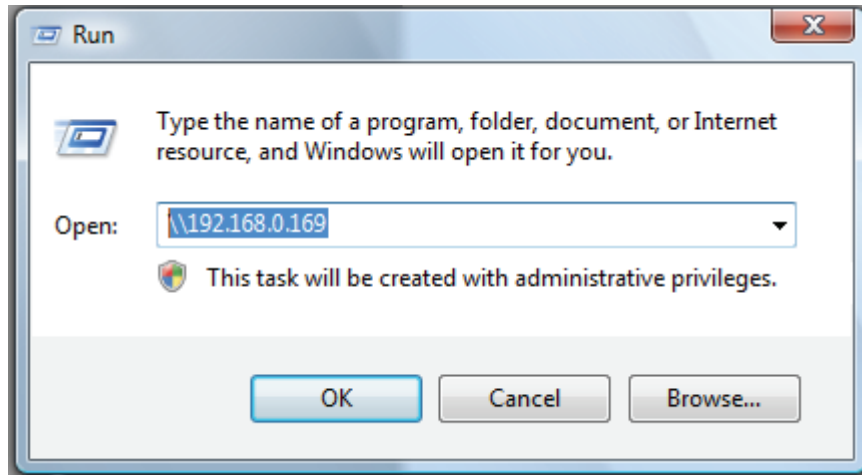
Method 2

The following configuration method has been verified on Windows XP only:

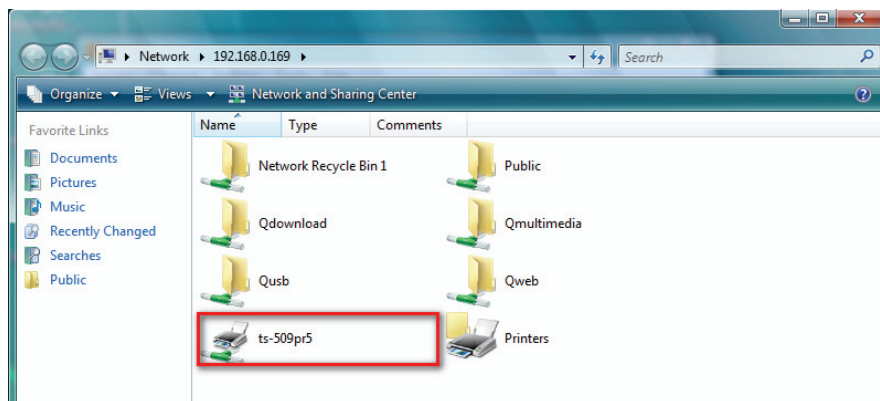
1. Open "Printers and Faxes".
2. Delete the existing network printer (if any).
3. Right click the blank area in the Printers and Faxes window. Select "Server Properties".
4. Click the "Ports" tab and delete the ports configured for the previous network printer (if any).
5. Restart your PC.
6. Open Printers and Faxes.
7. Click "Add a printer" and click "Next".
8. Select "Local printer attached to this computer". Click "Next".
9. Click "Create a new port" and select "Local Port" from the drop-down menu. Click "Next".
10. Enter the port name. The format is \\NAS IP\NAS namepr, e.g. NAS IP= 192.168.1.1, NAS name= myNAS, the link is \\192.168.1.1\myNASpr.
11. Install the printer driver.
12. Print a test page.

3.7.2.2 Windows Vista/ Windows 7 Users

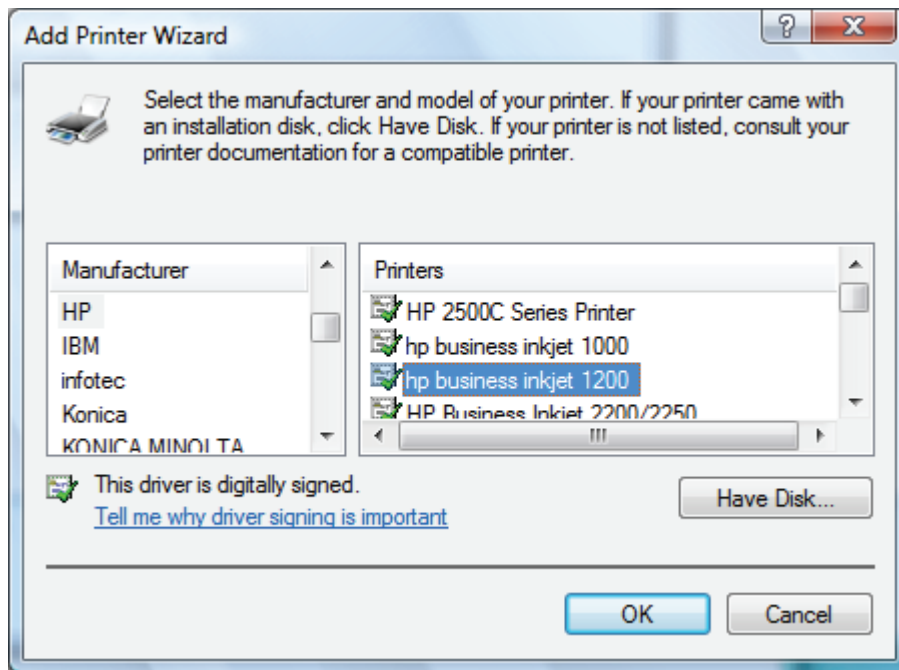
1. On the Run menu, enter \\NAS IP.



2. Find the network printer icon and double click it.



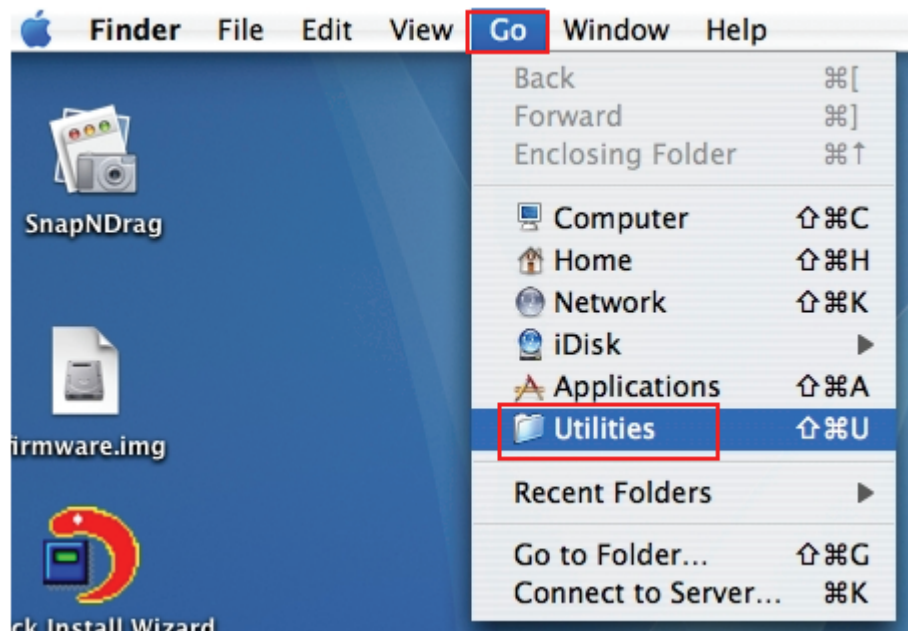
3. Install the correct printer driver.



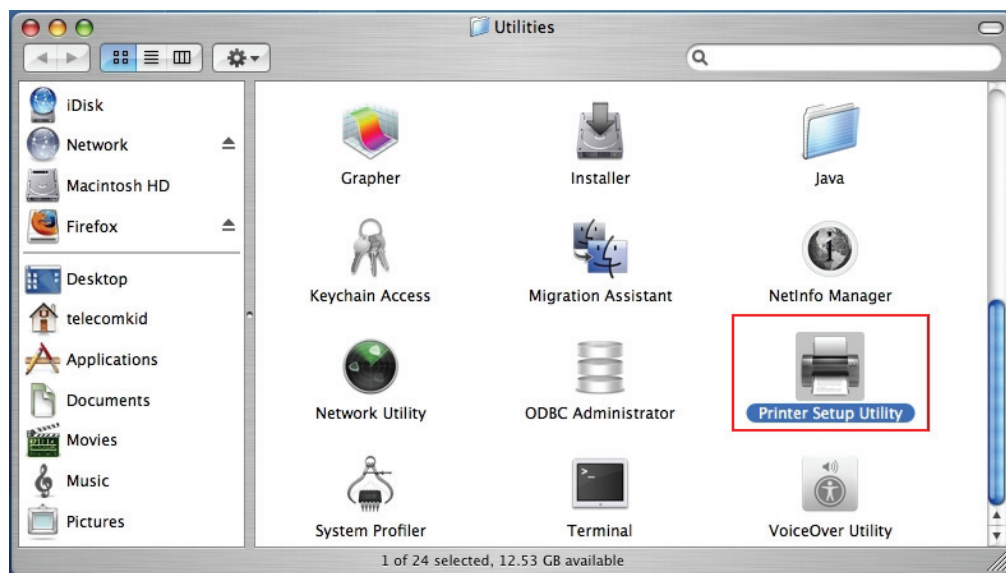
4. When finished, print a test page to verify the printer is ready to use.

3.7.2.3 Mac OS X 10.4

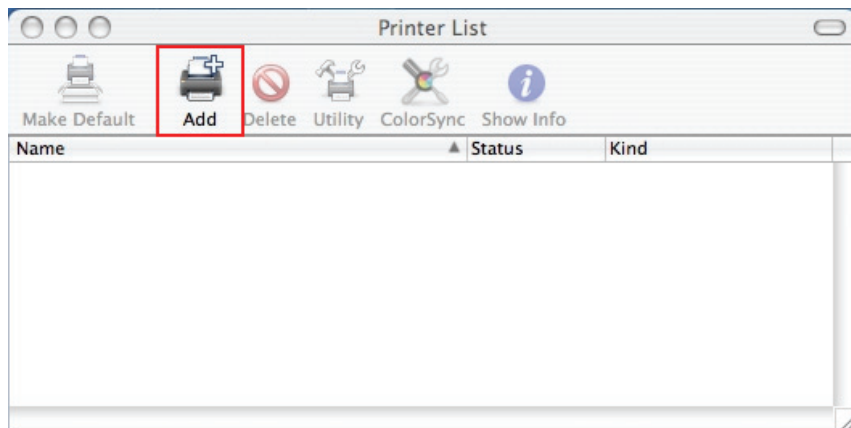
1. On the toolbar, click "Go/ Utilities".




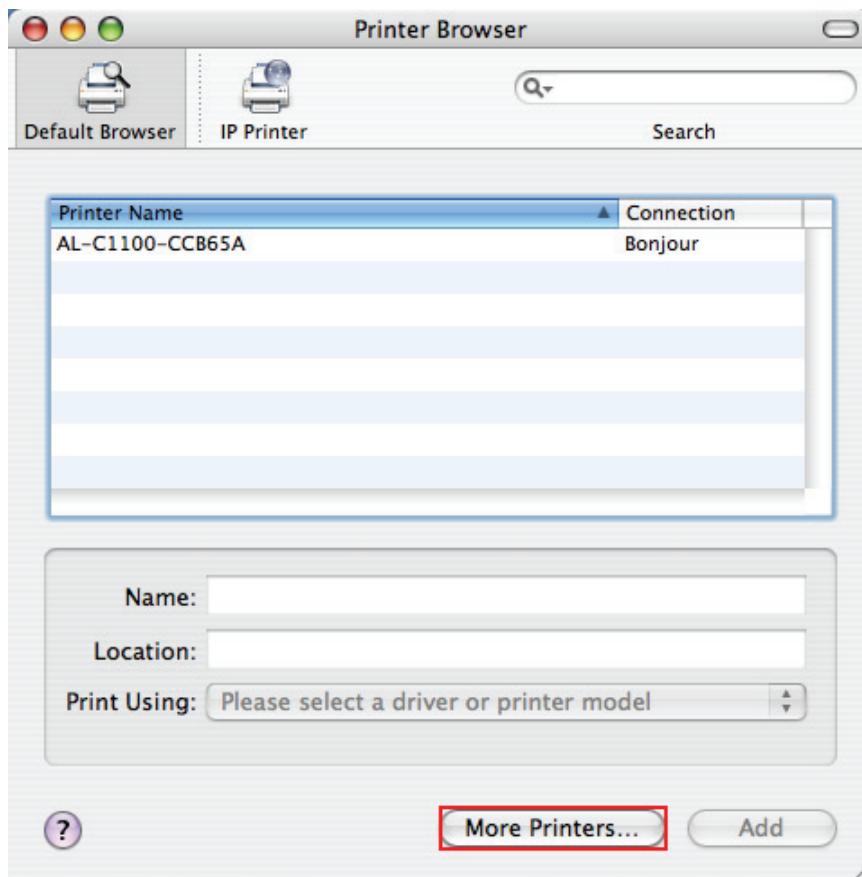
2. Click "Printer Setup Utility".



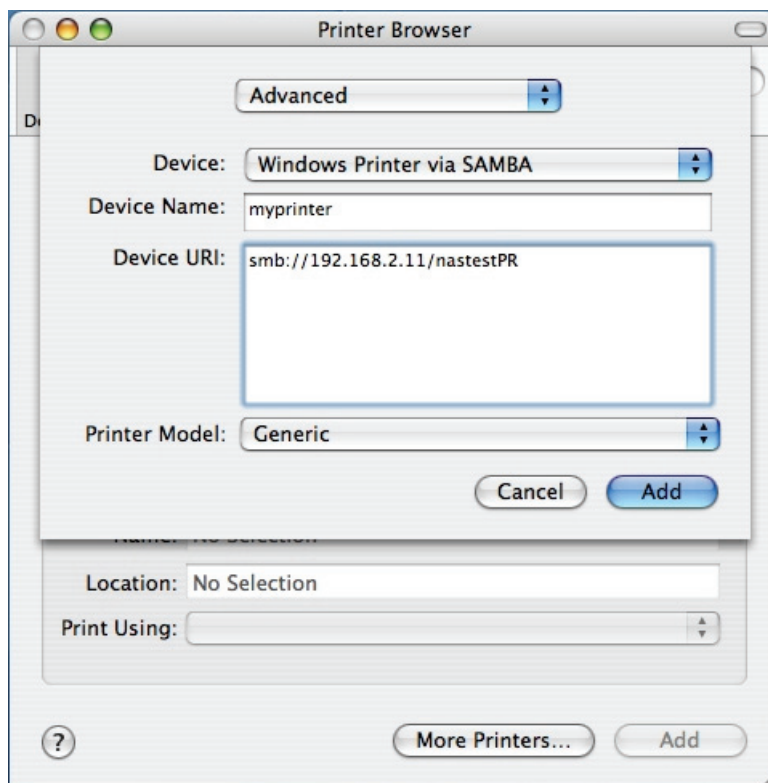
3. Click "Add".



4. Press and hold the "alt" key  on the keyboard and click "More Printers" concurrently.

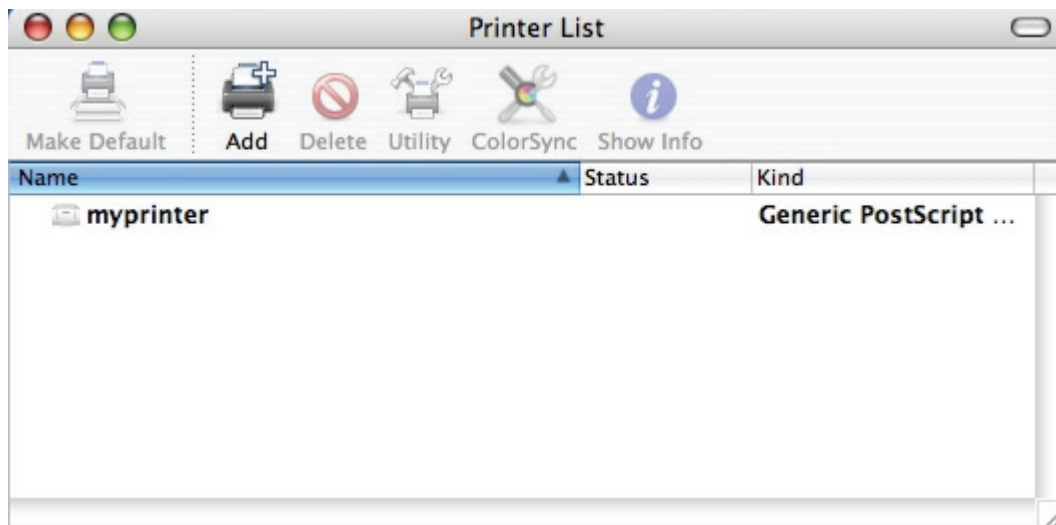


5. In the pop up window:
 - a. Select "Advanced"*..
 - b. Select "Windows Printer with SAMBA".
 - c. Enter the printer name.
 - d. Enter the printer URI, the format is smb://NAS IP/printer name. The printer name is found on the "Device Configuration" > "USB Printer page".
 - e. Select "Generic" for Printer Model.
 - f. Click "Add".



*Note that you must hold and press the "alt" key and click "More Printers" at the same time to view the Advanced printer settings. Otherwise, this option does not appear.

6. The printer appears on the printer list. It is ready to use.

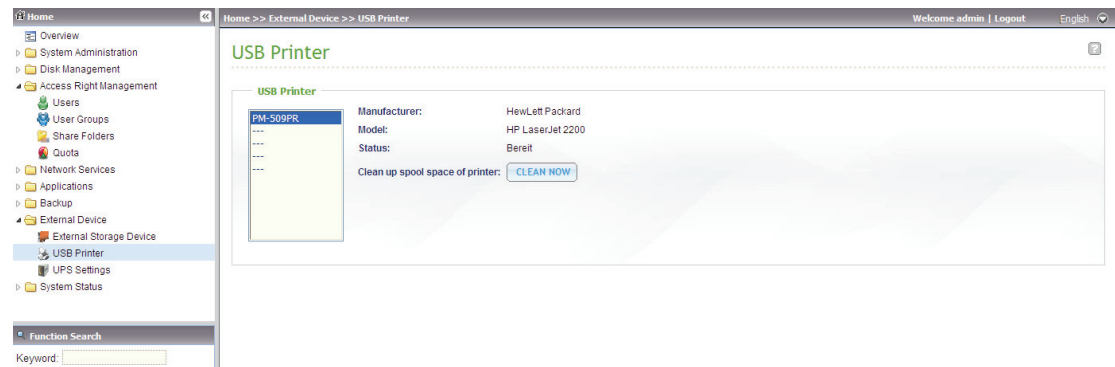


Note: The network printer service of the NAS supports Postscript printer on Mac OS only.

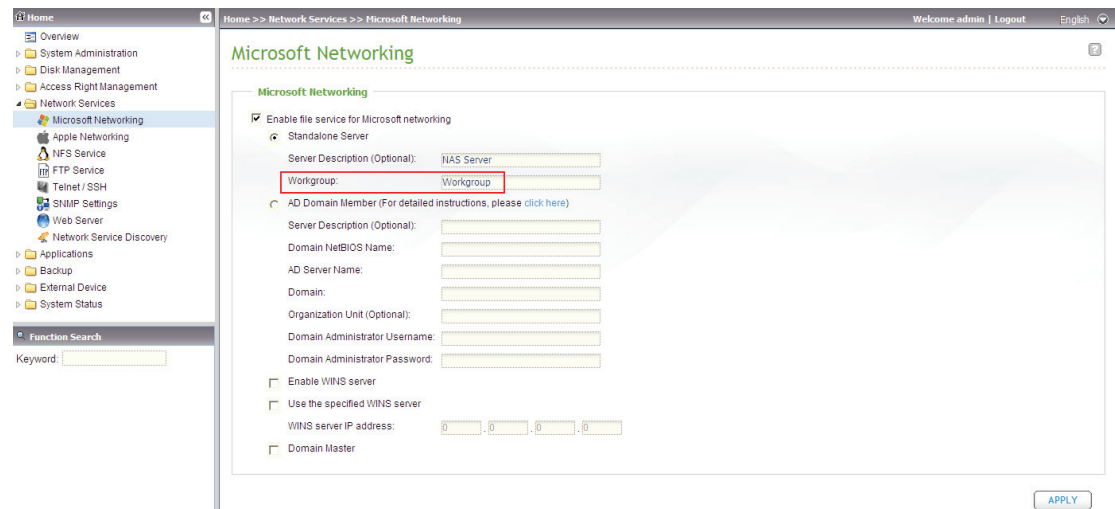
3.7.2.4 Mac OS X 10.5

If you are using Mac OS X 10.5, follow the steps below to configure the printer function of the NAS.

1. Make sure your printer is connected to the NAS and the printer information is displayed correctly on the "USB Printer" page.



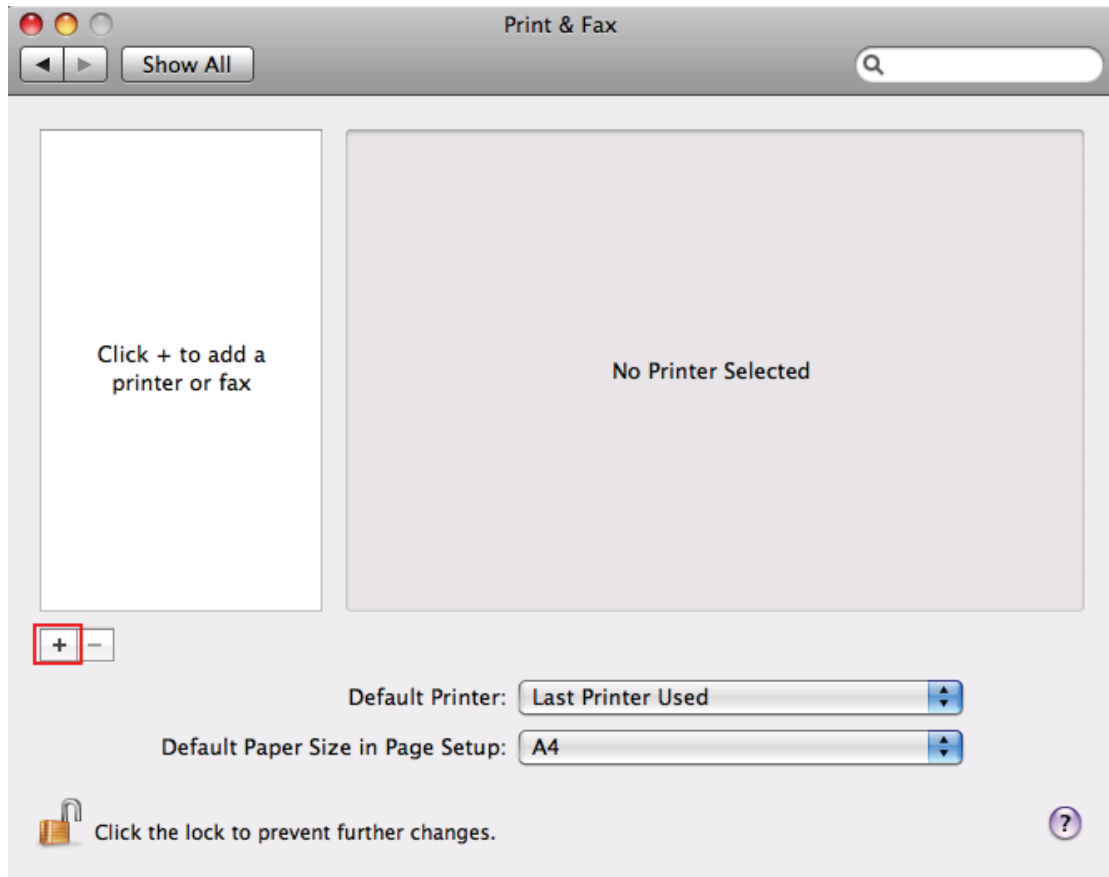
2. Go to "Network Services" > "Microsoft Networking". Enter a workgroup name for the NAS. You will need this information later.



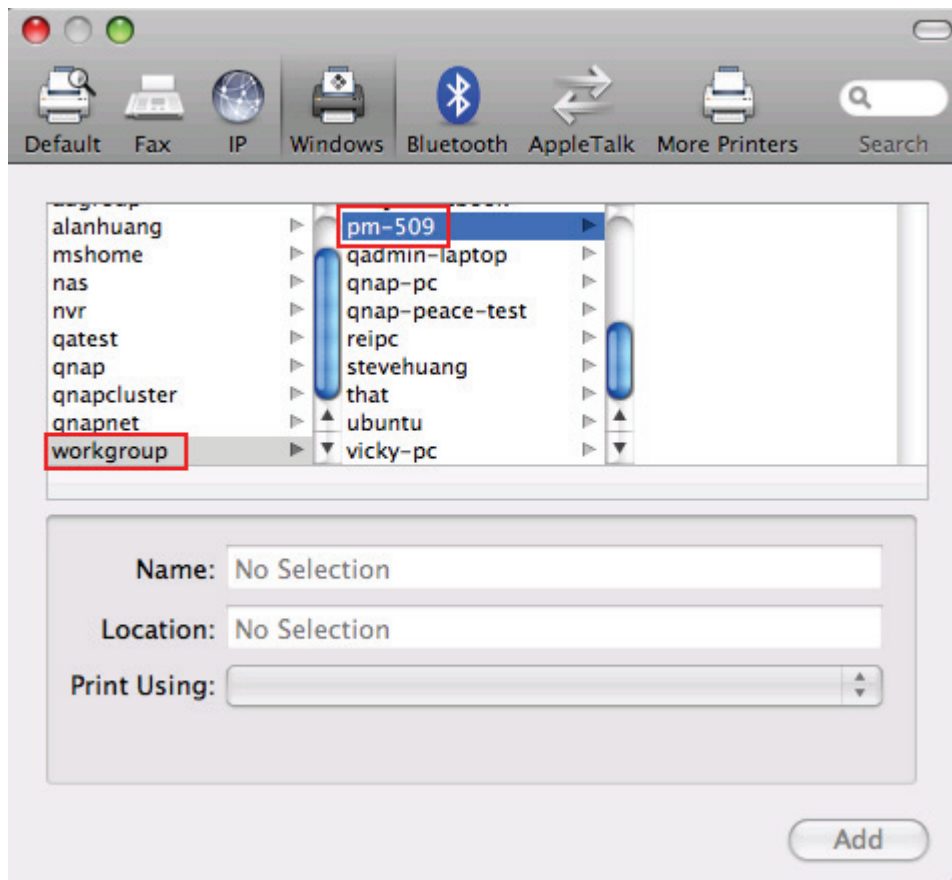
3. Go to "Print & Fax" on your Mac.



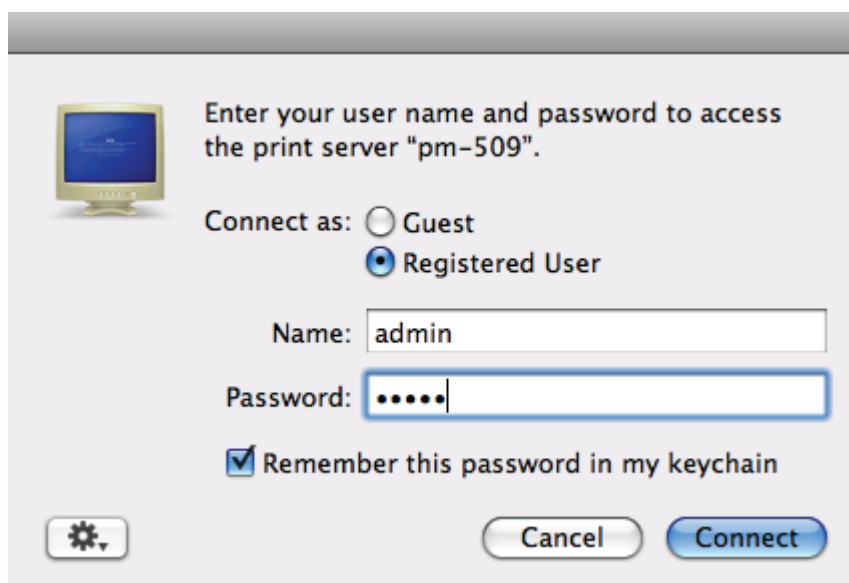
4. Click + to add a printer.



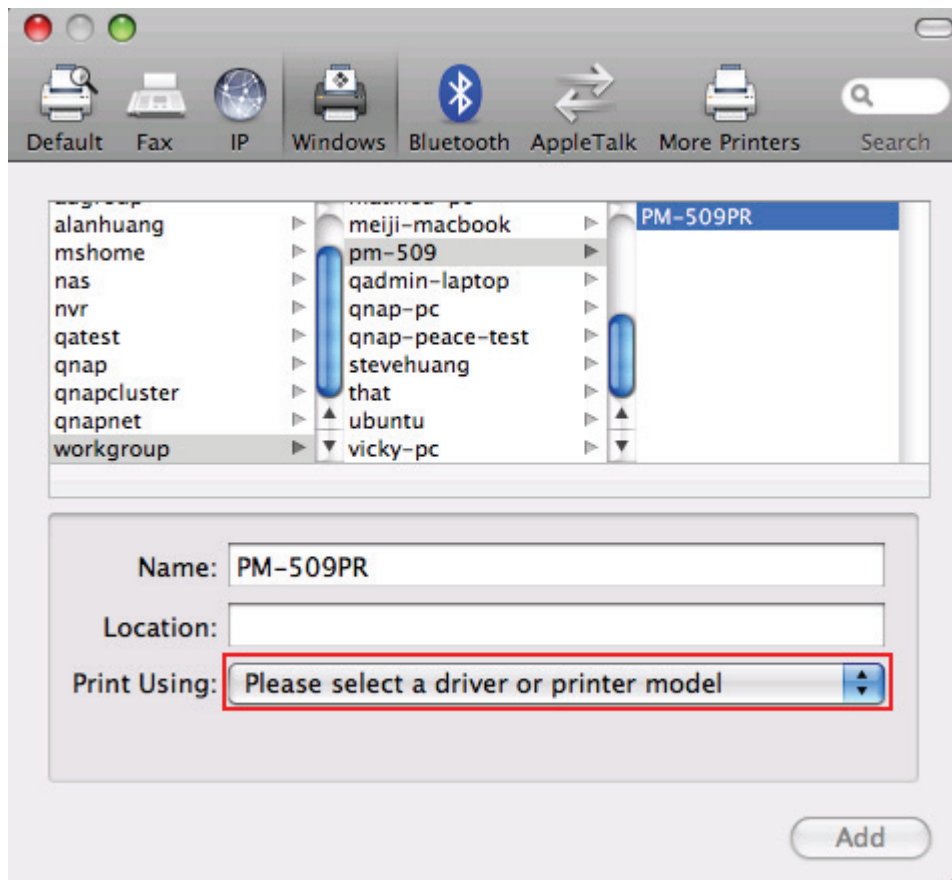
5. Select the NAS workgroup and find the printer name.



6. Enter the user name and password to login the printer server on the NAS.



7. Select the printer driver.



✓ Please select a driver or printer model

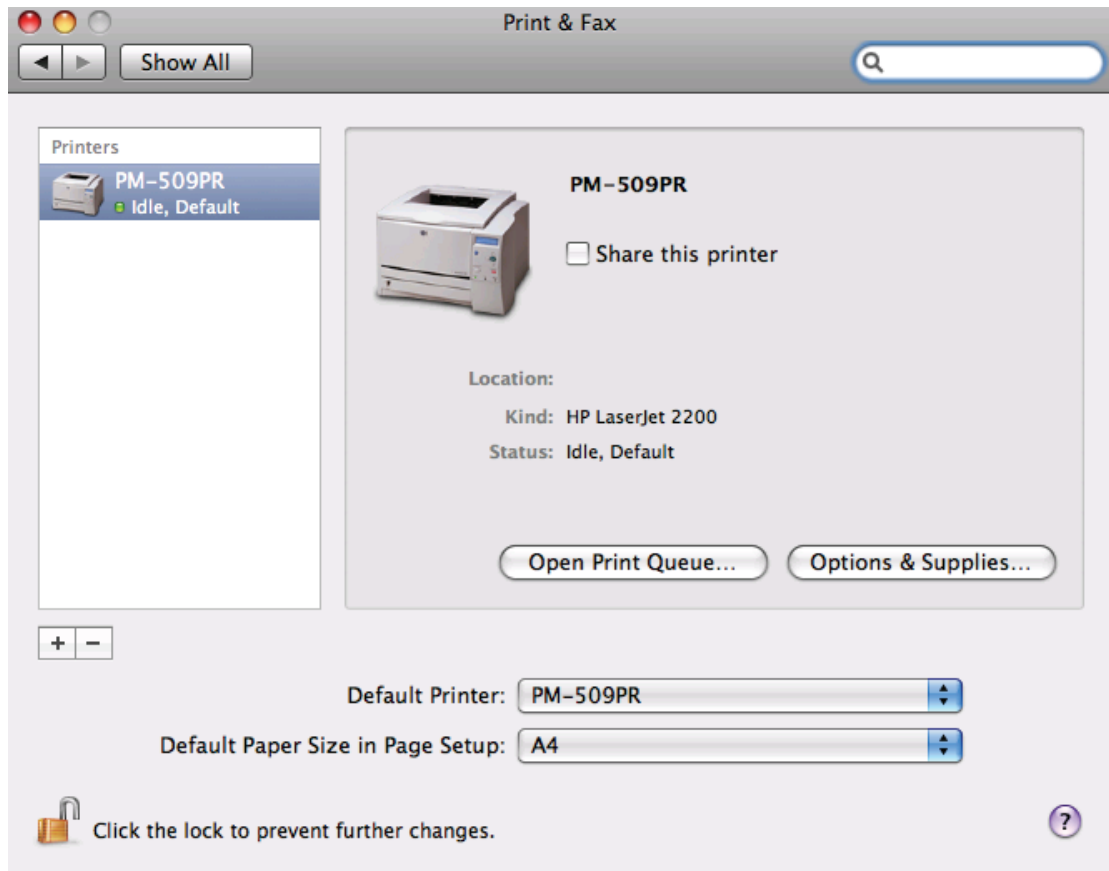
Auto Select

Generic PostScript Printer

Select a driver to use...

Other...

8. After installing the printer driver correctly, you can start to use the printer.



3.7.3 UPS Settings

You can connect a UPS (uninterruptible power supply) to the NAS and enable the UPS support. When an expected power outage occurs, the UPS is able to supply the power to the NAS continuously. You can also configure the settings to turn off the NAS after the AC power fails. If the power of the UPS is insufficient to last for the time specified, the NAS will shut down immediately for optimized server protection.

✓ Enable UPS support

Select this option to enable the UPS support. Enter the time the NAS should wait before shutting down after the AC power fails. In general, the UPS can supply the power for 5-10 minutes when the AC power fails depending on the maximum load and the number of connected devices.

✓ UPS Model

Select the UPS model from the list. If the UPS model you are using is not available on the list, please contact our technical support.

✓ IP Address of UPS

If you select to use "APC UPS with SNMP Management", enter the IP address of the UPS.

Note: To allow your UPS device to send SNMP alerts to the QNAP NAS in case of power loss, you may have to enter the IP address of the NAS in the configuration page of the UPS device.

Behaviour of the UPS feature of the NAS:

In case of power loss and power recovery, the events will be logged in the "System Event Logs".

During a power loss, the NAS will wait for the specified time you enter in the "UPS Settings" before going into the standby mode or powering off.

If the power is recovered before the end of the waiting time, the NAS will remain in operation and cancel its power-off or standby action. If the power does not recover after the waiting time, the NAS will be powered off or enter standby mode.

Once the power recovers:

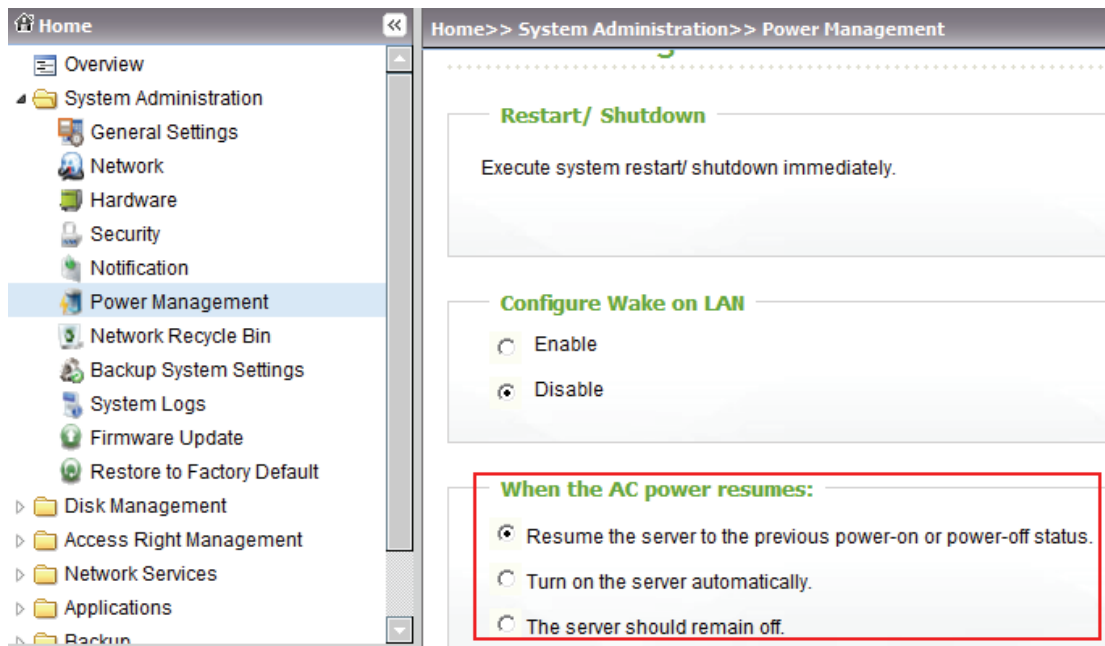
- If the NAS is in standby mode, it will resume to normal operation.
- If the NAS is powered off, it will remain off.

Comparison of the standby mode and the power-off mode

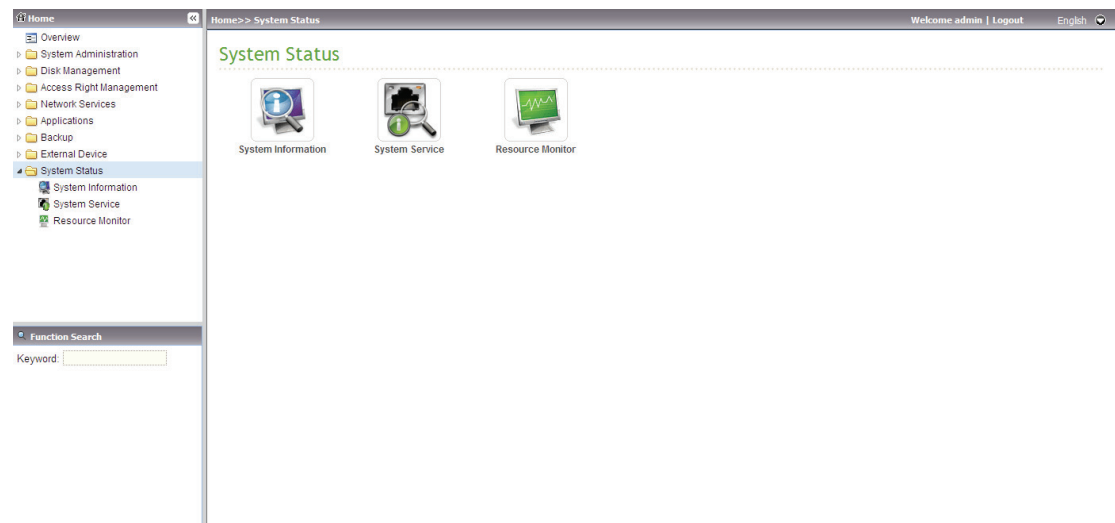
Mode	Advantage	Disadvantage
Standby mode	The NAS resumes after power recovery.	If the power outage lasts until the UPS is turned off, the NAS may suffer from abnormal shutdown.
Power-off mode	The NAS will be shut down properly.	The NAS will remain off after the power recovery. Manual power on of the server is required.

If the power recovers after the NAS has been shut down and before the UPS device is powered off, you may use the Wake on LAN feature to power on the NAS (if your NAS and UPS device both support Wake on LAN and Wake on LAN is enabled on the NAS).

If the power recovers after both the NAS and the UPS have been shut down, the NAS will react according to the settings in "System Administration" > "Power Management".

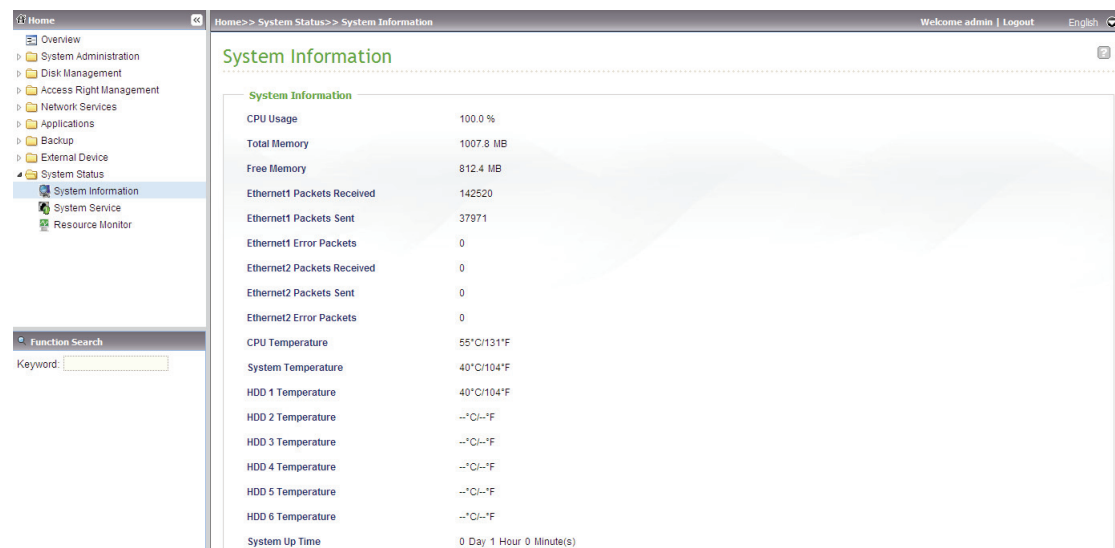


3.8 System Status



3.8.1 System Information

You can view the system information such as CPU usage and memory on this page.



3.8.2 System Service

You can view the current network settings and status of the NAS in this section.

Home

Overview

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Network Services

Applications

Backup

External Device

System Status

System Information

System Service

Resource Monitor

Function Search

Keyword:

Home>> System Status>> System Service

Welcome admin | Logout

English

System Service

System Service

Microsoft Networking

Enabled

Server Type

Standalone Server

Workgroup

NAS

Enable WINS server

Enable Domain Master

Apple Networking

Enabled

Apple Zone Name

TEST

Unix/Linux NFS

Enabled

Web File Manager

Enabled

FTP Service

Enabled

Port

21

Maximum Connections

30

Multimedia Station

Enable Multimedia Station

Enable iTunes Service

Enable UPnP Media Server

Download Station

Enabled

Web Server

Enabled

Port

80

register_globals

DDNS Service

Enabled

MySQL Server

Enabled

Enable TCP/IP Networking

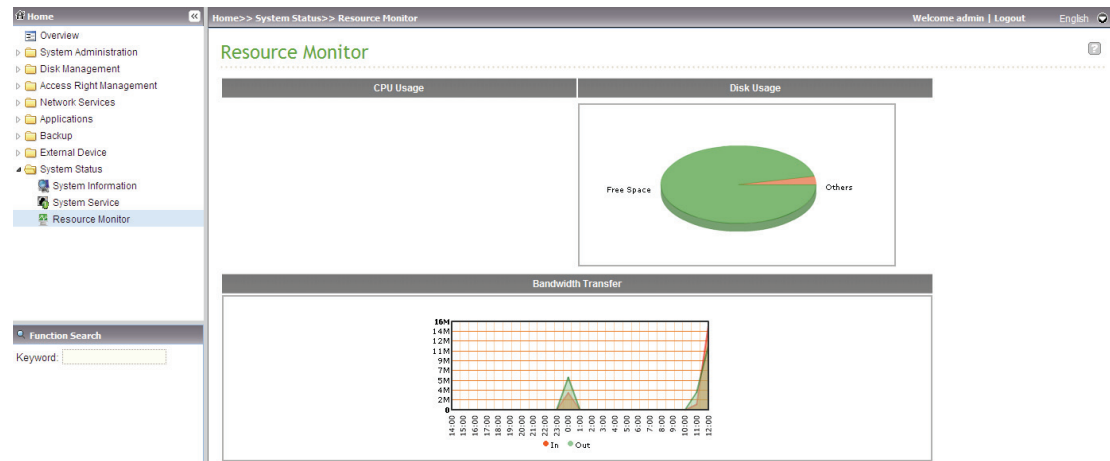
System Port Management

Port

8080

3.8.3 Resource Monitor

You can view the CPU usage, disk usage, and bandwidth transfer statistics of the NAS on this page.

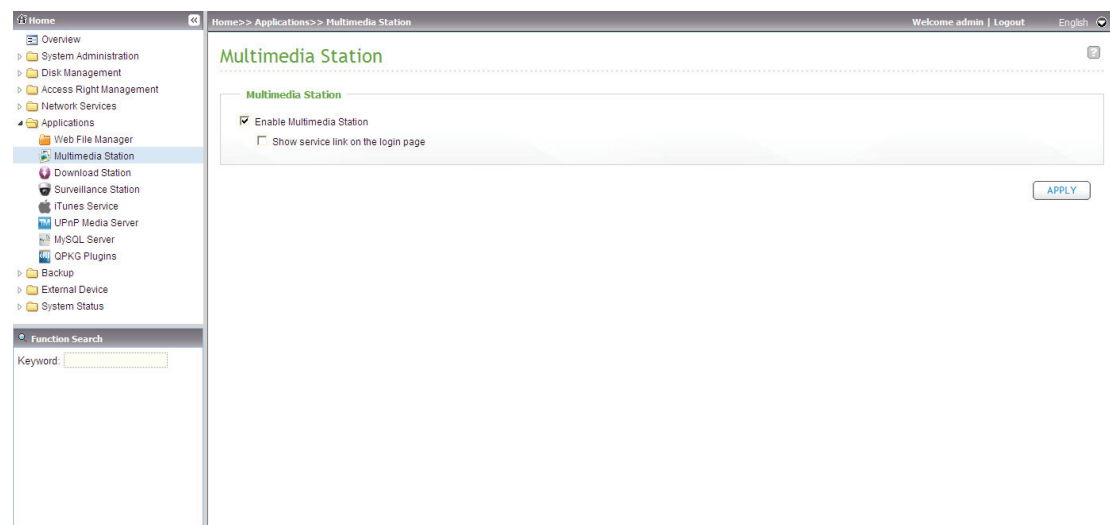


Chapter 4 Multimedia Station

The NAS provides a user-friendly web management interface for you to manage your albums easily. You can view the images and multimedia files, or browse the photos by thumbnail preview.

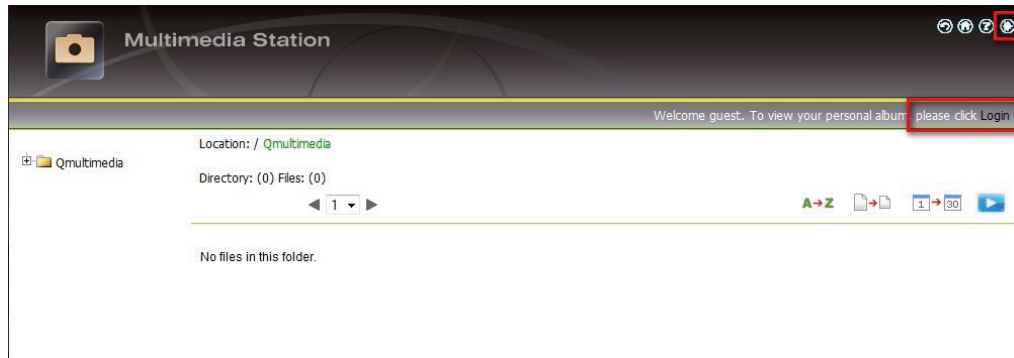
Upload photos by web administration

1. Go to "Applications" > "Multimedia Station". Enable the service.

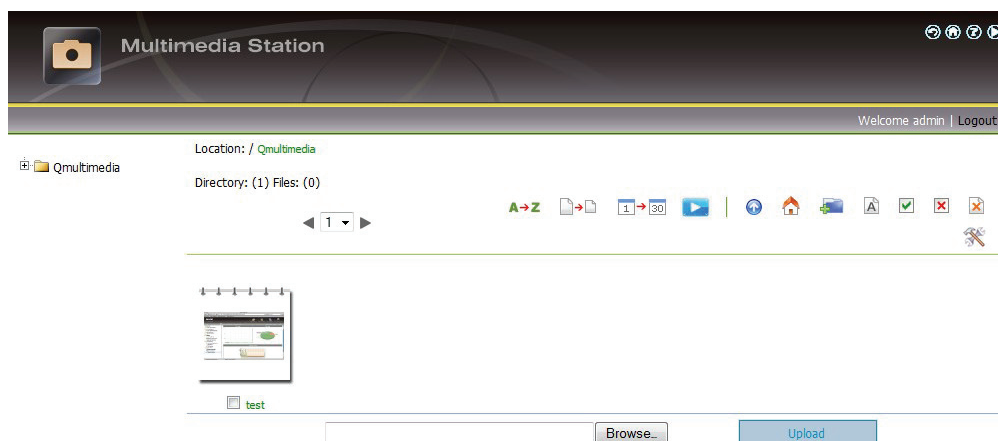


2. Click "Multimedia Station" on the top or on the login page of the NAS to connect to the Multimedia Station. If you login the service from the login page of the NAS, you are required to enter the user name and password.

3. Click "Login" on the top right hand corner. Login with the administrator name and password to manage the Multimedia Station. You can create the user accounts to allow the users to read the multimedia files.



4. Click "Browse" to select the multimedia file and then click "Upload" to upload the file to the folder.



5. You can also create the folders by clicking  and upload the files to the folders.











Upload the photos to the share folder of the NAS directly

You can upload the multimedia files to the NAS directly by the following steps.




1. Open the Windows Run menu. Enter *NAS name* or *NAS IP* to connect to the share folder on the NAS.
2. Open the folder Qmultimedia/ Multimedia. Enter the user name and password to login.
3. Drag the files and folders to the network share folder directly. Please wait patiently when the NAS is generating thumbnails for the images.

When you login the Multimedia Station by the web browser again, all the multimedia files will be shown.

Buttons on the Multimedia Station page

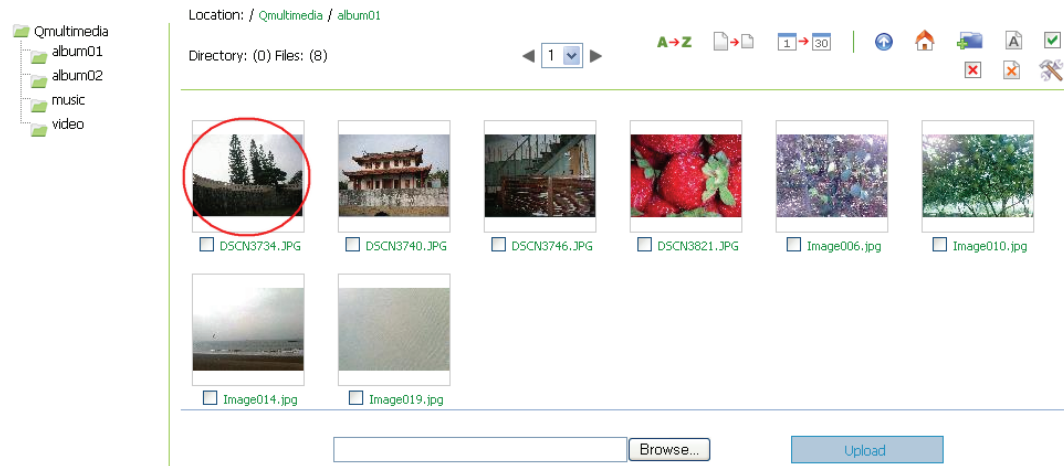
	Sort the files by name
	Sort the files by size
	Sort the files by date
	Return to the previous page
	Return to Home
	Create a folder
	Rename a file or folder
	Select all
	Select none
	Delete

Support file format list

Type	File format
Picture	JPG, BMP, GIF
Video 	WMV, WMX, WVX, AVI, MPEG, MPG, MPE, M1V, MP2, MPV2, MP2V, MPA, DVR-M, ASF, ASX, WPL, WM, WMX, WMD, WMZ
Audio 	WMA, WAX, CDA, WAV, MP3, M3U, MID, MIDI, RMI, AIF, AIFC, AIFF, AU, SND
Others 	(Other formats not mentioned above)

View the photo information

1. To view the detailed information of a photo, click the thumbnail of the picture.















2. The information of the photo, e.g. file name, resolution, size, camera producer will be shown on the right. You can enter a description of the picture and click "Submit". To reset the description to the previously saved version, click "Reset".



Buttons description

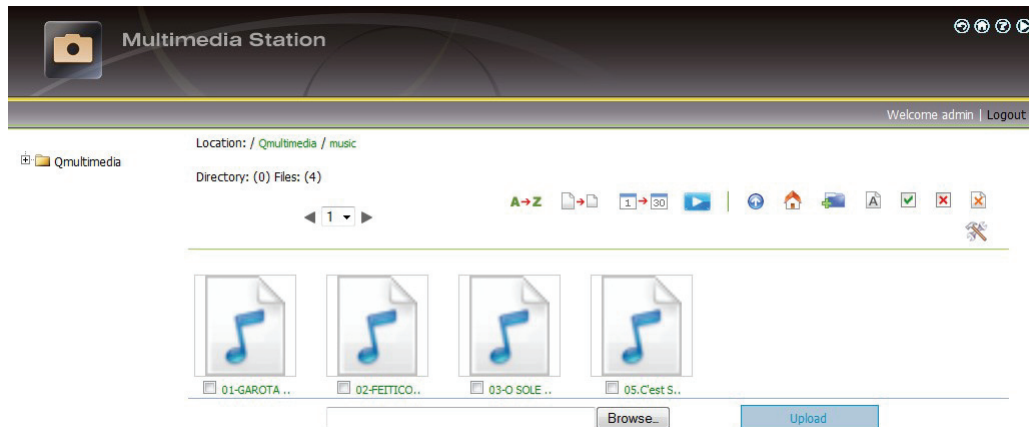
You can use the buttons on top of the photo to manage the album.

	Return to the previous level
	Previous image
	Next image
	Rotate the image anticlockwise
	Rotate the image clockwise
	Zoom in
	Zoom out
SlideShow: <input type="text" value="3"/>  	Play the slideshow. Select the time interval in seconds. Click "play" to play the slideshow. To stop playing, click "stop".
	Print the image
	Save the picture
	Set the picture as the album cover


Play music or video files

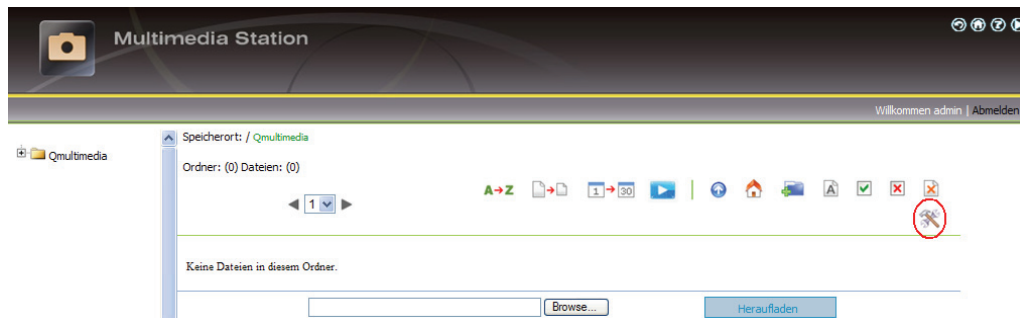
To play the music or video files on the Multimedia Station, click the thumbnail of the file displayed on the page. The file will be played by the default music or video playing program of your PC.

*It is recommended to use Windows Media Player 10.0 or above as the default playing program.

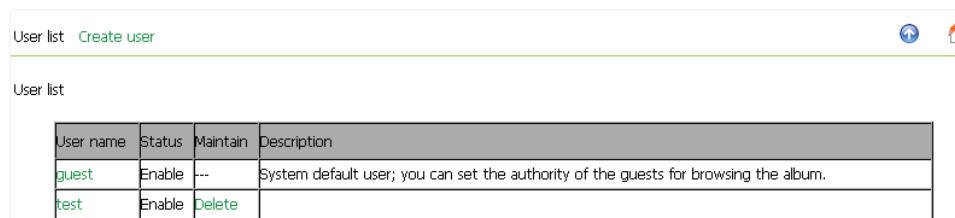


Configure album authority

1. After logging in as the administrator (admin), click  to enter the configuration page for album authority.



2. You can view, add, delete, and edit the users.



3. You can edit the user profile and album access authority on this page.

User's profile

User name: test

Description:

Password:

Verify Password:

☐ User cannot change the information.

☐ Disable

Accessible albums

Inaccessible albums: photos, music

Add Remove

Submit Cancel

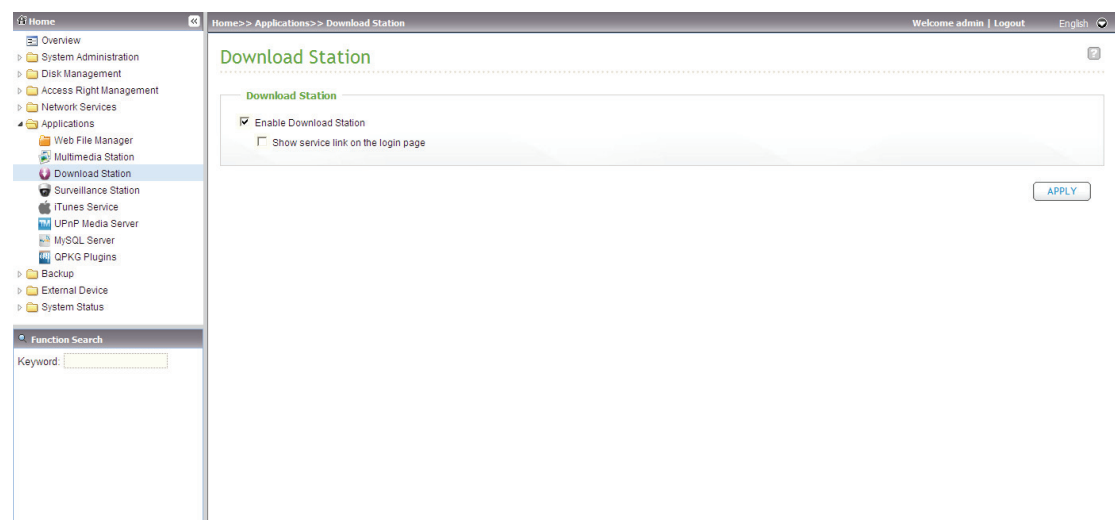
Chapter 5 Download Station

The NAS supports BT, HTTP, and FTP download. You can add the download tasks to the NAS and let the server finish the downloading independent of PC.



Warning: Please be warned against illegal downloading of copyrighted materials. The Download Station functionality is provided for downloading authorized files only. Downloading or distribution of unauthorized materials may result in severe civil and criminal penalty. Users are subject to the restrictions of the copyright laws and should accept all the consequences.

1. Go to "Applications" > "Download Station". Enable the service.

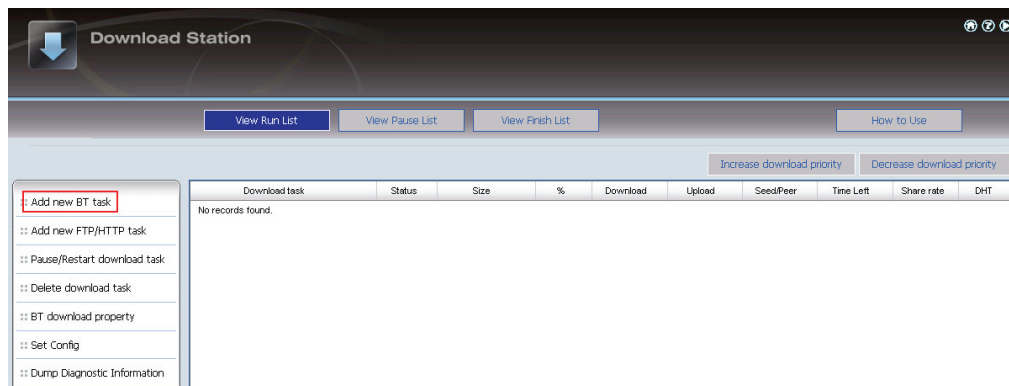


2. Click "Download Station" on the top or on the login page of the NAS to connect to the Download Station. If you login the service from the login page of the NAS, you are required to enter the user name and password.

3. Select "Add new BT task" or "Add new FTP/HTTP task".

(A) Add a new BT task

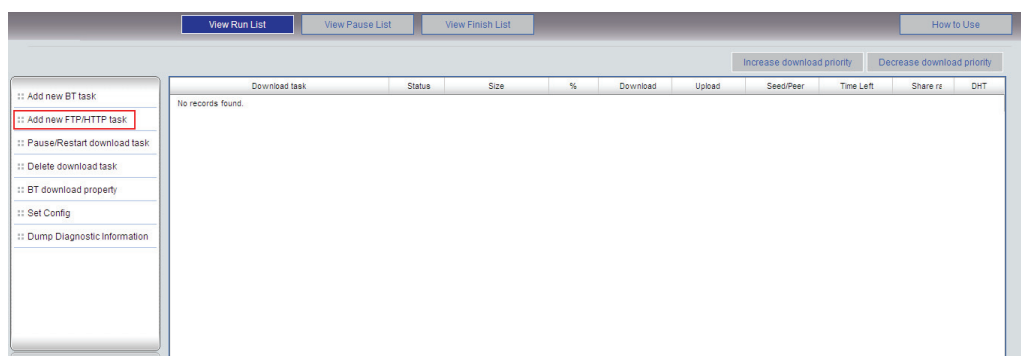
Click "Add new BT task" on the left and upload a torrent file. You can download the legal torrent files from the Internet. There are websites that provide legally shared torrents e.g. www.legaltorrents.com. Please download the torrent files to your local disk and then upload them to the NAS.



(B) Add a new FTP/HTTP task

To run an FTP download task, click "Add new FTP/HTTP task". Enter the FTP URL of the download task and select the share folder to save the files. Enter the user name and password to login the FTP server (if necessary). Then click "OK" to start downloading.

To run an HTTP download task, click "Add new FTP/HTTP task". Enter the HTTP URL of the download task and select the share folder to save the files. Then click "OK" to start downloading.



4. After uploading a download task, the task will appear on the "View Run List".

<div>View Run List</div> <div>View Pause List</div> <div>View Finish List</div> <div>How to Use</div>										
<div>Increase download priority</div> <div>Decrease download priority</div>										
<div> <div>++ Add new BT task</div> <div>++ Add new FTP/HTTP task</div> <div>++ Pause/Restart download task</div> <div>++ Delete download task</div> <div>++ BT download property</div> <div>++ Set Config</div> <div>++ Dump Diagnostic Information</div> </div>	Download task	Status	Size	%	Download	Upload	Seed/Peer	Time Left	Share rate	DHT
	abcccccc.torrent	RUN	766.60 MB	0.0	0.0 KB/s	0.0 KB/s	0/0	99:99:99	∞	On

5. You can select a download task and click "BT download property" to enable or disable the DHT public network and configure the sharing time after the download completes.

<div> <div>++ Add new BT task</div> <div>++ Add new FTP/HTTP task</div> <div>++ Pause/Restart download task</div> <div>++ Delete download task</div> <div>++ BT download property</div> <div>++ Set Config</div> <div>++ Dump Diagnostic Information</div> </div>	Download task	Status	Size	%	Download	Upload	Seed/Peer	Time Left	Share rate	DHT
	abcccccc.torrent	RUN	771.55 MB	0.0	0.0 KB/s	0.0 KB/s	0/0	99:99:99	∞	On

Note: If the sharing time (larger than 0 hr) is set for a download task, the download task will be moved to the "Finish List" after the download completes and the sharing time ends.

6. Click "Set Config" and enter the number of the maximum tasks you want to download at the same time (Default number: 3).
Enter the maximum download rate (default value is 0, which means unlimited).
Enter the maximum upload rate (default value is 0, which means unlimited).
Enter the port range for the Download Station (default range is 6881-6999).
Select the option UPnP NAT port forwarding to enable automatic port forwarding on UPnP supported gateway (default is not selected).

:: Add new BT task :: Add new FTP/HTTP task :: Pause/Restart download task :: Delete download task :: BT download property :: Set Config :: Dump Diagnostic Information	Download task		Status	Size	%	Download	Upload	Seed/Peer	Time Left	Share rt	DHT
	abcccc.torrent		RUN	771.55 MB	0.0	0.0 KB/s	0.0 KB/s	0/0	99:99:99	∞	On

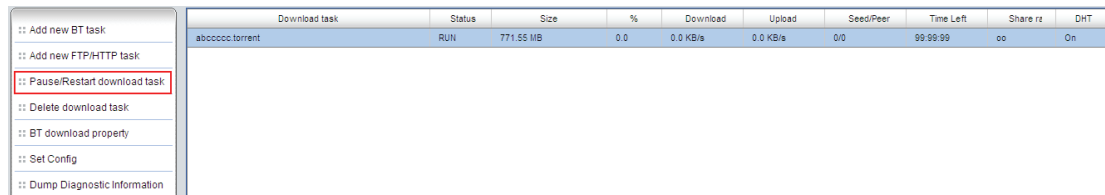
Protocol Encryption

Some Internet Service Providers (ISP) block or throttle BitTorrent connections for the high bandwidth it generates. By turning on "Protocol Encryption" your connections will not be distinguished by these ISPs as BitTorrent connections therefore are unable to block or throttle them and causing slow connections or even no connections. However some ISPs are starting to be able to identify these connections even if they were encrypted so users are suggested to check the Bad ISPs list on AzureusWiki and to consider switching to an ISP that does not perform BitTorrent traffic throttling or blocking.

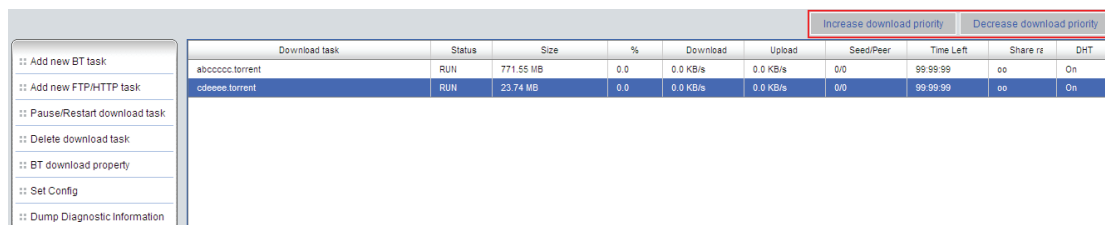
You can set the download schedule in "Download time settings". Select "Continuous download" to download the files continuously. To specify the download schedule, select "Daily download time" and enter the start and end time.

If the end time value is smaller than the start time, the end time will be treated as the time on the next day.

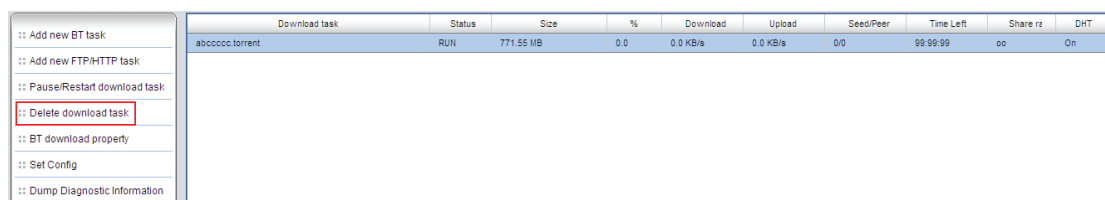
- To stop a running download task, select the task in View Run list and click "Pause/ Restart download task". You can view tasks that are paused or finished in View Pause List and View Finish List respectively. To restart a paused task, select the task in View Pause List and click "Pause/ Restart download task".




- You can also increase or decrease the task priority by clicking "Increase download priority" and "Decrease download priority" when there are multiple download tasks.



- To delete a running, paused, or finished task, select the task and click "Delete download task". You can select to remove the download task only and retain the downloaded files, or remove the task and downloaded files.



- To logout the Download Station, click  on the top right hand corner.

- To connect to the folders you have downloaded, go to the share folder Qdownload/ Download of the NAS.

Dump Diagnostic Information

To view the diagnostic details of a download task, select a task on the list and click “Dump Diagnostic Information”.

⚙

Add new BT task

⚙

Add new FTP/HTTP task

⚙

Pause/Restart download task

⚙

Delete download task

⚙

BT download property

⚙

Set Config

⚙

Dump Diagnostic Information

Download task	Status	Size	%	Download	Upload	Seed/Peer	Time Left	Share rt	DHT
abccccc.torrent	RUN	771.55 MB	0.0	0.0 KB/s	0.0 KB/s	0/0	99:99:99	∞	On

Download Station

Dump Diagnostic Information:

Download task:

abccccc.torrent

Size:

771.55 MB

Percent:

0.0 %

Download Totals:

0.0 MB

Upload Total:

0.0 MB

Share Time:

0 hr

Start Time:

Fri Oct 23 18:40:12 2009

No Error!

OK

You can right click the download task to configure the download settings.

⚙

Add new BT task

⚙

Add new FTP/HTTP task

⚙

Pause/Restart download task

⚙

Delete download task

⚙

BT download property

⚙

Set Config

⚙

Dump Diagnostic Information

Download task	Status	Size	%	Download	Upload	Seed/Peer	Time Left	Share rt	DHT
abccccc.torrent	RUN	771.55 MB	0.0	0.0 KB/s	0.0 KB/s	0/0	99:99:99	∞	On

Increase download priority

Decrease download priority

Pause/Restart download task

Delete download task

BT download property

Dump Diagnostic Information

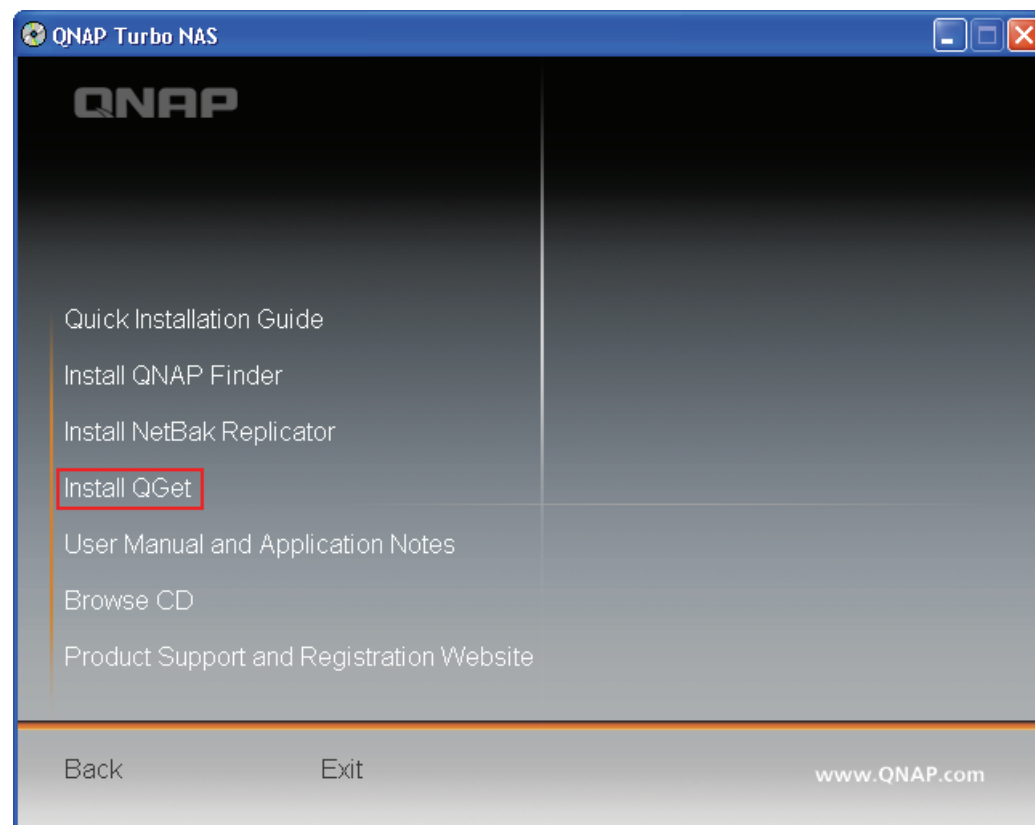
The common reasons for slow BT download rate or download error are as below:

- (1) The torrent file has expired, the peers have stopped sharing this file, or there is an error in the file.
- (2) The NAS has configured to use fixed IP but DNS server is not configured, or DNS server fails.
- (3) Set the maximum number of simultaneous downloads as 3-5 for the best download rate.
- (4) The NAS is located behind NAT router. The port settings have led to slow BT download rate or no response. You may try the following means to solve the problem:
 - a. Open the BitTorrent port range on NAT router manually. Forward these ports to the LAN IP of the NAS.
 - b. The new NAS firmware supports UPnP NAT port forwarding. If your NAT router supports UPnP, enable this function on the NAT. Then enable UPnP NAT port forwarding of the NAS. The BT download rate should be enhanced.

5.1 Use Download Software QGet

QGet is a powerful management utility for maintaining the BT, HTTP and FTP download tasks of multiple NAS servers via LAN or WAN. By using QGet, you no longer need to login the Download Station web interface of multiple servers and manage the settings one by one. Simply install QGet on any computer running Windows 2000/ XP/ Vista/ Windows 7 or Mac, you can manage the download tasks of all your NAS servers.

1. Install QGet from the product CD-ROM disc.



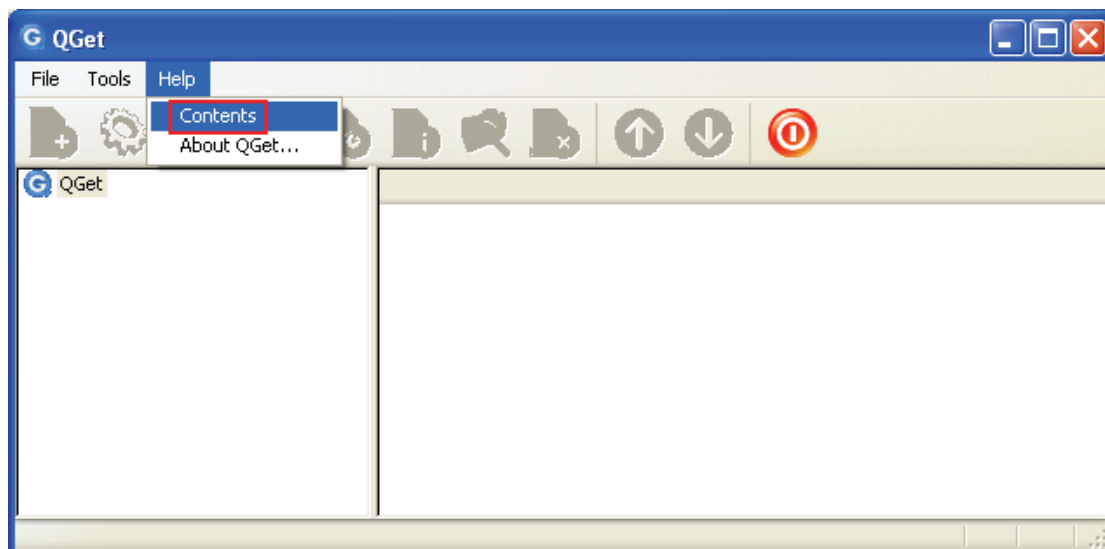
2. Follow the instructions to install QGet.



3. Run QGet from the installed location.

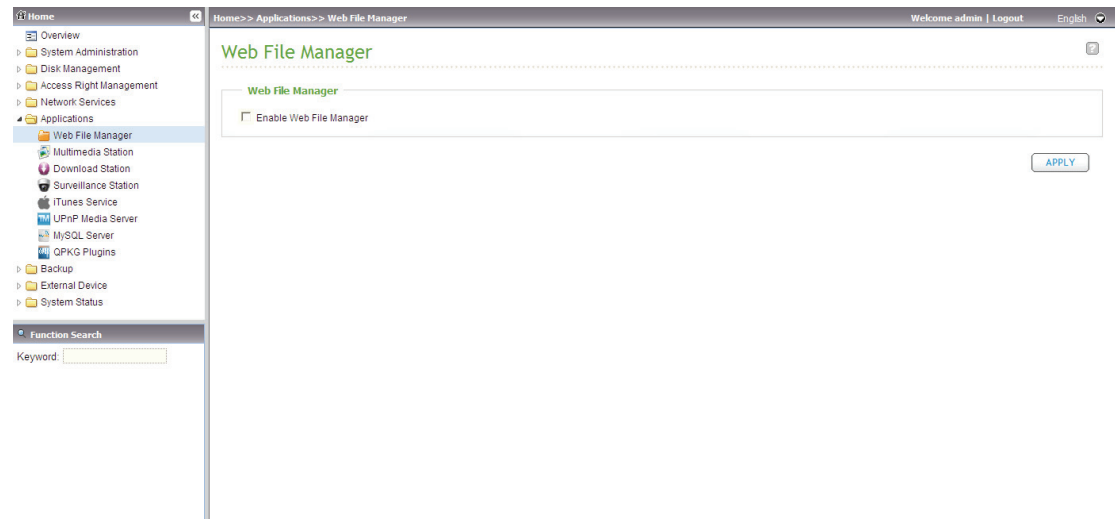


4. For the details of using QGet, please refer to the online help.



Chapter 6 Web File Manager

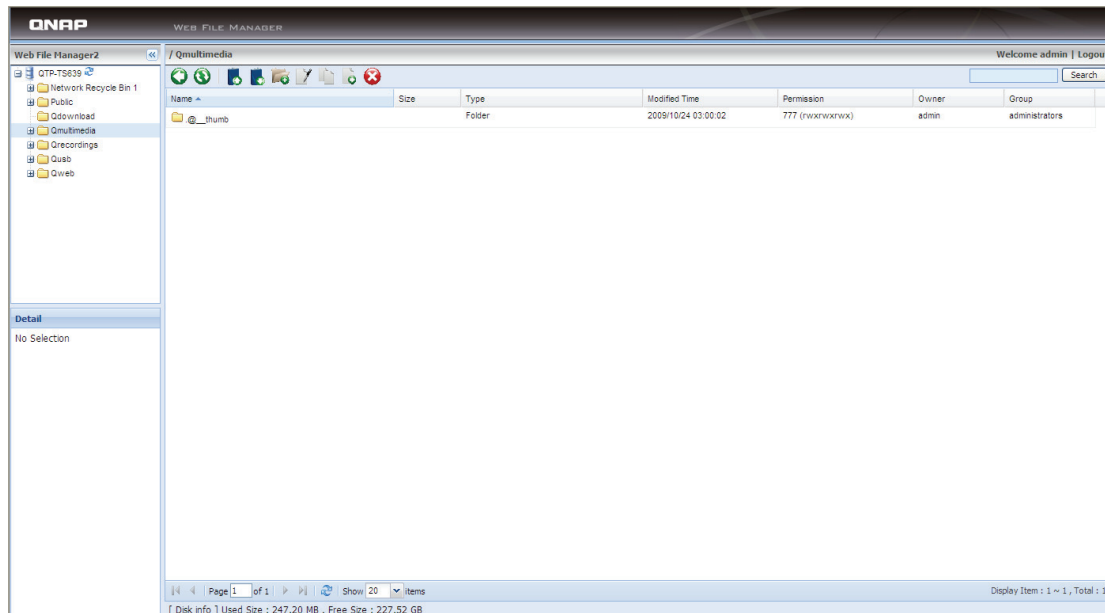
To use Web File Manager, go to “Applications” > “Web File Manager”. Enable the service.



Click “Web File Manager” on the top or on the login page of the NAS to connect to the Web File Manager. If you login the service from the login page of the NAS, you are required to enter the user name and password.


Note: Make sure a network share has been created before using Web File Manager.

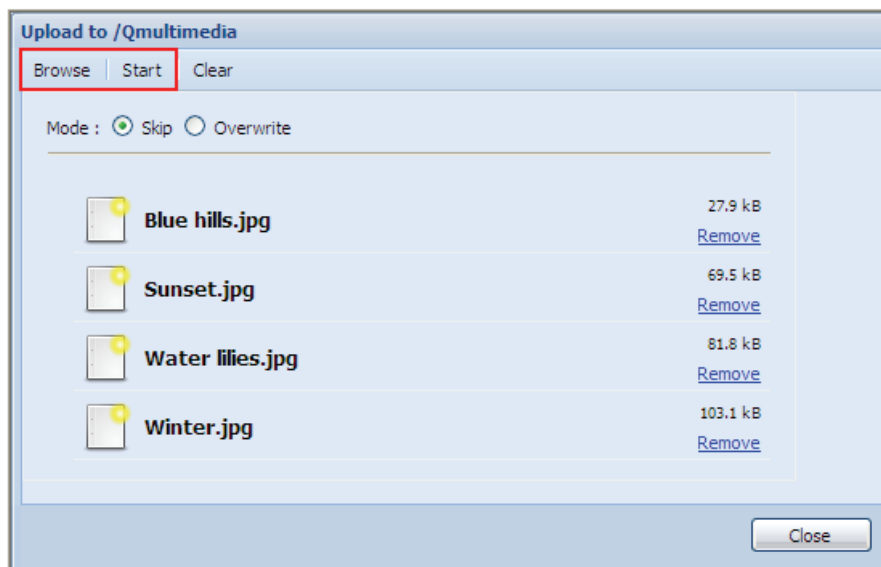
You can organize the network share folders of the NAS. With Web File Manager, you can upload, download, rename, move, copy, or delete the files and folders in the network shares.



Upload file


To use this feature, install Adobe Flash plugin for your web browser.

- i. Open the folder to upload file to. Click .
- ii. Click "Browse" to select the file(s).
- iii. Select to skip or overwrite the existing file in the folder.




- iv. Click "Start".


Download file

- i. Select a file or folder to download.
- ii. Right click the mouse and select "Download" or click  to download the file.


Create folder

- i. Select a network share or folder in which you want to create a new folder.
- ii. Click  (Create Folder).
- iii. Enter the name of the new folder and click "OK".


Rename file or folder

- i. Select a file or folder to rename.
- ii. Click  (Rename).
- iii. Enter the new file or folder name and click "OK".


Copy files or folders

- i. Select the files or folders to copy.
- ii. Click  (Copy).
- iii. Select the destination folder.
- iv. Select to skip or overwrite the existing file in the destination folder. Click "OK".

Move files or folders

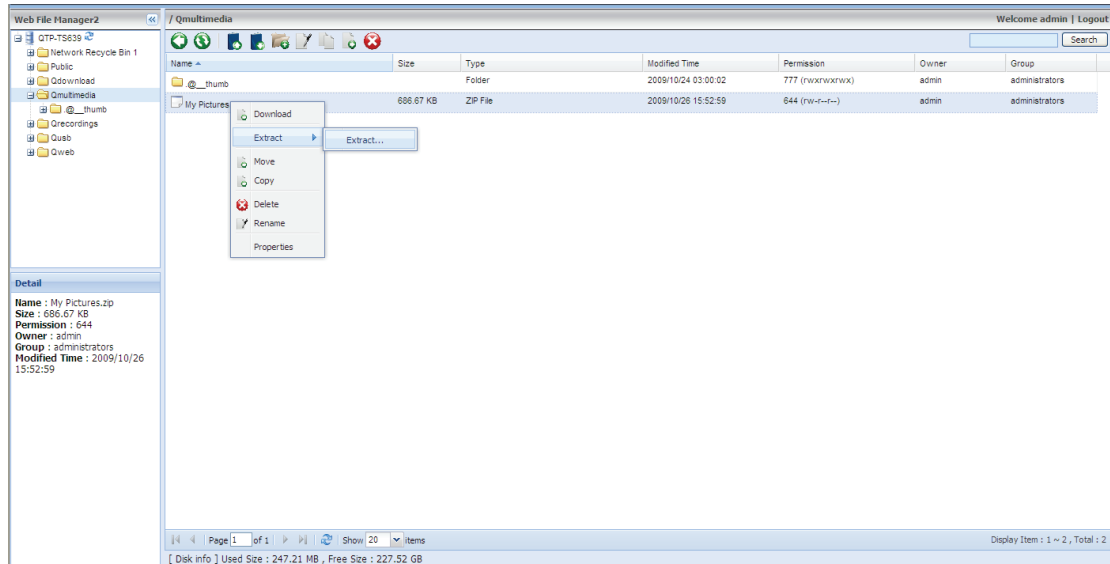
- i. Select the files or folders to move.
- ii. Click  (Move).
- iii. Select the destination folder.
- iv. Select to skip or overwrite the existing file in the destination folder. Click "OK".

Delete file or folder

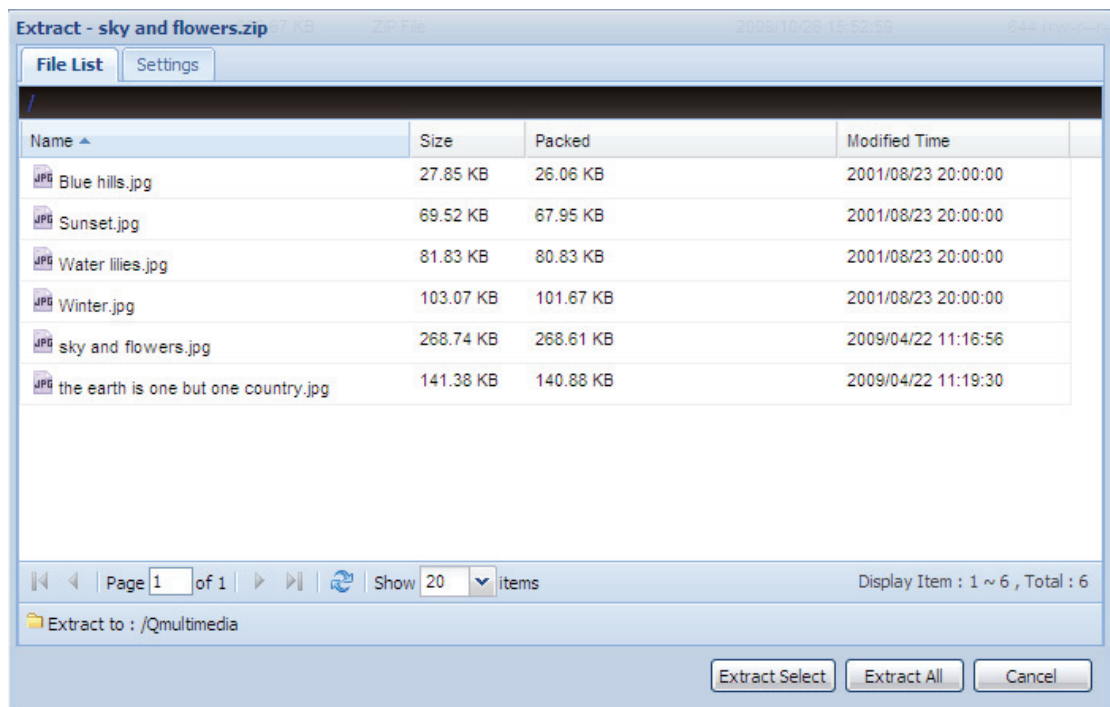
- i. Select a file or folder to delete.
- ii. Click  (Delete) on the toolbar.
- iii. Confirm to delete the file or folder.

Extract files

- i. To extract a zipped file on the NAS, right click the zipped file and select "Extract".



- ii. Select the files to extract and configure the extraction settings.



Chapter 7 NetBak Replicator

NetBak Replicator is a powerful program installed in the user's system (Windows OS only) for data backup. You can back up any files or folders on the local PC to the share folders on the NAS over LAN or WAN.

Main Functions

1. Backup

- Instant Backup

Select the files and folders on the local PC and back up the files to the network share folders on the NAS immediately.

- File Filter

Select particular file types to be excluded from backup. The NAS will filter all the specified file types when backing up the data.

- Schedule

Specify a schedule for backing up the data, e.g. 12:00 every day or 05:00 every Saturday.

- Monitor

When this option is enabled, the system will upload all the files or folders to the server instantly for backup when the files or folders are modified.

2. Restore

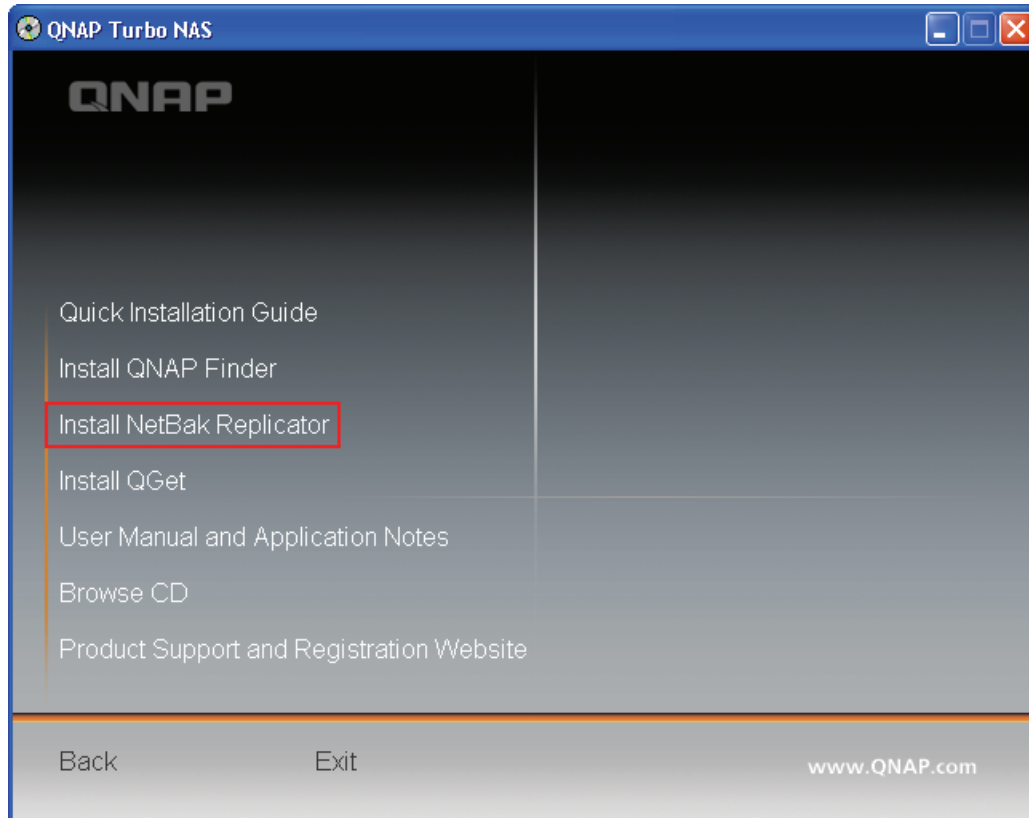
Select this option to restore the backup data to the original location of the file or to a new directory.

3. Log

Enable this option to record the events of NetBak Replicator, such as the time when NetBak Replicator starts and terminates.

Install NetBak Replicator

1. Run the NAS CD-ROM disc. Select "Install NetBak Replicator".




2. Follow the instructions to install NetBak Replicator.



3. Upon successful installation, a shortcut icon will be shown on the Desktop. Double click the icon to run NetBak Replicator.

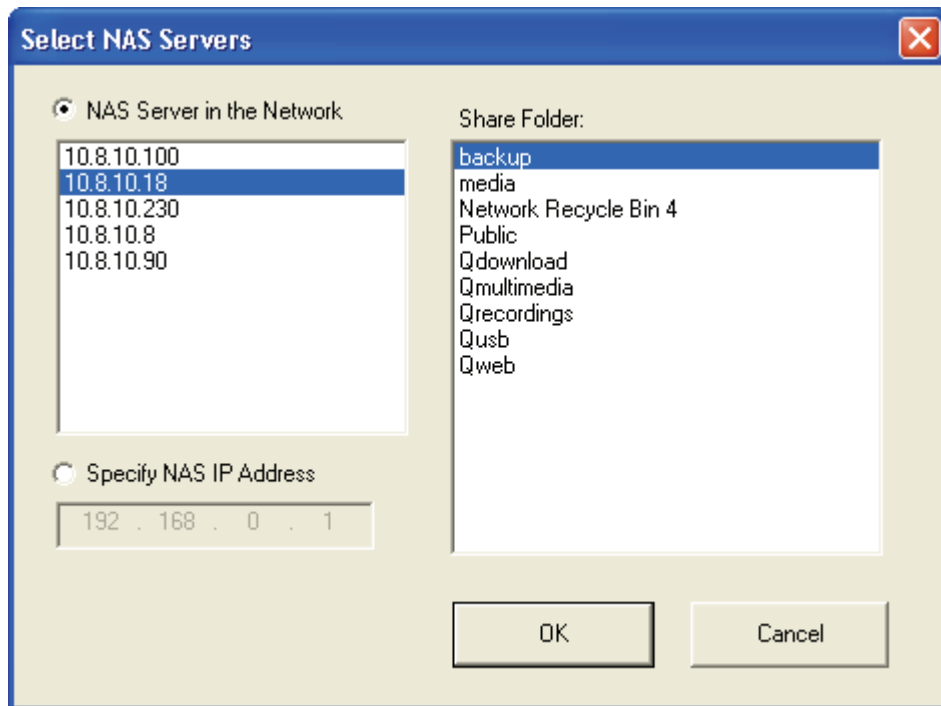
Use NetBak Replicator

1. Before using NetBak Replicator, login the web administration page of the NAS and go to "Access Right Management" > "Share Folders" to create a share folder for backup. Make sure the share folder is open for everyone access or you login the share folder with an authorized account by NetBak Replicator.

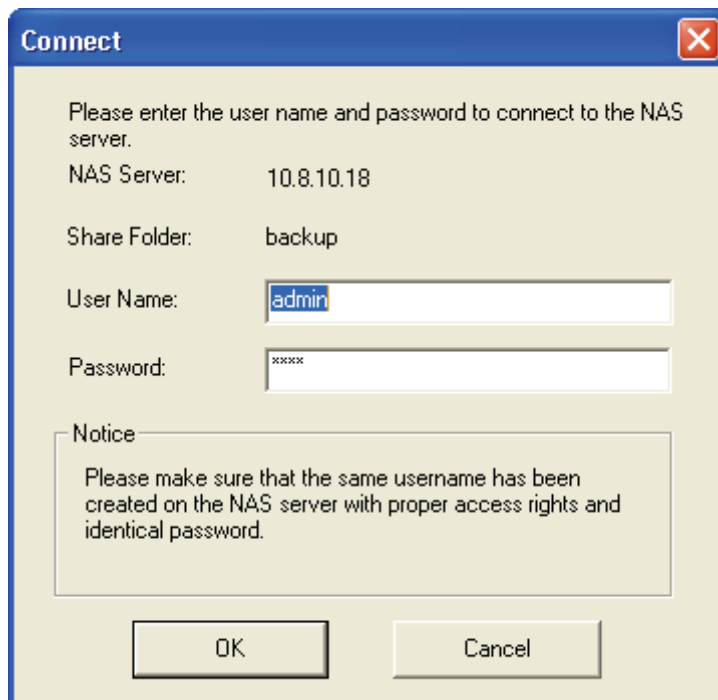
2. Run NetBak Replicator. Click . All the NAS on the local network and their share folders will be displayed.



3. When the following window appears, all the NAS on the LAN will appear on the left list. Select a server and a share folder on the right. NetBak Replicator also supports backup over WAN, enter the IP address of the NAS for data backup directly and select a share folder. Then click "OK".










4. Enter the user name and password to login the server.



5. You can start the backup procedure upon successful connection to the NAS.

Description of the buttons on NetBak Replicator

	Open Configuration: Open a previously saved configuration file of NetBak Replicator.
	Save Configuration: Save the current settings on NetBak Replicator. The file will be named as *.rpr
	Select All: Select all the options.
	Clear All: Unselect all the options.
	Select My Document: Select all the folders in My Document.
	Open NAS Backup Folder: This button allows the users to find out where the files were backed up, and check or manage the archived files manually.
	Advanced Backup: Advanced Backup allows the power users to back up a single folder with more advanced options.

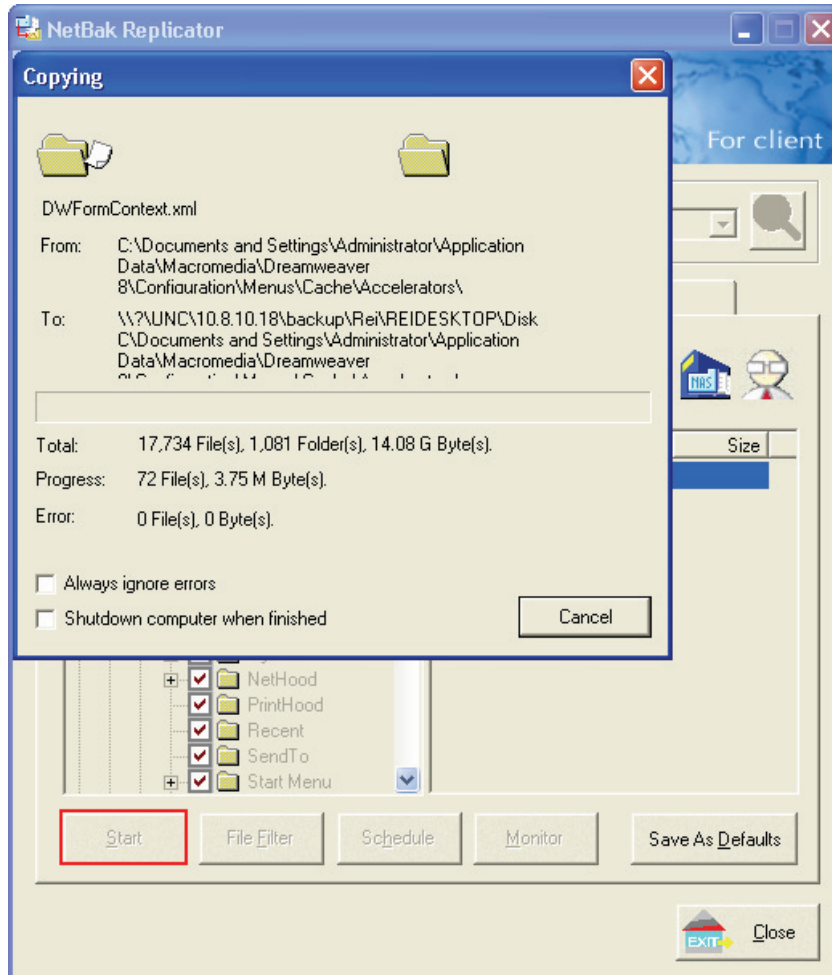
- **Backup**

Select the files and folders for backup.



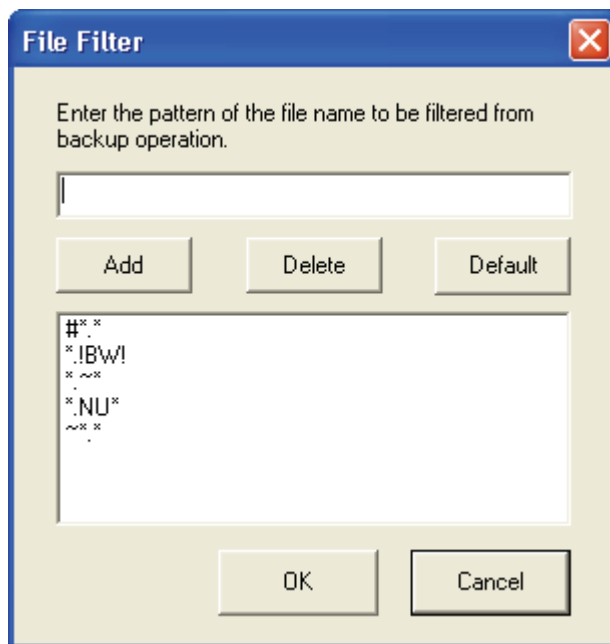
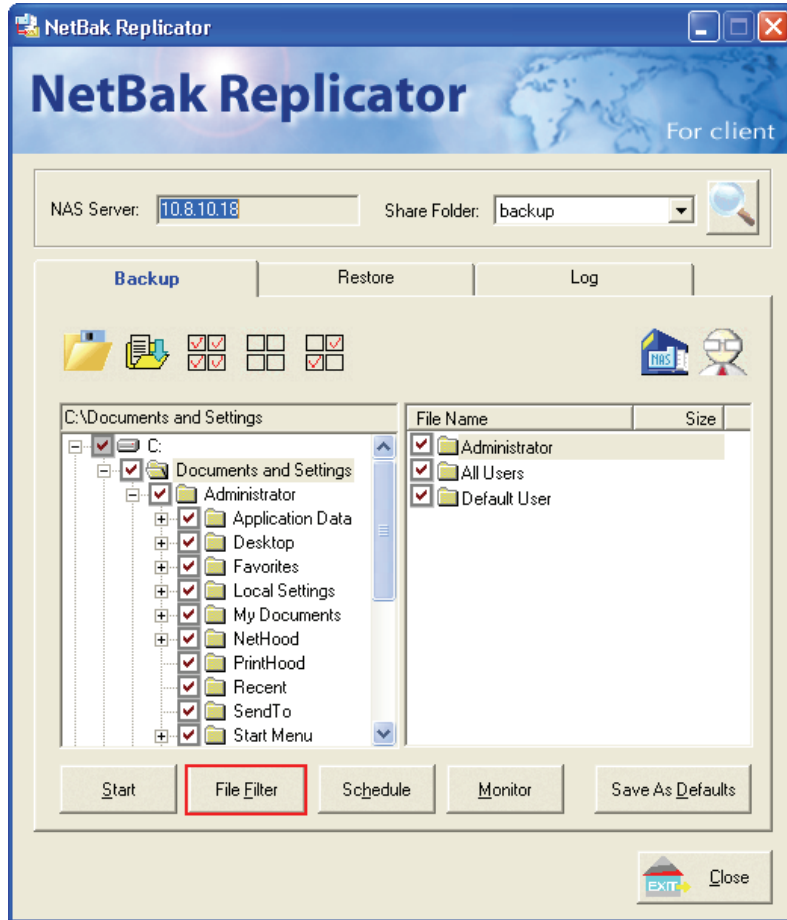
✓ Start

When you have selected the files for backup to the NAS, click "Start". The program will start to copy the files to the specified share folder on the NAS.



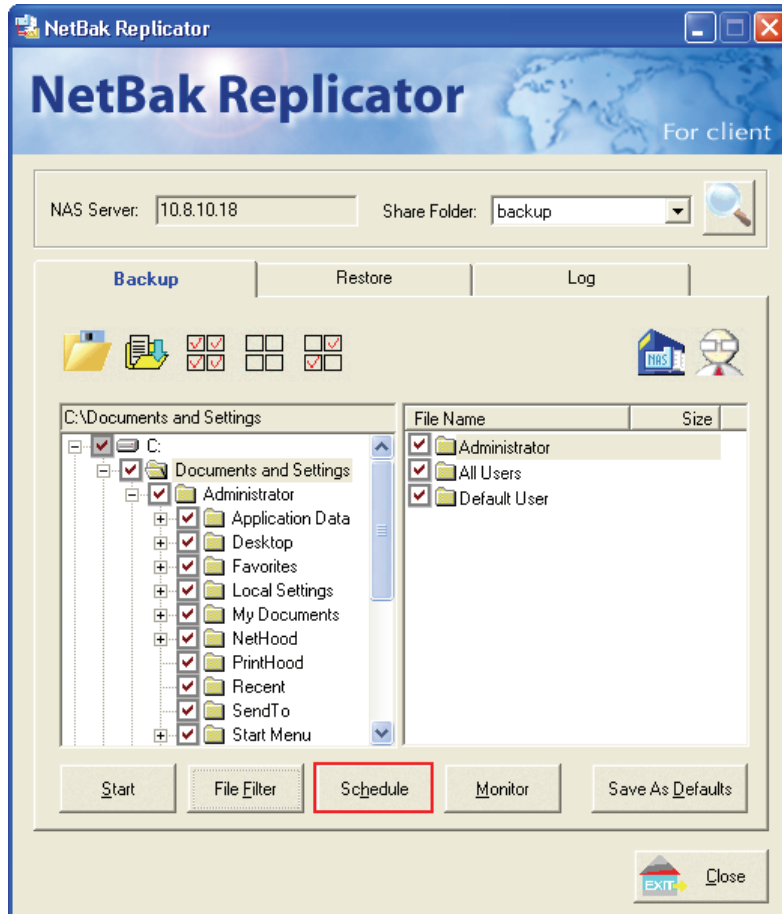
✓


Click "File Filter" on NetBak Replicator to select file format to be skipped from backup. Then click "OK".



✓ Schedule


Click "Schedule" on the main page of NetBak Replicator. Then select the option "Enable Backup Schedule" and select the frequency and time for backup. Click "OK" to confirm.



Backup Schedule 

Select the frequency and time for backup.

☒ Enable Backup Schedule

Start Time: 

Frequency


☒ Back up everyday.

☐ Back up on selected week day(s).

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday

☐ Thursday ☐ Friday ☐ Saturday

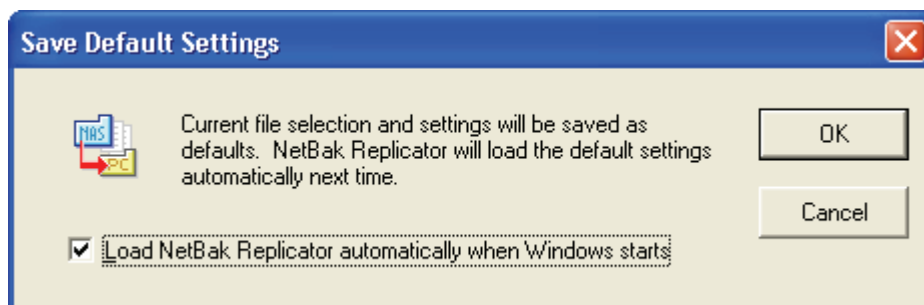
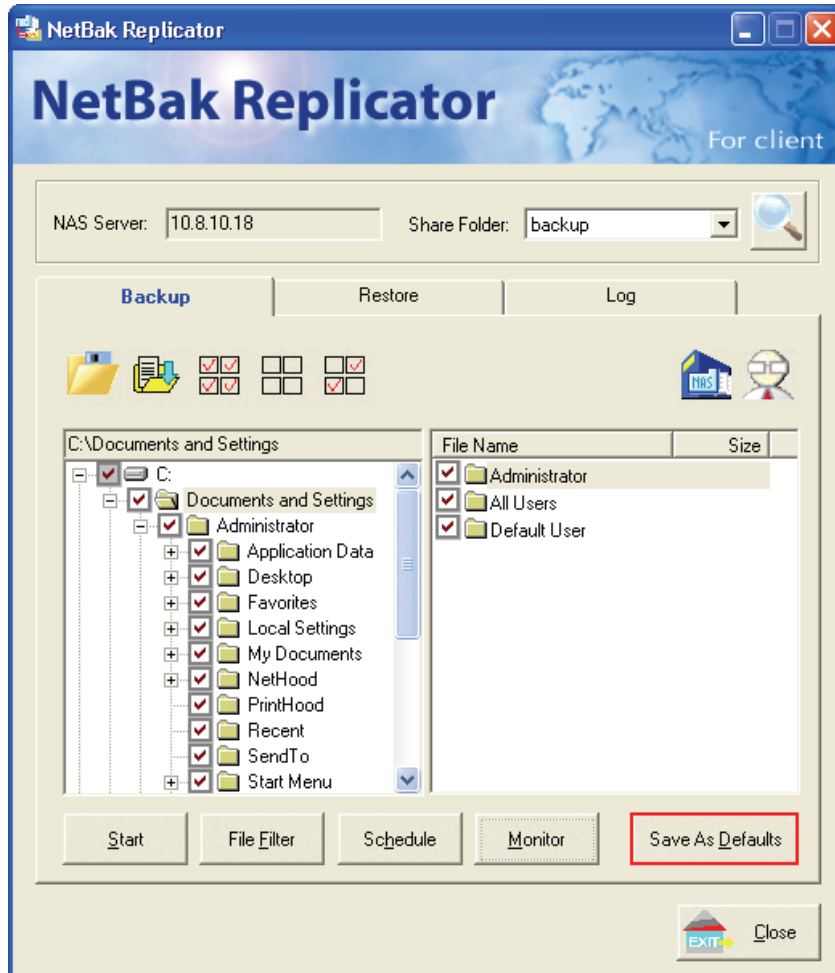
✓ Monitor

Select a folder for monitoring. When this option is enabled, all the new and modified files on the PC will be copied to the NAS instantly. Other files will be gray and cannot be selected. Click "Monitor" again to stop monitoring. An icon  will appear on task bar of Windows when monitoring is in process.





✓ Save as Defaults

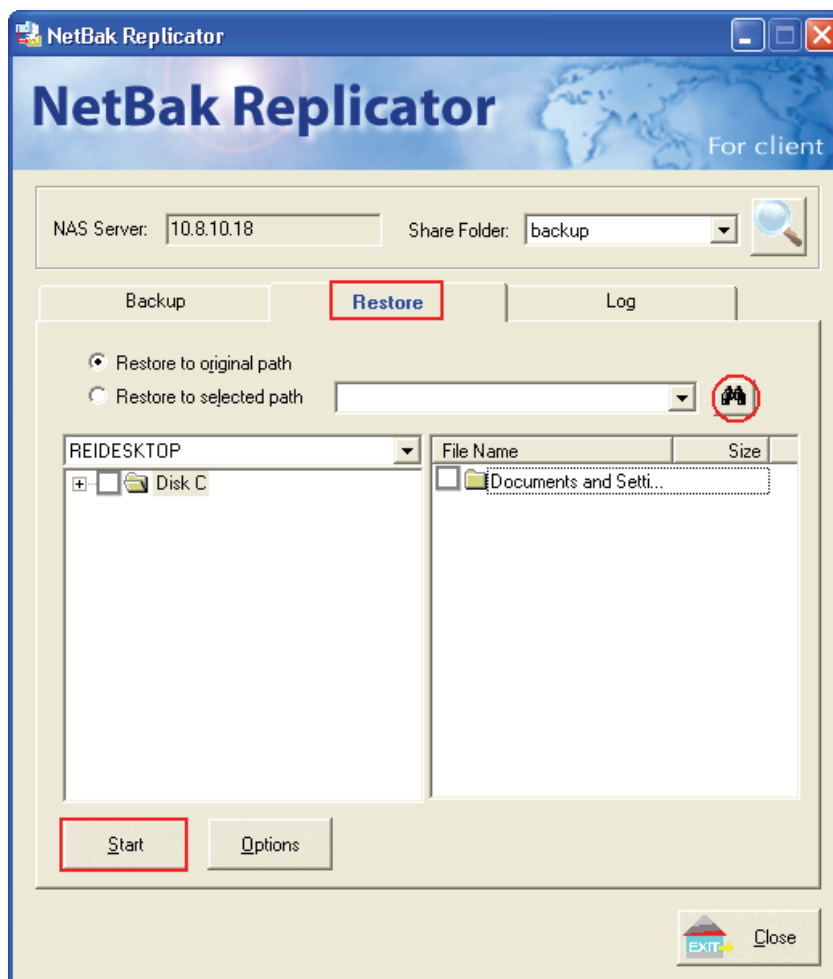
Click this button to save the current settings of NetBak Replicator as the defaults. When you login again, the program will load the default settings automatically. You can also select to load the utility automatically when Windows starts.



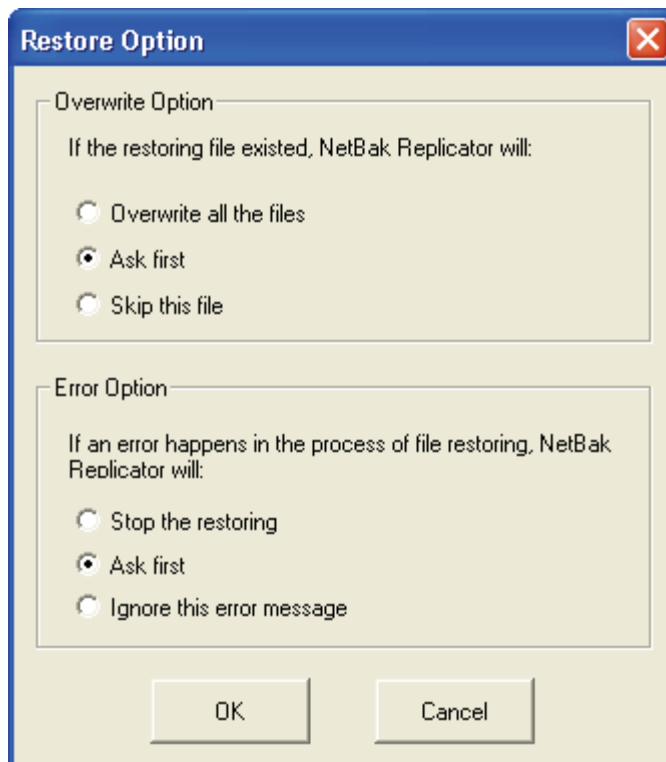
- **Restore**

Follow the steps below to restore the files from the NAS to your PC.

- a. Click  to select the NAS and the share folder (the restore source).
- b. Click the "Restore" tab on NetBak Replicator.
- c. Select to restore the data to the original path or click  to specify the restore location manually.
- d. Select the files and folders to restore.
- e. Click "Start".



- f. Options: Select the behaviour of NetBak Replicator if the restored file exists on the destination and when an error occurs during the process.



The image shows a Windows-style dialog box titled "Restore Option" with a red close button in the top right corner. The dialog is divided into two sections: "Overwrite Option" and "Error Option".

Overwrite Option

If the restoring file existed, NetBak Replicator will:

- ☐ Overwrite all the files
- ☒ Ask first
- ☐ Skip this file

Error Option

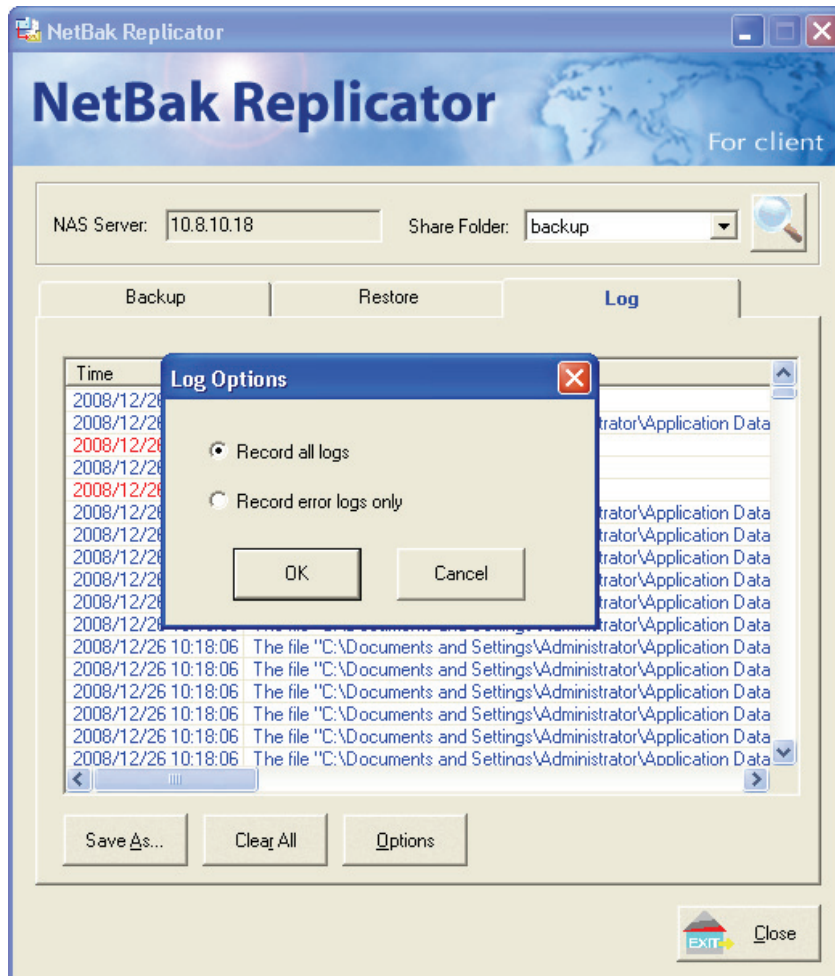
If an error happens in the process of file restoring, NetBak Replicator will:

- ☐ Stop the restoring
- ☒ Ask first
- ☐ Ignore this error message

At the bottom of the dialog are two buttons: "OK" and "Cancel".

- **Log**

- a. Save As...: To save all the logs on NetBak Replicator, click this button. All the logs will be saved as a text file.
- b. Clear All: Click this button to clear all the logs.
- c. Option: Select the type of logs to be recorded— "Record all logs" or "Record error logs only".



Chapter 8 Active Directory

Active Directory is a Microsoft directory used in Windows environments to centrally store, share, and manage the information and resources on your network. It is a hierarchical data centre which centrally holds the information of the users, user groups, and the computers for secure access management.

The NAS supports Active Directory (AD). By joining the NAS to the Active Directory, all the user accounts of the AD server will be imported to the NAS automatically. The AD users can use the same set of user name and password to login the NAS

Join the QNAP NAS to Windows Server 2003/ 2008 Active Directory

Follow the steps below to join the QNAP NAS to the Windows Active Directory.

1. Login the NAS as an administrator. Go to "System Administration" > "General Settings" > "Date and Time". Set the date and time of the NAS, which must be consistent with the time of the AD server. The maximum time difference allowed is 5 minutes.
2. Go to "System Administration" > "Network" > "TCP/IP". Enter the IP address of the primary DNS server as the IP address of the Active Directory server.

The screenshot shows the QNAP NAS System Administration interface, specifically the Network > TCP/IP settings page. The left sidebar contains a navigation menu with options like Overview, System Administration, General Settings, Network, Hardware, Security, Notification, Power Management, Network Recycle Bin, Backup System Settings, System Logs, Firmware Update, Restore to Factory Default, Disk Management, Access Right Management, Network Services, Applications, and Backup. The main content area is titled 'System Administration > Network' and has tabs for TCP/IP, DDNS, and IPV6. The 'TCP/IP' tab is active, showing an 'IP Address' table with columns for Interface, DHCP, IP Address, Subnet Mask, Gateway, MAC Address, Speed, MTU, Link, and Edit. The table lists two interfaces: Ethernet 1 (No DHCP, IP 172.17.23.107, Subnet 255.255.254.0, Gateway 172.17.22.1, MAC 00:08:9B:8C:99:D4, Speed 1000Mbps, MTU 1500) and Ethernet 2 (Yes DHCP, IP 169.254.100.100, Subnet 255.255.0.0, Gateway 0.0.0.0, MAC 00:08:9B:8C:99:D5, Speed --, MTU 0). Below the table, there is a 'Port Trunking' section with a description and an 'Enable Network Port Trunking' checkbox. The 'DNS Server' section has input fields for Primary DNS Server (10.8.2.11) and Secondary DNS Server (172.17.23.64). The 'Jumbo Frame Setting (MTU)' section has a dropdown menu set to 1500.

Interface	DHCP	IP Address	Subnet Mask	Gateway	MAC Address	Speed	MTU	Link	Edit
Ethernet 1	No	172.17.23.107	255.255.254.0	172.17.22.1	00:08:9B:8C:99:D4	1000Mbps	1500		
Ethernet 2	Yes	169.254.100.100	255.255.0.0	0.0.0.0	00:08:9B:8C:99:D5	--	0		

Port Trunking
Port Trunking provides network load balancing and fault tolerance by combining two Ethernet interfaces into one to increase the bandwidth beyond the limits of any one single interface at the same time offers the redundancy for higher availability when both interfaces are connected to the same switch that supports Port Trunking.
☐ Enable Network Port Trunking
Select the port trunking mode from below. Please note that incompatible mode settings might cause the network interface to hang or affect the overall performance. For more information, please click [here](#).
Balance-rr (Round-Robin)

DNS Server:
Primary DNS Server: 10 . 8 . 2 . 11
Secondary DNS Server: 172 . 17 . 23 . 64

Jumbo Frame Setting (MTU)
Jumbo Frame will only work in Gigabit network environment. Please make sure your clients are configured to use the same frame size. This function works only when Jumbo Frame is enabled and the same MTU value is set on all the connected network appliances.
(Ethernet 1) Select Jumbo Frame setting: 1500

3. Go to "Network Services" > "Microsoft Networking". Enable AD Domain Member, and enter the AD domain information.

The screenshot shows the QNAP web interface. On the left is a navigation menu with categories like Overview, System Administration, Disk Management, Access Right Management, Network Services, Applications, Backup, External Device, and System Status. The 'Network Services' category is expanded, showing options like Microsoft Networking, Apple Networking, NFS Service, FTP Service, Telnet / SSH, SFTP Settings, Web Server, and Network Service Discovery. The 'Microsoft Networking' option is selected. The main panel is titled 'Microsoft Networking' and contains the following settings:

- ☒ Enable file service for Microsoft networking
 - ☒ Standalone Server
 - Server Description (Optional):
 - Workgroup:
 - ☒ AD Domain Member (For detailed instructions, please [click here](#))
 - Server Description (Optional):
 - Domain NetBIOS Name:
 - AD Server Name:
 - Domain:
 - Organization Unit (Optional):
 - Domain Administrator Username:
 - Domain Administrator Password:
- ☐ Enable WINS server
- ☐ Use the specified WINS server
 - WINS server IP address:
- ☐ Domain Master

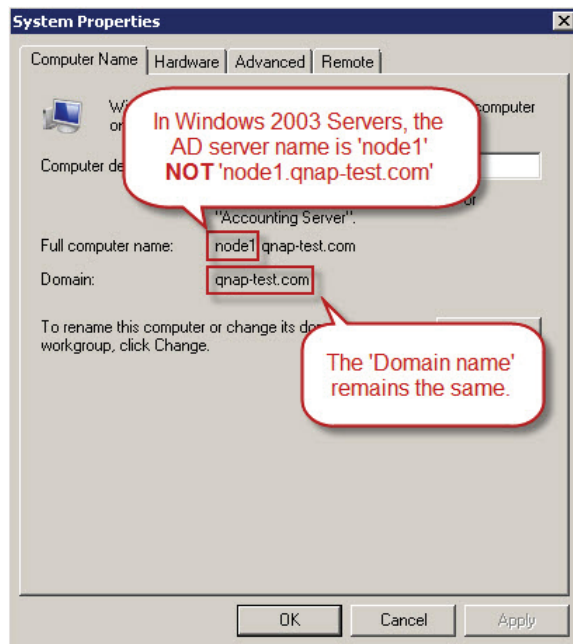
An 'APPLY' button is located at the bottom right of the configuration area.

Note:

- Enter a fully qualified AD domain name, e.g. qnap-test.com
- The AD user entered here must have the administrator access right to the AD domain.
- The domain administrator password must not contain the special symbol "!", or the NAS will fail to join the AD domain.

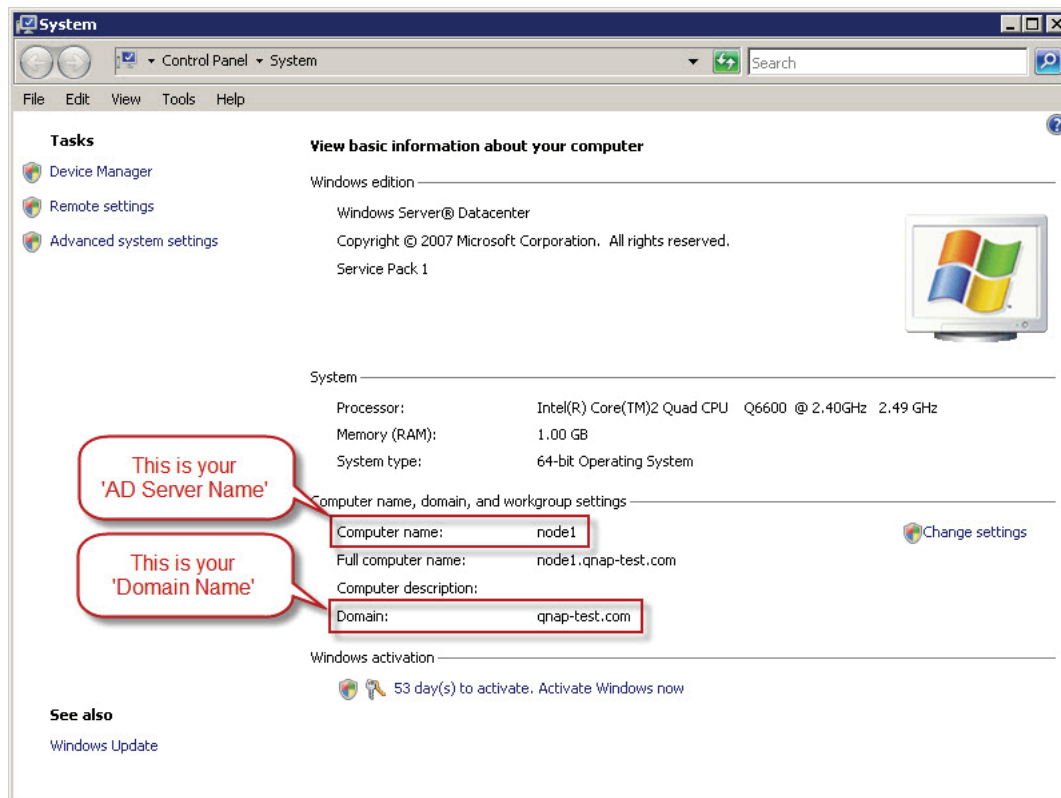
Windows 2003:

You may check the AD server name and AD domain name in "System Properties".



Windows Server 2008:

You may check the AD server name and domain name in "Control Panel" > "System".



Notes:

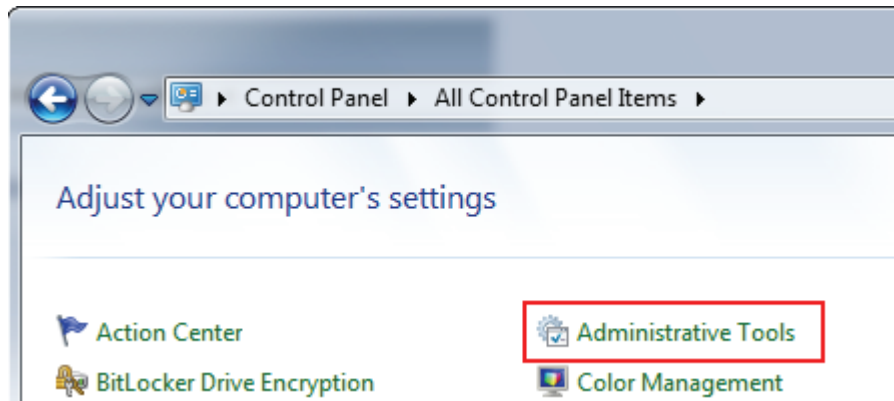
- After joining the NAS to the Active Directory, the local NAS users who have access right to the AD server should use "**NASname\username**" to login; the AD users should use their own user names to login the AD server.
- The local NAS users and the AD users (with username as domain name + username) are allowed to login the NAS (firmware version 3.2.0 and above) via AFP, FTP, Web File Manager, and WebDAV. However, if the firmware version of the NAS is earlier than 3.2.0, only the local NAS users are allowed to login the NAS by Web File Manager and WebDAV.
- For TS-109/209/409/509 series Turbo NAS, if the AD domain is based on Windows 2008 Server, the NAS firmware must be updated to version 2.1.2 or later.

The step-by-step guide of joining the QNAP NAS to the Active Directory is available on http://www.qnap.com/pro_features.asp.

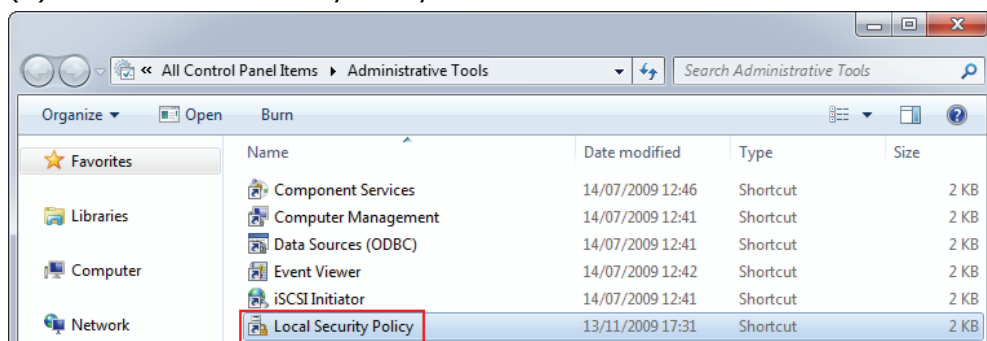
Windows 7:

If you are using a Windows 7 PC which is not a member of an Active Directory, while your NAS is an AD domain member and its firmware version is earlier than v3.2.0, change your PC settings as shown below to allow your PC to connect to the NAS.

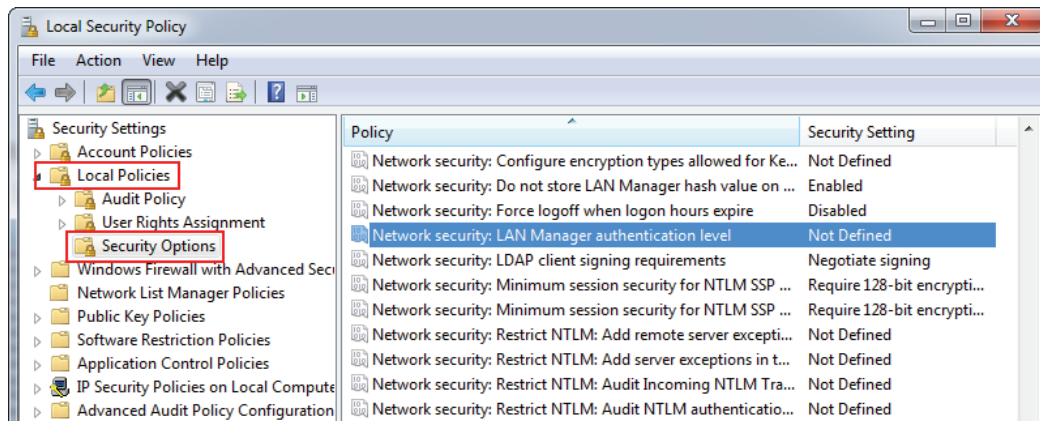
(a) Go to the "Control Panel", and click "Administrative Tools".



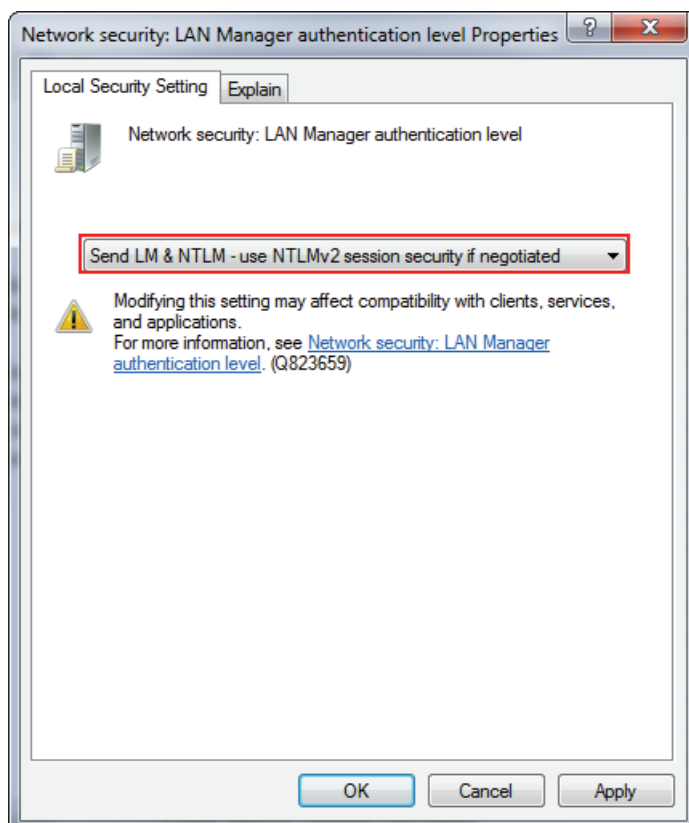
(b) Click "Local Security Policy".



- (c) Go to "Local Policies" > "Security Options". Select "Network security: LAN Manager authentication level".



- (d) Select the "Local Security Setting" tab, and select "Send LM & NTLMv2 – use NTLMv2 session security if negotiated" from the list. Then click "OK".



Chapter 9 Connect to the NAS via Linux OS

In addition to Microsoft and Mac OS, the NAS also supports Linux systems through the NFS service:

1. On Linux, run the following command:

```
mount -t nfs <NAS IP>:/<Network Share Name> <Directory to Mount>
```

For example, if the IP address of your NAS is 192.168.0.1 and you want to link the network share folder "public" under the /mnt/pub directory, use the following command:

```
mount -t nfs 192.168.0.1:/public /mnt/pub
```

Note: You must login as the "root" user to initiate the above command.

2. Login as the user ID you define, you can use the mounted directory to connect to your shared files.

Chapter 10 NAS Maintenance

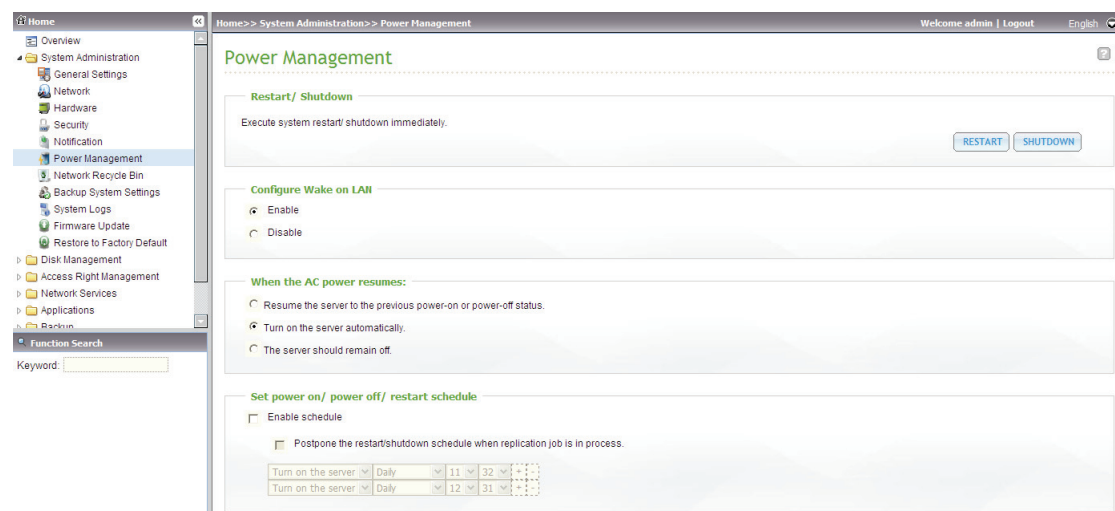
10.1 Restart/ Shut down Server

Follow the steps below to restart or shut down the NAS.

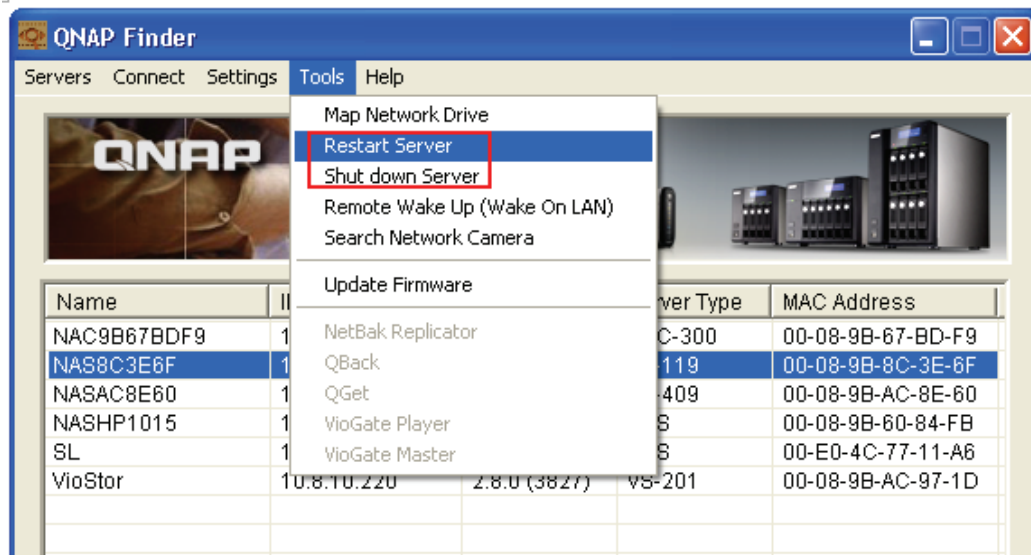
1. Login the NAS as an administrator. Go to "System Administration" > "Power Management".
2. Click "Restart" to reboot the server or "Shut Down" to turn off the server.

You can also press the power button for 1.5 seconds* to turn off the NAS. To force shut down the NAS, press the power button for more than 5 seconds. The server beeps once and shuts down immediately.

*To turn off the TS-109I/II, TS-109 Pro I/II, TS-209 I/II, TS-209 Pro I/II, TS-409/TS-409 Pro/ TS-409U, press the power button for 4 seconds.

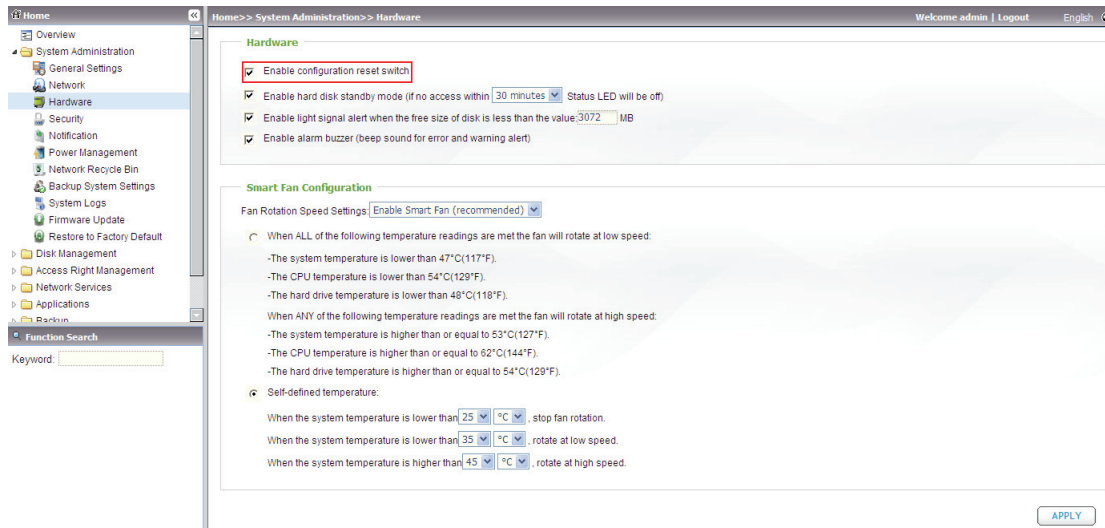


You can use Finder to restart or shut down the server. You must have an administrator account to perform this action.



10.2 Reset Administrator Password and Network Settings

Note: To reset the NAS by the reset button, the option “Enable configuration reset switch” in “System Administration” > “Hardware” must be activated.



System	Basic system reset (1 beep)	Advanced system reset (2 beeps)
All NAS models	Press the reset button for 3 sec	Press the reset button for 10 sec

Basic system reset (3 sec)

When you press the reset button for 3 seconds, a beep sound will be heard. The following settings will be reset to default:

- System administration password: admin
- TCP/ IP configuration: Obtain IP address settings automatically via DHCP
- TCP/ IP configuration: Disable Jumbo Frame
- TCP/ IP configuration: If Port trunking is enabled (dual LAN models only), the port trunking mode will be reset to “Active Backup (Failover)”.
- System port: 8080 (system service port)
- Security level: Low (Allow all connections)
- LCD panel password: (blank)*

* Applicable to models with LCD panel only.

Advanced system reset (10 sec)

When you press the reset button for 10 seconds, you will hear two beeps at the third and the tenth seconds. The NAS will reset all the system settings to default as it does by the web-based system reset in "Administration" > "Restore to Factory Default" except all the data are reserved. The settings such as the users, user groups, and the network share folders you previously created will be cleared. To retrieve the old data after the advanced system reset, you may create the same network share folders on the NAS and the data will be accessible again.

10.3 Disk Failure or Malfunction

When you encounter disk malfunction or failure, do the following:

1. Record the malfunction status or error messages shown in Event Logs.
2. Stop using the failed NAS and turn off the server.
3. Contact the technical support.

Note:

- The NAS must be repaired by professional technicians, do not try to repair the server yourself.
- Please back up any important files or folders to avoid potential data loss due to disk damage.

10.4 Power Outage or Abnormal Shutdown

In case of power outage or improper shutdown of the NAS, the NAS will resume to the state before it is shut down. If the NAS does not function properly after the restart, do the following:

1. If the system configuration is lost, configure the NAS again.
2. In the NAS does not function properly and re-configuration does not work, contact the technical support.

10.5 System Software Abnormal Operation

When the system software does not operate properly, the NAS automatically restarts to resume normal operation. If you find the NAS restarts repetitively, contact the technical support immediately.

10.6 System Temperature Protection

The NAS shuts down automatically for hardware protection when any of the following criteria is met:

- ✓ The system temperature exceeds 70°C (158°F)
- ✓ The CPU temperature exceeds 85°C (185°F)
- ✓ The hard drive temperature exceeds 65°C (149°F)*

* Note that when the temperature of any hard drives on the NAS exceeds 65°C (149°F), the NAS waits for the standby time (configured in "System Administration" > "Hardware") and another 10 minutes and will shut down automatically. For example, if you have configured the NAS to enter the standby mode after idling for 5 minutes, the NAS shuts down automatically when the temperature of any hard drive(s) exceeds 65°C (149°F) continuously after 15 (5+10) minutes.

Chapter 11 RAID Abnormal Operation

Troubleshooting

If the RAID configuration of your NAS is found abnormal or there are error messages, please try the following solutions:

Note: You must back up the important data on the NAS first to avoid any potential data loss.

1. Check that the RAID rebuilding has failed:
 - a. LED: The Status LED of NAS flashes in red.
 - b. On the "Disk Management" > "Volume Management" page, the status of the disk volume configuration is "In degraded mode".

2. Find out the hard drive(s) that causes the RAID rebuilding failure.

You can go to "System Administration" > "System Logs" page to search for the following error message and find out which hard drive(s) causes the error.

Error occurred while accessing Drive X.

Drive X has been removed.

X refers to the number of the hard drive slot.

3. Troubleshooting

After plugging in the new hard drive (e.g., HDD 1), drive rebuilding will start. If the drive configuration fails again due to read/write error of the hard drive in the rebuilding process, identify which hard drive causes the error and follow the steps below to solve the problems.

Situation 1: The error is caused by the newly plugged in drive.

If the newly inserted drive (e.g., HDD 1) causes the rebuilding error, please unplug HDD 1 and plug in another new drive to start RAID rebuilding.

Situation 2: The error is caused by an existing drive (e.g., HDD 2) in the RAID configuration.

If the RAID configuration is RAID 1, you can do either one of the following:

- a. Back up the drive data to another storage device. Then reinstall and set up the NAS.
- b. Format the newly plugged in drive (e.g. HDD 1) as a single drive. Then back up the data on the NAS to this drive (HDD 1) via Web File Manager. Unplug the drive with errors (e.g., HDD 2). After that, insert a new drive to NAS to replace the fault drive, and execute RAID 1 migration.

When the RAID configuration is RAID 5 or 6: The RAID configuration is changed to degraded mode (read-only). It is recommended that you back up the data and run system installation and configuration again.

Note: When plugging in or unplugging a hard drive, please strictly adhere to the following rules to avoid abnormal system operation or data damage.

1. Plug in only one drive to NAS or unplug only one drive from NAS at one time.
2. After plugging in or unplugging a hard drive, wait for about ten seconds or longer until you hear two beeps from the NAS. Then unplug or plug in the next hard drive.

Chapter 12 Use the LCD Panel

* This section is applicable to NAS models with LCD panel only.

The NAS provides a handy LCD panel for you to perform disk configuration and view the system information.

When the NAS is started up, you will be able to view the server name and IP address:

N	A	S	5	F	4	D	E	3							
1	6	9	.	2	5	4	.	1	0	0	.	1	0	0	

For the first time installation, the LCD panel shows the number of hard drives detected and the IP address. You may select to configure the hard drives.

Number of hard drives detected	Default disk configuration	Available disk configuration options*
1	Single	Single
2	RAID 1	Single -> JBOD -> RAID 0 -> RAID 1
3	RAID 5	Single -> JBOD -> RAID 0 -> RAID 5
4 or above	RAID 5	Single -> JBOD -> RAID 0 -> RAID 5 -> RAID 6

*Press the "Select" button to choose the option, and press the "Enter" button to confirm.

For example, when you turn on the NAS with 5 hard drives installed, the LCD panel shows:

C	o	n	f	i	g	.		D	i	s	k	s	?		
→	R	A	I	D	5										

You can press the "Select" button to browse more options, e.g. RAID 6.

Press the "Enter" button and the following message shows. Press the "Select" button to select "Yes" to confirm.

C	h	o	o	s	e		R	A	I	D	5	?			
→	Y	e	s			N	o								

When you execute RAID 1, RAID 5, or RAID 6 configuration, the system will initialize the hard drives, create the RAID device, format the RAID device, and mount it as a volume on the NAS. The progress will be shown on the LCD panel. When it reaches 100%, you can connect to the RAID volume, e.g. create share folders and upload files to the folders on the NAS. In the meantime, to make sure the stripes and blocks in all the RAID component devices are ready, the NAS will execute RAID synchronization and the progress will be shown on "Disk Management" > "Volume Management" page. The synchronization rate is around 30-60 MB/s (vary by hard drive models, system resource usage, etc.).

Note: If a member drive of the RAID configuration was lost during the synchronization, the RAID device will enter degraded mode. The volume data is still accessible. If you add a new member drive to the device, it will start to rebuild. You can check the status on the "Volume Management" page.

To encrypt the disk volume, select "Yes" when the LCD panel shows <Encrypt Volume?>. The default encryption password is "admin". To change the password, login the web-based administration interface of the NAS with an administrator account and change the settings in "Device Configuration" > "Disk volume Encryption Management".

E	n	c	r	y	p	t		V	o	l	u	m	e	?	
→	Y	e	s			N	o								

When the configuration is finished, the server name and IP address will be shown.

If the NAS fails to create the disk volume, the following message will be shown.

C	r	e	a	t	i	n	g	.	.	.					
R	A	I	D	5		F	a	i	l	e	d				

View system information by the LCD panel

When the LCD panel shows the server name and IP address, you may press the "Enter" button to enter the Main Menu. The Main Menu consists of the following items:

1. TCP/IP
2. Physical disk
3. Volume
4. System
5. Shut down
6. Reboot
7. Password
8. Back

1. TCP/ IP

In TCP/ IP, you can view the following options:

- 1.1 LAN IP Address
- 1.2 LAN Subnet Mask
- 1.3 LAN Gateway
- 1.4 LAN PRI. DNS
- 1.5 LAN SEC. DNS
- 1.6 Enter Network Settings
 - 1.6.1 Network Settings – DHCP
 - 1.6.2 Network Settings – Static IP*
 - 1.6.3 Network Settings – BACK
- 1.7 Back to Main Menu

* In Network Settings – Static IP, you can configure the IP address, subnet mask, gateway, and DNS of LAN 1 and LAN 2.

2. Physical disk

In Physical disk, you can view the following options:

2.1 Disk Info

2.2 Back to Main Menu

The disk info shows the temperature and the capacity of the hard drive.

D	i	s	k	:	1		T	e	m	p	:	5	0	°	C
S	i	z	e	:		2	3	2		G	B				

3. Volume

This section shows the disk configuration of the NAS. The first line shows the RAID configuration and storage capacity; the second line shows the member drive number of the configuration.

R	A	I	D	5						7	5	0	G	B
D	r	i	v	e		1	2	3	4					

If there is more than one volume, press the "Select" button to view the information. The following table shows the description of the LCD messages for RAID 5 configuration.

LCD Display	Drive configuration
RAID5+S	RAID5+spare
RAID5 (D)	RAID 5 degraded mode
RAID 5 (B)	RAID 5 rebuilding
RAID 5 (S)	RAID 5 re-synchronizing
RAID 5 (U)	RAID 5 is unmounted
RAID 5 (X)	RAID 5 non-activated

4. System

This section shows the system temperature and the rotation speed of the system fan.

C	P	U		T	e	m	p	:		5	0	°	C		
S	y	s		T	e	m	p	:		5	5	°	C		

S	y	s		F	a	n	:	8	6	5	R	P	M		

5. Shut down

Use this option to turn off the NAS. Press the "Select" button to select "Yes". Then press the "Enter" button to confirm.

6. Reboot

Use this option to restart the NAS. Press the "Select" button to select "Yes". Then press the "Enter" button to confirm.

7. Password

The default password of the LCD panel is blank. Enter this option to change the password of the LCD panel. Select "Yes" to continue.

C	h	a	n	g	e		P	a	s	s	w	o	r	d	
					Y	e	s		→	N	o				

You may enter a password of maximum 8 numeric characters (0-9). When the cursor moves to "OK", press the "Enter" button. Verify the password to confirm the changes.

N	e	w		P	a	s	s	w	o	r	d	:			
														O	K

8. Back

Select this option to return to the main menu.

System Messages

When the NAS encounters system error, an error message will be shown on the LCD panel. Press the "Enter" button to view the message. Press the "Enter" button again to view the next message.

S	y	s	t	e	m		E	r	r	o	r	!			
P	l	s	.		C	h	e	c	k		L	o	g	s	

System Message	Description
Sys. Fan Failed	The system fan failed
Sys. Overheat	The system overheat
HDD Overheat	The hard drive overheat
CPU Overheat	The CPU overheat
Network Lost	Both LAN 1 and LAN 2 are disconnected in Failover or Load-balancing mode
LAN1 Lost	LAN 1 is disconnected
LAN2 Lost	LAN 2 is disconnected
HDD Failure	The hard drive fails
Vol1 Full	The volume is full
HDD Ejected	The hard drive is ejected
Vol1 Degraded	The volume is in degraded mode
Vol1 Unmounted	The volume is unmounted
Vol1 Nonactivate	The volume is not activated

Technical Support

QNAP provides dedicated online support and customer service via instant messenger. You can contact us by the following means:

Online Support: <http://www.qnap.com/>

MSN: q.support@hotmail.com

Skype: qnapskype

Forum: <http://forum.qnap.com/>

Technical Support in the USA and Canada:

Email: q_supportus@qnap.com

TEL: 909-595-2819 ext. 185

Address: 168 University Parkway Pomona, CA 91768-4300

Service Hours: 08:00-17:00 (GMT- 08:00 Pacific Time, Monday to Friday)

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Version 3, 29 June 2007

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Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

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An interactive user interface displays “Appropriate Legal Notices” to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The “source code” for a work means the preferred form of the work for making modifications to it. “Object code” means any non-source form of a work.

A “Standard Interface” means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

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