FNS-5000B

Network Attached Storage
2-Bay SATA HDD w/ Gigabit Ethernet

User Manual

Ver. 1.00 - 0608

FOREWORD

Thank you for choosing LevelOne products! This user manual provides detailed instructions of using FNS-5000B. Please read carefully and start to enjoy the powerful functions of FNS-5000B

LIMITED WARRANTY

In no event shall the liability of Digital Data Communications Co., Ltd. (LevelOne) exceed the price paid for the product from direct, indirect, special, incidental, or consequential software, or its documentation. LevelOne makes no warranty or representation, expressed, implied, or statutory, with respect to its products or the contents or use of this documentation and all accompanying software, and specifically disclaims its quality, performance, merchantability, or fitness for any particular purpose. LevelOne reserves the right to revise or update its products, software, or documentation without obligation to notify any individual or entity.

Caution

Back up your system periodically to avoid any potential data loss. LevelOne disclaims any responsibility of all sorts of data loss or recovery.

Should you return any components of FNS-5000B 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.

Safety Warnings

1. FNS-5000B can operate normally in the temperature of 0℃-35℃ and relative humidity of 0%-85%. Please make sure the environment is well-ventilated.
2. The power adapter/cord and devices connected to FNS-5000B must provide correct supply voltage (40W, 90-264V).
3. Do not place FNS-5000B 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 connected cables before cleaning. Wipe FNS-5000B with wet towel. Do not use chemical or aerosol to clean FNS-5000B.
5. Do not place any objects on FNS-5000B for the server's normal operation and to avoid overheat.
6. Use the flat head screws in the product package to lock the hard disks in FNS-5000B when installing hard disks for proper operation.
7. Do not place FNS-5000B near any liquid.
8. Do not place FNS-5000B on any uneven surface to avoid falling off and damage.
9. Make sure the voltage is correct in your location when using FNS-5000B. If you are not sure, please contact the distributor or the local power supply company.
10. Do not attempt to repair your FNS-5000B in any occasions. Improper disassembly of the product may expose you to electric shock or other risks. For any enquiries, please contact the distributor.

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1. Overview

1.1. Introduction

Thank you for choosing FNS-5000B NAS. This product has the following key features:

- ✓ Support two SATA HDD with embedded RAID function to enhance data security
- ✓ Enables P2P BitTorrent client to download files automatically
- ✓ Enrich your digital multimedia life and manage personal albums and multimedia files easily
- ✓ Built-in Web server, FTP server, File server and Printer server functionality
- ✓ Remote back provides remote disk backup to another storage device over IP network
- ✓ Intelligent one touch auto copy provides direct copy of data on USB devices

1.2. Package Contents

FNS-5000B NAS

Adaptor

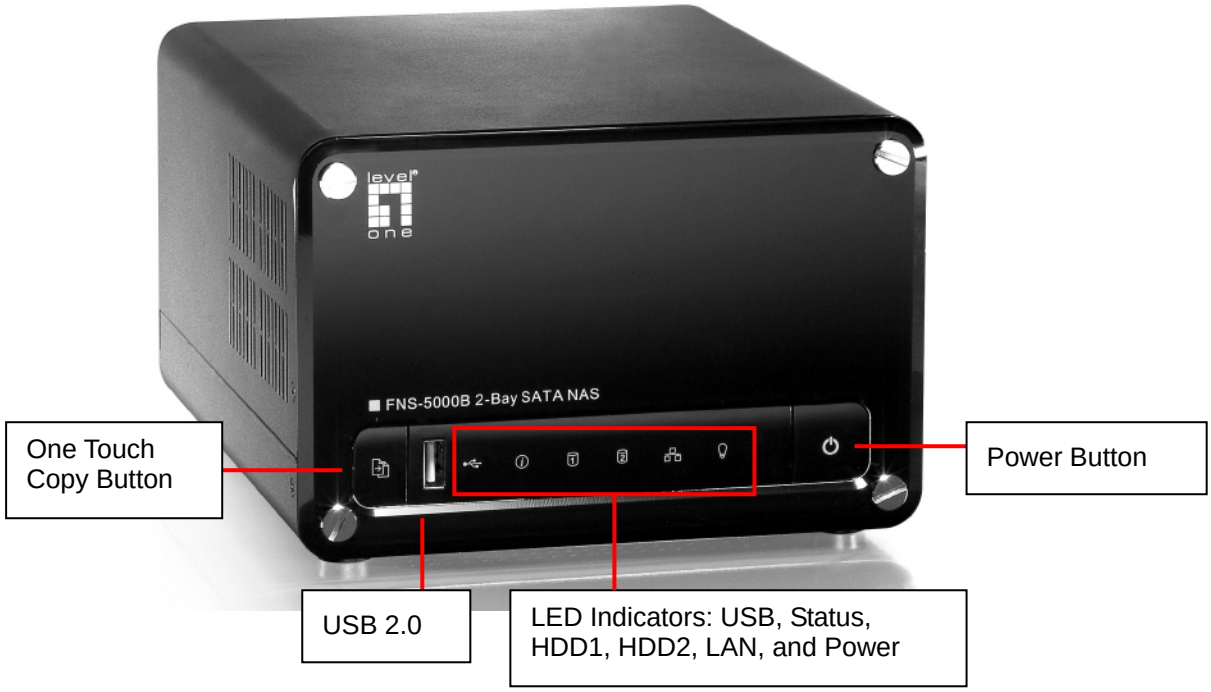
Power cord

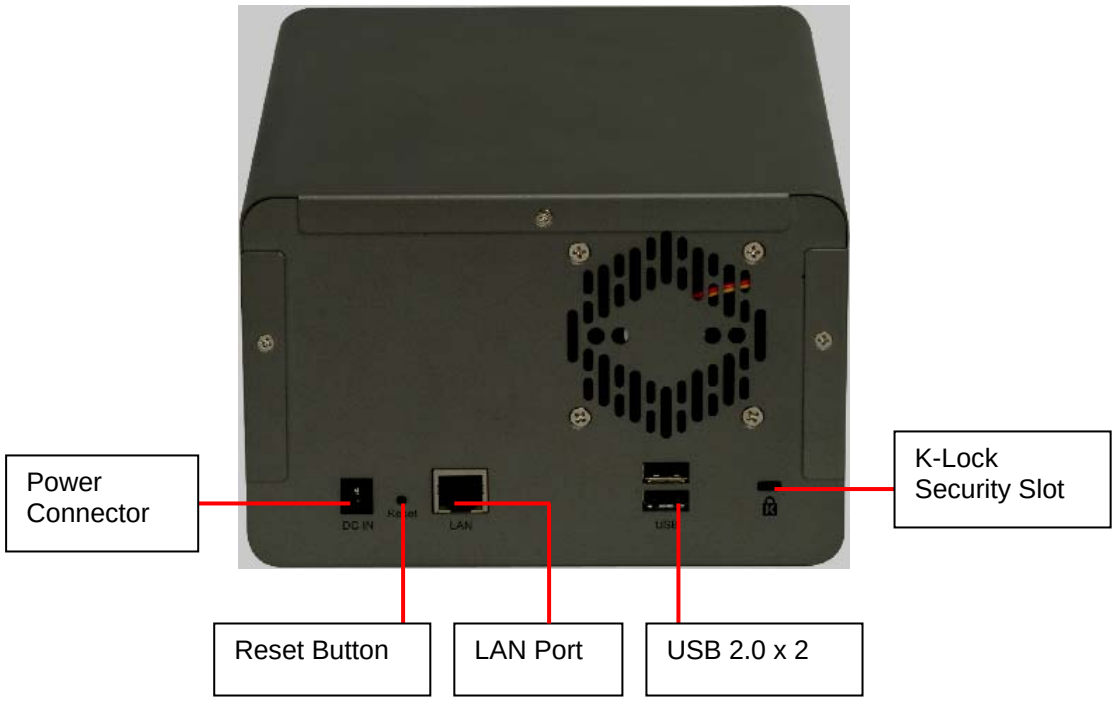
CD-ROM (User Manual, utility)

Ethernet cable x 1

Flat head screws x 8

1.3. Hardware Illustration





2. Installation

2.1. Install Hard Disk

1. Unfasten the four screws in the front of FNS-5000B and remove the front panel.

2. Loosen the screws on the disk trays and take out the disk trays.

3. Install a hard disk on each tray. Make sure the disk holes match the holes at the base of the disk tray and lock the disk with four screws.

4. Insert the disk trays to FNS-5000B. Push the disk trays to the end. Fasten the screws on the trays. When two disks are installed, make sure HDD1 is installed on top of HDD2.

5. Cover FNS-5000B with the front panel and fasten the four screws.

2.2. Hard Disk Recommendation List

The following HDD models are verified by LevelOne that are compatible with FNS-5000B. It is recommended to use the disk models listed here. Other HDD brands that are not tested by LevelOne may or may not work properly with FNS-5000B. For more updated compatible hard disk information, please visit LevelOne website at www.level1.com.

LevelOne 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.

Seagate

Model Name	Model No.	Interface	Capacity (GB)	Rotational Speed (RPM)	Buffer (MB)
Barracuda 7200.9 SATA	ST3500641AS	SATA II 3GB/s with NCQ	500	7200	16
Barracuda 7200.10 SATA	ST3320620AS	SATA II 3GB/s with NCQ	320	7200	16
Barracuda 7200.9 SATA	ST3300622AS	SATA II 3GB/s with NCQ	300	7200	16
Barracuda 7200.8 SATA	ST3250823AS	SATA 1.5GB/s with NCQ	250	7200	8
Barracuda 7200.7 SATA	ST3160827AS	SATA 1.5GB/s with NCQ	160	7200	8
Barracuda 7200.7 SATA	ST3120827AS	SATA 1.5GB/s with NCQ	120	7200	8

Maxtor

Model Name	Model No.	Interface	Capacity (GB)	Rotational Speed (RPM)	Buffer (MB)
DiamondMax 10	6B200M0	SATA 1.5GB/s with NCQ	200	7200	8

Hitachi

Model Name	Model No.	Interface	Capacity (GB)	Rotational Speed (RPM)	Buffer (MB)
Deskstar 7K400	HDS724040KLSA80	SATA 1.5GB/s	400	7200	8

Western Digital

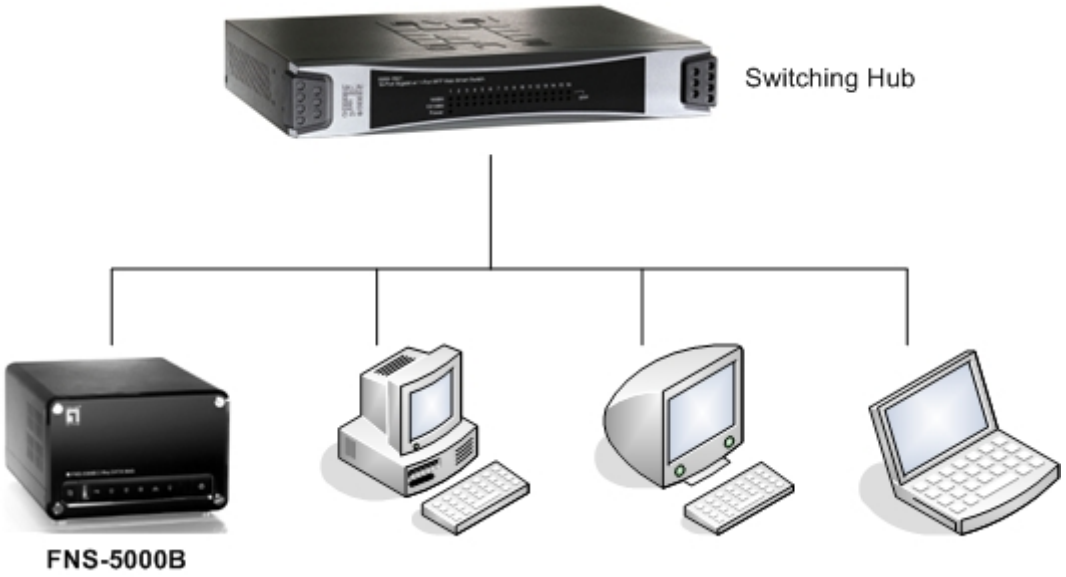
Model Name	Model No.	Interface	Capacity (GB)	Rotational Speed (RPM)	Buffer (MB)
WD Caviar® SE Serial ATA	WD4000KD	SATA 1.5GB/s	400	7200	16
WD Caviar SE16	WD3200KS	SATA II 3GB/s	320	7200	16

2.3. Setting Up

Please check your network environment and select the appropriate installation method before installing FNS-5000B.

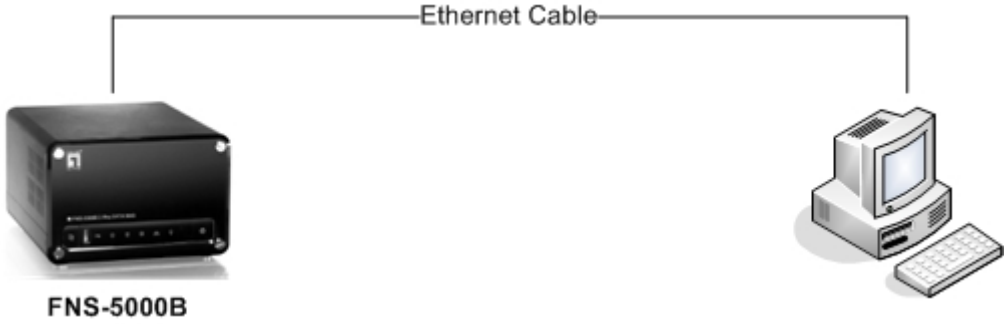
2.3.1. Office/ Home

Connect FNS-5000B and PC to the same hub/ switch/ router.

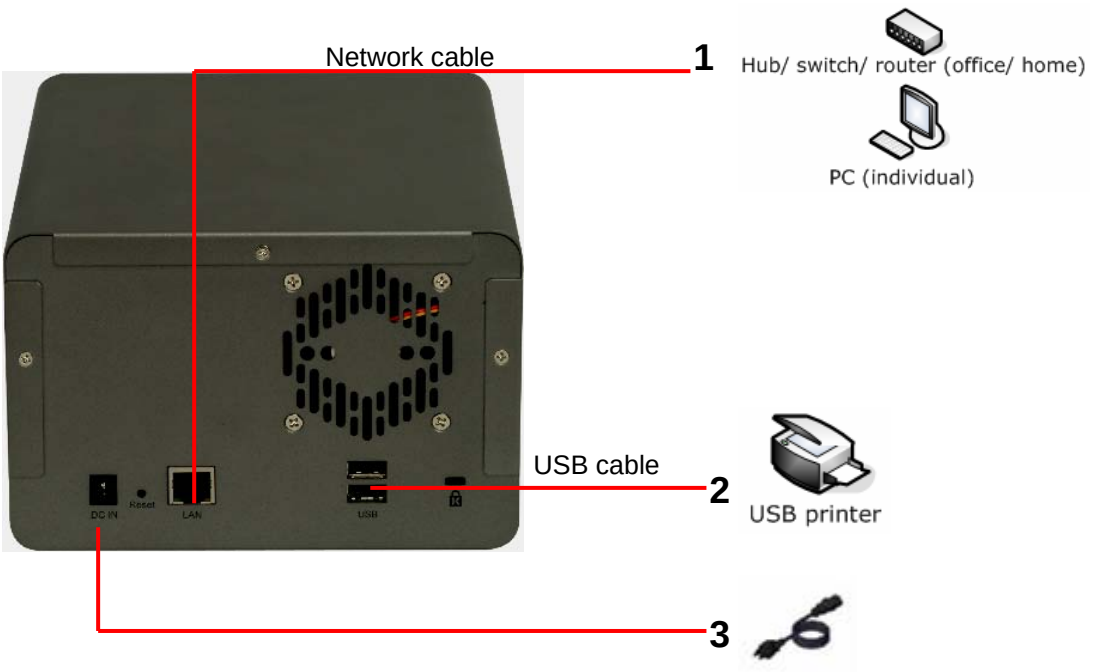


2.3.2. Individual

Connect FNS-5000B directly to your PC by a network cable.



When you have verified your network environment, please follow the steps below to install FNS-5000B.

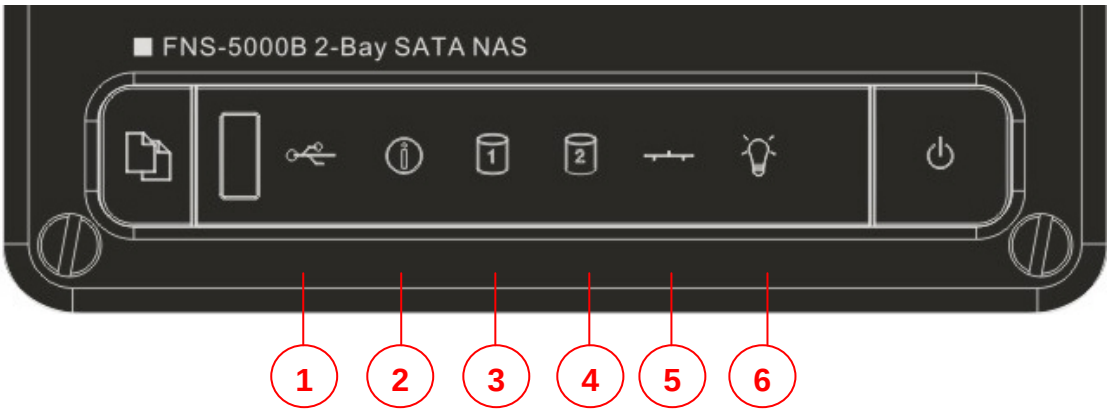


1. Connect FNS-5000B to hub/ switch/ router or PC according your network environment.
2. Connect USB printer to FNS-5000B and enable USB printer service*.
3. Connect the power.
4. Press the power button of FNS-5000B to turn on the server.

* Optional step. You can skip this step if you are not using printer service.

2.4. LED / System Status

FNS-5000B provides LED indicators for you to indicate system status and information easily. When FNS-5000B is turned on, please check the following items to make sure system status is normal. Note that the following LED information is applicable only when you have properly installed HDD1 and/or HDD2, and connected FNS-5000B to the network and power.



❶ USB Status
❷ Status
❸ HDD1
❹ HDD2
❺ LAN
❻ Power

LED	System starting up	System has started
❶USB	It shows when USB connected	
❷Status	Blink in red (short beep once) → Blink in green (long beep once)	Green
❸/❹HDD 1/ HDD 2	Orange	Off
❺Network (LAN)	Blink in orange	Orange
❻Power	Blue	Blue

LED Display / System Status

LED	LED Display & System Status
❶USB Status	Blue: You can press the copy button to copy data. Blink in blue: Copying data Blink in blue once: Detecting or removing USB device
❷Status	Green: System is normal Blink in green: Hard disk not detected Blink in red: Bad blocks are found in hard disk (any volume) Blink in green for 5 seconds, blink in green and red alternatively: Hard disk not initialized Blink in green and red alternatively: Disk capacity is almost full (long beep twice) Blink in red: Disk full (any volume)
❸/❹HDD 1/ HDD2	Blink in orange: Accessing data
❺LAN	Blink in orange: Accessing network
❻ Power	Blue: System has started

Other Status			
Action	**LED**	**In Process**	**Finished**
Update firmware	❻**Power**	Blink in blue	Blue
	❷**Status**	Blink in green and red alternatively	Green (long beep thrice)
System shut down	❻**Power**	Blink in blue	Off
	❷**Status**	Off (short beep once)	Off
HDD standby mode	❻**Power**	Blue	N/A
	❷**Status**	Off	
RAID 1 degraded mode	❻**Power**	Blue	N/A
	❷**Status**	Red (long beep twice)	
RAID 1 rebuilding	❻**Power**	Blue	N/A
	❷**Status**	Blink in red (long beep twice)	

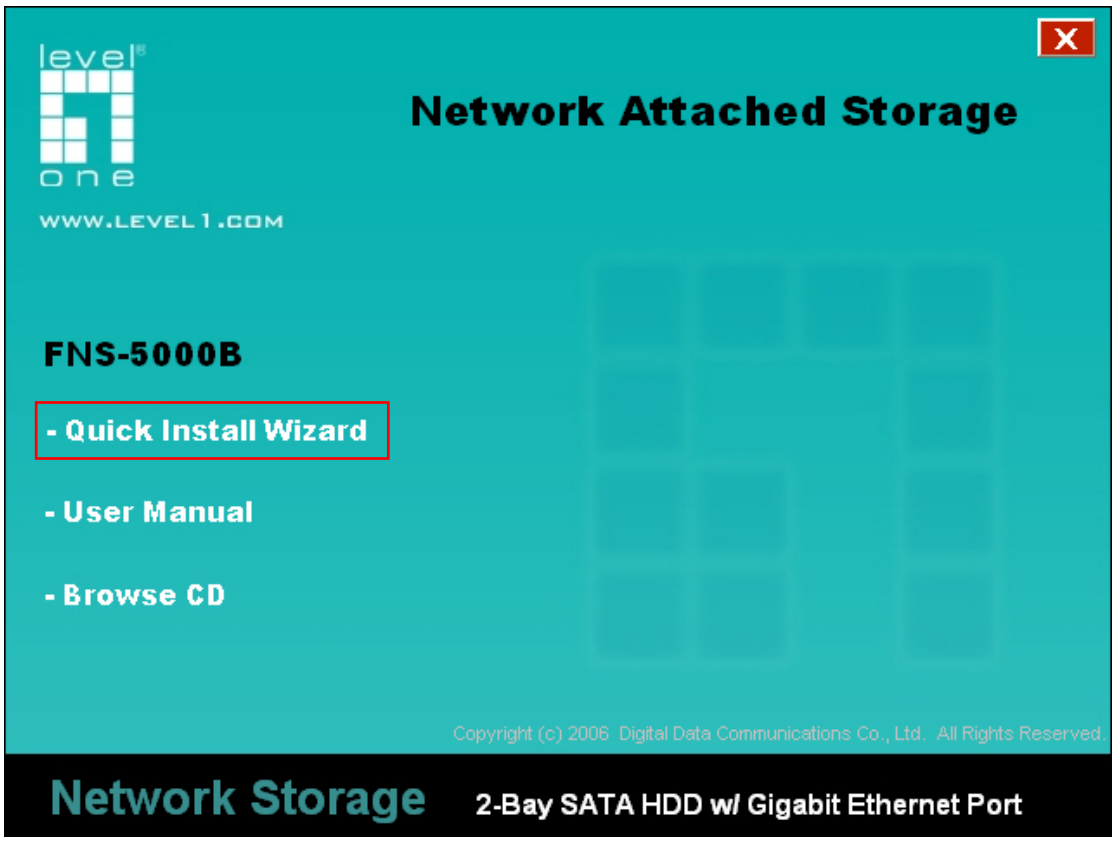
2.5. Configure Software Settings

After checking system status, please follow the steps below to configure software settings of FNS-5000B. The configuration procedure of Windows and Mac users are different. Please select the appropriate procedure according to your OS.

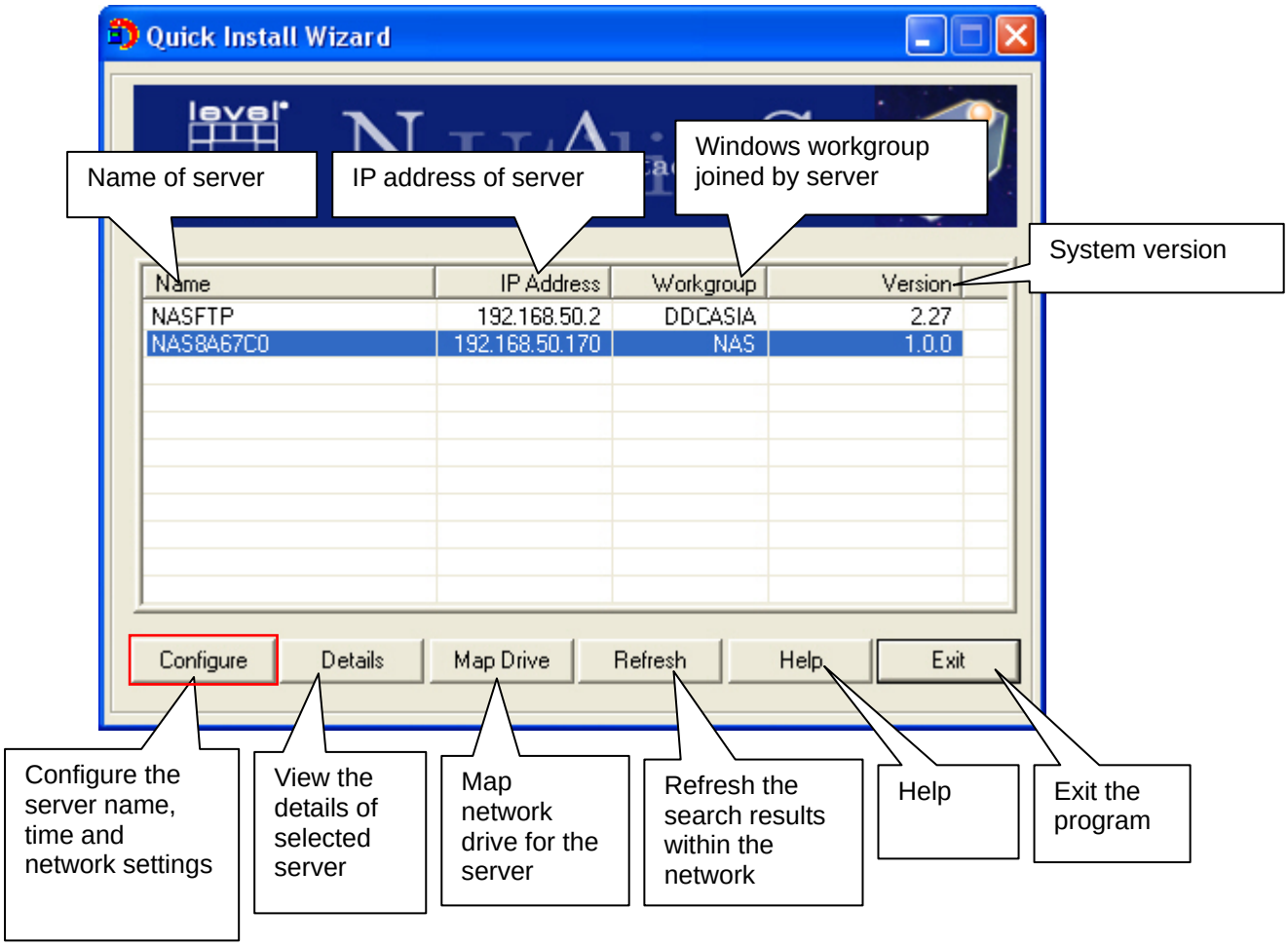
2.5.1. Windows® Users

Insert FNS-5000B CD-ROM in your PC. Wait for a few seconds until the following screen shows up. Then start to configure the software settings of FNS-5000B.

1. Install Quick Install Wizard.

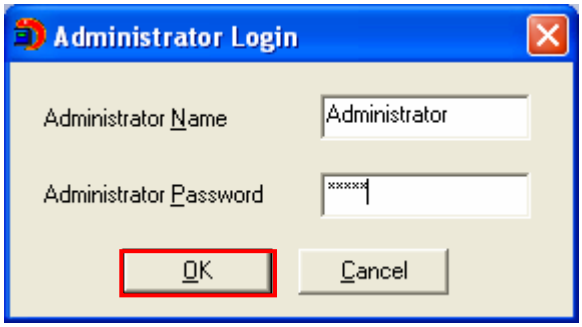


2. After installed, run Quick Install Wizard, the following screen will be shown. Select name on the list and click **Configure**

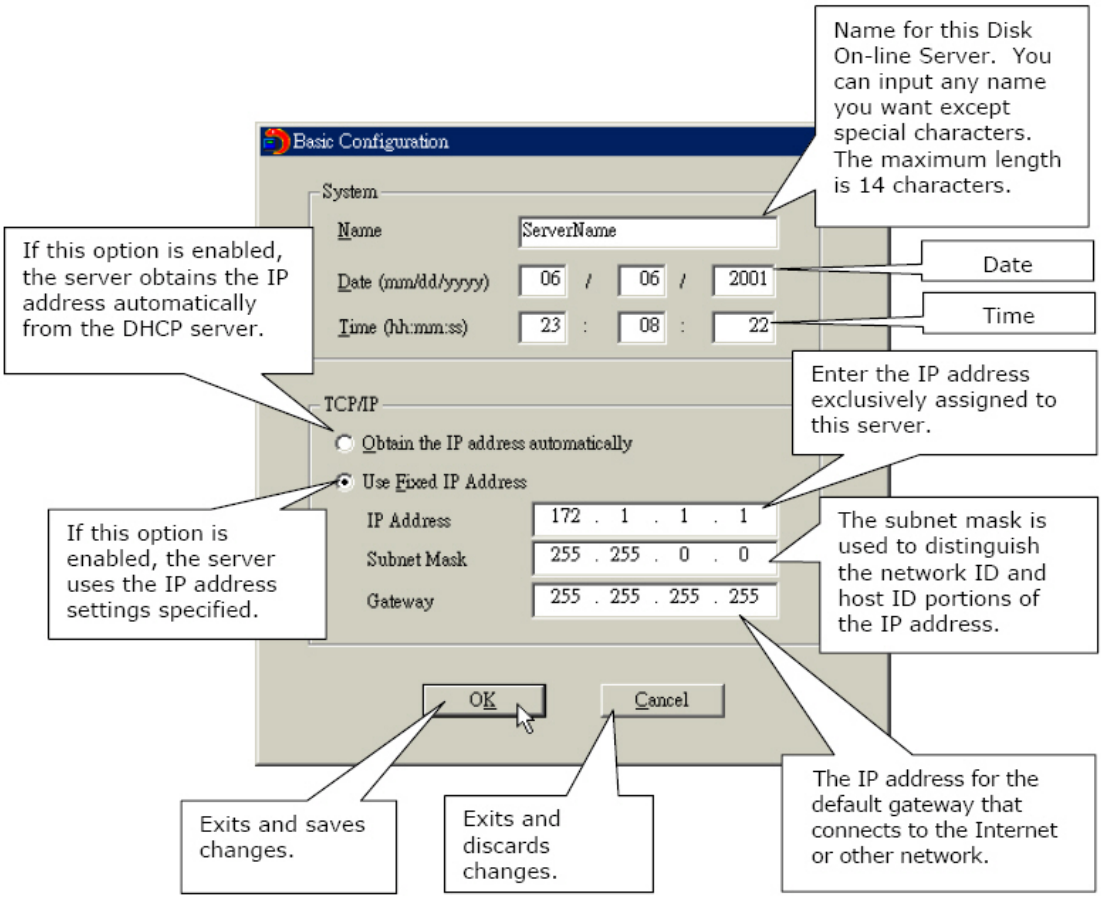


Enter the default user name and password.

Default user name: **administrator** Password: **admin**



When you have entered quick configuration page, enter related information to complete the settings. Click **OK** to save changes.

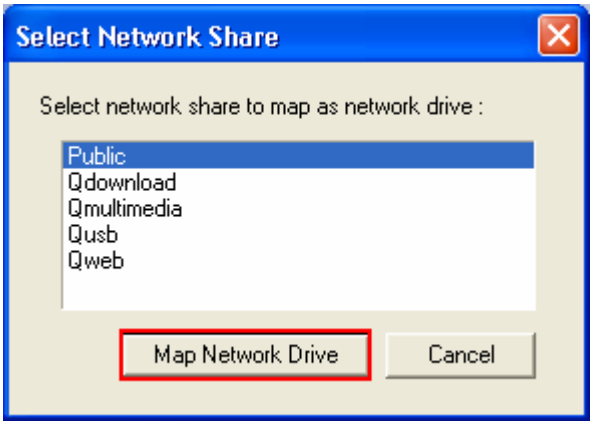


Note: If you select to enter IP address manually, please make sure your PC and FNS-5000B are in the same LAN. If you are not sure about the network settings, please contact your network administrator or ISP.

Note: All files and directories on FNS-5000B will be created using Unicode encoding. If your FTP client or PC does not support Unicode, e.g. Windows® 95, 98SE, ME OS, select the language the same as the OS of your PC here in order to view the files and directories on the server properly.

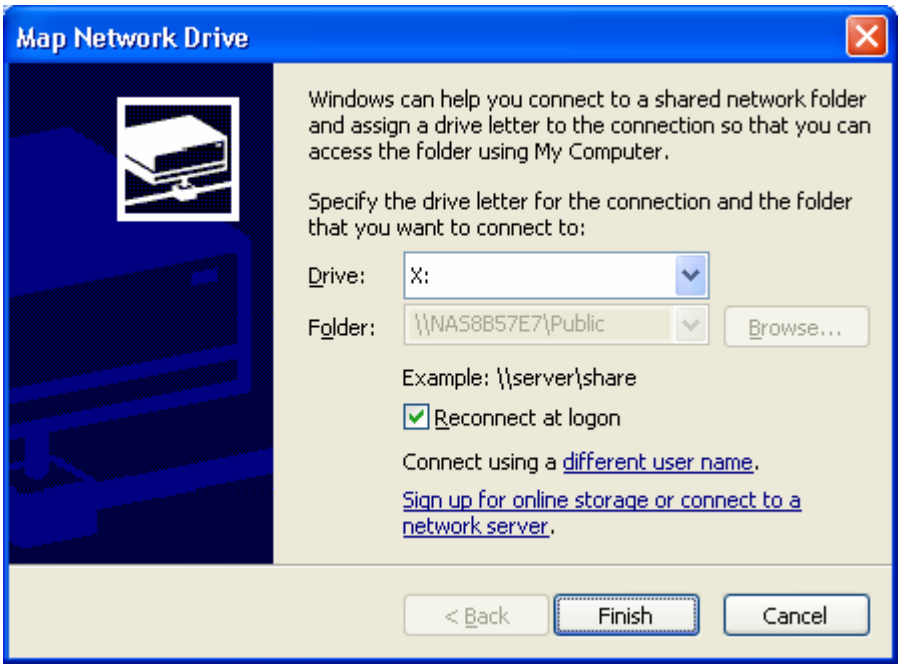
FNS-5000B provides several default share folders for data sharing and access. To map the share folders on FNS-5000B as your drive, check the option **"Map drive"** and follow the steps below to proceed.

a. For example, to map the folder **Public** as your drive, select the folder and click **Map Network Drive**.

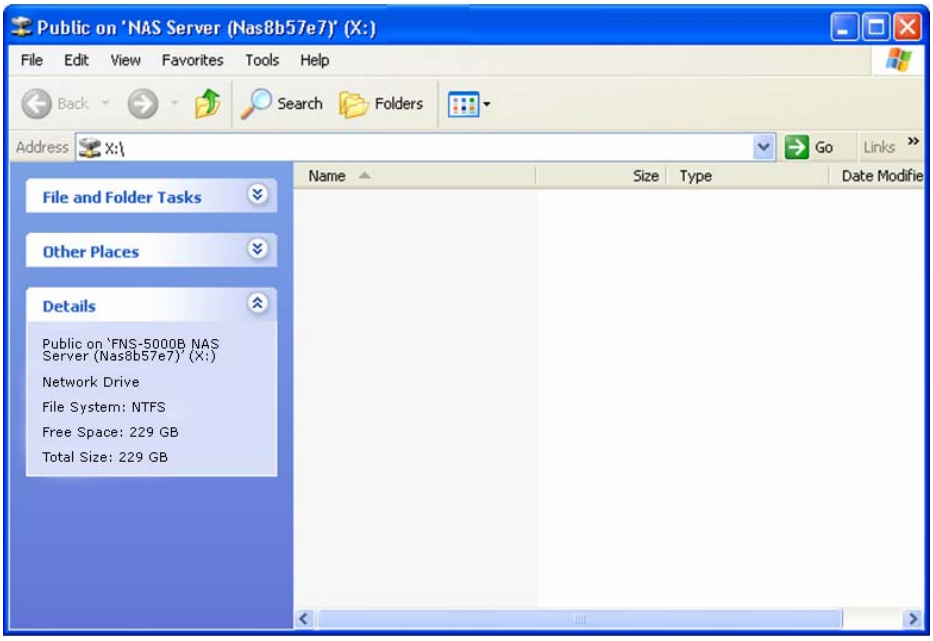


> **Note:** The share folders Qdownload, Qmultimedia, Qusb, and Qweb are system default network share of FNS-5000B for the use of Download Station, Multimedia Station, USB auto-copy and Web Server.

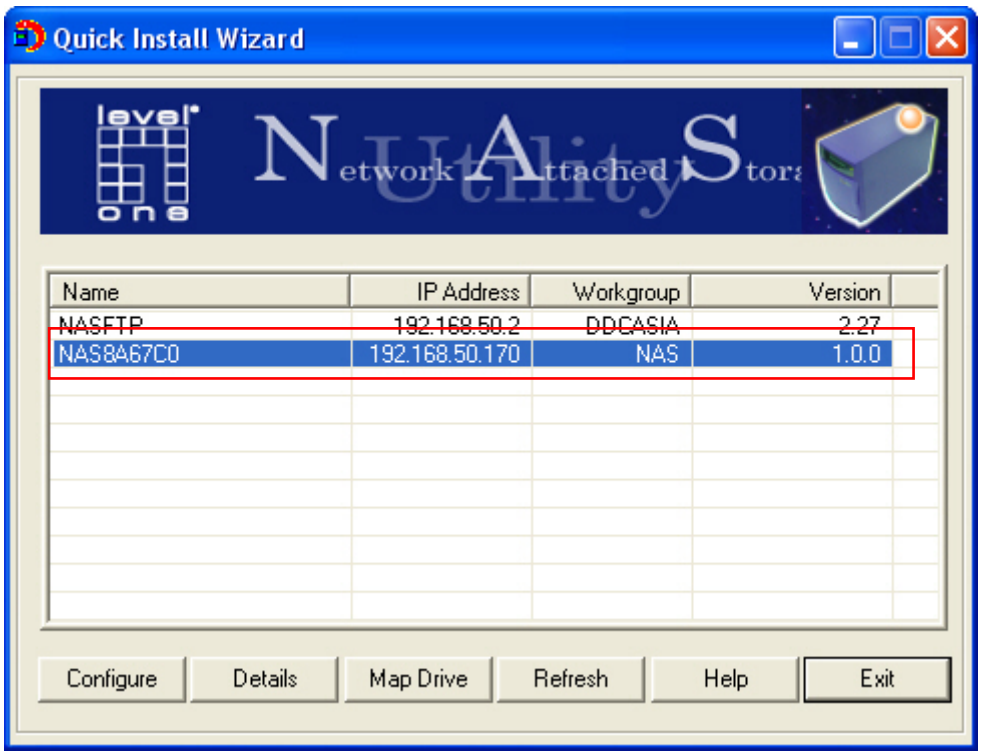
b. Select the drive letter for the connection and click **Finish**.



c. Upon successful connection, you can start to use the share folder on FNS-5000B. You can access these folders by opening My Computer.



3. Quick Install Wizard will appear when all configurations are completed. Double-click on the name of FNS-5000B on the list to enter administration page.

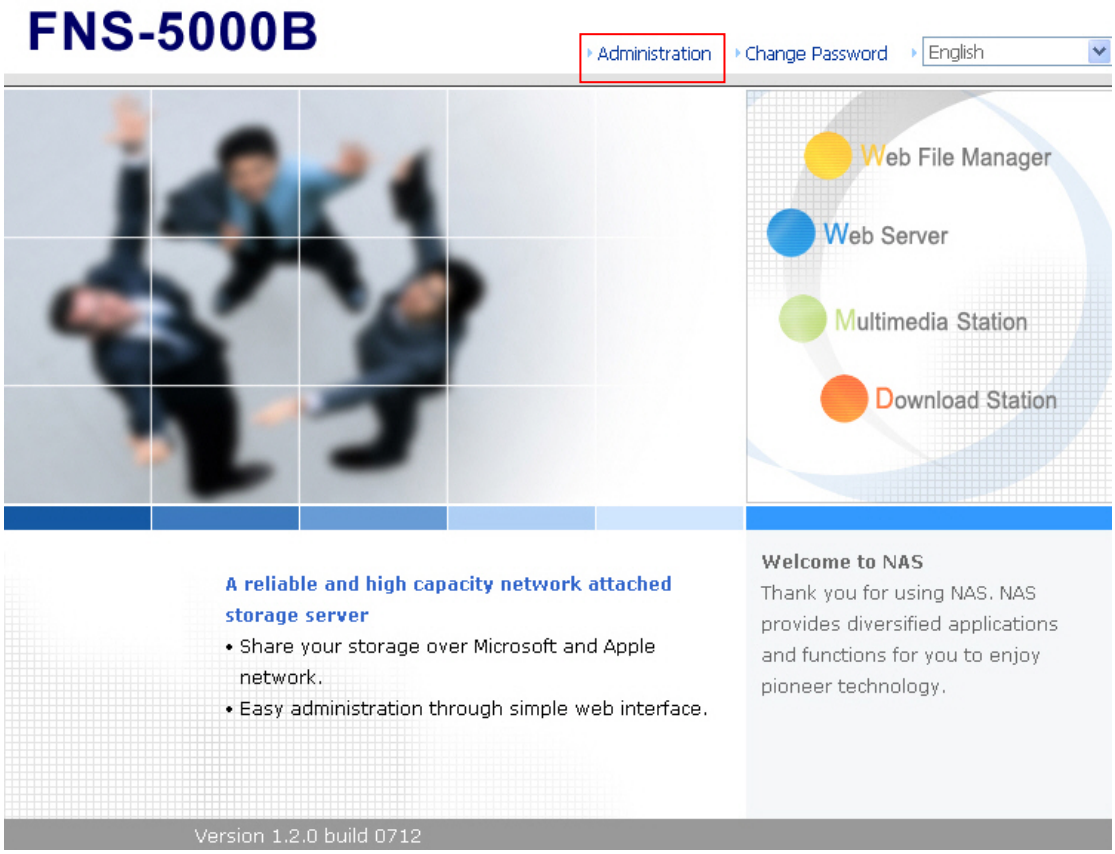


4. When the administration page of FNS-5000B is shown, you can start to use the services.

   If you have any questions during web administration, please click the help button on the top right hand corner of the page.

   To modify system settings, click **Administration**. Enter the user name and password to login.

Default user name: **administrator** Password: **admin**



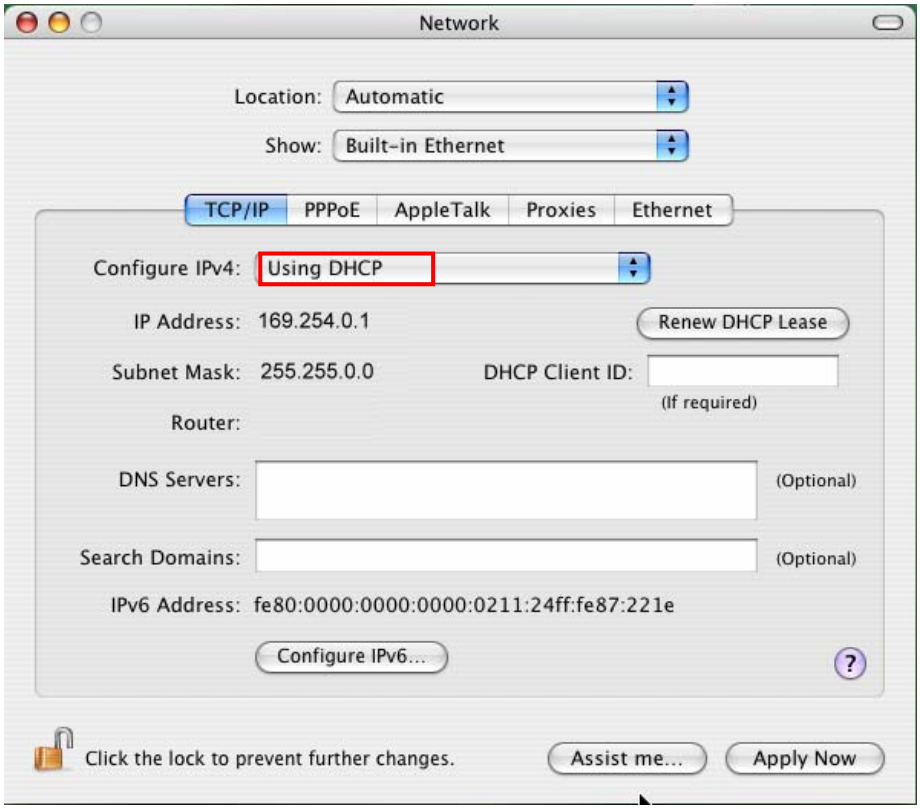
Note: It is recommended to use Internet Explorer 6.0 or above to access FNS-5000B. FNS-5000B supports Internet Explorer 6.0 or above only.

2.5.2. Mac Users

FNS-5000B provides two methods for Mac users to connect to FNS-5000B. You can select A. Connect FNS-5000B by Mac directly or B. Connect FNS-5000B by the network.

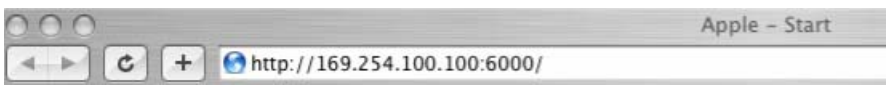
A. Connect FNS-5000B by Mac directly

1. Please go to **Network** settings and select **Using DHCP**. Then connect FNS-5000B to your Mac via a cable.



2. Open a web browser and enter the default IP address of FNS-5000B to login the system.

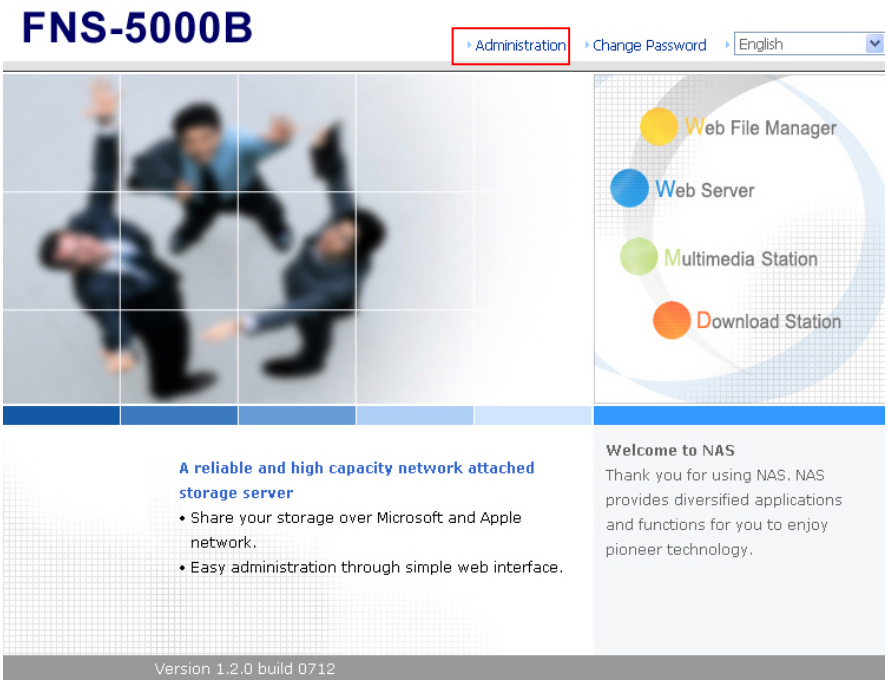
Default IP of FNS-5000B: **http://169.254.100.100:6000**



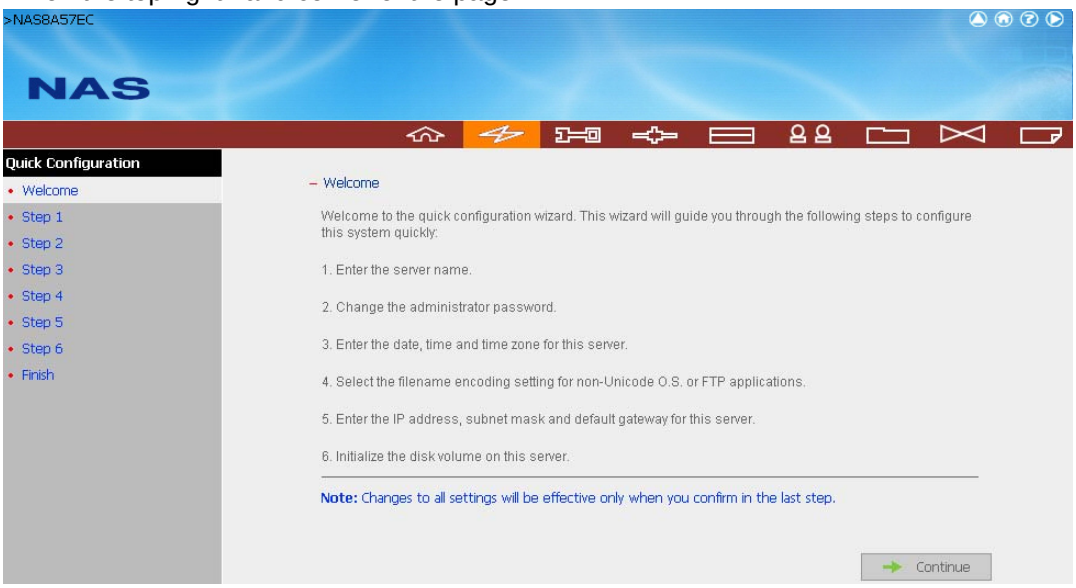
Note: Please use the browser Safari in Mac to access FNS-5000B.

3. When the administration page is shown, click **Administration**. Enter the default user name and password to login.

Default user name: **administrator** Password: **admin**

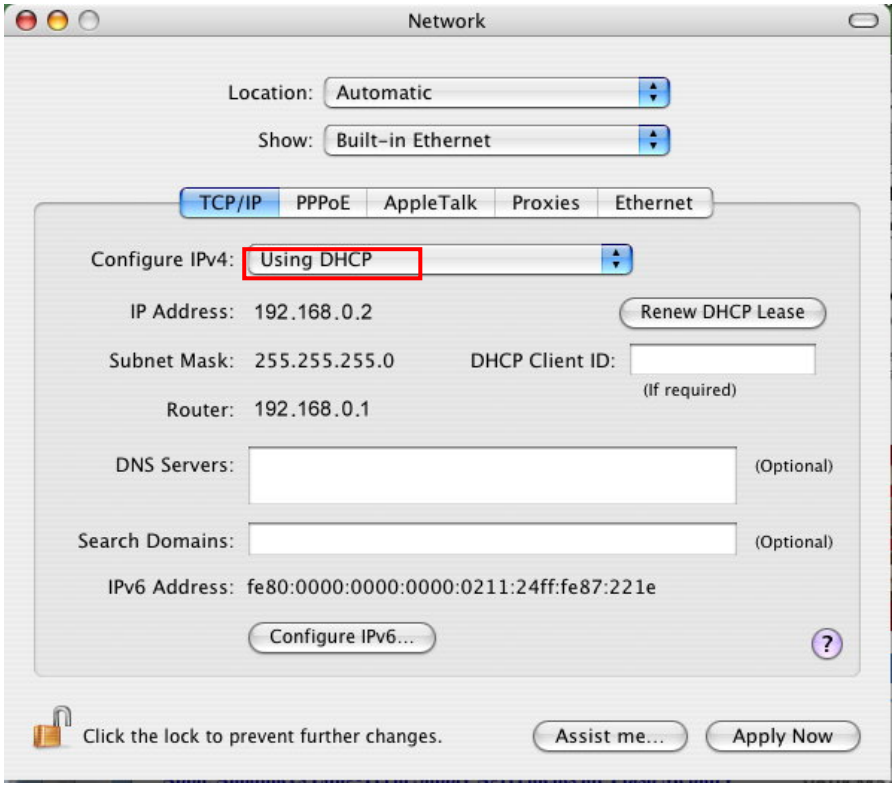


4. Follow the step-by-step guide in Quick Configuration to complete the settings of FNS-5000B. If you have any questions during web administration, please click the help button on the top right hand corner of the page.



B. Connect FNS-5000B by the network

1. Please go to **Network** settings to check and write down the subnet and router address of your Mac. Then select **Using DHCP**.



Note: If you are not sure about the network settings, please contact your network administrator or ISP.

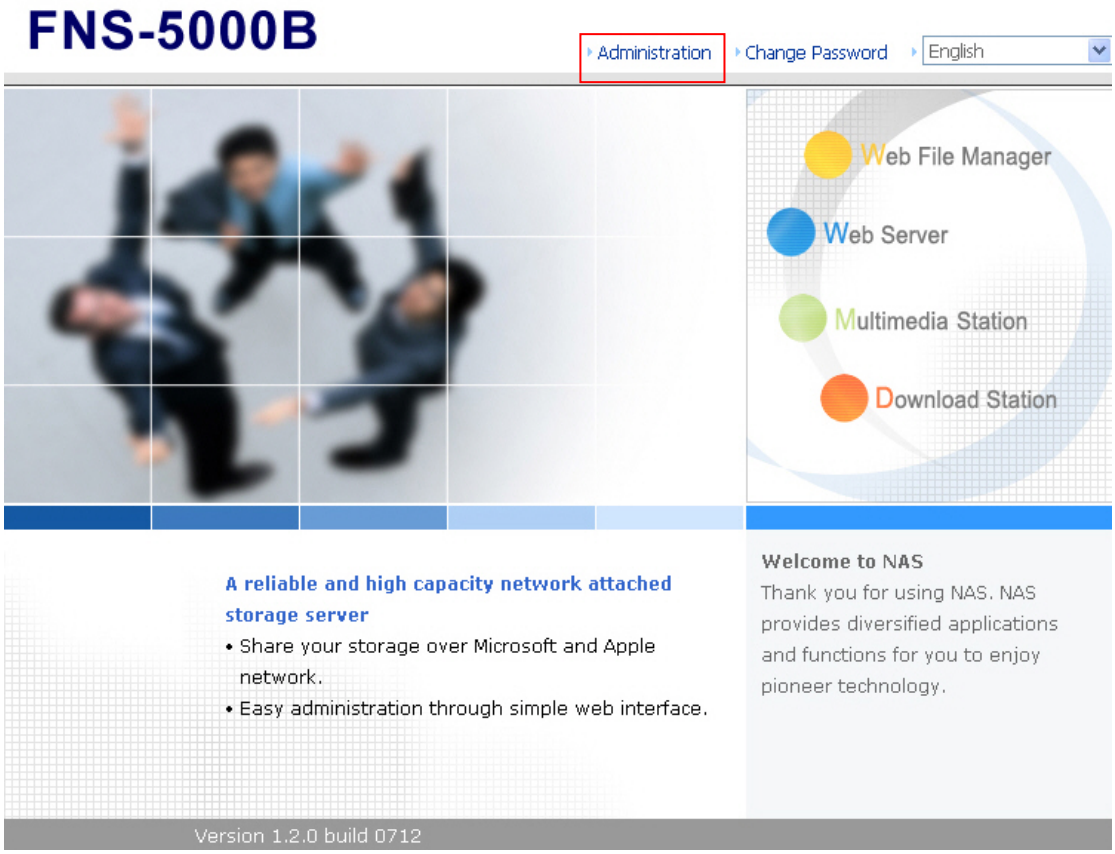
2. Connect FNS-5000B to your Mac by a cable. Open a web browser and enter the default IP address of FNS-5000B.

Default IP address of FNS-5000B: **http://169.254.100.100:6000**

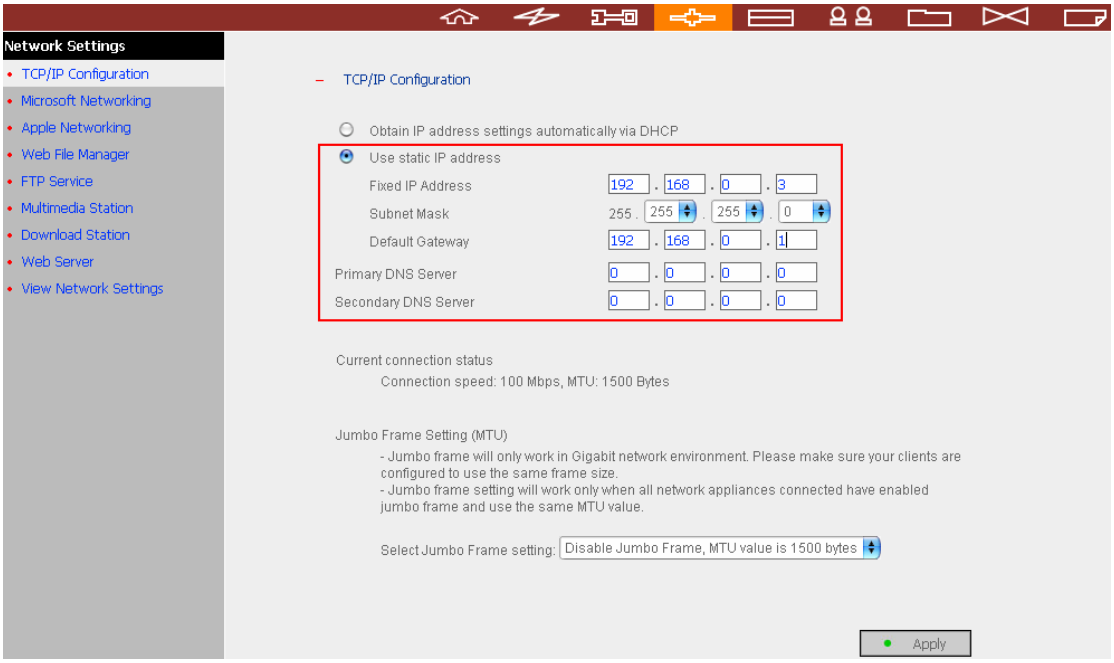
Note: Please use the browser Safari in Mac to access FNS-5000B.

3. When the administration page is shown, click **Administration**. Enter the default user name and password to login.

Default user name: **administrator** Password: **admin**

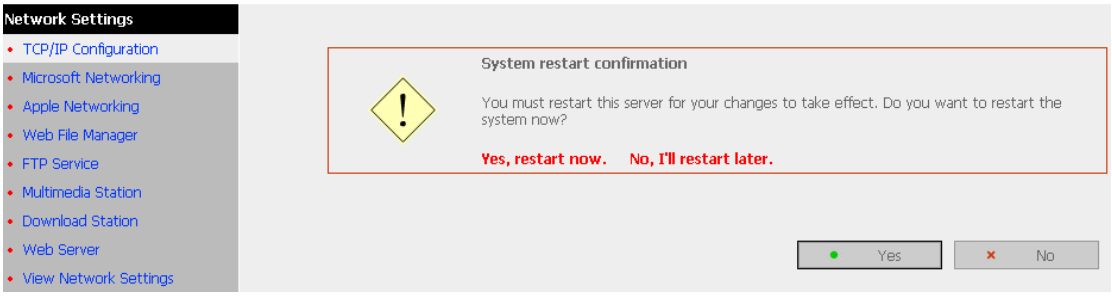


4. Go to TCP/IP Configuration of Network Settings . Select to use static IP and input the IP address of FNS-5000B. Make sure the value does not conflict with the IP address of your Mac and other devices in LAN. Configure the subnet mask and default gateway of FNS-5000B to the same as subnet mask and router address of Mac which you set in Step 1. Click **Apply** to confirm.



Note: When using static IP, please make sure your Mac and FNS-5000B are in the same subnet. If you are not sure about the settings, please contact your network administrator or ISP.

5. Click **Yes** to restart FNS-5000B for the changes to take effect. Please wait patiently for FNS-5000B to restart.

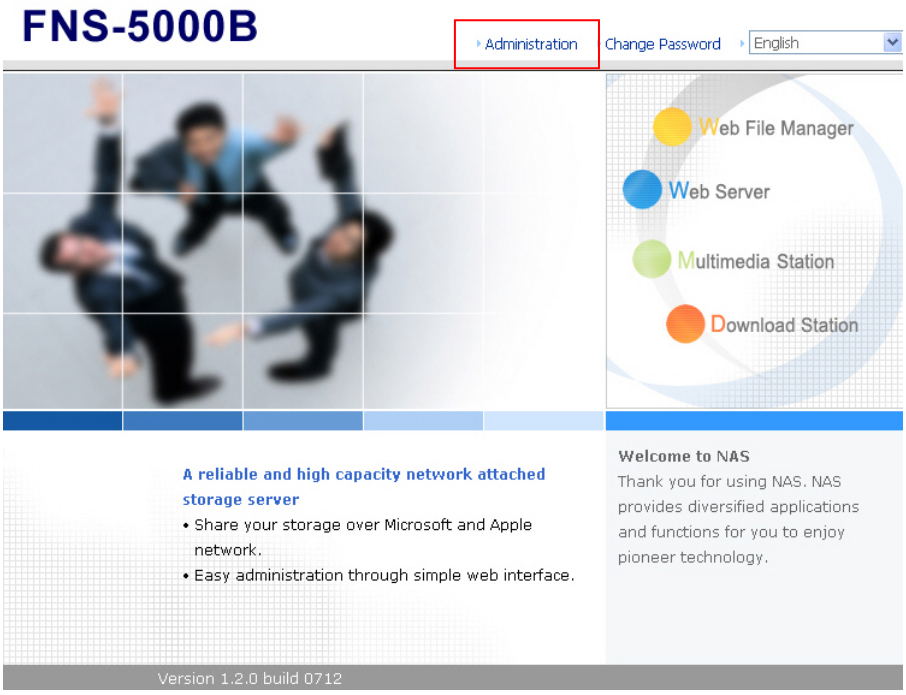


6. Connect your Mac and FNS-5000B to the network. Open a web browser and enter the IP address of FNS-5000B you set up in step 4.

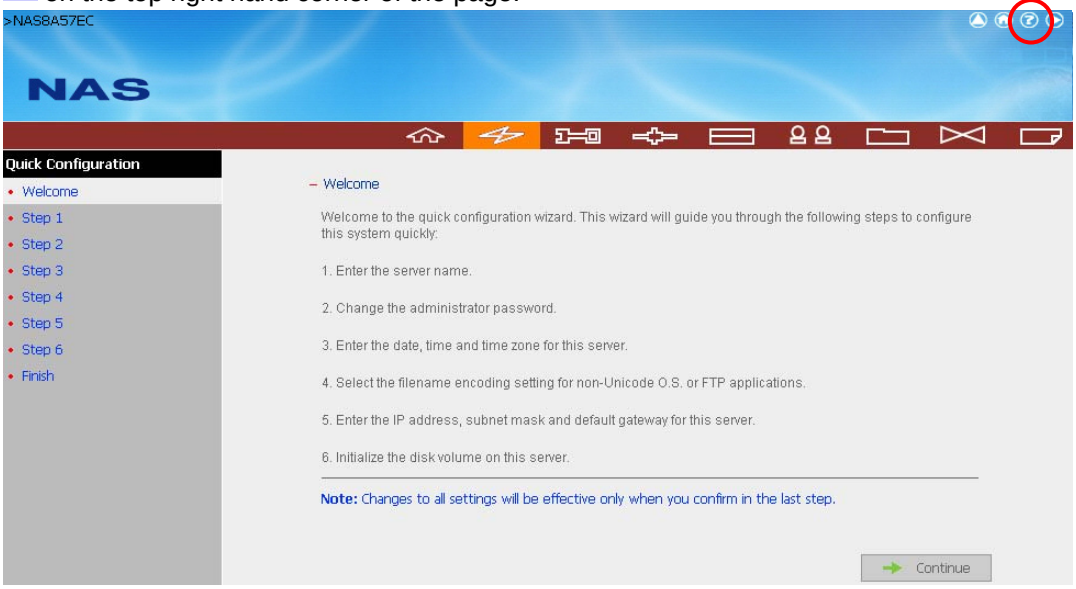
Note: Please use the browser Safari in Mac to access FNS-5000B.

7. Click **Administration** and enter the default user name and password to login.

Default user name: **administrator** Password: **admin**



8. Follow the step-by-step guide in Quick Configuration to complete the settings of FNS-5000B. If you have any questions during web administration, please click the help button on the top right hand corner of the page.

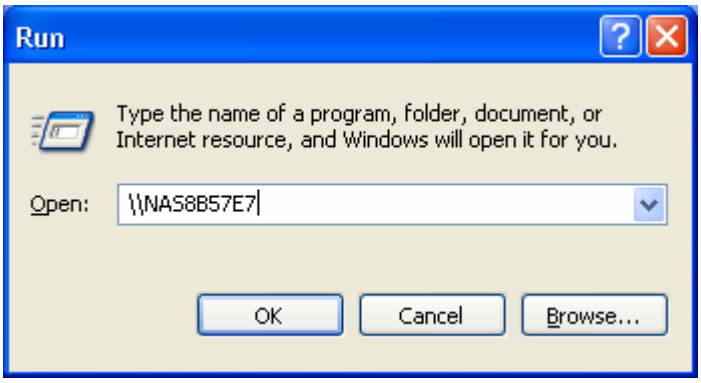


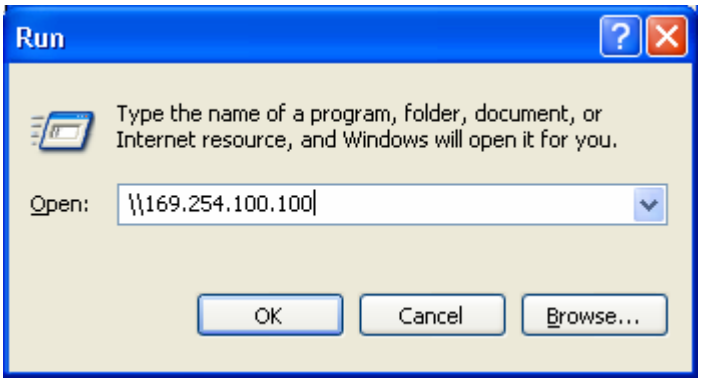
3. Powerful Services

FNS-5000B provides the following powerful functions and applications.

A. Use network share-Public folder

1. You can access the public folder of FNS-5000B by the following means:
   a. Open My Network Places and find the workgroup of FNS-5000B. If you cannot find the server, please browse the whole network to search for FNS-5000B. Double click the name of FNS-5000B for connection.
   b. Use Run function in Windows®. Enter **\\[FNS-5000B name]*** or **\\[FNS-5000B IP]#** to access share folder on FNS-5000B.





   c. Windows® users can use Quick Install Wizard to find FNS-5000B. When the administration page is shown, click **Web File Manager**. Enter the user name and password, and then start to manage FNS-5000B.

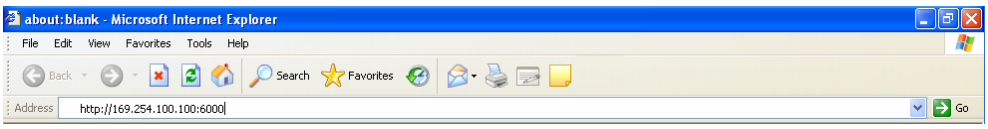
2. You can upload files to the Public folder.

B. Manage FNS-5000B

- **Manage FNS-5000B using web browser by Windows® or Mac**

1. You can access FNS-5000B web administration page by the following methods:
   a. Windows® users can use Quick Install Wizard to find FNS-5000B.
   b. Windows® and Mac users can open a web browser and enter

      http://[FNS-5000B IP]:6000#

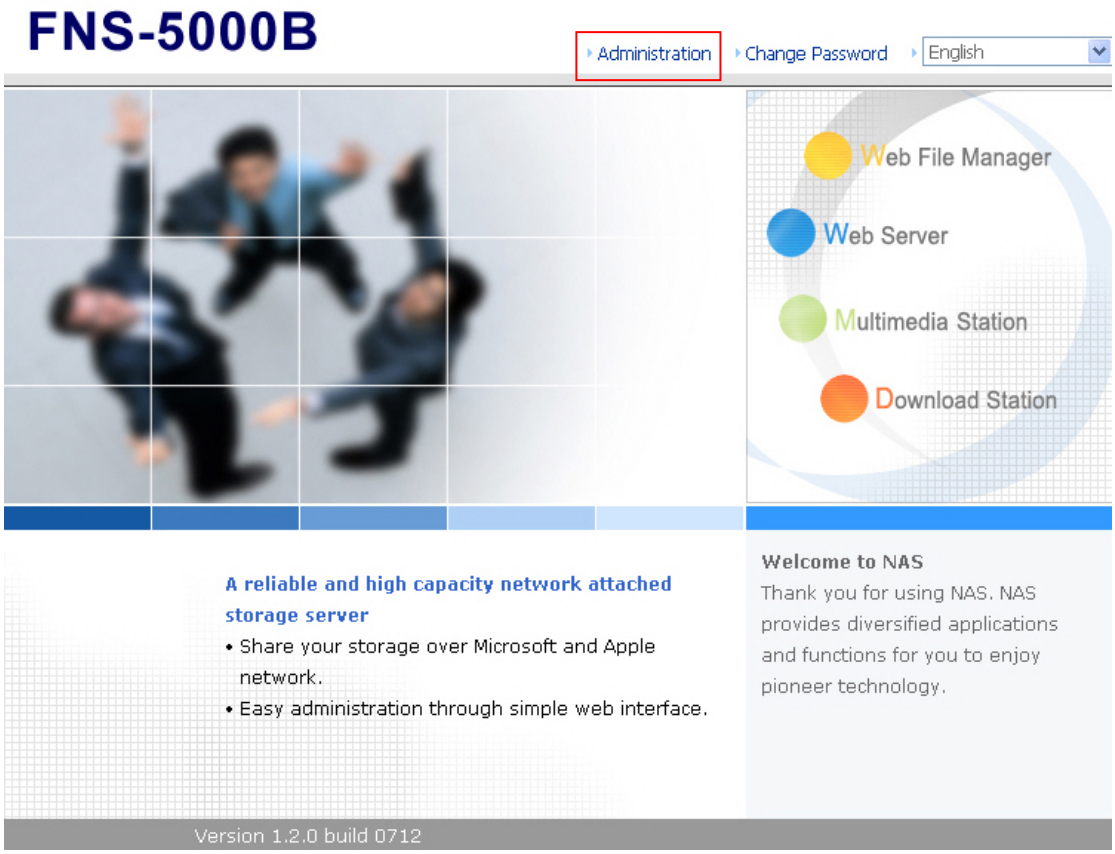


> Note:
>
> It is recommended to use Microsoft® Internet Explorer 6.0 or above to access FNS-5000B. FNS-5000B supports Internet Explorer 6.0 only.
>
> Please use the browser Safari in Mac to access FNS-5000B.

*The user name here should be the same as the server name you enter in Chapter 2.5 **Configure Software Settings**.

#The IP address here should be the same as the IP address you enter in Chapter 2.5 **Configure Software Settings**. If you are using DHCP: (a) connect the PC to FNS-5000B directly, please use the default IP address 169.254.100.100:6000 of FNS-5000B; (b) connect FNS-5000B by network, please run Quick Install Wizard to view the IP address of FNS-5000B.

2. When the administration page is shown, click **Administration**, **Web File Manager**, **Web Server**, **Multimedia Station**, or **Download Station**. Enter the user name and password, and then start to manage FNS-5000B. For further details, please refer to the user manual in FNS-5000B CD-ROM.



C. Use FNS-5000B Services

- **Multimedia Station**
  FNS-5000B provides a user-friendly web management interface for you to manage personal albums easily. You can view images and multimedia files, or browse photos by thumbnails preview. Please refer to Chapter 5. Multimedia Station

- **Download Station**
  FNS-5000B supports P2P download mechanism. You can add download task to FNS-5000B and let the server finish downloading independently of your PC. Please refer to Chapter 6. Download Station

- **Mirror Station**
  Provides RAID 1 mirroring disk volume for data protection. Please refer to Chapter 3.5.1.

- **Disaster Recovery**
  FNS-5000B supports remote share folder backup via the network. In case of data damage in PC, you can restore all backup data. Please refer to Chapter 3.8.6.

- **Web Server**
  FNS-5000B enables you to upload html files and manage your own website easily. Please refer to Chapter 7. Web Server

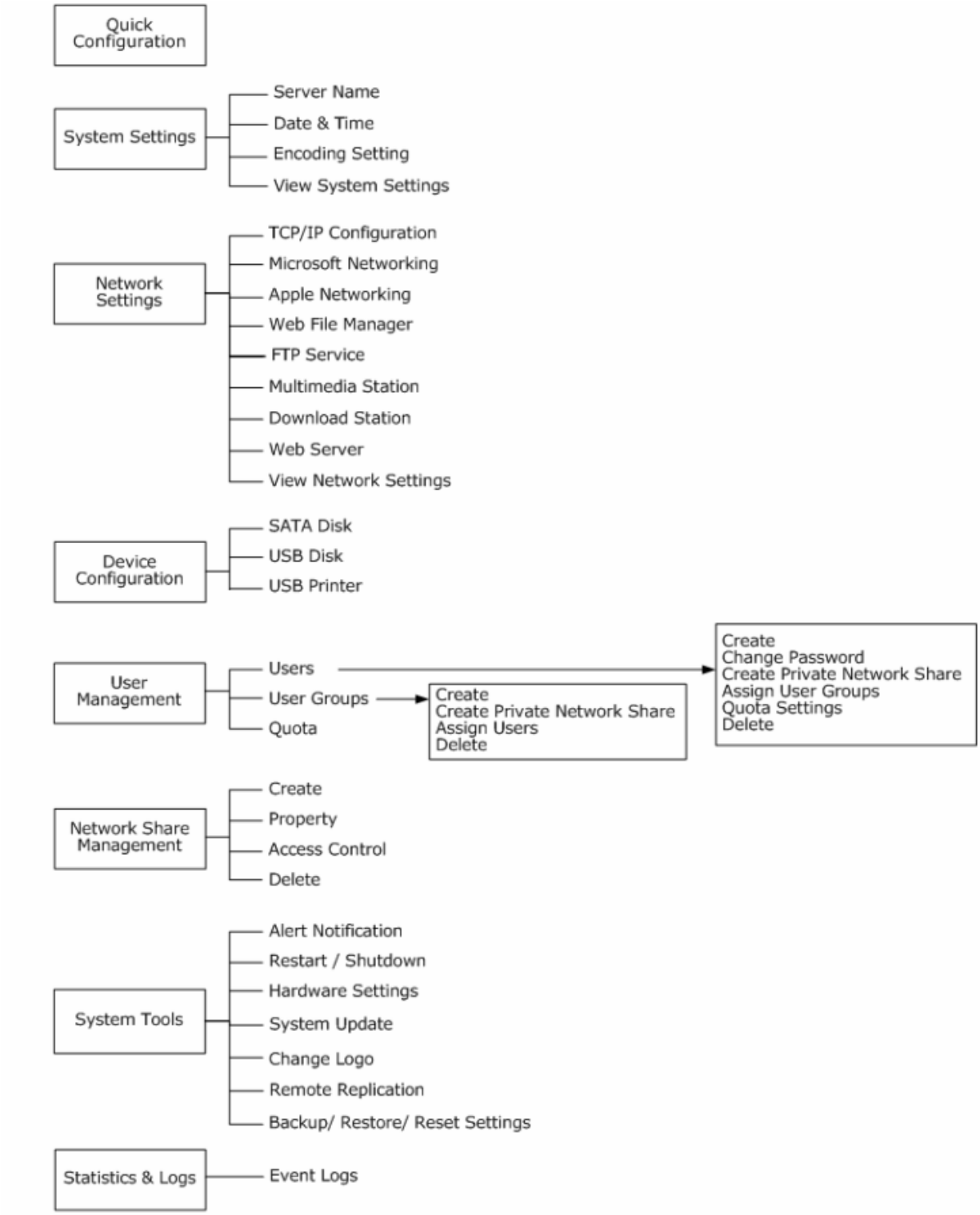
- **Printer Server**
  FNS-5000B supports network printer sharing function by direct USB connection. No extra help from PC is needed. Please refer to Chapter 3.5.3.

- **FTP Server**
  FNS-5000B offers the simplest FTP server setup procedure for you to establish FTP server without any professional assistance. Please refer to Chapter 8. FTP Server

- **File Server**
  FNS-5000B provides convenient and secure file server functions that support central data management. Users can be granted with the right to access network share and share important files. Please refer to Chapter 3.7 and 9. Web File Manager

3.1. Server Administration

There are 8 main sections in server administration:



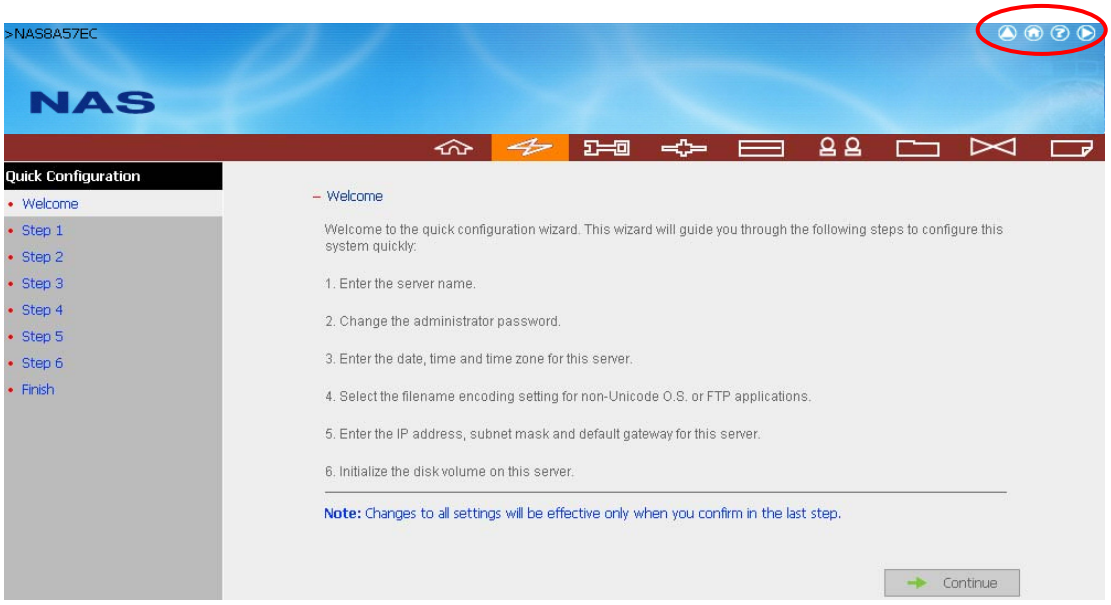
3.2. Quick Configuration

Please follow the step-by-step guide in Quick Configuration to complete the settings of FNS-5000B. If you have any questions during web administration, please click the help button on the top right hand corner of the page. Other buttons are described as below:

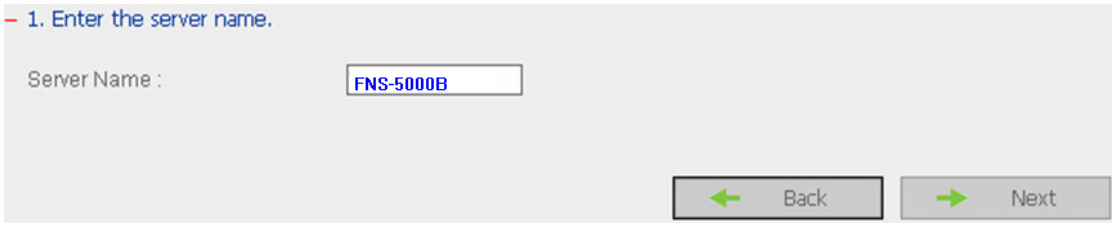
: Return to previous page

: Return to home page

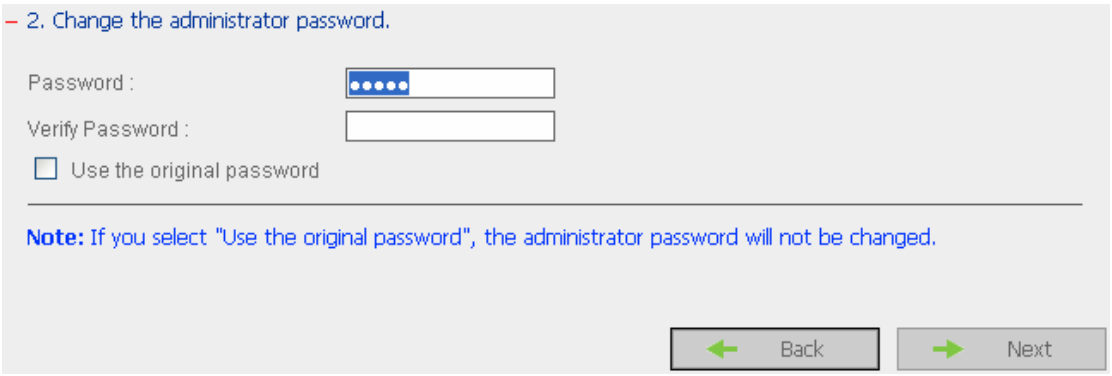
: Logout system



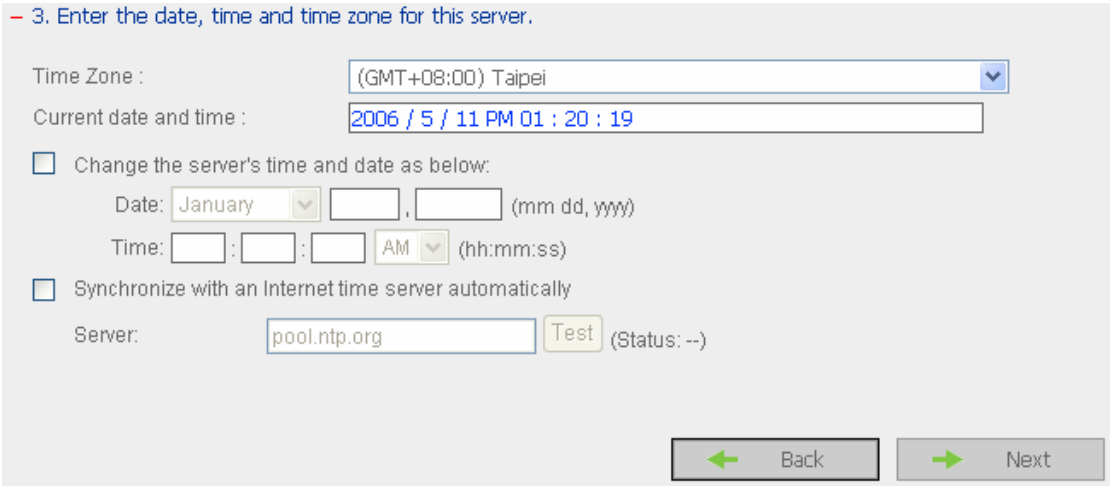
Step 1. Enter the server name.



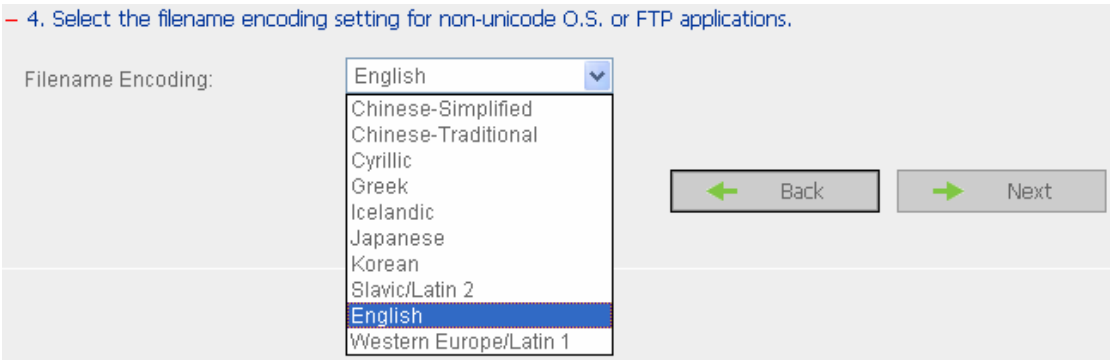
Step 2. Change the administrator password or select to use the original password.



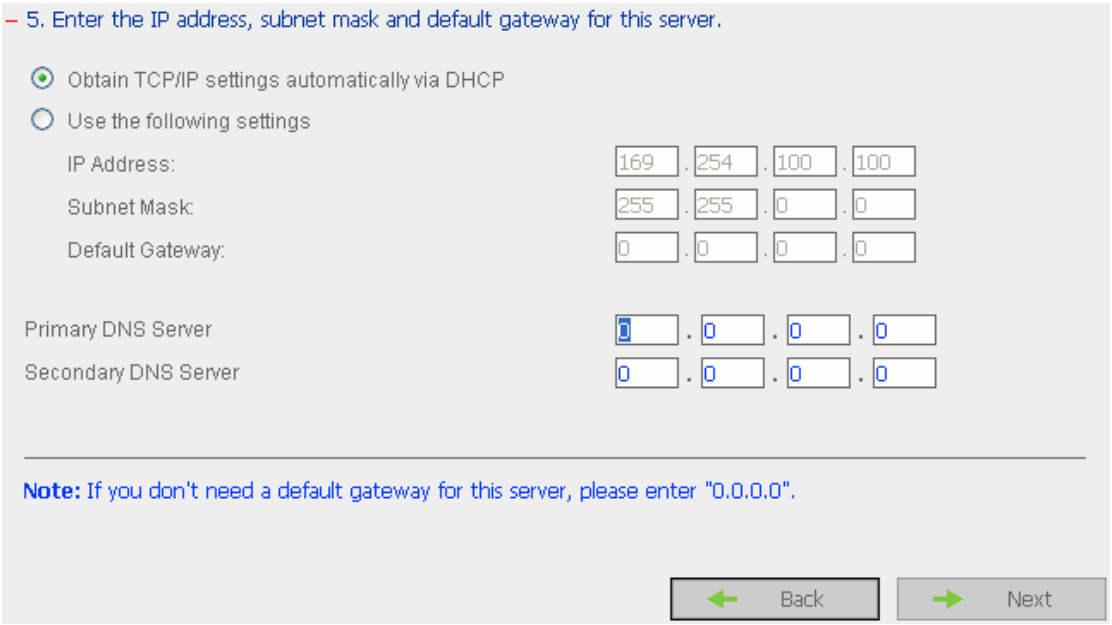
Step 3. Enter the date, time and select the time zone for the server.



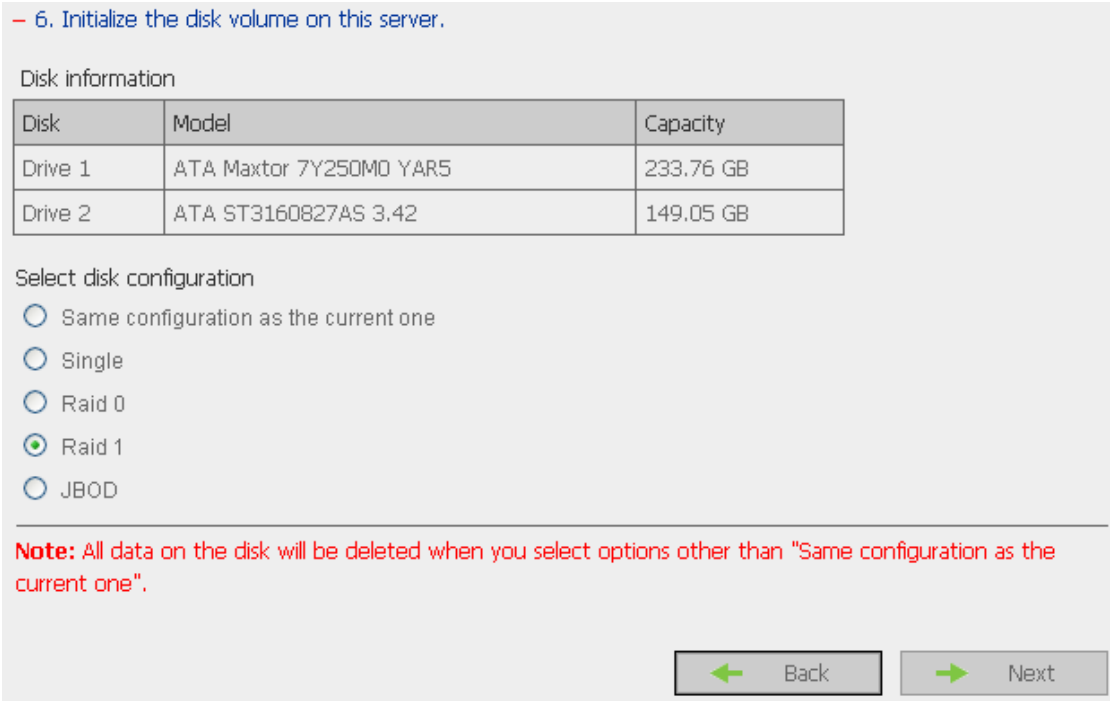
Step 4. Select the language the server uses to display files and directories. The default setting is **English**.



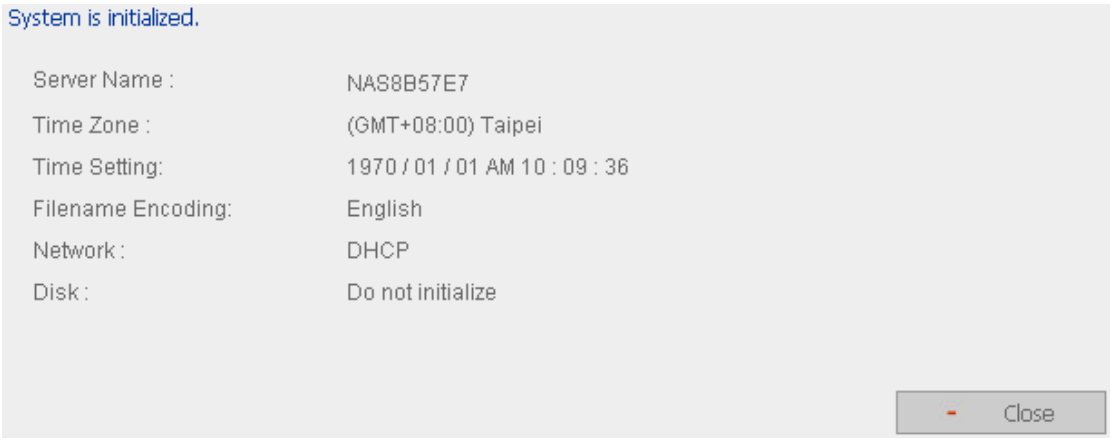
Step 5. Enter the IP address, subnet mask and default gateway for the server.



Step 6. Initialize disk volume in FNS-5000B for the first time configuration.



Step 7. When FNS-5000B is initialized, the basic settings will be shown.

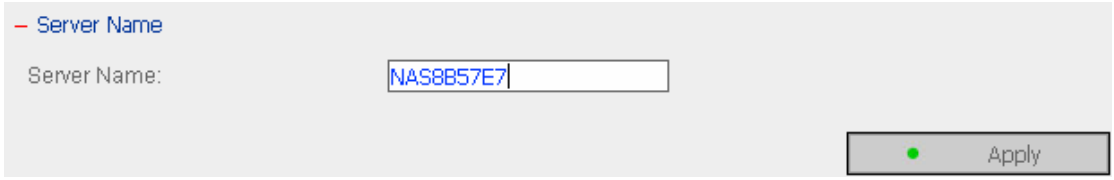


3.3. System Settings

Basic system settings include the server name, date, time, and view system settings.

3.3.1. Server Name

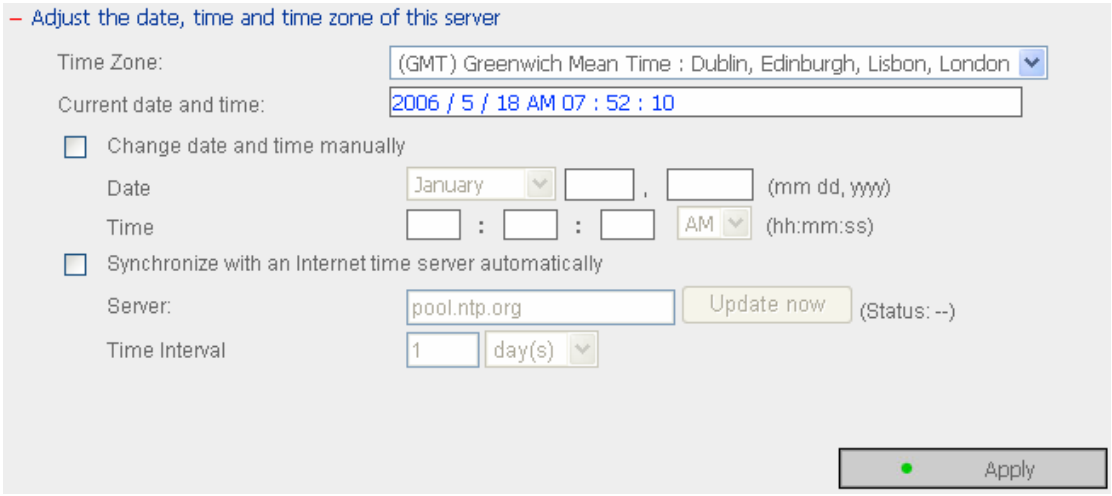
Enter the name of FNS-5000B. The server name can be 14 characters long at maximum, which supports alphabets, numbers and hyphen (-). The server does not accept names with space, period (.), or names in pure number.



3.3.2. Date & Time

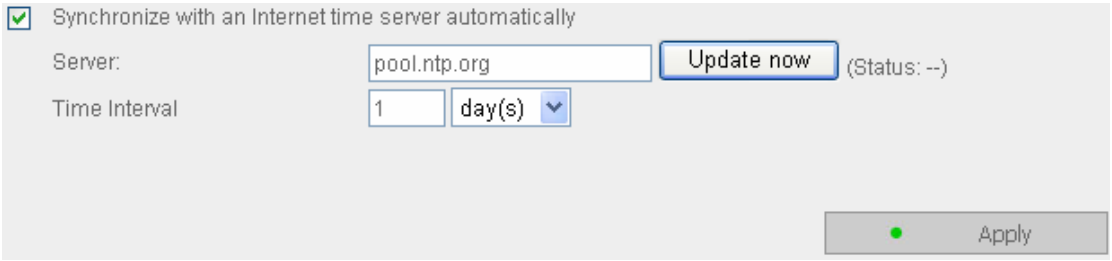
Set the date, time, and time zone according to your location. If the settings are incorrect, the following problems may occur:

- ✓ When using a web browser to access 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 (minimum value is 1 minute and maximum value is 99 days).

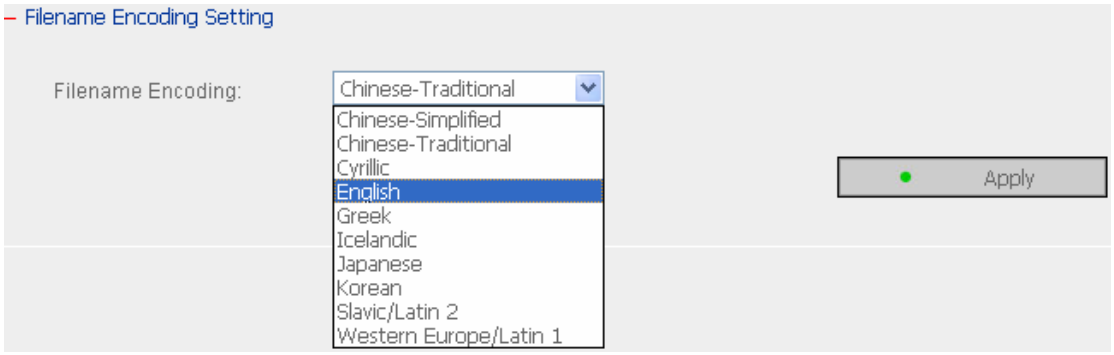


Note: The first time you enable NTP server, it may take several minutes for time synchronization before the time is correctly adjusted.

3.3.3. Encoding Setting

Select the language FNS-5000B uses to display files and directories.

> **Note:** All files and directories on FNS-5000B 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.



3.3.4. View System Settings

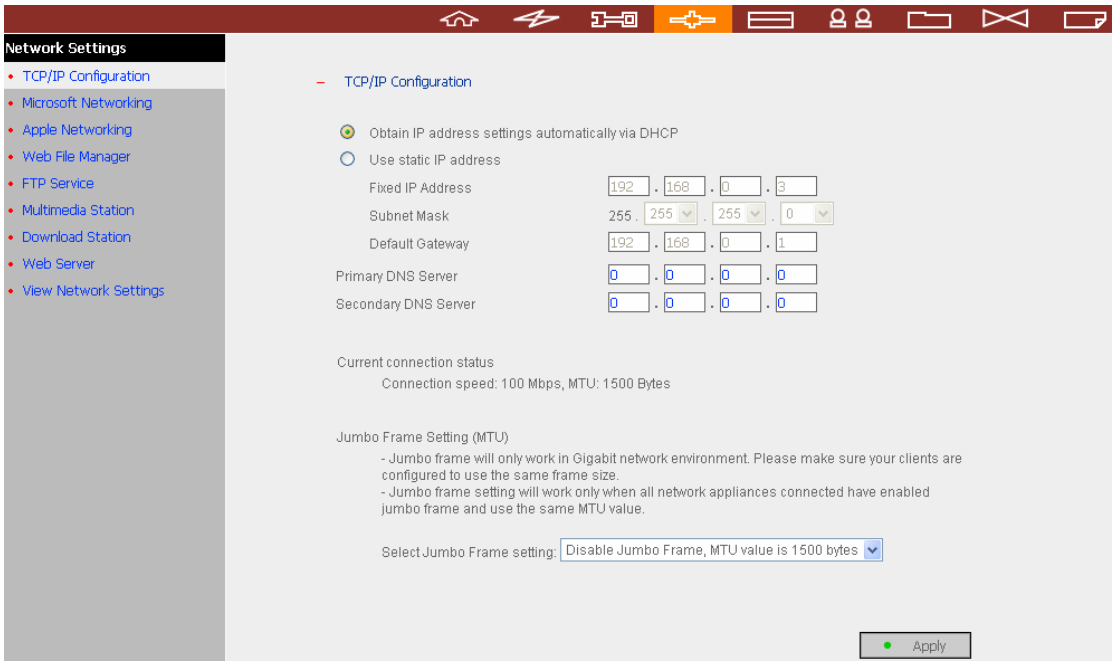
You can view all current system settings, e.g. server name, on this page.

3.4. Network Settings

You can configure network settings in this section and enable several powerful applications of FNS-5000B, e.g. Multimedia Station, Download Station, and Web Server.

3.4.1. TCP/ IP Configuration

You can select one of the following two methods to configure the TCP/IP settings



1. **Obtain IP address settings automatically via DHCP**
   If your network supports DHCP, FNS-5000B will use DHCP protocol to retrieve the IP address and related information automatically.
2. **Use static IP address**
   To use fixed IP address for network connection, enter fixed IP address, subnet mask and default gateway.

Primary DNS Server: Enter the IP address of primary DNS server that provides DNS service for FNS-5000B in external network.

Secondary DNS Server: Enter the IP address of secondary DNS server that provides DNS service for FNS-5000B in external network.

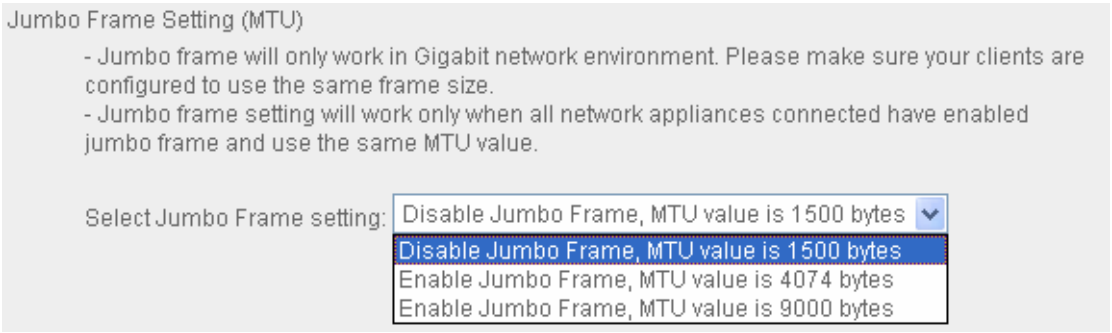
Jumbo Frame Setting (MTU)

"Jumbo frames" refer to 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.

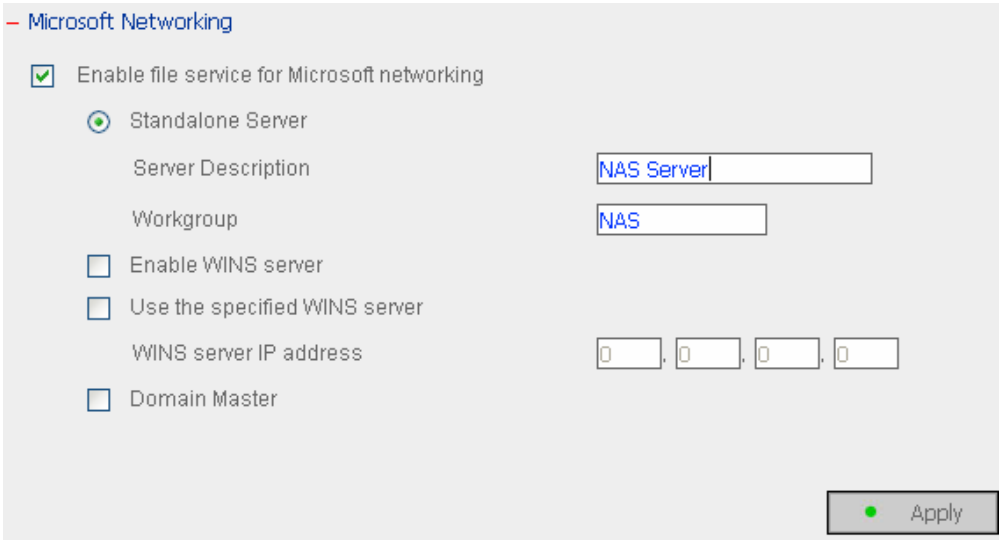
Maximum Transmission Unit (MTU) refers to the size (in bytes) of the largest packet that a given layer of a communications protocol can transmit.

FNS-5000B 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. FNS-5000B supports 4074 and 9000 bytes for MTU.

Note: Jumbo frame setting is valid in Gigabit network environment only. Besides, all network appliances connected must enable jumbo frame and use the same MTU value.



3.4.2. Microsoft Networking



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

✓ **Standalone Server**

Use local users for user authentication.

✓ **WINS server**

If the local network has a WINS server installed, specify the IP address. FNS-5000B will automatically register its name and IP address with WINS service. If you do not want to enable WINS server support, or you do not have a WINS server on your network, enter **0.0.0.0** in the field for WINS server IP address.

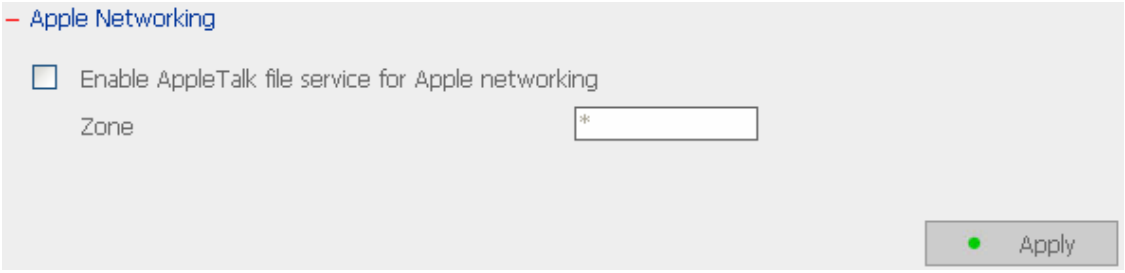
✓ **Domain Master**

There is a unique Domain Master Browser for collecting and recording resources and services available for each PC in the network or workgroup of Windows. When a domain master browser (Windows 2000 / XP PC) exists already in the network, there is no need to configure FNS-5000B as the domain master.

When you find the waiting time for accessing Network Neighborhood too long, it may be caused by failure of an existing master browser, or there is no master browser in the network. If there is no master browser in your network, you can check the box Domain Master in this section to configure FNS-5000B as the master browser to enhance the speed of accessing information on Network Neighborhood.

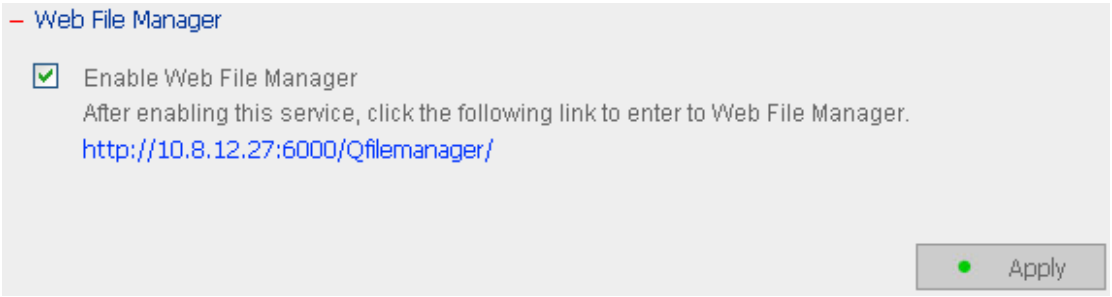
3.4.3. Apple Network

To use FNS-5000B on Apple Mac operating system, enable AppleTalk network support. If your AppleTalk network uses extended networks, and is assigned with multiple zones, assign a zone name to FNS-5000B. If you do not want to assign a network zone, enter an asterisk (*) to use the default setting. **This setting is disabled by default.**



3.4.4. Web File Manager

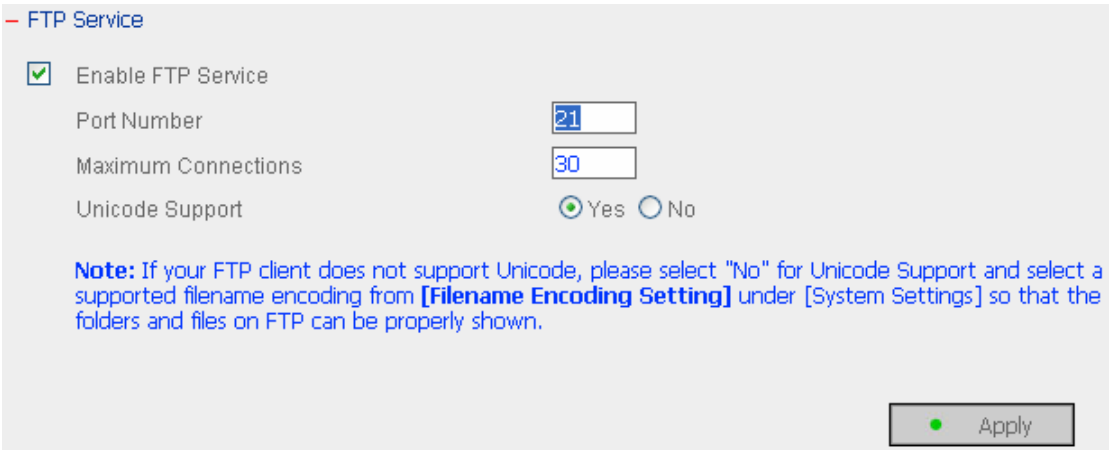
To access files on FNS-5000B via web browser, enable Web File Manager. If FNS-5000B is connected to the Internet and uses a valid IP address, you can access files on the server by web browser from anywhere. For more information, please refer to Chapter 9.



3.4.5. FTP Service

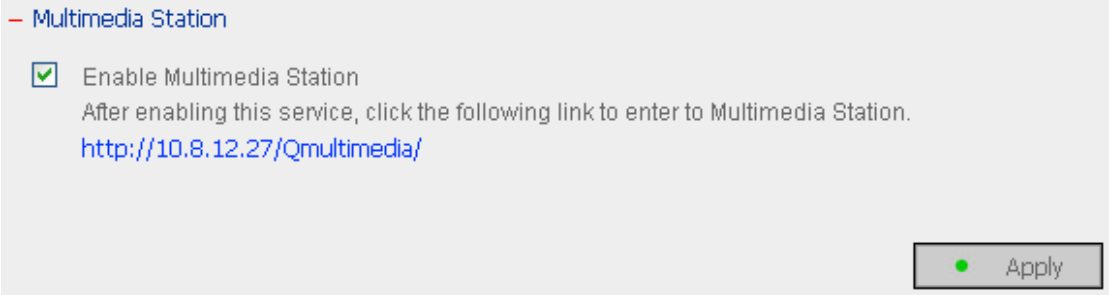
When you enable FTP service, you can define the port number for the service and maximum number of users connected to the FTP at the same time.

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 language the same as your OS in “System Settings—Encoding Setting” page so that the folders and files on FTP can be properly shown (please refer to Chapter 3.3.3). If your FTP client supports Unicode, make sure you have enabled Unicode support for both your client and FNS-5000B.



3.4.6. Multimedia Station

To share multimedia files like photos, music or video files on the network, please enable Multimedia Station. For further information, please refer to Chapter 5.



UPnP Media Server

FNS-5000B supports UPnP technology which brings you greater convenience to enjoy multimedia files. By enabling UPnP Media Server, you can share pictures, music and video files on a specific share folder of FNS-5000B (default is Qmultimedia) with any multimedia player that supports UPnP in home and corporate networks. The multimedia player can then search for all supported multimedia files available in the share folder of FNS-5000B and play the files on a display device, e.g. TV. To use UPnP Media Server, please enable this function and click the following link (http://FNS-5000B:9000/) to enter the configuration page of UPnP Media Server. For more details about UPnP Media Server, please refer to TwonkMedia User Manual on the CD. (TwonkyMedia.v3.1)

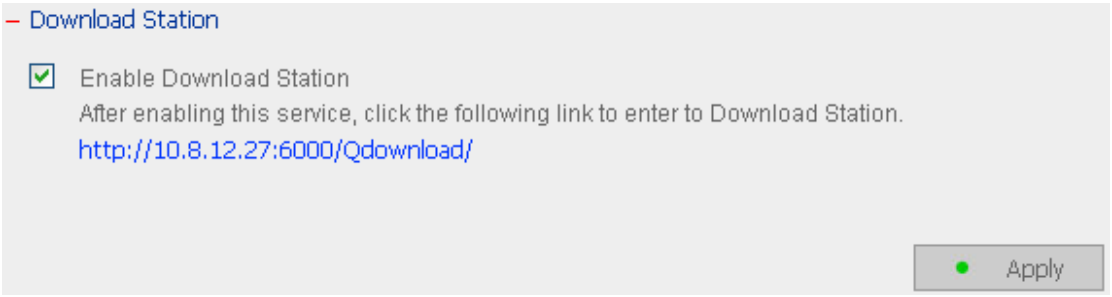
About UPnP

Universal Plug and Play (UPnP) is a set of computer network protocols promulgated by the UPnP Forum. The purpose of UPnP is to allow devices to connect seamlessly and to simplify the implementation of networks at home and in 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.

3.4.7. Download Station

To use P2P download function of FNS-5000B, please enable Download Station. For further information, please refer to Chapter 6.



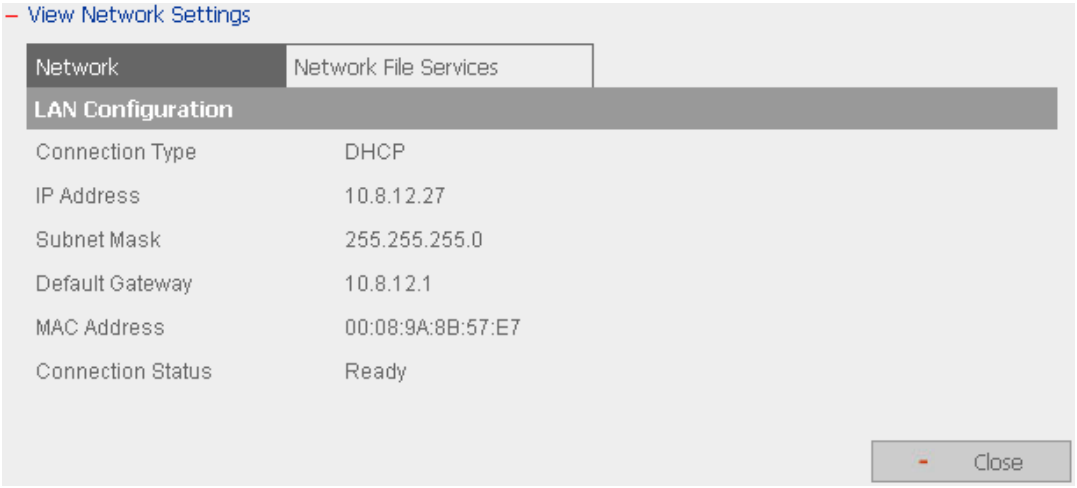
NOTE: PLEASE BE WARNED AGAINST ILLEGAL DOWNLOADING OF COPYRIGHTED MATERIALS. THE DOWNLOAD STATION FUNCTIONALITY IS PROVIDED FOR DOWNLOADING AUTHORIZED FILES ONLY. DOWNLOADING OR DISTRIBUTION OF UNAUTHORIZED MATERIALS MAY RESULT IN SEVERE CIVIL AND CRIMINAL PENALTY. USERS ARE SUBJECT TO THE RESTRICTIONS OF THE COPYRIGHT LAWS AND SHOULD ACCEPT ALL THE CONSEQUENCES.

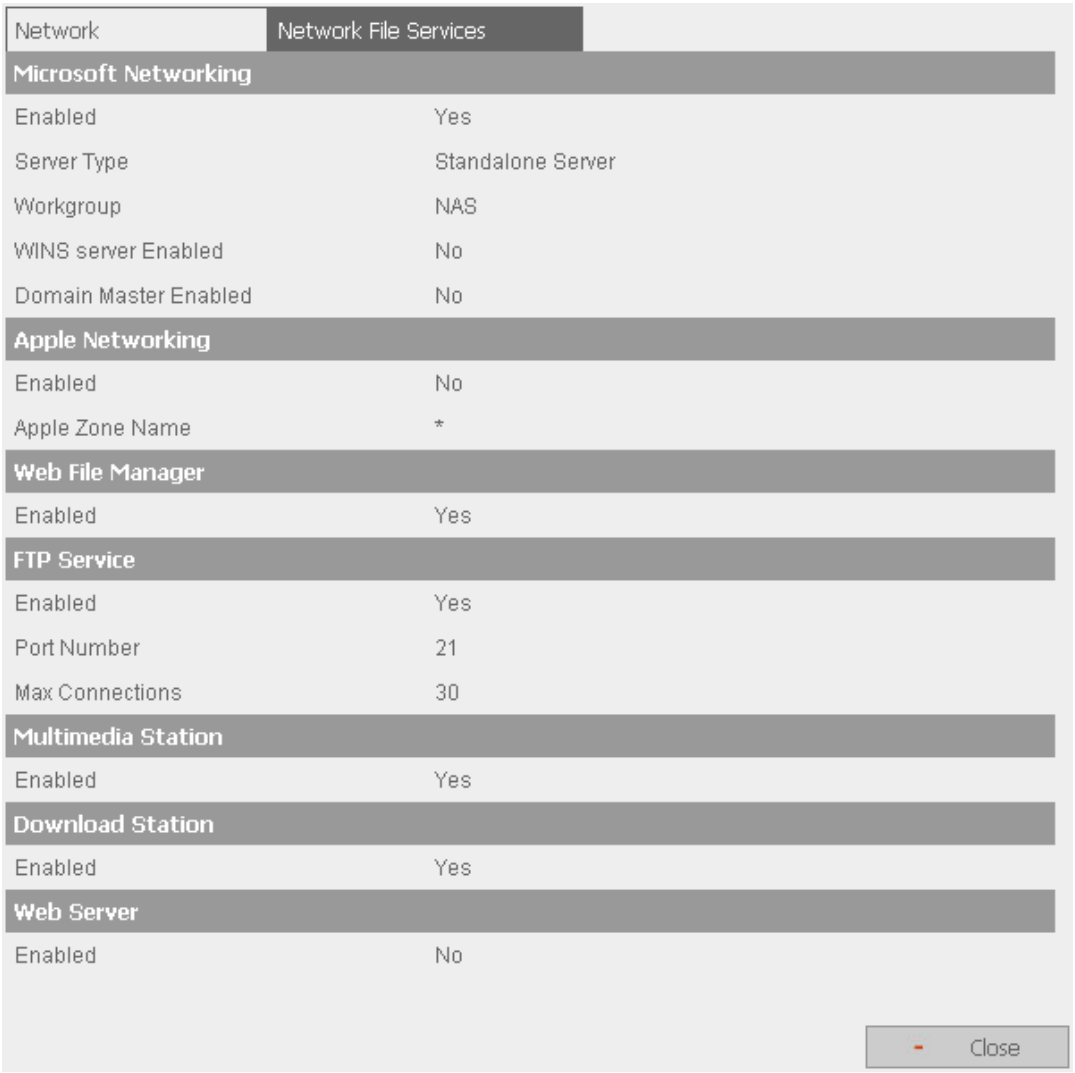
3.4.8. Web Server

You can publish your own server by enabling Web Server function of FNS-5000B. Enter the port number for web server service, the default number is 80. For further information, please refer to Chapter 7.

3.4.9. View Network Settings

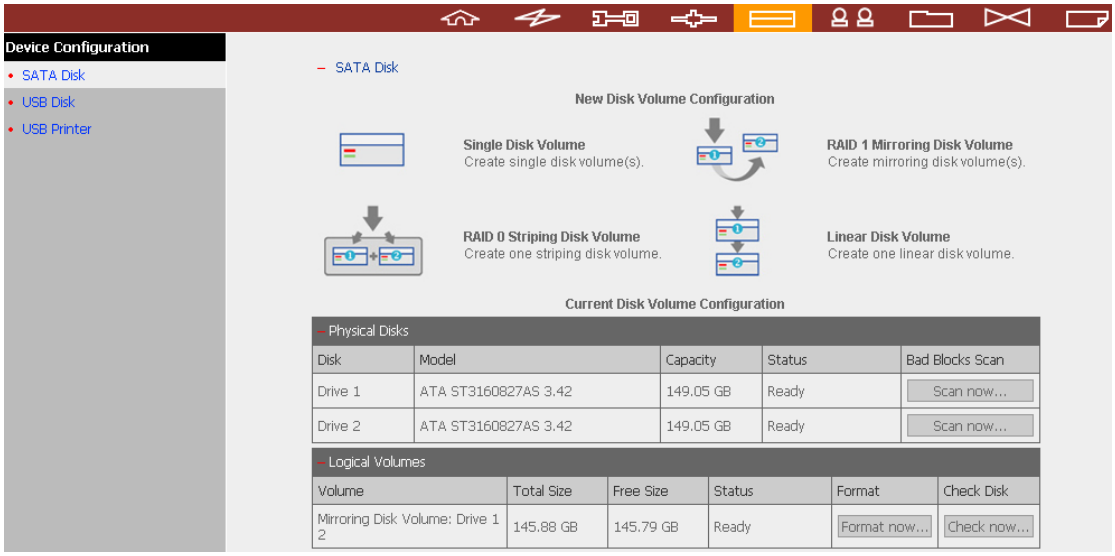
You can view current network settings and status of FNS-5000B in this section.





3.5. Device Configuration

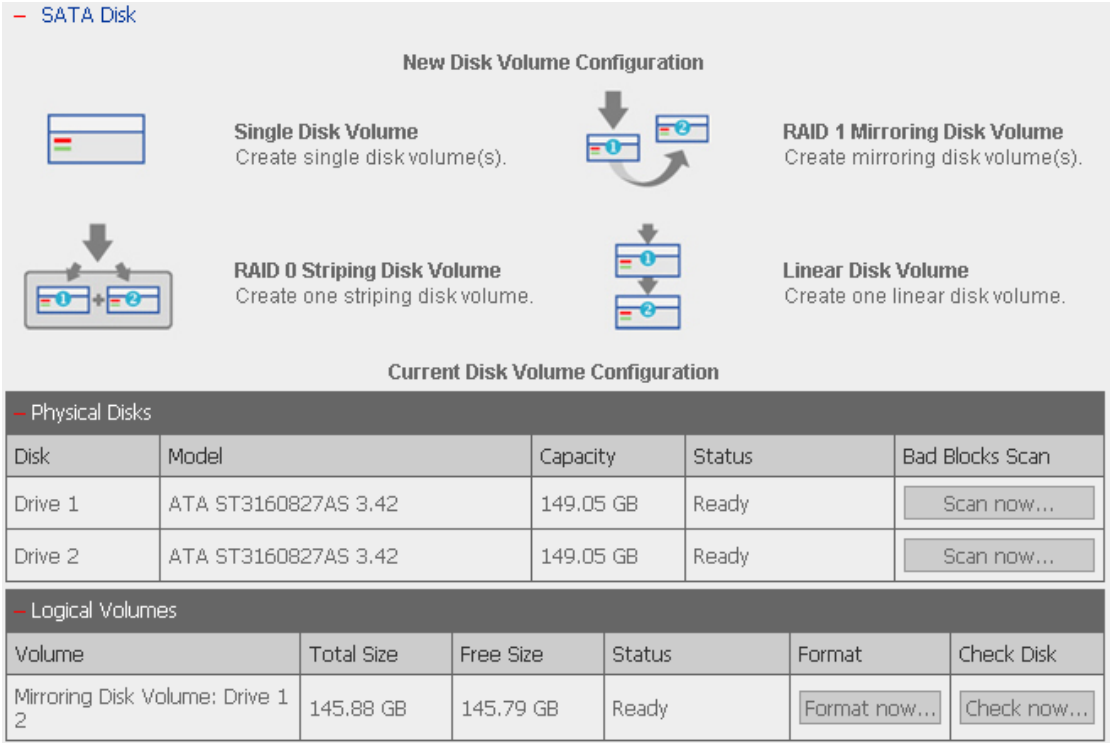
You can configure SATA disk, USB disk and USB printer settings in this section.



3.5.1. SATA Disk

This page shows the model, size and current status of the disk(s) installed on FNS-5000B. You can format and check disks, and scan bad blocks on the disks. When the SATA disks are formatted, FNS-5000B will create the following default share folders:

- ✓ Public: Network share for file sharing
- ✓ Qdownload: Network share for Download Station
- ✓ Qmultimedia: Network share for Multimedia Station
- ✓ Qusb: Network share for data copy function via USB ports
- ✓ Qweb: Network share for Web Server



You can create the following disk volumes:

- **Single Disk Volume**
  Each disk will be used as a standalone disk. However, if a disk is damaged, all data will be lost.

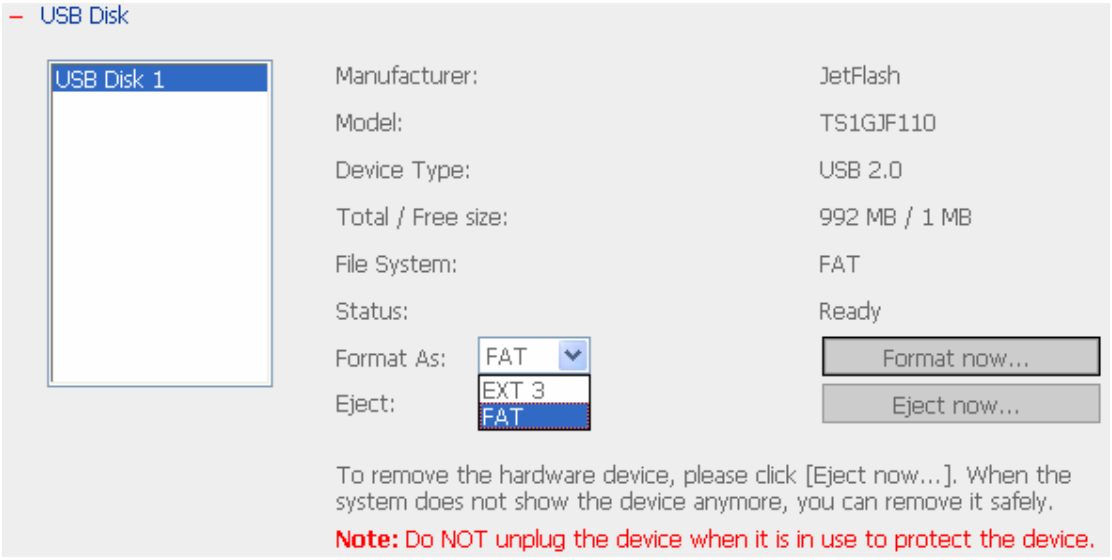
- **RAID 1 Mirroring Disk Volume**
  RAID 1 (mirroring disk) protects your data by automatically backing up the contents of one drive onto the second drive of a mirrored pair. This protects your data if one of the drives fails. Unfortunately, the storing capacity is equal to a single drive, as the second drive is used to automatically back up the first. Mirroring Disk is suitable for personal or corporate use to store important data.

- **RAID 0 Striping Disk Volume**
  RAID 0 (striping disk) combines 2 or more drives into one larger disk. It offers the fastest disk access but it does not have any protection of your data if the striped array fails. The disk capacity equals the number of drives in the array times the size of the smallest drive. Striping disk is usually used to maximize your disk capacity or for fast disk access but not for storing important data.

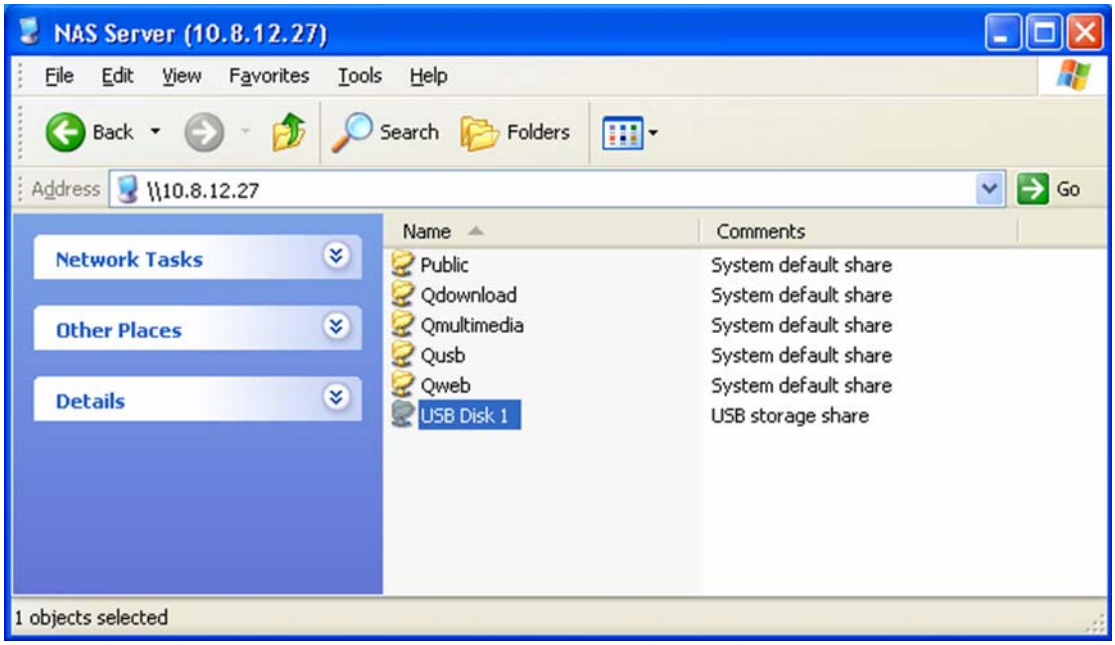
- **Linear Disk Volume**
  You can combine two or more disks into one larger disk. During file saving, the file will be saved on physical disks sequentially but does not have a disk failure file protection function. The overall capacity of linear disk is the sum of all disks. Linear disk is generally used for storing large data and is not appropriate to use for file protection of sensitive data.

3.5.2. USB Disk

FNS-5000B supports USB disks and thumb drives for extended storage. Connect the USB device to the USB port of FNS-5000B, when the device is successfully detected, the details will be shown on this page.

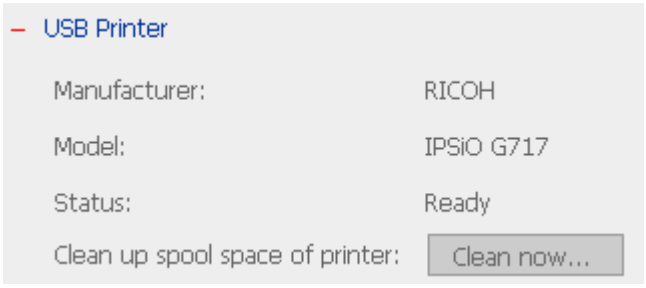


USB device shows at folder list below

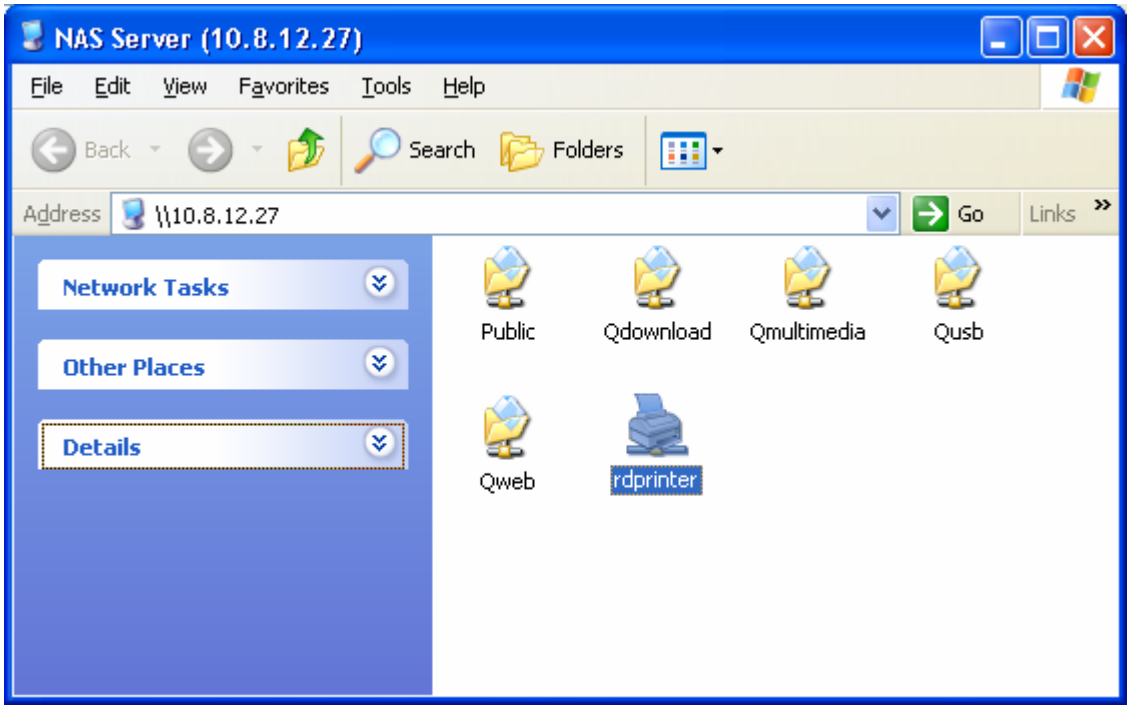


3.5.3. USB Printer

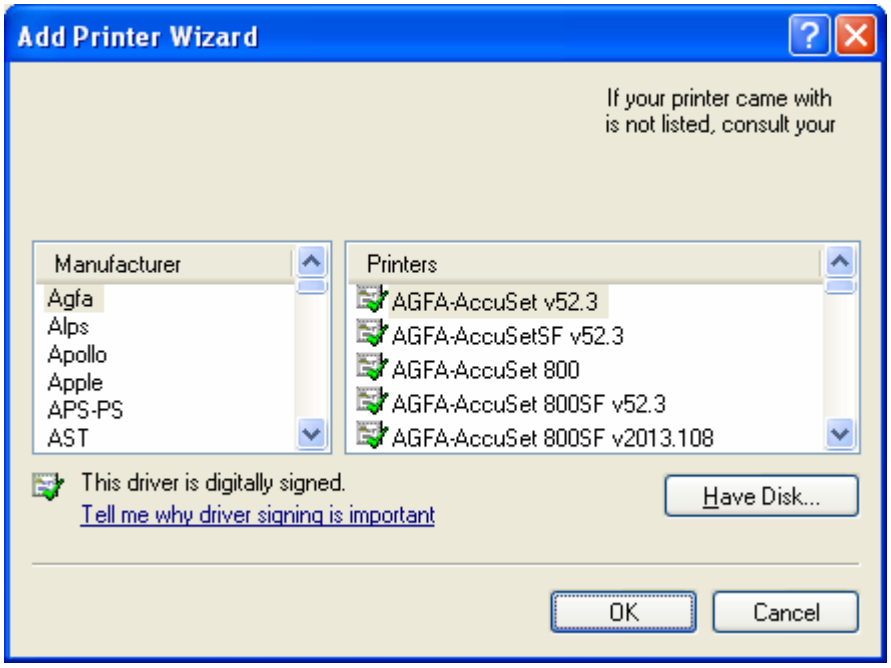
1. To provide printer sharing function for network users, you can simply connect a USB printer to the USB port of FNS-5000B. FNS-5000B will detect the printer automatically.



2. A printer icon should be shown in the share folder of the server. Double click the icon.



3. Install the printer driver.

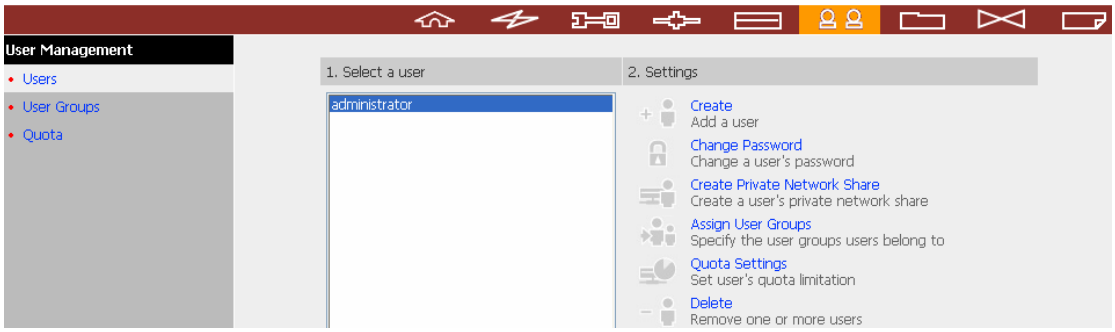


4. When finished, you can start to use network printer service of FNS-5000B.

Note:
1. FNS-5000B supports general USB printer only but not multifunction printer.
2. FNS-5000B printer service is only supported in Windows OS but not Mac OS.

3.6. User Management

The files on FNS-5000B can be shared among multiple users. For easier management and better control of users' access right, you have to organize users, user groups and their access right control.



3.6.1. Users

The system has created the following users by default:

1. **Administrator**

   By default, administrator has access to system administration and cannot be deleted.

2. **Guest**

   This is a built-in user and will not be displayed on User Management page. When you use a non-registered user name to login, the server will recognize the user as a guest and will allow limited access. A guest does not belong to any user group.

3. **Anonymous**

   This is a built-in user and will not be displayed on User Management page. When you connect to the server by FTP service, you can use this name to login as a guest.

512 users can be created at maximum (including system default users). You can create a new user according to your needs. The following information is required to create a new user:

- ✓ **User name**

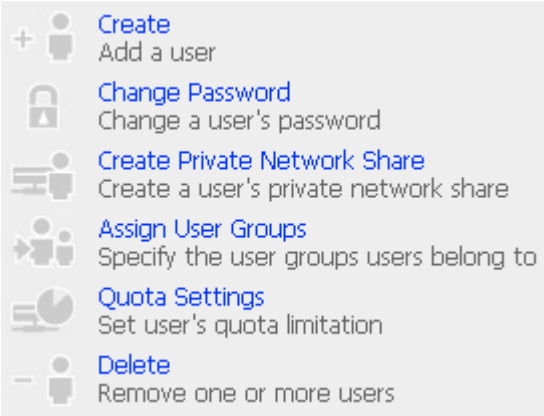
  The user name must not exceed 32 characters. It is case-insensitive and supports double-byte characters, such as Chinese, Japanese, and Korean except:

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

- ✓ **Password**

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

You can perform the following actions for user management:



3.6.2. User Groups

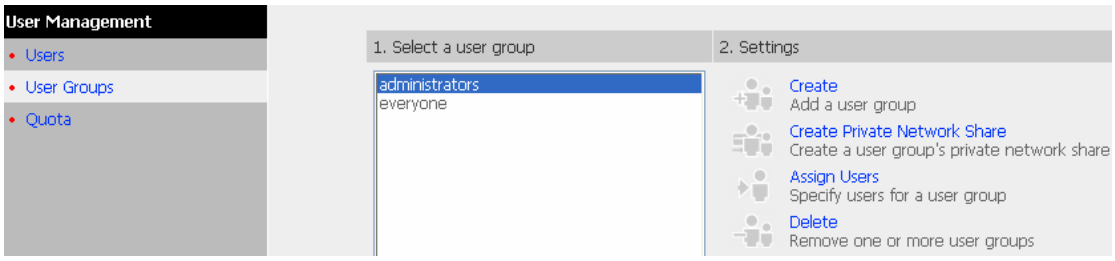
User group is a collection of users with the same access right to files or folders. FNS-5000B has created the following user groups by default:

1. Administrators

All members in this group have administration right. You cannot delete this group.

2. Everyone

All registered users belong to everyone group. You cannot delete this group.



You can manage user groups with the following options:

1024 groups can be created at maximum. 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:

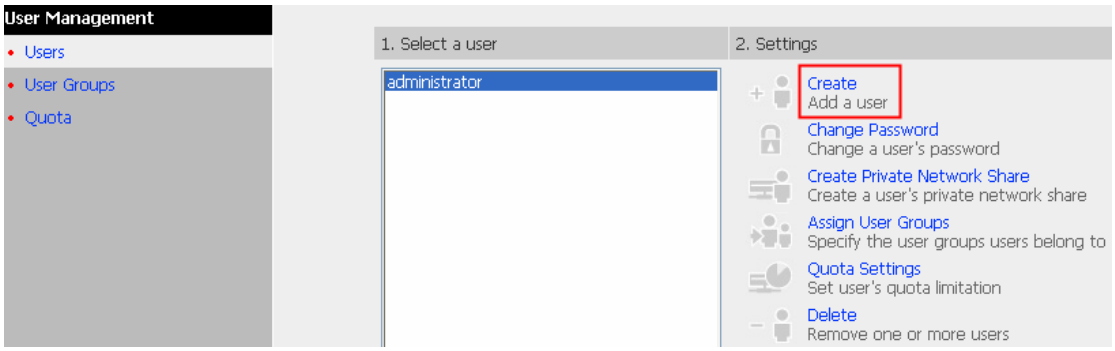
" / \ [ ] : ; | = , + * ? < > ` '

Create Users and Assign Users to User Group

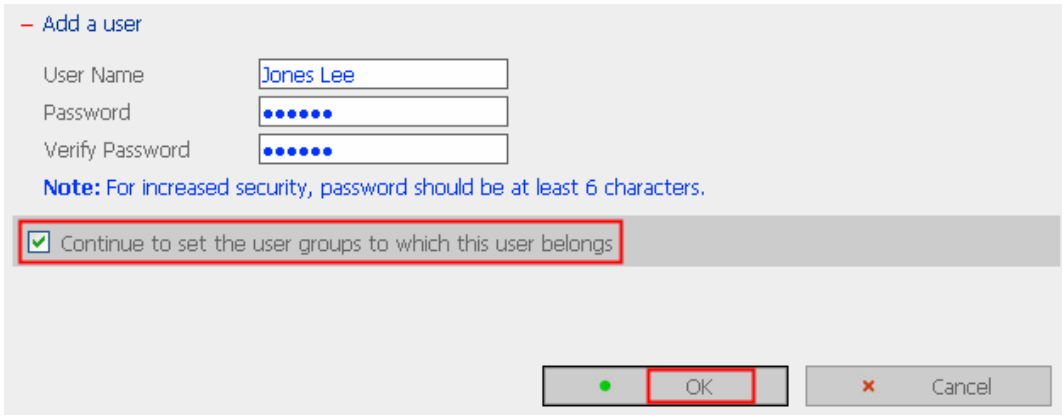
The following example demonstrates how to create new users and assign users to a user group.

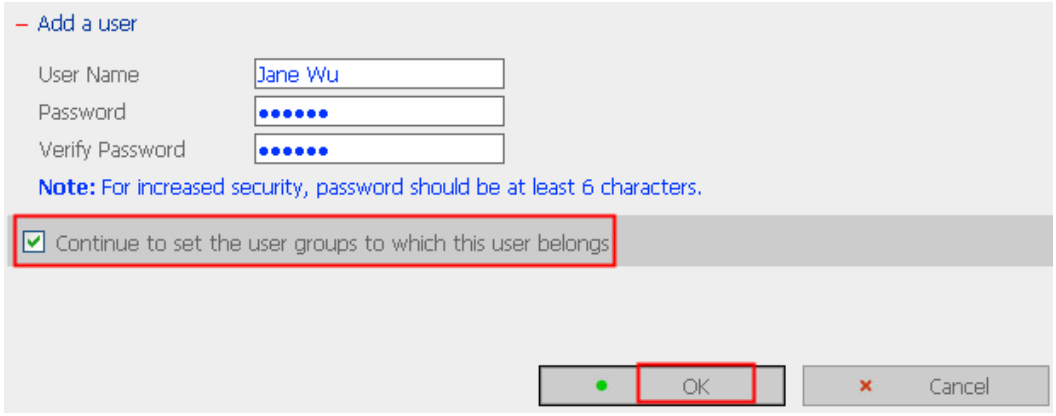
ABC Co. has recently recruited two employees Mr. Jones Lee for Administration Department and Ms. Jane Wu for Sales Department. The IT Department therefore needs to create two user accounts for them to access company data on FNS-5000B.

i. To create a user account, go to User Management-Users. Click **Create**.

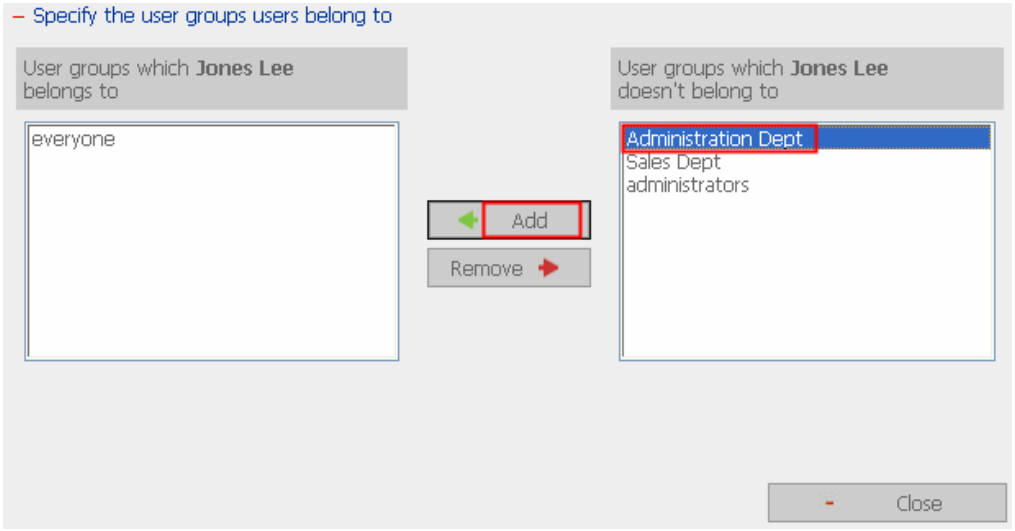


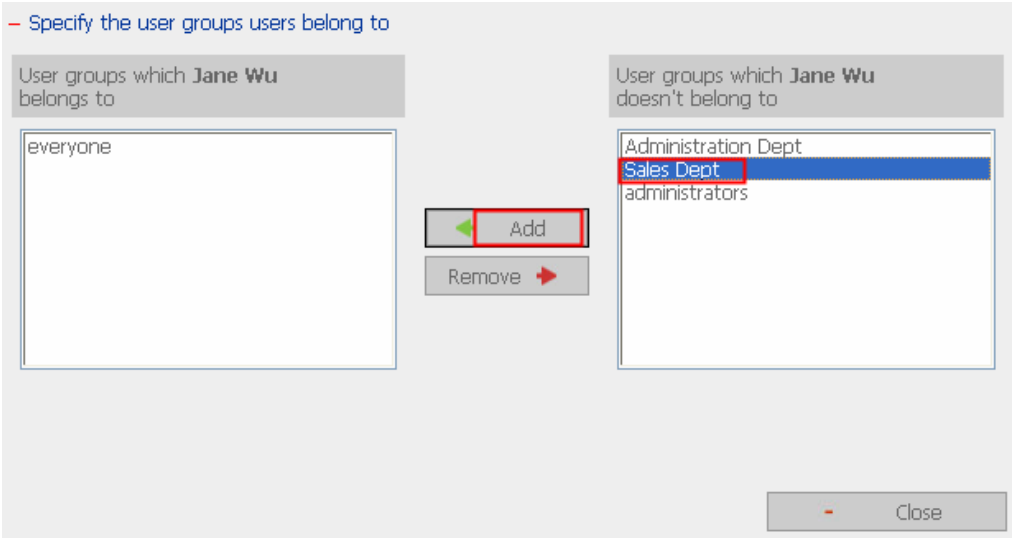
ii. Enter the user name (Jones Lee/ Jane Wu) and password. Check the box "Continue to set the user groups to which this user belongs" and click **OK**.



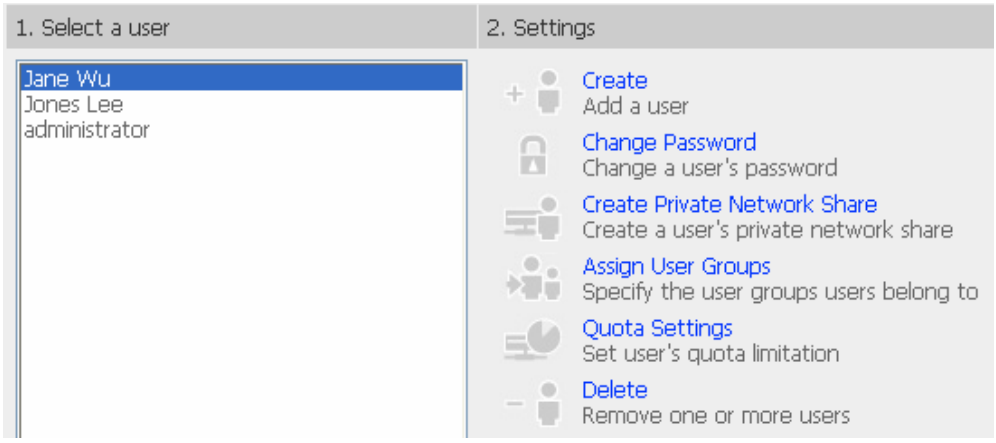


iii. Select the user groups the users belong to on the right list, i.e. Mr. Jones Lee for Administration Dept and Ms. Jane Wu for Sales Dept, and click **Add**. Then click **Close**.





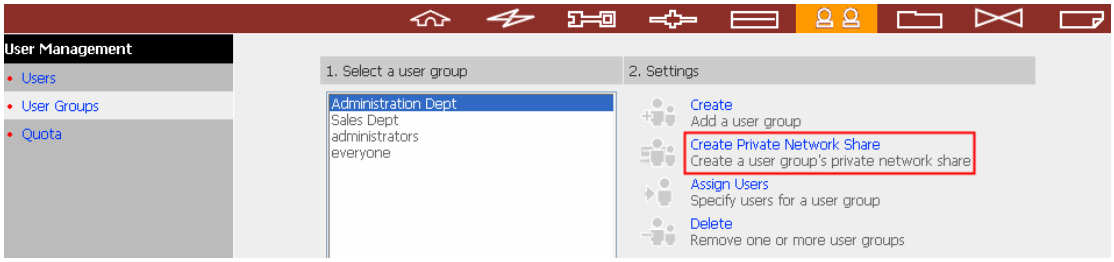
iv. The user names will appear on the list on Create User Page.



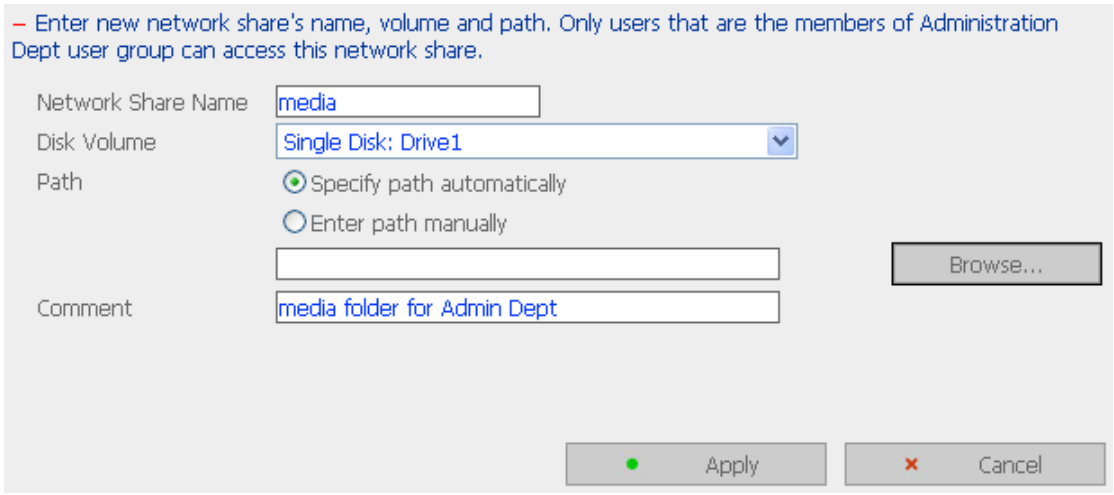
Create Private Network Share for User Groups

You can create particular network share for each user group. The procedure is described as below:

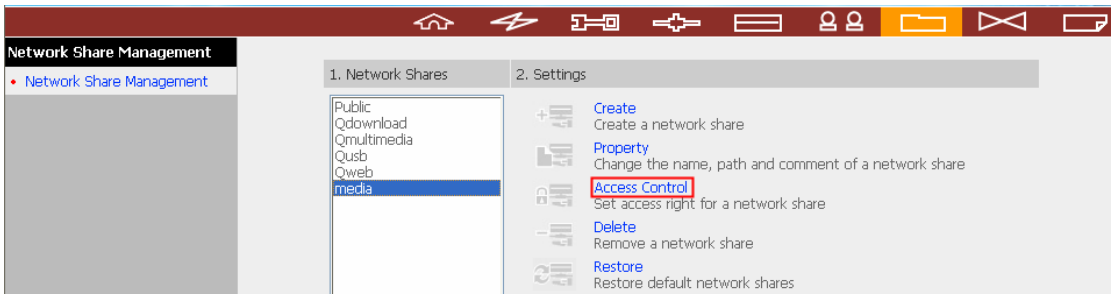
1. To create a network share called **media** accessible by Administration Department only, please go to “User Management—User Groups” page. Select the user group Administration Dept and click **Create Private Network Share** on the right.



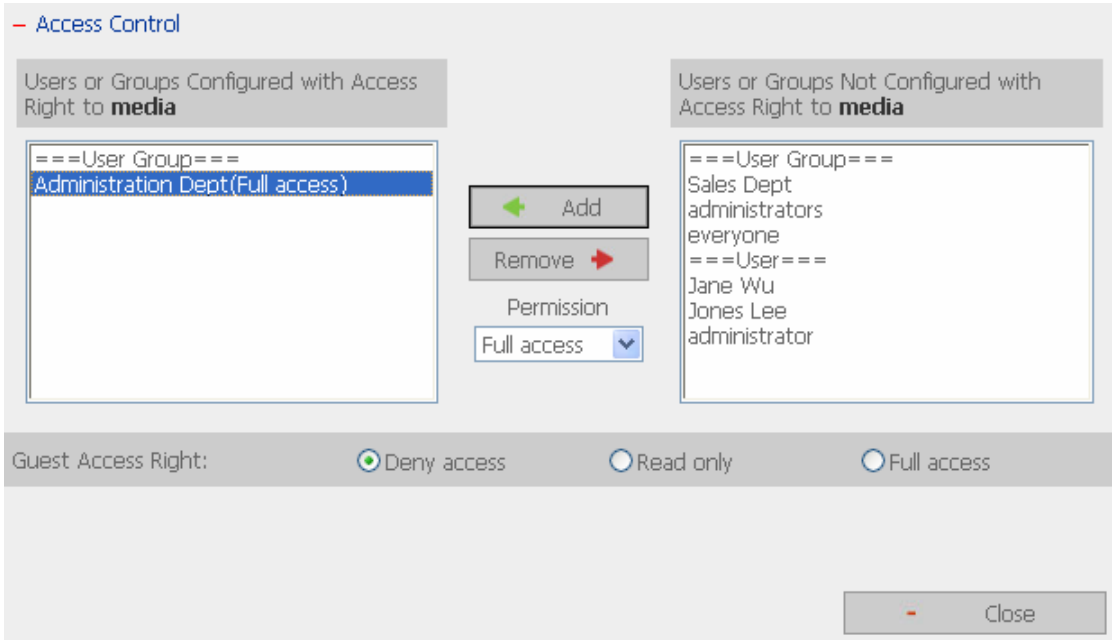
2. Enter the network share name **media**. Select the disk volume that the share will be created in and specify the path automatically or manually. Enter the comment for the network share, e.g. media folder for Admin Dept and click **Apply**.



3. You can see the folder **media** in **Network Share Management** page.



4. Enter Access Control. You can see that only Administration Dept has full access right to the folder.

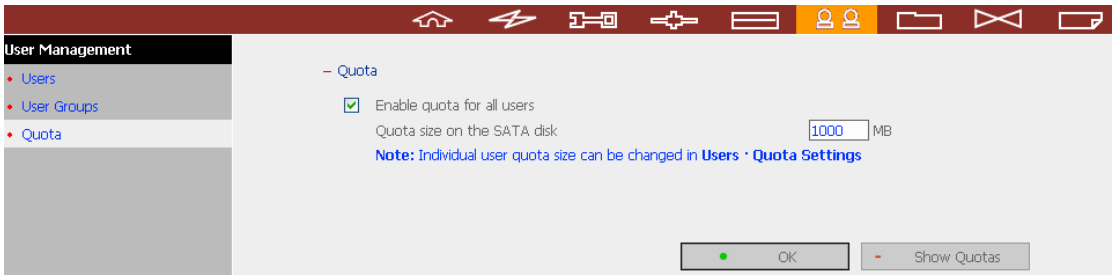


3.6.3. Quota

To allocate 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 his/her disk quota, he/she cannot upload data to the server anymore. By default, no limitations are set for users. You can modify the following two options:

i. Enable quota for all users

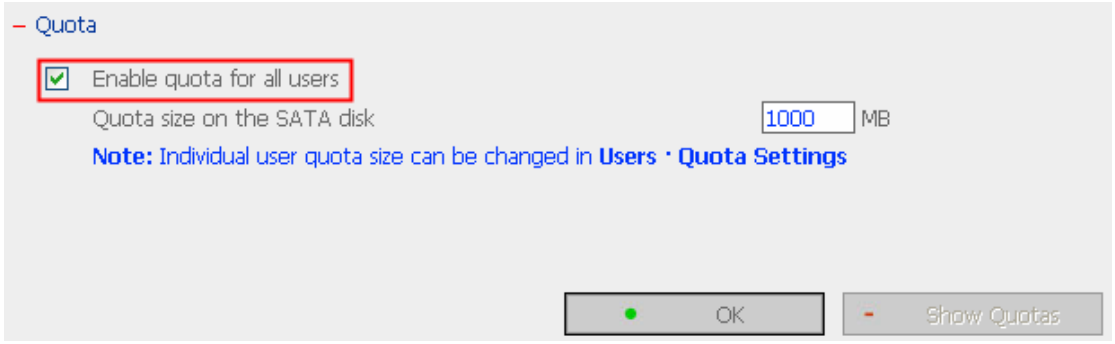
ii. Quota size on each disk volume



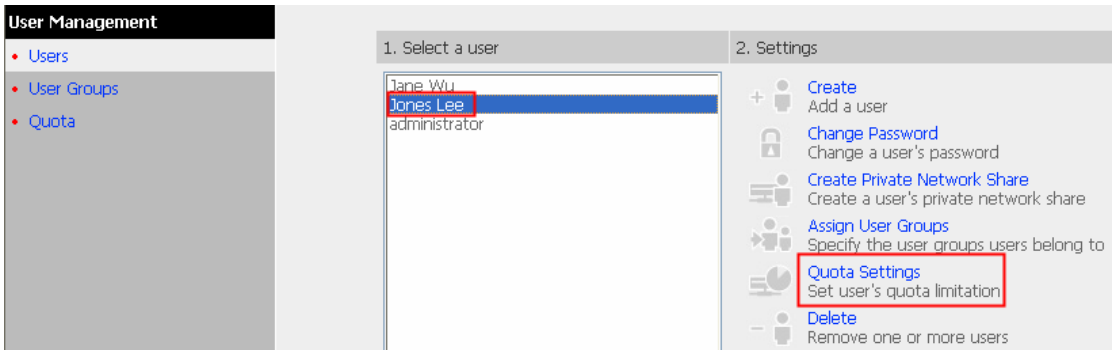
Please refer to the following example to configure the quota setting of users:

The IT department is planning to set the disk quota of Mr. Jones Lee from Administration Department and Ms. Jane Wu from Sales Department on FNS-5000B. The disk quota is 2000MB for Mr. Jones Lee and 4000MB for Ms. Jane Wu.

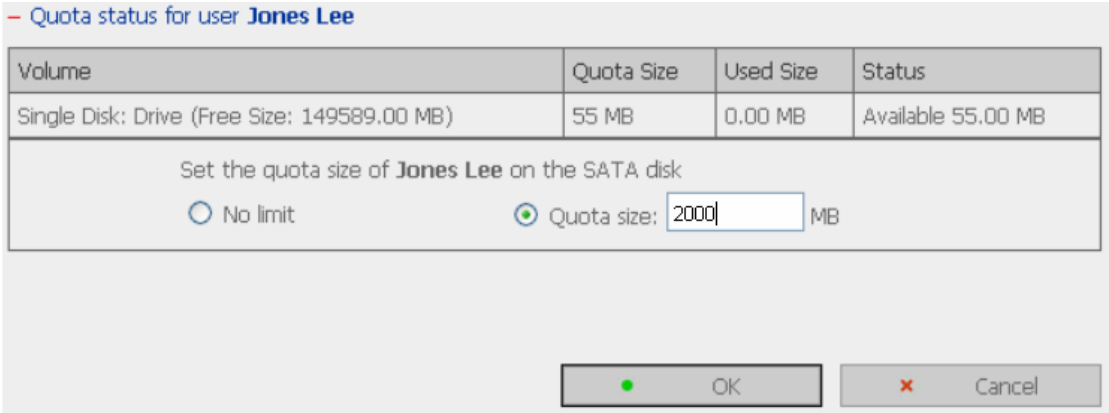
1. Please go to **Quota** page in **User Management** to enable quota for all users. Enter the quota size on each disk volume, e.g. 1000MB. The quota for individual user can be modified later.



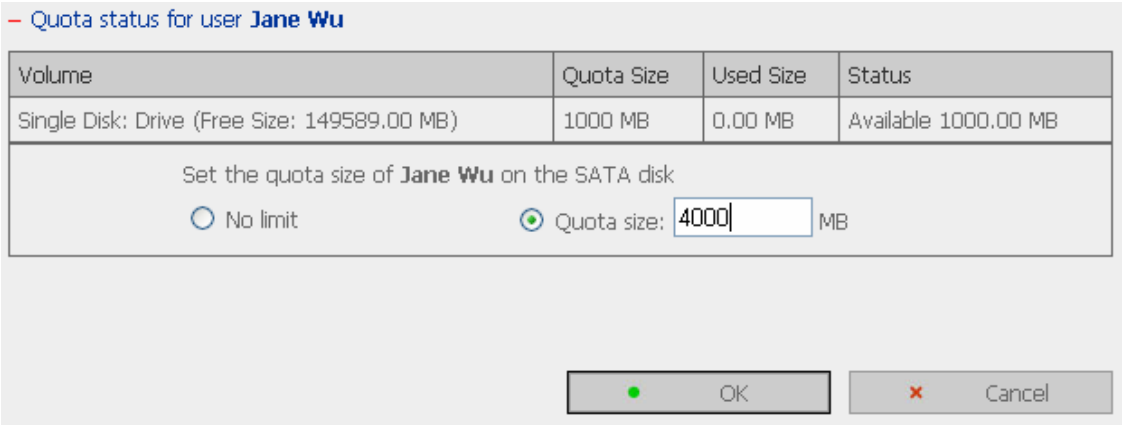
2. Select Jones Lee on User page and click **Quota Settings** on the right.



3. Enter the quota size 2000MB and click **OK**.

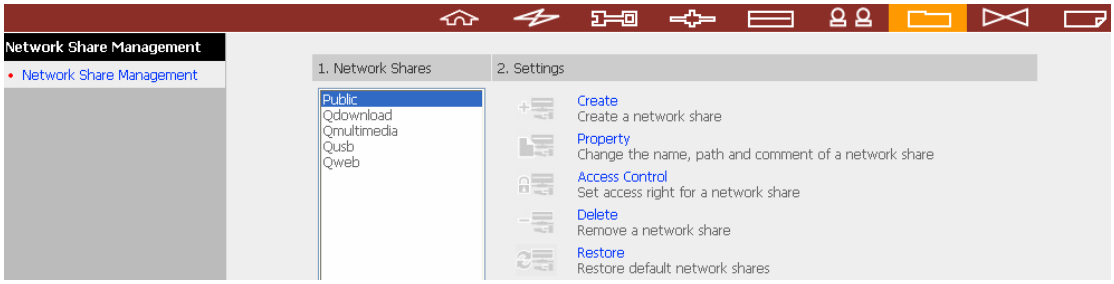


4. Follow the same steps and enter the quota size 4000MB for Jane Wu and click **OK**. The quota setting is successfully applied.



3.7. Network Share Management

The primary purpose of network storage is file sharing. You can create different network share folders for various types of files, and provide different file access rights to users or user groups.



There are five options in Network Share Management:

3.7.1. Create

To create a network share, enter the following information:

✓ Network share name

The length of the network share name cannot exceed 32 single-byte characters or 10 double-byte characters, and cannot contain the following characters:

" . + = / \ : | * ? < > ; [ ] %

✓ Disk volume

This area shows the disk volume status.

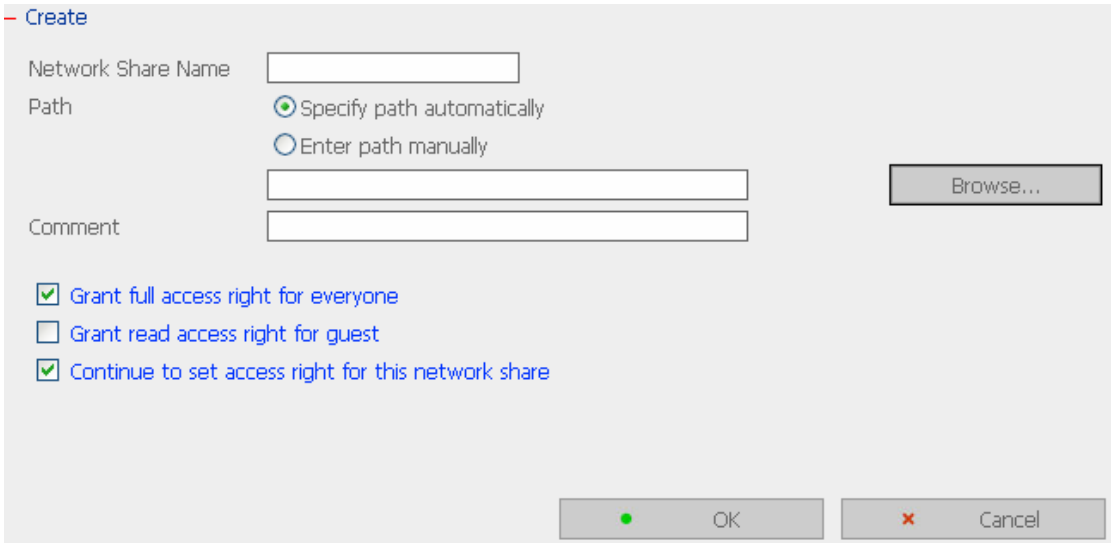
✓ Path

All data is stored under the assigned path onto the disk volume. You can select "Specify path automatically" or assign a path manually. The path cannot exceed 256 characters and cannot contain the characters below:

" . + = / \ : | * ? < > ; [ ] %

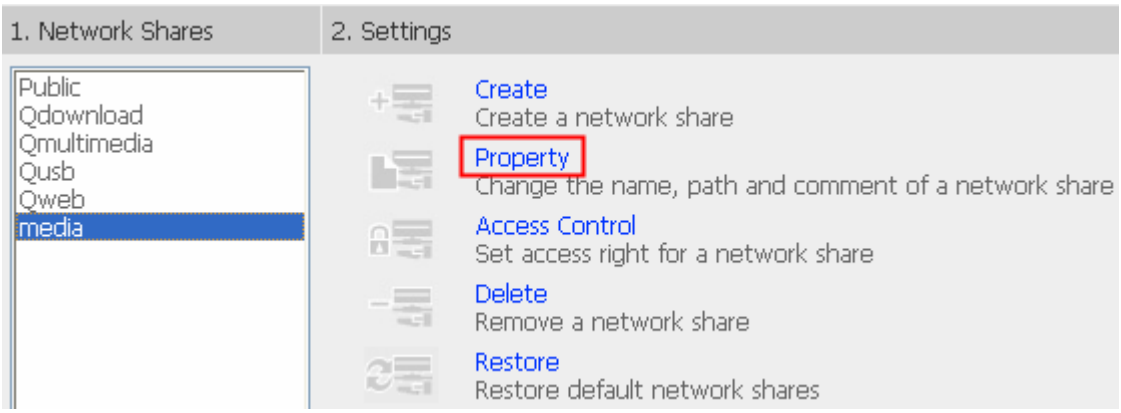
✓ Comment

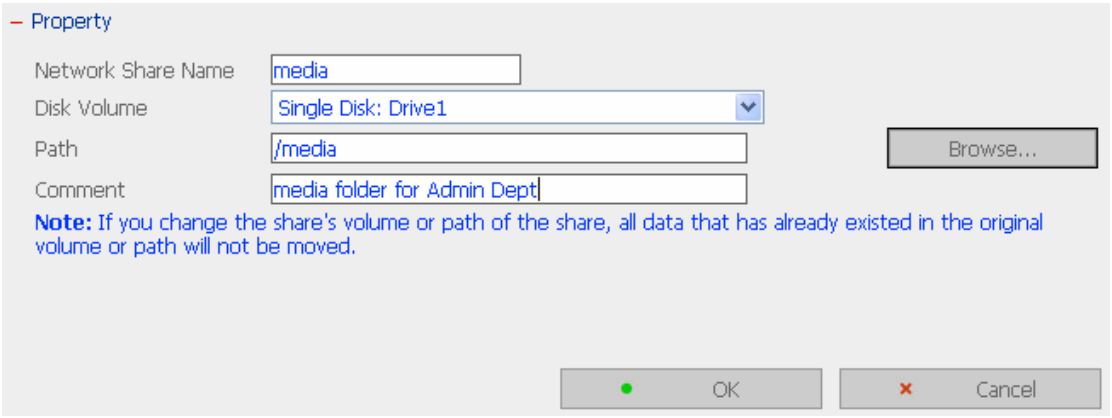
Enter a brief description for the share folder. The comment cannot exceed 128 characters.



3.7.2. Property

To edit the property of an existing network share, select a share and click **Property**. You can then edit the content of that share.





3.7.3. Access Control

When a network share is created, you can assign access rights to users or user groups:

✓ Deny access

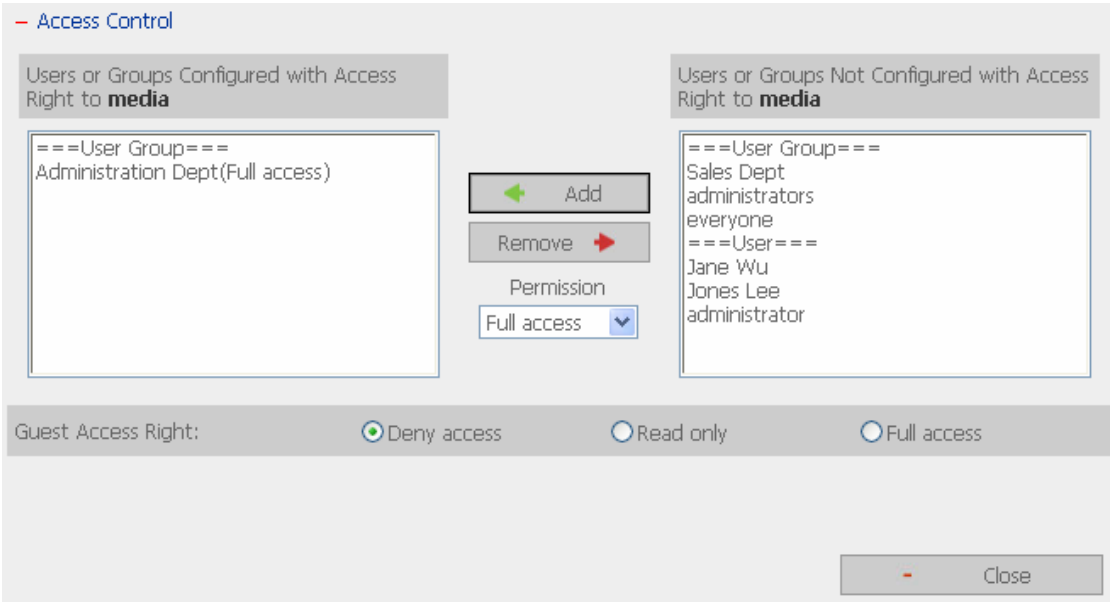
Access to the network share will be denied.

✓ Read only

Users can read the files only on the network share.

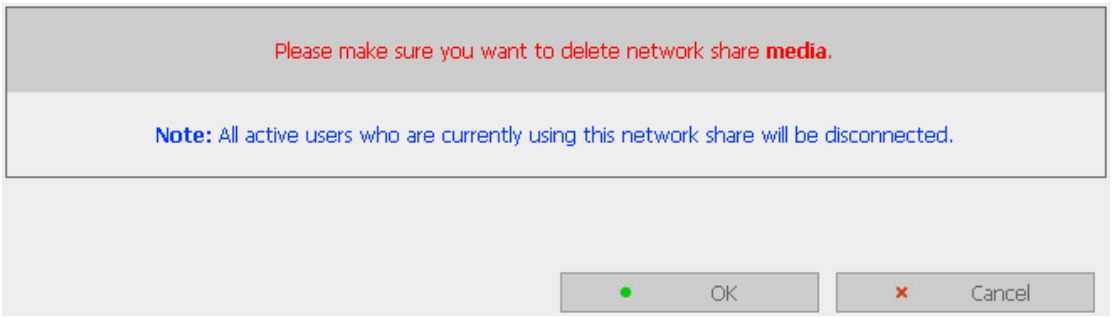
✓ Full access

Users can read, write, create, or delete files and folders on the network share.



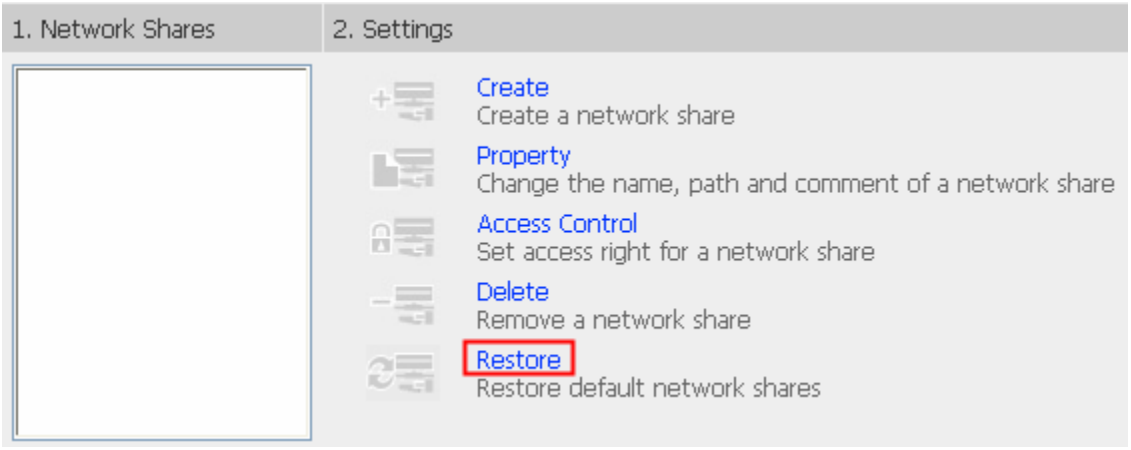
3.7.4. Delete

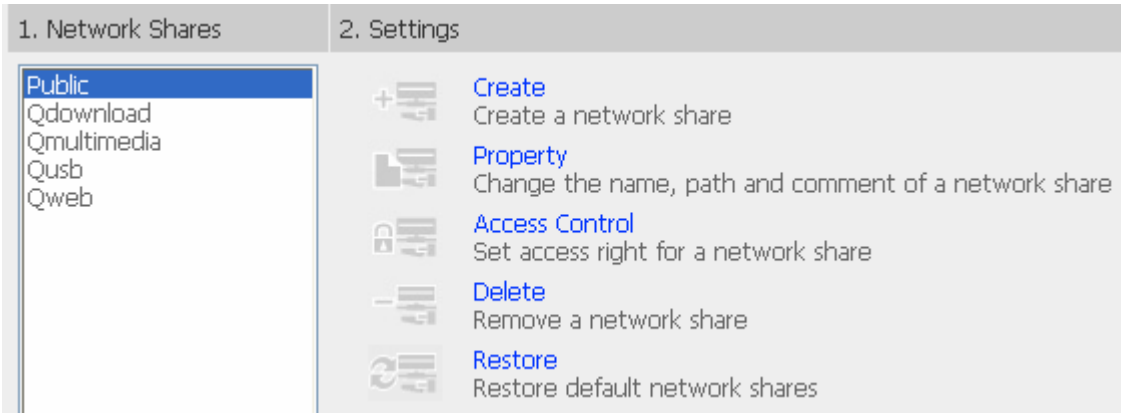
Select a share and click **Delete**. Click **OK** to confirm.



3.7.5. Restore

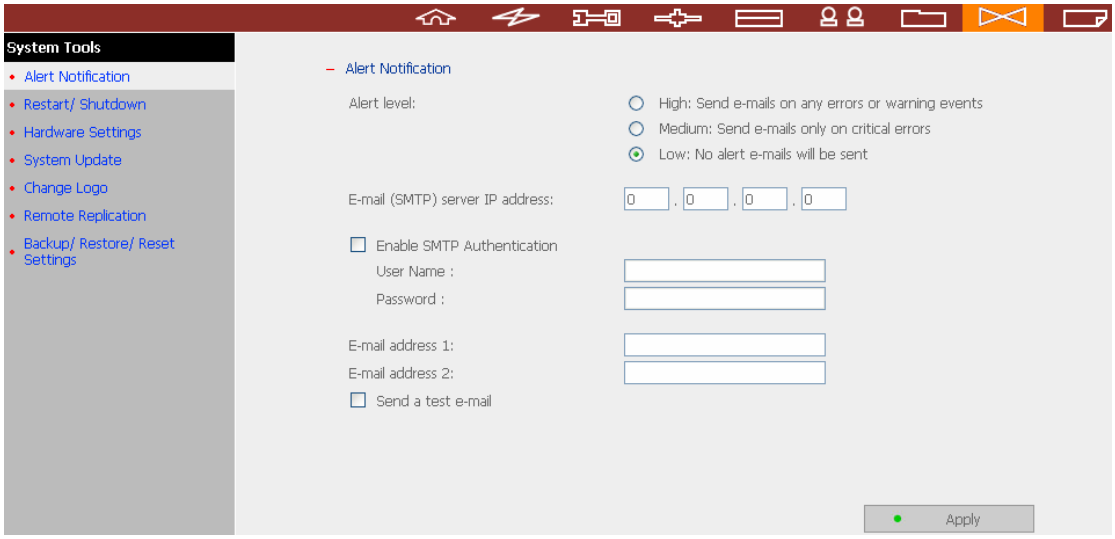
If the default network shares of FNS-5000B are not created successfully, you can use the Restore function to restore the network shares. To do so, click **Restore** and the shares will be created.





3.8. System Tools

System Tools enable you to optimize the maintenance and management of FNS-5000B.

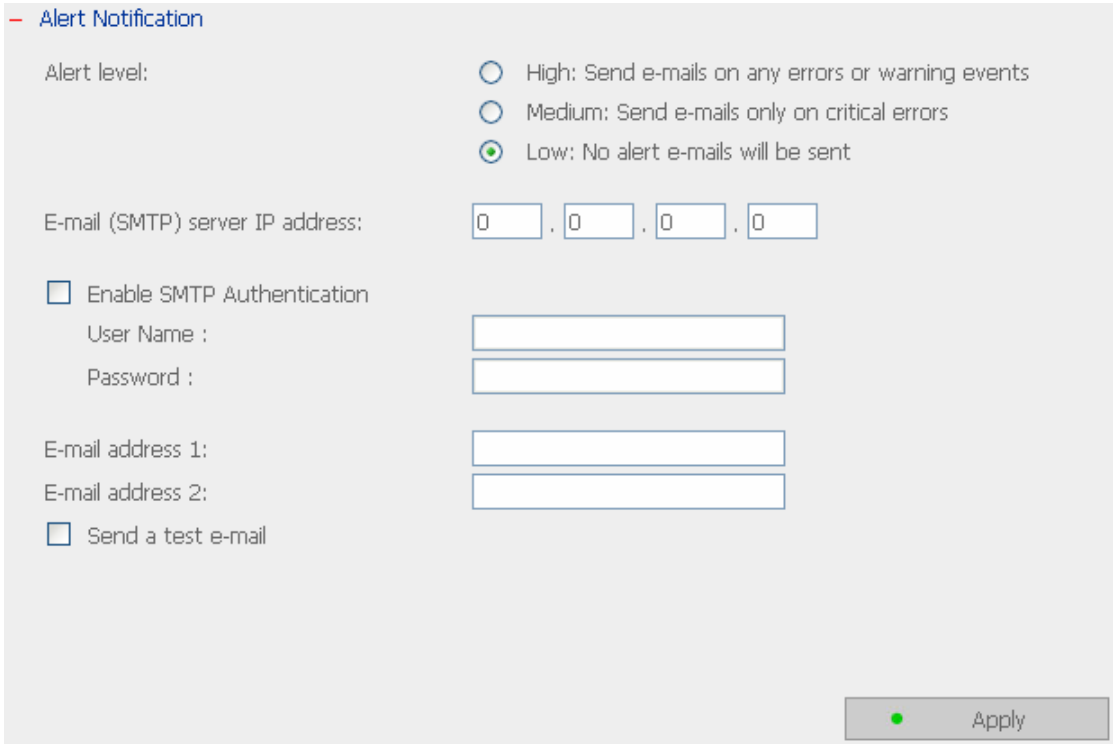


3.8.1. Alert Notification

Enter the e-mail address of the administrator and the IP address of the SMTP server. In case of warning or malfunction, e.g. CPU fan fails, a drive fails or is unplugged, an email will be sent to the administrator automatically. You can go to Event Logs (refer to Chapter 3.9) to check the details of all errors and warnings.

If your mailbox requires SMTP authentication, enter the user name and password.

Note: It is recommended to send a test e-mail to make sure you can receive the alert mails.

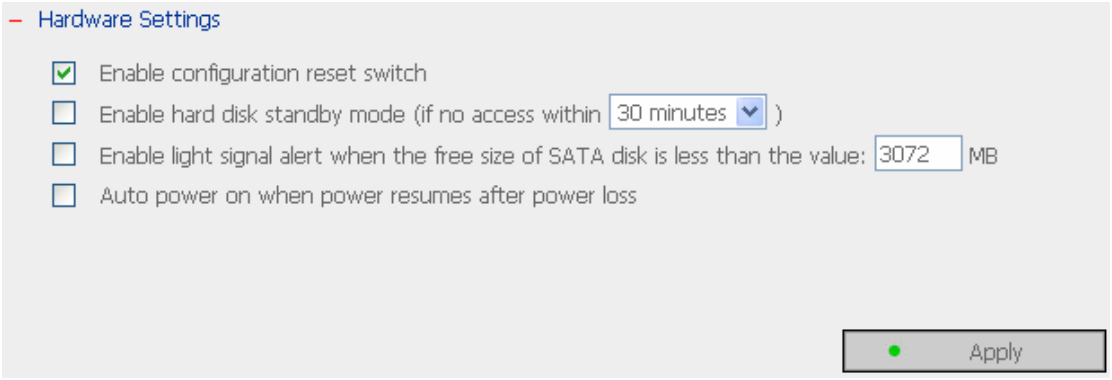


3.8.2. Restart/ Shutdown

Select to restart or shut down FNS-5000B.

3.8.3. Hardware Settings

You can enable or disable the hardware functions of FNS-5000B.



i. Enable configuration reset switch

By enabling this option, you can press the reset button for 5 seconds to reset the administrator password and system settings to default.

ii. Enable hard disk standby mode

When this function is enabled, hard disk will go to standby mode if there is no access within the specified period.

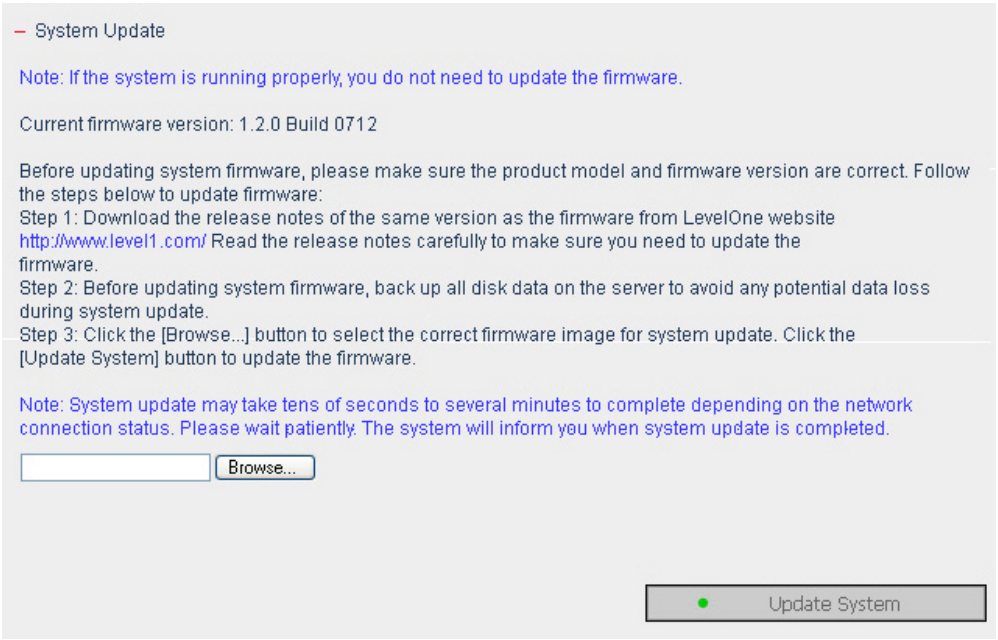
iii. Enable light signal alert when the free size of SATA disk is less than the value

The Status LED indicator will blink 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.

iv. Auto power on when power resumes after power loss

When this function is enabled, FNS-5000B will turn on automatically when power resumes after improper shutdown or power loss.

3.8.4. System Update



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

Before updating system firmware, please 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 same version as the firmware from LevelOne website http://www.level1.com/. Read the release notes carefully to make sure you need to upgrade the firmware.

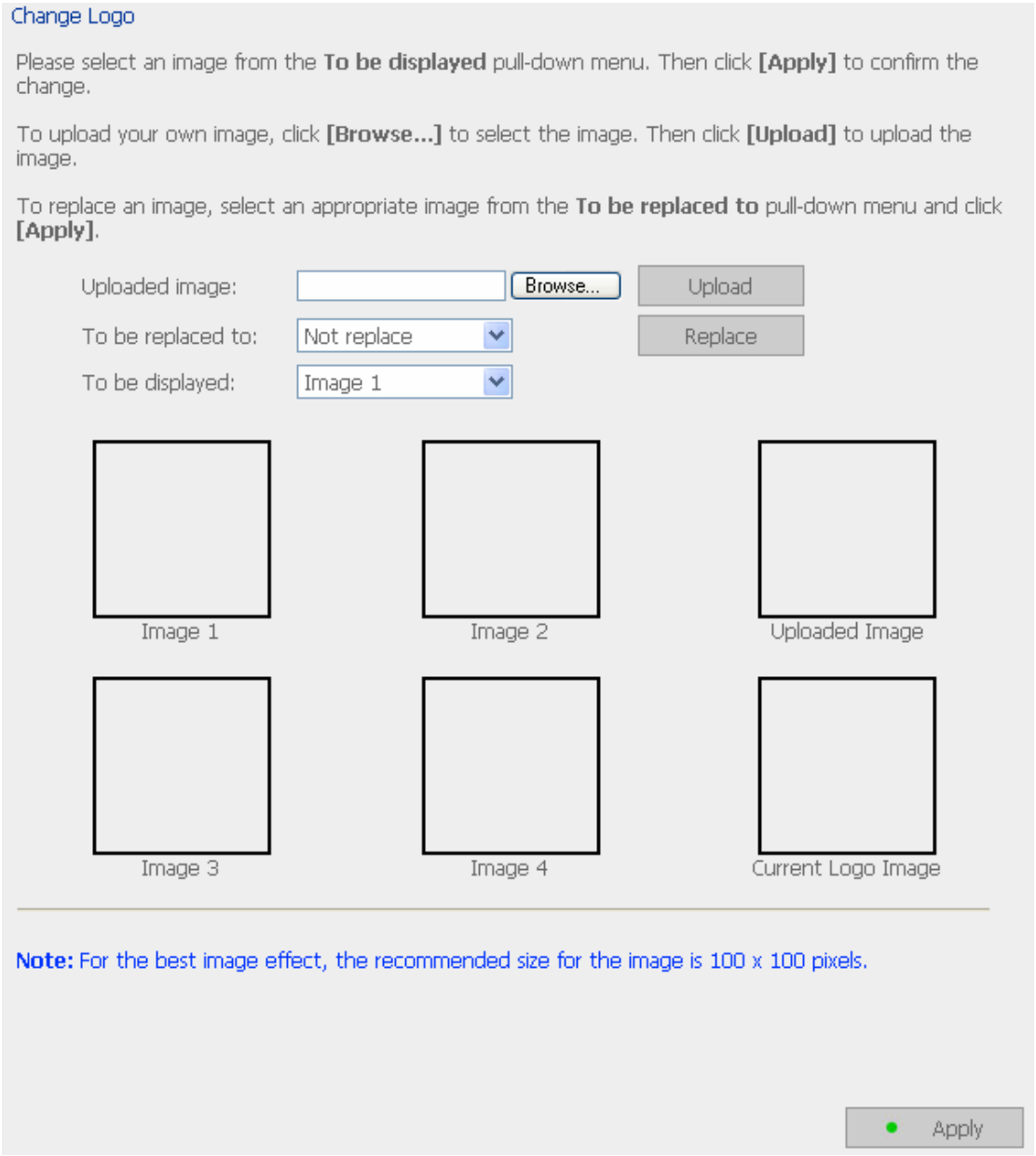
Step 2: Before upgrading system firmware, back up all disk data on the server to avoid any potential data loss during system update.

Step 3: Click the [Browse…] button to select the correct firmware image for system update. Click **Update System** to update the firmware.

Note: 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 system update is completed.

3.8.5. Change Logo

You can choose your own picture to display on the login page of FNS-5000B. The size of the picture cannot exceed 20K bytes.

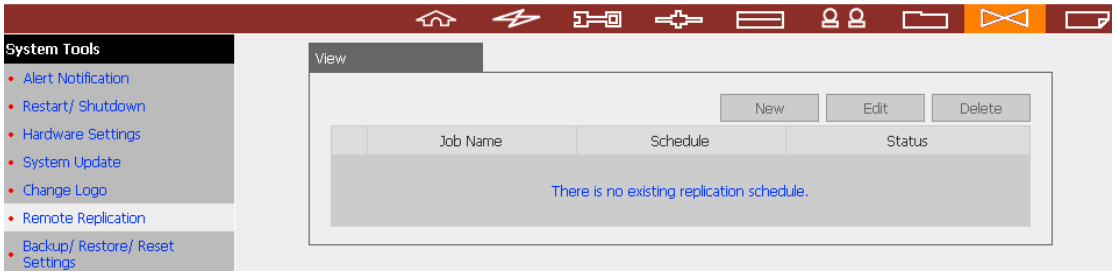


3.8.6. Remote Replication (Disaster Recovery)

Remote Replication enables you to replicate files on FNS-5000B to another FNS-5000B or LevelOne NAS series. The files will be compressed before the replication process in order to save time for data transfer. **Make sure a network share is created before creating a remote replication task.**

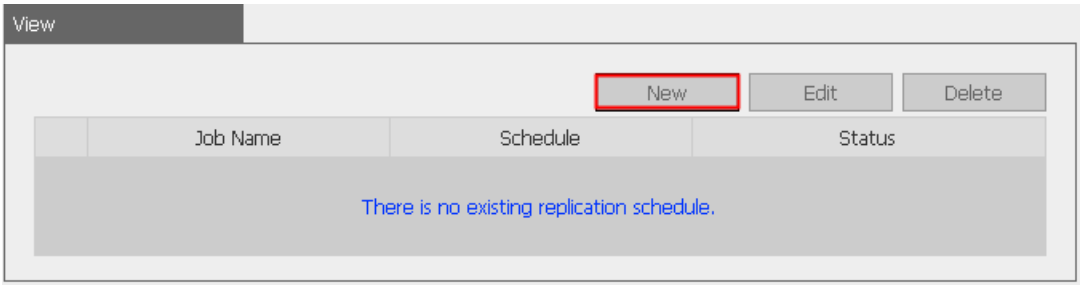
Using Remote Replication

Login FNS-5000B and go to Remote Replication in System Tools.

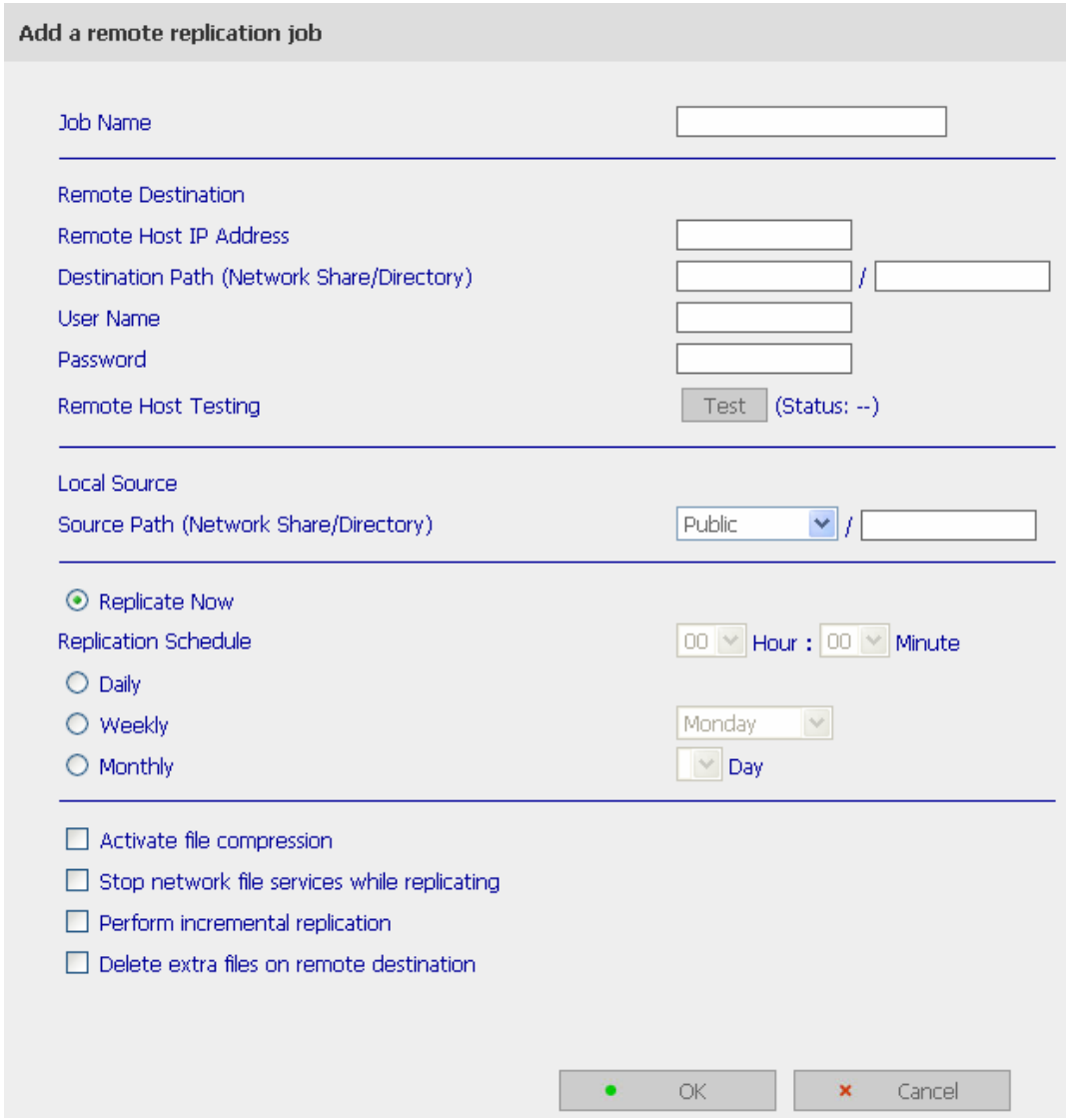


i. New

a. Click **New** to enter the following page.



b. Complete all settings and click **OK** to save or **Cancel** to quit.



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.

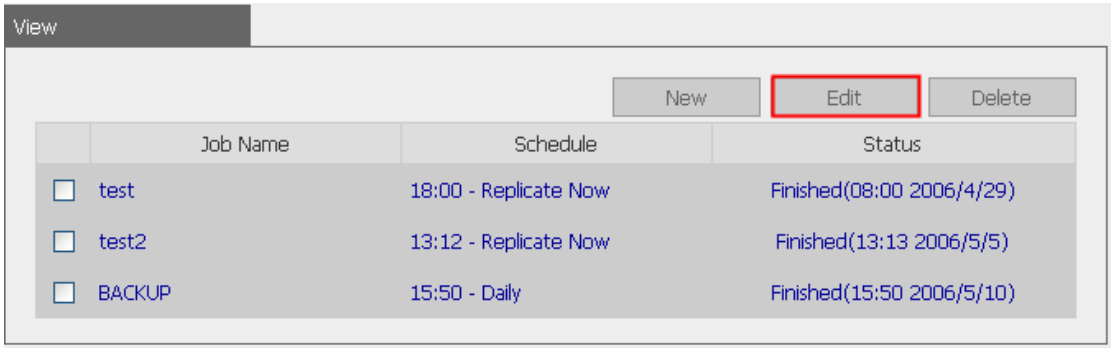
ii. Edit

a. Select the task to be edited.

b. Click **Edit**.

c. Modify the settings.

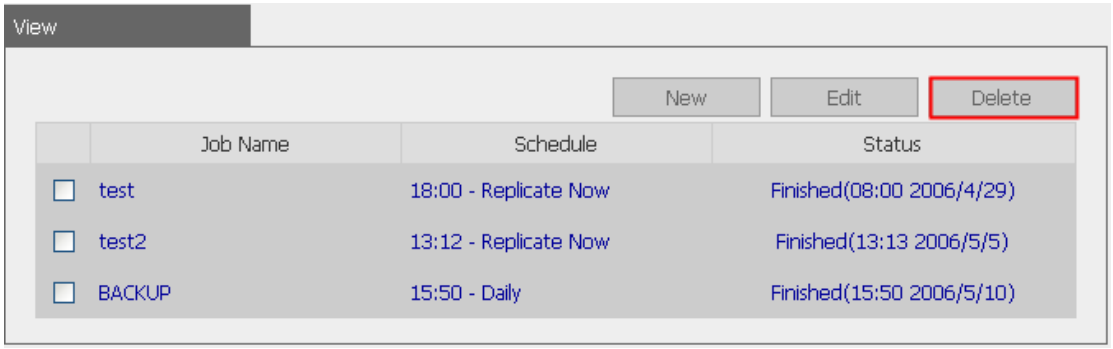
d. Click **OK** to save or **Cancel** to quit.



iii. Delete

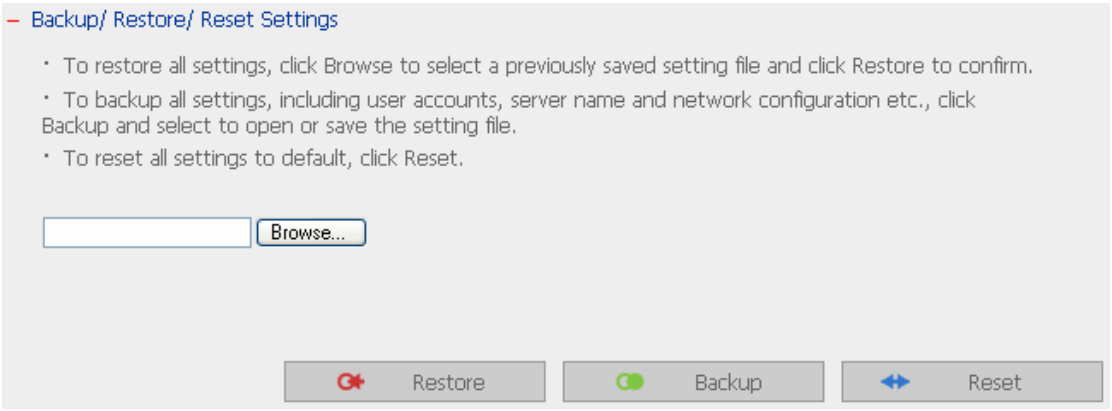
a. Select the task to be deleted.

b. Click **Delete**.



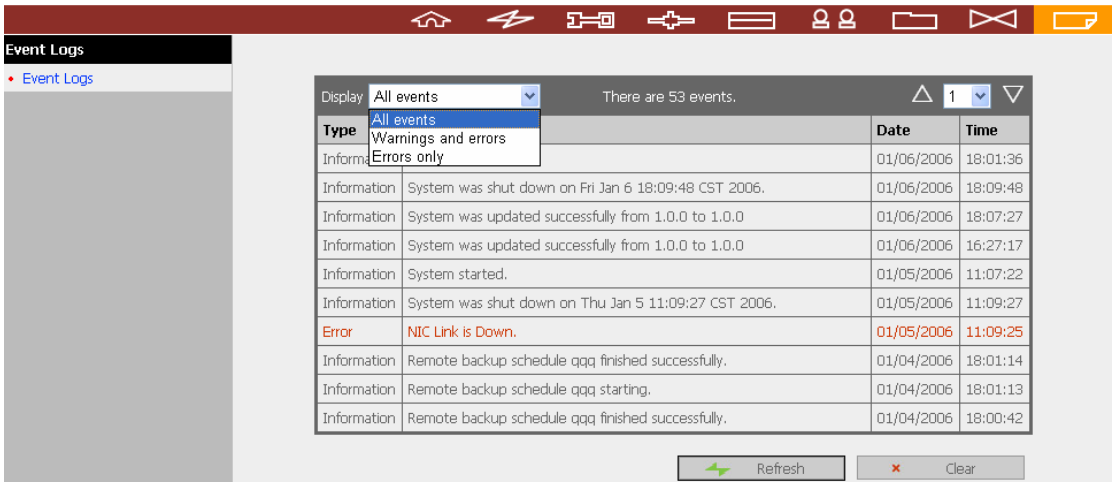
3.8.7. Backup/ Restore/ Reset Settings

- To backup all settings, including user accounts, server name and network configuration etc., click **Backup** and select to open or save the setting file.
- To restore all settings, click **Browse** to select a previously saved setting file and click **Restore** to confirm.
- To reset all settings to default, click **Reset**.



3.9. Event Logs

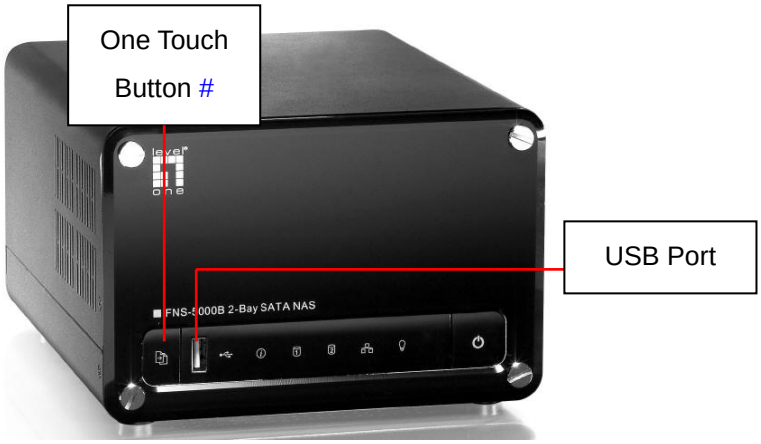
FNS-5000B can store thousands of recent event logs, including warning, error and information messages. In case of system malfunction, event logs can be retrieved to analyze system problems.



4. Copy USB Ports Data Directly

FNS-5000B supports direct copy of data on USB devices to FNS-5000B by using the Copy button. To use this function, please follow the steps below:

1. Make sure a SATA disk is installed correctly in FNS-5000B according to the instructions in Chapter 2.1.
2. Turn on FNS-5000B.
3. Format the SATA disk in SATA Disk page of Device Configuration (refer to Chapter 3.5.1). A system default folder Qusb will be created in FNS-5000B.
4. Connect USB devices, e.g. digital camera, flash to the front USB port of FNS-5000B.
5. Press the Copy button on FNS-5000B. All data on the USB device will be copied to the folder Qusb/(xxxxyyzz)* on FNS-5000B instantly.



#Intelligent one touch copy button: FNS-5000B will detect the data in the connected USB device automatically. The first time a USB device is connected, press the Copy button and FNS-5000B will copy all data in the device automatically. When the same device is connected again and there are changes to the data in the device, press the Copy button and FNS-5000B will copy all files in the device. If there are no changes, press the Copy button and FNS-5000B will not copy the files.

* xxxx: year; yy: month; zz: date

Note: USB auto copy function supports only USB device of 10GB storage capacity or less.

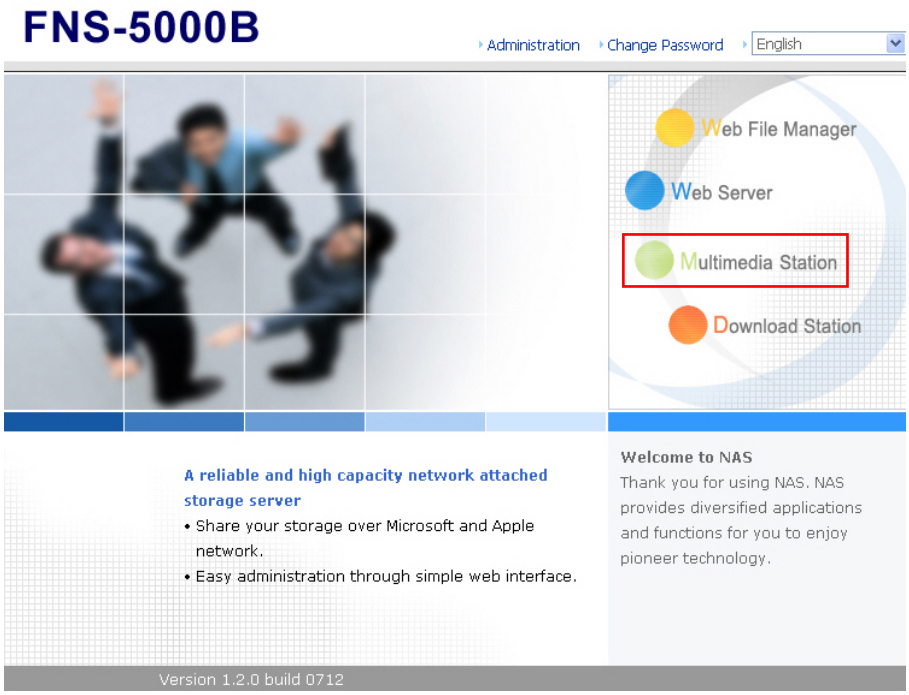
5. Multimedia Station

FNS-5000B provides a user-friendly web management interface for you to manage personal albums easily. You can view images and multimedia files, or browse photos by thumbnails preview.

A. Upload photos by web administration

1. To use Multimedia Station of FNS-5000B, make sure a SATA disk is installed correctly in FNS-5000B according to the instructions in Chapter 2.1. A share folder Qmultimedia will be created. Enable Multimedia function in Network Settings.

2. Click on the link http://FNS-5000B IP/Qmultimedia on Multimedia Station page or click Multimedia Station on the login page of FNS-5000B to access Multimedia Station.



3. Click on the top right hand corner. Login with administrator name and password to manage Multimedia Station. Users without administration right can view the photos and multimedia files on Multimedia Station but they do not have the right to modify the files.

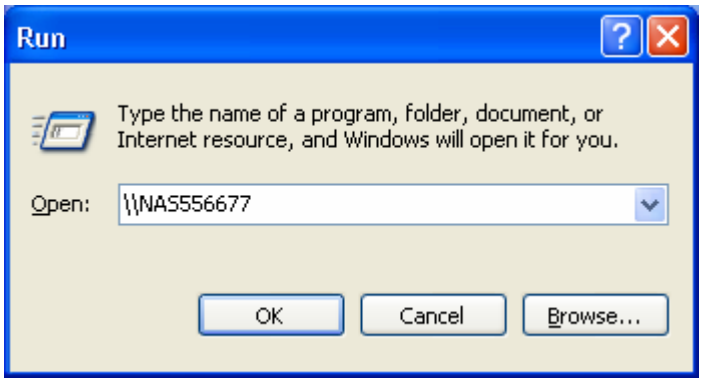
4. Click Browse to select the multimedia file and then click Upload to upload the file to the folder.

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

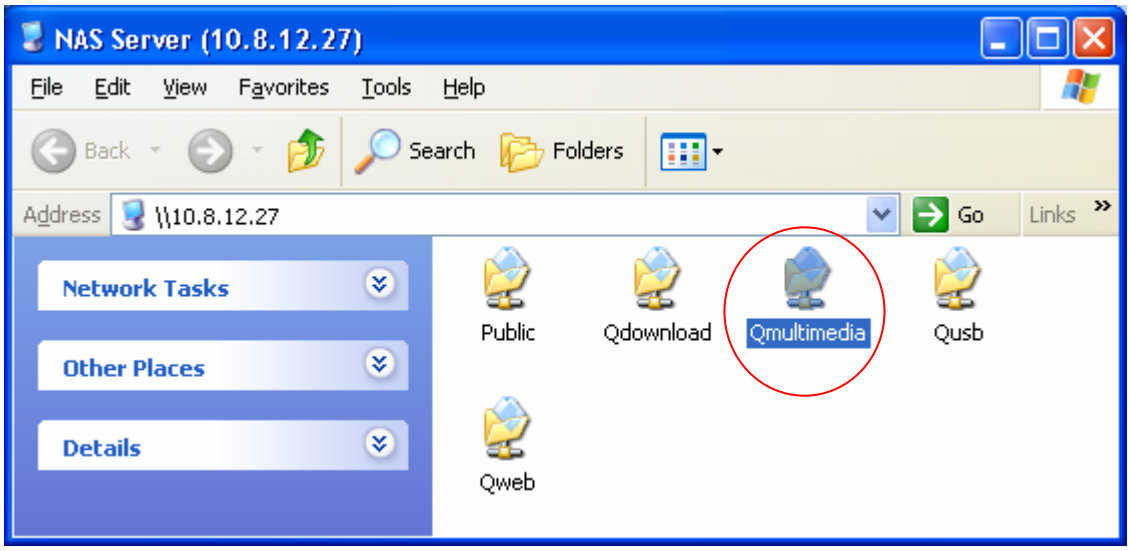
B. Upload photos to Qmultimedia folder directly

You can upload multimedia files to FNS-5000B directly by the following steps.

1. Use Run function in Windows. Enter \\[server name] or \\[server IP] to access share folder on FNS-5000B.



2. Open the folder Qmultimedia. Enter the user name and password to login.



3. Drag the files and folders to the folder directly. Please wait patiently when FNS-5000B is generating thumbnails for images during uploading.

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

Buttons on Multimedia Station page

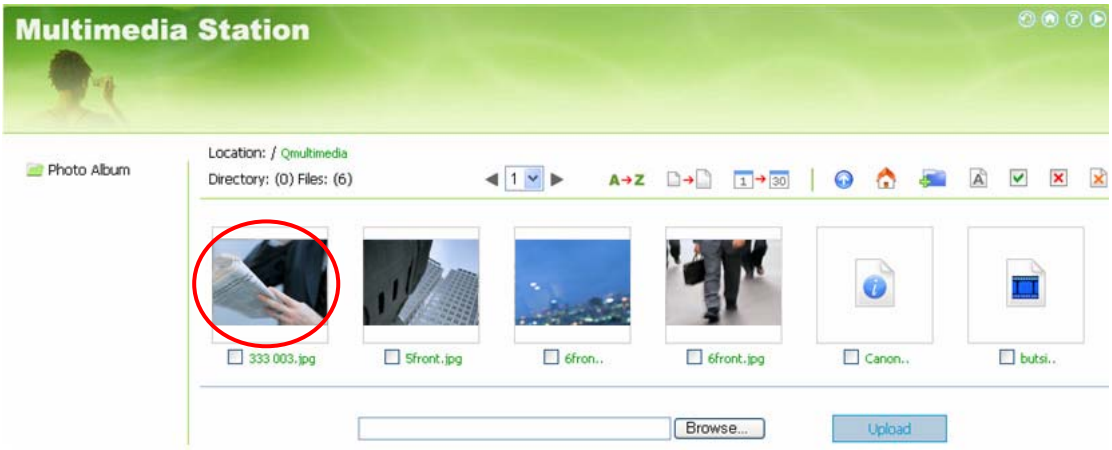
A→Z	Sort files by name
→	Sort files by size
1 → 30	Sort files by date
	Return to previous page
	Return to Home
	Create folder
	Rename file or folder
	Select all
	Select none
	Delete

Support file format list

Type	File format
Picture	jpg, bmp, gif
Video	wmx, wvx, avi, mpeg, mpg, mpe, m1v, mp2, mpv2, mp2v, mpa, dvr-ms, 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 Photo Information

1. To view detailed information of a photo, click on 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 for the picture in the box below the photo and click **Submit**. To reset the description to previously saved version, click **Reset**.

Buttons Description

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

	Back to previous level
	Previous image
	Next image
	Rotate image anticlockwise
	Rotate image clockwise
	Zoom in
	Zoom out
	Play slideshow. Select the time interval in seconds. Click **play** to play slide show. To stop playing, click **stop**.
	Print the image
	Save the picture

Play music or video files

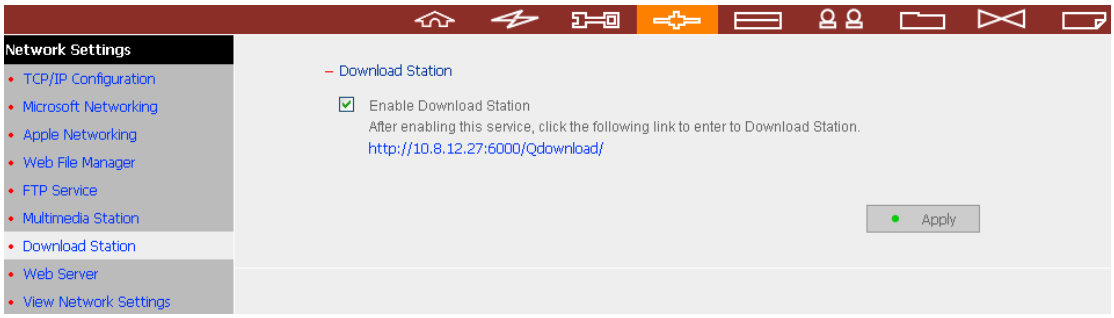
To play music or video files on Multimedia Station, you can click on the thumbnail of the file displayed on the page. The file will be played by your default music or video playing program.

6. Download Station

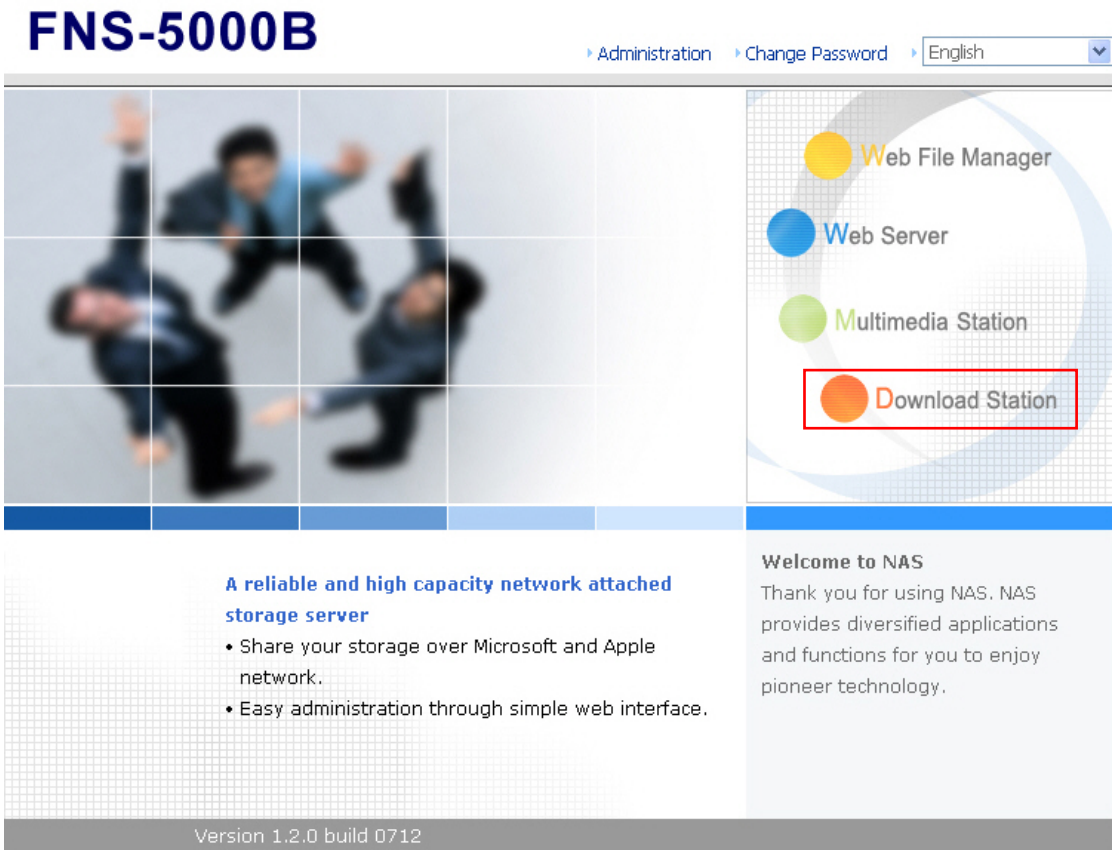
FNS-5000B supports P2P download mechanism. You can add download task to FNS-5000B and let the server finish downloading independent of PC.

Note: 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.

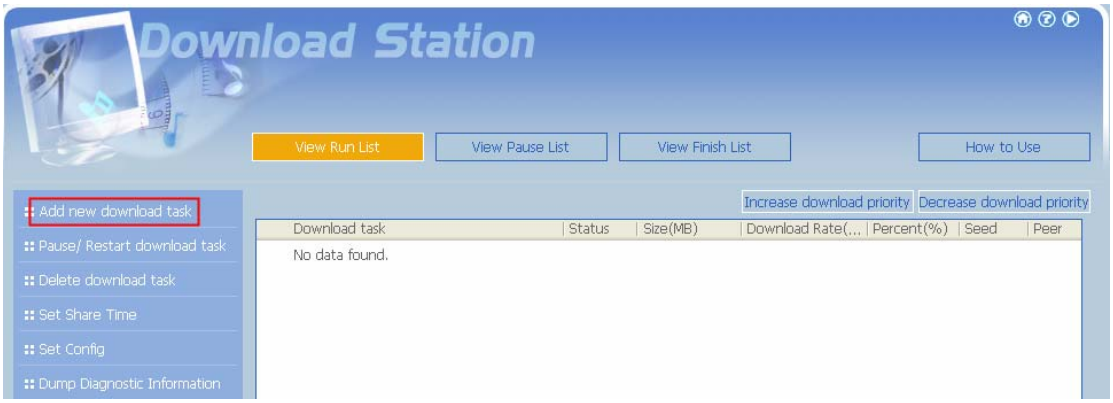
1. To use Download Station, make sure one or two SATA disks are installed correctly in FNS-5000B according to the instructions in Chapter 2.1. A share folder Qdownload will be created. Enable this function in Network Settings.

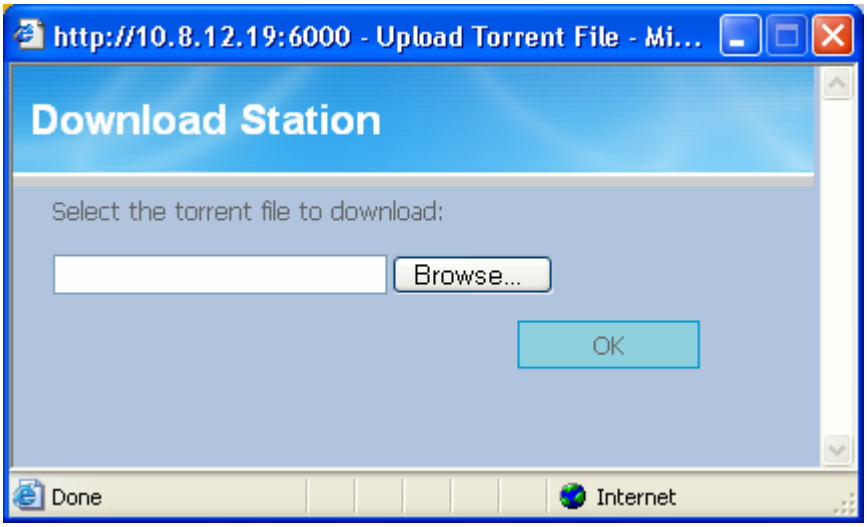


2. Click on the link http://FNS-5000B IP/Qdownload on Download Station page or click Download Station on the login page of FNS-5000B to access Download Station.

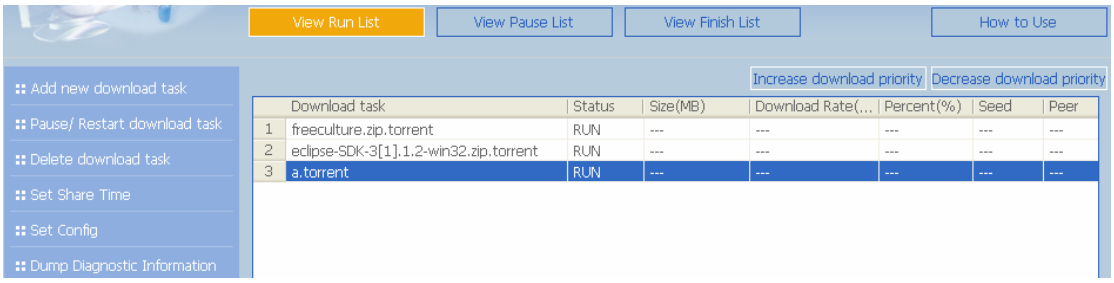


3. Click **Add new download task** on the left and upload a torrent file. You can download legal torrent files by searching on the Internet. There are websites that provide legally sharing torrents e.g. www.legaltorrents.com. Please download the torrent files to your local disk and then upload them to FNS-5000B.

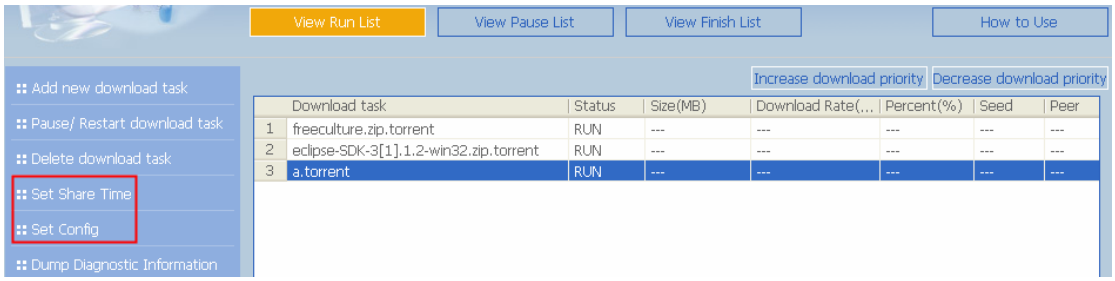


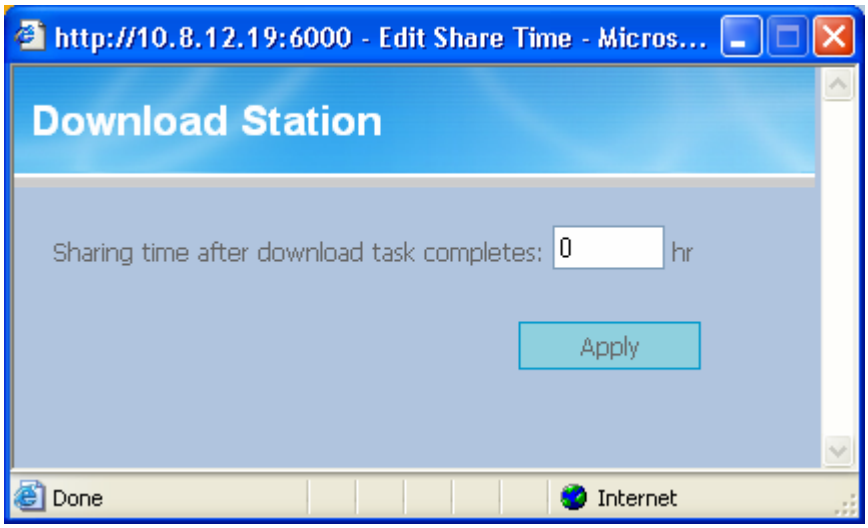


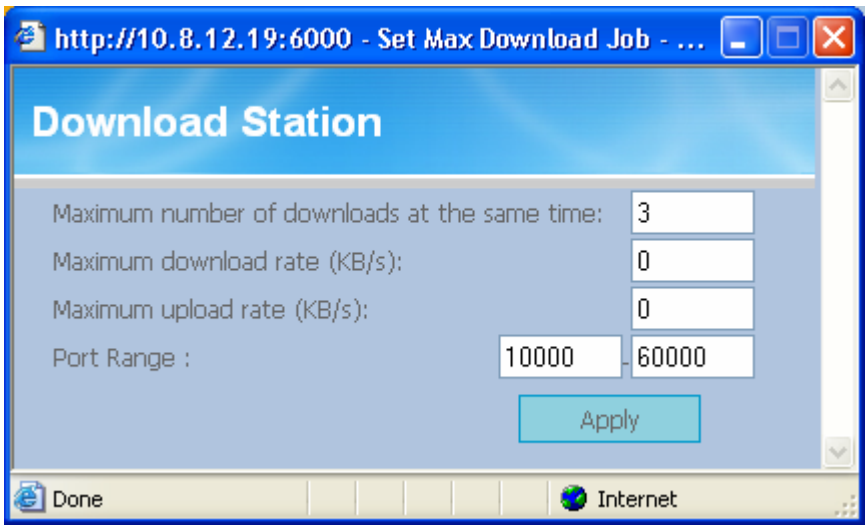
4. After uploading a download task, the task will appear on **View Run List**.



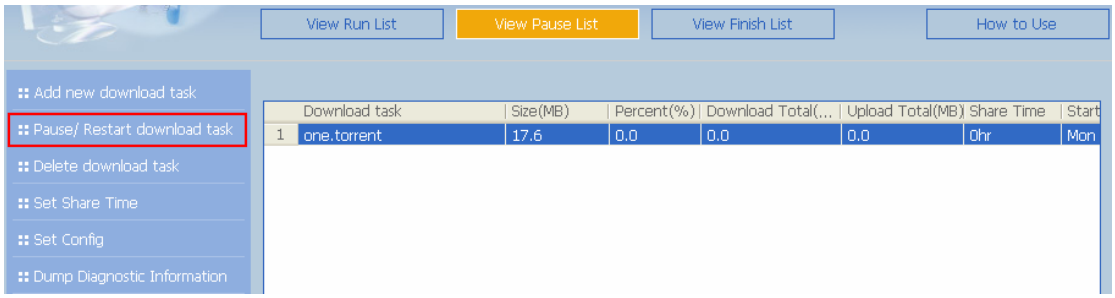
5. You can select an available download task and click Set Share Time to configure the time for sharing the torrent file, or click Set Config to set the maximum number of downloads at the same time (default value is 3). You can also set the maximum download and upload rate (default value is 0, which means unlimited), and port range (default range is 10000-60000).



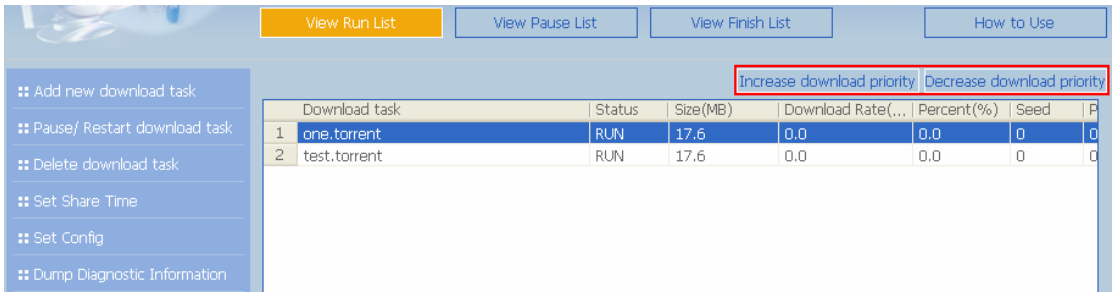




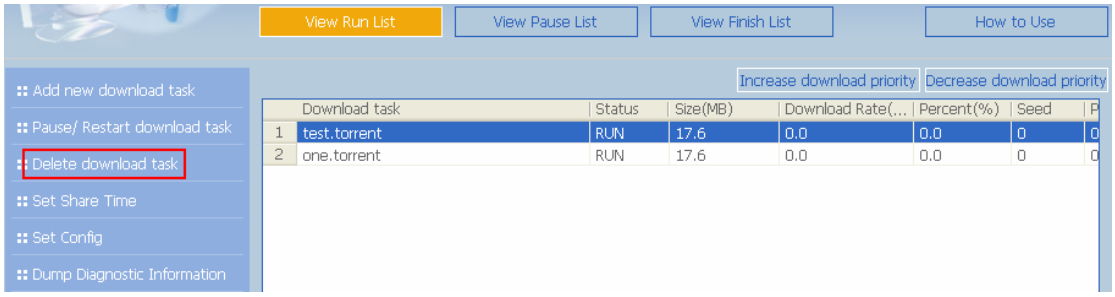
6. To pause a running download task, select the task in View Run list and click Pause/ Restart download task. You can view tasks that are paused or finished in View Pause List and View Finish List respectively. To restart a paused task, select the task in View Pause List and click Pause/ Restart download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

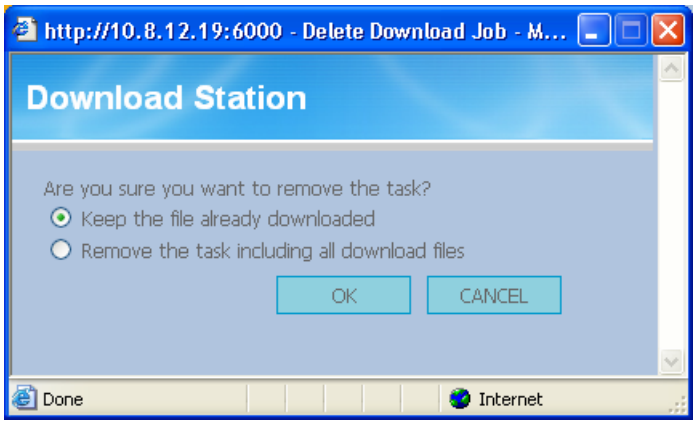


7. You can also increase or decrease task priority by clicking Increase download priority and Decrease download priority when there are multiple download tasks.



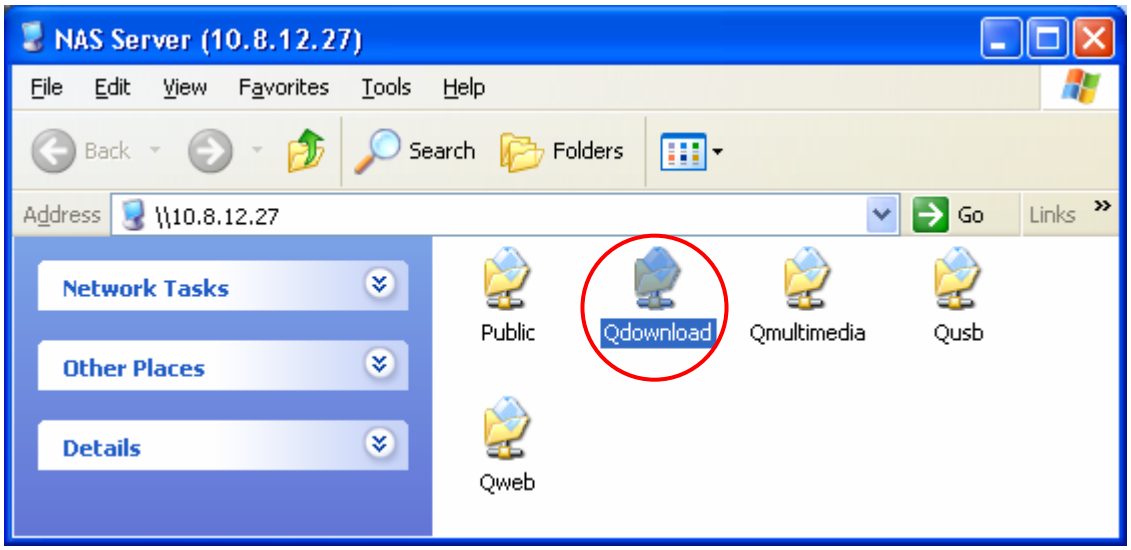
8. To delete a running, paused, or finished task, select the task and click Delete download task. You can select to remove the download task only and retain the downloaded files, or remove the task and downloaded files.





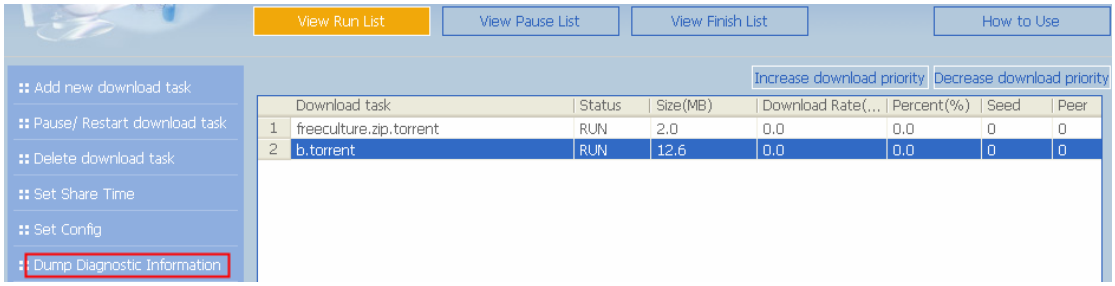
9. To logout Download Station, click on the top right hand corner.

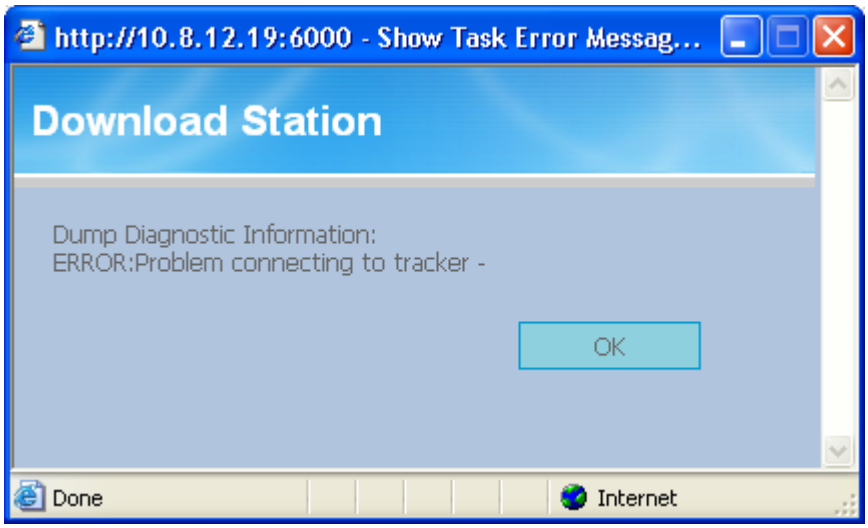
10. To access the folders you have downloaded, please go to the share folder Qdownload of FNS-5000B.



Dump Diagnostic Information

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

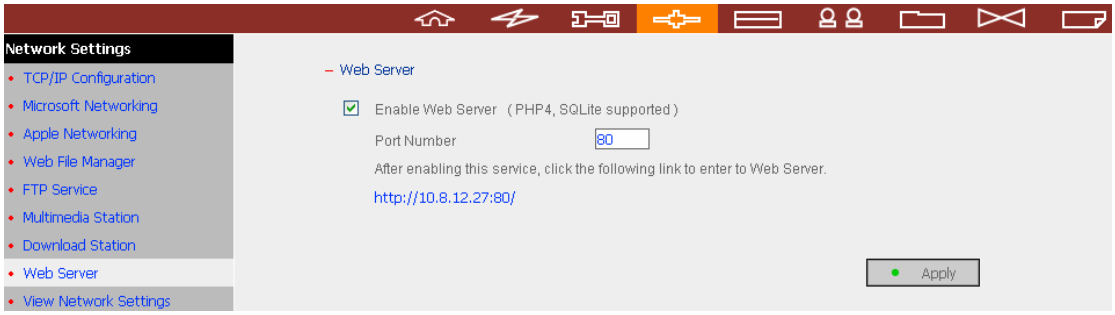




7. Web Server

FNS-5000B enables you to upload web pages and manage your own website easily by Web Server function. It also supports PHP and SQLite for you to establish an interactive website. Once you activate Web Server function, you can access your own homepage from anywhere. You can add hyperlinks in your homepage to connect to all the features of FNS-5000B, such as Download Station, Multimedia Station and Web Server.

1. To use Web Server, make sure a SATA disk is installed correctly in FNS-5000B according to the instructions in Chapter 2.1. A share folder Qweb will be created. Enable Web Server function and enter the port number in Network Settings.



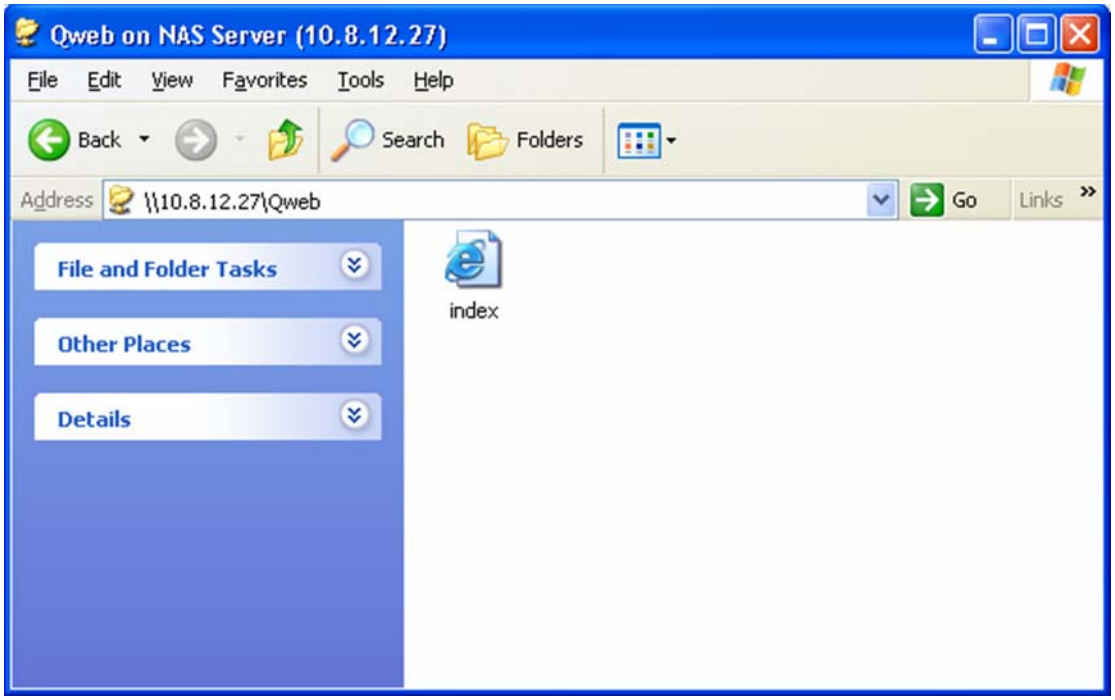
2. You can upload your HTML files to the folder Qweb by the following methods:

A. By using samba: You can open a web browser and type \\[FNS-5000B IP]\Qweb or \\[FNS-5000B name]\Qweb. Login the folder and upload your HTML files.

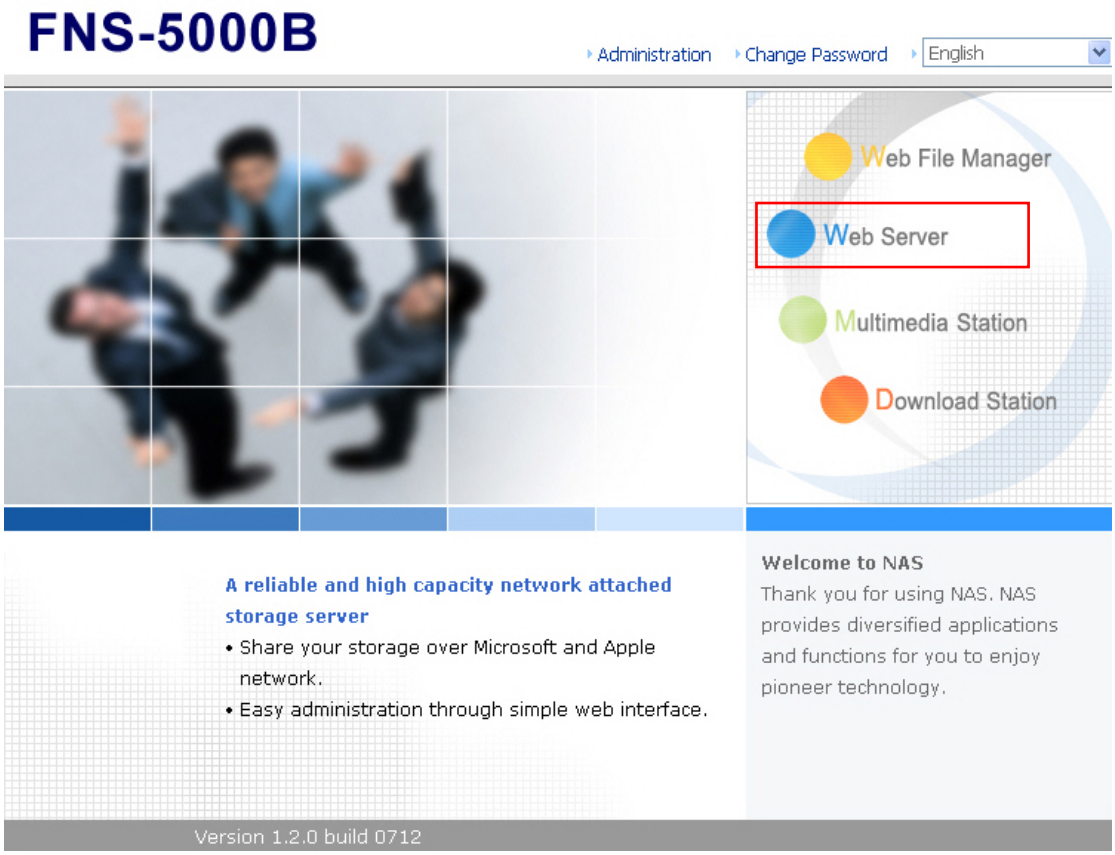
B. By FTP: You can login FTP service and upload your HTML files to the folder (please refer to Chapter 8).

C. By Web File Manager: You can login Web File Manager and upload your HTML files to the folder (please refer to Chapter 9).

The file index.html or index.htm will be the home path of your webpage.



3. Click on the link http://FNS-5000B IP/ on Web Server page or click Web Server on the login page of FNS-5000B to access the web page you upload. Note that when Web Server is enabled, you have to type [http://FNS-5000B IP address:6000] in your web browser to access the login page of FNS-5000B.



SQLite Management

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

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

(1) Unpack your download file SQLiteManager-*.tar.gz.

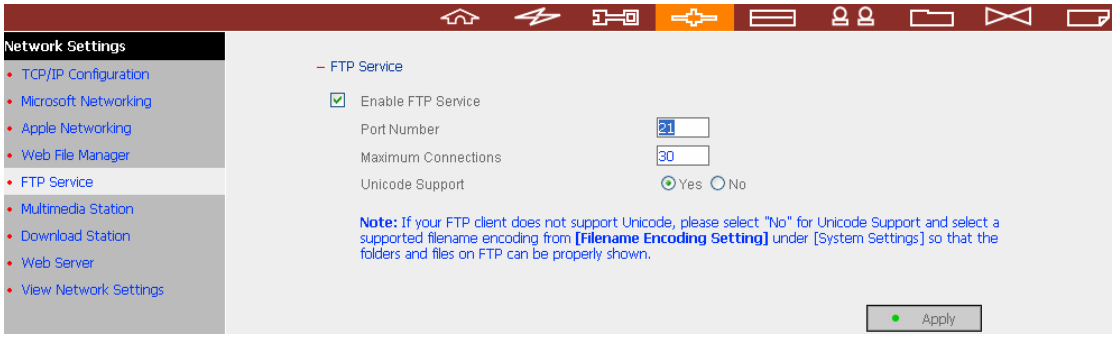
(2) Upload the unpacked folder **SQLiteManager-*** to **\\FNS-5000B IP\Qweb**.

(3) Open your web browser and go to **http://FNS-5000B IP/SQLiteManager-*/**.

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

8. FTP Server

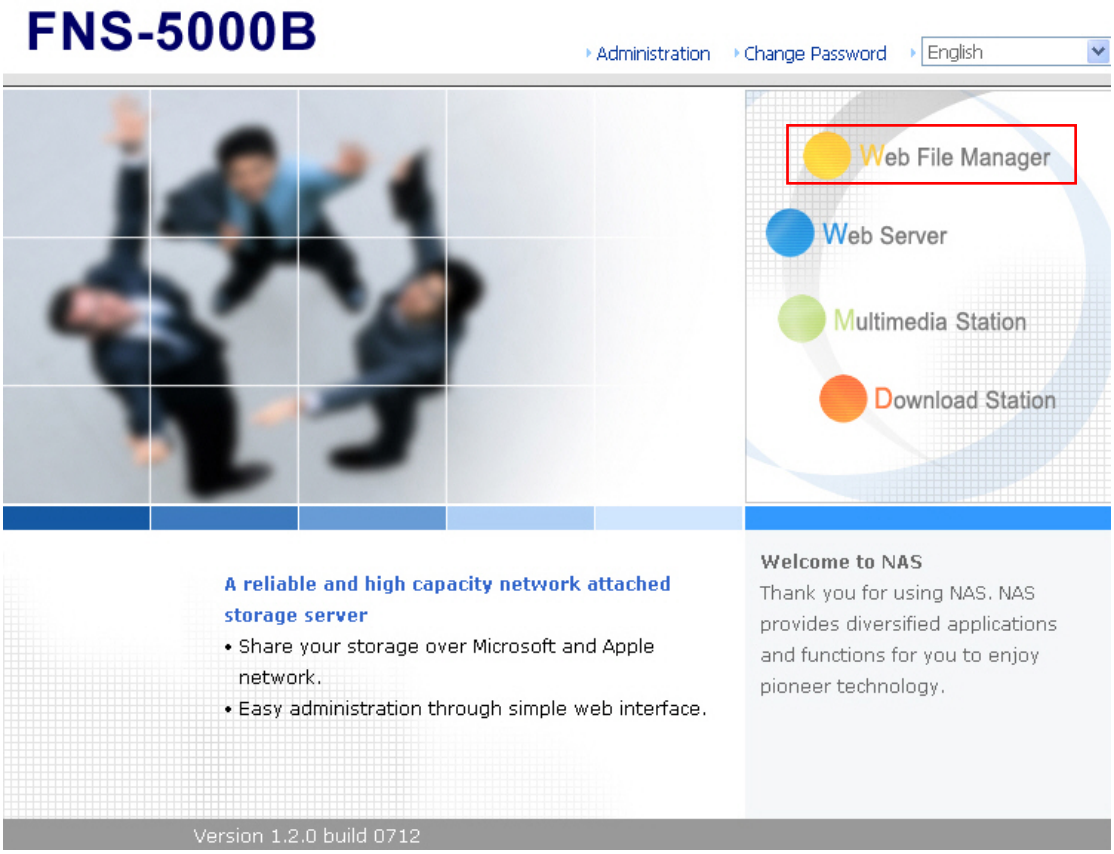
FNS-5000B supports FTP service. To use FTP service, enable this function in **Network Settings** and follow the steps below:



1. Open an IE browser and enter ftp://[FNS-5000B IP] or ftp://[FNS-5000B name]. OR

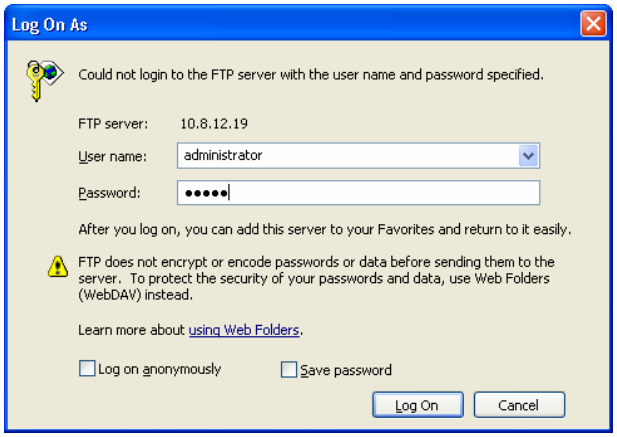
2. By Web File Manager of FNS-5000B.

A. Go to FNS-5000B administration page and click Web File Manager. Enter user name and password to login FNS-5000B.

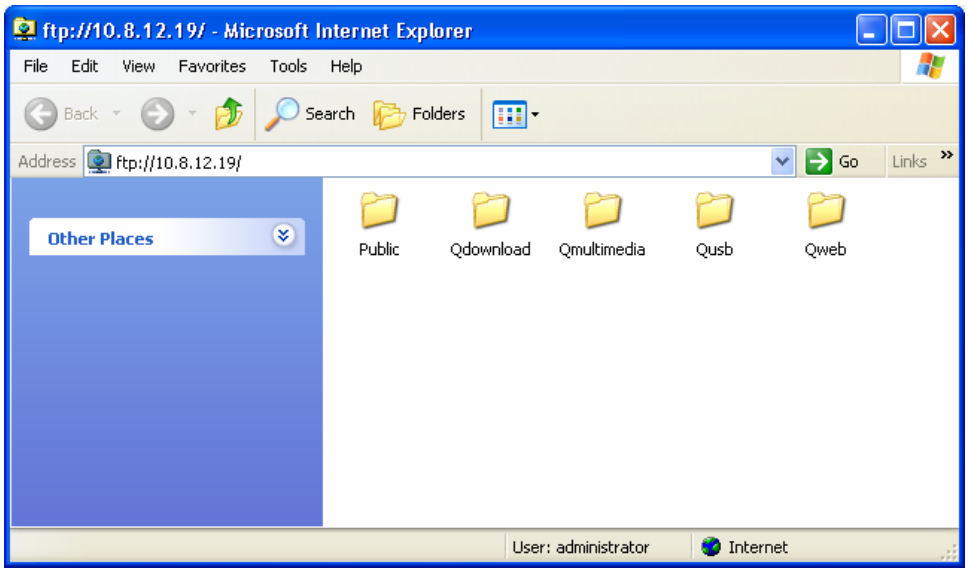


B. Click FTP.

C. Enter the user name and password to login FTP service.



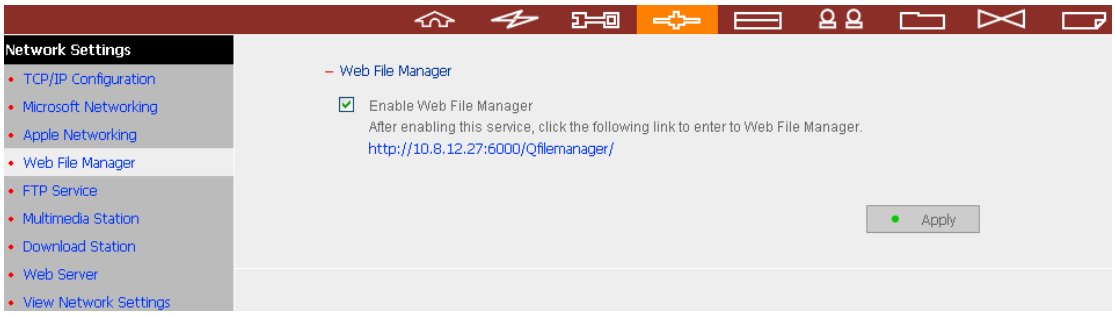
D. You can start to enjoy FTP service.



9. Web File Manager

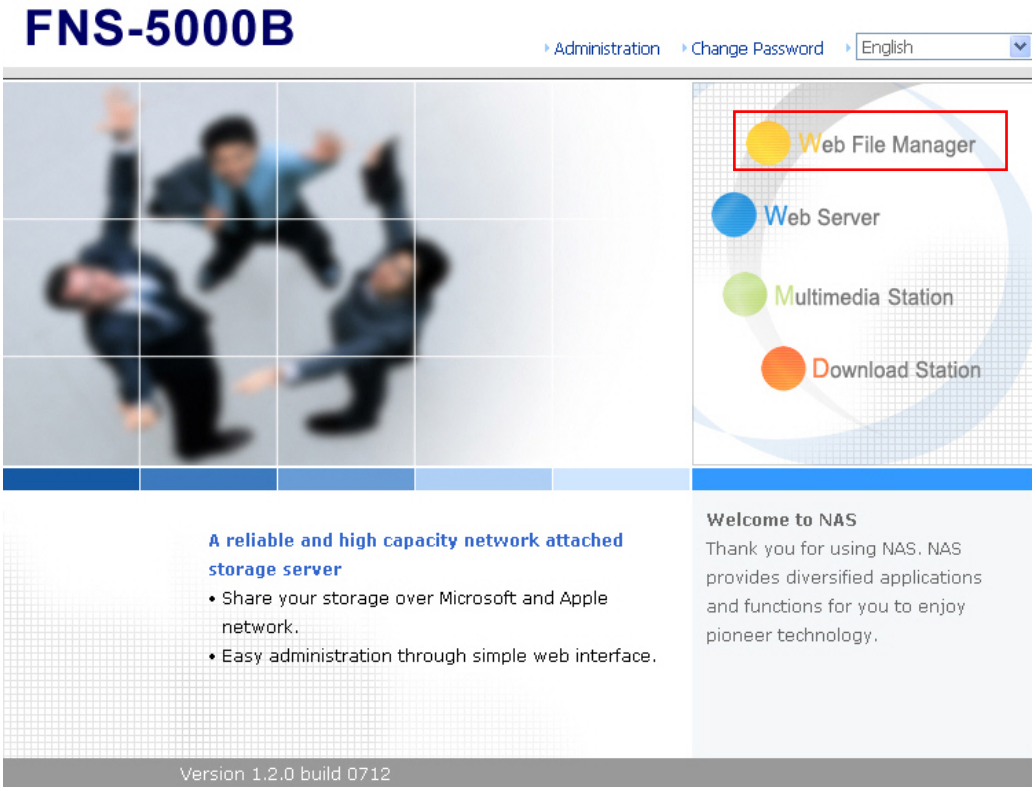
Using Web File Manager

To use Web File Manager, enable web service in Network Settings first.



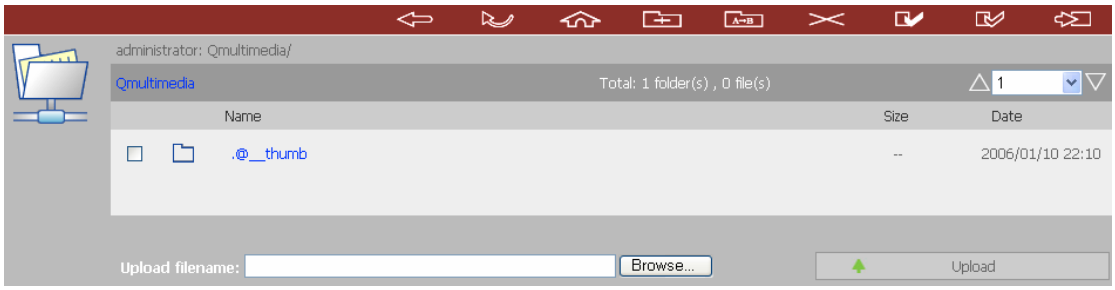
Launch the web browser and go to FNS-5000B administration page. Select **Web File Manager** and enter the correct login name and password. You may also enter “guest” in the login name field without password to access the network shares on FNS-5000B as an anonymous guest.

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



Select an existing network share.

You can organize share folders of FNS-5000B. With Web File Manager, you can upload, rename, or delete files and folders in the network shares.



View files online

Click on a file displayed on the web page. The information of the file will be shown. If your browser does not support the file format, a download window will pop up automatically. Download the file and you can open it on your PC.

Create folder

i. Select a network share or folder in which you want to create a new folder.

ii. Click (Create Folder) on the toolbar.

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) on the toolbar.

iii. Enter the new file or folder name and 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.

To delete all files and folders, click (Select All) and (Delete).

Upload file

i. Open the folder to upload file to.

ii. Click **Browse** to select the file.

iii. Click **Upload**.

Download file

i. Select a file to download.

ii. Right click the file and select “Save Target As” to save the file.

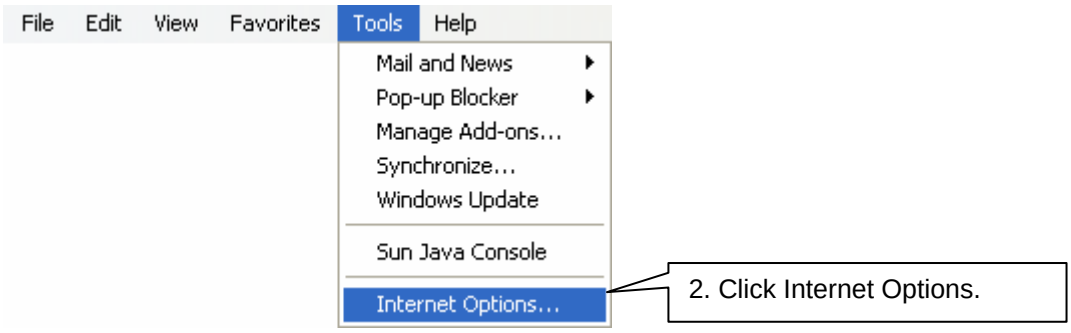
Logout

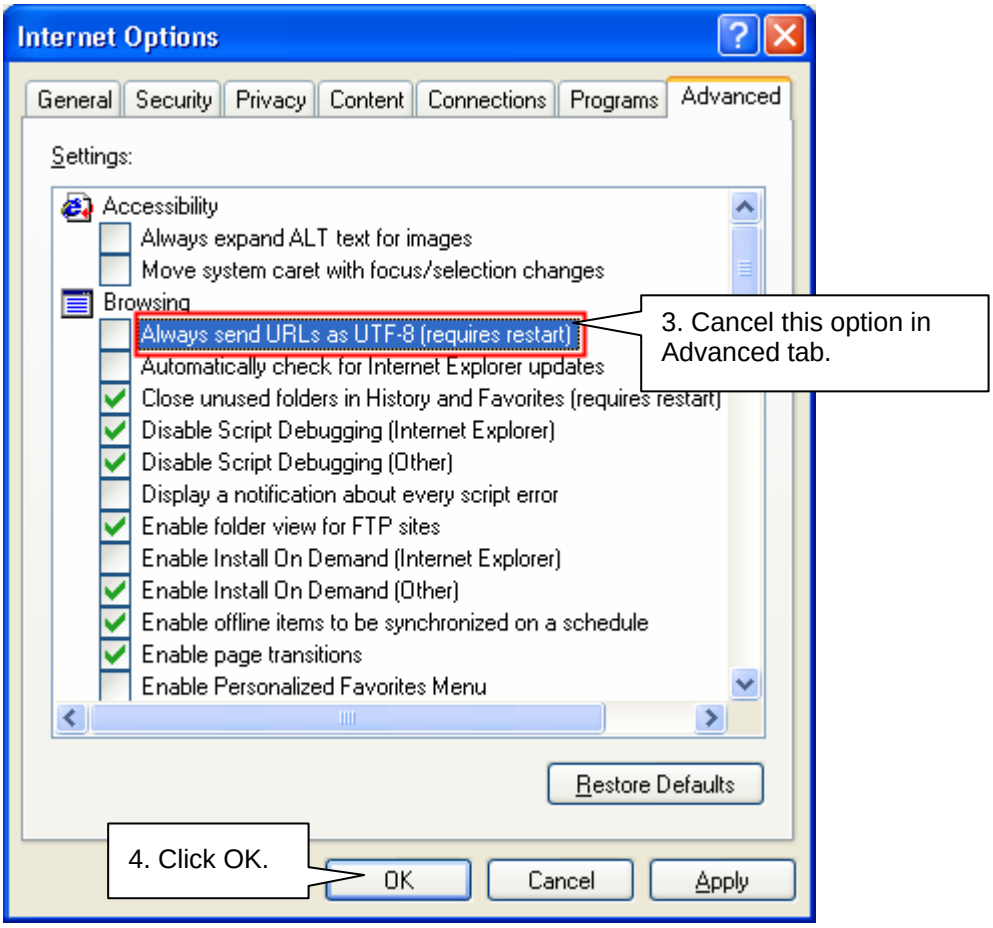
To exit Web File Manager, click (Logout).

Viewing Files Named in Local Language

To view files named in Chinese, you may have to configure the browser settings. Take Internet Explorer as an example, follow the steps below to configure the settings.

1. Click on **Tools** in IE browser.





5. Restart the browser.

Web File Manager Icons

Icon	Description
	Return to the parent folder
	Refresh the current page
	Return to network share list home page
	Create folder
	Rename file or folder
	Delete file or folder
	Select all
	Cancel selection
	Logout
	Full access network share folder
	Read-only network share folder
	Malfunction network share folder

10. Maintenance

FNS-5000B is specially designed to run 24x7 and be ready at all times against system crash caused by power outage. This section provides a general overview on system maintenance.

10.1. Restart/ Shut down Server

Follow the steps below to restart or shut down FNS-5000B.

1. Enter the administration page and select Restart/ Shutdown in System Tools.
2. Click **Restart** to reboot the server or **Shut Down** to turn off the server.

10.2. Reset Password and Network Settings

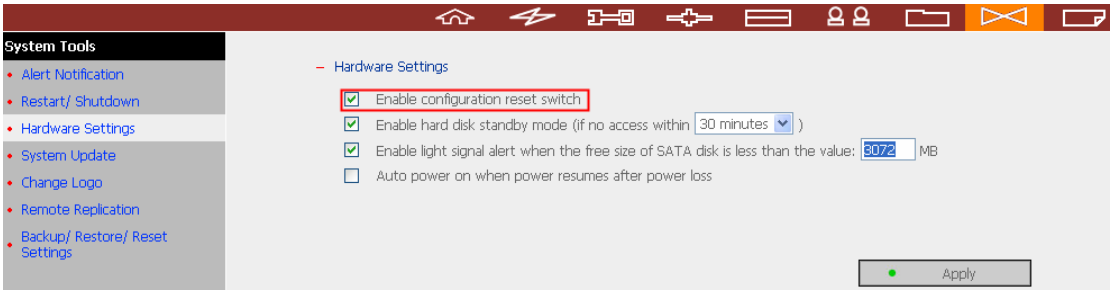
To reset the administrator password and network settings of FNS-5000B,

Press the reset button of FNS-5000B for a few seconds. A beep sound will be heard.

Login FNS-5000B with the default user name and password:

Default user name: **administrator**
Password: **admin**

Note: To reset the system by the reset button, the option “Enable configuration reset switch” in Hardware Settings must be activated.



10.3. Disk Failure or Malfunction

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

1. Record the malfunction status or error messages shown in Event Logs.
2. Stop using the failed FNS-5000B and turn off the server.
3. Contact customer service for technical support.

	Note: FNS-5000B 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 crash.

10.4. Power Outage or Abnormal Shutdown

In case of power outage or improper shutdown of FNS-5000B, the system will resume to the state before it is shut down. If your server does not function properly after restart, please do the following:

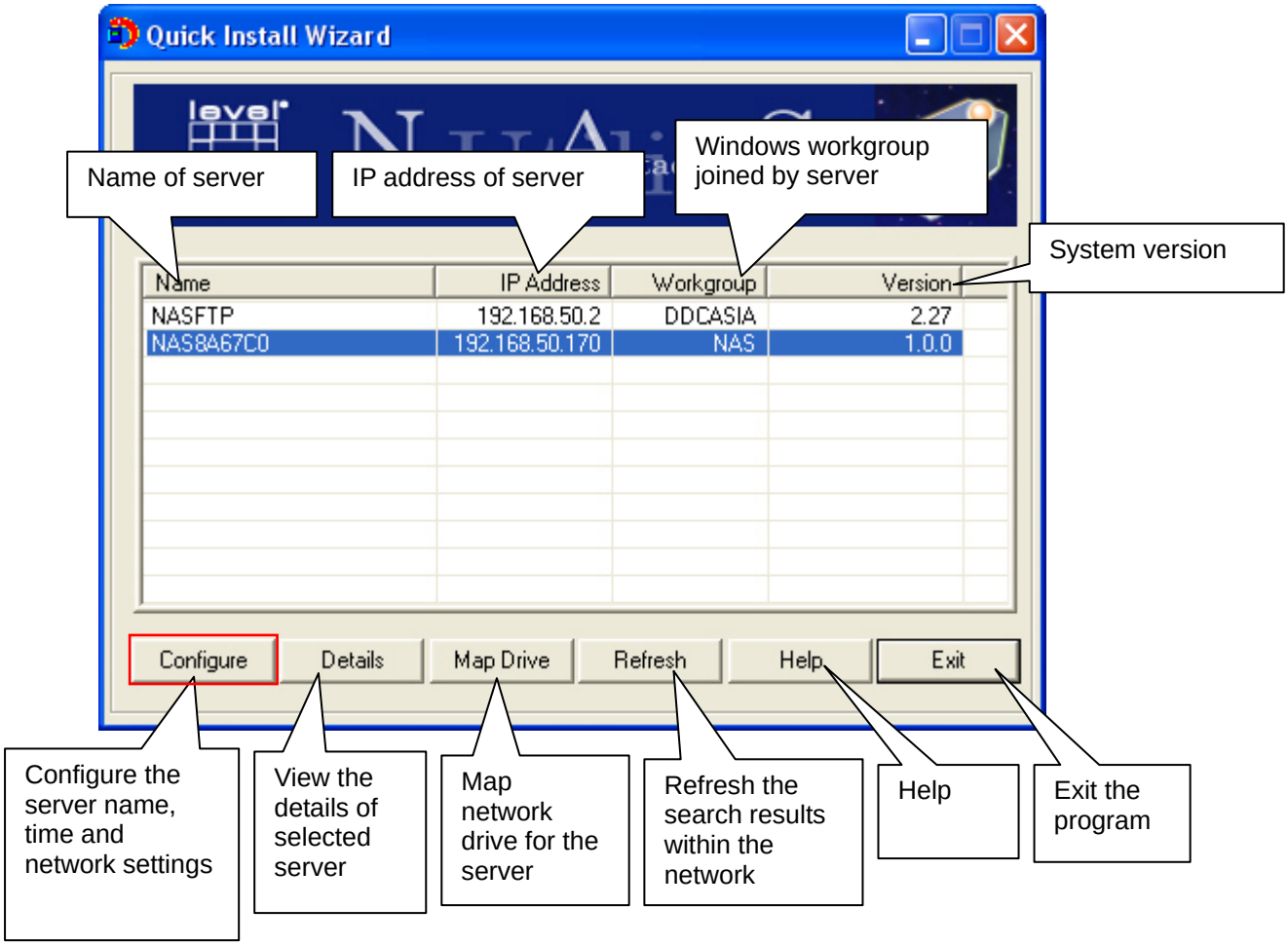
1. If the system configuration is lost, configure the system again.
2. In the event of abnormal operation of the server, contact customer service for technical support.

To avoid the above situations, please back up your data periodically and make sure you have done the following:

- Follow the instructions described in Chapter 10.1 to restart or shut down the server.
- If there is an anticipated power outage, back up all important data and turn off the server properly until power supply is resumed.

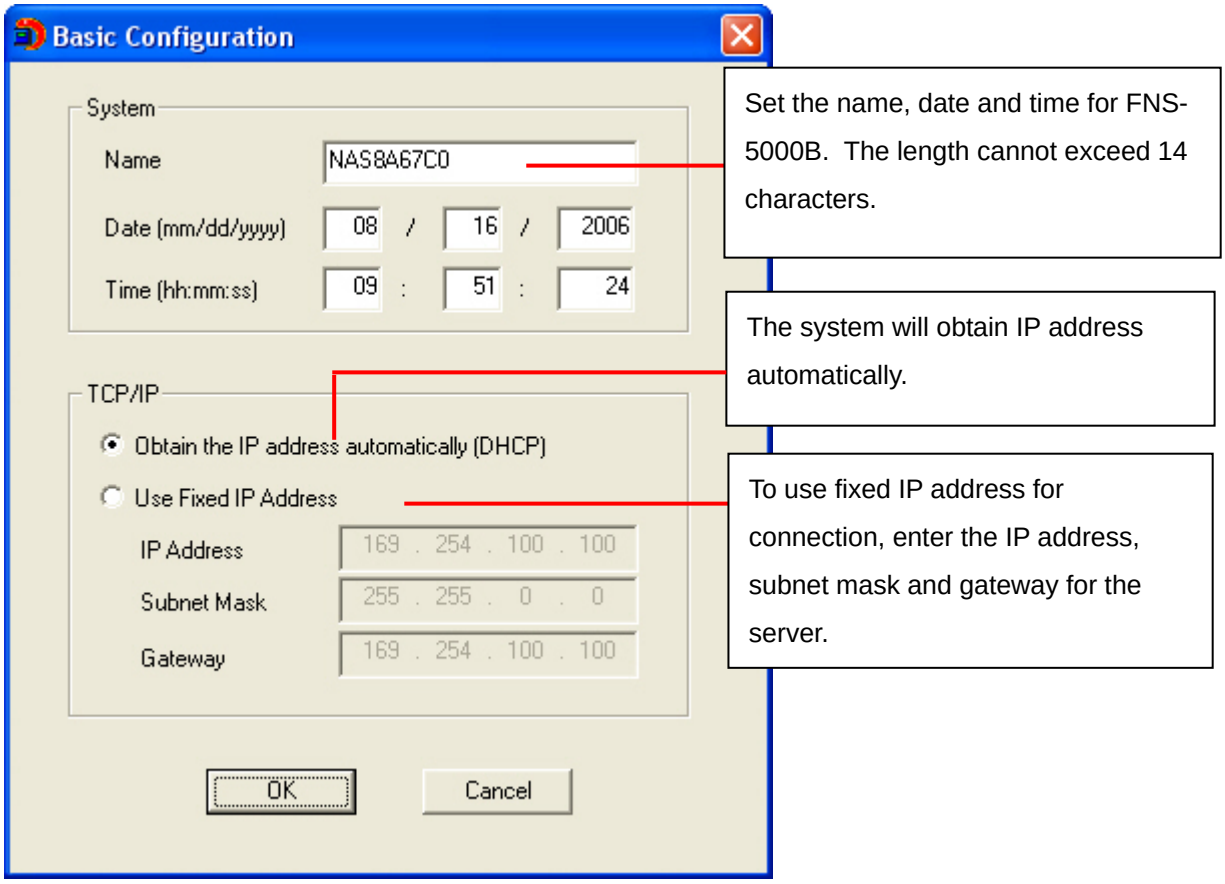
11. Appendix - Quick Install Wizard

Main Screen



You can configure NAS by select NAS on list and click **Configure**, Login window pop-up and ask login name and password

Upon successful login, the following screen will appear. Enter the configuration values and click OK.

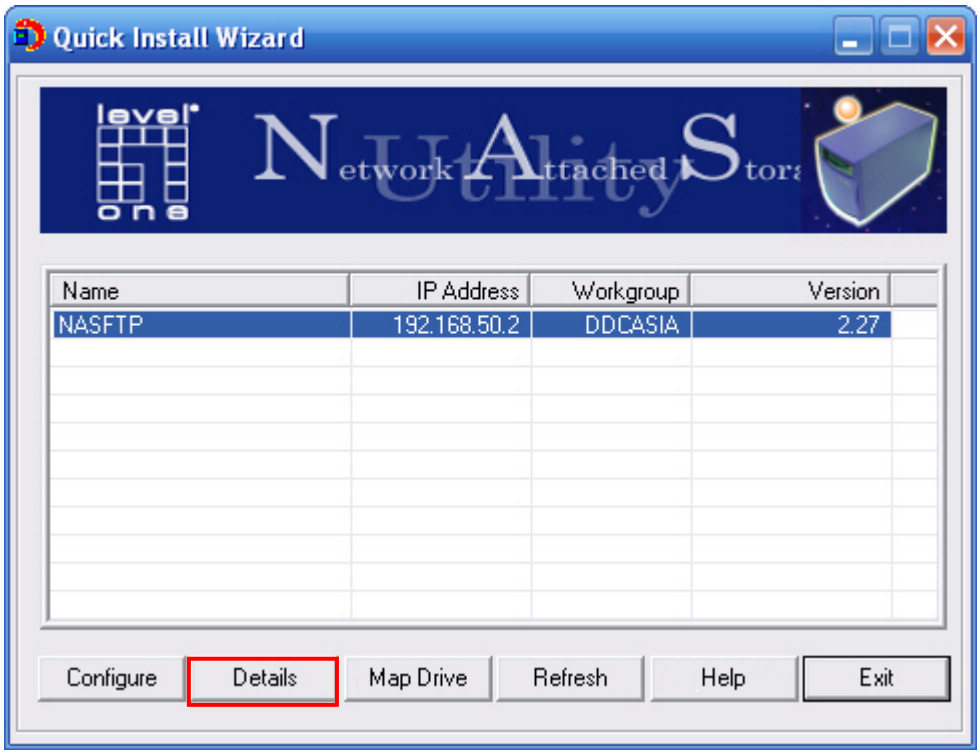


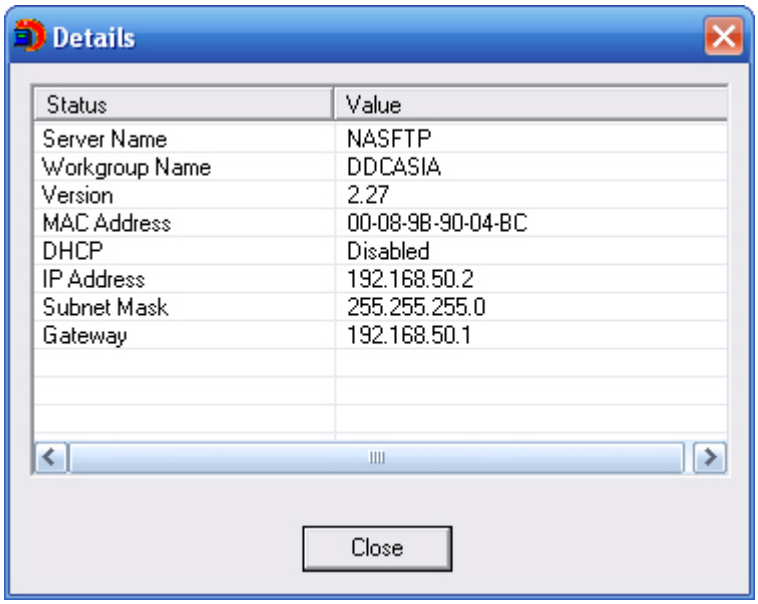
For further configuration of the system, please login the administration page of FNS-5000B via web browser.

Note: You may have to restart FNS-5000B after changing the network configuration.

View Details

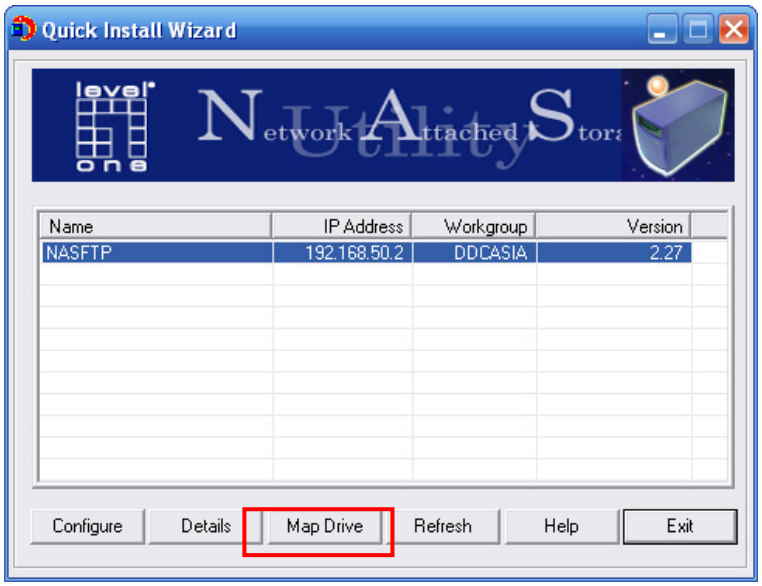
Select a FNS-5000B available on Quick Install Wizard and click Details. The following screen will be shown:



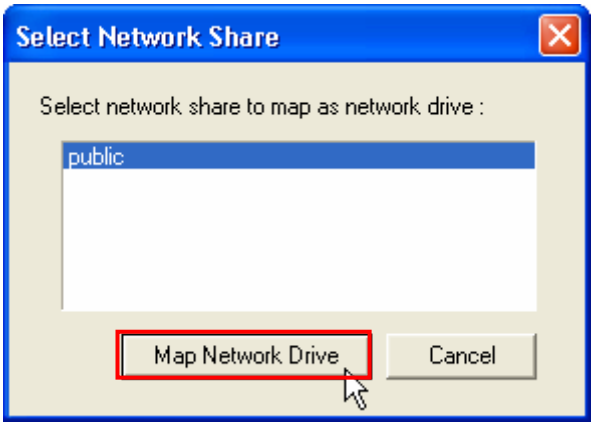


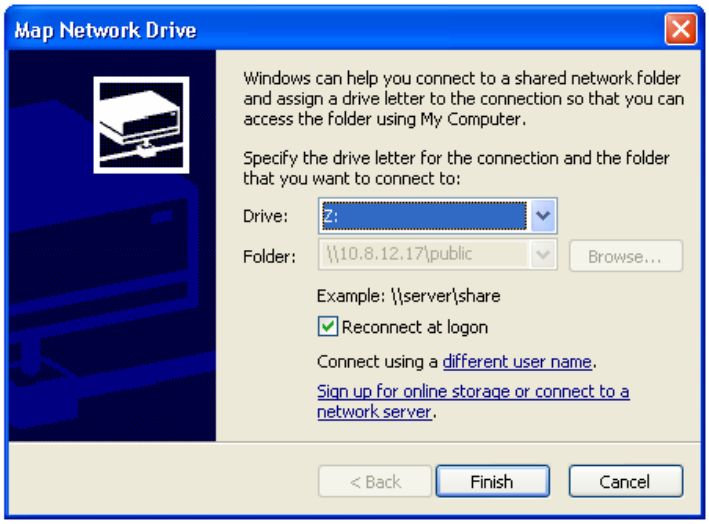
Map Drive

Select a NAS and click Map Drive.



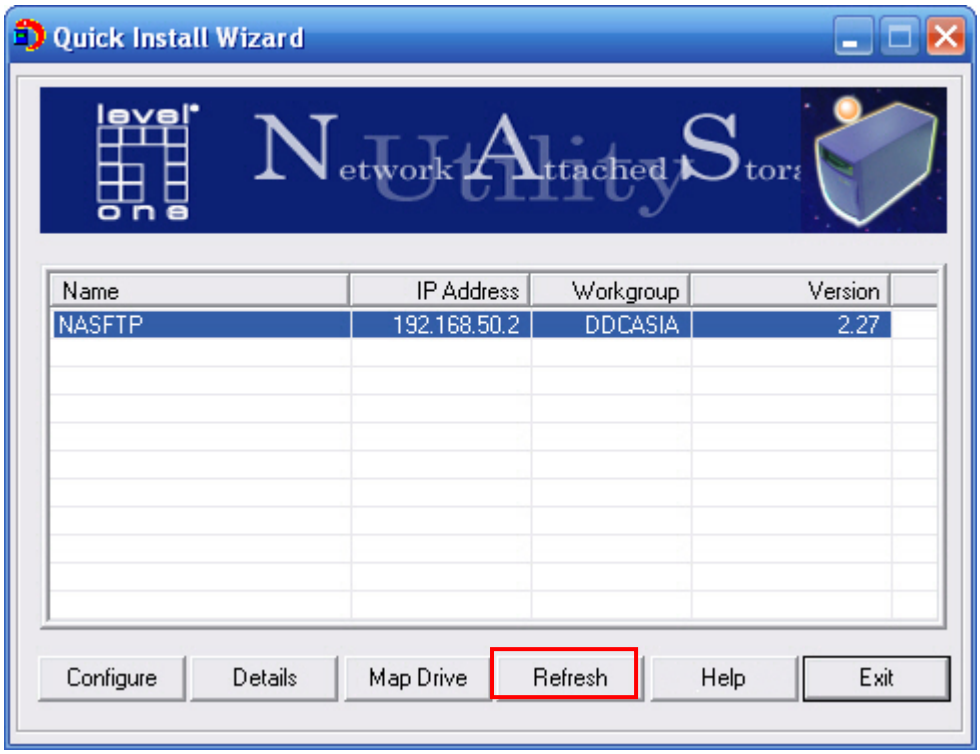
Select the correct network share and click Map Network Drive. Then select the drive letter for the connection.





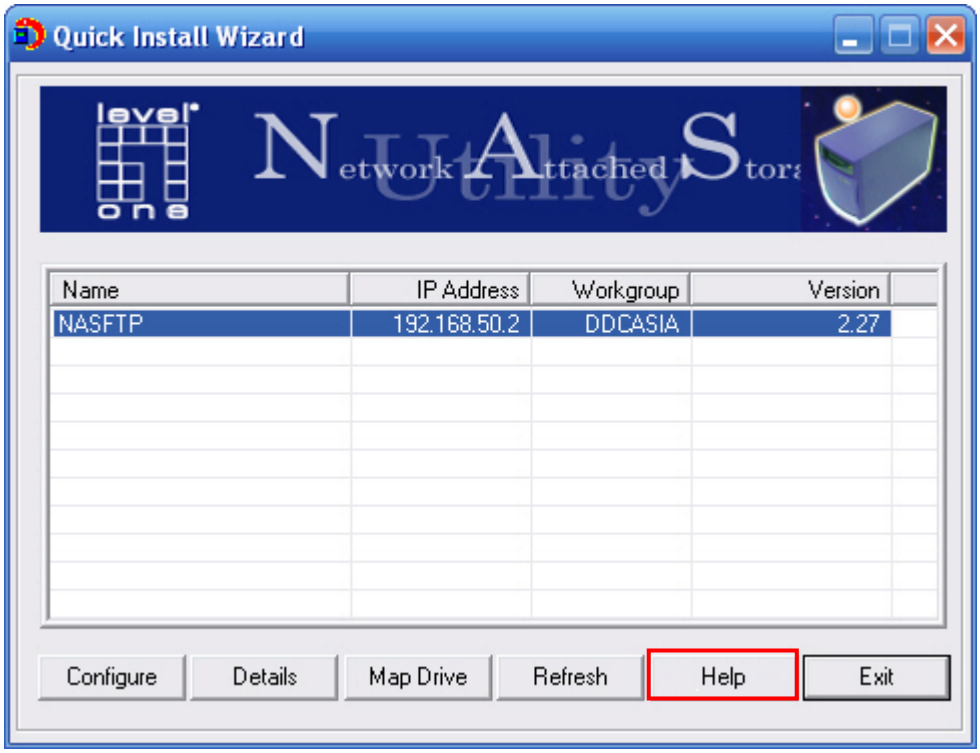
Refresh

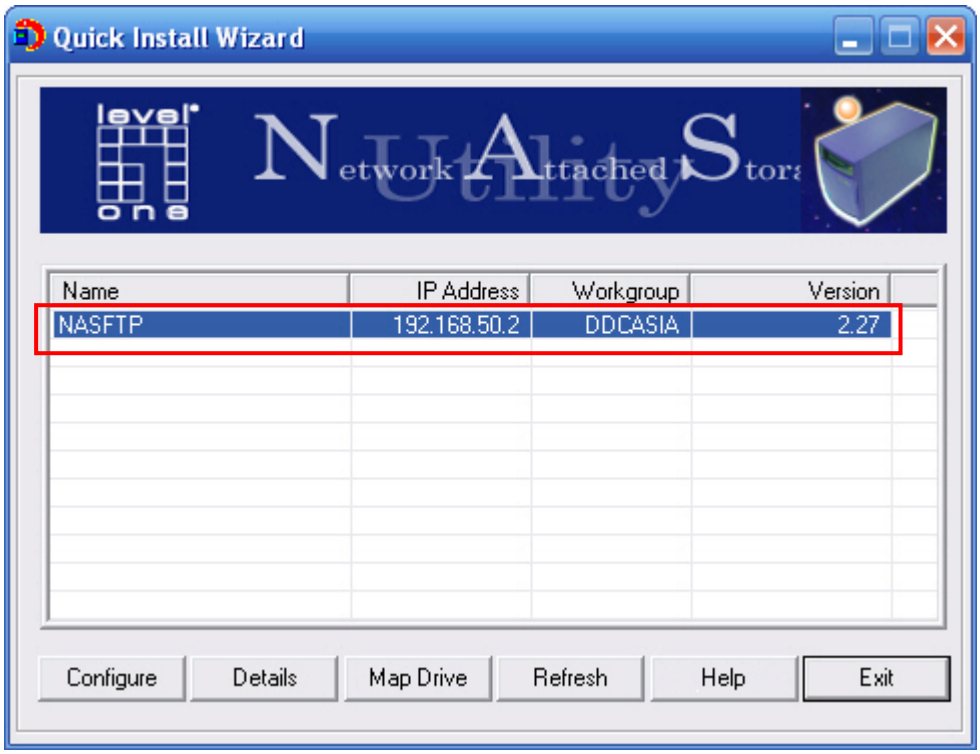
Search for all available NAS again. To refresh the search results, click Refresh to display all available servers within the network.



Help

If you have any enquiries about Quick Install Wizard when using the program, you can click the Help button to view the help text.



Enter the homepage

Double click on NAS to enter the administration page.