4-Bay SATA NAS RAID Server

NAS-7400

User’s manual

Version 1.0.0

Copyright

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio technician for help.

FCC Caution

To assure continued compliance. (example-use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
This device complies with Part 15 of the FCC Rules. Operation is subject to the Following two conditions: (1) This device may not cause harmful interference, and (2) this Device must accept any interference received, including interference that may cause undesired operation.

Federal Communication Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

R&TTE Compliance Statement

This equipment complies with all the requirements of DIRECTIVE 1999/5/CE OF THE EUROPEAN PARLIAMENT AND THE COUNCIL OF 9 March 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE)

The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8, 2000.

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe of the equipment.

WEEE regulation

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Revision

User's Manual for PLANET 4-Bay SATA NAS RAID Server

Model: NAS-7400

Rev: 1.0 (April. 2009)

Part No. EM-NAS-7400

TABBLE OF CONTENTS

Chapter 1: Introduction

PLANET Technology's NAS-7400 is network attached storage (NAS) solution for external storage targeted for small and medium business (SMB) users and small office/home office (SOHO) users.

With a NAS product, users can save their work and have access to files over the network without having to carry around a disk drive or memory stick. The Administrator can manage access privileges for greater security. Multiple backup and synchronization functions protect your data.

1.1 Features

- Up to four hot-swappable SATA II 3.5-inch disk drivers
- Provides Scalability up to 4TB
- 10/100/1000M - Gigabit Ethernet port
- RAID level support: RAID 0, 1, 5 and 10
- Multi-protocol system support for Windows, UNIX, Linux and Macintosh
- The Administrator can Limit the Amount of Available Disk Space Available to Individual Users
- NAS-to-NAS data synchronization and backup
- User, group and folder quota control
- Advanced RAID bad sector recovery mechanism
- Support UPnP Auto-IP and DHCP client
- Aluminum Enclosure with an Internal Cooling Fan for Continuous Operation
- 2 Standard USB 2.0 Port for External USB HDD and Print Server Sharing
- Multi-language support and user friendly web management interface
- UPnP and DLNA certified Digital Media Server
- Support E-Mail Notification for critical events
- Support iTunes Media Server
- Easy-to-use browser-based management interface
- Data sharing over the network
- One-touch backup of designated file folders on client PC
- Snapshot backup for real-time image of the file system
- Network print server with USB printer

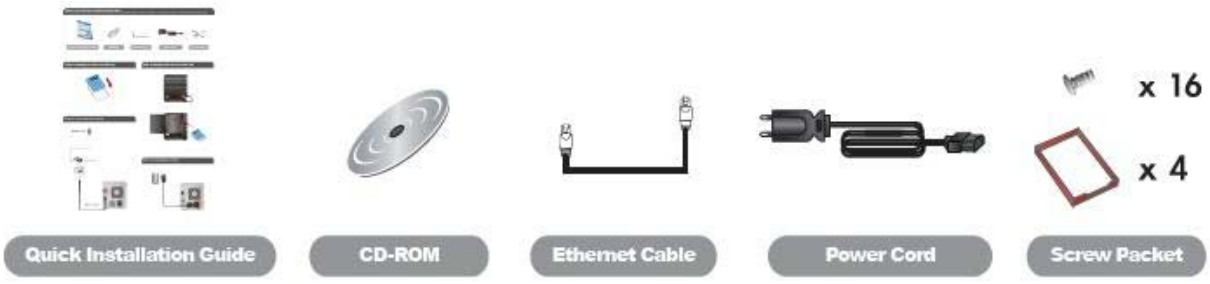
- UPS support with automated shutdown
- Heterogeneous environment: Windows, UNIX, Linux, and Macintosh
- SmartSYNC Backup & Setup Wizard

1.2 Protocol Support

- Windows 2000, XP Professional, 2003 Server, and Vista Business, Enterprise, and Ultimate clients through SMB and CIFS protocols
- UNIX and Linux clients through the NFS protocol
- Macintosh clients through the AFP protocol
- FTP clients through the FTP protocol
- DLNA clients through UPnP protocol with an optional plug-in
- Up to 16 concurrent connections

1.3 Package Content

- NAS-7400 x 1
- User's Manual CD x 1
- Power Adapter x 1
- RJ-45 Cable x 1
- Screw Package x 1
- Quick Installation Guide x 1



1.4 Specifications

- Disk drive support:
  - Four 1.5 Gb/s or 3 Gb/s SATA 3.5-inch disk drives
  - Conforms to Serial ATA 1.0 specification and Serial ATA II: Extensions to Serial ATA 1.0 specification (SATA II, phase I specification)
  - SATA specification of 3 Gb/s transfers with CRC error-checking
  - Hot-swapping of disk drives
  - Tagged command queuing
  - Native command queuing
  - Drive roaming among channels
  - S.M.A.R.T status polled every 15 minutes
  - Online capacity expansion
  - RAID Level Migration
  - Hot spare drives
  - RAID Volume rebuilding
  - Gigabyte rounding
  - Background rebuilding
- RAID level support: RAID 0, 1, 5, and 10
- Large file support up to 2 TB
- Unicode file name support
- Networking: 10/100/1000 Mb/s Ethernet Port on motherboard
- File protocols: SMB, CIFS, FTP, AFP, NFS
- Network Time Protocol (NTP) client
- Error logging
- Phone home capability (email notification) to contact IT staff
- Hardware monitoring of:
  - Fan
  - Temperature
  - Power
  - Disk status
  - One-Touch button

- Enclosure status

Disk drive support:

- Four 1.5 Gb/s or 3 Gb/s SATA 3.5-inch disk drives
- Conforms to Serial ATA 1.0 specification and Serial ATA II: Extensions to Serial ATA 1.0 specification (SATA II, phase I specification)
- SATA specification of 3 Gb/s transfers with CRC error-checking
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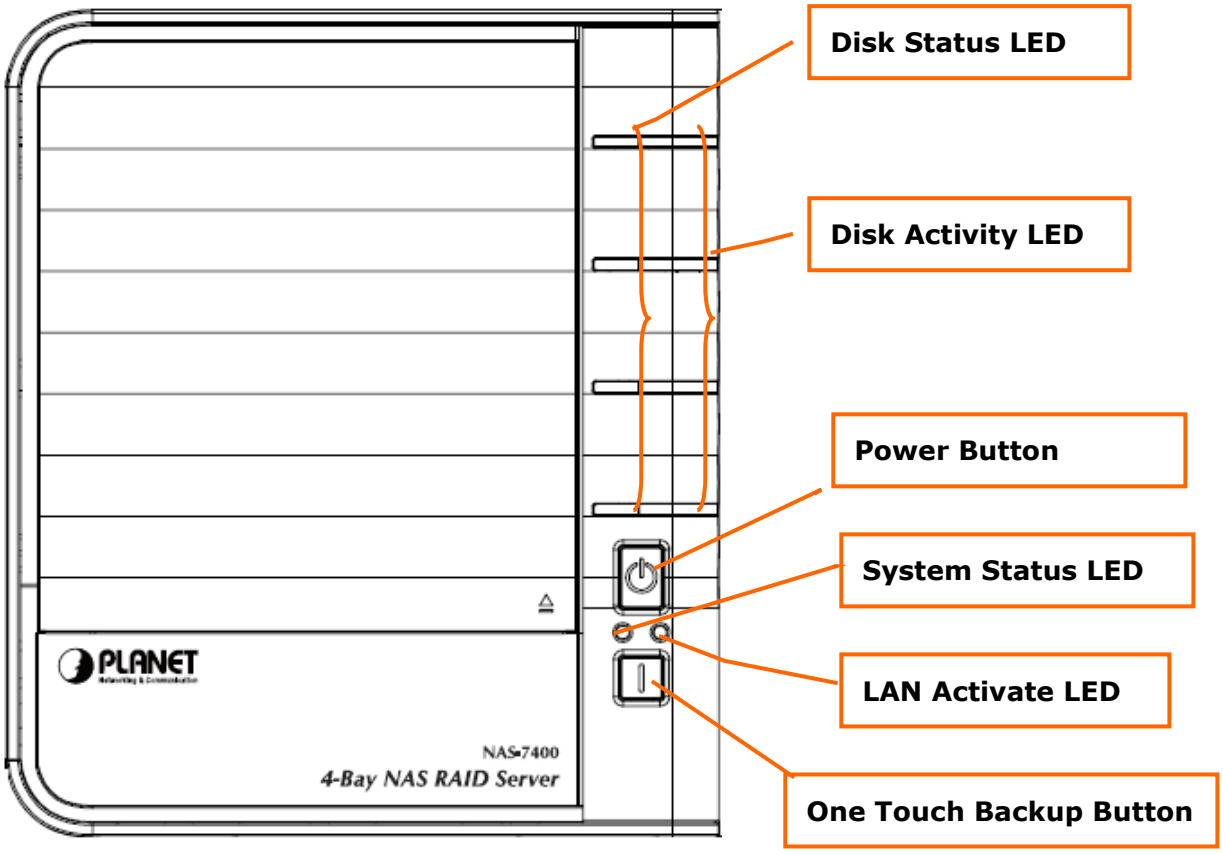
- Drive roaming among channels
- S.M.A.R.T. status polled every 15 minutes
- Online capacity expansion
- RAID Level Migration
- Hot spare drives
- RAID Volume rebuilding
- Gigabyte rounding
- Background rebuilding

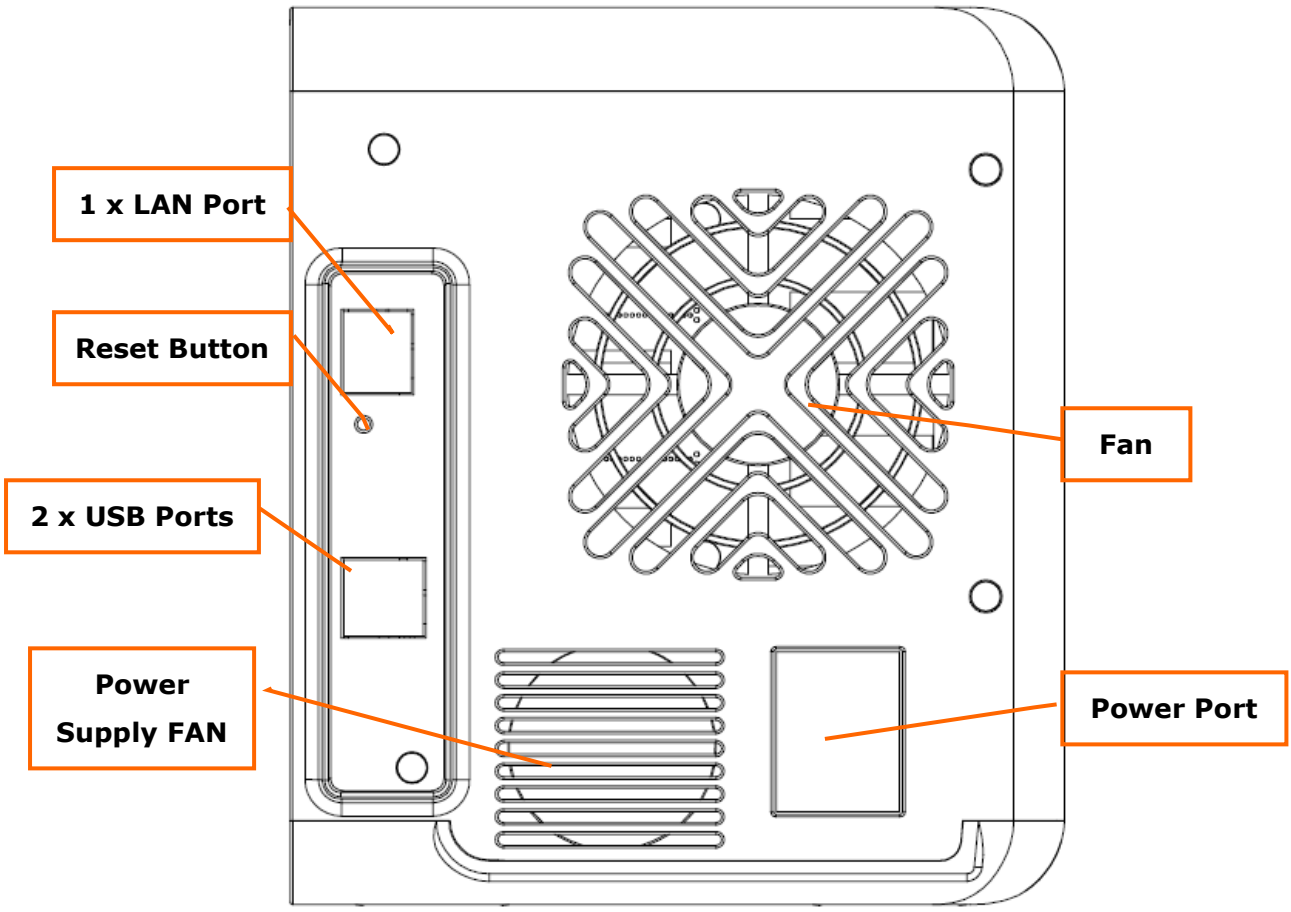
- RAID level support: RAID 0, 1, 5, and 10
- Large file system support up to 6 TB
- Unicode files name support
- Networking: 10/100/1000 Mb/s Ethernet Port on motherboard
- USB ports: USB 2.0, up to 480 Mb/s, two Types-A connectors
- File protocols: SMB, CIFS, FTP, AFP, and NFS
- Flash Memory: 16 MB, 16-bit
- Memory: 128 MB DDR SDRAM
- Power Supply: 200-watt ATX with PFC
- Network Time Protocol (NTP) client
- Error logging
- Phone home capability (email notification) to contact IT staff

1.5 Physical Detail

NAS-7400 Front View



NAS-7400 Rear View



Button Description

Button	Description
Power Button	Push to turn on/ turn off the NAS-7400
One Touch Backup Button	One Touch Backup is a feature that enables you to backup specified folders from your PC to the NAS-7400 by pressing a button on the front of the NAS-7400.
Reset Button	If forgot the new password, you can use the reset button to the default password: admin. Please press and hold the reset button more than 5 seconds, until the System Status LED flashes three times.

Physical Interfaces

Interface	Description
USB Socket	Connects to USB printers and USB Storage Devices
LAN Port	Connects to the Ethernet cable with RJ-45 connector
Power Connection	Connects to the power core

LED Indicators

LED	Color	Function
Power	Blue	Unit action indication lamp.
System Status	Green	Normal Enclosure function
	Amber	There is a problem with the fan or power supply
	Red	The fan, power supply, or file system has failed.
Disk Status LED	Green	Normal disk drive function
	Amber	Rebuilding to this disk drive
	Red	Failed disk drive
	Dark	No disk drive is installed

Chapter 2: Installation

2.1 System OS Support

Microsoft Windows:

- Vista, Server 2003, XP, 2000
- Supports Intel IA32, AMD64 and Intel EM64T platforms

UNIX/Linux:

- Red Hat Enterprise Linux 3.0 (AS/WS/ES)
- Red Hat Enterprise Linux 4.0 (AS/WS/ES)
- SuSe Linux Enterprise 10 (Server/Desktop)

Apple Macintosh:

- Mac OS X

2.2 System Browser Support

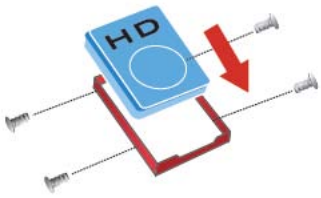
Use the latest version of the following browsers to manage the NAS-7400:

- Internet Explorer
- Netscape Navigator
- Mozilla
- Firefox
- Safari (Mac OS X)

2.3 Getting Start

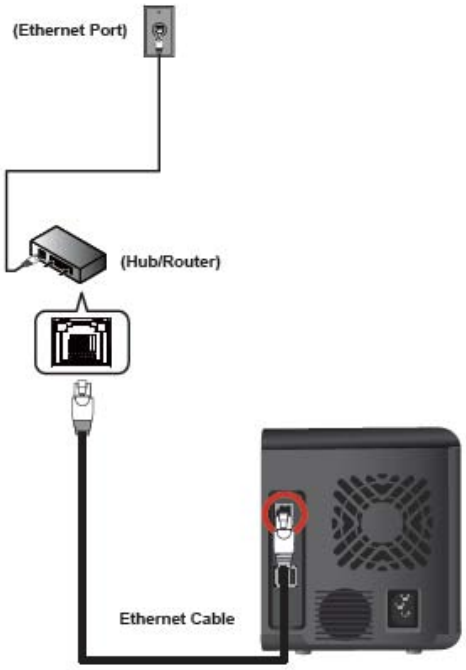
This chapter shows you how to configure these steps to connect NAS-7400.

Step1➔ Install Hard Drive into HDD Tray.



Step2➔ Installing Hard Drive into NAS-7400.

Step3➔ Connecting the Network.

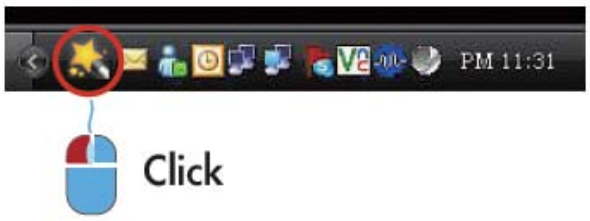


Step4➔ Connecting the Power.

Step5➔ Press the Power Button.

Step6➔ Install the Utility.

Step7➔ Use the Software (NAS- Finder) to search NAS-7400.



Step8➔ Login NAS-7400. (Default Login user name/password: **admin** / **admin**)

Step9➔ Starting to configure Network Drives.

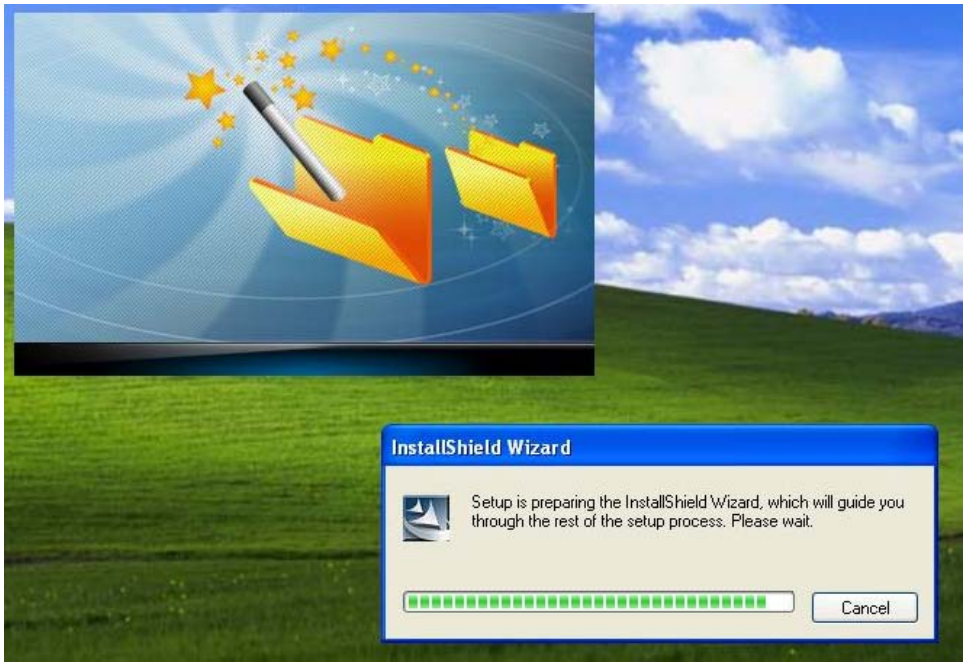
2.4 Installing the Software - NAS Finder

After connect the NAS-7400 with your computer or the Local Area Network at first time, please install the NAS Finder into your computer. The NAS finder will search NAS-7400 automatically.

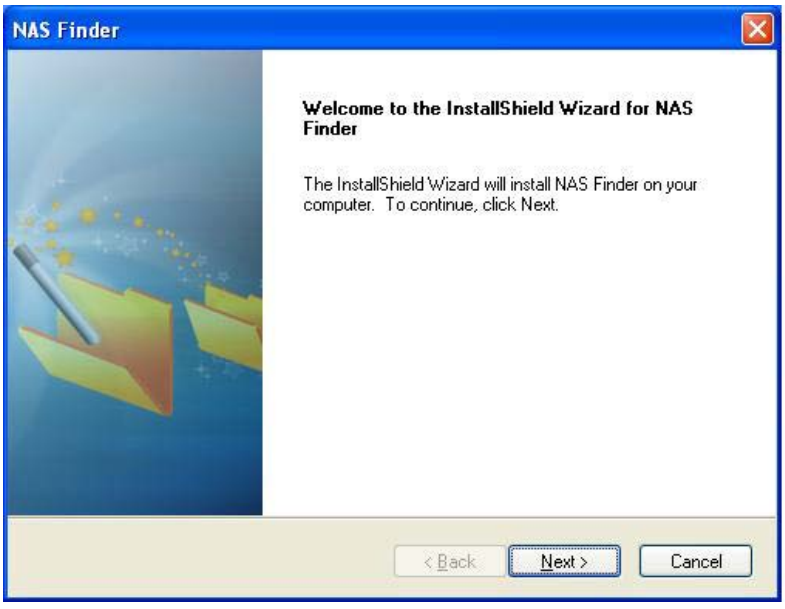
✍**Note**	By default setting, the NAS-7400 set to "**Dynamic IP**" mode, so it is necessary to setup a DHCP server on network

To install the software:

Step1 ➔ Insert the CD into your CDROM, and double-click on Utility Installer icon. The first installer screen appears.

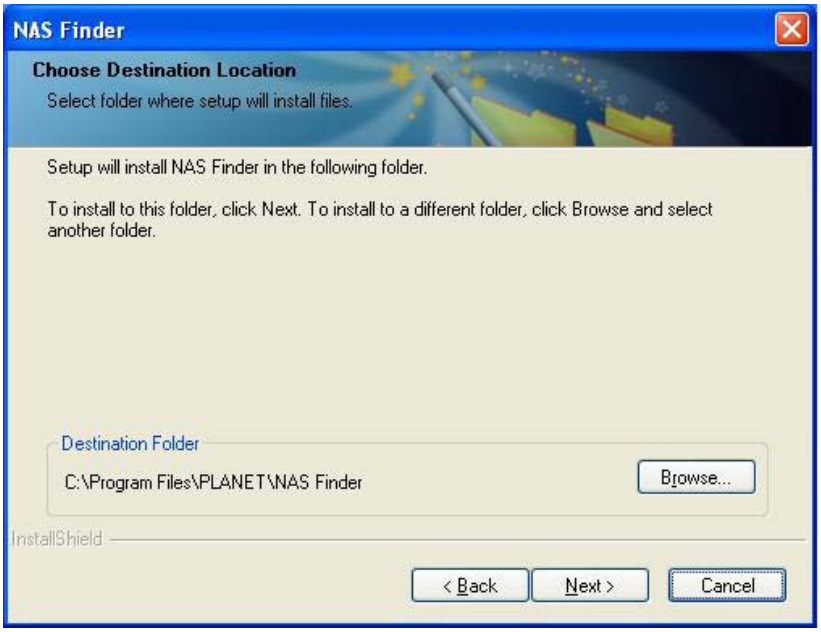


Step2 ➔ Click the "**Next**" button to begin installation.

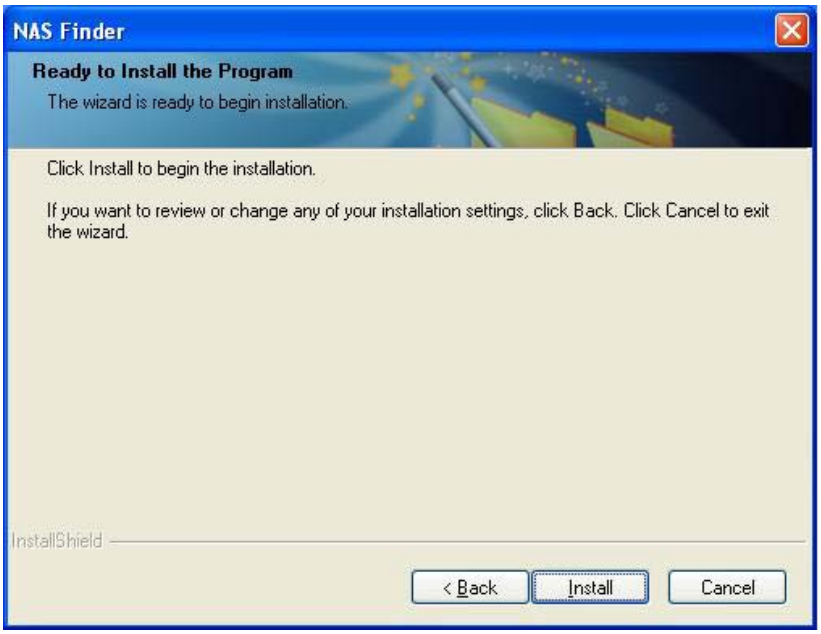


Step3 ➔ The License Agreement screen appears. Please click the "**I accept the terms of the license agreement**" option and click the "**Next**" button.

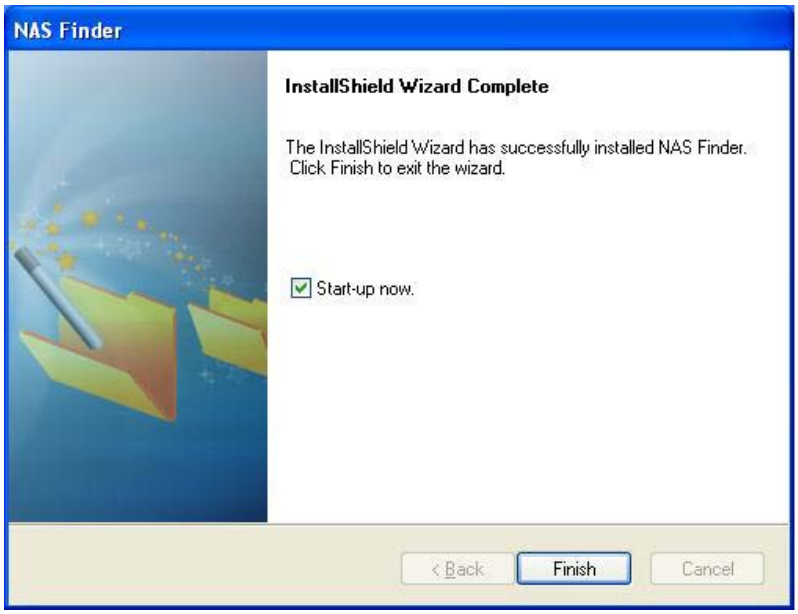
Step4 ➔ Please click on "**Next**" button to continue the next step. If install to different folder, click "**Browse**" and select another folder.



Step5 ➔ Please click on "**Install**" to begin the installation.



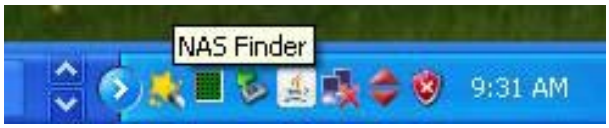
Step6 ➔ When the installation is finished, the final installation screen appears. Click to "**Finish**" button to close the installer.



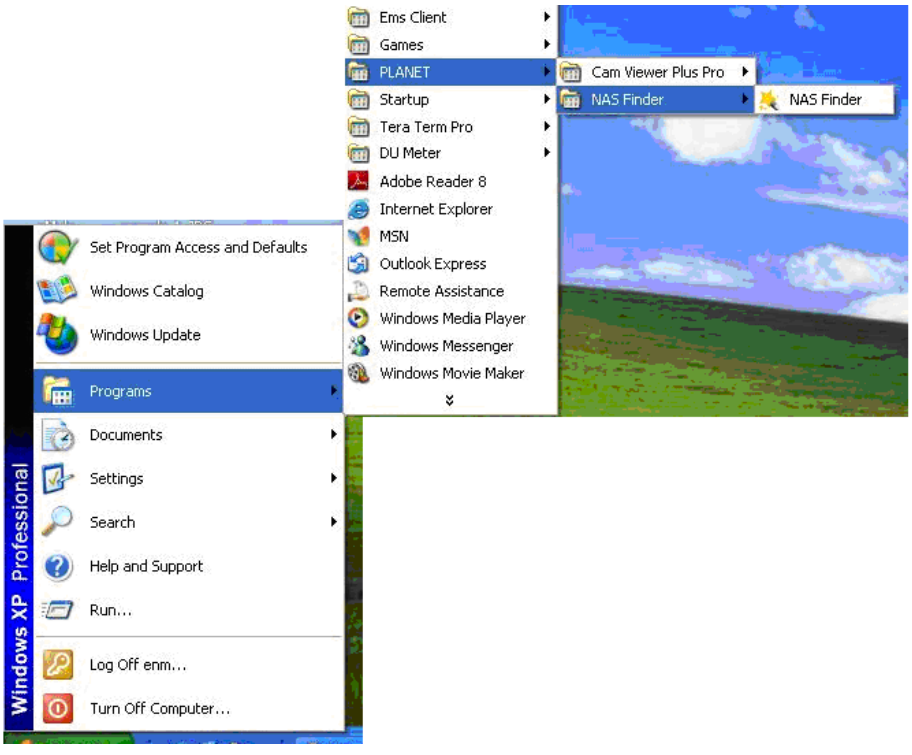
Step7 ➔ After finished installation, it will appear the boot-up window, and the NAS Finder icon will also show up on the "**Toolbar**" and "**Start Menu** -> **Program** - > **PLANET** -> **NAS Finder**".

- **Starting-up Window**

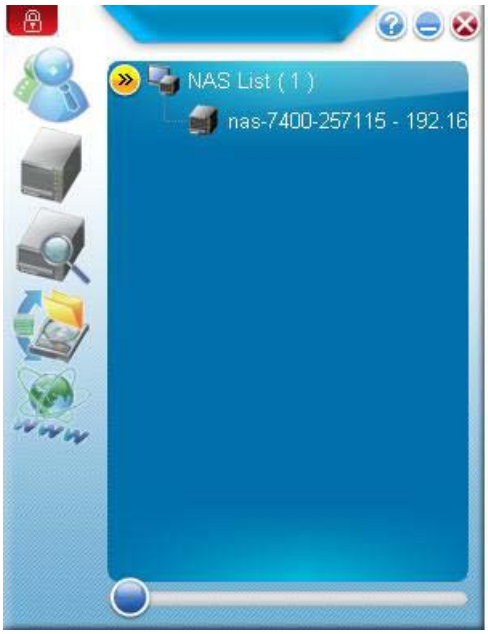
- **From Toolbar**



- **From Start Menu - > Program - > PLANET -> NAS Finder**



Step8 ➔ Double click on the "**NAS Finder**", it will appear the NAS Finder Main screen.



2.5 Configure the PLANET NAS-7400 via NAS Finder

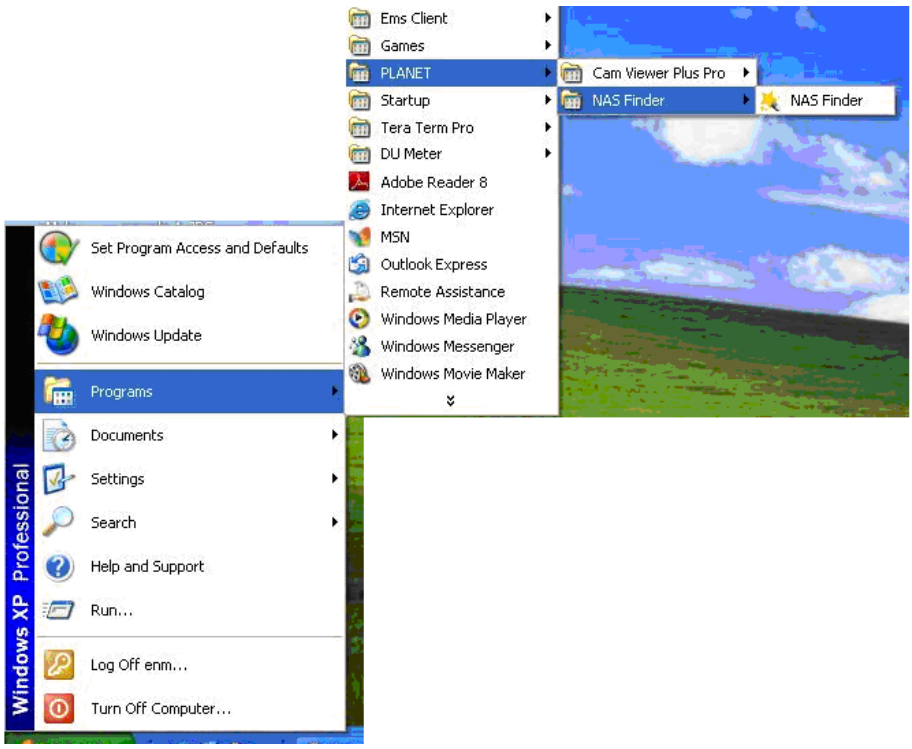
Note

The NAS Setup Wizard will overwrite all existing settings on the NAS-7400. In most cases, you should only run the NAS Setup Wizard one time—when you first set up your PLANET NAS Finder

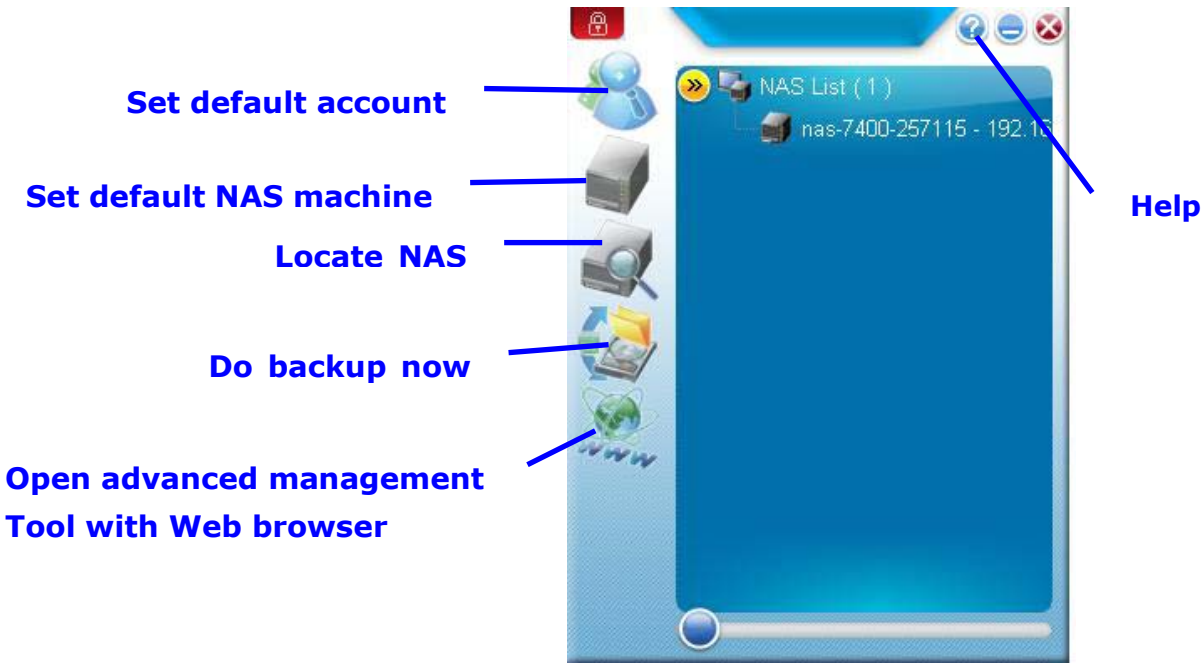
The NAS Setup Wizard performs the setup procedures on your NAS-7400.

To set up your NAS-7400:

Step1: Please from "**Start** -> **Programs** -> **PLANET** -> **NAS Finder**".



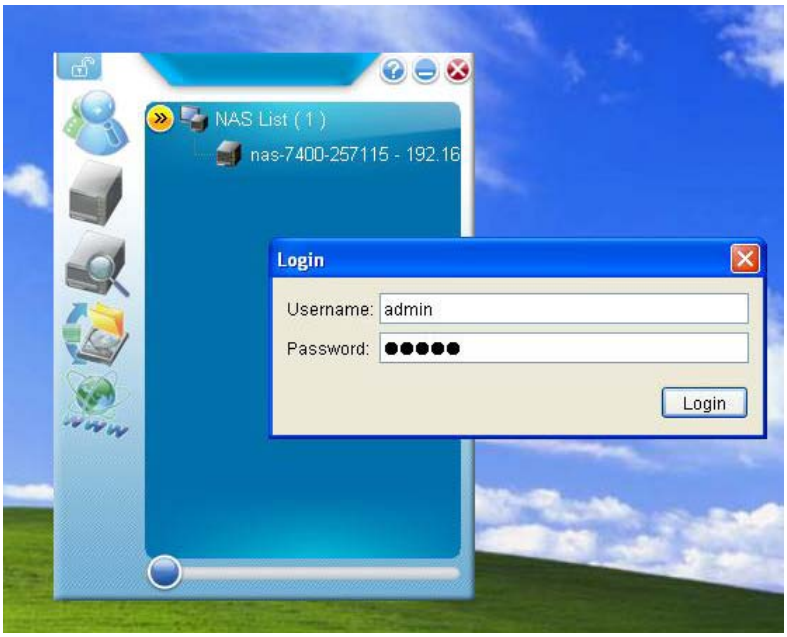
The Setup Wizard welcome screen appears.



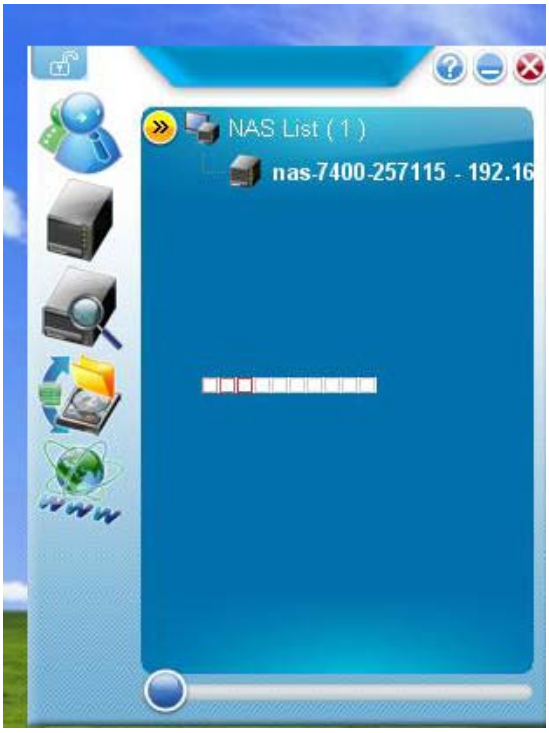
Step2: Click on the "**Set default account**" button, and type the default login user name/password: **admin** / **admin**.

Note

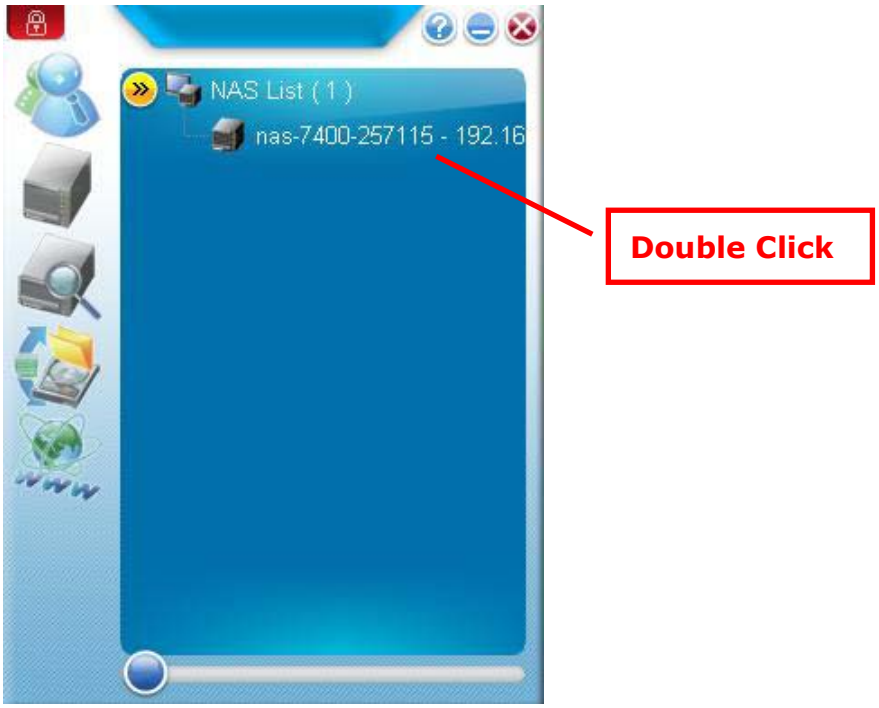
By default setting, NAS-7400 set to "**Dynamic IP**" mode, so it is necessary to setup a DHCP server on network environment.



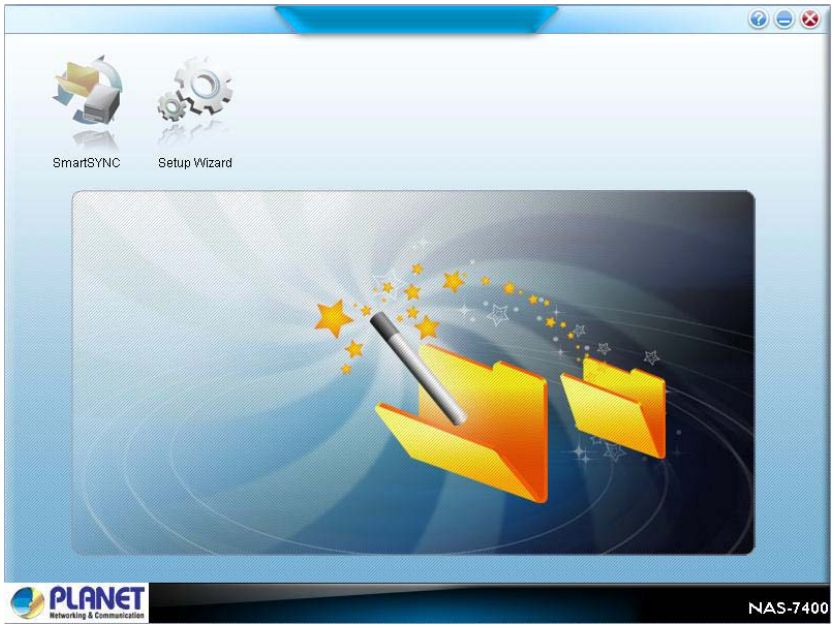
Step3: The NAS Finder will start to search the NAS device.



Step4: After search success, double click"**nas-7400-25115-192.168.0.101**", it will automatically enter to the NAS Finder Main Screen as following.

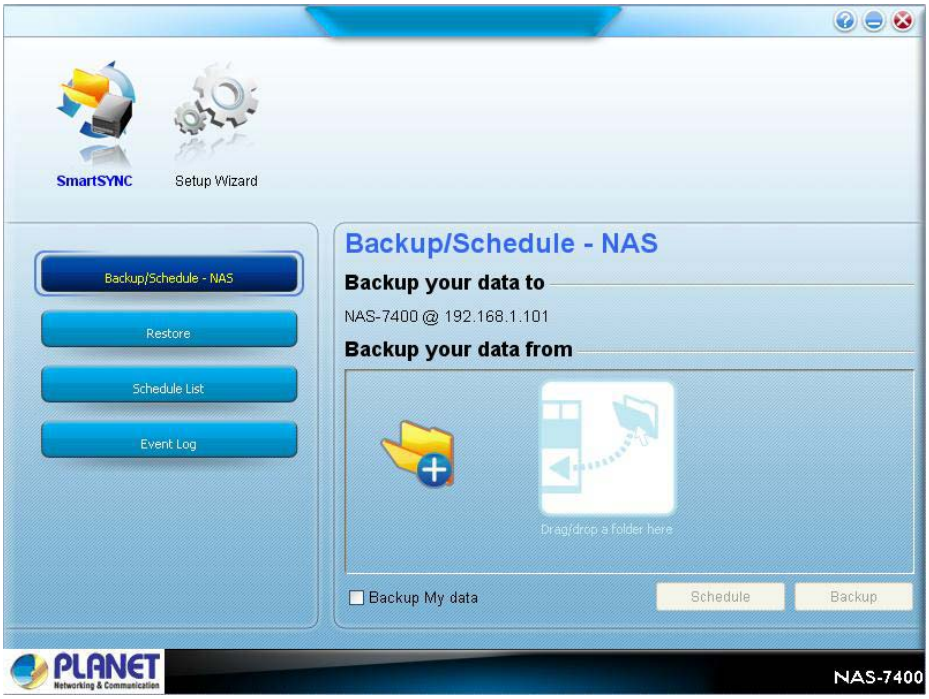


The NAS Finder Main screen appears.



There are two options on the NAS Finder,

SmartSYNC - include "**Backup/Schedule –NAS**, **Restore**, **Schedule List**, and **Event Log**"



Setup Wizard – include "**One Click Setup**, and **Advanced Setup**" items.

2.6 Connecting to PASM

The PLANET Advanced Storage Manager (**PASM**) software is installed on the NAS-7400. The PASM runs in the web browser, so you can access PASM via web browser.

Browser Support

Choose one of the following browsers to use with PASM:

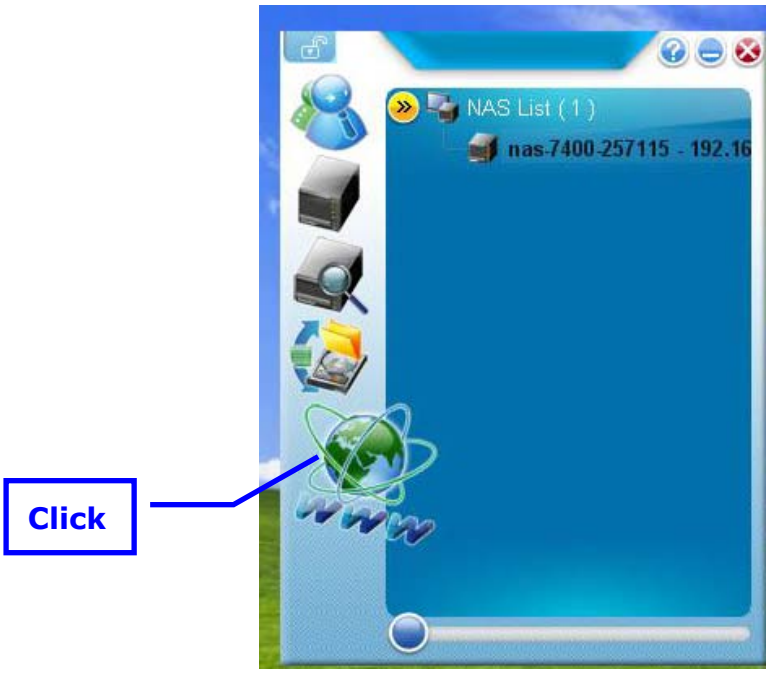
- Internet Explorer
- Mozilla
- Firefox
- Netscape Navigator
- Safari (Mac OS X)

Finding the NAS-7400's IP Address

To access the NAS-7400 in your browser, you must know the NAS-7400's IP address. Use NAS Finder for this purpose.

Step1 ➔ From "**Start** -> **Programs** -> **PLANET** -> **NAS Finder**".

Step2 ➔ To open the **NAS Finder** window, click on the "  "icon.



Step1 ➔ The PASM screen will appear automatically.

2.7 PASM in your Browser

To log into PASM in your browser:

Step1: Start your Browser.

Step2: In the Browser address field, type in the IP address of the NAS-7400.

For example:

If the NAS-7400's IP address is 192.168.1.101, the Browser address field need to enter: *http://192.168.1.101*

The PASM login screen displays.

Step3: Enter the login user name and password in the respective fields, and then click the "**Login**" button.

✍**Note**	The default user name and password are both "**admin**". The user name and password are case sensitive. For more information about PASM, see "**Chapter 6: PASM**".

Chapter 3: Connecting to NAS-7400

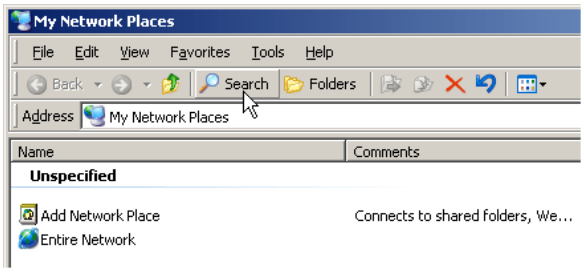
To copy files to and from a folder on the NAS-7400, you must make the folder a network drive on your PC.
To use the NAS-7400 as a print server, you must connect the USB printer, enable NAS-74000's print server, and set up printing on your PC.

3.1 Configure Network Drive on a Windows PC

If your PC does not have SmartSYNC, use the following procedure to setup a Network Drive with My Network Places.
To setup a network drive:

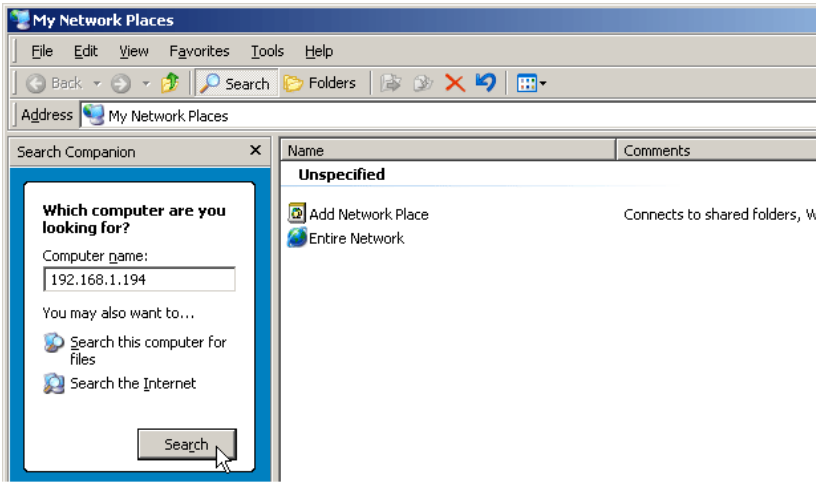
i. On the Windows desktop, double-click on the **My Network Places** icon.

ii. Click the **Search** button in the toolbar.

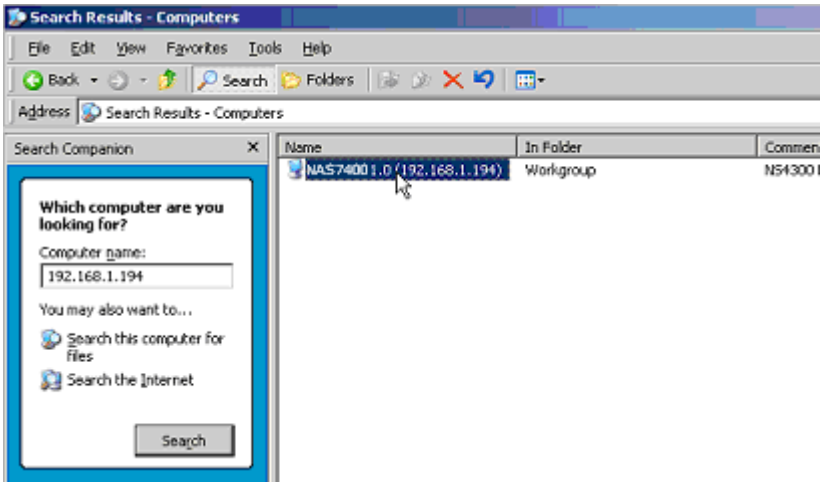


iii. If the Search button is not shown, from the View menu, choose Toolbars, then **Standard** Buttons.

iv. In the Computer name field, type the IP address of the NAS-7400 and click the Search button.

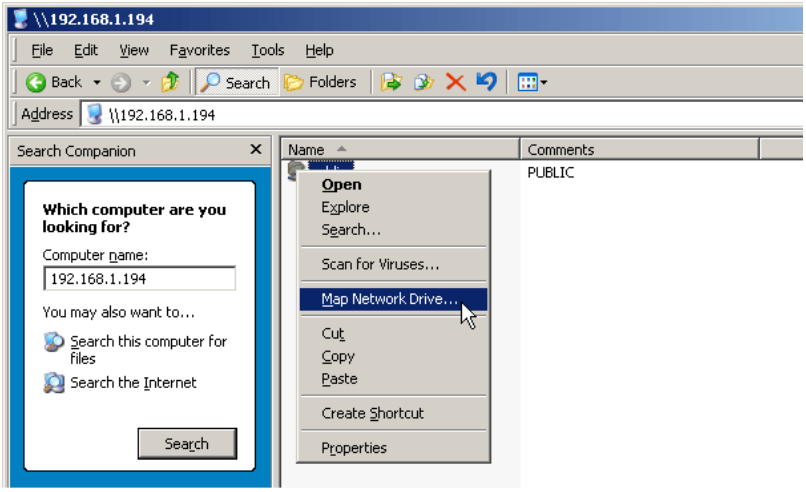


The NAS-7400 appears in the search results list.

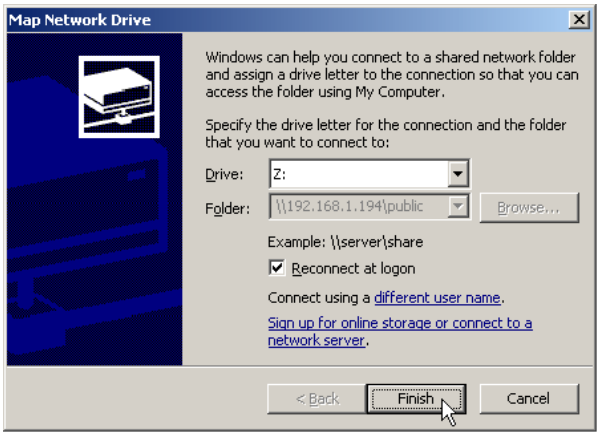


v. Double-click on the NAS-7400 to show the Public folder and any other folders you have created.

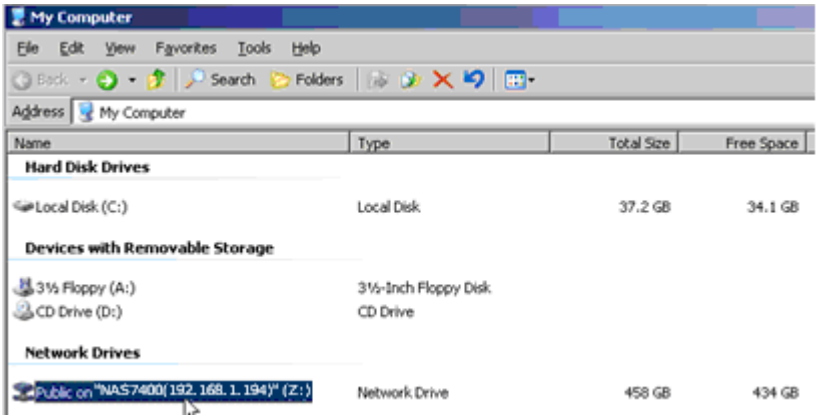
vi. Right-click on the folder you want and choose Map Network Drive from the dropdown menu.



vii. The **Map Network Drive dialog** box appears. In the **Map Network Drive dialog** box, choose a drive letter and click the **Finish** button.



viii. Double-click on the **My Computer** icon on your Windows desktop. The folder on the NAS-7400 appears under My Computer as a network drive. You can now copy files to and from the folder on the NAS-7400.



3.2 Setting up a Network Driver on a UNIX or Linux PC

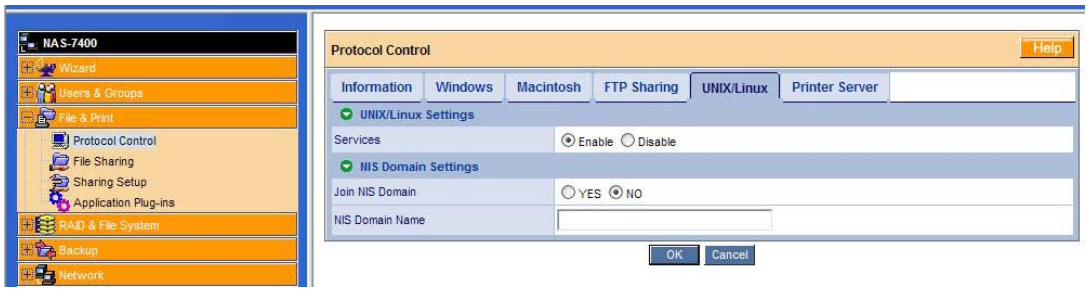
Before you can access the NAS-7400 from a UNIX or Linux PC, you must configure the NAS-7400 to communicate with UNIX and Linux.

On the Windows PC

i. Start PASM.

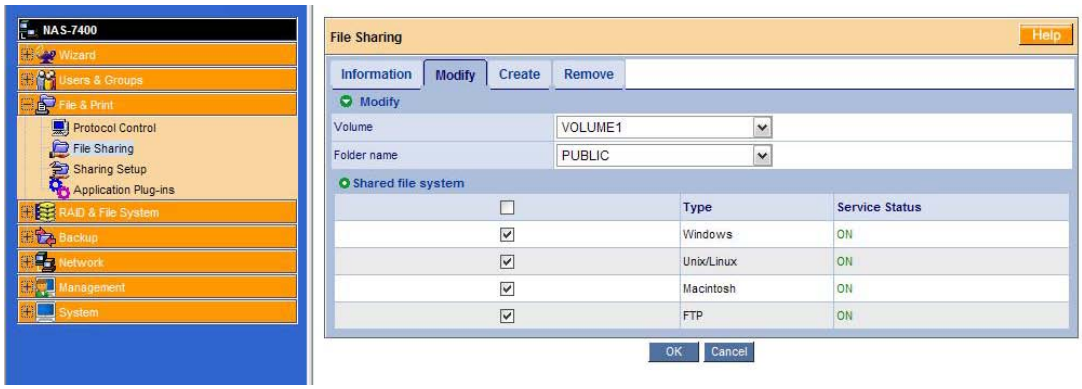
ii. In the Tree, click on the **+** button beside the **File & Print** icon to expand the Tree.

iii. Click on the **Protocol Control** icon and click on the **UNIX/Linux** tab.



iv. Click the **Enable** option, then click the **OK** button.

v. The UNIX/Linux protocol enables UNIX and Linux PCs to connect to NAS-7400. Click on the **File Sharing** icon in the tree.

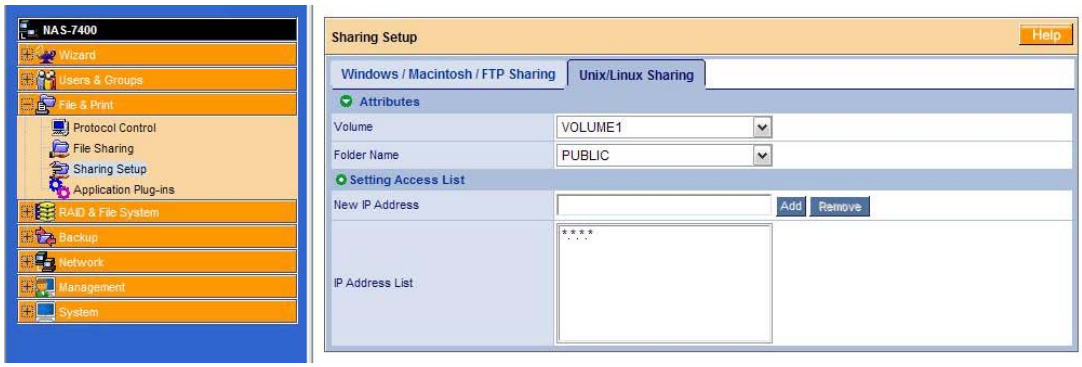


vi. Click on the **Modify** tab.

vii. Check the **UNIX/Linux** box and click **OK** button.

viii. The UNIX/Linux file sharing enables UNIX and Linux PCs to access folders on the NAS-7400. In this case, access is given for the PUBLIC folder.

ix. Click the **UNIX/Linux Sharing** tab. In the New IP Address field, type the IP address of the UNIX/Linux PC from which you want to access the NAS-7400.



x. Click the **Add** button

On the UNIX/Linux PC with Command Line Interface

i. Open a terminal window.

ii. Create a new folder for the NAS-7400. Type **mkdir NSA7400**”and press **Enter**.

iii. Mount the NAS-7400. Type **mount 192.168.1.194:/Volume1/Public /NAS-7400** and press **Enter**.

iv. Note that the IP address shown above is only an example. The IP address you type in your terminal window will be different.

v. Volume1 and Public refer to the default Volume and folder created during setup. Change to the NAS-7400 directory. Type **cd /NAS-7400**and press **Enter**.

vi. You can now copy files to and from the folder on the NAS-7400.

vii. When you are done with the NAS-7400, **type cd; umount /NAS-7400**and press **Enter**.

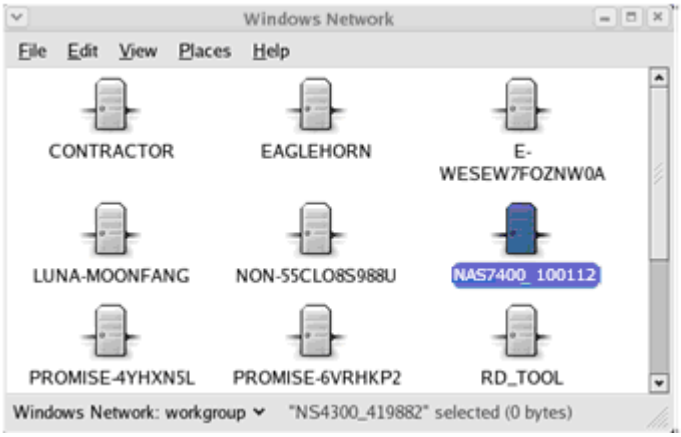
On the Linux PC with Graphic Desktop

This procedure is for a RedHat Enterprise Linux 4 configuration. If you run a different version of Linux, you might have to adapt the procedure. See your OS documentation.

i. From the Applications menu, choose Network Servers.

ii. In the Network window, double-click on Windows Network.

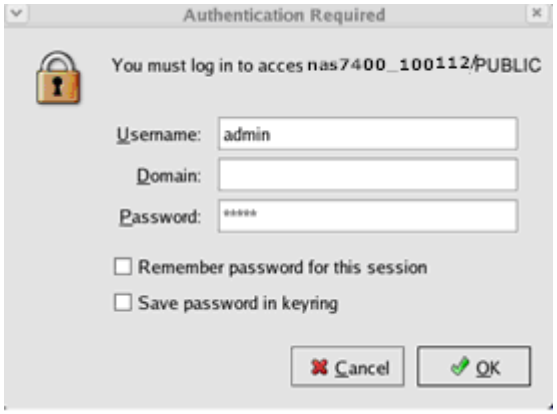
iii. Double-click on the NAS-7400 on the network.



iv. Double-click on the folder you want. If this is the first time you accessed this folder, an Authentication dialog box opens.

v. Type the user name and password in the respective fields, then click the OK button.

The default user name/ password are both **admin**.
The user name and password are case sensitive. Leave the Domain field blank. The folder opens. You can now copy files to and from the folder on the NAS-7400.



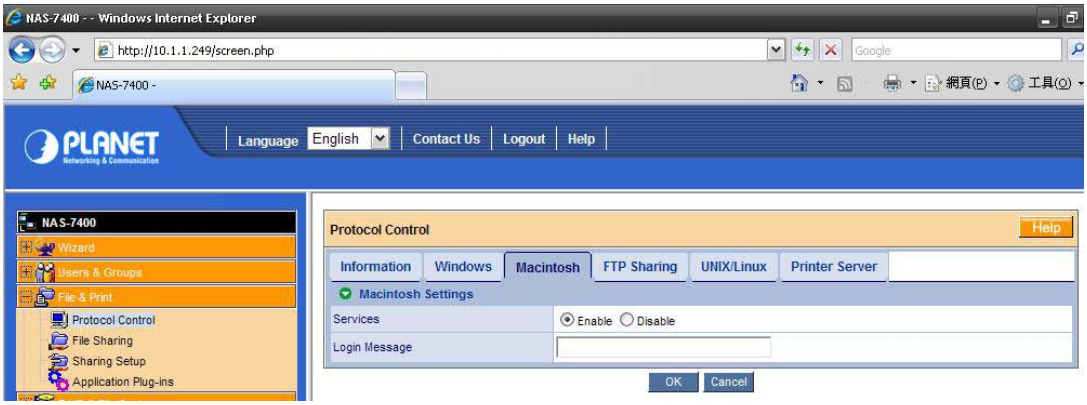
3.3 Configure Network Drive on a Macintosh

PC

Before you can access the NAS-7400 from a Macintosh (Mac OS X) PC, you must configure the NAS-7400 to communicate with the Mac OS.

On the Windows PC

i. Start PASM.
ii. In the Tree, click on the **+** button beside the **File & Print** icon to expand the Tree.
iii. Click on the **Protocol Control** icon and click on the **Macintosh** tab.
iv. Click the **Enable** option, and then click the **OK** button.
v. The Macintosh protocol enables Macintosh PCs to connect to NAS-7400.



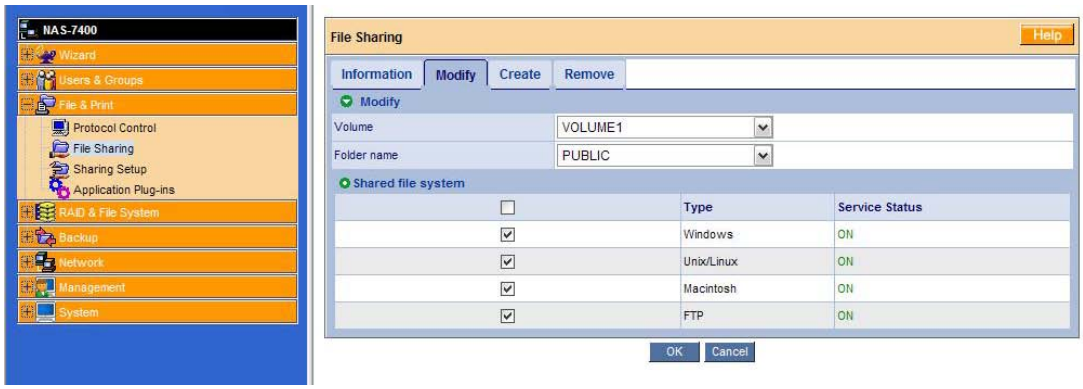
vi. Click on the **File Sharing** icon in the Tree.

vii. Click on the **Modify** tab.

viii. Check the **Macintosh** box and click the **OK** button.

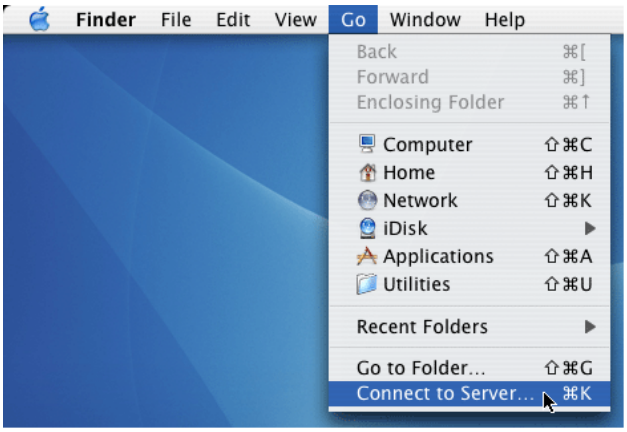
ix. The Macintosh file sharing enables Macintosh PCs to access folders on the NAS-7400.

x. In this case, access is given for the PUBLIC folder.



On the Macintosh PC

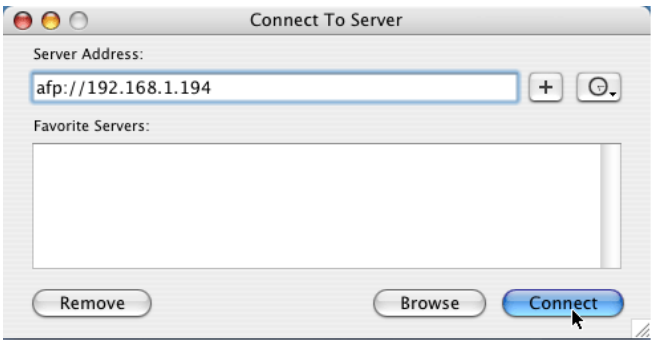
i. From the Go menu, choose Connect to Server.



ii. In the Connect to Server dialog box, type **afp://192.168.1.194**and click the Connect button.

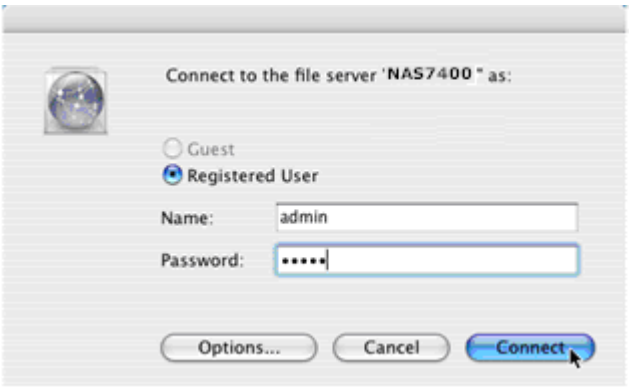
iii. Note that the IP address shown below is only an example. The IP address you type in the dialog box on your Macintosh will be different.

iv. Click the "**+**" button to add this IP address to the Favorite Servers list.



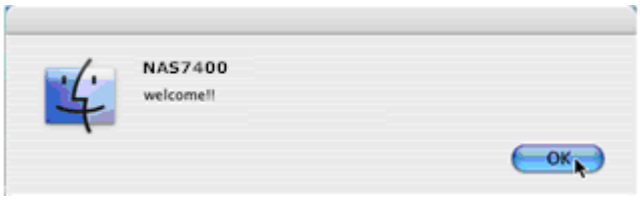
v. Type the user name and password in the respective fields, then click the **OK** button.

vi. The default user name and password are both **admin**. The user name and password are case sensitive.



vii. In the NAS-7400 dialog box, click on the folder you want and click the **OK** button.

viii. In the NAS-7400 Welcome screen, click the **OK** button.



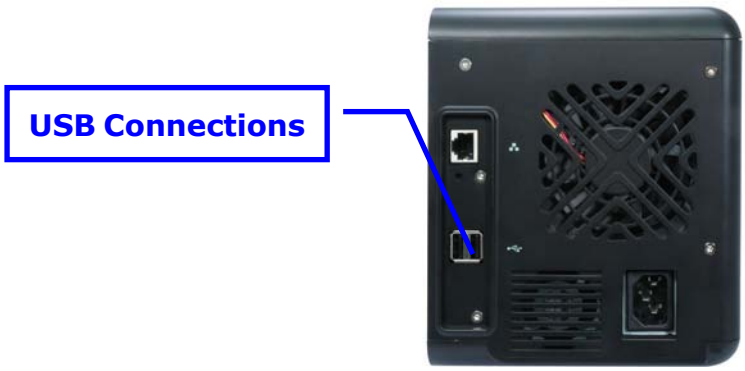
ix. A window opens on the Macintosh desktop to access the folder on the NAS-7400. You can now copy files to and from the folder on the NAS-7400.

3.4 Connecting a USB Printer to NAS-7400

To connect a USB printer to the NAS-7400:

i. Set up your printer according to the printer's Setup Guide or User Manual. Install the printer drivers onto your PC as described in the printer's Setup Guide or User Manual.

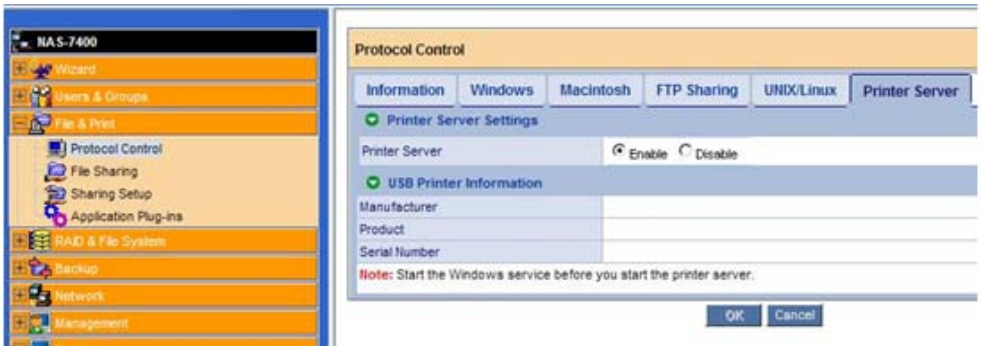
ii. Attach the USB cable from your printer to one of the USB connections on the back of the NAS-7400.



3.5 Setting up the Print Server on NAS-7400

To set up the NAS-7400's print server:

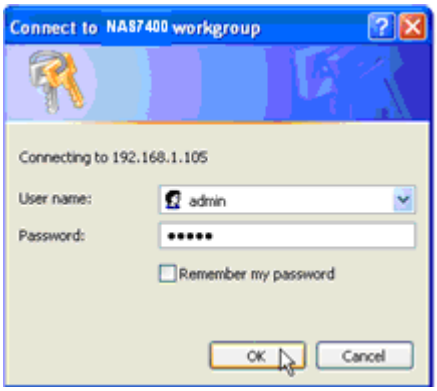
i. Start PASM.
ii. In the Tree, on the left side of the PASM screen, click on the "**+**" button beside the **File & Print** icon to expand the Tree.
iii. Click on the **Protocol Control** icon and click on the **Windows** tab.
iv. Click the **Enable** option button beside Services.
v. Click the **OK** button to save your settings.
vi. Click on the **Printer Server** tab.
vii. Click the **Enable** option button beside Printer Server.
viii. Click the **OK** button to save your settings.



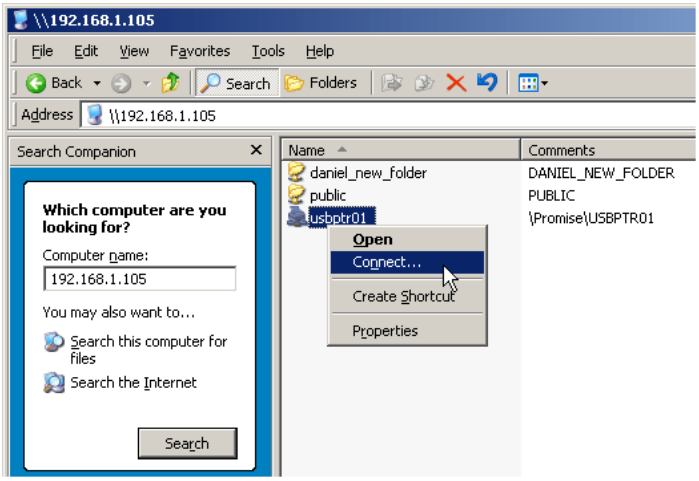
3.6 Setting up Windows Printing

To set up printing on a Windows PC:

i. On the Windows desktop, double-click on the **My Network Places** icon.
ii. Click the **Search** button in the toolbar.
iii. If the Search button is not shown, from the View menu, choose Toolbars, then Standard Buttons.
iv. In the Computer name field, type the IP address of the NAS-7400 and click the **Search** button in the side bar.
v. In the computer list, double-click on the NAS-7400 to open it.
vi. If the Connect to dialog box appears, type the user name and password in the respective fields, then click the "**OK**" button.
vii. The default user name and password are both "**admin**".
viii. The user name and password are case sensitive.



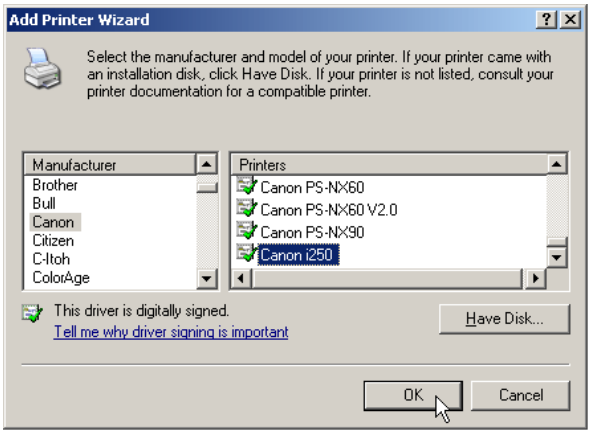
ix. Right-click on the usbptr1 icon folder and choose Connect... from the dropdown menu.



x. When the warning message about printer drivers appears, click the **OK** button to continue.

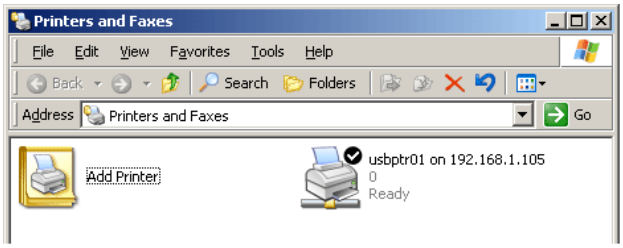
xi. In the Add Printer Wizard, click on the Manufacturer and model name of your USB printer, then click the **OK** button.

xii. In the Add Printer Wizard, click the **OK** button.



xiii. To verify printer installation, in the Windows Start menu, choose Settings, then Printers and Faxes.

xiv. The Printers and Faxes screen appears. The usbptr1 is the USB printer on the NAS-7400.



3.7 Setting up Linux Printing

This procedure is for a RedHat Enterprise Linux 4 configuration. If you run a different version of Linux, you might have to adapt the procedure. See your OS documentation.

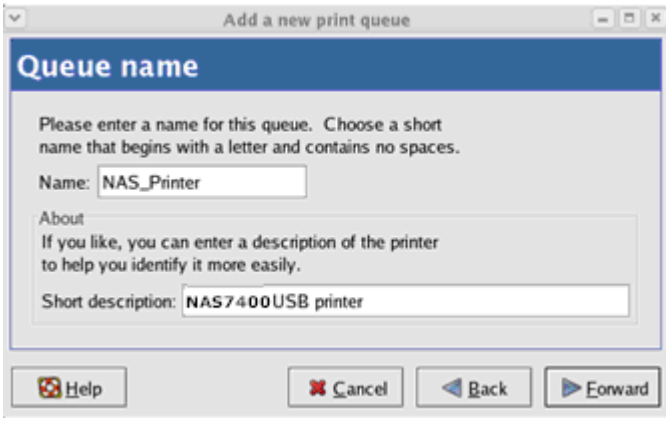
i. From the Applications menu, choose System Settings, then Printing. Printer configuration window opens.

ii. Click the **New** button.

iii. Add a new print queue dialog box opens.

iv. Click the **Forward**" button.

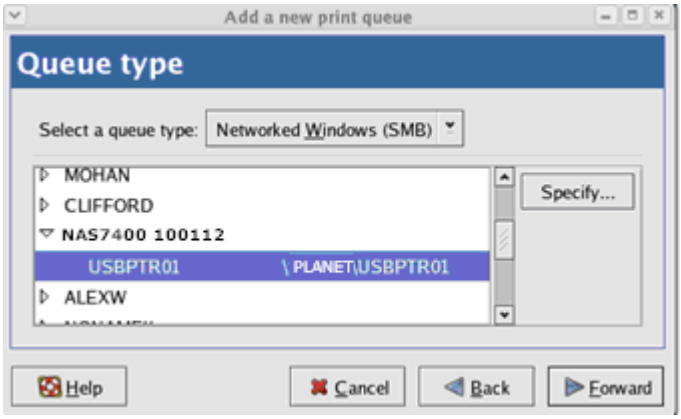
v. In the Name field, type a name for the printer, such as NAS_printer, a description, and click the **Forward** button.



vi. From the Select a queue type dropdown menu, choose Network Windows (SMB).

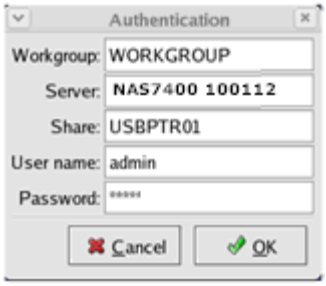
vii. Scroll the list and click on the triangle icon beside NAS-7400.

viii. USBPTR01 appears below NAS-7400. USBPTR01 represents the USB printer connected to the NAS-7400.



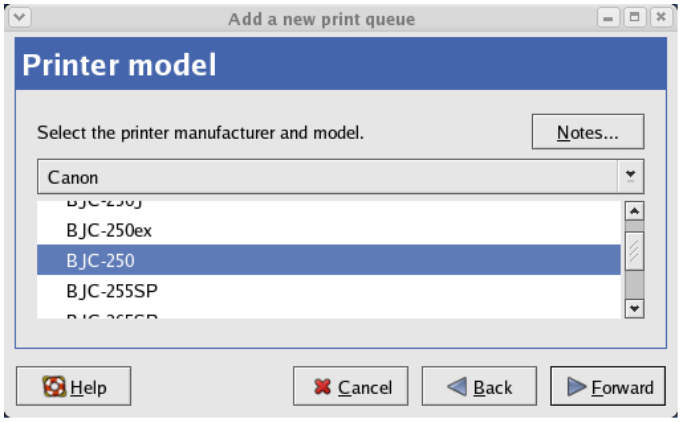
ix. Highlight USBPTR01 and click the Forward button. The Authentication dialog box opens.

x. In the User name and Password fields, type admin, then click the "**OK**" button. The user name and password are case sensitive. The Printer Model dialog box opens.

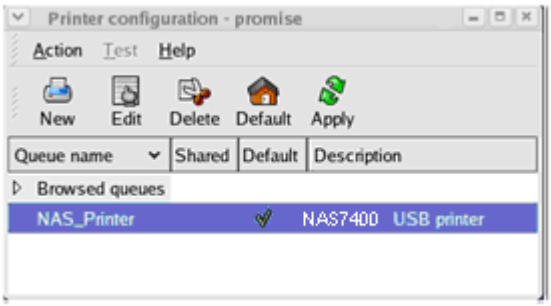


xi. From the dropdown menu, choose the manufacturer of your printer.

xii. From the model list, highlight the model of your computer. Then click the "**Forward**" button.



xiii. Click the "**Finish**" button. USBPTR01 is added to your printer list.



3.8 Setting up Macintosh Printing

From the Apple Menu, choose System Preferences.

i. Double-click on the "**Print & Fax**" icon.

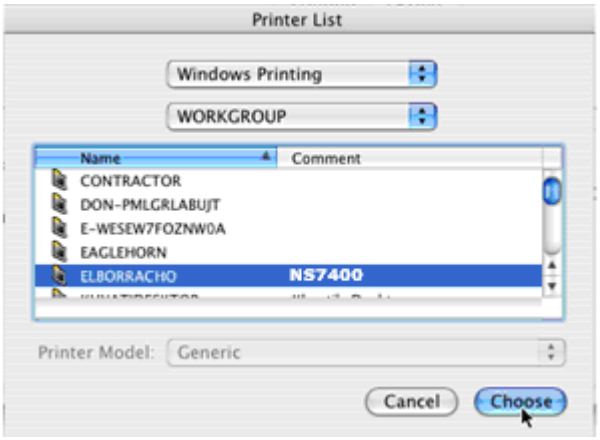
ii. Click on the "**Setup Printers**" button.

iii. In the Printer List, click on the "**Add**" icon. The Printer List displays a new panel.

iv. In the new panel, from the popup menus, choose:

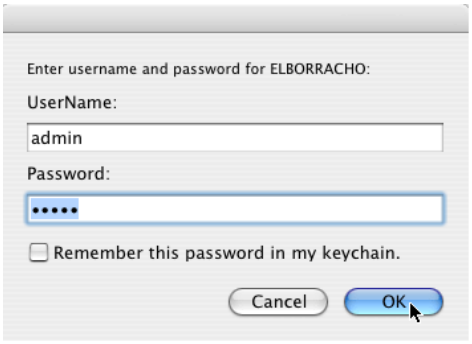
- ✓ Windows Printing
- ✓ Workgroup

v. From the list, highlight the NAS-7400 and click the Choose button.

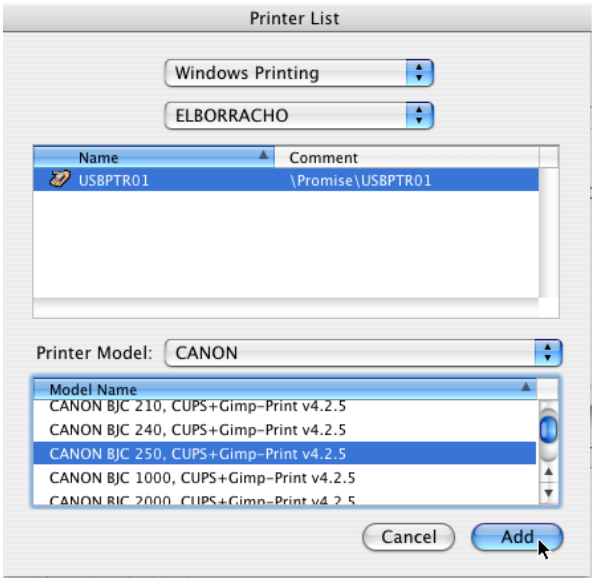


vi. A user name and password dialog box appears. Type the user name and password in the respective fields, then click the OK button.

vii. The default user name and password are both "**admin**". The user name and password are case sensitive.



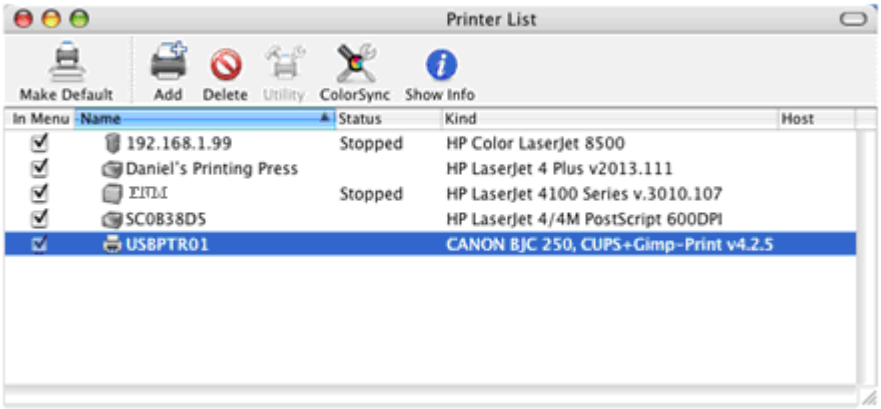
viii. The printer list displays a new panel. Highlight the USBPTR01 in the list. USBPRT01 represents the USB printer connected to the NAS-7400.



ix. In the Printer Model popup menu, choose the make of your printer.

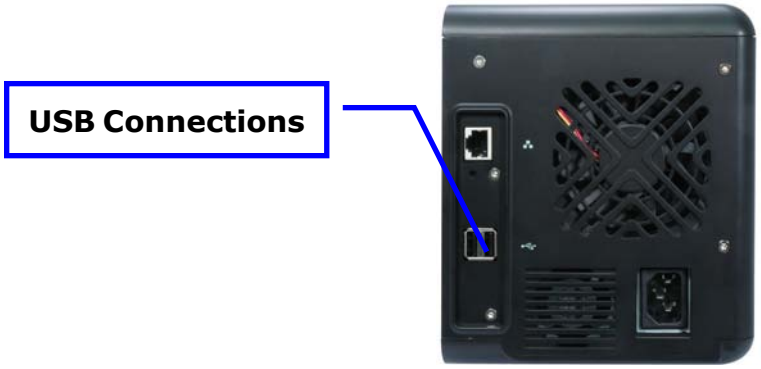
x. In the Model Name list, choose the model of your printer.

xi. Click the Add button. USBPTR01 is added to your printer list.



3.9 Connecting a USB Driver

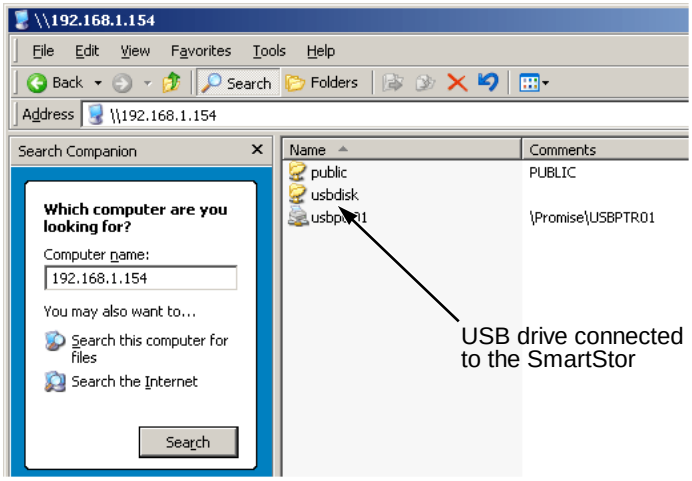
To connect a USB drive to the NAS-7400, attach the USB cable from your external drive to one of the USB connections on the back of the NAS-7400. If you have a USB memory stick, attach it directly to one of the USB connections or use a USB cable, whichever is more convenient.



The USB drive or memory stick appears as a folder called usbdisk when you create your network drive. See the instructions on the following page. NAS-7400 supports USB drives and memory sticks formatted to FAT32 or Ext3 file formats. If the NAS-7400 does recognize the USB drive or memory stick, the usbdisk folder does not appear.

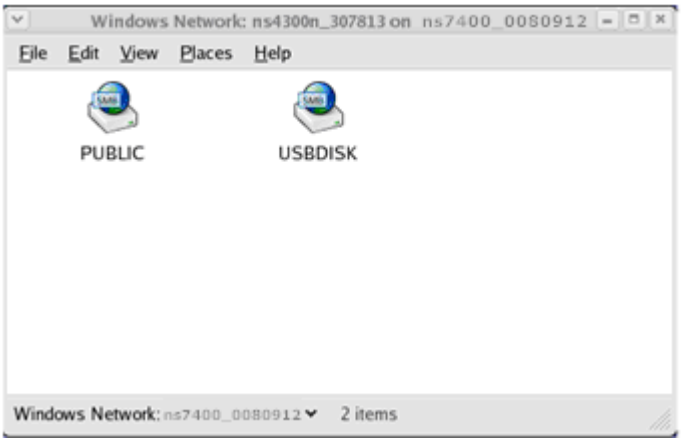
Windows PC

The USB drive appears as a folder on the NAS-7400 when you create a network drive on a Windows PC.



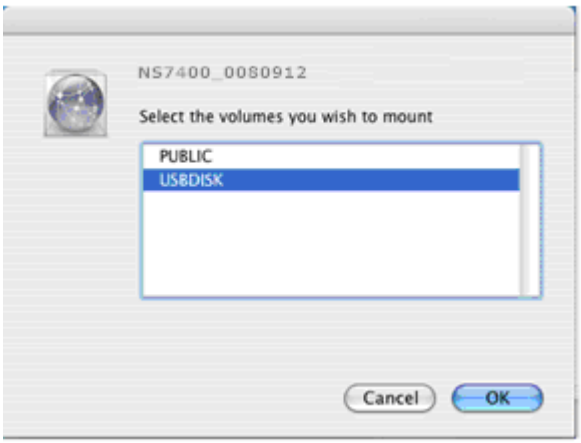
Linux PC

The USB drive appears as a folder on the NAS-7400 when you create a network drive on a Linux PC.



Macintosh PC

The USB drive appears as a folder on the NAS-7400 when you create a network drive on a Macintosh PC.



3.10 Disconnecting a USB Drive

To disconnect a USB drive or memory stick from the NAS-7400:

i. Be sure that no files on the USB drive or memory stick are still open.

ii. Unplug the USB drive or memory stick from the NAS-7400. The NAS-7400 automatically unmounts the USB drive or memory stick.

Chapter 4: One Touch Backup

One Touch Backup enables you to make a quick, automated backup of a selected folder on your PC, at the touch of a button. You can backup the files in a single folder, multiple folders, or your complete hard disk drive. This feature works on the Windows PC where you installed the NAS-7400 software.

Note The NAS-7400 utility and One Touch Backup cannot restore a failed boot drive in your PC. However, you can use the NAS-7400 utility to save your system backup file. See your Windows documentation for information about system backups.

For One Touch Backup to work, you must:

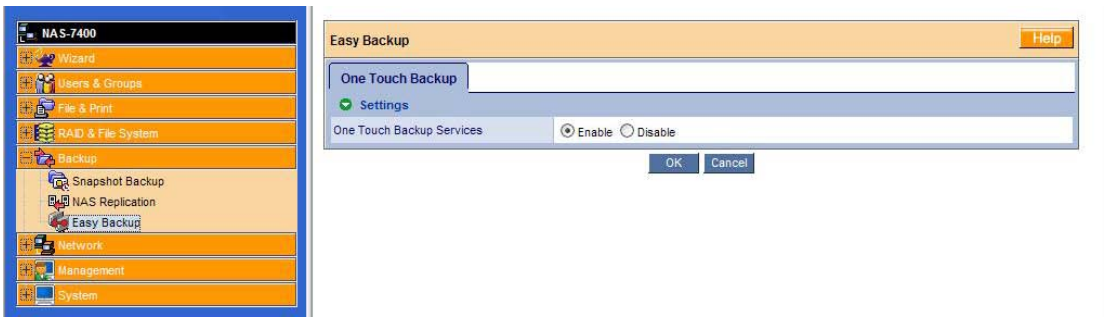
- Enable One Touch Backup on the NAS-7400
- Create a Backup Schedule in SmartSYNC

Note Windows does not allow SmartSYNC to access protected folders and files. If you want to perform a backup, you must first disable protection on your folders and files.

4.1 Enable One Touch Backup

To enable One Touch Backup on the NAS-7400:

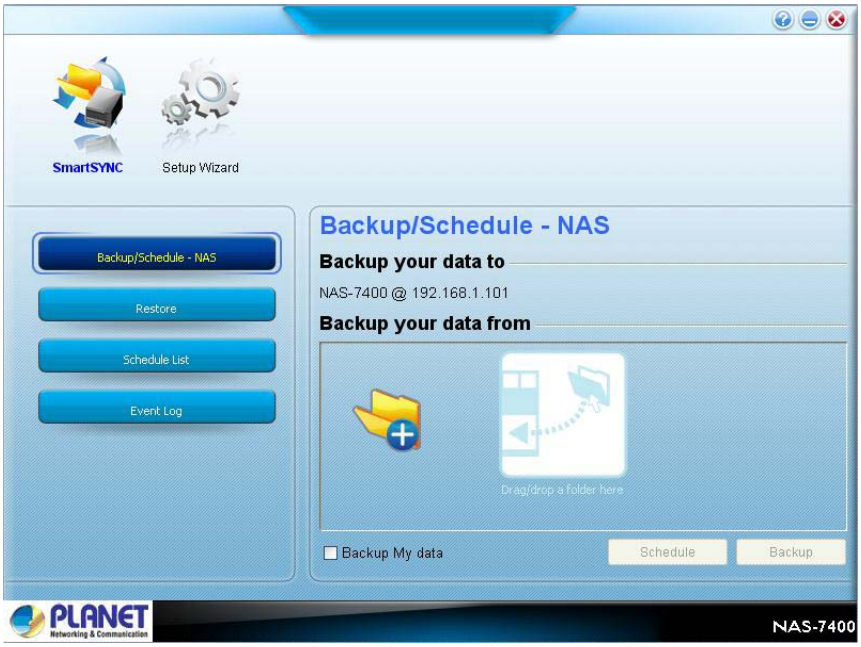
- On the Windows PC, start PASM.
- In the Tree, click on the "**+**" button beside the Backup icon and click on the "**Easy Backup**" icon.



- On the One Touch Backup tab, click the "**Enable**" button for One Touch Backup Services, then click the "**OK**" button.

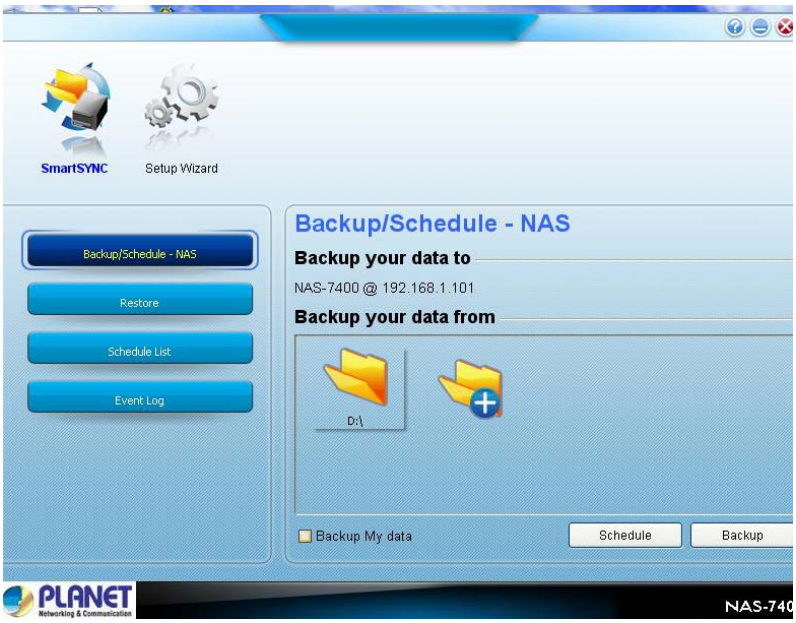
4.2 Creating a Backup Schedule

For each folder you want to backup, you must create a backup schedule. To create a Backup Schedule in SmartSYNC:



i. In SmartSYNC, click on the "**Schedule**" tab.

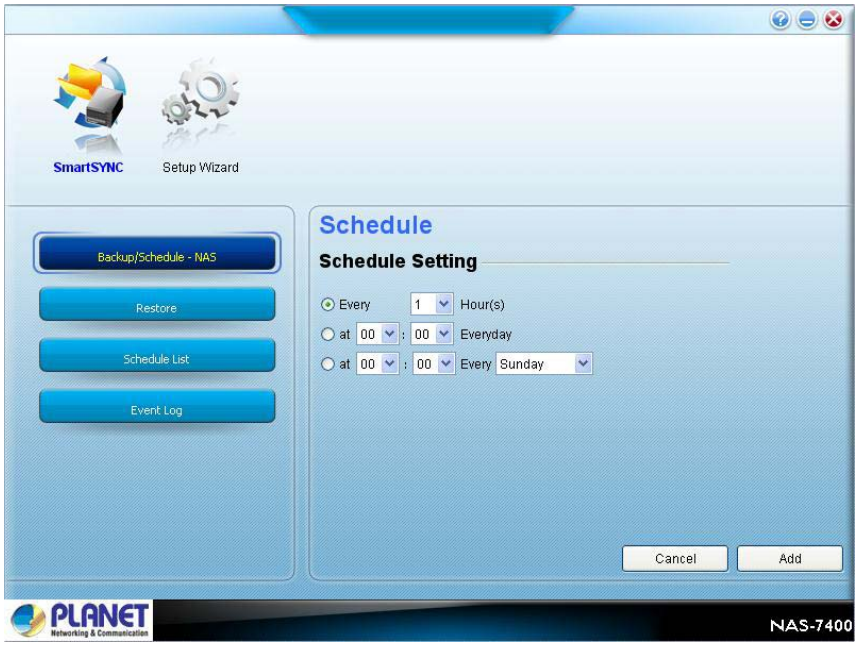
ii. Click the "  " button to allocate the file from the specific location you want to backup.



iii. Click the "**Schedule**" button to setup the schedule setting:

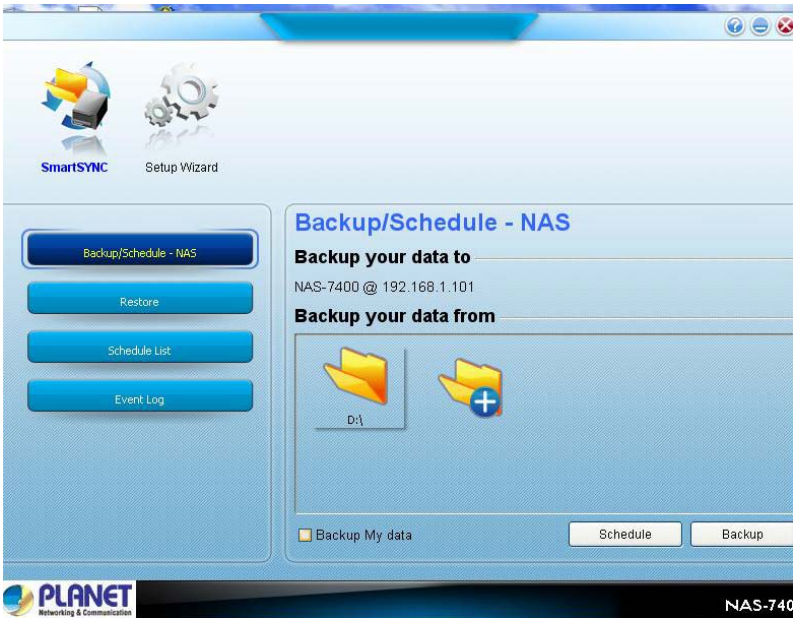
- ✓ If you chose hours, choose the number of hours from the dropdown menu.
- ✓ If you chose daily, choose the time of day in the hour (24-hour clock) and minute dropdown menu.

✓ If you chose weekly, choose the time of day and day of the week in the hour (24-hour clock), minutes, and day dropdown menus.



If finished, please click the "**Add**" button.

iv. Click the "**Backup**" to start to backup.



4.3 Performing a One Touch Backup

To perform a One Touch Backup, press the One Touch Backup button on the front of the NAS-7400.

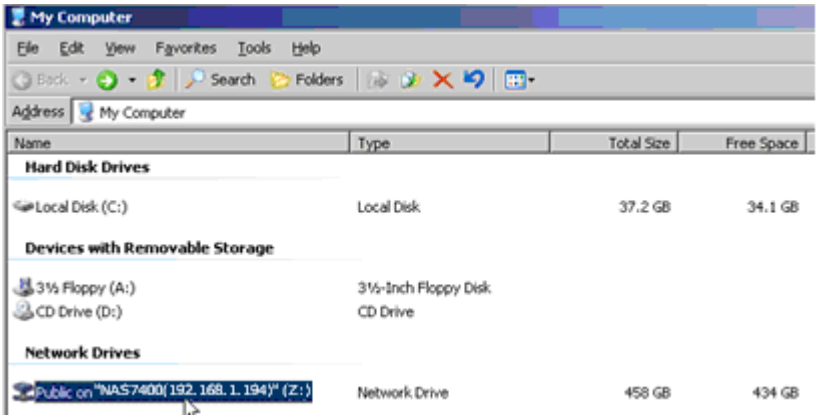
Within moments, the folders you specified are backed up onto the NAS-7400. The One Touch Backup function backs up all of the folders on your PC for which you created a backup schedule.

4.4 Viewing Your Backup Files

To view your backup files on the NAS-7400:

i. On the Windows PC desktop, double-click on the My Computer icon.

ii. Under Network Drives, double-click on the NAS-7400.



iii. On the NAS-7400, find the folder called BACKUPDATA.

iv. The BACKUPDATA folder contains the results of the One Touch Backup from your PC. The subfolders inside the BACKUPDATA folder match the file structure on your PC's hard disk drive.

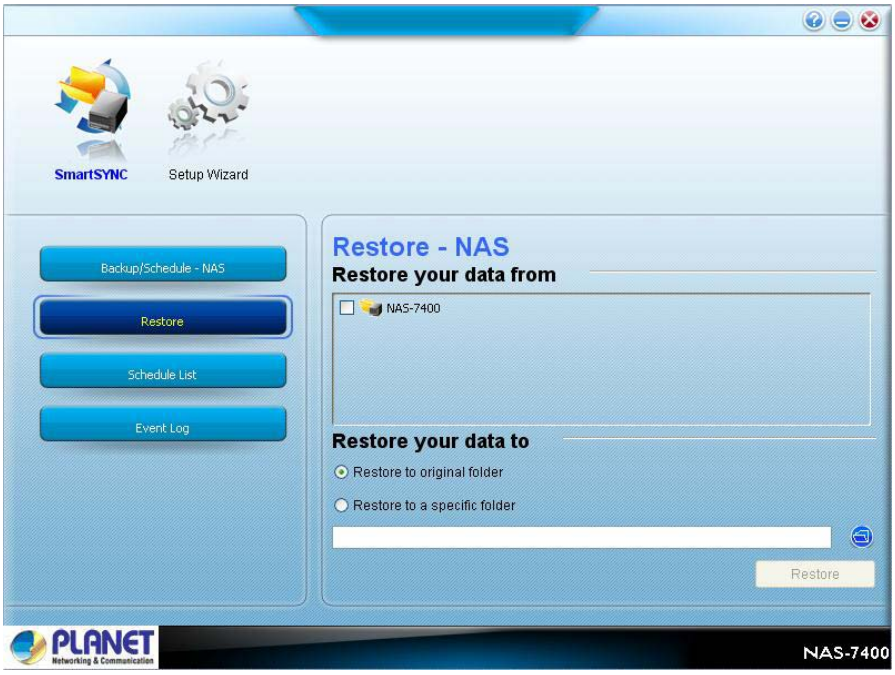
4.5 Restoring Your Backup Files

Note

The Restore function will overwrite files in the destination folder on your PC.

- If the backup files on the NAS-7400 match the names of the files in the restore location folder on your PC, the Restore function will overwrite those files on your PC.
- If you do not want to overwrite the files on your PC, take one of the following actions: Move the current files to a different folder on your PC. Choose a different restore location folder.

To restore backup files from the NAS-7400 to your PC:



i. On the Windows PC, open SmartSYNC and click on the Restore tab.

ii. In the Source field, select the folder that contains the backup files that you want to restore.

iii. In the Source field, folders are identified by their network drive names, such as Z, Y, or X.

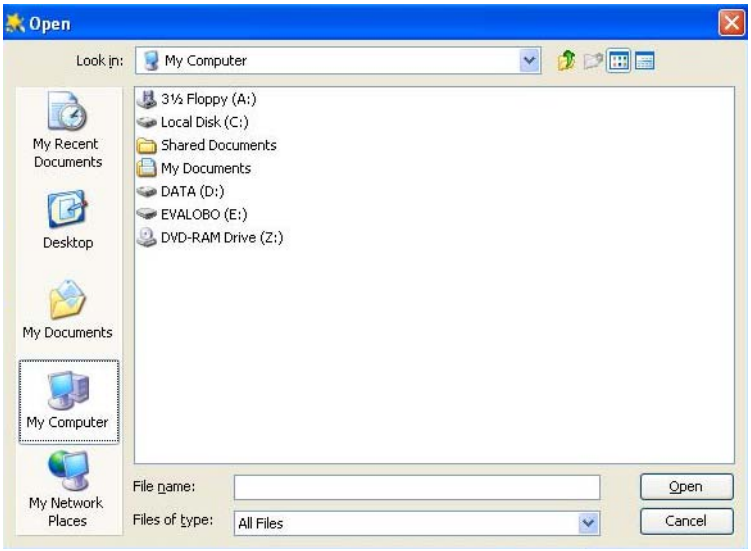
iv. In the Folder List, click on the folders that contain the backup files you want to restore.

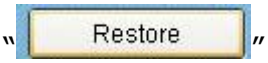
v. In the Folder List, folders are identified by their file structure as it was copied from your PC. The lowest folder in the structure is the one that actually contains the files.

vi. Choose a restore location:

- **Restore to Original folder** - The same folder on your PC from which the files were copied for the backup.
- **Restore to a specific folder**- A folder on your PC that you specify.

You can use "  " to allocate the folder which you want to restore.



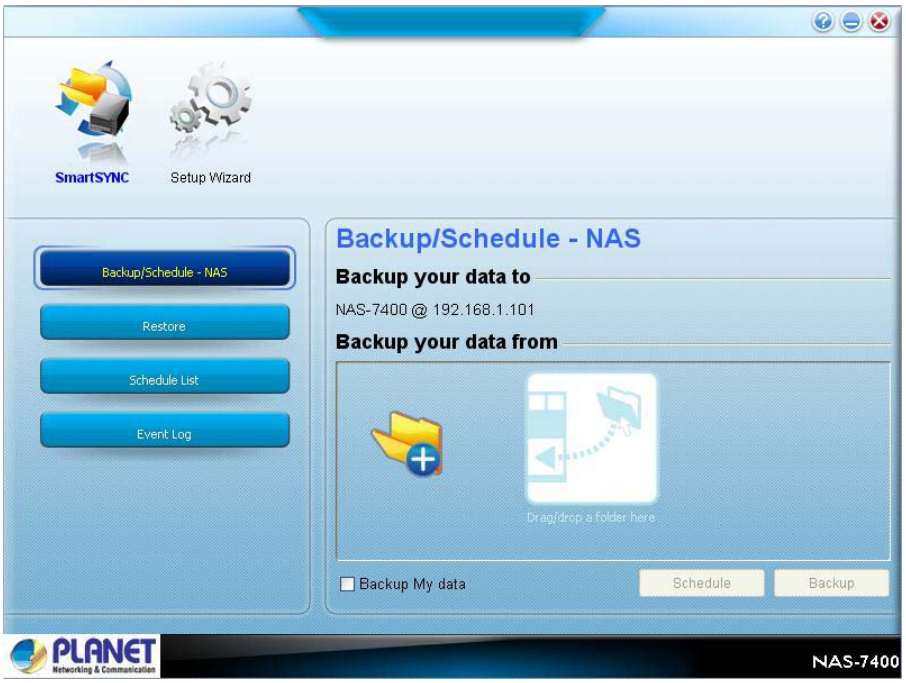
vii. Click on " 

" to start. The files are copied from the NAS-7400 to your PC.

viii. If you selected a restore location on your PC other than the original, the Restore function includes subfolders that match the files structure on your PC's hard disk drive.

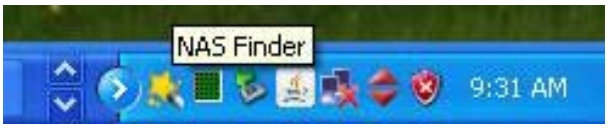
Chapter 5: SmartSYNC

After installation, the SmartSYNC utility starts automatically in the background on your Windows PC. SmartSYNC does not run on UNIX, Linux, or Macintosh PCs.

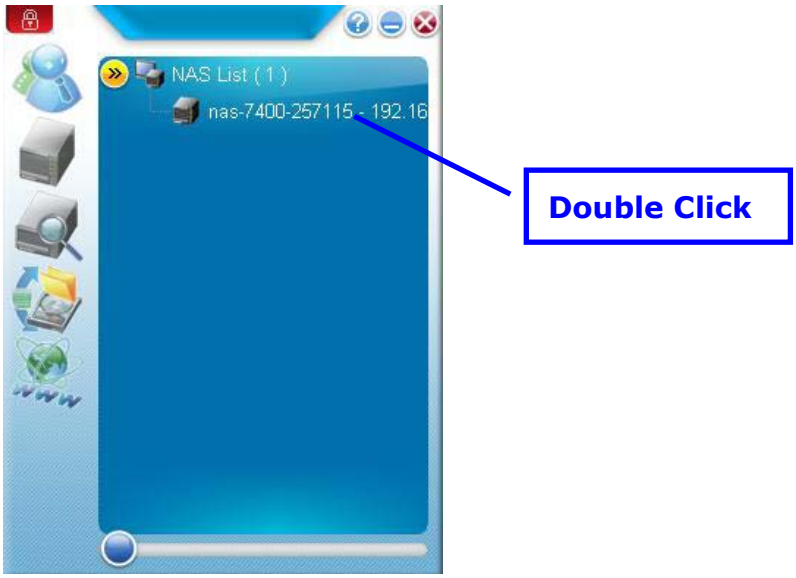


5.1 Opening the SmartSYNC Windows

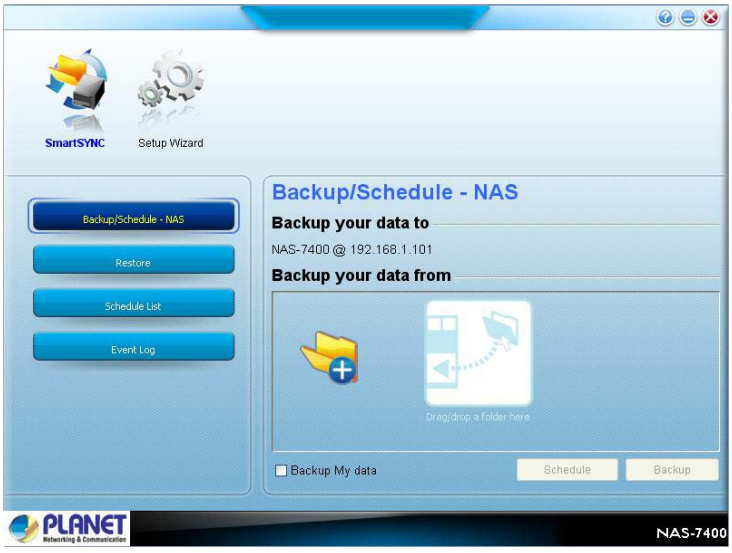
To open the SmartSYNC window, double-click on "**NAS Finde**r" on the right of toolbar.



And then click on the "**nas-7400-257115-192.x..xxxx**"



The SmartSYNC window opens.



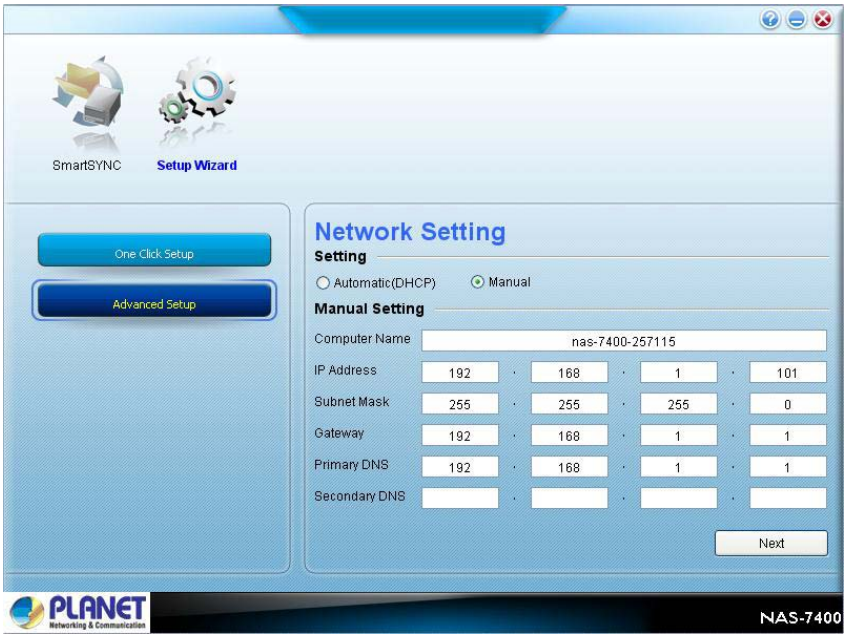
5.2 Displaying the NAS-7400 on your Network

To display the summary of NAS-7400 on your network, open the Setup Wizard window.

The Setup Wizard window opens with the One Click Setup tab selected. A list of NAS-7400 appears on One Click Setup tab.

5.3 Changing the NAS-7400's Network Settings

To change the NAS-7400's network settings:



i. Open the Setup Wizard window.

ii. Click on the Advanced Setup tab.

iii. Click on the Manual option button (right). Type the following into the fields provided:

- ✓ Computer Name
- ✓ IP Address Subnet Mask
- ✓ Gateway
- ✓ Primary DNS
- ✓ Secondary DNS.

Note See your Network Administrator for help in making these settings.

iv. Click **OK** to save your settings.

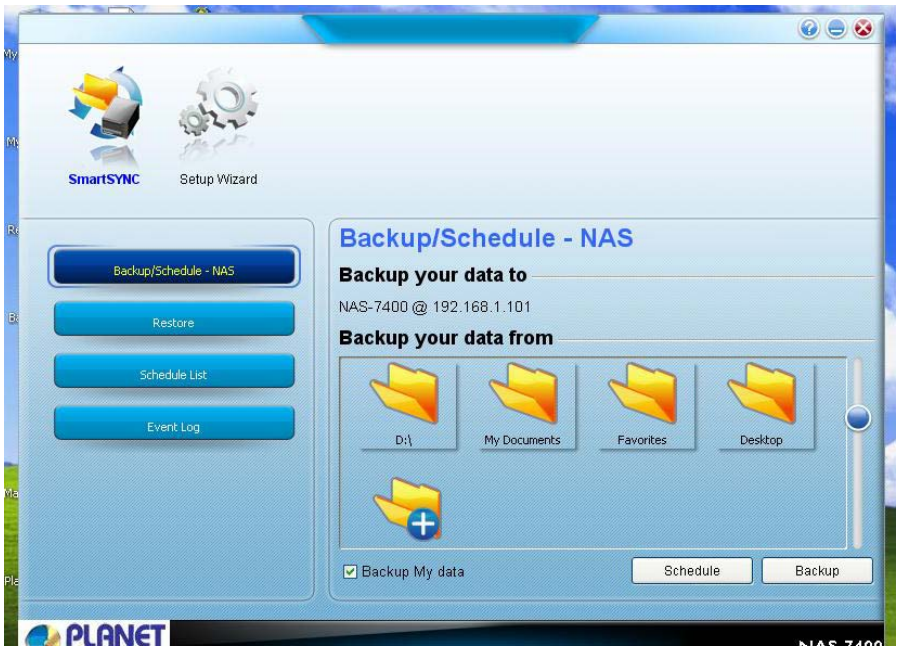
5.4 Performing a Backup

A Backup copies folders from your PC to the NAS-7400.

Note The NAS-7400 and SmartSYNC cannot restore a failed boot drive in your PC. However, you can use the NAS-7400 to save your system backup file. See your Windows documentation for information about system backups.

Note

- Windows does not allow SmartSYNC to access protected folders and files. If you want to perform a backup, you must first disable protection on your folders and files.
- If you want to run the Windows Backup or Restore Wizard, access the NAS-7400 as a network drive.



To perform a backup of a selected folder:

i. Open the SmartSYNC window.

ii. Click on the Backup tab.

iii. Select a Destination. Destinations are identified by drive letters and correspond to a specific folder on the NAS-7400.

iv. Click on the folder you want to backup in the Folder List.

v. Click the + icon to expand the file tree. A checkmark appears beside the selected folder. The backup will include the folder you select and all subfolders.

ii. When you are ready perform the backup, click the Backup button (right).

5.5 Viewing Your Backup Folders

To view your backup folders on the NAS-7400:

On the Windows desktop, double-click on the My Computer icon.

i. Under Network Drives, double-click on the NAS-7400.

ii. On the NAS-7400, find the folder called BACKUPDATA.

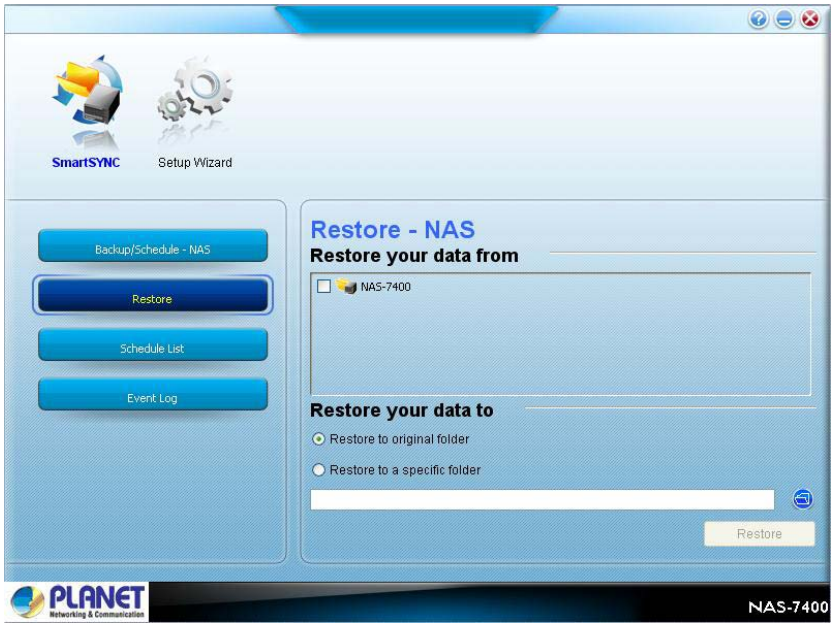
iii. The BACKUPDATA folder contains the results of the One Touch Backup from your PC. The subfolders inside the BACKUPDATA folder match the file structure on your PC's hard disk drive.

5.6 Performing a Restore

Note The Restore function will overwrite files in the destination folder on your PC.

A Restore copies folders from the NAS-7400 to your PC.

To perform a Restore of a selected folder:



i. Open the SmartSYNC window.
ii. Highlight a server in the Server List.
iii. Click on the Restore tab.
iv. Select a Source. Sources are identified by drive letters and correspond to a specific folder on the NAS-7400.
v. Choose a restoration location.
   - ✓ **Restore to original folder**– The files from the NAS-7400 will overwrite the files on our PC
   - ✓ **Select to a specific folder**– The files from the NAS-7400 are saved in a set of folders that match the original file structure from where they were copied

vi. If you chose a new Restore location, click the Browse button (right)  , navigate to the destination you want, highlight the destination folder and click the Open button to select the folder.

vii. In the Folder List, click on the folder you want to restore.

viii. Click the + icon to expand the file tree. A checkmark appears beside the selected folder. The restore will include the folder you select and all subfolders.

ix. Do one of the following actions:

✓ To perform the Restore now, click Start button.

✓ To perform the Restore later, click the Apply button to save your settings.

When you are ready perform the backup, click the Tools menu and choose **Restore**.

5.7 Scheduling a Backup

A Backup copies folders from your PC to the NAS-7400.

Note The NAS-7400 and SmartSYNC cannot restore a failed boot drive in your PC. However, you can use the NAS-7400 to save your system backup file. See your Windows documentation for information about system backups.

Note Windows does not allow SmartSYNC to access protected folders and files. If you want to perform a backup, you must first disable protection on your folders and files.

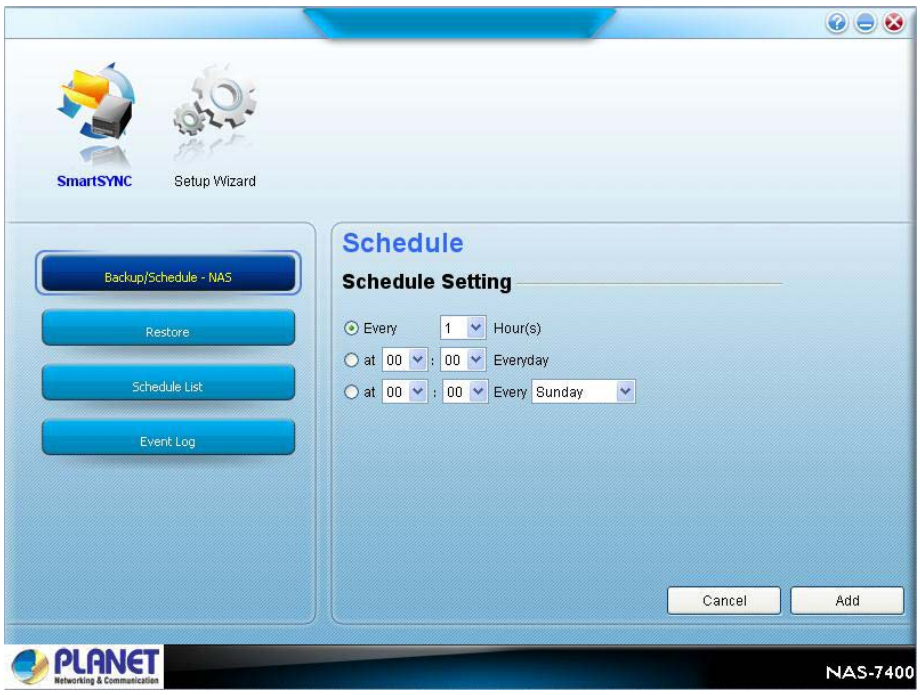
To schedule the backup of a selected folder:

i. Open the SmartSYNC window. Click on the Schedule tab.

ii. Select the Schedule you want to backup. Choose a Schedule interval by number of hours, daily, or weekly. Choose a setting:

- ✓ If you chose hours, choose the number of hours from the dropdown menu.
- ✓ If you chose daily, choose the time of day in the hour (24-hour clock) and minute dropdown menu.
- ✓ If you chose weekly, choose the time of day and day of the week in the hour (24-hour clock), minutes, and day dropdown menus.

Click the **Add** button. Your Backup Schedule appears in the Schedule tab.



iii. In the Backup Schedule window, verify the Destination. Destinations are identified by drive letters and correspond to a specific folder on the NAS-7400. In the folder list, click on the + icons to expand the tree.

iv. The Folder List is a representation of the file structure on your PC. Click on the folder you want to backup.

v. A checkmark appears beside the selected folder. The backup will include the folder you select and all subfolders.

5.8 Modifying a Backup Schedule

You can change source folders, time, and day settings for a scheduled Backup.

To modify a Backup Schedule:

i. Open the SmartSYNC window.

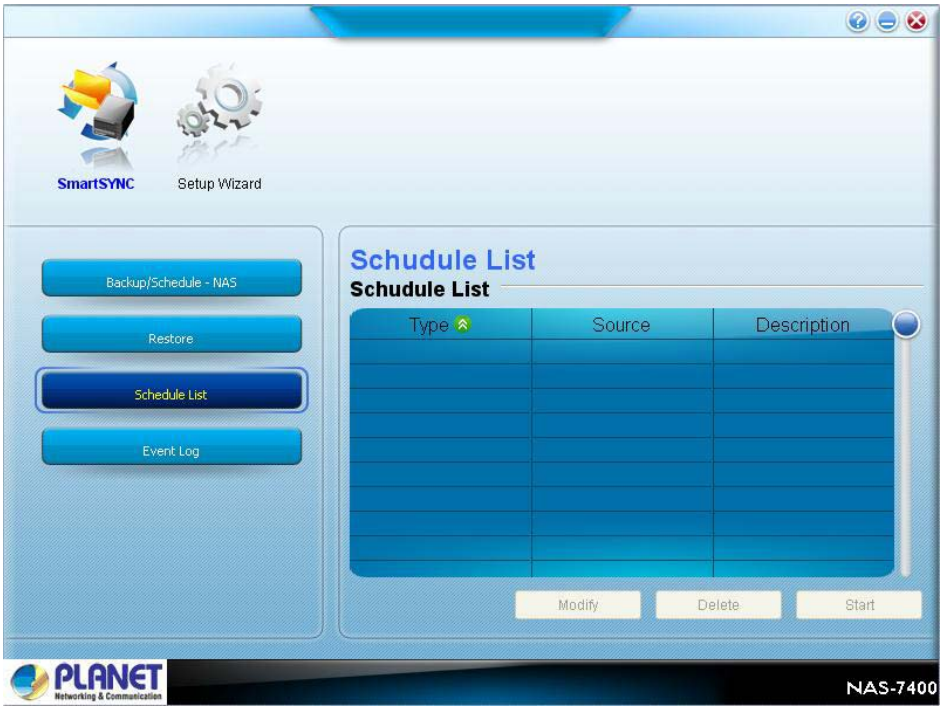
ii. Click on the Schedule tab.

iii. In the Schedule list, highlight the schedule you want to modify. Click the **Modify** button.

iv. Select the Schedule Type (hour, daily, weekly).

v. Select the time and day settings.

vi. Click **Finish** to save your settings.



To delete a Backup Schedule

i. Open the SmartSYNC window.

ii. Click on the Schedule tab.

iii. In the Schedule list, highlight the schedule you want to delete.

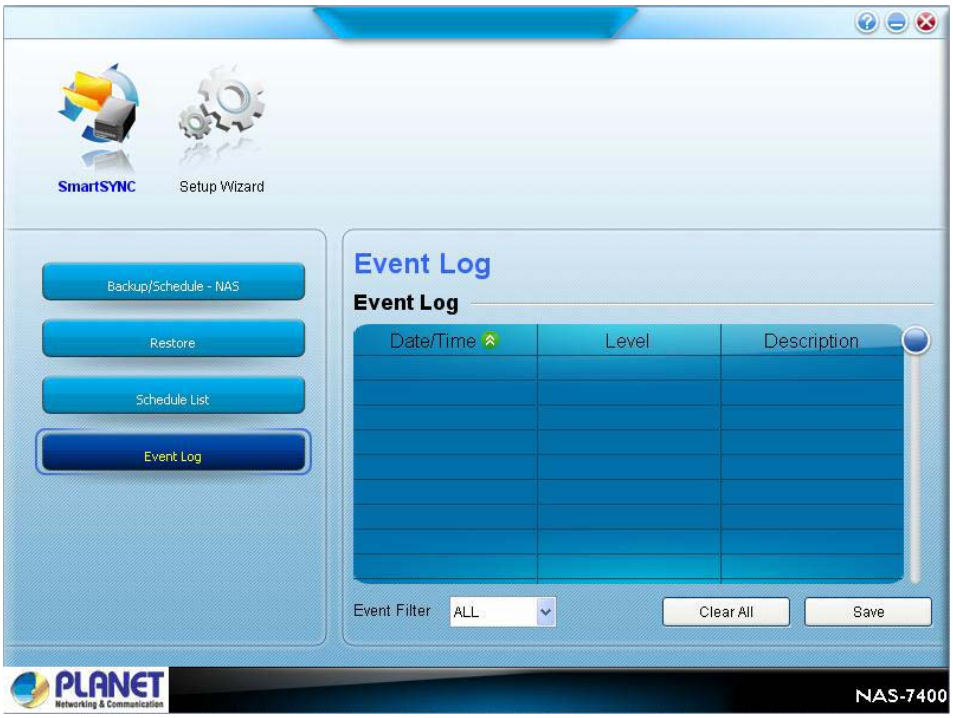
iv. Click the Delete button.

v. In the confirmation box, click Yes.

5.9 Viewing the Event Log

To view the Event Log:

i. Open the SmartSYNC window.



ii. Click on the Event Log tab. From the Type menu, select the type of events you want to display:

- ✓ **All** – All events
- ✓ **Info** – Information events only
- ✓ **Error** – Error events only

Clearing the Event Log

To clear the Event Log:

i. Open the SmartSYNC window.

ii. Click on the Event Log tab.

iii. Click on **Clear All**.

iv. Or, click on the Event menu and choose Clear All.

Chapter 6: The features of PASM

The Tree is the primary navigation tool in PASM. Categories of functions listed with a + sign before the icon.
Icons for specific functions are listed under the categories. Click the + sign to show the functions.

Click on the function icons to display their information on the screen. Each function has one or more tabs in its screen.

6.1 Setup Wizard

If you used the NAS Setup Wizard utility to set up your NAS-7400, you do not need to run the Setup Wizard in PASM.

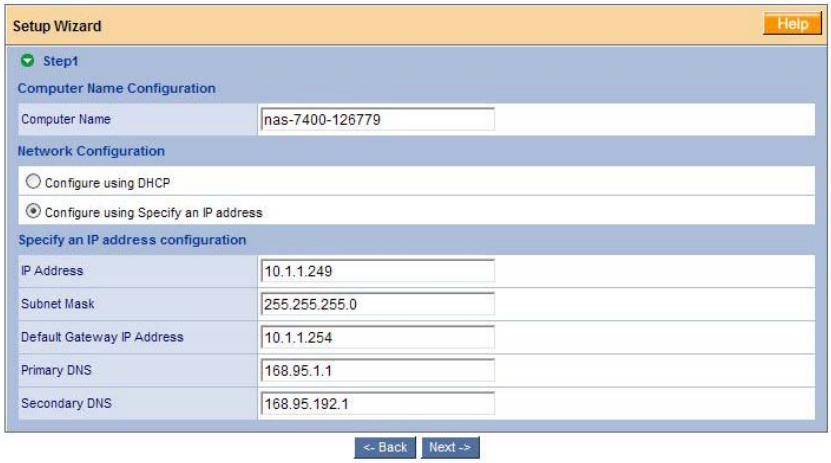
If you have not yet set up your NAS-7400:

Step1: In the Tree, click on the + beside the Wizard icon, then on the Setup Wizard icon to display the Setup Wizard screen.

Step2: Click the "**Next**" button to start the Setup Wizard.

Step3: Configure for the network.

In the Computer Name field, you can enter a name for the NAS-7400. Use only letters, numbers, and the underscore character for the name.



In Network Configuration, please choose one of the following options:

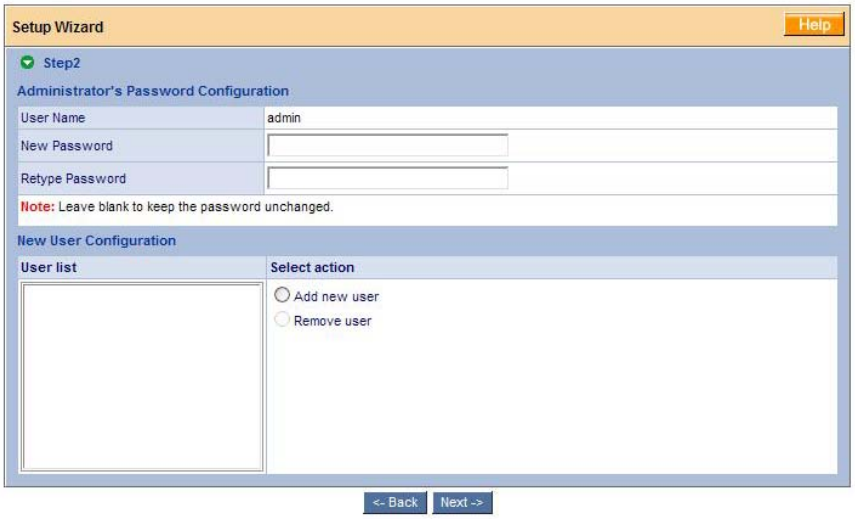
- **Configure using DHCP** – Choose this option if your network has a DCHP server with addresses available
- **Configure using Specify an IP address** – Choose this option if you want to set the IP address and other network setting manually

If you chose the Configure using Specify an IP address option, type the following information in the fields provided:

- ✓ IP Address
- ✓ Subnet Mask
- ✓ Default Gateway IP Address
- ✓ Primary DNS
- ✓ Secondary DNS

If finished, please click the **Next** button to continue the next step.

Step4: Configure Administrator's Password Configuration.



- **New Password**: Type a new administrator password into the New Password field.
- **Retype Password**: Retype the new password into the Retype Password field.

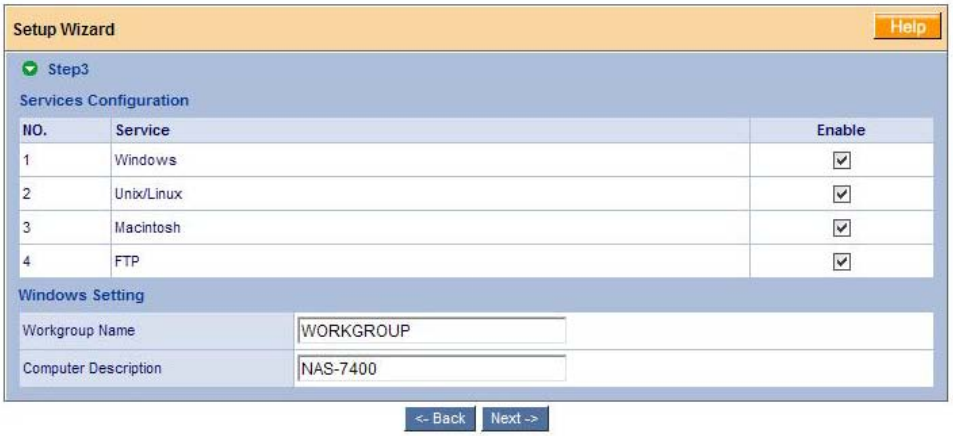
To add a user, click the **Add new user** button on New User Configuration option. If you clicked the Add new user option button, type a user name and password into the fields provided, then click the **Add** button.

If finished, please click the **Next** button to continue the next step.

Step5: To check the Enable box to the right of the services you plan to use.

- **Windows** – Enables file access from Windows PCs, and it also required to use the NAS-7400 as a print server.

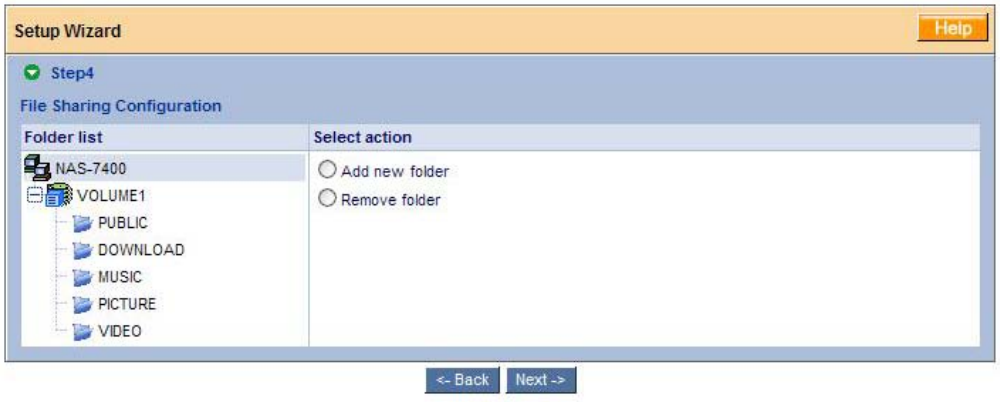
- **Unix/Linux** – Enables file access from Unix and Linux PCs
- **Macintosh** – Enables file access from Macintosh PCs
- **FTP** – Enables file access from PCs using FTP



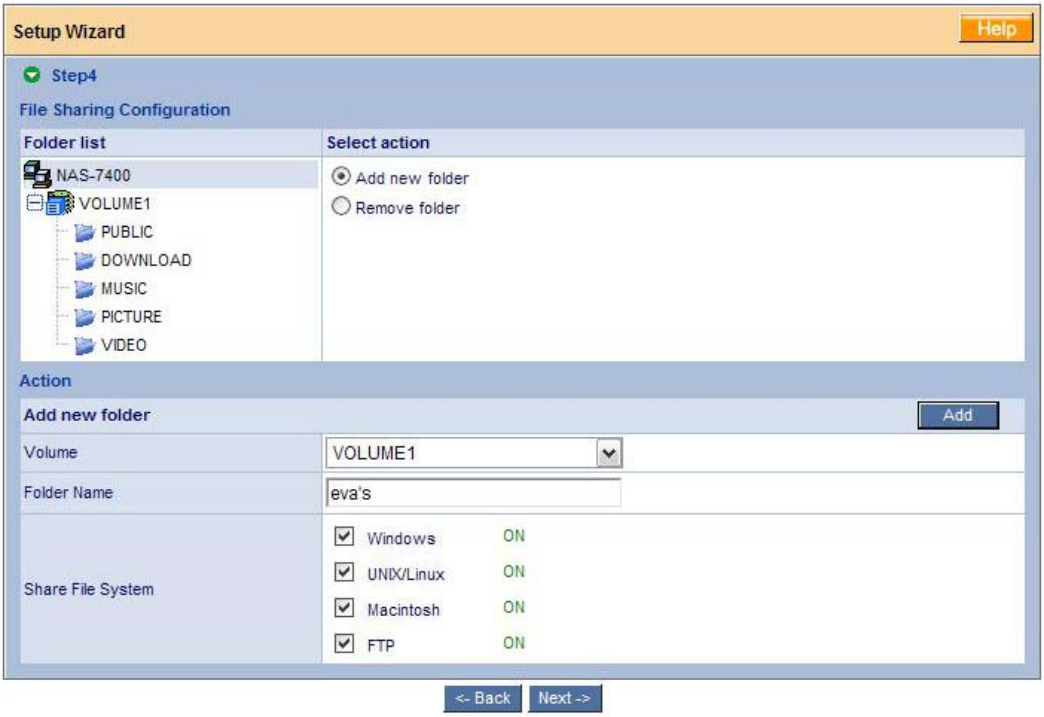
To type new names into the Workgroup Name and Computer Description fields.

If finished, please click the **Next** button to continue the next step.

Step6: Configure the File Sharing Configuration, and you must add at least one folder which you will access from your PC as a network drive.



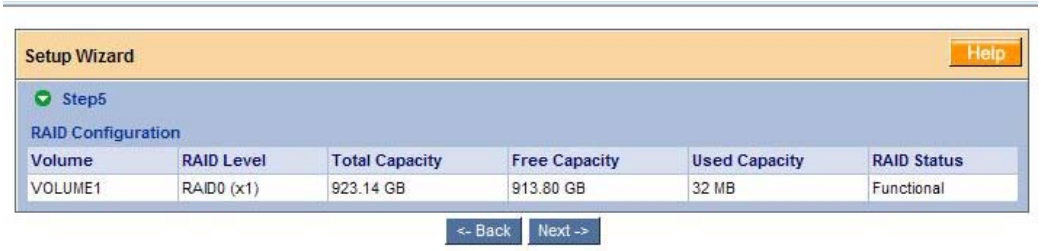
To add a folder, click the **Add new folder** option button.



Type a folder name into the field provided, check the boxes of the services you expect to use with this folder and click the **Add** button. Add more folders as required.

If finished, please click the **Next** button to continue the next step.

Step7: RAID Configuration.



If a RAID Volume already exists on the NAS-7400, information about the RAID Volume is shown. To change the RAID, you must delete it first and run the Setup Wizard again.
From the RAID Level dropdown menu, select the RAID level you prefer for your disk array.
See for more information.
Highlight disk drives in the Free Disks column and click the >> button to move them to the Disks in RAID column.

If finished, please click the **Next** button to continue.

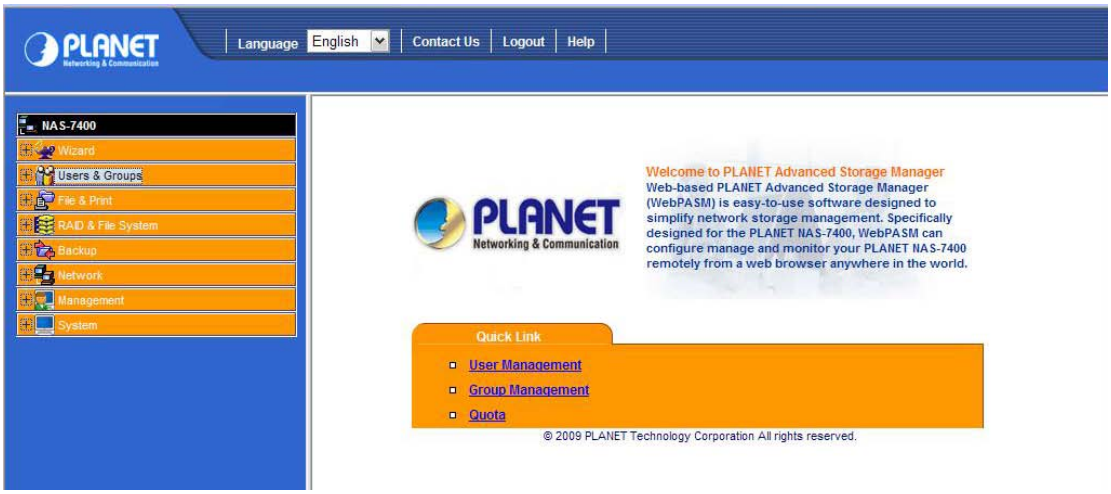
Step8: Click the **Finish** button to set up your NAS-7400.

The setup process takes several minutes, depending on the size of your disk drives.

6.2 Managing Users and Groups

6.2.1 Viewing a List of Users

To view the list of Users:



In the Tree, click on the **+** button beside the Users & Groups icon.

6.2.2 Creating a User

Click on the User Management icon. A list of users appears on the Information tab.

You can create up to **512** Users. To create or add a new user, please click on the "**Create User**" tab.

- **User Name**: Type a user name in the field provided.
- **New Password**: Type a password into the fields provided.
- **Retype Password**: Retype the new password into the Retype Password field.

If finished, please click the **OK** button.

6.2.3 Changing the Administrator's Password

To change the Administrator's password, please click **Change Password** tab.

- **New Password**: Type a new password into the fields provided.
- **Retype Password**: Retype the new password into the Retype Password field.

If finished, please click the **OK** button.

Note If you forget your new password, you can push the "**Reset**" button on the rear panel of the NAS-7400 to the default Administrator's password.

6.2.4 Changing a User's Password

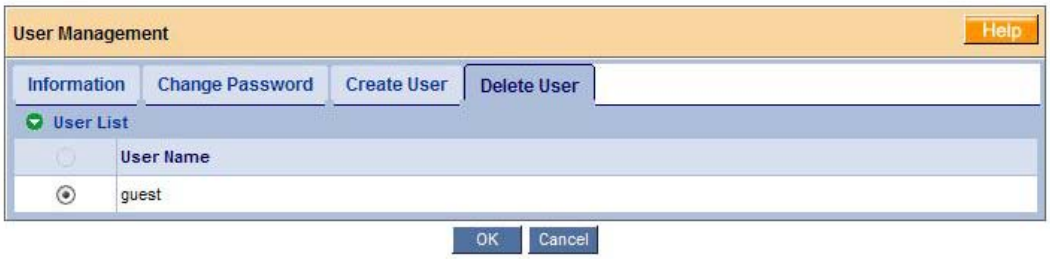
To change a user's password, please click **Change Password** tab, and from the User Name dropdown menu, please select the name of the user whose password you want to change.

- **New Password**: Type a new password into the fields provided.
- **Retype Password**: Retype the new password into the Retype Password field.

If finished, please click the **OK** button.

6.2.5 Deleting a User

You cannot delete the Administrator or the Guest. To delete any other user, please click on the **Delete User** tab.



Click the left of the user you want to delete, and then click the **OK** button to delete the user.

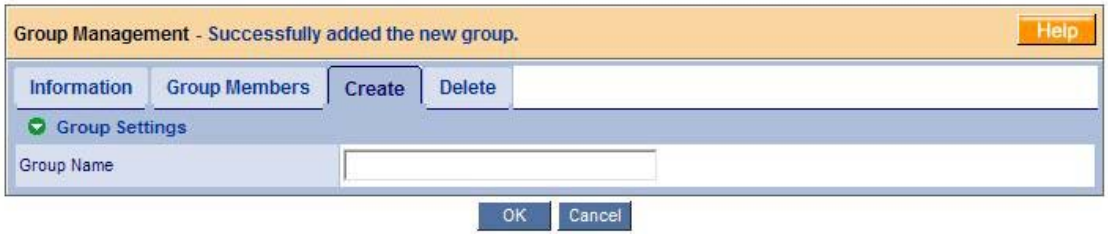
6.2.6 Viewing a List of Groups

Groups are composed of users. You can assign permissions to a group, the same as you would do with individual users.

To view a list of groups, please click **Group Management** icon. A list of groups appears on the Information tab.

6.2.7 Creating a Group

Groups are composed of users. You can assign permissions to a group, the same as you would do with individual users. You can create up to **256** groups.



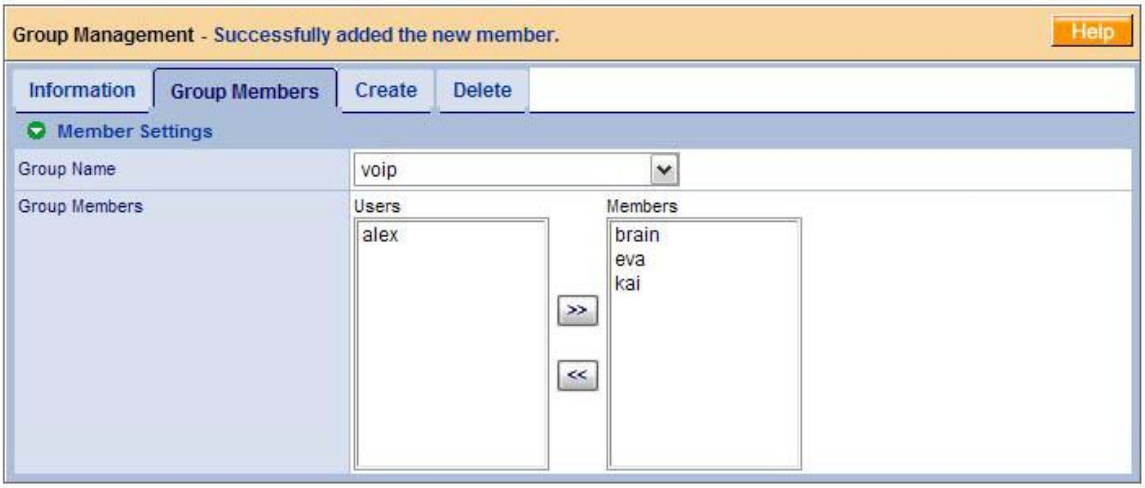
To create a group, please click **Create tab** icon.

- **Group Name**: Type a group name in the field provided.

If finished, please click the **OK** button.

6.2.8 Adding Members to a Group

You must create a group before you can assign members to it.



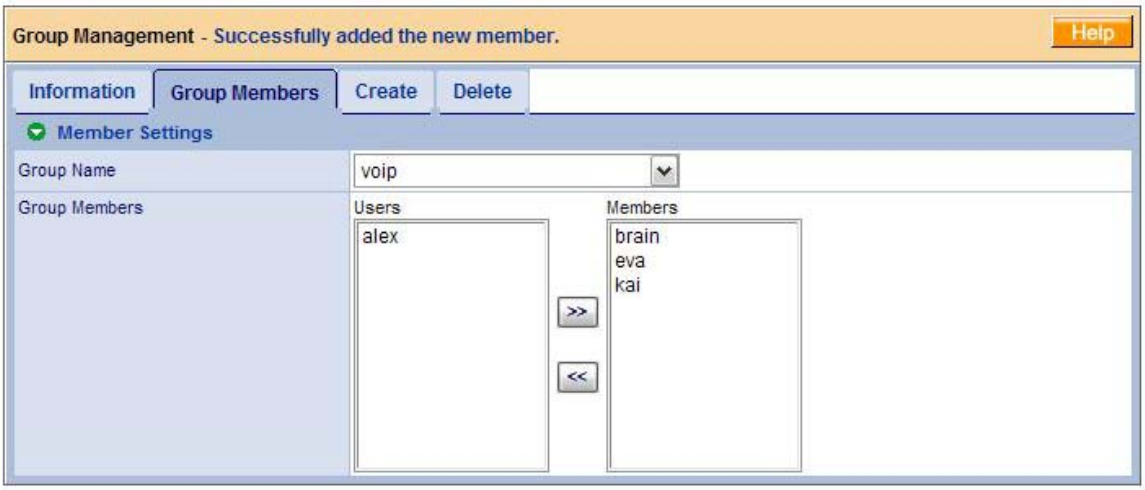
To add members to a group, please click **Group Members** tab.

i. From the dropdown menu, choose a group to which you want to add members.

ii. Highlight users in the Users column and click the **>>** button to move them to the Members column.

iii. If finished, please click the **OK** button.

6.2.9 Removing Members from a Group



To remove members from a group, please click **Group Members** tab.

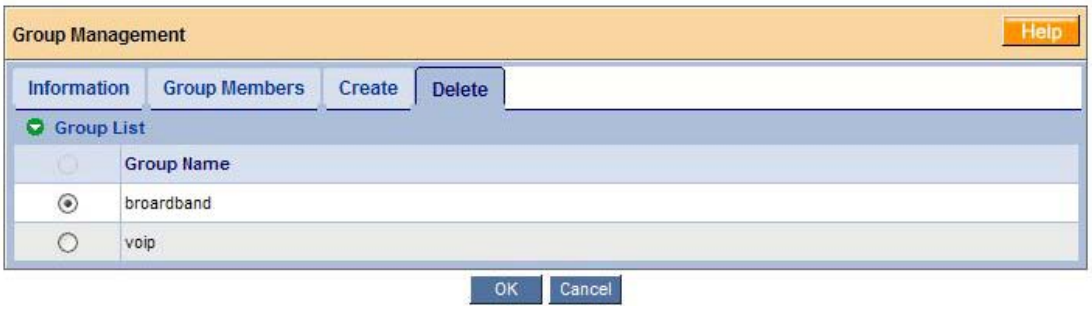
i. From the dropdown menu, choose a group from which you want to remove members

ii. Highlight users in the Members column and click the **<<** button to move them to the Users column.

iii. If finished, please click the **OK** button.

6.2.10 Deleting a Group

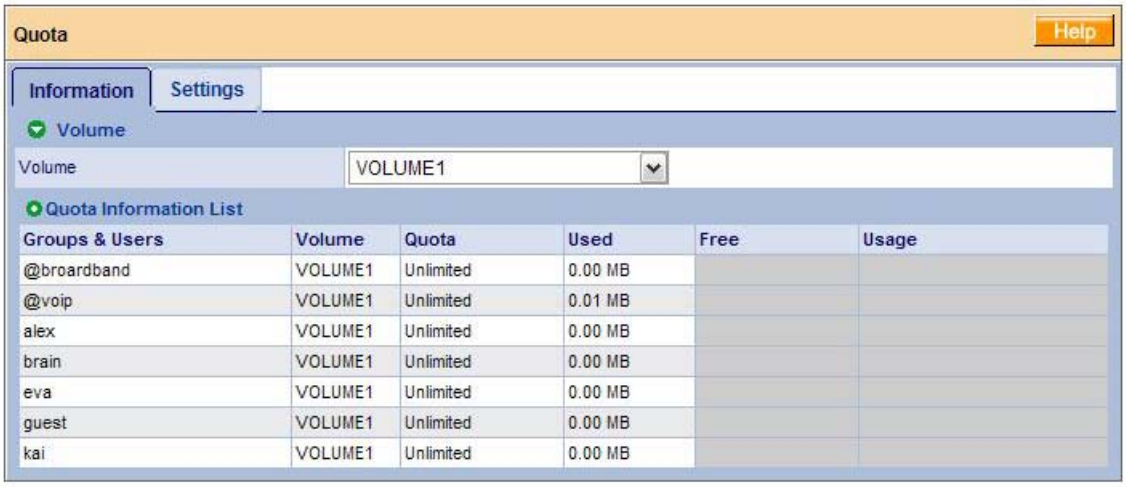
You must remove all members from the group before you can delete the group. To delete a group, please click **Delete tab**.



i. Click the option button next to the group you want to delete.
ii. If finished, please click the **OK** button

6.2.11 Viewing Quotas

Quotas are portions of storage space that you assign to each user or group. To view a quota, please click **Quota** icon. A list of users and groups, and the following data appear on the screen:

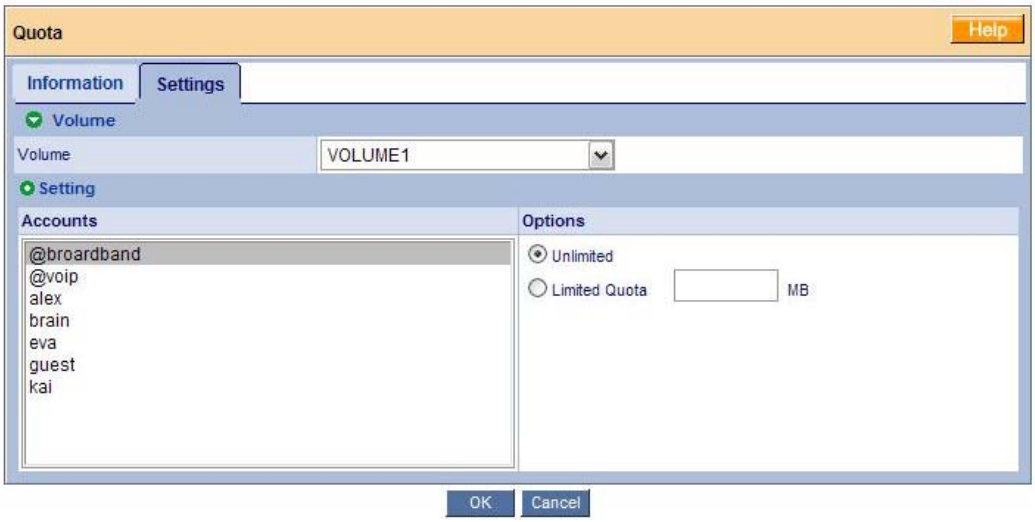


Currently assigned quotas

✓ Free space
✓ Used space

6.2.12 Setting Quotas

Quotas are portions of storage space that you assign to each user or group. Assigning quotas enables you to control how much storage space each user or group can access. By default, each user and group is assigned an unlimited quota, meaning that any one user or group can access the entire storage space. In the Quota screen, the names of groups are preceded with a "@"symbol.



To set a quota, please click **Settings** tab.

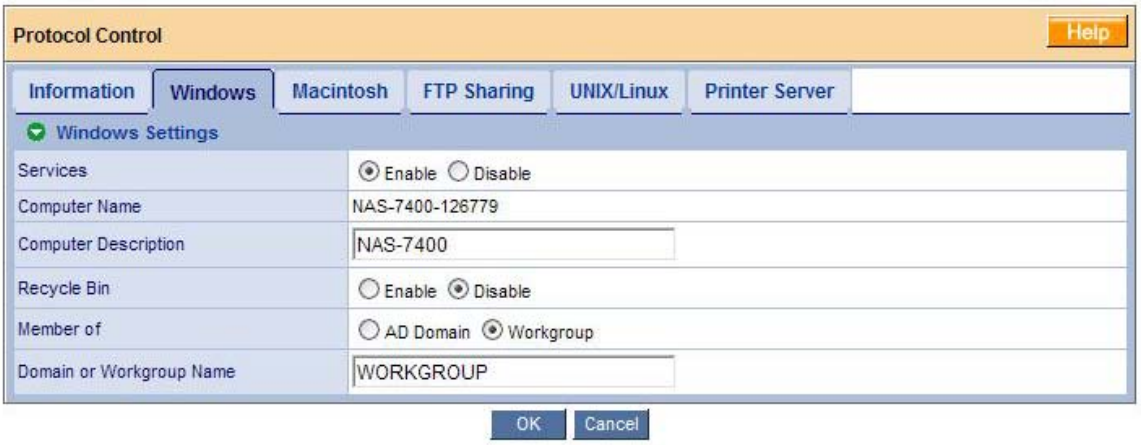
i. Highlight the user or group whose quota you want to assign.
ii. Click on one of the following options: Unlimited and Limited Quota.
iii. If you chose Limited Quota, type a number into the field provided. This number represents how many MB of data the user or group can access.
iv. If finished, please click the **OK** button.

6.3 Managing File & Print Services

6.3.1 Configure for Windows Access

Follow this procedure to set up access from a Windows PC. In the Tree, click on the **+** button beside the **File & Print** icon.

And then click on the **Windows** tab.



i. Click the **Enable** option button beside Services.

ii. Type a new Computer Description into the field provided.

iii. Choose the option button to make the NAS-7400 a member of: An Active Directory (AD) Domain or A Workgroup.

iv. If you chose an AD Domain, enter the following in the fields provided:

- ✓ Domain Name
- ✓ Kerberos Key Distribution Center
- ✓ Administrator Name
- ✓ Administrator Password

See your Network Administrator for help with this information.

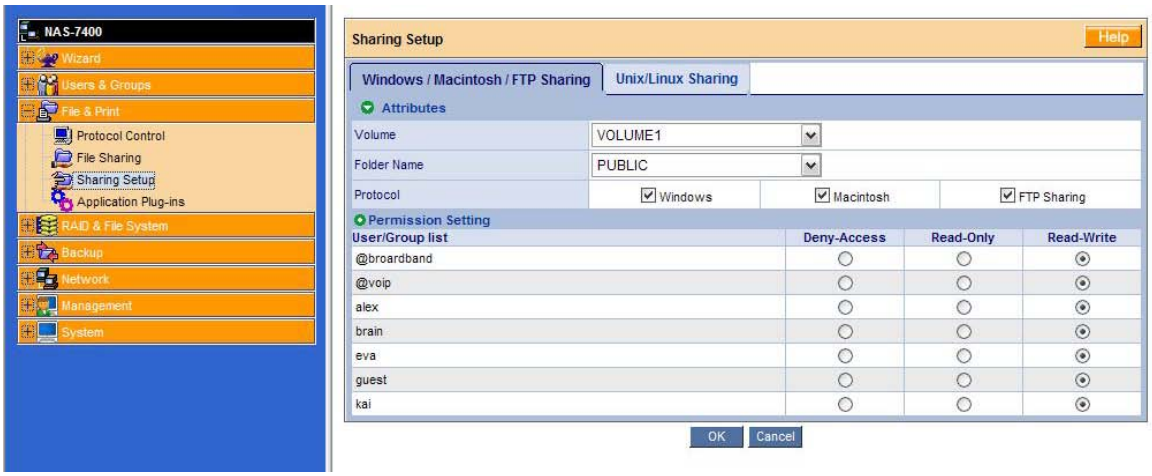
v. If you chose a Workgroup, enter the Workgroup name into the field provided.

See your Network Administrator for help with this information.

vi. If finished, please click the **OK** button to save your settings.

vii. In the Tree, click on the **+** button beside the **Sharing Setup** icon.

viii. Click **Windows Sharing** tab.



ix. Select a folder from the Folder Name dropdown menu.

x. In the User/Group list, highlight the name of a user or group. Group names are preceded by the "**@**" character.

xi. Under Permissions, choose a permission level for this user or group:

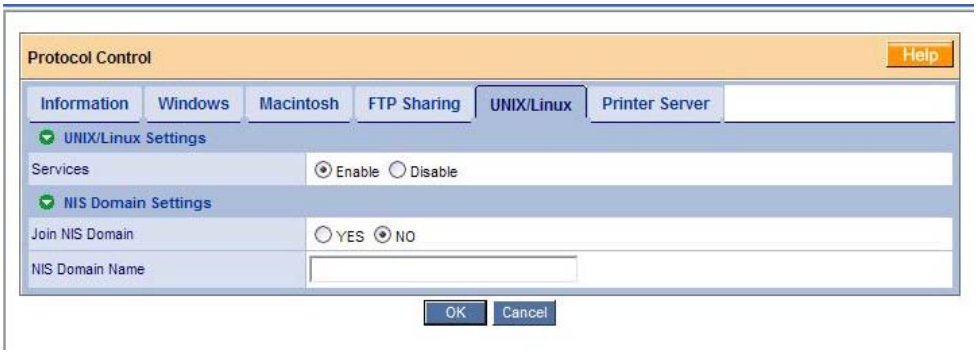
- ✓ Deny Access
- ✓ Read Only
- ✓ Read and Write

xii. Click the **OK** button to save your settings.

xiii. You can now access the folder you selected from a Windows PC.

6.3.2 Configure for UNIX/Linux Access

Follow this procedure to set up access from a UNIX or Linux PC, please click **UNIX/Linux** tab.



i. Click the **Enable** option button beside Services.

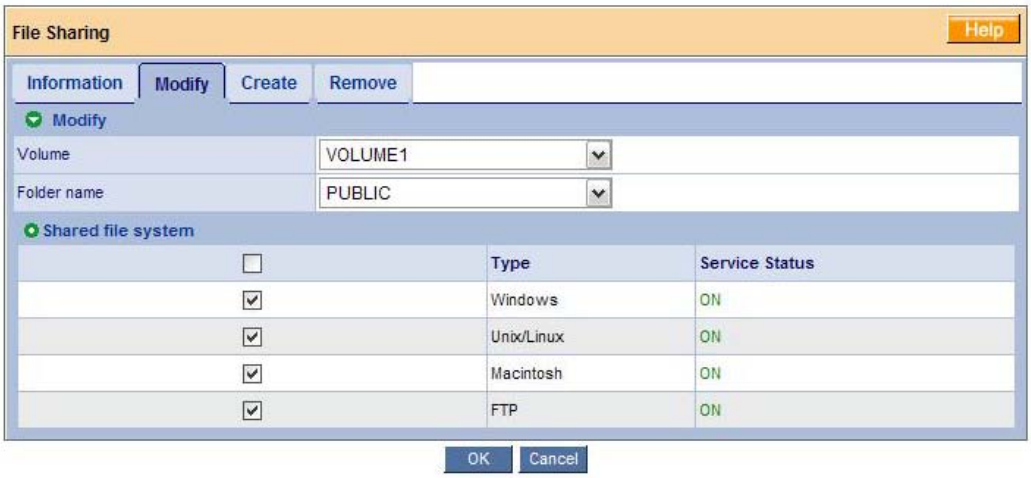
ii. If you want to join a NIS Domain, click the **NIS Domain** option button.

iii. If you chose to join a NIS Domain, enter the Domain name into the field provided.

See your Network Administrator for help with this information.

iv. Click the **OK** button to save your settings.

v. In the Tree, click on the **+** button beside the **File Sharing** icon. Click on the **Modify** tab.

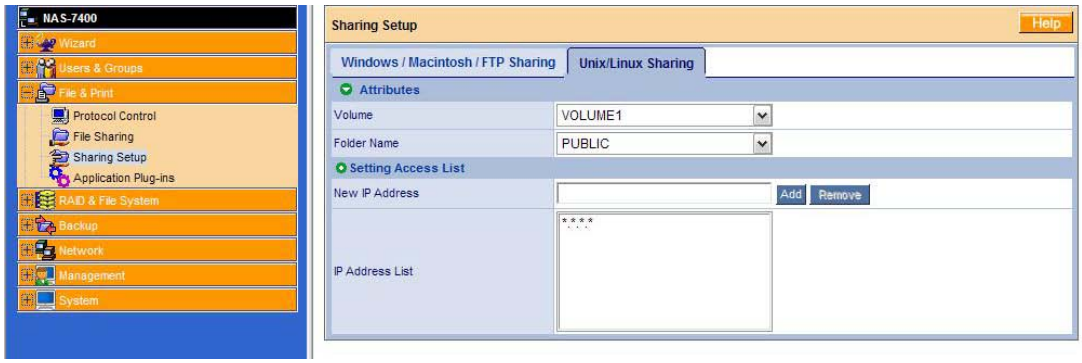


vi. From the Folder name dropdown menu, choose the folder you want to access.

vii. Check the UNIX/Linux box.

viii. Click the **OK** button to save your settings.

ix. In the Tree, click on the **+** button beside the **Sharing Setup** icon. Click on the **UNIX/Linux Sharing** tab.



x. Select a folder from the Folder Name dropdown menu.

xi. In the New IP Address field, type the IP address of the UNIX or Linux PC from which you will access this folder and click the **Add** button.

xii. You must designate the IP addresses for each folder individually. You can have up to 256 IP addresses for all of your folders.

xiii. If finished, please click the **OK** button to save your settings.

xiv. You can now access the folder you selected from a UNIX or Linux PC.

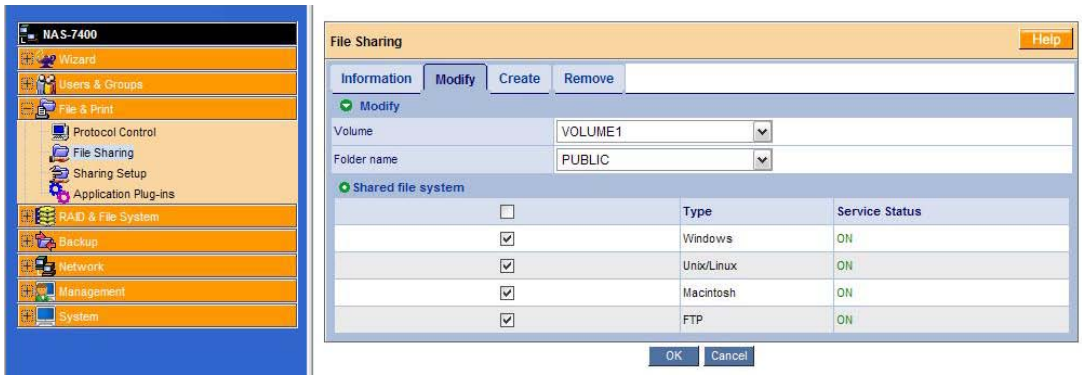
6.3.3 Configure for Macintosh Access

Follow this procedure to set up access from a Macintosh PC, please click on the "**Macintosh**" tab.

i. Click the **Enable** option button beside Services.

ii. Click the **OK** button to save your settings.

iii. In the Tree, click on the **+** button beside the **File Sharing** icon. Click on the **Modify** tab.



iv. From the Folder name dropdown menu, choose the folder you want to access.

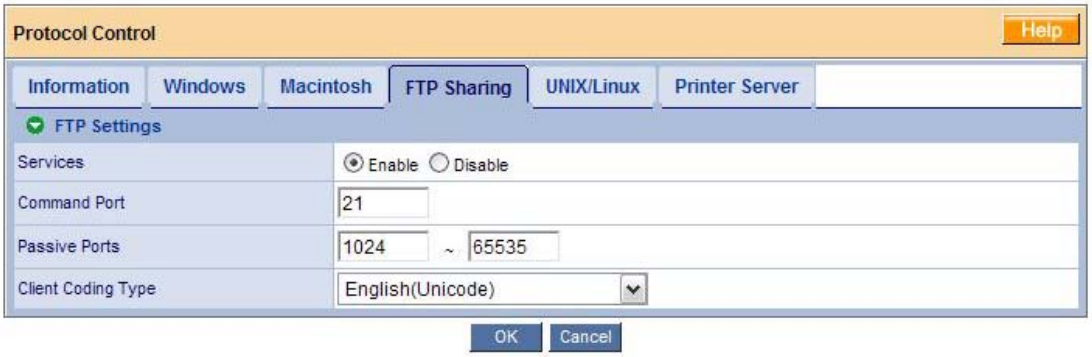
v. Check the **Macintosh** box.

vi. Click the **OK** button to save your settings.

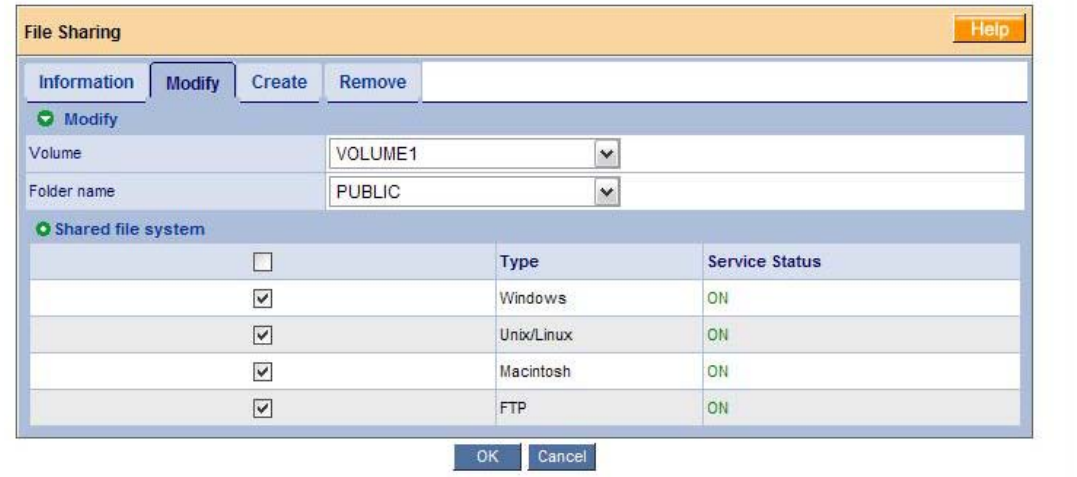
vii. You can now access the specified folder from a Macintosh PC.

6.3.4 Configure for FTP Access

Follow this procedure to set up FTP access for your folders:



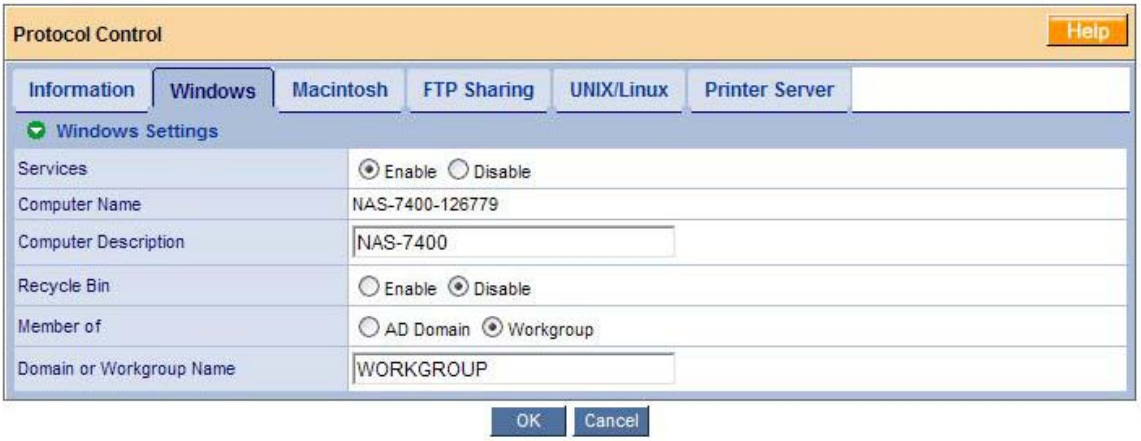
i. Click the **Enable** option button beside Services.
ii. Click the **OK** button to save your settings.
iii. In the Tree, click on the "**+**" button beside the **File Sharing** icon. Click on the **Modify** tab.



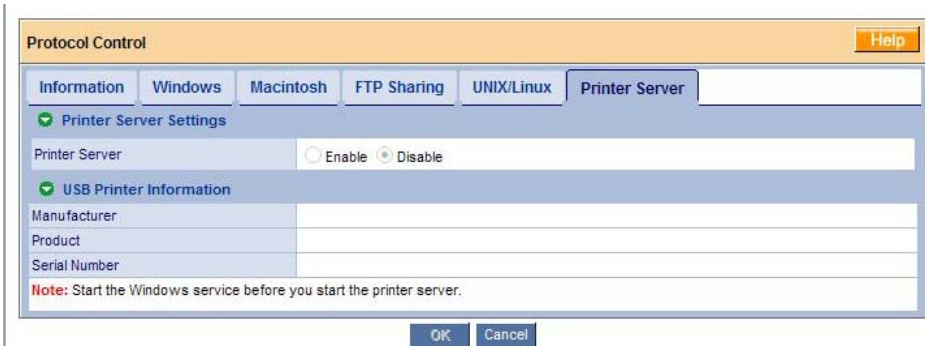
iv. From the Folder name dropdown menu, choose the folder you want to access.
v. Check the **FTP** box.
vi. Click the **OK** button to save your settings.
vii. You can now access the specified folder from your PC using FTP.
viii. If your FTP client does not support Unicode, only use ASCII characters to name your shared folders on NAS-7400.

6.3.5 Configure for your Print Server

Follow this procedure to set up the NAS-7400 as a printer server:



i. Please click on the **Windows** tab.
ii. Click the **Enable** option button beside Services.
iii. Click the **OK** button to save your settings.
iv. Click on the **Printer Server** tab.



v. Click the **Enable** option button beside Printer Server.
vi. Click the **OK** button to save your settings.

✍**Note** The Printer Server tab also verifies that your USB printer is connected and online. If you do not see your printer on the Printer Server tab, take the necessary action to connect and power the printer.

6.3.6 Viewing a List Folders

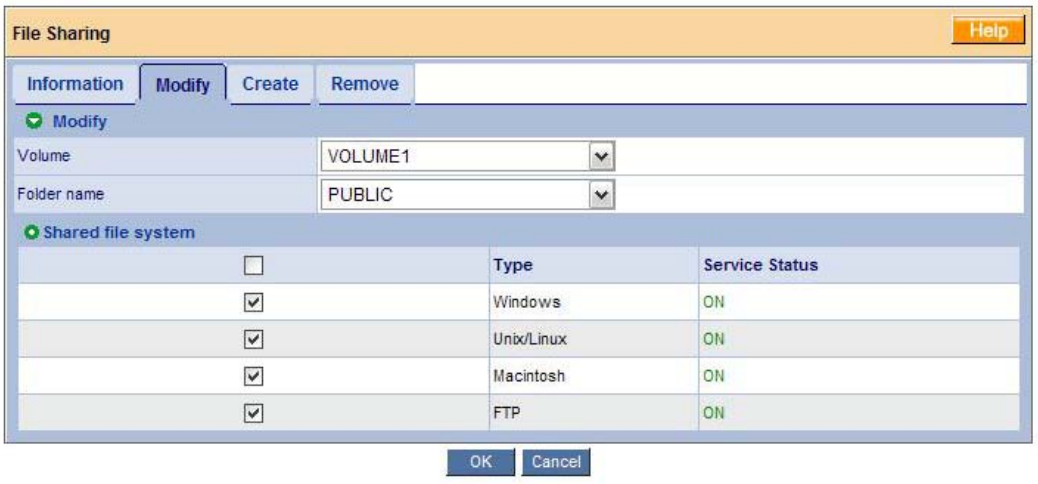
A folder is the entity that appears as a Network Drive on your PC.

To view the list of folders, please click on the **+** button beside the **File & Print** icon, and then click on the **File Sharing** icon. A list of current folders appears in the Information tab.

6.3.7 Modifying Folder Services

Services enable different types of PCs to access your folders. Use this function to add or remove a service for a specific folder.

To modify the services on a folder, please click **Modify** tab.



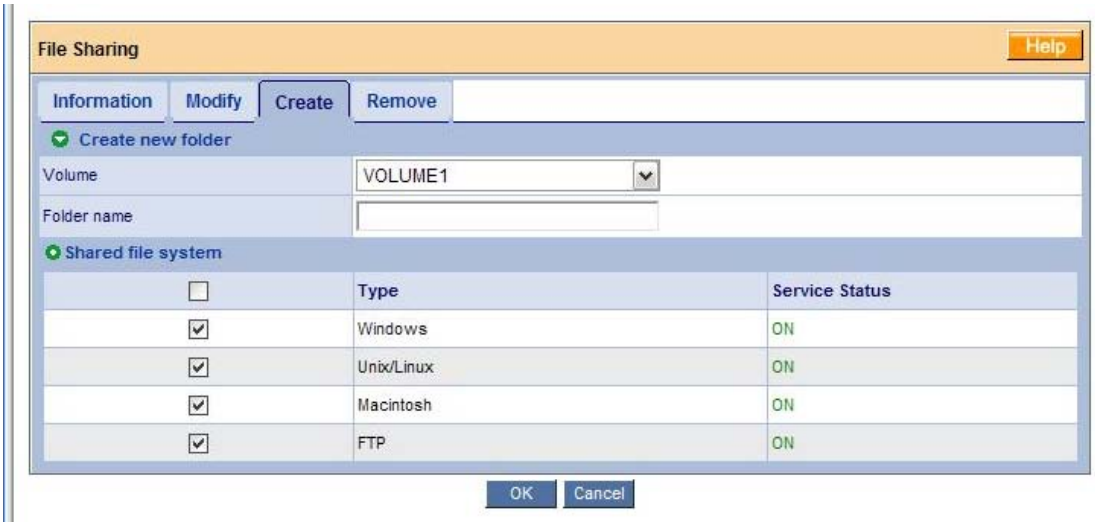
- **Volume dropdown menu**: select the RAID Volume containing the folder you want to modify.
- **Folder Name dropdown menu**: select the folder you want to modify.

Check the boxes beside the services you want to use, and click the **OK** if button if finished.

6.3.8 Adding a Folder

A folder is the entity that appears as a Network Drive on your PC.

To add a folder, please click **Create** tab.



- **Volume dropdown menu**: select the RAID Volume in which you want to create a new folder.
- **Folder Name field**: type a name for your new folder.

Check the boxes beside the services you want to use, and click the **OK** button if finished.

6.3.9 Deleting a Folder

To delete a folder, please click **Remove** tab.

Click on the option button beside the folder you want to delete. If finished, please click the **OK** button.

Note When you delete a folder, you delete all the data saved in the folder. Back up any important data before you delete a folder.

6.3.10 Configure Windows Sharing for a Folder

Windows sharing assigns user access the folders on your NAS-7400. By default all users and groups have read-only access.
To set up Windows sharing for a folder,

Please click on the **Sharing Setup** icon, and then click on the **Windows Sharing** tab.

- **Volume dropdown menu**: Select the RAID Volume containing the folder you want to modify.
- **Folder Name dropdown menu**: Select the folder you want to modify.
- **In the User/Group list**: Highlight the user or group to which you want to assign permissions.

In the Permission list, click on the option button for one of the following permissions:

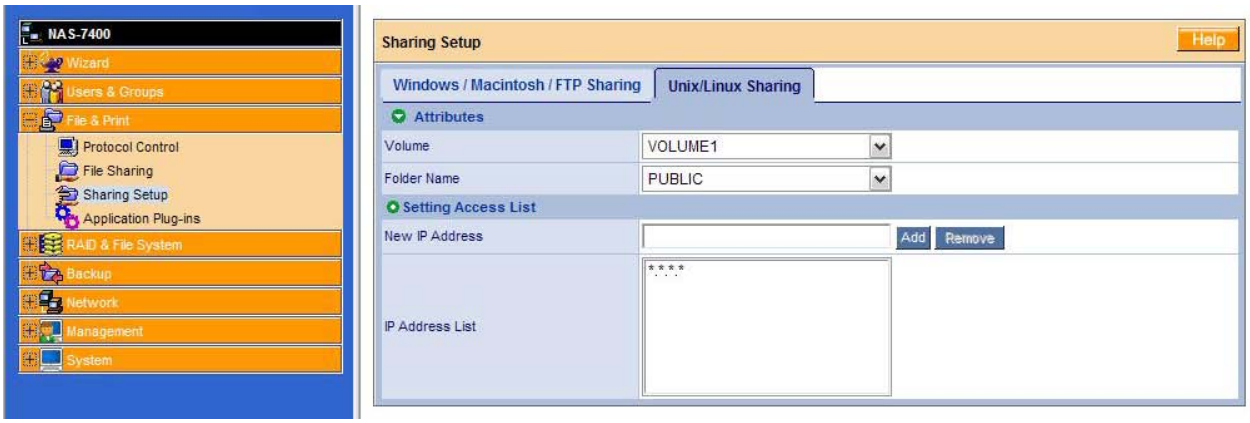
- ✓ Deny Access
- ✓ Read Only
- ✓ Read and Write

If finished, please click the **OK** button.

6.3.11 Configure the UNIX and Linux Sharing for a Folder

UNIX and Linux sharing designates which UNIX and Linux PCs can access the folders on your NAS-7400. You specify a UNIX or Linux PC by its IP address. You can add up to 256 IP addresses for all of your folders.
You must designate the IP addresses for each folder individually.

To set up UNIX and Linux sharing for a folder, please click on the UNIX/Linux Sharing tab.



- **From the Volume dropdown menu**: Select the RAID Volume containing the folder you want to modify.
- **From the Folder Name dropdown menu**: Select the folder you want to modify.

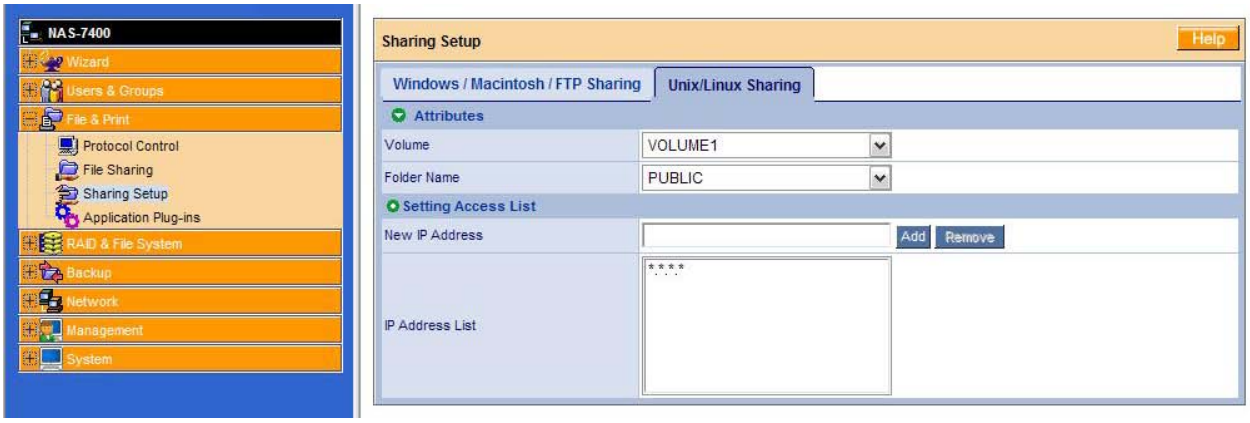
- **In the New IP Address field**: Type the IIP address of the UNIX or Linux PC from which you will access this folder.

If finished, please click the **Add** button.

6.3.12 Configure the FTP Sharing for a Folder

FTP sharing assigns user access the folders on your NAS-7400. By default all users and groups have read-only access.

To set up FTP sharing for a fold, please click on the **FTP Sharing** tab.



- **Volume dropdown menu**: Select the RAID Volume containing the folder you want to modify.
- **Folder Name dropdown menu**: Select the folder you want to modify.
- **In the User/Group list**: Highlight the user or group to which you want to assign permissions.

In the Permission list, click on the option button for one of the following permissions:

- ✓ Deny Access
- ✓ Read Only
- ✓ Read and Write

If finished, please click the **OK** button.

6.4 Managing RAID Volumes

6.4.1 Viewing RAID Volume Status

RAID status refers to the disk drives on your NAS-7400 and how they are arranged into a RAID Volume.

To view the status of your RAID Volume,

i. Please click on the **+** button beside the **RAID & File System** icon

ii. And then click on the **RAID Management** icon to view the RAID status.

iii. The RAID Status tab displays the current RAID system and its status:

- **RAID Name** – The name of your RAID, automatically assigned when it was created
- **RAID Level** – RAID 0, 1, 5, or 10, specified when it was created
- **Capacity** – Data capacity of the RAID Volume in GB
- **RAID Status** -
  - ✓ Functional is normal.
  - ✓ Critical means a disk drive has failed.
  - ✓ Offline means you cannot access your data.
  - ✓ Critical and offline RAIDs require you to take corrective action.
- **Action Status** -
  - ✓ Idle is normal.
  - ✓ Rebuilding means the RAID Volume is being rebuilt after a disk drive failure.
  - ✓ Migrating means the RAID Volume is adding a disk drive or changing RAID levels.

- **Background Activity** -
  - ✓ None is normal
  - ✓ Running means a background activity is in progress.

6.4.2 Viewing Disk Drive Information

To view information about a disk drive:

i. In the Tree, click on the **+** beside the RAID & File System icon.

ii. Click on the RAID Management icon.

iii. The RAID Status tab displays the current RAID system and its status.

iv. In the Disk List, double-click on a disk drive icon.

v. The disk drive information displays under Disk Status.

6.4.3 Creating a RAID Volume

On NAS-7400, the term RAID Volume refers to one or more disk drives working together as a RAID logical drive.
You can also use a USB disk to create a RAID Volume.
You must have unassigned disk drives in your NAS-7400 to create a new RAID.

To create a new RAID Volume, and please click on the **Create** tab.

i. From RAID Level dropdown menu, select the RAID level you prefer for your disk array.

ii. Highlight disk drives in the Free Disks column and click the **>>** button to move them to the Disks in RAID column.

iii. If finished, please click the **OK** button.

iv. The RAID Volume is created and formatting begins. Formatting requires several minutes, depending on the size of your disk drives.

v. After formatting is done, you must create folders on your RAID Volume.

6.4.4 Designating a Spare Drive

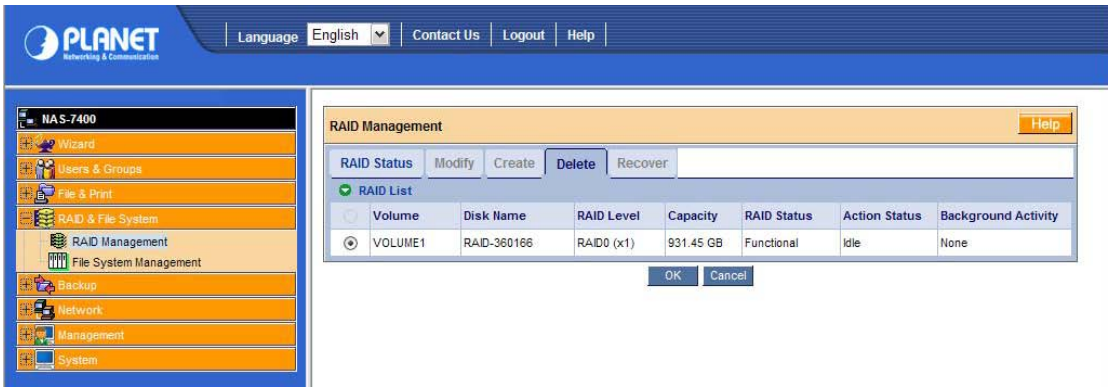
If you have an unassigned disk drive, you can assign it as a spare drive.

To assign a spare drive,

i. Click on the **RAID Management** icon.
ii. Click on the **Create** tab.
iii. From the RAID Level dropdown menu, select **Spare Disk**.
iv. Highlight disk drive in the Free Disks column and click the "**>>**" button to move it to the Disks in RAID column.
v. If finished, please click the **OK** button.

6.4.5 Migrating a RAID Volume

To migrate a RAID Volume means to change its RAID level or to add disk drives.



To migrate a RAID Volume,

i. Click on the **RAID Management** icon.
ii. Click on the **Modify** tab.
iii. From the Current Volume dropdown menu, select the RAID Volume which you want to modify.
iv. In the Migrate to RAID Level dropdown menu, select the target RAID Level.
v. To add disk drives, highlight disk drives in the Free Disks column and click the **>>** button to move them to the Disks in RAID column.
vi. If finished, please click the **OK** button.

vii. The RAID Volume is modified as you directed. Migration requires several minutes, depending on the type of modification taking place and the size of your disk drives.

viii. During the modification, your RAID Volume and all of the folders on it are fully accessible.

ix. After the Migration is completed, you must extend the file system in order to use the storage space you have added. You can extend the file system immediately or wait until later.

x. Click on the **File System Management** icon.

xi. In the **File System Status** tab, click on the **Extend File System** button.

6.4.6 Deleting a RAID Volume

To delete a RAID Volume; please click on the **Delete** tab.

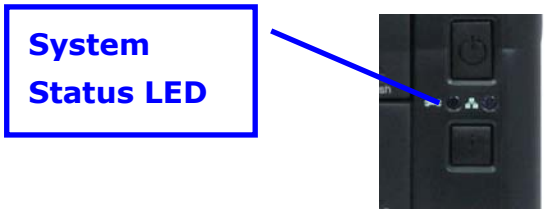
i. Click the option button beside the RAID Volume you want to delete.

ii. Click the **OK** button.

iii. In the confirmation box, type **yes** into the field provided and click the **OK** button.

iv. After a RAID Volume is deleted, the NAS-7400 reboots automatically.

v. When the NAS-7400 is fully booted:



✓ The System Status LED turns green (right)

✓ The buzzer beeps one time (if the buzzer is enabled)

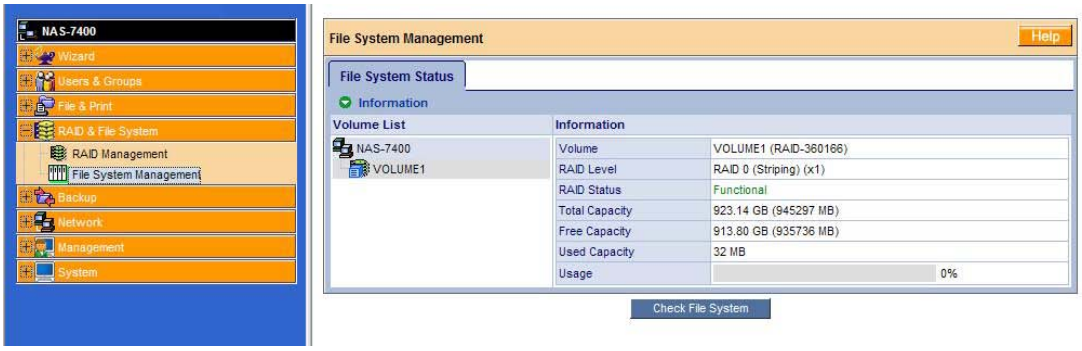
- Close your browser then restart the browser to access PASM.

✍Note When you delete a RAID Volume, you delete all the folders in the RAID volume and all the data saved in the folders. Back up any important data before you delete a RAID Volume.

✍Note You cannot delete a RAID Volume while a background activity is running, such as Migration or Rebuild. Wait until these activities are completed.

6.4.7 Viewing an External USB Driver or Memory Stick

To view a USB drive or memory stick attached to the NAS-7400, please click on the "**File System Management**" icon.



The USB drive or memory stick appears as a Volume called USBDISK.

You do NOT create a RAID Volume or folders with the USB drive or memory stick as you would with the disk drives installed in the NAS-7400 enclosure. With the USB drive or memory stick connected to the NAS-7400, create a network drive on your PC and choose the USB disk as the folder. Then you can access the USB drive or memory stick from your PC.

6.4.8 Formatting an External USB Driver or Memory Stick

This option only appears when NAS-7400 does not recognize the file system on the USB drive or memory stick.

To format a USB drive or memory stick:

i. Attach the USB drive or memory stick to one of the USB ports on the back of the NAS-7400.
ii. Click on the "**File System Management**" icon.
iii. On the "**File System Status**" tab, highlight the USB drive.
iv. From the Format File System Type dropdown menu, choose a file system:
   - ✓ **FAT 32** – Use for Windows, Linux, and Macintosh PCs, and NAS-7400
   - ✓ **Ext3** – Use for UNIX and Linux PCs, and NAS-7400

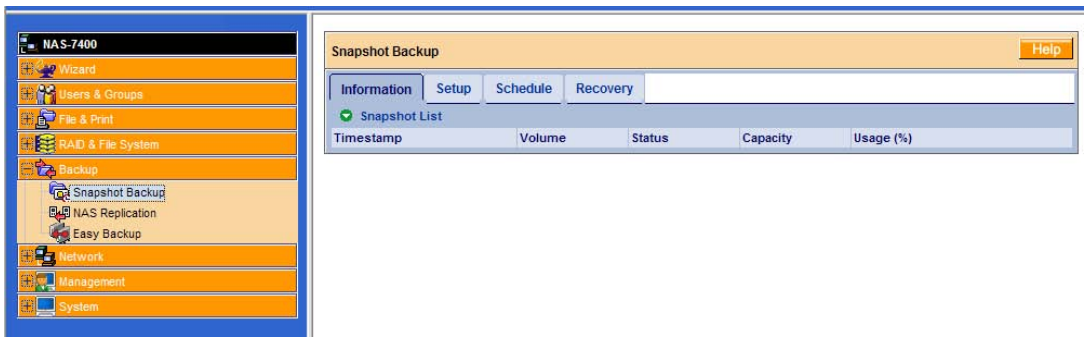
- Click on the "**Format USB Disk**" button.
- In the confirmation box, type "**yes**", then click the "**OK**" button.
- Formatting requires several minutes, depending on the size of your USB drive or memory stick.

Note When you format a USB drive or memory stick, you delete all the data saved on it. Back up any important data before you format.

6.5 Managing Backups

6.5.1 Viewing a List if Snapshot Backups

To view the list of Snapshot backups:



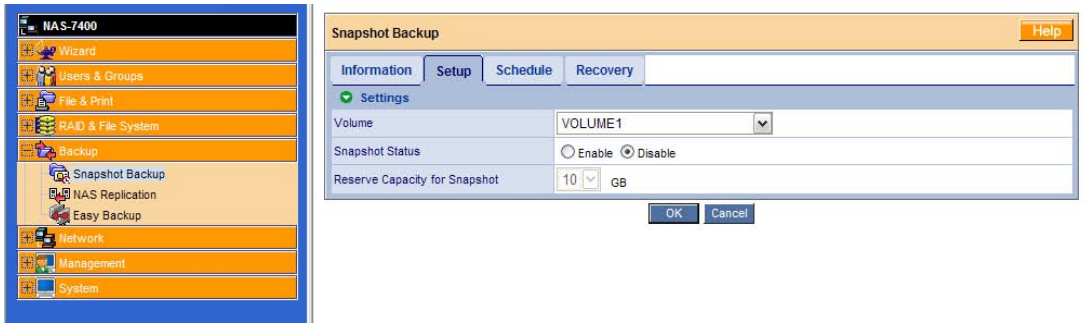
i. In the Tree, click on the + beside the **Backup** icon.
ii. Click on the **Snapshot Backup** icon.
iii. The current list of Snapshots displays on the **Information** tab.

6.5.2 Setting up a Snapshot Backup

Note Setting up a Snapshot will delete all existing snapshots.

To setup a Snapshot Backup:

i. In the Tree, click on the + beside the **Backup** icon.



ii. Click on the **Snapshot Backup** icon.

iii. Click on the **Setup** tab.

iv. From the Volume dropdown menu, select the RAID Volume you want to backup.

v. Next to Snapshot Status, click the **Enable** option.

vi. In the Reserve Capacity dropdown menu, select a portion in GB of the RAID Volume you want to reserve for snapshots.

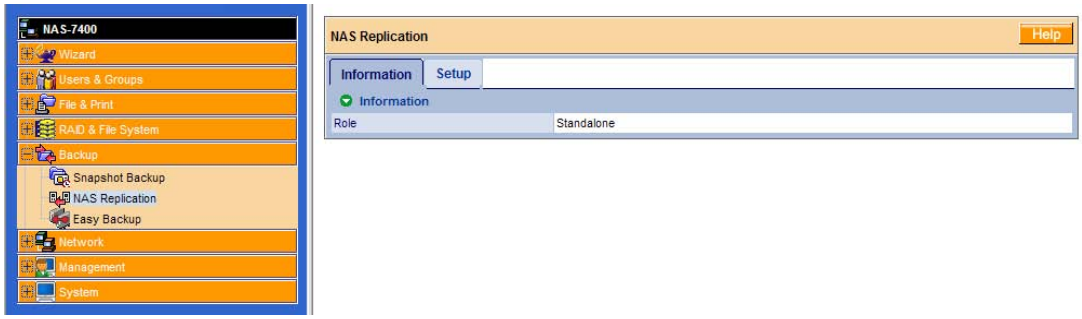
vii. Click the **OK** button.

viii. In the confirmation box, type yes into the filed provided than click the **OK** button.

6.5.3 Viewing the NAS Replication Schedule

NAS Replication is a feature that uses one NAS-7400 to backup the data on another NAS-7400. The two NAS-7400 systems must be on the same network.

To view the NAS Replication schedule:



i. In the Tree, click on the + beside the Backup icon.

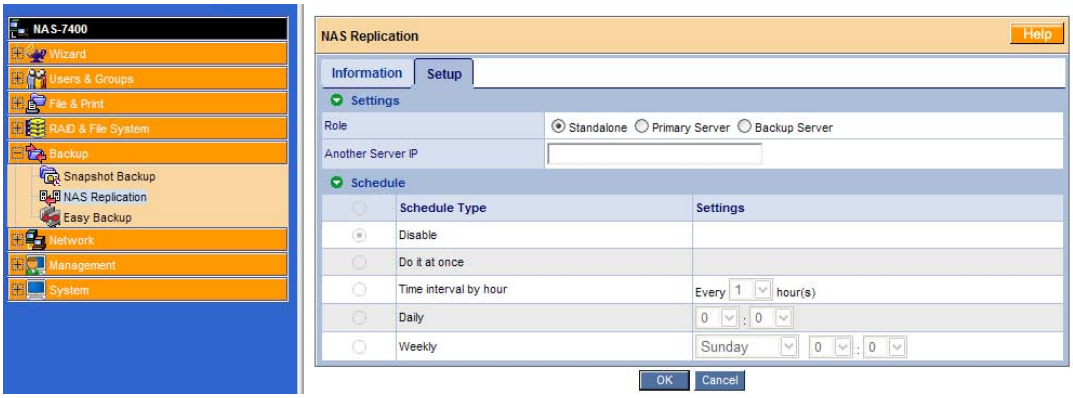
ii. Click on the **NAS Replication** icon.

The current schedule displays on the Information tab.

- ✓ Role:
  - **Standalone** – No backup server was specified
  - **Primary Server** – This NAS-7400 is the primary, the other NAS-7400 is the backup
  - **Backup Server** – This NAS-7400 is the backup, the other NAS-7400 is the primary
  - **Primary or Backup Server** – The IP address of the other NAS-7400 on the network.
  - **Schedule** -- Replication schedule in number of hours, daily or weekly. Appears on the primary server.

6.5.4 Setting up NAS Replication

To set up NAS replication:



i. In the Tree, click on the + beside the Backup icon.

ii. Click on the **NAS Replication** icon.

iii. Click on the **Setup** tab.

iv. Under Settings, click the **Role** option button to assign a role to this NAS-7400:

- **Standalone** – Use this option when you only have one NAS-7400 on your network. This is the default setting and it disables NAS Replication.
- **Primary** – This NAS-7400 is the primary and the other NAS-7400 is the backup server.
- **Backup Server** – The other NAS-7400 is the primary and this NAS-7400 is the backup server.

v. If you chose Primary or Backup Server, type the IP address of the other NAS-7400 on your network.

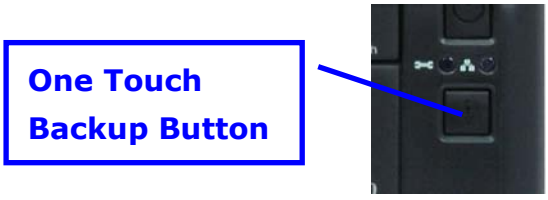
vi. Under Schedule, click the option button for the schedule type you want:

- **Disable** – Disables NAS Replication
- **Do it at once**– Performs a NAS Replication when you click the OK button.
- **Time interval by hour** – Set an hourly interval for NAS Replications to happen.
- **Daily** – Sets the time of day when the NAS Replications happen.
- **Weekly** – Sets the time of day and day of the week when the NAS Replications happen.

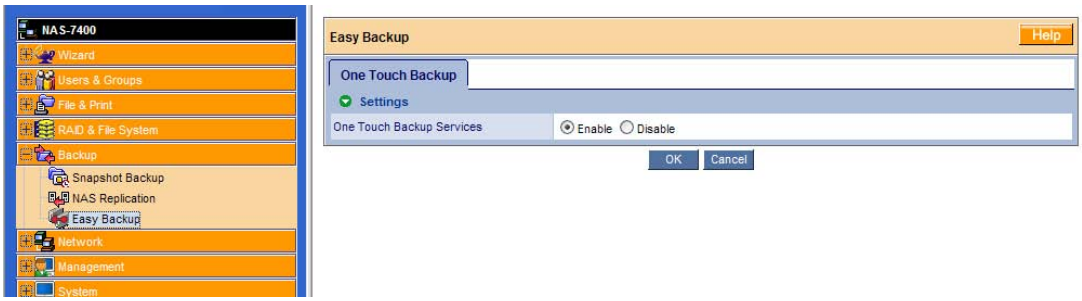
vii. Click the "**OK**" button.

6.5.5 Enabling One Touch Backup

One Touch Backup is a feature that enables you to backup specified folders from your PC to the NAS-7400 by pressing a button on the front of the NAS-7400.



To enable One Touch Backup:

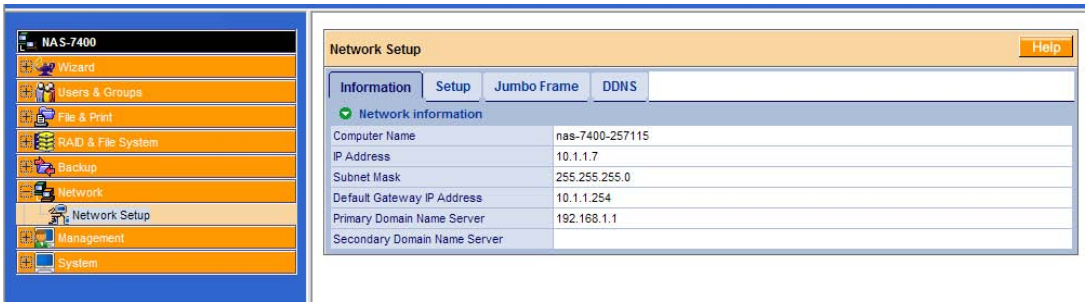


i. In the Tree, click on the "**+**" button beside the "**Backup**" icon.
ii. Click on the "**Easy Backup**" icon.
iii. In the "**Easy Backup**" tab, click on the "**Enable**" option.
iv. Click the "**OK**" button.

6.6 Managing the Network Connection

6.6.1 Viewing Network Setup Information

To view network setup information:

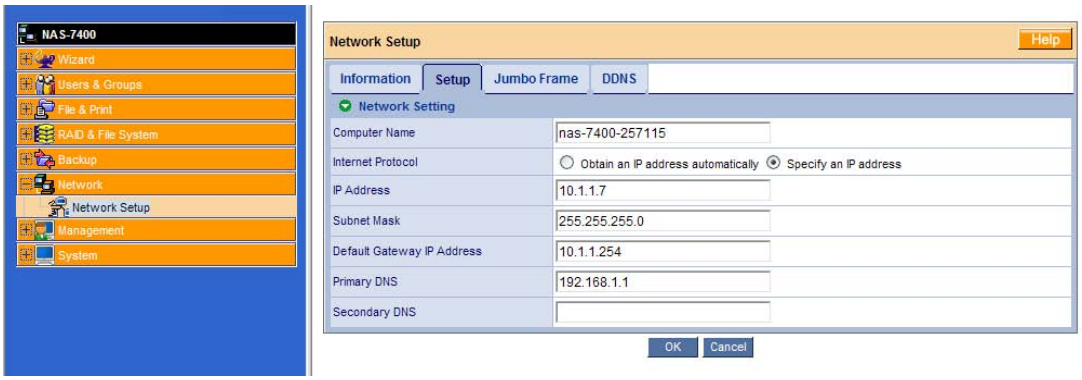


i. In the Tree, click on the + beside the Network icon.
ii. Click on the Network Setup icon. The current network setup for this NAS-7400 displays on the Information tab:

- Computer Name
- IP Address
- Subnet Mask
- Default Gateway IP Address
- Primary Domain Name Server IP Address
- Secondary Domain Name Server IP Address
- To change these settings, click on the Setup tab.

6.6.2 Making Network Settings

To make network settings:



i. In the Tree, click on the + beside the Network icon.
ii. Click on the **Network Setup** icon.
iii. Click on the **Setup** tab.
iv. Type a name for the NAS-7400 in the Computer Name field.
v. Click on an option button to choose an Internet Protocol option:
   - **Obtain an IP address automatically** – Choose this option to let your DHCP server make the network settings.
   - **Specify an IP address** – Choose this option if you want to make your network settings manually.
vi. If you chose Specify an IP address, enter the following settings in the fields provided:
   - IP Address
   - Subnet Mask
   - Default Gateway IP Address
   - Primary Domain Name Server IP Address
   - Secondary Domain Name Server IP Address

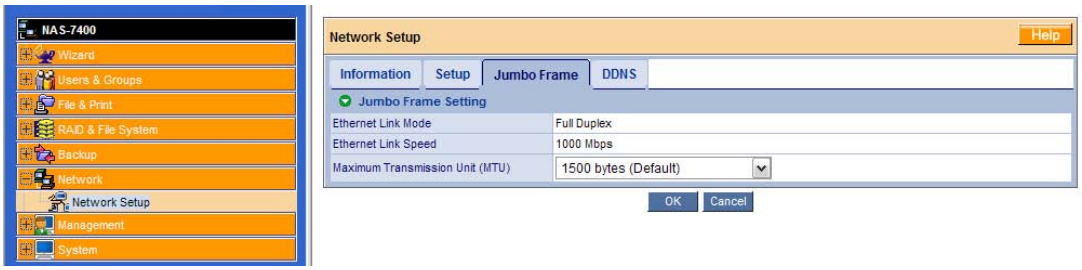
See your Network Administrator for help in making these settings.
Click the **OK** button to save your settings.

6.6.3 Working with Jumbo Frames

The term jumbo frame refers to a frame on a local area network that is larger than the standard 1518 byte size. NAS-7400 supports jumbo frames up to 9000 bytes.

On NAS-7400, the frame size setting is called Maximum Transmission Unit (MTU). The default MTU or frame is 1500 bytes. This setting is appropriate for most users. See your Network Administrator before you change this setting.

To make frame size settings:



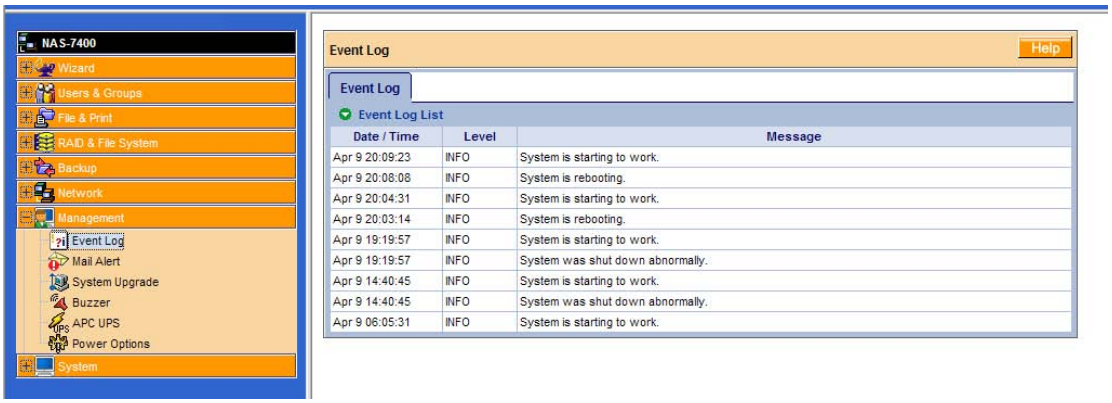
i. In the Tree, click on the + beside the Network icon.
ii. Click on the **Network Setup** icon.
iii. Click on the **Jumbo Frame** tab.
iv. From the MTU dropdown menu, select the maximum MTU or frame size:
   - 1500 bytes (default)
   - 4000 bytes
   - 7000 bytes
   - 9000 bytes
v. Click the **OK** button to save your setting.

6.7 Making Management Settings

6.7.1 Viewing the Event Log

The event log keeps a log of the 20 most recent events on the NAS-7400. You can use this information to review your actions and to diagnose problems.

To view the Event Log:



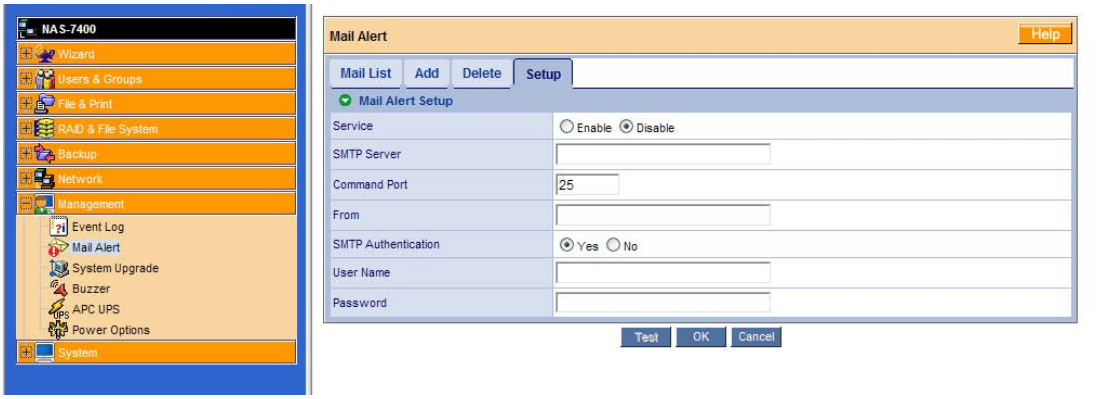
i. In the Tree, click on the **+** beside the Management icon.

ii. Click on the Event Log icon.

- A list of the 20 most recent events displays on the Event Log tab.
- Events are ranked in severity as Information, Warning, and Error.

6.7.2 Setting up SMTP Authentication

In order to set up email alerts over a network, you must enable the SMTP service, specify a SMTP server, and in most cases, supply authentication information. See your Network Administrator for help with these settings. To set up SMTP authentication:



i. In the Tree, click on the **+** beside the Management icon.

ii. Click on the Mail Alert icon.

iii. Click on the Setup tab.

iv. Next to Service, click on the **Enable** option button.

v. In the SMTP Server field, type the IP address or the DNS name of your SMTP server.

vi. In the field, the sender's email address that you want to appear in the alert messages.

vii. Next to SMTP Authentication:

- Click on the **Yes** option button to enable authentication.
- Click on the **No** option button to disable authentication.

Note: The most SMTP servers require authentication.

viii. If you enabled authentication, to the following:

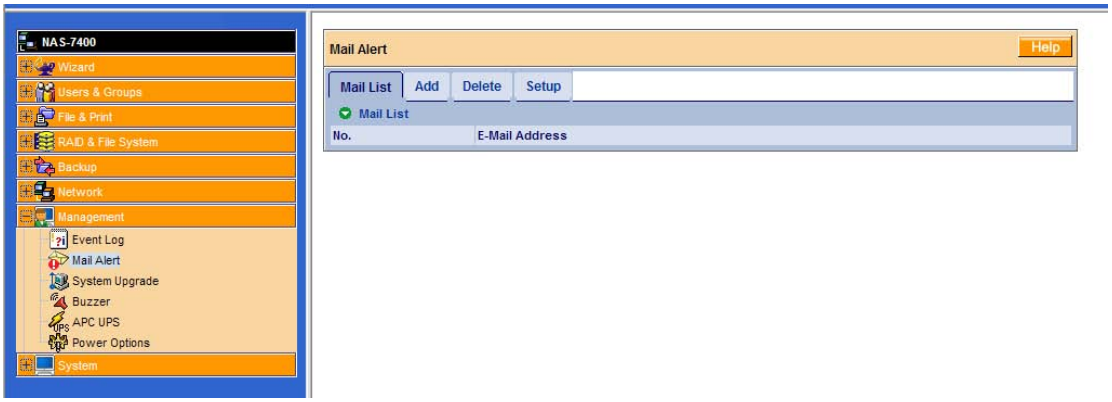
- In the User Name field, type the mail server account name.
- In the Password field, type the password of the mailer server account.

ix. Click the **OK** button.

6.7.3 Viewing the Email Alert List

The NAS-7400 will send alerts via email to the recipients you designate.

To view a list of Email Alert recipients:



i. In the Tree, click on the **+** beside the Management icon.

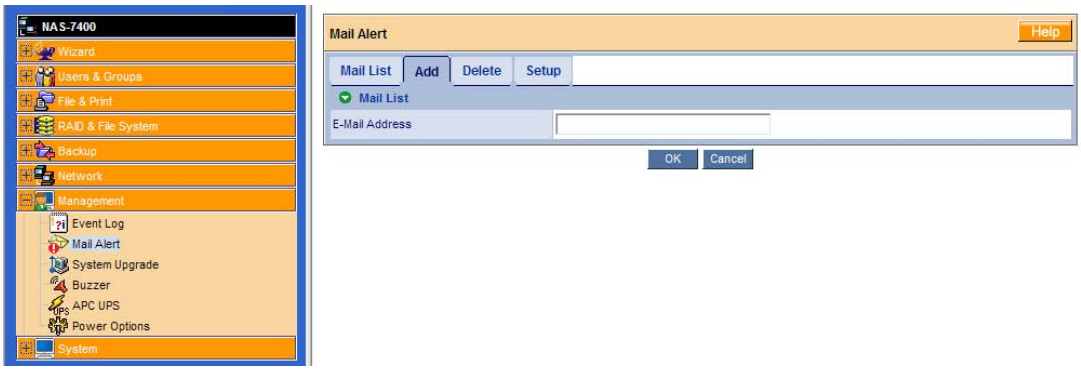
ii. Click on the **Mail Alert** icon.

The list of recipients displays on the Mail List tab.

6.7.4 Adding an Email Alert Recipient

You can have up to 32 Email Alert recipients.

To add an Email Alert recipient:



i. In the Tree, click on the **+** beside the Management icon.

ii. Click on the **Mail Alert** icon.

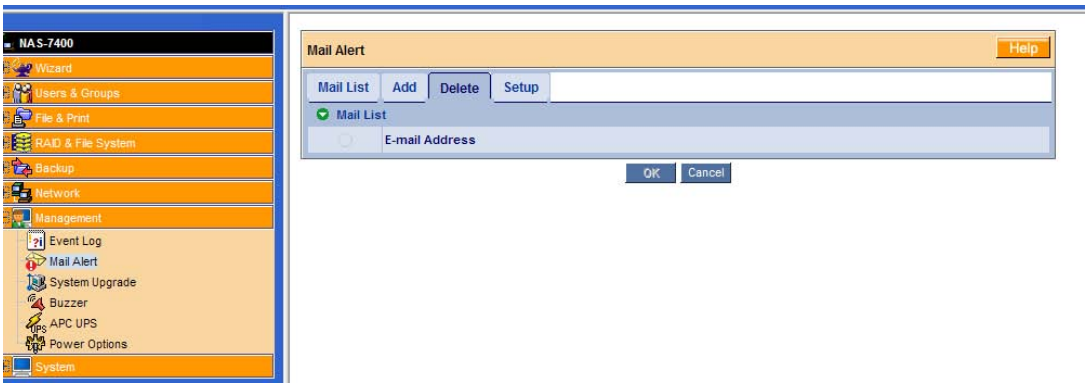
iii. Click on the **Add** tab.

iv. In the E-Mail Address field, type the recipient's email address.

v. Click the **OK** button.

6.7.5 Deleting an Email Alert Recipient

To delete an Email Alert recipient:



i. In the Tree, click on the **+** beside the Management icon.

ii. Click on the Mail Alert icon.

iii. Click on the Delete tab.

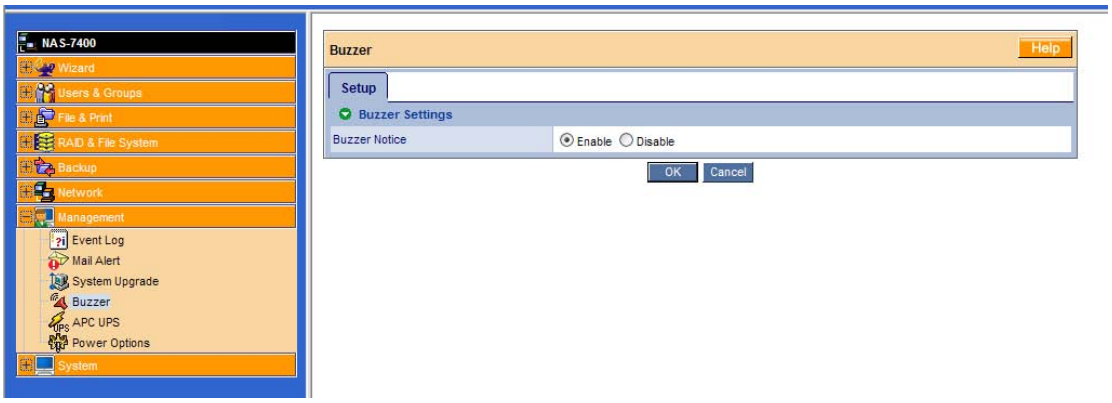
iv. Click the option button beside the E-Mail Address you want to delete.

v. Click the **OK** button.

vi. In the confirmation box, click the **OK** button.

6.7.6 Enabling and Disabling the Buzzer

The NAS-7400 has a buzzer that sounds when the NAS-7400 is finished booting and when a problem is detected. The buzzer is enabled by default.



PLANET recommends that you leave the buzzer enabled.

To disable the buzzer:

i. In the Tree, click on the **+** beside the Management icon.

ii. Click on the Buzzer icon.

iii. Click on the **Disable** option button.

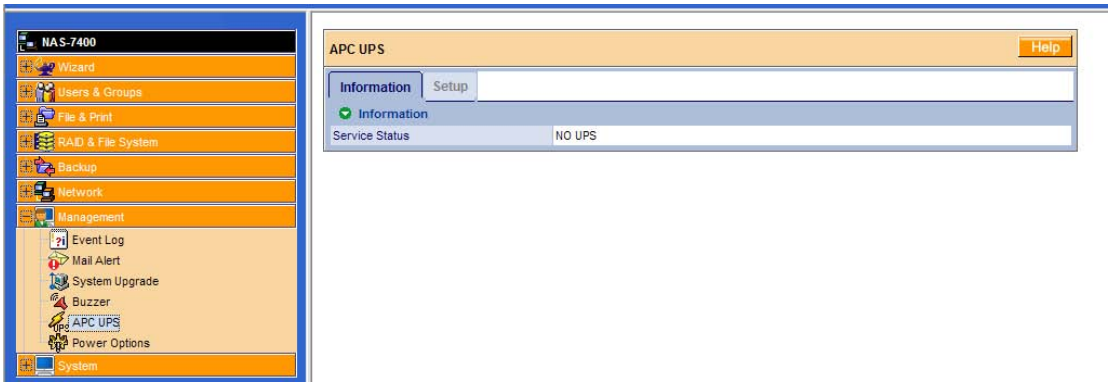
iv. Click the **OK** button.

v. Click the **Enable** option button and click the **OK** button to enable the buzzer.

6.7.7 Viewing UPS Status

If you have an APC Uninterruptable Power Supply (UPS) attached to the NAS-7400, you can check its status in PASM.

To view UPS status:



i. In the Tree, click on the **+** beside the Management icon.

ii. Click on the APC UPS icon.

iii. The Information tab displays the status of the UPS.

iv. If there is no UPS connected or recognized, the Status field reports "NO UPS."

6.7.8 Setting up a UPS

To set up a UPS:

i. Attach the APC UPS to one of the NAS-7400's USB ports.

ii. In the Tree, click on the **+** beside the Management icon.

iii. Click on the APC UPS icon.

iv. Click on the Setup tab.

The Setup tab enables you to tell the NAS-7400 how and when to shutdown after a power failure.

Click the option button beside the shutdown option you want:

- Disable - The NAS-7400 will continue to run until the UPS battery is depleted
- Shutdown when the UPS reaches a set percentage of reserve power
- Shutdown when the UPS reaches a set number of minutes of remaining runtime
- Shutdown after running on the UPS batteries for a set number of minutes

v. If you selected battery percentage, type a percentage amount in the % field.

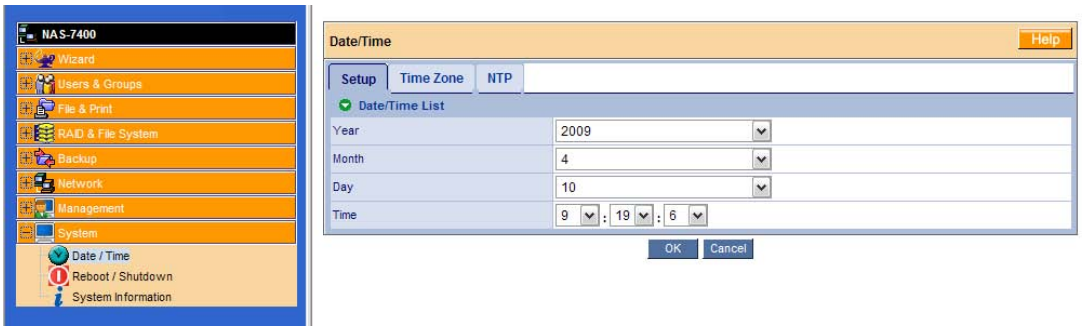
vi. If you selected running time, type the number of minutes into the Mins. field.

vii. Click the **OK** button.

6.8 Managing Services

6.8.1 Setting System Date and Time

To set the date and time on the NAS-7400:



i. In the Tree, click on the **+** beside the System icon.

ii. Click on the Date / Time icon.

iii. Click on the Setup tab.

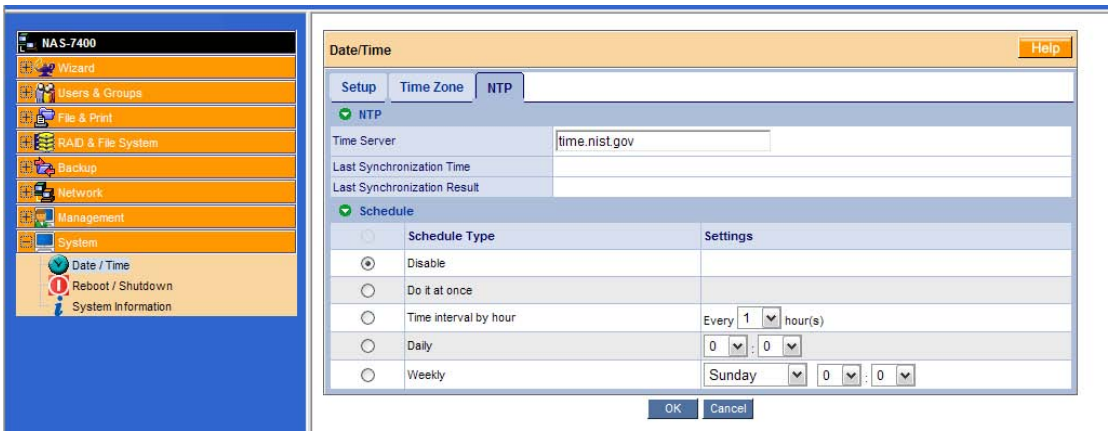
iv. From the dropdown menus, choose the time and date values.

v. Click the **OK** button.

6.8.2 Running the Network Time Protocol

You can use the Network Time Protocol (NTP) to set the system date and time on your NAS-7400 to synchronize itself with an external Time Server.

To run the Network Time Protocol:



i. In the Tree, click on the **+** beside the **System** icon.

ii. Click on the **Date / Time** icon.

iii. Click on the **Time Zone** tab.

iv. From the dropdown menu, select the time zone for your location.

v. Click the **OK** button.

vi. Click on the **NTP** tab.

vii. In the Time Server field, type the URL of the time server you want to use.

URL *time.nist.gov* is the default.

viii. Under Schedule, choose one of the options:

- **Disable** – Disables NTP synchronization
- **Do it at once** – Performs a synchronization when you click the OK button.
- **Time interval by hour** – Set an hourly interval for a synchronization to happen.
- **Daily** – Sets the time of day when the synchronization happens.
- **Weekly** – Sets the time of day and day of the week when the

ix. Click the **OK** button.

6.8.3 Viewing the Results of NTP Synchronization

To view the results of NTP synchronization:

i. In the Tree, click on the **+** beside the System icon.

ii. Click on the Date / Time icon.

iii. Click on the **NTP** tab.

The results of the latest synchronization are displayed:

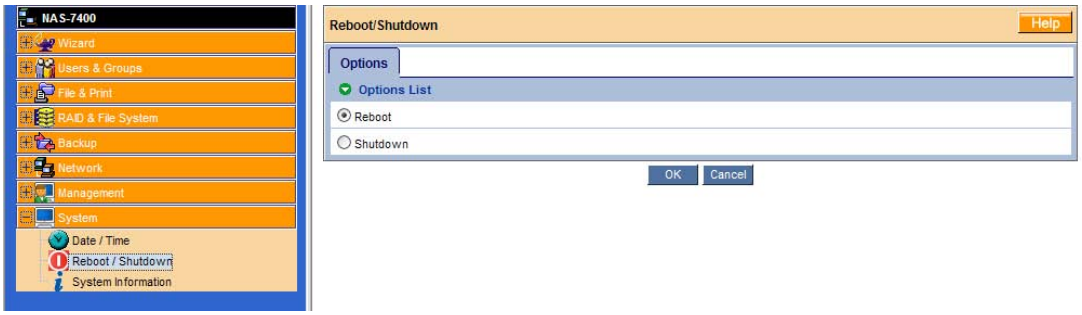
- **Last Synchronization Time** – Time and date of the last synchronization
- **Last Synchronization Result** – OK means success

6.8.4 Rebooting the NAS-7400

Normally you will only need to reboot the NAS-7400 is after a firmware upgrade.

During the reboot, none of your folders will be accessible from your network PCs.

To reboot the NAS-7400:



i. In the Tree, click on the **+** beside the System icon.

ii. Click on the Reboot / Shutdown icon.

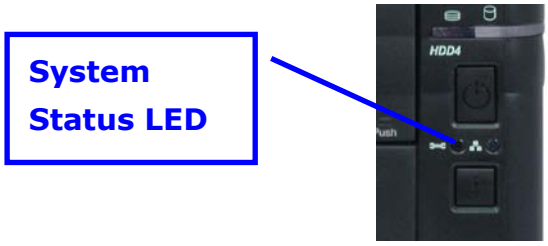
iii. Click on the Reboot option.

iv. Click the **OK** button.

v. In the confirmation box, click the **OK** button.

The reboot runs automatically. When the NAS-7400 is fully booted:

- The System Status LED turns green (right)
- The buzzer beeps one time (if the buzzer is enabled)



6.8.5 Shutting Down the NAS-7400

The only time you need to shut down the NSA-7400 is to replace the disk drive cooling fan or the power supply. See "Appendix B: Maintenance"

During and after the shutdown, none of your folders will be accessible from your network PCs.

To shut down the NAS-7400:

i. In the Tree, click on the **+** beside the System icon.

ii. Click on the Reboot / Shutdown icon.

iii. Click on the Shutdown option.

iv. Click the **OK** button.

v. In the confirmation box, click the **OK** button.

6.8.6 Restarting the NAS-7400

The only time you need to shut down the NAS-7400 is to replace the disk drive cooling fan or the power supply. See "**Appendix B: Maintenance**" During and after the shutdown, none of your folders will be accessible from your network PCs.

To shut down the NAS-7400:

i. In the Tree, click on the "**+**" button beside the "**System**" icon.

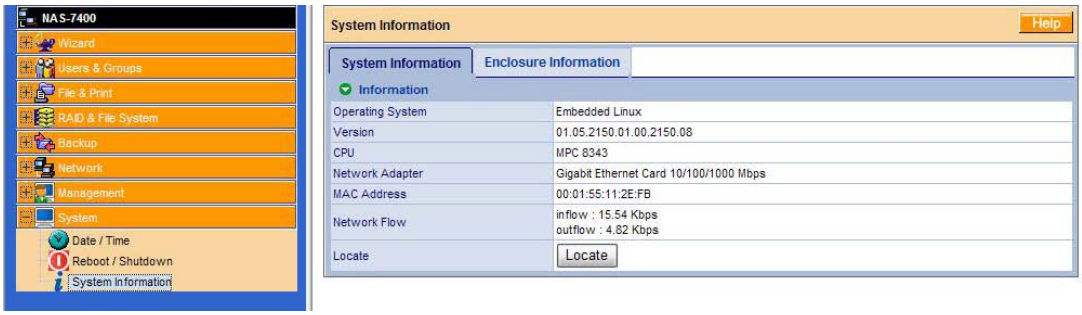
ii. Click on the "**Reboot / Shutdown**" icon.

iii. Click on the "**Shutdown**" option.

iv. If finished, please click the "**OK**" button.

6.8.7 Viewing System Information

To view system information:



i. In the Tree, click on the "**+**" button beside the "**System**" icon.

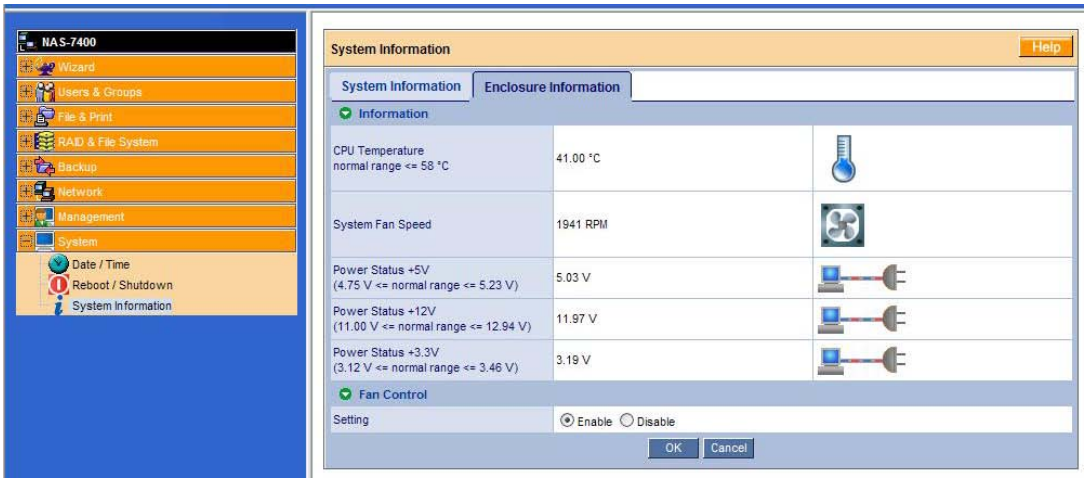
ii. Click on the Reboot / Shutdown icon.

iii. Click on the System Information tab. System Information includes:

- ✓ **Operating System** – Embedded Linux
- ✓ **Firmware Version** – Changes when you upgrade the firmware.
- ✓ **CPU model** – MPC 8343
- ✓ **Network Adapter** – Gigabit Ethernet
- ✓ **Network Flow** – Inflow and Outflow speeds in bits per second

6.8.8 Viewing Enclosure Information

To view enclosure information:



i. In the Tree, click on the "**+**" button beside the "**System**" icon.

ii. Click on the "**Reboot / Shutdown**" icon.

iii. Click on the "**Enclosure Information**" tab. Enclosure Information includes:

- ✓ CPU temperature
- ✓ System temperature
- ✓ System Fan Speed
- ✓ Power Status 5V
- ✓ Power Status 12V
- ✓ Power Status 3.3V

Chapter 7: Technology Background

7.1 Introduction to RAID

RAID (Redundant Array of Independent Disks) allows multiple disk drives to be combined together into a RAID Volume. You create a RAID Volume on your NAS-7400 when you perform the setup procedure, either in the NAS Setup Wizard or the PASM Setup Wizard.

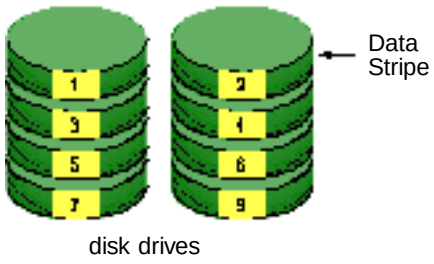
The benefits of a RAID can include:

- Higher data transfer rates for increased server performance
- Increased overall storage capacity for a single Volume
- Data redundancy/fault tolerance for ensuring continuous system operation in the event of a disk drive failure

Different RAID levels use different organizational models and have varying benefits.

7.1.1 RAID 0 – Stripe

When a RAID Volume is striped, the read and write blocks of data are interleaved between the sectors of multiple disk drives. Performance is increased, since the workload is balanced between drives or "members" that form the RAID Volume. Identical drives are recommended for performance as well as data storage efficiency.

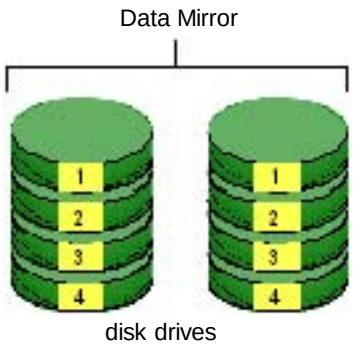


RAID 0 Striping interleaves data across multiple drives

The RAID Volume's data capacity equals the capacity of the smallest disk drive times the number of disk drives. For example, one 100 GB and three 120 GB drives will form a 400 GB (4 x 100 GB) RAID Volume instead of 460 GB.
If disk drives of different capacities are used, there will also be unused capacity on the larger drives.
Because RAID 0 does not offer Fault Tolerance, meaning that you cannot recover your data after a disk drive failure, RAID 0 Volumes on NAS-7400 consist of one or more disk drives.

7.1.2 RAID 1 – Mirror

When a RAID Volume is mirrored, identical data is written to a pair of disk drives, while reads are performed in parallel. The reads are performed using elevator seek and load balancing techniques where the workload is distributed in the most efficient manner. Whichever drive is not busy and is positioned closer to the data will be accessed first.
With RAID 1, if one disk drive fails or has errors, the other mirrored disk drive continues to function. This is called Fault Tolerance. Moreover, if a spare disk drive is present, the spare drive will be used as the replacement drive and data will begin to be mirrored to it from the remaining good drive.

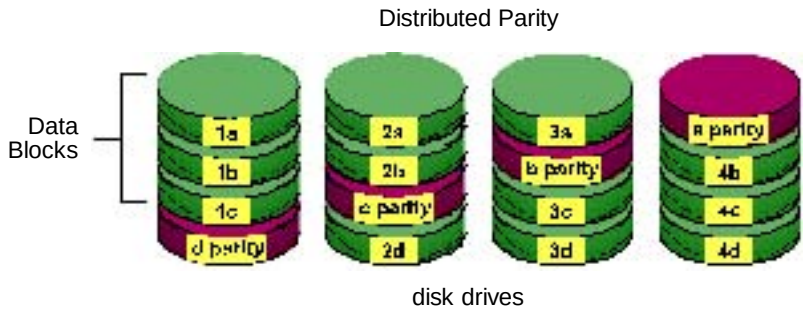


RAID 1 Mirrors identical data to two drives

The RAID Volume's data capacity equals the smaller disk drive. For example, a 100 GB disk drive and a 120 GB disk drive have a combined capacity of 100 GB in a mirrored RAID Volume.
If disk drives of different capacities are used, there will also be unused capacity on the larger drive.
RAID 1 Volumes on NAS-7400 consist of two disk drives.

7.1.3 RAID 5 – Block Striping with Distributed Parity Mirror

RAID 5 organizes block data and parity data across the disk drives. Generally, RAID level 5 tends to exhibit lower random write performance due to the heavy workload of parity recalculation for each I/O. RAID 5 works well for file, database, application and web servers.

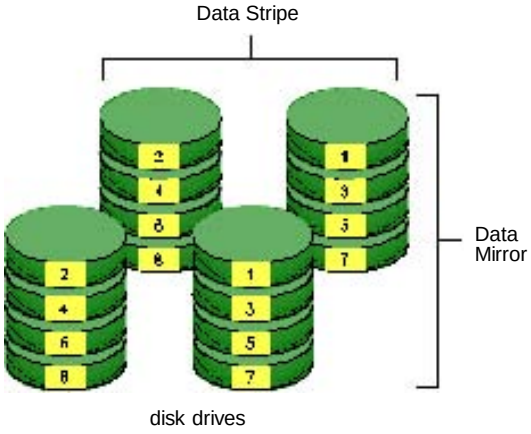


RAID 5 Stripes all drives with data and parity information

The capacity of a RAID 5 Volume equals the smallest disk drive times the number of disk drives, minus one. Hence, a RAID 5 Volume with four 100 GB disk drives will have a capacity of 300 GB. A RAID Volume with two 120 GB disk drives and one 100 GB disk drive will have a capacity of 200 GB.
RAID 5 is generally considered to be the most versatile RAID level.
RAID 5 requires a minimum of three disk drives.

7.1.4 RAID 10 – Mirror / Stripe

Mirror/Stripe combines both of the RAID 0 and RAID 1 types. RAID 10 can increase performance by reading and writing data in parallel while protecting data with duplication. At least four disk drives are needed for RAID 10 to be installed. With a four-disk-drive RAID Volume, one drive pair is mirrored together then striped over a second drive pair.



RAID 10 takes a data mirror on one drive pair and stripes it over two drive pairs

The data capacity RAID 10 Volume equals the capacity of the smallest disk drive times the number of disk drives, divided by two.
In some cases, RAID 10 offers double fault tolerance, depending on which disk drives fail.
RAID 10 Volumes on NAS-7400 consist of four disk drives.
Because all of the available disk drives are used for the RAID Volume, you cannot set up a spare drive with RAID 10.

7.2 Choosing a RAID Level

There are several issues to consider when choosing the RAID level for your Volume. The following discussion summarizes some advantages, disadvantages and applications for each choice.

RAID 0

Advantages	Disadvantages
Implements a striped disk RAID Volume, the data is broken down into blocks and each block is written to a separate disk drive I/O performance is greatly improved by spreading the I/O load across many channels and drives No parity calculation overhead is involved	Not a true RAID because it is not fault-tolerant The failure of just one drive will result in all data in an RAID Volume being lost Should not be used in mission critical environments

Recommended applications for RAID 0:

- Image Editing
- Pre-Press Applications
- Any application requiring high bandwidth

RAID 1

Advantages	Disadvantages
Simplest RAID storage subsystem design Can increase read performance by processing data requests in parallel since the same data resides on two different drives	Very high disk overhead - uses only 50% of total capacity

Recommended applications for RAID 1:

- Accounting/Financial
- Payroll

- Any application requiring very high availability

RAID 5

Advantages	Disadvantages
High Read data transaction rate Medium Write data transaction rate Good aggregate transfer rate Most versatile RAID level	Disk failure has a medium impact on throughput

Recommended applications for RAID 5:

- File and Application servers
- WWW, E-mail, and News servers
- Intranet servers

RAID 10

Advantages	Disadvantages
Implemented as a mirrored RAID Volume whose segments are RAID 0 RAID Volumes High I/O rates are achieved thanks to multiple stripe segments	Very high disk overhead – uses only 50% of total capacity

Recommended applications for RAID 10:

- Imaging applications
- Database servers
- General fileserver

7.2.1 TB Limitation

In order to be compatible with different Operating Systems and the files systems that each one supports, the largest RAID Volume you can create on NAS-7400 is 2 TB.

7.3 Spare Drive

A spare is a disk drive that has been designated to replace a failed disk drive in a RAID Volume. In the event of the failure of a disk drive within a RAID 1 or three-drive RAID 5 Volume, the spare drive is activated as a member of the RAID Volume to replace a disk drive that has failed.
A spare drive cannot replace the failed drive in a RAID 0 Volume because of the way in which data is written to the disk drives under RAID 0.
A spare drive is not available for a RAID 10 Volume because RAID 10 requires all four disk drives in the NAS-7400 enclosure. However, when you replace the failed disk drive, the NAS-7400 will automatically rebuild the RAID Volume using the new disk drive.
You must designate a disk drive as a Spare. By default, and unassigned disk drive is Free. Use PASM to designate the Free disk drive as a Spare.

7.4 Automatic Rebuilding

When a disk drive in your RAID 1, 5, or 10 Volume fails, and a replacement disk drive become available, the RAID Volume will rebuild itself to the new disk drive automatically.
For RAID 1 and three-drive RAID 5 Volumes, you can designate a spare drive. If a spare drive is present when the RAID Volume experiences a disk drive failure, the rebuild will start automatically using the spare drive.
For RAID 1, RAID 5, and RAID 10 Volumes without a spare drive, the RAID Volume will begin to rebuild itself automatically when you remove the failed disk drive and install a new disk drive.
A RAID 0 Volume cannot be rebuilt because of the way in which data is written to the disk drives under RAID 0. Even if there is a designated spare drive, rebuilding is not possible for RAID 0 Volumes.

7.5 Partition and Format

When you create a RAID Volume on NAS-7400, the RAID Volume is automatically partitioned and formatted for you.
To use your RAID Volume, you must create Folders on the RAID Volume and

assign services to those Folders according to your requirements. NAS-7400 provides file services for Windows, UNIX/Linux and Macintosh, so all of those PCs can access the folders on the NAS-7400, even though each PC might have a different file system.

7.6 RADI Volume Migration

Migration is the process of:

- Changing the RAID level
- Adding disk drives but keeping the same RAID level

In the migration process, the existing RAID Volume is called the Source. The proposed RAID Volume is called the Target. Each target RAID Volume has certain requirements and they are different for each RAID level. You must meet all of the requirements in order to successfully migrate a RAID Volume. In most cases, you must add one or more disk drives during the migration process. You can never reduce the number of disk drives.
While the migration is running, you can still access the folders on your RAID Volume and the data they contain.
The tables below shows the migration options for a source RAID Volume according to its RAID level. The available target RAID levels are shown with their requirements.

RAID 0

A RAID 0 source Volume can migrate to the following target RAID levels:

Target	Requirements
RAID 0	Add disk drives.
RAID 1	2 disk drives only. Only a 1-drive RAID 0 can migrate to RAID 1. Add 1 disk drive.
RAID 5	3 disk drives minimum. At least 1 more disk drives than the RAID 0 RAID Volume.

RAID 1

A RAID 1 source Volume can migrate to the following target RAID levels:

Target	Requirements
RAID 0	Can use same number of disk drives.
RAID 5	3 disk drives minimum. At least 1 more disk drive than the RAID 1 RAID Volume.

RAID 5

A RAID 5 source Volume can migrate to the following target RAID levels:

Target	Requirements
RAID 0	Can use same number of disk drives.
RAID 5	Add a disk drive.

RAID 10

A RAID 10 source Volume cannot migrate or add more disk drives.

Chapter 8: Troubleshooting

8.1 Responding to an Audible Alarm

The NAS-7400 has two beep patterns

- Single beep, not repeated – The NAS-7400 is online
- Two beeps, continuously repeated – The NAS-7400 reports a problem

When you boot or reboot the NAS-7400, and the buzzer is enabled, the buzzer sounds one time to indicate that the NAS-7400 is online.
If you hear the two-beep pattern, check the following items:

- System Status LED
- Drive Status LED
- RAID Volume status in NAS-7400
- File System status in NAS-7400
- Enclosure status in NAS-7400
- Event Log in NAS-7400
- Your email inbox

8.2 Checking the System Status LED

The NAS-7400 system status LED reports the condition of the Enclosure fan and power supply:

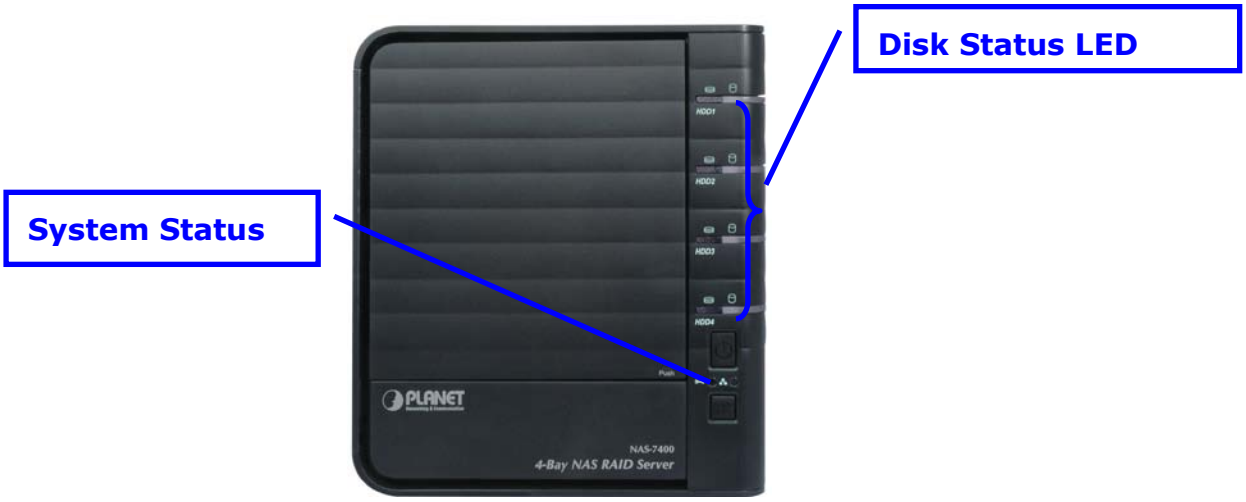
- **Green** – Normal Enclosure function
- **Amber** – There is a problem with the fan or power supply
- **Red** – The fan, power supply, or file system has failed

If your NAs-7400 is configured to work with a UPS, it will continue to run after a power supply failure.

8.3 Checking Disk Status LEDs

The disk status LEDs report the condition of the disk drives:

- **Green** – Normal disk drive function
- **Amber** – Rebuilding to this disk drive
- **Red** – Failed disk drive
- **Dark** – No disk drive is installed



NAS-7400 Disk and System Status LEDs

8.4 Replacing a Failed Disk Drive

Replace the failed disk drive with a new disk drive of the same or slightly greater capacity. You do not have to power down the NAS-7400.

i. Open the NAS-7400's front door.
ii. Pull out the drive carrier with the failed drive.
iii. Remove the failed disk drive from the drive carrier.
iv. Install a new disk drive into the carrier.
v. Place the carrier with the new disk drive back into the open slot in the NAS-7400.

If the failed drive belonged to a RAID Volume, the RAID Volume will begin rebuilding as soon as the new drive is installed.
During the Rebuild, the Disk Status LED shows amber. When the Rebuild is finished, the Disk Status LED turns green.

If the replacement drive is free, that is, not assigned to a RAID Volume or as a spare, the Disk Status LED remains dark after you install the new drive.

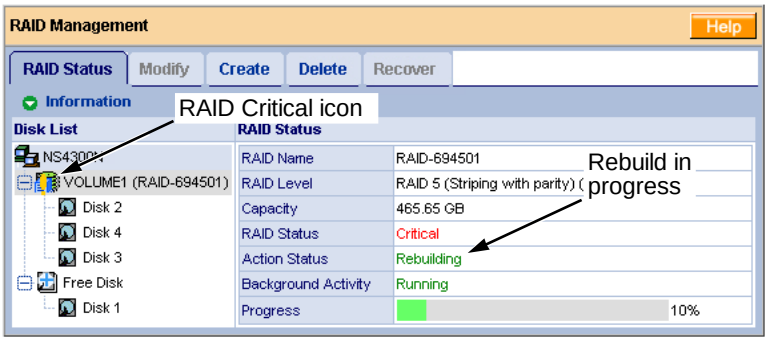
8.5 Checking RAID Volume Status in PASM

To view RAID Volume status:

i. Start PASM.

ii. In the Tree, click on the "**+**" button beside the "**RAID & File System**" icon.

iii. Click on the "**RAID Management**" icon. The status is displayed in the RAID Status tab.



PASM reports a Critical RAID Volume

NAS-7400 Responds to a Critical RAID Volume

How the NAS-7400 responds to a Critical RAID Volume depends on the RAID level of your Volume and whether you have a spare drive available:

- For a RAID 1 Volume or a three-drive RAID 5 Volume, if a spare drive is available, the RAID Volume begins rebuilding itself automatically.
- For RAID 1, 5, and 10 Volumes, when no spare drive is available, you must replace the failed disk drive. The RAID Volume will begin rebuilding itself when you install the new disk drive.
- RAID 0 Volumes go offline after a disk drive failure. A RAID 0 Volume cannot be rebuilt. All data on the Volume is lost.

Additional Details about Rebuilds

- The Rebuild takes several minutes, depending on the size of your disk drives.

- During a rebuild, you can access your folders on the NAS-7400.
- When you replace the failed disk drive with a new disk drive, the new disk drive becomes a Free Drive.

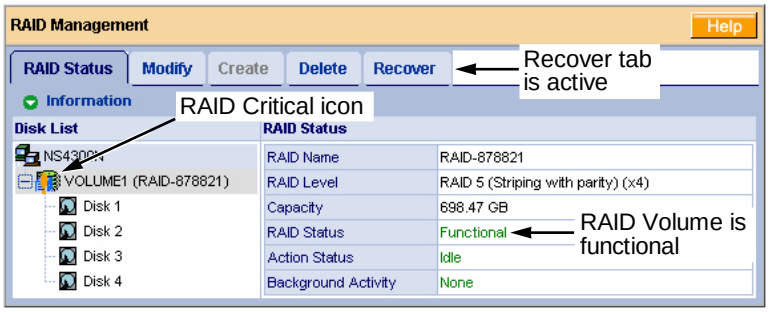
Responding to an Invalid RAID Volume

The NAS-7400 considers a RAID Volume invalid when the RAID Volume was created by a different NAS-7400. However, the RAID Volume itself remains functional and the data on it is safe.

This condition could happen when you:

- Move the disk drives from one NAS-7400 to a different NAS-7400.
- Remove the disk drives in order to send your NAS-7400 for service.

Use the Recover function to validate the RAID Volume. The Recover tab is only active when an invalid RAID Volumes present and can be recovered.



An invalid RAID Volume in PASM

Using the Recover Function

To validate the RAID Volume:

- In the Tree, click on the "**+**" button beside the "**RAID & File System**" icon.
- Click on the "**RAID Management**" icon.
- Click on the "**Recover**" tab.
- On the **"Recover**" tab, click on the option button beside the invalid RAID Volume.
- Click on the "**OK**" button.
- The NAS-7400 will reboot itself to update its configuration and recognize the RAID Volume.

Note Running the Recover function might erase some or all of your NAS-7400 settings.

8.6 Checking File System Status in PASM

Typically the first indication of a problem with the NAS-7400's file system is when your network drive becomes unavailable.
You might also see the message, "File system contains errors. Please check." when you click on the icons under the File & Print menu.
To view File System status:

i. Start PASM.
ii. In the Tree, click on the "**+**" button beside the "**RAID & File System**" icon.
iii. Click on the "**File System Management**" icon.
iv. Look for the RAID Volume "" icon on the File System Status tab. If the RAID Volume icon is Critical "", the file system contains errors and you must rebuild the file system. See below.

Rebuilding the File System

Note When you rebuild a File System, you delete all the folders in the RAID volume and all the data saved in the folders.

To rebuild a File System:

i. In the Tree, click on the "**+**" button beside the "**RAID & File System**" icon.
ii. Click on the "**File System Management**" icon.
iii. In the "**File System Status**" tab, click on the "**RAID Volume Critical**"icon to display the "**Rebuild File System**" button.
iv. Click on the "**Rebuild File System**" button.
v. In the confirmation box, type "**yes**" into the field provided and click the "**OK**" button.

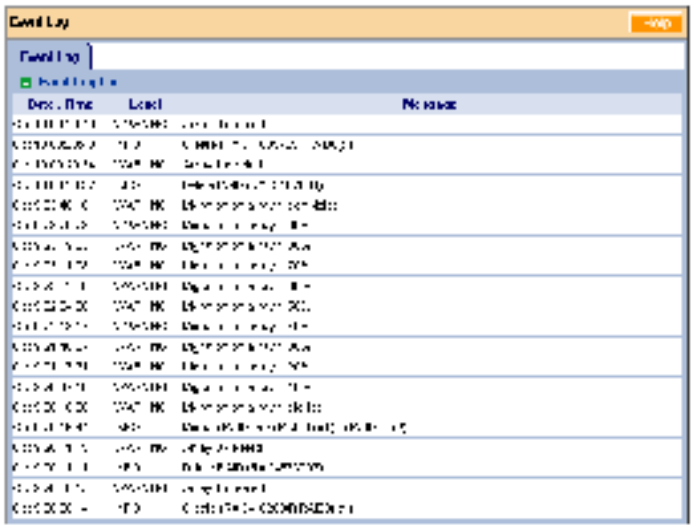
8.7 Checking the Event Log in PASM

To view the Event Log in PASM:
To check Enclosure status:

i. Start PASM.
ii. In the Tree, click on the "**+**" button beside the "**Management**" icon.

iii. Click on the "**Event Log**" icon.

iv. The Event Log displays. See The PASM Event Log



The PASM Event Log

v. Check the Event Log for reports of disk drive failure or other problems.

Responding to Events

All events are reported in the Event Log. Most events are simply reports that the NAS-7400 is responding to your commands.

Many events are also reported via email. The NAS-7400's buzzer sounds for serious events that require your attention.

A list of event categories is shown below:

- File System
- NAS Replication
- Snapshots
- System (enclosure)
- Disk Drives
- RAID Volumes

Reported Event	Corrective Action
File System	
File system of volume X content errors! Check the system before continuing.	The file system has a problem. Reboot the NAS-7400 and check file system again. If the event appears again, the file system has crashed. Rebuild the file system.

File system capacity usage of volume X is over 90%.	Reduce the number or size of the files or expand the volume size.
File system capacity usage of volume X is 100%.	
Rebuilding file system...	The file system is being rebuild by user action.
NAS Replication	
NAS replication is completed.	NAS replication has finished. Normal.
System is busy. NAS replication is abort!	The RAID Volume is currently formatting, rebuilding, or migrating. Wait until this process is done. Then try the replication again.
System is doing another replication. NAS replication is abort!	The NAS-7400 is currently doing a replication. Wait until the current replication is done. Then try the second replication again.
NAS replication is failed!	There is a failed network connection between the two NAS-7400s. Correct the problem and try again.
Snapshots	
The snapshot capacity usage which timestamp is [date and time] of volume X is over 90%.	Move the snapshot volume to another storage location. Or delete the snapshot and then create a new one.
System is busy. Snapshot creation was aborted!	The RAID Volume is currently formatting, rebuilding, or migrating. Wait until this process is done. Then try the snapshot again.
System is creating another snapshot. Snapshot creation was aborted!	The NAS-7400 is currently doing a snapshot. Wait until the current snapshot is done. Then try the second snapshot again.

System (enclosure)	
System is starting to work.	Normal.
System is rebooting.	
System is shutting down.	
System was shut down abnormally.	The NAS-7400 shut down incorrectly the last time.
CPU temperature is higher than 50℃/122℉. System will shut down.	Allow the NAS-7400 to cool for several minutes. Then restart the NAS-7400 and check system temperature and fan operation. Be sure there is adequate air circulation around the NAS-7400.
System temperature is higher than 50℃/122℉. System will shut down.	
System fan speed is lower than 1500 RPM. Check the system before continuing.	Replace the fan.
AC Power failure. System will shut down.	Restore the AC power. Then restart the NAS-7400.
Disk Drives	
Task X timeout on disk Y at LBA [address]	A LBA error. Check the disk drives. Check the RAID Volume. Replace the disk drive or rebuild the RAID Volume as needed.
Task X disk error on disk Y at LBA [address] with status Z	
S.M.A.R.T threshold exceeded on disk X	Check the disk drives. Replace the failed drive.
BSL update on disk X at LBA [address]	Bad sector on a disk drive. Check the disk drives. Replace the disk drive if it continues to receive BSL updates.
BSL log disk X at LBA [address] cleared	Check the disk drives.
Delete Spare Disk	Delete a spare drive. Normal.

RAID Volumes	
Create [RAID name, RAID level and X number of disk drives]	Create a RAID Volume. Normal.
Delete RAID X	Delete a RAID Volume. Normal.
Migration or Rebuilding on array X started.	RAID Volume Migration or Rebuild has started. Normal.
Migration or Rebuilding on array X at Y%.	Progress report on RAID Volume Migration or Rebuild. Normal.
Migration or Rebuilding on array X paused at Y%.	RAID Volume Migration or Rebuild was paused temporarily by user action.
Migration or Rebuilding on array X resumed at Y%.	RAID Volume Migration or Rebuild was paused and then resumed by user action.
Migration or Rebuilding on array X completed.	RAID Volume Migration or Rebuild has finished. Normal.
Migration or Rebuilding on array X aborted at Y%	RAID Volume Migration or Rebuild was aborted (stopped) by user action.
Migration or Rebuilding on array X aborted at Y% because of error.	RAID Volume Migration or Rebuild has aborted (stopped) because of an error. Check the disk drives. Check the RAID Volume.
RAID status: "OFFLINE". The NAS-7400 X volume Y is offline.	Check the disk drives. Replace the failed drive. Create a new RAID Volume.
RAID status: "CRITICAL". The NAS-7400 X volume Y is not functioning correctly.	Check the disk drives. Replace the failed drive. The RAID Volume will rebuild automatically.
RAID X had some errors. Formatting was aborted!	Check the disk drives. Replace the failed drive.

8.8 Checking Enclosure Status in PASM

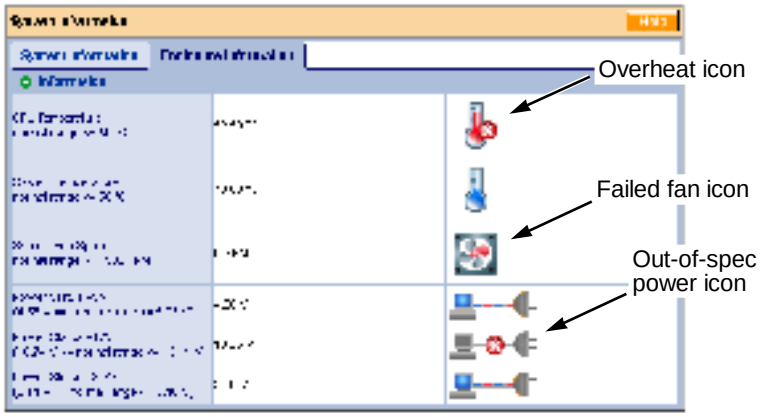
To check Enclosure status:

i. Start PASM.

ii. In the Tree, click on the "**+**" button beside the "**System**" icon.

iii. Click on the "**System Information**" icon.

iv. Click on the **"Enclosure Information**" tab.



The Enclosure Information tab with malfunctions shown

The corrective action you take depends on the nature of the problem:

i. If CPU or system temperature is above specification:

- ✓ Be sure there is adequate air flow around the NAS-7400.
- ✓ Be sure the ambient temperature is below 35℃ (95℉).
- ✓ Check the fan speed.

ii. If the fan speed is below specification, replace the NAS-7400's disk drive cooling fan.

iii. If any power status is out-of-specification, replace the NAS-7400's power supply.

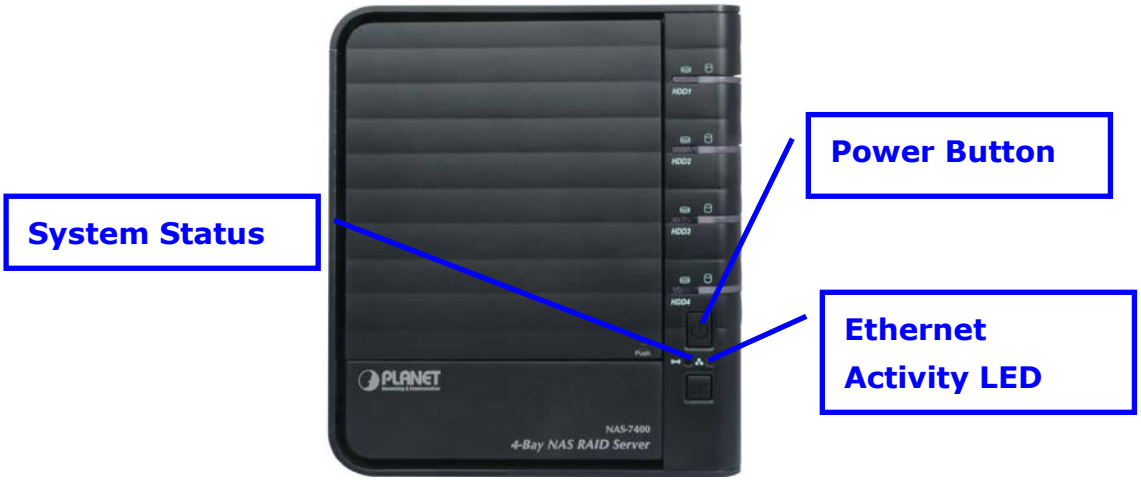
8.9 Resolving Connections with SmartSYNC

The SmartSYNC utility is designed to detect the NAS-7400 on your network. If SmartSYNC does not detect your NAS-7400, check the following items:

i. Be sure the NAS-7400 is powered up and fully booted.

ii. The Power Button and System Status LED should be green.

iii. Be sure the NAS-7400 is properly connected to your network.
iv. The Ethernet Activity LED should be green or blinking green.
v. Be sure that SmartSYNC is looking on the same network where you connected the NAS-7400.



Power Button, System Status and Ethernet Activity LEDs

Multiple Network Connections

If your PC has multiple network connections, you must verify that SmartSYNC is looking on the network where the NAS-7400 is installed:

i. Open SmartSYNC.
ii. In the dropdown menu, choose the IP address of the network interface card connected to the network where you installed the NAS-7400.

8.10 Solving Network Connection Problems

Most network connection problems are the result of poor connections. When the NAS-7400 is fully booted and connected to the network, the Ethernet Activity LED indicates status and activity:

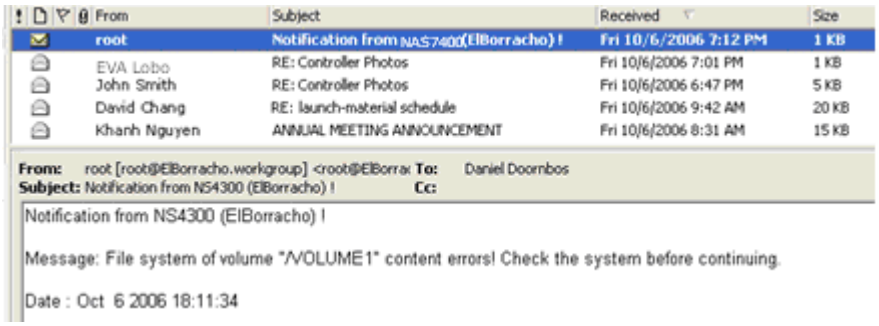
- **Green** – Network link is properly connected
- **Flashing Green** – Network Activity
- **Dark** – No Connection

If your NAS-7400 is connected to your network but the Ethernet Activity LED on your NAS-7400 is dark, check the following items:

- Verify that the switch, hub, or facility network service connection that you are using is operational.
- Switches and hubs have LEDs that light when there is a connection and flash when there is activity.
- Network service connections generally do not have LEDs to verify whether they actually are connected to the network. See your Network Administrator for assistance.
- Be sure the network cable is firmly attached to the NAS-7400 network connector at one end and to the network switch, hub, or facility network connection at the other.
- If the cable connections are good, remove the existing network cable and install a known-good network cable.

8.11 Checking Your Email Inbox

If you enabled Mail Alert in PASM, the NAS-7400 will send you an email message when a problem arises. Look for a message from "**root**."



Email message from the NAS-7400.

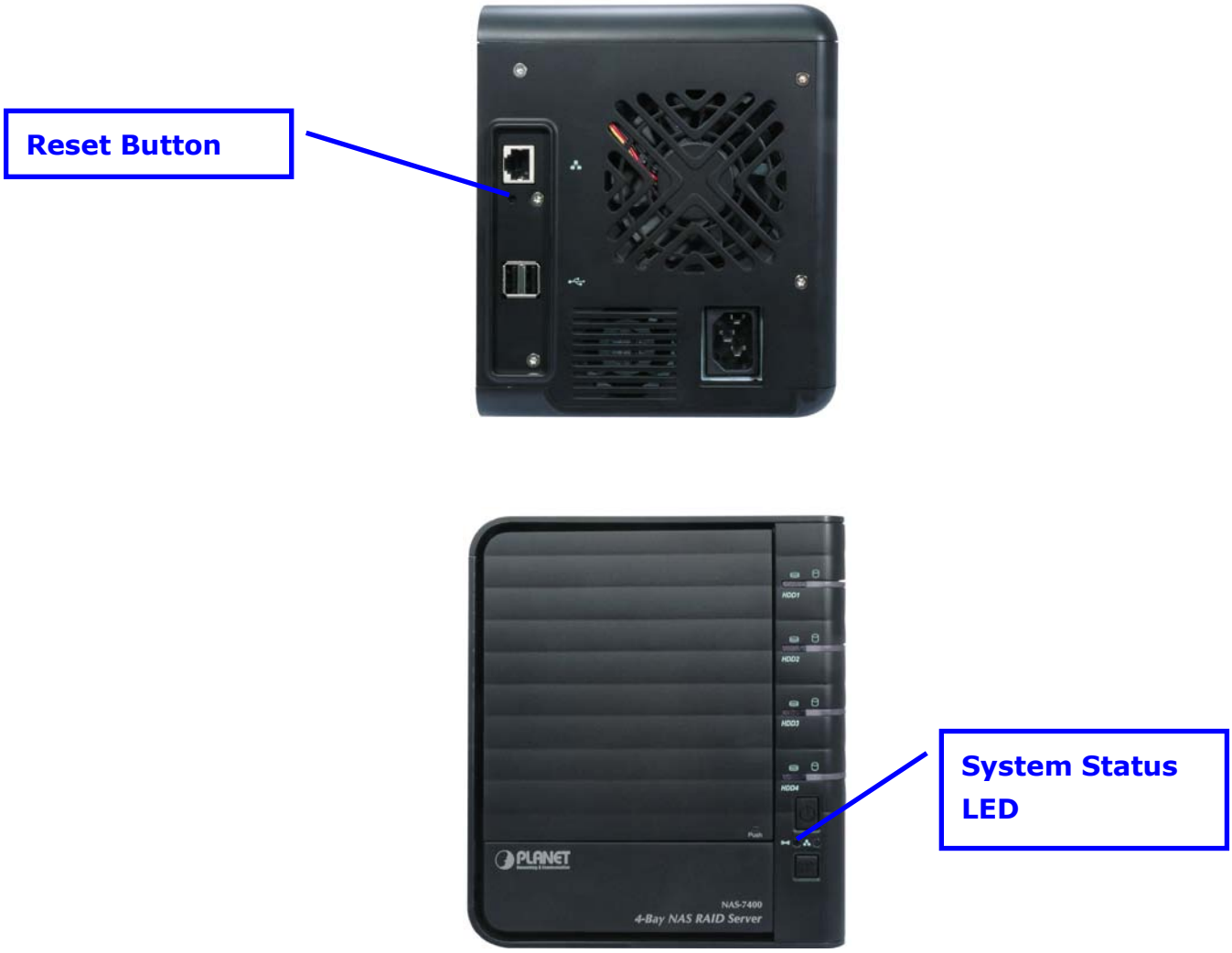
8.12 Restoring the Default Password

Normally, you change your password in PASM.
If you changed the password and then forgot the new password, you can reset the NAS-7400 to the default password: **admin**. Use a straightened paper clip or the tip of a ball-point pen as a reset tool.
To reset the Administrator's password:

i. Verify that the NAS-7400 is fully booted.

ii. Insert your reset tool into the reset button hole on the back of the NAS-7400.Press and hold the reset button for eight seconds, until the System Status LED flashes three times.

iii. The Administrator's password is now reset to **admin**.



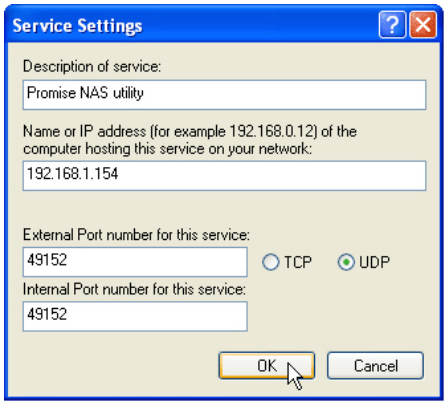
Reset button and System Status LED

8.13 Resolving a Windows Firewall Issue

If you a running a personal firewall on your Windows PC, the firewall might prevent the you from accessing the NAS-7400 over your network.
Follow this procedure to add an exception for the NAS-7400:

i. From the Windows "**Start menu** >**Settings** > **Network Connections**". The Network Connections window opens. Right-click on Local Area Connection and choose Properties from the popup menu.

ii. The local Area Connection properties dialog box opens. Click on the "**Advanced**" tab.
iii. Click the "**Settings**" button.
iv. The Windows Firewall dialog box opens. Click on the "**Advanced**" tab.
v. Under Network Connection Setting, click the "**Settings**" button.
vi. The Advanced Settings dialog box opens. Click the "**Add**" button.
vii. The Service Settings dialog box opens. In the Description of service field, type PLANET NAS utility.
viii. In the Name or IP address field, type the IP address of the NAS-7400.
ix. In the External Port field, type **49152**.
x. Click on the "**UDP**" option button.
xi. In the Internal Port field, type **49152**.
xii. Click the "**OK**" button.
xiii. Click the "**OK**" buttons in the Advanced Settings, Windows Firewall, and Local Area Connection Properties dialog boxes.



Windows Firewall Advanced Service Settings

8.14 Frequently Asked Questions

Q1: The NAS-7400 worked OK until I turned it off. When I turned it on again, my Windows network drive connection no longer works.

A1: When you powered up the NAS-7400, the DHCP server assigned a different IP address to the NAS-7400. Here are two possible solutions:

- You may be able to reset the NAS-7400's IP address manually. Note that changing the NAS-7400's IP address may cause an IP address conflict on your network. Check with your Network Administrator before taking this action.

- If you cannot restore the previous IP address, you must create new network drives and printer connections.

Q2: When I start Windows, a message displays that says, "Could not reconnect all network drives."
A2: The NAS-7400 reconnects to your PC shortly after Windows starts. In most cases, the NAS-7400 network drives will be available by the time you click on them.

Q3: The NAS Setup Wizard cannot access the NAS-7400 over the network.
A3: If you a running a personal firewall on your Windows PC, the firewall might prevent you from accessing folders on the NAS-7400. You must do one of the following actions:

✓ Disable the firewall
✓ Add an exception for the NAS-7400

Q4: I tried to connect my NAS-7400 as a network drive using SmartSYNC, but Windows displayed an error message.
A4: There might be an IP address conflict between the NAS-7400 and another device on your network. See your Network Administrator for assistance.

Q5: I cannot log into the NAS-7400 with through the AD Domain.
A5: Be sure you use a "**domain name\user name**" when you log into the NAS-7400 using SMB, FTP, or AFP. You must use the "****" character.
Many FTP clients do not support a space in the domain name or user name. Also, the NAS-7400 does not support a user home directory.

Q6: How does the NAS-7400 integrate into an NIS Domain?
A6: If the NIS domain account or group name is the same as the NAS-7400, the NAS-7400 will apply them to its account or group.
If the NAS-7400 joins a NIS Domain, joining only affects the NFS service and Quota settings. The other services are not affected.

Q7: How are non-ASCII folder file names displayed?
A7: The NAS-7400 supports Unicode, so you can use non-ASCII characters in your folder names. Windows 98 and ME do not support Unicode, so they cannot display your folder names properly. But you can still access your folders.

Q8: I tried to copy a Windows shortcut to my network drive, but an error message says there is not enough free disk space.
A8: Normally, you can copy a Windows shortcut to a network drive. However, if the network drive is a USB drive or memory stick with FAT32 file format, the NAS-7400 might not recognize the shortcut and prevent you from copying it.
If this situation occurs, choose a different folder in which to copy the shortcut.

Q9: Does NAS-7400 support a USB drive or memory stick with FAT16 file format?
A9: No. If you attach the FAT16 USB drive or memory stick to NAS-7400, you can see the files on it. But if you attempt to copy files to the drive or memory stick, Windows might display a disk full message.

Q10: How do I remove a USB drive or memory stick from the NAS-7400?
A10: Be sure that no files on the USB drive or memory stick are still open. Then unplug the USB drive or memory stick from the NAS-7400. The NAS-7400 automatically un-mounts the USB drive or memory sticks.

Q11: Can I do a One Touch Backup or a regular Backup on a protected folder or file on my Windows PC?
A11: No. Windows does not allow SmartSYNC to access protected folders and files. If you want to perform a backup, you must first disable protection on your folders and files.

Q12: Which FTP clients are compatible with the NAS-7400's FTP server?
A12: We recommend FTP clients that support Unicode, such as Filezilla or Smart FTP for Windows, Filezilla for Linux, and Transmit v3.5.5 for Macintosh.
If your FTP client does not support Unicode, only use ASCII characters to name your shared folders on NAS-7400.

Q13: I cannot find the DLNA Server tab under Protocol Control in PASM.
A13: You must download and install the DLNA plug-in on your NAS-7400 to access this feature.

Q14: Can I move the disk drives from one NAS-7400 to a different NAS-7400?
A14: Yes. However, to access the RAID Volume on the new NAS-7400, you must run the Recover function. When NAS-7400's memory does not match the RAID Volume on the disk drives, the RAID Volume is considered invalid and the Recover function becomes available.

Q15: I set up email alert recipients but they never receive any messages.
A15: In most cases, you must setup SMTP authentication in order for your alert messages to pass your SMTP server.

Q16: Can NAS-7400 handle jumbo frames?
A16: Yes. But you must set the maximum frame size in PASM.

Appendix A: Maintenance

Upgrading the Firmware

Follow this procedure to upgrade the firmware on your NAS-7400.

Downloading the Upgrade File

To download the upgrade file:

i. Download the latest firmware upgrade file from the PLANET website onto your PC.
ii. Copy the firmware upgrade file from your PC to a folder on the NAS-7400.

Installing the Upgrade File

i. Start the PASM interface.
ii. In the Tree, click on the + beside the Management icon.
iii. Click on the System Upgrade icon.
iv. From the Volume dropdown menu, choose the Volume that has the folder with the firmware image file.
v. From the Folder dropdown menu, choose the Folder that contains the firmware upgrade file.
vi. In the File Name field, type the name of the firmware upgrade file.
vii. Click the OK button to begin the upgrade.
viii. The upgrade takes about two to three minutes.

Note Do not disconnect the power or shut down the NAS-7400 while the upgrade is running!

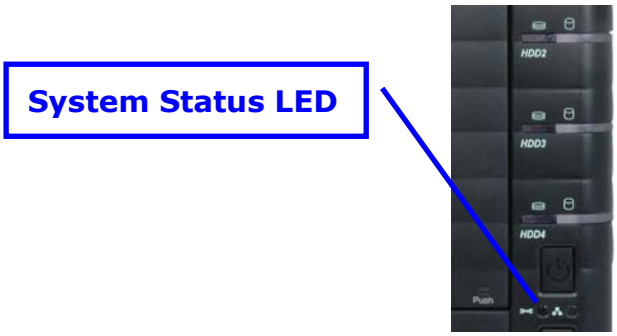
ix. When the upgrade is done, a system message appears.
x. Click the OK button on the system message.

Rebooting the NAS-7400

To reboot the NAS-7400 after a firmware upgrade:

i. In the Tree, click on the + beside the System icon.
ii. Click on the Reboot / Shutdown icon.

iii. Click on the Reboot option.
iv. Click the OK button.
v. In the confirmation box, click the OK button.
vi. The reboot runs automatically. When the NAS-7400 is fully booted:
- ✓ The System Status LED turns green (right)
- ✓ The buzzer beeps one time (if the buzzer is enabled)



Installing Application Plug-in

Application plug-in is enhancements to NAS-7400's capabilities. The DLNA server, which enables NAS-7400 to support the UPnP protocol, is one example of an application plug-in.
Follow this procedure to install an application plug-in on your NAS-7400.

Downloading the Plug-in File

i. To download the plug-in file:
ii. Download the plug-in file you want from the PLANET website onto your PC.
iii. Copy the plug-in file from your PC to a folder on the NAS-7400.

Installing the Plug-in File

i. Please copy the plug-in file from your PC to a folder on the NAS-7400.
ii. Start the PASM interface.
iii. Please click on the "File & Print Application Plug-ins/ icon. Click on the Application Plug-ins icon.
iv. From the "Volume" dropdown menu, choose the Volume that has the folder with the plug-in file.
v. From the Folder dropdown menu, choose the Folder that contains the plug-in file.

vi. In the File Name field, type the name of the plug-in file.
vii. Click the OK button to begin the installation.

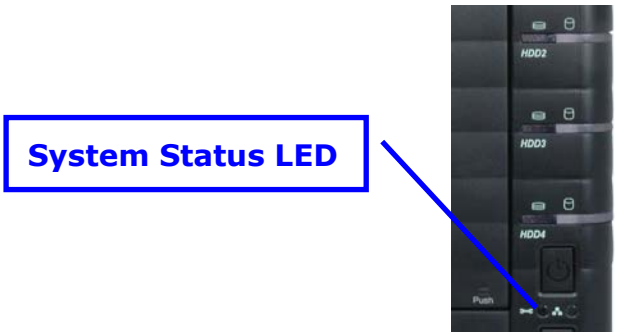
Note Do not disconnect the power or shut down the NAS-7400 while the installation is running!

When the installation is done, a system message appears.
Click the OK button on the system message.

Rebooting the NAS-7400

To reboot the NAS-7400 after a plug-in installation:

i. In the Tree, click on the + beside the System icon.
ii. Click on the Reboot / Shutdown icon.
iii. Click on the Reboot option.
iv. Click the OK button.
v. In the confirmation box, click the OK button.
vi. The reboot runs automatically. When the NAS-7400 is fully booted:
vii. The System Status LED turns green (right)
viii. The buzzer beeps one time (if the buzzer is enabled)



Replacing the Fan

Follow this procedure to replace the disk drive cooling fan on the NAS-7400:

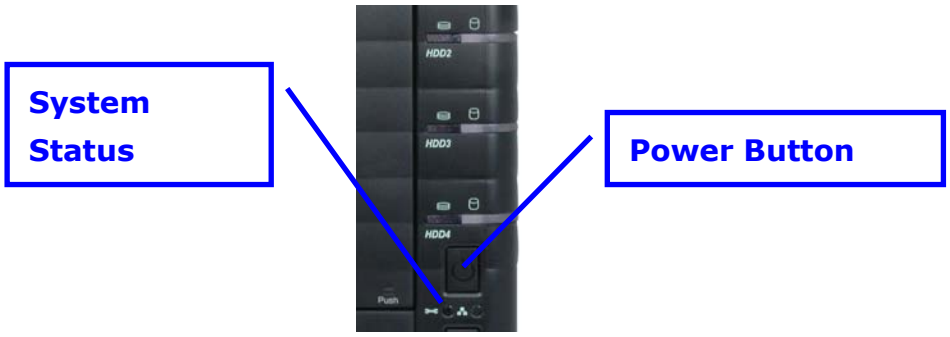
Shutdown and Disconnect

i. In the Tree, click on the + beside the System icon.
ii. Click on the Reboot / Shutdown icon.
iii. Click the Shutdown option and click the OK button.

iv. In the confirmation box, click the OK button.
v. Wait until the LEDs on the front of the NAS-7400 go dark.
vi. Disconnect the power cord, network cable, and USB cable.

Remove and Replace the Fan

i. Remove the four screws on the back of the enclosure.
ii. Carefully remove the back panel from the enclosure.
iii. Disconnect the fan power harness from its connector on the motherboard.
iv. Gently pull the two retainer clips away from the cooling fan.
v. Lift the cooling fan off the locating pins.
vi. Check the direction arrow on the new fan to be sure it blows outward.
vii. Align the new fan with the locating pins on the back panel and gently press the fan into place on the panel.
viii. The fan snaps into place between the retainer clips.
ix. Reconnect the fan power harness to its connector on the motherboard.
x. Place the back panel onto the enclosure and install the four screws to attach the back panel to the enclosure.



Reconnect and Power-up

i. Reconnect the power cord, network cable, and USB cable.
ii. Press the Power Button on the front of the NAS-7400 (right).When the NAS-7400 is fully booted:
- ✓ The System Status LED turns green
- ✓ The buzzer beeps one time (if the buzzer is enabled)

Replacing the Power Supply

Follow this procedure to replace the power supply on the NAS-7400:

Shutdown and Disconnect

i. In the Tree, click on the + beside the System icon.
ii. Click on the Reboot / Shutdown icon.
iii. Click the Shutdown option and click the OK button.
iv. In the confirmation box, click the OK button.
v. Wait until the LEDs on the front of the NAS-7400 go dark.
vi. Disconnect the power cord, network cable, and USB cable.
vii. Open the front door, remove the disk drive carriers, and set aside the carriers.

Disassemble the Enclosure

i. Remove the four screws on the back of the enclosure.
ii. Carefully remove the back panel from the enclosure.
iii. Disconnect the fan power harness from its connector on the motherboard, then set side the back panel.
iv. Pick up the NAS-7400 and turn the NAS-7400 upside down.
v. Remove the five screws from the bottom of the enclosure.
vi. Gently pull the silver side panel away from the chassis.
vii. Gently slide the blue side panel forward (toward the disk drive end), then away from the chassis.
viii. Lift the bottom panel from the back end and slide it off the chassis.

Remove and Replace the Power Supply

i. Remove the three screws that attach the power supply at the back panel.
ii. One screw is beside the power connector, two screws are beside the power supply fan.
iii. Remove the screw attaching the power supply to the NAS-7400 chassis, inside near the wiring harness.
iv. Pull the power supply wiring harness from underneath the chassis and carefully lift the power supply out of the chassis.
v. Disconnect the power supply wiring harness from the power connector on the motherboard.
vi. Remove the angle bracket from the old power supply.

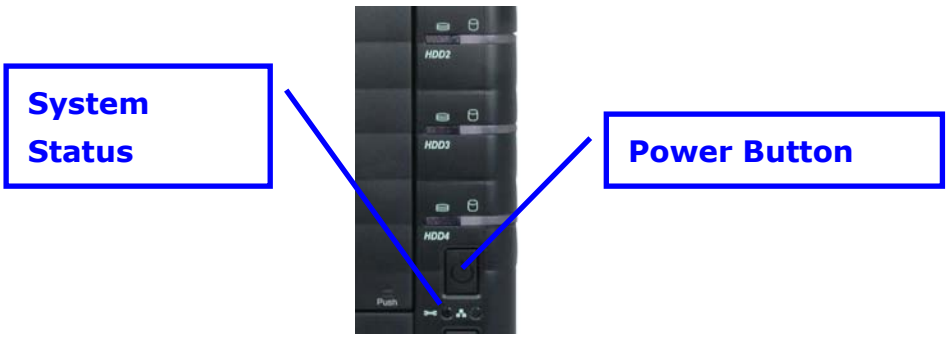
vii. Attach the angle bracket to the new power supply.
viii. Connect the power supply wiring harness to the power connector on the motherboard.
ix. Place the power supply onto the chassis.
x. Be sure all of the screw holes line up.
xi. Gently push the power supply wiring harness into the chassis.
xii. Be sure to route the wires are away from metal edges.
xiii. Install the screw attaching the power supply to the NAS-7400 chassis, inside near the wiring harness.
xiv. Install the three screws that attach the power supply to the back panel.
xv. One screw is beside the power connector, two screws are beside the power supply fan.

Reassemble the enclosure

i. Place the bottom panel onto the NAS-7400 chassis.
ii. The bottom panel locks under the front (disk drive end) panel.
iii. Place the blue side panel beside the NAS-7400 chassis and slide it into place.
iv. Place the silver side panel onto the chassis.
v. The silver panel snaps into place.
vi. Install the five screws that attach the bottom of the enclosure.
vii. Turn the enclosure over and place it on its feet.
viii. Reconnect the fan power harness to its connector on the motherboard.
ix. Place the back panel onto the enclosure and install the four screws to attach the back panel to the enclosure.

Reconnect and Power-up

i. Reconnect the power cord, network cable, and USB cable.
ii. Reinstall the disk drive carriers into the NAS-7400 and close the front door.
iii. Press the power button on the front of the NAS-7400 (right). When the NAS-7400 is fully booted:
- ✓ The System Status LED turns green
- ✓ The buzzer beeps one time (if the buzzer is enabled)



Connection Problems after Restart

If your NAS-7400's network settings were set to Obtain an IP address automatically, your DHCP server might assign a different IP address to the NAS-7400 when you restart the NAS-7400 after is was shutdown for repairs. This condition does not apply if you assigned your NAS-7400's IP address manually.

If you experience network drive or printer connection failures, check the NAS-7400's current IP address. If the NAS-7400's IP address has changed, your previous network drives and printer connections will no longer work. Here are two possible solutions:

- You may be able to reset the NAS-7400's IP address manually. Note that changing the NAS-7400's IP address may cause an IP address conflict on your network. Check with your Network Administrator before taking this action.
- If you cannot restore the previous IP address, you must create new network drives and printer connections.

Appendix B Specification

Product	4-Bay SATA NAS RAID Server
Model	NAS-7400
Hardware Specification	
Supported HDD	Four 3.5”, SATA I/II interface
LAN Connector	One RJ-45 Interface (10/100/1000Mbps)
Standards	IEEE 802.3, IEEE 802.3u, IEEE802.3ab
USB Connector	2 x USB 1.1/2.0 Compatible (Type A)
USB Connectivity	Print Server, External HDD connection, APC Smart UPS
Support Protocol	TCP/IP, HTTP, FTP, SMB
Client OS	Windows, Mac OS, Linux/Unix
System Configuration	Windows Base utility, Web Browser
Supported Concurrent Users	Up to 16
Max. User Account	Up to 512
Share Folder	Up to 1024
File Language Format	6 (English, French, German, Italian, Spanish and Russian)
Environment Specifications	
Dimension (W x D x H)	230 x 188 x 153(W x D x H)
Power	Input Voltage: 100-240V AC, 4A-2A, 50-60Hz FUSE: 6.3A / 250V
Operating Environment	Operating temperature: 5~35 Degree C Storage temperature: -10~60 Degree C Relative Humidity:10~85 %(non-condensing)
Emission	FCC, CE

EC Declaration of Conformity

For the following equipment:

*Type of Product : 4-Bay SATA NAS RAID Server
*Model Number : NAS-7400

* Produced by:
Manufacturer's Name : **Planet Technology Corp.**
Manufacturer's Address : 11F, No. 96, Min Chuan Road, Hsin Tien,
Taipei, Taiwan, R.O.C.

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (89/336/EEC, 92/31/EEC, 93/68/EEC).
For the evaluation regarding the Electromagnetic Compatibility, the following standards were applied:

EN 55022	(2006, Class B)
CISPR 22	(1997 + A1 :2000, Class B)
ICES-003	(2004, Class B)
EN 61000-3-2	(2000)
EN 61000-3-3	(1995+A1: 2001)
EN 55024	(1998+A1: 2001+A2: 2003)
IEC 61000-4-2	(2001)
IEC 61000-4-3	(2002)
IEC 61000-4-4	(1995 + A1:2000 + A2:2001)
IEC 61000-4-5	(2001)
IEC 61000-4-6	(2001)
IEC 61000-4-8	(2001)
IEC 61000-4-11	(2001)

Responsible for marking this declaration if the:

☒ **Manufacturer** ☐ **Authorized representative established within the EU**

Authorized representative established within the EU (if applicable):

Company Name: **Planet Technology Corp.**

Company Address: **11F, No.96, Min Chuan Road, Hsin Tien, Taipei, Taiwan, R.O.C**

Person responsible for making this declaration

Name, Surname **Jonas Yang**

Position / Title : **Product Manager**

Taiwan	**6th April, 2008**	Jonas
Place	*Date*	*Legal Signature*