PROMISE® TECHNOLOGY, INC.

SMARTSTOR
NS4600
Product Manual

Version 1.0

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Contents

Chapter 1: Introduction to SmartStor 1
About This Manual 1
Architecture 2
Protocol Support 2
Key Benefits 2
Specifications 3
Compatible Backup Software 4
Client OS Support 4
Browser Support 4

Chapter 2: Installation and Setup 5
Unpacking the SmartStor NS4600 5
Installing Disk Drives 7
Connecting to the Network 8
Connecting the Power 8
Installing the Software 8
OS Support 8
Installation: Windows 9
Installation: Macintosh 12
Setting up the SmartStor 17
Connecting to PASM 22
Browser Support 22
Finding the SmartStor's IP Address 22
PASM in your Browser 23
PASM in SmartNAVI 24
PASM in Bonjour 26
Shutting Down the SmartStor 28

Chapter 3: Connecting to the SmartStor 29
Setting up a Network Drive on a Windows PC 29
Setting up a Network Drive on a UNIX or Linux PC 33
On a Windows or Macintosh PC 33
Setting up UNIX/Linux Service 33
Setting up File Sharing 33
On the UNIX/Linux PC with Command Line Interface 34
On the Linux PC with Graphic Desktop 35
Setting up a Network Drive on a Macintosh PC 37
In PASM 37
On the Macintosh Desktop 39

Chapter 3: Connecting to the SmartStor, cont.

Connecting a USB Printer to SmartStor 41
Setting up the Print Server on SmartStor 42
Setting up Windows Printing 43
Setting up Linux Printing 46
Setting up Macintosh Printing 49
Connecting a USB Drive 51
Windows PC 52
Linux PC 52
Macintosh PC 53
Disconnecting a USB Drive 53
Setting-up Apple iTunes 54
Downloading the Firefly Plug-in 54
Installing the Firefly Plug-in 54
Installing and Configuring Apple iTunes 56

Chapter 4: One Touch Backup 59
Enabling One Touch Backup 60
Creating a Backup Schedule 62
Performing a One Touch Backup 64
Viewing Your Backup Files 65
Restoring Backed-up Files 67

Chapter 5: Media Center 69
Accessing Media Center 69
Picture Files 71
Displaying a Picture File 71
Downloading a Picture File 71
Video Files 71
Playing a Video File 71
Downloading a Video File 71
Music Files 71
Playing a Music File 71
Downloading a Music File 72
Making a New Playlist 72
Adding a Music File to an Existing Playlist 72
Playing Music File from a Playlist 72
Deleting a Playlist 73

Chapter 6: SmartNAVI 75
Working with SmartNAVI 75
Opening the MSN Window 75
Opening the Main Window 76
Choosing a SmartNAVI Language 77
Starting the Advanced Storage Manager (PASM) 78
MSN Window 78
SmartNAVI Tray Icon (Windows only) 78
Viewing SmartNAVI Information 78
Locking the SmartNAVI Window 79
Closing SmartNAVI 79
Alternative Method for Windows 79
Managing Users and Groups 80
Creating a User 80
Creating the Default User 81
Changing User Passwords 81
Changing User Permissions 82
Viewing a List of Users 82
Deleting a User 82
Creating a Group 82
Viewing a List of Groups 83
Adding Members to a Group 83
Deleting Members from a Group 83
Deleting a Group 84
Viewing Quotas 84
Setting Quotas 84
Managing RAID Volumes 86
Creating a RAID Volume 86
Expanding a RAID Volume 86
Viewing RAID Volume Status 87
Viewing a List of RAID Volumes 87
Recreating a RAID Volume 88
Managing Backups 89
Doing a Backup Now 89
Main Window 89
MSN Window 90
Tray Icon 90
Scheduling a Backup 91
Viewing Backup Schedules 92
Changing a Scheduled Backup 92

Chapter 6: SmartNAVI, cont.

Managing Backups, cont.
Deleting a Scheduled Backup 93
Restoring Backed-up Files 93
Viewing the Backup Event Log 94
Saving the Event Log 94
Clearing the Event Log 95
Managing Share Folders 96
Creating a Share Folder 96
Opening a Share Folder 96
Viewing a List of Share Folders 97
Changing Share Folder Permissions 97
Deleting a Share Folder 97
Mounting a Share Folder /
Creating a Network Drive 98
Un-mounting a Share Folder /
Disconnecting a Network Drive 98
Setting up a Share Folder for Time Machine 98
Making Management Settings 100
Configuring a NAS System 100
One Click Setup 100
Advanced Setup 101
Changing Network Settings 102
Locating the SmartStor 103
Choosing a Default NAS System 103
Enabling or Disabling Event Notification 103
Enabling Event Notification 103
Disabling Event Notification 104
Viewing the System Event Log 104
Adding Application Plug-ins 104
Viewing a List of Plug-ins 105
Viewing Plug-in Version Numbers 105
Enabling and Disabling Plug-ins 106
Enabling Plug-ins 106
Disabling Plug-ins 106
Removing Plug-ins 106
Rebooting the SmartStor 107
Shutting Down the SmartStor 107
Using SmartNAVI 107
Directly 108
Restarting the SmartStor 108

Chapter 6: SmartNAVI, cont.

Managing Downloads 109
Adding a Link 109
Drag and Drop Files 110
Windows 110
Mac OS X 110
Dragging and dropping files 110
Batch Downloading Files 110
Viewing the Download List 111
Removing a Link 111
Pausing and Resuming a Download 112
Pausing a Download 112
Resuming a Download 112
Viewing the Downloaded List 112
Opening a Downloaded File 112
Deleting a Downloaded File 113
Using Media Center 114
Viewing Playlists 114
Creating a Playlist 114
Playing a Playlist 115
Renaming a Playlist 115
Deleting a Playlist 116
Playing a Single Music or Video File 116
Managing Photo Albums 118
Making an Album 118
Part 1: Making your Album 118
Part 2: Exporting or Uploading your Album 119
Part 3: Viewing your Album 119
Viewing an Album 120
Editing an Album 120
Deleting an Album 121

Chapter 7: PASM 123

Connecting to PASM 123
PASM in your Browser 123
PASM in SmartNAVI 125
PASM in Bonjour 127
Method 1 127
Method 2 127
Choosing a Language 129

Chapter 7: PASM, cont.

Navigating in PASM 129
Logging out of PASM 129
Setting up SmartStor with the Setup Wizard 130
Step 1 Screen 130
Step 2 Screen 130
Step 3 Screen 131
Step 4 Screen 131
Step 5 Screen 131
Finish Screen 131
Managing Users and Groups 132
Viewing a List of Users 132
Creating a User 132
Changing the Administrator's Password 132
Changing a User's Password 133
Deleting a User 133
Viewing a List of Groups 133
Creating a Group 134
Adding Members to a Group 134
Removing Members from a Group 134
Deleting a Group 135
Viewing Quotas 135
Setting Quotas 135
Managing File & Print Services 137
Setting up Windows Access 137
Setting up Windows Service 137
Setting up File Sharing 138
Setting up UNIX/Linux Access 139
Setting up UNIX/Linux Service 139
Setting up File Sharing 139
Setting up Macintosh Access 140
Setting up Macintosh Service 140
Setting up File Sharing 140
Setting up FTP Access 141
Setting up FTP Service 141
Setting up File Sharing 141
Setting up your Print Server 142
Setting up your DLNA Server 142
Viewing a List of Plug-ins 143

Chapter 7: PASM, cont.

Managing File & Print Services, cont.
Enabling and Disabling Plug-ins 143
Enabling Plug-ins 143
Disabling Plug-ins 143
Viewing a List of Folders 144
Modifying Folder Services 144
Adding a Folder 144
Deleting a Folder 145
Setting up Folder Sharing: Windows, Macintosh, FTP 145
Setting up Folder Sharing: UNIX and Linux 146
Managing RAID Volumes 147
Viewing RAID Volume Status 147
Viewing Disk Drive Information 148
Creating a RAID Volume 148
Designating a Spare Drive 149
Migrating a RAID Volume 149
Deleting a RAID Volume 150
Viewing an External USB Drive or Memory Stick 151
Formatting an External USB Drive or Memory Stick 151
Managing Backups 152
Viewing a List of Snapshot Backups 152
Setting up a Snapshot Backup 152
Scheduling a Snapshot Backup 153
Recovering Snapshot Backups 153
Viewing the NAS Replication Schedule 154
Setting up NAS Replication 154
Enabling One Touch Backup 155
Managing the Network Connection 156
Viewing Network Setup Information 156
Making Network Settings 156
Working with Jumbo Frames 157
Working with DDNS 157
Making DDNS Settings 158
Making Management Settings 159
Viewing the Event Log 159
Setting up SMTP Authentication 159
Sending a Test Message 160
Viewing the Email Alert List 160
Adding an Email Alert Recipient 161

Chapter 7: PASM, cont.

Making Management Settings, cont.
Deleting an Email Alert Recipient 161
Upgrading the System Firmware 161
Adding Application Plug-ins 161
Removing Plug-ins 162
Enabling and Disabling the Buzzer 162
Viewing UPS Status 163
Setting up a UPS 163
Setting up System Standby 164
Managing the System 165
Setting System Date and Time 165
Adjusting for Daylight Saving Time 165
Running the Network Time Protocol 166
Viewing the Results of NTP Synchronization 166
Rebooting the SmartStor 167
Shutting Down the SmartStor 167
Using PASM 167
Directly 167
Restarting the SmartStor 168
Locating the SmartStor 168
Viewing System Information 168
Viewing Enclosure Information 169
Enabling the Smart Fan 169

Chapter 8: Technology Background 171
Introduction to RAID 171
RAID 0 – Stripe 172
RAID 1 – Mirror 173
RAID 5 – Block Striping with Distributed Parity 174
RAID 10 – Mirror / Stripe 175
Choosing a RAID Level 176
RAID 0 176
RAID 1 176
RAID 5 177
RAID 10 177
Spare Drive 177
Automatic Rebuilding 178
Partition and Format 178
RAID Volume Migration 179

Chapter 9: Troubleshooting 181
Responding to an Audible Alarm 181
Checking the System Status LED 182
Checking Disk Status LEDs 182
Replacing a Failed Disk Drive 183
Checking RAID Volume Status in PASM 184
SmartStor Responds to a Critical RAID Volume 184
Responding to an Invalid RAID Volume 185
Checking File System Status in PASM 186
Rebuilding the File System 186
Checking the Event Log in PASM 187
Responding to Events 188
Checking Enclosure Status in PASM 191
Solving Network Connection Problems 192
Verifying Connections with SmartNAVI 194
SmartStor Lockup 195
Checking Your Email Inbox 197
Restoring the Default Password 197
Resolving a Windows Firewall Issue 198

Chapter 10: Support 201
Frequently Asked Questions 201
Contacting Technical Support 205
Limited Warranty 208
Returning Product For Repair 210

Appendix A: Maintenance 213
Upgrading the Firmware 213
Connection Problems After Restart 216

Appendix B: Important Information 217
GNU General Public License 217
Battery 217

Index. 219

Chapter 1: Introduction to SmartStor

- About This Manual (page 1)
- Architecture (page 2)
- Protocol Support (page 2)
- Key Benefits (page 2)
- Specifications (page 3)
- Compatible Backup Software (page 4)
- Client OS Support (page 4)
- Browser Support (page 4)

Promise Technology's SmartStor NS4600 is a 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.

About This Manual

This *Product Manual* describes how to setup, use, and maintain the SmartStor NS4600. It also describes how to use:

- SmartNAVI software that you install and run on your Windows or Macintosh PC
- Promise Advanced Storage Manager (PASM) software that runs on the SmartStor

This manual includes a full table of contents, chapter task lists, and numerous cross-references to help you find the specific information you are looking for.

Also included are four levels of notices:

Note

A *Note* provides helpful information such as hints or alternative ways of doing a task.

Important

An *Important* calls attention to an essential step or point required to complete a task. Important items include things often missed.

Caution

A *Caution* informs you of possible equipment damage or loss of data and how to avoid them.

Warning

A *Warning* notifies you of probable equipment damage or loss of data, or the possibility of physical injury, and how to avoid them.

Architecture

The SmartStor NS4600's architecture is based on the Intel IOP321, 600 MHz microprocessor and the Promise PDC42819 Serial ATA RAID Controller. The Gigabit Ethernet port is used for the data transfer and management. The USB ports are used for a printer, expansion drives, and Uninterruptable Power Supply (UPS).

Protocol Support

SmartStor NS4600 supports:

- Windows XP Professional, 2008 Server; and Vista Home Basic and Enterprise 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

Key Benefits

- 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
- Remote NAS-to-NAS synchronization and backup
- Network print server with USB printer
- User, Group, and Quota management
- UPS support with automated shutdown
- Heterogeneous environment: Windows, UNIX, Linux, and Macintosh

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
  - eSATA external hard drive
  - USB external hard drive
  - 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
  - Spin-down in system Standby mode
- RAID level support: RAID 0, 1, 5, and 10
- Large file system support up to 6 TB
- Unicode file name support
- SATA RAID Controller: Promise PDC42819
- Server on a Chip: Intel IOP321, 600MHz
- Networking: 10/100/1000 Mb/s Ethernet Port on motherboard
- USB ports: USB 2.0, up to 480 Mb/s, two Type-A connectors
- File protocols: SMB, CIFS, FTP, AFP, NFS
- Flash Memory: 16 MB, 16-bit
- Memory: 256 MB DDR II SDRAM
- Power Supply: 90-100W with PFC, 100-230V auto-ranging, 50-60Hz AC
- Network Time Protocol (NTP) client
- Error logging
- Phone home capability (email notification) to contact IT staff
- Wake-on-LAN support

- Power-on Automatic support
- Hardware monitoring of:
  - Fan
  - Temperature
  - Power
  - Disk status
  - One-Touch button
  - Enclosure status
- Temperature, Operating: 5° to 35°C (41° to 95°F)
- Humidity, Operating: 10 to 85 percent
- Dimensions (H x W x D): 188.2 x 152.5 x 229.6 mm (7.4 x 6.0 x 9.0 in)
- Weight: 2.5 kg (5.5 lbs) without drives

Compatible Backup Software

SmartStor NS4600 is compatible with the following backup software products:

- Symantec Backup Exec System Recovery Server Edition
- Microsoft Backup Software for Windows 95/98/NT/2000/ME/XP
- Dantz Retrospect for Macintosh

Client OS Support

The following operating systems support SmartNAVI:

- Windows Vista Home Basic
- Windows Vista Enterprise
- Windows Vista Enterprise 64-bit
- Windows Server 2008 Enterprise
- Windows XP Professional
- Mac OS 10.4.x
- Mac OS 10.5.x

Browser Support

Choose one of the following browsers to use with PASM:

- Internet Explorer 6 with SP2
- Internet Explorer 7
- Mozilla 1.7, 1.8
- Firefox 3
- Netscape Navigator 7.2, 8.1, 9.0
- Safari (Mac OS X) 2, 3
- Google Web (Windows)

Chapter 2: Installation and Setup

- Unpacking the SmartStor NS4600 (page 5)
- Installing Disk Drives (page 7)
- Connecting to the Network (page 8)
- Connecting the Power (page 8)
- Installing the Software
  - OS Support (page 8)
  - Installation: Windows (page 9)
  - Installation: Macintosh (page 12)
- Setting up the SmartStor (page 17)
- Connecting to PASM (page 22)
- Shutting Down the SmartStor (page 28)

Unpacking the SmartStor NS4600

The SmartStor NS4600 box contains the following items:

- SmartStor NS4600 Unit
- *Quick Start Guide*
- Screws for disk drives (1 package)
- Ethernet cable
- Power cord
- CD with SmartNAVI software, *Product Manual* and *Quick Start Guide*

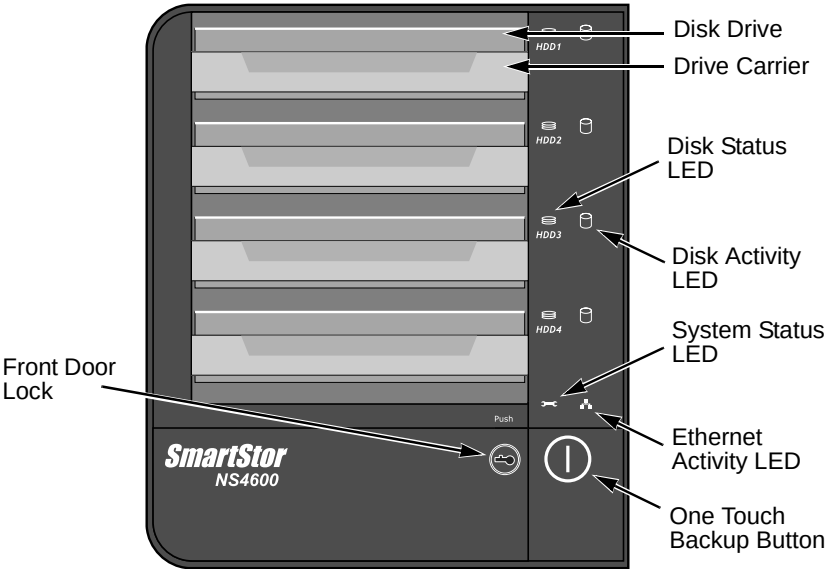
Warning

The electronic components within the SmartStor are sensitive to damage from Electro-Static Discharge (ESD). Observe appropriate precautions at all times when handling the SmartStor or its subassemblies.

Important

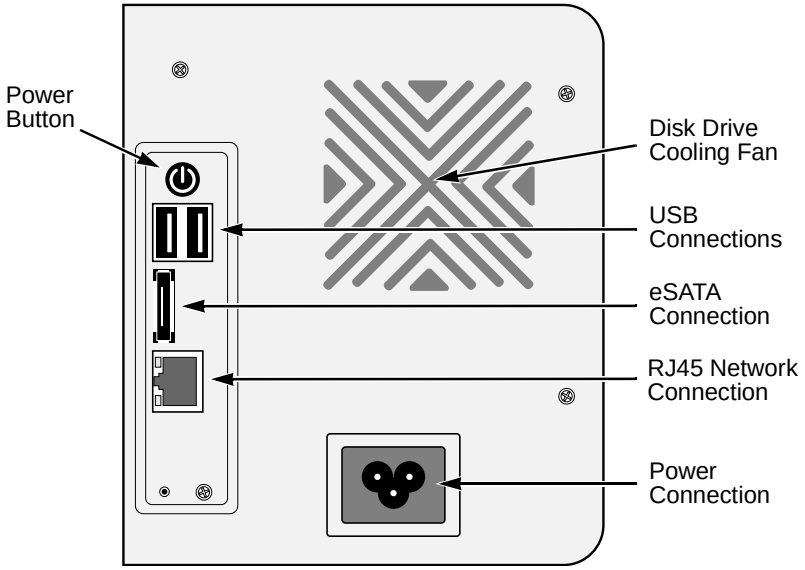
To configure the SmartStor, you must install SmartNAVI. See “Installing the Software” on page 8.

Figure 1. SmartStor NS4600 Front View



Note: This SmartStor is shown without the front door.

Figure 2. SmartStor NS4600 Rear View



Installing Disk Drives

You can populate the SmartStor NS4600 with SATA 1.5 Gb/s or 3.0 Gb/s disk drives. For optimal performance, install disk drives of the same model and capacity. Your disk drives will become a RAID Volume on the SmartStor.

To install disk drives:

1. Open the door on the front of the SmartStor enclosure.
2. Pull a disk drive carrier from the enclosure. See Figure 1.
3. Carefully lay the disk drive into the drive carrier, so that the screw holes on the sides of the carrier align with the screw holes in the drive. See Figure 3.

Figure 3. Disk drive installed in a drive carrier

4. Insert the screws through the holes in the drive carrier and into the sides of the disk drive.
   - Install only the counter-sink screws supplied with the SmartStor.
   - Install four screws per drive.
   - Snug each screw. Be careful not to over-tighten.
5. Reinstall the drive carrier into the SmartStor enclosure.

   Repeat steps 2 through 5 until all of your disk drives are installed.
6. Close the door on the front of the SmartStor.

Connecting to the Network

To connect the SmartStor to your network:

1. Attach one end of the network cable to the RJ45 network connection. See Figure 2.
2. Attach the other end of the network cable to your Ethernet hub or switch.

Connecting the Power

To power the SmartStor:

1. Attach the power cord on the back of the SmartStor enclosure and plug the other end into the power source. See Figure 2.
2. On the front of the SmartStor, press the power button. See Figure 1.

   It takes about a minute to boot the SmartStor. When fully booted:
   - The System Status LED turns blue. See Figure 1.
   - The buzzer beeps one time.

Installing the Software

The SmartNAVI software connects your PC to the SmartStor, sets up the SmartStor, sets up network drives on your PC, and performs backups.

OS Support

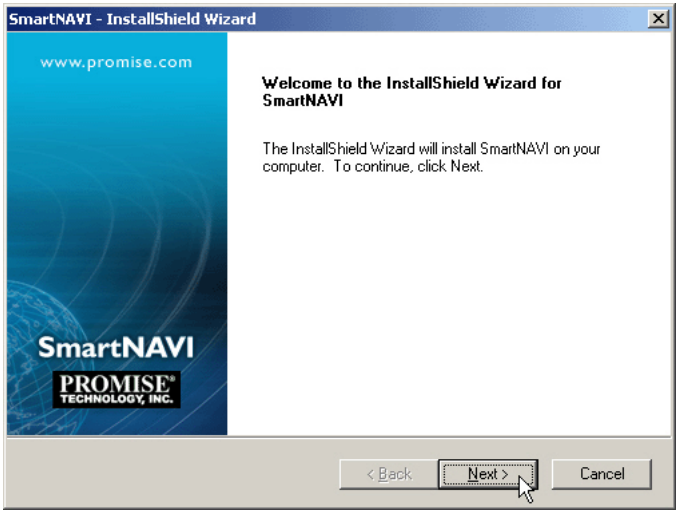
The following operating systems support SmartNAVI:

- Windows Vista Home Basic
- Windows Vista Enterprise
- Windows Vista Enterprise 64-bit
- Windows Server 2008 Enterprise
- Windows XP Professional
- Mac OS 10.4.x
- Mac OS 10.5.x

Installation: Windows

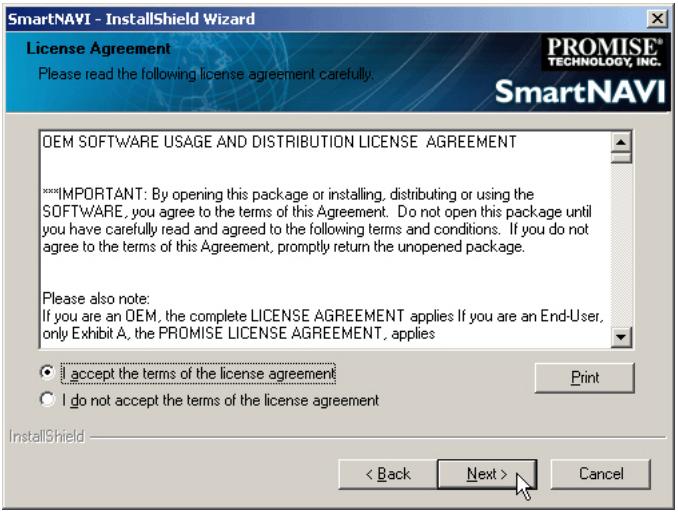
To install the SmartNAVI on a Windows PC:

1. Insert the CD into your PC's CD-ROM.
2. Double-click the **SmartNAVI** installer icon (right).
3. Click the **Next** button to begin installation.



The License Agreement screen appears.

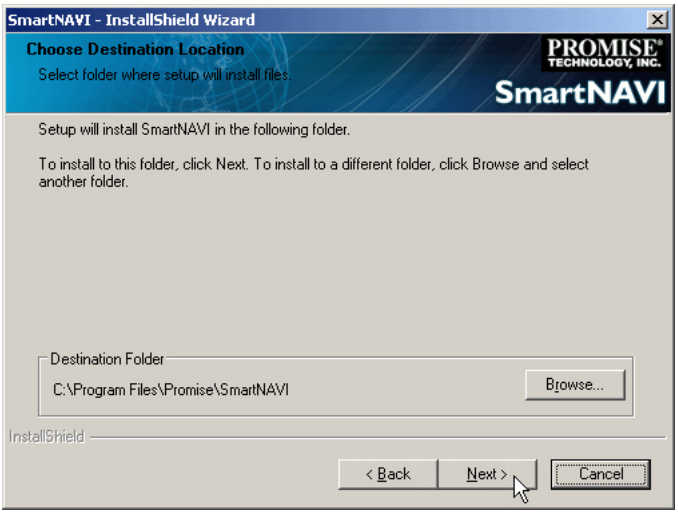
4. Click the “I accept the terms...” option, then click the **Next** button.



The Choose Destination Location screen appears.

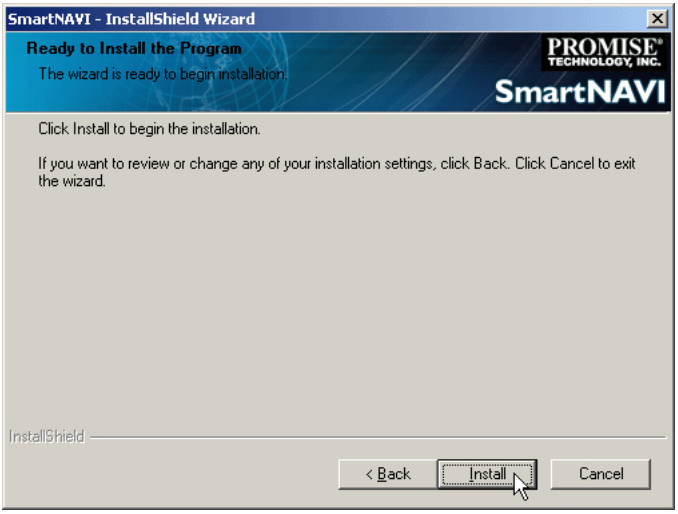
5. Optional. Click the **Browse...** button to choose a new install location for the software.

   Click the **Next** button.



The Ready to Install screen appears.

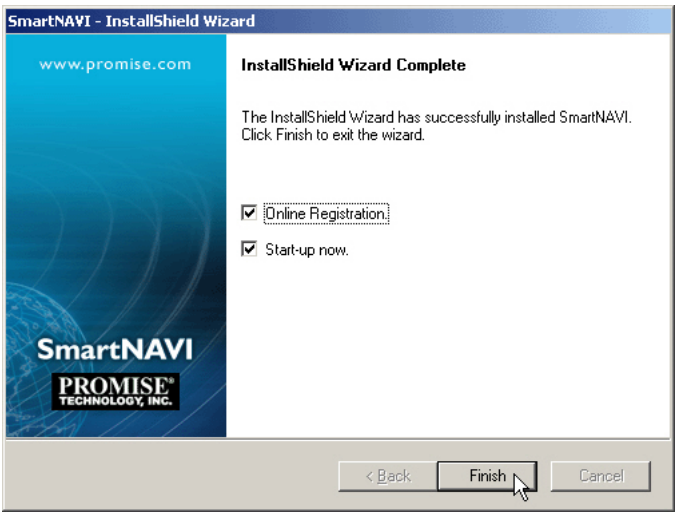
6. Click the **Install** button to proceed with installation.



When the installation is finished, the final installation screen appears.

7. Click to **Finish** button to close the installer.

With the Online Registration box checked, your browser will open and go directly to the Promise product registration website. Thank you for taking the time to register.



The installer adds a SmartNAVI icon to the:

- Start menu
- Application tray

SmartNAVI loads automatically every time your Windows OS starts.

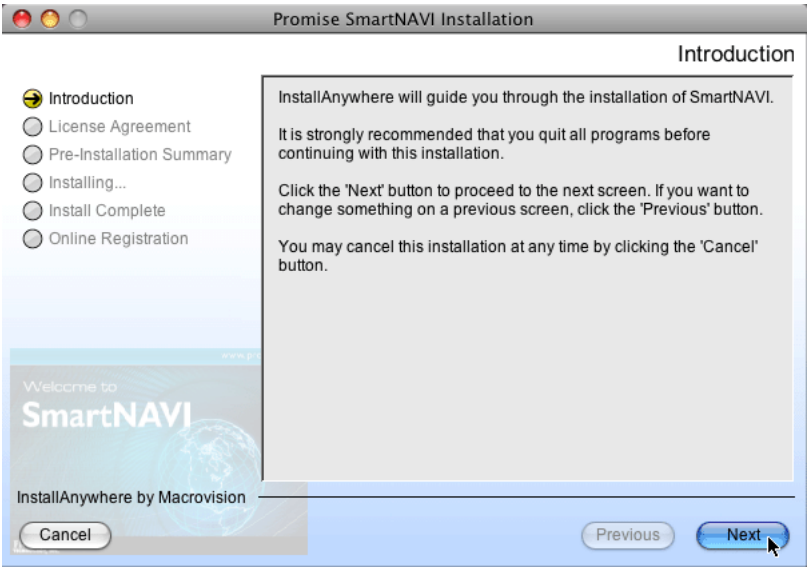
Installation: Macintosh

To install the SmartNAVI on a Macintosh PC:

1. Insert the CD into your PC's CD-ROM.
2. Double-click the **SmartNAVI** installer icon (right).
3. From the dropdown menu, choose the language you prefer. Then click the **OK** button.

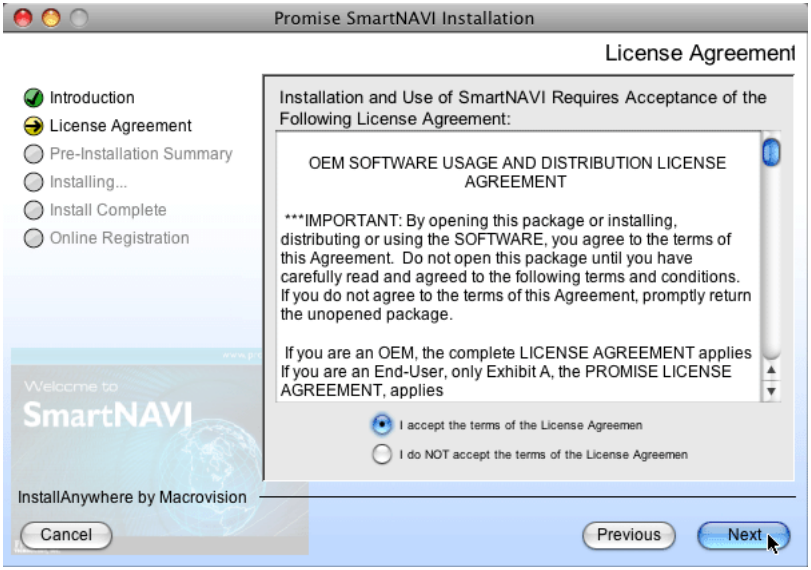
The Introduction screen appears.

4. Click the **Next** button to begin installation.



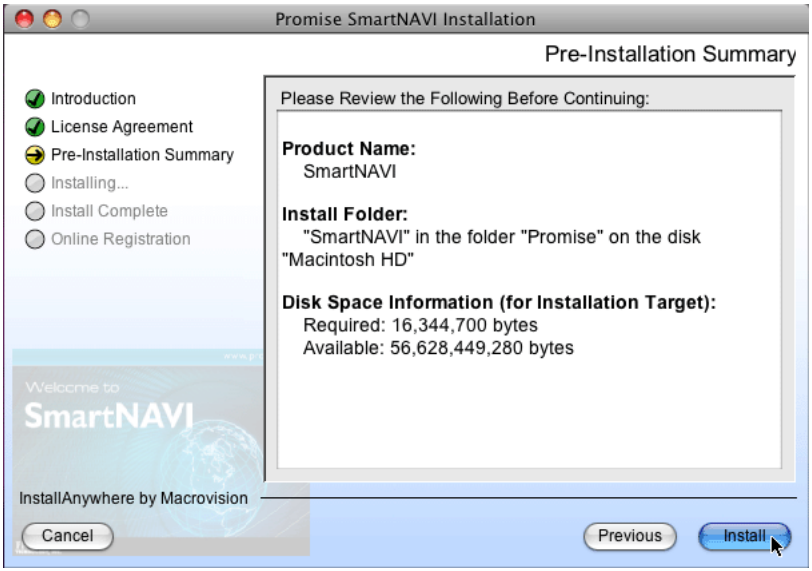
The License Agreement screen appears.

5. Click the “I accept the terms...” option, then click the **Next** button.



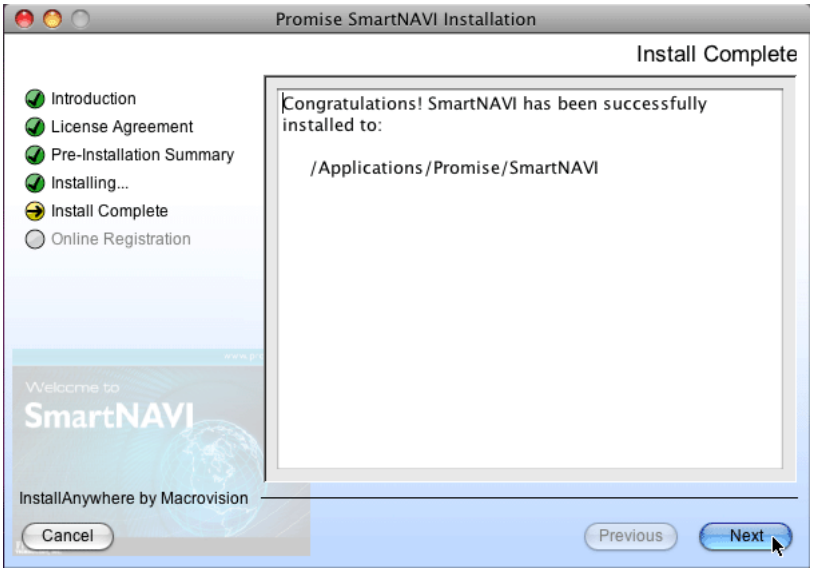
The Pre-Installation Summary screen appears.

6. Click the **Install** button to begin the installation.



The Install Complete screen appears.

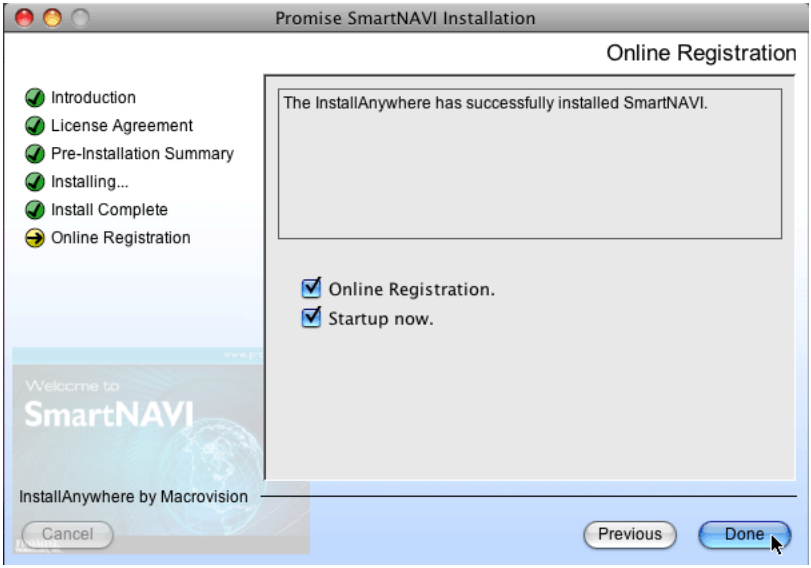
7. Click the **Next** button to continue.



The Online Registration screen appears.

8. Click to **Done** button to close the installer.

   With the Online Registration box checked, your browser will open and go directly to the Promise product registration website. Thank you for taking the time to register.



   The installer adds a SmartNAVI icon to the:

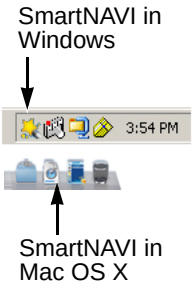
   - Dock
   - Applications folder

   SmartNAVI loads automatically every time your Mac OS starts.

Setting up the SmartStor

The SmartNAVI performs the setup procedures on your SmartStor. After the procedure is done, you will have a default folder on the SmartStor, set up as a network drive on your PC.

You can change the network settings, create RAID volumes, add and mount folders on your SmartStor after initial setup using SmartNAVI. You can also made more advanced settings using the PASM software. See “Connecting to PASM” on page 22.

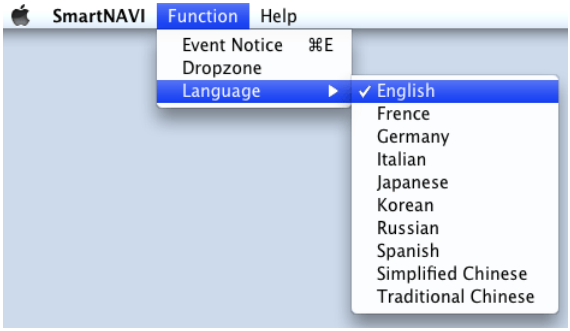


To set up your SmartStor:

1. Double-click the **SmartNAVI** icon in the Windows application tray or Macintosh Dock (right).

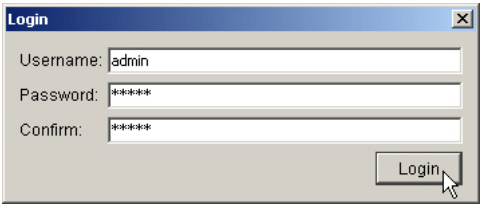
   The MSN Window opens.

2. Macintosh PCs only. From Language dropdown menu, choose the language you prefer.



3. Double-click the NS4600 in the NAS list.

4. Type **admin** in the Username, Password, and Confirm fields, then click the **Login** button.



This action creates a default user and logs the default user into SmartNAVI. The Main Window opens.

5. Choose a Setup Mode and click the button:
   - **One Click Setup** – Loads a collection of default settings. Recommended for most users.
   - **Advanced Setup** – Enables you to make your own settings. Recommended for advanced users.
6. Click the **OK** button to continue.

   If you chose **One Click Setup**, the Wizard creates a RAID Volume and a default folder called *Public*. You are finished with the setup.

   If you chose **Advanced Setup**, go to the next step.
7. Choose Automatic (DHCP) or Manual network settings.

   If you chose Manual settings, type entries for each of the following parameters in the fields provided:
   - Computer (NAS system) Name
   - IP Address
   - Subnet Mask
   - Gateway
   - Primary and Secondary DNS – optional
8. Click the **Next** button to continue.

9. Choose the following values from their respective dropdown menus:
   - Timezone
   - Year
   - Month
   - Day
   - Time in Hours, Minutes, and Seconds
10. Click the **Next** button to continue.
11. Choose Automatic or Manual RAID Volume creation.

    If you chose Manual, choose the type of RAID Volume you want:
    - Maximum Capacity – RAID 0, using all disk drives
    - Data Protection – RAID 5, using all disk drives
12. Click the **Next** button to continue.
13. Choose a network drive letter from the dropdown menu.

    This drive will be mapped as a network drive on your PC.

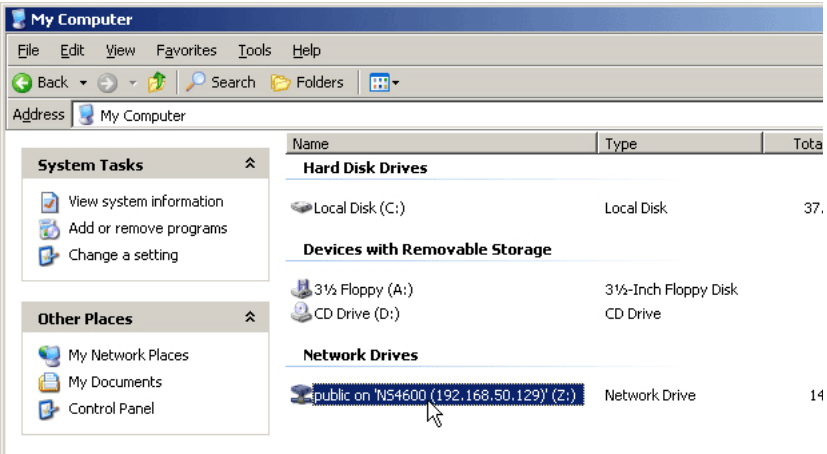
    The list begins with Z and goes in reverse alphabetical order.
14. Click the **Next** button to continue.
15. Review your parameters.

    To make changes, click the **Previous** button.

    To accept the parameters and configure your NAS system, click the **OK** button.
16. Click the **Yes** button in the confirmation box.

    The Wizard creates a RAID Volume and a default folder called *Public*.

    The Public folder on the SmartStor appears under My Computer as a network drive.



You can now copy files to and from the folder on the SmartStor.

To access this folder from other PCs, see “Chapter 3: Connecting to the SmartStor” on page 29.

To create additional RAID Volumes and folders, see “Chapter 7: PASM” on page 123.

Connecting to PASM

The Promise Advanced Storage Manager (PASM) software is factory-installed on the SmartStor system. PASM runs in the browser on your PC. You can access PASM:

- Directly in your browser. See page 23.
- From SmartNAVI. See page 24.
- Using Bonjour. See page 26.

Browser Support

Choose one of the following browsers to use with PASM:

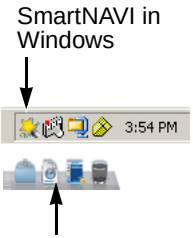
- Internet Explorer
- Mozilla
- Firefox
- Netscape Navigator
- Safari (Mac OS X)

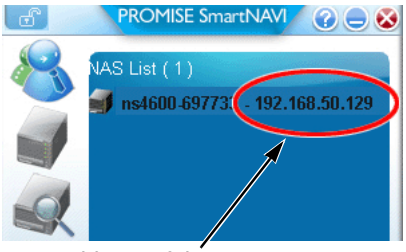
Finding the SmartStor's IP Address

To access the SmartStor in your browser, you must know the SmartStor's IP address. Use SmartNAVI for this purpose.

Double-click the **SmartNAVI** icon in the Windows application tray or Macintosh Dock (right).

The MSN Window opens with the NAS List displayed. The IP address of the SmartStor shown in the NAS List.





IP address of the SmartStor detected on the network

For more information about SmartNAVI, see "Chapter 6: SmartNAVI" on page 75.

PASM in your Browser

To log into PASM in your browser:

1. Start your Browser.
2. In the Browser address field, type in the IP address of the SmartStor.

   See “Finding the SmartStor’s IP Address” on page 22.

   Note that the IP address shown below is only an example. The IP address you type into your browser will be different.

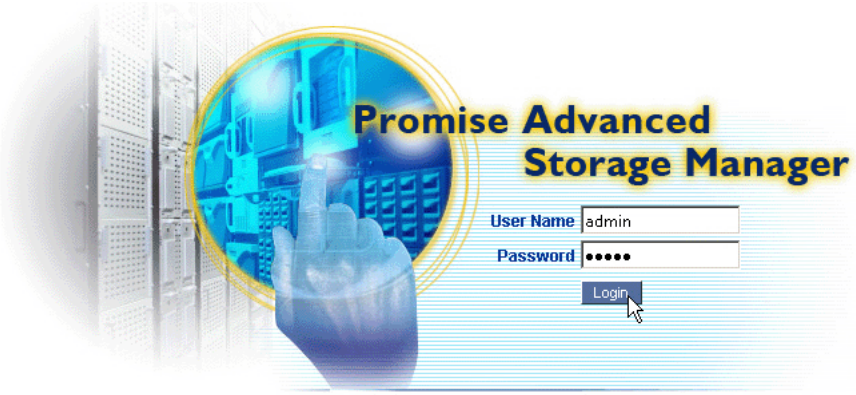
   - PASM uses an HTTP connection . . . . . .http://
   - Enter the SmartStor’s IP address 192.168.50.129/

   Together, your entry looks like this: **http://192.168.50.129/**

   The browser opening screen displays.

3. Click the **WebPASM** icon.

   The PASM login screen displays.



4. Type **admin** in both the User Name and Password fields, then click the **Login** button.

   The user name and password are case sensitive.

   For more information about PASM, see “Chapter 7: PASM” on page 123.

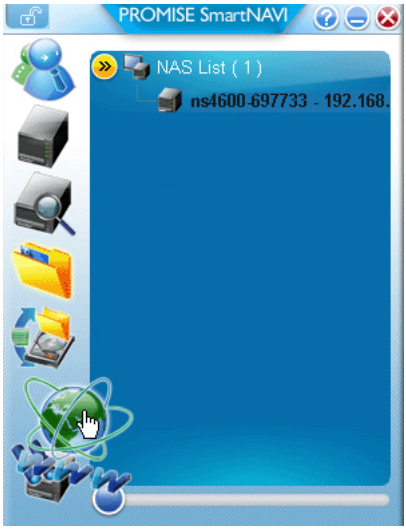
PASM in SmartNAVI

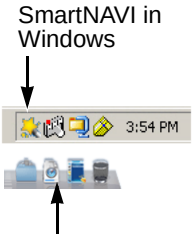
To log into PASM from SmartNAVI:

1. Double-click the **SmartNAVI** icon in the Windows application tray or Macintosh Dock (right).

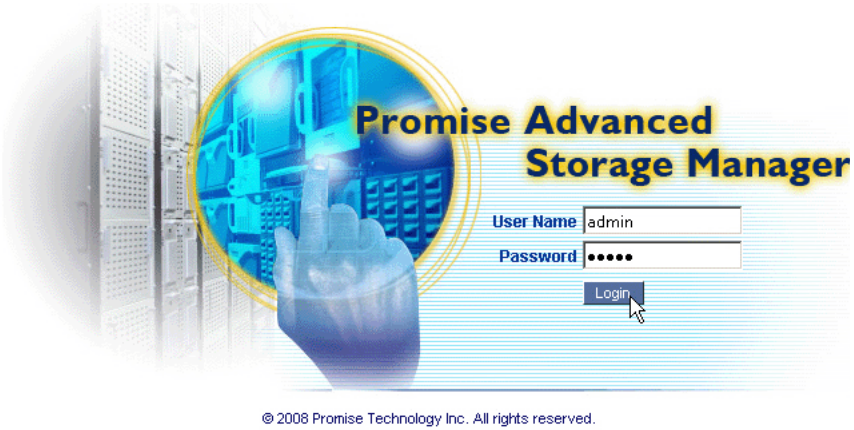
   The MSN Window opens.

2. Click the NS4600 in the NAS list.
3. Click the **WWW** icon to start the browser and open PASM.





Your default browser starts and the PASM login screen displays.



4. Type **admin** in both the User Name and Password fields, then click the **Login** button.

   The user name and password are case sensitive.

   For more information about PASM, see “Chapter 7: PASM” on page 123.

PASM in Bonjour

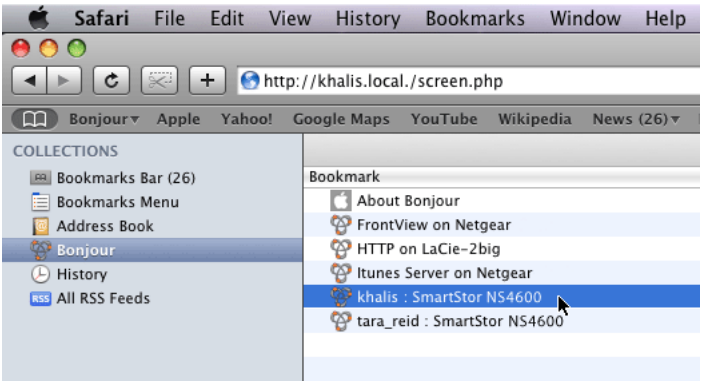
Bonjour is a service discovery protocol for local area networks. To use Bonjour, you must have a Bonjour-capable browser.

Method 1

To log into PASM from Bonjour:

1. Start your Browser.
2. Click the **Show all bookmarks** icon.

   The Collections list appears.
3. Under the Collections list, click the **Bonjour** icon.
4. Click to highlight the **SmartStor** in the Bookmark list to launch PASM.

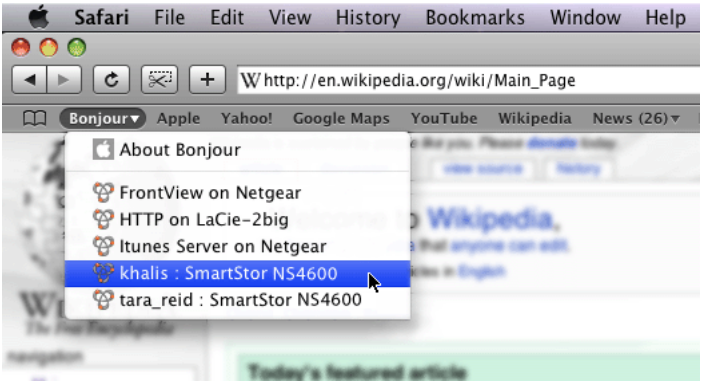


Method 2

To log into PASM from Bonjour:

1. Start your Browser.
2. Click the **Bonjour** icon.

   The Bonjour list of network devices appears.
3. Click to highlight the **SmartStor** in the Bonjour list to launch PASM.



The PASM login screen displays.

4. Type the user name and password in the respective fields, then click the **Login** button.

   The default user name is **admin**. The default password is **admin**.

   The user name and password are case sensitive.

   For more information about PASM, see “Chapter 7: PASM” on page 123.

Shutting Down the SmartStor

To shut down the SmartStor, press and hold the power button for five seconds. The system status LED turns red, then goes dark.

Figure 4. Press and hold the Power button for 5 seconds

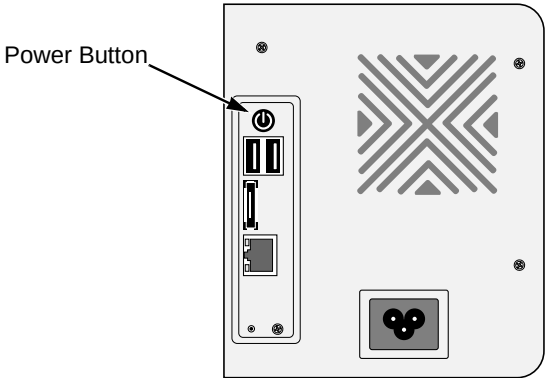
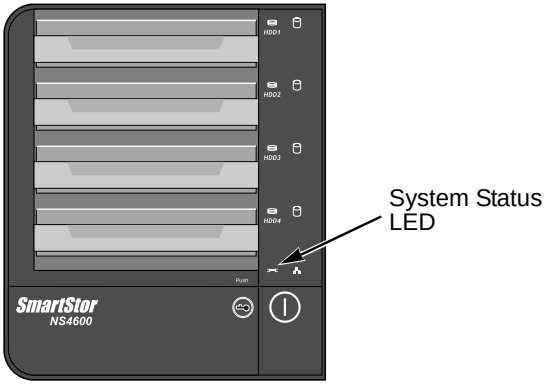


Figure 5. System status LED turns red, then goes dark



To restart the SmartStor, press the power button again.

Chapter 3: Connecting to the SmartStor

- Setting up a Network Drive on a Windows PC (page 29)
- Setting up a Network Drive on a UNIX or Linux PC (page 33)
- Setting up a Network Drive on a Macintosh PC (page 37)
- Connecting a USB Printer to SmartStor (page 41)
- Setting up the Print Server on SmartStor (page 42)
- Setting up Windows Printing (page 43)
- Setting up Linux Printing (page 46)
- Setting up Macintosh Printing (page 49)
- Connecting a USB Drive (page 51)
- Disconnecting a USB Drive (page 53)
- Setting-up Apple iTunes (page 54)

To copy files to and from a folder on the SmartStor, you must make the folder a network drive on your PC.

To use the SmartStor as a print server, you must connect the USB printer, enable SmartStor's print server, and set up printing on your PC.

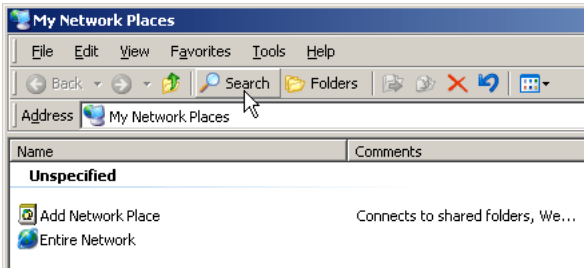
Setting up a Network Drive on a Windows PC

You can also use SmartNAVI for this purpose, see "Mounting a Share Folder / Creating a Network Drive" on page 98. If your PC does not have SmartNAVI, use the following procedure to setup a Network Drive with My Network Places.

Using the SMB protocol, SmartStor supports up to 16 concurrent connections.

To setup a network drive:

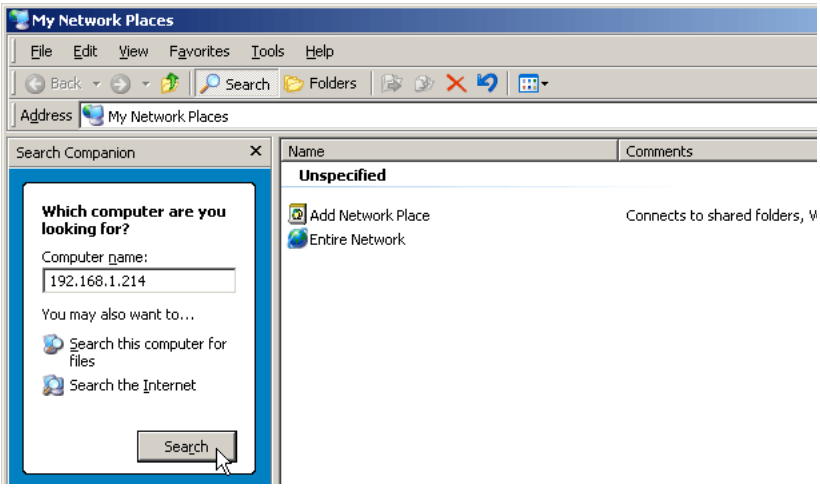
1. On the Windows desktop, double-click the **My Network Places** icon.
2. Click the **Search** button in the toolbar.



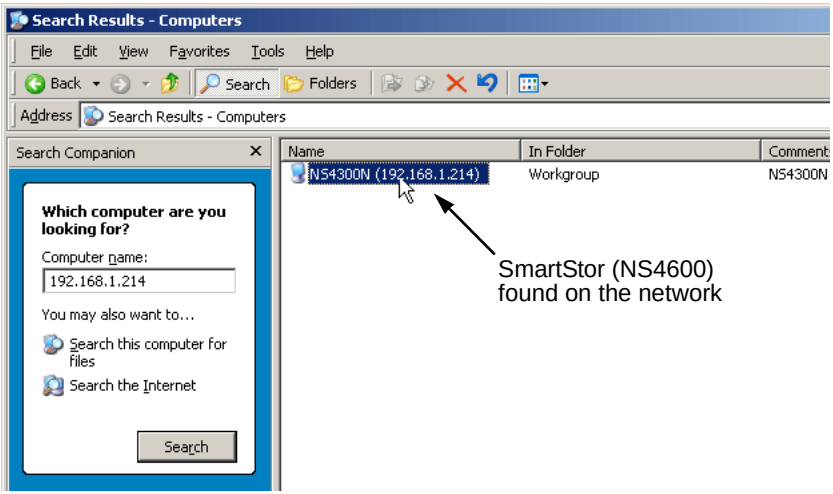
If the Search button is not shown, from the View menu, choose *Toolbars*, then *Standard Buttons*.

3. In the Computer name field, type the IP address of the SmartStor and click the **Search** button.

   See “Finding the SmartStor’s IP Address” on page 22.

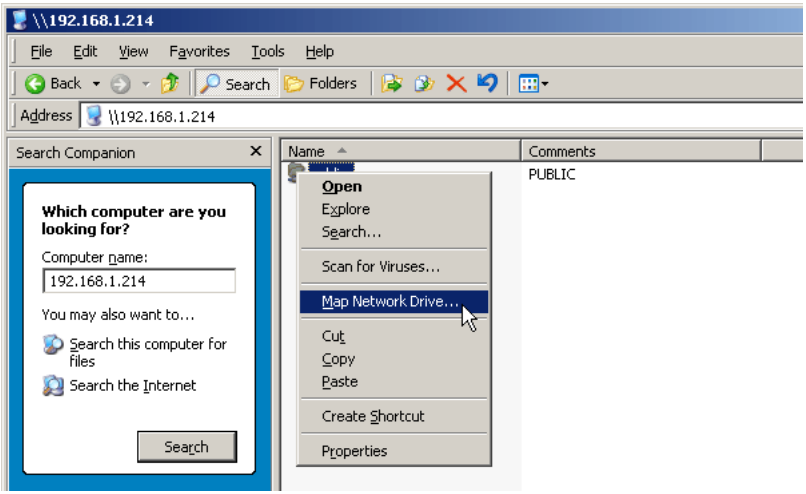


   The SmartStor appears in the search results list.

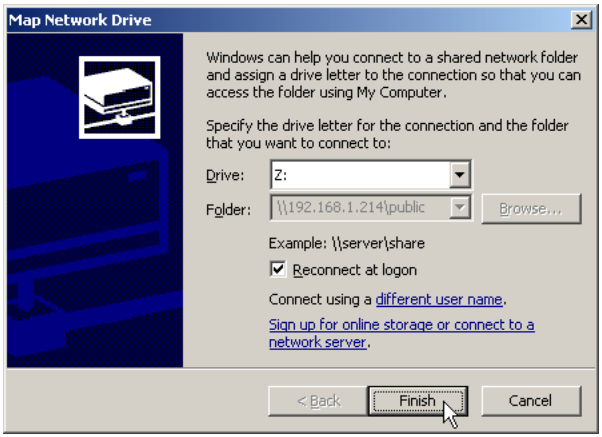


4. Double-click the **SmartStor** to show the Public folder and any other folders you have created.

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

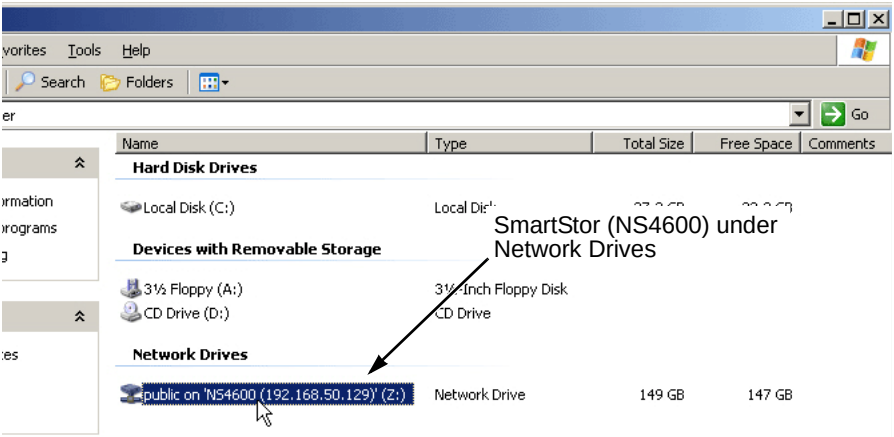


The Map Network Drive dialog box appears.



6. In the Map Network Drive dialog box, choose a drive letter and click the **Finish** button.
7. Double-click the **My Computer** icon on your Windows desktop.

The folder on the SmartStor appears under My Computer as a network drive.



You can now copy files to and from the folder on the SmartStor.

Setting up a Network Drive on a UNIX or Linux PC

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

On a Windows or Macintosh PC

Setting up UNIX/Linux Service

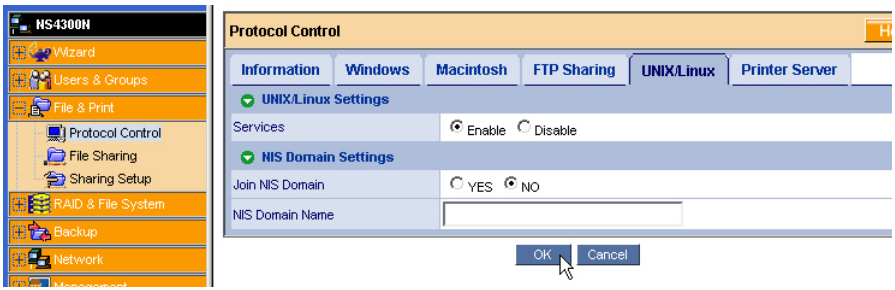
To set up access from a UNIX or Linux PC:

1. Start PASM.

   See “PASM in your Browser” on page 23, “PASM in SmartNAVI” on page 24, or “PASM in Bonjour” on page 26.
2. In the Tree, click the **+** beside the **File & Print** icon to expand the Tree.
3. Click the **Protocol Control** icon, then click the **UNIX/Linux** tab.
4. Click the **Enable** option button.
5. Optional. To join a NIS Domain, click the **UNIX/Linux** tab, then click the **Enable** option button beside Services.

   Note: If you join an NIS Domain, you automatically disable your AD Domain settings. See “Setting up Windows Access” on page 137.
6. Enter the Domain name into the field provided.

   See your Network Administrator for help with this information.
7. Click the **OK** button to save your settings.
8. Click the **OK** button in the confirmation box.



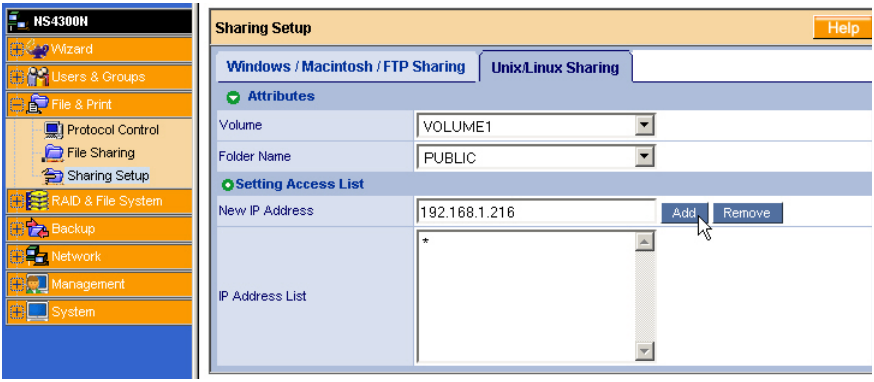
Setting up File Sharing

File access from UNIX and Linux PCs is controlled by specifying the IP address of each PC that can access a given folder.

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

To set up UNIX/Linux file sharing:

1. In the Tree, click the **Sharing Setup** icon, then click the **UNIX/Linux Sharing** tab.
2. Choose a folder from the Folder Name dropdown menu.
3. In the New IP Address field, type the IP address of the UNIX or Linux PC from which you will access this folder, then click the **Add** button.
4. Click the **OK** button to save your settings.
5. Click the **OK** button in the confirmation box.



On the UNIX/Linux PC with Command Line Interface

1. Open a terminal window.
2. Create a new folder for the SmartStor. Type **mkdir SmartStor** and press Enter.
3. Mount the SmartStor. Type **mount 192.168.1.214:/VOLUME1/PUBLIC/ SmartStor** and press Enter.

   Note that the IP address shown above is only an example. See “Finding the SmartStor’s IP Address” on page 22.

   Volume1 and Public refer to the default Volume and folder created during setup. See page 17. If you created a different volume or folder, use those names.
4. Change to the SmartStor directory. Type **cd /SmartStor** and press Enter.

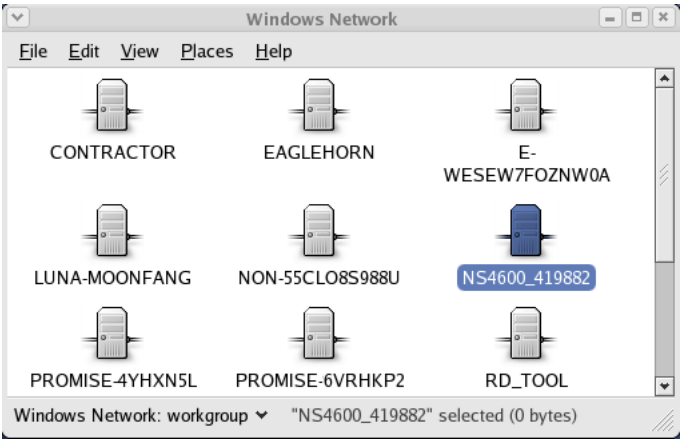
   You can now copy files to and from the folder on the SmartStor.

   When you are done with the SmartStor, type **cd; umount /SmartStor** 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.

1. From the Applications menu, choose *Network Servers*.
2. In the Network window, double-click **Windows Network**.
3. Double-click the **SmartStor (NS4600)** on the network.



4. Double-click the folder you want.

   If this is the first time you accessed this folder, an Authentication dialog box opens.

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

   The default user name is **admin**. The default password is **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 SmartStor.

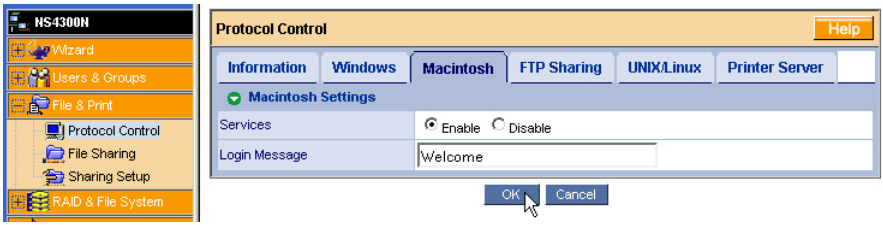
Setting up a Network Drive on a Macintosh PC

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

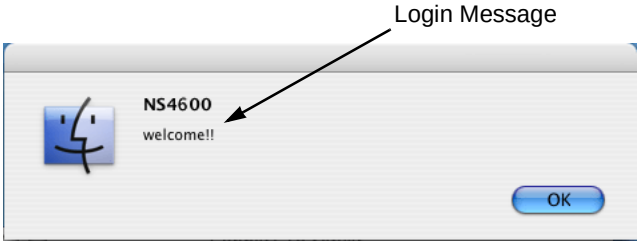
In PASM

1. Start PASM.

   See “PASM in your Browser” on page 23, “PASM in SmartNAVI” on page 24, or “PASM in Bonjour” on page 26.
2. Click the **Protocol Control** icon, then click the **Macintosh** tab.
3. Click the **Enable** button.
4. Optional. Type a message in the Login Message field.
5. Click the **OK** button to save your settings.

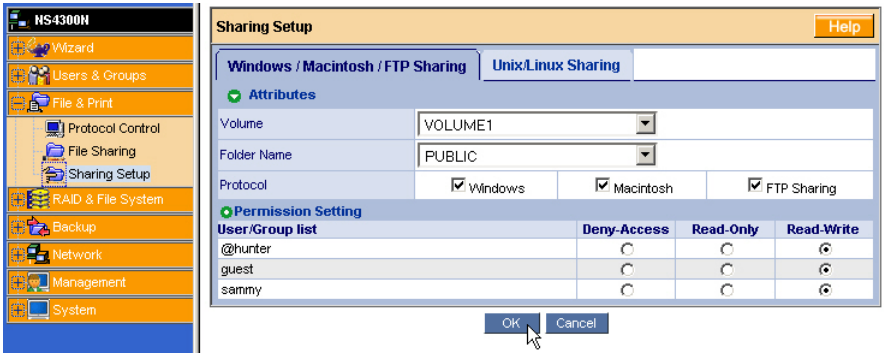


The optional login message appears on the Welcome screen when you log into SmartStor from a Macintosh PC.



To set up Macintosh file sharing:

1. In the Tree, click the **Sharing Setup** icon, then click the **Windows/ Macintosh/FTP Sharing** tab.
2. Check the **Macintosh** protocol box.



3. Choose a folder from the Folder Name dropdown menu.
4. In the User/Group list, highlight the name of a user or group.

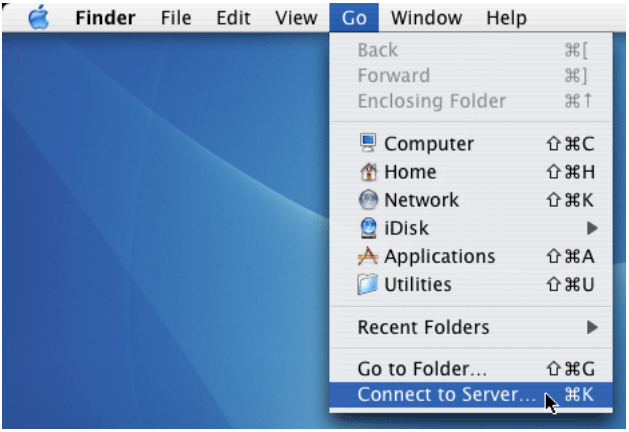
   Group names are preceded by the @ character.
5. Under Permissions, choose a permission level for this user or group:
   - Deny Access – Visible only, cannot open
   - Read Only
   - Read and Write – Default
6. Click the **OK** button to save your settings.
7. In the confirmation box, click the **OK** button.

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

   The Macintosh file sharing enables Macintosh PCs to access folders on the SmartStor. In this case, access is given for the PUBLIC folder.

On the Macintosh Desktop

1. From the Go menu, choose *Connect to Server*.

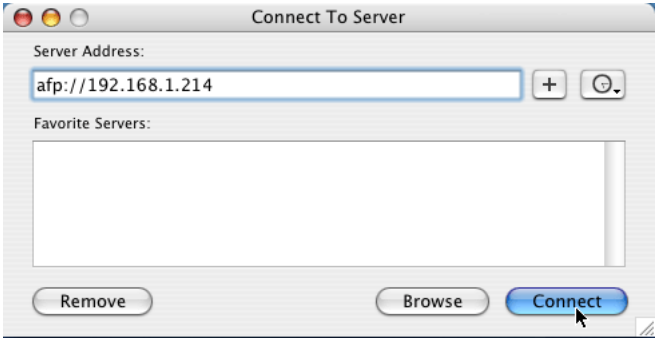


2. In the Connect to Server dialog box, type **afp://192.168.1.214** and click the **Connect** button.

   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.

   See “Finding the SmartStor’s IP Address” on page 22.

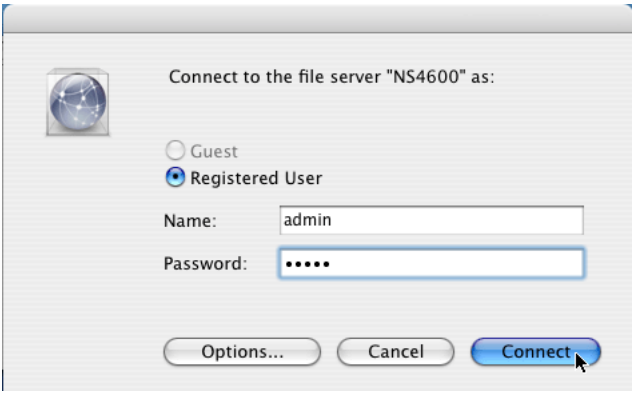
   Click the **+** button to add this IP address to the Favorite Servers list.



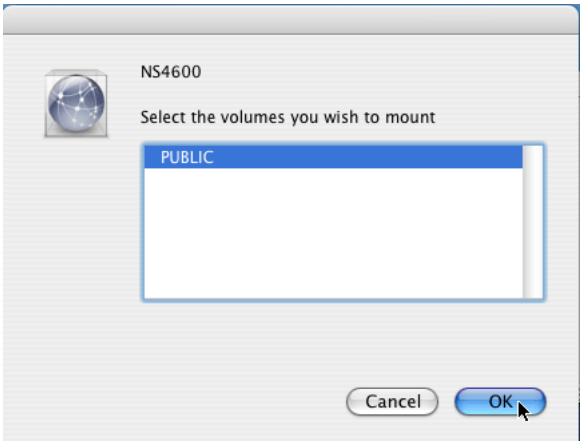
3. Type the user name and password in the respective fields, then click the **OK** button.

   The default user name is **admin**. The default password is **admin**.

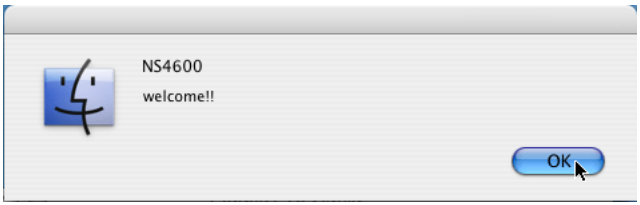
The user name and password are case sensitive.



4. In the NS4600 dialog box, click the folder you want, then click the **OK** button.



5. In the NS4600 Welcome screen, click the **OK** button.



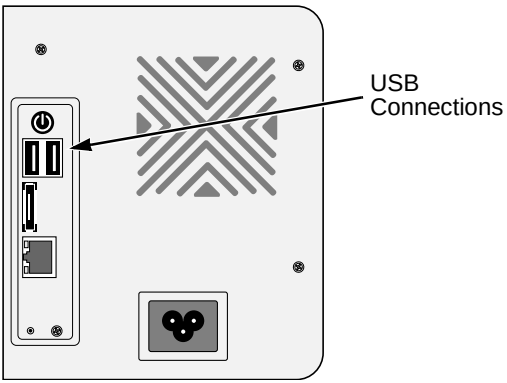
A window opens on the Macintosh desktop to access the folder on the SmartStor.

You can now copy files to and from the folder on the SmartStor.

Connecting a USB Printer to SmartStor

To connect a USB printer to the SmartStor:

1. Set up your printer and install the printer drivers onto your PC as described in the printer's *Setup Guide* or *User Manual*.
2. Attach the USB cable from your printer to one of the USB connections on the back of the SmartStor.



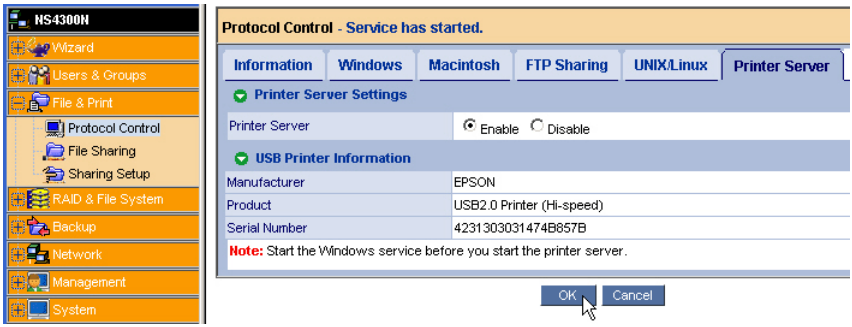
Setting up the Print Server on SmartStor

To set up the SmartStor's print server:

1. Start PASM.

   See "PASM in your Browser" on page 23, "PASM in SmartNAVI" on page 24, or "PASM in Bonjour" on page 26.

2. In the Tree, on the left side of the PASM screen, click the **+** beside the **File & Print** icon to expand the Tree.
3. Click the **Protocol Control** icon, then click the **Printer Server** tab.
4. Click the **Enable** option button beside Printer Server.
5. Click the **OK** button to save your settings.



Setting up Windows Printing

If your printer came with automatic configuration software, you might have to complete this procedure first to create a connection path. Then use the configuration software.

To set up printing on a Windows PC:

1. On the Windows desktop, double-click the **My Network Places** icon.
2. Click the **Search** button in the toolbar.

   If the Search button is not shown, from the View menu, choose *Toolbars*, then *Standard Buttons*.
3. In the Computer name field, type the IP address of the SmartStor and click the **Search** button in the side bar.

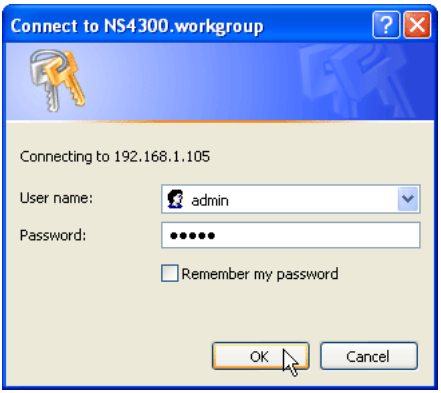
   See “Finding the SmartStor’s IP Address” on page 22.

   The SmartStor appears in the search results list.
4. In the computer list, double-click the **SmartStor** to open it.

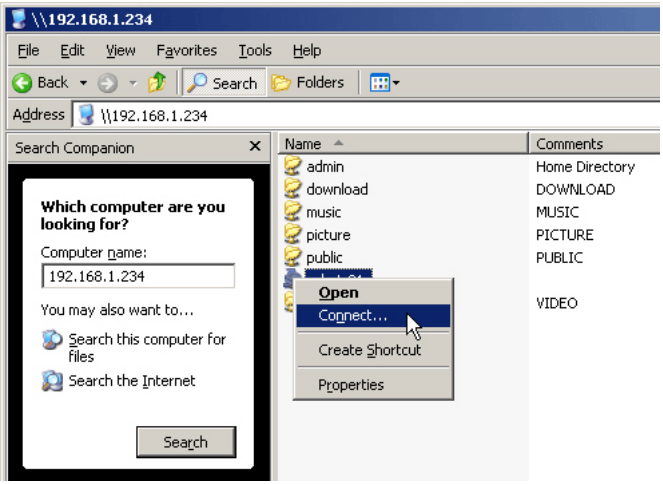
   If the Connect to dialog box appears, type the user name and password in the respective fields, then click the **OK** button.

   The default user name is **admin**. The default password is **admin**.

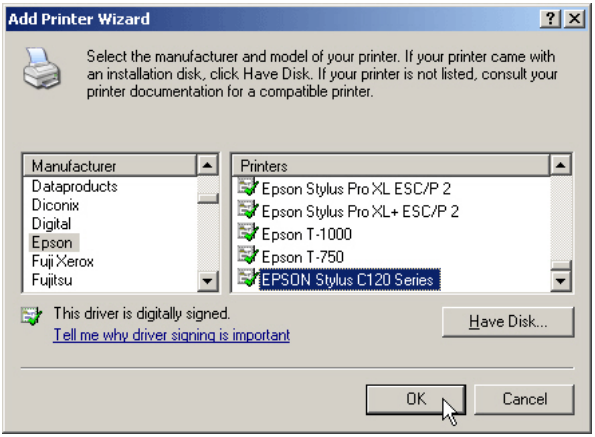
   The user name and password are case sensitive.



5. Right-click the **usbptr01** icon folder and choose *Connect...* from the dropdown menu.

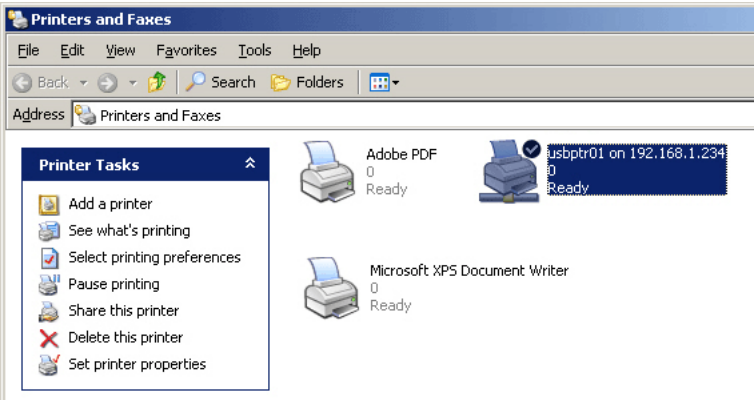


6. When the warning message about printer drivers appears, click the **OK** button to continue.
7. In the Add Printer Wizard, click the Manufacturer and model name of your USB printer, then click the **OK** button.



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

   The Printers and Faxes screen appears. The **usbptr01** is the USB printer on the SmartStor.


Printers and Faxes
File Edit View Favorites Tools Help
Back Search Folders
Address Printers and Faxes
Printer Tasks
Add a printer
See what's printing
Select printing preferences
Pause printing
Share this printer
Delete this printer
Set printer properties
Adobe PDF
0
Ready
usbptr01 on 192.168.1.234
0
Ready
Microsoft XPS Document Writer
0
Ready

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.

1. From the Applications menu, choose *System Settings*, then *Printing*.

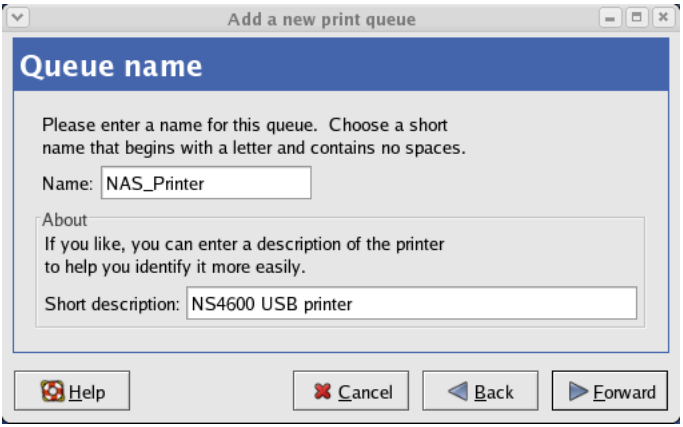
   Printer configuration window opens.

2. Click the **New** button.

   Add a new print queue dialog box opens.

3. Click the **Forward** button.

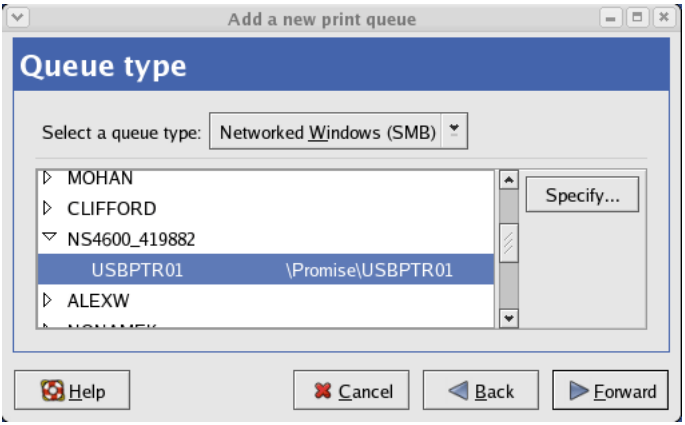
4. In the Name field, type a name for the printer, such as *NAS_printer*, a description, and click the **Forward** button.



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

6. Scroll the list and click the **triangle** icon beside NS4600.

   USBPTR01 appears below NS4600. USBPTR01 represents the USB printer connected to the SmartStor.

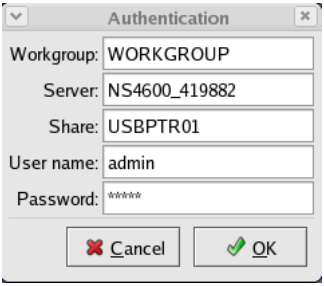


7. Highlight *USBPTR01* and click the **Forward** button.

   The Authentication dialog box opens.

8. In the User name and Password fields, type **admin**, then click the **OK** button.

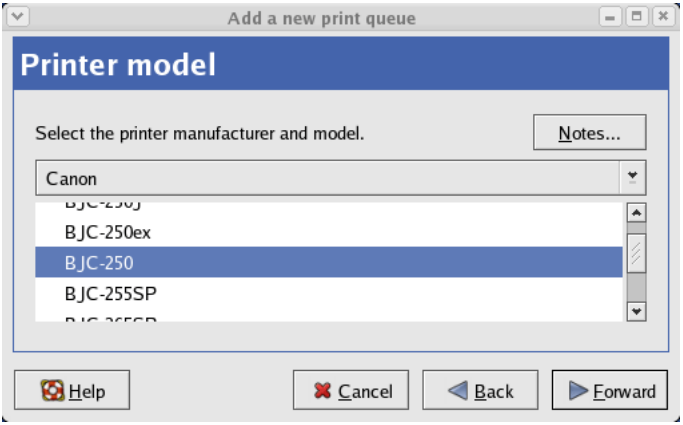
   The user name and password are case sensitive.



   The Printer Model dialog box opens.

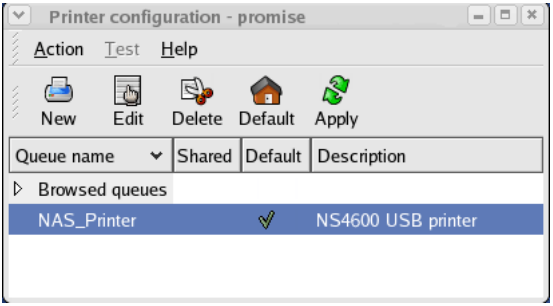
9. From the dropdown menu, choose the manufacturer of your printer.

   From the model list, highlight the model of your computer, then click the **Forward** button.



10. Click the **Finish** button.

USBPTR01 is added to your printer list.

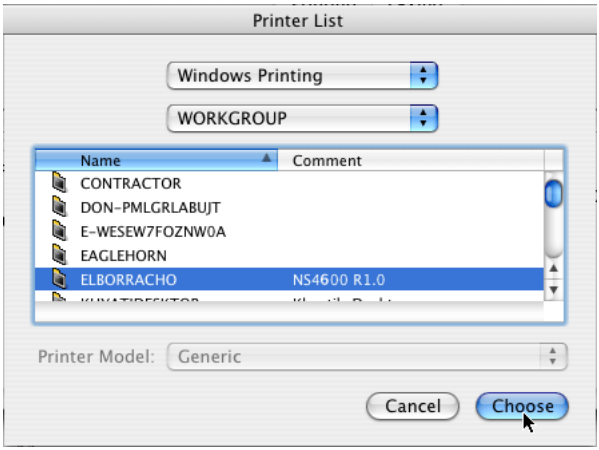


Setting up Macintosh Printing

To set up printing on a Macintosh PC:

1. From the Apple Menu, choose *System Preferences*.
2. Double-click the **Print & Fax** icon.
3. Click the **Setup Printers** button.
4. In the Printer List, click the **Add** icon.

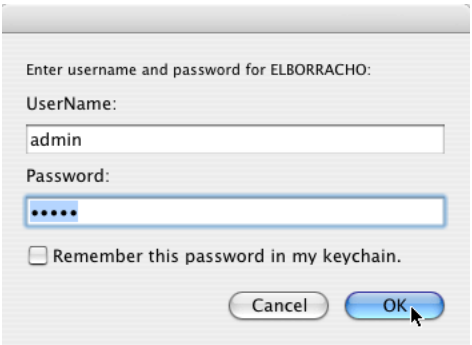
   The Printer List displays a new panel.
5. In the new panel, from the popup menus, choose:
   - Windows Printing
   - Workgroup
6. From the list, highlight the **SmartStor**, then click the **Choose** button.



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

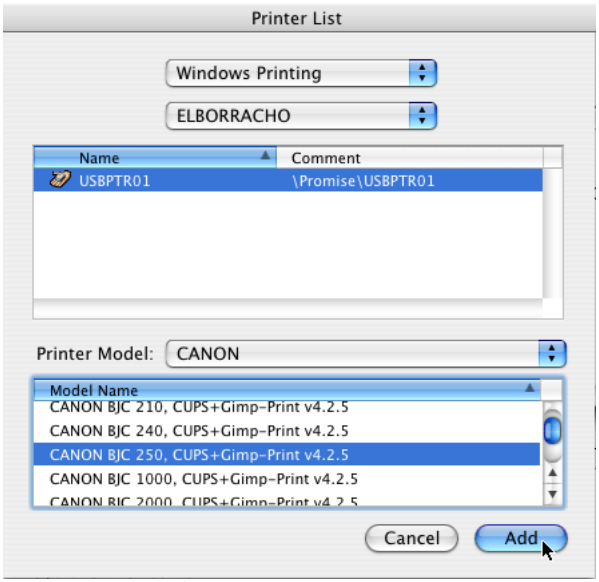
   The default user name is **admin**. The default password is **admin**.

   The user name and password are case sensitive.

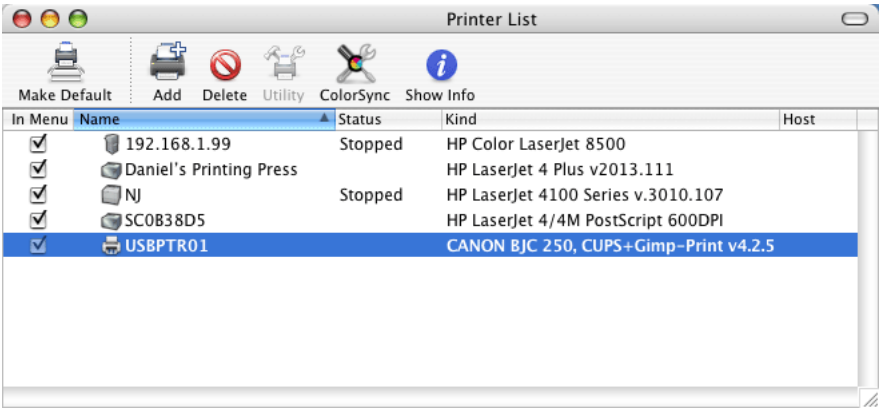


The printer list displays a new panel.

8. Highlight the *USBPTR01* in the list.
   USBPRT01 represents the USB printer connected to the SmartStor.



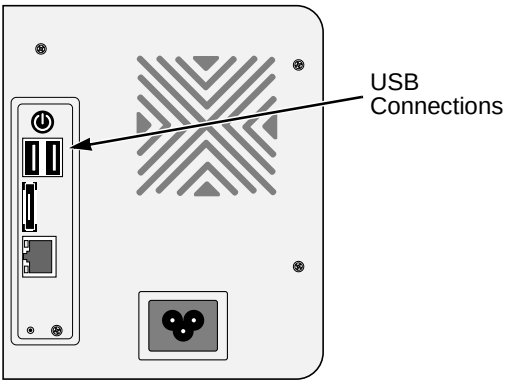
9. In the Printer Model popup menu, choose the make of your printer.
10. In the Model Name list, choose the model of your printer.
11. Click the **Add** button.
    USBPTR01 is added to your printer list.



Connecting a USB Drive

To connect a USB drive to the SmartStor, attach the USB cable from your external drive to one of the USB connections on the back of the SmartStor.

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.

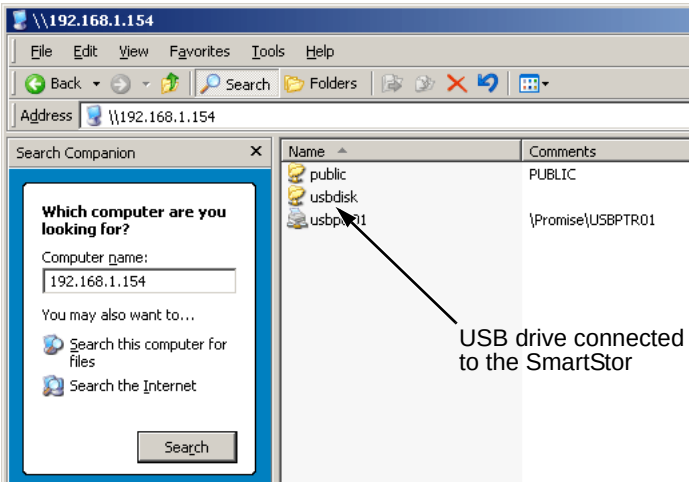


The USB drive or memory stick appears as a folder called *usbdisk* when you create your network drive. See the instructions on the following page.

SmartStor supports USB drives and memory sticks formatted to FAT32 and Ext3 file formats. If the SmartStor does recognize the USB drive or memory stick, the *usbdisk* folder does not appear. See “Formatting an External USB Drive or Memory Stick” on page 151.

Windows PC

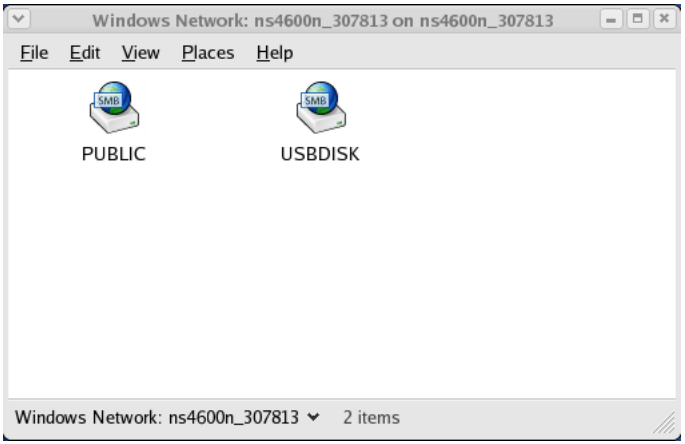
The USB drive appears as a folder on the SmartStor when you create a network drive on a Windows PC.



Follow the procedure “Setting up a Network Drive on a Windows PC” on page 29, but choose the *usbdisk* folder instead of the *public* folder.

Linux PC

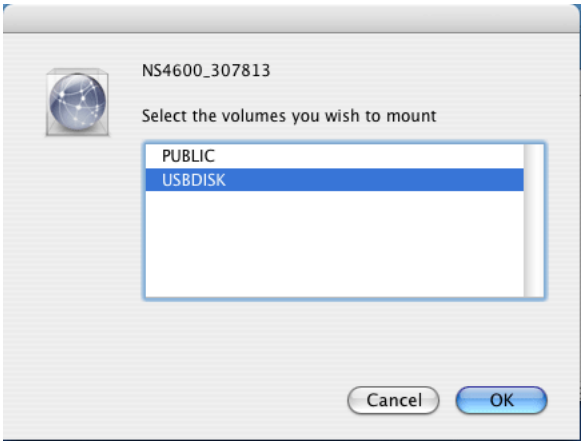
The USB drive appears as a folder on the SmartStor when you create a network drive on a Linux PC.



Follow the procedure “Setting up a Network Drive on a UNIX or Linux PC” on page 33, but choose the USBDISK folder instead of the PUBLIC folder.

Macintosh PC

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



Follow the procedure “Setting up a Network Drive on a Macintosh PC” on page 37, but choose the USBDISK folder instead of the PUBLIC folder.

Disconnecting a USB Drive

To disconnect a USB drive or memory stick from the SmartStor:

1. Be sure that no files on the USB drive or memory stick are still open.
2. Unplug the USB drive or memory stick from the SmartStor.

   The SmartStor automatically unmounts the USB drive or memory stick.

Setting-up Apple iTunes

The Firefly Media Server plug-in enables SmartStor to be a shared resource in the Apple iTunes user interface. You must perform the setup operation on the PC where you installed SmartNAVI.

Downloading the Firefly Plug-in

To download the Firefly Media Server plug-in:

1. Download your Firefly plug-in from the Promise Support Website.

   Plug-in file names end with a .ppg extension.
2. Save the plug-in file to a convenient place on your PC.

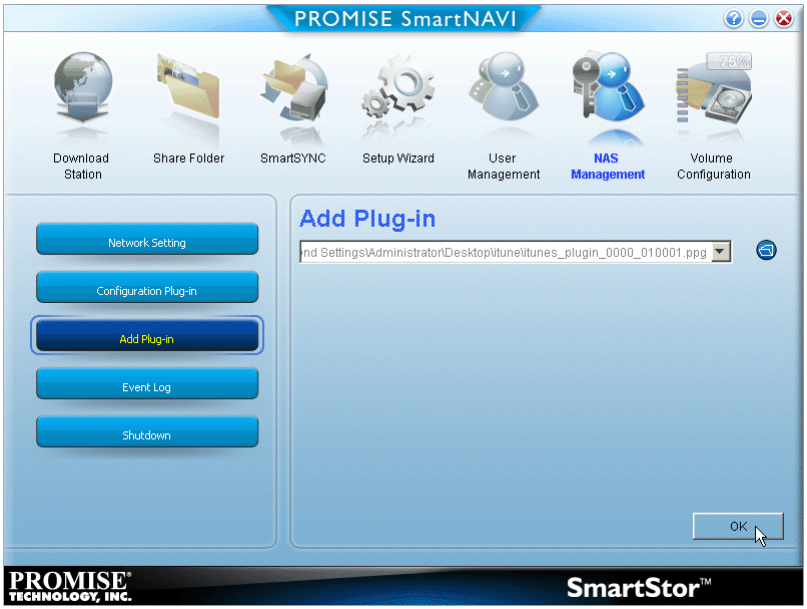
Installing the Firefly Plug-in

To install the Firefly Media Server plug-in using SmartNAVI:

1. Double-click the **SmartNAVI** icon in the Windows application tray or Macintosh Dock (right)

   The MSN Window opens.
2. Double-click the system in the NAS List.

   The Main Window opens.
3. Click the **NAS Management** icon.
4. Click the **Add Plugin** button.
5. Do one of the following actions:
   - Type the name of the plug-in file
   - Click the folder icon, navigate to the Firefly plug-in file, click it, then click the **Open** button
6. Click the **OK** button.



After a few moments, the plug-in is added.

Warning

Do not disconnect the power or shut down the SmartStor while the plug-in installation is running!

7. Click the **Configure Plugin** button.
   The newly added plug-in appears in the list. Its Service Status is OFF.
8. Click the plug-in to choose it.
   The plug-in's name turns red.
9. Click the **Enable** button.
   After a moment, the Service Status changes to ON.
   The Firefly plug-in is now installed SmartStor.

Note

You can also install the Firefly plug-in using PASM. See “Enabling and Disabling Plug-ins” on page 143 and “Adding Application Plug-ins” on page 161.

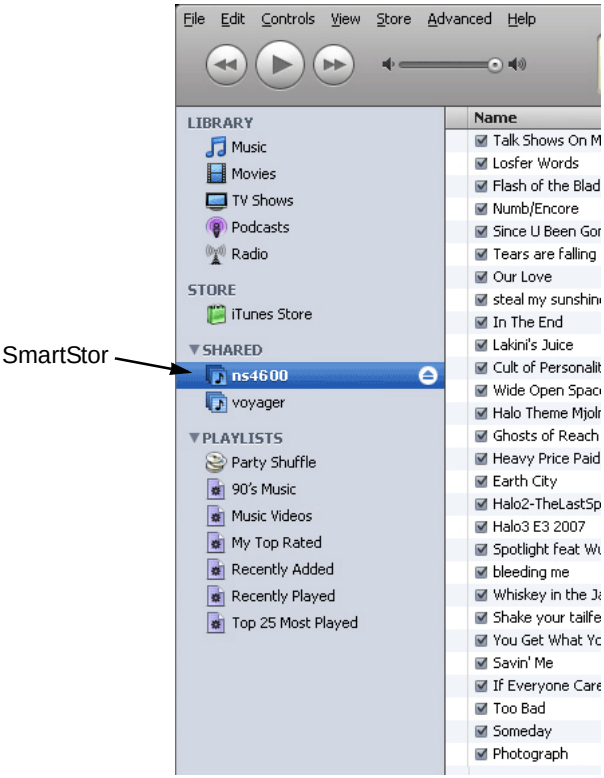
Installing and Configuring Apple iTunes

After you have installed the Firefly plug-in, your system is ready to install and configure iTunes.

1. Go to the Apple website and download iTunes.
2. Install iTunes onto your PC.
3. Be sure your SmartStor is running and connected to your network.
4. Open the iTunes application.

   The SmartStor’s network name appears on the iTunes screen under Shared.

   Click on the SmartStor to display the items stored there.


SmartStor
File Edit Controls View Store Advanced Help
LIBRARY
Music
Movies
TV Shows
Podcasts
Radio
STORE
iTunes Store
SHARED
ns4600
voyager
PLAYLISTS
Party Shuffle
90's Music
Music Videos
My Top Rated
Recently Added
Recently Played
Top 25 Most Played
Name
Talk Shows On M
Losfer Words
Flash of the Blad
Numb/Encore
Since U Been Gor
Tears are falling
Our Love
steal my sunshin
In The End
Lakini's Juice
Cult of Personalit
Wide Open Spac
Halo Theme Mjolr
Ghosts of Reach
Heavy Price Paid
Earth City
Halo2-TheLastSp
Halo3 E3 2007
Spotlight feat Wu
bleeding me
Whiskey in the Ja
Shake your tailfe
You Get What Yc
Savin' Me
If Everyone Care
Too Bad
Someday
Photograph

Chapter 4: One Touch Backup

- Enabling One Touch Backup (page 60)
- Creating a Backup Schedule (page 62)
- Performing a One Touch Backup (page 64)
- Viewing Your Backup Files (page 65)
- Restoring Backed-up Files (page 67)

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 SmartStor software.

Caution

The SmartStor and One Touch Backup cannot restore a failed boot drive in your PC. However, you can use the SmartStor 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 SmartStor
- Create a Backup Schedule in SmartNAVI

Notes

- Windows does not allow SmartNAVI 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 SmartStor as a network drive. See “Setting up a Network Drive on a Windows PC” on page 29.

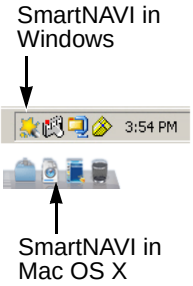
Enabling One Touch Backup

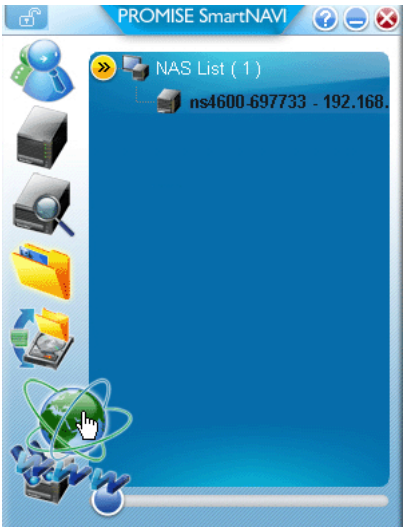
To enable One Touch Backup on the SmartStor:

1. Double-click the **SmartNAVI** icon in the Windows application tray or Macintosh Dock (right).

   The MSN Window opens.

2. Click the NS4600 in the NAS list.
3. Click the **WWW** icon to start the browser and open PASM.





Your default browser starts and the PASM login screen displays.

4. Type **admin** in both the User Name and Password fields, then click the **Login** button.

   The user name and password are case sensitive.

5. In the Tree, click the **+** beside the **Backup** icon, then click the **Easy Backup** icon.

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

Creating a Backup Schedule

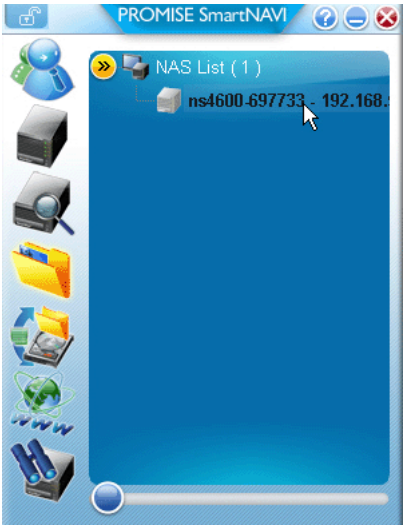
For each folder you want to backup, you must create a backup schedule.

To create a Backup Schedule in SmartNAVI:

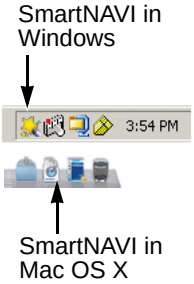
1. Double-click the **SmartNAVI** icon in the Windows application tray or Macintosh Dock (right).

   The MSN Window opens.

2. Double-click the NS4600 in the NAS list.

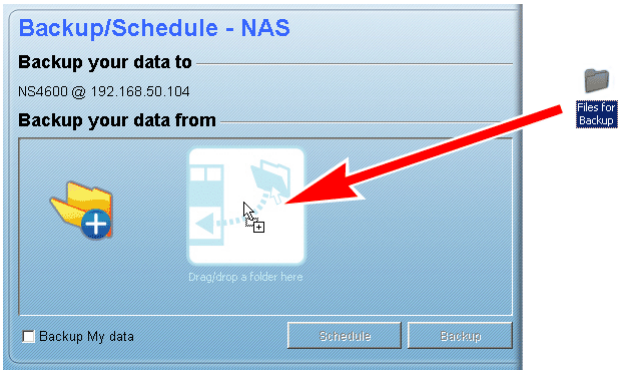


3. Click the **SmartSYNC** icon.
4. Click the **Backup/Schedule – NAS** button.

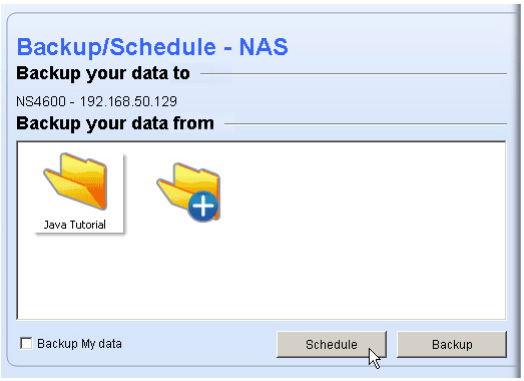


5. Do any of the following actions to select your backup folders:
   - Check the **Backup My Data** box – Selects the My Documents, Favorites, and Desktop folders with all their contents.
   - Click the **Add to Backup** icon (right) – Opens the My Documents folder. Click a folder you want to backup, then click the **Choose** button. Repeat for additional folders.

     
   - Drag and drop the folders you want to backup to the **Backup your data from** window.



6. Click the **Schedule** button.



7. Click an option button for:
   - Hour
   - Day
   - Day of the week

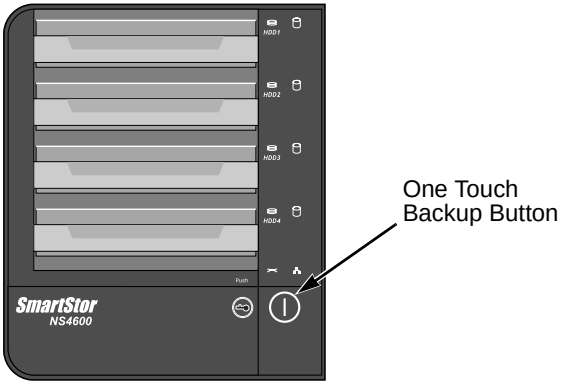
8. Choose the corresponding values from the dropdown menus:
   - Number of hours
   - Time of day in hours and minutes
   - Time of day and day of the week
9. Click the **Add** button.

The newly created schedule appears in the Schedule List.

The backed up files will appear on the NAS in a folder named **BACKUPDATA_your username**.

Performing a One Touch Backup

To perform a One Touch Backup, press the **One Touch Backup** button on the front of the SmartStor.



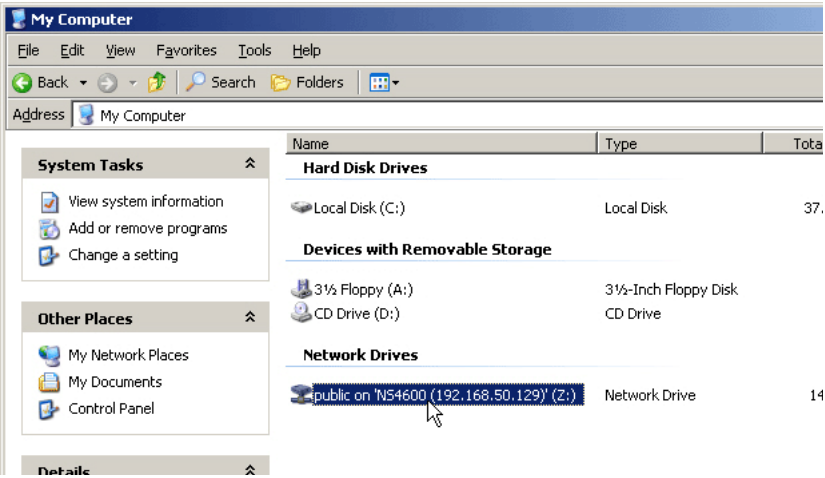
The SmartStor beeps five times to indicate that the backup has begun. If SmartNAVI is open, a message displays the progress of the backup.

The One Touch Backup function backs up all of the folders on your PC for which you created a backup schedule.

Viewing Your Backup Files

To view your backup files on the SmartStor:

1. On the Windows PC desktop, double-click the My Computer icon.
2. Under Network Drives, double-click the SmartStor.

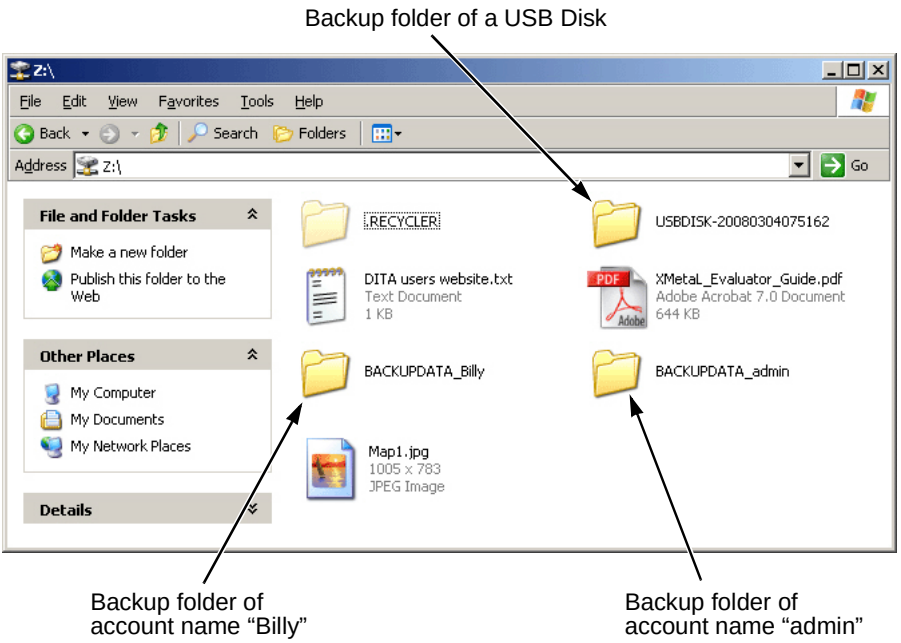


3. On the SmartStor, find the Backup folder.

   The Backup folder contains the results of the One Touch Backup:

   - The subfolders inside the Backup folder match the file structure on your PC's hard disk drive or your USB disk.
   - The PC Backup folder is named BACKUPDATA plus your user name.
   - A USB disk backup folder is named "USBDISK" and the date of the backup, plus a random number.

   See the example on the next page.


Backup folder of a USB Disk
Z:\
File Edit View Favorites Tools Help
Back Search Folders
Address Z:\
Go
File and Folder Tasks
Make a new folder
Publish this folder to the Web
Other Places
My Computer
My Documents
My Network Places
Details
RECYCLER
USBDISK-20080304075162
DITA users website.txt
Text Document
1 KB
XMetaL_Evaluator_Guide.pdf
Adobe Acrobat 7.0 Document
644 KB
BACKUPDATA_Billy
BACKUPDATA_admin
Map1.jpg
1005 x 783
JPEG Image
Backup folder of account name “Billy”
Backup folder of account name “admin”

Restoring Backed-up Files

You can restore all or any portion of the files in the **BACKUPDATA_your username** folder on the NAS system.

You can also choose to restore the files to their original location on your PC or an alternative location.

The original file structure is maintained during backup and restoration.

Caution

If you restore to the original folders on your PC, the restore function will overwrite the files in those folders.

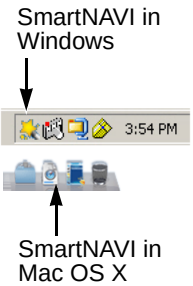
Be careful which files you restore and where on your PC you direct the backup files.

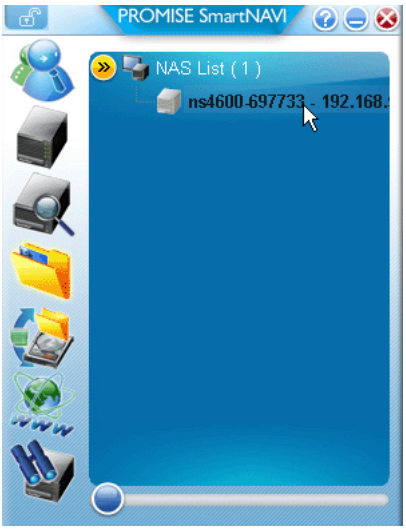
To restore your backed-up files from the NAS system to your PC:

1. Double-click the **SmartNAVI** icon in the Windows application tray or Macintosh Dock (right).

   The MSN Window opens.

2. Double-click the NS4600 in the NAS list.





   The Main Window opens.

3. Click the **SmartSYNC** icon.

4. Click the **Restore** button.
5. Click the folder whose contents you want to restore.

   Click the arrow icons to expand the tree and narrow your choices.
6. Click an option button for:
   - Restore to original folder – The backup files will overwrite the files on your PC
   - Restore to a specific folder – No files are overwritten on your PC
7. If you chose Restore to a specific folder, do one of the following actions:
   - Type the name of an existing folder in the field provided
   - Type the name of an new folder in the field provided
   - Click the Folder icon – Opens the My Documents folder. Click a folder you want to use for a target, then click the **Open** button
8. Click the **Restore** button.

   The restoration begins immediately. The amount of time required depends on the size and number of files being restored.

Chapter 5: Media Center

- Accessing Media Center (page 69)
- Picture Files (page 71)
- Video Files (page 71)
- Music Files (page 71)

Media Center enables you to play your picture, video, and music files from the SmartStor and to download those files to your PC.

Note that there are two features called Media Center. This chapter deals with Media Center on the SmartStor. See page 114 for Media Center in SmartNAVI.

Important

In order for your music and video to play, your PC must have the proper software to support the file formats and codecs used to create those music and video files.

You can identify a file's format by its file extension. If you do not recognize a file extension, look it up on a reference website such as Wikipedia or FILExt.com.

You can download players for common music and video file formats free over the Internet.

Accessing Media Center

To access Media Center:

1. Launch your Browser.
2. In the Browser address field, type the IP address of the SmartStor subsystem.

   See "Finding the SmartStor's IP Address" on page 22. Note that the IP address shown below is only an example. The IP address you type into your browser will be different.

   - Media Center uses an HTTP connection. . . . . .http://
   - Enter the SmartStor's IP address 192.168.1.120/

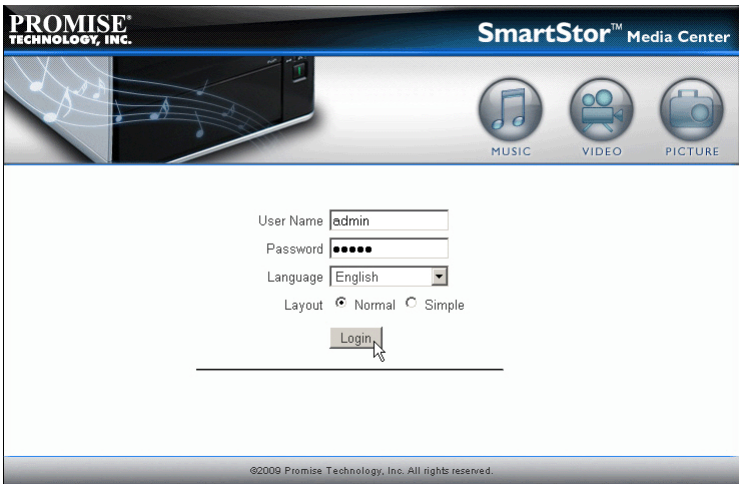
   Together, your entry looks like this:

   http://192.168.1.120/

The browser opening screen displays.

3. Click the **Media Center** icon.

   The Media Center login screen displays.



4. Type the user name and password in the respective fields.

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

5. Choose the display language you prefer from the dropdown menu.
6. Click the **Login** button.

Picture Files

Click the picture  icon to access the files in the SmartStor PICTURE folder.

Displaying a Picture File

To display a picture, click the picture file  icon or the display  icon for the picture file.

Downloading a Picture File

To download a picture, click the download  icon for the picture file.

Video Files

Click the video  icon to access the files in the SmartStor VIDEO folder.

Playing a Video File

To play a video file, click the video file  icon or the play  icon for the video file.

Downloading a Video File

To download a video file, click the download  icon for the video file.

Music Files

Click the music  icon to access the files in the SmartStor MUSIC folder.

Playing a Music File

To play a music file:

1. Choose and click a music  folder by Browse, Artist, Album, or Genre to view your music files.
2. Click the music file  icon or the play  icon for the music file.

Downloading a Music File

To download a music file:

1. Choose and click a music folder by Browse, Artist, Album, or Genre to view your music files.
2. Click the download icon for the music file.

Making a New Playlist

To make a new Playlist:

1. Choose and click a music folder by Browse, Artist, Album, or Genre to view your music files.
2. Click the add-to-playlist icon for the music file.
3. In the Playlist box, click the **Save** button.
4. In the Playlist Name box, type the name for the Playlist and click the **OK** button.
5. In the confirmation box, click the **OK** button.

Adding a Music File to an Existing Playlist

To add a music file to an existing Playlist:

1. Choose and click a music folder by Browse, Artist, Album, or Genre to view your music files.
2. Click the add-to-playlist icon for the music file.
3. In the Playlist box, click the **Save** button.
4. In the Playlist Name box, type the name of the Playlist to which you want to add the music file, and click the **OK** button.

   If the name does not match an existing Playlist, a new Playlist is created with the name that you just typed.
5. In the confirmation box, click the **OK** button.

Playing Music File from a Playlist

To play music files from a Playlist:

1. Click the Playlist folder icon to view your Playlists.
2. Click the Playlist icon to choose a Playlist.
3. Click the play icon to play a single music file. OR

Click the **Play All** icon to play all of the music files in the Playlist.

Deleting a Playlist

To delete a Playlist:

1. Click the Playlist folder icon to view your Playlists.
2. Click the delete icon for the Playlist.

Chapter 6: SmartNAVI

- Working with SmartNAVI (page 75)
- Managing Users and Groups (page 80)
- Managing RAID Volumes (page 86)
- Managing Backups (page 89)
- Managing Share Folders (page 96)
- Making Management Settings (page 100)
- Managing Downloads (page 109)
- Using Media Center (page 114)
- Managing Photo Albums (page 118)

Working with SmartNAVI

The SmartNAVI software connects your PC to the SmartStor, performs backups, changes the network settings, create RAID volumes, add and mounts folders, and manages file downloads from the Internet.

This category includes the following topics:

- Opening the MSN Window (page 75)
- Opening the Main Window (page 76)
- Choosing a SmartNAVI Language (page 77)
- Starting the Advanced Storage Manager (PASM) (page 78)
- Viewing SmartNAVI Information (page 78)
- Locking the SmartNAVI Window (page 79)
- Closing SmartNAVI (page 79)

Opening the MSN Window

To open the MSN Window, do one of the following actions:

- If the Main Window is open – Click the close or icon on the Main Window.
- If neither Window is open – Double-click the **SmartNAVI** icon in the Windows application tray or Macintosh Dock (right).

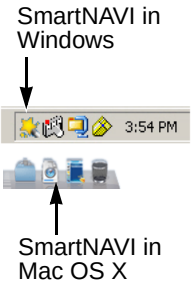
The MSN Window lists all SmartStor units on the network by their system name and IP address.

Opening the Main Window

To open the Main Window, do one of the following actions:

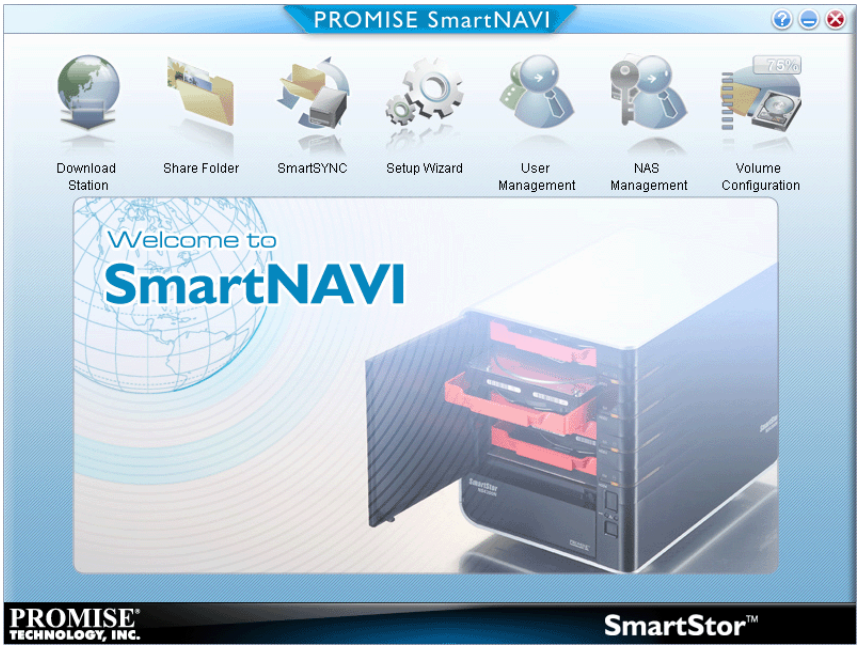
- If neither Window is open – Double-click the **SmartNAVI** icon in the Windows application tray or Macintosh Dock (right).

  When the MSN Window opens, double-click a system in the NAS List.



- If the MSN Window is open – Double-click a system in the NAS List.

The Main Window contains the management features of SmartNAVI.

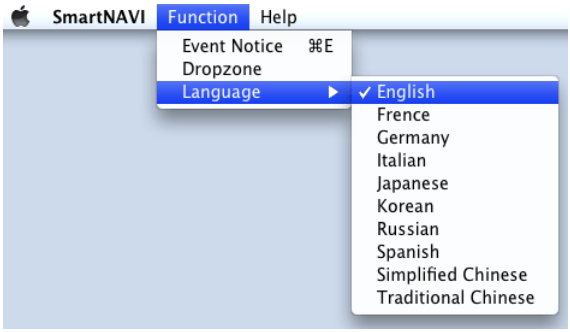


Choosing a SmartNAVI Language

On Windows PCs, SmartNAVI chooses the display language automatically based on your OS language setting. On Macintosh PCs, you choose the display language.

To choose a language:

1. Open the **MSN Window**.
2. From the dropdown menus, choose Function > Language, then choose the the language you prefer.



Starting the Advanced Storage Manager (PASM)

This feature opens Promise Advanced Storage Manager (PASM) in your default browser. See the PASM online help or “Chapter 7: PASM” on page 123 for more information.

MSN Window

1. Click the system in the **NAS List** that you want to open in PASM.
2. Click the **Open Advanced Management** icon (right).

   The PASM login screen appears in your browser.

SmartNAVI Tray Icon (Windows only)

1. Right-click the **SmartNAVI** icon in the application tray.
2. Choose **Open Advanced Management** in the popup menu.

   The PASM login screen appears in your browser.

Viewing SmartNAVI Information

SmartNAVI is the software application that connects your PC with the SmartStor NAS system.

To view information about SmartNAVI on Windows:

1. Right-click the **SmartNAVI** icon in the application tray.
2. Choose **About** from the popup menu.

To view information about SmartNAVI on Macintosh, from the dropdown menus at the top of the screen, click **Help > About**.

The About window appears and lists the following information:

- SmartNAVI Version number
- Java Virtual Machine (JVM) Version number
- JVM Vendor name
- SmartNAVI installation directory on your PC
- SmartNAVI Plug-in directory on your PC
- Names of installed Plug-ins
- Version numbers of installed Plug-ins

When you are done with the About window, click the **Close** button.

Locking the SmartNAVI Window

You can lock the MSN window without closing SmartNAVI. Click the lock icon at the top of the MSN window.

The lock icon turns red. Before you can access the MSN window again, you must click the red lock icon and enter your user name and password.

Closing SmartNAVI

To close SmartNAVI:

1. Click the close icon on the Main Window.
   - Windows icon in the top right corner
   - Macintosh icon in the top left corner
2. Click the close icon on the MSN Window.
   - Windows icon in the top right corner
   - Macintosh icon in the top left corner

   For Windows PCs, if you close SmartNAVI this way, you can open it from the application tray icon.

   On Macintosh PCs, you can always open SmartNAVI from the Dock icon.

Alternative Method for Windows

To close SmartNAVI:

1. Right-click the **SmartNAVI** icon in the application tray.
2. Choose **Close** from the popup menu.

   If you close SmartNAVI this way, you must open it from the Start menu.

Managing Users and Groups

This category includes the following topics:

- Creating a User (page 80)
- Creating the Default User (page 81)
- Changing User Passwords (page 81)
- Changing User Permissions (page 82)
- Viewing a List of Users (page 82)
- Deleting a User (page 82)
- Creating a Group (page 82)
- Viewing a List of Groups (page 83)
- Adding Members to a Group (page 83)
- Deleting Members from a Group (page 83)
- Deleting a Group (page 84)
- Viewing Quotas (page 84)
- Setting Quotas (page 84)

Creating a User

To create a user:

1. Go to the **Main Window**.
2. Click the **User Management** icon.
3. Click the **Create New User** button.
4. Type a Username in the field provided.

   Up to 16 characters, A-Z, 0-9, and _, first character must be a letter. No spaces.
5. Type a Password in the field provided.

   Up to 16 characters, A-Z and 0-9. No spaces.
6. Retype the Password in the Confirm field.
7. Click the **OK** button.

Note

These users can access the share folders but not SmartNAVI or PASM.

Creating the Default User

This feature creates the default user for SmartNAVI.

Important

If you change to a new default user, the previous default user's network drives, backup schedules, username, and password information all will be deleted.

To create the default user:

1. Go to the **MSN Window**.
2. Click the **Default User** icon (right).

The Default User Setting dialog box opens.

OR

1. Right-click the **SmartNAVI** icon in the application tray.
2. Choose **Default User** from the popup menu.
3. Type the default username **admin** in the field provided.
4. Type the default password **admin** in the field provided.
5. Retype the password in the Confirm field.
6. Click the **Save** button.

If you do not choose a default user, SmartNAVI sets the default user after you first log on.

To create additional users, see "Creating a User" on page 80.

Changing User Passwords

To change a user's password:

1. Go to the **Main Window**.
2. Click the **User Management** icon.
3. Click the **Modify User** button.
4. Click the user whose password you want to change.
5. Admin user only, type the old password in the field provided.
6. Type the new password in the field provided.
7. Retype the password in the Confirm field.
8. Click the **OK** button.

Changing User Permissions

The Admin user always has read and write permission. All other users have read-only permission by default.

To change permissions:

1. Go to the **Main Window**.
2. Click the **Share Folder** icon.
3. Click the **Share Folder Permission** button.
4. Click the share folder whose permissions you want to change.

   The folder name turns red.
5. For each user in the list, click one of the following options:
   - Deny access
   - Read only
   - Read and Write

   "Guest" is the only other default user.
6. Click the **OK** button.

   The permission change happens immediately.

Viewing a List of Users

To view a list of Users:

1. Go to the Main Window.
2. Click the User Management icon.

   The User List appears.

Deleting a User

To delete a user:

1. Go to the **Main Window**.
2. Click the **User Management** icon.
3. Click the **Delete User** button.
4. Click the user you want to delete.
5. Click the **OK** button.
6. Click the **Yes** button in the confirmation box.

Creating a Group

To create a Group:

1. Go to the **Main Window**.

2. Click the **User Management** icon.
3. Click the **Create New Group** button.
4. Type a Group name in the field provided.
   Up to 16 characters, A-Z, 0-9, and _. No spaces.
5. Optional. Move members to the **Selected User** list to add them.
   Or add them later.
6. Click the **OK** button.

Viewing a List of Groups

To view a list of Groups:

1. Go to the **Main Window**.
2. Click the **User Management** icon.
3. Click the **Group List** button.

Adding Members to a Group

Note

A User can only belong to one Group. If a User already belongs to a Group and you add him to this Group, you automatically delete him from the previous Group.

To add Users as Group members:

1. Go to the **Main Window**.
2. Click the **User Management** icon.
3. Click the **Modify Group Member** button.
4. Click the Group whose membership you want to change.
5. Move members to the **Selected User** list to add them.
6. Click the **OK** button.

Deleting Members from a Group

Note

Deleting a User from a Group does not delete the User from the System.

To delete Users from a Group:

1. Go to the **Main Window**.

2. Click the **User Management** icon.
3. Click the **Modify Group Member** button.
4. Click the Group whose membership you want to change.
5. Move members to the **Available User** list to delete them.
6. Click the **OK** button.

Deleting a Group

Before you can delete a Group, you must first delete all of the Members from the Group. See “Deleting Members from a Group” on page 83.

To delete a Group:

1. Go to the **Main Window**.
2. Click the **User Management** icon.
3. Click the **Delete User** button.
4. Click the Group you want to delete.
5. Click the **OK** button.
6. Click the **Yes** button in the confirmation box.

Viewing Quotas

Quotas are portions of storage space that you assign to each user or group.

To view a quota:

1. Go to the **Main Window**.
2. Click the **User Management** icon.
3. Click the **Quota** icon.

   A list of users and groups, and the following data appear on the screen:

   - RAID Volume
   - Currently assigned quotas
   - Free space
   - Used space

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:

1. Go to the **Main Window**.
2. Click the **User Management** icon.
3. Click the **Quota** icon.
4. Click the user or group whose quota you want to assign.
5. From the dropdown menu, choose the RAID Volume to which the quota applies.
6. Click one of the following options:
   - Unlimited
   - Limited Quota
7. 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.
8. Click the **OK** button.

Note

If you set different size quotas for the user and the group, SmartStor will use the smaller quota.

Managing RAID Volumes

This category includes the following topics:

- Creating a RAID Volume (page 86)
- Expanding a RAID Volume (page 86)
- Viewing RAID Volume Status (page 87)
- Viewing a List of RAID Volumes (page 87)
- Recreating a RAID Volume (page 88)

Creating a RAID Volume

To create a RAID volume:

1. Go to the **Main Window**.
2. Click the **Volume Configuration** icon.
3. Click the **Create Volume** button.
4. Choose Automatic or Manual RAID Volume creation.

   If you chose Manual, choose the type of RAID Volume you want:

   - Maximum Capacity – RAID 0, using all disk drives
   - Data Protection – RAID 1 or 5, depending on the number of disk drives available
5. Click the **OK** button.

   The RAID volume takes several minutes to create and initialize, depending on the size of your disk drives.

Note

When you create your RAID volume in PASM, you can choose additional options, such as Multiple RAID volumes.

See “Setting up SmartStor with the Setup Wizard” on page 130.

Expanding a RAID Volume

This feature adds all unassigned disk drives to your existing RAID volume.

To expand a RAID volume:

1. Go to the **Main Window**.
2. Click the **Volume Configuration** icon.
3. Click the **Expand Volume** button.
4. Click the **OK** button.
5. Click the **Yes** button in the confirmation box.

The RAID volume can take up to two hours to expand and initialize, depending on the size of your disk drives.

Notes

Expansion is only available when your NAS system has the proper combination of RAID volume and free disk drives.

For additional expansion options or to change the RAID level of your volume, use PASM.

See “Migrating a RAID Volume” on page 149.

Viewing RAID Volume Status

RAID Volume status includes:

- Volume name
- RAID level
- Capacity
- Usage – Percentage of capacity used
- Disk drive model and capacity

To view the status of a RAID Volume:

1. Go to the **Main Window**.
2. Click the **Volume Configuration** icon.
3. Click the **Volume Status List** button.

   The Volume Status appears.

Viewing a List of RAID Volumes

To view a list of RAID Volumes:

1. Go to the **Main Window**.
2. Click the **Volume Configuration** icon.

   The Volume List appears.

Recreating a RAID Volume

Caution

When you recreate a RAID volume, you delete all the data saved in the volume.

Back up any important data before you recreate a volume.

To recreate a RAID volume:

1. Go to the **Main Window**.
2. Click the **Volume Configuration** icon.
3. Click the **Recreate Volume** button.
4. Choose Automatic or Manual RAID Volume creation.

   If you chose Manual, choose the type of RAID Volume you want:

   - Maximum Capacity – RAID 0
   - Data Protection – RAID 1 or 5, depending on the NAS model and number of drives
5. Click the **OK** button.
6. Click the **Yes** button in the first confirmation box.
7. Type **YES** then click the **OK** button in the second confirmation box.

   The RAID volume takes several minutes to recreate and initialize, depending on the size of your disk drives.

Managing Backups

This category includes the following topics:

- Doing a Backup Now (page 89)
- Scheduling a Backup (page 91)
- Viewing Backup Schedules (page 92)
- Changing a Scheduled Backup (page 92)
- Deleting a Scheduled Backup (page 93)
- Restoring Backed-up Files (page 93)
- Viewing the Backup Event Log (page 94)
- Saving the Event Log (page 94)
- Clearing the Event Log (page 95)

Doing a Backup Now

This feature enables you to perform an immediate backup of your files from your Windows or Macintosh PC to the NAS system (SmartStor).

You can perform an immediate backup of your files from:

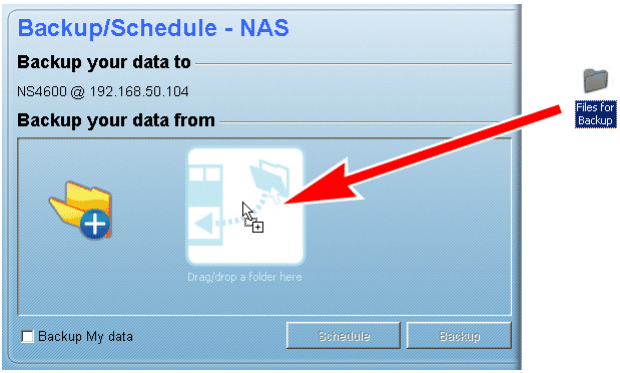
- SmartNAVI Main Window
- SmartNAVI MSN Window
- SmartNAVI tray icon (Windows PCs only)

Main Window

If you do not have a backup schedule for your PC, start your backup from the SmartNAVI Main Window.

1. Click the **SmartSYNC** icon.
2. Click the **Backup/Schedule – NAS** button.
3. Do any of the following actions to select your backup folders:
   - Check the **Backup My Data** box – Selects the My Documents, Favorites, and Desktop folders with all their contents.
   - Click the **Add to Backup** icon (right) – Opens the My Documents folder. Click a folder you want to backup, then click the **Choose** button. Repeat for additional folders.

     
   - Drag and drop the folders you want to backup to the **Backup your data from** window.



4. Click the **Backup** button.

   The backup begins immediately.

MSN Window

Before you can do a backup from the SmartNAVI MSN Window, you must create a backup schedule. See “Scheduling a Backup” on page 91.

1. Click the system in the **NAS List** whose backup you want to run.
2. Click the **Do Backup Now** icon (right).

   The backup begins immediately.

Tray Icon

Before you can do a backup from the SmartNAVI tray icon, you must create a backup schedule. This feature applies to Windows PCs only. See “Scheduling a Backup” on page 91.

1. Right-click the **SmartNAVI** icon in the application tray.
2. Choose **Backup Now** in the popup menu.

   The backup begins immediately.

The amount of time required depends on the size and number of files being backed up.

The backed up files will appear on the NAS system (SmartStor) in a folder named BACKUPDATA_your username.

You can restore the backup files to your PC at any time.
See “Restoring Backed-up Files” on page 93.

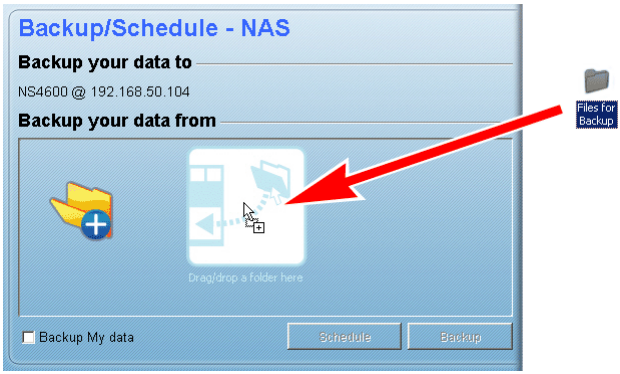
Scheduling a Backup

You can schedule backups by the hour, day, or week.

To set a schedule for backing up files from your PC to the NAS system (SmartStor):

1. Go to the **Main Window**.
2. Click the **SmartSYNC** icon.
3. Click the **Backup/Schedule – NAS** button.
4. Do any of the following actions to select your backup folders:
   - Check the **Backup My Data** box – Selects the My Documents, Favorites, and Desktop folders with all their contents.
   - Click the **Add to Backup** icon (right) – Opens the My Documents folder. Click a folder you want to backup, then click the **Choose** button. Repeat for additional folders.

     
   - Drag and drop the folders you want to backup to the **Backup your data from** window.



5. Click the **Schedule** button.
6. Click an option button for:
   - Hour
   - Day
   - Day of the week
7. Choose the corresponding values from the dropdown menus:
   - Number of hours
   - Time of day in hours and minutes
   - Time of day and day of the week
8. Click the **Add** button.

The newly created schedule appears in the Schedule List.

The backed up files will appear on the NAS in a folder named **BACKUPDATA_your username**.

Viewing Backup Schedules

To view the list of current schedules:

1. Go to the **Main Window**.
2. Click the **SmartSYNC** icon.
3. Click the **Schedule List** button.

   The list of all backup schedules appears.

Changing a Scheduled Backup

You can schedule backups by the hour, day, or week.

To change the scheduled backup of files from your PC to the NAS system (SmartStor):

1. Go to the **Main Window**.
2. Click the **SmartSYNC** icon.
3. Click the **Schedule List** button.
4. Click the schedule you want to change.
5. Click the **Modify** button.
6. Click the folder whose contents you want to backup.

   Click the arrow icons to expand the tree and narrow your choices.
7. Click the **Schedule** button.
8. Click an option button for:
   - Hour
   - Day
   - Day of the week
9. Choose the corresponding values from the dropdown menus:
   - Number of hours
   - Time of day in hours and minutes
   - Time of day and day of the week
10. Click the **Add** button.

    The modified schedule appears in the **Schedule List**.

Deleting a Scheduled Backup

Deleting a scheduled backup has no effect upon any files previously backed-up to the NAS system (SmartStor).

To delete a scheduled backup:

1. Go to the **Main Window**.
2. Click the **SmartSYNC** icon.
3. Click the **Schedule List** button.
4. Click the schedule you want to delete.
5. Click the **Delete** button.
6. Click the **Yes** button in the confirmation box.

Restoring Backed-up Files

You can restore all or any portion of the files in the **BACKUPDATA_your username** folder on the NAS system (SmartStor).

You can also choose to restore the files to their original location on your PC or an alternative location.

The original file structure is maintained during backup and restoration.

Caution

If you restore to the original folders on your PC, the restore function will overwrite the files in those folders.

Be careful which files you restore and where on your PC you direct the backup files.

To restore your backed-up files from the NAS system to your PC:

1. Go to the **Main Window**.
2. Click the **SmartSYNC** icon.
3. Click the **Restore** button.
4. Click the folder whose contents you want to restore.

   Click the arrow icons to expand the tree and narrow your choices.
5. Click an option button for:
   - Restore to original folder – The backup files will overwrite the files on your PC
   - Restore to a specific folder – No files are overwritten on your PC
6. If you chose Restore to a specific folder, do one of the following actions:
   - Type the name of an existing folder in the field provided

- Type the name of an new folder in the field provided
- Click the Folder icon – Opens the My Documents folder. Click a folder you want to use for a target, then click the **Open** button

7. Click the **Restore** button.

   The restoration begins immediately. The amount of time required depends on the size and number of files being restored.

Viewing the Backup Event Log

Backup events report on backups, schedules, and file transfers.

Events are reported by date, time, severity (information or error) and description.

To view Backup Event Log:

1. Go to the **Main Window**.
2. Click the **SmartSYNC** icon.
3. Click the **Event Log** button.
4. Optional. Set the Event Filter dropdown menu to display:
   - All events
   - Information events only
   - Error events only
5. Optional. Click the arrow on the **Date/Time** header to reverse the chronological order.

Note

For NAS system events, see “Viewing the System Event Log” on page 104.

Saving the Event Log

This function saves a copy of the Backup Event Log as a text file onto your PC. The text file records the events displayed in the Event Log window.

Set the Event Filter dropdown menu to display:

- All events
- Information events only
- Error events only

Click the arrow on the **Date/Time** header to reverse the chronological order.

To save a copy of the Backup Event Log as a text file:

1. Go to the **Main Window**.

2. Click the **SmartSYNC** icon.
3. Click the **Event Log** button.
4. Click the **Save** button.
5. Optional. Change the file name or save to a different location.
6. Click the **Save** button in the Save dialog box.

Clearing the Event Log

Note

Before you clear the Backup Event Log, consider saving a copy for future reference. See “Saving the Event Log” on page 94.

To clear the Backup Event Log:

1. Go to the **Main Window**.
2. Click the **SmartSYNC** icon.
3. Click the **Event Log** button.
4. Click the **Clear All** button.
5. Click the **Yes** button in the confirmation box.

Managing Share Folders

This category includes the following topics:

- Creating a Share Folder (page 96)
- Opening a Share Folder (page 96)
- Viewing a List of Share Folders (page 97)
- Changing Share Folder Permissions (page 97)
- Deleting a Share Folder (page 97)
- Mounting a Share Folder / Creating a Network Drive (page 98)
- Un-mounting a Share Folder / Disconnecting a Network Drive (page 98)
- Setting up a Share Folder for Time Machine (page 98)

Creating a Share Folder

To create a new share folder:

1. Go to the **Main Window**.
2. Click the **Share Folder** icon.
3. Click the **Create New Share Folder** button.
4. Type a folder name in the field provided.

   Use A-Z, 0-9, - and _. No spaces.
5. Click the **Create** button.
6. Click the **Yes** button in the confirmation box.

   The new folder appears in the Share Folder List.

Opening a Share Folder

This feature opens share folders in the file browser.

From the **MSN Window**:

1. Click the system in the **NAS List** whose share folders you want to open.
2. Click the **Open Share Folders** icon (right).

   All share folders open on the NAS (SmartStor) you chose.

From the **Main Window**:

1. Click the **Share Folder** icon.
2. Double-click the folder in the **Share Folder List** that you want to open.

   The share folder opens in your PC's file browser.

Viewing a List of Share Folders

To view a list of Share Folders:

1. Go to the **Main Window**.
2. Click the **Share Folder** icon.
3. Double-click the individual share folder to view its contents.

Changing Share Folder Permissions

The Admin user always has read and write permission. All other users have read-only permission by default.

To change permissions:

1. Go to the **Main Window**.
2. Click the **Share Folder** icon.
3. Click the **Share Folder Permission** button.
4. Click the share folder whose permissions you want to change.

   The folder name turns red.
5. For each user in the list, click one of the following options:
   - Deny access
   - Read only
   - Read and Write

   "Guest" is the only other default user.
6. Click the **OK** button.

   The permission change happens immediately.

Deleting a Share Folder

Caution

When you delete a share folder, you delete all the data saved in the folder.

Back up any important data before you delete a folder.

To delete a share folder:

1. Go to the **Main Window**.
2. Click the **Share Folder** icon.
3. Click the **Delete Share Folder** button.
4. Click the share folder you want to delete.

   The folder name turns red.

5. Click the **OK** button.
6. Click the **Delete** button.
7. Click the **Yes** button in the first confirmation box.
8. Type **Yes** then click the **OK** button in the second confirmation box.

Mounting a Share Folder / Creating a Network Drive

To mount a share folder (Linux) or create a network drive (Windows):

1. Go to the **Main Window**.
2. Click the **Share Folder** icon.
3. Click the **Mount Share Folder** button.
4. Click the share folder you want to mount or make a network drive.
   The folder name turns red.
5. Choose a device name (drive letter) from the dropdown menu.
6. Click the **Map** button.
   The share folder appears on your PC as a mounted or network drive.

Un-mounting a Share Folder / Disconnecting a Network Drive

To un-mount a share folder (Linux) or disconnect a network drive (Windows):

1. Go to the **Main Window**.
2. Click the **Share Folder** icon.
3. Click the **Mount Share Folder** button.
4. Click the share folder you want to un-mount or delete as a network drive.
   The folder name turns red.
5. Click the **Un-Mount** button.
6. Click the **Yes** button in the confirmation box.
   The share folder is un-mounted (Linux) or disconnected but the link remains (Windows).

Setting up a Share Folder for Time Machine

Time Machine is a backup utility included with Mac OS X 10.5 “Leopard.”

Before you begin, be sure your Macintosh PC is running and connected to the same network as the SmartStor.

On SmartNAVI

To set up a SmartStor folder for Time Machine backups:

1. Go to the **Main Window**.
2. Click the **Share Folder** icon.
3. Click the **Mount Share Folder** button.
4. Click the share folder you want to use for Time Machine backups.
5. Check the **Support TimeMachine** box.
6. Click the **Mount** button.

   If the process goes correctly, the following message appears:

   This folder has been set to a network drive.

On the Macintosh PC

Follow this procedure if you have not set up Time Machine.

To set up the Macintosh PC for backups with SmartStor:

1. On the desktop, go to the Dock and click the **Time Machine** icon.

   A popup message informs you that no storage location is set up.
2. In the popup message, click the **Set Up Time Machine** button.

   The Time Machine dialog box appears.
3. In the Time Machine dialog box, click the **Choose Backup Disk...** button.
4. In the list of external drives, choose the share folder that you mounted on the SmartStor and click the **Use for Backup** button.

   A Name and Password dialog box appears.
5. In the dialog box, enter your username and password, then click the **Connect** button.

Pre-existing Time Machine Configuration on the Macintosh PC

Follow this procedure if you currently have a Time Machine configuration.

To set up the Macintosh PC for backups with SmartStor:

1. On the desktop, go to the Dock and click the **Time Machine** icon.

   The Time Machine dialog box appears.
2. In the Time Machine dialog box, click the **Change Disk...** button.
3. In the list of external drives, choose the share folder that you mounted on the SmartStor and click the **Use for Backup** button.

   A Name and Password dialog box appears.
4. In the dialog box, enter your username and password, then click the **Connect** button.

Making Management Settings

This category includes the following topics:

- Configuring a NAS System (page 100)
- Changing Network Settings (page 102)
- Locating the SmartStor (page 103)
- Choosing a Default NAS System (page 103)
- Enabling or Disabling Event Notification (page 103)
- Viewing the System Event Log (page 104)
- Adding Application Plug-ins (page 104)
- Viewing a List of Plug-ins (page 105)
- Viewing Plug-in Version Numbers (page 105)
- Enabling and Disabling Plug-ins (page 106)
- Removing Plug-ins (page 106)
- Rebooting the SmartStor (page 107)
- Shutting Down the SmartStor (page 107)
- Restarting the SmartStor (page 108)

Configuring a NAS System

The Setup Wizard has two modes:

- **One Click Setup** – Loads a collection of default settings. Recommended for most users.
- **Advanced Setup** – Enables you to make your own settings. Recommended for advanced users.

Caution

Do NOT run the Setup Wizard on a NAS system that is already configured! That action will delete your data and network drives!

One Click Setup

To configure your NAS system using One Click Setup:

1. Go to the **Main Window**.
2. Click the **Setup Wizard** icon.
3. Click the **One Click Setup** button.
4. Click the **OK** button.

Advanced Setup

To configure your NAS system using Advanced Setup:

1. Go to the **Main Window**.
2. Click the **Setup Wizard** icon.
3. Click the **Advanced Setup** button.
4. Choose Automatic (DHCP) or Manual network settings.

   If you chose Manual settings, type entries for each of the following parameters in the fields provided:

   - Computer (NAS system) Name
   - IP Address
   - Subnet Mask
   - Gateway
   - Primary and Secondary DNS – optional

   Click the **Next** button to continue.
5. Choose the following values from their respective dropdown menus:

   - Timezone
   - Year
   - Month
   - Day
   - Time in Hours, Minutes, and Seconds

   Click the **Next** button to continue.
6. Choose Automatic or Manual RAID Volume creation.

   If you chose Manual, choose the type of RAID Volume you want:

   - Maximum Capacity – RAID 0, using all disk drives
   - Data Protection – RAID 5, using all disk drives

   Click the **Next** button to continue.
7. Choose a network drive letter from the dropdown menu.

   This drive will be mapped as a network drive on your PC.

   The list begins with Z and goes in reverse alphabetical order.

   Click the **Next** button to continue.
8. Review your parameters.

   To make changes, click the **Previous** button.

   To accept the parameters and configure your NAS system, click the **OK** button.
9. Click the **Yes** button in the confirmation box.

Note

When you create your RAID volume in PASM, you can choose additional options, such as Multiple RAID volumes.

See “Setting up SmartStor with the Setup Wizard” on page 130.

Changing Network Settings

Caution

If your NAS system is on a network, check with your Network Administrator before you change the network settings. Incorrect settings can result in address conflicts and connection failures.

To change your network settings:

1. Go to the **Main Window**.
2. Click the **NAS Management** icon.
3. Click the **Network Setting** button.
4. Choose Automatic (DHCP) or Manual network settings.

   If you chose Manual settings, type entries for each of the following parameters in the fields provided:

   - Computer (NAS system) Name
   - IP Address
   - Subnet Mask
   - Gateway
   - Primary and Secondary DNS – optional
5. Click the **OK** button.
6. Click the **Yes** button in the Network Setup box.
7. Click the **OK** button in the Information box.

   The **Main Window** closes and the **MSN Window** opens.
8. Click your system in the **NAS List**.

   The **Main Window** reopens.

Locating the SmartStor

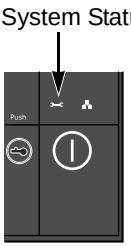
This feature helps you to physically locate a NAS system.

To locate a SmartStor:

1. Go to the **MSN Window**.
2. Click the system in the **NAS List** that you want to locate.
3. Click the **Locate NAS** icon (right).

On the NAS system you chose:

- The buzzer sounds three times
- The Status LED blinks RED three times (right)



Choosing a Default NAS System

This feature sets the default NAS system (SmartStor) for the MSN window and SmartNAVI tray icon. A default NAS activates several important functions, including:

- Opening a Share Folder
- Performing an Immediate Backup
- Starting the Advanced Storage Manager
- Enabling Event Notification

If you do not choose a default NAS, SmartNAVI sets the default NAS after you first log on.

To set a default NAS:

1. Go to the **MSN Window**.
2. Click the system in the **NAS List** that you want to make the default.
3. Click the **Set Default NAS** icon (right).

The default NAS is highlighted in the NAS List.

Enabling or Disabling Event Notification

This feature displays popup notices of events on the default NAS system.

Enabling Event Notification

To enable event notification:

1. Right-click the **SmartNAVI** icon in the application tray.
2. Check **Event Notice** in the popup menu.

   SmartNAVI displays a popup message indicating that event notification is working.

Disabling Event Notification

To disable event notification:

1. Right-click the **SmartNAVI** icon in the application tray.
2. Uncheck **Event Notice** in the popup menu.

Viewing the System Event Log

NAS events report functions and status of the NAS system. The Event Log displays the 20 most recent events.

Events are reported by date, time, severity (information or warning) and description.

To view the NAS system's Event Log:

1. Go to the **Main Window**.
2. Click the **NAS Management** icon.
3. Click the **Event Log** button.

   Click the arrow on the **Date/Time** header to reverse the chronological order.

Note

For backup system events, see "Viewing the Backup Event Log" on page 94.

Adding Application Plug-ins

Application plug-ins are enhancements to SmartStor's capabilities. Available plug-ins include:

- **DLNA server** – Enables SmartStor to support the UPnP protocol and function as a Digital Media Server (DMS).
- **BT server** – Enables SmartStor to automatically download Bit Torrent, FTP, and HTTP files using SmartNAVI. See page 109.
- **Firefly Media Server** – Enables SmartStor to download Roku SoundBridge and iTunes.

SmartNAVI installs plug-ins from your PC. PASM installs plug-ins from a folder on the SmartStor. Also see "Adding Application Plug-ins" on page 161.

Download your plug-ins from the Promise Support Website. Plug-in file names end with a .ppg extension. Save the plug-in file to a convenient place on your PC.

To add a plug-in to SmartStor:

1. Go to the **Main Window**.
2. Click the **NAS Management** icon.

3. Click the **Add Plugin** button.
4. Do one of the following actions:
   - Type the name of the plug-in file
   - Click the folder icon, navigate to the plug-in file, click it, then click the **Open** button
5. Click the **OK** button.

   After a few moments, the plug-in is added.

Warning

Do not disconnect the power or shut down the SmartStor while the plug-in installation is running!

6. Click the **Configure Plugin** button.

   The newly added plug-in appears in the list. Its Service Status is OFF.
7. Click the plug-in to choose it.

   The plug-in's name turns red.
8. Click the **Enable** button.

   After a moment, the Service Status changes to ON.

   The plug-in is now installed SmartStor.

Viewing a List of Plug-ins

To view a list of installed plug-ins:

1. Go to the **Main Window**.
2. Click the **NAS Management** icon.
3. Click the **Configuration Plugin** button.

   Currently installed plug-ins appear in the **Configuration Plugin** list.

Viewing Plug-in Version Numbers

To view plug-in version numbers:

1. Right-click the **SmartNAVI** icon in the application tray.
2. Choose **About** from the popup menu.

   The About window appears. The About window includes a list of installed plug-ins and their version numbers.

   When you are done with the About window, click the **Close** button

Enabling and Disabling Plug-ins

Enabling Plug-ins

You must add a plug-in to SmartStor before you can use this function.

To enable a plug-in:

1. Go to the **Main Window**.
2. Click the **NAS Management** icon.
3. Click the **Configuration Plugin** button.
4. Click the Plug-in you want to enable.
   The plug-in's name turns red.
5. Click the **Enable** button.
   After a moment, the Service Status changes to ON.
   The plug-in is now enabled on SmartStor

Disabling Plug-ins

Disabling a plug-in saves memory space and processing time on the SmartStor. If you do not use a feature, consider disabling its plug-in.

To disable a plug-in:

1. Go to the **Main Window**.
2. Click the **NAS Management** icon.
3. Click the **Configuration Plugin** button.
4. Click the Plug-in you want to disable.
   The plug-in's name turns red.
5. Click the **Disable** button.
   After a moment, the Service Status changes to OFF.
   The plug-in is now disabled.

Removing Plug-ins

There are two reasons to remove a plug-in:

- To replace the old plug-in with a new one
- You know that you will never use the plug-in

Before you remove a plug-in, consider disabling it, instead. See "Enabling and Disabling Plug-ins" on page 106.

To remove a plug-in:

1. Go to the **Main Window**.
2. Click the **NAS Management** icon.

3. Click the **Configuration Plugin** button.
4. Click the Plug-in you want to remove.

   The plug-in's name turns red.
5. Click the **Remove** button.
6. Click the **Yes** button in the confirmation box.

   The plug-in is removed from SmartNAVI.

   If you need the plug-in later, you can reinstall it. See "Adding Application Plug-ins" on page 104.

Rebooting the SmartStor

Normally you will only need to reboot the SmartStor is after a firmware upgrade or a plug-in installation. See "Upgrading the Firmware" on page 213. During the reboot, none of your folders will be accessible from your networked PCs.

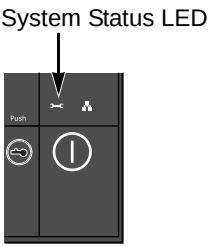
To reboot the SmartStor:

1. Go to the **Main Window**.
2. Click the **NAS Management** icon.
3. Click the **Shutdown** button.
4. Click the **Restart** option
5. Click the **OK** button.
6. In the confirmation box, click the **Close** button.

   The reboot runs automatically. When the SmartStor is fully booted:

   - The system status LED turns blue (right)
   - The buzzer beeps one time (if the buzzer is enabled)

   See "Enabling and Disabling the Buzzer" on page 162.



Shutting Down the SmartStor

The only time you need to shut down the SmartStor is to replace the disk drive cooling fan or the power supply. See "Appendix A: Maintenance" on page 213.

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

Using SmartNAVI

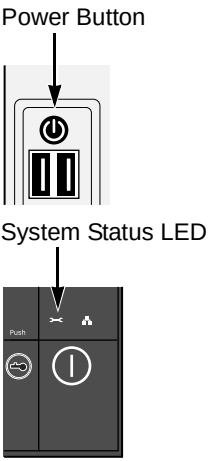
To shut down the SmartStor:

1. Go to the **Main Window**.
2. Click the **NAS Management** icon.

3. Click the **Shutdown** button.
4. Click the **Shutdown** option.
5. Click the **OK** button.
6. In the confirmation box, click the **Close** button.

Directly

To shut down the SmartStor, press and hold the power button on the back of the SmartStor enclosure for five seconds (top, right. The system status LED turns red, then goes dark (bottom, right).



Restarting the SmartStor

To restart the SmartStor after a shutdown, press the power button on the back of the SmartStor enclosure (top, right).

When the SmartStor is fully booted:

- The system status LED turns blue (bottom, right)
- The buzzer beeps one time (if the buzzer is enabled)

See “Enabling and Disabling the Buzzer” on page 162.

Managing Downloads

This category includes the following topics:

- Adding a Link (page 109)
- Drag and Drop Files (page 110)
- Batch Downloading Files (page 110)
- Viewing the Download List (page 111)
- Removing a Link (page 111)
- Pausing and Resuming a Download (page 112)
- Viewing the Downloaded List (page 112)
- Opening a Downloaded File (page 112)
- Deleting a Downloaded File (page 113)

Adding a Link

Note

This feature requires the BT server plug-in for each NAS system. See “Adding Application Plug-ins” on page 104.

SmartNAVI and the NAS system can download files using several protocols, including:

- Torrent
- HTTP
- FTP
- eDonkey

For Torrent files, use your browser to locate the file you want on the Internet and download its link to your PC. Then add the Torrent file link to the Download Station as described below.

To add a Torrent file download link:

1. Go to the **Main Window**.
2. Click the **Download Station** icon.
3. Click the **Add New Link** button.
4. Do one of the following actions:
   - Type the link into the field provided.
   - Click the folder icon, navigate to the link, click it, then click the **Open** button.
5. Click the **Add** button.

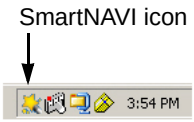
The Torrent files are added to the **Download List** and begin to download automatically. The Torrent files are saved to the **download** folder on the NAS system.

Drag and Drop Files

Drag and drop supports HTTP, FTP, and Torrent files. The process includes two actions:

- Showing the Dropzone icon on your desktop
- Dragging and dropping files onto the Dropzone icon

Windows



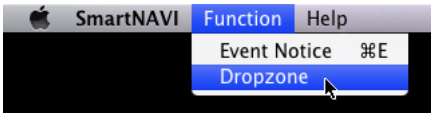
To show the Dropzone icon in Windows, right-click the SmartNAVI icon in the Windows tray and choose *Dropzone* from the popup menu.

The Dropzone icon appears on the desktop.

Mac OS X

To show the Dropzone icon in Mac OS X:

1. Go to the **MSN Window**.
2. From the Function dropdown menu, choose *Dropzone*.



The Dropzone icon appears on the desktop.

Dragging and dropping files

Drag and drop your files onto the **Dropzone** icon (right).

Torrent files are added to the **Download List** and begin to download automatically. Files are saved to the **download** folder on the NAS system.

To close the Dropzone icon, right-click the icon and choose *Close*. Or choose *Dropzone* again in the popup (Windows) or dropdown (Mac OS X) menu.

Batch Downloading Files

You can batch-download files from a server. The files must have the same name with sequential numbering. You might have to rename your files to use this feature.

To add a series of sequential download links:

1. Go to the **Main Window**.
2. Click the **Download Station** icon.
3. Click the **Batch** button.

   A dialog box appears.
4. In the field provided, type the URL of the file server. Then type a slash (/) and the file name with an asterisk (*).
5. Choose one of the following values for the asterisk:
   - Numbering from 0 to 20, in 1 to 4 places
   - Lettering from *a* to *z* or *A* to *Z*.

   A list of files appears in the window.
6. Click the **OK** button.

   The batch-download files are added to the **Download List** and begin to download automatically. The files are saved to the **download** folder on the NAS system.

Viewing the Download List

The Torrent files in this list have not been downloaded yet.

To view the Download List:

1. Go to the **Main Window**.
2. Click the **Download Station** icon.
3. Click the **Download List** button.

   Downloading began automatically when you added the links.

   Torrent files are saved to the **download folder** on the NAS system.

Removing a Link

When you remove a link, the Download Station does not download the corresponding Torrent file.

To remove a Torrent file download link:

1. Go to the **Main Window**.
2. Click the **Download Station** icon.
3. Click the **Download List** button.
4. Click the file link you want to remove.
5. Click the **Remove** button.
6. Click the **Yes** button in the confirmation box.

Pausing and Resuming a Download

Pausing a Download

To pause a Torrent file download:

1. Go to the **Main Window**.
2. Click the **Download Station** icon.
3. Click the **Download List** button.
4. Click the link of the file download you want to pause.
5. Click the **Pause** button.

Resuming a Download

To resume a Torrent file download:

1. Go to the **Main Window**.
2. Click the **Download Station** icon.
3. Click the **Download List** button.
4. Click the link of the paused file download you want to resume.
5. Click the **Start** button.

Viewing the Downloaded List

The Torrent files in this list have been downloaded.

To view a list of downloaded files:

1. Go to the **Main Window**.
2. Click the **Download Station** icon.
3. Click the **Downloaded List** button.

   Torrent files are saved to the **download** folder on the NAS system.

Opening a Downloaded File

Note

This feature requires a plug-in for each NAS system. See “Adding Application Plug-ins” on page 104.

To open a downloaded file:

1. Go to the **Main Window**.
2. Click the **Download Station** icon.
3. Click the **Downloaded List** button.
4. Click the file you want to open.

5. Click the **Open** button.

Deleting a Downloaded File

Caution

The feature deletes Torrent files from the **download** folder on the NAS system.

To delete a downloaded Torrent file:

1. Go to the **Main Window**.
2. Click the **Download Station** icon.
3. Click the **Downloaded List** button.
4. Click the file you want to delete.
5. Click the **Delete** button.
6. Click the **Yes** button in the confirmation box.

   The link and corresponding Torrent file in the download folder on the NAS system are deleted.

Using Media Center

Media Center contains the Media Library, which enables you to organize and play your music and video files that are saved on the NAS system.

Note that there are two features called Media Center. This section deals with Media Center in SmartNAVI. See page 69 for Media Center on the SmartStor.

The Media Library includes the following functions:

- Viewing Playlists (page 114)
- Creating a Playlist (page 114)
- Playing a Playlist (page 115)
- Renaming a Playlist (page 115)
- Deleting a Playlist (page 116)
- Playing a Single Music or Video File (page 116)

Important

This feature requires the DLNA plug-in to be installed and enabled on the NAS system.

Your music and video files must be saved in the MUSIC and VIDEO folders, respectively, on the NAS system.

Viewing Playlists

To view a Playlist:

1. Go to the **Main Window**.
2. Click the **Media Center** icon.

   The Media Library window appears with List highlighted.

   A list of playlists appears in the List Window.

   Playlists are shown by name and the number of files in the playlist.

Creating a Playlist

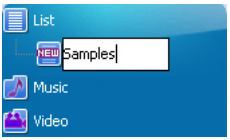
This function requires a LAN connection to the NAS system.

To create a Playlist:

1. Go to the **Main Window**.
2. Click the **Media Center** icon.

   The Media Library window appears with List highlighted.
3. Click the **Create List** icon.

4. Type a name for the playlist in the highlighted box and press Enter.



5. Click and drag files from the folder list to the Playlist icon.

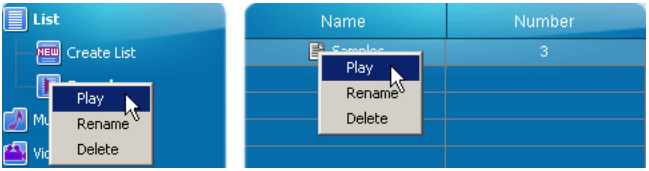
The playlist is stored in the DLNA database on the NAS system.

Playing a Playlist

To play a Playlist:

1. Go to the **Main Window**.
2. Click the **Media Center** icon.

   The Media Library window appears with List highlighted.
3. Right-click on the playlist in the List Tree or the List Window and choose **Play** from the dropdown menu.



Renaming a Playlist

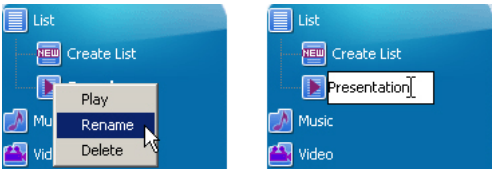
This function requires a LAN connection to the NAS system.

To rename a Playlist:

1. Go to the **Main Window**.
2. Click the **Media Center** icon.

   The Media Library window appears with List highlighted.
3. Right-click the playlist you want to rename and choose **Rename** from the dropdown menu.

4. Type a name for the playlist in the highlighted box and press Enter.



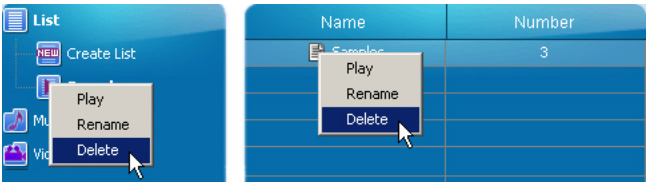
Deleting a Playlist

This function requires a LAN connection to the NAS system.

To delete a Playlist:

1. Go to the **Main Windo**w.
2. Click the **Media Center** icon.

   The Media Library window appears with List highlighted.
3. Right-click the playlist you want to delete and choose **Delete** from the dropdown menu.



4. In the Delete box, type YES and click the **Yes** button.

   The playlist is deleted.

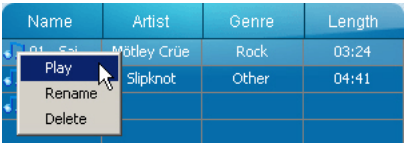
Playing a Single Music or Video File

To play a single music or video file:

1. Go to the **Main Window**.
2. Click the **Media Center** icon.

   The Media Library window appears with List highlighted.
3. Click the Music or Video folder icon.

4. Right-click on the file you want to play and choose **Play** from the dropdown menu.



Managing Photo Albums

This category includes the following topics:

- Making an Album (page 118)
- Viewing an Album (page 120)
- Editing an Album (page 120)
- Deleting an Album (page 121)

Making an Album

An album is a collection of photo files that you can browse by means of Adobe Flash® and HTML technology. You can make any number of albums using photos in a variety of file formats. And you can use the same photos in multiple albums.

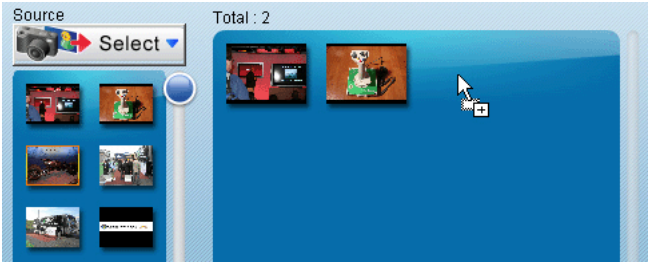
Part 1: Making your Album

To make a new album:

1. Go to the **Main Window**.
2. Click the **Photo Album** icon.

   The Make Album screen appears.
3. Click the **Select** button and choose **From** folder in the dropdown menu.
4. In the Open dialog box, navigate to the folder that contains the photo files you want to add to your album and click the **Open** button.

   Thumbnails of the photos in the folder appear in the left window.
5. Click and drag the photos to the right window to add them to your album.



Optional:

- To view a photo, click the view icon.
- To sort the photos, click the sort icon and choose a sort method from the dropdown menu.

- To delete a photo, click the photo, then click the delete  icon.

6. When you finish your selection of photos, click the **Next** button.
   The Album Style Setting screen appears.
7. Type a title for your album in the Title field.
   Or accept the default title.
8. Choose a Style from the list.
   An example of the highlighted Style appears in the Preview window.
   Your photos do not appear in the Preview window.

Part 2: Exporting or Uploading your Album

You now have the choice of:

- Exporting (saving) the album to your PC
- Uploading (saving) the album to the NAS system
- Both actions

To export the album to your PC:

1. Click the Export  icon.
2. In the Final Confirm box:
   - Type the name of the destination folder where you want the Album to be saved.
   - Navigate to the place where you want the destination folder created.
   - Click the **Confirm** button.
3. When the album success message appears, click the **Confirm** button.
   The album has been saved in the destination folder.

To upload the album to the NAS system:

1. Click the Upload  icon.
2. When the album success message appears, click the **Confirm** button.
   The album has been uploaded to the **WWW\Album** folder on the NAS system.

Part 3: Viewing your Album

To view your album, open its folder and double-click the **index.html** file.

The album opens in your default browser.

Viewing an Album

To view an album:

1. Go to the **Main Window**.
2. Click the **Photo Album** icon.
3. Click the **Manage Album** button.
   The Manage Album screen appears.
4. Choose the location, year, and month in the dropdown menus.
   Local means on your PC. Other names apply to NAS systems.
   The albums matching the criteria appear in the Manage Album list.
5. Click the album you want to view and click the **View** button.
   In the View window, click these icons as desired to apply their effects:

 – Rotate left

 – Rotate right

 – Zoom in

 – Zoom out

 – Default size

 – Color/grayscale toggle

 – Photo metadata

 – Add/view/delete comments

 – Full screen view

Editing an Album

The album must be on saved your PC for editing.

To edit an album:

1. Go to the **Main Window**.
2. Click the **Photo Album** icon.
3. Click the **Manage Album** button.
   The Manage Album screen appears.
4. Choose **Local**, the year and month in the dropdown menus.
   The albums matching the criteria appear in the Manage Album list.

5. Click the album you want to edit and click the **Edit** button.
   The Make Album screen appears.
   To continue, go to “Making an Album” on page 118.

Deleting an Album

Caution

Deleting an album deletes all of the photo files saved in the album itself.

Deleting an album does not delete the original photo files that you copied when you created the album or later added to it.

To delete an album:

1. Go to the **Main Window**.
2. Click the **Photo Album** icon.
3. Click the **Manage Album** button.
   The Manage Album screen appears.
   Choose the location, year, and month in the dropdown menus.
   Local means on your PC. Other names apply to NAS systems.
   The albums matching the criteria appear in the Manage Album list.
4. Click the album you want to delete and click the **Delete** button.
5. In the Confirmation box, click the **Yes** button.
   The album is deleted.

Chapter 7: PASM

- Connecting to PASM (below)
- Choosing a Language (page 129)
- Navigating in PASM (page 129)
- Logging out of PASM (page 129)
- Setting up SmartStor with the Setup Wizard (page 130)
- Managing Users and Groups (page 132)
- Managing File & Print Services (page 137)
- Managing RAID Volumes (page 147)
- Managing Backups (page 152)
- Managing the Network Connection (page 156)
- Making Management Settings (page 159)
- Managing the System (page 165)

Connecting to PASM

The Promise Advanced Storage Manager (PASM) software is factory-installed on the SmartStor system. PASM runs in the browser on your PC. You can access PASM:

- Directly in your browser. See page 123.
- Through SmartNAVI. See page 125.
- Using Bonjour. See page 127.

PASM in your Browser

To log into PASM in your browser:

1. Start your Browser.
2. In the Browser address field, type in the IP address of the SmartStor.

   See “Finding the SmartStor’s IP Address” on page 22.

   Note that the IP address shown below is only an example. The IP address you type into your browser will be different.

   - PASM uses an HTTP connection . . . . . .http://
   - Enter the SmartStor’s IP address 192.168.50.129/

   Together, your entry looks like this: **http://192.168.50.129/**

   The browser opening screen displays.

3. Click the **WebPASM** icon.

   The PASM login screen displays.

4. Type the user name and password in the respective fields, then click the **Login** button.

   The default user name is **admin**. The default password is **admin**.

   The user name and password are case sensitive.

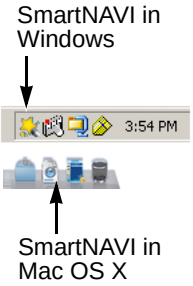
PASM in SmartNAVI

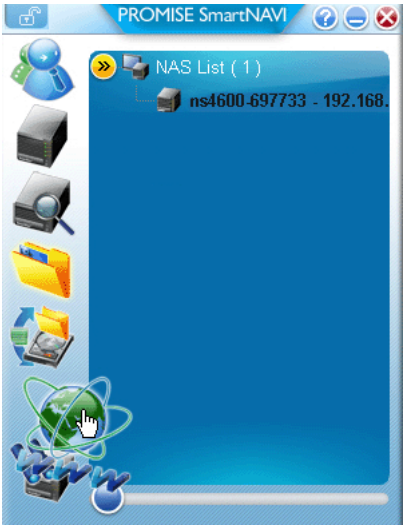
To log into PASM from SmartNAVI:

1. Double-click the **SmartNAVI** icon in the Windows application tray or Macintosh Dock (right).

   The MSN Window opens.

2. Click the NS4600 in the NAS list.
3. Click the **WWW** icon to start the browser and open PASM.





Your default browser starts and the PASM login screen displays.

4. Type the user name and password in the respective fields, then click the **Login** button.

   The default user name is **admin**. The default password is **admin**.

   The user name and password are case sensitive.

PASM in Bonjour

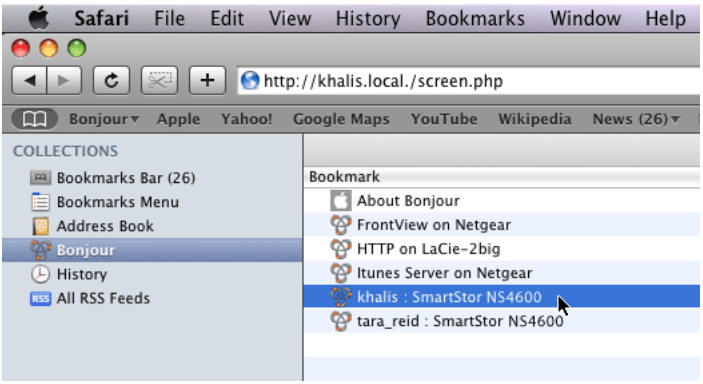
Bonjour is a service discovery protocol for local area networks. To use Bonjour, you must have a Bonjour-capable browser.

Method 1

To log into PASM from Bonjour:

1. Start your Browser.
2. Click the **Show all bookmarks** icon.

   The Collections list appears.
3. Under the Collections list, click the **Bonjour** icon.
4. Click to highlight the **SmartStor** in the Bookmark list to launch PASM.

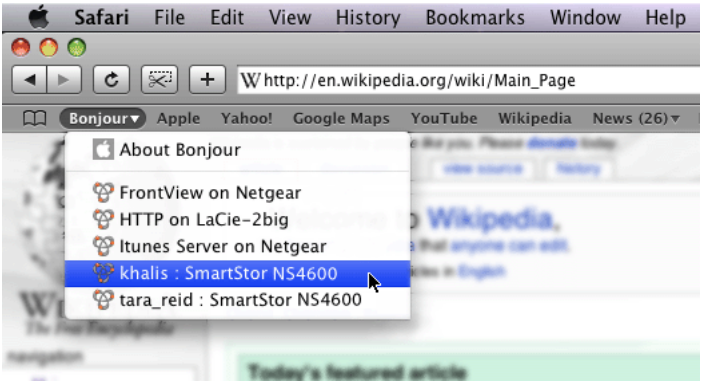


Method 2

To log into PASM from Bonjour:

1. Start your Browser.
2. Click the **Bonjour** icon.

   The Bonjour list of network devices appears.
3. Click to highlight the **SmartStor** in the Bonjour list to launch PASM.



The PASM login screen displays.

4. Type the user name and password in the respective fields, then click the **Login** button.

   The default user name is **admin**. The default password is **admin**.

   The user name and password are case sensitive.

Choosing a Language

To choose a language, click the Language menu in the PASM Header and choose the language you prefer.

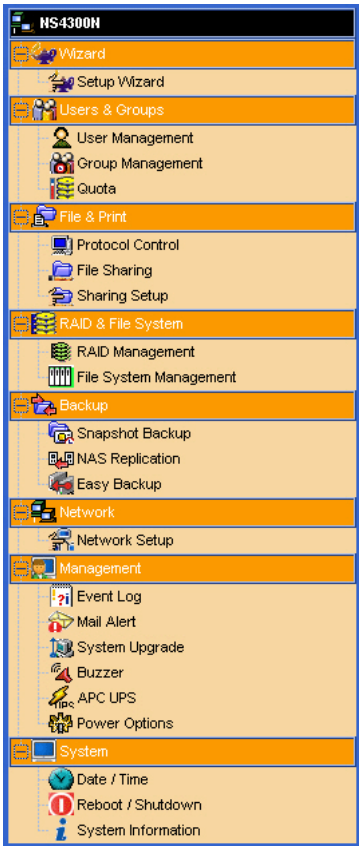
Navigating in PASM

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

The Tree expands and contracts in DHTML-capable browsers. If your browser does not support DHTML, the Tree is expanded all of the time. The functions are not affected.



Logging out of PASM

There are two ways to log out of PASM:

- Close your browser window.
- Click **Logout** in the PASM Header.

Clicking **Logout** brings you back to the Login Screen. After logging out, you must enter your user name and password in order to log in again.

Setting up SmartStor with the Setup Wizard

If you used the SmartNAVI Setup Wizard to set up your SmartStor, you do not need to run the Setup Wizard in PASM.

If you have not yet set up your SmartStor:

1. In the Tree, click the **+** beside the **Wizard** icon, then on the **Setup Wizard** icon to display the Setup Wizard screen.
2. Click the **Next** button to start the Setup Wizard.

   The Step 1 screen appears.

Step 1 Screen

1. Optional. In the Computer Name field, enter a name for the SmartStor.

   Use only letters, numbers, and the underscore character for the name.
2. Under network configuration, 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
3. 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

   See your Network Administrator for help with these settings.
4. Click the **Next** button to continue.

   The Step 2 screen appears.

Step 2 Screen

1. Optional. Type a new administrator password into the New Password field.

   Retype the new password into the Retype Password field.
2. Optional. To add a user, click the **Add new user** option button.
3. If you clicked the **Add new user** option button, type a user name and password into the fields provided, then click the **Add** button.
4. Click the **Next** button to continue.

   The Step 3 screen appears.

Step 3 Screen

1. Check the Enable box to the right of the services you plan to use.
   - **Windows** – Enables file access from Windows PCs. Also required to use the SmartStor 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
2. Optional. Type new names into the Workgroup Name and Computer Description fields.
3. Click the **Next** button to continue.

   The Step 4 screen appears.

Step 4 Screen

You must add at least one folder, which you will access from your PC as a networked drive.

1. To add a folder, click the **Add new folder** option button.
2. Type a folder name into the field provided, check the boxes of the services you expect to use with this folder, then click the **Add** button.

   Add more folders as required.
3. Click the **Next** button to continue.

   The Step 5 screen appears.

Step 5 Screen

If a RAID Volume already exists on the SmartStor, information about the RAID Volume is shown. To change the RAID, you must delete it first, then run the Setup Wizard again. See “Deleting a RAID Volume” on page 150.

1. From the RAID Level dropdown menu, choose the RAID level you want for your disk array.

   See for “Choosing a RAID Level” on page 176 more information.
2. Highlight disk drives in the Free Disks column and click the **>>** button to move them to the Disks in RAID column.
3. Click the **Next** button to continue.

   The Finish screen appears.

Finish Screen

Click the **Finish** button to set up your SmartStor. The setup process takes several minutes, depending on the size of your disk drives.

Managing Users and Groups

This category includes the following topics:

- Viewing a List of Users (page 132)
- Creating a User (page 132)
- Changing the Administrator's Password (page 132)
- Changing a User's Password (page 133)
- Deleting a User (page 133)
- Viewing a List of Groups (page 133)
- Creating a Group (page 134)
- Adding Members to a Group (page 134)
- Removing Members from a Group (page 134)
- Deleting a Group (page 135)
- Viewing Quotas (page 135)
- Setting Quotas (page 135)

Viewing a List of Users

To view the list of Users:

1. In the Tree, click the **+** beside the **Users & Groups** icon.
2. Click the **User Management** icon.
   A list of users appears on the Information tab.

Creating a User

You can create up to 512 Users.

To create or add a new user:

1. In the Tree, click the **+** beside the **Users & Groups** icon.
2. Click the **User Management** icon.
3. Click the **Create User** tab.
4. Type a user name in the field provided.
5. Type a password into the fields provided.
6. Click the **OK** button.
7. In the confirmation box, click the **OK** button.

Changing the Administrator's Password

To change the Administrator's password:

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

2. Click the **User Management** icon.
3. Click the **Change Password** tab.
4. Type a new password into the fields provided.
5. Click the **OK** button.
6. In the confirmation box, click the **OK** button.

If you forget your new password, you reset the SmartStor to the default Administrator's password. See "Restoring the Default Password" on page 197.

Changing a User's Password

To change a user's password:

1. In the Tree, click the **+** beside the **Users & Groups** icon.
2. Click the **User Management** icon.
3. Click the **Change Password** tab.
4. From the User Name dropdown menu, choose the name of the user whose password you want to change.
5. Type a new password into the fields provided.
6. Click the **OK** button.
7. In the confirmation box, click the **OK** button.

Deleting a User

You cannot delete the Administrator or the Guest. To delete any other user:

1. In the Tree, click the **+** beside the **Users & Groups** icon.
2. Click the **User Management** icon.
3. Click the **Delete User** tab.
4. Click the option button to the left of the user you want to delete.
5. Click the **OK** button.
6. In the confirmation box, click the **OK** button.

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:

1. In the Tree, click the **+** beside the **Users & Groups** icon.
2. Click the **Group Management** icon.

   A list of groups appears on the Information tab.

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:

1. In the Tree, click the **+** beside the **Users & Groups** icon.
2. Click the **Group Management** icon.
3. Click the **Create** tab.
4. Type a group name in the field provided.
5. Click the **OK** button.
6. In the confirmation box, click the **OK** button.

Adding Members to a Group

You must create a group before you can assign members to it. See “Creating a Group” on page 134.

To add members to a group:

1. In the Tree, click the **+** beside the **Users & Groups** icon.
2. Click the **Group Management** icon.
3. Click the **Group Members** tab.
4. From the dropdown menu, choose a group to which you want to add members.
5. Highlight users in the Users column and click the **>>** button to move them to the Members column.
6. Click the **OK** button.
7. In the confirmation box, click the **OK** button.

Removing Members from a Group

1. In the Tree, click the **+** beside the **Users & Groups** icon.
2. Click the **Group Management** icon.
3. Click the **Group Members** tab.
4. From the dropdown menu, choose a group from which you want to remove members
5. Highlight users in the Members column and click the **<<** button to move them to the Users column.
6. Click the **OK** button.
7. In the confirmation box, click the **OK** button.

Deleting a Group

You must remove all members from the group before you can delete the group. See “Removing Members from a Group” on page 134.

To delete a group:

1. In the Tree, click the **+** beside the **Users & Groups** icon.
2. Click the **Group Management** icon.
3. Click the **Delete** tab.
4. Click the option button next to the group you want to delete.
5. Click the **OK** button.
6. In the confirmation box, click the **OK** button.

Viewing Quotas

Quotas are portions of storage space that you assign to each user or group.

To view a quota:

1. In the Tree, click the **+** beside the **Users & Groups** icon.
2. Click the **Quota** icon.

   A list of users and groups, and the following data appear on the screen:

   - RAID Volume
   - Currently assigned quotas
   - Free space
   - Used space

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:

1. In the Tree, click the **+** beside the **Users & Groups** icon.
2. Click the **Quota** icon.
3. Click the **Settings** tab.
4. Highlight the user or group whose quota you want to assign.

5. From the dropdown menu, choose the RAID Volume to which the quota applies.
6. Click one of the following options:
   - Unlimited
   - Limited Quota
7. 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.
8. Click the **OK** button.
9. In the confirmation box, click the **OK** button.

Note

If you set different size quotas for the user and the group, SmartStor will use the smaller quota.

Managing File & Print Services

This category includes the following topics:

- Setting up Windows Access (page 137)
- Setting up UNIX/Linux Access (page 139)
- Setting up Macintosh Access (page 140)
- Setting up FTP Access (page 141)
- Setting up your Print Server (page 142)
- Setting up your DLNA Server (page 142)
- Viewing a List of Plug-ins (page 143)
- Enabling and Disabling Plug-ins (page 143)
- Viewing a List of Folders (page 144)
- Modifying Folder Services (page 144)
- Adding a Folder (page 144)
- Deleting a Folder (page 145)
- Setting up Folder Sharing: Windows, Macintosh, FTP (page 145)
- Setting up Folder Sharing: UNIX and Linux (page 146)

Setting up Windows Access

Setting up Windows Service

To set up access from a Windows PC:

1. In the Tree, click the **+** beside the **File & Print** icon.
2. Click the **Protocol Control** icon, then click the **Windows** tab.
3. Click the **Enable** option button.
4. Optional. Type a new Computer Description into the field provided.
5. Optional. Click the **Enable** option button beside Recycle Bin.
   - Enabled – Deleted files move the Recycle Bin. You must empty the Recycle Bin to remove them from the SmarStor. Uses more space.
   - Disabled – Default. Deleted files are immediately removed from the SmartStor. Saves space but has no chance of file recovery.
6. Choose the option button to make the SmartStor a member of:
   - An Active Directory (AD) Domain
   - A Workgroup

   Note: If you join an AD Domain, you automatically disable your NIS Domain settings. See “Setting up UNIX/Linux Access” on page 139.

7. Optional. If you chose an AD Domain, enter the following in the fields provided:
   - Domain Name
   - Domain Controller
   - Administrator Name
   - Administrator Password

   See your Network Administrator for help with this information.
8. Optional. If you chose an Workgroup, enter the Workgroup name into the field provided:

   See your Network Administrator for help with this information.
9. Click the **OK** button to save your settings.

Setting up File Sharing

To set up Windows file sharing:

1. In the Tree, the **Sharing Setup** icon, then click the **Windows/Macintosh/ FTP Sharing** tab.
2. Check the **Windows** protocol box.
3. Choose a folder from the Folder Name dropdown menu.
4. In the User/Group list, highlight the name of a user or group.

   Group names are preceded by the @ character.
5. Under Permissions, choose a permission level for this user or group:
   - Deny Access – Visible only, cannot open
   - Read Only
   - Read and Write – Default
6. Click the **OK** button to save your settings.
7. In the confirmation box, click the **OK** button.

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

   See “Chapter 3: Connecting to the SmartStor” on page 29 for information about the settings that you must make on your PC.

Note

Windows support is only through SMB and CIFS protocols. SmartStor supports the Recycle Bin feature. When you delete a file, the file is moved to the Recycle Bin, a hidden folder in the share folder.

Setting up UNIX/Linux Access

Setting up UNIX/Linux Service

To set up access from a UNIX or Linux PC:

1. In the Tree, click the **+** beside the **File & Print** icon to expand the Tree.
2. Click the **Protocol Control** icon, then click the **UNIX/Linux** tab.
3. Click the **Enable** option button.
4. Optional. To join a NIS Domain, click the **UNIX/Linux** tab, then click the **Enable** option button beside Services.

   Note: If you join an NIS Domain, you automatically disable your AD Domain settings. See “Setting up Windows Access” on page 137.
5. Enter the Domain name into the field provided.

   See your Network Administrator for help with this information.
6. Click the **OK** button to save your settings.
7. Click the **OK** button in the confirmation box.

Setting up File Sharing

File access from UNIX and Linux PCs is controlled by specifying the IP address of each PC that can access a given folder.

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

To set up UNIX/Linux file sharing:

1. In the Tree, click the **Sharing Setup** icon, then click the **UNIX/Linux Sharing** tab.
2. Choose a folder from the Folder Name dropdown menu.
3. In the New IP Address field, type the IP address of the UNIX or Linux PC from which you will access this folder, then click the **Add** button.
4. Click the **OK** button to save your settings.
5. In the confirmation box, click the **OK** button.

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

   See “Chapter 3: Connecting to the SmartStor” on page 29 for information about the settings that you must make on your UNIX or Linux PC.

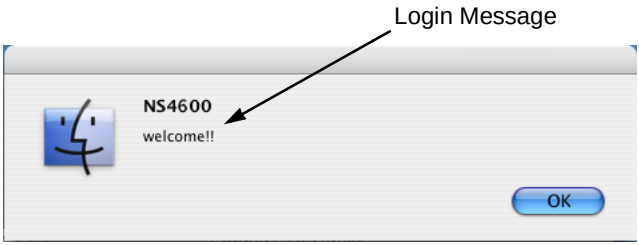
Setting up Macintosh Access

Setting up Macintosh Service

To set up access from a Macintosh PC:

1. In the Tree, click the **+** beside the **File & Print** icon.
2. Click the **Protocol Control** icon, then click the **Macintosh** tab.
3. Click the **Enable** button.
4. Optional. Type a message in the Login Message field.
5. Click the **OK** button to save your settings.

   The optional login message appears on the Welcome screen when you log into SmartStor from a Macintosh PC.



Setting up File Sharing

To set up Macintosh file sharing:

1. In the Tree, click the **Sharing Setup** icon, then click the **Windows/ Macintosh/FTP Sharing** tab.
2. Check the **Macintosh** protocol box.
3. Choose a folder from the Folder Name dropdown menu.
4. In the User/Group list, highlight the name of a user or group.

   Group names are preceded by the @ character.
5. Under Permissions, choose a permission level for this user or group:
   - Deny Access – Visible only, cannot open
   - Read Only
   - Read and Write – Default
6. Click the **OK** button to save your settings.
7. In the confirmation box, click the **OK** button.

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

   See “Chapter 3: Connecting to the SmartStor” on page 29 for information about the settings that you must make on your Macintosh PC.

Setting up FTP Access

Setting up FTP Service

To set up FTP access for your folders:

1. In the Tree, click the **+** beside the **File & Print** icon to expand the Tree.
2. Click the **Protocol Control** icon, then click the **FTP Sharing** tab.
3. Click the **Enable** option button.
4. To specify a new Command Port number, type the number into the field provided.

   Port 21 is typically used for the Command Port.
5. To specify a range of passive data port numbers, type those numbers into the fields provided.

   The port range is 1024 to 65535.

   Be sure the port numbers you enter are enabled on your firewall and server.

   In active mode, the FTP server uses port 20 for the data port.
6. If your FTP client uses double-byte characters but does not support Unicode, choose your FTP client's encoding from the Client Coding Type dropdown menu, shown here translated to English. Choose from:
   - English (Unicode)
   - Japanese
   - Simplified Chinese
   - Traditional Chinese
   - Korean
7. Click the **OK** button to save your settings.

Setting up File Sharing

To set up FTP file sharing:

1. In the Tree, click the **Sharing Setup** icon, then click the **Windows/ Macintosh/FTP Sharing** tab.
2. From the Folder name dropdown menu, choose the folder you want to access.
3. Check the **FTP** protocol box.
4. Choose a folder from the Folder Name dropdown menu.
5. In the User/Group list, highlight the name of a user or group.

   Group names are preceded by the @ character.
6. Under Permissions, choose a permission level for this user or group:
   - Deny Access – Visible only, cannot open
   - Read Only

- Read and Write – Default

7. Click the **OK** button to save your settings.
8. In the confirmation box, click the **OK** button.

   You can now access the specified folder from your PC using FTP.

Setting up your Print Server

To set up the SmartStor as a printer server:

1. Connect your printer to the USB port on the SmartStor and power on the printer.
2. In the Tree, click the **+** beside the **File & Print** icon to expand the Tree.
3. Click the **Protocol Control** icon, then click the **Printer Server** tab.
4. Click the **Enable** option button.
5. Click the **OK** button to save your settings.

Notes

- 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. See “Connecting a USB Printer to SmartStor” on page 41.
- The software driver for your printer must be installed on your PC before you can print from the PC. See the printer’s *Setup Guide* or *User Manual*.

Setting up your DLNA Server

The Digital Living Network Alliance (DLNA) service enables the Universal Plug-and-Play (UPnP) protocol, so your SmartStor can function as a Digital Media Server (DMS). When your DLNA service is enabled, you can connect your DLNA control unit or UPnP client on the network where the SmartStor is connected, and use the SmartStor to play image, audio, and AV media.

You must install the optional DLNA plug-in before you can make this setting and use the UPnP protocol. See “Adding Application Plug-ins” on page 161.

The media content directory is under /VOLUME1/. Three share folders are created when you install the DLNA plug-in: PICTURE, MUSIC, and MOVIE.

With the DLNA plug-in, SmartStor supports these media formats:

- **Picture** – bmp, gif, jpg, jpeg, png, tif
- **Music** – mp3, pcm, wma

- **Movie** – avi, mpg, mpeg, wmv, tts, vob

Viewing a List of Plug-ins

To view a list of installed plug-ins:

1. In the Tree, click the **+** beside the **File & Print** icon to expand the Tree.
2. Click the **Protocol Control** icon.

   A list of installed plug-ins and their version numbers appear on the **Information** tab.

   Many plug-ins have a clickable **link** that takes you to their management interface.

Enabling and Disabling Plug-ins

Enabling Plug-ins

You must add a plug-in to SmartStor before you can use this function. To add a plug-in to SmartStor, see “Adding Application Plug-ins” on page 161.

To enable a plug-in:

1. In the Tree, click the **+** beside the **File & Print** icon to expand the Tree.
2. Click the **Protocol Control** icon.
3. In the **Information** tab, click the **Enable** button next to the plug-in you want to enable.
4. Click the **OK** button in the confirmation box.

   After a moment, the Service Status changes to ON.

   The plug-in is now enabled.

Disabling Plug-ins

Disabling a plug-in saves memory space and processing time on the SmartStor. If you do not use a feature, consider disabling its plug-in.

To disable a plug-in:

1. In the Tree, click the **+** beside the **File & Print** icon to expand the Tree.
2. Click the **Protocol Control** icon.
3. In the **Information** tab, click the **Disable** button next to the plug-in you want to disable.
4. Click the **OK** button in the confirmation box.

   After a moment, the Service Status changes to OFF.

   The plug-in is now disabled.

Viewing a List of Folders

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

To view the list of folders:

1. In the Tree, click the **+** beside the **File & Print** icon.
2. Click the **File Sharing** icon.

   A list of current folders appears in the Information tab.

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:

1. In the Tree, click the **+** beside the **File & Print** icon.
2. Click the **File Sharing** icon.
3. Click the **Modify** tab
4. From the Volume dropdown menu, choose the RAID Volume containing the folder you want to modify.
5. From the Folder Name dropdown menu, choose the folder you want to modify.
6. Check the boxes beside the services you want to use.
7. Click the **OK** button.
8. In the confirmation box, click the **OK** button.

   If the service you want is OFF, see:

   “Setting up Windows Access” on page 137

   “Setting up UNIX/Linux Access” on page 139

   “Setting up Macintosh Access” on page 140

   “Setting up FTP Access” on page 141

Adding a Folder

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

To add a folder:

1. In the Tree, click the **+** beside the **File & Print** icon.
2. Click the **File Sharing** icon.
3. Click the **Create** tab.
4. From the Volume dropdown menu, choose the RAID Volume in which you want to create a new folder.

5. In the Folder Name field, type a name for your new folder.
6. Check the boxes beside the services you want to use.
7. Click the **OK** button.
8. In the confirmation box, click the **OK** button.

   To access the new folder from a Windows PC, see “Setting up Folder Sharing: Windows, Macintosh, FTP” on page 145.

   To access the new folder from a UNIX or Linux PC, see “Setting up Folder Sharing: UNIX and Linux” on page 146.

   To make the folder a network drive on your PC, see “Chapter 3: Connecting to the SmartStor” on page 29.

Deleting a Folder

Caution

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

To delete a folder:

1. In the Tree, click the **+** beside the **File & Print** icon.
2. Click the **File Sharing** icon.
3. Click the **Remove** tab
4. Click the option button beside the folder you want to delete.
5. Click the **OK** button.
6. In the confirmation box, click the **OK** button to confirm.

Setting up Folder Sharing: Windows, Macintosh, FTP

Sharing Setup assigns user access the folders on your SmartStor. By default all users and groups have read and write access.

To set up sharing for a folder:

1. In the Tree, click the **+** beside the **File & Print** icon.
2. Click the **Sharing Setup** icon.
3. Click the **Windows/Macintosh/FTP Sharing** tab.
4. From the Volume dropdown menu, choose the RAID Volume containing the folder you want to modify.
5. From the Folder Name dropdown menu, choose the folder you want to modify.

6. Check the boxes for the protocols you want for this folder:
   - Windows
   - Macintosh
   - FTP
7. In the Permission list, click the option button for one of the following permissions for each group and user:
   - Deny Access – Visible only, cannot open
   - Read Only
   - Read and Write – Default
8. Click the **OK** button.
9. In the confirmation box, click the **OK** button.

   Be sure the appropriate services are running for this folder. See:

   “Setting up Windows Access” on page 137.

   “Setting up Macintosh Access” on page 140.

   “Setting up FTP Access” on page 141.

Setting up Folder Sharing: UNIX and Linux

UNIX and Linux sharing designates which UNIX and Linux PCs can access the folders on your SmartStor. 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:

1. In the Tree, click the **+** beside the **File & Print** icon.
2. Click the **Sharing Setup** icon in the tree.
3. Click the **UNIX/Linux Sharing** tab.
4. From the Volume dropdown menu, choose the RAID Volume containing the folder you want to modify.
5. From the Folder Name dropdown menu, choose the folder you want to modify.
6. In the New IP Address field, type the IIP address of the UNIX or Linux PC from which you will access this folder.
7. Click the **Add** button.

   Be sure the UNIX/Linux service is running for this folder. See “Setting up UNIX/Linux Access” on page 139.

Managing RAID Volumes

This category includes the following topics:

- Viewing RAID Volume Status (page 147)
- Viewing Disk Drive Information (page 148)
- Creating a RAID Volume (page 148)
- Designating a Spare Drive (page 149)
- Migrating a RAID Volume (page 149)
- Deleting a RAID Volume (page 150)
- Viewing an External USB Drive or Memory Stick (page 151)
- Formatting an External USB Drive or Memory Stick (page 151)

Viewing RAID Volume Status

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

To view the status of your RAID Volume:

1. In the Tree, click the **+** beside the **RAID & File System** icon.
2. Click the **RAID Management** icon.

   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. See “Replacing a Failed Disk Drive” on page 183.
   - **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.
   - **Format Status** – Shows progress of the current Background Activity as a percentage.

Viewing Disk Drive Information

To view information about a disk drive:

1. In the Tree, click the **+** beside the **RAID & File System** icon.
2. Click the **RAID Management** icon.

   The RAID Status tab displays the current RAID system and its status.
3. In the Disk List, double-click a disk drive icon.

   The disk drive information displays under Disk Status.

Creating a RAID Volume

On SmartStor, 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. See “Viewing an External USB Drive or Memory Stick” on page 151.

You must have unassigned disk drives in your SmartStor to create a new RAID.

To create a new RAID Volume:

1. In the Tree, click the **+** beside the **RAID & File System** icon.
2. Click the **RAID Management** icon.
3. Click the **Create** tab.
4. From the RAID Level dropdown menu, choose the RAID level you prefer for your disk array.

   See “Choosing a RAID Level” on page 176 for more information.
5. Highlight disk drives in the Free Disks column and click the **>>** button to move them to the Disks in RAID column.
6. Click the **OK** button.
7. In the confirmation box, click the **OK** button.

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

   After formatting is done, you must create folders on your RAID Volume. See “Adding a Folder” on page 144.

Designating a Spare Drive

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

For more information, see “Spare Drive” on page 177 and “Automatic Rebuilding” on page 178.

To assign a spare drive:

1. In the Tree, click the **+** beside the **RAID & File System** icon.
2. Click the **RAID Management** icon.
3. Click the **Create** tab.
4. From the RAID Level dropdown menu, choose *Spare Disk*.
5. Highlight a disk drive in the Free Disks column and click the **>>** button to move it to the Disks in RAID column.
6. Click the **OK** button.
7. In the confirmation box, click the **OK** button.

Migrating a RAID Volume

To migrate a RAID Volume means to change its RAID level or to add disk drives. See “RAID Volume Migration” on page 179 for more information.

To migrate a RAID Volume:

1. In the Tree, click the **+** beside the **RAID & File System** icon.
2. Click the **RAID Management** icon.
3. Click the **Modify** tab.
4. From the Current Volume dropdown menu, choose the RAID Volume which you want to modify.
5. In the Migrate to RAID Level dropdown menu, choose the target RAID Level.
6. 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.
7. Click the **OK** button.

   The RAID Volume is modified as you directed. Migration can take up to two hours, depending on the size of your disk drives.

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

   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.
8. Click the **File System Management** icon.
9. In the File System Status tab, click the **Extend File System** button.

Deleting a RAID Volume

Caution

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

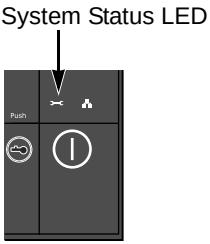
You cannot delete a RAID Volume while a background activity is running, such as Migration or Rebuild. Wait until these activities are completed.

To delete a RAID Volume:

1. In the Tree, click the **+** beside the **RAID & File System** icon.
2. Click the **RAID Management** icon.
3. Click the **Delete** tab.
4. Click the option button beside the RAID Volume you want to delete.
5. Click the **OK** button.
6. In the confirmation box, type **yes** into the field provided, then click the **OK** button.

   After a RAID Volume is deleted, the SmartStor reboots automatically. When the SmartStor is fully booted:

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



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

Viewing an External USB Drive or Memory Stick

To view a USB drive or memory stick attached to the SmartStor:

1. In the Tree, click the **+** beside the **RAID & File System** icon.
2. Click the **RAID Management** icon.

   The USB drive or memory stick appears as a USB External Disk
3. Click 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 SmartStor enclosure.

With the USB drive or memory stick connected to the SmartStor, 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.

See “Chapter 3: Connecting to the SmartStor” on page 29 for more information.

Formatting an External USB Drive or Memory Stick

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

Caution

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.

To format a USB drive or memory stick:

1. Attach the USB drive or memory stick to one of the USB ports on the back of the SmartStor.
2. In the Tree, click the **+** beside the **RAID & File System** icon.
3. Click the **File System Management** icon.
4. On the File System Status tab, highlight the USB drive.
5. From the Format File System Type dropdown menu, choose a file system:
   - **FAT 32** – Use for Windows, Linux, and Macintosh PCs, and SmartStor
   - **Ext3** – Use for UNIX and Linux PCs, and SmartStor
6. Click the **Format USB Disk** button.
7. 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.

Managing Backups

This category includes the following topics:

- Viewing a List of Snapshot Backups (page 152)
- Setting up a Snapshot Backup (page 152)
- Scheduling a Snapshot Backup (page 153)
- Recovering Snapshot Backups (page 153)
- Viewing the NAS Replication Schedule (page 154)
- Setting up NAS Replication (page 154)
- Enabling One Touch Backup (page 155)

Viewing a List of Snapshot Backups

To view the list of Snapshot backups:

1. In the Tree, click the **+** beside the **Backup** icon.
2. Click the **Snapshot Backup** icon.

   The current list of Snapshots displays on the Information tab.

Setting up a Snapshot Backup

Caution

Setting up a Snapshot will delete all existing Snapshots.

To setup a Snapshot Backup:

1. In the Tree, click the **+** beside the **Backup** icon.
2. Click the **Snapshot Backup** icon.
3. Click the **Setup** tab.
4. From the Volume dropdown menu, choose the RAID Volume you want to backup.
5. Next to Snapshot Status, click the **Enable** option.
6. In the Reserve Capacity dropdown menu, choose a portion in GB of the RAID Volume you want to reserve for snapshots.
7. Click the **OK** button.
8. In the confirmation box, type **yes** into the filed provided than click the **OK** button.

   The snapshot backup settings are applied. The process takes a few moments. Click the **Schedule** tab for scheduling options.

Scheduling a Snapshot Backup

To schedule a Snapshot Backup:

1. In the Tree, click the **+** beside the **Backup** icon.
2. Click the **Snapshot Backup** icon.
3. Click the **Schedule** tab.
4. Click the option you want from the Schedule Type list.
   - **Disable** – No snapshots will be taken.
   - **Do it at once** – Snapshots will be taken now, one time only.
   - **Time interval by hour** – Snapshots will be taken at the hourly interval you choose from the dropdown menu.
   - **Daily** – Snapshots will be taken at the time of day you choose from the dropdown menus.
   - **Weekly** – Snapshots will be taken on the day of the week, at the time of day you choose from the dropdown menus.
5. As needed, make your choices from the dropdown menus.
6. Click the **OK** button.
7. In the confirmation box, click the **OK** button.

   The new backup schedule is applied. If you have not yet made your Snapshot settings, click the **Setup** tab and make them now.

Recovering Snapshot Backups

The Snapshot recovery feature has two functions:

- Use a Snapshot to restore the data volume (VOLUME1 or VOLUMEx) to an earlier point in time.
- Export a Snapshot to the share folder. The recovered Snapshot volume is read-only.

To recover a Snapshot backup:

1. In the Tree, click the **+** beside the **Backup** icon.
2. Click the **Snapshot Backup** icon.
3. Click the **Recovery** tab.
4. Click the option button beside the Timestamp and Volume that you want to recover or export.
5. Do one of the following actions:
   - To restore the data volume using the Snapshot, click the **OK** button.
   - To export the Snapshot to the share folder, click the **Export** button.

   SmartStor performs the action you specified.

Viewing the NAS Replication Schedule

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

To view the NAS Replication schedule:

1. In the Tree, click the **+** beside the **Backup** icon.
2. Click the **NAS Replication** icon.

   The current schedule displays on the Information tab.

   - **Role:**

     Standalone – No backup server was specified

     Primary Server – This SmartStor is the primary, the other SmartStor is the backup

     Backup Server – This SmartStor is the backup, the other SmartStor is the primary
   - **Primary or Backup Server** – The IP address of the other SmartStor on the network.
   - **Schedule** – Replication schedule in number of hours, daily or weekly. Appears on the primary server.

Setting up NAS Replication

To set up NAS replication:

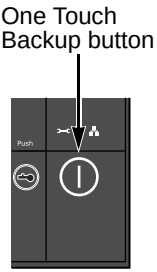
1. In the Tree, click the **+** beside the **Backup** icon.
2. Click the **NAS Replication** icon.
3. Click the **Setup** tab.
4. Under Settings, click the option button to assign a role to this SmartStor:
   - **Standalone** – Use this option when you only have one SmartStor on your network. This is the default setting and it disables NAS Replication.
   - **Primary** – This SmartStor is the primary and the other SmartStor is the backup server.
   - **Backup Server** – The other SmartStor is the primary and this SmartStor is the backup server.
5. Optional. If you chose Primary or Backup Server, type the IP address of the other SmartStor on your network.
6. 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.

7. Click the **OK** button.
8. In the confirmation box, click the **OK** button.

Enabling One Touch Backup

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



To enable One Touch Backup:

1. In the Tree, click the **+** beside the **Backup** icon.
2. Click the **Easy Backup** icon.
3. In the One Touch Backup tab, click the **Enable** option.
4. Click the **OK** button.
5. In the confirmation box, click the **OK** button.

To disable One Touch Backup, click the **Disable** option, then click the **OK** button.

You must create a backup schedule in SmartNAVI so the One Touch Backup function will know which folders and files to backup. See “Chapter 4: One Touch Backup” on page 59.

Managing the Network Connection

This category includes the following topics:

- Viewing Network Setup Information (page 156)
- Making Network Settings (page 156)
- Working with Jumbo Frames (page 157)
- Working with DDNS (page 157)

Viewing Network Setup Information

To view network setup information:

1. In the Tree, click the **+** beside the **Network** icon.
2. Click the **Network Setup** icon.

   The current network setup for this SmartStor 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 the **Setup** tab.

Making Network Settings

To make network settings:

3. In the Tree, click the **+** beside the **Network** icon.
4. Click the **Network Setup** icon.
5. Click the **Setup** tab.
6. Optional. Type a name for the SmartStor in the Computer Name field.
7. Click 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.
8. Optional. 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.

9. Click the **OK** button.
10. In the confirmation box, click the **OK** button.

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. SmartStor supports jumbo frames up to 9000 bytes.

On SmartStor, 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:

1. In the Tree, click the **+** beside the **Network** icon.
2. Click the **Network Setup** icon.
3. Click the **Jumbo Frame** tab.
4. From the MTU dropdown menu, choose the maximum MTU or frame size:
   - 1500 bytes (default)
   - 4000 bytes
   - 7000 bytes
5. Click the **OK** button.
6. In the confirmation box, click the **OK** button.

Working with DDNS

A Domain Name Service (DNS) translates human-readable host names, such as *www.promise.com*, into IP addresses, such as *103.204.15.26*, and back again.

A Dynamic DNS (DDNS) is required because in many cases, IP addresses periodically change. The DDNS enables you to keep up-to-date and stay connected.

There are two DDNS options:

- Provide your own DDNS server
- Register with an online DDNS service

A free online DDNS service is available at http://www.dyndns.com/.

Making DDNS Settings

PASM requires the DDNS domain name, user name, and password to work with the DDNS server. See your Network Administrator or the online DDNS service for this information.

To make DDNS settings:

1. In the Tree, click the **+** beside the **Network** icon.
2. Click the **Network Setup** icon.
3. Click the **DDNS** tab.
4. Click the **Enable** option.
5. Type the required information in the fields provided:
   - DDNS (domain) name
   - User name
   - Password
6. Click the **OK** button.
7. In the confirmation box, click the **OK** button.

Making Management Settings

This category includes the following topics:

- Viewing the Event Log (page 159)
- Setting up SMTP Authentication (page 159)
- Sending a Test Message (page 160)
- Viewing the Email Alert List (page 160)
- Adding an Email Alert Recipient (page 161)
- Deleting an Email Alert Recipient (page 161)
- Upgrading the System Firmware (page 161)
- Adding Application Plug-ins (page 161)
- Removing Plug-ins (page 162)
- Enabling and Disabling the Buzzer (page 162)
- Viewing UPS Status (page 163)
- Setting up a UPS (page 163)
- Setting up System Standby (page 164)

Viewing the Event Log

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

To view the Event Log:

1. In the Tree, click the **+** beside the **Management** icon.
2. Click 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.

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:

1. In the Tree, click the **+** beside the **Management** icon.
2. Click the **Mail Alert** icon.
3. Click the **Setup** tab.
4. Next to Service, click the **Enable** option button.

5. In the SMTP Server field, type the IP address or the DNS name of your SMTP server.
6. Optional. Type a new number in the Command Port field.

   25 is the default number.
7. In the From field, the sender's email address that you want to appear in the alert messages.
8. Next to SMTP Authentication:
   - Click the **Yes** option button to enable authentication.
   - Click the **No** option button to disable authentication.

   Note that most SMTP servers require authentication.
9. 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.
10. Click the **OK** button.
11. In the confirmation box, click the **OK** button.

Sending a Test Message

Before you can send a test message, you must set up SMTP authentication and have at lease one email alert recipient.

To send a test email message:

1. In the Tree, click the **+** beside the **Management** icon.
2. Click the **Mail Alert** icon.
3. Click the **Setup** tab.
4. Click the **Test** button.
5. In the confirmation box, click the **OK** button.

   A test email message is sent to each recipient on the Mail List tab.

Viewing the Email Alert List

The SmartStor will send alerts via email to the recipients you designate.

To view a list of Email Alert recipients:

1. In the Tree, click the **+** beside the **Management** icon.
2. Click the **Mail Alert** icon.

   The list of recipients displays on the Mail List tab.

   See "Checking Your Email Inbox" on page 197 for an example of an email alert message.

Adding an Email Alert Recipient

You can have up to 32 Email Alert recipients.

To add an Email Alert recipient:

1. In the Tree, click the **+** beside the **Management** icon.
2. Click the **Mail Alert** icon.
3. Click the **Add** tab.
4. In the E-Mail Address field, type the recipient's email address.
5. Click the **OK** button.
6. In the confirmation box, click the **OK** button.

Deleting an Email Alert Recipient

To delete an Email Alert recipient:

1. In the Tree, click the **+** beside the **Management** icon.
2. Click the **Mail Alert** icon.
3. Click the **Delete** tab.
4. Click the option button beside the E-Mail Address you want to delete.
5. Click the **OK** button.
6. In the confirmation box, click the **OK** button.

Upgrading the System Firmware

See "Upgrading the Firmware" on page 213.

Adding Application Plug-ins

Application plug-ins are enhancements to SmartStor's capabilities. Available plug-ins include:

- **DLNA server** – Enables SmartStor to support the UPnP protocol and function as a Digital Media Server (DMS).
- **BT server** – Enables SmartStor to automatically download Bit Torrent, FTP, and HTTP files using SmartNAVI. See "Adding a Link" on page 109.
- **Firefly Media Server** – Enables SmartStor to download Roku SoundBridge and iTunes.

PASM installs plug-ins from a folder on the SmartStor. SmartNAVI installs plug-ins from your PC. Also see "Adding Application Plug-ins" on page 104.

Download your plug-ins from the Promise Support Website. Plug-in file names end with a .ppg extension. Place the plug-in file into a folder on the SmartStor.

To add a plug-in to SmartStor:

1. In the Tree, click the **+** beside the **Management** icon.
2. Click the **System Upgrade** icon, then click the **Application Plug-in** tab.
3. From the Volume dropdown menu, choose the Volume that has the folder with the plug-in file.
4. From the Folder dropdown menu, choose the Folder that contains the plug-in file.
5. In the File Name field, type the name of the plug-in file.

   Or highlight the file and copy the name, then paste the name into the field.
6. Click the **OK** button to begin the installation.

Warning

Do not disconnect the power or shut down the SmartStor while the plug-in installation is running!

When the installation is done, PASM displays a notification dialog box.

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

Removing Plug-ins

There are two reasons to remove a plug-in:

- To replace the old plug-in with a new one
- You know that you will never use the plug-in

Before you remove a plug-in, consider disabling it, instead. See “Enabling and Disabling Plug-ins” on page 143.

To remove a plug-in from SmartStor:

1. In the Tree, click the **+** beside the **Management** icon.
2. Click the **System Upgrade** icon, then click the **Delete Plug-in** tab.
3. Click the option button to the left of the plug-in you want to delete.
4. Click the **OK** button.
5. In the confirmation box, click the **OK** button.

Enabling and Disabling the Buzzer

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

Promise recommends that you leave the buzzer enabled.

To disable the buzzer:

1. In the Tree, click the **+** beside the **Management** icon.
2. Click the **Buzzer** icon.
3. Click the **Disable** option button.
4. Click the **OK** button.
5. In the confirmation box, click the **OK** button.

Click the **Enable** option button, then click the **OK** button to enable the buzzer, then click the **OK** button in the confirmation box.

Viewing UPS Status

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

To view UPS status:

1. In the Tree, click the **+** beside the **Management** icon.
2. Click the **APC UPS** icon.

   The Information tab displays the status of the UPS.

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

Setting up a UPS

This feature enables you to tell the SmartStor how long to run on UPS battery power and when to shutdown, after a power failure.

To set up a UPS:

1. Attach the APC UPS to one of the SmartStor's USB ports.
2. In the Tree, click the **+** beside the **Management** icon.
3. Click the **APC UPS** icon.
4. Click the **Setup** tab.
5. Click the option button beside the shutdown option you want:
   - Disable – Run until the UPS battery is depleted
   - Run until the UPS battery reaches a certain percentage
   - Run on the UPS battery for certain period of time

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

   If you chose running time, type the number of minutes into the Mins. field.
6. Click the **OK** button.
7. In the confirmation box, click the **OK** button.

Setting up System Standby

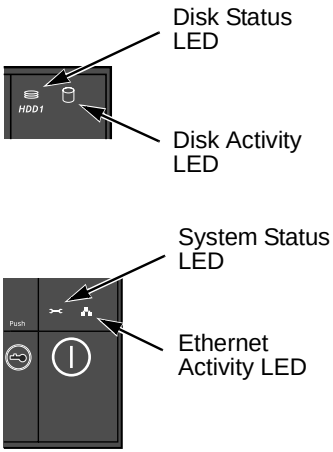
This feature enables the SmartStor to shut down the disk drives in order to save power. You choose the interval of inactivity on the SmartStor after which the drives are powered down. System standby is disabled by default.

To set up System Standby:

1. In the Tree, click the **+** beside the **Management** icon.
2. Click the **Power Options** icon.
3. From the dropdown menu on the System Standby tab, choose the time interval you want. Click the option button beside the shutdown option you want:
   - After 3 minutes – Minimum
   - After X minutes or hours
   - After 5 hours – Maximum
   - Never – Disabled
4. Click the **OK** button.
5. In the confirmation box, click the **OK** button.

   When the SmartStor is on standby, the Disk Status and Disk Activity LEDs go dark.

   The System Status LED remains blue. The Ethernet Activity LED continues to blink blue in response to network activity.



Managing the System

This category includes the following topics:

- Setting System Date and Time (page 165)
- Adjusting for Daylight Saving Time (page 165)
- Running the Network Time Protocol (page 166)
- Viewing the Results of NTP Synchronization (page 166)
- Rebooting the SmartStor (page 167)
- Shutting Down the SmartStor (page 167)
- Restarting the SmartStor (page 168)
- Locating the SmartStor (page 168)
- Viewing System Information (page 168)
- Viewing Enclosure Information (page 169)
- Enabling the Smart Fan (page 169)

Setting System Date and Time

To set the date and time on the SmartStor:

1. In the Tree, click the **+** beside the **System** icon.
2. Click the **Date / Time** icon.
3. Click the **Setup** tab.
4. From the dropdown menus, choose the time and date values.
5. Click the **OK** button.
6. In the confirmation box, click the **OK** button.

Adjusting for Daylight Saving Time

To adjust the SmartStor's clock for daylight saving time:

1. In the Tree, click the **+** beside the **System** icon.
2. Click the **Date / Time** icon.
3. Click the **Time Zone** tab.
4. Check the **Adjust clock for daylight saving changes** box.
5. From the dropdown menu, choose the increment for daylight saving time in your location.
6. Click the **OK** button.
7. In the confirmation box, click the **OK** button.

Running the Network Time Protocol

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

To run the Network Time Protocol:

1. In the Tree, click the **+** beside the **System** icon.
2. Click the **Date / Time** icon.
3. Click the **Time Zone** tab.
4. From the dropdown menu, choose the time zone for your location.
5. Click the **OK** button.
6. Click the **NTP** tab.
7. In the Time Server field, type the URL of the time server you want to use.

   URL *time.nist.gov* is the default.
8. 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 synchronization happens.
9. Click the **OK** button.
10. In the confirmation box, click the **OK** button.

Viewing the Results of NTP Synchronization

To view the results of an NTP synchronization:

1. In the Tree, click the **+** beside the **System** icon.
2. Click the **Date / Time** icon.
3. Click 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

Rebooting the SmartStor

Normally you will only need to reboot the SmartStor is after a firmware upgrade or a plug-in installation. See “Upgrading the Firmware” on page 213. During the reboot, none of your folders will be accessible from your networked PCs.

To reboot the SmartStor:

1. In the Tree, click the **+** beside the **System** icon.
2. Click the **Reboot / Shutdown** icon.
3. Click the **Reboot** option.
4. Click the **OK** button.
5. In the confirmation box, click the **OK** button.

   The reboot runs automatically. When the SmartStor is fully booted:

   - The system status LED turns blue (right)
   - The buzzer beeps one time (if the buzzer is enabled)

   See “Enabling and Disabling the Buzzer” on page 162.

System Status LED

Shutting Down the SmartStor

The only time you need to shut down the SmartStor is to replace the disk drive cooling fan or the power supply. See “Appendix A: Maintenance” on page 213.

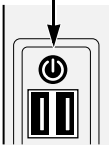
During and after the shutdown, none of your folders will be accessible from your networked PCs.

Using PASM

To shut down the SmartStor:

1. In the Tree, click the **+** beside the **System** icon.
2. Click the **Reboot / Shutdown** icon.
3. Click the **Shutdown** option.
4. Click the **OK** button.
5. In the confirmation box, click the **OK** button.

Power Button



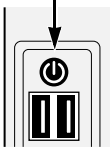
System Status LED

Directly

To shut down the SmartStor, press and hold the power button for five seconds. The system status LED turns red, then goes dark (right).

Restarting the SmartStor

Power Button



To restart the SmartStor after a shutdown, press the power button on the front of the SmartStor chassis (right).

When the SmartStor is fully booted:

- The system status LED turns blue (right)
- The buzzer beeps one time (if the buzzer is enabled)

See “Enabling and Disabling the Buzzer” on page 162.

Locating the SmartStor

System Status LED

If your SmartStor in is on a rack with other equipment and you need to locate it quickly, this function will assist you.

To locate the SmartStor:

1. In the Tree, click the **+** beside the **System** icon.
2. Click the **System Information** icon.
3. Click the **System Information** tab.
4. Click the **Locate** button.

   The SmartStor’s buzzer beeps three times and the system status LED blinks RED three times (right).

System Status LED

Viewing System Information

To view system information:

1. In the Tree, click the **+** beside the **System** icon.
2. Click the **System Information** icon.
3. Click the **System Information** tab.

   System Information includes:

   - **Operating System** – Embedded Linux
   - **Firmware Version** – Changes when you upgrade the firmware. See “Upgrading the Firmware” on page 213
   - **CPU model** – MPC 8343
   - **Network Adapter** – Gigabit Ethernet
   - **MAC Address** – MAC address of the Ethernet card
   - **Network Flow** – Inflow and Outflow speeds in bits per second

Viewing Enclosure Information

To view enclosure information:

1. In the Tree, click the **+** beside the **System** icon.
2. Click the **System Information** icon.
3. Click the **Enclosure Information** tab.

   Enclosure Information includes:

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

   If any values are out of specification, see “Checking Enclosure Status in PASM” on page 191.

Enabling the Smart Fan

The Smart Fan feature slows or turns off the fan to save energy and reduce noise when the fan is not needed to cool the SmartStor enclosure. The Smart Fan is enabled by default.

To enable the Smart Fan:

1. In the Tree, click the **+** beside the **System** icon.
2. Click the **System Information** icon.
3. Click the **Enclosure Information** tab.
4. Under Fan Control, click the **Enable** option.
5. Click the **OK** button.
6. In the confirmation box, click the **OK** button.

Chapter 8: Technology Background

- Introduction to RAID (below)
- Choosing a RAID Level (page 176)
- Spare Drive (page 177)
- Automatic Rebuilding (page 178)
- Partition and Format (page 178)
- RAID Volume Migration (page 179)

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 SmartStor when you perform the setup procedure, either in SmartNAVI 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. Also see “Choosing a RAID Level” on page 176. The following outline breaks down the properties for each RAID level supported on the SmartStor:

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.

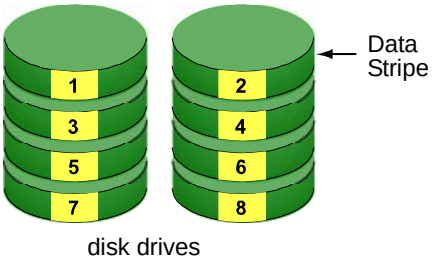


Figure 1. RAID 0 Striping interleaves data across multiple drives

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, Promise does not recommend a RAID 0 Volume for your SmartStor.

RAID 0 Volumes on SmartStor consist of one or more disk drives.

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.

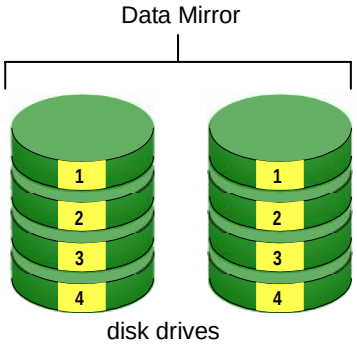


Figure 2. RAID 1 Mirrors identical data to two drives

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 SmartStor consist of two disk drives.

If you want a mirrored RAID Volume with more than two disk drives, see "RAID 10 – Mirror / Stripe" on page 175.

RAID 5 – Block Striping with Distributed Parity

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.

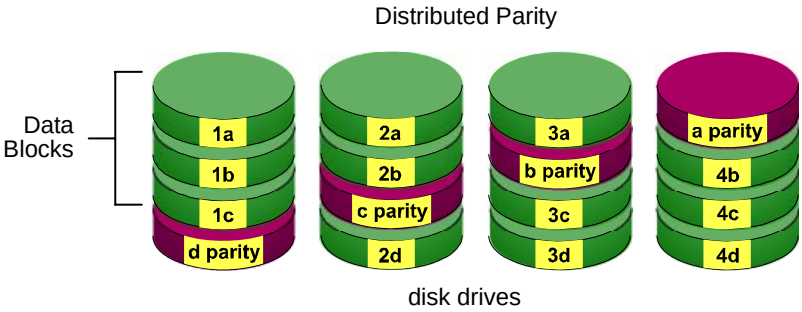


Figure 3. RAID 5 Stripes all drives with data and parity information

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.

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.

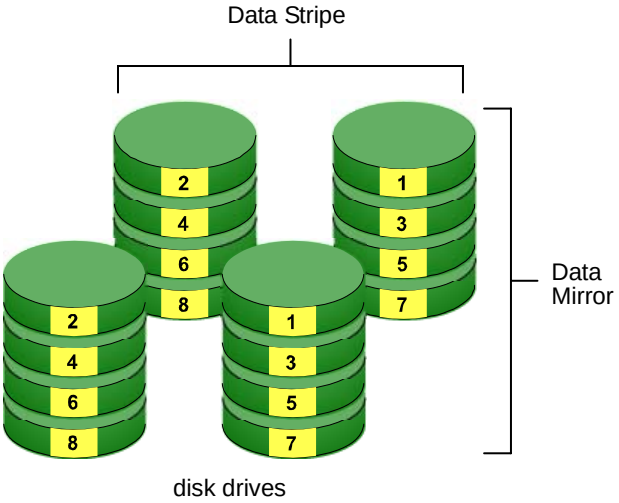


Figure 4. RAID 10 takes a data mirror on one drive pair and stripes it over two drive pairs

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 SmartStor 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.

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

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 SmartStor enclosure. However, when you replace the failed disk drive, the SmartStor 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. See

Maintaining a spare drive is a good precaution to protect your RAID Volume integrity in the event of disk drive failure.

Automatic Rebuilding

When a disk drive in your RAID 1, 5, or 10 Volume fails, and a replacement disk drive becomes 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.

Partition and Format

When you create a RAID Volume on SmartStor, 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. SmartStor provides file services for Windows, UNIX/Linux and Macintosh, so all of those PCs can access the folders on the SmartStor, even though each PC might have a different file system.

RAID 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 drive than the RAID 0 RAID Volume.

RAID 1

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

Target	Requirements
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 only add a drive.

Target	Requirements
RAID 5	Add a disk drive.

RAID 10

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

Chapter 9: Troubleshooting

- Responding to an Audible Alarm (page 181)
- Checking the System Status LED (page 182)
- Checking Disk Status LEDs (page 182)
- Replacing a Failed Disk Drive (page 183)
- Checking RAID Volume Status in PASM (page 184)
- Checking File System Status in PASM (page 186)
- Checking the Event Log in PASM (page 187)
- Checking Enclosure Status in PASM (page 191)
- Solving Network Connection Problems (page 192)
- Checking Your Email Inbox (page 197)
- Restoring the Default Password (page 197)
- Resolving a Windows Firewall Issue (page 198)

This chapter deals problems you might encounter with your SmartStor and how to resolve them. Also see “Frequently Asked Questions” on page 201.

Responding to an Audible Alarm

The SmartStor has two beep patterns

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

When you boot or reboot the SmartStor, and the buzzer is enabled, the buzzer sounds one time to indicate that the SmartStor is online.

If you hear the two-beep pattern, check the following items:

- System Status LED (see below)
- Drive Status LED (see page 182)
- RAID Volume status in PASM (see page 184)
- File System status in PASM (see page 186)
- Enclosure status in PASM (see page 191)
- Event Log in PASM (see page 187)
- Your email inbox (see page 197)

Checking the System Status LED

The SmartStor system status LED (see Figure 1.) reports the condition of the Enclosure fan and power supply:

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

The system status LED blinks red three times when you click the **Locate NAS** icon in SmartNAVI or the **Locate** button in PASM.

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

Checking Disk Status LEDs

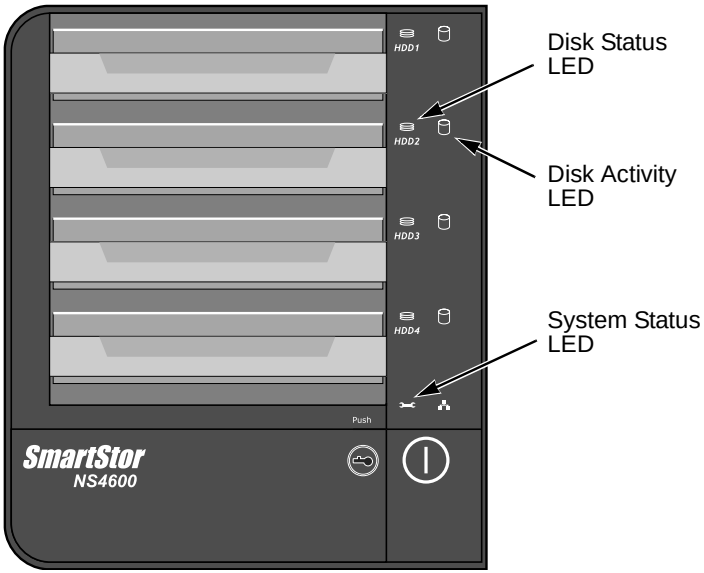
The disk status LEDs (see Figure 1.) report the condition of the disk drives:

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

The disk status LEDs are also dark when the drives are powered down during system stand-by.

See “Replacing a Failed Disk Drive” on page 183.

Figure 1. SmartStor Disk and System Status LEDs



Replacing a Failed Disk Drive

If a disk drive fails, the Disk Status LED is red. See Figure 1. If the disk drive belongs to a RAID Volume, the Volume goes *Critical* or *Offline*. See “Checking RAID Volume Status in PASM” on page 184.

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 SmartStor.

1. Open the SmartStor’s front door.
2. Pull out the drive carrier with the failed drive.
3. Remove the failed disk drive from the drive carrier.
4. Install a new disk drive into the carrier.
5. Place the carrier with the new disk drive back into the open slot in the SmartStor.

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 show amber. When the Rebuild is finished, the Disk Status LED turns blue.

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.

Checking RAID Volume Status in PASM

To view RAID Volume status:

1. Start PASM.

   See “PASM in your Browser” on page 123.

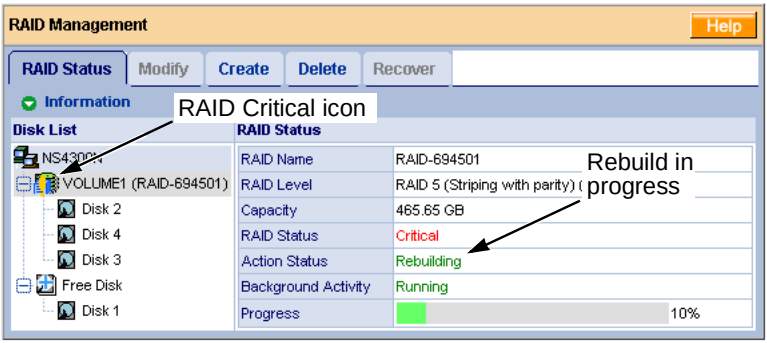
   Or see “PASM in SmartNAVI” on page 125.

   Or see “PASM in Bonjour” on page 127.

2. In the Tree, click the **+** beside the **RAID & File System** icon.
3. Click the **RAID Management** icon.

   The status is displayed in the **RAID Status** tab.

Figure 2. PASM reports a Critical RAID Volume



SmartStor Responds to a Critical RAID Volume

How the SmartStor 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. See “Replacing a Failed Disk Drive” on page 183.
- 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 SmartStor.

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

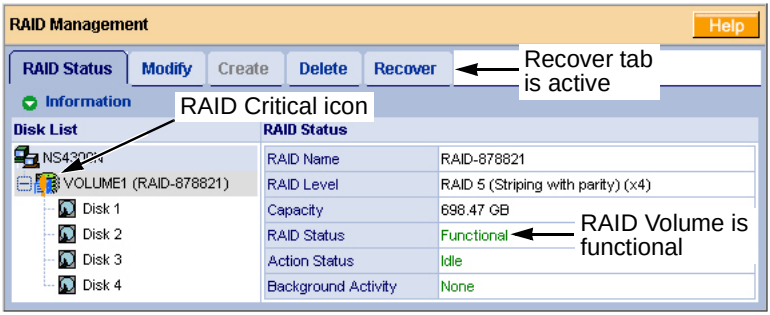
This condition could happen when you:

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

When the SmartStor's memory does not recognize the RAID Volume, so PASM displays the RAID Volume as invalid. See Figure 3.

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

Figure 3. An invalid RAID Volume in PASM



Using the Recover Function

To validate the RAID Volume:

1. In the Tree, click the **+** beside the **RAID & File System** icon.
2. Click the **RAID Management** icon.
3. Click the **Recover** tab.
4. On the **Recover** tab, click the option button beside the invalid RAID Volume.
5. Click the **OK** button.

   The SmartStor will reboot itself to update its configuration and recognize the RAID Volume.

Important

Running the Recover function might erase some or all of your SmartStor settings. If that condition happens, run the NAS Setup Wizard. See “Setting up the SmartStor” on page 17.

Checking File System Status in PASM

Typically the first indication of a problem with the SmartStor’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 the icons under the File & Print menu.

To view File System status:

1. Start PASM.

   See “PASM in your Browser” on page 123.

   Or see “PASM in SmartNAVI” on page 125.

   Or see “PASM in Bonjour” on page 127.
2. In the Tree, click the **+** beside the **RAID & File System** icon.
3. Click the **File System Management** icon.
4. Look for the RAID Volume icon on the **File System Status** tab.

   If the RAID Volume icon is Critical (has a yellow !), the file system contains errors and you must rebuild the file system. See below.

Rebuilding the File System

When you only have read access to your files or no access at all, the File System might be damaged. This feature checks, and where necessary rebuilds the File System without loss of data.

You cannot access any data on the SmartStor while the check/rebuild operation is running.

To rebuild a File System:

1. In the Tree, click the **+** beside the **RAID & File System** icon.
2. Click the **File System Management** icon.
3. In the **File System Status** tab, click the RAID Volume Critical icon to display the **Check File System** button.
4. Click the **Check File System** button.

5. In the confirmation box, type **yes** into the field provided, then click the **OK** button.

   During the File System Check or Rebuild, the System Status LED blinks amber and the Disk Activity LEDs blink blue. See page 183, Figure 1.

   The time needed to check and rebuild the File System depends on the amount of data on the SmartStor. The process can take anywhere from 10 minutes to 2 hours.

Warning

Do not disconnect the power or shut down the SmartStor while the check/rebuild is running!

Checking the Event Log in PASM

To view the Event Log in PASM:

To check Enclosure status:

1. Start PASM.

   See “PASM in your Browser” on page 123.

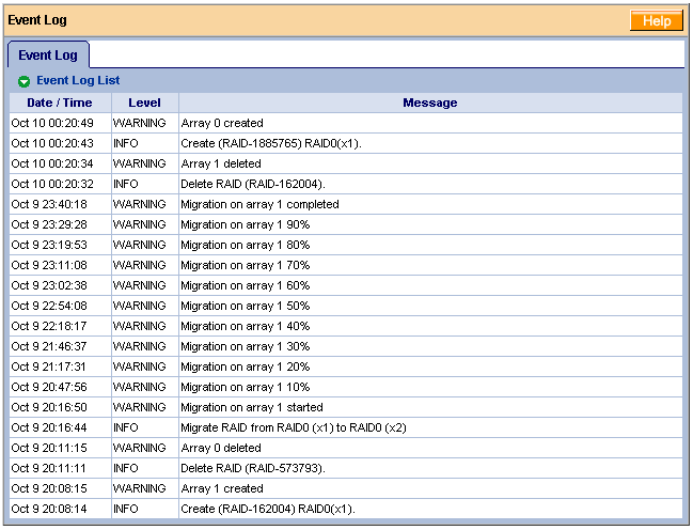
   Or see “PASM in SmartNAVI” on page 125.

   Or see “PASM in Bonjour” on page 127.

2. In the Tree, click the **+** beside the **Management** icon.
3. Click the **Event Log** icon.

   The Event Log displays. See Figure 4.

Figure 4. The PASM Event Log



Date / Time	Level	Message
Oct 10 00:20:49	WARNING	Array 0 created
Oct 10 00:20:43	INFO	Create (RAID-1885765) RAID0(x1).
Oct 10 00:20:34	WARNING	Array 1 deleted
Oct 10 00:20:32	INFO	Delete RAID (RAID-162004).
Oct 9 23:40:18	WARNING	Migration on array 1 completed
Oct 9 23:29:28	WARNING	Migration on array 1 90%
Oct 9 23:19:53	WARNING	Migration on array 1 80%
Oct 9 23:11:08	WARNING	Migration on array 1 70%
Oct 9 23:02:38	WARNING	Migration on array 1 60%
Oct 9 22:54:08	WARNING	Migration on array 1 50%
Oct 9 22:18:17	WARNING	Migration on array 1 40%
Oct 9 21:46:37	WARNING	Migration on array 1 30%
Oct 9 21:17:31	WARNING	Migration on array 1 20%
Oct 9 20:47:56	WARNING	Migration on array 1 10%
Oct 9 20:16:50	WARNING	Migration on array 1 started
Oct 9 20:16:44	INFO	Migrate RAID from RAID0 (x1) to RAID0 (x2)
Oct 9 20:11:15	WARNING	Array 0 deleted
Oct 9 20:11:11	INFO	Delete RAID (RAID-573793).
Oct 9 20:08:15	WARNING	Array 1 created
Oct 9 20:08:14	INFO	Create (RAID-162004) RAID0(x1).

4. 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 SmartStor is responding to your commands.

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

A list of event categories is shown below:

- File System (page 188)
- NAS Replication (page 189)
- Snapshots (page 189)
- System (enclosure) (page 189)
- Disk Drives (page 190)
- RAID Volumes (page 190)

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 SmartStor and check file system again. If the event appears again, the file system has crashed. Rebuild the file system. See page 186.

Reported Event	Corrective Action
File system capacity usage of volume X is over 90%.	Reduce the number or size of the files or expand the volume size. See “Migrating a RAID Volume” on page 149.
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 SmarStor 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 SmartStors. Correct the problem and try again. See page 192.
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. See page 152.
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 SmarStor 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.	

Reported Event	Corrective Action
System was shut down abnormally.	The SmartStor shut down incorrectly the last time. See “Shutting Down the SmartStor” on page 167.
CPU temperature is higher than 58°C/138°F. System will shut down.	Allow the SmartStor to cool for several minutes. Then restart the SmartStor and check system temperature and fan operation. See page 169. Be sure there is adequate air circulation around the SmartStor.
System fan speed is lower than 1800 RPM. Check the system before continuing.	Try enabling or disabling the Smart Fan. See page 169. If the fan still runs below 1800 RPM, contact Technical Support. See page 205.
AC Power failure. System will shut down.	Restore the AC power. Then restart the SmartStor. See “Connecting the Power” on page 8.
Disk Drives	
Task X timeout on disk Y at LBA [address]	A LBA error. Check the disk drives. See page 182. Check the RAID Volume. See page 184. 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. See page 182. Replace the failed drive. See page 183.
BSL update on disk X at LBA [address]	Bad sector on a disk drive. Check the disk drives. See page 182. Replace the disk drive if it continues to receive BSL updates.
BSL log disk X at LBA [address] cleared	Check the disk drives. See page 182.
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.

Reported Event	Corrective Action
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. See page 182. Check the RAID Volume. See page 184.
RAID status: "OFFLINE". The NS4600 X volume Y is offline.	Check the disk drives. See page 182. Replace the failed drive. See page 183. Create a new RAID Volume. See page 148.
RAID status: "CRITICAL". The NS4600 X volume Y is not functioning correctly.	Check the disk drives. See page 182. Replace the failed drive. See page 183. The RAID Volume will rebuild automatically.
RAID X had some errors. Formatting was aborted!	Check the disk drives. See page 182. Replace the failed drive. See page 183.

Checking Enclosure Status in PASM

To check Enclosure status:

1. Start PASM.

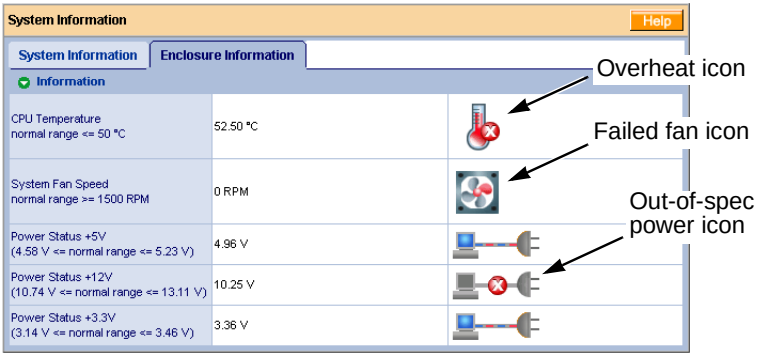
   See “PASM in your Browser” on page 123.

   Or see “PASM in SmartNAVI” on page 125.

   Or see “PASM in Bonjour” on page 127.
2. In the Tree, click the **+** beside the **System** icon.
3. Click the **System Information** icon.
4. Click the **Enclosure Information** tab.

   See Figure 5.

Figure 5. The Enclosure Information tab with malfunctions shown



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

- If CPU temperature is above specification:
  - Be sure there is adequate air flow around the SmartStor.
  - Be sure the ambient temperature is below 35°C (95°F).
  - Check the fan speed.
- If the fan speed is below specification, contact Technical Support. See page 205.
- If any power status is out-of-specification, contact Technical Support. See page 205.

Solving Network Connection Problems

Most network connection problems are the result of poor connections.

When the SmartStor is fully booted and connected to the network, the Ethernet Activity LED indicates status and activity:

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

See Figure 6.

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

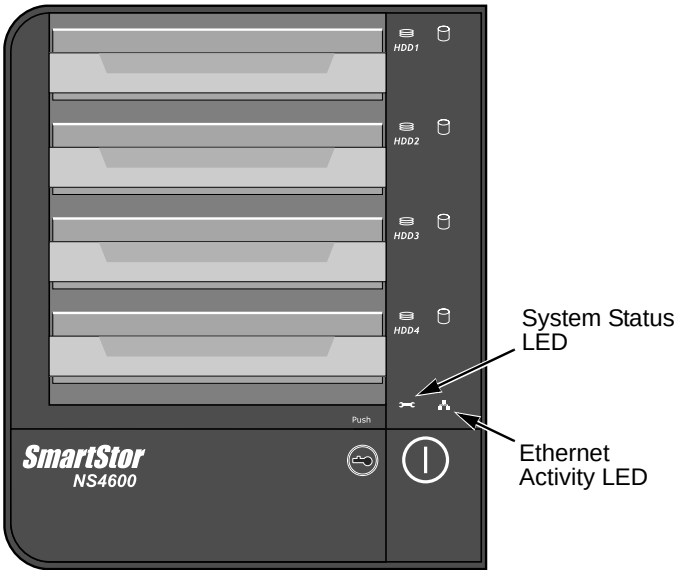
- Verify that the switch, hub, or facility network service connection that you are using is operational.

  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 SmartStor 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.

Figure 6. System Status and Ethernet Activity LEDs



If you know your network devices are working properly and you know that your network cable is good, but the Ethernet Activity LED remains dark, see “Contacting Technical Support” on page 205.

The SmartNAVI application is designed to detect the SmartStor on your network. If SmartNAVI does not detect your SmartStor, check the following items:

- Be sure the SmartStor is powered up and fully booted.

  The System Status LED should be blue. See Figure 6.
- Be sure the SmartStor is properly connected to your network.

  The Ethernet Activity LED should be blue or blinking blue. See Figure 6.

  If the Ethernet Activity LED is dark, see “Solving Network Connection Problems” on page 192.

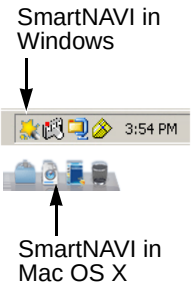
- Be sure that SmartNAVI is looking on the same network where you connected the SmartStor.
- If you are running a personal firewall on your Windows PC, the firewall might prevent you from accessing folders on the SmartStor. You must do one of the following actions:
  - Disable the firewall
  - Add an exception for the SmartStor

  See “Resolving a Windows Firewall Issue” on page 198.

Verifying Connections with SmartNAVI

If your PC has multiple network connections, you must verify that SmartNAVI is looking on the network where the SmartStor is installed:

Double-click the **SmartNAVI** icon in the Windows application tray or Macintosh Dock (right).



The MSN Window opens.

If your SmartStor does not appear in the MSN window, SmartNAVI does not detect the SmartStor on your network. If you have verified all other functions, then you might have SmartNAVI and SmartStor on different networks.

SmartStor Lockup

On rare occasions, SmartNAVI or PASM become unresponsive to your inputs. If that happens, check the SmartNAVI MSN window on your PC. See Figure 7.

Figure 7. SmartNAVI MSN window

If the SmartStor used to appear in the MSN window previously but is no longer there, the SmartStor is probably locked up or frozen and requires a hard reboot.

Caution

This action is appropriate only when there are no data transfers or installations in progress.

Do not disconnect the power to reboot the SmartStor unless the proper shutdown procedure does not work.

Keep the SmartNAVI MSN window open during this procedure.

To hard reboot the SmartStor:

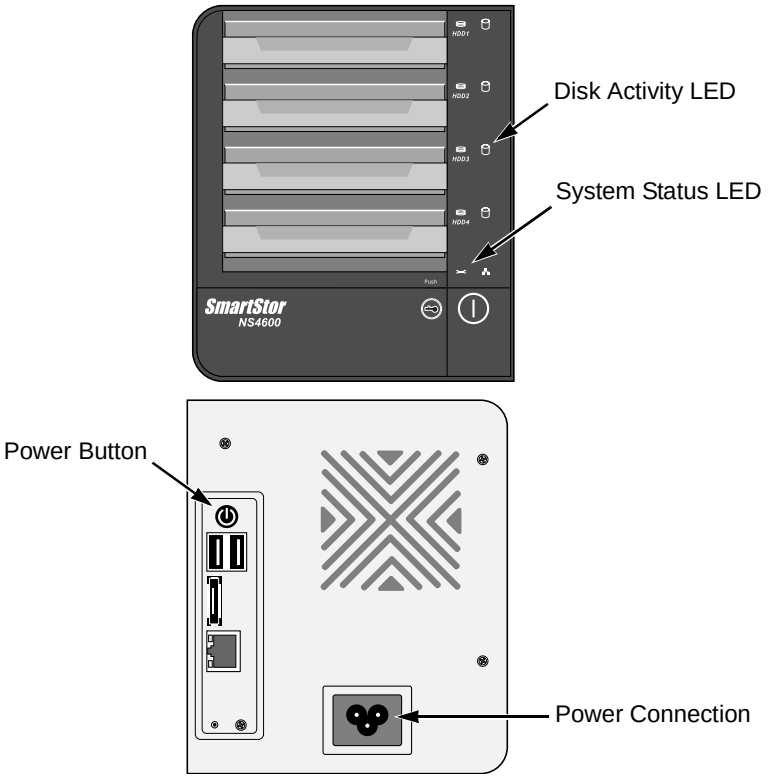
1. Press and hold the Power button for five seconds.

   During a proper shutdown, the System Status LED turns RED, then goes dark.

   If the System Status LED stays BLUE, the SmartStor is locked up.

   See Figure 8.

Figure 8. SmartStor front and back views



2. Disconnect the power cable from the SmartStor.
3. Wait 10 seconds, then reconnect the power cable.
4. Press the Power button.

   It takes about a minute to boot the SmartStor. When fully booted:

   - The System Status LED turns blue.
   - The buzzer beeps one time.
5. Verify that the SmartStor now appears in SmartNAVI MSN window.

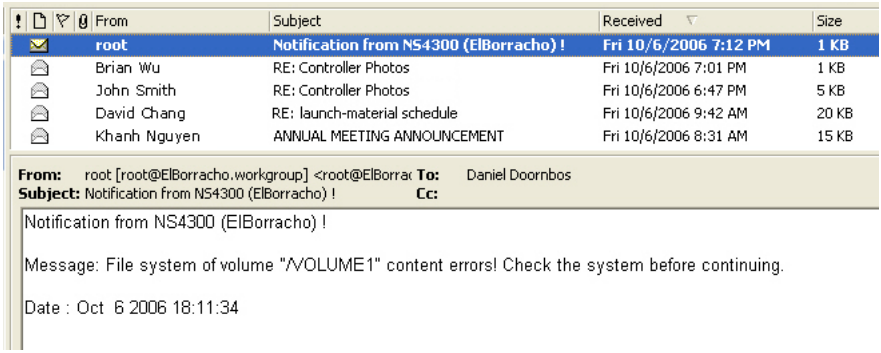
   See Figure 7.

   The SmartStor automatically runs a File System Check due to the abnormal shutdown. During the File System Check, the System Status LED blinks amber and the Disk Activity LEDs blink blue. See page 186 for more information.

Checking Your Email Inbox

If you enabled Mail Alert in PASM, the SmartStor will send you an email message when a problem arises. Look for a message from “root.”

Figure 9. Email message from the SmartStor.



See “Adding an Email Alert Recipient” on page 161 for more information about email alerts.

Restoring the Default Password

Normally, you change your password in PASM. See “Changing the Administrator’s Password” on page 132.

If you changed the password and then forgot the new password, you can reset the SmartStor to the default password: **admin**. Use a straightened paper clip or the tip of a ball-point pen as a reset tool.

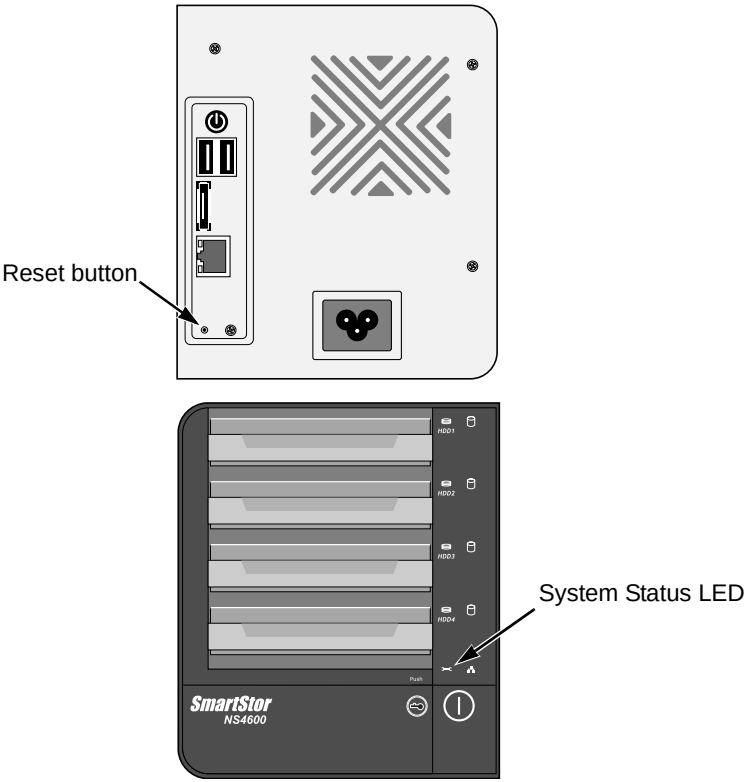
To reset the Administrator’s password:

1. Verify that the SmartStor is fully booted.
2. Insert your reset tool into the reset button hole on the back of the SmartStor.

   See Figure 10.
3. Press and hold the reset button for eight seconds, until the System Status LED flashes three times.

   See Figure 10. The Administrator’s password is now reset to **admin**.

Figure 10. Reset button and System Status LED



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 SmartStor over your network.

Follow this procedure to add an exception for the SmartStor:

1. From the Windows Start menu, choose *Settings*, then *Network Connections*.

   The Network Connections window opens.

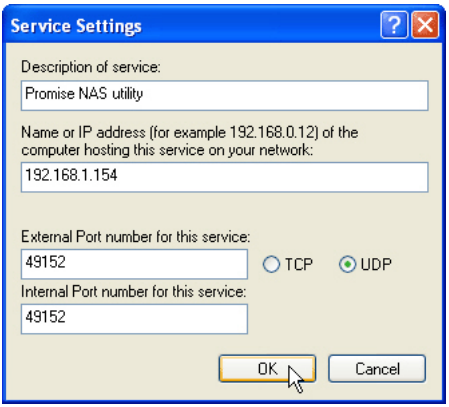
2. Right-click **Local Area Connection** and choose *Properties* from the popup menu.

   The local Area Connection properties dialog box opens.

3. Click the **Advanced** tab.

4. Click the **Settings** button.
   The Windows Firewall dialog box opens.
5. Click the **Advanced** tab.
6. Under Network Connection Setting, click the **Settings** button.
   The Advanced Settings dialog box opens.
7. Click the **Add** button.
   The Service Settings dialog box opens.
8. In the Description of service field, type **Promise NAS utility**.
9. In the Name or IP address field, type the IP address of the SmartStor.
   See “Finding the SmartStor’s IP Address” on page 22.
10. In the External Port field, type **49152**.
11. Click the **UDP** option button.
12. In the Internal Port field, type **49152**.
13. Click the **OK** button.

Figure 11. Windows Firewall Advanced Service Settings



14. Click the **OK** buttons in the Advanced Settings, Windows Firewall, and Local Area Connection Properties dialog boxes.

Chapter 10: Support

- Frequently Asked Questions (below)
- Contacting Technical Support (page 205)
- Limited Warranty (page 208)
- Returning Product For Repair (page 210)

Frequently Asked Questions

Also see “Chapter 9: Troubleshooting” on page 181.

The SmartStor worked OK until I turned it off. When I turned it on again, my Windows network drive connection no longer works.

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

- You may be able to reset the SmartStor’s IP address manually. See “Mounting a Share Folder / Creating a Network Drive” on page 98 or “Changing Network Settings” on page 102.

  Note that changing the SmartStor’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. See “Chapter 3: Connecting to the SmartStor” on page 29.

When I start Windows, a message displays that says, “Could not reconnect all network drives.”

The SmartStor reconnects to your PC shortly after Windows starts. In most cases, the SmartStor network drives will be available by the time you click them.

The SmartNAVI application cannot access the SmartStor over the network.

If you a running a personal firewall on your Windows PC, the firewall might prevent you from accessing folders on the SmartStor. You must do one of the following actions:

- Disable the firewall
- Add an exception for the SmartStor

See “Resolving a Windows Firewall Issue” on page 198.

I tried to connect my SmartStor as a network drive using SmartSYNC, but Windows displayed an error message.

There might be an IP address conflict between the SmartStor and another device on your network. See your Network Administrator for assistance.

I cannot log into the SmartStor with through the AD Domain.

Be sure you use a “domain name\user name” when you log into the SmartStor 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 SmartStor does not support a user home directory.

How does the SmartStor integrate into an NIS Domain?

If the NIS domain account or group name is the same as the SmartStor, the SmartStor will apply them to its account or group.

If the SmartStor joins a NIS Domain, joining only affects the NFS service and Quota settings. The other services are not affected.

How are non-ASCII folder file names displayed?

The SmartStor 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.

I tried to copy a Windows shortcut to my network drive, but an error message says there is not enough free disk space.

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 SmartStor 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.

Does SmartStor support a USB drive or memory stick with FAT16 file format?

No. If you attach the FAT16 USB drive or memory stick to SmartStor, 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.

How do I remove a USB drive or memory stick from the SmartStor?

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 SmartStor. The SmartStor automatically unmounts the USB drive or memory stick.

Can I do a One Touch Backup or a regular Backup on a protected folder or file on my Windows PC?

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.

I enabled One Touch Backup and pressed the button on the SmartStor but no files were backed up. What happened?

You must create a backup schedule using SmartNAVI. The backup schedule tells One Touch Backup which folders and files to backup from your PC onto the SmartStor.

Which FTP clients are compatible with the SmartStor's FTP server?

Promise recommends 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, you have two choices:

- Use only ASCII characters to name your shared folders.
- Set your SmartStor for double-byte character encoding. See page 141.

Can I move the disk drives from one SmartStor to a different SmartStor?

Yes. However, to access the RAID Volume on the new SmartStor, you must run the Recover function. When SmartStor's memory does not match the RAID Volume on the disk drives, the RAID Volume is considered *invalid* and the Recover function becomes available. See "Responding to an Invalid RAID Volume" on page 185.

I set up email alert recipients but they never receive any messages.

In most cases, you must setup SMTP authentication in order for your alert messages to pass your SMTP server. See "Setting up SMTP Authentication" on page 159.

Can SmartStor handle jumbo frames?

Yes. But you must set the maximum frame size in PASM. See "Working with Jumbo Frames" on page 157.

I tried to create a share folder called "Admin" but the PASM software would not let me.

The Admin name is a reserved folder name. Choose another folder name.

I created a share folder and gave it the same name as a local user. This action caused a conflict.

The system does not check share folder names against user names, therefore it is possible to create two folders with the same name. If this happens, delete the share folder, so that only the user's home folder remains.

Is there a Windows browser that supports the Bonjour service?

Yes. Apple's Safari browser supports Bonjour and is available for Windows. And a Bonjour for Windows plug-in is available for Internet Explorer.

Why do my drives fill up when I regularly delete unused files?

If you are running a Windows OS with the Recycle Bin enabled, you must periodically empty Recycle Bin. Deleted files move to the Recycle Bin, the same as on a Windows PC. They are not deleted from the SmartStor until you empty the Recycle Bin.

Where can I find a list of plug-ins installed on my SmartStor?

You can view a list of installed plug-ins using NAS Management in the SmartNAVI Main Window or under File & Print, Protocol Control in PASM.

On a Windows PC, you can also right-click the **SmartNAVI** tray icon and choose **About**. On a Macintosh PC, you can also click the **Help** dropdown menu and choose **About**.

Where can I find a list of plug-ins available for my SmartStor?

Check for the latest plug-ins on the Promise Support Website. Plug-in file names end with a .ppg extension.

How do I make the SmartStor quieter?

The loudest component on SmartStor is the cooling fan. But the fan can run at low speed part of the time and sometimes not at all. Be sure the *Smart Fan* feature is enabled in PASM under System Management, Enclosure Management.

Does the SmartStor have a power-saving feature?

Yes. The *System Standby* feature powers down the disk drives after a selected period of inactivity. To enable System Standby, go to Management, Power Options in PASM.

Contacting Technical Support

Promise Technical Support provides several support options for Promise users to access information and updates. We encourage you to use one of our electronic services, which provide product information updates for the most efficient service and support.

If you decide to contact us, please have the following information available:

- Product model and serial number
- BIOS, firmware, and driver version numbers
- A description of the problem / situation
- System configuration information, including: motherboard and CPU type, hard drive model(s), SAS/SATA/ATA/ATAPI drives & devices, and other controllers.

Technical Support Services

Promise Online™ Web Site	http://www.promise.com/support/support_eng.asp (technical documents, drivers, utilities, etc.)

United States

E-mail Support	e-Support On-Line
Fax Support	(408) 228-1100 Attn: Technical Support
Phone Support	(408) 228-1400 option 4
If you wish to write us for support:	Promise Technology, Inc. 580 Cottonwood Drive Milpitas, CA 95035, USA

The Netherlands

E-mail Support	e-Support On-Line
Fax Support	+31 (0) 40 256 9463 Attn: Technical Support
Phone Support	+31 (0) 40 235 2600
If you wish to write us for support:	Promise Technology Europe B.V. Science Park Eindhoven 5542 5692 EL Son, The Netherlands

Germany

E-mail Support	e-Support On-Line
Fax Technical Support	+49 (0) 2 31 56 76 48 - 29 Attn: Technical Support
Phone Technical Support	+49 (0) 2 31 56 76 48 - 10
If you wish to write us for support:	Promise Technology Germany Europaplatz 9 44269 Dortmund, Germany

Italy

E-mail Support	e-Support On-Line
Fax Support	0039 06 367 12400 Attn: Technical Support
Phone Support	0039 06 367 12626
If you wish to write us for support:	Promise Technology Italy Piazza del Popolo 18 00187 Roma, Italia

Taiwan

E-mail Support	e-Support On-Line
Fax Support	+886 3 578 2390 Attn: Technical Support
Phone Support	+886 3 578 2395 (ext. 8822, 8823)
If you wish to write us for support:	Promise Technology, Inc. 2F, No. 30, Industry E. Rd. IX Science-based Industrial Park Hsin-Chu 30075, Taiwan (R.O.C.)

China – Beijing

E-mail Support	e-Support On-Line
Fax Support	+86 10 8857 8015 Attn: Technical Support
Phone Support	+86 10 8857 8085 or 8095
If you wish to write us for support:	Promise Technology China – Beijing Room 1205, Tower C Webok Time Center, No.17 South Zhong Guan Cun Street Hai Dian District, Beijing 100081, China

China – Shanghai

E-mail Support	e-Support On-Line
Fax Support	+86 21 6249 4627 Attn: Technical Support
Phone Support	+86 21 6249 4192, 4193, or 4199
If you wish to write us for support:	Promise Technology China – Shanghai Room 508, Leader Tower 1189 West Wu Ding Road Jing An District, Shanghai 200042, China

Limited Warranty

Promise Technology, Inc. (“Promise”) warrants that this product, from the time of the delivery of the product to the original end user:

a) all components for a period of two (2) years;

b) will conform to Promise’s specifications;

c) will be free from defects in material and workmanship under normal use and service.

This warranty:

a) applies only to products which are new and in cartons on the date of purchase;

b) is not transferable;

c) is valid only when accompanied by a copy of the original purchase invoice;

d) Is not valid on spare parts.

This warranty shall not apply to defects resulting from:

a) improper or inadequate maintenance, or unauthorized modification(s), performed by the end user;

b) operation outside the environmental specifications for the product;

c) accident, misuse, negligence, misapplication, abuse, natural or personal disaster, or maintenance by anyone other than a Promise or a Promise-authorized service center.

Disclaimer of other warranties

This warranty covers only parts and labor, and excludes coverage on software items as expressly set above.

Except as expressly set forth above, Promise DISCLAIMS any warranties, expressed or implied, by statute or otherwise, regarding the product, including, without limitation, any warranties for fitness for any purpose, quality, merchantability, non-infringement, or otherwise. Promise makes no warranty or representation concerning the suitability of any product for use with any other item. You assume full responsibility for selecting products and for ensuring that the products selected are compatible and appropriate for use with other goods with which they will be used.

Promise DOES NOT WARRANT that any product is free from errors or that it will interface without problems with your computer system. It is your responsibility to back up or otherwise save important data before installing any product and continue to back up your important data regularly.

No other document, statement or representation may be relied on to vary the terms of this limited warranty.

Promise's sole responsibility with respect to any product is to do one of the following:

a) replace the product with a conforming unit of the same or superior product;

b) repair the product.

Promise shall not be liable for the cost of procuring substitute goods, services, lost profits, unrealized savings, equipment damage, costs of recovering, reprogramming, or reproducing of programs or data stored in or used with the products, or for any other general, special, consequential, indirect, incidental, or punitive damages, whether in contract, tort, or otherwise, notwithstanding the failure of the essential purpose of the foregoing remedy and regardless of whether Promise has been advised of the possibility of such damages. Promise is not an insurer. If you desire insurance against such damage, you must obtain insurance from another party.

Some states do not allow the exclusion or limitation of incidental or consequential damages for consumer products, so the above limitation may not apply to you.

This warranty gives specific legal rights, and you may also have other rights that vary from state to state. This limited warranty is governed by the State of California.

Your Responsibilities

You are responsible for determining whether the product is appropriate for your use and will interface with your equipment without malfunction or damage. You are also responsible for backing up your data before installing any product and for regularly backing up your data after installing the product. Promise is not liable for any damage to equipment or data loss resulting from the use of any product.

Returning Product For Repair

If you suspect a product is not working properly, or if you have any questions about your product, contact our Technical Support Staff through one of our Technical Services, making sure to provide the following information:

- Product model and serial number (required)
- Return shipping address
- Daytime phone number
- Description of the problem
- Copy of the original purchase invoice

The technician will assist you in determining whether the product requires repair. If the product needs repair, the Technical Support Department will issue an RMA (Return Merchandise Authorization) number.

Important

Obtain an RMA number from Technical Support *before* you return the product and write the RMA number on the label. The RMA number is essential for tracking your product and providing the proper service.

Return ONLY the specific product covered by the warranty (do not ship cables, manuals, diskettes, etc.), with a copy of your proof of purchase to:

USA and Canada:	Promise Technology, Inc. Customer Service Dept. Attn.: RMA # _____ 47654 Kato Road Fremont, CA 94538
Other Countries:	Return the product to your dealer or retailer. Contact them for instructions before shipping the product.

You must follow the packaging guidelines for returning products:

- Use the original shipping carton and packaging
- Include a summary of the product's problem(s)
- Write an attention line on the box with the RMA number
- Include a copy of proof of purchase

You are responsible for the cost of insurance and shipment of the product to Promise. Note that damage incurred due to improper transport or packaging is not covered under the Limited Warranty.

When repairing returned product(s), Promise may replace defective parts with new or reconditioned parts, or replace the entire unit with a new or reconditioned unit. In the event of a replacement, the replacement unit will be under warranty for the remainder of the original warranty term from purchase date, or 30 days, whichever is longer.

Promise will pay for standard return shipping charges only. You will be required to pay for any additional shipping options (such as express shipping).

Appendix A: Maintenance

- Upgrading the Firmware (below)
- Connection Problems After Restart (page 216)

Upgrading the Firmware

Follow this procedure to upgrade the firmware on your SmartStor.

Downloading the Firmware Upgrade File

To download the upgrade file:

1. Point your browser to http://www.promise.com/support/support_eng.asp.
2. Download the NS4600 firmware upgrade file to your PC.
3. Copy the firmware upgrade file from your PC to a folder on the SmartStor.

Installing the Firmware Upgrade File

Warning

Do not disconnect the power or shut down the SmartStor while the upgrade is running!

To install the firmware upgrade file:

1. Log into PASM.
2. In the Tree, click the **+** beside the **Management** icon.
3. Click the **System Upgrade** icon.
4. Click the **Firmware Upgrade** tab.
5. From the Volume dropdown menu, choose the Volume that has the folder with the firmware image file.
6. From the Folder dropdown menu, choose the Folder that contains the firmware upgrade file.
7. In the File Name field, type the name of the firmware upgrade file.

   Or highlight the file and copy the name, then paste the name into the field.
8. Click the **OK** button to begin the upgrade.

   The upgrade takes about two to three minutes.

   When the installation is done, the SmartStor reboots automatically. When the SmartStor beeps once, it is ready for use.

Error During Upgrade

If an error occurs during the firmware upgrade, the SmartStor cannot reboot in mormal mode. You must boot the SmartStor in Safe Mode and repeat the firmware installation. See “Booting the SmartStor in Safe Mode” below.

No Reboot After Upgrade

If the SmartStor has not rebooted after 20 minutes, there might be a service conflict that prevented the reboot. You must hard boot the SmartStor manually. See “Hard Booting the SmartStor” below.

Booting the SmartStor in Safe Mode

If an error occurs during firmware upgrade, the SmartStor will not reboot normally. You must reboot the SmartStor in Safe Mode and repeat the firmware upgrade

To boot the SmartStor in safe mode:

1. Press the Power button.
2. Immediately press the Power and Reset buttons at the same time.

   See page 215, Figure 1.

   It takes about a minute to boot the SmartStor. When fully booted:

   - The System Status LED turns blue.
   - The buzzer beeps one time.

   At this point, the SmartStor is in Safe Mode.
3. Repeat the procedure under “Installing the Firmware Upgrade File” on page 213.

Hard Booting the SmartStor

Caution

Do not disconnect the power to reboot the SmartStor unless the SmartStor failed to reboot itself after the firmware update.

To hard reboot the SmartStor:

1. Disconnect the power cable from the SmartStor.

   See page 215, Figure 1.
2. Wait 10 seconds, then reconnect the power cable.
3. Press the Power button.

It takes about a minute to boot the SmartStor. When fully booted:

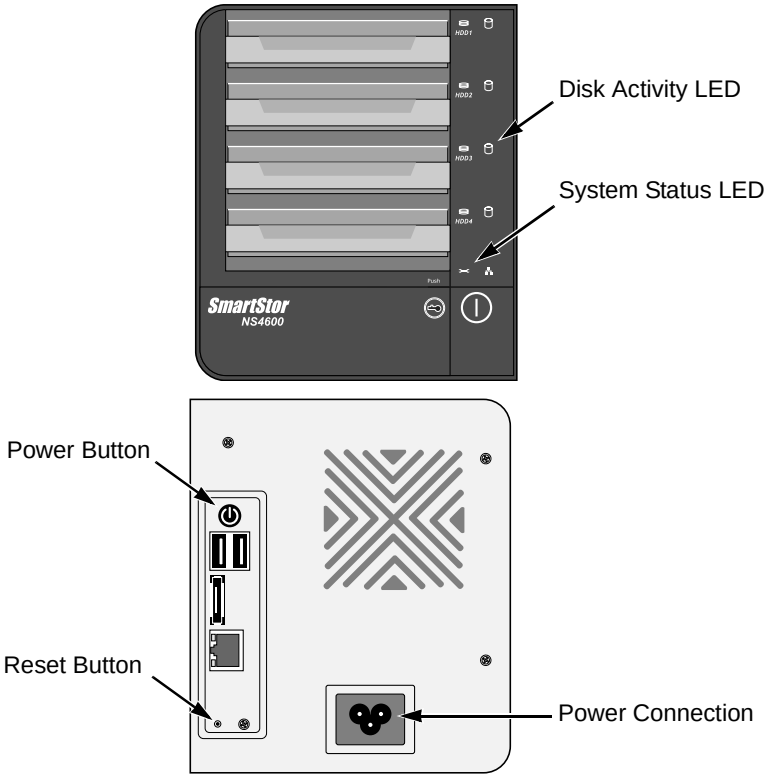
- The System Status LED turns blue.
- The buzzer beeps one time.

4. Verify that the SmartStor now appears in SmartNAVI MSN window.

   The SmartStor automatically runs a File System Check due to the abnormal shutdown. During the File System Check, the System Status LED blinks amber and the Disk Activity LEDs blink blue.

   See “Checking File System Status in PASM” on page 186 for more information.

Figure 1. SmartStor front and back views



Connection Problems After Restart

If your SmartStor's network settings were set to *Obtain an IP address automatically*, your DHCP server might assign a different IP address to the SmartStor when you restart the SmartStor after is was shutdown for repairs.

This condition does not apply if you assigned your SmartStor's IP address manually.

If you experience network drive or printer connection failures, check the SmartStor's current IP address. See "Finding the SmartStor's IP Address" on page 22.

If the SmartStor'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 SmartStor's IP address manually. See "Changing the SmartStor's Network Settings" on page 53 or "Making Network Settings" on page 85.

  Note that changing the SmartStor'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. See "Chapter 3: Connecting to the SmartStor" on page 25.

Appendix B: Important Information

GNU General Public License

This product includes copyrighted third-party software licensed under the terms of the GNU General Public License. Please see the GNU General Public License (“GPL”) for the exact terms and conditions of this license at www.gnu.org.

The GPL source code incorporated into the product is available for free download at our web site www.promise.com/support/download/download_eng.asp.

Subject to GPL, you may re-use, re-distribute and modify the GPL source code. Note that with respect solely to the GPL Software, no warranty is provided, we do not offer direct support for the distribution.

Battery

Caution

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Index

A

about this manual 1
action status, RAID Volume 147
AD domain 138, 202
add
  album 118
  email alert recipient 161
  folder 131, 144
  group 82, 134
  group member 83, 134
  network drive 98
  plug-ins 104, 161
  RAID Volume 86, 148
  spare drive 149
  user 130, 132
Add Printer Wizard 44
Administrator's password, change 132
Adobe Flash® 118
Advanced Setup 19
album
  delete 121
  edit 120
  export to PC 119
  make 118
  upload to NAS 119
  view 120
APC UPS 163
Apple
  iTunes, installing and configuring 56
  Time Machine, setting up 98
architecture, NS4600 2
audible alarm 181
Authentication dialog box 35

B

background activity
  progress 147
  RAID Volume 147
backup
  change schedule 92
  clear event log 95
  delete schedule 93
  files, restore 67, 93
  files, view 65
  immediate 89
  NAS replication 154
  save event log 94
  schedule, create 62
  scheduling 91
  server 154
  software 4
  view event log 94
  view schedules 92
  See also snapshots
BACKUPDATA folder 65, 92
batch downloading files 110
Bit Torrent server plug-in 104, 161
Bonjour 26, 127, 204
browsers, supported 4, 22
BT server plug-in 104, 161
buttons
  Extend File System 149
  One Touch Backup 6, 64
  power 6
  reset 198
buzzer
  alarm 181
  enable/disable 162
  one beep 8, 107, 108, 150, 167, 168
  three beeps 103, 168
  two beeps, repeated 181

C

cable, network 193
clear backup event log 95
client OS support 4, 8
close
  PASM 129
  SmartNAVI 79
codec 69
computer name 19, 156
connections
  failed after restart 201, 216
  network 8, 192
  power 8
  USB printer 41
  verifying with SmartNAVI 194
connectors
  network 6, 193
  power 6
  RJ45 6
  USB 6
  USB drive 51
counter-sink screws 8
CPU temperature 169, 190, 192
critical RAID Volume 184

D

date and time 20, 165
daylight saving time 165
DDNS 157
default gateway 19, 101, 102, 130, 156
default user, SmartNAVI 81
delete
  album 121
  email alert recipient 161
  folder 145
  group 84, 135
  group member 134
  RAID Volume 150
  user 82, 133
device name 20
DHCP server 19, 101, 102, 130, 156
dimensions 4
disconnect network drive 98
disconnect USB drive 53
disk drive
  assign to RAID Volume 131
  events 190
  information 87
  installing 7
  powered down 164
  replace 183
  SATA 7
  view 148
disk drives, moving to a different SmartStor 185
disk status LED 182
DLNA plug-in 114
DLNA server 142
DLNA server plug-in 104, 161
DNS name, SMTP server 160
DNS server 156
DNS, IP address 19, 101, 102, 130, 156
domain controller 138
domain name, AD domain 138
downloads
  add link 109
  download list 111
  downloaded list 112
  open/delete file 112
  pause/resume 112
  remove link 111
drag and drop 63, 89, 91, 110
drive mapping 20
Dropzone icon 110

E

email
alert list, view 160
notification 197
recipients 161
enable/disable
One Touch Backup 155
service 131
Smart Fan 169
enclosure
events 189
status 191
error message
network drive 202
not enough free disk space 202
ESD warning 5
Ethernet activity LED 193
Ethernet hub or switch 8
events
disk drive 190
enclosure 189
file system 188
log, view 104, 159
NAS replication 189
RAID Volume 190
response to 188
snapshots 189
system 189
troubleshooting 187
export access list, UNIX/Linux PC 34, 139
export album to PC 119
Ext3 file format 51

F

fan
cooling 6
power supply 6
Smart Fan 169
speed 169, 190, 192
FAT16 file format 202
FAT32 file format 51, 202
file protocol support 3
file system
events 188
rebuilding 186
status 186
files
backup 65
protected 59
finding SmartStor's IP address 22
Firefly Media Server plug-in 54, 104, 161
firewall, Windows 198
firmware, updating 213
folder
add 96, 131, 144
BACKUPDATA 65, 92
delete 97, 145
FTP sharing 145
Macintosh sharing 145
movie 142
music 142
names 202
picture 142
protected 59
services 144
UNIX/Linux sharing 146
USBDISK 65
view 97, 144
Windows sharing 145
folder selection 63, 89, 91

formatting
memory stick 151
RAID Volume 148
USB drive 151
free disks 148
frozen SmartStor 195
FTP
access setup 141
client encoding 141
clients 202, 203
sharing setup 145

G

GNU General Public License 217
group
add 134
add member 134
delete 84, 135
delete member 83, 134
view 83, 133

H

hard reboot 195, 214
HTML 118
hub, network 192

I

icon
SmartNAVI 12, 16
SmartNAVI installer 9, 12
index.html 119
information, SmartNAVI 78
installing SmartNAVI 8
internal port in Windows 199
invalid RAID Volume 185, 203
IP address
DNS 19, 101, 102, 130, 156
finding 22
SmartStor 156
SmartStor, finding 22
IP address, cont.
SmartStor, setting 19, 101, 102, 130, 156
SMTP server 160
UNIX/Linux PC 34, 139, 146
iTunes plug-in 54, 104, 161
iTunes, installing and configuring 56

J

jumbo frames 157, 203

L

language
PASM 129
SmartNAVI 17, 77
LEDs
color definitions 182
disk activity 6, 164
disk status 6, 164, 182
Ethernet activity 6, 164, 193
status, three blinks 103, 168
system status 6, 107, 108, 150, 164, 167, 168, 182, 193
Linux
export access list 34, 139
network servers 35
setup access 139
setup network drive 33
sharing setup 146
locate SmartStor 103, 168
locked-up SmartStor 195

M

MAC address 168
Macintosh
setup access 140
setup network drive 37
setup sharing 145

mail alerts 197
Main Window, open 76
Map Network Drive 31
maximum transmission unit (MTU) 157
Media Center
  in SmartNAVI 114
  logging in 70
  on SmartStor 69
memory stick
  format 202
  formatting 151
  view 151
migrate a RAID Volume 149
mirror RAID 173, 176
mirror/stripe RAID 175, 177
modify folder services 144
mount share folder 98
Movie folder 142
MSN Window, open 75
music files
  add to playlist 72
  downloading 72
  play from playlist 72
  play individually 71
Music folder 142
My Computer, network drive 21
My Network Places 29

N

NAS
  default system 103
  system name 19
NAS replication
  enable/disable 154
  events 189
  schedule 154
  setup 154
network
  connecting to 8
  connection problems 192
network, cont.
  connections, multiple 194
  settings 102, 156
  view information 156
network drive
  could not reconnect all 201
  create 98
  disconnect 98
  error message 202
  in My Computer 21
  letter 20
network drive setup
  Linux 33
  Macintosh 37
  UNIX 33
  Windows 29
Network Servers, on Linux desktop 35
Network Time Protocol (NTP) 166
NIS domain 33, 139, 202
non-ASCII characters in folder name 202
not enough free disk space error message 202
NTP synchronization, view 166

O

One Click Setup 19
One Touch Backup
  and protected folders 203
  button 6
  described 59
  enable 60
  enable/disable 155
  perform 64
  USB disk 65
open
  Main Window 76
  MSN Window 75
OS, client supported 4

P

parity RAID 174, 177
partition and format 178
PASM
- access from Bonjour 26, 127
- access from SmartNAVI 24, 78, 125
- add group 134
- add group member 134
- add plug-ins 161
- add spare drive 149
- add user 132
- buzzer, enable/disable 162
- change administrator's password 132
- change user's password 133
- connecting to 22, 123
- create RAID Volume 148
- date and time 165
- DDNS 157
- delete group 135
- delete group member 134
- delete RAID Volume 150
- delete user 133
- disk drives, power down 164
- email recipients 161
- enable/disable plug-ins 143
- event log, view 159
- folder services, modify 144
- folder, add 144
- folder, delete 145
- folder, FTP sharing 145
- folder, Macintosh sharing 145
- folder, UNIX/Linux sharing 146
- folder, Windows sharing 145
- FTP access, setup 141
- group list 133
- in browser 23, 123
- jumbo frames 157
- language 129
- locate SmartStor 168
- logging in 25, 27, 60, 124, 125, 128
- logging out 129
- Macintosh access, setup 140
- migrate RAID Volume 149
- NAS replication 154
- navigating the interface 129
- network settings 156
- One Touch Backup 155
- print server, setup 142
- remove plug-ins 106, 162
- set quota 84, 135
- Setup Wizard 130, 171
- Smart Fan 169
- SmartStor, shutdown/reboot 107, 167
- SMTP authentication 159
- snapshot backups 152
- System Standby 164
- UNIX/Linux access, setup 139
- UPS settings 163
- UPS status 163
- USB drive or stick, format 151
- user list 132
- view enclosure information 169
- view folders 144
- view plug-in list 143
- view quota 84, 135
- view system information 168
- Windows access, setup 137

password
- administrator's 130
- change Administrator's 132
- change user's 133
- Media Center 70
- PASM 27, 124, 126, 128
- restore default 197
- SmartNAVI 18, 81
- SmartStor 36, 39, 43, 47, 49
- SMTP server 160

permissions
share folders 82, 97
Windows 38, 138, 140, 141
personal firewall 194, 201
picture files, downloading and viewing 71
Picture folder 142
player, music or video, download 69
playlist
add music files 72
delete 73
new 72
play music files 72
Plug-ins
add 104, 161
enable/disable 106, 143
link to management interface 143
list 105, 143
remove 106, 162
power
button 6
connecting to 8
saving 164
status 169, 190
primary server 154
print server, setup 42, 142
printer, name in Linux 46
printing
Linux 46
Macintosh 49
Windows 43
protected folders and files 59, 203
protocols supported 2
Public folder 20, 30, 34

Q

quota
set 84, 135
view 84, 135

R

RAID level
change 149
choosing 147, 148, 176
RAID 0 172, 176
RAID 1 173, 176
RAID 10 175, 177
RAID 5 174, 177
RAID Volume 7
add 148
automatic rebuilding 178
change RAID level 179
critical 184
delete 150
events 190
expand 149
formatting 148
invalid 185, 203
Maximum Capacity or Data Protection 20
migrate 149, 179
partition and format 178
RAID 0 or RAID 1 20
rebuild 184
recover 185, 203
status 184
view status 147
RAID volume
expand 86
recreate 88
RAID volume status 87
RAID, introduction to 171
reboot
connections failed after 216
SmartStor 107, 108, 167, 168
rebuild
file system 186
RAID Volume 184
recipient, email alert 203
add 161
delete 161

recover
RAID volume 185, 203
snapshot backup 153
Recycle Bin 137, 204
replace a disk drive 183
restore backup files 67, 93
RJ45 connector 8

S

safe mode 214
save backup event log 94
schedule
snapshot backup 153
schedule a backup 91
scheduled backup
change 92
delete 93
server
backup 154
DHCP 19, 101, 130, 156
DLNA 142
service
enable 131
FTP 131
Macintosh 131
UNIX/Linux 131
settings
network 156
quota 84, 135
setup
FTP access 141
Linux printing 46
Macintosh access 140
Macintosh printing 49
NAS replication schedule 154
print server 42
print server access 142
snapshot backup 152
System Standby 164
UNIX/Linux access 139
setup, cont.
UPS 163
Windows access 137
Windows printing 43
Setup Wizard in PASM 130
Setup, one-click or advanced 19
share folder
add 96
delete 97
list 97
mount 98
movie 142
music 142
permissions 97
picture 142
Time Machine 98
un-mount 98
Smart Fan, enable/disable 169
SmartNAVI
add download link 109
add group member 83
add plug-ins 104
add share folder 96
add user 80
cannot access SmartStor 201
change password 81
close 79
create group 82
create RAID volume 86
default NAS 103
default user 81
delete group 84
delete group member 83
delete share folder 97
delete user 82
disk drive information 87
download list 111
downloaded list 112
enable/disable plug-ins 106
event log, view 104

SmartNAVI, cont.
expand RAID volume 86
group list 83
icon 12, 16
information 78
installer icon 9, 12
installing 8
language 77
language setting 17
locate SmartStor 103
network settings 102
open/delete downloaded file 112
pause/resume download 112
RAID setup 171
RAID volume status 87
recreate RAID volume 88
remove download link 111
setting up SmartStor 17
user list 82
user name and password 18
verify network connections 194
view plug-in list 105
SmartStor
boot in safe mode 214
cannot connect after restart 201
date and time 165
enclosure info 169
finding IP address 22
hard reboot 195, 214
locate 103, 168
locked up 195
plug-ins 104, 161
reboot 107, 167
restart 108, 168
setting up with SmartNAVI 17
shut down 28, 107, 167
unpacking 5
view system info 168
SMTP authentication 159, 203
snapshots
events 189
recover backups 153
setup backups 152, 153
status 152
view 152
SoundBridge plug-in 104, 161
spare drive
add 149
explained 177
specifications 3
standalone 154
status
disk drives 182
enclosure 191
file system 186
power 169
RAID Volume 147, 184
SmartStor 182
snapshot 152
system 182
UPS 163
stripe RAID 172, 176
subnet mask 19, 101, 102, 130, 156
switch, network 192
system events 189
System Standby, setup 164
system status LED 107, 108, 150, 167, 168, 182, 193

T

temperature, CPU 192
time and date 20
Time Machine, setting up 98
timezone 20, 101, 165
Tree, always expanded 129

U

UDP option in Windows 199
Unicode support 203
Unicode, folder name support 202
UNIX
  export access list 34, 139
  setup access 139
  setup network drive 33
  sharing setup 146
un-mount share folder 98
unpacking the SmartStor 5
update firmware 213
upload album to NAS 119
UPnP protocol 104, 161
UPS 182
  setup 163
  view 163
USB drive
  connect 51
  disconnect 53
  file formats 51
  formatting 151
  One Touch Backup 65
  RAID Volume on 148
  view 151
  Windows shortcuts 202
USB printer, connecting 41
USBDISK 51, 53, 151
user
  add 80, 130, 132
  change password 133
  delete 133
  view 132
user list, SmartNAVI 82
user name
  Media Center 70
  PASM 27, 124, 126, 128
  SmartNAVI 18
  SmartStor 36, 39, 43, 47, 49

V

video files, downloading and viewing 71
view
  backup event log 94
  backup files 65
  backup schedules 92
  disk drive 148
  download list 111
  downloaded list 112
  email alert list 160
  enclosure info 169
  event log 104, 159
  folders 144
  group 83, 133
  memory stick 151
  NAS replication schedule 154
  network information 156
  NTP synchronization 166
  plug-in list 105, 143
  quota 84, 135
  RAID Volume status 147
  share folder list 97
  snapshots 152
  system info 168
  UPS status 163
  USB drive 151
  users 82, 132

W

weight 4
Windows
  AD domain 138
  firewall issue 198
  setup access 137
  setup network drive 29
  setup sharing 145
  workgroup 138