

Installation
Guide

hp StorageWorks NAS 500s

Product Version: 1

First Edition (September 2004)

Part Number: 372609-001

This installation guide provides information about deploying the HP StorageWorks NAS 500s.



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NAS 500s Installation Guide
First Edition (September 2004)
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About This Guide

Intended audience

This book is intended for use by technical professionals who are experienced with the following:

- Microsoft® administrative procedures
- File-sharing protocols

Prerequisites

Before you set up the NAS server, HP recommends that you obtain supplemental documentation relative to the items listed above in the section titled “Intended Audience.”

Related documentation

In addition to this guide, HP provides corresponding information:

- *HP StorageWorks NAS 1500s and 500s Administration Guide*
- *HP StorageWorks NAS 500s Release Notes*

Document conventions

Table 1: Document conventions

Element	Convention
Cross-reference links	Figure 1
Key and field names, menu items, buttons, and dialog box titles	Bold
File names, application names, and text emphasis	<i>Italics</i>
User input, command and directory names, and system responses (output and messages)	Monospace font COMMAND NAMES are uppercase monospace font unless they are case sensitive
Variables	<monospace, italic font>
Web site addresses	Underlined sans serif font text: http://www.hp.com

Text symbols

The following symbols may be found in the text of this guide.



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or death.



Caution: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or data.

Note: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Equipment symbols

The following equipment symbols may be found on hardware for which this guide pertains.



Any enclosed surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. Enclosed area contains no operator serviceable parts.

WARNING: To reduce the risk of personal injury from electrical shock hazards, do not open this enclosure.



Any RJ-45 receptacle marked with these symbols indicates a network interface connection.

WARNING: To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.



Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. Contact with this surface could result in injury.

WARNING: To reduce the risk of personal injury from a hot component, allow the surface to cool before touching.



Power supplies or systems marked with these symbols indicate the presence of multiple sources of power.

WARNING: To reduce the risk of personal injury from electrical shock, remove all power cords to completely disconnect power from the power supplies and systems.



Any product or assembly marked with these symbols indicates that the component exceeds the recommended weight for one individual to handle safely.

WARNING: To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manually handling material.

Getting help

If you still have a question after reading this guide, contact an HP authorized service provider or access our web site:
<http://www.hp.com>.

HP technical support

Telephone numbers for worldwide technical support are listed on the following HP web site: <http://www.hp.com/support/>. From this web site, select the country of origin.

Note: For continuous quality improvement, calls may be recorded or monitored.

Be sure to have the following information available before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

HP storage web site

The HP web site has the latest information on this product, as well as the latest drivers. Access storage at: <http://www.hp.com/country/us/eng/prodserv/storage.html>. From this web site, select the appropriate product or solution.

HP authorized reseller

For the name of your nearest HP authorized reseller:

- In the United States, call 1-800-282-6672
- In Canada, call 1-800-863-6594
- Elsewhere, see the HP web site for locations and telephone numbers: <http://www.hp.com>.

Product Overview



The HP StorageWorks NAS 500s is specifically designed for file serving; it offers optimized performance for a growing environment.

The NAS 500s is available in three models:

- 320 GB
- 640 GB
- 1TB

Product definition and information

The NAS 500s is a remote office or small to medium business class NAS solution that provides reliable performance, manageability, and fault tolerance.

The NAS 500s is configured at the factory with default system settings and with the NAS operating system (OS) installed.

Server hardware features

Table 2: Server hardware features

Feature	320 GB server	640 GB server	1 TB server
Processor	Intel® Celeron® 2.8 GHz, 533 MHz FSB	Intel Pentium 4 2.8 GHz, 800 MHz FSB	Intel Pentium 4 3.2 GHz, 800 MHz FSB
Memory	256 MB 200 MHz PC3200 DDR SDRAM	512 MB 200 MHz PC3200 DDR SDRAM	1 GB 200 MHz PC3200 DDR SDRAM
SATA non-hot-pluggable hard drives	(4) 80 GB 7200 rpm	(4) 160 GB 7200 rpm	(4) 250 GB 7200 rpm
All models:			
(1) available 66/64-bit PCI-X slots			
(2) available 33/32-bit PCI slots			
Adaptec 2410SA SATA RAID controller in 66/64-bit slot			
(1) embedded 10/100/1000 WOL (Wake on LAN) network interface controller (NIC)			
HP Single channel U320 SCSI HBA			
CD-RW/DVD-ROM combo drive			
2 USB ports			

The Adaptec 2410SA contains cache memory that may be used for read ahead or write back. Enabling the write back cache will improve performance by allowing the operating systems to assume the write made it to disk when in fact the write only made it to the onboard memory. While this does improve performance substantially, data loss can occur on writes that make it to memory but not to disk should power fail to the unit. It is recommended for cache enablement that a UPS be attached to the unit to ensure data loss does not occur. Cache memory may be adjusted via the Adaptec Storage Manager utility (refer to the administration guide) or via the ROM based setup.

Software features

Advanced features included and supported by the NAS 500s include:

- Windows® Storage Server 2003
- Microsoft Services for Macintosh
- Microsoft Services for NetWare
- Microsoft Services for NFS
- NAS Web Based User Interface (WebUI)
- Shadow Copies for shared folders (VSS)
- Storage Manager 2.0 for Server Appliances
- Optional third party supported software (not included):
 - Backup software
 - Management software
 - Quota management
 - Virus protection

For specific software product recommendations, go to the HP web site:

<http://h18000.www1.hp.com/products/storageworks/nas/supportedsoftware.html>

Front panel components

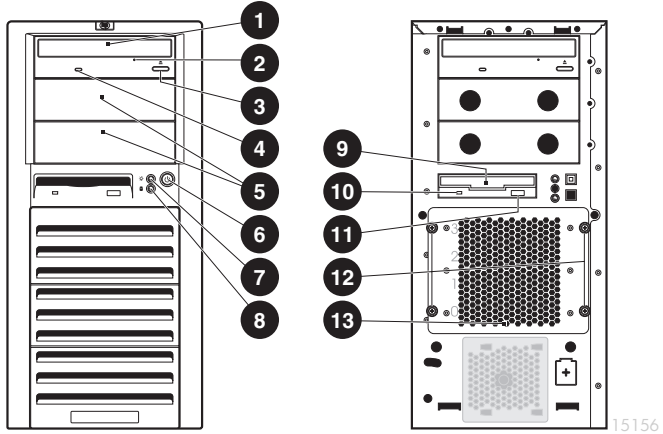
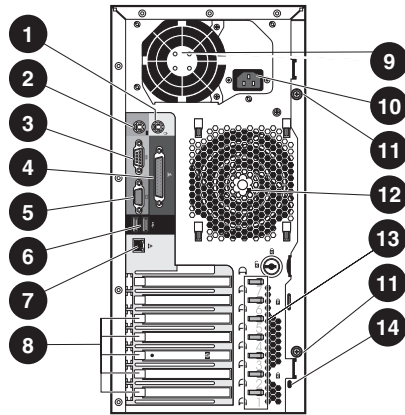


Figure 1: Front panel components

Item	Description
①	CD-RW/DVD-ROM drive
②	CD-RW/DVD-ROM drive mechanical eject hole
③	CD-RW/DVD-ROM drive eject button
④	CD-RW/DVD-ROM drive activity indicator
⑤	Full-height common bays
⑥	Power button
⑦	Power indicator
⑧	Drive activity indicator
⑨	Floppy disk drive
⑩	FDD activity indicator
⑪	FDD eject button
⑫	Torx screws for the hard disk drive (HDD) cage
⑬	HDD cage

Rear panel components



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Figure 2: Rear panel components

Item	Description
①	PS/2 mouse port (green)
②	PS/2 keyboard port (purple)
③	Serial port (teal)
④	Parallel port (burgundy)
⑤	Monitor port (blue)
⑥	USB ports (black)
⑦	LAN port (RJ-45)
⑧	PCI slots (3) 66/64-bit (2) 33/32 bit
⑨	PSU fan
⑩	Power supply cable socket
⑪	Thumbscrews for the detachable left-side cover
⑫	System fan
⑬	Retention clips for the PCI slot covers
⑭	Kensington lock

Product redundancy

The NAS 500s is specifically designed to perform file serving tasks for networks, using industry standard components to ensure reliability.

Other industry standard features, such as redundant array of independent drives (RAID) implemented in the hardware and remote manageability further enhance the overall dependability of the NAS 500s.

To ensure redundancy and reliability, the hard drives installed in the NAS 500s are configured so that a single drive failure will not cause data loss or system failure. The NAS 500s is configured with dual boot capability. When powered on, the NAS 500s can boot using a primary OS or a secondary recovery OS.

Storage management overview

This section provides an overview of the components that make up the NAS storage structure. A complete discussion of the components and their relationships is available in the administration guide.



Caution: This section on storage management and Disk Manager is required reading material for the NAS administrator. This section develops the concepts and requirements that serve as the basis for successfully using an HP StorageWorks NAS device. Failure to read this section and the appropriate sections on storage management in the administration guide may lead to data loss or file corruption.

Storage management elements

Storage is divided into three major divisions:

- Physical storage elements
- Logical storage elements
- File system elements
- File sharing elements

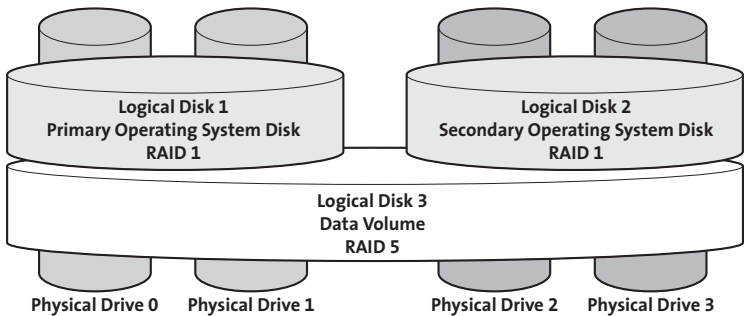
Each of these elements is composed of the previous level's elements.

Physical storage elements

The lowest level of storage management on the NAS 500s occurs at the physical drive level. Each NAS 500s comes with four SATA non-hot-pluggable hard drives. The drives are configured by default into three logical disks at the SATA controller level as follows:

Table 3: Hard drive configuration

Logical Disk	RAID	Size/Allocation
1	RAID 1	9 GB across physical drive 0, 1
2	RAID 1	9 GB across physical drive 2, 3
3	RAID 5	Remaining physical disk space across all physical drives



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Figure 3: Hardware RAID

Note: In Adaptec Storage Manager, logical disks are labeled 1, 2, and 3. In Disk Manager, logical disks are displayed as 0, 1, and 2.

The primary OS logical drive resides on disk 0 and is mirrored on disk 1 while the secondary OS logical drive resides on disk 2 and is mirrored on disk 3. If a single disk failure occurs, the system will still function off the mirrored disk. If the primary OS becomes corrupted and un-bootable, the secondary OS is available for data backup prior to using the Quick Restore DVD to restore the system to the factory default state.

The data volume is configured as a hardware RAID 5 based basic partition across all four drives. This ensures redundancy in the event of a drive failure. The data volume is accessible by both the primary OS and secondary OS.

Refer to the administration guide for additional information.

Logical storage elements

The NAS 500s uses Microsoft Disk Manager (DM) for managing the various types of disk presented to the file system. Disk Manager has two types of disk presentations: basic disk and dynamic disk. Each type of disk has special features that enable different types of management. The NAS 500s uses all 3 disks as presented to it from the physical storage layer. The two RAID 1 disks are used for housing the primary and secondary OS basic partitions. The single RAID 5 disk houses the data volume on a basic partition.

File system elements

File system elements are composed of the folders and subfolders that are created under each logical storage element (partitions, logical disks, and volumes). Folders are used to further subdivide the available file system providing another level of granularity for management of the information space. Each folder can contain separate permissions and share names that can be used for network access. Folders can be created for individual users, groups, projects, and so on. Refer to the administration guide for more details on file system elements.

File sharing elements

The NAS 500s supports several file-sharing protocols, including DFS, NFS, FTP, HTTP, and Microsoft SMB. On each folder or logical storage element, different file-sharing protocols can be enabled using specific network names for access across a network to a variety of clients. Permissions can then be granted to those shares based on users or groups of users in each of the file sharing protocols. Refer to the administration guide for more details on file sharing elements.

System Configuration

2

Before beginning the configuration process, verify that the NAS 500s is completely installed and that all cables and cords are connected.

It is important to read all of the supplied documentation before starting. Relevant documents include:

- *HP StorageWorks NAS 1500s and 500s Administration Guide*
- *HP StorageWorks NAS 500s Release Notes* (if required, this document will be available at <http://www.hp.com/go/nas>)

Configuration overview

Use the following steps to configure the NAS 500s:

1. Configure the NAS device using Chapter 2 of this guide.
2. **(Recommended)**. Place the NAS device into an Active Directory or Windows NT® 4.0 domain for ease of manageability.
3. **(Optional)**. Enable protocols such as NFS sharing, NCP, and/or AppleTalk. See the administration guide for this procedure in detail.
4. **(Optional)**. Create shares corresponding to the protocols mentioned in the previous steps. Grant access rights to the shares.
5. Read the remaining sections of the administration guide.

Note: By default the data drive (F:) is configured and ready for use.

Storage recommendations

To protect against data loss from hard drive failure, configure storage with fault tolerance in mind. HP recommends adhering to RAID 5 configurations.

Deploying the NAS 500s on the network

The default shipping configuration contains one 10/100/1000 integrated network interface controller (NIC) port for client data access. This data port also allow access to the WebUI that accompanies the product. Most management and administrative procedures can be accomplished via the WebUI.

IP networking and setup requirements

- Windows-based PC running Microsoft Internet Explorer 5.5 (or later) on the same network segment as the NAS 500s; this will be used to set up and administer the NAS device.
- Additional Ethernet connection ports to client subnets (depending on network options ordered).

Collecting configuration information

Choose a host name and collect general information required to initialize the NAS device for either dynamic host configuration protocols (DHCP) or non-DHCP configurations. You will be asked for this information during configuration, as shown in [Table 4](#). Become familiar with this information before attempting to configure the NAS device.

Table 4: Configuration Information

Part A: To Be completed for DHCP and non-DHCP configurations			
Server Host Name:			
Part B: To be completed for non-DHCP configurations only			
DNS Servers	IP Address		
1			
2			
3			
NAS NIC Port*	IP Address	Subnet Mask	Gateway Address
NIC 1			
* If additional NIC cards are installed, each Ethernet port must be configured with a separate subnet.			
Part C: SNMP Information (optional)			
Trap Destination (IP Address) Manager Client:			
Management Traps Community String:			
System Management Community String:			

WebUI configuration

The WebUI is a graphical, easy-to-use application that gathers the necessary information for configuration. The WebUI may be accessed through three methods:

- RapidLaunch method
- Remote Browser method (using hostname)
- Direct Attach method

Note: You can configure this system through the WebUI or manually through Remote Desktop or Windows Storage Server 2003 Desktop.

Note: The NAS 500s can be deployed without a monitor, keyboard, and mouse. These ports are available and supported by the NAS device, if used.

RapidLaunch method

Requirements to run the WebUI configuration application:

- Windows-based PC loaded with Internet Explorer 5.5 (or later) on the same network segment as the NAS 500s
- RapidLaunch CD

Procedure

To initialize the NAS 500s:



Caution: Do not power up the NAS device until steps 1 through 5 are completed.

1. Connect the Ethernet cable to the network port of the NAS 500s and the corresponding network segment. See [Figure 2](#) for the location of the network port on the NAS 500s.
2. Verify that the Windows-based PC client is connected to the same subnet as the NAS 500s.
3. Power on the PC and wait until the operating system has completely loaded.
4. Insert the RapidLaunch CD into the CD-ROM drive of the PC.
5. The RapidLaunch CD should run automatically. If the program does not start up automatically:
 - a. Click **Start**.
 - b. Select **Run** on the Windows taskbar.
 - c. Type the following:
`{CD ROM drive}:\setup.exe`
Wait for the interface to start.
6. Go to the NAS device and power it on. It will be several minutes before the NAS device is accessible on the network.

- Return to the PC. Select **StorageWorks NAS** from the **Show** drop-down list to have RapidLaunch list all NAS devices on the network, as shown in [Figure 4](#).

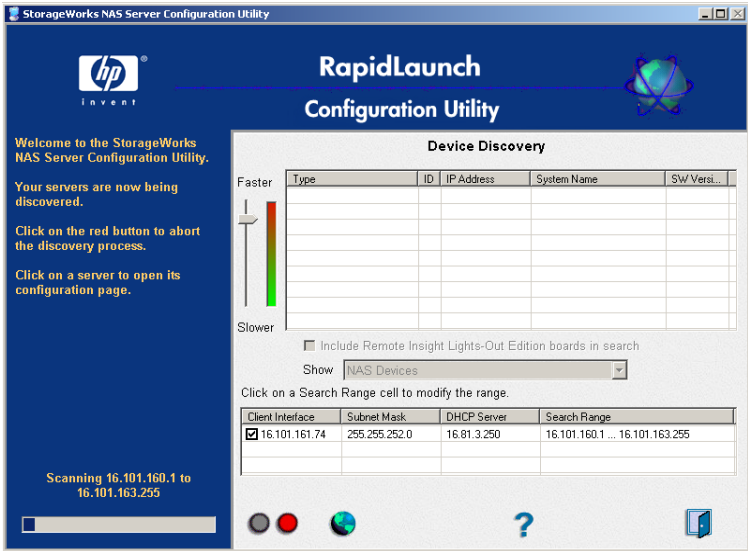


Figure 4: RapidLaunch search screen

- All the NAS devices found on the network are displayed as shown in [Figure 5](#). It may take several minutes for the NAS device to be found on the network.

Note: The RapidLaunch utility will refresh periodically, looking for new devices on the network. Refresh the device list manually by clicking the Refresh button.

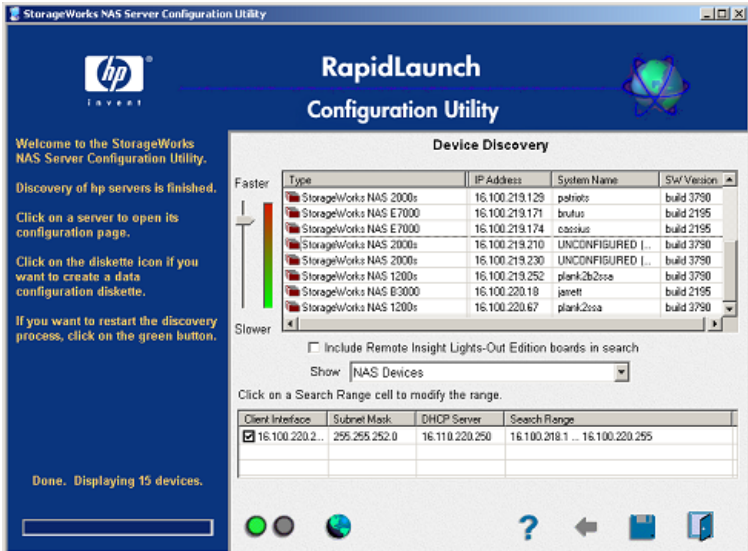


Figure 5: RapidLaunch device discovery screen

9. Select the unconfigured HP StorageWorks NAS 500s device from the device list. If more than one displays, check the serial number in the *System Name* column by clicking the appropriate cell.

Note: Version 2.7.134 of the RapidLaunch utility displays the NAS 500s as a 1200s.

10. Login to the WebUI. This launches the WebUI configuration application (Rapid Startup) on the target HP StorageWorks NAS device, as shown in [Figure 7](#).

Note: The default login for the WebUI is `administrator` and the password is `hpinvent`. The WebUI uses the same login as the local administrator's account or an account with administrative privileges.

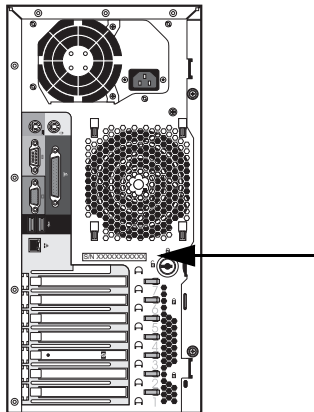
11. Go to “[Rapid Startup Wizard configuration](#)” on page 78 to complete the setup procedures.

Remote browser method (using hostname)

The NAS 500s ships with DHCP enabled on the network port. If the system is placed on a DHCP enabled network and the serial number of the device is known, it can be accessed through a client running Internet Explorer 5.5 (or later) on that network, using the 3202 port of the device.

Requirements to run the WebUI configuration application:

- Windows-based PC loaded with Internet Explorer 5.5 (or later) on the same segment as the NAS 500s
- DHCP-enabled network
- Serial number of the NAS 500s, located on the rear of the unit



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Figure 6: Serial number location

Procedure

To initialize the NAS 500s:

1. Connect the Ethernet cable to the network port of the NAS 500s and the corresponding network segment. See [Figure 2](#) for the locations of the network port on the NAS 500s.
2. Go to the NAS device and power it on. It will be several minutes before the NAS device is accessible on the network.

Note: The NAS device will respond when the NAS operating system has started.

3. Open Internet Explorer on the PC. Enter `https://`, the serial number of the NAS 500s followed by a hyphen (-), and then `:3202`. Press **Enter**.

Example: `https://D4059ABC3433-:3202`

Note: Substitute the server name for the serial number if a server name was previously set.

4. Login to the WebUI. This launches the WebUI configuration application (Rapid Startup) on the target HP StorageWorks NAS device, as shown in [Figure 7](#).

Note: The default login for the WebUI is `administrator` and the password is `hpinvent`. The WebUI uses the same login as the local administrator's account or an account with administrative privileges.

5. Go to “[Rapid Startup Wizard configuration](#)” on page 78 to complete the setup procedures.

Direct attach method

You can access the WebUI using a monitor, mouse, and keyboard directly attached to the NAS 500s.

Procedure

To initialize the NAS 500s:

1. Connect the Ethernet cable to the network port of the NAS 500s and the corresponding network segment.
2. Connect the monitor, mouse, and keyboard directly to the rear panel connectors of the NAS 500s. See [Figure 2](#) for the locations of the connectors on the NAS 500s.
3. Power on the NAS device.
4. Login into the device using the WebUI user name and password.

Note: The default login for the WebUI is `administrator` and the password is `hpinvent`. The WebUI uses the same login as the local administrator's account or an account with administrative privileges.

5. Open Internet Explorer to launch the WebUI configuration application (Rapid Startup) on the target NAS device, as shown in [Figure 7](#). If the WebUI does not launch connect to the `LocalHost` and login to the WebUI.
6. Go to “[Rapid Startup Wizard configuration](#)” on page 78 to complete the setup procedures.

Rapid Startup Wizard configuration

This utility guides you through the configuration process.

Ensure that an Internet Explorer window has been opened and the WebUI is at the Rapid Startup Wizard as shown in [Figure 7](#).

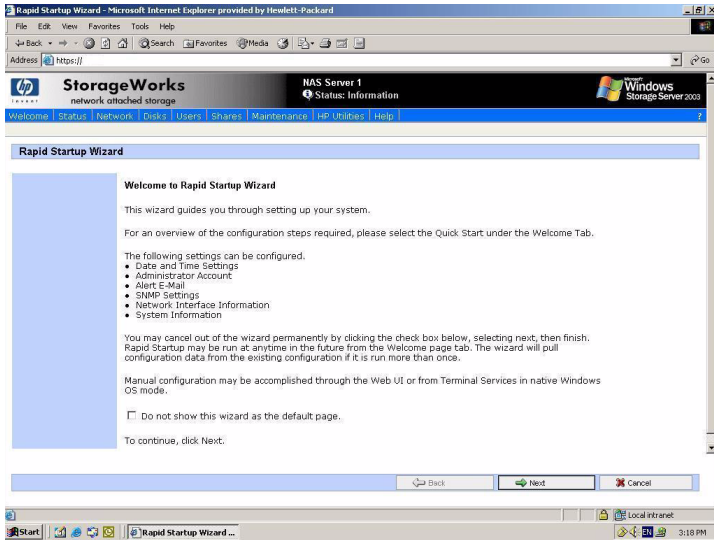


Figure 7: Rapid Startup wizard screen

Note: The Rapid Startup Wizard will be the default page unless you complete the wizard or select the checkbox next to the text that reads, “Do not show this wizard as the default page.”

Procedure

Using the information from [Table 4](#), fill in the screens that follow.

1. Select **Next** to start the Rapid Startup Wizard (There may be a slight pause because the wizard is gathering information about the system and populating the fields.)
2. Configure the Date and Time Settings. Select **Next** to continue.
3. Configure the Administrator Account settings. Select **Next** to continue.
4. Configure the Alert Email settings. Select **Next** to continue.
5. Configure the SNMP Settings. Select **Next** to continue.
6. Configure the Network Interface Information for both NICs. Select **Next** to continue.
7. Configure the System Information. Select **Next** to continue.
8. Verify that your information is correct when the configuration review screen is displayed as shown in [Figure 8](#).

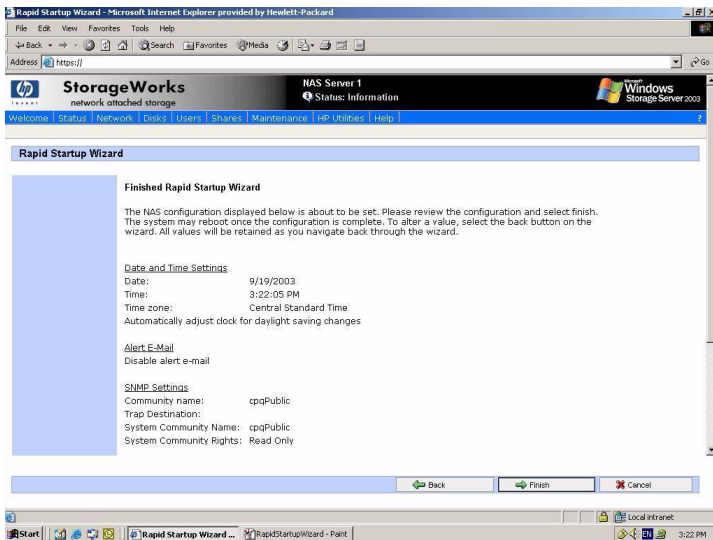


Figure 8: Rapid Startup configuration review screen

9. Click **Finish** to exit Rapid Startup. If a reboot is required, Rapid Startup displays a message that a reboot is occurring and the configuration information will be set.

The browser returns to the status page. The refresh may take several minutes if the device was restarted.

Note: After the Rapid Startup Wizard has been completed the Welcome page becomes the default page.

Disk partitioning and RAID configuration

The four hard drives included in the 500s are configured for hardware RAID fault tolerance using the Adaptec 2410SA SATA RAID Controller.

- The primary OS logical drive is configured as a 9 GB RAID 1 mirror spanning drives 0 and 1.
- The secondary OS logical drive is configured as a 9 GB RAID 1 mirror spanning drives 2 and 3.
- The data volume is configured as a RAID 5 volume spanning the remaining space across all four drives.

Table 5: RAID configuration by hard drives

Hard Drive 0	Partition C: 9GB Primary OS	Partition F: User Data in RAID-5
Hard Drive 1	Partition C: 9GB Primary OS Mirror	Partition F: User Data in RAID-5
Hard Drive 2	Partition D: 9GB Backup OS	Partition F: User Data in RAID-5
Hard Drive 3	Partition D: 9GB Backup OS Mirror	Partition F: User Data in RAID-5

Table 6: RAID configuration by logical drives

Logical Drive 1	Partition C: 9GB Primary OS - RAID 1 Mirror spanning physical drives 0 and 1
Logical Drive 2	Partition D: 9GB Secondary OS - RAID 1 Mirror spanning physical drives 2 and 3
Logical Drive 3	Partition F: Data volume using remaining disk space - RAID 5 volume spanning physical drives 0, 1, 2, and 3

Note: In Adaptec Storage Manager, logical disks are labeled 1, 2, and 3. In Disk Manager, logical disks are displayed as 0, 1, and 2. The default configuration for the data volume can be modified using the Disk Management utility. Refer to the administration guide for additional information.

The BIOS supports the following default boot sequence:

1. CD-RW/DVD-ROM
2. HDD 0, 1, 2

Note: This is logical drive 1, 2, and 3 as presented by the SATA RAID controller.

3. PXE (network boot)

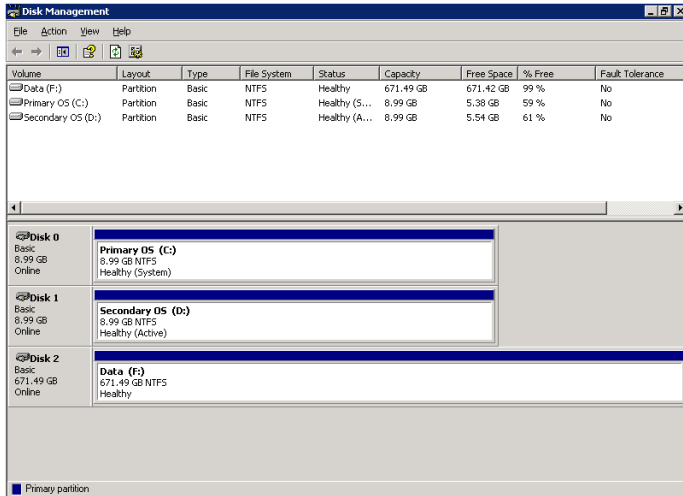


Figure 9: Disk management, partitioning

Under normal circumstances, the NAS 500s boots up from the primary OS logical drive. If the system experiences a drive failure, the Adaptec 2410SA sounds an audible alert to inform the user of a drive failure.

- If a single drive failure occurs, it is transparent to the OS.
- If a second drive fails, the data volume is lost and must be restored from backup.

When the primary OS has a failure such as system files becoming corrupted, registry corrupted, and the system hangs during boot, the system should be run from the secondary OS. To run the system from the secondary OS:

1. Power down the unit.
2. Connect a monitor, keyboard, and mouse directly to the rear of the unit.
3. Power on the unit.
4. During boot up, select to use the secondary partition.

The user should backup their user data and then use the Quick Restore DVD to restore the system to the factory default state as soon as conveniently possible.

Replacing a hard drive

In addition to an audible alert, Adaptec Storage Manager also creates an event log message when a hard drive fails. To replace a single hard drive:

1. Shutdown the unit.
2. Remove the side panel.
3. Remove the bezel.
4. Remove the cables from the hard drives. Be sure to label the cables before unplugging them. Drive 0 is at the bottom of the drive cage. Drive 3 is at the top.
5. Remove the screws from the front of the drive cage and remove it through the front of the unit.
6. Remove the screws from the failed drive.
7. Install the new drive, screws, and cables.
8. Reinsert the drive cage and reinstall the screws.
9. Plug in the cables.
10. Reattach the bezel.
11. Replace the side panel.
12. Start up the unit; the drive will rebuild automatically. The system may be used during the rebuild.

Replacing failed components

Refer to the *HP ProLiant ML110 Server Operations and Maintenance Guide* available at <http://www.hp.com/go/proliant> for information on troubleshooting and replacing failed components.

Creating file shares

After the storage space is set up, file shares are created by selecting an entire volume or a particular folder on a volume and designating that space as a network volume. That space is then available to groups of client computers on the network. The client computers access this space through a variety of file sharing protocols using the disk space to store their files and folders.

1. Click the **Shares** tab and select **Shares**.
2. Click **Folders** to create a new folder on the previously created volumes, or use an existing folder.
 - a. Select a volume and click **Manage Folders > New...**
 - b. Type the *folder name* and click **OK**.
3. Click **Shares** to create a file share by designating a network share name and folder location.
 - a. Click **New** and type a *name* and a *path*.

Note: Check Create Folder if the directory does not exist.

- b. Set client types to designate the types of client computers that should be allowed access to the share.
- c. Click the appropriate Client Sharing Method from the General list to set user and group permissions on the share.

Completing basic setup

This completes the basic configuration of the HP StorageWorks NAS system, however, some computing environments may require additional settings and configuration as noted below.

Completing the system configuration

Most of these tasks can be completed using the HP StorageWorks NAS WebUI. All procedures for the configuration tasks may be found in the *HP StorageWorks NAS 1500s and 500s Administration Guide*.

- Configure shadow copies for creating point-in-time snapshots of data volumes.
- Configure data replication software via Microsoft File Replication Services.
- Place the NAS system in a domain (highly recommended).
- Enable and establish space usage quotas.
- Configure DFS (Distributed File System) or publish the NAS system's shares into an already existing DFS structure.
- Enable additional protocols and create the associated file shares.
- Adjust logging for system, application, and security events.
- Install additional third-party software, such as backup, anti-virus, or monitoring agents.
- Configure UNIX® user and group mappings.
- Create and verify a full NAS system backup before putting the system into production.

Regulatory Compliance Notices



Federal Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (personal computers, for example). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

The rating label on the device shows which class (A or B) the equipment falls into. Class B devices have an FCC logo or FCC ID on the label. Class A devices do not have an FCC logo or FCC ID on the label. Once the class of the device is determined, refer to the following corresponding statement.

Class A equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Class B equipment

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

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

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Hewlett-Packard Company may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Declaration of conformity for products marked with the FCC logo - United States only

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions regarding your product, contact:

Hewlett-Packard Company
P. O. Box 692000, Mail Stop 530113
Houston, Texas 77269-2000

Or, call

1-800- 652-6672

For questions regarding this FCC declaration, contact:

Hewlett-Packard Company
P. O. Box 692000, Mail Stop 510101
Houston, Texas 77269-2000

Or, call

(281) 514-3333

To identify this product, refer to the Part, Series, or Model number found on the product.

Canadian Notice (Avis Canadien)

Class A equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Class B equipment

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Notice



Products bearing the CE marking comply with the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community and if this product has telecommunication functionality, the R&TTE Directive (1999/5/EC).

Compliance with these directives implies conformity to the following European Norms (in parentheses are the equivalent international standards and regulations):

- EN 55022 (CISPR 22) - Electromagnetic Interference
- EN55024 (IEC61000-4-2, 3, 4, 5, 6, 8, 11) - Electromagnetic Immunity
- EN61000-3-2 (IEC61000-3-2) - Power Line Harmonics
- EN61000-3-3 (IEC61000-3-3) - Power Line Flicker
- EN 60950 (IEC 60950) - Product Safety

BSMI Notice

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Japanese Notice

ご使用になっている装置にVCCIマークが付いていましたら、次の説明文をお読み下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。

VCCIマークが付いていない場合には、次の点にご注意下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Japanese Power Cord Notice

製品には、同梱された電源コードをお使い下さい。
同梱された電源コードは、他の製品では使用出来ません。

Battery Replacement Notice



WARNING: The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:

- Do not attempt to recharge the battery.
- Do not expose the battery to temperatures higher than 60°C (140°F).
- Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.



Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. To forward them to recycling or proper disposal, please use the public collection system or return them to HP, an authorized HP Partner, or their agents.

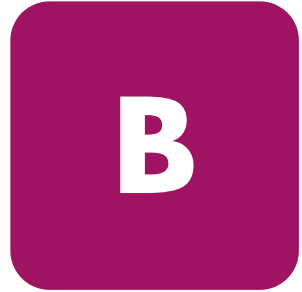
For more information about battery replacement or proper disposal, contact an authorized reseller or an authorized service provider.

Taiwan Battery Recycling Notice



The Taiwan EPA requires dry battery manufacturing or importing firms in accordance with Article 15 of the Waste Disposal Act to indicate the recovery marks on the batteries used in sales, giveaway or promotion. Contact a qualified Taiwanese recycler for proper battery disposal.

Electrostatic Discharge



To prevent damage to the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Grounding methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm \pm 10 percent resistance in the ground cords. To provide proper grounding, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an authorized reseller install the part.

Note: For more information on static electricity, or for assistance with product installation, contact your authorized reseller.

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