

# **StorageWorks NAS B3000 by Compaq**

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## **Quick Start Guide**

Part Number 259122-001

February 2002 (First Edition)

Product Version: Version 1.0

This quick start guide provides information about how to deploy the NAS B3000 as a single device or as a clustered node attached to a MSA1000 storage enclosure.

***COMPAQ***

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StorageWorks NAS B3000 by Compaq Quick Start Guide

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Part Number 259122-001

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## About This Guide

This guide provides step-by-step instructions for deployment of the *StorageWorks*<sup>™</sup> NAS B3000 by Compaq as a single device or as a clustered node attached to a *StorageWorks* Modular SAN Array 1000 (MSA1000) storage enclosure.

### Intended Audience

This guide is intended for administrators experienced in server, cluster, and network installations and SAN administration.

### Important Safety Information

Before installing this product, read the *Important Safety Information* document provided.

### Symbols on Equipment

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions:



**WARNING:** This symbol, in conjunction with any of the following symbols, indicates the presence of a potential hazard. The potential for injury exists if warnings are not observed. Consult your documentation for specific details.

---



This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.

**WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.**

---



This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.

**WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure**

---



This symbol on an RJ-45 receptacle indicates a network interface connection.

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

---



This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

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

---



These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power.

**WARNING: To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.**

---



This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.

Weight in kg  
Weight in lb

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

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## Rack Stability

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**WARNING:** To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
  - The full weight of the rack rests on the leveling jacks.
  - The stabilizing feet are attached to the rack if it is a single-rack installation.
  - The racks are coupled in multiple-rack installations.
  - Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.
- 

## Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.



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

---



**CAUTION:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

---

**IMPORTANT:** Text set off in this manner presents clarifying information or specific instructions.

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

## Text Conventions

This document uses the following conventions:

- *Italic type* is used for complete titles of published guides or variables. Variables include information that varies in system output, in command lines, and in command parameters in text.
- **Bold type** is used for emphasis, for onscreen interface components (window titles, menu names and selections, button and icon names, and so on), and for keyboard keys.
- `Monospace typeface` is used for command lines, code examples, screen displays, error messages, and user input.
- **Sans serif typeface** is used for uniform resource locators (URLs).

## Related Documents

For additional information on the topics covered in this guide, refer to the following documentation:

- Connection Poster
- Quick Reference Poster
- Rack Installation Card
- Administration Guide

## Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

## Compaq Technical Support

In North America, call the Compaq Technical Support Phone Center at 1-800-OK-COMPAQ. This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored. Outside North America, call the nearest Compaq Technical Support Phone Center. Telephone numbers for worldwide Technical Support Centers are listed on the Compaq website, [www.compaq.com](http://www.compaq.com).

Be sure to have the following information available before you call Compaq:

- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

## Compaq Website

The Compaq website has information on this product as well as the latest drivers and Flash ROM images. You can access the Compaq website at [www.compaq.com/storage](http://www.compaq.com/storage).

## **Compaq Authorized Reseller**

For the name of your nearest Compaq authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- Elsewhere, see the Compaq website for locations and telephone numbers.

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# Product Overview

This chapter describes the configuration options and setup and configuration dependencies and requirements for the *StorageWorks™* NAS B3000.

## Intended Audience

This guide assumes that the reader has knowledge of basic Microsoft cluster concepts, Microsoft administrative procedures, and file-sharing protocols. Compaq recommends that the reader obtain supplemental documentation relative to these topics prior to setting up the NAS B3000.

## Configuration Options

The NAS B3000 represents a fusion of SAN and NAS technologies and is designed for deployment as an independent SAN, either as a no single point of failure (NSPOF) clustered pair or as a single device. Additionally, the unclustered NAS B3000 can join an existing unclustered SAN or other unclustered devices can join the NAS B3000 SAN to share storage. (The clustered NAS B3000 cannot share storage with other clustered or single devices.) The NAS B3000 can be deployed in five different configurations, each attached to a Modular SAN Array 1000 (MSA1000) storage enclosure:

- as a single NAS device connected to optional external SAN switches or hubs
- as a single NAS device connected to the embedded six-port switches on the MSA1000
- as a single NAS device connected to the embedded fibre channel I/O modules on the MSA1000

- as a clustered pair connected to optional external SAN switches or hubs
- as a clustered pair connected to the embedded six-port switches on the MSA1000

The NAS B3000 can support up to 27 TB (terabytes) of raw storage capacity, spanning 378 72-GB hard drives spread over 9 storage enclosure subsystems. Each fully populated storage enclosure subsystem supports 42 hard drives, for a maximum raw capacity of 3 TB when using 72-GB hard drives.

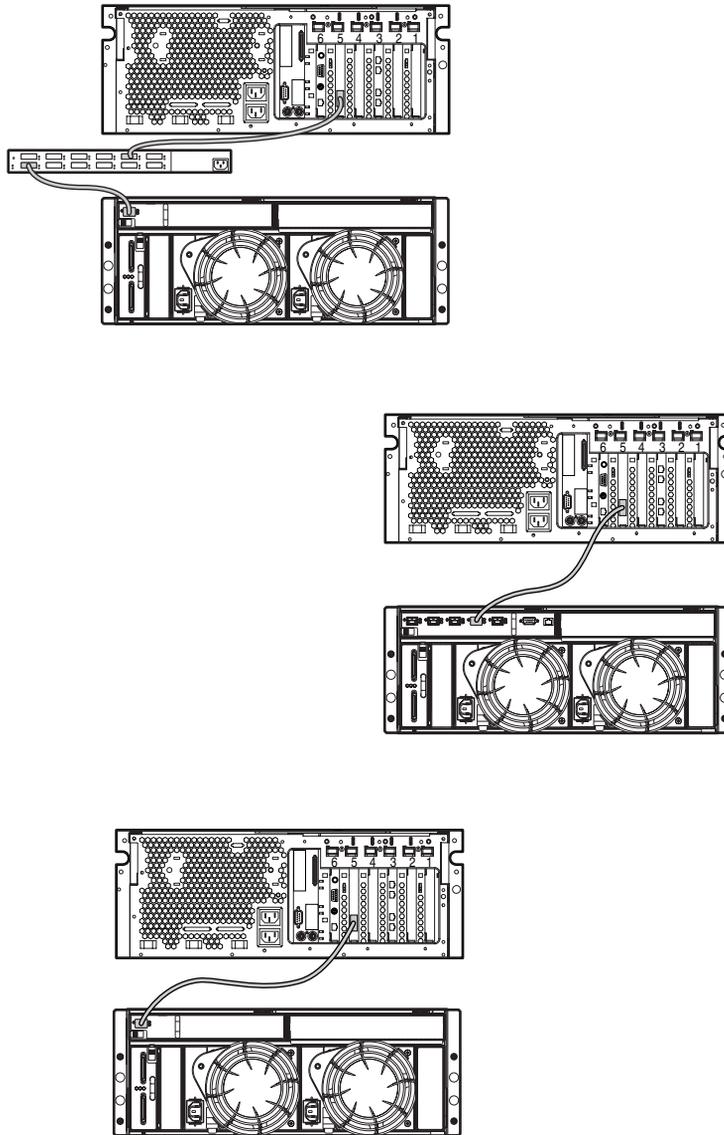
## NAS B3000 as a Single Device

**IMPORTANT:** Do not connect the MSA1000 storage enclosure until the SAN connection wizard has been completed.

In the single NAS device configuration, the NAS B3000 is connected to the MSA1000 storage enclosure via a single fibre channel host bus adapter (HBA) and an external SAN switch or an embedded 6-port switch on the MSA1000 as illustrated in Figure 1-1. If two HBAs are used on the NAS B3000, each HBA should be connected to a separate switch that has access to the same controller pairs. This connection method allows redundant paths to the same storage subsystem.

The NAS B3000 is configured at the factory with default system and storage parameter settings. Storage, however, is not pre-configured, allowing the NAS administrator to tailor the organization and configuration of the storage to specific environmental needs. Refer to the Storage Management section later in this chapter for more information.

With the NAS B3000 fusion of NAS and SAN, the administrator of the NAS B3000 has complete control over all storage issues. The NAS administrator uses the Compaq Array Configuration Utility (ACU) to manage the hardware storage and uses Virtual Replicator (VR) software to manage the virtual storage.



**Figure 1-1: NAS B3000 as a single device**

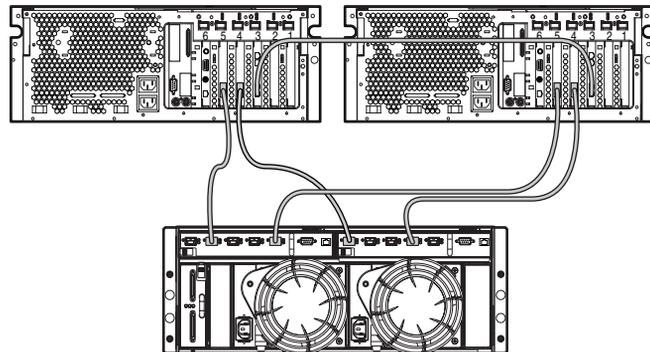
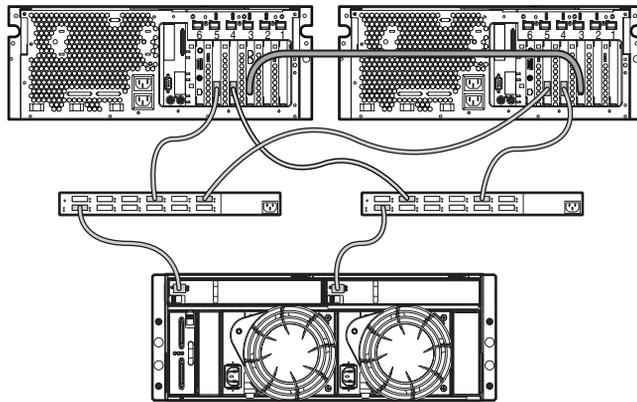
## NAS B3000 as a Clustered Pair

**IMPORTANT:** Do not connect the MSA1000 storage enclosure until the SAN connection wizard has been completed.

In the clustered configuration, two NAS devices are linked via a private network and have access to shared storage as illustrated in Figure 1-2. Each NAS device is attached to the MSA1000 storage enclosure via a pair of fibre channel HBAs and two external SAN switches or two embedded switches on the MSA1000. The same modes of operation for controller access are pertinent to the cluster deployments of the NAS B3000.

In the case of the NAS B3000, cluster setup requires at least three logical unit numbers (LUNs). One LUN is required for the quorum disk and two LUNs are required for data storage. Individual data storage specific to each node are required for the proper setup of file sharing where both nodes participate in file-sharing activities. Clustered NAS systems have the ability to provide redundant active/active access to file shares on disk. However, as with all Microsoft-based clusters, the unit of ownership among nodes is at the LUN level. Therefore, individual fileshares can be accessed by only one node at a time based on which node owns the LUN.

As mentioned previously, the storage associated with the NAS device is managed by the ACU. In the case of clustered NAS B3000 deployments, it is important that the LUNs in use by the cluster follow the guidelines pointed out later in this chapter in the Storage Management section.



**Figure 1-2: NAS B3000 as a clustered pair of devices**

## Dependencies and Requirements - NAS B3000 as a Single Device

Specific conditions must be met in order for the NAS B3000 to operate as a single device.

### Storage Requirements

The following are storage requirements needed for a NAS B3000 single device.

- Storage Enclosure
  - MSA1000 with up to two disk storage enclosures (model 4314)
  - A single **or** redundant path (not both)
  - Attached to a single SAN (not multiple)
  - Similar redundant I/O configurations (two fibre channel I/O modules or two embedded internal switches)
- Storage Interconnect
  - Only one hop interconnect cascading is supported (internal or external switches)
  - Only cascade fabric interconnect is supported (no hub)
  - One hop cascade mixed fabric interconnect is supported (internal and external)
- Storage Networking
  - One open port on the SAN switch that access the MSA1000
  - Two fibre channel cables

To protect against data loss from hard drive failure, arrays should be configured with fault tolerance in mind. Several fault tolerance methods have been devised and are described in the administration guide.

## IP Networking and Setup Requirements

The following are IP networking and setup requirements needed for a NAS B3000 single device:

- A single Ethernet connection on a switch or hub for the RILOE board

**NOTE:** The RILOE board connection is optional, but recommended.

- Additional Ethernet connection ports to client subnets (depending on network options ordered)
- Windows-based PC running Microsoft Internet Explorer 5.5 (or greater) on the same network segment as the NAS B3000; this will be used to set up the NAS device

**IMPORTANT:** The RapidLaunch client and NAS B3000 must be on the same network segment as the management port or the RapidLaunch utility will not detect the NAS B3000.

## Dependencies and Requirements - NAS B3000 as a Clustered Pair

The following conditions must be met in order for the NAS B3000 to operate as a cluster.

**NOTE:** The following requirements are in addition to the single node requirements.

### Network Participation Requirement

The NAS B3000 must be running in a Microsoft Windows NT domain or Active Directory environment. The Windows NT domain or Active Directory provides the device name abstraction and centralized communications required for clustering. The workgroup deployment lacks the features required by Microsoft Clustering Services and is not supported.

## Additional IP Networking Requirements

The following are IP networking requirements needed for a NAS B3000 clustered pair:

- The environment must be able to support a separate, private network that connects only the two clustered nodes for the heartbeat connection. The heartbeat connection allows the nodes of a cluster to verify each other's state and form a cluster. This connection can be accomplished by using a crossover cable (not included with the NAS device) between the two NAS devices, by partitioning a separate virtual LAN at the switch, or by using a physically separate network via a separate switch or hub. Each node of the cluster should be placed on the same non-routed subnet for this connection.
- Compaq recommends setting up the public network as a redundant path for the heartbeat. This setup, however, may lead to increased traffic on the public network.
- The remaining network segments of each node should be connected to matching subnets across both nodes.

## Storage Networking Requirements

The following are storage networking requirements needed for a NAS B3000 clustered pair:

- Two additional open ports with one on each of the two SAN switches (for a total of four open ports for clustering) that have access to the MSA1000 storage system
- Two additional fibre channel cables (for a total of four fibre channel cables)

## **Storage Object Minimum Requirements**

The following are the minimum storage object requirements needed for a NAS B3000 clustered pair:

- A clustered NAS B3000 cannot share its MSA1000 storage system with other clustered or single devices
- One dedicated mirror set LUN for the cluster quorum disk

The cluster requires shared resources that can be accessed by either node in the event of a failover. The fibre-based storage associated with a SAN provides such an environment.

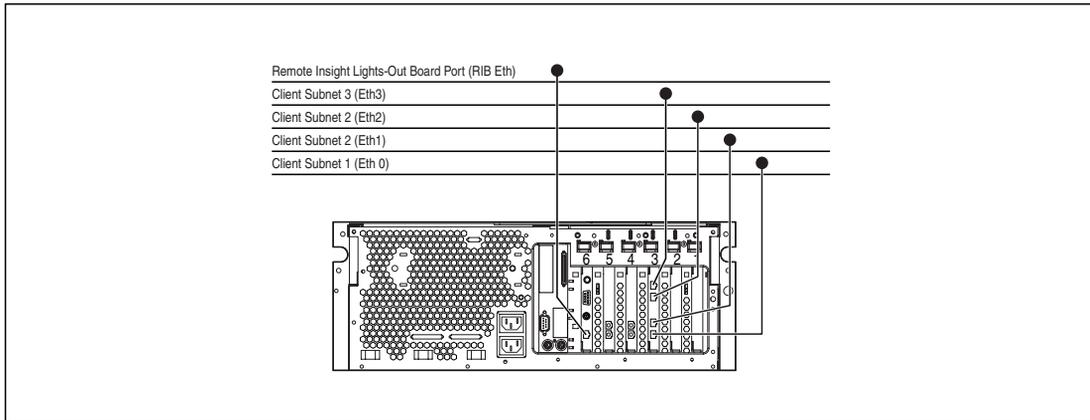
## **Connecting NAS B3000 to the Network**

The NAS B3000 can be connected to the network as a single device or as a clustered pair.

## **NAS B3000 Single Device Deployment**

The default shipping configuration contains a four-port network interface controller (NIC) card that provides four ports for client data access. These data ports also allow access to the Web user interface (WebUI) that accompanies the product. It is from this WebUI that most management and administrative procedures can be accomplished. An additional management port for remote console and diagnostics is provided off the Remote Insight Lights-Out Edition (RILOE) board. Compaq recommends that this connection be placed on a management LAN separate from the corporate infrastructure.

The NAS B3000 supports the use of NIC teaming. NIC teaming provides failover and load balancing of network ports of the NAS B3000. NIC teaming requires the network cables to be installed on the same subnet to enable it to work. For example, in Figure 1-3 Eth0, Eth1, Eth2, and Eth3 would need to be on the same subnet to enable this functionality on those ports. However, it is not recommended to assign IP addresses to the ports that will be teamed or load balanced prior to the installation and setup of NIC teaming. For this reason, Compaq recommends that you set all network ports to DHCP. For information concerning the configuration of NIC teaming after setup is complete, see the administration guide.



**Figure 1-3: NAS B3000 single device deployment**

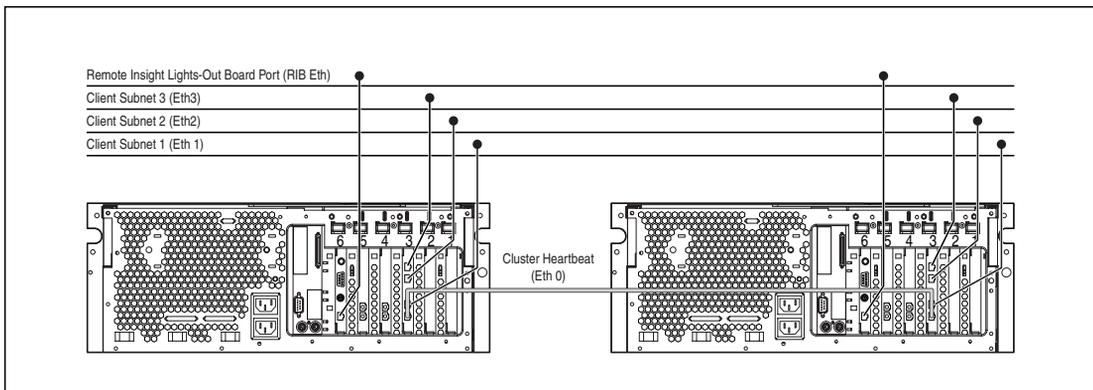
## NAS B3000 Clustered Deployment

In a clustered deployment, network connections are divided into two categories: cluster maintenance segments and client data segments. The default shipping configuration contains a four-port NIC card that provides one port for cluster maintenance and three ports for client data. An additional management port for remote console and diagnostics is provided off the RILOE board. Compaq recommends that this connection be placed on a management LAN separate from the corporate infrastructure.

The cluster maintenance segment is also known as the heartbeat connection between the nodes. In standard configurations, this connectivity is obtained by the use of a crossover network cable. The same effect can be achieved by placing the heartbeat ports on their own switch or VLAN, as illustrated in Figure 1-4 as Eth0. The purpose is to isolate and guarantee the connectivity between the nodes without interruption. If interruption occurs, the remaining cluster node will assume the other node has gone down and initiate a failover. A second cluster heartbeat path is often recommended as a redundant path. The redundant path is often done over one of the remaining network segments and is not dedicated.

The client data segments of a cluster must reside on identical network segments for each node. As illustrated in Figure 1-4, Eth2 from both nodes is shown on the same segment and Eth3 from both nodes is shown on the same segment. This co-location on the same segment allows cluster resources such as file shares to failover to the second node and continues to provide availability to the resources. The failed resource will have the same IP address after the failover and therefore must have a port corresponding to the identified subnet of the IP address present on both nodes.

The NAS B3000 supports the use of NIC teaming in clustered configurations. All caveats from the previous section, “NAS B3000 Single Device Deployment,” still apply.



**Figure 1-4: NAS B3000 cluster deployment**

## Setup and Configuration Overview

In setting up clustered and non-clustered systems, there is a well-defined process. This section is intended as an overview of the process, and not a detailed list of step-by-step instructions. Step-by-step procedures are documented in the administration guide. Some of the steps are driven by wizards within the Web UI. In either type of setup, it is important to read all of the supplied documentation before starting. Relevant documents include:

- *StorageWorks* NAS B3000 by Compaq Administration Guide
- *StorageWorks* NAS B3000 by Compaq Quick Reference Poster
- *StorageWorks* NASB3000 by Compaq Connection Poster

### NAS B3000 as a Single Device

The following describes how to configure the NAS B3000 as a single device.

1. Configure the NAS device using Chapters 2 and 3 from this guide.
2. **This is an optional step.** Install NIC teaming software and create fault tolerant or load balanced network ports. Follow the recommendations found in this guide and in the administration guide.
3. Connect the fibre channel cables to the storage switch or hub. If selective storage presentation (SSP) is being used, the administrator will need to enable the connections one at a time as the cables are connected.
4. Place the NAS device into an active directory or Windows NT 4.0 domain for ease of manageability. This is not required for stand-alone systems, but it is recommended.
5. With the system online, create the arrays and logical volumes (LUNs) one at a time so that they can be identified easily in device manager and assigned to a Virtual Replicator (VR) pool. See the procedure in the storage management section of the administration guide.
6. Create virtual disks from the pools and format them.
7. **This is an optional step.** Enable protocols such as NFS sharing, NCP, and/or AppleTalk as desired. See the administration guide for this procedure in detail.

8. **This is an optional step.** Create shares corresponding to the protocols mentioned in the previous steps. Grant access rights to the shares.

Read the remaining sections of the administration guide.

## NAS B3000 as a Clustered Pair

The following describes how to configure the NAS B3000 as a clustered pair.

1. One mirrored quorum LUN and at least two additional LUNs will be required to allow each node of the cluster to manage file system resources.
2. Configure each NAS device in the cluster using Chapters 2 and 3 from this guide.
3. Use the cluster setup tool (CST) via the Web browser on one of the nodes and follow the steps in the wizard. The wizard will setup both nodes of the cluster and bring the cluster up.

**NOTE:** While the wizard provides complete setup guidance for the cluster, protocol setup such as NFS is a post setup tool activity.

4. **This is an optional step.** Enable protocols such as NFS sharing, NCP, and/or AppleTalk as desired. See the administration guide for this procedure in detail.
5. **This is an optional step.** Create shares corresponding to the protocols mentioned in the previous steps. Grant access rights to the shares.

Read the remaining sections of the administration guide, especially the cluster management chapter.

## Storage Management Overview

This section provides an overview of the components that make up the NAS storage structure. A complete reading of the components and their relationships may be found in the administration guide.



**CAUTION:** This section on storage management and VR is required reading material for the NAS/SAN Administrator. This section develops the concepts and requirements that serve as the basis for successfully using a *StorageWorks* NAS device on the SAN. Failure to read this section and the appropriate sections on storage management in the administration guide may lead to data loss or file corruption.

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## Storage Management Elements

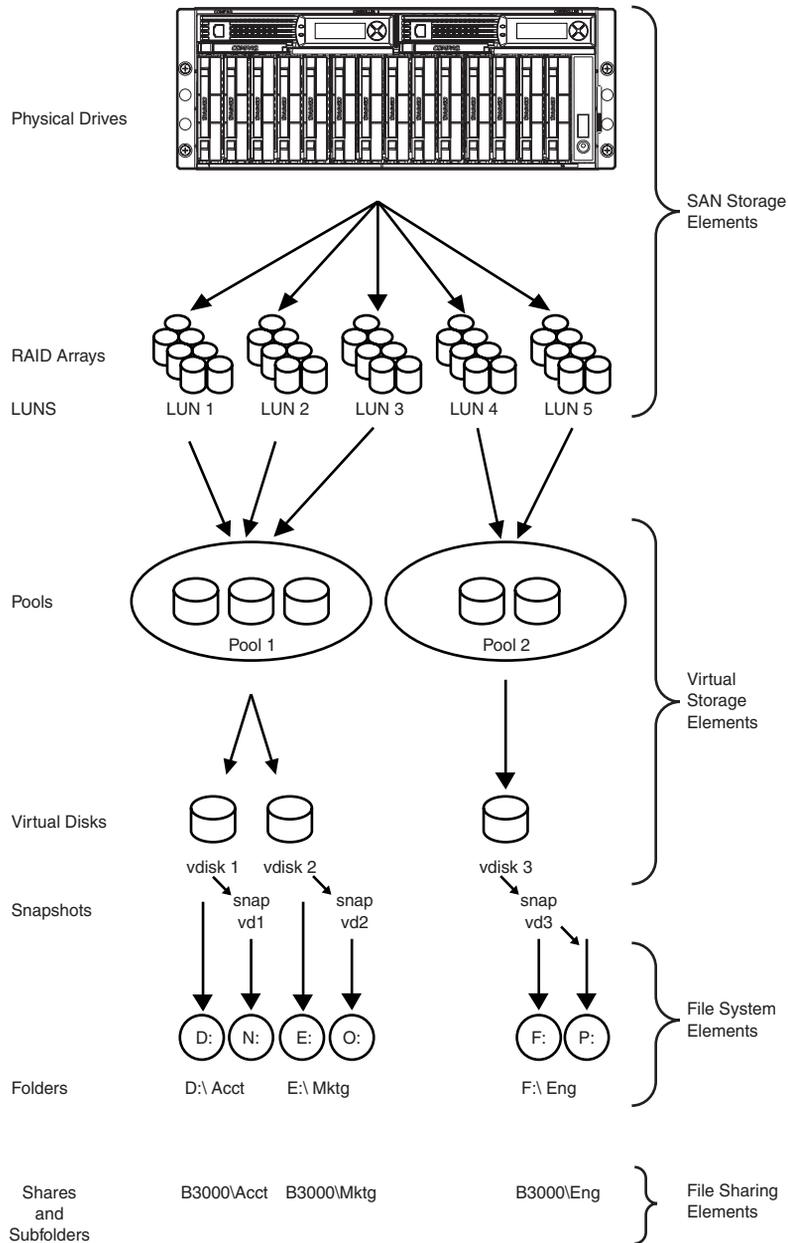
Figure 1-5 provides an illustration of the various storage components of the NAS B3000. Storage is broken up into three major divisions:

- SAN storage elements
- Virtual storage elements
- File system elements

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

## SAN Storage Elements

The lowest level of storage management on the NAS B3000 occurs at the physical drive level. Physical drives are placed into the external storage enclosure or enclosures of the SAN and are grouped into RAID arrays for fault tolerance and better performance. Refer to the administration guide for more details on creating RAID arrays.



**Figure 1-5: Storage management process**

## Virtual Storage Elements

Virtual Replicator (VR) provides volume virtualization for the NAS device by allowing for the creation of virtual disks (basic disks in Windows 2000) from VR pools containing the LUNs managed on the SAN. VR pools are logical abstractions that aggregate the disk space from one or more LUNs into a large set of disk blocks. From the pool of blocks, VR virtual disks are created and presented to the operating system as New Technology File System (NTFS) volume pools. Virtual disks can be enlarged at a later time when there is a need for more space.

When using VR, the following constraints should be reviewed:

- Connected NAS devices can use a maximum of 256 LUNs.
- If multiple LUNs are used to form a VR pool, they must all be from the same MSA1000 storage system.
- Windows 2000's logical volume manager (LVM) should not be used to manage VR disks. The two management tools do not have an awareness of each other and compatibility issues can arise between the two management tools.
- VR pools can consist of a maximum of eight storage units. Thus, a pool can consist of a maximum of eight separate LUNs. Each LUN cannot exceed 1 TB in size.
- A pool may contain a maximum of 8 TB of disk space, and the maximum virtual disk size is 2 TB.
- The LUNs composing a VR pool must be treated as a group. For example, if LUNs 8, 9, and 10 are used to compose a single VR pool and LUN 9 is restored from a backup, snapshot, or clone, the VR pool would be corrupted, resulting in complete data loss.

- There is a limit to the number of virtual disks that can be carved out of a VR pool. Currently, a maximum of eight virtual disks can be carved out of a single pool.
- Each virtual disk must be presented as a drive letter or a mount point on the NAS device for users and the operating system to be able to access the virtual disk. Although it is possible to create a virtual disk and not map it to a drive letter or mount point, neither the users nor the administrator would have access to the storage space contained within that virtual disk.
- All the units that make up a pool should have the same high-availability characteristics (RAID levels and striping methods). If one LUN member of the pool goes offline, the entire pool is unavailable.

## File System Elements

Virtual disks are formatted with the NTFS with drive letter assignments. Refer to the administration guide for more details on file system elements.

## File-Sharing Elements

The NAS B3000 supports several file-sharing protocols, including CIFS, NFS, FTP, HTTP, NCP, and AFP. Refer to the administration guide for more details on file-sharing elements.

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## Before You Begin

This chapter describes the preinitialization and configuration tasks required for the *StorageWorks* NAS B3000.

### Preinitialization

Before beginning the installation process, verify that the hardware installation is complete. Verify that the NAS B3000 is completely installed in the rack and that all cables and cords are connected except for the fibre cables attached to the SAN switches. The setup utility documented here and the next section only provide basic setup for the network components of the NAS B3000.

**IMPORTANT:** If you need assistance with rack installation or hardware connections, refer to the Rack Installation and Connection card included in the shipping carton.

### Collect Information for Configuration

Choose a host name and collect general information before initializing the NAS B3000.

### Configuration Information

Collect the general information required to initialize the NAS device for both dynamic host configuration protocols (DHCP) and non-DHCP configurations. You will be asked for this information during configuration, as shown in Table 2-1. Become familiar with this information before attempting to configure the NAS device.

<b>Table 2-1: Configuration Information</b>		
<b>Part A: To be completed for DHCP and non-DHCP configurations</b>		
Server Host Name:		
Remote Insight Board Name:	Remote Insight Board Default User:	Password:
SAN Configuration:		
<b>Part B: To be completed for non-DHCP configurations only</b>		
DNS Servers	IP Address	
1		
2		
3		
NAS NIC Port*	IP Address	Subnet Mask
Eth 0		
Eth 1		
Eth 2		
Eth 3		
Remote Insight Board Eth		
* The default NAS B3000 has four Ethernet ports available for network connectivity. Disable ports that will not be used. Each Ethernet port must be configured with a separate subnet.		

*continued*

**Table 2-1: Configuration Information** *continued*

<b>Part A: To be completed for DHCP and non-DHCP configurations</b>	
Note: If NIC teaming is to be implemented, determine which ports will be teamed. Configure these Ethernet ports for DHCP protocol. For more information, refer to the Ethernet teaming features and procedures section of administrative procedures in the administration guide.	
<b>Part C: SNMP Information (optional)</b>	
Trap Destination (IP Address) Manager Client:	
Management Traps Community String:	
System Management Community String:	

---

## Configuration Setup

This chapter provides information about configuring the *StorageWorks* NAS B3000 using online or offline methods.

Before completing the tasks in this chapter, verify that the NAS B3000 is installed in the rack and that all cables and cords are connected except for the fiber cables attached to the SAN switches. It is also necessary to collect certain information required during the configuration process, as mentioned in Chapter 2, “Before You Begin.”

### Configuration Methods

The recommended method for configuring the NAS B3000 is by using the WebUI configuration application that comes with the NAS B3000. The optional method is to create a configuration data diskette. The data diskette can then be inserted into the NAS B3000 during initial power up. Compaq recommends using a monitor to view the configuration process if the data diskette is used to configure the NAS device.

## WebUI Configuration (Recommended Method)

The NAS B3000 includes a Web user interface (WebUI) application that is designed to be a graphical, easy-to-use application that gathers the necessary information for configuration. The WebUI may be accessed through two methods: by host name or through auto discovery mode using the RapidLaunch utility.

## Auto Discovery Method (Via RapidLaunch)

The NAS B3000 includes a RapidLaunch CD that can run on any Windows-based PC using Internet Explorer 5.5 (or greater). The WebUI application is designed to be graphical and easy-to-use, and to assist you in populating information necessary for configuration.

**NOTE:** The RapidLaunch utility must be run on each node in a cluster.

## Requirements

The following items are required to run the WebUI configuration application:

- Windows-based PC loaded with Internet Explorer 5.5 (or greater) on the same network segment as the NAS B3000
- RapidLaunch CD

**NOTE:** The NAS B3000 is designed to be deployed without a monitor, keyboard, and mouse. These ports are available and supported by the NAS device if used.

## Procedure

To initialize the NAS B3000 using the WebUI configuration application:



**CAUTION:** Do not power up the NAS device until steps 1-5 are completed.

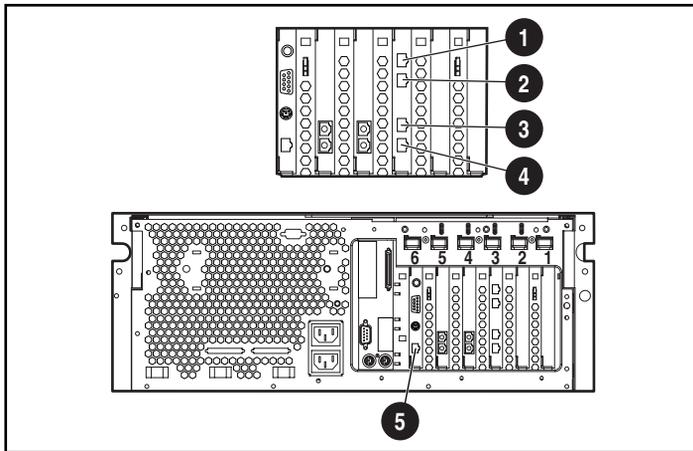
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1. Connect the Ethernet cables to the respective network ports of the NAS B3000 and the corresponding network segments in accordance with the information in the “Configuration Information” section in Chapter 2. See Figure 3-1 and Table 3-1 for the locations of the network ports on the NAS B3000.
2. Verify that the Windows-based PC client is connected to the same subnet as the NAS B3000.
3. Power on the Windows-based PC and wait until the operating system has completely loaded.
4. Insert the RapidLaunch CD into the CD-ROM drive.
5. The RapidLaunch CD should automatically run. If the program does not startup automatically, the program may be run manually. Click **Start** select **Run** on the Windows taskbar, and then type the following:

```
{CD ROM drive}:\setup.exe.
```

Wait for the interface to startup.

6. Go to the NAS device and power it on. It will be several minutes before the NAS device is accessible on the network.
7. Return to the Windows-based PC. Select **StorageWorks NAS** from the **Show** drop down list to have RapidLaunch list all NAS devices on the network as shown in Figure 3-2.

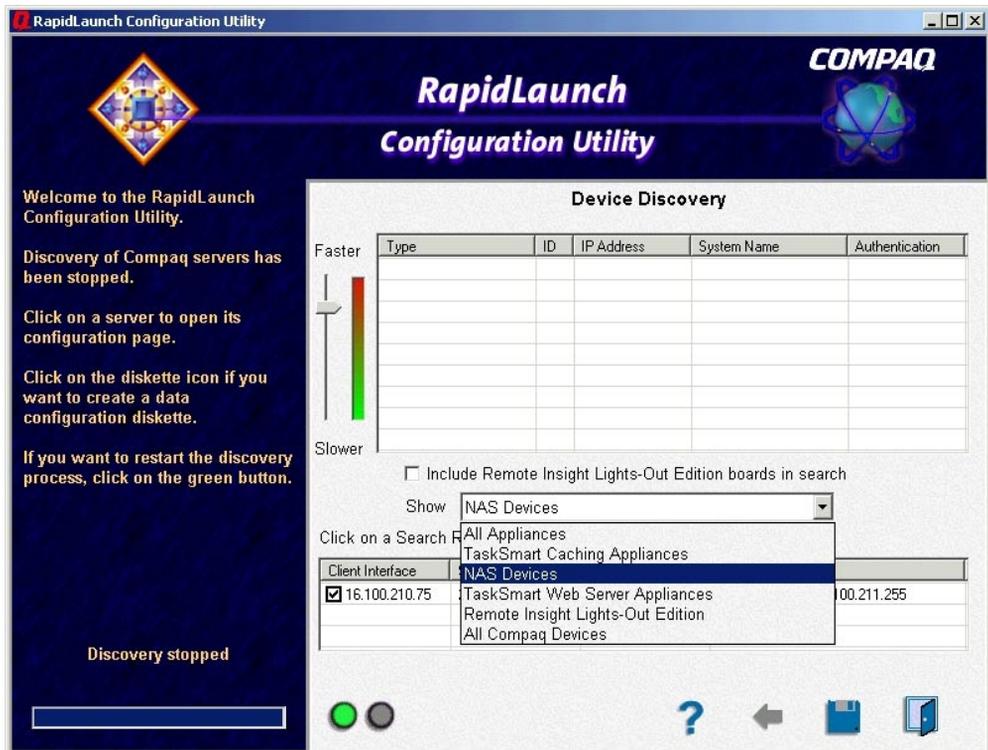


**Figure 3-1: NAS B3000 Ethernet connectors**

**Table 3-1: Ethernet Network Connectors**

Item	Description
①	NIC Ethernet port 3 (Eth 3) used for data
②	NIC Ethernet port 2 (Eth 2) used for data
③	NIC Ethernet port 1 (Eth 1) used for data
④	NIC Ethernet port 0 (Eth 0) used for data or cluster heartbeat
⑤	Remote Insight Lights-Out Edition board Ethernet port (RIB Eth) used for remote management

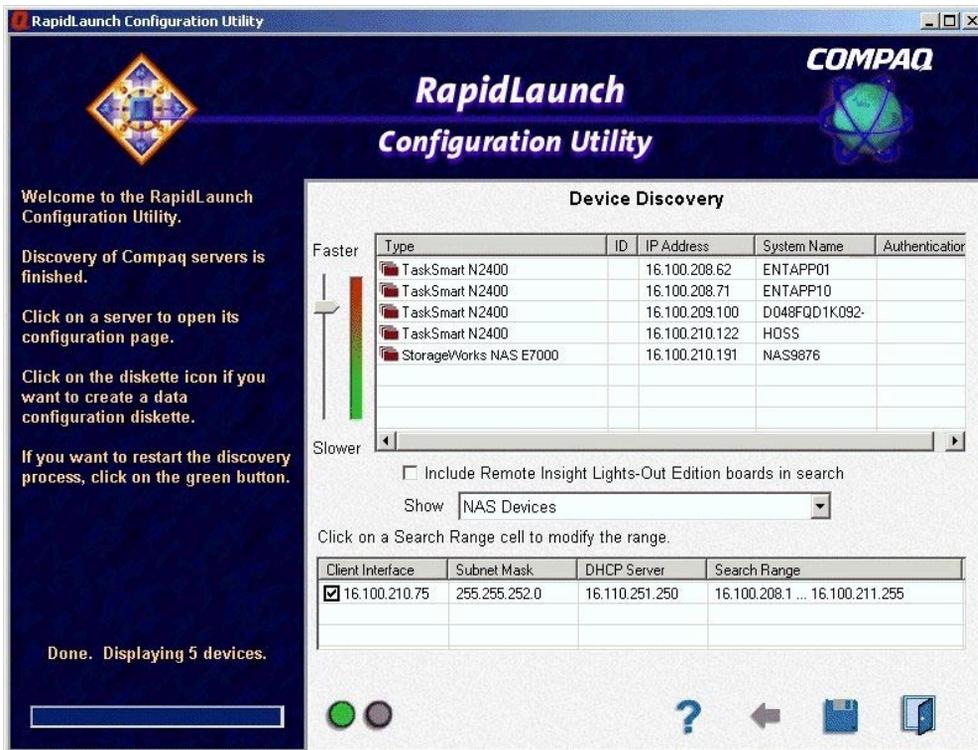
**Note:** Connect a loopback cable to any of the NAS B3000 Ethernet ports (Eth 0 through Eth 3) that is not configured for use. Do not connect a loopback cable to the Ethernet port on the Remote Insight Lights-Out Edition board (RIB Eth).



**Figure 3-2: RapidLaunch search screen**

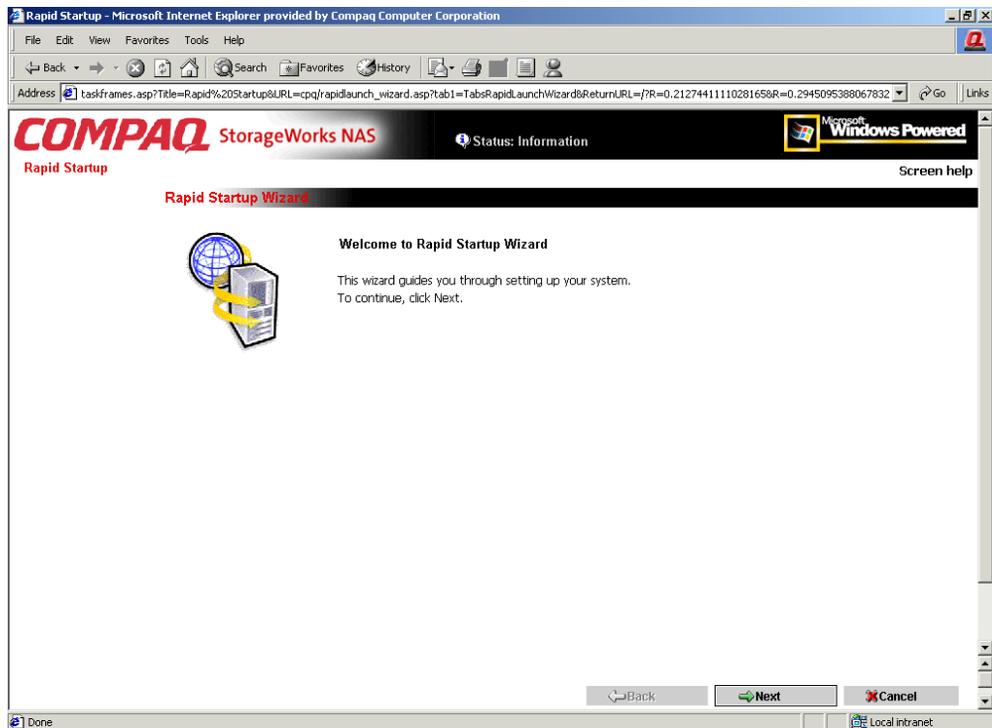
8. All the NAS devices found on the network are displayed as shown in Figure 3-3. The NAS device will be displayed in the device discovery portion of the screen as an unconfigured device. It may take several minutes for the NAS device to be found on the network.

**NOTE:** The RapidLaunch utility will refresh periodically looking for new devices on the network. You may refresh the device list manually by selecting the **Refresh** button.



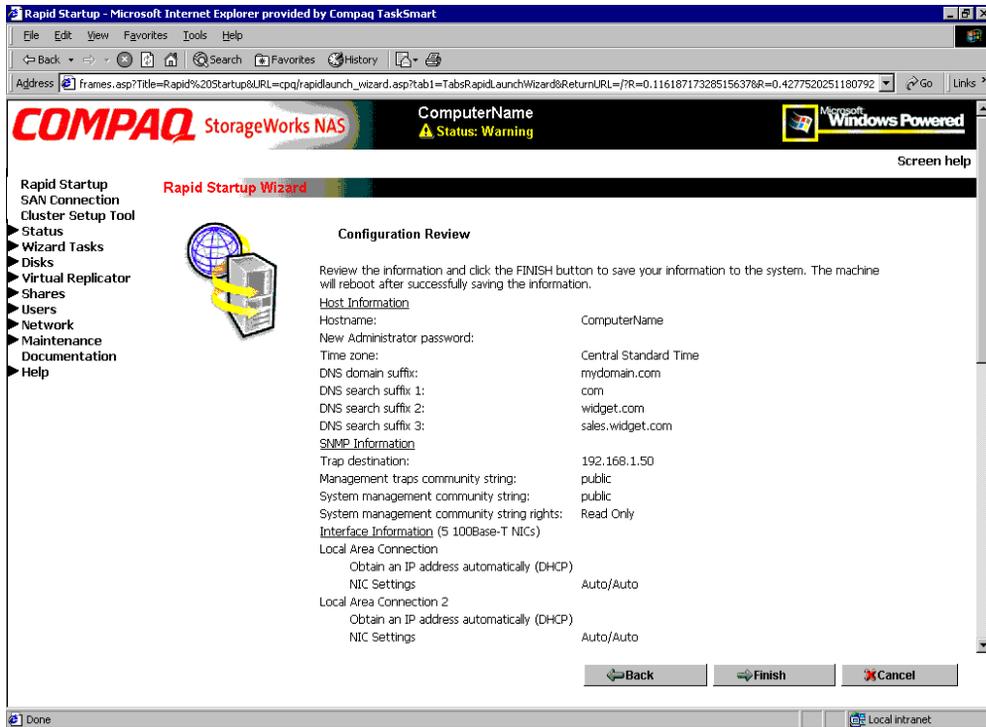
**Figure 3-3: RapidLaunch device discovery screen**

9. Select the unconfigured *StorageWorks* NAS device from the device list. This launches the WebUI configuration application (Rapid Startup) on the target *StorageWorks* NAS device as shown in Figure 3-4.



**Figure 3-4: Rapid Startup wizard screen**

10. Follow the instructions on the screen to input the correct information. Verify that your information is correct when the configuration review screen is displayed as shown in Figure 3-5.
11. Click the **Online** icon to save the network information to the NAS B3000.

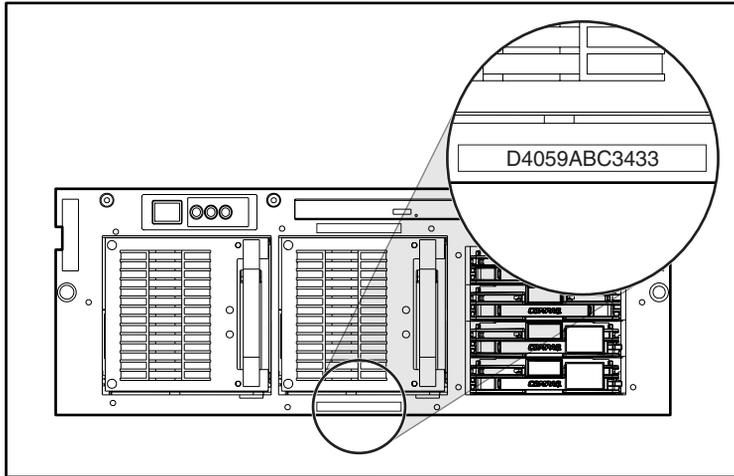


**Figure 3-5: Rapid Startup configuration review screen**

12. Click the **Finish** icon to exit Rapid Startup. Close the browser window. The NAS B3000 will now reboot to set the configuration information.
13. If the NAS B3000 is being deployed in a cluster configuration, go back to the RapidLaunch utility program and select the next unconfigured NAS device to be used within the cluster and repeat steps 8-12 for the second node.
14. Exit the RapidLaunch utility and remove the RapidLaunch CD from the CD-ROM drive and store it in a secure location.
15. Run the SAN initialization. Refer to “Completing the System Configuration” later in this chapter to connect the storage enclosure.
16. **For cluster deployments only.** After the second node has been configured with Rapid Startup, close the browser window and follow the procedures of the CST documented in Chapter 4, “Cluster Setup Tool.”

## Direct Access Method (Via Hostname)

The NAS B3000 ships by default with DHCP enabled on the network port. If the system is placed on a DHCP serviced network and the serial number of the device is known, it can be accessed through a client running Microsoft Internet Explorer 5.5 (or greater) on that network via the 3201 port of the device. The serial number may be found on the front of the NAS B3000 as illustrated in Figure 3-6.



**Figure 3-6: Serial number location**

## Requirements

The following items are required to run the WebUI configuration application:

- Windows-based PC loaded with Internet Explorer 5.5 (or greater) on the same segment as the NAS B3000
- DHCP-serviced network
- Serial number of the NAS B3000

**NOTE:** The NAS B3000 is designed to be deployed without a monitor, keyboard, and mouse. These ports are available and supported by the NAS device if used.

## Procedure

To initialize the NAS B3000 using the WebUI configuration application:

1. Connect the Ethernet cables to the respective network ports of the NAS B3000 and the corresponding network segments in accordance with the information in the “Configuration Information” section in Chapter 2. See Figure 3-1 and Table 3-1 for the locations of the network ports on the NAS B3000.
2. Open Internet Explorer on the Windows-based PC. Enter `http://`, the serial number of the NAS B3000 followed by a dash (-), followed by `:3201`. Press **Enter**. This launches the WebUI configuration application (Rapid Startup) on the target *StorageWorks* NAS device as shown in Figure 3-4.

Example: `http://D4059ABC3433-:3201`.

3. Follow the instructions on the screen to input the correct information. Verify that your information is correct when the configuration review screen is displayed as shown in Figure 3-5.
4. Click the **Online** icon to save the network information to the NAS B3000.
5. Click the **Finish** icon to exit Rapid Startup. Close the browser window. The NAS B3000 will now reboot to set the configuration information.
6. If the NAS B3000 is being deployed in a cluster configuration, repeat steps 1-4 for the second node.
7. **For cluster deployments only.** Once the second node has been configured with Rapid Startup, close the browser window and follow the procedures of the CST documented in Chapter 4, “Cluster Setup Tool.”

## Data Diskette Configuration (Optional Method)

The configuration data diskette method is often used for remote deployments where network access may not be possible at the time of configuration. This method uses a wizard interface that gathers the configuration information and writes it to a diskette. The diskette is then placed in the NAS B3000 upon startup. A keyboard, monitor, and mouse will be needed for the NAS B3000 to observe the configuration process.

## Requirements

The following items are required to create the configuration data diskette:

- Windows-based PC with CD-ROM and diskette drives loaded with Internet Explorer 5.5 (or greater)
- Keyboard, monitor, and mouse for NAS B3000
- RapidLaunch CD
- Blank diskette for creating the configuration data diskette

## Procedure

To create the configuration data diskette:

**IMPORTANT:** If you are using a predetermined data diskette provided by your company, proceed to Step 13.

1. Power on the Windows-based PC and wait until the operating system has completely loaded.
2. Insert the configuration data diskette into the diskette drive of the Windows-based PC.
3. Insert the RapidLaunch CD into the CD-ROM drive of the PC.
4. The RapidLaunch CD should automatically run. If the program does not startup automatically, the program may be run manually. Click **Start** select **Run** on the Windows taskbar, and then type the following:

```
{CD ROM drive}:\setup.exe.
```

Wait for the interface to startup.

5. Click the **diskette** icon to initiate the creation application.
6. Select **B3000** from the listed devices. Follow the instructions on the screen to input the correct information. Verify that your information is correct when the configuration review screen is displayed.

7. Click the **diskette** icon to save the network information to the configuration data diskette.
8. The Configuration File Output Results screen is displayed when the information is successfully saved to the diskette.
9. If the NAS B3000 is being deployed as a cluster, remove the data diskette from the diskette drive and label it with the hostname of the device. Click the NAS B3000 Introduction screen link in the left-hand pane. This will traverse the setup program back to the introduction page of the configuration utility. Repeat steps 5-7 using a second data diskette, labeling it with the second hostname.
10. Click the **Finish** icon to exit the configuration application.
11. Remove the RapidLaunch CD from the CD-ROM drive and store it in a secure location.
12. Remove the configuration data diskette from the diskette drive.
13. Insert the configuration data diskette(s) into the NAS device(s).
14. Connect the Ethernet cables to the respective Ethernet connectors in accordance with the information in the “Configuration Information” section in Chapter 2. See Figure 3-1 and Table 3-1 for the locations of the Ethernet connectors on the NAS B3000.
15. Power on the NAS B3000. The power button is located on the front panel of the NAS B3000.

**IMPORTANT:** Verify that the power LED is green to indicate the power up sequence has been initiated on the NAS B3000.

16. After the system starts, monitor the configuration process.

**NOTE:** A warning screen is displayed if the configuration data diskette is incomplete, or if the configuration data diskette is not inserted before powering up the NAS B3000, or if the contents of the configuration data diskette are damaged, or if the configuration data diskette is inserted at the wrong time.

During the configuration process, the system automatically restarts once.



**CAUTION:** To avoid damage to the system configuration, do not interrupt the configuration process once it has begun. The configuration process takes approximately 10 minutes to complete.

---

17. After configuration is complete, remove the configuration data diskette from the diskette drive and place it in a secure location with the RapidLaunch CD.
18. **For cluster deployments only.** Once both nodes have been configured, follow the CST procedures documented in Chapter 4, “Cluster Setup Tool.”

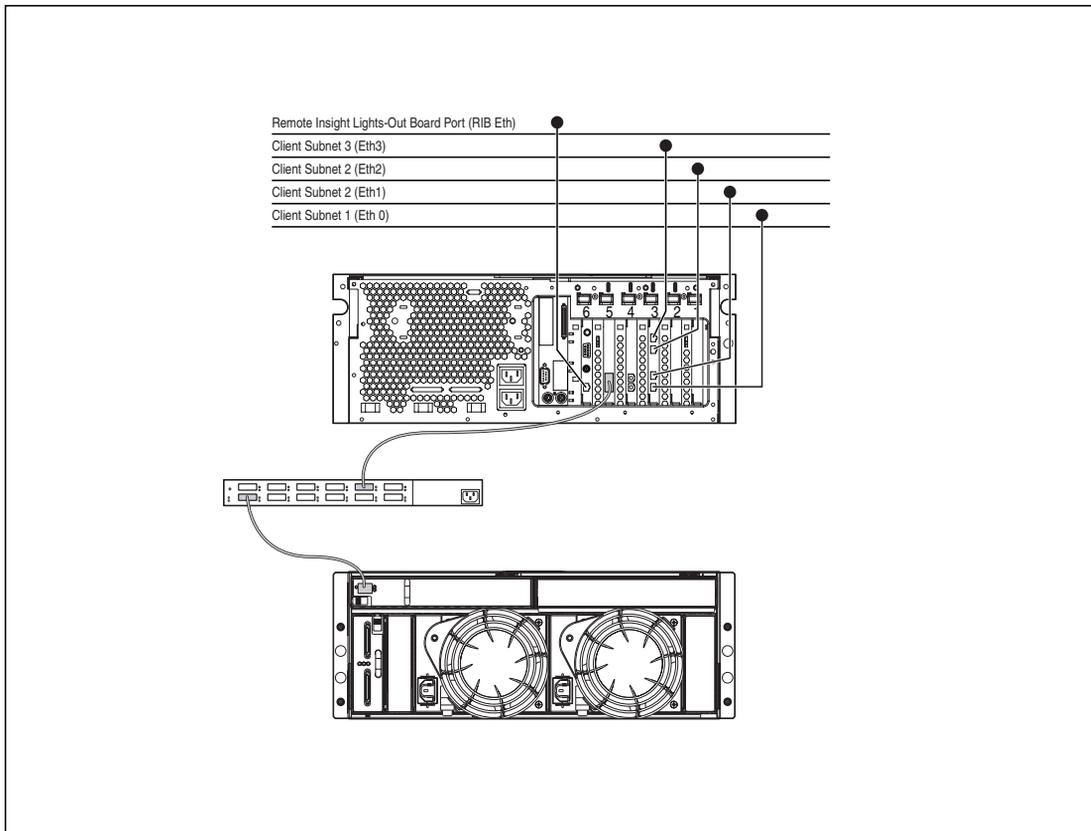
## Completing the System Configuration

After the configuration process, there are additional tasks required in order to begin sharing files on the network. All procedures for the configuration tasks may be found in the NAS B3000 administration guide. These include:

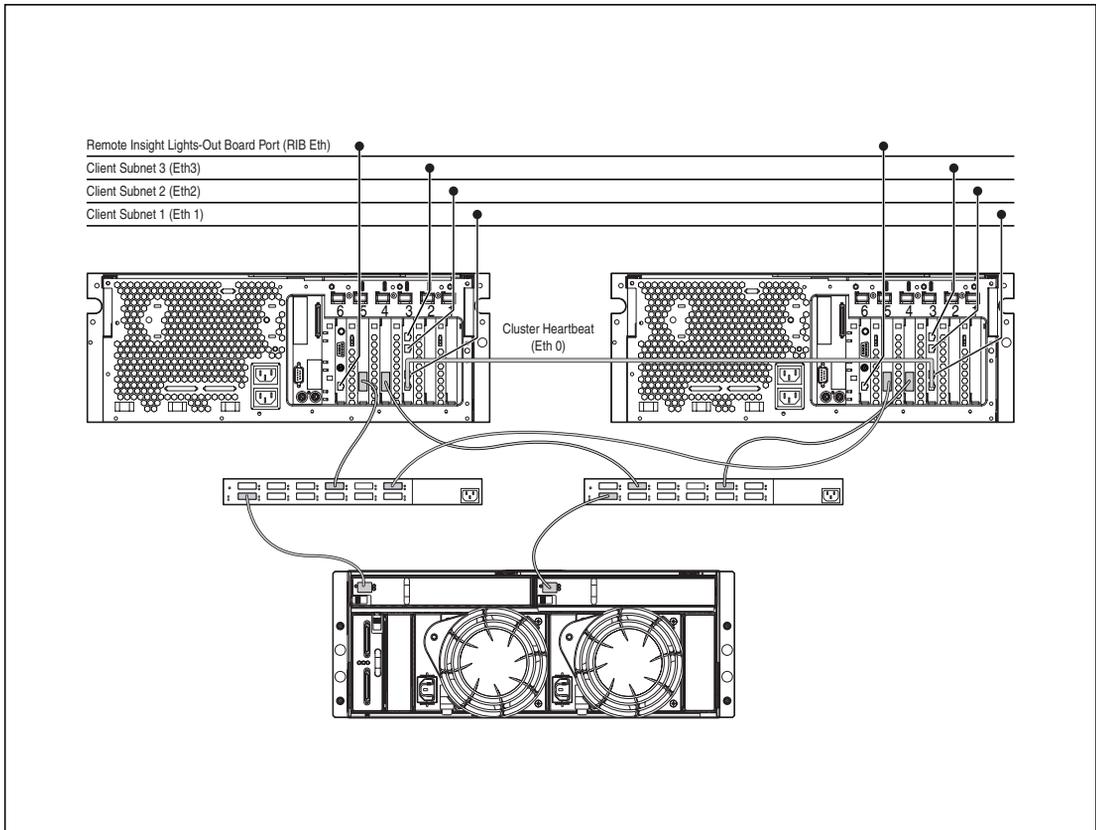
- Changing the system date and time
- Connecting the storage (as illustrated in Figure 3-7 and Figure 3-8)
- Configuring storage
- Establishing file shares and creating access permissions

In addition to the required configuration steps above several optional tasks may need to be completed:

- Enabling additional protocols and the associated file shares
- NIC teaming



**Figure 3-7: NAS B3000 single device deployment**



**Figure 3-8: NAS B3000 cluster deployment**

---

## Cluster Setup Tool

This chapter describes the *StorageWorks* NAS B3000 cluster setup tool (CST).

### CST Prerequisites

**IMPORTANT:** The user must read the cluster management section in the administration guide prior to beginning the CST.

The CST is a web-based setup tool whose wizard helps you to install the NAS B3000 as a clustered pair. The CST displays checklist screens that involve setting up the storage, configuring the NAS B3000, and setting up cluster services. The CST can be used onsite or from a remote location.

**IMPORTANT:** The procedures in Chapter 3 of this guide must be completed on both nodes before using the CST.

The following is required before using the CST:

- Server names
- Domain name for the cluster
- Cluster name
- Static IP Address for cluster use
- Domain account with administrative privileges for the cluster service (account must have the “logon as a service” privilege)
- A LUN formed as a Mirrorset on the SAN for the Quorum Disk
- Create at least two LUNs for data storage on the SAN
- Static IP addresses and network names for virtual servers

## Starting the CST

Open Internet Explorer on a Windows-based PC that has network access to the NAS device. Enter `http://` and the host name of one of the NAS devices for the cluster followed by `:3201`. Press **Enter**. This launches the CST on the target *StorageWorks* NAS device.

Example: `http://node1:3201`.

## CST Checklist Screens

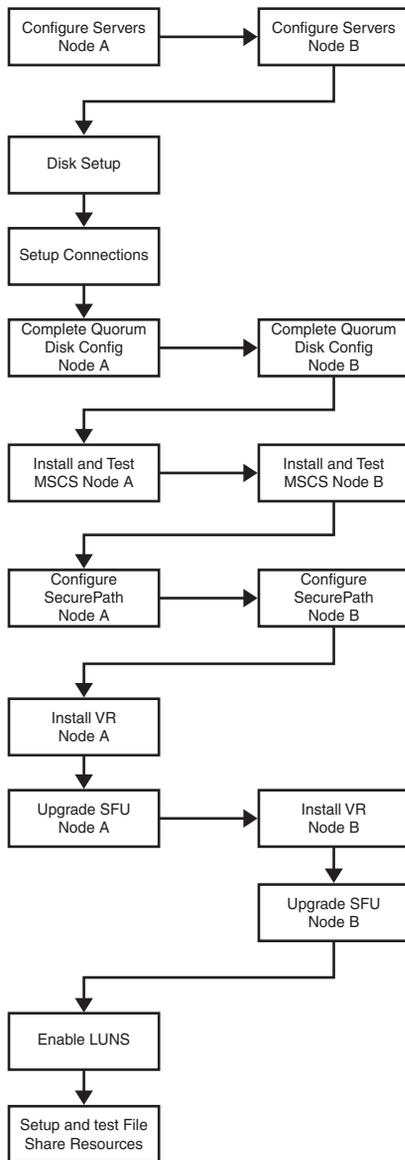
All information from the “CST Prerequisites” section must be gathered before using the CST. The CST transitions between both nodes in a cluster to set up the nodes simultaneously.

**IMPORTANT:** While using the CST, you must check all of the check boxes to proceed to the next screen.

As illustrated in Figure 4-1, the following steps are displayed while using the CST:

- Configure the NAS B3000. This step gets the NAS devices ready to be clustered.
- Confirm the Quorum Disk and RAIDsets are set up. The Quorum Disk is used for communication between the two nodes, and the RAIDsets are used for storage.
- Install Microsoft Cluster Services (MSCS).
- Configure SecurePath. During configuration, the NAS B3000 is set up through the SecurePath Agent Configuration Utility.
- Uninstall and reinstall Virtual Replicator (VR). VR needs to be uninstalled and reinstalled in order to get the clustering capabilities.
- Upgrade SFU. SFU needs to be upgraded to get the clustering capabilities.
- Create file shares and test failover.

The NAS B3000 will reboot multiple times during the cluster setup process. The cluster setup process resumes at the proper point after each of the required reboots.



**Figure 4-1: CST process flow diagram**

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