Sun StorEdge™ 5310 NAS Appliance Quick Reference Manual

Sun Microsystems, Inc.
www.sun.com

Part No. 819-0878-12
May 2005, Revision A

Submit comments about this document at: `http://www.sun.com/hwdocs/feedback`

Please
Recycle

Contents

Figures

CHAPTER 1

Introduction

About This Quick Reference Manual

This guide is designed as a quick reference to familiarize the user on using different features and functions of the Sun StorEdge™ 5310 NAS Appliance software. The screens displayed on your monitor may vary from those in this reference guide. For more details on software features and functions, refer to the *Sun StorEdge 5310 NAS Appliance Software Installation, Configuration, and User Guide*.

Note – The software features and functions described in this book apply to both the Sun StorEdge 5310 NAS Appliance system and the Sun StorEdge 5310 Cluster system.

The hardware setup and power on instructions described in Chapter 2 "Turning the Sun StorEdge 5310 NAS Appliance On and Off" apply to the Sun StorEdge 5310 NAS Appliance system *only*. For Sun StorEdge 5310 Cluster instructions, refer to the *Sun StorEdge 5310 NAS Appliance Hardware Installation, Configuration, and User Guide* or the printed *Sun StorEdge 5310 Cluster Setup Instructions*

Sun StorEdge 5310 NAS Appliance Features

Note – For the most current support information, please contact your Sun sales representative.

Supported File Access Protocols

- Microsoft networks (CIFS/SMB)
- UNIX® NFS V2 and V3
- File Transfer Protocol (FTP)

Network Security/Protocols

Integrates with:

- Network Logon (Netlogon) client
- Windows Domain support
- Multiple Master Domain (MMD) support
- CIFS Security Descriptors (SD) on file and directories
- Discretionary Access Control Lists (DACL) on files and directories
- NIS
- NIS+
- NTFS streams
- Unicode
- Windows Active Directory Service (ADS) support
- Windows Dynamic DNS support
- Windows-compatible Kerberos (v5) security
- Windows-compatible Lightweight Directory Access Protocol (LDAP)
- LDAP authentication for NFS
- Network Time Protocol (NTP)
- SYSLOGD Remote Logging
- Simple Network Management Protocol (SNMP)

Supported Clients

A client is any computer on the network that requests file services from the Sun StorEdge 5x10 NAS Appliance. In general, if a client implementation follows the NFS version 2 or 3 protocol or the CIFS specifications, it is supported with the Sun StorEdge 5x10 NAS Appliance.

Network Connection

- Auto-sensing 10/100/1000 Base-TX, dual RJ-45 network connector
- Optional Optical Gigabit NIC card

Automatic IP Address Assignment

- Supports DHCP, ARP, for automatic assignment of IP address

RAID Controllers

- Controller enclosure with two RAID controllers configured for Fibre Channel (FC) or for Serial ATA (SATA) disk drives

Data Management

- Sun StorEdge File Checkpoint facility allows users to recover accidentally damaged or deleted data with a simple file copy operation
- Directory Tree Quotas
- User and Group Quotas

Setup and Configuration

- Web-Based User Interface for system configuration and administration
- Command Line Interface for for use by service personnel (refer to the *Sun StorEdge 5310 NAS Appliance Software Installation, Configuration, and User Guide*)

Client Data Backup

- Network Data Management Protocol (NDMP), V2 and V3
- Compatible with BakBone NetVault 7, supported by BakBone

- Compatible with Solaris™ Operating System backup software, including Veritas NetBackup
- Compatible with most over-the-wire Network Backup software that supports CIFS or NFS

Software Requirements and Updates

The Sun StorEdge 5310 NAS Appliance ships with the Web Administrator software already installed. Other than a standard Web browser, you do not need to install any software to manage the Sun StorEdge 5310 NAS Appliance.

Web Administrator Requirements

To access the Web Administrator management interface, you must have the following software:

- Windows 98/NT/2000/XP/2003, Sun Solaris 5.7 OS (or later), or Red Hat Linux
- Internet Explorer 5.5 (or later) on systems using Windows 98/NT/2000/XP

or

- Netscape™ 4.77 (or later) software on systems using Windows 98/NT/2000/XP/2003 and Sun Solaris OS. **Netscape 6.0 and 6.01 are not supported.**
- Mozilla™ browser
- Java™ technology-enabled browser with Java Plug-In 1.3.1 (or later).

Note – To download the latest Java Plug-In, go to http://java.com.

CHAPTER 2

Turning the Sun StorEdge 5310 NAS Appliance On and Off

Note – The instructions in this chapter apply to the Sun StorEdge 5310 NAS Appliance system *only*. For the Sun StorEdge 5310 Cluster system, refer to the *Sun StorEdge 5310 Cluster Setup Instructions* or the *Sun StorEdge 5310 NAS Appliance Hardware Installation, Configuration, and User Guide*.

Powering On the Sun StorEdge 5310 NAS Appliance

Caution – ALWAYS power on the units in the following order:

1. Sun StorEdge 5300 EU expansion enclosures first.
2. Sun StorEdge 5300 RAID EU controller enclosures next.
3. Sun StorEdge 5310 NAS Appliance.

Note – If you are using a UPS, connect all units to the UPS.

Caution – The expansion enclosures and controller enclosure must always be powered up and properly connected to each other and the main appliance system before powering up the Sun StorEdge 5310 NAS Appliance. The expansion enclosures must be powered up *first*, before the controller enclosures and Sun StorEdge 5310 NAS Appliance. If these instructions are not followed, the system could start slowly.

Note – To achieve fault tolerance, units with two power supplies should receive power from two different AC circuits.

Before you begin, verify that all cables between the Sun StorEdge 5310 NAS Appliance, controller enclosures, and expansion enclosures are properly secured according to the instructions on the *Setting Up the Sun StorEdge 5310 NAS Appliance* poster.

Powering on the Expansion Enclosures

To turn on each expansion enclosure:

1. **Connect both AC power cables to the back of each expansion enclosure (see** FIGURE 2-1**).**
2. **Connect the other end of the two power cables to two separate AC power sources.**
3. **Power on each expansion enclosure by setting the two power supply switches to the On position.**

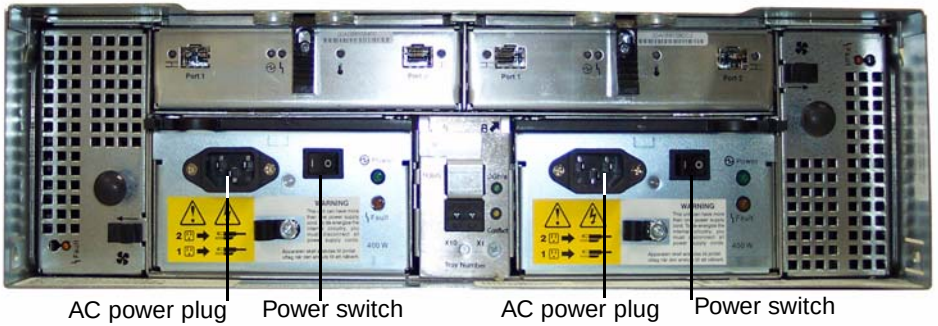


FIGURE 2-1 Expansion Enclosure Back Panel

4. **Check that all front-panel LEDs turn solid green to indicate good operation.**

Powering on the Controller Enclosures

Caution – The expansion enclosures must be powered up *first*, before the controller enclosures and Sun StorEdge 5310 NAS Appliance. If these instructions are not followed, the system could start slowly.

To turn on each controller enclosure:

1. **Connect both AC power cables to the back of each controller enclosure (see** FIGURE 2-2**).**
2. **Connect the other end of the two power cables to two separate AC power sources.**
3. **Power on each controller enclosure by setting the two power supply switches to the On position.**

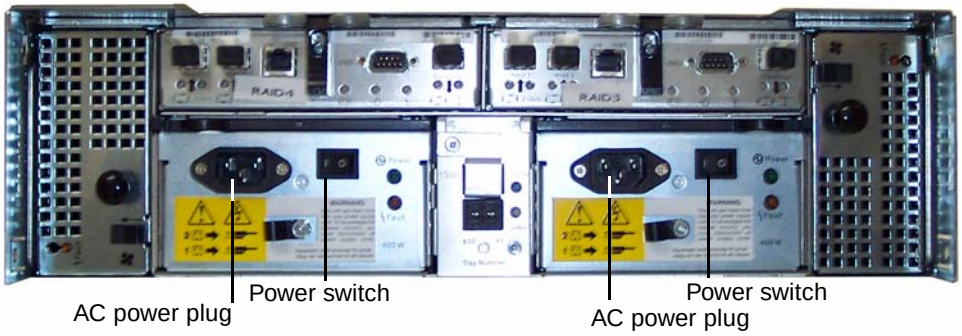


FIGURE 2-2 Controller Enclosure Back Panel

4. **Check that all front-panel LEDs turn solid green to indicate good operation.**

Powering on the Sun StorEdge 5310 NAS Appliance

Caution – The expansion enclosures and controller enclosures must always be powered up and properly connected to each other and the Sun StorEdge 5310 NAS Appliance before powering up the Sun StorEdge 5310 NAS Appliance. The expansion enclosures must be powered up *first*, before the controller enclosures and Sun StorEdge 5310 NAS Appliance. If these instructions are not followed, the system could start slowly.

To turn on the Sun StorEdge 5310 NAS Appliance:

1. **Verify that the power button is in the off position.**
2. **Connect both AC power cables to the back of the system (see** FIGURE 2-3**).**
3. **Connect the other end of the two power cables to two separate AC power sources.**

Caution – Both power cables must be connected before you press the Power button.

FIGURE 2-3 Connecting the Sun StorEdge 5310 NAS Appliance AC Power Cables

4. **Press the Power button (**FIGURE 2-4**) on the front panel (behind the faceplate).**

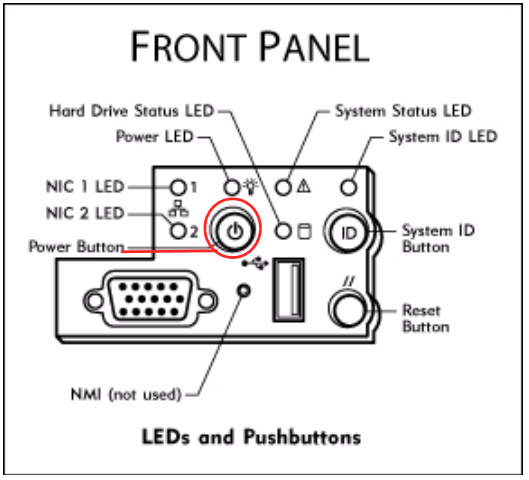


FIGURE 2-4 Power Button and Front Panel Detail

Network Setup and System Configuration

For a detailed explanation of network setup and system configuration, refer to the *Sun StorEdge 5310 NAS Appliance Software Installation, Configuration, and User Guide Introduction*.

If a DHCP server is available on the network, the IP address is automatically configured when you power the system up for the first time.

Note – To avoid waiting for DHCP discovery during the boot sequence, you can press any key on the LCD panel and confirm the "Abort DHCP?" message by pressing the Right-arrow key on the panel. Then you can manually set the static IP address following the instructions below.

Network Setup without DHCP

If a DHCP server is not available , you must configure the IP address using the LCD panel.

Manually configure the IP address using the LCD panel controls by pressing the Select button once, selecting Set Static IP, entering the required information one digit at a time using the arrow keys, and saving the settings.

System Configuration

To configure the Sun StorEdge 5310 NAS Appliance, use a separate system with a Java-enabled browser connected to the network.

1. **Check that the network link LED is green and then enter in the browser window the IP address for the Sun StorEdge 5310 NAS Appliance in the format:**

   `http://123.111.78.99`

2. **Click Apply to log in and follow the steps to complete the system configuration.**

Shutting Down the Sun StorEdge 5310 NAS Appliance

You can shut down the Sun StorEdge 5310 NAS Appliance through the Web Administrator GUI or the LCD panel.

Caution – Always follow the proper shutdown procedure. Never shut down the Sun StorEdge 5310 NAS Appliance by turning off the power switches or pulling the power cords.

Shutting Down through Web Administrator

You can shut down the Sun StorEdge 5310 NAS Appliance using the Web Administrator.

To shut down:

1. **Using the network-connected browser, log on to the Web Administrator.**
2. **Open the Shut Down the Server panel by clicking System Operations > Shut Down the Server.**

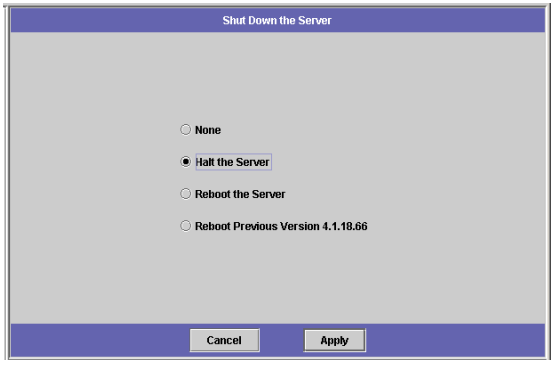


FIGURE 2-5 The Shut Down the Server Panel

3. **Select the shutdown option you want by clicking on the radio button. The default shutdown option is "none".**
   - None
   - Halt the Server

- Reboot the Server
- Reboot Previous Version x.xx (This option is available only on Sun StorEdge 5310 NAS Appliance systems that have had OS updates.)

4. **Click Apply.**

Shutting Down through the LCD Panel

You can shut down the Sun StorEdge 5310 NAS Appliance using the LCD panel on the front of the unit.

FIGURE 2-6 The LCD Panel Controls

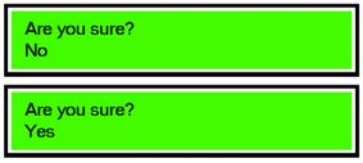
To shut down:

1. **Press the Select button on the LCD panel to access menus.**

2. **The LCD panel displays options A and B. Press the Down Arrow to select option "B. Shutdown Server" then press the Select button.**

3. **Press Select to select the "A. Power Off" option.**

4. **Press the Down Arrow to change “No” to “Yes”.**



5. **Press Select to confirm and begin the shutdown procedure.**

CHAPTER 3

System Configuration

After installing and turning on the Sun StorEdge 5310 NAS Appliance system, you must configure the system before you use it. This includes setting active Logical Unit Number (LUN) paths and creating volumes and segments.

Caution – After you have completed system configuration, you should back up the configuration information in the event of a system failure. Refer to the *Sun StorEdge 5310 NAS Appliance Software Installation, Configuration, and User Guide* for details on backing up configuration information.

How to Set Active LUN Paths

A LUN path is a designation that describes how a file volume in a LUN is accessed by what head and controller. To every file volume there are two LUN paths: primary and alternate. If one fails, the system automatically uses the other available LUN path to access the desired file volume. The number of LUN paths and their implementations depend on the model and configuration of the system. In a Sun StorEdge 5310 Cluster system, a head induces a head failover if its primary and alternate paths fail.

LUN Paths in Single-Head Systems

The primary LUN path to a file volume in LUN0 is C0-L0; the alternate path is C1-L0. The primary LUN path to a file volume in LUN1 is C1-L1 and the alternate path is C0-L1. As illustrated, the system would have the following LUN paths:

TABLE 3-1 LUN Paths in Single-Head Systems

Paths	LUN0	LUN1
Primary	C0-L0	C1-L1
Alternate	C1-L0	C0-L1

Each LUN can be accessed through either controller 0 (C0) or controller 1 (C1).

LUN Paths in Dual-Head Systems

The primary LUN path on Head 1 is C0-L0; the alternate path is C0-L1. The primary LUN path Head 2 is C1-L0 and the alternate path is C1-L1. As illustrated, the system would have the following LUN paths:

TABLE 3-2 LUN Paths in Dual-Head Systems

Head 1	LUNs	LUN0	LUN1
	Paths	C0-L0	C0-L1
Head 2	LUNs	LUN0	LUN1
	Paths	C1-L0	C1-L1

File volumes are normally accessed through the primary LUN path designated for the LUN to which the file volumes belong. In a Sun StorEdge 5310 Cluster configuration, a head induces a failover if its primary and alternate paths fails.

Setting LUN Paths

By setting a LUN path, you designate the current active LUN path. The current active LUN path can be either the primary or alternate path. For optimal performance, the active path should set to the primary path. A LUN can be reassigned only if there are no filesystems on that LUN. On a Sun StorEdge 5310 Cluster system, only the head that “owns” a LUN can reassign it to another head.

Note – On a Sun StorEdge 5310 Cluster system, when you first start the system, all LUNs are assigned to one head (Head 1). You must use Head 1 to reassign some LUNs to Head 2 for even distribution.

The Set LUN Path panel allows you to set active paths. In a Sun StorEdge 5310 Cluster system you can set a path from any head.

To set a LUN path:

1. **In the navigation panel, select Fault Tolerance > Set LUN Path.**

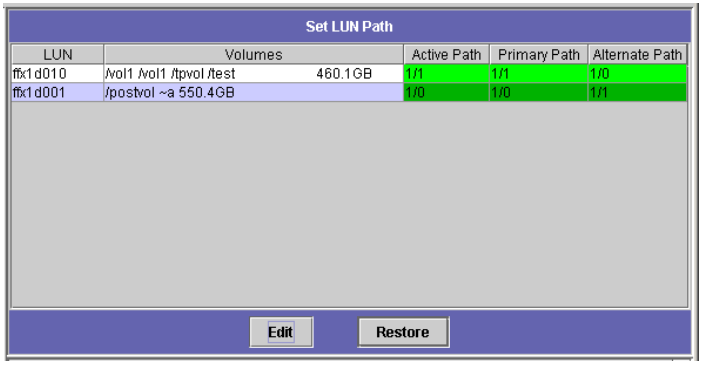


FIGURE 3-1 The Set LUN Path Panel

Note – LUNs that have no LUN path assigned may initially appear multiple times in the Set LUN Path panel, as their presence is advertised by multiple controllers over multiple paths. Once a LUN has a path assigned, it is shown once, on its current path.

2. **Select a LUN and click Edit.**

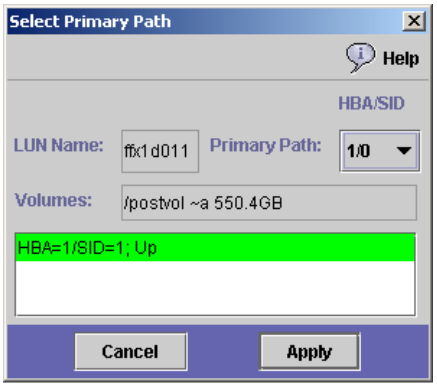


FIGURE 3-2 Select Primary Path Dialog Box

3. **Select the desired controller from the Primary Path drop-down list.**

   Example: The drop-down option "1/0" assigns the selected LUN to controller 0 (C0). Option value "X/Y": The "X" value is either 0 or 1. 1 designates that the controller is active; 0, inactive.

   Evenly divide assignment of LUNs to the two available paths. For example, the first and third LUN to 1/0 and the second and fourth LUN to 1/1.

4. **Click Apply.**

   For additional information about LUN paths, refer to the *Sun StorEdge 5310 NAS Appliance Software Installation, Configuration, and User Guide*.

How to Create Volumes and Add Segments

For information on creating volumes and adding segments, refer to "How to Create File Volumes and Segments" on page 24.

How to Configure Server Properties

Setting the Server Name

To set the Sun StorEdge 5310 NAS Appliance server name as it will appear on the network:

1. **In the Web Administrator navigation panel, select Network Configuration > Set Server Name.**

FIGURE 3-3 The Set Server Name Panel

2. **Set the Sun StorEdge 5310 NAS Appliance server name by entering it in the Server Name box. The server name can include alphanumeric (a-z, A-Z, 0-9), "-" (dash), "_" (underscore), and "." (period) characters.**

Note – The server name must begin with a letter (a-z or A-Z), not a number or a symbol. For example "Astro2" and "Saturn_05" are acceptable server names. However "5Saturn" and "_Astro2" are not.

---

3. **Enter the contact information for your company.**
4. **Click Apply to save your changes.**

How to Configure Network Adapters

You must know which NIC port you are configuring. Refer to the illustrations in the *Sun StorEdge 5310 NAS Appliance Hardware Installation, Configuration, and User Guide* to identify your port numbers.

Note – Contact your network administrator if you need help with any of the network adapter settings.

To configure network adapters:

1. **In the navigation panel, select Network Configuration > Configure TCP/IP > Configure Network Adapters.**

FIGURE 3-4 The Configure Network Adapters Panel

2. **If your network uses a DHCP server to assign IP addresses and you want to enable it, select the Enable DHCP checkbox.**

   Uncheck this checkbox if you want to manually enter a static IP address and netmask. If you do not enable DHCP, the netmask is still disabled if the port is a member of an aggregate port.

Note – On Sun StorEdge 5310 Cluster systems, you cannot enable DHCP unless you have disabled head failover.

---

3. **Select the port you want to configure from the Adapter list.**
4. **Enter the IP address for the selected NIC port.**
5. **Enter the Netmask for the selected NIC port.**

   The Sun StorEdge 5310 NAS Appliance automatically fills in the read-only **Broadcast** field when you enter the IP address and netmask. The broadcast address is the IP address used to send broadcast messages to the subnet.

6. **For each port, select one of the following roles (for more details about port roles, refer to "Sun StorEdge 5310 NAS Appliance Port Locations" on page 61):**
   - **Primary—**The port role of **Primary** identifies an active network port.

Note – At least one port must be assigned a primary role.

   - **Independent**—The port role of **Independent** identifies an active network port used for purposes other than serving data, such as backup.
   - **Mirror**—The port role of **Mirror** shows that the port connects this server to another server to mirror file volumes.
   - **Private—Sun StorEdge 5310 Cluster only**—The **Private** port is reserved for the heartbeat, a dedicated network link that constantly monitors the status of the other head. Each head has only one private port.

7. **To add an alias IP address to the selected port, enter it in the IP-Aliases field. Then click**  **to add it to the IP-Aliases list.**

   You can have up to nine aliases for single-head systems and up to four aliases for dual-head systems. To remove an alias from the list, select it and click  . Changes are not saved until you click **Apply**.

8. **Repeat for all ports in the Adapter list.**
9. **Click Apply to save your changes.**

How to Set the Default Gateway Address

The default gateway address is the IP address of the gateway or router on the local subnet that is used by default to connect to other subnets.

To specify the default gateway address for the Sun StorEdge 5310 NAS Appliance server:

1. **In the navigation panel, select Network Configuration > Configure TCP/IP > Set Gateway Address.**

FIGURE 3-5 The Set Gateway Address Panel

2. **Enter the gateway address in the Gateway text box.**
3. **Click Apply to save your changes.**

How to Set Up DNS

DNS (Domain Name Server) resolves host names to IP addresses for your Sun StorEdge 5310 NAS Appliance.

Note – If you are not using Dynamic DNS, be sure to add the Sun StorEdge 5310 NAS Appliance server host name and IP address to the DNS database. Refer to your DNS documentation for more information.

To set up DNS:

1. **In the navigation panel, select Network Configuration > Configure TCP/IP > Set Up DNS.**

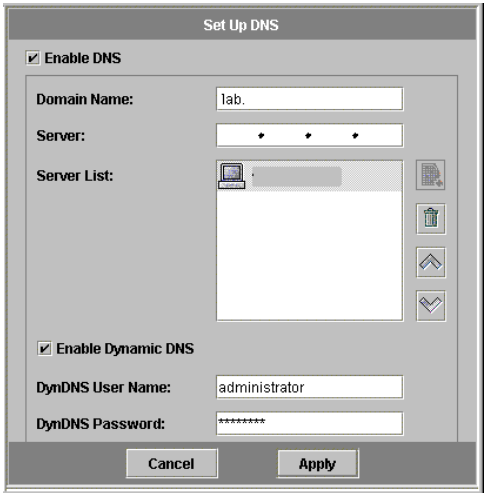


FIGURE 3-6 The Set Up DNS Panel

2. **Select the Enable DNS checkbox to enable DNS. After you enable DNS, you must fill in each DNS field in this screen.**
3. **Enter the DNS server domain name in the Domain Name box.**
4. **Enter the IP address of a DNS Server that will be used to resolve host names for the Sun StorEdge 5310 NAS Appliance, then click the button to add the server to the Server List.**

   Repeat this step for each DNS server you want to add. You can add up to two DNS servers to this list.
5. **The DNS server at the top of the Server List is used first for host name resolution. To rearrange the order of the DNS servers in the list, click on the server you want to move and click the or buttons. To remove a server from the list, select the server IP address and click .**
6. **Select the Enable Dynamic DNS checkbox if you want to add the Sun StorEdge 5310 NAS Appliance into the DNS namespace automatically. You must also configure the Kerberos realm and KDC server in the Windows Configuration > Set Up ADS panel. When you enable Dynamic DNS with this checkbox, non-secure dynamic updates automatically occur if they are allowed by the DNS server.**

7. **If you want to enable secure Dynamic DNS updates, complete the following information. This step is not necessary for non-secure updates.**

   a. **In the DynDNS User Name field, enter the user name of a Windows 2000 user who is authorized to perform secure Dynamic DNS updates. The user account must reside within the ADS domain and Kerberos realm specified in the ADS tab screen.**

      If you enter the domain administrator name here and the ADS update fails, you must change the domain administrator password (on the domain controller). This is only required for the administrator user, and you can reuse the same password. For more information, refer to the Microsoft Support Services Web site, Article Q248808.

   b. **In the DynDNS Password field, enter the password of the DynDNS user. If you are changing this field, delete the entire password before entering a new one.**

8. **Click Apply to save your changes.**

CHAPTER 4

File Volume Operations

File System Concepts

The following commonly used terms are briefly described in the following list.

RAID

RAID stands for Redundant Array of Independent Disks. RAID systems allow data to be distributed to multiple drives through an array controller for greater data security and recoverability. The Sun StorEdge 5310 NAS Appliance offers a RAID 5 array.

LUN

LUN stands for Logical Unit Number. A LUN is a logical device, meaning it is defined in software and does not necessarily conform to a physical device. In the context of network attached storage (the Sun StorEdge 5310 NAS Appliance) the LUN defines a block of storage space, which must be organized and subdivided to be used effectively.

RAID sets (LUNs) are prebuilt on each Sun StorEdge 5300 RAID EU controller enclosure and EU expansion enclosure.

You will need to create file volumes to use these LUNs for Sun StorEdge 5310 NAS Appliance storage. Refer to *How to Create File Volumes and Segments* on page 24 for details.

Partition

Partitions are sections on a LUN. Each LUN can have a maximum of 31 partitions. Each partition can either have space allocated to it or be empty. When a LUN is first created, all of the available space is located in the first partition, while the other partitions are empty. Each partition can "contain" only one file volume or segment.

File Volume

File volumes are organized amounts of available storage space and are created from partitions. The file volume is the space where the user stores information. If the volume does not use up all of the available space in a partition, the remaining space is automatically allocated to the next partition. After 31 volumes are created on a LUN, any remaining space is inaccessible.

Segment

A segment is a portion of a partition that can be attached to an existing file volume to increase its size. Segments can be "attached" to an existing file volume at any time. If a file volume is nearly full, attaching a segment provides the user with more space in which to store data. See "How to Attach Segments" on page 26 for more information.

How to Create File Volumes and Segments

Every new file volume is limited to 256 GB in size. If you want a larger file volume, create one primary volume and up to 63 segments per LUN. Then attach the segment(s) to the primary volume to increase its size. For more information about attaching segments, refer to "How to Attach Segments" on page 26.

Caution – Sun StorEdge 5310 Cluster users—Each head manages its own file volumes. Be sure to access the correct head for which you want to create a file volume. You should enable and configure failover before creating volumes and segments. Refer to the *Sun StorEdge 5310 NAS Appliance Software Installation, Configuration, and User Guide* for details.

To create a file volume or segment:

1. **In the navigation panel, select File Volume Operations > Create File Volumes.**

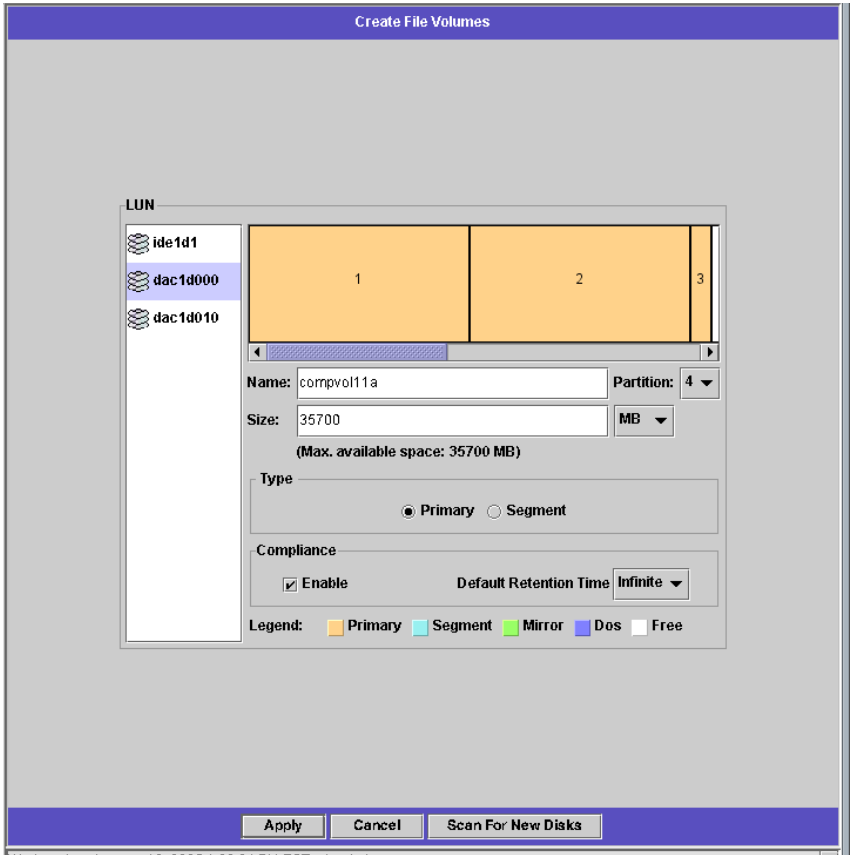


FIGURE 4-1 The Create File Volumes Panel

2. **In the LUN box, click the LUN on which you want to create the primary file volume.**

   The partition number for the file volume in the **Partition** drop-down list will automatically increment when the file volume is created.

3. **Type in the name of the new volume or segment in the Name field.**

   Valid characters include alphanumeric (a–z, A–Z, 0–9) and "_" (underscore) characters. The name must be 12 characters or fewer and must begin with an alphabetical character (a–z, A–Z).

4. **Select whether the size of the file volume is reported in MB (megabytes) or GB (gigabytes) by clicking on the drop-down list.**

5. **Type in the file volume Size in whole numbers. The total space available is shown directly beneath this field.**
6. **Select the file volume type (Primary or Segment).**
7. **If you have the Compliance Archiving Software installed and you want to create a compliance-enabled volume, in the Compliance section click Enable.**

   Refer to the *Sun StorEdge 5310 NAS Appliance Software Installation, Configuration, and User Guide* for information about the Compliance Archiving Software option.

Caution – Once you enable compliance archiving on a volume, that volume cannot be deleted, renamed, or have compliance archiving disabled.

8. **Click Apply to create the new file volume or segment.**

How to Attach Segments

You can add segments to existing primary volumes to increase the volume's total size. You can attach a segment from the same LUN or from a different LUN. Once you add a segment to a volume, you cannot remove it.

Caution – Attaching a segment to a primary file volume cannot be reversed.

You must create a segment before you can attach it to a volume. See "How to Create File Volumes and Segments" on page 24 for information on creating segments.

Caution – Compliance-enabled volumes cannot be deleted. If you add a segment to a compliance-enabled volume, you will not be able to delete or reclaim the space used by the segment.

To attach a segment:

1. **In the navigation panel, select File Volume Operations > Attach Segments.**

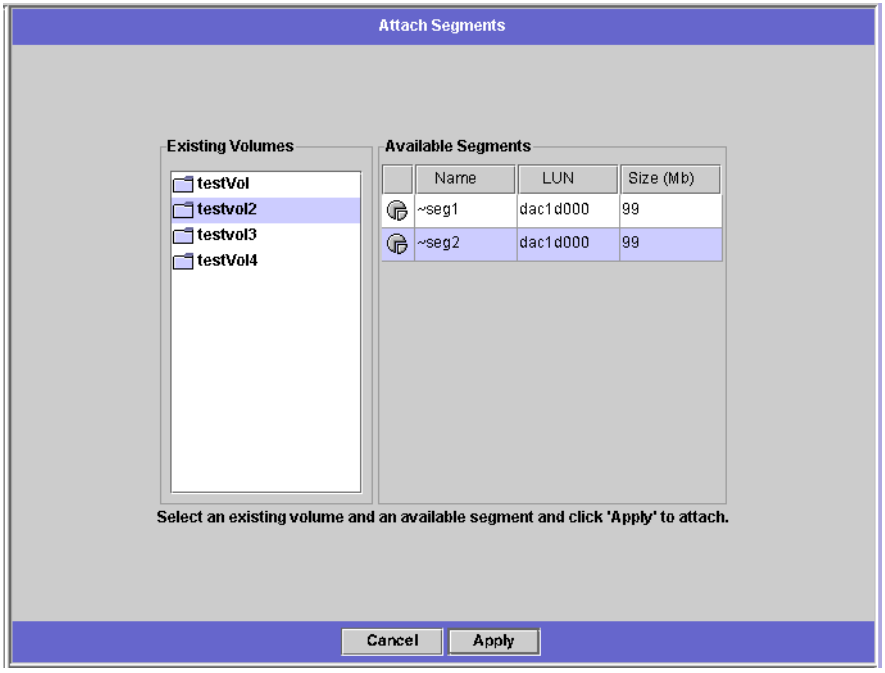


FIGURE 4-2 The Attach Segments Panel

2. **Select the primary volume you are expanding from the Existing Volumes column.**
3. **Select the segment you are attaching from the Available Segments column.**
4. **Click Apply to attach the segment to the volume.**

Configuring Directory Tree Quotas

Directory tree quotas determine how much disk space is available for a directory or how many files can be written to it. Quotas can only be configured for directories created in this panel, not for previously existing directories.

To add a directory tree quota:

1. **In the navigation panel, select File Volume Operations > Manage Quotas > Configure Directory Tree Quotas.**

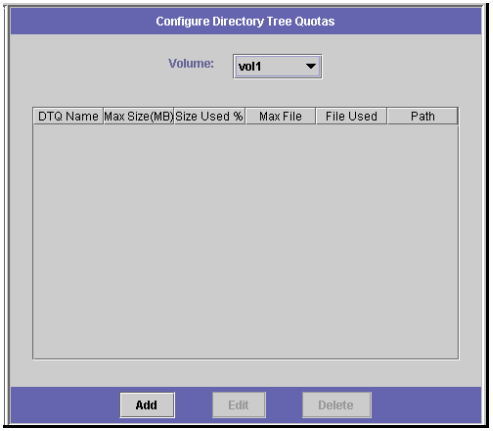


FIGURE 4-3 The Configure Directory Tree Quotas Panel

2. **Select the file volume for which you are configuring a directory tree quota.**
3. **Click Add to display the Add DTQ Setting dialog box.**

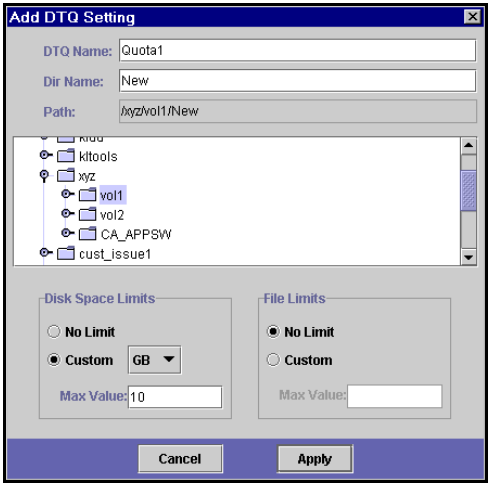


FIGURE 4-4 The Add DTQ Setting Dialog Box

4. **In the DTQ Name field, enter a name to identify this directory tree quota.**

5. **In the Dir Name field, enter a name for the new directory. You can only configure directory quotas for directories created in this field.**

   Underneath the **Path** field, a box shows the directory tree structure for the file volume you selected in the **Configure Directory Tree Quotas** panel.

   a. **To view the contents of a folder, click the symbol next to the folder to the position, or double-click the folder icon.**

   b. **Select the directory that will contain the new directory for which you are setting this quota.**

   c. **When the full path of the directory is shown in the Path field, continue to the next field to set disk space and file limitations.**

6. **Select the disk space limit for the directory in the Disk Space Limits section; either No Limit or Custom. Selecting No Limit allows unlimited disk space usage for the directory. Select Custom if you want to designate a maximum amount of disk space. Then choose whether the quota is reported in MB or GB, and enter the disk space limit in the Max Value field. Entering a Custom value of 0 (zero) is the same as choosing No Limit.**

7. **In the File Limits field, select the maximum number of files that can be written to this directory; either No Limit or Custom. Selecting No Limit allows an unlimited number of files to be written to this directory. Select Custom if you want to designate a maximum number of files. Then enter the file limit in the Max Value field.**

8. **Click Apply to add the quota.**

9. **Click Apply to save your changes.**

How to Create Sun StorEdge File Checkpoints

About Checkpoints

A *checkpoint* is a virtual read-only copy of a primary file volume. The file volume remains in read/write operation. However, all of the data existing at the time you created the checkpoint is still available. You can use a checkpoint to retrieve files that you have mistakenly modified or deleted and to stabilize backups.

Remember that a checkpoint is a virtual copy of the file volume that is stored in the same physical location as the volume itself. It is not an online backup. If the file volume is lost, so are all of the checkpoints.

Note – If your users create or modify many files, the system may require a large amount of storage to retain multiple checkpoint sets of older file versions. The more checkpoints you create, the greater the potential effect on system performance.

Scheduling Checkpoints

The Schedule Checkpoints panel displays the current checkpoint schedule and lets you add, edit, and remove scheduled checkpoints. For each scheduled checkpoint, you can see the file volume name, a description, the scheduled time(s) and day(s), and the amount of time the system will keep the checkpoint. The keep time is the number of days plus the number of hours before the checkpoint is automatically deleted.

Adding an Entry to the Checkpoint Schedule

When you add a checkpoint to the table, the system automatically sets up a new checkpoint for the times and dates you request. You can schedule as many checkpoints as you want. However, the system uses a large amount of space and system memory for checkpoints. The more checkpoints you create, the more they affect system performance.

To add a schedule line:

1. **The first step in scheduling checkpoints is to enable them for the file volume. If you have not already enabled checkpoints, do so:**
   a. **In the navigation panel, select File Volume Operations > Edit Properties.**
   b. **Click the Volume Name drop-down list and select the volume on which you want to enable checkpoints.**
   c. **Be sure the Enable Checkpoints box is checked (☑). By default, this box is checked. If not, select the box and click Apply.**

2. **In the navigation panel, select File Volume Operations > Configure Checkpoints > Schedule Checkpoints.**

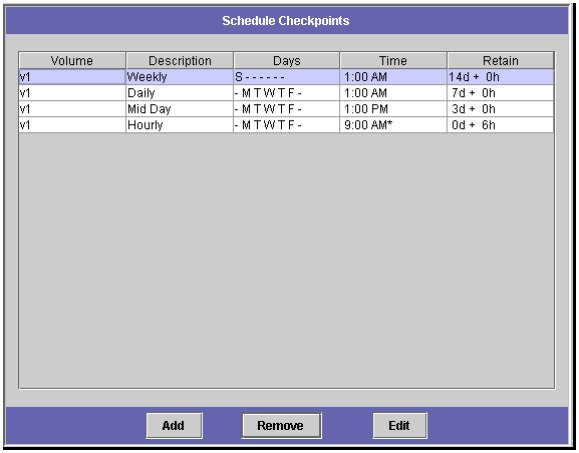


FIGURE 4-5 The Schedule Checkpoints Panel

3. **To add a schedule line, click Add.**

FIGURE 4-6 The Add Checkpoint Schedule Dialog Box

4. **Select the file volume for which you are scheduling checkpoints.**

5. **Enter a description for the checkpoint in the Description box. This field is mandatory. You can use it to enter information like the time between checkpoints, for example "weekly" or "daily."**
6. **Select the days and times to create checkpoints in the Days, AM Hours, and PM Hours boxes.**
   a. **Select the days on which you want to create the checkpoint. To select more than one day from this list, hold the Ctrl key while clicking additional days with the mouse.**
   b. **In the AM Hours list, select the time(s) of morning when you want to create the checkpoint. To select more than one time from this list, hold the Ctrl key while clicking additional times with the mouse.**
   c. **In the PM Hours list, select the time(s) of afternoon or night when you want to create the checkpoint. To select more than one time from this list, hold the Ctrl key while clicking additional times with the mouse.**
7. **Click Apply to save your changes.**

Creating Immediate Checkpoints

You can choose whether to schedule a checkpoint or create one immediately. See "Scheduling Checkpoints" on page 30 for information on setting up a regular checkpoint schedule.

In the Manage Checkpoints panel, you can create immediate checkpoints as well as rename and remove existing ones. Unlike scheduled checkpoints, which you create at a pre-determined day and time, you can create immediate checkpoints at any time.

To Create an Immediate Checkpoint

You can configure a checkpoint immediately instead of on a time schedule.

To create a new checkpoint manually:

1. **To create a checkpoint, you must enable checkpoints for the file volume. If you have not already enabled checkpoints, do so:**
   a. **In the navigation panel, select File Volume Operations > Edit Properties.**
   b. **Click the Volume Name drop-down list and select the volume on which you want to enable checkpoints.**

c. **Be sure the Enable Checkpoints box is checked (☑). By default, this box is checked. If not, select the box and click Apply.**

2. **In the navigation panel, select File Volume Operations > Configure Checkpoints > Manage Checkpoints.**

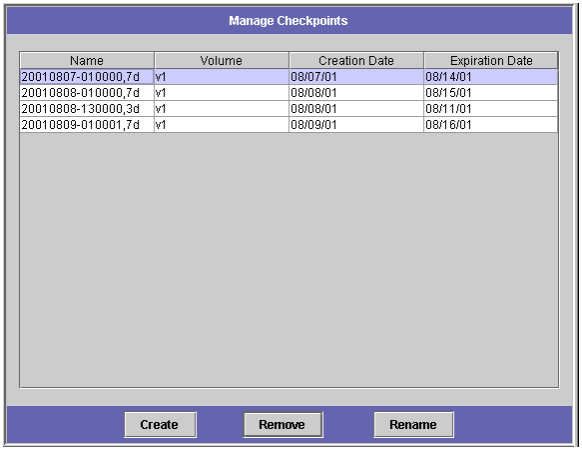


FIGURE 4-7 The Manage Checkpoints Panel

3. **To create a new checkpoint, click Create.**

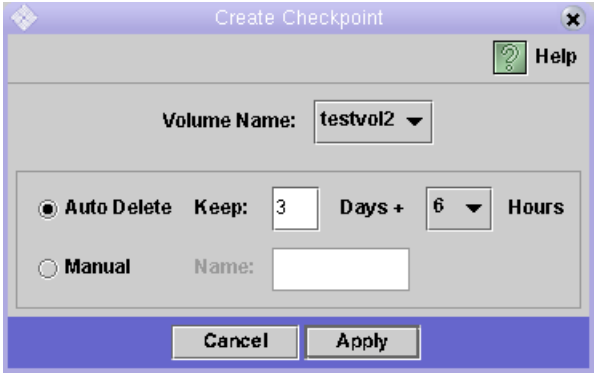


FIGURE 4-8 The Create Checkpoint Dialog Box

4. **Select the Volume Name for which you want to create a checkpoint from the drop-down list.**

5. **Select one of the following checkpoint options:**

- **Auto Delete** – Select **Auto Delete** if you want the Sun StorEdge 5310 NAS Appliance to automatically remove the checkpoint after the number of **Keep Days** and **Keep Hours** have elapsed. In this option the system automatically assigns the name of the checkpoint. If you select this option, select the number of days and hours the system should keep the checkpoint.
- **Manual** – To create a checkpoint with a user-defined name, select this option. Then enter the desired name in the **Name** field. The name "backup" is reserved for system use and cannot be used here. A checkpoint created in this manner can only be deleted manually.

6. **Click Apply to create the checkpoint.**

How to Share a Checkpoint

1. **In the navigation panel, select Windows Configurations > Configure Shares.**

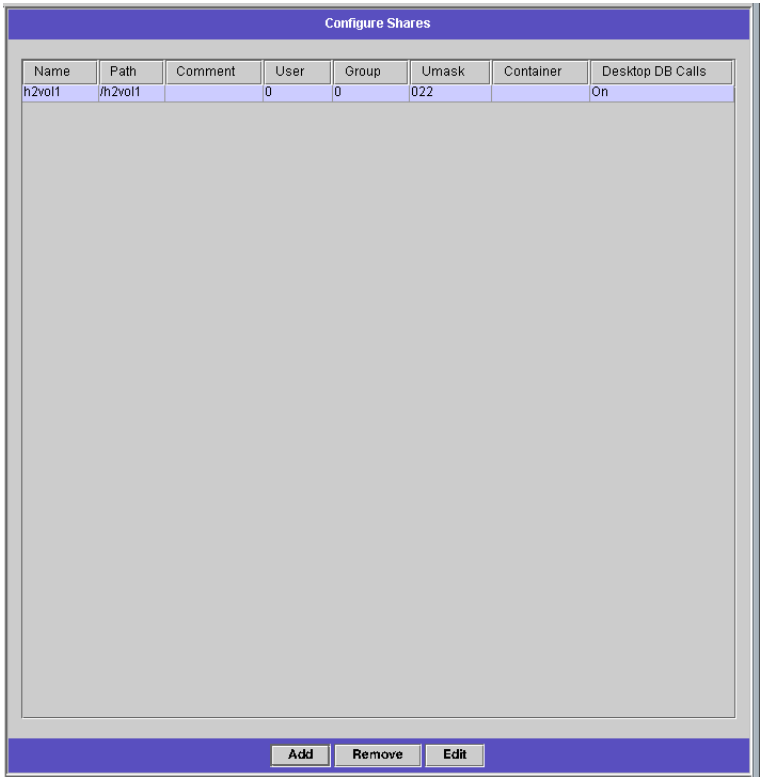


FIGURE 4-9 The Configure Shares Panel

2. **In the Configure Shares panel, click Add.**

3. **Type the new share name for the checkpoint in the Share Name box. Other computers on the network use the share name to access the checkpoint through the network.**

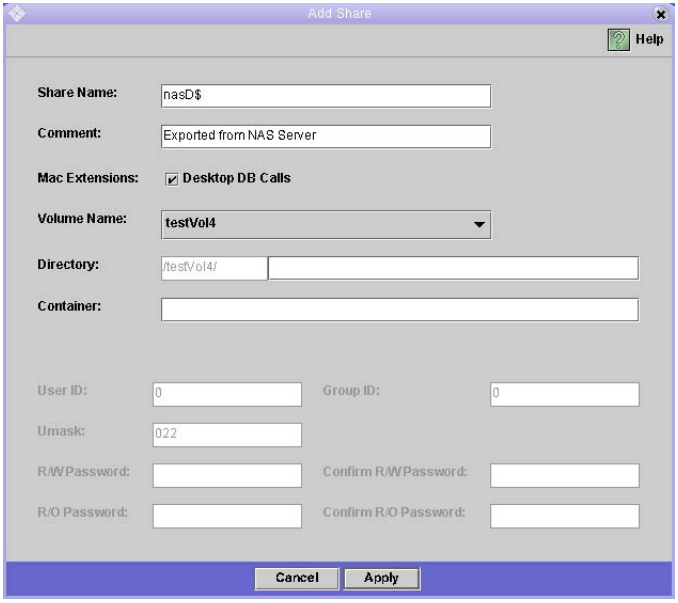


FIGURE 4-10 The Add Share Dialog Box

4. **The Mac Extensions option is checked by default.**
5. **Click the Volume Name drop-down list box and select the desired checkpoint volume from the list. Checkpoint volumes have the ".chkpnt" extension.**
6. **You can leave the Directory field blank.**
7. **If you have enabled and configured ADS, type an ADS context in the Container text box.**

8. **Click Apply.**

   Notice the new checkpoint is listed as a share in the **Configure Shares** panel.

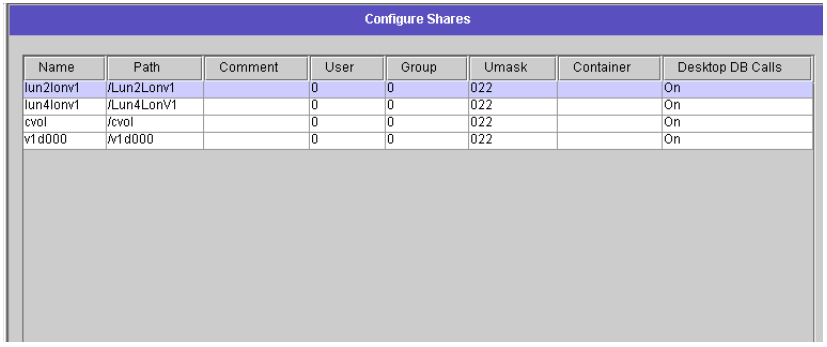


FIGURE 4-11 The Configure Shares Panel

How to Access a Checkpoint

1. **Using a workstation on the network, click the Windows Start menu and select Run.**

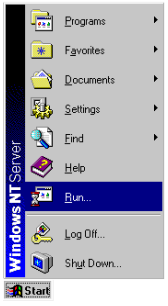


FIGURE 4-12 The Windows Start Menu

2. **In the Run dialog box, type the Sun StorEdge 5310 NAS Appliance server IP address and checkpoint sharename.**

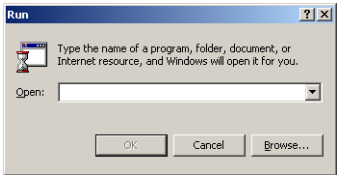


FIGURE 4-13 The Run Dialog Box

Example: Type "\\xxx.xxx.xxx.xxx\sharename".

3. **Click OK.**

CHAPTER 5

Windows Configuration

How to Configure Microsoft Networking

Configuring the domain, workgroup, or Active Directory Service (ADS) is a Windows function. If you are running a pure UNIX network, you do not need to configure either Windows Domains or Windows Workgroups.

Enable Windows Workgroup, NT Domain security, or ADS through the **Configure Domains and Workgroups** panel. By default, your Sun StorEdge 5310 NAS Appliance is configured in Windows Workgroup mode, with a workgroup name of "workgroup."

To configure Windows security:

1. **In the navigation panel, select Windows Configuration > Configure Domains and Workgroups.**

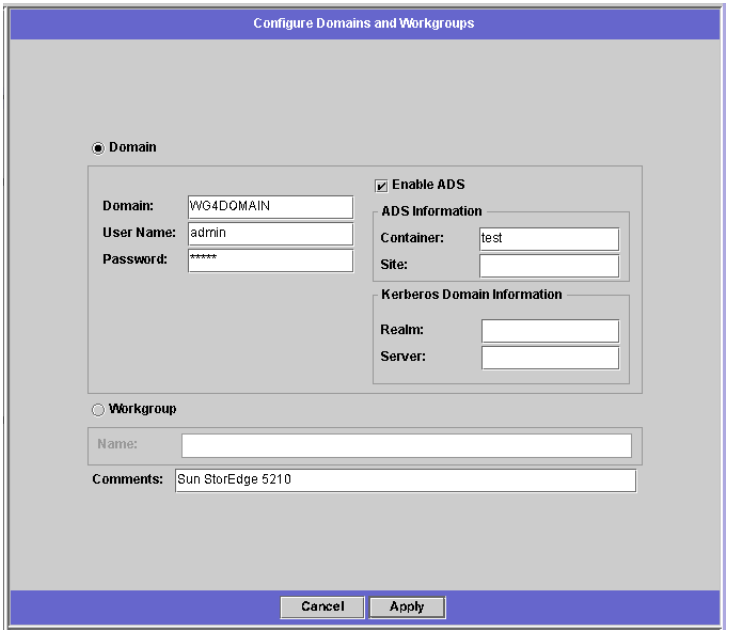


FIGURE 5-1 The Configure Domains and Workgroups Panel

2. **To enable Windows domain security, select the Domain option button. This option creates an account on the domain for the Sun StorEdge 5310 NAS Appliance. You must specify a user account with rights to add servers to the specified domain.**

   Then enter the following:

   - Enter the name of the domain in the **Domain** field. This name must conform to the 15-character NetBIOS limitation.
   - Enter the name and password of the administrative domain user in the **User Name** and **Password** fields. The user name must be 16 characters or fewer.

3. **To enable Windows workgroup security, click the Workgroup option button.**

   Then enter the following:

   - Enter the name of the workgroup in the **Name** field. This name must conform to the 15-character NetBIOS limitation.
   - In the **Comments** field, enter a description of the Sun StorEdge 5310 NAS Appliance server (optional).

4. **To enable ADS, click the Enable ADS checkbox. For more detail about ADS, refer to *How to Publish Shares in ADS* on page 49.**

Note – Prior to enabling ADS, you must verify that the Sun StorEdge 5310 NAS Appliance time is within five minutes of any ADS Windows 2000 domain controller. To verify the Sun StorEdge 5310 NAS Appliance time, select **System Operations > Set Time and Date** from the navigation panel.

Then enter the following:

- In the **Domain** field, enter the Windows 2000 Domain in which ADS is running. The Sun StorEdge 5310 NAS Appliance must belong to this domain.
- In the **User Name** field, enter the user name of a Windows 2000 user with administrative rights. This person must be the domain administrator or a user who is a member of the domain administrators group. The ADS client verifies secure ADS updates with this user.

Note – If you enter the domain administrator name here and the ADS update fails, you must change the domain administrator password (on the domain controller). Only the administrator user must do this, and the same password can be reused. For more information, refer to the Microsoft Support Services Web site, Article Q248808.

- In the **Password** field, enter the Windows 2000 administrative user's password.
- In the **Container** field, enter the ADS path location of the Windows 2000 administrative user in Lightweight Directory Access Protocol (LDAP) distinguished name (DN) notation.

Note – Do not include the domain name in the path.

- Enter the name of the local ADS site in the **Site** field if it differs from the ADS domain. Otherwise, leave the field blank.
- In the **Kerberos Realm Info** section, enter the **Realm** name used to identify ADS. This is normally the ADS domain or the DNS domain. When you click **Apply**, this entry is converted to all upper-case letters.
- In the **Server** field, enter the host name of the Kerberos Key Distribution Center (KDC) server. This is usually the host name of the primary domain controller in the ADS domain. You can leave this field blank if the Sun StorEdge 5310 NAS Appliance can locate the KDC server through DNS.

5. **Click Apply to save your settings. If you change the security mode from workgroup to NT domain, or vice versa, the server automatically reboots when you click Apply.**

How to Set Up WINS

A WINS server resolves NetBIOS names to IP addresses, allowing computers on your network to locate others more quickly and efficiently.

To add a WINS server:

1. **In the navigation panel, select Windows Configuration > Set Up WINS.**

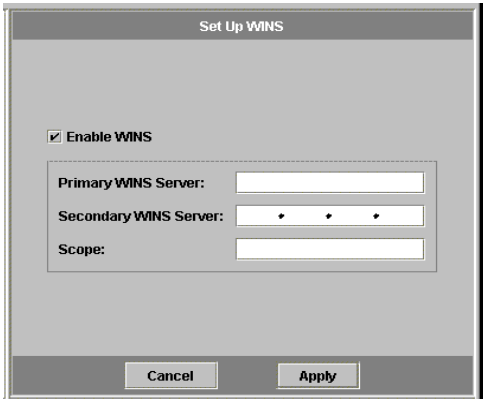


FIGURE 5-2 The Set Up WINS Panel

2. **To enable WINS, click the Enable WINS checkbox. This allows the Sun StorEdge 5310 NAS Appliance server to be a WINS client.**
3. **Enter the primary and secondary WINS server IP addresses in the spaces provided (Primary WINS Server and Secondary WINS Server). The primary WINS is the first server consulted for name resolution. If the primary WINS server does not respond, the secondary WINS server is consulted.**
4. **Enter the NetBIOS Scope identifier (optional) in the Scope field. Defining a scope will prevent this computer from communicating with any systems that are outside the scope. The scope is useful if you want to divide a large Windows workgroup into smaller groups. If you use a scope, the scope ID must follow NetBIOS name conventions or domain name conventions and is limited to 16 characters.**
5. **Click Apply to save your changes.**

Windows Shares

About Shares

A shared resource, or share, is a local resource on a server that is accessible to Windows clients on the network. On a NAS server, it is typically a file volume or a sub-tree within a volume. Each share is assigned a name by which it is referenced on the network. To clients on the network, the share appears as a complete volume on the server, and they do not see the local directory path directly above the root of the share.

Note – Shares and directories are independent entities. Removing a share does not affect the underlying directory.

Shares are used to provide network access to home directories on a network file server. Each user is assigned a home directory within a file volume. A share is then created to let that user assign their home directory as a network drive on a client workstation. For example, a volume vol1 may contain a home directory named home, and subdirectories for users bob and sally. The shares would be defined as follows:

TABLE 5-1 Share Path Examples

Share Name	Directory Path
bob	/vol1/home/bob
sally	/vol1/home/sally

If manually defining and maintaining a home directory share for each Windows user is inconvenient, you may want to use the autohome feature. Autohome shares are temporary shares created when a user logs on to the system and removed when the user logs off.

Static shares are persistent resources that remain defined regardless of whether or not users are attached to the server. Autohome shares are temporary shares created when a user logs on to the system and removed when the user logs off. See "About Autohome Shares" on page 47 for more information.

How to Configure Shares

The table at the top of the **Configure Shares** panel shows information about all existing SMB shares in the Sun StorEdge 5310 NAS Appliance. This information includes the share name and directories shared, container names, and desktop database calls, as well as information concerning Windows Workgroups only (user, group, umask, and passwords).

Note – A volume or directory must exist before it can be shared.

By default, a hidden share is created for the root of each volume and is accessible only to Domain Administrators. These shares are typically used by administrators to migrate data and create directory structures. The share names can be found in the Configure Shares screen. The user shares are not created until after this step, as sharing directories at a point below the volume root eases security administration.

Creating Shares

To add a new SMB share:

1. **In the navigation panel, select Windows Configuration > Configure Shares.**

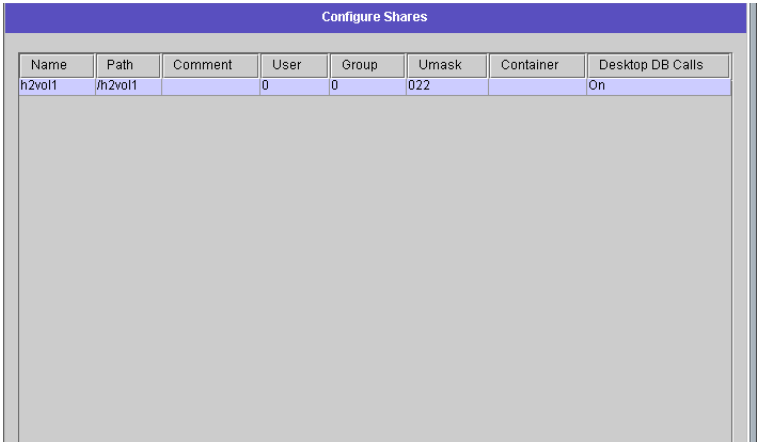


FIGURE 5-3 The Configure Shares Panel

2. **Click Add to display the Add Share dialog box.**

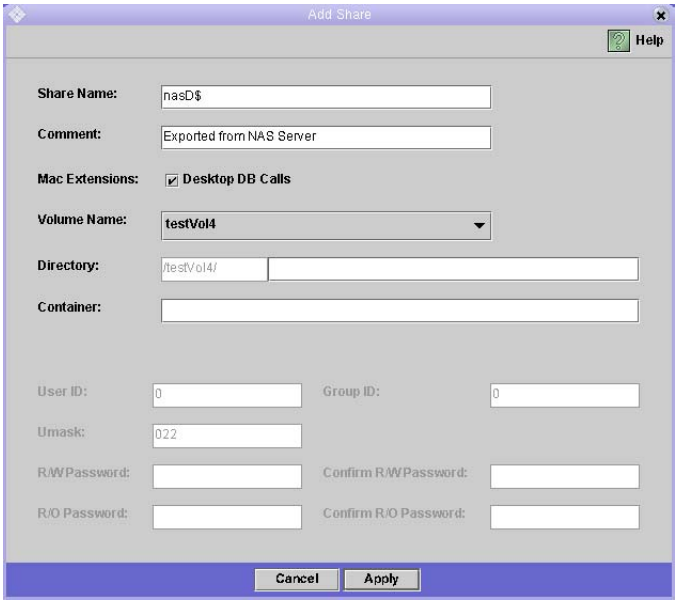


FIGURE 5-4 The Add Share Dialog Box

3. **Type the name of the share you want to add in the Share Name field. This is the name that users see on the network. There is a fifteen-character maximum for this field. The following characters are invalid:**

   = | : ; \ " ? < > * /

4. **Optionally, add a Comment to describe the share.**

5. **Select the Desktop DB Calls checkbox in the Mac Extensions section if you want to let the Sun StorEdge 5310 NAS Appliance access and set Macintosh desktop database information. This speeds up Macintosh client file access and allows non-Macintosh clients to access Macintosh files on the Sun StorEdge 5310 NAS Appliance.**

6. **Select the volume to be shared from the list of available volumes in the Volume Name drop-down list.**

7. **Enter an existing directory in the Directory field. You cannot create a directory in this field. Directory names are case-sensitive.**

Note – Do not leave the Directory field blank.

---

8. **The Container field (optional) specifies the ADS container in which the share is published. This field is available only if you have enabled ADS for the Sun StorEdge 5310 NAS Appliance in the Set Up ADS panel. Enter the path in terms of the share's cn (common name) folder or ou (organizational unit).**

   For example, if the share resides in a "shares" organizational folder within an organizational parent folder called "accounting," you would type the following:

   ```
   ou=shares,ou=accounting
   ```

   Note – Do not include the domain name in the path.

9. **The User ID, Group ID, and Password fields are only available if you enable Windows Workgroup mode (not NT Domain mode) on the Sun StorEdge 5310 NAS Appliance. See "How to Configure Microsoft Networking" on page 39 for information on enabling Windows security models.**

   Windows Workgroup uses share-level security. The User ID (UID), Group ID (GID), and password fields in this screen are the sole means of security for Sun StorEdge 5310 NAS Appliance file ownership and access by Windows Workgroup users. In other words, the rights to a directory are determined by the share definition not by the user. The Sun StorEdge 5310 NAS Appliance assumes that the client has not authenticated any request and explicitly asks for permission through passwords for every share-connection request.

   You can create multiple shares for the same directory with different UIDs, GIDs, and passwords. You can then give each user a password for a specific share. You can also manage individual user and group limitations on the amount of file volume space and number of files used through quotas. For more information about quotas, refer to the *Sun StorEdge 5310 NAS Appliance Software Installation, Configuration, and User Guide*.

   a. **User ID and Group ID – Enter the UID and GID of the user accessing the specified directory through this share. The default value for this field is "0" (zero), which is the value of the UNIX root user. However, be careful when you assign this value. In Windows Workgroup mode, entering zero in these fields disables all security on all files and directories in that share.**

   b. **R/W Password – Enter the password for Windows Workgroup users who have read/write access to the directories specified for this share.**

   c. **Confirm R/W Password – Re-enter the R/W password for confirmation.**

   d. **R/O Password – Enter the password for Windows Workgroup users who have read-only access to the directories specified for this share.**

   e. **Confirm R/O Password – Re-enter the R/O password for confirmation.**

10. **In the Umask field, enter the file creation mask, if any, you want to apply to this share. The umask defines the security policy for files and directories created in Share mode. It specifies the permission bits to turn off when a file is created.**

    The umask is defined in octal because octal numbers are comprised of three bytes, which maps easily to the UNIX file permission representation. The umask is applied using standard UNIX rules, except for the DOS read-only attribute. If the DOS read-only attribute is set when the file is created, all write bits will be removed from the file's permissions after the umask has been applied.

    The following table shows umask to permission examples, including the effect of the DOS read-only attribute.

TABLE 5-2 Umask Permission Examples

Umask	New Directory Permissions		New File Permissions	
	DOS R/W	DOS R/O	DOS R/W	DOS R/O
000	777 (rwxrwxrwx)	555 (r-xr-xr-x)	666 (rw-rw-rw)	444 (r--r--r--)
777	000 (---------)	000 (---------)	000 (---------)	000 (---------)
022	755 (rwxr-xr-x)	555 (r-xr-xr-x)	644 (rw-r--r--)	444 (r--r--r--)
002	775 (rwxrwxr-x)	555 (r-xr-xr-x)	664 (rw-rw-r--)	444 (r--r--r--)

11. **Click Apply to save your changes.**

How to Configure Autohome Shares

About Autohome Shares

The SMB/CIFS autohome share feature eliminates the administrative task of defining and maintaining home directory shares for each Windows user accessing the system. The system creates autohome shares when a user logs on and removes them when the user logs off.

To configure the autohome feature, enable it and provide an autohome path. The autohome path is the base directory path for the directory shares. For example, if a user's home directory is /vol1/home/sally, set the autohome path to **`/vol1/home`**. The temporary share is named sally. The user's home directory name must be the same as the user's logon name.

When a user logs on, the server checks for a subdirectory that matches the user's name. If a match is found and that share does not already exist, a temporary share is added. When the user logs off, the share is removed.

Windows clients can automatically log a user off after fifteen minutes of inactivity, which results in the autohome share disappearing from the list of published shares. This is normal CIFS protocol behavior. If the user clicks on the server name or otherwise attempts to access the Sun StorEdge 5310 NAS Appliance (for example, through an Explorer window), the share automatically reappears.

Note – All autohome shares are removed when the system reboots.

Configuring Autohome Shares

To enable autohome shares:

1. **In the navigation panel, select Windows Configuration > Configure Autohome.**

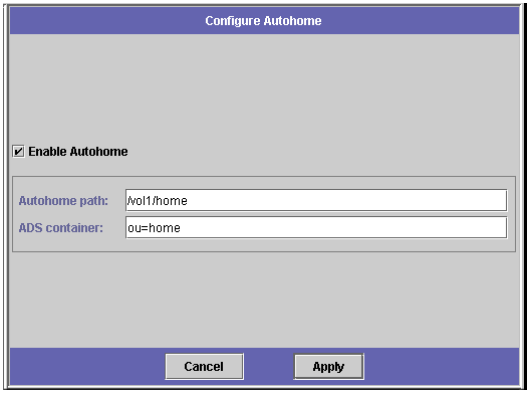


FIGURE 5-5 The Configure Autohome Shares Panel

2. **Select the Enable Autohome checkbox.**
3. **Enter the Autohome Path. See "About Autohome Shares" on page 47 for the path name rules.**

4. **Enter the ADS Container. This specifies the ADS container in which the shares are published. The shares are published in ADS only if you configure ADS for the Sun StorEdge 5310 NAS Appliance in the Set Up ADS panel.**

   Enter the path using the share's **cn** (common name) folder or **ou** (organizational unit). For example, if the share resides in a "shares" organizational folder within an organizational parent folder called "home," you type:

   ```
   ou=shares, ou=home
   ```

   Note – Do not include the domain name in the path.

5. **Click Apply to save your changes.**

How to Publish Shares in ADS

Active Directory Service (ADS) is a Windows 2000 namespace integrated with the Domain Name Server (DNS). ADS runs only on domain controllers. In addition to storing and making data available, ADS also protects network objects from unauthorized access and replicates objects across a network so that data is not lost if a domain controller fails. When you enable and set up ADS, the Sun StorEdge 5310 NAS Appliance automatically performs ADS updates.

In order for the Sun StorEdge 5310 NAS Appliance to integrate seamlessly into a Windows 2000 Active Directory environment, the following items must exist on the network:

- A Windows 2000 server domain controller
- An Active Directory-integrated DNS server allowing dynamic updates (needed in order to use the Sun StorEdge 5310 NAS Appliance Dynamic DNS capability) should be used but is not required for using ADS.

After setting up ADS, you can enable ADS to publish specific Sun StorEdge 5310 NAS Appliance shares in the ADS directory. To do so, create or update Sun StorEdge 5310 NAS Appliance SMB shares and specify the share container for each share you want to publish.

Setting Up ADS

To enable ADS service with Sun StorEdge 5310 NAS Appliance:

1. **In the navigation panel, select System Operations > Set Time and Date.**

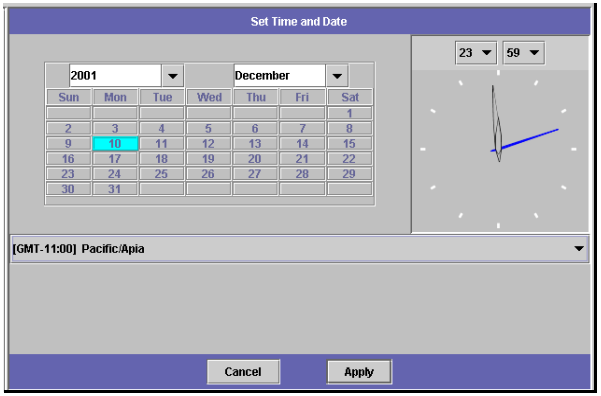


FIGURE 5-6 The Set Time and Date Panel

2. **Verify that the Sun StorEdge 5310 NAS Appliance time is within five minutes of any ADS Windows 2000 domain controller. Click Apply to save any changes.**

Note – Resetting the date and time will change the system clock that the Sun StorEdge 5310 NAS Appliance uses for most time-related operations. It will not change the secure clock used by the license management software and the Compliance Archiving Software.

---

3. **In the navigation panel, select Windows Configuration > Configure Domains and Workgroups.**

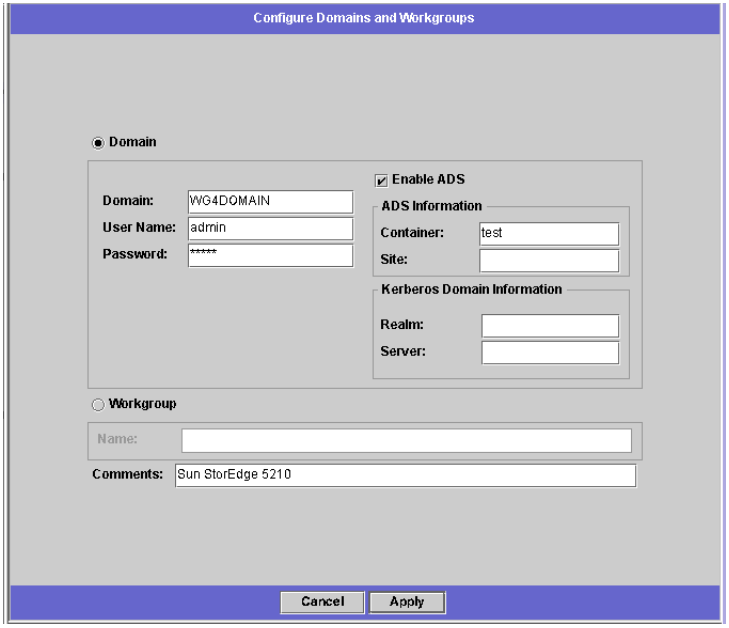


FIGURE 5-7 The Configure Domains and Workgroups Panel

4. **Select the Enable ADS checkbox.**

5. **In Domain, enter the Windows 2000 Domain in which ADS is running. The Sun StorEdge 5310 NAS Appliance must belong to this domain.**

6. **In the User Name field, enter the user name of a Windows 2000 user with administrative rights. This user must be the domain administrator or a user that is a member of the domain Administrators group. The ADS client verifies secure ADS updates with this user.**

Note – If you enter the domain administrator name here and the ADS update fails, you must change the domain administrator password (on the domain controller). This is only required for the administrator user and the same password may be reused. For more information, refer to the Microsoft Support Services Web site, Article Q248808.

---

7. **In the Password field, enter the Windows 2000 administrative user's password.**

8. **In the Container field, enter the ADS path of the Windows 2000 administrative user in Lightweight Directory Access Protocol (LDAP) distinguished name (DN) notation.**

   Enter the path using the user's **cn** (common name) folder or **ou** (organizational unit). For example, if the user is in a "users" organizational folder within an organizational parent folder called "accounting," type:

   `ou=users,ou=accounting`

   Note – Do not include the domain name in the path.

   ---

9. **In the Site field, enter the name of the local ADS site if it differs from the ADS domain. Otherwise, leave it blank.**

10. **In the Kerberos Realm Info section, enter the Realm name used to identify ADS. This is the ADS domain or the DNS domain. When you click Apply, this entry converts to all uppercase letters.**

11. **In the Server field, enter the host name of the Kerberos Key Distribution Center (KDC) server. This is the host name of the primary domain controller in the ADS domain. You can leave this field blank if the Sun StorEdge 5310 NAS Appliance can locate the KDC server through DNS.**

12. **Click Apply to save your changes.**

Verifying Name Service Lookup Order

1. **Verify that the name service lookup order for DNS is enabled and set to the desired priority. To do so, select UNIX Configuration > Configure Name Services.**

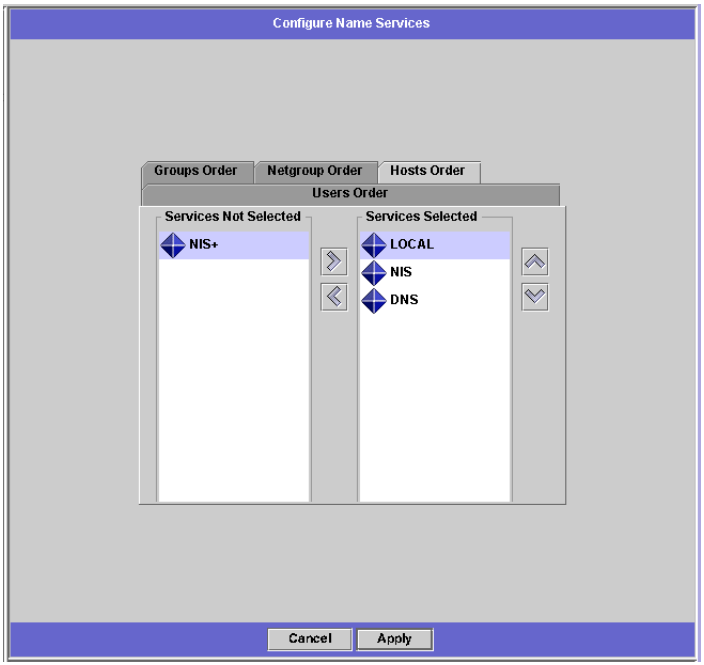


FIGURE 5-8 The Configure Name Services Panel

The DNS Service is listed under the Hosts Order tab. Be sure the DNS service is listed under Services Selected in the right-hand box. If it is not, select the DNS service and click the  button.

2. **Use the  and  buttons to change the order in which the selected services are scanned.**

3. **Click Apply to save any changes.**

Verifying DNS Configuration

1. **In the navigation panel, select Network Configuration > Configure TCP/IP > Set Up DNS.**
2. **Select the Enable DNS checkbox to enable DNS.**

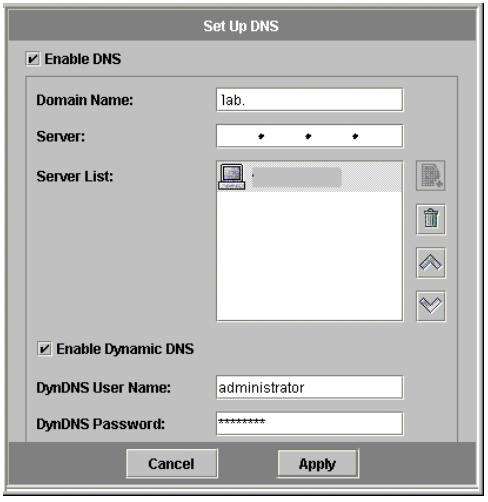


FIGURE 5-9 The Set Up DNS Panel

3. **Enter the DNS Domain Name. This must be the same as the ADS domain.**
4. **In the Server field, enter the IP address of the DNS server you want the Sun StorEdge 5310 NAS Appliance server to use.**
5. **Then click the button to place the server address in the DNS Server List.**
6. **Select the Enable Dynamic DNS checkbox. If Dynamic DNS is not enabled, you must manually add the Sun StorEdge 5310 NAS Appliance host name and IP address to DNS.**

Note – You must also configure the Kerberos realm and KDC in the Set Up ADS panel and your DNS server must allow dynamic updates in order for the Dynamic DNS feature to work.

---

7. **In the DynDNS User Name field, enter the user name of a Windows 2000 user with the administrative rights to perform secure dynamic DNS updates. This user must reside within the ADS domain, ADS container, and Kerberos realm specified in the Configure Names and Workgroups panel.**

   Leave this field blank for non-secure updates if they are allowed by the DNS server.

8. **In the DynDNS Password field, enter the password of the Dynamic DNS user.**
9. **Click Apply to save your changes. If you enable Dynamic DNS, the Sun StorEdge 5310 NAS Appliance immediately updates DNS with its host name and IP address.**

Publishing Shares in ADS

To publish shares in ADS:

1. **In the navigation panel, select Windows Configuration > Configure Shares.**
2. **Click Add to display the Add Share dialog box.**

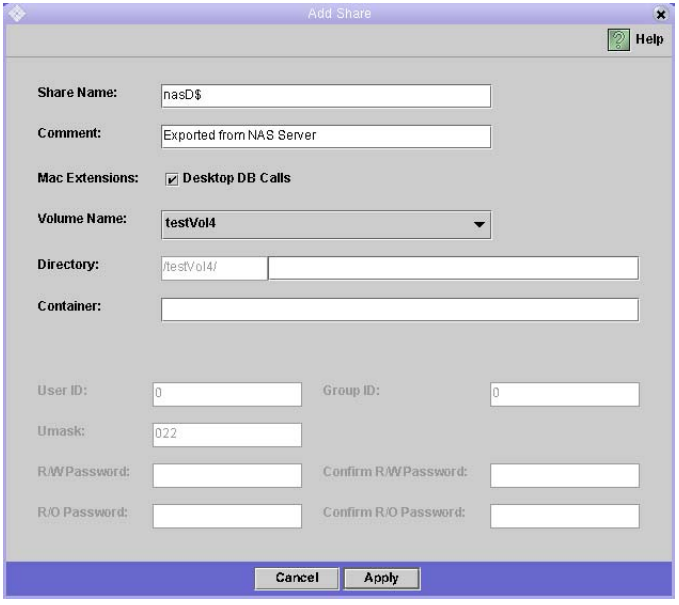


FIGURE 5-10 The Add Share Dialog Box

3. **Enter a Share Name.**
4. **Optionally, add a Comment to describe the share.**
5. **Select a volume to be shared from the Volume Name pull-down box.**
6. **In the Directory field, enter an existing directory on the selected volume that you want to share. This field is optional.**

7. **In the Container field, enter the location in the ADS directory in which the share is to be published. This field is available only if you enable ADS for the Sun StorEdge 5310 NAS Appliance in the Configure Domains and Workgroups panel.**

   Enter the path using the share cn (common name) folder or ou (organizational unit). For example, if the share resides in a "shares" folder within a parent folder called "accounting," type:

   `ou=shares,ou=accounting`

   Note – Do not include the domain name in the path.

   ---

8. **Click Apply.**

   Note – The folder specified must exist to publish the share in that folder. Sun StorEdge 5310 NAS Appliance does not create folders (container objects) in the ADS tree.

CHAPTER 6

UNIX Configuration

How to Configure Name Services

Setting Up LDAP

To use LDAP, the LDAP server must be running.

To enable LDAP service on the Sun StorEdge 5310 NAS Appliance:

1. **In the navigation panel, select UNIX Configuration> Set Up NSSLDAP.**

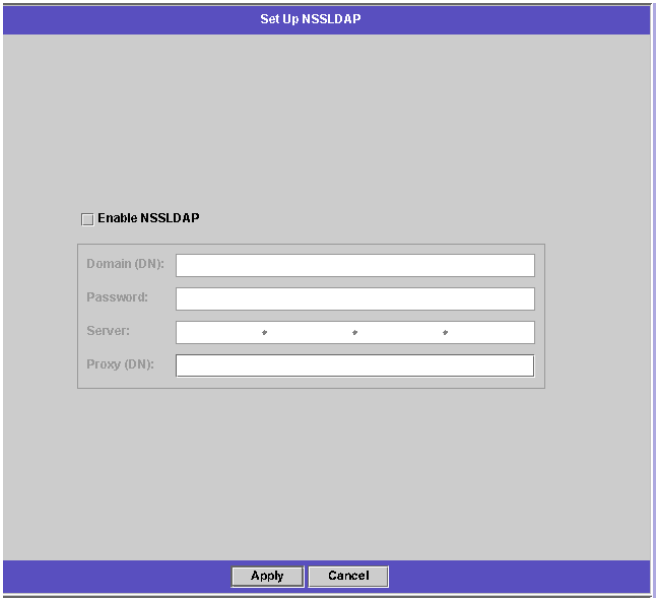


FIGURE 6-1 The Set Up NSSLDAP Panel

2. **To enable LDAP, check the Enable NSSLDAP checkbox.**
3. **In the Domain field, enter the domain name of the LDAP server, e.g., foo.com.**
4. **In the Password field, enter the password set on the LDAP server.**
5. **In the Server field, enter the IP address of the LDAP server.**
6. **In the Proxy field, enter the proxy domain, if appropriate for your network.**
7. **Click Apply to save the settings.**

Setting Up NIS

The Set Up NIS panel allows you to enable Network Information Service (NIS) and specify the domain name and server IP address.

To configure NIS:

1. **In the navigation panel, select UNIX Configuration > Set Up NIS.**

FIGURE 6-1 The Set Up NIS Panel

2. **Select the Enable NIS checkbox. This configures the Sun StorEdge 5310 NAS Appliance to import the NIS database.**
3. **Enter the name of the domain you want to use for NIS services in the Domain Name field. Use the DNS naming conventions (for example, domain.com).**
4. **Enter the IP address or name of the NIS server in the Server field. This is the server from which the database is imported.**

   Leave the **Server** field blank if you do not know the server IP address. However, if you leave the **Server** field blank, you must select the you must select the **Use Broadcast** checkbox. **Use Broadcast** automatically acquires the appropriate IP address of the NIS server.
5. **Select Use Broadcast, if necessary. (See above.)**
6. **Select the Update Hosts checkbox to update host information.**
7. **Select the Update Users checkbox to update user information.**
8. **Select the Update Groups checkbox to update group information.**

9. **Select the Update Netgroups checkbox to update netgroup information.**
10. **Click Apply to save your changes.**

Setting Up NIS+

Network Information Service Plus (NIS+) was designed to replace NIS. NIS+ provides limited support to NIS clients, but mainly addresses problems that NIS cannot address.

Note – There is no relation between NIS+ and NIS. The commands and the overall structure of NIS+ are different from NIS.

To set up NIS+:

1. **For the Sun StorEdge 5310 NAS Appliance to function correctly in an NIS+ environment, you must add the Sun StorEdge 5310 NAS Appliance server to the host credential file on the NIS+ server. At your NIS+ server:**

   a. **Log in as root.**

   b. **Enter the following command:**

   ```
   nisaddcred –p unix.SERVER.@DOMAIN -P SERVER.DOMAIN. des
   ```

   where **SERVER** is the name of the Sun StorEdge 5310 NAS Appliance server, and **DOMAIN** is the name of the NIS+ domain.

Note – You must add a period to the end of the domain name only after the **-P** argument.

   For example, if the Sun StorEdge 5310 NAS Appliance is named SS2, and its NIS+ domain is sun.com, enter the following command:

   ```
   nisaddcred –p unix.ss2@sun.com –P ss2.sun.com. des
   ```

   c. **You are prompted for a password. This password is also used later in this procedure for configuring the Sun StorEdge 5310 NAS Appliance to use NIS+. Enter the password.**

2. **Set the name service lookup order using the instructions in *Setting Name Service Lookup Order* on page 62.**

3. **In the navigation panel, select UNIX Configuration > Set Up NIS+.**

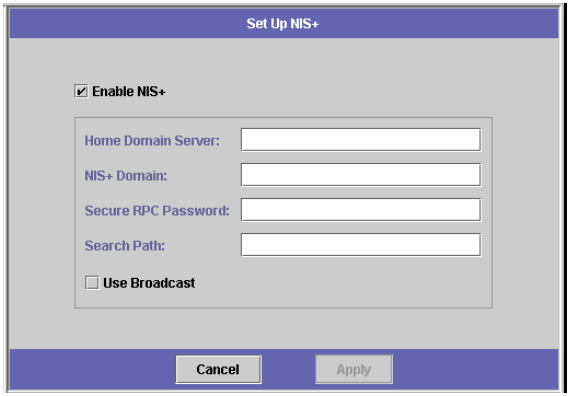


FIGURE 6-2 The Set Up NIS+ Panel

4. **Select the Enable NIS+ checkbox.**

5. **In the Home Domain Server field, enter the NIS+ home domain server IP address.**

   If you don't know the home domain server IP address, leave this field blank and select the **Use Broadcast** checkbox. When this option is selected, the Sun StorEdge 5310 NAS Appliance automatically acquires the appropriate IP address for the home domain server.

6. **In the NIS+ Domain field, enter the NIS+ home domain.**

Note – NIS+ domain names must end with a period (".").

---

7. **Enter the Secure RPC Password for the NIS+ server. This is the password that was set during step 1.c.**

8. **Enter the Search Path as a colon-separated list of domains. The search path identifies the domains that NIS+ searches through when looking for information. Leave this space empty to search only the home domain and its parents.**

   For example: If the NIS+ domain is **`eng.sun.com.`** and the search path is left blank, Sun StorEdge 5310 NAS Appliance first searches **`eng.sun.com.`** then **`sun.com.`** when resolving names. Conversely, specifying a search path such as **`sun.com.`** instructs Sun StorEdge 5310 NAS Appliance to search only in the domain **`sun.com`** when resolving names.

9. **Select the Use Broadcast checkbox if you do not know the IP address of the home domain server.**

10. **Click Apply to save changes.**

Setting Name Service Lookup Order

The Name Service (NS) lookup order controls the sequence in which the name services are searched to resolve a query. These name services can include LDAP, NIS, NIS+, DNS, and Local. You must enable the selected services to use them for name resolution.

To set the order for user, group, netgroup, and host lookup:

1. **In the navigation panel, select UNIX Configuration > Configuring Name Services.**

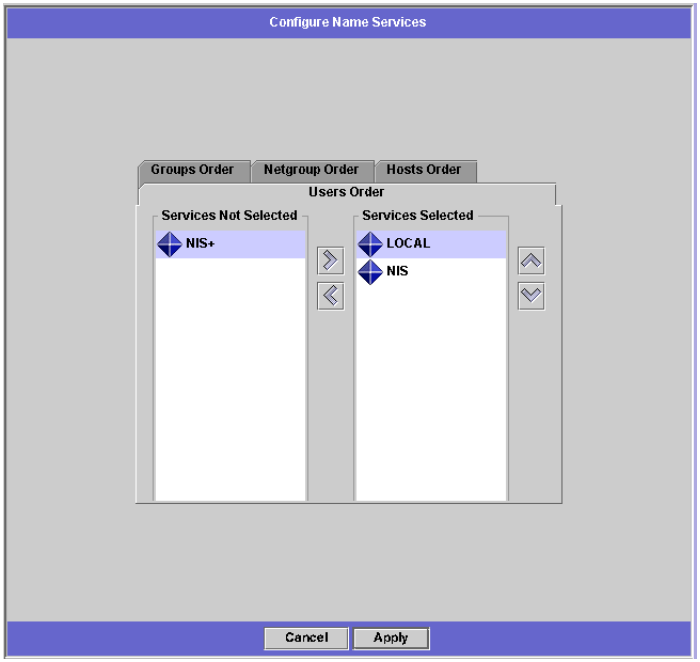


FIGURE 6-3 The Configure Name Services Panel

2. **Select the order of user lookup in the Users Order tab:**
   a. **Select a service to be used in user lookup from the Services Not Selected box.**
   b. **Click the**  **button to move it to the Services Selected box.**
   c. **Repeat this process for each service used in user lookup.**
   d. **To remove a service from user lookup, select it and click the**  **button.**

e. **Then arrange the order of lookup services in the Services Selected box by selecting each service.**

f. **Click the  and  buttons to move it up or down. The service at the top of the list is used first in user lookup.**

3. **Select the services used for group lookup in the Groups Order tab, following the procedure in step 2.**
4. **Select the services used for netgroup lookup in the Netgroup Order tab, following the procedure in step 2.**
5. **Select the services used for host lookup in the Hosts Order tab, following the procedure in step 2.**
6. **Click Apply to save your changes.**

How to Configure Hosts

The table in the Set Up Hosts panel shows current host information, including host name, host IP address, and whether or not the host is trusted.

Caution – Be careful when granting trusted status to hosts. Trusted hosts have root access to the Sun StorEdge 5310 NAS Appliance file system and have full read/write access to all files and directories on the system.

Adding a Host

The Set Up Hosts panel allows you to add and view host information and designate trusted hosts. A root user on an NFS client has root privileges on the Sun StorEdge 5310 NAS Appliance if you define that client as a trusted host, and has access to all files regardless of file permissions.

To manually add a host to the Sun StorEdge 5310 NAS Appliance server:

1. **In the navigation panel, select UNIX Configuration > Configure NFS > Set Up Hosts.**

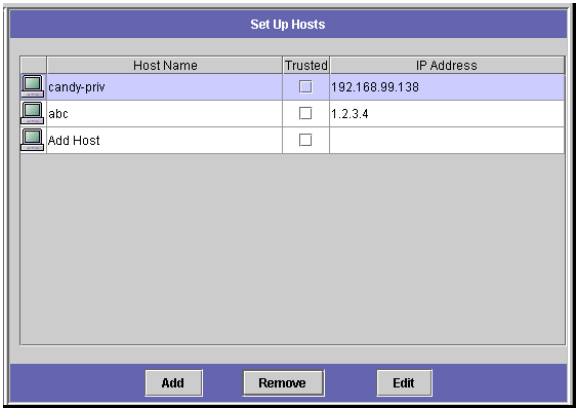


FIGURE 6-4 The Set Up Hosts Panel

2. **Then click Add to display the Add Host dialog box.**

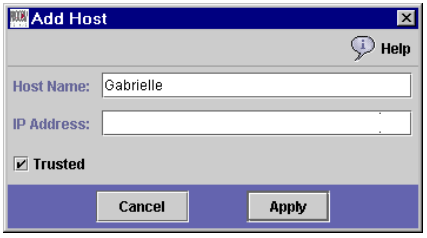


FIGURE 6-5 The Add Host Dialog Box

3. **Enter the Host Name. This is the name which identifies the host on the network. This entry can include alphanumeric (a-z, A-Z, 0-9), "-" (dash), "_" (underscore), and "." (period) characters only. The first character must be alphabetical (a-z or A-Z only).**
4. **Enter the new host's IP Address.**
5. **Select the appropriate checkbox to identify whether the host is trusted. A trusted host has root access to the Sun StorEdge 5310 NAS Appliance.**
6. **Click Apply to save your changes.**

How to Set Up NFS Exports

NFS exports let you specify access privileges (exports) for UNIX users to specified volumes and directories. The Exports table shows the current NFS export information, including the exported directories, host name, and access level (Read/Write or Read/Only) for each export.

Any host name beginning with "@" identifies a host group. For instance, a host name of @general identifies all hosts, and a host name of @trusted identifies all trusted hosts.

Creating Exports

To specify access privileges for a particular UNIX host:

1. **In the navigation panel, select UNIX Configuration > Configure NFS > Configure Exports.**

FIGURE 6-6 The Configure Exports Panel

If you have not created any exports, this space is blank.

2. **Click  (Add button) to add an export.**

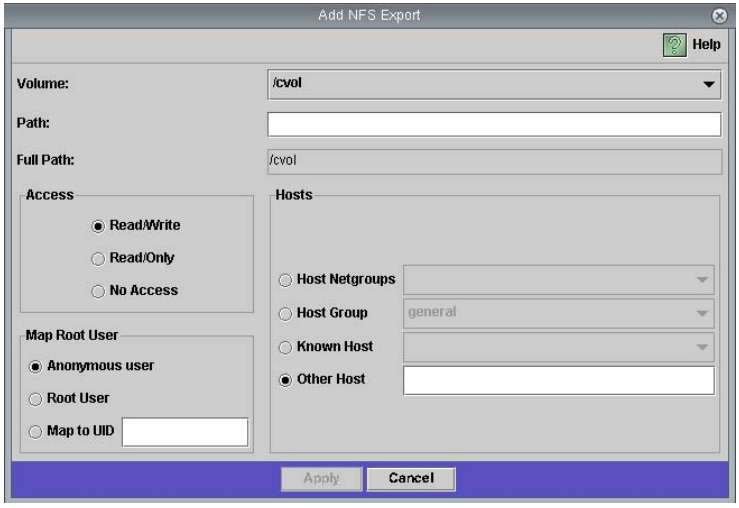


FIGURE 6-7 The Add NFS Exports Dialog Box

3. **In the Volume box, select the volume for which you want to grant UNIX NFS host access.**

4. **In the Path box, specify the directory for which you want to grant UNIX NFS host access. Leaving this field blank exports the root directory of the volume.**

5. **In the Access section, specify whether the host(s) have Read/Write, Read/Only, or No Access privileges on the selected volume.**

6. **In the Hosts section, select the host or hosts for which you are defining an NFS export. Choose from the following:**

   - **Host Netgroups—**To select a netgroup, select this option button. From the drop-down list, select the netgroup for which you are defining this export.
   - **Host Group—**To select a host group, select this option button. From the drop-down list, select either general (all hosts), trusted (all trusted hosts), or a user-defined host group.
   - **Known Host—**To assign the export to a host added through the **Set Up Hosts** panel, select this option. From the drop-down list, select the host for which you are defining this export.
   - **Other Host—**To assign the export to an individual host that you have not added through the **Set Up Hosts** panel, select this option and type in the name of the host.

7. **In the Map Root User section, select a method for mapping the user ID for root users. Choose from the following:**

- **Anonymous users—**To map the user ID of root users to the user ID of anonymous users, select this option button.
- **Root User—**To map the user ID of root users to the user ID of root (UID=0), select this option button.
- **Map to UID—**To assign a specific user ID, select this option and enter the user ID.

8. **Click Apply to save the export.**
9. **In the Configure Exports panel, check that the correct path, host, and access are shown for the export you created.**
10. **Click Apply to save your changes.**

Mapping User and Group Credentials

If your network includes both UNIX and Windows clients, you can use credential mapping to ensure that users and groups have access to files stored on the Sun StorEdge 5310 NAS Appliance from either environment.

To map users and groups between UNIX and Windows:

1. **In the navigation panel, select Windows Configuration > Manage SMB/CIFS Mapping > Configure Mapping Policy.**

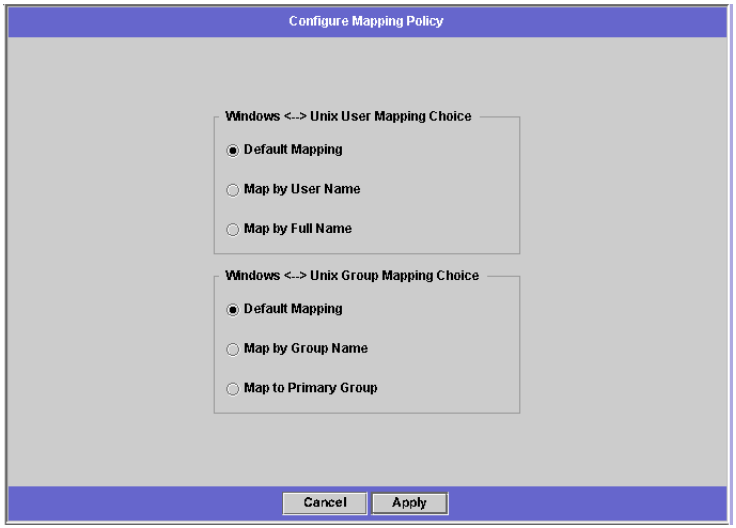


FIGURE 6-8 The Configure Mapping Policy Panel

2. **The Windows <--> UNIX User Mapping Choice section determines the user mapping settings on the Sun StorEdge 5310 NAS Appliance.**
   - **Default Mapping** – Select this option to disable user mapping. Do this if you have users with identical user names or full names who must have separate access rights.
   - **Map by User Name** – Select this option to map UNIX and NT users with identical user names, allowing the same user to access the Sun StorEdge 5310 NAS Appliance from both environments.
   - **Map by Full Name** – Select this option to map UNIX and NT users that have identical full names.
3. **The Windows <--> UNIX Group Mapping Choice section lets you determine the group mapping settings.**
   - **Default Mapping** – Select this option to disable group mapping.
   - **Map by Group Name** – Select this option to map UNIX and NT groups that have identical group names.
   - **Map to Primary Group** – Select this option to map to the NFS group in the primary group field in the configured `passwd` file.
4. **Click Apply to save your changes.**

CHAPTER 7

System Backup

How to Set Up NDMP

The Network Data Management Protocol (NDMP) is an open protocol for network-based backup. NDMP architecture lets network attached storage vendors ship NDMP-compliant servers that you can use with any NDMP-compliant backup administration application.

1. **In the navigation panel, select System Backup > Set Up NDMP.**

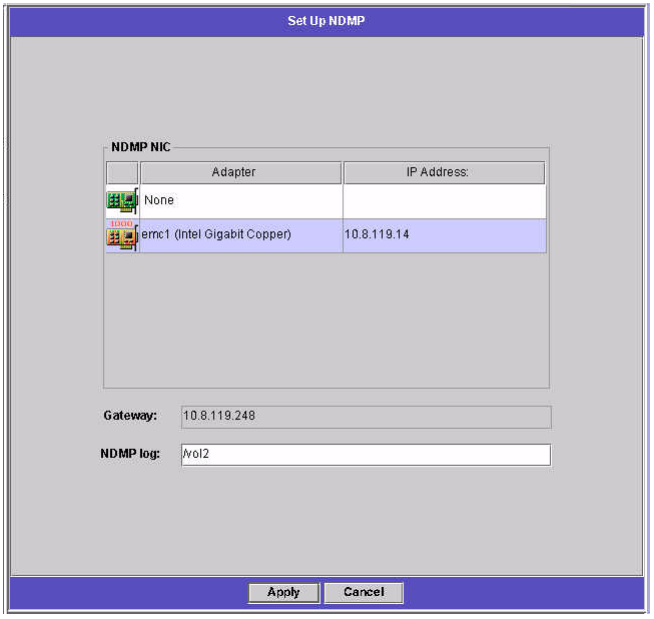


FIGURE 7-1 The Set Up NDMP Panel

2. **Select the NDMP NIC used for data transfer to the backup tape drive.**

   The gateway address is displayed for each NIC. If the NDMP backup tape device is located on another network, make sure you select the NIC that connects to the correct gateway.

3. **Click Apply to save your changes.**

CHAPTER 8

Monitoring and Notification

How to Configure SNMP

SNMP (Simple Network Management Protocol) communications allow you to conduct SNMP monitoring. Sun StorEdge 5310 NAS Appliance supports SNMP monitoring only (not SNMP management).

To interpret Sun StorEdge 5310 NAS Appliance Message Information Blocks (MIB), you must copy the MIB files from `http://sunsolve.sun.com` to your network management system. Refer to your network management application documentation for information about how to use these files.

To set up SNMP:

1. **In the navigation panel, select Monitoring and Notification > Configure SNMP.**

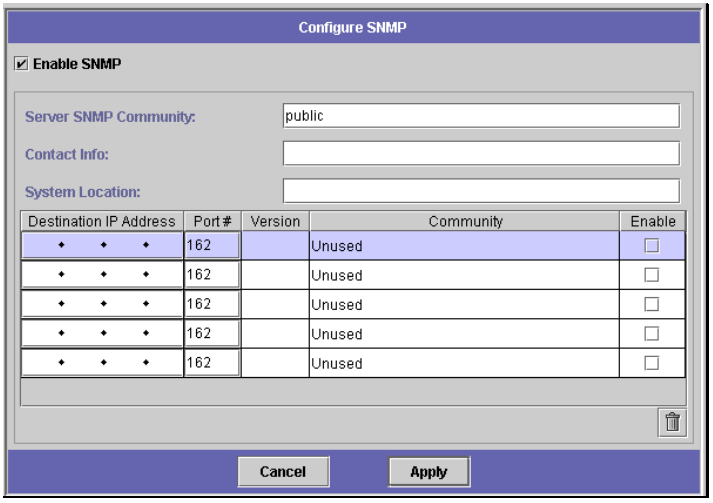


FIGURE 8-1 The Configure SNMP Panel

2. **Select the Enable SNMP checkbox.**
3. **Enter the SNMP community to which the Sun StorEdge 5310 NAS Appliance belongs in the Server SNMP Community field.**
4. **The Contact Info and System Location fields are description fields. In the Contact Info field, enter the name of the person who is responsible for this Sun StorEdge 5310 NAS Appliance system. In the System Location field, enter the network location. The location can be physical or logical.**
5. **To add a new target address, enter the following information in an unused line of the SNMP table:**
   a. **Destination IP Address – Enter the TCP/IP address for the server you want to designate as an SNMP trap destination.**
   b. **Port # – Enter the port to which the Sun StorEdge 5310 NAS Appliance sends traps. The default value is port 162.**
   c. **Version – Choose the SNMP protocol version (either 1 or 2) from the pull-down menu.**
   d. **Community – Enter the community string for the trap destination.**
   e. **Enable – Select the checkbox in this column to enable this particular target address to become a trap destination.**

6. **To remove a target address, select the line you want to remove, and click the button.**

7. **Click Apply to save your changes.**

How to Set Up Email Notification

Set the SMTP server name and email notification recipients in this screen. When a system error is detected, the Sun StorEdge 5310 NAS Appliance sends a notification email message to the designated recipients.

To ensure name resolution, you must have either set up the SMTP server host name in the **Configure Hosts** panel, or set up DNS.

To set up SMTP and email notification recipients:

1. **In the navigation panel, select Monitoring and Notification > Set Up Email Notification.**

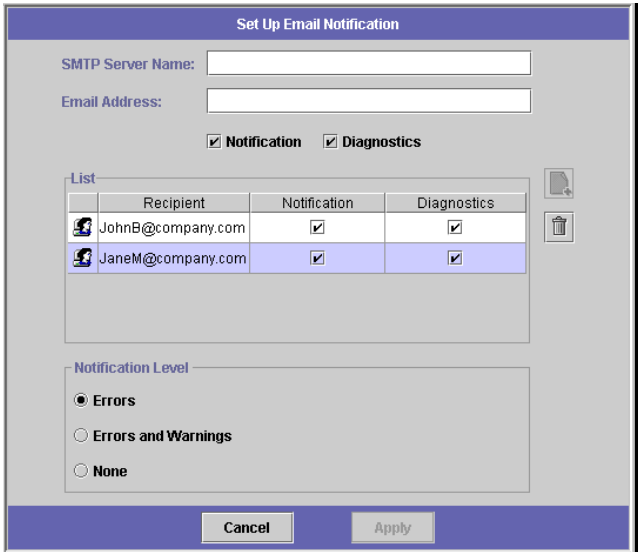


FIGURE 8-2 The Set Up Email Notification Panel

2. **Enter the name of the SMTP server to which you want to send notifications.**

3. **Enter the email address of the person you want to automatically notify of system errors in the Email Address box.**

4. **Specify the types of email for the recipient. Check the Notification option, the Diagnostics option, or both.**
5. **Click the  button to add the new recipient to the list of recipients.**
6. **Repeat steps 3 through 5 for all recipients. You may enter a maximum of four email addresses.**
7. **If you need to remove a recipient from the list, select the recipient and click the  button.**
8. **Select the desired Notification Level.**
   - Click the **Errors and Warnings** checkbox if you want to enable the server to notify recipients of all warnings and errors.
   - Click **Errors Only** if you want email recipients to receive notification of errors, but not warnings.
   - Click **None** if you do not want the Sun StorEdge 5310 NAS Appliance to notify anyone.
9. **Click Apply to save your changes.**

How to Enable UPS Monitoring

Caution – Connect the status output of the UPS to the UPS monitoring port on the rear of the Sun StorEdge 5310 NAS Appliance before you enable UPS monitoring. (Refer to the *Sun StorEdge 5310 NAS Appliance Hardware Installation, Configuration, and User Guide* for connection details.) Otherwise, the monitoring system will notify you of a UPS failure.

Note – The Sun StorEdge 5310 NAS Appliance does not support UPS management, only monitoring.

Enabling UPS Monitoring

In the navigation panel, select **Monitoring and Notification > Enable UPS Monitoring**.

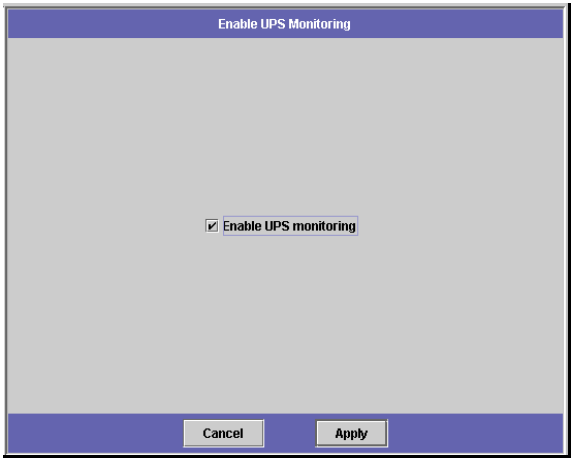


FIGURE 8-3 The Enable UPS Monitoring Panel

Viewing Controller Information

The read-only **View Controller Information** panel displays controller vendor, model, and firmware release.

To view controller vendor, model, and firmware release, select **RAID > View Controller Information** in the navigation panel.

APPENDIX

Troubleshooting

This appendix provides instructions for sending a diagnostic email and contacting Sun Microsystems Technical Support team.

If you have problems with the physical components of the Sun StorEdge 5310 NAS Appliance, see the *Sun StorEdge 5310 NAS Appliance Hardware Installation, Configuration, and User Guide* on the website or the *Setup Poster* included with your package.

Sending a Diagnostic Email Message

The diagnostic email feature allows you to send email messages to the Sun Microsystems Technical Support team or any other desired recipient. Diagnostic e-mail messages include information about the Sun StorEdge 5310 NAS Appliance system configuration, disk subsystem, file system, network configuration, SMB shares, backup/restore processes, /etc information, system log, environment data, and administrator information.

Every diagnostic email message sent includes all of this information, regardless of the problem.

To set up diagnostic email:

1. **In the toolbar at the top of the screen, select the button. The Diagnostic Email dialog box appears.**

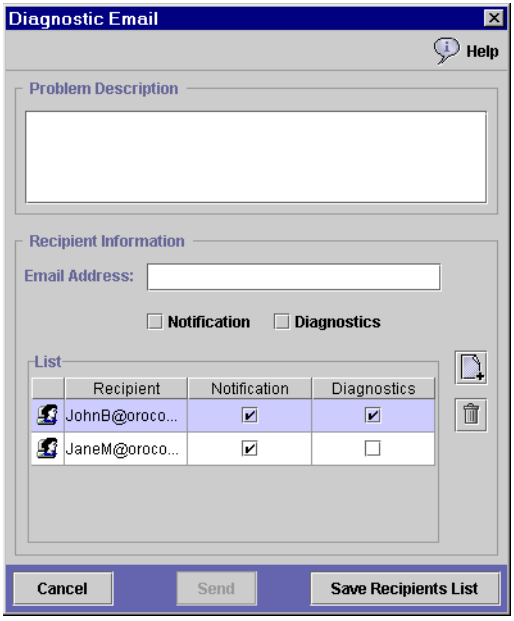


FIGURE A-1 The Diagnostic Email Dialog Box

2. **Enter a description of the problem in the Problem Description field. This is a mandatory entry and is limited to 256 characters.**
3. **Ensure that the Diagnostics checkbox is checked for at least one email recipient.**

   If you need to add or make changes to recipients, refer to the instructions in *How to Set Up Email Notification* on page 75.
4. **Click Send to send the message.**

Contacting Technical Support

We hope the instructions provided in this manual are complete and clear enough to meet your needs. If you need further assistance, contact Sun Microsystems.

We take pride in providing highly responsive, world-class service to ensure the highest levels of on-going customer satisfaction with all of our products.

For technical problems requiring on-site service, Sun Microsystems provides professional, experienced field engineers, who work closely with our Technical Support Engineers for total solution support. For more information about purchasing an on-site service package for your system, contact your sales representative or reseller.

You can contact Sun Microsystems Technical Support Engineers in a variety of ways or obtain technical information (specifications, files, answers to frequently asked questions) by going to **http://www.sun.com/service/contacting/solution.html**.

Index

F

G

H

I

L

M

N

P

R

S

T

U

V

W