adic Intelligent Storage™

StorNext® 2.8 File System and Storage Manager Installation Guide

ADVANCED DIGITAL INFORMATION CORPORATION

www.adic.com

ADIC USA
11431 Willows Road NE
Redmond, Washington
98052-4952
Tel.: 1-800-336-1233
Fax: 1-425-881-2296

Published: July 2006 Document Number: 6-00360-08 Rev A

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1 Introduction

StorNext is data management software that enables customers to complete projects faster and confidently store more data at a lower cost. Used in the world's most demanding environments, StorNext is the standard for high performance shared workflow operations and multi-tier archives. StorNext consists of two components: StorNext File System (SNFS) a high performance data sharing software, and StorNext Storage Manager (SNSM) the intelligent, policy based data mover.

StorNext File System streamlines processes and facilitates faster job completion by enabling multiple business applications to work from a single, consolidated data set. Using SNFS, applications running on different operating systems (Windows, Linux, UNIX, and Mac OS X) can simultaneously access and modify files on a common, high speed SAN storage pool. This centralized storage solution eliminates slow LAN based file transfers between workstations and dramatically reduces delays caused by single client failures. With SNFS, any server can access files and pick up processing requirements of a failed system to continue operations.

StorNext Storage Manager enhances the StorNext solution by reducing the cost of long term data retention, without sacrificing accessibility. SNSM sits on top of SNFS and utilizes intelligent data movers to transparently locate data on multiple tiers of storage. This enables customers to store more files at a lower cost, without having to reconfigure applications to retrieve data from disparate locations. Instead, applications continue to access files normally and SNSM automatically handles data access – regardless of where the file resides. As data movement occurs, SNSM also performs a variety of data protection services to guarantee that data is safeguarded both onsite and offsite.

This guide describes how to install the StorNext product. The StorNext installation process includes steps for adding a file system, so you do not need to separately install the StorNext FS product, whose installation is described in a separate guide.

Who Should Read this Book

This guide is intended for system administrators and service personnel who want to install both the StorNext Storage Manager and StorNext File System. If you are installing only the StorNext File System, refer to the StorNext File System Installation Guide.

How This Book is Organized

This book contains the following chapters.

- Chapter 1: Introduction — Provides information on the audience for this guide, explains how the guide is organized, and introduces symbols and document conventions used in the guide.
- Chapter 2: Installing StorNext — Provides instructions for installing StorNext on servers.
- Chapter 3: Configuring StorNext — Describes how to configure StorNext after installing the software.
- Chapter 4: Installing StorNext Client Software — Describes how to install and configure StorNext software on a client machine.
- Chapter 5: Customer Assistance — Provides information on different types of customer assistance available for StorNext.

Explanation of Symbols

The following symbols indicate important information.

Symbol	Description	Definition	Consequence
	WARNING:	Advises you to take or avoid a specified action	Failure to take or avoid this action could result in physical harm to the user or hardware
	CAUTION:	Advises you to take or avoid a specified action	Failure to take or avoid this action could result in loss of data
	NOTE:	Indicates important information that helps you make better use of the software	No hazardous or damaging consequences

Conventions

The conventions used throughout this book are listed below

Convention	Example

For all UNIX-based commands, the # prompt is implied, although it is not shown.	`/usr/cvfs/bin/cvlabel -l`
	is the same as
	`# /usr/cvfs/bin/cvlabel -l`

Screen text, file names, program names, and commands are in Courier font.	`mkdir -p <mount point>`

Site-specific variables are enclosed within brackets < > .	`chmod 777 <mount point>`
Pressing Return or Enter after each command is assumed.	
A menu name with an arrow refers to a sequence of menus.	**Programs > StorNext File System > Help**

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Installing StorNext

You can install the StorNext software on a server. When you have successfully installed the StorNext software, use the Configuration Wizard to configure the software. (After initial configuration, you can use the StorNext GUI to change your configuration parameters.) You are then ready to use the StorNext software.

You can also run the StorNext software on a client machine by downloading the client files from the server and then installing them on your client. You can install client files on machines that use an SGI IRIX, Solaris, Linux, IBM AIX, HP-UX, or Windows (2000, 2003 Server, and XP) operating system.

This chapter includes:

Installation Requirements

Before installing StorNext on any machine, verify that you meet the installation prerequisites described in this section. This section contains installation requirements for the following supported operating systems:

Windows Prerequisites

Before installing StorNext on a Windows server, verify that the following installation prerequisites have been met.

A Windows machine that will be used as a StorNext server must meet these requirements.

- 512 MB of RAM minimum for the first two file systems. Each subsequent file system (up to eight total) either passive or active, must have an additional 256 MB of RAM minimum.
- StorNext requires 350 MB of hard disk space for binaries, documentation, configuration, and log files. If internal metadata is used, approximately 2.5 GB of additional hard disk space is required per 1M files.

In addition, each StorNext-supported Windows platform must meet these service pack requirements.

- Windows 2000 — Service Pack 4
- Windows 2003 Server — Enterprise Edition SP1
- Windows XP — Service Pack 2

Red Hat Linux Prerequisites

Before installing StorNext on a Red Hat Linux machine, verify that the following installation prerequisites have been met.

- **Kernel Requirements** - To run StorNext on Red Hat Linux, you must use the following kernels:
    - *For Red Hat 3*: 2.4.21 - 37.EL (Update 6); 2.4.21 - 40.EL (Update 7)
    - *For Red Hat 4*: 2.6.9 - 22 (Update 2); 2.6.9 - 34.EL (Update 3)

  To verify the kernel information for Red Hat Enterprise Advanced Server, type: `uname -a`

  The following is similar to what is shown:

  `Linux APU 2.4.21-27.EL # 1SMP <date><platform><compiler>`

  StorNext is distributed as a loadable kernel module. To build the kernel module, the Red Hat Linux software must be installed with the Linux kernel source and tools, including compilers.

  To build and install the StorNext modules, a symbolic link must exist in the `/usr/src` directory that points to the kernel source for the running kernel.

  Use this procedure to view the symbolic links.

1 Change to the `/usr/src` directory. Type:

```
cd /usr/src
```

2 To view the symbolic links type:

```
ls -l
```

For the Linux 2.4.21-27.EL kernel, the symbolic link is shown as:

```
linux-2.4 > linux-2.4.21-27.EL
```

3 Make sure the symbolic link is pointing to the correct kernel.

- If the symbolic link shows a kernel in the specified range (2.4.21.EL to 2.4.27.EL,) continue with the next task.
- If the symbolic link is either missing or pointing to the source of a different kernel, the StorNext modules will either not install or not function.

- **Mapping LUNs** - Before installing StorNext, it is necessary to correctly map LUNs in the customer SAN.

  A LUN is assigned to each device (target) that is visible locally and over the SAN. The process of LUN mapping depends on many factors, including the operating system on which StorNext is running on, the type of SCSI card installed on the machine, and the type of FC HBA installed on the machine.

  For each HBA, check the vendor documentation to determine the operating system files that must be configured to correctly map LUNs to devices over the SAN. Configure the operating system file as indicated below:

  - Edit the `/etc/sysconfig/rawdevices` file and use the `rpm` and `insmod` commands to install the specific Fibre Channel HBA driver.

  For additional requirements, see 2TB LUN Requirements on page 11.

  For assistance configuring the operating system file, contact ATAC. Refer to Customer Assistance on page 97.

- **Multiple LUN support** - If your file system storage device uses non-zero SCSI Logical Unit Numbers (LUNs), configure the Red Hat Linux kernel to scan for all SCSI LUNs. By default, Red Hat Linux only scans for LUN 0. Use this procedure to configure the Linux kernel for multiple LUNs:

1 Change directories. Type:

```
cd /etc
```

2 In the `/etc/modules.conf` file, add the following line:

```
options scsi_mod max_scsi_luns=nLUNs
```

where `nLUNs` equals the number of LUNs required by your file system storage device.

For example:

```
alias parport_lowlevel parport_pc
alias scsi_hostadapter aic7xxx
alias eth0 eepro100
alias eth1 e1000
alias scsi_hostadapter1 qla2300
options scsi_mod
options scsi_mod max_scsi_luns=128
```

3 Create a new initial RAM disk file by using the `mkinitrd` command.

For example:

- For IA64:

```
cd /boot/efi/efi/redhat
mkinitrd -f initrd-2.4.21-27.EL.img 2.4.21-27.EL
```

- For x86:

```
cd /boot
mkinitrd -f initrd-2.4.21-27.EL.img 2.4.21-27.EL
```

4 Reboot the machine.

SuSE Linux Prerequisites

Before installing StorNext on a SuSE Linux machine, verify that the following installation prerequisites have been met.

- **Kernel Requirements** - Before installing StorNext on a SuSE Linux machine (either client or server), verify that the required kernels are loaded: 2.6.5 - 7.191 (SP2); 2.6.5-7.244-SMP (SP3)

1 Run the `rpm` command. Type:

```
rpm -qf /boot/vmlinuz
```

The command output should display one of these kernels:

- For uniprocessor systems:

```
k_delft-2.6.5-7.191
```

- For multiprocessor systems:

```
k_smp-2.6.5-7.191
```

2 Do one of the following:

- If the correct kernel is shown, continue with the installation.
- If an incorrect kernel is shown, install the correct kernel and repeat Step 1.

- **Mapping LUNs** - Before installing StorNext, it is necessary to correctly map LUNs in the customer SAN.

  A LUN is assigned to each device (target) that is visible locally and over the SAN. The process of LUN mapping depends on many factors, including the operating system on which StorNext is running, the type of SCSI card installed on the machine, and the type of FC HBA installed on the machine.

  For each HBA, check the vendor documentation to determine the operating system files that must be configured to correctly map LUNs to devices over the SAN. Configure the operating system file as indicated below:

  - Edit the `/etc/raw` file and use the `rpm` and `insmod` commands to install the specific Fibre Channel HBA driver.

  For additional requirements, see 2TB LUN Requirements on page 11.

  For assistance configuring the operating system file, contact ATAC. Refer to Customer Assistance on page 97.

Sun Solaris Prerequisites

Before installing StorNext on a Solaris machine, verify that the following installation prerequisites have been met. StorNext supports Solaris 9 and 10 only.

- **Mapping LUNs** - Before installing StorNext, it is necessary to correctly map LUNs in the customer SAN.

  A LUN is assigned to each device (target) that is visible locally and over the SAN. The process of LUN mapping depends on many factors, including the operating system on which StorNext is running, the type of SCSI card installed on the machine, and the type of FC HBA installed on the machine.

  For each HBA, check the vendor documentation to determine the operating system files that must be configured to correctly map LUNs to devices over the SAN. Configure the operating system files as indicated below:

  - Edit the `sd.conf`, `st.conf`, and the `sgen.conf` files and use the `pkgadd` command to install the specific Fibre Channel HBA driver.

  For additional requirements, see 2TB LUN Requirements on page 11.

  For assistance configuring the operating system files, contact ATAC. Refer to Customer Assistance on page 97.

HP-UX Prerequisites

Before installing StorNext on an HP-UX machine, verify that the following installation prerequisite has been met. StorNext supports HP-UX 11 iv2.

- **Mapping LUNs** - Before installing StorNext, it is necessary to correctly map Logical Unit Numbers (LUNs) in the customer SAN.

  A LUN is assigned to each device (target) that is visible locally and over the SAN. The process of LUN mapping depends on many factors, including the operating system on which StorNext is running, the type of SCSI card installed on the machine, and the type of FC Host Bus Adaptor (HBA) installed on the machine.

  For each HBA, check the vendor documentation to determine the operating system files that must be configured to correctly map LUNs to devices over the SAN.

  For additional requirements, see 2TB LUN Requirements on page 11.

  For assistance configuring the operating system files, contact the ADIC Technical Assistance Center (ATAC). Refer to Customer Assistance on page 97.

- **64-bit Inodes** - StorNext supports only 64-bit inodes for installations of the software on the HP-UX operating system on IA64 and PA-RISC architectures.

IBM AIX Prerequisites

Before installing StorNext on an AIX machine, verify that the following installation prerequisite has been met. StorNext supports AIX 5.2 and 5.3 only.

- **Mapping LUNs** - Before installing StorNext, it is necessary to correctly map Logical Unit Numbers (LUNs) in the customer SAN.

  A LUN is assigned to each device (target) that is visible locally and over the SAN. The process of LUN mapping depends on many factors, including the operating system on which StorNext is running, the type of SCSI card installed on the machine, and the type of FC Host Bus Adaptor (HBA) installed on the machine.

  For each HBA, check the vendor documentation to determine the operating system files that must be configured to correctly map LUNs to devices over the SAN.

  For additional requirements, see 2TB LUN Requirements on page 11.

  For assistance configuring the operating system files, contact the ADIC Technical Assistance Center (ATAC). Refer to Customer Assistance on page 97.

SGI IRIX Prerequisites

Before installing StorNext on an IRIX machine, verify that the following installation prerequisites have been met.

- **64-bit Inodes** - StorNext supports only 64-bit inodes for software installations on the IRIX operating system.
- **Mapping LUNs** - Before installing StorNext, it is necessary to correctly map LUNs in the customer SAN.

  A LUN is assigned to each device (target) that is visible locally and over the SAN. The process of LUN mapping depends on many factors, including the operating system on which StorNext is running, the type of SCSI card installed on the machine, and the type of FC HBA installed on the machine.

  For each HBA, check the vendor documentation to determine the operating system files that must be configured to correctly map LUNs to devices over the SAN. Configure the operating system file as indicated below:

  - Edit the `/var/sysgen/master.d/qlfc` file.

  For additional requirements, see 2TB LUN Requirements on page 11.

  For assistance configuring the operating system file, contact ATAC. Refer to Customer Assistance on page 97.

RAM and Hard Disk Requirements

The following are requirements for each StorNext mount.

- **Client Memory** - StorNext requires 512 MB of RAM minimum.
- **Client Hard Disk** - StorNext requires 200 MB of hard disk space for binaries, documentation, configuration, and log files.
- **Server Memory** - For the first two file systems, a minimum of 512 MB of RAM for each file system. Each subsequent file system (up to eight total) either passive or active, must have an additional 256 MB of RAM minimum.
- **Server Hard Disk** - Depending on file system activity, StorNext binaries, documentation, configuration, and log files require up to 30 GB of local hard disk space. An additional 2GB of hard disk space is required per 1 million managed files.

2TB LUN Requirements

StorNext supports LUNs larger than 2TB. The level of support for this feature varies, depending on the operating system you are using:

- Full support for LUNs larger than 2TB
- Full support for LUNs larger than 2TB, with a specific label type required
- Support for only the first 2TB for LUNs larger than 2TB
- No support for LUNs larger than 2TB

Label Types

The type of label you use determines whether your system supports LUNs larger than 2TB. Even if your operating system provides support for LUNs larger than 2TB, you cannot use this feature if you apply the incorrect label type.

There are three label types:

- VTOC
- EFI
- sVTOC (or short VTOC)

Generally speaking, the VTOC label is for LUNs less than 2TB, while the EFI and sVTOC labels are used for LUNs greater than 2TB. However, in many cases, EFI labels can also be used for LUNs less than 2TB.

The following table summarizes the operating system levels for the possible LUN sizes, the level of support, and the type of label you should use for the LUN size you want to use. Where there are multiple label types listed, the preferred label type is listed first.

Table 1

Support Level	Operating System	Label Type For LUNs Less Than 1TB	Label Type For LUNs Between 1-2TB	Label Type For LUNs Larger Than 2TB
Full support of LUNs larger than 2TB	IBM AIX[a]	VTOC or EFI	VTOC or EFI	EFI or sVTOC
	Linux 2.6 kernel	VTOC or EFI	VTOC or EFI	EFI or sVTOC
	Windows Server 2003 SP1	VTOC or EFI	VTOC or EFI	EFI or sVTOC
	Apple Xsan 1.3 on OS X Tiger	VTOC or EFI	VTOC or EFI	EFI or sVTOC
Full support of LUNs larger than 2TB, with specific label requirements	Solaris 10 Update 2	VTOC or EFI	EFI only	EFI only
Support for only the first 2TB of LUNs larger than 2TB	Apple Xsan 1.2	VTOC only	VTOC only	sVTOC only
	Apple Xsan 1.3 on OS X Panther	VTOC or EFI	VTOC or EFI	sVTOC or EFI
	HP-UX	VTOC or EFI	VTOC or EFI	sVTOC or EFI
	Windows XP or Windows 2000	VTOC or EFI	VTOC or EFI	sVTOC or EFI
No support for LUNs larger than 2TB	SGI IRIX	VTOC only	VTOC only	Not supported
	Linux 2.4 kernel	VTOC or EFI	VTOC or EFI	Not supported
	Solaris 9 with the “Big LUN” patch	VTOC or EFI	EFI only	Not supported
	Solaris 10 with no patches	VTOC or EFI	EFI only	Not supported
	Solaris 9 with no patches	VTOC only	Not supported	Not supported

a. AIX is limited to LUNs that are 2.2TB or smaller.

Using the Optional Pre-Installation Configuration

StorNext requires the `tdlm` and `www` user accounts to exist in the `passwd` file, and the `adic` group account to be in the `group` file. StorNext automatically creates these accounts during the installation process, but if you prefer you can create them manually before running the installation.

- If you want the system utility to create the accounts, skip this section and continue with Running the Pre-Installation Script on page 14.
- If you prefer to manually add these accounts, use this procedure. You must perform this procedure on each machine where the StorNext software is installed. After completing this procedure, continue with Running the Pre-Installation Script on page 14.

1 Add the following user accounts `tdlm` and `www` to your metadata server.

The following example shows sample values. You can specify any user ID or group ID you wish.

Username	UserID	GroupID	Login Shell	Home Directory
tdlm	100	100	/bin/sh	/usr/adic
www	101	100	/bin/sh	/usr/adic/www

2 Add the group account `adic`.

Group Name	GroupID	Members List
adic	100	root, tdlm, www

Running the Pre-Installation Script

StorNext includes a script called `snPreInstall` that you can run before installing the software. The output of this script indicates whether your system meets the minimum disk space requirements required for the installation.

If your local system does not have sufficient disk space for the software installation, the script will warn you so you can add more disk space before proceeding with the installation.

Note

The `snPreInstall` script ignores all unmounted file systems. Only mounted local file systems are considered when the script runs and makes its calculations. Before running the `snPreInstall` script, be sure to mount all local file systems you want the script to consider.

Minimum disk space amounts (in MB) are provided for the following directories:

- Database
- Journal
- Mapping
- Metadata
- Backup

When you run the `snPreInstall` script, you must provide answers about your system configuration so the script can determine space requirements. You will be asked to do the following:

- Specify whether you are performing a StorNext upgrade or a new installation
- Estimate the maximum number of additional directories (in millions) you anticipate
- Estimate the approximate number of additional files (in millions) you anticipate
- Enter the number of copies for each file
- Enter the number of versions you plan to keep for each file

Note

If you are performing an upgrade, the file systems that currently contain existing TSM support directories will be reported. Additionally, you will be asked about other local file systems to include when calculating space requirements.

If you are performing a new installation, you will be asked whether all local file systems should be included when calculating space requirements.

When performing either an upgrade or new installation, you can eliminate from consideration file systems you do not want used for StorNext support directories.

Based on the information you provide about your system, the script will calculate space requirements. If the script says you have sufficient space, you can proceed with the installation. If you do not have sufficient space, you must add more disk space before installing the StorNext software.

Script output might look similar to this:

```
Database dir space required: 1686 MB
Journal dir space required: 33 MB
Mapping dir space required: 3540 MB
Metadata dir space required: 4291 MB
Backup dir space required: 2791 MB (On a managed file system)
```

StorNext Support Directory Location Recommendations

The `snPreInstall` script also provides recommendations for StorNext support directory locations. The recommendations are made with the following considerations:

1. In descending order (from greatest to least,) the order of space required is Database, Metadata, Backup, Mapping, and Journal.
2. The Database and Journal should be on separate file systems for integrity reasons.
3. The Journal and Metadata should be on separate file systems for performance reasons. Both file systems will have lots of head movement during normal operation.
4. The Database and Metadata should be on separate file systems for performance reasons. Both file systems will have lots of head movement during normal operation.
5. The Mapping and Metadata should be on separate file systems for performance reasons (during mapping operations).
6. The Backup directory should be on the largest of the managed file systems.


Note

ADIC recommends moving directories through the installation menu (option 1, Installation Configuration) rather than moving them manually.

Installing StorNext Software

Use this procedure to install StorNext software. The installation process loads both server and client files on your machine.

1. Designate one machine as the server.
2. Load the StorNext CD appropriate for your operating system.
3. Open the StorNext folder.
4. Launch the executable program `install.stornext`.

   The StorNext Install Main Menu is shown.

Figure 1 StorNext Install Main Menu

```
        Stornext Install 2.8.0 MAIN MENU

        1)  Installation Configuration
        2)  Install stornext
        3)  Show Status
        4)  Quit

Enter your choice <2>:
```

   StorNext defaults to option `2) Install stornext`.

5. Type `1` to display a list of parameters that can be modified.

   The following menu is shown. By default, the software is installed into the directory containing the greatest amount of space (in this example, <*disk1*>).

Figure 2 StorNext Configuration Menu

```
                    Stornext 2.8.0 Configuration Menu

    __VALUE_____________________          __DESCRIPTION___________
   1)  /home/adic/perl                    Perl installation directory
   2)  /home/adic/docs                    Docs installation directory
   3)  /home/adic/PCL                     Pcl installation directory
   4)  /home/adic/database                Dbm installation directory
   5)  /home/adic/SRVCLOG                 Srvclog installation directory
   6)  /home/adic/PSE                     Pse installation directory
   7)  /home/adic/MSM                     Media Manager installation directory
   8)  /home/adic/TSM                     Tertiary Manager installation directory
   9)  /home/adic/TCM                     Trashcan Manager installation directory
  10)  /home/adic/www                     GUI installation directory
  11)  /home/adic/apache                  Web installation directory
  12)  /usr/cvfs                          Disk Manager installation directory
  13)  /home/adic/database_meta           Metadumps directory
  14)  /home/adic/mapping_dir             TSM mapping directory
  15)  /home/adic/database_jnl            Database journal directory
  16)  LTO                                Default media type
  17)  LTO                                Backup media type

Enter number to modify or hit <RETURN> to continue install
```

6 Type the parameter number to modify the default parameters.

If you do not need to modify the parameters, then skip this step and go to Step 8.

CAUTION

If you do not use LTO media in your library, you must change parameter numbers 16 and 17 to match the media type that is located in your library.

For mixed media or multiple libraries, you must change the parameter numbers to match the media type that you use as your primary backup.

For increased reliability, install the database journal directory (`database_jnl`) on a disk that is different from the one on which the database installation directory is stored.

To maximize performance, place all four of the following support directories on different file systems: `database`, `database_jnl`, `metadumps`, and `mapping_dir`. If this is not possible, ADIC recommends separating at least the first three support directories.

7 When you are satisfied with the parameter settings of the installation configuration, press ENTER to return to return to the **StorNext Install Main Menu** and continue the install.

```
        Stornext INSTALL 2.8.0 MAIN MENU

        1)  Installation Configuration
        2)  Install stornext
        3)  Show Status
        4)  Quit

Enter your choice <2>:
```

8 Type `2` or press ENTER to install the StorNext software.

- If you have set up your database and database journal to install on the same file system, the following warning is shown:

```
The /home/adic/database and /home/adic/database_jnl are
defined to be on the same file system. It is recommended that
they reside on different file systems. To change the values,
answer 'No' to return to the configuration menu.

   Database journal directory => /home/adic/database_jnl

   Dbm installation directory => /home/adic/database

Do you wish to keep these settings  (quit, no or <yes>)?
```

  - Select `quit`, `no`, or `yes`.
    - If you select quit, you will exit the StorNext Installation
    - If you select no, you will return to the StorNext Configuration Menu (Figure 2 on page 17)
    - If you select yes, you will proceed with the StorNext Install
- If you have set up your database and database journal to install on the separate file systems, the StorNext Status Install Menu (Figure 3 on page 19) is shown and lists fourteen steps of component-level status. As the installation progresses, the status menu updates and shows steps as `Complete`.

Figure 3 StorNext Install Status

```
                    Stornext Install 2.8.0 Status

  1)  Install Pre-Install  2.8.0(9)               Complete
  2)  Install perl         5.8.3_3.0.0(16)        Complete
  3)  Install docs         2.8.0(7)               Complete
  4)  Install PCL          1.1.0(3)               Complete
  5)  Install database     5.9.25.50_4.1.0(2)     Working  /
         unbundle software                      Complete
         create database                        Working
         start software                         To do
  6)  Install SRVCLOG      2.1.0(2)               To do
  7)  Install PSE          1.1.0(3)               To do
  8)  Install MSM          2.8.0(13)              To do
  9)  Install TSM          2.8.0(11)              To do
 10)  Install TCM          2.8.0(9)               To do
 11)  Install www          2.8.0(8)               To do
 12)  Install apache       2.0.54_3.0.0(17)       To do
 13)  Install DSM          2.8.0(9)               To do
 14)  Install Post-Install 2.8.0(9)               To do
```

After exiting the `install.stornext` utility, the following information is shown

```
When the installation has completed you will point your browser
at the following address and port# to access the stornext home
page:

   http://snsan.adic.com:81

Please make a note of this information.
```

Note

Note the machine name and port number from the above screen. You will need this information to access the StorNext GUI.
If your operating system requires a restart, you will be notified that you must reboot the machine.

9 When the installation process is complete, press ENTER to return to the **Install Main Menu** (Figure 1 on page 16).

10 Type `3` to review the screen that displays the component-level status of the StorNext installation (Figure 3 on page 19).

11 Type `4` to quit the installation process and exit the menu.

3

Configuring StorNext

After installing StorNext you must configure the software. A configuration wizard is provided to simplify and streamline the configuration process.

Use this procedure to configure the StorNext software.

1 Open a Web browser.

Note

Supported browsers are:

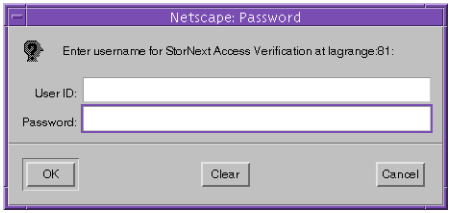
- Internet Explorer 5.5 and later
- Netscape 7.x
- Mozilla 1.0 and later
- FireFox 1.0 and later

2 Type the full address of the machine and its port number `http://<machine name>:<port number>` in the **Address** Field and press **Enter**. Use the name of the machine and port number that you copied when you installed the StorNext software.

Note

Typically, the port number is 81. If port 81 is in use, use the next unused port number. (I.e., 82, 83, etc.)

The following screen appears.



3 In the **User ID** Field, type `admin` and press TAB.

4 In the **Password** Field, type `admin` and click **OK**.

Note

For information on changing your password or setting up additional users, refer to the *StorNext System Administrator Guide.*

The initial StorNext GUI appears. You are prompted to start non-running components.

5 Click **OK** to start the StorNext components.

The Configuration Wizard screen is shown and guides you through configuration of the StorNext software.

CAUTION

Before using the StorNext GUI, you should first complete the Configuration Wizard for licensing and configuring the software. If you access the GUI before completing the Configuration Wizard, file system failures will occur.

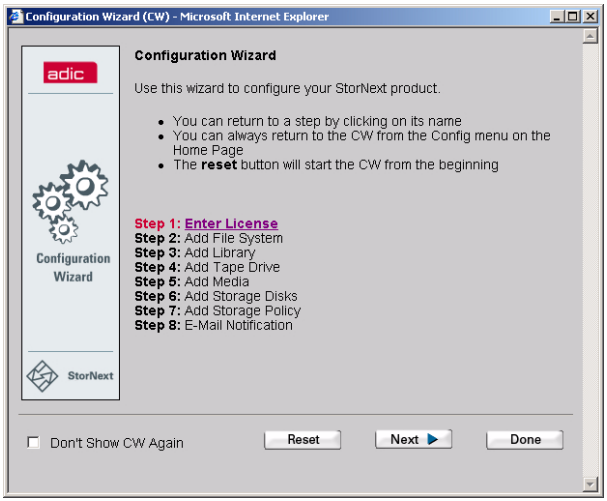
Using the Configuration Wizard

The Configuration Wizard provides step-by-step instructions for configuring the StorNext software. Text for the active step is shown in a different color, and is followed by the word **Completed** after the step is done. The Configuration Wizard opens every time the StorNext GUI is refreshed until all of the configuration steps are completed. You can also launch the wizard at any time from the StorNext home page by selecting **Configuration Wizard** from the **Config** menu.

Each configuration step contains its own wizard that provides step-by-step guidance. For each configuration step, you must continue through all the related screens until the step is complete. For example, you must complete all the screens associated with Step 1: Enter License before you can continue to Step 2: Add File System. When you are finished with a step, click **Done** to continue to the next step.

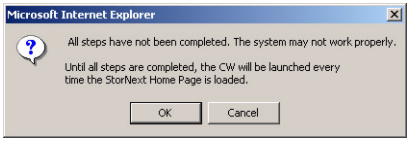
After you have completed a step, you can return to a previous step by clicking the step name. You can also clear all of your entries and restart the process from the very beginning by clicking **Reset**.

Figure 3 Configuration Wizard



If you do not complete all of the Configuration Wizard's steps, the next time you access the StorNext home page the Configuration Wizard resumes where you left off so you can continue the configuration process.

If you click Cancel to proceed without continuing to the next step, a message reminds you that you have not finished all steps, and that the Configuration Wizard will appear again until you complete all configuration steps.

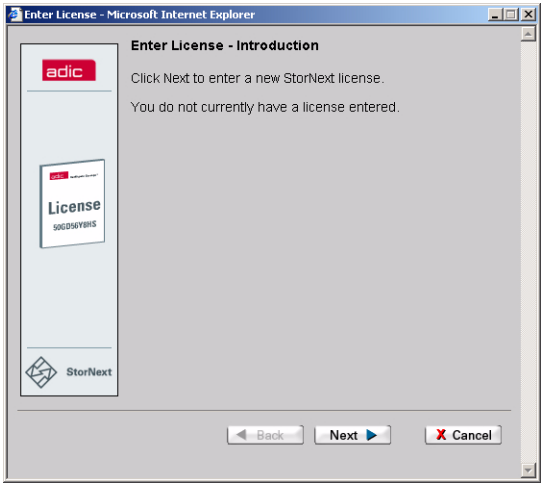


Note

If you do not want to use the Configuration Wizard, select **Don't Show CW Again** and click **Cancel**. The Configuration Wizard will not display again. However, you can perform the same tasks in the Configuration Wizard by accessing the Config menu from the StorNext Home Page.

1 Click **Next** to begin using the Configuration Wizard.

The **Enter License - Introduction** screen appears.



Step 1: Entering a License

You must have a permanent or temporary license to configure or use StorNext. Use the Enter License wizard to enter a permanent license string, or proceed using the 30-day temporary license that comes with StorNext.

To obtain a permanent license, you must contact ATAC at licenses@adic.com and give them the following information:

- The product serial number from the StorNext box or CD
- The number of client machines you want to support
- The StorNext server identification number. You can find this number on the Configuration Wizard's **Enter License String** screen.

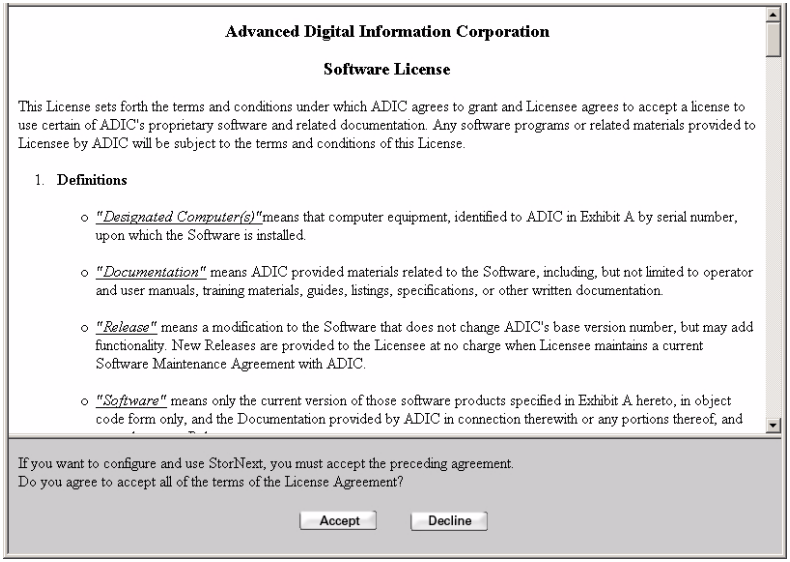
Alternatively, you can obtain a license by going to www.adic.com/swlicense and providing the required information.

After ATAC receives the above information, an ATAC representative will send you a license string. Enter this license screen on the **Enter License String** screen to use StorNext with your permanent license.

Note — If you use the temporary license, be sure to obtain a permanent license from ADIC before the 30-day temporary license expires.

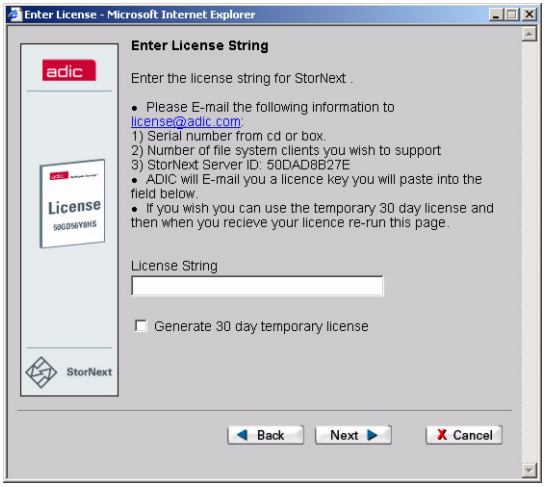
1 On the **Enter License - Introduction** screen, click **Next** to continue.

The ADIC license agreement appears. You must accept the license agreement in order to continue with the licensing process.



2 Read the license agreement and then click **Accept**.

The **Enter License String** screen appears. This screen summarizes the information you must send to license@adic.com in order to receive the license string you enter on this screen.

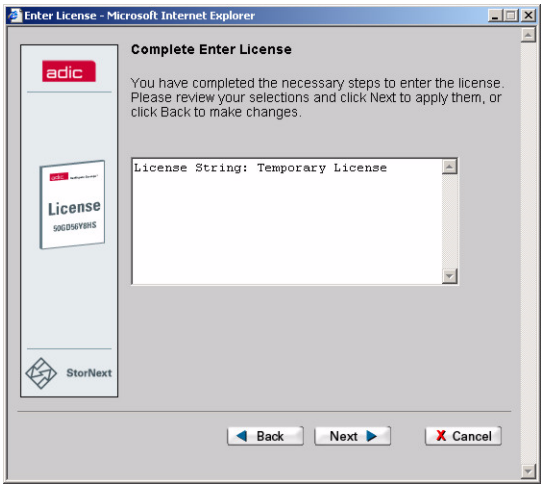


3 Do one of the following:

- Select **Generate 30 day temporary license** to proceed with the Configuration Wizard using a temporary 30-day license. Continue with step 4.
- Enter a permanent license. Go to step 7.

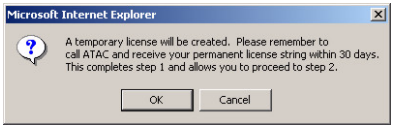
4 After selecting **Generate 30 day temporary license**, click **Next** to continue.

The **Complete Enter License** screen appears.



5 On the **Complete Enter License** screen, click **Next** to complete the task or **Back** to make changes.

When you click **Next**, a message reminds you to contact ATAC within 30 days to receive your permanent license string.



6 Click **OK** to close the message box. The Configuration Wizard screen (Figure 3 on page 23) shows a **Completed** status next to Step 1. Continue with Step 2: Adding File Systems

7 To enter a permanent license, type or copy and paste into the **License String** field the license string you received from ATAC.

If you receive your license string electronically, paste the license string into the `/usr/adic/DSM/config/license.dat` file. Updating this file enables StorNext to automatically detect the license string when the Configuration Wizard runs.

If you receive your license string in a hard-copy document, type the license string, exactly as it is shown, in the **License String** Field.

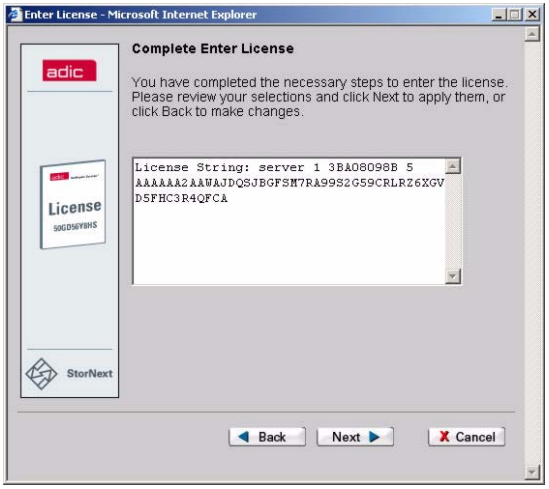
Here is an example of a StorNext license file with the license string entered (below License Authorization String). This is an example only. Do not enter the license screen shown.

```
# System:              emerald
# Identifier:          3FA781993
# Number Clients:      12
# Expiration Date:   None
# License: AAAAA/B2AAS/AJDQV/2DCKS/M7RA9/82XUR/CH3TL/9EES7/5ZEGV/
6ALVD/TA
#
# License Authorization String:

server 1 3FA781993 12 AAAAAB2AASAJDQV2DCKSM7RA982XURCH3TL9EES75ZEGV6ALVDTA emerald ADIC
```

8 Click **Next** to continue.

The **Complete Enter License** screen appears.



9 Review your selections. Click **Next** to complete the task or **Back** to make changes.

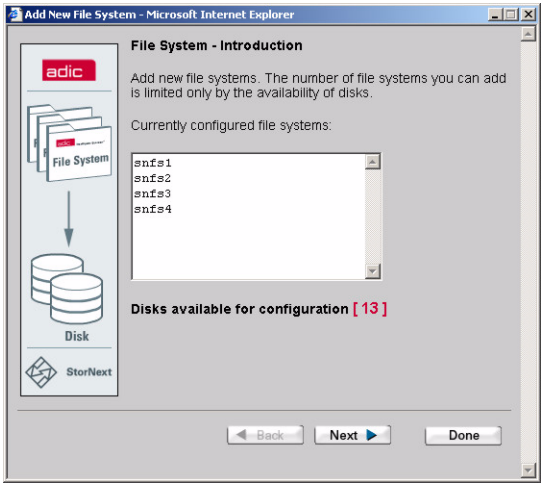
10 Do one of the following:

- Click **Done** to continue. The **Configuration Wizard** screen (Figure 3 on page 23) is shown with a **Completed** status next to Step 1. Continue with Step 2: Adding File Systems.
- Click **Next** to modify or enter another license. Repeat the Entering a License procedure. Go to Step 1: Entering a License.

Step 2: Adding File Systems

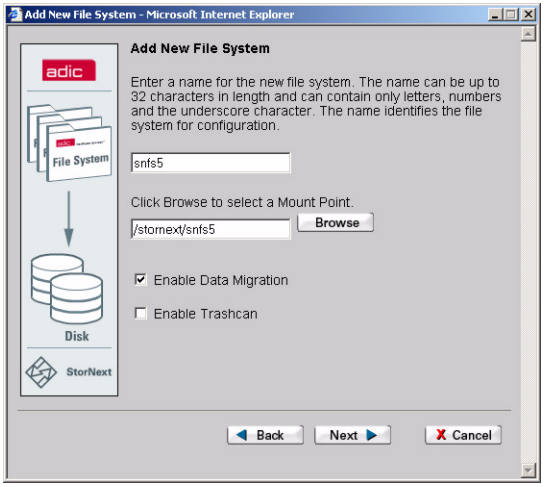
This procedure creates an empty file system. The number of file systems that can be added is only limited by the number of disks available for configuration.

The **File System - Introduction** screen displays both configured file systems and disks available for configuration.



1 Click **Next** to add a file system.

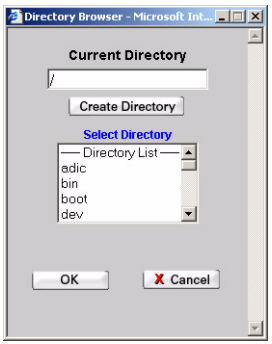
The **Add New File System** screen appears.



- **Name** field: The name of the file system.
- **Mount Point** field: The mount point (directory) for the file system. The mount point defaults to /stornext/snfs. If you create a new mount point (other than the default), the **Directory Browser** screen below appears.

  1a. Click **Browse** to navigate to an existing directory or create a new one.

  The **Directory Browser** screen appears.



  1b. In the **Select Directory** list, select a directory.

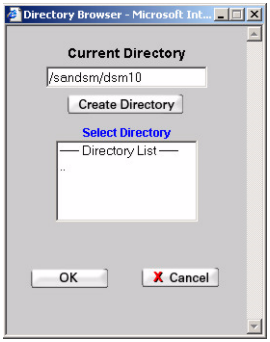
  The selected directory (`/stornext`) is shown in the Current DIrectory Field.

  1c. Click **Create Directory** to create the new mount point.

  You are prompted to enter the new directory name. The new directory will reside as a sub-directory of the directory created in Step 1 b, above.

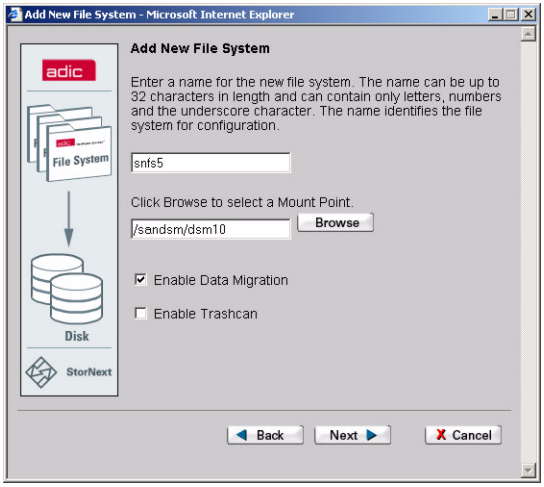
1d. Enter the name of the new directory and click **OK**.

The new directory is shown in the **Current Directory** Field.



1e. Click **OK** to accept the new directory.

The new directory is shown in the **Add New File System** screen.



- **Enable Data Migration** check box: Select this option (check the box) if you want this file system to be managed with automatic data movement between the primary disk storage and secondary storage (either disk or tape). If you do not enable this option, this file system remains unmanaged and does not move data to the tape library. Be sure to select this option if you intend to use the file system as a storage disk.
- **Enable Trashcan** check box: Select this option (check the box) if you want to be able to undelete files from the Trashcan. If you do not enable this option, files cannot be undeleted from the Trashcan.

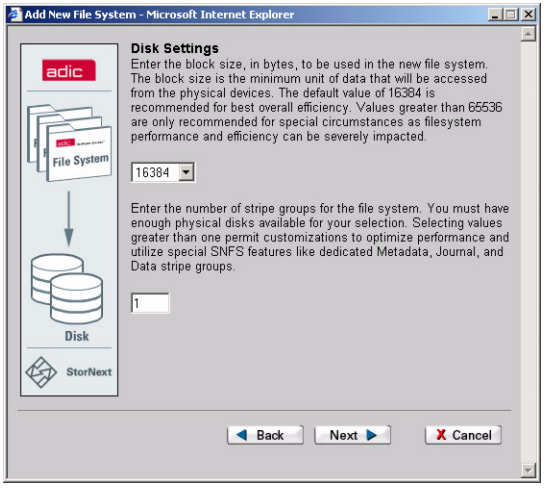
CAUTION

The StorNext Trashcan feature should only be enabled on UNIX platforms. Enabling the Trashcan in a mixed UNIX/Windows environment causes file system failures due to conflicts with the Windows Recycle Bin.

Do not select either the Enable Trashcan or Enable Data Migration options if the file system will be used as a storage disk.

2 In the **Add New File System** screen, type valid values and click **Next**.

The **Disk Settings** screen appears.



- **Block size** field: The block size (in bytes) for the file system. The block size is the minimum unit of data that will be accessed from physical devices. The default value of 16384 bytes is the recommended setting for the best overall efficiency.
- **Stripe group** field: The number of stripe groups for the file system. Selecting a value greater than one (1) enables customization to optimize performance and use StorNext features such as dedicated Metadata, Journal and User Data stripe groups.

Note

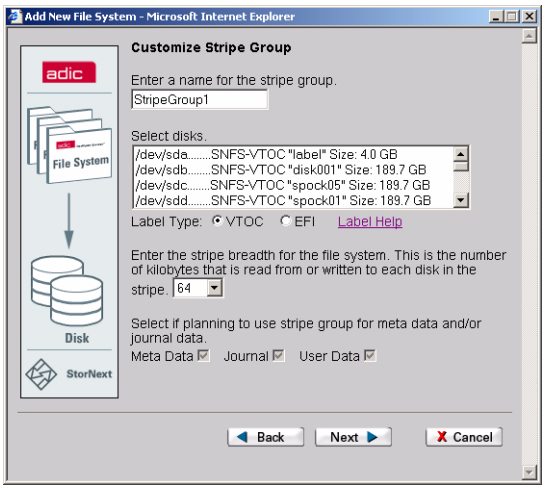
ADIC recommends that you specify at least three stripe groups: one for metadata, one for journals, and one for data.

3 In the **Disk Settings** screen, type valid values and click **Next**.

A message reminds you to select more than one stripe group if you want an alternate configuration other than the one that provides journal, metadata, and user date.

4 Click **OK** to continue.

The **Customize Stripe Group** screen appears.



- **Name** Field: The name of the stripe group.
- **Select disks** list: The disks available to assign to the stripe group. You must select at least one disk for each stripe group.
- **Label Type**: If you plan to create LUNs larger than 2TB, you must specify the EFI label type when configuring a file system.

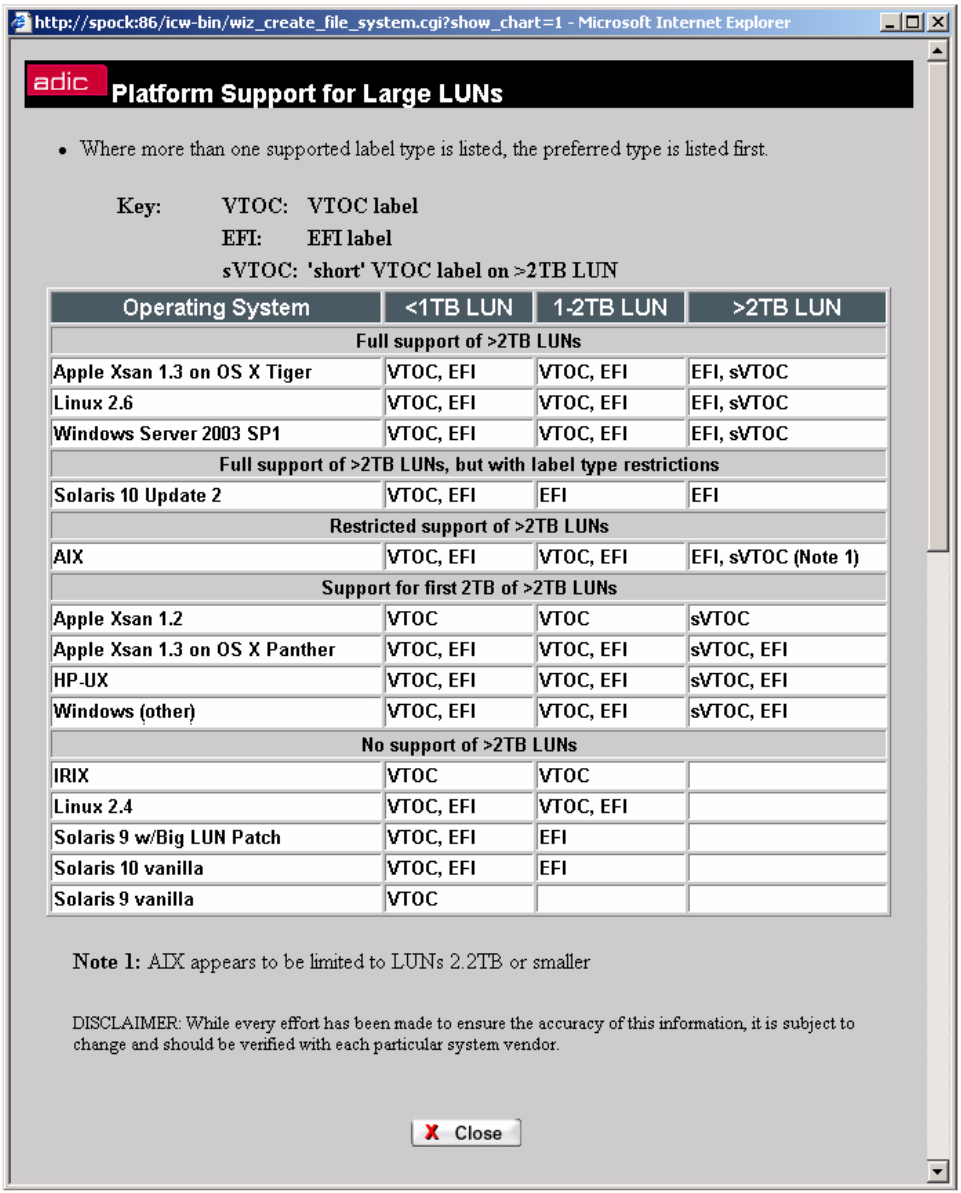
  VTOC labels were used for all operating systems in previous StorNext and Xsan releases, and are still required for the SGI IRIX operating system, Solaris releases prior to Solaris 10 Update 2, and LUNs less than 1TB.

  EFI labels are required if you plan to create LUNs that are larger than 2TB. (For Solaris, EFI labels are also required for LUNs with a raw capacity greater than 1TB.) EFI labels will not work with the IRIX operating system.

  The correct value is automatically selected when you reach the **Customize Stripe Groups** screen, so you can accept the default value unless you have a reason to change the label type.

  For more information about 2TB LUN requirements, see 2TB LUN Requirements.

- **Label Help**: Click this link to display guidelines for determining whether to select VTOC or EFI labels. The matrix looks like this:



http://spock:86/icw-bin/wiz_create_file_system.cgi?show_chart=1 - Microsoft Internet Explorer

adic **Platform Support for Large LUNs**

- Where more than one supported label type is listed, the preferred type is listed first.

Key: VTOC: VTOC label
EFI: EFI label
sVTOC: 'short' VTOC label on >2TB LUN

Operating System	<1TB LUN	1-2TB LUN	>2TB LUN
Full support of >2TB LUNs			
Apple Xsan 1.3 on OS X Tiger	VTOC, EFI	VTOC, EFI	EFI, sVTOC
Linux 2.6	VTOC, EFI	VTOC, EFI	EFI, sVTOC
Windows Server 2003 SP1	VTOC, EFI	VTOC, EFI	EFI, sVTOC
Full support of >2TB LUNs, but with label type restrictions			
Solaris 10 Update 2	VTOC, EFI	EFI	EFI
Restricted support of >2TB LUNs			
AIX	VTOC, EFI	VTOC, EFI	EFI, sVTOC (Note 1)
Support for first 2TB of >2TB LUNs			
Apple Xsan 1.2	VTOC	VTOC	sVTOC
Apple Xsan 1.3 on OS X Panther	VTOC, EFI	VTOC, EFI	sVTOC, EFI
HP-UX	VTOC, EFI	VTOC, EFI	sVTOC, EFI
Windows (other)	VTOC, EFI	VTOC, EFI	sVTOC, EFI
No support of >2TB LUNs			
IRIX	VTOC	VTOC	
Linux 2.4	VTOC, EFI	VTOC, EFI	
Solaris 9 w/Big LUN Patch	VTOC, EFI	EFI	
Solaris 10 vanilla	VTOC, EFI	EFI	
Solaris 9 vanilla	VTOC		

Note 1: AIX appears to be limited to LUNs 2.2TB or smaller

DISCLAIMER: While every effort has been made to ensure the accuracy of this information, it is subject to change and should be verified with each particular system vendor.

X Close

- **Stripe breadth** drop-down menu: The stripe breadth for the file system. The stripe breadth is the number of kilobytes (KB) that is read from or written to each disk in the stripe. For a typical StorNext installation, 64KB is the recommended setting.

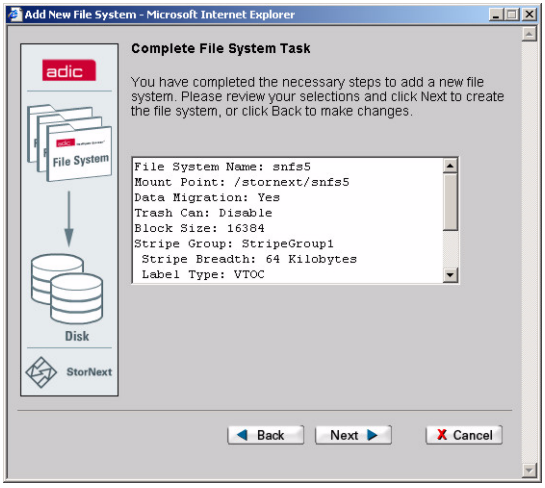
- **Metadata, Journal,** and **User Data** check boxes: Enable one or more of these options (check the boxes) to create a location for metadata, journaling or user data.
  - To enable metadata to be placed on the stripe group, select the **Metadata** check box.
  - To enable journaling to be placed on the stripe group, select the **Journal** check box.
  - To enable user data to be placed on the stripe group, select the **User Data** check box.

Note — ADIC recommends that your User Data be on a different stripe group than Metadata and Journal.

5 If you selected multiple stripe groups on the **Customize Stripe Group** screen, repeat step 4 for each stripe group.

6 In the **Customize Stripe Group** screen, type valid values and click **Next**.

The **Complete File System Task** screen appears.



7 Review your selections. Click **Next** to complete the task or **Back** to make changes.

8 Once the status screen displays the successful addition of the file system, click **Next**.

A message informs you that Step 2 is complete, and you can continue to step 3.

9 Do one of the following:

- Click **Cancel** to add more file systems. Repeat the Adding a File System procedure (Step 1 on page 28).
- Click **OK** to continue.

The **Configuration Wizard** screen (Figure 3 on page 23) is shown with a **Completed** status next to Step 2. Click **Next** to continue with Step 3: Adding a Library.

Step 3: Adding a Library

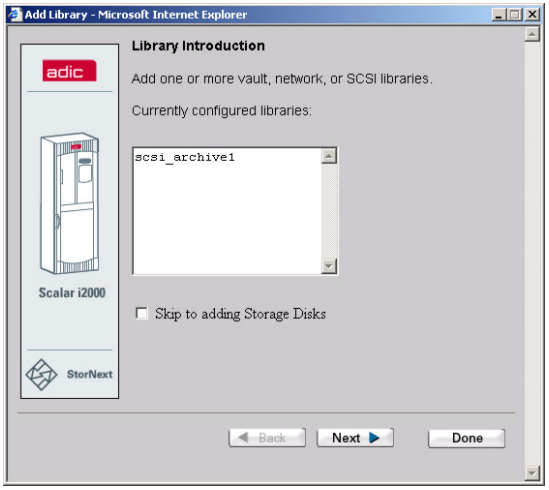
Use the procedure in this section to add libraries to StorNext. The StorNext Storage Manager (SNSM) component of StorNext supports three types of libraries: SCSI, Network (ACSLS or DAS), and Vault.

- **SCSI** button: Select **SCSI** if you have a SCSI or a fibre channel-attached library.
- **Network** button: Select **Network** if you have a network-attached library. There are two options from for a network-attached library, **ACSLS** or **DAS**. For more information on ACSLS and DAS, refer to the *StorNext Release Notes*.
- **Vault** button: Select **Vault** if your library stores media that has been moved from a robotic library. A Vault library is a library used only to store media and cannot be reconfigured after it has been designated as a vault.

Depending on the library type, refer to the appropriate procedure to add the library to StorNext.

- Adding a SCSI Library on page 36
- Adding an ACSLS Network Library on page 39
- Adding a DAS Network Library on page 41
- Adding a Vault Library on page 47

The **Library Introduction** screen shows the libraries that have been configured.



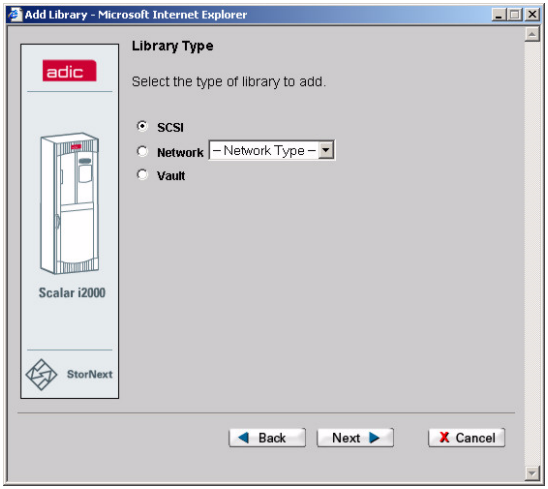
Do one of the following:

- Select “Skip to adding Storage Disks” and follow the procedure in Step 6: Adding Secondary Storage Disks on page 58. (You would want to skip the steps for adding a library, tape drives, and media if you plan to use only disk space for storage.)
- Click Next and follow the procedure in Adding a SCSI Library on page 36 to add a SCSI library.

- Click Next and follow the procedure in Adding an ACSLS Network Library on page 39 to add an ACSLS network library.
- Click Next and follow the procedure in Adding a DAS Network Library on page 41 to add a DAS network library.
- Click Next and follow the procedure in Adding a Vault Library on page 47 to add a vault library.

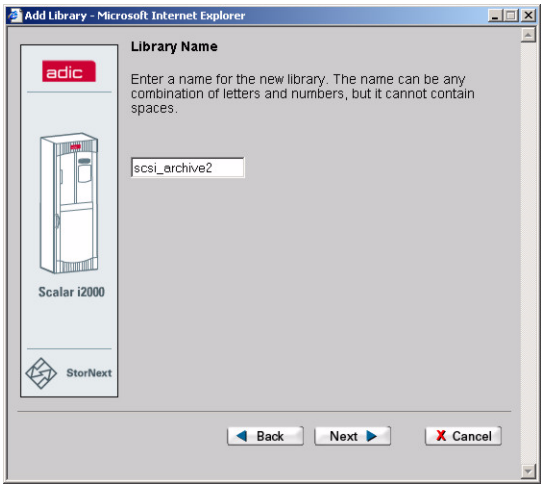
Adding a SCSI Library

After you click Next on the **Library Introduction** screen, the **Library Type** screen appears. If you have no SCSI devices configured, you are informed that no SCSI devices were detected.



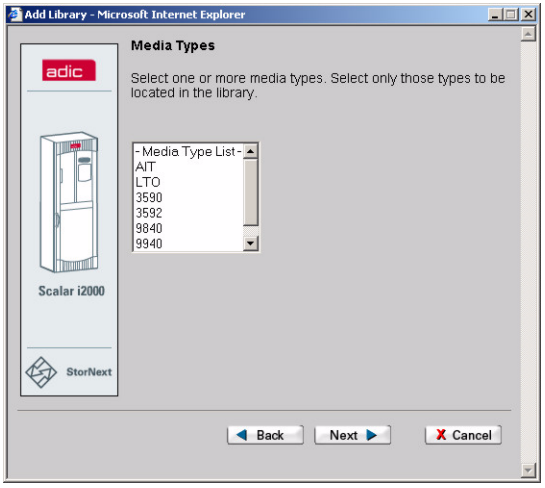
1 Select the **SCSI** option and click **Next**.

The **Library Name** screen appears.



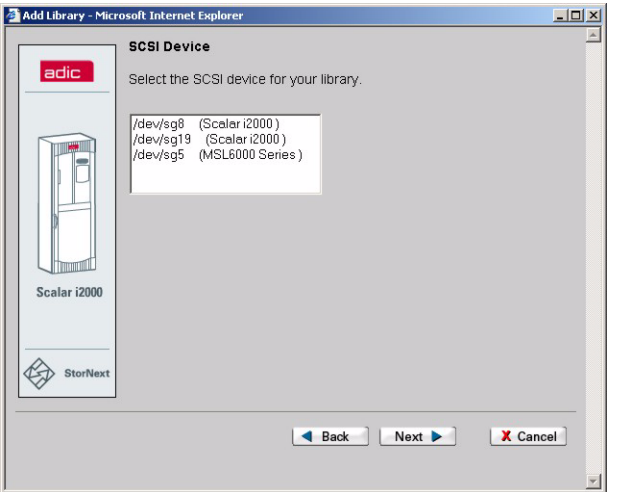
2 Accept the default or type a name in the Library Name Field and click **Next**.

The **Media Types** screen appears.



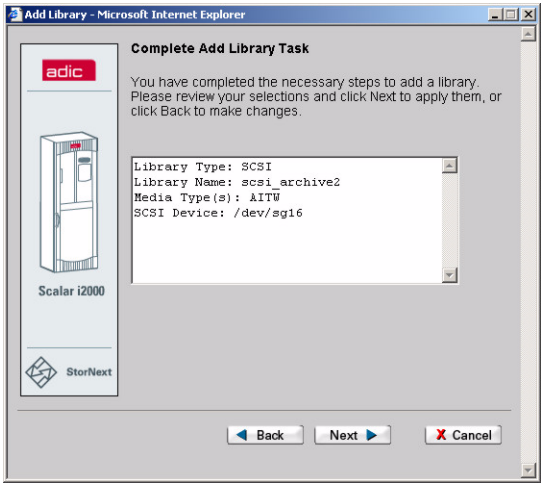
3 Select a media type from the list and click **Next**.

The **SCSI Device** screen appears.



4 Select a SCSI device from the list and click **Next**.

The **Complete Add Library Task** screen appears.



5 Review your selections. Click **Next** to complete the task or **Back** to make changes.

6 Once a status screen displays the successful addition of the library, click **Next**.

The **Library Introduction Screen** appears.

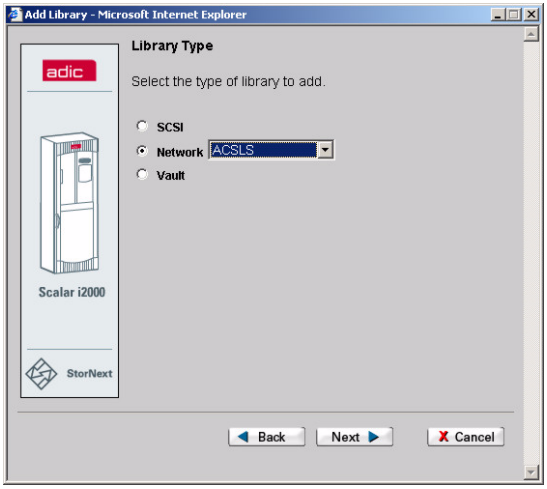
7 Do one of the following:

- Click **Done** to finish the Adding a Library procedure and proceed to the next step. The **Configuration Wizard** screen (Figure 3 on page 23) is shown with a **Completed** status next to Step 3.
- Add more libraries. Click **Next** to repeat the Adding a Library procedure (Step 3: Adding a Library on page 35).

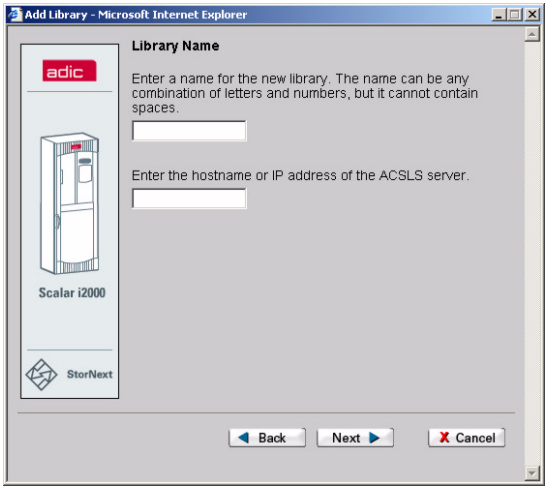
Adding an ACSLS Network Library

After you click Next on the **Library Introduction** screen, the **Library Type** screen appears.

1 Select the **Network** option, choose **ACSLS** from the drop-down menu, and then click **Next**.



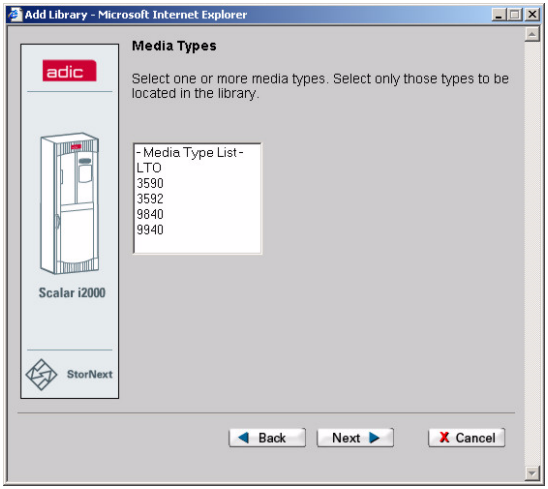
2 Enter the fields on the **Library Name** screen.



- **Enter Name** field: The name of the library. This can be any name you choose.
- **Enter Host Name** field: The actual host name or IP address of the ACSLS server.

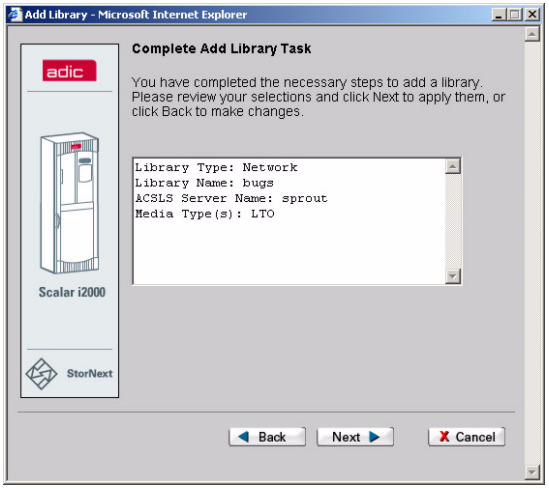
3 Type valid values for each field and click **Next**.

The **Media Types** screen appears.



4 Select a media type from the list and click **Next**.

The **Complete Add Library Task** screen appears.



5 Review your selections. Click **Next** to complete the task or **Back** to make changes.

6 Once a status screen displays the successful addition of the library, click **Next**.

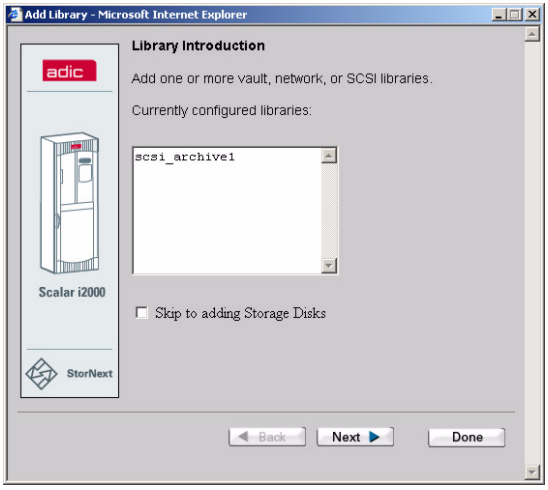
The **Library Introduction Screen** appears.

7 Do one of the following:

- Click **Done** to finish the Adding a Library procedure and proceed to the next step. The **Configuration Wizard** screen (Figure 3 on page 23) is shown with a **Completed** status next to Step 3.
- Add more libraries; click **Next** to repeat the Adding a Library process (Step 3: Adding a Library on page 35).

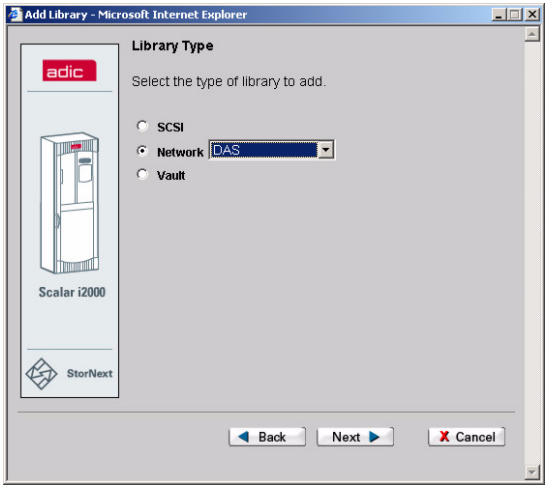
Adding a DAS Network Library

The **Library Introduction** screen shows the libraries that have been configured.



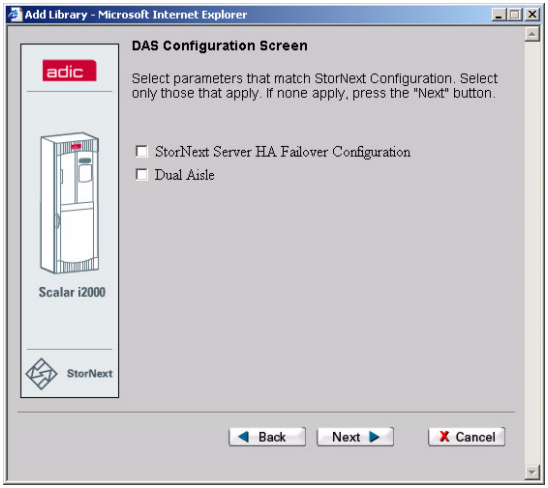
1 Click **Next** to add a DAS network library.

The **Library Type** screen appears.



2 Click the **Network** option, select **DAS** from the drop-down list, and click **Next**.

The DAS Configuration screen appears.



3 Do one of the following:

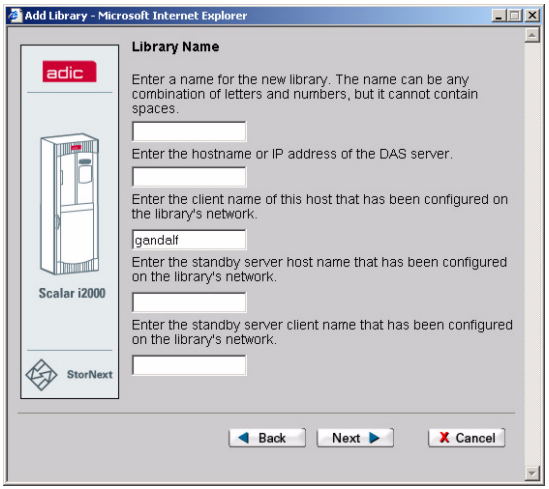
- Select the **Failover** option, click **Next**, and go to Adding a DAS Network Library with Failover on page 43.
- Select the **Dual Aisle** option, click **Next**, and go to Adding a DAS Network Library with or without Dual Aisle Configuration on page 45.
- If your DAS Network library is not configured for either failover or dual aisle, click **Next**, and go to Adding a Vault Library on page 47.

Note

If you select both the failover and dual aisle options, the library is set up as if only failover was selected. Refer to Adding a DAS Network Library with Failover on page 43.

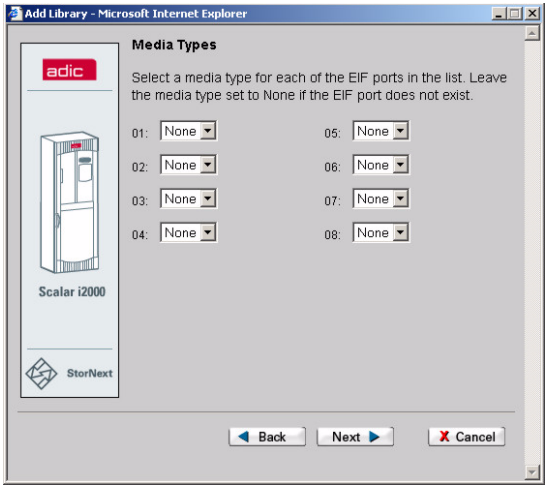
For more information about failover or dual aisle configurations, contact ATAC. Refer to Customer Assistance on page 97.

3a. On the **Library Name** screen, enter valid values and click **Next**.



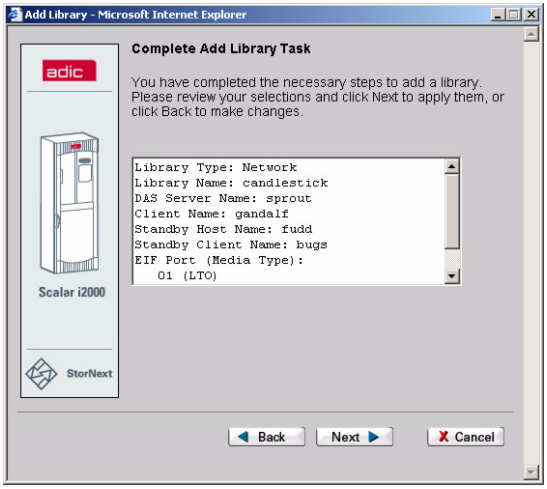
- **Enter Name** Field: The name of the library. This can be any name you choose.
- **Enter DAS Server Name** Field: The name of the DAS server.
- **Enter DAS Client Name** Field: The name of the DAS client configured on the library's network.

The **Media Types** screen appears.



3b. Use the drop-down lists to map the mail boxes (EIF ports) to specific media and click **Next**.

The **Complete Add Library Task** screen appears.



3c. Review your selections. Click **Next** to complete the task or **Back** to make changes.

3d. Once a status screen displays the successful addition of the library, click **Next**.

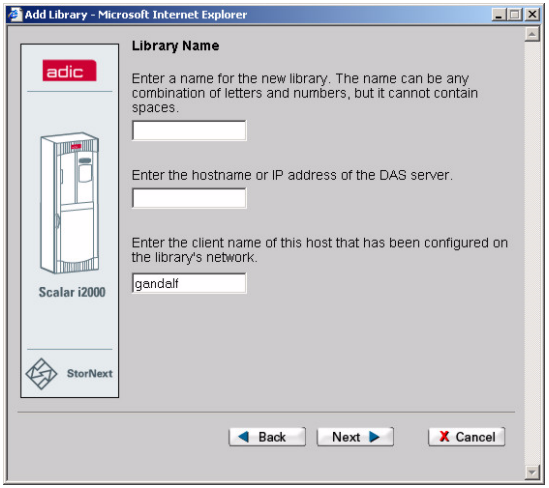
The **Library Introduction Screen** appears.

3e. Do one of the following:

- Click **Done** to finish the Adding a Library procedure and continue to the next step. The **Configuration Wizard** screen (Figure 3 on page 23) is shown with a **Completed** status next to Step 3.
- Add more libraries. Click **Next** and repeat the Adding a Library procedure (Step 3: Adding a Library on page 35).

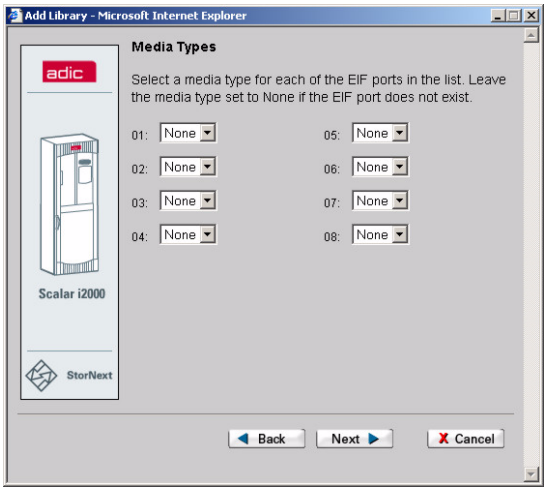
3f. Click **Next** to continue.

3g. On the **Library Name** screen, enter valid values and click **Next**.



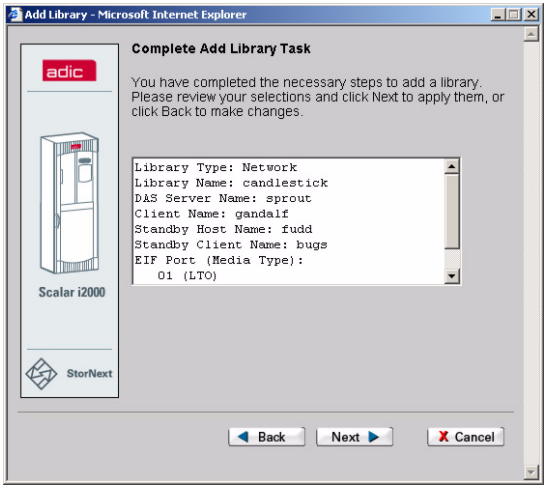
- **Enter Name** Field: The name of the library. This can be any name you choose.
- **Enter Host Name** Field: The actual host name or IP address of the DAS server.
- **Enter Client Name** Field: The name of the client for the current configuration. It is queried by StorNext and automatically populated.

The **Media Types Screen** appears.



3h. Use the drop-down lists to map the mail boxes (EIF ports) to specific media and click **Next**.

The **Complete Add Library Task** screen appears.



3i. Review your selections. Click **Next** to complete the task or **Back** to make changes.

3j. Once a status screen displays the successful addition of the library, click **Next**.

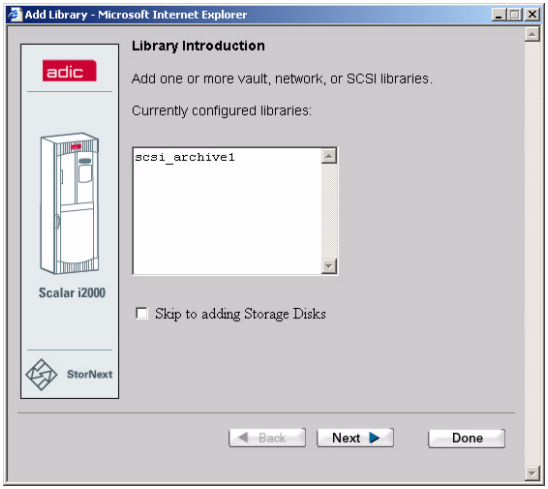
The **Library Introduction Screen** appears.

4 Do one of the following:

- Click **Done** to finish the Adding a Library procedure, and proceed to the next step. The **Configuration Wizard** screen (Figure 3 on page 23) is shown with a **Completed** status next to Step 3.
- Add more libraries. Click **Next** to repeat the Adding a Library procedure (Step 3: Adding a Library on page 35).

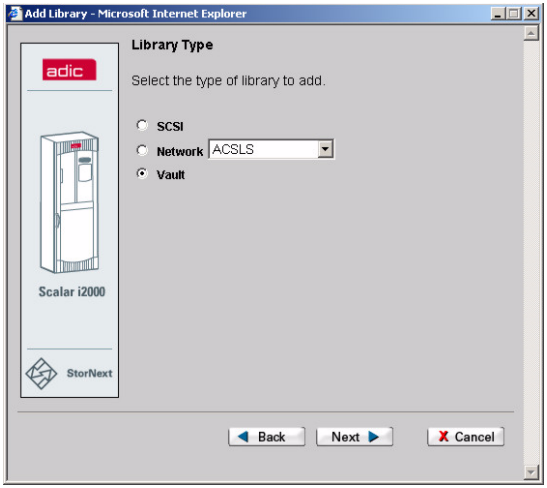
Adding a Vault Library

The **Library Introduction** screen shows the libraries that have been configured.



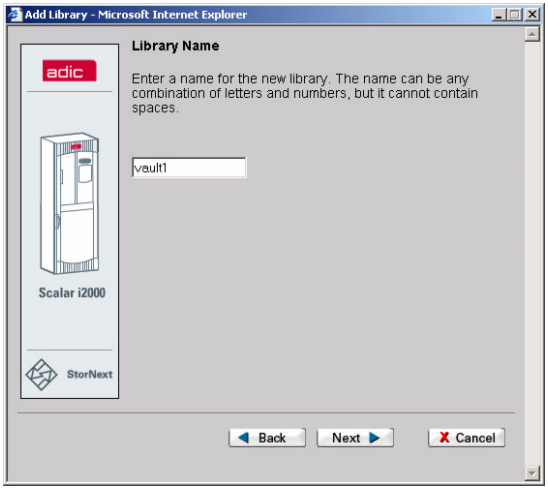
1 Click **Next** to add a vault library.

The **Library Type** screen appears.



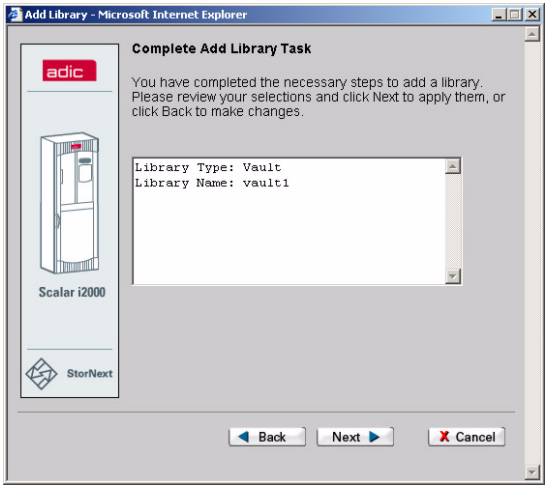
2 Click the **Vault** option and click **Next**.

The **Library Name** screen appears.



3 Accept the defaults or type a name for the library and click **Next**.

The **Complete Add Library Task** screen appears.



4 Review your selections. Click **Next** to complete the task or **Back** to make changes.

5 Once a status screen displays the successful addition of the library, click **Next**.

The **Library Introduction Screen** appears.

6 Do one of the following:

- Add more libraries. Click **Next** to repeat the Adding a Library procedure (Step 3: Adding a Library on page 35).
- Click **Done** to finish the Adding a Library procedure.

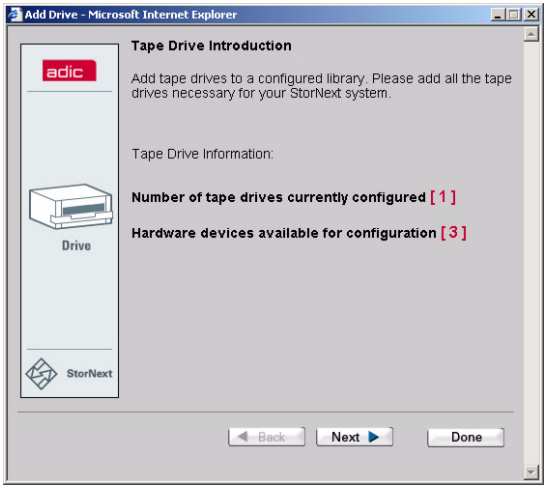
  The **Configuration Wizard** screen (Figure 3 on page 23) is shown with a **Completed** status next to Step 3.

7 Click **Next** to continue with Step 4: Adding a Tape Drive on page 49.

Step 4: Adding a Tape Drive

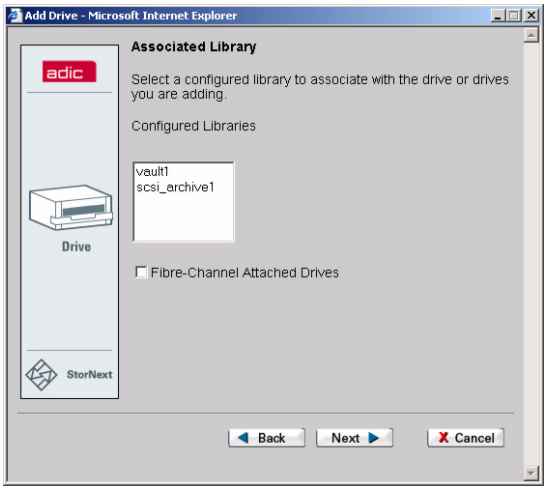
Use this procedure to add tape drives to your libraries. You can add any number of connected tape drives to the StorNext system.

The **Tape Drive Introduction** screen lists the number of configured tape drives and hardware devices that are currently available for configuration.



1 Click **Next** to add a tape drive.

The **Associated Library** screen appears.



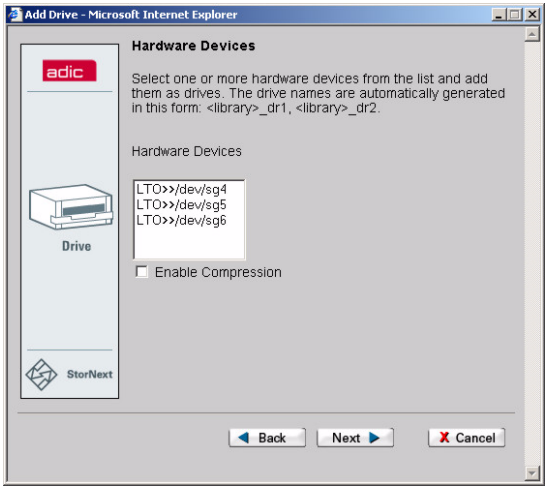
- **Configured Libraries** list: Select the configured library to associate with added tape drives.
- **Fibre-Channel Attached Drives** check box: Check this box if you have fibre channel-attached tape drives. If you check this box, the **Match Devices with Slots** screen appears. Go to Step 4 on page 51.

Note

For SCSI direct-attached tapes that are not fibre channel, it is not necessary to match the device with the correct slot because slot-to-drive matching is automatically performed. If StorNext cannot perform slot matching, the screen shown in Step 4 on page 51 appears.

2 After selecting a configured library on the **Associated Library** screen, click **Next**.

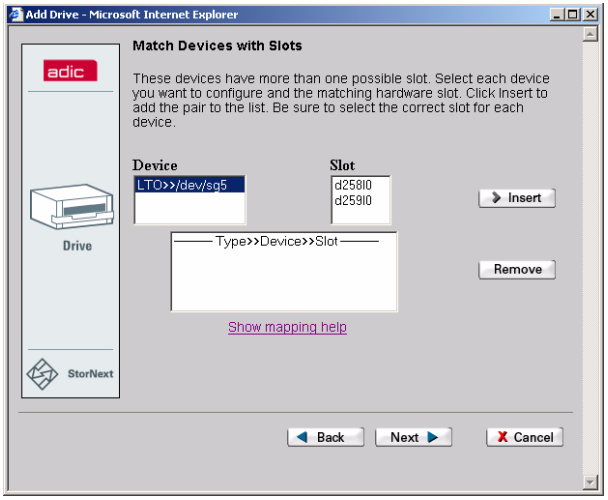
The **Hardware Devices** screen appears.



- **Hardware Devices** list: The hardware devices to be added as drives. Drive names are automatically generated in this format: <*library_dr1*>, <*library_dr2*>
- **Enable Compression** check box: Enable this option (check the box) to allow data compression on added tape drives.

3 After adding hardware devices, click **Next**. Go to Step 5 on page 53

4 When you select the **Fibre-Channel Attached Drives** check box on the **Associated Library** screen, the **Matched Devices with Slots** screen appears. The information on this screen varies from configuration to configuration.



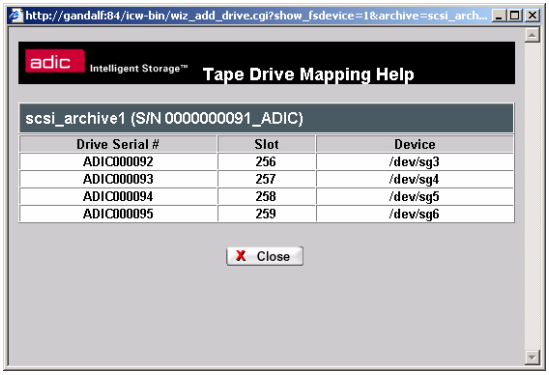
Note

Before continuing with this procedure, you must know which devices match which slots.

3a. In the **Device** list, select a device to be configured.

3b. In the **Slot** list, select a slot with which to match the device.

3c. If you need help mapping the tape drive to a slot, click Show Mapping Help to display a list of device mappings.



3d. Click **Insert** to add the device/slot combination to the Type>>Device>>Slot list.

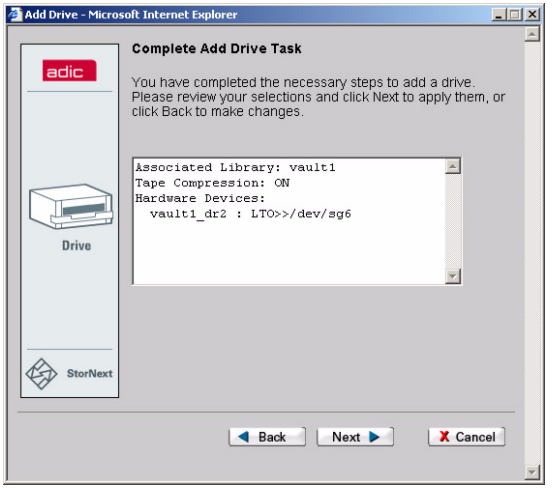
3e. For each device and slot, repeat Step 3a. and Step 3b..

Note

If you want to enable compression on some devices in the Type/Device/Slot list, but not others, you must complete this procedure twice: once to enable compression on selected devices, and a second time to specify devices without compression.

5 Click **Next** to continue.

The **Complete Add Drive Task** screen appears.



6 Review your selections. Click **Next** to complete the task or **Back** to make changes.

7 Once a status screen displays the successful addition of the tape drive, click **Next**.

The **Tape Drive Introduction** screen appears.

8 Do one of the following:

- Add more tape drives. Click **Next** to repeat the Adding a Tape Drive procedure (Step 1 on page 50).
- Click **Done** to finish the Adding a Tape Drive procedure.

  The **Configuration Wizard** screen (Figure 3 on page 23) is shown with a **Completed** status next to Step 4.

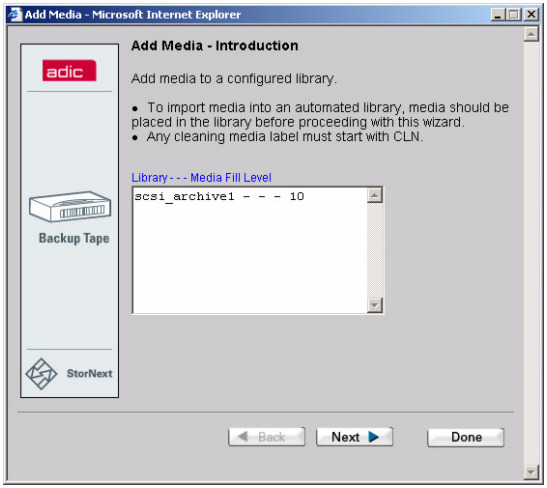
9 Click **Next** to continue with Step 5: Adding Media on page 53.

Step 5: Adding Media

Use this task to add media to a configured library.

CAUTION **Make sure there are no media in your tape drives before continuing with this procedure.**

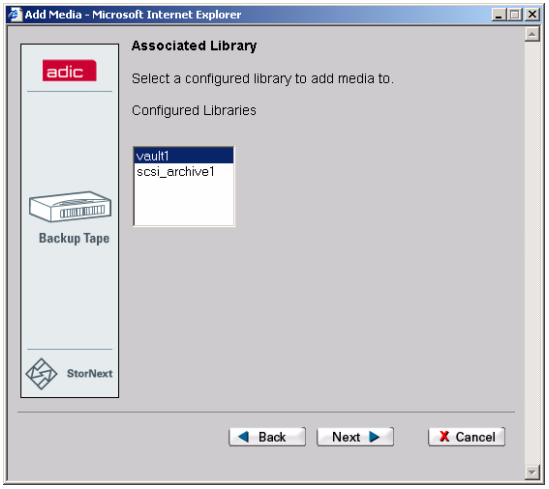
The **Add Media - Introduction** screen shows a list of libraries along with the number of media that each library can hold.



CAUTION **Make sure that only media you want StorNext to use is in the library. StorNext will use all available tapes and overwrite them.**

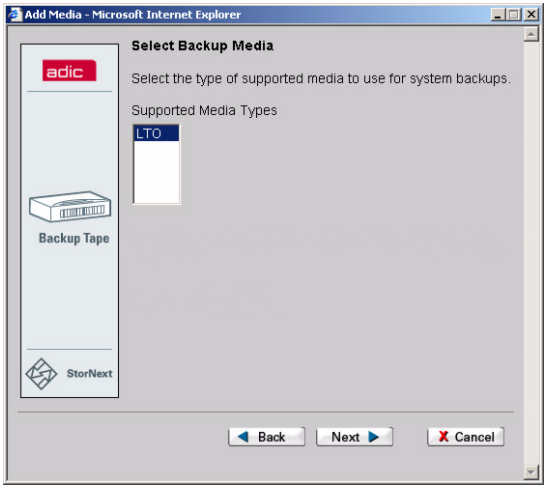
1 Click **Next** to add media to a configured library.

The **Associated Library** screen appears.



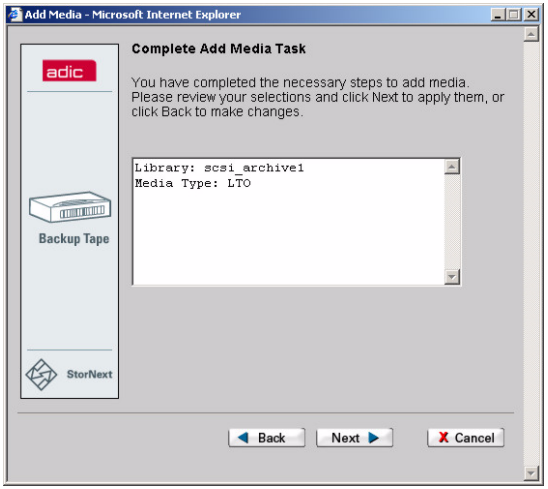
2 On the **Associated Library** screen, select a configured library to which you want to add media, and then click **Next**. If you select a vault, go to Step 5 on page 56.

3 If you do not select a vault, the **Select Backup Media** screen appears.

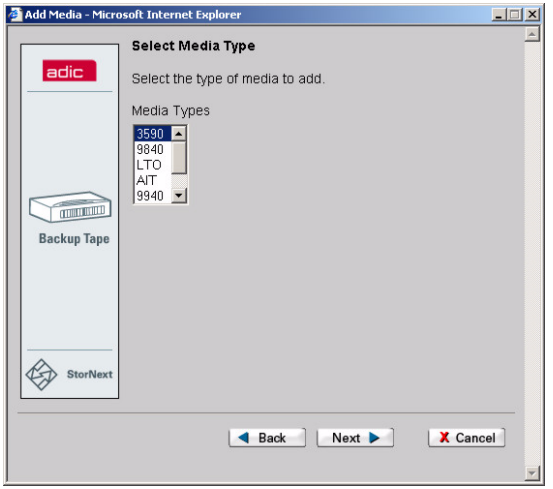


4 On the **Select Backup Media** screen, select a supported media type, enter the number of the imported media to use for the system backups, and click **Next**.

The **Complete Add Media Task** screen appears. Go to Step 10 on page 58.

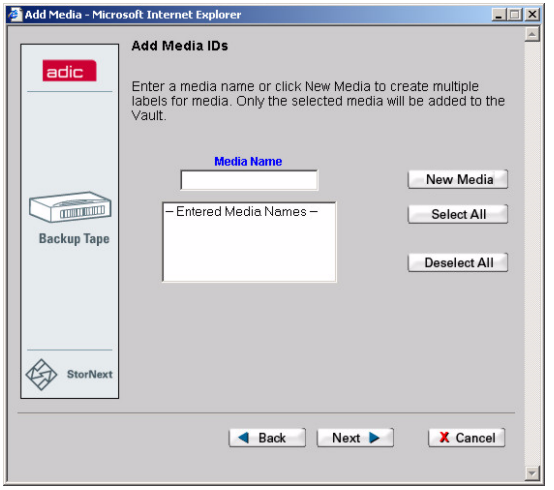


5 When you select a vault, the **Select Media Type** screen appears. Select the type of media you want to add to the vault.



6 On the **Select Media Type** screen, select the type of media you want to add to the vault.

The **Add Media IDs** screen appears.

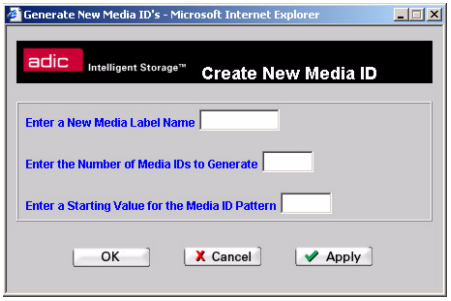


7 On the **Add Media IDs** screen, do one of the following:

- Select one or more previously entered media IDs from the list, and click **Next**. Go to Step 10 on page 58.
- Enter the name for the new media in the **Media Name** field. Go to Step 9 on page 57.

- Add multiple media labels by clicking the **New Media** button.

After you click **New Media**, the **Create New Media ID** screen appears.



8 On the **Create New Media ID** screen, perform the following steps:

a. Enter the new media label name.

b. Enter the number of media IDs you want to generate for the label.

c. Enter a starting value for the new media ID.

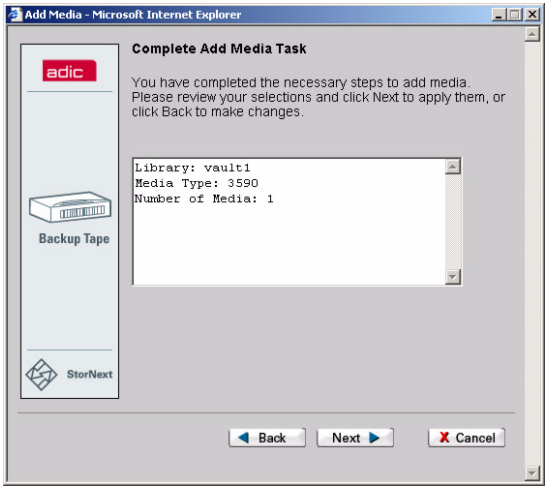
d. If you want to create additional media IDs, click Apply and repeat steps a through c.

e. When you are finished creating media IDs, click **OK**.

The Add Media IDs screen is shown again.

9 On the **Add Media IDs** screen, select one or more media IDs from the list, and then click **Next** to continue.

The **Complete Add Media Task** screen appears.



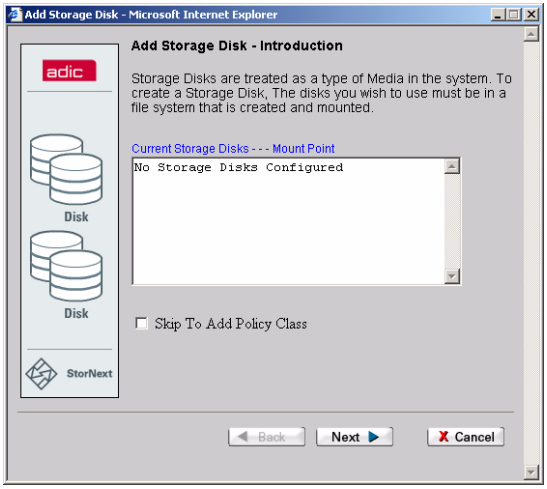
10 On the **Complete Add Media Task** screen, click Next to finish adding the media, or **Back** to make changes. After the process completes successfully and the **Complete Add Media Task** screen is shown again, do one of the following:

- Add more media. Click **Next** to repeat the Add Media procedure (Step 1 on page 54).
- Click **Done** to finish the Adding Media procedure. The Configuration Wizard screen (Figure 3 on page 23) is shown with a Completed status next to Step 5. Continue with Step 6: Adding Secondary Storage Disks.

Step 6: Adding Secondary Storage Disks

StorNext allows you to specify a file system to use as a storage disk. Storage disks, when defined, become a media type available for use in storage policies as a destination target just like tape media types. This portion of the Configuration Wizard allows you to specify the name of the file system you want to use as a storage disk.

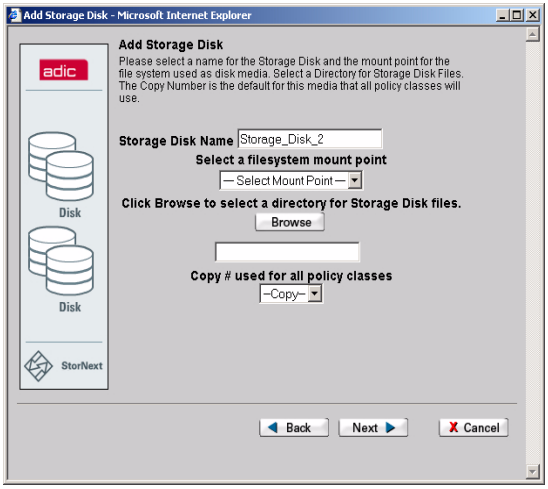
The **Storage Disk - Introduction** screen shows currently configured storage disks and their mount points.



1 Do one of the following:

- Click **Next** to add a storage disk.
- Select **Skip to Add Policy Class** and follow the procedure in Step 7: Adding a Storage Policy on page 61. (You would want to skip the steps for adding a storage disk if a suitable storage disk is already configured and its name appears in the list of Current Storage Disks.)

The **Add Disk Media** screen appears.

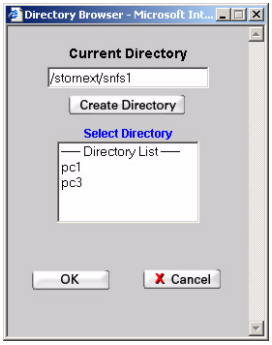


2 On the **Add Storage Disk** screen, perform the following steps:

2a. At the **Storage Disk Name** field, enter the label for the storage disk.

2b. Specify the mount point location for the file system you just named. First, select one of the available file systems. If there are no available file systems, you can use a non-managed file system (nfs or cvrfs). Click **Browse** to create a directory on the mounted file system.

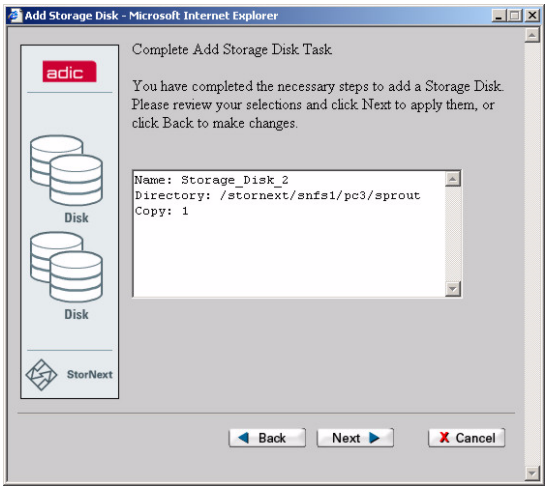
When you enter a new location, the directory screen appears. Click **Create Directory** to create a new directory. Click **OK** to return to the Add Storage Disk screen.



2c. At the **Copy # used for all policy classes** field, specify which copy (1-4) policies will write to.

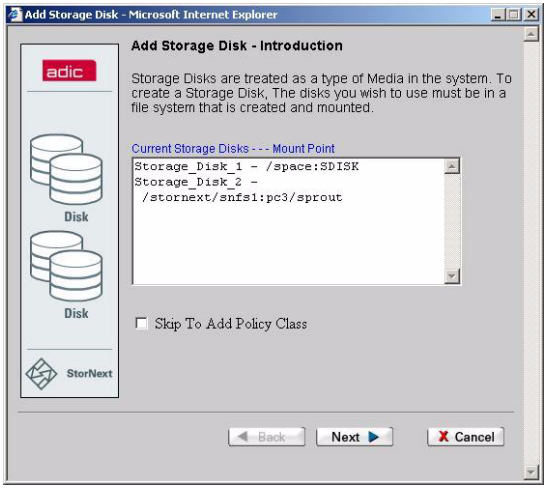
2d. Click **Next** to continue.

The **Complete Add Storage Disk Task** screen appears.



3 Review the information you entered for the storage disk name, mount point, and copy number (1-4). Click **Next** to save your entries, or **Back** to change information.

The **Add Storage Disk Introduction** screen appears.

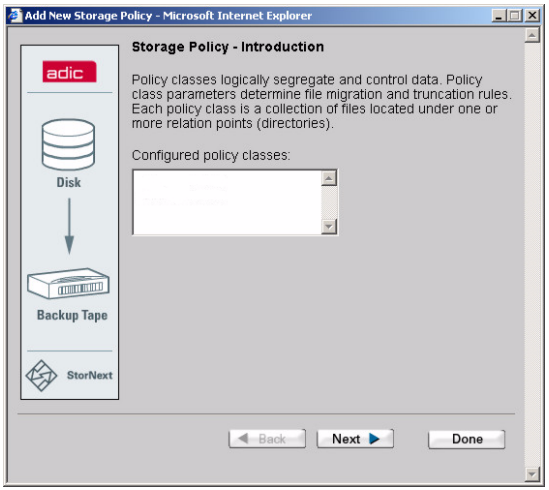


4 On the **Add Storage Disk Introduction** screen, do one of the following:

- Click **Next** to add another storage disk.
- Click **Done** to continue with Step 7: Adding a Storage Policy.

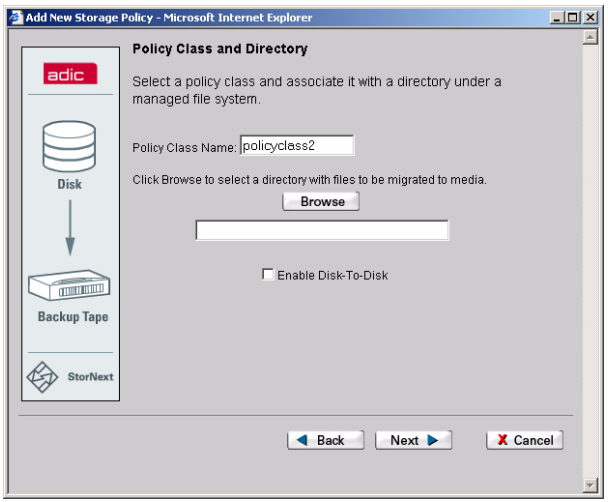
Step 7: Adding a Storage Policy

Use this procedure to create policy classes that logically segregate and control data. Policy class parameters determine storage and truncation rules for files associated with the policy class. The **Storage Policy - Introduction** screen shows configured policy classes.



1 Click **Next** to add a storage policy.

The **Policy Class and Directory** screen appears.



2 Enter the name of the policy class.

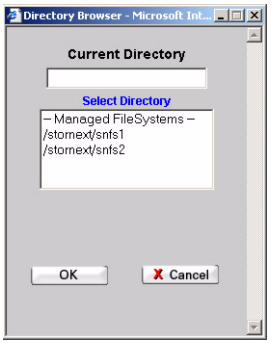
Note

The policy class can be any combination of letters and numbers, but it must start with a letter and is limited to 16 characters. Do not include periods (.) when naming the policy class.

3 Enter the name of the directory that will contain files to be migrated to media.

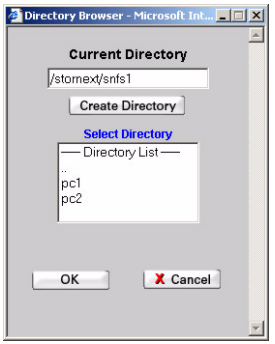
3a. Click Browse to navigate to an existing directory or create a directory.

The Directory Browser screen appears.



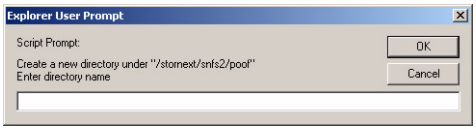
3b. In the **Select Directory** list, select a directory.

The selected directory is shown in the Current Directory Field.



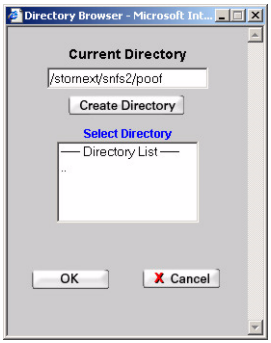
3c. Click Create Directory.

You are prompted to add a directory name.

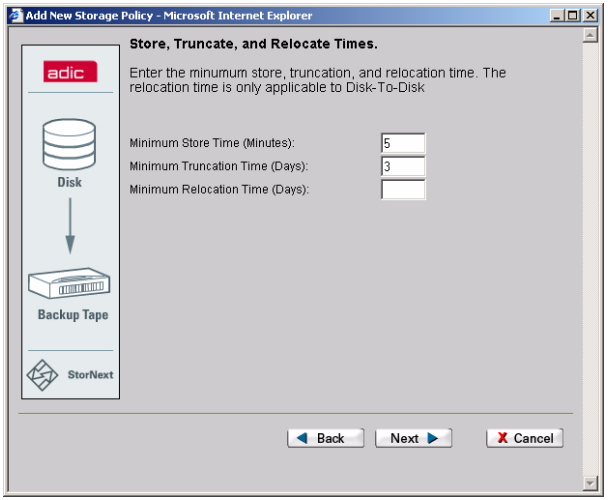


3d. Enter the directory name and then click **OK**.

The directory appears.



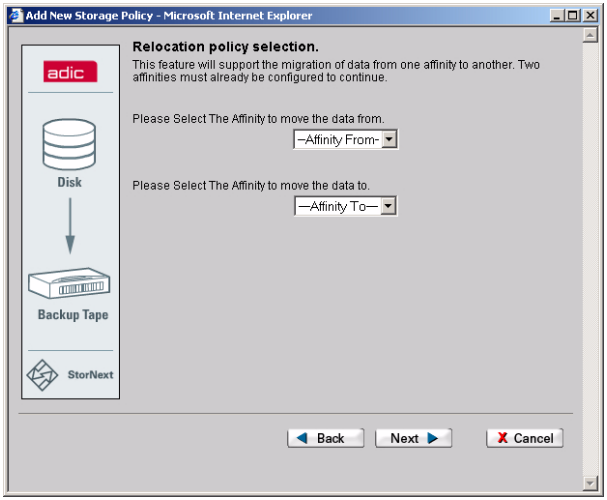
3e. Click **OK** to continue. The **Store, Truncate, and Relocate Times** screen appears. Note that you need to enter the minimum relocation time only if you selected the Enable Disk-To-Disk option on the The **Policy Class and Directory** screen. .



- **Minimum Store Time (Minutes)**: The minimum amount of time a file must remain unaccessed before it is considered a candidate for storage.

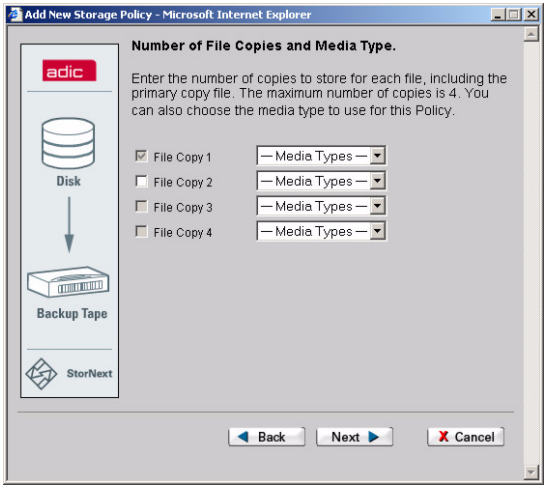
- **Minimum Truncation Time (Days)**: The minimum number of days a file must remain unaccessed before it is considered a candidate for truncation.
- **Minimum Relocation Time (Days)**: The minimum number of days a file must remain unaccessed on the primary affinity before it is considered a candidate for relocation to a secondary affinity.

4 If you selected the **Enable Disk-To-Disk** option on the **Policy Class and Directory** screen, the **Relocation Policy Selection** screen appears.



5 On the Relocation Policy Selection screen, specify the affinity from which to move data, and the destination affinity to which data is moved. Click **Next** to continue.

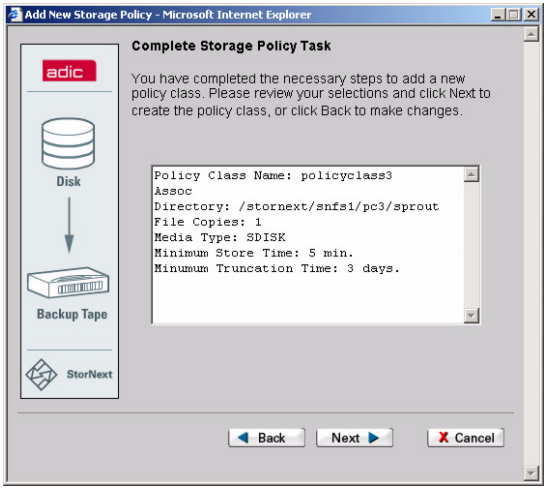
The **Number of File Copies and Media Type** screen appears.



6 On the **Number of File Copies and Media Type** screen, enter valid values and then click **Next**.

- **File Copy** fields: The number of copies to store for each file. This value includes the primary copy file. The default value is one (1) and the maximum number of file copies is four (4). The copy number assigned to the storage disk determines which copy the storage disk is in.
- **Select Media Type** list: The media type to use for this policy.

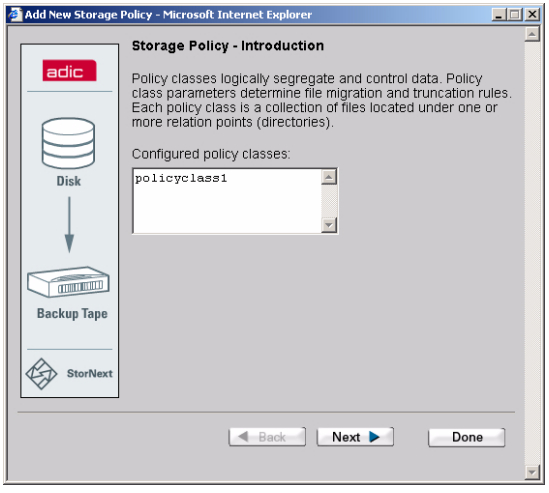
The **Complete Storage Policy Task** screen appears.



7 Review your selections. Click **Next** to complete the task or **Back** to make any changes.

8 Once a status screen displays the successful addition of the storage policy, click **Next**.

The **Storage Policy Introduction** screen appears.



9 Do one of the following:

- Add more storage policies. Click **Next** and repeat the Adding a Storage Policy procedure (Step 1 on page 61).
- Click **Done** to finish the Adding a Storage Policy procedure.

  The **Configuration Wizard** screen (Figure 3 on page 23) is shown with a **Completed** status next to Step 6.

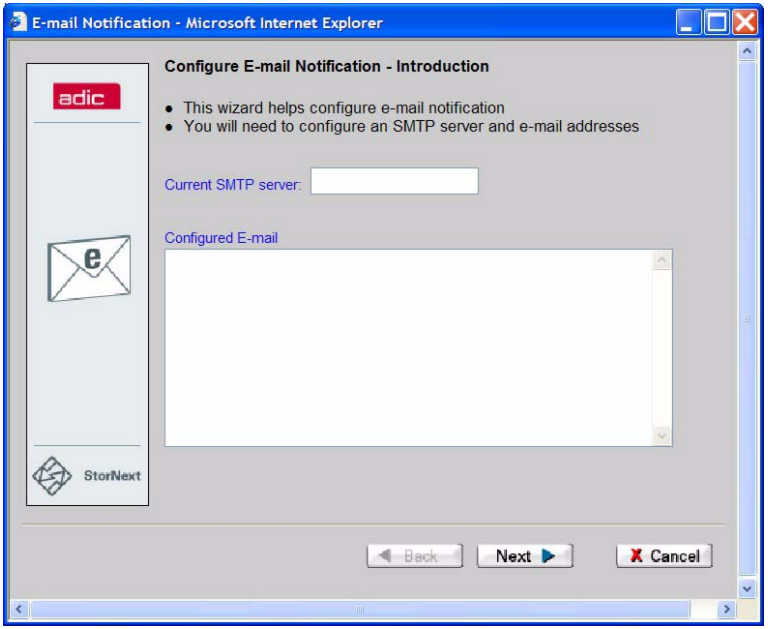
10 Click **Next** to continue with Step 8: E-mail Notification.

Step 8: E-mail Notification

The E-mail Notification portion of the Configuration Wizard allows you to specify parties who should be contacted when system alerts occur. You can specify e-mail recipients, alert levels, and information about your e-mail configuration.

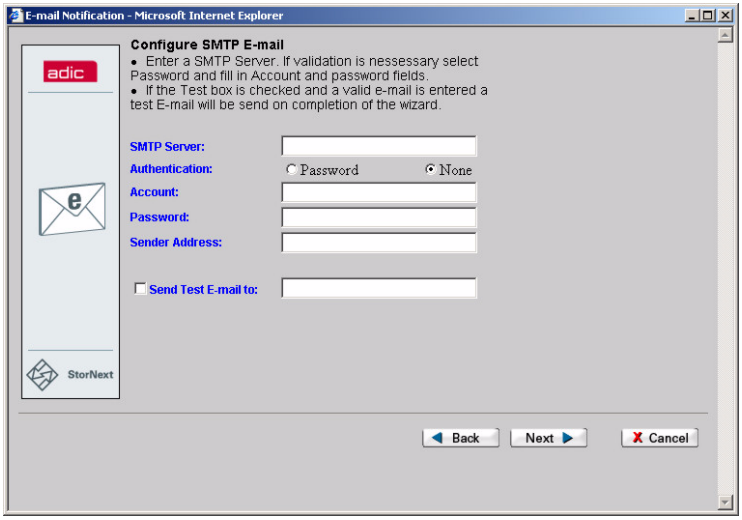
Note Before configuring e-mail notification, make sure your SMTP server is configured.

The **Configure E-mail Notification Introduction** screen appears.



1 On the **Configure E-mail Notification Introduction** screen, review your current e-mail settings (if any) and click Next to continue.

The **Configure SMTP E-mail** screen appears.

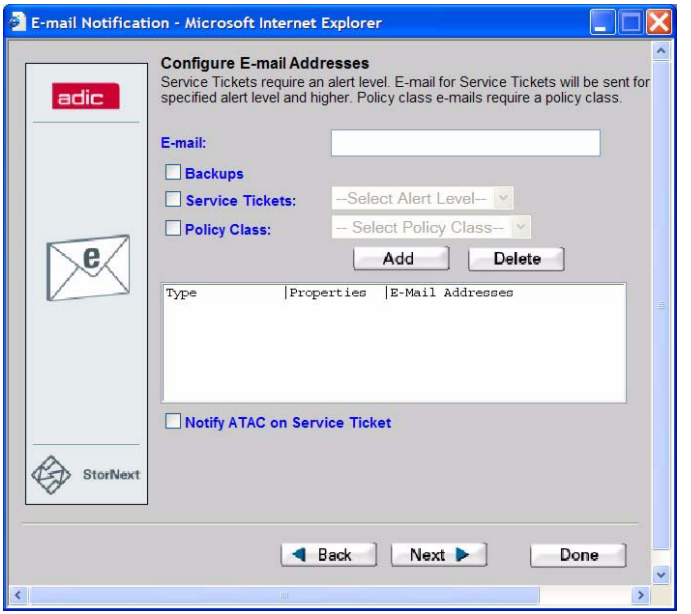


2 On the **Configure SMTP E-mail** screen, enter the fields related to your e-mail system configuration:

- **SMTP Server**: Enter the identification for the server that stores and processes your e-mail account information.This might be a valid server name or an IP address.
- **Authentication**: If your e-mail provider requires a password upon sign on, select the **Password** option. Otherwise, select **None**.
- **Account**: Enter a valid e-mail account for outgoing e-mail messages.
- **Password**: Enter the e-mail account's sign-on password, if required.
- **Sender Address**: Enter the e-mail address for the entity sending alert messages to recipients.
- **Send Test E-mail to**: Enter an e-mail address to which you can send test messages in order to confirm successful configuration.

3 Click Next to continue.

The **Configure E-mail Addresses** screen appears.



4 On the **Configure E-mail Addresses** screen, add e-mail recipients by entering the following fields:

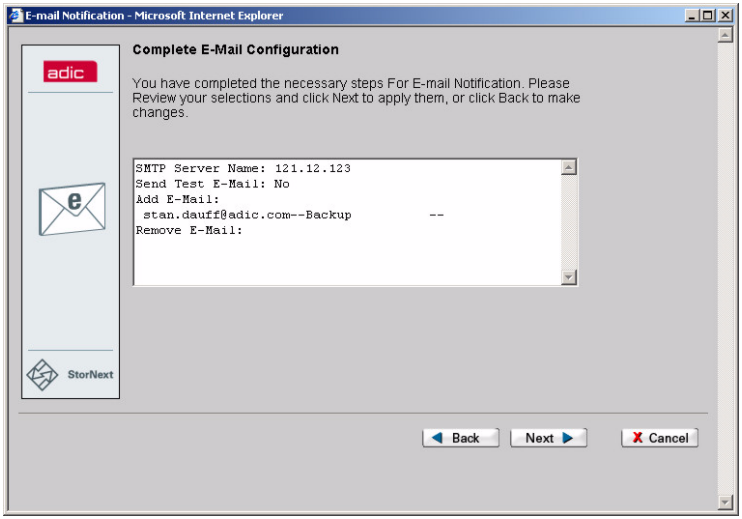
- **E-mail**: Enter the e-mail address of the person who should receive e-mail alerts.
- **Backups**: Select this option to receive e-mail after a backup has occurred on your system.
- **Service Tickets**: Select this option to receive e-mail when a service ticket for your system is generated. Notifications for service tickets will be sent for events at the specified alert level and higher. You must specify an alert level.
- **Policy Class**: Select this option to receive e-mail about policy class. You must specify an alert level.
- **Notify ATAC on Service Ticket**: Select this option to automatically send ATAC a message when a service ticket is generated.

5 Click **Add** to add to the list of e-mail recipients the e-mail recipient whose information you just entered. Or, select a previously added e-mail recipient from the list and click **Delete** to remove that recipient.

6 Do one of the following:

- Repeat steps 4 and 5 to add another e-mail recipient.
- Click **Next** to continue.

The **Complete E-mail Configuration** screen appears.



7 Review your selections and do one of the following:

- Click Back to change information you entered, or add or remove another e-mail recipient.
- Click Next to continue.

The initial StorNext software configuration is complete. Use the StorNext GUI to access the software.

4

Installing StorNext Client Software

Once the StorNext software is configured, you can download StorNext client files from the server and install them on StorNext clients. To download client software from a StorNext server, use a supported Web browser. (For a list of supported Web browsers, see Configuring StorNext.)

StorNext client software allows one or more StorNext file systems to be mounted and enables the client to communicate with the StorNext server.

The following procedures provide instructions for installing the StorNext client software in Windows, SGI IRIX, Sun Solaris, Linux (SuSE or Red Hat), IBM AIX, and HP-UX environments.

Note

If you used the optional pre-installation configuration, you must first perform the steps for adding a user account and a group account on each machine that you set up as a client. (To perform these steps, refer to Using the Optional Pre-Installation Configuration on page 13).

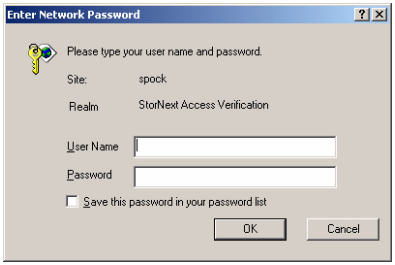
This chapter contains the following procedures:

Downloading the Client Software

If the client machine can access a Web browser, use this procedure to download the client software.

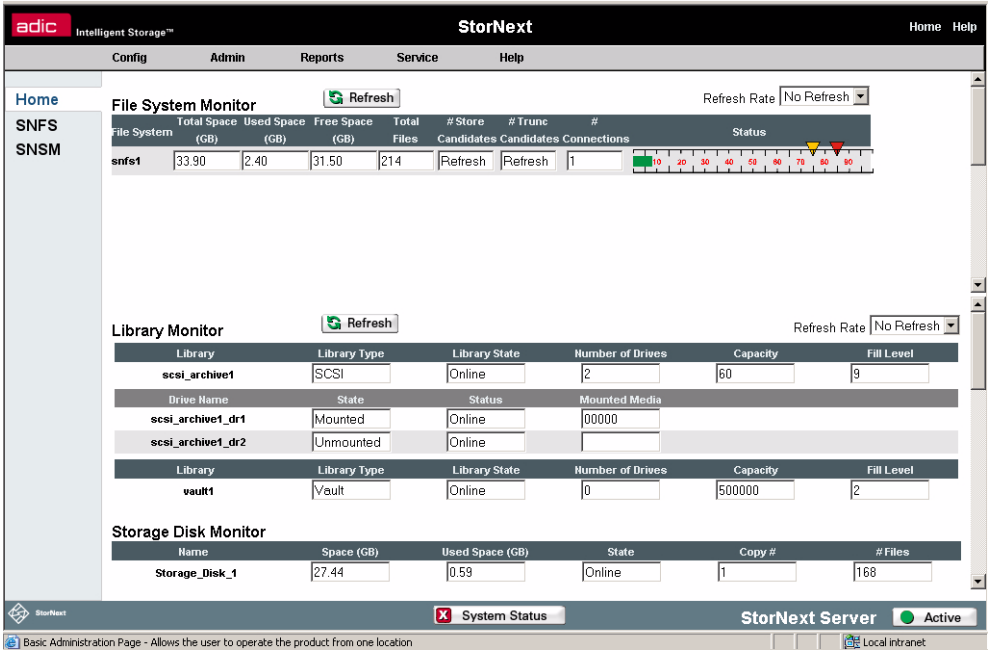
1 On a StorNext client, launch a browser and enter the URL with the StorNext server name and port number. For example, http://StorNextServer:81.

The **Enter Network Password** window appears.



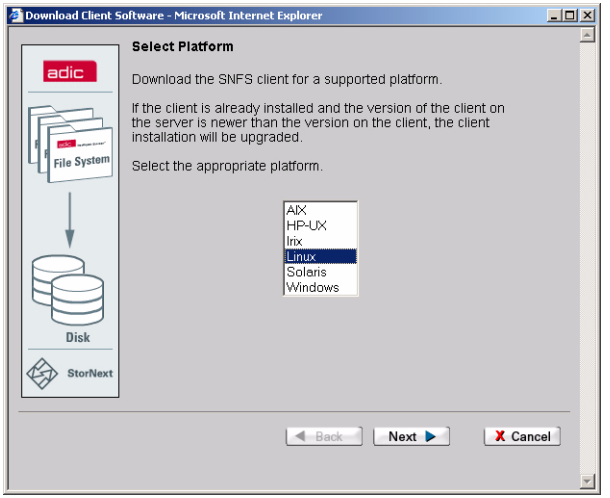
2 Enter the User ID and password. The default value for both fields is `admin`, unless changed by your system administrator. Click **OK**.

The StorNext home page appears.



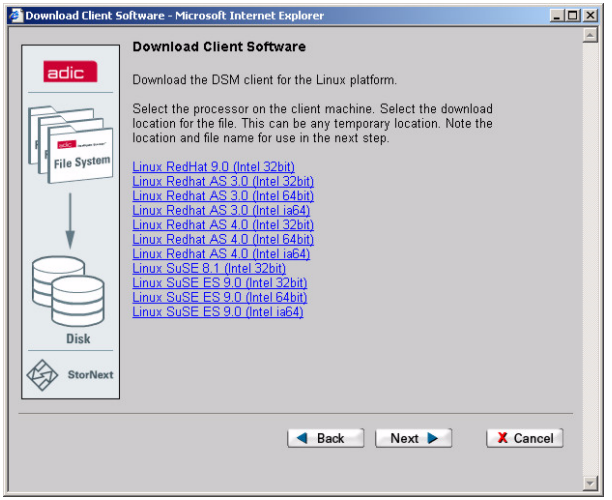
3 From the **Admin** menu, select **Download Client Software**.

The **Select Platform** screen appears.



4 Select the platform that corresponds to the operating system on the StorNext client and then click **Next**.

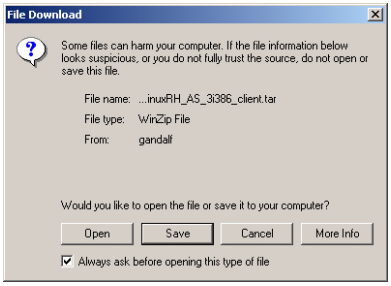
The **Download Client Software** screen appears. (Linux is shown as an example.)



The following client packages are available to download:

Operating System	Download File Name
IBM AIX 52	`sn_dsm_aix52_client.tar`
IBM AIX 53	`sn_dsm_aix53_client.tar`
HP-UX 11.23 IA64	`sn_dsm_hpux_B.11.23ia64_client.tar`
HP-UX 11.23 PA-RISC	`sn_dsm_hpux_B.11.23pa-risc_client.tar`
IRIX 6.5.xx	`sn_dsm_irix65m_client.tar`
Linux RedHat 9.0 (Intel 32 bit)	`sn_dsm_linuxRH_9i386_client.tar`
Linux RedHat AS 3.0 (Intel 32 bit)	`sn_dsm_linuxRH_AS_3i386_client.tar`
Linux RedHat AS 3.0 (Intel 64 bit)	`sn_dsm_linuxRH_AS_3x86_64_client.tar`
Linux RedHat AS 3.0 (Intel IA64)	`sn_dsm_linuxRH_AS_3ia64_client.tar`
Linux RedHat AS 4.0 (Intel 32 bit)	`sn_dsm_linuxRH_AS_4i386_client.tar`
Linux RedHat AS 4.0 (Intel 64 bit)	`sn_dsm_linuxRH_AS_4x86_64_client.tar`
Linux RedHat AS 4.0 (Intel IA64)	`sn_dsm_linuxRH_AS_4ia64_client.tar`
Linux SuSE ES 9.0 (Intel 32 bit)	`sn_dsm_linuxSuSE_90i386_client.tar`
Linux SuSE ES 9.0 (Intel 64 bit)	`sn_dsm_linuxSuSE_90x86_64_client.tar`
Linux SuSE ES 9.0 (Intel IA64)	`sn_dsm_linuxSuSE_90ia64_client.tar`
Solaris Sparc 510	`sn_dsm_solaris510sparc64_client.tar`
Solaris Sparc 59	`sn_dsm_solaris59sparc64_client.tar`
Windows 2000/XP/2003	`sn_dsm_win2k_client.exe`

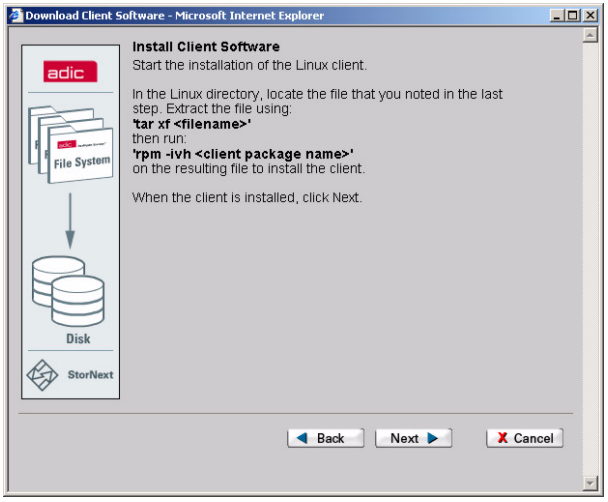
5 Select the software package that corresponds to your system by clicking the link.



6 Save the file to a location on your local hard drive. Be sure to make a note of this location, because you will need to navigate to it when you're ready to install the client software.

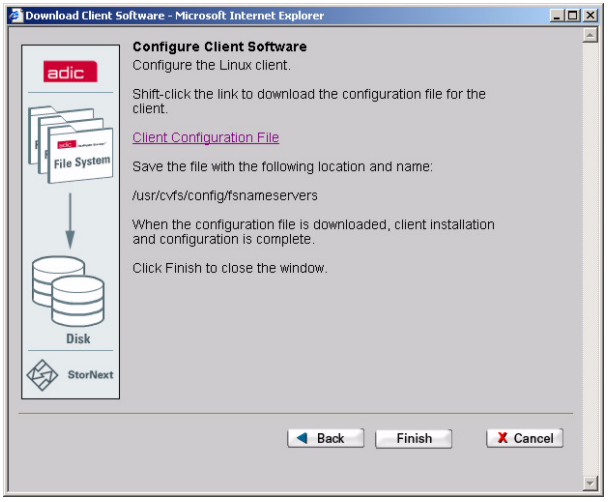
7 After the file download is complete, on the **Download Client Software** screen click **Next** to continue.

The **Install Client Software** screen appears. (Linux is shown as an example.)



8 Follow the directions on the **Install Client Software** screen to install the software for your operating system. When finished, return to the **Install Client Software** screen and click **Next** to continue.

For all operating systems except Windows, the **Configure Client Software** screen appears. (Linux is shown as an example.)



9 Do one of the following:

- If you are installing on a Windows operating system, proceed to Step 10 on page 76.
- For all other operating systems, right-click on the **Client Configuration File** link and save the file to the location specified on the **Configure Client Software** screen.

10 Click **Finish**.

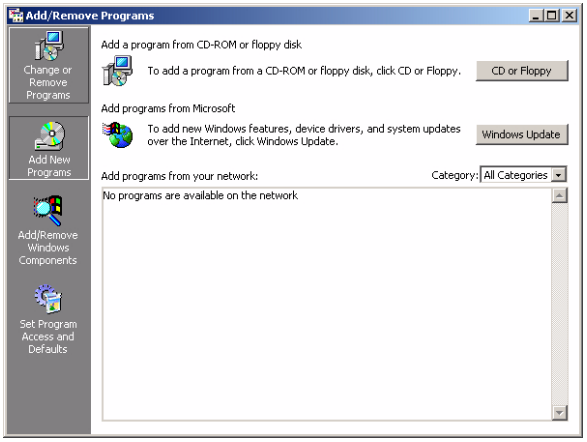
Continue with the Installing Client Software procedure for your operating system.

Installing StorNext Client Software on Windows

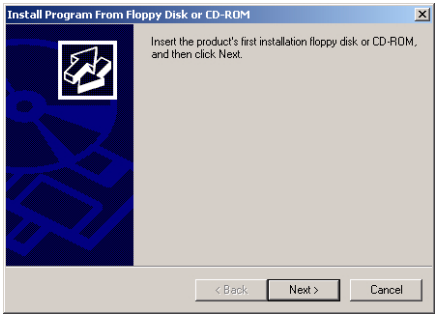
Use this procedure to install StorNext software on a Windows client.

1 Open the Control Panel (**Start > Settings > Control Panel**).

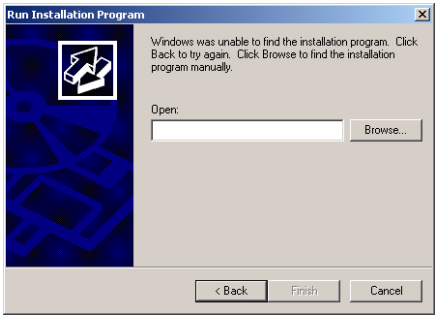
2 Launch the Add/Remove Programs utility, and then click **Add New Programs**.



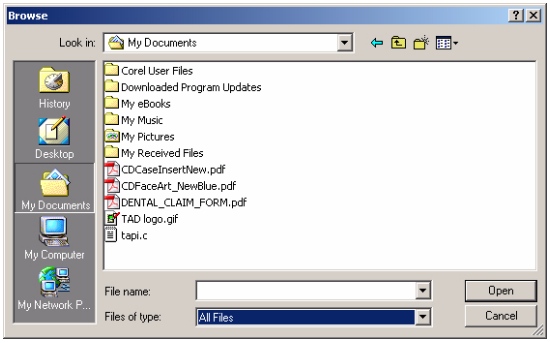
3 On the Add New Programs window, click **CD or Floppy**. The **Install Program From Floppy Disk or CD** screen appears.



4 Click **Next**. The **Run Installation Program** screen appears.



5 Click **Browse**. The Browse window appears.



6 In the Browse window's **Files of type** field, click the arrow to the right and select **All Files**.

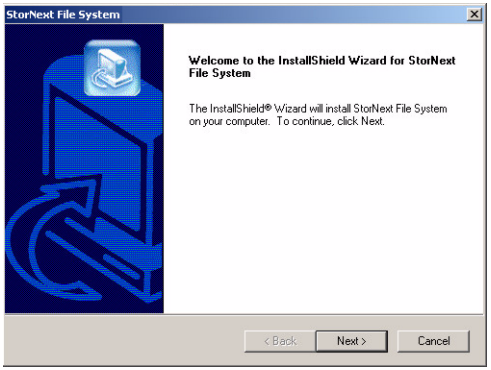
7 Navigate to the location on your hard drive where you saved the executable file when you downloaded the StorNext client software from the Admin menu.

8 Select the executable file name (for example, `sn_dsm_win2k_client.exe`), and then click **Open** to launch the installation program.

The **Windows Installation Wizard** launches.

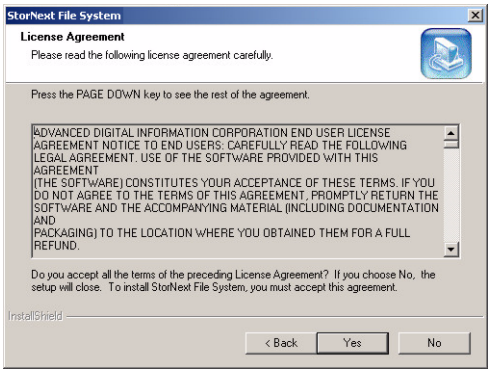
9 Click **Next** to continue.

The **InstallShield** screen appears.



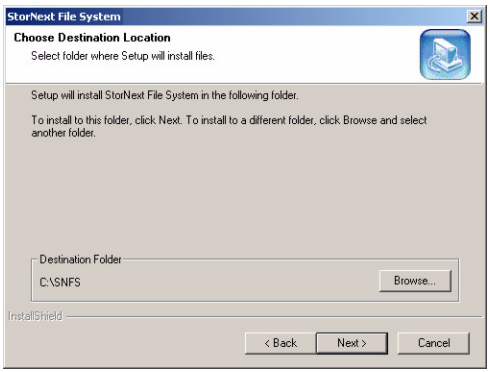
10 Click **Next** to continue.

The **License Agreement** screen appears.



11 Accept the License Agreement and click **Next**.

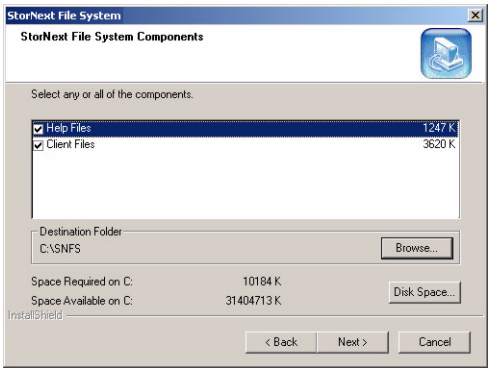
The **Select Destination** screen appears.



12 Do one of the following:

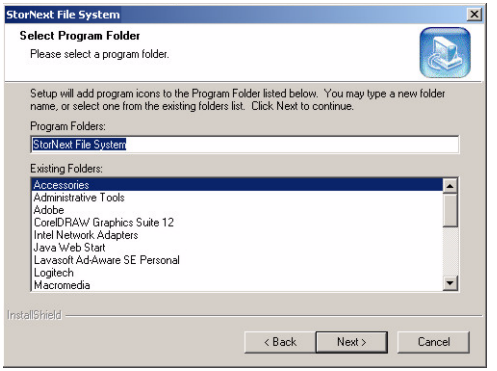
- Accept the default destination and click **Next**.
- Click **Browse** to select an installation destination directory and click **Next**.

The **Select Components** screen appears.



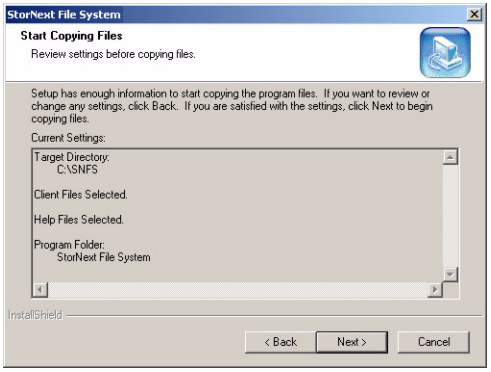
13 Accept the default settings and click **Next**.

The **Select Program Folder** screen appears.



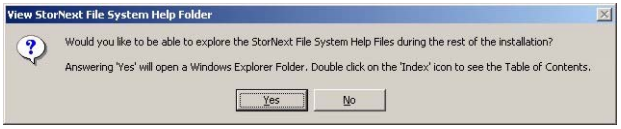
14 Accept the default settings and click **Next**.

The **Start Copying Files** screen appears.



15 Review the settings to make sure they are satisfactory and click **Next**.

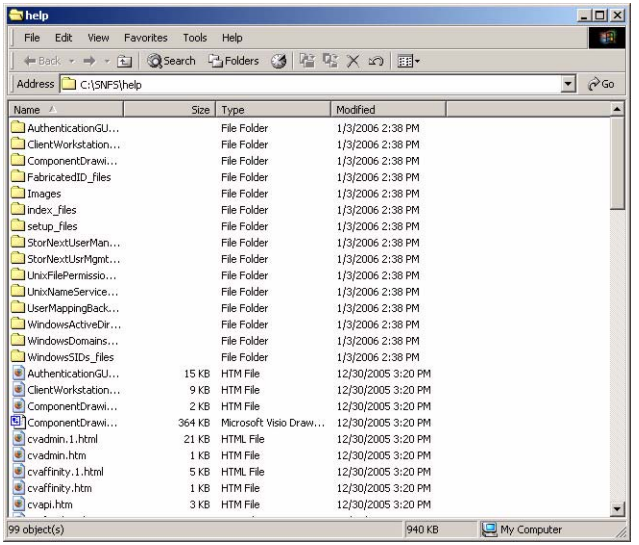
A progress window in shown. You are prompted whether you want to explore the StorNext Help Files during the rest of the installation.



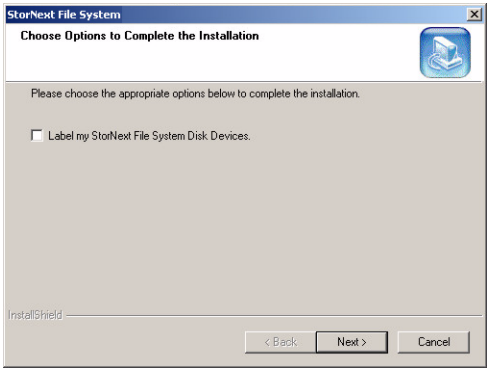
16 Do one of the following:

- Click **Yes** to see the help files.
- Click **No** to go to Step 17 on page 83.

If you click Yes, a browser appears that lists the StorNext help files.



17 The installation wizard prompts you to select options to complete the installation.

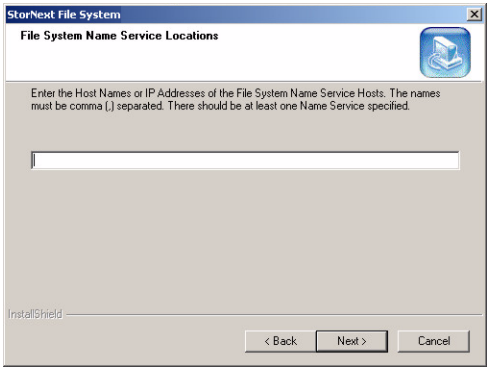


CAUTION

On the Choose Options to Complete the Installation screen, do NOT select the option to Label my StorNext File System Disk Devices check box. During the initial installation of the SNFS software, the disks have already been labeled during server setup. If you re-label your operating system disk, you will have to completely rebuild your machine or restore it using an operating system backup.

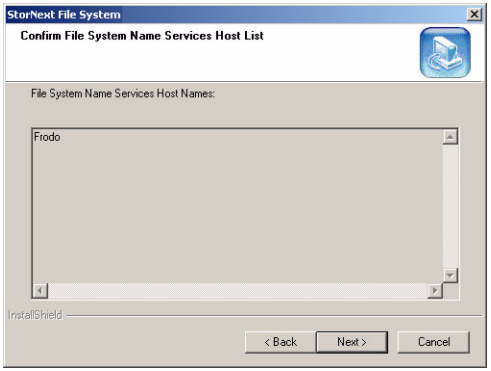
18 Select or leave blank the **Label my StorNext File System Disk Devices** option, and then click **Next**.

The **File System Name Service Locations** screen appears.



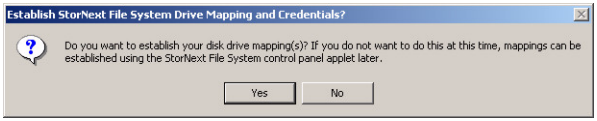
19 Enter the computer name or IP address in the field and click **Next**. ADIC recommends entering the IP address rather than a computer name. You can also enter more than one IP address.

A confirmation screen appears.



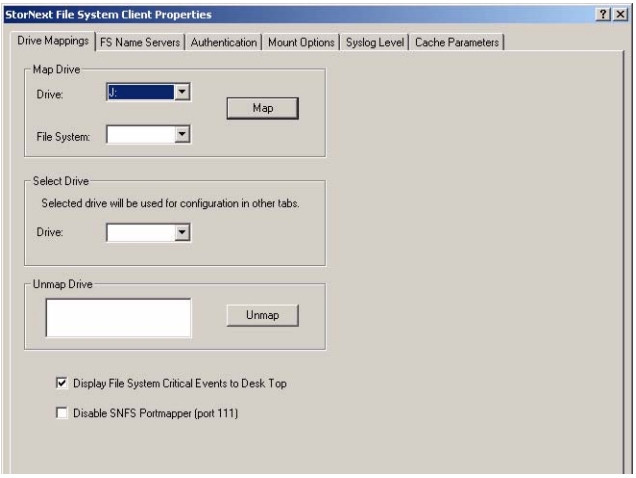
20 Verify the computer name or IP address and click **Next** if correct or click **Back** if you need make changes.

A prompt appears.



21 You are prompted to establish mapping and authentication credentials. Click **Yes**.

The **Client Properties** screen appears.



This screen enables you to modify StorNext FS client properties on the drives. It consists of six tabs in which to make changes. **Drive Mappings** is the first tab shown.

- **Map Drive** parameters:
  - **Drive** menu: Select a drive for the file system association.
  - **File System** menu: Enter a file system name for the mapping association or select one from the drop-down list.
  - **Map** button: Click **Map** to map StorNext FS to the selected drive letter.
- **Select Drive** parameter:
  - **Drive**: Select a file system drive mapping that will become the focus for the other configuration tabs.
- **Unmap Drive** parameter:
  - **Unmap**: Select a drive and click **Unmap** to remove the connection to the drive letter.
- **Display File System Critical Events to Desk Top** check box: Enable this option (check the box) to display StorNext FS critical event notifications to the Desktop via a Windows dialog box.
- **Disable SNFS portmapper** check box: Select this option (check the box) if you want to disable StorNext FS's portmapper feature.

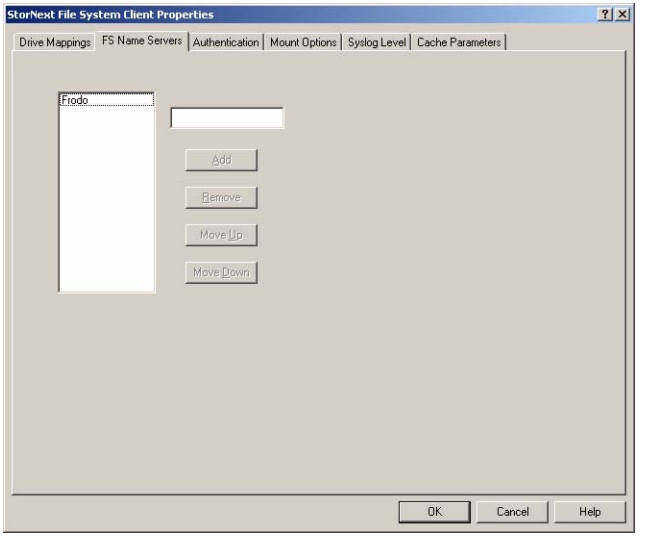
22 Select a drive to map to from the **Drive** drop-down list.

23 In the **File System** drop-down list, select a file system to associate with the drive and click **Map**.

The remaining information on the screen is automatically populated.

24 Review your settings and click **FS Name Servers**.

The **FS Name Servers** tab appears.

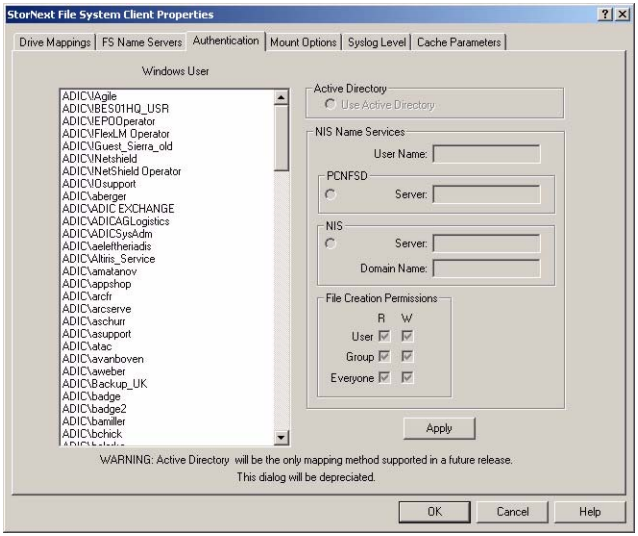


From this tab you can add, remove, or change the name of the **Name Servers**.

- **FS Name Servers**: Displays the list of SNFS Name Servers.
- **Blank**: Enter the name of a new FS Name Server.
- **Add**: Click this button to add a new FS name server to the FS Name Servers list.
- **Remove**: To remove a server, select one from the FS Name Servers list, click this button, and then click **OK**.
- **Move Up**: To move the server one place above the previous server on the list, select it from the FS Name Servers list, and click this button.
- **Move Down**: To move the server one place below the previous server on the list, select it from the FS Name Servers list, and click this button.

25 Make your changes or verify your servers are properly named and click **Authentication**.

The **Authentication** tab appears.



Note

The Authentication tab applies only to Windows clients part of StorNext file systems that are accessed by non-Windows clients such as UNIX or Linux clients. You needn't change any values on the Authentication tab if your StorNext installation is Windows only and you do not plan to add non-Windows clients. If you have a Windows-only installation, skip to Step 26 on page 88.

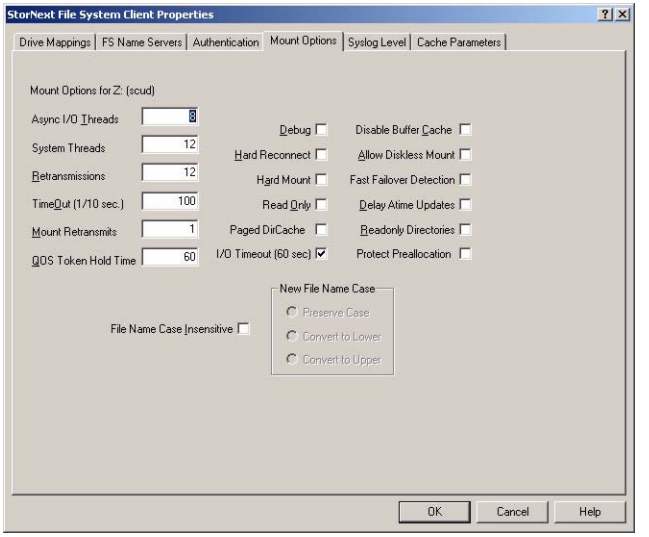
This tab allows you to configure user authentication.

- **Windows User Names**: Select the Windows user name you would like to map. Then, select one of the following three methods:
  - **Active Directory**: Select this button to use the Lightweight Directory Access Protocol (LDAP) method for mapping. LDAP/RFC 2307 is used to obtain the Active Directory/ Services for UNIX (SFU) mapping for the selected Windows user name. Active Directory will be the only mapping method supported in a future StorNext release. This check box enables Active Directory only if the Windows client is part of an Active Directory domain.
  - **PCNFSD Server**: Select this button if your system uses Personal Computer Network File System Daemon (PCNFSD) authentication, and enter the IP address for the desired PCNFSD server.
  - **NIS Domain**: Select this button if your system uses NIS authentication, and enter the NIS domain and server names.

- **File Creation Permissions** check boxes: Select any combination of these check boxes to set the default UNIX **R** (Read) or **W** (Write) access permissions for files created by the selected user. These permission check boxes apply only to PCNFSD and NIS mapping methods, not to the Active Directory method. This is an optional step, so you needn't select any of the check boxes to authenticate user names.
  - **User**: Specifies read and/or write capabilities for the owner of the file. of the file.
  - **Group**: Specifies read and/or write capabilities for the file's group.
  - **Everyone:** Specifies read and/or write capabilities for all other users and groups.

26 Enter valid values and click **Mount Options**.

The **Mount Options** tab appears.



The mount options shown are associated with the initial disk drive mapping that you set for **Drive Mappings**.

CAUTION

Changing these options could adversely affect your system or performance, so exercise extreme caution when changing any of these values. You should not change the default values unless you have been instructed to do so by a Professional Services representative.

- **Async I/O Threads**: The number of threads created to be used as asynchronous I/O threads for user applications.
- **System Threads**: The number of threads created for use by the file system.
- **Retransmissions**: The number of attempts to be made for sending a message to the FSS.
- **TimeOut (1/10 sec)**: The amount of time before a message to the FSS times out.
- **Mount Retransmits**: The number of times the driver will re-transmit a message to the FSS.

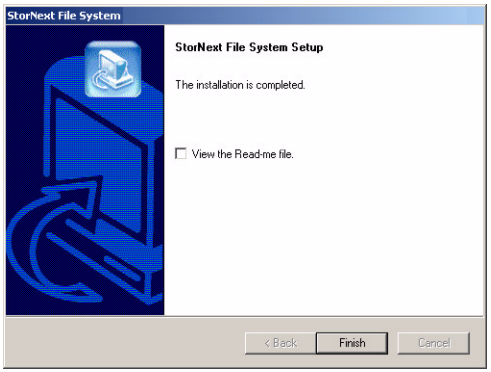
- **QOS Token Hold Time**: This parameter is only applicable when using the StorNext FS Quality of Service (QOS) feature for real-time I/O. This parameter determines the number of seconds that a client stripe group will hold on to a non-realtime I/O token during periods of inactivity.
- **Debug**: Check this box to place debug logs in the System Event log.
- **Hard Reconnect**: Check this box to endlessly attempt reconnects to the FSS.
- **Hard Mount**: Check this box to endlessly attempt to mount the file system.
- **Read Only**: Check this box to mount the file system in read-only mode.
- **Paged DirCache**: This option controls how the directory cache buffer is allocated. The default is to allocate the buffer from the Windows "non-paged" pool, which is a limited memory resource. For backward compatibility reasons the default for this option is unchecked, which causes the directory cache buffer to be allocated from the non-paged pool. Checking this box allocates the buffer from the paged pool. To reduce memory contention in the non-paged pool, this box should be checked
- **I/O Timeout (60 sec)**: This option controls whether SNFS times out an I/O after 60 seconds. When this option is checked (the default), SNFS will attempt to cancel a request made to the disk driver if the I/O does not complete before the timeout expires. In this case, STATUS_TIMEOUT is returned to the application. When this option is unchecked, SNFS waits indefinitely for an I/O to complete.
- **Disable Buffer Cache**: Check this box to disable the system from buffering any files.
- **Allow Diskless Mount**: Check this box to allow the file system to be mounted and accessed without all disks being accessible in the stripe group.
- **Fast Failover Detection**: Check this box to enable a more aggressive detection of a file system failure.
- **Delay Atime Updates**: Check this box to have the file system delay the access time when reading a file to when the file is closed.
- **Readonly Directories**: Check this box to have all directories set to read-only mode.
- **Protect Preallocation**: This option disables the preallocation parts of the `extapi` (used by `cvmkfile` and `cvcp`) for users other than root/administrator. Enabling this option prevents unauthorized users from preallocating regions of the file system for a file and then searching the data. When this option is selected, only root/administrator can preallocate.
- **File Name Case Insensitive** Check this box to activate the New File Name Case area.
- **New File Name Case** area:
    - **Preserve Case**: Select this button to keep text as it is entered.
    - **Convert to Lower**: Select this button to convert all text to lower-case.
    - **Convert to Upper**: Select this button to convert all text to upper-case.

27 Review the options and click **OK**.

Note

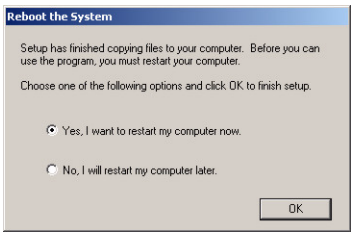
The tabs **Syslog Level** and **Cache Parameters** are not modified during the installation of StorNext. If you need to modify these parameters, contact ATAC. Refer to .Customer Assistance on page 97.

The **Setup Finish** screen appears.



28 Click **Finish**.

You are prompted to reboot your system, but do **not** reboot at this time.



29 Verify that the installation is complete by checking for both the `cvfs.sys` and `cvfsfilter.sys` files in the following directories:

- For Windows 2000:

  `c:\%windir%\system32\drivers`

- For Windows XP and 2003 Server:

  `c:\%windir%\system32\drivers`

30 Restart the machine.

Installing StorNext Client Software on Red Hat Linux

Use this procedure to install the StorNext software on a Red Hat Linux client.

1. Log on as `root`.
2. Install the client software. Type:

   ```
   tar xf <filename>
   rpm -ivh <client package name>
   ```

   Where `<filename>` is the name of the client installation program.
3. Enable the `chkconfig` levels to start automatically on reboot Type:

   ```
   chkconfig --level 3456 cvfs on
   ```
4. Make sure the `/usr/cvfs/config/fsnameservers` file contains the name of the server machine.
5. Create the mount points for the file systems. Type:

   ```
   mkdir -p <mount point>
   chmod 777 <mount point>
   ```
6. Add the following line to the `/etc/fstab` file to enable automount after reboot.

   ```
   <file system name> <mount point> cvfs verbose=yes 0 0
   ```

   where <*file system name*> is the name of the file system and <*mount point*> is the mount point specified during the Add File System step of the StorNext software configuration. For more information, refer to Step 2: Adding File Systems on page 28.

Note

To manually mount a file system, type this command:

```
mount -t cvfs <file system name> <mount point>
```

Installing StorNext Client Software on SuSE Linux

Use this procedure to install StorNext software on a SuSE Linux client.

1. Log on as `root`.
2. Install the client software. Type:

   ```
   tar xf <filename>
   rpm -ivh <client package name>
   ```

   Where `<filename>` is the name of the client installation program.
3. Enable the `chkconfig` levels to start automatically on reboot. Type:

   ```
   chkconfig -s raw 235
   chkconfig -s cvfs 345
   ```
4. Make sure the `/usr/cvfs/config/fsnameservers` file contains the name of the server machine.
5. Create the mount points for the file systems. Type:

   ```
   mkdir -p <mount point>
   chmod 777 <mount point>
   ```
6. Add the following line to the `/etc/fstab` file to enable automount after reboot.

   ```
   <file system name> <mount point> cvfs verbose=yes 0 0
   ```

   where <*file system name*> is the name of the file system and <*mount point*> is the mount point specified during the Add File System step of the StorNext software configuration. For more information, refer to Step 2: Adding File Systems on page 28.

Note

To manually mount a file system, type this command:

```
mount -t cvfs <file system name> <mount point>
```

Installing StorNext Client Software on Sun Solaris

Use this procedure to install StorNext software on a Solaris client.

1. Log on as `root`.
2. Install the client software. Type:

   ```
   tar xf <filename>
   pkgadd -d .
   Select to add the package 'ADICsnfs'
   type y (yes, add the package)
   type q (quit the pkgadd program)
   ```

   Where <*filename*> is the name of the client installation program.
3. Make sure the `/<usr>/cvfs/config/fsnameservers` file contains the name of the StorNext server.
4. Create the mount points for the file systems.

   ```
   mkdir -p <mount point>
   chmod 777 <mount point>
   ```
5. Add the following line to the `/etc/vfstab` file to enable automount after reboot.

   ```
   <file system name> - <mount point> cvfs - auto verbose=yes
   ```

   where <*file system name*> is the name of the file system and <*mount point*> is the mount point specified during the Add File System step of the StorNext software configuration. For more information, refer to Step 2: Adding File Systems on page 28.

Note

To manually mount a file system, type this command:

```
mount -F cvfs <file system name> <mount point>
```

Installing StorNext Client Software on HP-UX

Use this procedure to install StorNext software on an HP-UX client.

1. Log on as `root`.
2. Install the client software. Type:

   ```
   tar xf <filename>
   ```

   ```
   swinstall -s <full path of depot file> -x mount_all_filesystems=false \*
   ```

   Where *<filename>* is the name of the client installation program. Make sure the `/usr/cvfs/config/fsnameservers` file contains the name of the StorNext server.
3. Create the mount points for the file systems. Type:

   ```
   mkdir -p <mount point>
   ```

   ```
   chmod 777 <mount point>
   ```
4. Add the following line to the `/etc/fstab` file to enable automount after reboot. Type:

   ```
   <mount point> <mount point> cvfs rw,fsname=<fsname> 0 0
   ```

   where *<file system name>* is the name of the file system and *<mount point>* is the mount point specified during the Add File System step of the StorNext software configuration. For more information, refer to Step 2: Adding File Systems on page 28.
5. Reboot the client to rebuild the UNIX kernel.

Note

To manually mount a file system not listed in the `fstab` file, type the following command:
`mount -F cvfs <mount point> <mount point>`

If listed in the `fstab` file, use the command `mount -F cvfs <mount point>`

Installing StorNext Client Software on IBM AIX

Use this procedure to install StorNext software on an AIX client.

1. Log on as `root`.
2. Copy the `.tar` file to your hard drive.

   For example:

   ```
   cp sn_dsm_aix_client.tar <directory>
   ```

3. Install the client software.

   ```
   tar xf <filename>
   ```

   ```
   installp -ac -d filename all
   ```

   Where `<filename>` is the name of the client installation program.

4. Make sure the `/usr/cvfs/config/fsnameservers` file contains the name of your server machine.
5. Create the mount points for the file systems.

   ```
   mkdir -p <mount point>
   chmod 777 <mount point>
   ```

6. Add the following line to `/etc/filesystems` to enable automount after reboot.

   ```
   crfs -v cvfs -d <file system name> -a verbose=yes -a type=cvfs -A yes -
   m <mount point>
   ```

   where <*file system name*> is the name of the file system and <*mount point*> is the mount point specified during the Add File System step of the StorNext software configuration. For more information, refer to Step 2: Adding File Systems on page 28.

Installing StorNext Client Software on SGI IRIX

Use this procedure to install StorNext software on an IRIX client.

1. Log on as `root`.
2. Install the client software. Type:

   ```
   tar xf <filename>
   inst -f .
   Inst> go
   Inst> quit
   ```

   Where `<filename>` is the name of the client installation program.
3. Enable StorNext to start automatically on reboot. Type:

   ```
   chkconfig cvfs on
   chkconfig verbose on
   ```
4. Make sure the `/<usr>/cvfs/config/fsnameservers` file contains the name of the StorNext server.
5. Create the mount points for the file systems. Type:

   ```
   mkdir -p <mount point>
   chmod 777 <mount point>
   ```
6. Add the following line to the `/etc/fstab` file to enable automount after reboot. Type:

   ```
   <file system name> <mount point> cvfs verbose=yes 0 0
   ```

   where <*file system name*> is the name of the file system and <*mount point*> is the mount point specified during the Add File System step of the StorNext software configuration. For more information, refer to Step 2: Adding File Systems on page 28.
7. Reboot the client to rebuild the UNIX kernel.

Note

To manually mount a file system, type the following command:

```
mount -t cvfs <file system name> <mount point>
```

5

Customer Assistance

If you want more information about your product, go to the StorNext website or contact the ADIC Technical Assistance Center (ATAC).

StorNext Website

For the latest information and accessories for the StorNext, visit the product website at www.adic.com/stornext. The most recent versions of all documents are also located here.

ADIC Technical Assistance Center

If problems cannot be solved with the aid of this document or if training is desired, contact ATAC.

In the USA:	800-827-3822
In Europe and Japan:	00-800-9999-3822
For other contact numbers:	www.adic.com/contact
To open a Service Request online:	www.adic.com/techsup

ADIC Technical Assistance Center (ATAC)

The ADIC customer help desk.

Affinity

An association between a relation point in the file system and a stripe group. It allows the user to direct data to specific primary disks by writing to the affinities associated relation point.

Clean Media

The operation of logically removing old file versions from a piece of media. This is a database operation that removes knowledge of managed files that have been updated or removed. A piece of media that contains nothing but removed files will not be considered blank until it is cleaned.

Configuration Wizard

A tool for setting up a basic environment for the management of data, both on disk and on removable media (tape or disk). It appears the first time the administrator connects to the browser after installing StorNext.

Data Storage Manager (DSM)

One of several components that make up StorNext. The DSM corresponds to the StorNext File System.

Drive Pool

A grouping of drives for use in storing and retrieving data.

Fibre Channel (FC)

A high speed data transfer architecture.

File Transfer Protocol (FTP)

The protocol used on the Internet for sending files.

GUI

Graphical User Interface.

Managed Directory

A directory that has a policy class relationship.

Managed File System

A file system that enables automatic data movement managed by StorNext Storage Manager between the primary disk and secondary storage (either disk or tape).

MediaClass

A grouping of media used for storing or retrieving data.

Media Storage Manager (MSM)

The Media Storage Manager is responsible for controlling media and archives.

PolicyClass

A set of rules and criteria set up by SNSM that control the movement of data between primary disk to secondary storage (either disk or tape).

Quota

This variable enables or disables the enforcement of the file system quotas.

Recover

The process of bringing back to disk a managed file that was previously removed from the disk. This can only be done if the file had been successfully stored to media. Also, the file cannot not exist in the Trash can. (See Undelete) File recovery can be done regardless of whether the Trash can is enabled, up until the time the containing media is cleaned.

Relation Point/Relations

A mapping of a policy class to a directory in a managed file system.

Relocation

The process of moving a file from one affinity on a file system to another affinity on that file system.

Restore

The process of replacing a file system's contents after some sort of disaster. Also known as disaster recovery.

Retrieve

The process of retrieving data for a file from secondary storage (either disk or tape).

RHAS

Red Hat Advanced Server

RHEL

Red Hat Enterprise Linux

SCSI

Small Computer System Interface. The interface that is used to talk to most hardware devices such as tape and libraries.

StorNext

A scalable, high performance, data management solution that ensures the long-term safety and recoverability of data in SAN environments, while optimizing the use of storage resources. It consists of two components, the StorNext Storage Manager (SNSM) and the StorNext File System (SNFS).

Storage Area Network (SAN)

A SAN is a dedicated, high-performance network whose primary purpose is the transfer of data along FC or high-speed Ethernet connections between servers, interconnect devices, and storage peripherals.

StorNext File System (SNFS)

One of the two components that make up StorNext. SNFS is primarily used to provide Fibre Channel connections (but supports other types of connections) in a serverless environment which enables clients to access data and share files.

StorNext Storage Manager (SNSM)

One of two components that make up StorNext. One of two components that make up StorNext. SNSM provides archive functionality, including file migration and management services.

Store

The process of copying data for a file to secondary storage (either disk or tape).

Stripe Group

A set of similar storage devices that can be maintained as a group.

Tertiary Storage Manager (TSM)

The Tertiary Storage Manger is responsible for policy management and controlling data movement between primary disk and secondary storage (either disk or tape).

Trash can

A repository for files deleted from the file system but not yet permanently removed.Files in the trash can may be recovered or undeleted if necessary.

Truncation

The process of freeing data blocks stored to secondary storage (either disk or tape). The file name remains visible in the file system.

Undelete

The process of returning a file from the Trash can to its original location on disk. This can be done only if the Trash can is enabled.

Unmanaged File System

A file system that does not have archive capability controlled by SNSM.

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