



Solstice Backup™ 6.0 Installation Guide

Sun Microsystems, Inc.
901 San Antonio Road
Palo Alto, CA 94303
U.S.A. 650-960-1300

Part No. 806-5608-11
November 2000, [Revision A](#)

[Send comments about this document to: docfeedback@sun.com](mailto:docfeedback@sun.com)

Copyright 2000 Sun Microsystems, Inc., 901 San Antonio Road • Palo Alto, CA 94303-4900 USA. All rights reserved.

This product or document is protected by copyright and distributed under licenses restricting its use, copying, distribution, and decompilation. No part of this product or document may be reproduced in any form by any means without prior written authorization of Sun and its licensors, if any. Third-party software, including font technology, is copyrighted and licensed from Sun suppliers.

Parts of the product may be derived from Berkeley BSD systems, licensed from the University of California. UNIX is a registered trademark in the U.S. and other countries, exclusively licensed through X/Open Company, Ltd. For Netscape Communicator™, the following notice applies: Copyright 1995 Netscape Communications Corporation. All rights reserved.

Sun, Sun Microsystems, the Sun logo, AnswerBook2, docs.sun.com, Solstice Backup, Java, and Solaris are trademarks, registered trademarks, or service marks of Sun Microsystems, Inc. in the U.S. and other countries. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the U.S. and other countries. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc. Legato NetWorker® is a trademark of Legato Systems, Inc.

The OPEN LOOK and Sun™ Graphical User Interface was developed by Sun Microsystems, Inc. for its users and licensees. Sun acknowledges the pioneering efforts of Xerox in researching and developing the concept of visual or graphical user interfaces for the computer industry. Sun holds a non-exclusive license from Xerox to the Xerox Graphical User Interface, which license also covers Sun's licensees who implement OPEN LOOK GUIs and otherwise comply with Sun's written license agreements.

RESTRICTED RIGHTS: Use, duplication, or disclosure by the U.S. Government is subject to restrictions of FAR 52.227-14(g)(2)(6/87) and FAR 52.227-19(6/87), or DFAR 252.227-7015(b)(6/95) and DFAR 227.7202-3(a).

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID. Copyright 2000 Sun Microsystems, Inc., 901 San Antonio Road • Palo Alto, CA 94303-4900 Etats-Unis. Tous droits réservés.

Ce produit ou document est protégé par un copyright et distribué avec des licences qui en restreignent l'utilisation, la copie, la distribution, et la décompilation. Aucune partie de ce produit ou document ne peut être reproduite sous aucune forme, par quelque moyen que ce soit, sans l'autorisation préalable et écrite de Sun et de ses bailleurs de licence, s'il y en a. Le logiciel détenu par des tiers, et qui comprend la technologie relative aux polices de caractères, est protégé par un copyright et licencié par des fournisseurs de Sun.

Des parties de ce produit pourront être dérivées des systèmes Berkeley BSD licenciés par l'Université de Californie. UNIX est une marque déposée aux Etats-Unis et dans d'autres pays et licenciée exclusivement par X/Open Company, Ltd. La notice suivante est applicable à Netscape Communicator™: Copyright 1995 Netscape Communications Corporation. Tous droits réservés.

Sun, Sun Microsystems, the Sun logo, AnswerBook2, docs.sun.com, Solstice Backup, Java, et Solaris sont des marques de fabrique ou des marques déposées, ou marques de service, de Sun Microsystems, Inc. aux Etats-Unis et dans d'autres pays. Toutes les marques SPARC sont utilisées sous licence et sont des marques de fabrique ou des marques déposées de SPARC International, Inc. aux Etats-Unis et dans d'autres pays. Les produits portant les marques SPARC sont basés sur une architecture développée par Sun Microsystems, Inc. Legato NetWorker® est un marque de fabrique de Legato Systems, Inc.

L'interface d'utilisation graphique OPEN LOOK et Sun™ a été développée par Sun Microsystems, Inc. pour ses utilisateurs et licenciés. Sun reconnaît les efforts de pionniers de Xerox pour la recherche et le développement du concept des interfaces d'utilisation visuelle ou graphique pour l'industrie de l'informatique. Sun détient une licence non exclusive de Xerox sur l'interface d'utilisation graphique Xerox, cette licence couvrant également les licenciés de Sun qui mettent en place l'interface d'utilisation graphique OPEN LOOK et qui en outre se conforment aux licences écrites de Sun.

CETTE PUBLICATION EST FOURNIE "EN L'ETAT" ET AUCUNE GARANTIE, EXPRESSE OU IMPLICITE, N'EST ACCORDEE, Y COMPRIS DES GARANTIES CONCERNANT LA VALEUR MARCHANDE, L'APTITUDE DE LA PUBLICATION A REpondre A UNE UTILISATION PARTICULIERE, OU LE FAIT QU'ELLE NE SOIT PAS CONTREFAISANTE DE PRODUIT DE TIERS. CE DENI DE GARANTIE NE S'APPLIQUERAIT PAS, DANS LA MESURE OU IL SERAIT TENU JURIDIQUEMENT NUL ET NON AVENU.



Contents

Preface	xi
1. Introduction	1
About the Solstice Backup Product	1
Solstice Backup Server	1
Solstice Backup Client	2
Solstice Backup Storage Node	2
Supported Devices	3
Enabler Codes	3
2. Installing the Solstice Backup Software on Solaris	5
Software Installation Roadmap	5
Installation Requirements	6
Client Software	6
System Requirements	6
Client Backup and Recovery Guidelines	7
Storage Node	7
Server Software	8
System Requirements	8
Installation Guidelines	9

Updating from a Previous Release	9
Introduction	10
Disk Space Requirements	10
▼ To Update from a Previous Version of Solstice Backup	10
Enhancing Client File Conversion	11
▼ To Restore the Media Database and Configuration Files	12
Installing the Software	13
Accessing the Installation Files	14
▼ To Access Installation Files From a Local CD-ROM	14
▼ To Access Installation Files From a Remote CD-ROM	14
Installing to Default Locations	15
▼ To Install a Solstice Backup Client	15
▼ To Install a Solstice Backup Storage Node	16
▼ To Install the Solstice Backup Server	17
Installing to a Nondefault Location	19
▼ To Install the Relocatable Solstice Backup Packages to a Nondefault Location	19
Autochanger	20
About the Term Autochanger	21
Autochanger Configuration and Testing	21
▼ To Configure The Autochanger	21
▼ To Test The Autochanger Connection	22
Verifying Your Installation	23
About the Solstice Backup GUI	23
Starting the Solstice Backup GUI	23
Testing Solstice Backup Software	24
▼ To Test of the Solstice Backup Software on Stand-alone Devices Only	24

Removing the Solstice Backup Software	25
▼ To Remove the Solstice Backup Software Packages	25
3. Installing Solstice Backup Software in a Sun Cluster Environment	27
Software Installation Roadmap	27
Installation Requirements	28
Software Requirements	28
Hardware Requirements	29
System Information Requirements	29
Installing a Solstice Backup Cluster-Aware Server	31
▼ To Install the Solstice Backup Software on All Cluster Nodes	31
▼ To Define the Solstice Backup Server as a High Availability Application	32
Task 3: Define the List of Trusted Solstice Backup Servers	32
▼ To Configure the Solstice Backup Cluster Server	33
▼ To Configure Clients under the Solstice Backup Cluster Server	34
▼ To Register Solstice Backup Licenses for Cluster Server Failover	36
Installing Only the Solstice Backup Client Software	37
▼ To Install the Solstice Backup Cluster Client Software	37
▼ To Configure Solstice Backup Client Software as Cluster-Aware	38
Define the List of Trusted Solstice Backup Servers	38
▼ To Configure the Clients under the Solstice Backup Server	39
Upgrading an Existing Solstice Backup Server to a Cluster-Aware Server	41
▼ To Migrate the Existing Server Indexes, Media Database, and Resource File	41
Relocating the Solstice Backup Virtual Server	43
Shutting Down and Restarting the Cluster Server	44
Deinstalling and Reinstalling the Cluster Server Subset	44
Deinstalling	44

Reinstalling	45
Solstice Backup Cluster Script	45
4. Enabling, Registering, and Authorizing Solstice Backup Software	47
Enabler Codes for Purchased Software	47
Enabler Codes for Evaluated Software	49
If the Solstice Backup Server Is Running in Evaluation Mode	49
If the Solstice Backup Server Is Permanently Enabled and Authorized	49
Purchasing an Enabler Certificate	51
Registering and Authorizing the Software for Permanent Use	51
Registering Using the World Wide Web	52
Registering by Fax or E-mail	52
Managing Your Sun Licenses	53

Figures

FIGURE 3-1 Sample Cluster Configuration 30

Tables

TABLE 2-1	Default Locations and Space Requirements	9
TABLE 2-2	Solstice Backup Daemons	18
TABLE 3-1	Required Information	30
TABLE 4-1	Software Versions	47
TABLE 4-2	Enabler Codes for Purchased Software	48
TABLE 4-3	Enabler Codes for Evaluated Software	50

Preface

The *Solstice Backup 6.0 Installation Guide* provides instructions on how to install Solstice Backup™ software.

After you install the Solstice Backup software, refer to the *Solstice Backup 6.0 Administrator's Guide* and the program's online help for detailed instructions on how to configure, administer, and use the Solstice Backup software.

The information in this guide is intended for system administrators who are responsible for installing software and maintaining the servers and clients on a network. Operators who monitor the daily backups may also find this manual useful.

Before You Read This Book

In order to fully use the information in this document, you must have thorough knowledge of the topics discussed in these books:

- *Solstice Backup 6.0 Administrator's Guide*
- *Solstice Backup 6.0 Release Notes*

Using UNIX Commands

This document may not contain information on basic UNIX[®] commands and procedures such as shutting down the system, booting the system, and configuring devices.

See one or more of the following for this information:

- *Solaris Handbook for Sun Peripherals*
- AnswerBook2[™] online documentation for the Solaris[™] operating environment
- Other software documentation that you received with your system

Typographic Conventions

Typeface	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. % You have mail.
AaBbCc123	What you type, when contrasted with on-screen computer output	% su Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this.
	Command-line variable; replace with a real name or value	To delete a file, type <code>rm filename</code> .

Shell Prompts

Shell	Prompt
C shell	<i>machine_name%</i>
C shell superuser	<i>machine_name#</i>
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#

Related Documentation

Application	Title	Part Number
Administration	<i>Solstice Backup 6.0 Administrator's Guide</i>	806-5607-10
Release Notes	<i>Solstice Backup 6.0 Release Notes</i>	806-5610-11

Accessing Sun Documentation Online

The `docs.sun.comsm` web site enables you to access a select group of Sun technical documentation on the Web. You can browse the `docs.sun.com` archive or search for a specific book title or subject at:

`http://docs.sun.com`

Ordering Sun Documentation

Fatbrain.com, an Internet professional bookstore, stocks select product documentation from Sun Microsystems, Inc.

For a list of documents and how to order them, visit the Sun Documentation Center on Fatbrain.com at:

<http://www.fatbrain.com/documentation/sun>

Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. You can email your comments to Sun at:

docfeedback@sun.com

Please include the part number (806-5608-11) of your document in the subject line of your email.

Introduction

This chapter provides background information on Solstice Backup software and supported devices. It includes the following sections:

- [“About the Solstice Backup Product”](#)
- [“Supported Devices” on page 3](#)
- [“Enabler Codes” on page 3](#)

About the Solstice Backup Product

The Solstice Backup product is a suite of storage management software that provides backup, recovery, and other services to computers with a wide variety of operating systems and data types. Solstice Backup products for different operating systems are interoperable, which provides you with flexibility in designing a storage management setup that works best with your current computing environment.

The Solstice Backup software is distributed in a media kit of CD-ROMs that contain the software and electronic documentation for several related Sun products

The Solstice Backup product comprises three applications: the Solstice Backup server, client, and storage node.

Solstice Backup Server

The Solstice Backup server software provides control and scheduling for Solstice Backup operations. On the Solstice Backup server, you perform the following operations:

- Enter the enabler licenses for the Solstice Backup server and all the functions the Solstice Backup server controls, such as autochanger modules, additional client connections, and Legato ClientPak licenses.
- Define the clients, devices, and media that the Solstice Backup server controls.
- Define the schedules for backups and other operations.
- Monitor the results of backups and other operations.
- Manage the indexes that track which data belongs to which client and which media contains which data.

Solstice Backup Client

The Solstice Backup client software provides recover and on-demand backup functionality, and it communicates with the Solstice Backup server. You install the Solstice Backup client software on all computers that you want to back up to the Solstice Backup server.

Solstice Backup clients do not have to be of the same operating system as the Solstice Backup server. However, to back up clients of other operating systems, your Solstice Backup server must have a Legato ClientPak enabler for that type of client. For example, the Solstice Backup server is allowed to back up Solstice Backup clients on the Solaris™ operating system, but if you also want to back up Solstice Backup clients on another operating system, you must purchase and enter the Legato ClientPak enabler for that operating system.

Solstice Backup Storage Node

You can back up data directly to devices attached to either a Solstice Backup server or to a Solstice Backup storage node. A storage node controls storage devices such as tape drivers, autochangers, and silos.

Storage nodes depend on the Solstice Backup server for the following functions:

- Control over which clients use the storage node's devices for backups
- License management
- Management of the indexes that tracks data belonging to a client and the media containing the data

Supported Devices

Sun Solstice Backup software supports a variety of media types and devices, either stand-alone or in an autochanger or silo tape library. Devices can be attached to a Solstice Backup server or a designated storage node. To obtain the latest list of supported devices, refer to the Legato Compatibility Guides on the Legato web site.

You must use a nonrewinding device for Solstice Backup backups. The pathnames for these devices must follow the Berkeley Storage Device (BSD) semantic rules, for example, `/dev/rmt/0mbn`. The “b” in the pathname satisfies the BSD semantics requirement. If you use a file device, you must enter it as a directory path (the same as for other device types) rather than as just a filename.

The Solstice Backup application writes a file mark on the volume at the end of each backup. When the next backup occurs, the Solstice Backup application appends data to the volume based on the position of the file mark. If a device automatically rewinds the data, the file mark position is lost and the next backup overwrites the data; you will be unable to recover the previous backup data.

The Solstice Backup application uses the following naming standard to indicate a nonrewinding device:

```
no_rewind_example=/dev/rmt/0mbn
```

Enabler Codes

Enabler codes (licenses), which activate the functionality of Solstice Backup software and other Sun software, are sold separately. For more information, see [Chapter 4](#).

Installing the Solstice Backup Software on Solaris

This chapter explains how to install the Solstice Backup software. It includes the following sections:

- [“Software Installation Roadmap”](#)
- [“Installation Requirements” on page 6](#)
- [“Updating from a Previous Release” on page 9](#)
- [“Autochanger” on page 20](#)
- [“Verifying Your Installation” on page 23](#)
- [“Removing the Solstice Backup Software” on page 25](#)

Software Installation Roadmap

The following numbered tasks are a roadmap to follow when installing the Solstice Backup software. Read the roadmap and the referenced sections before installing Solstice Backup software:

1. Review the requirements section and note the default directory location and the software installation file space requirements. For more information, see [“Installation Requirements” on page 6](#).
2. If you have an earlier release of Solstice Backup software installed see [“Updating from a Previous Release” on page 9](#).
3. Install the required Solstice Backup software. For more detailed information, see [“Installing the Software” on page 13](#).
4. Install the device drivers for the Solstice Backup server and any storage nodes. For more detailed information, refer to the following sources:

- [“Autochanger” on page 20](#)
 - The autochanger and silo chapters in the *Solstice Backup 6.0 Administrator’s Guide*
5. Enable and register all of your Solstice Backup products. For more information, see [Chapter 4](#).

Installation Requirements

The system requirements differ for each of the installation types listed below. For more information, see the following sections:

- [“Client Software”](#)
- [“Storage Node” on page 7](#)
- [“Server Software” on page 8](#)

Caution – Solstice Backup software does not support locales (defined by your operating system) or codesets that remap characters having special meaning for filesystems. Depending on the filesystem, these special characters may include the forwardslash (/), the backslash (\), the colon (:), or the period(.). De_DE.646 is an example of one unsupported locale.

Solstice Backup software might function normally in such an environment, but might not function normally if the locale is changed (the previously existing indexes can become invalid). Changing between supported locales is not a problem.

Client Software

The following sections describe Solstice Backup client software installation requirements:

- [“System Requirements”](#)
- [“Client Backup and Recovery Guidelines”](#)

System Requirements

The installation requirements differ, depending on whether or not the clients have the same operating system as the Solstice Backup server.

The Solstice Backup client package temporarily requires 70 MB of free space on the client computer.

To install software on clients:

- Of the same operating system, use the same installation media used to install the Solstice Backup server.
- Of different operating systems, use the Solstice Backup client software for that operating system on each client computer and purchase the required Legato ClientPak enabler code. For more information, refer to the appropriate installation guide.

Client Backup and Recovery Guidelines

In order for Solstice Backup clients to use the Solstice Backup server to back up and recover files, they must be able to access the Solstice Backup software.

A client can access the Solstice Backup software in one of two ways:

- Clients are installed with Solstice Backup programs directly on their local disks.
- Clients are configured with an NFS-mounted directory on the remote system where the Solstice Backup programs are located.

To back up a Solstice Backup client, the `nsrexecd` daemon must be active on the client. To avoid errors during a scheduled backup of the client, make sure that the `nsrexecd` command is in each client's startup file.

Storage Node

A storage node must have at least one storage device attached and installed according to the manufacturer's instructions. Storage devices must be supported by Solstice Backup software.

Caution – To successfully install the Solstice Backup server and storage node, you must also install the device driver software (*SUNWsbu2*). For more information, see [“Autochanger” on page 20](#).

Solstice Backup storage node supports a variety of media types, including:

- 4 mm
- 8 mm
- Optical disk
- Digital linear tape (DLT)

- Disk file

Solstice Backup software also supports a wide variety of devices attached to a Solstice Backup server or a designated storage node, either as a stand-alone device or in an autochanger or silo tape library.

For a list of supported devices, obtain the Legato Compatibility Guides from the Legato web site at *www.legato.com*.

Server Software

This section describes Solstice Backup server installation requirements:

- [“System Requirements”](#)
- [“Installation Guidelines” on page 9](#)

System Requirements

To install Solstice Backup software on a Solaris server, your system must have the space recommended in [TABLE 2-1](#) and meet the following requirements.

Make sure that:

- You have a directory on the server large enough for the Solstice Backup client and server indexes and media database (usually `/nsr`). The installation script checks for space and suggests one or more locations for the indexes and media database.
- You know the system pathname of at least one storage device for use by the Solstice Backup server to back up and recover files.

If you use a tape device to back up data you must use a valid pathname for that device. For example:

```
/dev/rmt/0cbn
```

Note that the tape device must be nonrewinding.

To read the PDF files you need Acrobat Reader. To install Acrobat Reader, you need a directory with enough space to install the Acrobat Reader software included with the Solstice Backup distribution files.

Installation Guidelines

On the system you are designating as the Solstice Backup server, you must install all of the Solstice Backup software: client, storage node, server, and device drivers. Sun recommends that you install all of the Solstice Backup software on the server at the same time.

If you accept the default locations, the installation script chooses the directory locations shown in [TABLE 2-1](#).

TABLE 2-1 Default Locations and Space Requirements

Software/Documentation Files	Solstice Backup Server Default Location	Space Needed
Solstice Backup GUI program files	/usr/bin/nsr	23 MB
Solstice Backup daemon and utility command files	/usr/sbin/nsr	22 MB
Online client file indexes; media database	/nsr	varies
Solstice Backup device drivers	/etc/LGT0uscsi /usr/kernel/drv /usr/kernel/drv/sparcv9 /usr/lib/nsr	21 MB
Solstice Backup man pages	/usr/share/man	1 MB
Adobe Acrobat Reader	/opt/Acrobat3/bin	8 MB
PDF files	optional	varies

Updating from a Previous Release

The following sections explain how to update from a previous release of Solstice Backup software:

- [“Introduction”](#)
- [“Disk Space Requirements”](#)
- [“To Update from a Previous Version of Solstice Backup”](#)
- [“To Restore the Media Database and Configuration Files”](#)

Introduction

When you update Solstice Backup release 4.2 or later to release 6.0, the following files are automatically converted to a new database format the first time you start the Solstice Backup daemons:

- Client file indexes
- Media database

To update from releases 4.1 and earlier, you must restore the client file indexes, media database, and configuration files from backup. For more information, see [“To Restore the Media Database and Configuration Files” on page 12](#).

Updating from corrupted indexes is not supported.

Caution – Once the client-file indexes, server indexes, and media database have been upgraded to the new Solstice Backup 6.0 database format, there is no way to return to a previous release of Solstice Backup software. It is a one-way conversion with no provision for *undo*.

Disk Space Requirements

The Solstice Backup 6.0 index conversion requires that there be at least enough free disk space as the largest pre-6.0 release index. This space is used during the conversion process and will be released. Following conversion, expect that the media database may be about twice its previous size. The client file indexes will be reduced in size by 20 to 40 percent. This change in storage requirements is permanent.

▼ To Update from a Previous Version of Solstice Backup

1. If necessary, perform a scheduled backup (not a manual backup) or wait to upgrade until after a scheduled backup. Make sure that you have a current full, incremental, or level 0 backup of the:
 - File indexes (`/nsr/index`)
 - Server resource files (`/nsr/res`)
 - Media database (`/nsr/mm`)

Caution – You need the bootstrap information to complete the [“To Restore the Media Database and Configuration Files”](#) section. Make sure you have this information before continuing with step 2.

To get the bootstrap information from:

-Solstice Backup 5.0 and later, use the `mminfo -B` command.

-Releases prior to Solstice Backup 5.0, use the `mminfo` command as shown:

```
# mminfo -N bootstrap -t '5 weeks ago' -ot -r
'savetime,level,ssid,mediafile,volume'
```

Caution – The Solstice Backup packages have dependencies and must be deleted in the correct order. The correct order for deletion is: server, storage node, and then client. The man page package has no dependencies and can be deleted at any time.

2. Remove the earlier Solstice Backup release (but not the indexes, resource files, or media database). For more information, see [“Removing the Solstice Backup Software”](#) on page 25.
3. Install the new release of the Solstice Backup software. For more information, see [“Installing the Software”](#) on page 13.
4. Enable and register your Solstice Backup software. For more information, see [Chapter 4](#).

If you did not have enough disk space to automatically convert the indexes, you can restore them. For more information, see [“To Restore the Media Database and Configuration Files”](#) on page 12.

Enhancing Client File Conversion

While Solstice Backup software is in the process of converting the client file indexes serially, you can manually start the conversion of any specific client file index.

To start multiple client file index conversions in parallel, run multiple instances of the `nsrck` program concurrently:

- Specify which client’s file index to convert. For example:

```
# nsrck client_name
```

or

- Enter the `nsrck` command without a client name. This initiates the conversion of the next client in the list.

Note: Each instance of `nsrck` running occupies a portion of your server's processing, memory, and space swapping capability. You must balance the speed with which you want to convert your indexes against other Solstice Backup server needs. You should also monitor your system performance using a diagnostic tool to determine the optimum number of `nsrck` instances to launch.

▼ To Restore the Media Database and Configuration Files

With the new release of the Solstice Backup software installed, you have the option of restoring your old indexes, media database, and configuration files from the backup media. The `/nsr/res` directory, which contains the configuration files, cannot be reliably overwritten while Solstice Backup software is running; therefore, `mmrecov` recovers the `/nsr/res` directory as `/nsr/res.R`.

1. Find the bootstrap information (required for the next two steps). The `mmrecov` program asks you for the bootstrap save set identification number (ssid).
 - If you perform regular scheduled backups that include the server, you should have a copy of the bootstrap file (either as hard copy or an electronic file) with the name of the backup media you need and the bootstrap ssid.
 - If you do not have this information available, enter the `scanner -B` command at the shell prompt to obtain the bootstrap ssid. You must have the volume containing the most recent bootstrap in a working drive.
2. Retrieve the backup media that contains the most recent backup named *bootstrap* and load it into the server's backup device.
3. Enter the `mmrecov` command to extract the contents of the bootstrap backup. The `mmrecov` program prompts you for the:
 - Latest bootstrap ssid
 - Starting file number (if known)
 - Starting record number (if known)
 - Volume on which the ssid started

If you have more than one backup device available, the `mmrecov` program also prompts you to enter the name of the device you want to use. You can press [Enter] to accept any default values that the `mmrecov` program provides at each prompt.

The Solstice Backup media database and resource configuration files are recovered when the following message appears:

```
If your resource files were lost, they are now recovered in
the 'res.R' directory.
```

Copy or move them to the 'res' directory, after you have shut down the service. Then restart the service. Otherwise, just restart the service.

If the on-line index for the *[server_name]* was lost, it can be recovered using the `nsrck` command.

For more information about the `mmrecov` command and examples of its output, refer to the *Legato NetWorker Disaster Recovery Guide* or the `mmrecov` man page.

4. Use Solstice Backup commands such as `nsrwatch` or `nwadmin` to monitor the progress of the server during the recovery of the index and configuration files, if necessary.
5. When the recovery process is complete:
 - a. Shut down the Solstice Backup daemons:

```
# nsr_shutdown
```
 - b. Copy the contents of the `/nsr/res.R` directory to the `/nsr/res` directory.
 - c. Delete the `/nsr/res.R` directory.
 - d. Restart Solstice Backup. For example:

```
# /etc/init.d/networker start
```
6. Use the `nsrck` command with the `-L7` option to recover the client file indexes. For example:

```
# nsrck -L7
```

Once the recovery of a client file index is completed, you can browse it and select specific items for recovery.

Installing the Software

The following sections explain how to install a Solstice Backup server, client, and storage node from either a CD-ROM or a downloaded file:

- [“Accessing the Installation Files”](#)
- [“Installing to Default Locations” on page 15](#)
- [“Installing to a Nondefault Location” on page 19](#)

Accessing the Installation Files

This section explains how to access the Solstice Backup from the follow media locations:

- [“To Access Installation Files From a Local CD-ROM”](#)
- [“To Access Installation Files From a Remote CD-ROM”](#)

▼ To Access Installation Files From a Local CD-ROM

To access the Solstice Backup software on a system with a local CD-ROM drive attached:

1. Log in as root on the system where you are installing the Solstice Backup software.
2. Locate the Solaris directory on the installation CD-ROM.
3. Set the PATH environment variable for the user root, on both the Solstice Backup server and client, to contain the directory where the Solstice Backup executables reside:

```
$PATH:/usr/bin/nsr:/usr/sbin/nsr
```

▼ To Access Installation Files From a Remote CD-ROM

To access the Solstice Backup software from a remote CD-ROM drive:

1. Insert the CD-ROM into the remote system's drive.
2. Mount the CD-ROM on the remote system.
3. Make the mounted CD-ROM exportable through NFS.
4. Log in as root on the system where you are installing the Solstice Backup software.
5. Create a mount point:

```
# mkdir /tmpmntdir
```

6. Mount the filesystem containing the mounted CD-ROM onto the system where you are installing Solstice Backup software:

```
# mount remote-host:/cdrom/6.0.SBU /tmpmntdir
```

7. Set the PATH environment variable for the user root, on both the Solstice Backup server and client, to contain the directory where the Solstice Backup executables reside:

```
$PATH:/usr/bin/nsr:/usr/sbin/nsr
```

Installing to Default Locations

This section explains how to install the server, client, and storage node software:

▼ To Install a Solstice Backup Client

To install Solstice Backup software on the computer that you are designating as the Solstice Backup client:

1. Enter the pkgadd command at the system prompt. For example:

```
# pkgadd -d /cdrom/6.0.SBU/SOLARIS/Sparc
```

Caution – Do *not* press the [Enter] key for the default response “all.” Accepting the default installs the server and the device driver packages.

2. At the prompt, enter the appropriate option number to install the client package (*SUNWsbuc*). The package temporarily requires 70 MB of free space on the client computer.
3. At the prompt, enter the appropriate options number to install the man pages, (*SUNWsum*) (optional).
4. When you have added all the applicable packages and the prompt is displayed, enter *q* to exit.
5. If you did not specify a set of Solstice Backup servers during the Solstice Backup client installation but you want to limit the servers authorized to access the client, you can specify a list of trusted Solstice Backup servers for your client using the */nsr/res/servers* file.

Note: You can also use the following procedure to change the set of Solstice Backup servers that are authorized to access this client.

- a. Shut down the Solstice Backup daemons. For example:

```
# nsr_shutdown
```

- b. Edit or create the `/nsr/res/servers` file and add the set of Solstice Backup servers, one per line, that you want to grant access to this client. The first entry in this file becomes the default Solstice Backup server.
- c. Check the Solstice Backup boot-time startup file for `nsrexecd -s` arguments. If they exist, delete the `-s` arguments. The `nsrexecd -s` argument supercedes the `/nsr/res/servers` file.

For example, delete the arguments for `nsrexecd -s` in the file shown below:

```
# vi /etc/init.d/networker  
  
nsrexecd -s venus -s mars
```

The `nsrexecd` daemon named in the file should appear only as:

```
nsrexecd
```

- d. Use the Solstice Backup boot-time startup file to restart the Solstice Backup software. For example:

```
# /etc/init.d/networker start
```

▼ To Install a Solstice Backup Storage Node

To install Solstice Backup software on the computer that you are designating as the Solstice Backup storage node and have purchased an enabler code for:

1. Install the Solstice Backup client (*SUNWsbuc*) software. For details see [“To Install a Solstice Backup Client” on page 15](#).
2. Enter the `pkgadd` command at the system prompt. For example:

```
# pkgadd -d /cdrom/6.0.SBU/SOLARIS/Sparc
```

3. At the prompt, enter the appropriate option number to install the following:
 - Device driver (*SUNWsbu2*)
 - Storage node (*SUNWsbun*)
4. When you have added all the applicable packages and the prompt is displayed, enter `q` to exit.
5. Configure the driver software to provide support for Solstice Backup software to back up data to the SCSI storage devices attached to the system. For more information, see [“Autochanger Configuration and Testing” on page 21](#).

For the latest information about supported devices, refer to the Legato Compatibility Guides on the Legato web site.

- [“To Install the Solstice Backup Server”](#)
- [“To Install a Solstice Backup Client”](#) on page 15
- [“To Install a Solstice Backup Storage Node”](#) on page 16

▼ To Install the Solstice Backup Server

To install Solstice Backup software on the computer that you are designating as the Solstice Backup server:

1. Keep a copy of your current configuration. The Solstice Backup software installation script modifies the following files during the installation process.
 - `/etc/rpc`
 - `/etc/syslog.conf`

For example:

```
# cp /etc/rpc /etc/rpc.old  
  
# cp /etc/syslog.conf /etc/syslog.conf.old
```

2. Enter the `pkgadd` command at the system prompt. For example:

```
# pkgadd -d /cdrom/6.0.SBU/SOLARIS/Sparc
```

3. At the prompt, press [Enter] to install all of the packages on the server. Sun recommends that you install all of the Solstice Backup software on the server at the same time.

You can override the default selection to install only selected software. If you choose to install only selected software packages on the server, you must install them in the following order:

 - `SUNWsbuc` (client software package)
 - `SUNWsbus2` (optional device drivers package)
 - `SUNWsbun` (storage node software package)
 - `SUNWsbus1` (server software package)
4. When you have added all the applicable packages and the prompt is displayed, enter `q` to exit.
5. If you did not specify a set of Solstice Backup servers during the Solstice Backup client installation but you want to limit the servers authorized to access the client, you can specify a list of trusted Solstice Backup servers for your client using the `/nsr/res/servers` file.

Note: You can also use the following procedure to change the set of Solstice Backup servers that are authorized to access this client.

- a. Shut down the Solstice Backup daemons. For example:

```
# nsr_shutdown
```

- b. Edit or create the `/nsr/res/servers` file and add the set of Solstice Backup servers, one per line, that you want to grant access to this client. The first entry in this file becomes the default Solstice Backup server.

- c. Check the Solstice Backup boot-time startup file for `nsrexecd -s` arguments. If they exist, delete the `-s` arguments. The `nsrexecd -s` argument supercedes the `/nsr/res/servers` file.

For example, delete the arguments for `nsrexecd -s` in the file shown below:

```
# vi /etc/init.d/networker  
  
nsrexecd -s venus -s mars
```

The `nsrexecd` daemon named in the file should appear only as:

```
nsrexecd
```

- d. Use the Solstice Backup boot-time startup file to restart the Solstice Backup software. For example:

```
# /etc/init.d/networker start
```

6. Verify that the Solstice Backup daemons shown in [TABLE 2-2](#) are running. Enter the following command at the system prompt:

```
# ps -ef | grep nsr
```

TABLE 2-2 Solstice Backup Daemons

Solstice Backup Installation Packages	Solstice Backup Daemons
Solstice Backup server	nsrd, nsrexecd, nsrindexd, nsrmmdbd, nsrmmmd
Solstice Backup client	nsrexecd
Solstice Backup storage node	nsrexecd, nsrmmmd

```
$PATH:/usr/bin/nsr:/usr/sbin/nsr
```


Installing to a Nondefault Location

By default, the Solstice Backup software is installed in the `/usr` directory. If you have insufficient disk space on the `/usr` partition, you can relocate the following Solstice Backup packages to a specified directory on another partition:

- *SUNWsbuc* (client software package)
- *SUNWsbun* (storage node software package)
- *SUNWsbu1* (server software package)

The following Solstice Backup packages are not relocatable; they are always installed in the default location:

- *SUNWsbum* (optional Solstice Backup man pages)
- *SUNWsbu2* (optional Solstice Backup device driver commands, libraries, and utilities)

For a listing of the default locations and size requirements, see [TABLE 2-1](#).

Caution – Do not relocate any of the packages if Legato NetWorker Module software is also installed on the computer.

▼ To Install the Relocatable Solstice Backup Packages to a Nondefault Location

1. Edit the `/var/sadm/install/admin/default` file. First, create a temporary copy of the file by entering the following at the command line:

```
cp /var/sadm/install/admin/default /tmp/default.tmp
```

Next, edit the `/var/sadm/install/admin/default` file and change the value assigned to the `basedir` variable from `default` to `ask`, as shown:

```
basedir=ask
```

Caution – To successfully install the *SUNWsbu2* package, you must provide the root directory (`/`) as the response to the query about which directory to install the device drivers in.

2. Create a directory and the `/bin/nsr` and `/sbin/nsr` subdirectories where you will install the Solstice Backup packages, for example:

```
# mkdir /my-path/sbin/nsr

# mkdir /my-path/bin/nsr
```

3. Modify the root PATH variable to include the `/bin` and `/sbin` subdirectories of the directory just created, for example:

```
/my-path/bin/nsr:/my-path/sbin/nsr
```

4. Enter the `pkgadd` command:

```
# pkgadd -d /cdrom/6.0.SBU/SOLARIS/Sparc
```

5. When the following prompt appears in the script, enter the same base directory for all the relocated packages:

```
Enter path to package base directory (default: /usr) [?,q] /my-path

Using </my-path> as the package base directory.
```

6. When you have added all the applicable and packages and the prompt is displayed, enter `q` to exit.

If you use `pkgrm` to remove the packages at a later date, you must also supply the base directory you specified.

Autochanger

The following sections provide information on installing and configuring autochangers:

- [“About the Term Autochanger”](#)
- [“Autochanger Configuration and Testing”](#)

About the Term Autochanger

The term “autochanger” is used in the instructions that follow to refer to a variety of backup devices:

- Autoloader
- Carousel
- Library
- Near-line storage
- Datawheel
- Jukebox

For more information on which autochangers are supported on which platforms and operating systems, refer to the Legato Compatibility Guides.

You must use a nonrewinding device for Solstice Backup backups. Solstice Backup software uses the following naming standard to indicate a nonrewinding device:

```
no_rewind_example=/dev/tm0n
```

Autochanger Configuration and Testing

Follow the instructions in this section to configure and test the device driver software on a Solstice Backup server or storage node with an attached autochanger. For more detailed information, refer to the autochanger chapter in the *Solstice Backup 6.0 Administrator's Guide*.

To use an autochanger for Solstice Backup storage management, follow the procedures for these tasks:

- [“To Configure The Autochanger”](#)
- [“To Test The Autochanger Connection”](#)

▼ To Configure The Autochanger

1. Log in as root on the Solstice Backup server.
2. Enter the `jbconfig` command. The program displays a list of autochangers. For more information about the `jbconfig` command, refer to the `jbconfig man` page.
3. When prompted, indicate which autochanger to install.

4. Continue to provide the appropriate responses when prompted. To configure a SCSI or SJI autochanger, refer to the *Solstice Backup 6.0 Administrator's Guide*

When the configuration is complete, the program displays the following message:

```
Jukebox has been added successfully.
```

When you use the `jbconfig` program to configure an autochanger, a new resource is created with the name you specified. To view the:

- New resource created in the Jukeboxes' resource, use the Solstice Backup Administration program.
- Attributes of the Jukeboxes' resource, refer to the online help or the `nsr_jukebox(5)` man page.

For more information on configuring an autochanger, refer to the *Solstice Backup 6.0 Administrator's Guide*.

▼ To Test The Autochanger Connection

1. Log in as root on the Solstice Backup server or storage node.
2. Insert two volumes, one each into the first and last slots of the autochanger. Make sure that the drives are empty and that any drive doors are open.
3. Enter the `jbexercise` command at the prompt; specify the control port and the device type.

The control port for SCSI autochanger models is typically expressed in the format `scsidev@n.n.n`. You can obtain the exact control port pathname from the response displayed by the `jbconfig` command script:

```
These are the SCSI Jukeboxes currently attached to your system
```

- ```
1) scsidev@1.2.0: DLI Libra Series
2) scsidev@0.2.1: Quantum DLT/Digital DLT
```

For example, the following command runs the `jbexercise` program on the Quantum DLT/Digital DLT autochanger detected by the `jbconfig` script:

```
jbexercise -c scsidev@0.2.1 -m "Quantum DLT/Digital DLT"
```

For additional information on the command options available for the `jbexercise` command, refer to the `jbexercise(1m)` man page.

---

## Verifying Your Installation

The following sections provide information about the Solstice Backup GUI and starting and testing the installation:

- [“About the Solstice Backup GUI” on page 23](#)
- [“Starting the Solstice Backup GUI” on page 23](#)
- [“Testing Solstice Backup Software” on page 24](#)

## About the Solstice Backup GUI

The Solstice Backup software includes both a GUI and a command line interface. Use the GUI for the following procedures. To learn more about the command line interface, refer to the `nsradmin(8)` man page.

The speedbar buttons displayed in the main window of the GUI provide quick access to the most frequently performed Solstice Backup administration tasks.

The program’s online help is available through the Help menu. You can view a topic that is specific to the window or scroll to another topic of your choice.

## Starting the Solstice Backup GUI

To start the Solstice Backup GUI, enter the `nwadmin` command at the shell prompt:

```
nwadmin -s server-name &
```

If the Solstice Backup GUI is not displayed, try one of the following:

- Check that the `DISPLAY` environment variable is set correctly.
- Check that the `PATH` environment variable contains the correct path to the Solstice Backup programs.

If the Solstice Backup GUI cannot connect to the specified server:

- Run the `ps` command to check that the required Solstice Backup daemons, `nsrd` and `nsrexecd`, are present.

```
ps -ef | grep nsr
```

- If the output does not list `nsrd` and `nsrexecd` as current processes, run the following command to start the Solstice Backup daemons:

```
/etc/init.d/networker start
```

## Testing Solstice Backup Software

When you installed the package on the Solstice Backup server, the program automatically:

- Added the server hostname to the list of Solstice Backup clients.
- Specified the option `save set "all"`. This specifies that all save sets on the server are backed up.

When testing the Solstice Backup software, consider the following:

- You can use the default setup provided by the installation to test the software and device connections, or modify the options before you perform the test.
- To use a device in an autochanger, use the configuration instructions provided in the *Solstice Backup 6.0 Administrator's Guide*.

### ▼ To Test of the Solstice Backup Software on Stand-alone Devices Only

1. Insert a volume into the device you configured for Solstice Backup software.
2. Label the volume with the Default label template:
  - a. Select Label from the main window. The Solstice Backup application displays the preconfigured label templates.
  - b. Click OK.
3. Mount the volume in the drive:
  - a. Select Mount from the main window.
  - b. Highlight the volume you labeled in step 2.
  - c. Click OK.

4. Test the group backup:
  - a. Select Customize>Groups from the main window. The default group is highlighted.
  - b. Select Enabled in the Autostart group.
  - c. Return to the main window.
  - d. Select Group Control from the main window. The Group Control window appears with the Default group highlighted.
  - e. Click Start.

To view the progress of your test backup, select Details. Messages appear in the panels of the main window as the backup progresses.
5. View the client file index entries, made for the server during the test backup, by selecting Indexes.

If the test backup was not successfully completed, refer to the troubleshooting information in the *Solstice Backup 6.0 Administrator's Guide* to determine the cause.

---

## Removing the Solstice Backup Software

Use the `pkgrm` command to remove individual Solstice Backup packages or all of the Solstice Backup packages at the same time.

---

**Caution** – The Solstice Backup software packages depend on each other. To remove them all, you must remove them in the following order: *SUNWsbu1*, *SUNWsbun*, *SUNWsbu2*, *SUNWsbuc*. The man pages (*SUNWsbum*) and document files have no dependencies—you can remove them at any time.

---

### ▼ To Remove the Solstice Backup Software Packages

1. Log in as root on the system where you are removing the software.
2. Enter the `nsr_shutdown` command to shut down the Solstice Backup daemons. A list of Solstice Backup daemons that will be shut down appears, along with a prompt that asks whether you want to continue with the `nsr_shutdown` command.
3. Enter the `pkgrm` command to remove the software. For example:

- To remove *all* the packages, enter:

```
pkgrm SUNWsbus1 SUNWsbun SUNWsbus2 SUNWsbuc SUNWsbum
```

---

**Caution** – Do not choose the default option “all” to remove the Solstice Backup software packages. Choosing this option removes all the software packages (not just Solstice Backup software) that were installed on your computer using the `pkgadd` utility.

---

- To remove *only* the:
  - Server software, enter the `pkgrm SUNWsbus1` command.
  - Storage node software, enter the `pkgrm SUNWsbun` command.
  - Device driver software, enter the `pkgrm SUNWsbus2` command. This removes the `SUNWsbus2` package from the server or storage node where the device driver software is installed.
  - Client software, enter the `pkgrm SUNWsbuc` command.
  - Solstice Backup man pages, enter the `pkgrm SUNWsbum` command. This removes the `SUNWsbum` package from the server, storage node, or client where the man pages are installed.



# Installing Solstice Backup Software in a Sun Cluster Environment

---

This chapter explains how to install Solstice Backup software in a Sun Cluster environment. It includes the following sections:

- “Software Installation Roadmap”
- “Installation Requirements” on page 28
- “Installing a Solstice Backup Cluster-Aware Server” on page 31
- “Installing Only the Solstice Backup Client Software” on page 37
- “Upgrading an Existing Solstice Backup Server to a Cluster-Aware Server” on page 41
- “Relocating the Solstice Backup Virtual Server” on page 43
- “Shutting Down and Restarting the Cluster Server” on page 44
- “Solstice Backup Cluster Script” on page 45

A Sun Cluster consists of multiple nodes (physical hosts) in a networked configuration and provides additional security with the failover capability. Failover allows another node in the cluster to take over operations from the first node. For more detailed information about the Sun Cluster, refer to the *Sun Cluster System Administration Guide*.

---

## Software Installation Roadmap

The following tasks are a roadmap to follow when installing the Solstice Backup software. Read the roadmap and the referenced sections before installing the software.

1. Review the requirements section and note the default directory location. For more information, see [“Installation Requirements” on page 28](#).
2. If you have an earlier release of the Solstice Backup software installed, see [“Updating from a Previous Release” on page 9](#).
3. Install the required Solstice Backup software. For more detailed information, see one of the following sections:
  - [“Installing a Solstice Backup Cluster-Aware Server” on page 31](#)
  - [“Installing Only the Solstice Backup Client Software” on page 37](#)
4. Enable and register all of your Solstice Backup products. For more information, see [Chapter 4](#).

---

## Installation Requirements

The following sections discuss the software and hardware requirements for setting up Solstice Backup software as a high availability application in a Sun Cluster environment:

- [“Software Requirements”](#)
- [“Hardware Requirements”](#)
- [“System Information Requirements”](#)

For the most up-to-date information regarding software and hardware requirements, refer to the Legato Compatibility Guides.

## Software Requirements

To install a Solstice Backup cluster server, make sure that the following software is installed on each node in the cluster:

- SunOS™
- Sun Cluster and Logical Volume Manager
- Solstice Backup version 6.0
- Software listed in [“Installation Requirements” on page 6](#)

# Hardware Requirements

To install the Solstice Backup software, make sure that the following hardware requirements are met for each node in the cluster:

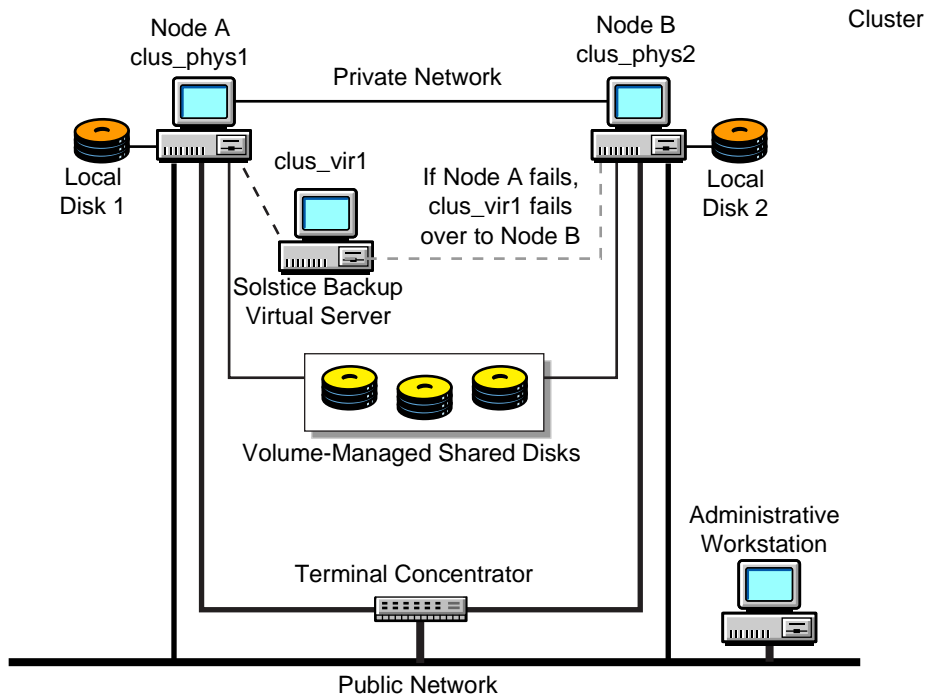
- The cluster server's `/nsr` directory (`/virtual_host_name/nsr`) must contain sufficient space for the Solstice Backup virtual server to operate. In other words, the virtual host must have sufficient space within its disk group(s) to contain `/virtual_host_name/nsr`.
- Hardware requirements listed in [“Installation Requirements” on page 6](#).

# System Information Requirements

[FIGURE 3-1](#) and [TABLE 3-1](#) display the system information needed to install the Solstice Backup cluster server.

Different platforms use different terms for the same cluster concepts. Sun Cluster refers to:

- *Physical hosts* as *nodes*
- *Virtual server* as an *agent*



**FIGURE 3-1** Sample Cluster Configuration

**TABLE 3-1** Required Information

| Information Required                                                                 | Example                          |
|--------------------------------------------------------------------------------------|----------------------------------|
| Solstice Backup virtual host with IP address in the same subnet as the cluster nodes | clus_vir1, 16.64.96.31           |
| Solstice Backup package mount point for virtual volume                               | /clus_vir1                       |
| Solstice Backup cluster configuration script                                         | /usr/sbin/nsr/networker.cluster  |
| Solstice Backup start method script                                                  | /usr/sbin/nsr/networker.start    |
| Solstice Backup stop method script                                                   | /usr/sbin/nsr/networker.stop     |
| Solstice Backup fault method start script                                            | /usr/sbin/nsr/networker.fm_start |
| Solstice Backup fault method stop script                                             | /usr/sbin/nsr/networker.fm_stop  |

---

# Installing a Solstice Backup Cluster-Aware Server

To install and configure the Solstice Backup software as a high availability application in a Sun Cluster environment, follow these procedures:

- [“To Install the Solstice Backup Software on All Cluster Nodes”](#)
- [“To Define the Solstice Backup Server as a High Availability Application” on page 32](#)
- [“To Configure the Solstice Backup Cluster Server” on page 33](#)
- [“To Configure Clients under the Solstice Backup Cluster Server” on page 34](#)
- [“To Register Solstice Backup Licenses for Cluster Server Failover” on page 36](#)

For detailed information about how to configure virtual hosts, or for general Sun Cluster information, refer to the *Sun Cluster 2.2 System Administration Guide*.

## ▼ To Install the Solstice Backup Software on All Cluster Nodes

Because the installation procedure varies little for installing servers and storage nodes, the instructions are presented together in this section.

1. Log in as root on the system where you want to install the Solstice Backup software.

Change directories to the location of the Solstice Backup software distribution files. For installation from a local or remote CD-ROM, mount the Solstice Backup CD and then change directories to where it is mounted.

For more information, see one of the following sections:

- [“To Access Installation Files From a Local CD-ROM” on page 14](#)
- [“To Access Installation Files From a Remote CD-ROM” on page 14](#)

2. To start the installation, enter the following command at the system prompt:

```
pkgadd -d .
```

## ▼ To Define the Solstice Backup Server as a High Availability Application

To define the Solstice Backup software as a high availability application, you must run the `networker.cluster` script (located in the `/usr/sbin/nsr` directory) on each host within the cluster.

1. Log in as *root*.
2. Make sure that the `/etc/hosts` file on each cluster node contains the name of the virtual host.
3. Run the cluster configuration script, `/usr/sbin/nsr/networker.cluster` on each node in the cluster that will run the Solstice Backup server process. For more information, see [“Solstice Backup Cluster Script” on page 45](#).

*Note:* If you make mistakes during this configuration step, you can undo any configuration by using the `-r` option from the root directory.

- a. On each node, you are prompted for the location of the local Solstice Backup database directory provided during the installation procedure. If it is not `/nsr`, `/nsr` will be a symbolic link to this directory.
- b. In response to the `networker.cluster` script prompt, enter the name for the virtual host.
- c. On the node that currently masters the virtual host, the configuration script prompts for confirmation that all the cluster nodes have been configured.
  - Answer *yes* after all nodes have been configured.

or

- Answer *no* to get the `hareg` commands that are required once the cluster has been fully configured.

---

**Caution** – In general, it is best to configure last the node mastering the virtual host to associate with the Solstice Backup virtual server. You can also use the Cluster Console GUI to run the configuration simultaneously on all cluster nodes.

---

## Task 3: Define the List of Trusted Solstice Backup Servers

To define the list of trusted Solstice Backup servers:

1. On one node in the cluster, shutdown the Solstice Backup service using the cluster management software.
2. On each node in the cluster:
  - a. Edit or create the `/nsr/res/servers` file and add the set of Solstice Backup servers, one per line, that you want to grant access to this client.
 

*Note:* Make sure that the first entry in this file is the virtual hostname for the Solstice Backup service. This entry becomes the default Solstice Backup server.
  - b. Check the Solstice Backup boot-time startup file for `nsrexecd -s` arguments. If they exist, delete the `-s` arguments. The `nsrexecd -s` argument supercedes the `/nsr/res/servers` file.
 

For example, delete the arguments for `nsrexecd -s` in the file shown below:

```
vi /etc/init.d/networker

nsrexecd -s venus -s mars
```

The `nsrexecd` daemon named in the file should appear only as:

```
nsrexecd
```
  - c. Use the Solstice Backup boot-time startup file to stop and restart the Solstice Backup software. For example:
 

```
/etc/init.d/networker stop

/etc/init.d/networker start
```
3. On one node in the cluster, start the Solstice Backup service using the cluster management software.
4. On the node that is running the Solstice Backup server:
  - a. Edit or create the `/nsr/res/servers` file and add the set of Solstice Backup servers, one per line, that you want to grant access to this client.
  - b. Make sure that the first entry in this file is the virtual hostname for the Solstice Backup service. This entry becomes the default Solstice Backup server.
  - c. Shut down and restart the Solstice Backup service using the cluster management software.

## ▼ To Configure the Solstice Backup Cluster Server

After you install and configure the Solstice Backup software as a high availability application, you must configure the Solstice Backup server.

1. Log in to the cluster node that masters the Solstice Backup virtual server.
2. Modify the server resource:
  - a. Open the Solstice Backup nwadmin GUI Server window.
  - b. From the main menu, select Server Setup.
  - c. In the Administrator attribute, add any cluster nodes that are not already listed.
  - d. Click Add and select Apply to apply your changes.

## ▼ To Configure Clients under the Solstice Backup Cluster Server

When you install the Solstice Backup 6.0 software on a cluster node, the installation program creates the `/nsr` link to point to a local disk. It also creates a second link to the local Solstice Backup directory named `nsr.Backup.local`. For example, if the local Solstice Backup directory was created in `/var/nsr`, each client node has the following links:

- `/nsr->/nsr.Backup.local`
- `/nsr.Backup.local->/var/nsr`

To make the cluster node a client of the Solstice Backup cluster server:

1. Make each physical node within the cluster a Solstice Backup client of the virtual Solstice Backup server:
  - a. Using the nwadmin GUI, select Client> Clients Setup.
  - b. Click Create and enter the name of the physical host in the Name field.
  - c. Complete the remaining fields in the Client window.
  - d. Repeat steps a-c for each physical node in the cluster.
2. Make each virtual host within the cluster a Solstice Backup client of the virtual Solstice Backup server:
  - a. Using the nwadmin GUI, select Client> Clients Setup.
  - b. Click Create and enter the name of the virtual server in the Name field.
  - c. In the Remote Access field, enter the `user@hostname` of each physical node within the cluster. For example:

```
root@clust_phy1
```



- d. Complete the remaining fields in the Client window.
  - e. Repeat steps a-d for each virtual node in the cluster.
3. Define save groups as required.
    - a. Open the Solstice Backup `nwadmin` GUI Server window.
    - b. Select `Customize>Groups` from the main menu.
    - c. Select `View>Details` from the main menu.
    - d. Click `Create` to create a new save group. Complete the appropriate fields.
    - e. For each save group, click `Enabled` in the `Autorestart` field.
    - f. For each save group, make sure that the `Manual Restart` option is unchecked in the `Options` field.

---

**Caution** – The only save sets that will be restarted after a virtual client or Solstice Backup server failover are those that belong to a save group where the `Autorestart` attribute is enabled and the `Manual Restart` option is disabled.

---

4. Change the server's save set value from `All` to another value, such as the shared filesystems associated with the Solstice Backup virtual host (refer to the appropriate file in `/etc/opt/SUNWcluster/conf/hanfs`).

**Note:** To restrict the set of Solstice Backup servers that can back up a particular client, edit the `/nsr/res/servers` file and add the Solstice Backup virtual host as well as each cluster node to the list of servers.

5. Verify that the client and group resources have been properly configured by running a test probe. On the node on which the Solstice Backup server resides, run the following command:

```
savegrp -pv -c client_name group_name
```

If the test probe does not display the scheduled back ups and index you had wanted, you can complete one of the following:

- Reconfigure the cluster.
- or
- Enter the following command to bypass the default ownership scheduling rules:

```
touch networker_bin_dir/pathownerignore
```

This command allows any paths to be scheduled for back ups for a Solstice Backup client.

*Note:* A Solstice Backup scheduled save might use a client index name other than the one you want it to. To override this default, run a manual save with the `-c` option or run the following command as a cron job. For example:

```
save -c desired_client_name
```

When Task 3 is completed:

- The Solstice Backup cluster server uses the IP address of the Solstice Backup virtual host regardless of which cluster node currently masters the Solstice Backup virtual server.
- The Solstice Backup cluster server takes the identity of the Solstice Backup virtual server's hostname regardless of which cluster node is currently running the Solstice Backup service.
- The first time Solstice Backup software runs, it creates the client resource for the Solstice Backup virtual host. Client resources must be created manually for any cluster node to be backed up by the Solstice Backup virtual host.

## ▼ To Register Solstice Backup Licenses for Cluster Server Failover

1. Make sure that you have already defined the Solstice Backup virtual server as part of a cluster.
2. Make sure that the Solstice Backup service is running.
3. Log on to the system running the Solstice Backup virtual server.
4. Create a file named `/nsr/res/hostids` that contains the hostids of all the cluster nodes, using the following syntax: `hostid1:hostid2:hostid3:...`

For example:

```
12345678:87654321
```

5. Run the `hostid` command on each cluster node to find the `hostid` values.

- Restart the server by taking the virtual server offline and then putting it back online. For example:

```
% hareg -n networker

% hareg -y networker
```

- Register the Solstice Backup software. For details, see [Chapter 4](#).

Customer Service will then send you your authorization codes using your *composite hostid*. Your composite hostid was created after step 4.

---

## Installing Only the Solstice Backup Client Software

- To install a Solstice Backup cluster client, [“Define the List of Trusted Solstice Backup Servers” on page 38](#)

follow these procedures:

- [“To Install the Solstice Backup Cluster Client Software”](#)
- [“To Configure Solstice Backup Client Software as Cluster-Aware”](#)
- [“To Configure the Clients under the Solstice Backup Server” on page 39](#)

### ▼ To Install the Solstice Backup Cluster Client Software

- Log in as root on the system where you want to install the Solstice Backup software.

Change directories to the location of the Solstice Backup software distribution files. For installation from a local or remote CD-ROM, mount the Solstice Backup CD and then change directories to where it is mounted.

For more information, see one of the following sections:

- [“To Access Installation Files From a Local CD-ROM” on page 14](#)
- [“To Access Installation Files From a Remote CD-ROM” on page 14](#)

2. To start the installation, enter the following command at the system prompt:

```
pkgadd -d SUNWsbuc SUNWsbum
```

3. Make sure that the following steps have been performed:

- a. Install the client software on every node in the cluster that you want to back up.
- b. Configure both physical and virtual client resources.

## ▼ To Configure Solstice Backup Client Software as Cluster-Aware

To define the Solstice Backup application as a cluster-aware application, run the `networker.cluster` script (located in the `/usr/sbin/nsr` directory) on each physical host within the cluster.

1. Log in as *root*.
2. Make sure that the `/etc/hosts` file on each cluster node contains the name of the virtual host. You can also publish the virtual hostname in DNS or NIS.

## Define the List of Trusted Solstice Backup Servers

To define the list of trusted Solstice Backup servers:

1. On one node in the cluster, shutdown the Solstice Backup service using the cluster management software.
2. On each node in the cluster:
  - a. Edit or create the `/nsr/res/servers` file and add the set of Solstice Backup servers, one per line, that you want to grant access to this client.  
  
*Note:* Make sure that the first entry in this file is the virtual hostname for the Solstice Backup service. This entry becomes the default Solstice Backup server.
  - b. Check the Solstice Backup boot-time startup file for `nsrexecd -s` arguments. If they exist, delete the `-s` arguments. The `nsrexecd -s` argument supercedes the `/nsr/res/servers` file.

For example, delete the arguments for `nsrexecd -s` in the file shown below:

```
vi /etc/init.d/networker
nsrexecd -s venus -s mars
```

The nsrexecd daemon named in the file should appear only as:

```
nsrexecd
```

- c. Use the Solstice Backup boot-time startup file to stop and restart the Solstice Backup software. For example:

```
/etc/init.d/networker stop
/etc/init.d/networker start
```

3. On one node in the cluster, start the Solstice Backup service using the cluster management software.
4. On the node that is running the Solstice Backup server:
  - a. Edit or create the `/nsr/res/servers` file and add the set of Solstice Backup servers, one per line, that you want to grant access to this client.
  - b. Make sure that the first entry in this file is the virtual hostname for the Solstice Backup service. This entry becomes the default Solstice Backup server.
  - c. Shut down and restart the Solstice Backup service using the cluster management software.

## ▼ To Configure the Clients under the Solstice Backup Server

*Note:* The Solstice Backup server might reside outside of the cluster.

To configure the Solstice Backup server:

1. Log in to the cluster node that is running the Solstice Backup server.
2. Make each physical node within the cluster a client of the Solstice Backup server. For each physical node:
  - a. Using the `nwadmin` GUI, select Client> Clients Setup.
  - b. Click Create and enter the name of the physical host in the Name field.
  - c. Complete the remaining fields in the Client window.
3. Make each virtual host within the cluster a client of the Solstice Backup server:
  - a. Using the `nwadmin` GUI, select Client> Clients Setup.

- b. Click Create and enter the name of the Solstice Backup server in the Name field.
  - c. In the Remote Access field, enter the *user@hostname* of each physical node within the cluster. For example:  

```
root@clust_phy1
```
  - d. Complete the remaining fields in the Client window.
  - e. Repeat steps a-d for each virtual node in the cluster.
4. Define save groups as required.
    - a. Open the Solstice Backup nwadmin GUI Server window.
    - b. Select Customize>Groups from the main menu.
    - c. Select View>Details from the main menu.
    - d. Click Create to create a new save group. Complete the appropriate fields.
    - e. For each save group, click Enabled in the Autorestart field.
    - f. For each save group, make sure that the Manual Restart option is unchecked in the Options field.

---

**Caution** – The only save sets that will be restarted after a virtual client failover are those that belong to a save group where the Autorestart attribute is enabled and the Manual Restart option is disabled.

---

5. Change the server's save set value from All to another value, such as the shared filesystems associated with the Solstice Backup virtual host (refer to the appropriate file in */etc/opt/SUNWcluster/conf/hanfs*).
6. Verify that the client and group resources have been properly configured by running a test probe. On the node on which the Solstice Backup server resides, run the following command:

```
savegrp -pv -c client_name group_name
```

If the test probe does not display the scheduled back ups and index you had wanted, you can complete one of the following:

- Reconfigure the cluster.
- or
- Enter the following command to bypass the default ownership scheduling rules:

```
touch networker_bin_dir/pathownerignore
```

This command allows any paths to be scheduled for back ups for a Solstice Backup client.

*Note:* A Solstice Backup scheduled save might use a client index name other than the one you want it to. To override this default, run a manual save with the `-c` option or run the following command as a cron job. For example:

```
save -c desired_client_name
```

*Note:* To restrict the set of Solstice Backup servers that can back up a particular client, edit the `/nsr/res/servers` file and add the Solstice Backup host to the list of servers.

---

## Upgrading an Existing Solstice Backup Server to a Cluster-Aware Server

You can upgrade an existing Solstice Backup server (where the computer is the node within the cluster) to a cluster-aware server. To upgrade, you must install the Solstice Backup 6.0 software as a cluster server.

---

**Caution** – You can migrate a noncluster Solstice Backup server to a Solstice Backup cluster server only if the Solstice Backup storage device used on the existing server is one of the devices supported for cluster server failover.

---

### ▼ To Migrate the Existing Server Indexes, Media Database, and Resource File

1. Use the following command to remove the existing version of the Solstice Backup software:

```
pkgrm SUNWsbu1 SUNWsbun SUNWsbu2 SUNWsbuc SUNWsbum
```

**Note:** Do not remove the old `/nsr` directory.

2. Preserve the link to the old `/nsr` directory (located on the old server local disk). Enter the following command:

```
mv /nsr /nsr.old
```

3. Install and configure the Solstice Backup software as a cluster server. This includes connecting the Solstice Backup shared disk to a shared bus in the cluster. See the following sections for detailed instructions:
  - ["To Configure the Solstice Backup Cluster Server"](#)
  - ["To Configure Clients under the Solstice Backup Cluster Server"](#)
4. Make sure that the Solstice Backup software is running on the cluster node where the old `/nsr` directory is located. If it is not, then relocate the directory.
5. On the cluster node running the Solstice Backup virtual server, do the following, as root:
  - a. Stop all Solstice Backup activity by entering the following commands:

```
hares -n networker

nsr_shutdown
```

- b. Remove the default resources that were created when the Solstice Backup virtual server was defined. Enter the following command:

```
rm -rf /nsr/*
```

6. Migrate the indexes, media database, and resource files from the old server to the Solstice Backup cluster server `/nsr` directory, now located on a shared disk, by following these tasks:
  - a. Create a Solstice Backup directive file (for example, `/tmp/directive`) on your source system. Enter these lines in the file:

```
<</>>

forget

ignore

+skip: core

+skip: db.*
```



- b. Change to the `/nsr` directory and use the `uasm` command to move the files from one directory to the other:

```
cd /nsr.old

uasm -s -f /tmp/directive . | (cd /nsr; uasm -rv)
```

7. After migrating your indexes:
  - a. Start the Solstice Backup software on the new server.
  - b. Configure all the devices, including any jukeboxes, for the new server.
8. Take the Solstice Backup virtual server offline and then put it back online:

```
hares -n networker

hares -y networker
```

9. Remove any old device and jukebox resources and reconfigure them to reflect their new location on the shared bus.

---

## Relocating the Solstice Backup Virtual Server

Each time the Solstice Backup virtual server is relocated, the Sun Cluster software shuts down all the Solstice Backup daemons on the cluster node running the Solstice Backup virtual server. It then restarts `nsrexecd` on that system.

The Sun Cluster software then relocates the Solstice Backup virtual server to the assigned cluster node. The `/nsr` link is redefined to point to the Solstice Backup virtual server shared disk: `/nsr -> /virtual_host_name/nsr`. Using the previous cluster example on [page 34](#), the link to the `/nsr` directory is:

- On the cluster node running the Solstice Backup virtual server:

```
/nsr->/clus_log1/nsr

/nsr.Backup.local->/var/nsr
```

- On each cluster node not running the Solstice Backup virtual server:

```
/nsr->/nsr.Backup.local

/nsr.Backup.local->/var/nsr
```

Sun Cluster will not relocate the Solstice Backup virtual server if the storage disk is busy (which could happen if a user has changed to a directory on that filesystem).

---

## Shutting Down and Restarting the Cluster Server

To shut down the Solstice Backup daemon on the cluster server, take the Solstice Backup virtual server offline by running the `hareg -n` command. This cleanly stops all Solstice Backup server activity.

To restart the Solstice Backup daemons on a cluster server manually, set the Solstice Backup virtual server online by running the `hareg -y` command.

---

## Deinstalling and Reinstalling the Cluster Server Subset

This section explains how to deinstall and reinstall a cluster server subset. It contains the following sections:

- [“Deinstalling”](#)
- [“Reinstalling”](#)

### Deinstalling

Deinstalling the cluster server subset runs the `/usr/sbin/nsr/networker.cluster -r` command as part of its cleanup. This turns off and then deregisters the Solstice Backup server when you remove the server subset on the node which presently masters the Solstice Backup virtual server.

To deinstall the server subset on a cluster node, remove the subsets for the server, client, and storage node with the `pkgrm` command.

# Reinstalling

To reinstall the server subset on a cluster node:

1. Take the Solstice Backup virtual server off line using the `hareg -n` command.
2. Remove the Solstice Backup server subset using the `pkgrm` command.
3. Reinstall the Solstice Backup server subset.
4. Reconfigure the cluster node using the `/usr/sbin/nsr/networker.cluster` script.

If the node where you are reinstalling the subset masters the virtual host of the Solstice Backup virtual server, the virtual server will be re-registered and started.

---

## Solstice Backup Cluster Script

This example, generated when you run the `networker.cluster` script, uses the following configuration:

- Two cluster nodes:
  - `clus_phys1`: IP address 16.64.96.28
  - `clus_phys2`: IP address: 16.64.96.30

- Solstice Backup virtual host: clus\_vir1: IP address 16.64.96.31

```

Sun Cluster 2.x installations have a hierarchy of cluster objects
which define high available agents. Each agent is associated with
a virtual host that encapsulates agents and disk groups which may
fail over from one physical host to the next, depending on the
availability and health of the machine it is running upon. When a
failover occurs, this virtual host moves, taking with it its agents
and disk groups.
```

```
To complete this procedure, one must have a virtual host defined
on which the NetWorker agent can be entered.

```

```
Do you wish to continue? [Yes]? yes
```

```
Enter directory where local NetWorker database is installed [/
nsr]? /var/nsr
```

```
Enter virtual host to register networker agent under? clus_vir1
```

```
Have all cluster nodes that can master clus_log1 been configured
[No]? yes
```

```
registering networker agent...
```

```
Apr 15 10:00:58 clus_phys1 ID[SUNWcluster.ha.hareg.3024]: (info)
Agent networker is registered
activating networker agent...
```

```
Apr 15 10:01:09 clus_phys1 ID[SUNWcluster.ha.hareg.1008]: (info)
Agent networker successfully turned on
done.
```

```
NetWorker has been successfully cluster configured
```

# Enabling, Registering, and Authorizing Solstice Backup Software

---

This chapter provides information for enabling your Solstice Backup software for purposes of evaluation and permanent registration. It includes the following sections:

- [“Enabler Codes for Purchased Software”](#)
- [“Enabler Codes for Evaluated Software” on page 49](#)
- [“Purchasing an Enabler Certificate” on page 51](#)
- [“Registering and Authorizing the Software for Permanent Use” on page 51](#)
- [“Managing Your Sun Licenses” on page 53](#)

---

## Enabler Codes for Purchased Software

To permanently use Solstice Backup software, you must purchase an enabler code that permits you to use the software at one of three levels.

**TABLE 4-1** Software Versions

| Software Version Purchased | Features                                                                                                                                              |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| WorkGroup Edition™         | <ul style="list-style-type: none"><li>• Backs up and recovers data from the server and up to three client connections of the same platform.</li></ul> |

**TABLE 4-1** Software Versions

| Software Version Purchased | Features                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network Edition            | <ul style="list-style-type: none"> <li>• Backs up and recovers data from the server and up to nine client connections of the same platform.</li> <li>• Provides support for additional client connections and optional modules.</li> </ul>                                                                                                                                                 |
| Power Edition™             | <ul style="list-style-type: none"> <li>• Backs up and recovers data from the server and the number of clients' workstations of the same platform allowed by your license.</li> <li>• Provides support for additional clients and optional modules.</li> <li>• Tuned for environments with very large databases (VLDB) or large filesystem applications (in the terabyte range).</li> </ul> |

How you enable the Solstice Backup software depends on whether the software you purchased is a first-time purchase, or an updated or upgraded version. See the following table to determine where to obtain the appropriate enabler code:

**TABLE 4-2** Enabler Codes for Purchased Software

| If the Solstice Backup software you purchased:                 | Then use the enabler code:                                                                                                                                                                                                     |
|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Is a <i>first-time purchase</i> of Solstice Backup software    | Found on the Enabler Certificate that was sent separately from the product package.                                                                                                                                            |
| Is an <i>update</i> to your existing Solstice Backup software  | Provided in the letter announcing the updated software release.                                                                                                                                                                |
| Is an <i>upgrade</i> to your existing Solstice Backup software | Found on the Enabler Certificate that was sent separately from the product package.<br><br><i>Note:</i> You must enter the new enabler code to register and authorize Solstice Backup software for the upgraded functionality. |

Once you enable the software, you have 45 days to register it. After you register the product, Sun will send you an authorization code which permanently enables Solstice Backup software.

---

# Enabler Codes for Evaluated Software

Once you install the Solstice Backup software, you have an allotted period of time in which to evaluate it. This evaluation period depends on whether the Solstice Backup server is running in evaluation mode, or is authorized.

## If the Solstice Backup Server Is Running in Evaluation Mode

If you installed the Solstice Backup server software for evaluation purposes, you have 30 days to use the software.

During this 30-day evaluation period, you can elect to purchase your Solstice Backup product. Once purchased, Sun will issue you another enabler code that will permanently enable your Solstice Backup product. For specific rules on the usage of enabler codes, contact your Sun sales representative.

*Note:* If you have *not* purchased and entered a permanent enabler code by the end of the 30-day evaluation period, you will be unable to continue to back up data and recover any data that was backed up during the evaluation period.

---

**Caution** – If you move Solstice Backup software from one computer to another, or change the network address of a computer after the software is installed, you must obtain new authorization code(s).

---

To purchase and register your Sun software for permanent use, see the following sections for details:

- [“Purchasing an Enabler Certificate” on page 51](#)
- [“Registering and Authorizing the Software for Permanent Use” on page 51](#)

## If the Solstice Backup Server Is Permanently Enabled and Authorized

If you already have the Solstice Backup server software enabled and want to *evaluate* any of the optional modules included with this software distribution:

1. Make sure that your Solstice Backup server software is enabled.

2. Enter the evaluation enabler code (shown in [TABLE 4-3](#)) for the product you want to evaluate.

After entering the enabler code, you can evaluate the product for 45 days.

---

**Caution** – The evaluation enabler codes cannot be entered on more than one computer on the network. If you enter the code on more than one computer on the same network, a copy violation error occurs and the Solstice Backup server software is disabled.

---

---

**Caution** – If you have already entered a Network or WorkGroup Edition base enabler, you cannot enter a Power Edition evaluation enabler on a computer. To evaluate Power Edition in an existing Solstice Backup environment, you must delete the base enabler. Call Technical Support for instructions.

---

**TABLE 4-3** Enabler Codes for Evaluated Software

| Solstice Backup Product       | Part Number | 45-Day Evaluation Enabler Code |
|-------------------------------|-------------|--------------------------------|
| Autochanger Module, Unlimited | 2046        | 1d14e0-1fd965-193167           |
| Storage Node 1, UNIX Version  | 2080        | 9b981d-4b67f8-6a65e1           |
| Storage Node 2, UNIX Version  | 2080        | 1c199e-cad879-e9eb66           |
| Storage Node 3, UNIX Version  | 2080        | 9c991e-4a58f9-696ae6           |
| 100 Client Connections        | 2023        | 77e4d7-63d771-728f97           |
| Archive, UNIX Version         | 2030        | da5f5c-9f261d-0c8ba0           |
| Archive, Windows NT Version   | 2930        | 3a21bc-ffc67b-9da800           |
| NetWorker NDMP Connection     | 2032        | ed406f-b10929-cc73b7           |

To purchase and register your Sun software for permanent use, see the following sections for details:

- [“Purchasing an Enabler Certificate”](#)
- [“Registering and Authorizing the Software for Permanent Use”](#)



---

## Purchasing an Enabler Certificate

To obtain enabler codes for your Solstice Backup products, contact the Sun License Center using one of the following methods:

- World Wide Web: <http://www.sun.com/licensing>
- E-mail: [license@Sun.com](mailto:license@Sun.com)
- Voice: 1-801-431-1595
- Fax: 1-801-431-3657

If you lose your license, you can request another via e-mail at:

[lost-license@sun.com](mailto:lost-license@sun.com).

Also, because Solstice Backup licensing is based on the host id, an affidavit of migration must be obtained in order to move the Solstice Backup server to another machine. An affidavit of migration can be requested from the Sun License Center at the locations listed above. Once the affidavit is completed, the license center will issue a new Authorization code.

After you enable the Solstice Backup software, you have 45 days to register it. Sun sends a unique authorization code to you after receiving your completed registration form.

---

## Registering and Authorizing the Software for Permanent Use

At the end of the evaluation period, you must purchase an enabler code and register the product to authorize it and use the feature permanently.

You can use one of the following two methods to register and authorize the software:

- [“Registering Using the World Wide Web” on page 52](#)
- [“Registering by Fax or E-mail” on page 52](#)

## Registering Using the World Wide Web

You can register and authorize Solstice Backup via the World Wide Web. Solstice Backup web authorization can be completed in just a few minutes and is available 24 hours a day, seven days a week. To register and authorize Solstice Backup via the world wide web, simply point your web browser to <http://www.sun.com/licensing> and follow the step-by-step instructions.

## Registering by Fax or E-mail

To register and authorize the software by fax or e-mail:

1. Log in as *root* on the Solstice Backup server.
2. Start the Solstice Backup Administrator program:

```
nwadmin &
```

3. Open the Server window. Fill in the name, address, phone, and e-mail information requested.
4. Open the Registration window and click the Create button.
5. Enter the enabler code in the Enabler Code field.
6. Print the enabler information sheet:
  - a. Select the Tabular option from the View menu.
  - b. Select Print from the File menu.
7. Register and authorize your software. You can either:
  - Fax the output from the Registration window to Sun at 1-801-431-3657.
  - E-mail the output from the Registration window to Sun at [license@Sun.com](mailto:license@Sun.com).

An authorization code that permanently enables the updated Solstice Backup software will be sent for you to enter in the Registration window.

---

# Managing Your Sun Licenses

The License Manager provides a central control point for license management of all your Solstice Backup clients and servers. Instead of managing licenses separately, you can now maintain all your Solstice Backup licenses from a single computer. Installation of the License Manager is an option when installing Solstice Backup software.

Using the License Manager software, you can move the Solstice Backup software from one computer to another or use a new IP address on an existing Solstice Backup server without having to reauthorize the software. For details on using the License Manager, refer to the *License Manager Administrator's Guide*.