



Solstice Backup™ 6.0 Release Notes

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Part No. 806-5610-11
November 2000, [Revision A](#)

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New in This Release

This release supplement contains brief descriptions of new features, known limitations, configuration and installation tips, and workarounds for this release of the Solstice Backup™ software.

New Features

This release of the Solstice Backup software contains several new features and improvements that are described in this section. For information about using the new features, refer to the *Solstice Backup 6.0 Administrator's Guide* and the *Solstice Backup 6.0 Installation Guide*.

Indexing Enhancements

This release offers substantial architectural improvements to the earlier index structures. The changes are mainly transparent in terms of user interaction, but the benefits are significant.

Summary of Indexing Enhancement Benefits

Benefits of the indexing enhancements include:

- Decreased conversion time when upgrading.
- More efficient index cross-checking (for database integrity).
- A more robust and stable database index structure that stores indexes more efficiently.
- Nondestructive index recovery.

- Significantly smaller client file indexes. The size of a client file index is greatly reduced after conversion, even though the number of files it contains increases by orders of magnitude. After conversion, the media database requires approximately twice as much disk space as it did in Solstice Backup 5.x releases. This expansion, however, is insignificant when weighed against the reduction in size of the client file index.
- Support for recovering the index to a specific time.
- Improved availability of the `nsrindexd` program. Expect to see a decrease in “server busy” messages.
- Ability to perform backups after the media database has been converted, and while the client file indexes are being converted.

New Client File Indexing and Media Database Disk Format

The Solstice Backup server maintains one file index for each client computer and one media database that tracks data from all clients and save sets. Each time a backup is completed, the Solstice Backup server creates entries for the backed-up files in the client file index. The media database stores one entry for each save set and storage volume during each backup operation.

This release of the Solstice Backup software requires that the client file index, server index, and media database be converted to a new disk format. Because there is no returning to previous Solstice Backup software releases once the client file index, server index, and media database are converted, be sure to have an up-to-date backup prior to converting them. The first time you run the new version of Solstice Backup software, the indexes and media database are automatically converted. (The Solstice Backup Release 4.2 and later client files indexes and media database are automatically converted, but earlier releases must be recovered from backup.)

Save Set-Based Browse and Retention Policies

The Solstice Backup server uses browse and retention policies to manage the life cycle of data and to control the size of the client file index automatically. The browse policy determines how long files are maintained in the client file index on the Solstice Backup server. The retention policy determines how long save sets are maintained in the Solstice Backup server’s media database. Using Solstice Backup software from this release, you can specify browse and retention policies for each client, each save set, or for groups of save sets. This is a significant change that allows greater browse and retention flexibility.

In earlier Solstice Backup releases, all save sets within a client had to have the same browse and retention policy (because the policies were bound to the save sets at the time `nsr` ran). With this release of the Solstice Backup software, you can have different browse and retention policies for each save set within a client (because the

policies are bound to each save set when the data is saved). You can also change the browse and retention policies of save sets at any time, without affecting the policies of other save sets in the client.

Save Set ID Uniqueness across Solstice Backup Servers

Each client now has a unique ID that is used to identify it in the media database, and for index backups to identify a save set with the client. The client ID is automatically generated by the Solstice Backup server, is unique across servers, and is maintained in the media database. For additional information, see [“Querying the Media Database from Earlier Solstice Backup Clients \(LGTpa22115\)” on page 31](#).

Solstice Backup NDMP

Network Data Management Protocol (NDMP) is a standards-based, storage management client/server protocol for enterprise-wide backup of heterogeneous, network-attached storage. NDMP enables the Solstice Backup 6.0 or compatible software releases to provide connections to computers with NDMP data modules for tape operations, allowing a significant reduction in network traffic and better use of the time window dedicated to backups. NDMP also allows the Solstice Backup software to maintain the client index and media database, as well as control backup operations on a computer with an NDMP service installed.

The Solaris 2.6, 7 (32- and 64-bit), and HP-UX 11.0 (32- and 64-bit) operating systems support the Solstice Backup NDMP module. The Solstice Backup NDMP module is not currently supported by Windows operating systems.

The following NDMP disk and tape services are supported by the Solstice Backup NDMP module:

- NetApp Filer
- EMC Celerra

Supported feature sets include:

- Full and level 1-9 differential backups for EMC and NetApp
- Library sharing (without SmartMedia software)

Note – Customers wishing to use the NDMP feature must install Solstice Backup 6.0, Patch 1. To check for its availability, contact your Sun service representative.

Directed Recoveries Using NDMP

Solstice Backup software with NDMP now supports directed recoveries that allow you to recover backup data to a host other than the one used to back up the original data. The operating system on the target host (*<hostname>*) must be the same as the one used to back up the data.

For destructive recoveries, do one of the following:

- Using the `nwadmin` GUI, set the mount point to:

```
<hostname>::<filesystem>
```

Note – If you are using Data ONTAP™ 6.0, you must add a “/” after the mount point.

- Using `nsrndmp_recover`, enter the following command:

```
nsrndmp_recover -m <hostname>::<filesystem> -r
```

Note – In this command sequence, the host specified is the target host. If a host is not specified, the target is the original application server. The *<filesystem>* variable remains the previously defined filesystem.

For non-destructive recoveries, do one of the following:

- Using the `recover` command, enter the following command:

```
relocate <hostname>::<device>
```

- Using the `nwrecover` GUI, enter in the Relocate field under Options>Relocate:

```
<hostname>::<device>
```

Note – In these command sequences, the host specified is the target host. If a host is not specified, the target is the original application server. The *<device>* variable is the name of the previously defined device.

Snapshot Backup Support with NDMP

NetApp creates two types of filesystem snapshots—those taken at specified intervals and those taken when a backup occurs. The snapshots taken during a backup are automatically deleted when the backup is completed.

Solstice Backup release 6.0 and compatible versions support backing up and recovering the snapshots that are taken at the specified intervals and that are stored in the snapshot directory. For more information about snapshots, refer to the NetApp documentation.

EMC and NDMP

If you are using the Solstice Backup Network Edition or the Solstice Backup Power Edition, the Solstice Backup software with NDMP function supports EMC devices. For additional information about NDMP features, refer to Chapter 12 of the *Solstice Backup 6.0 Administrator's Guide*.

Obtaining Information about NDMP Autochangers

Before you can configure an autochanger for NDMP operation, you must tell the Solstice Backup server the NDMP autochanger handle and the pathname of the media drive. Before setting up an autochanger or configuring the Solstice Backup server for NDMP operation, enable NDMP support on the application server.

How to Find the Autochanger Handle and Pathname for EMC Computers

The autochanger handle and device pathnames can be identified by issuing a list command. To obtain the required information:

1. Halt the datamover:

```
Celerra> server_cpu EMC_hostname -halt now
```

2. Attach and power up the SCSI device.

3. Boot the server:

```
Celerra> server_cpu EMC_hostname -reboot now
```

4. Discover new devices:

```
Celerra> server_devconfig EMC_hostname -probe -scsi -nondisks
```

5. Issue the list command (to get the handles and verify the information):

```
Celerra> server_devconfig EMC_hostname -list -scsi -nondisks
```

The procedure for obtaining the autochanger handle can also be completed through a GUI in the browser.

To access the Administrator's GUI:

1. In the browser window, enter EMC hostIP: 8000.
2. At the prompt, enter your user name and password.
3. Follow the instructions that appear on the screen.

Configuring the NDMP Autochanger

Once you have found the autochanger handle and pathname, refer to Chapter 12 in the *Solstice Backup 6.0 Administrator's Guide* to complete the steps required to configure the autochanger. Once you have created the *ndmpjbconf_NDMPhostname* file, use the **inquire** command with **Option 1, standard**, specified as the **NDMP_type** parameter value to search for available devices. You can then configure those devices for NDMP operations.

Supported Backup Configurations

The Solstice Backup server with NDMP connection supports two configurations for backing up data:

- Local backup
- Three-party backup

Local Backup

The local backup involves a tape device directly attached to the server where the data resides. The data being backed up is sent directly from the NDMP server to its attached autochanger. Configure the Solstice Backup server for NDMP operations as you would for any NDMP backup.

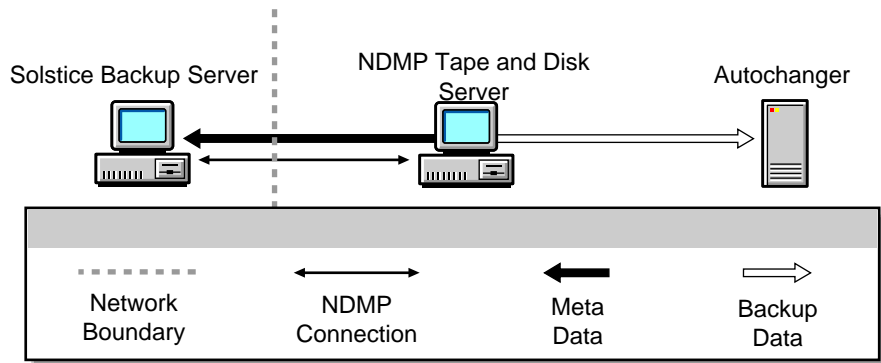


FIGURE 1 NDMP Local Configuration

Three-Party Backup

A three-party backup is completed using two NDMP servers. The data flows from one NDMP server to another NDMP server and then to the autochanger that is attached to the second NDMP server.

Caution – Three-party backups between an EMC NAS device and a NetApp server, or between a NetApp NAS device and an EMC server, must be recovered to the original device.

To perform a three-party backup:

1. Configure the servers as shown in [FIGURE 2](#).
2. Install the Solstice Backup software on the server designated as your Solstice Backup server.
3. You need not install any additional software on the NDMP servers.
4. Configure the Solstice Backup server:
 - a. In the Name field of the Client Resource, specify the hostname of the NDMP server that contains the data to be backed up.
 - b. In the Storage Node field of the Client Resource, verify that the destination server for the data being backed up is listed first.

The client backs up the data to each NDMP server or storage node in the order in which they appear in the attribute. If a successful backup cannot occur with the first NDMP server in the list, the client selects the next server listed in the Storage Node field.

For example, if the data you want to back up is located on a NetApp filer called *venus* and you want to back up the data to another NetApp filer called *mars*, you would list *mars* first and *venus* second in the Storage Node field. Once the data is successfully backed up to *mars*, the backup is finished. If there is a problem with *mars*, the data backs up to *venus*, since *venus* is the next server listed in the Storage Node field.

- c. Complete the rest of the Client Resource and configure the Solstice Backup server as you would for any other NDMP backup.

For instructions on configuring your Solstice Backup server, refer to “Chapter 12: NDMP Support for the Solstice Backup Server” in the *Solstice Backup 6.0 Administrator’s Guide*.

For instructions on performing a backup, refer to the *Sun Solstice Backup Administrator’s Guide*.

FIGURE 2 demonstrates the data flow in a three-party configuration.

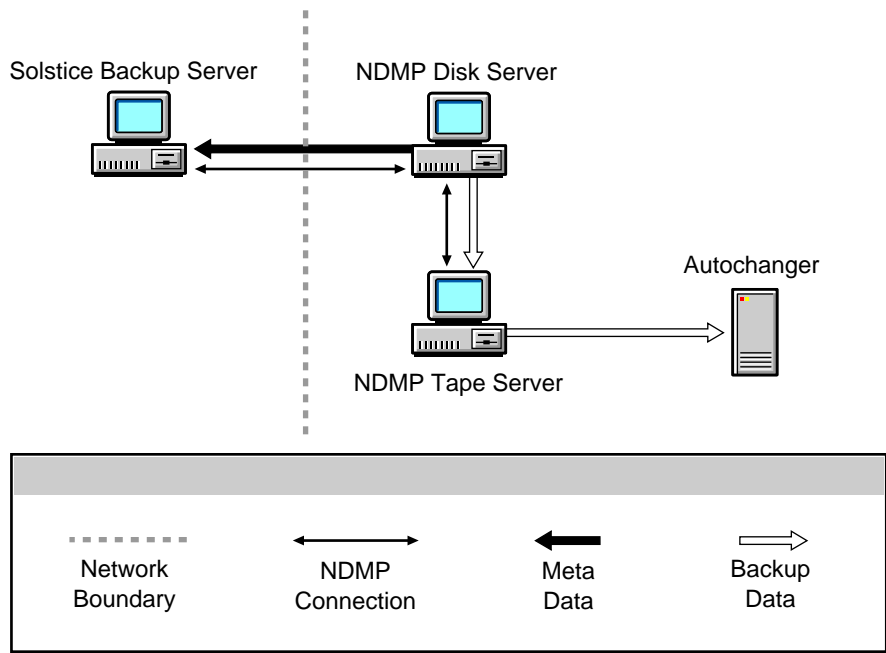


FIGURE 2 NDMP Three-Party Configuration

Optimizing Qtree Backups with NetApp Data ONTAP 5.3.x

If you are using Data ONTAP 5.3.x and are backing up more than eight qtrees on one volume, you might want to use the NDMP logical find option to speed up the backup.

Caution – If you are running Data ONTAP 6.0 or later, do not use the logical find option. The filer automatically selects the optimal backup method.

To enable the logical find option, enter the following command at the filer console's prompt:

```
filer> ndmpd logical_find
```

When the option is enabled, the following message displays:

```
logical find set to: true
```

If the backup speed is not increased by enabling the logical find option, disable the option. To disable the option, type the following at the filer console's prompt:

```
filer> ndmpd logical_find
```

When the option is disabled, the following message displays:

```
logical find set to: false
```

Note – If you reboot the filer, you must enable the logical find option again.

For more information regarding qtrees, refer to your Data ONTAP documentation.

NDMP Memory Requirements

Backing up large numbers of files using a Solstice Backup NDMP server can require a large amount of memory and/or swap space. If the system does not have enough swap space to hold the entire file history, you receive the following error message:

```
cannot decode the file
```

If this happens, try one of the following:

- Increase the swap space. If, after increasing the swap space the backup is still running slowly, try increasing the amount of memory on the system.
- On HP-UX, consider modifying the maxdsiz parameter. For more information, see [“Modifying the maxdsiz Parameter in HP-UX to Accommodate Large Backups”](#) on page 34.

Installing an Autodetected NDMP SCSI Jukebox

When configuring an NDMP autochanger, you should install an autodetected NDMP SCSI jukebox or an autodetected SCSI jukebox.

To determine which option to select:

- If the jukebox is connected to an NDMP tape server and the robot is controlled by the NDMP tape server, select the Autodetected NDMP SCSI Autochanger option.
- If the Solstice Backup backup server or storage node controls the robot and shares the autochanger with an NDMP tape server, select the Autodetected SCSI Autochanger option. Configure the tape drives to be used by the NDMP tape server.

NDMP Licensing Considerations

For performing NDMP backups and recoveries, both an NDMP client connection and an NAS/SAN storage node enabler code must be applied to each NDMP client.

The NDMP feature has been packaged so that the client connection license and the NAS/SAN license are bundled. Be sure to enter all the required enabler codes.

Warning Message with NetApp Recovery

If you are using Data ONTAP 6.0, you may receive an error message while performing a recovery. The error message is similar to the following:

```
NDMP Service Log: RESTORE: WARNING: You are attempting to run
an extraction restore of a full backup image.
```

```
All files will be correctly restored.
```

```
If you intend to restore incremental backups, however,
subsequent restores of those images will not recreate the
file system as it appeared during the final incremental
backup.
```

```
NDMP Service Log: RESTORE: WARNING: Contact Network Appliance
technical support to set up a restore that will properly
handle incremental backups.
```

If you receive this message, contact Network Appliance technical support as directed for additional information.

User Must Be Root for NDMP Backup/Recovery

In order to perform either a backup or recovery operation, the user must be logged in as *root*. If the user is not *root*, the backup or recovery will fail.

Backup and Recovery Support with NDMP (LGTpa22704)

In the current release, the NDMP feature of Solstice Backup supports backing up and restoring data to Solaris or HP-UX clients only. Backing up and recovering data to a Windows client is not supported.

No File Index for Multiple Mount Points on the Same Host (LGTpa24557)

In this release, the Solstice Backup software does not distinguish between mount points and normal directories when sending file history to `nsrndmpix`. For example, if you back up a filesystem mounted on `/mnt2/mnt3` and browse the file indexes for the filesystem, all the indexes display correctly. If you then unmount `/mnt2/mnt3` and later back up only `/mnt2`, `nwrecover` and the **recover** command do not show the directories under `/mnt2/mnt3`. In order to see the indexes from `/mnt2/mnt3`, you must browse the file indexes of the previously backed-up partition.

You can avoid this issue by backing up `/mnt2` first and then backing up `/mnt2/mnt3`. When the backups are completed in this order, all the indexes display correctly.

NDMP Backup Pools (LGTpa23888)

Recovery of an NDMP backup will fail if the volume is loaded in a non-NDMP device. To prevent non-NDMP volumes from being recommended for NDMP backups, create separate pools for NDMP and non-NDMP volumes.

NDMP File Recovery Limitations (LGTpa25216, 24935)

The following file-recovery problems exist in the current release:

- LGTpa25216: For NDMP backups, recovering files from different save sets in a "single recovery" session might fail if both of the save sets were backed up on the same volume. When this occurs, the following message is displayed in the Administrator window and generated in the daemon logs, along with a list of the files that could not be recovered:

```
Failed to open the tape device. Possible error:Restore requests
might be in conflict for the tape resource due to images from
different saves existing on the same tape. User is requested to
try just the failed request later. ABORTING...
```

When doing a disaster recovery, perform a save set recover to avoid this problem.

- LGTpa24935: When performing a recovery while also using Data ONTAP 6.0, you must specify a "/" at the end of the mount point. Otherwise, the recovery will fail. When you specify a "/", the recovery is successful. While performing the recovery, you may receive an error message. For more information about this error message, refer to ["Warning Message with NetApp Recovery"](#) on page 17.

Jukeboxes and Celerra Data Movers (LGTpa25122)

In an NDMP environment, you may only configure one jukebox device per Celerra data mover. If you configure more than one, the `jbconfig` command finds only the jukebox device with the lower target ID.

Support for Large Save Sets and Large Save Set Names

This release of the Solstice Backup software supports save sets that are larger than 2 GB. This eliminates the need to divide large save sets into a series of smaller, "continued" save sets from Solstice Backup 6.0 clients backing up to Solstice Backup 6.0 servers.

The maximum length limit on save set names has also been increased from 64 bytes to 255 bytes. For upgrade considerations, see ["Continued Save Sets Eliminated"](#) on page 26 and ["Save Set Names Longer Than 64 Bytes"](#) on page 26.

New Solstice Backup Data Format

This release of the Solstice Backup software uses an upgraded, 64-bit data format. The new format was introduced to support several of the features that are new in the 6.x releases. They include:

- Indexing and media database improvements
- Support for Solstice Backup NDMP
- Support for save sets that are larger than 2 GB

For upgrade considerations, see ["Changes Resulting from the Improved Save Stream File Format"](#) on page 25.

Cluster Environment Support

A cluster is two or more nodes that are connected and appear to network users as a single, highly available system. A highly available system allows application services to continue despite most hardware or software failures. It does this by providing failover (relocation) capability. The Solstice Backup software supports Sun™ Cluster 2.2.

Error Message Guide

The *Legato Error Message Guide* describes messages and troubleshooting procedures for problems that you might encounter while using the Solstice Backup software. The messages documented in the guide are those that are the most useful and most frequently encountered. The *Error Message Guide* is available on the documentation CD-ROM in your media kit.

Multi-Server Storage Node Sharing with SmartMedia

If you manage storage media using the latest version of the Legato GEMS SmartMedia software, this release of Solstice Backup software allows you to configure multiple Solstice Backup servers to share a single storage node. The requirements are as follows:

- All volumes, drives, and autochangers on a shared node must be managed by Legato GEMS SmartMedia software.
- A Solstice Backup server that shares a node must have only Legato SmartMedia devices defined on that node.
- You must assign a unique name to each autochanger on a shared node; names are not automatically assigned.
- You must upgrade Solstice Backup servers to the current release before upgrading the storage nodes.

See [“Upgrading Storage Nodes” on page 28](#) for upgrade considerations.

To learn more about Legato GEMS SmartMedia availability and support, please contact Legato Systems at sbu-sales@legato.com.

Directed Cross-Platform Recovery

Directed cross-platform recovery allows you to recover backed-up data remotely from a Solstice Backup client (the source client) and direct it to another Solstice Backup client (the destination client) within an enterprise. The destination client receiving the recovered data can be the source client itself, another Solstice Backup client within the enterprise, or another client computer from which you are completing the recovery.

Directed recovery:

- Includes all of the Solstice Backup standard file-handling features.
- Is useful in recovering data from a shared server or other computer where users cannot recover the data themselves.
- Allows you to perform the recovery remotely—from your own computer—rather than from the source computer.
- Permits recovered data to be directed to Solstice Backup client computers other than the requesting one. This allows the sharing of files and information among a broad range of Solstice Backup client computers.

You can use the Solstice Backup software to administer directed recoveries between UNIX[®]-based and Microsoft Windows-based Solstice Backup clients by entering Solstice Backup commands at the command line. For information about these commands, refer to the `recover(1m)` man page. The `nwrecover` program does not support directed recovery.

You can perform directed recoveries of data between different combinations of Microsoft Windows-based and UNIX-based source and destination clients. You must, however, have established the proper remote access requirements for the clients and the Solstice Backup server that backs up their data. The source and destination clients must also be of the same type (either both Microsoft Windows-based, or both UNIX-based).

In this Solstice Backup release, the save stream format is different from the format in previous releases. Therefore, you cannot use an earlier Solstice Backup release to recover data that was backed up using the current Solstice Backup release.

Legato License Manager

The Legato License Manager is not supported with Solstice Backup.

Resource Allocation Protocol (RAP) Size Restriction Removed

You can now make resource values, such as directives and archive annotations, larger than 1 KB and store larger amounts of data in single RAP values. For upgrade considerations, see [“Administering Solstice Backup 6.x Servers from Earlier Clients” on page 28](#).

Fixed Bugs

TABLE 1 contains descriptions of bugs fixed in this release of the Solstice Backup software.

TABLE 1 Fixed Bugs

Number	Bug Description
LGTpa10409	When an unmount operation failed, there was no indication to the calling function, so no error information was logged. This problem has been resolved.
LGTpa15642	The <code>nsrexecd -p</code> option did not relocate <code>save</code> and <code>savefs</code> . The state of the jukebox inventory is now updating correctly and the <code>nsrjb</code> command is running normally. This problem has been resolved.
LGTpa15841	The <code>nsrjb -H</code> (reset) option was running longer than usual. This was because the state of the jukebox inventory was not updating correctly when drives were unloaded. This problem has been resolved.
LGTpa16005	The online Help description of Force Incremental attribute needed clarification. Additional information is now available.
LGTpa16060	The cleaning tape usage count was falling below 0, causing the backup to wait for a cleaning tape, and then fail. This problem has been resolved.
LGTpa17452	The “pending tape request” message was not clearing after a “stop group” command was issued for the group with which the message was associated. This problem has been resolved.
LGTpa17909	When the Solstice Backup service was taken off line, the <code>/nsr</code> symbolic link was not being removed and correctly redefined, causing an error the next time the Solstice Backup service was started. The symbolic link removal and definition have been modified to include force options. This problem has been resolved.

TABLE 1 Fixed Bugs (*Continued*)

Number	Bug Description
LGTpa18285	The <code>nsrmmmd</code> command failed to relinquish a volume after a media error. This problem has been resolved.
LGTpa18388	The number of tape cleanings was being reset erroneously to its original value after a hardware reset. This problem has been resolved.
LGTpa18404	During a certain sequence of port configurations and View Details settings, the <code>nsrd</code> daemon was dumping core. This problem has been resolved.
LGTpa18494	An error message was received from the Legato GEMS software, because the license table was out of sync. This problem has been resolved.
LGTpa18821	The <code>mminfo</code> command did not previously report save set and volume recycle dates. This problem has been resolved.
LGTpa19175	When a client was defined using specific save sets rather than selecting All, and if the number of save sets was large, the <code>savegrp</code> command reported that the backup was successful, although some save sets had not actually been backed up. This problem has been resolved.
LGTpa19210, LGTpa19534	The <code>nsrd</code> command was dumping core due to a message timing problem. This problem has been resolved.
LGTpa19961	The Solstice Backup software was unnecessarily labeling blank tapes in the jukebox under certain circumstances. This problem has been resolved.
LGTpa20020	The error message “ <code>mminfo: media database is not responding</code> ” occurred when using the <code>sapclone -s</code> option from the client in order to clone SAP save sets. This happened because the <code>mminfo</code> command was not using the server name correctly to query the media database. This problem has been resolved.
LGTpa20094	If an NFS client initiated a recall of previously migrated files, and then encountered a requested file with a corrupted (inaccessible) index entry, the <code>/stackfs</code> filesystem could become inaccessible. All recalls started from other NFS clients or a Solstice Backup server could then fail without showing an error message, and NFS could hang. At the same time, enough lines could be written to the <code>daemon.log</code> file to fill the filesystem. This problem has been resolved.
LGTpa20133	Users were not being notified about certain unresolved clients that were not being backed up. The clients were being dropped from the <code>savegrp</code> notification if any another client failed. On skip days, no backup failure would occur, and the following error message would be generated: “ <code>hostname resolution failed for X client(s)</code> ”. This problem has been resolved.

TABLE 1 Fixed Bugs (*Continued*)

Number	Bug Description
LGTpa20829	Index merging at the end of backing up a filesystem using NDMP was taking a long time. This problem has been resolved; <code>nsrdmpix</code> has been optimized.
LGTpa20920	A device that was restricted to a particular pool would wait for a volume to which to write, and if it happened to find another device that had "auto media management" set (and contained a writable volume), it would write to it. This problem has been resolved. Device restriction now checks the pool name before mounting and cloning a new volume.
LGTpa20948	Directory names that contained the ")" character were not being included in save sets. This problem has been resolved.
LGTpa21332	A request was received that popup lists of clients in the GUI be limited to clients that can be browsed from the host on which the GUI client is running. This request has been implemented.
LGTpa21691	Tapes belonging to a pool that should not have been allowed to use a particular drive were nevertheless being inserted into that drive and overwritten. The Solstice Backup software now checks a volume's pool restrictions before writing to it. This problem has been resolved.
LGTpa21703	The file owner and group were not being listed in the recover listing of backed up files. This was the result of a typographical error in the directive. This problem has been resolved.
LGTpa21778	The Legato NetWorker Module for Oracle and Sun Storage Manager were re-setting user IDs that had been changed by Oracle code, causing permissions problems during backups. This problem has been resolved.
LGTpa21940	The 64-bit device driver for the HP SureStore 160ex Optical Jukebox had not been packaged for Sun Solaris™. This problem has been resolved.
LGTpa22093	A request to have manual command line or GUI operations logged in <code>daemon.log</code> has been implemented.
LGTpa22460	The <code>savegrp</code> command was not backing up files in the bootstrap backup set if the files were symbolic links. This problem has been resolved.
LGTpa22594	The 3590E jukebox device was not supported on the HP-UX platform. This problem has been resolved.
LGTpa23559 LGTpa24279	Nondestructive NDMP recoveries were failing with permission errors when more than one client resource was on the same host. This problem has been resolved.

TABLE 1 Fixed Bugs (*Continued*)

Number	Bug Description
LGTpa23800	The ADIC Emass Grau DAS Silo was not previously supported. It is now supported, although not currently on the AIX and HP-UX platforms.
LGTpa23816	A jukebox cleaned its drive each time a tape was mounted, because the Date Last Cleaned attribute of the device resource was not being updated. This problem has been resolved.
LGTpa24649	The <code>savefs</code> command was not correctly reading the list of configured ports, and selected the default port setting instead. This problem has been resolved.
LGTpa24871	When you performed an NDMP recovery on a physically write-protected tape, an error message appeared. To continue the recovery, the tab would have been moved to write mode. This problem has been resolved.
LGTpa24907	With a NetApp filer, if more than one save set was backed up simultaneously through the Client resource, you might not have been able to recover one of the save sets. This problem has been resolved.
LGTpa25542	Erroneous records might be improperly created in the media database. The Solstice Backup release 6.0 software purges these error-prone records. The problem has been resolved in Solstice Backup release 6.0.x. A utility is available from Sun Technical Support to identify and correct the problem in release 6.0.

Installation and Upgrade Notes

This section includes topics relevant to installing and upgrading the Solstice Backup software.

Changes Resulting from the Improved Save Stream File Format

A new save stream file format has been implemented in this release. The new format makes possible many of the enhancements and new features, such as NDMP, large save sets, and the new media database.

Because the new format is significantly different, some backward incompatibility will result if you mix Solstice Backup 6.x clients or servers with pre-6.x Solstice Backup clients or servers. Limitations encountered as a result of the new file format can be resolved by upgrading to the Solstice Backup 6.x client and server software.

This section describes areas in which a file format mismatch would be evident.

Continued Save Sets Eliminated

The new, 64-bit format eliminates the need for continued save sets when saving data. To use the larger save sets, the clients and servers must both be running the Solstice Backup 6.x software. As a result of this change, the Save Set Cutoff value in the Server resource is no longer used unless the client software is earlier than the Solstice Backup 6.x release. A value in this field is ignored if you are backing up a Solstice Backup 6.x client.

Save Set Names Longer Than 64 Bytes

With this release, the 64-byte size limitation on save set name lengths has been removed. You can now create save set names up to 255 bytes long. To use the longer names, the clients and servers must both be running the Solstice Backup 6.x software.

Saving and Recovering between Different Releases

Using the new save stream format, you can easily recover data saved in either the Solstice Backup 5.x or 6.x format. The format change is transparent to you unless you have data saved in the new format and try to recover it using the earlier format. The earlier format is unable to recover the more recent format.

TABLE 2 lists the possible combinations and their results.

TABLE 2 Save Stream Matches and Mismatches

Saved From and To	Recovered By	Recovery Successful?
6.x client to 6.x server or storage node	6.x client	Yes
6.x client to 5.x server or storage node	6.x client	Yes
5.x client to 6.x server or storage node	6.x client	Yes
5.x client to 5.x server or storage node	6.x client	Yes
6.x client to 6.x server or storage node	5.x client	No

TABLE 2 Save Stream Matches and Mismatches

Saved From and To	Recovered By	Recovery Successful?
5.x client to 6.x server or storage node	5.x client	Yes
6.x client to 5.x server or storage node	5.x client	Yes
5.x client to 5.x server or storage node	5.x client	Yes

You might receive the following error message:

```
recover failed:Error receiving files from NSR server '<server>'
```

under either of the following conditions:

- An attempt is made to recover files backed up by the Solstice Backup 6.x software using Solstice Backup 5.x software, and the new save stream format is not recognized by a 5.x client.
- The parallelism value is set too high, causing the recovery session to fail.

To solve this problem, do any of the following:

- Upgrade the client from Solstice Backup 5.x software to Solstice Backup 6.x software.
- Recover the file to a client that has Solstice Backup 6.x software installed.
- Decrease the parallelism value setting in the Client or Server resource. This should improve recovery performance.

Cross-Release Tape Volumes

Once a Solstice Backup 6.x server or storage node is used to write a tape volume, that volume can no longer be read by the server or storage node from an earlier release. This includes labeling operations, as well as writing save sets. There is no problem when pre-6.x volumes are read by pre-6.x storage nodes, even when the server controlling the node is running release 6.x (a common situation if, for example, a storage node has its own jukebox). A volume that has been written by a Solstice Backup 6.x server or storage node, however, cannot be used by a pre-6.x storage node.

The restriction also applies to a shared jukebox configuration, where tape volumes might readily be read by any host (server or storage node) connected to the jukebox. To avoid the problem, once the server—or any storage node connected to a 6.x server—in the configuration is upgraded to the Solstice Backup 6.x software, upgrade all components to the Solstice Backup 6.x software.

All servers and storage nodes running the Solstice Backup 6.x software can read from, and append to, tape volumes from all releases of Solstice Backup software.

Upgrading Storage Nodes

Storage nodes running this release will not work with servers running earlier releases. You should upgrade servers before upgrading storage nodes.

Administering Solstice Backup 6.x Servers from Earlier Clients

With this release, you can create Solstice Backup resources (such as directives and archive annotations) with Resource Allocation Protocol (RAP) values that are larger than 1 KB. The 1-KB size limitation has been removed. Clients running the Solstice Backup 5.5.x administration program, however, do not support resource values larger than 1 KB. Consequently, to use the larger resource values, clients and servers must both be running Solstice Backup 6.x software. Once the server contains resource values larger than 1 KB, it is important that all administration programs be upgraded.

Backup and recovery operations are not affected by this incompatibility. Only administration programs are affected.

The Update Enabler Code

If you have an enabler code for an earlier release of the Solstice Backup product and are installing this Solstice Backup release as an update, you received an update enabler code. You need not remove the original enabler code from your Solstice Backup server in order to enter the update enabler code.

After entering the update enabler code, register and authorize it, according to the instructions in the *Solstice Backup 6.0 Administrator's Guide*.

Known Limitations

This section describes known limitations, configuration tips, and workarounds in this release of Solstice Backup software.

Limitations in Platform Support

This section describes platform-related limitations.

The nsrmmd Daemon Drops All Save Connections Simultaneously on HP-UX (LGTpa12605)

When using Solstice Backup 5.5.x or 6.x on HP-UX, release 11.x, you might encounter the following situation: during a large backup, the nsrmmd daemon drops all the save connections simultaneously. This situation is generally limited to earlier models of HP-UX computers. (The problem was seen on some earlier D-class s800 servers with HP-IB interface cards. Later s800 servers with HSC/GSC/PCI cards do not exhibit the problem.)

To prevent this situation from recurring:

1. Enter the following command to create a noreadv file in the `/nsr/debug` directory:

```
# touch /nsr/debug/noreadv
```

2. Enter the following command to stop and then restart the Solstice Backup daemons for the change to take effect:

```
# nsr_shutdown
```

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

Issue with Mounting Clone Devices on Linux and Solaris

If you perform cloning with the nwadmin GUI on Linux or in the Solaris operating environment, a core dump results from the following workflow:

When you begin the cloning operation, you open the Save Set Clone and the Save Set Clone Status windows. If the clone medium is unmounted when you click Start to launch the actual cloning operation, nwadmin shows a “media waiting” event. Closing the two “child” windows—Save Set Clone and Save Set Clone Status—before mounting the clone device in the “parent” nwadmin GUI (by clicking on the Mount button) causes a core dump, even though the clone operation is successful.

To prevent this, implement either of the following two solutions:

- Ensure that your devices are ready before launching the clone operation.
- Leave the Save Set Clone and the Save Set Clone Status windows open while mounting the device.

Optical Disk Restriction on AIX (LGTpa21747)

If you are running the Solstice Backup software under AIX 4.3.2 and attempt to perform a backup using either an IBM® 3995 or HP-C1160 optical library that spans more than one volume, the backup operation will fail after the first volume is filled.

Online Help Restriction on AIX (LGTpa21975)

When using the Solstice Backup client software on AIX, the online Help is currently inaccessible through the usual method. If you cannot access the online help, set the language environment variable manually before running the `nwadmin` program:

```
hostname> setenv LANG C

hostname> nwadmin
```

Using the `jbconfig` Command with Sun StorEdge RAID Manager

When Sun StorEdge™ disk arrays are used in conjunction with the Sun StorEdge RAID Manager, the `inquire` program may take an unexpectedly long time to complete. The `jbconfig` command uses the `inquire` program to obtain information about autochangers that are attached to the system.

One possible workaround for this problem is to stop the RAID Manager daemons before running `jbconfig`. One disadvantage of this workaround is that RAID Manager features, such as disk failover protection, are not operational during this period. However, `jbconfig` is usually run only during installation and initial configuration of the Solstice Backup software, and subsequently when adding autochanger hardware to the system. Often these tasks are performed during scheduled system maintenance periods when shutdown of the RAID Manager software is acceptable. If you want the `jbconfig` program to complete rapidly, then it is best to use `jbconfig` during scheduled system maintenance periods after stopping the RAID Manager daemons.

Another possible workaround for this problem is to allow the `jbconfig` command to execute with the RAID Manager daemons still running. If this method is used, `jbconfig` may take a long time to complete, and this may cause unacceptable system performance issues.

Limitations in Feature Support

This section describes feature-related limitations.

Querying the Media Database from Earlier Solstice Backup Clients (LGTpa22115)

This release introduces save set names and client names that are unique across Solstice Backup servers. If you are using a Solstice Backup client and Solstice Backup server running the current release, the `mminfo` program output displays these unique client names as:

```
index:<clientname>
```

Release 5.x and earlier Solstice Backup clients are unable to display the cross-server name information in an easy-to-read format. Consequently, if you run the `mminfo` program from a 5.x or earlier client, specifying a Solstice Backup server that runs the current release, an example of the unique client name output displayed is:

```
index:dbe4e3d0-00000004-3957b0d5-3957b0d4-00010000-8945081f.
```

While this string of characters properly identifies the client name to the Solstice Backup server, it is not easy to read. To avoid this problem, upgrade the Solstice Backup client to the current release.

Unsupported Products

Sun does not support the following products found on the NetWorker Application Modules CD-ROM, included in your media kit:

- Legato NetWorker Module for EMC Symmetrix for SAP R/3 on Oracle
- Legato NetWorker Module for EMC Symmetrix for Oracle

For more information about these products, contact Legato Systems at sbu-sales@legato.com.

Cross-Platform Browsing of SYSTEM Save Sets (LGTpa17537)

At this time, cross-platform browsing of SYSTEM (SYSTEM STATE and SYSTEM DB) save sets is not supported.

Two-Tape Recoveries Using a Stand-alone Tape Device (LGTpa25779)

If you configure a tape device as a stand-alone device for a backup that spans more than one tape, then you must load the *first* tape in the tape device before you can recover data from that backup. If you start a recovery operation with the second tape loaded in the tape device, the recovery will fail.

If you configure a tape device as a jukebox, rather than as a stand-alone device, this problem does not occur. This problem is seen only in 64-bit operating systems.

Directed Recovery across Networks

When you attempt a directed recovery from a client on one network to a client on another network, the recovery might fail with the following message being displayed:

```
RPC error,unknown host
```

To complete a directed recovery from a client on one network to a client on a different network, you must edit the Server Network Interface attribute in the Client Setup GUI of the source client.

To edit the attribute:

1. In the `nwadmin` GUI, select Client Setup>Client for the source client.
2. Select View>Details.
3. Remove the name of the server of the Source Client from the Server Network Interface attribute. Leave the attribute blank.
4. Complete the directed recovery.

Caution – After you have completed the directed recovery, you must replace the server name in the Server Network Interface attribute of the Source Client. If you leave this attribute blank, you will not be able to complete standard backups and recoveries on the network.

Client Backups Timing Out Due to the Inactivity Timeout Feature (LGTpa23831)

The inactivity timeout feature causes a client backup to be abandoned after the period of time designated. The default value of 30 minutes can significantly increase the number of client backups that time out in a large-scale network environment. If you find these errors being persistent, first ensure that your net or sub-net is not overly congested.

To avoid too many timeouts, do one of the following:

- Set the inactivity timeout value to 0, which disables the feature. Disabling this feature has the side effect of causing the `savegrp` command to hang if a client fails to respond, and it will require manual intervention to shut down the `savegrp` session.
- Increase the value to reflect the time necessary for the client to respond. If you want to use the inactivity timeout feature, you should carefully consider and test the value to avoid too many timeouts.

To change the inactivity timeout value:

1. In the `nwadmin` GUI, select Manage Groups>Groups.
2. Select a group to edit.
3. In the General tab of the Edit Group Default window, change the Inactivity Timeout value.

Browse Time in Command Line for Linux and Sequent (LGTpa22367)

In this release, Change>Browse Time does not function in the `nwrecover` GUI, either for entering a date by hand or making a selection. The workaround is to use the command line to set the browse time with the `-T` option before launching `nwrecover`, or to use `recover` from the command line.

Character Limitation in Volume Browse (LGTpa24879)

In this release, if you specify a volume name that is longer than approximately 15 characters, the volume name is truncated in the Volume Browse window. Due to this truncation, you will not be able to determine the number of the volume when viewing the name in the Volume Browse window.

ADIC Emass Grau DAS Silo Not Currently Supported on AIX or HP-UX (LGTpa25307, 25602)

The Solstice Backup client and storage node software does not support the ADIC Emass Grau DAS silo on AIX or HP-UX at this time.

Only US-ASCII 7-Bit Characters Supported (LGTpa24483)

This release supports only US-ASCII 7-bit characters in resource names and attributes. Do not use multi-byte characters, such as Chinese or Japanese, or Roman-language characters that include non-US markings (for example, accents or umlauts), to complete attribute fields such as Schedule, Group, or Storage Node. All resource names and attributes must use US-ASCII 7-bit characters.

You may, however, use multi-byte language characters or Roman-language characters with non-US markings as filenames. For further information regarding alphanumeric characters that can be used in Solstice Backup field names, refer to the *Solstice Backup 6.0 Administrator's Guide*.

NDMP Limitations

The feature description [“Solstice Backup NDMP” on page 9](#) includes information about NDMP-related limitations in this release.

Configuration Tips

This section describes configuration tips.

Modifying the `maxdsiz` Parameter in HP-UX to Accommodate Large Backups

On an HP-UX system where you are installing the Solstice Backup client software, verify that the Process Maximum Heap Limit parameter for the kernel (`maxdsiz`) is large enough to accommodate backups of one million files or more. You do this by changing the `maxdsiz` parameter to 2 GB using the `sam` utility.

To change the `maxdsiz` parameter:

1. As *root*, run the `sam` utility.
2. Select the Kernel Configuration option.

3. Select Configurable Parameters.
4. Select the `maxdsiz` parameter.
5. Change the value of the `maxdsiz` parameter to 2 GB.
6. Recompile and reboot the kernel.

Important Notes and Tips

This section contains important notes and tips on using Solstice Backup software.

Partitioning Recommended for Large Backups

It is strongly recommended that you partition larger backups, depending upon the capacity of your tapes and your recovery speed. Partitioning larger backups allows you to recover data in less time and lessens the risk of backups failing.

Reclaim Index Space Feature

Index enhancements in this release have made it unnecessary to reclaim unused index space manually. Consequently, the Reclaim Index Space feature is no longer supported in the current Solstice Backup release, although its buttons are still present in the Solaris interface. You may ignore them.

Inactivity Timeout Feature

For information about client backups timing out due to this feature, see [“Client Backups Timing Out Due to the Inactivity Timeout Feature \(LGTpa23831\)”](#) on page 33.

NDMP User Name and Password Consideration

If you define multiple of a client, all of the instances must share a single NDMP user name. All of the instances must share a single NDMP password, as well. (The user name and user password should not be the same, however). If you use more than one user name, more than one password, or a blank for any instance, you will not be able to recover the data.

Display of Server and Client Counts in Solstice Backup Registration Information

In the `nwadmin` Registration window, the base enabler displays either the number of clients or servers, depending on the type of enabler used:

- If you have a bulk enabler, the quantity displayed is the number of servers.
- If you have a single enabler, the quantity displayed is the number of clients.

For UNIX platforms, the main `nwadmin` window also displays the number of clients, regardless whether the enabler is single or bulk. (For the Power Edition, which includes two cluster clients, this number will be two more than the number of normal clients.) In this window, "Turbo" is the name displayed for WorkGroup and Network Edition base enablers; "Extended" is displayed for Power Edition base enablers.

Authorizing Solstice Backup Software

To obtain Authorization 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
- Voice: 1-801-431-1595
- Fax: 1-801-431-3657

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

lost-license@sun.com.

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.

Note – The Solstice Backup 6.0 Roadmap (part number 806-5609-10) incorrectly mentions purchasing an enabler certificate on page 32. This is not correct. You are required to obtain—*not purchase*—Authorization codes as explained above.

Documentation Errata

This section updates your Solstice Backup documentation. The page numbers in the headings refer to a location in the original documentation.

Solstice Backup 6.0 Administrator's Guide

The following sections contain corrections to the *Solstice Backup 6.0 Administrator's Guide*, part number 806-5607-10.

Save Set Recovery (page 230)

The note on this page states:

Note – To perform a save set recovery, you must be listed as an administrator in the Solstice Backup server's resource, or your hostname or *user@hostname* must be entered in the Solstice Backup client resource's Remote Access attribute of the client that is providing the backed up data.

The text in this note should be replaced with the following:

Note – Only `root@networkerserver` has the permission to perform a save set recovery and, in the case of a remote client, `root@networkerserver` must be entered in the Remote Access list of the client that provides the backed-up data.

The example that follows illustrates how to complete Remote Access entry correctly.

Example: Save Set Recovery

If a machine named `saturn` is being backed up by the Solstice Backup UNIX server `jupiter`, you must do the following to perform a save set recovery on `saturn`:

1. Log in as “*root*” on the server `jupiter`.
2. Start the Solstice Backup Administrator program and connect to the server `jupiter`.
3. Select Client>Client Setup for the client `saturn`. Make sure that the Remote Access attribute contains an entry for `root@jupiter`.
4. Complete the instructions in “To Recover Data from a Save Set” in Chapter 7 of the *Solstice Backup 6.0 Administrator's Guide*.

Important Notes on Swap Space (page 343)

The last sentence in the first paragraph of this section states:

Backups and retrievals fail if there is an *adequate* amount of swap space.

This sentence should state:

Backups and retrievals fail if there is an *inadequate* amount of swap space.

Solstice Backup 6.0 Installation Guide

The following section replaces pages 28 to 41 in the *Solstice Backup 6.0 Installation Guide*, part number 806-5610-11.

Installation Requirements for a Sun Cluster Environment

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](#)” on page 39
- “[Hardware Requirements](#)” on page 39
- “[System Information Requirements](#)” on page 39

For the most up-to-date information regarding software and hardware requirements, refer to the Legato Compatibility Guide (www.legato.com).

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 in the *Solstice Backup 6.0 Installation Guide*.

Hardware Requirements

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

- Hardware requirements listed in Installation Requirements in the *Solstice Backup 6.0 Installation Guide*.

System Information Requirements

[FIGURE 3](#) and [TABLE 3](#) 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 a logical host*

An *agent* is the same as a *data service*.

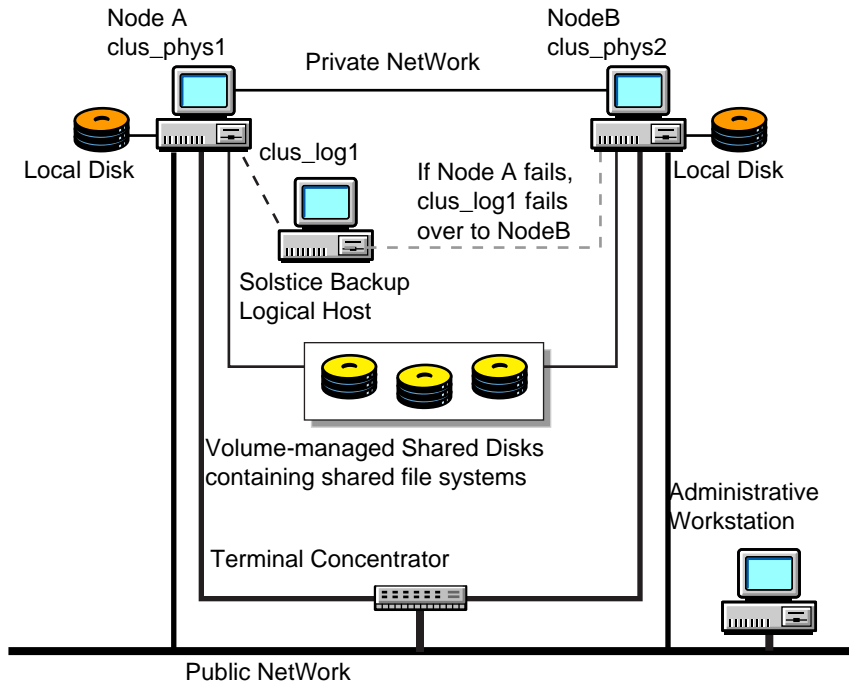


FIGURE 3 Sample Cluster Configuration

The cluster server's `/nsr` directory (`/logical_host_name/nsr`) must contain sufficient space for the Solstice Backup virtual server to operate. The logical host must have sufficient space within its disk group(s)—as illustrated in [FIGURE 3](#)—to contain `/logical_host_name/nsr`.

TABLE 3 Required Information

Information Required	Example
Solstice Backup logical host with IP address in the same subnet as the cluster nodes	clus_log1, 16.64.96.31
Solstice Backup package mount point for virtual volume	/clus_log1
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” on page 41](#)
- [“To Define the Solstice Backup Server as a High Availability Application” on page 42](#)
- [“To Define the List of Trusted Solstice Backup Servers” on page 43](#)
- [“To Configure the Solstice Backup Cluster Server” on page 45](#)
- [“To Configure Clients under the Solstice Backup Cluster Server” on page 45](#)
- [“To Register Solstice Backup Licenses for Cluster Server Failover” on page 47](#)

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.

Note – You must install the Solstice Backup Software locally on each node in the cluster.

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 of the Solstice Backup 6.0 Installation Guide:

- To Access Installation Files From a Local CD-ROM.
- To Access Installation Files From a Remote CD-ROM.

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

```
# pkgadd -d .
```

3. When the following system prompt is displayed, enter the name of the logical host:

```
# Enter the first NetWorker Server's name [no more]
```

▼ 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 node within the cluster.

Caution – Configure the node mastering the logical host last.

Note – You can also use the Cluster Console GUI to run the configuration simultaneously on all cluster nodes.

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 the Solstice Backup Cluster Script in the *Solstice Backup 6.0 Installation Guide*.

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.

▼ To 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.

```
# hareg -n networker
```

2. On a node in the cluster:
 - a. Edit or create the `/nsr/res/servers` file.
 - b. Add the set of Solstice Backup servers, one per line, that you want to grant access to this client. The client in this case is the physical node on which you are defining the list of trusted Backup servers.

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.

- 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 stop and restart the Solstice Backup software. For example:

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

Note – After you have completed defining the list of Trusted Solstice Backup Servers, you must select one node in the cluster to create a second instance of the default servers file. You must start the logical host to create the second instance of the `/nsr/res/servers` file. This creates a link pointing to the shared disk. The following steps explain this process.

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>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 `Clients>Client 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 `Clients>Client 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
```

6. 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 backups 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
```

After the list of trusted Solstice Backup servers has been defined:

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

```
% hares -n networker  
  
% hares -y networker
```

7. Register the Solstice Backup software. For details, refer to the *Solstice Backup 6.0 Installation Guide*.

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, follow these procedures:

- [“To Install the Solstice Backup Cluster Client Software” on page 48](#)
- [“To Configure Solstice Backup Client Software as Cluster-Aware” on page 49](#)
- [“To Define the List of Trusted Solstice Backup Servers” on page 49](#)
- [“To Configure the Clients under the Solstice Backup Server” on page 51](#)

▼ To Install the Solstice Backup Cluster Client Software

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 of the *Solstice Backup 6.0 Installation Guide*:

- To Access Installation Files From a Local CD-ROM
- To Access Installation Files From a Remote CD-ROM

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.

▼ To 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.

```
# haresg -n networker
```

2. On each node in the cluster:
 - a. Edit or create the `/nsr/res/servers` file.

- b. 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.

- 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 stop and restart the Solstice Backup software. For example:

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

Note – After you have completed defining the list of Trusted Solstice Backup Servers, you must select one node in the cluster to create a second instance of the default servers file. You must start the logical host to create the second instance of the `/nsr/res/servers` file. This creates a link pointing to the shared disk. The following steps explain this process.

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 `Clients> Client 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 `Clients> Client 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.
