



Sun StorEdge Enterprise Backup Software™ 7.1

Release Notes

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Sun StorEdge EBS Software Release 7.1

Sun StorEdge EBS software release 7.1, contains new features and improvements. This chapter discusses the following topics:

- [“Related Documents” on page 1](#)
- [“New or Enhanced Features” on page 2](#)
- [“Installation and Update Notes” on page 7](#)
- [“Important Notes and Tips” on page 8](#)
- [“Known Limitations” on page 14](#)
- [“Documentation Corrections and Additions” on page 39](#)

Note – In this document, the term “jukebox” refers to a variety of backup devices: autochanger, autoloader, carousel, datawheel, jukebox, and near-line storage.

Related Documents

The following documents, available on the Sun web site at www.sun.com, provide further information about the Sun StorEdge EBS software:

- *Sun StorEdge Enterprise Backup Software Administrator’s Guide, Release 7.1*
- *Sun StorEdge Enterprise Backup Software Installation Guide, Release 7.1*
- *Legato NetWorker Disaster Recovery Guide, Release 7.1, UNIX Version*
- *Legato Command Reference Guide, Release 7.1, UNIX Version*
- *Legato NetWorker Power Edition Performance Tuning Guide (All Platforms)*
- *Legato NetWorker Error Message Guide, Release 7.1*

- *Legato NetWorker Software Compatibility Guide, Release 7.1*
- Technical Bulletins

New or Enhanced Features

Sun StorEdge EBS release 7.1 includes the following new or enhanced features:

- [“Editing Autochanger Configurations with the jbedit Program” on page 2](#)
- [“256 Virtual Devices Supported When Using Dynamic Drive Sharing” on page 3](#)
- [“Support for HAStoragePlus Resource Type in Sun Cluster Version 3.0 U3 and Later” on page 3](#)
- [“PowerSnap Module Support on Solaris 7, 8, 9” on page 3](#)
- [“Mac OS X Supported \(Client Only\)” on page 4](#)
- [“Device Resource Queuing for Sun AlphaStor Release 3.0 Users” on page 4](#)
- [“Sun DiskXtender UNIX/Linux Data Manager Integration” on page 5](#)
- [“Sun DiskXtender UNIX/Linux Data Manager Integration” on page 5](#)
- [“Device Resource Queuing for AlphaStor Release 3.0 Users” on page 5](#)
- [“Support for SGI IRIX Direct Input/Output Feature” on page 7](#)

Editing Autochanger Configurations with the jbedit Program

The `jbedit` program allows a user having Configure Sun StorEdge EBS privileges to add or delete drives or device definitions to or from an existing autochanger definition. The `jbedit` program can be run on a Sun StorEdge EBS server, storage node.

The `jbedit` program works with Sun StorEdge Solstice Backup 6.x or later and Sun StorEdge EBS release 7.0 and later release 6.x or later and supports all direct-attached SCSI, SAN, standard jukebox interface (SJI), and Network Data Management Protocol (NDMP) autochangers. It does not currently support AlphaStor or SmartMedia software, or silo autochangers. For a detailed description of `jbedit`, its options, and associated diagnostic messages, refer to the `jbedit` man page.

Improved Editing Autochanger Configurations

In a large SAN environment, the ability to add or remove devices or storage nodes that share a drive without having to reconfigure the autochanger saves time and facilitates backups. The `jbedit` program allows such changes without the need to delete the existing configuration and reconfigure the autochanger by re-running the `jbconfig` program. The `jbedit` program can be run on a Sun StorEdge EBS server, storage node. For more information, refer to the *Sun StorEdge Enterprise Backup Software Administrator's Guide*.

256 Virtual Devices Supported When Using Dynamic Drive Sharing

The Sun StorEdge EBS 7.1 server software has been certified to work with 256 virtual devices using Dynamic Drive Sharing (DDS). This configuration consisted of 16 Sun StorEdge EBS 7.1 storage nodes sharing one library with 16 physical tape drives.

Support for HAStoragePlus Resource Type in Sun Cluster Version 3.0 U3 and Later

The new HAStoragePlus resource type in Sun Cluster Version 3.0 U3 can perform the following:

1. Synchronize the startups between resource groups and disk device groups (similarly to the HAStorage resource type)
2. Make a local filesystem highly available

For more information, refer to the *Sun StorEdge Enterprise Backup Software Administrator's Guide*.

PowerSnap Module Support on Solaris 7, 8, 9

The PowerSnap Modules enable the Sun StorEdge EBS software to manage, array, and host snapshots on Solaris 7, 8, and 9. The following features have been added to enable support for this modules:

- Instant backups
- Serverless backups
- Instant restores

- Rollbacks and roll forwards
- Snapshot management policies
- Support for application backups to tape (rollover snapshots)
- Support for recovery from a snapshot

For more information, refer to the appropriate *Legato NetWorker PowerSnap Module* documentation for your hardware configuration.

Mac OS X Supported (Client Only)

The Mac OS X operating system is supported as a client only. For more information, see [Chapter A](#) and the *Sun StorEdge Enterprise Backup Software Administrator's Guide*.

Device Resource Queuing for Sun AlphaStor Release 3.0 Users

Sun StorEdge EBS software can now provide additional information about mount requests for users of AlphaStor release 3.0 or later by allowing prioritization of queued mount requests.

Before release 7.1, requests needed to be serviced in a first-in, first-out order. This could result in delayed requests. Sun AlphaStor release 3.0 users can define the priority of recover and save requests that compete for the same devices.

The process occurs as follows:

1. Sun StorEdge EBS software assigns a mount class to a media pool.
2. Sun AlphaStor software assigns the mount class for the pool to a queue.

This creates a relationship between the storage medium and the drives that service the medium.

Note – This feature requires Sun AlphaStor 3.0 or later installed.

Resource queuing provides the following added functionality:

- The Sun StorEdge EBS software can direct Sun AlphaStor software to select the type of mount (such as read/write or labeling) that will be required for saving, recovering, or archiving.
- The Sun AlphaStor user can select what should be mounted first.

- The Sun StorEdge EBS software now detects devices as virtual devices. This virtualization of devices enables users to request more devices than actually exist. The request will still work because the devices will be queued, virtual or not.
- Sun AlphaStor release 3.0 can queue any Sun StorEdge EBS mount request. The Sun StorEdge EBS software passes on to the logical drives sufficient information about the requests. This information includes:
 - Class name (derived from an attribute in the Sun StorEdge EBS pool)
 - Operation type (such as read, write, or media)
 - Data operation (such as save, recover, archive, retrieve, clone, migrate, or consolidate)
 - Media operation (such as label, recycle, mount, verify)

A new man page, `nsr_mount_request(5)`, describes the resource-queuing feature. Related attributes have also been added to the `nsr_pool(5)` and `nsr_jbox(5)` man pages. For additional information, refer to the device resource manager sections in the Sun AlphaStor documentation.

Sun DiskXtender UNIX/Linux Data Manager Integration

This release provides Data Management API (DMAPI) aware support of filesystems managed by Sun DiskXtender Data Manager (DXDM) release 2.6 and later. This support results in the following:

- Smaller backup sets, because only data in the front-end filesystem is backed up.
- Faster recoveries, because a file is available as soon as its metadata is restored and synchronized.

For further information on the Sun DXDM integration with the Sun StorEdge EBS software, refer to the *Sun Sun StorEdge EBS Administrator's Guide*.

Device Resource Queuing for AlphaStor Release 3.0 Users

The Sun StorEdge EBS software can now provide additional information about mount requests for users of AlphaStor release 3.0 or later by allowing prioritization of queued mount requests.

Before this release, requests needed to be serviced in a first-in, first-out order. This could result in delayed requests. Now however, AlphaStor release 3.0 users can define the priority of recover and save requests that compete for the same devices.

The process occurs as follows:

1. Sun StorEdge EBS software assigns a mount class to a media pool.
2. AlphaStor software assigns the mount class for the pool to a queue.
This creates a relationship between the storage medium and the drives that service the medium.

Note – This feature requires AlphaStor 3.0 or later installed.

To view the NSR mount request resources from the Sun StorEdge EBS software side, enter the following command:

```
nsradmin -c "type:NSR mount request"
```

Note – Be sure to include the quotation marks and to insert spaces between the following:

- NSR
- mount
- request

Resource queuing provides the following added functionality:

- The Sun StorEdge EBS software can direct AlphaStor software to select the type of mount (such as read/write or labeling) that will be required for saving, recovering, or archiving.
- The AlphaStor user can select what should be mounted first.
- The Sun StorEdge EBS software now detects devices as virtual devices. This virtualization of devices enables users to request more devices than actually exist. The request will still work because the devices will be queued, virtual or not.
- AlphaStor release 3.0 can queue any Sun StorEdge EBS mount request. The Sun StorEdge EBS software passes on to the logical drives sufficient information about the requests. This information includes:
 - Class name (derived from an attribute in the NW pool)
 - Operation type (such as read, write, or media)
 - Data operation (such as save, recover, archive, retrieve, clone, migrate, or consolidate)
 - Media operation (such as label, recycle, mount, verify)

A new man page, `nsr_mount_request(5)`, describes the resource-queuing feature. Related attributes have also been added to the `nsr_pool(5)` and `nsr_jukebox(5)` man pages. For additional information, refer to the Device Resource Manager sections in the AlphaStor documentation.

Support for SGI IRIX Direct Input/Output Feature

The SGI IRIX Direct Input/Output feature increases backup performance.

Installation and Update Notes

This section provides notes pertaining to installing and updating the Sun StorEdge EBS software and related products.

ClientPak Installation Documentation

The *Legato NetWorker ClientPak® Installation Guide* is no longer published.

Installation information for the Legato NetWorker ClientPak is now found Sun StorEdge Enterprise Backup Software Installation Guide or the platform-specific Legato NetWorker Installation Guide.

Updating Sun StorEdge EBS Servers and Storage Nodes

Storage nodes running Sun StorEdge EBS release 7.1 are not compatible with Sun StorEdge EBS servers running releases earlier than 6.0. Update the Sun StorEdge EBS servers before updating storage nodes. For more information, refer to the *Sun StorEdge EBS Installation Guide*.

Note – A release 7.1 Sun StorEdge EBS server will support a release 6.x storage node.

Important Notes and Tips

This section describes important notes and tips about using the Sun StorEdge EBS software.

Supported Operating Systems

Sun StorEdge EBS release 7.1 client software is supported on the following operating systems and platforms:

TABLE 1-1 Operating System Support

Operating System	Added Support	Continued Support	Dropped Support
Sun Solaris		7, 8, 9	
HP-UX	11i Version 1.5 (on Itanium) and Version 1.6	10.20 (on PA-RISC and client only), 11.0, 11.11	
HP Tru64		5.0A, 5.1, 5.1A, 5.1B	
Red Hat Linux	8.0, 9.0	7.3, Advanced Server 2.1	7.2
SuSE Linux	Enterprise Server 8, 8.1, 8.2	8.0	7.3, Enterprise Server 7
AIX	5L v5.1, 5L v5.2	4.3.3	4.3, 4.3.1, 4.3.2
Mac OS X		10.2, 10.3 (client only)	
SGI IRIX		6.5, 6.5.1-18 and above (32-bit)	
Linux S/390 and zSeries			All
Turbolinux			All
Caldera Linux			All

Note – Microsoft Windows NT, Windows 2000, Windows XP, and Windows Server 2003 Enterprise and Datacenter are also supported.

For further, up-to-date details on supported operating systems, refer to the *Legato Compatibility Guides* available on the Sun web site at www.legato.com.

Raising The Maximum Number Of Open Files on Solaris 7 and 8

On Solaris 7 and 8 operating systems running in 64-bit mode, the following error message may be displayed in the `daemon.log` file if the default 1,024 file descriptor hard limit is reached:

```
nsrd cannot accept any more connections - Too many open files
```

By default on Solaris 7 and 8 operating systems, the hard file descriptor limit is set to 1,024. To raise the file descriptor hard limit you must set the `rlim_fd_max` kernel parameter to a higher value in the `/etc/system` file and reboot.

For example, to raise the open file hard limit to 4,096, include the following definition in the your `/etc/system` file:

```
set rlim_fd_max=4096
```



Caution – Raising `rlim_fd_max` kernel parameter impacts all running processes on your system. Consult your Solaris system administrator before attempting this operation.

Sun StorEdge EBS User Program Is Not 508-Compliant on the Microsoft Windows Client

The Sun StorEdge EBS User program on the Microsoft Windows Client is not 508-compliant.

Fujitsu SCSI Host Bus Adaptor Supported

Sun StorEdge EBS release 7.1 supports the Fujitsu SCSI host bus adaptor. For support information, contact Fujitsu technical support.

Hierarchical Storage Management Not Supported

Hierarchical Storage Management (HSM) is not supported by Sun StorEdge EBS Release 7.1.

SmartMedia Not Supported

SmartMedia is not supported with Sun StorEdge EBS release 7.1

Solaris 9 Features Not Supported

The following Solaris 9 features are not supported:

- Minimal installation
- Extended file attributes
- Multi-terabyte UFS file system support

XKeysymDB File Necessary to Run Motif-Based Graphical Interfaces

To run the motif-based graphical user interfaces (`nwrecover`, `nwadmin`, `nwbackup`, `nwretrieve`), the `XKeysymDB` file must be installed. This file translates virtual key symbols, and without it motif-based graphical user interfaces are unable to translate these symbols, reducing interface functionality.

Specific Software and Hardware Configurations Experience Kernel Panic with CDI Enabled

A kernel panic might occur when the Tru64 machine is acting as a remote storage node to another server or as a server with a local storage node.



Caution – If you are running HP Tru64 5.0A, it is recommended you update to a later version of HP Tru64. If you are unable to update the operating system, disable the common device interface (CDI) feature for any tape devices that you have configured.

HP Tru64 5.1 or Later

If you are running Sun StorEdge EBS release 7.1 software on HP Tru64 5.1, apply Patch Kit 3 or later from the following link:

<http://ftpl.support.compaq.com/public/unix/>

If you are running Sun StorEdge EBS release 7.1 on HP Tru64 5.1A or later, you should not encounter a kernel panic with the CDI feature enabled.

Sun StorEdge EBS Release 7.1 with CDI Enabled on HP Tru64 Version 5.1

The following configuration of Sun StorEdge EBS release 7.1 with CDI enabled experienced a kernel panic in testing:

- HP Tru64 version 5.1
- Jukebox: Quantum with one SDLT320 drive
- Direct SCSI connect
- Sun StorEdge EBS release 7.1
- CDI on (enabled)

If you experience a kernel panic with this configuration, complete the following steps:

1. Disable CDI.
2. Download Patch Kit 3 or the latest HP patch kit from the following web site:
<http://ftpl.support.compaq.com/public/unix/>
3. Verify the patch kit has been successfully installed.
4. Enable the CDI feature.

Note – CDI is not supported for NDMP.

▼ To Avoid a Kernel Panic

1. Determine which operating system and version you are using.
2. Determine which patch level (if any) you have installed.
3. Temporarily disable the CDI feature on the Sun StorEdge EBS 7.1 software.

4. Download Patch Kit 3 or the latest HP patch kit from the following web site:
<http://ftpl.support.compaq.com/public/unix/>
5. Verify the patch kit has been successfully installed.
6. Enable the CDI feature.
7. Complete a small-scale save and recovery to determine if a kernel panic occurs.

Note – If you experience a kernel panic, contact Sun Technical Support.

Sun StorEdge EBS Security

Technical Bulletin 372: NetWorker Security describes several circumstances that can compromise Sun StorEdge EBS security, and provides solutions for protecting and configuring the Sun StorEdge EBS environment to safeguard it against these security risks.

Technical Bulletin 372: NetWorker Security is available on the Legato web site at www.legato.com.

Pause Wait Recommended between File Creation and Backup with EMC IP4700

If a level [1-9] backup is run on an EMC IP4700 filer within five minutes of creating a file, more files than expected may be saved. For example, if a level 1 backup is run, followed by a level 2 backup, and both of these backups complete within five minutes of the file being created, the newly created file might appear on both the level 1 and level 2 backups, even though the files should only be added to the level 1 backup. To avoid this problem, wait at least five minutes after creating a file to run a backup.

Best Practice in Using the `nsr_shutdown` Command

For information on best practices when using the `nsr_shutdown` command, refer to *Technical Bulletin 370: Best Practice in Using the `nsr_shutdown` Command* on the Legato web site at www.legato.com.

Older Versions of Intel Not Supported on Sun StorEdge EBS Software on Linux

To take advantage of IA-32 586 and 686 optimizations in the compiler, as well as the new instructions provided on these architectures, Sun StorEdge EBS release 7.1 for Linux does not support older versions of Intel, such as 486.

Note – NetWorker release 6.1.x on Linux fully supports older versions of Intel architecture, including 386 and 486.

Considerations When Using Advanced File Type Device

The advanced file type device can be deployed in varying environments with local disks, NFS and CIFS mounted/mapped disks. Operation of this feature is affected by the configuration. Ensure that the advanced file type device is fully operational in your production environment before you deploy it as part of regularly scheduled operations.

As part of the validation process, include the following tests:

- backup
- recover
- staging
- cloning
- maximum file size compatibility between OS and disk device
- device behavior when the disk is full

During testing of the advanced file type device, the following limitations have been observed:

Some versions of NFS or CIFS drop data blocks when a filesystem becomes full. Be sure to use versions of NFS, CIFS and operating systems that fully interoperate and handle a full filesystem in a robust manner.

On some disk devices, the volume labeling process may take longer than expected. This extended labeling time depends on the type of disk device being used and does not indicate a limitation of the Sun StorEdge EBS software.

The upper limits of save set size depend on the upper limits supported by the operating system or the file size specified by your disk device vendor.

Known Limitations

The following sections describe known limitations in release 7.1:

- [“Limitations in Sun StorEdge EBS Features” on page 14](#)
- [“Limitations in Platform Support” on page 30](#)
- [“Limitations That Pertain to Internationalization” on page 37](#)

Limitations in Sun StorEdge EBS Features

This section describes limitations in Sun StorEdge EBS features.

Incorrect Enterprise Enabler Version Displayed (Legato Bug ID: LGTPa58985)

After upgrading to Sun StorEdge EBS release 7.1, an Enterprise Enabled version of the Sun StorEdge EBS Administrator program (`nwadmin`) displays the following headline in the upper right hand side of the window:

```
NetWorker 7.1.Build.213 OLD Enterprise Edition expires Nov 01,
2003
```

This string will continue to be displayed even after applying the new Sun StorEdge EBS 7.1 Enterprise Enabler. To correct the Enterprise Enabler version displayed in the Sun StorEdge EBS Administrator program, stop and restart the Sun StorEdge EBS software.

Ignore Error Message When Labeling A Volume with a 9840C Tape Drive (Legato Bug ID: LGTPa58115)

Sun StorEdge EBS displays the following error message when labeling a volume with a 9840C tape drive:

```
TapeAlert "Diagnostics required"
```

Ignore the error message, the labeling process completes and there are no negative effects.

When CDI is enabled in the Device resource on the server, the TapeAlert messages which provide tape drive status are logged. There are three types of TapeAlert messages: Informative, Warning, and Critical. All three types are logged, but some messages, such as the one illustrated above, are simply informative and can be ignored.

If you have any questions about the TapeAlert messages that are logged, please check the user manual for the tape drive for device-specific instructions on running extended diagnostic tests.

The nsrjb -lf Command Fails If Cleaning Tape Is Not In The Media Database (Legato Bug ID: LGTpa58954)

When cleaning a tape drive with the command `nsrjb -lf device -S slot_with_cleaning_tape`, the following error is displayed:

```
nsrjb: Jukebox error: Mon 16:23:20 Volume Cleaning Tape (50 uses left) CLNH20L1 not found in media database
```

Workaround

Add the `-n` (no mount) option to the `nsrjb` command. For example, `nsrjb -lnf device -S slot_with_cleaning_tape`.

Error Message Appears in daemon.log When Labelling a Volume That Contains PowerSnap Save Sets (Legato Bug ID: LGTpa54632)

When labeling a volume that contains PowerSnap save sets, the following error message will appear in the `daemon.log` file:

```
nsrmmdbd: error, null
```

Ignore the errors messages in `daemon.log` file as no actual error occurred.

The Reclaim Space Button Runs A `nsrck -L 1` (Legato Bug ID: LGTpa58204, LGTpa30076)

The Reclaim Space button found under the Index menu in Sun StorEdge EBS Administrator program runs a `nsrck -L 1`. This simply validates the online file index header thereby merging a journal of changes with the existing header. Manually freeing up space is no longer needed with release 7.1 since space is automatically freed up daily if savegroups are run each day. By default, the `nsrim` process runs once per day at the end of a savegroup.

Note – When used with a server running a Sun StorEdge EBS release prior to 6.0, the Reclaim Space button decreased the size of the client file index by compressing the space in the index left by removed entries, thus freeing up disk space.

Path Ownership Resolution Not Always Correct On Veritas Cluster Server (Legato Bug ID: LGTpa58494)

If Veritas Cluster Server nodes use fully qualified hostnames, the `path_ownership` resolution on the cluster might be incorrect.

Workaround

To correct path ownership resolution on a cluster:

1. Edit the `lcmmap` script located in Sun StorEdge EBS binaries directory (`/usr/sbin/lcmmap` is the default location).
2. Replace the line `PHYSICAL_HOST='hostname'` with the following:

```
PHYSICAL_HOST='hostname' | sed 's/\.*.*//'
```

Auto Media Management Not Supported With a Standalone Device Shared By Two Or More Storage Nodes (Legato Bug ID: LGTpa57007)

If a standalone device is shared by two or more storage nodes, auto media management should *not* be enabled for both storage nodes. Enabling auto media management for more than one storage node with the same standalone drive will tie up the device indefinitely. No data is sent to the device and no pending message is sent.

When Recovering Data From Multiple Volumes the Sun StorEdge EBS Software Might Loop (Legato Bug ID: LGTpa55566, LGTpa57799)

When recovering data from multiple volumes, the recover client may get repeated "server busy" messages if the Sun StorEdge EBS software cannot mount all of the volumes at the same time.

Workaround

Disable striped recover on the server.

Note – To disable striped recover create the file `/nsr/debug/no_stripped_recover` in the `/nsr/debug` directory on the server. All recovers started after the creation of this file will not use striped recover.

Error Message Generated if the Snapshot Policy Is Configured To Request More Snapshots Than a savegroup Can Generate (Legato Bug ID: LGTpa54165)

If a snapshot policy is configured to request more snapshots than a savegroup can generate for a group in a given time, the savegroup will generate the following error message when running the group and will not backup that group:

```
<timestamp> savegrp: RAP error: Invalid snapshot policy with <number of requested snapshots> snapshot creation per day. Sun StorEdge EBS will not be able to create, <number of requested snapshots> from <timestamp> in a single day.
```

Workaround

To resolve this issue, do one of the following:

- Modify the savegroup 'starttime' and 'Interval' attributes of the Group resource to bring it in sync with the snapshot policy.

OR

- Modify the snapshot policy to bring it in sync with the Group resource.

For more information on modifying the 'starttime' and 'interval' attributes and snapshot policies, refer to the *Sun StorEdge Enterprise Backup Software Administrator's Guide*.

Savegrp Process Might Continue to Run on a savegroup Marked as Finished (Legato Bug ID: LGTpa54634)

A `savegrp` process might continue to run on a save group that is marked as finished in the Sun StorEdge EBS Administrator program.

To avoid this problem download the following patches from the Sun web site:

- Solaris 2.6: Patch-ID# 107733-10
- Solaris 2.8: Patch-ID# 109147-24

Specify the Full Path of the save Command in the Script File (Legato Bug ID: LGTpa56395)

Always specify the full path of the `save` command in the script file when entering the script file name into the Backup Command text box in the Client dialog box. All commands within the script file must be successfully executed; otherwise, the Sun StorEdge EBS server cannot complete the remaining instructions.

SCSI Device ID Displayed Differently Than Sun StorEdge EBS NDMP Devices (Legato Bug ID: LGTpa53364)

For Sun StorEdge EBS NDMP devices, the bus number in the control port is offset by a value of 1, 024, so that they occupy a different range compared to a locally attached SCSI jukebox. This offset helps visually differentiate the type of device (NDMP or non-NDMP). The actual value of the NDMP device bus number can be obtained from NDMP Bus Number field found if you select Jukeboxes from the Media menu.

All Client File Index Entries Might Appear Not to Have Been Deleted (Legato Bug ID: LGTpa56231)

The Sun StorEdge EBS software does not delete all client file index entries after all save sets are recycled, the volumes are deleted and the device is relabeled. After running the `nsrck -L6` command, the `nsrinfo client` output indicates there are still browsable files.

This is an issue only when all the save sets for a client are deleted from the media database. If there is at least one valid save set for that client in the media database, the `nsrck -L6` command will delete the invalid save set records from index database.

VSS Backups on a FAT32 Partition Take Longer Than on a NTFS Partition (Legato Bug ID: LGTpa54620)

Volume Shadow Copy Service (VSS) backups of files on a FAT32 partition take much longer than VSS backups of files on an NTFS partition. This is a known Microsoft issue.

Slow Solaris Tape Operations When Using an IBMtape Driver with IBM LTO-2 Tape Drives and the Sun StorEdge EBS CDI (Legato Bug ID: LGTpa55128)

Solaris tape operations are slow when using an IBMtape driver with IBM LTO-2 tape drives when CDI is turned On.

Note – This behavior has not been seen with the Solaris `st` driver.

Workaround

Turn CDI off. For more information on CDI, refer to the *Sun StorEdge Enterprise Backup Software Administrator's Guide*.

Setting The Polltime to Either 0 Or A Noninteger For The Polling Interval Causes The Output Screen Display to Refresh Unnecessarily (Legato Bug ID: LGTpa55982)

On an HP-UX 11 platform, setting the `polltime` command line argument (`-p` option) to either 0 or a noninteger with the `nsrwatch` command causes unnecessary refreshing of the output screen display. For example: `nsrwatch -p 0 -s local server`

Sun StorEdge EBS Release 7.x Clients Backing Up to a Sun StorEdge EBS Datazone Earlier Than Release 7.0 (Legato Bug ID: LGTpa52303, Sun Patch ID 113570-xx)

If you plan to install the Sun StorEdge EBS client software into a datazone running pre-7.0 release of Sun StorEdge EBS server software (for example, a Sun StorEdge EBS 6.1.3 server backing up a Sun StorEdge EBS 7.1 client), you need to obtain the Sun patch from SunSolve for the earlier Sun StorEdge EBS server software.

A release 7.x client can back up and recover to an earlier release server without this fix, although backup failures of the release 7.x client will be reported as successful.

Note – While this is a supported scenario, it is not recommended.

Sun StorEdge EBS Software Attempts to Eject a Stuck Tape (Legato Bug ID: LGTpa51725)

If a hardware problem results in a tape becoming stuck in a drive, the Sun StorEdge EBS software will keep trying to eject the tape instead of continuing the backup on another tape. In this situation, save stream backups from clients intended for the stuck tape/drive might fail.

If the Sun StorEdge EBS software keeps trying to eject a stuck tape, perform the following procedure to correct the problem:

1. Mark the volume as read-only.
2. Disable the drive.
3. Manually eject the tape.
4. Inventory the slot to which the tape was ejected.
5. Resolve the hardware error that led to the tape becoming stuck in the drive (for example, a faulty tape or a faulty drive).
6. Re-enable the drive.
7. Mark the volume appendable again (if appropriate).

Limitation on Browse and Retention Policy Dates (Legato Bug ID: LGTpa37508)

Client file index browse and save set retention policies can be set no later than the year 2036. This is caused by an operating system limitation in which support for times is limited to a maximum of 68 years starting from the year 1970.

Note – Be aware that an expired save set retention date does not automatically result in the save set being overwritten. Save sets can only be overwritten after the retention policy has expired *and* the user selects to either relabel the volume or manually delete the save set from the volume.

Workaround

To enable full browse and retention policies beyond the year 2036, use the NetWorker Archive feature. For more information about data archiving, refer to the *Sun Sun StorEdge EBS Administrator's Guide*.

Backing Up a Sun Solaris Client to an SGI IRIX Server May Be Slow (Legato Bug ID: LGTpa52106)

When backing up a Sun Solaris client to an SGI IRIX server with an attached tape drive, the backup may be slow.

On the Sun client, set the `/dev/tcp tcp_wscale_always` variable to 1 using the following command:

```
# ndd -set /dev/tcp tcp_wscale_always 1
```

Enabling CDI with IBM Ultrium-2 Fibre Channel Drive May Slow Backups (Legato Bug ID: LGTpa50804)

Enabling the CDI feature on a Solaris 9 operating system with the following devices might slow down the Sun StorEdge EBS backup process:

- QLogic 22xx Fibre Channel Adapter Card
- An IBM autochanger with an LTO Ultrium-2 FC drive

If Sun StorEdge EBS performance is compromised within this configuration, disable the CDI feature.

Changes to the Savegroup Completion Report (Legato Bug ID: LGTpa51237)

The savegroup completion report has been changed, so that the first line of the report includes the number of clients whose hostnames were not resolved. The new format for the savegroup completion report is:

```
NetWorker savegroup: (alert) group completed, total 5 client(s), 2
Hostname(s) Unresolved, 1 Failed, 2 Succeeded. (jupiter Failed)

hostname resolution failed for 2 client(s)
      mars
      saturn
```

You must change any scripts that parse the savegroup completion report because of the new format.

Directives Are Ignored When Backups Are Initiated from nwbackup (Legato Bug ID: LGTpa49939)

Directives are ignored when backups are initiated from the `nwbackup` program. To ensure that directives are executed, set up a scheduled backup in the Sun StorEdge EBS Administrator program.

The Sun StorEdge EBS Administrator Program Does Not Reconnect to the Server After a Failover (Legato Bug ID: LGTpa27089)

After a failover the Sun StorEdge EBS Administrator program does not reconnect to the virtual server, even if the virtual server is running on another node with the same host name.

Note – If the Sun StorEdge EBS Administrator program is running on a node external to the cluster, when the `nsrd` process restarts the Sun StorEdge EBS Administrator program reconnects.

Workaround

To reconnect to the server after a failover, perform one of the following workarounds:

- Run the Sun StorEdge EBS Administrator program on a node external to the cluster. When the Sun StorEdge EBS Administrator program starts on a node where the `nsrd` process is local, it binds to the local host (the physical host) and the virtual server name is aliased to the physical host.
- If the Sun StorEdge EBS Administrator program must run on one of the cluster nodes, reconnect the server by explicitly connecting to the physical hostname where the `nsrd` process is running.

Enabling SCSI Reserve/Release for DDS Drives (Legato Bug ID: LGTpa30565, LGTpa49501)

When the Sun StorEdge EBS software uses Dynamic Drive Sharing (DDS) there is a possibility that the operating system's tape driver might use the SCSI reserve/release feature in a manner that will interfere with the proper operations of the Sun StorEdge EBS software. It is recommend that the operating system's use of the reserve/release feature be disabled before using DDS with Sun StorEdge EBS software. Below are the instructions for disabling reserve/release for various operating systems:

Solaris

SCSI reserve/release is configurable as a bit setting in the `st.conf` file for each device type in use. For more information, refer to the Tape Configuration section of the `st` man page. Be sure to use the most up to date `st` driver that is available for your version of Solaris.



Caution – Edit the `st.conf` file *only* if you are using DDS with Sun StorEdge EBS software or if you are using a tape drive that is not supported directly by a Solaris `st` tape driver.

To determine if the tape drive is supported directly by a Solaris `st` tape driver:

Load a tape in the drive and use the `mt` command.

For example, on the tape device file `0cbn`:

```
mt -f /dev/rmt/0cbn status
```

If the output includes the line "SCSI tape drive" or appears similar to the following, the **st** tape driver is using generic settings for that drive and it is *not* natively supported:

```
mt -f /dev/rmt/4cbn status
Vendor 'IBM      ' Product 'ULT3580-TD2    ' tape drive:
sense key(0x6)= Unit Attention   residual= 0   retries= 0
file no= 0   block no= 0
```

If this configuration is used with the Sun StorEdge EBS software, the process may appear to work, there might be problems recovering any saved data.

If the output appears similar to the following, the **st** tape driver recognized the drive and is using correct internal settings.

```
mt -f /dev/rmt/0cbn status
HP Ultrium LTO tape drive:
sense key(0x0)= No Additional Sense   residual= 0
retries= 0
file no= 0   block no= 0
```

The only reason to edit `st.conf` file is if the drive is being used in a DDS configuration.

AIX

To reset the reserve/release setting on an AIX operating system:

1. Through the SMIT interface, select Tapes from the Devices menu.
2. Change the value for the RESERVE/RELEASE support attribute from No to Yes.

HP-UX

To reset the reserve/release setting on an HP-UX 11 operating system:

1. Change the `st_ats_enable` kernel variable to a value other than zero.
2. You may have to restart the computer to ensure the change was implemented.

Note – The reserve/release is a fixed setting in HP-UX 10.

Tru64

SCSI reserve/release is only available on version 5.1b and later.

Device Autodetection Attributes Not Supported On Solaris (Legato Bug ID: LGTpa58849)

On a Solaris server and for a Solaris client, do *not* use the following attributes that appear in the Device Configuration field in the Server Setup menu to perform device autodetection as they are not supported in release 7.1:

- Enable New Device
- Device Host List
- Search New Device
- Search All Luns

Increase Server Parallelism to Complete Concurrent Operations (Legato Bug ID: LGTpa51184, LGTpa51187)

You might need to increase the server parallelism value to complete the concurrent operations with an `adv_file` device when the number of simultaneous save sessions has reached the maximum value for server parallelism.

For example, if the server parallelism is set to 4 and there are four simultaneous saves going to an `adv_file` device, set the server parallelism to 5 to complete a concurrent clone/stage operation from this `adv_file` while the four saves are in progress. This requirement may be more apparent with `adv_file` as it supports concurrent operations, but it is applicable to all other device types with a similar setup.

Devices Not Recognized in SAN Topology (Legato Bug ID: LGTpa51388)

Ensure that all devices in a SAN environment are set and connected correctly. This is crucial for recognition by the `inquire` command and for any operation on the devices to be recognized and operate as expected. For detailed information setting devices, refer to the *Sun StorEdge Enterprise Backup Software Administrator's Guide*.

Date Last Cleaned Not Propagating Among Shared Devices (Legato Bug ID: LGTpa49801)

In a DDS environment, the Sun StorEdge EBS software does not update all the `nsr` device resources with the same hardware ID when a one of the drives is cleaned.

Workaround

Turn the Auto Clean feature off in a DDS environment:

1. In the Sun StorEdge EBS Administrator program, select Jukeboxes from the Media menu.
2. In the Jukeboxes dialog box, select the appropriate autochanger.
3. Select No for the Auto Clean attribute to turn autocleaning off, and click Apply.

Error Downgrading to Business Edition (Legato Bug ID: LGTpa50807)

The licensing utility (`nsrcap`) cannot downgrade to the Business Edition from a higher enabler. To downgrade from Power Edition or Network Edition to Business Edition, use the following workaround:

1. Enter the computer's hostname in the License Server attribute:
 - a. In the Sun StorEdge EBS Administrator program on the Sun StorEdge EBS server, select Server Setup from the Server menu.
 - b. From the Server menu, select Server Setup.
 - c. From the View menu, select Details.
 - d. Enter the hostname in the License Server attribute and click Add.
2. Delete the base enabler of the edition being downgraded:
 - a. From the Server menu, select Registration.
 - b. In the Registration window, select the Sun StorEdge EBS product whose enabler code you want to delete.

A series of windows appears to confirm the deletion and to repeat [Step a](#) and [Step b](#) for verification.
 - c. Click OK in the windows and repeat the steps to delete the base enabler.

3. Remove the hostname from the Sun StorEdge EBS server's License Server attribute:
 - a. From the Server menu, select Server Setup.
 - b. From the View menu, select Details.
 - c. Select the hostname in the License Server attribute that was entered in [Step 1](#) and click Delete; then click Apply.
4. Enter the Business Edition enabler code:
 - a. From the Server menu, select Registration.
 - b. Click the Create button.
 - c. Enter the Business Edition enabler code in the Enabler Code attribute and click Apply.

Increase the Value of the Save Mount Timeout Attribute When Auto Media Management Is Enabled and a Corrupt Tape Is Encountered (Legato Bug ID: LGTpa50485)

Note – This following issue has only been seen on SDLT110/220 drives.

When auto media management is enabled and a backup operation is initiated, if the Sun StorEdge EBS software encounters a corrupted tape during the label operation, it can take longer than 30 minutes (the default timeout value) before the label operation fails. The Sun StorEdge EBS software keeps a record of the location of the corrupted tape only for the current backup operation, so a corrupted tape could be used again for the next backup operation if the operator does not remove it.

Workaround

Increase the value of the Save Mount Timeout attribute to 60 minutes (from the default 30 minutes), as follows:

1. In the Sun StorEdge EBS Administrator program, select Devices from the Media menu to open the Devices window.
2. From the View menu, select Details to display the hidden attributes.
3. Set the Save Mount Timeout attribute to 60 minutes.

Perform a Save Set Recovery When Using the save Command with the -I <input_file> Option (Legato Bug ID: LGTpa51045)

When using the `save` command with the `-I input_file` option and one of the entries is deleted while the backup is running, the remaining entries in the input file are saved successfully. However, the save of connecting directories will fail and you will be unable to perform index-based recoveries. The workaround is to perform a save set recovery.

SunPlex Manager Default Port Number Is 3000 (Legato Bug ID: LGTpa42901)

If the default port number (3000) conflicts with another running process, change the port number of the SunPlex Manager on each node of the cluster.

For more information on how to change the port number for the SunPlex Manager, refer to the Sun web site.

Volume Remains in the Tape Drive If the Storage Node nsrmmmd Is Not Responding in a Shared Drive Environment with DDS (Legato Bug ID: LGTpa45470)

In a DDS environment, where physical drives are accessed by multiple Sun StorEdge EBS storage nodes, if the Sun StorEdge EBS server is unable to communicate with the `nsrmmmd` on any storage node, and if that node has loaded or mounted volumes onto the shared drives, then these volumes remain in the physical drives.

If the drives are within a jukebox, issuing a hardware reset from the node controlling the jukebox (`nsrjrb -H`) clears the physical drives through another device path. The `nsrjrb -H` command resets the jukebox hardware, so the tape ejects if a drive is loaded.

System Log Notifications Fail on SuSE 8.0 (Legato Bug ID: LGTpa43135, LGTpa52756)

System log notifications might fail on the SuSE 8.0 and SuSE Linux Enterprise Server operating systems. The logger binary appears in the `/bin` directory instead of `/usr/bin`. This causes the Log Default notification to fail.

Note – The SuSE 7.3 distribution does not have this problem.

Workaround

To resolve this issue, do *one* of the following:

- Create a link in the `/usr/bin` directory to `/bin/logger`.

Note – The default Tape Mount Request 1 and Tape Mount Request 2 notifications must be updated if a link is not created.

- Modify the Log Default notification and change the `/usr/bin/logger` filepath to `/bin/logger`.

The `nsrjb -L` and `-I` and save Operations Fail with an Exabyte Mammoth-2 Tape Drive with Fibre Channel Device (Legato Bug ID: LGTpa37996)

When using the `nsrjb -L` and `-I` commands to perform inventory and tape label operations, the Sun StorEdge EBS software reports the following error message with an Exabyte Mammoth-2 tape drive with a Fibre Channel device:

```
timestamp /dev/rmt/2cbn Tape label read for volume ? in pool ?, is
not recognized by Networker: I/O error"
```

Workaround

Update the firmware on the Exabyte Mammoth-2 tape drive with Fibre Channel device to version v07h and the changer firmware to 3.03.

Element Status Feature Must Be Manually Enabled for Jukeboxes That Support the Feature (Legato Bug ID: LGTpa26003 Sun Bug ID: 4306035)

When a jukebox supports the element status feature but that feature is not enabled in the Autochanger resource of the Sun StorEdge EBS Administrator program, `nsrjb -I` and `nsrjb -H` will not work properly.

When using jukeboxes that support the element status feature, make sure that this feature is enabled in the Autochanger resource of the Sun StorEdge EBS Administrator program before using `nsrjb`.

The `jbexercise` Command With the `-D` and `-d` Options Do Not Work (Legato Bug ID: LGTpa30555, Sun Bug ID: 4462022)

The `-D` and `-d` options no longer work with the `jbexercise` command.

Workaround

Use `jbexercise` with the `-m other` option rather than specifying the jukebox model.

Limitation of Incremental Backups (Legato Bug ID: LGTpa35113)

If you move files within a filesystem, the Sun StorEdge EBS software does not detect the relocated files when performing an incremental backup. This limitation is due to the change time (`ctime`) not being updated by certain operating systems.

Workaround

Use a command such as `touch` or `copy` when relocating files to ensure that the change time (`ctime`) for the files is updated.

Limitations in Platform Support

This section discusses platform-related limitations in Sun StorEdge EBS release 7.1.

UNIX Compress Utility Must Be Available to Use the `nsr_support` Process on Linux (LGTpa50543, LGTpa58444)

The `nsr_support` process (compress output) might not function on Linux platforms. The `nsr_support` process uses the UNIX compress utility, which is not a standard tool on all Linux platforms. The compress utility must be available on a Linux operating system when using the `nsr_support` process script. A warning message will be displayed if the compress utility is not available.

The compress utility is part of the `ncompress rpm` package.

Problems with SCSI Tape Devices on Linux (LGTpa55996)

Linux kernels After the 2.4.10 version had a bug introduced into the SCSI tape (`st`) module. This bugs might occur when using a tape drive with Sun StorEdge EBS software on these systems. Symptoms are that a tape drive will become unusable and eventually is disconnected from the system. Please contact your Linux distributor for an updated maintenance kernel.

For further information on this issue and a patch for the 2.4.20 version of the Linux kernel, see the following link: <http://www.kolumbus.fi/kai.makisara/st-eot.html>.

Label Tape Operation Fails on an HP-UX Platform If CDI Is Turned On and IBM Tape Driver Is Used (LGTpa58356)

On an HP-UX platform, a label tape operation will fail with the following error message if CDI is turned on and IBM tape driver is used:

```
Error: while operating on slot `1': write open error: drive status
is Drive reports no error - but state is unknown
```

Workaround

To avoid a failed label tape operation, do one of the following:

- Use IBM Atape driver version 3.0.1.8 which does not display this behavior. For more information on compatible hardware, see the Sun Hardware Compatibility Guide available on the Sun web site at www.sun.com.
- Turn off CDI.

Problems with SCSI Tape Devices on Linux (Legato Bug ID: LGTpa55996)

The 2.4.10 version of the Linux Kernel has introduced some SCSI bugs into the SCSI tape (`st`) module, the SCSI generic module (`sg`), and the Adaptec driver (`aic7xxx`). These bugs might occur when using the Sun StorEdge EBS software on these systems. A tape drive might become unusable and eventually disconnect from the system. This issue has been fixed in later versions of the kernel. For an updated maintenance kernel, contact a Linux distributor.

Managing Optical Drives with Solaris 9 (Legato Bug ID: LGTpa48374)

With Solaris 9, the Volume Management daemon (`vold`) was changed so that it automatically attempts to manage all removable media devices. Because of this change, the Volume Management daemon may interfere with Sun StorEdge EBS operations related to optical drives.

There are two workarounds for this problem:

- Disable the Volume Management daemon. See [“To Disable the Daemon” on page 32.](#)
- Modify the daemon configuration file (`vold.conf`) to disable the settings that manage removable media devices. See [“To Modify the Daemon Configuration File” on page 32.](#)

▼ *To Disable the Daemon*

To disable the volume management daemon, `vold`:

1. At the command line, log in as root on the Sun StorEdge EBS storage node and remove or rename the `/etc/rc2.d/*volmgt` script.
2. Enter `/etc/init.d/volmgt stop`, and then press Enter.

For more information on disabling a daemon, refer to the *Sun Sun StorEdge EBS Administrator's Guide*.

▼ *To Modify the Daemon Configuration File*

This workaround describes how to modify the Volume Management daemon configuration file to disable the functions that manage removable media devices.

To modify the daemon configuration file:

1. Log in as root on the Sun StorEdge EBS storage node and open the daemon configuration file, `/etc/vold.conf`, in a text editor.
2. Comment out the following line in the *Devices to use* Section.

```
use rmscsi drive /dev/rdisk/c*s2 dev_rmscsi.so rmscsi%d
```

After commenting out this line, the *Devices to use* section of the configuration file looks similar to the following:

```
# Devices to use
# use rm SCSI drive /dev/rdisk/c*s2 dev_rm SCSI.so rm SCSI%d
```

3. Save the configuration file.
4. Reinitialize the Volume Management daemon with the new configuration file settings. One way to do this is to send a hang-up signal to the daemon, for example:

```
# ps -ef | grep vold
# kill -HUP vold_pid
```

where *vold_pid* is the process ID of the volume management daemon, *vold*.

Restrictions for Sun StorEdge Solstice Backup Clients Earlier Than 5.5 Running on Sun StorEdge EBS 7.1 Servers (Legato Bug ID: LGTpa50711, LGTpa51370)

Sun StorEdge Solstice Backup release 7.1 contains a new Access Control feature that changes the underlying authentication method for Sun StorEdge EBS clients authenticating to a Sun StorEdge Solstice Backup release 7.1 server (such as Sun StorEdge Solstice Backup for NetWare 4.x clients and Sun StorEdge Solstice Backup for Sun OS 4.x clients). As a result, any client base earlier than Sun StorEdge Solstice Backup release 5.5 includes the following restrictions:

- Inability to perform a save set recover to a Windows 2000 Server or Solaris 9 server (LGTpa50711).
- Performing the following operations with the Sun StorEdge EBS Administrator program on UNIX and Windows, or with `NETWORKR.NLM` on NetWare (LGTpa51370):
 - Create, delete, or modify any resource (for example, Client or Group resources).

Note: These resources can be viewed, but operations cannot be performed on them.

- View indexes, backup volumes, or group status.

Note: High-level detail on indexes can be viewed, but low-level (save set) details cannot be viewed. Also, cross-check or reclaim space cannot be performed on indexes.

- *All device operations, including mount, unmount, label, and inventory.*

Note – All other configurations are supported, such as Sun StorEdge EBS for NetWare 4.x or Sun StorEdge EBS for Sun OS 4.x clients authenticating to a Sun StorEdge EBS 5.x or 6.x server.

Shared SCSI Bus Tape Drives Are Not Supported on an Unpatched Version of HP Tru64 5.1B (Legato Bug ID: LGTpa50805)

Shared SCSI bus tape drives are not supported on an unpatched version of the HP Tru64 5.1B operating system. It is recommended you install Tru64 version 5.1B or higher with idle process killer (IPK) if you want to configure shared SCSI bus tape drives on a system.

Cannot Label a Tape If CDI Is Enabled on a Tape Drive on HP TruCluster 5.1 (Legato Bug ID: LGTpa50279)

To use the CDI feature with a storage node or server running on HP Tru64 UNIX version 5.1, install the latest patch kit available from Hewlett-Packard. If you choose not to install the patch kit on the Tru64 5.1 operating system, you should disable the CDI feature on any devices you have configured.

SGI IRIX XFS 64-Bit Inodes Do Not Back Up (Legato Bug ID: LGTpa40680)

The Sun StorEdge EBS software does not back up files on SGI IRIX XFS filesystems that have a 64-bit inode. The IRIX 6.5 64-bit operating system randomly writes 64-bit and 32-bit inodes, and if a file is written with a 64-bit inode, the Sun StorEdge EBS software will not back it up. The following error message appears when the Sun StorEdge EBS software encounters 64-bit inodes:

```
readdir overflow error, backup of directory cannot continue
```


The name of the directory not being saved appears immediately below this error message.

Workaround

Update to the IRIX 6.5.15 XFS filesystem. For filesystems up to 8 TB, the IRIX 6.5.15 XFS filesystem now only allocates inodes in the 32-bit range to avoid an overflow error.

Note – For information on updating to the IRIX 6.5.15 XFS filesystem, refer to the appropriate SGI IRIX 6.5.15 documentation.

The `jbconfig` Command Reports More Drives Than Are Connected to the Node (Legato Bug ID: LGTpa45055, Sun Bug ID: 4783090, 4758993)

The `jbconfig` command does not allow the user to configure fewer drives than are physically present in the autochanger or library. All drives in the library must be accessible (included in zones accessible by the server) by the Sun StorEdge EBS backup server at the time of installation.

Using the `jbconfig` Command with Sun StorEdge RAID Manager (Legato Bug IDs: LGTpa24044, LGTpa27298, Sun Bug ID: 4358034)

When Sun StorEdge disk arrays are used in conjunction with the Sun StorEdge RAID Manager, the `inquire` program might 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. There are three possible workarounds:

- 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 Sun StorEdge EBS 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.

- 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.
- Perform the following procedure:

a. In `/etc/driver_classes`, delete the following line:

```
rdnexus scsi
```

This prevents the framework from enumeration SCSI target nodes under `rdnexus`.

b. In `rdriver.conf`, change

```
class="scsi"
```

to

```
parent="rdnexus"
```

This causes driver nodes to be created under `rdnexus`, but not under physical HBA drivers.

This change only lasts until the next `boot -r` or `hot_add`.

UFS Files Having Inode 4 or 5 Recovered to an Advanced File System on HP Tru64 UNIX (Legato Bug ID: LGTpa25810)

Do not attempt to recover a UFS file that has an inode of either 4 or 5 to an Advanced File System (AdvFS) on HP Tru64 UNIX. Such an attempt fails, because AdvFS user quota files are already assigned inode 4 and group quota files are already assigned inode 5. These AdvFS quota files cannot be overwritten. (Sun StorEdge EBS software uses a special algorithm to save and recover AdvFS quota files.)

To recover a UFS file having either inode 4 or 5 to an AdvFS:

1. Recover the file to a UFS.
2. Enter the `cp` command to copy the file to the desired location in the AdvFS.

Media Database Queries from a Client Earlier Than Release 6.0

The Sun StorEdge EBS software uses save set names and client names that are unique across Sun StorEdge EBS servers. If you are using a Sun StorEdge EBS client and Sun StorEdge EBS server running release 7.1, the `mminfo` program output displays these unique client names as:

```
index: clientname
```

Sun StorEdge EBS clients from releases earlier than Sun StorEdge Solstice Backup 6.0 are unable to display the cross-server name information in an easy-to-read format. If you run the `mminfo` program from a 5.x or earlier client, specifying a Sun StorEdge EBS server that is running release 7.1, a client name output appears as a long string of characters. For example,

```
index:db4e3d0-00000004-3957b0d5-3957b0d4-00010000-8945081f
```

While this string of characters properly identifies the client name to the Sun StorEdge EBS server, it is not easy to read.

Workaround

Update the Sun StorEdge EBS client to release 7.1.

Limitations That Pertain to Internationalization

The following limitations related to internationalization pertain to the Sun StorEdge Enterprise Backup Software, when an English-based EBS runs on a localized operating system.

Directed Recovery of Non-ASCII Characters Might Fail

Performing a directed recovery of files from a client whose filenames include any non-ASCII characters might fail. The files are browsable in the Sun StorEdge EBS Administrator program, but when the recovery is initiated, an error message is produced stating the files are not in the client file index.

Workaround

Perform the directed recovery from a client running in C locale.

Remote Login from a Local Host to a Remote Localized Host Does Not Display Sun StorEdge EBS Data in Localized Language

If you remotely log in or telnet from a local host to a remote host with a localized version of the Sun StorEdge EBS software, you must meet the following conditions:

- The locale setting on the local machine must be set to the appropriate localized language.
- The XFILESEARCHPATH environment variable on the local host must be set correctly.

If these conditions are not met, the Sun StorEdge EBS Administrator program displays English language characters while the data appears in the desired localized language.

This is not an issue unique with the Sun StorEdge EBS software, it is a motif issue. The XFILESEARCHPATH environment variable is automatically set when you log in to a Solaris computer. During a telnet session or remote login, the search order for the XFILESEARCHPATH environment variable is changed and the localized path is not located.

Consequently, for a remote login or telnet session to display the localized software correctly on a remote machine, you must ensure the configuration for the XFILESEARCHPATH environment variable is changed appropriately on the remote host.

For example: XFILESEARCHPATH environment variable on a remote computer (with localized software) should have the XFILESEARCHPATH environment variable input in the following manner:

```
/usr/lib/X11/%T/%N%C%S:/usr/lib/X11/%T/%N%S:/usr/openwin/lib/locale/%L/%T/%N%S:/usr/openwin/lib/%T/%N%S
```

Only US-ASCII 7-Bit Characters Supported

Sun StorEdge EBS release 7.1 supports only U.S.-ASCII 7-bit characters in resource names and attributes in the Sun StorEdge EBS Administrator program and from the command line. Do not use multibyte characters, such as Chinese or Japanese, or roman-language characters that include non-U.S. markings (for example, accents or umlauts), to complete attributes in resources, such as Schedule, Group, or Storage

Node. All resource names and attributes must use US-ASCII 7-bit characters. You can, however, use multibyte language characters or roman characters with non-U.S. markings as filenames.



Caution – Non-ASCII characters are displayed correctly with the English Sun StorEdge EBS 7.1 binaries only for European locales (within the ISO 8859 code set). Non-ASCII characters are not displayed correctly with English Sun StorEdge EBS 7.1 binaries for Asian locales.

For further information regarding alphanumeric characters that can be used in attribute names, refer to the *Sun StorEdge Enterprise Backup Software Administrator's Guide*.

Length Limits to Filepaths and Directory Names

Sun StorEdge Solstice Backup 6.0 and Sun StorEdge Enterprise Backup 7.0 and later software supports a full filepath length limit of 1,024 bytes (standard for most operating systems). Consequently, if you are working in a language that uses multibyte characters (for example, Chinese or Japanese), ensure that the filepath and directory names remain within the limits imposed by the operating system and the Sun StorEdge EBS software.

Documentation Corrections and Additions

This section contains corrections or additions to the Sun StorEdge EBS release 7.1 documentation. Note that page number references in parentheses refer to pages in PDF or hardcopy version of the documentation.

Administrator's Guide

The following information should be added to the *Sun StorEdge Enterprise Backup Software 7.1 Administrator's Guide*, page 550:

Renamed Directories and Incremental Backups

Because of the way Sun StorEdge EBS determines if a file has changed between backups, renaming a directory may cause unexpected behavior during an incremental backup. This occurs when the save set is listed as a directory name (rather than using a predefined save set, such as All). If the name of a subdirectory underneath the listed directory is changed after a full backup but no files were changed, the newly renamed directory will not be included in subsequent incremental backups.

To avoid this problem, copy directories and then rename the copy, rather than renaming the original directory. This causes Sun StorEdge EBS to recognize a new directory. Alternatively, after renaming the directory you can either manually back up the directory or run a level full backup, which will correctly back up the new directory.

If you are attempting to recover files that reside in the renamed directory, you will not see the renamed directory when browsing your backups. To recover the files, change the browse time to a time immediately before the directory was renamed and recover files under the old directory. You will need to relocate the recovery to the renamed directory, or copy it after the recovery is complete.

NDMP Release Supplement

Network Data Management Protocol (NDMP) is a standards-based storage management client/server protocol for enterprise-wide backup of heterogeneous, network-attached storage.

This chapter discusses the following topics:

- [“NDMP Support” on page 41](#)
- [“Enhanced NDMP Features” on page 43](#)
- [“Important Notes and Tips” on page 44](#)
- [“Known Limitations” on page 45](#)

NDMP enables the Sun StorEdge EBS software to provide connections to Sun StorEdge EBS clients that have NDMP data services allowing them to backup client data and provide NDMP tape services to operate media devices such as jukeboxes and tape devices significantly reducing network traffic. NDMP also allows the Sun StorEdge EBS software to maintain the client file index and media database, as well as control backup operations on a UNIX computer with an NDMP service installed.

NDMP Support

This section describes operating systems that support the Sun StorEdge EBS NDMP disk and tape services.

Operating Systems

This release supports the following server platforms for NDMP:

- Solaris 7, 8, 9
- HP-UX 11, 11.11, 11i (64-bit 1.5, 1.6), 11.30 (64-bit)
- Red Hat Linux 7.23, Advanced Server 2.1
- SuSE Linux 8.0, Enterprise Server 8
- AIX 4.3.3, 5.1, 5.2, 5L
- HP Tru64 5.0A, 5.1, 5.1A, 5.1B

For further, up-to-date details on supported operating systems, refer to the *Legato Compatibility Guides* available on the Sun web site at www.legato.com.

NDMP Disk and Tape Services

TABLE 2-1 lists the supported NDMP features for each disk and tape service. For information about which versions of the disk and tape services are supported, refer to the *Legato Software Compatibility Guide* on the Legato web site.

TABLE 2-1 Supported NDMP Features with Disk and Tape Services

Server Type	NDMP Feature Summary					Limitations
	Local	3-Party	Remote	DAR	DDS	
NetApp	Yes	Yes	Yes	Yes	Yes	File-level restore using the <code>nwrecover</code> program or <code>recover</code> command is limited to 1 million files for both direct access restore (DAR) and non-DAR restores with Data ONTAP 6.4. For all versions of Data ONTAP earlier than 6.4, the limit is 1,024 files per DAR restore operation and 10,240 for non-DAR restores.
EMC Celerra	Yes	Yes	Yes	Yes	Yes	File-level restore using the <code>nwrecover</code> program or the <code>recover</code> command is limited to 10,000 files per restore operation.
EMC IP4700	Yes	Yes	Yes	No	Yes	File-level restore using the <code>nwrecover</code> program or the <code>recover</code> command is limited to approximately 4 million files per restore operation.
Auspex NS2000, NS3000	Yes	Yes	Yes	Yes	No	File-level restore using the <code>nwrecover</code> program or the <code>recover</code> command is limited to 10,000 files per restore operation.
Procom	Yes	Yes	Yes	No	No	None
Mirapoint	Yes	Yes	Yes	No	No	None

Enhanced NDMP Features

The following NDMP features are new in Sun StorEdge EBS release 7.1:

- “Save Set All Attribute Supported for Servers Running NDMP Version 3 or Higher” on page 43
- “Configuring Autochanger Enhancements” on page 43
- “New Attributes and Resources for the PowerSnap Module Software” on page 43

Save Set All Attribute Supported for Servers Running NDMP Version 3 or Higher

In the Save Set attribute of the Client resource, the default option All, is supported for servers running NDMP version 3 or higher.

Configuring Autochanger Enhancements

When configuring an autochanger with the **jbconfig** command, the autochanger handle is no longer required when the tape server is running NDMP version 3 or higher and supports NDMP_CONFIG interfaces. In addition, the **inquire** command can be used to search for available devices on the NDMP tape server.

New Attributes and Resources for the PowerSnap Module Software

The PowerSnap Module solution enhances the Sun StorEdge EBS software by allowing continuous snapshot-based data protection and availability during backups. The PowerSnap features are configured through resources in the Sun StorEdge EBS software, such as the Group resource and the Snapshot Policy resource.

The Group resource contains three new attributes that can only be used when the PowerSnap Module software is installed: Snapshot, Snapshot Policy, and Snapshot Pool. For information on how to configure these attributes, refer to the PowerSnap Module documentation.

The Snapshot Policy resource is required to perform backups with the PowerSnap Module software. This resource is not used for regular Sun StorEdge EBS backups. For information on the Snapshot Policy resource, refer to the PowerSnap Module documentation.

Important Notes and Tips

This section describes important notes and helpful tips related to NDMP.

Single Save Sets Support Only One Code Set

A single save set supports data belonging to only one code set. If you have data in multiple code sets, you must create multiple save groups.

The save set can contain filenames that belong to different languages if all characters in those languages belong to the same code set. For example ISO 8859-1 and ISO 8859-15 include most Western European languages, such as French (fr), Spanish (es), and Portuguese (pt), so filenames from these languages can be backed up in a single save set.

Do Not Use `server_devconfig -c` Option When Discovering New Devices with EMC

Each time a new device is added to a configuration involving EMC filers, you must discover the new device through the `server_devconfig` command. However, if you use the `-c` option with the `server_devconfig` command, the device names are repeated several times in the corresponding file. To avoid this problem, use the `-p` option instead or discover the new devices through the interface.

Existing Directory Required for Auspex Directed Recovery

If you attempt a directed recovery on an Auspex filer and the directory to which you are relocating the recovery does not already exist, the recovery fails. To complete a successful directed recovery, Auspex requires that you specify an existing directory as the destination directory.

Known Limitations

This section describes known limitations, configuration tips, and workarounds in NDMP support.

Message Displayed When CDI Enabled on NDMP or Disk File Type Device (Legato Bug ID: LGTpa51410)

If you enable the CDI feature while using an NDMP tape device or disk file type device, a message similar to the following appears in the Sun StorEdge EBS message log:

```
nsrd: media notice: The CDI attribute for device "/dev/rmt/3cbn"
has been changed to "Not used".
```

To avoid this message, do not enable the CDI attribute for these device types.

NDMP Savegrp Process Abort Takes a Long Time with an EMC Celerra Filer and DART OS T4.1.8 (Legato Bug ID: LGTpa45126)

When a Sun StorEdge EBS NDMP `savegrp` process is aborted, the abort can take as long as 30 minutes to complete. This problem only occurs in a configuration where the tape library is attached to an EMC Celerra filer with DART OS T4.1.8 or T4.2.x. This issue is resolved in T5.0.x.

Invalid Backup Path Recovery Takes a Long Time (Legato Bug ID: LGTpa45195)

When an incorrect backup path is specified for an NDMP Sun StorEdge EBS recovery, an error message may not be returned for up to 30 minutes. This problem only occurs in a configuration where the tape library is attached to an EMC Celerra filer with Dart OS T4.1.8 or T4.2.x. This issue is resolved in T5.0.x. To avoid this problem, verify that the correct backup path is specified for the recovery.

Renamed EMC Celerra Directory Not Processed in Level Backup (Legato Bug ID: LGTpa44856)

If a directory is renamed between a full backup and a level backup, EMC Celerra fails to process the renamed directory. Neither the original directory name nor the new directory name appears in the `nwrecover` program or the `recover` command line. To recover the renamed directory, perform a save set recovery.

Permission Problems with DAR Recovery of NetApp Servers (Legato Bug ID: LGTpa45205)

When a DAR recovery of an NDMP backup of a NetApp server is performed, the permissions of the recovered directories and subdirectories do not match the permissions of the original directories and subdirectories.

To avoid this problem, perform one of the following:

- Manually change the directory attributes of the new directory after the recovery.
- Perform a save set recovery or a non-DAR index recovery instead of a DAR recovery.

Unable to See All Recovered Files in nwrecover Program (Legato Bug ID: LGTpa31410)

When consecutive file recoveries are performed, sometimes only the recovery of the first file appears when you change to that directory. For example, if you recover a single file using `nwrecover` and then recover a second file from the same directory, both files are successfully recovered, but only the first recovered file is listed in that directory.

This issue only occurs from the host. When the filesystem is mounted to another system, all recovered files are visible.

Symbolic Links Are Not Restored during DAR Recovery with NetApp

When performing a DAR recovery, symbolic links for files, directories and other specific files, such as device files or named pipes, cannot be recovered. To recover these files, use the NetApp restore command with the `-x` option. For more information about the NetApp restore command, refer to the Network Appliance documentation.

Eight-Character NDMP Password Limitation Not Enforced (Legato Bug ID: LGTpa35523)

When specifying an NDMP password, the password cannot exceed eight characters for a NetApp machine. However, when you specify a password for a NetApp machine through the Sun StorEdge EBS Administrator program, the Password attribute accepts more than eight characters and does not display an error message. If you specify a password that is nine characters or more, you will not be able to back up data. To avoid this problem, always specify a password that is eight characters or less.

Error Message after Successful Three-Party DAR Recovery (Legato Bug ID: LGTpa36155, LGTpa48565, LGTpa41852)

After a three-party DAR index recovery of all files has completed, the following error message may appear:

```
Tape server halted: mover aborted by client
```

This message can be ignored. The data has been successfully restored. The message is caused by the data server moving to a Halted state while the data mover is still in the Active state. The `recover` program waits a specified time before sending a `mover_abort` command to the mover, resulting in the error message. This is a limitation of the NDMP protocol.

Permission Problems with Index Recoveries of NDMP Filers (Legato Bug ID: LGTpa29103)

When using the `nwrecover` program or the `recover` command to perform an index-based recovery of one or more files to a directory that does not exist in the target NDMP filer, the filer creates a new directory. This new directory will receive default attributes, which might not match the attributes of the originally backed-up directory.

To avoid this problem, perform one of the following:

- Manually change the directory attributes of the new directory after the recovery.
- Perform a save set recovery instead of an index-based recovery.

Disabling Locally Attached Drives Can Cause Restore Failure (Legato Bug ID: LGTpa31403)

If you have library sharing between two data movers and you use the Sun StorEdge EBS Administrator program to disable one or more drives that are locally attached to one of those data movers, performing a restore forces the Sun StorEdge EBS software to choose the drive that is attached to the other data mover, thus causing a three-party restore. This forced three-party restore then fails. To successfully restore the data, reenabling the locally attached drives.

No Client File Index for Multiple Mount Points on the Same Host with Celestra (Legato Bug ID: LGTpa24557)

The Sun StorEdge EBS software does not distinguish between mount points and normal directories when sending a file history while using Celestra. For example, if you back up a filesystem mounted on `/mnt2/mnt3` and browse the client file indexes for the filesystem, the software displays all the indexes correctly. If you then unmount `/mnt2/mnt3` and later back up only `/mnt2`, the `nwrecover` program 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 client file indexes of the previously backed-up partition.

To avoid this issue, back up `/mnt2` first and then back up `/mnt2/mnt3`. When the backups are completed in this order, the software displays all the indexes correctly.

File Recovery Limitation (Legato Bug ID: LGTpa24935)

When performing a recovery while also using Data ONTAP 6.0, you must specify a forward slash (/) at the end of the mount point. Otherwise, the recovery fails. When you specify a forward slash, the recovery is successful.

Preinitialized STK Tapes In NDMP-Enabled Tape Devices Not Used (Legato Bug ID: LGTpa28778)

STK offers two types of tapes: preinitialized and uninitialized. The `nwrecover` program does not use tapes that have been preinitialized in an NDMP-enabled tape device.

To ensure that all tapes in an NDMP tape device are used:

- Do not use tapes that were preinitialized in an NDMP-enabled tape device.
- Label preinitialized tapes in a non-NDMP tape device using Sun StorEdge EBS software and then use only those tapes in the NDMP-enabled tape devices.

EMC Celerra Level 5 Recovery Recovers More Than Original Backup (Legato Bug ID: LGTpa29467)

During a level 5 recovery on EMC Celerra, the Sun StorEdge EBS server also recovers an empty subdirectory from the last full backup, even though the contents and name of the subdirectory did not change. To avoid this problem, perform a file-by-file recovery when recovering a level 5 backup.

Specify Mount Point Attribute When Performing an NDMP Directed Recovery (Legato Bug ID: LGTpa29497)

When you perform a directed recovery on an NDMP server, the recovery fails if a value has been specified in the Relocate attribute of the Options dialog box. To avoid this problem and perform a directed recovery, specify the new location in the Mount Point attribute of the Save Set Recover Status dialog box and leave the Relocate attribute blank.

NDMP Recovery of Large Number of Files Causes NetApp Filer Panic (Legato Bug ID: LGTpa32106)

If you perform a file-by-file recovery using the `recover` command or the `nwrecover` program, specifying a recovery of more than 10,240 files may cause the NetApp filer to panic or result in an error message. To avoid this problem, perform a save set recovery or recover fewer than 10,240 files at one time.

Network Appliance has documented this problem in NetApp Bug 52946 and has patches available for both Data ONTAP 6.1 and 6.1.1. These Data ONTAP patches are available by contacting Network Appliance support at the Network Appliance web site.

Fixed Bugs List

This *Fixed Bugs List* provides a list of bugs that have been fixed in Sun StorEdge Enterprise Backup Software release 7.1.

Fixed Bugs for Sun StorEdge EBS Release 7.1

The following table lists all bugs and requests for enhancement (RFEs) that have been fixed in Sun StorEdge EBS release 7.1.

TABLE 3-1 Fixed in Sun StorEdge EBS Release 7.1 (1 of 6)

Number	Description	Type
LGTpa21142	The <code>nsrhmck</code> man page has been updated to reflect limitations related to HP Tru64 platforms. <i>Legato Command Reference Guide, Release 7.1, UNIX Version</i>	Bug/ Escal
LGTpa27084	When the <code>save</code> command is run using <code>-I input_file</code> , and the actual location of one of the entries is deleted, the command would exit with remote procedure call (RPC) errors, without saving the remaining entries in the <code>input_file</code> . This has been resolved.	RFE
LGTpa33586	The <code>jbconfig</code> command displayed the following error message when trying to configure a StorageTek silo: jukebox error: dlopen: errno 22 (invalid argument) This has been resolved.	Bug/ Escal
LGTpa35281	The <code>save set</code> consolidation process did not abort when consolidating directories or files. This has been resolved.	Bug/ Escal
LGTpa36932	The Sun StorEdge EBS software did not detect and back up a Samba filesystem. This has been resolved.	Bug/ Escal

TABLE 3-1 Fixed in Sun StorEdge EBS Release 7.1 (2 of 6)

Number	Description	Type
LGTpa41981, LGTpa54972, LGTpa55685/ Sun Bug ID: 4771063	Reports generated with the <code>mminfo</code> command contained invalid information. This has been resolved.	Bug/ Escal
LGTpa42632	When a backup spanned two volumes, the save set flags were displayed as "h" and "c" in the Volumes tab in the Sun StorEdge EBS Administrator program. This has been resolved. The flags now appear as "h" and "t".	Bug/ Escal
LGTpa42730	The client file index did not support nonstatic filesystems. For example, UNC paths were not supported. This has been resolved.	Bug/ Escal
LGTpa43161	On a Tru 64 operating system, the <code>nsrjb -I</code> command displayed an I/O error when performing an inventory on a library. This has been resolved.	Bug/ Escal
LGTpa43308	All the save sets were not removed from a volume after the staging process was complete. This has been resolved.	Bug/ Escal
LGTpa43515/ Sun Bug ID: 4719048	The <code>save.exe</code> process stopped responding when a directory or filepath length was longer than 1,024 characters. This has been resolved.	Bug/ Escal
LGTpa44644	When a probe was performed on a savegroup that was running, all files under that savegroup in the <code>/nsr/tmp</code> directory were deleted. This has been resolved.	Bug/ Escal
LGTpa44738	When scanning a tape that was behind a firewall, the scanning process failed and used privileged ports to connect to the Sun StorEdge EBS server. This has been resolved.	Bug/ Escal
LGTpa45025	When editing a Client resource, the Password attribute changed for other Client resources that were not updated. This has been resolved.	Bug/ Escal
LGTpa45027	The Sun StorEdge EBS software was not enforcing proper volume labeling restrictions. For example, unsupported characters such as forward and backward dashes were accepted as valid, although later the improper labels resulted in an error message. This has been resolved, the Sun StorEdge EBS software will report an error if an improper label is used.	Bug/ Escal
LGTpa45445	Duplicate and blank bar code entries were accepted in the Jukebox Labeling dialog box in the Sun StorEdge EBS Administrator program. This has been resolved.	Bug/ Escal
LGTpa47818	The memory consumption during the <code>nsrd</code> process has been reduced to improve the speed of Sun StorEdge EBS operations.	RFE

TABLE 3-1 Fixed in Sun StorEdge EBS Release 7.1 (3 of 6)

Number	Description	Type
LGTpa48518	The index save set of a remote client was not flagged in the savegroup completion report. This has been resolved.	Bug/ Escal
LGTpa48543	The Sun StorEdge EBS Administrator program did not differentiate between the Oracle license for Windows and UNIX. This has been resolved.	Bug/ Escal
LGTpa48782	The Sun StorEdge EBS software did not check to see if the label was still on the tape after writing finished. This has been resolved.	RFE
LGTpa48946	Using the <code>nsrjb -u -S</code> command caused the last tape drive to unload the tape. This has been resolved.	Bug/ Escal
LGTpa48956	The <code>nsradmin</code> program uses a port within the connection ports range for the TCP client source port.	RFE
LGTpa49138	In an AlphaStor environment, if there were only recyclable tapes available and the pool was restricted to a specified number of drives, the following message appeared and no mount request occurred: Label a new volume This has been resolved.	Bug/ Escal
LGTpa49750	A bootstrap was recovered to two different directory paths when using the <code>mmrecov</code> command. This has been resolved.	Bug/ Escal
LGTpa49931 / Sun Bug ID: 4834837	Using the <code>jbconfig</code> command with an Solaris L8 Tape Library caused the following message to appear whether a bar code was present or not: "Barcode reading to on. Your jukebox does not report that it has a barcode reader, but it does report that it can handle volume tags. Some jukeboxes that have barcode readers report this way." This has been resolved.	RFE
LGTpa50126	The Sun StorEdge EBS software slowed considerably after upgrading from Sun Cluster 2.2 to Sun Cluster 3.0 when initiating a filesystem backup. This has been resolved.	Bug/ Escal
LGTpa50298	The media index location field for the volume appeared blank when using the <code>mmlocate -u</code> command to update a volume location. This has been resolved.	Bug/ Escal
LGTpa50339	After performing a recovery, the message "root browsing" does not clear from the Sun StorEdge EBS Administrator program or the display output produced by the <code>nsrwatch</code> command. This has been resolved.	Bug/ Escal

TABLE 3-1 Fixed in Sun StorEdge EBS Release 7.1 (4 of 6)

Number	Description	Type
LGTpa50380	Rather than checking the availability for media daemons and devices for every operation involving a storage node, a list of usable storage nodes is now made available to increase the efficiency of media operations.	RFE
LGTpa50602	When performing a directed recovery of an older version of a file, the most recent version of the file was restored. This has been resolved.	Bug/ Escal
LGTpa50679	The performance of a backup was diminished if a jukebox was defined as an NDMP device with the Target Session attribute set to 1. This has been resolved.	Bug/ Escal
LGTpa50840	The <code>nsrd</code> process can identify the structure of media daemons and devices accessible from a storage node, allowing the Sun StorEdge EBS software to efficiently allocate media daemons and devices for media operations.	RFE
LGTpa50864	When trying to consolidate a save set between a jukebox and Sun StorEdge EBS server, the following error message appeared: The full and incremental backups are not on the same storage node This has been resolved.	Bug/ Escal
LGTpa50877	Volume mount times increased because the Sun StorEdge EBS software requested a volume that was currently being ejected be loaded into another drive when other tapes were available. This has been resolved.	RFE
LGTpa50956	The <code>nsrjb</code> process stopped responding during automatic cloning. This has been resolved.	Bug/ Escal
LGTpa51038, LGTpa43359, LGTpa56663/ Sun Bug ID: 4810298, 4811534, 4811389, 4833752	The <code>inquire</code> command did not return the device path for 9840B and 9940B, IBM LTO Ultrium-2 tape drives. This has been resolved and these tape drives are fully supported by the Sun StorEdge EBS software.	Bug/ Escal
LGTpa50992	After changing the Read Only attribute, the resulting message in the <code>daemon.log</code> file did not reflect the changed state. This has been resolved.	Bug/ Escal
LGTpa51070	The <code>nsrd</code> process core dumped after initiating the debug command (<code>dbgcommand</code>). This has been resolved.	Bug/ Escal

TABLE 3-1 Fixed in Sun StorEdge EBS Release 7.1 (5 of 6)

Number	Description	Type
LGTpa51086/ Sun Bug ID: 4844718	When installing the Sun StorEdge EBS software onto a Solaris 9 operating system, the <code>nsr_shutdown</code> script displays the following error message: <code>/usr/sbin/nsr_shutdown: client name: not found</code> This has been resolved.	Bug/ Escal
LGTpa51103	Maintenance processes such as <code>nsrim</code> and <code>nsrck</code> caused the media database to update its internal directories. Other applications running in these directories caused the directory renames to fail, and the media database shut down the Sun StorEdge EBS software. This has been resolved.	Bug/ Escal
LGTpa51320	When the Sun StorEdge EBS server contacted the Legato License Manager to update the expiration date, the NDMP license expiration date remained unchanged. This has been resolved.	Bug/ Escal
LGTpa51523	In a TruCluster configuration when save set All was selected for backup, the Sun StorEdge EBS software stopped responding if the nodes were not configured in numerical order. This has been resolved.	Bug/ Escal
LGTpa51509	If a parallel staging operation was performed on the media database, the Sun StorEdge EBS software stopped responding. This has been resolved.	Bug/ Escal
LGTpa51581	The Sun StorEdge EBS software was unable to restore multiple filesystems in parallel. This has been resolved.	Bug/ Escal
LGTpa51946	The following error message appeared when allocating additional tapes to the silo with the Sun License Manager: <code>nsrjb -a -T A0003 Silo license capacity has been reached - add barcode tags ended</code> This has been resolved.	Bug/ Escal
LGTpa52061	When attempting to delete a save set or clone ID, the Sun StorEdge EBS software was not consistently deleting the defined save set or clone ID. This has been resolved.	Bug/ Escal
LGTpa52091	When the number of save sets in a volume exceeded 250,000, the media database became corrupt. This has been resolved.	Bug/ Escal
LGTpa52214	When initiating a backup with the Clone attribute enabled, the Sun StorEdge EBS software slowed considerably and the following error message appeared: <code>failed to execute MODE_CLONE</code> This has been resolved.	Bug/ Escal
LGTpa52394	In a TruCluster environment, the Sun StorEdge EBS server requested too many cluster client connection licenses from the Legato License Manager. This has been resolved.	Bug/ Escal

TABLE 3-1 Fixed in Sun StorEdge EBS Release 7.1 (6 of 6)

Number	Description	Type
LGTpa52981	The Sun StorEdge EBS software was unable to mount volumes on multiple silos that were configured on one backup server after upgrading from release 6.1.1 to 6.1.3. This has been resolved.	Bug/ Escal
LGTpa53482	The <code>jbconfig</code> command was not identifying an LTO Ultrium drive type correctly. This has been resolved.	Bug/ Escal
LGTpa53719	The <code>inquire</code> command stopped responding on host ports and no information indicating the cause of the problem was shown in the <code>inquire</code> command output. This has been resolved.	Bug/ Escal
LGTpa53955	The browse time of a recoverable save set could not be changed. This has been resolved.	Bug/ Escal
LGTpa54397	An AlphaStor Import/Export process would not complete until all <code>nsrjb</code> mount requests were complete. This has been resolved.	Bug/ Escal
LGTpa54525	If the <code>nsrjb -Lvv -f</code> command was initiated from a server or client in an AlphaStor environment, the process stopped responding. This has been resolved.	Bug/ Escal
LGTpa54606	The Sun StorEdge EBS software did not restore the permission rights for symbolic links when they were recovered on an HP-UX 11 platform. This has been resolved.	Bug/ Escal
LGTpa54870/ Sun Bug ID: 4867885	The Sun StorEdge EBS software did not detect all devices with a JNI host bus adaptor card. This has been resolved.	Bug/ Escal
LGTpa55204	Externally mounted filesystems were backed up when the Save Set attribute was set to All with a Mac OS X client. This has been resolved.	Bug/ Escal
LGTpa55250	The <code>mminfo -ax</code> command did not display the full Recent Save Set Usage summary. This has been resolved.	Bug/ Escal
LGTpa55258	When performing a recovery from the command line, marking greater than one million files for recovery resulted in a core dump. This has been resolved.	Bug/ Escal
LGTpa55729	The <code>nsrjb -o recycle</code> command caused the Sun StorEdge EBS software to core dump. This has been resolved.	Bug/ Escal
LGTpa55767	During a recovery, a <code>nsrmmmd</code> process might get caught in both a Busy and Assigned state causing the <code>nsrmmmd</code> process to stop responding. This has been resolved.	Bug/ Escal
LGTpa56183	When running 4 parallel <code>nsrstage</code> commands, all cloned save sets were not deleted in media database or from the staging device. This has been resolved.	Bug/ Escal

Legato NetWorker ClientPak

This appendix is the Release Supplement for the Legato NetWorker ClientPak, Release 7.1. It contains the following sections:

- [“Supported Platforms and Systems” on page 57](#)
- [“What Is New in This Release” on page 59](#)
- [“Known Limitations” on page 59](#)
- [“Backing Up a Sun StorEdge EBS Client on Mac OS X” on page 59](#)
- [“Recovering Individual Files and Directories” on page 66](#)
- [“Recovering a Sun StorEdge EBS Client on Mac OS X from Disaster” on page 67](#)

Supported Platforms and Systems

The following operating systems, hardware, and systems are supported by this release of the Legato NetWorker ClientPak.

Mac OS X Client Support

Mac clients can be backed up and recovered by using any supported Sun StorEdge EBS server on UNIX, Linux, or Windows operating systems. Noncore Sun StorEdge EBS functionality, such as HSM, cluster, or NDMP support is *not* currently supported.

Mac Legacy Files Supported

Legato NetWorker ClientPak supports backup and recovery of HFS and HFS+ resource fork and Finder metadata. This compatibility ensures the proper backup and recovery of legacy files used with Mac OS X.

User Interface

The Sun StorEdge EBS client for Mac OS X software supports the standard Sun StorEdge EBS command line user interface.

Sun StorEdge EBS Support

The Sun StorEdge EBS client for Mac OS X software is compatible with the following Sun StorEdge EBS systems:

- Sun StorEdge EBS server releases 6.1.2, 6.1.3, 7.0, and 7.1 on UNIX, Linux, and Windows NT
- Sun StorEdge EBS mainframe server releases 6.1.3 and 7.0

Supported Hardware

The Sun StorEdge EBS client for Mac OS X software supports the following Apple systems hardware platforms:

- Power Mac G4, Power Mac G4 Cube, and Power Mac G3
- Xserve (including two-way)
- PowerBook and PowerBook G4
- iMac and eMac

Supported Versions of OS X

The Sun StorEdge EBS client for Mac OS X software supports the following versions of Mac OS X:

- Mac OS X version 10.2.x (Jaguar)
- Mac OS X Server version 10.2.x (Jaguar)

Supported Filesystems

The Sun StorEdge EBS client for Mac OS X software supports backup and recovery of the following filesystems:

- HFS and HFS+ including journaling
 - UFS filesystems.
-

What Is New in This Release

This section describes the new features of the Legato NetWorker ClientPak, release 7.1.

Support has been added for filenames containing characters belonging to Unicode code sets and for UTF-8 (Unicode) encoded filenames.

Known Limitations

The following are known limitations for this release of the Legato NetWorker ClientPak:

- Recovery of Mac OS X save sets to non-Mac OS X clients is *not* supported.
 - The Mac OS X client software does *not* support non-Unicode code sets.
-

Backing Up a Sun StorEdge EBS Client on Mac OS X

The following sections provide information on configuring and performing backups of data on the Sun StorEdge EBS client on Mac OS X.

- [“Performing Backups of Data on Mac OS X Clients” on page 60](#)
- [“MAC OS X Required Directives” on page 61](#)
- [“Backing Up the NetInfo Database for Disaster Recovery” on page 64](#)
- [“Changing the Sun StorEdge EBS Servers with Access to a Client” on page 65](#)

Performing Backups of Data on Mac OS X Clients

Both scheduled and manual Sun StorEdge EBS backups require the Sun StorEdge EBS Client resource to be defined on the Sun StorEdge EBS server.

Scheduled Backups

Scheduled backups of Sun StorEdge EBS clients are performed by the Sun StorEdge EBS server. For information on configuring the Client resource, Schedule resource, Groups, and Pools used for scheduled backups, refer to the *Sun Sun StorEdge EBS Administrator's Guide* and the *Sun Sun StorEdge EBS Release Supplement* for release 6.1.3, 7.0, or 7.1.

Manual Backups

Manual backups of files or directories on the Sun StorEdge EBS client can be performed by the Sun StorEdge EBS client on Mac OS X, using the following command:

```
$ save file_or_directory_to_back_up
```

By default, the `save` command contacts the first Sun StorEdge EBS server defined in the `/nsr/res/servers` file. To specify an alternative Sun StorEdge EBS server, use the `save` command with the `-s networker_server` option.

For more information on configuring a Client resource, and command line parameters used for manual backups, refer to the *Sun Sun StorEdge EBS Administrator's Guide* and the *Sun Sun StorEdge EBS Release Supplement* for release 6.1.3 or 7.1.

MAC OS X Required Directives

To ensure a consistent state after recovery, certain files and directories should *not* be backed up on Mac OS X systems. [TABLE A-1 on page 61](#) lists files and directories that should *not* be backed up on Mac OS X.

TABLE A-1 Mac OS X Files or Directories that Should *Not* be Backed Up

Files or Directories	Description
Desktop DB Desktop DF	Mac OS 9 desktop database files
.DS_Store	Finder settings
TheVolumeSettingsFolder/	Desktop state details.
VM Storage	Mac OS 9 virtual memory
private/var/db/netinfo	The NetInfo database

To ensure that these files and directories are not backed up, define them on the Sun StorEdge EBS server in a Directives resource; see the following two examples. For more information on Directives, refer to the *Sun StorEdge Enterprise Backup Software Administrator's Guide*.

Example: Standard Mac OS X Directives

```
<< "/" >>

skip: Desktop\ DB

skip: Desktop\ DF

+skip: .DS_Store

skip: cores

skip: VM_Storage

skip: TheVolumeSettingsFolder

<< "/private/var/db/netinfo" >>

skip: .

<< "/nsr/logs" >>

logasm: .

<< "/private/var" >>

logasm: .

<< "/private/var/vm" >>

swapasm: .
```

Example: Mac OS X Directives with Compression

```
<< "/" >>

skip: Desktop\ DB

skip: Desktop\ DF

+skip: .DS_Store

skip: cores

skip: VM_Storage

skip: TheVolumeSettingsFolder

+compressasm: .

<< "/private/var/db/netinfo" >>

skip: .

<< "/nsr/logs" >>

logasm: .

<< "/private/var" >>

logasm: .

<< "/private/var/vm" >>

swapasm: .
```

Backing Up the NetInfo Database for Disaster Recovery

The following sections describe issues that are specific to the backup and recovery of the Mac OS X NetInfo database. The NetInfo database contains system configuration information that is essential for disaster recovery.

Backing Up the NetInfo Database Before a Save

Using the directives described in *“MAC OS X Required Directives” on page 61*, the local NetInfo database will not be backed up by a Sun StorEdge EBS save.

To ensure consistency of disaster recovery, the NetInfo database should be saved in the `/var/backups/networker.nidump` file, before each Sun StorEdge EBS backup. This can be done manually with the following command:

```
$ sudo nidump -r / -t localhost/local /var/backups/networker.nidump
```

To automatically generate a backup file of the NetInfo database before each Sun StorEdge EBS save, use Sun StorEdge EBS's `savenpc` command, configured as follows:

1. Enter `savenpc` as the Backup command when configuring the Mac OS X client as a Sun StorEdge EBS Client resource in the `nwadmin` or `nsradmin` program.
2. Create a custom `savenpc` script in the `/nsr/res` directory with the name `<group_name>.res`, where `<group_name>` is the Group resource selected for that client.

Example: savenpc Script

A Mac OS X client that belongs to the Default group will have a `/nsr/res/Default.res` script with the following content:

```
type: savenpc;  
  
precmd: "/usr/bin/nidump -r / -t localhost/local  
         /var/backups/networker.nidump"
```

In this script, the `savenpc` command backs up the NetInfo database to the `/var/backups/networker.nidump` file before each scheduled save.

For additional information on the `savepnpc` script, refer to the *Sun StorEdge Enterprise Backup Software Administrator's Guide*. For additional information on recovering from a disaster, refer to the *Sun StorEdge Enterprise Backup Software Disaster Recovery Guide* for release 6.1.3 or 7.1.

Changing the Sun StorEdge EBS Servers with Access to a Client

To limit the servers authorized to access a client, you can specify a list of trusted Sun StorEdge EBS servers for the client.

▼ To Change Client Access

To change which Sun StorEdge EBS servers can access a client:

1. Open the Mac OS X Terminal application.
2. Enter the following command to shut down the Sun StorEdge EBS daemons:

```
$ sudo SystemStarter stop NetWorker
```

3. Edit or create the `/nsr/res/servers` file and add the set of Sun StorEdge EBS servers, one per line, that you want to grant access to the client. The first entry in this file becomes the default Sun StorEdge EBS server.
4. Start the Sun StorEdge EBS daemons by entering the following command:

```
$ sudo SystemStarter start NetWorker
```

5. Verify that the Sun StorEdge EBS Client daemon, `nsrexecd`, is running by entering the following command at the system prompt:

```
$ ps -ax | grep nsrexecd
```

Recovering Individual Files and Directories

The following sections provide information on recovering individual files and directories from the Mac OS X client:

- [“Task 1: Browse Backed Up Mac OS X Data” on page 66](#)
- [“Task 2: Recover Individual Files or Directories” on page 66](#)

Task 1: Browse Backed Up Mac OS X Data

To browse backed-up Mac OS X data:

1. From the Mac OS X Terminal application utility, open a shell prompt on the Sun StorEdge EBS server with the following command:

```
$ recover
```

By default, the `recover` command contacts the first Sun StorEdge EBS server defined in the `/nsr/res/servers` file. To specify an alternative Sun StorEdge EBS server, use the `recover` command with the `-s networker_server` option.

2. At the `recover` prompt, browse backed up Mac OS X data by using traditional UNIX filesystem navigation commands.

Task 2: Recover Individual Files or Directories

To recover individual files or directories from the client's `recover` prompt:

1. At the `recover` prompt, add all the directories and files that you want to recover, using the `add` command, for example:

```
recover> add directory_name
```

2. (Optional) To automatically overwrite existing files, enter the `force` option at the `recover` prompt.

3. Start the recovery by entering the following command at the recover prompt:

```
recover> recover
```



Caution – Do not recover any Mac OS X operating system boot files that should not be overwritten during a recovery. For example do not recover the Mac OS X operating system kernel, `/mach_kernel`.

For additional information on browsing and recovering individual files and directories, refer to the *Sun StorEdge Enterprise Backup Software Administrator's Guide, Release 7.1* and the *Sun StorEdge Enterprise Backup Software Release Supplement for release 6.1.3*.

Recovering a Sun StorEdge EBS Client on Mac OS X from Disaster

The following sections provide information on recovering a Sun StorEdge EBS client on Mac OS X from a disaster such as a hard drive crash or corruption:

- [“Prerequisites” on page 67](#)
- [“To Recover a Sun StorEdge EBS Client” on page 68](#)

Prerequisites

Before recovering the Sun StorEdge EBS client, ensure that the Mac OS X operating system is installed on the computer and that the Sun StorEdge EBS server is functional and available on the network.

If you need to recover the Sun StorEdge EBS server, refer to the *Sun StorEdge Enterprise Backup Software Disaster Recovery Guide* for release 6.1.3 or 7.1.

Additionally, ensure that you have the following:

- Version and patch level of the Sun StorEdge EBS client.
- The name of the computer on which the Sun StorEdge EBS server is running.

▼ To Recover a Sun StorEdge EBS Client

This section describes how to recover a Sun StorEdge EBS client computer back to the original computer or to a different computer.

To recover a Sun StorEdge EBS client, complete the following tasks in sequence:

- “Task 1: Install Sun StorEdge EBS Client” on page 68
- “Task 2: Recover the Application and User Data” on page 68
- “Task 3: Replace the NetInfo Database after a Disaster Recovery” on page 69
- “Task 4: Perform a Test Backup and Recovery” on page 70

Task 1: Install Sun StorEdge EBS Client

To install the Sun StorEdge EBS client software:

1. Install the same version of the Sun StorEdge EBS client.

Note – If you want to upgrade the client software, first recover the client to its original state, and then perform the upgrade.

2. Install any Sun StorEdge EBS backup utility patches that were installed before the disaster.
3. (Optional) Use the `recover` program to perform a test recovery to ensure that the recovery process is functioning properly.

Task 2: Recover the Application and User Data

To recover the application and user data:

1. If you need to determine which volumes contain the application and user data backups for this computer, use the `mminfo -avot` command on the Sun StorEdge EBS server, for example:

```
# mminfo -avot -c client_name
```

where *client_name* is the hostname of the computer whose application and user data are being recovered.

2. Open a recover prompt on the Sun StorEdge EBS server with the following command:

```
$ recover
```

3. At the recover prompt, browse backed up Mac OS X data by using traditional UNIX filesystem navigation commands.
4. Add all the directories and files that you want to recover, using the `add` command, for example:

```
recover> add directory_name
```

5. (Optional) To automatically overwrite existing files, enter the `force` option at the recover prompt.

```
recover> force
```

6. Start the recovery by entering the following command at the recover prompt:

```
recover> recover
```



Caution – Do not recover any Mac OS X operating system boot files that should not be overwritten during a recovery. For example, do not recover the Mac OS X operating system kernel, `/mach_kernel`.

7. Reboot the computer when the recovery is complete. The computer should now be recovered as it was before the disaster.

For additional information on recovering from disaster, refer to the *Sun StorEdge Enterprise Backup Software Administrator's Guide*, and the *Sun StorEdge Enterprise Backup Software Disaster Recovery Guide for release 6.1.3 or 7.1*.

Task 3: Replace the NetInfo Database after a Disaster Recovery

To recover the pre-disaster system configuration of the client, the current Mac OS X NetInfo database must be replaced with the recovered `networker.nidump` file.

To do this, follow the steps outlined in the Apple Care Document *107210: How to Replace the NetInfo Database*, which can be found at <http://docs.info.apple.com/article.html?artnum=107210>. This document describes how to use the `networker.nidump` file instead of the `local.nidump` file.

Task 4: Perform a Test Backup and Recovery

To test the Sun StorEdge EBS client backup and recovery process:

1. Perform a test manual backup by using the Sun StorEdge EBS backup commands.
2. Perform a test recovery by using the Sun StorEdge EBS recover commands.

For additional information on testing backup and recovery configurations, refer to the *Sun StorEdge EBS Administrator's Guide*.