



Sun StorageTek™ Enterprise Backup Software 7.6

Installation Guide

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As part of an effort to improve and enhance the performance and capabilities of its product lines, Sun periodically releases revisions of its hardware and software. Therefore, some functions described in this document may not be supported by all versions of the software or hardware currently in use. For the most up-to-date information on product features, refer to your product release notes.

If a product does not function properly or does not function as described in this document, please contact your Sun representative.

Audience

This document is part of the Sun StorageTek EBS documentation set, and is intended for use by system administrators during the installation and setup of Sun StorageTek EBS software.

Related documentation

For more information about Sun StorageTek EBS software, refer to this documentation:

- ◆ *Sun StorageTek Enterprise Backup Software Release 7.6 Administration Guide*
- ◆ *Sun StorageTek Enterprise Backup Software Release 7.6 Release Notes*
- ◆ *EMC Information Protection Software Compatibility Guide*

Conventions used in this guide

Sun uses the following conventions for notes, cautions, and important notices.

Note: A note presents information that is important, but not hazard-related.



CAUTION

A caution contains information essential to avoid data loss or damage to the system or equipment.



IMPORTANT

An important notice contains information essential to operation of the software.

Typographical conventions

Sun uses the following style conventions in this guide:

Normal	<p>Used in running (nonprocedural) text for:</p> <ul style="list-style-type: none"> Names of interface elements (such as names of windows, dialog boxes, buttons, fields, and menus) Names of resources, attributes, pools, Boolean expressions, buttons, DQL statements, keywords, clauses, environment variables, filenames, functions, utilities URLs, pathnames, filenames, directory names, computer names, links, groups, service keys, file systems, notifications
Bold:	<p>Used in running (nonprocedural) text for:</p> <ul style="list-style-type: none"> Names of commands, daemons, options, programs, processes, services, applications, utilities, kernels, notifications, system call, man pages
	<p>Used in procedures for:</p> <ul style="list-style-type: none"> Names of interface elements (such as names of windows, dialog boxes, buttons, fields, and menus) What user specifically selects, clicks, presses, or types
<i>Italic:</i>	<p>Used in all text (including procedures) for:</p> <ul style="list-style-type: none"> Full titles of publications referenced in text Emphasis (for example a new term) Variables

<code>Courier :</code>	Used for: <ul style="list-style-type: none"> • System output, such as an error message or script • URLs, complete paths, filenames, prompts, and syntax when shown outside of running text
Courier bold:	Used for: <ul style="list-style-type: none"> • Specific user input (such as commands)
<i>Courier italic:</i>	Used in procedures for: <ul style="list-style-type: none"> • Variables on command line • User input variables
< >	Angle brackets enclose parameter or variable values supplied by the user
[]	Square brackets enclose optional values
	Vertical bar indicates alternate selections - the bar means "or"
{ }	Braces indicate content that you must specify (that is, x or y or z)
...	Ellipses indicate nonessential information omitted from the example

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This chapter includes these sections:

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- ◆ Supported devices..... 13
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About the Sun StorageTek EBS product

The Sun StorageTek Enterprise Backup Software product is a suite of storage management software that provides backup, recovery, and other services to computers with a wide variety of operating systems and data types. Sun StorageTek EBS products for different operating systems are interoperable. This provides the flexibility to design a storage management system that works best with the current computing environment.

The Sun StorageTek EBS software is distributed in a media kit that contains the software and electronic documentation for several related Sun StorageTek EBS products. The Sun StorageTek EBS product has five major components:

- ◆ Sun StorageTek EBS client
- ◆ Sun StorageTek EBS storage node
- ◆ Sun StorageTek EBS server
- ◆ Sun StorageTek EBS Management Console

Sun StorageTek EBS client

The Sun StorageTek EBS client software communicates with the Sun StorageTek EBS server and provides recover and ad hoc (manual) backup functionality. The Sun StorageTek EBS client software is installed on all computers that are backed up to the Sun StorageTek EBS server.

Sun StorageTek EBS storage node

Data can be backed up directly to devices that are attached to a Sun StorageTek EBS server, or to a Sun StorageTek EBS storage node. A storage node controls storage devices such as tape drivers, autochangers, and silos.

Storage nodes depend on the Sun StorageTek EBS server for these functions:

- ◆ Control over which clients use the storage node's devices for backups
- ◆ License management

- ◆ Management of the client file indexes that track each client's data
- ◆ Management of the media database that tracks the data on each volume

Sun StorageTek EBS storage nodes and the Sun StorageTek EBS server can use different operating systems. To use a Sun StorageTek EBS storage node on a Linux operating system with a Sun StorageTek EBS server that is running another operating system, the storage node's enabler on the server must be of the same edition as the base enabler for the Sun StorageTek EBS server.

Sun StorageTek EBS server

The Sun StorageTek EBS server software provides control and scheduling for Sun StorageTek EBS operations. It enables you to:

- ◆ Enter the enabler licenses for the Sun StorageTek EBS server and all the functions the Sun StorageTek EBS server controls, such as autochanger modules and additional client connections licenses.
- ◆ Define the clients, devices, and media that the Sun StorageTek EBS server controls.
- ◆ Define the schedules for backups and other operations.
- ◆ Monitor the results of backups and other operations.
- ◆ Manage the client file indexes that track each client's data.
- ◆ Manage the media database that tracks the data contained on each volume.

Sun StorageTek EBS deduplication node

Data deduplication is a method of backup that identifies redundant data segments at the source and backs up only unique segments, thereby reducing the time required to perform backups and both the network bandwidth and storage space used for backups. The Sun StorageTek EBS software uses EMC Avamar[®] technology to provide de-duplication.

A Sun StorageTek EBS deduplication node is an EMC Avamar server that stores de-duplicated backup data. The initial backup to a deduplication node should be a full backup. During subsequent backups, the Avamar infrastructure identifies redundant data segments at the source and backs up only unique segments. This

reduces the time required to perform backups, as well as both the network bandwidth and storage space used for backups.

Avamar server installation is separate from Sun StorageTek EBS installation, and is performed by EMC Professional Services. The Avamar server must be configured as a Sun StorageTek EBS deduplication node. The Avamar server must be available when:

- ◆ A de-duplication client resource is created.
- ◆ The Avamar server receives backup data from Sun StorageTek EBS deduplication clients.

The Avamar server must have the Sun StorageTek EBS client software installed in order to function as a de-duplication node. The installation of Sun StorageTek EBS client software on the Avamar server must be performed by EMC Professional Services.

Sun StorageTek EBS Management Console

All Sun StorageTek EBS servers and clients are managed from the Sun StorageTek EBS Management Console. The Console replaces the Sun StorageTek EBS Administration program (**nwadmin**) which is no longer available.

To administer Sun StorageTek EBS servers, the Console must be:

- ◆ Installed on an AIX, HP-UX, Linux, Solaris Sparc, or Microsoft Windows host.
- ◆ Accessed through a graphical user interface on the host with a web-enabled browser that has the specified version of Java Runtime configured.

The Console provides reporting, managing, and monitoring capabilities for all Sun StorageTek EBS servers and clients.

Multiple users can access the Console server concurrently from different browser sessions. A computer that hosts the web-enabled browser can also be a Sun StorageTek EBS client, server, or storage node.

You must install the Console software on one computer in the datazone to manage and monitor the Sun StorageTek EBS server.

Only one installation of the Console is required to manage multiple Sun StorageTek EBS servers and to take full advantage of the Console's consolidated reporting feature.

Supported devices

Sun StorageTek EBS software supports a variety of media types and devices, either stand-alone or in an autochanger or silo tape library. Devices can be attached to a Sun StorageTek EBS server or designated storage node.

The term *autochanger* refers to a variety of backup devices:

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

The [EMC Information Protection Software Compatibility Guide](#) provides the latest list of supported devices:

http://powerlink.emc.com/km/live1/en_US/Offering_Technical/Technical_Documentation/InformationProtection_SCG.pdf

Enabler codes

Enabler codes (licenses), which activate the functionality of Sun StorageTek EBS software, are generally sold separately. The section [“Evaluating and Licensing the Software” on page 105](#) provides information.

This chapter includes these sections:

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◆ Console	24

General requirements

For Sun StorageTek EBS UNIX software installation:

- ◆ Ensure that the latest patches for the operating system are installed.
- ◆ Ensure that the block-size mode for tape devices that are used with the Sun StorageTek EBS software is set to variable. Otherwise, data recovery might fail. The procedure for setting the device block size varies depending on the operating system. For information about setting the tape device block size in the operating system, refer to the operating system's documentation.

Language support

To view non-English data, ensure that the operating system is installed with the required language support software and that the corresponding language locale is enabled.

Note: Sun StorageTek EBS software does not support locales (defined by the operating system) or code sets that remap characters that have special meaning for file systems. Depending on the file system, these special characters may include the slash (/), the backslash (\), the colon (:), or the period(.). For example, De_DE.646 is an unsupported locale. The Sun StorageTek EBSAdministration Guide provides the latest information.

TCP/IP requirements

These are the TCP/IP network communication requirements:

- ◆ All Sun StorageTek EBS server, storage nodes, and client host computers must have TCP/IP installed, configured, and networked.
- ◆ The Sun StorageTek EBS server hostname must be added to the Domain Name System (DNS) database for the network, or to the local hosts file located in:

`/etc/hosts`

Note: If DNS is used, reverse lookup must be correctly configured.

- ◆ All Linux, and UNIX, operating systems require a `::1` entry in the `/etc/hosts` file for the local host in order to run the Sun StorageTek EBS software. The entry must be in the form **`::1 localhost aliases`**
- ◆ If the Sun StorageTek EBS server host is a Dynamic Host Configuration Protocol (DHCP) client, it must have a reserved address.
- ◆ The TCP/IP hostname must be identical to the computer name. Do *not* include an underscore character (`_`) in the computer name.
- ◆ If DHCP with dynamic addresses is used, DHCP must be synchronized with DNS.
- ◆ The Sun StorageTek EBS server's TCP/IP hostname and computer name must be the same.

Updating for the IPv6 protocol

Internet Protocol version 6 (IPv6) is a new internet protocol that can be used concurrently with IPv4 or in a pure IPv6 environment. IPv6 increases the number of available IP addresses, and adds improvements in areas such as routing and network autoconfiguration.

IPv6 is in the form `[#:#:#:#:#:]:Port`. The square brackets are required to enclose the six decimal integers. The following is an example of an IPv6 address as it would be entered from the command line or the user interface:

```
http://[2001:720:1500:1:a100]:80/index.html
```

Ensure that the following tasks are performed when updating to an IPv6 environment or switching between IPv4 and IPv6.

Add `::1` entry to the hosts file

All Linux, and UNIX operating systems require a **`::1` entry** in the `/etc/hosts` file for the local host in order to run the Sun StorageTek EBS software. The entry must be in the form:

```
::1 localhost aliases
```



IMPORTANT

Once the system has been configured for an IPv6 environment, the :1 entry must remain in the /etc/hosts file, whether operating in an IPv4 or IPv6 configuration.

NMC server IP address/hostname updates

If the IP address/hostname of the NMC server is modified or protocols such as IPv6 are added or removed, perform the following:

1. Shut down NMC.
2. Navigate to the NMC bin directory and run the operating system-specific command:
 - a. Ensure that the LD_LIBRARY_PATH environment variable contains /opt/LGTONmc/bin:/opt/LGTONmc/sybase/lib
export LD_LIBRARY_PATH.
 - b. As root, run `./gstconfig`.

IPv4/IPv6 interoperability

Since older Sun StorageTek EBS clients and storage nodes are supported with the Sun StorageTek EBS release 7.6 software, there are IPv6 and IPv4 interoperability considerations when the Sun StorageTek EBS server is installed on a machine using IPv6.

[Table 1 on page 18](#) indicates the interoperability conditions of Sun StorageTek EBS release 7.6 servers and clients on platforms with various IP addresses, and the ways in which a Sun StorageTek EBS client can address a Sun StorageTek EBS server.

Table 1 Matrix of interoperability of Sun StorageTek EBS 7.6 and pre-7.6 clients (1 of 2)

		Sun StorageTek EBS 7.5 and 7.6 Server	Sun StorageTek EBS 7.5, and 7.6 Server
	Platform	IPv4 Host	IPv6 Host
Sun StorageTek EBS 7.5, and 7.6 Client	IPv4 Host	IPv4	IPv4 translated in IPv6
	IPv6 Host	N/A	IPv6
	Dual stack	IPv4	IPv6

Table 1 Matrix of interoperability of Sun StorageTek EBS 7.6 and pre-7.6 clients (2 of 2)

Sun StorageTek EBS pre-7.5, and pre-7.6 Client	IPv4 Host	IPv4	IPv4 translated in IPv6
	IPv6 Host	N/A	N/A
	Dual stack	IPv4	IPv4 translated in IPv6

The table indicates the following conditions.

- ◆ Sun StorageTek EBS 7.5, and 7.6 (client/server) residing on an IPv4-only host.
- ◆ Sun StorageTek EBS 7.5, and 7.6 (client/server) residing on an IPv6-only host.
- ◆ Sun StorageTek EBS 7.5, and 7.6 (client/server) requiring dual-stack transports, but not requiring a host to have both IPv4 and IPv6 addresses.

Note: This table assumes on a dual-address machine the DNS lookup returns the IPv6 address first, if it exists, and then the IPv4 address, and that the network topology is correctly configured to allow IPv4 to IPv6 communication by way of translation.

[Table 2 on page 19](#) shows the interoperability considerations of Sun StorageTek EBS servers and clients previous to release 7.6 on platforms with various IP addresses, and the ways in which a Sun StorageTek EBS client can address a Sun StorageTek EBS pre-7.5, and pre-7.6 server.

Table 2 Matrix of interoperability of Sun StorageTek EBS 7.6 and pre-7.6 clients

		Sun StorageTek EBS 7.5 and 7.6 Server	Sun StorageTek EBS 7.5, and 7.6 Server
	Platform	IPv4 Host	IPv6 Host
Sun StorageTek EBS 7.5, and 7.6 Client	IPv4 Host	IPv4	IPv4 translated in IPv6
	IPv6 Host	N/A	IPv6
	Dual stack	IPv4	IPv6

Table 2 Matrix of interoperability of Sun StorageTek EBS 7.6 and pre-7.6 clients

Sun StorageTek EBS pre-7.5, and pre-7.6 Client	IPv4 Host	IPv4	IPv4 translated in IPv6
	IPv6 Host	N/A	N/A
	Dual stack	IPv4	IPv4 translated in IPv6

The table indicates the following conditions:

- ◆ Sun StorageTek EBS pre-7.5, and pre-7.6 (client/server) residing on an IPv4-only host.
- ◆ Sun StorageTek EBS pre-7.5, and pre-7.6 (client/server) residing on a dual-stack transport but that can only be addressed through an IPv4 address.

Note: This table assumes on a dual-address machine, the DNS lookup returns the IPv6 address first, if it exists, then the IPv4 address, and that the network topology is correctly configured to allow IPv4 to IPv6 communication by way of translation.

IPv6 limitations

The following limitations apply when using IPv6 addresses for Sun StorageTek EBS release 7.6:

JRE version 1.6 must be installed in a pure IPv6 Windows environment

If using Sun StorageTek EBS in a Windows environment with IPv6, only JRE version 1.6 is supported for running NMC. However, JRE version 1.5 is supported for running NMC on a Windows system with dual stack (IPv6 and IPv4) where IPv4 is being used to communicate with the NMC server.

Connecting to web server via IPv6 fails using Internet Explorer 6

Internet Explorer 6 does not handle IPv6 addresses. If you attempt to connect to the GST web server via an IPv6 address using the IE6 web browser, the browser does not connect and returns an error.

Use the Internet Explorer 7 web browser. This problem does not occur on IE7.

Do not perform client backups using temporary IPv6 addresses

Temporary or randomly generated IPv6 TCP/IP addresses are not supported in Sun StorageTek EBS. If the address for a client is not stored in DNS or in a hosts file and has not been added to the client resource, Sun StorageTek EBS will be unable to back up the client.

Client software requirements

For Sun StorageTek EBS clients on the same hardware platform as the Sun StorageTek EBS server, use the same installation files to install the clients and server. The client software can be installed either on a remote network file system-mounted directory or a local drive. If the Sun StorageTek EBS software is installed on a remote file system, the Sun StorageTek EBS metadata (for example, /nsr) must still reside on a local file system.

The *EMC Information Protection Software Compatibility Guide* provides a list of supported operating systems.

Deduplication clients cache file size requirements

Clients that are configured to use de-duplication backups require additional disk space for caches. The number of caches varies depending on the number of backup paths included in the Save set attribute of the Client resource. Each backup bath in the Save set attribute requires two caches: a file cache and a cache for hash tables.

By default, the file cache can be up to 1/8 of the RAM on the machine, and the hash cache can be up to 1/16 of the RAM. Both have a maximum size of 2 GB. Therefore, the maximum disk space required for caching on a de-duplication client is the sum of the maximum size of the file and hash caches, multiplied by the number of backup paths defined in the client's Save set attribute.

Storage node requirements

To install the Sun StorageTek EBS storage node software, the following requirements must be met:

- ◆ At least one supported storage device must be attached and installed. The device can either be a stand-alone device, autochanger, or silo tape library. The *EMC Information Protection Software Compatibility Guide* provides a list of supported devices.
- ◆ Sun StorageTek EBS software also supports the use of file type and advanced file type devices. The Sun StorageTek EBS Administration Guide provides more details.

The *EMC Information Protection Software Compatibility Guide* provides a list of supported operating systems.

Storage device requirements

Install one or more storage devices prior to installing the Sun StorageTek EBS server software. Ensure that you install the SCSI adapter, cabling, and termination. The Sun StorageTek EBS installation program assumes that the storage devices have been properly installed and configured, and that the operating system recognizes the devices. The *EMC Information Protection Software Compatibility Guide* provides a list of the supported devices.

Note: You must use a nonrewinding device for Sun StorageTek EBS backups. Sun StorageTek EBS software writes a filemark on the volume at the end of each backup. When the next backup occurs, Sun StorageTek EBS software appends data to the volume based on the position of the filemark. If a device automatically rewinds the tape, the filemark position is lost and the next backup overwrites existing data. In that case, you would not be able to recover the previous backup data.

Server software requirements

This section describes the default location and space requirements for Sun StorageTek EBS software.

Default location and space requirements

These pathnames and directories are required for installation:

- ◆ The directory on the server is large enough for the Sun StorageTek EBS resources, client, server indexes, and media database (usually /nsr).
- ◆ The system pathname of at least one storage device for use by the Sun StorageTek EBS server to back up and recover files.
- ◆ If a tape device is being used to back up data, use a valid pathname for that device. The tape device must be nonrewinding.
- ◆ A directory for the PDF documentation files and for Adobe Acrobat Reader (if it is not already installed).

If the default locations and space requirements are accepted during installation, the installation script creates the directories listed in [Table 3 on page 23](#).

Table 3 Solaris location and space requirements

Sun StorageTek EBS files	Location	Space required
Client files	/usr/bin /usr/lib/nsr /usr/sbin	110 MB
Console and Client files	/opt/igtonmc/bin/nmc_config.sh	270 MB
Storage node	/usr/sbin /usr/lib/nsr /usr/kernel/drv	92 MB
Server	/usr/lib/nsr /usr/sbin	61 MB
Client file index,media database	/nsr	varies

Console

This section lists the Console server, client and database software requirements:

- ◆ “Console server” on page 24
- ◆ “Console database” on page 25
- ◆ “Console client” on page 27
- ◆ “Using international fonts in UNIX non-US locale environments” on page 28

Console server

You must install the Console server software on one computer in your datazone to manage the Sun StorageTek EBS server. Only one installation of the Sun StorageTek EBS Console server is required to manage multiple Sun StorageTek EBS servers.

The general requirements for installing the Console server include the following:

- ◆ An installed and licensed network of Sun StorageTek EBS servers, clients, and storage nodes.
- ◆ A Java Runtime Environment (JRE), which is required in order to:
 - Support the command line reporting feature.
 - Download the Console client and display the user interface.

Note: 64-bit versions of Sun StorageTek EBS require the 32-bit JRE.

- ◆ Set up a User/Group with limited privileges that NMC will use to run the web server. This must be a non-root user. For example, the Solaris, Linux, and AIX operating systems have a default user/group [nobody/nobody] that can be used.

Note: If the environment runs only LDAPS, also known as LDAP over SSL, and you are not using native Sun StorageTek EBS user authentication, the Console server must not be installed on a Solaris server. However, the Console server can still be installed on a Linux, Windows, AIX or HP-UX server.

System requirements

[Table 4 on page 25](#) lists the system requirements for the Console server and database.

Table 4 Console server and database requirements

System features	Requirement
Processor and RAM	Minimum: 500 MHz with 128 MB of RAM; 512 MB to run reports. As the number of Sun StorageTek EBS servers being monitored increases, increase the computer's capabilities. <ul style="list-style-type: none"> • For 50 servers: Dual 500 MHz with no less than 192 MB • For 100 servers: Dual 800 MHz with no less than 256 MB • For 200 servers: Dual 1.3 GHz with no less than 512 MB
Operating system	Solaris 9, 10
Software	The Sun StorageTek EBS client, release 7.4 or later software must already be installed and running.
Java Runtime Environment	JRE 1.5_11 or 1.6.0. This is required to run the command line reporting feature.
Browsers	<ul style="list-style-type: none"> • Netscape Communicator 8, on the supported Solaris platforms. • Mozilla 1.7 on the supported Solaris platforms.
Available disk space	<ul style="list-style-type: none"> • 350 MB + x, where: x is a buffer of disk space for the Console database.

Console database

This section provides information on estimating the size and space requirements for the Console database:

- ◆ [“Formula for estimating the size of the Console database” on page 25](#)
- ◆ [“Formula for estimating the space required for the Console database information” on page 26](#)

Formula for estimating the size of the Console database

The Console server collects data from the Sun StorageTek EBS servers in the enterprise, and stores the data in its local Console database. By default, the database is installed on the local file system that can provide the most available space. Console integrates and processes this information to produce reports that facilitate trend analysis,

capacity planning, and problem detection. The Sun StorageTek EBS Administration Guide provides information about reports.

To store the collected data, allocate sufficient disk space for the Console database. Several factors affect the amount of disk space required:

- ◆ The number of Sun StorageTek EBS servers monitored for the reports
- ◆ The number of savegroups run by each of those servers
- ◆ The frequency with which savegroups are run
- ◆ The length of time report data is saved (data retention policies)

Note: Since the amount of required disk space is directly related to the amount of historical data stored, the requirements can vary greatly, on average between 0.5 GB and several GB. Allow for this when planning hardware requirements.

Formula for estimating the space required for the Console database information

Use these formulas to estimate the space needed for different types of data and to estimate the total space required.

Save set media database

To estimate the space needed for the save set media database, multiply the weekly amount of save sets by the number of:

- ◆ Sun StorageTek EBS servers monitored by the Console
- ◆ Weeks in the Save Set Output policy

The result indicates the length of time that a save set took to run successfully. The results also identify the number of files that were backed up, and how much data was saved during the operation.

Save set output

To estimate the space needed for the save set media database, multiply the weekly amount of output messages by the number of:

- ◆ Sun StorageTek EBS servers monitored by the Console
- ◆ Save Set Output Retention policy

The result indicates how many groups and save sets were attempted and their success or failure.

Savegroup completion data

To estimate the space needed for the save set media database, multiply the weekly amount of savegroups by the number of:

- ◆ Sun StorageTek EBS servers monitored by the Console
- ◆ Weeks in the Completion Data Retention policy

The result can be used to troubleshoot backup problems

Console client

Although the Console client does not need to be installed separately, the JRE which includes Java Web Start must be installed in order to download and run the program properly.

When connecting to the Console server for the first time, there is a prompt to download the JRE and the Console client application.

[Table 5 on page 27](#) lists the system requirements for installing the Console client.

Table 5 Console client system requirements

System features	Requirement
Operating system	<ul style="list-style-type: none"> • Solaris , 9, 10
Java Runtime Environment	<ul style="list-style-type: none"> • JRE version 1.5_11 or 1.6.0
Browsers	<ul style="list-style-type: none"> • Netscape Communicator 8, on the supported Solaris platforms. • Mozilla 1.7 on the supported Solaris platforms.
Available disk space	<ul style="list-style-type: none"> • Console client: 10 MB • JRE with Web Start: 55 MB
RAM	A minimum of 512 MB to run reports.
Graphics card	Must support the display of the following: <ul style="list-style-type: none"> • At least 16-bit color (at least 65,000 colors) • Screen resolution of at least 1024 x 768

Using international fonts in UNIX non-US locale environments

The Console software can run (in English mode) on localized operating systems. It supports retrieval of double-byte characters from Sun StorageTek EBS data.

If the appropriate non-English font is not available on the Console client, the retrieved data appears as illegible.

To use or view data from a localized, non-English Sun StorageTek EBS server:

1. Ensure that the appropriate language support package for Sun StorageTek EBS software has been installed.
2. Ensure that the appropriate font is available to the Console client.

Note: If the required font is not installed on the system, obtain it from the operating system vendor and install it on the system.

3. From the **Console** menu, select **View>Fonts** and perform one of these tasks:
 - Change the language locale to match that of the localized Sun StorageTek EBS language locale.
 - Choose a language font that is already loaded in the operating system and which matches the location of the localized Sun StorageTek EBS language locale.

Changing the language locale to match that of non-localized Sun StorageTek EBS data

There are two ways to change the language locale to match that of the localized Sun StorageTek EBS language locale. Choose one of the following:

- ◆ Before you log in to the host system:
 1. Select **Options** on the **Login** dialog box.
 2. Select **Options>Language**.
 3. Select a locale from one of three alphabetical lists.
- ◆ After you log in to the host system:
 1. Type the **setenv** command to change the locale.

2. Depending on the language, select one of these:
 - To match the French Sun StorageTek EBS locale, type:


```
setenv LANG fr
setenv LC_ALL fr
```
 - To match the Japanese Sun StorageTek EBS locale, type:


```
setenv LANG ja
setenv LC_ALL ja
```
 - To match the Simplified Chinese Sun StorageTek EBS locale, type:


```
setenv LANG zh
setenv LC_ALL zh
```

Changing the language font to view localized Sun StorageTek EBS data

Instead of changing the language locale, you can change the Console font, so that localized Sun StorageTek EBS data can be viewed from the Console software. The appropriate font must be loaded in the operating system of the Console server and client.

To load a font:

1. To select a language font, select **Console>View>Font**. The **Change Font** dialog appears.
2. Select the appropriate font and font size, if the default size is inappropriate and click **OK**.

Using a non-US locale

When using Console software in a non-US environment, support for the language locale and various language character sets is derived from the host operating system. In order to display non-English characters, the host operating system must have installed a font (or fonts) that supports those characters.

The Console client, rather than the Console server, must have the appropriate language character sets supported in the client operating system. By default, Console software uses a non-UNICODE font that supports US English.

If the font is loaded in the operating system, a language locale that is supported by a localized version of Sun StorageTek EBS software automatically recognizes the font for the associated localized language. If the required font is loaded in the operating system, an appropriate language font can then be selected.

Updating from a Previous Release

This chapter includes the following sections:

- ◆ Introduction..... 32
- ◆ Updating the Sun StorageTek EBS software 33
- ◆ Updating from 7.4 or 7.5 to 7.6 for VCB backups 35
- ◆ Updating clients by using the software distribution feature 36

Introduction

When updating to Sun StorageTek EBS release 7.6 from Sun StorageTek EBS release 7.3 or earlier, there is no way to revert to a previous release of the Sun StorageTek EBS software. It is a one-way conversion as the client file indexes are automatically reorganized into new directory structures. However, upgrades from Sun StorageTek EBS release 7.3.x or later can be downgraded back to the same release.

The Sun StorageTek EBS software does not support direct upgrade, which means the previous installed version must be removed before the new version can be installed. When upgrading the NMC version, make a copy of the current database. This database will be required if you downgrade the software.

Update enablers

An update enabler is necessary to move from an existing major Sun StorageTek EBS release to a newer major Sun StorageTek EBS release, for example, from Sun StorageTek EBS 7.4.x to Sun StorageTek EBS 7.6. Update enablers are not required for maintenance releases.

If an update enabler is required, the Sun StorageTek EBS software automatically adds the required update enabler code to its configuration. The update enabler expires after 45 days. Contact Powerlink Licensing within 45 days to get the update enabler permanently authorized. To permanently license the Sun StorageTek EBS software, see [“Permanently licensing the Sun StorageTek EBS software” on page 110](#)

Note: If the required update enabler expires or the auth code is not applied, the Sun StorageTek EBS software will not function at the new release level.

With a first-time purchase of Sun StorageTek EBS software, a one-year update agreement may be included. After a year, an update enabler may be acquired with a new update agreement purchase.

Alert Message

An alert message is generated 45 days before a Sun StorageTek EBS update enabler code is about to expire. This alert remains until the Sun StorageTek EBS license is authorized or deleted. To view the license alert, see [“Update enabler alert” on page 109](#).

Updating the Sun StorageTek EBS software

To upgrade the operating system on a Sun StorageTek EBS server, storage node, or client host, first upgrade the operating system, then update the Sun StorageTek EBS software.

When you update from a previous release, the Sun StorageTek EBS software is automatically installed in the same location.

The following options are not supported during an upgrade:

- ◆ Changing the installation type (for example, from client to server)
- ◆ Editing the list of Sun StorageTek EBS servers that are allowed to access the computer

Update the Sun StorageTek EBS software

To update the Sun StorageTek EBS software, perform see these tasks:

- ◆ [“Task 1: Prepare to update the Sun StorageTek EBS software to release 7.6:” on page 33](#)
- ◆ [“Task 2: Update the software on the Sun StorageTek EBS client, storage node, and server” on page 34](#)

Task 1: Prepare to update the Sun StorageTek EBS software to release 7.6:

To update the Sun StorageTek EBS software to release 7.6:

1. Before updating, make notes of the current database location and port numbers used before removing the current installation.
2. Verify that the target computer satisfies the requirements. [Solaris location and space requirements 23](#) provides details.
3. Make a copy of the current database and store it in a safe location.
4. Back up all client file indexes and generate a bootstrap for the server. If a current bootstrap does not exist, or a backup of all client file indexes, perform scheduled backups on all clients before updating the software. For example, to save the bootstrap information, type this command:

```
savegrp -O group
```

Note: Ensure that all clients are included in the groups to be backed up.

5. Record the latest bootstrap save set ID and its associated volume label. To obtain this information, type this command:

```
mminfo -B
```

6. If the Sun StorageTek EBS software is not currently installed in the default location, record the location of the client file indexes.

Note: A Sun StorageTek EBS storage node release 7.4 or later is not compatible with a Sun StorageTek EBS release 7.3 or earlier server. Update the Sun StorageTek EBS servers to at least version 7.4 before updating a storage node.

Task 2: Update the software on the Sun StorageTek EBS client, storage node, and server

To update the software on the Sun StorageTek EBS client, storage node, and server:

1. Keep a copy of the current configuration.
2. Ensure that all Sun StorageTek EBS scheduled backups have been stopped before starting the upgrades.
3. Type the following command to shut down the Sun StorageTek EBS software:

```
nsr_shutdown
```

4. Uninstall the current Sun StorageTek EBS and Sun StorageTek EBS Management Console (NMC) software packages.
5. Verify that no NMC processes (**gstd**, **gstdclsh**, **dbsrv9**) are still running.

Note: If performing a re-install of Sun StorageTek EBS release 7.6, these processes will be **gstd**, **dbsrv9**, and **httpd**.

6. Install the new release of the Sun StorageTek EBS software.

Note: Do not start the Sun StorageTek EBS daemons. If client computers have a previous release of the Sun StorageTek EBS Client for Linux installed, update those clients to the latest Sun StorageTek EBS release to fully exercise all the features in the software. When the installation identifies an existing Sun StorageTek EBS client package for Linux, it prompts for permission to update the client. The update process removes the existing Sun StorageTek EBS client and man pages and installs the new version of the Sun StorageTek EBS client software.

7. Apply any required Sun StorageTek EBS software patches.
8. Restart the software by running the Sun StorageTek EBS startup script:


```
/etc/init.d/networker start
```
9. At the command prompt, type the following command:


```
nsrck -L 2
```
10. License the Sun StorageTek EBS software. [“Permanently licensing the Sun StorageTek EBS software” on page 110](#) provides instructions.

[“Updating from 7.4 or 7.5 to 7.6 for VCB backups” on page 35](#) provides instructions on updating the Sun StorageTek EBS server for VCB backups.

Updating from 7.4 or 7.5 to 7.6 for VCB backups

After updating from Sun StorageTek EBS Release 7.4.x or 7.5.x to Sun StorageTek EBS Release 7.6, to prevent existing VCB related backups from using the Sun StorageTek EBS Integration module, run the following command on the Sun StorageTek EBS server:

```
nsrvcbserve_tool -p VCB proxy hostname or IP address
```

By default, the `nsrvcbserve_tool` is located `c:\program files\legato\nsr\bin`.

Updating to Sun StorageTek EBS Version 7.6, enables the use of all new VCB features.

Note: The Proxy Host client must be configured with Administrator privileges for the operating system. Specify a user name and password for an account with Administrator rights on the Proxy server in the Remote User and Password fields in the Client resource.

The `nsrvcbserve_tool` does the following:

- ◆ Identifies the Sun StorageTek EBS clients that are virtual machines configured for the specified VCB Proxy server.
- ◆ Executes the `nsrvcbclnt_tool` on the Sun StorageTek EBS client configured as the VCB Proxy server.
- ◆ Reads the configuration file (`config.js`) and sends the information to the Sun StorageTek EBS server.

- ◆ Updates the Application Information attribute of the Sun StorageTek EBS Client resource acting as the VCB Proxy server with the information from the config.js file.
- ◆ Sets the backup command attribute in the Sun StorageTek EBS Client resource of all virtual machines configured for the specified VCB Proxy server to **nsrvcb_save**.
- ◆ Creates the Virtual Center or ESX Hypervisor resource, if not already available in the RAP database of the Sun StorageTek EBS server.

Note: The nsrvcb_serv_tool and nsrvcb_clnt_tool, supported on Windows only are only supported when the Sun StorageTek EBS server and VCB Proxy host are Sun StorageTek EBS Release 7.6 and later.

Updating clients by using the software distribution feature

Use the software distribution feature to remotely distribute and update the Sun StorageTek EBS software from a centralized Sun StorageTek EBS server to one or more Sun StorageTek EBS clients.

The following Sun StorageTek EBS software packages can be updated on computers that have the Sun StorageTek EBS version 7.3 or later client software already installed:

- ◆ Client
- ◆ Storage node
- ◆ Man pages
- ◆ NMO, NMSQL and NMExch NetWorker Modules

Note: The software distribution feature is not supported on HP Tru64 UNIX, IRIX, Mac OS X, NetWare, Open VMS platforms, and cluster environments.

The software distribution feature can be used to:

- ◆ Manage the software repository.
- ◆ Inventory Sun StorageTek EBS software installed on Sun StorageTek EBS clients.
- ◆ Update Sun StorageTek EBS software packages on existing Sun StorageTek EBS clients.

- ◆ Monitor software distribution inventory and upgrade operations (only available from the Software Administration Wizard).

Software distribution can be performed on the Sun StorageTek EBS client software by using either the Software Administration Wizard or the **nsrpush** command. These sections provide instructions on how to perform these operations.

Software requirements

The following software and administrative privileges are required:

- ◆ Sun StorageTek EBS server release 7.4 or later software is installed on the Sun StorageTek EBS server.
- ◆ Sun StorageTek EBS client package release 7.4 or later software has been installed on the Sun StorageTek EBS client computer involved in the update operation.
- ◆ Administrative privileges on the Sun StorageTek EBS Console server.
- ◆ Administrator privileges on the Sun StorageTek EBS server or Software Administration server.
- ◆ Write permissions for the Administrator and SYSTEM users to the temp folders defined in the SYSTEM user TEMP and TMP environment variables.

Note: Enabling write permissions is only a requirement on a Windows 2008 client. Write permissions must be enabled when performing software updates, add to repository operations, and inventory operations using the Software Administration Wizard or the **nsrpush** command.

Supported server operating systems

The software distribution feature is supported on the following server operating systems:

- ◆ Windows (x86, x64 and Itanium 64-bit)
- ◆ AIX (32-bit and 64-bit)
- ◆ Linux (x86 and x64)
- ◆ Solaris (64-bit)
- ◆ HP UX (64-bit and Itanium 64-bit)

Note: The software distribution feature is not supported on the Linux Itanium 64-bit, Solaris AMD64, HP Tru64 and SGI IRIX server platforms.

Supported client operating systems

Upgrade operations using the software distribution feature are supported on the following client operating systems:

- ◆ Windows (x86, x64 and Itanium 64-bit)
- ◆ AIX (32-bit and 64-bit)
- ◆ Linux (x86 and x64)
- ◆ Solaris (64-bit)
- ◆ HP-UX (64-bit and Itanium 64-bit)

Note: Upgrading using the software distribution feature is not supported on the Linux Itanium 64-bit, Linux PPC, Solaris AMD64, Solaris x86, HP Tru64, SGI IRIX, Mac OS-X, NetWare, and OpenVMS client platforms. Upgrading of PowerSnap clients and Cluster clients is not supported.

Repository operations using the Software Administration Wizard

To start the Software Administration Wizard:

1. Start the Sun StorageTek EBS **Management Console** software.
2. Launch the **Administration** window and click **Configuration**.
3. From the **Configuration** menu, select **Software Administration Wizard**. The **Software Administration Wizard** launches.
4. Follow the prompts to manage the software repository (add or remove install packages), inventory, update, or monitor Sun StorageTek EBS client update operations.

Manage the software repository

The software repository is a centralized database that contains the Sun StorageTek EBS software packages that can be pushed to Sun StorageTek EBS clients from the Sun StorageTek EBS server. Sun StorageTek EBS software packages can be added to, or removed from the software repository.

When you add products to the repository, the product can be added in one of the following ways:

- ◆ On the same platform as the server (for example, a Windows product to a Windows server, or a UNIX product to a UNIX server)
- ◆ As a cross-platform product (for example, a UNIX product to a Windows server)

Adding the same operating system products to the repository

To add products to the repository that are on the same platform as the server:

1. Prepare the source of the product:
 - If using a software distribution disk, insert the disk. If using UNIX, it may also be necessary to mount the disk.
 - If using a downloaded installation package, unzip the package (gunzip for UNIX). If using UNIX, also untar it.
2. Launch the **Software Administration Wizard** and click **Next** to navigate to the **Software Repository Operations** page.
3. Select **Add or remove products from my software repository**, then click **Next**.

Note: When products are added to the repository for the first time, you must confirm the default repository location (for example, *<Sun StorageTek EBS Install Dir>/repository*, where *<Sun StorageTek EBS Install Dir>* is the directory location of the installed software), or specify another location for the repository.

Also, when you specify a repository location, ensure that this location has enough available space to hold all of the products that will be in the repository at any time.

4. Navigate through the Wizard to select the platform type and enter the path or directory location on the server of the product source (the source that contains the installation files and the metafile for the product).

Note: The product source could also be a directory containing multiple subdirectories with products and metafiles.

5. Select the products to be added to the repository, then click **Next**.

Adding cross-platform products to the repository

To add cross-platform products to the repository (for example, a UNIX product to a Windows server):

1. Prepare the source of the product:
 - If using a software distribution disk, insert the disk. If using UNIX, it may also be necessary to mount the disk.
 - If using a downloaded installation package:
 - a. Copy the installation package to the Sun StorageTek EBS server (the server where the products will be added to the repository) and to the client where the product will be added from.
 - b. Extract the contents of the package to local directories on both the server and the client (on UNIX, gunzip, then untar to separate subdirectories).
2. Launch the **Software Administration Wizard** and click **Next** to navigate to the **Software Repository Operations** page.
3. Select **Add or remove products from my software repository**, then click **Next**.

Note: All UNIX or Windows packages can be added to the server's repository from only one UNIX or Windows client with the Sun StorageTek EBS client installed. Different operating system packages need to be added only once to be ready to use for all clients with the corresponding platforms.

4. Navigate through the Wizard to select the platform type and enter the path or directory location on the server of the product source (the source that contains the installation files and the metafiles for the products).

Note: The product source could also be a directory containing multiple subdirectories with products and metafiles.

5. Select the products to be added to the repository and click **Next**. The last page of the Wizard prompts you for the cross-platform client host name and client Media Kit Location (the location of the installation files).

6. If using a CD or DVD as the source, move the software distribution disk to the client machine, and mount the disk if necessary. Once the local machine is scanned for metafiles, the disk must be on the client to add the product to the repository.
7. Specify the client host name and the location of the media kit on the client, then click **Next**.



IMPORTANT

Ensure the cross-platform path entered here is at the same level of the directory structure that you specified for the path of the product source on the server. For example, if the product source containing the metafiles is located at `/tmp/prod/nw76_solaris64` on UNIX, and at `C:\temp\prod\nw76_solaris64` on Windows, enter these paths when prompted.

If the product source is a directory containing multiple products (and their metafiles) in subdirectories, specify the directory path for the Media Kit Location, not the subdirectory path. For example, if using a product distribution disk mounted to `/cdrom0` on UNIX and `D:\` on Windows, and the disk contains subdirectories for `solaris_64` and `win_ia64`, type `/cdrom0` or `D:\` when prompted for the media kit location, then choose one or more products to add, based on the subdirectories found in the media kit location. Then, type the hostname of the client where the product files need to be added, and the pathname (for example, `/cdrom0`) for the media kit location on the cross-platform client. Do not specify the path name with the subdirectory (for example, `D:\solaris_64`), or an error will occur.

Inventory clients for currently installed products

Before upgrading Sun StorageTek EBS clients using the Software Distribution feature, it is necessary to inventory the clients to determine their currently installed Sun StorageTek EBS software.

To inventory the clients:

1. Launch the **Software Administration Wizard** and click **Next** to navigate to the **Software Repository Operations** page.
2. Select **Discover the currently installed software products on my Sun StorageTek EBS clients**, then click **Next**. A list of the clients configured on the Sun StorageTek EBS server appears.

3. Select some or all of the clients (use the **Ctrl** or **Shift** key when selecting multiple clients), then click **Next**.
4. Select **Yes** and click **Next** to monitor the inventory operation, or select **No** to return to the main window of the **Software Administration Wizard**.

Updating client software packages

You can update Sun StorageTek EBS software packages on Sun StorageTek EBS clients for one client, or for many Sun StorageTek EBS clients at the same time.

The Software Administration Wizard provides two ways to perform client updates:

- ◆ By client
- ◆ By product and version

Updating by client

To update the client software packages by client:

1. Ensure that all Sun StorageTek EBS scheduled backups have been stopped before starting any upgrades.
2. Inventory the clients to be updated (refer to the section [“Inventory clients for currently installed products”](#) on page 41).
3. Launch the **Software Administration Wizard** and click **Next** to navigate to the **Software Repository Operations** page.
4. Select **Upgrade the software on my Sun StorageTek EBS clients** and click **Next**.
5. Select the option **By Client, will upgrade on the clients that you choose** and click **Next**. A list of available clients appears.
6. Select the appropriate clients (use the **Ctrl** or **Shift** key to make multiple selections), then click **Next**. A list of clients and products appears, showing one client/product per line.
7. Select one or more of the client/product combinations to upgrade, and click **Next**. The **Monitor Activity** window appears.

Updating by product and version

To update the client software packages by product and version:

1. Ensure that all Sun StorageTek EBS scheduled backups have been stopped before starting any upgrades.
2. Inventory the clients to be updated (refer to the section [“Inventory clients for currently installed products”](#) on page 41).
3. Launch the **Software Administration Wizard** and click **Next** to navigate to the **Software Repository Operations** page.
4. Select **Upgrade the software on my Sun StorageTek EBS clients** and click **Next**.
5. Select the option **By Product and Version, will upgrade all clients to a new software version** and click **Next**.
6. Select one or more products to update clients to (use the **Ctrl** or **Shift** key to make multiple selections), then click **Next**. A list of clients and products appears, showing one client/product per line.
7. Select one or more of the client/product combinations to update, then click **Next**. The **Monitor Activity** window appears.

Monitoring the inventory and update activity of the software

You can monitor the progress of the Sun StorageTek EBS client operations and restart those that have failed from the Console server. The **Monitor Activity** window automatically appears after starting update operations from the Software Administration Wizard, and can be shown after initiating an inventory operation. The monitor operation can also be started manually at any time.

To monitor the Sun StorageTek EBS inventory and update activity:

1. Launch the **Software Administration Wizard** and click **Next** to navigate to the **Software Repository Operations** page.
2. Select the option **Monitor current upgrade and inventory activities**. The **Monitor Activity** window appears.

Repository operations using the nsrpush command

Repository operations can also be performed by using the **nsrpush** command from the command line.

Manage the software repository

To view the products available on provided media kits (for example, on software distribution disks or downloaded installation packages):

- ◆ For UNIX products, run:


```
nsrpush -L -U -m media kit location
```
- ◆ For Windows products, run:


```
nsrpush -L -W -m media kit location
```

Adding same platform products to the repository

To add same platforms products to the repository, run the following commands:

- ◆ On UNIX:


```
nsrpush -a -p Product Name -v version -P platform -U -m media kit location
```
- ◆ On Windows:


```
nsrpush -a -p Product Name -v versions -P platform -W -m media kit location
```

Note: You can only add one product at a time to the repository using this method.

Adding cross-platform products to the repository

To add cross-platform products to the repository:

- ◆ On UNIX, run the following:


```
nsrpush -a -p <Product Name> -v <version> -P <platform> -W -m <media kit location> -c <cross-platform client> -C <cross-platform media kit location>
```

For example, to add a 64-bit Solaris product to a UNIX server with the media kit located in /tmp/prod, and at D:\\temp\\downloads on the cross-platform client named "unixhost", run:

```
nsrpush -a -p NetWorker -v 7.6 -P solaris_64 -U -m /tmp/prod -c "unixhost" -C "D:\\temp\\downloads"
```

- ◆ On Windows, run the following:

```
nsrpush -a -p <Product Name> -v <versions> -P  
<platform> -U -m <media kit location> -c  
<cross-platform client> -C <cross-platform media kit  
location>
```

For example, to add a 64-bit Solaris product to a Windows server with the media kit located at D:\temp\downloads on the server, and at /tmp/prod on the cross-platform client named "solaris_host":

```
nsrpush -a -p NetWorker -v 7.6 -P solaris_64 -U -m  
"D:\temp\downloads" -c "solaris_host" -C /tmp/prod
```

More details on the **nsrpush** command are provided on the **nsrpush** man page, or from **nsrpush** usage (running **nsrpush** with no options).

Inventory currently installed products

To inventory clients using the **nsrpush** command:

1. Type the following command from the command line to view the list of clients to be inventoried:

```
nsrpush -i <client list>
```

where *<client list>* is a list of clients to be inventoried, separated by spaces.

2. Type the following command from the command line to inventory all configured clients:

```
nsrpush -i -all
```

Updating client software packages

You can update Sun StorageTek EBS software packages on existing Sun StorageTek EBS clients for one client, or for many clients, by using the **nsrpush** command.

To update the client software packages:

1. Ensure that all Sun StorageTek EBS scheduled backups have been stopped before starting any upgrades.
2. Ensure that the clients to be upgraded have been inventoried.

3. Initiate the update by using the **nsrpush** command:

- To update all clients:

```
nsrpush -u -p <Product> -v <version> -all
```

- To update selected clients:

```
nsrpush -u -p <Product> -v <version> <Client list>
```

Note: When using the **nsrpush** command, multiple clients on different platform types can be updated at the same time if the product and version are the same. For example, if you wanted to update two clients to the same version of a product (Sun StorageTek EBS release 7.6), type **nsrpush -u -p Sun StorageTek EBS -v 7.6 clientname1 clientname2**. However, to update clients for different versions, only one product at a time can be updated.

More details on the **nsrpush** command are provided on the **nsrpush** man page, or from **nsrpush** usage (running **nsrpush** with no options).

This chapter includes these sections:

- ◆ Installation roadmap 48
- ◆ Accessing the software..... 48
- ◆ Installing the software..... 49
- ◆ Uninstalling the Sun StorageTek EBS software 64

Installation roadmap

Use the following roadmap when installing the Sun StorageTek EBS software.

1. Review the requirements section and note the default directory location and space requirements for the software installation file. [“Software Requirements” on page 15](#) provides more information.
2. If there is an earlier release of Sun StorageTek EBS software installed, update the software. [“Updating the Sun StorageTek EBS software” on page 33](#) provides more information.
3. Access the Sun StorageTek EBS software. [“Accessing the software” on page 48](#) provides more information.
4. Install the required Sun StorageTek EBS software. [“Installing the software” on page 49](#) provides more information.

Note: You must install the Sun StorageTek EBS Console server software on one computer in your data zone to manage the Sun StorageTek EBS server. Only one installation of the Sun StorageTek EBS Console server is required to manage multiple Sun StorageTek EBS servers.

5. Test the Sun StorageTek EBS software. [“Verifying the Installation” on page 99](#) provides more information.
6. Enable and register all Sun StorageTek EBS products. [“Evaluating and Licensing the Software” on page 105](#) provides more information.

Accessing the software

To access the Sun StorageTek EBS software from a local CD-ROM drive:

1. Log in as root on the computer where the Sun StorageTek EBS software is being installed.
2. Mount the CD-ROM drive.
3. Locate the appropriate directory on the CD-ROM.

4. Ensure that the PATH environment variable for the user root on the Sun StorageTek EBS server and the user on each Sun StorageTek EBS client contain the directory where the Sun StorageTek EBS executables reside. For example, /usr/sbin.
5. Install the software by using the instructions in [“Installing the software” on page 49](#).

Installing the software

Complete these tasks to install the Sun StorageTek EBS software:

- ◆ [“Task 1: Install the Sun StorageTek EBS software” on page 49](#)
- ◆ [“Task 2: Change the Sun StorageTek EBS servers with access to a client” on page 57](#)
- ◆ [“Task 3: Start the Sun StorageTek EBS daemons” on page 58](#)
- ◆ [“Task 4: Optional, install the HomeBase Agent” on page 59](#)

Task 1: Install the Sun StorageTek EBS software

By default, the Sun StorageTek EBS software is installed in the /usr directory. However, the SUNWebsg package is installed in the /opt directory.

The Sun StorageTek EBS software can be installed in a default or nondefault location.

Installing to a default location

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

Client

To install the Sun StorageTek EBS software on the computer that is designated as the Sun StorageTek EBS client:

1. Type this command:

```
pkgadd -d /cdrom/cdrom0/solaris
```

Note: Do *not* press **Enter** for the default response **All**. Accepting the default installs the server.

2. Type the number of the option to install the client package (**SUNWebsc**). The client package temporarily requires 35 MB of free space on the client computer.
3. (Option) Type the number of the option to install a language support package.
4. Type the number of the option to install a language support package. For example:
 - **SUNWebfr** (French)
 - **SUNWebja** (Japanese)
 - **SUNWebko** (Korean)
 - **SUNWebzh** (Simplified Chinese)
5. (Optional) Type the a number of the option to install the man pages (**SUNWebsm**).

Note: If installing additional Sun StorageTek EBS software packages (storage node, server) to a Sun StorageTek EBS client that has processes running (for example, the nsrexecd process), an RPC error is reported. Before each software package is installed, the Sun StorageTek EBS software requires all Sun StorageTek EBS processes be shutdown. The RPC error is generated because the nsr_shutdown process attempts to stop Sun StorageTek EBS server processes when in fact no Sun StorageTek EBS server is running. This error message can be ignored and the installation process completes successfully.

During the **pkgadd** process, ensure that no Sun StorageTek EBS processes are running. Do *not* start the Sun StorageTek EBS daemons until the final package is installed.

Storage node

To install the Sun StorageTek EBS software on the computer that is designated as the Sun StorageTek EBS storage node and for which you have purchased an enabler code:

1. Type the following command:

```
pkgadd -d /cdrom/cdrom0/solaris
```
2. Type the appropriate options to install the following packages.

Software packages on the storage node must be installed in this order:

 - a. **SUNWebsc** (client software package)

- b. **SUNWebsn** (storage node software package)
 - c. **SUNWebsm** (optional man pages)
3. Type the number of the option to install a language package. For example:
 - **SUNWebfr** (French)
 - **SUNWebja** (Japanese)
 - **SUNWebko** (Korean)
 - **SUNWebzh** (Simplified Chinese)

Dedicated Storage Node in a Solaris 10 local zone

In Sun StorageTek EBS version 7.5, and earlier, you cannot install and run a Sun StorageTek EBS Dedicated Storage Node (DSN) in a Solaris 10 local zone to direct the backup data stream directly to a physically attached device that avoids sending backup data across the network.

However, Sun StorageTek EBS version 7.6 does support DSN installed in a Solaris 10 local zone to backup directly to a physically attached device without sending data across the IP network. It manages the sharing of a device between multiple dedicated storage nodes or storage nodes that are installed in multiple local zones of a single physical host, as long as all are contained within a single Sun StorageTek EBS data zone.

Server

To install the Sun StorageTek EBS software on the computer that is designated as the Sun StorageTek EBS server:

1. Keep a copy of the current configuration. The Sun StorageTek EBS software installation script modifies the `/etc/rpc` and `/etc/syslog.conf` files during the installation process.

Type these commands:

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

2. Type this command:


```
pkgadd -d /cdrom/cdrom0/solaris
```
3. Type the appropriate options to install the following packages.

Software packages on the server must be installed in the following order:

- a. **SUNWebsc** (client software package)

- b. **SUNWebsn** (storage node software package)
 - c. **SUNWebss** (server software package)
 - d. **SUNWebsm** (optional man pages)
4. Type the number of the option to install a language support package. For example:
 - **SUNWebfr** (French)
 - **SUNWebja** (Japanese)
 - **SUNWebko** (Korean)
 - **SUNWebzh** (Simplified Chinese)

Console server

To manage the Sun StorageTek EBS server, install the Sun StorageTek EBS Console and Sun StorageTek EBS client software on one machine in the datazone. The default install location for Console server package (SUNWebsg) is /opt.

The Console server installation relies on the existence of several other components. Ensure that all installation prerequisites are met.

[“Console” on page 24](#) provides details.

Note: If the environment runs only LDAPS, also known as LDAP over SSL, and native Sun StorageTek EBS user authentication is not used, the Console server must not be installed on a Solaris server.

To install Sun StorageTek EBS software on the computer that is designated as the Sun StorageTek EBS Console server:

1. Ensure that JRE version 1.5.0 or later is installed. This enables the command line reporting feature. If the required JRE version is not installed, go to the Java website to download and install the required version.
 - a. Change to the directory where the JRE is to be installed.
 - b. Run the following script:


```
/cdrom/cdrom0/solaris/jre-1_5_0_11-solaris-sparc.sh
```
 - c. Accept the Java licensing agreement.
2. Start the Sun StorageTek EBS software installation:


```
pkgadd -d /cdrom/cdrom0/solaris
```

Note: Do *not* press **Enter** for the default response **All**. Accepting the default installs the server.

3. Type the appropriate option number to install the client package (**SUNWebsc**), if not already installed.

The client package temporarily requires 35 MB of free space on the client computer.

4. Type the appropriate option number to install the Console server package (**SUNWebsg**).
5. (Optional) Type the appropriate option number to install the man pages (**SUNWebsm**).
 - **SUNWebfr** (French)
 - **SUNWebja** (Japanese)
 - **SUNWebko** (Korean)
 - **SUNWebzh** (Simplified Chinese)
6. Specify the directory to install the LGTONmc package (for example, /opt/LGTONmc).
7. Specify a User/Group with limited privileges that NMC will use to run the web server. This must be a non-root user. For example, Solaris operating systems have a default user/group [nobody/nobody] that can be used.

Note: If the default group [nobody/nobody] does not exist, and a user/group is not created with limited privileges, follow the Console server requirements specified in the section “[Console](#)” on page 24.

8. For the web server port number, use the default port number (**9000**) or use a custom port number. Valid port numbers are between **1024** and **49151**.
9. For the Console server, use the default port number (**9001**) or use a custom port number. Valid port numbers are between **1024** and **49151**.

Note: Do *not* use port numbers that are already in use. Port **2638** is reserved by the Console server as it uses Tabular Data Stream (TDS) protocol to communicate with the database. Port **9002** is the preferred port for the EMC Backup Advisor product.

10. Specify the directory to use for the LGTONmc database (for example, /export/home/lgto_gstdb).
11. Specify the location of the Sun StorageTek EBS binaries (for example, /usr/sbin).
12. Start the Sun StorageTek EBS Console daemons:

```
/etc/init.d/gst start
```

The Sun StorageTek EBS Console daemons include the following:

- **gstd**
 - **dbsrv9**
 - **httpd** (2 or more processes)
13. If the Console server and the Sun StorageTek EBS server are installed on separate hosts, you must add the Console administrator to the administrator lists of the monitored Sun StorageTek EBS server. This enables the Console administrator to administer and monitor the target Sun StorageTek EBS server.

On the Sun StorageTek EBS server:

- a. Specify the process owner of the Console daemon process depending on which host contains the Console server:

- If on a Microsoft Windows host, type:

```
nsraddadmin -u "user=SYSTEM, host=console_host"
```

- If on a AIX, HP-UX, Linux or Solaris only host, type:

```
nsraddadmin -u "user=root, host=console_host"
```

- b. Specify the Console administrator user:

```
nsraddadmin -u "user=administrator,  
host=console_host"
```

where *console_host* is the Console server hostname.

Launching Java Web Start if NMC GUI fails to start

When the NMC installation is complete and the NMC client GUI starts, a message indicates that Java is loading before the NMC console appears. If the NMC console does not open, Java Web Start may have failed to load, due to a corrupted Java Web Start cache or an incompatible version of Java Web Start. To resolve the issue, it is recommend to clean up the \$HOME/.java cache location.

Perform the following commands to load Java Web Start:

1. Run **setenv** or export HOME if not set.

```
cd $HOME
```

2. Move or remove the \$HOME/.java directory

```
mv .java .java_orig
```

3. Navigate to JRE HOME and launch javaws. Reconfigure the Java Web Start preference if necessary. A new \$HOME/.java will be created.

```
javaws [-viewer]
```

Note: [-viewer] is for JRE version 1.6.

4. If Step 3 is successful, restart the web browser to launch the NMC GUI client.

Installing to a nondefault location

By default, the following Sun StorageTek EBS software is installed in the /usr directory. If there is insufficient disk space on the /usr partition, the following Sun StorageTek EBS packages can be relocated to a specified directory on another partition:

- ◆ **SUNWebsc** (client software package)
- ◆ **SUNWebsn** (storage node software package)
- ◆ **SUNWebss** (server software package)
- ◆ **SUNWebfr** (French)
- ◆ **SUNWebja** (Japanese)
- ◆ **SUNWebko** (Korean)
- ◆ **SUNWebzh** (Simplified Chinese)

By default, the Sun StorageTek EBS Console server software is installed in the /opt directory. If there is insufficient disk space on the /opt partition, the Sun StorageTek EBS Console server package, SUNWebsg can be relocated to a specified directory on another partition.

The Sun StorageTek EBS man pages package (SUNWebsm) must always be installed in the default location. [Table 3, “Solaris location and space requirements,” on page 23](#) provides a listing of the default locations and size requirements.

Note: Do *not* relocate any of the packages if NetWorker Module software is already installed on the computer.

To install the Sun StorageTek EBS packages to a nondefault location:

1. Create a symbolic link between the default Sun StorageTek EBS location and the nondefault Sun StorageTek EBS location. For example:

```
ln -s /my_path/lib/nsr /usr/lib/nsr
```

2. Copy the /var/sadm/install/admin/default file, as shown:

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

3. Edit the /var/sadm/install/admin/default file and change the value assigned to the *basedir* variable from **default** to **ask**, as shown:

```
basedir=ask
```

4. Create a directory and the bin/nsr and sbin/nsr subdirectories to install the Sun StorageTek EBS packages, for example:

```
mkdir -p /my_path/sbin/nsr  
mkdir -p /my_path/bin/nsr
```

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

```
/my_path/bin/nsr:/my_path/sbin/nsr
```

6. Type this command:

```
pkgadd -d /cdrom/cdrom0/solaris
```

When this prompt appears in the script, type the same base directory for all the relocated packages:

```
Enter path to package base directory (default: /usr)  
[?,q] /my_path  
Using /my_path as the package base directory.
```

7. When all the applicable packages are added and the prompt appears, press [q] to exit.

8. Copy the /tmp/default.tmp file to the following location. For example:

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

If **pkgrm** is used to remove the packages at a later date, specify the base directory.

Task 2: Change the Sun StorageTek EBS servers with access to a client

To limit the servers authorized to access a client, specify a list of trusted Sun StorageTek EBS servers for a client in the `/nsr/res/servers` file. After installing the client, storage node, and server software, use the following procedure to change the Sun StorageTek EBS servers that are authorized to access a client.

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

1. Type this command to shut down the Sun StorageTek EBS daemons:

```
nsr_shutdown
```

2. Edit or create the `/nsr/res/servers` file and add the set of Sun StorageTek EBS servers, one per line, that require access to the client. The first entry in this file becomes the default Sun StorageTek EBS server.

Note: If the `/nsr/res/servers` file is empty or does not exist, any Sun StorageTek EBS server is authorized to:

- Access and back up the client.
 - Perform a directed recovery to the client.
-

3. If necessary, remove the `-s` option from the `nsrexecd` command that is invoked by the boot-time startup file. Running `nsrexecd` with the `-s` option supersedes the `/nsr/res/servers` file:
 - a. Check the Sun StorageTek EBS boot-time startup file to see whether `nsrexecd` is being run with the `-s` option. The boot-time startup file for the Solaris environment is `/etc/init.d/networker`.
 - b. If the `-s` option exists in the boot-time startup file, remove all occurrences of the following in the startup file:

```
-s server_name
```

Task 3: Start the Sun StorageTek EBS daemons

The Sun StorageTek EBS daemons must be started after the installation procedure.

1. Start the Sun StorageTek EBS daemons by using this command:

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

2. Verify that the Sun StorageTek EBS daemons are running:

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

3. If the output does not list **nsrd** and **nsrexecd** as current processes, run the following command to start the Sun StorageTek EBS daemons on the Sun StorageTek EBS server:

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

The Sun StorageTek EBS daemon **nsrmmd** is only present if one or more devices are enabled.

Note: The UTF-8 converters available with the operating system might need to be installed.

[Table 6 on page 58](#) lists the Sun StorageTek EBS daemons that should be running.

Table 6 Sun StorageTek EBS daemons

Sun StorageTek EBS installation packages	Sun StorageTek EBS daemons
server	nsrd, nsrexecd, nsrindexd, nsrmmbd, nsrmmd, nsrjobd, nsrmmgd, nsrlcpd
client	nsrexecd
storage node	nsrexecd, nsrmmd, nsrlcpd

Note: The Sun StorageTek EBS **nsrmmd** daemon is only present if one or more devices are enabled. The **nsrmmgd** and **nsrlcpd** daemons are only present on the server if the library is enabled.

Task 4: Optional, install the HomeBase Agent

Sun StorageTek EBS release 7.6 ships with EMC HomeBase Agent version 6.2.x to enable Bare Metal Recovery (BMR) for server system data. Although HomeBase Agent version 6.1.x is still supported with Sun StorageTek EBS 7.6, it is recommended that HomeBase Agent 6.2.x is used.

When the installation completes, the user is notified that the HomeBase Server version 6.2.x is required.



IMPORTANT

The HomeBase Agent version 6.2.x client requires that the HomeBase Server version 6.2.x also be installed in order for BMR to function in the Sun StorageTek EBS 7.6 environment. The *HomeBase Agent Release 6.2 Installation and Configuration Guide* provides complete details on the HomeBase Server version 6.2.x.

The HomeBase Agent collects configuration information about the operating system platform of the host on which it is installed. This information is called a profile.

A profile can be used to:

- ◆ Monitor configuration changes
- ◆ Migrate configuration changes
- ◆ Recover the operating system's configuration from an EMC HomeBase Server

The profile data includes hardware configurations, operating system levels, system tuning, network configuration and connections, security, and storage layouts. This information is captured with a Sun StorageTek EBS save set backup and is sent to a secure HomeBase Server for storage and analysis. The HomeBase Server is also required to perform a BMR server recovery or migration.

Note: On Solaris, an additional screen warns that a particular level of operating system patch must be installed prior to installing the agent. The server may already have these patches installed. The installer does not verify that the patches are installed. Failure to install the identified patches can result in the installation failing or the execution of the agent to fail.

The following documents provide information about the HomeBase Server features:

- ◆ *EMC HomeBase Server Installation and Administration Guide*
- ◆ *EMC HomeBase Server User Guide*

HomeBase Agent space requirements

[Table 7 on page 60](#) specifies the location and space requirements for the HomeBase Agent.

Table 7 HomeBase Agent location and minimum system requirements

Sun StorageTek EBS files	Location	Space		Processor
		x86	x64	
EMC HomeBase Agent binary	/opt/homebase-agent/	512 MB	512 MB	1 GHz
Temporary space required for EMC HomeBase Agent	/tmp	512 MB	512 MB	1 GHz

Installing the HomeBase Agent software

Although HomeBase Agent version 6.1.3.x is supported with Sun StorageTek EBS 7.6, it is recommended that HomeBase Agent 6.2.x is used.

On all Solaris platforms, ensure that the Sun StorageTek EBS HomeBase Agent software is only installed in the default installation directory. Do not install the software in a directory other than */opt/homebase-agent*. The Sun StorageTek EBS BMR profiling feature will not work if the HomeBase Agent software is installed in a location other than the default installation directory, */opt/homebase-agent*.

To install the HomeBase Agent software:

1. From the HomeBase Agent Installation directory (*/opt/homebase-agent*), run the following command:


```
setup-homebase.sh
```
2. If necessary, click **Choose** to select a different location.
3. Click **Next** to proceed. A summary of the installation location and disk space requirements is displayed.

4. Click **Install** to proceed. The installation process begins. The **Select Intended Use** window appears. Each option results in a different level of agent functionality.
5. Choose the correct option for this server. If the option selected on this page is not correct, the software must be reinstalled to enable the correct set of functionality.
 - a. Select **Generate HomeBase Profiles** to:
 - Enable the agent to produce profiles that enable a HomeBase Server to report on the assets of that server
 - Generate notifications and alerts based on configuration changes
 - Generate business reports
 - Recover or migrate this server configuration to another machineThese capabilities are dependant on the license purchased for this agent.
 - b. Select **Restore a Recovery Profile** to enable the HomeBase Agent to recover a full profile and restore a configuration onto a new item of hardware or a new virtual server.
6. Click **Next** to proceed. The **Specify Server URL** window appears.
7. Type the address of the server or proxy server to which the agent will automatically transmit generated profiles. Once a server is defined, the Agent can be configured to execute on a scheduled basis.
8. Click **Next**. The **Evaluation License** page displays. Select the **Request Evaluation License** checkbox to license the Agent for a 30-day period. For a permanent license, do not select this checkbox.
9. Click **Next**. The **Configure Batch** window appears. Type the license batch code received with the software or from the HomeBase administrator. The install program validates the license with the previously specified HomeBase Server.
10. Click **Next**. The **Setup Schedule** window appears. Select the day and time for this agent to generate a profile.
11. Click **Next**. The **Announce Agent** window appears. The install program announces the agent to the HomeBase Server provided.

12. Click **Next**. The **Install Complete** window confirms that the installation has completed successfully. The HomeBase Agent is now installed.
13. Click **Done** to close the installation program.

Note: The HomeBase Agent is not supported in a Cluster environment.

Enabling BMR server support

Connection with a HomeBase Server is enabled during the set up of the Sun StorageTek EBS server. This connection enables the delivery of profile data from the Sun StorageTek EBS client to the HomeBase Server.

To enable BMR support:

1. From the **Administration** window, click **Configuration**.
2. Select the Sun StorageTek EBS server name.
3. From the **File** menu, select **Properties**.
4. In the **Properties** dialog box, click the **Configuration** tab.
5. Type the IP address or hostname for the HomeBase Server in the BMR server field.
6. Click **OK**.

Note: The HomeBase Server SSL protocol must be configured and activated on the HomeBase Server. The *EMC HomeBase Server Installation and Administration Guide* provides information about enabling the SSL protocol.

Licensing the HomeBase Server and Agent

This section provides details for licensing the HomeBase Server, and HomeBase Agent software.

The *EMC HomeBase Server Installation and Administration Guide*, and the *The EMC HomeBase Agent Installation and Configuration Guide* provides complete details on licensing the HomeBase software.

HomeBase Server

The HomeBase 6.2.x server software comes with a 30 day evaluation enabler for the HomeBase Server with 20 HomeBase Agent licences.

Note: Be sure to permanently enable the HomeBase Server and Agent licenses, as they expire after 30 days with no grace period.

During the installation of the HomeBase Server, a license request file is automatically generated in the keys directory. The license request is then forwarded to *licensing@emc.com* with all required purchase order details. Copies of the following are then sent:

- ◆ licence.zip file (the HomeBase Server licence)
- ◆ homebase.bks file (a set of encryption keys used for the recovery and replication of profiles between HomeBase Servers)
- ◆ Agent licence batch files (there can be multiple agent licence batch files) that are associated with the HomeBase Server licence.

The default temporary enablers can be overridden by applying a permanent enabler and Agent licence batch to the HomeBase Server when the HomeBase Server Console is first accessed.

HomeBase Agent

When a HomeBase Agent is installed with the Sun StorageTek EBS software, the Agent license is provided automatically during the first profile run from the Sun StorageTek EBS software as it must be able to contact the HomeBase Server to forward profiles for backups. The **-L** setting in the Sun StorageTek EBS client BMR configuration setting is used to do this.

The *EMC HomeBase Server Installation and Administration Guide* provides details on how to license the HomeBase Agent for a Remote HomeBase Server.

Using the Sun StorageTek EBS client port under a firewall server

If the Sun StorageTek EBS client and HomeBase Agent are on the same system outside of the firewall with the HomeBase Server inside the firewall, then port 18821 is required for communication between the HomeBase Agent and the HomeBase Server.

Uninstalling the Sun StorageTek EBS software

Use the `pkgrm` command to uninstall individual Sun StorageTek EBS packages or all of the Sun StorageTek EBS packages simultaneously:

This section provides instructions for the following:

- ◆ [“Software dependencies” on page 64](#)
- ◆ [“Uninstalling the Sun StorageTek EBS software” on page 65](#)
- ◆ [“Uninstalling the HomeBase Agent” on page 66](#)

Software dependencies

The Sun StorageTek EBS software packages depend on each other. Uninstall them in this order:

1. **SUNWebss**
2. **SUNWebsn**
3. **SUNWebsg**

If the Console server software is installed (**SUNWebsg**), there is a dependency on the Sun StorageTek EBS client software and the Console server software must be uninstalled first.

4. **SUNWebsc**
5. **SUNWebsm**
6. **SUNWebfr** (French language support package)
7. **SUNWebja** (Japanese language support package)
8. **SUNWebko** (Korean language support package)
9. **SUNWebzh** (Simplified Chinese language support package)

Note: The man pages and document files have no dependencies and can be uninstalled at any time.

Uninstalling the Sun StorageTek EBS software

To remove the Sun StorageTek EBS software packages:

1. Log in as root on the system where the software is being removed.
2. Type this command to shut down the Sun StorageTek EBS daemons:

```
nsr_shutdown
```

A list of Sun StorageTek EBS daemons that will be shut down appears, along with a prompt that asks whether to continue with the **nsr_shutdown** command.

3. Type this command to shut down the Console server:

```
/etc/init.d/gst stop
```

4. Remove the software:

- To remove all the packages, type this command:

```
pkgrm SUNWebss SUNWebsn SUNWebsg SUNWebsc SUNWebsm
```

Note: Do *not* choose the default option **All** to remove the Sun StorageTek EBS software packages. Choosing this option removes all the software packages (*not* just Sun StorageTek EBS software) that were installed on the computer by using the **pkgadd** utility.

- To remove only select the Sun StorageTek EBS packages, see [Table 8 on page 65](#).

Table 8 Sun StorageTek EBS packages to uninstall

To uninstall these Sun StorageTek EBS packages	Type this command and package name
Server	pkgrm SUNWebss
Storage node	pkgrm SUNWebsn
Console server	pkgrm SUNWebsg <hr/> Note: The SUNWebsg package must be uninstalled before the SUNWebsc package.
Client software	pkgrm SUNWebsc

Table 8 Sun StorageTek EBS packages to uninstall

To uninstall these Sun StorageTek EBS packages	Type this command and package name
Man pages	<code>pkgrm SUNWebsm</code> Note: This removes the <code>SUNWebsm</code> package from the server, storage node, or client where the man pages are installed.
French language support	<code>pkgrmSUNWebfr</code>
Japanese language support	<code>pkgrmSUNWebja</code>
Korean language support	<code>pkgrmSUNWebko</code>
Simplified Chinese language support	<code>pkgrm SUNWebzh</code>

5. If you no longer plan to update or reinstall the Sun StorageTek EBS software:
 - a. Remove the `/nsr` directory.
 - b. Delete the NMC directory. By default, NMC is installed at `/opt/LGTONmc`.
 - c. Delete the directory containing the following NMC database files:
 - `lgto_gst.db`
 - `lgto_gst.log`
 - `gstd_db.conf`
6. If the Java Runtime Environment is no longer required, uninstall the JRE.

Uninstalling the HomeBase Agent

Uninstalling the Sun StorageTek EBS client automatically uninstalls the HomeBase Agent.

Note: Uninstalling the HomeBase Agent manually is possible, but not recommended as BMR functionality is removed from the Sun StorageTek EBS software.

The *EMC HomeBase Agent Installation and Configuration Guide* provides complete details on uninstalling the HomeBase Agent.

Sun Cluster Version 3.0, 3.1, or 3.2 Installation

This chapter includes these sections:

- ◆ Installation requirements..... 68
- ◆ Updating from a previous release the software 71
- ◆ Installing Sun StorageTek EBS software in a cluster 72
- ◆ Installing a virtual Sun StorageTek EBS Console server 87
- ◆ Configuring an external client to a virtual server..... 96
- ◆ Defining ownership of a raw partition for virtual clients 96
- ◆ Uninstalling the Sun StorageTek EBS software 95

Software installation roadmap

These tasks are a roadmap to follow when installing the Sun StorageTek EBS software:

1. Review [“Installation requirements” on page 68](#) and note the default directory location.
2. Install the required Sun StorageTek EBS software by following one of these procedures:
 - [“Installing a Sun StorageTek EBS virtual server” on page 72](#)
 - [“Installing a virtual Sun StorageTek EBS Console server” on page 87](#)
 - [“Installing only the Sun StorageTek EBS client software in a cluster” on page 90](#)
3. Enable and register all of the Sun StorageTek EBS products. [Chapter 7, “Evaluating and Licensing the Software”](#) provides detailed information.

Installation requirements

This section specifies the software and hardware required for installing and setting up the Sun StorageTek EBS server or client software within a Sun Cluster environment.

The EMC Information Protection Software Compatibility Guide provides the most up-to-date information about software and hardware requirements.

Software requirements

The following software must be installed on each node in the cluster:

- ◆ Solaris 9 operating environment and Sun Cluster version 3.0 or 3.1
- ◆ Solaris 10 or 11 operating environment and Sun Cluster version 3.2
- ◆ Volume Manager software (Solstice DiskSuite/Solaris Volume Manager)

Note: Highly available storage nodes are *not* supported.

Hardware requirements

The following hardware requirements must be met:

- ◆ A multihosted disk is used as a mount point for the global file systems. These contain the shared /nsr area.
- ◆ A device with local affinity for the local bootstrap backup that is connected to all the nodes within the cluster.

Configuration options

Refer to the *Sun StorageTek EBSAdministration Guide* for information about:

- ◆ Tape libraries with a Sun StorageTek EBS virtual server
- ◆ Remote physical storage node with a Sun StorageTek EBS virtual server

System information requirements

[Table 9 on page 69](#) and [Figure 1 on page 70](#) display the system information needed to install highly available Sun StorageTek EBS software within a Sun Cluster environment.

Table 9 System information

Information Required	Example
Sun StorageTek EBS virtual hostname with an IP address in the same subnet as the cluster nodes	clus_vir1 192.168.1.10
Sun StorageTek EBS globally mounted configuration area	/global/nw
Sun StorageTek EBS cluster configuration script	/usr/sbin/nsr/networker.cluster
File containing the host ID of all the cluster members	/nsr/res/hostids

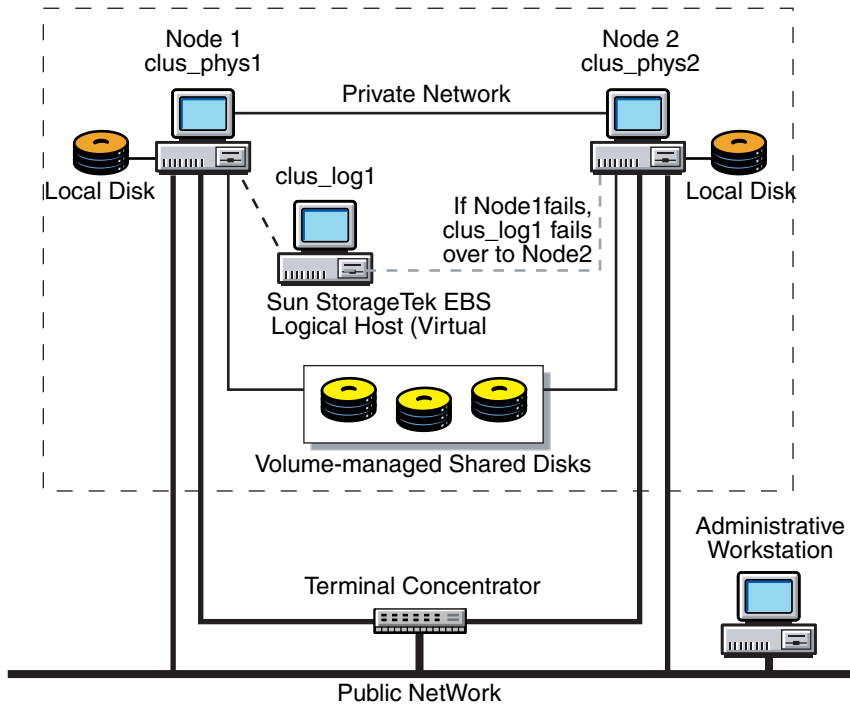


Figure 1 Sample cluster configuration

Updating from a previous release the software

To update from Sun StorageTek EBS releases 6.1.x and 7.x to Sun StorageTek EBS release 7.3 in a Sun Cluster 3.0, 3.1, or 3.2 environment:

1. Collect this Sun StorageTek EBS software system information:

- The location of the Sun StorageTek EBS server global /nsr directory on the shared storage.
- The location of the Sun StorageTek EBS client local /nsr directories.

2. List and save the cluster resource group configuration:

```
scrgadm -pvv > scrgadm_pvv.out
```

```
scconf -pvv > scconf_pvv.out
```

3. Use Sun StorageTek EBS software to back up the cluster. Ensure that you have a recent backup of the indexes and bootstrap by using the **savegrp -O** command.
4. Remove the Sun StorageTek EBS software cluster configuration files and uninstall the Sun StorageTek EBS software. Do not remove the global and local /nsr directories.

[“Uninstalling the Sun StorageTek EBS software”](#) on page 95 provides instructions for uninstalling the Sun StorageTek EBS software.

5. If required, upgrade the Sun Cluster software. For instructions, refer to the Sun Cluster documentation.
6. Install and configure the Sun StorageTek EBS 7.4 software.

Note: Do not relocate the Sun StorageTek EBS software. By default, the Sun StorageTek EBS is installed in the /usr directory.

7. Ensure that:

- You specify the same local /nsr and global /nsr directories.
- The Sun StorageTek EBS Client Type resource properties for Owned_paths and Clientname are the same as before the upgrade.
- The Sun StorageTek EBS Config_dir resource contains the same values as before the upgrade.

- The `Network_resources_used` property contains the same value that the `Resource_dependencies` property had before the upgrade.

Installing Sun StorageTek EBS software in a cluster

See these sections to install the Sun StorageTek EBS software in a Sun Cluster environment:

- ◆ [“Installing a Sun StorageTek EBS virtual server” on page 72](#)
- ◆ [“Installing a virtual Sun StorageTek EBS Console server” on page 87](#)
- ◆ [“Installing only the Sun StorageTek EBS client software in a cluster” on page 90](#)

Note: Do not relocate the Sun StorageTek EBS software. By default, the Sun StorageTek EBS is installed in the `/usr` directory.

Installing a Sun StorageTek EBS virtual server

To install and configure the Sun StorageTek EBS software as a highly available service in a cluster, perform these tasks:

- ◆ [“Task 1: Install the Sun StorageTek EBS software” on page 73](#)
- ◆ [“Task 2: Define the Sun StorageTek EBS server as highly available” on page 74](#)
- ◆ [“Task 3: Create an Instance of the Sun StorageTek EBS server resource group” on page 75](#)
- ◆ [“Task 4: \(Optional\) add a HAStoragePlus resource” on page 78](#)
- ◆ [“Task 5: Grant access to the highly available Sun StorageTek EBS server” on page 79](#)
- ◆ [“Task 6: Configure the Sun StorageTek EBS server” on page 81](#)
- ◆ [“Task 7: Configure clients under the Sun StorageTek EBS server” on page 81](#)

- ◆ “Task 8: Create instances of the Sun StorageTek EBS Client resource type” on page 82
- ◆ “Task 9: Register licenses for the highly available Sun StorageTek EBS server” on page 84
- ◆ “Task 10: Authorize the software” on page 86

Task 1: Install the Sun StorageTek EBS software

The Sun StorageTek EBS software must be installed on all nodes in the cluster that are required to run the Sun StorageTek EBS resource group.

Note: Ensure that the following apply:

- Operating environment and Sun Cluster 3.0, 3.1, or 3.2 software are already installed on all nodes in the cluster and that those nodes boot in cluster mode.
- PATH environment variable includes /usr/sbin and /usr/cluster/bin.

To install the Sun StorageTek EBS software on nodes that will be running the Sun StorageTek EBS resource group:

1. Access the Sun StorageTek EBS software from the distribution media. The Sun StorageTek EBS Installation Guide provides installation instructions.
2. Keep a copy of the current configuration. The Sun StorageTek EBS software installation script modifies the `/etc/rpc` and `/etc/syslog.conf` files during the installation process. Type these commands:

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

3. To install the software, type:


```
pkgadd -d .
```
4. Press **Enter** to install all of the packages on the server. Start the Sun StorageTek EBS daemons only after the last Sun StorageTek EBS package is installed.

Install selected software packages in this order:

- a. **SUNWebsc** (client software package)
- b. **SUNWebsn** (storage node software package)
- c. **SUNWebss** (server software package)
- d. **SUNWebsm** (optional man pages)

5. Start the Sun StorageTek EBS daemons:

```
/etc/init.d/networker start
```
6. Type **q** to exit.

Note: Do not relocate the Sun StorageTek EBS software. By default, the Sun StorageTek EBS is installed in the `/usr` directory.

Task 2: Define the Sun StorageTek EBS server as highly available

To define and configure the Sun StorageTek EBS server as highly available:

1. Log in as root.
2. Ensure that the `/etc/hosts` file on each cluster node contains the name of the logical host. The logical hostname can be published in the Domain Name System (DNS) or Network Information Services (NIS).
3. From each node in the cluster that will run the Sun StorageTek EBS server process:
 - a. Run the cluster configuration script **networker.cluster** located in `/usr/sbin/nsr`.

This script defines the SUNWebss and the SUNWebsc resource types that the Sun StorageTek EBS software requires.

- b. Type the information specified for each system prompt:

```
Enter directory where local Sun StorageTek EBS
database is installed [/nsr]?
```

- Type the location of the local Sun StorageTek EBS database directory provided during the installation procedure. For example: **/space/nsr**

```
Do you wish to configure for both Sun StorageTek
EBS server and client?
Yes or No [Yes]?
```

- Type **Yes** to configure the server software. This also installs the client software by default.
- Type **No** to configure only the client software.

```
Do you wish to add now the site-specific values
for:
NSR_SHARED_DISK_DIR and NSR_SERVICE_ID
Yes or No [Yes]?
```

- Type **Yes** to ensure compatibility with other cluster environments.

Enter the Logical Hostname to be used for Sun StorageTek EBS?

- Type the published logical hostname to be used by the highly available Sun StorageTek EBS server. For example: `clus_vir1`

In what path will this `nsr` directory be created/located?

- Type the pathname of the globally mounted `/nsr` directory that will contain the configuration information for the highly available Sun StorageTek EBS server.

Note: For more information, see [“System information requirements” on page 69](#).

To undo any changes to the configuration, run the `networker.cluster -r` script and then run the `networker.cluster` script again.

Task 3: Create an Instance of the Sun StorageTek EBS server resource group

A resource group must be created for the highly available Sun StorageTek EBS server. It must contain these resources:

- ◆ Logical hostname
- ◆ Globally mounted file system for the `/nsr` area
- ◆ `LGTO.serv` resource
- ◆ `LGTO.cnt` resource
- ◆ `HASStoragePlus` (optional)

To create an instance of the Sun StorageTek EBS Server resource group, perform these steps on one node in the cluster:

1. Create a resource group:

```
scrgadm -a -g networker
```

2. Add the logical host resource:

```
scrgadm -a -L -g networker -l clus_vir1
```

3. (Optional), create an instance of the SUNW.HAStoragePlus resource type:

- a. Determine if the HAStoragePlus resource type is registered within the cluster:

```
scrgadm -p | egrep Type
```

- b. If required, register the HAStoragePlus resource type within the cluster:

```
scrgadm -a -t SUNW.HAStoragePlus
```

- c. Create the SUNW.HAStoragePlus resource:

```
scrgadm -a -g networker -j hastorageplus -t  
SUNW.HAStoragePlus \  
-x  
FilesystemMountPoints=/global/clus_vir1/nw,/global/  
clus_vir1/  
space  
-x AffinityOn=True
```

Note: For more information on the SUNW.HAStoragePlus resource and the setup for locally mounted global systems, refer to the Sun Cluster 3.0, 3.1, or 3.2 documentation.

4. Create an instance of the LGTO.clnt resource, type:

```
scrgadm -a -j client -t LGTO.clnt -g networker \  
-x clientname=clus_vir1 \  
-x  
owned_paths=/global/clus_vir1/nw,/global/clus_vir1/sp  
ace
```

If the logical host resource name is different than the hostname it specifies, use this command to do the following:

- a. Set the client name to the virtual hostname.
- b. Set the optional `network_resource` property to the logical host resource name.

For example:

```
scrgadm -a -j client -t LGTO.clnt -g networker \  
-x clientname=virtual_hostname -x  
network_resource=clus_vir1 \  
-x  
owned_paths=/global/clus_vir1/nw,/global/clus_vir1/  
space
```

5. Create an instance of the LGTO.serv resource type:

```
scrgadm -a -j server -t LGTO.serv -g networker \
-y network_resources_used=clus_vir1 \
-y Resource_dependencies=hastorageplus \
-x config_dir=/global/clus_vir1/nw
```

If the logical host resource name is different than the hostname it specifies, set the optional servername property to the virtual hostname:

```
scrgadm -a -j server -t LGTO.serv -g networker \
-y network_resources_used=clus_vir1 \
-x servername=virtual_hostname \
-x config_dir=/global/clus_vir1/nw
```

Note: If you are using a HAStoragePlus resource, set `resource_dependencies` property to the HAStoragePlus resource name.

6. Start the Sun StorageTek EBS resource group:

```
sctswitch -Z -g networker
```

Example 1 A highly available Sun StorageTek EBS server

In this example, a highly available Sun StorageTek EBS server uses the logical hostname *backup_server*. The highly available Sun StorageTek EBS server uses */global/networker* (globally mounted file system) as its configuration directory.

1. Create a resource group with the name *backups*:

```
scrgadm -a -g backups
```

2. Add the logical hostname resource type to the resource group created in the previous step:

```
scrgadm -a -L -g backups -l backup_server
```

3. Create an instance of the *LGTO.serv* resource type with the name *networker_server*. This resource belongs to the resource group *backups* and has a dependency on the logical host created in the previous step.

Specify the configuration directory on the globally mounted file system `/global/networker`:

```
scrgadm -a -j networker_server -t LGTO.serv -g backups \
\
-y network_resources_used=backup_server \
-x config_dir=/global/networker
```

4. The Sun StorageTek EBS logical host is also a client of the highly available Sun StorageTek EBS server. Create an instance of the `LGTO.cln` resource type for the logical host `backup_server` within the resource group `backups`. The name of this resource is `networker_client`:

```
scrgadm -a -j networker_client -t LGTO.cln -g backups \
\
-x clientname=backup_server -x
owned_paths=/global/networker
```

5. Start the highly available service associated with the resource group `backups`.

```
scswitch -Z -g backups
```

Task 4: (Optional) add a HAStoragePlus resource

To add a `SUNW.HAStoragePlus` resource to an existing Sun StorageTek EBS server resource group:

1. Determine whether the `HAStoragePlus` resource type is registered within the cluster:

```
scrgadm -p | egrep Type
```

2. If required, register the `HAStoragePlus` resource type within the cluster:

```
scrgadm -a -t SUNW.HAStoragePlus
```

3. Create the `SUNW.HAStoragePlus` resource:

```
scrgadm -a -g networker -j hstorageplus -t
SUNW.HAStoragePlus -x
FilesystemMountPoints=/global/clus_vir1/nw,/global/cl
us_vir1/space -x AffinityOn=True
```

4. Enable the `HAStoragePlus` resource:

```
scswitch -e -j hstorageplus
```


5. Set up a dependency for the Sun StorageTek EBS Server resource on the HAStoragePlus resource:

```
scrgadm -c -j server -y
Resource_Dependencies=hastorageplus
```

6. Verify that the resource dependencies are correctly set:

```
scrgadm -pvv -j server | egrep strong
```

Task 5: Grant access to the highly available Sun StorageTek EBS server

Before a Sun StorageTek EBS server can back up a client, the client must grant the server access. Granting access is controlled by the **servers** file. For the node that is running the Sun StorageTek EBS Server resource group, this file is located in the globally mounted file system. Otherwise, this file is located on a local disk.

Note: If the `/nsr/res/servers` file is empty or does not exist, any Sun StorageTek EBS server is authorized to:

- Access and back up the client.
- Perform a directed recovery to the client.

To grant access to the highly available Sun StorageTek EBS server:

1. On one node in the cluster:
 - a. Stop the Sun StorageTek EBS daemon by using the cluster management software, as follows:


```
scswitch -F -g NetWorker
```
 - b. Edit or create the `servers` file in the globally mounted `/nsr` area. For example, `/global/nw/res/servers`:
 - Add the set of Sun StorageTek EBS servers, one per line, to be granted access to this client.
 - Add an entry for the Sun StorageTek EBS logical hostname first.
 - Add entries for each physical host that can run the Sun StorageTek EBS resource group.

For example:

```
clus_vir1
clus_phys1
clus_phys2
```

2. On each node in the cluster:
 - a. Shut down the Sun StorageTek EBS processes and verify that all Sun StorageTek EBS daemons have stopped:


```
nsr_shutdown
ps -ef | grep nsr
```
 - b. Check the Sun StorageTek EBS boot-time startup file to see whether `nsrexecd` is being run with the `-s` option.

If the `-s` option exists, remove all occurrences of `-s servername` in the file.
 - c. Edit or create the `/nsr.NetWorker.local/res/servers` file:
 - Add the set of Sun StorageTek EBS servers, one per line, that require access to this client.
 - Add an entry for the Sun StorageTek EBS logical hostname first.
 - Add entries for each physical host that can run the Sun StorageTek EBS resource group.

For example:

```
clus_vir1
clus_phys1
clus_phys2
```
 - d. Restart the Sun StorageTek EBS processes:


```
/etc/init.d/networker start
```
3. On one node in the cluster, start the Sun StorageTek EBS daemon by using the cluster management software, as follows:


```
scswitch -Z -g NetWorker
```
4. If required, grant access to the Sun StorageTek EBS virtual server on clients outside of the cluster:

On each client that is outside of the cluster:

 - a. To shut down the Sun StorageTek EBS processes, type:


```
nsr_shutdown
```
 - b. To verify that all Sun StorageTek EBS daemons have stopped, type:


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

- c. Edit or create the `/nsr/res/servers` file:
- Add the set of Sun StorageTek EBS servers, one per line, that require access to this client.
 - Add an entry for the Sun StorageTek EBS logical hostname first.
 - Add entries for each physical host that can run the Sun StorageTek EBS resource group.

For example:

```
clus_vir1
clus_phys1
clus_phys2
```

- d. Type this command to restart the Sun StorageTek EBS daemons:

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

Task 6: Configure the Sun StorageTek EBS server

To configure the Sun StorageTek EBS server:

1. Log in as root on the cluster node that is currently running the Sun StorageTek EBS server resource group.
2. Start the **Sun StorageTek EBS Console** software.
3. From the **Administration** window, select **Properties** from the **File** menu.
 - a. For the **Administrator** attribute, add entries for any cluster nodes that are not already listed. For example:

```
root@hostname
```

- b. Click **OK**.

Task 7: Configure clients under the Sun StorageTek EBS server

When the `networker.cluster` script runs, it creates a symbolic link named `/nsr` that points to a local disk. It also creates a second link named `nsr.NetWorker.local` that points to the local Sun StorageTek EBS directory. For example, if the local Sun StorageTek EBS directory was created in `/var/nsr`, each client member has these links:

- ◆ `/nsr->/nsr.NetWorker.local`
- ◆ `/nsr.NetWorker.local->/var/nsr`

To configure each client under the Sun StorageTek EBS server:

1. (Optional) Define save groups.

Note: In order for their save sets to restart after a virtual client or Sun StorageTek EBS server failover, save groups must have the Autorestart attribute enabled and the Manual Restart option disabled.

2. Make each physical client within the cluster a client of the Sun StorageTek EBS server. For each physical client in the cluster:
 - a. Create a new client.
 - b. Type the name of the physical client for the **Name** attribute.
3. Make each virtual client within the cluster a client of the virtual Sun StorageTek EBS server. For each virtual client in the cluster:
 - a. Create a new Sun StorageTek EBS client.
 - b. For the **Name** attribute, type the name of the virtual client.
 - c. In the **Remote Access** attribute, add entries for each physical client within the cluster. For example:


```
root@clus_phys1
```
 - d. For the **Group** attribute, select a group.
4. Run a test probe to verify that the **Client** resource and the **Group** resource have been properly configured.

Type this command on the node on which the Sun StorageTek EBS server resides:

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

If the test probe does not display the correct scheduled backups and index, refer to the *Sun StorageTek EBS Administration Guide*.

Task 8: Create instances of the Sun StorageTek EBS Client resource type

An instance of the Sun StorageTek EBS Client resource type must be created for each virtual client that accesses data on globally mounted file systems. Virtual clients in Sun Cluster 3.0, 3.1, and 3.2 are either logical hostnames or shared addresses.

Note: All globally mounted file systems (except the `/global/.devices/...` file systems) must be owned by a resource group and defined in a Sun StorageTek EBS Client resource type. If the file systems are not properly configured, multiple copies will be backed up for each cluster node.

To back up the data for a virtual client:

1. Create an instance of the Sun StorageTek EBS Client resource as part of an existing resource group that contains a logical host or shared addresses. For example:

```
scrgadm -a -j resource_name -g resource_group_name -t
LGTO.clnt \
-x clientname=virtual_hostname -x
owned_paths=pathname_1, pathname_2[,...]
```

The *virtual_hostname* variable is a hostname specified by a logical hostname or Shared Address resource. By default, the logical hostname or shared address resource name is the same as the first hostname in the list of hostnames the resource controls.

If the logical hostname or shared address resource was explicitly named, set the optional *network_resource* property to the resource name:

```
scrgadm -a -j resource_name -g resource_group_name -t
LGTO.clnt\
-x clientname=virtual_hostname
-x network_resource=logicalhostname_
or_SharedAddress_resource_name \
-x owned_paths=pathname_1, pathname_2[,...]
```

These examples provide more information:

- [“A highly available Informix database server” on page 84](#)
 - [“A scalable Apache web server” on page 84](#)
2. Run a test probe to verify that the Client and Group resources are properly configured.

Type this command on the node on which the Sun StorageTek EBS server resides:

```
savegrp -pv -c client_name savegroup_name
```

If the test probe does not display the scheduled backups and index, refer to the *Sun StorageTek EBS Administration Guide*.

Example 2 A highly available Informix database server

In this example, the Informix database server is configured to use the DNS registered hostname *informix_lhrs*. An existing failover resource group named *informix_rg* contains a:

- ◆ SUNW.informix resource named *informix_res*
- ◆ SUNW.LogicalHostname resource named *informix_lhrs*

This *SUNW.informix* database server can access data on a global file system under */global/informix/config* and */global/informix/db*.

To add a Sun StorageTek EBS virtual client to the existing resource group *informix_rg*, type:

```
scrgadm -a -j informix_clntrs -g informix_rg -t LGTO.clnt \
\
-x clientname=informix_lhrs \
-x
owned_paths=/global/informix/config,/global/informix/db
```

Example 3 A scalable Apache web server

In this example, an Apache web server is configured to use the DNS registered hostname *apache_sars*. An existing scalable resource group named *apache_rg* contains a:

- ◆ SUNW.apache resource named *apache_res*
- ◆ SUNW.SharedAddress resource named *apache_sars*

This Apache web server accesses data on a global file system under */global/web/config* and */global/web/data*.

To add a Sun StorageTek EBS virtual client to the existing resource group *apache_rg*, type:

```
scrgadm -a -j apache_clntrs -g apache_rg -t LGTO.clnt \
-x clientname=apache_sars \
-x owned_paths=/global/web/config,/global/web/data
```

Task 9: Register licenses for the highly available Sun StorageTek EBS server

To register and license the highly available Sun StorageTek EBS server:

1. Order licenses for the type of Sun StorageTek EBS server and client configuration in use.

Note: If you are Registering an Update from Solstice Backup 6.x to Sun StorEdge EBS 7.3, you will need a new Update for Sun StorEdge EBS 7.3 enabler. Only customers with maintenance contracts will have automatically received Update for Sun StorEdge EBS 7.3 enablers. If you do not have a maintenance contract, order appropriate licenses for the highly available StorEdge Backup server and other desired features.

2. Log in to the system that is currently running the Sun StorageTek EBS resource group.
3. Perform these operations to enter the purchased enabler codes:
 - a. If you have been evaluating the Sun StorageTek EBS highly available software and have now purchased the software:

– To upgrade from the base evaluation enabler to the purchased enabler, type:

```
nsrcap -v -u base_enabler_code
```

– Delete any remaining evaluation enablers:

```
nsradmin -s clus_vir1
```

This eliminates warning messages due to expiring evaluation enablers.

- b. For each enabler code, type:

```
nsrcap -v -c enabler_code
```

4. Ensure that the highly available Sun StorageTek EBS server is defined as a part of the cluster.
5. Run the following command, and capture the output, on each node that is currently running the Sun StorageTek EBS server resource group:

```
hostid
```

The numeric identifier of the current host prints.

6. Log in to the system that is running the Sun StorageTek EBS virtual server and create the **/nsr/res/hostids** file. This file contains the host IDs of all the cluster nodes.

Use this syntax:

```
hostid1:hostid2:hostid3:...
```

For example:

```
12345678:87654321
```

7. Type the following commands to restart the server by taking the highly available Sun StorageTek EBS server offline and then putting it back online:

```
scswitch -F -g NetWorker
```

```
scswitch -Z -g NetWorker
```

8. On one node in the cluster:
 - a. Start the **Sun StorageTek EBS Console**. Use the logical hostname for the highly available Sun StorageTek EBS server.
 - b. From the **Sun StorageTek EBS Administration** window, note the host ID number for the appropriate cluster license.
 - c. Register the Sun StorageTek EBS software.

Note: Do not change the logical hostname for the highly available Sun StorageTek EBS server. If you change it after you update the software, you must permanently license and authorize the highly available Sun StorageTek EBS server.

Task 10: Authorize the software

To enter the permanent authorization code for Sun StorageTek EBS servers and clients:

1. On one node in the cluster, start the Sun StorageTek EBS Console. Use the logical hostname for the highly available Sun StorageTek EBS server.
2. Complete the customer information and contact information fields:
 - a. Start the **Sun StorageTek EBS Console** software.
 - b. From the **Administration** window, click **Configuration**.
 - c. In the left pane, select the Sun StorageTek EBS server.
 - d. From the **File** menu, select **Properties**. The **Properties** dialog box appears.
 - e. Select the **Customer Information** tab and complete your contact information.
 - f. Click **Ok**.
3. Review the registration information:
 - a. From the **Administration** window, click **Configuration**.

- b. In the left pane, click **Registration**.
- c. In the right pane, right-click the license to be authorized, then select **Properties**. The **Properties** dialog box appears.
- d. Review the **Auth Code** attribute.

The registration window lists all enabled modules by name, serial number, composite host ID, the expiration date, and the enabler's authorization key

- If an enabler *is* authorized, no expiration date is shown.
 - If an enabler is *not* authorized, an authorization key is *not* shown.
4. With the registration information and the composite host ID available, contact Sun. You can either:
 - Call 1-800-usa4sun
 - Send e-mail to license@sun.com.

To send e-mail, copy and paste the registration window contents (enabler codes, composite host ID, and expiration dates) along with your name, company name, address, phone number, e-mail address, and date of purchase into an e-mail message. Include a brief note stating that you are requesting authorization keys.

The authorizations keys are returned within two days by the same method you use to request them.

If you *do not* enter an authorization key within 45 days of entering the purchased enabler code, you *cannot* back up data. However, you can recover data.

Installing a virtual Sun StorageTek EBS Console server

To install and configure the Sun StorageTek EBS Console server as a highly available service in a cluster, read and follow the procedures for these tasks:

- ◆ [“Task 1: Install the Sun StorageTek EBS Management software in a cluster” on page 88](#)
- ◆ [“Task 2: Define the Sun StorageTek EBS Management server as highly available” on page 88](#)

Task 1: Install the Sun StorageTek EBS Management software in a cluster

To install the Sun StorageTek EBS software on each node in the cluster:

1. Ensure that the most recent cluster patch for the operating system is installed.
2. Install the Sun StorageTek EBS Console server software (**SUNWebsg**) on each node in the cluster.

The Sun StorageTek EBS Installation Guide provides instructions.

Task 2: Define the Sun StorageTek EBS Management server as highly available

To define and configure Sun StorageTek EBS server as a highly available application:

1. From each node in the cluster:
 - a. Log in as root.
 - b. Ensure that the **/etc/hosts** file on each cluster node contains the name of the logical host. The logical hostname can be published in the Domain Name System (DNS) or Network Information Services (NIS).
2. From each node in the cluster that will run the Sun StorageTek EBS server process:
 - a. Run the cluster configuration script **gst_ha.cluster** located in `/opt/SUNWebsg/bin/nsr`.

This script defines the GST_HA.serv resource type that the Sun StorageTek EBS Console server requires.

Note: When running the **gst_ha.cluster** script, ensure that you use the same values for logical hostname and for the global mounted path for all node in the cluster.

```
./gst_ha.cluster
```

```
NMC Console Server is in the process of being made a
Highly Available application within Sun Cluster
3.1.0,REV=2003.03.24.14.50.
```

```
To complete this task, the following are required.
```

```
A Logical host or virtual IP for the Console Server
A globally mounted dir for the LGTONmc database.
```

A GST_HA.serv resource type will be created via this process and will be needed to configure NMC as a Highly Available Application within Sun Cluster 3.1.0,REV=2003.03.24.14.50.

Do you wish to continue? [Yes]?

Restarting syslog daemon...

Please enter Logical Hostname to be used by NMC server? hunt

Is the Logical Hostname entered correct (y/n)? y

The lgto_gstdb database should be on a globally mounted filesystem which can be accessible by the cluster nodes which will host the Highly Available NMC server.

Please enter the globally mounted shared directory for the lgto_gstdb database (/global/logicalhost)?
/global/hunt/data1

Is the shared directory path entered for the lgto_gstdb database correct (y/n)? y

Moving /bigspace/lgto_gstdb local gstdb directory to globally mounted /global/hunt/data1/lgto_gstdb
Resource type GST_HA.serv is not registered
Defining GST_HA.serv resource type with RGM.

NMC has been successfully cluster-configured.

b. Ensure that the GST_HA.serv resource type was created.

```
scrgadm -pv -t GST_HA.serv
```

```
Res Type name: GST_HA.serv
```

```
GST_HA.serv) Res Type description: NMC Server for Sun Cluster
```

```
GST_HA.serv) Res Type base directory:  
/opt/LGTONmc/bin
```

```
GST_HA.serv) Res Type single instance: False
```

```
GST_HA.serv) Res Type init nodes: All potential  
masters
```

```
(GST_HA.serv) Res Type failover: False
```

```
(GST_HA.serv) Res Type version: (GST_HA.serv)
```

```
Res Type API version: 2
```

```
(GST_HA.serv) Res Type installed on nodes: <All>
```

```
(GST_HA.serv) Res Type packages: <NULL>
```

Note: To undo any changes to the configuration, run the `gst_ha.cluster -r` script and then run the `gst_ha.cluster` script again.

3. From one node in the cluster:
 - a. Create a resource group named "nmc":


```
scrgadm -a -g nmc
```
 - b. Create a logical hostname resource: For example:


```
scrgadm -a -L -g nmc -l logical_hostname
```
 - c. Create an nmc server resource instance. For example:


```
scrgadm -a -j nmc_server_name -t GST_HA.serv -g nmc
-y network_resources_used=logical_hostname
-x database_dir=database_dir
```
4. Perform these steps when the authorization keys arrive:
 - a. On one node in the cluster, start the **Sun StorageTek EBS Administrator** program by using the logical hostname for the highly available Sun StorageTek EBS server:


```
nwadmin -s clus_virtl
```
 - b. From the **Server** menu, select **Registration**.

Enter each authorization key into the **Authorization Key** text box for the corresponding enabler, and then click **Apply**.

Installing only the Sun StorageTek EBS client software in a cluster

In this configuration, the Sun StorageTek EBS server is running on a node that is not a member of the cluster.

To install a Sun StorageTek EBS cluster client, perform these tasks:

- ◆ [“Task 1: Install the Sun StorageTek EBS software” on page 73](#)
- ◆ [“Task 2: Configure Sun StorageTek EBS client software as highly available” on page 91](#)
- ◆ [“Task 3: Create instances of the Client resource type” on page 92](#)
- ◆ [“Task 4: Define the list of trusted Sun StorageTek EBS servers” on page 93](#)
- ◆ [“Task 5: Configure clients under the Sun StorageTek EBS server” on page 94](#)

Note: Ensure that the Sun StorageTek EBS client software is installed on each node in the cluster. Do not relocate the Sun StorageTek EBS software. By default, the Sun StorageTek EBS is installed in the /usr directory.

Task 1: Install the Sun StorageTek EBS cluster client software

To install the Sun StorageTek EBS software on the computer that is designated as the Sun StorageTek EBS client:

1. Access the Sun StorageTek EBS software from the distribution media. The Sun StorageTek EBS Installation Guide provides installation instructions.
2. Type the **pkgadd -d .** command:

Note: Do not press the **Enter** key for the default response **All**. Accepting the default installs the server package.

3. Type the appropriate option number to install the client package .
4. (Optional) Type the appropriate option number to install the man pages.
5. Type this command to start the Sun StorageTek EBS daemons:
/etc/init.d/networker start
6. When all the applicable packages have been added, and the prompt appears, type **q** to exit.

Task 2: Configure Sun StorageTek EBS client software as highly available

To define and configure a Sun StorageTek EBS client as highly available:

1. Log in as root on each node where the Sun StorageTek EBS software is being installed.
2. Ensure that the /etc/hosts file on each cluster node contains the name of the virtual host. The virtual hostname can be published in the DNS or NIS.
3. For each node in the cluster:
 - a. Run the cluster configuration script,
/usr/sbin/nsr/networker.cluster.

This script defines the *LGTO.cnt* resource types that the Sun StorageTek EBS software requires.

- b. In response to the prompts, type the appropriate response:

Enter directory where local Sun StorageTek EBS database is installed [/nsr]?

- Type the location of the local Sun StorageTek EBS database directory is provided during the installation procedure. For example: **/space/nsr**.

Do you wish to configure for both Sun StorageTek EBS server and client? Yes or No [Yes]?

- Type **No**. This configures only the client software.

Note: Any changes to the configuration can be undone by running the **networker.cluster -r** option and then running the **networker.cluster** script again.

For information, see [“System information requirements” on page 69](#).

Task 3: Create instances of the Client resource type

An instance of the Sun StorageTek EBS Client resource type must be created for each virtual client that accesses data on globally mounted file systems. Virtual clients in Sun Cluster 3.0, 3.1, or 3.2 are either logical hostnames or shared addresses.

Note: All globally mounted file systems (except the `/global/.devices/...` file systems) must be owned by a logical host and defined in a Sun StorageTek EBS Client resource type. If the file systems are not properly configured, multiple copies will be backed up for each cluster node.

To back up the data for a virtual client, from any node in the cluster, create an instance of the Sun StorageTek EBS Client resource as part of an existing resource group that contains a logical host or shared address. For example:

```
scrgadm -a -j resource_name -g resource_group_name -t
LGTO.clnt \
-x clientname=virtual_hostname -x owned_paths=pathname_1,
pathname_2[,...]
```

Example 4 A highly available Informix database server

In this example, the Informix database server is configured to use the DNS registered hostname *informix_lhrs*.

An existing failover resource group named *informix_rg* contains a:

- ◆ SUNW.informix resource named *informix_res*
- ◆ SUNW.LogicalHostname resource named *informix_lhrs*

This SUNW.informix database server can access data on a global file system under `/global/informix/config` and `/global/informix/db`.

To add a Sun StorageTek EBS virtual client to the existing resource group *informix_rg*, type:

```
scrgadm -a -j informix_clntrs -g informix_rg -t LGTO.clnt \
\
-x clientname=informix_lhrs \
-x
owned_paths=/global/informix/config,/global/informix/db
```

Example 5 A scalable Apache web server

In this example, an Apache web server is configured to use the DNS registered hostname *apache_sars*. An existing scalable resource group named *apache_rg* contains a:

- ◆ SUNW.apache resource named *apache_res*
- ◆ SUNW.SharedAddress resource named *apache_sars*

This Apache web server accesses data on a global file system under `/global/web/config` and `/global/web/data`.

To add a Sun StorageTek EBS virtual client to the existing resource group *apache_rg*, type:

```
scrgadm -a -j apache_clntrs -g apache_rg -t LGTO.clnt \
-x clientname=apache_sars \
-x owned_paths=/global/web/config,/global/web/data
```

Task 4: Define the list of trusted Sun StorageTek EBS servers

Before a Sun StorageTek EBS server can back up a client, the client must grant the server access. Granting access is controlled by the *servers* file. For the node that is currently running the Sun StorageTek EBS Server resource group, this file is located in the globally mounted file system. Otherwise, this file is located on a local disk.

Note: If the `/nsr/res/servers` file is empty or does not exist, any Sun StorageTek EBS server is authorized to:

- Access and back up the client.
- Perform a directed recovery to the client.

To define the list of trusted Sun StorageTek EBS servers, perform these steps on each node in the cluster:

1. Shut down the Sun StorageTek EBS processes and verify that all Sun StorageTek EBS daemons have stopped:

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

2. Edit or create the `/nsr/res/servers` file and add the set of Sun StorageTek EBS servers, one per line, that require access to this client.
3. Check the Sun StorageTek EBS boot-time startup file to see whether `nsrexecd` is being run with the `-s` option. If the `-s` option exists, remove all occurrences of the following in the file:

```
-s servername
```

4. Restart the Sun StorageTek EBS daemons:

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

Task 5: Configure clients under the Sun StorageTek EBS server

To configure the Sun StorageTek EBS server:

1. Make each physical client within the cluster a client of the Sun StorageTek EBS server. For each physical client in the cluster:
 - a. Create a new client.
 - b. For the **Name** attribute, type the name of the physical client.

Note: If a physical client is backed up to a Sun StorageTek EBS server outside the cluster, the name of any virtual service that can run on the physical node must be added to the Remote Access list of the physical Client resource.

2. Make each virtual client within the cluster a client of the Sun StorageTek EBS server.

For each virtual client in the cluster:

- a. Create a new client.
- b. For the **Name** attribute, type the name of the Sun StorageTek EBS server.

- c. For the **Remote Access** attribute, add entries for each physical client within the cluster. For example:


```
root@clus_phys1
```
 - d. For the **Group** attribute, select a group.
3. Schedule backups by using the Sun StorageTek EBS application.

Note: The Sun StorageTek EBS server might reside outside of the cluster.

Uninstalling the Sun StorageTek EBS software

To uninstall the Sun StorageTek EBS software from a cluster environment:

1. On one node in the cluster, disable and remove all instances of the **LGTO.serv** and **LGTO.cln** resource types in the cluster.

For information, refer to the **scswitch(1m)** and **scrgadm(1m)** man pages.

2. On each node in the cluster:
 - a. Log in as root on the computer that the software is being removed.
 - b. Undo all changes to the configuration by running the **networker.cluster -r** option.
 - c. To shut down the Sun StorageTek EBS daemons, type:

```
nsr_shutdown
```

Note: Remove the Sun StorageTek EBS software packages in this order:

```
- SUNWebss
- SUNWebsn
- SUNWebsg
- SUNWebsc
```

The man pages (**SUNWebism**) and document files have no dependencies and can be removed at any time.

- d. To remove *all* the packages, type:

```
pkgrm SUNWebss SUNWebsn SUNWebsg SUNWebsc
SUNWebism
```

Configuring an external client to a virtual server

Use this procedure to configure and back up an external Sun StorageTek EBS client to a highly available Sun StorageTek EBS server. Before a Sun StorageTek EBS server can back up a client, the client must grant the server access. Granting access is controlled by the servers file. If the servers file does not exist, any Sun StorageTek EBS server can back up this client. If the servers file does exist, only the specific servers listed in the file can back up the client.

On each Sun StorageTek EBS client that is outside of the cluster:

1. Shut down the Sun StorageTek EBS processes:

```
nsr_shutdown
```

2. Verify that all Sun StorageTek EBS daemons have stopped:

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

3. Edit or create the `/nsr/res/servers` file:

- a. Add the set of Sun StorageTek EBS servers, one per line, that require access to this client.
- b. Add an entry for the Sun StorageTek EBS logical hostname first. Then add entries for each physical host that can run the Sun StorageTek EBS resource group. For example:
 - clus_vir1
 - clus_phys1
 - clus_phys2

Defining ownership of a raw partition for virtual clients

To back up the raw partitions of a Sun StorageTek EBS virtual client, ensure that the raw device path appears in the owned paths field of the `LGTO.cint` resource.

Example 6 A highly available web server

In this example, a highly available web server uses the shared address `web_server`. The web server services are placed under the control of the `apache_rg` resource group. The services access files that are kept in two separate globally mounted file systems:

/global/web/config and /global/web/data. The web server also accesses the raw partition /dev/md/hunt/rdisk/d30.

To create the Sun StorageTek EBS Client resource named *apache_nw*, type:

```
scrgadm -a -j apache_nw -g apache_rg -t LGTO.clnt
-x clientname=web_server \
-x owned_paths=/global/web/config,/global/web/data,
/dev/md/hunt/rdisk/d30
```

For information on backing up raw partitions, refer to the **rawasm** command as described in the **uasm(1m)** man page.

Verifying the Installation

This chapter provides information about testing and verifying the Sun StorageTek EBS software installation.

Testing the Installation

To verify that the Sun StorageTek EBS software was installed properly, you must first connect to a Sun StorageTek EBS server, configure a device, and then test the software on the device:

To test the software, perform these tasks:

- ◆ [“Task 1: Start the Console for the first time” on page 100](#)
- ◆ [“Task 2: Add a Sun StorageTek EBS server to the Console server” on page 102](#)
- ◆ [“Task 3: Configure a stand-alone device” on page 102](#)
- ◆ [“Task 4: Test the Sun StorageTek EBS software installation” on page 104](#)

Task 1: Start the Console for the first time

To run the Console, ensure that the Console server has been installed on a Solaris, AIX, HP-UX, Microsoft Windows or Linux host. You can not initiate a browser session from an Irix or HP Tru64 UNIX server. You can however, open a browser session with the Console from a Linux, Solaris, Microsoft Windows, HP-UX, or an AIX host.

These steps assume that the Sun StorageTek EBS software is installed and that all of the software and hardware requirements have been met on the computer that will access the Console. [“Sun StorageTek EBS Management Console” on page 12](#) provides information about the Console.

How to start the Console the first time

To start the Console server software for the first time:

1. Verify that the console processes **gstd**, **dbsrv9** and **httpd** are running on the **Sun StorageTek EBS Management Console** server.

Note: On Windows, **httpd** is registered as the EMC GST Web Service, and there are always two **httpd** processes running when the NMC server is active. On UNIX, there are two or more **httpd** processes running, where the parent **httpd** process runs as root and the child process(es) run as the user name specified during the installation.

2. Start a web browser session.

3. Type the URL of the Console server:

`http://server_name:http_service_port`

where:

- *server_name* is the name of the computer where the Console server component was installed.
- *http_service_port* is the port for the embedded HTTP server. The HTTP port is specified during installation. The default HTTP port is **9000**. For example:

`http://houston:9000`

4. From the **Welcome** page, click **Start**.
5. From the **Security Warning** screen, click **Start** to install and run **Sun StorageTek EBS Console**.
6. Type this command to start the Console server:
`/etc/init.d/gst start`
7. If the appropriate JRE version is not already installed on the system, a prompt to install it appears. Follow the onscreen instructions to install JRE.
8. For users upgrading from a previous release, in the **Sun StorageTek EBS Management Console Login** dialog box, type the username and password.

Note: If upgrading from a previous release and prompted for a user and password, the default user is administrator and the default password for the administrator is "administrator". For security purposes, this password should be changed during the first login session.

9. Click **OK**. The **Console** window and the **Getting Started** page appears.

How to start the Console after the first time

After the Console has been started the first time, start it later by using one of the following methods:

- ◆ Point the browser to the same URL as in ["Task 1: Start the Console for the first time"](#) on page 100.
- ◆ Double-click **Sun StorageTek EBS Console** in the **Java Web Start Application Manager**.

Task 2: Add a Sun StorageTek EBS server to the Console server

To add and select a Sun StorageTek EBS server:

1. Start the **Sun StorageTek EBS Console** software.
2. From the **Console** window, click **Enterprise**.
3. From the left pane, select the **Enterprise** icon.
4. From the **File** menu, select **New>Host**.
5. Type a hostname and alias for the Sun StorageTek EBS server, and the Sun StorageTek EBS server appears in both the right pane and left pane.
6. From the left pane, select the Sun StorageTek EBS server.
7. From the right pane, select the Sun StorageTek EBS application.
8. From the **Enterprise** menu, select **Launch Application**, and the **Sun StorageTek EBS Administration** window launches.

If the server connection fails, refer to the server connectivity information in the Sun StorageTek EBS Administration Guide to troubleshoot the problem.

Task 3: Configure a stand-alone device

Devices must be configured before testing the Sun StorageTek EBS software.

You can configure one of these devices:

- ◆ [“Stand-alone tape device” on page 103](#)
- ◆ [“Stand-alone file or advanced file device” on page 103](#)
- ◆ [“Autochanger or silo” on page 104](#)

The Sun StorageTek EBS Administration Guide provides information about configuring a device.

Stand-alone tape device

To configure a stand-alone tape device:

1. In the server's Sun StorageTek EBS Administration interface, click **Devices**.
2. From the left pane, select **Devices**.
3. From the left pane, select **Storage Nodes**.
4. Right-click the storage node for the device.
5. Select **Scan for devices**. The **Scan for Devices** window appears.
6. From the list, select the storage node to be scanned.
7. Click **Start Scan** after filling in the requested information. The new device appears in the right pane.
8. From the right pane, select the new device.
9. From the Devices menu, select **Devices>Device Operations>Label**. The **Label** window appears.
10. Verify the information in the **Label** window and click **OK**.

Stand-alone file or advanced file device

To configure a stand-alone file or advanced files device:

1. In the server's Sun StorageTek EBS Administration interface, click **Devices**.
2. From the left pane, select **Devices**.
3. From the **File** menu, select **New**. The **Create Devices** window appears.
4. For the **Name** attribute, type the device path.
5. For the **Media type** attribute, select **file** or **adv_file**.
6. Click **OK**. The new device appears in the right pane.
7. From the right pane, select the new device.
8. From the **Devices** menu, select **Devices>Device Operations>Label**.
9. Verify the information in the **Label** window and click **OK**.

Autochanger or silo

To configure a new library resource (autochanger or silo) to a storage node:

1. In the server's Sun StorageTek EBS Administration interface, click **Devices**.
2. From the left pane, select **Storage Nodes**.
3. Right-click the storage node for the device.
4. Select **Configure All Libraries**.
5. Click **Start Configuration** after filling in the requested information.
6. Click **Finish** on the **Configuration** window, when the configuration is complete.

Task 4: Test the Sun StorageTek EBS software installation

Test a Sun StorageTek EBS installation by performing an ad hoc (manual) backup of a file or folder. You can also use the Sun StorageTek EBS Client Configuration Wizard to configure a scheduled backup. The Sun StorageTek EBS Administration Guide provides information about the wizard.

To test the Sun StorageTek EBS software on a stand-alone device, perform an adhoc backup from the command-prompt by using the **save** command.

For example, to back up C:\myfile to the server jupiter, type:

```
save -s jupiter /tmp/myfile.txt
```

The UNIX man pages provide more information.

Evaluating and Licensing the Software

This chapter describes how to evaluate and license the Sun StorageTek EBS software. Topics include:

- ◆ Overview of evaluating and licensing..... 106
- ◆ Evaluating the Sun StorageTek EBS software..... 107
- ◆ Permanently licensing the Sun StorageTek EBS software 110
- ◆ Troubleshooting 114

Overview of evaluating and licensing

Sun StorageTek EBS software and added features, such as modules, are installed in evaluation mode with all of the features enabled for a period of 30 days.

To permanently use the Sun StorageTek EBS software, you must license the software. [“Permanently licensing the Sun StorageTek EBS software” on page 110](#) provides details.

The information in this chapter assumes that the Sun StorageTek EBS software is installed and all of the software and hardware requirements have been met on the computer that accesses the Sun StorageTek EBS Management Console interface (known as Console). These requirements are described in the Sun StorageTek EBS Installation Guide.

Base Enabler

Each installation of Sun StorageTek EBS server software must be licensed with a base enabler. Only the server’s enabler is called a *base* enabler. This enabler “turns on” the software and allows the use of a particular bundle of features, such as a specified number of clients and devices. All license keys are entered and stored on the Sun StorageTek EBS server, which enforces the licensing.

Base enablers come in different editions that enable varying degrees of functionality. Add-on enablers allow a broader scope of features.



IMPORTANT

You cannot delete the base enabler code that enables the basic Sun StorageTek EBS software. The base enabler can only be upgraded or downgraded.

Evaluating the Sun StorageTek EBS software

You can evaluate Sun StorageTek EBS software in two ways:

- ◆ [“Evaluating a new installation of Sun StorageTek EBS software” on page 107.](#)
- ◆ [“Evaluating features of an existing installation” on page 107.](#)

To permanently use the Sun StorageTek EBS software to back up and recover data, you must license the software. [“Permanently licensing the Sun StorageTek EBS software” on page 110](#) provides information.

Evaluating a new installation of Sun StorageTek EBS software

When you first install the Sun StorageTek EBS software, you can evaluate the software with all the modules and features for 45 days free without entering any enabler codes or licenses.

Evaluating features of an existing installation

If you are evaluating one or more Sun StorageTek EBS modules or features on an edition of Sun StorageTek EBS software that has already been installed and licensed:

1. Contact Sun Sales or a Sun Reseller to obtain an evaluation enabler code.
2. On the Sun StorageTek EBS server, enter an evaluation enabler code for each module or feature to be evaluated. [“How to apply an evaluation enabler code” on page 108](#) provides information.

Evaluation enablers

Evaluation enablers are free, and must be applied on the Sun StorageTek EBS server. An evaluation enabler extends the evaluation period for an additional 45 days. The evaluation enabler cannot be permanently authorized.

To obtain an evaluation enabler code, contact Sun Sales or a Sun Reseller.

How to apply an evaluation enabler code

To apply an evaluation enabler on the Sun StorageTek EBS server:

1. Start the **Sun StorageTek EBS Management Console** software.
2. Open the **Administration** window:
 - a. In the **Console** window, click **Enterprise**.
 - b. In the left pane, select a Sun StorageTek EBS server in the **Enterprise** list.
 - c. In the right pane, select the application.
 - d. From the **Enterprise** menu, click **Launch Application**. The **Administration** window is launched as a separate application.
3. From the **Administration** window, click **Configuration**.
4. In the left pane, select **Registration**.
5. From the **File** menu, select **New**.
6. In the **Enabler Code** attribute, type the enabler code.
7. (Optional) In the **Comment** attribute, type a description of the license.
8. Click **OK**.

Evaluation enabler alert

An alert message is generated 30 days before a Sun StorageTek EBS evaluation enabler code expires. The alert remains until the Sun StorageTek EBS evaluation enabler is authorized or deleted.

To view the license alert one of two ways:

- ◆ From the **Sun StorageTek EBS Administration** window, click **Monitoring** and select the **Alert** tab.
- ◆ From the **Console** window, click **Events**.

Color-coded icons appear with the alert message:

- ◆ A yellow icon indicates that the enabler will expire within 30 days. The message appears daily until 10 days prior to the evaluation enabler code expiration.
- ◆ A red icon indicates that the enabler will expire within 10 days. The message appears daily up to and including the day of the enabler code expiration.

By the end of the evaluation period, you must permanently license the software to continue using modules or features that you have evaluated.

Update enablers

An update enabler is necessary to move from an existing major Sun StorageTek EBS release to a newer major Sun StorageTek EBS release, for example, from Sun StorageTek EBS 7.4 to Sun StorageTek EBS 7.5 and Sun StorageTek EBS 7.6. Update enablers are *not* required for Sun StorageTek EBS Service Packs.

With Sun StorageTek EBS 7.6 and later, if an update enabler is required, the Sun StorageTek EBS software automatically adds the required update enabler code to its configuration. The update enabler expires after 45 days. You must contact Sun Sales or a Sun Reseller within 45 days to permanently authorize the update enabler.



IMPORTANT

If the auth code for the update enabler code is not applied within 45 days, the Sun StorageTek EBS server software will be disabled. Entering the auth code enables the software even if the update enabler code has expired. The Sun StorageTek EBS 7.5 update enabler code cannot be deleted, only authorized with the auth code.

With a first-time purchase of Sun StorageTek EBS software, a one-year update agreement may be included. After a year, an update enabler may be acquired with a new update agreement purchase.

Update enabler alert

An alert message is generated 45 days before a Sun StorageTek EBS update enabler code expires. This alert remains until the Sun StorageTek EBS update enabler is authorized.

You can view a license alert in one of three ways:

- ◆ From the **Sun StorageTek EBS Administration** window, click **Monitoring** and select the **Alert** tab.
- ◆ From the **Console** window, click **Events**.
- ◆ Type **nsrwatch** at the command line.

A red icon within the alert message indicates that the update enabler will expire within 45 days. The message appears daily up to and including the day of the update enabler code expiration.

By the end of the evaluation period, you must permanently license the software to continue using modules or features that you have evaluated.

Permanently licensing the Sun StorageTek EBS software

To permanently use the Sun StorageTek EBS software to back up and recover data, you must license the software. This licensing process is the same for all editions of the Sun StorageTek EBS software, and for the individual modules and features.

How to permanently license the Sun StorageTek EBS Software

To license the Sun StorageTek EBS software, perform the following tasks:

- ◆ [“Task 1: Obtain the Host ID of the Sun StorageTek EBS server” on page 110](#)
- ◆ [“Task 2: Register the Sun StorageTek EBS software” on page 111](#)
- ◆ [“Task 3: Delete all expired Evaluation Enabler Codes” on page 111](#)
- ◆ [“Task 4: Enter the Permanent Enabler Codes and Auth Codes” on page 112](#)

Task 1: Obtain the Host ID of the Sun StorageTek EBS server

To find the host ID of the Sun StorageTek EBS server, follow these steps:

1. Ensure the Sun StorageTek EBS software has been installed.
1. On the Sun StorageTek EBS server, start the Sun StorageTek EBS Management Console (Console).
2. Select **Sun StorageTek EBS Administration**.
3. In the **Administration interface**, click the **Configuration** button.
4. Right-click **Registrations** in the navigation tree.

5. Right-click the Sun StorageTek EBS evaluation license (or any Sun StorageTek EBS license) in the **Registrations** area of the screen. The **Properties** window appears.
6. Note the Host id number.

Task 2: Register the Sun StorageTek EBS software

Contact Sun Sales or a Sun Reseller to register the Sun StorageTek EBS software and obtain an authorization code. The authorization code permanently enables the Sun StorageTek EBS software.

If you have any questions regarding software updates, contact Sun Licensing.

Task 3: Delete all expired Evaluation Enabler Codes

All expired evaluation enablers must be deleted before the permanent enabler codes and auth codes are applied on the Sun StorageTek EBS server to permanently license the software. The evaluation enabler extends the evaluation period for an additional 45 days. A evaluation enabler cannot be permanently authorized.

Note: You can delete an enabler code at any time, whether or not it has been permanently authorized. The license is *not* removed when the software is uninstalled.

To delete an enabler code:

1. From the **Administration** window, click **Configuration**.
2. Click **Registrations**.
3. Right-click the license to delete, then select **Delete**.
4. Click **Yes** to confirm the deletion.



IMPORTANT

You cannot delete the base enabler code that enables the basic Sun StorageTek EBS software. The base enabler can only be upgraded or downgraded.

Task 4: Enter the Permanent Enabler Codes and Auth Codes

To apply the permanent enabler codes and auth code on a Sun StorageTek EBS server:

1. Start the **Sun StorageTek EBS Management Console** software.
2. Open the **Administration** window:
 - a. In the **Console** window, click **Enterprise**.
 - b. In the left pane, click a Sun StorageTek EBS server in the **Enterprise** list.
 - c. In the right pane, click the application.
 - d. From the **Enterprise** menu, select **Launch Application**. The **Administration** window is launched as a separate application.
3. In the **Administration** window, click **Configuration**.
4. In the left pane, select **Registrations**.
5. From the **File** menu, select **New**. The **Create Registration** dialog box appears.
6. Leave the **Identity** area blank. The name of the product to be licensed will be extracted from the enabler and displayed in the **Registrations** area.



IMPORTANT

Apply the permanent *base* enabler (for the Sun StorageTek EBS server) and its auth code last, after having applied all other permanent enablers. Once a base enabler is applied, any device that does not yet have its auth code applied might be disabled, and would have to be re-enabled manually.

7. In the **Configuration** area of the **Create Registration** window, type the enabler code for the product to be licensed. The enabler code is an 18-character or 24-character alphanumeric code.

Note: A 24-character enabler signifies a bulk enabler intended for installation only on a Sun StorageTek EBS License Manager server.) When typing the enabler for the Sun StorageTek EBS server, consider typing “Base Enabler” in the **Comment** field of either the **Create Registration** or **Properties** window.

8. Click **OK** to apply the enabler and leave the **Create Registration** window.

9. Select and right-click the product in the **Registrations** area. The **Properties** window appears.

Note that the **Configuration** area of the window now displays the following information:

- Enabler code number
 - Product name
 - Enable code expiration date
10. In the **Auth code** field, type the corresponding auth code. You can find in the product license activation letter. It is a unique eight-character alphanumeric code.

The Auth code is node-locked, which means that it can only be applied to a specific host and Host id. It can also be used only with the specific enabler code with which it was associated.

11. The product is now listed in the **Registrations** area. Note that the enabler expiration date appears in the **Expiration date** column. This date is 45 days after the date on which the enabler was entered.
12. Click **OK**. The new license is added and appears in the right pane. If the authorization process is successful, the expiration date for the license displays:

```
Authorized - No expiration date.
```

Note that in the **Registrations** area of the screen, the **Expiration date** column entry for the product has changed and now says "Authorized - No expiration date". If the authorization is not verified in this way, contact [Sun Support](#).

13. To add any additional enabler codes and auth codes, repeat this procedure.

Troubleshooting

This section includes information on the following topics:

- ◆ [“Diagnosing licensing issues” on page 114](#)
- ◆ [“How to obtain Sun StorageTek EBS licensing information” on page 115](#)
- ◆ [“How to avoid an interruption in the computer or network address” on page 115](#)
- ◆ [“How to provide feedback” on page 116](#)

Diagnosing licensing issues

The following circumstances might cause an interruption in backups:

- ◆ A required enabler code (temporary evaluation enabler, license enabler, or authorization code) is missing. For example, a storage node enabler is missing which results in an insufficient number of licenses on the system.
- ◆ An enabler code has expired.
- ◆ An update enabler is missing.
- ◆ A new client was added, which requires an existing enabler code to be released through the deletion of an old client.
- ◆ Old enabler codes must be deleted before new enabler codes are applied. The server host ID is changed, which invalidates an existing enabler code.
- ◆ An evaluation enabler is still on the system, and must be deleted before a license enabler can be installed.
- ◆ A deduplication backup requires additional enabler codes, which include a Virtual Edition Client Connection enabler and a Deduplication enabler.
- ◆ An enabler code is entered as an authorization code, instead of as a new license enabler.

- ◆ An IP address is changed during an update, which invalidates an existing enabler code.
- ◆ The server was moved to a new operating system, for example, from Solaris to Linux), which invalidates an existing enabler code.
- ◆ An enabler code, already in use by a Sun StorageTek EBS server, is applied to a second Sun StorageTek EBS server.

How to obtain Sun StorageTek EBS licensing information

To obtain license information from a Sun StorageTek EBS server, use the `nsrlic` command.

The following sources provide more information:

- ◆ `nsrlic` man page on UNIX
- ◆ `nsrlic` man page information in the Sun StorageTek EBS Command Reference Guide
- ◆ Sun StorageTek EBS Administration Guide

How to avoid an interruption in the computer or network address

To avoid an interruption in backups if you move the Sun StorageTek EBS software from one computer to another, or you change the network address of a computer after the software is installed:

1. Obtain the host ID of the original server and the new server. The host ID appears in the server's **Registration** window. "[Task 1: Obtain the Host ID of the Sun StorageTek EBS server](#)" on page 110 provides more information.
2. Contact [Sun Support](#) to obtain and enter the new auth code on the Sun StorageTek EBS server.
3. Perform the following:
 - Configure the new Sun StorageTek EBS server with the new auth codes obtained from [Sun Support](#).

How to provide feedback

To provide feedback:

- ◆ If error messages appear in the output file or you would like to provide feedback, contact Sun Support.
- ◆ If you cannot determine the reason for a failure or experience problems with updating the Sun StorageTek EBS license, contact Sun Support.