Sun Cluster Geographic Edition Installation Guide

Sun Microsystems, Inc.
4150 Network Circle
Santa Clara, CA 95054
U.S.A.

Part No: 819–8004–10
December 2006, Revision A

061017@15490

Contents

Preface

Sun Cluster Geographic Edition Installation Guide contains guidelines for planning a Sun™ Cluster Geographic Edition configuration, and provides procedures for installing and configuring the Sun Cluster Geographic Edition software.

This document is intended for experienced system administrators with extensive knowledge of Sun software and hardware. You should have already determined your system requirements and purchased the appropriate equipment and software before reading this document.

The instructions in this book assume knowledge of the Solaris™ Operating System (Solaris OS) and Sun Clustersoftware, expertise with the volume manager software that is used within Sun Cluster software, and the data replication software that is used with the Sun Cluster Geographic Edition software.

Using UNIX Commands

This document contains information about commands that are used to install, configure, or administer a Sun Cluster Geographic Edition configuration. This document might not contain complete information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices.

See one or more of the following sources for this information:

- Online documentation for the Solaris software system
- Other software documentation that you received with your system
- Solaris OS man pages

Related Documentation

Information about related Sun Cluster Geographic Edition topics is available in the documentation that is listed in the following table. All Sun Cluster Geographic Edition documentation is available at http://docs.sun.com.

Topic	Documentation
Overview	*Sun Cluster Geographic Edition Overview*
Glossary	*Sun Java Enterprise System Glossary*
Hardware administration	Individual hardware administration guides
Software installation	*Sun Cluster Geographic Edition Installation Guide*
System administration	*Sun Cluster Geographic Edition System Administration Guide*
	Sun Cluster Geographic Edition Data Replication Guide for Sun StorEdge Availability Suite
	Sun Cluster Geographic Edition Data Replication Guide for Hitachi TrueCopy
	Sun Cluster Geographic Edition Data Replication Guide for EMC Symmetrix Remote Data Facility
Command and function references	*Sun Cluster Geographic Edition Reference Manual*

For a complete list of Sun Cluster documentation, see the release notes for your Sun Cluster software at `http://docs.sun.com`.

Documentation, Support, and Training

The Sun web site provides information about the following additional resources:

- Documentation (`http://www.sun.com/documentation/`)
- Support (`http://www.sun.com/support/`)
- Training (`http://www.sun.com/training/`)

Getting Help

If you have problems installing or using the Sun Cluster Geographic Edition system, contact your service provider and provide the following information:

- Your name and email address (if available)
- Your company name, address, and phone number
- The model and serial numbers of your systems
- The release number of the OS (for example, Solaris 9)
- The release number of the Sun Cluster Geographic Edition software (for example, 3.1 2006Q4)

Use the following commands to gather information about each node on your system for your service provider.

Command	Function
`prtconf -v`	Displays the size of the system memory and reports information about peripheral devices
`psrinfo -v`	Displays information about processors
`showrev –p`	Reports which patches are installed
`prtdiag -v`	Displays system diagnostic information
`geoadm -V`	Displays Sun Cluster Geographic Edition software release and package version information
`scstat`	Provides a snapshot of the cluster status
`scconf -p`	Lists cluster configuration information
`geoadm show`	Prints the Sun Cluster Geographic Edition runtime status of the local cluster

Also have available the contents of the `/var/adm/messages` file.

Typographic Conventions

The following table describes the typographic conventions that are used in this book.

TABLE P–1 Typographic Conventions

Typeface	Meaning	Example
`AaBbCc123`	The names of commands, files, and directories, and onscreen computer output	Edit your `.login` file. Use `ls -a` to list all files. `machine_name% you have mail.`
`AaBbCc123`	What you type, contrasted with onscreen computer output	`machine_name%` **`su`** `Password:`
aabbcc123	Placeholder: replace with a real name or value	The command to remove a file is `rm` *filename*.
AaBbCc123	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the *User's Guide*. A *cache* is a copy that is stored locally. Do *not* save the file. **Note:** Some emphasized items appear bold online.

Shell Prompts in Command Examples

The following table shows the default UNIX system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

TABLE P–2 Shell Prompts

Shell	Prompt
C shell	`machine_name%`
C shell for superuser	`machine_name#`
Bourne shell and Korn shell	`$`
Bourne shell and Korn shell for superuser	`#`

◆ ◆ ◆ CHAPTER 1

Planning the Sun Cluster Geographic Edition Installation

This chapter provides planning information and guidelines for installing a Sun Cluster Geographic Edition configuration. This chapter also describes how to plan the data replication between two clusters.

This chapter contains the following sections:

Installation Process

To successfully install the Sun Cluster Geographic Edition software, you must complete the following phases:

1. Planning your installation
2. Connecting your hardware
3. Installing Sun Cluster software
4. Installing data replication products
5. Installing and configuring the required software
6. Installing the Sun Cluster Geographic Edition software
7. Configuring the Sun Cluster Geographic Edition software

This installation process progresses from the initial planning phase to the eventual startup of the Sun Cluster Geographic Edition software. This guide provides information about phases 1, 6, and 7.

For information about installing Sun Cluster software, see the *Sun Cluster Software Installation Guide for Solaris OS*.

For information about configuring a cluster after startup, see the *Sun Cluster Geographic Edition System Administration Guide*.

Planning Cluster Hardware

This section helps you to plan your hardware for the primary cluster, the secondary cluster, and the inter-cluster communication.

The Sun Cluster Geographic Edition hardware configuration consists of the following elements:

- At least two separate clusters that are running the Sun Cluster software with attached data storage.

  One of these clusters must be designated the primary cluster.

  Note – While you can use a single node cluster at both the primary and backup sites, a single-node cluster offers no internal redundancy. To ensure no single point of failure, you must have a minimum of two nodes in a cluster at the primary site. You can use a single node cluster at the secondary site, as a cost-effective backup solution if the secondary site is used only for backup purposes, and not for running mission critical applications.
- Internet connections for inter-cluster management communication between the clusters and for default inter-cluster heartbeats.
- Connections for either host-based or storage-based data replication.
- Connections for custom heartbeats, if any.

The hardware configurations that Sun Cluster Geographic Edition support are identical to the hardware configurations that the Sun Cluster product supports. For use of the Sun Cluster Geographic Edition software with storage-based data replication mechanisms, the cluster hardware configurations are those configurations that support the related storage hardware. Partner clusters must be compatibly configured to support data replication between the clusters. Use of the Sun Cluster Geographic Edition product with Hitachi TrueCopy data replication requires Sun Cluster configurations with Sun StorEdge™ 9970/9980 Array or Hitachi Lightning 9900 Series storage that supports the Hitachi TrueCopy command interfaces.

Internet access is required between partner clusters. The communication between partner clusters for inter-cluster management operations is through a logical hostname IP address. The default inter-cluster heartbeat module also communicates through a logical hostname address.

A cluster in a Sun Cluster Geographic Edition partnership conforms to the standard configuration rules of a cluster that is running Sun Cluster software.

A cluster that is using the Sun Cluster Geographic Edition software with a data replication product is subject to the same standard hardware configuration rules of a cluster that is running the data replication product with Sun Cluster software. For use of the Sun Cluster Geographic Edition software with storage-based, data replication mechanisms, the cluster hardware configurations are

those configurations that support the related storage hardware. Partner clusters must be compatibly configured to support data replication between clusters.

Planning Required Software

This section helps you to adapt the configuration of your Sun Cluster software for the installation of the Sun Cluster Geographic Edition software. This section also helps you to plan the installation of your data replication software.

The Sun Cluster Geographic Edition software must be installed on a cluster that is running the Solaris Operating System and the Sun Cluster software. The Sun Cluster Geographic Edition software configuration is identical to the Sun Cluster software configuration.

Required Software

The following table lists the required software.

TABLE 1–1 Required Software

Software	Version
Operating System	■ Solaris 8, 9, or 10 (SPARC® Platform Edition) ■ Solaris 10 (x64 Platform Edition)
Sun Cluster software	Sun Cluster 3.1, 8/05 This version includes version 1.1 of the common agent container that supports the Sun Cluster 3.1 8/05 SunPlex™ Manager. The Sun Cluster Geographic Edition product uses the same common agent container infrastructure as the Sun Cluster SunPlex Manager. You must use common agent container 1.1, which is located in `/opt/SUNWcacao/bin`. Use the `/opt/SUNWcacao/bin/cacaoadm -V` command to check which version of common agent container you are using. **Note –** The version of Sun Cluster software on Sun Java Enterprise System 2006Q4 does not support installation on Solaris OS 8. If you have installed Solaris OS 8, you must install the Sun Cluster software from Sun Java Enterprise System 2005Q4.

TABLE 1–1 Required Software *(Continued)*

Software	Version
Volume management software	■ For use with Sun StorEdge™ Availability Suite 3.2.1 software: Solaris Volume Manager software or VERITAS Volume Manager software ■ For use with Hitachi TrueCopy software: VERITAS Volume Manager software **Note –** VERITAS Volume Manager software is not supported if you are running Sun Cluster Geographic Edition on Solaris OS x64 Platform Edition.

Data replication software	■ Sun StorEdge Availability Suite 3.2.1 software
	■ Hitachi TrueCopy RAID Manager/Solaris Version:
	  ■ A minimum of 01–18–03/06 for x64
	  ■ A minimum of 01–10–03/02 for SPARC
	■ EMC Symmetrix Remote Data Facility SymCLI 6.0.1 and microcode 5670 software

Sun Cluster Geographic Edition	Sun Cluster Geographic Edition 3.1 2006Q4

Planning the Data Replication Software

A cluster that is using the Sun Cluster Geographic Edition software with a data replication product is subject to the standard configuration rules of a cluster that is running the data replication product with Sun Cluster software. Partner clusters must have compatible software configurations to support data replication between the clusters.

The Sun Cluster Geographic Edition product supports the following data replication products:

- Sun StorEdge Availability Suite 3.2.1 software
- Hitachi TrueCopy software
- EMC Symmetrix Remote Data Facility software

The Sun StorEdge Availability Suite 3.2.1 software is a host-based replication method. This method consists of software installed on a host that controls replication from one server to a secondary server.

The Hitachi TrueCopy and EMC Symmetrix Remote Data Facility replication use a storage-based method. These methods use replication that is built into the storage hardware. The Sun Cluster Geographic Edition software supports Oracle Real Application Clusters with Hitachi TrueCopy software.

If you use Hitachi TrueCopy RAID Manager software or EMC Symmetrix Remote Data Facility software, the software must be installed on each node of the cluster.

Planning Resource and Resource Group Names

A partnership requires two clusters to be combined into one environment, and one cluster might be a running production system. Therefore, advance planning of resources and resource groups is essential for a successful installation.

The Sun Cluster Geographic Edition software requires that resource group names are identical on each partner cluster to avoid resource and resource group name collisions.

Planning Required IP Addresses and Hostnames

You must have all the required IP addresses and hostnames before you begin the installation process. You must set up a number of IP addresses for various Sun Cluster Geographic Edition components, depending on your cluster configuration. Each node in the cluster configuration must have at least one public network connection to the same set of public subnets. You must have an IP address for the cluster name and each cluster node. You might also need additional IP addresses for data replication products. For more information about requirements for configuring data replication, see the following data replication guides:

- *Sun Cluster Geographic Edition Data Replication Guide for Sun StorEdge Availability Suite*
- *Sun Cluster Geographic Edition Data Replication Guide for Hitachi TrueCopy*
- *Sun Cluster Geographic Edition Data Replication Guide for EMC Symmetrix Remote Data Facility*

See "IP Addresses" in *Sun Cluster Software Installation Guide for Solaris OS* for a list of components that require IP addresses. Add these IP addresses to any naming services that are used. Also add these IP addresses to the local `/etc/inet/hosts` file on each cluster node after you install Solaris software.

A cluster name must be suitable as a hostname because the Sun Cluster Geographic Edition software creates the logical hostname by using the cluster name. Therefore, the cluster name must be in the naming system.

Also, cluster names must be unique. For example, if you have a cluster wholly within the domain `.france`, you can use hostnames like `paris` and `grenoble`. However, if you have a cross-domain cluster, you must specify the hostnames with enough qualification to identify the host on the network. You can link `paris` and `munich` with hostnames `paris.france` and `munich.germany`, and the cluster names remain `paris` and `munich`.

You cannot create a partnership between clusters `paris.france` and `paris.texas` because of a collision on the cluster name `paris`.

Planning the Sun Cluster Geographic Edition Environment

This section provides guidelines for planning and preparing the following components for Sun Cluster software installation:

Licensing

Ensure that you have available all necessary license certificates before you begin software installation. Sun Cluster Geographic Edition software does not require a license certificate. However, each node that is installed with Sun Cluster Geographic Edition software must be covered under your Sun Cluster Geographic Edition software license agreement.

For licensing requirements for data replication software and application software, see the installation documentation for those products.

Logical Addresses

The Sun Cluster Geographic Edition software uses the logical hostname of a cluster for inter-cluster management communication and heartbeat communication. The IP address for a cluster name must be available for Sun Cluster Geographic Edition software to wrap a logical hostname around the IP address when the software is started by using the `geoadm start` command.

You can use the `scconf` command to find the name of the cluster when you need to verify that the cluster name is suitable for use as a hostname.

To find the name of the cluster, run the following command:

```
# scconf -p | head -2
```

For more information, see the `scconf`(1M) man page.

◆ ◆ ◆ CHAPTER 2

Installing the Sun Cluster Geographic Edition Software

This chapter describes how to install the Sun Cluster Geographic Edition software on a pair of clusters. This chapter also provides a procedure to uninstall the Sun Cluster Geographic Edition software.

This chapter contains the following sections:

Installation Overview

You can install the Sun Cluster Geographic Edition software to a running cluster without disruption. Because the Sun Cluster Geographic Edition software installation process does not require you to restart the Sun Cluster software, the cluster remains in production with services running.

The Java Enterprise System (ES) installer offers two interactive installation modes, graphical user interface (GUI) and text-based interface. The graphical mode provides a wizard that guides you, step by step, through the tasks that you need to perform to install the Sun Cluster Geographic Edition components. The text-based mode provides the same functions that the GUI provides. However, this mode prompts you for responses on a line-by-line basis, rather than by means of a wizard.

Note – Ensure that you have installed all the required patches for your cluster configuration on each node of every cluster before you start installing the software.

See "Required Patches" in *Sun Cluster Geographic Edition 3.1 2006Q4 Release Notes* for the location of patches and installation instructions.

The Sun Cluster Geographic Edition software must be installed on all nodes of all clusters in a partnership.

Installing the Software on Solaris OS 9 or 10

You must install the Sun Cluster Geographic Edition software on every node of each cluster in your geographically separated cluster by using the `installer` utility.

▼ How to Install the Sun Cluster Geographic Edition Software by Using the Graphical User Interface

This procedure explains how to install the Sun Cluster Geographic Edition software on Solaris OS 9 or 10 by using the GUI.

If you have installed Solaris OS 8, see "Installing the Software on Solaris OS 8" on page 19.

Before You Begin Before you begin to install software, make the following preparations:

- Ensure that the Solaris OS is installed to support Sun Cluster Geographic Edition software.

  If Solaris software is already installed on the node, you must ensure that the Solaris installation meets the requirements for Sun Cluster Geographic Edition software and any other software that you intend to install on the cluster.
- Read Chapter 1.
- Read the following manuals, which contain information that can help you plan your configuration and prepare your installation strategy:
  - *Sun Cluster Geographic Edition 3.1 2006Q4 Release Notes* – Restrictions, bug workarounds, and other late-breaking information
  - *Sun Cluster Geographic Edition Overview*
  - Documentation for all third-party software products

1 To use the `installer` program with a GUI, ensure that the display environment of the cluster node to install is set to display the GUI.

```
% xhost +
% setenv DISPLAY nodename:0.0
```

2 Become root on the cluster where you intend to install the Sun Cluster Geographic Edition software.

Note – The Sun Cluster Geographic Edition software must be installed on all nodes of a cluster.

```
% su
```

3 Load the Sun Java ES 2006Q4 DVD-ROM into the DVD-ROM drive.

If the volume management daemon `vold`(1M) is running and is configured to manage CD-ROM or DVD devices, the daemon automatically mounts the media on the `/cdrom/cdrom0/` directory.

4 **Change to the Sun Java ES installation wizard directory of the DVD-ROM. If you are installing the software packages on the SPARC platform, type the following command:**

```
# cd /cdrom/cdrom0/Solaris_sparc
```

If you are installing the software packages on the x86 platform, type the following command:

```
# cd /cdrom/cdrom0/Solaris_x86
```

5 **Start the Sun Java ES installation wizard program.**

```
# ./installer
```

6 **Follow the instructions on the screen to install Sun Cluster Geographic Edition framework software on the cluster.**

The installer starts and displays the Welcome page.

After the installation is finished, you can view any available installation log.

To exit the installer at any time, click Cancel.

7 **Choose Typical or Custom installation.**

The Typical installation installs the Sun Cluster Geographic Edition data replication as well as the core components of the Sun Cluster Geographic Edition software.

The Custom installation installs the core components of the Sun Cluster Geographic Edition software.

8 **Choose the locale for the software.**

The languages you choose will be installed for all the components you select. Each language causes additional packages to be installed, which adds to the disk space that is required for installation. The English language is always installed.

Note – All nodes of the cluster must have the same default locale.

---

9 **If you chose the Custom installation, select the Sun Cluster Geographic Edition data replication you want to install.**

10 **Confirm that you have selected all the software components you want to install, and click Install Now.**

11 **Unload the Sun Java ES 2006Q4 DVD-ROM from the DVD-ROM drive.**

Next Steps Install required patches. Go to "Installing Patches" on page 22.

Configure Sun Cluster Geographic Edition software on the clusters. Go to Chapter 4.

▼ How to Install the Sun Cluster Geographic Edition Software by Using the Text-Based Interface

This procedure explains how to install the Sun Cluster Geographic Edition software on Solaris OS 9 or 10 by using the text-based interface.

If you have installed Solaris OS 8, see "Installing the Software on Solaris OS 8" on page 19.

Before You Begin Before you begin to install software, make the following preparations:

- Ensure that you have installed all the required patches for your cluster configuration on each node of every cluster.

  See "Required Patches" in *Sun Cluster Geographic Edition 3.1 2006Q4 Release Notes* for the location of patches and installation instructions.
- Read Chapter 1.
- Read the following manuals, which contain information that can help you plan your configuration and prepare your installation strategy:
  - *Sun Cluster Geographic Edition 3.1 2006Q4 Release Notes* – Restrictions, bug workarounds, and other late-breaking information
  - *Sun Cluster Geographic Edition Overview*
  - Documentation for all third-party software products

Follow these guidelines to use the interactive `installer` utility in this procedure:

- The interactive `installer` enables you to type ahead. Therefore, do not press the Return key more than once if the next menu screen does not appear immediately.
- Unless otherwise noted, you can press Control-D to return to either the beginning of a series of related questions or to the Main Menu.
- Default answers or answers to previous sessions are displayed in brackets ([ ]) at the end of a question. Press Return to enter the response that is in brackets without typing it.

1 Become root on the cluster where you intend to install the Sun Cluster Geographic Edition software.

Note – The Sun Cluster Geographic Edition software must be installed on all nodes of a cluster.

```
% su
```

2 Insert the Sun Cluster Geographic Edition CD-ROM in the CD-ROM drive.

3 Change to the root directory of the CD-ROM, where the `installer` utility resides.

```
# cd cdroot/Solaris_sparc/Product/sun_cluster_geo
```

4. **Start the `installer` utility by using the `-nodisplay` option to indicate that you want to use the text-based interface.**

   ```
   # ./installer -nodisplay
   ```

5. **Follow the instructions on the installer pages to install the Sun Cluster Geographic Edition framework software on the cluster.**

   After the installation is finished, you can view any available installation log.

   To exit the installer at any time, type the `!` character.

6. **Choose Typical or Custom installation.**

   The Typical installation installs the Sun Cluster Geographic Edition data replication as well as the core components of the Sun Cluster Geographic Edition software.

   The Custom installation installs the core components of the Sun Cluster Geographic Edition software.

7. **Choose the locale for the software.**

   The languages you choose will be installed for all the components you select. Each language causes additional packages to be installed, which adds to the disk space that is required for installation. English is always installed.

   Note – All nodes of the cluster must have the same default locale.

8. **If you chose the Custom installation, select the Sun Cluster Geographic Edition data replication you want to install.**

9. **Confirm that you have selected all the software components you want to install.**

10. **Change to a directory that does *not* reside on the CD-ROM and eject the CD-ROM.**

    ```
    # eject cdrom
    ```

Next Steps Install required patches. Go to "Installing Patches" on page 22.

Configure Sun Cluster Geographic Edition software on the clusters. Go to Chapter 4.

Installing the Software on Solaris OS 8

The version of Sun Cluster software on Sun Java ES 2006Q4 does not support installation on Solaris OS 8. If you have installed Solaris OS 8, you must install the Sun Cluster software from Java ES 2005Q4 before you install the Sun Cluster Geographic Edition software from Java ES 2006Q4.

For information on downloading the Sun Cluster software from Java ES 2005Q4, go to `http://www.sun.com/software/javaenterprisesystem/previous/index.xml`. For information on installing Sun Cluster software, see *Sun Cluster Software Installation Guide for Solaris OS*

If you have installed Solaris OS 8, you must install all the packages on the Sun Cluster Geographic Edition software CD on every node of both clusters by using the `pkgadd`(1M) command.

▼ How to Install the Sun Cluster Geographic Edition Software by Using the `pkgadd` Command

This procedure explains how to install the Sun Cluster Geographic Edition software on Solaris OS 8 by using the GUI.

If you are running Solaris OS 9 or 10, see "Installing the Software on Solaris OS 9 or 10" on page 16.

Before You Begin Before you begin to install software, be sure to read Chapter 1. Also, the following manuals contain information that can help you plan your configuration and prepare your installation strategy.

- *Sun Cluster Geographic Edition Release Notes* — Restrictions, bug workarounds, and other late-breaking information
- *Sun Cluster Geographic Edition Overview*
- Documentation for all third-party software products.

1 Log in as root on the cluster where you intend to install the Sun Cluster Geographic Edition software.

```
% su
```

2 Change to the directory that contains the Sun Cluster Geographic Edition software packages.

```
# cd cd-root/jes_5/06/Solaris_sparc/Product/ \
sun_cluster_geo/Solaris_8/Packages
```

3 Install the following Sun Cluster Geographic Edition software packages by using the `pkgadd` command:

- `SUNWscmautil`: Sun Cluster Management Agent utilities
- `SUNWscmautilr`: Sun Cluster Management Agent utilities for root
- `SUNWscghb`: Sun Cluster Geographic Edition heartbeats
- `SUNWschbr`: Sun Cluster heartbeats for root
- `SUNWscgctl`: Control management agents
- `SUNWscgctlr`: Control management agents for root
- If you are using Sun StorEdge Availability Suite 3.2.1 software data replication:
  - `SUNWscgrepavs`: Sun StorEdge Availability Suite 3.2.1 software data replication
  - `SUNWscgrepavsu`: Sun StorEdge Availability Suite 3.2.1 software data replication for `usr`

- If you are using Hitachi TrueCopy data replication:
  - `SUNWscgreptc`: Hitachi TrueCopy data replication
  - `SUNWscgreptcu` : Hitachi TrueCopy data replication for `usr`
- If you are using EMC Symmetrix Remote Data Facility data replication:
  - `SUNWscgrepsrdf`: EMC Symmetrix Remote Data Facility data replication
  - `SUNWscgrepsrdfu` : EMC Symmetrix Remote Data Facility data replication for `usr`
- `SUNWscgspm`: SunPlex Manager Extensions
- `SUNWscgman`: Sun Cluster Geographic Edition man pages

You can also install the following localization packages:

- `SUNWcscgctl`: Simplified Chinese Control Agents
- If you are using Sun StorEdge Availability Suite 3.2.1 software data replication, `SUNWcscgrepavsu`: Simplified Chinese Sun StorEdge Availability Suite data replication for `usr`
- If you are using Hitachi TrueCopy data replication, `SUNWcscgreptcu`: Simplified Chinese Hitachi TrueCopy data replication for `usr`
- If you are using EMC Symmetrix Remote Data Facility data replication, `SUNWcscgrepsrdfu`: Simplified Chinese EMC Symmetrix Remote Data Facility data replication for `usr`
- `SUNWcscgspm`: Simplified Chinese SunPlex Manager Extensions
- `SUNWjscgctl`: Japanese Sun Cluster Geographic Edition Control Agents
- `SUNWjscgman`: Japanese Sun Cluster Geographic Edition man pages
- If you are using Sun StorEdge Availability Suite 3.2.1 software data replication, `SUNWjscgrepavsu`: Japanese Sun StorEdge Availability Suite data replication for `usr`
- If you are using Hitachi TrueCopy data replication, `SUNWjscgreptcu`: Japanese Hitachi TrueCopy data replication for `usr`
- If you are using EMC Symmetrix Remote Data Facility data replication, `SUNWjscgrepsrdfu`: Japanese EMC Symmetrix Remote Data Facility data replication for `usr`
- `SUNWjscgspm`: Japanese SunPlex Manager Extensions
- `SUNWkscgctl`: Korean Sun Cluster Geographic Edition Control Agents
- If you are using Sun StorEdge Availability Suite 3.2.1 software data replication, `SUNWkscgrepavsu`: Korean Sun StorEdge Availability Suite data replication for `usr`
- If you are using Hitachi TrueCopy data replication, `SUNWkscgreptcu`: Korean Hitachi TrueCopy data replication for `usr`
- If you are using EMC Symmetrix Remote Data Facility data replication, `SUNWkscgrepsrdfu`: Korean EMC Symmetrix Remote Data Facility data replication for `usr`
- `SUNWkscgspm`: Korean SunPlex Manager Extensions

```
# pkgadd -d . SUNWscmautil
# pkgadd -d . SUNWscmautilr
# pkgadd -d . SUNWscghb
```

```
# pkgadd -d . SUNWscghbr
# pkgadd -d . SUNWscgctl
# pkgadd -d . SUNWscgctlr
# pkgadd -d . SUNWscgrepavs
# pkgadd -d . SUNWscgrepavsu
# pkgadd -d . SUNWscgreptc
# pkgadd -d . SUNWscgreptcu
# pkgadd -d . SUNWscgspm
# pkgadd -d . SUNWscgman
```

Next Steps Install required patches. Go to "Installing Patches" on page 22.

Configure Sun Cluster Geographic Edition software on the clusters. Go to Chapter 4.

Installing Patches

You must run the same patch levels for Sun Cluster and common agent container on all nodes of both clusters.

The patch level for each node on which you have installed the Sun Cluster Geographic Edition software must meet the Sun Cluster patch-level requirements.

All nodes in one cluster must have the same version of the Sun Cluster Geographic Edition software and the same patch level. However, primary and secondary clusters can run different versions of Sun Cluster Geographic Edition software provided that each version is correctly patched, for a limited amount of time. For example, if one cluster is running sun Cluster Geographic Edition 3.1 8/05 software that has been fully patched, and the partner cluster is running Sun Cluster Geographic Edition 3.1 2006Q4 that has been fully patched, then both clusters should be brought to the same patch level as soon as possible. Also, if both partner clusters are running Sun Cluster Geographic Edition 3.1 2006Q4, then both partner clusters should be brought to the same patch level as soon as possible.

To ensure that the patches have been installed properly, install the patches on your secondary cluster before you install the patches on the primary cluster.

Note – Use the information in this section to install patches before you start the Sun Cluster Geographic Edition infrastructure.

For additional information about Sun Cluster Geographic Edition patches, see the patch `README` file.

See "Required Patches" in *Sun Cluster Geographic Edition 3.1 2006Q4 Release Notes* for a list of required patches.

▼ How to Prepare the Cluster for Patch Installation

1 **Ensure that the cluster is functioning properly.**

To view the current status of the cluster, run the following command from any node:

```
% scstat
```

See the `scstat`(1M) man page for more information.

Search the `/var/adm/messages` log on the same node for unresolved error messages or warning messages.

Check the volume manager status.

2 **On a node of the cluster, become root.**

```
% su
```

3 **Remove all application resource groups from protection groups.**

Highly available applications do not have downtime during the Sun Cluster Geographic Edition software patch installation.

```
# geopg remove-resource-group resourcegroup protectiongroupname
```

See the `geopg`(1M) man page for more information.

4 **Perform the preceding steps on all clusters that have a partnership with this cluster.**

5 **Stop all protection groups that are active on the cluster.**

```
# geopg stop protectiongroupname -e local | global
```

See the `geopg`(1M) man page for more information.

6 **Stop the Sun Cluster Geographic Edition infrastructure.**

```
# geoadm stop
```

See the `geoadm`(1M) man page for more information.

7 **Stop the common agent container.**

```
# /opt/SUNWcacao/bin/cacaoadm stop
```

Note – You must use common agent container 1.1, which is located in `/opt/SUNWcacao/bin`. Use the `/opt/SUNWcacao/bin/cacaoadm -V` command to check which version of common agent container you are using.

Next Steps Install the required patches for the Sun Cluster Geographic Edition software. Go to "How to Install Patches" on page 24.

▼ How to Install Patches

Perform this procedure on all nodes of the cluster.

Patch the secondary cluster before you patch the primary cluster to permit testing.

Before You Begin Perform the following tasks:

- Ensure that the Solaris OS is installed to support Sun Cluster Geographic Edition software.

  If Solaris software is already installed on the node, you must ensure that the Solaris installation meets the requirements for Sun Cluster Geographic Edition software and any other software that you intend to install on the cluster.
- Ensure that Sun Cluster Geographic Edition software packages are installed on the node.

1 Ensure that all the nodes are online and part of the cluster.

To view the current status of the cluster, run the following command from any node:

```
% scstat
```

See the `scstat`(1M) man page for more information.

Search the `/var/adm/messages` log on the same node for unresolved error messages or warning messages.

2 Install any necessary patches to support Sun Cluster Geographic Edition software by using the `patchadd` command.

3 After you have installed all required patches on all the nodes of all clusters, start the common agent container.

```
# /opt/SUNWcacao/bin/cacaoadm start
```

Note – You must use common agent container 1.1, which is located in `/opt/SUNWcacao/bin`. Use the `/opt/SUNWcacao/bin/cacaoadm -V` command to check which version of common agent container you are using.

---

4 Enable the Sun Cluster Geographic Edition software.

```
# geoadm start
```

5 Add all application resource groups you removed while you were preparing the cluster for a patch installation back to the protection group.

```
# geopg add-resource-group resourcegroup protectiongroupname
```

See the `geopg`(1M) man page for more information.

6 Start all the protection groups that you have added.

```
# geopg start protectiongroupname -e local | global [-n]
```

See the geopg(1M) man page for more information.

Next Steps After you patch the secondary cluster, perform a sanity test on the Sun Cluster Geographic Edition software, and then repeat this procedure on the primary cluster.

Configure Sun Cluster Geographic Edition software on the clusters. Go to Chapter 4.

◆ ◆ ◆ CHAPTER 3

Upgrading the Sun Cluster Geographic Edition Software

This chapter describes how to upgrade the Sun Cluster Geographic Edition software on a pair of clusters. You can upgrade an installation of Sun Cluster Geographic Edition software by uninstalling the existing version of the Sun Cluster Geographic Edition software and installing the upgraded version of the software.

This chapter contains the following sections:

Upgrading Overview

You can upgrade the Sun Cluster Geographic Edition software on a running cluster without disruption. Because the Sun Cluster Geographic Edition software installation process does not require you to restart the Sun Cluster software, the cluster remains in production with services running. You can also use the upgrade process to install a Sun Cluster Geographic Edition patch without downtime. Sun Cluster Geographic Edition software configuration data is retained across the upgrade process.

Note – Ensure that you have installed all the required patches for your cluster configuration on each node of every cluster before you start upgrading the software.

See "Required Patches" in *Sun Cluster Geographic Edition 3.1 2006Q4 Release Notes* for the location of patches and installation instructions.

The Sun Cluster Geographic Edition software must be upgraded on all nodes of all clusters that have a partnership with the cluster you are upgrading.

If you want to upgrade the Solaris OS during the Sun Cluster Geographic Edition software upgrade process, you must remove the Sun Cluster Geographic Edition packages before you upgrade the Solaris OS.

Upgrading a Sun Cluster Geographic Edition Configuration

This section provides the following information to upgrade a Sun Cluster Geographic Edition configuration:

Upgrade Requirements and Software Support Guidelines

Observe the following requirements and software-support guidelines on all clusters that have a partnership with the cluster you are upgrading when you upgrade a cluster to the Sun Cluster Geographic Edition 3.1 2006Q4 software:

- **Supported hardware** — The cluster hardware must be a supported configuration for Sun Cluster Geographic Edition 3.1 2006Q4 software. Contact your Sun representative for information about Sun Cluster Geographic Edition configurations that are currently supported.
- **Minimum Solaris OS** — The cluster must run on or be upgraded to at least the initial release of Solaris OS 8 software, including the most current required patches.

▼ How to Prepare the Cluster for an Upgrade

Perform this procedure on all clusters that have a partnership with the cluster you are upgrading to remove the Sun Cluster Geographic Edition layer from production. On the Solaris 10 OS, perform all steps from the global zone only.

Highly available applications do not have downtime during the Sun Cluster Geographic Edition software upgrade.

Before You Begin Ensure that the configuration meets the requirements for the upgrade. See "Upgrade Requirements and Software Support Guidelines" on page 28.

Have available the installation media, documentation, and patches for all software products that you are upgrading, including Solaris OS and Sun Cluster Geographic Edition 3.1 2006Q4 software.

If you want to upgrade the Solaris OS or other applications during the Sun Cluster Geographic Edition software upgrade process, you must remove the Sun Cluster Geographic Edition packages before you upgrade the Solaris OS or other applications.

For information about uninstalling Sun Cluster Geographic Edition software, see "Uninstallation Overview" on page 39 to determine the proper method of uninstallation.

1. **Ensure that the cluster is functioning properly.**

   To view the current status of the cluster, run the following command from any node:

   ```
   % scstat
   ```

   See the `scstat`(1M) man page for more information.

   Search the `/var/adm/messages` log on the same node for unresolved error messages or warning messages.

   Check the volume manager status.

2. **On a node of the cluster, become root.**

   ```
   % su
   ```

3. **Remove all application resource groups from protection groups.**

   Highly available applications do not have downtime during the Sun Cluster Geographic Edition software upgrade.

   ```
   # geopg remove-resource-group resourcegroup protectiongroupname
   ```

   See the `geopg`(1M) man page for more information.

4. **Perform the preceding steps on all clusters that have a partnership with this cluster.**

5. **Stop all protection groups that are active on the cluster.**

   ```
   # geopg stop protectiongroupname -e local | global
   ```

   See the `geopg`(1M) man page for more information.

6. **Stop the Sun Cluster Geographic Edition infrastructure.**

   ```
   # geoadm stop
   ```

   See the `geoadm`(1M) man page for more information.

Next Steps Upgrade the Sun Cluster Geographic Edition software on the clusters. Go to "How to Upgrade Sun Cluster Geographic Edition Software" on page 29.

▼ How to Upgrade Sun Cluster Geographic Edition Software

Perform this procedure on all nodes of the cluster. You can perform this procedure on more than one node at the same time.

Caution – If the cluster is in a partnership, both partners must be upgraded to the Sun Cluster Geographic Edition 3.1 2006Q4 software before the Sun Cluster Geographic Edition 3.1 2006Q4 software can start.

1 **To use the `uninstaller` utility with a GUI, ensure that the display environment of the cluster node to uninstall is set to display the GUI.**

```
% xhost +
% setenv DISPLAY nodename:0.0
```

2 **Become root on the node or cluster where you intend to uninstall the Sun Cluster Geographic Edition software.**

```
% su
```

3 **Uninstall the Sun Cluster Geographic Edition 3.1 8/05 software.**

- **If you are using Solaris OS version 10, see "The Sun Cluster Geographic Edition Installer Does Not Work on Solaris OS 10 (6350105)" in** *Sun Cluster Geographic Edition 3.1 8/05 Release Notes***.**
- **If you are using Solaris OS versions 8 or 9, see "Uninstalling Sun Cluster Geographic Edition Software on Solaris OS 9 and 10" in the** *Sun Cluster Geographic Edition Installation Guide***.**

For more information about how to leave applications running while shutting down the Sun Cluster Geographic Edition software, see "Disabling the Sun Cluster Geographic Edition Software" in *Sun Cluster Geographic Edition System Administration Guide*.

4 **Ensure that all the nodes are online and part of the cluster.**

To view the current status of the cluster, run the following command from any node:

```
% scstat
```

See the `scstat`(1M) man page for more information.

Search the `/var/adm/messages` log on the same node for unresolved error messages or warning messages.

5 **Upgrade to common agent container 1.1.**

See "Upgrading Common Agent Container" in *Sun Java Enterprise System 2006Q3 Upgrade Guide* for more information.

6 **Install the Sun Cluster Geographic Edition software as described in Chapter 2.**

7 **Install all the required patches as described in "Installing Patches" on page 22.**

8 **Perform the preceding steps on all clusters that have a partnership with this cluster.**

9 **After you have installed Sun Cluster Geographic Edition software on all the nodes of a cluster, enable the Sun Cluster Geographic Edition software.**

```
# geoadm start
```

10 **Remove the ICRM plug-in from all the heartbeats on both partner clusters.**

```
phys-paris-1 # geohb remove-plugin icrm_plugin hb_paris~new-york
phys-paris-1 # geohb remove-plugin icrm_plugin hb_new-york~paris
phys-newyork-1 # geohb remove-plugin icrm_plugin hb_paris~new-york
phys-newyork-1 # geohb remove-plugin icrm_plugin hb_new-york~paris
```

11 **Add all application resource groups you removed while you were preparing the cluster for an upgrade back to the protection group.**

```
# geopg add-resource-group resourcegroup protectiongroupname
```

See the geopg(1M) man page for more information.

12 **Start all the protection groups that you have added.**

```
# geopg start protectiongroupname -e local | global [-n]
```

See the geopg(1M) man page for more information.

Next Steps Go to "How to Verify Upgrade of Sun Cluster Geographic Edition 3.1 2006Q4 Software" on page 31

▼ How to Verify Upgrade of Sun Cluster Geographic Edition 3.1 2006Q4 Software

Perform this procedure to verify that the cluster is successfully upgraded to Sun Cluster Geographic Edition 3.1 2006Q4 software. On the Solaris 10 OS, perform all steps from the global zone only.

Before You Begin Ensure that all upgrade procedures are completed for all cluster nodes that you are upgrading.

1 **On each node, become root.**

2 **On each upgraded node, view the installed levels of Sun Cluster Geographic Edition software.**

```
# geoadm -V
```

The first line of output states which version of Sun Cluster Geographic Edition software the node is running. This version should match the version to which you just upgraded.

Note – The version number that the `geoadm -v` command returns does not coincide with the marketing release version numbers. The version number for Sun Cluster Geographic Edition 3.1 2006Q4 software should be 1.1.

3 Ensure that the cluster is running properly.

```
# geoadm status
```

4 (Optional) You can also run a switchover to ensure that the Sun Cluster Geographic Edition software was installed properly.

```
# geopg switchover
```

You must test you geographically separated cluster properly, so that no problems prevent a switchover. Upgrading the secondary cluster first and switching over to it enables you to verify that all still works. If the switchover fails, the primary site is untouched and you can switch back. If all works on the secondary site then after a certain 'soak time' you can upgrade the primary site as well.

Caution – A switchover might disrupt the services that are running on the cluster. You should carefully plan the required tasks and resources before performing a switchover.

If you have added your application resource groups back into the protection groups, then performing a switchover shuts down the applications on the original primary cluster and migrates the applications to the secondary cluster.

◆ ◆ ◆ CHAPTER 4

Enabling and Configuring the Sun Cluster Geographic Edition Software

This chapter describes the steps for enabling and configuring the Sun Cluster Geographic Edition infrastructure. This chapter contains the following sections:

Enabling the Sun Cluster Geographic Edition Infrastructure

When the Sun Cluster Geographic Edition software is enabled, the cluster is ready to enter a partnership with another enabled cluster. You can use the CLI or the GUI to create a cluster partnership.

For more information about setting up and installing Sun Cluster Geographic Edition, see Chapter 3, "Administering the Sun Cluster Geographic Edition Infrastructure," in *Sun Cluster Geographic Edition System Administration Guide*.

To use the `geoadm` command to enable the local cluster for partnership membership, you must have root access.

▼ How to Enable Sun Cluster Geographic Edition Software

This procedure enables the Sun Cluster Geographic Edition infrastructure on the local cluster only. Repeat this procedure on all the clusters of your geographically separated cluster.

Before You Begin Ensure that the following conditions are met:

- The cluster is running the Solaris Operating System and the Sun Cluster software.
- The Sun Cluster management-agent container for SunPlex Manager is running.

- The Sun Cluster Geographic Edition software is installed.
- The cluster has been configured for secure cluster communication by using security certificates, that is, nodes within the same cluster must share the same security certificates. This is done during Sun Cluster installation.

  When you upgrade to Sun Cluster 3.1 8/05 software, the security certificates must be identical on all nodes of the cluster. Therefore, you must copy the security certificates manually from one node of the cluster to the other nodes of the cluster. For more information on copying the security files for the common agent container, see the procedures in Chapter 5, "Upgrading Sun Cluster Software," in *Sun Cluster Software Installation Guide for Solaris OS*.

1 Log in to a cluster node.

You must be assigned the Geo Operation RBAC rights profile to complete this procedure. For more information about RBAC, see "Sun Cluster Geographic Edition Software and RBAC" in *Sun Cluster Geographic Edition System Administration Guide*.

2 Ensure that the logical hostname, which is the same as the cluster name, is available and defined.

```
# scconf -p | grep -i "cluster name"
```

If the cluster name is not the name you want to use, you can change the cluster name with the following command:

```
# scconf -c -C cluster=clustername
```

For more information, see the `scconf`(1M) man page.

Note – After you have enabled the Sun Cluster Geographic Edition infrastructure, you must not change the cluster name while the infrastructure is enabled.

---

3 Confirm that the naming service and the local hosts files contain a host entry that matches the cluster name. .

The local host file, `hosts`, is located in the `/etc/inet` directory.

4 On a node of the cluster, start the Sun Cluster Geographic Edition infrastructure.

```
# geoadm start
```

The `geoadm start` command enables the Sun Cluster Geographic Edition infrastructure on the local cluster only. For more information, see the `geoadm`(1M) man page.

5 Verify that you have enabled the infrastructure and that the Sun Cluster Geographic Edition resource groups are online.

For a list of the Sun Cluster Geographic Edition resource groups, see "Sun Cluster Geographic Edition Infrastructure Resource Groups" in *Sun Cluster Geographic Edition System Administration Guide*.

```
# geoadm show
# scstat -g
```

The output for the `geoadm show` command displays that the Sun Cluster Geographic Edition infrastructure is active from a particular node in the cluster.

The output for the `scstat -g` command displays that the `geo-failovercontrol`, `geo-hbmonitor`, and `geo-clustername` resources and the `geo-infrastructure` resource groups are online on one node of the cluster.

For more information, see the `scstat`(1M) man page.

Example 4–1 Enabling the Sun Cluster Geographic Edition Infrastructure a Cluster

This example enables the Sun Cluster Geographic Edition software on the `cluster-paris` cluster.

1. Start the Sun Cluster Geographic Edition software on `cluster-paris`.

```
phys-paris-1# geoadm start
```

2. Ensure that the Sun Cluster Geographic Edition infrastructure was successfully enabled.

```
phys-paris-1# geoadm show

--- CLUSTER LEVEL INFORMATION ---
Sun Cluster Geographic Edition is active on cluster-paris from node phys-paris-1
Command execution successful
phys-paris-1#
```

3. Verify the status of the Sun Cluster Geographic Edition resource groups and resources.

```
phys-paris-1# scstat -g
-- Resource Groups and Resources --
      Group Name              Resources
      ----------          ---------
Resources: geo-clusterstate    -
Resources: geo-infrastructure geo-clustername geo-hbmonitor geo-failovercontrol

-- Resource Groups --
     Group Name            Node Name       State
     ----------            ---------       -----
Group: geo-clusterstate   phys-paris-1    Online
Group: geo-clusterstate   phys-paris-2    Online
Group: geo-infrastructure phys-paris-1    Online
Group:geo-infrastructure  phys-paris-2    Offline

-- Resources --
Resource Name                Resources    State   Status Message
-------------                ---------    -----   --------------
Resource: geo-clustername    phys-paris-1 Online  Online - LogicalHostname online
Resource: geo-clustername    phys-paris-2 Offline Offline
Resource: geo-hbmonitor      phys-paris-1 Online  Online- Daemon OK
Resource: geo-hbmonitor      phys-paris-2 Offline Offline
```

```
Resource: geo-failovercontrol phys-paris-1 Online  Online
Resource: geo-failovercontrol phys-paris-2 Offline Offline
```

Next Steps For information about creating protection groups, see the Sun Cluster Geographic Edition Data Replication Guide that corresponds to the type of data replication software you are using.

Configuring Trust Between Partner Clusters

Before you create a partnership between two clusters, you must configure the Sun Cluster Geographic Edition software for secure communication between the two clusters. The configuration must be reciprocal. For example, you must configure the cluster `cluster-paris` to trust the cluster `cluster-newyork`, and you must also configure the cluster `cluster-newyork` to trust the cluster `cluster-paris`.

▼ How to Configure Trust Between Two Clusters

Before You Begin Ensure that the following conditions are met:

- The cluster on which you want to create the partnership is running.
- The `geoadm start` command must have already been run on this cluster and the partner cluster. For more information about using the `geoadm start` command, see Chapter 4.
- The cluster name of the partner cluster is known.
- The host information of the partner cluster must defined in the local host file. The local cluster needs to know how to reach the partner cluster by name.

1 Log in to a cluster node.

You must be assigned the Geo Management RBAC rights profile to complete this procedure. For more information about RBAC, see "Sun Cluster Geographic Edition Software and RBAC" in *Sun Cluster Geographic Edition System Administration Guide*.

2 Import the public keys from the remote cluster to the local cluster.

Running this command on one node of the local cluster imports the keys from the remote cluster to one node of the cluster.

```
# geops add-trust -c remotepartnerclustername
```

-cremoteclustername Specifies the logical hostname of the cluster with which to form a partnership. The logical hostname is used by the Sun Cluster Geographic Edition software and maps to the name of the remote partner cluster. For example, a remote partner cluster name might resemble the following:

```
cluster-paris
```

When you use this option with the `add-trust` or `remote-trust` subcommand, the option specifies the alias where the public keys on the remote cluster are stored. An alias for certificates on the remote cluster has the following pattern:

remotepartnercluster`.certificate[0-9]*`

Keys and only keys that belong to the remote cluster should have their alias match this pattern.

For more information about the `geops` command, refer to the `geops`(1M) man page.

3 Repeat the preceding steps on a node of the remote partner cluster.

4 Verify trust from one node of each cluster.

```
# geops verify-trust -c remotepartnerclustername
```

See Also For a complete example of how to configure and join a partnership, see "Joining an Existing Partnership" in *Sun Cluster Geographic Edition System Administration Guide*.

▼ How to Remove Trust Between Two Clusters

Before You Begin Ensure that the following conditions are met:

- The cluster on which you want to remove trust is running.
- The cluster name of the partner cluster is known.
- The host information of the partner cluster must defined in the local host file. The local cluster needs to know how to reach the partner cluster by name.

1 Log in to a cluster node.

You must be assigned the Geo Management RBAC rights profile to complete this procedure. For more information about RBAC, see "Sun Cluster Geographic Edition Software and RBAC" in *Sun Cluster Geographic Edition System Administration Guide*.

2 On all nodes of both clusters, remove all keys for the remote cluster from the truststore file on the local node.

```
# geops remove-trust -c remotepartnerclustername
```

Perform this step on all the nodes of the local cluster, and then repeat this step on all nodes of the partner cluster.

`-c`*remoteclustername* Specifies the logical hostname of the cluster from which you want to remove the keys. The name for the remote cluster must be identical to the cluster name you specified when adding trust with the `geops add-trust`

command. You do not need to specify the fully qualified name if the remote cluster is reachable by partial name.

When you use this option with the `add-trust` or `remote-trust` subcommand, the option specifies the alias where the public keys on the remote cluster are stored. An alias for certificates on the remote cluster has the following pattern:

remotepartnercluster`.certificate[0-9]*`

Keys and only keys that belong to the remote cluster should have their alias match this pattern.

For more information about the `geops` command, refer to the `geops`(1M) man page.

3 Repeat the preceding steps on a node of the remote partner cluster.

◆ ◆ ◆ CHAPTER 5

Uninstalling the Sun Cluster Geographic Edition Software

When you uninstall the Sun Cluster Geographic Edition software, node or cluster is no longer a part of the geographically separated cluster.

This chapter contains the following sections:

Uninstallation Overview

Use the following table to determine the required method of uninstalling the Sun Cluster Geographic Edition software.

TABLE 5–1 Uninstallation Methods

Version of Sun Cluster Geographic Edition Software	Version of Solaris OS	Method of Uninstallation
3.1 8/05	8 or 9	The `uninstaller` provided with Sun Cluster Geographic Edition 3.1 8/05. For more information, see Chapter 5.
3.1 8/05	10	The `pkgrm` command.
3.1 2006Q4	8	The `pkgrm` command. For more information, see "Uninstalling Sun Cluster Geographic Edition Software on Solaris OS 8" on page 43.

TABLE 5–1 Uninstallation Methods *(Continued)*

Version of Sun Cluster Geographic Edition Software	Version of Solaris OS	Method of Uninstallation
3.1 2006Q4	9 or 10	The Java ES uninstaller. For more information, see "Uninstalling Sun Cluster Geographic Edition Software on Solaris OS 9 and 10" on page 40

You can remove the Sun Cluster Geographic Edition software without stopping applications or data replication. For more information about how to keep applications and data replication online, see one of the following data replication guides:

- "How to Deactivate a Sun StorEdge Availability Suite 3.2.1 Protection Group" in *Sun Cluster Geographic Edition Data Replication Guide for Sun StorEdge Availability Suite*
- "Deactivating a Hitachi TrueCopy Protection Group" in *Sun Cluster Geographic Edition Data Replication Guide for Hitachi TrueCopy*
- "Deactivating an EMC Symmetrix Remote Data Facility Protection Group" in *Sun Cluster Geographic Edition Data Replication Guide for EMC Symmetrix Remote Data Facility*

To use the `geoadm` command to stop the Sun Cluster Geographic Edition infrastructure, you must have root access.

For more information about disabling the local cluster for partnership membership, see "Disabling the Sun Cluster Geographic Edition Software" in *Sun Cluster Geographic Edition System Administration Guide*.

Uninstalling Sun Cluster Geographic Edition Software on Solaris OS 9 and 10

Java ES provides an uninstallation program for removing components that were installed on your system using the Java ES installer. Like the Java ES installer, the uninstaller can be run in graphical or text-based mode. The Java ES uninstaller is located at `/var/sadm/prod/SUNWentsys4`.

Note – You must uninstall the Sun Cluster Geographic Edition software before you uninstall the Sun Cluster software.

If you have installed Solaris OS 8, use the instruction in "Uninstalling Sun Cluster Geographic Edition Software on Solaris OS 8" on page 43 to uninstall the Sun Cluster Geographic Edition software.

The Java ES uninstaller might behave differently depending on which component products you installed and how the products are interrelated. Remember the following when running the uninstaller:

- The uninstaller must be run separately on each host that contains Sun Cluster Geographic Edition components.
- The uninstaller removes only component products that were installed by the Java ES installer.
- The uninstaller does not check product dependencies for the system.
- The uninstaller does not remove configuration and user data files.

How to Uninstall the Sun Cluster Geographic Edition Software by Using the GUI

1 To use the `uninstall` utility with a GUI, ensure that the display environment of the cluster node to uninstall is set to display the GUI.

```
% xhost +
% setenv DISPLAY nodename:0.0
```

2 Become superuser on the node or cluster where you intend to uninstall the Sun Cluster Geographic Edition software.

```
% su
```

3 Stop the Sun Cluster Geographic Edition infrastructure on the local cluster.

```
# geoadm stop
```

For more information on disabling the Sun Cluster Geographic Edition software on a cluster, see "Disabling the Sun Cluster Geographic Edition Software" in *Sun Cluster Geographic Edition System Administration Guide*.

4 Change to the directory where the `uninstall` utility resides.

```
# cd /var/sadm/prod/SUNWentsys5
```

5 Start the `uninstall` utility.

```
# ./uninstall
```

The Welcome page is displayed.

6 Click Next to proceed.

The Select Components page is displayed.

7 Select the components you want to uninstall, and click Next.

To exit the uninstall utility at any time, click Cancel.

After uninstallation is finished, you can view any available uninstallation log.

8 Review the uninstallation selections you have made.

- If changes are needed, click Back through successive pages until the Component Selection page is displayed.
- Make changes as needed on the Component Selection page.
- Click Next to proceed again through the uninstaller pages.

  The uninstaller remembers previously-specified values. You can modify any value you previously specified.

9 Click Next when you are satisfied with your selections.

The uninstaller begins removing software from your system and displays the following:

- A progress bar that displays the overall completion percentage
- The name of the package currently being removed
- After all component software has been removed, the uninstaller displays the Uninstallation Complete page.

10 Click View Summary or View Log for information about the uninstallation.

- Uninstallation summary shows the components that were uninstalled and a list of configuration information for the components.
- Uninstallation log shows all messages that were generated by the uninstaller during uninstallation.

You can also review the uninstallation summary and log files in `/var/sadm/install/logs`.

11 Click Close to exit the uninstaller.

▼ How to Uninstall the Sun Cluster Geographic Edition Software by Using the Text-Based Interface

1 To use the `uninstall` utility with a text-based interface, become superuser on the node or cluster where you intend to uninstall the Sun Cluster Geographic Edition software.

```
% su
```

2 Stop the Sun Cluster Geographic Edition infrastructure on the local cluster.

```
# geoadm stop
```

For more information on disabling the Sun Cluster Geographic Edition software on a cluster, see "Disabling the Sun Cluster Geographic Edition Software" in *Sun Cluster Geographic Edition System Administration Guide*.

3 Change to the directory where the `uninstall` utility resides.

```
# cd /var/sadm/prod/SUNWentsys4
```

4 **Start the `uninstall` utility using the `-nodisplay` option to indicate that you want to use the text-based interface.**

```
# ./uninstall -nodisplay
```

The Welcome message is displayed followed by a list of all possible Java ES components on your system.

5 **The uninstaller selects for removal any Java ES components it finds on your system by listing the numbers corresponding to the installed components. Choose components by typing a comma-separated list of the numbers corresponding to the components you want to uninstall, and press Return.**

6 **Review your selections.**

- If changes are needed, type the < character and press Return to go back through successive pages until the Component Selection list appears.
- Make changes as needed on the Component Selection list.
- Proceed again through the uninstaller screens.

7 **When you are satisfied with your selections, type the number 1 and press Return.**

The uninstaller begins removing software from your system. During uninstallation, the uninstaller displays a progress bar that displays the overall completion percentage.

After all component software has been removed, you can view the uninstallation summary and log.

8 **Type 1 or 2 and press Return to see information about the uninstallation.**

- Uninstallation summary shows the components that were uninstalled and a list of configuration information for the components.
- Uninstallation log shows all messages that were generated by the uninstaller during uninstallation.

You can also review the uninstallation summary and log files in `/var/sadm/install/logs`.

9 **Type the `!` character to exit the uninstaller.**

Uninstalling Sun Cluster Geographic Edition Software on Solaris OS 8

When you uninstall the Sun Cluster Geographic Edition software, node or cluster is no longer a part of the geographically separated cluster.

▼ How to Uninstall the Sun Cluster Geographic Edition Software by Using the pkgadd Command

1 Become superuser on the node or cluster where you intend to uninstall the Sun Cluster Geographic Edition software.

```
% su
```

2 Stop the Sun Cluster Geographic Edition infrastructure on the local cluster.

```
# geoadm stop
```

For more information on disabling the Sun Cluster Geographic Edition software on a cluster, see "Disabling the Sun Cluster Geographic Edition Software" in *Sun Cluster Geographic Edition System Administration Guide*.

3 Uninstall Sun Cluster Geographic Edition software packages from the cluster using the pkgrm(1M) command.

Ensure that you also uninstall any localization packages you have installed.

Note – You must uninstall the packages in the reverse order of the installation.

```
# pkgrm SUNWscgman
# pkgrm SUNWscgspm
# pkgrm SUNWscgreptcu
# pkgrm SUNWscgreptc
# pkgrm SUNWscgrepavsu
# pkgrm SUNWscgrepavs
# pkgrm SUNWscgctlr
# pkgrm SUNWscgctl
# pkgrm SUNWscghbr
# pkgrm SUNWscghb
# pkgrm SUNWscmautilr
# pkgrm SUNWscmautil
```

4 Verify that Sun Cluster Geographic Edition software has been removed.

```
# pkginfo | grep -i geo
```

Index

V