Sun Cluster Geographic Edition Installation Guide

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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), 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 2003Q4 Glossary*
Hardware administration	Individual hardware administration guides
Software installation	*Sun Cluster Geographic Edition Installation Guide*
System administration	*Sun Cluster Geographic Edition System Administration Guide*
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`.

Accessing Sun Documentation Online

The docs.sun.com^{SM} Web site enables you to access Sun technical documentation online. You can browse the docs.sun.com archive or search for a specific book title or subject. The URL is `http://docs.sun.com`.

Ordering Sun Documentation

Sun Microsystems offers select product documentation in print. For a list of documents and how to order them, see "Buy printed documentation" at `http://docs.sun.com`.

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, 1.0)

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
`geostat -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
`geostat`	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 changes that are used in this book.

TABLE P–1 Typographic Conventions

Typeface or Symbol	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	Command-line 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*. Perform a *patch analysis*. Do *not* save the file. [Note that some emphasized items appear bold online.]

Shell Prompts in Command Examples

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

TABLE P–2 Shell Prompts

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

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
- A primary cluster with at least two nodes
- 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 Sun Cluster Geographic Edition supported hardware configurations are the same as those of the Sun Cluster product. 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 as Sun Cluster software configuration.

Required Software

The following table lists the required software.

TABLE 1–1 Required Software

Software	Version
Operating System	Solaris 8 or 9 (SPARC® edition)
Sun Cluster software	Sun Cluster 3.1, 8/05 This version includes version 1.0 of the Common Agent Container that supports the Sun Cluster 3.1 8/05SunPlex™ Manager. The Sun Cluster Geographic Edition product uses the same Common Agent Container infrastructure as the Sun Cluster SunPlex Manager.
Volume management software	■ For use with Hitachi TrueCopy software: VERITAS Volume Manager software ■ For use with Sun StorEdge Availability Suite 3.2.1 software: Solaris Volume Manager software or VERITAS Volume Manager software
Data replication software	■ Sun StorEdge Availability Suite 3.2.1 software ■ Hitachi TrueCopy RAID Manager/Solaris Version 01–10–03/02
Sun Cluster Geographic Edition	Sun Cluster Geographic Edition 3.1 8/05

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

If you use Hitachi TrueCopy RAID Manager software, it must be installed on each node of the cluster.

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 replication method is a storage-based method. These methods use replication that is built into the storage hardware.

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 clusters 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. The logical hostname is a special high availability (HA) resource. The Sun Cluster Geographic Edition software requires that the hostname of a logical host is identical to the cluster name.

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.

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.

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. A logical hostname must be the same as the name of the cluster and be available on the namespace of each cluster.

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 Sun Cluster Geographic Edition 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 "Patches and Required Firmware Levels" in *Sun Cluster Geographic Edition 3.1 8/05 Release Notes* for the location of patches and installation instructions.

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

Installing Patches

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

See "Patches and Required Firmware Levels" in *Sun Cluster Geographic Edition 3.1 8/05 Release Notes* for a list of required patches.

▼ How to Install Patches By Using the `patchadd` Command

Perform this procedure from one node of the cluster to configure Sun Cluster Geographic Edition software on all nodes of the cluster.

Patch the secondary cluster before you patch the primary cluster to ensure that the patches work properly.

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.

Steps

1. **(Optional) To use the `patchadd`(1M) command to install patches, download patches to a patch directory.**
2. **Use a directory named either `/var/cluster/patches/` or `/var/patches/` to contain the patches to install.**

   You can include a patch-list file in the patch directory. The default patch-list file name is `patchlist`. For information about creating a patch-list file, refer to the `patchadd`(1M) man page.
3. **Become superuser on the cluster node from which you intend to apply the patch.**

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

Installing the Software

You must install the Sun Cluster Geographic Edition software CD 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

Before You Begin

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

- 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 8/05 Release Notes* – Restrictions, bug workarounds, and other late-breaking information
  - *Sun Cluster Geographic Edition Overview*
  - Documentation for all third-party software products

Steps

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

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

   ```
   # cd cd-root/Solaris_sparc/Product/sun_cluster_geo
   ```

5. **Start the `installer` utility.**

   ```
   # ./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. English is always installed.

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

    ```
    # eject cdrom
    ```

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

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 "Patches and Required Firmware Levels" in *Sun Cluster Geographic Edition 3.1 8/05 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 8/05 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:

- Interactive `installer` enables you to type ahead. Therefore, do not press the Enter 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 Enter to enter the response that is in brackets without typing it.

Steps

1. **To use the `installer` utility with a text-based interface, become superuser 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 cd-root/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.

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
```

CHAPTER 3

Configuring Sun Cluster Geographic Edition Software

This chapter describes the steps for configuring and enabling the Sun Cluster Geographic Edition for partnership. The chapter also contains information on how to uninstall the Sun Cluster Geographic Edition software.

This chapter contains the following sections:

Configuring Security

You must configure the Sun Cluster Geographic Edition software for secure management communication between partner clusters. The configuration must be reciprocal. For example, each node in cluster `cluster-paris` must be configured to trust each node in cluster `cluster-newyork`.

For an example of a cluster configuration, see "Example Cluster Configuration" in *Sun Cluster Geographic Edition System Administration Guide*.

Trusted host certificates for the partner must be configured on every node of the cluster, because any node in the cluster can host the Sun Cluster Geographic Edition infrastructure resource groups and the logical hostname for inter-cluster communication.

Use the `/usr/j2se/bin/keytool` command to configure trusted host certificates.

▼ How to Install Certificates on Partner Clusters

This procedure refers to nodes `phys-paris-1` and `phys-paris-2` on cluster `cluster-paris` and nodes `phys-newyork-1` and `phys-newyork-2` on cluster `cluster-newyork`.

Before You Begin

Ensure that you have the following Network Security Services software packages installed:

- SUNWpr, version 4.5.0
- SUNWprx
- SUNWtls, version 3.9.4
- SUNWtlsu

Steps

1. **On one node of each cluster, `phys-paris-1` on cluster `cluster-paris` and `phys-newyork-1` on cluster `cluster-newyork`, complete the following tasks:**

   a. **Log in to one node of the cluster as root.**

   b. **Stop the common agent carrier.**

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

   c. **Regenerate the JSSE/NSS keys and certificates.**

   This procedure creates a file named `/etc/opt/SUNWcacao/security/nss/localca/localca.cert`. The `localca.cert` file is used as temporary storage while the key is read.

   ```
   # /opt/SUNWcacao/bin/cacaoadm create-keys
   ```

   To deletes all other keys in the local trustore, use the `--force` option. If you use the `--force` option, these keys must be added again after you have completed this procedure.

   You can use the `--directory` option to generate this file in a different directory from the default security directory if you want to avoid overwriting keys. However, the common agent carrier only uses keys from the default directory, so you will later need to add the keys you generate to the file in the default directory.

   Once a cluster has been configured, do not repeat this step of executing a `create-keys --force` command. Otherwise the certificates you previously configured will be lost.

   For more information about regenerating common agent carrier keys and certificates, refer to "How to Configure a New Security Certificate" in *Sun Cluster System Administration Guide for Solaris OS*.

2. **Exchange local certificate authority between nodes `phys-paris-1` and `phys-newyork-1`.**

   a. **Change the directory to the certificate directory on node `phys-paris-1`.**

   ```
   phys-paris-1# cd /etc/opt/SUNWcacao/security/nss/localca
   ```

b. Copy the certificate file `localca.cert` from node `phys-paris-1` to node `phys-newyork-1`.

This procedure renames the `localca.cert` file to `localca.cert.cluster-paris` as a reminder of which cluster the file comes from.

```
phys-paris-1# rcp  localca.cert \
phys-newyork-1:/etc/opt/SUNWcacao/security/jsse/localca.cert.cluster-paris
```

c. Change to the directory on the node `phys-newyork-1` where you copied the file.

```
phys-newyork-1# cd /etc/opt/SUNWcacao/security/jsse
```

d. Import the certificates from the `localca.cert.cluster-paris` file into the local keystore on node `phys-newyork-1`.

This procedure loads the public key from `cluster-paris` into the`phys-newyork-1` node of `cluster-newyork`.

Note – To perform this procedure, you must be in the `/etc/opt/SUNWcacao/security/jsse` directory.

```
phys-newyork-1# keytool -import -v -alias cluster-paris -keystore truststore \
-file localca.cert.cluster-paris
```

The `truststore` parameter in the `keytool` command is a file that is located in the directory where you copied the file. The`-alias` option specifies the cluster name of the remote cluster where the certificate was generated.

Type `trustpass` when asked for the keystore password. The `trustpass` password is the nonsecret password that the common agent carrier provides. The `truststore` parameter holds the public keys of the public and private pairs, so absolute secrecy is not required.

Type `yes` when asked whether to trust the certificate.

e. Verify that the certificate was correctly added to the keystore.

```
phys-newyork-1# keytool -list -v -keystore truststore
```

3. Exchange local certificate authority between nodes `phys-newyork-1` and `phys-paris-1`.

a. Change the directory to the certificate directory on node `phys-newyork-1`.

```
phys-newyork-1# cd /etc/opt/SUNWcacao/security/nss/localca
```

The certificate to be imported is in a file called `localca.cert`.

b. Copy the certificate file from node `phys-newyork-1` to node `phys-paris-1`.

This procedure renames `localca.cert` to `localca.cert.cluster-newyork` as a reminder of which cluster the file comes from.

```
# rcp localca.cert \
phys-paris-1:/etc/opt/SUNWcacao/security/jsse/localca.cert.cluster-newyork
```

c. Change to the directory on node `phys-paris-1` where you copied the file.

```
phys-paris-1# cd /etc/opt/SUNWcacao/security/jsse
```

d. Import the certificate into the local keystore on node `phys-paris-1`.

Note – To perform this procedure, you must be in the `/etc/opt/SUNWcacao/security/jsse` directory.

```
phys-paris-1# keytool -import -v -alias cluster-newyork -keystore truststore \
-file localca.cert.cluster-newyork
```

The `truststore` parameter in the `keytool` command is a file that is located in the directory where you copied the file. The `-alias` option specifies the cluster name of the remote cluster where the certificate was generated.

Type `trustpass` when asked for the keystore password. The `trustpass` password is the nonsecret password that the common agent carrier provides. The truststore parameter holds the public keys of the public and private pairs, so absolute secrecy is not required.

Type `yes` when asked whether to trust the certificate.

e. Verify that the certificate was correctly added to the keystore.

```
phys-paris-1# keytool -list -v -keystore truststore
```

4. On each node of cluster `cluster-paris` except node `phys-paris-1`, copy the `/etc/opt/SUNWcacao/security/` directory and all the subdirectories that are retrieved from node `phys-paris-1` to the `/etc/opt/SUNWcacao/` directory.

```
phys-paris-2# cd /etc/opt/SUNWcacao
 phys-paris-2# rcp -r phys-paris-1:/etc/opt/SUNWcacao/security .
```

5. On each node of cluster `cluster-newyork` except node `phys-newyork-1`, copy the `/etc/opt/SUNWcacao/security` directory and all the subdirectories that are retrieved from node `phys-newyork-1` to the `/etc/opt/SUNWcacao/security`.

```
phys-newyork-2# cd /etc/opt/SUNWcacao
 phys-newyork-2# rcp -r phys-newyork-1:/etc/opt/SUNWcacao/security .
```

6. On each node of each cluster verify that the certificates have been correctly added.

Note – After copying the security directory, the output of the `keytool list` command on all nodes of one cluster shows the same values for local and remote keys. All nodes of the remote cluster shows the same values, but the local and remote tags will be interchanged.

```
# cd /etc/opt/SUNWcacao/security/jsse
# keytool -list -v -keystore truststore
```

7. **Restart the common agent carrier on each node of each cluster.**

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

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 the Geo Management role-based access control (RBAC) rights profile.

For more information, see the `rbac`(5) man page and "Sun Cluster Geographic Edition Software and RBAC" in *Sun Cluster Geographic Edition System Administration Guide*.

▼ How to Enable Sun Cluster Geographic Edition Software

Before You Begin

Before you enable Sun Cluster Geographic Edition software on a cluster, 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.

Steps

1. **Log in to one of the cluster nodes.**

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=cluster-name
   ```

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

3. **Confirm that a logical hostname that matches the cluster name is available and defined in the local host files.**

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

   Confirm that the logical hostname is also defined in the network namespace database, for example, NIS.

4. **On one node of the cluster, create the Sun Cluster Geographic Edition infrastructure resource groups and enable the Sun Cluster Geographic Edition control module.**

   ```
   # geoadm start
   ```

   The `geoadm start` command enables the Sun Cluster Geographic Edition control module 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.**

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

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

   The output for the `scstat -g` command should state 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 3–1 Enabling a Cluster

The following example illustrates how to enable Sun Cluster Geographic Edition software on a cluster:

```
# geoadm start
# geoadm show
```

```
# scstat -g
```

Next Steps See "Administering Sun StorEdge Availability Suite 3.2.1 Protection Groups" in *Sun Cluster Geographic Edition System Administration Guide* or "Administering Hitachi TrueCopy Protection Groups" in *Sun Cluster Geographic Edition System Administration Guide* for information on creating protection groups.

CHAPTER 4

Uninstalling the Sun Cluster Geographic Edition Software

The Sun Cluster Geographic Edition uninstallation utility is similar to the text-based interface of the installation utility.

This chapter contains the following sections:

Uninstallation Overview

The Sun Cluster Geographic Edition uninstaller might behave differently depending on which component products you installed and how they 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 only removes component products that were installed by the Sun Cluster Geographic Edition installer.
- The uninstaller does not check product dependencies for the system.
- The uninstaller might remove configuration and user data files.

You can remove the Sun Cluster Geographic Edition software without stopping applications or data replication. For more information how to keep applications and data replication online, see "Deactivating a Hitachi TrueCopy Protection Group" in *Sun Cluster Geographic Edition System Administration Guide* or "How to Deactivate a Sun StorEdge Availability Suite 3.2.1 Protection Group" in *Sun Cluster Geographic Edition System Administration Guide*

To use the `geoadm` command to disable the local cluster for partnership membership, you must have the Geo Management role-based access control (RBAC) rights profile.

For more information on RBAC rights profiles, see the `rbac`(5) man page and "Sun Cluster Geographic Edition Software and RBAC" in *Sun Cluster Geographic Edition System Administration Guide*.

For more information on 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

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 GUI

Steps

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

   ```
   % su
   ```

3. **Disable the local cluster for partnership membership.**

   ```
   # 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 /opt/SUNWscgeo/install/uninstall
   ```

5. **Start the `uninstaller` utility.**

   ```
   # ./uninstaller
   ```

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

   The uninstall utility starts and displays the Welcome page.

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

7. **Confirm that you are ready to uninstall the software, and click Next.**

   After the software has been removed, the uninstaller displays the Uninstallation Complete page.

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

Before You Begin

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

- Interactive `uninstaller` enables you to type ahead. Therefore, do not press the Enter 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 Enter to enter the response that is in brackets without typing it.

Steps

1. **To use the `uninstaller` 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. **Disable the local cluster for partnership membership.**

   ```
   # 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. **Insert the Sun Cluster Geographic Edition CD-ROM in the CD-ROM drive.**

4. **Change to the directory where the `uninstaller` utility resides.**

   ```
   # cd /opt/SUNWscgeo/install/uninstall
   ```

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

   ```
   # ./uninstaller -nodisplay
   ```

6. **Follow the instructions on the uninstallation pages to uninstall Sun Cluster Geographic Edition framework software on the node or cluster.**

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

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

7. **Confirm that you are ready to uninstall the software, and type `1` and press Enter to begin the uninstallation.**

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

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