

Oracle® Solaris Cluster Geographic Edition Security Guide

ORACLE®

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Using This Documentation

- **Overview** – Describes security considerations for installation, configuration, and using Oracle Slaris Cluster Geographic Edition product
- **Audience** – Technicians, system administrators, and authorized service providers
- **Required knowledge** – Advanced experience troubleshooting and replacing hardware

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Introduction to Oracle Solaris Cluster Geographic Edition Security

The Geographic Edition software product protects applications from unexpected disruptions by using multiple clusters that are geographically separated by long distances. These clusters contain copies of the Geographic Edition infrastructure, which manage replicated data between the clusters. Geographic Edition software is a layered extension of the Oracle Solaris Cluster software.

The *Oracle® Solaris Cluster Geographic Edition 4.2 Security Guide* provides information on secure installations, configuration, and security features for the Geographic Edition product. Use this book with the entire Geographic Edition documentation set to provide a complete view of the Geographic Edition software.

This chapter contains the following sections:

- [“Overview of Geographic Edition and Security” on page 9](#)
- [“Secure Installation and Configuration” on page 10](#)
- [“Security Features” on page 11](#)

For more information, see [“Oracle Solaris Cluster Security Guide”](#) and [“Securing Systems and Attached Devices in Oracle Solaris 11.2”](#).

Overview of Geographic Edition and Security

Geographic Edition software is a layered extension of the Oracle Solaris Cluster software. Data replication software enables applications that are running on a Geographic Edition cluster to tolerate disasters by migrating services to a geographically separated secondary cluster. A disaster such as an earthquake, fire, or storm might disable the cluster at the primary site.

If a disaster occurs, the Geographic Edition cluster can continue to provide services by using the following levels of redundancy:

- A secondary cluster
- Duplicated application configuration on the secondary cluster
- Replicated data on the secondary cluster

The Geographic Edition software provides a suite of tools to manage and configure geographically separated clusters with a migration of services between sites. The Geographic Edition software can manage availability across multiple physical locations through robust security, application service migration, and data replication to tolerate disaster across an enterprise system.

In Geographic Edition 4.2, the clusters can be global clusters, zone clusters, or a combination of both.

General Security Principles

The following principles are fundamental to using the Geographic Edition application securely.

- Keep software up to date
- Restrict network access to critical services
- Follow the principle of least privilege
- Monitor system activity
- Keep up to date on the latest Oracle security information

Secure Installation and Configuration

This section provides links for planning and executing a secure installation and configuration of Geographic Edition.

- Installation – Geographic Edition software must be installed on a cluster that is running the Oracle Solaris Operating System and the Oracle Solaris Cluster software. Use the Oracle Solaris 11 Automated Installer (AI) to install Geographic Edition software at the same time that you install Oracle Solaris Cluster software or at any time afterwards. The Geographic Edition software configuration is identical to the Oracle Solaris Cluster software configuration. See [Chapter 2, “Installing and Configuring the Geographic Edition Software,”](#) in [“Oracle Solaris Cluster Geographic Edition Installation and Configuration Guide”](#).
- Cluster packages – Geographic Edition packages use Oracle Solaris Image Packaging System (IPS) package names. To see a list of core cluster and data service packages, see [“Oracle Solaris Cluster Security Guide”](#). This table lists the packages that are provided with Oracle Solaris Cluster Geographic Edition 4.2.

IPS Package Name	Description
ha-cluster/geo/geo-framework	Oracle Solaris Cluster Geographic Edition Framework
ha-cluster/geo/manual	Oracle Solaris Cluster Geographic Edition manual pages

IPS Package Name	Description
ha-cluster/geo/replication/availability-suite	Oracle Solaris Cluster Geographic Edition Availability Suite Data Replication
ha-cluster/geo/replication/data-guard	Oracle Solaris Cluster Geographic Edition Data Guard Data Replication
ha-cluster/geo/replication/sbp	Oracle Solaris Cluster Geographic Edition Script Based Plug-in Replication
ha-cluster/geo/replication/srdf	Oracle Solaris Cluster Geographic Edition SRDF Data Replication
ha-cluster/geo/replication/zfs-sa	Oracle Solaris Cluster Geographic Edition Oracle ZFS Storage Appliance
ha-cluster/group-package/ha-cluster-geo-full	Oracle Solaris Cluster Geographic Edition full group package
ha-cluster/group-package/ha-cluster-geo-incorporation	Oracle Solaris Cluster Geographic Edition incorporation group package

- Configuration – You can perform all administration tasks on a cluster that is running the Geographic Edition software without causing any nodes or the cluster to fail. You can install, configure, start, use, stop, and uninstall the Geographic Edition software on an operational cluster. See [Chapter 4, “Administering RBAC,”](#) in [“Oracle Solaris Cluster Geographic Edition System Administration Guide”](#).

Security Features

This section contains information about specific security mechanisms offered by Geographic Edition.

A secure installation uses the following critical security features:

- Role-Based Access Control (RBAC) – Geographic Edition software bases its RBAC profiles on the RBAC rights profiles that are used in the Oracle Solaris Cluster software. You must become an administrator who is assigned the User Security rights profile to change most of the security attributes of a role. Assume the root role and use the RBAC roles of `solaris.cluster.geo.modify`, `solaris.cluster.geo.admin`, and `solaris.cluster.geo.read` to access the cluster. For more information, see [“Securing Users and Processes in Oracle Solaris 11.2”](#) and [“Modifying a User’s RBAC Properties”](#) in [“Oracle Solaris Cluster Geographic Edition System Administration Guide”](#).
- Security Certificates – During installation, the cluster is configured for secure cluster communication by using security certificates (nodes within the same cluster must share the same security certificates). The communication between clusters in a Geographic Edition partnership is secured through the Java Management Extensions (JMX) port with Secure Sockets Layer (SSL) using the security certificates. For more information, see [“Configuring Trust Between Partner Clusters”](#) in [“Oracle Solaris Cluster Geographic Edition Installation and Configuration Guide”](#).

- Common Agent Container – To enable a zone cluster to function as a member of a Geographic Edition partnership, the common agent container must be manually configured within the zone cluster. For more information, see [“Preparing a Zone Cluster for Partner Membership”](#) in [“Oracle Solaris Cluster Geographic Edition Installation and Configuration Guide”](#).
- IP Security Architecture (IPsec) – Use IPsec to configure secure TCP/UDP heartbeat communications between partner clusters. For more information, see [“Securing Inter-Cluster Communication”](#) in [“Oracle Solaris Cluster Geographic Edition Installation and Configuration Guide”](#).

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