

Oracle® Solaris Cluster Geographic Edition 3.3 5/11 Release Notes

Copyright © 2004, 2011, Oracle and/or its affiliates. All rights reserved.

License Restrictions Warranty/Consequential Damages Disclaimer

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

Warranty Disclaimer

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

Restricted Rights Notice

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT RIGHTS

Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are "commercial computer software" or "commercial technical data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation shall be subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the Government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License (December 2007). Oracle America, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

Hazardous Applications Notice

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Trademark Notice

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group in the United States and other countries.

Third Party Content, Products, and Services Disclaimer

This software or hardware and documentation may provide access to or information on content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services.

Copyright © 2004, 2011, Oracle et/ou ses affiliés. Tous droits réservés.

Ce logiciel et la documentation qui l'accompagne sont protégés par les lois sur la propriété intellectuelle. Ils sont concédés sous licence et soumis à des restrictions d'utilisation et de divulgation. Sauf disposition de votre contrat de licence ou de la loi, vous ne pouvez pas copier, reproduire, traduire, diffuser, modifier, breveter, transmettre, distribuer, exposer, exécuter, publier ou afficher le logiciel, même partiellement, sous quelque forme et par quelque procédé que ce soit. Par ailleurs, il est interdit de procéder à toute ingénierie inverse du logiciel, de le désassembler ou de le décompiler, excepté à des fins d'interopérabilité avec des logiciels tiers ou tel que prescrit par la loi.

Les informations fournies dans ce document sont susceptibles de modification sans préavis. Par ailleurs, Oracle Corporation ne garantit pas qu'elles soient exemptes d'erreurs et vous invite, le cas échéant, à lui en faire part par écrit.

Si ce logiciel, ou la documentation qui l'accompagne, est concédé sous licence au Gouvernement des Etats-Unis, ou à toute entité qui délivre la licence de ce logiciel ou l'utilise pour le compte du Gouvernement des Etats-Unis, la notice suivante s'applique :

U.S. GOVERNMENT RIGHTS. Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are "commercial computer software" or "commercial technical data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation shall be subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the Government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License (December 2007). Oracle America, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

Ce logiciel ou matériel a été développé pour un usage général dans le cadre d'applications de gestion des informations. Ce logiciel ou matériel n'est pas conçu ni n'est destiné à être utilisé dans des applications à risque, notamment dans des applications pouvant causer des dommages corporels. Si vous utilisez ce logiciel ou matériel dans le cadre d'applications dangereuses, il est de votre responsabilité de prendre toutes les mesures de secours, de sauvegarde, de redondance et autres mesures nécessaires à son utilisation dans des conditions optimales de sécurité. Oracle Corporation et ses affiliés déclinent toute responsabilité quant aux dommages causés par l'utilisation de ce logiciel ou matériel pour ce type d'applications.

Oracle et Java sont des marques déposées d'Oracle Corporation et/ou de ses affiliés. Tout autre nom mentionné peut correspondre à des marques appartenant à d'autres propriétaires qu'Oracle.

AMD, Opteron, le logo AMD et le logo AMD Opteron sont des marques ou des marques déposées d'Advanced Micro Devices. Intel et Intel Xeon sont des marques ou des marques déposées d'Intel Corporation. Toutes les marques SPARC sont utilisées sous licence et sont des marques ou des marques déposées de SPARC International, Inc. UNIX est une marque déposée concédée sous licence par X/Open Company, Ltd.

Contents

Preface	5
Oracle Solaris Cluster Geographic Edition 3.3 5/11 Release Notes	11
New Features and Functionality	11
HA for Oracle with Oracle Data Guard Replication	11
Three-Data-Center (3DC) Configuration	12
ZFS Storage Pools	12
Accessibility Information	13
Supported Products	13
Data Replication	13
Oracle Solaris Cluster Software	13
Volume Management Software	13
Restrictions	14
Support for EMC Symmetrix Remote Data Facility Configurations	14
Oracle 9i	15
Commands Modified in This Release	15
Known Issues and Bugs	15
Depending on the Order in Which Zone Cluster Setup and Geographic Edition Software Installation Is Done, Some Files Might Not Get Copied to the Zone (6968002)	15
geo-failovercontrol Resource Fails to Start on Second Node if Connection Lost to Primary Node (6932775)	16
Required Patches	16
Oracle Solaris Cluster Geographic Edition 3.3 5/11 Documentation	17
Documentation Addendum	17
Switchover Cannot Be Performed with Asynchronous SRDF (6389092)	18

Preface

This document lists product features, requirements, and restrictions for Oracle Solaris Cluster Geographic Edition (Geographic Edition) software. It also describes open bugs and other known problems.

Note – In this document, the term “x86” refers to the Intel 32-bit family of microprocessor chips and compatible microprocessor chips made by AMD.

This document is intended for experienced system administrators with extensive knowledge of Oracle software and hardware. This document is not to be used as a planning or presales guide.

The instructions in this book assume knowledge of the Solaris operating system and expertise with the volume manager software used with Geographic Edition software.

Note – Oracle Solaris Cluster software runs on two platforms, SPARC and x86. The information in this document pertains to both platforms unless otherwise specified in a special chapter, section, note, bulleted item, figure, table, or example.

Using UNIX Commands

This document contains information about commands that are used to install, configure, or administer a 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 Oracle Solaris software system
- Other software documentation that you received with your system
- Oracle Solaris OS man pages

Documentation and Support

See the following web sites for additional resources:

- [Documentation](http://www.oracle.com/technetwork/indexes/documentation/index.html) (<http://www.oracle.com/technetwork/indexes/documentation/index.html>)
- [Support](http://www.oracle.com/us/support/systems/index.html) (<http://www.oracle.com/us/support/systems/index.html>)

Oracle Software Resources

Oracle Technology Network (<http://www.oracle.com/technetwork/index.html>) offers a range of resources related to Oracle software:

- Discuss technical problems and solutions on the [Discussion Forums](http://forums.oracle.com) (<http://forums.oracle.com>).
- Get hands-on step-by-step tutorials with [Oracle By Example](http://www.oracle.com/technetwork/tutorials/index.html) (<http://www.oracle.com/technetwork/tutorials/index.html>).

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 <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name% you have mail.</code>
AaBbCc123	What you type, contrasted with onscreen computer output	<code>machine_name% su</code> Password:
<i>aabbcc123</i>	Placeholder: replace with a real name or value	The command to remove a file is <i>rm filename</i> .
<i>AaBbCc123</i>	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . A <i>cache</i> is a copy that is stored locally. Do <i>not</i> 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 shells that are included in the Oracle Solaris OS. Note that the default system prompt that is displayed in command examples varies, depending on the Oracle Solaris release.

TABLE P-2 Shell Prompts

Shell	Prompt
Bash shell, Korn shell, and Bourne shell	\$
Bash shell, Korn shell, and Bourne shell for superuser	#
C shell	machine_name%
C shell for superuser	machine_name#

Related Documentation

Information about related Geographic Edition topics is available in the documentation that is listed in the following table. All Geographic Edition documentation is available at <http://www.oracle.com/technetwork/indexes/documentation/index.html>.

Topic	Documentation
Overview	<i>Oracle Solaris Cluster Geographic Edition Overview</i> <i>Oracle Solaris Cluster Geographic Edition 3.3 5/11 Documentation Center</i>
Installation	<i>Oracle Solaris Cluster Geographic Edition Installation Guide</i>
Data Replication	<i>Oracle Solaris Cluster Geographic Edition Data Replication Guide for EMC Symmetrix Remote Data Facility</i> <i>Oracle Solaris Cluster Geographic Edition Data Replication Guide for Hitachi TrueCopy and Universal Replicator</i> <i>Oracle Solaris Cluster Geographic Edition Data Replication Guide for Oracle Data Guard</i> <i>Oracle Solaris Cluster Geographic Edition Data Replication Guide for Sun StorageTek Availability Suite</i>
System administration	<i>Oracle Solaris Cluster Geographic Edition System Administration Guide</i>

For a complete list of Geographic Edition documentation, see *Oracle Solaris Cluster Geographic Edition 3.3 5/11 Release Notes*.

Information about related Oracle Solaris Cluster topics is available in the documentation that is listed in the following table.

Topic	Documentation
Concepts	<i>Oracle Solaris Cluster Concepts Guide</i>
Hardware installation and administration	<i>Oracle Solaris Cluster 3.3 Hardware Administration Manual</i> Individual hardware administration guides
Software installation	<i>Oracle Solaris Cluster Software Installation Guide</i>
Data service installation and administration	<i>Oracle Solaris Cluster Data Services Planning and Administration Guide</i> Individual data service guides
Data service development	<i>Oracle Solaris Cluster Data Services Developer's Guide</i>
System administration	<i>Oracle Solaris Cluster System Administration Guide</i> <i>Oracle Solaris Cluster Quick Reference</i>
Software upgrade	<i>Oracle Solaris Cluster Upgrade Guide</i>
Error messages	<i>Oracle Solaris Cluster Error Messages Guide</i>
Command and function references	<i>Oracle Solaris Cluster Reference Manual</i> <i>Oracle Solaris Cluster Data Services Reference Manual</i> <i>Oracle Solaris Cluster Quorum Server Reference Manual</i>

Getting Help

If you have problems installing or using the 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 10)
- The release number of the Geographic Edition software (for example, 3.3 5/11)

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

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

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

Oracle Solaris Cluster Geographic Edition 3.3 5/11 Release Notes

This document provides the following information for Oracle Solaris Cluster Geographic Edition 3.3 5/11 software.

- “New Features and Functionality” on page 11
- “Accessibility Information” on page 13
- “Supported Products” on page 13
- “Restrictions” on page 14
- “Commands Modified in This Release” on page 15
- “Known Issues and Bugs” on page 15
- “Required Patches” on page 16
- “Oracle Solaris Cluster Geographic Edition 3.3 5/11 Documentation” on page 17
- “Documentation Addendum” on page 17

For information about Oracle Solaris Cluster 3.3 5/11 software, see *Oracle Solaris Cluster 3.3 5/11 Release Notes*.

New Features and Functionality

This section describes new features provided in the Oracle Solaris Cluster Geographic Edition 3.3 5/11 (Geographic Edition) software.

- “HA for Oracle with Oracle Data Guard Replication” on page 11
- “Three-Data-Center (3DC) Configuration” on page 12
- “ZFS Storage Pools” on page 12

HA for Oracle with Oracle Data Guard Replication

Support for Oracle Data Guard replication is expanded to include highly available (HA) Oracle database deployments. The minimum Oracle version for this support is 10.2.0.4.3.

This new feature also enables physical standby databases to be integrated into a Geographic Edition deployment. Possible configurations include using HA for Oracle at both the primary and standby sites, or using a mix of HA for Oracle and Oracle RAC.

As of the time of publication, logical-standby configurations have not been tested and are not supported.

For more information, see *Oracle Solaris Cluster Geographic Edition Data Replication Guide for Oracle Data Guard*.

Three-Data-Center (3DC) Configuration

A three-site or three-data-center (3DC) deployment can now be created by combining Geographic Edition software and an application-based technology, such as Oracle Data Guard with HA for Oracle, with a campus cluster that uses storage-based replication, such as EMC Symmetrix Remote Data Facility, Hitachi TrueCopy, or Hitachi Universal Replicator.

For more information, see “Three-Data-Center (3DC) Topologies” in *Oracle Solaris Cluster Geographic Edition Overview*.

ZFS Storage Pools

Support is added for ZFS storage pools on replicated storage that is managed by Geographic Edition software. The following data-replication software is supported for this feature:

- EMC Symmetrix Remote Data Facility
- Hitachi Universal Replicator

For more information, see the following documentation:

- “How to Configure a Highly Available File System for SRDF Replication” in *Oracle Solaris Cluster Geographic Edition Data Replication Guide for EMC Symmetrix Remote Data Facility*
- “How to Configure a Highly Available File System for Hitachi TrueCopy or Universal Replicator Replication” in *Oracle Solaris Cluster Geographic Edition Data Replication Guide for Hitachi TrueCopy and Universal Replicator*

Accessibility Information

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community.

Our documentation includes features that make information available to users of assistive technology. The product documentation is available in HTML and PDF format and contains markup to facilitate access by the disabled community. For more information, visit the Oracle Accessibility Program web site at <http://www.oracle.com/us/corporate/accessibility/>.

Supported Products

This section lists the software products and versions that are supported by Geographic Edition software.

Data Replication

- EMC Symmetrix Remote Data Facility SymCLI 6.0.1 or compatible and microcode 5671 or compatible
- Geographic Edition script-based plug-ins
- Hitachi TrueCopy RAID Manager/Solaris Version 01-18-03/03 or compatible
- Hitachi Universal Replicator RAID Manager/Solaris Version 01-18-03/03 or compatible
- MySQL 5.0 or compatible
- *(Only with HA-Oracle or Oracle RAC 10g release 10.2.0.3 or compatible or with 11g) Oracle Data Guard*
- Sun Availability Suite software 4

Oracle Solaris Cluster Software

- Oracle Solaris Cluster 3.3 5/11
- Oracle Solaris Cluster 3.3

Oracle Solaris Cluster Geographic Edition 3.3 5/11 supports the same versions of the Oracle Solaris OS as the cluster software version you use. See the release notes for your version of cluster software for the supported versions of the Oracle Solaris OS.

Volume Management Software

The following table lists the volume managers that are supported in this release for each data replication software product.

Data Replication Software	Supported Volume Managers
EMC Symmetrix Remote Data Facility	Veritas Volume Manager
Hitachi TrueCopy	Veritas Volume Manager
Hitachi Universal Replicator	Veritas Volume Manager
Oracle Data Guard ¹	Oracle Automatic Storage Management Solaris Volume Manager for Sun Cluster Veritas Volume Manager
Sun Availability Suite 4	Solaris Volume Manager Veritas Volume Manager

¹ For information about additional supported storage management options, see [“Storage Management Requirements for Oracle Files”](#) in *Oracle Solaris Cluster Data Service for Oracle Real Application Clusters Guide*.

Restrictions

As of the time of publication, the following features or products are not supported with Oracle Solaris Cluster Geographic Edition 3.3 5/11 software:

- [“Support for EMC Symmetrix Remote Data Facility Configurations”](#) on page 14
- [“Oracle 9i”](#) on page 15

Contact your Oracle representative to learn whether a feature or product becomes qualified with Oracle Solaris Cluster Geographic Edition 3.3 5/11 software at a later date.

Support for EMC Symmetrix Remote Data Facility Configurations

Geographic Edition software currently supports the following EMC Symmetrix Remote Data Facility (SRDF) configurations:

- Static SRDF device group
- Dynamic SRDF device group

Oracle Solaris Cluster Geographic Edition 3.3 5/11 software supports these configurations in Synchronous and Asynchronous modes for data replication in disaster-recovery environments. Synchronous mode is supported for takeover and switchover operations. Asynchronous mode is supported for takeover operations, and a workaround permits switchover in asynchronous mode as well. For details, see [“Switchover Cannot Be Performed with Asynchronous SRDF \(6389092\)”](#) on page 18.



Caution – EMC SRDF Adaptive mode is not supported for use with clustered data services. It does not guarantee data consistency in normal operations.

The `domino` option, which can be set on EMC SRDF device pairs, suspends writes to the primary site if writes to the secondary site fail. Any failure of secondary storage or of the communication link between the Geographic Edition partnered clusters might cause the complete loss of application data services. This is not a highly available configuration, and you should not configure the `domino` option on devices that will be used by clustered data services.

Oracle 9i

Cluster configurations that run Oracle 9i software are not supported by Oracle Solaris Cluster Geographic Edition 3.3 5/11 software.

Commands Modified in This Release

There are no changes to the Geographic Edition command interfaces in this release that might cause user scripts to fail.

Known Issues and Bugs

The following known issues and bugs affect the operation of the Oracle Solaris Cluster Geographic Edition 3.3 5/11 release.

Depending on the Order in Which Zone Cluster Setup and Geographic Edition Software Installation Is Done, Some Files Might Not Get Copied to the Zone (6968002)

Problem Summary: If you install Geographic Edition after a zone cluster is created and on a cluster that is booted into noncluster mode, not all files that are needed for Geographic Edition to work in zone clusters are copied to the zone-cluster nodes.

Workaround: Perform the following task on each node of the zone cluster:

1. Copy the following files from the `/etc/cluster/geocmass/` directory to the `/etc/cacao/instances/default/modules/` directory.

```
com.sun.cluster.agent.cluster.xml
com.sun.cluster.agent.config_access.xml
com.sun.cluster.agent.event.xml
```

```
com.sun.cluster.agent.failovercontrol.xml  
com.sun.cluster.agent.logquery.xml  
com.sun.cluster.agent.node.xml  
com.sun.cluster.agent.rgm.xml  
com.sun.cluster.agent.devicegroup.xml
```

2. Restart the common agent container.

```
# /usr/sbin/cacaoadm restart
```

geo-failovercontrol Resource Fails to Start on Second Node if Connection Lost to Primary Node (6932775)

Problem Summary: When many protection groups are configured, failure of the primary node of a cluster might cause the startup of the Geographic Edition infrastructure to time out while starting on another node.

Workaround: Increase the `START_TIMEOUT` property of the `geo-failovercontrol` resource from the default of 600 seconds. This enables the `geo-infrastructure` resource group to fail over successfully. The required value might need to be determined by calculation, depending on the number of protection groups that are configured.

Required Patches

This section provides information about patches for Geographic Edition configurations.

Note – You must be a registered My Oracle Support user to view and download the required patches for the Oracle Solaris Cluster Geographic Edition product. If you do not have a My Oracle Support account, contact your Oracle service representative or sales engineer, or register online at <http://support.oracle.com>.

If a cluster runs Sun Availability Suite software, you must have the following patches installed:

- **SPARC:** Sun StorageTek Availability Suite 4 SNDR: a minimum of 123246-07
- **x86:** Sun StorageTek Availability Suite 4 SNDR: a minimum of 123247-07

Check with an Oracle service representative for the availability of these patches.

Oracle Solaris Cluster Geographic Edition 3.3 5/11 Documentation

This section describes the Oracle Solaris Cluster Geographic Edition 3.3 5/11 user documentation set.

For the latest documentation, go to the Oracle Technology Network documentation web site:

<http://www.oracle.com/technetwork/indexes/documentation/>

This web site enables you to access Geographic Edition documentation on the Web. You can browse the documentation libraries or search for a specific book title or subject.

The following table lists the contents of the Oracle Solaris Cluster Geographic Edition 3.3 5/11 user documentation library.

TABLE 1 Oracle Solaris Cluster Geographic Edition 3.3 5/11 Documentation Library

Part Number	Book Title
821-2759	<i>Oracle Solaris Cluster Geographic Edition 3.3 5/11 Documentation Center</i>
821-2767	<i>Oracle Solaris Cluster Geographic Edition Overview</i>
821-2705	<i>Oracle Solaris Cluster Geographic Edition Installation Guide</i>
821-2706	<i>Oracle Solaris Cluster Geographic Edition System Administration Guide</i>
821-2756	<i>Oracle Solaris Cluster Geographic Edition Data Replication Guide for EMC Symmetrix Remote Data Facility</i>
821-2758	<i>Oracle Solaris Cluster Geographic Edition Data Replication Guide for Hitachi TrueCopy and Universal Replicator</i>
821-2768	<i>Oracle Solaris Cluster Geographic Edition Data Replication Guide for Oracle Data Guard</i>
821-2757	<i>Oracle Solaris Cluster Geographic Edition Data Replication Guide for Sun StorageTek Availability Suite</i>
821-2761	<i>Oracle Solaris Cluster Geographic Edition Reference Manual</i>

Documentation Addendum

This section discusses known errors or omissions for man pages, documentation, or online help and steps to correct these problems.

Switchover Cannot Be Performed with Asynchronous SRDF (6389092)

Problem Summary: When EMC Symmetrix Remote Data Facility (SRDF) data replication is used, Geographic Edition software does not allow you to issue the `geopg switchover` command if a device group that is included in a protection group is set to Asynchronous mode. The failback-switchover procedure that is included in the Geographic Edition documentation for SRDF therefore does not work as written for device groups in Asynchronous mode because the procedure includes the `geopg switchover` command.

Workaround: To perform a failback-switchover, after you resynchronize the clusters in the partnership, temporarily change device groups from Asynchronous mode to Synchronous mode by using the following command:

```
# symrdf -g devicegroup set mode sync
```

After you complete and verify the switchover, set the device groups back to Asynchronous mode by using the following command:

```
# symrdf -g devicegroup set mode async
```