

Oracle® Solaris Cluster 3.3 5/11 Release Notes

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Preface

This document lists product features, requirements, and restrictions for Oracle Solaris Cluster 3.3 5/11 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 Oracle Solaris Cluster 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 on commands specific to administering a Oracle Solaris Cluster configuration. This document might not contain complete information on basic UNIX commands and procedures.

See one or more of the following for this information:

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

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%</code> you have mail.
AaBbCc123	What you type, contrasted with onscreen computer output	<code>machine_name%</code> su 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> . <i>A 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	<code>\$</code>
Bash shell, Korn shell, and Bourne shell for superuser	<code>#</code>
C shell	<code>machine_name%</code>
C shell for superuser	<code>machine_name#</code>

Related Documentation

Information about related Oracle Solaris Cluster topics is available in the documentation that is listed in the following table. All Oracle Solaris Cluster documentation is available at <http://www.oracle.com/technetwork/indexes/documentation/>.

Topic	Documentation
Concepts	<i>Oracle Solaris Cluster Concepts Guide</i>
Hardware installation and administration	<i>Oracle Solaris Cluster 3.3 Hardware Administration Manual</i> and 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> and 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>

For a complete list of Oracle Solaris Cluster documentation, see the release notes for your version of Oracle Solaris Cluster software.

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>).

Getting Help

Contact your service provider if you have problems installing or using Oracle Solaris Cluster. Provide the following information to your service provider.

- Your name and email address
- Your company name, address, and phone number
- The model and serial numbers of your systems
- The release number of the operating environment, for example Solaris 9
- The release number of Oracle Solaris Cluster software, for example, Oracle Solaris Cluster 3.3 5/11

Use the following commands to gather information 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>SPARC: prtdiag -v</code>	Displays system diagnostic information
<code>/usr/cluster/bin/scinstall -pv</code>	Displays Oracle Solaris Cluster release and package version information

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

Oracle Solaris Cluster 3.3 5/11 Release Notes

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

- “What's New in the Oracle Solaris Cluster 3.3 5/11 Software” on page 11
- “Restrictions” on page 13
- “Commands Modified in This Release” on page 14
- “Product Name Changes” on page 14
- “Compatibility Issues” on page 15
- “Accessibility Information” on page 20
- “Supported Products” on page 20
- “Product Localization” on page 23
- “Known Issues and Bugs” on page 24
- “Patches and Required Firmware Levels” on page 32
- “Oracle Solaris Cluster 3.3 5/11 Documentation Set” on page 35
- “Documentation Addendum” on page 38

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

What's New in the Oracle Solaris Cluster 3.3 5/11 Software

This section provides information related to new features, functionality, and supported products in the Oracle Solaris Cluster 3.3 5/11 software.

- “Enhancements to the `cluster check` Command as a Cluster Validation Tool” on page 12
- “Fencing Support for Sun ZFS Storage Appliance as a NAS Device” on page 12
- “Support for Oracle ACFS as a Cluster File System” on page 12
- “Zone Cluster Support for Loopback Mounts With HAStoragePlus Using ZFS” on page 12
- “Configuration Wizard Support for Oracle 11g Release 2 with HA-Oracle and Oracle RAC” on page 13
- “Support for Zone Clusters Without IP Addresses” on page 13
- “Support for SWIFTAlliance Access 7.0 and SWIFTAlliance Gateway 7.0” on page 13

Enhancements to the `ccluster check` Command as a Cluster Validation Tool

The `ccluster check` command has been enhanced and expanded to provide a wider range of validation checks for a cluster configuration. The addition of user-interaction capabilities enables the creation of checks that perform functional testing, such as verifying correct node failover.

For information about using the new `ccluster check` functionality, see [“How to Validate the Cluster”](#) in *Oracle Solaris Cluster Software Installation Guide*.

Fencing Support for Sun ZFS Storage Appliance as a NAS Device

Fencing is now supported for Oracle's Sun ZFS Storage Appliance when used as a NAS device.

For more information, see [Chapter 3, “Installing and Maintaining Oracle's Sun ZFS Storage Appliances as NAS Devices in an Oracle Solaris Cluster Environment,”](#) in *Oracle Solaris Cluster 3.3 With Network-Attached Storage Device Manual*.

Support for Oracle ACFS as a Cluster File System

Oracle Automatic Storage Management Cluster File System (Oracle ACFS) is supported as a cluster file system in certain Oracle Solaris Cluster configurations. See [“Oracle ACFS as a Cluster File System”](#) on [page 13](#) for restrictions on this feature as of the time of publication.

For procedures to configure an Oracle ACFS file system in an Oracle Solaris Cluster configuration, see [“Creating Oracle ACFS File Systems”](#) in *Oracle Solaris Cluster Software Installation Guide*.

Zone Cluster Support for Loopback Mounts With HAStoragePlus Using ZFS

Support of loopback mounts for zone clusters with HAStoragePlus using ZFS enables different zone clusters to share data read/write.

For more information, see [“Sharing a Failover File System Across Zone Clusters”](#) in *Oracle Solaris Cluster Data Services Planning and Administration Guide*.

Configuration Wizard Support for Oracle 11g Release 2 with HA-Oracle and Oracle RAC

Configuration wizards have been added to the Oracle Solaris Cluster Manager GUI and the `clsetup` utility for configuring Oracle 11g release 2 with the HA for Oracle and Oracle RAC data services.

For more information, see procedures in *Oracle Solaris Cluster Data Service for Oracle Guide* and *Oracle Solaris Cluster Data Service for Oracle Real Application Clusters Guide*.

Support for Zone Clusters Without IP Addresses

Zone clusters can now optionally be configured without public-network IP addresses. For more information, see “How to Create a Zone Cluster” in *Oracle Solaris Cluster Software Installation Guide*.

Support for SWIFTAlliance Access 7.0 and SWIFTAlliance Gateway 7.0

The Oracle Solaris Cluster HA for SWIFTAlliance Access and HA for SWIFTAlliance Gateway data services now work with SWIFTAlliance version 7.0. For information about restrictions and procedures for this application version, see the following manuals:

- *Oracle Solaris Cluster Data Service for SWIFTAlliance Access Guide*
- *Oracle Solaris Cluster Data Service for SWIFTAlliance Gateway Guide*

Restrictions

The following restrictions are in effect as of the time of publication.

- “Oracle ACFS as a Cluster File System” on page 13
- “Veritas Volume Manager Cluster Feature No Longer Supported” on page 14

Oracle ACFS as a Cluster File System

The following are restrictions on the use of Oracle ACFS as a cluster file system in an Oracle Solaris Cluster configuration:

- You can use an Oracle ACFS file system only with Oracle Solaris Cluster HA for Apache, Oracle Solaris Cluster HA for NFS, Oracle Solaris Cluster HA for Oracle, and the database home for Oracle Real Application Clusters (Oracle RAC). Use of an Oracle ACFS file system

with other failover or scalable applications is restricted, pending resolution of Oracle ACFS issue 11814449. For more information, see [“Need Support for Clusterized fcntl by Oracle ACFS \(11814449\)” on page 16](#)

- You cannot run Oracle RAC in a zone cluster when the database home is on an Oracle ACFS file system.
- You cannot use an Oracle ACFS file system for an application that is running from a non-global zone .
- You cannot configure an Oracle ACFS file system by using the `clsetup` utility or the configuration wizards. You must configure an Oracle ACFS file system manually by using Oracle Solaris Cluster maintenance commands.

Veritas Volume Manager Cluster Feature No Longer Supported

Beginning in the Oracle Solaris Cluster 3.3 5/11 version, the cluster feature of Veritas Volume Manager (VxVM) is no longer supported. Ignore documentation in this release that involves the VxVM cluster feature.

Commands Modified in This Release

There are no changes to the Oracle Solaris Cluster command interfaces in this release that might cause user scripts to fail.

Product Name Changes

This section provides information about product name changes for applications that Oracle Solaris Cluster software supports. Depending on the Oracle Solaris Cluster software release that you are running, your Oracle Solaris Cluster documentation might not reflect the following product name changes.

Current Product Name	Former Product Name
Oracle Solaris Cluster	Sun Cluster (also Solaris Cluster and Java Availability Suite)
Oracle Solaris Cluster Geographic Edition	Sun Cluster Geographic Edition
Oracle Solaris Cluster data services	Sun Cluster data services
Oracle Solaris Cluster Data Service for Oracle Grid Engine	Sun Cluster Data Service for Sun Grid Engine

Current Product Name	Former Product Name
Oracle Solaris Cluster Data Service for Oracle VM Server for SPARC	Sun Cluster Data Service for LDOMs Guest Domain
Oracle Solaris Cluster Manager	Sun Cluster Manager

For a more comprehensive list of new Oracle names for Sun software products, with links to their product pages, see <http://www.oracle.com/us/sun/sun-products-map-075562.html>.

Compatibility Issues

This section contains the following information about Oracle Solaris Cluster compatibility issues with other products:

- “Node Panic When Calling rename(2) to Rename an Oracle ACFS Directory to its Parent Directory (11828617)” on page 16
- “Node Fails To Start Oracle Clusterware After a Panic (uadmin 5 1) Fault Injection (11828322)” on page 16
- “Need Support for Clusterized fcctl by Oracle ACFS (11814449)” on page 16
- “Unable to Start Oracle ACFS in Presence of Oracle ASM in a Non-Global Zone (11707611)” on page 17
- “SAP startsap Fails to Start the Application Instance if startsrv Is Not Running (7028069)” on page 18
- “Problem Using Sun ZFS Storage Appliance as Quorum Device Through Fibre Channel or iSCSI (6966970)” on page 18
- “Solaris Volume Manager GUI” on page 19

See also the following information:

- Additional Oracle Solaris Cluster framework compatibility issues are documented in Chapter 1, “Planning the Oracle Solaris Cluster Configuration,” in *Oracle Solaris Cluster Software Installation Guide*.
- Additional Oracle Solaris Cluster upgrade compatibility issues are documented in “Upgrade Requirements and Software Support Guidelines” in *Oracle Solaris Cluster Upgrade Guide*.
- For other known problems or restrictions, see “Known Issues and Bugs” on page 24.

Node Panic When Calling rename(2) to Rename an Oracle ACFS Directory to its Parent Directory (11828617)

Problem Summary: This problem occurs when calling rename(2) to rename a subdirectory in an Oracle ACFS file system to its parent directory, where the parent directory is a subdirectory under the Oracle ACFS file-system mount point. An example would be an Oracle ACFS file system mounted at /xxx, with a directory called /xxx/dir1 and a child directory called /xxx/dir1/dir2. Calling rename(2) with /xxx/dir1/dir2 and /xxx/dir1 as the arguments produces the error.

Workaround: None. Do not rename an Oracle ACFS directory as the name of its parent directory.

Node Fails To Start Oracle Clusterware After a Panic (uadmin 5 1) Fault Injection (11828322)

Problem Summary: This problem occurs on a two-node Oracle Solaris Cluster configuration running single instance Oracle Database on clustered Oracle ASM with DB_HOME on Oracle ACFS. After a panic fault on one of the nodes, the node boots up but CRS start fails.

```
# crsctl check crs
CRS-4638: Oracle High Availability Services is online
CRS-4535: Cannot communicate with Cluster Ready Services
CRS-4529: Cluster Synchronization Services is online
CRS-4533: Event Manager is online
# crsctl start crs
CRS-4640: Oracle High Availability Services is already active
CRS-4000: Command Start failed, or completed with errors.
```

Workaround: Reboot the node a second time.

Need Support for Clusterized fcntl by Oracle ACFS (11814449)

Problem Summary: Oracle ACFS in Oracle 11g release 2 Grid Infrastructure provides node-local fcntl only. In an Oracle Solaris Cluster configuration, applications that are configured as scalable applications might be active from more than one node of the cluster. A scalable application might issue write requests to the underlying file system from multiple nodes at the same time. Depending on the implementation of the application, those with dependency on clusterized fcntl() cannot be configured as scalable resources. To support scalable applications on Oracle ACFS in an Oracle Solaris Cluster configuration, Oracle ACFS must support clusterized fcntl.

Workaround: There is no workaround at this time. Do not configure scalable applications on Oracle ACFS in an Oracle Solaris Cluster configuration.

Unable to Start Oracle ACFS in Presence of Oracle ASM in a Non-Global Zone (11707611)

Problem Summary: This problem occurs when a configuration with Oracle 11g release 2 Grid Infrastructure runs in the global zone and Oracle 10g release 2 ASM runs in a non-global zone. A general-purpose Oracle ACFS file system is created in the global zone with mountpath set to a path under the zone root path of the non-global zone. The Oracle ASM admin user in the global zone is different from the Oracle ASM user in the non-global zone. The user ID of the Oracle ASM admin user in the non-global zone does not exist in the global zone.

After reboot of the global—cluster node, the attempt to start the Oracle ACFS file system fails with messages similar to the following:

```
phys-schost# /u01/app/11.2.0/grid/bin/srvctl start filesystem -d /dev/asm/dummy-27 -n phys-schost
PRCR-1013 : Failed to start resource ora.dbhome.dummy.acfs
PRCR-1064 : Failed to start resource ora.dbhome.dummy.acfs on node phys-schost
CRS-5016: Process "/u01/app/11.2.0/grid/bin/acfssinglefsmount" spawned by agent "/u01/app/11.2.0/grid/bin/oraroot"
CRS-2674: Start of 'ora.dbhome.dummy.acfs' on 'phys-schost' failed
```

The `orarootagent_root.log` file has messages similar to the following:

```
2011-02-01 16:15:53.417: [ora.dbhome.dummy.acfs][8] {2:53487:190} [start] (:CLS00010:)su: Unknown id: 303
```

The user ID 303 that is identified as Unknown is the ID for the Oracle ASM admin user in the non-global zone.

Workaround: Use the same user ID for the Oracle ASM admin user in both the global zone and the non-global zone.

Oracle Solaris Cluster Project Shares Workflow Should Return All Shares Underneath r/w Projects (7041969)

Problem Summary: Configuring a `ScalMountPoint` resource for a Sun ZFS Appliance file system fails if the file system is not set to inherit its NFS properties from its parent project.

Ensure that `Inherit from project` is selected for the file system when you set up the `ScalMountPoint` resource. To check this setting, edit the file system in the ZFS Appliance GUI and navigate to the `Protocols` tab.

After you configure the `ScalMountPoint` resource, you can optionally deselect `Inherit from project` to turn fencing off.

SAP startsap Fails to Start the Application Instance if startsrv Is Not Running (7028069)

Problem Summary: In SAP 7.11, the startsap program fails to start the application instance if the startsrv program is not running.

Workaround: Use the following entries in the wrapper script to start the application instance, adapting them to your system information, such as instance number, SID, and so forth.

```
ps -e -o args|grep sapstartsrv|grep DVEB
if (( ${?} != 0 ))
then
    /usr/sap/FIT/DVEBMGS03/exe/sapstartsrv pf=/usr/sap/FIT/SYS/profile/FIT_DVEBMGS03_lzkosi2c -D
fi
```

Problem Using Sun ZFS Storage Appliance as Quorum Device Through Fibre Channel or iSCSI (6966970)

Problem Summary: When Oracle's Sun ZFS Storage Appliance (formerly Sun Storage 7000 Unified Storage Systems) over Fibre Channel or iSCSI is used as a quorum device with fencing enabled, Oracle Solaris Cluster uses it as a SCSI quorum device. In such a configuration, certain SCSI actions requested by the Oracle Solaris Cluster software might not be addressed in a correct manner. In addition, the cluster reconfiguration's default timeout of 25 seconds for the completion of quorum operations might not be adequate for such a quorum configuration.

If you see messages on the cluster nodes saying that such a Sun ZFS Storage Appliance quorum device is unreachable, or if you see failures of cluster nodes with the message CMM: Unable to acquire the quorum device, there might be a problem with the quorum device or the path to it.

Workaround: Check that both the quorum device and the path to it are functional. If the problem persists, apply Sun ZFS Storage Appliance Firmware release 2010Q3.3 to correct the problem.

If there is a reason to not install this firmware, or you need an interim mitigation of the issue, use one of the following alternatives:

- Use a different quorum device.
- Remove the quorum device from the configuration, disable fencing for the device, and configure the device again as a quorum device. The device will now use software quorum.

Note – A software-quorum device does not guarantee the same level of protection that SCSI fencing provides. Avoid configuring a data disk as a software-quorum device.

- Increase the quorum timeout to a high value, as shown in the following steps.

Note – For Oracle Real Application Clusters (Oracle RAC), do not change the default quorum timeout of 25 seconds. In certain split-brain scenarios, a longer timeout period might lead to the failure of Oracle RAC VIP failover, due to the VIP resource timing out. If the quorum device being used is not conforming with the default 25 seconds timeout, use a different quorum device.

1. Become superuser.
2. On each cluster node, edit the `/etc/system` file to set the timeout to a high value.

The following example sets the timeout to 700 seconds.

```
phys-schost# vi /etc/system
...
set cl_haci:qd_acquisition_timer=700
```

3. From one node, shut down the cluster.

```
phys-schost-1# cluster shutdown -g0 -y
```

4. Boot each node back into the cluster.

Changes to the `/etc/system` file are initialized after the reboot.

Cluster Zone Won't Boot Up After Live Upgrade on ZFS Root (6955669)

For a global cluster that uses ZFS for the root file system and which has zone clusters configured, when using Live Upgrade to upgrade to Solaris 10 8/10, the upgraded boot environment does not boot.

Contact your Oracle support representative to learn whether a patch or workaround is available.

Solaris Volume Manager GUI

The Enhanced Storage module of Solaris Management Console (Solaris Volume Manager) is not compatible with Oracle Solaris Cluster software. Use the command-line interface or Oracle Solaris Cluster utilities to configure Solaris Volume Manager software.

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 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 describes the supported software and memory requirements for Oracle Solaris Cluster 3.3 5/11 software.

- “Data Services” on page 20
- “File Systems” on page 20
- “Memory Requirements” on page 21
- “Oracle Solaris Operating System” on page 21
- “Oracle VM Server for SPARC” on page 22
- “Sun Management Center” on page 22
- “Sun StorageTek Availability Suite” on page 22
- “Volume Managers” on page 22

Data Services

Contact your Oracle sales representative for the complete list of supported data services (agents) and application versions.

File Systems

This section describes the supported file systems for Oracle Solaris Cluster 3.3 5/11 on the following platforms:

- “Oracle Solaris 10 on SPARC” on page 20
- “Oracle Solaris 10 on x86” on page 21

Oracle Solaris 10 on SPARC

The following table describes the supported file systems for Oracle Solaris 10 on the SPARC platform.

File System	Additional Information
Oracle Solaris UFS	
Oracle Solaris ZFS	Not supported for the /globaldevices file system
Veritas File System components that are delivered as part of Veritas Storage Foundation 5.1. Version 5.1 requires a minimum of SP1.	

Oracle Solaris 10 on x86

The following table describes the supported file systems for Oracle Solaris 10 on the x86 platform.

File System	Additional Information
Oracle Solaris UFS	
Oracle Solaris ZFS	Not supported for the /globaldevices file system
Veritas File System components that are delivered as part of Veritas Storage Foundation 5.1. Version 5.1 requires a minimum of SP1.	

Memory Requirements

Oracle Solaris Cluster 3.3 5/11 software requires the following memory requirements for every cluster node:

- Minimum of 1 Gbytes of physical RAM (2 Gbytes typical)
- Minimum of 6 Gbytes of available hard drive space

Actual physical memory and hard drive requirements are determined by the applications that are installed. Consult the application's documentation or contact the application vendor to calculate additional memory and hard drive requirements.

Oracle Solaris Operating System

Oracle Solaris Cluster 3.3 5/11 software and Quorum Server software requires one of the following versions of the Oracle Solaris OS:

- **Oracle Solaris 10** - Solaris 10 10/09, Oracle Solaris 10 9/10

Note – Oracle Solaris Cluster 3.3 5/11 software does not support multiple versions of Oracle Solaris software in the same running cluster.

Oracle VM Server for SPARC

This Oracle Solaris Cluster release supports Oracle VM Server for SPARC 2.0 and Sun Logical Domains (LDoms) 1.3 software.

Sun Management Center

This Oracle Solaris Cluster release supports Sun Management Center software versions 3.6.1 and 4.0.

Sun StorageTek Availability Suite

This Oracle Solaris Cluster release supports Sun StorageTek Availability Suite 4.0 software. Support requires a minimum of patch 123246-07 for SPARC or 123247-07 for x86.

Volume Managers

This section describes the supported volume managers for Oracle Solaris Cluster 3.3 5/11 on the following platforms:

- [“Oracle Solaris 10 on SPARC” on page 22](#)
- [“Oracle Solaris 10 on x86” on page 23](#)

Oracle Solaris 10 on SPARC

The following table describes the supported file systems for Oracle Solaris 10 on the SPARC platform.

Volume Manager	Cluster Feature
Solaris Volume Manager	Solaris Volume Manager for Sun Cluster
Veritas Volume Manager (VxVM) components that are delivered as part of Veritas Storage Foundation 5.1. Version 5.1 requires a minimum of SP1.	Not applicable - Oracle Solaris Cluster 3.3 5/11 software does not support the VxVM cluster feature

Oracle Solaris 10 on x86

The following table describes the supported file systems for Oracle Solaris 10 on the x86 platform.

Volume Manager	Cluster Feature
Solaris Volume Manager	Solaris Volume Manager for Sun Cluster
Veritas Volume Manager components that are delivered as part of Veritas Storage Foundation 5.1. Version 5.1 requires a minimum of SP1.	Not applicable - Oracle Solaris Cluster 3.3 5/11 software does not support the VxVM cluster feature.

Product Localization

The following table describes localization for certain components of Oracle Solaris Cluster 3.3 5/11 software:

Component	Localization
Software Command Line	Japanese, Simplified Chinese
Software GUI	French, Japanese, Simplified Chinese, Spanish
Online Help	French, Japanese, Simplified Chinese, Spanish
Man Pages	Japanese

The following table shows the commands that set command line messages to English for commonly used shells:

shell	Command
sh	<code>\$ LC_MESSAGES=C;export LC_MESSAGES</code>
ksh	<code>\$ export LC_MESSAGES=C</code>
bash	<code>\$ export LC_MESSAGES=C</code>
csh	<code>% setenv LC_MESSAGES C</code>
tcsh	<code>% setenv LC_MESSAGES C</code>

Known Issues and Bugs

The following known issues and bugs affect the operation of the Oracle Solaris Cluster 3.3 5/11 release. Bugs and issues are grouped into the following categories:

- [“Administration” on page 24](#)
- [“Data Services” on page 27](#)
- [“Developer Environment” on page 30](#)
- [“Installation” on page 30](#)
- [“Localization” on page 31](#)
- [“Runtime” on page 31](#)
- [“Upgrade” on page 32](#)

Administration

Resource Group Does Not Fail Over When Failover_mode Is Set to SOFT During a Public Interface Failure (7038727)

Problem Summary: If a failover data service, such as HA for Oracle, is configured with the ScalMountpoint resource to probe and detect NAS storage access failure, and the network interface is lost, such as due to a loss of cable connection, the monitor probe hangs. If the Failover_mode property is set to SOFT, this results in a stop-failed status and the resource does not fail over. The associated error message is similar to the following:

```
SC[SUNW.ScalMountPoint:3,scalmnt-rg,scal-oradata-11g-rs,/usr/cluster/lib/rgm/rt/scal_mountpoint/scal_mountpoint_probe]
```

Workaround: Change the Failover_mode property on the resource to HARD

```
# clresource set -p Failover_mode=HARD ora-server-rs
# clresource show -v ora-server-rs | grep Failover_mode
    Failover_mode:                HARD
```

Unable to Register Resource Type SUNW.scalable_acfs_proxy in a Zone Cluster (7023590)

Problem Summary: The current implementation requires an RTR file, rather than a symbolic link to the file, to be present in /usr/cluster/lib/rgm/rtreg.

Workaround: Perform the following commands as superuser on one node of the global cluster.

```
# cp /opt/SUNWscor/oracle_asm/etc/SUNW.scalable_acfs_proxy /usr/cluster/lib/rgm/rtreg/
# clrt register -Z zoneclustername SUNW.scalable_acfs_proxy
# rm /usr/cluster/lib/rgm/rtreg/SUNW.scalable_acfs_proxy
```


Oracle's SPARC T3-4 Fails During Reboot (6993321)

Problem Summary: During a reboot, Oracle's SPARC T3-4 server with four processors fails to connect to the Oracle Solaris Cluster framework.. Error messages similar to the following appear:

```
Sep 20 15:18:53 svc.startd [8]: svc:/system/pools:default: Method or service exit timed out. Killing contract 29.
Sep 20 15:18:53 svc.startd [8]: svc:/system/pools:default: Method "/lib/svc/method/svc-pools start" failed due to
...
Sep 20 15:20:55 solta svc.startd [8]: system/pools:default failed: transitioned to maintenance (see 'svcs -xv' for
...
Sep 20 15:22:12 solta INITGCHB: Given up waiting for rgmd.
...
Sep 20 15:23:12 solta Cluster.GCHB_resd: GCHB system error: scha_cluster_open failed with 18 Sep 20 15:23:12 solt
```

Workaround: Use the `svccfg` command to increase the service timeout to 300 seconds. Boot into noncluster mode and perform the following commands:

```
# svccfg -s svc:/system/pools setprop start/timeout_seconds = 300
# svcadm refresh svc:/system/pools
```

After you perform these commands, boot into cluster mode.

Removing the Last Node That Hosts a Zone Cluster Does Not Remove the Zone Cluster From the Cluster Configuration (6969605)

Problem Summary: When you remove a global-cluster node that is the last node in the global cluster that hosts a zone cluster, the zone cluster is not removed from the cluster configuration

Workaround: Before you run the `clnode remove -F` command to delete the global-cluster node, use the `clzonecluster` command to delete the zone cluster.

Missing /dev/rmt Causes Incorrect Reservation Usage When Policy Is pathcount (6920996)

Problem Summary: When a new storage device is added to a cluster and is configured with three or more DID paths, the node on which the `cldevice populate` command is run might fail to register its PGR key on the device.

Workaround: Run the `cldevice populate` command on all cluster nodes, or run the `cldevice populate` command twice from the same node.

The global_fencing Property Code is Broken When the Value is Changed to prefer3 (6879360)

Problem Summary: Oracle Solaris Cluster attempts to verify that a storage device fully supports SCSI-3 PGR before allowing the user to set its fencing property to `prefer3`. This verification might succeed when it should fail.

Workaround: Ensure that a storage device is certified by Oracle Solaris Cluster for use with SCSI-3 PGR before changing the fencing setting to `prefer3`.

Autodiscovery Does Not Work on LDoms With Hybrid I/O (6870171)

Problem Summary: During cluster configuration on LDoms with hybrid I/O, autodiscovery does not report any paths for the cluster interconnect.

Workaround: When you run the interactive `scinstall` utility, choose to configure the sponsor node and additional nodes in separate operations, rather than by configuring all nodes in a single operation. When the utility prompts "Do you want to use autodiscovery?", answer "no". You can then select transport adapters from the list that is provided by the `scinstall` utility.

EMC SRDF and Hitachi TrueCopy Reject Switchover When Replicated Device-Group Status Will Cause Switchover and Switchback to Fail (6798901)

Problem Summary: If a Hitachi TrueCopy device group whose replica pair is in the COPY state, or an EMC SRDF device group whose replica pair is split, attempts to switch the device group over to another node, the switchover fails. Furthermore, the device group is unable to come back online on the original node until the replica pair is been returned to a paired state.

Workaround: Verify that TrueCopy replicas are not in the COPY state, or that SRDF replicas are not split, before you attempt to switch the associated Oracle Solaris Cluster global-device group to another cluster node.

Configuring a Scalable Resource With the LB_STICKY_WILD Load Balancing Policy Fails With `clsetup` (6773401)

Problem Summary: You cannot use the `clsetup` utility to configure a resource to have the load balancing policy `LB_STICKY_WILD`. The policy is set to `LB_WILD` instead.

Workaround: After you configure the resource, use the `clresource create` command to change the load balancing policy to `LB_STICKY_WILD`.

Removing Nodes from the Cluster Configuration Can Result in Node Panics (6735924)

Problem Summary: Changing a cluster configuration from a three-node cluster to a two-node cluster might result in complete loss of the cluster, if one of the remaining nodes leaves the cluster or is removed from the cluster configuration.

Workaround: Immediately after removing a node from a three-node cluster configuration, run the `cldevice clear` command on one of the remaining cluster nodes.

If the Solaris Security Toolkit Is Configured on Cluster Nodes, `scstat -i` Gives an RPC Bind Failure Error(6727594)

Problem Summary: If the Solaris Security Toolkit is configured on cluster nodes, the command `scstat -i` gives an RPC bind failure error. The error message is similar to the following:

```
scrconf: RPC: Rpcbind failure - RPC: Authentication error
```

Other Sun Cluster commands that use RPC, such as `clsnmpuser`, might also fail.

Workaround: Add the cluster private hostnames or the IP addresses associated with the cluster private hostnames to the `/etc/hosts.allow` file.

More Validation Checks Needed When Combining DIDs (6605101)

Problem Summary: The `scdidadm` and `cldevice` commands are unable to verify that replicated SRDF devices that are being combined into a single DID device are, in fact, replicas of each other and belong to the specified replication group.

Workaround: Take care when combining DID devices for use with SRDF. Ensure that the specified DID device instances are replicas of each other and that they belong to the specified replication group.

Solaris Cluster Manager Fails to Come Up in a 16-Node Cluster (6594485)

Problem Summary: For a 16-node cluster, the Oracle Solaris Cluster Manager GUI is not usable.

Workaround: Use instead the `clsetup` utility or the Oracle Solaris Cluster maintenance commands.

Data Services

Resource Group Creation After Zone Cluster Reboot but Before RGM Reconfiguration Leads to Inconsistent State Within RGM (7041222)

Problem Summary: If resource groups are created, edited, or deleted immediately after a zone cluster is rebooted, the Resource Group Manager (RGM) gets into an inconsistent state in which further operations on the resource group might fail. In the worst case, the failure might cause nodes of the global cluster to panic and reboot.

This problem can occur after all nodes of the zone cluster are rebooted at once. The problem does not occur if only some of the nodes are rebooted while others remain up. It can also occur when the entire physical cluster is rebooted, if resource-group updates are executed immediately after the zone cluster comes up.

The following are the commands that might can cause such errors:

- `clresource create`
- `clresource delete`
- `clresource set`
- `clresourcegroup create`
- `clresourcegroup delete`
- `clresourcegroup set`

Workaround: To avoid this problem, wait for a minute or so after you reboot a zone cluster, to allow the zone cluster to achieve a stable state, before you execute any of the above commands.

If all nodes of the physical cluster are rebooted, allow an extra minute after you see console messages indicating that all of the zone cluster nodes have joined the cluster, before you execute any of the above commands. The console messages look similar to the following:

```
May  5 17:30:49 phys-schost-4 cl_runtime: NOTICE: Membership : Node 'zc-host-2' (node id 2) of cluster 'schost' joined
```

If only some nodes are rebooted while others remain up, the additional delay is not needed.

Apache Tomcat Does Not Start Due to Missing Script (7022690)

Problem Summary: After installation and creation of the resource group and resources for Oracle Solaris Cluster HA for Apache Tomcat, the service cannot start if HA for Apache Tomcat is configured on top of a failover zone.

Workaround: Contact your Oracle support representative to obtain the missing script.

SAP Web Application Server Primary Instance Not Able to Come Online on the Same Node After Killing the Dispatcher (7018400)

Problem Summary: If you kill the dispatcher of a dialogue instance that is running with SAP kernel 7.11, the SAP Web Application Server agent is unable to restart the dialogue instance on the same node. After two retries, it fails over, and the start succeeds on the other node. The root cause is that, with SAP Kernel 7.11, the `cleanipc` command requires setting `LD_LIBRARY_PATH` before executing `cleanipc`.

Workaround: Insert the setting of `LD_LIBRARY_PATH` and the execution of `cleanipc` in the `Webas_Startup_Script` for the `webas` resource. For example, assuming the SAP SID is `FIT` and the instance is `03`, the code to insert into the start script registered for your `webas` resource in the property `Webas_Startup_script` would be the following:

```
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/usr/sap/FIT/SYS/exe/run
export LD_LIBRARY_PATH
/usr/sap/FIT/SYS/exe/run/cleanipc 03 remove
```

HASStoragePlus Resource Configured in Scalable Resource Group with Cluster File System Stays at "Starting" State Indefinitely (6960386)

Problem Summary: When the `/etc/vfstab` file entry for a cluster file system has a mount-at-boot value of `no` and the cluster file system is configured in a `SUNW.HASStoragePlus` resource that belongs to a scalable resource group, the `SUNW.HASStoragePlus` resource fails to come online. The resource stays in the `Starting` state until `prenet_start_method` is timed out.

Workaround: In the `/etc/vfstab` file's entry for the cluster file system, set the mount-at-boot value to `yes`.

Gateway Probe Will Ping Pong if Database Listener Is Not Reachable (6927071)

Problem Summary: In Siebel 8.1.1, the gateway server has a dependency on the database. If the machine hosting the database listener is not reachable, the gateway probe will cause the resource group to ping pong until the ping pong interval is reached.

Workaround: Co-locating the database listener with the gateway mitigates this issue. Or, if the database is running outside the cluster control, ensure that the machine that hosts the database listener is up and running.

Scalable Applications Are Not Isolated Between Zone Clusters (6911363)

Problem Summary: If scalable applications configured to run in different zone clusters bind to `INADDR_ANY` and use the same port, then scalable services cannot distinguish between the instances of these applications that run in different zone clusters.

Workaround: Do not configure the scalable applications to bind to `INADDR_ANY` as the local IP address, or bind them to a port that does not conflict with another scalable application.

Running `clnas add` or `clnas remove` Command on Multiple Nodes at the Same Time Could Cause Problem (6791618)

When adding or removing a NAS device, running the `clnas add` or `clnas remove` command on multiple nodes at the same time might corrupt the NAS configuration file.

Workaround: Run the `clnas add` or `clnas remove` command on one node at a time.

`clresourcegroup add-node` Triggers an `HASStoragePlus` Resource to Become Faulted State (6547896)

Problem Summary: When a native brand non-global zone is added to the node list of a resource group that contains an `HASStoragePlus` resource with ZFS pools configured, the `HASStoragePlus` resource might enter the `Faulted` state. This problem happens only when the physical node that hosts the native zone is part of the resource-group node list.

Workaround: Restart the resource group that contains the faulted HAStoragePlus resource.

```
# clresourcegroup restart faulted-resourcegroup
```

Developer Environment

GDS Returns Incorrect Exit Status in STOP Method for Non-PMF Services (6831988)

Problem Summary: The Generic Data Service (GDS) data service Stop script cannot force a Stop method failure. If the Stop script exits non-zero, the GDS Stop method will try killing the resource daemon. If the kill succeeds, then the Stop method exits success, even though the stop script had failed. As a result, the stop script cannot programmatically force a Stop method failure.

Workaround: Have the GDS stop script execute `clresourcegroup quiesce -k rgname` command, where *rgname* is the name of the resource group that contains the GDS resource. The `-k` option will cause the `rgmd` daemon to kill the GDS Stop method that is currently executing. This will move the GDS resource into the `STOP_FAILED` state, and the resource group will move to the `ERROR_STOP_FAILED` state.

The following are limitations of this workaround:

- The `clresourcegroup quiesce` command prevents the node from being rebooted, even if the `Failover_mode` of the resource is set to `HARD`. If the reboot behavior is required, the GDS stop script can query the `Failover_mode` property and, if the property is set to `HARD`, the stop script can directly reboot the node or non-global zone in which it is executing.
- This workaround is best suited for a failover resource group, which can only be stopping on one node at a time. In the case of a multi-mastered resource group, the GDS resource might be stopping on multiple nodes at the same time. Executing the `clresourcegroup quiesce -k` command in that case will kill all of the executing Stop methods on several nodes, not just the one that is executing on the local node.

Installation

The installer Deletes the Existing Package Corresponding to Ops Center Agent JavaDB Database. (6956479)

Problem Summary: The Oracle Enterprise Manager Ops Center Agent for Oracle Solaris 10 uses JavaDB software for its configuration database. When installing the Oracle Solaris Cluster software by using the `installer` utility, the JavaDB software package is re-installed, causing an existing Agent configuration database to be deleted.

The following error messages are reported from the Ops Center Agent as a result of the package getting removed:

```
java.sql.SQLException: Database '/var/opt/sun/xvm/agentdb' not found.
    at org.apache.derby.impl.jdbc.SQLExceptionFactory40.getSQLException(Unknown Source)
    at org.apache.derby.impl.jdbc.Util.newEmbedSQLException(Unknown Source)
    at org.apache.derby.impl.jdbc.Util.newEmbedSQLException(Unknown Source)
```

The Agent is broken now and needs to be unconfigured or configured.

Workaround: Manually install on all cluster nodes the following additional JavaDB packages from the Oracle Solaris Cluster media:

- SUNWjavadb-demo
- SUNWjavadb-javadoc
- SUNWjavadb-docs
- SUNWjavadb-client

Running the installer utility does not remove the existing JavaDB database packages.

Localization

Result of System Requirements Checking Is Wrong (6495984)

Problem Summary: When you use the installer utility in the Simplified Chinese and Traditional Chinese locales to install Oracle Solaris Cluster software, the software that checks the system requirements incorrectly reports that the swap space is 0 Mbytes.

Workaround: Ignore this reported information. In these locales, you can run the following command to determine the correct swap space:

```
# df -h | grep swap
```

Runtime

cldevicegroup Status Always Shows Multi-Owner Solaris Volume Manager Disk Sets Configured on vucmm Framework as "offline" (6962196)

Problem Summary: When a multi-owner Solaris Volume Manager disk set is configured on the vucmm framework, the cldevicegroup status command always shows the disk set as offline, regardless of the real status of the disk set.

Workaround: Check the status of the multi-owner disk set by using the `metastat -s diskset` command.

ssm_start Fails Due to Unrelated IPMP Down (6938555)

Problem Summary: A scalable resource that depends on a SUNW.SharedAddress resource fails to come online, due to failure of an IPMP group that is on a subnet that is not used by the shared-address resource. Messages similar to the following are seen in the syslog of the cluster nodes:

```
Mar 22 12:37:51 schost1 SC SUNW.gds:5,Traffic_voip373,Scal_service_voip373,SSM_START: ID 639855 daemon.error IPMP group
node cannot respond to client requests.
```

Workaround: Repair the failed IPMP group and restart the failed scalable resource.

Upgrade

Zones With ip-type=exclusive Cannot Host SUNW.LogicalHostname Resources After Upgrade (6702621)

Problem Summary: The problem occurs when the resource type SUNW.LogicalHostname is registered at version 2 (use the `clresourcetype list` command to display the version). After upgrade, logical-hostname resources can be created for non-global zones with `ip-type=exclusive`, but network access to the logical hostname, for example, `telnet` or `rsh`, does not work.

Workaround: Perform the following steps:

1. Delete all resource groups with a node list that contains a non-global zone with `ip-type=exclusive` that hosts logical-hostname resources.
2. Upgrade the SUNW.LogicalHostname resource type to at least version 3:

```
# clresourcetype register SUNW.LogicalHostname:3
```

Patches and Required Firmware Levels

This section provides information about patches for Oracle Solaris Cluster configurations, including the following subsections:

- [“Applying an Oracle Solaris Cluster 3.3 5/11 Core Patch” on page 33](#)
- [“Removing an Oracle Solaris Cluster 3.3 5/11 Core Patch” on page 33](#)
- [“Patch Management Tools” on page 34](#)
- [“Patch for Cluster Support for Sun StorageTek 2530 Array” on page 35](#)
- [“My Oracle Support” on page 35](#)

Note – If you are upgrading to Oracle Solaris Cluster 3.3 5/11 software, see *Oracle Solaris Cluster Upgrade Guide*. Applying a Oracle Solaris Cluster 3.3 5/11 Core patch does *not* provide the same result as upgrading the software to the Oracle Solaris Cluster 3.3 5/11 release.

Note – Read the patch README before applying or removing any patch.

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

Applying an Oracle Solaris Cluster 3.3 5/11 Core Patch

Complete the following procedure to apply the Oracle Solaris Cluster 3.3 5/11 core patch. Ensure that all nodes of the cluster are maintained at the same patch level.



Caution – If an Oracle Solaris Cluster 3.3 5/11 core patch is removed, any resources that were upgraded in Step 3 must be downgraded to the earlier resource type versions. The procedure for downgrading requires planned downtime of these services. Therefore, do not perform Step 3 until you are ready to commit the Oracle Solaris Cluster 3.3 5/11 core patch permanently to your cluster.

▼ How to Apply the Oracle Solaris Cluster 3.3 5/11 Core Patch

- 1 Install the patch using the usual rebooting patch procedure for a core patch.
- 2 Verify that the patch has been installed correctly on all nodes and is functioning properly.
- 3 Perform Resource Type upgrades to any new versions of the resource type available.

Run the `clsetup` command to obtain the list of new resource types. For more details, see “Upgrading a Resource Type” in *Oracle Solaris Cluster Data Services Planning and Administration Guide*.

For information about registering a resource type, see “Registering a Resource Type” in *Oracle Solaris Cluster Data Services Planning and Administration Guide*.

Removing an Oracle Solaris Cluster 3.3 5/11 Core Patch

Complete the following procedure to remove the Oracle Solaris Cluster 3.3 5/11 core patch.

▼ How to Remove an Oracle Solaris Cluster 3.3 5/11 Core Patch

- 1 List the resource types on the cluster.

```
# clresourcetype list
```

- 2 If you have upgraded to any new resource types after applying the core patch, follow the directions in **“How to Remove a Resource Type”** in *Oracle Solaris Cluster Data Services Planning and Administration Guide*.

- 3 Remove the Oracle Solaris Cluster 3.3 5/11 core patch from each node on which you installed the patch.

```
# patchrm patch-id
```

- 4 Reboot into cluster mode all of the nodes from which you removed the Oracle Solaris Cluster 3.3 5/11 core patch.

Rebooting all of the nodes from which you removed the Oracle Solaris Cluster 3.3 5/11 core patch before rebooting any unaffected nodes ensures that the cluster is formed with the correct information in the CCR. If all nodes on the cluster were patched with the core patch, you can reboot the nodes into cluster mode in any order.

- 5 Reboot any remaining nodes into cluster mode.

For instructions on rebooting nodes into cluster mode, see **“How to Reboot a Node”** in *Oracle Solaris Cluster System Administration Guide*.

Patch Management Tools

Information about patch management options for the Oracle Solaris OS is available at the web site for Oracle Enterprise Manager Ops Center (formerly Sun Ops Center) at <http://www.oracle.com/us/products/enterprise-manager/opscenter>.

The following tools are part of the Oracle Solaris OS. Refer to the version of the manual that is published for the Oracle Solaris OS release that is installed on your system:

- Information for using the Oracle Solaris patch management utility, `patchadd`, is provided in **Chapter 23, “Managing Patches,”** in *System Administration Guide: Basic Administration*.
- Information for using Oracle Solaris Live Upgrade to apply patches is provided in the Solaris installation guide for Live Upgrade and upgrade planning at *Solaris 10 10/09 Installation Guide: Solaris Live Upgrade and Upgrade Planning*.

If some patches must be applied when the node is in noncluster mode, you can apply them in a rolling fashion, one node at a time, unless a patch's instructions require that you shut down the entire cluster. Follow procedures in **“How to Apply a Rebooting Patch (Node)”** in *Oracle Solaris*

Cluster System Administration Guide to prepare the node and boot it into noncluster mode. For ease of installation, consider applying all patches at once to a node that you place in noncluster mode.

Patch for Cluster Support for Sun StorageTek 2530 Array

The Sun StorageTek Common Array Manager (CAM) software, minimum required Version 6.0.1, provides SCSI3 or PGR support for the Sun StorageTek 2530 array for up to three nodes. The patch is not a required upgrade for the Sun StorEdge 6130, 2540, 6140, and 6540, and StorageTek FLX240, FLX280 and FLX380 platforms. The CAM patch is available from My Oracle Support.

My Oracle Support

The My Oracle Support Web site provides 24-hour access to the most up-to-date information regarding patches, software, and firmware for Oracle products. Access the My Oracle Support site at <http://support.oracle.com> for the most current matrixes of supported software, firmware, and patch revisions.

Before you install Oracle Solaris Cluster 3.3 5/11 software and apply patches to a cluster component (Oracle Solaris OS, Oracle Solaris Cluster software, volume manager software, data services software, or disk hardware), review each README file that accompanies the patches that you retrieved. All cluster nodes must have the same patch level for proper cluster operation.

For specific patch procedures and tips on administering patches, see [Chapter 11, “Patching Oracle Solaris Cluster Software and Firmware,”](#) in *Oracle Solaris Cluster System Administration Guide*.

Oracle Solaris Cluster 3.3 5/11 Documentation Set

The Oracle Solaris Cluster 3.3 5/11 user documentation is available in PDF and HTML format at the following web site:

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

For information about the Oracle Solaris Cluster Geographic Edition user documentation, see *Oracle Solaris Cluster Geographic Edition 3.3 5/11 Release Notes*.

The following tables list the contents of the Oracle Solaris Cluster 3.3 5/11 user documentation library.

TABLE 1 Oracle Solaris Cluster 3.3 5/11 Core Software Manuals

Part Number	Book Title
821–2682	<i>Oracle Solaris Cluster Concepts Guide</i>
821–2848	<i>Oracle Solaris Cluster Data Services Developer's Guide</i>
821–2850	<i>Oracle Solaris Cluster Data Services Planning and Administration Guide</i>
821–2849	<i>Oracle Solaris Cluster Error Messages Guide</i>
821–1573	<i>Oracle Solaris Cluster Quick Reference</i>
821–2845	<i>Oracle Solaris Cluster Software Installation Guide</i>
821–2847	<i>Oracle Solaris Cluster System Administration Guide</i>
821–2846	<i>Oracle Solaris Cluster Upgrade Guide</i>

TABLE 2 Oracle Solaris Cluster 3.3 5/11 Reference Manuals

Part Number	Book Title
821–2679	<i>Oracle Solaris Cluster Reference Manual</i>
821–2680	<i>Oracle Solaris Cluster Data Services Reference Manual</i>
821–1554	<i>Oracle Solaris Cluster Quorum Server Reference Manual</i>

TABLE 3 Oracle Solaris Cluster 3.3 5/11 Data Service Manuals

Part Number	Book Title
821–1572	<i>Oracle Solaris Cluster Data Service for Agfa IMPAX Guide</i> ¹
821–2766	<i>Oracle Solaris Cluster Data Service for Apache Guide</i>
821–2851	<i>Oracle Solaris Cluster Data Service for Apache Tomcat Guide</i>
821–1523	<i>Oracle Solaris Cluster Data Service for DHCP Guide</i>
821–1524	<i>Oracle Solaris Cluster Data Service for Domain Name Service (DNS) Guide</i>
821–1525	<i>Oracle Solaris Cluster Data Service for Informix Guide</i>
821–1526	<i>Oracle Solaris Cluster Data Service for Kerberos Guide</i>
E22384	<i>Oracle Solaris Cluster Data Service for MaxDB Guide</i>
821–1528	<i>Oracle Solaris Cluster Data Service for MySQL Guide</i>
821–1932	<i>Oracle Solaris Cluster Data Service for MySQL Cluster Guide</i>
821–2897	<i>Oracle Solaris Cluster Data Service for Network File System (NFS) Guide</i>

¹ SPARC only

TABLE 3 Oracle Solaris Cluster 3.3 5/11 Data Service Manuals (Continued)

Part Number	Book Title
821-2678	<i>Oracle Solaris Cluster Data Service for Oracle Guide</i>
821-1532	<i>Oracle Solaris Cluster Data Service for Oracle Application Server Guide</i>
821-2901	<i>Oracle Solaris Cluster Data Service for Oracle Business Intelligence Enterprise Edition Guide¹</i>
821-2902	<i>Oracle Solaris Cluster Data Service for Oracle E-Business Suite Guide¹</i>
821-1541	<i>Oracle Solaris Cluster Data Service for Oracle Grid Engine Guide</i>
821-2852	<i>Oracle Solaris Cluster Data Service for Oracle Real Application Clusters Guide</i>
E21878	<i>Oracle Solaris Cluster Data Service for Oracle TimesTen In-Memory Database Guide</i>
821-2904	<i>Oracle Solaris Cluster Data Service for Oracle VM Server for SPARC Guide¹</i>
821-2903	<i>Oracle Solaris Cluster Data Service for PeopleSoft Enterprise Guide¹</i>
821-1534	<i>Oracle Solaris Cluster Data Service for PostgreSQL Guide</i>
821-1535	<i>Oracle Solaris Cluster Data Service for Samba Guide</i>
821-2905	<i>Oracle Solaris Cluster Data Service for SAP Guide</i>
821-1537	<i>Oracle Solaris Cluster Data Service for SAP liveCache Guide</i>
821-2906	<i>Oracle Solaris Cluster Data Service for SAP Web Application Server Guide</i>
821-1539	<i>Oracle Solaris Cluster Data Service for Siebel Guide¹</i>
821-2677	<i>Oracle Solaris Cluster Data Service for Solaris Containers Guide</i>
821-2907	<i>Oracle Solaris Cluster Data Service for Sun Java System Application Server Guide</i>
821-1542	<i>Oracle Solaris Cluster Data Service for Sun Java System Application Server EE (HADB) Guide</i>
821-2764	<i>Oracle Solaris Cluster Data Service for Sun Java System Message Queue Guide</i>
821-1546	<i>Oracle Solaris Cluster Data Service for Sun Java System Web Server Guide</i>
E21384	<i>Oracle Solaris Cluster Data Service for SWIFTAlliance Access Guide¹</i>
E21385	<i>Oracle Solaris Cluster Data Service for SWIFTAlliance Gateway Guide¹</i>
821-2908	<i>Oracle Solaris Cluster Data Service for Sybase ASE Guide</i>
821-2760	<i>Oracle Solaris Cluster Data Service for WebLogic Server Guide</i>
821-2900	<i>Oracle Solaris Cluster Data Service for WebSphere Message Broker Guide</i>
821-1551	<i>Oracle Solaris Cluster Data Service for WebSphere MQ Guide</i>

¹ SPARC only

TABLE 4 Oracle Solaris Cluster 3.3 Hardware Manuals

Part Number	Book Title
E22715	<i>Oracle Solaris Cluster 3.3 Hardware Administration Manual</i>
E22716	<i>Oracle Solaris Cluster 3.3 With Network-Attached Storage Device Manual</i>
821-1557	<i>Oracle Solaris Cluster 3.3 With SCSI JBOD Storage Device Manual</i>
821-1558	<i>Oracle Solaris Cluster 3.3 with StorageTek RAID Arrays Manual</i>
821-1559	<i>Oracle Solaris Cluster 3.3 With StorageTek 2540 RAID Arrays Manual</i>
821-1560	<i>Oracle Solaris Cluster 3.3 With Sun StorEdge 3310 or 3320 SCSI RAID Array Manual¹</i>
821-1561	<i>Oracle Solaris Cluster 3.3 With Sun StorEdge 3510 or 3511 FC RAID Array Manual</i>
821-1562	<i>Oracle Solaris Cluster 3.3 With Sun StorEdge 3900 Series or 6900 Series System Manual¹</i>
821-1563	<i>Oracle Solaris Cluster 3.3 With Sun StorEdge 6120 Array Manual</i>
821-1564	<i>Oracle Solaris Cluster 3.3 With Sun StorEdge 6130 Array Manual</i>
E22717	<i>Oracle Solaris Cluster 3.3 With Sun StorEdge 6320 System Manual</i>
821-1566	<i>Oracle Solaris Cluster 3.3 With Sun StorEdge 9900 Series Storage Device Manual</i>
E22718	<i>Oracle Solaris Cluster 3.3 With StorEdge A1000 Array, Netra st A1000 Array, or StorEdge A3500 System Manual¹</i>
821-1570	<i>Oracle Solaris Cluster 3.3 With Sun StorEdge A3500FC System Manual¹</i>
821-1568	<i>Oracle Solaris Cluster 3.3 With Fibre Channel JBOD Storage Device Manual¹</i>
821-1569	<i>Oracle Solaris Cluster 3.3 With Sun StorEdge T3 or T3+ Array Manual¹</i>

¹ SPARC only

Documentation Addendum

This section discusses errors or omissions for documentation, online help, or man pages in the Oracle Solaris Cluster 3.3 5/11 release.

- [“Man Pages” on page 38](#)

Man Pages

This section discusses errors, omissions, and additions in the Oracle Solaris Cluster man pages.

clnasdevice(1CL)

The [clnasdevice\(1CL\)](#) man page contains the incorrect name for the sun_uss NAS device type. The man page uses Oracle's Sun Storage 7000 Unified Storage Systems as the NAS device name, but the correct name is Oracle's Sun ZFS Storage Appliance. The man page is also missing some information. See [“clnasdevice\(1CL\) Man Page” on page 41](#) for the correct contents of this man page.

clzonecluster(1CL)

If the name_service property is not specified when you create a zone cluster, a value for the property is pulled from the /etc/sysidcfg file in the global zone. However, because this information might be stale, always specify the name_service property when creating a zone cluster. To reflect this behavior, the description of the name_service property is changed to the following:

name_service	This property specifies the naming service to be used in the zone cluster. It is an optional property, and the setting in the global zone is used by default. However, the settings in the global zone's /etc/sysidcfg file might be stale. To ensure that this property has the correct setting, enter the value manually by using the clzonecluster command.
--------------	--

The description of the timezone property is also revised as follows:

timezone	This property specifies the time zone to be used in the zone cluster. The value is obtained from the environment of the clzonecluster command by default.
----------	---

SUNW.oracle_server(5)

The following new value for the Standby_mode extension property is missing from the man page:

SNAPSHOT	Beginning with Oracle 11g, specifies a snapshot standby database.
----------	---

SUNW.scalable_acfs_proxy(5)

Support for Oracle ACFS with Oracle Solaris Cluster 3.3 5/11 introduces a new resource type, SUNW.scalable_acfs_proxy. The man page for this resource type is not included in this release. See [“SUNW.scalable_acfs_proxy\(5\) Man Page” on page 56](#) for the contents of this man page.



Documentation Appendix

This appendix contains additions or replacements for the published Oracle Solaris Cluster 3.3 5/11 documentation set.

- [“clnasdevice\(1CL\) Man Page” on page 41](#)
- [“SUNW.scalable_acfs_proxy\(5\) Man Page” on page 56](#)

clnasdevice(1CL) Man Page

Name

clnasdevice, clnas - manage access to NAS devices for Oracle Solaris Cluster

Synopsis

```
/usr/cluster/bin/clnasdevice -V
```

```
/usr/cluster/bin/clnasdevice [subcommand] -?
```

```
/usr/cluster/bin/clnasdevice [subcommand] -?
```

```
/usr/cluster/bin/clnasdevice subcommand [options] -v [nasdevice[ ...]]
```

```
/usr/cluster/bin/clnasdevice add -t type {-p name=value[,...]  
| -u userid} [-f passwdfile] [-Z {zoneclustername | global}] nasdevice
```

```
/usr/cluster/bin/clnasdevice add -i {- | clconfigfile}[-t type]  
[-p name=value | -u userid] {-f passwdfile}  
[-Z {zoneclustername | global}] {nasdevice
```

```
/usr/cluster/bin/clnasdevice add-dir -d directory[,...] [-Z {zoneclustername  
| global}] nasdevice
```

```
/usr/cluster/bin/clnasdevice add-dir -i {- | clconfigfile} [-d all | directory
[,...]] [-f passwordfile] [-Z {zoneclustername | global}] {nasdevice

/usr/cluster/bin/clnasdevice export [-o {- | clconfigfile}] [-t type[,...]]
[-d all | directory[,...]] [+ | nasdevice[ ...]]

/usr/cluster/bin/clnasdevice find-dir [-d {all | directory[,...]} [-t type[,...]] [-Z
{zoneclustername[,...]} | global | all}] [+ | nasdevice[ ...]]

/usr/cluster/bin/clnasdevice list [-t type[,...]] [-Z {zoneclustername[,...]}
| global | all}] [+ | nasdevice[ ...]]

/usr/cluster/bin/clnasdevice remove [-t type[,...]] [-Z {zoneclustername
| global}] [-F ] [+ | nasdevice[ ...]]

/usr/cluster/bin/clnasdevice remove-dir -d all | directory[,...]] [-Z
{zoneclustername | global}] nasdevice

/usr/cluster/bin/clnasdevice set {-p name=value[,...]} | -u userid}
[-f passwordfile] [-Z {zoneclustername | global}] nasdevice

/usr/cluster/bin/clnasdevice show [-d {all | directory[,...]} [-t
type[,...]] [-Z {zoneclustername[,...]} | global | all}] [+ | nasdevice[ ...]]
```

Description

Note – The `clnasdevice` man page published with the Oracle Solaris Cluster 5/11 release contains the incorrect name for the `sun_uss` NAS device type. The man page uses Oracle's Sun Storage 7000 Unified Storage Systems as the NAS device name, but the correct name is Oracle's Sun ZFS Storage Appliance. The name is correct in this version of the man page.

The `clnasdevice` command manages Oracle Solaris Cluster configuration information for NAS devices and their directories or projects.

The `clnas` command is the short form of the `clnasdevice` command. The `clnas` and `clnasdevice` commands are identical. You can use either form of the command.

The general form of this command is as follows:

```
clnasdevice [subcommand] [options] [operands]
```

You can omit *subcommand* only if *options* specifies the `-?` option or the `-V` option.

Each option of this command has a long form and a short form. Both forms of each option are provided with the description of the option in the “OPTIONS” section of this man page.

Before you use the `clnasdevice` command to configure a NAS device in the cluster, your NAS device must conform to the following conditions:

- The NAS device must be set up and operating.
- The NAS device must be booted and running.
- The NAS device's directories must be created and made available to the cluster nodes.
- If the NAS device will be a quorum device, the LUN for the quorum device must be created. For information on configuring a NAS quorum device, see the `clquorumman` page.

Depending on the NAS device vendor, you might need to perform additional tasks before you configure the device into the cluster. For details about these tasks, see the `-t` option in “OPTIONS”. Refer to the documentation for your particular NAS device for procedures about setting up a NAS device and exporting the directories.

After the NAS device is fully operational and ready to provide storage for the cluster, use the `clnasdevice` command to manage the NAS device configuration information in the cluster. Otherwise, the cluster cannot detect the NAS device and its exported directories. Consequently, the cluster cannot protect the integrity of the information in these directories.

Use the `clnasdevice` command for these administrative tasks:

- To create the NAS device configuration
- To update NAS type-specific properties
- To remove the NAS device's directories from the cluster configuration
- To remove the NAS device from the cluster configuration

The `clnasdevice` command can be run only on an active cluster node. The result of running the command is always the same, regardless of the node on which you run it.

You can use the `clnasdevice` command with all subcommands (except `export`) in a zone cluster. You can also use the `-Z` option with all subcommands (except `export`) to specify the name of a particular zone cluster to which you want to restrict an operation.

You can access all zone cluster information from a global-cluster node, but a particular zone cluster is not aware of other zone clusters. If you do not restrict an operation to a particular zone cluster, the subcommand you use operates in the current cluster only.

Subcommands

The following subcommands are supported:

add

Adds a NAS device to the Oracle Solaris Cluster configuration.

Use the `-t` option to specify the vendor of the NAS device. For details, see the `-t` option description in the “OPTIONS” section.

Depending on the type of your NAS device, you might have to set additional properties. These required properties are also explained in the `-t` option description in the “OPTIONS” section.

Users other than the superuser require `solaris.cluster.modify` role-based access control (RBAC) authorization to use this command. See [rbac\(5\)](#).

See also the description of the `remove` subcommand.

`add-dir`

Adds the specified directories or projects of an already configured NAS device to the cluster configuration. You must have created these directories or projects on the device and made them available to the cluster before using this subcommand. For information about creating directories or projects, see the documentation for your NAS device.

You can add NAS device directories or projects using one of the following methods:

- Use the `clnasdevice add` command to configure the NAS device in the cluster. Then use the `clnasdevice add-dir` command to configure that device's directories or projects in the cluster.
- Use the `clnasdevice add-dir -i configurationfile` form of the command to add the device and configure its directories or projects in a single step. To add directories or projects using this method, provide the password file using the `-f` option. For details on this option, see the Options section. See the [clconfiguration\(5CL\)](#) man page for more information.

Whenever you create a new directory or project on the NAS device and make it available to the cluster nodes, you need to use this `add-dir` subcommand to add the directories or projects to the cluster configuration. You can use the `find-dir` subcommand to list the available directories or projects that can be added to the cluster with the `add-dir` subcommand.

Users other than the superuser require `solaris.cluster.modify` RBAC authorization to use this command. See [rbac\(5\)](#).

See also the description of the `remove-dir` subcommand.

`export`

Exports the cluster NAS device configuration information. If you specify a file with the `-o` option, the configuration information is written to that file. If you do not use the `-o` option, the output is written to standard output (`stdout`).

The `export` subcommand does not modify cluster configuration information.

Users other than the superuser require `solaris.cluster.read` RBAC authorization to use this command. See [rbac\(5\)](#).

`find-dir`

Displays the `sun_uss` projects or `netapp` and `sun` directories that are set up on the NAS devices that might be used by the cluster. These directories or projects have not yet been added to the cluster configuration with the `add-dir` subcommand. The directories or projects listed in the output can be candidates for the `-d` option when you use the `add-dir` subcommand.

To display a particular type of NAS device, specify the `-t` option.

To display the `sun_uss` projects and file systems inside those projects, specify the `-v` option.

To display specific `netapp` and `sun` NAS device directories or the `sun_uss` NAS device projects, specify the `-d` option.

To display specific `sun_uss` NAS device projects and the file systems inside those projects, specify the `-v` and `-d` options.

The `find-dir` subcommand does not modify cluster configuration information.

Users other than the superuser require `solaris.cluster.read` RBAC authorization to use this command. See [rbac\(5\)](#).

list

Displays the NAS devices configured in the cluster.

To display the device's directories that are configured in the cluster and the device type, use the verbose option `-v`.

To display NAS devices of a particular type, use the `-t` option.

Users other than the superuser require `solaris.cluster.read` RBAC authorization to use this command. See [rbac\(5\)](#).

remove

Removes the specified NAS device or devices from the Oracle Solaris Cluster configuration.

If you do not specify the force option, `-F`, you must have already removed the NAS device directories from the configuration by using the `remove-dir` subcommand.

If you specify the force option, `-F`, the command removes the NAS device and its directories from the cluster configuration. See `-F` in “OPTIONS”.

Users other than the superuser require `solaris.cluster.modify` RBAC authorization to use this command. See [rbac\(5\)](#).

See also the description of the `add` subcommand.

remove-dir

Removes the specified NAS directory or project from the Oracle Solaris Cluster configuration.

The `remove-dir` subcommand removes the exported directories or projects specified by the `-d` option. When you use `-d all`, the subcommand removes all the directories or projects of the specified NAS device.

Whenever a directory or project is removed from the NAS device, you need to use this `remove-dir` subcommand to remove the directories or projects from the cluster configuration. The NAS directories or projects in the cluster configuration must match the existing directories or projects that are exported from the NAS device.

Users other than the superuser require `solaris.cluster.modify` RBAC authorization to use this command. See [rbac\(5\)](#).

See also the description of the `add-dir` subcommand.

set

Sets specified properties of a specific NAS device.

Note – You do *not* specify properties for NAS devices from Oracle's Sun StorageTek products. Because these devices do not have any properties, the `set` subcommand and the `-f`, `-p`, and `-u` options do *not* apply.

Users other than the superuser require `solaris.cluster.modify` RBAC authorization to use this command. See [rbac\(5\)](#).

show

When no options are provided, displays the following information:

- A listing of all the current NAS devices configured in Oracle Solaris Cluster
- The available directories of each NAS device
- All properties associated with each NAS device

To display a particular type of NAS device, specify the `-t` option. To display information about a particular device, pass the NAS device's hostname as the operand to the command.

To display the file systems contained in the specified projects, use the `-d` and `-v` options with the `show` subcommand. You can use the `all` keyword to display all the projects of a NAS device, or just individual projects.

Users other than the superuser require `solaris.cluster.read` RBAC authorization to use this command. See [rbac\(5\)](#).

Options

The following options are supported:

`-?`

`--help`

Displays help information. When this option is used, no other processing is performed for any other options.

You can specify this option with or without a subcommand.

If you specify this option without a subcommand, the list of subcommands for this command is displayed.

If you specify this option with a subcommand, the usage options for the subcommand are displayed.

```
-d directory[,...]
--directory=directory-[,...]
--directory directory-[,...]
-d project[,...]
--directory=project-[,...]
--directory project-[,...]
```

Specifies the directory or directories of the netapp and sun NAS devices, as well as projects of the sun_uss NAS devices. For sun_uss NAS devices, you must create the project on the NAS device before you create a file system. The project name cannot start with a /. File systems must be created within a project. A *project* is a sun_uss NAS device term, and you can create as many file systems as you want in a project. Use this option only with the add-dir, remove-dir, export, and show subcommands.

This option accepts a special keyword, all. When you use the -d all option, you specify all directories on the specified NAS devices.

- With the remove-dir subcommand, all directories on the specified devices are removed.
- With the export subcommand, the configuration information of all directories on the specified devices is displayed to the specified output.
- With the add-dir subcommand and the -i *configfile* option, all directories on the specified NAS device that are listed in the configuration file are added.
- When the show and find-dir subcommands are used with the -v option for the sun_uss NAS device, the file systems contained in the specified projects in the -d option are displayed. You can use the all keyword to display all the projects of a NAS device, or just individual projects.

```
-F
--force
Forces the removal of the specified NAS device.
```

The force option is available only with the remove subcommand. When you use this force option with the remove subcommand, it removes the NAS device and its configured directories from the Oracle Solaris Cluster configuration.

```
-f passwd-file
--passwdfile=passwd-file
--passwdfile passwd-file
```

Specifies the password file that contains the password to use when logging in to the NAS device.

Note – You do *not* specify properties for NAS devices from Oracle's Sun StorageTek products. Because this device does not have any properties, the `set` subcommand and the `-f`, `-p`, and `-u` options do *not* apply.

For security reasons, the password cannot be specified in command-line options. To keep the password secure, place it in a text file and specify the file by using the `-f` option. If you do not specify an input file for the password, the command prompts for the password.

Set permissions of the input file to readable by root and prohibit access by either group or world.

When using `clnasdevice add` with the `-i` option, if your *clconfigfile* does not contain the password the `-f passwdfile` option is required.

In the input file, observe the following restrictions:

- Specify passwords on a single line. Do not type passwords across multiple lines.
- Leading white spaces and tabs are ignored.
- Comments begin with an unquoted `#` sign. Comments continue to the next new line.

The parser ignores all comments.

- If you use an input file for the device user password, the `#` sign cannot be part of the password.

```
-i clconfigfile
--input={- | clconfigfile-}
--input {- | clconfigfile-}
```

Specifies the configuration information that is used to create or modify the NAS device. This information must conform to the format that is defined in the [clconfiguration\(5CL\)](#) man page. This information can be contained in a file or through the standard input (`stdin`). To specify the standard input, specify `-` instead of a file name.

If you specify the same properties on the command line and in the *clconfigfile* file, the properties that you set on the command-line prevail.

When using `clnasdevice add` with the `-i` option, the `-f passwdfile` option is required.

```
-o {- | clconfigfile}
--output={- | clconfigfile-}
--output {- | clconfigfile-}
```

Writes the NAS device configuration information in the format that is defined in the [clconfiguration\(5CL\)](#) man page. You can write this information to a file or to the standard output (`stdout`). To specify the standard output, specify `-` instead of a file name.

```
-p name=value[,...]
```

```
--property=name-=value-[,...]
```

```
--property name- value-[,...]
```

Specifies the properties that are specific to a NAS device type.

Note – You do *not* specify properties for NAS devices from Oracle's Sun StorageTek products. Because this device does not have any properties, the set subcommand and the -f, -p, and -u options do *not* apply.

You must specify this option when you use the add subcommand to add a new NAS device to a cluster configuration. You also must specify this option when you modify the properties of a NAS device with the set subcommand. See the description of the -t option for more information.

```
-t nas-device-type
```

```
--type=nas-device-type
```

```
--type nas-device-type
```

Specifies the NAS device type. You must specify this option when you add a NAS device to the Oracle Solaris Cluster configuration. The NAS device type is identified by the vendor name. For example, Oracle's Sun StorageTek NAS device type is sun.

Different types of NAS devices have different or in some cases, no properties.

sun	Specifies Oracle's Sun StorageTek NAS device.
-----	---

Note – You do *not* specify properties for the sunNAS device. Because this device does not have any properties, the set subcommand and the -f, -p, and -u options do *not* apply.

sun_uss	<pre>-p userid=osc_agent [-f passwd-file] or -u userid</pre> <pre>[-f passwdfile]</pre> <p>The userid must be osc_agent. Before using sun_uss, you must download the client code and install it on all cluster nodes. This osc_agent userid is created by running one of the workflows on the device. The userid must have been created on the device before you use the clnasdevice subcommands that take userid as input.</p> <p>The userid and the password properties are required.</p> <pre>-p "nodeIPs{node}"=[IP]</pre>
---------	--

This property specifies an IP for each node. If you are using an IP other than the IP of the cluster node name to access the NAS device, you can specify this IP using the `nodeIPsnode` property. This property is optional. If you do not specify an IP, the system uses the IP of the cluster node name. These IPs must match the IPs specified in the NFS Access Mode of the projects on the NAS device.

If you do not specify a property value, (for example, `-p "nodeIPs{node}"=`), the IP for the specified node is removed from the cluster configuration and the system uses the IP of the cluster node name.

Before adding a `sun_uss` NAS device and its projects, you must perform the necessary setup. Setup tasks include downloading and installing the client code on the cluster nodes. Run the Configure for Oracle Solaris Cluster NFS workflow to create the `userid osc_agent` and its password on the device. Create projects, whose Share Mode is none or read-only (the read-write mode is supported but not recommended). The NFS Access Mode must use the Network notion and grant read-write access to the IPs of the cluster nodes.

netapp

Specifies a NAS device from Network Appliance, Inc. The NAS device from Network Appliance, Inc. has the following property. This property is required if you add a NAS device by using the `add` subcommand:

```
-p userid=userid [-f passwdfile]
```

or

```
-u userid [-f passwdfile]
```

The `userid` is the user ID that the cluster uses to perform administrative duties on the NAS device. When you add a user ID to the device configuration, you are prompted for its password. You can also place the password in a text file and use it by specifying the `-f` option.

Before adding a NAS device and its exported directories into the cluster configuration, you must have already performed the following tasks:

- Set up the NAS device.
- Set up directories and made them available to the cluster nodes.

- Determined the user ID and password to use for administrative tasks on the device.

The NAS device must also be up and running. To provide support for netapp NAS devices in the cluster, the administrator must also install the required software module that is provided by Network Appliance, Inc. Additionally, the iSCSI license must be valid for the Network Appliance, Inc. NAS device. For instructions about obtaining the support module, see *Oracle Solaris Cluster With Network-Attached Storage Devices Manual*.

-u *userid*

--userid=*userid*

--userid *userid*

Specifies the user ID that is used to log in to the NAS device.

Note – You do *not* specify properties for NAS devices from Oracle's Sun StorageTek. Because this device does not have any properties, the set subcommand and the -f, -p, and -u options do *not* apply.

The cluster needs to know the user ID to log in and perform administrative duties on the device.

Alternatively, you can specify the user ID with the -p option. See -p for details.

You can use this option only with the add and set subcommands.

-V

--version

Displays the version of the command.

Do not specify this option with subcommands, operands, or other options. The subcommands, operands, or other options are ignored. The version of the command is displayed. No other processing is performed.

-v

--verbose

Displays verbose information to standard output (stdout).

-Z {*zoneclustername* | **global** | **all**}

--zoneclustername={*zoneclustername* | **global** | **all**}

Specifies the cluster where the *nas-device-type* is registered and where you want to operate.

This option is supported by all subcommands except the export command.

If you specify this option, you must also specify one of the following arguments:

<i>zoneclustername</i>	Specifies that the command with which you use this option will operate on all specified <i>nas-device-types</i> only in the zone cluster named <i>zoneclustername</i> .
------------------------	---

<code>global</code>	Specifies that the command with which you use this option will operate on all specified <i>nas-device-types</i> only in the global cluster.
<code>all</code>	<p>If you use this argument in the global cluster, it specifies that the command with which you use it will operate on all specified <i>nas-device-types</i> in all clusters (including the global cluster and all zone clusters).</p> <p>If you use this argument in a zone cluster, it specifies that the command with which you use it will operate on all specified <i>nas-device-types</i> only in that zone cluster.</p>

Operands

The following operands are supported:

nasdevice

The name of a NAS device. The NAS device name is the hostname by which the NAS device communicates over the network. The cluster needs the NAS hostname of the NAS device to communicate with the NAS device. If the subcommand accepts more than one NAS device, you can use the plus sign (+) to specify all NAS devices. For the `add` and `add-dir` subcommands, the plus sign operand indicates all NAS devices in the specified configuration file.

Examples

EXAMPLE 1 Adding NAS Devices From Oracle's Sun StorageTek or Sun Storage 7000 Unified Storage Systems to a Cluster or Zone Cluster

The following `clnasdevice` command adds the storage system `sunnas1` to the configuration called `sun`.

```
# clnasdevice add -t sun sunnas1
```

The following `clnasdevice` command adds the storage system `sunnas1` to the zone cluster configuration called `ZC`.

```
# clnasdevice add -Z ZC -t sun sunnas1
```

The following `clnasdevice` command adds the Sun ZFS Storage Appliance `uss7110-01` of type `sun_uss` to the configuration.

```
# clnasdevice add -t sun_uss -p userid=osc_agent -f passwd-file uss7110-01
```

EXAMPLE 2 Adding a NAS Device From Network Appliance, Inc. to a Cluster or Zone Cluster

The following `cldasdevice` command adds the Network Appliance, Inc. storage system `netapp1` to the sun configuration.

```
# cldasdevice add -t netapp -p userid=root netapp1
Please enter password
```

The following `cldasdevice` command adds the Network Appliance, Inc. storage system `netapp1` to the zone cluster ZC configuration.

```
# cldasdevice add -Z ZC -t netapp -p userid=root netapp1
Please enter password
```

EXAMPLE 3 Adding NAS Device Directories and Projects to a Cluster or Zone Cluster

The following `cldasdevice` command adds two exported directories of the already configured NAS device `sunnas1` to the cluster configuration.

```
# cldasdevice add-dir -d /export/dir1,/export/dir2 sunnas1
```

The following `cldasdevice` command adds two exported directories of the already configured NAS device `sunnas1` to the zone cluster called ZC.

```
# cldasdevice add-dir -Z ZC -d /export/dir1,/export/dir2 sunnas1
```

The following `cldasdevice` command adds two projects to the already-configured NAS device `sun_uss`.

```
# cldasdevice add-dir -d pool-0/local/nassa-pl,pool-0/local/nassa-p2 uss7110-01
```

EXAMPLE 4 Removing All NAS Device Directories From a Cluster or Zone Cluster Configuration

The following `cldasdevice` command removes all directories that belong to the NAS device `netapp1` from the cluster configuration.

```
# cldasdevice remove-dir -d all netapp1
```

The following `cldasdevice` command removes all directories that belong to the NAS device `netapp1` from the ZC zone cluster configuration.

```
# cldasdevice remove-dir -Z ZC -d all netapp1
```

EXAMPLE 5 Removing a NAS Device From a Cluster or Zone Cluster

The following `cldasdevice` command removes the NAS device `sunnas1` and all of its remaining directories, if any, from the cluster sun configuration.

```
# cldasdevice remove -F sunnas1
```

EXAMPLE 5 Removing a NAS Device From a Cluster or Zone Cluster *(Continued)*

The following `clnasdevice` command removes the NAS device `sunnas1` and all of its remaining directories, if any, from the zone cluster ZC configuration.

```
# clnasdevice remove -Z ZC -F sunnas1
```

The following example shows how to update the `nodeIPs` property.

```
# clnasdevice set -p "nodeIPs{cluster-1}"= 10.155.55.145 -p  
"nodeIPs{cluster-2}"=10.155.55.146 uss7110-01
```

The following example removes the current setting of the IPs from the cluster configuration, so that the system uses the IPs of the cluster node names.

```
# clnasdevice set -p "nodeIPs{cluster-1}"= -p "nodeIPs{cluster-2}"= uss7110-01
```

EXAMPLE 6 Displaying NAS Device Projects That Have Not Been Added to the Cluster

The following `clnasdevice` command displays the NAS device project names that have not yet been added to the cluster.

```
# clnasdevice find-dir uss7110-01  
Nas Device:          uss7110-01  
Type:                sun_uss  
Unconfigured Project: nassa-p2  
Unconfigured Project: nnassa-p1
```

EXAMPLE 7 Displaying the NAS Devices Configured in the Cluster or Zone Cluster

The following `clnasdevice` command displays the names of all NAS devices that are configured in the cluster. To see a list of the devices and their directories, use the verbose option or the `show` subcommand.

```
# clnasdevice list  
sunnas1
```

The following `clnasdevice` command displays the names of all NAS devices that are configured in the zone cluster ZC. To see a list of the devices and their directories, use the verbose option or the `show` subcommand.

```
# clnasdevice list -Z ZC  
ZC:sunnas1
```

The following `clnasdevice` command displays the names of all NAS devices that are configured in the zone cluster ZC. To see a list of the devices and their directories, use the verbose option or the `show` subcommand.

```
# clnasdevice list -Z all  
global:sunnas1  
ZC:netapp1
```

EXAMPLE 8 Display the NAS Devices and Their Directories or Projects

The following `clnasdevice` command displays the names of all NAS devices that are configured in the cluster, along with their directories that are part of the cluster configuration.

```
# clnasdevice show -v
Nas Device:   sunnas1.sfbay.sun.com
Type:        sun
Userid:      root
Directory:   /export/dir1
             /export/dir2

Nas Device:   netapp2
Type:        netapp
Userid:      root
Directory:   /export/dir1
             /export/dir2
```

The following `clnasdevice` command displays the names of all NAS devices that are configured in the zone cluster called ZC, along with their directories that are part of the cluster configuration.

```
# clnasdevice show -Z ZC -v
Nas Device:   ZC:netapp2
Type:        netapp
Userid:      root
Directory:   /export/dir1
             /export/dir2
```

The following `clnasdevice` command displays the names of all NAS devices that are configured in the cluster, along with the project file systems.

```
# clnasdevice show -v -d all uss7110-01
Nas Device:   uss7110-01
Type:        sun_uss
Project:     nassa-p1
  File System: /export/nassa-p1/nassa-p1-fs1
  File System: /export/nassa-p1/nassa-p1-fs2
  File System: /export/nassa-p1/nassa-p1-fs3
Project:     nassa-p2
  File System: /export/nassa-p2/nassa-p2-fs1
  File System: /export/nassa-p2/nassa-p2-fs2
```

Attributes

See [attributes\(5\)](#) for descriptions of the following attributes:

ATTRIBUTE TYPE	ATTRIBUTE VALUE
Availability	SUNWsczu
Interface Stability	Evolving

See Also

[Intro\(1CL\)](#), [cluster\(1CL\)](#)

Notes

The superuser can run all forms of this command.

Any user can run this command with the following subcommands and options:

- -? option
- -V option

To run this command with other subcommands, users other than superuser require RBAC authorizations. See the following table.

Subcommand	RBAC Authorization
add	solaris.cluster.modify
add-dir	solaris.cluster.modify
export	solaris.cluster.read
find-dir	solaris.cluster.read
list	solaris.cluster.read
set	solaris.cluster.modify
remove	solaris.cluster.modify
remove-dir	solaris.cluster.modify
show	solaris.cluster.read

SUNW.scalable_acfs_proxy(5) Man Page

Name

SUNW.scalable_acfs_proxyscalable_acfs_proxy - resource type implementation for an Oracle Automatic Storage Management Cluster File System (Oracle ACFS) that is managed by Oracle Solaris Cluster

Description

The `SUNW.scalable_acfs_proxy` resource type represents the Oracle ACFS file system in an Oracle Solaris Cluster configuration. This resource type is introduced for use starting with Oracle 11g release 2 configurations.

Note – Use the `SUNW.scalable_acfs_proxy` resource type *only* if you are using Oracle Grid Infrastructure for a Cluster.

The `SUNW.scalable_acfs_proxy` resource type is a multiple-master resource type. A single resource of this type can run on multiple nodes concurrently, but does not use network load balancing.

Each `SUNW.scalable_acfs_proxy` resource represents an Oracle ACFS file system. Each Oracle ACFS file system is uniquely identified by the value of the `acfs_mountpoint` extension property on the node where the instance is running. Only mount the Oracle ACFS file system if the Oracle ASM disk group is mounted on the same cluster node as the file system. To ensure that these requirements are met, configure the Oracle ACFS file system proxy resource as follows:

- Create a strong positive affinity between the Oracle ACFS proxy resource group and the Oracle ASM disk-group proxy resource group.
- Create an offline-restart dependency between the Oracle ACFS file-system proxy resource and the Oracle ASM disk-group proxy resource.

You can create an Oracle ACFS file system for use as a general purpose file system or as an Oracle database home file system. Create these dependencies and affinities when you configure Oracle ACFS proxy resources for any applications that are managed by Oracle Solaris Cluster data services.

Configure Oracle Solaris Cluster resources for applications that use an Oracle ACFS file system with the following relationships:

- An offline-restart dependency on the corresponding Oracle ACFS file system proxy resource
- A strong positive affinity between the containing resource group and the Oracle ACFS proxy resource group

Create an Oracle Clusterware stop-trigger resource for every Oracle ACFS file system that is used by applications that are managed by Oracle Solaris Cluster. You must create this resource with hard—start and pull-up start dependencies and with a hard-stop dependency on the Oracle Clusterware ACFS resource.

To register and create instances of this resource type, use the following sequence of Oracle Solaris Cluster maintenance commands:

- Register this resource type with the `clresourcetype` command.

- Create instances of this resource type with the `clresource` command.

To make an Oracle ACFS file system available in a zone cluster, configure its mount path under the zone-cluster root path. Use the `clzonecluster` command to add this file system to the zone cluster.

To enable applications that are managed by Oracle Solaris Cluster to use an Oracle ACFS file system from a zone cluster, perform the following tasks:

- Create a `SUNW.wait_zc_boot` resource in the global zone and set the `ZCName` property to the name of the zone cluster.
- Create a `SUNW.scalable_acfs_proxy` resource in the zone cluster, with a strong positive affinity on the `SUNW.wait_zc_boot` resource group.
- Create an Oracle Clusterware proxy resource for the `SUNW.wait_zc_boot` resource.
- Add a hard-start dependency from the Oracle ACFS resource on the Oracle Clusterware proxy resource for the `SUNW.wait_zc_boot` resource.

Standard Properties

For a description of all standard resource properties, see the [r_properties\(5\)](#) man page.

Standard resource properties are overridden for this resource type as follows:

`Init_timeout`

Minimum	60
Default	300

`Fini_timeout`

Minimum	60
Default	300

`Prenet_start_timeout`

Minimum	60
Default	300

`Post_stop_timeout`

Minimum	60
Default	300

Extension Properties

The extension properties of the `SUNW.scalable_acfs_proxy` resource type are as follows:

acfs_mountpoint

This property specifies the mount point of an Oracle ACFS file system.

Data Type	String
Default	No default defined
Minimum length	1
Tunable	When disabled

debug_level

Note – All SQL*Plus messages that the Oracle ACFS proxy resource issues are written to the log file `/var/opt/SUNWscor/oracle_asm/message_log.${RESOURCE}`.

This property indicates the level to which debug messages from the monitor for the Oracle ACFS proxy are logged. When the debug level is increased, more debug messages are written to the system log `/var/adm/messages` as follows:

- 0 No debug messages
- 1 Function Begin and End messages
- 2 All debug messages and function Begin/End messages

You can specify a different value of the `debug_level` extension property for each node that can master the resource.

Data Type	Integer
Range	0–2
Default	0
Tunable	Any time

proxy_probe_interval

This property specifies the interval, in seconds, between probes of the Oracle ACFS resource for which this resource is acting as a proxy.

Data Type	Integer
Range	5–300
Default	30
Tunable	Any time

proxy_probe_timeout

This property specifies the timeout value, in seconds, that the proxy monitor uses when checking the status of the Oracle ACFS resource for which this resource is acting as a proxy.

Data Type	Integer
Range	5–120
Default	60
Tunable	Any time

Examples

EXAMPLE 9 Creating a scalable_acfs_proxy Resource

This example shows the commands to perform the following operations, which create a `scalable_acfs_proxy` resource on a two-node cluster:

1. Registering the `SUNW.scalable_acfs_proxy` resource type
2. Creating the `acfs - rg` resource group and setting the resource-group affinity
3. Adding the `acfs - rs` resource to the `acfs - rg` resource group with offline-restart resource dependencies and setting the `acfs_mountpoint` extension property for one Oracle ACFS file system

The example makes the following assumptions:

- The bash shell is used.
- A resource group that is named `asm - dg - rg` exists and contains a resource of type `SUNW.scalable_asm_diskgroup_proxy` that is named `asm - dg - rs`.
- The Oracle ACFS file-system mount point is `/acfs_mount`.

```
phys-schost-1# clresourcetype register SUNW.scalable_acfs_proxy
phys-schost-1# clresourcegroup create -S \
-p rg_affinities=++asm-dg-rg \
acfs-rg
phys-schost-1# clresource create -g acfs-rg \
-t SUNW.scalable_acfs_proxy \
-p acfs_mountpoint=/acfs_mount \
-p resource_dependencies_offline_restart=asm-dg-rs \
-d acfs-rs
phys-schost-1# clresourcegroup online -M acfs-rg
phys-schost-1# clresource enable acfs-rs
```

Attributes

See [attributes\(5\)](#) for descriptions of the following attributes:

ATTRIBUTE TYPE	ATTRIBUTE VALUE
Availability	SUNWscor

See Also

[clresource\(1CL\)](#), [clresourcegroup\(1CL\)](#), [clresourcetype\(1CL\)](#)

Oracle Solaris Cluster Software Installation Guide

