

# Oracle® Enterprise Manager Ops Center

Readme

12c Release 2 (12.2.2.0.0)

**E38532-03**

December 2014

---

Oracle Enterprise Manager Ops Center Readme includes the following:

- [Prerequisites](#)
- [Installation](#)
- [Upgrade](#)
- [Uninstallation](#)
- [Known Issues](#)
- [References](#)
- [Documentation Accessibility](#)

This Readme file explains how to install and upgrade Oracle Enterprise Manager Ops Center 12c Release 2 (12.2.2.0.0).

## Prerequisites

See the Preparing Your Environment chapter in *Oracle Enterprise Manager Ops Center Installation Guide for Oracle Solaris Operating System* or the Preparing Your Environment chapter in *Oracle Enterprise Manager Ops Center Installation Guide for Linux Operating Systems* for prerequisite information.

The OCDoctor is a tool utility that is designed to check systems for installation prerequisites, troubleshoots issues, and tunes systems for the Oracle Enterprise Manager Ops Center installation. For more information, see the OCDoctor chapter in *Oracle Enterprise Manager Ops Center Administration Guide*. The guide is available in the Oracle Enterprise Manager Ops Center Documentation Library at [http://docs.oracle.com/cd/E40871\\_01/index.htm](http://docs.oracle.com/cd/E40871_01/index.htm).

## Installation

See the *Oracle Enterprise Manager Ops Center Installation Guide for Oracle Solaris Operating System* or the *Oracle Enterprise Manager Ops Center Installation Guide for Linux Operating Systems* for installation and postinstall configuration instructions.

You can download these documents from the Oracle Enterprise Manager Ops Center Documentation Library at [http://docs.oracle.com/cd/E40871\\_01/index.htm](http://docs.oracle.com/cd/E40871_01/index.htm)

## Upgrade

You can upgrade to version 12.2.2.0.0 from version 12.2.1.0.0 or version 12.2.0.0.0. You can upgrade to version 12.2.0.0.0 from version 12.1.3.0.0 or version 12.1.4.0.0.

See the *Oracle Enterprise Manager Ops Center Upgrade Guide* for upgrade procedures.

You can download this document from the Oracle Enterprise Manager Ops Center Documentation Library at [http://docs.oracle.com/cd/E40871\\_01/index.htm](http://docs.oracle.com/cd/E40871_01/index.htm)

## Uninstallation

You can uninstall the components of Oracle Enterprise Manager Ops Center. See the Uninstalling and Unconfiguring section of the *Oracle Enterprise Manager Ops Center Administration Guide* for uninstallation procedures.

You can download this document from the Oracle Enterprise Manager Ops Center Documentation Library at [http://docs.oracle.com/cd/E40871\\_01/index.htm](http://docs.oracle.com/cd/E40871_01/index.htm)

## Known Issues

This section explains the known issues that you might encounter when installing, or upgrading to, Oracle Enterprise Manager Ops Center 12c Release 2 Update 2 and the possible workarounds available.

For information on known issues related to installation and postinstallation configuration, see the *Oracle Enterprise Manager Ops Center Release Notes*.

The following are known issues that you might encounter:

- [Manually Migrate Report Service Data After Upgrade To Version 12.2.0.0.0](#)
- [Oracle Solaris 11.1 Operating System Provisioning Fails on Some Systems Due To a Firmware Bug](#)
- [Logical Domain Relationship is Lost After Automatic Recovery](#)
- [Upgrade to Version 12.2.0.0.0 in Oracle Solaris 11 High Availability Environment Fails Due to Port Redirect Error](#)
- [Too Many ASR Jobs Are Created When Upgrading Large Environments](#)
- [Oracle Linux Installer Does Not Check for Required Packages](#)
- [OS Provisioning Fails With DHCP Error After Upgrading to Version 12.2.0.0.0](#)
- [Initializing Oracle Solaris 11 Library Fails When Re-Using Existing Oracle Solaris 11 Library](#)
- [Hardware Components Do Not Display Enhanced View After Upgrading to Version 12.2.0.0.0](#)
- [Some Zones Do Not Display Correct Version After Upgrade to Version 12.2.0.0.0](#)
- [Deleted Oracle SuperCluster Rack Cannot Be Recreated](#)
- [Oracle Solaris 11.2 Import ISO Job Fails With 'Cannot Be Cast' Exception](#)
- [Association of Network to Oracle Solaris 11 Control Domain Job Fails With Unclear Results](#)
- [Oracle Solaris 10 Branded Zone Creation Fails: Global Zone Cannot Find OS Image](#)

- Discovery of M6 Server Can Fail if PDOM Does Not Respond Correctly
- Adding Storage to an LDOM When NFS Base Disk is Not On Primary Leads to Job Error
- Delete Oracle SuperCluster From Asset Tree Action Does Not Delete Assets
- Newly Configured Network From Outside Ops Center Does Not Appear in the User Interface
- ILOM Hostname Is Displayed Instead of OS Hostname For Exadata Cell Asset Name
- The Power Status of ILOM Assets Sometimes Shows an Incorrect Status
- Execute Operation Is Not Enabled For Groups of Assets if One Asset Is Offline
- Unable to Use Console for Manually Created Zone in Agent-Managed Control Domain
- No Data in Storage Tab for LDOM
- Install Fails With Permission Error While Installing SUNWuces.pkg
- Switch From Agent Managed to Agentless Fails With Unclear Message For Unprivileged User
- Ops Center Installation Fails on Oracle Solaris 10 With Java 6 Patch 125137-75

## Manually Migrate Report Service Data After Upgrade To Version 12.2.0.0.0

The format of DB tables used by historical data service is improved in version 12.2.0.0.0 to save space in the database.

The upgrade process automatically converts the database to the new format. If this portion of the upgrade is not successful, an error message appears on the command line and in the `/var/opt/sun/xvm/update-saved-state/update_EC_minor_bundle_12.2.0.<build number>/updatelog.txt` file, and you must update the database manually.

Perform the following steps to migrate the Report Service Data:

1. Start the Oracle Enterprise Manager Ops Center CLI and connect to the Enterprise Controller.

```
/opt/SUNWoccli/bin/oc
xvmSh > connect
```

2. Use the report service CLI.

```
localhost > reports
```

3. List the existing partitions.

```
localhost/reports > list
```

For example:

```
localhost/reports > list
Daily partition 20140122 (with 0/0/0/0/0 values) state is : 1
Daily partition 20140204 (with 1200/0/0/0/0 values) state is : 0
Daily partition 20140205 (with 605/0/0/0/0 values) state is : 0
Daily partition 20140206 (with 6205/0/0/0/0 values) state is : 0
Daily partition 20140207 (with 0/0/0/0/0 values) state is : 0
```

Older samples (outside partitions) : 0/16416/1368/684/684

**4. Run the check command to display the partitions that require conversion.**

```
localhost/reports > check
```

For example:

```
localhost/reports > check
@ Partition 20140122 : no conversion is needed
@ Partition 20140204 : a conversion is needed for 1200 old samples
@ Partition 20140205 : no conversion is needed
@ Partition 20140206 : no conversion is needed
@ Partition 20140207 : no conversion is needed
```

**5. For each partition that requires conversion, run the following command:**

```
localhost/reports > convert -p <partition name>
```

For example:

```
localhost/reports > convert -p 20140204
This operation may take time : please be patient and wait...
Conversion of old samples : starting ...
1200 old format samples converted for partition 20140204 in table
rm_resource_daily_trend in 261 ms
0 old format samples converted for partition 20140204 in table
rm_resource_1hour_trend in 11 ms
0 old format samples converted for partition 20140204 in table
rm_resource_12hour_trend in 3 ms
0 old format samples converted for partition 20140204 in table
rm_resource_24hour_trend in 1 ms
0 old format samples converted for partition 20140204 in table
rm_resource_24hour_stats in 1 ms
Old format sample conversion for partition 20140204 : done in 318 ms with
1200 samples : perf = 0 samples / seconds
```

**6. Verify that all the partitions are converted.**

```
localhost/reports > check
```

For example:

```
localhost/reports > check
Partition 20140122 : no conversion is needed
Partition 20140204 : no conversion is needed
Partition 20140205 : no conversion is needed
Partition 20140206 : no conversion is needed
Partition 20140207 : no conversion is needed
All samples have been converted : please run the convert command with no
argument to finish the migration
```

**7. Finalize the migration using the convert command.**

```
localhost/reports > convert
```

For example:

```
localhost/reports > convert
This operation may take time : please be patient and wait...
Conversion of old samples : starting ...
0 old format samples converted for partition null in table
```

```
rm_resource_daily_trend in 5 ms
Suppressing useless column and index for table rm_resource_daily_trend
16416 old format samples converted for partition null in table
rm_resource_1hour_trend in 3674 ms
Suppressing useless column and index for table rm_resource_1hour_trend
1368 old format samples converted for partition null in table
rm_resource_12hour_trend in 315 ms
Suppressing useless column and index for table rm_resource_12hour_trend
684 old format samples converted for partition null in table
rm_resource_24hour_trend in 183 ms
Suppressing useless column and index for table rm_resource_24hour_trend
684 old format samples converted for partition null in table
rm_resource_24hour_stats in 106 ms
Suppressing useless column and index for table rm_resource_24hour_stats
Old format sample conversion : done in 5139 ms with 19152 samples : perf =
3830 samples / seconds
```

**8. Verify that the migration is complete.**

```
localhost/reports > check
```

For example:

```
localhost/reports > check
Table rm_resource_daily_trend is already at new format
Table rm_resource_1hour_trend is already at new format
Table rm_resource_12hour_trend is already at new format
Table rm_resource_24hour_trend is already at new format
Table rm_resource_24hour_stats is already at new format
All conversions have been performed : migration is DONE !
```

**9. Exit the CLI.**

```
localhost/reports > exit
The Report Service Data is now migrated.
```

## Oracle Solaris 11.1 Operating System Provisioning Fails on Some Systems Due To a Firmware Bug

---

---

**Note:** This issue is fixed in version 12.2.1.0.0.

---

---

Oracle Solaris 11.1 operating system provisioning fails at Reset to Factory Default if the system is powered on with the operating system installed. In addition, some Oracle Solaris 10 ISC/DHCP operating system provisioning jobs fail at the Netboot step with no further workaround. A bug in the firmware versions 9.1.1 and 9.1.1.a on all T5, M5, and M6 systems causes this issue.

### Workaround

Upgrade or downgrade the firmware to avoid using version 9.1.1. If you encounter the error, rerun the job or manually power off the system.

## Logical Domain Relationship is Lost After Automatic Recovery

Automatic recovery of a logical domain results in loss of relationship information, such as the current name and associations with other assets. The on-disk data and

configuration are not damaged, only the relationship between the data and the environment is lost. This issue is encountered only on systems running older versions of Oracle Solaris. The issue is resolved in Oracle Solaris 11.1.16.

#### **Workaround**

File a service request to recover the relationship information.

### **Upgrade to Version 12.2.0.0.0 in Oracle Solaris 11 High Availability Environment Fails Due to Port Redirect Error**

When you upgrade Oracle Solaris 11 High Availability environment to version 12.2.0.0.0, you must switch the Enterprise Controller to a standalone mode. However, in this state, the Oracle Solaris 11 update library port is not redirected correctly, causing the upgrade to fail.

#### **Workaround**

Run the following commands on the Enterprise Controller system before performing the upgrade:

```
ecadm stop -w
% sh -c "echo " > /var/opt/sun/xvm/uce/etc.opt/server/uce_server/proxy.conf"
ecadm start -w
```

Verify that the file is empty before beginning the upgrade.

```
# cat /var/opt/sun/xvm/uce/etc.opt/server/uce_server/proxy.conf
#
```

### **Too Many ASR Jobs Are Created When Upgrading Large Environments**

When you upgrade large environments to version 12.2.0.0.0, too many Auto Service Request (ASR) jobs are created.

#### **Workaround**

Disable ASR before beginning the upgrade, upgrade the software, then enable ASR.

1. Click **Administration** in the Navigation pane, then select the Enterprise Controller.
2. Click **Disable ASR** in the Actions pane.
3. Upgrade your environment.
4. Click **Administration** in the Navigation pane, then select the Enterprise Controller.
5. Click **Enable ASR** in the Actions pane.

### **Oracle Linux Installer Does Not Check for Required Packages**

The installation does not check for the required packages such as `ksh` and `zlib.i686` on Oracle Linux.

#### **Workaround**

Install the `ksh` and `zlib.i686` packages before or after the Oracle Linux installation.

## OS Provisioning Fails With DHCP Error After Upgrading to Version 12.2.0.0.0

After upgrading to version 12.2.0.0.0, OS provisioning fails with an error message indicating that DHCP is not initialized.

### Workaround

Disable DHCP on the networks and re-enable them. In some cases, the DHCP configuration may be marked as *in use* in the database, which disables the Configure DHCP button. If this is the case, run the following commands on the Enterprise Controller host and then re-run the OS Provisioning job.

```
/opt/SUNWxvmoc/bin/ecadm sqlplus  
SQL>delete from as_dhcp_config;  
SQL>exit
```

## Initializing Oracle Solaris 11 Library Fails When Re-Using Existing Oracle Solaris 11 Library

When reusing an existing Oracle Solaris 11 Package Repository source during configuration of Oracle Enterprise Manager Ops Center, the Oracle Solaris 11 source repository step fails.

In the Storage Libraries section, when you click Initialize Oracle Solaris 11 Software Update Library and enter the URL, an error message is displayed and the job fails.

### Workaround

Perform the following steps:

1. Delete the current Oracle Solaris 11 Library in the user interface.
2. Create a new library directory for the existing Oracle Solaris 11 Library contents.
3. Go to the existing library directory, then change to the Ops Center-created directory named for your UUID.
4. Copy or move the <Library>/<UUID>/data/pkg5.repository and <Library>/<UUID>/data/publisher files to the new library directory.
5. Initialize the library using the new directory.

## Hardware Components Do Not Display Enhanced View After Upgrading to Version 12.2.0.0.0

After a complete upgrade to version 12.2.0.0.0, some hardware component names differ from those seen in a fresh installation. Also, some PCI devices do not appear in the upgraded Enterprise Controller.

### Workaround

Delete the access point, then rediscover the ILOm.

## Some Zones Do Not Display Correct Version After Upgrade to Version 12.2.0.0.0

After upgrading the Enterprise Controller, Proxy Controllers, and Agent Controllers, some local zones are not displayed as upgraded.

### Workaround 1

Retry the Agent Controller upgrade on the non-global zone.

### Workaround 2

Restart the Agent Controller on the non-global zone. Change to the directory (/opt/SUNWxvmoc/bin) containing the agentadm command.

```
./agentadm stop
```

```
./agentadm start
```

## Deleted Oracle SuperCluster Rack Cannot Be Recreated

If you have an Oracle SuperCluster system with one rack, and you remove the rack in the Oracle Enterprise Manager Ops Center UI, there is no way to recreate the rack.

### Workaround

1. Delete all of the ILOMs of discovered servers within the Oracle SuperCluster.
2. Repeat the discovery of the Oracle SuperCluster system.  
The rack and its server assets are added.
3. Add all remaining assets into the rack, using the **Place/Remove assets in Rack** and **Place/Remove PDU(s) in Rack** actions.

## Oracle Solaris 11.2 Import ISO Job Fails With 'Cannot Be Cast' Exception

Importing ISO images of Oracle Solaris 11.2 intermittently fails with a "Cannot Be Cast" exception.

### Workaround

Apply the workaround found in MOS Note 1663862.1: Memory Management Between ZFS and Applications in Oracle Solaris 11.2.

## Association of Network to Oracle Solaris 11 Control Domain Job Fails With Unclear Results

In an environment with multiple Control Domains that are directly interconnected using statically allocated IPs, attempting to attach a new network can fail with an inconsistent error message. The job indicates that the network plumbing was successful, then fails with an error saying that one or more hosts were not plumbed correctly. The Control Domains are actually left in an intermediate state with a new VNIC, but no IP address assigned.

### Solution

1. Log in to the Control Domain.
2. Remove the IP address. For example:

```
ipadm delete-ip <wrong_vnic>
```

3. Remove the VNIC. For example:

```
dladm delete-vnic <wrong_vnic>
```

4. Remove the virtual switch. For example:

```
ldm remove-vswitch <wrong_vswitch>
```

5. Log in to the Ops Center UI.
6. Select the Control Domain and click **Refresh** in the actions pane.

#### **Workaround**

Rerun the job, but provide IP addresses rather than using system-generated IP addresses.

### **Oracle Solaris 10 Branded Zone Creation Fails: Global Zone Cannot Find OS Image**

If a Global Zone is in a private network and cannot directly access the Enterprise Controller, it cannot use ISO images stored in the Enterprise Controller library.

#### **Workaround**

Copy the ISO image to the target system and use the local copy.

### **Discovery of M6 Server Can Fail if PDOM Does Not Respond Correctly**

If the PDOM hangs or is slow to respond during an M6 discovery, the system can be displayed as a generic server.

### **Adding Storage to an LDOM When NFS Base Disk is Not On Primary Leads to Job Error**

When adding storage to a LDOM guest using a NFS library provided by an alternate root domain (not the primary), the CreateVirtDiskImage job fails in the Create Concrete task on the non-primary root domain.

### **Delete Oracle SuperCluster From Asset Tree Action Does Not Delete Assets**

The Delete Rack action deletes the Oracle SuperCluster rack from the asset tree but does not delete assets such as servers, switches, or storage that belong to the rack.

### **Newly Configured Network From Outside Ops Center Does Not Appear in the User Interface**

If you configure a private network on the OS level outside of Oracle Enterprise Manager Ops Center, and the OS instance is the Enterprise Controller OS which is not agent managed, the newly configured network does not appear in the user interface.

#### **Workaround**

Restart the Enterprise Controller.

## **ILOM Hostname Is Displayed Instead of OS Hostname For Exadata Cell Asset Name**

On an Oracle SuperCluster system, in some cases the ILOM hostname is displayed instead of OS hostname for Exadata cells.

## **The Power Status of ILOM Assets Sometimes Shows an Incorrect Status**

The power status of ILOM assets sometimes shows "Off" at Dashboard tab in the user interface, even though the current power status is "On".

When this occurs, the **Power On** icon in the Actions pane is active and the **Power Off** icon is inactive.

## **Execute Operation Is Not Enabled For Groups of Assets if One Asset Is Offline**

The "Execute Operation" action is greyed out for groups of Operating System assets if at least one of them is in an unknown/offline state.

### **Workaround**

Select the Operational Plan first and then select the group as a target.

## **Unable to Use Console for Manually Created Zone in Agent-Managed Control Domain**

If you manually create a zone in an agent-managed control domain, the console access user is given an incorrect role and cannot access the console.

### **Workarounds**

The first workaround is to connect to the control domain console, then connect to the zone.

The second workaround is to give the user the correct role.

1. Select **Administration** in the Navigation pane.
2. Click the **Roles** tab.  
The Roles page is displayed.
3. Select the oemOCxxxx user from the list of users, where xxxx is a number set by the system.
4. Click the **Manage User Roles** icon.
5. Add the Zone Management role, then click **Next**.
6. The Summary page is displayed. Click **Finish**.

## **No Data in Storage Tab for LDOM**

For an LDOM system, the Network Connectivity sub-tab in the Network tab shows no data, even though the Port Connectivity sub-tab correctly shows the ports.

## Install Fails With Permission Error While Installing SUNWuces.pkg

An installation can fail during the Install application packages step when SUNWuces.pkg failed to install. This occurs when the "users" group is an LDAP managed group, not a local group.

### Workaround

The first workaround is to continue the installation if it is in progress, or restart the installation if it has been interrupted.

The second workaround is to manually create a local "users" group and manually install the SUNWuces.pkg.

## Switch From Agent Managed to Agentless Fails With Unclear Message For Unprivileged User

On systems which are currently Agent-managed, switching to agentless management using the Switch Management Access action can fail with a message indicating a missing /var/tmp/agentadm.log file.

The problem occurs because a non-privileged user is used for agentless management.

## Ops Center Installation Fails on Oracle Solaris 10 With Java 6 Patch 125137-75

---

---

**Note:** This issue is fixed in version 12.2.2.0.0.

---

---

Ops Center installation failed on Oracle Solaris 10 at step #21 if 125137-75 (java 6 version 75) was installed in the OS.

### Workaround

1. Uninstall the 1.6.0\_65 SUNWj6rt package.
2. Install the 1.6.0\_75 SUNWj6rt package.
3. Start the Enterprise Controller using the 'ecadm start -w' command.
4. Archive the installer image.

If the /var/opt/sun/xvm/EnterpriseController\_installer\_12.2.1.810 directory does not exist, create it, then copy the installer image to this directory using the following command:

```
cp -rp <location of Enterprise Controller installation bundle>/xvmoc_full_bundle/ */var/opt/sun/xvm/EnterpriseController_installer_12.2.1.810
```

5. Update the /n1gc-setup/.version.properties file to correct the following properties:

```
product.version=12.2.1.810
product.installLocation=/var/opt/sun/xvm/EnterpriseController_installer_12.2.1.810
```

## References

The following documents are related to installing and upgrading Oracle Enterprise Manager Ops Center 12c Release 2 (12.2.2.0.0).

- **Oracle Enterprise Manager Ops Center Release Notes, 12c Release 2 (12.2.2.0.0):** This document provides links to other documentation for installing and uninstalling the software. It also includes a list of known issues related to installation and postinstallation configuration.
- **Oracle Enterprise Manager Ops Center Installation Guide for Oracle Solaris Operating System, 12c Release 2 (12.2.2.0.0):** This document provides detailed instructions on performing a fresh installation of Oracle Enterprise Manager Ops Center on Oracle Solaris systems.
- **Oracle Enterprise Manager Ops Center Installation Guide for Linux Operating Systems, 12c Release 2 (12.2.2.0.0):** This document provides detailed instructions on performing a fresh installation of Oracle Enterprise Manager Ops Center on Oracle Linux or Red Hat Enterprise Linux systems.
- **Oracle Enterprise Manager Ops Center Administration Guide, 12c Release 2 (12.2.2.0.0):** This document provides instructions on administering, managing, and uninstalling Oracle Enterprise Manager Ops Center.

You can view these documents in the Oracle Enterprise Manager Ops Center Documentation Library at [http://docs.oracle.com/cd/E40871\\_01/index.htm](http://docs.oracle.com/cd/E40871_01/index.htm).

## Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at

<http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

## Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit

<http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit

<http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

---

Oracle Enterprise Manager Ops Center Readme, 12c Release 2 (12.2.2.0.0)  
E38532-03

Copyright © 2007, 2014, Oracle and/or its affiliates. All rights reserved.

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

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

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

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

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

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

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks

or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

