

Oracle® Solaris 11.4 Release Notes

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Using This Documentation

- **Overview** – *Oracle® Solaris 11.4 Release Notes* provides some important installation, update, and runtime information that you should consider before installing or running the Oracle Solaris 11.4 operating system (OS). This document describes known issues in this release, including workarounds whenever possible. This document also includes a list of bugs that were documented for the previous release and are fixed in this release.
- **Audience** – Users and system administrators who install and use the Oracle Solaris 11.4 OS.
- **Required knowledge** – Troubleshooting experience with the Oracle Solaris 11 OS.

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Dedication

This Oracle Solaris 11.4 release is dedicated with great appreciation to the [memory](#) of UNIX pioneer Roger Faulkner (1940-2016).

Roger worked at Bell Labs from 1976 until 1990, where he [co-created the /proc file system](#), and was a leader and mentor in Solaris engineering from the time he joined Sun Microsystems in 1990 until his passing. Every single release of Solaris from Sun Solaris 2.0 through Oracle Solaris 11.4 has included Roger's work, and we are proud to publish his final changes in this release.

Lifetime Support Policy for Oracle Solaris

For information about the lifetime support policy for Oracle Solaris, see Page 35 of *Oracle Lifetime Support Policy: Oracle and Sun System Software and Operating Systems* (<https://www.oracle.com/us/assets/lifetime-support-hardware-301321.pdf>).

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◆◆◆ CHAPTER 1

Before You Begin

This chapter discusses general installation, update, and runtime information that you need to consider before installing or running Oracle Solaris 11.4.

Installation Considerations

This section provides information for installing Oracle Solaris 11.4.

System Requirements for Installing Oracle Solaris 11.4

This section provides memory and disk space requirements for installing Oracle Solaris 11.4.

Oracle Solaris provides several system installation group packages. The text installer and the default AI manifest in an Automated Installer installation install the `solaris-large-server` group package. The default installation manifest for non-global zones installs the `solaris-small-server` group package. The `solaris-minimal-server` group package installs the minimum supported set of packages required to run Oracle Solaris. You might want to modify a default installation manifest to install `solaris-minimal-server`, and then install additional packages as needed.

The recommended minimum system memory is 4 GB.

The following table shows the recommended minimum disk space for each system installation package group.

TABLE 1 Package Disk Space Requirements and Installation Types

System Installation Package Group	Recommended Minimum Disk Space
<code>solaris-desktop</code>	13 GB

System Installation Package Group	Recommended Minimum Disk Space
solaris-large-server	9 GB
solaris-small-server	7 GB
solaris-minimal-server	6 GB

Platform Support

Oracle Solaris 11.4 supports systems based on the Oracle SPARC T4 or later processors; the Fujitsu SPARC64™ X, X+, or XII processors; or x64 CPUs supporting either the Intel EM64T or AMD AMD64 instruction sets.

You will not be able to upgrade to Oracle Solaris 11.4 on any of the following platforms. See [Oracle Solaris 11.3 Support \(Doc ID 2382427.1\)](#) for information about keeping these systems up to date with critical fixes for Oracle Solaris 11.3 until you can upgrade the hardware:

- SPARC Enterprise M3000, M4000, M5000, M8000, and M9000 systems that use SPARC64 VI, VII, or VII+ CPUs.
- Platforms based on UltraSPARC T1 CPUs - Sun Fire T1000 and T2000, Sun SPARC Enterprise T1000 and T2000, Netra CP3060, Netra T2000, and Sun Blade T6300
- Platforms based on UltraSPARC T2 CPUs - Sun SPARC Enterprise T5120 and T5220, Sun Blade T6230, Netra CP3260, and Netra T5220
- Platforms based on UltraSPARC T2+ CPUs: Sun SPARC Enterprise T5140, T5240 and T5440, Sun Blade T6340, Sun Netra T6340, and Netra T5440
- Platforms based on SPARC T3 CPUs: SPARC T3-1, T3-1B, T3-2 and T3-4, Netra SPARC T3-1, and Netra SPARC T3-1BA
- Sun Java Workstation models: W1100z, W2100z
- Sun Ultra Workstation models: 20, 20 M2, 40, 40 M2
- Sun Fire server models: V20z, V40z, X2100, X2100 M2, X2200 M2, X4100, X4100 M2, X4140, X4200, X4200 M2, X4240, X4440, X4540, X4600, X4600 M2, X4640
- Sun Blade server modules: X6220, X6240, X6440, X8400, X8420, X8440
- Netra X4200 M2

Some capabilities that were available in Oracle Solaris 11.3 and earlier releases are now obsolete and have been removed from Oracle Solaris 11.4. An upgrade to Oracle Solaris 11.4 will remove any obsolete capabilities that are currently installed on the system. For example, drivers for some legacy devices have been deprecated in Oracle Solaris 11.4. If you upgrade systems with these devices, you might lose the ability to access those devices from Oracle Solaris 11.4. Before you upgrade, review the [End of Feature Notices for Oracle Solaris 11.4](#).

For information about supported systems and implementation differences between platform types, see [Oracle Solaris 11 Hardware Compatibility List](#).

Oracle recommends updating your system firmware to the latest available prior to installation of Oracle Solaris 11.4. See [Firmware Downloads and Release History for Oracle Systems](#).

SPARC: Legacy Systems Require Firmware Update to Support Oracle Solaris Kernel Zones

Although Oracle SPARC T4, SPARC T5, SPARC M5, SPARC M6, and Fujitsu SPARC M10 systems were released with firmware versions to boot Oracle Solaris 11.4, the firmware must be updated if Oracle Solaris kernel zones support is required. Oracle SPARC M7, SPARC M8, SPARC T7, and SPARC T8 systems do not require firmware updates to support kernel zones on Oracle Solaris 11.4.

For information about hardware and software requirements for kernel zones, see “[Software and Hardware Requirements for Oracle Solaris Kernel Zones](#)” in *Creating and Using Oracle Solaris Kernel Zones*.

Installing Oracle Solaris 11.4

The instructions in this section are for a fresh installation. If you are updating an older Oracle Solaris 11 installation, see [Updating Your Operating System to Oracle Solaris 11.4](#).

For a fresh installation, go to the [Oracle Solaris 11 - Downloads](#) site to accept the license and download one of the Oracle Solaris 11.4 installation images.

To install Oracle Solaris 11.4, see the following installation guides:

- [Automatically Installing Oracle Solaris 11.4 Systems](#)
- [Manually Installing an Oracle Solaris 11.4 System](#)

Use one of the following methods to access additional Oracle Solaris 11.4 packages:

- Download the Oracle Solaris 11.4 package repository file.
Go to the [Oracle Solaris 11 - Downloads](#) site to download the Oracle Solaris 11.4 package repository file.
See [Creating Package Repositories in Oracle Solaris 11.4](#) for information about downloading and installing a local package repository, configuring the `solaris` publisher to use the local repository, and providing access to the local repository from other systems.
- Use the `pkg.oracle.com/solaris/support` or `pkg.oracle.com/solaris/release` package repository.

If you add packages as part of the installation, use the `key` and `cert` elements of the `credentials` element in the installation manifest.

setterm Is Not Automatically Installed

Starting with Oracle Solaris 11.2, `setterm` is no longer installed as part of the `system/locale/extra` package.

To get `setterm`, install the `system/locale/setterm` package.

```
# pkg install system/locale/setterm
```

See the [setterm\(1\)](#) man page for information about the `setterm` command.

Update Considerations

To update, follow the instructions in [Updating Your Operating System to Oracle Solaris 11.4](#).

If you are updating a VirtualBox guest, see “[Spectre Mitigation Warning During VirtualBox Guest Installation \(28441940\)](#)” on page 21.

Pre-Update Checks

Before updating the system, perform the following checks:

setterm

If the `system/locale/setterm` package is installed in any native zone but *not* in the global zone, do one of the following:

- Install the `system/locale/setterm` package in the global zone.
- Uninstall the `system/locale/setterm` package from all native zones.

If the system has this issue, a `pkg update` will display an error like the following:

```
Reason: No version matching 'incorporate' dependency
system/locale/setterm@0.5.11-0.175.3.27.0.4.0 can be installed
-----
Reject: pkg://solaris/system/locale/setterm@0.5.11-0.175.3.27.0.4.0
Reason: Package system/locale/setterm is not installed in global
zone.
```

Java 8	<p>If your java mediated link does not have version 1.8 as its value, see “Using Java 8” on page 16. Use the following command to check the value of the java mediated link:</p> <pre>\$ pkg mediator java</pre>
Size of /var/tmp	<p>First boot of a system after update to Oracle Solaris 11.4 can take a very long time if certain directories under /var, such as /var/tmp, contain large amounts of data. See “Clean up /var/tmp” on page 16 for more information.</p>
MySQL 5.1	<p>If MySQL 5.1 is installed, see “How to Update to MySQL 5.5 Before Updating Your System To Oracle Solaris 11.4” on page 17.</p>
OpenLDAP 2.4	<p>On any system that is running an OpenLDAP server, export the LDAP database to LDAP Data Interchange Format (LDIF) in order to migrate the data to the newly updated system. See “How to Migrate Existing OpenLDAP Server Configuration” in <i>Working With Oracle Solaris 11.4 Directory and Naming Services: LDAP</i> for instructions. A system that is running an OpenLDAP server has the svc:/network/ldap/server:openldap enabled and online.</p>
Pre-Update Checker	<p>Oracle provides a pre-update checker to help you determine whether a system that is running Oracle Solaris 11.3 SRU 35 or newer is ready to update to Oracle Solaris 11.4. The report generated by this checker identifies superseded software versions and unsupported hardware. This checker is part of the Enterprise Health Check (EHC) tool. See Updating Your Operating System to Oracle Solaris 11.4 for information about how to install and use the pre-update checker.</p>

Post-Update Checks

After updating the system, consider the following changes:

Fiber channel storage on SPARC systems

If the system is a SPARC system and uses fiber channel storage, see [“SPARC: Configuration Changes for Fiber Channel Storage” on page 23](#).

Java 8

If the java command is not found, see [“Using Java 8” on page 16](#).

```
$ java
```

```
-bash: java: command not found
```

MySQL 5.1

If MySQL 5.1 is installed, see [“How to Update to MySQL 5.5 After Updating Your System To Oracle Solaris 11.4”](#) on page 18.

OpenLDAP 2.4

On any system that is running an OpenLDAP server, remove the old OpenLDAP database and import the new LDIF data as described in [“How to Migrate Existing OpenLDAP Server Configuration”](#) in *Working With Oracle Solaris 11.4 Directory and Naming Services: LDAP*.

Bundled software updates

Consider the effects of version updates of bundled software. See [“Oracle Solaris 11.4 Bundled Software Updates”](#) in *Freeware Available in Oracle Solaris 11.4*. Check the documentation that is maintained by the third-party vendor or FOSS community for particular software components for any issues related to updating the version of that software as part of the Oracle Solaris update.

In particular for this release, if you have Puppet installed, see [“What’s New in Puppet in Oracle Solaris 11.4”](#) in *Using Puppet to Perform Configuration Management in Oracle Solaris 11.4*.

Using Java 8

Updating to Oracle Solaris 11.4 removes Java 7. The default version of Java for Oracle Solaris 11.3 is Java 8. If the default version of Java on your Oracle Solaris 11.3 system was changed by re-setting the java mediated link (as in `pkg set-mediator -V 1.7 java`), then after upgrade to Oracle Solaris 11.4, this link points to a path that does not exist. To use Java 8, do one of the following:

- Reset the mediated link.

```
# pkg set-mediator -V 1.8 java
```
- Specify the full path to Java 8: `/usr/jdk/instances/jdk1.8.0/bin/java`

Clean up /var/tmp

The first boot of a system after update to Oracle Solaris 11.4 can experience delays as the system relocates portions of the data stored under `/var` into shared datasets under `/var/share`. Shared datasets are datasets that are not part of the Oracle Solaris 11.4 boot environment

(BE) but are shared with all BEs. In some cases, such as when `/var/tmp` contains a very large amount of data, this data migration can fail to complete.

To avoid a large boot delay and incomplete data migration, before updating to Oracle Solaris 11.4, remove files stored in `/var/tmp`. Move any data that you want to keep into ZFS datasets that are outside the BE, for example under `/export`. Any data that remains in `/var/tmp` should be only data that cannot easily be moved, for example because that data is currently in use. Best practice is to not use `/var/tmp` for permanent data storage.

After booting into Oracle Solaris 11.4, inspect the SMF service log of the `system/filesystem/minimal` service for errors:

```
$ svcs -Lv system/filesystem/minimal
```

If any errors were logged while booting Oracle Solaris 11.4, reboot the system to attempt to complete the migration. Re-inspect the service log after reboot.

Update from MySQL 5.1 to MySQL 5.5

The procedures in this section describe how to update from MySQL 5.1 to MySQL 5.5.

▼ How to Update to MySQL 5.5 Before Updating Your System To Oracle Solaris 11.4

1. Install the MySQL 5.5 package.

```
# pkg install database/mysql-55@latest
```

2. Verify if the `mysql` service is running.

```
# svcs -a | grep mysql
```

3. Start the MySQL 5.1 service if the service is not already running.

```
# svcadm enable svc:/application/database/mysql:version_51
```

4. Back up the MySQL 5.1 data.

```
# mysqldump --all-databases > 5_1.sql
```

5. Stop the MySQL 5.1 service and start the MySQL 5.5 service.

```
# svcadm disable svc:/application/database/mysql:version_51
```

```
# svcadm enable svc:/application/database/mysql:version_55
```

6. Restore the backup data from MySQL 5.1.

```
# mysql < 5_1.sql
```

7. Run the `mysql_upgrade` script to fix any database incompatibilities.

```
# /usr/mysql/5.5/bin/mysql_upgrade
```

The `mysql_upgrade` script also upgrades the MySQL system database so that you can take advantage of new privileges or capabilities.

8. Stop and restart the server so that any changes made to the system tables take effect.

▼ **How to Update to MySQL 5.5 After Updating Your System To Oracle Solaris 11.4**

1. Install the MySQL 5.5 package.

```
# pkg install mysql55
```

2. Stop the MySQL 5.1 service.

```
# svcadm disable svc:/application/database/mysql:version_51
```

3. Copy the database files to a new directory.

```
# cp /var/mysql/5.1/data/*.db /var/mysql/5.5/data/*.db
```

4. Start the MySQL 5.5 service.

```
# svcadm enable svc:/application/database/mysql:version_55
```

5. Run the `mysql_upgrade` script to fix any database incompatibilities.

```
# /usr/mysql/5.5/bin/mysql_upgrade
```

Runtime Considerations

This section provides general information that you need to consider while running the Oracle Solaris 11.4 OS.

Java Recommendations

The Java environment delivered in Oracle Solaris 11.4 is Java 8.

`/usr/ccs/bin` Is a Symbolic Link to `/usr/bin`

The `/usr/ccs/bin` directory is a symbolic link to `/usr/bin`.

Because of this change, for example, the `/usr/ccs/bin:/usr/gnu/bin:/usr/bin` path in the `PATH` environment variable is now equivalent to `/usr/bin:/usr/gnu/bin`. This change might result in changes to the utilities that are found by `PATH` searches.

If the `/usr/ccs/bin` change causes issues in locating GNU utilities, the `PATH` environment variable should be rearranged to place `/usr/gnu/bin` earlier than `/usr/bin` or utilities should be invoked with a full path.

GNOME Always Starts in a UTF-8 Locale

Because GNOME 3 only supports UTF-8 locales, when the system locale is not a UTF-8 locale, the GNOME session in Oracle Solaris runs in the corresponding UTF-8 locale. For example, if the system locale is `fr_FR.ISO8859-1`, GNOME desktop will run with `fr_FR.UTF-8`.

Keyboard Input Language Support

Keyboard input support for some languages has been dropped in Oracle Solaris 11.4 as described in “Desktop Input Components” in [End of Feature Notices for Oracle Solaris 11](#).

To enter input in a language that is not supported, on the Oracle Solaris 11.4 system, install language engines from third party sources.

IP Filter is Not Supported in Oracle Solaris 10 Zones

Because IP Filter is not available in Oracle Solaris 11.4 (see “IP Filter” in [End of Feature Notices for Oracle Solaris 11](#)), IP Filter also is not supported in Oracle Solaris 10 zones running on Oracle Solaris 11.4 systems.

Installation Issues

This chapter describes issues that you might encounter during the installation of Oracle Solaris 11.4 and suggests workarounds where available.

Issues When Installing Oracle Solaris 11.4

The following issues might occur during or after the installation of Oracle Solaris 11.4.

Spectre Mitigation Warning During VirtualBox Guest Installation (28441940)

When installing Oracle Solaris 11.4 as a VirtualBox guest, or updating an existing VirtualBox guest to Oracle Solaris 11.4, a message similar to the following might appear on the console in the menu selection screen:

```
SUNW-MSG-ID: SUNOS-8000-LG, TYPE: Alert, VER: 1, SEVERITY: Major
EVENT-TIME: time
PLATFORM: VirtualBox, CSN: 0, HOSTNAME: host
SOURCE: software-diagnosis, REV: 0.2
EVENT-ID: ID
DESC:
AUTO-RESPONSE: No automated response available
IMPACT: Oracle Solaris is not running with Spectre Vulnerability Mitigation Enabled
REC-ACTION: Update the CPU with the Spectre capable microcode. Please refer to the
associated reference document at http://support.oracle.com/msg/SUNOS-8000-LG for the
latest service procedures and policies regarding this diagnosis.
```

Workaround: Shut down and restart the VM after enabling Spectre vulnerability mitigation.

1. Shut down the VM.
2. Enable Spectre vulnerability mitigation.

```
$ /opt/VirtualBox/VBoxManage list vms
...
"11.4" {2de193ee-50cd-45d8-9527-72e648438bf5}
...
$ /opt/VirtualBox/VBoxManage modifyvm 11.4 --spec-ctrl on
```

3. Restart the VM.

For more information, see the documentation for the `--spec-ctrl` option in [VBoxManage modifyvm](#) on [virtualbox.org](#).

Text Installer Displays in English When Another Language Is Chosen (15744356)

When using the text installer on an equivalent of a physical console such as a web-based remote keyboard, video monitor, mouse, or VirtualBox console, the installer displays text in English even if you have chosen another language during the boot from the install media. The installer displays text in English to avoid a garbled display of non-ASCII characters.

The text installer displays localized text only on an equivalent of a serial console, for example, a service console based on SSH or telnet.

Workaround: None.

Unified Archives Do Not Support Zones on Shared Storage (19627821)

Unified Archives do not support archives that contain zones on shared storage (ZOSS). Although you can use the `archiveadm create` command to create a recovery or clone archive containing a zone on shared storage, the resulting archive might fail to install.

Workaround: Choose one of the following workarounds:

- To avoid installation issues with Unified Archives, you must exclude zones on shared storage in an archive.
- When generating clone archives, you can use the `-Z excluded_zone` option to exclude specified zones on shared storage.
- For recovery archives on systems containing zones on shared storage, all non-shared storage zones should be archived individually.

- When generating a clone or recovery archive for the global zone, use the `-D excluded-dataset` option must be used to exclude any zones on shared storage zpools that are visible in the global zone.

SPARC: Power Off or On Messages of One or More Hosts Is Displayed in Other Hosts (21511552)

Within an M5 chassis, ILOM messages from one or more Oracle Solaris HOSTs is displayed in the `/var/adm/messages` file of a different HOST. The following message is displayed:

```
Jul 23 15:03:41 HOST2-pd2.com SC Alert: [ID 552608
daemon.error] Power | major: Power to /HOST1 has been turned off by: Shell session,
  Username:root
Jul 23 15:03:41 HOST2-pd2.com SC Alert: [ID 936275
daemon.notice] SDM | minor: Power to /Servers/PDomains/PDomain_1/System
(Hardware Domain 1) has been turned off by Shell session, Username:root.
Jul 23 15:03:41 HOST2-pd2.com SC Alert: [ID 555134
daemon.notice] Audit | minor: root : Set : object =
"/Servers/PDomains/PDomain_1/HOST/power_state" : value = "off" : success
```

Workaround: You can safely ignore this message.

SPARC: Configuration Changes for Fiber Channel Storage

The updates described in this section simplify configuration of Fiber Channel (FC) disk storage on SPARC platforms and make configuration of FC disk storage on SPARC platforms the same as configuration of FC disk storage on x86 platforms.

- Oracle Solaris I/O Multipathing is enabled by default. The default setting in `/kernel/drv/fp.conf` changes to `mpxio-disable="no"`.

Note - Use [stmsboot\(8\)](#) to disable or enable Oracle Solaris I/O Multipathing. Do not edit the `/kernel/drv/fp.conf` file, which is read-only.

- FC driver binding is changed from `ssd(4D)` to `sd(4D)`. Move configuration that you have in `ssd.conf` to `sd.conf`.

Note - Create and edit `sd.conf` in `/etc/driver/drv`, not in `/kernel/drv`. See the [driver.conf\(5\)](#) man page for more information.

- To configure parameters in `sd.conf` and `ssd.conf`, use the JSON-text `name:value` pair format, instead of the bit-masking format. Bit mask values usually represent different tunable parameters in SPARC `sd.conf`, SPARC `ssd.conf`, and x86 `sd.conf`, which can result in misconfiguration.
- Associated with the driver binding change, the node name in the private `/devices` path is changed from `ssd@` to the generic `disk@`.

For example, with Oracle Solaris I/O Multipathing enabled, the path changes from:

```
/devices/scsi_vhci/ssd@g600a0b80002a384600007415558209ae
```

To:

```
/devices/scsi_vhci/disk@g600a0b80002a384600007415558209ae
```

With Oracle Solaris I/O Multipathing disabled, the path changes from:

```
/devices/pci@380/pci@1/pci@0/pci@7/SUNW,qlc@0,13/fp@0,0/ssd@w10000090fa2fd452,0
```

To:

```
/devices/pci@380/pci@1/pci@0/pci@7/SUNW,qlc@0,13/fp@0,0/disk@w10000090fa2fd452,0
```

- Use the `/dev` public namespace, which remains unchanged.
With Oracle Solaris I/O Multipathing enabled, the Logical Unit identity is encoded in the public `/dev` name as, for example:

```
/dev/rdisk/c0t600A0B80002A384600007415558209AE0s0
```

With Oracle Solaris I/O Multipathing disabled, the target-port identity is encoded in the public `/dev` name as, for example:

```
/dev/rdisk/c8t10000090FA2FD452d0s0
```

In both cases, the use of identity in the `/dev` public namespace insulates applications from changes to the `/devices` symlink.

Although the changes described in this section above are incompatible with previous Oracle Solaris versions, the Image Packaging System (IPS) provides a compatible way to upgrade from Oracle Solaris 11.3 or earlier to Oracle Solaris 11.4. See [Updating Your Operating System to Oracle Solaris 11.4](#).

Runtime Issues

This chapter provides information about the following known issue categories while running Oracle Solaris 11.4:

- [“Boot Issues” on page 25](#)
- [“Firmware Issues” on page 26](#)
- [“File System Issues” on page 29](#)
- [“System Administration Issues” on page 31](#)
- [“Networking Issues” on page 32](#)
- [“Security Issues” on page 33](#)
- [“Kernel Zones Issues” on page 35](#)
- [“Desktop Issues” on page 36](#)
- [“Application Compatibility” on page 38](#)
- [“Hardware Issues” on page 39](#)

Boot Issues

This section describes issues related to booting into the Oracle Solaris 11.4 release.

See also [“x86: Booting in UEFI Mode From the ISO Image Is Very Slow on Oracle VM VirtualBox” on page 27](#).

Panic When PCIE Driver Reads PCI VPD from Certain HBA (27659878)

A panic can occur while the `pcie` driver is reading PCI Vital Product Data (VPD) from HBA SGX-SAS6-R-INT-Z (PN: 375-3644-05) Sun Storage 6 Gb SAS PCIe RAID. During a system

boot or hotplug operation, the Oracle Solaris `pcie` driver reads a device's PCI VPD during `init child` processing prior to device attachment and configuration. If the device is HBA SGX-SAS6-R-INT-Z, then a PCI Express "Completion Timeout" panic can randomly occur.

Workaround: Upgrade the HBA SGX-SAS6-R-INT-Z firmware to Version 2.130.373-4378. See the "Firmware" section of the [Broadcom SGX-SAS6-R-INT-Z](#) page.

Firmware Issues

This section describes firmware issues in the Oracle Solaris 11.4 release.

x86: Some Systems With BIOS Firmware Do Not Boot If the `EFI_PMBR` Entry in the Master Boot Record Is Not Active (15796456)

Some systems with BIOS firmware will not boot if the `EFI_PMBR` entry in the master boot record, which is the only partition, is not active. After installing Oracle Solaris 11.4, the system does not boot. The following message is displayed:

```
No Active Partition Found
```

Possible Cause 1: The system firmware incorrectly handles the boot disk because the boot disk is partitioned with the GUID Partition Table (GPT) partitioning scheme.

Workaround 1: Invoke the `fdisk` program and then activate the Protective Extensible Firmware Interface (EFI) partition on the boot disk.

Possible Cause 2: The system was originally installed in UEFI mode but rebooted in legacy (BIOS) mode.

Workaround 2: Install the system in legacy mode by changing the firmware setup option, for example, by selecting "Boot Mode" or a similar option.

SPARC: GPT Labeled Disk Support

GPT labeled disk support is available on SPARC based systems. The following table describes the supported firmware for SPARC platforms.

SPARC Platform	Firmware
T5	At least version 9.4.2.e
M5	At least version 9.4.2.e
T4	At least version 8.8.1
M10	At least version XCP2230

If your SPARC T4, T5, M5, or M10 system has older firmware, perform the following steps to download the updated firmware from My Oracle Support:

1. Sign in to [My Oracle Support](#).
2. Click the Patches & Updates tab.
3. In the Patch Search box, select the Product or Family (Advanced) search option.
4. In the Product Is field, type a partial product name to display a list of possible matches, and then select the product name.
5. Select one or more releases from the Release Is drop-down menu.
6. Click the Search button to display a list of available downloads that are listed as patches.
7. Select the patch name that you want to download.
The download page is displayed.
8. Click Download.

Note - If you do not have permissions to download the patch, see the [How Patches and Updates Entitlement Works](#) knowledge article that is available on MOS.

x86: Booting in UEFI Mode From the ISO Image Is Very Slow on Oracle VM VirtualBox

Booting in UEFI mode from the ISO image is very slow. This is a known Oracle VM VirtualBox firmware issue.

Workaround: None.

x86: Oracle Solaris Does Not Boot on Disks Using Older Emulex FC HBA Cards (15806304)

On x86 systems, Oracle Solaris does not boot on disks using older Emulex FC HBA cards.

The following error message is displayed for Emulex FC HBA cards:

```
error: no such device: 07528c2afbec7b00.  
Entering rescue mode...  
grub rescue> ls  
(hd0) (hd0,gpt9) (hd0,gpt2) (hd0,gpt1) (hd1)  
grub rescue>
```

Workaround: Choose one of the following workarounds:

- Replace the old Emulex FC HBA cards with a recent model. You can use SG-XPCEFCGBE-E8, SG-XPCE1FC-EM8-Z, SG-XPCE2FC-EM8-Z, LPe16002-M6-O or LPem16002-M6-O.
- Ensure that the system boot volume is less than 2 TB.

ZFS Should Retry or Abort an Entire Transaction When a WCE LUN Gets a Power-On-Reset (15662604)

ZFS enables the write cache on pool devices and safely handles cache flushing in the event of a system power loss. However, a power-on-reset condition can potentially occur while data has not yet been committed to stable storage.

In an environment with no single point of failure, this situation is automatically detected and corrected by ZFS the next time the data is read. Routine pool scrubs of the pool can increase the detection and repair of any lost writes.

In an environment with a single point of failure, this problem could lead to data loss.

This problem might also occur more frequently when accessing LUNs that are exported from a clustered configuration. During cluster failover, data cached by the failing head may be lost due to a power-on-reset event that is explicitly sent by the SCSI target on the surviving head. In this situation, even pools with no single point of failure might be affected.

A symptom of this issue is clusters of persistent checksum errors. You can use the output from `fmddump -eV` to determine whether the checksum errors have been diagnosed as persistent. The `zio_txg` entry in the `fmddump -eV` output represents the time that a block of data is written. Note that a pattern of persistent checksum errors could also be a symptom of failing devices, software, or hardware.

Workaround: For systems that rely on LUNs exported from a cluster or systems with a single point of failure, consider disabling the write cache for devices on a system.

Perform the following steps to disable the write cache and suppress cache flushing for SCSI (`sd`) or FC (`sd` or `ssd`, see [“SPARC: Configuration Changes for Fiber Channel Storage” on page 23](#)) devices.

1. Copy either the `/kernel/drv/sd.conf` file or the `/kernel/drv/ssd.conf` file into the `/etc/driver/drv` directory, depending on your storage devices.
2. Edit either the `/etc/driver/drv/sd.conf` file or the `/etc/driver/drv/ssd.conf` file to disable the write cache and suppress cache flushing.
3. Add lines to replace the VID, PID, or SUN COMSTAR values with the appropriate values described on the [sd\(4D\)](#) man page.

```
sd-config-list="SUN    Storage", "throttle-max:10, physical-block-size:8192,  
    disable-caching:true, cache-nonvolatile:true";
```

4. Reboot the system and override the fast reboot option.

```
# reboot -p
```

Note - Applying the workaround could cause a reduction in system performance.

File System Issues

This section describes file system issues in the Oracle Solaris 11.4 release.

System Panic Can Occur at Shutdown if SMB Clients are Active (28411646)

If the SMB service is disabled or stopped while Windows client sessions are active, the system might panic.

Workaround: Do not shutdown the SMB service while any SMB client session is still active. If you are using the SMB service on your Oracle Solaris system, you might want to wait until Oracle Solaris 11.4 SRU 1 is available to upgrade.

Simultaneous SMB Session Logins Can Make the Share Appear Unavailable (28406364)

If multiple Windows clients attempt to log into an SMB session at the same time, one or more attempts might fail, and all clients will subsequently not see the share as being available.

Workaround: If you are using the SMB service on your Oracle Solaris system, do not upgrade to Oracle Solaris 11.4 until SRU 1 is available.

Device Removal from a Busy Pool Can Prevent the Pool from Completing I/O Operations (28185974)

Removing one or more devices from a pool while the pool is under heavy I/O load can cause a deadlock in ZFS that prevents completion of I/O operations to that pool. The pool appears to be functional but the I/O operations are queued on the application side, up to the maximum size of the client queue.

The issue manifests itself in such a way that the device removal is making no progress. No data loss will occur due to this issue.

Workaround: Avoid removing devices from a pool when the pool is under load. If this issue occurs, you must reboot the system.

Issues When Replacing or Using New Advanced Format Disk Drives on Oracle Solaris Systems

Disk manufacturers now provide larger capacity disks, also known as advanced format (AF) disks. An AF disk is a hard disk drive whose physical block size exceeds 512 bytes. AF disks use block sizes that are greater than 512 bytes, usually 4096 bytes, but their sizes can vary as follows:

- 4 KB native disk (4kn) – Uses a physical and logical block size of 4 KB
- 512-byte emulation (512e) – Uses a physical block size of 4 KB but reports a logical block size of 512 bytes

Review the following issues if you are considering the purchase of AF disks as new or replacement devices on your Oracle Solaris 11.4 system.

Lack of a Power Safe Feature on Certain Models of Advanced Format 512e Disk Drives Can Result in Data Loss

The failure of certain 512e disk drives to provide a power-safe feature can result in data loss if a power failure occurs during a read-modify-write (rmw) operation.

Workaround: Choose one of the following workarounds:

- Confirm with the disk manufacturer that their 512e devices provide a power-safe feature.

No consistent power-safe identification appears on such drives, but they tend to be SATA drives. An indication that they are AF drives does not necessarily mean that they support 512 emulation (512e).

- Do not use these drives on an Oracle Solaris system.

Installation and Boot Support on 4kn Disks on SPARC Systems Requires a Specific PROM Version

Installing and booting Oracle Solaris 11.4 on a 4kn disk on a SPARC system requires a volume table of contents (VTOC) label and PROM version 4.34.0.

Workaround: Choose one of the following workarounds:

- If you want to install and boot Oracle Solaris 11.4 from a 4kn disk, then apply a VTOC label and confirm that your system is running this version.

For example:

```
# prtconf -pv | grep OBP
version: 'OBP 4.34.0 ... '
```

- Request a firmware upgrade from Oracle support.

For more information about using advanced format disks in Oracle Solaris 11.4, see [Managing Devices in Oracle Solaris 11.4](#).

System Administration Issues

This section describes system administration issues in Oracle Solaris 11.4.

txzonemgr Fails to Create Labeled Zones Correctly (27676524)

The txzonemgr utility does not set up labeled zones correctly in Oracle Solaris 11.4, returning errors such as the following about failed zones mount and cloning:

```
ERROR: Zone mount failed
Result: Clone Failed.
zoneadm: zone 'snapshot': ERROR: cloning failed: zone switching to configured
```

```
state
The following ZFS file systems are being removed:
  rpool/zones/snapshot
```

Workaround: To create labeled zones, use `zonecfg` commands, as described in [“How to Create Labeled Zones by Using the `zonecfg` Command”](#) in *Trusted Extensions Configuration and Administration*.

Networking Issues

This section describes the network-related issues in Oracle Solaris 11.4.

DLMP Does Not Work on an SR-IOV NIC Virtual Function (17656120)

You cannot configure a Datalink Multipathing (DLMP) aggregation on an SR-IOV NIC virtual function in a guest domain.

SPARC: Migrating a Zone Between Guest Domains Sharing `alt-mac-addr` Loses Networking (20463933)

When a zone is running inside a guest domain and the zone is allocated one of the domain MAC addresses, migrating the zone to another guest domain might cause networking to silently fail. The MAC address is allocated by using the following command:

```
# ldm set-vnet alt-MAC-addr
```

Network failure occurs when the same MAC address is configured on the destination guest domain, both the guest domains are on the same physical host, and both domains share the same virtual switch configured on the control domain. This failure applies to cold migration of zones and live migration of kernel zones.

Workaround: Migrate to a guest domain on a separate physical host. Otherwise, if the migration is already complete, halt the guest domains, unbind and rebind them, and boot the guest domain. This process resets the networking configuration and enables the zone networking to function again.

Security Issues

This section describes issues with the security software in the Oracle Solaris 11.4 release.

SPARC Firmware Update Might Be Needed for `sxadm` to Report `HW_BTI` Correctly (28150745)

The `sxadm` command in Oracle Solaris 11.4 uses the `HW_BTI` security extension to provide the status of hardware-based mitigation for CVE-2017-5715 (Branch Target Injection, Spectre Variant 2) in the SPARC firmware. For more information, see the [`sxadm\(8\)`](#) man page.

In order for `sxadm` to determine whether this mitigation is enabled, the firmware must be updated to a version that communicates this status to the operating system. If the firmware is not updated, then `sxadm` reports that `HW_BTI` is not supported, even if `HW_BTI` is enabled.

The following table shows the minimum firmware version that supports the `HW_BTI` security extension. For the given platform, make sure you are running the specified firmware version or newer.

SPARC M8, T8, M7, T7, S7	SPARC Firmware 9.8.6
SPARC M6, M5, T5	SPARC Firmware 9.6.23
SPARC T4	SPARC Firmware 8.9.11

For more information about SPARC mitigations for CVE-2017-5715, see “Oracle Solaris on SPARC — CVE-2017-5753 (Spectre v1), CVE-2017-5715 (Spectre v2), and CVE-2017-5754 (Meltdown) Vulnerabilities (Doc ID 2349278.1)” on support.oracle.com.

`ktkt_warn` Service Is Disabled by Default (15774352)

The `ktkt_warn` service, used to renew a user's Kerberos credentials and warn about credential expiry, is now disabled by default. The following error message is displayed:

```
kinit: no ktkt_warnd warning possible
```

Workaround: Choose one of the following workarounds to enable the service:

- If the system already has Kerberos configured, use the `svcadm` command to enable the service.

```
# svcadm enable ktkk_warn
```

- If Kerberos has not been configured, run the `kclient` utility to configure Kerberos, which will also enable the `ktkk_warn` service.

For more information about the `kclient` utility, see the [kclient\(8\)](#) man page.

OpenLDAP Package Update Issue (21577683)

If you have made manual modifications to the LDAP configuration files `/etc/openldap/ldap.conf` and `/etc/openldap/slapd.conf`, the security settings for the TLS cipher suite might be incorrect.

Workaround: If you maintain your own LDAP configuration files, make the following modifications to maintain a secure system:

- In the `/etc/openldap/ldap.conf` file, set the `TLS_PROTOCOL_MIN` and `TLS_CIPHER_SUITE` values as follows:

```
TLS_PROTOCOL_MIN 3.2
TLS_CIPHER_SUITE TLSv1.2:!aNULL:!eNULL:DHE-RSA-AES128-SHA:DHE-DSS-AES128-SHA:DHE-
RSA-AES256-SHA:DHE-DSS-AES256-SHA:DHE-RSA-DES-CBC3-SHA:DHE-DSS-DES-CBC3-SHA:AES128-
SHA:AES256-SHA:DES-CBC3-SHA
```

- In the `/etc/openldap/slapd.conf`, set the `TLSProtocolMin` and `TLSCipherSuite` values as follows:

```
TLSProtocolMin 770
TLSCipherSuite TLSv1.2:!aNULL:!eNULL:DHE-RSA-AES128-SHA:DHE-DSS-AES128-SHA:DHE-RSA-
AES256-SHA:DHE-DSS-AES256-SHA:DHE-RSA-DES-CBC3-SHA:DHE-DSS-DES-CBC3-SHA:AES128-SHA:
AES256-SHA:DES-CBC3-SHA
```

Insecure Algorithms Disabled in OpenSSH

By default, `ssh-dss` keys are disabled. You must remove the existing `ssh-dss` keys from the `authorized_keys` files and configure the new `ssh-rsa` keys. Otherwise, you might not be able to connect to the server after the server has been upgraded to Oracle Solaris 11.4.

By default, the `diffie-hellman-group1-sha1` key exchange method is disabled. Only peers that support this method should be upgraded to support a secure key exchange method.

Note - SSH protocol version 1 is no longer supported.

Kernel Zones Issues

This section describes issues related to kernel zones in Oracle Solaris 11.4.

SPARC: Live Migration of Guest Domain Fails When Kernel Zones Are Running Inside (21289174)

A running kernel zone within an Oracle VM Server for SPARC domain blocks the live migration of the guest domain. A similar issue was described previously in Bug 18289196, which is superseded by this report. The following error message might be displayed:

```
Guest suspension failed due to the presence of active Kernel Zones.  
Stop Kernel Zones and retry the operation.
```

Workaround: Choose one of the following workarounds:

- Shut down the running kernel zone.

```
# zoneadm -z zonename shutdown
```
- Suspend the kernel zone.

```
# zoneadm -z zonename suspend
```
- Live migrate the kernel zone to another system before migrating the guest domain.
See [Chapter 5, “Migrating an Oracle Solaris Kernel Zone”](#) in *Creating and Using Oracle Solaris Kernel Zones*.

x86: Kernel Zone with Spectre V2 Mitigations Migrated to Unmitigated System Panics on Resume (27966086)

A kernel zone that is migrated from a system that is running with Spectre V2 mitigations to a system that does not have Spectre V2 mitigations panics when the kernel zone is resumed on

the unmitigated system. A message such as the following is seen when the kernel zone resumes and panics:

```
error: VCPU 0: VM exit for WRMSR: msr == 0x49
error: VCPU 0: unallowed WRMSR
panic[cpu0]/thread=ffffe33000005b00: BAD TRAP: type=d (#gp General protection)
rp=ffffe33000005950 due to access to a non-canonical address
```

The kernel zone will run after it reboots following the panic, but whatever was running at the time of the migration will be lost.

Workaround: Do not migrate a kernel zone with Spectre V2 mitigations to a system that is not running Spectre V2 mitigations. On x86 systems, migrate a Spectre V2 mitigated kernel zone to another Spectre V2 mitigated system, or migrate an unmitigated kernel zone to another unmitigated system.

Desktop Issues

This section describes desktop issues in the Oracle Solaris 11.4 release.

GNOME 3: The Same User Cannot Run Multiple VNC Sessions (27275811)

You cannot start multiple simultaneous GNOME 3 sessions with the same uid.

Cannot Change Mouse Handedness in GNOME 3.24 (27372205)

Selecting Left in Settings → Mouse/Touchpad does not cause the mouse buttons to operate as a left-handed mouse.

Workaround: Use the `xmodmap` command to configure the mouse to be used as a left-handed mouse, as shown in the following example:

```
$ xmodmap -e "pointer = 3 2 1"
```

SPARC: Desktop Issues With USB Keyboard, Mouse, and Physical Monitor (15700526)

When using a physical keyboard, mouse, or monitor, repeated attempts to open and use a terminal window on the Oracle Solaris Desktop can result in loss of characters and mouse control.

This issue might occur because of errors caused by missing microframes. These errors occur when full or low-speed USB 1.0 or 1.1 keyboard and mouse devices are connected to the USB ports on a system under an onboard USB 2.0 hub. However, these errors do not occur when the keyboard and the mouse devices are connected to a system USB port, which is in turn connected to an internal hub that is manually bound to the `ohci` (USB 1.0 or 1.1) driver.

Note - If you are using a virtual keyboard and mouse, all devices under the hub are forced to run at low speed. The devices will still work, but they run at a lower USB 1.0 or 1.1 speed.

Workaround: Set the value for the `ehci-port-forced-to-companion` variable in the `/kernel/drv/ehci.conf` file. The value of this variable is used by the `ehci` (USB 2.0) driver to release control of a particular port on the USB controller.

The value of the `ehci-port-forced-to-companion` variable differs based on the type of platform and the type of USB device used. The following table lists the recommended usage of USB connectors and the corresponding value of the `ehci-port-forced-to-companion` variable.

TABLE 2 Recommended Usage of USB Connectors and Values

SPARC Platform	Type of USB Device	Recommended Usage of USB Connectors	Value of the <code>ehci-port-forced-to-companion</code> Variable in the <code>/kernel/drv/ehci.conf</code> File
T4-1, T4-2	Physical keyboard or mouse	Use the front USB connector	4
T4-4	Physical keyboard or mouse	Use the rear USB connector	3
T4-1, T4-2, T4-4	Virtual keyboard or mouse	None	2

To implement the workaround, perform the following steps:

1. Connect the USB devices.

The recommended USB connectors for the devices on various platforms are listed in [Table 2, “Recommended Usage of USB Connectors and Values,” on page 37.](#)

2. Set the value of the `ehci-port-forced-to-companion` variable in the `/kernel/drv/ehci.conf` file.
For example, if the SPARC platform is T4-4 and you are using a physical keyboard, set `ehci-port-forced-to-companion=3`.
3. Reboot the system.

```
# init 6
```

Application Compatibility

This section describes the application compatibility issues in the Oracle Solaris 11.4 release.

Cannot Open /etc/TIMEZONE (27840538)

The `/etc/TIMEZONE` link is obsolete because time zone information is no longer kept in the `/etc/default/init` file. The `/etc/TIMEZONE` link is removed in Oracle Solaris 11.4. This missing link can generate warning messages such as the following message from the Enterprise Manager Agent `emctl` command:

```
$ emctl status dbconsole
grep: can't open /etc/TIMEZONE
Oracle Enterprise Manager 11g Database Control Release 11.2.0.4.0
...
Oracle Enterprise Manager 11g is running.
```

Workaround: None. Such warning messages can be ignored.

Panic via `supdrvioctl` and `vboxdrvSolarisioctl` (24812986)

Running VirtualBox on an Oracle Solaris x64 host system with Supervisor Mode Access Prevention (SMAP) enabled might panic the host with a message similar to the following:

```
BAD TRAP: type=e (#pf Page fault) rp=ffffffff802c98e0 addr=ffff80ffbc8ff5e0
occurred in module "<unknown>" due to an illegal access to a user address
```

Workaround: Run the `sxadm disable smap` command and reboot before starting VirtualBox.

Hardware Issues

This section describes the hardware issues in the Oracle Solaris 11.4 release.

HBA Connected with ALUA Multipath SAS Can Cause I/O Failures During Failover (28337990)

Oracle Solaris multipathing might experience I/O failures on Asymmetric Logical Unit Access (ALUA) storage targets during path failover. This will only happen with such storage attached via SAS SCSI transport. A device that is connected via SAS SCSI is enumerated by `cfgadm -a lv` under a controller with type `scsi-sas`:

```
c7                                connected   configured   unknown
unavailable scsi-sas      n /devices/pci@301/pci@1/scsi@0/iport@1:scsi
c7::w5000cca02f187da1,0          connected   configured   unknown
Client Device: /dev/dsk/c0t5000CCA02F187DA0d0s0 (sd7)
```

In addition, the `mpathadm show lu` command will claim asymmetric multipathing:

```
# mpathadm show lu /dev/dsk/c0t5000CCA02F187DA0d0s0
Logical Unit: /dev/rdsk/c0t5000CCA02F187DA0d0s2
  mpath-support: libmpscsi_vhci.so
  ...
  Asymmetric: yes
```

If this issue occurs, you will see an error similar to the following (lines are artificially broken for readability):

```
Jul 15 2018 13:22:45.123456789 ereport.io.scsi.cmd.disk.tran
nvlist version: 0
  class = ereport.io.scsi.cmd.disk.tran
  ...
  thread-stacks = stack[0] = genunix`fm_dev_report_postv+2c8()
    |scsi`scsi_fm_report_post+204()
    |sd`sd_report_post+a04()
    |sd`sd_intr_report_post+150()
    |sd`sd_return_command+15c()
    |sd`sdintr+a00()|scsi`scsi_hba_pkt_comp+e94()
    |scsi_vhci`vhci_intr+d6c()
    |scsi`scsi_hba_pkt_comp+e94()
    |scsi`scsi_pkt_comp_daemon+c8()
  ...
  pkt-reason = 0x1a
  pkt-state = 0x0
```

```
pkt-stats = 0x0  
...
```

Workaround: Until a fix is released, you can work around this issue by increasing the values of `sd` and `ssd` tunables for an affected VID/PID pair. Modify `/etc/driver/drv/sd.conf` or `/etc/driver/drv/ssd.conf` as shown in the following example:

```
sd-config-list = "VID PID", "path-busy-retry-count:4294967295, path-busy-retry-timeout:  
180000";
```

Note that the value shown for `path-busy-retry-count` in this example is the maximum allowed setting. A lower value should work, but what value will work depends on system architecture and other circumstances. Therefore, a minimum value that works for any case cannot be stated.

This workaround has the following restrictions and limitations:

- A large `path-busy-retry-count` value may cause the kernel to spin while waiting for the failover to occur. This will lead to high CPU usage. Therefore, a system with this workaround enabled might experience higher load and poor performance. Once the failover is complete, the system will recover.
- These tunables might change in the future and should not be used after a fix for bug 28337990 is available. See the Bugs Fixed section of the SRU Readme files.
- These tunables should not be used for any other purpose unless explicitly recommended by Oracle.

Panic When Performing a DR Operation on an InfiniBand HCA Device (28150723)

A panic can occur if an InfiniBand (IB) tool or utility such as `ibqueryerrors` or `ibdiagnet` is running while a Dynamic Reconfiguration (DR) operation is being performed on an HCA. The DR operation can be from commands such as `cfgadm` or `ldm remove-io` that result in the removal or unconfiguration of an HCA device. See the [ibqueryerrors\(8\)](#), [ibdiagnet\(1\)](#), [cfgadm\(8\)](#), and [ldm\(8\)](#) man pages for more information.

If a panic occurs for this reason, you will see an error message similar to the following:

```
panic[cpu14]/thread=c0405b9fe3980: BAD TRAP: type=31 rp=2a101bcf320 addr=62  
mmu_fsr=0 occurred in module "ibt1" due to a NULL pointer dereference
```

Normally, if an IB tool is active and using an HCA on which a DR is being attempted, the DR operation fails, indicating that the HCA is in use.

Workaround: Ensure that no InfiniBand tools, utilities, or applications (such as `ibqueryerrors` or `ibdiagnet`) are active while performing a DR operation on an InfiniBand HCA device.

iSCSI Driver Might Give Up Prematurely When Trying to Reconnect to a Target (21216881)

When the connection to a target is temporarily disrupted, the default iSCSI maximum connection retry of 180 seconds (3 minutes) might be insufficient for the initiators that are using an iSCSI boot device. The following error message is displayed:

```
NOTICE: iscsi connection(19) unable to connect to target iqn.1986-03.com.sun:02:
hostname, target address 192.168.001.160
```

Workaround: Increase iSCSI maximum connection retry to at least 1080 seconds (18 minutes) on initiators that are using the iSCSI boot device.

◆ ◆ ◆ **A P P E N D I X A**

Previously Documented Bugs That Are Fixed in the Oracle Solaris 11.4 Release

This appendix lists bugs that were documented in *Oracle Solaris 11.3 Release Notes* and have been fixed in this Oracle Solaris 11.4 release.

To view information about a bug or enhancement request that is associated with a particular Service Request (SR), see the [Sun Systems Defects Move to Oracle's Bug Database \(Doc ID 1501467.1\)](#) knowledge article that is available on MOS.

Previously Documented Bugs that Are Fixed in This Release

Bug Number	Title
15656484	SPARC: 64-bit: Automated Installer fails due to unlabeled dual-path FC boot disks
15713975	Multiple AI service name conflicts on AI servers
15734404	Evolution application crashes after new installation
15791271	ZFS pool information becomes stale after running the <code>stmsboot</code> command with <code>-e</code> option
16773078	<code>update_drv</code> should be able to install device policies using unknown keywords
17697871	Runnable thread occasionally stays in run queue for a longer period
18355260	Kernel Zones interfere with <code>hardware-counter-overflow</code> interrupt
18462288	Trusted Extensions desktop users are logged out after 15 minutes
18537903	Zones self-assembly SMF service does not support Kernel Zones
18765757	SPARC: MPxIO for an FC driver is not enabled by default upon installation
19188703	Creating a VNIC Fails If a Physical NIC Is Used as <code>net-dev</code>
19651809	Multiple memory DR operations might trigger limited calls to the <code>defdump_init()</code> function
19664353	nfsv4 cannot determine local hostname binding for transport tcp6
20157402	SPARC: <code>stmsboot</code> man page does not contain <code>pmcs</code> driver information

Previously Documented Bugs that Are Fixed in This Release

Bug Number	Title
20246639	Puppet service fails to load new configuration settings with the <code>svcadm refresh</code> command
20425782	The <code>door_ucred</code> system call does not work properly on branded zones
20696474	SPARC: stop method of the <code>ilomconfig-interconnect</code> service is timed out during shut down
20697332	Kernel Zones on NFS can have <code>zpool</code> corruption during live migration
20724005	x86: FMA error messages from the <code>ixgbe</code> driver during network installation on large system configurations
20747264	SPARC: vanity names change between install and reboot
20788558	Plugin container crashes frequently after an upgrade to Firefox 31.1.1 ESR
21363559	Package verification of the <code>system/core-os</code> package in a zone installed from a Unified Archive displays error
21366581	SPARC: error messages are displayed when using the <code>suriadm check raid</code> command of the <code>mpt_sas</code> host driver
21464720	Ops Center: communication between the agent controller and the corresponding proxy controller of Ops Center breaks
21908956	Installations starting with Squid version 3.5.5 might require updating the <code>squid.conf</code> file
23541338	<code>pthread_kill</code> compliance with new standards breaks old applications
25953403	<code>sysobjd</code> can fail on boot
27155344	<code>gnome-terminal</code> will not start in a non-UTF-8 locale
27201864, 27404576, 27404453	Oracle Grid Infrastructure fails in global zones
27373937	Some input method packages block update
27663280	Window titles are not displayed
27800796	Kernel zone installed from UAR on SPARC not booting