Oracle® Solaris 11.3 Release Notes

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Contents

Using This Documentation

- **Overview** – *Oracle® Solaris 11.3 Release Notes* provides some important installation, update, and runtime information that you should consider before installing or running the Oracle Solaris 11.3 operating system (OS). It describes some known issues in this release, with workarounds where available, and also includes a list of fixed bugs that were documented for the previous release.
- **Audience** – Users and system administrators who install and use the Oracle Solaris 11.3 OS.
- **Required knowledge** – Advanced troubleshooting experience in using the Oracle Solaris 11.3 OS.

Product Documentation Library

Documentation and resources for this product and related products are available at http://www.oracle.com/pls/topic/lookup?ctx=E53394-01.

Feedback

Provide feedback about this documentation at http://www.oracle.com/goto/docfeedback.

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).

Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle recognizes the influence of ethnic and cultural values and is working to remove language from our products and documentation that might be considered insensitive. While doing so, we are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is an ongoing, long-term process.

♦ ♦ ♦ 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 11.3. Note that not every installation, update, and runtime consideration is covered in this chapter.

Installation Considerations

This section provides general information that you need to consider when installing Oracle Solaris 11.3.

System Requirements for Installing Oracle Solaris 11.3

This section provides information about the system requirements and installation types for installing Oracle Solaris 11.3. You might need additional memory and disk space on your installed system.

The minimum system memory is 2 GB. The following table shows the recommended minimum disk space for each package group and the available installation types.

TABLE 1 Package Disk Space Requirements and Installation Types

Package Group	Recommended Minimum Disk Space	Installation Types
`solaris-desktop`	13 GB	Live Media
`solaris-large-server`	9 GB	Automated Installer Text Installer
`solaris-minimal-server`	6 GB	Automated Installer

Package Group	Recommended Minimum Disk Space	Installation Types
`solaris-small-server`	7 GB	Automated Installer

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

Initial Root Password Expires After Live Media Installation

After a Live Media installation, the `root` password is initially set to the same password as the user account that is created during installation. Because it is created in an expired state, the first time you assume the `root` role, you should authenticate using your own password. At this point, a message indicates that the password for the user `root` has expired and you will be requested to provide a new one.

If you are prompted to assume the `root` role after starting an administrative command from a GNOME menu item, you will be prompted to supply a new `root` password. If you are using the `su` command to assume the role, the command sequence is as follows:

```
$ su
Password:
su: Password for user 'root' has expired
New Password:
Re-enter new Password:
su: password successfully changed for root.
```

SPARC: Legacy Systems Requires Firmware Update to Boot Oracle Solaris 11.3

Some SPARC systems require a firmware update in order to boot Oracle Solaris 11.3. You must install the latest available versions for optimal performance, security, and stability. On systems that have not been updated, the following error message might be displayed when the system is booted:

```
os-io Cross trap sync timeout:
```

Workaround: You need to verify whether the systems have the minimum required firmware version. Update your affected SPARC system's firmware to the version listed in Table 2, “Firmware Levels Required for SPARC Systems,” on page 15 before you install the Oracle

Solaris 11.3 OS. For information about firmware versions of different Oracle systems, refer to Firmware Downloads and Release History for Oracle Systems. The following table describes the minimum firmware level required for affected SPARC systems when running Oracle Solaris 11.3.

TABLE 2 Firmware Levels Required for SPARC Systems

SPARC Platform	Firmware Revision	Patch
T2000	6.7.11	139434-08
T1000	6.7.11	139435-08
Netra T2000	6.7.11	139436-07
Netra CP3060	6.7.11	None
T6300	6.7.11	139438–08
T5120/T5220	7.4.9	147307-01
T6320	7.4.9	147308-01
Netra T5220	7.4.9	147309-01
Netra CP3260	7.4.9	None
T5140/T5240	7.4.9	147310-01
T5440	7.4.9	147311-01
T6340	7.4.9	147312-01
Netra T5440	7.4.9	147313-01
Netra T6340	7.4.9	147314-01
T3-1	8.3.11	147315-02
T3-2	8.3.11	147316-02
T3-4	8.3.11	147317-02
T3-1B	8.3.11	147318-02
Netra T3-1	8.3.11	147319-02
Netra T3-1B	8.3.11	147320-01
M3000	1102	12573531
M4000	1102	12573537
M5000	1102	12573539
M8000	1102	12573543
M9000	1102	12573546

Note that T4, T5, M5, and M6 systems were released with firmware versions to boot Oracle Solaris 11.3. However, the firmware needs to be updated if Oracle Solaris Kernel Zones support is required. For information about hardware and software requirements for kernel zones, see "Hardware and Software Requirements for Oracle Solaris Kernel Zones" in *Creating and Using Oracle Solaris Kernel Zones*.

Oracle VM Server for SPARC: WAN Boot During an Automated Install of Guest Domains Is Slower on Older System Firmware

Users of the SPARC T-Series servers from Oracle might experience a slow WAN boot during an automated installation of a guest domain if they are running an older version of the system firmware. You need to install the latest available versions for optimal performance, security, and stability.

Workaround: Use the following table to determine the level of firmware that is required for the named platforms. In general, for System Firmware 8.*x*, you must at least have version 8.3.11 or greater and for System Firmware 7.*x*, you must at least have version 7.4.9 or greater.

Platforms	Firmware Version
Netra SPARC T3-1 Netra SPARC T3-1B Sun SPARC T3-1 Sun SPARC T3-2 Sun SPARC T3-4 Sun SPARC T3-1B	System Firmware version 8.3.11 or greater
Sun SPARC T4-1 Sun SPARC T4-1B Sun SPARC T4-2 Sun SPARC T4-4	System Firmware version 8.8.1 or greater
Sun SPARC T5-1B	System Firmware version 9.4.2e or greater
Sun SPARC Enterprise T5120 Sun SPARC Enterprise T5140 Sun SPARC Enterprise T5220 Sun SPARC Enterprise T5240 Sun SPARC Enterprise T5440 Sun Blade T6320 - Sun Blade T6340	System Firmware version 7.4.9 or greater
Netra CP3260	System Firmware version 7.4.9 or greater
Netra SPARC T3-1B	System Firmware version 8.3.11 or greater

For more information about specific versions of system firmware, see *Oracle VM Server for SPARC Release Notes*.

`setterm`(1) Is Optional

Starting with Oracle Solaris 11.2, `setterm(1)` becomes a completely optional component. `setterm(1)` is no longer installed as part of the `pkg:/system/locale/extra` package.

If required, install the `pkg:/system/locale/setterm` package manually by using the `pkg` command.

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

Update Considerations

This section provides information that you need to consider when updating your system to Oracle Solaris 11.3.

Updating Your System From Oracle Solaris 11.2 to Oracle Solaris 11.3

Use the `pkg` command-line utility to update from Oracle Solaris 11.2 to Oracle Solaris 11.3. If Oracle Solaris 11.2 is installed, with or without SRUs, no special steps are required to update the system.

▼ How to Update a System From Oracle Solaris 11.2 to Oracle Solaris 11.3

1. **Become an administrator.**

   For more information, see "Using Your Assigned Administrative Rights" in *Securing Users and Processes in Oracle Solaris 11.3*.

2. **Ensure that you are using a repository that contains the Oracle Solaris 11.3 packages.**

   This repository can either be the Oracle repositories or a copy of the repository that can be created by downloading the ISO images.

a. **Choose one of the following:**

   - **If you have not set your publisher to the beta repository, skip to Step 3.**
   - **If you want to use the support repository, type the following command:**

     ```
     # pkg set-publisher -k ssl_key_file -c ssl_cert_file \
     -G 'http://pkg.oracle.com/solaris/*' -g \
     https://pkg.oracle.com/solaris/support solaris
     ```

     To obtain the SSL certificate and key, go to the https://pkg-register.oracle.com/ site, select Request Certificates, and follow the instructions.

b. **If you want to use the release repository, type the following command:**

   ```
   # pkg set-publisher -G http://pkg.oracle.com/solaris/* \
   -g http://pkg.oracle.com/solaris/release solaris
   ```

3. **Review licenses of the Oracle Solaris 11.3 OS.**

   ```
   # pkg update --license|less
   ```

4. **If you agree with the license terms, update the system with Oracle Solaris 11.3 packages.**

   ```
   # pkg update --accept
   ```

5. **Reboot using the updated boot environment.**

   ```
   # reboot
   ```

See Also For more information, see *Updating to Oracle Solaris 11.3*.

Updating From Oracle Solaris 11 or Oracle Solaris 11.1 With the Oracle Hardware Management Pack Installed

Starting with Oracle Solaris 11.2, the Oracle Hardware Management Pack packages are *not* available in the Oracle Hardware Management Pack (`mp-re`) repository. Instead, they are available in the Oracle Solaris OS repository.

Workaround: If you previously had the Oracle Hardware Management Pack installed on your Oracle Solaris system, type the following command to get the updated software before updating to Oracle Solaris 11.3:

```
# pkg set-publisher --non-sticky mp-re
```

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 11.3

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
   ```

▼ How to Update to MySQL 5.5 After Updating Your System To Oracle Solaris 11.3

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 11.3 OS.

Java Recommendations

The default Java environment in Oracle Solaris 11.3 is Java 8. Oracle Solaris 11.3 also ships with the following versions of Java:

- Java 7 Update 85
- Java 8 Update 60

Use the `pkg set-mediator` command to change the Java version.

Installing the Java 8 packages also sets Java 8 as the default Java environment on the system unless you used the `pkg`(1) mediator to set an explicit version of Java prior to the installation.

GCC 4.5.2, 4.7.3, and 4.8.2 Packages Do Not Provide `include-fixed` Header Files

The GCC 4.5.2, 4.7.3, and 4.8.2 packages do not automatically generate header files in the `include-fixed` GCC install directory. You might see compiler error messages when building applications that include header files that are not ANSI compliant.

Workaround: To generate the compliant versions of the affected header files, type the following commands:

```
# for script in /usr/gcc/4.*/lib/gcc/*-solaris2.11/4.*/install-tools/mkheaders ; do
> ${script}
> done
```

CLI Message Localization

Command-line interface (CLI) messages are not fully localized. Messages for operating system CLI components are partially localized and no longer installed by default.

Workaround: To see the localized messages for operating system CLI components, manually install the `system/osnet/locale` package.

`/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.

Oracle Solaris Cluster 4.2 Support

The Oracle Solaris Cluster 4.3 and Oracle Solaris Cluster 4.2.5 (Oracle Solaris Cluster 4.2 SRU5) versions are supported on Oracle Solaris 11.3.

♦ ♦ ♦ CHAPTER 2

Installation Issues

This chapter describes issues that you might encounter during the installation of Oracle Solaris 11.3 and suggests workarounds where available.

Issues When Installing Oracle Solaris 11.3

The following issues might occur during or after the installation of Oracle Solaris 11.3.

Automated Installer Fails to Install on Systems With High Memory and Low Disk Space Allocation (15741363)

When installing Oracle Solaris by using the Automated Installer (AI), the installation might fail if the system has more physical RAM than disk space. The space allocated to swap and dump devices might reduce the available space for installing the OS. The following error message might be displayed:

```
ImageInsufficentSpace: Insufficient disk space available (8.84 GB) for
estimated need (9.46 GB) for Root filesystem
```

Workaround: Choose one of the following workarounds:

- If not limited by the size of the disk, allocate more space to the slice being used as a virtual device (`vdev`) in the root pool.

  Note - On x86 systems, if necessary, allocate additional space to the `Solaris2` partition.

- Disable the need for a swap volume to be allocated. In the AI manifest, specify the value `true` for the `noswap` attribute in the `<logical>` tag of the `<target>` section. For example:

```
<logical noswap="true">
</logical>
```

- Define the `zpool` and allocate smaller swap and dump sizes in the manifest.

```
<target>
 <disk whole_disk="true" in_zpool="rpool">
  <disk_keyword key="boot_disk"/>
 </disk>
 <logical>
  <zpool name="rpool" root_pool="true">
   <zvol name="swap" use="swap">
    <size val="2gb"/>
   </zvol>
   <zvol name="dump" use="dump">
    <size val="4gb"/>
   </zvol>
  </zpool>
 </logical>
</target>
```

- Disable allocation of one swap or dump device, and allocate a specific size to the remaining device (dump or swap). The following example shows how to disable swap and add a 4 GB dump size:

```
<target>
 <disk whole_disk="true" in_zpool="rpool">
  <disk_keyword key="boot_disk"/>
 </disk>
 <logical noswap="true">
  <zpool name="rpool" root_pool="true">
   <zvol name="dump" use="dump">
    <size val="4gb"/>
   </zvol>
  </zpool>
 </logical>
</target>
```

For more information about how to edit the AI manifest, refer to the `ai_manifest`(4) man page.

Automated Installer Fails to Match Target Disks When Using Dual-Path Boot Disk (15735929)

If you install the Oracle Solaris OS on a dual-path FC boot disk, the installation fails with the following errors:

```
17:22:08 Error occurred during execution of 'target-selection'
checkpoint.
17:22:08 100% None
17:22:09 Failed Checkpoints:
17:22:09
17:22:09 target-selection
17:22:09
17:22:09 Checkpoint execution error:
17:22:09
17:22:09 Unable to locate the disk
      '[devpath='/pci@0,600000/pci@0/pci@8/pci@0,1/SUNW,
  emlxs@1,1/fp@0,0/ssd@w20350080e517b4da,6']'
  on the system.
17:22:09
17:22:09 Automated Installation Failed. See install log at
  /system/volatile/install_log
Automated Installation failed
Please refer to the /system/volatile/install_log file for details.
```

Workaround: Disconnect one of the dual-path FC cables.

SPARC: 64-bit: Automated Installer Fails Due to Unlabeled Dual-Path FC Boot Disks (15656484)

On SPARC systems, if you install the Oracle Solaris OS on a dual-path FC boot disk, the installation fails with the following errors:

```
Automated Installation failed
Please refer to the /system/volatile/install_log file for details

Apr 19 23:12:12 ssra00u23.us.abc.com svc.startd[9]:
application/auto-installer:default failed fatally: transitioned to
maintenance (see 'svcs -xv' for details)
```

Workaround: Prior to installing Oracle Solaris, format disks by using the `boot net -s` command, label the disks, and then proceed with the installation.

Multiple AI Service Name Conflicts on AI Servers (15713975)

On AI servers configured to serve multiple networks, the `mdns` daemon might warn that identical instances of AI service names are registered. The following error message might be displayed:

```
mDNSResponder: [ID 702911 daemon.error]
Client application registered 2 identical instances of service some-service._
OSInstall._tcp.local. port 5555.

mDNSResponder: [ID 702911 daemon.error]
Excessive name conflicts (10) for some-service._
OSInstall._tcp.local. (SRV); rate limiting in effect
```

Note - AI clients can still obtain the necessary information to install.

Workaround: To avoid multiple AI service name conflicts, set the `exclusion` or `inclusion` property for the `svc:/system/install/server:default` SMF service.

The following example shows how to set the `all_services/exclude_networks` and `all_services/networks` properties to include all the networks that were configured on the system.

```
# svccfg -s svc:/system/install/server:default \
setprop all_services/exclude_networks = false

# svccfg -s svc:/system/install/server:default \
delprop all_services/networks #1.#1.#1.#1/#1

# svccfg -s svc:/system/install/server:default \
delprop all_services/networks #2.#2.#2.#2/#2

...

# svccfg -s svc:/system/install/server:default \
addprop all_services/networks 0.0.0.0/0

# svcadm refresh svc:/system/install/server:default
# svcadm restart svc:/system/install/server:default
```

`#1.#1.#1.#1/#1` and `#2.#2.#2.#2/#2` are the IP addresses for the network interfaces that have been configured.

For more information about mDNS, see "Administering Multicast DNS" in *Working With Oracle Solaris 11.3 Directory and Naming Services: DNS and NIS*.

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.

x86: Xorg VESA Driver Does Not Work on Oracle VM VirtualBox If the Extensible Firmware Interface Is Enabled (15782245)

The Xorg VESA driver does not work on Oracle VM VirtualBox if the Extensible Firmware Interface (EFI) is enabled, which means that the Live Media does not boot to Xorg. Therefore, a GUI installation is not possible.

Workaround: Perform the following steps:

1. Install Oracle Solaris 11.3 using the text installer or Automated Installer (AI).

   For instructions about installing Oracle Solaris 11.3, see *Installing Oracle Solaris 11.3 Systems*.
2. Use the `pkg` command to install the `solaris-desktop` group package.

   For instructions about installing the `solaris-desktop` group package, see "Adding Software After a Live Media Installation" in *Installing Oracle Solaris 11.3 Systems*.
3. Install the VirtualBox guest tools that include the VirtualBox Xorg native driver.

Network-Based Automated Installer Fails on `x2100` Platform With `nge` Drivers (15681004)

If you use the network-based Automated Installer to install Oracle Solaris on an `x2100` platform with an `nge` driver, the following error message might be displayed after a duration of time:

```
kernel$ /s11-173-x86/platform/i86pc/kernel/$ISADIR/unix -B install_media=http://
$serverIP:5555//install/images/s11-x86,install_service=s11-173-x86,install_svc_address=
$serverIP:5555
loading '/s11-173-x86/platform/i86pc/kernel/$ISADIR/unix -B install_media=http://
$serverIP:5555//install/images/s11-x86,install_service=s11-173-x86,install_svc_address=
$serverIP:5555'
module$ /s11-173-x86/platform/i86pc/$ISADIR/boot-archive
loading ' /s11-173-x86/platform/i86pc/$ISADIR/boot-archive' ...

Error 20: Mulitboot kernel must be loaded before modules

Press any key to continue...
```

This problem occurs in a PXE installation that uses BIOS version 1.1.1 and later when you use the `x2100` BIOS with an `nge` driver.

Workaround: Choose one of the following workarounds to install Oracle Solaris on an `x2100` platform with an `nge` driver:

- Install Oracle Solaris by using one of the following methods:
  - Live Media
  - Text installer
- Change the BIOS version to version 1.0.9.

x86: FMA Error Messages From the `ixgbe` Driver During Network Installation on Large System Configurations (20724005)

On some x86 systems with a large configuration, FMA error messages from the `ixgbe` driver about running out of MSI-X interrupt vectors during network installation might appear. The messages do not display after the installation is completed and the system is rebooted. The following error message is displayed:

```
fault.io.nic.config
The network device failed to configure a feature. A(n) unsupported
error has been detected during driver's attach context causing a(n)
config service impact while involving the device's rx_ring subsystem.
```

Workaround: Limit the maximum number of interrupts used by the network devices by adding the following limit to the GRUB boot arguments list at boot time:

```
-B ddi-msix-alloc-limit=X
```

X is a small number such as `1` or `2`.

Note - Setting this variable at boot time persists only until the system is rebooted and it is not a permanent setting.

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: NFSv4 Cannot Determine Local Hostname Binding for Transport TCP6 (19664353, 19716203)

If you enable `tcp6` in `/etc/netconfig` when the system does not support an IPv6 address, the following NFC warning message appears during installation:

```
nfs4cbd[3806]: [ID 867284 daemon.notice] nfsv4 cannot determine local hostname binding
 for transport
tcp6 - delegations will not be available on this transport
```

Workaround: None.

SPARC: `stop` Method of the `ilomconfig-interconnect` Service Is Timed Out During Shut Down (20696474)

When you reboot the system using the `init 6` command, the services that are using the SVC dependency rules are shut down before the `ilomconfig-interconnect` service. The following message is displayed:

```
[ID 122153 daemon.warning] svc:/network/ilomconfig-interconnect:default: Method or
 service exit timed out.  Killing contract 179.
```

Workaround: None.

SPARC: Vanity Names Change Between Install and Reboot (20747264)

Vanity names change between the system installation and reboot. For example, during the install the following vanity names:

```
vanity_map=net0:e1000g0 net1:bge0 net2:bge1 net3:e1000g1
```

change to:

```
vanity_map=net0:bge0 net1:bge1 net2:e1000g0 net3:e1000g1
```

Workaround: None.

SPARC: A Warning Message Appears During Initial Boot Up (21503898)

During the initial boot up on SPARC systems the following warning message is displayed:

```
Jul 23 14:41:38 xxx.com fctl: [ID 517869 kern.warning]
WARNING: fp(3)::Topology discovery failederror=0x7
```

Workaround: You can safely ignore this message.

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: Error Messages Are Displayed When Using the `suriadm check raid` Command of the `mpt_sas` Host Driver (21366581)

When you use the `check raid` option of the `suriadm` command of the `mpt_sas` host driver, the following error message is displayed:

```
Failing case:
# suriadm lookup-uri
/dev/dsk/c1t3E8234F87E7DC134d0 Assertion failed: parent_iport != NULL,
 file /export/builds/s11u3_23/usr/src/lib/libsuri/common/suri_devinfo.c, line 995,
    function lookup_lu_uri Abort(coredump)
Working case:
# suriadm lookup-uri
/dev/dsk/c1t3E8234F87E7DC134d0s2 dev:dsk/c1t3E8234F87E7DC134d0s2
```

Workaround: You can safely ignore this message.

A Warning Message Appears When `estes` Card Connected to SAS Storage Array LUN is Used as a Boot Device (21651971)

When any `estes` card (`lsc` driver) connected to an SAS storage array LUN is used as a boot device, the following warning message is displayed during the system boot up:

```
WARNING: scsi_enumeration_failed: lsc4/enclosure
```

Although the enclosure device fails to attach, the installation and boot are still successful.

Workaround: Add the line `forceload drv/ses` into `/etc/system` file.

SPARC: `stmsboot` Man Page Does Not Contain `pmcs` Driver Information (20157402)

The `stmsboot` man page does not fully document the `stmsboot` command because the man page does not indicate that the `pmcs` driver is a valid option for the command. However, the `pmcs` driver can be specified with the `-D` option. For example:

```
man stmsboot
System Administration Commands                          stmsboot(1M)
NAME       stmsboot - administration program for the Solaris I/O multipathing feature
SYNOPSIS       /usr/sbin/stmsboot [[-D (fp | mpt | mpt_sas | iscsi) ] -d | -e | -u] | -L
 | -l controller_number]
```

Workaround: None.

x86: Automated Installer Fails to Identify Boot Disk in UEFI Mode If Disks Are Blank (17478402)

On x86 systems that boot in the UEFI mode, AI manifest with the `boot_disk` keyword will fail to find the boot disk if the system's disks have not been installed before. The following error message is displayed when the installation fails:

```
17:22:09 Failed Checkpoints:
17:22:09
17:22:09 target-selection
```

```
17:22:09
17:22:09 Checkpoint execution error:
17:22:09
17:22:09 Unable to locate the disk '[boot_disk]' on the system.
On UEFI firmware, the boot device cannot be determined if no boot entries exist,
 which can occur if the disks have never been installed upon.
Use an alternate disk selection mechanism in the manifest in this scenario.
17:22:09
17:22:09 Automated Installation Failed. See install log at
/system/volatile/install_log
Automated Installation failed
Please refer to the /system/volatile/install_log file for details.
```

Workaround: You must use an alternate target disk selection mechanism in the AI manifest.

x86: Issue With Intel Virtualization Technology (24333010)

On non-Oracle x86 systems with Intel Virtualization Technology for Directed I/O (VT-d), the installation fails if the VT-d setting is disabled. Refer to the relevant system's documentation for instructions.

Workaround: You must set the VT-d setting to `Enabled` before installation.

♦ ♦ ♦ CHAPTER 3

Update Issues

This chapter describes issues that might occur while you are updating to Oracle Solaris 11.3.

Issues When Updating to Oracle Solaris 11.3

The following problems might occur when you update to Oracle Solaris 11.3.

Bad Policy Token Error When Updating From Releases Prior to Oracle Solaris 11.1 SRU 9.2 (16773078)

The following error message might be displayed when updating from releases prior to Oracle Solaris 11.1 SRU 9.2:

```
driver (<driver>) upgrade (addition of policy 'tpd_member=true') failed with
return code 1
command run was: /usr/sbin/update_drv -b /mnt -a -p tpd_member=true <driver>
command output was:

------------------------------------------------------------
Bad policy token: ``tpd_member''.
------------------------------------------------------------
```

If this error message is displayed, the first boot after the update might take longer.

Workaround: No action is required. Ignore the error message.

L3 VRRP Might Change Existing IP Configuration After an Update from Oracle Solaris 11.1 to Oracle Solaris 11.3 (16720867, 16727299, 16720923)

The introduction of the Layer 3 Virtual Router Redundancy Protocol (L3 VRRP) feature might change the existing IP configuration for a few systems after an update from Oracle Solaris 11.1 to Oracle Solaris 11.3. Certain private IP protocol properties which were previously private are now made public due to the introduction of L3 VRRP.

The following table lists the IP protocol properties that now have public names.

TABLE 3 IP Protocol Properties With Public Names

IP Protocol Property	Public Name
`_arp_publish_count`	`arp_publish_count`
`_arp_publish_interval`	`arp_publish_interval`
`_ndp_unsolicit_count`	`ndp_unsolicit_count`
`_ndp_unsolicit_interval`	`ndp_unsolicit_interval`
`_send_redirects`	`send_redirects`

All static IP addresses that are configured over any VRRP virtual network interface cards (VNICs) are also converted to the VRRP type.

For more information, see "About the Layer 3 VRRP Feature" in *Configuring an Oracle Solaris 11.3 System as a Router or a Load Balancer*.

Workaround: No action is required.

MPxIO Support for Toshiba Internal SAS Hard Disk Drives Prevents Rollback to Any Older Version of Oracle Solaris (15824482)

Starting with Oracle Solaris 11.2, Solaris multipathing supports Toshiba hard disk drives with the following product IDs:

- `AL13SEB600`
- `MBF2600RC`
- `MK1001GRZB`

- MK2001GRZB

After updating to Oracle Solaris 11.2 and rebooting to the new boot environment, you cannot roll back to your older version of Oracle Solaris. The following error message is displayed:

```
root@smem10a:~# beadm activate S11U1SRU20B04-z_stress-2.10-1

Error while accessing "/dev/rdsk/c2t500003942823F352d0s0":
No such file or directory
Unable to activate S11U1SRU20B04-z_stress-2.10-1.
Error installing boot files.
```

Workaround: Choose one of the following workarounds:

- Roll back to the older version of Oracle Solaris by using Open Boot PROM (OBP) or GRand Unified Bootloader (GRUB).
  - On SPARC systems, list all available boot environments in the OBP mode and then boot the root file system for the specified boot environment.

    ```
    {0} ok boot -L

    {0} ok boot -Z rpool/ROOT/boot-environment
    ```

    For information about booting boot environments on SPARC, see "Booting From an Alternate Operating System or Boot Environment" in *Booting and Shutting Down Oracle Solaris 11.3 Systems*.
  - On x86 systems, in the GRUB menu, manually select the OS version to boot instead of the default version selected by GRUB.
- Disable MPxIO configuration for the specific HBA port that is connected with the TOSHIBA disk. For more information about disabling MPxIO, see the `stmsboot(1M)` man page.

ZFS Pool Information Becomes Stale After Running the `stmsboot` Command With `-e` Option (15791271)

After running the `stmsboot` command with the `-e` option to enable the MPXIO (multipathing) feature on the next boot, the ZFS pool device path information becomes stale for a brief period. As a result, `zpool.cache` is not updated properly. The following error message might be displayed when updating from some earlier Oracle Solaris releases, earlier than Oracle Solaris 11.2 SRU 7, to Oracle Solaris 11.3 when the `pkg update` or `beadm activate` command is executed:

```
Error while accessing /dev/rdsk/c2d1s0&#8243;: No such file or directory
```

Workaround: Run the `zpool status` command and then run the `beadm` command.

Upgrading S11.2 to S11.3 Results in Oracle Grid Infrastructure 12.1.0.1.0 Startup Hang (21511528)

Oracle RDBMS 12.1.0.1 configured with automatic system global area (SGA) memory management fails to start due to an unexpected `mprotect()` failure against an optimized shared memory (OSM) segment. The following error message is displayed:

```
ORA-27122: unable to protect memory
```

Workaround: Use at least Oracle Grid Infrastructure 12.1.0.2 on Oracle Solaris 11.3.

Ops Center: Communication Between the Agent Controller and the Corresponding Proxy Controller of Ops Center Breaks (21464720)

Oracle Solaris 11.3 includes the latest Java versions, which could cause a break in the communication between the agent controller and its corresponding proxy controller of Ops Center. For more information and a solution for the issue, see Document 2036973.1 on My Oracle Support: “Upgrading Java on an Oracle Enterprise Manager Ops Center Agent Controller to versions Java 6u101, 7u85, 8u51, or later breaks the communication between the Agent Controller and its corresponding Proxy Controller. (Doc ID 2036973.1).”

♦ ♦ ♦ CHAPTER 4

Runtime Issues

This chapter provides information about the following known issue categories while running Oracle Solaris 11.3:

Firmware Issues

This section describes firmware issues in the Oracle Solaris 11.3 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 11.3, 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 lists the supported firmware for SPARC platforms.

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

If your SPARC T4, T5, or M5, or Fujitsu 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-XPCIEFCGBE-E8, SG-XPCIE1FC-EM8-Z, SG-XPCIE2FC-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 `fmdump -eV` to determine whether the checksum errors have been diagnosed as persistent. The `zio_txg` entry in the `fmdump -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 (`ssd`) 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` with the appropriate values both on SPARC and x64 systems as described in the sd(7D) man page.

   ```
   sd-config-list="SUN ZFS     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 Issue

This section describes a file system issue in the Oracle Solaris 11.3 release.

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 11.3 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 11.3 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 11.3 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 11.3, see *Managing Devices in Oracle Solaris 11.3*.

System Administration Issues

This section describes system administration issues in Oracle Solaris 11.3.

Package Verification of the `system/core-os` Package in a Zone Installed From a Unified Archive Displays Error (21363559)

A kernel zone or a zone that is installed from a unified archive might display the following error message when you run the `pkg verify` command after you log into the zone:

```
# pkg verify pkg://solaris/system/core-os
ERROR: Group: 'root (0)' should be 'sys (3)'
```

Workaround: To fix the errors reported by the `pkg verify` command, run the following command:

```
# pkg fix pkg://solaris/system/core-os
```

Puppet Service Fails to Load New Configuration Settings With the `svcadm refresh` Command (20246639)

Because the puppet service does not offer a refresh method, whenever you need to apply a new puppet service configuration, you must run the `svcadm restart puppet master` command.

Workaround: You can eliminate the puppet restart by creating a file under `/etc/svc/profile/site` with the following content:

```
<?xml version="1.0" ?>
<!DOCTYPE service_bundle
  SYSTEM '/usr/share/lib/xml/dtd/service_bundle.dtd.1'>
<!--
    Manifest created by svcbundle (2015-Sep-21 13:27:28-0600)
-->
<service_bundle type="profile" name="application/puppet">
    <service version="1" type="service" name="application/puppet">
        <exec_method timeout_seconds="60" type="method" name="refresh"
            exec=":true"/>
    </service>
</service_bundle>
```

After you create the file, run the `svcadm restart manifest-import` command.

Installations Starting With Squid Version 3.5.5 Might Require Updating the `squid.conf` File (21908956)

To fix security issues, the Squid package has been updated to version 3.5.5. Because the names of some of the helper methods starting with version 3.5.5 have changed, you might have to update the `/etc/squid/squid.conf` file to use the new names.

Workaround: Run the following command to determine which helper methods are enabled:

```
/usr/squid/sbin/squid -v
```

Then, make the necessary updates in the `/etc/squid/squid.conf` file. For more information, see Helper Name Changes in the Squid release notes.

Restart Squid:

```
# svcadm restart svc:/network/http:squid
```

SPARC: The `hotplug poweroff` Command Sometimes Hits an Error (25752894)

An attempt to offline a hotplug port with dependent devices that are currently in use by the system might fail with the following error message:

```
# hotplug poweroff /pci@13c/pci@1/SYS/RCSA/PCIE11
```

```
ERROR: devices or resources are busy.
```

Workaround: Wait for two minutes for the active holds to be released before retrying the `hotplug offline` command. You must repeat this process until the `hotplug offline` command succeeds.

Networking Issues

This section describes the network-related issues in Oracle Solaris 11.3.

SPARC: Creating a VNIC Fails If a Physical NIC Is Used as `net-dev` (19188703)

On SPARC systems, creating a VNIC fails if a physical NIC is specified as the `net-dev` parameter in the creation of a virtual switch.

The following error message is displayed:

```
HOST vsw: [ID XXXXXX kern.warning]
WARNING: vswX:vnic_create(ldoms-vswX.vportY failed. Err=2
DATE HOST vsw: [ID kern.warning]
WARNING: vswX: Unable @ DATE HOST to add new port (0xHHH), err=1
```

Workaround: Use the network vanity name (`net0`, `net1`, or `net2`) as the link name. For example, do not use the physical NIC name to create a virtual switch.

```
# ldm add-vsw net-dev=igb1 primary-vsw1 primary
```

Instead, use the network vanity name.

```
# ldm add-vsw net-dev=net1 primary-vsw1 primary
```

You can use the `dladm show-phys` command to find the network vanity names.

```
# dladm show-phys -P

LINK     DEVICE     MEDIA        FLAGS
net1     igb1       Ethernet     ------
```

In the example, `net1` is the network vanity name.

DLMP Does Not Work on an SR-IOV Virtual Function or a Virtual Network Device in a Guest Domain (17656120)

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

SPARC: Migrating a Zone Between Guest Domains Sharing `alt-mac-addrs` 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-addrs
```

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 11.3 release.

`ssh` and `sshd` Enable OpenSSL `pkcs11` Engine by Default on T4, T4+ Platforms (18762585)

Starting with Oracle Solaris 11.2, T4 instructions and Intel hardware acceleration are embedded in the OpenSSL internal crypto implementation for non-FIPS-140 OpenSSL. This change

affects the performance of `ssh` and `sshd` because these services use the OpenSSL `pkcs11` engine by default on T4 systems and later versions.

Workaround: To obtain maximum performance, disable the OpenSSL `pkcs11` engine.

Perform the following steps to disable the `pkcs11` engine for `ssh` and `sshd` services:

1. Add the following line to the `/etc/ssh/ssh_config` and `/etc/ssh/sshd_config` files:

   ```
   UseOpenSSLEngine no
   ```

2. Restart the `ssh` service.

   ```
   # svcadm restart ssh
   ```

Note - This issue is applicable only for the OpenSSL non-FIPS-140 module. For information about the OpenSSL FIPS-140 module, see *Using a FIPS 140-2 Enabled System in Oracle Solaris 11.3*.

`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 ktkt_warn
  ```

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

  For more information about the `kclient` utility, see the `kclient`(1M) man page.

The `door_ucred` System Call Does Not Work Properly on Branded Zones (20425782)

The kernel-level cryptographic framework daemon, `kcfd`, can crash in branded zones that are running Oracle Solaris 10. The crash occurs when an application makes a call to the `kcfd` daemon by a user who is a member of 16 or more UNIX groups.

This failure of the `kcfd` daemon might also lead to switching of the `svc:/system/cryptosvc:default` service to maintenance mode, which in turn causes the `libpkcs11` library to stop working. For information, see the `libpkcs11`(3LIB) man page.

The crash also results in applications or commands such as `ssh` and Java being unable to use SPARC hardware acceleration of cryptographic operations and could cause other applications or commands such as `encrypt` and `decrypt` to fail completely.

Note - This issue potentially affects all the services that call the `door_ucred` system call, such as `nscd`(1M), `zoneadm`(1M), `svc.configd`(1M), `ldap_cachemgr`(1M), `hotplugd`(1M), iscsitgtd (1M), `picld`(1M), `labeld`(1M), and `in.iked`(1M).

Workaround: To prevent crashing, increase the maximum number of groups per user in the global zone so that it exceeds the number of groups that a user can be assigned. For example, if a user can be assigned to 31 groups, you would add the following line to the `/etc/system` file in the global zone:

```
set ngroups_max = 32
```

The maximum value that can be assigned to `ngroups_max` is 1024.

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
```

Kernel Zones Issues

This section describes issues related to kernel zones in Oracle Solaris 11.3.

Kernel Zones Interfere With `hardware-counter-overflow` Interrupt (18355260)

On a system running kernel zones, the DTrace CPU performance counter (CPC) provider might time out on some CPUs on the host and guest, stop delivering `hardware-counter-overflow` interrupts, and provide incomplete data.

Workaround: None.

AI Manifest `configuration` Element Cannot be Used to Install Kernel Zones (18537903)

When a system is deployed by using the automated installer (AI), non-global zones can optionally be installed on the system by using the `configuration` element within the AI manifest. Non-global zones are configured and installed by the zones self-assembly SMF service (`svc:/system/zones-install:default`) on first reboot after the global zone installation has completed.

If you attempt to install a kernel zone by using the `configuration` element, the installation fails and the SMF service `svc:/system/zones-install:default` goes into the maintenance mode.

Workaround: Install kernel zones by using the `zoneadm install` command after the installation of the system is completed.

Kernel Zones on NFS Can Have `zpool` Corruption During Live Migration (20697332)

Kernel zones that use ZOSS NFS might experience `zpool` data corruption during live migration. Fault management architecture (FMA) `zpool` errors might be generated in the zone and the `zpool` status will report checksum errors in the zone.

Workaround: Do not live migrate kernel zones that use ZOSS NFS.

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 3, “Migrating an Oracle Solaris Kernel Zone” in *Creating and Using Oracle Solaris Kernel Zones*.

Desktop Issues

This section describes desktop issues in the Oracle Solaris 11.3 release.

Evolution Application Crashes After New Installation (15734404)

The Evolution email application does not start after installing Oracle Solaris.

Workaround: After installing Evolution, log out and log in again. The application will start successfully.

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 4 Recommended Usage of USB Connectors and Values

SPARC Platform	Type of USB Device	Recommended Usage of USB Connectors	Value of the `ehci-port-forced-to-companion` Variable in the `/kernel/drv/ehci.conf` File
T3-1, T3-2, T4-1, T4-2	Physical keyboard or mouse	Use the front USB connector	4

SPARC Platform	Type of USB Device	Recommended Usage of USB Connectors	Value of the `ehci-port-forced-to-companion` Variable in the `/kernel/drv/ehci.conf` File
T3-4, T4-4	Physical keyboard or mouse	Use the rear USB connector	3
T3-1, T4-1, T3-2, T4-2, T3-4, 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 4, “Recommended Usage of USB Connectors and Values,” on page 52.
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 T3–4 and you are using a physical keyboard, set `ehci-port-forced-to-companion`=3.

   For information about the value that you can set for this variable, see Table 4, “Recommended Usage of USB Connectors and Values,” on page 52.
3. Reboot the system.

   ```
   # init 6
   ```

Trusted Extensions Desktop Users Are Logged Out After 15 Minutes (18462288)

When Trusted Extensions is enabled, users are logged out after 15 minutes of idle time. However, the default value of `idletime` in the `user_attr`(1M) database specifies to lock the screen after 30 minutes.

Workaround: To restore the default behavior, add the following properties in the `/etc/security/policy.conf` file:

```
idletime=30
idlecmd=lock
```

Note that the `idlecmd` setting is ignored unless `idletime` is also specified. These properties can also be customized for individual users by using the `usermod` command. For more information, see the `usermod`(1M) man page.

Plugin Container Crashes Frequently After an Upgrade to Firefox 31.1.1 ESR (20788558)

After upgrading Firefox to version `31.1.`*x*, the plugin container leaves core whenever plugins are made active. No error message is displayed, but the plugin-container binary crashes.

Workaround: Disable all the plugins by performing the following steps:

1. Choose Add-ons from the Tools menu.
2. Click the Plugins tab.
3. Select the Never Activate option from the drop-down list for each plugin.

Performance Issues

This section describes the performance issues in the Oracle Solaris 11.3 release.

Runnable Thread Occasionally Stays in Run Queue for a Longer Period (17697871)

Sometime transient threads stay longer on the CPU. Currently, the kernel has no mechanism to detect long-running transient threads. When this condition occurs, a single runnable thread on a CPU's run queue can starve, leading to various issues such as a drop in performance and node eviction.

Workaround: Disable transient threads by setting the following attributes in the `/etc/system` file:

```
thread_transience_kernel=0
thread_transience_user=0
```

SPARC: Multiple Memory DR Operations Might Trigger Limited Calls to the `defdump_init()` Function (19651809)

Because each memory dynamic reconfiguration (DR) operation might trigger multiple deferred dump reinitializations, DR operations might be slow.

Workaround: Disable deferred dump by running the following command:

```
# dumpadm -D off
```

Hardware Issues

This section describes the hardware issues in the Oracle Solaris 11.3 release.

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

When the connection to a target address 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.

SPARC: `suriadm lookup-uri` Command Fails to Return All URI Information for a Device in the DMP Mode (21532185)

The `suriadm lookup-uri` command might fail to return all uniform resource identifier (URI) information for a Aura2.1 Flash Accelerator in the distributed memory parallel (DMP) mode. The following error message is displayed:

```
$ suriadm lookup-uri c10t5002361000099204d0
Failed to look up "file" URI for device: "/dev/dsk/c10t5002361000099204d0": Failed to
 look up file name associated with lofi device: unable
to get mapping information: Invalid argument lu:luname.naa.5002361000099204
lu:initiator.naa.500605b0064c7100,target.naa.5002361000099204,luname.naa.
5002361000099204
Failed to look up "nfs" URI for device: "/dev/dsk/c10t5002361000099204d0": Failed to
 look up file name associated with lofi device: unable
to get mapping information: Invalid argument
```

Workaround: Run the following command to enable MPxIO mode:

```
$ stmsboot -e
```

After you change the host into MPxIO mode, the `suriadm lookup-uri` command shows all the information.

SPARC: OPL System Displays Error Message (19562754)

Oracle public library (OPL) systems (M3000, M4000, M5000, M8000) might report the following message from the `ntp` daemon:

```
Aug 26 02:22:19 mysystem.us.example.com ntpd[956]: [ID 702911 daemon.notice] frequency
 error 7054 PPM exceeds tolerance 500 PPM
Aug 26 02:31:04 mysystem.us.example.com ntpd[956]: [ID 702911 daemon.notice] frequency
 error 7021 PPM exceeds tolerance 500 PPM
Aug 26 02:33:16 mysystem.us.example.com ntpd[956]: [ID 702911 daemon.notice] frequency
 error 2139 PPM exceeds tolerance 500 PPM
Aug 26 02:42:03 mysystem.us.example.com ntpd[956]: [ID 702911 daemon.notice] frequency
 error 7037 PPM exceeds tolerance 500 PPM
```

Workaround: Verify that the time is correct on your system. If not correct, reset it as appropriate.

Fibre Channel Storage Issue

This section describes the fibre channel storage issue in this release.

SPARC: MPxIO for an FC Driver Is Not Enabled by Default Upon Installation (18765757)

MPxIO for a fibre channel (FC) driver is not enabled by default when you install Oracle Solaris. You have to manually enable MPxIO or use a special AI manifest to add a custom package that overwrites the administrator configuration file `/etc/driver/drv/fp.conf`. This problem is partially fixed in Oracle Solaris 11 update releases by allowing other package to overlay on the FC driver configuration file.

Workaround: Choose one of the following workarounds:

- Enable MPxIO on a particular system and manually change or overwrite the `/etc/driver/drv/fp.conf` file with `mpxio-disable="no"`. Reboot the system for the change to take effect. This workaround can be used for a system that is freshly installed.
- Enable or disable MPxIO for FC by using the `stmsboot` command. This command helps to preserve and translate certain device paths between MPxIO enabled and MPxIO disabled configurations.
- Enable MPxIO for bulk installations on multiple systems. Perform the following steps:

  1. Allow other package to overlay on the FC driver administrator configuration file, if necessary.
  2. Copy the custom package to an install server and modify the AI manifest to add this package at the end of installation before reboot.

♦ ♦ ♦ APPENDIX A

Previously Documented Bugs That Are Fixed in the Oracle Solaris 11.3 Release

This appendix lists bugs that were documented in the *Oracle Solaris 11.2 Release Notes* and have been fixed in the Oracle Solaris 11.3 release.

For information about accessing bug information in BugDB, 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 Fixed in This Release

Bug Number	Title
15806373	Changes to User Password States With the `passwd` Command
15798602	SPARC: 64-bit: Automated Installer Fails to Install on an iSCSI Boot Device
18717446	SPARC: Net Device Names Are Mapped Incorrectly During Installation
18496031	Installation Fails When a Disk Needs to Be Relabeled
18378881	SPARC: FMA Error When an Adapter Is Connected to Boot Device
18053874	iSCSI Can Connect Through an Undesired Interface on Reboot
16508057	SPARC: 64-bit: Error Opening `.last-config-check` File
18536626	64-bit: Warnings on Systems After Updating to Oracle Solaris 11.1 SRU 17.5 or Later Versions
15775115	SPARC: System Fails to Boot an iSCSI LUN on an iSCSI Storage Array
16756035	Console Message Displayed During Boot
18552774	SPARC: Suspending an M5000 Server Might Hang the System

Bug Number	Title
18435472	SPARC: D-Bus Kernel Heap Corruption When Attempting to Remove a Bus Device
16885440	`addrconf` Addresses Cannot Be Configured as IPMP Test Addresses
18177344	Boot Arguments to the `reboot` Command Are Ignored
18061724	Kernel Zones Using Virtual CPUs Might Block Processor Set Creation or CPU Dynamic Reconfiguration
18289196	SPARC: Kernel Zones Block Live Migration of Guest Domains
18685017	`zoneadm install` and `clone` Subcommands Do Not Check for Duplicate Storage Devices
18098413	x86: NVIDIA Graphics Driver Upgrade
18125373	Listing LUNs Takes Over a Minute on M6-32 Servers
16311652	SPARC: EP Service Creates Defunct Processes Every 24 Hours
19230723	SPARC: Fujitsu M10 Server Panics During Process Exit
16268647	`fault.io.usb.eps` Warning on the USB Ethernet Device
18936032	Rebooting Root Domain Causes Oracle VM Server for SPARC to Panic
19137125	SPARC: Running VTS on a T3-2 Server Causes Fatal Error in the PCIe Fabric
17540151	`libima.so` Library Initialization Is Not MT-Safe
19080861	`root.sh` Fails to Start `nodeapps` for IPv4 or IPv6 in an Oracle Solaris Zone
15891161	`svccfg validate` Command Fails on a Split Manifest
15805913	LDAP Warnings During System Boot
19976804	`solaris10` Branded Zone Installation Fails If the `fs` Resources Are Added to the Zone Configuration
18764604	Apache Enables OpenSSL `pkcs11` Engine by Default on T4, T4+ Platforms
15812274	D-Bus System Daemon Has a Small File Descriptor Limit for Sun Ray or XDMCP Server Use
15942559	ZFS Data Cannot Be Easily Reclaimed
15813959	SPARC: Devices on PCI Box Cannot Be Configured by `hotplug` on Fujitsu M10 Systems