

## SPARC T5-2 Server Product Notes

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## Using This Documentation

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- **Overview** – Provides late-breaking information about the SPARC T5-2 server from Oracle.
- **Audience** – Technicians, system administrators, and authorized service providers.
- **Required knowledge** – Experience with the Oracle Solaris Operating System, troubleshooting, and replacing hardware.

## Product Documentation Library

Documentation and resources for this product and related products are available at <http://www.oracle.com/goto/t5-2/docs>.

## Feedback

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





## Late-Breaking Information

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These sections provide important information and late-breaking news about the server:

- [“SPARC T5-2 Servers Available with 1 or 2 Processors” on page 9](#)
- [“Preinstalled Software” on page 9](#)
- [“IMPORTANT - Install Latest OS Updates, Patches, and Firmware” on page 10](#)
- [“Minimum Supported Versions of the Firmware, OS, and Software” on page 11](#)
- [“Mandatory Oracle Solaris 11 OS Package Updates” on page 12](#)
- [“Mandatory Oracle Solaris 10 OS Patches” on page 12](#)
- [“Known Issues” on page 16](#)

## SPARC T5-2 Servers Available with 1 or 2 Processors

The SPARC T5-2 server is available with 1 or 2 processors. The product documentation applies to both the 1-processor server and the 2-processor server except where one is specified.

## Preinstalled Software

Software	Location	Description
Oracle Solaris 11.1 OS	The OS is installed on drive 0, using a ZFS file system.	Host OS.
Oracle VM Server for SPARC <sup>†</sup>	/opt/SUNWldm	Manages logical domains.
Electronic Prognostics <sup>†</sup>	/usr/lib/ep	Provides early warning of the potential for specific FRU faults.
Oracle VTS <sup>†</sup>	/usr/sunvts	Provides hardware validation tests.

<sup>†</sup>These software components are part of the Oracle Solaris 11 OS distribution.

The preinstalled OS is ready to be configured at the appropriate point when you first apply power to the server.

Mandatory package updates might not be preinstalled. Ensure that you obtain and install all mandatory updates before you put the server into production. See “[Mandatory Oracle Solaris 11 OS Package Updates](#)” on page 12.

Refer to the Oracle Solaris documentation for instructions on installing and configuring the Oracle Solaris OS.

You can reinstall the OS along with mandatory package updates or patches instead of using the preinstalled OS. See “[Minimum Supported Versions of the Firmware, OS, and Software](#)” on page 11.

## IMPORTANT - Install Latest OS Updates, Patches, and Firmware

Some product features are enabled only when the latest versions of patches or firmware are installed. In order to retain optimal performance, security, and stability, installing the latest available patches or firmware is required.

Verify that the server firmware version is at a minimum 9.5.1.b or higher.

1. Check the system firmware:

From the ILOM web interface, click System Information → Summary, then view the property value for the System Firmware Version in the General Information table.

From the command prompt, type:

```
-> show /HOST
```

2. Ensure the server firmware version is at the minimum required version, shown above, or a subsequent release, if available.
3. If required, download the latest available software release version from My Oracle Support at:

<https://support.oracle.com>

4. If required, update the server firmware.

Refer to the information about performing firmware updates in the *Oracle ILOM Administrator's Guide for Configuration and Maintenance*. Ensure that you perform the preparatory steps described in that document before updating the firmware.

## Minimum Supported Versions of the Firmware, OS, and Software

Oracle Solaris 11 is the recommended OS for T5 servers. The advantages of Oracle Solaris 11 include simplified installation and maintenance, enhanced virtualization capabilities, and performance enhancements. A more detailed list of Oracle Solaris 11 advantages can be found at:

<http://www.oracle.com/technetwork/server-storage/solaris11/overview/solaris-matrix-1549264.html>

If you configure the server with Oracle VM Server for SPARC, you can install various combinations of the minimum (or later) versions of the OS. For example, you can use Oracle Solaris 11.1 SRU 4.6 for the control domain, and Oracle Solaris 10 9/10 in guest domains.

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**Note** - Oracle VM Server for SPARC 3.1.1 requires firmware version 9.1.2.d. Oracle Solaris 11.1 SRU 17 (11.1.17.5.0) contains Oracle VM Server for SPARC 3.1.1.

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Software	Minimum Supported Versions
Oracle System Firmware	<p>9.0.0.h or later for a 2-processor server.</p> <p>9.1.2.b or later for a 1-processor server.</p> <p>The firmware includes Oracle ILOM 3.2.1 or later.</p> <p><b>Note</b> - The server might require more recent firmware to support Oracle Solaris Kernel Zones. For specific firmware requirements, refer to <i>Creating and Using Oracle Solaris Kernel Zones</i>.</p>
Oracle Solaris 11 OS	<p>For the control domain, guest domains, and non-virtualized configurations:</p> <p>Oracle Solaris 11.1 SRU 4.6</p> <p>Includes these software components:</p> <ul style="list-style-type: none"> <li>■ Oracle VM Server for SPARC 3.0.0.2</li> <li>■ Oracle Electronic Prognostics</li> <li>■ Oracle VTS 7.0 PS 15 (S11.1 SRU 4)</li> </ul> <p>Also see “<a href="#">Mandatory Oracle Solaris 11 OS Package Updates</a>” on page 12.</p>
Oracle Solaris 10 OS	<ul style="list-style-type: none"> <li>■ For the control domain, guest domains, or for non-virtualized configurations:                             <p>Oracle Solaris 10 1/13 plus patches and the SUNWtdm package (from the Oracle VM Server for SPARC software)</p> </li> <li>■ For guest domains only:                             <p>Oracle Solaris 10 9/10 OS or Oracle Solaris 10 8/11 OS, plus Oracle Solaris 10 1/13 SPARC Bundle and patches</p> </li> </ul> <p>The Oracle Solaris 10 OS includes Oracle VTS 7 PS15.</p>

Software	Minimum Supported Versions
	Oracle Electronic Prognostics 1.3 is not included, but you can install it separately. Also see <a href="#">“Mandatory Oracle Solaris 10 OS Patches”</a> on page 12.

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**Note** - Some PCIe cards and devices have other minimum requirements. For details, including what is required for a device to be bootable, refer to the product notes and other documentation for that device.

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## Mandatory Oracle Solaris 11 OS Package Updates

No package update is required at this time to use the preinstalled Oracle Solaris 11.1 OS with this server.

If you reinstall the OS, you might need to install certain package updates before you put the server and optional hardware or software components into production. The server requires at least Oracle Solaris 11.1 SRU 4.6.

Install the most recent Oracle Solaris 11.1 Support Repository Update (SRU). Taking this action ensures that your server has the latest software for the best performance, security, and stability.

Use the `pkg info entire` command to display which SRU is currently installed on your server.

Use the `pkg` command or the package manager GUI to download any available SRUs from:  
<https://pkg.oracle.com/solaris/support>

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**Note** - To access the Oracle Solaris 11 package update repository, you must have an Oracle support agreement that enables you to install a required SSL certificate and support key. Refer to the article at: <http://www.oracle.com/technetwork/articles/servers-storage-admin/o11-018-howto-update-s11-1572261.html> Go to Oracle's certificate request web site at: <https://pkg-register.oracle.com>.

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## Mandatory Oracle Solaris 10 OS Patches

If you choose to install the Oracle Solaris 10 OS, you must also install additional patches and in some cases, a patch bundle.

## Oracle Solaris 10 1/13 Mandatory Patches

This version of the OS is supported in the control domain, guest domains, or for non-virtualized configurations:

Installation Order	OS or Patch
1	Oracle Solaris 10 1/13 OS
2	These mandatory patches: <ul style="list-style-type: none"> <li>■ 148322-07 (or higher)</li> <li>■ 148324-06 (or higher)</li> <li>■ 148888-01 (or higher)</li> <li>■ 149638-01 (or higher)</li> <li>■ 149644-01 (or higher)</li> <li>■ 150011-02 (or higher)</li> <li>■ 150025-01 (or higher)</li> <li>■ 150027-01 (or higher)</li> <li>■ 150107-01 (or higher)</li> </ul>
3	SUNWldm package (from the Oracle VM Server for SPARC software)

## Oracle Solaris 10 8/11 Mandatory Patches

This version of the OS is supported only in guest domains.

Installation Order	OS or Patch
1	Oracle Solaris 10 8/11 OS
2	Oracle Solaris 10 1/13 SPARC Bundle
3	All of the Oracle Solaris 10 1/13 mandatory patches. See <a href="#">“Oracle Solaris 10 1/13 Mandatory Patches” on page 13</a> .

**Note** - Until the Oracle Solaris 10 1/13 SPARC Bundle is installed, you might encounter these bugs—15712380, 15704520, 15665037. The first two bugs are resolved when the Oracle Solaris 10 1/13 SPARC bundle is installed. These bugs do not impact the patch installations.

## Oracle Solaris 10 9/10 Mandatory Patches

This version of the OS is supported only in guest domains.

Installation Order	OS or Patch
1	Oracle Solaris 10 9/10 OS
2	Oracle Solaris 10 1/13 SPARC Bundle
3	All of the Oracle Solaris 10 1/13 mandatory patches. See <a href="#">“Oracle Solaris 10 1/13 Mandatory Patches”</a> on page 13.

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**Note** - Until the Oracle Solaris 10 1/13 SPARC Bundle is installed, you might encounter these bugs—15712380, 15704520, 15665037. The first two bugs are resolved when the Oracle Solaris 10 1/13 SPARC Bundle is installed. These bugs do not impact the patch installations.

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## ▼ Obtain Patches

Perform these steps to obtain patches for the Oracle Solaris 10 OS.

**1. Sign into My Oracle Support:**

<https://support.oracle.com>

**2. Select the Patches & Updates tab.**

**3. Search for a patch using the Patch Search panel.**

When searching for a patch using the Patch Name or Number field, you must specify the complete name or number of the patch. For example:

- Solaris 10 1/13 SPARC Bundle
- 13058415
- 147159-03

To search using a patch number without the revision number (last two digits), type % in place of the revision number. For example:

147159-%

**4. Once you locate the patch, access the README and download the patch from the site.**

The patch README provides the patch installation instructions.

## Installing and Booting Oracle Solaris 11 from Devices Connected to a USB Port

To install Oracle Solaris 11 without using an IPS AutoInstall server on the network, you can use Oracle Solaris media in a DVD drive. The DVD drive can be built into the server or attached to a USB port. You also can boot from an ISO image copied to a DVD disk, hard drive, or SSD.

Starting with Oracle Solaris 11.2, you can install the OS on this server from an image copied to a USB flash drive. That USB image is available for download at the same location as the ISO images.

<http://www.oracle.com/technetwork/server-storage/solaris11/downloads/index.html>

You also can create a persistent device alias for a device connected to a USB port. The simpler alias name remains available for future installation or boot operations.

For more information about installing Oracle Solaris and creating persistent device aliases, refer to *Installing Oracle Solaris 11.2 Systems* at:

[http://docs.oracle.com/cd/E36784\\_01](http://docs.oracle.com/cd/E36784_01)

You can boot Oracle Solaris 11 from drives installed in the server (hard drive, SSD, or DVD drive) or from devices connected to a USB port.

For the path to identify a USB port in a boot command, refer to this table. These paths are included in the list of devices output by the `show-dev OpenBoot` command.

USB Connector	USB Level	Path
USB 0 (rear top)	2.0	/devices/pci@340/pci@1/pci@0/pci@3/usb@0:7
	3.0	/devices/pci@340/pci@1/pci@0/pci@3/usb@0:3
USB 1 (rear bottom)	2.0	/devices/pci@340/pci@1/pci@0/pci@3/usb@0:6
	3.0	/devices/pci@340/pci@1/pci@0/pci@3/usb@0:2
USB 2 (front left)	2.0	/devices/pci@340/pci@1/pci@0/pci@3/usb@0/hub@8:8:2
USB 3 (front right)	2.0	/devices/pci@340/pci@1/pci@0/pci@3/usb@0/hub@8:8:1

## Known Issues

- “Oracle System Firmware 9.4.2.c Must Be Replaced by Version 9.4.2.e or Later” on page 17
- “When You Create Logical Domains, Some Memory Is Reserved By the Server” on page 17
- “Oracle Dual Port QDR InfiniBand Adapter M3 Requires a Mimimum Firmware Level” on page 17
- “sas2ircu Might Fail to Create a RAID Volume (15788910)” on page 18
- “rKVMs Does Not Support Redirecting Storage From a SPARC Client (15795058)” on page 19
- “Mouse Pointer Is Not Aligned With the Cursor in a Remote Window (15798251)” on page 20
- “kmdb: failed to allocate xxx bytes -- recovering Error Message (15806455)” on page 21
- “xhci Device Failed During Boot on USB Ports (15809582)” on page 22
- “/System/Cooling Target Lists Power Supply Fans as Not Supported (15809846)” on page 22
- “Server Does Not Support Booting Oracle Solaris From a USB Flash Drive (15810161)” on page 23
- “File Descriptor Leakage in libldom/ldom\_xmpp\_client.c (15811297)” on page 23
- “In Some Cases, Spurious Faults of Type *fault.sunos.eft.unexpected\_telemetry* Are Reported (15820471)” on page 24
- “ilomconfig Might Report Internal Error (15823485)” on page 25
- “Active mempm Should Balance Cage Assignment Across All Nodes (15944881)” on page 26
- “POST Does Not Work After a Reconfiguration Call From HC (15968276)” on page 27
- “Some USB 3.0 Devices Cause Timeouts and Might Hang the Host (16019551 and 15985683)” on page 28
- “Drive OK to Remove LED Might Not Illuminate When a Drive is Unconfigured (16051551)” on page 29
- “FPGA iPOST power-on-reset, error-reset, and hw-change Triggers Do Not Work (16192025)” on page 31
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- [“Infrequent SAS Disconnected command timeouts Might Be Displayed \(16562940\)”](#) on page 35
- [“Management of SP Does Not Display a Table as Expected \(16607793\)”](#) on page 36
- [“Drive Controller Not Ready When the Driver Tries To Attach \(16608475\)”](#) on page 38
- [“RAID 10 Volumes Created Instead of RAID 1e on an Even Number of Target Disks \(18335578\)”](#) on page 39

## Oracle System Firmware 9.4.2.c Must Be Replaced by Version 9.4.2.e or Later

If you have installed Oracle System Firmware 9.4.2.c on the server, replace it with version 9.4.2.e or later.

## When You Create Logical Domains, Some Memory Is Reserved By the Server

When you use Oracle VM Server for SPARC, you can assign most of the memory in a SPARC T5 server to logical domains. However, a small portion of the server's memory is preassigned to software components, the hypervisor, and certain I/O devices. To determine which portions of memory are unavailable for logical domains, type this command:

```
# ldm ls-devices -a mem
```

In the output, look for rows that include `_sys_` in the Bound column. Each of those portions of memory is not available for logical domains.

## Oracle Dual Port QDR InfiniBand Adapter M3 Requires a Mimimum Firmware Level

The Oracle Dual Port QDR InfiniBand Adapter M3 is supported on SPARC T5-2 servers with a minimum firmware level of FW 9.1.0.f.

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**Note** - For details on Oracle Solaris support for this device, refer to the documentation for this adapter.

---

## sas2ircu Might Fail to Create a RAID Volume (15788910)

When you use the `sas2ircu` command within Oracle Solaris to create a RAID volume, the command might report that volume creation has failed. For example:

```
# ./sas2ircu 0 create raid0 max 1:0 1:1 1:2 my-RAID0
LSI Corporation SAS2 IR Configuration Utility.
Version 14.00.00.00 (2012.07.04)
Copyright (c) 2009-2012 LSI Corporation. All rights reserved.

You are about to create an IR volume.

WARNING: Proceeding with this operation may cause data loss or data
corruption. Are you sure you want to proceed (YES/NO)? yes

WARNING: This is your last chance to abort this operation. Do you wish
to abort (YES/NO)? no
Please wait, may take up to a minute...
@ Nov  6 09:46:47 sys-33 scsi: /pci@300/pci@1/pci@0/pci@2/scsi@0 (mpt_sas0):
Nov  6 09:46:47 sys-33      Volume 0 is now , enabled, inactive
@ Nov  6 09:47:45 sys-33 scsi: WARNING: /pci@300/pci@1/pci@0/pci@2/scsi@0
(mpt_sas0):
Nov  6 09:47:45 sys-33      passthrough command timeout@ SAS2IRCU: IocStatus = 0 IocLogInfo = 0
SAS2IRCU: Volume creation failed.
SAS2IRCU: Error executing command CREATE
#
```

If you retype the `sas2ircu` command at the Oracle Solaris prompt, the command will fail. The `sas2ircu` command will state that the wrong number of disks have been provided, since they had already been committed to a volume. For example:

```
# ./sas2ircu 0 create raid0 max 1:0 1:1 1:2 my-RAID0
LSI Corporation SAS2 IR Configuration Utility.
Version 14.00.00.00 (2012.07.04)
Copyright (c) 2009-2012 LSI Corporation. All rights reserved.

SAS2IRCU: Number of drives specified is higher than number of drives
available to create a RAID volume!
SAS2IRCU: Error executing command CREATE.
#
```

After the initial failure of the `sas2ircu` command, other disk utility commands, such as `format`, might show disk members of the volume marked as `drive not available`. The `format` command might appear to hang and will require that you type `Ctrl-C` to abort the command. For example:

```
# format
Searching for disks...done

AVAILABLE DISK SELECTIONS:
    0. c0t500151795955C40Ed0 <drive not available>
@      /scsi_vhci/disk@g500151795955c40e
      /dev/chassis/unknown.1222BDC067//SYS/SASBP/HDD0/disk
    1. c0t500151795955C19Ed0 <drive not available>
@      /scsi_vhci/disk@g500151795955c19e
      /dev/chassis/unknown.1222BDC067//SYS/SASBP/HDD1/disk
    2. c0t5001517959567D4Dd0 <drive not available>
@      /scsi_vhci/disk@g5001517959567d4d
      /dev/chassis/unknown.1222BDC067//SYS/SASBP/HDD2/disk

Ctrl-C
#
```

**Workaround:** Reboot the system to restore the volume to a working state.

```
# reboot
```

Alternatively, you can use one of the other available methods to create the volume, instead of the `sas2ircu` command.

- Create a volume under Oracle Solaris with the `raidconfig` command. The Oracle Hardware Management Pack includes the `raidconfig` command.

You can download the Oracle Hardware Management Pack software at:

<https://support.oracle.com>

You can read and download documentation for the version of Oracle Hardware Management Pack you are using at:

<http://www.oracle.com/goto/OHMP/docs>

- Create a volume at the OpenBoot prompt with the FCode-based RAID utility commands. For instructions on using the FCode-based RAID utility commands, refer to the *SPARC and Netra SPARC T5 Series Servers Administration Guide*.

## rKVMS Does Not Support Redirecting Storage From a SPARC Client (15795058)

---

**Note** - This issue has been fixed in FW 9.0.2.g.

---

Starting the Storage feature of Java Remote Console Plus on an Oracle Solaris system is not supported.

**Workaround:** Start the Storage feature of Java Remote Console Plus on a Linux or Windows system. For a complete list of supported browsers, operating systems, and platforms, refer to the *Oracle ILOM Administrator's Guide for Configuration and Maintenance*.

## Mouse Pointer Is Not Aligned With the Cursor in a Remote Window (15798251)

---

**Note** - This issue has been fixed in Oracle Solaris 11 SRU 11.1.9.5.1.

---

The mouse pointer in the Oracle ILOM video remote console might not track well. The cursor position might be out of sync with the Xorg server on the Oracle Solaris host, a condition that makes mouse navigation and selection difficult.

**Workaround:** This first procedure does not make a permanent change, but immediately makes it easier for you to navigate with the mouse and enables you to perform steps that result in a more permanent change.

1. Log in to the Gnome desktop.

If you have problems obtaining a terminal window, try one of the following methods:

- Click the right mouse button. When the desktop pop up is displayed, type: **e**
- Use the keyboard to obtain a terminal window by typing Alt-F2. Then type: **gnome-terminal**
- Select the desired terminal window as active by typing Alt-Tab.

2. Type this command in a terminal window:

```
xset m 1 1
```

3. Select Mouse Sync in the upper left corner of the Oracle ILOM Remote System Console Plus window.

Now you can make a more permanent fix by changing the mouse preferences values of acceleration, sensitivity, and threshold to the smallest values.

1. Log in to the server on the Gnome desktop.
2. Obtain the menu of mouse preferences.

Depending on the version of the Gnome desktop, select one of the following:

- System > Preferences > Mouse
- Launch > System > Preferences > Mouse

You also can reach this point by typing Alt-F2 and then typing: **gnome-mouse-properties**

3. Change the mouse preferences values:

- Pointer Speed Acceleration = Slow
- Pointer Speed Sensitivity = Low
- Drag and Drop Threshold = Small

If you are using the keyboard, navigate by pressing Tab until the desired item is highlighted. For each value, press the left arrow key to move the slides all the way to the left.

These changes will be permanent and persist after screenlock and logout.

In Oracle Solaris 11, you can use another method to initially disable problematic mouse acceleration. However, subsequent changes to the mouse acceleration during the Xorg session will override the changes made by this method.

1. Open this file for editing:

```
/etc/hal/fdi/preprobe/10osvendor/10-x11-input.fdi
```

Ensure that you do not leave any other copies of the file in this directory.

2. Locate the following lines:

```
<merge key="input.x11_options.StreamsModule" type="string">usbms</merge>
<merge key="input.x11_options.Protocol" type="string">VUID</merge>
```

3. Following those lines, add these lines and save the file:

```
<merge key="input.x11_options.AccelerationScheme" type="string">none</merge>
<merge key="input.x11_options.AccelerationNumerator" type="string">1</merge>
<merge key="input.x11_options.AccelerationDenominator"
type="string">1</merge>
<merge key="input.x11_options.AccelerationThreshold" type="string">1</merge>
```

4. Type these Oracle Solaris commands:

```
# svcadm restart hal
# svcadm restart gdm
```

## **kmdb: failed to allocate xxx bytes -- recovering Error Message (15806455)**

On rare occasions, when the kernel module debugger (kmdb) examines the live system state, the kmdb dcmds might fail with the following error message:

```
kmdb: failed to allocate XXX bytes -- recovering
```

These kmdb commands are affected:

- `::cpuinfo`
- `::stacks`

Continuing to use `kldb` after this error condition occurs might result in further degrading, including subsequent failure of other built-in `dcmds` or `walkers`.

Although `kldb` attempts to recover gracefully from an out-of-memory situation, it might not be able to and be forced to terminate the system, which requires manual recovery.

**Workaround:** Avoid using `kldb` for active debugging whenever possible. If use of `kldb` is required, contact your Oracle service provider for further assistance.

## xhci Device Failed During Boot on USB Ports (15809582)

When you boot the Oracle Solaris OS with a USB 3.0 device installed in one of the rear USB ports of a SPARC T5-2 server, the following message might be displayed.

```
WARNING /pci@300/pci@1/pci@0/pci@4/pci@0/pci@6/usb@0
(xhci0): Connecting device on port 7 failed
```

**Workaround:** You can safely ignore this message.

## /System/Cooling Target Lists Power Supply Fans as Not Supported (15809846)

---

**Note** - This issue has been fixed in Oracle ILOM 3.2.1.

---

When you type this Oracle ILOM command:

```
-> show /System/Cooling
```

the output under Properties includes the following lines:

```
installed_power_supply_fans = Not Supported
max_power_supply_fans = Not Supported
```

**Workaround:** To display accurate information about installed power supply fans, type this Oracle ILOM command, which includes the `/SYS` target:

```
-> show /SYS -l all type=='Fan' value
```

---

## Server Does Not Support Booting Oracle Solaris From a USB Flash Drive (15810161)

---

**Note** - This issue has been fixed in Oracle Solaris 11.2. For more information about installing and booting from a USB device, see [“Installing and Booting Oracle Solaris 11 from Devices Connected to a USB Port”](#) on page 15.

---

The SPARC T5-2 servers do not boot Oracle Solaris from a USB flash drive.

**Workaround:** Use Oracle Solaris 11.2 or later.

---

## File Descriptor Leakage in libldom/ ldom\_xmpp\_client.c (15811297)

---

**Note** - This issue has been fixed in Oracle Solaris 11.1 SRU 11.1.5.5.

---

The Oracle Solaris Predictive Self-Healing (PSH) fault manager daemon (fmd) can become non-operational when the Logical Domains Manager (ldmd) is down for a period of time. On SPARC T5 series servers, I/O faults, including disk faults, are diagnosed by the Oracle Solaris fmd. Other faults are diagnosed by Oracle ILOM on the SP, and are not affected by this bug.

As soon as a patch with the fix becomes available, you should install the patch. See [“Obtain Patches”](#) on page 14.

**Workaround:** If you suspect that I/O faults are not being reported, execute these steps:

1. Determine whether or not the ldmd is online.  
If ldmd is online, then this bug is not the issue. Refer to the fault management procedures in the service manual.  
If ldmd is offline, go to Step 2.
2. Restart ldmd.
3. Restart fmd.  
An I/O fault might have occurred, but not diagnosed by PSH. View the system logs, as described in the service manual, to isolate the problem.

## In Some Cases, Spurious Faults of Type *fault.sunos.eft.unexpected\_telemetry* Are Reported (15820471)

A device reporting a large number of correctable errors continues to report errors while it is being disabled. Each error is queued and diagnosed in order. In rare cases, the last error reported by the device might be queued but not processed for diagnosis until after the device is disabled. This last error is reported as unexpected telemetry, because the device is no longer enabled in the system.

For example:

```
# fmadm faulty
-----
Time                UUID                msgid

Problem Status    : solved
Diag Engine       : [unknown]
System
  Manufacturer    : Oracle Corporation
  Name            : T5-2
  Part_Number     : 7045605
  Serial_Number   : xxxxxxxxxx
Severity
-----
Suspect 1 of 2
  Fault class     : fault.sunos.eft.unexpected_telemetry
  Certainty      : 50%
  Affects        : dev:///pci@1040/pci@1/pci@0
  Status         : faulted but still in service
-----
FRU
  Status          : faulty
  Location        : -
  Chassis
    Manufacturer  : Oracle Corporation
    Name          : T5-2
    Part_Number   : 7045605
    Serial_Number : xxxxxxxxxx
2012-10-04/17:24:07 87732365-faa6-e9cd-bf2a-9052cb8cf876 SUNOS-8000-J0 Major
-----
Suspect 2 of 2
  Fault class     : defect.sunos.eft.unexpected_telemetry
  Certainty      : 50%
  Affects        : dev:///pci@1040/pci@1/pci@0
```



```

    Status      : faulted but still in service
FRU
    Status      : faulty

Description: A fault has been diagnosed by the Host Operating System

Response   : The service required LED on the chassis and on the affected
            FRU may be illuminated.

Impact     : No SP impact.

Action     : Refer to the associated reference document at
            http://support.oracle.com/msg/SUNOS-8000-J0 for the latest
            service procedures and policies regarding this diagnosis.

Location   : -
Chassis
Manufacturer : Oracle Corporation
Name        : T5-2
Part_Number : 7045605
Serial_Number : xxxxxxxxxx

```

An unexpected telemetry fault in this case can be safely ignored.

#### Workaround:

1. Use the `fmadm faulty` command to obtain the fault UUID. For example:

```

# fmadm faulty
-----
Time          UUID                               msgid
...
Severity
-----
2012-10-04/17:24:07 87732365-faa6-e9cd-bf2a-9052cb8cf876 SUNOS-8000-J0 Major

```

2. Clear the unexpected telemetry fault in the Oracle Solaris host using its UUID. For example:

```
# fmadm repair 87732365-faa6-e9cd-bf2a-9052cb8cf876
```

## **ilomconfig Might Report Internal Error (15823485)**

The Oracle Solaris `ilomconfig` command that enables the communication channel between the OS and the SP might occasionally fail with an `Internal Error` message.

This communication channel is enabled by default and is not usually disabled in the normal course of operation. However, the channel can be disabled by superuser with this Oracle Solaris command.

```
# ilomconfig disable interconnect
Host-to-ILOM interconnect disabled.
```

Occasionally, the command to enable the interconnect might fail again with this error message:

```
# ilomconfig enable interconnect
ERROR: Internal error
```

If this situation happens, follow the workaround to reenable the link, because the link is used for transferring diagnostic data between the Oracle Solaris instance and the SP and must be reenabled promptly.

**Workaround:** Retype the command to enable the interconnect.

```
# ilomconfig enable interconnect
Host-to-ILOM interconnect successfully configured.
```

If the failure persists, contact your authorized Oracle Service Provider for assistance.

## Active mempm Should Balance Cage Assignment Across All Nodes (15944881)

---

**Note** - This issue has been fixed in Oracle Solaris 11.1 SRU 11.1.6.4.

---

On large T5 or M5 domains, certain workloads might exhibit unexpected poor performance or negative performance scaling. In addition, on large M5 or T5 systems with high numbers of network adapters, aggregate network throughput might be limited to no more than ~12 GB/second.

The Solaris kernel manages its data structures inside of a *cage*, which defines the limits of kernel memory. The cage is allowed to grow over time if needed. Ideally, the cage is distributed across all memory in the domain, so that the kernel does not exhaust the memory within any one locality group (lgrp). Distributing the cage across lgrps is desirable because user-level code running on processors within the lgrp performs better if local memory is available, rather than using remote memory in another lgrp.

**Workaround:** The tunable mempm parameter defines how the kernel manages cage growth and distribution. For most workloads, the mempm parameter can be left at its default value

(0), which allows the power management code to affect cage allocation. However, for some workloads a more even distribution of kernel memory might be obtained using a non-power-aware, traditional cage allocation algorithm.

Set the `mempm` parameter if you observe unexpected poor performance or negative scaling at the application level on large domains with a high number of CPUs. Setting the `mempm` parameter to 1 disables the power management cage allocation algorithm, and the kernel reverts to its traditional cage allocation algorithm.

To set the `mempm` parameter:

1. Add the following to the `/etc/system` file:  

```
set plat_disable_mempm=1
```
2. Reboot the server and observe memory usage (for example, using the `lgrpinfo` tool) to see whether memory is more balanced across `lgrps`.

---

**Note** - If this issue persists, contact your Oracle service provider for further assistance.

---

## POST Does Not Work After a Reconfiguration Call From HC (15968276)

If POST runs as part of the boot sequence and if the system experiences hardware faults, you might see a POST ERROR message, followed by an INFO message. The boot sequence continues, but the system might contain untested hardware. The untested hardware will be available to the operating system after the boot.

For these cases, POST stalls for several minutes, then sends an e-report, as in the following example:

```
2013-01-23 15:30:55:990 0:0:0>ERROR:
  ereport.chassis.post.io.test-fail@SYS/MB/CM0/CMP/PCIE_LINK1
  reporting PCPU ID=0
  TestTitle=IO Trap Handler
  Operation=Data Access Error (Type: 32)
  Trap PC=0x000000000560b8c
  Trap Level=0x01
  NPESR=0x0000000000000001
  NPEAR=0x0000805100700000
END_ERROR
```

```
2013-01-23 15:30:56:054 0:0:0>INFO: Link Down Recovery Not Supported
2013-01-23 15:31:02 0:0:0> ERROR: POST Timed out. Not all components tested
```

**Workaround A:** Use the `fdump -eV` command to review the error logs and console messages. Replace or repair any failing hardware.

**Workaround B:** Restart POST. POST will be run on the system with the faulty components already deconfigured.

## Some USB 3.0 Devices Cause Timeouts and Might Hang the Host (16019551 and 15985683)

The two USB ports available on the front panel of the server are USB 2.0 compliant. If you use some USB 3.0 devices (especially those behind external USB hubs) to install the OS or to boot, the action might get stuck and display these messages:

```
WARNING:
/pci@340/pci@1/pci@0/pci@2/usb@0/hub@5/hub@3/storage@1/disk@0,0
(sd12): SCSI transport failed: reason 'timeout': giving up
```

In some extreme cases, this situation might cause the host to experience a hard hang.

### Workaround:

1. Send a break to the host and connect to the host console using one of these methods:
  - Using the Oracle ILOM CLI:

```
-> cd /HOST
-> set send_break_action=break
-> start /HOST/console
```
  - Using the Oracle ILOM web interface:
    - a. Select Host Management > Power Control.
    - b. Select Reset for Select Action and click Save.
    - c. Click OK on the pop-up menu.
2. When the host reaches the ok prompt, remove any external hubs and attach the USB device directly to a USB 3.0 connector on the rear of the server, or use another standard compliant USB device. Then retry the operation.
3. If the host does not display the ok prompt, remove any external hubs and attach the USB device directly to a USB 3.0 connector on the rear of the server, or use another standard USB compliant device. Then power cycle the host using one of these methods:
  - Using the Oracle ILOM CLI:

- > `reset /System`
- Using the Oracle ILOM web interface:
  - a. Select Host Management > Power Control.
  - b. Select Reset for Select Action and click Save.
  - c. Click OK on the pop-up menu.

## Drive OK to Remove LED Might Not Illuminate When a Drive is Unconfigured (16051551)

This issue only applies to servers running the Oracle Solaris 10 1/13 OS.

If you use the `cfgadm` command to unconfigure a drive, the drive's blue Ok to Remove LED might not illuminate. This issue makes it difficult to confirm that the drive is ready to be removed and to identify the drive's physical location.

**Workaround:** Perform these steps to confirm that the drive is ready to be removed and to identify the drive's physical slot.

1. Use the `cfgadm` command to identify the drive's WWN that you plan to unconfigure.

In this example, the fifth drive will be unconfigured. The fifth drive has a WWN of `w5000c50033278c09,0`.

```
# cfgadm -al | grep disk
c7::w5000cca016065039,0      disk-path  connected  configured  unknown
c8::w5000cca0257b4999,0      disk-path  connected  configured  unknown
c9::w5000cca0257ca335,0      disk-path  connected  configured  unknown
c10::w5000cca03c252999,0     disk-path  connected  configured  unknown
c13::w5000c50033278c09,0     disk-path  connected  configured  unknown
```

2. Unconfigure the drive.

```
# cfgadm -c unconfigure c13::w5000c50033278c09,0
```

3. Verify that the drive is unconfigured, as identified in the last line of this example.

```
# cfgadm -al | grep disk
c7::w5000cca016065039,0      disk-path  connected  configured  unknown
c8::w5000cca0257b4999,0      disk-path  connected  configured  unknown
c9::w5000cca0257ca335,0      disk-path  connected  configured  unknown
c10::w5000cca03c252999,0     disk-path  connected  configured  unknown
c13::w5000c50033278c09,0     disk-path  connected  unconfigured unknown
```

If the drive Ok to Remove LED does not illuminate perform the remaining steps.

4. Send the output of the `prtconf -v` command to a file.

```
# prtconf -v > /tmp/prtconf.out
```

5. Open the file with an editor and search for the WWN of the unconfigured drive (5000c50033278c09 in this procedure's example).
6. In the output, confirm the drive location and that the drive is offline.

Look two lines above the WWN to identify the drive's location (HDD4 in this example)

Look at the line after the line with the WWN. The word `offline` indicates the drive is unconfigured.

```
disk, instance #13 (driver not attached)
  System software properties:
    name='ddi-devid-registrant' type=int items=1
    value=00000001
  Hardware properties:
    name='class' type=string items=1
    value='scsi'
    name='inquiry-revision-id' type=string items=1
    value='0B70'
    name='inquiry-product-id' type=string items=1
    value='ST930003SSUN300G'
    name='inquiry-vendor-id' type=string items=1
    value='SEAGATE'
    name='inquiry-device-type' type=int items=1
    value=00000000
    name='compatible' type=string items=4
    value='scsiclass,00.vSEAGATE.pST930003SSUN300G.r0B70' +
'scsiclass,00.vSEAGATE.pST930003SSUN300G' + 'scsiclass,00' + 'scsiclass'
    name='client-guid' type=string items=1
    value='5000c50033278c0b'
location: /dev/chassis/SPARC_T5-2.1144BD5ZZZ//SYS/SASBP/HDD4/disk <== Location
  Paths from multipath bus adapters:
    Path 5:
    /pci@3c0/pci@1/pci@2/scsi@0/iport@1/disk@w5000c50033278c09,0
    mpt_sas#7 (offline) <== Driver offline means drive is
unconfigured.
    name='wnn' type=string items=1
    value='5000c50033278c0b'
    name='lun' type=int items=1
    value=00000000
    name='lun64' type=int64 items=1
    value=0000000000000000
    name='target-port' type=string items=1
```

```

        value='w5000c50033278c09'
name='attached-port' type=string items=1
        value='w508002000147f5b1'
name='attached-port-pm' type=string items=1
        value='1'
name='target-port-pm' type=string items=1
        value='1'
name='phy-num' type=int items=1
        value=00000000
name='obp-path' type=string items=1
        value=
'/pci@3c0/pci@1/pci@0/pci@2/scsi@0/disk@w5000c50033278c09,0'

```

## FPGA iPOST power-on-reset, error-reset, and hw-change Triggers Do Not Work (16192025)

---

**Note** - This issue has been fixed in Oracle ILOM 3.2.1.

---

From within the Oracle ILOM software on the SP, the control of when FPGA iPOST (Oracle ILOM POST) is executed during the boot sequence of the SP is managed by the following properties:

- /SP/diag mode
- /SP/diag trigger

By default, these properties are defined so that the execution of FPGA iPOST is disabled. For example:

```

...
/SP/diag mode=off
/SP/diag trigger=all-resets
...

```

If you change /SP/diag mode to normal to enable iPOST, and if you change /SP/diag trigger from all-resets to any other value (power-on-reset, error-reset, or hw-change), then iPOST will not be executed. In addition, the following message displays on the SER MGT port during the boot sequence to indicate that iPOST has not been executed.

```

...
Starting IPMI Stack: . Done
Starting BBR daemon...
bbrd started after 0 seconds.
Starting SP fishwrap cache daemon: fishwrapd . Done

```

**FPGA iPOST skipped**

```
Starting Host daemon: hostd . Done
Starting Network Controller Sideband Interface Daemon: ncsid . Done
Starting Physical Domain Manager: pdm . Done
Starting Platform Obfuscation Daemon: pod . Done
Starting vbsc daemon: vbsc . Done
...
```

**Workaround:** To have iPOST execute when the SP boots, ensure that the trigger property is set to all-resets when it is enabled.

1. With the host not running, log in to the SP.
2. Set the /SP/diag trigger to all-resets.
  - a. At the Oracle ILOM CLI, type:

```
-> set /SP/diag trigger=all-resets
```
  - b. In the Oracle ILOM BUI, left click System Management, and then the Diagnostics entry in the left hand pane. Then, select all three boxes under the labeled trigger in the right hand pane.
3. Reboot the SP.

You should see the following output on the system console:

```
...
Starting IPMI Stack: . Done
Starting BBR daemon...
bbrd started after 0 seconds.
Starting SP fishwrap cache daemon: fishwrapd . Done
Running FPGA iPOST
Starting Host daemon: hostd . Done
Starting Network Controller Sideband Interface Daemon: ncsid . Done
Starting Physical Domain Manager: pdm . Done
Starting Platform Obfuscation Daemon: pod . Done
Starting vbsc daemon: vbsc . Done
...
```

## Oracle ILOM Gets Confused When Multiple LDOM Configuration Files Exist With the Same Name (16239544)

---

**Note** - This issue has been fixed in Oracle ILOM 3.2.1.

---



You can have multiple `ldmd` configuration files with various names. The names are case-sensitive (that is, “Alpha” and “alpha” are different names), so you can have configuration files that use the same word. The Oracle ILOM UI names are case-insensitive, but they are case-preserving. Thus, multiple configuration file names like “Alpha” and “alpha” cause confusion in the Oracle ILOM UI.

For example, if you type the following when there are multiple configuration file names, the UI will hang:

```
-> show /HOSTx/domain/configs
```

**Workaround:** Remove one of the case-matching `ldmd` configuration files. Then, wait for the Oracle ILOM infrastructure to auto-restart the UI process.

## CPU Power Management Can Lower Disk IOPS Performance (16355418)

---

**Note** - This issue has been fixed in Oracle Solaris 11.1 SRU 10.

---

I/O intensive workloads that attempt to perform very large numbers of I/O operations in a short period of time might encounter poor I/O performance, even on an unloaded system. However, performing a smaller number of large I/O operations is not affected by this issue.

**Workaround:** Two workaround procedures are available that disable CPU power management. This results in greater power consumption while performance is improved in this regard. These procedures have an effect that is persistent across reboots. However, you do not need to reboot a domain after you implement either workaround.

---

**Note** - If a domain's administrative-authority has been changed from the default value of `platform`, you must use Workaround B to disable CPU power management for that domain.

---

**Workaround A:** Disable CPU power management on all domains:

```
-> set /SP/powermgmt policy=disabled
```

---

**Note** - This command will not affect any domain that doesn't have an administrative-authority value of `platform`.

---

**Workaround B:** Disable CPU power management on one domain at a time. Type this command within each domain:

```
# poweradm set administrative-authority=none
```

If this issue persists, contact your Oracle service provider for further assistance.

## **ldm unbind of an SDIO or SRIOV Domain Hangs (16426940)**

---

**Note** - This issue has been fixed in Oracle Solaris 11.1 SRU 11.1.9.5.1.

---

If IOV technologies such as SDIO or SRIOV are utilized, the `ldm` command might hang when removing assigned I/O devices from guest domains, or when unbinding those guest domains, if the assigned devices are in use. Aborting the hung command with the Ctrl-C keys might also fail.

Some command examples:

- `ldm unbind ldg1`
- `ldm rm-io /SYS/RIO/NET0/IOVNET.PF0.VF10 ldg1`
- `ldm rm-io /SYS/IOU2/PCIE2 ldg1`

**Recovery:** Reboot Oracle Solaris on the primary domain to recover. If any guest domains share I/O resources with the primary domain, you must also reboot Oracle Solaris on those guest domains.

**Workaround:** No workaround is available at this time. Check for the availability of a patch with your authorized Oracle Service Provider.

## **Oracle Solaris 10 OS Does Not Display Some Fault Information (16456603)**

---

**Note** - This issue has been fixed for Oracle Solaris 10 by patch 146582-03.

---

This issue only applies to the Oracle Solaris 10 OS. This issue does not apply to the Oracle Solaris 11.1 OS.

The SPARC T5 series servers introduce the ability to display SP (Oracle ILOM) faults within the Oracle Solaris OS. However, several fields of information, such as the affected FRU, FRU location, and platform serial number, are not properly interpreted by the Oracle Solaris 10 OS.

As in previous platform releases, significant failures detected by the SP illuminate the chassis fault LED, indicating that the SP status should be investigated.

**Workaround:** If you encounter proxy faults that contain missing or incomplete information, gather the required information from the SP. Refer to the *SPARC T5-2 Server Service Manual* for instructions.

## Infrequent SAS Disconnected command timeouts Might Be Displayed (16562940)

---

**Note** - This issue has been fixed for Oracle Solaris 10 by patch 150401-02, This issue is fixed in Oracle Solaris 11.1 SRU 11.1.9.5.1.

---

On rare occasions, these warning messages might be displayed on the host console:

```
WARNING: /pci@300/pci@1/pci@0/pci@4/scsi@0 (mpt_sas0):  
Disconnected command timeout for Target 9  
WARNING: mptsas_ioc_task_management failed try to reset ioc to  
recovery!  
WARNING: Target 9 reset for command timeout recovery failed!
```

The warning message indicates that the SAS controller (`mpt_sas`), which is used to access the internal hard and solid state devices, had trouble communicating. As a result, the SAS controller is reset and the I/O command is reissued.

In most cases, the SAS controller successfully reconnects and the I/O command completes as normal, as indicated by these messages:

```
mptsas0 Firmware version v14.0.0.0  
mptsas0: IOC Operational.
```

**Workaround:** Update the SAS controller firmware:

---

**Note** - Only perform these steps if your server module experiences the SAS disconnect timeout issue.

---

1. Obtain the SAS controller patch for this server module.  
SPARC T5-2 server module SAS patch ID: 16801158  
See [“Obtain Patches” on page 14](#).
2. Follow the instructions in the patch README file.

---

**Note** - To update the SAS controller firmware, you must first obtain and install the Oracle Hardware Management Pack (HMP) software. Instructions in the README file describe how to obtain and install HMP.

---

## Management of SP Does Not Display a Table as Expected (16607793)

When you use the Oracle ILOM web interface to manage the SP, clicking System Log displays the system log in a table. At the bottom of the table are icons that allow you to page through the system log or display all the pages of the system log as a single page:



However, when you click any one of the icons, the web interface displays this error message instead of the system log:



Click on System Log to display the system log again.

**Workaround:** There are two workarounds to view the system log:

- To display multiple pages as one page, see **Workaround A**.

- To display sequential pages, see **Workaround B**.

---

**Workaround A:** Set the Number of Displayed Rows to a Maximum of 999

**Note** - This workaround allows you to display only the most recent system log entries, up to 999 of them. It is not possible to display any entries older than this limit in the web interface. To view log entries older than the latest 999, use **Workaround B**.

---

1. Click this icon on the System Log page.



The Table Preferences pane opens.

2. Set the Rows Per Page value to 999.
3. Click OK.

The system log table is redisplayed to a maximum of 999 rows long.

**Workaround B:** Display the System Log With Page Breaks

1. At the Oracle ILOM CLI interface, display the system log.

```
-> show /System/Log/List/
Log
ID      Date/Time                Event Type                Subsystem
-----
211     Tue Apr 9 07:12:13 2013  Disk Removed             Storage
      Component:HDD2 (Disk 2)
      Disk Removed at location HDD2 (Disk 2)
210     Tue Apr 9 07:11:42 2013  Disk Removed             Storage
      Component:HDD1 (Disk 1)
      Disk Removed at location HDD1 (Disk 1)
.
.
.
Paused: press any key to continue, or 'q' to quit
```

---

**Note** - The width of the output and number of log entries displayed per page is dependent upon the geometry of the terminal window when the command is typed.

---

2. Press the space bar to display the next page of the system log, or press the Q key to stop the output.

## Drive Controller Not Ready When the Driver Tries To Attach (16608475)

Occasionally, when you boot the server, a drive controller might not be ready at the time the driver tries to attach.

- If this problem occurs on the disk controller that serves the boot drive, you see these OpenBoot messages on the host console:

```
failed in wait-for-doorbell
send-message / issue-ioc-facts failed
issue-ioc-facts failed
Can't open adapter
ok
```

In this situation, use **Workaround A**.

- If this problem occurs on the disk controller that does not serve the boot drive, you see these messages from the Oracle Solaris driver on the host console and in `/var/adm/messages`:

```
Probling for device nodes...
@WARNING: /pci@3c0/pci@1/pci@0/pci@2/scsi@0 (mpt_sas1):
mptsas_ioc_get_facts failed
@WARNING: /pci@3c0/pci@1/pci@0/pci@2/scsi@0 (mpt_sas1):
mptsas chip initialization failed
@WARNING: /pci@3c0/pci@1/pci@0/pci@2/scsi@0 (mpt_sas1):
attach failed
```

In this situation, use **Workaround B**.

**Workaround:** If your server did not boot, use **Workaround A**. If the driver did not attach to the second disk controller, use **Workaround B**.

### Workaround A:

1. Log in to the SP and disable autoboot.
  - > `set /HOST/bootmode script="setenv auto-boot? false"`
2. Power off the host and then power on to reach the OpenBoot prompt.
3. Probe the drives in the system.

```
ok probe-scsi-all
```

4. Examine the output to verify that you see all of the drives.
5. Type the `boot` command to boot the server.

**Workaround B:**

1. In Oracle Solaris, log in as root and bring the drives online.

```
# devfsadm -C
```

2. Determine if any services did not start because the service depends on drives to be online during boot. In this case, manually restart any of these services. Or, if you are not sure how to restart a service, reboot the server to restart all services.

## RAID 10 Volumes Created Instead of RAID 1e on an Even Number of Target Disks (18335578)

RAID 10 is supported on SPARC T5-series servers with four or more disks. For an even number of target disks (four or more) RAID 10 is the functional equivalent of RAID 1e on an odd number of target disks (three or more).

With the FCode-based RAID utility, a RAID 10 volume is created when you enter this `create-raid1e-volume` command that includes four target disks:

```
ok 9 a b c create-raid1e-volume
```

This is expected behavior.

Refer to the *SPARC and Netra SPARC T5 Series Servers Administration Guide* for more about creating RAID volumes.

