Netra SPARC T5-1B Server Module Product Notes

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Using This Documentation

- **Overview** – Describes how to troubleshoot and maintain the server
- **Audience** – Technicians, system administrators, and authorized service providers
- **Required knowledge** – Advanced experience troubleshooting and replacing hardware

Product Documentation Library

Documentation and resources for this product and related products are available at http://www.oracle.com/goto/NETRA-T5-1B/docs.

Feedback

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

Late-Breaking Information

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

- “Supported Sun Netra 6000 Chassis” on page 9
- “Supported Hardware Components” on page 9
- “Preinstalled Software” on page 10
- “Minimum Supported Versions of the Firmware, OS, and Software” on page 11
- “IMPORTANT - Install Latest OS Updates, Patches, and Firmware ” on page 10
- “Mandatory Oracle Solaris 11 OS Package Updates” on page 12
- “Mandatory Oracle Solaris 10 OS Patches” on page 12
- “Downloading Patches and Software Updates” on page 14
- “High-Altitude Mode Oracle ILOM Feature” on page 15
- “Configuring Server Module Power Usage” on page 16
- “Known Issues” on page 20

Supported Sun Netra 6000 Chassis

All four Sun Netra 6000 modular system chassis models support the server module. Two chassis models are AC, and two are DC. For information on how to identify the Netra chassis models, refer to the Sun Netra 6000 Modular System Service Manual at:

`http://www.oracle.com/goto/SN6000/docs`

Gen2-capable PCIe EMs and NEMs connected to this server module through the chassis run at Gen2 speeds. Gen1-capable devices run at Gen1 speeds.

Supported Hardware Components

For a list of Sun Netra 6000 modular system products that are supported by the Netra SPARC T5-1B server module, refer to the Sun Netra 6000 modular system products webpage at:

`https://wikis.oracle.com/display/SystemsComm/Sun+Netra+6000+Modu lar+System+Products`

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†	`/opt/SUNWldm`	Manages logical domains.
Electronic Prognostics†	`/usr/lib/ep`	Provides early warning of the potential for specific FRU faults.
Oracle VTS†	`/usr/sunvts`	Provides hardware validation tests.

†These software components are part of the Oracle Solaris 11.1 OS distribution.

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

Mandatory package updates might not be preinstalled. Ensure that you obtain and install all mandatory updates before you put the server module 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 module 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 Netra SPARC T5-1B server modules. 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 with SRU 4.6 for the control domain, and Oracle Solaris 10 9/10 in guest domains.

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.

Software	Minimum Supported Versions
System Firmware	9.0.0.c Includes Oracle ILOM 3.2.1 **Note -** For newer versions of the system firmware, go to: http://www.oracle.com/technetwork/systems/patches/firmware/index.html
Oracle Solaris 11 OS	For the control domain, guest domains, and nonvirtualized configurations: Oracle Solaris 11.1 SRU 4.6 Includes these software components: ■ Oracle VM Server for SPARC 3.0.0.2 ■ Oracle Electronic Prognostics ■ Oracle VTS 7.0 PS 15

Software	Minimum Supported Versions
Oracle Solaris 10 OS	Also see "Mandatory Oracle Solaris 11 OS Package Updates" on page 12. ■ For the control domain, guest domains, and nonvirtualized configurations: Oracle Solaris 10 1/13 plus patches and the `SUNWldm` package (from the Oracle VM Server for SPARC software) ■ For guest domains only: Oracle Solaris 10 9/10 OS or Oracle Solaris 10 8/11 OS, plus Oracle Solaris 10 1/13 SPARC Bundle and patches. The Oracle Solaris 10 OS includes Oracle VTS 7.0 PS 15. Oracle Electronic Prognostics 1.3 is not included, but you can install it separately. Also see "Mandatory Oracle Solaris 10 OS Patches" on page 12.

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 module.

If you reinstall the OS, you might need to install certain package updates before you put the server module and optional hardware or software components into production. The server module 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 module 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 module.

Use the `pkg` command or the package manager GUI to download any available SRUs from the update repository (`https://pkg.oracle.com/solaris/support`).

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`.

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 nonvirtualized configurations.

Installation Order	OS or Patch
1	Oracle Solaris 10 1/13 OS
2	Mandatory patches: ■ 148322-07 (or higher) ■ 148324-06 (or higher) ■ 148888-01 (or higher) ■ 149638-01 (or higher) ■ 149644-01 (or higher) ■ 150011-02 (or higher) ■ 150025-01 (or higher) ■ 150027-01 (or higher) ■ 150107-01 (or higher)
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 “Oracle Solaris 10 1/13 Mandatory Patches” on page 13.

Note - Until the Oracle Solaris 10 1/13 SPARC Bundle is installed, you might encounter these Oracle Solaris 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 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 “Oracle Solaris 10 1/13 Mandatory Patches” on page 13.

Note - Until the Oracle Solaris 10 1/13 SPARC Bundle is installed, you might encounter these Oracle Solaris 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.

Downloading Patches and Software Updates

Patches and software updates are provided on the My Oracle Support site at:

`http://support.oracle.com/`

▼ Download Patches

To download the patches from My Oracle Support, follow this procedure.

1. **Select a language and click the Sign In button.**
2. **Type your username and password, and click the Go button or press the Return or Enter key.**
3. **Click the Patches & Updates tab.**
   The Patch Search menu is displayed.
4. **In the Patch Name or Number field, type the patch number or type patch numbers separated by a comma.**
   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:

```
14159-%
```

5. **Click the Search button.**

6. **Check the box next to the each patch and select Download from the pop-up menu.**
   Refer to the patch README for installation instructions.

▼ Download Software Updates

To download the software from My Oracle Support, follow this procedure.

1. **Select a language and click the Sign In button.**

2. **Type your username and password, and click the Go button or press the Return or Enter key.**

3. **Click the Patches & Updates tab.**
   The Patch Search menu is displayed.

4. **In the Patch Search menu, click Product or Family (Advanced Search).**

5. **In the Products field, type `Netra SPARC T5-1B`.**
   In the drop-down menu, Netra SPARC T5-1B is displayed.

6. **In the Release menu, click the arrow next to the desired Netra SPARC T5-1B release(s). (For example, Netra SPARC T5-1B SW 1.0.0.)**

7. **(Optional) Check the Exclude Superseded Patches box.**

8. **Click the Search button.**

9. **Check the box next to the desired patches and select Download from the pop-up menu.**
   Refer to the software README for installation instructions.

High-Altitude Mode Oracle ILOM Feature

The SPARC T5-series CPU provides an automatic CPU throttling feature. If the CPU detects that the temperature is too high, the CPU reduces speed until the CPU temperature drops to an acceptable level. The Netra SPARC T5-1B server module provides this feature. Under heavy loads or at higher altitudes, the CPU may throttle to maintain proper temperature.

The Sun Netra 6000 modular system fan control default allows the chassis to maintain acoustics levels within the NEBS guidelines. The High-Altitude Mode provides additional cooling to the chassis, at the expense of higher acoustics levels. This additional cooling keeps the server module CPUs cooler, which can reduce the amount and severity of throttling.

For more information about the High-Altitude Mode, refer to the *Sun Netra 6000 Modular System Product Notes* at:

http://www.oracle.com/goto/SN6000/docs

Configuring Server Module Power Usage

These topics describe how to configure the server module power usage:

- "Server Module Power Management" on page 16
- "Limit Power Usage" on page 17

Server Module Power Management

Because the modular system accommodates a variety of different server, storage, and I/O modules, it is possible to create a configuration that might exceed the power that the modular system can provide.

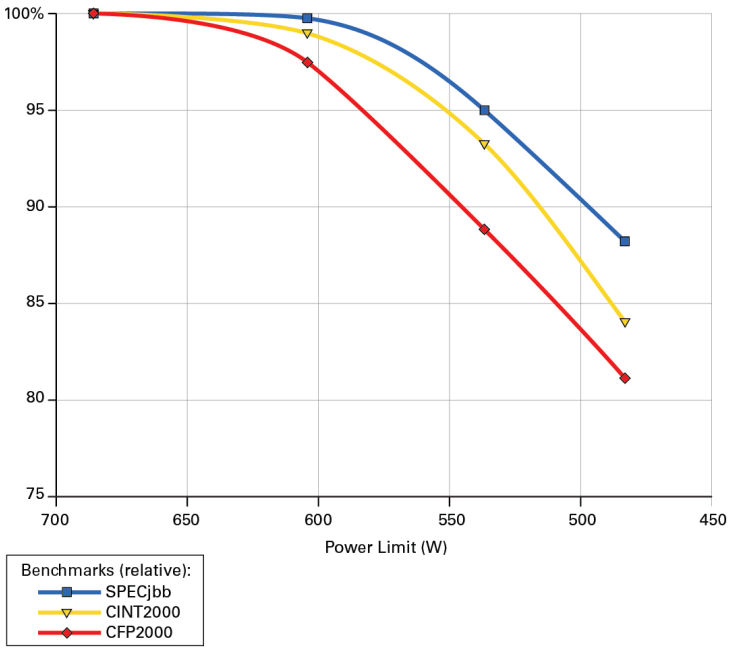
You can use several tools and techniques to manage the power used by the modular components:

- **Sun Blade Modular System Power Calculator** – Provides guidance for estimating system-level worst-case electrical loads for modular components. To access the tool go to:

  http://www.oracle.com/us/products/servers-storage/sun-power-calculators/calc/6000chassis-power-calculator.html
- **Oracle ILOM** – Provides configuration properties for power consumption and alert notifications. For details, refer to the *Oracle ILOM Administrator's Guide for Configuration and Maintenance*, setting power alert notifications and managing system power usage.
- **SPARC T5 power limiting feature** – Enables you to tune the power policy settings to match the server module's performance requirements. This feature is particularly useful for the server module. You can lower power numbers to increase the number of server modules that can be installed in a chassis. However, the CPU might be throttled during certain work loads, especially under peak load conditions.

This figure and table provide an example of performance degradation that a server module might experience under three types of benchmark loads for a range of power limits. The example assumes that the modular system contains like-configured SPARC T5-1B server

modules with 256-Gbytes of memory. The default maximum power budget available to each server module is 680W.



Number of Installed Server Modules	Required Power Limit Per Server Module	Percent Performance Degradation		
		SPECjbb	CINT2000	CFP2000
1 - 7	none (default 680W)	0%	0%	0%
8	604W	0%	1%	3%
9	537W	5%	7%	11%
10	483W	12%	16%	19%

Contact your Oracle service provider for more details. For instructions on how to use the power limit feature see “Limit Power Usage” on page 17.

▼ Limit Power Usage

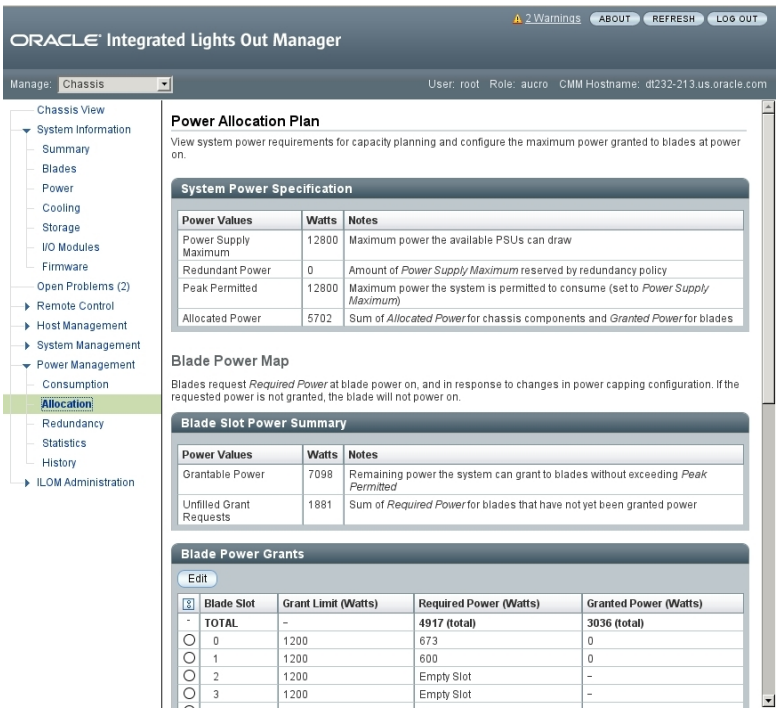
Use this procedure to lower the power limit used by individual server modules so that more server modules can be used in the chassis.

For comprehensive instructions about the Oracle ILOM commands listed in this procedure, refer to the *Oracle ILOM Administrator's Guide for Configuration and Maintenance*, setting power alert notifications and managing system power usage.

1. **If you are adding server modules to a modular system that is already running with other components, identify your available power budget.**

   a. **Log in to the Oracle ILOM browser interface on the CMM.**
   In a browser address field, enter the CMM's IP address, press Return, and log in.

   b. **In the left panel, click Power Management > Allocation.**
   The Power Allocation Plan is displayed.



   c. **In the Blade Slot Power Summary table, note the watts listed for grantable power.**
   This value is your power budget for adding additional components.

2. **Use the power calculator to compute the power needs of each SPARC T5-1B server module.**

Go to: http://www.oracle.com/us/products/servers-storage/sun-power-calculators/calc/6000chassis-power-calculator.html

3. **If the desired number of server modules exceeds the power budget, identify a power budget for each server module.**

   Select a power budget lower than the lowest power budget suggested by the calculator. When you apply the lower power budget to the server modules, you can install more server modules in the chassis.

4. **Install all the additional server modules into the modular system.**

   Refer to the *Netra SPARC T5-1B Server Module Installation Guide* for details.

5. **For each server module, set the power limit:**

   a. **In the Oracle ILOM CMM browser interface, go to the server module page.**

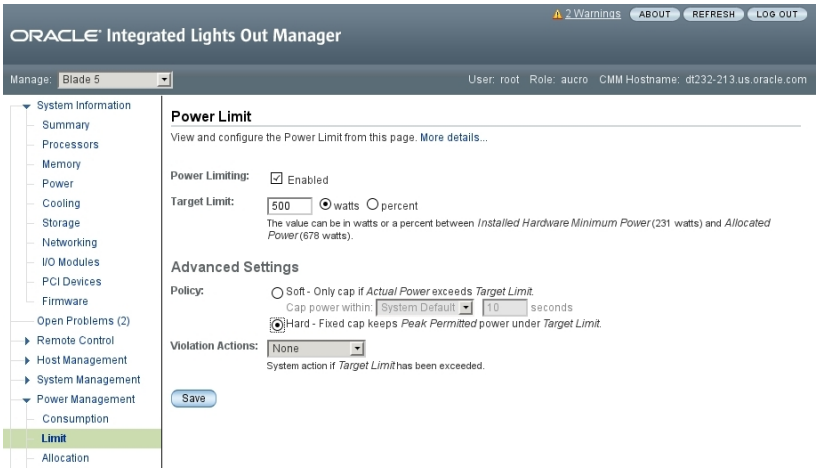
      In the upper left corner, in the Manage pull-down menu, select the server module.

   b. **In the Actions panel, turn off the power.**

   c. **In the left navigation panel, select Power Management → Limit.**

   d. **Enter your power budget value in the Target Limit field, select Hard for the Policy setting, and click Save.**

      Set the Target Limit between the minimum power drawn by the server module and the maximum power the server module is permitted to consume (peak permitted).



e. **Power on the host.**

Return to the Summary page and power up the server module.

6. **Repeat Step 1 to verify that all components are running within the available power budget.**

If you need to make additional adjustments, repeat Step 5.

Known Issues

These topics detail the known issues for the Netra SPARC T5-1B server module.

- "When You Create Logical Domains, Some Memory Is Reserved By the Server" on page 21
- "rKVMS Does Not Support Redirecting Storage From a SPARC Client (15795058)" on page 21
- "Mouse Pointer Is Not Aligned With the Cursor in a Remote Window (15798251)" on page 21
- "File Descriptor Leakage in `libldom/ldom_xmpp_client.c` (15811297)" on page 23
- "Spurious `sunos.eft.unexpected_telemetry` Faults Might be Reported (15820471)" on page 23
- "`ilomconfig` Might Report `Internal Error` (15823485)" on page 25
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- "Drive OK to Remove LED Might Not Illuminate When a Drive Is Unconfigured (16051551)" on page 27
- "Unable to Start CLI Shell From CMM to Reach the SP of the Server Module (16093666)" on page 29
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- "`ldm unbind` of an SDIO or SRIOV Domain Hangs (16426940)" on page 31

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.

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 A: For a quick but not permanent fix, log in to the Gnome desktop and type this command in a terminal window:

```
xset m 1 1
```

This change is not permanent, 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.

If you have problems obtaining a terminal window, try one of these 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.

Workaround B: For a permanent and persistent fix, perform these steps:

1. Log in to the system on the Gnome desktop.
2. Choose Launch > System > Preferences > Mouse.

   Alternatively, you can reach this point by typing Alt-F2 and then typing: **gnome-mouse-properties**
3. Change the mouse preferences to these 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 are permanent and persist after screen locks and logging out.

Workaround C: In the Oracle Solaris 11 OS, you can use another method to initially disable problematic mouse acceleration. However, subsequent changes to the mouse acceleration during the Xorg session 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
```

File Descriptor Leakage in `libldom/ldom_xmpp_client.c` (15811297)

Note - This issue has been fixed in Oracle Solaris 11 SRU 11.1.5.5.

The Oracle Solaris Predictive Self-Healing (PSH) fault manager daemon (`fmd`) can become nonoperational 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.

If a patch with the fix becomes available, you should install the patch. See “Download Patches” on page 14.

Workaround: If you suspect that I/O faults are not being reported, perform 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 *Netra SPARC T5-1B Server Module Service Manual*.

   If `ldmd` is offline, go to Step 2.
2. Restart `ldmd`.
3. Restart `fmd`.
4. View the system log files.

   If an I/O fault occurred while the fmd was not running, use information in the log files to isolate the problem.

Spurious `sunos.eft.unexpected_telemetry` Faults Might be Reported (15820471)

Note - This issue has been fixed in Oracle Solaris 11.1.4.6.0.

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           : T5-1B
   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           : T5-1B
         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           : T5-1B
Part_Number    : 7045605
Serial_Number  : xxxxxxxxxx
```

Workaround: You can ignore unexpected telemetry faults. To clear the fault, perform these steps:

1. Type the `fmadm faulty` command to obtain the fault UUID.

```
# 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 the fault UUID.

```
# 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.

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

The two USB ports available on the front dongle of the server module 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 the front dongle or use another standard compliant USB device and retry the operation.
3. If the host does not display the `ok` prompt, remove any external hubs and attach the USB device directly to the front dongle port or use another standard USB-compliant device, then power cycle the host using one of these methods:
   - Using the Oracle ILOM CLI:

     ```
     -> reset /SYS
     ```
   - 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.

`Link error on port 3` Warning (16038894)

When powering up the server module with a USB device installed in the internal USB port socket, this warning message might be displayed:

```
WARNING: /pci@340/pci@1/pci@0/pci@2/usb@0: Link error on port 3, resetting.
```

Workaround: The warning message can be safely ignored. The device should be fully functional. If the device is not functional, contact Oracle Support for further assistance.

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

This issue only applies to server modules 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 WWID that you plan to unconfigure.

   In this example, the fifth drive will be unconfigured. The fifth drive has a WWID 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.

```
# 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 WWID 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 WWID to identify the drive's location (HDD4 in this example)

   Look at the line after the line with the WWID. 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@0/pci@2/scsi@0/iport@1/disk@w5000c50033278c09,0
                mpt_sas#7 (offline) <==
Driver offline means drive is unconfigured.
                        name='wwn' 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'
```

Unable to Start CLI Shell From CMM to Reach the SP of the Server Module (16093666)

Starting with Oracle ILOM 3.1, remote drilldown enables a CMM to show (under `/CH/BL`*x*) the full CLI for the SP of a server module. If the CMM uses Oracle ILOM 3.1 or later, you no longer need to run the `start cli` command to access the SP of a SPARC T5-1B server module.

Oracle ILOM Gets Confused When Multiple `ldmd` 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 case-preserving). Thus, multiple configuration file names like `Alpha` and `alpha` cause confusion in the Oracle ILOM UI.

For example, if you type this command when there are multiple configuration file names, the UI hangs:

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

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

Fix: Download and apply patch number 17019067.

Server Module Might Not Properly Connect to the Sun Blade 6000 Virtualized 40 GbE NEM (16299805)

In some cases, after resetting the server module, the server module is unable to detect one of the Sun Blade 60000 Virtualized 40 GbE NEM ports, or might incorrectly link to a port using Gen2 x4 instead of Gen2 x8.

Fix: If you plan to connect the server module to a Sun Blade 6000 Virtualized 40 GbE NEM you must install the patch that updates the server module firmware:

1. Obtain the firmware patch for this server module.

   Patch name: `Hardware_Programmables-1.0.0-SPARC_T5-1B.pkg`

   Patch number: `17019100`

   See “Download Patches” on page 14.
2. Follow the installation instructions in the patch `README` file.

CPU Power Management Can Lower Disk IOPS Performance (16355418)

Note - This issue has been fixed in Oracle Solaris 11.1.1.4.0.

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: Type the following command within the affected domains:

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

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

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

Note - This issue is fixed by Oracle Solaris 10 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 T5-1B Server Module Service Manual* for instructions.

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

Note - This issue has been fixed in Oracle Solaris 11 SRU 11.1.9.5.1. This issue is fixed in Oracle Solaris 10 by patch 150401-02.

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.