Solaris™ 8 10/01 Release Notes Supplement for Sun™ Hardware

Solaris 8 10/01

Includes Additional Release Notes and End-of-Support Statements for the Solaris 8 10/01 Operating Environment Running on Sun Hardware Products

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Contents

Late-Breaking News

This manual provides the following information:

- Late-breaking news (this chapter)
- End-of-support and future end-of-support statements (Chapter 2)
- Open issues (Chapter 3)
- Alternate Pathing issues (Chapter 4)
- Sun midrange system open issues (Chapter 5)
- Sun Enterprise 10000 server issues (Chapter 6)

This manual supplements the *Solaris 8 10/01 Sun Hardware Platform Guide* and the *Solaris 8 10/01 Release Notes.*

Release Notes Update

New information that becomes available between the time this document goes to press and the release of the Solaris™ 8 10/01 operating environment is available in the online release notes at the following URL:

`http://docs.sun.com`

Solaris 8 Adoption Service

Sun™ Support Services offers a fully scalable suite of services designed to meet the needs of any enterprise. These new Solaris Adoption Services help meet the evaluation, application fitness, implementation, and adoption needs of customers looking to upgrade to the Solaris 8 operating environment. These services are

complemented with Web-based resources including an online interactive technical support site, SunSolve^{SM} knowledge database, technical news groups, and FAQs that provide any customer with anytime, anywhere help. For more information, please visit the Web site at:

```
http://www.sun.com/sysadmin/solaris8adoption
```

Unbundled Product Support

Although the Solaris 8 10/01 software is designed and tested to be compatible with previous releases, some applications may not be fully ABI-compliant. Contact the supplier of the unbundled product directly for information about compatibility.

If you are upgrading from an existing version of Solaris software and have installed unbundled products, either from Sun or from a different company, you must ensure that all those products are supported on the Solaris 8 10/01 operating environment prior to upgrading. Depending on the status of each unbundled product, you have three options for each unbundled product:

- Verify that the existing version of the unbundled product is supported on the Solaris 8 10/01 operating environment.
- Acquire and install a new version of the unbundled product that is supported on the Solaris 8 10/01 operating environment. Note that in this case you may need to remove the previous version of the unbundled product prior to upgrading to the Solaris 8 10/01 operating environment. See the unbundled product documentation for more details.
- Remove the unbundled product prior to upgrading to the Solaris 8 10/01 operating environment.

For additional information contact the supplier of the unbundled product or your service provider or go to:

```
http://sunsolve.sun.com/pubpatch
```

Documents on the Software Supplement for the Solaris 8 10/01 Operating Environment CD

Note – In this document, the CD labeled "Software Supplement for the Solaris 8 10/01 Operating Environment" is called the "Supplement CD".

TABLE 1-1 lists the documents available on the Supplement CD that are not included in AnswerBook or man page collections:

TABLE 1-1   Documents on the Supplement CD

Path	Comment
`Docs/README_en.html`	Readme file for Solaris 8 10/01 Sun Supplement CD
`Docs/HWPG/HWPG_en.ps`	*Solaris 8 10/01 Sun Hardware Platform Guide*
`ShowMeTV_1.3/Docs/UserGuide/UG_en.ps`	*ShowMe TV™ 1.3 User's Guide*
`SunForum_3.1/Docs/sunforumUG.ps`	*SunForum™ User's Guide*

Note – The _en indicates an English language document. Other languages may be indicated, depending on locale.

The Supplement CD also contains other documentation in AnswerBook™ packages and in man page packages. The documentation in AnswerBook packages can only be read through the AnswerBook2™ server software provided on the Solaris Documentation CD. Documents in the man page packages can only be read through the `man` command. Refer to the *Solaris 8 10/01 Sun Hardware Platform Guide* for details on installing these packages from the Supplement CD.

Flash PROM Update for 64-bit Operations

Some sun4u systems need to be updated to a higher level of OpenBoot™ firmware in the flash PROM before they can run the 64-bit mode of the Solaris 8 10/01 operating environment. Systems that can only run the 32-bit mode (such as those in the sun4d and sun4m platform groups) do not require updated firmware to run Solaris 8 10/01 software.

The only systems that may require this flash PROM update are the following:

- Sun Ultra 1
- Ultra 2
- Ultra 450 and Sun Enterprise 450
- Sun Enterprise 3000, 4000, 5000, and 6000 systems

See the *Solaris 8 10/01 Sun Hardware Platform Guide* for instructions for determining whether your system needs a flash PROM update and for instructions on performing that update.

For the Ultra and Ultra 2 systems, an antistatic wrist strap may be required for the update. If you need a wrist strap, send e-mail to `strap@sun.com`.

Flash PROM Update CD No Longer Included

As of Solaris 8 7/01, the Flash PROM multimedia AnswerBook™ CD is no longer available. Up-to-date instructions for updating flash PROM are still available in the *Solaris 8 10/01 Sun Hardware Platform Guide*. The English language version of the Solaris Roadmap erroneously lists the Flash PROM CD as part of this Solaris release.

Removable Media Manager Issues

The Removable Media Manager replaces the "Open Floppy" and "Open CD-ROM" options formerly found in the CDE menus and front panel. For related bug descriptions and workarounds, refer to the "Common Desktop Environment Bugs" section of "Solaris Runtime Issues" in the *Solaris 8 (SPARC Platform Edition) 10/00 Release Notes Update* on `http://docs.sun.com`.

Patch Enables Booting From DVD-ROM Media

The Supplement CD contains a patch that enables some DVD-ROM drives installed on Sun hardware to boot from DVD-ROM media. This patch may need to be applied to your hardware before you can boot a software product supplied on DVD-ROM.

This patch updates firmware in the Toshiba 1401 DVD-ROM drive. You can find patch 111649 on the Supplement CD in this directory:

DVD_Firmware/Patches

See the README file in this directory for instructions on installing the patch. Be sure to read and follow all the cautions and warnings in this README file before you install the patch.

Note – Patch 111649 is associated with Bug ID 4467424.

DVD-ROM/CD-ROM Drives on Headless Systems (BugID 4365497)

Power management of interactive devices such as removable media is linked with power management of your monitor and the graphics card that drives your monitor. If your screen is active, devices such as the CD-ROM drive and floppy disk are kept at full power mode. This means that if you are running a system without a monitor, these devices may go into low power mode.

If this happens and you want to restore power to the CD or floppy, simply type `volcheck` to cause the OS to get the latest status from each removable device.

Alternatively, you can disable power management on your system by using the dtpower GUI. Then the devices are not put into low power mode even when on a headless system, but run at full power all the time. This is not a bug, but is the intended behavior.

Maintenance Update CD

Future updates to the Solaris operating environment might no longer include the Maintenance Update (MU) CD. The preferred mechanism for updating a Solaris release—for example, to update from the Solaris 8 6/00 operating environment to the Solaris 8 1/01 operating environment—is to use the "upgrade" mechanism (see *Solaris 8 Advanced Installation Guide, SPARC Platform Edition*, Chapter 3). The MU CD does not include all of what comprises a Solaris update, and takes longer to install than an upgrade.

In cases where the MU method is still considered necessary, the MU image can be obtained from the web at: `http://sunsolve.sun.com`.

End-of-Support Products

Products Not Supported in the Solaris 8 Operating Environment

Support for the following products has been discontinued. For more information, contact your support provider.

Sun4c Systems

The following sun4c architecture systems and servers based on these systems are not supported by this Solaris release:

- SPARCstation SLC
- SPARCstation ELC
- SPARCstation IPC
- SPARCstation IPX
- SPARCstation 1
- SPARCstation 1+
- SPARCstation 2

Note – All hardware options (such as SCSI devices) and supported configurations that are dependent upon the sun4c architecture are no longer supported. A list of these options is included in the Supplement CD `/Docs/HWPG` directory in the `EOS.html` file.

SPARCstation Voyager

SPARCstation Voyager™ systems are not supported by this Solaris release.

SPARC Xterminal 1

SPARC Xterminal 1™ systems are not supported by this Solaris release.

Future End-of-Support Products

Support for the following products may be discontinued in future releases. For more information, contact your service provider.

sun4d Servers (32-bit only)

The following sun4d architecture servers may no longer be supported in a future release:

- SPARCserver 1000 systems
- SPARCcenter 2000 systems

Hardware options that are dependent on the sun4d architecture may no longer be supported in a future release.

Ethernet Quad Drivers `qe` and `qec`

Ethernet Quad drivers `qe` and `qec` may no longer be supported in a future release.

PC File Viewer

PC file viewer may no longer be supported in a future release.

AP Multipath I/O

AP multipath I/O technology may no longer be supported in a future release. See Chapter 4 for further details.

Open Issues

StarOffice Support

The Sun StarOffice™ Knowledge Database is the current customer support resource for StarOffice 5.2. For more information, refer to:

```
http://www.sun.com/products/staroffice/support.html
```

Dynamic Reconfiguration on Sun Fire 6800/4810/4800/3800

This release of the Solaris operating environment does *not* support dynamic reconfiguration (DR) for the Sun Fire 6800/4810/4800/3800 systems.

Booting From Partitions Greater Than 2 Gbytes (BugID 1234177)

Due to PROM limitations, all sun4d and sun4m architectures do not boot from partitions greater than 2 Gbytes. These systems fail with the following message:

```
bootblk: can't find the boot program
```

> **Note –** All sun4u architectures support booting from larger partitions.

One related bug (4023466) reports a problem with `re-preinstall` where the boot image for large disks creates root partitions greater than 2 Gbytes. System administrators are cautioned not to use `re-preinstall` on sun4d or on sun4m systems with large root disks (4 Gbytes and greater).

Network Drivers Installed by Default

The Computer Systems Installer CD automatically installs the Network Drivers from the Supplement CD. Drivers for the SunATM™, SunHSI/S™, SunHSI/P™, SunFDDI/S, and SunFDDI/P cards are now installed by default when the Solaris 8 10/01 operating environment is installed. Error messages might be displayed if you do not have some of the corresponding hardware installed. You can ignore these error messages.

Serial Parallel Controller Driver Does Not Support Dynamic Reconfiguration (BugID 4177805)

This `spc` driver does not support Dynamic Reconfiguration features in the Solaris 8 operating environment.

Booting a Sun Enterprise 10000 System in 32-bit Mode (BugID 4348354)

Sun Enterprise 10000 systems with 64 Gbytes of memory cannot boot the Solaris 8 10/01 operating environment in 32-bit mode.

OpenGL Conformance Test (BugID 4368030)

Running the OpenGL® 1.2.1 Conformance test in an environment without the window manager crashes the Xserver.

SunScreen SKIP 1.1.1 Not Supported in Solaris 8 10/01 Operating Environment

If you have SunScreen™ SKIP 1.1.1 software currently installed on your system, you should remove the SKIP packages before installing or upgrading to the Solaris 8 10/01 operating environment. The packages you should remove are: `SICGbdcdr, SICGc3des, SICGcdes, SICGcrc2, SICGcrc4, SICGcsafe, SICGes, SICGkdsup, SICGkeymg, SICGkisup.`

ISDN — Supported in 32-bit Mode Only

ISDN does not support the Power Management™ suspend and resume features.

SunVTS 4.5 Issues

The following issues apply to the SunVTS 4.5 product.

New Features for This Release

The following tests, enhancements, and features have been added to the SunVTS 4.5 release:

Enhancements

- The `systest` is enhanced for better fault isolation for identifying failing CPUs.
- The `disktest` is enhanced to add Read/Compare subtest to the existing rawtest; improving fault coverage.

Note – No new tests were added to this version.

Refer to the *SunVTS 4.5 User's Guide* and the *SunVTS 4.5 Test Reference Manual* for more details about these new features.

SunVTS End of Support Statements

SunVTS OPEN LOOK User Interface

The SunVTS OPEN LOOK user interface does not support the latest SunVTS features and will be discontinued when the OPEN LOOK environment is discontinued in the Solaris operating environment. The OPEN LOOK tests, sundials and sunbuttons, will be discontinued too. For full feature support, use the SunVTS CDE interface. Refer to the Solaris "End of Software Support Statements" section of the Solaris operating environment release notes for the latest end of support news.

SunVTS Online Testing

As of SunVTS 4.3, the SunVTS online testing capability that was initiated using the `vtsui.online` command is no longer available. The `SUNWodu` package that provides this online testing functionality is no longer provided.

Online diagnostic testing of Sun systems is now available through the Sun Management Center software using the Sun Hardware Diagnostic Suite add-on software. See `http://www.sun.com/sunmanagementcenter` for details.

Old SunVTS Message Format

In a future SunVTS version, the old message format and the VTS_OLD_MSG variable will no longer be supported. Update any scripts that rely on the old message format from SunVTS. Refer to the *SunVTS 4.5 User's Guide* for message format details.

SunVTS Stress Mode Option

In a future SunVTS version, the Stress Mode option that is available in the Test Execution dialog box will no longer be supported.

The `sunpcitest` Will Be Discontinued

In a future version of SunVTS the `sunpcitest` will be discontinued.

Possible Installation Problems

You might encounter an installation problem when you attempt to install SunVTS with an installation program other than the `pkgadd` command as described in the following paragraphs.

Installation Problem:
32-bit Only Systems and Web Start 2.0 (BugID 4257539)

Web Start 2.0 may not install SunVTS on systems that do not have the Solaris 64-bit environment installed. Web Start 2.0 removes the SunVTS 32-bit packages when the SunVTS 64-bit packages cause the installation to suspend.

Workaround: Use the `pkgadd` command to install the 32-bit SunVTS packages as described in the *SunVTS 4.5 User's Guide*.

Installation Problem:
Security and Web Start 2.0 (BugID 4362563)

When you install SunVTS using Web Start 2.0, you are not prompted to enable the Sun Enterprise Authentication Mechanism™ (SEAM) Kerberos v5, SunVTS security feature. The installation defaults in a way that installs SunVTS without this high level of security. If you do not want the high-level security, there is no problem.

Workaround: To enable the high-level SEAM security, use the `pkgadd` command to install SunVTS packages as described in the *SunVTS 4.5 User's Guide*.

Installation Problem:
The Installation Directory With Web Start 2.0 Is Not User-Definable (BugID 4243921)

When you attempt to install SunVTS using Web Start 2.0, you are unable to change the directory where SunVTS is installed. SunVTS will be installed in `/opt`.

Workaround: Use the `pkgadd -a none` command to install SunVTS in the directory of your choice as described in the *SunVTS 4.5 User's Guide*.

Installation Recommendation:
Perform Installations and Uninstallations Using the Same Program

If you install SunVTS using Web Start 2.0, you should also uninstall it using Web Start 2.0. If you install SunVTS with the `pkgadd` command you should uninstall it with the `pkgrm` command.

Possible Runtime Problems

The `saiptest` Device Does Not Display in the SunVTS UI (BugID 4482710, 4322468, 4313346)

The `saiptest`, which tests the serial asynchronous interface (SAI) card, does not show up in the SunVTS UI.

Workaround: Install the saip driver patch 109338 if you want to test the SAI device.

The `env5test` Fails (BugID 4493544, 4487110)

There is a communication problem between the `env5test` and the `picld` daemon that causes the `env5test` to fail.

Workaround: Before you start SunVTS, stop and start the `picld` daemon as shown in the following example:

```
# /etc/init.d/picld stop
# /etc/init.d/picld start
```

Note – Once you stop and start the `picld` daemon, the problem is resolved until the system is rebooted, at which time you need to perform these commands again.

ShowMe TV 1.3 Known Problems

ShowMe TV 1.3 software contains support for MPEG2 movie playback. Support was dropped for the Sun MediaCenter™ in ShowMe TV 1.3. Also, ShowMe TV 1.3 software contains a number of bug fixes over ShowMe TV 1.2.1. Here is a list of some known problems:

- There are various minor problems with playing MPEG1/2 files: Zoom does not work on some frame-buffers, the position indicator is not accurate enough, the frame-by-frame step back function does not work.
- You cannot switch between CIF and QCIF H.261 streams (that is, regular resolution, or 352x288 size frames, and low resolution, or 176x244 size frames) on non Ultra systems.
- Mixing Asian and ASCII characters in one line of text can confuse the input/output functions in ShowMe TV software. In particular, if a user sets up a transmission in which the transmission name or the hostname contains Asian characters, then saving or recovering these parameters to or from the `.showmetv-programs-`*hostname* configuration file might not work correctly.
- The receiver's buttons and menus contain incorrect text in locales other than English (bug id 4210702).

PCMCIA Issues

The following bugs have been filed against PCMCIA device support in this Solaris release.

Known Bugs

The System Appears to Hang When the PC ATA (`pcata`) Module Is `modunloaded` (BugID 4096137)

If there is a PCMCIA I/O card in a slot that has been accessed and the card driver is unloaded (as occurs during `modunload -i 0` at the end of multi-user boot) the system appears to hang.

Workaround: Removing the card may bring the system back.

Booting the Solaris 8 Operating Environment Initially With a 64-bit Kernel May Not Create the Device `/dev/term/pc0`, PC Card Serial Driver (BugID 4162969)

When booting the Solaris 8 operating environment initially with a 64-bit kernel, the `/dev/term/pc0` hardware device node for PC card serial device may not be created.

Workaround: Boot the system up with the 32-bit kernel first, then reboot with the 64-bit kernel.

PC File Viewer Issues

Install in the `/opt` Directory

The *Solaris 8 10/01 Sun Hardware Platform Guide* provides installation instructions that might indicate that PC file viewer can be installed in a directory other than the default directory. PC file viewer *must* be installed in the default (`/opt`) directory.

Known Bugs

- Backdrop image is not displayed in PowerPoint97 document (BugID 4159447).
- Cannot display nonstandard fonts in PowerPoint97 (BugID 4159448).
- Excel graph/table in PowerPoint97 document is not displayed (BugID 4159449).
- Cannot display scaled font, colored text, italic-underlined text in PowerPoint97 (BugID 4159450, 4159451, 4159452).

- Copy and paste of certain files into a text editor results in asterisks (*) instead of actual text (BugID 4165089).
- Searching does not work for multibyte (`tch`, `ko`) in PC file viewer (BugID 4151774).
- Wrong string is reversed in PC file viewer search on Japanese locales (BugID 4171815).
- Cannot display TCH Word95 saved in Word97 or PowerPoint97 formats in `zh.TW.BIG5` locale (BugID 4150413).

Documentation Errata

The following documentation errors have been found in the Solaris 8 10/01 documents.

References to MPxIO Documentation

The *Sun Enterprise 10000 SSP 3.5 User Guide*, *Sun Enterprise 10000 Dynamic Reconfiguration User Guide*, and the *Sun Enterprise 10000 DR Configuration Guide* contain references to a document that is currently not available, namely the *MPxIO Installation and Configuration Guide*. Information on installing and configuring MPxIO is available in the *MPxIO User and Installation Guide*, available on the Sun Network Storage Solutions website (http://www.sun.com/storage/san).

For details on accessing this document, refer to the *SSP 3.5 Installation Guide and Release Notes*.

SSP 3.5 Installation Guide and Release Notes

Page 8: In the description of the `snmpd` memory leaks (Bug ID 4486454), you must be superuser on the main SSP to stop and start SSP daemons, not user ssp as indicated in the text.

Pages 75 and 99: The references to the *Solaris 8 Installation Supplement* are incorrect. Refer to the *Solaris 8 Advanced Installation Guide* for details.

`eri(7d)` Man Page

The `eri(7d)` man page incorrectly states that the `eri.conf` file is in the `/kernel/drv/sparcv9/eri.conf` file

The correct location is: `/kernel/drv/eri.conf`

Platform Notes: Sun GigaSwift Ethernet Driver

The English language version of the *Platform Notes: Sun GigaSwift Ethernet Driver* contains several errors which are corrected in the Japanese language version. The errors are as follows:

- Page 7, Table 7: In the "Description" column for the `rx_intr_time`, in the sentence "... 4.5 US ticks...", "US" is in error and should read "microsecond".
- Page 14: The description "The comma separated numbers after the @ character at the end represent the device and function numbers, which are together referred to as unit-address." should instead read: "The comma separated numbers after the @ character represent the device and function numbers, which are together referred to as unit-address."
- Page 14: In the example `/pci108e;abba;/pci@4,4000/network@0`, the unit-address is defined as 4,4.
- Pages 15, 19, and 21: Several Steps are mis-numbered.
- Page 17: In Table 11, `"lp_autoneg_cap"` should be `"lp_cap_autoneg"`.

Sun Remote System Control (RSC) 2.2 Release Notes

This document deals with Sun™ Remote System Control (RSC) 2.2 hardware and software issues. For complete information about using RSC, see the *Sun Remote System Control (RSC) 2.0 User's Guide.*

What's New in RSC 2.2

Several new features not documented in the *Sun Remote System Control (RSC) 2.0 User's Guide* are available in RSC 2.2:

- The RSC graphical user interface requires an updated version of the Java Runtime Environment, Java 2 Standard Edition (J2SE) Runtime Environment Version 1.3.0_02. You can download the appropriate version from one of these Web sites:
  - Solaris — `http://www.sun.com/solaris/java`
  - Windows — `http://java.sun.com/j2se/1.3/`
- Client support has been added for the Microsoft Windows 2000 operating environment.
- Sun Fire™ 480R servers include a new hardware feature, a Locator LED on the system's front and rear panels. RSC software allows you to toggle the state of these LEDs to help identify a particular system that may be located in a rack with other servers.
- Support for a maximum of 16 RSC user accounts has been added. A maximum of 10 users can be logged in at one time. However, the increased number of user accounts does not affect the limitation of five concurrent `telnet` or GUI login sessions per server.

Before Installing Sun Remote System Control Software

RSC software is included as part of the default installation set for this Solaris Supplement CD. You should install RSC server components on a compatible Solaris server only; you can install the client software on any computer that meets the Solaris or Windows operating environment requirement. You must install and configure the RSC software before you can use RSC.

IMPORTANT: Before upgrading from a previous version of RSC server software or reinstalling the software, log in to the server as root and back up your configuration data using the following commands:

```
# rscadm show > remote_filename
# rscadm usershow >> remote_filename
```

Use a meaningful file name that includes the name of the server that RSC controls. After installation, you can refer to this file to restore your configuration settings if necessary. Reverting to a previous version of RSC server software after installing version 2.2 is not recommended. However, if you do so, you will need to restore your configuration information and also power cycle the server.

You can install the RSC 2.2 server software package, `SUNWrsc`, on:

- A Sun Fire 480R server running the Solaris™ 8 10/01 operating environment

- A Sun Fire 880 server running the Solaris 8 7/01 operating environment or another Solaris version that supports the RSC 2.2 product
- A Sun Fire 280R server running the Solaris 8 1/01 operating environment or another Solaris version that supports the RSC 2.2 product
- A Sun Enterprise™ 250 server running one of the following operating environments:
  - Solaris 2.6
  - Solaris 7
  - Solaris 8

You can install the RSC 2.2 client software packages on:

- Any other computer running the Solaris 2.6, Solaris 7, or Solaris 8 operating environment. The packages are `SUNWrscj` (GUI) and `SUNWrscd` (documentation).
- Any computer running one of the following Microsoft Windows operating environments:
  - Windows 98
  - Windows 2000
  - Windows NT 4.0

The file used to install the RSC GUI and documentation for Windows operating environments is `SunRsc.exe`.

- Client computers require Java 2 Standard Edition (J2SE) Runtime Environment Version 1.3.0_02 or a subsequent 1.3.x version to run RSC 2.2 software. RSC 2.2 software will not run using J2SE Runtime Environment Version 1.2.x. You can download the appropriate version from one of these Web sites:
  - Solaris — `http://www.sun.com/solaris/java`
  - Windows — `http://java.sun.com/j2se/1.3/`

Installation on the Solaris operating environment places the *Sun Remote System Control (RSC) 2.0 User's Guide* in the location
`/opt/rsc/doc/`*locale*`/pdf/user_guide.pdf`. Installation on the Windows operating environment places the User's Guide in the location `C:\Program Files\Sun Microsystems\Remote System Control\doc\`*locale*`\ pdf\user_guide.pdf`.

The following sections describe Sun Remote System Control (RSC) 2.2 issues.

RSC General Issues

This section describes issues that affect RSC running on all platforms (Sun Enterprise 250, Sun Fire 280R, Sun Fire 880, and Sun Fire 480R servers):

CPU Temperature Values Difficult to Read (BugID 4463151)

In the graphical user interface, CPU temperature readings may be difficult to read.

Alert Messages May Be Delayed (BugID 4474273)

If the RSC variables `page_enabled` and `mail_enabled` are set to `true` and multiple alert messages are generated within a short interval, the first message is delivered in a timely fashion but each subsequent message issued during the interval is delayed by 3-4 minutes.

Locator LED Functions Not Documented in User's Guide (BugID 4445848, 4445844)

Sun Fire 480R servers include a new hardware feature, a Locator LED on the system's front panel. RSC client software allows you to toggle the state of this LED to help identify a particular system that may be located in a rack with other servers. The Toggle Locator LED command is available in the graphical user interface under Server Status and Control. The syntax of the command-line interface commands to toggle this LED state are:

```
rsc> setlocator on
rsc> setlocator off
```

The status of the Locator LED is shown in the GUI display of the server front panel and in the output of the `environment` (env) and `showenvironment` commands. Use the CLI command `showlocator` to display the status of the locator LED. Note that the state of the Locator LED will always be Off after the host system powers on or resets.

RSC Issues for Sun Fire 280R, Sun Fire 880, and Sun Fire 480R Servers

This section describes issues that affect RSC running on Sun Fire 280R, Sun Fire 880, and Sun Fire 480R servers.

Removing and Installing the RSC Card

⚠ **Caution –** Removing or installing the RSC card while the system has the AC power cord connected could damage your system or your RSC card. Only qualified service personnel should remove or replace the RSC card. Contact your qualified service representative to perform this service operation.

Before you follow the procedures in the *Sun Fire 280R Server Service Manual* or *Sun Fire 880 Server Service Manual* to remove or install the RSC card, perform this procedure to ensure that there is *no AC power present* in the system.

1. **Shut down and halt the system.**

2. **With the system at the** `ok` **prompt, turn the keyswitch to the Off position.**

   Standby power is still present in the system at this point.

3. **Disconnect all AC power cords from their back panel receptacles.**

   This ensures that there is no standby power voltage present in the system.

4. **Follow the procedure you require in your service manual.**

Additional RSC Alert

RSC generates the following alert on a Sun Fire 280R or Sun Fire 880 server when the RSC card begins battery use after a power interruption:

```
00060012: "RSC operating on battery power."
```

This alert is not documented in the *Sun Remote System Control (RSC) 2.0 User's Guide.*

RSC Issues for Sun Fire 280R Servers Only

This section describes issues that affect RSC running on Sun Fire 280R servers only. See the *Sun Fire 280R Server Product Notes* for other Sun Fire 280R server issues.

Soft Reset With `xir` Does Not Work Correctly (BugID 4361396, 4411330)

The `xir` command does not bring the server to the `ok` prompt as expected. This issue may have been resolved for your server type; see your hardware platform release notes.

Boot Sequence Sometimes Bypasses RSC (BugID 4387587)

In rare instances, the system may bypass the RSC card during startup. To check whether the system booted and is online, use the `ping` command to see if the card is alive, or log in using `telnet` or `rlogin`. If the system is not connected to the network, establish a `tip` connection to the system. (Be sure that console I/O is not directed to the RSC card.) Use the `tip` connection to view boot messages on the troubled system, or reboot the system. For help in diagnosing the problem, see your hardware Owner's Guide.

False Drive Fault Reported at Power-On (BugID 4343998, 4316483)

When you power on the system, it may report a false internal drive fault that is recorded in the Sun Remote System Control (RSC) log history.

If the error is reported by RSC, you should disregard it if the system boots successfully to the Solaris operating environment. In most cases the erroneous fault will not reappear. You can verify the disk after the boot process by using the `fsck` utility.

Note – Any disk drive error message reported by the Solaris operating environment is a real disk drive error.

If a disk fault is reported at the *ok* prompt and the system fails to boot to the Solaris operating environment, there may be a problem with the disk drive. Test the disk drive with the OpenBoot™ Diagnostics tests documented in the "Diagnostics, Monitoring, and Troubleshooting" chapter in the *Sun Fire 280R Server Service Manual.*

Command `rscadm resetrsc` Fails (BugID 4477335)

After a cold restart or after powering on the system, the RSC command `rscadm resetrsc` fails; this is a known condition. You need to reset the host system for the command to function correctly.

There are three ways you can reset the host. Use one of the following commands:

- At the `ok` prompt, execute the `reset-all` command.
- At the RSC command-line interface (CLI) prompt, issue the `reset` command.
- At the Solaris CLI prompt, issue the `reboot` command.

The RSC `rscadm resetrsc` command will now function correctly.

RSC Issue for Sun Fire 880 Servers Only

This section describes an issue that affects RSC running on Sun Fire 880 servers only.

Soft Reset With `xir` Does Not Work Correctly (BugID 4361396, 4411330)

The `xir` command does not bring the server to the `ok` prompt as expected. This issue may have been resolved for your server type; see your hardware platform release notes.

RSC Issues for Sun Enterprise 250 Servers Only

This section describes issues that affect RSC running on Sun Enterprise 250 servers only. See the *Sun Enterprise 250 Server Product Notes* for other Sun Enterprise 250 server issues.

Increased Number of RSC User Accounts Not Supported

Support for a maximum of 16 RSC user accounts has been added for RSC 2.2. However, Sun Enterprise 250 servers continue to be limited to four RSC user accounts because of hardware limitations.

Do Not Run OpenBoot PROM `fsck` Command From the RSC Console (BugID 4409169)

Do not issue the `fsck` command from the redirected RSC console.

Reset the system's `input-device` and `output-device` settings to `ttya`. Then reboot the system and access the system through its local console or terminal and execute the OpenBoot PROM `fsck` command directly.

Do Not Run OpenBoot PROM `boot -s` Command From the RSC Console (BugID 4409169)

The command `boot -s` does not work from the RSC console.

Reset the system's `input-device` and `output-device` settings to `ttya`. Then reboot the system and access the system through its local console or terminal and execute the `boot -s` command directly.

Change to the `serial_hw_handshake` Variable Requires a System Reboot (BugID 4145761)

In order for changes to the RSC configuration variable `serial_hw_handshake` to take effect, the server must be rebooted. This also affects the Enable Hardware Handshaking check box in the RSC graphical user interface. This limitation is not stated in the documentation.

SunForum

Chat Users (BugId 4361267)

Chat users missing in 7-way conference.

Workaround: This problem is often fixed by restarting Chat.

Garbled Multibyte Characters (BugID 4363590)

Multibyte characters are garbled in some areas when SunForum conferences with NetMeeting.

Workaround: Not available.

Garbled Multibyte Characters (BugID 4366085)

If T.126 mode is selected, the whiteboard user's name in multibyte characters is garbled.

Workaround: Choose 'SunForum 1.0 mode'.

Shared Clipboard (BugId 4368361)

Shared clipboard: On both SunForums, pasting text crashes the other SunForum.

Workaround: Not available.

Solstice DiskSuite and Alternate Pathing (BugID 4367639)

A segmentation fault error occurs when invoking the Solstice DiskSuite™ 4.1.2 metatool on a Sun Enterprise 6000 system with Alternate Pathing 2.3 or 2.3.1 already installed and configured on a SPARCstorage™ Array 100 or SPARCstorage Array 200.

After invoking the metatool, the following message is displayed:

```
root@[/]>metatool &
[1]    2569
root@[/]>Initializing metatool... Done.
Discovering drives and slices... metatool: Segmentation Fault
```

Workaround: Move `/usr/lib/libssd.so.1` and `/usr/lib/libap_dmd.so.1` to `/usr/sadm/lib/lvm`.

SunFDDI and Diskless Booting (BugID 4390228)

The SunFDDI™ PCI board (FDDI/P) does not support diskless booting. The SunFDDI SBus board (FDDI/S) supports diskless booting on sun4m and sun4u platforms only.

Multiple Sun GigaSwift Ethernet Cards May Hang System (BugID 4336400, 4365263, 4431409)

Your system may experience heavy CPU usage or may hang if more than two Sun GigaSwift Ethernet cards are installed.

System May Hang When the `cpr` Module Runs (BugID 4466393)

If you are running any version of Solaris 8 with an Expert3D or Expert3D-Lite card, you may experience problems after `cpr` runs.

Workaround: Install Patch 108576-15 or greater.

`librt` Objects Do Not Transition to Multi-User Mode (BugID 4479719)

SunVTS may fail in multi-user mode when semaphores are created improperly.

Workaround: Kill and restart `picld` after the machine reaches multiuser mode, but before running SunVTS:

```
# /etc/init.d/picld stop
# /etc/init.d/picld start
```

Vulnerability In the ToolTalk Database Server Allows Root Access (BugID 4499995)

When the ToolTalk Database Server (`/usr/openwin/bin/rpc.ttdbserverd`) is enabled, remote and local attacks are possible that can potentially give root access to the system. Attacked systems can be identified by the presence of garbage files in the root directory that begin with an A.

Workaround: Remove the `rpc.ttdbserverd` line from the `inetd.conf` file. Disable the service by using the `chmod a-x` command on `/usr/openwin/bin/rpc.ttdbserverd`. Check with your Sun representative about future patches.

AP 2.3.1 on Sun Enterprise Servers

AP 2.3.1 on Sun Enterprise Servers

This section contains the release notes for Alternate Pathing (AP) 2.3.1 on Sun Enterprise 3*x*00, 4*x*00, 5*x*00, 6*x*00 and 10000 servers.

AP enables you to define and control alternate physical paths to peripheral devices, adding increased availability and a level of fault recovery to your server. If a physical path to a device becomes unavailable, an alternate path can be used. For more information, see the *Sun Enterprise Server AP 2.3.1 User Guide* in the AnswerBook2 Alternate Pathing 2.3.1 Collection.

Future AP Support

AP multipath I/O technology is being retired in favor of the newer, more scalable technologies presented by MPxIO and IPMP.

These modern technologies present better overall multipath solutions, with refined, user-friendly interfaces that are well integrated with Solaris. IPMP also provides true automatic switching for networks upon error detection.

If you use AP for its I/O multipath capabilities, you are encouraged to deconfigure your AP installations, and begin utilizing these newer technologies for I/O multipath control.

All 3 technologies are available during the Solaris 8 timeframe. However, be advised that AP will no longer be available in Solaris 9.

Installation Issues

If you are upgrading from Solaris 2.6 or Solaris 7 software to Solaris 8 software and have AP 2.1 or AP 2.2 on your system, you must upgrade to AP 2.3 or AP 2.3.1. The following sections include references to a volume manager because most systems have one installed.

Note – AP 2.3.1 installation is Solaris operating environment specific. If you have already installed AP 2.3.1 on your system and choose to upgrade your operating system at a later date, you must follow the upgrade procedure to remove the AP 2.3.1 software using pkgrm and re-install AP 2.3.1.

This section contains an overview of the entire upgrade process, which requires you to use several sections from different publications. You should ensure that you have the following publications before you start the upgrade:

- *Solaris 8 10/01 Release Notes Supplement for Sun Hardware* (available in printed form in your Solaris 8 10/01 Media Kit)
- *Solaris 8 10/01 Sun Hardware Platform Guide* (available in printed form in your Solaris 8 Media Kit or in AnswerBook2 format on the Sun Hardware Supplements CD)
- *Sun Enterprise Server Alternate Pathing 2.3.1 User Guide* (available in AnswerBook2 format on the Sun Hardware Supplements CD in your Solaris 8 Media Kit)
- Your Volume Manager User's Guide
- Your Volume Manager Installation and Product Notes

Note – Before attempting an upgrade, verify that your volume manager supports the Solaris 8 software.

Caution – You must follow the sequence given here to successfully complete the upgrade.

In general, you will perform the following tasks:

- Deconfigure your volume manager.
- Remove the previous version of AP.
- Upgrade to the Solaris 8 operating environment.
- Install AP 2.3.1.
- Install and reconfigure your volume manager.

Specifically, you must perform the following tasks:

1. Read "Performing an Upgrade of AP" in the *Solaris 8 10/01 Sun Hardware Platform Guide*.

2. Commit any uncommitted AP metadevices (see Step 1 in "To Upgrade to AP 2.3.1" in the *Solaris 8 10/01 Sun Hardware Platform Guide*).

3. Deconfigure your volume manager using the documentation provided by the specific vendor.

Note – With regard to AP, no additional steps need to be taken to do this other than those recommended by the manufacturer to deconfigure the volume manager.

Caution – When the volume manager has been deconfigured and you are instructed to install the new operating environment, stop at that point and remove your previous version of AP. Do *not* install Solaris 8 software at this time.

---

4. Remove the current AP configuration using "Remove the current AP configuration." of the *Solaris 8 10/01 Sun Hardware Platform Guide*.

5. Upgrade to Solaris 8 using "Upgrade the Solaris operating environment (if applicable) now." in the *Solaris 8 10/01 Sun Hardware Platform Guide*.

6. Upgrade to AP 2.3.1 using instructions in the *Solaris 8 10/01 Sun Hardware Platform Guide*.

7. Install your volume manager according to your manufacturer's instructions.

When upgrading AP 2.3.1, unless both paths are accessible when you run `ap_upgrade_begin`, `ap_upgrade_finish` completes but is unable to recreate your path groups. No error message appears.

General Issues

This section contains general issues that involve AP on Sun Enterprise servers. Read this section before you attempt to install or configure AP.

Note – If you are upgrading to AP 2.3.1 on *all* Sun Enterprise 10000 domains then you can safely remove the `SUNWapssp` package software from the SSP workstation using `pkgrm`. If, however, any domain will remain at an earlier version of AP, then you must *not* remove the AP software on the SSP workstation. In either case, leaving AP software on SSP workstations will have no effect on AP 2.3.1.

Supported Devices

The following devices are supported by the AP software on Sun Enterprise servers:

- Sun SPARCstorage™ Arrays recognized by AP using the pln(soc) controllers
- Sun StorEdge™ A5000 recognized by AP using sf(socal) or fp(qlc) controllers
- Sun StorEdge T3 recognized by AP using sf(socal) or fp(qlc) controllers
- Sun Enterprise E3500 internal drives recognized by using sf(socal) or fp(qlc) controllers
- SunFastEthernet™ 2.0 (hme)
- SunFDDI/S 6.0 (nf) SAS (Single-Attach Station) and DAS (Dual-Attach Station)
- SCSI-2/Buffered Ethernet FSBE/S and DSBE/S (le)
- Quad Ethernet (qe)
- Sun Quad FastEthernet™ (qfe)
- Sun Gigabit Ethernet 2.0 (ge)

The following table lists the devices supported in each release:

TABLE 4-1 AP Support Matrix

AP Version	Solaris Release	NICs									Disk Controllers	Storage Products
		ge	hme	le	nf	bf	hi	qe	qfe	vge		
2.0	2.5.1		X	X	X	X	X	X	X		pln/soc	SSA
2.0.1	2.5.1		X	X	X	X	X	X	X		pln/soc, sf/socal	SSA, A5000
2.1	2.6	X	X	X	X			X	X	X	pln/soc, sf/soc	SSA, A5000
2.2	7	X	X	X	X			X	X		pln/soc, sf/socal, fp/qlc*	SSA, A5000
* - fp/qlc support for AP 2.2 requires a patch for Solaris 7 (included in Solaris 7 11/99) and for AP 2.2. Refer to www.sunsolve.com for more information												
† - fp/qlc support requires Solaris 7 11/99 or Solaris 8.												
§ - AP 2.3 has not been optimized for Sun StorEdge T3 support.												

TABLE 4-1   AP Support Matrix

AP Version	Solaris Release	NICs									Disk Controllers	Storage Products
		ge	hme	le	nf	bf	hi	qe	qfe	vge		
2.3	2.6	X	X	X	X			X	X	X	pln/soc, sf/socal	SSA, A5000,
	7	X	X	X	X			X	X		pln/soc, sf/socal, fp/qlc†	SSA, A5000, T3§
	8	X	X	X	X				X		pln/soc, sf/socal, fp/qlc	SSA, A5000, T3§
2.3.1	8	X	X	X	X				X		pln/soc, sf/socal, fp/qlc	SSA, A5000, T3
* - fp/qlc support for AP 2.2 requires a patch for Solaris 7 (included in Solaris 7 11/99) and for AP 2.2. Refer to `www.sunsolve.com` for more information												
† - fp/qlc support requires Solaris 7 11/99 or Solaris 8.												
§ - AP 2.3 has not been optimized for Sun StorEdge T3 support.												

SunFDDI and Gigabit Ethernet Devices

AP 2.3.1 validation tests were performed on SunFDDI/S (revision 7.0) and Gigabit Ethernet (revision 2.0). If you install either of these devices, you must use the revision level that was tested, unless a higher revision level exists. In addition, you must install all of the available patches for these devices. Refer to `http://www.sunsolve.sun.com` for more information about the patches.

Sun StorEdge A3000

The Sun StorEdge A3000 supports failover capabilities that are similar to those provided by AP 2.3.1. Because of this, AP 2.3.1 does not support the Sun StorEdge A3000. See that product's documentation for more information about its failover support.

Sun StorEdge A5000

AP 2.3.1 supports the Sun StorEdge A5000 for this release.

Sun StorEdge A7000

AP 2.3.1 does not support the Sun StorEdge A7000 for this release.

Sun StorEdge T3

AP 2.3.1 supports the Sun StorEdge T3 in a path optimized AP configuration with this release. Path optimization refers to the efficient distribution of I/O traffic for the T3.

Software Compatibility

The following lists includes the possible combinations of AP and Solaris software you can install on a Sun Enterprise server.

- Solaris 8 with AP 2.3.1 and DR
- Solaris 8 with AP 2.3 and DR
- Solaris 7 with AP 2.3.1 and DR
- Solaris 7 with AP 2.3 and DR
- Solaris 7 with AP 2.2 and DR
- Solaris 2.6 with AP 2.3.1 and DR
- Solaris 2.6 with AP 2.3 and DR
- Solaris 2.6 with AP 2.1 and DR
- Solaris 2.5.1 with AP 2.0.1 and DR (Sun Enterprise 10000 server only)
- Solaris 2.5.1 with AP 2.0 and DR (Sun Enterprise 10000 server only)

Note – AP does not support DR model 3.0, which runs on Sun Enterprise 10000 domains running the Solaris 8 10/01 operating environment. AP does support DR model 2.0 on Sun Enterprise 10000 domains. For details on the multipathing software compatible with DR model 3.0, refer to the *SSP 3.5 Installation Guide and Release Notes.*

AP Patches

Check the SunSolve website on a regular basis for any AP patches that may be available, and apply the recommended patches:

http://sunsolve.Sun.com

Dynamic Reconfiguration (DR) Issues

The DR Attach operation can complete without the controller being immediately accessible to AP. You must verify that the physical device is present before switching to the new controller using `apconfig`.

A Sun Enterprise 10000 server running the Solaris 2.6 operating environment requires Patch 106284-02 for AP 2.3.1 to run correctly with the `dr_daemon`.

Boot Disk Issues

AP 2.3.1 provides support for only one alternately pathed boot disk plus a mirror disk per domain.

In order to fix inconsistencies in boot recovery behavior, device aliases for the boot disk are not supported.

Boot recovery is architecture generic in AP 2.3.1. Boot recovery works on Sun Fire as well as Starfire™ platforms.

IPMP Issues

IPMP/AP path groups are not supported for this release.

Sun Fibre Channel Port Driver (qlc/fp) Issues

A SENA device which uses the qlc/fp drivers is considered a different physical device than a SENA device which uses the socal/sf stack. SENA devices do not support mixed configurations where qlc/fp and socal/sf drivers service a single SENA device. Therefore, the two cannot be combined in an AP metadevice.

Revising the firmware on a physical SENA device using socal/sf drivers to use qlc/fp drivers for your Fibre Channel controllers is the same as replacing the hardware with a different type of controller. (The converse is also true.) You must deconfigure Alternate Pathing on such controllers *before* you revise the firmware. For example:

```
# apdisk -d sf:0
# apdb -C
```

Revise the SENA firmware.

After you have performed the revision, recreate your pathgroups using the new device names, for example:

```
# apdisk -c -pfp:0 -a fp:1
# apdb -C
```

Caution – If you change firmware without deconfiguring AP, file systems available from the new alternately-pathed controllers may not be accessible. If those file systems are required during boot, your system can become unbootable.

AP Documentation Locations

Documentation for AP 2.0 and 2.0.1 can be found in their respective collections under Hardware -> Enterprise Servers at `docs.sun.com`.

AP 2.1 and 2.2, however, are in the Hardware -> Solaris on Sun Hardware AnswerBook collection at `docs.sun.com`.

AP 2.3 and 2.3.1 are in their own collections under Hardware -> Enterprise Servers.

Known Bugs/RFEs

Panic while switching unplumbed metanetwork. (BugID 4361968)

Fixed Bugs

This section contains the synopses and Sun BugID number of the more important bugs that have been fixed since the AP 2.3 release (Solaris 8). This list does not include all of the fixed bugs.

(RFE) An immediate switch of path using AP after DR configure forces it into a 'T' state. (BugID 4265982)

(RFE) AP handling for individual target failure, FC hubs/fabric, and daisy chaining. (BugID 4276330)

(RFE) Hang on Sun Enterprise 3500 with mirrored internal disk pull out with AP and sds. (BugID 4297492)

Read/write errors during ctrl failover with Sun StorEdge T3 Array partner group or 2x2 expansion. (BugID 4342963)

Multiple ".probe" execution causes LUNs on UNIX host to fail with ENODEV. (BugID 4347014)

ENXIO from Sun StorEdge T3 ONLINE Master immediately after .probe initiated ctlr failure. (BugID 4347016)

Other Bugs

This section contains the synopses and Sun BugID number of the more important bugs that have been discovered regarding AP 2.3.1 and the Solaris 8 operating environment. This list does not include all bugs.

Fixed Other Bugs

ssd: Serial Number Should Be Obtained From the Unit Serial Number Page (Bug ID 4295457)

Description: AP depends on Sun Device ID functions; specifically ddi_devid_compare(). Any device that AP supports must adequately interface with the Sun Device ID. This leads to a direct dependency on the resolution of Sun BugID 4295457. Thus, there is a dependency on three separate patches:

■ Patch 105356-15 for Solaris 2.6
■ Patch 107458-09 for Solaris 7
■ Patch 109524-01 for Solaris 8

Solution: You can obtain these patches from SunSolve at: http://sunsolve.sun.com.

qfe Driver Does Not Respond With DL_OK_ACK To a DL_ENABMULTI_REQ Primitive (Bug ID 4241749)

Systems running the Solaris 7 operating environment using qfe controllers should install patch 107743-06, to prevent system hangs when switching pathgroups with qfe controllers in them.

Solution: You can obtain Patch 107743-06 from SunSolve at: http://sunsolve.sun.com.

Sun Midrange Systems Open Issues

This chapter contains the latest information for the Sun Enterprise systems running the Solaris 8 operating environment. These include the SunEnterprise 6500, 6000, 5500, 5000, 4500, 4000, 3500, and 3000 systems.

The Solaris 8 operating environment includes support for the CPU/memory boards and most I/O boards in the systems mentioned above.

Dynamic Reconfiguration of Sun Enterprise 6*x*00, 5*x*00, 4*x*00, and 3*x*00 Systems

These release notes provide the latest information on Dynamic Reconfiguration (DR) functionality for Sun Enterprise 6*x*00, 5*x*00, 4*x*00, and 3*x*00 systems running the Solaris 8 10/01 operating environment from Sun Microsystems. For more information on Sun Enterprise Server Dynamic Reconfiguration, refer to the *Dynamic Reconfiguration User's Guide for Sun Enterprise 3x00/4x00/5x00/6x00 Systems*.

The Solaris 8 10/01 operating environment includes support for CPU/memory boards and most I/O boards in Sun Enterprise 6*x*00, 5*x*00, 4*x*00, and 3*x*00 systems.

Supported Hardware

Before proceeding, ensure the system supports dynamic reconfiguration. If you see the following message on your console or in your console logs, the hardware is of an older design and not suitable for dynamic reconfiguration.

```
Hot Plug not supported in this system
```

Supported I/O boards are listed in the "Solaris 8" section on the following Web site:

```
http://sunsolve5.sun.com/sunsolve/Enterprise-dr
```

I/O board type 2 (graphics), type 3 (PCI), and type 5 (graphics and SOC+) are not currently supported.

Firmware Notes

FC-AL Disk Arrays or Internal Drives

For Sun StorEdge A5000 disk arrays or for internal FC-AL disks in the Sun Enterprise 3500 system, the firmware version must be ST19171FC 0413 or a subsequently compatible version. For more information, refer to the "Solaris 8" section at the following web site:

```
http://sunsolve5.sun.com/sunsolve/Enterprise-dr
```

PROM Updates for CPU and I/O Boards

Users of Solaris 8 10/01 software who wish to use Dynamic Reconfiguration must be running CPU PROM version 3.2.22 (firmware patch ID 103346-xx) or a subsequently compatible version. This firmware is available from the Web site. See "How to Obtain Firmware" on page 43.

Older versions of the CPU PROM may display the following message during boot:

```
Firmware does not support Dynamic Reconfiguration
```

Caution – CPU PROM 3.2.16 and earlier versions do not display this message, although they do not support dynamic reconfiguration of CPU/memory boards.

- **To see your current PROM revision, enter** `.version` **and** `banner` **at the** `ok` **prompt.**

    Your display will be similar to the following:

```
ok .version
Slot  0 - I/O Type 1 FCODE 1.8.22 1999/xx/xx 19:26  iPOST 3.4.22 1999/xx/xx 19:31
Slot  1 - I/O Type 1 FCODE 1.8.22 1999/xx/xx 19:26  iPOST 3.4.22 1999/xx/xx 19:31
Slot  2 - CPU/Memory OBP   3.2.22 1999/xx/xx 19:27  POST  3.9.22 1999/xx/xx 19:31
Slot  3 - I/O Type 4 FCODE 1.8.22 1999/xx/xx 19:27  iPOST 3.4.22 1999/xx/xx 19:31
Slot  4 - CPU/Memory OBP   3.2.22 1999/xx/xx 19:27  POST  3.9.22 1999/xx/xx 19:31
Slot  5 - CPU/Memory OBP   3.2.22 1999/xx/xx 19:27  POST  3.9.22 1999/xx/xx 19:31
Slot  6 - CPU/Memory OBP   3.2.22 1999/xx/xx 19:27  POST  3.9.22 1999/xx/xx 19:31
Slot  7 - CPU/Memory OBP   3.2.22 1999/xx/xx 19:27  POST  3.9.22 1999/xx/xx 19:31
Slot  9 - CPU/Memory OBP   3.2.22 1999/xx/xx 19:27  POST  3.9.22 1999/xx/xx 19:31
Slot 11 - CPU/Memory OBP   3.2.22 1999/xx/xx 19:27  POST  3.9.22 1999/xx/xx 19:31
Slot 12 - CPU/Memory OBP   3.2.22 1999/xx/xx 19:27  POST  3.9.22 1999/xx/xx 19:31
Slot 14 - CPU/Memory OBP   3.2.22 1999/xx/xx 19:27  POST  3.9.22 1999/xx/xx 19:31
ok banner
16-slot Sun Enterprise E6500
OpenBoot 3.2.22, 4672 MB memory installed, Serial #xxxxxxxx.
Ethernet address 8:0:xx:xx:xx:xx, Host ID: xxxxxxxx.
```

How to Obtain Firmware

For information about updating your firmware, refer to the "Solaris 8" section at the following Web site:

`http://sunsolve5.sun.com/sunsolve/Enterprise-dr`

At this site, you will find information on how to:

- Download the DR-capable PROM firmware
- Upgrade the PROM

If you cannot use the Web site, contact your Sun support service provider for assistance.

Software Notes

Enabling Dynamic Reconfiguration

In the /etc/system file, two variables must be set to enable dynamic reconfiguration and an additional variable must be set to enable the removal of CPU/memory boards.

1. **Log in as superuser.**

2. **To enable dynamic reconfiguration, edit the** /etc/system **file and add the following lines to the** /etc/system **file:**

   ```
   set pln:pln_enable_detach_suspend=1
   set soc:soc_enable_detach_suspend=1
   ```

3. **To enable the removal of a CPU/memory board, add this line to the** /etc/system **file:**

   ```
   set kernel_cage_enable=1
   ```

   Setting this variable enables the memory unconfiguration operation.

4. **Reboot the system to put the changes into effect.**

Quiesce Test

On a large system, the quiesce-test command (cfgadm -x quiesce-test sysctrl0:slot*number*) may run as long as a minute or so. During this time no messages are displayed if cfgadm does not find incompatible drivers. This is normal behavior.

Disabled Board List

If a board is on the disabled board list, an attempt to connect the board may produce an error message:

```
# cfgadm -c connect sysctrl0:slotnumber
cfgadm: Hardware specific failure: connect failed: board is
disabled: must override with [-f][-o enable-at-boot]
```

- **To override the disabled condition, use the force flag (**`-f`**) or the enable option (**`-o enable-at-boot`**) with the** `cfgadm` **command:**

```
# cfgadm -f -c connect sysctrl0:slotnumber
```

```
# cfgadm -o enable-at-boot -c connect sysctrl0:slotnumber
```

- **To remove all boards from the disabled board list, set the** `disabled-board-list` **variable to a null set with the system command:**

```
# eeprom disabled-board-list=
```

- **If you are at the OpenBoot prompt, use this OBP command instead of the above to remove all boards from the disabled board list:**

```
OK set-default disabled-board-list
```

For further information about the `disabled-board-list` setting, refer to the section "Specific NVRAM Variables" in the *Platform Notes: Sun Enterprise 3x00, 4x00, 5x00, and 6x00 Systems* manual in the Solaris on Sun Hardware Collection AnswerBook set in this release.

Disabled Memory List

For information about the Open Boot PROM `disabled-memory-list` setting, refer to the section "Specific NVRAM Variables" in the *Platform Notes: Sun Enterprise 3x00, 4x00, 5x00, and 6x00 Systems* in the Solaris on Sun Hardware Collection AnswerBook set in this release.

Unloading Detach-Unsafe Drivers

If it is necessary to unload detach-unsafe drivers, use the `modinfo(1M)` line command to find the module IDs of the drivers. You can then use the module IDs in the `modunload(1M)` command to unload detach-unsafe drivers.

Interleaved Memory

A memory board or CPU/memory board that contains interleaved memory cannot be dynamically unconfigured.

To determine if memory is interleaved, use the `prtdiag` command or the `cfgadm` command.

To permit DR operations on CPU/memory boards, set the NVRAM `memory-interleave` property to `min`.

For related information about interleaved memory, see "Memory Interleaving Set Incorrectly After a Fatal Reset (BugID 4156075)" on page 47 and "DR: Cannot Unconfigure a CPU/Memory Board That Has Interleaved Memory (BugID 4210234)" on page 47.

Self-test Failure During a Connect Sequence

If the error "`cfgadm: Hardware specific failure: connect failed: firmware operation error`" is displayed during a DR connect sequence, remove the board from the system as soon as possible. The board has failed self-test, and removing the board avoids possible reconfiguration errors that can occur during the next reboot.

If you want to immediately retry the failed operation, you must first remove and reinsert the board, because the board status does not allow further operations.

Known Bugs

The following list is subject to change at any time. For the latest bug and patch information, refer to:

`http://sunsolve5.sun.com/sunsolve/Enterprise-dr`.

`cfgadm -v` Not Working Properly (BugID 4149371)

The memory test should give occasional indications that it is still running. During a long test, the user cannot easily determine that the system is not hanging.

Workaround: Monitor system progress in another shell or window, using `vmstat(1M)`, `ps(1)`, or similar shell commands.

Memory Interleaving Set Incorrectly After a Fatal Reset (BugID 4156075)

Memory interleaving is left in an incorrect state when a Sun Enterprise *x*500 server is rebooted after a Fatal Reset. Subsequent DR operations fail. The problem only occurs on systems with memory interleaving set to `min`.

Workarounds: Two choices are listed below.

- **To clear the problem after it occurs, manually reset the system at the** `OK` **prompt.**

- **To avoid the problem before it occurs, set the NVRAM** `memory-interleave` **property to** `max`**.**

  This causes memory to be interleaved whenever the system is booted. However, you may find this option to be unacceptable, as a memory board containing interleaved memory cannot be dynamically unconfigured. See "DR: Cannot Unconfigure a CPU/Memory Board That Has Interleaved Memory (BugID 4210234)" on page 47.

`vmstat` Output Is Incorrect After Configuring Processors (Bug ID 4159024)

`vmstat` shows an unusually high number of interrupts after configuring CPUs. With `vmstat` in the background, the interrupt field becomes abnormally large (but this does not indicate a problem exists). In the last row in the example below, the interrupts (`in`) column has a value of 4294967216:

```
#  procs       memory             page            disk          faults      cpu
 r b w   swap   free   re  mf pi po fr de sr s6 s9 s1 --   in   sy   cs us sy id
 0 0 0 437208 146424   0   1  4  0  0  0  0  1  0  0   50   65   79  0  1 99
 0 0 0 413864 111056   0   0  0  0  0  0  0  0  0  0  198  137  214  0  3 97
 0 0 0 413864 111056   0   0  0  0  0  0  0  0  0  0  286  101  200  0  3 97
 0 0 0 413864 111072   0  11  0  0  0  0  0  0  1  0  0 4294967216 43 68 0 0 100
```

Workaround: Restart `vmstat`.

DR: Cannot Unconfigure a CPU/Memory Board That Has Interleaved Memory (BugID 4210234)

Cannot unconfigure a CPU/Memory board that has interleaved memory.

To unconfigure and subsequently disconnect a CPU board with memory or a memory-only board, it is necessary to first unconfigure the memory. However, if the memory on the board is interleaved with memory on other boards, the memory cannot currently be unconfigured dynamically.

Memory interleaving can be displayed using the `prtdiag` or the `cfgadm` commands.

Workaround: Shut down the system before servicing the board, then reboot afterward. To permit future DR operations on the CPU/memory board, set the NVRAM `memory-interleave` property to `min`. See also "Memory Interleaving Set Incorrectly After a Fatal Reset (BugID 4156075)" on page 47 for a related discussion on interleaved memory.

DR: Cannot Unconfigure a CPU/Memory Board That Has Permanent Memory (BugID 4210280)

To unconfigure and subsequently disconnect a CPU board with memory or a memory-only board, it is necessary to first unconfigure the memory. However, some memory is not currently relocatable. This memory is considered permanent.

Permanent memory on a board is marked "permanent" in the `cfgadm` status display:

```
# cfgadm -s cols=ap_id:type:info
Ap_Id Type Information
ac0:bank0 memory slot3 64Mb base 0x0 permanent
ac0:bank1 memory slot3 empty
ac1:bank0 memory slot5 empty
ac1:bank1 memory slot5 64Mb base 0x40000000
```

In this example, the board in slot3 has permanent memory and so cannot be removed.

Workaround: Shut down the system before servicing the board, then reboot afterward.

`cfgadm` Disconnect Fails When Running Concurrent `cfgadm` Commands (BugID 4220105)

If a `cfgadm` process is running on one board, an attempt to simultaneously disconnect a second board fails.

A cfgadm disconnect operation fails if another cfgadm process is already running on a different board. The message is:

```
cfgadm: Hardware specific failure: disconnect failed: nexus error
during detach: address
```

Workaround: Do only one cfgadm operation at a time. If a cfgadm operation is running on one board, wait for it to finish before you start a cfgadm disconnect operation on a second board.

Cannot Drain and/or Detach Sun Enterprise Server Boards That Host QFE Cards (BugID 4231845)

When a server is configured as a boot server for Solaris 2.5.1-based Intel platform clients, it has several rpld jobs running, whether or not such devices are in use. These active references prevent DR operations from detaching these devices.

Workaround: Perform a DR detach operation:

1. **Remove or rename the** /rplboot **directory.**

2. **Shut down NFS services with this command:**

```
# sh /etc/init.d/nfs.server stop
```

3. **Perform the DR detach operation.**

4. **Restart NFS services with this command:**

```
# sh /etc/init.d/nfs.server start
```

Sun Enterprise 10000 Release Notes

This chapter contains the release notes for the following features on the Sun Enterprise 10000 server: SSP 3.5, dynamic reconfiguration (DR), InterDomain Networks (IDNs), and the Solaris operating environment on Sun Enterprise 10000 domains.

SSP 3.5 Open Issues

For an overview of updated functionality in SSP 3.5, including open and fixed bugs, refer to the *SSP 3.5 Installation Guide and Release Notes*.

`machine_server` Memory Leaks during multiple `hpost` Operations (Bug ID 4493987)

Memory leaks related to the `machine_server` daemon can occur after multiple `hpost` processes.

Workaround: If SSP performance is affected by this memory leak, stop and start SSP daemons by doing the following:

As superuser on the main SSP, type

```
ssp# /etc/init.d/ssp stop
ssp# /etc/init.d/ssp start
```

showdevices Does Not Display Base Memory Address For System Board (Bug ID 4495747)

This bug causes the showdevices command to display incorrect memory base address information.

Workaround: Use rcfgadm along with the -av options to display memory base address information.

Dynamic Reconfiguration

Release notes and other technical information in this section apply only to the Solaris 8 10/01 version of the Sun Enterprise 10000 dynamic reconfiguration (DR) feature.

General Issues

This section contains general issues that involve DR on the Sun Enterprise 10000 server. You should read this section before you attempt to install or configure DR.

DR and Bound User Processes

For Solaris 8 10/01, DR no longer automatically unbinds user processes from CPUs that are being detached. Users are now required to perform this operation themselves before initiating a detach sequence. The drain operation fails if CPUs are found with bound processes.

DDI_RESUME Failure Results in Failure of Subsequent DR Operations (4353719)

If a device fails to resume after a DR detach operation, the resume failure can prevent subsequent DR operations.

Workaround: None.

deleteboard(1M) Operation on a Board with no Memory Causes a Domain Running the Solaris 7 or Solaris 8 Operating Environment to Crash (4468171)

If you perform a

- deleteboard(1M) operation
- moveboard(1M) operation
- Detach operation using dr shell

on a board that contains no memory, and the domains involved are running the Solaris 7 or Solaris 8 operating environment, the affected domains may crash or hang.

Workaround: Perform DR operations only on boards with memory.

Problem with oprom_checknodeid() during DR (4474330)

A panic can occur under certain circumstances when the /dev/openprom interface accesses the PROM device tree after a DR disconnect. The openprom driver caches node information that can become invalid after a DR disconnect. As a result, OBP can be passed a bad node address.

Workaround: To minimize the possibility of encountering this situation, discontinue using applications, such as prtconf, that use the /dev/openprom interface during or immediately before or after a DR disconnect operation. Note that picld(1M) uses the /dev/openprom driver.

ISP Driver can Fail to Resume After a Suspend (4480954)

After an ISP driver is suspended during a DR operation quiescence of the Solaris operating environment, the ISP driver may fail to resume, resulting in the inability to access disks. If the boot disk is part of an ISP device group, it may hang the domain.

Workaround: On the SSP, use the `showusage(1M)`command for DR model 2.0, or the `showdevices`(1M)command for DR model 3.0, to determine which system boards contain the permanent or nonpageable memory, and avoid DR operations on those boards. Note that boards containing permanent memory can change after DR operations or domain reboots.

InterDomain Networks (IDN)

General Issues

For a domain to become part of an IDN, all boards in that domain that have active memory must have at least one active CPU.

Solaris Operating Environment

This section contains general issues, known bugs, patches, and notes about the Solaris 8 10/01 operating environment on the Sun Enterprise 10000 server.

General Issues

Alternate Pathing (AP), dynamic reconfiguration (DR), and InterDomain Networks are supported in the Solaris 8 10/01 release.

Note – If you intend to use DR model 3.0 on a Sun Enterprise 10000 domain, you must install SSP 3.5 on your System Service Processor before you begin the fresh install or upgrade of the Solaris 8 10/01 operating environment on that domain. SSP 3.5 supports the Solaris 8 10/01 operating environment on Sun Enterprise 10000 domains.

⚠ **Caution –** Do not use the Solaris 8 10/01 Installation CD to install or upgrade the Solaris operating environment on Sun Enterprise 10000 domains. Begin installation from the Solaris 8 10/01 Software 1 of 2 CD, as explained in the *SSP 3.5 Installation Guide and Release Notes.*

Solaris 8 10/01 and Boot-Disk Partition Sizes

If you are upgrading the operating environment from Solaris 2.6 to Solaris 8 10/01 and you used the partition layout suggested in the *SMCC Hardware Platform Guide Solaris 2.6*, the partitions may not be large enough for the upgrade. For instance, the /usr partition must be at least 653 megabytes. If /usr is smaller than the size needed to perform the upgrade, suninstall uses the Dynamic Space Reallocation (DSR) mode to reallocate the space of the disk partitions.

DSR may calculate a partition layout which is not acceptable for some systems. For instance, DSR may select partitions that appear to DSR as being unused (non-UFS partitions which may contain raw data or other types of file systems). If DSR selects a used partition, data loss may occur. Therefore, you must know the current status of the partitions DSR wants to use before you allow DSR to continue with the reallocation of the disk partitions.

After DSR presents an acceptable layout and you choose to proceed with the reallocation, DSR adjusts the affected file systems, and the upgrade continues. However, if you cannot constrain the layout so that it is acceptable for your needs, then you may need to manually repartition the boot device, or you may have to perform a fresh install.

Open Boot PROM Variables

Before you perform the boot net command from the Open Boot PROM prompt (ok), you must verify that the local-mac-address? variable is set to *false*, which is the factory default. If it is set to *true*, you must ensure that this value is an appropriate local configuration.

Caution – If local-mac-address? is set to true, it may prevent the domain from successfully booting over the network.

In a netcon(1M) window, you can use the following command at the OBP prompt to display the values of the OBP variables:

```
ok printenv
```

▼ To Set the local-mac-address? Variable

● **If the variable is set to true, use the setenv command to set it to false.**

```
ok setenv local-mac-address? false
```