Solaris™ 8 7/01 Release Notes Supplement for Sun™ Hardware

Solaris 8 7/01

Includes Additional Release Notes and End-of-Support Statements for the Solaris 8 7/01 Operating Environment Running on Sun Hardware Products

Sun Microsystems, Inc.
901 San Antonio Road
Palo Alto, CA 94303-4900 U.S.A.
650-960-1300

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Send comments about this document to: docfeedback@sun.com

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CHAPTER 1

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 Enterprise™ 3x00, 4x00, 5x00, and 6x00 server issues (Chapter 5)
- Sun Enterprise 10000 server issues (Chapter 6)

This manual supplements the *Solaris 8 7/01 Sun Hardware Platform Guide* and the *Solaris 8 7/01 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 7/01 operating environment are 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 dot-com 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 7/01 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 7/01 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 7/01 operating environment.
- Acquire and install a new version of the unbundled product that is supported on the Solaris 8 7/01 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 7/01 operating environment. See the unbundled product documentation for more details.
- Remove the unbundled product prior to upgrading to the Solaris 8 7/01 operating environment.

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

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

System Kernel Support

All SPARC™ systems can run 32-bit applications. Systems using newer SPARC processors (that is, UltraSPARC™ based systems) can boot and run a full 64-bit kernel, which allows those systems to run 32-bit and 64-bit applications concurrently.

Systems running a 64-bit kernel require 64-bit versions of drivers and other software modules that load directly into the kernel. A small number of applications may be dependent on such components and thus would require versions of these components specific to a 32-bit or 64-bit kernel. Also, 32-bit applications cannot link to 64-bit libraries and vice versa. (The Solaris 8 operating environment includes both 32-bit and 64-bit versions of system libraries.)

The following table lists which systems can run 64-bit as well as 32-bit applications, and which systems can boot a 32-bit kernel, a 64-bit kernel, or both.

TABLE 1-1 System 32-bit and 64-bit Kernel Support

	Kernel		Applications		Drivers	
System Type	**32-bit**	**64-bit**	**32-bit**	**64-bit**	**32-bit**	**64-bit**
SPARCclassic	Yes	No	Yes	No	Yes	No
SPARCstation™ LX	Yes	No	Yes	No	Yes	No
SPARCstation 4,5, 10, 10SX, 20	Yes	No	Yes	No	Yes	No
SPARCengine™ CP1200	Yes	No	Yes	No	Yes	No
SPARCserver™ 1000, 1000E	Yes	No	Yes	No	Yes	No
SPARCcenter™ 2000, 2000E	Yes	No	Yes	No	Yes	No
Ultra™ 1, 2, 5, 10, 30, 60, 80	Yes	Yes	Yes	Yes[1]	Yes[2]	Yes[1]
Ultra 450	Yes	Yes	Yes	Yes[1]	Yes[2]	Yes[1]
Sun Enterprise 1, 2, 150, 220R, 250, 420R, 450	Yes	Yes	Yes	Yes[1]	Yes[2]	Yes[1]
Sun Enterprise 3000, 3500, 4000, 4500, 5000, 5500, 6000, 6500	Yes	Yes	Yes	Yes[1]	Yes[2]	Yes[1]
Sun Enterprise 10000	Yes	Yes	Yes	Yes[1]	Yes[2]	Yes[1]
Netra™ t1 100/105	Yes	Yes	Yes	Yes[1]	Yes[2]	Yes[1]
Netra t 1120/1125	Yes	Yes	Yes	Yes[1]	Yes[2]	Yes[1]

[1] Supported only when running 64-bit kernel

[2] Supported only when running 32-bit kernel

TABLE 1-1 System 32-bit and 64-bit Kernel Support *(Continued)*

	Kernel		Applications		Drivers	
System Type	**32-bit**	**64-bit**	**32-bit**	**64-bit**	**32-bit**	**64-bit**
Netra t 1400/1405	Yes	Yes	Yes	Yes[1]	Yes[2]	Yes[1]
SPARCengine CP1400	Yes	Yes	Yes	Yes[1]	Yes[2]	Yes[1]
SPARCengine CP1500	Yes	Yes	Yes	Yes[1]	Yes[2]	Yes[1]
Ultra AX, AXi, AXdp, AXmp, AXmp+, AXe	Yes	Yes	Yes	Yes[1]	Yes[2]	Yes[1]
Sun Blade™ 100, 1000	No	Yes	Yes	Yes	No	Yes
Sun Fire™ 280R, 880	No	Yes	Yes	Yes	No	Yes
Sun Fire 3800, 4800, 4810, 6800	No	Yes	Yes	Yes	No	Yes
Netra T1 AC200	No	Yes	Yes	Yes	No	Yes
Netra T1 DC200	No	Yes	Yes	Yes	No	Yes
Netra X1	No	Yes	Yes	Yes	No	Yes

[1] Supported only when running 64-bit kernel

[2] Supported only when running 32-bit kernel

Documents on the Software Supplement for the Solaris 8 7/01 Operating Environment CD

Note – In this document, the CD labeled “Software Supplement for the Solaris 8 7/01 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 1-2 Documents on the Supplement CD

Path	Comment
`Docs/README_en.html`	Readme file for Solaris 8 7/01 Sun Supplement CD
`Docs/HWPG/HWPG_en.ps`	*Solaris 8 7/01 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 7/01 Sun Hardware Platform Guide* for details on installing these packages from the Supplement CD.

Sun Fire 6800/4810/4800/3800 Systems

No Memory Limit Per System

The Sun Fire 6800/4810/4800/3800 systems do not have a memory limit per system with this version of the Solaris operating environment.

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 7/01 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 7/01 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 7/01 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 wriststrap may be required for the update. If you need a wriststrap, send e-mail to `strap@eng.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 7/01 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`.

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`.

CHAPTER 2

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.

CHAPTER 3

Open Issues

Installing Sun Fire 880 FC-AL Backplane Firmware

A backup image of the Sun Fire 880 FC-AL Backplane Firmware 1.0 is provided on the Supplement CD. In the unlikely event that the firmware on a Sun Fire 880 FC-AL backplane becomes corrupted, you can use the backup image to flash update the system with its original firmware. You perform the flash update procedure with the `luxadm download` subcommand, as described in *Platform Notes: Using* `luxadm` *Software*, part of the Solaris on Sun Hardware AnswerBook2 Set on the Supplement CD.

The `luxadm download` subcommand assumes that the backup firmware image resides in `/usr/platform/SUNW,Sun-Fire-880/lib/images/int_fcbpl_fw` on the Sun Fire 880 system disk. Before you can flash update the system, you must install the backup image from the Supplement CD onto the Sun Fire 880 system disk. For installation instructions, see “Installing Supplement CD Software” in the *Solaris 8 7/01 Sun Hardware Platform Guide*.

Note – If you use Solaris Web Start to install the Supplement CD software, the Sun Fire 880 FC-AL Backplane Firmware is not included in the default installation. To install the backup firmware, choose the Custom Install option and select the Sun Fire 880 FC-AL Backplane Firmware.

Installing Sun Enterprise 10000 System Service Processor (SSP) 3.4 Software

Information about installing SSP 3.4 software that in previous Solaris releases was in the *Sun Hardware Platform Guide* has been moved to a new document, the *Sun Enterprise 10000 SSP 3.4 Installation Supplement*.

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
```

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 7/01 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 7/01 operating environment in 32-bit mode.

Enterprise 10000 Systems With Multiple Sun GigaSwift Ethernet Adapter Cards Encounter Problems With `ypbind` (BugID 4453050)

Use of `ypbind` causes performance degradation when an Enterprise 10000 is equipped with multiple Sun GigaSwift Ethernet Adapter network cards and running Solaris 8 4/01 software.

Workaround: Contact your SunSolve representative to obtain the correct `timod` patch ID.

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 7/01 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 7/01 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 4.4 Issues

The following issues apply to the SunVTS™ 4.4 product.

New Features for This Release

The following tests, enhancements, and features have been added to the SunVTS 4.4 release:

New Features

- Delay Time—A new test execution option, to specify a delay between test executions.
- SunVTS kernel log—A new log file that captures kernel/probe error messages.
- `sunpci2test`—A new test for the SunPCI2 embedded PC card.

Enhancements

- Enhanced SunVTS GUI—Displays the last option file loaded.
- SunVTS memory testing—Improved memory tests for complex memory systems on current platforms being tested.
- `mpconstest`—Has new subtests; cons 6 - 17.
- `netlbtest`—Enhancements for supporting new Sun GigabitEthernet™ boards.
- `nettest`–Enhancements for supporting new Sun GigabitEthernet boards.
- `pcsertest`—Has new configurable parameters.
- `vtstty` console window—New scroll bar permits viewing control of console messages.

Refer to the *SunVTS 4.4 User's Guide* and the *SunVTS 4.4 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 4.4 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 4.4 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 4.4 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 4.4 User's Guide*.

Possible Runtime Problems

The `netlbtest` Unconfigures the Network Interface (BugID 4432641)

If `netlbtest` is accidentally run on a configured network interface, the interface becomes unconfigured without warning. The SunVTS CDE GUI will hang if it is running on a remote system through Ethernet, and the system may hang if NFS mount points are affected.

Workaround: You must unplumb and unconfigure the network interface that you plan to test with `netlbtest` before you start testing. Refer to the Ethernet Loopback Test (`netlbtest`) chapter in the *SunVTS 4.4 Test Reference Manual* and to the `ifconfig(1M)` man page for more information.

The `netlbtest` Print_Warning Option Fails (BugID 4432639)

When the `Print_Warning` option is enabled for `netlbtest`, the test fails with the following error:

```
FATAL ce1: "Invalid command argument."
```

Workaround: Do not enable the `Print_Warning` option.

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 a64-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 7/01 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 7/01 documents.

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) 2.1 Update Release Notes

This document deals with Sun Remote System Control (RSC) 2.1 hardware and software issues.

Before Installing Sun Remote System Control Software

You can install RSC 2.1 Update software on:

- A Sun Fire 880 server running the Solaris 8 7/01 operating environment
- A Sun Fire 280R server running the Solaris 8 1/01 operating environment or another Solaris version that supports the RSC 2.1 product
- A Sun Enterprise 250 server running one of the following operating environments:
  - Solaris 2.6

- Solaris 7
- Solaris 8

Additionally, you can install the RSC 2.1 client interface on:

- Any other computer running the Solaris 2.6 operating environment or another Solaris version that supports the RSC 2.1 Update product
- Any computer running one of the following Microsoft Windows operating environments:
  - Windows 95
  - Windows 98
  - Windows NT 4.0

Client computers require Java™ 2 Standard Edition (J2SE) Runtime Environment Version 1.2.2_05a or a subsequent 1.2.x version to run RSC 2.1 Update software. RSC 2.1 Update will not work with J2SE Runtime Environment Version 1.3 or greater.

RSC installation is included in the default installation for this Solaris Supplement CD. RSC server components are installed for a compatible Solaris server only, and the client software is installed 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.

Before upgrading from a previous version of RSC or reinstalling the software, log in to the server as superuser 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.

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

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

RSC General Issues

This section describes issues that affect RSC running on all platforms.

RSC Version Reported in GUI (BugID 44600467)

The RSC 2.1 Update software contains bug fixes for the RSC firmware and for the Windows GUI. To indicate that these bug fixes are present, the version numbers displayed in the GUI for these two components reflect the update revision differences. For the Solaris operating environment, the RSC GUI displays Version 2.1.0 and Firmware Version 2.1.1; for the Windows operating environment, the RSC GUI displays Version 2.1.1 for both components.

If Point-to-Point Protocol Is Enabled, Users Cannot Log In to RSC By Dialing In to the Modem (BugID 4379153)

By default, the RSC setting “Enable PPP” in the graphical user interface is off, and the setting for the configuration variable `ppp_enabled` is false. This setting allows dial-in to the RSC modem using PPP. However, if PPP is enabled, dial-in users who connect to the modem cannot log in to RSC. RSC expects to execute PPP handshaking activity with the user’s system. Since this activity does not happen, the login prompt displays garbage characters and RSC cannot interpret the characters the user types. This restriction is noted in the *Sun Remote System Control (RSC) 2.0 User’s Guide*.

RSC Console Sometimes Exits Unexpectedly (BugID 4388506)

The RSC console window sometimes exits when processing large amounts of text data, for instance when executing the `ls -R` command for a large file structure. This is an intermittent problem. The workaround is to open another console window.

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

This section describes issues that affect RSC running on Sun Fire 280R and Sun Fire 880 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 the** *Sun Fire 280R Server Service Manual* **or** *Sun Fire 880 Server 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.*

Soft Reset With `xir` Does Not Work Correctly (BugID 43611396, 4455754)

The `xir` command does not bring the server to the `ok` prompt as expected. Do not use the `xir` command.

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.

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)

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.

Disregard the error if RSC reports it and if the system boots successfully to the Solaris operating environment. In most case,s the erroneous fault does not reappear. You can verify the disk after the boot process by using the `fsck` utility.

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

If a hard drive 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 hard 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.*

RSC Command `rscadm resetrsc` Fails (BugID 4374090)

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 now functions correctly.

Remote Modem Settings Must Match RSC Modem Settings (BugID 4379153)

When connecting to the RSC card using a remote modem, the remote modem's parameters (baud rate and parity / stop / data bits) should match the settings on the RSC modem. The RSC modem is always set to 9600 baud; the other parameters may

be found by checking the RSC modem settings for Parity, Stop Bits, and Data Bits. If the settings do not match, the connection may not succeed, or garbage characters may be displayed.

If the remote modem is set to use a baud rate higher than 9600 baud, the connection actually uses 9600 baud.

RSC Issue for Sun Fire 880 Servers Only

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

Incorrect Front Panel LED Color Displayed (BugID 4401720)

The RSC graphical user interface displays an orange-red light when monitoring a Sun Fire 880 server that has a fault condition. The actual server front panel LED color is yellow in this case.

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.

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.

RSC Reports Fan Failures Erroneously (BugID 4171929)

RSC often reports a fan failure when the server experiences a thermal shutdown. A "`System Fan Failure`" event is logged, the graphical user interface (GUI) reports status red "`Error - 1 Sun Enterprise 250 fan tray`," and the `environment` command reports a failure. The fan failed status is kept (still reported by the GUI and command-line interface) until the host resets and reaches the `ok` prompt.

These are not actual fan failures. The fan status should be treated as it is for the power supplies when a shutdown occurs; they are "OFF" and do not show an error condition.

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.

Heavy Use of `tcsh` Shell Commands in the RSC Console May Cause Problems (BugID 4168266)

Heavy use of UNIX® `tcsh` shell commands in an RSC console session may stop RSC from responding to requests. Killing the `tcsh` shell restores RSC to normal behavior.

Error With `loghistory` Command (BugID 4167862)

The `loghistory` command reports an error when the value of `index -n` that you specify is greater than the number of lines in the buffer.

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 SPARCstorage™ Array 100s or SPARCstorage Array 200s.

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.

CHAPTER 4

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 Alternate Pathing 2.3.1 Collection AnswerBook2.

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 7/01 *Release Notes Supplement for Sun Hardware* (available in printed form in your Solaris 8 7/01 Media Kit)
- *Solaris 8 7/01 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 7/01 Sun Hardware Platform Guide*.

2. Commit any uncommitted AP metadevices (see Step 1 in "To Upgrade AP" in the *Solaris 8 7/01 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 7/01 Sun Hardware Platform Guide*.

5. Upgrade to Solaris 8 using “Upgrade the Solaris operating environment (if applicable) now.” in the *Solaris 8 7/01 Sun Hardware Platform Guide*.

6. Upgrade to AP 2.3.1 using instructions in the *Solaris 8 7/01 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_begin`, `ap_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:

- SPARCstorage Arrays recognized by AP using the `pln(soc)` controllers
- Sun StorEdge A5000 recognized by AP using `sf(socal)` or fp(`usoc`) controllers
- Sun StorEdge T3 recognized by AP using `sf(socal)` or fp(`usoc`) controllers
- Sun Enterprise E3500 internal drives recognized by using `sf(socal)` or fp(`usoc`) 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 / usoc*	SSA, A5000
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 / usoc†	SSA, A5000, T3§
	8	X	X	X	X				X		pln / soc, sf / socal, fp / usoc	SSA, A5000, T3§
2.3.1	8	X	X	X	X				X		pln / soc, sf / socal, fp / usoc	SSA, A5000, T3
* - fp / usoc 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 / usoc support rquires Solaris 7 11 / 99 or Solaris 8.												
§ - AP 2.3 has not been optimized for 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)

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 (usoc/fp) Issues

A SENA device which uses the usoc/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 usoc/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 usoc/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, filesystems available from the new alternately-pathed controllers may not be accessible. If those filesystems 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

4361968 - Panic while switching unplumbed metanetwork.

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.

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

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

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

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

4347014 - Multiple "`.probe`" execution causes LUNs on UNIX host to fail with ENODEV.

4347016 - ENXIO from T3 ONLINE Master immediately after `.probe` initiated ctlr failure.

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`.

CHAPTER 5

Sun Enterprise 6*x*00, 5*x*00, 4*x*00, and 3*x*00 Systems Open Issues

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 7/01 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 7/01 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 7/01 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 41.

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* manual 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 45 and "DR: Cannot Unconfigure a CPU/Memory Board That Has Interleaved Memory (BugID 4210234)" on page 45.

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 45.

`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  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  0  198  137  214  0  3 97
 0 0 0 413864 111056  0   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 45 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
```

CHAPTER 6

Sun Enterprise 10000 Release Notes

This chapter contains the release notes for the dynamic reconfiguration (DR) feature, the InterDomain Networks (IDNs) feature, and the Solaris operating environment on the Sun Enterprise 10000 server.

Dynamic Reconfiguration

Release notes and other technical information in this section apply only to the Solaris 8 7/01 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-max-mem` Variable

The way `dr-max-mem` is used has changed since the Solaris 2.5.1 release. Refer to the appropriate section of the Solaris 8 7/01 version of the *Sun Enterprise 10000 Dynamic Reconfiguration User Guide* for a detailed description of this important OBP variable.

DR and Bound User Processes

For Solaris 8 7/01, 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.

Nonpageable Memory Location

For Solaris 8 7/01, the location of nonpageable memory (that is, OBP and kernel memory), resides in the highest physical address space, which generally is on the highest-numbered system board in the domain. The direction of growth of this area is from highest to lowest physical addresses. Exceptions to this rule do exist. Always use `drshow`(1M) to verify a board's memory state.

Some customers require that the kernel cage is located on the lowest numbered system board. If you have this requirement, you can apply Patch 105873-08, as a minimum level, on the SSP to change the location of the cage. Refer to the patch README file for instructions on how to install the patch. You can obtain the patch from `http://sunsolve.corp.sun.com` or from your local service provider.

DR and SunFDDI

If your Sun Enterprise 10000 server hosts any SunFDDI SBus Adapter 5.0 interfaces and if you plan to use DR, you must install Sun Patch 104572-05, or the highest revision level available. You can obtain the patch from `http://sunsolve.corp.sun.com` or from your local service provider.

DR and the Sun StorEdge A3000

Dynamic reconfiguration of Sun StorEdge A3000 arrays on the Sun Enterprise 10000 server running the Solaris 8 operating environment requires RAID Manager 6.22, or the latest version, for correct operation. Refer to the *Sun StorEdge A3000 Release Notes* (PN 805-7758-10) for more information.

The presence of the Sun StorEdge A3000 daemon (`rdaemon`) prevents a DR detach operation from completing if the operating environment must be quiesced (that is, suspended and resumed).

Workaround: Temporarily disable the Sun StorEdge A3000 daemon before a DR operation, then restart the daemon after the DR operation by using the following command:

```
# sh /etc/rc2.d/890amon stop
# sh /etc/rc2.d/890amon start
```

DR and the Sun StorEdge A5000

DR is supported on systems configured with Sun StorEdge A5000 devices and the latest Sun StorEdge A5000 patch. Contact your service provider for more information on how to obtain the patch.

For I/O boards connected to the Sun StorEdge A5000, you must ensure that the FC-AL disk firmware version is ST19171FC 0413 or newer. For more information, refer to the following Web site:

`http://sunsolve2.Sun.COM/sunsolve/Enterprise-dr/`

DR and `pln` and `soc` Drivers

If you are using `pln` and/or `soc` drivers on your server, you must ensure that the parameters are properly set in the `/etc/system` file. The file should include the following two entries, exactly as they appear in the example.

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

Solaris Operating Environment

This section contains general issues, known bugs, patches, and notes about the Solaris 8 7/01 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 7/01 release.

Note – Before you begin the fresh install or upgrade procedures, you must install SSP 3.4. SSP 3.0 and SSP 3.1.1 do not support the Solaris 8 7/01 operating environment on a Sun Enterprise 10000 domain.

Caution – Do not use the Solaris 8 7/01 Installation CD. This CD is not used for installations on the Sun Enterprise 10000 server.

Solaris 8 7/01 and Boot-Disk Partition Sizes

If you are upgrading the operating environment from Solaris 2.6 to Solaris 8 7/01 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.

Solaris 8 7/01 and Driver Variables

For Solaris 8 7/01, you must enable the `soc` and `pln` drivers in `/etc/system` before you attempt to detach a system board that hosts these drivers. Use the following syntax to enable the drivers:

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

SunATM 4.0 Update 1

SunATM 4.0 Update 1 is not supported on the Sun Enterprise 10000 server.

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
```