



Solaris 10 Release Notes

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Part No: 817-0552-12
January 2005

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Contents

Preface	13
1 Installation Issues	17
General Information	17
Single UNIX Specification, Version 3 Introduces Changes	17
Support for TCP Wrappers is Enabled in <code>sendmail</code>	19
x86: Change to Solaris <code>fdisk</code> Identifier	19
x86: Application Memory-Allocation Limits on x86 Systems	19
x86: Solaris Supports the <code>no execute</code> Bit	20
Preinstallation Issues and Bugs	21
Support for Products Not Part of the Solaris OS	21
Upgrading From Solaris Express or Solaris 10 Beta Releases Not Supported	22
Some Executable Files Not Signed After You Upgrade to Solaris 10 OS	22
Sun Fire V250 Server Installation	22
NFS Version 4 Introduces New Prompt at First System Boot	22
x86: Systems With <code>e1x</code> or <code>pcelx</code> NICs Fail Network Configuration	23
Default Size of <code>/var</code> File System Inadequate for Extra Value Products	24
x86: Do Not Upgrade Hewlett-Packard (HP) Vectra XU Series Systems With BIOS Version GG.06.13	25
SPARC: Older Firmware Might Need Boot Flash PROM Update	25
Additional Patches Are Needed to Run Solaris Live Upgrade	26
Limitation When Installing Solaris Live Upgrade Packages	26
Cannot Access Storage Area Networks Through <code>SUNwsan</code> With Solaris 10 Software	27
Solaris Management Console 2.1 Software Is Not Compatible With Solaris Management Console 1.0, 1.0.1, or 1.0.2 Software	27
Installation Fails When You Install Solaris Flash Archive on Empty Boot	

Environment With Solaris Live Upgrade (6222925)	29
Solaris GUI Installation Program Fails If You Configure Nonprimary Interface and Enable DHCP (6215739)	31
x86: Sun Java Workstations 2100Z Might Panic When Booting From Solaris 10 Operating System DVD (6214356)	31
x86: Solaris Installation GUI Might Fail When You Install Solaris Flash Archive (6208656)	33
x86: Serial Consoles of Some Sun Fire Systems Do Not Work (6208412)	34
Solaris Installation GUI Program Might Fail on Systems With Existing x86 fdisk Boot Partitions (6186606)	34
x86: Only Part of the Disk Is Usable by fdisk or format Commands (5042195)	35
x86: X Server Unable to Open Mouse Device in Sun LX50 Servers (5027771)	36
Cannot Access Data on Solaris 10 Operating System DVD When Running Solaris 7 Software (4511090)	36
Installation Bugs	37
Java Error Messages Are Displayed After a Solaris 10 OS Installation (6218158)	37
Solaris 10 Installation Disc Ejects When You Install the Solaris Flash Archive (6215847)	37
x86: kdmconfig Program Runs Twice After Initial Installation (6209092)	39
x86: System Fails to Boot After Custom JumpStart Installation (6205478)	39
Installation Logs Might Be Incomplete or Inaccurate (5087588)	39
x86: GUI Interactive Installation From DVD Fails if boot-device Variable Is Not Set (5065465)	40
SPARC: Solaris 10 OS Installation Program Might Not Display Special Case Panels Properly (5002175)	40
x86: USB Keyboards Might Freeze During Install on Some Dell Precision Workstations (4888849)	41
/dev and /devices/pseudo Permissions Set Incorrectly After Installation (4720192, 6215918)	41
SPARC: Error Messages Might Be Seen When Installing Solaris By Using a Network Image (4704046)	43
SPARC: Systems With Multiple Interfaces Recognize All Interfaces as Usable After Installation or Upgrade (4640568)	43
Warnings Might Occur When a File System Is Created (4189127)	44
Upgrade Issues and Bugs	44
Device ID Discrepancies After Upgrading From Solaris 9 9/04 OS	45
SPARC: Upgrading From Solaris 9 Releases With Recommended Patch Cluster Partially Succeeds (6202868)	45
Obsolete Uninstallers Not Removed When You Use Solaris Live Upgrade to	

Upgrade From Previous Solaris Releases (6198380)	46
Configuration File <code>pam.conf</code> Not Automatically Updated After an Upgrade (5060721)	47
Solstice DiskSuite Configurations Not Converted to Solaris Volume Manager Format When You Upgrade With Solaris Live Upgrade (4915974)	48
Invalid Error Messages Are Displayed When You Use Solaris Live Upgrade to Upgrade From the Solaris 7 Release (4872151)	49
Installer Text Display Problem When Using Solaris Live Upgrade (4736488)	49
SPARC: Removal of <code>SUNWjxcft</code> Package Records Error During Upgrade (4525236)	50
Upgrading to Solaris 10 Release Might Disable Existing Secure Shell Daemon (<code>sshd</code>) (4626093)	50
Upgrade Fails if <code>/export</code> Directory Is Near Capacity (4409601)	51
Upgrading Diskless Client Servers and Clients (4363078)	51
Additional Installation Issues	52
StarOffice and StarSuite Software Cannot Coexist in the Same System	52
Cannot Install Documentation Packages With Names Longer Than Nine Characters on Documentation Servers Running Solaris 7 or Solaris 8 Software	53
Additional Related Locales Might Be Installed	53
Languages CD Installs All Languages By Default With Solaris Live Upgrade (4898832)	53
2 Solaris Runtime Issues	55
Common Desktop Environment	55
x86: Support for Intel Integrated i810 and i815 Graphics Chipsets	55
Arabic Text Not Appearing in <code>ar</code> Locales	56
Compose Key Sequences Might Not Work When You Use X Keyboard Extension in Some Locales (6219932)	56
x86: <code>kdmconfig</code> Command Does Not Create System Identification Configuration File for Xorg X Server (6217442)	57
x86: <code>kdmconfig</code> Instructions to Configure Xorg X Server Are Incomplete (6205881)	57
x86: Program That Configures Keyboard, Display, and Mouse Not Working for X Server (6178669)	58
SPARC: Some UTF-8 Locales Are Unavailable in the Common Desktop Environment Login Service (5042573)	59
CDE Removable Media Auto Run Capability Removed (4634260)	60
Solaris PDASync Cannot Delete Last Entry From the Desktop (4260435)	60
Solaris PDASync Does Not Support Data Exchange With the Multibyte Internationalized PDA Device (4263814)	60

Documentation DVD	61
SUNWsdocs Package Needed to Remove Other Documentation Packages	61
European Locale PDF Documents Available Only Through C Locale (4674475)	61
File Systems	62
Upgrading From Some Solaris Express or Solaris 10 Releases Requires Remounting of File Systems	62
NFSv4 Access Control List Functions Might Work Incorrectly	62
Access Problems Between Solaris NFSv4 Clients and NFSv4 Servers	63
System Crash Dump Fails on Devices Greater Than 1 TByte (6214480)	63
Using smoservice Command to Add OS Services Results in Insufficient Disk Space Message (5073840)	64
Hardware-Related Issue and Bugs	64
SPARC: Sun Crypto Accelerator 4000 Board Versions 1.0 and 1.1 Not Supported in Solaris 10 OS	64
Certain USB 2.0 Controllers Are Disabled	64
Supported USB Devices and Corresponding Hub Configurations	65
x86: Limitations Exist With Certain Device Drivers in Solaris 10 OS	65
DVD-ROM/CD-ROM Drives on Headless Systems	66
x86: Manual Configuration Required to Specify Non-US English Keyboards	66
SPARC: jfca Driver for Certain Host Bus Adapters That Are Connected to Tape Devices Might Cause Errors (6210240)	67
Using USB 2.0 Hubs With USB 1.x Devices Might Cause System Panic (6209619)	68
x86: EHCI Driver Unusable in Certain Motherboards (6204987)	68
Using FireWire-1394 Storage Devices Might Cause System Panic (6203680)	69
Pausing USB Audio Devices During Play or Record Operation Might Cause System Deadlock (6200924)	69
Contention Exists Between Certain Devices That Share the Same Bus (6196994)	70
Some Keyboard Keys Not Functioning With Num Lock Key On (6173972)	70
SPARC: GigaSwift Fast and Gigabit Ethernet Devices With Revision IDs Lower Than 32 Might Cause System Panic (5090222)	71
nat_getkpfnum() DDI Function Is Obsolete (5046984)	71
Some Systems With USB 2.0 Hardware Might Hang or Panic (5030842)	72
x86: Using Two Adaptec SCSI Card 39320D Cards on a Sun Fire V65x Server Might Cause the System to Panic (5001908)	74
x86: Soft System-Shutdown is Not Supported in Solaris OS on x86 (4873161)	74
Some DVD and CD-ROM Drives Fail to Boot Solaris (4397457)	75
iPlanet Directory Server 5.1 Issues	75

Installing Directory Server 5.1	75
Migrating to the Sun Java System Directory Server 5 2005Q1	76
Issues While Running Debugger	77
SPARC: Systems With Active Kernel Debugger Might Panic During Suspend/Resume Cycles (5062018)	77
System Might Loop When Master CPU Is Changed (4405263)	78
Localization Issues	78
Login Screen Marks UTF-8 Locales as Recommended	79
Hardware for Estonian Keyboard Type 6, French Canadian Keyboard Type 6, and Polish Programmers Keyboard Type 5 Not Available	79
x86: Login Process Might Hang in Certain Asian Non-UTF-8 Locales (6215527)	80
localeadm -l Does Not List Installed Korean Locale Packages (6189823)	81
Sort Capability in the European UTF-8 Locales Does Not Function Correctly (4307314)	81
Networking Issues	82
SPARC: RTM_IFINFO Message Has Different Sizes on 32-bit and 64-bit Compilations	82
IP Forwarding Disabled by Default in Solaris 10 OS	82
Zone Not Booting When IP Address Belongs to a Failed IP Network Multipathing Group (6184000)	82
ATM LANE Subnets for IPv4/IPv6 Might Not Complete Initialization (4625849)	83
Configuring Multiple Tunnels Between Two IP Nodes With Filtering Enabled Might Result in Packet Loss (4152864)	83
Security Issues	84
Nonpassword Logins Fail With pam_ldap Enabled	84
New Versions of encrypt () and decrypt () Are Not Backward Compatible	84
Incorrect Parameters Might Cause Panic in Sun StorEdge T3 (4319812)	84
Service Management Facility	85
svccfg import Subcommand Does Not Refresh Dependent Services (6221374)	85
Print Services Have Offline Settings by Default (5100134)	85
keyserv Daemon Disables Some File System Services (5084183)	86
Login Prompts Sometimes Appear Before File Systems Are Mounted (5082164)	86
Smart Card	86
System Does Not Respond to Smart Card (4415094)	86
Edit Config File Menu Item in Smartcards Management Console Does Not Work (4447632)	87

Solaris Commands and Standards	87
Bash 2.0.5b No Longer Sets Some Environment Variables	87
New <code>ln</code> Utility Requires <code>-f</code> Option	88
New <code>tcsh</code> Rejects <code>setenv</code> Variable Names That Use a Dash or an Equals Sign	88
STDIO <code>getc</code> Family EOF Condition Behavior Change	88
Output Columns of the <code>ps</code> Command Have Been Widened	89
Command <code>ping -v</code> Does Not Work on IPv6 Addresses (4984993)	89
Solaris Volume Manager	90
Solaris Volume Manager <code>metattach</code> Command Might Fail	90
Solaris Volume Manager <code>metassist</code> Command Fails in Non-English Locales (5067097)	90
Volume Creation Fails in Systems With Unformatted Disks (5064066)	91
Hot Spares Do Not Work Correctly When Solaris Volume Manager RAID-1 (Mirror) or RAID-5 Volumes Are Created in Disk Sets Built on Soft Partitions (4981358)	91
Solaris Volume Manager <code>metadevadm</code> Command Fails if Logical Device Name No Longer Exists (4645721)	92
Solaris Volume Manager <code>metarecover</code> Command Fails to Update <code>metadb</code> Namespace (4645776)	92
System Administration	93
Sun Patch Manager Tool 2.0 Not Compatible With Previous Versions	93
Sun Remote Services Net Connect Supported Only in the Global Zone	93
Error or Warning Messages Might Be Displayed While Installing Non-global Zones With the <code>zoneadm</code> Command	94
Solaris Product Registry Administration Utility Fails to Launch in a Zone (6220284)	95
<code>patchadd</code> Fails to Reapply Patches to Newly Installed Packages (6219176)	95
Non-Global Zones Created After Patching Global Zones Are Not Accessible by Remote Login Services (6216195)	96
Cannot Delete Existing Diskless Clients From the System (6205746)	97
Net Connect 3.1.1 Installation Fails (6197548)	97
x86: Default C Library Might Cause Boot Failure When You Install Solaris Flash Archives (6192995)	98
SPARC: <code>smosservice delete</code> Command Does Not Successfully Remove All Directories (6192105)	98
<code>patchadd</code> Command Does Not Support Installing Patches From an NFS Server (6188748)	99
<code>lucreate</code> Command Does Not Create RAID-1 Volumes (5106987)	100
SPARC: Panics That Occur During Suspend and Resume Cycles Might Cause the System to Hang (5062026)	100

	SPARC: Stopping the System by Using Keyboard Sequences Might Cause a System Panic (5061679)	100
	Using the <code>ipfs</code> Command With <code>-w</code> Option Fails (5040248)	101
	Permissions for Mount Points Not Preserved in Created Boot Environment (4992478)	101
	<code>kill -HUP</code> Does Not Always Cause the Agent to Reread the <code>snmpd.conf</code> Configuration File (4988483)	102
	Installation of Locales Fails if Solaris Installation CDs Are Used (4967742)	102
	x86: Pressing the F4 Key During BIOS Bootup Fails to Boot the Service Partition (4782757, 5051157)	103
	Solaris WBEM Services 2.5 Daemon Cannot Locate <code>com.sun</code> Application Programming Interface Providers (4619576)	103
	Some <code>com.sun</code> Application Programming Interface Method Invocations Fail Under XML/HTTP Transport Protocol (4497393, 4497399, 4497406, 4497411)	104
	Cannot Modify File-System Mount Properties With Solaris Management Console Mounts and Shares Tool (4466829)	104
3	System-Specific Issues	107
	Dynamic Reconfiguration on Sun Fire High-End Systems	107
	Known Software and Hardware Bugs	108
	Dynamic Reconfiguration on Sun Fire Midrange Systems	109
	Minimum System Controller Firmware	110
	System Board Classes	110
	Sun Management Center	111
	Known DR Limitations	111
	Known DR Software Bugs	113
	Sun Enterprise 10000 Release Notes	114
	System Service Processor Requirement	114
	Dynamic Reconfiguration Issues	115
	InterDomain Networks	116
	OpenBoot PROM Variables	116
	Dynamic Reconfiguration on Sun Enterprise Midrange Systems	117
	Supported Hardware	117
	Software Notes	117
	Known Bugs	119
4	End-of-Software Support Statements	123
	Features Removed From the Solaris 10 Operating System	123
	<code>device_driver</code> Path-Name Support in <code>add_drv</code> System Command	123

- admintool Command [124](#)
- asystem() and system() Interfaces [124](#)
- BIND Version 8 DNS Server and Tools [124](#)
- x86: Common Object File Format (COFF) [124](#)
- Obsolete Device Driver Interfaces [124](#)
- Euro Character Input Sequences That Are Alt Key-Based and Meta Key-Based [125](#)
- Federated Naming Service XFN Libraries and Commands [126](#)
- Generic LAN Driver Version 0 Interfaces [126](#)
- GMT Zoneinfo Time Zones [127](#)
- x86: Mixed EISA Devices and Drivers [127](#)
- JRE 1.2.2 [128](#)
- Kodak Color Management System [128](#)
- SPARC: Lance Ethernet Drivers [128](#)
- Lightweight Directory Access Protocol (LDAP) Client Library [128](#)
- Obsolete Lightweight Process (LWP) Interfaces [129](#)
- Nameless Interface Groups Feature [129](#)
- Netscape Software [129](#)
- netstat -k Option [129](#)
- x86: Network Devices [129](#)
- Non-POSIX Thread Behavior of the fork() Function [130](#)
- pam_unix Module [130](#)
- PC File Viewer [130](#)
- Perl Version 5.005_03 [130](#)
- ptrace Interface In libc [131](#)
- Power Management I/O Control Commands [131](#)
- sendmailvars and the L and G sendmail.cf commands [131](#)
- ShowMe TV [131](#)
- SPARC: 64-bit Packages [132](#)
- sdtjplay Desktop Java Media Player [133](#)
- Solaris Static System Libraries [133](#)
- Solaris Volume Manager Transactional Volume [133](#)
- stc (7d) for Serial Parallel Controller on S-bus [133](#)
- Storage Interfaces [134](#)
- sun4m Hardware [134](#)
- SunFDDI and SunHSI/S Drivers [134](#)
- Sun StorEdge A1000, Sun StorEdge A3000, Sun StorEdge A3500, and Sun StorEdge A3500FC Systems [135](#)
- Tape Devices [135](#)

Token Ring Network Drivers	135
SPARC: 32-bit Sun4U Kernel	135
Ultra AX and SPARCengine Ultra AXmp Graphics Card	136
32-bit: X11 Static Libraries	136
xutops Print Filter	136
Features That Might Be Removed in a Future Release	136
Asian Short dtlogin Names	136
Audit Daemon Interfaces	137
Cfront Runtime Support Library	137
Device Allocation Interfaces For the Basic Security Module	137
Obsolete Device Driver Interfaces	137
Device Management Entries in power.conf	139
Device Support and Driver Software	140
Graphic Driver Support	140
Host Files in /etc/net/ti*	140
Kerberos Ticket Lifetime Parameters in krb5.conf	141
Korean CID Fonts	141
Legacy or Traditional Non-UTF-8 Locales	141
Functions in the CPU Performance Counters Library (libcpc)	141
libXinput Library	143
Network Information Service Plus (NIS+) Name Service Type	143
nctest Test Program	143
Perl Version 5.6.1	143
Solaris Management Console Patch Tool (Patch Manager)	144
Solstice Enterprise Agents	144
Standalone Router Discovery	144
Sun Java System Application Server Platform Edition 7.0 (Formerly Sun ONE Application Server 7.0 Platform Edition)	144
Token Ring and Fiber Distributed Data Interface Device Types	145
WBEM-based Dynamic Reconfiguration	145
XIL Interface	145
xetops Utility	146
5 Documentation Issues	147
Documents on the Software Supplement CD	147
System Administration Guide: Basic Administration	147
Managing Diskless Clients (Tasks)	147
Solaris 10 Start Here and Solaris 10 Installation Guides	148

Solaris 10 Installation Guide: Basic Installations	148
Solaris 10 Installation Guide: Network-Based Installations	148
Solaris 10 Installation Guide: Solaris Live Upgrade and Upgrade Planning	148
Solaris 10 Installation Guide: Custom JumpStart and Advanced Installations	149
Solaris 10 Start Here	149
Solaris 10 Documentation and Man Pages	149

A Solaris 10 Operating System Patch List	151
SPARC Patch List	151
x86 Patch List	153

Preface

The *Solaris 10 Release Notes* contain installation and runtime problem details. Also included are end-of-software support statements for the Solaris™ 10 Operating System.

Note – This Solaris release supports systems that use the SPARC® and x86 families of processor architectures: UltraSPARC®, SPARC64, AMD64, Pentium, and Xeon EM64T. The supported systems appear in the *Solaris 10 Hardware Compatibility List* at <http://www.sun.com/bigadmin/hcl>. This document cites any implementation differences between the platform types.

In this document the term “x86” refers to 64-bit and 32-bit systems manufactured using processors compatible with the AMD64 or Intel Xeon/Pentium product families. For supported systems, see the *Solaris 10 Hardware Compatibility List*.

Who Should Use This Book

These notes are for users and system administrators who install and use the Solaris 10 software.

Related Books

You might need to refer to the following documentation when you install Solaris software:

- *GNOME 2.0 Desktop for the Solaris Operating Environment Release Notes*

- *GNOME 2.0 Desktop for the Solaris Operating Environment Troubleshooting Guide*
- *Solaris 10 Start Here card*
- *Solaris 10 Installation Guide: Basic*
- *Solaris 10 Installation Guide: Network-Based Installations*
- *Solaris 10 Installation Guide: Solaris Live Upgrade and Upgrade Planning*
- *Solaris 10 Installation Guide: Advanced, JumpStart, Solaris Flash Archives and RAID-1 Volumes*
- *Solaris 10 System Administrator Collection*

For information on current CERT advisories, see the official CERT web site at <http://www.cert.org>.

For some hardware configurations, you might need supplemental hardware-specific instructions for installing the Solaris software. If your system requires hardware-specific actions at certain points, the manufacturer of your hardware has provided supplemental Solaris installation documentation. Refer to those materials, such as *Solaris Sun Hardware Platform Guide*, for hardware-specific installation instructions.

Third-Party Web Site References

Third-party URLs are referenced in this document and provide additional, related information.

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Typographic Conventions

The following table describes the typographic changes that are used in this book.

TABLE P-1 Typographic Conventions

Typeface or Symbol	Meaning	Example
AaBbCc123	The names of commands, files, and directories, and onscreen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name% you have mail.</code>
AaBbCc123	What you type, contrasted with onscreen computer output	<code>machine_name% su</code> <code>Password:</code>
<i>AaBbCc123</i>	Command-line placeholder: replace with a real name or value	The command to remove a file is <code>rm filename</code> .
<i>AaBbCc123</i>	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . Perform a <i>patch analysis</i> . Do <i>not</i> save the file. [Note that some emphasized items appear bold online.]

Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

TABLE P-2 Shell Prompts

Shell	Prompt
C shell prompt	machine_name%
C shell superuser prompt	machine_name#
Bourne shell and Korn shell prompt	\$
Bourne shell and Korn shell superuser prompt	#

Installation Issues

This chapter describes problems that relate to the installation of the Solaris 10 Operating System.

General Information

This section provides general information such as behavior changes in Solaris 10 OS.

Single UNIX Specification, Version 3 Introduces Changes

The Single UNIX[®] Specification, Version 3 (SUSv3) provides updates to the following POSIX operating system interfaces:

- POSIX.1-1990
- POSIX.1b-1993
- POSIX.1c-1996
- POSIX.2-1992
- POSIX.2a-1992

The updates include the following changes:

ENV Variable in Korn Shell

The environment variable `ENV` is no longer expanded in a noninteractive Korn shell. This change applies to both `/bin/ksh` and `/usr/xpg4/bin/sh`.

Compilers and SUSv3 Applications

Applications that conform to SUSv3 and other standards should be built by using correct feature test macros, compilers, and options. See the `standards(5)` man page.

file Command

When used with the `-m` option, the `file` command performs signed comparisons on user-defined magic files. Additionally, in the x86 environment, the command no longer switches multibyte integers to big-endian (SPARC) order before comparing the magic values. See the `file(1)` and `magic(4)` man pages.

Print Functions

`snprintf()` and `vsprintf()` now return the number of bytes that would be formatted when the input value `n=0`. See the `snprintf(3C)` and `vsprintf(3C)` man pages.

Text Editor

The editor checks for additional conditions before reading the `.exrc` files in `$HOME` or the current directory at startup. See the `ex(1)` and `vi(1)` man pages.

64-bit SPARC: Time Functions

If the input `time_t` is too large to be represented in a `tm` struct, the following functions return a null pointer and set `errno` to `E_OVERFLOW`:

- `gmtime()`
- `gmtime_r()`
- `localtime()`
- `localtime_r()`

See the `gmtime(3C)`, `gmtime_r(3C)`, `localtime(3C)`, and `localtime_r(3C)` man pages.

Trailing Slashes

SUSv3 allows a trailing slash character (`/`) in a path name only if the path specifies an existing directory or a directory to be created.

Utilities in `/usr/xpg6/bin` and `/usr/xpg4/bin`

Utilities in `/usr/xpg6/bin` and `/usr/xpg4/bin` have SUSv3-conforming or XPG4-conforming behavior that conflicts with default Solaris behavior. `PATH` must be properly configured for a user to use a command-line environment that conforms to SUSv3. See the man page for the specific utility for more information.

Support for TCP Wrappers is Enabled in `sendmail`

The utility `sendmail` has been added to the list of services that support TCP wrappers. The utility's added capability might cause `sendmail` to reject connections in Solaris 10 systems that were previously configured with very restrictive services. Use the daemon name `sendmail` to enable use of TCP wrappers. For information about TCP wrapper support, see "sendmail Version 8.12 Uses TCP Wrappers" in *Solaris 10 What's New*. For information about configuring TCP wrappers, refer to the `tcpd(1M)` and `hosts_access(4)` man pages packaged in `SUNWt.cpd`.

x86: Change to Solaris `fdisk` Identifier

In the Solaris 10 release, the Solaris `fdisk` identifier is set to `0xbf` to facilitate the configuration of multiboot environments that include the Linux operating system. In previous Solaris releases, the Solaris `fdisk` identifier was set to `0x82`, the same identifier as the Linux swap partition. The change to the identifier enables you to install the Solaris 10 OS and the Linux operating system without having to modify the Linux swap partition or reinstall the Linux OS.

The Solaris OS continues to recognize and support Solaris `fdisk` with the `0x82` identifier. You can use the `fdisk` command to switch between the `0x82` identifier and the `0xbf` identifier. If you are using Solaris Live Upgrade and need to use the `0x82` identifier, the `luactivate` command enables you to switch the `0xbf` identifier to the `0x82` identifier.

For more information, see the `fdisk(1M)` man page.

x86: Application Memory-Allocation Limits on x86 Systems

Solaris applications allocate memory by using functions like `malloc()`, `brk()`, or `mmap()`. The maximum amount of memory an application can allocate is bounded by the size of the user virtual address space. Program text, stack, data, and libraries that are contained within the user virtual address space can further reduce the maximum memory-allocation size.

32-bit Computing Environment

In a 32-bit computing environment, the 32-bit virtual address space is shared between user and kernel. Consequently, the size of the user virtual address space is 4 Gbytes minus the size of the kernel virtual address space. The configuration of the size of the kernel virtual address space depends on the size of physical memory. As the size of physical memory increases, the size of the user address space decreases. For systems with 8 Gbytes of memory, the size of the user address space is approximately 3 Gbytes.

If the memory allocation limits are insufficient for an application, two options exist:

- Reduce the default size of the kernel virtual address space to increase the size of the user virtual address space. You can set the `kernelbase` variable to a higher value by using the `eeeprom` command. Exercise caution when changing `kernelbase`. Otherwise, a system with a smaller kernel virtual address space might hang or might not run as efficiently.
- As a better alternative, run the application in the Solaris x86 64-bit computing environment.

64-bit Computing Environment

In the 64-bit computing environment, the virtual address space for 32-bit applications is entirely for the user. Therefore, a 32-bit application can allocate the full 4 Gbytes minus the user address space that is needed for text, stack, and libraries.

On some early 64-bit AMD processors, the memory allocation limit can be further reduced by 1 Gbyte. To determine whether your processor is affected, perform the following steps:

1. Run the command `psmap $$` from any 32-bit shell.
2. On the process map, check if addresses greater than or equal to `0xC0000000` are listed. If these addresses do not exist, then the Solaris OS has limited 32-bit applications to the lowest 3 Gbytes of the 4-Gbyte virtual address range.

A 64-bit application can allocate 250 Tbytes of memory depending on what the application already has in use.

x86: Solaris Supports the no execute Bit

Solaris 10 on x86 supports the no execute (NX) bit in 32-bit and 64-bit modes. The NX bit enables fully implementing the protections that are implied by not using `PROT_EXEC` in various memory system calls such as the `mmap()` function. Previously on x86, all mapped memory implicitly had `PROT_EXEC` set. With Solaris support for the NX bit, virus protection is enhanced.

On NX-capable hardware, Solaris OS uses the NX bit by default whenever `PROT_EXEC` is not specified. Stack segments, however, use `PROT_EXEC` by default, not the NX bit. The default setting for stack segments can be changed by performing one of the following:

- Set `no_exec_userstack` in `/etc/system` to globally set no exec on all applications stacks.
- Link an individual application with the `/usr/lib/ld/map.noexstk` map file.

The system administrator can disable all use of the NX bit by using the `eeeprom` command to set `enforce-prot-exec` to “off”. This variable is provided as a transition workaround for any system with legacy applications that are missing `PROT_EXEC`.

Preinstallation Issues and Bugs

This section contains critical installation issues that you need to be aware of before installing or upgrading to Solaris 10 OS. These issues might have an impact that would prevent installation or upgrades from completing successfully. If bugs in this section apply to your system, you might need to perform the recommended workarounds before you install or upgrade.

Support for Products Not Part of the Solaris OS

Although the Solaris 10 software has been tested for compatibility with previous releases, some third-party applications might not be fully ABI compliant. Contact the supplier of these applications directly for information about compatibility.

Your system might run both a Solaris OS and other products that are not part of the Solaris software. These products might be supplied by either Sun or another company. If you upgrade this system to the Solaris 10 release, make sure that these other products are also supported on the Solaris 10 OS. Depending on the status of each of these products, you can perform one of the following options:

- Verify that the existing version of the product is supported on the Solaris 10 software.
- Install a new version of the product that is supported on the Solaris 10 release. You might need to remove the previous version of the product prior to upgrading to the Solaris software. See the product documentation for more details.
- Remove the product prior to upgrading to the Solaris 10 software.

Upgrading From Solaris Express or Solaris 10 Beta Releases Not Supported

Upgrading to Solaris 10 OS is supported only if you are upgrading from one of these releases:

- Solaris 9 9/04
- Solaris 8 2/04 (SPARC Platform Edition)
- Solaris 8 2/02 (Intel Platform Edition)
- Solaris 7 11/99

Upgrading from any Solaris Express or Solaris 10 Beta release, whether by using standard upgrade or Live Upgrade, is not supported. To upgrade from these releases, you must install Solaris 10 OS.

Some Executable Files Not Signed After You Upgrade to Solaris 10 OS

Most executable files in Solaris 10 contain digital signatures that can be used to verify the files' authenticity. See "Signing ELF Objects" in *Solaris 10 What's New* for information about this feature.

During an upgrade from a Solaris Express or Solaris 10 Beta release, some files might not be replaced with digitally signed versions. The missing signatures have no effect on the ability to run the programs, but the authenticity of the files cannot be verified. To prevent this problem, perform a full installation of Solaris 10 OS instead of an upgrade. See ["Upgrading From Solaris Express or Solaris 10 Beta Releases Not Supported"](#) on page 22.

Sun Fire V250 Server Installation

The SUNWCXa11 software metacluster must be installed on a Sun Fire™ V250 Server.

NFS Version 4 Introduces New Prompt at First System Boot

Solaris 10 OS uses NFS Version 4 (NFSv4) as the default distributed file system mechanism. In NFSv4, file user and group attributes are exchanged as strings of the form "user@domain" and "group@domain," respectively.

The domain portion of the string should be common between client and server. This information is automatically derived from the system's name service domain name. However, in certain cases, the derived domain might not match between client and server. This mismatch might typically occur in environments where either of the following circumstances is true:

- The DNS TXT record is not used.
- Multiple administrative domain boundaries are crossed.

If domain information between client and server does not match, NFSv4-accessed files might appear to be owned by “nobody.”

To ensure proper configuration, on the first system boot the system now prompts you for a domain to use for NFSv4. Answer “no” to this prompt if one of the following configurations describes your deployment:

- Your deployment utilizes the DNS TXT record to configure the NFSv4 domain.
- Your deployment has a single (flat) administrative domain.

Custom JumpStart and Advanced Installations

Environments that use the Custom JumpStart™ method to perform unattended system installations require minimal tuning to suppress the first boot prompts.

A sample script, `set_nfs4_domain`, is provided in the Solaris 10 distribution media and is located in the `${CDrom_mnt_pt}/Solaris_10/Misc/jumpstart_sample` directory. A copy of this script should be modified to set the `NFS4_DOMAIN` variable to site-specific needs and be called from within JumpStart’s finish script. The target system’s NFSv4 domain is therefore preconfigured as part of the JumpStart finish phase, and thus suppresses any first boot prompts.

Follow these steps to perform unattended installations:

1. Create a copy of the `set_nfs4_domain` script in the same directory as your JumpStart’s `finish.sh` scripts.
2. Edit the script and set the `NFS4_DOMAIN` variable to your specific needs.
3. Edit your `finish.sh` script and append a call to `set_nfs4_domain`.
4. Perform the JumpStart installations as usual.

For further details, refer to the `sysidconfig(1M)`, `sysidtool(1M)`, `nfsmapid(1M)`, and `nfs(4)` man pages. See also the *System Administration Guide: Network Services*.

x86: Systems With `elx` or `pcelx` NICs Fail Network Configuration

Systems with an `elx` or a `pcelx` network interface card (NIC) fail to install. During the configuration of the NIC, the following error message might be displayed:

```
WARNING: elx: transmit or jabber underrun: d0<UNDER, INTR, CPLT>
```

See the `elxl(7D)` or `pcelx(7D)` man page for more information.

Workaround: Install and run on systems that do not have `elx` or `pcelx` NICs.

Default Size of `/var` File System Inadequate for Extra Value Products

The default size of the `/var` file system might be insufficient for the Extra Value products in the following situations:

- If you install any of the Extra Value products that are provided on the Solaris 10 DVD or CDs
- If the `/var` file system is located on a separate slice

You must manually specify a larger slice size for the `/var` file system.

Note – If the `/var` file system is not on a separate slice or partition, this problem does not occur.

Workaround: Choose one of the following workarounds.

- If you are using the Solaris installation program GUI, follow these steps.
 1. Begin the installation.
 2. From Select Type of Install, select Custom Install.
The Solaris installation program displays several screens that enable you to customize the software localizations, products, and disk layout that you want to install.
 3. From Lay Out File Systems, select Modify.
The disk layout screen is displayed.
 4. Type `/var` in the File System column for a specific slice, then click Apply.
The installation program suggests a default size for the `/var` file system.
 5. Edit the Size column entry for the `/var` file system to twice the disk space size.
For example, if the installation program assigns 40 Mbytes of space, change the Size value to 80.
 6. Complete the installation.
- If you are using the Solaris installation program's text installer, follow these steps.
 1. Begin the installation.
 2. From Select Type of Install, select Custom Install.
The Solaris installation program displays several screens that enable you to customize the software localizations, products, and disk layout that you want to install.
 3. From Lay Out File Systems, select Auto Layout.
The disk layout screen is displayed.
 4. Type `/var` in the File System column for a specific slice.

The installation program suggests a default size for the `/var` file system.

5. Press `F4_Customize` to customize the size of the `/var` file system.
6. Edit the Size column entry for the `/var` file system to twice the disk space size.
For example, if the installation program assigns 40 Mbytes of space, change the Size value to 80.
7. Complete the installation.

- If you are using the custom JumpStart program, use the `filesys` profile keyword to set the size of the `/var` file system. The following example sets the size of the `/var` file system on slice 5 to 256 Mbytes.

```
filesys c0t0d0s5 256 /var
```

x86: Do Not Upgrade Hewlett-Packard (HP) Vectra XU Series Systems With BIOS Version GG.06.13

The Solaris 10 software includes a feature that enables you to install large partitions. The system BIOS must support logical block addressing (LBA). BIOS Version GG.06.13 does not support LBA access. The Solaris boot programs cannot manage this conflict. This issue can also affect other HP Vectra systems.

If you perform this upgrade, your HP system can no longer boot. Only a blank black screen with a flashing underscore cursor is displayed.

Workaround: Do not upgrade HP Vectra XU Series systems with the latest BIOS Version GG.06.13 to the Solaris 10 release. This version no longer supports these systems.

You can still boot your system by using the boot diskette or boot CD because the boot paths do not use the hard disk code. Then select the hard disk as your bootable device instead of the network or CD-ROM drive.

SPARC: Older Firmware Might Need Boot Flash PROM Update

On SPARC based systems, Solaris 10 OS runs in 64-bit mode only. Some Sun4U™ systems might need to be updated to a higher level of OpenBoot™ firmware in the flash PROM to run the OS in 64-bit mode. The following systems might require a flash PROM update:

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

The following table lists the UltraSPARC systems and the minimum firmware versions that are required to run the 64-bit Solaris 10 OS. *System type* is the equivalent of the output of the `uname -i` command. You can determine which firmware version you are running by using the `prtconf -v` command.

TABLE 1-1 Minimum Firmware Versions Required to Run 64-Bit Solaris Software on UltraSPARC Systems

System Type From <code>uname -i</code>	Minimum Firmware Version From <code>prtconf -v</code>
SUNW,Ultra-2	3.11.2
SUNW,Ultra-4	3.7.107
SUNW,Ultra-Enterprise	3.2.16

Note – If a system is not listed in the previous table, the system does not need a flash PROM update.

See any edition of the Solaris 8 Sun Hardware Platform Guide at <http://docs.sun.com> for instructions to perform a flash PROM update.

Additional Patches Are Needed to Run Solaris Live Upgrade

For Solaris Live Upgrade to operate correctly, a limited set of patch revisions must be installed for a given OS version. Make sure you have the most recently updated patch list by consulting <http://sunsolve.sun.com>. For additional information, search for the info Doc 72099 on the SunSolveSM web site.

Limitation When Installing Solaris Live Upgrade Packages

If you are running the Solaris 7 or Solaris 8 release, you might not be able to run the Solaris Live Upgrade installer. These releases do not contain the set of patches that is needed to run the Java 2 runtime environment.

The typical failure that results is a Java exception error. The following messages might be displayed:

```
InvocationTargetException in ArchiveReader constructornull
    java.lang.reflect.InvocationTargetException
        at install.instantiateArchiveReader(Compiled Code)
```

```
at install.<init>(Compiled Code)
at install.main(Compiled Code)
```

To run the Solaris Live Upgrade installer and install the packages, you must have the Java 2 runtime environment recommended patch cluster.

Workaround: Complete the following workaround:

- Install the Solaris Live Upgrade packages by using the `pkgadd` command.
For step-by-step instructions, refer to Chapter 6, “Using Solaris Live Upgrade to Create a Boot Environment (Tasks),” in *Solaris 10 Installation Guide: Solaris Live Upgrade and Upgrade Planning*.
- Install the Java 2 runtime environment recommended patch cluster. The patch cluster is available on <http://sunsolve.sun.com>. Then, you can use the Solaris Live Upgrade installer to install the packages.

Cannot Access Storage Area Networks Through SUNWsan With Solaris 10 Software

If your Solaris 8 system is connected to storage area networks (SANs), check with your support engineer before you upgrade to the Solaris 10 release. Solaris 8 systems that have the `SUNWsan` package installed might require special procedures to upgrade to the Solaris 10 release. To find out if the `SUNWsan` package is installed on the system, type the following command in a terminal window:

```
# pkginfo SUNWsan
```

If the `SUNWsan` package is installed, the following information is displayed:

```
system          SUNWsan          SAN Foundation Kit
```

Solaris Management Console 2.1 Software Is Not Compatible With Solaris Management Console 1.0, 1.0.1, or 1.0.2 Software

Solaris Management Console 2.1 software is not compatible with Solaris Management Console 1.0, 1.0.1, or 1.0.2 software. If you are upgrading to the Solaris 10 release, and you have Solaris Management Console 1.0, 1.0.1, or 1.0.2 software installed, you must first uninstall the Solaris Management Console software before you upgrade. Solaris Management Console software might exist on your system if you installed the SEAS 2.0 overbox, the SEAS 3.0 overbox, or the Solaris 8 Admin Pack.

Workaround: Choose one of the following workarounds:

- Before you upgrade, use the `/usr/bin/prodreg` command to perform a full uninstall of Solaris Management Console software.

- If you did not uninstall Solaris Management Console 1.0, 1.0.1, or 1.0.2 software before you upgraded to the Solaris 10 release, you must first remove all Solaris Management Console 1.0, 1.0.1, or 1.0.2 packages. Use the `pkgrm` command for package removal instead of the `proddreg` command. Carefully follow the order of package removal. Complete the following steps:

1. Become superuser.
2. Type the following command:

```
# pkginfo | grep "Solaris Management Console"
```

If the description does not start with "Solaris Management Console 2.1," the package names in the output identify a Solaris Management Console 1.0 package.

3. Use the `pkgrm` command to remove all instances of Solaris Management Console 1.0 packages in the following order:

Note – Do not remove any package that has "Solaris Management Console 2.1" in its description. For example, `SUNWmc.2` might indicate Solaris Management Console 2.1 software.

If the `pkginfo` output displays multiple versions of Solaris Management Console 1.0 packages, use the `pkgrm` command to remove both packages. Remove the original package. Then, remove the package that has been appended with a number. For example, if the `SUNWmcman` and `SUNWmcman.2` packages appear in the `pkginfo` output, first remove the `SUNWmcman` package and then remove the `SUNWmcman.2` package. Do not use the `proddreg` command.

```
# pkgrm SUNWmcman
# pkgrm SUNWmcapp
# pkgrm SUNWmcsvr
# pkgrm SUNWmcsvu
# pkgrm SUNWmc
# pkgrm SUNWmcc
# pkgrm SUNWmcsws
```

4. In a terminal window, type the following command:

```
# rm -rf /var/sadm/pkg/SUNWmcapp
```

The Solaris Management Console 2.1 software should now function properly. For future maintenance, or if the Solaris Management Console 2.1 software does not function properly, remove the Solaris Management Console 2.1 software. Reinstall the software by completing the following steps:

1. Use the `pkgrm` command to remove all Solaris Management Console 2.1 packages and dependent packages in the following order:

Note – If your installation has multiple instances of Solaris Management Console 2.1 packages, such as SUNWmc and SUNWmc . 2 , first remove SUNWmc, and then SUNWmc . 2 . Do not use the prodreg command.

```
# pkgrm SUNWpmgr
# pkgrm SUNWrmui
# pkgrm SUNWlvmg
# pkgrm SUNWlvma
# pkgrm SUNWlvmr
# pkgrm SUNWdcInt
# pkgrm SUNWmga
# pkgrm SUNWmgapp
# pkgrm SUNWmcdev
# pkgrm SUNWmcex
# pkgrm SUNWwbmc
# pkgrm SUNWmc
# pkgrm SUNWmcc
# pkgrm SUNWmccom
```

2. Insert the Solaris 10 Software - 4 CD into your CD-ROM drive. Type the following in a terminal window:

```
#
# cd /cdrom/cdrom0/Solaris_10/Product
# pkgadd -d . SUNWmccom SUNWmcc SUNWmc SUNWwbmc SUNWmcex SUNWmcdev \
  SUNWmgapp SUNWmga SUNWdcInt SUNWlvmr SUNWlvma SUNWlvmg SUNWpmgr \
  SUNWrmui
```

All previous Solaris Management Console versions are removed. The Solaris Management Console 2.1 software is now functional.

Installation Fails When You Install Solaris Flash Archive on Empty Boot Environment With Solaris Live Upgrade (6222925)

If you use Solaris Live Upgrade to install a Solaris Flash archive on an empty alternate boot environment, the installation fails. Messages that are similar to the following errors are displayed.

```
sh: /path_to_install_image/Solaris_10/Tools/Boot/usr/sbin/install.d
/mergescripts/merge_name_service: not found
```

```
ERROR: Transfer list entry (/a/var/svc/profile/name_service.xml):
mergescript failed (/path_to_install_image/Solaris_10/Tools/
Boot/usr/sbin/install.d/mergescripts/merge_name_service)
```

```
ERROR: Unable to copy a temporary file to it's final location
```

```
ERROR: Flash installation failed
```

```
Extracting Flash Archive: 100% completed (of 4361.24 megabytes)  
The Solaris flash install of the BE S10B74L2 failed.
```

In the previous example, *path_to_install_image* is the directory path to the network installation image you are using for the installation.

Workaround: Follow these steps.

1. Change directories to the `mergescripts` directory in the network installation image that you are using for the installation.

```
# cd path_to_install_image/Solaris_10/Tools  
/Boot/usr/sbin/install.d/mergescripts
```

2. Create the `merge_name_service` file.

```
# touch merge_name_service
```

3. Make the `merge_name_service` file executable.

```
# chmod a+x merge_name_service
```

4. On the system you want to install, install the Solaris Flash archive on the alternate boot environment with Solaris Live Upgrade.

For instructions about how to install a Solaris Flash archive with Solaris Live Upgrade, see “Installing Solaris Flash Archives on a Boot Environment” in *Solaris 10 Installation Guide: Solaris Live Upgrade and Upgrade Planning*.

5. Mount the file systems in the alternate boot environment you installed in step 4.

```
# lumount alt_boot_env mount-point
```

In the previous command, *alt_boot_env* is the boot environment you installed in step 4. *mount-point* is the mount point for the alternate boot environment.

6. Change directory to the `/var/svc/profile` directory in the alternate boot environment.

```
# cd mount-point/var/svc/profile
```

7. Remove the `name_service.xml` profile.

```
# rm name_service.xml
```

8. Create a symbolic link for the name service profile to the `name_service.xml` file.

```
# ln -s ns_name-service.xml name_service.xml
```

In the previous example, *name-service* is the name service you want to use for the system. Use one of the following strings for this value.

- nis
- nisplus
- dns
- ldap

- files

Solaris GUI Installation Program Fails If You Configure Nonprimary Interface and Enable DHCP (6215739)

If you try to configure a nonprimary board interface during a Solaris 10 installation, the installation fails under the following conditions.

- You use the Solaris GUI installation program.
- You try to configure a nonprimary interface, such as a PCMCIA interface card.
- You enable the system to use Dynamic Host Configuration Protocol (DHCP).

The following error message is displayed.

```
An error has occurred in configuring the system.  
Please go back and check your settings.
```

Workaround 1: Use the Solaris Interactive Text (Desktop Session) installer.

- For SPARC based systems, type the following command at the ok prompt.

```
ok boot cdrom -text
```

- For x86 based systems, type the following command when the system prompts you to select an installation type.

```
b -text
```

Workaround 2: Use the Solaris installation GUI program.

1. When the installation program prompts you for Network Connectivity information, select Non-networked.
2. Complete the installation.
3. After the installation, use the `sys-unconfig` command to reconfigure the system as a networked system with DHCP support enabled.

For more information about reconfiguring a system with the `sys-unconfig` command, see the `sys-unconfig(1M)` man page.

x86: Sun Java Workstations 2100Z Might Panic When Booting From Solaris 10 Operating System DVD (6214356)

The DVD combo-drive firmware in a Sun Java™ Workstation 2100Z might cause a system panic. The panic occurs when you boot the workstation from the Solaris 10 Operating System DVD. After the kernel banner is displayed, the following message is very quickly flashed:

```

panic[cpu0]/thread=fec1be20: mod_hold_stub:
Couldn't load stub module sched/TS_DTBL
fec25cb0 genunix:mod_hold_stub+139 (fec04088, 63, fea11)
fec25cc4 unix:stubs_common_code+9 (1, 8, fec026e4)
fec25ce4 unix:disp_add+3d (fec026dc)
fec25d00 genunix:mod_installsched+a4 (fef01530, fef01518)
fec25d20 genunix:mod_install+2f (fef01518, fec25d3c,)
fec25d2c TS:_init+d (0, d6d89c88, fec25d)
fec25d3c genunix:modinstall+d9 (d6d89c88)
fec25d50 genunix:mod_hold_installed_mod+2e (d6d77640, 1, fec25d)
fec25d7c genunix:modload+ac (fec026c4, fec26c4)
fec25d98 genunix:scheduler_load+3d (fec026c4, fec026dc)
fec25db4 genunix:getcid+50 (fec026c4, fec28514)
fec25dcc unix:dispinit+df (fec25ddc, fe814ba9)
fec25dd4 unix:startup_modules+d5 (fec25dec, fe8cac37)
fec25ddc unix:startup+19 (fe800000, 166130, 7)
fec25dec genunix:main+16 ()

```

Then the system automatically resets.

Workaround: Choose one of the following options:

Workaround 1: Modify some BIOS configuration settings. This temporary workaround enables a Solaris 10 installation to be completed. However, this method might cause poor read-DVD performance. Follow these steps:

1. During system boot, press F2 at the prompt to enter the setup.

The screen displays attachment-type options similar to the following example:

```

Primary Master [    ]
Primary Slave  [    ]
Secondary Master [CD-ROM]
Secondary Slave [    ]

```

2. Choose the DVD drive's attachment type by selecting the attachment type for CD-ROM.

Note – The screen might display more than one attachment type for CD-ROM, for example, if your system has multiple optical drives. In such cases, you might need to open the system case to determine the DVD drive's point of attachment. Make sure that you select the correct attachment type that applies to the DVD drive.

3. After selecting the correct CD-ROM attachment type, press Enter.

The next screen appears with Type : [Auto] automatically selected.

4. Press the spacebar twice to change the selection to Type : [CD-ROM] .
5. Use the arrow keys to select Transfer Mode.
6. Press Enter to display a list of other Transfer Mode options.
7. Use the arrow keys to select Standard, then press Enter to accept your selection.

8. Press F10 to save the configuration changes and exit BIOS setup.

The system restarts.

Workaround 2: Update the DVD combo drive's firmware to v1.12. This option requires your DVD combo drive to be attached to a system that is running Microsoft Windows. Follow these steps.

1. Remove your DVD combo drive from the Sun Java Workstation 2100z. See the workstation's user's guide for steps to remove the drive properly.
2. Connect the drive to a system that is running Microsoft Windows. Make sure to change the drive's master and slave jumper settings, if needed.
3. Go to AOpen's download center at <http://download.aopen.com.tw/default.aspx>.
4. Search for your DVD drive's firmware by using the following information:
 - Product: Combo drives
 - Model: COM5232/AAH
 - Categories: Firmware
5. Download and install the firmware version R1.12.
6. Reinstall the drive on the workstation. If needed, restore the original master and slave jumper settings.

Note – Newer versions of the firmware might already be available at the site. Sun's tests confirm that the v1.12 release resolves the panic issue. Sun cannot confirm whether newer firmware revisions after v1.12 similarly resolve the problem.

x86: Solaris Installation GUI Might Fail When You Install Solaris Flash Archive (6208656)

If you use the Solaris installation graphical user interface (GUI) to install a Solaris Flash™ archive on an x86 based system, the installation might fail. This failure occurs on systems that are not running the Solaris OS or the Linux operating system before you begin the installation.

The following error message is displayed.

```
Unexpected error found with media or archive selected
```

Workaround: When the Solaris installation program prompts you to select an installation type, do not select the Solaris Interactive option. Select either option 3 or 4 and perform a Solaris Interactive Text installation. When prompted to specify the media to use during the installation, type the path to the Solaris Flash archive.

x86: Serial Consoles of Some Sun Fire Systems Do Not Work (6208412)

The serial console (ttya) on the following Sun Fire systems does not work by default:

- Sun Fire V20z
- Sun Fire V40z
- Sun Fire V60x
- Sun Fire V65x

To use the serial console, you must manually configure the system's BIOS.

Workaround: This workaround requires your system to have a Sun keyboard and a display monitor. Follow these steps:

1. Boot the machine.
2. During system boot, press F2 at the prompt to access the Phoenix BIOS.
3. Under Peripherals, change the comm port from disabled to enabled.
4. Save the configuration and boot the system.
5. Use the `eeeprom` command to change input-device and output-device to `ttya`.

Note – Pressing the Stop and N keys at system boot to reset the low-level firmware to default settings does not work on these systems.

Solaris Installation GUI Program Might Fail on Systems With Existing x86 fdisk Boot Partitions (6186606)

The Solaris installation GUI program might fail on a system with an existing x86 boot partition. The failure occurs if the existing x86 boot partition was created with the Solaris text-based installer. The following error message is displayed.

```
Default layout will not work on this system.
Error:
Error: ERROR: Could not create explicit fdisk partition on c0t0d0,
requested cylinders 14581 - 14597 in use by fdisk partition 1
Error:
Error: ERROR: System installation failed
Pfinstall failed. Exit stat= java.lang.UNIXProcess@a89ce3 2
artition on c0t0d0, requested cylinders 14581 - 14597 in use by fdisk
partition 1 ERROR: System installation failed
```

Workaround: Choose one of the following workarounds.

Workaround 1: When the installation program prompts you to select an installation type, select 3 Solaris Interactive Text (Desktop Session).

Workaround 2: If you use the Solaris installation GUI program, follow these steps.

1. Begin the installation.
2. At the prompt to select an installation type, select Custom Install.
The custom installation panels prompt you for information about the locales, software, and disks that you want to install.
3. Answer the questions on the screens as appropriate for your system.
4. On the Fdisk Selection screen, check the disk that contains the x86boot partition.
5. Remove the x86boot partition by changing it to UNUSED in the pull-down menu.
6. Add the x86boot partition back by changing UNUSED back to x86boot.
7. Continue the installation.

x86: Only Part of the Disk Is Usable by `fdisk` or `format` Commands (5042195)

On x86 based systems, when a disk device exceeds 65,535 cylinders, only the lower 16-bits of the cylinder count are used by the Solaris OS. Consequently, the actual size of disk space available for the Solaris OS is reduced. For example, the reported number of cylinders for a disk is 70,000. The difference between 70,000 and 65,535 equals the number of available cylinders for the Solaris OS, which is 4,464.

To verify whether your disk has exceeded 65,535 cylinders, compute your disk's approximate capacity by using the following formula:

disk capacity = cylinders * heads * sectors * 512

Then, compare the results with the stated capacity of your disk. A large difference between the two values indicates that your disk has exceeded 65,535 cylinders.

Workaround: Choose from the following options:

- Keep RAID volumes small enough to avoid exceeding the cylinder limit.
- Create a Solaris label where the geometry uses cylinders fewer than 65,535. You implement this second option by increasing the value for sectors or heads, neither of which should exceed 16 bits.

The second option is applicable on a Sun Fire V20z or Sun Fire V40z system that has a 72-Gbyte disk mirrored. The BIOS RAID function would report a much smaller number of heads and sectors than the single 72-Gbyte disk. Consequently, the number of cylinders exceeds the 65,535 limit.

However, you can format and label the first disk with Solaris 10 OS, and then have the BIOS mirror the first disk to another disk. Through this step, the label of the first disk is preserved. Solaris uses the geometry of the first disk and avoids exceeding the limit.

You can also achieve the second option by using a disk editor to manually modify the label on a disk by using valid geometry values.

x86: X Server Unable to Open Mouse Device in Sun LX50 Servers (5027771)

On a Sun LX50 system, the X server might be unable to open a PS/2 mouse device. The error might occur either during installation or when the system reboots. When the problem occurs, the following error message is displayed:

```
ddxSUNWmouse: Error opening mouse device '/dev/kdmouse;  
/dev/kdmouse: No such device or address
```

Consequently, the Solaris installation program can proceed only in command-line interface mode. After installation, the problem might persist during Solaris runtime.

Workaround: On the Y-cable that connects to the server's PS/2 connector, switch the connections between the PS/2 keyboard and mouse.

If the PS/2 mouse remains unrecognized after a system reboot, press the LX50 server's Reset button. Alternatively, use the reconfigure option (b -r) when the following boot prompt appears:

```
Select (b)oot or (i)nterpreter:
```

Cannot Access Data on Solaris 10 Operating System DVD When Running Solaris 7 Software (4511090)

If your system is running the Solaris 7 software, Volume Management incorrectly mounts the Solaris 10 Operating System DVD. The DVD can be mounted, but the data is inaccessible. As a result, you cannot set up an install server, perform a Live Upgrade, or access any data on the media.

Workaround: Choose one of the following workarounds:

- Apply the following patches:
 - 107259-03
 - 107260-03
- Mount the Solaris 10 Operating System DVD manually. Do not use Volume Management to mount the DVD. Follow these steps:
 1. Become superuser.
 2. Stop Volume Management.

```
# /etc/init.d/volmgt stop
```
 3. Mount the Solaris 10 Operating System DVD manually.

```
# mkdir /mnt1  
# mount -F hsfs -o ro /dev/dsk/c0t6d0s0 /mnt1
```

4. Verify that the DVD is mounted. Then verify that the data is accessible.

```
# cd /mnt1
# ls
```

The system returns the following information if the DVD is correctly mounted.

```
Copyright Solaris_10
```

Installation Bugs

The following bugs might occur during or after the installation of Solaris 10 OS.

Java Error Messages Are Displayed After a Solaris 10 OS Installation (6218158)

When the system reboots after a Solaris 10 OS installation is completed, Java error messages similar to the following example might be generated. These messages might either be displayed on the console or recorded in the `/var/adm/messages` file.

```
java[16552]: [ID 874347 user.error] libpkcs11:
open /var/run/kcfd_door: No such file or directory
java[16552]: [ID 523743 user.error] libpkcs11:
/usr/lib/security/pkcs11_softtoken.so
unexpected failure in ELF signature verification.
System may have been tampered with.
Cannot continue parsing /etc/crypto/pkcs11.conf
java[16580]: [ID 874347 user.error] libpkcs11:
open /var/run/kcfd_door: No such file or directory
java[16580]: [ID 523743 user.error] libpkcs11:
/usr/lib/security/pkcs11_softtoken.so
unexpected failure in ELF signature verification.
System may have been tampered with.
Cannot continue parsing /etc/crypto/pkcs11.conf
```

Workaround: None. Ignore the error messages.

Solaris 10 Installation Disc Ejects When You Install the Solaris Flash Archive (6215847)

During installation, the system might eject the disc and the installation might fail. This error might occur if you boot from a Solaris 10 installation disc. The installation disc can either be the Solaris 10 Operating System DVD or the Solaris 10 Software - 1 CD. After you boot the system, you attempt to install a Solaris Flash archive from the network.

The problem occurs under the following two sets of circumstances.

- While running the Solaris GUI installation program from the DVD or CD installation disc, you specify an invalid Solaris Flash archive for your system. For example, specifying a path to an x86 archive while installing on a SPARC based system would cause the error. After the disc ejects, messages similar to the following errors might be displayed in the console window.

```
/sbin/install-solaris: rm: cannot execute
/sbin/install-solaris: date: cannot execute
/sbin/install-solaris: gettext: cannot execute.
```

- You run the Solaris text installer in a console session from the Solaris 10 installation disc and successfully install a Solaris Flash archive from the network. After the disc ejects, messages similar to the following errors might be displayed in the console window.

```
/sbin/setup-launcher[310]: 1356 Killed
/sbin/setup-launcher[315]: 1357 Killed
```

Workaround 1: If the error was caused by an invalid archive, complete one of the following steps, depending on the error triggers.

- Restart the installation with the GUI installation program. Then specify a path to a valid archive.
- Install the archive by using the text-based installer in a desktop windowing session:
 - For SPARC based systems, type **boot cdrom -text** at the ok prompt.
 - For x86 based systems, at the prompt to choose an installation type, select 3 Solaris Interactive Text (Desktop session).

Workaround 2: If the error occurred after you used the text-based installer in a console session, choose one of the following options:

- Use the installer in a desktop windowing session instead:
 - For SPARC based systems, type **boot cdrom -text** at the ok prompt.
 - For x86 based systems, at the prompt to choose an installation type, select 3 Solaris Interactive Text (Desktop session).
- Perform the following steps after the system ejects the installation disc.
 1. Reinsert the DVD or CD in the machine.
 - If the system responds to the disc insertion, allow the system to complete the installation.
 - If the system does not respond to the installation disc, go to Step 2.
 2. Manually reboot the system.
 3. If prompted, reboot the system.
The installation is complete.

x86: kdmconfig Program Runs Twice After Initial Installation (6209092)

During the first system reboot after an initial Solaris 10 OS installation, the `kdmconfig` program might run twice. During this initial startup, each time the program starts, you are prompted to select an X server. This situation occurs on x86 based systems that have not been configured to use the X server. An example of such a system is a “headless” system that is not using a graphics display.

Workaround: Each time the program starts and prompts for an X server, press `F3_Exit`. A short delay might occur before the startup process resumes. After this initial startup is completed, the problem no longer occurs if the system is subsequently rebooted.

x86: System Fails to Boot After Custom JumpStart Installation (6205478)

If you use the Custom JumpStart installation method to install on an x86 based system, and explicitly configure slice 2 as the overlap slice in the profile, an error occurs. The system does not reboot successfully after the installation is completed. The following error message is displayed:

```
Cannot find Solaris partition
```

This failure occurs because the overlap slice 2 (`c0t0d0s2`, for example) is set to begin at cylinder 1 rather than cylinder 0.

Workaround: In the Custom JumpStart profile, remove the `filesys` keyword entry that configures slice 2 as the overlap slice. For example, you would remove a keyword entry that is similar to the following entry.

```
filesys c0t0d0s2 all overlap
```

After you remove the entry, perform the Custom JumpStart installation.

Installation Logs Might Be Incomplete or Inaccurate (5087588)

If you install the Solaris 10 software, the `install_log` file in `/var/sadm/system/logs` and `/var/sadm/install/logs` might be incomplete. These logs might not include information about packages that were successfully added to the system, and they might not record errors encountered when adding packages. Consequently, you cannot use the `install_log` file as a resource to troubleshoot installation or application issues.

Workaround: If an application does not run correctly, do not check the `install_log` file to determine if the application packages were installed. Follow these steps.

1. Check the Solaris Product Registry to determine which packages the application uses.

```
# prodreg
```

2. Use the `pkginfo` command to determine if any of these packages are partially installed.

```
# pkginfo -p package-name
```

3. For each package that is reported in the output of the previous command, remove the package.

```
# pkgrm options package-name
```

4. Reinstall each package.

```
# pkgadd options package-name
```

x86: GUI Interactive Installation From DVD Fails if `boot-device` Variable Is Not Set (5065465)

If you install Solaris from the Solaris 10 Operating System DVD, the interactive GUI installation might fail. This failure occurs if the `boot-device` configuration variable is not set on the system.

To determine if the `boot-device` configuration variable is set, type the following command.

```
# prtconf -pv | grep boot-device
```

If the output of this command is `boot-device:` with no associated device, you cannot use the interactive GUI installation program to install from the Solaris 10 Operating System DVD.

Workaround: Use the interactive text installer to install Solaris 10 software. When the installation program asks you to select a type of installation, select option 3, Solaris Interactive Text (Desktop Session).

For more information about installing from the Solaris 10 Operating System DVD, see *Solaris 10 Installation Guide: Basic Installations*.

SPARC: Solaris 10 OS Installation Program Might Not Display Special Case Panels Properly (5002175)

If you install the Solaris 10 software by using the Solaris installation program, some of the information and exit panels for the SunSM Remote Services (SRS) Net Connect software might not display properly.

The installation panel frame and Cancel button are displayed, but the installation panel content is missing.

Note – This problem might also occur during a Solaris installation of other software products that are included in this Solaris OS release.

Workaround: Follow these steps:

1. Bypass the SRS Net Connect installation by clicking the Cancel button when the empty installation panel is displayed.
2. After the installation of the Solaris 10 software has completed, manually install the SRS Net Connect software from the Solaris 10 Operating System DVD or Solaris 10 Software - 2 CD.

Installing the SRS Net Connect software after the initial Solaris 10 software installation has completed ensures that all panels are displayed properly.

x86: USB Keyboards Might Freeze During Install on Some Dell Precision Workstations (4888849)

During installation, USB keyboards on some Dell Precision Workstations might freeze or become partially inoperative, thereby preventing installation.

Workaround: Perform one of the following workarounds:

- Switch the USB emulation mode in the firmware.
- Switch to a PS/2 keyboard.
- Reboot and try again.

Alternatively, update the system's BIOS to resolve the problem.

/dev and /devices/pseudo Permissions Set Incorrectly After Installation (4720192, 6215918)

When you install the Solaris 10 OS, the `/devices/pseudo` namespace permissions might be set incorrectly. The system might not be able to access some system devices. Similar namespace-permission errors occur if you installed the Solaris 10 OS on a clone system with a Solaris Flash archive.

If you run the `pkgchk -n SUNWcsd` command on the `SUNWcsd` package after the installation, a message similar to the following output is displayed.

```
# pkgchk -n SUNWcsd
ERROR: /devices/pseudo/cvc@0:cvc
      pathname does not exist
```

```
unable to create character-special device
ERROR: /devices/pseudo/cvcredir@0:cvcredir
pathname does not exist
unable to create character-special device
```

If you installed the Solaris 10 OS on a clone system with a Solaris Flash archive, the previous command produces errors similar to the following output.

```
# pkgchk -n SUNWcsd
ERROR: /dev
      group name sys expected <(null)> actual
ERROR: /devices/pseudo/clone@0:eri
      permissions <0666> expected <0600> actual
ERROR: /devices/pseudo/clone@0:ibd
      permissions <0666> expected <0600> actual
ERROR: /devices/pseudo/cvc@0:cvc
      pathname does not exist
ERROR: /devices/pseudo/cvcredir@0:cvcredir
      pathname does not exist
```

For Solaris Flash installations, errors similar to the previous output are also displayed for the SUNWcsr package.

Workaround: Choose one of the following workarounds.

Workaround 1: Run the `pkgchk -nf` command on the SUNWcsd Core Solaris Devices package. This workaround applies if you installed Solaris 10 OS from CD or DVD media, or from a network installation image.

```
# pkgchk -nf SUNWcsd
```

Workaround 2: This workaround applies to clone systems on which you want to install the Solaris 10 OS by using a Solaris Flash archive. Perform the following steps before you install the archive:

1. On the master system, create a `/etc/flash/reboot` directory:

```
# mkdir -p /etc/flash/reboot
#
```

2. On the master system, create the following script in a text editor.

```
#!/usr/bin/sh
#
echo " Doing pkgchk -nf SUNWcsd"
pkgchk -nf SUNWcsd
echo " Doing pkgchk -nf SUNWcsr"
pkgchk -nf SUNWcsr
exit 0
```

3. Save the script with the file name `pkgchk.cleanup` in the `/etc/flash/reboot` directory.
4. Ensure that the `pkgchk.cleanup` script is executable.

```
# cd /etc/flash/reboot
# chmod a+x pkgchk.cleanup
```

5. Create the Solaris Flash archive.
6. Install the archive on the clone system.

However, if you have already installed the Solaris 10 OS with a Solaris Flash archive, then perform the following steps to resolve the error.

1. Run the `pkgchk -nf SUNWcsd` command on the SUNWcsd Core Solaris Devices package.

```
# pkgchk -nf SUNWcsd
```

2. Run the `pkgchk -nf SUNWcsr` command on the SUNWcsr Core Solaris (Root) package on the clone system.

```
# pkgchk -nf SUNWcsr
```

SPARC: Error Messages Might Be Seen When Installing Solaris By Using a Network Image (4704046)

You can install Solaris by using a network image. If that image is created by combining the Solaris 10 Software CDs, the following error messages might be seen:

```
Error message: Jun 18 10:51:53 b26b statd[149]: [ID 514559
daemon.error] svc_tp_create: Could not register prog 100024 vers 1 on udp
Jun 18 10:51:53 b26b statd[149]: [ID 514559 daemon.error] svc_tp_create:
Could not register prog 100024 vers 1 on tcp
Jun 18 10:51:53 b26b statd[149]: [ID 514559 daemon.error] svc_tp_create:
Could not register prog 100024 vers 1 on ticlts
Jun 18 10:51:53 b26b statd[149]: [ID 514559 daemon.error] svc_tp_create:
Could not register prog 100024 vers 1 on ticotsord
Jun 18 10:51:53 b26b statd[149]: [ID 514559 daemon.error] svc_tp_create:
Could not register prog 100024 vers 1 on ticots
Jun 18 10:51:53 b26b statd[149]: [ID 447212 daemon.error] statd:
unable to create (SM_PROG, SM_VERS) for netpath.
```

Workaround: None. Ignore the message. After the system boots, the Network File System (NFS) functions normally.

SPARC: Systems With Multiple Interfaces Recognize All Interfaces as Usable After Installation or Upgrade (4640568)

If you install or upgrade to the Solaris 10 release on a system with multiple network interfaces, the system recognizes all system interfaces as usable. Interfaces that are not connected to the network, or that are not intended for use, appear in the output of the `ifconfig -a` command. Additionally, interfaces with identical Ethernet addresses might be assigned identical IP addresses. The following error message is displayed:

```
ifconfig: setifflags: SIOCSLIFFLAGS: qfe3: Cannot assign requested address
```

This problem also occurs on systems that have the `local-mac-address` PROM variable set to `false`. The problem occurs because all interfaces are configured with the same IP address.

Workaround: Choose one of the following workarounds:

- To plumb only the configured interface, reboot the system after the initial boot.
- To assign a different IP address to each network interface, set the `local-mac-address` PROM variable to `true` in one of the following ways:
 - At the ok prompt, type the following command:

```
ok setenv local-mac-address? true
```
 - In a terminal window, type the following command as superuser:

```
# eeprom local-mac-address?=true
```

Warnings Might Occur When a File System Is Created (4189127)

When a file system is created during installation, one of the following warning messages might be displayed:

```
Warning: inode blocks/cyl group (87) >= data blocks (63) in last cylinder group. This implies 1008 sector(s) cannot be allocated.
```

Or:

```
Warning: 1 sector(s) in last cylinder unallocated
```

The warning occurs when the size of the file system that you created does not equal the space on the disk that is being used. This discrepancy can result in unused space on the disk that is not incorporated into the indicated file system. This unused space is not available for use by other file systems.

Workaround: Ignore the warning message.

Upgrade Issues and Bugs

This section describes upgrade bugs. Some might occur while you are upgrading to Solaris 10 OS. Others might occur after you have completed upgrading.

Device ID Discrepancies After Upgrading From Solaris 9 9/04 OS

In this Solaris 10 release, Solaris Volume Manager displays device ID output in a new format. Solaris 9 9/04 OS, which introduced device ID support in disk sets, does not recognize the new format. When you upgrade to Solaris 10 OS from the Solaris 9 9/04 release, device IDs that are associated with existing disk sets are not updated in the Solaris Volume Manager configuration. If you need to revert to Solaris 9 9/04 OS, configuration changes made to disk sets after the upgrade might not be available to Solaris 9 9/04 OS. For more information, see Chapter 25, “Troubleshooting Solaris Volume Manager (Tasks),” in *Solaris Volume Manager Administration Guide*.

SPARC: Upgrading From Solaris 9 Releases With Recommended Patch Cluster Partially Succeeds (6202868)

For a system that is running a Solaris 9 release with the recommended patch cluster installed, upgrading to Solaris 10 OS only partially succeeds. This problem affects systems that are running the following releases with the Solaris 9 recommended patch cluster installed.

- Solaris 9 release
- Solaris 9 9/02 release
- Solaris 9 12/02 release
- Solaris 9 4/03 release
- Solaris 9 8/03 release
- Solaris 9 12/03 release
- Solaris 9 4/04 release

When you upgrade to the Solaris 10 release, the SUNWcti2x package is not successfully removed from the system.

Workaround: Choose one of the following workarounds.

- To avoid this problem, apply patch ID 117426-03, or a later version, to the system before you upgrade to the Solaris 10 OS.

To download this patch, go to <http://sunsolve.sun.com>.

- If you encounter this problem during the upgrade, follow these steps.

1. In a text editor, comment out the following line in the `/var/sadm/pkg/SUNWcti2x/install/preremove` file.

```
rem_drv -b ${BASEDIR} sc_nct || EXIT=1
```

2. Remove the SUNWcti2x package.

```
# pkgrm SUNWcti2x
```

Obsolete Uninstallers Not Removed When You Use Solaris Live Upgrade to Upgrade From Previous Solaris Releases (6198380)

If you use Solaris Live Upgrade to upgrade from the Solaris 8 or Solaris 9 releases to Solaris 10 OS, obsolete uninstaller programs are not removed. These uninstaller programs from the previous OS remain in the system's `/var/sadm/prod` directory.

The following obsolete uninstallers are not removed.

```
uninstall_Alternate_Pathing_2_3_1.class
uninstall_CDRW_1_1.class o uninstall_CDRW_1_0.class
uninstall_Bonus_Localization_-_Catalan_CDE_Desktop.class
uninstall_Bonus_Localization_-_Polish_CDE_Desktop.class
uninstall_Bonus_Localizations_-_Russian_CDE_Desktop.class
uninstall_Capacity_on_Demand_1_0.class
uninstall_Java3D_1_3_1.class
uninstall_Java3D_1_3.class
uninstall_Java3D_1_2_1_04.class
uninstall_Java3D_1_2_1_03.class
uninstall_Lights_Out_Management_2_0.class
uninstall_Man_Page_Supplement.class
uninstall_OpenGL_1_3.class
uninstall_OpenGL_1_2_3.class
uninstall_Netra_ct_Platform_1_0.class
uninstall_Netra_t11xx_Alarms_2_0.class
uninstall_Netscape_6_2_3.class
uninstall_Netscape_6_2_1_Beta.class
uninstall_PC_launcher_1_0_2.class
uninstall_PC_launcher_1_0_1_PCfileviewer_1_0_1.class
uninstall_RSC_2_2_2.class
uninstall_RSC_2_2_1.class
uninstall_RSC_2_2.class
uninstall_ShowMeTV_1_3.class
uninstall_Solaris_9_French_Localization.class
uninstall_Solaris_9_German_Localization.class
uninstall_Solaris_9_Hong_Kong_Traditional_Chinese_Localization.class
uninstall_Solaris_9_Italian_Localization.class
uninstall_Solaris_9_Japanese_Localization.class
uninstall_Solaris_9_Korean_Localization.class
uninstall_Solaris_9_Simplified_Chinese_Localization.class
uninstall_Solaris_9_Spanish_Localization.class
uninstall_Solaris_9_Swedish_Localization.class
uninstall_Solaris_9_Traditional_Chinese_Localization.class
uninstall_Solaris_On_Sun_Hardware_Documentation.class
uninstall_Sun_Hardware_AnswerBook.class
uninstall_SunATM_5_0.class
uninstall_SunATM_5_1.class
uninstall_SunFDDI_PCI_3_0.class
uninstall_SunFDDI_SBus_7_0.class
uninstall_Sun_Fire_880_FC-AL_Backplane_Firmware_1_0.class
uninstall_Sun_Fire_B10n_Load_Balancing_Blade_1_1.class
uninstall_SunForum_3_1.class
```

```
uninstall_SunForum_3_2.class
uninstall_SunHSI_PCI_3_0.class
uninstall_SunHSI_SBus_3_0.class
uninstall_SunScreen_3_2.class
uninstall_SunVTS_5_1_PS6.class
uninstall_SunVTS_5_1_PS5.class
uninstall_SunVTS_5_1_PS4.class
uninstall_SunVTS_5_1_PS3.class
uninstall_SunVTS_5_1_PS2.class
uninstall_SunVTS_5_1_PS1.class
uninstall_SunVTS_5_0.class
uninstall_System_Management_Services_1_4.class
uninstall_System_Management_Services_1_3.class
uninstall_System_Management_Services_1_2.class
uninstall_System_Service_Processor_3_5.class
uninstall_WBEM_DR_1_0.class
uninstall_Web_Start_Wizards_SDK_3_0_2.class
uninstall_Web_Start_Wizards_SDK_3_0_1.class
uninstall_Web_Start_Wizards_SDK.class
uninstall_XML_Libraries_2_4_12.class
```

Workaround: After you upgrade the system, manually remove the obsolete uninstallers in the `/var/sadm/prod` directory.

Configuration File `pam.conf` Not Automatically Updated After an Upgrade (5060721)

This Solaris 10 release introduces changes in `pam_ldap` functionality. When you upgrade to the current release, `pam_ldap` configurations in your existing `pam.conf` configuration file are not updated to reflect these changes. If `pam_ldap` configuration is detected, the `CLEANUP` file that is generated at the end of the upgrade contains the following notification:

```
/etc/pam.conf please examine/update the pam_ldap configuration
because its functionality has changed,
refer to pam_ldap(5) documentation for more information
```

Workaround: After the upgrade, examine `/etc/pam.conf`. If necessary, modify this file manually to be compatible with the new functionalities of `pam_ldap`. The modifications involve password prompting such as the `use_first_pass` and `try_first_pass` options as well as password updates. For more information about updating `pam.conf`, refer to the `pam_ldap(5)` man page and documentation.

Solstice DiskSuite Configurations Not Converted to Solaris Volume Manager Format When You Upgrade With Solaris Live Upgrade (4915974)

If you upgrade from the Solaris 8 release to the Solaris 10 release with Solaris Live Upgrade, an error might occur. Your Solstice DiskSuite™ 4.2.1 configurations might not be converted to Solaris Volume Manager configurations. All RAID-0, RAID-1, and other volumes such as mirrors, stripes, and submirrors might be lost.

The problem occurs if you have applied patches in a particular order to the Solaris 8 system before you upgrade. To determine if your system might experience the problem, check the version information of the SUNWmdr package on the Solaris 8 system. Type the following command:

```
# grep VERSION /var/sadm/pkg/SUNWmdr/pkginfo
```

Your system might be affected by the problem if the command generates the following output:

```
PKG_CLIENT_VERSION=8  
VERSION=4.2.1,REV=1999.12.03.10.00
```

Workaround: Follow these steps.

1. Upgrade the alternate boot environment by using Solaris Live Upgrade.
See *Solaris 10 Installation Guide: Solaris Live Upgrade and Upgrade Planning* for more information.
2. Mount the upgraded boot environment disk, but do not activate the upgraded boot environment.

```
# mnt -F ufs /mnt/c0t0d0slice_number /mnt
```

In the previous example, *slice_number* refers to the slice that contains the upgraded boot environment.

3. Check the `/etc/system` file for MDD Database information entries, such as the following text:

```
* Begin MDD database info (do not edit)  
set md:mddb_bootlist1="sd:7:16 sd:7:1050 sd:7:2084"  
* End MDD database info (do not edit)
```

4. In a text editor, open the `/kernel/drv/md.conf` file for the upgraded boot environment.

```
# cd /kernel/drv  
# vi md.conf
```

5. Modify `md.conf` as follows:
 - a. Add the `mddb_bootlist` information from the `/etc/system` file that you checked in Step 3. Make sure that you also include the commented "Begin" and "End" lines that precede and follow the information.

- b. For each `sd` disk entry on the `mddb_bootlist` line, add the text string `:id0` at the end of the disk entry.
- c. Below the `mddb_bootlist` entry, insert the following new line:

```
md_devid_destroy=1;
```

The following example shows how the `md.conf` file might be modified:

```
# Begin MDD database info (do not edit)
mddb_bootlist1="sd:7:16:id0 sd:7:1050:id0 sd:7:2084:id0";
md_devid_destroy=1;
# End MDD database info (do not edit)
```

6. Save the `md.conf` file.
7. Delete the `mddb_bootlist` entry from the `/etc/system` file.
8. Unmount the upgraded boot environment disk.
9. Activate the upgraded boot environment.

Invalid Error Messages Are Displayed When You Use Solaris Live Upgrade to Upgrade From the Solaris 7 Release (4872151)

If you use Solaris Live Upgrade to upgrade from the Solaris 7 release to the Solaris 10 OS, error messages similar to the following are displayed.

```
Removal of package was successful.
/a//var/sadm/system/admin/upgrade_script: /bin/prodreg: not found
/a//var/sadm/system/admin/upgrade_script: /bin/prodreg: not found
/a//var/sadm/system/admin/upgrade_script: /bin/prodreg: not found
```

This error occurs because the Solaris Product Registry (`prodreg`) software is not included in the Solaris 7 release.

Workaround: Ignore the error message. These errors do not affect the installation.

Installer Text Display Problem When Using Solaris Live Upgrade (4736488)

When using the Solaris Live Upgrade `luupgrade (1M)` command with the `-i` option to complete an upgrade of an inactive boot environment, the text that the installers display might be unreadable in some languages. The text is corrupted when the installers request fonts that do not exist on the older release that is on the current boot environment.

Workaround: Choose one of the following workarounds:

- Use a combined network installation image to do the installation.
- Enable the C locale by setting the environment variable on your system.

- If you are using the Bourne shell or Korn shell, follow these steps:

1. Set the C locale.

```
# LANG=C; export LANG
```

2. Begin the installation.

- If you are using the C shell, follow these steps:

1. Type the following:

```
# csh
```

2. Set the C locale.

```
# setenv LANG C
```

3. Begin the installation.

SPARC: Removal of SUNWjxcft Package Records Error During Upgrade (4525236)

When you upgrade from the Solaris 8 software to the Solaris 10 release, a problem is encountered when the SUNWjxcft package is removed. The following error message is recorded in the `upgrade_log` file:

```
Removing package SUNWjxcft:
Can't open /a/usr/openwin/lib/locale/ja/X11/fonts/TTbitmaps/fonts.upr
Can't open /a/usr/openwin/lib/locale/ja/X11/fonts/TTbitmaps/fonts.scale
Can't open /a/usr/openwin/lib/locale/ja/X11/fonts/TTbitmaps/fonts.alias
Can't open /a/usr/openwin/lib/locale/ja/X11/fonts/TT/fonts.upr
Can't open /a/usr/openwin/lib/locale/ja/X11/fonts/TT/fonts.scale
Can't open /a/usr/openwin/lib/locale/ja/X11/fonts/TT/fonts.alias
Removal of <SUNWjxcft> was successful
```

Workaround: Ignore the error message.

Upgrading to Solaris 10 Release Might Disable Existing Secure Shell Daemon (sshd) (4626093)

If you upgrade to the Solaris 10 release on a system that is running a third-party Secure Shell, such as OpenSSH from the `/etc/init.d/sshd` daemon, the upgrade disables the existing Secure Shell daemon. During an upgrade, Solaris 10 software overwrites the contents of `/etc/init.d/sshd`.

Workaround: Choose one of the following workarounds:

- If you do not want the Secure Shell protocol server program on your system, do not install the `SUNWsshdr` and `SUNWsshdu` packages during the upgrade.
- If you do not want the Secure Shell protocol server or client programs on your system, do not install the Secure Shell Cluster (`SUNWcssh`) during the upgrade.

Upgrade Fails if /export Directory Is Near Capacity (4409601)

If the `/export` directory is near full capacity when you upgrade to the Solaris 10 release, space requirements for `/export` are miscalculated. The upgrade then fails. This problem commonly occurs if a diskless client is installed. Another instance of when the problem occurs is when third-party software is installed in the `/export` directory. The following message is displayed:

```
WARNING: Insufficient space for the upgrade.
```

Workaround: Before you upgrade, choose one of the following workarounds:

- Rename the `/export` directory temporarily, until the upgrade is completed.
- Temporarily comment out the `/export` line in the `/etc/vfstab` file until the upgrade is completed.
- If `/export` is a separate file system, then unmount `/export` before you perform the upgrade.

Upgrading Diskless Client Servers and Clients (4363078)

If your system currently supports diskless clients that were installed with the Solstice AdminSuite™ 2.3 Diskless Client tool, you must perform the following two steps:

1. Delete all existing diskless clients that are the same Solaris version and architecture as the server.
2. Install or upgrade to the Solaris 10 release.

For specific instructions, see the *System Administration Guide: Basic Administration*.

If you attempt to install the Solaris 10 software over existing diskless clients, the following error message might be displayed:

```
The Solaris Version (Solaris version-number) on slice
<xxxxxxx> cannot
be upgraded.
There is an unknown problem with the software configuration installed
on this disk.
```

In this error message, *version-number* refers to the Solaris version that is currently running on your system. <xxxxxxx> refers to the slice that is running this version of the Solaris software.

Additional Installation Issues

This section describes issues that are related to the installation of the Solaris OS.

StarOffice and StarSuite Software Cannot Coexist in the Same System

When you install Solaris 10 OS, either the StarOffice™ or the StarSuite™ software is also automatically installed, depending on which language you select. The languages and the corresponding software that these languages support are listed as follows:

Selected Language	Supported Software
Chinese, Japanese, Korean	StarSuite
Other languages	StarOffice

StarOffice and StarSuite cannot coexist in the same system. If you want to replace a software that you accidentally installed, follow these steps.

1. Insert the Solaris 10 Software - 3 CD or Solaris 10 Operating System DVD in the drive.
2. Become superuser.
3. Change to the Product directory, for example, `/cdrom/cdrom0/Solaris_10/Product`.
4. Replace the software.
 - To replace StarOffice with StarSuite, use the following commands:

```
# pkgrm SUNWsoqm SUNWsom
# pkgadd SUNWsoagm SUNWsoam
```
 - To replace StarSuite with StarOffice, use the following commands:

```
# pkgrm SUNWsoagm SUNWsoam
# pkgadd SUNWsoqm SUNWsom
```

Cannot Install Documentation Packages With Names Longer Than Nine Characters on Documentation Servers Running Solaris 7 or Solaris 8 Software

Some localized documentation collections in PDF format have package names that are longer than nine characters. To install these PDF collections on servers that are running Solaris 7 or 8 software, you must first install two patches.

Workaround: For instructions on how to install these patches, see the Solaris Documentation Important Information file on Solaris 10 OS Documentation DVD. This file is located in the following directory:

```
mount-point/README/locale/install_  
locale.html
```

Additional Related Locales Might Be Installed

When you select a locale for your installation, additional related locales might also be installed. This change in behavior occurs in the Solaris 10 release because all full locales, with message translations, and the Asian and Japanese partial locales, locale enabler, have been repackaged based on language support for locales. Other partial locales are still packaged and installed based on geographic region, such as Central Europe.

Languages CD Installs All Languages By Default With Solaris Live Upgrade (4898832)

If you use Solaris Live Upgrade with multiple CDs to install the Solaris 10 release, the Languages CD installs all languages by default.

After the installation, if you log in to the system in a locale that is different than the locale you selected during installation, garbled characters might be displayed. After you log in to any of these locales, the English locale is displayed.

Workaround: During installation, select the custom install option. Uncheck any languages that you do not want to install during the Languages CD installation.

Solaris Runtime Issues

This chapter describes runtime issues that are known to be problems.

Common Desktop Environment

The following bugs in Solaris 10 OS apply to the Common Desktop Environment (CDE).

x86: Support for Intel Integrated i810 and i815 Graphics Chipsets

Intel Integrated i810 and i815 Graphics Chipsets are not supported by the Xorg X Window System server. Support is available with the Xsun server. To configure the Xsun server to use these chipsets, follow these steps:

1. Become superuser.
2. Run the program to configure keyboard, display, and mouse.

```
# kdmconfig
```
3. On the Introduction and X Server Selection screen, select the Xsun server.
On the View and Edit Window System Configuration screen, Intel i810/i815 (4MB) should be automatically selected and displayed as the Video Device.
4. If the Intel i810 and i815 Chipsets are not automatically selected, select the Change Video Device/Monitor option.
5. On the Video Device Selection screen, select the Intel i810/i815 (4MB) option.
6. Continue to select other `kdmconfig` options.

Arabic Text Not Appearing in ar Locales

If your x86 system is using Xorg as the default Xserver, the Arabic font (iso7759-6) does not appear in the ar locale. This error does not occur if you are using XSun instead of XOrg.

Workaround: Follow these steps.

1. As superuser, edit `/usr/dt/config/Xservers`.

- Uncomment or add the following line:

```
:0 Local local_uid@console root /usr/openwin/bin/Xsun :0
-nobanner -defdepth 24
```

- Comment out the following line:

```
:0 Local local_uid@console root /usr/X11/bin/Xorg :0
```

2. Reboot the system.

Alternatively, you can log in to `ar_EG.UTF-8` or other UTF-8 locales.

Compose Key Sequences Might Not Work When You Use X Keyboard Extension in Some Locales (6219932)

Some Compose key sequences might not work in locales that do not use keyboard input methods, such as the C locale. The error occurs if either of the following system configurations is used in those locales:

- System using Xorg X server on Solaris 10 for x86
- System using Xsun X server with X Keyboard Extension (XKB) enabled on Solaris 10 for both SPARC and x86

Specifically, Compose sequences in these systems fail if the sequence requires the use of the Shift key to type one of the characters.

Workaround: Choose one of the following options:

- Use an alternate Compose sequence that does not include the Shift key.
For more information, see Appendix C, “Compose Key Sequences,” in *Solaris Common Desktop Environment: User’s Guide*. The appendix provides a list of available sequences, some of which have alternate sequences that do not use the Shift key.
- Log in by using a locale that uses keyboard input methods, such as any of the available UTF-8 locales.

x86: kdmconfig Command Does Not Create System Identification Configuration File for Xorg X Server (6217442)

If you use the JumpStart installation method, the process might use a system identification configuration (`sysidcfg`) file. This file is used to generate a specific Xsun configuration file for a system. The Xsun configuration portion of a `sysidcfg` file is created by the command `kdmconfig -d filename`. However, on systems that use the default Xorg server, the command does not create a file with any Xorg configuration information. Consequently, you cannot use the JumpStart method on these systems without some additional preparatory steps.

Workaround: Before using the JumpStart installation method on a system that uses the Xorg server, perform the following steps.

1. Prepare a specific `xorg.conf` file to be used on the system. Store this file in the JumpStart directory of the JumpStart server.
For instructions to create an `xorg.conf` file and to access Xorg information, see [“x86: Program That Configures Keyboard, Display, and Mouse Not Working for X Server \(6178669\)”](#) on page 58.
2. Create a finish script that copies the `xorg.conf` file to the `/etc/X11` directory in the system that you want to install. For example, the script might include the following line:

```
cp ${SI_CONFIG_DIR}/xorg.conf /etc/X11/Xorg.conf
```
3. In the custom JumpStart rules file, include the finish script in the rules entry for systems of the type that you want to install.
4. Perform the custom JumpStart installation.

For instructions about how to perform a custom JumpStart installation, see the *Solaris 10 Installation Guide: Custom JumpStart and Advanced Installations*. Chapter 4 includes information about the JumpStart rules file, while Chapter 5 contains a section about finish scripts.

x86: kdmconfig Instructions to Configure Xorg X Server Are Incomplete (6205881)

Instructions that are provided in the `kdmconfig` program to configure the Xorg server are incomplete. The program lists basic instructions to generate an `xorg.conf` file. However, some relevant information is unavailable. For example, options in the `xorg.conf` file can be overridden in several places:

- Command-line options
- Information that is detected by the Xorg server when the server starts

- The startup scripts for the Xorg server, which might include passing overriding arguments

Thus, for more information about Xorg configuration, refer to the following sources:

- Xorg(1x) man page in the `/usr/X11/man` directory
- Man pages for the desktop systems that use the X server, such as the following:
 - `dtlogin(1X)` in the `/usr/dt/man` directory
 - `gdm(1)` in the `/usr/share/man` directory

If these directories are not in your man path, use one of these options:

- Add the directory to the `MANPATH` environment variable setting.
- Use the `-M` directory option of the `man` command.

Some scripts that start the Xorg server use `smf(5)` repository properties. In particular, the FMRI `svc:/applications/x11/x11-server` is used for storing X server properties. The following properties are relevant to the Xorg server:

- `options/xserver`
- `options/default_depth`
- `options/server_args`

You can set and retrieve these properties by becoming superuser and using the `svccfg` command, as shown in the following example:

```
# svccfg
svc:> select application/x11/x11-server
svc:/application/x11/x11-server> listprop options/default_depth
options/default_depth integer 24

svc:/application/x11/x11-server> setprop options/default_depth = 8
svc:/application/x11/x11-server> listprop options/default_depth
options/default_depth integer 8

svc:/application/x11/x11-server> end
#
```

x86: Program That Configures Keyboard, Display, and Mouse Not Working for X Server (6178669)

In this current Solaris 10 release, the default X server has changed from Xsun to Xorg. The program that configures keyboard, display, and mouse (`kdmconfig`) applies only to the Xsun server. The program has no effect on Xorg server configuration. Consequently, you cannot use `kdmconfig` to configure the Xorg server.

Workaround: To configure the Xorg server, perform the following steps:

1. Create an `xorg.conf` file with one of these commands:
 - `/usr/X11/bin/Xorg -configure`
 - `/usr/X11/bin/xorgconfig`
2. Edit the resultant `xorg.conf` file with the necessary changes.
3. Move the `xorg.conf` file to `/etc/X11/xorg.conf`

For more details about Xorg configuration, refer to the Xorg man pages in `/usr/X11/man`. This directory is not in the default man page path. To view these man pages, use one of the following options:

- Add the path to the settings of the environment variable `MANPATH`.
- Use the syntax `man -M /usr/X11/man`.

Alternatively, you can revert to using the Xsun server by performing the following steps:

1. Type the following commands:

```
# mkdir -p /etc/dt/config
# cp /usr/dt/config/Xservers /etc/dt/config/Xservers
```
2. In the `/etc/dt/config/xservers` file, comment out the Xorg server lines. Then, uncomment the Xsun server lines.
3. Save the file and reboot the system.

SPARC: Some UTF-8 Locales Are Unavailable in the Common Desktop Environment Login Service (5042573)

The following UTF-8 locales are missing when the login server starts and the Common Desktop Environment (CDE) login service is launched:

- `ar_SA.UTF-8`
- `el_GR.UTF-8`
- `nl_BE.UTF-8`
- `nl_NL.UTF-8`
- `pt_PT.UTF-8`

Workaround: To use these locales, log in to any other UTF-8 locale. Then, set the `LC_ALL` variable at the command line. For example:

```
export LC_ALL=ar_SA.UTF-8
```

Note – The workaround applies only to SPARC based systems. These locales are unavailable in x86 based systems.

CDE Removable Media Auto Run Capability Removed (4634260)

The Removable Media auto run capability in the CDE desktop environment has been temporarily removed from the Solaris 10 software.

Workaround: To use the auto run function for a CD-ROM or another removable media volume, you must do one of the following:

- Run the `volstart` program from the top level of the removable media file system.
- Follow the instructions that are included with the CD for access from outside of CDE.

Solaris PDASync Cannot Delete Last Entry From the Desktop (4260435)

After you delete the last item from the desktop, the item is restored from the handheld device to the desktop when you synchronize your handheld device. Examples of items that you might delete, and then have restored, are the last appointment in your Calendar or the last address in the Address Manager.

Workaround: Manually delete the last entry from the handheld device prior to synchronization.

Solaris PDASync Does Not Support Data Exchange With the Multibyte Internationalized PDA Device (4263814)

If you exchange multibyte data between a PDA device and Solaris CDE, the data might be corrupted in both environments.

Workaround: Back up your data on your personal computer with the PDA backup utility before you run the Solaris PDASync application. If you accidentally exchange multibyte data and corrupt that data, restore your data from the backup.

Documentation DVD

The following Documentation DVD bugs apply to the Solaris 10 release.

SUNWsdocs Package Needed to Remove Other Documentation Packages

If you remove the `SUNWsdocs` package, then try to remove other documentation packages, the removal fails. This problem occurs because the `SUNWsdocs` package is installed with any collection and provides the browser entry point.

Workaround: If you removed the `SUNWsdocs` package, reinstall the `SUNWsdocs` package from the documentation media and then remove the other documentation packages.

European Locale PDF Documents Available Only Through C Locale (4674475)

On systems that are running the current Solaris 10 release, PDF documents on the Solaris 10 Documentation DVD are not accessible in the following European locales:

- `de` (German)
- `es` (Spanish)
- `fr` (French)
- `it` (Italian)
- `sv` (Swedish)

This problem occurs because of a limitation with Adobe Acrobat Reader. For more information on this problem, see the Adobe Technote site at <http://www.adobe.com:80/support/techdocs/294de.htm>.

Workaround: Choose one of the following workarounds.

- On SPARC based platforms, set the environment variable `LC_ALL` to `C` `acroread`. For example, in the C shell, type the following command in a terminal window:

```
% env LC_ALL=C acroread
```
- On x86 based systems, , upgrade to Adobe Acrobat Reader 5.0 or a later version.

File Systems

The following file system bugs apply to the Solaris 10 release.

Upgrading From Some Solaris Express or Solaris 10 Releases Requires Remounting of File Systems

After you upgrade an NFSv4 server from Solaris Express 11/04 or earlier Solaris 10 releases, your programs might encounter EACCES errors. Furthermore, directories might erroneously appear to be empty.

To prevent these errors, unmount and then remount the client file systems. In case unmounting fails, you might need to forcibly unmount the file system by using `umount -f`. Alternatively, you can also reboot the client.

NFSv4 Access Control List Functions Might Work Incorrectly

NFSv4 Access Control List (ACL) functions might work improperly if clients and servers in the network are installed with different previous Solaris 10 releases. The affected ACL functions and command-line utilities that use these functions are the following:

- `acl()`
- `facl()`
- `getfacl`
- `setfacl`

For more information about these functions and utilities, see their respective man pages.

For example, errors might be observed in a network that includes the following configuration:

- A client that is running Solaris 10 Beta software
- A server that is running Solaris 10 software

The following table illustrates the results of the ACL functions in client-server configurations with different Solaris 10 releases.

Operation	Client S10 OS	Server S10 OS	Result
get ACL	S10 Beta	S10 OS	fabricated ACL *
get ACL	S10 OS	S10 Beta	works ok
set ACL	S10 Beta	S10 OS	works ok
set ACL	S10 OS	S10 Beta	Error: EOPNOTSUP

Workaround: For the NFSv4 ACL functionality to work properly, perform a full installation of the Solaris 10 OS on both the server and the client.

Access Problems Between Solaris NFSv4 Clients and NFSv4 Servers

In the current Solaris 10 version, Solaris implementation of NFSv4 Access Control Lists (ACL) is now compliant with RFC 3530 specifications. However, errors occur for NFSv4 clients that use the Solaris 10 Beta 2 or Beta 1 versions. These clients cannot create files in the NFSv4 servers that are using the current Solaris 10 release. The following error message is displayed:

```
NFS getacl failed for server_name: error 9 (RPC: Program/version mismatch)
```

Workaround: None.

System Crash Dump Fails on Devices Greater Than 1 TByte (6214480)

The system cannot generate a dump on a partition that is equal to or greater than 1 Tbyte in size. If such a device is on a system, the following might occur after the system boots subsequent to a system panic:

- The system does not save the dump.
- The following message is displayed:

```
0% done: 0 pages dumped, compression ratio 0.00, dump failed: error 6
```

Workaround: Configure the size of your system's dump device to less than 1 Tbyte.

Using `smoservice` Command to Add OS Services Results in Insufficient Disk Space Message (5073840)

If you use the `smoservice` command to add OS services to a UFS file system, a message that there is insufficient disk space available is displayed. This error is specific to UFS file systems on EFI-labeled disks.

Workaround: Complete the following workaround.

1. Apply the SMI VTOC disk label.
2. Re-create the file system.
3. Rerun the `smoservice` command.

Hardware–Related Issue and Bugs

The following hardware–related issue and bugs apply to the Solaris 10 release.

SPARC: Sun Crypto Accelerator 4000 Board Versions 1.0 and 1.1 Not Supported in Solaris 10 OS

A new cryptographic framework is provided in Solaris 10 OS. However, versions 1.0 and 1.1 of the Sun Crypto Accelerator 4000 board’s software and firmware do not utilize this framework. Consequently, these versions are not supported in the Solaris 10 OS.

The 2.0 release uses the new framework. This release is available as a free upgrade to current Sun Crypto Accelerator 4000 users who plan to use Solaris 10 OS. Because the Sun Crypto Accelerator 4000 is an export-controlled product, you must contact Sun Enterprise Services or your local sales channel to obtain the free upgrade. Additional information is available on the Sun Crypto Accelerator 4000 web page at Sun’s products site.

Certain USB 2.0 Controllers Are Disabled

Support for certain USB 2.0 controllers has been disabled because of incompatibilities between these devices and the EHCI driver. The following message is displayed:

Due to recently discovered incompatibilities with this USB controller, USB2.x transfer support has been disabled. This device will continue to function as a USB1.x controller. If you are interested in enabling USB2.x support please refer to the ehci(7D) man page. Please refer to www.sun.com/io for Solaris Ready products and to www.sun.com/bigadmin/hcl for additional compatible USB products.

For the latest information about USB devices, see http://www.sun.com/io_technologies/USB-Faq.html.

Supported USB Devices and Corresponding Hub Configurations

This Solaris release supports both USB 1.1 and USB 2.0 devices. The following table is a summary of USB devices that work in specific configurations. Connection types can either be direct to the computer or through a USB hub. Note that USB 1.1 devices and hubs are low speed or full speed. USB 2.0 devices and hubs are high speed. For details about ports and speeds of operation, see the *System Administration Guide: Devices and File Systems*.

TABLE 2-1 USB Devices and Configurations

USB Devices	Connection Types
USB 2.0 storage devices	Direct, USB 1.1 hub, USB 2.0 hub
USB 1.1 devices except audio	Direct, USB 1.1 hub, USB 2.0 hub
USB 1.1 audio devices	Direct, USB 1.1 hub
USB 2.0 audio devices	Not supported

x86: Limitations Exist With Certain Device Drivers in Solaris 10 OS

The following list describes limitations with certain drivers and interfaces in this release of Solaris 10 for x86 platforms:

- Checkpoint Resume This functionality is turned off for all device types. In the `DDI_SUSPEND` code in your `detach()` function, you should return `DDI_FAILURE`.
- Power Management This functionality is unavailable to USB devices. Do not create power management components. Write your driver so that `pm_raise_power()` and `pm_lower_power()` are called

only when power management components are created.

DVD-ROM/CD-ROM Drives on Headless Systems

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 diskette remain at full-power mode. These devices might switch to low-power mode on a system without a monitor. To restore power to the CD or diskette, type `volcheck` to obtain the latest status from each removable device.

Alternatively, you can disable power management on your system by using the Dtpower GUI. By disabling power management, these devices are constantly at full power.

x86: Manual Configuration Required to Specify Non-US English Keyboards

By default, the `kdmconfig` program specifies Generic US-English(104-Key) as the keyboard type that is connected to the system. If the system's keyboard is not a US-English keyboard, you must manually specify the keyboard type during installation. Otherwise, installation continues by using the default keyboard specification that is inconsistent with the system's actual keyboard type.

Workaround 1: If the system's keyboard is not a US-English keyboard, perform the following steps during installation:

1. When the Proposed Window System Configuration For Installation is displayed, press Esc.

Note – The information on the Proposed Window System Configuration For Installation, which includes the keyboard type, is displayed only for 30 seconds. If you want to change configuration settings, you must press Esc before the 30 seconds lapse. Otherwise, the installation continues by using the displayed settings.

2. Change the keyboard type to the type that corresponds to your system's keyboard.
3. Press Enter to accept the changes and continue with the installation.

Workaround 2: If you want to change the keyboard type in a system that is already running Solaris 10 OS, use the `kdmconfig` program. Choose the option that applies to the type of X server your system is running.

- If your system is running the Xsun server, follow these steps:
 1. Run `kdmconfig`.
 2. Use the Change Keyboard option to change the keyboard type.
 3. Save the configuration.
- If your system is running the default Xorg server, follow these steps:
 1. Run `kdmconfig`.
 2. Select the Xsun server.
 3. Use the Change Keyboard option to change the keyboard type.
 4. Save the configuration.
 5. Run `kdmconfig` again to switch to the Xorg server.

SPARC: jfca Driver for Certain Host Bus Adapters That Are Connected to Tape Devices Might Cause Errors (6210240)

The `jfca` driver for the following host bus adapters (HBAs) might cause system panics or I/O failures when these HBAs are connected to tape devices:

- SG-PCI1FC-JF2
- SG-PCI2FC-JF2

The `jfca` driver for these HBAs is prone to race conditions when certain operations are being run, and thus causes the errors. The operations are the following:

- Link reset
- Loop reset
- Switch reset
- Repeated link failures

Error messages similar to the following examples might be displayed:

- I/O failure messages

```
jfca: [ID 277337 kern.info] jfca4: Sequencer-detected error. Recover
immediately.
last message repeated 18376 times
  jfca: [ID 716917 kern.notice] jfca4: ExgWarning:  SendVerify(1): SHOULD
ABORT THE ORIG I/O PKG=30007520bd8!
scsi: [ID 107833 kern.warning] WARNING:
/pci@1e,600000/SUNW,jfca@3,1/fp@0,0/st@w2100001086108
628,1 (st3):
  SCSI transport failed: reason 'timeout': giving up
```

- System panic message

```
panic[cpu1]/thread=2a100497cc0:  
BAD TRAP: type=31 rp=2a1004978d0 addr=a8 mmu_fsr=0 occurred in module  
"jfcfa" due to a NULL pointer dereference
```

Workaround: Do not connect tape devices to either the SG-PCI1FC-JF2 or SG-PCI2FC-JF2 HBA.

Using USB 2.0 Hubs With USB 1.x Devices Might Cause System Panic (6209619)

If you use USB 1.x devices downstream from a USB 2.0 hub, the system might panic. The following might be one of the error messages that is displayed:

```
BAD TRAP: type=31 rp=2a100f8d6a0 addr=38 mmu_fsr=0 occurred  
in module "usba" due to a NULL pointer
```

Workaround: Do not use any of the following connection configurations with USB 1.x devices:

- USB 1.x devices with a connection to a USB 2.0 hub that is connected to a USB 2.0 system port
- USB 1.x devices that are connected to a USB 2.0 PCI card's ports

Instead, connect the USB 1.x devices directly to the system's USB 1.1 ports. Alternatively, you can use a USB 1.1 external hub that is connected to a USB 2.0 system port or a PCI card's port.

Note – For appropriate information, see the following:

- <http://www.sun.com/io> for Solaris Ready products
 - <http://www.sun.com/bigadmin/hcl> for additional compatible USB products
 - http://www.sun.com/io_technologies/USB-Faq.html for the latest information about USB devices
-

x86: EHCI Driver Unusable in Certain Motherboards (6204987)

The system software in the ICH5R controller in certain motherboards fails to take control of EHCI hardware from the BIOS. The following error message is displayed:

```
ehci_init_ctrl: Unable to take control from BIOS. EHCI support disabled.
```

Consequently, you cannot use the EHCI driver.

Note – For appropriate information, see the following:

- <http://www.sun.com/io> for Solaris Ready products
 - <http://www.sun.com/bigadmin/hcl> for additional compatible USB products
 - http://www.sun.com/io_technologies/USB-Faq.html for the latest information about USB devices
-

Workaround: None.

Using FireWire–1394 Storage Devices Might Cause System Panic (6203680)

If you use FireWire-1394 mass storage devices with the removable media volume daemon (`vold`), the system might panic. Hard drives and CD or DVD drives are examples of such storage devices. The error message that might be displayed includes the entry “bad mutex.”

Workaround: Perform these steps before connecting FireWire–1394 mass storage devices to the system:

1. Become superuser.
2. Stop the Volume Management daemon to disable removable media management:

```
# /etc/init.d/volmgt stop
```

For more information about the daemon, see the `vold(1M)` man page.

Pausing USB Audio Devices During Play or Record Operation Might Cause System Deadlock (6200924)

While a USB audio device is playing or recording, if you pause the device by using `sdtaudiocontrol`, for example, the driver might hang. You might need to reboot the system.

Workaround: Do not pause USB audio devices.

Note – For appropriate information, see the following:

- <http://www.sun.com/io> for Solaris Ready products
 - <http://www.sun.com/bigadmin/hcl> for additional compatible USB products
 - http://www.sun.com/io_technologies/USB-Faq.html for the latest information about USB devices
-

Contention Exists Between Certain Devices That Share the Same Bus (6196994)

A bus contention occurs if Quad Fast-Ethernet (QFE) cards share the same bus with any of the following adapters:

- Sun GigaSwift adapter
- Sun Dual Gigabit Ethernet and Dual SCSI/P adapter
- Sun Quad Gigaswift Ethernet adapter

The infinite-burst parameter of the ce driver that is used by these adapters is enabled by default. Consequently, little or no bus time is available for the QFE ports that share the same bus.

Workaround: Do not place QFE cards on the same bus as the network adapters in the list.

Some Keyboard Keys Not Functioning With Num Lock Key On (6173972)

If the Num Lock key is turned on while you are running certain Java applications, other keys might cease to function. Some of the affected keys are the following:

- Back Space
- Delete
- Enter
- Tab
- Zero on the number keypad

Workaround: Turn off the Num Lock key.

SPARC: GigaSwift Fast and Gigabit Ethernet Devices With Revision IDs Lower Than 32 Might Cause System Panic (5090222)

A GigaSwift Fast or a Gigabit Ethernet card with a Revision ID (`rev_id`) that is lower than 32 might cause a system to panic. The panic is observed in the following systems that are running Solaris 10 OS:

- Sun Blade™ 1500
- Sun Blade 2500
- Sun Fire V210
- Sun Fire V240
- Netra™ 240
- Sun Fire V440
- Netra 440

The following error message is displayed:

```
panic: pcisch-1: Fatal PCI bus error(s)
```

Workaround: Follow these steps.

1. Determine the `rev_id` of the device.

```
kstat ce:instance | grep rev
```

2. If the `rev_id` is lower than 32, replace the card with a later model that has a `rev_id` equal to or higher than 32.

Note – The original card is still usable in x86 systems or in older SPARC based systems that are not included in the preceding list.

hat_getkpfnum() DDI Function Is Obsolete (5046984)

The `hat_getkpfnum()` DDI function is obsolete. Developers should update their device drivers to not use the `hat_getkpfnum()` DDI interface. If drivers are using `hat_getkpfnum, ()` warnings similar to the following example are displayed:

```
WARNING: Module mydrv is using the obsolete hat_getkpfnum(9F)
interface in a way that will not be supported in
a future release of Solaris. Please contact the
vendor that supplied the module for assistance,
or consult the Writing Device Drivers guide,
available from http://www.sun.com for migration
advice.
```

```

---
Callstack of bad caller:
    hat_getkpfnum_badcall+93
    hat_getkpfnum+6e
    mydrv_setup_tx_ring+2d
    mydrv_do_attach+84
    mydrv_attach+242
    devi_attach+6f
    attach_node+62
    i_ndi_config_node+82
    i_ddi_attachchild+4a
    devi_attach_node+4b
    devi_attach_children+57
    config_immediate_children+6e
    devi_config_common+77
    mt_config_thread+8b

```

To determine if a driver is using `hat_getkpfnum()`, consult the driver source code, or examine the driver's symbols by using `nm()`. Using the driver `mydrv` as an example, type the following syntax:

```
% nm /usr/kernel/drv/mydrv | grep hat_getkpfnum
```

For guidance about migrating drivers away from `hat_getkpfnum()`, refer to Appendix B, "Summary of Solaris DDI/DKI Services," in *Writing Device Drivers*.

Some Systems With USB 2.0 Hardware Might Hang or Panic (5030842)

Systems with certain USB 2.0 hardware might frequently hang or panic when running this Solaris release. These problems are associated with USB 2.0 devices that are not based on the NEC chip set. When these problems occur, the following error message about the Enhanced Host Controller Interface (EHCI) is displayed:

```

WARNING: /pci@0,0/pci8086,244e@1e/pci925,1234@2,2 (ehci1):
This controller is not supported.
Please refer to www.sun.com/io for Solaris Ready products
and to www.sun.com/bidadmin/hcl for additional compatible USB products

```

Workaround: Depending on your system's hardware configuration, choose one of the following options:

- Replace the USB 2.0 host controller hardware with hardware that is based on the NEC chip set. USB 2.0 hardware that is based on the NEC chip set is known to work well with the Solaris OS.
- On systems whose USB 2.0 host controller hardware is built into the motherboard and that have spare PCI slots, perform the following steps:
 1. Add a PCI-based USB 2.0 card that is based on the NEC chip.

2. Become superuser.
3. Disable USB 2.0 on the motherboard and enable USB 2.0 support only through the PCI card. Issue the following commands:

```
# update_drv -d -i "pciclass,0c0320" usba10_ehci
# update_drv -a -i "pci1033,e0" usba10_ehci
# reboot
```

4. For faster operation, connect your USB 2.0 devices to the card's ports instead of the original ports on the motherboard.
- Even if you cannot add new USB hardware to your system, you can still disable your system's EHCI by performing the following steps:

1. Become superuser.
2. Issue the following commands:

```
# update_drv -d -i "pciclass,0c0320" usba10_ehci
# reboot
```

Note – USB 2.0 ports are operated by two companion hardware pieces:

- EHCI for the high-speed piece
- Either Open Host Controller Interface (OHCI) or Universal Host Controller Interface (UHCI) for the low-speed and full-speed piece

On x86 based systems, drivers for both OHCI and UHCI exist. On SPARC based systems, only OHCI USB 1.1 host controller hardware is supported. Therefore, only USB hardware with OHCI companion controllers continue to work on SPARC systems whose companion EHCI controller is disabled. Ports of the USB hardware remain operational even with EHCI disabled, provided that your system has the proper OHCI or UHCI drivers. USB 2.0 devices that are connected to these ports run only as fast as a USB 1.1 device.

To verify whether EHCI and OHCI host controllers exist on your SPARC based systems, type:

```
# prtconf -D
```

Check the output for EHCI entries next to one or more OHCI entries, similar to the following example:

```
pci, instance #0 (driver name: pci_pci)
usb, instance #0 (driver name: usba10_ohci)
usb, instance #1 (driver name: usba10_ohci)
usb, instance #0 (driver name: usba10_ehci)
```

x86: Using Two Adaptec SCSI Card 39320D Cards on a Sun Fire V65x Server Might Cause the System to Panic (5001908)

Using two Adaptec SCSI Card 39320D cards on a Sun Fire V65x server might cause that system to panic. The panic occurs during initial reboot after you have installed Solaris 10 software. The following error message is displayed:

```
Initializing system Please wait...
1 run-time error M6111: MATH
  - floating-point error: stack underflow
```

Workaround: Remove the second Adaptec card.

x86: Soft System-Shutdown is Not Supported in Solaris OS on x86 (4873161)

The Solaris OS on x86 does not support a soft system-shutdown that is initiated by a command. A command to shut down simulates pressing the power button to turn the power off. On x86-based systems, issuing this command while the Solaris OS is running turns the power off immediately without properly shutting down the operating system. The improper shutdown process might corrupt the file system.

Workaround: Before powering off, shut down the operating system first. Perform the following steps:

1. Become superuser.
2. Use one of the available commands to shut down the Solaris OS properly, such as `init`, `halt`, or `shutdown`. For example:

```
# shutdown
```
3. After the operating system shuts down completely, you can switch off the power by one of two ways:
 - If the system supports soft system-shutdown, issue the command to turn off the power.
 - If the system does not support soft system-shutdown, turn off the power manually by using the power switch.

For more information about the commands to shut down the operating system, see the man pages for the `init(1M)`, `halt(1M)`, and `shutdown(1M)` commands. For information about turning off your system's power, refer to the system's manuals.

Some DVD and CD-ROM Drives Fail to Boot Solaris (4397457)

The default timeout value for the SCSI portion of the SunSwift™ PCI Ethernet/SCSI host adapter (X1032A) card does not meet the timeout requirements of Sun's SCSI DVD-ROM drive (X6168A). With marginal media, the DVD-ROM occasionally experiences timeout errors. The only exceptions are Sun Fire 6800, 4810, 4800, and 3800 systems. These systems overwrite the SCSI timeout value by means of OpenBoot PROM.

Workaround: For other platforms, use the on-board SCSI interfaces or DVD-ROM compatible SCSI adapters, such as the following examples:

- X1018A (SBus: F501-2739-xx)
- X6540A (PCI: F375-0005-xx)

iPlanet Directory Server 5.1 Issues

This section provides important information for users of iPlanet™ Directory Server 5.1 who are upgrading to the new Solaris 10 release.

Installing Directory Server 5.1

Sun Java System Directory Server 5 2005Q1 replaces iPlanet Directory Server 5.1 that was integrated in the Solaris 9 Operating System. In Solaris 10 OS, this new Directory Server can be installed as part of the Sun Java Enterprise System.

Note – For information about the Sun Java System Directory Server 5 2005Q1, refer to the documentation for the Sun Java System at <http://docs.sun.com>.

Solaris 10 OS continues to support Directory Server 5.1. You might need to install Directory Server 5.1 under the following circumstances:

- You need to recover Directory Server 5.1 data.
- You want to migrate your data to Directory Server 5 2005Q1.

In Solaris 10 release, you install the Directory Server 5.1 manually. Follow these steps:

1. Insert the Solaris 10 Software - 4 CD into your CD-ROM drive.

2. Become superuser.
3. In a terminal window, install the Directory Server.

```
# cd /cdrom/cdrom0/Solaris_10/Product/  
# pkgadd -d . IPLTnls IPLTnspr IPLTnss IPLTjss IPLTpldap \  
IPLTdsr IPLTdsu IPLTadmin IPLTcons IPLTadcon IPLTdscon \  
IPLTadman IPLTdsman
```

To install Simplified Chinese localization packages, issue the following additional command:

```
# pkgadd -d . IPLTcdsu IPLTcadmin IPLTccons IPLTcadcon \  
IPLTcdscon IPLTcadman IPLTcdsman
```

To install Japanese localization packages, issue the following additional command:

```
# pkgadd -d . IPLTjdsu IPLTjadmin IPLTjcons IPLTjadcon \  
IPLTjdscon IPLTjadman IPLTjdsman
```

4. After installation is complete, configure iPlanet Directory Server 5.1. Refer to Chapter 11, “Sun ONE Directory Server Configuration,” in *System Administration Guide: Naming and Directory Services (DNS, NIS, and LDAP)*.

Migrating to the Sun Java System Directory Server 5 2005Q1



Caution – The database formats of the two Directory Server versions are incompatible. Thus, if you are a Directory Server 5.1 user, Sun recommends that you migrate your database to a database that is formatted for the Sun Java System Directory Server 5 2005Q1.

To perform a migration, both versions of the Directory Server must exist in the system that has been upgraded to the Solaris 10 OS. If you are a DS 5.1 user, but are using the compressed archive (.tar.gz) delivery format, you can skip immediately to the migration instructions in Step 2.

1. On a terminal window, check whether iPlanet Directory Server 5.1 packages are present in your system.

```
$ pkginfo | grep IPLT
```

If the following packages appear as output, then you can go to Step 2 to proceed with the migration. The output indicates that the iPlanet Directory Server 5.1 packages are in the system.

```

system IPLTadcon Administration Server Console
system IPLTadman Administration Server Documentation
system IPLTadmin Administration Server
system IPLTcons Console Client Base
system IPLTdscon Directory Server Console
system IPLTdsman Directory Server Documentation
system IPLTdsr Directory Server (root)
system IPLTdsu Directory Server (usr)
system IPLTjss Network Security Services for Java
system IPLTnls Nationalization Languages and Localization Support
system IPLTnspr Portable Runtime Interface
system IPLTnss Network Security Services
system IPLTpldap PerLDAP
$

```

If the packages do not exist, then install the iPlanet Directory Server 5.1 packages first. Refer to the 4-step procedure in the preceding section “Installing Directory Server 5.1” on page 75. After installation is complete, go to Step 2 to proceed with the migration.

2. Migrate your iPlanet Directory Server 5.1 database to the current version. For instructions, refer to the documentation collection for the Sun Java System Directory Server at http://docs.sun.com/coll/DirectoryServer_05q1.

After migrating your data, make sure you continue to back up directory data in the same way as you backed up directory data before migration. Future disaster recovery might require the migrated database.

Issues While Running Debugger

The following issues involve the kernel debugger.

SPARC: Systems With Active Kernel Debugger Might Panic During Suspend/Resume Cycles (5062018)

After you execute several suspend/resume cycles on a system with an active kernel debugger (kadb), the system might eventually panic. The panic occurs at the resume phase of the cycle. Typically, this problem occurs in systems that have undergone between 20 and 50 suspend/resume cycles. The system generates a panic message.

Workaround: Disable `kmdb` in all systems that are required to use the `suspend` and `resume` module (`cpr`).

System Might Loop When Master CPU Is Changed (4405263)

A system that is running the Solaris kernel debugger to debug a live system might loop with incomplete error messages. This loop occurs when the OpenBoot PROM's master CPU is changed. A system reset restores the system to operation. However, the traces of the original failure are lost. Consequently, you cannot perform a diagnosis of the fatal reset.

Workaround: When the system is at the PROM level, the OpenBoot's `ok` prompt is displayed. In a system with multiple CPUs, the `ok` prompt is preceded by a number that is enclosed in curly braces. This number indicates the active CPU in the system. To run your debug session while at the PROM level, use the following steps.

1. Raise `pil` to `f` by typing the following command:

```
{0} ok h# 0f pil!
```

2. Use the `switch-cpu` command to selectively switch from the currently active CPU to different CPUs. For example, to switch from CPU #0 to CPU #1, type the following command:

```
(0) ok 1 switch-cpu
```

The `ok` prompt is now preceded by the number of the CPU to which you switched.

```
{1} ok
```

3. Run your debugger.
4. At the end of your debugger session, issue a `reset-all` command to return the system to normal use.

Note – Make sure that you upgrade the system to the latest version of the OpenBoot PROM.

Localization Issues

This section describes localization issues that apply to Solaris 10 OS.

Login Screen Marks UTF-8 Locales as Recommended

On the Language menu of the login screen, the UTF-8 locales are labeled as a recommended option. For example, for Japanese locales, the screen would appear as follows:

```
ja_JP.eucJP ----- Japanese EUC
ja_JP.PCK ----- Japanese PCK
ja_JP.UTF-8 (Recommended) - Japanese UTF-8
```

Using UTF-8 locales is recommended to users of the Java Desktop System (JDS) because JDS uses UTF-8/Unicode as internal character encoding. This recommendation also applies to the announcement of future end-of-software support for non-UTF-8 locales. See [“Legacy or Traditional Non-UTF-8 Locales” on page 141](#). To migrate to UTF-8 locales, see [“Migration To Unicode Multilingual Computing” in *Java Desktop System Release 3 for the Solaris 10 Operating System Release Notes*](#).

Hardware for Estonian Keyboard Type 6, French Canadian Keyboard Type 6, and Polish Programmers Keyboard Type 5 Not Available

Software support for three additional keyboard layouts has been added to the Solaris OS: Estonian keyboard Type 6, French Canadian keyboard Type 6, and Polish programmers keyboard Type 5.

This software gives users in Estonia, Canada, and Poland greater flexibility for keyboard input by modifying standard U.S. keyboard layouts to their own language needs.

Currently, no hardware is available for the three additional keyboard layout types.

Workaround: To take advantage of this new keyboard software, modify the `/usr/openwin/share/etc/keytables/keytable.map` file in one of the following ways:

- For the Estonian Type 6 keyboard, make the following changes:
 1. Change the US6.kt entry to Estonia6.kt in the `/usr/openwin/share/etc/keytables/keytable.map` file. The modified entry should read as follows:

```
6                                0                                Estonia6.kt
```
 2. Add the following entries to the `/usr/openwin/lib/locale/iso8859-15/Compose` file:

<scaron>	: "/xa8"	scaron
<scaron>	: "/xa6"	scaron
<scaron>	: "/270"	scaron
<scaron>	: "/264"	scaron

3. Reboot the system for the changes to take effect.

- For the French Canadian Type 6 keyboard, make the following changes:

1. Change the US6.kt entry to Canada6.kt in the `/usr/openwin/share/etc/keytables/keytable.map` file. The modified entry should read as follows:

```
6                                0                                Canada6.kt
```

2. Reboot the system for the changes to take effect.

- If you are using the existing Polish Type 5 keyboard layout, make the following changes:

1. Change the Poland5.kt entry to Poland5_pr.kt in the `/usr/openwin/share/etc/keytables/keytable.map` file. The modified entry should read as follows:

```
4                                52                                Poland5_pr.kt
```

Note – If you are using a keyboard with dip-switches, make sure the switches are set to the correct binary value for the Polish keytable entry (binary 52) before rebooting the system.

2. If you are using a standard U.S. Type 5 keyboard, change the US5.kt entry to Poland5_pr.kt in the `/usr/openwin/share/etc/keytables/keytable.map` file. The modified entry should read as follows:

```
4                                33                                Poland5_pr.kt
```

3. Reboot the system for the changes to take effect.

x86: Login Process Might Hang in Certain Asian Non-UTF-8 Locales (6215527)

On some x86 based systems, if you log in to certain Asian non-UTF-8 locales, the login process might hang. The following are examples of the locales where the error is observed:

- zh_CN.EUC

- zh_TW.BIG5
- ko_KR.EUC

Workaround: At the login window's Language menu, choose UTF-8 locales.

localeadm -l Does Not List Installed Korean Locale Packages (6189823)

When re-creating the `/usr/sadm/lib/localeadm/locales.list` file, the `localeadm -l` command fails to include the Korean locales. Consequently, even though the Korean locales are installed in a system, the locales are not listed when you run `localeadm -l`. Furthermore, if you attempt to remove the Korean locales with `localeadm -r ko` after listing the installed locales, the following error message is displayed:

```
Region korean is not installed on this machine. Exiting.
```

Workaround: To update the `/usr/sadm/lib/localeadm/locales.list` file properly, run `localeadm -a ko`. You can then successfully remove the Korean locales with `localeadm -r ko`.

Alternatively, you can perform the following steps:

1. Become superuser.
2. Edit the `/usr/sadm/lib/localeadm/locales.list` file by adding the following entry:

```
Korean (korean)
```

Sort Capability in the European UTF-8 Locales Does Not Function Correctly (4307314)

The sort capability in the European UTF-8 locales does not work properly.

Workaround: Before you attempt to sort in a FIGGS UTF-8 locale, set the `LC_COLLATE` variable to the ISO-1 equivalent.

```
# echo $LC_COLLATE
> es_ES.UTF-8
# LC_COLLATE=es_ES.IS08859-1
# export LC_COLLATE
```

Then start sorting.

Networking Issues

The following networking bugs apply to the Solaris 10 release.

SPARC: RTM_IFINFO Message Has Different Sizes on 32-bit and 64-bit Compilations

Sixty-four-bit programs that create `PF_ROUTE` sockets and parse the contents of `RTM_IFINFO` messages in the `if_msghdr_t` structure might work incorrectly unless they are recompiled.

IP Forwarding Disabled by Default in Solaris 10 OS

In this Solaris release, IP forwarding is disabled by default. This setting applies to both IPv4 and IPv6 regardless of other system configurations. Systems with multiple IP interfaces that formerly forwarded IP packets by default no longer have this automatic feature. To enable IP forwarding in multihomed systems, administrators must manually perform additional configuration steps.

Workaround: The command `routedm` enables IP forwarding. The configuration changes that are the result of `routedm` usage persist across system reboots.

- To enable IPv4 forwarding, type `routedm -e ipv4-forwarding`.
- To enable IPv6 forwarding, type `routedm -e ipv6-forwarding`.
- To apply the enabled IP-forwarding configuration to the currently running system, type `routedm -u`.

For more information about IP forwarding, see the `routedm(1M)` man page.

Zone Not Booting When IP Address Belongs to a Failed IP Network Multipathing Group (6184000)

A zone can be configured so that the zone's IP address becomes part of an IP Network Multipathing (IPMP) group. The configuration process is documented in "How to Extend IP Network Multipathing Functionality to Non-Global Zones" in *System Administration Guide: Solaris Containers—Resource Management and Solaris Zones*.

If all the network interfaces in the IPMP group fail, a zone does not boot if it has an IP address that is part of the IPMP group.

The following example illustrates the result if you attempt to boot the zone.

```
# zoneadm -z my-zone boot
zoneadm: zone 'my-zone': bge0:1:
could not set default interface for multicast: Invalid argument
zoneadm: zone 'my-zone': call to zoneadmd failed
```

Workaround: Repair at least one network interface in the group.

ATM LANE Subnets for IPv4/IPv6 Might Not Complete Initialization (4625849)

During system boot, multiple instances might not connect to their LAN Emulation (LANE) instance if more than eight LANE instances are on a single adapter. This bug does not appear at multiuser level.

Workaround: To reinitialize your SunATM network, perform the following steps:

1. Verify the problem by issuing a `lanestat -a` command.

Instances that are not connected have Virtual Circuit Identifier (VCI) values of 0 to the LAN Emulation Server (LES) and Broadcast and Unknown Address Server (BUS).

2. Stop and restart your SunATM network.

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

3. Reset netmasks or any other network setup for the SunATM interfaces.

Configuring Multiple Tunnels Between Two IP Nodes With Filtering Enabled Might Result in Packet Loss (4152864)

If you configure multiple IP tunnels between two IP nodes, and enable `ip_strict_dst_multihoming` or other IP filters, packet loss might result.

Workaround: Choose one of the following:

- First, configure a single tunnel between the two IP nodes. Add addresses to the tunnel by using the `ifconfig` command with the `addif` option.
- Do not enable `ip_strict_dst_multihoming` on tunnels between two IP nodes.

Security Issues

The following security issues applies to the Solaris 10 release.

Nonpassword Logins Fail With pam_ldap Enabled

After the account management PAM module for LDAP (`pam_ldap`) is enabled, users must have passwords to log in to the system. Consequently, nonpassword-based logins fail, including those logins that use the following tools:

- Remote shell (`rsh`)
- Remote login (`rlogin`)
- Secure shell (`ssh`)

Workaround: None.

New Versions of `encrypt()` and `decrypt()` Are Not Backward Compatible

Output files that are generated by `encrypt()` are processed by the corresponding `decrypt()`. The current release uses a new version of `encrypt()` and `decrypt()`. These commands process files whose format differs from files that earlier versions generated and processed. Data that is encrypted by using the earlier `encrypt()` can no longer be recognized correctly by the new `decrypt()`.

For more information, refer to the `encrypt(1)` and `decrypt(1)` man pages.

Workaround: To convert old encrypted data so that the data can be processed by the new `encrypt()` and `decrypt()` version, perform the following steps:

1. Decrypt the existing data by using the earlier version of `decrypt()`.
2. Re-encrypt the same data by using the new `encrypt()`.

Incorrect Parameters Might Cause Panic in Sun StorEdge T3 (4319812)

A Sun StorEdge™ T3 system might panic if an application uses the HTTP interface to send tokens with out-of-range parameters.

Service Management Facility

This section describes issues that involve the Service Management Facility of Solaris 10 OS. For more information about this new feature in the Solaris OS, see “Solaris Service Manager” in *Solaris 10 What’s New*.

svccfg import Subcommand Does Not Refresh Dependent Services (6221374)

When the system first boots after a Solaris 10 OS installation, an error with dependent services might occur. The `svccfg import` subcommand might fail to activate dependent services that have been declared in a service’s manifest file. Consequently, the dependent services might not start in order and generate error messages that refer to those services.

Workaround: Issue the command `svcadm refresh` for the dependent service. For example:

```
svcadm refresh dependent FMRI
```

Software developers can avoid this problem with the following workarounds:

- Declare dependent services at the instance level instead of the service level.
- For live installations, enable a package’s postinstall script to run the `svcadm refresh dependent FMRI` command.
- For installations that use an alternate boot environment, append the `svcadm refresh dependent FMRI` command to the `/var/svc/profile/upgrade` file.

Print Services Have Offline Settings by Default (5100134)

When a host has no local printers configured, two print services, `ipp-listener` and `rfc1179`, are set to offline by default. These services are automatically moved to online after local printers are configured on the host. The default offline settings of these services do not indicate an error. Therefore, no user intervention is required.

Workaround: None.

keyserv Daemon Disables Some File System Services (5084183)

On systems that do not use Network Information Service (NIS) or NIS+ name service, the NFS and autofs services are disabled. The failure is due to these services' dependency on the `keyserv` daemon. The `keyserv` daemon relies on the RPC domain name, which is not set on systems that do not use NIS or NIS+. Consequently, the failure of the `keyserv` daemon causes the NFS and autofs services to become disabled.

Workaround: To enable the services, perform the following steps:

1. Become superuser.
2. Issue the following commands:

```
# svcadm disable network/rpc/keyserv
# svcadm disable -t network/nfs/client:default
# svcadm enable network/nfs/client:default
# svcadm disable -t network/nfs/server:default
# svcadm enable network/nfs/server:default
# svcadm disable -t network/rpc/gss:ticotsord
# svcadm enable network/rpc/gss:ticotsord
```

Login Prompts Sometimes Appear Before File Systems Are Mounted (5082164)

During system startups, sometimes the login services such as console or ssh logins start before remote file systems and naming services become available. Consequently, the user name might not be recognized or the user's home directory might not be available.

Workaround: If the error occurs, wait for a few seconds and then log in again. Alternatively, log in from a local account to view the system state.

Smart Card

The following Smart Card bugs apply to Solaris 10 OS.

System Does Not Respond to Smart Card (4415094)

If `ocfserv` terminates and the display is locked, the system remains locked even when a smart card is inserted or removed.

Workaround: Perform the following steps to unlock your system:

1. Perform a remote login to the machine on which the `ocfserv` process was terminated.
2. Become superuser.
3. Kill the `dtsession` process by typing the following in a terminal window.

```
# pkill dtsession
```

`ocfserv` restarts and smart card login and capability are restored.

Edit Config File Menu Item in Smartcards Management Console Does Not Work (4447632)

The Edit Config File menu item in the Smartcards Management Console does not edit smart card configuration files that are located in `/etc/smartcard/opencard.properties`. If the menu item is selected, a warning is displayed which indicates not to continue unless requested by technical support.

Workaround: Do not use the Edit Config File menu item in the Smartcards Management Console. For information on smart card configuration, see the *Solaris Smartcard Administration Guide*.

Solaris Commands and Standards

The following section describes behavior changes in certain commands and standards in Solaris 10 OS.

Bash 2.0.5b No Longer Sets Some Environment Variables

Solaris 10 OS includes Bash 2.0.5b. This shell no longer automatically exports the following variables to the environment:

- `HOSTNAME`
- `HOSTTYPE`
- `MACHTYPE`
- `OSTYPE`

This new behavior applies even if the shell assigns default values to these variables.

Workaround: Export these variables manually.

New ln Utility Requires -f Option

The behavior of `/usr/bin/ln` has changed to adhere to all of the standards from SVID3 through XCU6. If you use the `ln` command without the `-f` option to link to an existing target file, the link is not established. Instead, a diagnostic message is written to standard error, and the command proceeds to link any remaining source files. Finally, the `ln` command exits with an error value.

For example, if file `b` exists, the syntax `ln a b` generates the following message:

```
ln: b: File exists
```

This behavior change affects existing shell scripts or programs that include the `ln` command without the `-f` option. Scripts that used to work might now fail in Solaris 10 OS.

Workaround: Use the `-f` option with the `ln` command. If you have existing scripts that execute the link utility, make sure to modify these scripts to comply with the command's new behavior.

New tcsh Rejects setenv Variable Names That Use a Dash or an Equals Sign

In Solaris 10 OS, `tcsh` has been upgraded to version 6.12. This version no longer accepts environment variables whose names use a dash or an equals sign. Scripts that contain `setenv` lines and that work in earlier Solaris versions might generate errors in the current Solaris 10 release. The following error message is displayed:

```
setenv: Syntax error
```

For more information, refer to the `tcsh` man page for the Solaris 10 OS.

Workaround: Do not use the dash or equals sign in names for environment variables.

STDIO getc Family EOF Condition Behavior Change

Applications that were built in strict standard C conformance mode are affected by the behavior changes of certain library functions. An example is applications that were compiled by using the `cc -Xc` or `c89` compilation mode. The behavior has changed for the following library functions:

- `fgetc()`
- `fgets()`
- `fgetwc()`
- `fgetws()`
- `getc()`
- `getchar()`
- `gets()`
- `getwc()`
- `getwchar()`
- `getws()`

A formal interpretation of the 1990 C Standard requires that after an end-of-file condition is set, no more data is returned from the file on subsequent input operations. The exception is if the file pointer is repositioned or the error and end-of-file flags are explicitly cleared by the application.

The behavior for all other compilation modes remains unchanged. Specifically, the interfaces can read additional newly written data from the stream after the end-of-file indicator has been set.

Workaround: Call `fseek()` or `clearerr()` on the stream to read additional data after the EOF condition has been reported on the stream.

Output Columns of the `ps` Command Have Been Widened

Due to larger UIDs, processor ids, and cumulative execution time, the columns of the `ps` command output have been widened. Customer scripts should not assume fixed output columns.

Workaround: Scripts should use the `-o` option of the `ps` command.

For more information, see the `ps(1)` man page.

Command `ping -v` Does Not Work on IPv6 Addresses (4984993)

The command `ping -v` fails when the command is applied to addresses that use Internet Protocol version 6 (IPv6). The following error message is displayed:

```
ping: setsockopt IPV6_RECVRTHDRDSTOPTS Invalid argument
```

Workaround: None. To obtain the same ICMP packet information that `ping -v` provides, use the `snoop` command.

Solaris Volume Manager

The following Solaris Volume Manager bugs apply to the Solaris 10 release.

Solaris Volume Manager `metattach` Command Might Fail

If you have a Solaris Volume Manager mirrored root (/) file system in which the file system does not start on cylinder 0, all submirrors you attach must also not start on cylinder 0.

If you attempt to attach a submirror starting on cylinder 0 to a mirror in which the original submirror does not start on cylinder 0, the following error message is displayed:

```
can't attach labeled submirror to an unlabeled mirror
```

Workaround: Choose one of the following workarounds:

- Ensure that both the root file system and the volume for the other submirror start on cylinder 0.
- Ensure that both the root file system and the volume for the other submirror do not start on cylinder 0.

Note – By default, the JumpStart installation process starts swap at cylinder 0 and the root (/) file system somewhere else on the disk. Common system administration practice is to start slice 0 at cylinder 0. Mirroring a default JumpStart installation with root on slice 0, but not cylinder 0, to a typical secondary disk with slice 0 that starts at cylinder 0, can cause problems. This mirroring results in an error message when you attempt to attach the second submirror. For more information about the default behavior of Solaris installation programs, see the Solaris 10 Installation Guides.

Solaris Volume Manager `metassist` Command Fails in Non-English Locales (5067097)

In non-English locales, the Solaris Volume Manager `metassist` command might fail to create volumes. For example, if `LANG` is set to `ja` (Japanese), the following error message is displayed:

```
xmlEncodeEntitiesReentrant : input not UTF-8  
Syntax of value for attribute read on mirror is not valid  
Value "XXXXXX" (unknown word) for attribute read on mirror
```

```
is not among the enumerated set
Syntax of value for attribute write on mirror is not valid
Value "XXXXXX"(Parallel in Japanese) for attribute write on mirror
is not among the enumerated set
metassist: XXXXXX(Invalid in Japanese) volume-config
```

Workaround: As superuser, set the LANG variable to LANG=C.

For the Bourne, Korn, and Bash shells, use the following command:

```
# export LANG=C
```

For the C shell, use the following command:

```
# setenv LANG C
```

Volume Creation Fails in Systems With Unformatted Disks (5064066)

Creating Solaris Volume Manager volume configurations with the `metassist` command might fail if an unformatted disk is in the system. The following error message is displayed:

```
metassist: failed to repartition disk
```

Workaround: Manually format any unformatted disks before you issue the `metassist` command.

Hot Spares Do Not Work Correctly When Solaris Volume Manager RAID-1 (Mirror) or RAID-5 Volumes Are Created in Disk Sets Built on Soft Partitions (4981358)

If you create a Solaris Volume Manager RAID-1 (mirror) or RAID-5 volume in a disk set that is built on top of a soft partition, hot spare devices do not work correctly.

Problems that you might encounter include, but are not limited to, the following:

- A hot spare device might not activate.
- A hot spare device status might change, indicating the device is broken.
- A hot spare device is used, but resynced from the wrong drive.
- A hot spare device in use encounters a failure, but the broken status is not reported.

Workaround: Do not use this configuration to create a Solaris Volume Manager RAID-1 or RAID-5 volume in disk sets.

Solaris Volume Manager `metadevadm` Command Fails if Logical Device Name No Longer Exists (4645721)

You cannot replace a failed drive with a drive that has been configured with the Solaris Volume Manager software. The replacement drive must be new to Solaris Volume Manager software. If you physically move a disk from one slot to another slot on a Sun StorEdge A5x00, the `metadevadm` command fails. This failure occurs when the logical device name for the slice no longer exists. However, the device ID for the disk remains present in the metadevice replica. The following message is displayed:

```
Unnamed device detected. Please run 'devfsadm && metadevadm -r' to resolve.
```

Note – You can access the disk at the new location during this time. However, you might need to use the old logical device name to access the slice.

Workaround: Physically move the drive back to its original slot.

Solaris Volume Manager `metarecover` Command Fails to Update `metadb` Namespace (4645776)

If you remove and replace a physical disk from the system, and then use the `metarecover -p -d` command to write the appropriate soft partition specific information to the disk, an open failure results. The command does not update the metadevice database namespace to reflect the change in disk device identification. The condition causes an open failure for each such soft partition that is built on top of the disk. The following message is displayed:

```
Open Error
```

Workaround: Create a soft partition on the new disk instead of using the `metarecover` command to recover the soft partition.

Note – If the soft partition is part of a mirror or RAID 5, use the `metareplace` command without the `-e` option to replace the old soft partition with the new soft partition.

```
# metareplace dx mirror or RAID 5  
old_soft_partition new_soft_partition
```

System Administration

This section describes system administration bugs in Solaris 10 OS.

Sun Patch Manager Tool 2.0 Not Compatible With Previous Versions

A system that runs the Sun Patch Manager Tool 2.0 can manage remote systems that run Patch Manager Tool, including Sun Patch Manager Tool 1.0.

However, a system with an earlier version of Patch Manager Tool cannot manage remote systems that run Patch Manager Tool 2.0. Earlier versions include the following:

- Sun Patch Manager Base Software 1.x
- Sun Patch Manager Tool 1.0

Note – Common Information Model/Web Based Enterprise Management (CIM/WBEM) support for Patch Manager Tool does not exist in the Solaris 8 OS. Consequently, remote management with Patch Manager does not apply to Solaris 8 systems.

Sun Remote Services Net Connect Supported Only in the Global Zone

Sun Remote Services (SRS) Net Connect is supported only in the global zone. Error messages are displayed if you perform one of the following actions:

- You install SRS Net Connect in a local zone.
- SRS Net Connect is installed in the global zone at the time a local zone is created.

The error messages are as follows:

```
*** package SUNWcstu failed to install -  
interactive administration required:
```

```
Interactive request script supplied by package  
pkgadd: ERROR: request script did not complete successfully
```

```
Installation of SUNWcstu was suspended (interaction required).  
No changes were made to the system.
```

```
*** package SUNWfrunc failed to install -  
interactive administration required:
```

```
Interactive request script supplied by package  
pkgadd: ERROR: request script did not complete successfully
```

```
Installation of SUNWfrunc was suspended (interaction required).  
No changes were made to the system.
```

Workaround: Ignore the error messages.

Error or Warning Messages Might Be Displayed While Installing Non-global Zones With the zoneadm Command

While installing a non-global zone by using the zoneadm command, error or warning messages might be displayed during package installation. The messages are similar to the following example:

```
Preparing to install zone zone1.  
Creating list of files to copy from the global zone.  
Copying 2348 files to the zone.  
Initializing zone product registry.  
Determining zone package initialization order.  
Preparing to initialize 790 packages on the zone.  
Initialized 790 packages on zone.  
Zone zone1 is initialized.
```

```
Installation of the following packages generated errors:  
SUNWjhrt SUNWmcc SUNWjhdev SUNWnsb SUNWmcon SUNWmpatchmgr
```

```
Installation of the following packages generated warnings:  
SUNWj3rt SUNWmc SUNWwbmc SUNWmga SUNWdclnt SUNWlvma SUNWlvmg  
SUNWrmui SUNWdoc SUNWp15m SUNWpmgr
```

Problems about package installation are also recorded in `/export/zone1/root/var/sadm/system/logs/install_log` which contains a log of the zone installation.

Workaround: None.

Note – The non-global zone can still be used even though these messages have been reported. Issues with package installation existed in earlier Solaris Express and Solaris 10 Beta releases. However, no notification about these problems was being generated. Beginning with this Solaris release, these errors are now properly reported and logged.

Solaris Product Registry Administration Utility Fails to Launch in a Zone (6220284)

If you attempt to launch the Solaris Product Registry administration utility in a zone, the attempt fails. During the zone installation, `productregistry`, the Solaris Product Registry database, is not duplicated in the zone. Consequently, the utility cannot run in a zone.

Workaround: As superuser, copy the `productregistry` database to the zone.

```
# cp /var/sadm/install/productregistry zone_path/var/sadm/install/
```

In the previous command, `zone_path` is the path to the root directory of the zone that you created.

patchadd Fails to Reapply Patches to Newly Installed Packages (6219176)

The `patchadd` command fails to reapply a patch under the following set of circumstances.

1. You patch a system that does not contain all the packages that are affected by the patch.
2. You later install the packages that were not installed when you applied the patch.
3. You reapply the patch to patch the newly installed packages.

The portion of the patch that applies to the package that you added later is not installed. A message that is similar to the following output is displayed.

```
patchadd ~tsk/patches/111111-01
Validating patches...
```

```
Loading patches installed on the system...
```

```
Done!
```

```
Loading patches requested to install.
```

```
Done!
```

```
The following requested patches are already installed on the system
Requested to install patch 111111-01 is already installed on the system.
```

```
No patches to check dependency.
```

Workaround: Choose one of the following workarounds.

Workaround 1: If you have not created zones on your system, use the `patchadd` command with the `-t` option to patch the system.

```
# patchadd -t patch-ID
```

In the previous command, *patch-ID* is the ID of the patch you want to apply.

Workaround 2: If you have created zones on your system, follow these steps.

1. Back out the patch.

```
# patchrm patch-ID
```

2. Install the additional packages that are not on the system but are affected by the patch.

```
# pkgadd -d device pkgabbrev
```

In the previous example, *device* specifies the absolute path to the package or packages you want to install. *pkgabbrev* specifies the abbreviated name of the package you want to install. You can specify multiple package names.

3. Reinstall the patch.

```
# patchadd patch-ID
```

Non-Global Zones Created After Patching Global Zones Are Not Accessible by Remote Login Services (6216195)

If you create, and then patch, a global zone, remote login services are not enabled on any non-global zones you subsequently create. Examples of such remote services are `rlogin` and `telnet`. If you create a non-global zone after patching a global zone, you cannot log in remotely to the non-global zone. This issue affects systems that have been patched with patches that deliver or modify the `SUNWcsr` package.

Workaround: Choose one of the following workarounds.

Workaround 1: If you have not yet booted the non-global zone, follow these steps.

1. In the global zone, change to the `/var/svc/profile` directory in the non-global zone.

```
global# cd zone_path/root/var/svc/profile
```

In the previous example, *zone_path* is the path to the non-global zone. You can determine the path to the non-global zone by typing the following command in a global zone.

```
global# zonecfg -z zonename info zonepath
```

2. Remove the `inetd_services.xml` profile.

```
global# rm inetd_services.xml
```

3. Create a symbolic link for `inetd_services.xml` that points to the `inetd_generic.xml` profile.


```
global# ln -s inetd_generic.xml inetd_services.xml
```

4. Boot the non-global zone.

For more information about how to boot a zone, see *System Administration Guide: Solaris Containers—Resource Management and Solaris Zones*.

Workaround 2: If you have already booted the non-global zone, follow these steps.

1. Perform the steps that are listed in the previous workaround.
2. In the non-global zone, enable the services that are listed in the `/var/svc/profile/inetd_services.xml` profile.

```
my-zone# svccfg apply /var/svc/profile/inetd_services.xml
```

3. Reboot the non-global zone.

```
my-zone# reboot
```

Workaround 3: Before you create zones on the system, apply the appropriate patch for your platform.

- For SPARC based systems, apply patch ID 119015-01, or a later version.
- For x86 based systems, apply patch ID 119016-01, or a later version.

Cannot Delete Existing Diskless Clients From the System (6205746)

If you use the `smdiskless` command to delete a diskless client, the command fails. The diskless client is not removed from the system databases. The following error message is displayed:

```
Failing with error EXM_BMS.
```

Workaround: Unshare the `/export` partition before adding the client.

Net Connect 3.1.1 Installation Fails (6197548)

Installation of Net Connect 3.1.1 fails if you select the product at the beginning of a full Solaris 10 installation. This failure occurs when you are installing by using the Solaris 10 Operating System DVD. At the completion of the OS installation, the following error message is recorded in the Net Connect install log in `/var/sadm/install/logs/`:

```
Installation of SUNWSRSPX failed.  
Error: pkgadd failed for SUNWsrspx  
Install complete. Package: SUNWsrspx
```

Workaround: After the OS installation is completed, follow these steps:

1. Insert the Solaris 10 Operating System DVD or the Solaris 10 Software - CD 4.
2. Change to the directory of the Net Connect product.
3. Run the Net Connect installer.

x86: Default C Library Might Cause Boot Failure When You Install Solaris Flash Archives (6192995)

A boot failure that involves the Solaris Flash archive might occur under the following circumstances:

- You create a Solaris Flash archive on a system that is using a libc C library with certain hardware-support capabilities.
- You install the archive on a clone system that has different hardware-support capabilities.

When you attempt to boot the clone system, the following error message is displayed:

```
WARNING: init exited with fatal signal 9; restarting.
```

Workaround: Follow these steps.

1. Before you create the archive, unmount the `/lib/libc.so.1` library on the master system.

```
# umount /lib/libc.so.1
```

This command enables the master system to use the basic version of the libc C library.

2. Create the Solaris Flash archive on the master system.

For more information about how to create Solaris Flash archives, see the *Solaris 10 Installation Guide: Solaris Flash Archives (Creation and Installation)*.

3. Mount the `/lib/libc.so.1` library on the master system.

```
# mount /lib/libc.so.1
```

4. Install the Solaris Flash archive on the clone system.

For more information about how to install Solaris Flash archives, see the *Solaris 10 Installation Guide: Solaris Flash Archives (Creation and Installation)*.

SPARC: smosservice delete Command Does Not Successfully Remove All Directories (6192105)

If you use the `smosservice delete` command to remove a diskless client service, the command does not successfully remove all the service directories.

Workaround: Follow these steps.

1. Make sure that no clients exist that use the service.

```
# unshare /export/exec/Solaris_10_sparc.all
# rm -rf /export/exec/Solaris_10_sparc.all
# rm -rf /export/exec/.copyofSolaris_10_sparc.all
# rm -rf /export/.copyofSolaris_10
# rm -rf /export/Solaris_10
# rm -rf /export/share
# rm -rf /export/root/templates/Solaris_10
# rm -rf /export/root/clone/Solaris_10
# rm -rf /tftpboot/inetboot.sun4u.Solaris_10
```

2. Remove the following entry from the `/etc/bootparams` file.

```
fs1-24 boottype=:os
```

Note – Remove this entry only if this file server does not provide functions or resources for any other services.

3. Remove the following entry from the `/etc/dfs/dfstab` file.

```
share -F nfs -o ro /export/exec/Solaris_8_sparc.all/usr
```

4. Modify the `/var/sadm/system/admin/services/Solaris_10` file.

- If the file server is not `Solaris_10`, delete the file.
- If the file server is `Solaris_10`, remove all entries after the first three lines. The deleted lines indicate the service `USR_PATH` and `SPOOLED ROOT` packages in `/export/root/templates/Solaris_10` and the supported platforms.

patchadd Command Does Not Support Installing Patches From an NFS Server (6188748)

If you use the `patchadd` command to install patches across the NFS from another system, the command fails. The following example shows a `patchadd` operation that failed and the error message that is displayed:

```
Adding patches...
/net/host/path-to-patch directory
Checking installed patches...
Verifying sufficient filesystem capacity (dry run method)...
Installing patch packages...
Patch patchID has been successfully installed.
See /var/sadm/patch/patchID/log for details
Patch packages installed:
SUNWxxx-package-to-be-patched
Done.
Patching local zones...
patching zone zonename
```

```
Adding patches...
Done.
cat: cannot open /var/tmp/.pchbBAAbTaGdh
```

Workaround: Manually copy all of the patches to be installed from the NFS server to the local system first. Then use the `patchadd` command to install the patches from the directory on the local system where the patches were copied.

lucreate Command Does Not Create RAID-1 Volumes (5106987)

If you use the `lucreate` command to create RAID-1 volumes (mirrors) that do not have device entries in the `/dev/md` directory, the command fails. You cannot mirror file systems with the `lucreate` command unless you first create the mirrors with Solaris Volume Manager software.

Workaround: Create the mirrored file systems with Solaris Volume Manager software, then create the new boot environment with the `lucreate` command.

For more information about the `lucreate` command, see the `lucreate(1M)` or *Solaris 10 Installation Guide: Solaris Live Upgrade and Upgrade Planning*.

For more information about how to create mirrored file systems with Solaris Volume Manager software, see *Solaris Volume Manager Administration Guide*.

SPARC: Panics That Occur During Suspend and Resume Cycles Might Cause the System to Hang (5062026)

A system panic that occurs while you are performing a suspend-and-resume (`cpr`) cycle might cause the system to hang. More typically, this problem is observed in Sun Blade™ 2000 workstations that have the XVR-1000 graphics accelerator installed. Rarely, other SPARC based systems might similarly hang during a panic. When the panic occurs, the core dump is not saved, and no prompt appears on the console. The problem might be more prevalent if the kernel debugger (`kadb`) is active.

Workaround: To restore the system to a usable state, manually reboot the system.

SPARC: Stopping the System by Using Keyboard Sequences Might Cause a System Panic (5061679)

If you attempt to stop the system by pressing keyboard sequences such as Stop-A or L1-A, the system might panic. An error message similar to the following example is displayed:

```
panic[cpu2]/thread=2a100337d40: pcisch2 (pci@9,700000):
consistent dma sync timeout
```

Workaround: Do not use keyboard sequences to force the system to enter OpenBoot PROM.

Using the `ipfs` Command With `-w` Option Fails (5040248)

The `ipfs` command saves and restores information about the state of the Network Address Translation (NAT) and packet-filtering state tables. This utility prevents network connections from being disrupted if the system reboots. If you issue the command with the `-w` option, `ipfs` fails to save the kernel state tables. The following error message is displayed:

```
state:SIOCSTGET: Bad address
```

Workaround: None.

Permissions for Mount Points Not Preserved in Created Boot Environment (4992478)

When you create a new boot environment by using `lucreate`, the permissions are not preserved for the file system mount points. Consequently, some user processes fail. If you create the new boot environment in a clustering environment, the cluster brings down the nodes, then boots from the CD-ROM to repair the permissions for the mount points.

Workaround: Follow these steps.

1. Create the new boot environment.

```
# lucreate -n newbe -m /:c0t0d0s0:ufs
-m /var:c1t0d0s0:ufs -m /usr:c2t0d0s0:ufs
```

In the previous example, the `lucreate` command creates the `newbe` boot environment. This example defines the following file systems and mount points.

- The root (`/`) file system is mounted on `c0t0d0s0`.
 - The `var` file system is mounted on `c1t0d0s0`.
 - The `usr` file system is mounted on `c2t0d0s0`.
2. Mount the root file system of the new boot environment.

```
# mount /dev/dsk/c0t0d0s0 /mnt
```
 3. For each mount point that is defined for the boot environment, change the permissions to `755`.

```
# chmod 755 /mnt/var
# chmod 755 /mnt/usr
```

4. Unmount the root file system.

```
# umount /dev/dsk/c0t0d0s0
```

kill -HUP Does Not Always Cause the Agent to Reread the snmpd.conf Configuration File (4988483)

After modifying the contents of `snmpd.conf`, you can issue the command `kill -HUP snmp Process ID`. This command stops the `snmp` process. The command then sends a signal to the System Management Agent's master agent (`snmpd`) to reread `snmpd.conf` and implement the modifications that you introduced. The command might not always cause the master agent to reread the configuration file. Consequently, using the command might not always activate modifications in the configuration file.

Instead of using `kill -HUP`, restart the System Management Agent after adding modifications to `snmpd.conf`. Perform the following steps:

1. Become superuser.
2. Type the following command:

```
# /etc/init.d/init.sma restart
```

Installation of Locales Fails if Solaris Installation CDs Are Used (4967742)

The Locale Administrator tool (`localeadm`) fails to set up new locales if you use the Solaris 10 Software CDs to install the necessary packages. The failure occurs as you are installing packages from the Solaris 10 Software - 1 CD. The tool does not automatically eject this CD. Consequently, you cannot insert the next CD to continue the installation.

Workaround: To install the packages for your locale, use the Solaris 10 Operating System DVD or a network installation image. If neither is available, then perform the following steps:

1. Obtain the list of the Solaris packages that are needed to set up the locale you are installing.

```
% localeadm -v -q option
```

option is the name of the region or locale that you are setting up. For example, for the Western European region, type `weu` for the option.

A list of packages is displayed in the order in which these packages are found in the Solaris 10 Software CDs, as follows:

- Solaris 10 Software - 1 CD
 - Solaris 10 Software - 2 CD
 - Solaris 10 Software - 3 CD
 - Solaris 10 Software - 4 CD
 - Solaris 10 Languages CD
2. Copy the listed packages from the respective CDs to a directory on the machine or the network. To determine the exact path to these packages in each CD, use the `find` command.
 3. Rerun the `localadm` command to install these packages. The source directory is the directory to which you copied the packages in the previous step.

x86: Pressing the F4 Key During BIOS Bootup Fails to Boot the Service Partition (4782757, 5051157)

You are booting a Sun LX50 which has a Service partition and Solaris 10 OS on x86 is installed. Pressing the F4 function key to boot the Service partition, when given the option, causes the screen to go blank. The system then fails to boot the Service partition.

Workaround: Do not press the F4 key when the BIOS Bootup Screen is displayed. After a time-out period, the Current Disk Partition Information screen is displayed. Select the number in the Part# column that corresponds to `type=DIAGNOSTIC`. Press the Return key. The system boots the Service partition.

Solaris WBEM Services 2.5 Daemon Cannot Locate `com.sun` Application Programming Interface Providers (4619576)

The Solaris WBEM Services 2.5 daemon cannot locate providers that are written to the `com.sun.wbem.provider` interface or to the `com.sun.wbem.provider20` interface. Even if you create a `Solaris_ProviderPath` instance for a provider that is written to these interfaces, the Solaris WBEM Services 2.5 daemon does not locate the provider.

Workaround: To enable the daemon to locate such a provider, stop and restart the Solaris WBEM Services 2.5 daemon.

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

Note – If you use the javax API to develop your provider, you do not need to stop and restart the Solaris WBEM Services 2.5 daemon. The Solaris WBEM Services 2.5 daemon dynamically recognizes javax providers.

Some com.sun Application Programming Interface Method Invocations Fail Under XML/HTTP Transport Protocol (4497393, 4497399, 4497406, 4497411)

If you choose to use the com.sun application programming interface rather than the javax application programming interface to develop your WBEM software, only Common Information Model (CIM) remote method invocation (RMI) is fully supported. Other protocols, such as XML/HTTP, are not guaranteed to work completely with the com.sun application programming interface.

The following table lists examples of invocations that execute successfully under RMI but fail under XML/HTTP:

Method Invocation	Error Message
<code>CIMClient.close()</code>	<code>NullPointerException</code>
<code>CIMClient.execQuery()</code>	<code>CIM_ERR_QUERY_LANGUAGE_NOT_SUPPORTED</code>
<code>CIMClient.getInstance()</code>	<code>CIM_ERR_FAILED</code>
<code>CIMClient.invokeMethod()</code>	<code>XMLERROR: ClassCastException</code>

Cannot Modify File-System Mount Properties With Solaris Management Console Mounts and Shares Tool (4466829)

The Solaris Management Console Mounts and Shares tool cannot modify mount options on system-critical file systems such as `root (/)`, `/usr`, and `/var`.

Workaround: Choose one of the following workarounds:

- Use the `remount` option with the `mount` command.

```
# mount -F file-system-type -o remount,  
additional-mount-options \  
device-to-mount mount-point
```

Note – Mount property modifications that are made by using the `-remount` option with the `mount` command are not persistent. In addition, all mount options that are not specified in the *additional-mount-options* portion of the previous command inherit the default values that are specified by the system. See the man page `mount_ufs(1M)` for more information.

- Edit the appropriate entry in the `/etc/vfstab` file to modify the file-system mount properties, then reboot the system.

System-Specific Issues

This chapter describes issues specific to Sun midrange and high-end servers. Current Sun servers are part of the Sun Fire system family. Older servers are part of the Sun Enterprise system family.

Note – The Sun Validation Test Suite release notes are now a separate document and can be found at <http://sun.com>.

Dynamic Reconfiguration on Sun Fire High-End Systems

This section describes major domain-side DR bugs on the following Sun Fire high-end systems that run the Solaris 10 software:

- Sun Fire 25K
- Sun Fire 20K
- Sun Fire 15K
- Sun Fire 12K

The DR feature has been enhanced to support reconfiguration of hsPCI assemblies and MaxCPU boards. These resources can be reconfigured on Sun Fire 15K and Sun Fire 12K domains that are running the following Solaris versions:

- Solaris 10 OS
- Solaris 9 4/03 and later Solaris 9 releases
- Solaris 8 2/02 and later Solaris 8 releases

For more information, see
http://www.sun.com/servers/highend/dr_sunfire/slot1_dr.html

For information about DR bugs on Sun Management Services, see the *SMS Release Notes* for the SMS version that is running on your system.

Known Software and Hardware Bugs

The following software and hardware bugs apply to Sun Fire high-end systems.

Network Device Removal Fails When a Program Is Holding the Device Open (5054195)

If a process is holding open a network device, any DR operation that would involve that device fails. Daemons and processes that hold reference counts stop DR operations from completing.

Workaround: As superuser, perform the following steps:

1. Remove or rename the `/rplboot` directory.
2. Shut down NFS services.

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

3. Shut down Boot Server services.

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

4. Perform the DR detach operation.
5. Restart NFS services.

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

6. Restart Boot Server services.

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

DStop Occurs During Copy-Rename Operation From 8GB to 20GB Board (5075885)

Expanders without Memory Placement Optimizations (MPO) capabilities support the DR copy-rename operation. However, this support is limited only to cases where source and target system boards have the same number and size of memory DIMMS. MPO-capable expanders have no such restriction.

Note – The description also applies to BugID 4712228.

Deleteboard Shows Leakage Error (4730142)

Warnings might be displayed when a DR command is executing on a system that is configured with the SunSwift PCI card, Option 1032. These warnings appear on domains that are running either the Solaris 8, Solaris 9, or Solaris 10 software. The following warning is an example:

```
Aug 12 12:27:41 machine genunix: WARNING:
  vmem_destroy('pcisch2_dvma'): leaked
```

These warnings are benign. The Direct Virtual Memory Access (DVMA) space is properly refreshed during the DR operation. No true kernel memory leak occurs.

Workaround: To prevent the warning from being displayed, add the following line to `/etc/system`:

```
set pcisch:pci_preserve_iommu_tsb=0
```

GigaSwift Ethernet MMF Link Fails With CISCO 4003 Switch After DR Attach

The link fails between a system with a Sun GigaSwift Ethernet MMF Option X1151A and certain CISCO switches. The failure occurs when you attempt to run a DR operation on such a system that is attached to one of the following switches:

- CISCO WS-c4003 switch (f/w: WS-C4003 Software, Version NmpSW: 4.4(1))
- CISCO WS-c4003 switch (f/w: WS-C4003 Software, Version NmpSW: 7.1(2))
- CISCO WS-c5500 switch (f/w: WS-C5500 Software, Version McpSW: 4.2(1) and NmpSW: 4.2(1))

This problem is not seen on a CISCO 6509 switch.

Workaround: Use another switch. Alternatively, you can consult Cisco for a patch for the listed switches.

Dynamic Reconfiguration on Sun Fire Midrange Systems

This section describes major issues that are related to DR on the following Sun Fire midrange systems:

- Sun Fire E6900
- Sun Fire E4900

- Sun Fire E6800
- Sun Fire E4810
- Sun Fire E4800
- Sun Fire E3800

Minimum System Controller Firmware

Table 3–1 shows acceptable combinations of Solaris software and System Controller (SC) firmware for each Sun Fire midrange system to run DR.

Note – To best utilize the latest firmware features and bug fixes, run the most recent SC firmware on your Sun Fire midrange system. For the latest patch information, see <http://sunsolve.sun.com>.

TABLE 3–1 Minimum SC Firmware for Each Platform and Solaris Release

Platform	Solaris Release	Minimum SC Firmware
E6900/E4900	Support begins with Solaris 9 4/04	5.16.0
6800/4810/4800/3800	Solaris 9 4/04	5.14.4
6800/4810/4800/3800	Solaris 9	5.12.6

You can upgrade the system firmware for your Sun Fire midrange system by connecting to an FTP or HTTP server where the firmware images are stored. For more information, refer to the `README` and `Install.info` files. These files are included in the firmware releases that are running on your domains. You can download Sun patches from <http://sunsolve.sun.com>.

System Board Classes

The `cfgadm` command shows the following classes of system boards:

- Class “sbd” for system boards of Sun Fire midrange server
- Class “pci” for CompactPCI (cPCI) cards

For more information about system-specific issues with DR, see “Known DR Limitations” on page 111.

To view the classes that are associated with attachment points, run the following command as superuser:

```
# cfgadm -s "cols=ap_id:class"
```

To also list the dynamic attachment points and their classes, add the `-a` option as an argument to the preceding command.

Sun Management Center

For information about using Sun Management Center (Sun MC) with your Sun Fire midrange system, refer to the *Sun Management Center Supplement for Sun Fire Midrange Systems*.

Known DR Limitations

This section contains known software limitations of DR on Sun Fire midrange systems.

General DR Limitations

- Before performing any DR operation on an I/O (IBx) board, stop the `vold` daemon:

```
# sh /etc/init.d/volmgt stop
```

After the DR operation has been successfully completed, restart the `vold` daemon:

```
# sh /etc/init.d/volmgt start
```

- On Sun Fire midrange systems, DR does not support the following drivers:
 - SAI/P (refer to the bug ID 4466378)
 - HIPPI/P

Support for the SunHSI/P driver now exists by installing Patch IDs 106922 (2.0) and 109715 (3.0). For more information, go to <http://sunsolve.sun.com>

- Execute the `devfsadm` command to see any changes that have been made, especially changes from PCI to cPCI.

Limitations Specific to CompactPCI

- You can unconfigure a CompactPCI (cPCI) I/O assembly only if all the cPCI cards in the board are in an unconfigured state. If any cPCI card is busy, the unconfigure operation on the board fails with the status “busy.” For example, board unconfiguration fails with a card whose interface is plumbed or with a mounted disk.
- Make sure that no activity occurs on the local side of the resource. When a multipath disk is connected to two cPCI cards, disk activity might be observed across the cards when none is expected. This occurrence is more likely when attempting to perform DR operations on a cPCI card that shows a busy status. Disk

activity might be observed, even though no activity is occurring on the local side of the resource. A subsequent DR attempt might be required.

- When a user lists the attachment point for a cPCI board by using the `cfgadm -a` command, cPCI slots and PCI buses are all listed as attachment points. The user should not perform DR operations on the following attachment points because DR is not actually performed, and some internal resources are removed.
 - PCI bus displayed as `NO.IB8::pci0`
Four such attachment points exist for each cPCI board.
 - `sgpsc` displayed as `N0.IB8::sgpsc4`
- In order for DR to function properly with cPCI cards, the levers on all cPCI cards that are inserted at Solaris boot time must be fully engaged.
- Unconfiguring a cPCI card automatically disconnects the card. If autoconfigure is enabled, configuration occurs when a cPCI card is connected. If autoconfigure is disabled, you must manually configure the card.

Operating System Quiescence

To determine whether a board has permanent memory, issue the following command as superuser:

```
# cfgadm -av | grep permanent
```

The system responds with output such as the following example, which describes system board 0 (zero):

```
N0.SB0::memory connected configured ok base address 0x0, 4194304  
KBytes total, 668072 KBytes permanent
```

The Solaris kernel and its data reside in permanent memory. Unlike user processes that reside in other boards, the kernel cannot be released from memory by paging out to the swap device. Instead, `cfgadm` uses the copy-rename technique to release the memory.

The copy-rename operation first stops all memory activity on the system by pausing all I/O operations and thread activity. This state is known as *quiescence*. During quiescence the system is frozen and does not respond to external events such as network packets. The duration of the quiescence depends on two factors:

- Number of I/O devices and threads that need to be stopped
- Amount of memory that needs to be copied

Typically, the number of I/O devices determines the required quiescent time because I/O devices must be paused and unpaused. A quiescent state usually lasts longer than two minutes.

Because quiescence has a noticeable impact, `cfgadm` requests confirmation before implementing quiescence, as shown in the following example:


```
# cfgadm -c unconfigure N0.SB0
System may be temporarily suspended, proceed (yes/no)?
```

If you are using Sun Management Center to perform the dynamic reconfiguration, this prompt appears in a pop-up window.

Type Yes to proceed with the DR operation.

Known DR Software Bugs

This section lists important DR bugs.

Network Device Removal Fails When a Program Is Holding the Device Open (5054195)

If a process is holding open a network device, any DR operation that would involve that device fails. Daemons and processes that hold reference counts stop DR operations from completing.

Workaround: As superuser, perform the following steps:

1. Remove or rename the `/rplboot` directory.
2. Shut down NFS services.

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

3. Shut down Boot Server services.

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

4. Perform the DR detach operation.

5. Restart NFS services.

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

6. Restart Boot Server services.

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

Solaris Bandwidth Manager Sometimes Causes System Panic During DR Operations (4506562)

A panic might occur when a system board that contains CPUs is removed from the system while Solaris Bandwidth Manager (SBM) is in use.

Workaround: Do not install SBM on systems that will be used for DR. Do not perform DR operations on CPU system boards on servers in which SBM is installed.

Cannot Unconfigure cPCI Board With a Disabled Port 0 (4798990)

On Sun Fire midrange systems, a CompactPCI (cPCI) I/O board cannot be unconfigured when Port 0 (P0) on that board is disabled. This problem exists in Solaris 10 and Solaris 9 software. It also exists in Solaris 8 software that has one or more of the following patches installed:

- Patch ID 108528–11 through 108528–29
- Patch ID 111372–02 through 111372–04

The error also occurs only during DR operations that involve cPCI boards. An error message similar to the following example is displayed:

```
# cfgadm -c unconfigure NO.IB7
cfgadm: Hardware specific failure: unconfigure NO.IB7: Device
busy:/ssm@0,0/pci@1b,700000/pci@1
```

NO.IB7 is a CompactPCI I/O Board with P0 disabled.

Workaround: Disable the slots instead of Port 0.

Sun Enterprise 10000 Release Notes

This section describes issues that involve the following features on the Sun Enterprise 10000 server:

- System Service Processor requirement
- Dynamic reconfiguration (DR)
- InterDomain Networks (IDNs)
- Solaris Operating System on Sun Enterprise 10000 domains

Note – The Solaris 10 software can be run on individual domains within a Sun Enterprise 10000 system. However, the Sun Enterprise 10000 System Service Processor is not supported by this release.

System Service Processor Requirement

The SSP 3.5 software is required on your System Service Processor (SSP) to support the Solaris 10 software. Install the SSP 3.5 on your SSP first. Then you can install or upgrade to the Solaris 10 OS on a Sun Enterprise 10000 domain.

The SSP 3.5 software is also required so that the domain can be properly configured for DR Model 3.0.

Dynamic Reconfiguration Issues

This section describes different issues that involve dynamic reconfiguration on Sun Enterprise 10000 domains.

DR Model 3.0

You must use DR 3.0 on Sun Enterprise 10000 domains that run the Solaris OS beginning with the Solaris 9 12/03 release. DR model 3.0 refers to the functionality that uses the following commands on the SSP to perform domain DR operations:

- `addboard`
- `moveboard`
- `deleteboard`
- `showdevices`
- `rcfgadm`

You can run the `cfgadm` command on domains to obtain board status information. DR model 3.0 also interfaces with the Reconfiguration Coordination Manager (RCM) to coordinate the DR operations with other applications that are running on a domain.

For details about DR model 3.0, refer to the *Sun Enterprise 10000 Dynamic Reconfiguration User Guide*.

DR and Bound User Processes

For this Solaris release, DR no longer automatically unbinds user processes from CPUs that are being detached. You must perform this operation before initiating a detach sequence. The drain operation fails if CPUs are found with bound processes.

Network Device Removal Fails When a Program Is Holding the Device Open (5054195)

If a process is holding open a network device, any DR operation that would involve that device fails. Daemons and processes that hold reference counts stop DR operations from completing.

Workaround: As superuser, perform the following steps:

1. Remove or rename the `/rplboot` directory.
2. Shut down NFS services.

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

3. Shut down Boot Server services.

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

4. Perform the DR detach operation.
5. Restart NFS services.

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

6. Restart Boot Server services.

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

Enabling DR 3.0 Requires an Extra Step in Certain Situations (4507010)

The SSP 3.5 software is required for a domain to be properly configured for DR 3.0. After upgrading your SSP to SSP 3.5, when DR 3.0 is enabled on the domain, run the following command:

```
# devfsadm -i ngdr
```

InterDomain Networks

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

OpenBoot PROM Variables

Before you issue the `boot net` command from the OpenBoot PROM prompt (`OK`), verify that the `local-mac-address?` variable is set to `false`. This setting is the factory default setting. If the variable is set to `true`, you must ensure that this value is an appropriate local configuration.



Caution – A `local-mac-address?` that is set to `true` might prevent the domain from successfully booting over the network.

In a `netcon` window, you can use the following command at the OpenBoot PROM prompt to display the values of the OpenBoot PROM variables:

```
OK printenv
```

To reset the `local-mac-address?` variable to the default setting, use the `setenv` command:

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

Dynamic Reconfiguration on Sun Enterprise Midrange Systems

This section contains the latest information about dynamic reconfiguration (DR) functionality for the following midrange servers that are running the Solaris 10 software:

- Sun Enterprise 6x00
- Sun Enterprise 5x00
- Sun Enterprise 4x00
- Sun Enterprise 3x00

For more information about Sun Enterprise Server Dynamic Reconfiguration, refer to the *Dynamic Reconfiguration User's Guide for Sun Enterprise 3x00/4x00/5x00/6x00 Systems*. The Solaris 10 release includes support for all CPU/memory boards and most I/O boards in the systems that are mentioned in the preceding list.

Supported Hardware

Before proceeding, make sure that the system supports dynamic reconfiguration. If your system is of an older design, the following message appears on your console or in your console logs. Such a system is not suitable for dynamic reconfiguration.

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

The following I/O boards are not currently supported:

- Type 2 (graphics)
- Type 3 (PCI)
- Type 5 (graphics and SOC+)

Software Notes

This section provides general software information about DR.

Enabling Dynamic Reconfiguration

To enable dynamic reconfiguration, you must set two variables in the `/etc/system` file. You must also set an additional variable to enable the removal of CPU/memory boards. Perform the following steps:

1. Log in as superuser.

2. Edit the `/etc/system` file by adding the following lines:

```
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 file:

```
set kernel_cage_enable=1
```

Setting this variable enables the memory unconfiguration operation.

4. Reboot the system to apply the changes.

Quiesce Test

You start the quiesce test with the following command:

```
# cfgadm -x quiesce-test sysctrl0:slot number
```

On a large system, the quiesce test might run for up to a minute. During this time no messages are displayed if `cfgadm` does not find incompatible drivers.

Disabled Board List

Attempting to connect a board that is on the disabled board list might 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, two options are available:

- Using the force flag (`-f`)

```
# cfgadm -f -c connect sysctrl0:slot number
```

- Using the enable option (`-o enable-at-boot`)

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

To remove all boards from the disabled board list, choose one of two options depending on the prompt from which you issue the command:

- From the superuser prompt, type:

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

- From the OpenBoot PROM prompt, type:

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

For further information about the `disabled-board-list` setting, refer to the “Specific NVRAM Variables” section in the *Platform Notes: Sun Enterprise 3x00, 4x00, 5x00, and 6x00 Systems* manual. This manual is part of the documentation set in this release.

Disabled Memory List

Information about the OpenBoot PROM `disabled-memory-list` setting is published in this release. See “Specific NVRAM Variables” in the *Platform Notes: Sun Enterprise 3x00, 4x00, 5x00, and 6x00 Systems* in the Solaris on Sun Hardware documentation.

Unloading Detach-Unsafe Drivers

If you need to unload detach-unsafe drivers, use the `modinfo` line command to find the module IDs of the drivers. You can then use the module IDs in the `modunload` command to unload detach-unsafe drivers.

Self-Test Failure During a Connect Sequence

Remove the board from the system as soon as possible if the following error message is displayed during a DR connect sequence:

```
cfgadm: Hardware specific failure: connect failed: firmware operation error
```

The board has failed self-test, and removing the board avoids possible reconfiguration errors that can occur during the next reboot.

The failed self-test status does not allow further operations. Therefore, if you want to retry the failed operation immediately, you must first remove and then reinsert the board.

Known Bugs

The following list is subject to change at any time.

Network Device Removal Fails When a Program Is Holding the Device Open (5054195)

If a process is holding open a network device, any DR operation that would involve that device fails. Daemons and processes that hold reference counts stop DR operations from completing.

Workaround: As superuser, perform the following steps:

1. Remove or rename the `/rplboot` directory.
2. Shut down NFS services.

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

3. Shut down Boot Server services.

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

4. Perform the DR detach operation.

5. Restart NFS services.

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

6. Restart Boot Server services.

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

Memory Interleaving Set Incorrectly After a Fatal Reset (4156075)

Memory interleaving is left in an incorrect state when a Sun Enterprise5 x500 server is rebooted after a fatal reset. Subsequent DR operations fail. The problem only occurs on systems with memory interleaving set to min.

Workaround: Choose one of the following options:

- To clear the problem, manually reset the system at the OK prompt.
- To avoid the problem, set the NVRAM `memory-interleave` property to max.

The second option causes memory to be interleaved whenever the system is booted. However, this option might be unacceptable because a memory board that contains interleaved memory cannot be dynamically unconfigured. See [“Cannot Unconfigure a CPU/Memory Board That Has Interleaved Memory \(4210234\)”](#) on page 120.

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

To unconfigure and subsequently disconnect a CPU board with memory or a memory-only board, 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 by 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 \(4156075\)”](#) on page 120 for a related discussion about interleaved memory.

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

To unconfigure and subsequently disconnect a CPU board with memory or a memory-only board, first unconfigure the memory. However, some memory cannot currently be relocated. 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 (4220105)

If a `cfgadm` process is running on one board, an attempt to simultaneously disconnect a second board fails. The following error message is displayed:

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

Workaround: Run only one `cfgadm` operation at a time. Allow a `cfgadm` operation that is running on one board to finish before you start a `cfgadm` disconnect operation on a second board.

End-of-Software Support Statements

This chapter lists end-of-software support statements.

Features Removed From the Solaris 10 Operating System

`device_driver` Path-Name Support in `add_drv` System Command

Past versions of the `add_drv` command accepted a path-name specification for the `device_driver` parameter. Path-name specification is no longer supported in Solaris. If you specify a path name for the device driver, the following error messages will be written to STDERR:

```
Error: driver may not be specified by path path name
Error: Could not install driver driver name
```

During the installation or upgrade process, error messages that are generated by the use of the path-name specification will appear in the `install_log` or `upgrade_log` file.

admintool Command

The `admintool`, including `swmtool`, is no longer supported in Solaris. The functionality of this command is replaced by the following utilities:

Utility	Command	Functionality
Solaris Management Console	<code>smc</code>	Administration of user, group, host, and serial ports
Print Manager	<code>printmgr</code>	Printer management
Product Registry	<code>prodreg</code>	Software administration

asystemem() and systemem() Interfaces

The `asystemem()` and `systemem()` interfaces, which are exported by `libadm(3lib)`, are no longer included in Solaris. Both interfaces are obsolete. Application developers are advised to use the `sysconf(3C)` library function instead.

For more information, see the `sysconf(3C)` man page.

BIND Version 8 DNS Server and Tools

The Internet Systems Consortium's BIND 8 DNS name server and tools are no longer supported in Solaris 10 OS. The BIND 8 version of these DNS name server and tools have been replaced by their corresponding BIND 9 versions. BIND 8-to-BIND 9 migration notes and specific Solaris implementation details are found in Part II, "DNS Setup and Administration," in *System Administration Guide: Naming and Directory Services (DNS, NIS, and LDAP)*.

x86: Common Object File Format (COFF)

Execution of object code in common object file format (COFF) on x86 architectural platforms is no longer supported in Solaris. Likewise, all other existing support for System V Release 3 compatibility on the x86 platform is also terminated.

Obsolete Device Driver Interfaces

The `identify` driver entry point is no longer called by the kernel. New drivers compiled and delivered for this release of Solaris must set this entry point to the `nulldev` kernel function. Existing driver binaries should work without recompiling.

The following symbols have been removed from the header files. The functionality that is associated with these symbols is no longer available in Solaris. Driver developers should delete the associated code.

Obsolete Interface	Preferred Interface
ddi_getminor(9F)	Use getminor(9F)
GLOBAL_DEV	Specify 0
NODEBOUND_DEV	Specify 0
NODESPECIFIC_DEV	Specify 0
ENUMERATED_DEV	Specify 0
DDI_IDENTIFIED	Not needed
DDI_NOTIDENTIFIED	Not needed
ddi_mapdev(9F)	devmap_setup(9F)
ddi_mapdev_intercept(9F)	devmap_load(9F)
ddi_mapdev_nointercept(9F)	devmap_unload(9F)
ddi_mapdev_ctl(9S)	devmap_callback_ctl(9S)
mapdev_access(9E)	devmap_access(9E)
mapdev_free(9E)	mapdev_free(9E)
mapdev_dup(9E)	devmap_dup(9E)
ddi_mapdev_set_device_acc_attr(9F)	ddi_device_mapping_check

For further information, see the `ddi_create_minor_node(9F)`, `ddi_getminor(9F)`, `getminor(9F)`, `identify(9E)`, `nulldev(9F)`, and `devmap(9E)` man pages.

Euro Character Input Sequences That Are Alt Key-Based and Meta Key-Based

Solaris no longer supports the following nonstandard-input key sequences for the Euro character in Solaris Unicode/UTF-8 locales:

- Alt-E
- Alt-4
- Alt-5
- Meta-E
- Meta-4

- Meta-5

Note – In the key sequences, a hyphen indicates simultaneous keystrokes. A plus sign indicates consecutive keystrokes.

The recommended standard-input key sequences follow:

- Alt Graph-E
- Compose+C+=

If the keyboard has no Alt Graph or Compose key, use the following key sequence:

- Ctrl-Shift-T+C+=

Federated Naming Service XFN Libraries and Commands

The Federated Naming Service (FNS), which was based on the X/Open XFN standard, is no longer supported in Solaris.

Generic LAN Driver Version 0 Interfaces

The Generic LAN Driver (GLD) version 0 interfaces that are described in the *Solaris 2.1 Device Driver Writer's Guide for x86* are no longer supported in Solaris. Drivers should use the version 2 interfaces that are described in *Writing Device Drivers*.

To test which GLD interface version a driver is using, run the following script:

```
#!/bin/sh
#
# Test a driver binary for v0 or v2 GLD interface usage
#
for file
do
    /usr/ccs/bin/nm $file | /bin/awk '
    /\|gld_register$/      { isgld=1; }
    /\|gld_mac_alloc$/    { isv2=1; }
    END {
        if (!isgld)
            print file, "does not use GLD";
        else if (!isv2)
            print file, "is a version 0 GLD driver";
        else if (isv2)
            print file, "is a version 2 GLD driver";
    }' file=$file
```

done

Note – The `rtl`s driver from Realtek still uses version 0 interfaces that are now unsupported in Solaris release. However, `rf`, an alternative driver to `rtl`s, uses version 2 interfaces. You can download the alternative driver from <http://homepage2.nifty.com/mrym3/taiyodo/eng>.

GMT Zoneinfo Time Zones

The `/usr/share/lib/zoneinfo/GMT[+-]*` time zones are no longer supported in Solaris. Replace usage of the zoneinfo time zones with the equivalent quoted time zone.

For more information, see the `zoneinfo(4)` and `environ(5)` man pages.

x86: Mixed EISA Devices and Drivers

The following devices that are based on ISA and EISA I/O buses are no longer supported in Solaris. Device drivers that were written specifically for these devices are likewise no longer supported. Some of the drivers also support PCI devices. With the removal of these drivers, support for those PCI devices is removed as well. Support for the EISA bus has been removed in Solaris.

- Distributed Processing Technology (DPT) Family of SmartRAID IV SCSI HBA and RAID Adapter Cards
 - DPT HBA Adapters
 - PM2024
 - PM2044UW
 - PM2044W
 - PM2124
 - PM2124W
 - PM2144UW
 - PM2144W
 - DPT RAID Adapters
 - PM3224
 - PM3224W
 - PM3334UW
 - PM3334W
- Compaq Controllers
 - Compaq 32-Bit Fast-Wide SCSI-2 EISA/PCI Controller (825)

- Compaq Wide-Ultra SCSI PCI Controller (875)
- Compaq Smart-2 EISA/PCI Array Controller
- Smart-2SL PCI Array Controller
- American Megatrends Controller
 - American Megatrends MegaRAID 428 SCSI RAID Controller
- Mylex
 - Mylex DAC960E EISA
 - Mylex DAC960P/PD/PD-Ultra/PL PCIhost bus adapter series
- PSMI MP Modules
 - Compaq PSMI MP Modules
 - Corollary PSMI MP Modules

Note – These PSMI MP Modules use the following multiprocessor architectures:

- Compaq systempro (386/486)
 - Compaq systempro XL (486/Pentium 60/66)
 - Corollary cbus (386/486)
 - Corollary cbus-II (Pentium)
-

JRE 1.2.2

Version 1.2.2 of the Java runtime environment (JRE) is no longer supported in this release. Similar capability is supported by Java 2 Standard Edition version 1.4 and by compatible versions. Current and previous versions of JRE are available for download from <http://java.sun.com>.

Kodak Color Management System

Support for the Kodak Color Management System (KCMS™) is no longer available in Solaris.

SPARC: Lance Ethernet Drivers

Lance Ethernet (1e) drivers are no longer supported in Solaris.

Lightweight Directory Access Protocol (LDAP) Client Library

The LDAP C-API library version 3, `libldap.so.3`, is no longer supported in Solaris. The current version of this library is LDAP C-API version 5, `libldap.so.5`.

Obsolete Lightweight Process (LWP) Interfaces

The following lightweight process (LWP) interfaces are no longer supported in Solaris:

- `_lwp_create(2)`
- `_lwp_detach(2)`
- `_lwp_exit(2)`
- `_lwp_getprivate(2)`
- `_lwp_makecontext(2)`
- `_lwp_setprivate(2)`
- `_lwp_wait(2)`

These interfaces, which are not part of a common model with multithreading enabled by default, have worked as expected only when used in applications not linked with `libthread`.

Nameless Interface Groups Feature

The Nameless Interface Groups feature is no longer supported in this Solaris release. The Nameless Interface Groups feature was enabled by setting the `ip_enable_group_ifs` variable through the `ndd` command.

Instead, use the supported IP Network Multipathing feature, which provides similar capability. IP Network Multipathing groups can be formed by using the `group` keyword of the `ifconfig` command.

For more information, see the `ifconfig(1M)` man page.

Netscape Software

The following versions of the Netscape™ software are no longer supported in Solaris:

- Netscape 4.7.x
- Netscape 6.2.x
- Netscape 7.0

`netstat -k` Option

The unsupported `-k` option of `netstat` command, which reports on all named `kstats` on the running OS instance, is no longer included in Solaris. Use the supported `kstat` command, which provides the same facility.

x86: Network Devices

The following network devices are no longer supported in Solaris:

- 3Com Etherlink III (`e1x`)

- Intel EtherExpress Pro/100A (ieef)
- Xircom Pocket Ethernet Adapter (PE3 and PE2) (pe)

Non-POSIX Thread Behavior of the `fork()` Function

The behavior of `fork()`, when not linked to the `-lpthread` library, has changed in Solaris. This behavior change makes Solaris threads consistent with POSIX threads.

The `fork()` function has been redefined to behave like `fork1()`. Therefore, `fork()` replicates only the calling thread in the child process. This redefinition matches the current behavior of `fork1()` and of `fork()` when linked with `-lpthread`.

Support for applications that require the replicate-all behavior of `fork` is still provided. These applications must be modified to call the new `forkall()` function rather than `fork()`.

`pam_unix` Module

The `pam_unix(5)` module is no longer included in this release. The same functionality is provided by `pam_unix_auth(5)`, `pam_authtok_check(5)`, `pam_authtok_get(5)`, `pam_authtok_store(5)`, `pam_dhkeys(5)`, `pam_unix_account(5)`, `pam_unix_session(5)`, and `pam_passwd_auth(5)`.

PC File Viewer

PC file viewer is no longer supported in Solaris.

Similar functionality in viewing PC files is now available using the Sun StarOffice Office Productivity Suite. StarOffice can read and write more than 100 different file formats used by major desktop applications, including Microsoft Office, Lotus, WordPerfect, WordStar, FrameMaker, AutoCAD, Photoshop, and more.

For more information, go to <http://www.sun.com/staroffice>

Perl Version 5.005_03

Perl version 5.005_03 is no longer included in this release. The default version of Perl in Solaris is not binary compatible with 5.005_03. Customer-installed modules need to be rebuilt and need to be reinstalled by using the new version.

ptrace Interface In libc

The 64-bit version of the `ptrace` interface that is included in `libc` is no longer supported in Solaris. The `proc` interface replaces this functionality.

For more information, see the `proc(4)` man page.

Power Management I/O Control Commands

The following power management I/O control (`ioctl`s) commands are no longer supported in Solaris:

- `PM_DISABLE_AUTOPM`
- `PM_REENABLE_AUTOPM`
- `PM_SET_CUR_PWR`
- `PM_GET_CUR_PWR`
- `PM_GET_NORM_PWR`

The following alternative `ioctl`s are supported in the Solaris OS:

- `PM_DIRECT_PM`
- `PM_RELEASE_DIRECT_PM`
- `PM_GET_CURRENT_POWER`
- `PM_SET_CURRENT_POWER`
- `PM_GET_FULL_POWER`

For more information on the alternative `ioctl`s, see the `pm(7D)` man page.

sendmailvars and the L and G sendmail.cf commands

The `sendmailvars` database that is listed in `nsswitch.conf(4)` is no longer supported in Solaris. This feature could not be enabled without using the `L` or `G` `sendmail.cf` commands. This change brings the Sun version of `sendmail` into closer compliance with the version from `sendmail.org`.

ShowMe TV

ShowMe™ TV is no longer supported in this release.

SPARC: 64-bit Packages

Solaris was previously delivered in separate packages for 32-bit and 64-bit components. The 64-bit packages, introduced in the Solaris 7 release, delivered the 64-bit components of the Solaris Operating System. In general, the 64-bit package name ended with the letter "x." For example, `SUNWcsl` delivered the 32-bit version of the Solaris Core Libraries, and `SUNWcslx` delivered the 64-bit version.

In this Solaris release, 32-bit and 64-bit components are delivered together in a single base package. The combined package retains the name of the original 32-bit package, and the 64-bit package is no longer delivered. For example, `/usr/lib/sparcv9/libc.so.1`, which was delivered in `SUNWcslx`, is now delivered in `SUNWcsl` and `SUNWcslx` is no longer delivered.

Note – Some packages only delivered 64-bit components and had no corresponding 32-bit package. In these cases, the packages might be renamed to remove the "x" suffix. For example, `SUNW1394x` might become `SUNW1394`.

Software packages that have explicit dependencies on 64-bit packages produce installation warnings. These nonfatal warnings can be ignored by the user and do not prevent the software from installing correctly.

For example, the installation of the `SUNWpool` package, which depends on the nonexistent 64-bit package `SUNWcslx`, produces the following screen information and warning:

```
# pkgadd SUNWpool

Processing package instance SUNWpool from /var/spool/pkg

Resource Pools (64-bit)
(sparc) 11.10.0,REV=2003.04.08.04.21
Copyright 2003 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.
Using / as the package base directory.
## Processing package information.
## Processing system information.
   6 package pathnames are already properly installed.
## Verifying package dependencies.
WARNING:
   The SUNWcslx package "Core Solaris Libraries
   (64-bit)" is a prerequisite package and should be
   installed.

Do you want to continue with the installation of SUNWpoolx [y,n,?]
```

Independent software vendors that offer 32-bit applications for the SPARC system, and customers who run 32-bit applications, do not need to make any changes. These applications will continue to work.

sdtjplay Desktop Java Media Player

The Desktop Java Media player, `/usr/dt/bin/sdtjplay`, that is based on the Java Media Framework 1.1, is no longer supported in Solaris. Users should migrate to `/usr/bin/jmplay`, the Java Media Player that is based on the newer Java Media Framework 2.1.1 release.

The `jmplay` Java Media Player is included in Solaris beginning with Solaris 9 OS 8/03. `jmplay` is also available for the Solaris 8 and earlier Solaris 9 releases, as part of the GNOME 2.0 Desktop Environment.

The GNOME 2.0 Desktop Environment is available for download by going to <http://www.sun.com/gnome/>.

Solaris Static System Libraries

This announcement applies only to 32-bit static-system libraries and statically linked utilities. Sixty-four-bit static system libraries and utilities have never been provided.

Support for 32-bit Solaris static-system libraries and statically linked utilities is no longer provided in Solaris. Of particular note, support for the static C library (`/usr/lib/libc.a`) is no longer provided in Solaris.

Applications that are linked with existing static system libraries might not work correctly in Solaris. Only applications that are dynamically linked with the system libraries that provide the Solaris application binary interface (ABI) are designed for future compatibility.

Applications that directly depend on the behavior of system traps might not work correctly in Solaris. Applications that link with non-Sun libraries that directly depend on the behavior of system traps, typically libraries that provide substitute ABI functions, might not work correctly in Solaris.

Solaris Volume Manager Transactional Volume

Solaris Volume Manager's Transactional Volumes (trans metadevices) are no longer supported in Solaris. Enhanced functionality is provided by UFS Logging (LUFS) which is included in Solaris.

stc(7d) for Serial Parallel Controller on S-bus

The Serial Parallel Controller on S-bus (SPC/S) driver, `stc(7D)`, is no longer supported in Solaris. Alternative interfaces include SAI/P and HSI/P.

Storage Interfaces

The following interfaces for device driver properties are no longer supported in Solaris:

- fast-writes (pln driver property)
- priority-reserve (pln driver property)

The following device drivers are no longer supported in Solaris:

- /kernel/drv/pln
- /kernel/drv/pln.conf
- /kernel/drv/sparcv9/pln
- /kernel/drv/soc
- /kernel/drv/sparcv9/soc

The following utility is no longer supported in Solaris:

- /usr/sbin/ssaadm

sun4m Hardware

The following servers that are based on the sun4m architecture are no longer supported in this Solaris release.

- SPARCstation[®] 4
- SPARCstation 5
- SPARCstation 10
- SPARCstation 20
- SPARCstation LX
- SPARCstation LX+
- SPARCclassic
- SPARCclassic X
- SPARCengine[™] EC 3

Hardware options that are dependent on the sun4m architecture are no longer included in this release.

SunFDDI and SunHSI/S Drivers

The FDDI/S, FDDI/P, and SunHSI/S[™] drivers are no longer supported in Solaris.

Sun StorEdge A1000, Sun StorEdge A3000, Sun StorEdge A3500, and Sun StorEdge A3500FC Systems

Software support for the following storage devices is no longer provided in Solaris:

- Sun StorEdge A1000 System
- Sun StorEdge A3000 System
- Sun StorEdge A3500 System
- Sun StorEdge A3500FC System

Tape Devices

The following tape devices are no longer supported in Solaris:

- Sun StorEdge DLT4700 Tape Autoloader
- Sun StorEdge L140 Tape Library
- Sun StorEdge L280 Tape Autoloader
- Sun StorEdge L400 Tape Library
- Sun StorEdge L1800 Tape Library
- Sun StorEdge L3500 Tape Library
- Sun StorEdge L11000 Tape Library

Token Ring Network Drivers

SBus Token Ring and PCI bus Token Ring network drivers are no longer supported in this release.

SPARC: 32-bit Sun4U Kernel

The 32-bit SPARC kernel is no longer included in Solaris OS. Existing 32-bit applications are not affected.

The impact of these changes is that Sun4U systems that contain UltraSPARC I processors with clocks that run at frequencies of 200 MHz or lower are no longer supported.

To identify the system's kernel type, use the `isainfo` command.

```
% isainfo -kv
```

To identify the system's processor clock rate, use the `psrinfo` command.

```
% psrinfo -v | grep MHz
```

For more information, see the `isainfo(1)` and `psrinfo(1M)` man pages.

Ultra AX and SPARCengine Ultra AXmp Graphics Card

The Ultra AX and the SPARCengine Ultra AXmp graphics card are no longer supported in this release.

32-bit: X11 Static Libraries

Thirty-two-bit static libraries in `/usr/openwin/lib` are no longer provided in this release of Solaris. Programs that are statically linked with those libraries are not supported in this release. Sixty-four-bit static libraries have never been provided.

Existing applications that were built on previous releases with the static libraries in `/usr/openwin/lib` might not work in this or any future release. Only applications that are dynamically linked with the shared libraries that provide the Solaris application binary interface (ABI) are designed for future compatibility.

xutops Print Filter

The `xutops` print filter is no longer supported in this release. A similar range of operations is provided by the `mp(1)` print filter in Solaris.

Features That Might Be Removed in a Future Release

The following features might not be supported in a future release of the Solaris software.

Asian Short `dtlogin` Names

The following Asian short locale names might not be listed in the `dtlogin` language list in a future release:

- `zh`

- zh.GBK
- zh.UTF-8
- ko
- ko.UTF-8
- zh_TW

Beginning with Solaris 8 release, new ISO-standard locale names have been provided, including the following locale names:

- zh_CN.EUC
- zh_CN.GBK
- zh_CN.UTF-8
- ko_KR.EUC
- ko_KR.UTF-8
- zh_TW.EUC

Audit Daemon Interfaces

The following interfaces that are used by the Solaris audit daemon might not be supported in a future release:

- auditsvc(2)
- audit_data(4)

Cfront Runtime Support Library

The library `libc.so.3` is the runtime support library for programs that are compiled by the Cfront C++ compiler C++ 3.0. Neither the compiler nor programs that are created by the compiler run on Solaris 10 OS. The library might not be supported in a future release of Solaris.

Device Allocation Interfaces For the Basic Security Module

The following components of the device allocation mechanism of the Basic Security Module might not be included in a future release of the Solaris software:

- `mkdevalloc(1M)`
- `mkdevmaps(1M)`
- `/etc/security/dev`

Obsolete Device Driver Interfaces

Some device driver interfaces (DDI) might not be supported in a future release.

The following table lists the DDI interfaces that might not be supported, along with the preferred DDI interface alternatives.

Obsolete Interface	Preferred Interface
mmap	devmap
identify	set to nulldev
copyin	ddi_copyin
copyout	ddi_copyout
ddi_dma_addr_setup	ddi_dma_addr_bind_handle
ddi_dma_buf_setup(9F)	ddi_dma_buf_bind_handle
ddi_dma_curwin	ddi_dma_getwin
ddi_dma_free	ddi_dma_free_handle
ddi_dma_htoc	ddi_dma_addr[buf]_bind-handle
ddi_dma_movwin	ddi_dma_getwin
ddi_dma_nextseg	ddi_dma_nextcookie
ddi_dma_nextwin	ddi_dma_nextcookie
ddi_dma_segtocookie	ddi_dma_nextcookie
ddi_dma_setup	ddi_dma_*_handle
ddi_dmae_getlim	ddi_dmae_getattr
ddi_getlongprop	ddi_prop_lookup
ddi_getlongprop_buf	ddi_prop_lookup
ddi_getprop	ddi_prop_get_in
ddi_getproplen	ddi_prop_lookup
ddi_iopb_alloc	ddi_dma_mem_alloc
ddi_iopb_free	ddi_dma_mem_free
ddi_mem_alloc	ddi_dma_mem_alloc
ddi_mem_free	ddi_dma_mem_free
ddi_map_regs	ddi_regs_map_setup
ddi_prop_create	ddi_prop_update
ddi_prop_modify	ddi_prop_update
ddi_segmap	see devmap

Obsolete Interface	Preferred Interface
ddi_segmap_setup	devmap_setup
ddi_unmap_regs	ddi_regs_map_free
free_pktiopb	scsi_free_consistent_buf
get_pktiopb	scsi_alloc_consistent_buf
makecom_g0	scsi_setup_cdb
makecom_g0_s	scsi_setup_cdb
makecom_g1	scsi_setup_cdb
makecom_g5	scsi_setup_cdb
scsi_dmafree	scsi_destroy_pkt
scsi_dmaget	scsi_init_pkt
scsi_pktalloc	scsi_init_pkt
scsi_pktfree	scsi_destroy_pkt
scsi_realloc	scsi_init_pkt
scsi_resfree	scsi_destroy_pkt
scsi_slave	scsi_probe
scsi_unslave	scsi_unprobe
ddi_peek{c,s,l,d}	ddi_peek{8,16,32,64}
ddi_poke{c,s,l,d}	ddi_poke{8,16,32,64}
in{b,w,l}	ddi_get{8,16,32}
out{b,w,l}	ddi_put{8,16,32}
repins{b,w,l}	ddi_rep_get{8,16,32}
repouts{b,w,l}	ddi_rep_put{8,16,32}

Device Management Entries in `power.conf`

The Device Management entries in the `power.conf` file might not be supported in a future release. Similar capability is provided by the Automatic Device Power Management entries in the Solaris 10 software.

For more information, see the `power.conf(4)` man page.

Device Support and Driver Software

The following table lists devices and driver software that might not be supported in a future release.

TABLE 4-1 Device and Driver Software

Name of Physical Device	Name of Driver	Type of Card
AMI MegaRAID host bus adapter, first generation	mega	SCSI RAID
Compaq 53C8x5 PCI SCSI, and Compaq 53C876 PCI SCSI	cpqncr	SCSI HBA
Compaq SMART-2/P Array Controller and Compaq SMART-2SL Array Controller	smartii	SCSI RAID controller

Graphic Driver Support

Software support for the following graphic devices might not be provided in a future release:

Device	Driver
MG1, MG2	bwtwo
CG3	cgthree
SX/ CG14	sx, cgfourteen
TC	cgeight
TCX	tcx

Host Files in `/etc/net/ti*`

The host files in `/etc/net/ti*` are no longer consulted in the Solaris Operating System, though these files remain in the Solaris software. In a future Solaris release, these host files might be entirely removed.

Kerberos Ticket Lifetime Parameters in `krb5.conf`

The Kerberos Ticket Lifetime parameters, `max_life` and `max_renewable_life`, might no longer be supported in a future release of the Solaris OS. These parameters are in the `appdefaults` section of the `/etc/krb5/krb5.conf` file. Instead of these parameters, use `max_lifetime` and `renew_lifetime` in the `libdefaults` section of `/etc/krb5/krb5.conf`.

Korean CID Fonts

Korean CID fonts might not be supported in a future release. You can use the Korean TrueType fonts that are included in the Solaris software as a replacement for Korean CID fonts.

Legacy or Traditional Non-UTF-8 Locales

Sun is adopting Unicode for character encoding. Therefore, except for `zh_CN.GB18030` and `C` locales, non-UTF-8 locales might be removed as the Java Desktop System login locale in a future Solaris release.

Functions in the CPU Performance Counters Library (`libcpc`)

Hardware performance counters enable the measurement of many different hardware events that are related to CPU behavior. The following functions in the CPU Performance Counters library (`libcpc`) might not be supported in a future Solaris OS release:

<code>cpc_access</code>	<code>cpc_bind_event</code>
<code>cpc_count_sys_events</code>	<code>cpc_count_usr_events</code>
<code>cpc_event_accum</code>	<code>cpc_event_diff</code>
<code>cpc_eventtostr</code>	<code>cpc_getcciname</code>
<code>cpc_getcpuref</code>	<code>cpc_getcpuver</code>
<code>cpc_getnpic</code>	<code>cpc_getusage</code>

cpc_pctx_bind_event	cpc_pctx_invalidate
cpc_pctx_rele	cpc_pctx_take_sample
cpc_rele	cpc_seterrfn
cpc_shared_bind_event	cpc_shared_close
cpc_shared_open	cpc_shared_rele
cpc_shared_take_sample	cpc_strtoevent
cpc_take_sample	cpc_version
cpc_walk_names	

New functions have been added to the library in Solaris 10 OS. Developers who have code that utilizes the interfaces in the preceding list should instead use the following corresponding new functions:

cpc_open	cpc_close
cpc_set_create	cpc_set_destroy
cpc_set_add_request	cpc_set_request_preset
cpc_buf_create	cpc_buf_destroy
cpc_bind_curlwp	cpc_bind_pctx
cpc_bind_cpu	cpc_unbind
cpc_set_sample	cpc_buf_sub
cpc_buf_add	cpc_buf_copy
cpc_buf_zero	cpc_buf_get
cpc_buf_set	cpc_buf_hrttime
cpc_buf_tick	cpc_walk_requests
cpc_walk_events_all	cpc_walk_events_pic
cpc_walk_attrs	cpc_enable
cpc_disable	cpc_caps
cpc_nplic	cpc_cpuref
cpc_cciname	cpc_seterrhdlr

See the `cpc(3CPC)` man page for details.

libXinput Library

The `libXinput.so.0` library might not be provided in a future release of the Solaris software. The `libXinput.so.0` library was provided for backward compatibility with X11R4 applications that were built by using the draft standard X Input API of Solaris 2.1 and Solaris 2.2. The X11 standard X Input Extension library, `libXi`, was integrated in Solaris 2.3.

All applications that rely on the `libXi` API should be built by using the `libXi` shared library for future compatibility and standards conformance.

Network Information Service Plus (NIS+) Name Service Type

NIS+ might not be supported in a future release. Tools to aid in the migration from NIS+ to LDAP are available in the Solaris 9 software. For more information, visit <http://www.sun.com/directory/nisplus/transition.html>.

nstest Test Program

The `nstest` is an interactive DNS test program to construct and send DNS queries. This program might no longer be supported in a future Solaris OS release. The same functionality that is provided by this test program is available by using the `dig` and `nslookup` commands.

Perl Version 5.6.1

Perl version 5.6.1 might not be supported in a future Solaris OS release. Perl version 5.8.4, the default version in the Solaris 10 OS, is not binary compatible with Perl version 5.6.1. However, the earlier version is still retained in this Solaris release. Customized modules that are installed by the customer must be rebuilt and reinstalled to use Perl version 5.8.4. Modify any scripts that require the use of version 5.6.1 to specifically use version 5.6.1 of the interpreter instead of version 5.8.4. The interpreters of the respective Perl versions are located in the following directories:

Perl 5.6.1 `/usr/perl5/5.6.1/bin/perl`

Perl 5.8.4 `/bin/perl, /usr/bin/perl, or /usr/perl5/bin/perl`

Solaris Management Console Patch Tool (Patch Manager)

The Solaris Management Console patch tool, Patch Manager, might not be available in a future release.

Solstice Enterprise Agents

Solstice Enterprise Agents might not be supported in a future release.

Standalone Router Discovery

The `/usr/sbin/in.rdisc` implementation of the IPv4 ICMP Router Discovery protocol might not be supported in a future release of the Solaris software. A near-equivalent version of this protocol, which is implemented as a component of `/usr/sbin/in.routed`, supports an enhanced administrative interface. The `/usr/sbin/in.routed` component supports the implementation of Routing Information Protocol (RIP) version 2. The `/usr/sbin/in.routed` component also has the ability to distinguish Mobile IP advertisements from Router Discovery messages.

Sun Java System Application Server Platform Edition 7.0 (Formerly Sun ONE Application Server 7.0 Platform Edition)

Version 7.0 of Sun Java System Application Server Platform Edition might not be supported in a future release. Similar capability is provided by Sun Java System Application Server Platform Edition 8 and compatible versions.

While most Java 2 Platform, Enterprise Edition (J2EE) applications will run unchanged in the Sun Java System Application Server Platform Edition 8, applications that use proprietary unstable APIs will require modification.

Token Ring and Fiber Distributed Data Interface Device Types

Support for token ring (DL_TPR) and Fiber Distributed Data Interface (FDDI) device types in generic LAN driver (GLD) might be removed in a future Solaris release. After the removal is implemented, drivers for token ring or FDDI that rely on this support in GLD cease to function. However, other drivers or applications that do not use this support are not affected. To test whether a driver relies on GLD, run the following script:

```
#!/bin/sh
#
# Test a driver binary for use of GLD
#
for file
do
    /usr/ccs/bin/nm $file | /bin/awk '
    /\|gld_register$/      { isgld=1; }
    END {
        if (isgld)
            print file, "uses GLD";
        else
            print file, "does not use GLD";
        }' file=$file
done
```

For more information about generic LAN driver, see the `gld(7D)` man page as well as “Writing Device Drivers”.

WBEM-based Dynamic Reconfiguration

The feature known as WDR - Web-Based Enterprise Management Dynamic Reconfiguration - might not be supported in a future release of the Solaris Operating System. WDR is currently supported on Sun Fire midrange and high-end systems.

XIL Interface

The XIL™ interface might not be supported in a future release. An application that uses XIL causes the following warning message to be displayed:

```
WARNING: XIL OBSOLESCENCE
This application uses the Solaris XIL interface
which has been declared obsolete and may not be
present in version of Solaris beyond Solaris 9.
Please notify your application supplier.
The message can be suppressed by setting the environment variable
```

"_XIL_SUPPRESS_OBSOLETE_MSG."

xetops Utility

The `xetops` utility might not be supported in a future release. The `xetops` utility converts an Asian text file to a PostScript file. This conversion enables Asian characters to be printed on PostScript printers that do not have resident Asian fonts.

Similar capability is provided in the `mp` command, which has been enhanced to support all of the native Asian encodings with more options and functionality.

Documentation Issues

This chapter describes known issues that are related to documentation.

Documents on the Software Supplement CD

Beginning with Solaris 10 Operating System, the Supplement CD no longer exists. The documents that were formerly supplied on the Supplement CD can now be found at <http://docs.sun.com>. The rest of the CD's contents reside elsewhere in the Solaris kit or on Sun Microsystems' web site.

System Administration Guide: Basic Administration

This section describes corrections to specific chapters in the System Administration Guide: Basic Administration.

Managing Diskless Clients (Tasks)

In Step 4 of "How to Add a Diskless Client," the command to verify whether a diskless client has been added should read as follows:

4. Verify that the diskless clients were installed.

```
# /usr/sadm/bin/smdiskless list -H host-name:898 --
```

Solaris 10 Start Here and Solaris 10 Installation Guides

The Solaris 10 Start Here and Solaris 10 Installation Guides incorrectly indicate that Sun Java Enterprise System is installed by default in the Solaris 10 release. To install Sun Java Enterprise System with the Solaris 10 OS, you must perform a custom installation.

The following documents incorrectly state that Sun Java Enterprise System is installed by default during a Solaris 10 installation.

Solaris 10 Installation Guide: Basic Installations

- Planning for a Solaris Installation From CD or DVD Media (Tasks) — Checklist for Installation
- Installing With the Solaris Installation Program (Tasks)
 - Step 9 of SPARC: To Install or Upgrade With the Solaris Installation Program
 - Step 17 of x86: To Install or Upgrade With the Solaris Installation Program

Solaris 10 Installation Guide: Network-Based Installations

- Solaris Installation and Upgrade (Roadmap) — Task Map: Installing or Upgrading the Solaris Software
- Gathering Information Before Installation or Upgrade (Planning)
 - Checklist for Installation
 - Checklist for Upgrading

Solaris 10 Installation Guide: Solaris Live Upgrade and Upgrade Planning

- Solaris Installation and Upgrade (Roadmap) — Task Map: Installing or Upgrading the Solaris Software

- Gathering Information Before Installation or Upgrade (Planning) — Checklist for Upgrading

Solaris 10 Installation Guide: Custom JumpStart and Advanced Installations

See Solaris Installation and Upgrade (Roadmap) — Task Map: Installing or Upgrading the Solaris Software.

Solaris 10 Start Here

See Install the Solaris 10 OS.

Solaris 10 Documentation and Man Pages

The company S2io has changed its name to Neterion. All references to S2io in the Solaris 10 documentation and man pages should read Neterion.

Solaris 10 Operating System Patch List

The patches that are listed in this appendix have been applied to the Solaris 10 Operating System in one of the following ways:

- SolStart

These patches are located in the `/var/sadm/patch` directory on an installed system.

- Freshbits technology

These patches were applied when the Solaris 10 OS was created. Therefore, these patches are not located in the `/var/sadm/patch` directory.

The `showrev -p` command provides a list of all patches that were applied to the installed system, regardless of how they were applied. The Solaris 10 software includes a known and tested level of patches. However, patches cannot be backed out of the Solaris 10 release.

Note – The Solaris 10 software contains special patches that perform tasks that are specific to the Solaris release installation images. These patches are specific to each Solaris software release and do not apply to other systems or releases of the Solaris software. Do not attempt to download or install these patches on other systems or installations of the Solaris OS.

SPARC Patch List

- 113886-27 – OpenGL 1.3: OpenGL Patch for Solaris (32-bit)

```
4731810 4767124 4779012 4782616 4791333 4792710 4794414 4796335 4796376 4796456 4796586
4796683 4798503 4798645 4799436 4803168 4803742 4803906 4804725 4805724 4806763 4807902
4808162 4808985 4809535 4810145 4810405 4811428 4811571 4812747 4812756 4814618 4817290
```

4819204 4819427 4819490 4820144 4821565 4821732 4823011 4824593 4825421 4825550 4828052
4828438 4828784 4831988 4832994 4835559 4839800 4840279 4841268 4841277 4842054 4845331
4846372 4846925 4846932 4850970 4851614 4851921 4852126 4852596 4852704 4853482 4853498
4854561 4855708 4855730 4857231 4857246 4858499 4858585 4859531 4859968 4860761 4860958
4861497 4861746 4861761 4862544 4864123 4864129 4864345 4864348 4864720 4865480 4866901
4866937 4867349 4867363 4868609 4868956 4870737 4871398 4871529 4871577 4872124 4872678
4873516 4874991 4876755 4877458 4877664 4877912 4878131 4878226 4878228 4878355 4878359
4878364 4878368 4879959 4881502 4884139 4885369 4888005 4888867 4891817 4893773 4895305
4896739 4897913 4899454 4899822 4900523 4902129 4904684 4906058 4906409 4906914 4907657
4907736 4907843 4907857 4915069 4915153 4915228 4915246 4915537 4916286 4916292 4917747
4919156 4920614 4923288 4926825 4927057 4927499 4931217 4931537 4937462 4937631 4939761
4939943 4941318 4950510 4951725 4953800 4959191 4963117 4963725 4985564 4996697 5007023
5023782 5034822 5038655 5044200 5044674 5062225 5069258 5069430 5072413 5073101 5087426
5095048 5106472 5110240 6174830

■ **113887-27 – OpenGL 1.3: OpenGL Patch for Solaris (64-bit)**

4731810 4767124 4779012 4782616 4791333 4792710 4794414 4796335 4796376 4796456 4796586
4796683 4798503 4798645 4799436 4803168 4803742 4803906 4804725 4805724 4806763 4807902
4808162 4808985 4809535 4810145 4810405 4811428 4811571 4812747 4812756 4814618 4817290
4819204 4819427 4819490 4820144 4821565 4821732 4823011 4824593 4825421 4825550 4828052
4828438 4828784 4831988 4832994 4835559 4839800 4840279 4841268 4841277 4842054 4845331
4846372 4846925 4846932 4850970 4851614 4851921 4852126 4852596 4852704 4853482 4853498
4854561 4855708 4855730 4857231 4857246 4858499 4858585 4859531 4859968 4860761 4860958
4861497 4861746 4861761 4862544 4864123 4864129 4864345 4864348 4864720 4865480 4866901
4866937 4867349 4867363 4868609 4868956 4870737 4871398 4871529 4871577 4872124 4872678
4873516 4874991 4876755 4877458 4877664 4877912 4878131 4878226 4878228 4878355 4878359
4878364 4878368 4879959 4881502 4884139 4885369 4888005 4888867 4891817 4893773 4895305
4896739 4897913 4899454 4899822 4900523 4902129 4904684 4906058 4906409 4906914 4907657
4907736 4907843 4907857 4915069 4915153 4915228 4915246 4915537 4916286 4916292 4917747
4919156 4920614 4923288 4926825 4927057 4927499 4931217 4931537 4937462 4937631 4939761
4939943 4941318 4950510 4951725 4953800 4959191 4963117 4963725 4985564 4996697 5007023
5023782 5034822 5038655 5044200 5044674 5062225 5069258 5069430 5072413 5073101 5087426
5095048 5106472 5110240 6174830

■ **116298-08 – Sun One Application Server 7.0 Java API for XML Parsing 1.2 Patch**

4724728 4776091 4811431 4818853 4819412 4830338 4849513 4851218 4853543 4860400 4861767
4861948 4862994 4869664 4870233 4884552 4886253 4886683 4888612 4890613 4892587 4893954
4895814 4902210 4904100 4904764 4907283 4909380 4909796 4910686 4913290 4913458 4914362
4917206 4922884 4925548 4926972 4928341 4930027 4930986 4931379 4933997 4937416 4937667
4938319 4942044 4942341 4942381 4947231 4949318 4950035 4954609 4958393 4958395 4962225
4965713 4969036 4978369 4978647 4980136 4980660 4987217 4996111

■ **116302-02 – SPECIAL PATCH: class action script replacement**

■ **116352-01 – Sun One Application Server**

x86 Patch List

- **116299-08 – Sun One Application Server 7.0_x86 Java API for XML Parsing 1.2 Patch**

4724728 4776091 4811431 4818853 4819412 4830338 4849513 4851218 4853543 4860400 4861767
4861948 4862994 4869664 4870233 4884552 4886253 4886683 4888612 4890613 4892587 4893954
4895814 4902210 4904100 4904764 4907283 4909380 4909796 4910686 4913290 4913458 4914362
4917206 4922884 4925548 4926972 4928341 4930027 4930986 4931379 4933997 4937416 4937667
4938319 4942044 4942341 4942381 4947231 4949318 4950035 4954609 4958393 4958395 4962225
4965713 4969036 4978369 4978647 4980136 4980660 4987217 4996111

- **116303-02 – SPECIAL PATCH: class action replacement scripts**

