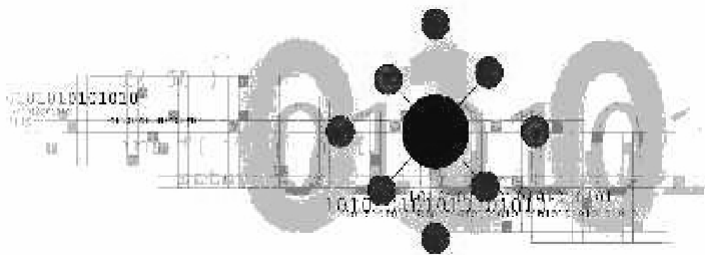




IRIX® 6.5.21 Update Guide





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August 2003

Dear Valued Customer,

SGI® is pleased to present the new IRIX® 6.5.21 maintenance and feature release. Starting with IRIX® 6.5, SGI created a new software upgrade strategy, which delivers both the maintenance (6.5.21m) and feature (6.5.21f) streams to customers with a service contract that includes an IRIX support component. This upgrade is part of a family of releases that periodically enhances IRIX 6.5.

There are several benefits to this release strategy: it provides periodic fixes to IRIX, it assists in managing upgrades, and it supports all platforms. Additional information on this strategy and how it affects you is included in the updated *Installation Instructions* manual contained in this package. If you need assistance, please visit the Supportfolio™ online website at <http://support.sgi.com/> or contact your local support provider.

We offer eight modes of service for software supported by SGI: Active, Maintenance, Limited, Legacy, Courtesy, Divested, Retired, and Expired.

Active Mode is our highest level of service. It applies to products that are being actively developed and maintained and are orderable through general distribution. Software fixes for all levels of problems can be expected.

Maintenance Mode software is maintained and is still an important part of our product mix. No new functionality is added to products in this support mode. Functional fixes for severe problems are generally available. Products in this support mode category are still orderable through general distribution. Software usually stays in this category for approximately 18 months before being moved to a mode of lesser support.

Limited Mode is a restricted level of service developed mainly for products developed and maintained by open source organizations and distributed by SGI.

Legacy Mode software generally runs on out-of-production operating system versions or system platforms that are no longer in active development or maintained. These products are usually distributed with limited availability. New support contracts may be offered and renewed. Services provided with Legacy Mode are limited to providing existing fixes and “workarounds” for reported problems. IRIX® 6.2 is an example of a major operating system release that was supported in this category until January 2000. IRIX® 6.3 and IRIX® 6.4 operating system revisions are

examples of major operating system releases that were supported in this category until January 2001.

Courtesy Mode software is not officially part of the software support offerings. Courtesy mode software is not covered by software support contracts, and call center support is not available. An e-mail alias may be provided to facilitate customer communications and to address any technical questions. Response times will vary according to availability of resources. The e-mail alias may be terminated at any time without advance notice. IRIS Showcase™ and Cosmo Worlds™ are examples of products with Courtesy Mode support.

Divested Mode software has been turned over to a third party who assumes all responsibility for support. SGI no longer distributes these products. Calls received at the SGI Call Center for support on divested products will be redirected to the applicable third party. CA Unicenter® TNG and Syntax TAS™ are examples of divested products.

Retired Mode provides restricted support for older software products which are no longer generally distributed by SGI. This level of support has severe limitations on portability to new platforms. Availability of support at this level is limited to existing customers with whom we have existing contractual obligations. This is the final stage before a product is completely removed from the SGI product set. IRIX 6.2, IRIX 6.3, and IRIX 6.4 operating system versions are examples of major operating system releases that are supported in this category beginning January 2003.

Software stays in this category for a minimum of 18 months before being moved to Expired Mode.

Expired Mode software products have reached the end of their useful life. These products are not supported or distributed in any form by SGI. Examples are: IRIX® 5.3, IRIXPro™, and Proconf.

Supportfolio Online (<http://support.sgi.com/>) contains a Power Search capability to locate further information regarding the eight software support modes. Using the Power Search section can also help locate links to the latest customer letters and lists of the various software products that have changed support modes. We thank you for your continued commitment to SGI.

Terry Oberdank

Vice President, Global Services
SGI

Welcome to your SGI IRIX 6.5.21 update. This booklet contains:

- A list of key features in IRIX 6.5.21
- A list of CDs contained in the IRIX 6.5.21 update kit
- A guide to SGI websites

IRIX 6.5.21 Key New Features

The following changes have been incorporated into the core IRIX 6.5.21 overlay CDs and the Applications CD.

New Hardware Platforms or Features

- **SGI Origin 350**
Support for the SGI Origin 350 server, an upgrade to the Origin 300 series, is included in IRIX 6.5.21. This includes support for the Origin 350 Base Module in 2, 4, and 8 processor sizes. With the addition of a NUMALink Module the Origin 350 scales up to 32 processors.
- **Silicon Graphics Onyx4™ UltimateVision™**
The IRIX 6.5.21 release supports the Silicon Graphics Onyx4 UltimateVision.

The Onyx4 supports the following features:

- Floating point pixel precision in the shading engine
- Programmable vertex and fragment engines
- Hardware acceleration for up to eight lights
- 256MB DDR SDRAM on-board graphics memory
- 2D Engine with 128-bit data path
- Up to 2.4Gig bilinear filtered pixels per second

- Up to 300 million transformed, clipped and lit triangles per second (peak rate)
- Up to 8 pipes
- A frame buffer interface providing memory bandwidth of 20 GB per second
- Acceleration for 16-bit and 32-bit RGBA modes
- 2D display lists and local memory vertex list execution
- Bilinear, Trilinear and Anisotropic texturing
- Projective Texture, 3D Texture and Video Texture support
- Dual channel
- Quad-buffered stereo
- Full-scene anti-aliasing
- Overlay visuals

New Software Enhancements - Feature Stream Only

Filesystems

- **XVM show command output improved**

In the IRIX 6.5.21f release, the output to the XVM show command indicates whether an XVM physical volume (`physvol`) has no physical connection to the system. This indicates that an I/O error

would be returned when trying to read or write anywhere on the volume.

New Software Enhancements - Maintenance and Feature Stream

Resource management

- **cpuset support for memory-only nodes**

In an SGI Origin 3900 system, a Cx-brick contains node boards without CPU packages or cache that are referred to as a memory-only nodes. The Cx-brick is a “super” CPU brick. It contains multiple node cards. One of those node cards must be a CPU node, but any of the other nodes can be memory-only nodes. Memory-only nodes, sometimes called headless nodes, allow you to expand the memory capabilities of your system without the cost or overhead of adding unnecessary additional processors.

The new keyword directives for use in the `cpuset` configuration file (there are equivalent structures or flags for the `cpuset` API) to support memory-only nodes are as follows:

- `POLICY_SHARE_WARN`
- `POLICY_SHARE_FAIL`
- `NODE` *gnodeid* or *nodeids*
- `MEM` *gnodeid* or *nodeids*
- `MEMORY_SIZE_ADVISORY` *gsize*

- `MEMORY_SIZE_MANDATORY` *gsize*
- `CPU_COUNT_ADVISORY` *gcount*
- `CPU_COUNT_MANDATORY` *gcount*

For a description of these new keywords see the `cpuset(4)` man page and *IRIX Admin: Resource Administration*.

- **Kernel threads run in the boot cpuset by default**

Boot cpusets are used to constrain regular system activities to a subset of the available CPUs. In IRIX 6.5.21, kernel threads not forced to run on specific CPUs run within the boot cpuset if one exists. Boot cpusets are used to constrain regular system activities to a subset of the available CPUs.

Network programming

- **Support for `tcp_wrappers` package**

In IRIX 6.5.21, the `tcp_wrappers` package is available in the `eoe.sw.base` IRIX subsystem. It consists of the following components:

- A library in `/usr/lib/libwrap.so`
- A header file in `/usr/include/tcpd.h`
- A suite of programs to verify `tcp_wrappers` operation: `tcpdchk`, `tcpdmatch`, and `try-from`

In IRIX 6.5.21, `inetd(1m)` is built with `tcp_wrappers` by default. See the `inetd(1M)` man page for details.

For information on using the `tcp_wrappers` package, see the *IRIX Network Programming Guide*.

Checkpoint and restart

- **New PLACEMENT policy for checkpoint and restart processes**
The IRIX 6.5.21 release provides a new PLACEMENT policy keyword for checkpoint and restart processes. PLACEMENT offers two action keywords, STRICT and FLEXIBLE. The STRICT action keyword restores the memory of process(es) according to the placement policies saved at the time of checkpoint. The FLEXIBLE action keyword attempts to place process memory according to a basic memory placement algorithm (TOPOLOGY_FREE) if and only if process memory placement fails when adhering to the checkpointed placement policies; this is the default action. For more information on this new PLACEMENT policy, see the `cpr(1)` man page and the *IRIX Checkpoint and Restart Operation Guide*.

Digital media

- **Support for M-Audio Revolution on Octane and Octane2**
IRIX 6.5.21 includes support for the M-Audio Revolution PCI audio card on Octane and Octane2 systems.

OS maintainability

- **Newsysdump command functionality**
The `sysdump` command, first added in IRIX 6.5.19, has been

enhanced to generate level 1 system crash dump files of a running system. The `sysdump` command is used by system administrators to generate a crash dump file of the operating system without the need to reboot the system. The crash dump file can be used to diagnose system problems. For information, see the `sysdump(1M)` man page.

System performance and tuning

- **New low overhead pthread mutex protocol**

IRIX 6.5.21 provides support for the thread and system nonpreemption pthread mutex protocols that let real-time pthreads avoid being preempted while in critical sections. Real-time developers would use this feature when the priority inheritance and priority ceiling mutexes incur too much overhead. For information, see the `pthread_mutexattr_setprotocol(3P)` man page.

Security

- **OpenLDAP upgrade**

IRIX 6.5.21 includes OpenLDAP version 2.1.17. The previous release of OpenLDAP on IRIX was split into an `openldap` and an `openldap_dev` package. This release combines both packages into a single `openldap` package that includes all libraries, headers and binaries normally included in the OpenLDAP distribution.

For information on OpenLDAP, see <http://www.openldap.org/>.

- **OpenSSH upgrade**

IRIX 6.5.21 includes OpenSSH version 3.6.1p2. For information on OpenSSH, see <http://www.openssh.com/>.

- **OpenSSL upgrade**

IRIX 6.5.21 includes OpenSSL version 0.9.7b. The previous release of OpenSSL on IRIX only included selected libraries. This release includes all libraries, headers and binaries normally included in the OpenSSL distribution.

For information on OpenSSL, see <http://www.openssl.org/>.

USB peripherals

- **USB tablet support**

IRIX 6.5.21 includes support for USB tablets.

NFS

- **NFS Access control enhancements**

In the IRIX 6.5.21 release, the NFS Access control mechanism has been updated to support new access control list elements such as IP netmasks, domain name suffixes and explicit exclusion of a host or group of hosts. For information see the `exports(4)` man page.

NFS Access control checks are now performed by `rpc.mountd` for both MOUNT and NFS protocols.

Trusted IRIX

- **Updates to Trusted IRIX administration**

With the IRIX 6.5.21 release, a user must have the same or a subset of the Mandatory Integrity (MINT) divisions of an object in his or her label and the integrity divisions of the user must be the same or a subset of the integrity divisions of the object. For information, see the *Trusted IRIX/CMW Security Administration Guide*.

With this release, the integrity divisions of the user must be the same or a subset of the integrity divisions of the file. For information, see the *Trusted IRIX/CMW Security Features User's Guide*.

SGI Software Product Life Cycle Management

- **IRIX Support Policy**

In accordance with the SGI software product life cycle management strategy announced in December 2002, SGI will announce support mode changes for various software products on a semi-annual basis. To view customer letters containing support mode changes announced since December 2002, as well as the latest IRIX Support Policy documents, visit the IRIX Support Policy Web page on Supportfolio Online (<http://support.sgi.com/>).

Applications CD

The following full images have been revised for the IRIX 6.5 Applications CD, August 2003:

- Common Desktop Environment, 5.3.1
- Information Searching Execution Environment, 6.5.21m
- IRIS InSight Viewer & Base Environment, 5.2
- Macrovision FLEXlm (v9.0) License Tools, 3.4.10
- Mozilla 1.0.2a
- MPI 4.3 (MPT 1.8)
- MPT 1.8
- Fulltext Indexing and Search Environment, 4.3
- SMA 4.1 (MPT 1.8)
- Web Setup and Administration, 3.6

The following overlays have been revised for the IRIX 6.5 Overlay CD, August 2003:

- IRIX Interactive Desktop
- IRIX Interactive Desktop Tools
- IRIX Interactive Desktop Administration
- Impresario(TM) Printing & Scanning Tools
- WebViewer Library Execution only Environment

IRIX OS Bundled Software

For information about the bundled software that is included with this release, see the Bundled software and licenses webpage that you can access from the Welcome webpage.

Freeware CDs

The following changes have been incorporated into the August 2003 update to the SGI IRIX Freeware Project.

For more information about the freeware that is included with this release, including a complete list of the freeware packages, see <http://freeware.sgi.com/>.

New products for this release:

cyrus-sasl2-2.1.13 - Simple Authentication Security Layer

db4-4.1.25 - Berkeley DB 4.1

gnet-1.1.9 - Simple Network Library

Mozilla Firebird 0.6 - gecko based web browser

xbuffy-3.3.bl.3 - multiple mailbox XBiff

ytalk-3.1.1 - enhanced unix talk

Updated products for this release:

SDL_image-1.2.3 - Image loading add-on for SDL

SDL_mixer-1.2.5 - Audio mixer add-on for SDL

SDL_net-1.2.5 - Network support add-on for SDL

SDL_ttf-2.0.6 - TrueType font support add-on for SDL

SETI@home-3.08 client for IRIX 6.5 systems

apache-2.0.46 - Apache Web Server

automake 1.7.5 - autoconf file generator

balsa-1.4.4 - GNOME mail client

bind-9.2.2 - name server software

cdlabelgen-2.6.0 - generate CD case inserts

cdrtools-2.00.3 - audio/data CD recording tools

cups-1.1.19 - Common UNIX Printing System

cvs-1.11.6 - Concurrent Versions System

cyrus-imapd-2.1.13 - Cyrus IMAP server

emacs-21.3 - GNU extensible text editor

epm-3.6 - ESP Package Manager
ethereal-0.9.12 - Network Protocol Analyzer
findutils-4.1 - GNU find/locate/xargs
foomatic-filters-3.0.0 - filter scripts for CUPS + Ghostscript
gaim-0.64 - Multi-protocol Instant Messaging Client
galculator-1.0 - GTK2 Calculator
gcc-3.3 - GNU Compiler Suite
gifsicle-1.37 - GIF file swiss knife
gimp-1.2.4 - GNU Image Manipulation Program
gnumeric-1.0.13 - GNOME spreadsheet program
gtkhtml-1.1.10 - lightweight html rendering engine
libesmtp-1.0 - mail transfer library
libpcap-0.7.2 - User level packet capture
message-passing-helpers-1.2 - Wrapper libraries for SGI's MPI library
mutt-1.4.1i - ncurses-based mail client w/MIME
mysql-4.0.13 - MySQL relational database

ntp-4.1.1b - Network Time Protocol
nut-1.2.2 - Network UPS Tools
openldap-2.1.21 - LDAP server and client tools
opendslp-1.0.11 - Service Location Protocol (SLP)
openssh-3.6.1p1 - secure rsh, rcp replacements
openssl-0.9.6j - Secure Sockets Layer Toolkit
pan-0.14.0 - Gnome Based Newsreader
pango-1.0.5 - GTK2 Core and Text Font Handling
pine4.56 - email/news client
pkgconfig-0.15.0 - package configuration tool
rsync-2.5.6 - replacement for rcp
sane-backends-1.0.12 - SANE scanner library backends
sane-frontends-1.0.11 - SANE scanner library frontends
sed-4.0.7 - GNU stream editor
squid-2.5.STABLE3 - Internet Object Cache
tcpdump-3.7.2 - network packet sniffer

tcsh-6.12.00 - Enhanced C shell with file completion
transfig.3.2.4 - xfig image format converters
unzip-5.50 - Info-ZIP UnZip Archive Extraction Utilities
xcdroast-0.98alpha14 - GUI for cdrtools/cdlabelgen
xfig.3.2.4 - X11 based drawing program
xosview.24.04.2003 - X11 based system status meter
xpdf-2.02p11 - PDF file viewer
xsane-0.91 - SANE graphical frontend
xxdiff-2.9.2 - graphical front-end to diff

Products that were omitted for this release:

Cyrus Simple Authentication and Security Layer (1.5.24) dropped in favor of fw_cyrus-sasl2.

db4-NoCrypto-4.1.25 Berkeley DB 4.1 replaced by fw_db4.

galeon-1.2.5, a gnome/gecko based web browser, dropped because of bit-rot; try fw_mozillafirebird instead.

phoenix-0.5 Mozilla based web browser renamed fw_mozillafirebird.

Documentation

The following manuals have been revised for the new features incorporated into this release.

IRIX Admin: Disks and Filesystems, 007-2815-012, includes small corrections and updates.

IRIX Admin: Peripheral Devices, 007-2861-005, includes information about UDF write-capable filesystems.

IRIX Admin: Resource Administration, 007-3700-015, includes information on cpuset support for headless nodes.

IRIX Checkpoint and Restart Operation Guide, 007-3236-007, includes information on a new CPR option.

IRIX Device Driver Programmer's Guide, 007-0911-200, includes information about the XFree86 X server for the Next Generation Onyx Scalable Graphics Platform.

IRIX Network Programming Guide, 007-0810-110, includes information about the tcp_wrappers package.

Personal System Administration Guide, 007-1366-180, includes small technical updates.

Quick Answers, 007-2169-011, includes small technical updates.

Trusted IRIX/CMW Security Administration Guide, 007-3299-008, updates information on label domination and equivalence.

Trusted IRIX/CMW Security Features User's Guide, 007-3300-004, updates information on label domination and equivalence.

XVM Volume Manager Administrator's Guide, 007-4003-015, includes small updates and clarifications throughout the manual.

Key New Features from Previous IRIX Releases

Descriptions of key new features and changes for the IRIX releases from 6.5.1 through 6.5.20 are provided in the Customer Welcome document. This document is available on the IRIX 6.5.21 Overlay CDs and can be accessed in any of the following ways:

- Insert Installation Tools and Overlays CD 1 or CD2 into the CD-ROM drive and point a web browser at file:///CDROM/WhatsNew/yourSystem.html. Note that you enter the literal yourSystem.html; do not type your actual system name.
- After completing an install, click on the Guide button of the web browser. Holding the button down yields a menu with Welcome as the first item.
- After completing an install, double click the "Welcome to SGI" icon on the desktop.

Descriptions of new features for IRIX 6.5.16 and later are available on Supportfolio Online from the following webpage:
http://support.sgi.com/search_request/publications. After logging in to Supportfolio, enter “Start Here” as the keyword and select “IRIX OS Docs ” as the Publication type. Select a Start Here document and follow the “Key New Features and Changes” link for information on the new features for the release selected.

Upcoming Changes in Future IRIX Releases

The following sections describe changes that will take effect in future IRIX releases.

Changes to CXFS Packaging in IRIX 6.5.22

Starting with the 6.5.22 release of IRIX, the IRIX CXFS software will no longer be on the IRIX feature stream CD. Instead, the CXFS software will be on a separate CXFS CD. There is no change to the support requirements for CXFS; you must purchase a CXFS support contract to receive technical support assistance. Existing licenses will continue to be valid and no replacement licenses will be necessary.

CXFS customers should make sure that their CXFS support contract contains the CD media option. This option is required for future delivery of the latest features, enhancements, and bug fixes, available only on CD. The CD media option allows you to take advantage of secure and expedited delivery using the online ordering system, through Software

Updates on Supportfolio, or through your local support center by telephone.

For further information on this packaging change and CXFS support, go to the following page on Supportfolio:

http://support.sgi.com/search_request/publications/index.

Select the following parameters:

Publication type: news

Product type or keyword(s): CXFS Separate CD Media

Upcoming Changes to Support Mode Status

The following workstations, graphics and scalable server systems will transition to retired support mode after the IRIX 6.5.22 release in November 2003:

- Challenge DM
- Challenge L
- Challenge XL
- Challenge M
- Challenge S
- Indigo
- Indigo2

- Indigo2 Extreme
- Indigo2 Impact
- Indy
- Power Challenge
- Power Indigo2
- Power Onyx
- Onyx1

Contact your local sales representative to discuss options for replacement or upgrade products.

For information on support for these systems in IRIX 6.5.22 and IRIX 6.5.23, go to the following page on Supportfolio:
http://support.sgi.com/search_request/publications/index.

Select the following parameters:

Publication type: news

Product type or keyword(s): IRIX 6.5.22 System Platform Retirement

IRIX 6.5.21 Update Kit Contents

The IRIX 6.5.21 Update Kit contains the following items for both server and workstation system configurations:

- CD Name:
 1. IRIX 6.5.21 (1 of 4) Installation Tools & Overlays CD, August 2003
 2. IRIX 6.5.21 (2 of 4) Installation Tools & Overlays CD, August 2003
 3. IRIX 6.5.21 (3 of 4) Overlays CD, August 2003
 4. IRIX 6.5.21 (4 of 4) Overlays CD, August 2003
 5. IRIX Applications for 6.5.21, August 2003
- The IRIX CD booklet *Installation Instructions: Installing an Intermediate (Overlay) Release, Installing Applications, Installing Software Licenses*

SGI Websites

IRIX 6.5-Related Websites

- SGI product information
<http://www.sgi.com/products/>
- IRIX 6.5 datasheet
<http://www.sgi.com/software/irix6.5/datasheet.pdf>
- Supportfolio Online, IRIX 6.5 content
<http://support.sgi.com/irix/6.5>

Services

- Customer Education Services
<http://www.sgi.com/support/custeducation/>
- Professional Services
<http://www.sgi.com/services/>

Online Tools

- Customer Registration
<http://www.sgi.com/support/custreg.html>
- Software Licensing/Key-O-Matic
<http://www.sgi.com/support/licensing/>
- Online documentation - Technical Publications Library
<http://docs.sgi.com/>
- Supportfolio Online
<http://support.sgi.com/>

Other Sites

- Download Cool Software
<http://www.sgi.com/products/evaluation/>
- Free Software
<http://freeware.sgi.com/>

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