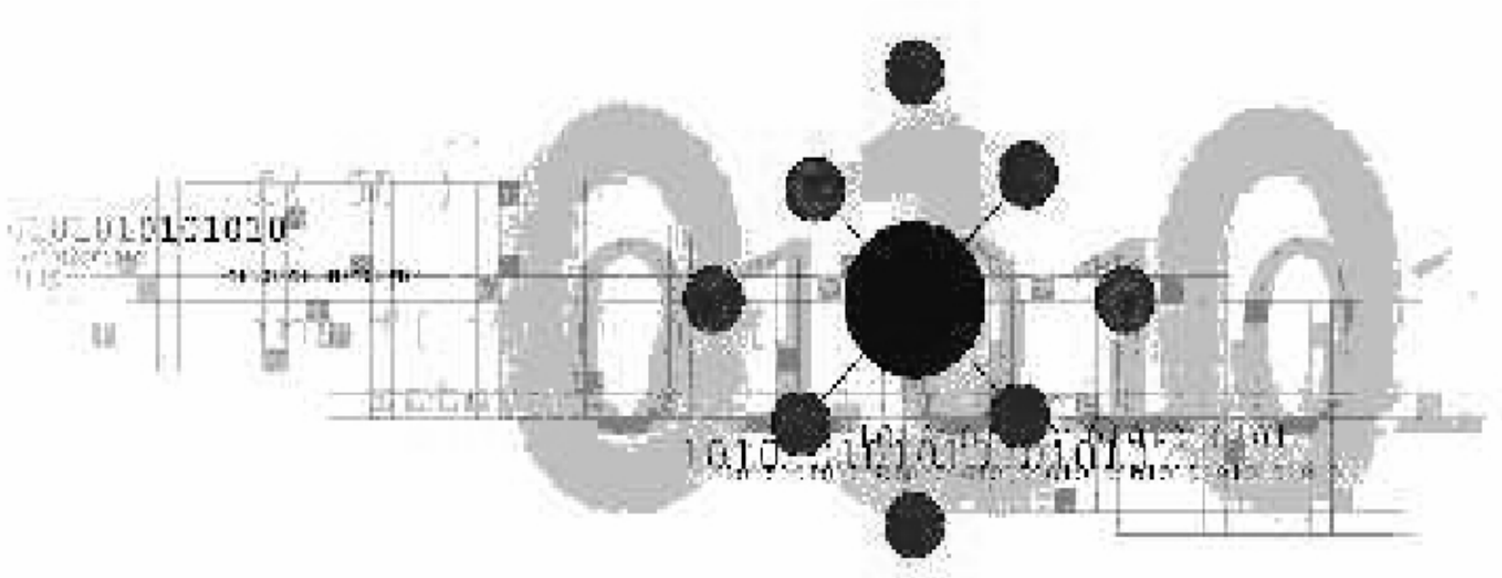
IRIX® 6.5.12 Update Guide



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May 2001

Dear Valued Customer,

SGI is pleased to present the new IRIX 6.5.12 maintenance and feature release. Starting with IRIX 6.5, SGI created a new software upgrade release strategy, which delivers both the maintenance (6.5.12m) and feature (6.5.12f) streams. This upgrade is part of a family of releases that enhance IRIX 6.5.

There are several benefits to this 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 Web site at `http://support.sgi.com` or contact your local support provider.

In conjunction with the release of IRIX 6.5.10, SGI adopted expanded life cycle management categories to customize the services we deliver to our users. We now offer seven (7) modes of service on SGI software: Active, Maintenance, Legacy, Retired, Courtesy, Divested, and Expired.

Active Mode is our highest level of service and applies to products that are being actively developed and maintained. Software fixes for all levels of problems can be expected. An example of software maintained at this level is IRIX 6.5.10.

Maintenance Mode software is maintained and is still an important part of our product mix, but no new functionality is added to it. Functional fixes for severe problems are generally available. Software stays in this category about 18 months before moving to the next service mode, Legacy.

Legacy Mode products are still supported through regular software support contracts. This software generally runs on out-of-production platforms, and is generally available and renewable. Software support functions are limited to providing existing fixes and "work arounds" for new problems. IRIX 6.3 and IRIX 6.4 are good examples of software in this category.

Retired Mode allows us to provide restricted support for some older software products. This level of support has severe limitations on portability to new platforms, and availability of support at this level is limited to existing customers with whom we have existing contractual obligations. It is the final stage before the product is removed from the SGI product set. For example, IRIX 5.3, Gauntlet Firewall, and SoftWindows95 are all currently maintained at this level.

Courtesy Mode products are not officially part of the software support offerings, and call center support is not available. There may be a customer communications e-mail alias with varying questions and response times. It can be withdrawn at any time. IRIS Annotator, InPerson, and CosmoCreate are all examples of software in the Courtesy Mode of service.

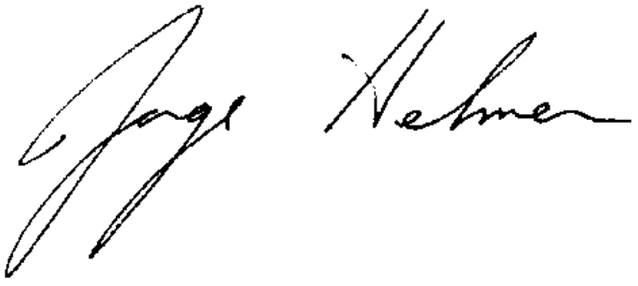
Divested Mode - CA Unicenter TNG and Syntax TAS are examples of divested products -- products that have been turned over to a third party who assumes all responsibility for support. Calls received at the SGI Call Center for support on divested products will be redirected to the third party.

Expired Mode - Products like IRIXPro Proconf and Molecular Inventor, which have reached the end of their useful life, are placed in Expired Mode. These products are not supported or distributed in any form by SGI.

The Web page at
`http://support.sgi.com/irix/news/index.html#swmodes`
contains a link to a Web page describing in more detail all seven software support modes and a link to the November 2000 customer letter containing a list of the various software products that have changed support modes.

We thank you for your continued commitment to SGI.

Sincerely,



Jorge Helmer
Senior Vice President & General Manager
Global Customer Services Division
SGI

Welcome to your SGI IRIX 6.5.12 update. This booklet contains:

- A list of key features in IRIX 6.5.12
- A list of CDs contained in the IRIX 6.5.12 update kit
- A guide to SGI Web sites

IRIX 6.5.12 Key New Features

The following features are in the core IRIX 6.5.12 overlays.

New Software Supported

Feature Stream Only:

- Supports the labeling of disks as XVM system disks in the XVM Volume Manager. This lets you create XVM logical volumes that include the partitions of a system disk. The following XVM system disk features are supported:
  - Root partitions can be mirrored
  - There can be multiple root partitions on a system disk
  - You can include usr and swap partitions in any XVM logical volume configuration, including mirrors, concats, and stripes
  - A system disk can include slices that are not part of a root, usr, or swap partition

  You can now convert existing system disks to XVM system disks, and then use their partitions as part of an XVM logical volume. After you have converted an existing system disk to an XVM disk, you can convert the disk back to its original state by unlabeling the disk with the XVM unlabel command. For information on XVM system disks, see the *XVM Volume Manager Administrator's Guide*.

Maintenance and Feature Stream:

- OpenGL Performer 2.4.1 execution environment, which is a powerful suite of tools and features that creates real-time visual simulation and other professional performance-oriented 3D graphics applications for the IRIX operating system. The following new features for OpenGL Performer provide enhanced realism and peak-performance rendering:
    - Programmable model shading using pfShader
    - Use of pfVolFog for rendering layered and patchy fog
    - Use of pfRotorWash to create the visual effect of downwash in helicopter simulation
    - Double-precision matrix support for rendering extremely large databases where objects are far away from the origin
    - CPU priority specification to allow multiple run-time processes to run on the same processor
    - Multipipe scalability enhancements
    - Improved pfLOD behavior to allow custom evaluation functions
    - Speed and functionality enhancements for pfFlux, pfCliptexture, and pfLightpoints
    - pfHyperpipe support for the DPLEX hardware option

    - EventView performance tuning tool for instrumenting and tuning your OpenGL Performer application

- The IRIX tape-support feature consists of a tape support driver, personality daemons, and a daemon that manages the personality daemons. The feature enables new personality daemons to be developed and added individually. The tape-support driver, which coexists with the current IRIX tape driver (tpsc), passes all device-dependent tasks, except for I/O processing, to a personality daemon. This release supports various devices including the Fibre Channel implementation on the StorageTek 9840 and T9940A tape drives. The `reserve`, `release`, `preempt`, `clear`, and `prsv` commands are available for these tape drives on the `mt` command. For more information, see the `mt`(1), `tsarchive`(1M), `tsdaemon`(1M), `tserrpt`(1M), `tsset`(1M), `tsstop`(1M), `ts.config`(4), and `ts`(7) man pages.
- Updated FLEXlm v7.2e support from GLOBEtrotter Software, Inc. The license manager daemon and the floating license server are built in V5 compatibility mode. For backwards compatibility, the client libraries and header files are still based on FLEXlm v6.1. For more information, see the *FLEXlm End User Manual* and the associated man pages.
- The Scheduled Transfer Protocol (STP) has moved from the feature stream to the maintenance and feature stream. STP is now a mature supported protocol and it includes TRIX support.

Applications CD:

- SGI web server, based on the Apache web server version 1.3.17, replaces the Netscape FastTrack web server; for details on how to change your default web server and configure and administer the SGI web server, see the Caveats to Read After You Upgrade area in the Start Here document for more details.
- WebSetup 3.2 has been updated to support the SGI web server based on Apache
- NEdit version 5.1.1a has added extensions to the regular expression syntax, an improved international character set input, new macro subroutines, and improved syntax highlighting for several programming languages
- Impressario 2.8.5 provides support for two new HP printer drivers, HP4050 and HP8100
- Runtime Plug-in for IRIX, Java Edition 1.1.1b has added support for the Netscape N32 plugin and the O32 plugin
- The following products from the Isogon Corporation have been removed: LicensePower/iFOR IS4.0.1 ARK and LicensePower/iFOR IS4.0.1 CRK. Sales and support has been divested to the Isogon Corporation at `http://www.isogon.com`. For more information on support modes, see the Support Policy page at `http://www.support.sgi.com/news/support/index.html#support_policy`.

Bundled Software

- The Out of Box Experience (OOBE) CD has been removed from the system platform bundles
- The Hot Mix CD has been removed from the system platform bundles

  For more information about the bundled software that is included with this release, see CD Contents and the Bundled Software and Licenses Web page that you can access from the Welcome Web page.

Freeware CD:

- Security-related bug fixes or updates have been made to analog, bind, htdig, nmh, and openssh
- Several new packages have been added to the archives, including cpio, licq, and vnc
- Many packages have been updated or patched, including ddd, gdb, gimp, nedit, postgresql, and other GNOME 1.2 related packages

  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`.

Documentation

- *IRIX Environment Variables Ready Reference*, part number 007-3942-001. This publication describes the environment variables

that are used on IRIX operating systems, in the compiling environment, and in other applications that run on IRIX operating systems (such as SpeedShop).

- The *CXFS Software Installation and Administration Guide*, part number 007-4016-008, was rewritten to include more troubleshooting information.

Key New Features from IRIX 6.5.1 to IRIX 6.5.11

Hardware Supported

Introduced in IRIX 6.5.9:

- Support for the SGI 3000 series of servers, including the SGI 3200, SGI 3400, and SGI 3800 servers
- Support for the TVO digital video option board for Silicon Graphics Onyx2 systems
- Support for the QED RM7000 processor on O2 systems

Introduced in IRIX 6.5.8:

- Support initiated for VPro Graphics, the next generation graphics for Silicon Graphics Octane systems

Introduced in IRIX 6.5.7:

- Support for Silicon Graphics Onyx2 InfiniteReality3 systems
- R12000S CPU on SGI 2200, SGI 2400, SGI 2800, SGI 2100, and Origin 200

Introduced in IRIX 6.5.5:

- QLA2200 (copper and optical) is supported for FC-AL, FC-AL via the Emulex hub, or fabric attach via the Brocade Silkworm 2000 switches

Introduced in IRIX 6.5.4:

- 270-MHz processor for Silicon Graphics O2 and Silicon Graphics Octane visual workstations
- HDTV XIO Board for Silicon Graphics Onyx2 and SGI Origin 2000 systems (this now includes the former Cray Origin 2000 system)

Introduced in IRIX 6.5.3:

- Systems using the MIPS R12000 processor
- Digital Video Multiplexer option board (DPLEX) for Silicon Graphics Onyx2 systems
- Redundant Power Supply (RPS)
- 21" Monitor Support for O2 and Octane systems

Introduced in IRIX 6.5.2:

- Flat Panel Monitor for O2 systems
- 16-pipe Onyx2 InfiniteReality systems
- GSN network adapter

Introduced in IRIX 6.5.1:

- Gigabit Ethernet for Octane and SGI Origin systems
- 128p Metarouter for Origin 2000 systems (formerly known as Cray Origin 2000 systems)
- Dual Channel Display option for O2 systems
- Onyx2 InfiniteReality2 systems
- 225QC for SGI Origin 200 systems

Feature Stream Only

Introduced in IRIX 6.5.10:

- XVM installed with CXFS is now qualified on IP35 (Origin 3000) systems in addition to the existing qualification on the IP27 (Origin 200, Origin 2000, and Onyx2) and IP30 (Octane) systems.

Introduced in IRIX 6.5.9:

- CXFS supports the use of hierarchical storage management (HSM) products through the data management application programming interface (DMAPI). An example of such a product is SGI's Data Migration Facility (DMF).
- CXFS and IRIS FailSafe 2.1 can be installed and run on the same system, which is known as coexecution. This provides application-level high availability and a clustered filesystem with nodes that support CXFS services, FailSafe services, or both.

  Note: The CXFS and FailSafe coexecution feature is not available in the IRIX maintenance stream. IRIS FailSafe 2.1 is an independently shipped product and is not shipped with IRIX.
- Support for the Scheduled Transfer Protocol (STP). STP is a new lightweight network protocol that uses Direct Memory Access (DMA) to read or write data into user space from a network interface.

This lets high bandwidth devices, such as Gigabyte System Network (GSN) and Gigabit Ethernet (GigE), perform at network speeds with minimum interrupt overhead. For more information, see the `stp`(7P) man page or `http://www.hippi.org`.

- Support for disk quotas that can now be set by project ID. Disk quotas let you limit the amount of space a user or project can occupy and the number of files (inodes) that each user or project can own. You can implement hard or soft limits; hard limits are enforced by the system and soft limits only remind the user to decrease disk usage.

  For more information on disk quotas and their administration, see *IRIX Admin: Disks and Filesystems*, which now includes information about project quota administration. For more information on project IDs, see *IRIX Admin: Backup, Security, and Accounting*. For more information on the administration of disk quotas by project, see the `edquota`(1M), `find`(1M), `quota`(1M), `repquota`(1M), and `fstab`(4) man pages.

- Support for the waitjob feature, which includes the new functions `setwaitjobpid`() and `waitjob`(). These functions let the batch schedulers query job information following job termination. When a batch scheduler launches a job, it calls `setwaitjobpid`() to tell the new job what pid is waiting for information upon termination. When the job terminates, it remains as a zombie until either the batch scheduler calls `waitjob`() to retrieve the job's termination information or the waiting pid no longer exists. The information

returned includes the job start time, usage information, and reason for termination.

For more information, see *IRIX Admin: Resource Administration* and the `waitjob`(1M) and `setwaitjobpid`(1M) man pages.

Introduced in IRIX 6.5.8:

- Support for Comprehensive System Accounting (CSA). CSA is a set of user and administrative C programs and shell scripts that provide methods to collect per-process resource usage data, monitor disk usage, and charge fees to specific login accounts. CSA uses this per-process accounting information and combines it by job identifier within the system boot uptime periods. CSA provides the following features that are not available with any other IRIX accounting package:
  - Per-job accounting
  - Daemon accounting (tape and Network Queuing System (NQS))
  - Flexible accounting periods (daily and periodic accounting reports can be generated as often as desired and not restricted to once per day or once per month)
  - Flexible system billing units (SBUs)
  - User exits for site specific customization of daily and periodic accounting
  - Configurable parameters within the `/etc/csa.conf` file

  - User job accounting (`ja` command)
  - For more information, see *IRIX Admin: Resource Administration* and the `csa`(1M) man page.

Introduced in IRIX 6.5.7:

- Support for job limits

  Job limits allow system administrators to manage user access to system resources by setting limits on different system usage parameters. This can result in improved system throughput and utilization. For more information on the usage of the different system usage parameters, see the *IRIX Admin: Resource Administration Guide* and the following man pages: `jstat`(1), `jlimit`(1), `job_limits`(5) `genlimits`(1M), and `showlimits`(1).

- Support for the CXFS product

  CXFS provides a cluster file system that allows file sharing between machines. CXFS includes the following capabilities: high resiliency and availability, reduced storage costs, and scalable high performance. The initial version of CXFS was introduced with IRIX 6.5.6.

  CXFS requires a new volume manager, XVM. XVM installed with CXFS is currently qualified only on IP27 (Origin 200, Origin 2000, and Onyx2) and IP30 (Octane) systems. The base cluster XVM software is

packaged with IRIX 6.5.6f and above. Optional XVM features will be separately licensed and are targeted to release in the IRIX 6.5.10f and above time frame.

The IRIX 6.5.7 release version of CXFS contains metadata server recovery. See the *CXFS Software Installation and Administration Guide* for the administrative shutdown procedures and additional troubleshooting information.

See the "New for 6.5.7 (or above): Caveats before you Install" section at the Caveats to Read Before You Upgrade link at `http://support.sgi.com/6.5/start_here/doc657/precaveats.html` for known dependencies or limitations before installing CXFS with XVM. Also, the Caveat and Release Note Updates link at `http://support.sgi.com/6.5/caveat_updates.html` should be checked periodically for information on the latest CXFS and XVM patches, descriptions of implemented CXFS and XVM features, updated Release Notes, or any late-breaking caveats.

Introduced in IRIX 6.5.6:

- Support for the Scheduled Transfers (ST) protocol. The ST protocol is an ANSI standard level two through four protocol suite designed to support extremely high performance data movement. ST provides a socket-based interface to applications, which lets you directly port the existing networking applications to ST. ST also supports the OS

Bypass mode of operation, which allows smaller messages to be sent and received with extremely low latencies. In this initial release of ST, only the Gigabyte System Network (GSN) network adapter is supported.

Introduced in IRIX 6.5.2:

- Motif 2.1/IRIS ViewKit 2.1
- IRIX Oplock support
- Support for non EUC encoding and locales (`sjis/big5/gbk/utf8`)

Maintenance and Feature Streams

- Support for the use of a reserved area of memory; this reserved area is between virtual addresses 0x30000000 and 0x40000000. This feature disables the reserved area of memory that the kernel provides for applications to place their mmap and shmat mappings. For more information, see the `mmap`(2), `shmat`(2), `syssgi`(2), and `sgi_use_anyaddr`(1) man pages.
- Support for weightless pthreads; they allow you to lower the priority of a process by using the `npri -w` command. For more information, see the `npri`(1) man page.
- Support for upgrading license_eoe to the FLEXlm 7.1 release from Globetrotter Software, Inc. The license manager daemon will be built

in V5 compatibility mode. For more information, see the *FLEXlm End User Manual* and the associated man pages.

- Support for an increased maximum number of logical unit numbers (LUNs) in the SCSI infrastructure from 64 to 255. This change impacts only the fcadp and qlfc fibre channel drivers and they will now enforce this LUN limit. If a LUN is greater than 255, it will be ignored after issuing a message to this effect. If you use large numbers of LUNs, you can exhaust the hardware graph. You may need to use the `systune` command to increase the hwgraph_num_dev parameter to let the kernel build larger hardware graphs.
- Support for licensing of partitioned environments. The SGI Origin 3000 server series and SGI Onyx 3000 series of systems give you the flexibility to distribute and manage a partitioned system environment on a large CPU server system. In most cases, software licensing behaves in the same manner on a single system image as in a partitioned environment. However, there are some differences. Depending on your applications, you may need either systemwide or per-CPU licensing. For more information, see *IRIX Admin: Software Installation and Licensing*.
- Support for the PCI Hot Plug infrastructure on the SGI 3200, SGI 3400, and SGI 3800 servers. The Hot Plug feature consists of the Hot Insertion and Hot Removal actions. Each device driver must be qualified as supporting one or both of these actions. Currently, the QLogic fibre channel and QLogic SCSI device drivers are qualified

for Hot Insertion. For more information, see the `pciconfig`(1) man page for specific administrative options and `http://sales.corp.sgi.com/products/servers/o3k/pci_xio.html` for an overview of the PCI Hot Plug feature on the SGI Origin 3000 server series and a current list of qualified drivers.

- Support for HP LaserJet 4050 and HP LaserJet 8100 printers
- OpenGL Performer Runtime 2.2.11 overlay incorporates the latest fixes. The Performer 2.2.11 overlay can be installed from the `/CDROM/dist/` directory of the IRIX 6.5.11 Overlays CD (3 of 3), February 2001.

Introduced in IRIX 6.5.10:

- Support for point-to-point connections between the QLogic 2200 fibre channel controller and the Brocade switch. This type of connection lets the QLogic 2200 controller perform full duplex transfers with the switch offering a potential increase in bandwidth. This capability was enabled by changing the value assigned to the *qlfc_use_connection_mode* variable (in `/var/sysgen/master.d/qlfc`) to 2. The previous value was 0. This change does not impact loop operation.
- Support for the IRIX SCSI tape driver (TPSC) enhancements that let system administrators and privileged applications specify a persistent reservation on shared tape drives. After the reservation has been established, the shared tape drive cannot be accessed by another

host until the reservation has been released. For more information, see the `mt`(1) and `mtio`(7M) man pages.

- Support for the new Fortran, C++, and base compiler runtime libraries packaged under the `ftn_eoe`, `c++_eoe` and `compiler_eoe` overlay images. These libraries are based on the MIPSpro 7.3.1.2m compilers and contain new interfaces released under the MIPSpro 7.3 compilers. The libraries are backward compatible with the libraries that were released in previous versions of IRIX 6.5. For more information, see the `ftn_eoe`, `c++_eoe`, and `compiler_eoe` release notes.
- OpenGL Performer Runtime 2.2.10 overlay incorporates the latest fixes. The Performer 2.2.10 overlay can be installed from the `/CDROM/dist/` directory of the IRIX 6.5.10 Overlays CD (3 of 3), November 2000.

Introduced in IRIX 6.5.9:

- Support for Embedded Support Partner 2.0 (ESP2.0). This release supercedes patch 3895 and includes these additional major features as follows: Support for Embedded Support Partner 2.0 (ESP2.0). This release supercedes patch 3895 and includes these additional major features as follows:
  - Fixes to the System Group Manager for secure interconnectivity between group members and the group manager

  - Support for an unlimited number of group members to the System Group Manager
  - Multiple ESP user support with page privileges
  - ESP logbook for electronically logging and tracking support activities locally on the system

  The migration from ESP1.0 to ESP2.0 is done seamlessly when upgrading from previous versions of IRIX to IRIX 6.5.10.

  The Embedded Support Partner Overview and the Embedded Support Partner User Guide have been combined. The new document is called the Embedded Support Partner User Guide and will contain overview and usage information for the ESP 2.0 command line and graphical user interfaces.

- Support for the SCSI Enclosure Services (SES). A new subsystem that manages the Fibre Channel drive enclosures has been added. The new daemon, `sesdaemon`, supports the Xyratex 12-slot enclosure and the Clarion 10-slot enclosure. The new client application, `sesmgr`, uses a command set similar to the set used by the previous `fcagent/fccli` subsystem. For more information, see the `sesdaemon`(1M) and `sesmgr`(1M) man pages.
- OpenGL Performer Runtime 2.2.9 overlay incorporates the latest fixes. The Performer 2.2.9 overlay can be installed from the `/CDROM/dist/` directory of the IRIX 6.5.9 Overlays CD (3 of 3), August 2000.

Introduced in IRIX 6.5.8:

- Embedded Support Partner (ESP) patch 3895 migrates ESP 1.0 to ESP 2.0. This patch release includes new features and bug fixes. The major features are as follows:
  - Automatic Call Logging to the SGI call centers for Mission Critical Supported customers
  - Loading of specific event profiles for monitoring
  - A new command line interface to setup and use ESP
  - A new user interface with a high level of usability and navigational features
  - Fixes to the System Group Manager

  The Embedded Support Partner Overview and the Embedded Support Partner User Guide will be combined. The new document is called the Embedded Support Partner User Guide and will contain overview and usage information for the ESP 2.0 command line and graphical user interfaces.
- Support for 32-bit direct mapping to any node on the system. This feature lets the system administrator change the 32-bit direct mapping node for a specific Peripheral Component Interconnect (PCI) bus. It also provides a new interface, `pcibr_get_dmatrans_node()`, that lets a device driver obtain the node ID. For more information, see the *IRIX Device Driver*

Programmer's Guide and the `pcibr_get_dmatrans_node`(D3) man page.

- Support for the Cpuset System programming interface application (previously known as `miser_cpuset`). This interface is provided in the form of a Dynamic Shared Object (DSO). You can use this programming interface to create cpusets, remove cpusets, and attach processes to cpusets. You can use the Cpuset System programming interface in areas where the `cpuset` command is inappropriate. For example, if a batch system needs to use the cpuset capability in IRIX, the Cpuset System programming interface will provide a more flexible and robust solution than the `cpuset` command. For more information, see *IRIX Admin: Resource Administration* and the `cpuset`(5), `cpusetAllocQueueDef`(3x), `cpusetAttach`(3x), `cpusetCreate`(3x), `cpusetDestroy`(3x), `cpusetDetachAll`(3x), `cpusetFreeCPUList`(3x), `cpusetFreeNameList`(3x), `cpusetFreePIDList`(3x), `cpusetGetCPUCount`(3x), `cpusetGetCPUList`(3x), `cpusetGetName(`3x), `cpusetGetNameList`(3x), and `cpusetGetPIDList`(3x) man pages.
- Support for new Miser cpuset options. These options allow the creation of restrictive memory pools from the nodes that contain the CPUs listed in the configuration file.

Processes that exceed the available memory on those nodes may be terminated or paged (selectable). For more information on these options, see the `cpuset`(4) man page.

- OpenGL Performer Runtime 2.2.8 overlay incorporates the latest fixes. The Performer 2.2.8 overlay can be installed from the `/CDROM/dist` directory of the IRIX 6.5.8 Overlays CD (3 of 3), May 2000.
- Documenter's Workbench with the latest Y2000 bug fixes can be installed from the `/CDROM/dist/unbundled` directory of the IRIX 6.5.8 (or above) Overlays CD (2 of 3), May 2000.

Introduced in IRIX 6.5.7:

- Updating `sendmail` to version 8.9.3

  The version of the IRIX sendmail mail system supplied on this release and previous IRIX 6.5.*x* releases is based on `sendmail` version 8.8.8. Due to customer demand, the current sendmail.org release, `sendmail` version 8.9.3 (see `http://www.sendmail.org`), will be supplied via patch 3865 or its successor. Check the Caveat and Release Note Updates link at `http://support.sgi.com/6.5/caveat_updates.html` for the IRIX 6.5.7 late breaking caveats to determine the availability of this patch on Supportfolio. SGI intends to support `sendmail` 8.9.3 (or above) as the standard released `sendmail` in a future IRIX release, target 6.5.10.

There are many differences between IRIX `sendmail` version 8.8.8 and version 8.9.3.

- The major difference is their configuration files. The configuration file in `sendmail` version 8.9.3 is configured with the `sendmail.mc` file which is processed using the m4 macro processor to create the `sendmail.cf` file.
- A new version of `configmail` configures the `sendmail.mc` file and provides features similar to the `configmail` utility in previous versions of IRIX. This version of `configmail` also processes the `sendmail.mc` file into `sendmail.cf` by using the m4 macro processor.
- One of the new features included in version 8.9.3 and in great demand by IRIX users is the anti-relay features which can be used to control spam messages.

For more information on the 8.9.3 version of `sendmail`, see the *IRIX Administration: Networking and Mail Guide* provided with the patch. For more information on how to configure `sendmail` 8.9.3, see `http://www.sendmail.org/m4/readme.html`.

- Open Inventor Runtime 2.1.6 overlay incorporates fixes included in versions 2.1.4 and 2.1.5. The Inventor 2.1.6 overlay can be installed from the `/CDROM/dist/unbundled` directory of the IRIX 6.5.7 Overlay CD 2 of 2. This overlay requires that the base Inventor 2.1.4 image be installed already, or with the overlay during the same

install session. The Inventor 2.1.6 overlay can be installed on IRIX 6.5.5 and later.

- OpenGL Performer Runtime 2.2.7 overlay incorporates the latest fixes. The Performer 2.2.7 overlay can be installed from the `/CDROM/dist/` directory of the IRIX 6.5.7 Overlays CD (2 of 2), February 2000.

Introduced in IRIX 6.5.6:

- Support for a multithreaded version of the automatic filesystem mount daemon `autofsd`. This enhanced functionality allows for simultaneous multiple automounts. If a particular server for an automounted filesystem is not running or is slow to respond, one `autofsd` thread can wait for that server while other `autofsd` threads mount filesystems from other servers. This capability improves the automount performance and simultaneously provides longer wait times for downed servers, which should lead to a decrease in automount failures.

Introduced in IRIX 6.5.5:

- Embedded Support Partner, which is an integral part of the IRIX operating system, provides system administrators with a way to monitor various events (such as system events, changes in system hardware and software configuration, and system performance) on their systems. Embedded Support Partner is a set of daemons that perform the monitoring activities. These include an event monitoring

daemon (`eventmond`), an event management daemon (`espemd`), and a database daemon (`espdbd`). Embedded Support Partner provides single-system monitoring capabilities as a standard part of IRIX. Optionally, Embedded Support Partner can be configured to receive event and system configuration data from all systems contained within a system group. Embedded Support Partner is controlled through a Web browser that is connected to the Configurable Web Server, which is included in the Embedded Support Partner package. For more information, see the *Embedded Support Partner Overview*, the *Embedded Support Partner User Guide*, and the Embedded Support Partner man pages.

- Support for the version 2 XFS directory format; this format lets you choose a filesystem block size to match the distribution of data file sizes without adversely affecting directory operation performance. The directory format is specified with the `-n` parameter of the `mkfs` command. For more information, see *IRIX Admin: Disks and Filesystems* and the `mkfs_xfs`(1M) man page.
- Support for the math and scientific library SCSL 1.3. SCSL 1.3 will replace `Challengecomplib` on all supported system platforms at the time of the next major IRIX Release.

SCSL provides support for the math and scientific libraries and is widely used in scientific and technical compute-intensive applications. SCSL 1.3 incorporates all the current `Challengecomplib` 3.1 features and will be distributed as a separately packaged product until the next major IRIX release.

SCSL 1.3 can be downloaded from the SGI Download Cool Software Web page at `http://www.sgi.com/Products/Evaluation`. If you do not have Web access and are a current support customer, you can request CD media free of charge through your local support center. Non-contract customers can contact their sales representatives to order SCSL 1.3.

New features introduced in addition to the `Challengecomplib` functionality since the release of SCSL 1.1 are:

- Added convolution/correlation and filter routines to the signal-processing functionality (formerly available only in `Challengecomplib`)
- Improved ordering techniques for the sparse linear solvers
- Performance enhancements for the MIPS R12000 processor
- Bug fixes from SCSL 1.1 and 1.2

Challengecomplib entered maintenance mode with the release of IRIX 6.5.5. No new features or enhancements will be incorporated.

For more information on SCSL, see `http://www.sgi.com/software/scsl.html`

- Support for Automated Performance Monitoring. Together with Embedded Support Partner, the base performance monitoring services in the pcp_eoe product have been extended to include an inference engine for evaluating rules about system-level performance and raising alarms. Also provided is a parameterized set of standard rules that can be selectively enabled and tuned to meet local requirements and to choose alternative alarm notification mechanisms. These features are of most value to operations staff running production IRIX systems. For more information, see the `pmie`(1) and `pmieconf`(1) man pages, and the *Performance Co-Pilot IRIX Base Software Administrator's Guide*.
- Two new options were added to the `miser_create_cpuset` command. These options allow additional restrictions on memory assignment for processes running on a CPU set. These options are documented in the `miser_cpuset`(4) man pages.

Introduced in IRIX 6.5.4:

- Support for the Miser queue repack policy. When a job finishes execution before the end of its schedule, the system resources it was using are released. This policy attempts to reschedule the jobs using earlier start and end times to take advantage of these released system resources. The order of the scheduled jobs will be maintained. This feature can be used by all Miser users running IRIX 6.5.4m or f and later releases. For more information, see the `miser`(4) and `miser`(5)

man pages, and *IRIX Admin: System Configuration and Operation*, Chapter 7 “Managing User Processes.”

- Distributed Computing Environment (DCE) Client for accessing shared resources in distributed computing DCE/DFS serving environments
  - Kernel libraries only
  - Requires installation of DCE/DFS 1.2.2a software for full functionality

Introduced in IRIX 6.5.3:

- (Octane systems only) The worst-case interrupt response time is guaranteed to be less than one millisecond on properly configured Octane systems
- Support for the X security and appgroup extensions (combined with a new Netscape plug-in, these allow the embedding of X applications in Web pages)
- Support for European fonts, including the Euro currency symbol
- New Software Manager and Inst commands to simplify selections for upgrades
- New Software Manager and Inst configuration variable to more easily handle cases where configuration files are upgraded. See the *smart_config_handling* preference in `inst` or `swmgr` for more information.

- Support for LDAP 3.0

Introduced in IRIX 6.5.2:

- AutoFS extended to use UNS for map information
- Support for DCShare application sharing extension
- Fibre channel support to Dmnet
- Three new HP printer drivers: HP4000, HP5000 and HP4500 (Color LaserJet 4500DN)

Updated Documentation

No feature content has been added to applicable book documentation for this release.

Applications CD changes from IRIX 6.5.1 to IRIX 6.5.11

- Cosmo Player, IRIX Interactive Desktop, Impressario, IRIX Interactive Desktop Tools, IRIX Interactive Desktop Administration, IRIS InSight Viewer, IRIS InSight Developer, and IRIS InSight Dynaweb Server, Netscape Communicator, Netscape Developer, and IRIS Showcase have been updated to incorporate bug fixes.
- AccessX has been updated with the latest revision of the help book. It can be viewed after installation of the product.
- Graphics Demonstration Programs, Graphics Demonstration Programs for O2, Octane Demos, and Octane Demos 2 software have been removed from the IRIX Apps CD and incorporated into existing platform specific Demonstration Program CDs that ship with new systems.
- Nedit GUI style editor has been updated from version 4.0.3 to the latest freeware version, 5.1.1.
- Netware 1.1.1 is now compatible with SGI 3000 systems.
- Webviewer has been revised to prepend the new threaded Cosmo Player plugin directory to the default webviewer plugin search path.

Introduced with IRIX 6.5.10:

- IRIX Interactive Desktop, IRIX Interactive Desktop Tools, IRIX Interactive Desktop Administration, IRIS InSight Viewer, IRIS

InSight Developer, and IRIS InSight Dynaweb Server have been updated with bug fixes.

- Cosmo Player 2.1.4 release has added support for the Netscape N32 plugin.
- CustomerLink Client Software will no longer be supported. Its key features have been migrated to the SupportFolio Online site (`http://support.sgi.com`).
- Customer Support Services Base Software will no longer be supported. Its key features have been migrated to the SupportFolio Online site (`http://support.sgi.com`).
- Impressario 2.6.5 has added 1000 new PPD files to the `/usr/spool/lp/PPD_untested/` directory. The README file in this directory contains details on how to use the new drivers. The new PPD files include printers from the following manufacturers:

  3M, Adobe, Agfa, Apple, Autologic, Canon, Dataproducts, Epson, FujiPhotoFilm, Hitachi Koki Co., Ltd., Hewlett-Packard, IBM, Kodak, Konica, Linotype, MGI, Mitsubishi, OKI, Optronics, PrePress, QMS, Ricoh, Samsung, Scitex, Shinko, Sony, Splash, Topmax, Tektronix, Xante, Xerox
- Netscape Communicator 4.75; by default, version 4.75 will install the new N32 version of the browser. Any existing third-party plugins for the browser that are O32 will no longer function. Support for the Macromedia Flash plugin is also included. For more information, see

`http://home.netscape.com/communicator/v4.5/tour/index.html`. Netscape Developer and Netscape Lite have also been updated to version 4.75.

- Netscape FastTrack Server 3.03 contains an updated version of the Administration Server 3.52 (initially added in 6.5.5)
- Demonstration Programs, Octane2 demos added
- Runtime Plug-in for IRIX, Java Edition 1.1.1a has added support for the Netscape N32 plugin
- SGImeeting Collaboration Environment with Extensions, 2.0, Net-based data-conferencing, application-sharing software. A 30-day evaluation license is included. SGImeeting 2.0 is an update release to SGImeeting 1.4. Key new features includes:
    - Support for Microsoft NetMeeting 3.0.

      Enhanced NetMeeting 3.0 interoperability - enables offline selection of compatibility for sharing applications supported by NetMeeting 3.0. For more information, see the SGImeeting Help and User's Guide.
    - Improved application sharing performance - up to 80% from SGIMeeting 1.4 depending on your hardware configuration and internet connection. 80% improvement was achieved with 128MB, 180Mhz, R5000 O2 host talking to a 128MB 175Mhz R10000 Octane client over 100baseT ethernet sharing a maximized 1280x1024 solidview demo window.

- Speed dialing - enables creation of `.cnf` files and initiates calls from the command line.
- Background operation - provides selections for SGImeeting to minimize, remain actively connected in the background, and pop up when you receive a call.
- Grouped window sharing - enables selecting all windows with a specific X class name to be treated as a single application and shared as a group.
- Includes the SGIMeeting extensions (first included with SGIMeeting 1.4).

  The SGImeeting Extensions offer additional whiteboard tools as "plugins" that appear on the whiteboard tool palette. These tools are ideal for group discussions in CAD and image intensive industries. The following extensions are available:

  - A screen capture tool for dynamic or still whiteboard input
  - A video capture tool for dynamic or still whiteboard input
  - Customizable arrows and dimension markers for easy discussion pointing
  - Symbol palette for drag and drop images
  - SmartClear for clearing annotations when captured images update

        - For more information on SGImeeting, see `http://www.sgi.com/software/sgimeeting`. For additional assistance, contact your local SGI sales representative.
    - A time-limited demo is included with IRIX 6.5.10, contact your local SGI sales representative to purchase permanent licenses.
- Xinet Macintosh Connectivity Software, also referred to as Xinet Appletalk, now includes K-AShare, K-FS, and K-Spool software. These products provide enhancements for Macintosh file sharing, file serving, and printing connectivity with IRIX systems. These Xinet products were updated to version 10.02 in the IRIX 6.5.9 release. Version 10.02 is only the demonstration version; no license is included. Any licenses from previous versions of Xinet software will not work with version 10.02. For more information on Xinet products, see `http://www.xinet.com`. For technical or sales questions, please contact Xinet at `sales@xinet.com` or 1.510.845.0555.

For more information about the bundled software that is included with this release, see CD Contents and the Bundled Software and Licenses Web page that you can access from the Welcome Web page.

Introduced with IRIX 6.5.9:

- AccessX, Acrobat, Appletalk, Cosmo Player, IRIX Interactive Desktop System Administration, Impressario InSight, and Java have been updated with bug fixes.
- SGIMeeting 1.4 has been added back to the Apps CD and is provided with a 30 day Evaluation License that allows a demo collaborative session to run for 10 minutes.

  Here are some key changes for the 1.4 release:

  – The single `sgimeeting` image incorporates the prior base (`sgimeeting`) and extensions (`sgimeeting_ext`) functionality
  – Bug fixed since the 1.1 release are included
  – Purchased as an unbundled software product
  – Licensing is now required: available as a single license or a five license volume pack

  For more information on SGImeeting, see `http://www.sgi.com/software/sgimeeting`. For additional assistance, contact your local SGI sales representative.

Introduced with IRIX 6.5.8:

- No major feature or enhancements for this release
- AccessX, Desktop Runtime, Impressario, Infosearch, InSight, License Runtime, Sysadmin Desktop updated with bug fixes

Introduced with IRIX 6.5.7:

- SGImeeting and SGImeeting Extensions are now both licensed products and are no longer available on the Applications CD. Future revisions of the base SGImeeting product and the Extensions will be distributed on separate CDs and licensed separately. For additional information or assistance, contact your local SGI sales representative.
- Netscape 4.7A provides additional localization and the Flash plug-in since the 4.7 release.

Introduced with IRIX 6.5.6:

- Upgrade to Netscape Communicator 4.7; for details, see `http://home.netscape.com/communicator/v4.5`.

Note: Netscape Radio is implemented only for systems with the G2 player installed.

Introduced with IRIX 6.5.5:

- WebViewer Library Execution Only Environment 3.0

Note: Applications take two forms: full images and overlays. The base versions of each can be found on the Applications CD. When full images are updated, new versions are placed on the Applications CD. Upgrades of overlay products, however, are located on the Overlay.

Bundled Applications (ASE/AWE) changes from IRIX 6.5.1 to IRIX 6.5.11

Changes with IRIX 6.5.10:

- EnlightenDSM is no longer included with IRIX 6.5 ASE and AWE

  SGI will no longer bundle EnlightenDSM with IRIX 6.5 ASE or AWE. The same software is now downloadable for free for all SGI customers from the Enlighten Software Solutions Web site, `www.enlightendsm.com/freedsm.html`. The version of EnlightenDSM bundled with IRIX 6.5 was the basic functionality. Please contact Enlighten with any product questions `www.enlightendsm.com`.

Changes with IRIX 6.5.8:

- Syntax TAS and CA Unicenter TNG Framework no longer included with IRIX 6.5 ASE

  SGI no longer bundles the Syntax TAS software with Origin systems as of June 2000. For interoperability solutions with PCs, Macintosh, and other systems, customers can contact Syntax at `www.syntax.com` or evaluate some of the solutions from SGI such

as Samba (SC4-SAMBA-2.0.7). For Macintosh interoperability, SGI offers a demo version of Xinet's KAShare (Appletalk) product (`www.xinet.com`) on the IRIX Applications CD.

- SGI no longer includes CA Unicenter TNG Framework with IRIX ASE. A free CD of CA Unicenter TNG Framework is now available from `www.ca.com/fw_reg.htm`.

IRIX 6.5.12 Update Kit Contents

The IRIX 6.5.12 Update Kit contains the following items for both server and workstation system configurations:

- CD Name:
    1. IRIX 6.5.12 (1 of 3) Installation Tools & Overlays CD, May 2001
    2. IRIX 6.5.12 (2 of 3) Installation Tools & Overlays CD, May 2001
    3. IRIX 6.5.12 (3 of 3) Overlays CD, May 2001
    4. IRIX Applications for 6.5.12, May 2001
- The IRIX CD booklet *Installation Instructions: Installing an Intermediate (Overlay) Release, Installing Applications, Installing Software Licenses*

SGI Web Sites

IRIX 6.5-Related Web Sites

- SGI product information

  `http://www.sgi.com/products`

- IRIX 6.5 datasheet

  `http://www.sgi.com/software/irix6.5/datasheet.pdf`

- Start Here: Installing IRIX 6.5.12

  `http://support.sgi.com/6.5/installing.html`

- To view all qualified applications compatible with IRIX 6.5 releases, see `http://support.sgi.com/6.5/spk`

Services

- Customer Education Services

  `http://www.sgi.com/support/custeducation.html`

- 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`
- Supportfolio Online

  `http://support.sgi.com`
- Online documentation —Technical Publications Library

  `http://techpubs.sgi.com`

Other Sites

- Download Cool Software

  `http://www.sgi.com/Products/Evaluation`
- Free Software

  `http://freeware.sgi.com`

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