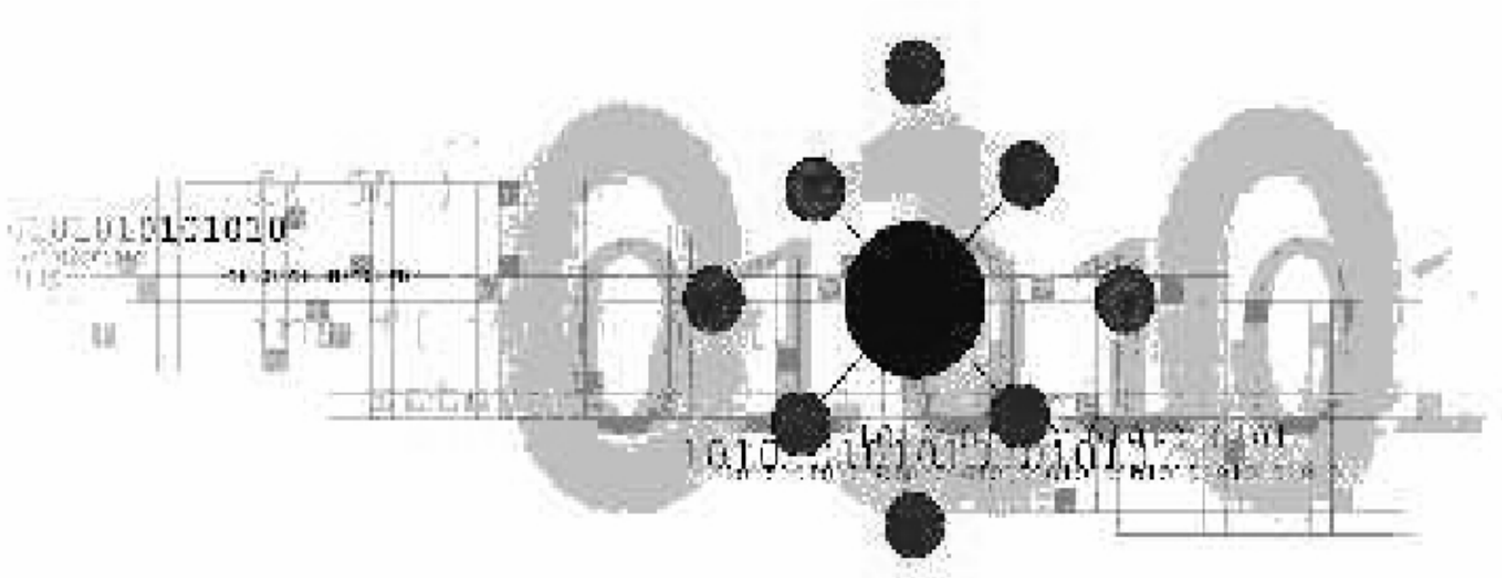
# IRIX® 6.5.19 Update Guide



*1600 Amphitheatre Pkwy.*
*Mountain View, CA 94043-1351*
*Telephone (650) 960-1980*
*FAX (650) 961-0595*

February 2003

Dear Valued Customer,

SGI® is pleased to present the new IRIX® 6.5.19 maintenance and feature release. Starting with IRIX® 6.5, SGI created a new software upgrade strategy, which delivers both the maintenance (6.5.19m) and feature (6.5.19f) streams to our support contract customers. 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.

In conjunction with the release of IRIX® 6.5.15, SGI added to the existing life cycle management categories the Limited Support Mode that customizes services we deliver to our users. This new support mode is targeted for open source products. We now 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 about 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, 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 2003.

**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.

**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.

The Supportfolio Online webpage at `http://support.sgi.com/` contains a link to a webpage where the eight software support modes are described in more detail. This webpage also contains links to the latest customer letters, which provide a list 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 6.5.19 update. This booklet contains:

- A list of key features in IRIX 6.5.19
- A list of CDs contained in the IRIX 6.5.19 update kit
- A guide to SGI websites

# IRIX 6.5.19 Key New Features

The following changes have been incorporated into the core IRIX 6.5.19 overlay CDs and the Applications CD.

## New Hardware Platforms or Features

- **SGI Origin 3900 server**
  Support for the SGI Origin 3900 server is included in 6.5.19. This includes support for the following features:
  - New compute brick introduction to the NUMAflex architecture, providing a 4x-density improvement in the SGI Origin 3000 product family
  - Up to 128 CPUs and 256GB per compute rack
  - SGI NUMAflex shared-memory architecture
  - New Enhanced Topology for the NUMAflex architecture
  - SGI IRGO HPC workflow optimization feature

## New Software Features - Feature Stream Only

### Filesystems

- **CXFS upgrades**
  For 6.5.19, CXFS contains the following changes:

- A new rolling annual upgrade policy permits you to upgrade from 6.5.n to the n+1 or n+4 release. This policy takes effect as of 6.5.18f.
- The time required to update and propagate the database across nodes in the cluster has been significantly decreased.
- If you use I/O fencing and `ipfilterd`(1M) on a node, the `ipfilterd` configuration must allow communication between the node and the `telnet`(1) port on the switch.
- The CXFS Manager graphical user interface (GUI) has added a new icon to represent client-only nodes. In preparation for future CXFS MultiOS client releases, the CXFS software now also allows you to specify the Linux, IBM AIX, and Hewlett-Packard HP-UX operating systems when defining a node.
- Application programmers should be aware that XFS recently the requirement that direct I/O be aligned along filesystem block boundaries. As of IRIX 6.5.19f, direct I/O will also be accepted using 512-byte alignment. This change makes the use of direct I/O on a CXFS partition more consistent with that of other vendors requirements and thus makes the use of CXFS more transparent. See the description of direct I/O requirements in the `fcntl`(2) man page.

For details, see the *CXFS Version 2 Software Installation and Administration Guide*.

## New Software Enhancements - Maintenance and Feature Stream

### Special Files

- **Pseudo Random Number Generator**
  IRIX 6.5.19 provides a Pseudo Random Number Generator, accessible through the special files `/dev/random`, and`/dev/urandom`. These files support the standard file interface operations. The PRNG is implemented in the kernel. For further information, see the `random`(7) man page.

### Software Timers

- **Easier access to raw real-time clock**
  In IRIX 6.5.19, the `rdrtc`() function was added to `libc`. This function provides a simplified interface to read the system's raw real-time clock value. This feature is similar to those in other operating systems that read the cycle counter. For information, see the `rdrtc`(3c) man page.

### Security

- **OpenSSH version 3.4p1 added**
  IRIX 6.5.19 includes OpenSSH version 3.4p1. This has been patched for TRIX support and SOCKS support and uses the OpenSSL libraries.

## Real-Time Features

- **Processors can no longer be unisolated while still non-preemptive**
  For IRIX 6.5.19, a bug was fixed that allowed processors isolated and made non-preemptive with `mpadmin`() or `sysmp`() to become unisolated while still non-preemptive. This has been changed to force the processor to become preemptive before it can become unisolated. For information, see the `mpadmin`(1) and `sysmp`(2) man pages.

## Networking

- **Support for Internet Protocol Version 6 (IPv6)**
  IRIX 6.5.19 supports Internet Protocol Version 6 (IPv6). Internet Protocol Version 6 (IPv6) is the next generation Internet protocol, designed eventually to replace the current IPv4. IPv6 is expected to grow in usage gradually over many years and will coexist and interoperate with IPv4 for the foreseeable future.

  IPv4 uses a 32-bit address scheme to represent a unique Internet address while IPv6 uses a 128-bit addressing scheme. Because IPv6 has four times the number of bits to represent addresses, it provides several billion times the address space of IPv4 and adds an almost unlimited number of available IP addresses. This resolves a projected future shortage of IPv4 addresses as more and more devices are added to the Internet.

To ease the transition from IPv4 based networks to IPv6, IRIX supports a dual-stack protocol implementation that supports both IPv4 and IPv6 protocols on the same system. The IPv6 basic socket API is supported and allows network programs to use either protocol. The IPv6 API software interface communicates transparently with both IPv4 and IPv6 nodes. It automatically chooses the right protocol to communicate with any particular node. It has an encapsulation mechanism called tunneling that allows IPv6 packets to operate over IPv4 networks. The IPv6 protocol allows networking applications to operate transparently in both environments.

For more information, see the *IRIX Network Programming Guide* and see Chapter 2, "Planning a Network" in *IRIX Admin: Networking and Mail*.

- **New gigabit ethernet driver**
  The new gigabit ethernet driver (device tgx) now dynamically adjusts the cards parameters to maintain good performance across very dynamic workloads. Manual setting of this parameter is no longer needed.

**Digital Media Environment**

- **64-bit versions of dmedia libraries added**
  IRIX 6.5.19 includes 64-bit versions of `libaudiofile` and

`libcdaudio`. For information on these libraries, see the `afIntro`(3dm) and `CDintro`(3dm) man pages.

**General Administration**

- **Support for sendmail version 8.12.5**
  IRIX 6.5.19 supports sendmail version 8.12.5, which provides the following features:
  - Simple Mail Transfer Protocol (SMTP)
  - Performance improvements including multiple queues, memory-buffered pseudo-files, and more control over resolver timeouts.
  - Support for "message submission agent", as defined by RFC 2476.
  - Changes to support running sendmail with group-id privileges. sendmail no longer runs with set-uid-root privileges.
  - Ability to connect to servers running on named sockets.
  - Changes to support IPv6.
  - Improved support for virtual hosting.
  - Improved anti-spam control features.
  - Several new map classes, including `ph`, `arith`, and `macro`.

For more information on sendmail, see Chapter 9, "IRIX sendmail" in *IRIX Admin: Networking and Mail*.

- **sendmail and security**
  For security reasons, sendmail is no longer implemented as a setuid-root program. Rather, it is implemented as a setgid-sgismmsp program. The sendmail functionality is now split between the Mail Transfer Agent (MTA) and Mail Submission Agent (MSA) programs and requires new account and group categories both named `sgismmsp`.

  Trusted IRIX/CMW system relies on a number of administrative data files to provide crucial information for the system.

  This release adds a new `/etc/mail/submit.cf` configuration file for the mail submission program which is used to submit emails as invoked by programs (or users).

  For more information, see the *Trusted IRIX Security Administration Guide* and *IRIX Admin: Networking and Mail*.

**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 Supportfolio Online located at:

  `http://support.sgi.com/`

## Applications CD

The following full images have been added to the IRIX 6.5 Applications CD, February 2003:

- GNU Software configured and precompiled for IRIX, 1.1
- InSight Base 5.2
- Macromedia's Flash5 plugin 1.0
- Mozilla 1.0.1

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

- Access for Movement-Impaired Users 1.1.4
- Adobe Acrobat Reader 4.05a
- Cosmo Player VRML Viewer 2.1.6 for IRIX 6.5
- GLOBEtrotter FLEXlm License Tools 3.4.8
- Information Searching Execution Environment, 6.5.19m
- InSight 5.2, InSight Dev 5.2, and InSight Glossary
- NEdit 5.3
- Netscape Communicator, Navigator, and Dev 4.8
- Outbox Personal Web Site 1.8
- SCSL 1.4.1.1

- SGImeeting 2.0.4
- SGI WebServer Based on Apache 1.3.27
- Fulltest Indexing and Search Environment 4.2
- WebSetup 3.4

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

- IRIX Interactive Desktop
- IRIX Interactive Desktop Tools
- IRIX Interactive Desktop Administration

**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 CD**s

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

**New products for this release:**

- Guppi-0.40.3 - GNOME plotting tool
- atk-1.0.3 - GTK2 Accessibility Toolkit

- bonobo-conf-0.16 - Bonobo Configuration System
- epm-3.5.1-source - ESP Package Manager
- evolution-1.2.0 - Personal Information Management Client
- gaim-0.59.6 - Multi-protocol Instant Messaging Client
- galculator-0.8 - GTK2 Calculator
- glib2-2.0.6 - Abstract data type library
- gtk2+-2.0.6 - GIMP Toolkit
- gtkhtml-1.1.6 - lightweight html rendering engine
- mcrypt-2.6.3 - multi-algorithm replacement for crypt
- mhash-0.8.17 - multi-algorithm strong hash library
- mminstance-1.18 - multiple master fonts utilities
- nut-1.2.1 - Network UPS Tools
- pan-0.13.3 - Gnome Based Newsreader
- pango-1.0.5 - GTK2 Core and Text Font Handling
- sodipodi-0.28 - Vector Based Illustrator Program
- soup-0.7.4 - SOAP (Simple Object Access Protocol) C implementation
- xmahjongg-3.6.1 - Colorful solitaire Mah Jongg game
- xmame-0.61.1 - Multi Arcade Machine Emulator

**Updated products for this release**:

- abiword-1.0.3 - GTK+/GNOME word processor
- analog-5.30 - HTTPD log file analyzer
- apache_1.3.27 - Apache Web Server
- autoconf-2.54 - source configuration tool
- bash-2.05b - GNU bourne again shell
- cups-1.1.18 - Common UNIX Printing System
- expat-1.95.5 - XML parser library
- fetchmail-6.2.0 - POP/IMAP Online/offline mail client
- fltk-1.1.2 - C++ GUI toolkit
- gal-0.21 - GNOME Application Library
- gcc-3.2.1 - GNU Compiler Suite
- gdb-5.3 - GNU debugger
- gettext-0.11.5 - GNU message catalog utilities
- gftp-2.0.14 - GTK+ based ftp client
- ghostscript-7.05 - PostScript viewer with fonts
- gifsicle-1.35 - GIF file swiss knife
- gimp-print-4.2.4 - print facility for GIMP and CUPS
- glib-1.2.10 - Abstract data type library

- gnumeric-1.0.11 - GNOME spreadsheet program
- gnupg-1.2.1 - GNU Privacy Guard
- gtk+-1.2.10 - GIMP Toolkit
- html2ps-1.0b3 - HTML to Postscript converter
- htmldoc-1.8.23 - convert HTML to PDF or PostScript
- less-378 - a more-like file browser
- libgeotiff-1.1.4 - GeoTIFF tags manipulation library
- libglade-0.17 - GNOME user interface loader
- libiconv-1.8 - character set conversion library
- libmcrypt-2.5.3 - multi-algorithm crypt library
- message-passing-helpers-1.1 - Wrapper libraries for SGI's MPI library
- mm-1.2.1 - Shared memory library
- mod_ssl-2.8.12-1.3.27 - SSL support for sgi_apache
- mpage-2.5.3 - multiple pages per sheet on PS printer
- mysql-3.23.54a - MySQL relational database
- nedit-5.3 - X based text editor
- openssh-3.5p1 - secure rsh, rcp replacements
- php-4.2.3 - PHP: Hypertext Processor http-server scripting
- pine-4.51 - email/news client

- plan-1.8.4 - Calendar/reminder tool
- proj-4.4.5 - Cartographic projection library
- pspell-.12.2 - portable spell checker interface
- pspell-ispell-.12 - ispell plugin module for pspell
- readline-4.3 - GNU command line prompt libraries
- sane-backends-1.0.9 - SANE scanner library backends
- sane-frontends-1.0.9 - SANE scanner library frontends
- socks5-v1.0r11 - socks5 proxy server and clients
- ted-2.12 - An easy rich text processor
- x11-ssh-askpass-1.2.4.1 - X11 OpenSSH password prompter
- xmbase_grok-1.5 - Motif based personal database, phone-book etc.
- xmcd-3.2.0 - CD player/ripper with CDDB support
- xmms-1.2.7 - X11-based sound module player
- xpp-1.1 - X Printing Panel for CUPS
- xsane-0.89 - SANE graphical frontend
- Samba Version 2.2.7a

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

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

- *IRIX Network Programming Guide*, 007-0810-100, includes a new section, "Translation Functions," that describes the functionality of network library translation routines available with the IRIX operating system. It also includes a new chapter, "Sockets-based Communication Using IPv6."
- *IRIX Admin: Networking and Mail*, 007-2860-008, adds information describing Internet Version 6 protocol and information on sendmail version 8.12.5.
- *Trusted IRIX/CMW Security Administration Guide*, 007-3299-006, adds information about labeled mail. It also includes information about a new data file, `etc/mail/submit.cf`, and a revised data file, `/etc/sendmail.cf`.
- *CXFS Version 2 Software Installation and Administration Guide*, 007-4016-016, describes the new rolling annual upgrade policy that permits you to upgrade from 6.5.n to the n+1 or n+4 release. It also provides clarifications about I/O fencing, cluster database backups, and system tunable parameters in the `/var/sysgen/mtune/cell` file.
- *XVM Volume Manager Administrator's Guide*, 007-4003-013, adds information on the `reprobe` command.

- *Performance Co-Pilot Programmer's Guide*, 007-3964-005, has been updated for PCP 2.3 release.
- *Performance Co-Pilot Advanced User's and Administrator's Guide*, 007-2614-006, has been updated for PCP 2.3 release.
- *Performance Co-Pilot Basic User's and Administrator's Guide*, 007-3964-003, has been updated for PCP 2.3 release.
- *Quick Answers*, 007-2169-010, no longer includes a description of the jot editor.
- *Desktop User's Guide*, 007-1342-180, includes a description of `NEdit` as the default editor, with the description of the jot editor removed.
- *Personal System Administration Guide*, 007-1366-170, adds information about changing of machine names by modifying the /etc/hosts file.

# Key New Features from Previous IRIX Releases

Descriptions of key new features and changes for the IRIX releases from 6.5.1 through 6.5.18 are provided in the Customer Welcome document. This document is available on the 6.5.19 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`. 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.

# IRIX 6.5.19 Update Kit Contents

The IRIX 6.5.19 Update Kit contains the following items for both server and workstation system configurations:

- CD Name:
    1. IRIX 6.5.19 (1 of 4) Installation Tools & Overlays CD, February 2003
    2. IRIX 6.5.19 (2 of 4) Installation Tools & Overlays CD, February 2003
    3. IRIX 6.5.19 (3 of 4) Overlays CD, February 2003
    4. IRIX 6.5.19 (4 of 4) Overlays CD, February 2003
    5. IRIX Applications for 6.5.19, February 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/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/`

©1999-2003 Silicon Graphics, Inc. All rights reserved; provided portions may be copyright in third parties, as indicated elsewhere herein. No permission is granted to copy, distribute, or create derivative works from the contents of this electronic documentation in any manner, in whole or in part, without the prior written permission of Silicon Graphics, Inc.

Silicon Graphics, SGI, the SGI logo, IRIS, IRIX, O2, Octane, Onyx, Onyx2, OpenGL, and Origin are registered trademarks and CXFS, FailSafe, Fuel, Impressario, IRIS InSight, IRIS Showcase, Key-O-Matic, OpenGL Performer, Supportfolio, Trusted IRIX, and XFS are trademarks of Silicon Graphics, Inc. MIPS is a registered trademark of MIPS Technologies, Inc. used under license by Silicon Graphics, Inc. Acrobat is a registered trademark of Adobe Systems, Inc. Apache is a trademark of the Apache Software Foundation. Cosmo Player and Cosmo Worlds are trademarks of Platinum Technology, Inc., used under license and subject to its trademark use guidelines.FLEXlm is a registered trademark of GLOBEtrotter Software and Macrovision Corporation. HP and HP LaserJet are registered trademarks of Hewlett-Packard Corp. Java and Solaris are trademarks of Sun Microsystems, Inc.Linux is a registered trademark of Linus Torvalds. Microsoft Internet Explorer is a trademark of Microsoft Corporation. Motif is a registered trademark of Open Software Foundation. Mozilla is a registered trademark and Netscape, Netscape FastTrack Server, and Netscape Communicator are trademarks of Netscape Communications Corporation. TAS is a trademark of LSI Logic Corporation. Unicenter is a registered trademark of Computer Associates International, Inc. Windows NT is a registered trademark of Microsoft Corporation in the United States and/or other countries.

007-3897-019