About This Guide

IRIX Admin: Disks and Filesystems is one guide in the *IRIX Admin* series of IRIX system administration guides. It discusses important concepts and administration procedures for disks, filesystems, logical volumes, and guaranteed-rate I/O. These procedures apply to all Silicon Graphics systems running the IRIX 6.2 release or later.

This guide replaces the disks and filesystems material in the now-obsolete *IRIX Advanced Site and Server Administration Guide*. It also incorporates all of the material in the guide *Getting Started With XFS Filesystems* except for the material on backup and restore, which is now included in the guide *IRIX Admin: Backup, Security, and Accounting*.

What This Guide Contains

The types of disks, filesystems, and logical volumes covered in this guide are:

- SCSI disks. Systems that run IRIX 6.2 or later use only SCSI disks.
- The Extent File System™ (EFS). The EFS filesystem, a filesystem developed by Silicon Graphics, has been the filesystem used by IRIX for many years.
- The XFS filesystem. The XFS filesystem, a high-performance alternative to EFS developed by Silicon Graphics, was first released for IRIX 5.3.
- *lv* logical volumes. The *lv* logical volume system provides basic logical volumes and has been available in IRIX for many years. Support for *lv* logical volumes will be dropped in a future IRIX release.
- XLV logical volumes. The XLV logical volume system, a high-performance logical volume system with many advanced features was developed by Silicon Graphics and released first for IRIX 5.3.

This guide is organized into chapters that provide reference information (the "concepts" chapters) and chapters that give procedures for performing disk and filesystem administration tasks. An appendix provides in-depth information about the command *fsck*. These chapters and appendix are:

- Chapter 1, "Disk Concepts," provides information about the structure of disks, disk partitioning, and disk partition device files.
- Chapter 2, "Performing Disk Administration Procedures," describes disk administration tasks such as listing disks, initializing disks, modifying volume headers, repartitioning disks, creating device files, and adding new disks to systems.
- Chapter 3, "Filesystem Concepts," provides information about the IRIX filesystem layout, general filesystem concepts, details of the EFS and XFS filesystem types, and discussions of creating, mounting, checking, and growing filesystems.
- Chapter 4, "Creating and Growing Filesystems," describes filesystem administration procedures such as making filesystems, mounting them, growing them, and converting from EFS to XFS.
- Chapter 5, "Maintaining Filesystems," describes filesystem administration procedures that need to be performed routinely or on an as-needed basis, such as checking filesystems and managing disk usage when the amount of free disk space is low.
- Chapter 6, "Logical Volume Concepts," describes the general concepts of logical volumes and the specifics of *lv* and XLV logical volumes.
- Chapter 7, "Creating and Administering XLV Logical Volumes," provides administration procedures for creating and administering XLV logical volumes and converting *lv* logical volumes to XLV.
- Chapter 8, "Creating and Administering lv Logical Volumes," provides administration procedures for creating and administering *lv* logical volumes.
- Chapter 9, "System Administration for Guaranteed-Rate I/O," provides information about guaranteed-rate I/O and the administration procedures required to support its use by applications.
- Appendix A, "Repairing EFS Filesystem ProblemsWith fsck," provides detailed information about using *fsck*.

Conventions Used in This Guide

These type conventions and symbols are used in this guide:

Bold	Function names, literal command-line arguments (options/flags), commands entered at the prompts of interactive commands
Italics	Command names, filenames, new terms, the names of *inst* subsystems, manual/book titles, variable command-line arguments, and variables to be supplied by the user in examples, code, and syntax statements
`Fixed-width type`	Examples of command output that is displayed in windows on your monitor
`Bold fixed-width type`	Commands and text that you are to type literally in response to shell and command prompts
ALL CAPS	Environment variables
`#`	IRIX shell prompt for the superuser (*root*)
`%`	IRIX shell prompt for users other than superuser
`>>`	Command Monitor prompt
`<Enter>`	When you see **`<Enter>`**, press the Enter key on the keyboard; do not type in the letters

When a procedure provided in this guide can also be performed using the Disk Manager on the System Toolchest or additional information on a topic is provided in the *Personal System Administration Guide*, a Tip describes the information you can find in the *Personal System Administration Guide*. For example:

Tip: You can use the Disk Manager in the System Toolchest to get information about the disks on a system. For instructions, see the section "Checking Disk Setup Information" in Chapter 6 of the *Personal System Administration Guide*.

When a procedure could result in the loss of files if not performed correctly or should be performed only by knowledgeable users, the procedure is preceded by a Caution. For example:

Caution: The procedure in this section can result in the loss of data if it is not performed properly. It is recommended only for experienced IRIX system administrators.

Some features described in this guide are available only when software option products are purchased. These features and their option products are identified in Notes. For example:

Note: The plexing feature of XLV, which enables the use of the optional plexes, is available only when you purchase the Disk Plexing Option software option.

How to Use This Guide

IRIX Admin: Disks and Filesystems is written for system administrators and other knowledgeable IRIX users who need to perform administration tasks on their disks, filesystems, and logical volumes. It provides command line procedures for performing administration tasks; these tasks are most relevant to administering servers and workstations with many disks. Simple disk and filesystem administration using the graphical user interface provided by the Disk Manager is described in the *Personal System Administration Guide*.

This guide can be used by any user with a basic knowledge of IRIX to learn about and perform basic disk and filesystem administration procedures. However, some procedures in this guide can result in loss of files on the system if the procedures are not performed correctly. They should be attempted only by people who are:

- familiar with IRIX filesystem administration procedures
- experienced in disk repartitioning using *fx*
- comfortable performing administration tasks from the shell in the miniroot environment provided by *inst*
- familiar with filesystem backup concepts and procedures, particularly using *dump*

A Caution paragraph appears at the beginning of each procedure that should be performed only by knowledgeable administrators. To learn more about system administration, see the guide *IRIX Admin: System Configuration and Operation*.

The features described in this guide are included in IRIX system software releases beginning with the IRIX 6.2 release. However, to use several features, you must obtain Network License System™ (NetLS™) licenses by purchasing separate software options. The features that require NetLS licenses are:

- The plexing feature of the XLV Volume Manager, which provides mirroring of disks up to four copies. This feature is provided by the Disk Plexing Option software option.
- Guaranteed-rate I/O. Guaranteed-rate I/O (GRIO) is a feature of IRIX that enables an application to request a fixed I/O rate and, if granted, be assured of receiving that rate. By default, the system allows four Guaranteed-rate I/O streams. To obtain up to 40 streams, you must purchase the High Performance Guaranteed-Rate I/O—5-40 Streams software option. An unlimited number of streams is provided by the High Performance Guaranteed-Rate I/O—Unlimited Streams software option.

Product Support

Silicon Graphics offers comprehensive product support and maintenance programs for its products. For information about using support services for IRIX and the other products described in this guide, refer to the Release Notes for *IRIX*, *eoe*, *grio*, and *plexing*.

Additional Resources

For more information about disk management on IRIX, see these sources:

- The *Personal System Administration Guide* provides basic information on system administration of Silicon Graphics systems. Although it has not yet been updated to include information on XFS and XLV, it provides basic information on many system administration tasks.
- Online reference pages (man pages) on various disk information and management commands are included in the standard system software and can be viewed online using the *man* and *xman* commands or the "Man Pages" item on the Help menu of the System Toolchest.
- The guide *IRIX Admin: Selected Reference Pages* provides printed reference pages for many of the commands used in the procedures in this guide. It is not available in IRIS InSight.

For more information on developing applications that access XFS filesystems, see these sources:

- Online reference pages for system calls and library routines relevant to XFS and GRIO are provided in the IRIS Developer's Option (IDO) software product.
- The *REACT/Pro Programmer's Guide* provides information about developing applications that use GRIO.

For instructions for loading the miniroot, see the guide *IRIX Admin: Software Installation and Licensing*.

For information on acquiring and installing NetLS licenses that enable the Disk Plexing and High Performance Guaranteed-Rate I/O software options, see the guide *IRIX Admin: Software Installation and Licensing*.

For additional information on changes in recent software releases of the software documented in this guide, see the Release Notes for these products:

- *IRIX*
- *eoe*
- *plexing*
- *grio*
- *nfs*
- *dev*