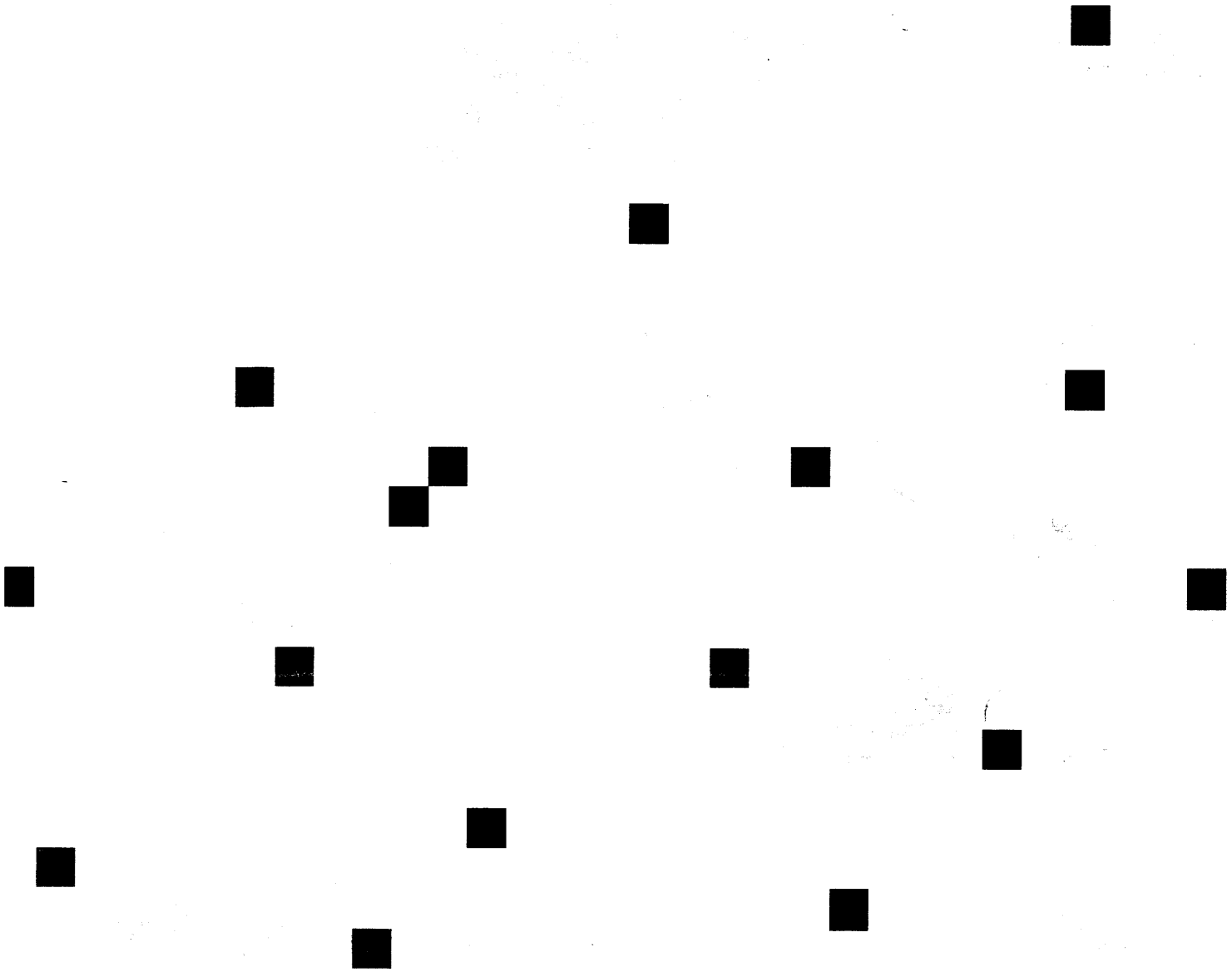

Prime®

Operator's Guide to System Commands

Revision 23.3

DOC9304-6LA

Operator's Guide to System Commands

Sixth Edition

Barbara Bailey

This manual documents the software operation of the PRIMOS operating system on 50 Series computers and their supporting systems and utilities as implemented at Master Disk Revision Level 23.3 (Rev. 23.3).

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Appendices

About This Series

The Operator's Guide series is designed to help you, as a System Operator or a System Administrator of a Prime® computer, do your job. This preface describes the eight Operator's Guides, together with other Prime documentation that is particularly useful for System Operators and System Administrators. To display an online list of current Prime documentation and ordering information, use the HELP DOCUMENTS command.

For the System Operator

Before reading this book, you should have some familiarity with Prime systems. A good way to begin is to read the *PRIMOS User's Guide*, which explains the PRIMOS® file management system and provides introductory and tutorial information about essential commands and utilities. When you read any Prime documentation, be sure to consult the section entitled Prime Documentation Conventions, which is at the end of About This Book. This section is essential to understanding how information is presented.

After you are familiar with Prime systems, read the *Operator's System Overview*, which outlines the material in the Operator's Guide series. Then select the other books in the series as they apply to the tasks you must perform.

As you learn more about system operations, you will use this book, the *Operator's Guide to System Commands*, as a reference for many of the special system commands and arguments that you, as an Operator, will need to perform your job. The *Operator's Guide to System Commands* documents most of the commands described in the Operator's Guide series.

The Operator's Guide Series

The following books contain detailed information for the System Operator:

- *Operator's System Overview* (DOC9298-3LA) introduces the series and describes computer-room operation of Prime systems.

- *Operator's Guide to System Monitoring* (DOC9299-3LA) describes how to monitor system usage, activity, and messages.
- *Operator's Guide to File System Maintenance* (DOC9300-6LA) describes the PRIMOS file system and explains how to format disk partitions, run the disk partition maintenance program, determine physical device numbers, and interpret disk error messages. In addition, this book discusses in detail dynamic badspot handling, mirroring, robust partitions, and record allocation.
- *Operator's Guide to the Batch Subsystem* (DOC9302-3LA) describes how to set up, monitor, and control the Batch subsystem.
- *Operator's Guide to the Spooler Subsystem* (DOC9303-5LA) describes how to set up, monitor, and control the Spooler subsystem.
- *Operator's Guide to System Commands* (DOC9304-6LA) serves as a reference guide for most of the commands described in the other books in the series.
- *Operator's Guide to Data Backup and Recovery* (DOC10324-1LA) and its update packages (UPD10324-11A and UPD10324-12A) describe how to save information on disk or tape and how to restore that information when it is needed.
- *Operator's Guide to Prime Networks* (DOC10114-1LA) and its update package (UPD10114-11A) provide reference information about running network-related programs and monitoring network events.

Other Books for the Operator

- *Operator's Master Index* (DOC10110-5LA) indexes all the Operator and System Administrator Guides. Consulting this index is often the quickest way to find which manual has the information you need.
- The computer handbook for your particular CPU explains such topics as booting the system, shutting down PRIMOS, handling halts and hangs (including warm starts), performing tape dumps, and using the Virtual Control Panel (VCP).
- The *Using Your CPU* guide (available only for office CPUs) is intended for nontechnical users who are acting as System Operators, and covers system startup and shutdown, system backups, troubleshooting, and other day-to-day system management issues.
- *MAGNET User's Guide* (DOC10156-1LA) and its update package (UPD10156-11A) describe the MAGNET utility, used to transfer data by magnetic tape from other operating systems to PRIMOS and vice versa.

For the System Administrator

In addition to the documentation in the Operator's Guide series, be sure to read the System Administrator's Guide series, which describes how to set up, configure, and maintain PRIMOS:

- *System Administrator's Guide, Volume I: System Configuration* (DOC10131-3LA) explains how to set up a system and allocate resources.
- *System Administrator's Guide, Volume II: Communication Lines and Controllers* (DOC10132-2LA) and its release note (RLN10132-21A) explain how to configure communication lines.
- *System Administrator's Guide, Volume III: System Access and Security* (DOC10133-3LA) explains PRIMOS security features and how to prevent unauthorized use of your system.
- *RAS Guide for 50 Series System Administrators* (DOC13156-1LA) describes the features that improve the operational availability of 50 Series™ systems. These features are called RAS (Reliability, Availability, and Serviceability).
- *DSM User's Guide* (DOC10061-3LA) explains how to use the Distributed Systems Management (DSM) subsystem, including how to configure and operate DSM.

The System Administrator's Guides also provide information about most of the commands necessary to operate your Prime system.

Other Recommended Reading

In addition to the books listed above, you may find the following books useful:

- *New User's Guide to EDITOR and RUNOFF* (FDR3104-101B) is a basic reference for any user of a Prime system and provides information about the Prime text editor and formatter.
- *PRIMOS User's Guide* (DOC4130-5LA) provides new users with an intermediate-level introduction to PRIMOS, the 50 Series operating system.
- *PRIMOS Commands Reference Guide* (DOC3108-8LA) provides detailed information about user commands.
- *PRIMENET Planning and Configuration Guide* (DOC7532-4LA) and its release note (UPD7532-41A) describe how to plan, configure, and maintain PRIMENET™ software for a system.
- *User's Guide to Prime Network Services* (DOC10115-1LA) and its update package (UPD10115-11A) describe networking services that enable users to access files remotely, transfer files, and log in to other 50 Series systems on a network.

- *NTS User's Guide* (DOC10117-3LA) explains the Network Terminal Service (NTS).
- *50 Series Technical Summary* (DOC6904-2LA) describes the features of the 50 Series systems, including advanced architecture concepts and the software and hardware products the concepts support.

For books that appear in text but not in this preface, you may find the *Guide to Prime User Documents* (DOC13079-1PA) helpful. The *Guide to Prime User Documents* is a catalog that lists and describes documents used for Prime products.

About This Book

The *Operator's Guide to System Commands* is a reference guide for most of the commands an Operator uses often.

Some PRIMOS commands are not described in this book:

- Most backup and restore commands are documented in the *Operator's Guide to Data Backup and Recovery* (MAGRST, MAGSAV, and PSR are documented in this book).
- Commands that relate specifically to PRIMENET are documented in the *Operator's Guide to Prime Networks*.
- VCP (Virtual Control Panel) commands are documented in the handbook for your CPU.
- Most DSM (Distributed Systems Management) commands are documented only in the *DSM User's Guide* though some DSM commands are documented in this book.

The commands listed in the *Operator's Guide to System Commands* are sometimes called **operator commands**. This means that they are generally used only by an Operator or a System Administrator, or that they are entered at the supervisor terminal.

Organization

This book contains two chapters, two appendices, a quick reference tab showing commonly used acronyms, and a glossary:

- Chapter 1, PRIMOS Commands Overview, presents the operator commands in functional categories. This chapter also includes a table that indicates any constraints on using the commands.
- Chapter 2, Dictionary of PRIMOS Operator Commands, is a dictionary of the operator commands. The text describes the commands and their related arguments, options, and keywords. In addition, the text provides references to other books where you may find additional or supplementary material.

- Appendix A, FUTIL, describes the operation of FUTIL, the file utility program used to copy and delete files. Most of its functions are replaced by COPY and DELETE.
- Appendix B, Obsolete Commands, lists commands that are seldom used or that are no longer necessary to operate a Prime computer.
- The glossary defines the terms used in this book.
- The acronyms tab page spells out the names of commonly used acronyms.

Changes at Rev. 23.1

The following commands have been added to this book at Rev. 23.1:

- **FS_RECOVER** is a file system recovery utility. The main goal of FS_RECOVER is to reduce file system recovery time following a system crash.
- **HELP**, a menu-driven online Help facility, contains PRIMOS Help files. The HELP command is not an operator command, but is included here for convenience.
- **INDEX_LIB_MANAGER** is the DRB extended index library manager command. It provides administration tools for extended index libraries created by MAGSAV or MAGRST.
- **RECORD_TO_PATH** takes a record address and returns the pathname of the file system object to which that record currently belongs. RECORD_TO_PATH works on local online disk partitions.
- **SEARCH_INDEX_LIB** searches DRB extended index libraries, created by MAGSAV and MAGRST, for the specified character string.
- **SET_LSR_DEFAULTS** allows the System Administrator to set up LOGIN_SERVER defaults.

The following commands have been changed in syntax or function at Rev. 23.1:

- **BATCH -START** has a new option, -DISPLAY_ALL, which allows *all* users to see *all* jobs in *all* queues.
- **BATCHQ>INIT** has a new option, -SEM_INIT, which enables PRIMOS to re-initialize only the semaphores used by the Batch subsystem. It does not remove any jobs from queues.
- **MAGRST** has a new option, -INDEX_LIBRARY, which creates an index file in the index library if one does not already exist.
- **MAGSAV** has a new option, -INDEX_LIBRARY, which creates an extended index library file.

- **MAKE** has a new option, –REPORT, which provides periodic updates on the progress of the MAKE operation.
- **PROP** has a new option, –ENV_LANGUAGE *langname*, which defines the Standard Internationalization Tool (SIT) supported language of the environmental file.
- **SET_ASYNC** has two new options, –DCD_LOGIN and –NO_DCD_LOGIN. These options enable the System Administrator to allow or disallow login attempts on lines that have no carrier signal.
- The **SET_ASYNC –DISPLAY** option has been modified to display whether or not a DCD (carrier signal) is required for login.
- **SPOOL** has several options that were not previously documented in this book: –NO_SWO, –NO_XLATE, –ERROR_BRIEF, –ERROR_MEDIUM, and –ERROR_DETAIL.
- **START_LSR** supports three options: –PROMPT *login-server-prompt*, –REDISPLAY_PROMPT, and –HELP. –PROMPT allows the System Administrator to specify the LOGIN_SERVER prompt when the LOGIN_SERVER is started up. –REDISPLAY_PROMPT specifies if LOGIN_SERVER redisplays the LOGIN_SERVER prompt if a null command line is entered. –HELP displays the command-line syntax.
- **USAGE** has a new option, –SYSTEM, which displays only the system metering information.

Changes at Rev. 23.2

The following commands have been added to this book at Rev. 23.2:

- **CDD** allows Operators and System Administrators to configure crash dump disks to be used for crash dumps and to recover the crash dumps in the event of a system halt.
- **CHANGE_PROJECT** allows users to change their login project without logging out and logging back in again. Its use must be activated by the System Administrator.
- **DISK_PAUSE** allows Operators and System Administrators to suspend disk I/O activity in order to replace a defective SCSI disk drive within a Model 75500-6PK device module.
- **SPIN_DOWN** allows Operators and System Administrators to stop (spin down) SCSI disk drives that may be failing in a Model 75500-6PK device module that is controlled by a Model 7210 (SDTC) disk controller using ICOP+ (Intelligent Channel-Order Protocol).

- **SYSTEM_RECOVER** allows Operators and System Administrators to automate system recovery procedures following a system crash.

The following commands have been changed in syntax or function at Rev. 23.2:

- **FIX_DISK -DISK_TYPE** accepts these disk types: MODEL_4731 and MODEL_4732.
- **MAKE -DISK_TYPE** accepts these disk types: MODEL_4731 and MODEL_4732.
- **START_LSR** has a new option, –RETRIES *n*, which allows the System Administrator to configure the number of login attempts (1–10) that a remote (TELNET or NETLINK) user is to be granted before the connection is dropped.

Changes at Rev. 23.3

The following commands have been added to this book at Rev. 23.3:

- **CNAME** allows you to change the name of a file system object. It is included in this book because it now includes an option called –FORCE. This option allows you to change the name of file system objects that are currently in use.
- **INITIALIZE_SEARCH_RULES** reads the current system search rules from SEARCH_RULES*, parses them, loads them into main memory, and then directs all user access to system search rules to this location. This speeds subsequent user logins and ICE commands and saves significant login CPU time.
- **PDEV**, a command and command function, calculates a physical device number based on user input.
- **SPIN_UP** allows Operators and System Administrators to start (spin up) SCSI disk drives in a Model 75500-6PK device module after they spun it down without powering it off.

The following commands have been changed in syntax or function at Rev. 23.3:

- **ASSIGN** has a new option, –FORMAT, which permits the exchange of tapes between the Model 4601 and either the Model 4595, 4596, or 4598 tape drives.
- **CDD** has a new option, –INFO, which permits you to get information about how to create a crash dump disk with MAKE. –INFO has three suboptions: –DUMP_SIZE, –DUMP_SIZE_TABLE, and –MEMORY_SIZE.
- **FIX_DISK** has four option names that are replaced by new option names. The old forms are still supported. –ALL_CONTROLLER is now –DBS OFF; –INTELLIGENT_CONTROLLER is now –DBS ON; –OVERRIDE_DEFAULT_INTERLEAVE is now –SECTOR FORWARD; and RESTORE_DEFAULT_INTERLEAVE is now –SECTOR REVERSE.

- **JOB –DISPLAY** and **JOB –STATUS** have two new arguments and two new options: ALL, TODAY, –USER *userid*, and –QUEUE *queuename*. These arguments and options allow you to display batch job information for specific users or queues.
- **LOGOUT** has new options that allow the System Administrator greater selectivity in logging out user processes.
- **MAKE** has six option names that are replaced by new option names. The old forms are still supported. –ALL_CONTROLLER is now –DBS OFF; –INTELLIGENT_CONTROLLER is now –DBS ON; –COPY_BADSPOTS_BY_DEVICE is now –COPY_BADSPOTS *pdev*; –COPY_BADSPOTS_BY_NAME is now –COPY_BADSPOTS *diskname*; –OVERRIDE_DEFAULT_INTERLEAVE is now –SECTOR FORWARD; and RESTORE_DEFAULT_INTERLEAVE is now –SECTOR REVERSE.

  MAKE has four new options. –FORMAT_OK is like –FORMAT but it does not format unless MAKE determines this is necessary. –LIST_BADSPOTS prints a list of all known badspots. –NO_QUERY facilitates execution of MAKE by a phantom. –USAGE prints a brief list of available options.

  MAKE –SPLIT has a new argument MAXIMUM which reserves the maximum space possible for paging or crash dump to disk.
- **MESSAGE** has three new Operator options: –DISABLE_CRLF, –ENABLE_CRLF, and –MAX_LENGTH *value*. It also has two new user options: –DISPLAY and –HELP.
- **PROP** has two new options, –MAX_SIZE [*nnnn*] and –MIN_SIZE [*nnnn*], that allow you to specify maximum and minimum sizes for job requests going into the local queue. A –NO_QUERY option is added to the PROP –COLDSTART command.
- **SHUTDN** has a new option, –VERIFY, which indicates that there are logged-in users, and –VERIFY has a suboption, –DETAIL, which lists the logged-in users.
- **SPOOL** includes information detailing the formatting options for PostScript® printers and describes the special options for HP LaserJet® printers.
- **START_LSR** is enhanced by the addition of four new options: –READY_PROMPT, –ERROR_PROMPT, –MAXUSR_PROMPT, and –IMPLICIT_LOGIN.
- The **STATUS** command argument, DEVICES, is enhanced to list disks in the Assignable Disks Table.
- **USAGE** has a new option, –MULTI, which is used only with multiprocessor systems. It displays the percent idle (%Idl) values for up to eight separate processors.

Prime Documentation Conventions

The following conventions are used throughout this document. The examples in the table illustrate the uses of these conventions.

Convention	*Explanation*	*Example*
Uppercase	In command formats, words in uppercase bold indicate the names of commands, options, statements, and keywords. Enter them in either uppercase or lowercase.	**LIST_GROUP**
Italic	In command formats and text, characters in lowercase italic indicate variables for which you must substitute a value. In messages, variables are indicated by lowercase italic.	**DUMP *username1*** Supply a value for *x* between 1 and 10.
Abbreviations in format statements	If a command or option has an abbreviation, the abbreviation is printed in red. If no abbreviation is possible, the entire command is printed in red. Characters in variables that cannot be omitted are also printed in red.	**SET_QUOTA**
User input in examples	In examples, user input is in red; system prompts and output are not.	**OK, LIST_DISKS**
Brackets	Brackets enclose a list of one or more optional items. Choose none, one, or several of these items.	**STATUS** [**ALL** / **COMM**]
Braces	Braces enclose a list of items. Choose one and only one of these items.	**DEVICE_ACLS** {**-ON** / **-OFF**}
Braces within brackets	Braces within brackets enclose a list of items. Choose either none or only one of these items; do not choose more than one.	**-SLOG** [{***node*** / ***nodegroup***}]
Monospace	Identifies system output, prompts, messages, and examples.	`Process suspended`
Hyphen	Wherever a hyphen appears as the first character of an option, it is a required part of that option.	**SPOOL -NOTIFY**
Ellipsis	An ellipsis indicates that you have the option of entering several items of the same kind on the command line.	***pdev1 . . . pdev9***

Convention	*Explanation*	*Example*
Subscript	A subscript after a number indicates that the number is not in base 10. For example, the subscript 8 is used for octal numbers.	200_8
Ctrl-*key name*	The Ctrl key followed by a hyphen and a key name indicate that you press the Ctrl key and hold it down while pressing the other key.	Press Ctrl-S
<*key name*>	In examples, a key name enclosed in angle brackets indicates that you press that key which generates a non-printing character.	`<Esc>`

1

PRIMOS Commands Overview

This chapter introduces the PRIMOS operator commands, which are used by System Operators and System Administrators. Chapter 2 provides reference information on these commands. Commands that are components of subsystems, such as the Batch and Spooler subsystems, are more fully described in the Operator's Guides for those subsystems. For example, the Spooler-related commands PROP and SPOOL are discussed fully in the *Operator's Guide to the Spooler Subsystem.*

This chapter also contains a quick-reference table that summarizes the constraints on executing the various operator commands (such as a requirement to use the supervisor terminal). The chapter contains a list of operator commands grouped according to functional categories.

Operator Commands

There are two types of PRIMOS commands: user commands and operator commands.

User commands are generally available to any user and affect only that user's work. For example, anyone can use the SPOOL command to send a print request to a printer.

Operator commands are usually available only to the System Administrator and the operations staff at your site. These individuals use special commands that control and monitor the system itself, and that give special authority to their users. For example, operator commands start and stop printers, start up and shut down the system, and so on. Thus, operator commands can affect the work of many users.

Operator commands can have profound effects on system operation; to avoid unauthorized use, PRIMOS restricts access to most operator commands. Security restrictions on operator commands are discussed in this chapter and, in Chapter 2, in the discussions of the commands themselves.

Commands That Use Physical Device Numbers

Some of the commands in this book require the specification of a physical device number (**pdev**). For information on how to determine or construct a pdev, see the *Operator's Guide to File System Maintenance*. See also the PDEV command description in Chapter 2 of this book.

Commands Not Documented in This Book

This book does not document all commands that an Operator might conceivably use. Many commands are primarily intended for nonprivileged users, and are documented in the *PRIMOS Commands Reference Guide*. See the end of this chapter for a list of these user commands. Other commands, such as the PRIMENET and NTS network commands, have special books devoted to their use.

Table 1-1 lists the operator commands this book does not document and gives the primary reference book for each.

Table 1-1. References for Commands Not Documented Here

Command	*Description*	*Documented In*
CONFIG_NET	Builds the network configuration file.	*PRIMENET Planning and Configuration Guide* (DOC7532-4LA and UPD7532-41A)
CONFIG_NTS	Lets you view, alter, or create an NTS configuration file.	*NTS Planning and Configuration Guide* (DOC10159-2LA)
DPTX	Enables the Distributed Processing Terminal Executive System.	*Distributed Processing Terminal Executive Guide* (DOC4035-4LA)
DSM	A group of utilities that monitor system functions.	*DSM User's Guide* (DOC10061-3LA)
FIND_RING_BREAK	Helps find a break between two active nodes of the ring network.	*Operator's Guide to Prime Networks* (DOC10114-1LA and UPD10114-11A)
FTGEN	Configures FTS subsystem.	*PRIMENET Planning and Configuration Guide*
FTR	Transfers files from local to remote sites.	*User's Guide to Prime Network Services* (DOC10115-1LA and UPD10115-11A)

Table 1-1. References for Commands Not Documented Here (continued)

Command	*Description*	*Documented In*
HDXSTAT	Displays status of a half-duplex network configuration.	*Operator's Guide to Prime Networks*
LIST_COMM_ CONTROLLERS	Lists communications controller configurations.	*DSM User's Guide*
LIST_LAN_NODES	Lists local area networks.	*DSM User's Guide*
LIST_PRIMENET_LINKS	Lists PRIMENET status.	*DSM User's Guide*
LIST_PRIMENET_ NODES	Lists PRIMENET configured nodes.	*DSM User's Guide*
LIST_PRIMENET_ PORTS	Lists assigned PRIMENET ports.	*DSM User's Guide*
LIST_SEMAPHORES	Lists semaphores in use.	*DSM User's Guide*
LIST_SYNC	Lists synchronous line configurations.	*DSM User's Guide*
LIST_VCS	Lists active virtual circuits.	*DSM User's Guide*
MONITOR_NET	Checks status of RINGNET network.	*Operator's Guide to Prime Networks*
NET	Manages PRIMENET in half-duplex mode on MDLC controllers.	*PRIMENET Planning and Configuration Guide; Operator's Guide to Prime Networks*
PRIMAN	Generates system performance reports.	*PRIMAN User's Guide* (DOC10157-2LA)
PRIMON	Monitors system activity.	*PRIMAN User's Guide*

Distributed Systems Management Commands

START_DSM starts up the Distributed Systems Management (DSM) service. Once DSM is started, you may invoke commands that make use of DSM, such as the System Information and Metering (SIM) and RESUS commands.

This manual describes the following DSM commands:

- ADMIN_LOG
- DISPLAY_LOG
- LIST_ASSIGNED_DEVICES
- LIST_ASYNC
- LIST_CONFIG
- LIST_DISKS
- LIST_MEMORY
- LIST_PROCESS
- LIST_UNITS
- RESUS
- START_DSM
- STOP_DSM

Other commands that may be invoked after DSM is started are listed in Table 2-5. All the DSM commands, including those described in this book, are documented fully in the *DSM User's Guide.*

Virtual Control Panel Commands

There are various Virtual Control Panel (VCP) commands (also known as Diagnostic Processor commands) that may be used only from the supervisor terminal when the system is operating under the control of the Diagnostic Processor. These commands are not available under PRIMOS. See the handbook for your computer for an explanation of the function and format of these commands.

The Supervisor Terminal

The supervisor terminal is unique in that it is always logged in to the PRIMOS operating system as user SYSTEM, with the user number of 1 (User 1).

Generally, you should only use the supervisor terminal to do the following:

- Boot PRIMOS
- Start up and shut down disks
- Start and stop PRIMOS itself, PRIMOS subsystems (such as Batch), and peripherals
- Configure devices
- Check status
- Collect a record of login, logout, and other messages
- Downline load communications controllers
- Send messages to users
- Maintain the file system, including backups

You should avoid using the supervisor terminal for other purposes. The supervisor terminal is given a higher priority by PRIMOS than other terminals receive. Doing nonessential work at the supervisor terminal, therefore, can slow down system performance for other users.

Also, the system displays informative messages at the supervisor terminal. If you are doing other work at the terminal, these messages may be delayed or garbled.

User Terminal Mode

On most Prime systems, you can use the supervisor terminal as an ordinary terminal by putting it into User Terminal mode. In this mode, the supervisor terminal functions like a normal user terminal: it runs at normal priority and does not print system messages. (The messages are stored in a buffer and are displayed when you return the terminal to Supervisor Terminal mode.)

This feature is especially useful for office systems, where the person in charge of the supervisor terminal often has other tasks to perform. On these systems, you should put the supervisor terminal into User Terminal mode if you are going to use it for any lengthy work that does not require the use of the supervisor terminal. If you need to leave the supervisor terminal unattended for more than a few minutes, you should place it in User Terminal mode and lock it in that mode to prevent any unauthorized use of operator commands. See your CPU handbook for further information.

The User Terminal as a Supervisor Terminal

When you are operating the Distributed Systems Management service, the RESUS command allows the System Administrator to enable a user terminal for use as a supervisor terminal. The RESUS command is described in Chapter 2.

Use of the RESUS command is restricted to authorized users who are listed in the appropriate function groups and node groups. Refer to the *DSM User's Guide* for detailed information on assigning privileged users to these groups.

Note

This manual uses the phrase *supervisor terminal* to refer to both the physical supervisor terminal and a logical supervisor terminal that has been enabled by the RESUS command.

Internal and External Commands

Each PRIMOS command is either an internal command or an external command. **Internal commands** are part of PRIMOS itself. **External commands** are actually programs that are stored in the top-level directory, CMDNC0. Some external commands invoke separately priced software products that may be on your system. Moreover, System Administrators may add or remove external commands to meet the needs of their particular systems. For these reasons, not every system recognizes all the external commands listed in this book.

To find out what external commands are available on your system, use the ATTACH command to attach to CMDNC0 and then use the LD command to list its files. (The System Administrator has to allow users to look at CMDNC0.) A sample of this procedure is shown below.

CMDNC0 files have various suffixes. Commands using the .RUN suffix behave like internal commands.

```
OK, ATTACH CMDNC0
OK, LD -NW

<SYSONE>CMDNC0 (LU access) 2853 records in this directory, 2853 total records out of
quota of 0.

115 Files.

$$.RUN                ADMIN_LOG.RUN         AVAIL.SAVE            BATCH.RUN
BATGEN.RUN            BIND.RUN              BOOT_ATTACH.CPL       BOOT_CREATE.CPL
BOOT_CREATE.MTTYPE.SAVE                     BOOT_IMPCODE.CPL      BOOT_SAVE.CPL
BOOT_TREE.CPL         CAB.RUN               CMPF.SAVE             COMM_CONTROLLER.RUN
CONCAT.SAVE           CONFIG.CPL            CONFIG_DSM.RUN        CONFIG_UM.RUN
COPY.RUN              COPY_DISK.SAVE        CPMPC.SAVE            CRMPC.SAVE
DELETE.RUN            DISPLAY_LOG.RUN       DISTRIBUTE_DSM.RUN    ECL.CPL
ED.SAVE               EDB.SAVE              EDIT_CMD_LINE.RUN     EDIT_PROFILE.SAVE
ESR.RUN               EXPAND_SEARCH_RULES.RUN                     FILMEM.RUN
FILVER.SAVE           FIX_DISK.SAVE         FUTIL                 HELP.RUN
IFB.RUN               JOB.RUN               KLMD.RUN              KLMF.RUN
KLMT.RUN              L.CPL                 LAB.RUN               LABEL.RUN
LATE.SAVE             LCB.RUN               LD.RUN                LEM.RUN
LI.CPL                LIS.CPL               LIST.CPL              LISTF.CPL
LISTI.CPL             LISTIN.CPL            LISTING.CPL           LIST_ASSIGNED_DEVICES.RUN
LIST_ASYNC.RUN        LIST_COMM_CONTROLLERS.RUN                   LIST_CONFIG.RUN
LIST_CONTIGUOUS_BLOCKS.RUN                  LIST_DISKS.RUN        LIST_LAN_NODES.RUN
LIST_MEMORY.RUN       LIST_PRIMENET_LINKS.RUN                     LIST_PRIMENET_NODES.RUN
LIST_PRIMENET_PORTS.RUN                     LIST_PROCESS.RUN      LIST_SEMAPHORES.RUN
LIST_SERVER_NAMES.RUNLIST_SESSIONS.RUN      LIST_SYNC.RUN         LIST_UNITS.RUN
LIST_VCS.RUN          LOAD.SAVE             MAGNET.RUN            MAGRST.SAVE
MAGSAV.SAVE           MAKE.SAVE             MODULA.RUN            MRGF.SAVE
NSED                  PHYRST.SAVE           PHYSAV.SAVE           PMA.SAVE
PRMPC.SAVE            PRO.CPL               PROP.RUN              PROT.CPL
PROTE.CPL             PROTEC.CPL            PROTECT.RUN           PRSER.SAVE
PRVER.SAVE            RESUS.RUN             REVERT_PASSWORD.RUN   RUNOFF.RUN
RWLOCK.RUN            SEG.SAVE              SET_ASYNC.RUN         SET_DELETE.RUN
SIZE.RUN              SLIST.SAVE            SORT.RUN              SPOOL.RUN
START_DSM.RUN         START_LSR.RUN         STATUS_DSM.RUN        STOP_DSM.RUN
STOP_LSR.RUN          TERM.RUN              TRAMLC.SAVE           USAGE.SAVE
UX_TAPE.RUN

OK,
```

Constraints on Invoking Commands

Operator commands can affect the work being done by other users, as well as the state of the system itself. Access to these commands must therefore be limited. Prime provides three methods of restricting the use of these commands:

- Some commands can be issued only from the supervisor terminal.
- Some commands can be issued either from the supervisor terminal or by the System Administrator from any terminal.

- Some commands can be issued from the supervisor terminal, by the System Administrator, or by some other privileged user. The identity of these privileged users, and the method by which they are designated, varies from command to command. Many (but not all) of the methods use Prime's access control mechanism (ACLs, which are explained in the *PRIMOS User's Guide*). Others, like the DSM commands, use protections peculiar to a particular subsystem.

Table 1-2 shows which of these constraints apply to each operator command. In the table, T stands for Terminal (the first method in the list above), A for Administrator (the second method), and P for special privilege required (the third method). D represents commands using protections peculiar to the DSM subsystem. The comment column explains each special privilege. Entries in this table apply to functions performed by the Operator, not by ordinary users; i.e., the Operator uses the UNASSIGN command (to forcibly release a device assigned by any user) from the supervisor terminal. Users can release their own devices at any terminal.

Notes

Some commands documented here (i.e., MAGSAV and USAGE) are not restricted commands. Rather, they are general user commands that Operators are likely to use. Since any user can use these commands at any terminal, they are not included here.

When a command option is given in Table 1-2, the restriction applies to the use of the command with that option only. For instance, the BATCH command's –START option may only be used at the supervisor terminal, even though members of the ACL group .BATCH_ADMIN$ may issue most forms of the BATCH command from any terminal.

Users listed in the ACL group .SPOOL_ADMINISTRATOR$ may modify, list, and cancel requests in that queue from any terminal. Other terminal users may perform these functions on their own files only.

Key to the Table

Symbol	*Meaning*	*Constraint*
T	Terminal	From supervisor terminal only
AA	Administrator	By System Administrator from any terminal
A	Administrator/Terminal	From supervisor terminal or by System Administrator from any terminal
P	Privileged	By members of privileged ACL groups
D	DSM-enabled	By users specifically designated under DSM

Table 1-2. Special Constraints on Operator Commands

Command	*Constraint*	*Comments*
ADDISK	T	
ADD_PORTAL	T	
ADMIN_LOG	D	
ASSIGN	T	
BACKUP_RESTORE	P	Members of ACL group .BACKUP$
BATCH -CONTINUE	P or T	Batch Administrators (members of .BATCH_ADMIN$)
BATCH -PAUSE	P or T	Batch Administrators
BATCH -START	T	
BATCH -STOP	P or T	Batch Administrators
BATGEN	P	Batch Administrators
BOOT_CREATE	Any user	
CAB	P	
CDD	A	
CHANGE_PROJECT -DISABLE	T	
CHANGE_PROJECT -ENABLE	T	
CHAP	T	
CLOSE -ALL	T	Closes all users' files
CLOSE *pathname*	T	
COMM_CONTROLLER	T	
CONFIG_USERS	AA or P	
CONVERT_ENV	T	
CONVERT_TO_ACLS	A	Requires special search rules
CRASH_AUDIT	A	Requires special search rules
DEVICE_ACLS	A	
DISK_PAUSE	T	
DISKS	T	

Table 1-2. Special Constraints on Operator Commands (continued)

Command	*Constraint*	*Comments*
DISPLAY_LOG	D	
DPTCFG	T	
DPTX	T	
DUMP_SEGMENT	T	
DUMP_USER	T	
ELIGTS	A	
FIX_DISK -COMDEV	T	
FS_RECOVER	A	May be used at other terminals if logged in as SYSTEM
FTGEN	T	May be used at other terminals if logged in as SYSTEM
FTOP	T	May be used at other terminals if logged in as SYSTEM
INIT	P	Batch Administrators
INITIALIZE_SEARCH_RULES	A	
JOB -HOLD	T	
JOB -RELEASE	T	
JOB (with other options)	P	Batch Administrators
LAB	T or D	
LIST_ASSIGNED_DEVICES	D	
LIST_ASYNC	D	
LIST_DISKS	D	
LIST_DUMP	T	
LIST_LHC_STATUS	P	Members of ACL group .NETWORK_MGT$
LIST_LTS_STATUS	P	Members of ACL group .NETWORK_MGT$
LIST_PROCESS	D	
LOGOUT ALL	T	
LOGOUT *-wildusername*	T	

Table 1-2. Special Constraints on Operator Commands (continued)

Command	*Constraint*	*Comments*
LOGOUT ***-wildusernumber***	T	
LOOPBACK	P	Members of ACL group .NETWORK_MGT$
MAXSCH	A	
MAXUSR	T	
MESSAGE ALL	T	
MESSAGE -DISABLE_CRLF	T	
MESSAGE -ENABLE_CRLF	T	
MESSAGE -FORCE	T	
MESSAGE -MAX_LENGTH	T	
MIRROR_OFF	T	
MIRROR_ON	T	
MONITOR_SEARCH_RULES -START [-PER_USER]	T	
MONITOR_SEARCH_RULES -STOP [-PER_USER]	T	
NET	T	
NTS_ASSOCIATE	T	Members of ACL group .NETWORK_MGT$
NTS_UNASSOCIATE	T	Members of ACL group .NETWORK_MGT$
PASSWORD_DIRS	A	
PRATIO	T	
PRINT_SECURITY_LOG	A	
PROP	P	SYSTEM, or members of .SPOOL_ADMINISTRATOR$
RECORD_TO_PATH	A or P	Members of ACL group .RAS$
REGISTER_EPF	A or P	
REMOVE_PRIORITY_ACCESS	T	
REPLY	T	

Table 1-2. Special Constraints on Operator Commands (continued)

Command	*Constraint*	*Comments*
RESET_DUMP	T	
RESUS	D	
RJOP	A	RJOP users who invoke a PRIME/SNA™ RJE site should be members of ACL group .SNA$
SECURITY_MONITOR	A	
SECURITY_STATUS	A	
SET_ASYNC -ASSIGNABLE	T	
SET_ASYNC -DCD_LOGIN	T	
SET_ASYNC -NO_DCD_LOGIN	T	
SET_ASYNC -DISLOG	T	
SET_ASYNC -NO_DISLOG	T	
SET_ASYNC -LOOP_LINE	T	
SET_ASYNC -NO_LOOP_LINE	T	
SET_ASYNC -SPEED_DETECT	T	
SET_ASYNC -NO_SPEED_DETECT	T	
SET_ASYNC -USER_NUMBER *n*	T	
SET_LSR_DEFAULTS	A	
SET_PGALARM	A or P	
SET_PRIORITY_ACCESS	A	
SET_SCHEDULER_ATTRIBUTES	T	
SET_TIME_INFO	T	
SETIME	T	
SETMOD	T	
SHARE	T	
SHOW -DISABLE_ADMIN	T	
SHOW -DISABLE_GROUP	P	Members of ACL group .WATCH$

Table 1-2. Special Constraints on Operator Commands (continued)

Command	*Constraint*	*Comments*
SHUTDN	T	
SPIN_DOWN	T	
SPIN_UP	T	
SPOOL (altering other's jobs)	P	Members of ACL group .SPOOL_ADMINISTRATOR$
START_DSM	T	
START_LSR	T	
START_NAMESERVER	T	
START_NET	T	
START_NM	A or P	
START_NTS	T	
START_TALK_SERVER	T	
STOP_DSM	T	
STOP_LSR	T	
STOP_NAMESERVER	T	
STOP_NET	T	
STOP_NM	A or P	
STOP_NTS	T	
SYSTEM_RECOVER	A	
TRANSFER_LOG	A	
UNASSIGN	T	Operators can unassign any device. Users can unassign their own devices at their terminals.
UNREGISTER_EPF	A or P	
UPDATE_NAMESERVER	T	
USRASR	T	

List of Operator Commands

Abbreviations appear in red. Asterisks after command names indicate that Operator-specific information is in this book and user information is in the *PRIMOS Commands Reference Guide.*

ADDISK
ADD_PORTAL
ADMIN_LOG
ASSIGN*
BATCH*
BATGEN*
BOOT_CREATE
BOOT_RESTORE
CAB
CDD
CHANGE_PROJECT*
CHAP*
CLOSE*
CNAME*
COMM_CONTROLLER
CONFIG
CONFIG_USERS
CONVERT_AMLC_COMMANDS
CONVERT_ENV
CONVERT_TO_ACLS
CRASH_AUDIT
DEVICE_ACLS
DISK_PAUSE
DISKS
DISPLAY_LOG
DUMP_SEGMENT
DUMP_USER
ELIGTS
FIX_DISK
FIXBAT
FS_RECOVER
FTOP
HELP*
IDBMS
INDEX_LIB_MANAGER
INIT
INITIALIZE_SEARCH_RULES
JOB*
LAB*
LABEL*
LIST_ASSIGNED_DEVICES*
LIST_ASYNC
LIST_CONFIG
LIST_CONTIGUOUS_BLOCKS*
LIST_DISKS*
LIST_DUMP
LIST_GROUP*
LIST_LHC_STATUS
LIST_LTS_STATUS
LIST_MEMORY
LIST_MOUNTS*
LIST_PRIORITY_ACCESS*
LIST_PROCESS
LIST_REGISTERED_EPF*
LIST_SCHEDULER_ATTRIBUTES*
LIST_SERVER_NAMES*
LIST_SESSIONS*
LIST_UNITS
LOGOUT*
LOOPBACK
MAGRST*
MAGSAV*
MAKE
MAXSCH
MAXUSR
MESSAGE*
MIRROR_OFF
MIRROR_ON
MONITOR
MONITOR_SEARCH_RULES*
MTRESUME
NTS_ASSOCIATE
NTS_LINE
NTS_LIST_ASSOCIATE*
NTS_UNASSOCIATE
PASSWORD_DIRS
PDEV*
PRATIO
PRINT_SECURITY_LOG
PROP*
PSR
RECORD_TO_PATH
REGISTER_EPF
REMOVE_PORTAL
REMOVE_PRIORITY_ACCESS
REPLY
RESET_DUMP
RESUS
RJE*
RJOP
SEARCH_INDEX_LIB
SECURITY_MONITOR
SECURITY_STATUS
SET_ASYNC*
SET_LSR_DEFAULTS
SET_PGALARM
SET_PRIORITY_ACCESS
SET_QUOTA*
SET_SCHEDULER_ATTRIBUTES
SET_TIME_INFO
SETIME
SETMOD
SHARE
SHOW*
SHUTDN
SPIN_DOWN
SPIN_UP
SPOOL*
START_DSM
START_LSR
START_NAMESERVER
START_NET
START_NM
START_NTS
START_TALK_SERVER
STATUS*
STOP_DSM
STOP_LSR
STOP_NAMESERVER
STOP_NET
STOP_NM
STOP_NTS
SYSTEM_RECOVER
TRANSFER_LOG
UNASSIGN*
UNREGISTER_EPF
UPDATE_NAMESERVER
USAGE*
USERS*
USRASR
UX_TAPE*

Functional Grouping of Commands

This section groups system commands by function. Because some commands have several functions, a command may be listed in more than one category.

This chapter lists the following functional command categories.

- System Startup and Shutdown
- Customizing System Behavior
- Configuring and Controlling Asynchronous Lines
- Configuring Subsystems
- Monitoring Subsystems
- Modifying System, Terminal, and Process Characteristics
- Controlling File Access
- System Monitoring and Report Generation
- Performing Backups and Creating Tapes
- Restoring Files From Backups
- System Repair
- Disk Handling
- File Handling
- Communicating With Other Systems

System Startup and Shutdown

ADDISK	Makes the specified disk or disks available to users of the system.
COMM_CONTROLLER	Downline loads, upline dumps, and halts certain intelligent communications controllers (ICS, LHC, and LTS).
CRASH_AUDIT	Ensures that system buffers are completely written to the security audit file specified after unexpected halts.
INITIALIZE_SEARCH_RULES	Loads existing system search rules into main memory which enables logging in to go faster.
LOGOUT	Logs out a specified process.
MAXUSR	Permits users to log in.
SETIME	Sets the system date and time.

SET_LSR_DEFAULTS	Allows the System Administrator to set up LOGIN_SERVER defaults.
SET_TIME_INFO	Sets time zone and whether or not daylight saving time is in effect for the local system.
SHARE	Installs a command or static-mode library into a segment.
SHUTDN	Shuts down operating system and local partitions, and disconnects remote partitions.
START_DSM	Starts the Distributed Systems Management subsystem.
START_LSR	Starts the Login server.
START_NAMESERVER	Starts the Name Server process on the local system.
START_NET	Starts PRIMENET.
START_NM	Starts network management functions independently of protocols such as START_NTS and START_NET.
START_NTS	Starts Network Terminal Service (NTS) for the Prime host node on the LAN300 network.
START_TALK_SERVER	Starts the TALK_SERVER, which allows use of the TALK command.
STOP_DSM	Shuts down the Distributed Systems Management subsystem.
STOP_LSR	Shuts down the Login server.
STOP_NAMESERVER	Stops the Name Server process on the local system.
STOP_NET	Shuts down PRIMENET.
STOP_NM	Stops network management functions.
STOP_NTS	Shuts down Network Terminal Service (NTS) for the Prime host node on the LAN300 network.

Customizing System Behavior

CHAP	Changes a user's timeslice and priority level in the ready list.
CNAME	Changes the name of a file system object.
CONFIG_USERS	Allows the System Administrator to control and tailor system security; allows the Project Administrator to manage projects.

CONVERT_TO_ACLS	Converts any existing password directories to ACL (access control list) directories.
DEVICE_ACLS	Turns on or off the ACLs that may be set on a specified subdirectory under DEVICE*.
DUMP_SEGMENT	Specifies which segments are to be written to tape during a partial tape dump.
DUMP_USER	Specifies which users are to have their segments written to tape during a partial tape dump.
ELIGTS	Modifies the eligibility timeslice for system users.
MAXSCH	Controls the amount of overlapped processing.
PASSWORD_DIRS	Prevents the creation of new password directories by users when invoked with the –OFF option by the System Administrator.
PRATIO	Allows the Operator to change the paging ratios of the paging partitions currently installed on the system.
REGISTER_EPF	Places an EPF in a database for better performance and availability.
RESET_DUMP	Resets the parameters of a partial dump to the default values.
SETMOD	Sets the mode for magnetic tape assignments.
SET_ASYNC	Configures an asynchronous line connected to a controller or connected via the Network Terminal Service (NTS).
SET_LSR_DEFAULTS	Allows the System Administrator to set up Login server defaults.
SET_PGALARM	Resets all alarm and monitoring functions to their initial status and notifies the supervisor terminal if the system is running out of paging space.
SET_QUOTA	Sets the maximum storage quota on a directory or a subdirectory.
SET_SCHEDULER_ATTRIBUTES	Allows the System Administrator to fine-tune scheduler settings to meet the needs of a particular site.
SHARE	Installs a command or static-mode program into a segment.
UNREGISTER_EPF	Removes a registered EPF from the database.
UPDATE_NAMESERVER	Allows the System Administrator to adjust the retry time for Name Server updates.

Configuring and Controlling Asynchronous Lines

ASSIGN	Assigns asynchronous lines, both directly connected or connected via NTS.
CAB	Changes the size of asynchronous line buffers.
LAB	Lists the current sizes of asynchronous line buffers.
NTS_ASSOCIATE	Maps an LTS physical line to a PRIMOS line number.
NTS_UNASSOCIATE	Breaks the mapping of an associated LTS line with a PRIMOS line number in the NTS assigned range.
SET_ASYNC	Configures an asynchronous line connected to a controller, to a user, or connected via NTS.
UNASSIGN	Removes the assignment of an asynchronous line to any user or process connected via NTS.

Configuring Subsystems

BATGEN	Configures, adds, and deletes Batch queues in the Batch queue definition file, BATDEF.
FTGEN	Configures the File Transfer Service.
NTS_ASSOCIATE	Maps a physical line on an LTS controller to a PRIMOS line number.
NTS_UNASSOCIATE	Breaks the mapping of an associated LTS line with a PRIMOS line number in the NTS assigned range.
RJOP	Initiates, controls, and monitors the running of an emulator system.

Monitoring Subsystems

BATCH	Controls the Batch monitor.
BATGEN	Configures, adds, and deletes Batch queues in the Batch definition file, BATDEF.
FIXBAT	Checks the Batch queue database integrity.
FTOP	Invokes the operator's interface to the File Transfer Service.
FTR	Invokes the user interface to the File Transfer Service.
INIT	Initializes the Batch database.
JOB	Manages Batch jobs.

PROP	Invokes the spool queue management utility for the system printer.
RJOP	Initiates, controls, and monitors the running of an emulator system.
SPOOL	Modifies, monitors, and cancels requests from the spool queue.
TRANSFER_LOG	Invokes a program that backs up and moves audit trail files.

Modifying System, Terminal, and Process Characteristics

CHAP	Changes a user's timeslice and priority level.
CONFIG_USERS	Allows the System Administrator to control and tailor system security; allows the Project Administrator to manage projects.
CNAME	Changes the name of a file system object.
ELIGTS	Modifies the eligibility timeslice for system users.
MAXSCH	Controls the amount of overlapped processing.
MAXUSR	Permits users to log in.
RESUS	Allows the use of a user terminal as a logical supervisor terminal.
SET_ASYNC	Changes the characteristics of an asynchronous line. (Users may modify only lines assigned to themselves and the characteristics of their own terminal lines.)
SET_SCHEDULER_ATTRIBUTES	Allows the System Administrator to tune scheduler settings to better meet the needs of a particular site.
UPDATE_NAMESERVER	Allows the System Administrator to adjust the retry time for Name Server updates.
USRASR	Causes the supervisor terminal to act as a user terminal by associating it with a different process.

Controlling File Access

ADD_PORTAL	Transforms a local directory into a portal, that is, a gateway to another file system name space, so that users can access files in another name space.

CHANGE_PROJECT	Activated by the System Administrator, provides the means for users to change projects without having to log out.
LIST_GROUP	Lists a user's ACL groups.
LIST_MOUNTS	Displays all disks and portals that a system can access.
LIST_PRIORITY_ACCESS	Displays the contents of a priority ACL in effect on a specified partition.
REMOVE_PORTAL	Deletes a portal, that is, a gateway to another file system name space.
REMOVE_PRIORITY_ACCESS	Removes a priority access from an entire partition.
SET_PRIORITY_ACCESS	Sets a priority access on an entire partition.

System Monitoring and Report Generation

ADMIN_LOG	Creates and customizes DSM event logs.
BATCH	Monitors the Batch subsystem.
DISPLAY_LOG	Displays all or part of a system or network event log at your terminal, or writes it to a disk.
HDXSTAT	Displays the status of lines and sites of a half-duplex (HDX) network configuration.
LIST_ASSIGNED_DEVICES	Displays all the devices that have been allocated with the ASSIGN command.
LIST_ASYNC	Displays the status and configuration of some or all of the system's asynchronous lines.
LIST_CONFIG	Displays the various values of system variables.
LIST_DUMP	Displays the current parameters specified for a partial tape dump.
LIST_LHC_STATUS	Displays the status of a LAN Host Controller 300 (LHC).
LIST_LTS_STATUS	Displays the status of a LAN Terminal Server 300 (LTS).
LIST_MEMORY	Displays current memory usage (number of segments, resident pages, and wired pages per user process).
LIST_PRIORITY_ACCESS	Displays the contents of a priority ACL in effect on a specified partition.

LIST_PROCESS	Displays, for every current user process on the system, its user number, name, type, and project ID.
LIST_REGISTERED_EPF	Lists the dependency list and unresolved entrypoints for a given EPF.
LIST_SCHEDULER_ATTRIBUTES	Displays current scheduler settings.
LIST_SERVER_NAMES	Lists information about servers on the local node.
LIST_SESSIONS	Lists InterServer Communications sessions.
LIST_UNITS	Displays information relating to files, units, and attach points.
MONITOR_SEARCH_RULES	Displays statistics on the frequency of dynamic linking to subroutines in libraries.
PRINT_SECURITY_LOG	Invokes the Audit Report facility, which enables the System Administrator to examine the contents of an audit trail file.
PROP	Monitors the status of printers and queue configurations.
SECURITY_MONITOR	Turns the Security Audit facility on or off; also turns the facility for specific audit trail combinations on or off.
SECURITY_STATUS	Displays the status of the active Security Audit facility.
SET_PGALARM	Resets all alarm and monitoring functions to their initial status and notifies the supervisor terminal when the system is running out of paging space.
SHOW	Allows users to grant privileges to other users to monitor their own input and output through the use of the WATCH command.
STATUS	Displays the current system status.
USAGE	Displays the status of several PRIMOS performance factors.
USERS	Displays the number of users currently logged in.

Performing Backups and Creating Tapes

ASSIGN	Assigns disk partitions and tape drives.
BOOT_CREATE	Creates a tape from which you can boot the system.
LABEL	Writes computer-readable labels to tapes.
MAGSAV	Writes files, directories, and partitions to magnetic tape.

PSR	Saves and restores physical disk partitions to and from tape, copies one physical disk partition to another physical disk partition, and protects a partition from being accidentally overwritten by a restore or copy.
REPLY	Replies to users' magnetic tape requests.
SETMOD	Sets the mode for magnetic tape assignments.
UNASSIGN	Unassigns disk partitions and tape drives.
UX_TAPE	Reads and writes tapes for use with UNIX® systems.

Restoring Files From Backups

ASSIGN	Assigns disk partitions and tape drives.
MAGRST	Restores a disk file, directory tree, or partition from a magnetic tape written by MAGSAV.
MTRESUME	Invokes (with RESUME) COPY_DISK, FIX_DISK, MAGSAV, MAGRST, MAKE, and PHYRST from tape.
PSR	Saves and restores physical disk partitions to and from tape, copies one physical disk partition to another physical disk partition, and protects a partition from being accidentally overwritten by a restore or copy.
UNASSIGN	Unassigns partitions and tape drives.

System Repair

CDD	Configures crash dump disks to be used for crash dumps and recovers the crash dumps in case of a system halt.
FIND_RING_BREAK	Determines the location of a break in the RINGNET™ network.
FIXBAT	Checks the Batch queue database integrity.
FIX_DISK	Checks and restores PRIMOS file integrity on partitions.
FS_RECOVER	Reduces file system recovery time after a system crash.
PDEV	Decodes or encodes a physical device number from user input.
RECORD_TO_PATH	Takes a record address and returns the pathname of the file system object to which that record currently belongs.
SHUTDN	Shuts down the operating system and local disk partitions, and disconnects remote disk partitions.

START_LSR	Starts up the Login server.
START_NET	Starts up PRIMENET.
START_NTS	Starts Network Terminal Service (NTS) for the Prime host node on the LAN300 network.
STOP_LSR	Shuts down the Login server.
STOP_NET	Shuts down PRIMENET.
STOP_NTS	Shuts down Network Terminal Service (NTS) for the Prime host node on the LAN300 network.
SYSTEM_RECOVER	Allows System Administrators and Operators to automate system recovery procedures following a system crash.

Disk Handling

ADDISK	Makes the specified disk or disks available to users of the system.
ASSIGN	Assigns disk partitions and tape drives.
DISK_PAUSE	Allows Operators and System Administrators to suspend disk I/O activity in order to replace a defective SCSI disk drive within a Model 75500-6PK device module.
DISKS	Adds or removes a disk from the Assignable Disks Table.
FIX_DISK	Checks and restores file integrity on a disk partition.
LIST_CONTIGUOUS_BLOCKS	Provides information about available space on a disk partition.
LIST_DISKS	Lists, for every local disk currently added to the system, the partition name, ldev, pdev, size, number of records free, and whether the partition is robust
LIST_MOUNTS	Displays all disks and portals your system can access.
MAKE	Creates a file system for any PRIMOS disk partition.
MIRROR_OFF	Removes a partition from a mirrored pair.
MIRROR_ON	Starts a mirrored pair of partitions.
PSR	Saves and restores physical disk partitions to and from tape, copies one physical disk partition to another physical disk partition, and protects a partition from being accidentally overwritten by a restore or copy.

SHUTDN	Shuts down the system, local disk partitions, and remote disk partitions.
SPIN_DOWN	Allows Operators and System Administrators to stop (spin down) SCSI disk drives that may be failing in a Model 75500-6PK device module that are controlled by a Model 7210 (SDTC) disk controller using ICOP+.
SPIN_UP	Allows Operators and System Administrators to start (spin up) SCSI disk drives in a Model 75500-6PK device module that are controlled by a Model 7210 (SDTC) disk controller using ICOP+.
STATUS DISKS	Displays the current status of disk partitions.
UNASSIGN	Unassigns disk partitions and tape drives.

File Handling

CLOSE	Temporarily removes user access to files.
CNAME	Changes the name of a file or directory.
FTR	Transfers files between systems via the File Transfer Service (FTS).
JOB	Submits command files as Batch jobs or modifies a user's Batch requests.
MAGRST	Restores a disk file, directory tree, or partition from a magnetic tape written by MAGSAV.
MAGSAV	Writes files, directories, and partitions to magnetic tape.
SPOOL	Queues a file for printing on a system printer or modifies a user's spool request.

Communicating With Other Systems

CONFIG_NET	Builds the network configuration file.
CONFIG_NTS	Builds the Network Terminal Service (NTS) configuration file.
DPTCFG	Compiles the configuration file for a DPTX system.
DPTX	Enables a DPTX system.
FIND_RING_BREAK	Determines the location of a break in RINGNET.
FTGEN	Configures the File Transfer Service (FTS).
FTOP	Invokes the operator's interface to the File Transfer Service.

FTR	Invokes the user interface to the File Transfer Service.
HDXSTAT	Displays the status of lines and sites of a half-duplex (HDX) network configuration.
LIST_LHC_STATUS	Displays the status of the LAN Host Controller 300 (LHC).
LIST_LTS_STATUS	Displays the status of the LAN Terminal Server 300 (LTS).
LOOPBACK	Sends test messages between the nodes on a network.
MESSAGE	Sends messages to users or other Operators.
MONITOR_NET	Checks the throughput and status of the RINGNET network from the point of view of the node.
NET	Controls half-duplex PRIMENET on SMLC/MDLC lines.
NTS_ASSOCIATE	Maps an LTS physical line to a PRIMOS line number.
NTS_UNASSOCIATE	Breaks the mapping of an associated LTS line with a PRIMOS line number in the NTS assigned range.
START_NAMESERVER	Starts the Name Server process on the local system.
START_NET	Starts up PRIMENET.
START_NM	Starts network management functions independently of protocols such as START_NET or START_NTS.
START_NTS	Starts Network Terminal Service (NTS) for the Prime host node on the LAN300 network.
STOP_NAMESERVER	Stops the Name Server process on the local system.
STOP_NET	Shuts down PRIMENET.
STOP_NM	Stops network management functions.
STOP_NTS	Shuts down Network Terminal Service (NTS) for the Prime host on the LAN300 network.
UPDATE_NAMESERVER	Allows the System Administrator to adjust the retry time for Name Server updates.

List of User Commands

These PRIMOS commands are used primarily by users and programmers. They are explained in the *PRIMOS Commands Reference Guide.*

Abbreviations appear in red. Asterisks after command names indicate that Operator-specific information is in this book and user information is in the *PRIMOS Commands Reference Guide.*

ABBREV
ADD_REMOTE_ID
ASSIGN*
ATM
ATTACH
AVAIL
BASIC
BASICV
BATCH*
BATGEN*
BINARY
BIND
CBL
CBLDML
CBLSUBS
CC
CHANGE_PASSWORD
CHANGE_PROJECT*
CHAP*
CLOSE*
CLUP
CMPF
CNAME*
CN_RBF
COBOL85
COMINPUT
COMOUTPUT
CONCAT
COPY
COPY_RBF
CPL
CREATE
CREATK
DATE
DBASIC
DBG
DBUTL
DEFINE_GVAR
DELAY
DELETE
DELETE_RBF
DELETE_VAR
DELSEG
DIAG
DISCOVER
DPTXMTR
DROPDTR
DUMP_STACK
ED
EDIT_ACCESS
EDIT_BINARY
EDIT_CMD_LINE
EMACS
EXPAND_SEARCH_RULES
F77
F77DML
F77SUBS
FAP
FAU
FDL
FDML
FED
FILMEM
FILVER
FSUBS
FTN
FTR
FTS
HDXSTAT
HELP*
HPSD
INFO
INITIALIZE_COM-
MAND_ENVIRONMENT
INPUT
IPSD, IPSD0, IPSD16
JOB*
KBUILD
KIDDEL
LAB*
LABEL*
LATE
LD
LEM
LISTING
LIST_ACCESS
LIST_CONTIGUOUS_
BLOCKS*
LIST_EPF
LIST_GROUP*
LIST_LIBRARY_ENTRIES
LIST_LIMITS
LIST_MINI_COMMANDS
LIST_MOUNTS*
LIST_PRIORITY_
ACCESS*
LIST_QUOTA
LIST_RBF
LIST_REGISTERED_EPF*
LIST_REMOTE_ID
LIST_SCHEDULER_
ATTRIBUTES*
LIST_SEARCH_RULES
LIST_SEGMENT
LIST_SERVER_NAMES*
LIST_SESSIONS*
LIST_USERS
LIST_VAR
LOAD
LOGIN
LOGOUT*
LON
MAGNET
MAGRST*
MAGSAV*
MDUMP
MEDCONFIG
MEDUSA
MEDUTIL
MESSAGE*

MONITOR_NET
MONITOR_SEARCH_RULES*
MPACK
MPLUSCLUP
MRGF
NETLINK
NSED
NTS_LINE
NTS_LIST_ASSOCIATE*
NUMBER
OAS
OPEN
ORIGIN
OWLDSC
PASCAL
PASSWD
PDEV*
PHANTOM
PL1
PL1G
PLOT
PM
PMA
PRERR
PRIMAN
PRIME/SNA
PRIMON
PROP*
PROTECT
PRTDSC
PSD, PSD20
PT45DSC
PT46DSC
PTDSC
PTELE
RDY
REENTER
RELEASE_LEVEL
REMOVE_EPF
REMOVE_REMOTE_ID
RESTOR
REST_RBF
RESUME
REVERT_PASSWORD
RJE*
RJQ
RSTERM
RUNOFF
RWLOCK
SCHDEC
SCHED
SCHEMA
SEG
SET_ACCESS
SET_ASYNC*
SET_DELETE
SET_QUOTA*
SET_RBF
SET_SEARCH_RULES
SET_VAR
SHOW*
SIZE
SLIST
SNADSC
SORT
SPOOL*
SPY
START
STATUS*
SVCSW
SYNCSORT
TALK
TCF
TERM
THEMIS
TIME
TRAMLC
TYPE
UNASSIGN*
UPCASE
USAGE*
USERS*
UX_TAPE*
VPSD, VPSD16
VRPG
VRTSSW
WATCH
WORD
*
/*

2

Dictionary of PRIMOS Operator Commands

This chapter lists the PRIMOS operator commands in alphabetical order. For some commands, this book refers you to other sources. For all other commands, this book gives a brief description of the command's function, followed by a summary of its syntax and an explanation of any arguments or options it accepts.

Some of these commands require that you specify a **pdev** (physical device number). For information on how to determine or construct a physical device number, see the *Operator's Guide to File System Maintenance*. For information on other (user) commands that may be useful to you as an Operator, see the *PRIMOS User's Guide* or the *PRIMOS Commands Reference Guide*.

ADDISK

ADDISK makes the specified disk partition or partitions available to users of the system.

ADDISK searches the Disk Table for available partition slots. If enough available slots are found, ADDISK adds the specified disk partition or partitions. To reverse this process and shut down partitions, use the SHUTDN command.

There is a limit of 238 logical partitions that may be added to the Disk Table. This limit applies to the sum of both local and remote partitions. (If your system is part of a DSM configuration group running the Name Server, however, you actually have access to as many as 1280 partitions.)

Logical device numbers (ldevs) (which are *not* the same as physical device numbers) range from 0_8 through 355_8.

Local partitions are those that are connected to your system; **remote partitions** are those that are connected to other systems in the network of which your system is a part. For full information about disk handling, disk names, and physical device numbers, see the *Operator's Guide to File System Maintenance.*

Note

In this discussion of the ADDISK command, the words *disk* and *partition* are often used interchangeably to mean partition. Strictly speaking, a **disk** is the physical medium, and the **partitions** are the logical units into which it is divided.

Adding Local Partitions

Before you add a local partition, you must ensure that the disk drive on which the partition resides is powered up and ready for operation. When the disk drive is ready, you can use ADDISK to add the partition on the local system and make it available to users.

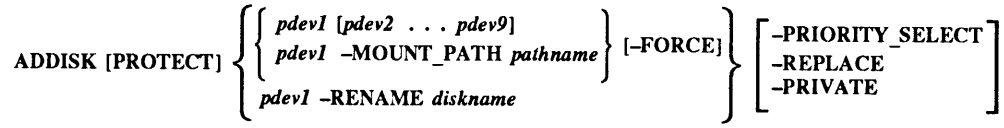
Caution

If you know that pre-Rev. 23.0 systems in your common file system name space need to access one of your local disks, do *not* add the local disk in the root with a name longer than six characters. (For information on the file system changes at Rev. 23.0, see the *System Administrator's Guide, Volume I: System Configuration,* the *Rev. 23.0 Prime Networks Release Notes,* and the *Prime User's Release Document.*

If you add a local disk in the root with a name longer than six characters, pre-Rev. 23.0 systems in the common file system name space are *not* able to access that disk. Pre-Rev. 23.0 systems can only access a disk mounted lower than the root directory or a disk added in the root with a name no longer than six characters. (Of course, pre-Rev. 23.0 systems must also add to their Disk Table any remote disks they wish to access.)

The Name Server generally eliminates the need to add any remote disks to the local disk table manually using the ADDISK command. (See the following section, Adding Remote Disk Partitions, for more information and for the one exception to this. Refer to the *Rev 23.0 Prime Networks Release Notes* for more information about the Name Server.)

Format for Local Disks



pdev1 through *pdev9* represent the physical device numbers of the partitions being added. For example,

```
OK, ADDISK 1460 2262 5260 42663 163260
```

Note

You can combine ADDISK's arguments and options in a limited number of ways. The PROTECT argument and -FORCE option cannot be used with -RENAME. -RENAME and -MOUNT_PATH cannot be applied to more than one *pdev* at a time.

Adding Remote Disk Partitions

Systems Not Running the Name Server

If your system is *not* running the Name Server, adding a local disk partition does not make the partition available to remote systems until the remote systems also add the partition as a remote partition, as described below. If a local system is part of a network, disks on other systems in the network (remote disks) may be made available to users on the local system. In both cases, a disk must be added both by the system that owns it and by the remote systems that will use it.

Format for Remote Disks

ADDISK ***diskname1*** **[*diskname2 . . . diskname9*] -ON** ***nodename***

nodename is the network name for a valid remote file access (RFA) system. The node must be RFA-enabled. For more information about RFA, see the section on CONFIG_NET in the *PRIMENET Planning and Configuration Guide.*

diskname1 through *diskname9* are the names of the remote partitions. The remote partition does not have to be started when you add it, nor does the remote system

have to be running, although the partition is not actually available until the remote system is up and its local disks are added. If you attempt to add more than nine partitions in one command line, ADDISK aborts and displays this error message:

```
Too many objects specified.  <diskname-10> (addisk)
```

You cannot rename, force, priority-select, or protect a remote partition. The name and the write-protection status of a device are always assigned at the device's local system.

Notes

Partitions to be added remotely are specified by *diskname* rather than by physical device number.

All disk names must be unique. You cannot add a new remote partition if its disk name is the same as that of a partition already added, and you must use the same disk name to refer to the disk as was used by the remote system that owns it.

Systems Running the Name Server

If your system is part of a common file system name space running the Name Server you should not add remote disks to your system using ADDISK. (See the next paragraph for the one exception to this.) The Name Server automatically broadcasts the existence of any local disks you add to all other Rev. 23.0 or greater systems in the group. Likewise, Name Servers on other systems in the group also broadcast to your system the existence of disks added by those systems. The Name Server on your system also polls pre-Rev. 23.0 systems in the common file system name space for information on disks they have added. (It does not, however, notify pre-Rev. 23.0 systems about local disks you have added.)

The only time you should use ADDISK to add a remote disk to the local Disk Table is when there are applications at your site that use ldev pathname syntax (e.g., <7>cmdnc0) to access remote disk partitions. The Disk Table entry in this case simply allows for the ldev-to-disk name conversion so that PRIMOS can find the partition. The Name Server then searches the root directory for the pathname. Any disk added to the local Disk Table must already be in the GMT (Global Mount Table) or the disk cannot be accessed by remote systems.

When you add a remote disk using ADDISK, you see the following message:

```
Warning: Remote addisks after starting Name Server are only
used to provide ldev number to diskname mapping. The list of
disks in the file system name space is given by the global
mount table.
```

Arguments and Options

pdev1 . . . pdev9
Specifies the physical device number(s) of the partitions to be added.

PROTECT *pdev1 . . . pdev9*
Specifies that *pdev* is to be **write-protected**, that is, it cannot be altered by the system. You may specify PROTECT only for partitions that are added locally.

Add or remove write-protection by shutting down the partition and then reentering the ADDISK command with or without the PROTECT argument. This procedure changes the partition's protection. (Whenever possible, when you write-protect a partition using the PROTECT option, you should also physically write-protect the partition using a read/write ring, to ensure that the partition is not inadvertently written upon.)

–FORCE
Forces ADDISK to add a robust partition whether or not the partition is consistent. (This is *only* useful with robust partitions.) If you use the –FORCE option and the partition is consistent (contains no errors), the partition is added normally. If you use –FORCE and the partition is inconsistent, the partition is added, but is write-protected; you can read its files, but cannot change them. You can use –FORCE with multiple pdevs.

–MOUNT_PATH *pathname*
Allows the Operator to specify a logical mount point for the partition. The mount point may be any existing, local directory in the tree structure except for an MFD. The mount point may also be in the root directory.

Note

If you do not specify a mount point using –MOUNT_PATH, the partition is mounted in the root directory by default. In this case, a directory is created in the root with the same name as the name of the disk partition that is added. You can, however, mount a partition in the root directory with a directory name (for example, <MANUFACTURING) if you use the –MOUNT_PATH option.

The supervisor terminal must have access to the mount point. The mount-point pathname must be fully qualified, that is, beginning at the root. Keep in mind that the contents of whatever directory you choose as the mount point (that is, the mount-point directory) are not visible or accessible until you copy them to the newly added disk. (Users attached to the mount-point directory or its parent directory at the moment the ADDISK is performed, however, continue to see the contents of the original directory until they leave that attach point.) See the *System Administrator's Guide Guide, Volume I: System Configuration* for detailed information on logical mounts.

Caution

Do not add a disk to the root with a name longer than six characters if there are pre-Rev. 23.0 systems in your network that must access the disk. If you do, they will not have access to the disk.

–PRIORITY_SELECT

Takes over control of a dual-ported disk drive. (A **dual-ported** disk drive is one which can be attached to two systems simultaneously, although only one system has control over the disk drive at any moment.) Always use –REPLACE (described below) with –PRIORITY_SELECT when the Name Server is running.

WARNING

Never priority-select a dual-ported disk drive while the other system attached to the drive is running. You could corrupt the disk's file system by interrupting the other system's write to disk.

Never place any system's COMDEV on a dual-ported disk drive; if someone inadvertently priority-selects that disk from the secondary port, the first system may behave unpredictably and would probably crash.

–PRIVATE

Allows the Operator to add a partition and prevent it from being accessed by remote systems with remote file access. Private disk partitions added to the local system are displayed by the LIST_MOUNTS command. Private disk partitions that are located on remote systems are displayed by the LIST_MOUNTS command only if the requestor is at the supervisor terminal or is the System Administrator.

–RENAME *diskname*

Allows the Operator to specify a new name for a partition when adding it to the system. This is required when the partition being added has the same name as a partition that is already on the system. If the Operator attempts to add such a partition without renaming it, the system displays the following error message:

```
Name diskname of disk pdev not unique
(conflicts with LDEV n).
```

Only one device at a time can be added when you use the –RENAME option. For example,

```
OK, ADDISK 460 -RENAME ATON
```

The SHUTDN command also provides a –RENAME option. Thus, the Operator may restore the partition's original name or give it a new name when removing it from the system.

–REPLACE

Forces all systems in the common file system name space to reference the new system (the one doing the ADDISK) for the specified disk partition. Use this option whenever you are adding a disk that has been moved from one system to another without being explicitly shut down first, as in the case of a dual-ported disk drive or a disk from a system that crashed. (This option is only necessary if the Name Server is running on your system.)

For example, if disk PUBS12 is physically moved from System A to System B and was not explicitly shut down, using the –REPLACE option when adding the disk to System B causes all systems in the name space to look for PUBS12 on System B instead of on System A. It accomplishes this by overriding the old entry in the GMT (Global Mount Table) for that partition and replacing that entry with the new information. When you specify this option, you receive the following query:

```
The -REPLACE option forces all systems in
your common file system name space to
reference your system for this disk
instead of the system the disk was
originally added to. Do you really wish
to do this?
```

Answer YES if you want the ADDISK to take place.

If the Name Server is running on your system, specify this option whenever you use the –PRIORITY_SELECT option.

Caution

Never use the –REPLACE option unless you are absolutely certain that the physical disk has been moved from one system to another without being explicitly shut down first.

Messages

ADDISK may display one or more of the messages listed below. In this list, some message explanations are preceded by the word *Warning*, which is not part of the error message displayed at the terminal. Warning messages affect only one of the specified disks; if you specified more than one disk, ADDISK continues processing all disks except those affected by the error message.

Messages not preceded by *Warning* indicate that ADDISK stopped processing and did not perform the requested operation.

`Can only "replace" remote disks added in the root. (addisk)`
: You attempted to use the –REPLACE option when adding either a local disk or a remote disk that was mounted below the root. You cannot use this option with local disks. If a remote disk is mounted below the root on its original system, you do not have to use the –REPLACE option when you add it to your system because there will be no conflict in the GMT.

`Cannot add already known disk` *`pdev`*`. (addisk)`
: You attempted to add a disk that is currently running on the system.

`Cannot Priority Select a remote disk!`
: The –PRIORITY_SELECT option can only be used on a dual-ported disk drive that is connected directly to your system.

`*** Cannot read DBS file of disk` *`pdev`*`.`
: The system cannot read the badspot file on the disk you are attempting to add. The disk may be damaged; you may want to verify its integrity with FIX_DISK. For details, see the *Operator's Guide to File System Maintenance.*

`*** Cannot read DSKRAT of disk` *`pdev`*`.`
: *Warning* The partition specified by *pdev* has not been formatted by MAKE. The disk may be damaged; you may want to verify its integrity with FIX_DISK. For details, see the *Operator's Guide to File System Maintenance.*

`Cannot rename partitions with -FORCE option.`
You cannot specify the –RENAME and the –FORCE options at the same time.

`Cannot specify both the rename and mount_point options.`
You cannot rename a disk and specify a mount-point pathname at the same time. The mount-point pathname is the name used by PRIMOS to reference the disk.

`Conflicting PDEVs` *`pdev1`* `and` *`pdev2`*`. (addisk)`
Two of the pdevs given in the list specify overlapping partitions of the same disk. Check that you specified the pdevs correctly and try again.

`Could not CLOSE PDEV` *`pdev`* `due to controller or device errors. (addisk)`
There is a problem with either the controller or the device. This problem prevents you from adding a disk. Contact your PrimeService℠ Representative.

`Could not OPEN PDEV` *`pdev`* `due to controller or device errors. (addisk)`
If you have just warm-started your system and are trying to add a disk on an intelligent controller, this message means that the intelligent controller needs to be re-initialized. Wait until the message `DLL and init ICOP complete` *`controller_address`* `- (disk_init)` appears at the supervisor terminal and try again.

If you get this message at any other time, the controller may not be running properly. Check to be sure that the disk drive is powered on, is online, and is not write protected; check that you gave the correct pdev. If the problem persists, contact your PrimeService Representative.

`*** Disk CRA Mismatch Errors detected, Run FIX_DISK On Disk "`*`diskname`*`" ***`
A current record address (CRA) mismatch error on an ICOP read occurred. You should run FIX_DISK.

`Disk` *`diskname`* `was not shutdown properly, Run FIX_DISK.`
The disk you are trying to add was not shut down in an orderly manner previously. The file system integrity may therefore be corrupted and you should run FIX_DISK on the partition.

`*** Disk DTA/DTM Errors detected, Run FIX_DISK On Disk "`*`diskname`*`" ***`
An attempt to modify a date/time accessed (DTA) or date/time modified (DTM) field on a file system object that does not have one occurred. This is usually the result of previous hardware problems causing crashes which, in turn, have caused a file system problem. You should run FIX_DISK.

`Disk` *pdev* `A Dynamic Badspot Disk cannot be added to this controller.`

You attempted to add a Dynamic Badspot Handling (–DBS ON or –IC) mode partition from a disk drive with a nonintelligent disk controller. The partition is not added. If you must run this disk on a nonintelligent controller, run FIX_DISK to convert the disk to –DBS OFF or ALL_CONTROLLER format.

`***` `Disk` *pdev* `- A dynamic badspot handling disk cannot be started on this controller. Run FIX_DISK to convert the disk to an All-Controller format disk.`

You attempted to add a Dynamic Badspot Handling (–DBS ON or –IC) mode partition from a disk drive with a nonintelligent disk controller. The partition is not added. If you must run this disk on a nonintelligent controller, run FIX_DISK to convert the disk to –DBS OFF or ALL_CONTROLLER format.

`Disk` *pdev* `Controller capable of Dynamic Badspotting.`

You added a No Dynamic Badspot Handling (–DBS OFF or –AC) mode partition on a disk drive associated with an intelligent disk controller. Convert this partition to –DBS ON (or –IC) mode.

`***` `Disk` *pdev* `is not a PRIMOS partition.`

PRIMOS cannot recognize the partition you specified. This could be because the disk is in a pre-Rev. 19 format, because the disk does not contain the number of heads specified in the DSKRAT, or because the DSKRAT length or address is incorrect. Check that the pdev you specified is correct, and that it does not overlap or include another partition.

`***` `Disk` *pdev*`: Not ready.`

Warning You specified either a nonexistent device or one that is not ready (has been turned on, but has not yet reached full speed) as *pdev.* Shut down this disk with the SHUTDN command, wait until the device is ready, and then add the disk again.

`Disk` *pdev*`: Old partitions not supported.`

Warning The partition specified as *pdev* has a pre-Rev. 14 format. Make sure that you have a backup copy of the data on the disk, then use the MAKE command to convert the disk to Rev. 22 format. See the *Operator's Guide to File System Maintenance* for details.

`Disk "`*diskname*`" was not shutdown properly, Run FIX_DISK.`

The disk you are trying to add was not shut down in an orderly manner previously. The file system integrity may therefore be corrupted and you should run FIX_DISK on the partition.

`*** Disk Return Record Errors detected, Run FIX_DISK On Disk "diskname" ***`

An error occurred previously during an attempt to return a record to the DSKRAT. You should run FIX_DISK.

`Disk table overflow: n entries required, only x free. (addisk)`

The number of free entries (*x*) is smaller than the number of requested additions (*n*). You may free logical device entries by using SHUTDN to remove devices from the table. PRIMOS supports a maximum of 238 logical disks.

`*** Disk Write Errors detected, Run FIX_DISK On Disk "diskname" ***`

The locate buffers did not get flushed. You should run FIX_DISK.

diskname `is not a valid partition name. (addisk)`

The *diskname* you specified with the –RENAME option does not conform to the partition name syntax. It either contains an invalid character or it is more than six characters long. If you are trying to logically mount a disk partition with a mount-point pathname, you must use the –MOUNT_PATH option to ADDISK.

`Duplicate partition name` *diskname*`. (addisk)`

You specified partition name *diskname* more than once when adding remote partitions.

`Duplicate PDEV` *pdev*`. (addisk)`

You specified PDEV *pdev* more than once in this ADDISK command.

`Dynamic badspot remapping area is at least 80 percent full. Disk may have a hardware problem. Please have it checked.`

You added a Dynamic Badspot Handling (–DBS ON or –IC) mode partition to the system whose RMA (remapped area) has reached 80% or more of capacity. The partition is added, but you should have the disk checked for defects by your PrimeService Representative.

`Error while accessing the GMT. (addisk) Command aborted. (addisk)`

ADDISK failed due to an internal PRIMOS error. Contact your PrimeService Representative.

`Error while removing disk to be "replaced". (addisk) Command aborted. (addisk)`

ADDISK failed due to an internal PRIMOS error. Contact your PrimeService Representative.

`Format of disk pdev not supported by this revision of PRIMOS.`
Warning You see this message if you try to locally add a partition under a version of PRIMOS that is earlier than the format of the partition you are attempting to add. Examples include adding a Rev. 20.0 or later disk to Rev. 19.0, adding a Rev. 21.0 or later disk to Rev. 20.0, and adding a Rev. 22.0 disk to Rev. 21.0. Later revision disks can be added remotely to earlier revision systems. See the MAKE command in this chapter, or the discussion in the *Operator's Guide to File System Maintenance.*

`Ldev 0 must be added in the root directory. (addisk)`
You cannot mount the command partition (ldev 0) anywhere but in the root directory.

`More instances of "option_name" than are supported. (addisk)`
You have supplied some option or argument more than once. Enter the command, specifying each option only once.

`Mount point pathname must be fully qualified.`
You must specify the mount-point pathname beginning with the root.

`Mount point pathnames may only be specified for one disk at a time.`
You can add only one disk at a time when you specify a mount-point pathname using the –MOUNT_PATH option.

`Must specify at least one PDEV. (addisk)`
The ADDISK command requires at least one argument.

`Must supply at least one partition name. (addisk)`
The ADDISK command requires at least one argument in addition to the –ON option.

`Name diskname of partition pdev not unique (conflicts with LDEV n).`
Warning Partition *diskname* already exists on this system's partition list. This message is displayed when you do not specify –ON *nodename.*

`Node nodename not configured in network. (addisk)`
The node specified as *nodename* is not currently RFA-enabled. Check that you typed the node name correctly.

`nodename is not a valid system name. (addisk)`
The specified remote system name is invalid. Check to see that you entered the node name correctly; it might contain invalid characters or be more than six characters long.

nodename is the local system!
Do not use the name of your local system with the –ON option. The –ON option can be used only to add remote disks.

Only one disk may be RENAMEd at a time. (addisk)
You can specify only one pdev when you use the –RENAME option.

Option "*name*" is not recognized by this command. (addisk)
You gave an option which is not a valid ADDISK option. Check your spelling and try again.

pdev is not a valid PDEV. (addisk)
The *pdev* specified is not a valid physical device number. Either it contains decimal numbers or nondigits, or it is an impossible *pdev*.

PDEV *pdev* conflicts with assigned or paging device. (addisk)
The *pdev* is currently being used as, or overlaps with, a paging partition; or, the *pdev* is already an assigned partition. Check to see if you entered the correct *pdev*.

PDEV *pdev* conflicts with assigned or paging or mirrored device. (addisk)
The *pdev* is currently being used in a mirrored pair, is already an assigned partition, or is currently being used as or overlaps a paging partition. Check to see if you entered the *pdev* correctly.

PDEV *pdev* conflicts with existing LDEV *n*. (addisk)
The *pdev* either overlaps with logical partition *n* or is in use in a mirrored pair. Check to see if you entered the *pdev* correctly.

*** Proper shutdown of Robust Partition *pdev* did not take place.
*** The Partition will be write protected.
You added a damaged partition by using the –FORCE option. The partition was added, but you cannot write to it. You should use FIX_DISK to repair the partition.

Remote partitions may not be RENAMEd. (addisk)
You can use the –RENAME option for local partitions only.

Rename failed. (trwrat)
Your attempt to rename the disk failed. Check to make sure that you specified a valid disk name (six alphanumeric characters). If the disk name you gave was valid, the rename probably failed because the disk was too badly damaged to be used. Use FIX_DISK to repair the disk.

*** Robust Partition *pdev* has not been properly shut down.
*** Fast Fix_Disk has to be run before it can be added.
You tried to add a damaged partition to the system. If you want to read the disk before you repair it with FIX_DISK, add this *pdev* again, using the –FORCE option.

Specified mount-point pathname conflicts with local mounted_object.
This mounted_object must be removed before the new disk can be added.
You have specified a mount-point pathname where you have already added a partition or portal. If you still want to add the new disk or portal at this mount point, you must first remove the original disk or portal.

Specified mount-point pathname conflicts with mounted_object on system *systemname*.
The -replace option to addisk can be used to force ALL machines to reference the "replaced" disk rather than the original one.
A remote disk partition is already added in the root with the mount-point pathname you specified. (You receive this error message only if you are mounting a disk in the root.) If the disk has been moved from one system to another and you are doing this deliberately (as in the case of a priority-select), use the –REPLACE option to ADDISK to force all systems in the file system name space to reference your system for this disk instead of the original system.

Caution

Never use the –REPLACE option unless you are absolutely certain that the physical disk has been moved from one system to another without being explicitly shut down first.

Starting up revision *n* partition "*diskname*".
Starting up revision *n* Robust Partition "*diskname*".
Partition *diskname* is being added; if the word *Robust* appears in the message, the disk is a robust partition. *n* may be 18, 19, 20, 21, 22, or 22.1. On a Rev. 19.0 or later partition, this message may be followed by a message telling you to run FIX_DISK.

System console command only. (addisk)
The ADDISK command may be issued only from the supervisor terminal.

System name must be specified with -ON option. (addisk)
You specified the –ON option without a remote system name.

`The "replace" option is only valid if the Name Server is started. (addisk)`

The –REPLACE option causes all systems in the file system name space to reference a new system for a disk that was previously added to a different system. This feature has no meaning unless the Name Server has been started.

`The Root directory is not a valid mount point. (addisk)`

You cannot mount a disk into the root using the –MOUNT_PATH option. You must either add the disk directly in the root without using the –MOUNT_PATH option (the default) or you must use a mount-point pathname that mounts the disk lower in the tree structure.

`The specified option is not valid with remote disks.`

You cannot rename, force, priority-select, or write-protect a remote disk.

`Too many objects specified.` *`diskname-10`* `(addisk)`

You attempted to add more than nine partitions in one command line.

`Unable to shutdn disk` *`diskname`* `after rename failed. (addisk)`

The –RENAME attempt failed and PRIMOS was trying to clean up by shutting down the disk. This message indicates that the shutdown attempt also failed and the software may have been left in an unstable state. Contact your PrimeService Representative.

`Warning: Remote addisks with Name Server running are only used to provide ldev number to disk name mapping. The list of disks in the file system name space is given by the global mount table.`

You attempted to add a remote disk to your system using the –ON *nodename* option. Using the –ON *nodename* option places the disk only in the local Disk Table for ldev-to-disk name conversion. The disk can be accessed only if it is also present in the Global Mount Table. Use the LIST_MOUNTS command to see whether the disk already exists in the Global Mount Table.

`Write-protected disks may not be RENAMEd. (addisk)`

You cannot specify the –RENAME option along with the PROTECT or –FORCE option.

`Write-protection is only valid on local disks.`

You cannot write-protect a remote disk.

ADD_PORTAL

ADD_PORTAL transforms a local directory into a portal. A **portal** (introduced at Rev. 23.0) is a file system object that serves as a gateway to another file system name space. (Refer to the *Rev. 23.0 Prime Networks Release Notes* for more information on the file system name space and portals.)

Format

ADD_PORTAL ***mountpoint-pathname nodename*** [**-DISK** ***partition-name*** | **-HELP**]

Arguments and Options

mountpoint-pathname — Specifies the pathname of the directory where you wish to mount the portal. This must be a directory on your local system, the pathname must be fully qualified, and the supervisor terminal must be able to attach to this directory.

nodename — Specifies a system in the target file system name space. This target system must be in your PRIMENET configuration group.

-DISK ***partition-name*** — Directs the portal reference to the MFD of the specified partition on the target system instead of to that system's root directory. Use this option when the target system of a portal reference is a pre-Rev. 23.0 system where there is no root directory. The designated *partition-name* must be a local disk on the target system; otherwise, portal references fail.

-HELP — Displays command syntax.

Usage

A portal redirects references to it to a directory on another system in a different file system name space. A portal reference works only in one direction, that is, if System A mounts a portal to System C, System A can access System C through that portal but System C cannot access System A through the same portal.

Only users on Rev. 23.0 or later systems can use portals to attach to a directory in another name space. If users on a pre-Rev. 23.0 system specify a pathname containing a portal, they are not brought to the specified attach point. Instead, they receive an E$RPMH error code. See the *Advanced Programmer's Guide: Appendices and Master Index* for information on error codes.

A portal must be mounted over an existing directory on the local system and the portal pathname must be fully qualified (that is, beginning with the root directory). A portal can be mounted anywhere in the tree structure except in the root directory or in the partition's MFD (Master File Directory).

Caution

When you mount a portal over an existing directory, the contents of the existing directory are inaccessible for as long as the portal remains mounted there. As a result, it is a good idea to create a new, empty directory first and then mount the portal over that empty directory. Otherwise, you should move the contents of the pre-existing, mounted-over directory to another directory before mounting a portal there. Also, a portal is not maintained through a system cold start, unless it is specified in the PRIMOS.COMI file.

When using the ADD_PORTAL command, you must specify which system you want the portal to reference. Portal references are directed by default to the root directory on the target system. Use the –DISK option when the target system is a pre-Rev. 23.0 system, which does not have a root directory. This option directs the portal reference to the MFD of the specified partition.

For example, to add a root portal, you would use the following syntax:

```
OK, ADD_PORTAL <TRANS0>CUMMIN>BACKPA EN.D12
```

To add a disk portal at the same pathname you would type:

```
OK, ADD_PORTAL <TRANS0>CUMMIN>BACKPA EN.D12 -DISK MATH06
```

Caution

When you set up portals on your system, be aware that users who specify a pathname containing the portal, must first use the ADD_REMOTE_ID (ARID) command on each system through which the portal reference passes if forced user validation (FUV) is in effect or the attach will fail. For more information about ADD_REMOTE_ID, see the *PRIMOS Commands Reference Guide* and the *User's Guide to Prime Network Services.*

For example, you establish a portal from System A to System B. System A is in one file system name space and System B is in another file system name space. A user on System A specifies a pathname that includes the portal to System B and an attach point on System C, which is in the same file system name space as System B. Both Systems B and C require forced user validation. Therefore, the user must have remote IDs on both System B and System C to reach the desired attach point on System C and must use the ARID command to add the remote IDs to those systems. Consequently, portals work best in an open environment where forced user validation is *not* in effect.

Messages

`The disk partition name is too long. (add_portal)`
A disk partition name can be no longer than six characters. Be sure you use the short name given to the disk when formatted with MAKE for the target disk name when mounting a disk portal.

`A disk/portal is already mounted at given directory. (add_portal)`
You have tried to add a portal at a point where a disk or portal is already mounted. You must remove one disk or portal before mounting another at the same location.

`Existing portal in pathname thus directory not local. (add_portal)`
You can mount portals only on local directories. If there is already a portal embedded in the pathname you specify, then you are attempting to mount a portal on a remote system.

`Invalid disk partition name given. (add_portal)`
PRIMOS does not recognize the partition name you have given. Check your typing or spelling and try again.

`Mount point pathname must be fully qualified. (add_portal)`
You must specify a pathname beginning with the root when you add a portal. (Fully qualified pathnames are also known as absolute pathnames.)

`A pathname must be given for the portal mount point. (add_portal)`
You must specify a fully qualified pathname to add a portal.

`The portal must be associated with a valid system name. (add_portal)`
You have given an invalid target system name or no system name at all. Check your typing or spelling and try again.

`Portals can only be defined on local directories. (add_portal)`
You cannot mount portals on remote systems; they must be mounted over existing, local directories.

`Portals cannot be added in the root directory. (add_portal)`
The mount-point pathname you specified is in the root directory and you cannot mount portals in the root. Instead, you must mount portals at least one level

below the root directory, thus the pathname must contain at least one > (angle bracket).

`Primenet is not running or the node is not configured. (add_portal)`
Either PRIMENET is not running or you have specified a target system which is not in your PRIMENET configuration group.

`Specified mount point cannot be attached to. (add_portal)`
You attempted to add a portal on a mount point to which you do not have access rights or the mount point you specified does not exist.

ADMIN_LOG

Beginning with Rev. 21.0, all Prime event logs are DSM logs and are administered by the general DSM log management utility, ADMIN_LOG. Through this utility, you can create and customize event logs to suit your own system requirements by setting appropriate values for log file attributes. The ADMIN_LOG options allow you to perform the following tasks:

- Create DSM logs and specify their attributes, including size
- Delete logs
- List the attributes of existing logs
- Modify the attributes of existing logs
- Purge the logs of unwanted messages

Format

ADMIN_LOG { ***logname*** / **-DEFAULT** / **-UNDELIVERED** } [***options***]

Argument and Options

You must specify a *logname*, -DEFAULT, or -UNDELIVERED to select a log file. *logname* must be a valid PRIMOS pathname. -HELP and -USAGE override all other options.

logname	Specifies a valid PRIMOS pathname.
-CREATE ***attributes***	Creates a DSM log. See the following section for a description of log file attribute options.
-DEFAULT	Selects DSM*>LOGS>UMH>DEFAULT.LOG as the log file. You cannot use -DEFAULT with the *logname* argument.
-DELETE	Deletes a DSM log.
-LIST	Displays the attributes of a log, its current size, and the age of the oldest message.
-MODIFY ***attributes***	Changes the attributes of a log. You can also append new values for any attributes on the command line.

–PRIVATE_LOG

Selects a private log in any directory to which you and the DSM_LOGGER process have access. You can specify the pathname of the private log to which you have access rights. You must also have access to the DSM function PRIVATE_LOGGER on the system where the private log file resides. If you do not specify –PRIVATE_LOG, a system log is assumed. You cannot specify –PRIVATE_LOG and –SYSTEM_LOG on the same command line.

–PURGE { *age* / **ALL** }

Allows you to delete those messages that are older than a specified number of days. For example, if you specify an *age* of 1, all messages that are more than one day old are deleted.

Permitted arguments are ALL and any integer in the range 1 through 365. If you specify the keyword ALL, all messages in the log are deleted.

At Rev. 23.0 and greater, you must specify either ALL or a value for *age*. It is no longer valid to omit an argument.

–SYSTEM_LOG

Selects a system log in the system logging directory, DSM*>LOGS. If you are attached to DSM*>LOGS, you may specify a relative pathname; otherwise, you must specify a pathname beginning with DSM*>LOGS. To access a system log, you must have access to the DSM function SYSTEM_LOGGER. You cannot specify –SYSTEM_LOG and –PRIVATE_LOG on the same command line.

–UNDELIVERED

Selects DSM*>LOGS>UMH>UNDELIVERED.LOG as the log file. You cannot use –UNDELIVERED with the *logname* argument.

–USAGE

Displays the command syntax in brief. You cannot use this option with the other options.

–HELP [–NO_WAIT]

Explains how to use the command. If you specify –NO_WAIT, output is not paginated at your terminal. –HELP cannot be used with other options.

Log Attributes

–CYCLIC

Defines the log as a **cyclic** log, one in which old messages are overwritten by new after the log reaches a specified size. For more information, see the *DSM User's Guide.*

-LINEAR	Defines the log as a **linear** log, one which is closed after it reaches a specified size. For more information, see the *DSM User's Guide*. The default is -CYCLIC.
-MAXIMUM_SIZE ***records***	Sets the maximum size of the log in 2-Kbyte disk records. Permitted values are 0 (zero) and 1 through 32767. A value of 0 is interpreted as an unlimited size. The default is 50 records.
-MINIMUM_SIZE ***records***	Sets the minimum size of the log in 2-Kbyte disk records. Permitted values are 1 through 32767. The default is one record.
-PURGE_TIME ***hh:mm***	Defines the time of day when DSM purges the log. It must be in 24-hour format. The default is 01:00 (1:00 a.m.). All logs have a purge time set. In logs with infinite retention time, the purge time is never used.
-RETAIN ***days***	Defines how many days messages are to be held in the log before being deleted. The permitted values for *days* are 1 through 365. To retain all records, specify -RETAIN with no argument.
-WARNING_LEVEL ***fullpercent***	Defines an arbitrary level at which ADMIN_LOG begins warning you that the log is approaching its maximum size. This option can be used only for logs for which you have defined a maximum size; *fullpercent* represents the percentage of records consumed which is the warning threshold. There is no default value for *fullpercent*.

AS

See ASSIGN.

ASSIGN

ASSIGN delegates authority over disk partitions, asynchronous lines, and devices such as tape drives. ASSIGN gives the Operator complete control of a partition or a peripheral device for such purposes as performing backup procedures, formatting partitions, and repairing file system partitions. The ASSIGN command also assigns asynchronous communication lines and peripherals, including printers.

Although the ASSIGN command is fully described in the *PRIMOS Commands Reference Guide*, a description of how to assign disk partitions, asynchronous lines, and tape drives is included here for your convenience.

Use the UNASSIGN command (described later in this chapter) to release previously assigned tapes, disk drives, and asynchronous lines; use UNASSIGN at the supervisor terminal to forcibly unassign devices or lines assigned to users.

Format

ASSIGN { **DISK** *pdev* [**–PRIORITY_SELECT**] | **ASYNC –LINE** *n* [**–TO** *m*] | *device* [**–WAIT**] }

Assigning Disk Drives, Asynchronous Communication Lines, and Devices Other Than Tape Drives

The first part of this discussion covers the assigning of devices other than tape drives. The format for assigning tape drives is covered separately in a later section because of its complexity.

The ASSIGN command has different formats depending on the intended use; the formats appropriate to specific uses are explained in the following sections.

Assigning Disk Drives

Format

ASSIGN DISK *pdev* [**–PRIORITY_SELECT**]

Argument and Option

The specified physical device number, *pdev*, must already have been entered in the Assignable Disks Table via the DISKS command. See the *Operator's Guide to File System Maintenance* for information on determining pdevs and on the Assignable Disks Table.

The –PRIORITY_SELECT option tells the ASSIGN command to take over control of a particular dual-ported disk drive, whether or not that drive is currently being controlled through its alternate port. (A dual-ported disk drive is one which can be physically attached to two different systems at the same time.)

WARNING

Never priority select a dual-ported disk drive while the other system attached to the drive is running and has control of the disk. You could corrupt the disk's file system by interrupting the other system's write to disk.

Never place any system's COMDEV on a dual-ported disk drive; if someone inadvertently priority-selects that disk from the secondary port, the first system behaves unpredictably, and will probably crash.

Assigning Asynchronous Communication Lines

Before you can use the ASSIGN command to assign a line, that line must be specified as assignable, either in the PRIMOS.COMI file at startup or interactively with the SET_ASYNC command. Refer to the SET_ASYNC command later in this chapter for the correct usage of this command. Refer also to the *Rev. 23.0 Software Installation Guide* for a description of the PRIMOS.COMI file.

Format

ASSIGN ASYNC –LINE *n* [–TO *m*]

Options

The –LINE option assigns line *n*. You must specify this number in decimal. The –TO option assigns a range of lines from *n* to *m* inclusive, both decimal numbers.

At PRIMOS Rev. 21.0, the above format replaces the old ASSIGN AMLC format; you should convert your old ASSIGN AMLC commands to ASSIGN ASYNC commands.

Note

When you used ASSIGN AMLC, you specified the line number in octal. With the ASSIGN ASYNC command, specify the line number in decimal. Do not confuse the two numbering systems.

Assigning Devices Other Than Tape Drives

The ASSIGN command gives the System Operator complete control of a disk or a peripheral device.

Format

ASSIGN ***device*** **[–WAIT]**

Arguments and Option

device may be any of the following devices:

CARDR	Serial card reader
CENPR, CE2PR	Serial printer
CR*n* (*n* is 0 or 1)	MPC parallel card reader or reader/punch
GS0 – GS3	Vector General graphics display terminal
MG0 – MG3	Megatek graphics display terminal
MT*n* (*n* is 0–7)	Magnetic tape drive
PR*n* (*n* is 0–3)	Line printer
PTR	Paper tape reader
PUNCH	Paper tape punch
PLOT	Printer/plotter
SYNC*nn* (*nn* is 00–07)	Synchronous communications line. Note that SYNC is the preferred version of the older device name SMLC.
–WAIT	Indicates the user will wait until the requested drive is available. Do not use the –WAIT option at the supervisor terminal or the terminal will hang until the tape drive can be assigned by PRIMOS. For more information, see the *Data Backup and Recovery Guide.*

Assigning Tape Drives

For full information on using ASSIGN with tape drives, see the *Data Backup and Recovery Guide.*

Format

ASSIGN $\left\{\begin{matrix}\text{MT}n\ [\text{–ALIAS MT}ldn] \\ \text{MTX –ALIAS MT}ldn\end{matrix}\right\}$ [*options*]

Arguments and Options

MT*n* Assigns a specific tape drive, *n*. Magnetic tape (MT*n*) units are numbered 0 through 7, inclusive.

MTX Sends a user request to an Operator to assign an available tape drive. Use the REPLY command to reply to the user request. The argument must be accompanied by –ALIAS MT*ldn*, which assigns a logical device number *ldn* to the drive for reference purposes. Legitimate values for *ldn* are 0 through 7, inclusive. The actual drive assigned depends on any other options that appear on the command line.

Note

You cannot use the MTX form of the ASSIGN command at the supervisor terminal.

Users may also request certain special options with their tape drive assignments. Use the REPLY command at the supervisor terminal to reply to requests that require your intervention; use the SETMOD command to set the mode of tape assignments with regard to your presence or absence. See the *Operator's System Overview* for information on handling user tape assignment requests.

{–7TRK / –9TRK} *Operator intervention required.* Specifies either 7-track or 9-track tape drive. Usually used in conjunction with the MTX argument. The Operator must choose the correct tape drive.

–ALIAS MT*ldn* Allows the user to specify tape drives with logical device numbers *ldns* 0 through 7. *Any physical device may be used as long as the drive is specified by the requested logical device number.* If you do not use this option, the logical device number defaults to the physical device number. This feature is particularly useful in programs that run from command files or in CPL programs. It allows the programs to refer to logical device numbers, which remain constant. Physical device numbers may change from run to run because they depend on the availability of particular drives.

–DENSITY *bpi* *Operator intervention may be required.* Specifies tape density in bpi (bits per inch). Acceptable values for *n* are 800, 1600, 3200, and 6250 for the Model 4587; only 1600 and 3200 are acceptable for the Model 4660. You must check the tape drive to make sure it is capable of functioning at the desired density setting if your intervention is required; if not, the assigned tape drive supports the direct control of tape density by the user.

–FORMAT { **4598** / **4601** }

Specifies the data format to use when writing to a Model 4601 cartridge tape drive that you assign. –FORMAT takes effect only when the heads are positioned at the physical beginning of a tape. When adding to an existing tape, the Model 4601 tape drive automatically writes in the same format as the data already on the tape cartridge. When you assign a Model 4601 drive, the default format is 4601.

–FORMAT 4598 specifies the format used by Model 4595, 4596, or 4598 drives. About 2GB of data can be written on the tape. Once you assign a Model 4601 drive to write in 4598 format, it continues to write every new tape in that format until you issue another ASSIGN command. An ASSIGN command without the –FORMAT option restores the standard Model 4601 format.

–FORMAT 4601 specifies the Model 4601 format which stores up to 5GB of data on each cartridge. Tapes written in Model 4601 format cannot be read on a Model 4595, 4596, or 4598 cartridge tape drive.

–MOUNT

Operator intervention required. Indicates that a new tape is to be placed on a previously assigned drive.

–RETENSION

Causes the tape to be fast-forwarded to end-of-tape and then rewound to beginning-of-tape. This action stabilizes the tape-to-head pressure and stacks the tape evenly on the reel. Applies to cartridge tape drives (version 5 controller) only. If used on any other tape drive, this option is ignored.

{ **–RINGON** / **–RINGOFF** }

Operator intervention required. Specifies protection rights as follows:

–RINGON Read permitted and write permitted
–RINGOFF Read only; write protection in effect

You must remove or replace the write-ring if one of these options is specified.

–SPEED *n*

Selects the speed *n* for a streamer tape drive. For a Model 4660, the –SPEED option can only be used with a –DENSITY 1600 option, and *n* may be one of 25, 50, or 100 inches per second (ips). For a Model 4587, the –SPEED option can be used with any –DENSITY, and *n* must be either 50 or 100 inches per second. For any other model of tape drive, this option is ignored.

-TPID *id* — *Operator intervention required.* Requests the Operator to locate and mount a particular reel of tape, identified by a tape ID. *id* is a tape identifier describing a particular reel of tape and/or type of tape drive (name, number, etc.). Identifiers cannot begin with a hyphen (–), because hyphens are used to indicate the beginning of the next option on the ASSIGN statement line.

-WAIT — Indicates that the user is willing to wait until the requested drive is available.

Caution

Do not use the -WAIT option of the ASSIGN command at the supervisor terminal. Doing so causes the terminal to hang until the tape drive can be assigned by PRIMOS.

Messages

`Cannot assign active crash dump disk.`
You tried to assign a pdev that has been activated as a crash dump disk with the CDD -ACTIVATE_DISK command.

`Cannot assign active paging disk.`
You tried to assign a pdev that has been included in the PAGING directive in the CONFIG file.

`Format not supported on this drive.`
You used -FORMAT with a drive other than the Model 4601. The drive is assigned anyway.

`Unable to reserve drive. Already reserved on another system.`
The drive is dual-ported and the other system has control of the drive. You cannot use the drive (the ASSIGN command fails).

`WARNING: An active paging partition is resident on PDEV pdev.`
You assigned the file system portion (pdev) of an active paging partition, presumably to run FIX_DISK on it. You should be aware that the partition is being used for paging and be sure that it is the intent to assign the file system portion. The file system portion of a paging partition should not be used as a file system if at all possible and should be of minimal size. It should be unnecessary to assign such a partition.

`WARNING: the tape drive needs to be cleaned.`
The tape drive needs to be cleaned (a DSM message is also logged).

For full information on using ASSIGN with tape drives, see the *Data Backup and Recovery Guide.*

BATCH

BATCH allows all users to monitor usage of the Batch subsystem; Batch Administrators (members of the .BATCH_ADMIN$ ACL group) and those working at the supervisor terminal may also use the BATCH command to interrupt and restart the Batch subsystem's work.

Format

```
BATCH { -CONTINUE
        -DISPLAY
        -PAUSE
        -START [options]
        -STATUS
        -STOP }
```

Options

-CONTINUE — Takes the monitor out of a paused state, allowing it to begin processing jobs again; opposite of -PAUSE (described below). This is the default mode. This option can be only issued from the supervisor terminal or by Batch Administrators.

-DISPLAY — Displays detailed information in two tables. The first table lists the number of jobs waiting, deferred, and held in each queue. The second table lists the number of jobs currently executing and identifies each by user ID, job ID, phantom user number, and queue name. This option can be issued from any terminal.

-PAUSE — Tells the monitor to cease starting jobs, but to finish processing jobs that are currently executing; opposite of -CONTINUE. This option can be issued only from the supervisor terminal or by Batch Administrators.

-START *[options]* — Starts the monitor; opposite of -STOP (described below). This option can be issued only from the supervisor terminal. You may use the following options with -START:

- **-DISPLAY_ALL** — Allows all users to see all jobs in all queues; users cannot modify other users' jobs. If you start Batch without this option, users can display only information about their own batch jobs (the default).

Since this is an option of –START, it is important for the System Administrator to decide if this is a desirable feature to implement on your system.

–RLEVEL *rlv* — Sets the scheduler priority of the Batch monitor. The value for *rlv* must be in the range 0 through 3 inclusive, with 3 the highest priority. The default is 1. You cannot specify the IDLE or SUSPEND priority levels for *rlv*.

–TIMESLICE *ts* — Sets the major timeslice in tenths of a second for the Batch monitor. The value for *ts* must be in the range 1 through 99, inclusive. (See the CHAP *tenths* argument.) The default depends on the type of CPU you have. See CHAP for a listing of the default values by CPU type.

–STATUS — Displays a one-line summary that includes the total number of waiting, deferred, and held jobs, the number of queues with waiting, deferred, and held jobs, and the number of executing jobs. The total number of active jobs is also given if there are waiting, deferred, and held jobs in addition to executing jobs. If there are no active jobs, the message `No batch jobs.` is displayed. This option can be issued from any terminal.

–STOP — Stops the monitor; opposite of –START. This option can be issued only from the supervisor terminal or by Batch Administrators.

Starting Batch

This command is usually included in the PRIMOS.COMI startup file and thus is normally part of the system startup routine. However, you may use it to stop and restart the Batch monitor while the system is running.

Format

BATCH –START [–DISPLAY_ALL | –RLEVEL *rlv* | –TIMESLICE *ts*]

Options

Although the options –DISPLAY_ALL, –RLEVEL, and –TIMESLICE are not required, many installations use them. If you start the Batch monitor interactively from the supervisor terminal, you should use the same values for *rlv* and *ts* specified in your system startup file.

Note

The priority specified by the BATGEN command for a given queue is relative to the priority of the Batch monitor. Thus, RLEVEL 0 is the same as the BATCH –START priority; RLEVEL 1 is one lower than the BATCH –START priority.

You can use the options –START, –DISPLAY_ALL, –RLEVEL, and –TIMESLICE in any order.

FIXBAT, INIT, and MONITOR, three other utility programs, are part of the Batch subsystem and are described later in this chapter. Other Batch commands are BATGEN, which configures, adds, and deletes Batch queues, and JOB, which controls and monitors Batch jobs.

BATCH and BATGEN are fully described in the *Operator's Guide to the Batch Subsystem.* JOB is described fully in the *PRIMOS User's Guide* and the *PRIMOS Commands Reference Guide.*

BATGEN

System Operators typically use the BATGEN command to monitor queues. However, you must be a Batch Administrator in order to change the state of queues. The Batch Administrator uses the BATGEN command to configure, add, modify, create an active window for, or delete Batch queues.

Monitoring Batch Queues

Format

BATGEN [*pathname*] { **-DISPLAY** [*queue*] | **-STATUS** }

Argument and Options

Normally, you do not specify *pathname* with this format, and BATGEN defaults to the live queue configuration file, BATCHQ>BATDEF.

-DISPLAY [*queue*] — Displays complete information on the queue named *queue*. If no queue is specified, information is given for all queues. The BATGEN command is one of three Batch commands. Other Batch commands are BATCH, which controls and monitors the Batch monitor, and JOB, which controls and monitors Batch jobs. BATCH and BATGEN are fully described in the *Operator's Guide to the Batch Subsystem*. The JOB command is described in the *PRIMOS User's Guide* and the *PRIMOS Commands Reference Guide*.

-STATUS — Displays a tabular list of defined queues and the status of each queue (blocked or unblocked, capped or uncapped, active or inactive, or flagged for deletion).

Batch Queue Status

A queue can be blocked or unblocked, capped or uncapped, inactive, or flagged for deletion.

Status	*Meaning*
Blocked	The Batch queue does not accept jobs.
Unblocked	The queue is available for job submission. This is the typical state for a queue.
Capped	The queue accepts jobs, but does not execute them until the System Administrator or the Operator uncaps the queue.
Uncapped	The queue is available for job execution. This is the typical state for a queue.
Inactive	The queue is not within its time window of daily activity when its jobs are executed.
Flagged for deletion	The Batch Administrator deletes the queue.

Examples

The following example illustrates the –DISPLAY option.

```
OK, BATGEN -DISPLAY EXPRESS
[BATGEN Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]

Queue name = express, unblocked, uncapped.
Active window = FULL;
Default cptime=121, etime=6, priority=9;
Maximum cptime=120, etime=5; Funit=6;
Delta rlevel=0; Timeslice=99;

OK,
```

The following table explains the meaning of each parameter in the display.

Parameter	*Meaning*
Queue name	Shows the name of the queue, followed by its status.
Active window	Displays the queue's time window of daily activity, within which its jobs are executed. The time window is specified in 24-hour format, hh:mm-hh:mm, or by the key word FULL if the queue is active at all times.

cptime	Specifies the maximum amount of CPU time (in seconds) allotted to the queue. The job aborts if it exceeds the time limit. NONE places no time limit on the queue.
etime	Specifies (in minutes) the elapsed time allowed before the job is aborted. Details are the same as for cptime.
priority	Displays the job's priority within its queue. The value of *n* ranges from 0 through 9, inclusive, with 9 being the highest (most favored) priority. The default is queue-dependent.
Funit	Specifies the file unit used for command input. The default depends on queue parameters but is usually 6.
Delta rlevel	Shows the number of levels a job's priority is lowered, at runtime, from the priority of the Batch monitor. A value of 0 (the minimum value) means a job runs at the same priority level as the monitor, while a greater value (7 is the highest numerical value) lowers the job priority by that many levels. A value of IDLE (the maximum value and lowest priority level) means that a job runs only when the system is otherwise idle.
Timeslice	The amount of time (in tenths of seconds) a job receives before PRIMOS services the next user or process.

The following example illustrates the –STATUS option:

```
OK, BATGEN -STATUS
[BATGEN Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]
Queue:        Status:
------------  ------------------------------
express       unblocked  uncapped
normal-1      unblocked  uncapped
normal-2      blocked    capped (inactive)
background    unblocked  uncapped
overnight     unblocked  uncapped

OK,
```

See also BATCH, FIXBAT, INIT, JOB, and MONITOR in this chapter. Refer to the *Operator's Guide to the Batch Subsystem* for the BATGEN command options available to the Batch Administrator.

BOOT_CREATE

BOOT_CREATE allows you to make a boot tape from which you can boot your system if your system should fail. You can also boot or resume certain utility programs from this tape. See the discussion of the MAGSAV and MTRESUME commands later in this chapter.

To make the system boot tape, you must first create a List File, a file that contains the pathnames of all the directories and files necessary to restore your system to normal working order. BOOT_CREATE then uses the information contained in the List File to generate the system boot tape. When the BOOT_CREATE program is run, it reads the List File twice: the first pass checks that each of the files listed is present on the system and accessible; the second pass calls the magnetic tape save utility MAGSAV, which writes the files to the boot tape.

If any check in the first pass of the List File is unsuccessful, BOOT_CREATE displays an error message.

Although the tape generated by BOOT_CREATE is used to restore data to a disk, the tape itself does not actually do the restoration. The boot tape lets you bring up PRIMOS and PRIMOS lets you run software which restores the disk. All files are restored with their original protection (ACLs or passwords) still intact.

Creating the List File

The List File containing the pathnames can reside anywhere in the system. You create it by using a text editor such as ED or EMACS.

The List File must contain pathnames for MAGSAV to read, one per line. The directory PRIRUN should be specified after the files required for MAGRST as shown in the example List File. You can add other utilities and files needed by PRIMOS as required; most sites also include MAGSAV and NSED.

Format

When you are creating the file, you can specify the pathname of the directory or file that you want to save, in several ways:

- *<diskname>directory-name>object-name*
- *directory-name>object-name*
- *object-name*

You can use the *object-name* format only if the object that you specify is in the directory to which you are attached while running BOOT_CREATE. When you boot from the boot tape or restore or resume objects from the boot tape, you must enter the pathnames exactly as they were saved to the boot tape.

List File Options

You can use the following options inside the List File by appending them to the pathnames of the specified directories and files. Use only one option with each pathname.

-CHECK — Allows you to check for the existence of an object in a directory without having to save it. If the file exists, nothing happens. If the file does not exist, an error message is displayed and BOOT_CREATE aborts. Note that the file is saved if it is contained in a directory specified elsewhere in the List File.

-NO — Causes BOOT_CREATE to display a warning if the specified file or directory cannot be located or accessed, and then to continue writing the remaining objects to the tape.

-YES — Causes BOOT_CREATE to display an error message if the specified file or directory cannot be located or accessed and then to terminate the program. -YES is the default if no option is specified.

The system boot can read only from logical tape 1; it is therefore vital that PRIRUN appear on the first logical tape, and it is recommended that you save all your boot files on a single logical tape.

Example List File

The following example gives the suggested contents of the List File and shows how to create it using ED, the PRIMOS line editor. In this example, the file was created in the MFD of a disk partition called TEST, the command device.

```
OK, ATTACH <TEST>MFD
OK, ED
INPUT
CMDNC0>MAGRST.RUN
CMDNC0>MAKE.SAVE
CMDNC0>NSED
CMDNC0>PRIMOS.COMI
CMDNC0>CONFIG
PRIRUN -NO
CMDNC0 -NO
SYSTEM -NO
[Return]
EDIT
FILE BOOT_LIST
OK,
```

Invoking BOOT_CREATE

After you have created the List File, make sure that a scratch tape is mounted on the tape drive, the tape drive is online, and the tape is not write protected. Then run the BOOT_CREATE program to generate a boot tape.

Format

BOOT_CREATE [*pathname*] [*options*]

Arguments and Options

pathname is the pathname of your List File. If you do not enter a pathname, the system prompts you to enter one. The options to the command line are listed below.

If you created the List File in a password-protected directory and want to use the –NO_QUERY option, then you must specify the password in the pathname when you give the BOOT_CREATE command. You must enclose the complete pathname in single quotation marks and separate the password from the directory name by one space.

For example, if the List File is named BOOT.CR in the directory ENG1, and has the password GRAPH, then the command line would look like this:

```
OK, BOOT_CREATE 'ENG1>BOOT.CR GRAPH' -NO_QUERY
```

If you run the BOOT_CREATE program without the –NO_QUERY option, you are prompted for the password if one is required.

–MT [*n*] Suppresses the magnetic tape drive number prompt. *n* is the tape drive number, selected from the range 0–7. If the –MT option is given without *n*, the default is drive 0 (zero).

–NO_QUERY Suppresses a prompt for the password of the directory containing *pathname*. If *pathname* is contained in a password-protected directory and you either have not specified the password in the command line or you have specified the wrong password, an error message is displayed and BOOT_CREATE aborts.

–HELP Displays the command format of BOOT_CREATE and explains the options available. Other options are ignored.

Operator Prompts

BOOT_CREATE asks you to supply answers to the following prompts:

`Does <diskname>dirname>subdirname have a password?`
You are asked this question when you give the BOOT_CREATE command. If you answer YES to this prompt, BOOT_CREATE asks you for the password of the directory that contains the file you created. If, after answering YES, you fail to give the password or give an incorrect one, BOOT_CREATE aborts. If the directory is not password-protected, answer NO to the prompt, and BOOT_CREATE continues.

`Enter list filename:`
If you did not specify a name in the BOOT_CREATE command line for the List File you created, you are asked to provide one.

`Which drive are you using (0 to 7):`
If you did not specify the –MT option in the BOOT_CREATE command line, you are asked to provide the number of the tape drive you are using.

`Have you mounted the tape on drive <ldn>?`
BOOT_CREATE asks this question after you have entered a tape drive number in response to the previous prompt. (*ldn* is the number of the tape drive.) If you answer YES to this prompt, BOOT_CREATE continues. If you answer NO, BOOT_CREATE asks you to mount the correct tape on the tape drive.

If you do not want the prompts displayed at your terminal, you can suppress them by using the command-line options –MT and –NO_QUERY. If you run BOOT_CREATE as a phantom process, you may find it useful to make command output (COMO) files of the terminal output.

Example BOOT_CREATE Session

The following example runs the BOOT_CREATE program with the command-line option –NO_QUERY, and uses the file BOOT_LIST created in the previous example. The files PRIMOS.COMI and CONFIG do not appear in the display because the –CHECK option was supplied with them. Since this is a continuation of the example above, we are still attached to the MFD TEST. If for some reason you run BOOT_CREATE while attached to a directory other than the directory in which your List File is stored, you will have to include a full MFD-qualified pathname, for example, <TEST>BOOT_LIST.

```
OK, BOOT_CREATE BOOT_LIST -MT 1 -NQ
[BOOT_CREATE Rev. 23.1.0 Copyright (c) 1990, Prime Computer, Inc.]

No Warnings

Assigning Tape drive 1 to your job ......
```

```
Device MT1 assigned.
Tape unit:1
Calling MAGSAV ......
WARNING: Only one reel can be loaded during system boot,
******* because MTBOOT does not handle continuation reels.
[MAGSAV Rev. 23.2.0 Copyright (c) 1991, Prime Computer, Inc.]
Tape unit (9 Trk): 1
Enter logical tape number: 1
Tape name: BOOT1
Date (01 08 92):
Rev no:
Name or Command: $TTY
Name or Command: $A CMDNC0
Name or Command: MAGRST.RUN
Name or Command: $A CMDNC0
Name or Command: MAKE.SAVE
Name or Command: $A CMDNC0
Name or Command: NSED
Name or Command: $A CMDNC0
Name or Command> PRIMOS.COMI
Name or Command> $A CMDNC0
Name or Command: CONFIG
Name or Command: $A MFD
Name or Command: PRIRUN
Name or Command: $A MFD
Name or Command: CMDNC0
Name or Command: $A MFD
Name or Command: SYSTEM
Name or Command: $R
Device released.
OK,
```

For further information on the BOOT_CREATE command, see the *Operator's Guide to Data Backup and Recovery.*

BOOT_RESTORE

The BOOT_RESTORE utility allows you to restore a boot tape on systems using enhanced MAGSAV/RST at PRIMOS Revs. 21.0 and 22.0. This utility is stored on the system as BOOT_RESTORE.SAVE. You must ensure that you write the correct utility, BOOT_RESTORE or MAGRST, to the boot tape when you generate the tape using BOOT_CREATE.

Format

```
RUN BOOT_RESTORE.SAVE
```

Usage

When recreating your system after a command device crash, you must have a boot tape that contains a minimum working system, and a tape that contains a copy of the command partition. If you are using enhanced MAGSAV/RST at PRIMOS Rev. 21.0 or 22.0, both these tapes must be in non-ANSI format; if you are using PRIMOS Rev. 23.0 and later, the tapes must be in ANSI format. These conditions are automatically ensured if you use BOOT_CREATE.

The procedure for booting from tape when using enhanced MAGSAV/RST on a Rev. 21.0 or 22.0 system is almost identical when booting a PRIMOS Rev. 23.0 or greater system. The only difference is that the BOOT_RESTORE.SAVE utility is stored on the boot tape and this utility is resumed from tape.

For full details on booting from tape, refer to your CPU handbook or to the *Operator's Guide to File System Maintenance.*

For further information on the BOOT_RESTORE utility, see the *Data Backup and Recovery Guide.*

C

See CLOSE.

CAB

CAB allows users to change the sizes of their system's asynchronous buffers without rebooting the system. The command is available only from the supervisor terminal, from the PRIMOS.COMI file, or to DSM-privileged users (users who have been given special privileges through DSM security). Any buffer for which you do not specify a new size retains its previously specified size or, if no size was specified earlier, its default size.

Format

```
     ┌                ┌-IBS size ┐                                          ┐
     │ -LINE num     <  -OBS size  > [-TO num [-EXCEPT num1 [ . . . num10]]]│
     │                └-DMQS size┘                                          │
CAB <  -NTSBUF [-IBS size] [-OBS size]                                      >
     │ -NTSABF [-IBS size] [-OBS size]                                      │
     │ -REMBUF [-IBS size] [-OBS size]                                      │
     │ -ON nodename                                                         │
     └ -HELP                                                                ┘
```

Note

All numbers in arguments are decimal.

Options

–DMQS *size*

Alters the size of lines' DMQ output buffers. *size* must be one of 0, 15, 31, 63, 127, 255, 511, and 1023. If you do not specify *size*, the default is 31 8-bit characters. If you do not specify the –DMQS option, the lines' DMQ sizes do not change.

–EXCEPT *num1* [... *num10*]

Alters the meaning of the –TO option, which allows a range of lines to be affected by the CAB command. The named lines are excluded from the range previously specified with the –TO option. –EXCEPT is valid only if –TO is specified; only 10 numbers may be specified after –EXCEPT.

–IBS *size*

Alters the input buffer size (IBS) of the specified lines. Legal values for *size* range from 2 through 8190, inclusive; if *size* is not specified or is specified as 0 (zero), input buffer size is reset to 256. If you do not specify the –IBS option, the lines' input buffer sizes do not change.

–LINE *num*

Specifies which line(s) should be affected by the CAB command. *num* may be the only line affected, or if the –TO option is present, may be the start of a range of lines to be affected. You cannot use this option in the same CAB command as the –NTSBUF, –NTSABF, and –REMBUF options.

Note

The CAB command accepts line numbers specified in *decimal*, not octal. Valid Direct Connect line numbers range from 0 through 511; valid NTS line numbers range from 1024 through 1536. If the –LINE, –TO, or –EXCEPT options specify line numbers from 512 through 1023, inclusive, CAB will print an error message and the command line will have no effect. However, if the range specified by –LINE and –TO includes numbers from 512 through 1023 (for instance, –LINE 0 –TO 1027) without specifying the invalid numbers directly, the CAB command will proceed normally, altering values for all lines within the valid range and ignoring all lines outside the valid range.

–NTSABF

Specifies the initial and default buffer sizes for all active NTS assignable lines and the initial buffer size only for all nonactive NTS assignable lines. You cannot use this option with the –LINE, –TO, and –EXCEPT options.

–NTSBUF

Specifies the initial and default buffer sizes for all active NTS login lines and the initial buffer size only for all nonactive NTS login lines. You cannot use this option with the –LINE, –TO, and –EXCEPT options.

–OBS *size*

Alters the output buffer size (OBS) of the specified lines. Legal values for *size* range from 100 through 8190, inclusive; if *size* is not specified or is specified as 0 (zero), *size* is reset to 384. If the –OBS option is not specified, the lines' output buffer sizes do not change.

–ON *nodename*

Changes the asynchronous buffer settings on a remote system. If you do not supply this option, or if you supply –ON with no *nodename*, the CAB command is executed on the local system. You must be enabled through DSM to use the CAB command on remote systems.

–REMBUF

Specifies the initial and default buffer sizes for all active remote login files, and the initial buffer size only for all nonactive remote login lines. You cannot use this option with the –LINE, –TO, and –EXCEPT options.

–TO *num*	Specifies the end of a range of lines to be affected by the CAB command. The –LINE option must also be present if the –TO option is specified, and the *num* following –TO must be greater than or equal to the argument following –LINE. You cannot use the –TO option with the –NTSBUF, –NTSABF, and –REMBUF options.
–HELP	Lists the CAB command's arguments and their uses. If you specify other arguments with the –HELP option, the CAB command ignores them.

Example

For example, to change the input and output buffers on lines 1–29 and 31–45 to 128 characters, you would issue the following CAB command:

```
OK, CAB -IBS 128 -OBS 128 -LINE 1 -TO 45 -EXCEPT 30
```

For complete information on the CAB command, see the *System Administrator's Guide, Volume II: Communication Lines and Controllers.*

CDD

Rev. 23.2 provides two system crash recovery facilities:

- Crash Dump to Disk (CDD)
- Automated System Recovery (SYSTEM_RECOVER)

The two facilities provide options for automatically performing crash recovery. You can run crash dump to disk by itself, or run it as an option of automated system recovery. By using these crash recovery facilities, you can configure the desired degree of automated crash recovery, from Operator invocation of each operation to full automation of all crash recovery steps.

Two operator commands were added at Rev. 23.2 to configure and manage these facilities: CDD and SYSTEM_RECOVER. The Maintenance Processor (MP) command RUN was enhanced to execute these operations following a system crash. For information on SYSTEM_RECOVER, see its entry later in this chapter; for information on the MP commands, see the *RAS Guide for 50 Series System Administrators*.

The CDD command can be issued only by a System Administrator or from the supervisor terminal.

Crash Dump to Disk

Crash dump to disk provides an alternative to writing crash dumps to tape in the event of a system halt. Prior to Rev. 23.2, all crash dumps were performed to tape. Now you have the option of performing a crash dump to disk or to tape.

Crash dump to disk or to tape can be specified as an option of the Automated System Recovery (ASR) facility as described in the *RAS Guide for 50 Series System Administrators*.

There are two advantages of crash dump to disk over crash dump to tape:

- Crash dump to disk can be performed without Operator intervention, because there is no need to mount reels of tape.
- Taking a crash dump to disk is, in many cases, significantly faster than taking a crash dump to tape.

Both advantages of crash dump to disk improve system availability by decreasing the time required for collecting crash dump data.

The FS_RECOVER utility can analyze either a crash dump to disk or a crash dump to tape. For further details on crash dump analysis, refer to the *RAS Guide for 50 Series System Administrators* and *Using FS_RECOVER*.

Activating a Crash Dump Disk

You must first create and then activate a crash dump disk before you can use it to perform a crash dump to disk. When you take a crash dump, CDD writes the system crash information into this activated partition. To activate a crash dump disk, perform the following steps:

1. Use the MAKE command to format the disk (only necessary the first time the disk is used).
2. Use the DISKS command to add the disk to the Assignable Disks Table.
3. Use the CDD –ACTIVATE_DISK command to activate the crash dump disk. Only one crash dump disk can be activated at a time.

Performing a Crash Dump Disk

Once you have activated a crash dump disk, your system is ready to perform crash dumps to disk when needed. When a system halt occurs, you can perform the actual crash dump to disk in either of two ways:

- Automatically, by using Automated System Recovery (ASR)
- Manually, by using the Maintenance Processor command RUN 661

In either case, this operation writes the crash dump information on the crash dump disk. This preserves the crash information for later analysis and you may then perform a Resident Forced Shutdown (RFS) and a system reboot.

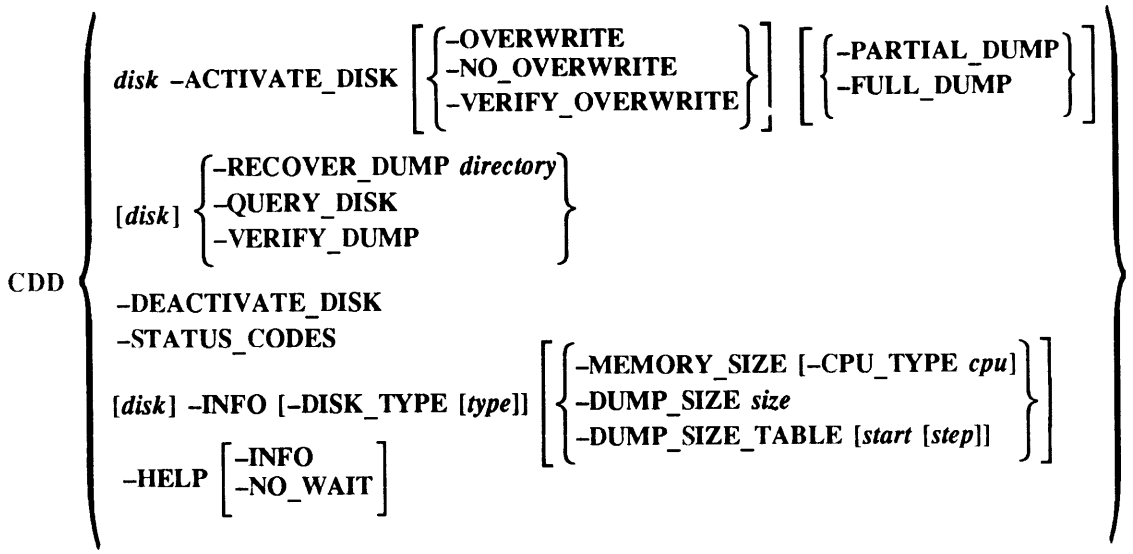
Analyzing a Crash Dump to Disk

You can use FS_RECOVER to analyze a crash dump to disk. Only Version 3.0 (or greater) of FS_RECOVER supports crash dump to disk. FS_RECOVER can analyze a crash dump on the crash dump disk itself or a crash dump recovered to a file. Although FS_RECOVER can read a crash dump directly from the crash dump disk, it is usually preferable to recover the crash dump before performing FS_RECOVER analysis, for the following reasons.

- When you reactivate the crash dump partition, the existing dump is overwritten.
- In order to make a copy of the dump available for use by PrimeService, you must recover the crash dump to a file and then save it using MAGSAV.

Use the CDD –RECOVER_DUMP option to perform this operation. CDD –RECOVER_DUMP copies the crash information stored on the system's crash dump disk into a crash dump file stored in a user-specified file system directory.

Format



Options

The *disk* option identifies the pdev or the name of the crash dump disk. You can use a name if the file system portion of this disk has been added (using the ADDISK command). In this case, the crash dump partition shares the name of the added file system partition. The *disk* argument is required when you use -ACTIVATE_DISK to initially activate a crash dump disk. You can omit the *disk* argument with -RECOVER_DUMP, -QUERY_DISK, or -VERIFY_DUMP if the desired crash dump disk for these operations is the currently activated disk. -INFO prompts for *disk* if necessary.

Disk Activation Options

-ACTIVATE_DISK ***activation dumptype***

Activates a disk to serve as the crash dump disk. You must activate a crash dump disk before performing a crash dump to disk. This disk must be a local disk with enough free space to accommodate a crash dump. Only one disk can be activated at a time. Once activated, a crash dump disk remains activated until you explicitly deactivate the disk (using the -DEACTIVATE_DISK option) or until the next system cold start.

Because cold start deactivates the crash dump disk, it is suggested that you activate a crash dump disk as part of your startup procedures in PRIMOS.COMI. However, you should be sure to use activation options that do not overwrite an existing crash dump on the disk.

The disk that you activate must be on a Model 6580 (IDC1) or Model 7210 (SDTC) disk controller. A disk on an IDC1 controller must have been made in –DBS ON (–IC) mode. If you specify a disk on an unsupported controller, CDD –ACTIVATE_DISK returns an error message.

–ACTIVATE_DISK has two suboptions: you may specify an *activation* suboption, which specifies what CDD should do when activating the crash dump disk, and you may specify a *dumptype* suboption, which specifies what type of dump to perform when a crash occurs. If you do not specify these suboptions, –ACTIVATE_DISK takes the defaults (see below). You can change the *dumptype* suboption whenever you like by reissuing –ACTIVATE_DISK.

–ACTIVATE_DISK requires that you specify *disk* to identify the crash dump disk that you wish to activate. You may omit *disk* if the crash dump disk is already activated and you are using –ACTIVATE_DISK to change that disk's *dumptype* suboption.

When you activate a crash dump disk, any previous crash dump on that disk is lost. For this reason, –ACTIVATE_DISK provides *activation* suboptions that permit you to specify what to do if the disk you wish to activate already contains a crash dump.

Activation Suboptions

–OVERWRITE Automatically overwrites any pre-existing crash dump stored on the disk and activates the disk.

–NO_OVERWRITE Does not overwrite a pre-existing crash dump stored on the disk. If the pre-existing dump has not been recovered, CDD displays a message indicating that the dump exists and exits without activating the disk. If the dump has been recovered, CDD displays a message indicating that the dump exists, then queries for permission to activate the disk, overwriting the existing dump. Answer YES (overwrite the pre-existing dump and activate the disk), or NO or QUIT (do not overwrite pre-existing dump and do not activate the disk).

–NO_OVERWRITE is the default activation suboption, unless the –ACTIVATE_DISK option and the –RECOVER_DUMP option appear on the same command line (as described below).

–VERIFY_OVERWRITE Displays a message if a pre-existing dump exists and queries for permission to activate the disk, overwriting the existing dump. You can specify YES (overwrite the pre-existing dump and activate the disk), or NO or QUIT (do not overwrite pre-existing dump and do not activate the disk).

Dumptype Suboptions

–PARTIAL_DUMP Activates the crash dump disk to take a partial crash dump. If the disk size is estimated to be too small to contain a partial crash dump, CDD displays a warning and activates the disk. The size of a partial crash dump depends on many factors and cannot be known precisely until the dump is generated at crash time. –PARTIAL_DUMP is the default *dumptype* suboption.

–FULL_DUMP Activates the crash dump disk to take a full crash dump. If the disk size is calculated to be too small to contain a full crash dump, CDD activates the disk for a partial crash dump and reports this.

If the disk size is estimated to be too small for even a partial crash dump, CDD also displays a warning and activates the disk.

Other Options

–RECOVER_DUMP *directory*

Recovers a crash dump by copying it from the crash dump disk specified by *disk* into a crash dump file in the specified *directory*. –RECOVER_DUMP automatically generates a crash dump file DUMP.*yymmdd.hhmmss*. The time stamp indicates the date and time that the system crash occurred.

–RECOVER_DUMP requires you to specify the directory to create for the crash dump file. Use the *directory* argument of –RECOVER_DUMP to specify the pathname of the directory. If you omit *directory*, –RECOVER_DUMP prompts you for the directory name. If you have recovered this dump before, the directory prompt defaults to the name of the directory used previously.

The directory must already exist. You can specify a complete pathname or a top-level directory name. An unqualified directory name (that is, one containing no > characters) is assumed to be a top-level directory on the currently attached file system partition. You can use an asterisk (*) to specify the currently attached directory. For performance reasons, it is recommended that the file system partition used for disk recovery be on a different disk drive than the crash dump partition.

If you specify both the –ACTIVATE_DISK and –RECOVER_DUMP options in the same command, CDD always performs the –RECOVER_DUMP operation before the –ACTIVATE_DISK operation, regardless of the order of the options in the command line.

–QUERY_DISK

Returns the current status of a crash dump disk. You can specify *disk* with this option or omit it and receive the status of the currently activated disk (refer to the –ACTIVATE_DISK option). The status information includes the partition name and/or its pdev, whether the disk is currently activated, status of existing dump (no dump, recovered dump, or unrecovered dump), and, if a dump exists, the type (full or partial), size, and date of the crash dump. At Rev. 23.3, this display also includes the maximum dump size that will fit on the disk.

–VERIFY_DUMP

Determines whether an unrecovered dump exists on a crash dump disk. You can specify *disk* with this option, or omit it and receive the status of the currently activated crash dump disk. This option returns a subset of the information returned by –QUERY_DISK.

–DEACTIVATE_DISK

Deactivates the currently activated crash dump disk. If no disk is currently activated, this option does nothing. Refer to the –ACTIVATE_DISK option.

–STATUS_CODES

Lists the error and warning status codes returned in SEVERITY$ when the CDD command is executed from within a CPL program. For further details on SEVERITY$, refer to the *CPL User's Guide*. The following SEVERITY$ values may be returned:

0 Command completed without error.

1 General error (any error other than the specific errors listed below).

2	The partition name specified in *disk* has not been added (using ADDISK). Use the pdev number of the disk rather than the partition name, or add the disk.
3	The partition specified in *disk* could not be assigned. One common reason for this is that you failed to add the disk to the Assignable Disks Table (using the DISKS command).
–1	General warning (any warning other than the specific warnings listed below.)
–2	You specified –RECOVER_DUMP, but there is no dump to be recovered.
–3	You specified –ACTIVATE_DISK, but an unrecovered dump exists and cannot be overwritten, either because you specified –NO_OVERWRITE or you specified –VERIFY_OVERWRITE and responded NO to the overwrite prompt.
–4	You specified –ACTIVATE_DISK, but the specified disk is too small for the dump type that you specified. If you specified –FULL_DUMP on a too-small disk, CDD returns this warning, then defaults to a partial dump. If you specified –PARTIAL_DUMP or CDD has defaulted to a partial dump, CDD returns this warning if the disk is too small for a partial dump.
–5	You specified –VERIFY_DUMP, but no unrecovered dump exists.

–INFO Options

disk	Identifies the pdev of the disk proposed for CDD use, or the partition name if the disk is split and added. If you omit *disk*, you are prompted for it.
–INFO	Provides detailed information via a series of screens and prompts to assist you in creating an appropriate crash dump disk. See the *Operator's Guide to File System Maintenance* for more information. You can avoid the prompts by specifying the pdev and/or disk type on the command line.

–DISK_TYPE [*type*] Specifies the disk you plan to use for crash dumps. If you omit the disk type, CDD displays a menu of disk types and prompts you to enter a disk type. Supported types are those associated with a Model 7210 disk controller or a Model 6580 disk controller (IDC1). Disks attached to the IDC1 must be made in –DBS ON (–IC) mode. This option has the same syntax as MAKE –DISK_TYPE except that only a subset of types are supported.

–INFO Suboptions

–MEMORY_SIZE [–CPU_TYPE *cpu*]
Tells CDD –INFO to calculate crash dump sizes for some system other than the current system. CDD then produces recommendations for creating a crash disk to be used on the other system. Use –CPU_TYPE only if the other system is a 6000 Series system in order to tell CDD to include a PIOS dump in the calculations.

–DUMP_SIZE *size* Tells CDD to omit the first screen in which full and partial dump sizes for a given system are calculated, and to recommend –SPLIT values for a crash disk that will accommodate a dump size of the specified *size*.

–DUMP_SIZE_TABLE [*start* [*step*]]
Displays a table of optimal crash dump sizes for your system and the disk on which the dump will go. CDD displays a table of dump sizes that are a fixed interval apart. Specify a value for *start* to start at a particular dump size. Specify a value for *step* to indicate a particular interval between dump sizes.

–HELP [–INFO / –NO_WAIT] Displays command syntax. –INFO displays only –INFO help. –NO_WAIT scrolls output continuously.

FS_RECOVER Support for Crash Dump to Disk

Starting with Rev. 23.2, FS_RECOVER supports crash dump to disk. Rev. 23.2 uses FS_RECOVER Version 3.0 and Rev. 23.3 uses FS_RECOVER Version 4.0 to analyze crash dumps (disk or tape). Version 4.0 supports CDD –INFO.

Versions 3.0 and 4.0 of FS_RECOVER can analyze a crash dump to disk either from the crash dump disk itself or from a copy of the crash dump disk created by using the CDD –RECOVER_DUMP command.

Instructions on installation and use of FS_RECOVER are provided in *Using FS_RECOVER*.

CHANGE_PROJECT

CHANGE_PROJECT allows local users to change their login projects without logging out and logging back in again.

The CHANGE_PROJECT command is an optional facility that must be activated on the system by the System Administrator. Use the CHANGE_PROJECT operator command to enable or disable project changing for all local users on the system.

Format for Operators

CHANGE_PROJECT { [*project*] | -DISABLE | -ENABLE | -HELP }

Argument and Options

project Specifies the name of the project to change to. The current user must have been assigned to it by the System Administrator in order to access it. The STATUS PROJECTS command lists all users' current projects. If no project is specified, the user will be assigned to the default project, if one exists on your system.

-DISABLE Disables project changing for all local users on the system. The option takes effect immediately for all users. This option is only meaningful if you have previously enabled project changing. Specifying -DISABLE when project changing is already disabled has no effect. This is the default.

-ENABLE Enables project changing for all local users on the system. The option takes effect immediately for all users and continues in effect until system cold start or until you explicitly disable project changing by using the -DISABLE option. Specifying -ENABLE when project changing is already enabled has no effect.

-HELP Displays command syntax.

For information on STATUS PROJECTS and on using CHANGE_PROJECT as a user command, see the *PRIMOS Commands Reference Guide*.

CHAP

CHAP is an internal operator command that changes a user's major timeslice and priority level in the ready list. CHAP is used to alter system response time for one or more processes. It must be issued from the supervisor terminal.

Format

$$\text{CHAP} \left\{ \begin{matrix} \text{ALL} \\ \textit{-userno} \end{matrix} \right\} \left\{ \begin{matrix} \text{-IDLE} \\ \textit{priority [tenths]} \\ \text{-SUSPEND} \\ \text{-TIMESLICE } \textit{milliseconds} \end{matrix} \right\}$$

Arguments and Options

ALL — Specifies that changes are to be made to all users or processes except certain privileged processes such as User 1, BUFFER_SERVER, LOGIN_SERVER, NETMAN, TIMER_PROCESS, and slaves.

-userno — Specifies the number of the user to be modified, in the form *-nnn*. The user must be logged in. (You cannot modify the priority and major timeslice of User 1, BUFFER_SERVER, LOGIN_SERVER, NETMAN, TIMER_PROCESS, and slaves.)

-IDLE — Places the specified process at the IDLE priority level (explained below). This priority remains in effect until it is explicitly changed back to one of the normal priority levels (0 through 3). IDLE without a hyphen is a user option.

priority — Specifies what priority level should be assigned to the user. *priority* must be an integer from 0 (least favored priority) through 3 (most favored priority), inclusive.

tenths — Specifies the user's new timeslice value in tenths of a second. *tenths* must be an octal number. If *tenths* is 0, the user's timeslice is reset to the default value for that system; if *tenths* is 177777_8 (–1 decimal), the user's timeslice is effectively infinite. (This is explained in the section titled Timeslice of –1). Otherwise, *tenths* must be an octal number from 1 through 327, inclusive.

-SUSPEND	Places the specified process at the SUSPEND priority level (explained below). This priority remains in effect until it is explicitly changed back to one of the normal priority levels (0 through 3). Specifying *-userno* without other options restores a user to the default priority level.
-TIMESLICE ***milliseconds***	Specifies user's new major timeslice value in milliseconds (thousandths of a second). (You can change the timeslice in units of tenths of seconds by using the *tenths* argument with the *priority* argument). *milliseconds* must be a decimal number, unlike the *tenths* argument, which is an octal number. If *milliseconds* is 0 or missing, the user's timeslice is reset to the default value for that system; if *milliseconds* is –1, the user's timeslice is effectively infinite. (See the section titled Timeslice of –1.) Otherwise, *milliseconds* must be from 4 through 32767, inclusive.

Setting Priorities

The default priority level is 1. All users logging in will be at this priority level unless the default has been reset by a CHAP ALL command.

To reset a user's priority and timeslice to the default values, issue the CHAP command for that user with no additional arguments, as in CHAP –10.

If you specify the numerical priority level outside the range 0 through 3, you receive an error message telling you that you have specified an invalid level.

Using the ALL Argument

If you use the ALL argument, those processes for which the particular priority change is not valid are skipped. You are issued a warning message telling you the total number of processes (*nnn*) that were skipped:

```
WARNING: <nnn> user(s) not affected by command. (CHAP)
```

If you use the CHAP ALL command, you also affect the user version of the CHAP command. (See the *PRIMOS Commands Reference Guide* for a description of the user version of this command.) A user cannot use CHAP UP to set his or her own priority level to be higher than the default priority level set by the system. If, however, you use CHAP ALL to set the priority default level to 2 (normal default being 1), then a currently logged-in user can use CHAP UP to raise his or her own priority level to 2, and subsequent new users logging in will be at priority level 2. You can change the new default level only with another CHAP ALL command. When the system is cold started, the default priority level for users is 1.

Using the –IDLE and –SUSPEND Options

IDLE and SUSPEND are two special-purpose priority levels. IDLE allows you to define a class of users whom the CPU services when it is not servicing other users at other priority levels; that is, when the CPU is otherwise idle. This can decrease phantom users' competition with interactive users. The IDLE priority level can be applied only to phantom users. If you attempt to apply it to a terminal process, you get this error message:

```
Terminal process may not be made IDLE. (CHAP)
```

If you use the –SUSPEND option, a process is blocked from receiving service from the CPU until you explicitly change its priority to some other level. This option allows the System Administrator or Operator to speed high priority jobs through the system by temporarily suspending other jobs. The System Administrator or Operator can also synchronize the execution of large jobs that are interfering with one another by suspending one while the other is completed. If you suspend a terminal process, the following warning message appears at the terminal of the suspended process:

```
Process suspended
```

Any characters typed by the affected user before the process is made eligible again may be lost. The SUSPEND level is valid only for normal terminal users and phantoms. If the requested priority change is not valid for the user specified by the *–userno* argument, the following error message is issued:

```
-IDLE or -SUSPEND not valid for specified user. (CHAP)
```

Note

The –IDLE and –SUSPEND options are not valid for time-critical processes, which are discussed in the section called Setting Timeslices.

Determining Priority Levels

To determine the priority level of all users currently logged in, issue a STATUS USERS command. The priority level for each user who is not at the default priority level is indicated at the end of that line of output in parentheses. Nothing is displayed if a user is at the default level. For instance, in the following example, users ELIZA, BAILEY, and BINGHAM are at the default priority level, JANE is at level 0, DARCY is at level 2, and GUEST is at the IDLE level.

```
OK, STATUS USERS

                User No  Line No
User             (In Decimal)          Devices (AL in Decimal)
SYSTEM               1    asr         <EAGLE> <SYSB16> AL024
ELIZA                3      1         <EAGLE2> <SYSB16>
DARCY                6      4         <EAGLE2> (2)
GUEST                7      7         <EAGLE2> (IDLE)
MARY                 8      8         <EAGLE2>
  .                  .      .
  .                  .      .
  .                  .      .
JANE                64     35         <EAGLE2> (0)
BAILEY              65    rem         <EAGLE> <SYSB16>
BINGHAM             66    rem         <EAGLE> (from LONDN)
NETMAN             166    nsp         <SYSB16>
NTS_SERVER         182    ncm         <SYSB16>
TIMER_PROCESS      183  kernel        <SYSB16>
LOGOUT_SERVER      184  kernel        <SYSB16>
LOGIN_SERVER       185   LSr          <SYSB16> (3)
ISC NETWORK_SERVER 189  ISCNsr       <SYSB16> (0)
DSMSR              190    DSM         <SYSB16>
DSM_LOGGER         191    DSM         <SYSB16>
SYSTEM_MANAGER     192    SMSr        <SYSB16>
SYSTEM             193  slave         <SYSB16> (0)
BATCH_SERVICE      194  phant         <SYSB16> (2)
```

Setting Timeslices

You can change users' timeslices in either of two ways: by using the priority and tenths arguments, or by using the –TIMESLICE *milliseconds* option. If you use the tenths argument, the number you enter will be interpreted as an octal quantity of tenths of seconds; if you use the –TIMESLICE *milliseconds* option, the number you enter will be interpreted as a decimal quantity of milliseconds.

If you specify tenths or milliseconds as zero, or if you specify –TIMESLICE and omit milliseconds, you reset the timeslice to that system's default value. If you specify priority, but omit tenths, the timeslice is unchanged. Finally, if you issue the CHAP command without the –TIMESLICE option and without the priority and tenths arguments, the user's priority is reset to 1 (the level at which users normally run), and the timeslice is reset to the default value for that system.

Default Timeslice Values

The default timeslice for a particular system depends on that system's model number. Table 2-1 lists the default values for most systems.

Table 2-1. Default Values for Major Timeslices

CPU Model Number	*Major Timeslice in Seconds*	*CPU Model Number*	*Major Timeslice in Seconds*
500	1.997	**5320**	1.997
550	1.997	**5330**	1.198
650	1.997	**5340**	1.198
750	1.997	**5370**	1.198
850	1.997	**5520**	0.602
2250	1.997	**5540**	0.602
2350	1.997	**6150**	0.602
2450	1.997	**6350**	0.602
2455	1.997	**6450**	0.602
2550	1.997	**6550**	0.602
2655	1.997	**6650**	0.602
2755	1.997	**9650**	1.997
2850	1.997	**9655**	1.997
2950	1.198	**9750**	1.997
4050	1.997	**9755**	1.198
4150	1.198	**9950**	1.198
4450	1.198	**9955**	1.198
5310	1.997	**9955-II**	1.198

Timeslice of –1

A special timeslice value, 177777_8 (–1 decimal), provides support for **time-critical processes**: processes, like transaction processing, that require small amounts of CPU time separated by long idle periods. A time-critical process runs without interference from other processes.

When a process' timeslice is set to 177777_8, the scheduler allows the process to continue running indefinitely. The process remains on the ready list while it waits for some occurrence such as terminal input or disk activity (for example, paging). The process can be interrupted only by a higher-priority process that is eligible to

run. Giving a process a timeslice of 177777_8 may cause other processes to get no service.

Setting any process's timeslice to 177777_8 automatically sets the timeslice for User 1 to the same value. This setting guarantees that the supervisor terminal always gets service.

Caution

Never set the timeslice to 177777_8 in an ordinary computing environment. A timeslice of 177777_8 gives uninterrupted and unlimited time to a process. Such a privileged process, if it needed much time to complete, could produce an effect similar to that of a system hang: other users would not be serviced.

For information about CHAP as a user command, see the *PRIMOS Commands Reference Guide*.

CLOSE

CLOSE, when issued from the supervisor terminal, closes the specified file for all users; that is, users accessing the file immediately lose acess. The CLOSE command closes files in one of three ways: by pathname, by file unit number (*funit*), or by closing all files (except a command output file) at once. In all cases, issuing CLOSE for a file that is already closed does not result in an error.

Format

CLOSE { *pathname* | -UNIT *funit1* [... *funit16*] | -ALL }

Arguments and Options

pathname	Specifies the name of the file. If *pathname* cannot be found, an error message is displayed and you are returned to PRIMOS command level. The *pathname* specified must reside on a local disk partition.
-UNIT ***funit1*** **[...** ***funit16*****]**	Closes up to 16 files specified by the space-separated list of file unit numbers *funit1* through *funit16*. File unit numbers range from 1 through 32762, depending on the configuration of the system.
-ALL	Closes all open files except for the command output (COMO) file. You must close the command output file by pathname or by using the COMOUTPUT -END command. The -ALL option ensures that buffers are retrieved properly and that the state of the file system is reset. If you stop a program by pressing the BREAK key or by pressing Ctrl-P, you should issue a CLOSE -ALL command. Otherwise an error message may result when you enter a subsequent command. After CLOSE -ALL has been given, the stopped program cannot be continued with the START command.

Caution

If you use CLOSE -ALL from within a command or CPL file, the file itself will be closed and its execution terminated.

See also OPEN in the *PRIMOS Commands Reference Guide.*

CNAME

CNAME changes the name of a file system object. The file system object must be closed before you can change its name.

To use CNAME, you must have Delete (D) and Add (A) rights for an ACL directory or owner status for a password directory. You cannot change the name of a directory while attached to that directory. However, you can change a directory name while attached to one of its subdirectories.

Format

CNAME *oldname newname* [-FORCE -REPORT]

Arguments and Options

oldname Specifies the name of the file, directory, segment directory, or access directory you want changed. This can be included in a pathname.

newname Replaces only the entryname of the pathname. *newname* cannot be specified as a path.

-FORCE Allows you to change the name of a file system object that is currently in use. The length of the source and target entrynames must be the same.

> ***Caution***
> Use this option very carefully. Misusing it may cause unexpected results, such as the failure of a running program to locate essential directories or log files.

-REPORT Causes a brief message reporting the success of the command to be displayed, as shown in the example.

Examples

The following examples show valid and invalid uses of the -FORCE option. Remember that the entryname lengths must be equal only when using -FORCE.

Example 1: These are valid because MTG and ALL are the same length and the length of CDE equals the length of FGH:

```
OK, CNAME MTG ALL -FORCE -REPORT
"MTG" name changed to "ALL".
OK,


OK, CNAME A>B>CDE FGH -FORCE
OK,
```

Example 2: These are invalid because the length of LIST is greater than the length of F and the length of CDE is greater than the length of AB:

```
OK, CNAME LIST F -FORCE
The source and target entrynames must be the same length when
using the -FORCE option. F (CNAME)
ER!


OK, CNAME A>B>CDE AB -FORCE
The source and target entrynames must be the same length when
using the -FORCE option. AB (CNAME)
ER!
```

Caution

Do not change the names of special directories such as CMDNC0.

COMM_CONTROLLER

COMM_CONTROLLER enables you to accomplish the following tasks without having to perform a warm start or cold start:

- Start up or shut down an ICS controller.
- Load an ICS, LTS, or LHC controller.
- Upline dump the memory of the LHC, LTS, or ICS controller to a disk file.
- Verify the integrity of an ICS controller.

Format

COMM_CONTROLLER { **-INIT** | **-LOAD** | **-SHUTDOWN** | **-UPLINE_DUMP** | **-HELP** } [*options*]

Subcommands

The COMM_CONTROLLER command has five subcommands. Not all of them apply to every type of controller. Specify only one subcommand on a command line.

-INIT	Initiates an automatic shutdown on the specified ICS controller. An integrity check follows, and then the controller is ready to be started.
-LOAD	Initiates a full downline load of a specified file or protocol combination to a designated controller. The controller is automatically shut down, verified, and loaded.
-SHUTDOWN	Freezes the designated ICS controller and breaks all logical connections between the controller and peripheral devices.
-UPLINE_DUMP	Initiates a request for a designated LHC, LTS, or ICS controller to write the contents of its memory into the specified file on the host system. Only one controller at a time can upline dump data to the host.

Note

Every 10 seconds, Network Management polls an ICS3 or LHC controller that has been downline loaded. Network Management upline dumps the controller if two consecutive polls have been missed, then reloads the controller automatically, and resumes polling. The upline dump file for an ICS3 controller is saved in UP_LINE_DUMP*>ICS, the upline dump file for an LHC controller is saved in UP_LINE_DUMP*>LAN300.

-HELP Displays the associated help text. If you do not specify a subcommand, the COMM_CONTROLLER supplies -HELP by default.

Options

You may issue the options associated with the main subcommands at any point on the command line. However, the combinations of options for a specified subcommand are restricted. Refer to the *ICS User's Guide* for information on these restrictions.

-ALL May be supplied only if the -DEVICE option is also present. -ALL specifies that the subcommand you have requested should be applied to all controllers of the type supplied with the -DEVICE option. You cannot use the -DEVICE_ADDRESS option with -ALL.

-DEST_NODE_ADDRESS *lts-address*

Specifies the LTS address of the destination terminal server. This address is assigned by the manufacturer and is located on a metal tag attached to the LTS. Use the LIST_LTS_STATUS command to determine *lts-address*. Specify *lts-address* in either the short format, *nn-nn-nn*, or the long format, *nn-nn-nn-nn-nn-nn*, in hexadecimal, with or without leading zeros. You cannot use the -DNA and -DNN options together on the same command line.

-DEST_NODE_NAME *lts-name*

Specifies the LTS name of the destination terminal server. *lts-name* can contain as many as 16 characters. Use the LIST_LTS_STATUS command to determine *lts-name*. You cannot use the -DNN and -DNA options together on the same command line.

-DEVICE *device* Specifies the device type. The following devices are supported: ICS1, ICS2, ICS3, LHC, and LTS.

-DEVICE_ADDRESS ***device-address***

Specifies the device address of the designated device, which is a 2-digit octal number. Use either the LIST_COMM_CONTROLLERS command (a SIM command) or the STATUS COMM command to determine this address. Valid ICS device addresses are 10, 11, 15, 16, 17, 32, 35, 36, 37, 52, 53, and 54 (octal). Valid LHC addresses are 10, 11, 15, 16, 17, 32, 35, 36, 37, 50, 51, 52, 53, 54, and 56 (octal).

-NO_QUERY

Executes the command without prompting you for confirmation.

-PATHNAME ***pathname***

Specifies the pathname of the object file to be used with the -LOAD or -UPLINE_DUMP subcommand. If you specify the filename alone, the DOWN_LINE_LOAD* directory is assumed for the load operation and the UP_LINE_DUMP* directory is assumed for the upline dump operation. If you do not specify this option, a default file is used with the -LOAD and -UPLINE_DUMP subcommands.

-PROTOCOL ***token***

Specifies a communications protocol token combination used by the LHC, ICS2, or ICS3 controllers. The supplied protocol token combination is validated and subsequently mapped to an appropriate downline load file in the DOWN_LINE_LOAD* directory.

The valid protocol tokens are

LHC Controller	*ICS2/3 Controller*
PRIMENET	ASYNC
NTS	SDLC
TCP_TEL	HDLC
	BSCRJE
	BCSX25

Notes

Do not specify both the NTS and TCP_TEL protocols for the same LHC controller.

You must specify a token with the -PROTOCOL option.

Before Rev. 22.0, the PRIMENET protocol was called LLCX25.

The COMM_CONTROLLER command allows the concurrent loading of multiple controllers of the same type, provided that they are connected to the same backplane and are using the same file and protocol combinations.

For further information about controllers, downline loading, and upline dumping, refer to the *ICS User's Guide* and the *System Administrator's Guide, Volume II: Communication Lines and Controllers.*

CONFIG

CONFIG is used in the PRIMOS.COMI file to configure PRIMOS according to the parameters specified in the configuration file (usually named CONFIG).

Format

CONFIG -DATA ***config-filename***

Option

-DATA ***config-filename*** Specifies the name of the file that holds your system configuration commands. This file must be stored in the CMDNC0 directory and is usually named CONFIG.

For complete information on the CONFIG command and on PRIMOS.COMI, see the *Rev. 23.0 Software Installation Guide* and the *System Administrator's Guide, Volume I: System Configuration.*

CONFIG_USERS

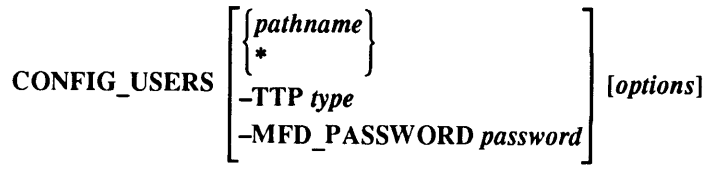
CONFIG_USERS replaces EDIT_PROFILE. The CONFIG_USERS command allows the System Administrator to

- Create a new System Administration Directory (SAD). The SAD contains a database that includes information about the users of your system and any groups and projects you create. When you install a Rev. 23.0 or subsequent system for the first time, you must define each user and project for your system. You must create a SAD before your users can log in.
- Maintain system security, and to create, change, and delete profiles for individuals and for projects. For example, use CONFIG_USERS to register a user ID and other user attributes when you add a new user to your system.

The three interfaces that CONFIG_USERS supports are the

- Primary interface consisting of menu-driven screens that allow the System Administrator to add, change, list, and delete profiles for individuals and projects. These screens also enable the System Administrator to design system security through such things as the control of password attributes and the addition of ACL groups.
- Secondary interface using the PRIMOS command line that allows the Administrator to perform certain simple operations such as adding a user or deleting a project without needing to view the screens.
- Internal CONFIG_USERS command interface that allows CONFIG_USERS to be run from the console, from nonscreen terminals, and from several simple CPL files.

Format for Screen and Command-line Interfaces



Arguments and Options

To invoke the screen interface, issue this command with the –TTP option. To invoke the command-line interface, issue this command with options for adding or deleting a user, or for adding or deleting a project.

If you do not specify options and the .TERMINAL_TYPE$ global variable is not set, CONFIG_USERS prompts for the terminal type. If you issue –ADD_USER without the *user-id* argument or –ADD_PROJECT without the *project-id* argument, CONFIG_USERS enters screen mode.

{*pathname* | *}

References or creates a SAD outside the command MFD in a local or remote ACL-protected directory. Use this option also to create and use a test SAD without disrupting other system users. The asterisk (*) in place of the pathname creates a SAD in the current directory. (PRIMOS Command Line Only)

-TTP *type*

Specifies your terminal type, such as a PST 100 or PT200. Use PT200-C for a color PT200. This argument is unnecessary if you have set the global variable .TERMINAL_TYPE$. Otherwise, you are queried you for your terminal type. If you want to use the command-line interface of CONFIG_USERS without the screens, you cannot include the -TTP argument.
(PRIMOS Command Line Only)

-MFD_PASSWORD *password*

Specifies the owner password for the MFD. If the MFD is password-protected, you must include this argument. (XXXXXX is the Prime-supplied password.)
(PRIMOS Command Line Only)

Note

It is strongly recommended that you use ACLs instead of passwords. If your MFD has ACLs, CONFIG_USERS establishes the proper ACL rights for the System Administrator.

-ADD_PROJECT [*project-id*]

Adds a project to the system. If you omit the *project-id*, the Add Project screen appears.

-ADD_USER [*user-id*]

Adds a user to the system. If you use this option with the -PROJECT option, you add the user to that project. If you omit the *user-id*, the Add Single User screen appears.

-DELETE_PROJECT *project-id*

Deletes a project from the system.

-DELETE_USER *user-id*

Deletes a user from the system. If you use this option with the -PROJECT option, you delete the user only from that project (not from the entire system).

-MESSAGE [*filename*]

Saves the messages that appear at the bottom of the screens into a file in the current directory. If you do not specify a filename, the messages are saved in CONFIG_USERS.MESSAGE.
(PRIMOS Command Line Only)

-NO_WAIT	Suppresses the `--More--` prompt and does not pause after every page of output. Output scrolls continuously. Use this option only with -USAGE or -HELP.
-ORIGIN *pathname* **-IAP**	Provides the pathname for the user's initial attach point (IAP) or origin directory.
-PASSWORD *password*	Specifies the password for a user.
-PROJECT *project-id*	Allows Project Administrators (or System Administrators) to perform their operations only on the specified project.
-PROJECT_ADMINISTRATOR *user-id*	States the user ID of a new Project Administrator. Use this option with the -ADD_PROJECT option to specify the administrator of the new project.
-PROJECTED_USERS *number-of-users*	States the estimated number of users on the system. If you use this option with the -ADD_PROJECT option, it provides an estimate of the number of users on the project.
-QUIT	If you included the -BRIEF argument, this argument ends the CONFIG_USERS command mode and returns you to the PRIMOS prompt. (CONFIG_USERS Command Line Only)
-USAGE	Displays command syntax.
-HELP	Displays information for invoking CONFIG_USERS, which includes the command syntax and a description of each option.

Format for the Internal Command Interface

CONFIG_USERS [*pathname* | **-MFD_PASSWORD** *password* | *options*] **[-BRIEF]**

Arguments and Options

When CONFIG_USERS sees the -BRIEF argument, it switches to the internal command interface and displays a `CONFIG_USERS>` prompt. After the prompt, you can enter CONFIG_USERS command-line options. The `CONFIG_USERS>` prompt is displayed until you enter -QUIT to leave the internal command interface.

Note

When you issue a CONFIG_USERS command at the supervisor terminal, CONFIG_USERS automatically goes into internal command mode.

All options discussed above except for –TTP and –MESSAGE may be used in the internal command interface. Also, the –HELP and –USAGE options provide information about the internal command interface only.

The following options are used only with the internal command interface:

–SYSTEM_ADMINISTRATOR ***user-id***
Specifies the user ID of the System Administrator.

–QUIT Leaves the internal command interface of CONFIG_USERS and returns to the PRIMOS command level.

For further information about CONFIG_USERS, see the *System Administrator's Guide, Volume III: System Access and Security.*

CONVERT_AMLC_COMMANDS

At Rev. 20.2, the AMLC command was replaced by the SET_ASYNC command, which provides a more straightforward way of configuring your asynchronous lines. CONVERT_AMLC_COMMANDS is a utility that converts AMLC commands to their equivalent SET_ASYNC commands. See the explanation of the SET_ASYNC command later in this chapter.

Invoking the CONVERT_AMLC_COMMANDS Utility

CONVERT_AMLC_COMMANDS is not a PRIMOS command; rather, it is located in the TOOLS directory as CONVERT_AMLC_COMMANDS.RUN.

Format

RESUME TOOLS>CONVERT_AMLC_COMMANDS [{ *infile outfile* / -INTERACTIVE / -HELP }]

Arguments and Options

infile	Specifies the pathname of any file containing AMLC commands that you want converted to SET_ASYNC commands. Typically, AMLC commands are located in the PRIMOS system startup file (PRIMOS.COMI).
outfile	Specifies the pathname of the file that will contain the converted SET_ASYNC commands. Any other commands in the input file are placed in the output file unchanged.
-INTERACTIVE	Allows you to enter AMLC commands interactively. CONVERT_AMLC_COMMANDS displays the suggested SET_ASYNC alternative at your terminal. This option is described in more detail under the heading Using the -INTERACTIVE Option.
-HELP	Displays the valid options for this utility.

CONVERT_AMLC_COMMANDS cannot generate command lines longer than 160 characters, which is the current maximum command-line length permitted by the PRIMOS command processor.

Examples

Example 1: The following example is an excerpt from a PRIMOS system startup file containing AMLC commands along with other commands.

```
CONFIG -DATA CONFIG
COMO PRIMOS.COMO           /* Open como file to record this startup
RWLOCK PRIMOS.COMO UPDT
ADD 51460 3062 61062 100463 3260 61260
COMO -NTTY
AMLC TTY 0 2413
AMLC TTY 1 2413
AMLC TTY 2 2413
AMLC TTY 3 2413
AMLC TTY 4 2413
AMLC TTY 5 2413
AMLC TTY 6 2413
.
.
.
SHARE SYSTEM>ED2000 2000     /* SHARE the ED editor
/*
...
```

Example 2: After you use the CONVERT_AMLC_COMMANDS utility, the output file contains the conversions to SET_ASYNC commands, plus any other commands that were present in the input file, as in the following example.

```
CONFIG -DATA CONFIG
COMO PRIMOS.COMO /* Open como file to record this startup
RWLOCK PRIMOS.COMO UPDT
ADD 51460 3062 61062 100463 3260 6126
COMO -NTTY
SET_ASYNC -LINE 0 -PRO TTY -DSC -NO_LOOP -SPEED CLOCK -NO_REV_XOFF -SB 1 -PAR NONE -CL 8
SET_ASYNC -LINE 1 -PRO TTY -DSC -NO_LOOP -SPEED CLOCK -NO_REV_XOFF -SB 1 -PAR NONE -CL 8
SET_ASYNC -LINE 2 -PRO TTY -DSC -NO_LOOP -SPEED CLOCK -NO_REV_XOFF -SB 1 -PAR NONE -CL 8
SET_ASYNC -LINE 3 -PRO TTY -DSC -NO_LOOP -SPEED CLOCK -NO_REV_XOFF -SB 1 -PAR NONE -CL 8
SET_ASYNC -LINE 4 -PRO TTY -DSC -NO_LOOP -SPEED CLOCK -NO_REV_XOFF -SB 1 -PAR NONE -CL 8
SET_ASYNC -LINE 5 -PRO TTY -DSC -NO_LOOP -SPEED CLOCK -NO_REV_XOFF -SB 1 -PAR NONE -CL 8
SET_ASYNC -LINE 6 -PRO TTY -DSC -NO_LOOP -SPEED CLOCK -NO_REV_XOFF -SB 1 -PAR NONE -CL 8
     .
     .
     .
SHARE SYSTEM>ED2000 2000 /* SHARE the ED editor
/*
...
```

To interpret the AMLC commands in the output file, refer to SET_ASYNC later in this chapter. Refer also to the *System Administrator's Guide, Volume II: Communication Lines and Controllers.*

Using the –INTERACTIVE Option

You can view the SET_ASYNC equivalent of an AMLC command by using the –INTERACTIVE (–INTER) option as follows:

```
OK, RESUME TOOLS>CONVERT_AMLC_COMMANDS -INTERACTIVE
```

When the right angle-bracket (>) prompt appears, enter a valid AMLC command. Type QUIT to end the program. The following example shows a sequence of AMLC commands entered interactively at the prompt, with their SET_ASYNC equivalents:

```
OK, RESUME TOOLS>CONVERT_AMLC_COMMANDS -INTERACTIVE
[CONVERT_AMLC_COMMAND Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]
> AMLC TTY 71 2413

SET_ASYNC -LINE 57 -PRO TTY -DSC -NO_LOOP -SPEED CLOCK -NO_REV_XOFF -SB 1 -PAR ODD -CL 8

> AMLC TTY 72 2423

SET_ASYNC -LINE 58 -PRO TTY -DSC -NO_LOOP -SPEED CLOCK -NO_REV_XOFF -SB 2 -PAR NONE -CL 8

> AMLC TTY 73 1537

SET_ASYNC -LINE 59 -PRO TTY -NO_DSC -LOOP -SPEED 75 -NO_REV_XOFF -SB 2 -PAR EVEN -CL 8

> QUIT

OK,
```

For more information on CONVERT_AMLC_COMMANDS, see the *System Administrator's Guide, Volume II: Communication Lines and Controllers*; for more information on the PRIMOS.COMI file, see the *Rev. 23.0 Software Installation Guide*.

CONVERT_ENV

CONVERT_ENV is a utility that converts pre-Rev. 21.0 Spooler environment files into a format suitable for Spooler environment files at and after Rev. 21.0. CONVERT_ENV is not a PRIMOS command; it is a utility stored in the directory SPOOL*.

Format

RESUME SPOOL*>CONVERT_ENV { **-ENVIRONMENT** ***name*** | ***old-env new-env*** | **-HELP** }

Arguments and Options

-ENVIRONMENT ***name***	Searches for the pathname SPOOLQ>E.*name* and produces the file SPOOL*>*name*.ENV from it.
old-env	Indicates the pathname of a pre-Rev. 21.0 environment file.
new-env	Specifies the pathname of the file in which the converted environment file is to be stored.
-HELP	Prints a list of CONVERT_ENV options and their meanings.

Usage

The old environment file should have a name in the format E.*environment-name*, and the converted file will have a name in the format *environment-name*.ENV. You may decide that you want several slightly different versions of a given environment; in that case, you can convert the old environment file to Rev. 21.0, then edit the converted output file to create the new versions. In any case, it is wise to treat the output file as a template that you can then edit to suit each different way that you use a particular printer.

If you specify both *old-env* and *new-env*, you can file both pathnames wherever you wish in the file system.

See also PROP and SPOOL later in this chapter.

CONVERT_TO_ACLS

CONVERT_TO_ACLS is a utility delivered as part of the Prime Security Audit facility. It is not a PRIMOS command; rather, it is a utility located with other C2 software utilities in the TOOLS directory. CONVERT_TO_ACLS converts any existing password directories to Access Control List (ACL) directories. All MFDs must be manually converted to ACL directories before this utility is run.

Format

RESUME TOOLS>CONVERT_TO_ACLS {-DEFAULT / -NONE}

Options

-DEFAULT Tells CONVERT_TO_ACLS to use the default ACL as the new ACL for each converted password directory. The default ACL is the ACL protecting the parent directory.

-NONE Makes CONVERT_TO_ACLS provide the following ACL for each converted password directory:

```
System Administrator: ALL
$REST               : NONE
```

See the *System Administrator's Guide, Volume III: System Access and Security* for information on setting up a C2-secure system, and for directions on adding the TOOLS directory to the COMMAND$ search rules for the System Administrator and for the supervisor terminal. Until the search rules have been added, you must use RESUME to invoke this utility.

Refer to the *PRIMOS User's Guide* and the *System Administrator's Guide, Volume III: System Access and Security* for more information on Access Control Lists (ACLs).

CRASH_AUDIT

CRASH_AUDIT is a utility delivered as part of the Prime Security Audit facility. It is not a PRIMOS command; rather it is a utility located with other C2 software utilities in the TOOLS directory. CRASH_AUDIT completes a partially written audit trail file after a system halt. The utility ensures that system buffers holding audit trails have been written to an audit trail file.

In order to run the CRASH_AUDIT program, you must meet several requirements:

- Maintain a RING0.MAP file on the system. It is normally located in LOAD_MAPS*.
- Take a tape dump after every unplanned system halt. See your CPU handbook for directions on tape dumps.
- After the system is cold started, submit the tape dump to the CRASH_AUDIT utility.

Format

RESUME TOOLS>CRASH_AUDIT ***options***

Options

-DUMPFILE ***pathname***	Specifies that the tape dump is to be read into the disk file with the specified pathname.
-MAP ***pathname***	Specifies the pathname for the RING0.MAP file. If you do not give this pathname, the default is LOAD_MAP*>RING0.MAP.
-MT*n*	Specifies that the tape dump is to be read from magnetic tape unit *n*, where values for *n* may range 0 through 7, inclusive.
-OUTFILE ***pathname***	Specifies that the audit records are to be written to the audit file with the specified pathname. The name must differ from the name of the original security audit file interrupted by the system halt.

See the *System Administrator's Guide, Volume III: System Access and Security* for information on setting up a C2-secure system, and for directions on adding the TOOLS directory to the COMMAND$ search rules for the System Administrator and for the supervisor terminal. Until the search rules have been added, you must use RESUME to invoke this utility.

DEVICE_ACLS

DEVICE_ACLS, which is part of Prime system security, enables the System Administrator to provide access control on devices such as printers. Control is implemented through a directory called DEVICE*. This directory contains a number of subdirectories, each of which corresponds to a specific device on the system. When device access control is in effect, the access rights on the appropriate directory in DEVICE* are checked. Refer to the *System Administrator's Guide, Volume III: System Access and Security* for details in setting up the DEVICE* directory.

Format

DEVICE_ACLS {**-ON** | **-OFF**}

Options

Device access control remains in effect as long as DEVACL –ON is in effect. The default at cold start is –OFF.

Device List for Device ACLs

A list of the names of commonly found device subdirectories in DEVICE* follows. These devices may be protected through device access control commands.

Subdirectory	*Device Description*
CENPR	The Centronics printer.
CE2PR	The second Centronics printer.
CARDR	The serial card reader.
PTR	The paper tape reader/punch.
PUNCH	The card punch.
PR*n*	MPC printer *n*, where *n* ranges 0–3, inclusive.
CR*n*	Parallel card reader *n*, where *n* ranges 0–1, inclusive.
MT*n*	Magnetic tape unit *n*, where *n* ranges 0–7, inclusive.
SYNC*n*	SYNC line *n*, where *n* ranges 00–07, inclusive. Preceding zeros *must* be present.

Note

SYNC is the preferred version of the older device name SMLC.

SPARE*n*	Spare device *n*, where *n* ranges 1–5, inclusive. These devices may be assigned, but presently do not correspond to any configured device.
PLOT	The plotter.
MG*n*	Megatek graphics device *n*, where *n* ranges 0–3, inclusive.
GS*n*	Vector General graphics station *n*, where *n* ranges 0–3, inclusive.
GP*n*	General Purpose Parallel Interface device *n*, where *n* ranges 0–7, inclusive.
AL*n*	Asynchronous line number *n*, where *n* is a decimal number. If the line being affected is a local line, *n* must be from 0 through 377, inclusive; if the line affected is an NTS line, *n* must be from 1024 through 1535, inclusive. Leading zeros should be dropped. Thus, for asynchronous line number 007, the device directory must be named AL7.
DK*n*	Disk partition *n*, where *n* is the octal pdev of the partition. When making a pdev assignable by means of the DISKS command, you can also create, and set access on, a corresponding DK*n* device directory within DEVICE*. If you are altering a previous DK*n* directory by increasing the size of the partition or by unassigning the partition, first update the device ACLs on the old DK*n*.
DEFAULT	A default directory that is checked when an added partition is assigned. If you do not create a specific DK*n* device directory for a given partition, the device ACLs mechanism will provide access to it for any users with a U right to DEFAULT.

DI See DISKS.

DISK_PAUSE

DISK_PAUSE allows Operators and System Administrators to suspend disk I/O activity in order to replace a defective SCSI disk drive within a Model 75500-6PK device module. Issue this command from the supervisor terminal. Use of this command is restricted to a Model 75500-6PK device module.

The *Disk Replacement Procedure for the Model 75500-6PK Device Module* document describes the procedure for replacing a defective or damaged disk drive. This procedure should be used after you view the PrimeService video that demonstrates the procedure described in the document. In order to use this procedure, you must have Rev. 23.2 or greater of PRIMOS running on your system and you must have a replacement disk drive.

DISKS

DISKS alters the Assignable Disks Table, adding or removing the specified partitions. The DISKS command may be given only from the supervisor terminal.

Format

DISKS [NOT] ***pdev0*** **[** ***... pdev7*** **]**

Arguments and Options

pdev0 ... pdev7 are up to eight physical device numbers. As many as 64 disk partitions may be contained in the Assignable Disks Table at any one time. To see what disks are in the table, use the STATUS DEVICE command. You must specify a physical device number to add a partition to this table or remove a partition from the table.

For example, to add physical device numbers 20260, 50260, 60260, 70260, 10020, 110260, and 20262 to the Assignable Disks Table, type

```
OK, DISKS 20260 50260 60260 70260 10020 110260 20262
```

Either you or a user can use ASSIGN DISK to assign or UNASSIGN DISK to unassign only those partitions placed in the table with the DISKS command. Starting at Rev. 21.0, partitions may be assigned by users or by Operators.

Use the NOT option to remove a disk partition from the Assignable Disks Table. For example, to unassign partition 20260 and remove the partition from the Assignable Disks Table, enter the following:

```
OK, UNASSIGN DISK 20260
OK, DISKS NOT 20260
```

Disk partition 20260 may now be added to the system with the ADDISK command.

Note

Removing a partition from the table does not cause the partition to be unassigned. Use the UNASSIGN DISK command to unassign a partition from a user, as noted above.

DISPLAY_LOG

DISPLAY_LOG, a Distributed Systems Management (DSM) command, replaces the PRINT_SYSLOG and PRINT_NETLOG commands at Rev. 21.0. Starting at Rev. 23.0, DISPLAY_LOG functions even if DSM is not running. In this case, access to logs is controlled by standard file system ACLs. DISPLAY_LOG allows you to display either all or part of a log at your terminal or to write it to a file.

Format

DISPLAY_LOG { ***logname*** / **-DEFAULT** / **-UNDELIVERED** } **[*options*]**

Options

You must specify a *logname*, –DEFAULT, or –UNDELIVERED to select a log file. *logname* must be a valid PRIMOS pathname. –HELP and –USAGE override all other options.

–CENSUS [**PRODUCT** / **NODE** / **SEVERITY** / **REV21**]

Gives you a count of each message type in the log. The messages are not displayed. At Revision 23.0, there are four new arguments to the –CENSUS option. They provide more specific information than was available previously. If you do not specify an argument, the default is PRODUCT.

Argument	*Description*
PRODUCT	Provides message counts by product.
NODE	Provides message counts by node.
SEVERITY	Provides message counts by level of severity.
REV21	Provides message counts as they were given prior to Rev. 23.0, that is, LOGREC and NETREC message-IDs, and is compatible with systems running a pre-Revision 23.0 version of DSM. The other three arguments are compatible only with systems running Revision 23.0 or greater DSM.

–DEFAULT

Displays the DSM*>LOGS>UMH>DEFAULT.LOG log file. You cannot use –DEFAULT with the *logname* argument.

–FORMAT [{ **BRIEF** | **FULL** | *formatname* }]

Allows you to choose several display formats. BRIEF (the default) gives you the message data in summary format, and is most suitable for unsolicited messages. For messages containing substantial amounts of information (such as SIM response messages) full or tabulated formats are preferred. FULL gives you a dump of the contents of all the fields and records in the message. Full format reflects the internal structure of the message and may require skilled interpretation. *formatname* allows you to specify one of the tabular formats available for use on SIM response messages. Refer to the *DSM User's Guide* for detailed information on custom formats.

–NO_HEADER Suppresses all header information including the date/time stamp. The format of the message data display is unaffected. This option applies only to the default brief format and has no effect if you use the –FORMAT FULL option.

–NO_WAIT Suppresses the `--More--` prompt and does not pause after every page of output. Output scrolls continuously.

output-filename **[–NO_QUERY]**

Writes a log to a named file. If you use –NO_QUERY, you are not notified if you overwrite an existing file.

–PRIVATE_LOG Defines the log as a private log. If you do not specify –PRIVATE_LOG, a system log is assumed.

–REMARK ***message*** Inserts a remark (which may not exceed 160 characters) in the log. –REMARK must be the last option on the command line; everything following –REMARK is entered into the log file.

–SYSTEM_LOG [{ *node* | *nodegroup* }]

Defines the log as a system log. If you do not specify *node* or *nodegroup*, the local node is assumed.

–UNDELIVERED Displays DSM*>LOGS>UMH>UNDELIVERED.LOG. You cannot use –UNDELIVERED with the *logname* argument.

–USAGE	Displays the command's syntax. –USAGE cannot be used with other options.
–HELP [–NO_WAIT]	Explains how to use the command. If you specify –NO_WAIT, output is not paginated at your terminal. –HELP cannot be used with the other options.

Message Selection Options

In addition to the above options, you may specify any of the message selection options listed below. You may specify up to eight items with each option, the exceptions being the –LOGGED_AFTER and –LOGGED_BEFORE options which may have only one date/time each, and the three product options which may be used to specify a maximum of eight products in total. If you select no message selection options, all messages in the log are displayed.

You can extract specific messages for display by the following selection criteria:

- The origin of the message (–CUSTOMER_PRODUCT, –PRIME_PRODUCT, –PRODUCT, –NODE, and –USER)
- The severity of the message (–SEVERITY)
- The time the message was logged (–LOGGED_AFTER and –LOGGED_BEFORE)
- The type of message (–MESSAGE_ID)

–CUSTOMER_PRODUCT ***names***

Retrieves messages that were generated by specified customer products. The default is to retrieve messages from all customer products.

–LOGGED_AFTER ***date/time***

Allows you to select messages logged after a specific date and time. The format for *date/time* can be any of the following formats:

- YY–MM–DD.HH:MM:SS (ISO)
- MM/DD/YY.HH:MM:SS (USA)
- DD Mon YY HH:MM:SS (Visual) (The month is spelled out as its three-letter abbreviation, with the first letter capitalized.)

If you specify –LOGGED_AFTER or –LOGGED_BEFORE without any arguments, all messages that have been received since the start of the day are displayed.

–LOGGED_BEFORE *date/time*
Allows you to select messages that were logged before a specific date and time. Formats for *date/time* are identical to those for –LOGGED_AFTER.

If you specify –LOGGED_AFTER or –LOGGED_BEFORE without any arguments, all messages that have been received since the start of the day are displayed.

–MESSAGE_ID *type*
Retrieves messages of specified LOGREC and NETREC message-IDs. For a complete listing of the message types recognized by DISPLAY_LOG, refer to the *DSM User's Guide*. The default is to return messages of all types. This option is provided for compatibility with pre-Rev. 21.0 systems.

–NODE *nodes*
Displays messages from the specified nodes. The default is all nodes.

–PRIME_PRODUCT *names*
Retrieves messages that were generated by specified Prime products. The default is to retrieve messages from all products.

–PRODUCT *names*
Retrieves messages that were generated by specified Prime or customer products. The default is to retrieve messages from all products.

–SEVERITY *severities*
Allows you to select messages of a particular severity, which is useful in conjunction with unsolicited messages from PRIMOS or PRIMENET. Refer to the *DSM User's Guide* for further information.

–USER *usernames*
Displays messages from the specified users.

PRIMOS user names are not necessarily unique on the network; there may be two users named Smith, one on node SILVER and one on node GOLD. If you want to retrieve messages from Smith on SILVER, you must specify both the user name and the PRIMENET node.

DMPS

See DUMP_SEGMENT.

DMPU

See DUMP_USER.

DUMP_SEGMENT

DUMP_SEGMENT is an internal command that specifies which segments for all users are written to tape during a partial tape dump. The segments must be specified according to their octal numbers. These segments are in addition to the default segments. (Note that you cannot remove the default segments; you can only add to them.) DUMP_SEGMENT can be issued only from the supervisor terminal.

Format

DUMP_SEGMENT [***segment–number1*** **[. . . *segment–number10*]**
–RANGE *low–segment–no high–segment–no*
–HELP]

Arguments and Options

segment-number1 . . . segment-number10
Allows you to specify segments to be dumped by number. You can specify up to 10 segments in any one command line.

–RANGE *low-segment-no high-segment-no*
Specifies a range of segments to be dumped. You may also issue this option in the same command line as *segment-number*, if you wish to dump a specific segment as well as a range of segments.

–HELP
Displays command syntax. If you specify other options with –HELP, they are ignored.

At cold start, the default values for DUMP_SEGMENT are as follows:

- 0_8 to 1777_8. (These contain the kernel operating system and its databases.)
- 6000_8 to 6003_8 for all logged-in users.
- 4000_8 to 7777_8 for the process that was using the CPU at the time of the halt.

These are the segments that are dumped by default with a partial tape dump. See the handbook for your CPU for information on performing a partial tape dump. Use DUMP_SEGMENT to add other segments to segments that will be dumped at the next partial tape dump.

Three related commands are DUMP_USER, LIST_DUMP, and RESET_DUMP, which are discussed later in this chapter.

DUMP_USER

DUMP_USER is an internal command that specifies which users will have all of their segments written to tape during a partial tape dump. The segments numbers range from 4000_8 through 7777_8, inclusive. DUMP_USER can be issued only from the supervisor terminal.

Format

DUMP_USER { *username1* [. . . *username10*] / **-HELP** }

Argument and Option

username1* . . . *username10	Allows the user to specify a maximum of 10 user IDs for each command line.
-HELP	Shows command syntax; no further action is taken after the example is printed.

Related commands are DUMP_SEGMENT, LIST_DUMP, and RESET_DUMP, which are discussed in this chapter.

ELIGTS

ELIGTS is an internal command that modifies the eligibility (minor) timeslice for system users. Rarely used by Operators, this command is used primarily to balance response time for interactive users (lower setting) against overall system throughput (higher setting).

Format

ELIGTS { *tenths* | -TIMESLICE *milliseconds* }

Arguments

tenths	Specifies the minor timeslice in tenths of a second. *tenths* is interpreted as an octal number, and must be from 0 through 517_8, inclusive. If you specify *tenths* as 0, the timeslice is set back to the default for your particular system.
-TIMESLICE *milliseconds*	Specifies the minor timeslice in milliseconds (thousandths of a second). *milliseconds* is interpreted as a decimal number, and must be from 4 through 32767, inclusive.

Note

Remember that ELIGTS interprets the *milliseconds* argument as a *decimal* number and the *tenths* argument as an *octal* number.

The argument to ELIGTS defines how long a user will run on the high-priority 22.0, the default value was three-tenths of a second. At Rev. 22.0 and later, the default value depends on the model of your CPU; before 22.0, the default value was three-tenths of a second.

At Rev. 23.0, CPUs have been divided into three categories – slow, mid, and fast range. To determine the default minor timeslice for your CPU, consult Table 2-2.

Table 2-2. Default Values for Minor Timeslices

CPU Model Number	*Minor Timeslice in Seconds*	*CPU Model Number*	*Minor Timeslice in Seconds*
500	0.333	**5320**	0.333
550	0.333	**5330**	0.200
650	0.333	**5340**	0.200
750	0.333	**5370**	0.200
850	0.333	**5520**	0.100
2250	0.333	**5540**	0.100
2350	0.333	**6150**	0.100
2450	0.333	**6350**	0.100
2455	0.333	**6450**	0.100
2550	0.333	**6550**	0.100
2655	0.333	**6650**	0.100
2755	0.333	**9650**	0.333
2850	0.333	**9655**	0.333
2950	0.200	**9750**	0.333
4050	0.333	**9755**	0.200
4150	0.200	**9950**	0.200
4450	0.200	**9955**	0.200
5310	0.333	**9955-II**	0.200

The default major timeslice (set by the CHAP command) is also machine-dependent, but a user does not remain on the ready list for this interval. When the minor timeslice of CPU time has been used, a user is moved from the ready list to the eligibility scheduler queue, and the user timeslice is decreased by the minor timeslice. The eligibility queue is checked by the scheduler after checking for interactive users (on the high-priority queue) and before checking the low-priority queues. A user cycles between the ready list and the eligibility queue until the user timeslice is exhausted, at which time the user is entered into the low-priority queues (which are controlled by the CHAP command).

FIX_DISK

FIX_DISK is an external command that checks and restores PRIMOS file system integrity on any partition. FIX_DISK is described fully in the *Operator's Guide to File System Maintenance.*

Format

FIX_DISK -DISK ***pdev*** **[*options*]**

Options

You must specify -DISK *pdev* on the command line. *pdev* specifies the physical device number of the partition to be fixed. See the *Operator's Guide to File System Maintenance* for information on determining physical device numbers.

Note

Delete any pre-Rev. 23.3 version of FIX_DISK. If you have only one copy of FIX_DISK, you cannot accidentally run an older version. The Rev. 23.3 version of FIX_DISK is in CMDNC0>FIX_DISK.SAVE. FIX_DISK displays a copyright line and its revision number whenever you run it; check the revision number if you don't know which version you are running.

FIX_DISK takes the same set of options when run from PRIMOS command level or when run from magnetic tape.

At Rev. 23.3, the following options are obsolete and are replaced by the options shown in the right column. The old options are still supported.

Obsolete Options	*Replacements*
-ALL_CONTROLLER	-DBS OFF
-INTELLIGENT_CONTROLLER	-DBS ON
-OVERRIDE_DEFAULT_INTERLEAVE	-SECTOR FORWARD
-RESTORE_DEFAULT_INTERLEAVE	-SECTOR REVERSE

-DISK ***pdev*** Specifies the pdev of the partition you are repairing. The -DISK option must be used and must be the first option on the command line. *pdev* must immediately follow the -DISK option.

-ADD_BADSPOT ***rec-num1*** **[. . .** ***rec-num16*****]** Specifies as many as 16 record numbers to be added to the badspot file. FIX_DISK attempts to map the bad records to new locations. Record numbers are octal, and are offset from the beginning of the partition. You must use the -FIX option with -ADD_BADSPOT.

–AUTO_TRUNCATION Truncates or deletes directories nested too deeply in a directory tree. If you omit this option and the maximum depth is reached, FIX_DISK aborts. Maximum depth is changed with the –MAX_NESTED_LEVEL option. The default is 99.

–CHECK Checks to see whether a partition was shut down properly. If the partition was not shut down properly, FIX_DISK should be run with the –FIX option and you may wish to include the –FAST option if the partition is robust.

–COMMAND_DEVICE [*pdev*]

Indicates that FIX_DISK is to operate on the command device; this option shuts the command device down, assigns it, repairs it, unassigns it, and starts it up again.

There are two reasons to use the optional *pdev* argument.

- If all three of the following facts are true:
  - You are switching –DBS ON (–IC) to –DBS OFF (–AC) (or vice versa) or are converting from pre-Rev. 21.0 to Rev. 21.0.
  - The partition being repaired is not the first, or head zero, partition.
  - The head zero partition of this disk is the command device.
- If the first partition is the command device and you want to display the dynamic badspot (DBS) file while running ED on another partition on the spindle.

When you use this option, FIX_DISK must be invoked from the supervisor terminal. Warn all users, then log out all users, and shut down all servers. You must restart servers when FIX_DISK finishes, particularly the Login server and DSM.

Note

If you are running FIX_DISK on the partition where DSM* is located, all logging is disabled and no messages are recorded. Refer to the *Operator's Guide to File System Maintenance* for more information on restarting the logging mechanism.

–CONVERT_19

Converts a partition to a Rev. 19.0-format partition from an earlier revision. Converts the BADSPT file to Rev. 19.0 format, initializes quota information, disables the display of warning or error messages related to quotas, and creates a new revision stamp. You must use the –FIX option with –CONVERT_19.

–CONVERT_20

Converts a partition to a Rev. 20.0-format partition from an earlier revision. Directories created after the conversion are hashed. Existing directories are not hashed; they retain their current formats. In converting from pre-Rev. 20.0, –CONVERT_20 converts the BADSPT file to Rev. 20 format, initializes the quota information, disables the display of warning or error messages related to quotas, and creates a new revision stamp. The MFD is not hashed. You must use the –FIX option with –CONVERT_20.

–CONVERT_21

Converts a partition to a Rev. 21.0-format partition from an earlier revision. When a badspot file exists, it is read and the data is written to the DBS file if this spindle supports Dynamic Badspot Handling. (See the –DISK_TYPE option.) The DBS file and the RMA are created and initialized on the first, or head zero, partition of the spindle. You must convert the head zero partition before converting other partitions on the spindle and you must assign the head zero partition when converting other partitions on the spindle. The revision stamp is updated. You must use the –FIX and the –DISK_TYPE options with –CONVERT_21.

–CONVERT_22.1

Converts a Rev. 22.0 partition to a Rev. 22.1 standard partition having unlimited CAM file extents by updating the partition's DSKRAT. You must use the –FIX option with –CONVERT_22.1.

–DBS {OFF / ON}

ON selects Dynamic Badspot Handling mode and OFF selects Nondynamic Badspot Handling mode for this Rev. 21.0 or later partition on a spindle that supports DBS. Either –DBS OFF (–AC) or –DBS ON (–IC) is recommended when converting to Rev. 21.0 with the –CONVERT_21 option. The entire spindle (all partitions on the spindle) must be in the same mode. DBS allows Dynamic Badspot Handling, mirroring, and use of the disk as a crach dump disk. You must use the –FIX option with –DBS.

-DISK_TYPE *type*

Specifies the *type* of disk to partition. This option must be supplied with the -CONVERT_21 option with disk types that support Dynamic Badspot Handling since the size of the DBS file and RMA depend on the disk type. If it is not supplied, you are prompted for the disk type. The valid types are

CMD	SMD
68MB	158MB
160MB	600MB
MODEL_4475	MODEL_4711
MODEL_4714	MODEL_4715
MODEL_4719	MODEL_4721
MODEL_4729	MODEL_4730
MODEL_4731	MODEL_4732
MODEL_4735	MODEL_4845
MODEL_4860	

Disk types that support Dynamic Badspot Handling are

SMD (300MB and 80MB)

68MB	MODEL_4475
158MB	MODEL_4735
160MB	MODEL_4845
600MB	MODEL_4860

-DUFE

Deletes all inconsistent file entries or entries of unknown type. -DUFE is the default (see -SUFE). If you use -DUFE or do not specify -SUFE, unknown file entries are eliminated, directories containing unknown file entries are compressed, and the DSKRAT is altered to indicate which records are actually in use. Use -SUFE to avoid the accidental deletion of valid file entries caused by running the wrong version of FIX_DISK. You cannot use both -DUFE and -SUFE on the same command line.

-DUMP_DBS

Displays the dynamic badspot (DBS) file. If the partition is in Dynamic Badspot Handling mode (-DBS ON or -IC), the DBS file is up-to-date; if in Nondynamic Badspot Handling mode (DBS -OFF or -AC), the DBS file may not be up-to-date. Use this option with -DISK *pdev* to specify the first partition where the DBS file is located or with -COMDEV *pdev* if the first partition is the command device. This is useful only on disks that support Dynamic Badspot Handling (see -DISK_TYPE).

–FAST

Rapidly checks the condition of a robust partition or rapidly repairs a robust partition. You must include the –FIX option to repair the partition. See the *Operator's Guide to File System Maintenance* for recommendations on when to use –FAST (fast FIX_DISK). You can also use this option with a standard partition where the only file system inconsistency is a damaged quota system. If there are other problems on the standard partition, FIX_DISK defaults to ignoring the –FAST option and full FIX_DISK is run.

Notes

Because –FAST checks only the last two records of DAM and CAM files, the integrity of all records in these files is not checked and therefore not guaranteed. To ensure the integrity of the entire partition, run FIX_DISK –FIX without the –FAST option.

On robust partitions, FIX_DISK –FAST may not detect errors in CAM file data blocks, although these errors will be visible when you try to access damaged files through PRIMOS. To be absolutely sure that all file system errors are detected, run full FIX_DISK.

See the *Operator's Guide to File System Maintenance* for recommendations on running FIX_DISK after a system crash.

To repair a partition, you must use the –FIX option.

–FIX

Directs FIX_DISK to perform the following modifications to the disk:

- Correct quota information.
- Truncate or delete defective files.
- Generate a corrected DSKRAT if the current one is bad.
- Map the badspot records to the BADSPT file or to the DBS file if the spindle supports these files.

If you omit –FIX, no disk modifications are performed.

Use –FIX whenever repair or conversion operations are to be performed. However, if you suspect that the disk drive is faulty, do not use –FIX. It is important to run FIX_DISK once without using the –FIX option. FIX_DISK then reports inconsistencies, but does not attempt to repair them.

You must use the –FIX option whenever you specify any of the following options:

–ADD_BADSPOT	–INTERACTIVE
–CONVERT_19	–MAX_EXTENT_SIZE
–CONVERT_20	–MIN_EXTENT_SIZE
–CONVERT_21	–SECTOR FORWARD (–ODI)
–CONVERT_22.1	–SECTOR REVERSE (–RDI)
–DBS OFF (–AC)	–UFD_COMPRESSION
–DBS ON (–IC)	

–INTERACTIVE Asks questions leading to the construction of a consistent DSKRAT if the current DSKRAT is defective or missing. If you omit –INT and the current DSKRAT is bad or missing, FIX_DISK aborts. You must use the –FIX option with –INTERACTIVE.

Use this option if FIX_DISK has previously aborted and generated an error message.

–LEVEL *n* Sets *n* (decimal) as the lowest level in the tree structure to be displayed by FIX_DISK. When you omit this option, the default value is level 1, the first level in the MFD.

–LIST_BADSPOTS Displays octal record numbers of all badspots and, for equivalence blocks, displays record numbers of the badspot and the remapped record. In addition to the record number, the track, head, and sector numbers are also listed for badspots and equivalence blocks.

–LIST_FILE Displays filenames in all directories down to the directory level displayed according to the –LEVEL *n* in effect at the time.

–MAX_EXTENT_SIZE *size* Specifies that you wish to change the maximum extent size for CAM files at Rev. 22.0 and later. You must use the –FIX option with –MAX_EXTENT_SIZE.

–MAX_NESTED_LEVEL *n* Sets *n* (decimal) as the maximum depth to which directories can be nested. The default maximum depth is 99 levels.

–MIN_EXTENT_SIZE *size* Specifies that you wish to change the minimum extent size for CAM files at Rev. 22.0 and later. You must use the –FIX option with –MIN_EXTENT_SIZE.

–NO_QUOTA Assumes the partition is not a quota partition; disables quota checking. You must use this option on all pre-Rev. 19.0 disks because these disks cannot be quota disks.

–NUMBER_OF_RETRIES ***number***
–NUMRTY

Specifies the number of times FIX_DISK is to try to read a failing record. Each retry includes nine different ways of reading a record. The default is two retries.

–SECTOR { **FORWARD** / **REVERSE** }

FORWARD changes the file record allocation direction to forward and the interleave factor to 3. This option is valid with Rev. 20.0 and later standard partitions. You must use the –FIX option with –SECTOR FORWARD (formerly –ODI).

REVERSE changes the file record allocation direction to reverse and the interleave factor to 1. This option is valid with Rev. 20.0 and later standard partitions. You must use the –FIX option with –SECTOR REVERSE (formerly –RDI).

–SUFE

Saves all inconsistent file entries or entries of unknown type. If you omit –SUFE, the default is –DUFE and all unknown file entries are eliminated, directories containing unknown file entries are compressed, and the DSKRAT is altered only to indicate which records are actually in use. Use –SUFE to avoid the accidental deletion of valid file entries caused by running the wrong version of FIX_DISK. You cannot use both –DUFE and –SUFE on the same command line.

–TRUNCATE

Truncates files when an uncorrectable badspot is found or an uninitialized record in a CAM file on a robust partition is found. When a file is truncated, the part of the file that is located at or beyond the file pointer is eliminated from the file. If the file pointer is at the beginning of the file, all the information in the file is removed, but the filename remains in the file directory. Normally, when FIX_DISK encounters an uncorrectable badspot or uninitialized record, it creates a null record (a record filled with zeros) on a good portion of the disk and appends the remaining records of the original file to the null record.

–UFD_COMPRESSION

Compresses directories by eliminating all entries for file system objects flagged as being deleted. Use of this option results in a decrease in the search time for top-level directories. You must use the –FIX option with –CMPR.

Use this option to increase the number of free records available on a partition.

-HELP	Displays a list of FIX_DISK options and brief explanations of their operation. You can use this option alone and from any terminal.

For complete information and examples of using FIX_DISK, see the *Operator's Guide to File System Maintenance*.

FIXBAT

FIXBAT is a utility that checks the integrity of the Batch queue database. FIXBAT is not a PRIMOS command; rather, it is supplied in the directory BATCHQ as FIXBAT.SAVE.

Format

RESUME BATCHQ>FIXBAT [**-DAYS** | **-QUIET** | **-STARTUP** {*arguments*}]

Options

-DAYS *n*

Removes all canceled, completed, or aborted jobs that are *n* or more days old from the Batch queues. *n* ranges from 1 through 60 days. If *n* is 0, all inactive jobs are removed from the queue. Use the JOB -STATUS or JOB -DISPLAY ALL command to display jobs. The default for *n* is -1 which means do not remove jobs.

-QUIET

Suppresses the message to the terminal when FIXBAT removes a job from the queue.

-STARTUP *arguments*

This option cannot be used interactively; it can be issued only indirectly, when you start up Batch with the BATCH -START command. If FIXBAT -STARTUP is in the START_BATCH_MONITOR.COMI file, the phantom running FIXBAT becomes the Batch monitor when FIXBAT is finished.

The -STARTUP option takes one of four arguments, described below. These arguments tell FIXBAT what to do with the Batch monitor command output log file.

Argument	*Description*
DELETE	Opens O_LOG as a command output log file. (An existing O_LOG file is truncated when the new file is opened, and the existing contents are destroyed.)
NOLOG	Takes no action with regard to command output files. No log file is kept.
SAVE	Renames the current command output log file OLDLOG and deletes any existing OLDLOG file. Creates a new log file named O_LOG.

SPOOL	Spools the current command output log file, and names it BATCH.LOG. Creates and opens a new O_LOG file.

See also BATCH, INIT, JOB, and MONITOR in this chapter. See the *Operator's Guide to the Batch Subsystem* for a complete description of FIXBAT.

FS_RECOVER

System Administrators use the FS_RECOVER utility to reduce the time for file system recovery after a system crash. You can invoke FS_RECOVER at the supervisor terminal, while logged in as System Administrator, or under the user ID SYSTEM.

FS_RECOVER can assess the general state of your file system and provide an automated interface to FIX_DISK, even if your system has not crashed. If your system crashed and you took a crash dump, you can use FS_RECOVER to read and analyze the crash dump. The object of FS_RECOVER is to reduce the time to recover by eliminating the need to run FIX_DISK on partitions that do not need to have FIX_DISK run on them. FS_RECOVER works in conjunction with AUTOPSY to analyze crash dumps and determine the integrity of the file system.

Format

FS_RECOVER

Updating FS_RECOVER

Update your version of FS_RECOVER to Version 4.0. Version 4.0 of FS_RECOVER is supplied on a separate magnetic tape. The FS_RECOVER utility can be installed independently of the revision. The available versions of FS_RECOVER are as follows:

- Version 4.0 is supplied with Rev. 23.3 and supports CDD –INFO.
- Version 3.0 is supplied with Rev. 23.2. This version supports PRIMOS Revisions 21.0 through 23.2. Support for crash dump to disk is provided only in this or a later version. This version does not work in the Rev. 23.3 environment.
- Version 2.0–21.0 is available as an Independent Product Release for PRIMOS Revisions 21.0 or greater and is supplied with Rev. 23.1. This version provides only limited functionality in the Rev. 23.2 environment.
- Version 1.0–21.0 is available as an Independent Product Release for PRIMOS Revisions 21.0 or greater. This version does not work in the Rev. 23.1, 23.2, or 23.3 environment.

FS_RECOVER Support for Crash Dump to Disk

Only Versions 3.0 and 4.0 of FS_RECOVER can be used to analyze crash dump to disk. All versions of FS_RECOVER can be used to analyze crash dump to tape.

Version 3.0 and later of FS_RECOVER can analyze a crash dump to disk either from the crash dump disk itself or from a copy of the crash dump disk created by using the CDD –RECOVER_DUMP command.

FS_RECOVER is supplied at Rev. 23.3 as an optional product on a separately installed magnetic tape. Instructions on installation and use of Version 4.0 of FS_RECOVER are provided in *Using FS_RECOVER*.

FTOP

FTOP provides the Operator's interface to the File Transfer Service (FTS). FTOP allows the Operator to start, stop, control, and monitor the status of FTS phantoms. It can be invoked only by users logged in as SYSTEM. The –START_MNGR option must be invoked from the supervisor terminal; the –START_SRVR option should be invoked from the supervisor terminal in order for servers to function properly.

Format

FTOP [*options*]

Options

–ABND_SRVR *server-name* Makes the server *server-name* abort all current file transfers, place the requests on hold and log out.

Note

When possible, stop servers by using the –STOP_SRVR option. Forcing a server to log out with –ABND_SRVR is not recommended.

–ABRT_SRVR_LINK *server-name link-number*

Causes the file transfer server called *server_name* to abort the current file transfer on the link *link_number* and to place the request on hold. The server continues to run and is not logged out.

–LIST_SRVR_STS [*server-name*]

Lists the status of the server *server-name*. The information listed includes the state of the server itself and the state of each of the eight file transfers the server is capable of running. Each transfer is identified by a link number in the range 1 through 8, inclusive. If you do not specify *server-name*, the status of all configured servers is listed.

–START_MNGR [*manager-name*]

Starts up the FTS manager phantom. If you do not specify *manager-name*, the manager is named YTSMAN.

Note

You can only issue FTOP –START_MNGR from the supervisor terminal or from the PRIMOS.COMI file. If you include FTOP –START_MNGR in the PRIMOS.COMI file, FTS will be started automatically as part of every cold start.

–START_SRVR ***server-name*** Starts up the file transfer server *server-name* as a phantom. If *server-name* is already running, FTOP displays an error message.

You should invoke FTOP –START_SRVR only from the supervisor terminal in order to ensure that the server phantom is created with the FTOP server's user name and that the phantom's priority and timeslice agree with those of the FTOP server. You can add this command to the PRIMOS.COMI file so that the appropriate servers start automatically after every cold start.

–STOP_MNGR Makes the FTS manager complete its current work and log out. An error message is displayed if the FTS manager is not currently running.

Stopping the FTS manager prevents remote requests from being received and serviced.

–STOP_SRVR ***server-name*** Makes the server *server-name* complete currently proceeding file transfers and then log out. If the specified server is not currently running an error message is displayed. You should normally use –STOP_SRVR instead of –ABND_SRVR to halt an FTS server.

–HELP [***subject***] Gives information on the requested *subject*. If no *subject* is specified, FTOP lists the available *subjects*. For a summary of FTOP usage, type

```
OK, FTOP -HELP USAGE
```

or

```
OK, FTOP
```

For complete details on FTOP, see the *Operator's Guide to Prime Networks*.

HELP

HELP invokes a menu-based Help facility that may be used to read PRIMOS Help files. Each PRIMOS command has a Help file that explains the syntax and options for the command. In most cases, the Help file also refers you to the manual containing the most comprehensive information on that command.

Menu Interface

The Help menu interface provides the following:

- Search and selection of commands, topics, and character strings, including the use of abbreviations and wildcards
- Hierarchically organized Help files
- Ability to navigate through a given database from entry to entry and from level to level within multilevel Help files
- Backward and forward movement within text
- Direct access to cross-referenced material
- Multiple database access
- Display of both system-created and user-created databases
- Use of ACLs (Access Control Lists) by the System Administrator to restrict access to database entries or particular files so certain users cannot read them

Restricting Access to Online Help Databases

If there are .HELP files that certain users or user groups should not be able to access, you can move these files to a separate directory whose access can then be restricted by using ACLs.

For example, if nonadministrative users should not have access to information on operator commands, you could create a subdirectory in the HELP* directory called ADMIN.TEXT, copy these files into it, and give access rights to this directory only to designated users and/or user groups. The command syntax to access files in the HELP*>ADMIN.TEXT subdirectory would be

```
OK, HELP -DATABASE ADMIN
```

Only those users to whom you gave access rights for the ADMIN.TEXT would be able to view the information in the .HELP files contained in it.

For information on using Help, type **HELP HELP** on the PRIMOS command line. For detailed information about the Help facility, see *New PRIMOS HELP.* See the *PRIMOS User's Guide* for more information on ACLs.

IDBMS

IDBMS initializes DBMS from the supervisor terminal. When DBMS is shared, IDBMS executes automatically without the –CONFIG option.

Format

IDBMS [–CONFIG]

Option

–CONFIG Activates the CONFIG utility, which allows you to modify system-wide parameters that control the

- Number of ROAM buffers allocated to a new transaction
- Length of time a transaction waits for the release of a read/write page lock
- Length of time a transaction waits for buffer allocation

New values for parameters become effective when you share DBMS or use IDBMS without the –CONFIG option.

For further information, see the *DBMS Administrator's Guide.*

INDEX_LIB_MANAGER

INDEX_LIB_MANAGER is the DRB extended index library manager command. It provides administration tools for extended index libraries created by MAGSAV and MAGRST.

The DRB configuration file allows you to set up default library index pathnames and the number of directory levels to be searched. It is a text file named CONFIG_FILE. Create a directory called DRB* and place CONFIG_FILE in it. You can maintain CONFIG_FILE by using your usual text editor.

Format

INDEX_LIB_MANAGER { **-DELETE** [**-NO_QUERY**] | **-IMPORT** [***pathname***] | **-REPORT** [***sort-options***] | **-HELP** } [***selection-options***]

Options

-DELETE [**-NO_QUERY**]	Deletes the index files that match selection criteria. You are queried before each index file is deleted unless you specify the -NO_QUERY option.
-IMPORT [***pathname***]	Copies any index files from the alternative index libraries, as specified in the configuration file, into the main index library using selection criteria. Alternatively, you can supply the pathname of an index file to be imported or the pathname of an index library that contains index files to be imported. The default pathname is in the DRB configuration file.
-REPORT	Lists the index files that match the specified criteria. -REVERSE, -SORT_DTW, -SORT_VOLID are only used with the -REPORT option.
-HELP	Displays the command syntax and briefly describes the options.

Sort and Selection Options

-REVERSE	Reverses the sort order. Only use this option with the -REPORT option.
-SORT_DTW	Sorts the index files by the date they were written with the most recent first. This is the default if you specify any date selection criteria. Only use this option with the -REPORT option.

-SORT_VOLID	Sorts the index files by volume ID. This is the default if you do not specify any date selection criteria. Only use this option with the -REPORT option.
-DATE ***date***	Specifies that only index files written on this date should be processed.
-INDEX_LIBRARY ***pathname***	Lists the index files as specified by *pathname*. If you do not use this option, INDEX_LIB_MANAGER uses the system default index library, specified in the DRB configuration file.
-VOLUME_ID ***volume_id***	Specifies that only index files for the given volume ID are processed. You can use wildcards.
-WRITTEN_AFTER ***date***	Specifies that only index files that were written after this date should be processed.
-WRITTEN_BEFORE ***date***	Specifies that only index files that were written before this date should be processed.

For more information on these features, see the *Operator's Guide to Data Backup and Recovery.*

INIT

BATCHQ>INIT is a utility that initializes the Batch database. At Rev. 21.0 and later, Operators cannot invoke this utility unless they are also Batch Administrators. INIT can be invoked from the supervisor terminal only if SYSTEM is also a Batch Administrator.

BATCHQ>INIT will not run until the system date and time are set.

After setting the date and time, use the RESUME command to invoke INIT.

Format

RESUME BATCHQ>INIT [**-RESET_QUEUES** | **-SEM_INIT**]

Options

-RESET_QUEUES Creates an empty BATDEF file replacing any existing BATDEF file and thus destroying any existing queue configurations. If you do not specify RESET_QUEUES, the existing BATDEF file, with its queue definitions, is left as is. The queues are also automatically reset if the BATDEF file is not present when INIT is run. This option is run automatically the first time that you run Rev. 20.0 or later Batch on a pre-Rev. 20.0 system; it destroys any information that was kept in the old BATDEF file.

-SEM_INIT Reinitializes only the semaphores used by the Batch subsystem without removing any jobs from queues.

This option enables the System Administrator to restart Batch without having to resubmit jobs. Use -SEM_INIT if the SEMFIL was left open after BATCH_SERVICE abnormally quit. Ensure that neither FIXBAT nor BATCH_SERVICE is running when you use this option.

See also BATCH, FIXBAT, JOB, and MONITOR in this chapter. See the *Operator's Guide to the Batch Subsystem* for more information.

INITIALIZE_SEARCH_RULES

INITIALIZE_SEARCH_RULES, with no arguments, reads the current default search rules from SEARCH_RULES*, parses and evaluates them, and moves them into dynamically allocated DTAR 1 (segments 2000–3777) Ring 3 read-only memory, and then activates the use of these system-wide search rules. This produces significant performance gains during command environment initialization.

If system-wide search rules are active, when command environment initialization is done, the preprocessed rules are simply copied from Ring 3 read-only memory to the user's environment. When the system-wide search rules are inactive, old-style command environment initialization processing is done: each process reads the search rules from SEARCH_RULES*, parses, and evaluates them.

ISR's use is restricted to the supervisor terminal, the System Administrator, or a console phantom, and should be included in the system startup sequence. The ISR –STATUS information is not restricted.

Note

If system-wide search rules are active, you must run ISR whenever you change a file in the SEARCH_RULES* directory before users initializing their command environment see the changes.

Format

INITIALIZE_SEARCH_RULES [**–OFF** | **–STATUS** | **–HELP**]

Options

–OFF	Tells the system to access the system-wide search rules from SEARCH_RULES*, rather than main memory.
–STATUS	Displays the current status which is either active or inactive in read-only memory.
–HELP	Displays command syntax.

See MONITOR_SEARCH_RULES later in this chapter. See the *PRIMOS Commands Reference Guide* for EXPAND_SEARCH_RULES, LIST_SEARCH_RULES, and SET_SEARCH_RULES.

For more information on the Search Rules facility, see the *Advanced Programmer's Guide II: File System* and the *System Administrator's Guide, Volume I: System Configuration.*

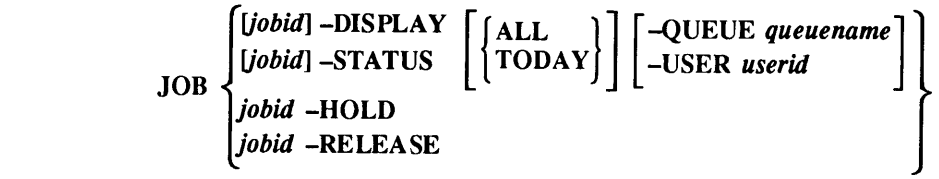
JOB

JOB allows the Batch Administrator to monitor, hold, release, change, cancel, or abort a user's Batch jobs. Batch Administrators may also use the JOB command to submit and modify their own jobs. System Operators who are not Batch Administrators may use the –DISPLAY and –STATUS options to monitor their own Batch jobs only. Anyone using the supervisor terminal may use the –HOLD and –RELEASE options.

All users can view all jobs in all queues if the Batch Administrator configures BATCH –START –DISPLAY ALL.

Modifying Users' Jobs

Format



Arguments and Options

jobid	Specifies the number given the job by the Batch subsystem in the form *#qnnnn*, where *q* is the number of the job's queue and *nnnn* uniquely identifies the job within that queue.
ALL	Selects and displays all jobs in the queue, regardless of state. If you do not select ALL or TODAY, only running, waiting, and executing jobs are selected.
–DISPLAY	Displays the status and parameters of Batch jobs.
–HOLD	Holds a job in the queue. You can issue –HOLD only from the supervisor terminal.
–QUEUE *queuename*	Displays jobs in the job queue *queuename*. Use the BATGEN –DISPLAY command to list the queue names and characteristics. If you do not select this option, jobs in all queues are displayed.
–RELEASE	Releases a held job so that it can run. You can issue –RELEASE only from the supervisor terminal.
–STATUS	Displays the status of Batch jobs.

TODAY	Selects and displays all jobs submitted on the current day, regardless of state. If you do not select TODAY or ALL, only running, waiting, and executing jobs are selected.
–USER *userid*	Displays jobs for user *userid*. If this option is omitted, these commands default to displaying all jobs for Batch Administrators. Users who are not Batch Administrators can display only their own jobs unless the Batch subsystem was configured with –DISPLAY ALL.

The options to the JOB command that Batch Administrators alone may issue (–ABORT, –CANCEL, –CHANGE, and –RESTART) are fully discussed in the *Operator's Guide to the Batch Subsystem.*

Running, Waiting, Deferred, and Held Jobs

A job can be in one of several states:

Running	The job is executing as a phantom process.
Waiting	The job is in the Batch queue, waiting for the Batch monitor to start a phantom and initiate the job. Waiting jobs are considered eligible to run – that is, they can begin running as soon as their phantoms become available. A job may be waiting because there are other jobs ahead of it in a queue or because its queue is not presently processing jobs.
Deferred	The job is in the Batch queue waiting for the time specified by the –DEFER option. At that time it becomes eligible for execution and becomes a waiting job.
Held	The job has been suspended by the System Operator. Operators usually hold a job so that it can wait for some event (a tape drive's becoming available, for instance). A held job does not become eligible to run until the System Operator releases it.

Note that jobs in all four of the states listed above are considered active jobs. Thus, the JOB –DISPLAY command lists both running (executing) jobs and waiting, deferred, and held jobs.

Holding a job is useful when you know that a needed resource (such as magnetic tape, disk space, or the line printer) is not available. When the resource becomes available, you can release the job with the following command:

```
OK, JOB jobid -RELEASE
```

See also BATCH, FIXBAT, INIT, and MONITOR in this chapter.

See the *Operator's Guide to the Batch Subsystem* for more information on the JOB command. JOB is discussed from a user perspective in the *PRIMOS Commands Reference Guide* and the *PRIMOS User's Guide*.

LAB

LAB allows you to display the asynchronous line buffer sizes for any line on your system. LAB displays the current sizes of each line's buffers, the default buffer size for each active line, and the initial buffer size for each inactive line.

LAB can be used to display buffer sizes for NTS lines and PRIMENET remote login lines as well as for terminal lines. When issued at the supervisor terminal or by a DSM-privileged user, LAB displays buffer size information on all lines; when issued by ordinary users, LAB displays information only for those lines owned by the issuing user.

Note

LAB only checks whether a user is DSM-privileged when the user supplies the –ON option. If a DSM-privileged user working at an ordinary terminal does not supply the –ON option, she will be given no more privileges than any ordinary user; she will be able only to list her own buffer sizes.

Format

```
                  ┌ -LINE n [-TO num [-EXCEPT n1 [ . . . n10]]] ┐   ┌ -ACTIVE      ┐
                  │ ┌ -NTSABF  ┐                                │   │ -ALL         │
LAB               │ │ -NTSBUF  │                                │   │ -NO_HEADER   │
                  │ └ -REMBUF  ┘                                │   │ -NO_WAIT     │
                  └ -HELP                                       ┘   └ -ON nodename ┘
```

Options

-ACTIVE
Requests that buffer information be printed for all active asynchronous lines on the system. –ACTIVE cannot be used with the –LINE or –ALL option.

-ALL
Requests that buffer information be printed for all lines within the specified range, whether they are active or not. By default, LAB prints buffer sizes only for active lines; the –LINE and/or –ALL options override this behavior. If –ALL is not accompanied by the –LINE option, the asynchronous line buffer sizes for all lines on the system are displayed.

-EXCEPT *n1* [. . . *n10*]
Excludes up to 10 line numbers from a range of lines specified with the –LINE and –TO options. –EXCEPT cannot be used with the –NTSBUF, –NTSABF, and –REMBUF options.

–LINE *n*

Specifies which line(s) should be listed. If you don't specify the –TO option as well, LAB prints buffer sizes only for line *n*. If you do specify –TO as well as –LINE, *n* is the line number of the first line to be listed. –LINE cannot be used with the –NTSBUF, –NTSABF, and –REMBUF options.

Note

Specify line numbers for LAB in decimal, not octal. Valid Direct Connect line numbers range from 0 through 511, inclusive; valid NTS line numbers range from 1024 through 1536, inclusive. If the –LINE, –TO, or –EXCEPT options specify line numbers from 512 through 1023, LAB will print an error message and the command line will have no effect. However, if the range specified by –LINE and –TO includes numbers from 512 through 1023 (for instance, –LINE 0 –TO 1027) without specifying the illegal numbers directly, the LAB command proceeds normally, altering values for all lines within the legal range and ignoring lines outside that range.

–ON *nodename*

Asks for information about a remote system. If the –ON option is absent, or if no *nodename* is specified, LAB gives information only about the local system. If you are using LAB away from the supervisor terminal, you must specify –ON in order for LAB to check whether you have special privileges under DSM, and thus are allowed to get information on all terminal lines.

–NO_HEADER

Suppresses the top header and entry type headers in multipage displays.

–NO_WAIT

Suppresses the `--More--` prompt and does not pause after every page of output. Output scrolls continuously.

–NTSABF

Specifies that the initial TFLIO buffer sizes for NTS assignable line buffers should be displayed. –NTSABF cannot be used with the –TO, –LINE, and –EXCEPT options.

–NTSBUF

Specifies that the initial TFLIO buffer sizes for NTS login lines should be displayed. –NTSBUF cannot be used with the –TO, –LINE, and –EXCEPT options.

–REMBUF

Specifies that the initial TFLIO buffer sizes for remote buffers should be displayed. –REMBUF cannot be used with the –TO, –LINE, and –EXCEPT options.

-TO *num*	Specifies the end of a range of lines to be affected by the LAB command. The -LINE option must also be present if you specify the -TO option, and the *num* following -TO must be greater than or equal to the argument following -LINE. -TO cannot be used with the -NTSBUF, -NTSABF, and -REMBUF options.
-HELP	Lists the options and command syntax for LAB. Any other options present on the command line are ignored.

Examples

```
OK, LAB
[LAB Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]

Node: MAUVE
+-------------------------------------------------------------------+
|      |        Current Buffers       ||   Default/Initial Buffers  |
|------------------------------------++---------------------------|
| Line |  Input  | Output  |   DMQ   ||   Input  | Output  |  DMQ  |
|------+---------+---------+---------++---------+---------+-------|
|    0 |    256  |    1024 |     127 ||     256  |    1024 |   127 |
|    5 |    256  |    1024 |     127 ||     256  |    1024 |   127 |
|   16 |    256  |    1024 |     127 ||     256  |    1024 |   127 |
|   30 |    256  |    1024 |     127 ||     256  |    1024 |   127 |
|  REM |    512  |    4096 |    **** ||     512  |    4096 |  **** |
+-------------------------------------------------------------------+
OK,
```

Notice that remote buffers have no DMQ buffer sizes. If you ask to see only remote buffers, the display has entries only for input and output buffers, as shown below:

```
OK, LAB -REMBUF
[LAB Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]

Node: MAUVE
+---------------------------+
|        | Initial Buffers  |
|        |------------------|
|        | Input  | Output  |
|--------+--------+---------+
| REMBUF |     512|     4096 |
+---------------------------+
OK,
```

For more information, see CAB earlier in this chapter and see the *System Administrator's Guide, Volume II: Communication Lines and Controllers.*

LABEL

LABEL writes tape labels on magnetic tapes and verifies existing tape labels. These labels can be in IBM® format (9-track EBCDIC or 7-track BCD), ANSI format (9-track ASCII), or Prime format (nonstandard Level 1 volume labels followed by a dummy HDR1 label and two file markers). You can also use LABEL to read existing VOL1 and HDR1 labels.

Format

```
LABEL MTn [ -ACCESS char
            -INIT
            -OVERWRITE
            -OWNER owner
            -PARITY { EVEN }
                    { ODD  }
            -TYPE type
            -VOLUME volume-id
            -HELP ]
```

Options

If you use LABEL without the –VOLUME option on a tape which is already labeled, it will read the existing label. (To read a BCD or EBCDIC label, you must specify the appropriate –TYPE option.) If you want to relabel a previously labeled tape, you must use the –INIT option.

MT*n* — Specifies the tape drive on which the tape to be labeled is mounted. *n*, an integer in the range 0 through 7 inclusive, is the tape drive's number. This argument must be present and must be the first option on the command line. You must previously have assigned the tape drive to yourself.

–ACCESS *char* — Specifies a single character which defines access rights to this tape. This character is ignored for Prime and IBM format labels. On ANSI labels, this character is copied as the access if present; otherwise, the ACCESS field is left blank.

–INIT — Tells LABEL that this tape is being written for the first time. This option must be used on unformatted tapes or on tapes whose labels should be overwritten.

–OVERWRITE — Overwrites a BRMS tape. If you try to overwrite an ARCHIVE, BACKUP, or TRANSPORT BRMS tape, you must use the –OVERWRITE option.

-OWNER *owner*	Identifies the owner of the tape. *owner* is a string which contains, for ANSI labels, 1 through 14 characters; for IBM labels, 1 through 10 characters. If you specify a label which is shorter than the allowed maximum length, it is blank-padded on the right to the maximum length. If you omit *owner*, LABEL uses your login name as the default value.
-PARITY {EVEN / ODD}	Specifies EVEN or ODD parity for the label. This option may be used only with the -TYPE B option.
-TYPE *type*	Specifies what sort of label you want written. The legal types are shown below:

Type	*Description*
ANSI87	ANSI X3.27-1987 standard label.
BCD	IBM label for 7-track BCD tapes.
EBCDIC	IBM label for 9-track EBCDIC tapes.
PRIME	PRIME ASCII label. This is the default. ANSI and A are synonyms for label type PRIME.
STANDARD_1	ANSI X3.27-1978 standard label.

-VOLUME *volume-id*	Specifies the volume number which uniquely identifies this tape reel. *volume-id* must be from one through six characters long; if it is shorter than six characters, it is blank-padded on the right to make six characters. -VOLSER and -VOLID are synonyms for -VOLUME. If this option is not present, LABEL attempts to read an existing label from the tape; if this option is present, LABEL writes a new label to the tape.
-HELP	Displays the command's options.

LCB See LIST_CONTIGUOUS BLOCKS.

LDMP See LIST_DUMP.

LG See LIST_GROUP.

LIST_ASSIGNED_DEVICES

LIST_ASSIGNED_DEVICES displays all the devices that have been allocated with the ASSIGN command.

LIST_ASSIGNED_DEVICES is used with the Distributed Systems Management (DSM) facility. DSM provides networked systems management from any convenient point on the network.

Format

LIST_ASSIGNED_DEVICES [*devicename1*] [. . . *devicenamen*]] [*options*]

Argument and Options

devicename1 . . . devicenamen Lists one or more devices; if you do not specify a *devicename*, LIST_ASSIGNED_DEVICES lists all currently assigned devices. (A list of valid *devicenames* is given in the explanation of the ASSIGN command earlier in this chapter.)

–NO_WAIT Suppresses the `--More--` prompt and does not pause after every page of output. Output scrolls continuously.

–ON { ***node*** / ***nodegroup*** } Specifies that assigned devices be listed on a particular network node or node group. If you do not specify –ON, LIST_ASSIGNED_DEVICES executes on the node on which it is invoked.

–PRIVATE_LOG ***pathname*** [**–NTTY**]
Records the command's output in a DSM private log. If *pathname* does not currently exist, it is created; if it does exist, output is appended to the file.

This option will not work unless both of the following conditions apply:

- You have access to the DSM PRIVATE_LOGGER function.
- The user DSM_LOGGER has ALL access to the directory containing the log.

If you do not specify –NTTY, command output is sent both to the user's terminal and to the specified log. If you specify –NTTY, command output is sent only to the specified log.

Note

The –NTTY option starts a phantom that runs under your user name. Command errors are written to a COMOUTPUT file in your origin directory, so you must have Write (W) access to that directory for –NTTY to work.

–SYSTEM_LOG *pathname* **[–NTTY]**

Sends command output to a local system log. *pathname* must begin with DSM*>LOGS, and must not contain a system partition name. The specified *pathname* must already exist. You cannot use the –SYSTEM_LOG option unless you have access to the DSM SYSTEM_LOGGER function.

If you do not specify –NTTY, command output is sent both to the user's terminal and to the specified log. If –NTTY is specified, command output is sent only to the specified log.

Note

The –NTTY option starts a phantom that runs under your user name. Command errors are written to a COMOUTPUT file in your origin directory, so you must have Write (W) access to that directory for –NTTY to work.

–USER [***name1 . . . namen*** / ***number1 . . . numbern***]

Specifies that only devices assigned to the specified users are to be displayed. The users can be designated either by *name* or by *number* and you can mix names and numbers on the same command line. You can also specify a range of user numbers in the format *first-number:last-number*. The default is all users.

–USAGE

Lists the command's options and explains their use. All other options on the command line are ignored.

–HELP [–NO_WAIT]

Explains how to use the command. All other options (except –NO_WAIT) on the command line are ignored. If you specify –NO_WAIT, output does not pause after each screenful of information.

Frequency Options

The frequency options (–FREQ, –START, –STOP, and –TIMES) allow you to specify that a given command be issued repeatedly during a specific period. If you specify any of these four options, the system provides default values for the remainder as follows:

Argument	*Default*
–FREQ	0
–START	Now
–STOP	Never
–TIMES	Infinite

It is therefore important that you specify values for all of the frequency options if you want the command issued less often than the default values.

–FREQ *number*

Specifies that the command be repeated every *number* seconds. *number* is rounded down to the nearest multiple of 4; thus, if you specify –FREQ 15, the command is repeated every 12 seconds. If *number* is specified as 0, the command executes continuously, beginning anew after output from the last command is finished. If *number* is smaller than the time it takes to execute the command, the effect is the same as if *number* were specified as 0.

–START *starttime*

Begins processing at the specified *starttime*. *starttime* may be entered in either of two formats:

- ISO standard (YY–MM–DD.HH:MM:SS)
- USA standard (MM/DD/YY.HH:MM:SS)

If you do not specify –START, the command begins executing immediately.

–STOP *stoptime*

Stops processing at the specified *stoptime*. *stoptime* may be in the same format as *starttime* in the –START option, described earlier.

–TIMES *n*

Asks that the command be executed no more than *n* times over the specified period. If the command can be executed more than *n* times in the specified period, execution stops after *n* is reached.

LIST_ASYNC

LIST_ASYNC displays the status and configuration of some or all of the system's asynchronous lines, and of all terminals attached to the Local Area Network.

LIST_ASYNC is used with the Distributed Systems Management (DSM) facility. DSM provides networked systems management from any convenient point on the network.

Format

LIST_ASYNC [*linenumber1* [. . . *linenumbern*] | *linenumber1*:*linenumber2*] [*options*]

Argument and Options

[*linenumber1* [. . . *linenumbern*] | *linenumber1*:*linenumber2*]

Specifies which lines should be displayed; lines that are not specified are not displayed. *linenumber* must be a decimal integer from 0 through 32767, inclusive. You can give a list of numbers separated by spaces; specify a range of numbers, separating the first and last number in the range with a colon; or do both on the same line. If no *number* argument is given, all lines currently in use are displayed.

–DETAIL

Displays complete information on all lines. Normally, LIST_ASYNC lists this information for each line: line number, line use, whether the line is autospeed enabled, line speed, protocol, user number, and user name. If you specify –DETAIL, LIST_ASYNC also lists for each line: whether echo is enabled, whether the line echoes LINEFEED when RETURN is sent, whether the line is parity enabled, what parity mode the line is in, character bit length, number of stop bits, buffer sizes for input, output, and DMQ buffers, whether XON/XOFF is enabled, reverse protocols, whether output is suspended, whether error detect is enabled, whether the line is looped, XON lag size, and XOFF lag size.

–NO_WAIT

Suppresses the `--More--` prompt and does not pause after every page of output. Output scrolls continuously.

–ON { *node* / *nodegroup* }

Requests that the command be executed on a particular network *node* or *nodegroup*. If you do not specify –ON, the command executes on the node on which it was invoked.

–PRIVATE_LOG *pathname* [**–NTTY**]

Specifies that the command's output be recorded in a DSM private log. If the *pathname* does not currently exist, it is created; if it does exist, output is appended to the file.

This option works only if both of the following are true:

- You have access to the DSM PRIVATE_LOGGER function.
- The user DSM_LOGGER has ALL access to the directory containing the log.

If you do not specify –NTTY, command output is sent both to the user's terminal and to the specified log. If you specify –NTTY, command output is sent only to the specified log.

The –NTTY option starts a phantom that runs under your user name. Command errors are written to a COMOUTPUT file in your origin directory, so you must have Write (W) access to that directory for –NTTY to work.

–SYSTEM_LOG *pathname* [**–NTTY**]

Requests that output be sent to a local system log. *pathname* must begin with DSM*>LOGS, and must not contain a system partition name. The specified *pathname* must already exist. You cannot use the –SYSTEM_LOG option unless you have access to the SYSTEM_LOGGER function.

If you do not specify –NTTY, command output is sent both to the user's terminal and to the specified log. If you do specify –NTTY, command output is sent only to the specified log.

The –NTTY option starts a phantom that runs under your user name. Command errors are written to a COMOUTPUT file in your origin directory, so you must have Write (W) access to that directory for –NTTY to work.

–USER { *name* / *number* }

Specifies that only lines associated with the specified users are to be displayed. The users can be designated either by *name* or by *number*.

–USAGE	Lists the command's options and explains their use. All other options on the command line are ignored.
–HELP [–NO_WAIT]	Explains how to use the command. All other options (except –NO_WAIT) on the command line are ignored. If you specify –NO_WAIT, output does not pause after each screenful of information.

Frequency Options

The frequency options (–FREQ, –START, –STOP, and –TIMES) allow you to specify that a given command be issued repeatedly during a specific period. If you specify any of these four options, the system provides default values for the remainder as follows:

Argument	*Default*
–FREQ	0
–START	Now
–STOP	Never
–TIMES	Infinite

It is therefore important that you specify values for all of the frequency options if you want the command issued less often than the default values.

–FREQ *number*	Specifies that the command be repeated every *number* seconds. *number* is rounded down to the nearest multiple of 4; thus, if you specify –FREQ 15, the command is repeated every 12 seconds. If *number* is specified as 0, the command executes continuously, beginning anew after output from the last command is finished. If *number* is smaller than the time it takes to execute the command, the effect is the same as if *number* were specified as 0.
–START *starttime*	Makes the command begin processing at the specified *starttime*. *starttime* may be entered in either format: • ISO standard (YY–MM–DD.HH:MM:SS) • USA standard (MM/DD/YY.HH:MM:SS) If you do not specify –START, the command begins executing immediately.
–STOP *stoptime*	Makes the command stop processing at the specified *stoptime*. *stoptime* may be in the same format as *starttime* in the –START option, described earlier.
–TIMES *n*	Asks that the command be executed no more than *n* times over the specified period. If the command can be executed more than *n* times in the specified period, execution stops after *n* is reached.

LIST_CONFIG

LIST_CONFIG displays the cold-start values, default values, and current values of the system variables that can be set by configuration directives at cold start.

LIST_CONFIG is used with the Distributed Systems Management (DSM) facility. DSM provides networked systems management from any convenient point on the network.

Format

LIST_CONFIG [***directive-names***]

Option

directive-names	Enables you to specify a list of directive names, and displays the cold-start values, default values, and current values of those system variables that can be set by the configuration directives listed; directives are not displayed if they are not specified on the list. Wildcarding can be used. The default is all directives.

For more information, see the *DSM User's Guide*.

LIST_CONTIGUOUS_BLOCKS

LIST_CONTIGUOUS_BLOCKS provides information about available space on a partition. This command is most useful on a partition containing CAM files.

Format

```
LIST_CONTIGUOUS_BLOCKS [ { partition-name }
                       [ { pathname      }
                       [ { -LDEV ldev    }
                       [ -DISPLAY n
                       [ -FREE size
                       [ -HELP
```

Arguments and Options

At Rev. 23.0 and subsequent revisions, you can use three different arguments to specify the partition about which you are requesting information.

partition-name — Refers to the six-character (or less) name that is given to the partition when formatted with MAKE. You cannot use *partition-name* if the partition was added to the system with a mount-point pathname. (See the pathname argument below.)

pathname — Refers to the pathname of any directory on the desired partition, including the mount-point pathname. If a disk is added to the system with a mount-point pathname, that pathname or the pathname of any other directory on the partition must be used instead of the partition name. This pathname must be fully qualified, that is, it must begin with the root (Master File Directory) directory. (Refer to the *System Administrator's Guide, Volume I: System Configuration* for information on mount-point pathnames.)

-LDEV *ldev* — Refers to the logical device number of the partition. Specify the logical device number in decimal, not octal.

If you do not give a *partition-name*, a *pathname*, or an *ldev*, the MFD of the current attach point is used.

-DISPLAY *n* — Causes LIST_CONTIGUOUS_BLOCKS to display the sizes of up to *n* fragments, or blocks, of free contiguous space larger than 32 records or larger than a size specified by the -FREE option. The default number of blocks is 20 and the range of the number of blocks that you can specify is from 6 through 1024, inclusive. If *n* is outside this range, *n* is set to 20.

–FREE *size*	Specifies the minimum *size*, in records, of the largest blocks of free contiguous space that you want displayed. The default minimum *size* is 32 records and the range of *size* that you can specify is from 0 through 9999 records, inclusive. If *size* is outside this range, it is set to 32.
–HELP	Displays the command's usage and options.

For more information about this command, see the *Operator's Guide to File System Maintenance*.

LIST_DISKS

LIST_DISKS lists, for every local disk currently added to the system, the partition name, ldev, pdev, size, number of free records, and whether the partition is robust. For remote disks currently added to the system, LIST_DISKS lists ldev, partition name, and node name. (LIST_DISKS cannot tell whether a remote disk is robust or not.)

LIST_DISKS is used with the Distributed Systems Management (DSM) facility. DSM provides networked systems management from any convenient point on the network.

Note

If your system is running the Name Server, the LIST_DISKS command does not list remote disks unless you have manually added them to the local Disk Table. (See ADDISK earlier in this chapter for more information on adding remote disks.) To see all disks and portals to which your system has access, use the LIST_MOUNTS command instead of LIST_DISKS. (See LIST_MOUNTS later in this chapter for more information.)

Format

LIST_DISKS { *diskname* [. . . *disknamen*] | *ldev* [. . . *ldevn* [*options*] | *ldev1*:*ldev2* }

Arguments and Options

diskname or ***ldev***	Specifies which disks you are interested in. If neither of these is specified, information is displayed for all disks attached to the system. *diskname* may include wildcards. *ldev*, the disk's logical device number, must be an octal number. Use the format *ldev1*:*ldev2* to specify a range of logical device numbers.
-DETAIL	Requests that LIST_DISKS provide, in addition to its usual data, controller number, drive unit number, starting head, and ending head for all local partitions.
-LOCAL	Requests that only information about local disks be displayed. If -LOCAL is not specified, information is displayed for both local and remote disks.
-NO_WAIT	Suppresses the `--More--` prompt and does not pause after every page of output. Output scrolls continuously.

–ON { *node* / *nodegroup* }

Requests that the command be executed on a particular network *node* or *nodegroup*. If you do not specify –ON, the command executes on the node on which it was invoked.

–PRIVATE_LOG *pathname* [**–NTTY**]

Requests that the command's output be recorded in a DSM private log. If the *pathname* does not currently exist, it is created; if it does exist, output is appended to the file.

This option works only if both of the following are true:

- You have access to the DSM PRIVATE_LOGGER function.
- The user DSM_LOGGER has ALL access to the directory containing the log.

If you do not specify –NTTY, command output is sent both to the user's terminal and to the specified log. If you specify –NTTY, command output is sent only to the specified log.

Note

The –NTTY option starts a phantom that runs under your user name. Command errors are written to a COMOUTPUT file in your origin directory, so you must have Write (W) access to that directory for –NTTY to work.

–REMOTE [*nodename*]

Requests that only information about remote disks be displayed. If you specify *nodename*, only disks on that PRIMENET node are displayed. If you do not specify *nodename*, all remote disks are displayed. Remember that on remote disks LIST_DISKS lists only disk name, pdev, and the name of the disk's node.

Note

The –REMOTE option tells you only about local and remote disks that are added to the system on which you gave the command. If you want information on disks that are attached to other systems on your network (but are not added to your own system), use the –ON option.

–SYSTEM_LOG *pathname* [–NTTY]

Requests that output be sent to a local system log. *pathname* must begin with DSM*>LOGS, and must not contain a system partition name. The specified *pathname* must already exist. You cannot use the –SYSTEM_LOG option unless you have access to the SYSTEM_LOGGER function.

If you do not specify –NTTY, command output is sent both to the user's terminal and to the specified log. If you specify –NTTY, command output is sent only to the specified log.

Note

The –NTTY option starts a phantom that runs under your user name. Command errors are written to a COMOUTPUT file in your origin directory, so you must have Write (W) access to that directory for –NTTY to work.

–USERS

Displays information about users on the specified disks. For local disks, information is displayed about all users; for remote disks, only users local to your system are displayed.

–USAGE

Lists the command's options and explains their use. All other options on the command line are ignored.

–HELP [–NO_WAIT]

Explains how to use the command. All other options (except –NO_WAIT) on the command line are ignored. If you specify –NO_WAIT, the –HELP output does not pause after each screenful of information.

Frequency Options

The frequency options (–FREQ, –START, and –STOP, and –TIMES) allow you to specify that a given command be issued repeatedly during a specific period. If you specify any of these four options, the system provides default values for the remainder as follows:

Argument	*Default*
–FREQ	0
–START	Now
–STOP	Never
–TIMES	Infinite

It is therefore important that you specify values for all of the frequency options if you want the command issued less often than the default values.

–FREQ *number*

Specifies that the command be repeated every *number* seconds. *number* is rounded down to the nearest multiple of 4; thus, if you specify –FREQ 15, the command is repeated every 12 seconds. If *number* is specified as 0, the command executes continuously, beginning anew after output from the last command is finished. If *number* is smaller than the time it takes to execute the command, the effect is the same as if *number* were specified as 0.

–START *starttime*

Makes the command begin processing at the specified *starttime*. *starttime* may be entered in either of two formats:

- ISO standard (YY–MM–DD.HH:MM:SS)
- USA standard (MM/DD/YY.HH:MM:SS)

If you do not specify –START, the command begins executing immediately.

–STOP *stoptime*

Makes the command stop processing at the specified *stoptime*. *stoptime* may be in either of the formats specified for *starttime* in the –START option, described earlier.

–TIMES *n*

Asks that the command be executed no more than *n* times over the specified period. If the command can be executed more than *n* times in the specified period, execution stops after *n* is reached.

LIST_DUMP

LIST_DUMP is an internal command that displays the current parameters for a partial tape dump. These parameters are the default parameters plus any added by the DUMP_SEGMENT and/or DUMP_USER commands. This command may be issued only from the supervisor terminal.

Format

LIST_DUMP [-HELP]

Option

-HELP	Displays the syntax of the command.

Three related commands are DUMP_SEGMENT, DUMP_USER, and RESET_DUMP, which are discussed in this chapter.

LIST_GROUP

LIST_GROUP lists the ACL groups to which the user belongs.

Format

LIST_GROUP

Example

Typically, the ACL groups determine access to files and directories other than the user's. Each user may be a member of a maximum of 32 groups. Group names are preceded by a period; for example, .OPERATORS indicates a group by that name.

```
OK, LIST_GROUP
Groups are:   .OPERATORS   .TPUBS   .BATCH_ADMIN$
```

See LIST_ACCESS earlier in this chapter and the [GROUP_LIST] command function in the *PRIMOS Commands Reference Guide*. See also the *Operator's System Overview*. For information on ACLs and groups, see the *PRIMOS User's Guide*.

LIST_LHC_STATUS

LIST_LHC_STATUS displays status information pertaining to a LAN Host Controller 300 (LHC300), a component of a LAN300 network installation. LIST_LHC_STATUS can be used to determine the integrity of an LHC that is attached to either the local host system or to a remote system on the network.

The LIST_LHC_STATUS command displays its report in three parts:

- Provides identification and performance data on the LHC controller
- Summarizes and lists current connection data from the LHC controller
- Reports operating system and network management status information from the LHC controller

Format

LIST_LHC_STATUS [*options*]

Options

-ALL
Displays all the information provided by the -PERFORMANCE and -MANAGEMENT options and an overview of the information provided by the -CONNECTION option. -ALL is the default if you do not specify a screen option.

-CONNECTION *connection-type*
Selects the Connection screen. *connection-type* may be either PRIMENET or NTS. PRIMENET selects PRIMENET connection information. NTS selects NTS connection information. If you do not specify a *connection-type*, both types are selected. You cannot use this option with the -PERFORMANCE or -MANAGEMENT options.

The Connection screen presents a comprehensive review of all connections currently active on the controller and provides a higher layer view of controller activity than that given by the Performance screen.

Note

The amount of data displayed in the individual connection listing section for an LHC can be substantial because of the large number of possible connections. An LHC running both PRIMENET and NTS can have a maximum of 288 active connections at any one time (256 PRIMENET and 32 NTS). An LHC running PRIMENET exclusively can have a maximum of 256 active connections. An LHC running NTS exclusively can have a maximum active connection count of 128.

–DEST_LHC_NUMBER ***lhc-number***

Identifies the LHC on a particular node. When used with the –DEST_NODE_NAME option, –DEST_LHC_NUMBER identifies the target LHC on the network. *lhc-number* is an octal number and must be in the range 0 through 7, inclusive. You cannot use this option with the –DEST_NODE_ADDRESS or –LAN_NAME option. If you specify this option without the –DEST_NODE_NAME option, the LHC is assumed to be on the local host.

–DEST_NODE_ADDRESS ***lhc-address***

Identifies the destination Local Area Network (LAN300) address for the LHC. Specify *lhc-address*, in hexadecimal, in either the short format, *nn–nn–nn*, or the long format, *nn–nn–nn–nn–nn–nn*, with or without leading zeros. When you use the short format, the standard LAN300 address extension is added before the given address. You cannot use this option with the –DEST_NODE_NAME, –DEST_LHC_NUMBER, or –LAN_NAME option.

–DEST_NODE_NAME ***hostname***

Identifies the host on which the LHC resides. *hostname* cannot be greater than six characters. You cannot use this option with –DEST_NODE_ADDRESS.

Use –DEST_NODE_NAME in combination with the –DEST_LHC_NUMBER option or with the –LAN_NAME option to identify a specific LHC on the host. If you do not specifically identify an LHC, the default LHC on the destination host will be used.

–LAN_NAME *netname*	Identifies the name of the Local Area Network (LAN300) to which the LHC is attached. *netname* identifies the LHC when the node address or the LHC number is not known. You cannot use the LAN_NAME option with –DEST_NODE_ADDRESS or with –DEST_LHC_NUMBER. The maximum length of *netname* is 32 characters.
–MANAGEMENT	Selects the Management screen, which displays operating system and network management statistics pertinent to the current operation of the controller. The operating system statistics report current CPU utilization and I/O bus traffic rates as well as error conditions detected. The network management values report local management functions supported and alarms generated by individual applications. You cannot use this option with the –CONNECTION or –PERFORMANCE option.
–NO_WAIT	Suppresses the `--More--` prompt and does not pause after every page of output. Output scrolls continuously.
–PERFORMANCE	Selects the Performance screen, which displays information about the operational state of the host controller. Specifically, this screen identifies the controller, displays a comprehensive review of MAC and LLC statistics, and displays several operating system and error statistics. You cannot use this option with the –CONNECTION or –MANAGEMENT option.
–HELP	Displays information about the command and its options.

LIST_LHC_STATUS is part of the LAN300 Network Management facility. This facility aids the Network Administrator in managing a LAN300 installation. For more information, see the *Operator's Guide to Prime Networks*.

LIST_LTS_STATUS

LIST_LTS_STATUS displays status information pertaining to a LAN Terminal Server 300 (LTS300), a component of a LAN300 network installation. LIST_LTS_STATUS may be used to determine the integrity of an LTS attached to the network.

The LIST_LTS_STATUS command displays its report in three parts:

- Provides identification and performance data from the LTS terminal server.
- Summarizes and lists current connection data from the LTS terminal server.
- Reports operating system and network management status information from the LTS terminal server.

Format

LIST_LTS_STATUS [*options*]

Options

–ALL
Displays all the information provided by the –PERFORMANCE and –MANAGEMENT options and an overview of the information provided by the –CONNECTION option. The –ALL option is the default if you do not specify a screen option.

–CONNECTION *connection-type*
Selects the Connection screen, which presents a comprehensive review of all connections currently active on the terminal server. This screen provides a higher layer view of server activity than that given by the Performance screen. You cannot use this option with the –PERFORMANCE or –MANAGEMENT option.

–DEST_NODE_ADDRESS *lts-address*
Identifies the destination Local Area Network (LAN300) address for the LTS. Specify *lts-address* in either the short format, *nn–nn–nn*, or the long format, *nn–nn–nn–nn–nn–nn*, in hexadecimal, with or without leading zeros. When you use the short format, the standard Prime LAN300 address extension is added before the given address. You cannot use this option with the DEST_NODE_NAME option; however, you must specify one or the other.

-DEST_NODE_NAME ***lts-name***
Identifies the LTS by its name in the configuration file. *lts-name* cannot be greater than 16 characters. You cannot use this option with the -DNA option; however, you must specify one or the other.

-MANAGEMENT Selects the Management screen, which reports operating system and network management statistics pertinent to the current operation of the terminal server. These statistics report current CPU utilization and error conditions detected. The network management values report local management functions supported and alarms generated by individual applications. You cannot use this option with the -CONNECTION or -PERFORMANCE option.

-NO_WAIT Suppresses the `--More--` prompt and does not pause after every page of output. Output scrolls continuously.

-PERFORMANCE Selects the Performance screen, which displays information about the operational state of the terminal server. Specifically, this screen identifies the terminal server, displays a comprehensive review of MAC and LLC statistics, and displays several operating system and error statistics. You cannot use this option with the -CONNECTION or -MANAGEMENT option.

-HELP Displays information about the command and its options.

LIST_LTS_STATUS is part of the LAN300 Network Management facility. This facility aids the Network Administrator in managing a LAN300 installation. For more information, see the *Operator's Guide to Prime Networks*.

LIST_MEMORY

LIST_MEMORY displays memory usage by the number of segments, resident pages, and wired pages per user process. You can either use names or user numbers to identify the user or use the –TYPE option to specify user types.

LIST_MEMORY is used with the Distributed Systems Management (DSM) facility. DSM provides networked systems management from any convenient point on the network.

Format

LIST_MEMORY [{ ***usernames*** / ***usernumbers*** } / **–TYPE** ***usertypes***]

Options

{ ***username*** / ***usernumber*** }

Allows you to specify a list of either user names or of user numbers. The memory usage of users not specified in this list is not displayed. For the *user_names* argument, you can use wildcarding on all name arguments. You can specify ranges of user numbers by the syntax n:m. The default is to display all logged-in users.

–TYPE ***usertypes***

Allows you to specify a list of user types. The memory usage of users who do not constitute one of these types is not displayed. Valid user types are: TERMINAL, REMOTE, SLAVE, SERVER, BATCH, CHILD, and PHANTOM. The default is all user types.

For further information, see the *DSM User's Guide.*

LIST_MOUNTS

LIST_MOUNTS displays a list of all disks and portals to which your system has access. (See the ADD_PORTAL command earlier in this chapter for the definition of a portal.) This command differs from STATUS DISKS and LIST_DISKS in that it displays the contents of the Global Mount Table (GMT) instead of the contents of the local Disk Table. If your system is running the Name Server, STATUS DISKS and LIST_DISKS no longer display remote disks unless you manually added the disks to the Disk Table with the ADDISK command. (Refer to the ADDISK command in this chapter to see when you would add remote disks this way.) For more information on the Name Server and the Global Mount Table, see the *Rev. 23.0 Prime Networks Release Notes* or the *PRIMOS User's Release Document.*

Format

LIST_MOUNTS [**-DISK** [***diskname***] | **-MOUNT_PATH** [***pathname***] | **-NO_SORT** | **-NO_WAIT** | **-PORTAL** [***systemname*** [***diskname***]] | **-SYSTEM** ***systemname*** | **-HELP**]

Options

-DISK [***diskname***]
: Displays only disk mounts and does not include portals. Specifying *diskname* displays only those disks that match the name or prefix specified. **Prefix** is any number of characters at the beginning of the disk name. You can specify wildcards in *diskname.*

  If neither the -DISK nor the -PORTAL options are given, all disks and portals are displayed. You cannot use the -PORTAL option with the -DISK option.

-MOUNT_PATH ***pathname***
: Lists mounts that match the specified pathname or pathname prefix. (A prefix is any number of characters at the beginning of the pathname.) You cannot use wildcards with this option.

-NO_SORT
: Lists mounts in the order in which they are stored in the Global Mount Table (an order convenient for PRIMOS) instead of sorting alphabetically by mount-point pathname.

-NO_WAIT
: Suppresses the `--More--` prompt and does not pause after every page of output. Output scrolls continuously.

–PORTAL [*systemname* [*diskname*]]

Lists portals only and does not list disks. Using the *systemname* argument lists portals to the system matching the system name or prefix specified. (A prefix is any number of characters at the beginning of the system name.) Using the *diskname* argument with the *systemname* argument lists portals directed to the specified disk on the specified system. You can use wildcards in both *systemname* and *diskname*.

If neither the –PORTAL nor the –DISK options are given, both disks and portals are displayed. You cannot use the –PORTAL option with the –DISK option.

–SYSTEM *systemname* — Displays disks and/or portals mounted on the system that match the *systemname* specified. You can use wildcards in *systemname*.

–HELP — Displays command syntax.

Example

A sample LIST_MOUNTS display is shown below.

```
OK, LIST_MOUNTS
[LIST_MOUNTS Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]
Mount      System   Disk     Mount
type       name     name     pathname
-----------------------------------------------
disk       SYSA     ACCNTS   <ACCNTS
disk       SYSA     ADMENL   <ADMENL
disk       SYSA     APPLIC   <APPLIC
disk       SYSB     ARCENU   <ARCENU
disk       SYSB     ARCHIV   <ARCHIV
disk       SYSC     AUX1     <AUX1
disk       SYSD     BABEL    <BABEL
portal     SYSD              <BABEL>TCG>LAB ==> EN.FF1<NXS3>
portal     ENZ               <IOSUB6>MANNY>TEST>HC2105 ==> EN.P6<HC2105>
portal     ENZ               IOSUB6>TCPIP>BACKP2 ==> EN.D73<BACKP2>
portal     ENZ               <IOSUB6>TCPIP>BACKPA ==> EN.FF3<BACKPA>
portal     ENZ               <IOSUB6>TCPIP>CORA_W ==> EN.D68<CORA_W>
portal     ENZ               <IOSUB6>TCPIP>MIKE22 ==> EN.D68<MIKE22>
portal     ENZ               <IOSUB6>YI>NXS2 ==> EN.FF2<NXS2>
portal     ENZ               <IOSUB6>YI>NXS3 ==> EN.FF1<NXS3>
disk       ENY      IPR1     <IPR1
disk       ENX      IQAMFD   <IQAMFD
```

The first column of the display shows the mount type, that is, either a disk or a portal. The second column shows the system on which the disk or portal is mounted.

For disk mounts, the third column shows the name of the disk. If it is a portal mount, the third column is empty. The fourth column shows the mount-point pathname for disks. For portals, the fourth column shows the mount-point pathname of the portal, followed by an arrow pointing to the name of the system to which the portal reference is directed. If it is a disk-directed portal (as opposed to root-directed) the name of the disk to which the portal reference is directed is listed at the end of the fourth column.

For example, in the first mount shown in the above display, the word *disk* in the first column shows that it is a disk mount. The name of the system shown in the second column, SYSA, is the system on which the disk is mounted. The name of the disk (as formatted with MAKE), shown in the third column, is ACCNTS. The mount-point pathname of this disk is <ACCNTS, which indicates that the disk was added to the root directory with the name ACCNTS. (By default, disks that are added without using the –MOUNT_PATH option to ADDISK are mounted in the root directory with the same name as the name of the disk.)

The first portal mount shown is listed as *portal* in the first column. The system on which the portal is mounted is shown in the second column to be SYSD. The third column is blank because this is a portal mount and not a disk mount. The mount-point pathname of the portal is shown in the fourth column as <BABEL>TCG>LAB which means that the portal is mounted at that location on system SYSD. This is a disk-directed portal, so users who attach to that mount-point pathname are directed to the disk <NXS3> on system EN.FF1 as indicated to the right of the arrow. If this were a root-directed portal, there would be no disk name after EN.FF1 and, instead, users attaching to <BABEL>TCG>LAB would be directed to the root directory of system EN.FF1.

LIST_PRIORITY_ACCESS

LIST_PRIORITY_ACCESS displays the contents of a priority Access Control List (ACL) in effect on the given partition.

Beginning at Rev. 23.0, you cannot use LPAC on remote partitions added in the root directory unless those partitions have been added to your local Disk Table. You also cannot use LPAC on remote partitions mounted below the root whether or not they are in your Disk Table.

Format

LIST_PRIORITY_ACCESS ***partition-name***

Option

partition-name	Specifies the partition on which you want to list the priority ACLs.

LIST_PRIORITY_ACCESS is discussed in the *Operator's System Overview* and in the *System Administrator's Guide, Volume III: System Access and Security.* See also SET_PRIORITY_ACCESS later in this chapter.

LIST_PROCESS

LIST_PROCESS displays, for every current user process on the system, its user number, name, type, and project ID.

LIST_PROCESS is used with the Distributed Systems Management (DSM) facility. DSM provides networked systems management from any convenient point on the network.

Format

LIST_PROCESS { *username1* [. . . *usernamen*] / *usernumber1* [. . . *usernumbern*] / *usernumber1*:*usernumber2* } [*options*]

Arguments

You can specify which processes interest you by using one or more of the *username* and *usernumber* arguments, separating the names and numbers by spaces. User processes not specified are not displayed. You can use wildcards in *username*, or you can specify a range of *usernumbers* to be displayed by giving the first and last numbers in the range separated by a colon, as in *usernumber1*:*usernumber2*. If you do not specify either *username* or *usernumber*, information is displayed on all user processes.

Options

–DETAIL

Asks that detailed information be specified about each user ID. LIST_PROCESS always returns the following information about each user:

- User number
- User name
- User type
- User's project ID

If –DETAIL is specified, LIST_PROCESS returns the following additional information about each user:

Initial attach point	Current attach point
Current abbrev file	Current COMI file
Current COMO file	Connect time
CPU time consumed	I/O time used
Message state	Remote IDs
ACL group membership	

–NO_WAIT

Suppresses the `--More--` prompt and does not pause after every page of output. Output scrolls continuously.

–ON { ***node*** / ***nodegroup*** }

Asks that the command be executed on a particular network *node* or *nodegroup*. If you do not specify –ON, the command executes on the node on which it was invoked.

–PRIVATE_LOG *pathname* [–NTTY]

Asks that the command's output be recorded in a DSM private log. If the *pathname* does not currently exist, it is created; if it does exist, output is appended to the file.

This option works only if both of the following are true:

- You have access to the DSM PRIVATE_LOGGER function.
- The user DSM_LOGGER has ALL access to the directory containing the log.

If you do not specify –NTTY, command output is sent both to the user's terminal and to the specified log. If you specify –NTTY, command output is sent only to the specified log.

Note

The –NTTY option starts a phantom that runs under your user name. Command errors are written to a COMOUTPUT file in your origin directory, so you must have Write (W) access to that directory for –NTTY to work.

–PROJECT *project-id1* [. . . *project-idn*]

Restricts output to user processes which belong to the specified *project-ids*. You may use wildcards when specifying *project-ids*.

–SYSTEM_LOG *pathname* [–NTTY]

Asks that output be sent to a local system log. *pathname* must begin with DSM*>LOGS, and must not contain a system partition name. The specified *pathname* must already exist. You cannot use the –SYSTEM_LOG option unless you have access to the SYSTEM_LOGGER function.

If you do not specify –NTTY, command output is sent both to the user's terminal and to the specified log. If you specify –NTTY, command output is sent only to the specified log.

Note

The –NTTY option starts a phantom that runs under your user name. Command errors are written to a COMOUTPUT file in your origin directory, so you must have Write (W) access to that directory for –NTTY to work.

–TYPE *type1* [. . . *type7*] Asks that only users of the specified type be included in output. If –TYPE is not specified, users of every type are included in output. The valid types are

terminal	remote	slave
server	batch	child
phantom		

–USAGE Lists the command's options and explains their use. All other options on the command line are ignored.

–HELP [–NO_WAIT] Explains how to use the command. All other options (except –NO_WAIT) on the command line are ignored. If you specify –NO_WAIT, the –HELP output does not pause after each screenful of information.

Frequency Options

The frequency options (–FREQ, –START, –STOP, and –TIMES) allow you to specify that a given command be issued repeatedly during a specific period. If you specify any of these four options, the system provides default values for the remainder as follows:

Argument	*Default*
–FREQ	0
–START	Now
–STOP	Never
–TIMES	Infinite

It is therefore important that you specify values for all of the frequency options if you want the command issued less often than the default values.

–FREQ *number* Specifies that the command be repeated every *number* seconds. *number* is rounded down to the nearest multiple of 4; thus, if you specify –FREQ 15, the command is repeated every 12 seconds. If *number* is specified as 0, the command executes continuously, beginning anew after output from the last command is finished. If *number* is smaller than the time it takes to execute the command, the effect is the same as if *number* were specified as 0.

–START *starttime*

Makes the command begin processing at the specified *starttime*. *starttime* may be entered in either of two formats:

- ISO standard (YY–MM–DD.HH:MM:SS)
- USA standard (MM/DD/YY.HH:MM:SS)

If you do not specify –START, the command begins executing immediately.

–STOP *stoptime*

Makes the command stop processing at the specified *stoptime*. *stoptime* may be in the same format as *starttime* in the –START option, described earlier.

–TIMES *n*

Asks that the command be executed no more than *n* times over the specified period. If the command can be executed more than *n* times in the specified period, execution stops after *n* is reached.

LIST_REGISTERED_EPF

LIST_REGISTERED_EPF is a general user command that lists the dependency list and/or the unresolved entrypoints for all registered EPFs or a specified registered EPF.

Note

You must have Translator Family Release T3.0 or a subsequent release installed before you can use this command.

Format

LIST_REGISTERED_EPF [*epf-name*] [**-DEPENDENCY_LIST** | **-UNRESOLVED_ENTRYPOINTS** | **-HELP**]

Argument and Options

epf-name — Specifies the name of the EPF that is registered. If you do not specify *epf-name*, this command displays information about all registered EPFs.

-DEPENDENCY_LIST — Lists the EPFs that are necessary for the specified EPF to run. This includes the EPFs explicitly coupled at registration as well as the EPFs that have been implicitly coupled during dynamic linking. This option shows which of the listed EPFs are Direct (explicitly coupled) and which are Indirect (implicitly coupled).

-UNRESOLVED_ENTRYPOINTS — Lists the unresolved entrypoints in the specified EPF. This option enables the System Administrator to see the entrypoints that are needed to make the EPF executable.

-HELP — Displays command syntax.

If you do not specify any option, LIST_REGISTERED_EPF displays both the dependency list and the unresolved entrypoints for the given EPF. There can be multiple registrations of the same EPF as shown in the following example.

For more information on registered EPFs, see the *Advanced Programmer's Guide I: BIND and EPFs* and the *System Administrator's Guide, Volume I: System Configuration.*

LIST_SCHEDULER_ATTRIBUTES

LIST_SCHEDULER_ATTRIBUTES displays the current scheduler status in the format shown below. It is available to general users as well as to Operators and Administrators.

Format

LIST_SCHEDULER_ATTRIBUTES

Example

A sample LIST_SCHEDULER_ATTRIBUTES display is shown below.

```
OK, LIST_SCHEDULER_ATTRIBUTES

                    Scheduler Status
Short Job setting (0 to 4) : 4
Queues                     : Lopriq, Eligq and Hipriq.
  target ratio             : 1 : infinite : infinite
Priority levels            : Priority 0 to 4
  target ratio             : 1:2:4:8:16
Eligibility time slice (ms):      101
Maximum scheduled jobs     :      108

OK,
```

See SET_SCHEDULER_ATTRIBUTES later in this chapter for an explanation of the Scheduler attributes.

LIST_SERVER_NAMES

LIST_SERVER_NAMES lists the server names on the local node, giving the user ID and member process number for each server; it also displays the total number of servers on the local node.

Format

LIST_SERVER_NAMES [-HELP]

Option

-HELP	Displays command usage.

Example

LIST_SERVER_NAMES lists server information as follows. Servers are listed in alphabetical order by server name.

```
OK, LIST_SERVER_NAMES
[LIST_SERVER_NAMES Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]

27 Servers for node NEHWON

Server Name  UserID                    Member Process(es)

DSMSMSR$     SYSTEM_MANAG              195
DSMSR$       DSMSR                     193
DSM_LOGGER   DSM_LOGGER                194
ISC$NETSVR   ISC_NETWORK_SERVER        189
TBRTDBJCBBBC SYSTEM                      1
TBRTDBJCBBBG SLAVE$                    150
TBRTDBJCBBDG NTS_SERVER                182
TBRTDBJCBBDJ TIMER_PROCESS             183
TBRTDBJCBBDN LOGOUT_SERVER             184
TBRTDBJCBBHN NETMAN                    166
TBRTDBJCBCRV JINIAN                     22
TBRTDGZJBBDC AERIN                      29
TBRTDGZJBBGX ALANNA                     31 32 33 34 40 41 42 43
TBRTDGZJBBXZ GARION                     30
-- More? --
```

For full information on this command, see the *PRIMOS Commands Reference Guide.* See also the LIST_SESSIONS command below. For more information on server names, see the *Subroutines Reference V: Event Synchronization.*

LIST_SESSIONS

LIST_SESSIONS lists InterServer Communications (ISC) sessions. A session links two active servers.

This command can list overview or detail information about a single ISC session, about all of the sessions belonging to a single ISC server, or about all ISC sessions. LIST_SESSIONS can list only information about sessions on the local node.

If you specify no options, LIST_SESSIONS displays overview information about all ISC sessions. If there are no sessions, LIST_SESSIONS returns the message `No Sessions.`

Format

LIST_SESSIONS [**-DETAIL** | **-SERVER_NAME** *name* [**-SESSION** *number*] | **-USER** *userid* | **-HELP**]

Options

-DETAIL — Lists detailed information for the sessions selected by the other LIST_SESSIONS options. If you do not specify -DETAIL, this command lists session overview information.

-SERVER_NAME *name* [**-SESSION** *number*] — Lists session information for all sessions owned by server *name*. *name* cannot be the ISC Network server. If you specify the -SESSION option, this option lists information for session *number* owned by server *name*.

-USER *userid* — Lists session information for sessions owned by *userid*.

-HELP — Displays command syntax.

Example Using No Options

By default, the LIST_SESSIONS command displays overview information about each listed session. Sessions are sorted by server name, then by session number within each server name. If you display information for all servers, each local session is represented by two entries, one for each server. A remote session is represented by only one entry for the server that is on the local system.

```
OK, LIST_SESSIONS
[LIST_SESSIONS Rev 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]

NODE SYS.01 SESSIONS:
+-------------------------------------------------------------------
+
| Server Name    Ses#  Init?  Phase  User ID
|   Mate User ID                      Mate Node      Mate Server Name
|
+-------------------------------------------------------------------
+
| DSMSMSR$         1   yes    DXFER  SYSTEM_MANAGER
|   DSM_LOGGER                        local node    DSM_LOGGER$
|
| DSMSMSR$         3   no     DXFER  DSM_LOGGER
|   SYSTEM_MANAGER                    SYS.04
|
| TKQBGVKZBBBC     1   yes    ESTAB  SYSTEM         NAME_SERVER
|   NAME_SERVER                       local node
|
+-------------------------------------------------------------------
+
```

This LIST_SESSIONS overview information contains the following parameters:

Parameter	*Description*
Server Name	The 12-character name of the server that owns this session. System server names can be less than 12 characters.
Ses#	The session number that this server uses to identify this session. The server on the other side of the session identifies the session with a different session number.
Init?	If **yes**, the server is the session initiator. If **no**, the server is the session recipient.
Phase	The current state of the session. The following phase codes are possible: DXFER Data transfer ESTAB Establishing EXCPT Exception pending PEND Pending TERM Terminating UNDEF Undefined
User ID	The user ID of this server.
Mate User ID	The user ID of the server on the other end of the session. If this user ID cannot be determined, this parameter displays a question mark (?) within parentheses.

Mate Node	The node name of the server on the other side of the session. If both servers are on the same node, this parameter displays local node. If this node name cannot be determined, this parameter displays a question mark (?) within parentheses.
Mate Server Name	The server name of the server on the other end of the session. This server name is only displayed if Init?= YES; otherwise, this field is blank.

Example Using the –DETAIL Option

If you specify the –DETAIL option, the LIST_SESSIONS command displays detailed information about each listed session. You can list detailed information about all sessions on the current node, or use the –SERVER_NAME or –SERVER_NAME and –SESSION options to select specific sessions for detailed display. Session detail information is displayed as follows:

```
OK, LIST_SESSIONS -DETAIL
[LIST_SESSIONS Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]
Session #   1 of server BBBBBBCVBBBC

   Session detailed state:                          ESTABLISHED
   Mate user ID:                                     DSM_LOGGER
   Mate node name:                                   local node

Normal service:      CONFIGURED    Expedited service:  NOT CONFIGURED
Max ctl:  128  Max data:   2048    Max expedited size:              0

Normal Send          Normal Recv          Message area
-----------          -----------          ------------
Queue size       7   Queue size       7   Block size           512
Free slots       7   Msgs on Q        0   Number of blocks     100
Total sent       0   Total recd       0   Current % in use:      3
                                          Max % in use:          0
Exp Send             Exp Recv
--------             --------
Queue size       0   Queue size       0
Free slots       0   Msgs on Q        0
Total sent       0   Total recd       0
```

The LIST_SESSIONS –DETAIL information contains the following parameters:

Parameter	*Description*
Session #	The number by which this server identifies the session. The server on the other side of the session identifies the session with a different session number.
Server	The 12-character name of the server that owns this session.

Session detailed state	The current state of the session. The possible states are as follows: ESTABLISHED EXCEPTION EXCEPTION BEFORE ACCEPT RECEIVED PENDING REQUEST RECEIVED SESSION ACCEPTED SESSION REJECTED SESSION REQUESTED TERMINATED TERMINATED BEFORE REPLYING TERMINATED PENDING TERMINATING UNDEFINED
Mate user ID	The user ID of the server on the other end of the session. If this user ID cannot be determined, this parameter displays a question mark (?) within parentheses.
Mate node name	The node name of the server on the other side of the session. If both servers are on the same node, this parameter displays local node. If this node name cannot be determined, this parameter displays a question mark (?) within parentheses.
Normal service	CONFIGURED indicates that normal message service is provided for this session; NOT CONFIGURED indicates that normal message service is not provided for this session.
Expedited service	CONFIGURED indicates that expedited message service is provided for this session; NOT CONFIGURED indicates that expedited message service is not provided for this session.
Max ctl	The maximum length (in bytes) of the control part of normal messages.
Max data	The maximum length (in bytes) of the data part of normal messages.
Max expedited size	The maximum length (in bytes) of expedited messages.
Queue size	The queue length for normal and expedited message send and receive queues.
Free slots	The number of free message slots available on each of the send queues.

Total sent	The number of normal and expedited messages successfully sent.
Msgs on Q	The number of messages on each receive queue.
Total recd	The number of normal and expedited messages successfully received.
Block size	The length in bytes of the blocks that comprise the session's data part message area.
Number of blocks	The number of blocks that comprise the session's data part message area.
Current % in use	The percentage of the session's data part message area that is currently in use.
Max % in use	The maximum percentage of the session's data part message area that has been used since the beginning of this session.

See also LIST_SERVER_NAMES earlier in this chapter.

For details on ISC sessions, see the *Subroutines Reference V: Event Synchronization.*

LIST_UNITS

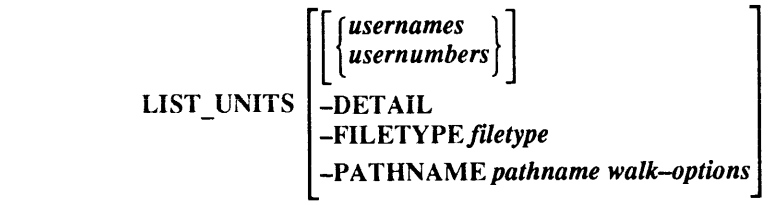
LIST_UNITS can be used to display either the

- Open file units for any system user
- ID of all users with either a particular file open, or any file open in a particular directory
- Current attach points of all users on the system.

The command-specific options determine which subset of the information is to be displayed. They can be used singly, or in combination to make the subset more specific.

LIST_UNITS is used with the Distributed Systems Management (DSM) facility. DSM provides networked systems management from any convenient point on the network.

Format



Options

[{*usernames* / *usernumbers*}]	Specifies a list of open units by user names or by user numbers. You can use wildcarding and ranges of user numbers. The default is all users.
-DETAIL	Displays detailed information on users' open file units. The default is to display a count of open units and users' attach points.
-FILETYPE *filetype*	Allows you to select a file type for display. File types are: SAM, DAM, CAM, SAMSEG, DAMSEG, ACAT, and UFD.

–PATHNAME ***pathname*** **[–WALK_FROM/WALK_TO [*level*]]**

Allows you to display open file units and user attach points under a specified pathname. *pathname* can be a pathname that includes the disk partition, a pathname beginning with the name of a top-level directory, or a pathname relative to your current attach point. Wildcarding can be used on all elements of the pathname, including the disk partition. To list open file units on a remote node, you should specify the disk name, or use wildcarding on the disk partition. Wildcarding on the disk partition can be used to list file units on several nodes at once. To walk a directory, use the –WALK_FROM and –WALK_TO options. Specify *level* as a decimal integer. The defaults are –WALK_FROM 2 and –WALK_TO bottom-of-tree.

For further information, see the *DSM User's Guide.*

LO

See LOGOUT.

LOGOUT

LOGOUT logs out a specified process. LOGOUT closes files, unassigns devices, clears attach points (initial, home, and current), breaks network connections, and returns assigned segments to the free segment pool.

Do *not* use this command during a RESUS session.

At Rev. 23.3, the LOGOUT command has been enhanced to allow greater selectivity in logging out processes. This enables the System Administrator or a user at the supervisor terminal to select classes of jobs to be logged out. A nonprivileged user may select, as previously, jobs with the same user name.

Note

To log out any users other than yourself, you must issue this command from the supervisor terminal.

Format

```
LOGOUT [ { username     } ] [ -BATCH      ]
       [ { -usernumber  } ] [ -CHILD      ]
       [ { wildusername } ] [ -NO_VERIFY  ]
       [ { ALL          } ] [ -PHANTOM    ]
                            [ -QUERY      ]
```

Arguments and Options

username

Specifies the user name of the user being logged out. (You can use STATUS USERS or LIST_USERS to determine the names and numbers of all users.)

-usernumber

Specifies the decimal number of the user being logged out. (You can use LIST_USERS or STATUS USERS or to determine the names and numbers of all users.) If the user is a local terminal using a remote process, the terminal is logged out of both systems. If the user is a remote terminal using a local process, the process is logged out and returned to the pool of free remote login processes.

Users can use wildcards with their own user numbers to select processes to log out.

The System Administrator can use wildcards on any user numbers to select processes to log out. For example,

```
OK, LOGOUT -15+
```

where + matches any one character and logs out all user numbers of the form 15*n*.

wildusername Allows the System Administrator to use wildcarding to match and log out appropriate user processes except for the originating login. A System Administrator could use this argument when logging out all people on the system having the same prefix or suffix. For example,

```
OK, LOGOUT CS101_@@ -NO_VERIFY
```

ALL Logs out most currently logged-in local and phantom users. ALL also disconnects remote users from your system and returns them to their own. Many system phantoms, including LOGOUT_SERVER, LOGIN_SERVER, and TIMER_PROCESS, are not affected by LOGOUT ALL; such processes have their own shutdown procedures.

In addition to logging out all users except User 1 (the supervisor terminal), LOGOUT ALL automatically performs a MAXUSR 0 command, which prevents any subsequent logins until MAXUSR is reset. You should issue LOGOUT ALL a few minutes before you issue a SHUTDN ALL command in order to allow a more orderly shutdown of PRIMOS. (See the Note below.) LOGOUT ALL can be issued only from the supervisor terminal. See also the MAXUSR command.

–BATCH Selects and logs out only matching Batch phantoms.

–CHILD Selects and logs out only matching child processes.

–NO_VERIFY Disables querying when you use wildcarding.

–PHANTOM Selects and logs out only matching phantoms.

–QUERY Enables querying when you are not using wildcarding. You are queried by default when you use wildcarding. You can use this option with –BATCH, –CHILD, and –PHANTOM.

Forced Logout

When configuring users, the System Administrator can specify a forced logout time in the LOUTQM directive to force users to be logged out if there has been no activity at their terminals for longer than the allowable maximum inactive time limit. When this force logout occurs, the normal logout message is preceded by the following message:

```
***FROM PRIMOS: maximum inactive time limit exceeded.
```

If users are logged out by a command issued at the supervisor terminal, the message `forced logout.` appears, followed by the normal logout message.

Note

PRIMOS allows a process between one and two minutes of grace time following a forced logout if the program being run by the process is set up that way. For example, Prime's EMACS text editor uses that grace time to save any work the user has in progress. Also, the actual process of logging out may take some time if the system is heavily loaded, particularly if your system has an external logout program that performs any lengthy functions (such as checking for electronic mail, performing accounting, and so on). Therefore, allow at least three to four minutes for a forced logout to take effect before issuing the SHUTDN ALL command.

LOOPBACK

LOOPBACK sends test data packets between target components on the LAN300 network and reports the network operation back to the network user. This loopback is accomplished while the network is online and is used to verify the integrity of the network software operation and the network path between target components. Only members of the ACL group .NETWORK_MGT$ may issue the LOOPBACK command.

The loopback test is an echo operation: a source point sends a test message to a destination point which, in turn, echoes the packet back to the source. The two messages are then compared at the source and the results are reported to the user. You can add a third point to the loopback test so that the results are sent to a point that is different from the source point.

Format

LOOPBACK [*options*]

Options

–DEST_LBK_LAYER ***loopback-layer***

Identifies the loopback layer at which the test packet will loop back. *loopback-layer* must have a value of either NMSR or NME.

If you do not specify –DEST_LBK_LAYER, the default destination loopback layer depends on the destination node. If the destination node is an LTS, then the default destination loopback layer is the NME. If the destination node is a host, then the default destination loopback layer is the NMSR.

–DEST_LHC_NUMBER ***lhc-number***

Identifies the LHC on a particular node. This option, used with the –DEST_NODE_NAME option, identifies the target LHC to which the test packet is sent. *lhc-number* is an octal number and must be in the range 0 through 7, inclusive. You cannot use this option with the –DEST_NODE_ADDRESS and –LAN_NAME options. If you do not use this option with the –DEST_NODE_NAME option, the specified LHC is assumed to be on the local host.

–DEST_NODE_ADDRESS ***node-address***

Specifies the destination network address for the LHC or LTS to which the test packet is sent. You may specify *node-address* in either the short format, *nn–nn–nn*, or the long format, *nn–nn–nn–nn–nn–nn*, in hexadecimal, with or without leading zeros. When you use the short format, the standard Prime LAN300 address extension is added before the given address.

You cannot use the –DEST_NODE_ADDRESS option with other options that define addresses in the network, for example, –DEST_NODE_NAME, –DEST_LHC_NUMBER, or –LAN_NAME.

–DEST_NODE_NAME ***nodename***

Identifies the node (either a host or an LTS) on which the test packet will loop back. *nodename* cannot be greater than 16 characters.

–LAN_NAME ***lanname***

Identifies the name of the Local Area Network (LAN300) to which the LHC and/or LTS is attached. Use this option to identify the LHC and/or LTS when no other information (for example, the node address, the LHC number, or the node name for an LTS) is known. You cannot use the –LAN_NAME option with the options –DEST_NODE_ADDRESS, –DEST_LHC_NUMBER, –SRC_NODE_ADDRESS, or –SRC_LHC_NUMBER.

–SRC_LBK_LAYER ***loopback-layer***

Identifies the loopback layer from which the test packet is sent. *loopback-layer* must have a value of either NMSR or NME. If you do not specify the –SRC_LBK_LAYER option, the default source loopback layer depends upon the source node. If the source node is an LTS, then the default source loopback layer is the NME. If the source node is a host, then the default source loopback layer is the NMSR.

–SRC_LHC_NUMBER ***lhc-number***

Identifies the LHC on a particular node. When you use this option with the –SRC_NODE_NAME option, the target LHC to which the test packet is sent is identified. *lhc-number* is an octal number and must be in the range 0 through 7, inclusive. You cannot use this option with the –SRC_NODE_ADDRESS or the –LAN_NAME options. If you use this option without specifying –SRC_NODE_NAME, it is assumed that the specified LHC is on the local host.

–SRC_NODE_ADDRESS ***node-address***

Specifies the network address for an LHC or LTS on the network from which the test packet is sent. Specify *node-address* in either the short format, *nn–nn–nn*, or the long format, *nn–nn–nn–nn nn–nn*, in hexadecimal, with or without leading zeros. When you use the short form, the standard Prime LAN300 address extension is added before the given address.

You cannot use the –SRC_NODE_ADDRESS option with other options that define an address on the network, for example, the options –SRC_NODE_NAME, –SRC_LHC_NUMBER, or –LAN_NAME.

–SRC_NODE_NAME ***nodename***

Identifies the node (either an LHC or an LTS) from which the test packet is sent. *nodename* cannot be greater than 16 characters.

You should use this option should with either the –SRC_LHC_NUMBER option or the –LAN_NAME option to specify an LHC or LTS. If you do not specify this option, the local originating node name will be the source node name.

–HELP Lists the format of this command and its options. You cannot use this option with any of the other options.

LOOPBACK is part of the LAN300 Network Management facility. This facility aids the Network Administrator in managing a LAN300 installation.

For more information, see the *Operator's Guide to Prime Networks*.

LPAC

See LIST_PRIORITY_ACCESS.

LRE

See LIST_REGISTERED_EPF.

LSA

See LIST_SCHEDULER_ATTRIBUTES.

M

See MESSAGE.

MAGRST

MAGRST is a logical restore utility that you use to restore file system objects from tape to disk. You can only use MAGRST to restore tapes previously saved using MAGSAV. Because MAGSAV saves objects as logical entities, you can use MAGRST to restore individual objects to disk. You cannot do this if you use a physical save utility to write to the tape. Invoke MAGRST by issuing the MAGRST command with none, one, or more of the available command-line options.

At Rev. 23.1 and later, the MAGRST facility permits index library management functions on the extended indexes.

Format

MAGRST [*options*]

Options

-CAM_RBF Restores all RBF subfiles as CAM files.

-INDEX_LIBRARY [*level*] [*pathname*]
Creates an index file in the index library if one does not already exist. The $I response to the `Ready to Restore:` prompt is invalid with this option. *level* specifies the number of directory levels to be indexed. A default level may be defined in the DRB configuration file, or, if not, the default is two.

pathname specifies the pathname of the index library. You can set up a default pathname in the DRB configuration file.

-NO_ATTRIBUTES By default MAGRST restores the attributes DTA/DTC/DTM from tape. This option disables the restoring of these attributes from tape and the attribute values of the restored object are set to those of the current date and time.

-QUERY	Use this option when restoring Recovery Based Files (RBFs). If a master RBF of the same name exists on disk, the system prompts you to state if you wish to overwrite the existing copy. If you answer YES, the system deletes the master and slave RBFs from disk, and restores the objects from tape; if you answer NO, the system continues with the next object to restore. If you omit this option, the system overwrites existing master RBFs of the same name, but not existing slave RBFs if they are slave files of a different master RBF; an error message is displayed and the restore is aborted. You can also use this option to instruct MAGRST to query you when restoring an EPF that is currently in use. For further information on RBFs, refer to the *ROAM Administrator's Guide*.
-TTY	Use this option when running MAGRST from CPL or command input (COMI) files. It instructs MAGRST to prompt you to enter the tape unit number from your terminal. All other information is taken from the CPL or COMI file.
-UNLOAD	Instructs MAGRST to rewind and unload the tape when the end of the tape is reached.
-HELP	Displays command syntax and options.

Refer to the *Operator's Guide to Data Backup and Recovery* for further information on this command.

MAGSAV

MAGSAV is a logical save utility that you use to save files and directories from disk to tape, so that each object is stored on tape as a logical entity instead of its component records being stored in separate areas of the storage medium as they might be on disk. When you use a physical save utility, the partition has the same format on tape as it had on disk. A logical save is slower than a physical save but does enable you to restore individual objects from the tape created. Invoke MAGSAV using the MAGSAV command with none, one, or more of the available command-line options.

Caution

Starting at Rev. 23.0, MAGSAV does not cross logical mount points. A different way of doing backups is required. See the *Operator's Guide to Data Backup and Recovery* for more information on the MAGSAV command and on new backup recommendations. For more information on logical mount points, see the *System Administrator's Guide, Volume I: System Planning and Configuration.*

At Rev. 23.1 and later, the MAGSAV facility permits index library management functions on the extended indexes.

Format

MAGSAV [*options*]

Options

–BIG

Writes a tape with 16-Kbyte tape blocks, provided the MTRS directive in the system configuration file is set to 16 Kbytes (20000_8 halfwords) or greater. You must set the MTRS directive before you invoke MAGSAV. You can use this option only if you are using a system running on PRIMOS Rev. 22.0 or a later revision, and the tape is in ANSI format. You cannot use this option if you are writing a non-ANSI tape; therefore, the option –BIG cannot be used with options –REV19 and –REV20. If you omit the –BIG option, MAGSAV automatically writes 12-Kbyte blocks to tape irrespective of the setting of the MTRS directive.

–BOOT

Use this option when you create a boot tape. See the *Operator's Guide to Data Backup and Recovery* for more details on –BOOT.

–INC

Specifies an incremental save. Only files and directories with a DTM (date/time modified) later than the DTB (date/time backed up) are saved. If you do not specify –INC, all specified files and directories are saved. This option is used primarily by Operators.

–INDEX_LIBRARY [*level*] [*pathname*]

Creates an extended index library file and deletes any redundant index files. *level* specifies the number of directory levels to be indexed. The default is set up in the DRB configuration file. If no default is set in the configuration file, the default is two levels. *pathname* specifies the pathname of the library files to be created. You can set up a default pathname in the DRB configuration file. If you omit this option, the default pathname is used. If you omit this option and a default pathname has not been defined, you receive an error message.

–LABEL

Instructs MAGSAV to prompt you for a volume serial ID for any reel encountered during the save that does not contain an ANSI label. The volume serial ID is an alphanumeric string of a maximum length of six ANSI characters that forms part of the tape's ANSI label and that uniquely identifies a particular reel of tape. This is particularly useful if the save spans more than one tape reel. If you specify a string that contains non-ANSI characters you are prompted to reenter the volume serial ID. You cannot use this option if you are writing a non-ANSI tape; therefore, the option –LABEL cannot be used with options –REV19 and –REV20. If you omit the option, MAGSAV automatically writes an ANSI label on tape that contains a null entry for the volume serial ID.

–NO_ACL

Instructs MAGSAV not to save ACLs, passwords, or access categories (ACATs) associated with saved objects. If you omit this option, file access information is saved to tape.

–NO_DTA

Instructs MAGSAV not to modify the DTA (date/time accessed) of any files or directories saved. This option uses the special backup key to open files. You can use this option only if you are a member of the ACL group .BACKUP$, and also have protect (P) access rights to the disk object. You can also use this option if you invoke MAGSAV from the supervisor terminal. If you omit the option, the DTA of saved objects is set to the current date/time.

-NO_RBF	Instructs MAGSAV not to save any Recovery Based Files (RBFs). Refer to the *ROAM Administrator's Guide* for more information on these files.
-QUERY	Instructs MAGSAV to prompt you for confirmation before overwriting existing logical tapes. You cannot use this option if you are writing a non-ANSI tape; therefore, the option -QUERY cannot be used with options -REV19 and -REV20.
-REV19	Writes a tape in non-ANSI format, readable on systems running on PRIMOS Revisions 19.0 to 19.4.14. Automatically saves CAM files as DAM files. You cannot use -REV19 with -BIG, -LABEL, or -QUERY.
-REV20	Writes a tape in non-ANSI format, readable on systems running on PRIMOS Revisions 20, 21, 22, and 23. You cannot use this option with options -BIG, -LABEL, or -QUERY.
-SAVE_UFD	Instructs MAGSAV to save all directory entries, whether or not the directories have been modified since the last save. The contents of these entries are saved only if they have been modified. This enables you to recreate the directory structure on disk when you restore the tape. Use this option to save the directory structure when running incremental saves where the save tape is written in non-ANSI format, that is, when running incremental saves using options -REV19 or -REV20.
-TTY	Use this option when running MAGSAV from CPL or command input (COMI) files. Instructs MAGSAV to prompt you to enter the tape unit number, and the response to the overwrite query (see option -QUERY), from your terminal. All other information is taken from the CPL or COMI files.
-UNLOAD	Instructs MAGSAV to rewind and unload the tape when the end of the tape is reached.
-UPDT	Instructs MAGSAV to update the DTB of any files or directories that are saved. You can use this option only if you are a member of the ACL group .BACKUP$ or if you invoke MAGSAV from the supervisor terminal. This option is used primarily by System Operators.
-HELP	Displays command syntax and options.

Refer to the *Operator's Guide to Data Backup and Recovery* for more information on MAGSAV.

MAKE

MAKE creates PRIMOS partitions, preparing them for use in the PRIMOS file system or as paging or crash dump disks. MAKE also requires you to name each partition.

The MAKE command starts the MAKE utility program, which is stored in CMDNC0 as MAKE.SAVE. In addition, you can run MAKE as a standalone utility, or execute MAKE through the MTRESUME command. See the handbook for your processor or the *Operator's Guide to File System Maintenance* to learn how to use MAKE standalone; for details about MTRESUME, see its entry in this chapter.

Before using MAKE, you must place the disk in the Assignable Disks Table (using the DISKS command) and assign it (using the ASSIGN command).

Notes

Versions of MAKE at or after Rev. 20.0, unlike earlier versions, create ACL-protected partitions. The protection placed on the MFD when the partition is formatted is SYSTEM:ALL; $REST:LUR. All directories created on these partitions will be ACL-protected by default and are hashed. (You can still create password directories on post-Rev. 20.0 disks, but they will not be hashed.)

To avoid the possibility of mistakenly invoking a pre-Rev. 23.3 version of MAKE, it is recommended that you delete the older versions of MAKE. If you invoke an earlier version, you may not get the results you expect.

Format

MAKE [–DISK [*pdev*] –PARTITION [*name*] –DISK_TYPE [*type*]] [*options*]

Arguments and Options

pdev is the physical device number of the disk to be created, *name* is the name to be assigned to the disk partition, and *type* is the type of disk on which the partition resides. If you fail to specify the –DISK, –PARTITION, or –DISK_TYPE options, MAKE prompts for the missing information. For every option that expects an argument, MAKE prompts if the option is supplied but the argument is mising or invalid. See the *Operator's Guide to File System Maintenance* for detailed information on how to use MAKE and on how to construct physical device numbers.

Caution

You must enter the –DISK keyword on the command line immediately before the *pdev* argument. Otherwise, PRIMOS interprets *pdev* as the starting address of the MAKE program, and does not start at location 1000_8 as expected by MAKE. If you enter –DISK in any other position, the results are unpredictable. For example, you may lose data.

At Rev. 23.3, the following options are obsolete and are replaced by the options shown in the right column. The old options are still supported.

Obsolete Options	*Replacements*
–ALL_CONTROLLER	–DBS OFF
–INTELLIGENT_CONTROLLER	–DBS ON
–COPY_BADSPOTS_BY_DEVICE	–COPY_BADSPOTS *pdev*
–COPY_BADSPOTS_BY_NAME	–COPY_BADSPOTS *diskname*
–OVERRIDE_DEFAULT_INTERLEAVE	–SECTOR FORWARD
–RESTORE_DEFAULT_INTERLEAVE	–SECTOR REVERSE

Options now have three-letter abbreviations (e.g., –DSK, –FMT, –RPT). All old option abbreviations are still supported. See HELP MAKE, MAKE –HELP, or MAKE –USAGE for all abbreviations.

–DISK [*pdev*] Specifies the physical device number of the partition that you are creating. If you do use –DISK or do not include *pdev* with –DISK, MAKE prompts for the necessary information to create a partition.

–PARTITION [*name*] Specifies a valid name of up to six characters for the partition you are creating. If you do not include this option on the command line or do not include *name* with this option, MAKE prompts for a name.

–DISK_TYPE [*type*] Specifies the type of disk to be processed by MAKE. If you do not specify –DISK_TYPE or do not include *type*, MAKE prompts for *type* and lists the valid types if you want a list. Use the correct type to avoid error conditions. The valid types are

CMD	SMD
68MB	158MB
160MB	600MB
MODEL_4475	MODEL_4711
MODEL_4714	MODEL_4715
MODEL_4719	MODEL_4721
MODEL_4729	MODEL_4730
MODEL_4731	MODEL_4732
MODEL_4735	MODEL_4845
MODEL_4860	

Disk types that support Dynamic Badspot Handling are

SMD (300MB and 80MB)

68MB	MODEL_4475
158MB	MODEL_4735
160MB	MODEL_4845
600MB	MODEL_4860

–BADSPOT_LEVEL [*n*] Specifies the level of badspot checking that you want to take place. *n* ranges from 0 through 4. The default

values are shown in the –DISK_TYPE display for each disk type. If you do not specify *n* with this option, MAKE prompts for it. MAKE sets the level to 0 for disks with vendor flaw maps and MAKE ignores this option on SCSI disks associated with the Model 7210 disk controller downloaded with ICOP+ except the Model 4721 which you should set to 0 in that case.

–BAUD_RATE [*baud*] Specifies the initial baud rate of the supervisor terminal if it is to be different from the default baud rate of 300 bps. If you use this option but do not include *baud* on the command line, MAKE prompts for a valid baud rate. Valid baud rates are 110, 300, 1200, and 9600.

–COPY_BADSPOTS [*pdev* | *diskname*]

Specifies the pdev or diskname of the partition containing the badspot file, BADSPT, that MAKE is to copy. If you do not include pdev or diskname with this option, MAKE prompts for it. You can include up to four instances of pdev or diskname or a combination of these on the command line. pdev must be an assigned partition and diskname must be an added partition.

–DBS {OFF | ON}

OFF specifies that the partition should be created to be compatible with a 4004, 4005, or IDC1 controller in nonintelligent mode. –DBS OFF is applicable only to disk types capable of Dynamic Badspot Handling or mirroring. MAKE defaults to –DBS OFF when running MAKE standalone.

ON specifies that the partition should be created to be compatible with the Model 6580 (IDC1) intelligent disk controller capable of Dynamic Badspot Handling and mirroring. –DBS ON is applicable only to disk types capable of Dynamic Badspot Handling or mirroring. Dynamic Badspot Handling occurs on the entire disk, or spindle. You must create the first, or head zero, partition of the spindle before creating other partitions on the spindle and you must have the head zero partition assigned when you create other partitions on the spindle. You cannot use –DBS ON (–IC) when running MAKE standalone.

–DISK_REVISION [*rev*] Specifies the revision of the partition that you want MAKE to create. *rev* must be 18, 19, 20, 21, 22, or 22.1. If you do not include *rev* or if you include an invalid *rev*, MAKE prompts for a valid *rev*. If you do

not include this option, MAKE creates a Rev. 22.1-format partition.

-FORMAT

Specifies that the disk has never been used on a Prime system and MAKE should initialize the data patterns on the partition. If you want to create pre-Rev. 21.0 partitions on a spindle that supports Dynamic Badspot Handling and that has previously been partitioned as a Rev. 21.0 or later disk, use the -FORMAT option to remodify the record headers.

WARNING

Do not use the -FORMAT option on any partition of a spindle on which a DBS file is active (-DBS ON or -IC) unless you remake all partitions on the spindle.

-FORMAT is ignored if the disk is a SCSI disk on a Model 7210 or a Model 2382 disk controller because badspots are handled by the disk drive.

-FORMAT_OK

Permits MAKE to enable the -FORMAT option if MAKE determines this is necessary to make the partition correctly. -FORMAT_OK is intended for use with -NO_QUERY when MAKE is run as a phantom. It is applicable only to a head zero partition that has an exisitng DBS file (i.e., on a disk type that can be connected to an IDC1 controller).

In such a case, MAKE aborts if -NO_QUERY is specified and formatting is necessary but you have not permitted formatting by specifying -FORMAT or -FORMAT_OK in the command line. Either option gives the necessary permission and allows MAKE to proceed, but -FORMAT has the disadvantage that the disk will always be formatted, whether necessary or not. -FORMAT_OK permits formatting if needed, but avoids it when it is not, and thereby saves processing time in the latter case. See the *Operator's Guide to File System Maintenance* about running MAKE as a phantom.

-INIT

Specifies that MAKE should initialize the file system portion of the partition. To save processing time, it is recommended that you do not use this option because PRIMOS initializes the file system.

-LIST_BADSPOTS

Causes MAKE to list all known badspots on the partition when MAKE finishes creating the partition. Badspots are sorted by partition such that badspots on each partition are grouped together.

–MAP_UNCORR	Specifies that records with correctable errors are not to be considered badspots. It is recommended that you do not use this option.
–MAX_EXTENT_SIZE *size*	Specifies the maximum extent size for CAM files at Rev. 22.0 and later. If you do not specify the maximum extent size, MAKE defaults to 32 records.
–MIN_EXTENT_SIZE *size*	Specifies the minimum extent size for CAM files at Rev. 22.0 and later. If you do not specify the minimum extent size, MAKE defaults to 16 records.
–NEW_DISK	Specifies that this is the first time the partition is being created and that MAKE should not look for an existing badspot file but should create a new badspot file if necessary. –NEW_DISK may also specify that you know the partition is corrupt. Use this option only if this is a new disk and there is no badspot file (BADSPT or DBS) or the partition is corrupt; if you use this option and a badspot file exists, MAKE prompts to be sure that you want to ignore an existing badspot file. Do not use –NEW_DISK on the head zero partition of a disk type that supports Dynamic Badspot Handling unless you are certain that there is no data of importance on *any* partition on the disk. Use of –NEW_DISK may suppress warnings of data loss on other partitions.
–NO_FLAW_MAP	Specifies that MAKE should not process vendor flaw maps but should use the default level of badspot checking for the disk type involved. The default level is 4 and the disks that have vendor flaw maps are the Models 4735, 4845, and 4860. Using the flaw map is the default and is recommended.
–NO_INIT	Specifies that MAKE is not to initialize the file system portion of the partition. This is the default.
–NO_QUERY	May use when running MAKE with phantoms. The command-line options used must leave no doubt as to how MAKE is to proceed so that MAKE does not prompt for confirmation when (1) the specified disk type may be incorrect, (2) MAKE requires or recommends that –FORMAT be enabled in order to rebuild or remove the DBS file when creating a head zero partition on a spindle that supports Dynamic Badspot Handling, or (3) the head zero partition is not assigned when creating a nonhead zero partition on a spindle that supports Dynamic Badspot Handling or MAKE recommends that –FORMAT be enabled.

	You must include the associated arguments with the other command-line options used with –NO_QUERY. The correct –DBS argument and either –FORMAT or, preferably, –FORMAT_OK should also be used, if applicable. If you use –FORMAT or –FORMAT_OK with –NO_QUERY, MAKE will proceed but you may risk data loss. Run MAKE first without –NO_QUERY and with –BADLEV 0 to see any warning that MAKE may display. –NO_QUERY does not suppress prompts issued by MAKE if you use the –NEW_DISK option.
–QUERY_BADSPOTS	Specifies that you want to enter known badspots manually, either from a list or from a hard-copy flaw map provided by the manufacturer. You can enter the badspots either as octal record numbers or as decimal head, track, and sector numbers.
–REPORT	Provides periodic updates on the progress of the MAKE operation in formatting a disk, in checking for badspots and in initializing the file system. –REPORT also causes MAKE to display the number of badspots found in a flaw map, if one is present, and in the BADSPT and DBS files, if they exist.
–SECTOR {**FORWARD** | **REVERSE**}	Specifies the method of file record allocation. The FORWARD argument specifies forward allocation with an interleave factor of 3. The REVERSE argument specifies reverse allocation with an interleave factor of 1. If you do not specify –SECTOR with the FORWARD (–ODI) argument or the REVERSE argument (–RDI), MAKE sets the method based on the CPU and disk controller in your system. If you run MAKE standalone, MAKE prompts for the method of file record allocation. This option replaces the –ODI and –RDI options. MAKE ignores this option on SCSI disks associated with the Model 7210 disk controller downloaded with ICOP+.
–SPLIT {*recs* | **MAXIMUM**}	Specifies that the disk is to be a split partition to be used for paging or for a crash dump to disk, with *recs* records reserved as paging or crash dump records and the rest of the records reserved for file system data. If you omit *recs*, MAKE displays the maximum number of available records and prompts for the number of paging records. If you use the MAXIMUM argument, MAKE uses the maximum number of available records for the paging or crash dump space, leaving a minimal file system space.
–USAGE	Displays the command usage and lists the options.
–HELP	Displays the command usage and describes the options.

MAXSCH

MAXSCH controls the number of processes simultaneously active on the system. (An **active process** is one that is on the ready list or that is waiting for disk I/O to complete.)

The default formula does not always provide the optimal value for your system. You can determine this optimal value by first issuing the USAGE command, described later in this chapter. In general, if the percentage of I/O activity on the USAGE report is too high, this indicates too much paging activity, and you should lower the MAXSCH number. If the percentage of idle time is high, you should increase the MAXSCH number. For details, refer to the discussion of how to interpret the USAGE command in the *Operator's Guide to System Monitoring*.

Format

MAXSCH ***x***

Argument

The minimum value of x is 1. The default value of x depends upon factors such as the amount of main memory on the system, the number of drives on which there are paging partitions, and the number of active CPUs. The default value of x for a particular machine can be calculated with this formula:

$$x = (c - 1) + (m + 3\text{MB}) * (0.8 + (0.2 * n))$$

where

c is the number of active CPUs.
m is the number of megabytes (MB) of main memory.
n is the number of drives on which there are paging partitions.

MAXUSR

MAXUSR is an internal command that controls the number of users who are allowed to log in. After a cold start, no users can log in until the MAXUSR command has been issued. If MAXUSR is issued before the system date and time have been set, it is ignored.

Format

MAXUSR [*n* | **-NTS_USERS** *n* | **-PHANTOM_USERS** *n* | **-REMOTE_USERS** *n* | **-TERMINAL_USERS** *n*]

Options

n

Sets the maximum number of users allowed to log in. If you do not specify a value for *n*, then the maximum number of users is the maximum specified in the system configuration file.

When it is necessary to limit the number of users on the system, you can use MAXUSR to specify that no more than *n* users are allowed to log in. If the number of users currently exceeds *n*, current users are not logged out, but new users may not log in, and only the supervisor terminal (User 1) is permitted to start phantoms. Users who attempt to log in receive the error message `Too many users; please try again in a few minutes.` Nonprivileged users who try to start phantoms receive the error message `No phantoms available.`

-NTS_USERS ***n***

Sets the maximum number of NTS users allowed to log in. If you do not specify *n*, or if you omit this option, the default is the number specified by the NTSUSR configuration directive. If you specify a value for *n* that exceeds the value of your NTSUSR directive, MAXUSR prints the following error message:

`NTS User value exceeds number of configured NTS users.` *`NTSUSR_value`* `NTS users will be allowed.`

-PHANTOM_USERS *n* Sets the maximum number of phantom users and child processes that can be spawned. This limit does not apply to privileged phantom processes and the supervisor terminal process; these processes can always spawn phantoms up to the limit specified by NPUSR, regardless of the limit set by the -PHANTOM_USERS option. If you do not specify *n*, or if you omit this option, the default is the number specified by the NPUSR configuration directive. If you specify a value for *n* that exceeds the value of your NPUSR directive, MAXUSR prints the following error message:

```
Phantom User value exceeds number of
configured phantom users. NPUSR_value
phantom users will be allowed.
```

-REMOTE_USERS *n* Sets the maximum number of remote users allowed to log in. If you do not specify *n*, or if you omit this option, the default is the number specified by the NRUSR configuration directive. If you specify a value for *n* that exceeds the value of your NRUSR directive, MAXUSR prints the following error message:

```
Remote User value exceeds number of
configured remote users. NRUSR_value
remote users will be allowed.
```

-TERMINAL_USERS *n* Sets the maximum number of local terminal users allowed to log in. If you do not specify *n*, or if you omit this option, the default is the number specified by the NTUSR configuration directive. If you specify a value for *n* that exceeds the value of your NTUSR directive, MAXUSR prints the following error message:

```
Terminal User value exceeds number of
configured terminal users. NTUSR_value
terminal users will be allowed.
```

MAXUSR, System Startup, and System Shutdown

The first time the MAXUSR command is issued after the system date and time have been set, the `Login Please.` message is issued at all terminals connected to the system via nonassignable asynchronous lines. Terminals connected via assignable asynchronous lines do not receive this message. After the login message has been issued, the system responds to commands issued from terminals; until then, PRIMOS may echo characters typed on those terminals, but does not respond to them.

At Rev. 23.3, when you specify MAXUSR 0 (no logins permitted), the `Login Please.` message is not sent to users' terminals following a user login attempt that failed because logins are not permitted. Instead the system displays the *maxusr_prompt* on the user's terminal. The `Login Please.` message is redisplayed on the user's terminal when you reset MAXUSR to permit user logins. In prior revisions, the `Login Please.` message was displayed regardless of whether MAXUSR permitted user logins.

When the system is to be shut down, setting MAXUSR to 0 prevents new logins. LOGOUT ALL automatically sets MAXUSR to 0, removes the `Login Please.` message from users' terminals, and logs out all users.

Using Multiple MAXUSR Options

When you set limits on a particular process class by specifying the –NTS_USERS, –PHANTOM_USERS, –REMOTE_USERS, or –TERMINAL_USERS options, you only set an upper limit for that process class; these options do not reserve processes for a particular class. For instance, typing

```
MAXUSR 5 -REMOTE_USERS 4
```

does not mean that four of the user slots on the system are saved for remote users; it only means that no more than four remote users may use the system at one time. If five local users log in immediately after cold start, then no remote users are permitted on the system.

If you want to reserve precisely four slots for remote users, specify upper limits for all other classes, as in

```
MAXUSR 5 -TUSR 1 -NTSUSR 0 -PUSR 0 -RUSR 4
```

Notes

The MAXUSR command does not print an error message if you give an incorrect argument. If you specify a maximum number of users that is not a valid number or is higher than the maximum in your system configuration file, MAXUSR sets the user limit at the limit in your configuration file.

The MAXUSR command allows you to set process-class limits that are higher than the total limit, as in

```
MAXUSR 5 -TERMINAL_USERS 6 -NTS_USERS 6
```

This does *not* increase the overall limit, which remains at 5; no more than five NTS and/or terminal users are allowed to log in. In general, you should always check your MAXUSR command format carefully to make sure that you have not specified process-class limits that conflict with one another or with the overall total.

MESSAGE

MESSAGE is an internal command used to send messages to users or to other Operators. Both users and Operators may send messages. Messages may be sent from

- Any user terminal to any user terminal, which may be on a different node in the network
- Any user terminal to the supervisor terminal
- The supervisor terminal to all users
- The supervisor terminal to a specified user
- The supervisor terminal to another supervisor terminal on a different node on the network

---

Note

When using the MESSAGE command, do not include the terminal's kill character in the text of the message. Doing so prevents words before the kill character from being sent. (Use the TERM -DISPLAY command to list the kill character of your terminal.) For example, assume that the kill character is the question mark during the following message:

```
OK, MESSAGE ALL -NOW -FORCE
Who owns the red sports car? Your lights are on.
```

The first sentence (everything up to and including the question mark) is not sent, and users receive only the message `Your lights are on.`

You may wish to include the terminal's BELL character (usually Ctrl-G) as part of your message. This will alert users to check their terminals for your message.

Defining MESSAGE Attributes

At Rev. 23.3, the MESSAGE command allows the System Administrator or Operator to define message attributes. You can define a maximum line length to be 80 or 512 characters. Also, you can specify a carriage return/line feed to be placed in the output message.

If you want messages to be longer than 80 characters, ensure that the output buffers are large enough to accommodate the extra length. If the output buffers are not large enough, long messages will not be delivered and an error will be reported to the sender.

Options

-DISABLE_CRLF — Disables carriage return/line feed substitution in messages. This option can be used only at the supervisor terminal.

-DISPLAY	Allows all users to display the current message settings (which are set by the Operator). For example,
	
	`Maximum message length allowed: 80 characters.`
	`CRLF substitutions: DISABLED`

-ENABLE_CRLF	Enables carriage return/line feed substitution in messages. This option can be used only at the supervisor terminal.
-MAX_LENGTH *value*	Sets the maximum number of characters allowed in a message. *value* must be either 80 or 512 characters. This option can be used only at the supervisor terminal. The default is 80 characters with no carriage return/line feed substitution.
-HELP	Lists command syntax.

Operator-to-User Messages

Format

MESSAGE { *username* / *-usernumber* / ALL } [*options*]

text of message

Arguments

username	Specifies a user ID. All users logged in as *username* receive the message.
-usernumber	Specifies the number of a specific user process, preceded by a hyphen, or dash. Only the user specified as *-usernumber* receives the message. To determine the user numbers for the various users, issue the STATUS USERS command.
ALL	Represents all users on the system. All users (except slave processes) receive the message. This argument can be used only at the supervisor terminal.

If you use MESSAGE ALL –NOW from the supervisor terminal, the message has the header `Bulletin from MU 09:28` instead of the header shown below; if you use MESSAGE ALL without –NOW, the message has no header and can easily be mistaken for normal system output. Also, this message is displayed for all subsequent users that log in. It is wiser always to use the –NOW option with MESSAGE ALL.

text of message

Specifies the message to be sent. Operators and System Administrators can set the maximum message length to be 80 or 512 characters. Sending a message first displays a line of information on the receiver's terminal: the sender identification and the time the message was sent; and then the text of the message. For example,

```
*** SYSTEM (user 1 on MU) at 09:28
Jane -- the tape drive is yours now.
```

Depending on the attributes set by the Operator, the message may be one or more lines in length.

To specify a carriage return in a message, use %/. If you specified the –ENABLE_CRLF option, carriage returns will be executed. Otherwise, %/ will appear as a literal. To specify a % sign when carriage returns are activated, use %%.

Options

–FORCE

Allows you to override a user's receive state (see the following section, Receive States) to send messages to a logged-in user's terminal no matter what. This option is effective only when used from the supervisor terminal.

If –FORCE is not used, reception of the message may be blocked by some or all of the intended recipients. If this happens when ALL (sending to all users) is specified, the user numbers of all users who are blocking receipt of the message are displayed. If this happens when you are sending to a specific user, you are asked if the message should be forcibly sent to each user who is blocking receipt of the message.

–NOW	Sends the message immediately. This is undesirable if the user is engaged in a sensitive operation, but is essential if you will soon shut down the system. Only interactive terminal users receive a message sent with the –NOW option. If –NOW is not specified, the message is stored in a broadcast buffer (MESSAGE ALL) or in a single user buffer. The message is displayed at the user's terminal (without any distinguishing header) when that user returns to PRIMOS command level. A message that is in the broadcast buffer (MESSAGE ALL with no –NOW option) is also displayed after a user issues the LOGIN command. To cancel a broadcast message, issue another broadcast message with a null line as *text of message.* When –NOW is specified, stored messages are not affected. If you use –NOW with –ON, then –NOW must be the last word on the command line.
–ON *nodename*	The message is sent to the specified user or users on the system *nodename* rather than on the local system. This option should immediately follow the *username* or *–userno* argument. ALL cannot be used with –ON. If you specify ALL with –ON, PRIMOS attempts to send the message to the user with the *username* ALL. If there is no user with the name ALL, PRIMOS sends an error message indicating that you attempted to send the message to an unknown addressee.

Operator-to-Operator Messages

Format

MESSAGE –1 –ON *nodename* [**–FORCE** | **–NOW**]

text of message

When you use this format, *text of message* is displayed at the supervisor terminal of the node specified by *nodename.*

If the *nodename* given is not connected to the local node, then the error message `Unknown node. (SMSG$)` is displayed *after* the Operator enters the message to be sent.

Note

The *nodename* of the originating system is not displayed at the receiving system. The sending Operator should include the originating *nodename* as part of the message text.

The –FORCE and –NOW options function as described previously.

Receive States

Users may set the receive state of their terminals with the –ACCEPT, –DEFER, and –REJECT options of the MESSAGE command.

Format

MESSAGE ***option***

Options

–ACCEPT	Enables reception of all messages.
–DEFER	Inhibits immediate messages; accepts messages sent without the –NOW option. PRIMOS informs the sender that the receiver's status is –DEFER if the sender uses the –NOW option. –DEFER prevents others from establishing a TALK session with you.
–REJECT	Inhibits all messages. The –FORCE option does not override this option if the MESSAGE command is issued from a user terminal. –REJECT prevents others from establishing a TALK session with you.

Use the –STATUS option (abbreviation: –STAT) of the MESSAGE command to determine the receive state of each user. For example,

```
OK, MESSAGE -STATUS
User                              No  State
SYSTEM                             1  Accept
HARRIET                            2  Reject
PETER                              8  Defer
HONORIA                           10  Accept
BATCH_SERVICE                    102  Accept
YTSMAN                           105  Accept
FTP                              106  Accept
SYSTEM                           109  Accept
```

You may use either of the following formats to determine the message status of an individual user:

MESSAGE –STATUS { *–usernumber* / *username* }

The format to determine the receive state of the terminal you are using is

MESSAGE –STATUS ME

You cannot use the –ON option with –STATUS ME.

MIRROR_OFF

MIRROR_OFF allows you to remove a partition from a mirrored pair. Disk mirroring consists of having a secondary partition that duplicates all writes to the primary partition. The result is two logically equivalent partitions. If one partition fails, the other can be used in its place.

The MIRROR_OFF command can be issued only from the supervisor terminal. At least one option is required with this command.

Do not use MIRROR_OFF during a RESUS session.

Format

MIRROR_OFF ***pdev1 pdev2*** { **-SHUT_BOTH [-FORCE]** | **-SHUT_PRIMARY** | **-SHUT_SECONDARY** | **-HELP** }

Arguments and Options

pdev1 pdev2
Specify the physical device numbers of the two partitions that are presently mirrored and that you want to shut down as a mirrored pair. You may omit these arguments if you are using the -HELP option. To list the physical device numbers of mirrored partitions, use the STATUS DISKS command.

-FORCE
Is similar in operation to the -FORCE option of the SHUTDN command. -FORCE makes it possible to shut down a partition even if problems prevent it from being read. You can use this option only with -SHUT_BOTH.

-SHUT_BOTH
Turns off the mirror and shuts down both partitions, giving them an identical date/time stamp. If one member of a mirrored pair has already been shut down, an error message is displayed at the supervisor terminal.

This option is invalid with paging partitions. Paging partitions can be shut down only at system shutdown, with the SHUTDN ALL command. If paging partitions are specified, an error message is displayed.

Caution

If there are disk partitions mounted below the partition you are shutting down, you must shut down the lower-mounted partitions first. If this is the case, PRIMOS displays a warning message when you specify the -SHUT_BOTH option to MIRROR_OFF.

-SHUT_PRIMARY Turns off the mirror, if it was on, and shuts down the primary partition. A subsequent attempt to mirror this primary partition and secondary partition pair requires a catch-up copy because the date/time stamps cannot match. The reason for the mismatch is that the partitions were not shut down at the same time. This option is valid only if the mirror is on or if the primary partition is bad. Otherwise, an error message is displayed at the supervisor terminal.

-SHUT_SECONDARY Turns off the mirror, if it was on, and shuts down the secondary partition. A subsequent attempt to mirror the primary partition and the secondary partition requires a catch-up copy, because the date/time stamps will not match. The reason for the mismatch is that the partitions were not shut down at the same time. This option is valid only if the mirror is on or if the secondary partition is bad. Otherwise, an error message is displayed.

-HELP Lists the legal arguments for the MIRROR_OFF command.

See the *Operator's Guide to File System Maintenance* for information on disk mirroring; see also the MIRROR_ON command.

MIRROR_ON

MIRROR_ON allows you to create a mirrored pair of disk partitions. **Disk mirroring** consists of having a secondary disk that duplicates all writes to the primary disk. The result is two logically equivalent disks. If one disk fails, processing on the other disk continues. Since mirrored pairs are logically equivalent, two disks in a mirrored pair must either be both robust partitions or both standard partitions.

Do not use MIRROR_ON during a RESUS session.

The purpose of disk mirroring is to increase system availability by making it possible to process with pairs of logical disks. These logical disks are identical; if one fails, the other is a duplicate and is available for use. The changeover to the duplicate disk is automatic. With mirroring, all records are written to both the primary partition and the secondary partition. Reading of the records, however, is split between the two mirrored partitions. This reduces the average time it takes to read a record.

This command may be issued only from the supervisor terminal. For this command to be valid, one of the mirroring configuration directives (MIRROR, COMDVM, PAGINM) must be in the configuration file.

Notes

If you do not shut down a mirrored disk properly with the MIRROR_OFF command, the next time you try to start that disk with MIRROR_ON you will see the following message at the supervisor terminal:

```
Are you sure you want to do a catch-up copy?
```

Your system boot will pause until you answer this question, and no users will be allowed to log on until the question is answered.

If, after a warm start, you try to use MIRROR_ON on a disk on an intelligent controller, you may see the following message at the supervisor terminal:

```
Could not OPEN PDEV pdev due to controller or device errors.
(mirror_on)
```

If you see this message, wait until you see the following message:

```
DLL and init ICOP complete controller_address - (disk_init)
```

This message means that the firmware for the intelligent disk controller has been reloaded. You can then issue the MIRROR_ON command again.

Format

MIRROR_ON *pdev1 pdev2* [-MOUNT_PATH *pathname*] [-PRIORITY_SELECT] [-PRIVATE] [-REPLACE] [-HELP]

Arguments and Options

pdev1 pdev2 Specify the physical device numbers of the two partitions that you want to mirror.

-MOUNT_PATH *pathname* Specifies a logical mount point for the partition. The mount point may be any existing, local directory in the tree structure except for an MFD. The mount point may also be in the root directory.

Note

If you do not specify a mount point using the -MOUNT_PATH option, the partition is mounted in the root directory by default. In this case, a directory is created in the root with the same name as the name of the disk partition that is added. You can, however, mount a partition in the root directory with a separate directory name (for example, <MANUFACTURING) if you use the -MOUNT_PATH option.

The supervisor terminal must have access to the mount point. The mount-point pathname must be fully qualified, that is, beginning at the root. Users attached to the mount-point directory or its parent directory at the moment the MIRROR_ON is performed continue to see the contents of the original directory until they leave that attach point. See the *System Administrator's Guide, Volume I: System Configuration* for detailed information on logical mounts.

Caution

Do not add a disk to the root with a name longer than six characters if there are pre-Rev. 23.0 systems in your network that must access the disk. If you do, they will not have access to the disk.

–PRIORITY_SELECT

Takes over control of a dual-ported disk drive. (A **dual-ported** disk drive is one which can be attached to two systems simultaneously, although only one system has control over the disk drive at any moment.) Always use –REPLACE (described below) with –PRIORITY_SELECT when the Name Server is running on your system.

WARNING

Never priority-select a dual-ported disk drive while the other system attached to the drive is running. You could corrupt the disk's file system by interrupting the other system's write to disk.

Never place any system's COMDEV on a dual-ported disk drive; if someone inadvertently priority-selects that disk from the secondary port, the first system behaves unpredictably and will probably crash.

–PRIVATE

Allows the Operator to add a partition and prevent it from being accessed by remote systems with remote file access (RFA). Private disk partitions added to the local system are displayed by the LIST_MOUNTS command. Private disk partitions that are located on remote systems are displayed by the LIST_MOUNTS command only if the requestor is at the supervisor terminal or is the System Administrator.

–REPLACE

Forces all systems in the common file system name space to reference the new system (the one doing the MIRROR_ON) for the specified disk partition instead of the system it was originally added to. Use this option whenever you are adding a disk that has been moved from one system to another without being explicitly shut down first, as in the case of a dual-ported disk drive. (This option is only necessary if the Name Server is running on your system.)

For example, if disk PUBS12 is physically moved from System A to System B and is not explicitly shut down, using the –REPLACE option when adding the disk to System B causes all systems in the name space to look for PUBS12 on System B instead of on System A. It accomplishes this by overriding the old entry in the GMT for that partition and replacing that entry with the new information. When you specify this option, you receive the following query:

```
The -REPLACE option forces all systems in
your common file system namespace to
reference your system for this disk
instead of the system the disk was
originally added to.  Do you really wish
to do this?
```

Answer YES if you want the MIRROR_ON to take place.

If the Name Server is running on your system, you must specify this option whenever you use the –PRIORITY_SELECT option.

Caution

Never use the –REPLACE option unless you are absolutely certain that the physical disk has been moved from one system to another without being explicitly shut down first.

If you attempt to mirror a pair of partitions that are not identical, the system issues the following warning query:

```
A catch-up copy of primary device <pdev1>
to secondary device <pdev2> will be
started. Are you sure you want to
continue?
```

If you are running MIRROR_ON from a COMI file, you may still answer this query from your terminal.

–HELP Displays command syntax.

See the *Operator's Guide to File System Maintenance* for more information on disk mirroring. For more information on configuration directives, see the *System Administrator's Guide, Volume I: System Configuration.*

MOFF

See MIRROR_OFF.

MON

See MIRROR_ON.

MONITOR

BATCHQ>MONITOR is the program that monitors the Batch subsystem. It can be run only by the BATCH_SERVICE phantom that is started by the BATCH –START command.

At Rev. 21.0 and later, BATCHQ>MONITOR does not send messages to the supervisor terminal each time it begins or finishes a job. (The Batch Administrator can specify otherwise.) MONITOR does, however, continue to send and record these messages to the Batch monitor log file. The Batch subsystem always sends error messages to the supervisor terminal, even if the initiation and termination messages are suppressed.

To display job initiation and termination messages, edit the Batch startup command file (BATCHQ>START_BATCH_MONITOR.COMI) and change the line that runs the Batch monitor (the RESUME MONITOR command) to read `RESUME MONITOR` instead of `RESUME MONITOR -HUSH`. The change takes effect the next time the Batch monitor is started up.

Format

RESUME BATCHQ>MONITOR [–HUSH]

Option

–HUSH	Prevents job initiation and termination messages from being logged to the supervisor terminal. These messages appear in the Batch monitor log file. If your system tends to run many small Batch jobs, you may not want to get these job execution messages on the supervisor terminal since they are so common and will obscure more vital diagnostic information.

See the *Operator's Guide to the Batch Subsystem* for details. See also BATCH, FIXBAT, INIT, and JOB earlier in this chapter.

MONITOR_SEARCH_RULES

The external PRIMOS command, MONITOR_SEARCH_RULES, displays statistics on the frequency of dynamic linking to subroutines in libraries. These statistics can be displayed for the whole system or for an individual user. The System Administrator can use system-wide monitoring to optimize the order of the search rules in the system-default ENTRY$ search list. The System Administrator can give programmers rights to use per-user monitoring information to tune their private ENTRY$ search lists for specific programs or suites of programs or to examine their applications' dynamic-linking behavior.

Format

```
MONITOR_SEARCH_RULES { -CHECK
                     | -REPORT [report-filename]
                     | -START [-PER_USER]
                     | -STOP [-PER_USER] } [-HELP]
```

Options

-CHECK Checks for erroneous search rules in the ENTRY$ search list.

-REPORT [*report-filename*] [*report-suboptions*]
Produces a system-wide report. If *report-filename* is omitted, the report is displayed at the terminal. *report-suboptions* produces per-user reports, detailed reports, and new ENTRY$ search rules files as documented below in the section Reports From MONITOR_SEARCH_RULES.

-START [-PER_USER] Starts system-wide monitoring. The -PER_USER suboption starts per-user monitoring. Both the option and the suboption are available at the supervisor terminal only.

-STOP [-PER_USER] Stops all monitoring, both system-wide and per-user. The -PER_USER suboption stops per-user monitoring only. Both the option and the suboption are available at the supervisor terminal only.

-HELP Displays the command's syntax and usage.

Each option is explained in more detail below.

Starting and Stopping MONITOR_SEARCH_RULES

MONITOR_SEARCH_RULES runs as a static-mode library, so System Administrators must place the keyword –STATIC_MODE_LIBRARIES first (after –PRIMOS_DIRECT_ENTRIES) in the ENTRY$ search list, that is, before any EPF libraries. Otherwise, MONITOR_SEARCH_RULES will not count statistics for routines in the EPF libraries that come before –STATIC_MODE_LIBRARIES in the ENTRY$ search list. The same advice applies to users who intend to monitor their private ENTRY$ search lists.

To start MONITOR_SEARCH_RULES at your supervisor terminal, type

```
MONITOR_SEARCH_RULES -START [-PER_USER]
```

The –PER_USER suboption starts both per-user and system-wide monitoring. If you previously started system-wide monitoring with the –START option, then –START –PER_USER starts per-user monitoring only. If you previously started per-user monitoring and then stopped it with –STOP rather than with –STOP –PER_USER, then –START also begins per-user monitoring.

A typical use of MONITOR_SEARCH_RULES might be

1. Start MONITOR_SEARCH_RULES at the supervisor terminal.
2. Gather statistics for a representative period, such as a week.
3. Reorder the ENTRY$ search rules once only.
4. Stop MONITOR_SEARCH_RULES at the supervisor terminal.

For most sites this procedure is adequate, provided that the process of gathering statistics and reordering search rules is repeated when libraries are changed (for example, after upgrading to a new revision), or when new applications are introduced, or when existing applications are significantly changed.

MONITOR_SEARCH_RULES uses one shared segment to hold its shared statistics-gathering routine, plus one dynamically allocated shared segment to store the statistics it gathers as the system runs. One additional shared, dynamically allocated segment for every 10 users is used to hold per-user statistics if per-user sampling is enabled.

Caution

MONITOR_SEARCH_RULES installs itself as the first available static-mode library. Because it cannot count statistics for static-mode libraries before itself, MSR displays a warning if it finds that library number 1 is not null, then installs itself as library number 2 or greater, overwriting any other static-mode library occupying that position.

Use this command at the supervisor terminal to stop MONITOR_SEARCH_RULES:

```
MONITOR_SEARCH_RULES -STOP [-PER_USER]
```

Used alone, the –STOP option stops all monitoring, but does not return the segments allocated for per-user monitoring. Used with the –PER_USER suboption, the –STOP option stops per-user monitoring only and returns all segments allocated for per-user monitoring. If –STOP has already been issued, then –STOP –PER_USER simply returns the segments allocated for per-user monitoring. Once per-user monitoring segments are freed, no per-user reports can be generated. If –STOP has not already been issued, then –STOP –PER_USER lets system-wide monitoring continue.

Reports From MONITOR_SEARCH_RULES

The –REPORT option of MSR displays statistics in a wide array of formats. The format of the report depends on which suboption of –REPORT is specified. The command syntax of the –REPORT option is as follows:

MSR –REPORT [*report–filename*] [**–DETAIL** | **–USER [*usernumber*]** | **–NEW_FILE [*new–ENTRY$–filename*]**]

The –REPORT option of MONITOR_SEARCH_RULES supports the suboptions below. Any number of these suboptions may be combined, but all of them require the –REPORT option.

–DETAIL — Produces a detailed, entrypoint-by-entrypoint report that may be either system-wide or per-user.

–USER [*usernumber*] — Produces a report that shows dynamic-linking statistics for the whole system and for the user specified by *usernumber*.

–NEW_FILE [*new-ENTRY$-filename*] — Produces a new, optimized ENTRY$ search rules file that may be either system-wide or per-user. If *new-ENTRY$-filename* is omitted, a file named NEW.ENTRY$.SR is written in the current directory.

report-filename and *new-ENTRY$-filename* may be filenames or pathnames. If *report-filename* is omitted, the report is displayed at the terminal.

Each suboption is described in more detail below.

The System-wide Report

The –REPORT option of MONITOR_SEARCH_RULES produces a system-wide report.

```
MONITOR_SEARCH_RULES -REPORT [report-filename]
```

If *report-filename* is not specified, the report is displayed at the terminal. If *report-filename* is specified, the report is written to the specified file in the current directory or to the file specified in a pathname.

The resulting report shows the number of dynamic links to each library since MONITOR_SEARCH_RULES was first implemented. Each link is a search by PRIMOS for a subroutine called by a program; PRIMOS searches for the subroutine in the libraries named in the ENTRY$ search list. Subsequent calls by the same program to the same subroutine (until the program returns to PRIMOS command level) do not cause PRIMOS to search for the subroutine, so MSR does not count these calls.

The report is sorted from the most frequently accessed library to the least frequently accessed library. Here is a sample system-wide report:

```
OK, MONITOR_SEARCH_RULES -REPORT

[MONITOR_SEARCH_RULES Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]

Dynamic link monitor is installed as static library 1;
  166 entries in use (out of 3275 max); 4 users being monitored individually.

Library                                  Total Count

<REV220>LIBRARIES*>SYSTEM_LIB$PRC.RUN        1869
<REV220>LIBRARIES*>APPLICATION_LIBRARY.RUN    484
<REV220>LIBRARIES*>SYSTEM_LIB$PRG.RUN         260
<REV220>LIBRARIES*>TRANS_LIB$PRC.RUN          125
Segment 4377                                  109
Segment 2126                                   98
<REV220>LIBRARIES*>SIT_LIBRARY.RUN             81
<REV220>LIBRARIES*>ECL$LIB.RUN                 80
Segment 2342                                   29
<REV220>LIBRARIES*>TRANS_LIB$PRG.RUN           28
Segment 2026                                   12
<REV220>LIBRARIES*>FTN_LIBRARY.RUN              7
<REV220>LIBRARIES*>X409LIB.RUN                  6
<REV220>LIBRARIES*>SP$LIB.RUN                   5
<REV220>LIBRARIES*>DSMLIB.RUN                   1
<REV220>LIBRARIES*>DSMLIB.RUN                   1

Routines from Unknown Libraries       Total Count

U$INVK                                          2

Erroneous search rules :

LIBRARIES*>OLD_LIB.RUN            Not found

OK,
```

166 entries in use (out of 3275 max) gives the number of dynamic links accessed out of the total possible dynamic links contained in the ENTRY$ search rules list being monitored.

The left column shows the library's pathname or sometimes just a segment number. Segment numbers appear when it is not possible to determine from PRIMOS exactly which library is being linked to, for example, when two or more EPF libraries share the same linkage segment, and the link is to library linkage rather than to procedure. In this fairly uncommon case, a LIST_SEGMENT *nnnn* –NAME command (where *nnnn* is the segment number) shows the libraries concerned. A second and more common case is when the link is to a static-mode library, whose segment number always falls between 2000 and 3777 octal.

After the list of libraries comes a section showing attempted links to routines that could not be found in libraries in the currently active ENTRY$ search list. These routines may exist in EPF libraries used by some users via ENTRY$ search lists different from the one in use by the user issuing the MONITOR_SEARCH_RULES –REPORT command. Alternatively, the routines may not exist on the system at all, and the linking may have occurred as a result of software checking for the absence or presence of a special routine. The example above was caused by MAGSAV searching for the routine U$INVK on invocation. U$INVK is present only on systems running ROAM; when MAGSAV failed to find U$INVK, it simply assumed there were no ROAM files to save.

The final section of the report shows any libraries in the current ENTRY$ search list that have been erroneously specified – nonexistent files (as in the example above) or files with insufficient access rights or files of the wrong type. The MONITOR_SEARCH_RULES –CHECK command produces a quick report showing only this section; this command is available at any time, even when monitoring has not yet been started.

The Per-user Report

MONITOR_SEARCH_RULES can expand a system-wide report to show individual linkage counts for a specified user. This facility lets the System Administrator examine the differences between various users' library usage and hence optimize and customize ENTRY$ search lists for different users or classes of users. Secretaries, for example, may benefit from an ENTRY$ search list quite different from the one used by programmers.

The per-user report can also be useful to a programmer when tuning an application. The programmer watches the linkage counts as a test program runs. This facility lets the programmer create an ENTRY$ search list tuned specifically for a program or a suite of programs. Besides improving performance, such tuning may save a user (or system) from running out of segments because unused libraries were mapped in and searched before the needed ones were found in the default, nonoptimal ENTRY$ list search. Watching what libraries a program links to can also help in verifying that there are no hidden errors (such as linking to a subroutine in an earlier revision library or finding two subroutines of the same name in two separate libraries) or

potential performance bottlenecks (such as making frequent attempts to find unknown routines via the CKDYN$ routine or a LINKAGE_FAULT$ on unit, or linking to a large EPF library for a simple but important function that might be more efficiently used as in-line code).

Per-user reports are available on any user by specifying the appropriate user number as an argument to the –USER suboption. Per-user reports are sorted on the count for the specified user. Here is a sample per-user report:

```
OK, MONITOR_SEARCH_RULES -REPORT -USER 1

[MONITOR_SEARCH_RULES Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]

Dynamic link monitor is installed as static library 1;
  166 entries in use (out of 3275 max); 4 users being monitored individually.

Library                                    Total Count        User 1  Count

<REV220>LIBRARIES*>SYSTEM_LIB$PRC.RUN         1893                 169
<REV220>LIBRARIES*>SYSTEM_LIB$PRG.RUN          260                  90
<REV220>LIBRARIES*>SIT_LIBRARY.RUN              81                  53
Segment 2126                                    98                  27
<REV220>LIBRARIES*>APPLICATION_LIBRARY.RUN     500                  15
Segment 2026                                    12                   8
<REV220>LIBRARIES*>SP$LIB.RUN                    5                   5
<REV220>LIBRARIES*>TRANS_LIB$PRC.RUN           125                   2
Segment 2342                                    32                   1
<REV220>LIBRARIES*>TRANS_LIB$PRG.RUN            34                   0
<REV220>LIBRARIES*>X409LIB.RUN                   6                   0
<REV220>LIBRARIES*>ECL$LIB.RUN                  80                   0
<REV220>LIBRARIES*>FTN_LIBRARY.RUN               9                   0
Segment 4377                                   109                   0
<REV220>LIBRARIES*>DSMLIB.RUN                    1                   0
<REV220>LIBRARIES*>DSMLIB.RUN                    1                   0

Routines from Unknown Libraries        Total Count        User 1 Count

U$INVK                                           2                   1

Erroneous search rules :

LIBRARIES*>OLD_LIB.RUN           Not found

OK,
```

A request for a per-user report fails if only system-wide monitoring is started (although the request still produces a system-wide report). In this case, the user should ask the System Administrator to start per-user monitoring at the supervisor terminal with the MONITOR_SEARCH_RULE –START –PER_USER command.

The Detailed Report

MONITOR_SEARCH_RULES can produce detailed reports showing complete subroutine-by-subroutine breakdowns of library usage, for the whole system or for an individual user. A detailed report shows the name of a subroutine, its link address, and its linkage count. In cases where the subroutine linkage is to an Entry Control Block (by far the most common case), the segment containing the procedure code for the routine is also displayed; other linkages are either to short-called routines, which start at the link address itself, or occasionally to data other than a subroutine. The detailed report concludes with the usual library report, which is in fact a sum of the per-user routine reports, by library.

Used with the –USER suboption, –DETAIL produces a detailed per-user report. Used without the –USER suboption, –DETAIL produces a detailed system-wide report. The following is an example of a detailed per-user report:

```
OK, MONITOR_SEARCH_RULES -REPORT -USER 1 -DETAIL

[MONITOR_SEARCH_RULES Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]

Dynamic link monitor is installed as static library 1;
  166 entries in use (out of 3275 max); 4 users being monitored individually.

Routine Name          Address      Proc        Total Count          User 1 Count
                      of Link      Seg

CLOS$A                4377/170040  4372              2                    1
P$DATE                4407/7144    4404              8                    0
EMSG$F                6006/16034   2126              2                    0
SERL$1                6006/7646    2126              2                    0
RAND$A                4377/171702  4372              2                    2
SERL$2                6006/7704    2126              2                    0
                          .
                          .
                          .
SP$ADDRESS            4314/152126  4324              2                    2
P$FREE                4377/131566  4403             95                   13
P$OR                  4407/10260   4404             10                    2
LCKS$F                6006/15634   2126              2                    1
P$CPYC                4404/30762                    5                    2

Library                                        Total Count          User 1 Count

<REV220>LIBRARIES*>SYSTEM_LIB$PRC.RUN             1893                 169
<REV220>LIBRARIES*>SYSTEM_LIB$PRG.RUN              260                  90
<REV220>LIBRARIES*>SIT_LIBRARY.RUN                  81                  53
Segment 2126                                        98                  27
<REV220>LIBRARIES*>APPLICATION_LIBRARY.RUN          500                  5
Segment 2026                                        12                   8
<REV220>LIBRARIES*>SP$LIB.RUN                        5                   5
<REV220>LIBRARIES*>TRANS_LIB$PRC.RUN               125                   2
```

```
Segment 2342                                          32                  1
<REV220>LIBRARIES*>TRANS_LIB$PRG.RUN                  34                  0
<REV220>LIBRARIES*>X409LIB.RUN                         6                  0
<REV220>LIBRARIES*>ECL$LIB.RUN                        80                  0
<REV220>LIBRARIES*>FTN_LIBRARY.RUN                     9                  0
Segment 4377                                         109                  0
<REV220>LIBRARIES*>DSMLIB.RUN                          1                  0
<REV220>LIBRARIES*>DSMLIB.RUN                          1                  0

Routines from Unknown Libraries              Total Count          User 1 Count

U$INVK                                                 2                  1

Erroneous search rules :

LIBRARIES*>OLD_LIB.RUN            Not found

OK,
```

The New ENTRY$ Search Rules File

Finally, the –NEW_FILE [*new_ENTRY$_filename*] suboption produces a new version of the currently active ENTRY$ search rules file, sorted into optimal order. The –NEW_FILE suboption must be used with the –REPORT option and can be used with any of the other –REPORT suboptions. If *new_ENTRY$_filename* is omitted, the file NEW.ENTRY$.SR is written in the current directory. The SET_SEARCH_RULES command activates this file as a new ENTRY$ search list.

The new, optimized ENTRY$ search rules file has a header line stamped with the date and time. The header contains a message stating that the file was reorganized by MONITOR_SEARCH_RULES. After the header, any comment lines at the beginning of the old file are copied to the new file. Search rules follow the comment lines, sorted into optimal order: the most frequently used appear first. The rules are sorted for the whole system or, if the –USER suboption is used, for an individual user.

Lines describing EPF libraries that do not show up in a MONITOR_SEARCH _RULES report (that is, they effectively have a count of zero) are copied from the old file to the end of the new file in the same order as that of the old file. This behavior occurs even if an error (such as a nonexistent file or insufficient access rights) is detected, because the problem may be corrected later or may apply only to the user running MONITOR_SEARCH_RULES and not to all users.

MONITOR_SEARCH_RULES attempts to place the keyword –SYSTEM optimally by adding together the number of dynamic links to libraries named specifically in the file and subtracting that number from the total number of dynamic links. Rules that are definitely invalid – such as a misspelled keyword (for example, –SYYYSTEM) or a meaningless function (for example, [RUBBISH]) or a directory instead of an

EPF (for example, [HOME_DIR] instead of [HOME_DIR]>EPF.RUN) – are not preserved in the new file.

Here is an example of using the NEW_FILE suboption:

```
OK, MONITOR_SEARCH_RULES -REPORT MSR.REPORT -USER 59 -NEW_FILE
[MONITOR_SEARCH_RULES Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]

Creating new ENTRY$ search rule file ...
New ENTRY$ search rule file NEW.ENTRY$.SR created.
```

See INITIALIZE_SEARCH_RULES earlier in this chapter. See the *PRIMOS Commands Reference Guide* for EXPAND_SEARCH_RULES, LIST_SEARCH_RULES, and SET_SEARCH_RULES.

For more information, see the *Advanced Programmer's Guide II: File System* and the *System Administrator's Guide, Volume I: System Configuration.*

MSR

See MONITOR_SEARCH_RULES.

MTRESUME

MTRESUME performs two major functions: running programs and printing a tape index. First, you can use it to invoke the following utility programs from magnetic tape:

- COPY_DISK
- FIX_DISK
- MAGSAV and MAGRST
- MAKE
- PHYRST

Note

At Rev. 23.0, COPY_DISK and PHYRST have been replaced by PSR (although you can still use COPY_DISK and PHYRST if they are already on your system). PSR, however, cannot be run from tape using the MTRESUME command.

Second, you can use MTRESUME to print an index of a tape mounted on the system tape drive.

No matter how you want to use MTRESUME, you must be aware of the conditions under which MTRESUME can be invoked. These conditions are

- The utility programs listed above must have been written to the tape using the MAGSAV or BOOT_CREATE command.
- The tape drive must be assigned to your process.
- PRIMOS must be running.

Each function requires a different command-line syntax and is explained below in more detail.

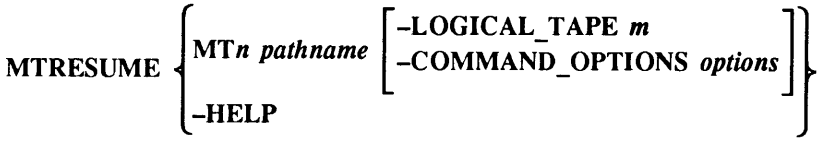
Starting Utility Programs

When MTRESUME is used to start one of the utility programs listed above, it first copies the file containing the specified program to memory and then invokes the program.

Note

At Rev. 23.0, MTRESUME invokes EPF .RUN files from magnetic tape as well as .SAVE files. Previously, it would invoke only .SAVE files. This is important as the new version of MAGRST is MAGRST.RUN instead of MAGRST.SAVE. MTRESUME continues to have limits for both EPF and static mode programs, that is, if the invoked program attempts to link to libraries that are not installed on disk, you receive a linkage fault at runtime.

Format



This command-line format directs PRIMOS to read the pathname from a MAGSAV-formatted magnetic tape mounted on unit *n* into memory. The format also directs the read operation to start at segment 4000_8 at the starting address specified by the file's RVEC.

The MTRESUME command ignores the 16-bit RVEC ending address and continues loading until the end-of-file (EOF) is reached. Segment boundaries are crossed, as necessary.

A common use of the MTRESUME command using this format is to resume MAGRST from tape to restore system software during the bootstrap procedure.

You would also use MTRESUME in this format if the command device is damaged so that the FIX_DISK utility program on the disk (stored in CMDNC0>FIX_DISK.SAVE) is inaccessible. Then you could use MTRESUME to run FIX_DISK from the magnetic tape. A sample command line follows:

```
OK, MTRESUME MT0 CMDNC0>FIX_DISK.SAVE -CMDOPT -DISK 1060 -FIX
```

You cannot use MTRESUME to invoke utility programs that assume that any libraries are installed. The utilities listed earlier do not make this assumption.

Arguments and Options

MT*n pathname* Designates the tape drive, MT0 through MT7, from which you are resuming the utility program *pathname*.

-LOGICAL_TAPE *m* Specifies the number of the logical tape to be used. The default is logical tape one (-LT 1).

-COMMAND_OPTIONS *options*
Specifies the options for the command being invoked from tape. This must be the last option on the command line. Replace the argument *options* with the set of options appropriate to the command being invoked.

-HELP Displays the command's syntax. Do not use any other options with -HELP.

Creating a Tape Index

MTRESUME can also be used to create a *tape index*: a list of files that have been saved by MAGSAV on a tape. The index is displayed at the supervisor terminal and is not written into a file.

Format

MTRESUME [*options*]

Options

-INDEX — Specifies that an index of the tape is to be displayed on the terminal screen or printed at the terminal printer. You must supply both the MT*n* argument and the -INDEX option if you want to print a tape index.

-LOGICAL_TAPE *m* — Specifies the number of the logical tape to be used. The default is logical tape one (-LT 1).

MT*n* — Designates the tape drive from which you resume the utility program. *n* is an integer from 0 through 7, inclusive. You must supply both the MT*n* argument and the -INDEX option if you want to print a tape index.

-NO_WAIT — Suppresses the `--More--` prompt and does not pause after every page of output. Output scrolls continuously. You cannot specify both -PAGE_LENGTH and -NO_WAIT.

-PAGE_LENGTH *lines* — Lets you change the number of lines to be displayed or printed before pausing. *lines* is a decimal value that specifies the number of lines to display or to print.

If you do not specify this option, MTRESUME uses a default page size of *n* lines. *n* is the value assigned to the number of screen lines. You cannot specify both -PAGE_LENGTH and -NO_WAIT.

-HELP — Displays command syntax. Do not use any other options with -HELP.

Messages

In addition to the errors sent by the PRIMOS command environment, MTRESUME generates the following error messages:

`A file name (`*`filename`*`) and -INDEX can not both be specified. (MTRESUME)`
The –INDEX option is used to display an index for the tape currently mounted on the tape drive. This index is printed on the supervisor terminal; it cannot be written to a file.

`A file name or -INDEX must be specified. (MTRESUME)`
If you supply the –INDEX option, MTRESUME prints out an index of the specified tape. If you supply a *filename* argument, MTRESUME runs the specified program. You must supply one of these two.

`Command line options and -INDEX can not both be specified. (MTRESUME)`
The –COMMAND_OPTIONS option may only be specified when you are running a program with MTRESUME; it has no meaning when you run MTRESUME with the –INDEX option.

`Device not assigned, MT`*`n`*` (MTRESUME)`
Assign the tape drive, MT*n*, using the ASSIGN command and try again.

`Device not connected, MT`*`n`*` (MTRESUME)`
The controller for the specified tape drive, MT*n*, does not exist. Reenter the command with a valid drive number.

`Empty file, cannot resume `*`filename`*` (MTRESUME).`
The *filename* you specified contains no data, and therefore cannot be run. Check to be sure that you specified the correct name.

`File is too small, cannot resume `*`filename`*` (MTRESUME).`
The file you specified is too small to be a runnable file. Check to be sure that you specified the correct name.

`Incorrect number of words in tape block. Unable to use tape. (MTRESUME)`
Check to make sure that you have mounted the proper tape. MTRESUME cannot read the tape you mounted.

`Invalid logical tape specified: `*`tape_number`*`. (MTRESUME)`
You specified a logical tape number which was negative. Logical tape numbers must be zero or greater.

`Invalid magtape specifier "user_specifier" (MTRESUME)`
You entered something other than MT0 through MT7 to specify a magnetic tape drive. Enter your command again, giving a proper magtape specifier.

`Invalid rvec, cannot resume filename.`
`Start x, End y, PB z (MTRESUME).`
The *filename* you have specified is not a Static Mode (.SAVE) program, and MTRESUME cannot run it. Be sure that you have specified the correct filename and mounted the proper tape. (For details on Static Mode, see the *Programmer's Guide to BIND and EPFs*.)

`Magtape error on MTn, controller status: xxxxxx xxxxxx, recovered (MTRESUME)`
`Magtape error on MTn, controller status: xxxxxx xxxxxx, unrecovered (MTRESUME)`
The preceding two messages state that MTRESUME encountered either a recoverable or an unrecoverable error while reading from the tape. (The numbers *xxxxxx xxxxxx* (octal values) are the hardware status words that correspond to *statv(2)* and *statv(4)* as passed back by the subroutine T$MT. See the *Subroutines Reference IV: Libraries and I/O* for the definitions of these words and for a discussion of the subroutine T$MT.) If the error is unrecoverable, MTRESUME returns you to PRIMOS level. Clean and align the tape heads or try another tape.

`Magtape MTn at physical end of tape. (MTRESUME)`
Rewind the tape; check to make sure that you did not specify too large a logical tape number.

`Magtape MTn offline or not ready. (MTRESUME)`
Put the tape drive, MT*n*, online, or mount and load the tape.

`Missing end of file, not a valid MAGSAV tape. (MTRESUME)`
The tape you are trying to read was not completely written by MAGSAV. Check to make sure that you are using the proper version of the tape.

`Not a file: filename (MTRESUME).`
The *filename* you gave is not the name of a program; it is some file-system object, like a directory, which cannot be executed. Be sure that you have specified the proper filename and mounted the proper tape.

`Pathname not found or inaccessible, pathname (MTRESUME)`
The *pathname* you specified was not found on the tape.

`Tape block out of sequence; should be x is y. Unable to use tape. (MTRESUME)`

Something is wrong with the tape which you mounted. Check that you have mounted the proper tape.

`This is not a MAGSAV tape. (MTRESUME)`

The tape you are trying to read was written by some tape utility other than MAGSAV. MTRESUME can only read tapes which were written with MAGSAV.

Running MTRESUME to Start a Utility Program

This is an example of using MTRESUME to start the utility MAGRST. Notice that you must use the MAGRST.RUN file, not the MAGRST.SAVE file.

```
OK, ASSIGN MT0
OK, MTRESUME MT0 CMDNC0>MAGRST.RUN
This is a revision 23 MAGSAV+ tape.
Date:     031392
Revision: 0
Reel:     0
Name:     BOOT1

[MAGRST Rev. 23.1.Q1 Copyright (c) 1990, Prime Computer, Inc.]
TAPE UNIT (9 TRK): 0
(Tape not at load point)
ENTER LOGICAL TAPE NUMBER: 1
NAME:DATE(MM DD YY): 03-13-92
REV NO:      0
REEL NO:      0
READY TO RESTORE: YES
*** STARTING RESTORE ***
Restoring Password UFD into existing ACL UFD: CMDNC0
Restoring Password UFD into existing ACL UFD: DOS
***End Logical tape***
***Restore Complete***
OK, UNASSIGN MT0 -UNLOAD
Device released.
OK,
```

Example Tape Index

The next example shows an index listing sent to the supervisor terminal. A Rev. 23.3 tape was mounted and indexed.

```
OK, ASSIGN MT0
Device MT0 assigned.
OK, MTRESUME MT0 -INDEX
This is a revision 23 MAGSAV+ tape.
Date:     03-13-92
Revision: 0
Reel:     0
Name:     BOOT1
--- Start of logical tape ---
PRIRUN
MAKE.SAVE
MAGRST.RUN
MAGSAV.RUN
FIX_DISK.SAVE
PSR.RUN
NSED
PRIMOS.COMI
CONFIG
--- End of logical tape ---
OK,
```

NTS_ASSOCIATE

NTS_ASSOCIATE maps a physical line on an LTS controller to a PRIMOS line number. This command is restricted to Network Administrators, System Operators, or System Administrators who are members of the .NETWORK_MGTS ACL group.

Format

NTS_ASSOCIATE { **-LINE** *linenumber* **-LTS_NAME** *lts-name* **-LTS_LINE** *lts-linenumber* [**-PERMANENT**] | **-HELP** }

Options

-LINE *linenumber*
: Specifies the physical line number to be associated with an LTS controller. *linenumber* is the decimal number of the NTS assignable line, in the range 1024 through 1535, inclusive. The maximum line number may be less than 1535 depending on your system configuration.

-LTS_NAME *lts-name*
: Identifies the LTS that you want to associate with a particular PRIMOS line. *lts-name*, which may have a maximum of 16 characters, is usually designated in the NTS configuration file by the Network Administrator through the use of the CONFIG_NTS command.

-LTS_LINE *lts-linenumber*
: Specifies the physical LTS line number. Each LTS has eight physical lines. *lts-linenumber* is a decimal number in the range 0 through 7, inclusive.

-PERMANENT
: Indicates if this line is to be reconnected automatically when a disconnect occurs. If an association already exists and a change from temporary to permanent, or permanent to temporary, is desired, you can issue the NTS_ASSOCIATE command using either the -LINE option or the -LTS_NAME and LTS_LINE options.

  A permanently associated line is also connected when you issue the ASSIGN command for that line, regardless of whether the connection was completed. This is useful for Spooler lines when the LTS may not be running before the line is assigned.

-HELP
: Provides information about the proper format of the command and its options.

For more information, see the *NTS User's Guide*.

NTS_LINE

NTS_LINE places a terminal connected to PRIMOS via a LAN Terminal Server 300 (LTS300) into Command mode.

When you have successfully connected to an NTS host and logged in, you are automatically in Data Transfer mode with a default set of session parameters configured at the LTS. You may wish to or need to alter some of those parameter settings. To do so, you must switch to the LTS Command mode by typing an escape character. If the escape character on your terminal is disabled, you can still enter Command mode with the NTS_LINE command.

NTS_LINE is a command used with the Prime Network Terminal Service (NTS).

Format

NTS_LINE { **-COMMAND** | **-HELP** }

Options

-COMMAND	Returns you to Command mode.
-HELP	Displays the Help file for this command.

For more information, see the *NTS User's Guide.*

NTS_LIST_ASSOCIATE

NTS_LIST_ASSOCIATE displays the current associations of assignable PRIMOS NTS line numbers with their corresponding LTS name or LTS line numbers. It also specifies whether lines are permanently associated.

Format

NTS_LIST_ASSOCIATE [{ **-LINE** ***linenumber*** | **-LTS_NAME** ***lts-name*** [**-LTS_LINE** ***lts-linenumber***] | **-HELP** }]

Options

If you invoke the NTS_LIST_ASSOCIATE command without any options, the system displays the association for all lines on every LTS. The display also indicates any permanent associations.

-LINE ***linenumber*** — Displays the association for a specific PRIMOS NTS line. *linenumber* is the decimal number of the NTS assignable line, in the range 1024 through 1535, inclusive. The maximum line number may be less than 1535 depending on your system configuration.

-LTS_NAME ***lts-name*** — Displays the association for a specific LTS. *lts-name* may have a maximum of 16 characters and is usually designated by the Network Administrator in the NTS configuration file with the CONFIG_NTS command.

-LTS_LINE ***lts-linenumber*** — Displays the association for a specific LTS line number. *lts-linenumber* is a decimal number in the range 0 through 7, indicating the LTS physical line number.

-HELP — Displays information on the syntax of the command and its options.

For more information, see the *NTS User's Guide*.

NTS_UNASSOCIATE

NTS_UNASSOCIATE breaks the mapping of an associated LTS line with a PRIMOS line number in the NTS assigned line range. You cannot break an association if the line is currently assigned.

NTS_UNASSOCIATE is a privileged command and is restricted to the Network Administrator or System Operator.

Format

NTS_UNASSOCIATE { **-LINE** *linenumber* | **-LTS_NAME** *lts-name* [**-LTS_LINE** *lts-linenumber*] | **-HELP** }

Options

-LINE *linenumber*
: Specifies the physical line number associated with an LTS controller. *linenumber* is the decimal number of the PRIMOS NTS assignable line, in the range 1024 through 1535, inclusive. The maximum line number may be less than 1535 depending on your system configuration.

-LTS_NAME *lts-name*
: Specifies the name of the LTS to which the line is associated. *lts-name* may have a maximum of 16 characters and is usually designated by the Network Administrator in the NTS configuration file with the CONFIG_NTS command.

-LTS_LINE *lts-linenumber*
: Specifies the physical LTS line number. *lts-linenumber* is a decimal number in the range 0 through 7, inclusive.

-HELP
: Provides information about the proper format of the command and its options.

For more information, see the *NTS User's Guide.*

PASSWORD_DIRS

PASSWORD_DIRS is used to prevent (–OFF option) or allow (–ON option) the creation of password directories. The System Administrator may want to prevent users from having password directories, thus forcing them to set access control lists on their files and directories. To prevent users from creating password directories, the System Administrator must issue the –OFF option to PASSWORD_DIRS.

Format

PASSWORD_DIRS { **–OFF** / **–ON** }

Options

–OFF

Specifies that the creation of additional password directories is prohibited. When this option is in effect, any attempt to create a password directory, either from the program level or the command level, is prevented. If a user specifies the –PASSWORD option to the CREATE command, the following error message appears:

```
Use of password directories not allowed on
this system (create).
```

Password directories are not allowed on a C2-secure system. See the CONVERT_TO_ACLS command earlier in this chapter, which enables C2 software users to remove old password directories from the system.

–ON

Specifies that the creation of password directories is allowed. This is the default for the system if the PASSWORD_DIRS command is not used at cold start.

PDEV

You can calculate or display a physical device number (pdev) by using the PDEV command. A pdev is a unique number generated from four values which specify a disk drive: controller number, unit number, starting head, and number of heads.

This command does the following:

- Lists the controller address, disk drive unit number, starting head (or surface), and number of heads of a given pdev.
- Displays the ldev, pdev, controller address and number, disk drive unit number, number of the starting head, and number of heads of one or more local disks.
- Converts a given controller address, disk drive unit number, starting head, and number of heads into a pdev.
- Displays internal usage information.

You can also use PDEV as a command function with other commands by enclosing PDEV and its options in square brackets ([ ]) after the command.

Calculating PDEVs

You should check all pdevs that you calculate using the PDEV command against the pdevs in Chapter 3 of the *Operator's Guide to File System Maintenance*). The PDEV command will allow you to calculate inappropriate pdevs. For example, you should not have an odd number of surfaces in a partition in the middle of a disk. In addition, PDEV will allow you to calculate pdevs that are beyond the range of the table in Chapter 3. To obtain the values you need to construct a pdev for SMDs and FMDs, see Chapter 3 in the *Operator's Guide to File System Maintenance*.

Format

PDEV { **-DECODE** *pdev* | **-DISK** *diskname* | **-ENCODE** *options* | **-HELP** }

Options

-DECODE *pdev*

Takes a pdev as input and displays the components making up the pdev. It displays the following:

- Disk controller address and controller number in parentheses
- Disk drive unit number
- Starting head number
- Number of heads in the partition

–DISK *diskname*

Displays the pdev of the named local disk, *diskname*. *diskname* can include wildcards, in which case PDEV displays the pdevs of all disks matching the wildcarded name.

In addition to the pdev of diskname, PDEV displays the

- Logical device number (ldev) of the local disk
- Controller octal address and number
- Disk drive unit number
- Starting head number
- Number of heads in the partition

You can use PDEV with the –DISK option as a command function in another command. When you use PDEV as a command function, you cannot use wildcards in *diskname*.

–ENCODE –CONTROLLER *aa* **–UNIT** *u* **–STARTING_HEAD** *n* **–NUM_HEADS** *m*

Generates a pdev from these four values passed as options:

- –CONTROLLER controller address (*aa*), which is one of these octal numbers: 24(0), 26(1), 25(2), 22(3), 45(4), 27(5), 46(6), 23(7). You can also use the controller number corresponding to this address.
- –UNIT disk drive unit number (*u*), which is an octal number from 0 through 7.
- –START starting head (or surface) number (*n*), which is an even number from 0 through 30.
- –HEADS number of heads (*m*) in the partition, which is an even number unless the partition is the last partition on a disk with an odd number of heads, or surfaces. These numbers range from 1 through 31.

PDEV displays the input information and the resulting pdev.

–HELP

Displays a summary of the command's functions.

Examples

Example 1: This example displays the device values of a disk with a pdev of 4060.

```
OK, PDEV -DECODE 4060
For PDEV 4060, controller = '26 (1), unit = 0, start head = 0, heads = 16
```

Example 2: This example displays the pdev and its device values of a disk called OSDSK3.

```
OK, PDEV -DISK OSDSK3
Disk      LDEV   PDEV   Controller  Unit  Start  Heads
-------   ----   ------  ----------  ----  -----  -----
OSDSK3     2     7660    '27 (5)      0      0     30
```

Example 3: This example shows using a wildcard to display a list of pdevs and their device values.

```
OK, PDEV -DISK P@
Disk      LDEV   PDEV   Controller  Unit  Start  Heads
-------   ----   ------  ----------  ----  -----  -----
PERFOR     4     6260    '27 (5)      0      0     24
PERF       5    41666    '27 (5)      3      8      6
PMANGR    12    62761    '23 (7)      0     12     11
OK,
```

Example 4: This example shows using PDEV to get the pdev of a disk device with the specified values.

```
OK, PDEV -ENCODE -CONTROLLER 27 -UNIT 2 -START 12 -HEADS 10
For controller = '27 (5), unit = 2, start head = 12, heads = 10, PDEV = 62664
```

Example 5: This example shows using a PRIMOS argument list with PDEV to get the pdevs of disk unit 0 on each of eight different controllers.

```
OK, PDEV -ENCODE -CONTROLLER (0 1 2 3 4 5 6 7) -UNIT 0 -START 2 -HEADS 28
For controller = '24 (0), unit = 0, start head = 2, heads = 28, PDEV = 17020
For controller = '26 (1), unit = 0, start head = 2, heads = 28, PDEV = 17060
For controller = '25 (2), unit = 0, start head = 2, heads = 28, PDEV = 17120
For controller = '22 (3), unit = 0, start head = 2, heads = 28, PDEV = 17160
For controller = '45 (4), unit = 0, start head = 2, heads = 28, PDEV = 17220
For controller = '27 (5), unit = 0, start head = 2, heads = 28, PDEV = 17260
For controller = '46 (6), unit = 0, start head = 2, heads = 28, PDEV = 17320
For controller = '23 (7), unit = 0, start head = 2, heads = 28, PDEV = 17360
```

For more information about pdevs, see the *Operator's Guide to File System Maintenance.*

PRATIO

PRATIO allows the Operator to change the paging ratios of the paging partitions currently installed on the system. This command may be used only at the supervisor terminal. The paging partitions are established by the PAGING or PAGDEV and ALTDEV directives in the system configuration file and are activated at startup. A maximum of eight paging partitions may be allocated on a system.

Note

Changing the PRATIO values changes the percentage of *new* paging activity only. Pages currently in use remain where they are.

Format

PRATIO { *percent1* [. . . *percent8*] | **-DISPLAY** }

Options

percent1 . . . percent8
Determines the percentage of paging activity that is to take place on each paging partition. The total of percentages for all paging partitions must equal 100.

The default paging ratio for a paging partition is calculated by PRIMOS at cold start. It is based on the size of the paging partition in relation to the total number of paging records. For example, if you have four paging partitions and one of them has 15% of the paging records, then that partition's paging ratio is 15% (that is, it is used 15% of the time for paging).

-DISPLAY
Provides information on the percentage of paging activity currently specified for each paging partition, as set at cold start by PRIMOS or in a subsequent PRATIO command.

Examples

Example 1: The following example shows a system with four paging partitions.

```
OK, PRATIO -DISPLAY
PRATIO values for each paging partition

Partition # 1 PDEV = 110061 PRATIO = 14 %
Partition # 2 PDEV = 100263 PRATIO = 28 %
Partition # 3 PDEV = 100463 PRATIO = 29 %
Partition # 4 PDEV = 110261 PRATIO = 29 %
```

Example 2: Using the PRATIO command, you can change the percentage of paging activity of these paging partitions, as in the following example.

```
OK, PRATIO 10 20 20 50
```

If the total of the PRATIO values does not add up to 100, the system generates an error message. An error message is also displayed if you have more PRATIO values than there are paging partitions on the system.

Caution

The default PRATIO values are calculated by PRIMOS at cold start. These values are usually optimum for the performance of most systems. Generally, you should not change these values without good reason. Deviating too much from the values calculated by PRIMOS can cause problems later on, especially if you are running at a high paging threshold. Do not set any percentage so high that the partition is likely to fill completely. When that happens, PRATIO may then behave unpredictably. Paging is distributed properly among the partitions so long as no one partition is allowed to fill completely.

Refer to the *Operator's Guide to File System Maintenance* for information on partitioning physical disks. Refer also to the *System Administrator's Guide, Volume I: System Configuration* for information on paging devices.

PRINT_SECURITY_LOG

PRINT_SECURITY_LOG is used in a C2-secure system to invoke the Audit Report facility. The System Administrator uses this facility to examine the contents of an audit file. You create this file by issuing the SECURITY_MONITOR command, which is discussed later in this chapter.

Format

PRINT_SECURITY_LOG –LOGFILE *pathname* [*options*]

Arguments and Options

–LOGFILE *pathname* — *pathname* is the audit trail file whose contents are to be displayed. The file must be a closed file on disk. If the file has been backed up to tape already, it first must be restored to disk.

–EVENTS [*args*] — Selects the set of event categories to be reported. If you omit this option, a report of all events specified below is displayed. The –EVENTS option may take one or more of the following event category arguments (*args*):

Argument	*Description*
ATTACHES	Specifies that attach operations are to be reported.
FILE_SYSTEM	Specifies that file system events are to be reported.
PRIV_OPS	Specifies that events involved with privileged operations are to be reported.
SYSTEM	Specifies that system events are to be reported.

–EVENT_TYPES [*args*] — Specifies the event types to be reported. If you omit this option, all event types are reported.

The –EVENT_TYPES option takes one or more of the following event type arguments, (*args*):

Argument	*Description*
FAILURE	Specifies that failed events are to be reported.
NO_ACCESS	Specifies that access failure events are to be reported.
SUCCESS	Specifies that successful events are to be reported.

–NO_HEADER Suppresses the table header (normally for screen displays).

–NO_WAIT Suppresses the `--More--` prompt and does not pause after every page of output. Output scrolls continuously. Phantoms used to create COMO files must use this option.

–NUMBER_OBJECT [*num-obj-list*]
Reports only those audited number objects that are specified in *num-obj-list*. The *num-obj-list* may contain a maximum of 16 number objects separated by blanks. If no *num-obj-list* follows –NUMBER_OBJECT, then all number objects are reported.

A number object may be a positive number, such as a file unit number or a segment number. It may be a negative number, such as an imaginary address used with an EPF.

–TEXT_OBJECT [*text-obj-list*]
Reports only those audited text objects that are specified in *text-obj-list*. The *text-obj-list* may contain a maximum of 16 text objects separated by blanks. If no *text-obj-list* follows –TEXT_OBJECT, then all text objects are reported. A text object may be either a full or partial pathname. You can also specify a device name by designating a subdirectory to DEVICE*.

–USERS [*userid-list*] Selects only those records generated by the users in *userid-list*. The *userid-list* may contain a maximum of 16 user IDs separated by blanks. If no *userid-list* follows the –USERS option, then all users' records are reported.

–HELP Displays a summary of the command's options.

Running a Phantom

To get a permanent copy of the security log, send PRINT_SECURITY_LOG output to a COMO file. You can avoid tying up a terminal while the log is being displayed by creating this COMO file from a small CPL program which you start as a phantom.

The CPL program should contain the following lines:

```
COMO  your-filename.COMO
PRINT_SECURITY_LOG -LOGFILE your-logname -NO_WAIT
COMO -E
```

You can submit this file as a phantom as follows:

```
OK, PH CPL_name
```

Example

After the phantom prints the report, you can spool it to a printer that has a wide margin format. See the sample output file below:

```
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Event Group   Date/Time          Type    User#   Code   User
Description
Object(s)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ATCH       91-07-05 07:04:23     SUCC       17      0   **userid not set**
Attach to directory
<OP_SYS>SAD
FS         91-07-05 07:04:23     SUCC       17      0    **userid not set**
Open file
<OP_SYS>SAD>UVF Unit requested: 32 Unit assigned: 32

FS         91-07-05 07:04:23     SUCC       17      0    **userid not set**
Open file
<OP_SYS>SAD>MPF Unit requested: 31 Unit assigned: 31

FS         91-07-05 07:04:23     SUCC       17      0    **userid not set**
Check existence of file
<OP_SYS>SAD>SDF

FS         91-07-05 07:04:23     SUCC       17      0    **userid not set**
Open file
<OP_SYS>SAD>MGF Unit requested: 30 Unit assigned: 30

               . . .
```

PROP

PROP displays the status of system printers and printer environments. Operators and the Spool Administrator use PROP to perform the following operations on the Spooler:

- Monitor the Spooler's status
- Control despooler phantoms
- Change to another printer environment
- Verify a printer environment
- Suspend a currently printing job and restart it later

All options except –DISPLAY, –REPORT_SIZE, –STATUS, –VERIFY, and –HELP require you to be a privileged user.

Format

PROP { ***environment–name*** **[*options*]**
{***system–options***}
–HELP }

Environment Options

At Rev. 23.3, the Spool Administrator can give specific users RX ACL rights to use the PROP command by changing the ACL on the environment file.

You cannot use system options on the same command line with *environment-name*.

environment-name

Specifies the name of an environment file that contains directives which define the setup and operation of the printer. The Spool Administrator (who is a member of the .SPOOL_ADMINISTRATOR$ group) creates the printer environment. The environment specifies such details as the printer or plotter to be used, type of paper, number of lines to be printed on a page, the width (margins) of a page, the type characteristics, whether or not a header appears on the output, and so on.

Details of the environment are in an environment file. For more information, refer to the *Operator's Guide to the Spooler Subsystem.*

–ABORT

Causes the despooler phantom to stop printing the current file; the request is left in the spool queue. If the aborted file is large, this option allows the Operator to force the printing of all short files, and then restart the aborted file from the beginning. This option also forces a previously requested paper change, hang, or shutdown to occur immediately, provided that the request was made by using the –FINISH suboption with the appropriate option. In addition, –ABORT implies a –CONTINUE. See –HANG and –STOP.

–BACK *n*

Causes the despooler phantom to back up a given number of pages (*n*) and reprint the data from that point forward. *n* must be an integer greater than 0; if you do not supply *n*, the default value is 1. The maximum value of *n* is 100 (allowing you to back up to 100 pages).

The –BACK option is useful for situations in which very large files have been partially printed when a printer problem occurs. The –BACK option allows the Operator to restart the printing of the file, beginning from the point at which printer problems began.

–CONTINUE

Takes the despooler phantom out of hang or lineup mode so that it can continue printing or scanning. Printer operation continues where it left off.

–DISPLAY [–NO_WAIT]

Displays the status of *environment-name* and displays the contents of the corresponding environment file. If you do not specify –NO_WAIT, the `--More--` prompt prints after each page of information, and you must press Return to see the next page. If you specify –NO_WAIT, output scrolls continuously.

–DROP

Causes the despooler phantom to stop printing the current file and to delete the request from the spool queue. This option also forces a previously requested hang or shutdown to occur immediately, provided that the request was made by using the –FINISH suboption with the appropriate option. (The SPOOL option –CANCEL deletes a file from the spool queue if it has not started printing, or attempts to issue a –DROP request if it has started printing on a local printer.)

–HANG [{ **–NOW** / **–FINISH** / **–IDLE** }]

Temporarily suspends printing and/or scanning the queue by stopping the phantom that services the *environment-name*.

–NOW suspends the phantom immediately. The print request remains in the spool queue and the file is printed when you restart the phantom. –FINISH suspends the phantom after it finishes the currently printing file. –IDLE suspends the phantom when it has no more work to do. When the phantom hangs, it sends you the message `Hanging;` printing may continue for a short while as buffers empty. The default is –FINISH. Use the –ABORT, –CONTINUE, –DROP, or –RESTART option, as appropriate, to resume printer operation.

–LINEUP [*linum*]

Causes the despooler to back up to the start of the current page, print *linum* lines of the document and then to pause and display the message paper alignment check to the Operator. Restart despooling by issuing another PROP command with either the –CONTINUE option (which does not reprint the first part of the data) or the –LINEUP option to repeat the lineup sequence.

Note

You may specify –LINEUP as part of the –START command, as in

```
PROP PR1 -START -LINEUP 5
```

In this case, the lineup is done on the first file eligible for printing.

–RELEASE [{**–FINISH** | **–IDLE**}]

Releases a suspended print job and restarts it from the page at which it was interrupted. Use –FINISH to release the despooler after it prints the current job. Use –IDLE to release the despooler when it becomes idle (when there are no more files to print).

–RESET [*new_env*] [{**–NOW** | **–FINISH** | **–IDLE**}]

Causes the despooler phantom to shut down and restart. Use this option if the environment file has been amended. The optional *new-env* argument allows you to replace one despooler environment with another using only one command. This sequence is commonly used when you are changing paper types.

Use –NOW, –FINISH, or IDLE to specify when the job is to begin printing. –NOW asks that the job begin immediately, –FINISH asks that the job begin when the currently printing file has completed, and –IDLE asks that the job begin when all other jobs in the queue have completed. The default is –FINISH.

–RESTART

Causes the despooler phantom to restart the currently printing file. This is often used after the printer halted because the paper bin is empty, there is a paper jam, or a similar cause. Printing of the file restarts from the beginning of the file. This option also forces a previously requested paper change, hang, or shutdown to occur immediately, provided that the request was made by using the –FINISH suboption with the appropriate option. In addition, –RESTART implies a –CONTINUE. See –HANG and –STOP.

–START

Starts up the named environment. Use this option to start the Spooler initially or after you have used –STOP.

–STOP [{ **–NOW** / **–FINISH** / **–IDLE** }]

Causes the named despooler environment to shut down. This is used to stop printing or scanning the queue.

–NOW shuts down the phantom immediately. –FINISH shuts down the phantom after the current file is finished printing. –IDLE shuts down the phantom when it has no more work to do. The default is –FINISH. Use the –START option to start up another phantom to service *environment-name*. A message displays when the phantom shuts down successfully. In addition, –STOP implies a –CONTINUE. See –ABORT and –HANG.

–SUSPEND

Halts a currently printing job and allows other jobs to begin printing. The suspended job can later be restarted from the point at which it was interrupted with the –RELEASE option.

–VERIFY

Checks the syntax of an environment file and notifies you of any errors.

System Options

-COLDSTART [-NO_QUERY]

Initializes the Spooler data structures and resets the queue control information. This option may be issued manually during cold start or placed in the file PRIMOS.COMI. -NO_QUERY allows the Spool Administrator to cold start the Spooler subsystem without having to answer yes to the query `Okay to shut down env.` Only members of the group .SPOOL_ADMINISTRATOR$ are allowed to use this option.

Caution

It can still take some time to actually stop the active environments, so do not try to start environments without verifying that the phantoms have logged out.

-ENV_LANGUAGE ***langname***

Defines the Standard Internationalization Tool (SIT) supported language of the environment file. This is only useful at multilingual sites. You can use this option with -START and -VERIFY.

-MAX_SIZE [*nnnn*]

Sets the maximum disk record size of files entered into the local spool queue. Spooled files with record sizes greater than the maximum set by -MAX_SIZE are rejected by the spool queue. *nnnn* is the number of records. If you omit -MAX_SIZE, there is no limit on the file size. Only .SPOOL_ADMINISTRATOR$ group members are allowed to use this option. The default maximum size is zero. You can reset the maximum size to zero by entering 0 or nothing on the command line.

-MIN_SIZE [*nnnn*]

Sets the minimum disk record size of files entered into the local spool queue. Spooled files with record sizes less than the minimum set by -MIN_SIZE are rejected by the spool queue. *nnnn* is the number of records. If you omit -MIN_SIZE, the default value of 0 (no limit) is used. Only .SPOOL_ADMINISTRATOR$ group members are allowed to use this option. The default minimum size is zero. You can reset the minimum size to zero by entering 0 or nothing on the command line.

-REPORT_SIZE

Reports the current system spool job size limits.

-STATUS [-ALL / -NO_WAIT]	Displays a list of the currently active environments and indicates the status of each one. -ALL asks for information on all environments (whether or not they are currently active). -NO_WAIT tells PROP not to pause at the end of each screenful of information. By default, PROP pauses after each screen and prints out information only on active printer environments. Possible status indications are: Aborting, Backing Up, Dropping, Hanging, Idle, Lineup, Printing, Reset, Restarting, Starting Up, and Stopping. If the status is Printing, the filename, current copy, request number, node name (if printed from another system), and page number are shown. The -ALL option lists all environments, along with their status. The status of inactive environments is Inactive.
-HELP	Displays command syntax.

Changes at Rev. 21.0

The PROP command changed significantly at Rev. 21.0. With the pre-Rev. 21.0 PROP command, users created printer environment files with the -CREATE option and modified environment files with the -MODIFY option. These two options and their subcommands are not supported at or after Rev. 21.0.

At Rev. 21.0 and later, PRIMOS requires the Operator or Spool Administrator to create these environment files, one for each environment, as regular ASCII files and place them in the SPOOL* directory. These files may be created with any PRIMOS editor, including EMACS and ED. Refer to the *Operator's Guide to the Spooler Subsystem* for detailed information about creating environment files.

Caution

Environment files created with pre-Rev. 21.0 PROP commands do not work with the Rev. 21.0 or later Spooler. You must create new environment files, using the Rev. 21.0 format, in order to run the Spooler under Rev. 21.0 or later PRIMOS.

The CONVERT_ENV utility is available to convert pre-Rev 21.0 environment files to templates that can then be modified for use on Rev. 21.0 or later Spoolers. This utility is explained earlier in this chapter.

For a full description of printer environment directives, see the *Operator's Guide to the Spooler Subsystem.*

PSLOG

See PRINT_SECURITY_LOG.

PSR

The PSR command enables you to

- Copy a physical disk partition to another disk partition
- Protect a partition from being accidentally overwritten by a restore or copy
- Restore a physical disk partition from tape
- Save a physical disk partition to tape

This command replaces COPY_DISK, PHYSAV, and PHYRST.

Format

PSR { **-COPY** | **-NO_PROTECT** | **-PROTECT** | **-RESTORE** | **-SAVE** } **[-HELP]**

Options

-COPY	Copies an entire partition to another partition.
-NO_PROTECT	Removes PSR write-protection from a partition before you restore or copy the partition.
-PROTECT	Reinstates PSR write-protection on a partition after it has been restored or copied.
-RESTORE	Restores a physical disk partition from tape.
-SAVE	Saves a physical disk partition to tape.
-HELP	Displays command syntax.

The -COPY, -RESTORE, and -SAVE options are explained further in the following sections.

The –COPY Option

The –COPY option copies an entire partition to another partition.

Note that you cannot copy to or from the command device. If you want to either save, copy, or restore the command device, use a logical utility.

WARNING

At the end of the copy you must run FIX_DISK to reset record pointers.

Format

PSR –COPY [*source* –TO *target* [–CHECK]]

Options and Arguments

source	Identifies the *pdev* of the partition that you want to copy.
–TO ***target***	Identifies the *pdev* of the partition to which you want to copy the original partition.
–CHECK	Specifies that you want PSR to read back the data it copies to the target partition so that you can check to be sure the copied data is readable.

The –RESTORE Option

–RESTORE restores an entire partition from tape. The partition must have been saved to tape by PSR using the –SAVE option. You cannot restore parts of a partition with PSR.

Note that PSR cannot restore to the command device. To save and restore a command device, you must use logical save and restore utilities.

WARNING

At the end of the restore you must run FIX_DISK to reset record pointers.

Format

PSR –RESTORE [**–CHECK** / **–UNLOAD**]

Options

–CHECK	Specifies that you want PSR to read back the data it restores to the target partition in order to check that the restored data is readable.
–UNLOAD	Tells PSR to unload tape at the end of the reel.

The –SAVE Option

The –SAVE option saves an entire physical disk partition to tape. It does so without reference to the logical structure of the data on the disk; therefore, a partition is the smallest unit that you can restore from a PSR save.

Format

PSR –SAVE [{ *volume–id:pdev* / *pdev* } { **–ARCHIVE** / **–BASE** / **–INC** }] [**–NO_VOLUME_ID** / **–UNLOAD**]

Options and Arguments

pdev	The partition's physical device number. You can either specify *pdev* alone or combine it with the *volume-id*. If you specify both together, the format is *volume-id:pdev*.
volume-id	A name created by the user that uniquely identifies the disk pack, for example, PACK6. This is optional but recommended.
–ARCHIVE	Tells PSR to perform an archive save.
–BASE	Tells PSR to run a base save that is to be the start of a sequence of incremental saves.
–INC	Tells PSR to perform an incremental save.
–NO_VOLUME_ID	Tells PSR that you are not using uniquely identified tapes and that it should not prompt you for the volume ID.
–UNLOAD	Tells PSR to unload tape at the end of the reel.

For more detailed information, see the *Operator's Guide to Data Backup and Recovery*.

PWDIR

See PASSWORD_DIRS.

RECORD_TO_PATH

RECORD_TO_PATH takes a record address and returns the pathname of the file system object to which that record currently belongs. RECORD_TO_PATH works on local online disk partitions only. The System Administrator or any member of the .RAS$ ACL group can invoke this command from any terminal, or at the supervisor terminal.

One common use of RECORD_TO_PATH is to identify the file system object associated with a record cited by a recoverable disk read error. You can then decide whether to run FIX_DISK immediately, or continue running temporarily and avoid using this record. For example, you can copy the file system object to another location, and reroute access to that new file system object.

Format

RECORD_TO_PATH { **-RECORD_ADDRESS** *nn* [*nn2*] . . . [*nn16*] { **-DISK** *nn* / **-PDEV** *nn* } / **-HELP** }

Options

-RECORD_ADDRESS *nn* [*nn2*] . . . [*nn16*]
Specifies the address of the record, expressed as an octal number. You can specify up to 16 record addresses, separated by blanks (or commas), following this option. All addresses on the command line must be on the same local disk partition. RECORD_TO_PATH returns a separate pathname message for each record address.

{ **-DISK** *nn* / **-PDEV** *nn* }
Designates the local online disk partition on which the record resides. *nn* is the physical device number (pdev) of the partition, expressed as an octal number. These options are synonyms; use either one.

-HELP
Displays the online help text for this command.

Messages

You must specify both the -RECORD_ADDRESS and the -DISK (or -PDEV) option for each call to RECORD_TO_PATH. RECORD_TO_PATH returns a pathname for each record address, up to 16 pathnames.

`First record of object`
This indicates that the specified record is the first record of the file system object.

`Insufficient access rights.`
The specified record is inaccessible due to insufficient access rights.

`Invalid physical device number (off line?).`
You specified a disk partiton that is invalid or not currently online.

`Record address` *nn* `on device` *nn* `is NOT used.`
The specified record is not used by any file system object.

REGISTER_EPF

REGISTER_EPF, which can only be issued by the System Administrator or at the supervisor terminal, registers an EPF, that is, it places an EPF in main memory to improve performance and availability. The EPF being registered may not be linked to until all of the named EPFs are also registered. A registered EPF is suspended until all of the routines which are referenced by the EPF are resolved.

You must have Translator Family Release T3.0 or a subsequent release installed before you can use this command.

Caution

Whenever you are asked to register an EPF, check first to be sure it is a legitimate EPF and not a virus program.

Format

REGISTER_EPF *epf_name* [**-DIRECT_DEPENDENCY_LIST** *epf1* [. . . *epfn*] | **-INIT** *program-option1* [. . . *program-option-n*] | **-INIT_DEPENDENCY_LIST** *epfs* | **-SEARCH_DDL_FIRST** | **-HELP**]

Arguments and Options

epf_name
Specifies the name of the EPF to be registered.

-DIRECT_DEPENDENCY_LIST *epf1* [. . . *epfn*]
Specifies the list of EPFs that are directly referenced by the EPF being registered. This list is optional and may include a subset of the EPFs actually needed. The EPF being registered remains in the suspended state (that is, registered but not able to be executed) until all of the listed EPFs are registered.

-INIT *program-options1* [. . . *program-option-n*]
Specifies the set of options required by the initialization routine when executed for the first time. The *program-options* are passed to the procedure that was designated as the initialization routine when the EPF was linked.

-INIT_DEPENDENCY_LIST *epfs*
Indicates the order in which the initialization routines of the EPFs in the dependency list should be run.

-SEARCH_DDL_FIRST	Indicates that the EPFs listed within the direct dependency list be searched before any other libraries when trying to snap links residing in the EPF being registered.
-HELP	Displays command syntax.

See the *System Administrator's Guide, Volume I: System Configuration* or the *Advanced Programmer's Guide I: BIND and EPFs* for more information on registered EPFs.

REMOVE_PORTAL

REMOVE_PORTAL deletes a portal. A portal is a file system object mounted over an existing local directory that serves as a gateway to another file system name space.

Format

REMOVE_PORTAL { *mountpoint-pathname* | -HELP }

Argument and Option

mountpoint-pathname	Specifies the pathname of the local directory where the portal is mounted. The pathname must be fully qualified.
-HELP	Displays command syntax.

Messages

`A pathname must be given for the portal mount point. (remove_portal)`
You must specify the exact pathname for the portal you wish to remove.

`A portal does not exist at the given pathname. (remove_portal)`
Either the portal has already been removed or you have given the wrong pathname.

`Mount point pathname must be fully qualified. (remove_portal)`
The pathname you specify for the portal you are trying to remove must begin with the root.

`Portals can only be defined on local directories. (remove_portal)`
You have attempted to remove a portal that was added on a remote system and you cannot do so.

`Portals can only be removed by the node where they were added. (remove_portal)`

You have attempted to remove a portal that was mounted on a remote system and you cannot do so.

`Specified mount point cannot be attached to. (remove_portal)`

You have attempted to remove a portal from a mount point to which you do not have access or the mount point you specified does not exist.

See ADD_PORTAL earlier in this chapter and the *Rev. 23.0 Prime Networks Release Notes* for more information.

REMOVE_PRIORITY_ACCESS

REMOVE_PRIORITY_ACCESS removes a priority ACL (Access Control List) from a partition and overrides the effect of a previous SET_PRIORITY_ACCESS command.

Format

REMOVE_PRIORITY_ACCESS *diskname*

Argument

diskname	Specifies the name of the disk partition from which the priority ACL is to be removed. This command may be issued only from the supervisor terminal or by the System Administrator.

Use the LIST_PRIORITY_ACCESS command (described earlier in this chapter) to display the priority ACL in effect for a disk partition. See also the command SET_PRIORITY_ACCESS later in this chapter.

REPLY

REPLY is used to reply to users' magnetic tape requests. There are two formats for REPLY.

Format

REPLY *–usernum* –TAPE { ABORT | GO | *pdn* | RESEND }

Arguments to –TAPE Option

In this form of the REPLY command, you must include the *–usernum* (user number) and –TAPE options, or an error message results.

ABORT — You are unable to assign the requested drive because no drive is available, the tape is not found, and so on. The following message is displayed at the user's terminal:

```
Device not available. Magtape assignment
request aborted (asnmt$)
```

GO — You approve the request. The message displayed at the user terminal indicates that the desired tape drive has been assigned. Use GO to answer all requests that did *not* specify the MTX –ALIAS MT*ldn* option.

pdn — Use the *pdn* option in all cases where a user specifies the MTX –ALIAS MT*ldn* option. Select a suitable drive, perform any special requests, then use this option to send the drive's physical device number to the user's terminal. The following message is then displayed at the user's terminal:

```
Device MTpdn Assigned.
```

RESEND — The most recently sent assignment request from user *–usernum* is repeated at the supervisor terminal.

Four additional REPLY options are available for your use.

Format

```
REPLY [-ALL RESEND          ]
      [-REPEAT seconds      ]
      [-TAPE RESEND         ]
      [-usernum RESEND      ]
```

Options

-ALL RESEND	Repeats all outstanding (unanswered) requests at the supervisor terminal.
-REPEAT *seconds*	Allows you to set how frequently (in seconds) requests are repeated. The *seconds* parameter is a decimal number. The default repeat frequency is 180 seconds (three minutes).
-TAPE RESEND	Repeats the most recent of all outstanding requests at the supervisor terminal.
***-usernum* RESEND**	Repeats all outstanding requests from the specified user number.

See the *Operator's System Overview* for examples of handling tape assignment requests. See also the ASSIGN command for assigning tapes and the SETMOD command for setting the mode of tape assignments.

RESET_DUMP

RESET_DUMP is an internal command that resets the parameters of a partial tape dump to the default values. The default is that the following segments are to be written to tape during a partial tape dump.

- 0_8 to 1777_8. (These contain the kernel operating system and its databases.)
- 6000_8 to 6003_8 for all logged-in users.
- 4000_8 to 7777_8 for the process that was using the CPU at the time of the halt.

The Operator can change the default values with the DUMP_SEGMENT and DUMP_USER commands. The LIST_DUMP command displays the current values.

Format

RESET_DUMP [-HELP]

Option

-HELP	Displays command syntax.

Three related commands are DUMP_SEGMENT, DUMP_USER, and LIST_DUMP, which are discussed earlier in this chapter.

RESUS

RESUS is a DSM (Distributed Systems Management) facility that gives you access to the same command privileges at a user terminal that you would have at the supervisor terminal.

Format

```
        ⎧-ENABLE                                ⎫
        ⎪-DISABLE [-FORCE]                      ⎪
        ⎪-START [-ON nodename]                  ⎪
        ⎪-STOP                                  ⎪
RESUS   ⎨-STATUS [-ON {nodename | nodegroup}]   ⎬
        ⎪-USAGE                                 ⎪
        ⎩-HELP [-NO_WAIT]                       ⎭
```

Options

-ENABLE

Enables RESUS at any user terminal. Once RESUS is enabled, any authorized local or remote user can gain supervisor terminal privileges on the system by issuing RESUS -START. In effect, your user terminal becomes the *logical* supervisor terminal. Once RESUS is enabled, the real or *physical* supervisor terminal no longer functions as the supervisor terminal; it only echoes commands that you enter and the system's responses. It ignores all input except the RESUS -DISABLE and RESUS -DISABLE -FORCE commands. When RESUS is enabled, the system and error prompts change to

```
nodename.RESUS_OK>
nodename.RESUS_ER>
```

-DISABLE

Disables RESUS at the local system. This option is valid only at the *physical* supervisor terminal. Disabling RESUS at one system has no effect on the ability of authorized users on that system to gain control of other systems where RESUS is enabled.

-DISABLE is not honored if another RESUS user is already in control of the system. In this case, you must use -DISABLE -FORCE to forcibly disable RESUS.

The -ENABLE and -DISABLE options can be issued only at the physical supervisor terminal.

–DISABLE –FORCE

Forcibly disables RESUS at the local system, even if another user is controlling the system through RESUS. The user's terminal is disabled from functioning as a supervisor terminal and normal supervisor terminal activity is returned to the *physical* supervisor terminal. This option is valid only at the *physical* supervisor terminal.

Notes

When you forcibly disable RESUS, the User 1 process remains in the most recently entered subsystem. To return system control to the physical supervisor terminal, quit the subsystem in the normal way. For example, if you are in BATGEN, type QUIT to return to PRIMOS command level. To identify the subsystem, refer to the supervisor terminal record: the output of a hard-copy supervisor terminal, for instance.

When you enter the RESUS –DISABLE –FORCE command at the supervisor terminal, there may be a short delay before the command is executed. The RESUS command accepts type-ahead.

–START [–ON *nodename*]

Assumes control of a system where RESUS is enabled. If you do not specify a nodename, the local system is assumed. –START is not available from the supervisor terminal, or from a terminal at which you are already using RESUS.

You cannot control more than one system at a time through RESUS, and only one user can be in control of a system at any time.

–STATUS –ON { ***nodename*** / ***nodegroup*** }

Displays information about the enable/disable status and current users of RESUS on a system or node group. If you do not specify a *nodegroup*, the local system is assumed.

–STOP

Terminates the RESUS session and returns the terminal to PRIMOS command level at the system where you are logged in. The following message is displayed at the supervisor terminal when the RESUS session ends:

```
17 Oct 91 14:37:22 Thursday : RESUS facilities
no longer in use
OK,
```

-USAGE	Displays the command format.
-HELP [-NO_WAIT]	Displays information on how to use the command. -HELP overrides other options. If you specify -NO_WAIT, display is not paginated at your terminal.

Precautions When Using RESUS

RESUS creates a special environment. It is a systems control facility that operates through the networking software. Table 2-3 lists the PRIMOS commands that you should avoid using during a RESUS session.

Table 2-3. PRIMOS Commands to Avoid in a RESUS Session

Command	*Effect of Command*
AMLC or **SET_ASYNC**	These commands can deassign the line to the terminal. Recover by disabling RESUS at the physical supervisor terminal and reconfiguring the line.
EMACS	The EMACS subsystem is specific for a terminal type, and therefore may lock the supervisor terminal keyboard. Also avoid using other terminal-specific subsystems. Check documentation for subsystems to see if they are terminal specific.
ICE	ICE (INITIALIZE_COMMAND_ENVIRONMENT) is an emergency reinitializing command that resets your command environment to the login state and resets all terminal prompts to PRIMOS defaults. If ICE is used within RESUS, the special RESUS prompts are lost for the remainder of the session and are restored only when RESUS is next enabled.
LOGOUT	This command can log out the DSM server. If the DSM server is inadvertently logged out while RESUS is being used on a system, the supervisor terminal function can be temporarily lost. Restore normal function by disabling RESUS at the physical supervisor terminal.
MIRROR_ON and **MIRROR_OFF**	These commands cause RESUS to hang because they may request input from the physical supervisor terminal's keyboard. Recover by disabling RESUS at the physical supervisor terminal (by using the RESUS -DISABLE -FORCE command) and answering the appropriate prompt.
NETLINK	Your NETLINK session is switched to the physical supervisor terminal and will be lost at your terminal. Recover by disabling RESUS at the physical supervisor terminal and quit the NETLINK session from there.

Table 2-3. PRIMOS Commands to Avoid in a RESUS Session (continued)

Command	*Effect of Command*
STOP_DSM	This command stops the DSM facility. The operation of RESUS itself depends on DSM running on the system.
TERM	This command allows remote or local system users to customize their operating environment. Such changes remain in force on the supervisor terminal when the system returns to local control. Because others will use the supervisor terminal after you, it is good practice to not to alter the environment at all, either when operating the system from the supervisor terminal, or from a user terminal through RESUS.
USRASR	This command can hang the User 1 process and requires special recovery procedures. For those procedures, see the manual for your terminal.

Caution

When using RESUS, take care when using subsystems, such as EMACS and PRIMON, which take advantage of special terminal characteristics. The user terminal must be identical to the supervisor terminal (for example, both must be PT200s). Otherwise, because the RESUS session echoes at the physical supervisor terminal, the supervisor terminal may lock. Use RESUS –STOP (to return the logical supervisor terminal to User Terminal mode) before using EMACS or any other program which redraws the terminal screen, unless you are certain the two terminals are of the same type.

Refer to the *DSM User's Guide* for detailed information on the RESUS command.

RJE

RJE is not a PRIMOS command. Remote Job Entry (RJE) Phase II products are separately priced Prime software that enable multiuser Prime systems to emulate other vendor's RJE terminals over half-duplex, point-to-point, synchronous, and dialup or dedicated communications lines.

The two PRIMOS commands used with RJE are the

- RJQ command, which provides user interface to RJE
- RJOP command, which provides operator control of RJE

The following terminals can be emulated with RJE:

- IBM 2780 and 3780
- HASP
- CDC 200UT
- Honeywell GRTS
- Univac 1004
- ICL 7020
- XBM (CO3)

For detailed information on the Prime Remote Job Entry emulators, see the *Remote Job Entry Phase II Guide* and the *PRIMOS Commands Reference Guide.*

See also RJOP in this chapter.

RJOP

RJOP is the Remote Job Entry (RJE) operator command that provides special RJE operational privileges to the RJE local site operator.

Before invoking RJOP, the Operator must create a site definition file that contains information about the particular type of RJE being emulated, the line type used, and other emulator attributes.

Format

RJOP

Usage

RJOP allows the Operator to monitor and control the transmission and reception of files, and to send messages to a remote machine. Other commands provided through RJOP allow the manipulation and control of access to RJE file transmission queues. The Operator can also use the RJQ command to queue files for transmission, list RJE queue entries, cancel unwanted entries from the queue, and restart aborted file transmissions.

For detailed information, see RJOP and RJQ in the *Remote Job Entry Phase II Guide* and RJQ in the *PRIMOS Commands Reference Guide.*

RPAC

See REMOVE_PRIORITY_ACCESS.

SE

See SETIME.

SEARCH_INDEX_LIB

SEARCH_INDEX_LIB searches DRB (Data Recovery and Backup) extended index libraries, created by MAGSAV or MAGRST, for a specified search string. The DRB configuration file allows you to set up default library index pathnames and the number of directory levels to be searched. It is a text file named CONFIG_FILE. Create a directory called DRB* and place CONFIG_FILE in it. You can maintain CONFIG_FILE by using your usual text editor.

Format

SEARCH_INDEX_LIB ***search_string*** **[*options*]**

Argument and Options

search_string Specifies the string used when searching the index files. You can include wildcards in this string and it can be a fully qualified pathname or a partial pathname. In cases where more than one saved object matches the string you have entered, a list of all the matching objects will be displayed. The volume ID, save number, and checkpoint number are also displayed for each occurrence. If you enter this command without a search string or you enter an invalid search string, you receive an error message.

-DATE ***date*** Specifies that only saves written on this date are listed.

-INDEX_LIBRARY ***pathname***
Uses the specified *pathname* as the index library directory. If you do not specify -INDEX_LIBRARY, SEARCH_INDEX_LIB uses the system default index library, specified in the DRB configuration file.

-LATEST Lists the most recent copy of the specified object.

-OLDEST Lists the oldest copy of the specified object.

-REVERSE Reverses the sort order, so that the saves of a file are listed with the newest first.

-WRITTEN_AFTER ***date*** Specifies that only saves written after this date are searched.

-WRITTEN_BEFORE *date*	Specifies that only saves written before this date are searched.
-HELP	Lists command syntax and describes each option.

For more information, refer to the *Operator's Guide to Data Backup and Recovery.*

SECURITY_MONITOR

SECURITY_MONITOR runs the Audit Collection facility. Different command options allow the System Administrator to

- Start and stop the facility
- Turn audits of certain users on and off
- Enable and disable audits of event groups and event types
- Tune the Audit Collection facility to record only those events that conclude a given way, such as only attaches that fail
- Manage the audit trail file

The SECURITY_MONITOR command is a privileged command. The System Administrator may use it at any terminal under his or her own user ID; otherwise, it may be run only from the supervisor terminal.

A complete description of the options and arguments for this command is in the *System Administrator's Guide, Volume III: System Access and Security.*

SECURITY_STATUS

SECURITY_STATUS provides information on the status of audit collection. SECURITY_STATUS is a valid command on C2-secure systems only when issued by the System Administrator or from the supervisor terminal. The command, without options, produces a summary display of all online users and of the events and event types being audited. This command, with options, displays the specific information requested.

Format

SECURITY_STATUS [**-GETF** | **-LIST_EVENTS** | **-LIST_USERS** | **-HELP**]

Options

-GETF	Retrieves the name of the log file open for audit collection.
-LIST_EVENTS	Displays a list of event groups being audited.
-LIST_USERS	Displays a list of all users being audited.
-HELP	Displays help information.

Example

If you invoke SECURITY_STATUS with no options, information similar to the following example is displayed:

```
[SECURITY_STATUS Rev. 23.3 Copyright (c) 1992, Prime Computer,
Inc.]
     Auditor process:      AUDITOR (user 193)
     Users audited:        TIM, BOB, SCROOGE, SYSTEM
     Events audited:       File System: ALL
                           System:      ALL
                           Priv ops:    ALL
                           Attaches:    ALL
     # buffers configured: 4
     # buffers written:   84
    Audit trail file:    <BANKIT>BOB>SECLOG1.880826.084514
```

A complete description of the options and arguments for this command is in the *System Administrator's Guide, Volume III: System Access and Security.*

SET_ASYNC

SET_ASYNC configures an asynchronous line connected to an AMLC or ICS controller. SET_ASYNC specifies the line numbers in decimal, provides extended command-line options, and, thus, is more straightforward and easier to use than the older AMLC command, which it replaced at Rev. 20.2. If you are taking advantage of the Rev. 22.0 and later support of up to 960 terminal lines, you *must* use SET_ASYNC instead of AMLC to configure your terminal lines.

Do not use SET_ASYNC during a RESUS session.

You can issue the SET_ASYNC command interactively or in a command input (COMI) file (for instance, PRIMOS.COMI, the system startup file). However, only System Administrators or the Operator working at the supervisor terminal may issue certain options.

All numeric input to SET_ASYNC must be in decimal.

At or after Rev. 21.0, you can also use the SET_ASYNC command interactively from your own terminal while the system is running either to change the characteristics of lines you have assigned or to temporarily change the characteristics of your terminal line.

Note that interactive terminal users may not specify the following options with the SET_ASYNC command:

-ASSIGNABLE
-DCD_LOGIN
-LOOP_LINE
-NO_DCD_LOGIN
-NO_LOOP_LINE
-NO_SPEED_DETECT
-SPEED_DETECT

Interactive SET_ASYNC commands are not maintained through a cold start. In addition, these changes are valid for the current login session only and revert to the system login characteristics for the line(s) affected when you log out.

If you intend to assign asynchronous lines at a later time, you must designate them as assignable with the SET_ASYNC command (either interactively or in the PRIMOS.COMI file) *before* using the ASSIGN command.

Format

SET_ASYNC [-LINE *x*] [-TO *y*] *option1* [*option2* . . .]

The -LINE option configures an asynchronous line with the decimal line number of *x*. The -TO option enables you to specify one set of configuration values for lines *x* through *y*. Specify one or more *options* to set various parameters for the asynchronous lines, as explained below.

It is not necessary to reset every value for the line; any values that you do not specifically modify remain as they were before you used SET_ASYNC. For example, the default line speed is 1200 bps. You can change the speed to 9600 bps without affecting any other values that were previously set, as follows.

```
OK, SET_ASYNC -LINE 8 -SPEED 9600
```

After you use SET_ASYNC to change one or several options for a line, you may want to reset the line to the default settings. To do so, you can specify the –DEFAULT option, rather than resetting the options individually. Refer to Table 2-4 for a listing of the default values assigned with the –DEFAULT option of SET_ASYNC.

```
OK, SET_ASYNC -LINE 8 -DEFAULT
```

You may also use SET_ASYNC with the –SYSTEM option to return the line to the system defaults, that is, the system line characteristics that existed at the beginning of the login session. These settings may be established by the cold-start defaults, by the SET_ASYNC options specified in the PRIMOS.COMI file, or by the SET_ASYNC options issued by the System Administrator from the supervisor terminal.

```
OK, SET_ASYNC -LINE 8 -SYSTEM
```

For more information on the PRIMOS.COMI file, see the *Rev. 23.0 Software Installation Guide*.

Options

–ASSIGNABLE {YES / NO} — Specifies whether the line is assignable. YES specifies that the line is an assignable line. NO (the default) specifies that the line is not an assignable line. Use –ASGN NO to reset a line that was previously assigned.

–CHAR_LENGTH *n* — Sets the character length to *n* bits. *n* may be 5, 6, 7, or 8. The default is 8 bits.

–DATA_SENSE_ENABLE — Enables the DSS (Data Set Sense) protocol on the line. DSS is also known as reverse channel protocol. The default is –NO_DATA_SENSE_ENABLE.

–DATA_SET_CONTROL — Sets DSC (Data Set Control) on the line. DSC is a handshaking signal that is momentarily sent to wake up a line. This option, which is the default, is required for modems and port selectors, but is ignored by terminals.

–DATA_SET_SENSE {HIGH / LOW}

Sets the specified value, either HIGH (the default) or LOW, of the DSS (Data Set Sense) protocol. The Data Set Sense protocol must be enabled with the –DATA_SENSE_ENABLE option.

–DCD_LOGIN

Disallows login requests on lines that have no carrier signal. The default is NO_DCD_LOGIN. An attempt to log in on a line that has no carrier signal causes this error message to display on the user's terminal:

```
Line must have DCD (Carrier) present for
Login.
```

This failed login also displays a message on the system console:

```
Attempted login on line 37. No DCD
(carrier) present.
```

–DEFAULT

Sets all parameters (except those specified in the current command, which are set to the value given) to their default settings. See Table 2-4 for the default settings.

–DISLOG

Enables logout when the line is disconnected. This option may be specified only by the System Administrator from the supervisor terminal.

–DISPLAY

Displays all the current line characteristics for the line or lines specified. Except for –LINE and –TO, described below, no other settings can be specified with this option.

This option displays whether or not a DCD (carrier signal) is required for login.

–ECHO

Sets the line to full duplex. The line is echoed by the host. This is the default.

–ERROR_DETECTION

Sets the line to send a NAK character (225_8) if an input parity or input buffer overflow error is sensed. –NO_ERROR_DETECTION is the default.

–LINE *n* When SET_ASYNC is used by the Administrator at the supervisor terminal, the –LINE option must be given to specify the line number(s), in decimal, of the asynchronous line(s). When specified at an interactive terminal by a user, –LINE can be omitted. In that case, the line number of the user's terminal is assumed. Interactive terminal users can specify only their own terminal line number or the number of a line they have assigned. *n* must be a decimal number from 0 through 512, inclusive for local lines, from 1024 through 1535, inclusive for NTS lines.

–LINE_FEED Sets the line to echo a line-feed character when you press Return. This option is valid only if the –NO_ECHO option is specified. The default is –NO_LINE_FEED.

–LOOP_LINE Sets the looped line characteristics, which instruct the hardware to return all transmitted data back on the receive line. This option is used only for testing purposes. The default is –NO_LOOP_LINE. This option is not for interactive users.

–NO_DATA_SENSE_ENABLE
Disables the DSS (Data Set Sense) protocol on the line. This is the default.

–NO_DATA_SET_CONTROL
Disables the DSC (Data Set Control) line attribute. The default is –DATA_SET_CONTROL.

–NO_DCD_LOGIN Ignores carrier detect for login requests on the specified line (permits login attempts regardless of the presence or absence of a carrier signal).

If this option is not set (or reset to –DEFAULT), the system does not check for the presence of a carrier signal as part of the login procedure.

This option is set or unset by the System Administrator. –NO_DCD_LOGIN has no effect if specified by a logged-in user. This is the default.

–NO_DISLOG Disables logout when a line is disconnected. This option can be specified only by the Administrator from the supervisor terminal. The default setting is –NO_DISLOG.

–NO_ECHO Sets the line to half duplex. The line is not echoed by the host; the user application must handle echo. The default is –ECHO.

-NO_ERROR_DETECTION
Prohibits the line from sending a NAK character (225_8) if an input parity or input buffer overflow error is sensed. This is the default.

-NO_LINE_FEED
Does not echo a line-feed character when you press Return. This is the default. (See the -LINE_FEED option, described earlier.)

-NO_LOOP_LINE
Disables the looped line characteristic. This is the default. (See the -LOOP option, described earlier.)

-NO_REVERSE_XOFF
Disables Reverse Flow Control for the line. This is the default.

-NO_SPEED_DETECT
Disables Auto Speed Detect on the specified line. This option can be issued only by the System Administrator from the supervisor terminal. The default setting is -NO_SPEED_DETECT.

-NO_XOFF
Prevents the line from recognizing Ctrl-S (XOFF, 223_8) and Ctrl-Q (XON, 221_8) characters to stop and start the flow of data on the line from the host to the terminal. The default is -XOFF.

-PARITY ***value***
Sets the line parity to *value*. *value* is ODD (for odd parity), EVEN (for even parity), or NONE (to disable parity entirely). The default is NONE.

-PROTOCOL [*name*]
Sets *name* as the line protocol. The values for *name* are

Value	*Description*
TTY	The standard terminal protocol. This is the default when you specify the -DEFAULT option.
TRAN	The transparent protocol usually used on lines connected to peripheral devices or to other computers. No echoing is done and no response is made to carriage returns, line feeds, Ctrl-P, or other special characters. All data passes through unaltered. An exception occurs when XON/XOFF is enabled, in which case transmission ceases when the XOFF character is received from the terminal.

TTY8	Configures a line to transmit and receive a full 8 bits of data to and from the host computer, thus enabling communication with other computers that may or may not support ASCII-8. Otherwise identical to the TTY protocol.
TTY8HS	Identical in functionality to the TTY8 protocol, this protocol is used with terminal lines connected to an older model AMLC board (5052 or 5054).
TTYNOP	Configures a line to ignore all traffic.
TTYUPC	Similar to the TTY protocol, except that data is transmitted only in uppercase. Used for devices that can receive data only in uppercase.
TT8BIT	Runs Arabic terminal support for terminal output. With this protocol, the input protocol is TTY.
ASD	Used for Auto Speed Detect. At Rev. 19.4 and later, the speed of a terminal attached to a specifically configured line can be detected automatically. Only the speeds 110, 300, 600, 1200, 2400, 4800, 9600, and 19200 can be detected.
TTYHS	Similar to TTY, except that per-character interrupts are supported. This protocol is used with terminal lines connected to an older model AMLC board (5052 or 5054).
TTYHUP	Similar to TTYUPC, except that per-character interrupts are supported. This protocol is used with terminal lines connected to an older model AMLC board (5052 or 5054).
TRANHS	Similar to TRAN, except that per-character interrupts are supported. This protocol is used with terminal lines connected to an older model AMLC board (5052 or 5054).

Note

The TTYHS, TTYHUP, TTY8HS, and TRANHS protocols are obsolete and should never be used with lines attached to the 5154 AMLC board (also known as AMLCQ or DMQ AMLC board).

-RESET_XOFF

Restarts the flow of data on the line after a Ctrl-S has been issued. You can type this either at the system console or at the terminal controlling the particular line. (This option is equivalent to pressing Ctrl-Q at the terminal that issued the Ctrl-S.)

Caution

If you use this option on an NTS line, you receive the following message:

```
Reset_Xoff option on an NTS line may result in
data loss. Do you want to continue (Y/N)?
```

Type a Y if you wish to continue. You cannot use this option unless XOFF was previously set.

-REVERSE_XOFF

Enables Reverse Flow Control for a line connected to an ICS controller. Reverse Flow Control allows the ICS controller to send an XOFF character to a terminal to indicate that the PRIMOS input queue is full and cannot receive any more data. When the queue is no longer full, the controller sends an XON character to the terminal to resume transmission. The default is -NO_REVERSE_XOFF.

-SPEED [*value*]

Sets the baud rate of the line to *value*. *value* may be any of the following:

50	75	110	134.5
150	200	300	600
1200 (default)	1800	2400	3600
4800	7200	9600	19200
CLOCK	J1	J2	J3

However, if *value* is not one of the hard-wired speeds (110, 134.5, 300, or 1200), the current values for the programmable clock, or the jumpered speeds, you have used an invalid speed value and will receive an error message.

For more information on AMLCLK and ASYNC JUMPER directives, see the *System Administrator's Guide, Volume II: Communication Lines and Controllers.*

The CLOCK value uses the rate of the programmable clock as specified by the AMLCLK configuration directive. The J1, J2, and J3 values use one of the three jumpered speeds that are either assigned to hardware jumper wires (on AMLC boards) or included in the ASYNC JUMPER configuration directive. The default speeds for the jumpered values are 75, 150, and 1800 baud, respectively.

–SPEED_DETECT Enables Auto Speed Detect for the line. The speed of a terminal attached to a specifically configured line can be detected automatically before login. Only the speeds 110, 300, 600, 1200, 2400, 4800, 9600, and 19200 can be detected. This option can be specified only by the System Administrator from the supervisor terminal.

–STOP_BITS *n* Specifies how many stop bits to use on the line. *n* may be 1 or 2; the default is 1.

–SYSTEM Sets all line characteristics to the system login characteristics that existed at the beginning of the login session. The only options that can be specified with the –SYSTEM option are –LINE and –TO.

–TO *y* Instructs SET_ASYNC to use the same set of configuration values for all lines beginning from line *x* specified in the –LINE option through line *y*, inclusive. The value of *y* must be greater than the value of *x* in the –LINE option.

–USER_NUMBER *n* At Rev. 22.0, support of this option was removed. To change a line's asynchronous buffer sizes, use the CAB command, which is documented earlier in this chapter.

–XOFF Sets the line to recognize Ctrl-S (XOFF, 223_8) and Ctrl-Q (XON, 221_8) characters to stop and start the flow of data on the line from the host to the terminal. This is the default.

–HELP Displays a list of the SET_ASYNC options and syntax. If you specify the –HELP option with any other options, the other options are ignored.

SET_ASYNC Settings Using the –DEFAULT Option

Table 2-4 lists the default settings that a line receives when you use SET_ASYNC with the –DEFAULT option alone. The following example illustrates a typical use of the SET_ASYNC command:

```
OK, SET_ASYNC -LINE 5 -TO 20 -PROTOCOL TTY -SPEED 9600 -DEF
```

This command line configures lines 5 (decimal) to 20 (decimal) as loginable, full-duplex lines with TTY protocols and baud rates of 9600 bps. At the same time, the –DEF option resets the lines to the remaining defaults, as listed in Table 2-4.

Table 2-4. SET_ASYNC Settings With the –DEFAULT Option

Parameter	*Setting*
–ASSIGNABLE NO	Line is not an assignable line, but is a loginable line.
–CHAR_LENGTH 8	Character length is 8 bits.
–DATA_SET_CONTROL	Data Set Control attribute is set.
–DATA_SET_SENSE	HIGH.
–ECHO	Full-duplex line.
–LINE_FEED	Line feed character for Return is echoed.
–NO_DATA_SENSE_ENABLE	Data Set Sense (or reverse channel) protocol is disabled.
–NO_DCD_LOGIN	System does not check for the presence of a carrier signal as part of the login procedure.
–NO_DISLOG	Disables logout when a line is disconnected.
–NO_ERROR_DETECTION	Line does not send a NAK character if an input parity or input buffer overflow is sensed.
–NO_LOOP_LINE	Looped line characteristic is not set.
–NO_REVERSE_XOFF	Reverse Flow Control is not enabled.
–NO_SPEED_DETECT	Auto Speed Detect is disabled.
–PARITY NONE	Line parity is disabled.
–PROTOCOL TTY	Line uses the TTY protocol.
–SPEED 1200	Line speed is 1200 bits per second.
–STOP_BITS 1	1 stop bit.
–XOFF	Ctrl-S stops and Ctrl-Q starts the flow of data from the CPU to the terminal.

Examples

Example 1: The following example illustrates the use of SET_ASYNC to disable Ctrl-S and Ctrl-Q (–XON and–XOFF).

```
OK, SET_ASYNC -DISPLAY
[SET_ASYNC Rev 23.3.0 Copyright (c) 1992 Prime Computer, Inc.]

LINE = 0
     PARity          = NONE     ECHO
     PROtocol        = TTY      XOFF
     SPEED           = 9600     NO_LOOP
     Stop_Bits       = 1        Line_Feed
     Char_Length     = 8        NO_Data_Sense_Enable
     REVerse_XOFF    = OFF      NO_ERRor_DETection
     ASsiGNable      = NO       NO_Speed_Detect
     Data_Set_Sense  = LOW      DISLOG
     Owner Process   = 2        Data_Set_Control

OK, SET_ASYNC -LINE 0 -NOXOFF
[SET_ASYNC Rev 23.3.0 Copyright (c) 1992 Prime Computer, Inc.]
OK, SET_ASYNC -DISPLAY
[SET_ASYNC Rev 23.3.0 Copyright (c) 1992 Prime Computer, Inc.]

LINE = 0
     PARity          = NONE     ECHO
     PROtocol        = TTY      NO_XOFF
     SPEED           = 9600     NO_LOOP
     Stop_Bits       = 1        Line_Feed
     Char_Length     = 8        NO_Data_Sense_Enable
     REVerse_XOFF    = OFF      NO_ERRor_DETection
     ASsiGNable      = NO       NO_Speed_Detect
     Data_Set_Sense  = LOW      DISLOG
     Owner Process   = 2        Data_Set_Control

OK,
```

Example 2: The following example demonstrates how to use SET_ASYNC to display the values for line 12. All the parameters are set to default values.

```
OK, SET_ASYNC -LINE 95 -DISPLAY
[SET_ASYNC Rev 23.3.0 Copyright (c) 1992 Prime Computer, Inc.]

LINE = 95
    PARity          = NONE  ECHO
    PROtocol        = TTY   XOFF (Output Suspended)
    SPEED           = 9600  NO_LOOP
    Stop_Bits       = 1     Line_Feed
    Char_Length     = 8     NO_Data_Sense_Enable
    REVerse_XOFF    = OFF   NO_ERRor_DETection
```

```
ASsiGNable      = NO    NO_Speed_Detect
Data_Set_Sense  = LOW   NO_DISLOG
Owner Process   = 97    Data_Set_Control

DCD Required    = NO
```

With the addition of the –RESET_XOFF option at Revision 23.0, the display now indicates whether data flow has been suspended on a given line as shown beside XOFF above. This helps you determine which line needs to be reset so that data will flow again. See –RESET_XOFF in this option list for more information.

For more details on SET_ASYNC, including a complete list of error messages, see the *System Administrator's Guide, Volume II: Communication Lines and Controllers.*

SET_LSR_DEFAULTS

The System Administrator invokes the SET_LSR_DEFAULTS utility in the SYSTEM directory to set up LOGIN_SERVER defaults. The defaults are the LOGIN_SERVER prompt and the prompt redisplay characteristics that the LOGIN_SERVER is to use when it is started at cold start or when it is restarted (via START_LSR) after it has been shut down.

Setting up LOGIN_SERVER defaults also allows the LOGIN_SERVER to inherit the desired prompt and redisplay characteristics when it is started up initially at cold start.

The Login server prompts can use the RDY expandable prompt variables. These variables are listed in the *PRIMOS Commands Reference Guide*. The unexpanded prompt can be up to 80 characters long and the expanded prompt can be up to 256 characters long.

Usage

The LOGIN_SERVER must be stopped before running SET_LSR_DEFAULTS. If you run the SET_LSR_DEFAULTS utility while the Login server is running, PRIMOS returns the following error message:

```
OK, RUN SYSTEM>SET_LSR_DEFAULTS
File "SYSTEM>LOGIN_SERVER.CPL" could not be opened. (OPEN_FILE)

Error: The LOGIN_SERVER's defaults file can not be opened up for
writing.  The  LOGIN_SERVER must be shut down before running
SET_LSR_DEFAULTS.  If the LOGIN_SERVER is not running then check the
ACL on "SYSTEM>LOGIN_SERVER.CPL".

ER, STOP_LSR
Really? YES
OK,
```

Format

RUN SYSTEM>SET_LSR_DEFAULTS

Sample Session

```
OK, RUN SYSTEM>SET_LSR_DEFAULTS

Retrieving current LOGIN_SERVER defaults...

Prompt redisplay: disabled
Login prompt has not been set and will default to "Login please."
Login READY prompt has not been set and will default to "OK,"
Login ERROR prompt has not been set and will default to "ER!"
Login MAXUSR prompt has not been set and will default to
"Please try again later."
Retries: no retry attempts allowed before remote connection is dropped.
Implicit login: disabled

Do you wish to change the defaults (y/n)? y

Prompt redisplay, when enabled, causes the LOGIN_SERVER to redisplay the
LOGIN_SERVER prompt if a null or blank login command line is encountered.

Prompt redisplay is currently disabled.  Would you like to enable it (y/n)? y

The current LOGIN_SERVER prompt is not set and is "Login Please." by default.
Would you like to change it (y/n)? y
New LOGIN_SERVER prompt (<cr> = "Login Please."):Welcome to %sn.

The current LOGIN_SERVER READY prompt is not set and is "OK," by default.
Would you like to change it (y/n)? y
New LOGIN_SERVER READY prompt (<cr> = "OK,"):login:

The current LOGIN_SERVER ERROR prompt is not set and is "ER!" by default.
Would you like to change it (y/n)? y
New LOGIN_SERVER ERROR prompt (<cr> = "ER!"):Error! login:

The current LOGIN_SERVER MAXUSR prompt is not set and is
"Please try again later." by default.
Would you like to change it (y/n)? n

Configuring the number of allowable retries allows the System Administrator to
allow users between 1 and 10 attempts at logging in without closing the Virtual
Circuit (if the user is logging from a remote system over Primenet) or
NTS connection (if the user is logging through the Network Terminal Server).
Not setting the number of retries (or setting the number of retries to 0) allows
the user only 1 attempt at logging in.

The current number of retries is currently:0 (0 = none)
Would you like to change it (y/n)? y
Number of retries (1-10 or 0 for none): 2
```

```
Implicit login, when enabled, allows users to login to the system by typing
his/her user id (at the login prompt) and password, if one exists (at the
password prompt).  This, essentially, allows users to login without using the
LOGIN_SERVER's LOGIN command.

Implicit login is currently disabled.  Would you like to enable it (y/n)? y

Prompt redisplay enabled
Login prompt: "Welcome to %sn."

Login READY prompt: "login:"
Login ERROR prompt: "Error! login:"
Login MAXUSR prompt has not been set and will default to
"Please try again later."
Retries: 2 retry attempts allowed before remote connection is dropped.
Implicit login: enabled

Ok to save new settings (y/n)? y

The defaults for the LOGIN_SERVER have been updated.  The changes will not take
effect until the LOGIN_SERVER is restarted or the system is coldstarted.

OK,
```

After setting the defaults, the System Administrator may simply issue the START_LSR command. The LOGIN_SERVER then starts with the current defaults. The System Administrator may specify different options to the LOGIN_SERVER during startup but doing so overrides the preset defaults.

See also START_LSR and STOP_LSR in this chapter.

SET_PGALARM

At Rev. 23.0 and later, PRIMOS monitors paging space depletion and generates warnings as paging thresholds are crossed. Receiving such warnings enables the Administrator to take steps to prevent the paging disk from becoming completely full and thereby halting PRIMOS. This reduces the need to run FIX_DISK.

SET_PGALARM can do two things:

- Disable warning messages from being generated by PRIMOS at the first two paging thresholds.
- Reset all paging monitoring and alarm functions after those functions have been disabled and the problems subsequently corrected; notify DSM of the reset. (Notifying DSM allows paging alarms to be better grouped for analysis.)

Format

SET_PGALARM [{ **-DISABLE** / **-ENABLE** / **-HELP** }]

Options

-DISABLE — Inhibits warning messages from being generated and logged at the first two paging thresholds only. It should be used only after the System Administrator is aware that the paging disk is nearly full, has noted the problem, and has decided the system should continue to operate under those conditions. (See the Caution.)

-ENABLE — Reenables the generation and DSM logging of warning messages following use of the -DISABLE option. (See the Caution below.) This is the default; if you issue SET_PGALARM with no option, warning messages are reenabled.

-HELP — Briefly describes the options.

Caution

If you've disabled the warning messages with the -DISABLE option, you *must* issue the SET_PGALARM command either alone or with the -ENABLE option once the paging problem has been resolved. Failure to do so prevents any warnings from being generated the next time paging space is being depleted. Instead, the first indications of a problem are error messages and forced logout of users.

Refer to the *System Administrator's Guide, Volume 1: System Configuration* for more information on paging partitions, paging space monitoring, and the five paging thresholds.

SET_PRIORITY_ACCESS

SET_PRIORITY_ACCESS specifies a user's access to an entire partition, and overrides all other Access Control List (ACL) specifications. The command sets a priority ACL on the specified partition for the users specified. This command can be issued only from the supervisor terminal or by the System Administrator.

Format

SET_PRIORITY_ACCESS ***diskname access-control-list***

Arguments

diskname	Specifies the name of the partition to be affected.
access-control-list	Displays the list of identifiers and access rights.

Usage

Users can be included in the *access-control-list* argument by user name, group name, or $REST (all users not listed by name or not in a listed group). If users are in this list, the access rights specified are granted to them whenever they use the specified disk and while the priority ACL remains in effect. The priority remains for the users (even if the priority ACL has been removed by REMOVE_PRIORITY_ACCESS) until they attach away from the directory or log out.

If all users are to be affected by a list of priority ACLs, the $REST specifier *must* be present in *access-control-list*. There is no implied $REST:NONE, as with regular ACLs.

If a user is not specified in the priority-ACL list, the access rights granted the user are taken from the normal ACL and password information on the disk volume.

A $REST specifier in a priority ACL *overrides* normal security protections specified on the disk; therefore, Operators should only specify $REST:NONE. If a priority ACL included $REST:LUR, for example, all users would be able to read all files, even if they normally would be denied access by ACL information on the disk.

For security reasons, use of this command causes an event (event type PACL) to be logged in the system event log file. In addition, a message is displayed at the supervisor terminal. The message includes the date and time at which the priority ACL was added, the partition to which it was added, and the user number and user name of the user who added it. No event or message occurs when a priority ACL is removed.

To remove a priority ACL, use the REMOVE_PRIORITY_ACCESS command. To list a priority ACL, use the LIST_PRIORITY_ACCESS command.

Example

To set priority access, use the following format:

```
OK, SET_PRIORITY_ACCESS BTSUN8 DRG:ALL BTUBS8:LURRW $REST:LUR
```

See LIST_ACCESS earlier in this chapter for a table that lists the available access rights. See the *PRIMOS User's Guide* for a discussion of ACLs and the meaning of ACL symbols. For other commands associated with ACLs, see the *Operator's System Overview* and the *System Administrator's Guide, Volume III: System Access and Security.*

SET_QUOTA

SET_QUOTA is used to set the maximum storage quota on a directory or subdirectory. A **quota** is the maximum number of records that a directory can contain.

If you attempt to set a quota on a directory or subdirectory to which you have insufficient access rights, the message `Insufficient access rights.` is displayed. If this happens, use the SET_PRIORITY_ACCESS command at the supervisor terminal to acquire sufficient access on the disk partition containing *pathname*. Then use the SET_QUOTA command again.

If *pathname* has no current quota (quota = 0), and there are users attached or files open in the directory or its subtree, `a File in use. filename (set_quota)` message is generated. This can happen on system directories, such as CMDNC0 and BATCHQ, because users and phantom processes frequently access them. To successfully set a quota on a directory that is in use, either wait until all users and phantoms log out or set a quota before they log in after a system cold start.

You cannot set a quota on an MFD.

Format

SET_QUOTA ***pathname*** **[–MAX** ***n*****]**

Arguments

pathname	Specifies the pathname of the directory on which a quota is to be set. If a quota is to be placed on the current directory, you must give the full pathname. However, if the quota is to be placed on a subdirectory of the current directory, you can specify only the name of the subdirectory.
–MAX ***n***	Specifies the maximum number of records the directory can use. If *n* is zero, the quota is removed, and the directory can use as much storage as necessary, being limited only by the available disk space or by a quota placed on a parent directory. Omitting the –MAX option removes a quota, and is therefore the same as specifying –MAX 0.

SET_SCHEDULER_ATTRIBUTES

SET_SCHEDULER_ATTRIBUTES enables the System Administrator to tune the PRIMOS Scheduler to meet the requirements of a particular site. With the SSA command, you can now make adjustments to the Scheduler which allow greater control over how CPU resources are distributed among user priority levels and between shorter and longer jobs.

Note

Before using this command, be sure you read and understand the CHAP, ELIGTS, and MAXSCH commands presented earlier in this chapter. The SSA command builds on an understanding of those commands. Also, read the background information on the Scheduler and the detailed explanation of the new Scheduler features presented in the *System Administrator's Guide, Volume I: System Configuration.*

When determining how to modify the Scheduler attributes, refer to the –SCHED option of the USAGE command later in this chapter as well as the detailed explanation of the Scheduler in the *System Administrator's Guide, Volume I: System Configuration.* Use of the –SCHED option to USAGE allows you to gather data on system performance that helps you determine what kind of adjustments to make to the Scheduler attributes.

Format

SET_SCHEDULER_ATTRIBUTES [**-ELIGIBILITY_TIMESLICE** *n* | **-MAXIMUM_SCHEDULED_JOBS** *n* | **-PRIORITY_BIAS** *n* | **-PRIORITY_RATIO** *a b c d e* | **-QUEUE_RATIO** *a b c* | **-SHORT_JOB** *n* | **-HELP**]

Options

The options to SSA are explained below. If you issue the SSA command with no options, it sets the Scheduler to the default values. The default values for queue ratio and priority ratio are explained below under Options. The default values for the ELIGTS and MAXSCH options are given in the writeups for those commands earlier in this chapter.

-ELIGIBILITY_TIMESLICE *n*

Sets the system-wide parameter of ELIGTS in *n* milliseconds. ELIGTS determines the length of the minor timeslice. The valid range is 4 through 32767. If no argument is specified, the value is set to the default. For more information and the default setting of ELIGTS, see the ELIGTS command earlier in this chapter. (This option sets the same parameter as the ELIGTS command.) Also see the *System Administrator's Guide, Volume I: System Configuration* for more information on the minor timeslice.

-MAXIMUM_SCHEDULED_JOBS *n*

Sets the system-wide parameter of MAXSCH to *n*. MAXSCH controls the number of processes simultaneously active on the system. (An active process is one that is on the ready list or that is waiting for disk I/O to complete.) The valid range is 1 through the maximum number of configured users. If no argument is given, the value is set to the default. For more information and the default setting of MAXSCH, see the MAXSCH command earlier in this chapter. (This option sets the same parameter as the MAXSCH command.)

-PRIORITY_BIAS *n*

Tunes -PRIORITY_RATIO to one of five predetermined sets of ratio values. This option tunes the same ratios as does the -PRIORITY_RATIO option but it does so in a simplified way.

n can be a value of 0 through 4. These values determine how much favoring, or bias, is given to higher priority jobs over lower priority jobs. 0 represents no bias and 4 represents the greatest amount of bias. The default setting is 2.

Following are the ratios that correspond to the 0 through 4 values. As you can see, you have a choice of only five sets of ratio values when you use -PRIORITY_BIAS as opposed to many possible combinations of ratio values when you use the -PRIORITY_RATIO option. -PRIORITY_BIAS, however, is simpler to use.

n	*Priority Levels* 0 1 2 3 4
0	1 1 1 1 1
1	1 2 3 5 8
2	1 2 4 8 16 (default)
3	1 3 9 27 81
4	1 4 16 64 255

–PRIORITY_RATIO ***a b c d e***

Controls the distribution of CPU resources among the five process priority levels. *a* to *b* to *c* to *d* to *e* is the ratio of CPU service available to processes at priority levels 0 through 4. The default settings are 1 to 2 to 4 to 8 to 16. (These were the settings in earlier revisions of PRIMOS.) With the –PRIORITY_RATIO option, you can adjust these settings to whatever is optimum for your site. Priority levels determine *which* processes are given higher priority. –PRIORITY_RATIO determines how *much* favoritism is given to higher priority processes over lower priority processes.

Priority ratios must be specified in nondescending order, that is, *e* must be greater than or equal to *d*, *d* must be greater than or equal to *c*, and so on. All five arguments must be present. The maximum value allowed is 256.

–QUEUE_RATIO ***a b c***

Determines the relative distribution of CPU resources among the low, eligibility, and high Scheduler queues. (*a* corresponds to the ratio setting of the low Scheduler queue, *b* corresponds to the ratio setting of the eligibility queue, and *c* corresponds to the ratio setting of the high Scheduler queue.) The ratios must be specified in nondescending order, that is, *b* must be equal to or greater than *a*, and *c* must be equal to or greater than *b*.

This option specified with no arguments sets the ratios to the default values of 1 to infinite to infinite. (To specify a value of infinite, use either the word *infinite* or the letters *inf*.) *a* may not be set to infinite. The maximum noninfinite value is 1024.

–SHORT_JOB ***n***

Tunes –QUEUE_RATIO to one of five predetermined sets of ratio values. This option adjusts the same ratios as does the –QUEUE_RATIO option but in a simpler way. There is, however, an extensive range of setting choices available when you use the –QUEUE_RATIO option, whereas you can choose only from among five sets of ratio values when you use –SHORT_JOB.

You can specify values of 4, 3, 2, 1, 0, UP, or DOWN for *n*. The higher the setting, the greater the favoritism given to shorter jobs over longer jobs. (In all cases, shorter jobs get better CPU response than longer jobs. This option simply determines how *much* better the CPU response is.) If you do not specify a value for *n*, it is set to 4 by default. UP moves the value of *n* up one level, for example, from 3 to 4. DOWN moves the value of *n* down one level, for example, 4 to 3. If you specified values between two of these preset levels, using the UP or DOWN argument raises or lowers the setting to the next highest or next lowest level.

The queue ratio settings corresponding to the five values for *n* are

n	*Queue Settings*		
	LO	Eligibility	High
4	1	inf	inf
3	1	256	512
2	1	128	256
1	1	64	128
0	1	32	64

-HELP Displays command syntax.

See also CHAP, ELIGTS, MAXSCH, and LIST_SCHEDULER_ATTRIBUTES earlier in this chapter. For more information, see the *System Administrator's Guide, Volume 1: System Configuration.*

SET_TIME_INFO

SET_TIME_INFO establishes time information for the local time zone, including

- The time zone
- Whether or not daylight saving time goes into effect
- When daylight saving time goes into effect

This information is used to calculate the Universal time (formerly Greenwich mean time). This command must be issued from the supervisor terminal.

This command is optional, although it is customarily included in the PRIMOS.COMI file. Remember that issuing this command has no effect on starting the PRIMOS clock. The PRIMOS clock is started in one of two ways:

- If your system has a battery clock, the PRIMOS clock is initialized from the Diagnostic Processor clock. (Almost every system with a 4-digit model number has a battery clock; the only exception is the 2250™.) When the battery clock is initialized, the following message is displayed.

  ```
  System clock has been initialized.
  ```

- If your system does not have a battery clock (for example, older systems such as the 750™ and 850™), the PRIMOS clock is initialized when you issue the SETIME command.

Unless you issue the SET_TIME_INFO command, your local time zone is set to zero (Universal time) and no adjustment for daylight saving time is made.

Format

SET_TIME_INFO [**-DLST NO** | **-DLST YES** [*start–date end–date dlst–offset*] | **-TIMEZONE** *timezone–offset* | **-HELP**]

Options

-DLST NO — Turns off DLST if it was previously turned on; that is, specifies that daylight saving time is not to be considered.

–DLST YES [*start-date end-date dlst-offset*]

Specifies that daylight saving time is to be considered when calculating Universal time. If you do not specify this option, then standard local time is not adjusted for daylight saving time during the year. (This option does *not* adjust whether the built-in clock considers daylight saving time; the built-in clock's time is affected only by VCP commands.)

start-date indicates when local time will be offset from standard local time. The format for *start-date* is *mmddyy hhmm*. *start-date* must be earlier in time than *end-date*.

end-date indicates when local time will return to standard local time. The format for *end-date* is *mmddyy hhmm*.

dlst-offset is the offset from standard local time used to calculate local time during the period defined by *start-date* and *end-date*. Local time is adjusted backward (–) or forward (+) when the period is entered. *dlst-offset* is expressed in HHMM or –HHMM from standard local time.

The defaults for these three arguments are the U.S. standard: *start-date* is the first Sunday in April, at 2:00 a.m.; *end-date* is the last Sunday of October, at 2:00 a.m.; *dlst-offset* is 0100.

Note

It is very important that you specify the –DLST YES option if daylight saving time is in effect where the system is located. Otherwise, the system will not be able to establish the correct Universal time.

–TIMEZONE *timezone-offset*

Specifies the time zone of the local system, as offset from Universal time (UT). The value for *timezone-offset* is expressed as HHMM or –HHMM and can range from 12 hours behind to 12 hours ahead of Universal time. Starting at Universal time, the absolute values of the negative time zone offsets increase from east to west; the values of the positive time zone offsets increase from west to east.

For example, the *timezone-offset* for Framingham, Massachusetts is –0500. The command line would be

```
OK, SET_TIME_INFO -TIMEZONE -0500
```

The local time zone for Munich, Germany is one hour ahead (+0100) of UT. In this case, the command line would be

```
OK, SET_TIME_INFO -TIMEZONE 0100
```

The range of acceptable values extends from UT to the international date line.

–HELP Displays a list of options and the syntax for this command.

SETIME

SETIME sets the system date and time.

Format

SETIME *-mmddyy -hhmm*

Arguments

-mmddyy	Are digits that represent the month, day, and last two digits of the year.
-hhmm	Are digits that represent the time in hours and minutes, in 24-hour format.

The two arguments to SETIME must be separated by spaces, and must have a hyphen as the first character. For example, to set the date and time as November 2, 1991 4:30 p.m., type

```
OK, SETIME -110291 -1630
```

Note

Following a system cold start on systems without a battery clock, you must issue the SETIME command before you can use the MAXUSR command to allow users to log in. See the handbook for your CPU for details.

SETM

See SETMOD.

SETMOD

SETMOD sets the mode for magnetic tape assignments. You can only issue it from the supervisor terminal.

Format

SETMOD { -NOASSIGN | -OPERATOR | -USER }

Options

-NOASSIGN Forbids the assignment of any tape drive unit from user terminals. Any attempt to assign a drive results in the following message:

```
No magtape assignments permitted.
(asnmt$) ER!
```

In environments that restrict user access to tape drives, this message informs users that the Operator is not available for request handling.

-OPERATOR Requires Operator intervention in all tape drive assignment operations. All ASSIGN commands issued by users are displayed with user numbers at the supervisor terminal. Answer each ASSIGN request with the REPLY command. When the user makes a request using the ASSIGN command, that user's terminal is hung until you respond to the request.

-USER Permits user assignment of tape drives either by physical device number (pdn) alone or by pdn and options that do not require Operator intervention, such as -ALIAS *ldn*, -WAIT, -RETENSION, and -SPEED. (See the ASSIGN command.) This is the default mode. Users who successfully assign tape drives in this mode receive the message

```
Device MTpdn assigned.
```

All other options to ASSIGN (such as MTX and -RINGON) require Operator intervention. Commands using these options are displayed at the supervisor terminal. You must use the REPLY command to respond.

See also ASSIGN and REPLY, earlier in this chapter. See the *Operator's System Overview* for a full discussion of user tape assignment requests.

SH See SHUTDN.

SHA See SHARE.

SHARE

SHARE is used to install a command or static-mode library into a supervisor segment. The primary use of the SHARE command is to place a program into shared memory so that many users can use the program at the same time.

The SHARE command can be issued only at the supervisor terminal. Prior to Rev. 21.0, you were required to use the OPRPRI command with the SHARE command. At Rev. 21.0 and subsequent revisions, this is no longer necessary.

WARNING

It is possible to overwrite the operating system and the shared utilities with this command. Do *not* share into segments 0 through 1777_8, because these segments are reserved for PRIMOS. Other segments that may contain system utility programs are described in the *System Administrator's Guide, Volume I: System Configuration.*

Format

SHARE [*pathname*] *segment-number* [*access-rights*]

Arguments

pathname

Specifies an optional parameter naming a runfile. If you specify *pathname*, the named file is restored into *segment-number.* If you do not specify *pathname*, the command changes the access rights of the specified segment, but does not modify the contents of the segments.

segment-number

Specifies the number of the segment to be shared. Valid *segment-numbers* range from 1_8 through 3777_8, inclusive. However, you should specify *only* segments 2000_8–2665_8. Specifying a segment number outside this range may cause unpredictable results.

Caution

The gate segment, segment 5, should not be specified in a SHARE command. If this segment is shared, direct-entrance calls from user space will cause ACCESS_VIOLATION$ messages.

---

access-rights Specifies the access rights to be given *segment-number.* Possible values are

Value	*Description*
0	No access
200_8	Read access
600_8	Read and Execute access (default)
700_8	Read, Write, and Execute access

Segments 2000_8 through 2665_8 are available for holding shared programs. Any user can execute shared programs stored in these segments. For a list of shared segment assignments, see the *System Administrator's Guide, Volume I: System Configuration.*

WARNING

Do not change the access rights of supervisor segments 1_8 through 40_8. By changing access rights of specific supervisor segments, you can either monitor or patch the supervisor segment from a user terminal. This feature is intended for PRIMOS development and debugging; for users, it is dangerous and its use is not recommended.

For more information, see the *Advanced Programmer's Guide I: BIND and EPFs.*

SHOW

SHOW grants the privilege to another user to monitor your terminal input and output through using the WATCH command. The permission is granted for either the duration of your login session or until you disable access with one of the disable options. The system allows only one user to watch at a time. Issuing a subsequent SHOW command replaces the access granted by the previous SHOW command.

Format

```
SHOW { username      }
     { -ALL          }
     { -DISABLE_ADMIN}
     { -DISABLE_GROUP}
     { -DISABLE_USER }
     { -LIST         }
     { -HELP         }
```

Options

You must specify only one option for each SHOW command.

username — Permits any user with this *username* to watch your input and output stream.

-ALL — Permits all users to watch your input and output stream. However, only one user can watch at a time.

-DISABLE_ADMIN — Prevents System Administrators from using the WATCH command. This option can only be used from the supervisor terminal. Any System Administrator watch session in progress continues unaffected.

Caution

Once disabled, a cold start of the system is required to re-enable System Administrator use of the WATCH command.

-DISABLE_GROUP — Prevents users from watching your input and output stream via the .WATCH$ ACL group privilege. This option can only be used by members of the .WATCH$ ACL group. If a member user is watching you via .WATCH$ access when you issue this option, that watch session is immediately terminated. Once disabled, ACL-group access to your terminal remains disabled until you log out.

-DISABLE_USER	Prevents any user from watching your input and output stream, unless that user has access via ACL-group access or System Administrator access. If a privileged user is watching when this option is used, that watch session is immediately terminated. Once disabled, user access to your terminal remains disabled until you issue a SHOW -ALL command, or until the end of your login session.
-LIST	Displays the System Administrator, ACL-group, and user access watch privileges.
-HELP	Displays command options.

For more information, see the WATCH command in the *PRIMOS Commands Reference Guide*.

SHUTDN

SHUTDN is used to shut down the system, shut down local disk partitions, or, for systems not running the Name Server, remove remote disk partitions from the local system. It can be issued only from the supervisor terminal. The procedures and command formats for each type of shutdown are described below.

Shutting Down the System

Format

SHUTDN ALL [–FORCE]

Usage

This command performs a complete PRIMOS system shutdown. To verify that a complete shutdown is what you want, the system asks REALLY?.

Answer YES for the shutdown to occur. The abbreviation Y does not work. All user files are closed, disk partitions are shut down, network communication with the system is halted, and input from user terminals is turned off. When PRIMOS completes this process, it halts the CPU.

It is recommended that you issue a message using the MESSAGE ALL –NOW command to all users before you shut down the system.

When you execute the SHUTDN ALL command, a message prints for each failed disk partition. For example,

```
OK, SHUTDN ALL
REALLY? YES

WAIT
*** Disk name was not shut down properly, Run FIX_DISK ***
*** From PRIMOS: Shutdown process completed, system halting ***
```

If the SHUTDN ALL command fails to execute properly, the following error message appears at the supervisor terminal:

```
WARNING: Shutdown Unsuccessful (sh_cmd).
```

If this occurs, the System Administrator must stop the system manually using the following procedure:

```
OK, <Esc><Esc>
<P> STOP
<P> SYSCLR
```

You must run FIX_DISK if the system is manually stopped. If you do not run FIX_DISK, there is no way to determine the state of the partition after the system was shut down manually.

For the best results in shutting down PRIMOS, follow the procedures described in the handbook for your CPU.

Before Rev. 20.2, partitions on a malfunctioning disk drive could be shut down only by shutting down the entire system with the SHUTDN ALL command. At Rev. 20.2, the –FORCE option for the SHUTDN command was introduced to shut down any partition or all partitions on a particular disk drive under any circumstances. The –FORCE option is effective with Rev. 20.2 and later versions of PRIMOS.

When you use the –FORCE option, PRIMOS attempts an orderly shutdown. If an orderly shutdown is not possible, PRIMOS continues with the shutdown procedure and reports any problems at the supervisor terminal. However, the integrity of the file system cannot be guaranteed if an orderly shutdown does not take place; in that case, it may be necessary to run FIX_DISK.

The –FORCE option identifies and acts on all recognizable errors. If an error occurs, the event causing the error is retried until PRIMOS determines that it is impossible to continue with the event. Appropriate error messages are displayed at the supervisor terminal so that you can identify the malfunctioning partitions.

Use the –FORCE option only if there are known problems with a partition or a disk drive, or if the partition cannot be shut down in the normal manner. Problems are indicated by disk or file system read-errors when you attempt to add the partition using the ADDISK command. A problem is also indicated when you shut down the partition (using the SHUTDN command) and a subsequent STATUS DISKS command shows that the partition was not shut down. In these cases, you must use the –FORCE option to shut down the disk.

Shutting Down Local Partitions

Shutting down a local partition closes all currently open files on the partition, logs out all users who are attached to directories residing on the partition, and causes all attempts to use the partition from either the local system or a remote system to be rejected. The specified partition is unavailable until it is added back to the system in a subsequent ADDISK command. Until then, users whose origin directories reside on the partition are unable to log in. See the *Operator's Guide to Data Backup and Recovery* for more information on closing down partitions for backups.

It is recommended that you issue a message using the MESSAGE ALL –NOW command to all users before you shut down the system.

At Rev. 23.3, the SHUTDN command includes –VERIFY and –VERIFY –DETAIL. The –VERIFY option allows you to verify that there are no users on the disks to be shut down. If there are users on the affected disks, SHUTDN informs you how many users are on the disks and asks if you really want to shut the disks down. The –DETAIL option, which can be specified *only* with the –VERIFY option, lists the users that are currently using the disks to be shut down.

Note

When you use –VERIFY and –VERIFY –DETAIL, no lock is applied. Therefore, the number of logged-in users may change between the time you issue this command and the time of the actual shutdown. Information you receive from these options is accurate only at the time that you issued these options.

If you attempt to shut down a partition that has any partitions or portals mounted under it, PRIMOS asks whether you wish to shut down the lower-mounted partitions or portals also, as in the following example:

```
OK,  SHUTDN 1062
There are disks/portals which are subordinate to this disk:
    Portal to Q41 mounted at "<NSR1>MTPT>PORTAL"
    Disk DISK1  mounted at "<NSR1>MTPT>MOUNT_POINT"
 These disks/portals must be shutdn/removed before SHUTDN can
 proceed.
 Do you want this command to shutdn/remove them? yes
OK,
```

You must type the word yes; the letter *y* is not sufficient.

Format

SHUTDN { ***pdev1*** **[*pdev2 . . . pdev9*] [–FORCE]**
pdev **–RENAME *diskname*** } **[–VERIFY [–DETAIL]]**

Arguments and Options

pdev1 . . . pdev9	Shuts down the disk partitions indicated by *pdev1 . . . pdev9*.
–FORCE	Forcibly shuts down from one to nine malfunctioning partitions. Attempts an orderly shutdown. If an orderly shutdown is not possible, PRIMOS continues with the shutdown procedure and reports any problems to the supervisor terminal. Refer to the discussion of the –FORCE option in SHUTDN ALL above.

You can use the –FORCE option with all SHUTDN options except –RENAME. If you attempt to use the –FORCE option with the –RENAME option, the following error message is displayed:

```
Cannot rename partitions with -FORCE
option. (shutdn)
```

pdev* –RENAME *diskname

Allows you to supply a new *diskname* for a partition when shutting it down.

Only one physical device number (pdev) can be specified each time this option is used. For example,

```
OK, SHUTDN 461 -RENAME B3.BAK
```

Aside from renaming the partition, this command has the same effect as SHUTDN *pdev* without the –RENAME option.

–VERIFY [–DETAIL]

Checks to see if there are users attached to or have open files on the affected partitions. If there are any, SHUTDN asks `REALLY?` (as it does with the SHUTDN ALL command). You cannot use the –VERIFY option with the –ON option. If you attempt to use the –VERIFY option with the –ON option, the following error message is displayed:

```
The -VERIFY option may not be used with
the -ON option. (shutdn)
```

The –DETAIL suboption displays a list of users who have files or attach points on the affected partitions. You can only use –DETAIL with the –VERIFY option. If you attempt to use –DETAIL without the –VERIFY option, the following error message is displayed:

```
The -DETAIL option may only be used with
the -VERIFY option. (shutdn)
```

Caution

Do not shut down the partition that contains the command device or PRIMOS will be unable to access the command directory (COMDEV). Recover by using the ADDISK command to add the command device partition back to your system.

Shutting Down Remote Partitions

Systems Not Running the Name Server

If your system is not running the Name Server, shutting down a remote partition removes it from the list of known partitions on the local system (the system from which the command is issued). If your system is running the Name Server, see the next section.

Shutting down a remote partition closes all files on the partition that are currently in use by local users and disconnects it from your system. Also, all local users who are attached to directories residing on the partition are logged out, and all further attempts to use the partition from the local system are rejected. The specified disk partition is unavailable to users logged in to the local system until it is made available once again with a subsequent ADDISK command. Shutting down a remote disk partition does not affect access to the partition from any other system, including the system on which the partition resides.

Format

SHUTDN ***diskname1*** **[*diskname2 . . . diskname9*] [–FORCE] [–ON** ***nodename*****]**

Arguments and Options

diskname1 . . . diskname9	Specifies which remote disk partitions available to the local system are to be shut down.
–FORCE	Forcibly shuts down from one to nine malfunctioning remote partitions from your system. Refer to the –FORCE option description in SHUTDN ALL above.
–ON ***nodename***	Specifies the network name of the system on which the devices are physically mounted.

Note

If a device is shut down at its local system, it is no longer available for use on any other system in the network.

Systems Running the Name Server

If your system is running the Name Server, generally there should be no remote disks in your local Disk Table and, therefore, no need to remove them. All remote disks to which your system has access are in the Global Mount Table (GMT). You cannot make remote disks in the GMT inaccessible to users on your system using the SHUTDN command.

However, if you specifically added remote disks to your Disk Table to support ldev pathname syntax (see ADDISK for more information), you can remove them using the SHUTDN command with the –ON *nodename* option. Removing disks added to the local Disk Table this way prevents the ldev-to-pathname conversion but does not make the disk unavailable to users who specify non-ldev pathnames, as long as the disk is in the GMT.

Messages

The SHUTDN command displays messages to inform you of its progress. Explanations marked *Notice* in the following list provide information; explanations marked *Warning* mean that at least one of the specified disks could not be shut down, but that SHUTDN will continue processing any remaining disks. Unmarked messages are error messages and indicate that SHUTDN has not performed the requested operation.

`Auditing must be stopped before shutting down.`
Your SHUTDN ALL command attempted to shut down the disk containing the security audit file. You should stop the Security Auditor before shutting down all your disks. This message applies only to sites that have the Security Audit facility (that is, C2 sites).

`Cannot rename partitions with -FORCE option. (shutdn)`
You supplied both the –RENAME and –FORCE options to SHUTDN; the two cannot be used together.

`Circular Quota parent thread. (q_updt)`
An internal error occurred during the SHUTDN. Contact your PrimeService Representative.

`Conflicting PDEVs` *`pdev1`* `and` *`pdev2`*`. (shutdn)`
Two of the pdevs given in the list specify overlapping partitions of the same disk. Check to make sure that you typed the pdevs correctly.

`Disk "`*`diskname`*`" is local. (shutdn)`
Warning The partition named *diskname* is a local device and must be shut down by specifying its physical device number without the –ON option.

`Disk "`*`diskname`*`" is not currently added. (shutdn)`
Warning The specified remote partition is not in the local disk list. Check to make sure that you typed its name correctly.

`Disk "`*`diskname`*`" not on system "`*`nodename`*`". (shutdn)`
Warning The specified remote partition exists in the local disk list but does not belong to the remote system specified in the –ON option.

Disk *pdev* is not currently added. (shutdn)
Warning The specified physical device is not in the list of started devices. Check to be sure that you typed the pdev correctly.

*** Disk CRA Mismatch Errors detected, Run FIX_DISK on DISK *nnnn* ***

*** Disk CRA Mismatch Errors detected, Run FIX_DISK on DISK *nnnn* ***

*** Disk CRA Mismatch Errors detected, Run FIX_DISK on DISK *nnnn* ***
The previous three messages are displayed if the corresponding error has been detected since the disk was added. It is the System Administrator's responsibility to decide when it is best to run FIX_DISK.

diskname is not a valid partition name. (shutdn)
The specified *diskname* does not conform to remote partition name syntax. Either it contains an invalid character or it is more than six characters long.

Duplicate partition name *diskname*. (shutdn)
You specified partition name *diskname* more than once in the SHUTDN command when you were attempting to disconnect a remote partition.

Duplicate PDEV *pdev*. (shutdn)
You specified the same pdev more than once in the SHUTDN command.

More instances of "*option_name*" than are supported. (shutdn)
You specified some option more than once. Enter the command again, giving each option and argument only once.

Must specify at least one PDEV. (shutdn)
The SHUTDN command requires at least one argument.

Must supply at least one partition name. (shutdn)
The –ON option of the SHUTDN command requires at least one argument.

Must use MIRROR_OFF to shut down mirrored disk *pdev*. (shutdn)
The partition is currently in use in a mirrored pair. Use MIRROR_OFF to shut down the mirrored partition.

No directory block for unit. (q_updt)
An internal error has occurred during the SHUTDN. Contact your PrimeService Representative.

Node "*nodename*" not configured in network. (shutdn)
The node specified as *nodename* is not currently RFA-enabled. Check whether you typed the node name correctly.

nodename is not a valid system name. (shutdn)
The specified remote system name is invalid. Either it contains invalid characters or it is more than six characters long. Check whether you typed the node name correctly.

nodename is the local system!
Do not use the name of your local system with the –ON option. The –ON option can be used only to shut down remote disks.

Only one disk may be RENAMEd at a time. (SHUTDN)
Only one pdev can be specified when you use the –RENAME option.

Option "*option_name*" not recognized by this command. (shutdn)
You have entered an option which SHUTDN does not recognize. Check to be sure that you did not mistype a valid option name.

"PRIORITY_SELECT" is not a valid option. (shutdn)
Unlike ADDISK, SHUTDN has no PRIORITY_SELECT argument. Resubmit the command without this argument.

"PROTECT" is not a valid PDEV. (shutdn)
You have tried to supply a PROTECT argument to SHUTDN; since SHUTDN, unlike ADDISK, has no such option, you receive this error message.

pdev is not a valid PDEV. (shutdn)
The *pdev* specified is not a valid physical device number. Either it contains decimal numbers or nondigits, or it is simply an invalid pdev. Check that you entered the pdev correctly.

Remote partitions may not be RENAMEd. (shutdn)
The –RENAME option can be used only for local disks.

Rename failed. (trwrat)
Your attempt to rename the disk failed. Check to be sure that you specified a legal disk name (six alphanumeric characters). If the disk name you gave was legal, the rename probably failed because the disk is too badly damaged to be used.

System console command only. (shutdn)
The SHUTDN command can be used only from the supervisor terminal.

`System name must be specified with -ON option. (shutdn)`
The –ON option was not followed by a remote system name.

`The -DETAIL option may only be used with the -VERIFY option. (shutdn)`
You cannot use the –DETAIL option without the –VERIFY option.

`The disk pdev contains the security audit file. Stop auditing or switch log files before shutting down the disk.`
You should shut down the security auditor before you shut down this pdev.

`The -VERIFY option may not be used with the -ON option. (shutdn)`
You supplied both the –VERIFY and –ON options to SHUTDN; the two cannot be used together.

`Unable to update disk quota.`
The section of the disk which holds quota information has been damaged. You can use the disk temporarily without the quotas, but you should plan to run FIX_DISK as soon as possible.

`Unit not open. (q_updt)`
An internal error occurred during the SHUTDN. Contact your PrimeService Representative.

```
WAIT,
PRIMOS NOT IN OPERATION
*** From PRIMOS: Shutdown Process Completed, System Halting.
```
Notice The shutdown completed successfully. You should not need to run FIX_DISK.

`WARNING: Shutdown Unsuccessful (sh_cmd).`
The SHUTDN ALL command failed to execute properly. The System Administrator must manually stop the system and then run FIX_DISK. If necessary, contact your PrimeService Representative.

`Write-protected disks may not be RENAMEd. (shutdn)`
The –RENAME option cannot be used on a disk added with the –PROTECT option.

SPAC

See SET_PRIORITY_ACCESS.

SPIN_DOWN

SPIN_DOWN is a supervisor terminal command that stops (spins down) a SCSI disk drive that is connected to a Model 7210 (SDTC) controller using ICOP+ and mounted in a Model 75500-6PK device module, a topcap of a 5000 Series system, or other peripheral cabinet containing SCSI drives. The principal use for this command is to take offline a malfunctioning disk until it can be repaired or replaced.

If you are replacing a disk in a Model 75500-6PK device module immediately, you do not need to use the SPIN_DOWN command because the DISK_PAUSE command also performs a spindown operation.

Format

SPIN_DOWN *pdev*

Argument

pdev Specifies the physical device number (in octal) of the disk drive. You can only spin down a disk that is not in use; you cannot spin down a physical disk containing the COMDEV (unless the COMDEV is mirrored), a paging, added, or assigned partition, or a partition activated for crash dump to disk.

If you attempt to spin down a disk that is either already spun down or nonexistent, SPIN_DOWN performs no operation but returns an OK, prompt. If you attempt to spin down a disk that is not connected to a Model 7210 controller running ICOP+, you receive the following error message:

```
SPIN_DOWN not supported by this disk controller in
this mode. (spin_down)
```

The *Disk Replacement Procedure for the Model 75500-6PK Device Module* document describes the procedure for replacing a defective or damaged disk drive. This procedure should be used after you view the PrimeService video that demonstrates the procedure described in the document. In order to use this procedure, you must have Rev. 23.2 or greater of PRIMOS running on your system and you must have a replacement disk drive.

SPIN_UP

SPIN_UP is a supervisor terminal command that starts (spins up) a SCSI disk drive that is connected to a Model 7210 (SDTC) controller using ICOP+ and mounted in a Model 75500-6PK device module, or a topcap of a 5000 Series system, or other peripheral cabinet containing SCSI drives. The principal use for this command is to start a disk that was previously spun down (accidentally or intentionally) instead of cycling the power for that drive to spin it up. If you want to only spin down a drive but not shut power off to the drive, use the SPIN_UP command to spin the drive back up for use.

Format

SPIN_UP ***pdev***

Argument

pdev Specifies the physical device number (in octal) of the disk drive. You can only spin up a disk that is not in use; you cannot supply a pdev for a disk that is or contains the COMDEV (unless the COMDEV is mirrored), a paging, added, or assigned partition, or a partition activated for crash dump to disk.

Attempting to spin up a disk that is either already spun up performs no operation but returns an OK, prompt. If you attempt to spin up a disk that is not connected to a Model 7210 controller running ICOP+, you receive the following error message:

```
SPIN_UP not supported by this disk controller in
this mode. (spin_up)
```

Attempting to spin up a nonexistent disk drive on a controller that supports spinup results in the following disk error message being reported via DSM and SPIN_UP:

```
Error back from spinup$. (spin_up)
```

SPOOL

SPOOL enables a privileged user who is a member of the ACL group .SPOOL_ADMINISTRATOR$ to perform any of the following tasks:

- Send print requests to the spool queue
- Modify spool queue requests
- Move one print request ahead of others
- List details of spool queue requests
- Cancel spool queue requests
- Set format options for PostScript and HP printers

Format

```
SPOOL { pathname [print-options]
      { -MODIFY request-number [options]
      { -LIST [request-number] [options]
      { -CANCEL [{options}]
      { -HELP
```

Usage

Nonprivileged users can also send print requests to the spool queue. However, they can modify, list, and cancel only their own files. Nonprivileged terminal users cannot move their print requests ahead of others in the spool queue.

The SPOOL command and the Spooler environment changed substantially at Rev. 21.0. For information related to the Spooler subsystem and the PROP command, see the *Operator's Guide to the Spooler Subsystem.* See also the PROP command earlier in this chapter.

Some installations may have a network in which some nodes are using a later (at or after Rev. 21.0) version of the Spooler and some nodes are using pre-Rev. 21.0 versions. In this situation, you can send a print request from a Rev. 21.0 or later system to a pre-Rev. 21.0 spool queue by using the –DISK option. However, you cannot send a print request to a Rev. 21.0 or later spool queue from a pre-Rev. 21.0 system.

In addition, a Rev. 21.0 system prints files from a pre-Rev. 21.0 spool queue. A pre-Rev. 21.0 system, however, cannot print files in a Rev. 21.0 spool queue.

For more information on setting up and using PostScript and the HP LaserJet family of printers, see the *Operator's Guide to the Spooler Subsystem.*

Sending Print Requests to the Spool Queue

Both nonprivileged users and privileged users may send files to the spool queue.

Format

SPOOL *pathname* [*print-options*]

Arguments and Options

–ALIAS *name*
Replaces the name on the header with an alternative string. *name* must be 16 characters or less. This option may not be used if you are sending print requests to a pre-Rev. 21.0 spool queue.

–AS *name*
Replaces the filename on the header with an alternate string. *name* must be 16 characters or less.

–ATTRIBUTE *name* [*name* . . .]
Specifies environment attributes when sending files to a spool queue. One –ATTRIBUTE option may be followed by one or more attribute names.

If you are sending files to a pre-Rev. 21.0 queue, the older –AT option specifies the destination name of the printer.

–COBOL
Prints files in COBOL format.

–COPIES *n*
Specifies the number of copies of the file to be printed. *n* cannot exceed 99. The default is 1.

–DEFER [*hh:mm*]
Specifies the earliest time at which a request is to be printed. You may give the time with or without the colon between the hours and minutes. If you omit the time, midnight is assumed. In a network that crosses time zones, the time is based on the host machine for the queue.

–DISK *diskname*
Specifies the disk partition name of a pre-Rev. 21.0 format queue to which the request is sent. This option allows existing programs to run unchanged on Rev. 21.0 systems, because SPOOL ignores the –DISK option that references a Rev. 21.0 system.

–ERROR_BRIEF
–ERROR_MEDIUM
–ERROR_DETAIL
Controls the level of detail displayed in Spooler error messages. The default is –ERROR_MEDIUM. You can also use these options with SPOOL –LIST.

–FROM *m* Specifies a range of pages to be printed. If you do not specify –FROM, SPOOL begins printing at page 1. If you specify both –FROM and the –TO *n* options, *n* must be greater than *m*. You can use –FROM and –TO with the –COPIES *n* option.

–FTN Specifies FORTRAN format.

–HEADER { *text* / **–NO_INITIAL_FF** }

Changes the page header from the default, which is the first line of the data file, to a specified string. You can use the keyword FILE to cause the despooler to use the name of the file as the page header. This option applies only to files that are normally printed in a paginated mode. For example, it does not work with FORTRAN or COBOL files.

–NO_INITIAL_FF suppresses the initial form feed that occurs when the Spooler is started. It is of value when a printer is loaded with preprinted stationery. For more information, see the *Operator's Guide to the Spooler Subsystem.*

–LNUMBERS Prefixes each line in the file with a line number. Data file lines occupying more than one line on the printed output will have a number on the first printed line only. Data file lines that overprint the previous line are not numbered.

–NO_COPY Inhibits the SPOOL command action of taking a copy of the file to be printed. The despooler prints the data from its original file system location. The file that is sent to the spool queue with this option must reside on the same node as the spool queue to which the request is sent. You cannot use this option with password directories unless the nonowner password is blank. You cannot use this option for pre-Rev 21.0 queues.

–NO_EJECT Causes the despooler to suppress the normal form feed after the final page of a file is printed.

–NO_FORMAT Causes the despooler to begin printing without formatting output (that is, without adding page breaks or otherwise altering the appearance of the output file). Use this option when printing text-formatter output files, formatted program listings, and so on.

–NO_HEADER Causes the despooler to print the file without the normal header.

-NO_SWO	Used with the -MODIFY option, -NO_SWO cancels the -SPOOL_WHILE_OPEN process. The despooler treats the file as if it is to be printed with the -NO_COPY option, and the special end of file (EOF) handling is dropped.
-NO_XLATE	Used with the -MODIFY option, -NO_XLATE removes the -XLATE (alternative mapping) option.
-NOP	Inhibits overprinting, whether required by a FORTRAN or COBOL format + control character or through the use of a trailing carriage return. The Prime convention for line terminators is a line feed only. The -NOP option is useful with output that uses a carriage return and a line feed as the line terminator.
-NOTIFY	Causes the despooler to send you a message when your file has finished printing.
-NPH	Prints the file with no header and no page number. -NPH is not allowed with other formatting modes.
-ON ***nodename***	Sends a spool request to a Rev. 21.0 or later spool queue on a specific network node. Note that you cannot send spool requests from pre-Rev. 21.0 systems to Rev. 21.0 and later queues.
-OPEN [***pathname***]	Opens a data file in the spool queue directory. Unless otherwise specified (see the -TUNIT option), the file is opened on file unit 2.
-PLOT [***n***]	Specifies the plot raster size (in words per scan) for a plotter output file. The default value is 128.
-PROC ***name***	Specifies the name of the PostScript procedure to be used when printing a document on a laser printer that runs PostScript. You must load the PostScript procedure when you initialize the printer. If the procedure is not currently loaded in the printer, as could occur if the printer power had been switched off, then on again, then it is reloaded.
-RUSH	Marks a request as having priority over nonrush requests in the same spool queue. Such a request is selected for printing by a despooler without regard to size and defer time restrictions. This option is limited to privileged users who are members of the ACL group .SPOOL_ADMINISTRATOR$.

–SET_FONT ***fontname*** Specifies the use of a particular typeface for printing the document. *fontname* may be up to 32 characters long.

See the *Operator's Guide to the Spooler Subsystem* for details on setting fonts.

–SET_LANDSCAPE Prints text across the longest width of the paper. The default landscape format is 66 lines of 138 characters.

Special attributes are available with this option. For information about *n*-up printing, see the *Operator's Guide to the Spooler Subsystem.*

–SET_PAPER_BIN $\left\{\begin{matrix}\text{MANUAL} \\ n\end{matrix}\right\}$

Chooses which of the printer's paper bins should be used to print out the document. *n*, a number from 1 through 9 inclusive, selects a particular paper bin; MANUAL specifies that the paper be fed manually.

–SET_PORTRAIT Prints text across the shortest width of the paper. The default portrait format is 66 lines of 80 characters.

Special attributes are available with this option. For information about *n*-up printing, see the *Operator's Guide to the Spooler Subsystem.*

–SFI Suppresses file information by preventing the file pathname and date/time last modified from appearing in the header or trailer of the listing.

–SPOOL_WHILE_OPEN Prints a file while it is still held open for writing by some program. If you specify –SWO, the file is not copied into the SPOOL_DATA* directory.

–TO ***n*** Specifies the end of a range of pages to be printed. If you do not specify –TO, SPOOL stops printing after the last line in the file is printed. If you specify –FROM *m* as well, *n* must be greater than *m*. –FROM and –TO can be used with the –COPIES *n* option.

–TRUNCATE Causes the despooler to truncate lines longer than the width of the printer, as defined in the environment file. The default is to split long lines into two or more lines. When you use this option with FORTRAN or COBOL-formatted files, a request to overprint a line that has been split is ignored and the overprint data prints as a separate line.

–TUNIT ***n*** Specifies the file unit associated with an –OPEN option. *n* is a decimal number from 1 through 128. The default is file unit 2.

-XLATE *mapping*	Asks that characters in the file be mapped into an alternate character set. *mapping* is a character string from 1 through 32 characters long. *mapping* must begin with a letter; the remaining characters may be letters, numbers, or the symbols . $ or _.
-HELP	Lists the SPOOL command's options.

Note

The Spool Administrator may set the attributes file so that SPOOL issues an error message if you specify an invalid attribute. If so, spooling a file with the invalid attribute BAD_ATTRIBUTE, for example, produces the following message:

```
OK, SPOOL LOGIN.CPL -ATT BAD_ATTRIBUTE
[SPOOL Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]
Error from Spooler (Spool-107):
Unknown device attribute : BAD_ATTRIBUTE
```

Check with your Spool Administrator for further details.

Modifying Spool Queue Requests

The -MODIFY option allows you to modify an existing entry in the spool queue. Privileged users can modify any spool request in the queue. Other users can modify only their own requests.

Format

SPOOL -MODIFY *request-number* [*options*]

Options

-MODIFY works with all spool options except for -NO_COPY, -OPEN, -SPOOL_WHILE_OPEN, and -TUNIT. You usually use -MODIFY to add an option, but you can also use it to override a previously specified option. For example, specifying -FTN would cancel any existing -NO_FORMAT option in the original request.

The additional options –NO_DEFER (abbreviated –NOD), –NO_RUSH (abbreviated –NOR), –NO_SWO (abbreviated –NOS), and –NO_XLATE (abbreviated –NOX) allow users to cancel previously specified –DEFER, –RUSH, –SPOOL_WHILE_OPEN, and –XLATE options.

Example

The following example illustrates the use of the –MODIFY option:

```
OK, SPOOL -MODIFY 89 -NO_DEFER -LIST
[SPOOL Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]
System SYSONE
Request  Time  User             File                 No Size  State
-------  ----  ---------------- -------------------- -- ----  -----
26 January 92
86       20:34 FESTER           UNCLE.COMO           1  1
27 January 92
87       13:17 FESTER           LOGIN.CPL            1  2
88       13:18 COLERIDGE        LOGIN.CPL            3  6     Defer
89       13:22 FESTER           LOGIN.CPL            1  2     Print
OK,
```

In this example, the spooled file LOGIN.CPL has the –DEFER option removed from the file after the file has been submitted on the spool queue.

Listing Details of Spool Queue Requests

Privileged users see the entire queue when they use the –LIST option of SPOOL on Rev. 21.0 or later systems; other users see only their own requests unless the System Administrator has modified the Spooler to enable users to view the entire queue.

At Rev. 23.0 and subsequent revisions, users can customize the SPOOL –LIST –BRIEF display if they wish to do so. Information on how to set up a configuration file to produce a customized display is in the *Operator's Guide to the Spooler Subsystem.*

Format

SPOOL –LIST [***request-number***] [***options***]

Options

request-number	Lists the chosen request number. Refers to the place in the queue of an individual Spooler request. This number appears when you send a file to the spool queue to be printed. The *request-number* is also included in the display that appears under `Request` when you issue the SPOOL –LIST command. See SPOOL –LIST –BRIEF, discussed earlier.
–ALL	Lists all queues that the Spool Administrator has placed in the file SPOOL*>QUEUES.
–ATTRIBUTE	Lists only those entries with the specified attributes. This option allows you to specify one or more attributes.
–BRIEF	Produces a brief report with a single line per request, as shown in the Examples section. This is the display that is produced if users do not set up a customized display. (See the *Operator's Guide to the Spooler Subsystem* for information on how to set up a customized display.) –BRIEF is the default option to –LIST.
–DETAIL	Produces a report that includes any device attributes specified by the user or supplied by default; any options given in the SPOOL command; the pathname of the file to be printed; the name and node of the despooler printing the file, if it is printing; and a defer time, if specified, in addition to the information displayed with the –BRIEF option.
–DISK ***diskname***	Gives a queue report for a pre-Rev. 21.0 queue on a named partition.
–FULL	Adds a line identifying the spool queue to which the spool request has been sent, in addition to the information displayed with the –DETAIL option.
–NO_WAIT	Suppresses the `--More--` prompt and does not pause after every page of output. Output scrolls continuously.
–ON ***nodename***	Gives a queue report for a Rev. 21.0 or later spool queue on a specific network node.
–USER [*name***]**	Restricts the queue report to *name* and defaults to the current user if no name is given. Unless the Spool Administrator allows users to see requests in the spool queue other than their own, only privileged users can use this option to view print requests of other users.

Examples

Example 1: The following example shows a brief report with a single line per request.

```
OK, SPOOL -LIST -BRIEF
[SPOOL Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]

System SARA
Request   Time   User         File                      No  Size  State
-------  -----  ------------ ------------------------- --  ----- -----
24       23:11  SMITH        LOGIN.CPL                  1   19    Defer
```

Example 2: An example of detailed SPOOL –LIST output follows.

```
OK, SPOOL -LIST -DETAIL
[SPOOL Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]

System SARA
Request   Time       User                   Copies  Size   State
--------  ---------- ---------------------- ------  -----  -------
24      23:11:56   SMITH                  1       19    (58% Printed)
 File name <SPOOLA>SMITH>LOGIN.CPL
 Attributes PRINT_ROOM
 Despooler PR0 on node: JONES
```

Canceling Spool Queue Requests

The –CANCEL option allows you to remove print requests from the spool queue.

Format

SPOOL –CANCEL [{ *request–number* / –ALL }] [{ –ON *nodename* / –DISK *diskname* }]

Options

Nonprivileged users can use the –ALL option to cancel all their own spool requests. However, only privileged users may cancel other users' spool requests and then only if they specify the request number of the request they want to cancel. Privileged users cannot cancel the entire queue with the –ALL option.

This option works only on Rev. 21.0 and later systems. Use this option with the –ON option to cancel files that are on remote queues and that have not yet begun to

print. Once a file on a remote queue has begun to print, it may be canceled only by a privileged user on that remote system.

To cancel spool files on pre-Rev. 21.0 systems, use –DISK with the request number. The –ALL option does not work with the –DISK option.

The *request-number*, –DISK, and –ON options are described above. You cannot use –CANCEL with the other SPOOL command formats.

Example

The following example cancels request number 87:

```
OK, SPOOL -CANCEL 87
[SPOOL Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]
Request 87 cancelled
OK, SPOOL -LIST
[SPOOL Rev. 23.3.0 Copyright (c) 1992, Prime Computer, Inc.]

System SYSONE
Request  Time    User             File                 No Size  State
-------  ----    ---------------- -------------------- -- ----  -----
26 January 92
86       20:34   FESTER           UNCLE.COMO           1  1
27 January 92
88       13:18   COLERIDGE        LOGIN.CPL            3  6     Defer
89       13:22   FESTER           LOGIN.CPL            1  2     Print
OK,
```

For more detailed information about the Spooler subsystem, see the *Operator's Guide to the Spooler Subsystem.*

See also PROP earlier in this chapter.

SQ

See SET_QUOTA.

SSA

See SET_SCHEDULER_ATTRIBUTES.

START_DSM

START_DSM activates the Distributed Systems Management (DSM) subsystem, which is an integrated set of products and services to support the administration and operation of single and networked Prime systems. Refer to the *DSM User's Guide* for information on DSM.

Format

```
START_DSM [-MULTI_NODE
           -RETAIN_ASRS [nn]
           -USAGE
           -HELP [-NO_WAIT]]
```

Options

-MULTI_NODE	Support for this option was removed at Rev. 22.0; instead, START_NET starts the ISC Network server, which provides multinode DSM support.
-RETAIN_ASRS [*nn*]	Specifies how many free (idle) DSM application servers remain logged in indefinitely on the system. *nn* is an integer from 1 through 10. The default is 1. Any free DSMASRs in excess of *nn* will log out once the timeout period is exceeded. The optimum value for *nn* depends on how much DSM is used; the less it is used, the lower is the requirement for free ASRs.
-USAGE	Provides a brief example of the command syntax.
-HELP [-NO_WAIT]	Explains how to use the command and its options. If you specify -NO_WAIT, the display is not paginated at your terminal.

Commands That Operate Under DSM

All DSM commands are documented in the *DSM User's Guide*. This chapter summarizes the DSM commands which are of particular interest to an Operator:

ADMIN_LOG	LIST_MEMORY
DISPLAY_LOG	LIST_PROCESS
LIST_ASSIGNED_DEVICES	LIST_UNITS
LIST_ASYNC	RESUS
LIST_CONFIG	START_DSM
LIST_DISKS	STOP_DSM

Table 2-5 lists the commands that are available to the user after DSM has been activated with the START_DSM command. For a detailed description of these commands, see the *DSM User's Guide.*

Table 2-5. Commands That Operate Under DSM

Command	*Description*
ADMIN_LOG	Enables you to create and administer DSM logs.
CONFIG_DSM	Sets up the DSM configuration file.
CONFIG_UM	Defines unsolicited message handling selections on local or remote nodes.
DISPLAY_LOG	Allows you to display all or part of a log at your terminal. or to write it to a file.
DISTRIBUTE_DSM	Copies the DSM configuration file to all the nodes in the configuration group.
LIST_ASSIGNED_DEVICES	Displays all the devices that have been assigned on a system with the ASSIGN command.
LIST_ASYNC	Displays the status and configuration of any or all of the system's asynchronous lines.
LIST_COMM_CONTROLLERS	Displays information on communication controllers present in a system, including the LAN Host Controller (LHC), but excluding the Prime Node Controller (PNC).
LIST_CONFIG	Displays the cold-start values, default values, and current values of those system variables that can be set by configuration directives at cold start.
LIST_DISKS	Displays information for local or remote disks that have been added to the system. For local disks only, it can also display the disks' free record size and current user IDs.
LIST_LAN_NODES	Displays information about the configured LAN300 network.
LIST_MEMORY	Displays the memory usage in number of segments, resident pages, and wired pages per user process; names or numbers can be used to identify the user.

Table 2-5. Commands That Operate Under DSM (continued)

Command	*Description*
LIST_PRIMENET_LINKS	Displays the status of PRIMENET links, where a link can be a PRIMENET-configured SMLC line, a PRIMENET-configured node on a ring, or a LAN300 network.
LIST_PRIMENET_NODES	Displays all PRIMENET-configured remote nodes, the paths to those nodes, and the permitted access to those paths.
LIST_PRIMENET_PORTS	Displays a system's port assignments.
LIST_PROCESS	Displays the environment of a specified user process.
LIST_SEMAPHORES	Displays the value of all semaphores in use on the system.
LIST_SYNC	Displays the configuration of all enabled synchronous lines.
LIST_UNITS	Displays open file units by user ID, user ID of all users with files open, and current attach points of all users on the system.
LIST_VCS	Displays the state of virtual circuits.
RESUS	Allows the System Administrator or Operator to add disks, shut down devices, or share segments from any terminal on any node.
STATUS_DSM	Displays details of the restart and loaded configuration files on a node. Compares their ID and revision details with the current configuration on any other node.

START_LSR

START_LSR starts the Login server, which handles all login requests from local and remote terminal users. The Login server starts up automatically at cold start. START_LSR can be issued only from the supervisor terminal.

To find out if the Login server is running, use the STATUS USERS command. If running, the Login server is listed under the name LOGIN_SERVER with LSr as its process type.

If you attempt to issue the START_LSR command while the Login server is running, the system responds with a message that it cannot spawn the Login server.

The Login server is always started automatically at cold start. If it aborts or is shut down (with the STOP_LSR command), you can restart it with the START_LSR command. After you use START_LSR, the system attaches you to your origin directory, and users are again able to log in.

Caution

Do not enable START_LSR –RETRIES if there are nodes on your network that are not running either PRIMOS Rev. 22.1.5 or Rev. 23.2 and subsequent revisions. Enabling retries on networks with nodes running earlier PRIMOS revisions could allow users access to nodes for which they did not previously have permission.

Format

START_LSR [**–ERROR_PROMPT** *error_prompt*
–IMPLICIT_LOGIN
–MAXUSR_PROMPT *maxusr_prompt*
–PROMPT *lsr_prompt*
–READY_PROMPT *ready_prompt*
–REDISPLAY_PROMPT
–RETRIES *n*
–HELP]

Options

The System Administrator can set all Login server default prompts and actions by using SYSTEM>SET_LSR_DEFAULTS. The following options used with START_LSR will override the defaults.

–ERROR_PROMPT *error_prompt*

Sets up the LOGIN_SERVER *error_prompt*. The default prompt is `ER!` unless you used the SET_LSR_DEFAULTS command to change the Login server *error_prompt* default.

–IMPLICIT_LOGIN Allows users to log in to the system by typing their user ID at the login prompt and their password at the password prompt. This allows users to log in without typing the LOGIN command.

By default, users must type the LOGIN command unless you enable implicit login, by either using the SET_LSR_DEFAULTS command or this START_LSR –IMPLICIT_LOGIN option.

–MAXUSR_PROMPT ***maxusr_prompt***
Sets the *maxusr_prompt*, which is the prompt displayed when users attempt to log in when the maximum number of users specified in the MAXUSR command has been exceeded. The default prompt is `Please try again later.` unless you use SET_LSR_DEFAULTS to change the Login server *maxusr_prompt* default.

–PROMPT ***lsr_prompt*** Sets the LOGIN_SERVER prompt when the LOGIN_SERVER is started up. The default prompt is `Login Please.`

–READY_PROMPT ***ready_prompt***
Sets the LOGIN_SERVER *ready_prompt*. The default prompt is `OK,` unless you used SET_LSR_DEFAULTS to change the Login server *ready_prompt* default.

–REDISPLAY_PROMPT Redisplays the LOGIN_SERVER prompt if a null command line is entered.

–RETRIES ***n*** Permits the number of login retries. You can specify 0 through 10 retry attempts before the remote line is dropped. Note that this is the number of *retries*, and is thus one less than the total number of login attempts. The default is 0 retries (that is, only 1 login attempt).

If you are performing a log-through operation (a login to another node from your current attach point), the START_LSR command only permits one login attempt before dropping the remote line, regardless of the value you specified for this option.

–HELP Displays command syntax.

All four configurable prompts (–ERROR_PROMPT, –MAXUSR_PROMPT, –PROMPT, and –READY_PROMPT) can use the RDY expandable prompt variables. The unexpanded prompt can be up to 80 characters long and the expanded prompt can be up to 256 characters long. RDY selects the prompt message you want displayed at the terminal. For more information on RDY expandable prompt variables, see RDY in the *PRIMOS Commands Reference Guide*. If the prompt contains blanks, enclose the prompt within single quotation marks.

–PROMPT Examples

Example 1:

```
OK, START_LSR -PROMPT 'Please login.'
OK,
```

generates the following Login server prompt:

```
Please login.
```

Example 2:

```
OK, START_LSR -PROMPT 'Please login to %sn.'
OK,
```

generates the following Login server prompt (here PLATO is the system name):

```
Please login to PLATO.
```

If you do not specify the –PROMPT option, and the LOGIN_SERVER defaults have not been specified (see SET_LSR_DEFAULTS earlier in this chapter), then the default of `Login Please.` is used and prompt echoing is disabled.

–REDISPLAY Examples

Example 1: START_LSR with the –REDISPLAY_PROMPT option causes the Login server to redisplay the login prompt after each carriage return, error, or invalid login, as shown in the following example.

```
OK, <cr>
Login Please.
OK, <cr>
Login Please.
OK, junk
Login Please.
ER!
```

Example 2: START_LSR without the –REDISPLAY_PROMPT option causes the Login server to only display the login prompt after the initial carriage return or error, as shown in the following example.

```
OK, <cr>
Login Please.
OK, <cr>
OK, <cr>
OK, junk
ER! <cr>
OK, <cr>
```

If you do not specify the –REDISPLAY_PROMPT option, the LOGIN_SERVER will not echo the LOGIN_SERVER prompt on null login command lines unless it has been made to be the default (see SET_LSR_DEFAULTS earlier in this chapter).

Example 3: You can specify both –PROMPT and –REDISPLAY_PROMPT to the START_LSR command, as shown in the following example.

```
OK, START_LSR -PROMPT '%sn login at: %t' -REDISPLAY_PROMPT
PLATO login at: 12:34:56
OK, <cr>
PLATO login at: 12:34:57
OK, <cr>
PLATO login at: 12:34:58
OK,
```

Using –RETRIES With the CLOSE Command for Remote Logins

The –RETRIES option permits the user up to 10 login retries before dropping the remote line connection. However, the user may wish to drop the remote line without making multiple unsuccessful login attempts. The CLOSE command allows the user to have the Login server close a remote connection immediately. For example, if the user realizes that he does not have a valid login on a remote system, he can issue the CLOSE command to drop the remote line without performing as many as 10 login attempts.

Consider this example. You set START_LSR as follows:

```
START_LSR -PROMPT 'Login to %sn' -RETRIES 10 -REDISPLAY_PROMPT
```

The user might perform the following login session:

```
Login to PLATO
OK, LOGIN FOOBAR
Password? ■■■■■■
Incorrect user id or password


Login to PLATO
OK, LOGIN FOOBAR
Password? ■■■■■■
Incorrect user id or password


Login to PLATO
OK, LOGIN FOOBAR
Password? ■■■■■■
Incorrect user id or password
```

At this point, he knows that he cannot remember his password. He might attempt to use the TELNET escape sequence to break the connection (if coming over TELNET), or the NETLINK escape sequence (<cr>@<cr>) to break the connection (if coming over PRIMENET). However, if he has logged through (for example, LOGIN FOOBAR –ON PLATO), neither of these escape sequences work. Instead, he must use the CLOSE command to drop the remote line.

```
Login to PLATO
OK, CLOSE
<disconnection message ...>
```

See also SET_LSR_DEFAULTS and STOP_LSR in this chapter.

START_NAMESERVER

START_NAMESERVER, which can be issued only from the supervisor terminal, starts the Name Server process on the local system. The Name Server replicates the root directory and the Global Mount Table (GMT) on a set of systems that share a common file system name space. (See the *Rev. 23.0 Prime Networks Release Notes* for more information on the Name Server.) You should place this command in the PRIMOS.COMI file after the START_DSM and START_NET commands because the Name Server needs both DSM and PRIMENET to function.

Once the Name Server is started on a given system in a common file system name space, it must be started on all Rev. 23.0 and later systems in that name space. Otherwise, the replicated root directory and GMT are not accurate, because there is no information from Rev. 23.0 or later systems that are not running the Name Server. (The Name Server assumes that all Rev. 23.0 and subsequent systems have the Name Server running and only polls pre-Rev. 23.0 systems for information on disks added to or removed from those systems.)

Remote disks must be shut down before you start the Name Server because the Name Server does not start if there are any remote disks in the Disks Table. (It is possible to add remote disks to your local Disks Table using the ADDISK command *after* the Name Server has been started. See the ADDISK command earlier in this chapter for an explanation of when this may be necessary.)

Caution

Do not shut down remote disks and start the Name Server unless your system is currently part of a DSM configuration group running the Name Server. If your system is not part of such a group and you shut down remote disks and start the Name Server, you cannot make the remote disks available to your system again unless you cold start. When the Name Server is running, adding remote disks with the ADDISK command does *not* make those disks available to your system.

Format

START_NAMESERVER [**-REINIT** | **-HELP**]

Options

-REINIT — Causes the Name Server on your local system to discard all remote disks and portals from its copy of the Global Mount Table (GMT). In effect, it sets your GMT back to the initial state it was in at cold start. (Please read the following Caution for an explanation of when this would be used.) Discarding disks and portals from the GMT shuts down those disks on your local system and makes their contents inaccessible.

To use this option, you must first stop the Name Server with STOP_NAMESERVER command. Then restart the Name Server by issuing START_NAMESERVER with the –REINIT option. Do not restart the Name Server on your system until you are sure that all other systems in the common file system name space have also stopped their Name Servers. All systems in the affected name space must then restart their Name Servers using the –REINIT option.

–HELP Displays command syntax and briefly describes the –REINIT option.

Caution

This option should *only* be used in the extremely unlikely event that disk entries get into the GMT that should not be there (through a possible software bug or hardware failure). The purpose of this option is to prevent you from having to cold start all systems in the affected name space in order to remedy such a situation. If such a corruption of the name space should occur, however, all systems in the affected name space *must* stop their Name Servers before any system starts theirs again. Every system must then issue START_NAMESERVER with the –REINIT option. Otherwise, the inappropriate disk entries would continually reappear in the GMT as the Name Servers on the systems in the affected name space began to communicate again.

START_NET

START_NET allows you to bring up PRIMENET on a system without interrupting local system activity.

Format

```
START_NET [ config-pathname
            -CACHE [cache-pathname]
            -MAX_PATHS_PERNODE [n]
            -MAX_PSDNS_PERPATH [n]
            -NODE nodename
            -TRACING_NODE
            -HELP ]
```

Arguments and Options

config-pathname Specifies the pathname of the network configuration file. If *config-pathname* does not end with .CONFIG, START_NET appends .CONFIG (and thus searches for *config-pathname*.CONFIG). If that search fails, START_NET searches for *config-pathname* without the suffix. If you omit this argument, START_NET uses the default pathname, PRIMENET*>PRIMENET.CONFIG.

-CACHE [*cache-pathname*] Enables the cache file, which speeds up network initialization. If you do not specify *cache-pathname*, START_NET assumes the default pathname of *config-filename.sysname*.NCACHE.

-MAX_PATHS_PERNODE [*n*]
Sets *n* as the maximum number of indirect paths that START_NET can store for any remote node. An indirect path is a path that includes one or more gateway nodes. *n* must be from 1 through 4. If you do not specify this option, START_NET stores a maximum of four indirect paths for each remote node.

-MAX_PSDNS_PERPATH [*n*]
Sets *n* as the maximum number of PSDNs allowed ina path to a remote node. *n* must be from 1 through 4. If you do not include this option, START_NET imposes a limit of four PSDNs per path.

-NODE ***nodename***	Prior to Rev. 21.0, it was necessary to use the -NODE option to specify the system name. At and after Rev. 21.0, each system has a system name specified at system startup. PRIMENET always adopts this system name as its local node name; it is no longer necessary to specify the name with the -NODE option. However, if you do specify *nodename*, PRIMENET checks this name against the system name known to PRIMOS and generates an error message if the two do not match.
-TRACING_NODE	This option is no longer needed after Rev. 21.0. It was used to direct PRIMENET to gather ring traffic information for the local node. This information is now gathered automatically.
-HELP	Displays the syntax and options for this command.

Be careful not to confuse this command with the START_NTS command, described later.

See the *Operator's Guide to Prime Networks* for a complete explanation of the START_NET command.

START_NM

The START_NM command starts the network management server, providing network management functions and controller management functions for LHC and ICS3 controllers. Although the START_NET and the START_NTS commands also start the network management server, the START_NM command starts the server independently of these protocols.

Note

You must start DSM before starting Network Management.

The START_NM command should be placed in the PRIMOS.COMI file as follows:

1. Insert the START_DSM command.
2. Insert the COMM_CONTROLLER command to downline load all controllers.
3. Insert the START_NM command.
4. Start the appropriate protocols (e.g., with the START_NTS or START_NET commands).

Format

START_NM [-HELP]

Option

-HELP	Describes the command's function.

For more information about the services that use Network Management, see the *User's Guide to Prime Network Services*.

START_NTS

START_NTS starts terminal activity for the Prime host node on the network. Normally part of the PRIMOS.COMI file, this command may also be issued from the supervisor terminal at any time. START_NTS initiates the LAN300 Network Management facility. If this facility is already initiated because PRIMENET over the LAN300 has been started by a previous START_NET command, START_NTS indicates that the network terminal function has been started.

Format

START_NTS [*terminal-config-pathname* | **-HELP**]

Options

terminal-config-pathname	Specifies the pathname of the terminal configuration file. If no pathname is given, the default pathname NTS*>NTS.CONFIG is used.
-HELP	Displays a brief description of the function of the START_NTS command.

Be careful not to confuse this command with the START_NET command listed earlier.

For further information on the START_NTS command, refer to the *NTS Planning and Configuration Guide.*

START_TALK_SERVER

START_TALK_SERVER starts the system server TALK_SERVER, which must be running to allow use of the TALK command. START_TALK_SERVER takes no options or arguments; it must be issued at the supervisor terminal.

Format

START_TALK_SERVER

Usage

The Talk server is automatically assigned to project ID DEFAULT at Rev. 23.1 and subsequent revisions. (Prior revisions assign this server to project ID TALK.)

For complete information about the TALK command, see the *PRIMOS Commands Reference Guide*.

STAT

See STATUS.

STATUS

STATUS is an internal command for monitoring system usage. When you issue STATUS or STATUS ALL at the supervisor terminal, this information is displayed:

- The version of PRIMOS your system is running, followed by a copyright notice.
- The size, in kilobytes, of main memory.
- Your user ID (SYSTEM), the network node name of your system, and the file units that you have open.
- All currently assigned magnetic tape drives, including their physical and logical device numbers, and the user ID and user number of the assignees.
- Information on communications controllers, including names, types, device addresses, and number of lines.
- Information on all currently started partitions. For local partitions, this includes partition name, logical device number, physical device number, partition type (standard or robust), and mirroring status; for remote partitions, this includes only partition name, logical device number, and node name.

Note

If your system is running the Name Server, STATUS and STATUS ALL do not list remote disks unless they have been specifically added to the local Disk Table. (See ADDISK earlier in this chapter for more information.)

- System and user semaphores.
- All configured network nodes and their status (up or down).
- All Network Terminal Service (NTS) information.
- The physical device numbers of the command partition and paging partitions.
- All logged-in users, including their user IDs, user numbers, terminal line numbers (in decimal), in-use partitions, and assigned devices

Format

STATUS [*arguments*]

Arguments

ALL	Displays network node names, main memory size, file units open, assigned magnetic tape devices, started disk partitions, semaphore information, status of network nodes, the paging and command devices, and logged-in users.

COMM	Displays information on communications controllers (excluding the Prime Node Controller) in a system. For each controller, the information includes the controller name, its type, its device address, the number of asynchronous lines, and the number of synchronous lines.
DEVICES	Displays physical device numbers, user IDs, user numbers, and logical device numbers of all currently assigned magnetic tape devices. DEVICES displays disks that are assigned to users, and, if you are using the supervisor terminal or are the System Administrator or a member of .RAS$, it will also list the disks in the Assignable Disks Table, but not yet assigned. Sample output appears in the Examples section.
DISKS	Displays information on currently started disk partitions. For local partitions, this includes partition name, logical device number, physical device number, partition type (standard or robust), and mirroring status; for remote partitions, this includes only partition name, logical device number, and node name.

Note

If your system is running the Name Server, the DISKS argument does not list remote disks unless you specifically added them to the Disk Table. (See ADDISK earlier in this chapter for more information.) To see all the disks and portals to which your system has access, use the LIST_MOUNTS command instead of STATUS DISKS. (See LIST_MOUNTS in this chapter for more information.)

ME	Displays information on all users. The line numbers are displayed in decimal as well as octal. For individual users, this option displays information on their own processes and devices only. This is identical to STATUS USERS when used from the supervisor terminal.
NETWORK	Displays information regarding the status of the full-duplex, ring, public data networks, and Route-through network nodes.
NTS	Displays information regarding the status of the Network Terminal Service (NTS).
PROJECTS	Displays information regarding the project status and user number of all currently logged-in users.

SEMAPHORES	Displays all semaphores, their values, and, for semaphore numbers larger than 64, their users.
SYSTEM	Displays the version of PRIMOS in operation and, if the command is given from the supervisor terminal, the amount of physical memory being used.
UNITS	Displays the user ID and system name, and then displays file unit information for each file unit currently open for the user at the supervisor terminal.
USERS	Displays user numbers, line numbers (in decimal only), and all partitions and assigned devices in use by each user currently logged in to the system. Also displays the priority level of each user if the user's priority level is other than the default level. (See the CHAP command earlier in this chapter.)

Examples

Example 1: The following example illustrates the use of STATUS without an argument.

```
OK, STATUS

System B52 is currently running PRIMOS rev. 23.3.0
Copyright (c) Prime Computer, Inc. 1992

User MARTHA                             B52

File    File      Open   File
Unit    Position  Mode   Type  RWlock  Treename
   31  000000000   VMr    DAM   NR-1W  <USLAB>DSM*>SIT_TEXT_DBS>DSM_USA.TODAY


                                      Mirror
                                      Primary Secondary  State
Disk  Ldev  Pdev  System  Robust  ------------------------------------
USLAB   0   3460
USUSR3  1  70460
PAGER   2 100461
SYSUSA  3    B29
USA1    4    B29
USA2    5    B29
USA3    6    B29
USA4    7    B29
USA5   10    B29

Sem. Value  Users
---- ------ -----
  65 177777     1
```

```
Ring network

      Node    State
    B52       ****
    B29        Up
    B17       Down

NTS is not currently started

                            User No   Line No
User                          (In Decimal)     Devices (AL in Decimal)
MARTHA                           6      rem    <USUSR3> <USLAB> (from B52)

OK,
```

Example 2: The following example illustrates the use of STATUS DEVICES while logged in as the System Administrator.

```
OK, STATUS DEVICES

Device User name                                Usrnum Ldevice
MT0    LYNNB                                       6    MT0
  5362 SYSTEM                                       1

Available assignable disks:

          120762
          130762

OK, ASSIGN DISK 130762

OK, STAT DEVICES

Device User name                                Usrnum Ldevice
MT0    LYNNB                                       6    MT0
  5362 SYSTEM                                       1
130762 LYNNB                                        6

Available assignable disks:

          120762
```

See the *Operator's Guide to System Monitoring* for additional information about using the STATUS command.

STI

See SET_TIME_INFO.

STOP_DSM

STOP_DSM shuts down the Distributed Systems Management (DSM) facility at a node by logging out all the DSM server processes. This command may be issued only from the supervisor terminal.

Do *not* use the STOP_DSM command or log out the DSM server while you are using RESUS. The operation of RESUS itself depends on DSM running on the system.

When you issue the STOP_DSM command, the following message is displayed at the supervisor terminal:

```
DSM shutdown is is progress
```

It may take a few minutes for DSM shutdown to complete, while files are closed. When these operations are complete, the DSM processes log out.

Notes

STOP_DSM terminates active DSM sessions. Any commands that are executing at the time are aborted.

STOP_DSM disables event logging. While DSM is stopped, some event messages are displayed at the supervisor terminal instead.

Format

STOP_DSM [**-USAGE** | **-HELP [-NO_WAIT]**]

Options

-USAGE	Shows command syntax.
-HELP [-NO_WAIT]	Displays information about the command and its options. If you specify -NO_WAIT, the display is not paginated at your terminal.

For more information, see the *DSM User's Guide*.

STOP_LSR

STOP_LSR logs out the Login server.

Format

STOP_LSR

Usage

When it is running, the Login server runs under the name LOGIN_SERVER. To stop the Login server, you must use the STOP_LSR command from the supervisor terminal. The system confirms that you want to log out the Login server with the prompt `Really?`.

Any response other than YES, YE, or Y is interpreted as a NO response.

If you issue a STOP_LSR while others are logged in, they remain logged in. Nobody else can log in since logins are blocked.

You cannot use the LOGOUT command to stop the Login server. STOP_LSR takes no command-line arguments or options.

See also SET_LSR and START_LSR earlier in this chapter.

STOP_NAMESERVER

STOP_NAMESERVER, which can be issued only from the supervisor terminal, stops the Name Server process on the local system. This command simply logs out the Name Server, which stops the replication of the root directory and the Global Mount Table (GMT) from continuing on your system. You can also stop the Name Server using the LOGOUT command.

Note

Although it is possible to stop the Name Server, the system resources it uses are so small that there is no reason to do so unless you are bringing down your system or wish to stop using the Name Server altogether.

Format

STOP_NAMESERVER [-HELP]

Option

-HELP	Displays command syntax.

STOP_NET

STOP_NET allows you to shut down PRIMENET without interrupting local system activity. You can issue this command only from the supervisor terminal. Before using the STOP_NET command, you should shut down the file servers and file manager with the FTOP –STOP_SRVR and FTOP –STOP_MNGR commands.

Format

STOP_NET [–HELP]

Option

–HELP	Displays command syntax.

Be careful not to confuse this command with the STOP_NTS command, described later in this chapter.

For complete information on the STOP_NET command, see the *Operator's Guide to Prime Networks*.

STOP_NM

The STOP_NM command stops the network management server, which provides network management functions and controller management functions for LHC and ICS3 controllers. This command shuts down and logs out the network management server independently of the STOP_NET and STOP_NTS commands.

You should not issue the STOP_NM command unless there is no longer any need for controller or network management functions, generally when a system is being shut down.

Format

STOP_NM [-HELP]

Option

-HELP	Provides a brief explanation of the function of this command.

For more information about the services that use Network Management, see the *User's Guide to Prime Network Services.*

STOP_NTS

STOP_NTS shuts down the Network Terminal Service activity on the local system. It affects all activity to and from this node on all Local Area Networks (LAN300s). However, this command has no effect on local asynchronous activity or on PRIMENET (over LAN300) activity.

Format

STOP_NTS [-HELP]

Option

-HELP	Provides a brief explanation of the function of this command.

Be careful not to confuse this command with the STOP_NET command, explained earlier in this chapter.

For further information on the STOP_NTS command, refer to the *NTS Planning and Configuration Guide.*

SYSTEM_RECOVER

You configure Automated System Recovery (ASR) by using SYSTEM_RECOVER. The SYSTEM_RECOVER command can be issued from the supervisor terminal or by a System Administrator from any terminal.

If ASR does not start automatically, for example, in the case of a system hang, you can initiate it by moving the MP (Maintenance Processor) commands SYSCLR and RUN 660 after stopping the CPU.

Format

SYSTEM_RECOVER [–NO | *configuration–options* | *report–options*]

Configuring and Deconfiguring Automatic Recovery

Using SYSTEM_RECOVER and SYSTEM_RECOVER –NO set all system recovery options at once. To set individual options, see the next section.

Format

SYSTEM_RECOVER [–NO]

Option

	Sets system recovery to its most fully automated state. It is the same as issuing SYSTEM_RECOVER –AUTO –CDD –RFS –NO_SYSV –COLD_RESTART. If your system does not have ASR, then SYSTEM_RECOVER (or SYSTEM_RECOVER –AUTO) fails, returning a severity code of –1 and displaying the warning prompt.
–NO	Deconfigures all system recovery options. That is, system recovery is neither automatically invoked, nor can you invoke it manually (RUN 660 performs no operations). You must manually invoke each recovery operation individually. SYSTEM_RECOVER –NO is the same as issuing SYSTEM_RECOVER –NO_AUTO –NO_CD –NO_RFS –NO_SYSV –NO_RESTART. This is the condition of all systems immediately following cold start, before a SYSTEM_RECOVER command is issued. It is identical to the condition of all PRIMOS systems prior to Rev. 23.2.

Using Configuration Options

When the SYSTEM_RECOVER command is followed by one or more configuration options, PRIMOS resets the specified options to the values specified. Specify either none or one from each set of options. You can specify these configuration options in any sequence. If you do not set an option, it remains set to its previous value. Use the –REPORT_CONFIGURATION option to determine the current values of these configuration options.

Format

```
                 [ { -AUTO [delay] } ]  [ { -CDD   } ]  [ { -RFS    } ]
                 [ { -NO_AUTO      } ]  [ { -CDT   } ]  [ { -NO_RFS } ]
                                        [ { -NO_CD } ]
SYSTEM_RECOVER
                 [ { -SYSV    } ]  [ { -COLD_RESTART } ]
                 [ { -NO_SYSV } ]  [ { -WARM_RESTART } ]
                                   [ { -NO_RESTART   } ]
```

Options

–AUTO [*delay*]

Configures the automatic execution of system crash recovery. Your system's Maintenance Processor (MP) must support the feature. You can specify an optional delay time in number of minutes for the system to wait between the time you issue the SYSTEM_RECOVER –AUTO command and the time that automated crash recovery is available on the system. The range of possible values is 0 through 255; the default is zero minutes. If a SYSTEM_RECOVER –AUTO command is pending due to a time delay and you issue a second SYSTEM_RECOVER –AUTO command (or a SYSTEM_RECOVER with no options), the first command is ignored; only the most recent SYSTEM_RECOVER –AUTO command is executed.

-NO_AUTO

Configures nonautomatic execution of system crash recovery. When a system crash occurs, you must invoke automated crash recovery manually by using a RUN 660 command from the supervisor terminal. Once invoked, the crash dump (CDD or CDT) and RFS configured features execute automatically, without further need of Operator intervention (except to respond to CDT prompts). The –SYSV option is not meaningful when specified with –NO_AUTO.

–CDD	Configures a crash dump to disk. Following a system halt, this option causes the crash dump to be written on the currently activated crash dump disk. If no disk is activated when you configure CDD, use the –CDD option. SYSTEM_RECOVER reports this as a warning. Disk activation is performed by the CDD –ACTIVATE_DISK command. Establishing crash dump to disk is described earlier in this chapter; executing a crash dump to disk is described in the *RAS Guide for 50 Series System Administrators*.
–CDT	Configures a crash dump to tape. During crash recovery, you must manually intervene to initiate the write to tape. The system prompts you to specify a full or partial crash dump and to specify the tape unit number. (These prompts are equivalent to those returned when using the RUN 774 MP command for crash dump to tape.) Crash dump to tape is described in the *RAS Guide for 50 Series System Administrators*.
–NO_CD	Specifies that no crash dump should be performed.
–RFS	Configures Resident Forced Shutdown (RFS), which attempts to shut down all local disks by flushing all file system buffers. RFS performs a normal shutdown on disks that had no file system changes in progress when the system crash occurred, and suggests FIX_DISK processing for those disks it could not successfully shut down. A warm start cannot be performed following RFS. RFS is further described in the *RAS Guide for 50 Series System Administrators*.
–NO_RFS	Specifies that no RFS should be performed.
–SYSV	Configures system hardware verification to be performed before performing an *automated* cold start. Execution of SYSV adds several minutes to the time required for cold start. This option is only meaningful when the –AUTO and –COLD_RESTART options are set; it performs no operation when you manually execute system recovery.
–NO_SYSV	Specifies that no system hardware verification should be performed before an *automated* cold start (other cold starts are not affected). This speeds system reboot by bypassing most diagnostic processing. Because –NO_SYSV does not perform diagnostic checking, it should only be used on a system that is fully functional.

-COLD_RESTART Configures an automatic cold start of the system after PRIMOS performs all of the other specified recovery operations. This option is only meaningful if the -AUTO option is also set. Only systems that support automated restart can use this option; on other systems this option is ignored.

-WARM_RESTART Configures an automatic warm start of the system after performing all of the other specified recovery operations. PRIMOS only performs a warm start if a warm start will successfully restart the system; otherwise, it ignores this option and automatically performs a cold start. This option is only meaningful if the -AUTO and -NO_RFS options are set. Only systems that support automated warm start can use this option; on other systems this option is ignored.

-NO_RESTART Specifies that no restart should be performed following the other specified recovery operations.

Automated restart can only be performed on machines that support this facility. Currently, the machines listed in the following microcode table support automatic cold start. Currently no machines support automatic warm start. If your system does not support the specified automatic restart option, you must perform the boot operation manually from the supervisor terminal. Rev. 23.3 uses these microcode revision levels:

CPU	*DSK7084*	*Minimum*	*Recommended*
2850	-950	D	E
2950	-953	D	E
4050	-935	E	F
4150	-928	J	K
5310	-958	J	M
5320	-960	J	M
5330	-962	K	N
5340	-956	K	N
5370	-964	C	E
6150	-940	J	K
6350	-924	S	T
6450	-941	E	F
6550	-927	L	M
6650	-943	E	F

Rev. 23.3 does not require a microcode upgrade from Rev. 23.2. The levels under *Minimum* are the same as those used at Rev. 23.2. These are the mimimum revision levels required to fully support automated system recovery, including its hardware auto_restart component. The *Recommended* column lists the latest available revision levels. Their use is recommended, but not required for Rev.

23.3. CPUs that are not listed here do not require a microcode upgrade to support Rev. 23.3 or 23.2; systems not listed here do not support automated system recovery.

Using Report Options

Format

SYSTEM_RECOVER { **-REPORT_CONFIGURATION** | **-STATUS_CODES** | **-HELP** }

Options

-REPORT_CONFIGURATION

Reports the current system recovery configuration settings, as shown in the following example:

```
SYSTEM_RECOVER Configuration
              auto : no
                cd : disk
               rfs : yes
              sysv : no
           restart : cold
```

If crash dump to disk is configured (`cd : disk`), the display for this command includes a message if there is no activated crash dump disk. Configuring automated crash dump to disk and activating a crash dump disk are independent operations that can be performed in any sequence, but you must activate a crash dump disk before your system can perform a crash dump to disk. See CDD earlier in this chapter.

-STATUS_CODES

Lists the status codes returned in SEVERITY$ when the SYSTEM_RECOVER command is executed from within a CPL program. For further details on SEVERITY$, refer to the *CPL User's Guide*. The following SEVERITY$ values may be returned:

0	Command completed without error.
1	General error (any error other than the specific errors listed below).
–1	General warning (any warning other than the specific warning listed below).

–2	You specified –CDD, but there is no activated crash dump disk. Use the CDD –ACTIVATE_DISK command described in earlier this chapter.
–HELP	Displays the list of command-line options.

Example

The following CPL program example configures automated system recovery with crash dump to disk. It preserves a COMO file record of the established status of the crash dump disk, the available space on the file system disk used for crash recovery, and the system recovery configuration. It then mails a copy of this information to the System Administrator. To establish system recovery, you would invoke a program such as this from PRIMOS.COMI:

```
&SEVERITY &ERROR &IGNORE
COMO CMDNC0>B52_RECOVERY.COMO
TYPE
TYPE *** B52 COLDSTART
TYPE
DATE
&DEBUG &ECHO
DI 111161    /* Add crash partition to Assignable Disks Table. */
AVAIL OSGRP7        /* Check available space on recovery disk */
                    /* before crash dump recovery. */
CDD 111161 -RD <OSGRP7>TEMP_DUMPS -AD
                   /* Recover any existing crash dump on the disk, */
                    /* then activate 111161 as a crash partition. */
AVAIL OSGRP7        /* Check available space on recovery disk */
                    /* after crash dump recovery. */
CDD -QD             /* Query the crash dump disk status to a COMO */
                       file.  */
SYSTEM_RECOVER
                    /* Establish system recovery with default */
                       values: */
                    /* auto recovery,cdd,cold restart,no sysv,rfs. */
SYSTEM_RECOVER -RC
                    /* Report configuration to the COMO file. */
&DEBUG &NO_ECHO
COMO -END
MAIL CMDNC0>B52_RECOVERY.COMO SYS_ADMIN@MYSYS
&RETURN
```

TRANSFER_LOG

TRANSFER_LOG is not a PRIMOS command; rather it is a utility located with other C2 software utilities in the directory TOOLS. TRANSFER_LOG invokes a utility program which backs up or moves audit trail files. This utility must be part of a C2-secure system in order to transfer audit trail files to and from disks or tapes.

Format

RESUME TOOLS>TRANSFER_LOG
TOOLS>TLOG

Example

When you invoke the TRANSFER_LOG utility, you will see a set of messages similar to those in the following example.

```
OK, RESUME TOOLS>TRANSFER_LOG

[TRANSFER_LOG Rev. 23.0 Copyright (c) 1990, Prime Computer, Inc.]
File names may be described as :

A PRIMOS File or Tree/Pathname for disk files
@MTn for tape files, where "n" is the tape drive unit number.

Please enter name of the Source File : SECURITY_LOG.860501
Please enter name of the Destination File : @MT0:1

Transfer complete
OK,
```

@MT*n* is the magnetic tape unit number. Valid unit numbers range from 0 through 7, inclusive. The number following the colon represents the file number. The example given above specifies magnetic tape unit zero, file one. You have the option to specify a logical file on the tape by following the magnetic tape unit number with a colon and a logical file number, as in @MT0:4.

Refer to the *System Administrator's Guide, Volume III: System Access and Security* for information about using TRANSFER_LOG.

UN

See UNASSIGN.

UNASSIGN

UNASSIGN revokes the assignment to a particular user of disks, asynchronous lines, or peripheral devices, thus freeing the devices for other use.

As a System Operator, your primary use of the UNASSIGN command is to unassign disk partitions and tape drives as part of system maintenance (such as during backup procedures, when formatting disks, and when repairing file system partitions). You may also use UNASSIGN to release asynchronous lines that have been assigned to individual user terminals with the ASSIGN ASYNC command. Although the UNASSIGN command is fully described in the *PRIMOS Commands Reference Guide*, a description of how to unassign partitions and tape drives is included here for convenience.

The UNASSIGN command can be entered at the supervisor terminal or at the user terminal to which *device* is currently assigned. The Operator, at the supervisor terminal, may unassign any device.

When issued from a user terminal, only the device previously assigned to that user can be unassigned.

Format for Partitions

UNASSIGN DISK ***pdev***

Format for Tape Drives

UNASSIGN { **–ALIAS MT***ldn* | **MT***pdn* | ***device*** }

You can specify the –ALIAS option only if a logical device number was previously assigned to this particular drive. *device* is the device that was assigned with the ASSIGN command.

Format for Asynchronous Lines

UNASSIGN ASYNC –LINE ***n*** **[–TO** ***m*****]**

The –LINE option specifies the line number in decimal. The –TO option allows you to specify a range of lines, from *n* to *m*, inclusive.

Arguments and Options

See the ASSIGN entry earlier in this chapter for a detailed discussion of arguments and options.

The use of UNASSIGN is discussed in detail in the *Operator's System Overview.*

For further information on using UNASSIGN with tape drives, see the *Operator's Guide to Data Backup and Recovery.* For further information on UNASSIGN in general, see the *PRIMOS Commands Reference Guide.*

UNREGISTER_EPF

The System Administrator can use the UNREGISTER_EPF command to remove a registered EPF from the registered EPF database. If an EPF is being used or is a dependency of a registered EPF that is in use when this command is issued, the EPF is not removed unless the –FORCE option is used. If the EPF is on the dependency list of another registered EPF, the other EPF's invocation state is changed to suspended.

Note

This command along with REGISTER_EPF and LIST_REGISTERED_EPF require Translator Family Release T3.0 or a subsequent release.

Format

UNREGISTER_EPF ***epf–name*** [**–FORCE** | **–NO_FORCE** | **–HELP**]

Argument and Options

epf-name	Specifies the name of the EPF to be removed from the database.
–FORCE	Removes the specified EPF from the database regardless of whether or not it is currently being used. The address space of current users of the EPF may be corrupted as a result.
–NO_FORCE	Issues a warning message if the specified EPF is in use. This is the default.
–HELP	Displays command syntax.

Related commands in this chapter are LIST_REGISTERED_EPF and REGISTER_EPF. In the *PRIMOS Commands Reference Guide*, the related commands are LIST_EPF and LIST_LIBRARY_ENTRIES.

For more information, see the *Advanced Programmer's Guide I: BIND and EPFs.*

UPDATE_NAMESERVER

UPDATE_NAMESERVER, which can be issued only from the supervisor terminal, allows a System Administrator or System Operator to adjust the retry time for Name Server updates. The Name Server on each system periodically updates all other systems in the common file system name space with information regarding additions or deletions of partitions on its own system.

Retry time serves two functions: it determines how long the Name Server waits before repeating a previously failed update to another system and also determines the polling interval for pre-Rev. 23.0 and subsequent systems. (The Name Server polls all pre-Rev. 23.0 systems in the common file system name space for update information and conveys that information to Rev. 23.0 systems in the same name space. The polling interval determines how often this polling occurs.)

Format

UPDATE_NAMESERVER [**-REMOTE** *systemname* | **-RETRY** *minutes* | **-WAIT** *seconds* | **-HELP**]

Options

-REMOTE *systemname*	Sends an immediate update to the system you specify in *systemname*.
-RETRY *minutes*	Sets and displays the new retry time. Specifying a value of 0 minutes resets the retry time to the default, which is 10 minutes.
-WAIT *seconds*	Specifies the amount of time the update command waits for the Name Server to respond before canceling the update. The default is 30 seconds. Ordinarily, it should take no longer than 10 seconds for the Name Server to respond. You may set this to longer than 30 seconds if you find UPDATE_NAMESERVER is timing out because the Name Server is too slow in responding. You should not set the wait time too high, however, because that could tie up the supervisor terminal.
-HELP	Displays command syntax.

Note

If you issue the UPDATE_NAMESERVER command with no options, the Name Server displays the current retry time and immediately attempts to update all systems in the common file system name space.

USAGE

USAGE is a system metering tool that allows Operators and users to monitor several performance factors of PRIMOS. Both manual and automatic sampling modes are available.

Format

USAGE [*options*]

Options

–ALL	Displays system, per-user, and disk metering information at each sample time, including per-user I/O information and paging activity. At Rev. 23.0 and later, this option also displays statistics on activity within the high, eligibility, and low priority queues to help in tuning the PRIMOS Scheduler. See the –SCHED option below for more information as the –ALL option produces the same Scheduler information as the –SCHED option.
–BRIEF	Specifies that a short form of output is to be displayed. This form presents an overview of which processes and users are consuming system resources. The default long form produces additional information.
–DEBUG	Displays a detailed USAGE version number.
–DISK	Displays system and disk metering information at each sample time.
–FREQ *n*	Selects automatic sampling every *n* seconds. (*n* must be an integer from 1 through 32767, inclusive.) *n* should not be less than 30. If you do not specify –FREQ, manual sampling is selected. (See also –TIMES, below.)
–IOCNT	Adds the following fields to the normal USAGE display: the number of physical I/Os performed by each user since login, the number of physical I/Os performed by each user during the last sampling interval, and the percentage of the total system I/Os consumed by this process during the last sampling interval.

-MULTI

Displays up to eight separate %Idl values for each processor on a multiprocessor system, showing the actual percentage of idle time on each CPU. %Idl values show the average amount of idle time. These are represented as %Idl1, %Idl2, and so on. Because these values are independent, each can approach 100% of usage. Use this option only with multiprocessor systems.

Issuing USAGE without the -MULTI option displays a new pair of fields, *%Sch* and *%Idle*. %Sch represents the percent of the CPU time used by the Scheduler process. Prior to Rev. 23.3, this time used to be included in the %Idl totals. %Idle represents the average idle time for all processors. See the Examples section below.

If you specify -ALL without -MULTI, the eight %Idl values are not displayed.

-ON *nodename*

Displays information about a remote system. *nodename* is the name of the system you wish to monitor. The system must be running PRIMOS Rev. 19.3 or later and must be RFA-enabled.

-PAGING

Adds the following information to the normal USAGE display: for each paging partition, the number of paging records available, the number of paging records in use, and the percent of paging records available; for the system at large, the number of reads and writes to the paging disks per second, the number of VMFA segments available, and the number of VMFA segments in use.

-SCHED

Generates a report that can be helpful in setting queue ratios and priority ratios when tuning the PRIMOS Scheduler. It presents these four categories of statistics about the high, eligibility, and low priority queues:

- Total percent of arrivals – gives the number of arrivals at each queue since cold start as a percentage of the total arrivals at all three queues since cold start.
- Arrivals per second – gives the number of arrivals per second at each queue (or level within a queue) during the interval monitored. You can calculate the total number of arrivals for the interval by multiplying the arrivals per second by the number of seconds in the interval.

- Aggregate waiters per second – gives the number of processes that waited on each queue (or level within a queue) for any portion of the interval, divided by the number of seconds in the interval.
- Relative delay – gives a relative indication of delay – the amount of time processes wait at a queue or level within a queue – when the system is reasonably loaded. For systems with low CPU utilization, this quantity is not very meaningful.

For information on tuning the Scheduler, see the *System Administrator's Guide, Volume I: System Configuration.*

-SYSTEM Displays only the system metering information. The USAGE command with no options or with the –USER option still displays both system metering information and per-user metering information.

-TIMES *n* Useful only with the –FREQ option. Specifies the total number of samples to be taken if automatic sampling is in effect. The command terminates after *n* sets of data have been printed. *n* must be an integer in the range 1 through 32767, inclusive. If –TIMES is not specified with –FREQ, sampling continues indefinitely.

-USER Displays system and per-user metering information at each sample time. This is the default.

Examples

Example 1: Following is a display of output without options. Note that the display no longer shows %Idl1 and %Idl2; they are replaced with %Sch and %Idle.

```
OK, USAGE
[USAGE Rev. 23.3 Copyright (c) 1992, Prime Computer, Inc.]
Type "START" to continue.

OK, START

03 Jan 92 19:42:26.42  dTIME=  9.05      CPU=     4.50    I/O=   0.26
Up since 02 Jan 92 02:43:12 Thursday CPUtot= 56751.91 I/Otot=11973.42

   %CPU   %Sch   %Idle  %Error  %I/O  %Ovlp  IO/S   PF/S  PIO/S
   22.03  0.00   79.45   -3.62  0.18   0.00  1.88  18.22   0.00

   %Clock  %FNT   %MPC   %PNC   %SLC  %GPPI  %DSK   %IOK  %NTS
    0.71   0.03   0.03   0.23   0.00   0.00  0.13   0.03  1.06
```

```
    %AMLC  %Async  %Sync  %ICS  Segs   Used  Pages  Used  Wired
     0.00    1.99   0.00  0.06 16384   1948  24575  19405  1719

   Locate  %Miss  %Found  %Same %Share Loc/S  LM/S
      468   0.43   77.99  21.58  0.00 146.98  0.63

Usr UserID Mem  Wire Segs  CPUtime  dCPU  %CPU  I/Otime   dI/O   %I/O
 1 SYSTEM 8437 1526  565  635.806  0.002 0.064 204.420   0.000  0.000
 43 DWOLF 3721    1  147 1256.725  0.831 26.11 175.832   0.000  0.000
 63 BGRAY  253    1   15  203.979  0.037  1.15  17.632   0.000  0.000
 67 JOSEPH 102    1    9    7.471  0.329 10.323  1.640   0.000  0.000
162 X400_SERVER
           73    1   27 1155.167  0.007  0.225  4.700   0.000  0.000

OK,
```

Example 2: Following is a sample display of USAGE –MULTI output.

```
OK,  USAGE -MULTI
[USAGE Rev. 23.3 Copyright (c) 1992, Prime Computer, Inc.]
Type "START" to continue.

OK, START

03 Jan 92 01:02:08.55  dTIME=  23.89     CPU=   8.79    I/O=     0.29
Up since 02 Jan 92 12:33:32 Wednesday CPUtot= 3032.62 I/Otot=
1803.47

%CPU    %Sch   %Idle  %Error    %I/O   %Ovlp    IO/S    PF/S   PIO/S
14.52   0.00   83.66   -0.32    0.33    0.00    1.09    0.63    0.00

%Idl1  %Idl2   %Idl3   %Idl4   %Idl5   %Idl6   %Idl7   %Idl8
90.25   97.75   0.00    0.00    0.00    0.00    0.00    0.00

 %Clock  %FNT     %MPC    %PNC    %SLC   %GPPI    %DSK    %IOK
%NTS
   0.79  0.01     0.02    1.44    0.00    0.00    0.06    0.01
0.49

 %AMLC  %Async   %Sync    %ICS    Segs    Used   Pages    Used
Wired
  0.00    0.83    0.00    0.06   16384    1764   24575   15543
1672

 Locate   %Miss  %Found   %Same  %Share   Loc/S    LM/S
   1182    0.00   43.40   56.60    0.00  104.28    0.00

Usr UserID Mem  Wire Segs  CPUtime  dCPU  %CPU  I/Otime   dI/O   %I/O
 1 SYSTEM 8994  1483 576  646.125  0.007 0.063  207.520  0.000  0.000
93 SLAVE$   21     1   3  263.143  0.411 3.623   16.888  0.000  0.000
96 BSB      24     1   4  218.687  0.224 1.978    4.156  0.000  0.000
```

```
97 SLAVE$    22     1   3  416.927  0.135 1.192     5.572  0.000  0.000
151 N_SERVER 43    13  18  103.384  0.002 0.018     3.028  0.000  0.000
OK,
```

Example 3: Below is a sample display of USAGE –SCHED output. Note that the display no longer shows %Idl1 and %Idl2; they are replaced with %Sch and %Idle.

```
OK, USAGE -SCHED
[USAGE Rev. 23.3 Copyright (c) 1992, Prime Computer, Inc.]
Type "START" to continue.

OK, START

 03 Jan 92 20:20:12.15 dTIME=    4.41    CPU=    1.35    I/O=    0.02
 Up since 02 Jan 92 14:23:12 Thursday CPUtot= 29299.79 I/Otot=
3080.16

    %CPU  %Sch   %Idle  %Error   %I/O   %Ovlp    IO/S    PF/S   PIO/S
   14.24  0.00   83.11  0.34     0.18    0.00    1.22    0.00    0.00

                  Total              Aggregate  Relative
  Sched. Queue     %Arr       Arr/S  Waiters/S    Delay
 -------------   --------   --------  ---------  --------
 High Priority     56.09       0.61       0.61
 Eligibility       38.55       1.52       1.52
 Low Priority       5.36       0.30       0.30       3.29
       level 4      0.07       0.00       0.00       0.00
       level 3      0.05       0.00       0.00       0.00
       level 2      0.03       0.00       0.00       0.00
       level 1      5.21       0.30       0.30       3.29
       level 0      0.01       0.00       0.00       0.00
OK,
```

Example 4: Below is a sample display of USAGE –SYSTEM output. Note that the display no longer shows %Idl1 and %Idl2; they are replaced with %Sch and %Idle.

```
OK,  USAGE -SYSTEM
[USAGE Rev. 23.3 Copyright (c) 1992, Prime Computer, Inc.]
Type "START" to continue.

OK, START

03 Jan 92 20:27:25.42  dTIME=  3.31    CPU=     0.48    I/O=     0.03
Up since 02 Jan 92 14:23:12 Thursday CPUtot= 29537.82 I/Otot=
3087.80

%CPU    %Sch    %Idle  %Error    %I/O   %Ovlp    IO/S    PF/S   PIO/S
7.29    0.00    90.33   0.80     0.12    0.00    0.30    6.66    0.00

%Clock  %FNT    %MPC    %PNC    %SLC   %GPPI    %DSK    %IOK    %NTS
 0.59   0.00    0.00    0.40    0.00    0.00    0.09    0.00    0.59
```

```
%AMLC  %Async   %Sync    %ICS    Segs    Used   Pages    Used   Wired
0.62    0.81    0.00    0.06    3584    1481   32767   23981    1151
Locate   %Miss  %Found   %Same  %Share  Loc/S    LM/S
243      0.00   40.33   59.67    0.00   73.51    0.00
OK,
```

Several system meter display fields are described below.

- PIO/S – Number of read and writes per second caused by paging. This is not the same as the number of reads and writes to the paging disk.
- %IOK – Percentage of CPU time used to interface with certain communications controllers, such as the LHC300 Ethernet controller.
- %NTS – Percentage of CPU time used by the Network Terminal server.

When reading the system meter display fields, bear in mind the following relationships: Each locate miss (LM/S) results in one disk read operation, which is counted as part of I/O operations (IO/S). Each page fault (PF/S) results in zero or more paging disk operations (PIO/S). The PIO/S are also counted as part of IO/S. The number in PIO/S includes some overhead and thus may be slightly larger than the actual number of paging I/O operations. Almost all remaining I/O operations are due to writes to the locate buffer. Discounting a very small number of assigned disk operations, the number of I/O operations (IO/S) is calculated as follows:

IO/S ~= PIO/S + LM/S + LocateWrites/S

Therefore, the number of locate buffer writes can be calculated as follows:

LocateWrites/S ~= IO/S – (PIO/S + LM/S)

See the *Operator's Guide to System Monitoring* for a discussion of USAGE, examples of its use, and interpretation of its output.

USERS

USERS displays the number of users currently logged in to the system; it has no options or arguments. This command displays the total number of system users. However, this total does not include the supervisor terminal, nor does it include users logged through from the local system to a remote system if they used the LOGIN –ON command.

Format

USERS

Example

The following example illustrates the use of this command:

```
OK, USERS
Users = 49
OK,
```

USR

See USRASR.

USRASR

USRASR allows the supervisor terminal to act as a user terminal by associating it with a different process. After initiating USRASR, you can still invoke some supervisor commands.

Do not use USRASR during a RESUS session.

Format

USRASR ***usernumber***

Argument

usernumber Specifies a user number. For example,

```
OK, USRASR 4
```

Usage

The USRASR command works correctly only if the associated communications line is not enabled on the asynchronous controller. The communications line can be disabled with the SET_ASYNC command:

```
OK, SET_ASYNC -LINE 2 -PRO TTYNOP
OK, USRASR 4
```

The SET_ASYNC command shown above disconnects the user normally attached to asynchronous line 2. To return the terminal to operation as a normal supervisor terminal, type the following:

```
OK, USRASR 1
```

Caution

This command should be used only rarely because of the possibility that the terminal will no longer function in Supervisor Terminal mode.

For example, if you are running a process from the terminal and are unable to leave the process, you no longer have access to PRIMOS command level. Hence, you cannot execute USRASR 1 and so return the terminal to its supervisor terminal function.

UX_TAPE

The UX_TAPE command transfers data between PRIMOS and UNIX. UX_TAPE can read and write files in the formats used by the UNIX utilities CPIO and TAR.

Format

UX_TAPE *source-pathname* -MT *n* { -LIST [{ -RESTORE / -SAVE }] } [*options*]

Arguments

source-pathname	Identifies the objects you want to save or restore. *source-pathname* may include wildcards, treewalking, and iteration.
-MT *n*	Specifies the unit number *n* of the tape drive on which the reel is mounted. The drive must be online and assigned to you.

Options

Notice that at least one of the three options -LIST, -RESTORE, and -SAVE *must* be supplied as part of the UX_TAPE command. -LIST may be supplied either alone or with -RESTORE or -SAVE; -RESTORE and -SAVE cannot be supplied in the same UX_TAPE command.

Some UX_TAPE options are valid only when writing to a tape using the -SAVE option; some are valid only when reading from a tape using the -RESTORE option; others are meaningful whether reading or writing. In the descriptions below, each option is marked (READ), (WRITE), or (READ/WRITE) accordingly.

-APPEND	(WRITE) Appends the named files to the tape. The write format (CPIO-readable or TAR-readable) must be the same as was used for any files already on the tape.
-BLOCK_FACTOR *n*	(WRITE) Specifies the blocking factor *n* to use when writing files to tape. *n* is an integer in the range 1 through 24, inclusive; the default value for *n* is 24. The blocking factor specifies how many 512-byte blocks of text should be written to the tape at once. -BLOCK_FACTOR 1 has the same meaning as -BLOCK_SIZE 512; since -BLOCK_FACTOR and -BLOCK_SIZE specify the same information in different units, they cannot be used on the same command line.

-BLOCK_SIZE *n* (WRITE) Specifies the block size *n* in bytes to use when writing the tape. The default value for *n* is 10Kb. This option is an alternative to -BLOCK_FACTOR, which specifies block size in elements of 512 bytes. -BLOCK_SIZE 512 is the same as -BLOCK_FACTOR 1. Since -BLOCK_SIZE and -BLOCK_FACTOR specify the same information using different units, they cannot both be used on the same command line.

-CPIO (READ/WRITE) Tells UX_TAPE that the tape being used is written in a format that the CPIO utility can read. If writing, the tape is written in CPIO-readable format; if reading, UX_TAPE uses CPIO format to decipher the tape.

-LCASE (READ/WRITE) Controls the conversion of filenames. When writing, -LCASE specifies that all PRIMOS filenames will be converted to lowercase. When reading, -LCASE specifies that each uppercase character in a UNIX filename will be preceded by a slash (/), and that lowercase characters will be translated to uppercase. Other special characters in filenames have more elaborate translations applied; for full details, see the *Data Backup and Recovery Guide.*

Note

-LCASE is the default both when reading and when writing tapes.

-LIST (READ/WRITE) Makes UX_TAPE list at your terminal the name of each file that is successfully read from or written to tape. If neither -SAVE nor -RESTORE is specified, UX_TAPE lists the contents of the tape, but performs no other action.

-MAX_FILENAME_LEN (WRITE) Allows you to use filenames up to 32 characters in length.

-NO_QUERY (READ) Suppresses queries when a restored file has the same name as a file already in the current directory. By default, UX_TAPE asks users whether they really want to restore a file when restoring that file will destroy an existing file with the same name.

-NO_REWIND (READ/WRITE) Suppresses tape rewind after the save or restore has ended.

-NO_TRANSLATE (READ/WRITE) Suppresses the text translation function. This is used when the data is in binary format.

–POS *n*	(READ/WRITE) Positions the tape *n* filemarks from the beginning of the tape, before the save or restore begins. This is not valid for 60MB cartridge drives.
–RESTORE	(READ) Tells UX_TAPE to read files from tape, rather than writing them to tape. –RESTORE cannot be specified on the same line as –SAVE; one of the options –SAVE, –RESTORE, and –LIST must be present in order for UX_TAPE to function.
–SAVE	(WRITE) Tells UX_TAPE to write files to tape, instead of reading them from tape. –SAVE cannot be specified on the same line as –RESTORE; one of the options –SAVE, –RESTORE, and –LIST must be present in order for UX_TAPE to function.
–SWAP	(READ/WRITE) Reverses the order of the bytes in each word. Provides compatibility with systems on which data words have the least significant byte first.
–TAR	(READ/WRITE) Specifies that the tape being used is written in a format that the UNIX TAR utility can read. If you do not specify a format option (–TAR or –CPIO), UX_TAPE assumes that the tape is written in a TAR-compatible format.
–UPCASE	(READ/WRITE) Controls the conversion of filenames. When writing, –UPCASE translates all PRIMOS pathnames to uppercase UNIX pathnames. When reading, –UPCASE translates all UNIX pathnames to uppercase PRIMOS pathnames. For information on the translation of nonalphabetic characters, see the *Data Backup and Recovery Guide.*

Caution

Do not use the –UPCASE option unless all filenames concerned are unique regardless of case. For instance, if a TAR tape contained the two UNIX files README and ReadMe, the translated PRIMOS version of the filename would be README in both cases; as a result, one of the files would overwrite the other when they were being restored.

For complete information about UX_TAPE, see the *Data Backup and Recovery Guide.*

Appendices

A

FUTIL

This appendix describes the utility program FUTIL. The functionality provided by FUTIL has been replaced by the COPY and DELETE commands with the exception of deleting and replacing subfiles in segment directories. The COPY and DELETE commands are described in the *PRIMOS Commands Reference Guide.*

Caution

FUTIL does not query you about deleting files and directories. Be careful when using the delete subcommands.

Invoking FUTIL

To invoke FUTIL, type **FUTIL**. When invoked, FUTIL prints a right angle-bracket prompt (>) and awaits a subcommand.

Use Under PRIMOS

When you use FUTIL under PRIMOS, certain operations may interfere with the work of other users. For example, a UFDCPY command may fail if it is used to copy all files from a directory currently used by another logged-in user. If any file in that directory is open for writing by that user, UFDCPY encounters the error message `file in use` and skips the file. If the user attempts to open a file for writing while UFDCPY is running, the user may encounter that error message. The FUTIL commands LISTF and TRECPY cause the same interaction problems.

FUTIL commands such as COPY and DELETE can also interfere with other users, but with these commands only one file is potentially involved in a conflict. To minimize conflicts, use the COPY command rather than FUTIL. If you use FUTIL under PRIMOS, use the PRIMOS LD command rather than FUTIL's LISTF subcommand.

Working in the MFD

A UFDCPY command to copy the MFD to the MFD of another disk merges the contents of two disk onto one disk. Be sure that there is enough room on the TO disk before attempting this operation or the merge will not be successfully completed. The names of segment directories on the two disks must not conflict. Files of the same name will be overwritten and directories of the same name will be merged.

To avoid conflict, it may be desirable to copy (using UFDCPY) the MFD of one disk into a user file directory on another disk. Each directory originally on the FROM disk becomes a subdirectory in that directory on the TO disk. A UFDCPY command to copy an MFD does not copy the DSKRAT, MFD, BOOT, or BADSPT file to the TO directory. If you wish to copy BOOT to the TO directory, use the COPY_DISK command. Never copy the DSKRAT and BADSPT files from one MFD to another.

A UFDCPY command to copy from the MFD of a disk in use to the MFD of a newly formatted disk reorganizes the disk files so that all files are compressed. That is, all files have their records close to each other on the new disk. After such compression, the access time to existing files on the new disk is less than the access time on the old disk. Furthermore, new files tend to be compact because all free disk records are also compressed. The use of compressed disks improves the performance of all PRIMOS systems.

WARNING

FUTIL operations affecting the MFD should be done carefully. Never give the command TREDEL MFD, which deletes every file on the disk except the MFD, the Disk Record Availability Table, BOOT, and BADSPT. When the system is operating under PRIMOS, use LISTF or UFDCPY in the MFD only if no files or directories on the disk are being used.

FUTIL Subcommands Dictionary

FUTIL subcommands are briefly described below.

Caution

Do not abort copy or delete operations under PRIMOS II; allow them to run to completion. Aborting FUTIL while copying or deleting files may cause a pointer mismatch, bad file structure, or may leave a directory with a partial entry. PRIMOS II will not run correctly with a directory containing a partial entry. You should run FIX_DISK or FIXRAT (obsolete) immediately if these conditions occur.

Many FUTIL commands are significantly affected by the current value of the FROM and TO directories. For an explanation of FROM and TO directories, refer to the description of the FROM and TO subcommands below.

ATTACH *pathname*
Moves the current directory to the directory defined by *pathname*. The *pathname* may contain a maximum of 10 directories. The first directory in the *pathname* may be the current directory and may be indicated by an asterisk (*). All directories in the *pathname* must be directories or subdirectories.

CLEAN *prefix* [*level*]
Deletes all files in the FROM directory whose filenames begin with the characters specified as *prefix*. If you specify a *level* greater than 1, that many levels of subdirectories (including the FROM directory) are scanned for *prefix* matches. In no case does CLEAN delete a directory, a subdirectory, or a segment directory.

COPY *filea* [*fileb*] [,*filec* [*filed*]] . . .
Copies *filea* in the FROM directory into *fileb* in the directory and, optionally, copies *filec* in the FROM directory to *filed* in the TO directory, and so on. Filename pairs must be separated by commas. If you omit the second filename of a pair, the new file is given the same name as the old file. The files in the FROM directory must be SAM or DAM files and cannot be directories. If *fileb* exists prior to the copy, it must be a SAM or DAM file, and the user must have read, write, and delete/truncate access rights to the target file. If *fileb* exists, it is deleted; then *filea* is copied to *fileb*. The file type of *fileb* will be the same as *filea*.

COPYDAM *filea* [*fileb*] [,*filec* [*filed*]] . . .
Functions in the same way as COPY, but COPYDAM sets file type of *fileb* and *filed* to DAM, instead of copying the type of *filea* and *filec*.

COPYSAM *filea* [*fileb*] [,*filec* [*filed*]] . . .
Functions in the same way as COPY, but COPYSAM sets file type of *fileb* and *filed* to SAM, instead of copying the type of *filea* and *filec*.

CREATE *dirname* [*owner-password*] [*nonowner-password*]
Creates a directory in the TO directory and assigns any owner and nonowner passwords specified. A subdirectory of the same name cannot already exist in the TO directory. If a password is not specified, it is set to six spaces (null). If a password longer than six characters is specified, only the first six characters are used. The access rights of the new subdirectory are the default access rights set by PRIMOS.

DELETE *filea* [*fileb*] . . .
Deletes specified files from the FROM directory. *filea* and *fileb* cannot be directories.

Note that you are not queried about deleting files.

FORCE {ON / OFF}

FORCE ON causes read access rights to be forced on any files or subdirectories within the FROM directory. The option remains in operation until you specify the command FORCE OFF. UFDCPY never forces rights on the primary level of the FROM or TO directory.

Caution

Use of FORCE ON causes LISTF, LISTSAVE, SCAN, UFDCPY, and TRECPY to fail on write-protected disks.

FROM *pathname*

Defines the FROM directory in which files are to be searched by FUTIL subcommands. *pathname* may contain a maximum of 10 directories that can be segment directories as well as User File Directories. If segment directories are specified, the user must have Read access rights to them. If any error is encountered, the FROM directory is set to the current directory (*). The first directory in the *pathname* may be *, which refers to the current directory. The default FROM directory is the current directory.

The FROM command never changes the current directory. If the FROM name is a relative pathname (that is, begins with *), any subsequent ATTACH commands reset the FROM name to *.

LISTF [*level*] [*filedata*]

Lists the FROM directory pathname, the TO directory pathname, and all files and directory trees in the FROM directory at the terminal. *level* specifies the depth of subdirectories to display. The *filedata* argument(s) specify additional information to be printed for each file. *filedata* can be zero or more of the following:

Argument	*Information Printed*
DATE	Date/time modified
FIRST	First line of file
LSTFIL	Sends the LISTF output to a file named LSTFIL in the currently attached directory
PASSWD	Owner and nonowner passwords
PROTEC	Protection attributes
RWLOCK	Read/write lock setting
SIZE	Size in disk records (2048 bytes/record)
TYPE	File type

LISTSAVE *filename* [*level*] [*filedata*]

Functions identically to the LISTF command with the LSTFIL option specified, except that the name of the output listing file is specified by *filename*. *filedata* are the same as for LISTF.

PROTECT *filename* [*owner-access* [*nonowner-access*]]

Protects *filename* in the FROM directory with the owner and nonowner protection attributes specified.

QUIT

Returns to PRIMOS or PRIMOS II command level.

SCAN *filename* [*level*] [*filedata*]

Searches the FROM directory tree for the occurrence of all files, subdirectories, and segment directories that are named with the name specified by *filename*. *filedata* are the same as for LISTF.

If you specify *level* 1 (the default), only the *filename* followed by the information specified by the optional arguments is displayed. If you specify a *level* greater than 1, the pathname of the file or directory, starting from the FROM directory, is printed. In addition, the information specified by any optional arguments may be displayed after the treename. See LISTF above for a description.

SRWLOC *filename number*

Sets the per-file read/write lock for the file specified by *filename*. *number* specifies the read/write lock setting, as follows:

Number	*Description*
0	System default
1	n readers or 1 writer
2	n readers and 1 writer
3	n readers and n writers

TO *pathname*

Defines the TO directory in which files are searched. The TO directory is defined from *pathname*, which has a format similar to that of the directory pathname specified for the FROM command. The pathname may contain a maximum of 10 directories that may be segment directories as well as directories. If segment directories are specified, the user must have Read and Write access to them. The first directory in the *pathname* may be the current directory (*). The default TO directory is the current directory. If FUTIL encounters any error, the TO directory is set to the current directory (*).

Note

The TO command never changes the current directory. If the TO name is a relative pathname (that is, begins with *), any subsequent ATTACH commands reset the TO name to *.

TRECPY *dira* [*dirb*] [,*dirc* [*dird*]]

Copies the directory tree specified by directory *dira* to directory *dirb*, and optionally copies *dirc* to *dird*. *dirb* and *dird* must not exist prior to the TRECPY command. If you omit *dirb*, *dira* is taken as the name of the directory to be copied to. *dira* and *dirc* must be in the FROM directory; *dirb* and *dird* are created in the TO directory.

The directories *dirb* and *dird* are created with the same directory types and passwords as *dira* and *dirc*, and with default access rights. Also, the per-file read/write lock setting is copied by TRECPY. The names, access rights, and passwords of all files and subdirectories are also copied.

TREDEL *dira* [*dirb*]

Deletes the directory specified by directory *dira* and optionally deletes *dirb* from the FROM directory. (*dira* and *dirb* must be directories.)

Note that you are not queried about deleting directories.

TREPRO *directory* [*owner-access* [*nonowner-access*]]

TREPRO is almost identical to PROTECT, except that *directory* is a directory or segment directory in the FROM directory and it and all subdirectories under it are protected with the specified access rights. The default access rights are 1 0.

TRESRW *directory number*

Sets the per-file read/write locks for all files in the subtree beginning with the directory (segment directory or directory) specified by *directory*. The parameter *number* indicates the read/write lock settings, which are discussed in the description of the FUTIL command SRWLOC.

UFDCPY

Copies all files and directory trees from the FROM directory to the TO directory. Files existing in the TO directory with names identical to those in the FROM directory are replaced.

Segment directories existing in the TO directory with names identical to those in the FROM directory are not allowed and are not copied. Files and directories created in the TO directory have the same file types and access rights as those of the old files. When the copy is finished, the new file has the same protection attributes as the corresponding file in the FROM directory. The names, access rights, per-file read/write lock settings, and passwords of all files and subdirectories within directory trees being copied are also copied. Other existing files and directories in the TO directory are not affected. UFDCPY effectively merges two directories (including the merge of subdirectories). Both the FROM and the TO directories must be directories.

UFDDEL

Deletes all files and directory trees (specified by directories) within the FROM directory. The owner password must be given in the FROM command to provide Read, Write, and Delete access to all files and directories within the FROM directory. These rights are not required for files and subdirectories nested within the directories in the FROM directory.

Note

Read and Write access rights to a subdirectory permit the deletion of the contents of that directory, but not deletion of the directory itself.

Note that you are not queried about deleting files and directory trees.

UFDPRO [*owner-access* [*nonowner-access* [*levels*]]]

Protects all files and directories within the FROM directory according to the specified access rights, traversing subdirectory trees to the specified number of levels. The default rights are 1 0 and the default number of levels is 1.

UFDSRW *number* [*levels*]

Sets the per-file read/write locks for levels of files in the FROM directory. The parameter *number* is the read/write lock setting, which is discussed in the description of the SRWLOC command earlier in this appendix. The default level is 1.

B

Obsolete Commands

This appendix describes commands that have been made obsolete either by changing technology or by new commands that supersede their functionality. These commands are still provided but not supported. Their use is discouraged.

- AMLC
- ARCHIVE_RESTORE*
- BACKUP*
- BACKUP_RESTORE*
- COPY_DISK
- EDIT_PROFILE
- EVENT_LOG
- LIST_TAPE*
- LOOK
- NETCFG
- NUMSEMACL
- OPRPRI
- PHYRST
- PHYSAV
- PRINT_NETLOG
- PRINT_SYSLOG
- TRANSPORT_RESTORE*

These commands are still valid for pre-Rev. 21.0 systems. However, the EVENT_LOG, PRINT_NETLOG, and PRINT_SYSLOG commands do not work on Rev. 21.0 or later versions of PRIMOS.

Backup utilities (indicated by an *) are now provided by DBR utilities.

At Rev. 23.0, PSR replaced the COPY_DISK, PHYRST, and PHYSAV commands.

AMLC

AMLC configures an asynchronous line connected to an AMLC or ICS controller. The functions of this command have been replaced by the SET_ASYNC and LTS commands at Rev. 20.2, which are explained in Chapter 2, Dictionary of PRIMOS Operator Commands.

Format

AMLC [*protocol*] *line* [*config_word*] [*lword*]

Arguments

protocol Specifies one of the following:

Protocol	*Meaning*
ASD	Auto Speed Detect; automatically detects terminal baud rates 110, 300, 1200, 2400, 4800, and 9600
TRAN	Transparent (no character conversion)
TT8BIT	Recognizes character sets that require the use of 8 bits to represent each character
TTY	Default terminal protocol
TTYNOP	All traffic ignored
TTYUPC	Lowercase alphabetic characters translated to uppercase for output; uses normal terminal protocol for input

In addition, there are three obsolete protocols that are used only with DMT AMLCs (Model 505x). These protocols slow down system performance if used with any other controller:

Protocol	*Meaning*
TRANHS	TRAN with per-character interrupt
TTYHS	Terminal with per-character interrupt
TTYHUP	Lowercase alphabetic characters translated to uppercase for high-speed output; uses normal terminal protocol for input

line Specifies the asynchronous line number (in octal). The maximum value is 377_8 (255 decimal).

config_word Specifies a 16-bit halfword (in octal) used to set the line configuration. Three common configuration values, and the baud rates they represent, follow:

c_w	*Baud Rate*
2213	300
2313	1200 (default)
2314	9600 (typically; depends on AMLCLK setting)

lword Is an obsolete argument to the AMLC command; it no longer has any effect, and its functions have been replaced by the CAB and LAB commands, described in Chapter 2, Dictionary of PRIMOS Operator Commands.

For information on AMLC and its error messages, see the *System Administrator's Guide, Volume II: Communication Lines and Controllers.*

ARCHIVE_RESTORE

The Backup and Recovery Management Service (BRMS) command ARCHIVE_RESTORE copies file system objects from an ARCHIVE tape to disk. Before using ARCHIVE_RESTORE, you must assign the tape drive with the ASSIGN command and mount the correct reel.

Format

ARCHIVE_RESTORE *pathname* [*new-pathname*] –MT *n* [*options*]

Arguments and Options

pathname Specifies the file or directory to be copied to tape. This is also called the *source pathname.*

new-pathname Specifies the pathname of the objects when restored to disk. This is also called the *target pathname.* This allows you to rename an object as it is restored, and/or to place the object in a location other than your current attach point. You can use name generation with *new-pathname.* If you do not give a new pathname, the object being restored is copied into your current attach point, and has the same name as on tape.

–MT *n*	Specifies the unit number of the tape drive on which the ARCHIVE tape is mounted. *n* is the physical device number of the tape drive.
–HELP [*option*]	Displays the online information about the syntax and options of the ARCHIVE command.

Usage

After you save file system objects on tape with the ARCHIVE command, you can restore the data back to disk with ARCHIVE_RESTORE. File system objects include files, directories, access categories, and Recovery Based Files.

See ARCHIVE, ARCHIVE_RELEASE, and GENERATE_CATALOG in the *PRIMOS Commands Reference Guide*.

For more information on ARCHIVE_RESTORE, see the *Data Backup and Recovery Guide*.

BACKUP

The Backup and Recovery Management Service (BRMS) command BACKUP saves files and directories from disk to tape.

Format

BACKUP *pathname* –MT *n* –VOLID *volume-name* [*options*]

Arguments and Options

pathname	Identifies the location of the objects on disk that you wish to archive. You can use wildcards, iteration, and treewalking.
–MT *n*	Specifies the unit number *n* of the drive on which the reel is mounted. The drive must be online and assigned to you.
–VOLID *volume-name*	Identifies the name of the volume. You can either name an unused volume or specify a named volume. The volume name must be a valid object name, and can be a maximum of 28 characters long.

–HELP [*option*]	Displays the online information about the syntax and options of the BACKUP command.

For more information on BACKUP, see the *Data Backup and Recovery Guide.*

BACKUP_RESTORE

The Backup and Recovery Management Service (BRMS) command BACKUP_RESTORE restores files and directories from a BACKUP tape.

Format

BACKUP_RESTORE *pathname* [*new-pathname*] **–MT** *n* [*options*]

Arguments and Options

pathname	Specifies the file or directory on tape to be restored. This is also called the *source pathname.*
new-pathname	Specifies the pathname of the objects when restored to disk. This is also called the *target pathname.* This allows you to rename an object as it is restored, and/or to place the object in a location other than your current attach point. You can use name generation with *new-pathname.* If you do not give a new pathname, the object being restored is copied into your current attach point, and has the same name as on tape.
–MT *n*	Specifies the unit number *n* of the tape drive on which the reel is mounted. The drive must be online and assigned to you.
–HELP [*option*]	Displays the online information about the syntax and options of the BACKUP_RESTORE command.

For more information on BACKUP_RESTORE, see the *Data Backup and Recovery Guide.*

COPY_DISK

COPY_DISK causes one disk to be copied to another and verifies the copy. You can use it from any terminal. At Rev. 23.0, COPY_DISK, PHYRST, and PHYSAV were

replaced by PSR (although you can still use COPY_DISK, PHYRST, and PHYSAV if they are already on your system).

Format

```
COPY_DISK [-DO_VERIFY
           -NO_BADS
           -NO_RAT
           -TTY      ]
```

Options

-DO_VERIFY	Tells COPY_DISK to check that the input and output partitions are the same. This approximately doubles the time to copy a partition.
-NO_BADS	Turns off badspot handling by COPY_DISK. This option is only supplied for compatibility with earlier revisions of PRIMOS. You should be very careful if you use this option because COPY_DISK will ignore any existing badspots on the input and output disk, and will assume that they are all valid data records.
-NO_RAT	Instructs COPY_DISK not to refer to the Record Availability Table: COPY_DISK copies all tracks on the selected partitions. This option slows the copy, and you should not normally use it.
-TTY	You answer all COPY_DISK prompts that require a yes or no answer from the terminal, even when you run COPY_DISK from a CPL program or a command input file.

For more information on COPY_DISK, see the *Data Backup and Recovery Guide.*

EDIT_PROFILE

EDIT_PROFILE is used by the System Administrator and Project Administrators to add, change, list, and delete information about users, projects, and their respective attributes. The functions of this command have been replaced at Rev. 23.0 by the CONFIG_USERS command, which is explained in Chapter 2, Dictionary of PRIMOS Operator Commands.

Format

EDIT_PROFILE [*pathname*] [*options*]

For more information on EDIT_PROFILE, see the *System Administrator's Guide, Volume III: System Access and Security.*

EVENT_LOG

EVENT_LOG is used to turn system or network event logging on or off on pre-Rev. 21.0 systems. For Rev. 21.0 or later versions of PRIMOS, this command does not work.

Refer to the DSM command DISPLAY_LOG in Chapter 2, Dictionary of PRIMOS Operator Commands, for information on system or network logging on Rev. 21.0 or later systems. Refer also to the *DSM User's Guide* for detailed information on the DISPLAY_LOG.

Format

EVENT_LOG [**-NET**] {**-ON** / **-OFF**}

Options

If you specify the –NET option, network logging is affected; otherwise, system logging is affected. If you specify neither –ON nor –OFF, –ON is assumed.

For more information on EVENT_LOG, see the *Operator's Guide to System Monitoring.*

LIST_TAPE

LIST_TAPE lists information about the contents of tapes created by the ARCHIVE, BACKUP, or TRANSPORT command. Before using LIST_TAPE, you must assign a tape drive unit with the ASSIGN command and mount the correct reel on the drive. The number of the drive unit is specified by *n* in the –MT *n* keyword. By default, the LIST_TAPE display includes the types and pathnames of files, directories, segment directories, and access categories recorded on the tapes. More details can be listed with LIST_TAPE options. Only System Operators or the System Administrator can list BACKUP tapes. Only the tape owner or the System Administrator can list ARCHIVE tapes. Any user can list TRANSPORT tapes.

Format

LIST_TAPE [*pathname*] –MT *n* [*options*]

Arguments and Options

pathname	Specifies the objects to be listed. You can use wildcards, iteration, and treewalking. LIST_TAPE lists the tapes and reel numbers that have the specified objects. If you do not specify a pathname, LIST_TAPE lists all the file system objects saved on the tape.
–MT *n*	Specifies the unit number of the tape drive on which the reel is mounted. *n* is the tape drive's unit number. The drive must be online and assigned to you.
–HELP	Starts the online Help facility.

For more information on LIST_TAPE, see the *Data Backup and Recovery Guide*.

LOOK

LOOK is an internal operator command that provides access to any user segment in the system. The LOOK command can be issued only at the supervisor terminal and must be preceded by an OPRPRI 1 command and followed by an OPRPRI 0 command.

Caution

This command is intended mainly as a debugging tool for the use of systems engineers and field analysts. The Operator and System Administrator normally have no use for it.

Format

LOOK [*–userno* [*segno* [*access* [*mapseg*]]]

Arguments

–userno	Number of the user owning the segment. The default is User 1.
segno	Number of the segment to be examined. The default is 6000 (the Ring 0 stack segment for the user).

access Access rights to be granted (as in the SHARE command). The default is 200_8 (read only).

mapseg Segment of User 1's address space into which the specified segment is to be mapped. The default is 4001_8.

WARNING

If you use the LOOK command to try to examine a segment that does not exist, to try to write to a segment that does exist, or to attempt to map either shared or stack segments with write permission, the command is considered risky or dangerous to system integrity. The `REALLY?` prompt is issued for any LOOK command whose request is considered to be dangerous to system integrity. If you respond `YES`, the operation proceeds. To override a LOOK command, specify 0 for *segno*.

For more information on LOOK, see the *System Administrator's Guide, Volume I: System Configuration.*

NETCFG

NETCFG is a command for pre-Rev. 19 systems. Do not use this command on a Rev. 19 or later system. Instead, use the CONFIG_NET command, which is documented in the *PRIMENET Planning and Configuration Guide.*

Format

NETCFG

For more information on NETCFG, see the *PRIMENET Planning and Configuration Guide.*

NUMSEMACL

The NUMSEMACL command (issued by either System Administrator or at the supervisor terminal) is useful only for systems that are maintaining strict C2 security. It forces all numbered semaphores used by PRIMOS to be ACL-protected. If your system is not a C2-secure system, using ACL-protected numbered semaphores can cause some products to stop working, and will exact a substantial performance penalty. You should use the NUMSEMACL –ON command only if you are certain that your system is strictly C2-secure.

Format

NUMSEMACL { -STATUS | -ON | -OFF }

Access Rights

Before using NUMSEMACL –ON, the you must provide authorized users an access right of Use (U) on subdirectories to the directory NUMSEM*: DEFAULT plus the optional directories SEM1, SEM2, SEM3, . . . SEM64. All users need the U access right to the directory NUMSEM* in order to successfully check their access rights to its subdirectories. Without U access to NUMSEM*, even users with authorized access to its subdirectories will receive an insufficient access error.

For more information on NUMSEMACL, see the *System Administrator's Guide, Volume III: System Access and Security.*

OPRPRI

OPRPRI, an internal command issued from the supervisor terminal, is implemented as a check against inadvertent or unauthorized use of the LOOK command that might adversely affect the system.

OPRPRI 1 must precede, and OPRPRI 0 must follow, the LOOK command.

Pre-Rev. 21.0 systems required the use of the OPRPRI command before and after the SHARE command. At Rev. 21.0 and later, this is no longer necessary.

Format

OPRPRI *n*

Argument

The argument *n* can be either 0 or 1.

0	Sets a safeguard against issuing the LOOK command. This is the default.
1	Removes the safeguard and allows the LOOK command to be given.

PHYRST

PHYRST restores to disk, the partitions that have been saved by PHYSAV on magnetic tape. At Rev. 23.0, COPY_DISK, PHYRST, and PHYSAV were replaced by PSR (although you can still use COPY_DISK, PHYRST, and PHYSAV if they are already on your system).

Format

```
PHYRST [ -NO_BADS
       | -SPEED { 25 }
       |        { 100 }
       | -TTY
       | -UNMOD ]
```

Options

-NO_BADS — Turns off badspot handling by PHYRST and causes PHYRST to ignore any badspots on the output disk: use this option with care. This option is useful if the source partition is nearly full, and the output partition might therefore overflow if badspot handling were enabled.

-SPEED { 25 | 100 } — Specifies the tape speed, and is used only when you write to a streamer tape drive. With these drives, speed automatically defaults to 100 ips (inches per second) or, if you assign the drive at a density of 3200 bpi (bits per inch), to 50 ips.

-TTY — Causes PHYRST to ask for the magnetic tape unit number at the terminal, even if you run PHYRST from a CPL program or a command input file.

-UNMOD — Prevents system hangs from occurring as a result of incorrect recovery from DMX overruns. Use this option only if your equipment has one of the following early model controllers: wire wrap disk controller boards without ECR 3748, or etched boards without ECRs 3062 and 3342.

For more information on PHYRST, see the *Data Backup and Recovery Guide.*

PHYSAV

PHYSAV writes to magnetic tape the contents of one or more assigned disk partitions. The copy is made track by track, record by record, in physical order. PHYSAV makes a mirror image of the disk, whereas BACKUP and MAGSAV make a copy of the disk in logical order; that is, they copy the records as they are connected logically in files. You do a physical save if there is a problem with a disk and it is necessary for an analyst to research the problem. The analyst would then probably need an exact copy of the disk. Otherwise, you would probably use BACKUP or MAGSAV. At Rev. 23.0, COPY_DISK, PHYRST, and PHYSAV were replaced by PSR (although you can still use COPY_DISK, PHYRST, and PHYSAV if they are already on your system).

Format

```
PHYSAV [ -COMDEV
       | -SPEED { 25 }
       |        { 100 }
       | -TTY
       | -UNMOD ]
```

Options

-COMDEV

Physically saves the command device. This option automatically shuts down the device, places it in the Assignable Disks Table, saves and then restarts the device. No Operator intervention is required. When COMDEV restarts, any event logging that was in effect when you invoked PHYSAV is reinstated. PHYSAV also restores a maximum of 10 priority ACLs.

-SPEED { 25 | 100 }

Specifies the tape speed, and is used only when you write to a streamer tape drive. With these drives, speed automatically defaults to 100 ips (inches per second) or, if you assign the drive at a density of 3200 bpi (bits per inch), to 50 ips.

-TTY

PHYSAV asks for the magnetic tape unit number at the terminal, even if you run PHYSAV from a CPL program or a command input file. Do not use -TTY if you plan to run the command input file as a Batch job or phantom, or if you want PHYSAV to take the magnetic tape unit number from the command input file.

-UNMOD	Prevents system hangs that are caused by incorrect recovery from DMX overruns. Use this option only if your equipment has one of these early model controllers: wire wrap disk controller boards without ECR 3748, or etched boards without ECRs 3062 and 3342.

For more information on PHYSAV, see the *Data Backup and Recovery Guide.*

PRINT_NETLOG

Prior to Rev. 21.0, PRINT_NETLOG invoked a utility program that analyzed a pre-Rev. 21.0 network event log file, produced a formatted output file that chronicled the network events represented in the file, and then displayed a message giving the pathname of the output file.

Refer to the DSM command DISPLAY_LOG in Chapter 2, Dictionary of PRIMOS Operator Commands, for information on viewing the network and system logs for Rev. 21.0 and later software. Refer also to the *DSM User's Guide* for detailed information on network logging with Distributed Systems Management (DSM).

Format

PRINT_NETLOG *treename* [*options*]

The *Operator's Guide to Prime Networks* explains how to use PRINT_NETLOG and describes the network event log messages output by PRINT_NETLOG. See also the discussion of EVENT_LOG and PRINT_SYSLOG in this appendix.

PRINT_SYSLOG

Prior to Rev. 21.0, PRINT_SYSLOG invoked a utility program that analyzed a pre-Rev. 21.0 system event log file and produced a formatted output file that chronicled the system events represented in the event log file.

Refer to the DSM command DISPLAY_LOG in Chapter 2, Dictionary of PRIMOS Operator Commands, for information on viewing the network and system logs for Rev. 21.0 and later software. Refer also to the *DSM User's Guide* for detailed information on system logging with Distributed Systems Management (DSM).

Format

PRINT_SYSLOG { *pathname* / TTY } [*options*]

Options

If you specify TTY, output is displayed at the user's terminal. If you specify neither TTY nor *pathname*, output is written to the file LOGLST in the current directory. Otherwise, output is written to the file *pathname*.

To specify the input file, which contains a binary-encoded log of system events, use the –INPUT option, which is described below. If you do not include the –INPUT option on the PRINT_SYSLOG command line, PRINT_SYSLOG uses the most recently created log file in the directory LOGREC*. System event log filenames are of the form LOG.*mm/dd/yy*. If PRINT_SYSLOG is unable to find a system event log file, it prompts for an input filename.

–CENSUS Totals the entries for each event in the input file and writes the totals to the output file or to the terminal. Only nonzero totals are displayed.

–CONTINUE Continues after a bad entry is found. PRINT_SYSLOG normally halts if it encounters an invalid entry. If you specify this option, PRINT_SYSLOG continues processing in an attempt to find the next valid entry.

–DEBUG Causes PRINT_SYSLOG to read entries from the terminal; used for testing PRINT_SYSLOG's formatting for entry types. Enter each entry as a series of tokens (using rules for RDTK$$). Octal tokens are converted to binary; all others are taken as ASCII strings. PRINT_SYSLOG leaves this mode of operation whenever you enter QUIT, Q, q, or a null line. (See the *Subroutines Reference III: Operating System* for information on RDTK$$.)

–DELETE Deletes the output file when done.

Note that this option should be specified only when the –SPOOL option is also specified.

–DUMP In addition to its normal formatting, PRINT_SYSLOG dumps each entry processed in octal. –DUMP is an additional aid to sites which define their own event types. Only those entries that have been selected for processing are dumped.

–FROM { *mmddyy* [*hhmm*] | TODAY }

Processes only entries from the date the latest entry. Specify TODAY instead of *mmddyy* to refer to today's date. After you specify the date, you may enter an optional time specification of the form *hhmm* (hours, minutes). A time entry may be from 0000 through 2359, inclusive. Omitting the time specification is equivalent to specifying 0000. PRINT_SYSLOG checks each entry individually to see whether its date/time stamp indicates that it should be formatted. An entry that is out of sequence (for example, the Operator entered the wrong date) will not turn on entry formatting prematurely.

–INPUT Specifies the pathname of the input log file to be processed. If you do not specify this option on the command line, PRINT_SYSLOG attempts to use the most recently created system event log file, as described above.

–PURGE Empties, but does not delete, the event-log input file when event-log processing is complete. Write access is required on the input file.

–REMARK Enters an event of type REMARK directly into the input file. This option can be used, for example, by an Operator who wishes to record an observation on some event that might affect the subsequent operation of the system. All text after the –REMARK option is entered into the input file. Consequently, –REMARK must be the last option specified on the command line. The message can contain a maximum of 80 characters and need not be surrounded by apostrophes. Write access is required on the input file.

–SPOOL Spools the output file when done. PRINT_SYSLOG displays the name of the output spool file.

–TYPE ***entrytype*** **...**

Processes only entries of the indicated *entrytypes*. *entrytype* can be any of the following:

Type	*System Event*
COLD	Cold start
WARM	Warm start
TIMDAT	Time/date entry
CHECK	Machine check (including memory parity)
DISKER	Disk error
OVERFL	LOGBUF overflow entry
SHUTDN	Operator shutdown
CHK300	P300 machine check

PAR300	P300 memory parity check
MOD300	P300 missing memory module check
TYPE10	Entry for type 10
TYPE11	Entry for type 11
TYPE12	Entry for type 12
TYPE13	Entry for type 13
TYPE14	Entry for type 14
TYPE15	Entry for type 15
DSKNAM	ADDISK entry
POWERF	Power fail check
SETIME	Operator issued a SETIME command
QUIET	Machine check mode now quiet
REMARK	Operator remark
PACL	Priority ACL set
SENSOR	Sensor check
ECCULO	ECCU error, process logged out
BADENT	Bad entry

Note that the time/date stamps associated with the selected entries are not processed unless you select TIMDAT explicitly. For example, –TYPE DISKER TIMDAT processes all disk errors and their associated time/date stamps. If you specify TIMDAT alone, all time/date stamps are processed. If you specify TIMDAT in conjunction with one or more other *entrytypes*, only the time/dates of the selected *entrytypes* are processed. If you do not specify the –TYPE option, all entries are processed.

–HELP Displays a list of PRINT_SYSLOG options. You must reenter the PRINT_SYSLOG command after the options are displayed.

System event logging is controlled by the EVENT_LOG command.

EVENT_LOG and PRINT_SYSLOG are discussed in the *Operator's Guide to System Monitoring*, which also contains a list of system event log messages displayed by PRINT_SYSLOG. See also the discussion of EVENT_LOG and PRINT_NETLOG in this appendix.

TRANSPORT_RESTORE

The Backup and Recovery Management Service (BRMS) command TRANSPORT_RESTORE restores file system objects to disk from a tape created by the TRANSPORT command. Before using TRANSPORT_RESTORE, you must assign the tape drive with the ASSIGN command.

Format

TRANSPORT_RESTORE ***pathname*** **[*new-pathname*] –MT *n* [*options*]**

Arguments and Options

pathname	Specifies the directory, segment directory, or file to be restored. *pathname* can be a wildcard name and can use the treewalking option.
new-pathname	Renames an object as it is restored or specifies a location for the object other than your current attach point.
–MT *n*	Specifies the tape drive on which the tape is mounted. *n* is the tape drive's unit number.
–HELP	Starts the online Help facility.

Usage

A TRANSPORT tape created at one Prime site with the TRANSPORT command can be copied to disk at another Prime site with the TRANSPORT_RESTORE command.

See also LIST_TAPE in this appendix. See the *PRIMOS Commands Reference Guide* for information on TRANSPORT and TRANSPORT_RELEASE.

For more information on TRANSPORT_RESTORE, see the *Data Backup and Recovery Guide*.

Glossary

absolute pathnames
Pathnames that begin with root (<). Absolute pathnames are fully qualified pathnames.

access control list (ACL)
A list of users and their access rights to file system objects as produced by the LIST_ACCESS command.

ACL
See access control list.

added partition
A PRIMOS file system partition that is added to the system, or started, by the ADDISK command for user input.

Assignable Disks Table
A table kept by PRIMOS that lists the pdevs of disks that may be assigned by a single user.

assignable disks
Disks listed in the Assignable Disks Table by pdev and that may be assigned by a single user.

assigned partition
A partition that has been assigned to one user for that user's exclusive use and is unavailable as a file system partition.

badspot
A physical defect in the disk media that prevents data from being correctly read from or written to the disk. It is identified by either a record address within the partition or by a combination of head, cylinder, and sector number.

BADSPT file
The Nondynamic Badspot Handling (–DBS OFF or –AC) mode file listing badspots on a partition. There is one MFD>BADSPT file per partition if there

are badspots on the partition. This file consists of physical addresses of each badspot on the partition.

BRA
Beginning record address; the address of the beginning of a record.

buffer
To temporarily store records as an intelligent disk controller does when reading records.

cache
See buffer.

CAM
See Contiguous Access Method.

catch-up copy
The copy initiated when PRIMOS determines that two partitions that are to be mirrored are not identical either because their date and time of shutdown (DTS) stamps are not the same or because the two partitions were not started at the same time.

CMD
Cartridge module device; a type of physical disk for file system storage that has a removable portion and a fixed portion.

COMDEV
The PRIMOS system command device; the logical disk where PRIMOS and related files exist; logical device 0 (ldev 0).

common file system name space
The PRIMOS file system name space at Rev. 23.0 and subsequent revisions. A file system where users on different systems share a common and complete view of the file system hierarchy.

Contiguous Access Method (CAM)
A method of allocating and storing records in a file. The file records are stored contiguously in extents. PRIMOS accesses the records by reading an extent map.

cylinder
The intersection of individual tracks on all the surfaces of a disk; for example, if a geometrical solid was passed through track 123 of each surface of a physical disk, it would form a cylinder. *See also* disk formatting.

DAM
See Direct Access Method.

DBS
The dynamic badspot file. This file contains addresses of all the known badspots for an entire physical disk. It also contains a list of all of the available remapping records. All badspots are matched to a remapping record. Additional remapping records are available for new, or dynamically occurring, badspots. *See also* dynamic badspot.

Direct Access Method (DAM)
A method of allocating and storing records in a file. PRIMOS accesses the records by reading an index to them.

disk
Generally used to refer to a partition but also used as a term for a disk drive and disk pack.

disk drive
The peripheral device that contains the physical disks and the hardware and electronic circuitry to accomplish reading and writing on the physical disk surfaces. The disk drive may be external to the system or it may be internal (as in the case of 2455 systems). Also referred to as a disk storage device and drive unit.

disk geometry
The physical attributes of a physical disk such as the number of cylinders, or tracks, per surface; the numbers of sectors, or records, per track; and the number of surfaces. These attributes are defined by a physical device number for disk partitions.

disk formatting
Preparing disks for use by PRIMOS. Disk controllers store the location and any auxiliary information in the disk header for each sector on the disk. Cylinder, head (or surface), and sector values are stored with each sector. Cylinders are numbered from the outermost to the innermost. Heads are numbered from the top surface to the bottom surface on the disk. Sectors within a track are currently numbered in a clockwise, or forward, order from sector 0 to the maximum number of sectors per track minus one.

Disk Information Table
A table of logical device numbers (ldevs) consisting of four arrays of 62 words each containing this information for each partition:

- pdev for each ldev
- Sectors per track
- Total number of records
- Number of words per record

disk mirroring
The creation of two logically equivalent partitions that store the same data such that, if either partition fails, the other can be used in its place.

disk pack
The physical disks that are removable from a disk drive as in the case of the 80MB and 300MB SMDs. Also used to refer to physical disks in general. *See also* disk drive; Winchester disk.

DSKRAT
The Disk Record Availability Table. The DSKRAT contains disk geometry information for each partition and bit positions for each record on the disk. These bits are either set (=1) indicating that a record is available for file system use or are reset (=0) indicating that a record is in use.

dual-ported disk drive
A disk drive that can be attached to two systems simultaneously although only one system has control over the disk drive at any moment.

dynamic badspot
A badspot on a disk that was either not found and remapped previously or developed dynamically due to progressive media degradation. *See also* DBS.

dynamic badspot handling
The process whereby a disk controller, upon detecting a badspot, remaps the record containing the badspot to another good record on the partition.

Dynamic Badspot Handling (-DBS ON or -IC) mode
A state of a disk that allows intelligent disk controllers to handle badspots and to allow mirroring on these partitions. This disk mode is not compatible with nonintelligent controllers.

equivalence blocks
Describes where one record is actually stored on the partition. There is one equivalence block for every remapped record on a partition. These equivalence blocks are stored in the BADSPT file of the target partition. They are created by COPY_DISK and PHYRST in order to indicate that badspot handling has taken place for the partition to which data were copied (the target partition). Until the equivalence blocks are deleted by FIX_DISK, the partition must not be used for any purpose.

extent
Groups of contiguous records in CAM files.

extent map
An index of the extents in a CAM file used by PRIMOS to locate and retrieve CAM file records.

external commands
Programs that are stored in a special top-level named CMDNC0.

fast FIX_DISK
FIX_DISK with the –FAST option. Fast FIX_DISK should be used only on robust partitions. The use of the –FAST option causes FIX_DISK to check only directory entries, including CAM file extent maps, the DSKRAT, and the quota system on robust partitions.

file system disk
A logical disk, or partition, used by PRIMOS to store system and user files.

first partition
The partition of a physical disk that contains the first surface (starting surface 0) of the disk; thus, the first four bits of its pdev are 0. On a physical disk partitioned by MAKE at Rev. 21.0 and later, the first partition contains the dynamic badspot file (DBS) and the remapped area (RMA) for all the partitions on that physical disk.

Fixed-Media Disk
See FMD.

flaw
A badspot; an area of the physical disk that cannot store data.

flaw map
A list of flaws provided by the disk manufacturer and written on an unused cylinder of the disk. The flaw map is available for MAKE to read. Also sometimes refers to a list of badspots written on paper and affixed to the physical disk by the disk manufacturer. The Operator can then enter these badspots manually by using the appropriate MAKE or FIX_DISK options.

FMD
Fixed-Media Disk; a type of physical disk for file system storage that includes the sealed storage media and the disk drive. Sometimes referred to as a Winchester disk.

formatting
Using MAKE to prepare a physical disk for file system or paging use. MAKE writes physical record headers onto the partition that are recognizable to PRIMOS.

forward sectoring
A method of file record allocation used by PRIMOS in which the next record to be allocated is three sectors forward of the last record; the interleave factor is 3. *See also* interleaving; interleave factor; reverse sectoring.

full FIX_DISK
FIX_DISK without the –FAST option. Full FIX_DISK checks (and repairs if you use the –FIX option) the entire file system.

fully qualified pathnames
Any pathname that explicitly or implicitly starts with the root entry name or disk partition name. Fully qualified pathnames are unambiguous and do not use search rules. In a multi-rooted file system, pathnames begin with the name of the disk partition. In a singly-rooted file system, pathnames begin with the name of the root directory.

Global Mount Table (GMT)
Contains a list of all disk partitions and their mount-point pathnames.

GMT
See Global Mount Table.

hashing
The use of an algorithm by PRIMOS to rapidly access data or records within a partition. Directories on robust partitions and non-ACL directories are not hashed; only ACL-protected directories are hashed.

head
The physical device that reads data from the disk surfaces; newer disks may contain more than one read head per disk surface. This term is also used synonymously with *surface* when referring to the number of surfaces in a partition.

intelligent disk controller
A microprocessor-based disk controller that is capable of buffering data, of using algorithms to perform the read and write operations on a disk, and of dynamically remapping badspots that occur on the disk. A nonintelligent disk controller does not have these capabilities. An intelligent disk controller must be used for disk mirroring because it provides dynamic badspot handling.

interleave factor
The sector gap between consecutively allocated records. It is 3 for forward sectoring and 1 for reverse sectoring. *See also* interleaving; forward sectoring; reverse sectoring.

interleaving
The order of writing records to disk so as to maximize the potential for the sequentially next record of a file to be under the read head of the disk after processing of the current record is complete. *See also* interleave factor.

internal commands
Part of PRIMOS itself.

ldev
An octal number from 0 through 355 (0 through 237, decimal) that is assigned to a partition when the partition is started by the ADDISK or the STARTUP command. It also indicates the location of the pdev of the added PRIMOS file system partition in the Disk Information Table.

List File
A file you create prior to making a system boot tape. It contains the pathnames of all the directories and files necessary to restore your system to normal working order.

local partitions
Partitions that are connected to your system. *See also* partition.

logical device number
See ldev.

logical disk
Synonymous with partition or logical device. A logical division of a physical disk used for file storage or for paging.

logical file type
What a subroutine or utility creating a file sets the file type to be as opposed to how the file is physically arranged on the storage media (the *physical* file type). For example, all user files on a robust partition are physically arranged as CAM files but the software creating the file may set the file type to SAM or DAM; thus, the files are logically created as SAM or DAM files.

logical save
Saving of records as logical entities such as files as opposed to a physical save. The MAGSAV and MAGRST utilities save and restore records logically. *See also* physical save.

Master File Directory (MFD)
The highest level directory on a partition; each partition contains one MFD. The MFD contains a file that is an index to each top-level directory and file in the partition, or MFD. Also refers to the partition itself.

MFD
See Master File Directory.

mount-point pathnames
Disk partition directory names of up to 32 characters. Although entries in the root directory represent disk partitions, they can have names other than the disk name. Therefore, the disk name is no longer a component in the pathname.

multi-rooted file system name space
The PRIMOS file system structure before Rev. 23.0. It is a file structure where each partition is a separate and distinct naming tree for locating file system objects.

Name Server
A process that ensures contents of the root directory on all Rev. 23.0 and subsequent systems in the name space are identical. If disks are added or removed from the root directory of a system within the name space, the Name Server on that system updates the root directory on each system in the name space.

Nondynamic Badspot Handling (–DBS OFF or –AC) mode
The state of a disk that allows all disk controllers (intelligent and nonintelligent controllers) to access the disk. The badspot handling process consists of adding badspots to the file BADSPT automatically by MAKE; adding badspots manually by using the appropriate MAKE or FIX_DISK options; copying badspots from other partitions by using the appropriate MAKE or FIX_DISK options; and adding badspots from vendor flaw maps.

nonintelligent disk controller
A disk controller that is incapable of buffering data and that can execute only one command at a time. *See also* intelligent disk controller.

operator commands
Commands that are generally used by an Operator or a System Administrator, or entered at the supervisor terminal. These commands control and monitor the system itself, and give special authority to their users.

paging
Moving files that are not currently in use out of main memory to a designated area of disk storage referred to as the paging device. This technique makes it appear as if the system has more memory than it actually does and is the basis for virtual memory.

paging partition
A logical disk where paging records reside; used by PRIMOS for paging as part of the virtual memory space. Paging partitions are always automatically split beginning at Rev. 20. Also referred to as *paging disks*. A Rev. 21.0 or later system can have a maximum of eight paging partitions.

partition
A logical grouping of physical disk surfaces that provides a logical range of disk record addresses. This area is defined by the DSKRAT and by the physical device number (pdev) of the partition.

partitioning
Use of MAKE to format physical disks. The disks may be segregated into logical divisions called partitions. A partition may contain the entire physical disk or the disk may be divided into many partitions.

pdev
A 16-bit octal number that defines to the file system a range of surfaces as a logical partition of a physical disk and that specifies the disk controller address and a disk drive unit number. The location and size of a partition are described by starting surface (surface offset), number of surfaces, drive unit number, and controller address.

physical device number
See pdev.

physical disk
An entire multi-surface disk (SMD, CMD, or FMD) containing 1 through *n* partitions.

physical file type
How the file is physically organized on the disk as opposed to what the logical file type is set to by the routine creating the file. When a command such as LD lists file type, the type listed is the *logical* file type.

physical save
Saving of records in the order that they are stored on the disk without consideration for what file they belong to. The utilities PHYSAV and COPY_DISK use a physical save. *See also* logical save.

portal
A file system object that serves as a gateway to another file system name space.

primary partition
The main partition of a mirrored pair of partitions; the partition from which a catch-up copy is made. *See also* secondary partition.

RAT
The Record Availability Table, which contains a header that describes the partition and a bit map that indicates which records are available for use and which records are in use. Synonymous with DSKRAT.

Recovery Based File (RBF)
A type of ROAM file.

remapped area (RMA)
An area of the first partition on a physical disk that is set aside to contain records that would be written into badspots but that are instead written to the RMA by an

intelligent disk controller. This area of the disk is normally accessed only by the intelligent controller but is also accessed by FIX_DISK when converting to Nondynamic Badspot Handling (–DBS OFF or –AC) mode, in which case these records are read directly before their pointers are restrung into their parent file. The RMA records are marked as in-use in the DSKRAT and are never directly accessed by PRIMOS. The RMA records are full disk records that contain parts of various files that the file system initially attempted to write to badspots.

RMA
See remapped area.

remote partitions
Partitions that are connected to other systems in the network of which your system is a part. *See also* partition.

reverse sectoring
A method of file record allocation used by PRIMOS in which the next record to be allocated is one sector behind the last record such that logically contiguous records are adjacent to one another. The interleave factor in this case is 1. *See also* interleaving; interleave factor; forward sectoring.

robust partition
A PRIMOS file system partition that contains CAM files only and that is designed to be less subject to disk errors resulting from system halts and that can generally be rapidly repaired by using fast FIX_DISK.

root directory
A directory, designated as (<), that resides at the uppermost level of the file system hierarchy (above the MFD). It contains only directories that correspond to the MFDs of local and remote disk partitions.

root entryname
The mount-point directory of a mounted disk partition (local or remote). It corresponds to the symbolic PRIMOS directory referred to as an MFD. All directory names following the root symbol in an absolute pathname are root entrynames.

SAM
See Sequential Access Method.

secondary partition
The alternate partition of a mirrored pair of partitions and the partition that the primary partition is copied during the catch-up copy process. *See also* primary partition.

sector
A portion of a track on the surface of a disk. A sector contains one record, or

block, of data and, on PRIMOS disks, contains 2048 bytes of user data and 32 bytes of housekeeping data.

SEGDIR
See Segment Directory.

Segment Directory (SEGDIR)
Contains entries referenced by file numbers from 1 through 6535 rather than by filenames. File are referred to as subfiles. Generally used by programs rather than by users.

Sequential Access Method (SAM)
A method of allocating and storing records in a file. The file records are accessed sequentially such that to get to a record in a file, all previous records in the file must be read by PRIMOS.

singly-rooted file system name space
The PRIMOS file system structure at Rev. 23.0 and subsequent revisions. It is a structure where all file system objects, no matter where they are located, stem from a single root directory instead of many disk partitions.

SMD
Storage module disk; a type of physical disk for file system storage that can be removed from the disk drive.

spindle
An entire physical disk consisting of all heads, or surfaces, on the disk. A spindle can be partitioned into logical disks, or partitions. *See also* physical disk.

split partition
A logical partition that that has part of its storage space reserved for file system use and part reserved for paging use. *See also* paging partition.

standalone
Refers to a program that can be booted to run by itself without the services of PRIMOS. An example is MAKE.SAVE.

standard partition
A nonrobust partition. The type of PRIMOS file system partition always created prior to Rev. 22.1. Full FIX_DISK must be used to repair standard partitions.

static badspot
A badspot that is present on the disk surface and that is detected by MAKE when the partition is first created.

Storage Module Disk
See SMD.

supervisor terminal
A term that refers to both the physical supervisor terminal and a logical supervisor terminal that has been enabled by the RESUS command.

surface
The magnetic area of a disk where data is actually stored (written to) and retrieved (read from). Groups of surfaces constitute partitions and all partitions on a physical disk except the last must contain an even number of surfaces.

survivor
Describes the most up-to-date and usable partition of a mirrored pair when the mirror breaks.

tape index
A list of files that have been saved by MAGSAV on a tape.

top-level directory
The directories at the highest level in the file system tree structure immediately inferior to the Master File Directory (MFD). These directories contain files and other directories referred to as subdirectories. CMDNC0 is a top-level directory on the command device.

user commands
Commands that are generally available to any user and which affect only that user's work.

user disks
Disks or partitions used for the storage and retrieval of user files. These disks are prepared for use by the MAKE utility.

virtual memory
Disk storage memory that is used by PRIMOS in the paging process with the result that the system appears to have considerably more physical memory than actually exists. Use of virtual memory provides each user with 512MB of virtual address space. *See also* paging.

volume
Term used synonymously with disks and partitions. *Volume* may also refer to an entire physical disk as one logical disk.

Winchester disk
A sealed disk subsystem in which the physical disks and their associated disk drive and circuitry are all contained. A Fixed-Media Disk (FMD).

Acronyms

ACAT	Access Category
ACK	Acknowledgment Character
ACL	Access Control List
AMLC	Asynchronous Multiline Controller
ANSI	American National Standards Institute
ASR	Automated System Recovery
bps	bits per second
BRA	Beginning Record Address
BRMS	Backup and Recovery Management System
CAB	Change Asynchronous Buffers
CAM	Contiguous Access Method
CMD	Cartridge Module Device
CMDNC0	Command Directory Non-chargeable 0
COMDEV	Command Device
COMI file	Command Input file
COMO file	Command Output file
CPIO	Copy Files In/Out
CPL	Command Procedure Language
cps	characters per second
CRA	Current Record Address
DAM	Direct Access Method
DBMS	Data Base Management System
DBR	Data Backup and Recovery
DBS	Dynamic Badspot
DCD	Data Carrier Detect
DBG	Prime Source Level Debugger
DML	Data Manipulation Language
DMQ	Data Management Queue
DMT	Direct Memory Transfer
DPTX	Distributed Processing Terminal Executive
DRB	Data Recovery and Backup
DSC	Data Set Control
DSKRAT	Disk Record Availability Table
DSM	Distributed Systems Management
DSS	Data Set Sense
DTA	Date/Time Accessed
DTAR	Descriptor Table Address Register
DTB	Date/Time Backed Up
DTC	Date/Time Created
DTM	Date/Time Modified
DTS	Date/Time of Shutdown
ECS	Extended Character Set
EOF	End of File
EPF	Executable Program Format
ESD	Electrostatic Discharge
EVFU	Electronic Vertical Format Unit
FAM	File Access Manager
FAU	File Administrator Utility
FMD	Fixed-Media Disk
FTGEN	File Transfer Generation
FTOP	File Transfer Operator
FTS	File Transfer Service
funit	file unit number
FUV	Forced User Validation
GMT	Global Mount Table
HDX	Half Duplex
IAP	Initial Attach Point
IBS	Input Buffer Size

ICE	Initialize Command Environment
ICOP	Intelligent Channel-Order Protocol
ICS	Intelligent Communications Subsystem
IDC	Intelligent Disk Controller
ips	inches per second
ISC	InterServer Communications
LAN	Local Area Network
LAN300	Prime Proprietary Local Area Network
LBOT	Logical Beginning of Tape
ldev	logical device number
ldn	logical device number
LEOT	Logical End of Tape
LHC	LAN Host Controller
LHC300	LAN Host Controller 300
LT	Logical Tape
LTS	LAN Terminal Server
MDLC	Multiline Data Link Controller
MFD	Master File Directory
MP	Maintenance Processor
MT	Magnetic Tape
MTRS	Maximum Tape Record Size
NAK	Negative Acknowledgment
NTS	Network Terminal Service
OBS	Output Buffer Size
pdev	physical device number
pdn	physical device number
PF	Programmable Function
PIM	PRIMENET Information Monitoring
PMA	Prime Macro Assembler
PNC	Prime Node Controller
Prime ECS	Prime Extended Character Set
PSD	Prime Symbolic Debugger
PSDN	Packet Switched Data Network
PSR	Physical Save and Restore
RAS	Reliability, Availability, and Serviceability
RAT	Record Availability Table
RBF	Recovery Based File
RFA	Remote File Access
RFC	Reverse Flow Control
RFS	Resident Forced Shutdown
RJE	Remote Job Entry
RJOP	Remote Job Operator
RMA	Remapped Area
ROAM	Recovery Oriented Access Method
SAD	System Administration Directory
SAM	Sequential Access Method
SCSI	Small Computer System Interface
SDF	Site Definition File
SEGDIR	Segment Directory
SEGSAM	Sequential Access Segment Directory
SIM	System Information and Metering
SIT	Standard Internationalization Tool
SMD	Storage Module Disk
SMLC	Synchronous Multiline Controller
TAR	Tape Archive Routine
UT	Universal Time
VBE	Virtual Buffer Emulator
VCP	Virtual Control Panel
VMFA	Virtual Memory File Access

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Surveys

Reader Response Form
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