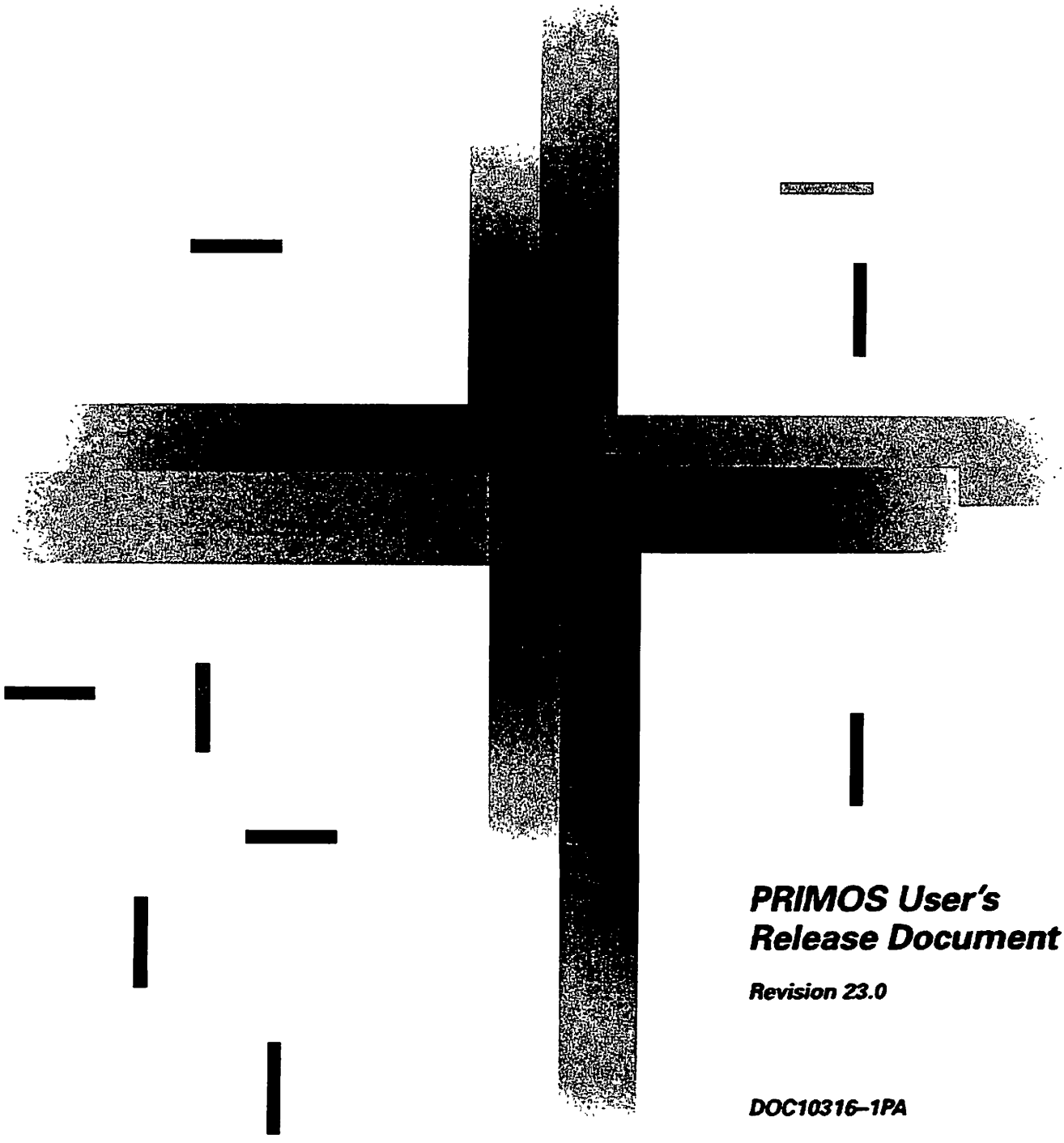
COMPUTERVISION



PRIMOS User's Release Document

Revision 23.0

DOC10316-1PA

PRIMOS User's Release Document

First Edition

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and
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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 23.0 (Rev. 23.0).

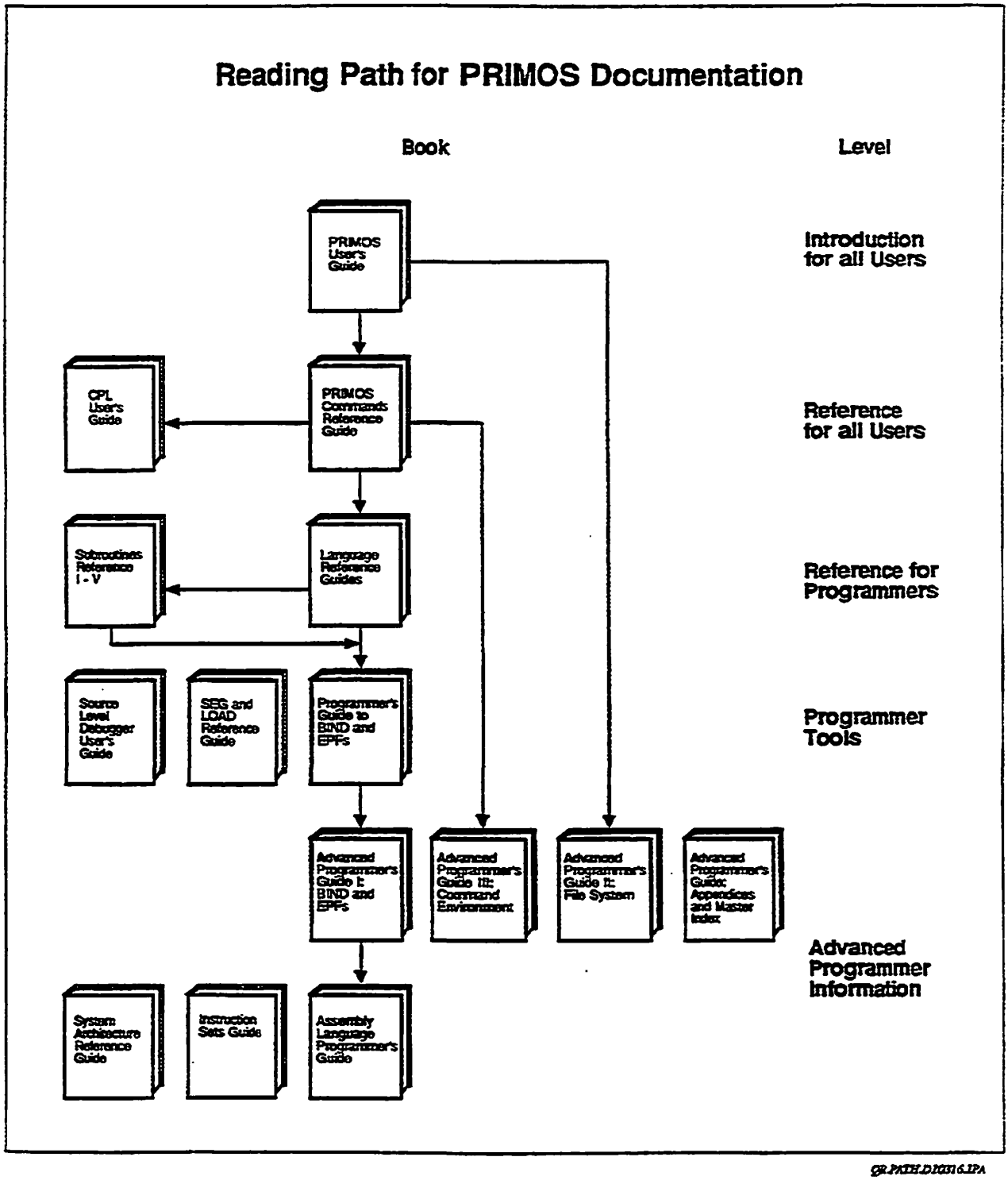
Prime Computer, Inc., Prime Park, Natick, MA 01760

Printing History

First Edition (DOC10316-1PA) June 1990 for Rev. 23.0

Credits

Editorial: Judith Goodman
Project Support: Bill Huber, Stan Luke, Lois Conrad, George Gove, and Roberta King
Illustration: Carol Smith
Production: Judy Gordon



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ABOUT THIS BOOK

The *PRIMOS User's Release Document* describes the changes and additions to the PRIMOS© operating system at Revision 23.0 for the general PRIMOS user. Among these changes are

- A singly-rooted file system structure
- A common file system name space
- Changes to the meaning of pathnames and disk names
- New PRIMOS commands

This release document is divided into two chapters. The first chapter describes the changes to the PRIMOS file system at Rev. 23.0. The second chapter provides descriptions of PRIMOS commands that are new or changed at Rev. 23.0. For more information on new features and commands at Rev. 23.0 for System Administrators and Operators, see the *Rev. 23.0 Software Release Document*.

OTHER PRIMOS USER DOCUMENTATION

The following documentation contains detailed information for the general PRIMOS user, and should be used in conjunction with the *PRIMOS User's Release Document* for Rev. 23.0.

- *PRIMOS Commands Reference Guide* (DOC3108-7LA) contains detailed information on user comands. *PRIMOS Commands Reference Guide Release Notes for Rev. 22.1* (RLN3108-71A) describes the TALK command. TALK invokes a message facility in which two users may send and receive text interactively on the terminal screen.
- *PRIMOS User's Guide* (DOC4130-5LA) explains the PRIMOS file management system and provides introductory and tutorial information about essential commands and utilities.

ADDITIONAL PRIMOS DOCUMENTATION

The *PRIMOS User's Release Document* for Rev. 23.0 contains references to the following documentation for the System Administrator, Operator, and Programmer.

- *Rev. 23.0 Software Release Document* (DOC10001-7PA) provides a summary of both new and enhanced functionality to Prime® user software at Rev. 23.0.
- *Operator's Guide to System Commands* (DOC9304-5LA) is a reference guide containing the PRIMOS commands used most often by System Administrators and Operators.
- *User's Guide to Prime Network Services* (DOC10115-1LA, Rev. 21.0, and UPD10115-11A, Rev. 22.1) provides tutorial and reference information on remote file access, remote login, File Transfer Service (FTS), and NETLINK. This book is intended for users who are familiar with PRIMOS commands.
- *Rev. 23.0 Prime Networks Release Notes* (RLN10252-1LA) describes the changes to the PRIMOS file system for System Administrators and Operators who plan and configure networks.
- *System Administrator's Guide, Volume I: System Configuration* (DOC10131-3LA) is the first of three volumes of the System Administrator's Guide set. It describes the System Administrator's responsibilities, and describes how to plan and configure a system, including some installation information.
- *System Administrator's Guide, Volume III: System Access and Security* (DOC10133-3LA) documents all the security features available on the PRIMOS operating system. It also describes environmental factors and orderly procedures necessary to maintain the security of terminals, peripherals, and storage media.
- *Operator's Guide to File System Maintenance* (DOC9300-4LA, Rev. 22.0, and DOC9300-5LA, Rev. 22.1) describes the PRIMOS file system and explains how to format partitions, run the disk maintenance program, determine physical device numbers, and interpret disk error messages.
- *Advanced Programmer's Guide I: BIND and EPFs* (DOC10055-2LA) is for all users of Prime computers who write programs in compiled, high-level languages (such as COBOL and FORTRAN) or in assembler (PMA), all of which require the use of a linker. This book describes BIND, a linker introduced at Rev. 19.4, and Executable Program Formats (EPFs), the type of runfile generated by BIND.

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_MOUNTS**
italic	In command formats, words in lowercase bold italic indicate variables for which you must substitute a suitable value. In text and in messages, variables are in non-bold lowercase italic.	**LOGIN** ***user-id*** Supply a value for *x* between 1 and 10.
Bold type	Bold type is used within text to introduce and define new terms to the user.	**root directory**
Underscore	In examples, user input is underscored; system prompts and output are not.	OK, list_epf
Abbreviations	If a command or an option has an abbreviation, the abbreviation is shown below the full name.	**-HELP** **-H**
Terminal Keys [Key]	In text, any reference to specific terminal keys are represented by the key symbol.	[Ctrl]
Brackets []	Brackets enclose a list of one or more optional items. Choose none, one, or several of these items.	**LD** [**-BRIEF** **-SIZE**]
Braces {}	Braces enclose a list of items. Choose one and only one of these items.	**CLOSE** {***filename*** **-ALL**}
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.	**BIND** [{***pathname*** ***options***}]
Hyphen -	Wherever a hyphen appears as the first character of an option, it is a required part of that option.	**SPOOL -LIST**

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THE PRIMOS FILE SYSTEM

This chapter briefly describes the PRIMOS file system as it existed prior to Rev. 23.0, and describes the changes to the PRIMOS file system at Rev. 23.0.

THE PRIMOS FILE SYSTEM STRUCTURE BEFORE REV. 23.0

The pre-Rev. 23.0 PRIMOS file system organizes file system objects in a hierarchical tree structure.

A system typically consists of many logical disk partitions, and each partition forms a distinct naming tree with other directories and files underneath.

The MFD of each disk partition appears at the uppermost level of the file system naming tree. Top level directories occupy the next level (beneath the MFD of each partition), and these directories contain other directories and files. This structure is called a **multi-rooted file system name space** because each partition is a separate and distinct naming tree for locating file system objects. Figure 1-1 shows the multi-rooted PRIMOS file system structure as it exists before Rev. 23.0.

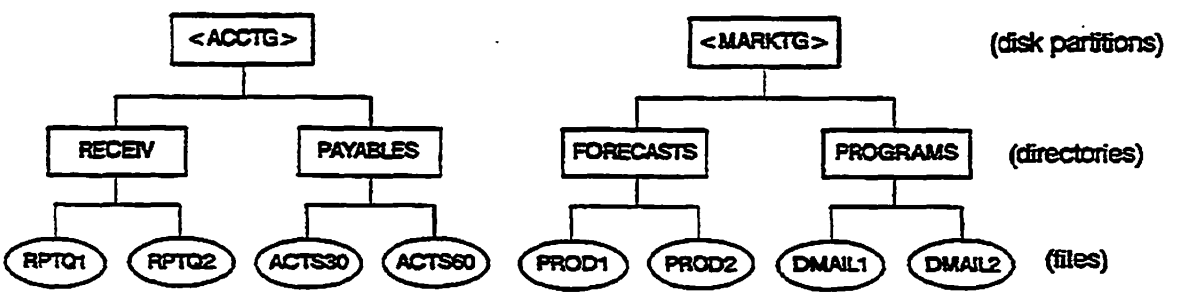

Figure 1-1. Multi-rooted File System Name Space

Locating Objects in a Multi-Rooted Name Space

In a multi-rooted name space, fully-qualified pathnames begin with the name of the disk partition. For example, in the fully-qualified pathname <MARKTG>FORECASTS>PROD1, MARKTG is the disk name, FORECASTS is a directory name, and PROD1 is the object name. The disk partition may reside on the local system, or it may reside on a remote system if your system is networked.

A multi-rooted name space is limited in certain instances. For example, if your system is part of a network, and you wish to access a file system object located on a remote system, you must be sure that the name of that remote disk is added to your system's local disk table. If the remote disk is not added to your system's local disk table, you cannot access it.

The disk table lists the disk partitions added to the local system. If your system is part of a network, the disk table also lists any remote disk partitions that have been added to your system. To see which disks are available to your system, you issue the STATUS DISKS command.

CHANGES TO THE PRIMOS FILE SYSTEM AT REV. 23.0

This section describes the changes to the PRIMOS file system at Rev. 23.0, and explains how these changes affect the way you use the file system.

At Rev. 23.0, the PRIMOS file system is transformed from a multi-rooted file system name space to a singly-rooted file system name space. A new directory, called the **root directory**, now resides at the uppermost level of the file system. This structure is called a **singly-rooted file system name space** because all file system objects, no matter where they are located, stem from a single root directory instead of many disk partitions.

The root directory contains only other directories, also known as **root entries**, that represent the MFDs of disk partitions. These partitions are physically located either on the local system or on remote systems (if your system is part of a network).

Notice that in Figure 1-2 below, all of the entries in the root directory appear as directories, not disk partitions. Although these directories represent disk partitions, they are added to the system logically as directories.

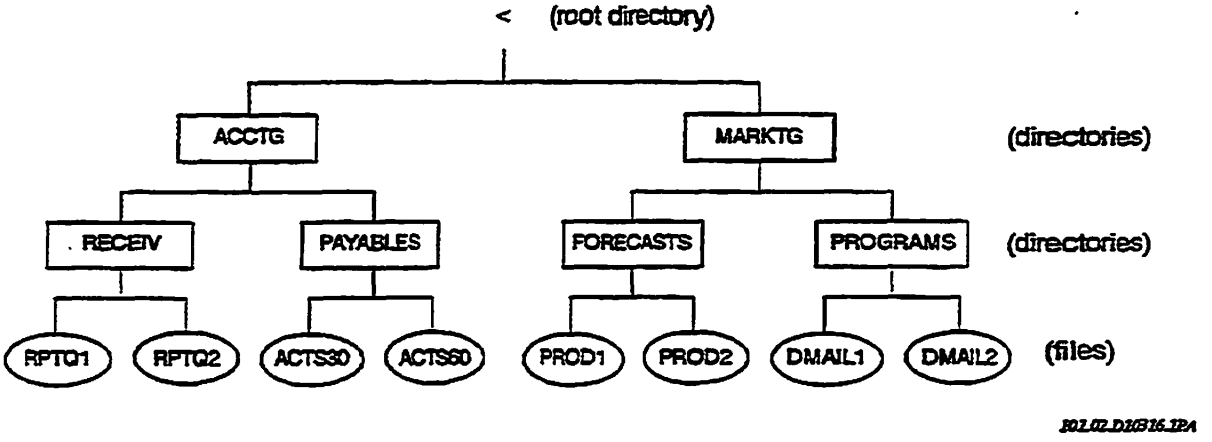

Figure 1-2. Singly-rooted File System Name Space

Locating Objects in a Singly-rooted File System Name Space

The switch to a single root directory introduces two new forms of pathname syntax used to locate file system objects:

< (the less-than symbol) for the root directory

<DIRECTORY
for a root entry or a directory in the root that represents the MFD of a disk partition.

All other pathname forms that existed before Rev. 23.0 are still valid; fully-qualified pathnames still begin with either < or =>.

You can attach to the root directory and list its contents as shown below:

```
OK, a <
OK, ld

< (LU access)

6 Directories.

ACCTG           EMPREL          MARKTG
PAYROL          RESRCH          SALES

OK,
```

(The ACL on the root directory is LU and cannot be changed.)

The following example shows how to attach to a directory in the root with the new pathname syntax <DIRECTORY.

```
< (LU access)

6 Directories.

ACCTG           EMPREL          MARKTG
PAYROL          RESRCH          SALES


OK, a <acctg
OK, ld

<ACCTG>MFD (LUR access)

11 Files.

ACCTG           BOOT            DYNBSP          MEMOSQ1
MEMOSQ2         MEMOSQ3         MEMOSQ4         RPTQ1
RPTQ2           RPTQ3           RPTQ4

3 Directories.

MFD             PAYABLES        RECEIV
```

Note

The LD display continues to show the directory as <ACCTG>MFD for compatibility with systems running previous revisions of PRIMOS.

CHANGES TO FILE SYSTEM NAME SPACES

Before Rev. 23.0, each system had its own file system name space, and each disk partition on a system formed a distinct naming tree for locating file sytem objects. At Rev. 23.0, your System Administrator can define what is known as a common file sytem name space among a collection of systems in a network.

Within a common file system name space, all fully-qualified pathnames of file system objects that you can access from your system are unique. These unique pathnames are the same on every system within the name space because the root directory is identical on every system.

A common file system name space is accomplished by running a new process called the Name Server on all systems within the name space. The Name Server ensures that the contents of the root directory on all Rev. 23.0 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.

Within a common file system name space, you can access up to 1280 local and remote disk partitions, instead of 238.

Access Limitations

There are instances when you cannot access certain directories, even though the root directory lists them.

- Your system must have RFA access to the remote system in order for you to access a directory or a file that resides on the remote system.
- If a remote system forces user validation (FUV) on your system, you must use the ARID command to attach to a directory or access a file on that system. If you attempt to attach to a directory or access a file and get the error message `Slave Validation error`, then you need to use the ARID command.
- You must have appropriate access rights to attach to directories.
- If you attach to a directory in the root, and the directory is a remote disk partition, it is possible to get a network error message if the remote line is down.
- You cannot access directories that reside on remote private partitions.

Changes to the Meaning of Pathnames and Disk Names

At Rev. 23.0, the System Administrator can add disk partitions with more meaningful directory names of up to 32 characters, also known as **mount-point pathnames**. This means that 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.

Although the format of the pathname syntax is the same at Rev. 23.0, the meaning has changed, as shown in the following example:

At Rev. 23.0, the pathname <ACCTG>RECEIV>RPTQ1 is interpreted as

```
<directory>directory>file
```

instead of

```
<disk_name>directory>file
```

The < prefix is the root directory designator, and no longer just a delimiter.

The Rev. 23.0 file system interprets pathnames using the root directory, not the disk table. The **Global Mount Table**, also new at Rev. 23.0, contains a list of all disk partitions and their mount-point pathnames.

The LIST_MOUNTS command, new at Rev. 23.0, lists the names of all partitions and where they are mounted within the file system (the mount-point pathname). (For more information on the LIST_MOUNTS command, see Chapter 2, Commands.)

(For more information on the Global Mount Table and the ADDISK command, see the *System Administrator's Guide, Volume I: System Configuration* and the *Rev. 23.0 Prime Networks Release Notes.*)

Changes to the Disk Table

If your system runs the Name Server, there is no longer any need to add remote disks to the disk table. If the Name Server process runs on all systems within the common file system name space, disks on remote systems are added automatically to the root (except those disks mounted lower in the tree structure).

If your system runs the Name Server, the STATUS DISKS command lists only the disk partitions that are explicitly added with the ADDISK command, which are usually just the local disks. If you have programs or applications that reference the ldev numbers of remote disks, these disks can be added manually to the local disk table for the purpose of converting ldev numbers to disk names. Similarly, the LIST_DISKS command lists only the disks in the local disk table that were added with ADDISK. (For more information on the ADDISK command, see the *Operator's Guide to System Commands.*)

Expanding Storage Without Changing Pathnames

At Rev. 23.0, disk partitions are mounted in the root directory, or they are mounted over an existing directory (known as **grafting**) anywhere in the tree structure (but not over the MFD of a partition). A partition mounted in either one of these ways is known as a **logical mount.**

A System Administrator can graft a disk partition over an existing directory in the tree structure to expand storage space *without* having to change the pathnames that you or your programs use to access file system objects.

When the System Administrator grafts a partition over an existing directory, you cannot access the contents of that directory. However, the directory name can still be used in a pathname to locate objects on the new partition. If the existing directory contains active directories and files, the System Administrator can move them to the new partition, and the pathnames to those objects remains the same. (For more information on mounting disk partitions, see the *System Administrator's Guide, Volume I: System Configuration.*)

Accessing File System Objects in Another Name Space

There may be times when you need to access file system objects in another name space. At Rev. 23.0, the System Administrator can create a **portal**, which is a gateway to objects in another file system name space.

A portal is a directory on your local system that is transformed so that references to it are redirected to a directory on a remote system (called the **target directory**). Access through a portal is one-way only. If a portal in your file system name space is directed to another file system name space, you can access that other name space, but access from that name space back to your name space is not possible through that portal.

There are two types of portals:

- A **root-directed portal** accesses the root directory of the target system, where the file system object resides.
- A **disk-directed portal** accesses a disk partition of the target system where the object resides. Disk-directed portals exist to access objects on pre-Rev. 23.0 systems, which do not have root directories.

Although a portal provides access to a system in another name space, if Forced User Validation (FUV) is in effect, you need to issue the ARID command to attach. Also, your system must have RFA access to the remote system for you to access files or directories there.

The Global Mount Table (GMT) lists any portals that exist from your name space to another name space, and lists disk partitions and their mount-point pathnames. To view the portals created from your name space to another file system name space, use the LIST_MOUNTS command. (For more information on portals, see the *Rev. 23.0 Prime Networks Release Notes*.)

ENHANCEMENTS TO EDIT_CMD_LINE AT REV. 23.0

EDIT_CMD_LINE (ECL) is a command-line editor that allows you to control command-line input to the terminal.

The following enhancements are introduced at Rev. 23.0:

toggle_overlay — Esc D is a new ECL command at Rev. 23.0. This command both sets and clears overlay mode. When overlay mode is on, the *rubout_char* and *self_insert* commands replace existing characters on the line, instead of inserting or deleting characters.

Note

If overlay mode is *on*, and you use a macro containing either one or both of the *rubout_char* and *self_insert* commands, the macro may not perform in the way that you intended. Overlay mode does not affect the *quote* or *do_quote* commands.

kill_line command

If your cursor is positioned at the end of a command line, and you then issue the Ctrl K command, the next line in the command history is moved up and placed at the end of the current command line. This moves the subsequent entries in the command history up one line. This command allows you to delete commands from the command history.

open_line command

Ctrl O opens a new line at the cursor position. If the cursor is in the middle of the command line when you issue Ctrl O, the text to the right of the cursor is moved to the next entry in the command stack, which moves subsequent commands down one entry. This command allows you to insert commands in the middle of an existing command history.

forward_search and *reverse_search* command

These commands now position the cursor on the first match found in the command line, rather than positioning the cursor at the end of the command line that contains the match. If you specify a count of 0 (using the *esc_digit* command Esc 0), the search begins on the current command line in the direction specified.

expand_wild command

This command invokes a facility called automatic pathname completion. *expand_wild* Ctrl I enables you to complete a partially-typed pathname that the cursor is positioned within. If ECL cannot complete the pathname (because there is more than one possible match), it displays the files and directories that match. If the *wild_tail* option is in effect, you can restrict the display to only the directories that match the partial pathname by doing the following:

1. Add a > to the end of the partial pathname
2. Use Ctrl B to position the cursor on the >
3. Press Ctrl I to request completion.

-STATUS

The ECL -STATUS option (abbreviated -STAT) displays the option settings that are currently in effect, as shown in the following example:

```
READY>>, ecl -status
Current ECL$LIB settings:
     -ON  -NCASE  -CCOMO  -NCL  -COMP  -NECOMI  -OBEK  -ROW  -NSHOW  -NSTACK
     -NSTICK  -NWAB  -WDIR  -WMENU  -NWT  -XOFF
     -RB 'READY>> '  -WB 'Oops!! '  -EB 'Wrong! Try Again>> '
     -HEIGHT 24  -WIDTH 80
READY>>
```

ECL Uncensored Prompts

An uncensored prompt is an ECL internal prompt that recognizes non-printing characters. For example, you can highlight the prompt or cause the terminal bell to ring each time the prompt is displayed.

For ECL to recognize non-printing characters, you must specify a number after the prompt text indicating the actual number of characters displayed by the prompt. If you include the pound sign symbol (#), which displays the history event place holder (line numbers), it counts as one printing character. (Two pound sign symbols count as two printing characters.) If you do not specify the number of printing characters, ECL ignores the nonprinting characters and displays only the printable characters.

The following example uses a non-printing escape command sequence that displays a prompt with the ECL event place holder in reverse video on a PT200 terminal.

```
OK, ecl -on
OK, ecl -rb '^[[7m#=^[[0mGO: ' 6
GO: 
```

In this example, the count of 6 includes the #, =, G, O, :, and the space before the closing single quotation mark. The escape sequence ^[[7m turns reverse video on, and the escape sequence ^[[0m turns reverse video off. To enter the escape sequence ^[, press Esc q and then press Esc again.

Note

If the number you specify does not accurately reflect the number of characters displayed by the prompt, the prompt may appear to work correctly on some terminals. However, problems may occur when moving through the history stack, or when editing long command lines that wrap to more than one line on the screen.

Keybindings File

The TERM* directory contains a new keybindings file called EDIT_CMD_BINDSUIX. This file contains bindings for the PST 100, PT200, PT250, and PT45 terminals to emulate EMACS SUIX mode.

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COMMANDS

This chapter describes the new and changed commands at Rev. 23.0. For more information on commands that are issued at the supervisor terminal only, see the *Operator's Guide to System Commands*.

ADD_PORTAL

ADD_PORTAL *mount_point_pathname node_name* [-DISK *partition_name*]

The ADD_PORTAL command 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 sytem name space. (Refer to the *System Administrator's Guide, Volume I: System Configuration.*)

AVAIL

AVAIL [*disk-id* | *pathname*] [-NORM]

The AVAIL command displays information on disk usage.

Specify *disk-id* in one of the following ways:

*	Displays information on all started disks.
-LDEV *ldev*	The logical device number of the disk, specified in decimal form. (Use the STATUS DISKS command to list the names and logical device numbers (ldev) of the disks connected to your system.)

partition_name 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 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 directory. (Refer to the *System Administrator's Guide, Volume I: System Configuration.*)

If you do not specify a logical device number, a partition name, or a pathname, AVAIL displays information for the disk to which you are attached, provided that you have sufficient access rights. If you do not have these rights, AVAIL displays the error message `Insufficient access rights.`

CONFIG_USERS

```
CONFIG_USERS  [ -MFD_PASSWORD pswd
                -TTP type
                pathname
                options ]
```

CONFIG_USERS replaces EDIT_PROFILE at Rev. 23.0. Although EDIT_PROFILE is still supported, it is recommended that Administrators use CONFIG_USERS instead. In later revisions of PRIMOS, EDIT_PROFILE will not be supported.

CONFIG_USERS is functionally equivalent to all capabilities of EDIT_PROFILE at Rev. 23.0, but is easier to use. For more information on the CONFIG_USERS command, refer to the *Rev. 23.0 Software Release Document* and the *System Administrator's Guide, Volume III: System Access and Security.*

LIST_CONTIGUOUS_BLOCKS

```
LIST_CONTIGUOUS_BLOCKS  [ { partition_name }
LCB                     { pathname       }
                        { -LDEV ldev     }
                        -DISPLAY n
                        -FREE size
                        -HELP ]
```

LIST_CONTIGUOUS_BLOCKS provides information about available space on a partition. This command is most useful on a partition that contains CAM files. At Rev. 23.0, you can now specify the partition using a pathname.

Options:

partition_name 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 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 directory. (Refer to the *System Administrator's Guide, Volume I: System Configuration.*)

-LDEV *ldev* The logical device number of the partition. The logical device number must be specified in decimal, not octal.

-DISPLAY *n*
-DSP Causes LCB 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 to 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 to 9999 records, inclusive. If *size* is outside this range, it is set to 32.

-HELP
-H Displays the command's usage and options.

If you do not give a *partition_name*, a *pathname*, or an *ldev*, the MFD of the current attach point is used.

If you do not specify any options or arguments, the LIST_CONTIGUOUS_BLOCKS command displays the following information about the partition to which you are currently attached:

- The sizes of the 20 largest available blocks of space.
- The total number of fragments of free contiguous blocks of records
- The minimum and maximum extent sizes
- The total number of records in the partition

- The total number of free records (available space)
- The percentage full: records used (total minus free) divided by total records.

For more information about this command, see the *Operator's Guide to File System Maintenance.*

LIST_EPF

LIST_EPF [*pathname-1* [*_pathname-8*]] [*options*]
LE

LIST_EPF displays information about a user's Executable Program Formats (EPFs).

The -REG option, new at Rev. 23.0, selects those EPFs located in the registered database.

Use the LIST_EPF command with the -REG option to display the EPF type (registered) and its state, which may be (Ready) or (Suspended), as shown in the following example.

Example:

```
OK, list_epf -reg

2 Process-Class Library EPFs.

(registered) (Ready)      BOOTLEG.RUN
(registered) (Ready)      PRIMIX_IX_SYSTEM_LIBRARY.RUN

2 Program-Class Library EPFs.

(registered) (Ready)      PRIMIX_IX_CC_LIBRARY.RUN
(registered) (Ready)      PRIMIX_IX_LIBCURSES.RUN

4 Program EPFs.

(registered) (Ready)      CSH.RUN
(registered) (Ready)      EX.RUN
(registered) (Ready)      LS.RUN
(registered) (Ready)      SH.RUN
```

LIST_LIBRARY_ENTRIES

LIST_LIBRARY_ENTRIES [*pathname-1* [*...pathname-8*]] [*options*]
LLENT

For each EPF, the LIST_LIBRARY_ENTRIES output displays a two-line header followed by an alphabetical listing of the entrypoints. The first line of the header lists the EPF's status (active, not active, or not mapped) and its pathname. The second line of the header lists the EPF's type (process-class or program-class), the total number of entrypoints, and the number of entrypoints currently selected for display.

Use the -REG option, new at Rev. 23.0, to select only the registered libraries. The preface `(ring 3 epf)` next to the registered EPF name indicates a registered library.

The following example shows the LIST_LIBRARY_ENTRIES display using the -REG option.

Example:

```
OK, list_library_entries -reg

(ring 3 epf) BOOTLEG.RUN
Ring3 Proc-Class Lib EPF,  1 Total Entrypoints, 1 Selected Entrypoints

QED$E

(ring 3 epf) PRIMIX_IX_CC_LIBRARY.RUN
Ring3 Prog-Class Lib EPF,  151 Total Entrypoints, 151 Selected Entrypoints

CCSCOP     PXG$ABORT  PXG$ABS    PXG$ASCTIME          PXG$ATOF   PXG$ATOI
PXG$ATOL   PXG$BSEARCH           PXG$CALLOC           PXG$CFREE  PXG$CLOCK
   .
   .
   .
```

LIST_MOUNTS

LIST_MOUNTS [*options*]

LIST_MOUNTS displays the name and location of disks and portals in your file system name space. (See the ADD_PORTAL command 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 add the disks to the Disk Table with the ADDISK command. (Refer to the *Operator's Guide to System Commands* for information on the ADDISK command.)

Options:

-DISK [*diskname*]
Displays only disk mounts and does not include portals. Specify *diskname* to display only those disks that match the name or the prefix specified. Prefix is any number of characters at the beginning of the disk name. If neither the -DISK nor the -PORTAL option is given, all disks and portals are displayed. You cannot use the -PORTAL option in conjunction with the -DISK option.

-HELP Displays command syntax.
-H

-MOUNT_PATH *pathname*
-MP Lists mounts that match the specified pathname or pathname prefix. Prefix is any number of characters at the beginning of the pathname.

-NO_SORT Lists mounts in the order in which they are stored in the Global Mount
-NS Table (an order convenient for PRIMOS) instead of sorting alphabetically by mount-point pathname.

-NO_WAIT Scrolls display continuously instead of stopping after each screen.
-NW

-PORTAL [*systemname* [*diskname*]]
Lists portals only and does not list disks. Using the *systemname* argument lists only portals to systems that match the system name or prefix specified. (A prefix is any number of characters at the beginning of the system name.) Specify the *diskname* argument with the *systemname* argument to list portals directed to the specified disk on the specified system. If neither the -PORTAL nor the -DISK option is given, both disks and portals are displayed. You cannot use the -DISK option in conjunction with the -PORTAL option.

-SYSTEM *systemname*
-SYS Displays disks and/or portals mounted on the system that exactly match the *systemname* specified.

A sample LIST_MOUNTS display is shown below. Following are explanations of the information shown in the example.

- The first column, `Mount type`, indicates whether the object is a disk or a portal mount.
- The second column, `System name`, gives the name of the system where the disk or portal resides.
- The third column, `Disk name`, identifies the disk partition name. If this is a portal, this field is blank.
- The fourth column, `Mount pathname`, indicates where the disk was added in the tree hierarchy. If the object is a portal, this field shows the pathname of the portal and indicates the name of the remote system to which the portal provides the gateway, after the arrow.

Example:

```
OK, list_mounts

[LIST_MOUNTS Rev. 23.0.0 Copyright (c) 1988, Prime Computer, Inc.]
Mount   System Disk   Mount
 type   name   name   pathname
-------------------------------------------
disk    SYSA   TOOLS  <TOOLS
disk    SYSA   ADMENL <REPTWO
disk    SYSB   USERS  <USERS
disk    SYSB   REPONE <ENGINE>REPONE
portal  SYSC          <PROJT1>MOUSE ==> SYSD<CEETWO>
portal  SYSZ          <TAKEIT>LEAVE ==> SYSX
```

LIST_REGISTERED_EPF

LIST_REGISTERED_EPF *epf_name* [-DEPENDENCY_LIST | -HELP | -UNRESOLVED_ENTRYPOINTS]

LIST_REGISTERED_EPF is a general user command that lists the dependency_list and/or the unresolved_entrypoints for the specified EPF.

Note

To use the LIST_REGISTERED_EPF, REGISTER_EPF, and UNREGISTER_EPF commands, you must install Translator Family Release T3.0.

epf_name is a required entry indicating the name of the specified registered EPF.

Options:

-DEPENDENCY_LIST
-DL — Lists the EPFs required to run the specified EPF. This display includes the EPFs that were explicitly coupled at registration as well as the EPFs that were implicitly coupled during dynamic linking, and indicates if an EPF is Direct (explicitly coupled) or Indirect (implicitly coupled).

-HELP
-H — Displays the command syntax.

-UNRESOLVED_ENTRYPOINTS
-UE — Lists the unresolved entrypoints in the specified EPF that are needed to make the EPF executable.

If you do not specify any option, LIST_REGISTERED_EPF displays both the dependency_list and the unresolved_entrypoints.

LIST_SCHEDULER_ATTRIBUTES

LIST_SCHEDULER_ATTRIBUTES
LSA

The LIST_SCHEDULER_ATTRIBUTES command displays the current scheduler status in the format shown below. It is available to general users as well as to System Administrators and Operators.

```
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 scheculed jobs     :       108

OK,
```

See the *Operator's Guide to System Commands* for an explanation of the attributes.

MONITOR_SEARCH_RULES

MONITOR_SEARCH_RULES [*options*]
MSR

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 systemwide monitoring to optimize the order of the search rules in the system-default ENTRY$ search list. Programmers can use per-user monitoring to tune their private ENTRY$ search lists for specific programs or suites of programs or to examine their applications' dynamic-linking behavior.

Options:

-START [-PER_USER] Monitors each user's frequency of dynamic linking. Use this option and suboption (abbreviated -PERU) at the supervisor terminal only.

-STOP [-PER_USER] Stops all monitoring. Use the -PER USER suboption (abbreviated -PERU) to stop only per-user monitoring. Use this option and suboption at the supervisor terminal only.

-REPORT [*report_filename*] [*report_suboptions*]

-RPT	Produces a system-wide report. *report_filename* is a pathname or a filename. Omit *report_filename* to display the report at the terminal. *report_suboptions* produces per-user reports, detailed reports, and new ENTRY$ search rules files.
-CHECK	Checks for erroneous search rules in the ENTRY$ search list.
-HELP	Displays the command's syntax and usage.

For more information, see the *Operator's Guide to System Commands*.

PSR

PSR { -COPY | -NO_PROTECT | -PROTECT | -RESTORE | -SAVE } [-HELP]

This command replaces COPY_DISK, PHYSAV, and PHYRST at Rev. 23.0. You can still use these three commands if you run a pre-Rev. 23.0 version of PRIMOS. The PSR command

- Saves a physical disk partition to tape
- Restores a physical disk partition from tape
- Copies a physical disk partition to another disk partition
- Protects a partition from being accidentally overwritten by a restore or copy

You must issue the PSR command at the supervisor terminal only.

REGISTER_EPF

REGISTER_EPF *epf_name* [-DIRECT_DEPENDENCY_LIST *epfs* | -HELP | -INIT *program_options* | -INIT_DEPENDENCY *epfs* | -SEARCH_DDL_FIRST]

Issue the REGISTER_EPF command at the supervisor terminal to register an EPF. This places the specified EPF in a database to enable better performance and availability. The EPF may not be linked to until all of the named EPFs are also registered. You can

suspend a registered EPF until all of the routines that are referenced by the EPF are resolved. (See the *Advanced Programmer's Guide I: BIND and EPFs*, for a thorough explanation of EPFs and registering EPFs.)

Note

To use the LIST_REGISTERED_EPF, REGISTER_EPF, and UNREGISTER_EPF commands, you must install Translator Family Release T3.0.

REMOVE_PORTAL

REMOVE_PORTAL *pathname* [-HELP]

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. *pathname* must include the root and must reside on your local system. (Refer to the *Rev. 23.0 Prime Networks Release Notes*.)

SET_PGALARM

SET_PGALARM [-DISABLE / -ENABLE]

At Rev. 23.0, PRIMOS monitors paging space depletion and generates warnings as paging thresholds are crossed. Receiving such warnings enables the System 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.) (See the *Operator's Guide to System Commands* for more information on this command.)

SET_SCHEDULER_ATTRIBUTES

```
                                  [-QUEUE_RATIO a b c                  ]
                                  [-SHORT_JOB n                        ]
                                  [-PRIORITY_RATIO a b c d e           ]
SET_SCHEDULER_ATTRIBUTES          [-PRIORITY_BIAS n                    ]
SSA                               [-ELIGIBILITY_TIMESLICE a            ]
                                  [-MAXIMUM_SCHEDULED_JOBS n           ]
                                  [-HELP                               ]
```

The SET_SCHEDULER_ATTRIBUTES command allows the System Administrator to tune the PRIMOS scheduler to better meet the requirements of a particular site. The scheduler allocates CPU time to jobs in memory waiting to be executed by distributing the waiting jobs, or processes, among the high priority, eligibility, and low priority queues. Issue this command at the supervisor terminal.

START_NAMESERVER

```
START_NAMESERVER [-HELP  ]
                 [-REINIT]
```

Issue the START_NAMESERVER command at the supervisor terminal to start 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. Place this command in the PRIMOS.COMI file after the START_DSM and START_NET commands. Name Server needs both DSM and PRIMENET to function. (Refer to the *Operator's Guide to System Commands*, and the *Rev. 23.0 Prime Networks Release Notes*.)

START_NM

```
START_NM [-HELP]
```

The START_NM command starts up the Network Management process that provides controller management functionality to operational LHC and ICS3 controllers. Controller management provides continuous, automatic monitoring of operational controllers and recovery from failures without manual intervention. At Rev. 23.0, you must start DSM before you start the network. Issue the START_NM command at the supervisor terminal, or add it to the PRIMOS system startup file.

STATUS

STATUS [*argument*]

The STATUS command provides information on system usage for a specified argument. At Rev. 23.0, two of the many arguments to the STATUS command have changed:

STATUS DISKS Displays information on currently added disk partitions. For local partitions, this includes the 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. If your system runs the Name Server, STATUS and STATUS ALL do not list remote disks unless they have been specifically added to the local disk table. To see all the disks and portals on your system, use the LIST_MOUNTS command. (See the LIST_MOUNTS command in this guide for more information.)

STATUS USERS Displays the user ID, user number, terminal line number in decimal, partitions in use, and assigned devices (if any). If your system runs the Name Server, STATUS USERS displays a node name (or system name) if a user is accessing a portal.

STOP_NAMESERVER

STOP_NAMESERVER [-HELP]

STOP_NAMESERVER logs out the Name Server process on the local system, and stops any further updating of the root directory on your system. Issue the STOP_NAMESERVER command from the supervisor terminal.

STOP_NM

STOP_NM [-HELP]

The STOP_NM command logs out the Network Management process. If the Network Management process is shut down, services that use LAN300 are not provided with Network Management functions. Use STOP_NM only after the Network Management functions and the services dependent upon them are stopped. (For more information about the services that use Network Management, see the *Rev. 23.0 Prime Networks Release Notes* and the *User's Guide to Prime Network Services.*)

UNREGISTER_EPF

```
UNREGISTER_EPF epf_name [-FORCE]
                        [-HELP ]
```

The UNREGISTER_EPF command removes a registered EPF from the EPF database.

Note

To use the LIST_REGISTERED_EPF, REGISTER_EPF, and UNREGISTER_EPF commands, you must install Translator Family Release T3.0.

UPDATE_NAMESERVER

```
UPDATE_NAMESERVER [-REMOTE systemname]
                  [-WAIT seconds     ]
                  [-RETRY minutes    ]
                  [-HELP             ]
```

Issue the UPDATE_NAMESERVER command at the supervisor terminal 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 about partitions that have been added to or deleted from 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 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.)

See Chapter 1 for an explanation of the common file system name space. For more information on UPDATE_NAMESERVER, see the *Operator's Guide to System Commands*.