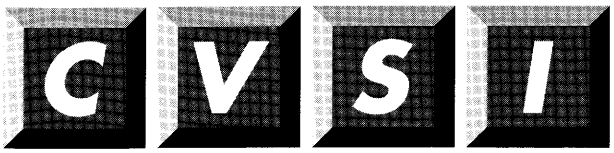

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Rev. 23.4 Software Release Document

DOC13134-002

Rev. 23.4 Software Release Document

Second Edition

Judith Levitsky

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 23.4 (Rev. 23.4).

Computervision Corp., Bedford, Massachusetts 01730

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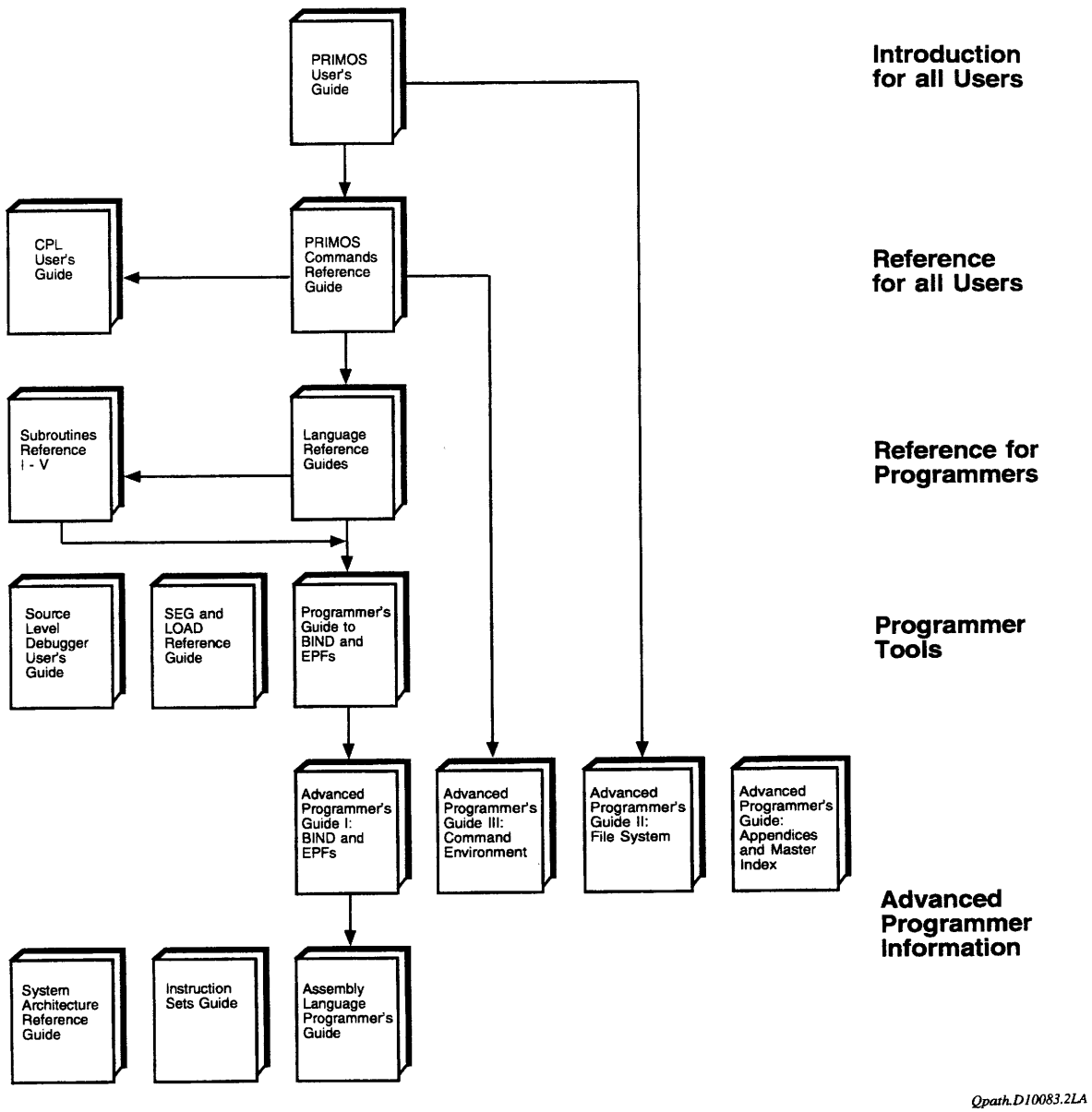


Contents

About This Book

The *Rev. 23.4 Software Release Document* summarizes both new and enhanced functionality to Prime® user software at Rev. 23.4. Most changes to Prime user software at Rev. 23.4 are documented in this software release document. This publication consists of three chapters and one appendix:

- Chapter 1, Introduction, includes special considerations for Rev. 23.4 and lists product retirements and new features.
- Chapter 2, New Features for the User and Programmer at Rev. 23.4, describes the new and enhanced functionality at Rev. 23.4 for the user and programmer.
- Chapter 3, New Features for the Operator and Administrator at Rev. 23.4, describes the new and enhanced functionality at Rev. 23.4 for the operator and administrator.
- Appendix A, Rev. 23.4 Publications, lists all books integral to Master Disk Revisions 23.0 – 23.4.

This book contains the only documentation for most of the changes to PRIMOS at Rev. 23.4. This book should be used in conjunction with the most recent editions of PRIMOS user documentation and the online INFO files.

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 Bold	In command formats, words in uppercase bold indicate the names of commands, options, statements, and keywords. Enter them in either uppercase or lowercase.	**SLIST**
Italic	Variables in command formats, text, or messages are indicated by lowercase italic.	**LOGIN** *user-id*
Abbreviations	If a command or option has an abbreviation, the abbreviation is placed immediately below the full form.	**SET_QUOTA** **SQ**
Monospace	Identifies system output, prompts, messages, and examples.	`address connected`
Underscore	In examples, user input is underscored but system prompts and output are not.	`OK, RESUME MY_PROG`
Hyphen	Wherever a hyphen appears as the first character of an option, it is a required part of that option.	**SPOOL –LIST**
Ellipsis	An ellipsis indicates that you have the option of entering several items of the same kind on the command line.	*pdev-1* [*...pdev-n*]
Parentheses	Parentheses in command or statement formats are a required part of that format. Enter them as shown.	**DIM** *array* (*row, col*)

Introduction

1

This chapter summarizes the functionality changes to the PRIMOS operating system at Rev. 23.4. Specifically, it lists special considerations for Rev. 23.4, products being retired at this release, and new features at this revision of PRIMOS.

Special Considerations for Rev. 23.4

Installation

No new installation procedures are required for Rev. 23.4. To install Rev. 23.4, use the *Rev. 23.0 Software Installation Guide* (IDR10176–3XA).

Consider the following when installing Rev. 23.4:

- The instructions for upgrading an existing system to a new revision of PRIMOS require two boot-from-disk operations. These instructions will successfully upgrade PRIMOS from 23.0 to 23.4.
- When upgrading to Rev. 23.4 without reformatting disks, use ED or EMACS to modify the configuration file. You can modify the configuration file using the nonshared editor (NSED); but to use ED or EMACS, you may have to first reshare these products from the system console.
- Rev. 23.4 requires the Translator family Release T3. Some Rev. 23.0 systems may still be running Release T2. Therefore, you may also need to refer to the installation procedures contained in the *Translator Family Software Release Document* (DOC10217–3PA) for installing compilers, libraries, and environment products.

- To install the nonchargeable Translator family runfiles and libraries on a new machine, follow the procedures described in the *Rev. 23.0 Software Installation Guide*, then execute the command:

```
OK, SSR -DEFAULT ENTRY$
```

- While running FIX_DISK remains an optional part of a software upgrade, the reliable performance of the RFS and FS_RECOVER crash recovery facilities provided with Rev. 23.4 depends heavily on all disks being in an uncorrupted initial state. Therefore, it is *strongly* suggested that you run FIX_DISK on all disk partitions as part of the upgrade to Rev. 23.4.
- The FS_RECOVER facility is supplied on a separate magnetic tape at Rev. 23.4, and can be installed independently of Rev. 23.4. This tape contains FS_RECOVER Version 5.0–23.2 (which designates the fifth version of FS_RECOVER, supported on all PRIMOS Revisions 23.2 or greater). Only Version 5.0–23.2 (and later versions) of FS_RECOVER can be used with Rev. 23.4. Note that installing FS_RECOVER modifies your system search rules. For information about the latest release of FS_RECOVER, please see *Using FS_RECOVER* (DOC13062–004).

Microcode Requirements

The 5310™ and 5320™ systems must be upgraded to at least CPU microcode Rev. G before attempting to boot Rev. 23.4. The 5330™ and 5340™ systems must be upgraded to at least CPU microcode Rev. H before attempting to boot Rev. 23.4. Attempting to boot Rev. 23.4 without performing these microcode upgrades may result in unpredictable halts and possible disk data corruption.

You can display your current microcode revision at the supervisor terminal as follows:

```
OK, <Esc><Esc>
DIR
MO ST
;
OK,
```

Pressing the Escape key twice places the supervisor terminal in maintenance processor mode (this does not affect executing processes). You type DIR to display the current microcode revision. You then type MO ST to return to PRIMOS mode. It may be necessary to type a semicolon (;) to get a prompt from the PRIMOS command processor.

Product Retirements

No products are being retired at Rev. 23.4.

New Features at Rev. 23.4

The new features of PRIMOS Revision 23.4 are listed below, grouped into two categories: those for the user and/or programmer, and those for the system operator and/or System Administrator. Chapter 2 discusses user and programmer features; Chapter 3 discusses operator and administrator features.

User and Programmer Features

The following enhancements are described in Chapter 2:

- The LIST_DISKS command has been enhanced to supply information about the status of Online FIX_DISK.
- MATCH, a new command, searches for text strings within files.
- The SPOOL command has been enhanced to support the
  - Automatic logging in of operator requests to a print log file
  - –NO_INITIAL_FF option to suppress the first form feed found in some files
- Several Spooler environment directives have been enhanced with the following new options:
  - PDN now supports –DEFER_TIME, which defers a printing job after a clearing error.
  - ERROR_NOTIFY now supports –NO_SYSTEM and –FREQUENCY, which limit the number of error messages sent to the supervisor terminal or select users.
  - TCP/IP now supports –BINARY, which allows for binary (8-bit) data transfer.

Operator and Administrator Features

The following enhancements are described in Chapter 3:

- The BATCH command now uses the correct user name with JOB –STATUS and JOB –DISPLAY.
- The BATCH command has been enhanced to support the following new features:
  - JOB accepting external job names
  - Load balancing
  - A –WAIT option with the Monitor
- CONFIG_USERS has been enhanced to support:
  - New command line options –ACL_GROUP, –ALL, –CHANGE_USER, –DETAIL, –LAST_LOGIN, –LIST_PROJECT, –LIST_SYSTEM, –LIST_USER, –LOGIN_STATUS, –OUTPUT, –PASSWORD_STATUS, –SERVER, and –SORT
  - New fields SYSTEM ACL Groups or PROJECT ACL Groups to replace the current ACL Groups field
  - A new screen, List User's Project IDs, listing all the projects to which a user belongs
  - A new screen, Time Window, defining the dates and times in which a user's account is valid
  - Additional error messages for Rev. 23.4
- CONFIG_USERS subroutine library has been enhanced to support:
  - CUS$LIST_USERS_PROJECTS subroutine
  - Additional subroutine error messages for Rev. 23.4
  - New subroutine data structures
- Data Recovery and Backup has been enhanced to support:
  - A new CHECKPOINT_FREQUENCY directive for the DRB CONFIG_FILE
  - An extended Index File Format
  - Additional information in the SEARCH_INDEX_LIB command
  - A new subcommand, FS, in the MAGRST command
- Extended main memory for the 5000 Series

- The LOGIN_SERVER and START_LSR commands have been enhanced to support:
  - New options –DISABLE_MESSAGE, –TIMEWINDOW_MESSAGE, –USER_ID_PROMPT, –PASSWORD_PROMPT and –PROJECT_PROMPT,
  - A new file, SAD>LOGIN_SERVER.STARTUP, which records the options started with the LOGIN_SERVER
- Support for two new disk drives:
  - Model 4734 3.5" 1.0 GB SCSI drive
  - Model 4736 5.25" 2.0 GB SCSI drive

2 New Features for the User and Programmer at Rev 23.4

LIST_DISKS Command

At Rev. 23.4, the LIST_DISKS command is enhanced to include the following status information about Online FIX_DISK:

- Is Online FIX_DISK currently running on a local disk?
- If Online FIX_DISK is running, the number of the user running it.

When you run LIST_DISKS with the –DETAIL –LOCAL options, the display reflects the Online FIX_DISK status of any local disks. In this example, a local disk is being repaired by FIX_DISK –DISK 2060 –ONLINE:

```
OK, LIST_DISKS -DETAIL -LOCAL
[LIST_DISKS Rev. 23.4 Copyright (c) 1993, Computervision
Corporation]

** 23.4 **
                          Partition: COMADG
                          -----------------

Logical device number:       '0          Active Users
System name:              23.4          User no.   User name
Robust partition?            no       +----------------------+
                                      |   1   | SYSTEM       |
Physical device number:   '2060       |   2   | SYSTEM       |
Size in records:          59256       |  22   | NETMAN       |
Records available:           10       | 406   | NTS_SERVER   |
Percentage full:          99.98       | 407   | TIMER_PROCESS|
                                      | 408   | BUFFER_SERVER|
Controller number:               0    | 409   | LOGOUT_SERVER|
Drive unit number:               0    | 410   | LOGIN_SERVER |
Starting at head:                0    | 422   | DSMSR        |
Ending at head:                  7    | 423   | DSM_LOGGER   |
                                      | 424   | SYSTEM_MANAGER|
ONLINE FIXDISK running?        yes    +----------------------+
ONLINE FIXDISK user:             1
                              SYSTEM
```

If Online FIX_DISK in not running, the `ONLINE FIXDISK` portion of the LIST_DISKS display looks like this:

```
ONLINE FIXDISK running?     no
ONLINE FIXDISK user:
```

If you run the command LIST_DISKS –DETAIL –REMOTE on a remote disk, most of the detail information is not available (n.a.), and the `ONLINE FIXDISK` portion of the display looks like this:

```
ONLINE FIXDISK running?     n.a.
ONLINE FIXDISK user:        n.a.
```

For more information on Online FIX_DISK, see the *Operator's Guide to File System Maintenance.*

MATCH Command

MATCH is a command that searches for text strings within files. It can be invoked from the command line by typing:

```
OK, MATCH string [-option],...
```

If you type the word MATCH and press Return, you are prompted for a search string plus any additional options. You can also invoke Help for MATCH by entering **MATCH –Help** at the command line.

MATCH is aware of three types of files: ASCII, Binary, and PRIMEWORD™. PRIMEWORD files are displayed as Muse files.

MATCH has many options, and is capable of extended wildcarding. Both of these features make MATCH a powerful tool.

In the following example, MATCH displays the filenames and text lines within each file that match the requested string:

```
OK, MATCH documents
[MATCH Rev. 23.4 Copyright (c) 1993, Computervision
Corporation]
Warning: FILE.RPA assumed to be a binary file

File: MATCH_DOCUMENTATION
     1: This file documents MATCH at PRIMOS REV. 23.4

File: SPOOLER_DOC
     3: This file documents SPOOLER at PRIMOS Rev. 23.4
```

```
File: ONLINE
     2: This file documents the Online FIX_DISK
        program at PRIMOS Rev. 23.4

File: CONFIG_USERS.DOC
     1: This file documents CONFIG_USERS at PRIMOS
        Rev. 23.4
```

MATCH Options

MATCH has many options that allow a user to specify, in great detail, a string of information for the program to find. Many options can be combined. An option can be invoked by entering the option word, or the first letter of the option word.

The following is a list of MATCH options:

–ALLBINARY
–A

Searches all files as if they were binary files, i.e., with no space compression or newlines. Files that actually appear to be binary are not searched if you also include the –NOBINARIES option.

–BRIEF
–B

Does not print a warning if an unexpected file type is found (for example, if the file X.BIN appears to be ASCII).

–CASEDEPENDENT
–C

Only matches in a case-dependent fashion.

–DEEPWILD
–D

Applies the supplied wildcarding criteria to files and segment directories at the current and lower levels. UFDs are always searched. If you use the –D option without the –LEVELS option, it has no effect.

–FILES *template*
–F

Searches a single specified file or a wildcard template (which may include treewalking). If the object specified or returned is a UFD, MATCH does not look for strings within it; if the object is a UFD, and the user included the –LEVELS option, MATCH searches for strings to the level requested.

–FILES does not abbreviate to –FILE, which remains a wildcarding option.

-GO
-G

Ignores the rest of the command line after this option. Use –G to omit the options in your .MATCH$OPTIONS global variable.

-IGNORESPACES
-I

Ignores spaces in the search (although spaces still count as token delimiters). If you use the –I option, it implies –NOBINARIES (binary files will not be searched).

-LEVELS *n*
-L

Searches sub-UFDs to the depth specified. If *n* is 0, MATCH searches as deeply as possible.

-MOUNTPOINTS
-M

Searches down mount points and remotely added disks if in the root (–F <). Unlike most MATCH options, –M is a toggle that reverses the prevailing action: if, for instance, you have –M in your .MATCH$OPTIONS global variable, including it on the command line turns it off.

-NOBINARIES
-N

Does not search files that appear to be binary.

-ONCEONLY
-O

Outputs only the first matching line from an ASCII file, and stops searching the file at that point.

-PATHNAMES
-P

Prints the full pathnames of files with matches, rather than printing the matching text string. Warnings are printed as normal unless you included the –BRIEF option.

-REPORT *filename*
-R

Outputs to a specified file instead of the terminal. If iterating or treewalking, MATCH appends to an existing file. –R files always create DAM files.

-STOPONERROR
-S

Pops to the command level on an error trying to access a file system object. Since MATCH tries to access the same file system object file when you re-enter it, you must take some action to fix the problem. For example, if you have insufficient access rights, use either SET_PRIORITY_ACCESS (SPAC) on the disk or EDIT_ACCESS (EDAC) on the object. (SPAC is described in the *Operator's Guide to System Commands*; EDAC is described in the *PRIMOS Command Reference Guide*.)

-TOKENSEARCH
-T

Treats the string to search for as a token (a word in a text file, for instance, or a variable name in a program source). Matches only occur when delimited by nonalphanumeric characters ($ and _ are treated as alphanumeric characters). For example,

```
MATCH END
```

matches on FRIEND. But

```
MATCH END -T
```

only matches on the word END, including:

```
END,
END;
END.
```

If you use the -T option, it implies -NOBINARIES (binary files will not be searched).

-VMODE
-V

Mainly a diagnostic option that instructs MATCH to use a slightly different (and slower) routine for character matching. This option automatically takes effect if you are on a Prime 400 or Prime 350. You cannot use -IGNORESPACES and -WINDOWLINES with the -V option.

–WINDOWLINES *n*
–W

Outputs a window of the number of lines specified, after outputting each matching line in an ASCII file. Matched lines (after the first) in a file are preceded by a blank line.

If you use the –W option, it implies –NOBINARIES (binary files will not be searched).

–XPRESS
–X

Instructs MATCH to examine all CAM and DAM files using block mode I/O, whether the files appear to be database files or not. (Block mode I/O can lock out products like Prime INFORMATION™ from their files, regardless of the RWLOCK on these files. In the absence of –X, files with an RWLOCK of UPDT or NONE are opened for nonblock I/O.)

Action When No Options Are Supplied

By default, MATCH searches for the search string in all files in the current UFD. The search is case-independent, with one space matching one or many spaces. If the string is matched in an ASCII file, the filename is output, followed by all lines containing the string. If the string is matched in a binary file, only the filename is output. If MATCH cannot open a file or attach to a sub-UFD, it reports this at the terminal and in the –REPORT file (if there is one).

Also by default, MATCH does not go down any mount points or remotely added disks when searching in the root (<).

Extended Use of Wildcards

To save time, MATCH performs its own file wildcarding. (The command processor still performs treewalking and iteration if requested by the user.) MATCH uses standard filename templates, and you can join several templates together using the new separator characters:

- **\ <but–not>** If the template following this separator is matched, do *not* search the file.
- **| <or>** If the template following this separator is matched, search the file. If a \ separator occurs later in the compound template, do *not* search the file. If the template is a simple filename (not including ^, + or @), search the file regardless of any matching \ templates.

You cannot start compound templates with the \ or | separator. If the only separator you want to use is \ , prefix the template with @@. MATCH knows that @@ matches everything and does not spend time wildcarding against it.

In the following example, MATCH searches all program sources except those written in Prime Macro Assembler (PMA). Example 1 assumes the UFD only contains program sources:

```
@.@\@.PMA
```

Example 2 looks for matches in command and CPL files in the current UFD:

```
-F @@.COMI|@@.CPL|C_@@
```

The | separator can be used as an alternative to command processor iteration. Using a compound template generally takes less CPU time (an exception to this might occur with a small number of simple filenames in a large UFD). Compare the previous example with its iterating equivalent in example 3:

```
-F (C_@ @@.COMI @@.CPL)
****Not Recommended****
```

While example 2 invokes MATCH once, example 3 invokes MATCH three times. So example 3 is definitely not recommended as it has to do three times the work for the same result.

To search command and CPL files in the current UFD, and additionally search files in all subordinate UFDs, add the options –LEVELS 0 and –DEEPWILD where:

- –LEVELS 0 (–L 0) gives maximum UFD search depth.
- –DEEPWILD (–D) applies the wildcard template to all file system objects that are not UFDs, and unconditionally searches all UFDs.

Wildcard Options

All the options listed in the *PRIMOS Commands Reference Guide*, Chapter 4, are available, with the following exceptions:

–ACCESS_CATEGORY
–ACAT
MATCH never searches Access Categories.

–NO_VERIFY
–NVFY
This is MATCH's default.

–RBF
If other wildcarding crieteria are satisfied, MATCH always searches an RBF.

The operation of –VERIFY (–VFY) differs from the command processor's in that each file is searched as soon as you answer *yes* to the query prompt.

The following additional options are available for use with the MATCH command:

Full Form	*Abbreviated*	*Select By*
–SAM		File type
–DAM		File type
–CAM		File type
–SEGSAM	–SSEG	File type
–SEGDAM	–DSEG	File type
–DUMP	–DMP	Dumped bit
–NO_DUMP	–NDMP	Dumped bit

Note The dumped bit is displayed by the PRIMOS command LD –DETAIL.

.MATCH$OPTIONS Global Variable

You can define the .MATCH$OPTIONS global variable to contain options you frequently specify. For instance, you might always want to include –XPRESS, –BRIEF, and –STOPONERROR.

The contents of .MATCH$OPTIONS are appended to the command line with which you invoked MATCH, separated by a space. If you only entered MATCH (without a string to match for), MATCH prompts you for a string plus options. The global variable contents are appended to what you entered, again separated by a space.

To invoke MATCH without the arguments in the .MATCH$OPTIONS global variable, end your command string with –GO (–GO causes the rest of the command string to be ignored).

Control–P (QUIT) Handling in MATCH

When MATCH is interrupted with Control–P, it saves its current and home attach points. If a user attached to a different directory (not his or her home directory) during a previous interrupt, MATCH attaches there as well.

Files may be closed without restriction. MATCH treats a closed file as having reached End of File (EOF). If a UFD is closed, then its sub-UFDs are not searched. But a single extra file in that UFD may be searched, depending on the exact point where the program was when the interrupt occurred. If the –REPORT file is closed, output reverts to the terminal.

In some circumstances, MATCH may be unable to save one of its attach points. In this case, the user is warned to take appropriate action. This can happen because MATCH is limited to 128-character UFD pathnames when saving attach points. While MATCH is running there is a much larger limit, but MATCH cannot use its internal attach point database during an interrupt because quits are not inhibited when it is being updated.

ASCII Versus Binary Files

MATCH decides whether a file is ASCII (with padded newlines and space compression) or binary (without padded newlines and space compression) by inspecting the file's contents. The result is then checked against the filename. A warning message displays if the file type does not match the name. For example, if a file with a .BIN suffix appears to be ASCII, the user receives a warning. Since SEG subfiles are assumed to be neither ASCII nor binary, no warning messages are output for them.

ASCII files can contain lines up to 160 characters in length. If the line length is longer, the results may be unpredictable. To search a file that contains line lengths longer than 160 characters, use the –ALLBINARY option.

A legitimate binary filename must have multiple components separated by full stops. Any filename components after the first component, if 3 to 8 characters long, are checked against a list of known binary suffixes. The following examples are recognized as binary:

A.OLD.SAVE	A.SAVE
A.SAVE.OLD	A.RP0 (.RP+ numeric)
A.RUN	OLD.A.SAVE

The following examples are not recognized as binary:

A.SAVED	A.RPA
A.RUNI	SAVE
SAVE.A	

Additionally, SHARE filenames (for example, ED2000), are expected to be binary. Seven-character variants (like the FTS FR2126A or FR2126B) are also expected to be binary. Currently, the following suffixes are recognized:

.BIN	.CFG
.IDATA	.IRUN
.PIC	.RUN
.SAVE	.SHT

Muse (PRIMEWORD) Files

Muse files are recognized by the internal structure of the file, after MATCH determines that the file is not ASCII.

Currently, Muse files are searched as if they were binary. A warning that a file is assumed to be Muse only prints if the filename suggests it should be binary (for example, it has a .BIN suffix).

The binary search of a Muse file generally finds matches in plain or wholly underscored text. It does not find words containing subscripts, superscripts, or augmentations in bold, italic, or alternate types.

MATCH as a Command Function

MATCH may be used as a command function. The result is TRUE if a match is found, and FALSE otherwise. MATCH runs to completion (that is, it does not stop after the first match).

Preserving the Date/Time Accessed (DTA) of Searched Files

If you are a member of the .BACKUP$ ACL group, MATCH will not alter the DTA of files (and directories) that it searches. This happens automatically, and there is no need for user action. However, the DTA of the current UFD (or the UFD containing the target of an –F option) is updated. Even if you are a member of .BACKUP$, if you do not have Protect (P) access to the objects you are matching, the DTA is updated. This is a PRIMOS restriction.

File in Use Warnings

Normally MATCH outputs a warning if it cannot open a file that is in use. This warning is deliberately suppressed for your COMO and –REPORT files.

Note Do not give these files UPDATE access, or MATCH may never get to the end of them!

Spooler Enhancements

The Spooler is enhanced to support the following new user features and options:

- Logs operator requests to the log file
- Can suppress the first form feed in a print job

The Spooler is enhanced to support the following new Administrator features and options:

- PDN despooler defers a printing job if it receives a clearing error
- Can prevent error messages from printing at the supervisor terminal
- Can modify the frequency of error messages
- TCP/IP despooler supports binary (8-bit) data transfers

Logs Operator Requests

If you are using a print log file, the Spooler now automatically logs any operator requests. For example, if a user issues the PROP –DROP command (requesting a job be droppped), the Spooler records this information.

Suppress the First Form Feed Option

The SPOOL command has a new option that suppresses the first form feed found in a print job. When you use this option, the first page of text loses its initial form feed, so a blank page is not output at the start of a print job. This option is especially useful with files that generate two initial form feeds, for instance, Prime INFORMATION files.

You can use the option in either or two forms:

```
SPOOL -NO_INITIAL_FF or
SPOOL -NIF
```

–NIF can be combined with any other SPOOL options. Anyone can use this option.

Deferring a Print Job After a Clearing Error

If a printer receives a clearing error, the PDN despooler can defer a printing job, rather than terminate the despooler phantom. With the –DEFER_TIME *nn* option, the job currently printing is deferred for *nn* minutes. The Administrator configures the defer time by adding this option to the PDN environment directive in the environment file located in SPOOL*. The syntax with the new option is

```
PDN -DEFER_TIME nn
```

where *nn* is the number of minutes to defer printing, from 0 through 60. Be careful of choosing a defer time of 0; it may cause the PDN despooler to consume more resources than you want.

Note Be sure that SPOOL.PDN and the Spooler programs are the same revision level.

Error Message Options

The ERROR_NOTIFY environment directive now has two options:

–NO_SYSTEM
Prevents printer error messages from going to the supervisor terminal

–FREQUENCY *nnnnn*
–FREQ
Specifies how many error messages ERROR_NOTIFY should skip before reporting errors to listed users and the system console. *nnnnn* is the number of messages to skip, and ranges from 0 through 32764.

Edit the ERROR_NOTIFY environment directive in the environment file located in SPOOL* to include these new options:

```
ERROR_NOTIFY user1 [...user8] [-NO_SYSTEM] [-FREQ nnn]
```

These options can be used separately or together. If used together, –NO_SYSTEM overrides –FREQ, and no messages are sent to the supervisor terminal (messages will still be sent, however, to the users specified).

TCP/IP Despooler Supports Binary

The TCP/IP despooler now supports binary (8-bit) data transfer. Edit the TCP/IP environment directive in the environment file located in SPOOL* to include the –BINARY option:

```
TCP/IP -BINARY
```

You cannot use the –BINARY option with a PostScript® printer. If you try to use the –BINARY option with a PostScript printer connected over a TCP/IP link, your printer will not start correctly.

3 New Features for the Operator and Administrator at Rev. 23.4

BATCH Command

PRIMOS Rev. 23.4 contains the following enhancements to BATCH:

- JOB –STATUS and JOB –DISPLAY now show the correct user name
- JOB accepts external job names
- Load balancing
- The Monitor takes a –WAIT option

JOB –STATUS and JOB –DISPLAY

If you run JOB –STATUS or JOB –DISPLAY with the –USER option, JOB now uses the correct user name if there are no jobs to display.

JOB Accepts External Job Names

Users may now specify jobs by their external job names as well as job IDs, and limit the search using the –QUEUE and –USER options. For example,

```
OK, JOB GENERIC.CPL -ABORT -QUEUE NIGHT -USER SIMON
```

will abort the GENERIC.CPL job in the queue Night submitted by user Simon.

Load Balancing

BATCH now supports load balancing, which automatically submits a job to a less busy queue if the requested queue is busy.

To automatically enable load balancing, simply start BATCH with the –LOAD option:

```
OK, BATCH -START -LOAD
```

To see the options that BATCH is currently using, issue the BATCH command with the –STATUS option. In this example, BATCH was started with the load balancing option:

```
OK, BATCH -STATUS
[BATCH Rev. 23.4 Copyright (c) 1993, Computervision
Corporation]
19 waiting, deferred, or held jobs in 1 queue; no
executing jobs.
Batch was not started with the -DisPlay_All option.
Load Balancing batch queues is enabled.
```

If you are running BATCH with loading balancing, you can still submit a job to a specific queue by using the –NO_LOAD option:

```
OK, JOB GENERIC.CPL -QUEUE NIGHT -NO_LOAD
```

Monitor –WAIT Option

The new option, –WAIT *nn*, tells the Monitor how many minutes to try to access queue files. Since the Monitor currently tries to access queue files for up to three minutes, this option is useful if you need more than three minutes to back up the BATCHQ directory.

To use the –WAIT option, edit the START_BATCH_MONITOR.COMI file as follows:

```
RESUME BATCHQ>MONITOR -WAIT nn
```

where *nn* is the number of minutes, ranging from 1 through 60. For example,

```
RESUME BATCHQ>MONITOR -WAIT 45
```

instructs the Monitor to try to access queue files for up to 45 minutes.

CONFIG_USERS

Several enhancements have been added to CONFIG_USERS Rev. 23.4:

- New command line options
- New ACL Groups field in the Add Single User, Change User, and List User screens
- New List User's Project IDs and Time Window screens
- New options
- Additional error messages

New CONFIG_USERS Command Line Options

The following describes the Rev. 23.4 CONFIG_USERS options:

–ACL_GROUP ***group1 group2 ... group16***
–GROUP

Use this option to specify the ACL group or groups for a new user. If the user is a new system user, the ACL groups are System ACL groups; if the user is an existing user being added to the system, the ACL groups are Project ACL Groups.

–ALL

Use –ALL with –LIST_SYSTEM for a list of all the system's projects, ACL groups, and users. Use –ALL with –LIST_USER for a list of project attributes for each project to which a user belongs. Use –ALL with –LIST_PROJECT for a list of project attributes for each user that belongs to the project.

–CHANGE_USER [*user–id*] [–PW *pw*] [–IAP *pathname*]
–CU

Changes an existing user's password and/or initial attach point (IAP). If you include the user ID, you should also include the user's password and/or IAP. If you use –CHANGE_USER with the –PROJECT option, it changes the origin for the specified project. Otherwise, it changes the origin for the user's assumed project. If you omit the user ID, it displays the Change User screen.

–DETAIL
–DET

Use with –LS and –ALL for complete details about each ACL group including all user IDs that belong to that ACL Group, each project that has that ACL group as a project group. It also lists all user IDs belonging to each project.

–LAST_LOGIN
–LLOG

Outputs the date/time when a user last logged in. The date/time stamp displays only when used with the –LIST_USER, –LIST_PROJECT, or –LIST_SYSTEM –ALL options.

–LIST_PROJECT [*project–id*]
–LP

Lists an existing project's profile. If you omit the project ID, it displays the List User's Project ID screen.

–LIST_SYSTEM
–LS

Lists the system's attributes including the System Administrator's user ID, the SAD version, password attributes, and system default attributes. For additional information, use –LS with the –ALL, –DETAIL, –LAST_LOGIN, –LOGIN_STATUS, –PASSWORD_STATUS, and –SERVER options.

–LIST_USER [*user–id*]
–LU

Lists an existing user's profile. If you use –LIST_USERS with the –PROJECT option, it lists the profile for the specified project. If you omit the user ID, it displays the List User screen.

–LOGIN_STATUS
–LOGIN_STAT
–LSTAT

Outputs additional system or user information relative to login attributes. The –LOGIN_STATUS and –LIST_SYSTEM options show logging successful logins, logging failed logins, and system default for number of concurrent logins. The –LOGIN_STATUS and –LIST_USER options show the number of concurrent logins, if the account is enabled or disabled (if disabled, until when it is disabled, or if disabled indefinitely), and the LOGIN window.

–OUTPUT *pathname*

Causes output to go to a specified file rather than the terminal. Any information already in the file will be overwritten by this option. Use –OUTPUT *pathname* with the –LIST_USER, –LIST_PROJECT, or –LIST_SYSTEM options.

–PASSWORD_STATUS
–PW_STAT

Outputs additional system or user information relative to password attributes. The –PASSWORD_STATUS and –LIST_SYSTEM options show the password lifetime, status of computer-generated passwords, force password change, initial password change, Rev. 2 password encryption, allowable password failures, password history, and maximum password changes per hour. The –LIST_USER and –PASSWORD_STATUS options show when the password was changed and when force password change is enabled for the user.

–SERVER
–SR

Outputs the InterServer Communications (ISC) attributes, maximum number of sessions, synchronizers, and timers.

–SORT

Causes names to sort alphabetically when you output a list. Use –SORT with the –LIST_USER, –LIST_PROJECT, or –LIST_SYSTEM options.

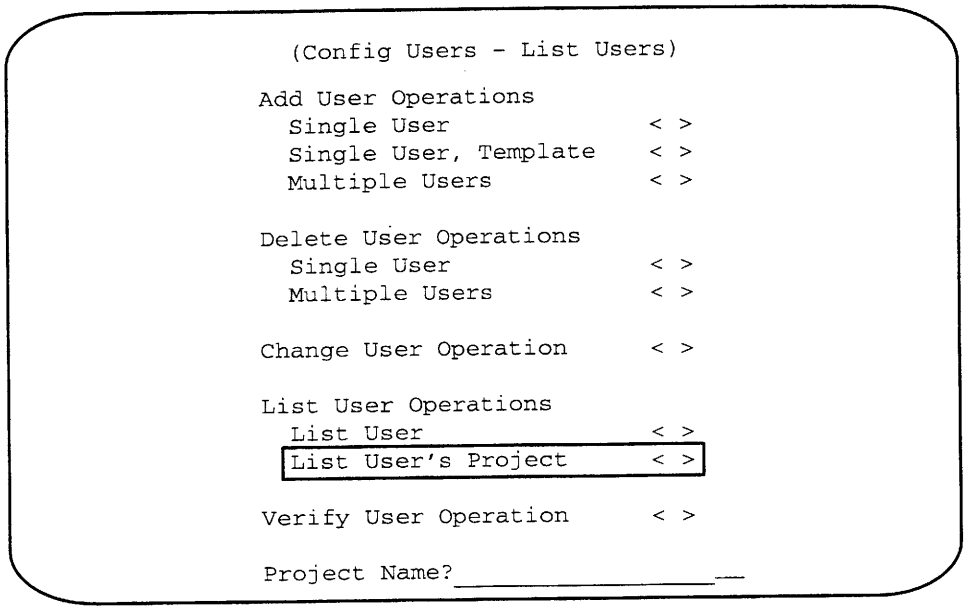
New Field in Add Single User, Change User, and List User

As of Rev. 23.4, the **ACL Groups** field in the Add Single User, Change User, and List User screens now reads **System ACL Groups** or **Project ACL Groups**, identifying the ACL groups as either System or Project ACL Groups. For a list of project ACL groups, move your cursor to the **Project** field and specify the project ID.

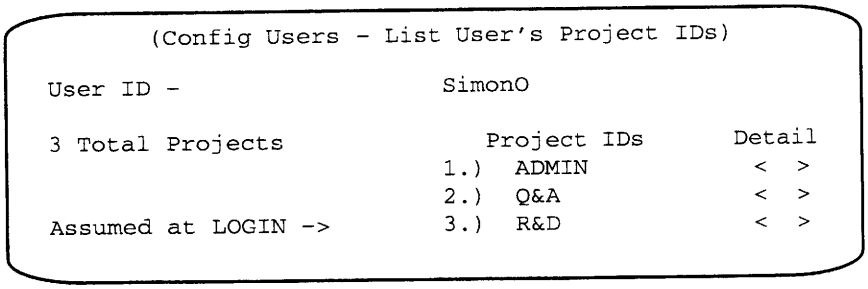
List User's Project IDs Screen

As of Rev. 23.4, the System Administrator can display a List User's Project IDs screen which contains all of the projects to which a specified user is a member.

To view the List User's Project IDs screen, choose the User Operations field from the CONFIG_USERS Main menu. At the User Operations screen, move your cursor to the new field List User's Project, and press the ZoomIn key.



At the List User's Project IDs screen, enter a user in the user ID field to list all the projects to which the user belongs, as well as their assumed login project. For the user's Project Attributes, move your cursor to that project and press the ZoomIn key.



Traversing Different Projects for a Specified User in the Change User and List User Screens

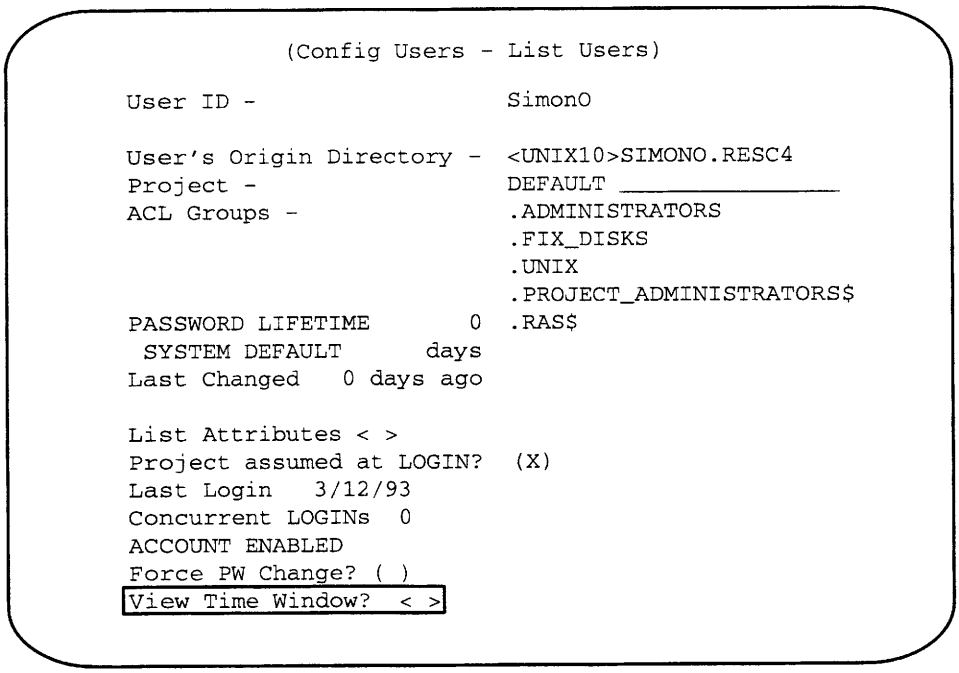
You can list and change the project attributes for a user's projects from the Change User and List User screens. To do this, position your cursor in the Project field and use the NextVal and PreVal keys.

Time Window Screen

As of Rev. 23.4, the System Administrator can configure a Time Window for user accounts. The Time Window displays the times a user can log in, including the dates the account is active and the actual hours during which a user can access his or her account.

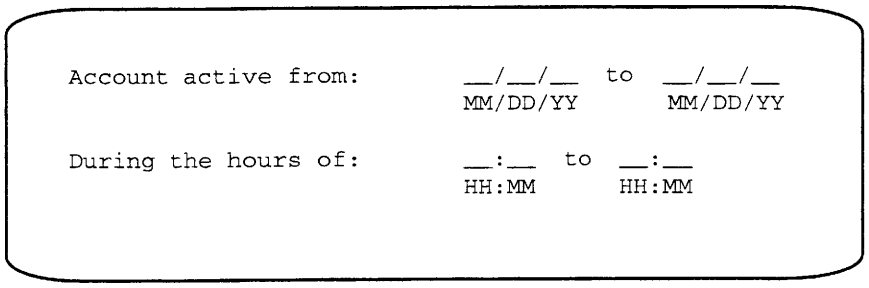
You can view the Time Window from the List User screen. You can view, set, or change the Time Window from the Change User, Add Single User, and Add Multiple User screens. To access any of these screens, select User Operations from the CONFIG_USERS Main menu, and then select the appropriate menu item.

To view the Time Window from the List Users screen, highlight the View Time Window field and press the ZoomIn Key. To set or change the Time Window from the Change User, Add Single User, or Add Multiple User screens, highlight the Set Time Window field and press the ZoomIn key.



The Time Window screen pops up over the current screen. It contains two fields:

- ***Account active from*** specifies two dates, the month/day/year from which the account becomes active until the month/day/year the account becomes inactive. For example, enter January 3, 1993 as **1/3/93**.
- ***During the hours of*** specifies, in military time, the actual hours during which the user may log in. For example, enter 6:15 a.m. as **06:15**.



You can configure a Time Window for each user on a per system basis. You can specify any or all the parameters; any parameter left blank defaults to no limits. For example, if you specify valid hours as follows:

```
Account active from:        3/12/93  to  1/1/94

During the hours of:        __:__    to  17:00
```

the user can log in from March 12, 1993 until January 1, 1994, any time before 5:00 p.m.

Additional Error Messages

Rev. 23.4 of CONFIG_USERS has five new error messages.

`USER ID username does not have an assumed login project.`

The user does not have an assumed login project. Use the Change User screen in CONFIG_USERS to set up an assumed login project.

`USER ID username is not a member of the assumed login project projectid.`

The user has an Assumed Login project, but is not a member of that project. This can occur if an Administrator deletes a user from a project set up as the user's assumed login project.

`USER ID username is not a member of Project projectid, system attributes were updated.`

The user is not a member of their assumed login project. The user must specify the project name when he or she log in (this changes the current system attributes, not the project attributes).

`WARNING: Invalid date specified.`

The Administrator specified an invalid date when entering information in the Account active from field of the Time Window. You must enter the date using digits only, starting with the month, the day, and then the year.

```
WARNING: Invalid time specified.
```

The Administrator specified an invalid time when entering information in the During the hours of field of the Time Window. You must enter the time in hours and minutes, using military time. Valid entries range from 00:01 (12:01 a.m.) to 23:59 (11:59 p.m.).

CONFIG_USERS Subroutine Library

There is one new subroutine in the CONFIG_USERS subroutine library, CUS$LIST_USERS_PROJECTS. Use this subroutine to list the projects to which a user belongs.

CUS$LIST_USERS_PROJECTS Semantics

```
Call CUS$List_Users_Projects (
       User_Id,
       Starting_Project_Number,
       Number_to_Return,
       Total_Number_of_Projects,
       Number_Returned,
       Project_ID_List_Ptr,
       Status);

declare CUS$List_Users_Projects entry(
       char(32) var),
       fixed bin(15),
       fixed bin(15),
       fixed bin(15),
       fixed bin(15),
       pointer options(short),
       fixed bin(15));
```

CUS$LIST_USERS_PROJECTS Parameters

The input parameters to CUS$List_Users_Projects are defined as follows:

User_Id

INPUT. Name of the user whose projects to list.

Starting_Project_Number

INPUT. Number of the project name to start returning.

Number_to_Return

INPUT. Number of project names to return.

Total_Number_of_Projects

OUTPUT. Number of projects on the system.

Number_Returned

OUTPUT. Number of project names actually returned.

Project_ID_List_Ptr

OUTPUT. Pointer to a list of Project_IDs.

Status

Set to a value indicating the status of the report project's operation.

- CUS$OK is returned if the report project's operation succeeded.
- CUS$Invalid_User_ID is returned if user ID contains an invalid character, or if no user ID is specified.
- CUS$SAD_Not_Open is returned if the SAD was not opened.
- CUS$Bad_Parameter is returned if either *Starting_Project_Number* or *Number_to_Return* is less than or equal to zero, or the sum of *Starting_Project_Number* and *Number_to_Return* overflows.

CUS$LIST_USERS_PROJECTS Operational Procedures

CUS$List_Users_Projects can be called in blocks for the project names by using the parameters *Number_to_Return* and *Starting_Project_Number*. Increment *Starting_Project_Number* by *Number_to_Return* and recall CUS$List_Users_Projects until *Starting_Project_Number* exceeds *Total_Number_of_Projects*.

New CONFIG_USERS Subroutine Library Errors

The following CONFIG_USERS errors can result from CUS$LIST_USERS_PROJECTS errors.

`CUS$Invalid_Date`

Returned by CUS$User if either the start date or stop date are invalid.

`CUS$Invalid_Time`

Returned by CUS$User if either the start time or stop time are invalid.

CUS$Assumed_Proj_Error

Returned by CUS$List_User if the user either has no assumed project at login, or does not belong to the assumed project at login.

CUS$No_Such_User_In_Project

Returned by CUS$List_User when changing a user's attributes and the specified user either:

- Does not belong to a specified project or there was no specified project
- Does not belong to their assumed project at login

New CONFIG_USERS Subroutine Data Structures

The PRIMOS_Attributes data structure is now at Version 3. The following values have been added:

Start_Date	Fixed bin(15)
Stop_Date	Fixed bin(15)
Start_Time	Fixed bin(15)
Stop_Time	Fixed bin(15)

The date and time data words are respective parts of a 32-bit value in FS (File System) format, described in Appendix C of the *Subroutines Reference Guide*. To set a Time Window for a user you may specify any or all of the time window parameters.

Start Date
Stop Date
Start Time
Stop Time

Setting a parameter to zero indicates that there is no limit on the parameter.

The new complete declaration of PRIMOS_Attributes is

```
declare 1 PRIMOS_Attributes based aligned,
          2 Version fixed bin(15),
          2 Assumed_Project bit(1) aligned,
          2 Password_Lifetime fixed bin(15),
          2 Last_Login_Date,
            3 Year bit (7) unal,     /* Year (mod 100) */
            3 Month bit (4) unal,    /* Month */
            3 Day bit (5) unal,      /* Day */
          2 Last_Login_Time fixed bin(15), /* Quadseconds
                                        since midnight */
          2 Version fixed bin(15),
          2 Last_Password_Change fixed bin (15),
          2 Command_Levels fixed bin(15),
```

```
2 Program_Invocations fixed bin(15),
2 Dynamic_Segments fixed bin(15),
2 Static_Segments fixed bin(15),
2 Ver_1,
  3 ISC_Sessions fixed bin(15),
  3 ISC_Synchronizers fixed bin(15),
  3 ISC_Timers fixed bin(15),
2 Ver_2,
  3 Force_Password_Change bit(1) aligned,
  3 Concurrent_Logins fixed bin(15),
  3 Disable_Till fixed bin(31),
2 Ver_3,
  3 Start_Date  fixed bin(15),
  3 Stop_Date   fixed bin(15),
  3 Start_Time  fixed bin(15),
  3 Stop_Time   fixed bin(15);
```

The PRIMOS_System_Attributes data structure is now at Version 3. The following values have been added:

Sys_Admin	char(32) var
Password_Mode	bit(1) aligned

Sys_Admin is the user ID of the System Administrator. Password_Mode is reset when the SAD is an ACL protected directory. When the SAD is password protected, Password_Mode is set.

The new complete declaration of PRIMOS_System_Attributes is

```
declare 1 PRIMOS_System_Attributes based aligned,
          2 Version fixed bin(15),
          2 Use_System_Defaults bit(1) aligned,
          2 Use_Projects bit(1) aligned,
          2 Use_Server_Attributes bit(1) aligned,
          2 No_Password_on_LOGIN_Line bit(1) aligned,
          2 Password_Minimum_Length fixed bin(15),
          2 Password_Maximum_Length fixed bin(15),
          2 Password_Required bit(1) aligned,
          2 Verify_Password_Format bit(1) aligned,
          2 Computer_Generated_Password bit(1) aligned,
          2 Specify_Password bit(1) aligned,
          2 Do_NOT_Create_Origin bit(1) aligned,
          2 Verify_Origin bit(1) aligned,
          2 Prefix_for_Origin char (128) var aligned,
          2 Specify_Origin bit(1) aligned,
          2 Password_Lifetime fixed bin(15),
          2 Command_Levels fixed bin(15),
          2 Program_Invocations fixed bin(15),
          2 Dynamic_Segments fixed bin(15),
          2 Static_Segments fixed bin(15),
          2 Ver_1,
```

```
      3 ISC_Sessions fixed bin(15),
      3 ISC_Synchronizers fixed bin(15),
      3 ISC_Timers fixed bin(15),
      3 Force_Password_Change bit (1) aligned
      3 Initial_Password_Change bit (1) aligned,
      3 Use_Rev2_Encryption bit (1) aligned,
    2 Ver_2,
      3 Allowable_Failures fixed bin(15),
      3 Default_Concurrent_Logins fixed bin(15),
      3 Default_Account_Disposition fixed bin(15),
      3 Max_PW_CHG_HR fixed bin(15),
      3 PW_History bit(1) aligned,
      3 Log_Successful_Logins bit(1) aligned,
      3 Log_Failed_Logins bit(1) aligned,
    2 Ver_3,
      3 Sys_Admin char(32) var,
      3 Password_Mode bit(1) aligned,
```

The Validation_Info data structure is now at Version 1. The following values have been added:

SAD_Version	fixed bin(15)

SAD_Version is the current version of the SAD.

The new complete declaration of Validation_Info is:

```
declare 1 Validation_Info based aligned,
          2 Version fixed bin(15),
          2 Number_of_Entries_Total fixed bin(31),
          2 Number_of_Entries_Prim fixed bin(31),
          2 Number_of_Records fixed bin(15),
          2 Number_of_Entries_in_Use fixed bin(31),
          2 Number_of_Overflow_Entries fixed bin(31),
          2 Number_of_Overflow_Buckets fixed bin(31),
          2 Ver_1,
            3 SAD_Version fixed bin(15);
```

Data Recovery and Backup (DRB)

At Rev. 23.4, there are several enhancements to DRB that speed up the time it takes to do a partial restore. These enhancements include

- A new DRB configuration file directive, CHECKPOINT_FREQUENCY
- A new index file format
- New output from the SEARCH_INDEX_LIB command
- A new MAGRST subcommand, FS

CHECKPOINT_FREQUENCY Directive

You can now specify checkpoint frequency using the new DRB CONFIG_FILE directive, CHECKPOINT_FREQUENCY. This optional directive uses the format:

```
CHECKPOINT_FREQUENCY nnnnn
```

where *nnnnn* is the number of blocks from 50 through 32767. A checkpoint consists of labels and filemarks. The lower the checkpoint frequency, the more labels and filemarks are written to tape, leaving less room for actual data. If you do not include this directive in the DRB CONFIG_FILE, the software uses the checkpoint defaults of 500 for non–Exabytes and 10000 for Exabytes. Here is an example of a DRB CONFIG_FILE using the CHECKPOINT_FREQUENCY directive:

```
INDEX_LIBRARY_PATHNAME drb*
INDEX_LIBRARY_LEVEL 5
CHECKPOINT_FREQUENCY 200
```

Index File Format

DRB writes the checkpoint location and number to the extended index file (the user needs the checkpoint location to know where to position the tape when doing a restore). The following is an example of a checkpoint header in an index file:

```
MAGSR Index File Version 3 Created on 25Feb93 at 14:33:52
? Volume MARGO  Save 001,   Ad Hoc Save on 25Feb93 at
14:33:16   Checkpoint 0001
Checkpoint Location 1
Start of save BOB.
```

SEARCH_INDEX_LIB Command

The Search Index Library now outputs the checkpoint location along with other information, if appropriate. You need to know the checkpoint location to use with MAGRST. Here is an example of SEARCH_INDEX_LIB output:

```
OK,  SEARCH_INDEX_LIB POP.CPL
[SEARCH_INDEX_LIB Rev. 23.4 Copyright (c) 1993, Computervision Corporation]
Searching Index Library DRB*....

1 object.
Pathname          Date/Time  Modified  Type   Save Type   Volume  Save/Check/Loc
----------------  ---------------------------------------------------------------
<B2>TST>TST.COMI  12 Mar 93  09:57:48  SAM    Ad Hoc Save  SIMON   1/0004/624
                  12 MAR 93  09:57:48  SAM    Ad Hoc Save  SNGLO   1/0002/183508
```

The MAGRST Session

The MAGRST command has a new subcommand, FS. FS tells MAGRST that you are going to do a restore using checkpoint locations. FS works in the same way as a checkpoint (chkpt) restore.

To use the FS subcommand, run MAGRST. At the Ready to Restore prompt enter **FS**; at the Tree name prompt, enter the full pathname and checkpoint location (run SEARCH_INDEX_LIB to find a checkpoint location). Here is an example of MAGRST using the FS subcommand:

```
OK, MAGRST
[MAGRST Rev. 23.4 Copyright (c) 1993, Computervision
Corporation]

You are not attached to an MFD.
Tape unit:  4
Reel not currently positioned to a logical tape.
Enter logical tape number:  1
Positioning to logical tape number 1 ...
Violume Serial ID is MARGO.
Name:  BOB
Date:  03 12 93
Rev no:  0
Reel no:  1
Ready to Restore:  fs
Tree name:  b2>cpl>cpl.pop 1825
Tree name:  bob234>test>test.comi 624
Tree name:

Positioning to location number 624...

***  Starting Restore ***
***  Restore Complete ***

Positioning to location number 1825

***  Starting Restore ***
***  Restore Complete ***
```

The MAGSAV Session

There are no changes to the MAGSAV session.

Extended Memory for the 5000 Series

At Rev. 23.4, you can increase the main memory of system models 5310, 5320, 5330, and 5340 from 128 MB to 512 MB. Before using this extended memory, check with your service representative to ensure you have received and installed all applicable hardware and microcode updates.

LOGIN_SERVER and START_LSR Commands

The LOGIN_SERVER and START_LSR commands are enhanced to support the following new options:

- –DISABLE_MESSAGE notifies a user that his or her login ID is disabled.
- –TIMEWINDOW_MESSAGE notifies a user that he or she is attempting to log in outside of his or her permitted Time Window.
- –USER_ID_PROMPT replaces the default login prompt.
- –PASSWORD_PROMPT replaces the default password prompt.
- –PROJECT_PROMPT replaces the default project prompt.

LOGIN_SERVER Options

There are several new LOGIN_SERVER options.

–DISABLE_MESSAGE ***account_is_disabled_string***
–DM

Allows the System Administrator to customize the message a user sees if he or she tries to log in to a disabled account. An account is disabled automatically if the number of failed login attempts is exceeded, or if the System Administrator manually disables the account. If you do not use this option, LOGIN_SERVER defaults to `Invalid user id or password`. Please see the following caution regarding the potential dangers of customizing this message.

-TIMEWINDOW_MESSAGE ***outside_of_timewindow_string***
-TM

Allows the System Administrator to customize the message a user sees if he or she tries to log in outside of the times specified in his or her Time Window.

If you do not use this option, LOGIN_SERVER defaults to `Invalid user id or password`. Please see the following caution regarding the potential dangers of customizing this message.

-USER_ID_PROMPT ***user_id_prompt_string***
-UIP

Allows the System Administrator to customize a user's login prompt, replacing the default `OK?` or `User Id?`.

-PASSWORD_PROMPT ***user_password_prompt_string***
-PWP

Allows the System Administrator to customize a user's password prompt, replacing the default `Password?`.

-PROJECT_PROMPT ***user_project_prompt_string***
-PJP

Allows the System Administrator to customize a user's project prompt, replacing the default `Project?`.

The SYSTEM>SET_LSR_DEFAULTS tool supports the configuration of these new options.

Caution Be careful if you change the default failed login messages (time window and disabled) from `Invalid user id or password`. Using a specific disabled message, for example, `Account not active. Try again later`, can provide unauthorized users with the knowledge that they have stumbled upon potentially valid user IDs.

Examples: Specifying User ID and Password Prompts

In the following example, the START_LSR command is specifying a user ID prompt (UIP) and password prompt (PWP):

```
OK, START_LSR -UIP '-login: ' -PWP 'password: '
-IMPLICIT_LOGIN -PROMPT
```

This would make the following lines display during login:

```
login:
password:
```

Note that using the –IMPLICIT_LOGIN option allows a user to enter his or her login ID without typing in the word *login* (as of Rev. 23.3).

You can use any of the RDY expandable ready prompts within the new prompts. For example,

```
OK, START_LSR -UIP '%SN login: ' -PWP 'password: '
-IMPLICIT_LOGIN
```

would make the following display during login:

```
SIMON login:
password:
```

where SIMON is the system name.

Examples: Specifying Account Disabled Messages

The following example produces a customized disabled login message using the –DISABLE_MESSAGE option:

```
OK, START_LSR -DM 'Account disabled, if message persists
contact Sys Admin!'
```

This next example produces a customized login message notifying the user that he or she is attempting to log in outside of his or her prescribed Time Window. This example uses the –TIMEWINDOW_MESSAGE option:

```
OK, START_LSR -TM 'Account not active. Try again later!'
```

The LOGIN_SERVER Startup File

With Rev. 23.4, the options that are started with the LOGIN_SERVER are contained in an ASCII file called SAD>LOGIN_SERVER.STARTUP. This file contains the LOGIN_SERVER options whether the system comes up coldstart or if the System Administrator stops and restarts the LOGIN_SERVER with the START_LSR command.

Support for New Disk Drives

At Rev. 23.4, PRIMOS supports two new disk drives:

- Model 4734, a 3.5" 1.0 GB SCSI drive. Model 4734 has a capacity of 505,714 records distributed among 31 pseudoheads as follows:
  - Heads 0–6 have a capacity of 16,510 records per head.
  - Heads 7–30 have a capacity of 16,256 records per head.
- Model 4736, a 5.25" 2.0 GB SCSI drive. Model 4736 has a capacity of 958,342 records distributed among 31 pseudoheads as follows:
  - Heads 0–21 have a capacity of 30,988 records per head.
  - Heads 22–30 have a capacity of 30,734 records per head.

The FIX_DISK command and the –DISK_TYPE options of the MAKE command both accept these new drives. The following is a list of acceptable disk types for these commands:

Disk Type	*Description*
CMD	Cartridge module device
SMD	80 MB or 300 MB removable SMD
68 MB	68 MB fixed media
158 MB	158 MB fixed media
160 MB	160 MB fixed media
600 MB	600 MB fixed media SMD
MODEL_4475	300 MB fixed media SMD
MODEL_4711	60 MB fixed media
MODEL_4714	84 MB fixed media
MODEL_4715	120 MB fixed media
MODEL_4719	258 MB fixed media
MODEL_4721	328 MB fixed media SCSI
MODEL_4729	673 MB fixed media
MODEL_4730	213 MB fixed media SCSI
MODEL_4731	421 MB fixed media
MODEL_4732	1.34 GB fixed media SCSI
MODEL_4734	1.0 GB fixed media SCSI
MODEL_4735	496 MB fixed media SMD
MODEL_4736	2.0 GB fixed media SCSI
MODEL_4845	770 MB fixed media SMD
MODEL_4860	817 MB fixed media SMD

Paging Partitions on SCSI Disks

Splitting a SCSI disk results in the unavailability of some records due to alignment restrictions (in addition to the unused records on the file system portion of the split disk). Therefore, you may need to allocate more paging records on a SCSI disk than on an SMD disk. The number of unavailable records is different for each SCSI disk, as shown in the following table. This table assumes that the disk is being used as a single partition, split to allocate a minimal 10-record file system portion.

SCSI Disk Model	*Unavailable Records*
4721	56
4729	1050
4730	1122
4731	5718
4732	5448
4734	123
4736	253

Rev. 23.4 Publications

A

This appendix lists all books that are integral to all the releases of Master Disk Revision 23. For a list of books relating to an earlier release (prior to Rev. 23.0), please see Appendix A of the *Rev. 23.3 Software Release Document* (DOC13134–1PA). For any books not related to a specific revision, see the *Guide to Prime User Documents* (DOC13079–2PA), or type **HELP DOCUMENTS**.

This appendix lists publications in tables by function: PRIMOS administration and operation, PRIMOS use and programming, communications, data management, and languages.

The column heads in each table organize the information about each book as follows:

- The *Book Title* column lists the book's title.
- The *Most Recent* column contains information on the most recent revision at which the title has been published and the document number of that document.
- The *Also Required* column provides the document numbers for ordering any additional publications, such as release notes, updates, and full editions of the book, that work together with the document listed in the *Most Recent* column. Some of these additional publications may have titles that are different from the book title.

Note If the *Most Recent* publication is a release note (RLN*nnnnn–nn*A) or an update (UPD*nnnnn–nn*A), you must also have the last full edition of the title (DOC*nnnnn–nn*A) and any updates to that edition that were published prior to the publication in the *Most Recent* column. If the *Most Recent* publication is a full edition (DOC*nnnnn–n*LA), you do not need to order any prior editions, updates, or release notes with it; a new edition contains all changes that have occurred since the last published full edition.

Table A–1. PRIMOS Administration and Operation

Book Title	*Most Recent*		*Also Required*	
	Revision	*Document Number*	*Revision*	*Document Number*
Rev. 23.4 Software Release Document	23.4	DOC13134–002	23.3 23.2 23.1 23.0	DOC13134–1PA DOC10001–9PA DOC10001–8PA DOC10001–7PA
Rev. 23.3 Software Release Document	23.3	DOC13134–1PA	23.2 23.1 23.0	DOC10001–9PA DOC10001–8PA DOC10001–7PA
RAS Guide for 50 Series System Administrators	23.3	DOC13156–1LA		
Operator's Guide to System Commands	23.3	DOC9304–6LA		
Operator's Guide to Data Backup and Recovery	23.3	UPD10324–12A	23.1 23.0	UPD10324–11A DOC10324–1LA
Operator's Guide to File System Maintenance	23.3	DOC9300–6LA		
Operator's Guide to the Spooler Subsystem	23.3	DOC9303–5LA		
Operator's Master Index	23.3	DOC10110–5LA		
DSM User's Guide	23.0	DOC10061–3LA		
Rev. 23.0 Software Installation Guide	23.0	IDR10176–3XA		
Using FS_RECOVER	23.4	DOC13062–004	23.2	DOC13062–3LA
Using FS_RECOVER	23.3	UPD13062–3LA	23.2	DOC13062–3LA
Prime 8mm Cartridge Tape Drive User's Guide	23.3	DOC10275–3LA		
Disk Replacement Procedure for the Model 75500–6PK Device Module	23.2	IDR13100–1XA		
System Administrator's Guide, Volume I: System Configuration	23.0	DOC10131–3LA		
System Administrator's Guide, Volume III: System Access and Security	23.0	DOC10133–3LA		

Table A–2. PRIMOS Use and Programming

Book Title	*Most Recent*		*Also Required*	
	Revision	*Document Number*	*Revision*	*Document Number*
PRIMOS User's Release Document	23.0	DOC10316–1PA		
PRIMOS Commands Reference Guide	23.3	DOC3108–8LA		
New PRIMOS Help	23.0	DOC20012–1PA		
Programmer's Guide to BIND and EPFs	23.0	UPD8691–12A	22.0 19.4	UPD8691–11A DOC8691–1LA
Subroutines Reference I: Using Subroutines	23.0	UPD10080–21A	22.1 21.0	RLN10247–1LA DOC10080–2LA
Subroutines Reference II: File System	23.0	DOC10081–2LA		
Subroutines Reference III: Operating System	23.0	DOC10082–2LA		
Subroutines Reference IV: Libraries and I/O	23.0	DOC10083–2LA		
Subroutines Reference V: Event Synchronization	23.0	UPD10213–11A	22.1 22.0	RLN10247–1LA DOC10213–1LA
Advanced Programmer's Guide I: BIND and EPFs	T3.0–23.0	DOC10055–2LA		
Advanced Programmer's Guide II: File System	23.0	DOC10056–3LA		
Advanced Programmer's Guide III: Command Environment	T3.0–23.0	DOC10057–2LA		
Advanced Programmer's Guide: Appendices and Master Index	T3.0–23.0	DOC10066–4LA		

Table A–3. Communications

Book Title	*Most Recent*		*Also Required*	
	Revision	*Document Number*	*Revision*	*Document Number*

Table A–3. Communications				
NTS Planning and Configuration Guide	23.1	DOC10159–2LA		
NTS User's Guide	23.0	DOC10117–3LA		
Rev. 23.0 Prime Networks Release Notes	23.0	RLN10252–1LA		

Table A–4. Data Management				
Book Title	*Most Recent*		*Also Required*	
	Revision	*Document Number*	*Revision*	*Document Number*
ORACLE VERSION 6.0 Installation and User's Guide for 50 Series Systems	v6.0.30	DOC10134–4LA		

Table A–5. Languages				
Book Title	*Most Recent*		*Also Required*	
	Revision	*Document Number*	*Revision*	*Document Number*
Translator Family Software Release Document	T3.0–23.0	DOC10217–3PA		
C User's Guide	T3.0–23.0	DOC7534–4LA		

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Reader Response Form
Rev. 23.4 Software Release Document
DOC13134–002

Your feedback will help us continue to improve the quality, accuracy, and organization of our user publications.

1. How do you rate this document for overall usefulness?

☐ *excellent* ☐ *very good* ☐ *good* ☐ *fair* ☐ *poor*

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