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SECTION 1

INTRODUCTION

Multics Release 12.2 (MR12.2) is a complete release and assumes the prior installation of MR12.1. That is, the library tapes are self-supporting and do not require any other information to run Multics.

This document includes descriptions of features included in Multics Release MR12.2.

A separate document, Software Installation Bulletin (SIB), is supplied with the release tapes. The SIB describes the contents of the release tapes and includes procedures for installation of MR12.2.

Additional documentation, including a list of bugs fixed in MR12.2, is provided with the release tapes, either as printable segments on the tape (in a special directory >doc>MR12.2), or as paper copy.

Following is a summary of the remaining of sections in this document.

Section 2
summarizes important highlights

Section 3
describes significant software changes

Section 4
describes incompatible changes

Appendix A
contains a partial list of new commands, active functions, and subroutines
Appendix B
contains a list of Priced Software Products. These items are available only through contractual actions with a Honeywell Bull, Inc. sales representative.

Appendix C
describes the associated documentation.
SECTION 2

HIGHLIGHTS OF MR12.2

This section contains a brief summary of the most important items in this release. Refer to Section 3 for a more detailed description.

A brief description of known bugs fixed in this release is available in the segment >doc>MR12.2>TRs_fixed_in_MR12.2.

SOFTWARE CHANGE PROPOSALS

- SCP 6326, provides line numbered dprints
- SCP 6331, modifies the enter_abs_request command and enter_abs_request_subroutine to use exec_com search paths and accept new control arguments
- SCP 6338, raises the limit on disk_stat
- SCP 6339, increases the length of Fortran character variables
- SCP 6340, modifies dial_out to work in absentee or exec_com
- SCP 6341, provides additional control arguments for the enter_imft_request command
- SCP 6342, increases the ASYNC terminal autobaud rate detection range from 110 and 1200 baud to 300 and 9600 baud
- SCP 6348, modifies the canonicalize command to support canonicalization of MSFs
- SCP 6349, modifies the mail system to use search paths to locate existing mail system entities
- SCP 6350, lengthens tty special character sequences
SCP 6351, adds new control arguments to add_search_rules and add_search_paths
SCP 6352, makes search paths understand search rules
SCP 6355, modifies the find_rpv_subsystem support of boot_without query
SCP 6356, modifies the basic compiler to associate severity levels with error messages
SCP 6357, minor changes to the fast subsystem
SCP 6361, adds memory features to the change_wdir, cwd, command
SCP 6365, adds two control arguments, -inhibit_error and -no_inhibit_error, to the where_search_paths command/active function
SCP 6366, modifies mrds to use mrds search paths to locate databases.
SCP 6367, modifies the enter_abs_request command to support standard control arguments
SCP 6373, provides a new MRDS query language parser
SCP 6374, provides a quiet mode for LINUS
SCP 6375, provides new control arguments to LINUS requests in order to control printing of warning and progress messages
SCP 6377, adds the command set_lisp_temp_dir to allow a user to specify a directory for temporary segments created during a lisp environment by commands such as emacs or lisp_compiler
SCP 6378, modifies the display_ttt command to accept starnames for either the -terminal_type or -table options
SCP 6379, modifies the display_ttt command to allow complete expansion of a like definition
SCP 6380, allows accesses to be audited for specific file system entries
SCP 6384, adds a new initializer (Operator) command list_lv_attachments
SCP 6385, adds the field "Reply-To" in the header built by the send and reply editors of executive mail
SCP 6391, adds the new request_info command/active function to provide specified information on any request queued in absentee, output, retrieval, imft, and specific request type message queues

SCP 6401, Multics Inter-System Mailer (Available as RPQ Only)

SCP 6402, Multics TCP/IP (Available as RPG Only)

ADDITIONAL HIGHLIGHTS

- allow the attachment of laser printers as remote devices
- Added new audit keywords to switch_on and switch_off commands to manipulate a file system entry audit switch
- Ported AT&T System V LINT command and AT&T System V Release 2.0 MAKE command to Multics. The probe command may now be used on C programs when properly compiled.
SECTION 3

CONTENTS OF MR12.2

COMMUNICATIONS SYSTEM SOFTWARE

1. The range of autobaud rate detection for ASYNC terminal connections has been changed. Previously it was between 110 and 1200 baud. It now operates between 300 and 9600 baud.

2. Changed the TTF to include special character sequences of up to fifteen characters instead of the current limitation of three. The current system TTF must be converted using the change cv ttf command and the resulting TTT must be installed. All user-written TTFs must also be recompiled before use. The set_ttt_path command will report an error advising the user to recompile the TTF if the version being used is incorrect. Although the size of the special characters structure has changed, users of the set_special and get_special control orders should not be affected since the code is upward compatible. However, any other users of the c_chars structure may be affected since the size of the character array has been changed.

3. Added the following terminal types (with alternate names) to the installed terminal type table:

VERSATERM220_80C_36L (VERSATERM 80C_36L)
VERSATERM220_80C_36L_OFLOW (VERSATERM220_80C_36L_OFLOW)
VERSATERM220_102C_36L (VERSATERM 102C_36L)
VERSATERM220_102C_36L_OFLOW (VERSATERM220_102C_36L_OFLOW)

These terminal types were developed to handle usage of the Versaterm terminal emulator on the different Macintosh PCs with various screen sizes.

Corrected the "jump scroll" sequence in the initial string for the VERSATERM220_132C terminal type. Changed the ^pl mode for TEK4023 to pl23.
4. Added HB_LW_PRINTER_FORMS_BASE terminal type for use by a driver that is processing requests using the forms option to a Honeywell Bull Laserwriter. Added DD8260 (by Delta Data) series of terminal types. This is part of the support for horizontal scrolling in Emacs.

OPERATING SYSTEM SOFTWARE

I/O Daemon Software

BCE

A- 1. Modified the BCE restore request to zero clear the unused area at the end of the VTOC region on the physical volume being restored, before the restore begins. This is to avoid the possibility of having non-zero data in this area that would later be interpreted as an invalid VTOC.

System Initialization

B- 1. Added an option for pre-defining the data needed to locate the Root Physical Volume (RPV) at system boot time. This data can be placed in the hardcore.header segment and subsequently placed on the Multics System Tape (MST) by generate_mst. See the description of the new default_rpv_data minor keyword in generate_mst.info for more details.

B- 2. Added an option for pre-defining a default time zone, for use early in the system bootload process. This default data can be placed in the hardcore.header segment and subsequently placed on the Multics System Tape (MST) by generate_mst. See the description of the new default_time_zone minor keyword in generate_mst.info for more details.

B- 3. The console beeper will no longer be turned on when rcp_init is unable to read the options from a tape handler during system initialization.

Operator Command

C- 1. Added a new operator command list_lv_attentions, llva. It will display a list of processes currently attached to a LV, set of LVs, or all the LVs that have attachments.
C- 2. Added enhancements to I/O daemon software to allow attachment of laser printers as remote devices. Initial implementation is for the Honeywell Bull Model 80 printer. Among the enhancements are: print orientation on the page; font selection; site-defined head and tail sheets; etc. Defaults have been chosen for the new features such that the current I/O daemon tables source file may be used as-is. The addition of the new features has caused incompatible changes in the compiled I/O daemon tables. The site's current tables must be recompiled using the new version of the iod_tables_compiler.

ADMINISTRATION COMMANDS

D- 1. Modified the new user command to time_lock the password of a user. A user who is logged in when the time_lock is set for his/her password will be immediately bumped from the system unless they have the "nobump" user attribute.

D- 2. Modified programs that reference the disk_stat segment to allow that segment to become a multisegment file if statistics are recorded for more directories than will fit in a segment.

MAINTENANCE SOFTWARE

E- 1. Modified the reset_soos command to reset the security_out_of_service switch on segments, as well as directories.

Commands

F- 1. Added a new audit keyword to the switch_on and switch_off commands. Accesses may now be audited for specific file system entries by turning on the entry's audit switch. This operation requires access to the system_privilege_gate.

F- 2. Added the -auth, -home_dir, -no_start_up, -process_overseer, and -ring control arguments to the enter_abs_request command. The command and the enter_abs_request subroutine will use exec_com search paths to locate the absin file, if only a file entryname is given.

F- 3. Added a new version (1.2) of kermit. Kermit will transmit and receive multisegment files and support extended packet length. See the kermit info segments for more details.
F- 4. Added the new control argument -number, -nb, to the enter_output_request command to provide users with the ability to request line-numbered printouts. Line-numbers will appear on the output as they do from the print command. See the online help files for more information.

F- 5. Added memory features to the change_wdir, cwd, command. Changed print_wdir, pwd, and working_dir, wd, commands/active functions to optionally print or return prior working directories that are on the memory stack.

F- 6. Modified dump_segment and ring_zero_dump to display data as PL/1 structures similar to the probe value request.

F- 7. Modified the canonicalize command to support canonicalization of MSFs.

F- 8. The search rules commands add_search_rules, set_search_rules, delete_search_rules, and print_search_rules are now obsolete; though they will be retained indefinitely. In their place, the search facility now manipulates the search rules using the "linker" search list. The search facility also keeps track of the pathname by UID, so multiple references to an entry in a search list does not need to be by the same name.

F- 9. Added the control arguments -inhibit_error, -ihe, and -no_inhibit_error, -nihe, to the where_search_paths command and active function. The -ihe control argument causes a null string to be returned rather than an error when no matching entry is found. The -nihe control argument is the default.

F-10. Modified add_search_rules and add_search_paths commands to accept the -inhibit_error, -ihe, and -no_inhibit_error, -nihe, control arguments, which determine whether to print warning messages about nonexistent pathnames and paths already in the search rules/search list. The default is -nihe.

The add_search_paths command now accepts the -force, -fc, control argument to allow moving paths already in the search list to new positions in the list. -no_force, -nfc, has been added to override this control argument.

The delete_search_paths command now recognizes the short forms of the pathname keywords (e.g., -wd, -pd, -rd, -hd).
F-11. Modified the print终端 types command to accept a starname identifying the specific terminal types to print. This has caused an incompatible syntax change. The display_ttt command now allows starnames for either the -terminal_type or -table options. It also allows a like definition to be completely expanded.

F-12. Added a new control argument, -data, to the value_get command to return the uninterpreted contents of data-type values from a value segment. These values can then be routed into a temporary segment for display with the dump_segment command or some other use. See value_get.info for details.

F-13. Added the command set_lisp_temp_dir to specify a directory for temporary segments created during a lisp environment by commands such as emacs or lisp_compiler. Any new lisp temp segs will be placed in the specified directory. Existing temp segs will not be moved to the new directory. Temporary segs placed in a directory, other than the process dir, will be preserved across processes and system interruptions. While this is useful for debugging and for holding large temp segs, care should be taken to delete obsolete segs as each process will create new copies. Using a nonvolatile directory for lisp temp segs does not mean that the lisp environment is restartable in a new process.

F-14. Modified display_disk_label and display_pvpte to display disk partition first records and sizes in decimal and octal.

F-15. Modified list_vols argument processing to allow the -rec_used/-rec_left and the -pv/-lv arguments to override one another.

F-16. Added the -state_date control argument to the manage_volume_pool set operation.

F-17. Added the copy_liveproc command. This new command dumps the contents of an active process directory for display by the analyze_multics, azm, subsystem.

F-18. Added the request_info, rqi, new command/active function to return specified information about any request queued in the absentee, output, retrieval, imft, or any of the specific request type message queues. Added the -forms control argument to the list_abs_requests, lar, command.

F-19. Modified the abbrev .use request to no longer expand beginning_of_line abbrevs that match the pathname string.
F-20. Added the -all_entrypoints, -aep, control argument to the help rest request, to print all remaining information for the rest of the entry points of a subroutine info segment. Added a -list_entry_points, -lep, control argument to the help command to list all the entry points of a subroutine info segment. The entry point list will no longer be displayed with each entry point. Added the list_entry_points, lep, request which lists all the entry points of a subroutine info segment. Added a -case_sensitive, -cs, control argument to the search and section requests, and to the help command to be used with either -section or -search. The default will be non-case sensitive. Added the list_requests and help responses, which display a brief explanation of help responses.

F-21. Added new control arguments to the list_sub_tree command to make it more versatile.

F-22. Added a new control argument, -no_trim, for use with the query/response command/active function. The -no_trim argument will cause query/response questions which contain trailing spaces not to be trimmed.

F-23. Removed the -interpret (-int, -it) and -no_interpret (-nint, -nit) arguments from the disk_queue command.

F-24. Changed display_entry_point_dcl to treat virtual entries of the form "entry" or "entry$entry" (as in "ask_" or "ask_$ask_") as equivalent. See the online help file.

Date/Time Software

G- 1. Modified the date/time argument to the date_deleter command. It may now contain a leading hyphen to express a time as -12hours.

Mail/Message Facility

H- 1. Changed the extended mail system (read_mail, print_mail and send_mail) and emacs rmail to use the search list named "mlsys" to locate mailboxes, saveboxes, and mailing lists. The default search paths for mlsys are -wd, -hd, and >udd>[person proj]>[person name]>[person name].mlsys. Only free standing mailing lists that are not archive components will be located using the search path facility.
Process Environment

I- 1. Modified the calculation of memory units to decrease the differences between units measured during light system load versus heavier loads. This change will make memory units a more repeatable and useful measure of process paging.

PL/1

J- 1. Modified PL/1 to now recognize that internal static options (constant) variables have constant values, and to allow these variables in many new contexts where previously only literal constants were allowed.

```
go to TYPE (star_entries.type);
    TYPE (STAR_SEGMENT):
        go to NEXT_ENTRY;
    TYPE (STAR_LINK):
        go to NEXT_ENTRY;
    TYPE (star_directory):
```

J- 2. Modified PL/1 to now accept the -no_prefix control argument to the PL/1 compiler.

Subroutines

K- 1. Deleted the find_common_acl_names subroutine. This subroutine has been replaced by the match_acl internal procedure of the acl_commands.

K- 2. Modified hcs_$reset_ips_mask to reset the IPS mask only to values returned as old_mask by hcs_$set_ips_mask. Such mask values contain a control flag in the mask. This avoids leaving IPS signals masked if the user quits after a cleanup handler is established to call hcs_$reset_ips_mask but before hcs_$set_ips_mask was called.

K- 3. Added a pad field and changed the order of the fields in help_cis_args_.incl.pll.
PRICED SOFTWARE PRODUCTS

Basic

L- 1. Modified basic compiler to associate severity levels with error messages. The severity command will now work with basic.

Compose

M- 1. Deleted the compose device support module bound_vip7801_dsm_ because it has been inoperative since MR9.0.

C Language

N- 1. Added support to the C compiler to handle common arguments that are used in many C programs. This will aid the user who is porting this software by increasing the chance of success.

N- 2. The AT&T System V LINT command has been ported to Multics. LINT is a C program checker, which is much more stringent than the C compiler.

N- 3. THE AT&T System V Release 2.0 MAKE command has been ported to Multics. Make maintains, updates, and regenerates groups of programs.

N- 4. The Multics C include file varargs.h has been modified to be compatible with System V varargs.h. This is an incompatible change. Multics programs written to use the older version of varargs.h will require changes to remove the extra level of indirection or be recompiled using "-def Multics_Obsolete_Varargs".

N- 5. Probe can now be used on C programs. The C program should be compiled (using 'cc') with the -table, -tb, control argument.

Fast

O- 1. Modified the fast subsystem to query the user when a quit request is issued without previously saving changes. This will prevent unintentional loss of changes.

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LINUS, Version 4.5

P- 1. Added new control arguments to the LINUS store, store_from_data_file, write, and write_data_file requests to control the printing of warning messages and progress messages. The -warning, -no_warning (-no_warn) and -progress, -no_progress (-npg) arguments control these messages.

MOWSE

Q- 1. Modified the PC MOWSE command to cause a communications connection to be disconnected by default, unlike the previous version which provided no means by which a connection could be broken. The default disconnection can be avoided by providing a new "/H" control argument to the PC MOWSE command.

Q- 2. Modified MOWSE to correctly support the mark and space parity options for the /P control argument.

Q- 3. Modified bft to maintain a queue of transfer requests with priority levels (1 - 4) and service the queue automatically. This will allow the user to specify more than 2 requests at a time (as was the restriction with the previous implementation).

Q- 4. Modified the bft recover_store and recover_fetch directives to be condensed into a single recover directive requiring no other arguments. bft will then automatically recover interrupted transfers and continue with the requested entries in the queue.

Q- 5. The bft command invoked with no arguments will display a listing of requests in the queue.

Q- 6. The bft cancel directive will allow the user to remove requests from the queue.

Q- 7. Added the -file_type {binary | ascii} control argument to the bft fetch and store directives to allow the user to specify whether or not <CR><NL> - <NL> conversions will be performed.

Q- 8. Added the -queue control argument to the bft fetch and store directives to specify transfer priority of the request (1 - 4, with 1 being the highest priority).

Q- 9. Starname expansion provision will be accepted by the bft store and fetch directives to allow the user a more dynamic means of transfer request specification.
Q-10. A number of new features are being added to WSTERM to increase its functionality and usability. These include editing, auditing, help and command history capabilities. /A - specifies the name of the audit file to write to for file audit. /P - specifies the printer card (0 - 3) to use for line printing.

Changes to WSTERM:

1) A new keyboard input routine will be added which will allow some EMACS-like editing capabilities on keyboard input before sending a line to the host;

2) Input going to and coming from the host will be trapped by WSTERM to allow the data to be stored to a file and/or printed as it is being displayed;

3) Lines of input will be saved in a circular buffer each time they are entered to allow them to be retrieved later;

4) Routines for saving and restoring screen contents to and from a local buffer will allow a help screen to be displayed without disturbing the displaying of terminal/host dialogue;

5) Routines for saving and restoring screen contents will also allow background messages to be displayed on a screen of its own without disturbing the displaying of terminal/host dialog;

6) In addition to signaling the presence of background and foreground messages, the bottom line of the screen will display the current WSTERM modes;

7) The control-S key will be used to stop the screen from scrolling;

8) The BREAK, ^@ or ^2 key, and the DEL key will be made to send a break signal, nul character, and delete character respectively.

Q-11. The Asynchronous/Non-Edit WSTERM terminal emulation mode is being replaced with an Asynchronous/Edit mode. This contains considerable keyboard and terminal enhancements, thus making the Non-Edit mode obsolete.
EMACS, Version 12.9

R- 1. Extended the EMACS editor to support direct input and display of 8-bit characters. In order to use this feature, the terminal must be able to generate 8-bit codes and display graphics corresponding to 8-bit codes received.

R- 2. The modified EMACS terminal controller function, DCTL-init, must set the LISP variable, DCTL-extended-ascii, to non-nil. Also, the TTF entry for the terminal must define an output_conversion table that defines the 8-bit characters that can be directly displayed by the terminal. See the EMACS Extension Writer’s Guide, Order Number CJ52, for details.

R- 3. Modified EMACS to support the following new terminal types:

VERSATERM_80C_36L  VERSATERM_80C_36L OFLOW
VERSATERM_102C_36L  VERSATERM_102C_36L OFLOW
VERSATERM220_80C_36L VERSATERM220_80C_36L OFLOW
VERSATERM220_102C_36L VERSATERM220_102C_36L OFLOW

EMACS will use the current line and page lengths from the tty_mode string to determine how large a screen the Versaterm Terminal Emulator on the Macintosh is actually supporting.

Executive Mail, Version 4.1

S- 1. Added new field labeled "Reply-To:" for the header built by the xmail send and reply editors. By editing this field, users may now designate a recipient of replies. The default recipient is the sender.

This change introduces a minor incompatibility between deferred messages created and referenced with MR12.2 xmail and those deferred in MR12.2, but referenced by previous versions of xmail. In order to adapt this feature to deferred messages which were created by pre-MR12.2 versions of xmail, the new "Reply-To:" line will be appended to all deferred messages. Deferred messages created or redeferred in MR12.2 and subsequently accessed by an earlier version of xmail will show the "Reply-To:" field appended to the end of the "Subject:" line. This problem can be overcome by editing the subject to remove the extraneous data.
Fortran

T-1. Modified Fortran to extend the maximum length of character variables from 512 up to 12BK-1 (131071) characters. Character limits in static and automatic storage may cause fatal compiler errors. These errors can be avoided by using the -large_array, -la, option.

Inter Multics File Transfer Facility, IMFT

U-1. Enhanced the IMFT facility to support the use of the -delete, -no_delete, -extend, -replace, and -update control arguments with the enter_imft_request, eir, command.

IMFT drivers may now be configured to operate over asynchronous channels including X.25 public networks. This support includes automatic disconnecting when the drivers are idle to reduce X.25 connection charges.

Access checking has been extended to require that the ACL for each object transmitted will be checked and must have explicit "r" or "s" access for both the user and the daemon on the system that is sending the data. The use of the -delete control argument requires that both the user and daemon have explicit "sma" access on the parent directory of the object specified in the eir command line. See the Inter-Multics File Transfer Facility Reference Manual, Order Number CY73, for more information. (>doc>MR12.2>book.imft.compout)

MRDS

V-1. Added a mrds search list named "mrds" with a default search path of -working_dir. The following commands and subroutines use the mrds search list to search for mrds databases. adjust_mrds_db, copy_mrds_data, create_mrds_dm include, create_mrds_dm_table, display_mrds_db access, display_mrds_db_population, display_mrds_db status, display_mrds_db_version, display_mrds_dm, display_mrds_dsm, mrds_call, quiesce_mrds_db, secure_mrds_db, unpopulate_mrds_db, restructure_mrds_db (ready request), linus (open request), dsl$_open, dsl$_get_path_info, msni$_open_submodel, mmi$_get_secured_state, mmi$_get_authorization, mmi$_open_model, mmi$_quiesce_db and mmi$_unquiesce_db.
V- 2. Modified MRDS to report syntax and semantic errors in selection expressions via a new condition, mrds_se_error_. The default handler for this condition formats the selection expression that caused the error and displays it on the error_output switch along with other diagnostic information. This behaviour may be controlled by the new set_mrds_options command described below.

V- 3. Modified MRDS to no longer enforce the rigid parentheses rules of the past. Parentheses are still allowed, but are only needed to establish operator precedence.

V- 4. Added a new command, set_mrds_options. This provision gives users a finer control over the way MRDS operates in their process.
SECTION 4

INCOMPATIBLE CHANGES

OPERATING SYSTEM SOFTWARE

I/O Daemon Software

A- 1. Added enhancements to I/O daemon software to allow attachment of laser printers as remote devices. Initial implementation is for the Honeywell Bull Model 80 printer. Among the enhancements are: print orientation on the page; font selection; site-defined head and tail sheets; etc. Defaults have been chosen for the new features such that the current I/O daemon tables source file may be used as-is. The addition of the new features has caused incompatible changes in the compiled I/O daemon tables. The sites current tables must be recompiled using the new version of the iod_tables_compiler.

USER SOFTWARE

Commands

B- 1. Changed the TTF to include special character sequences of up to fifteen characters instead of the current limitation of three. The current system TTF must be converted using the change cv ttf command and the resulting TTT must be installed. All user-written TTFs must also be recompiled before use. The set ttt path command will report an error advising the user to recompile the TTF if the version being used is incorrect. Although the size of the special characters structure has changed, users of the set_special and get_special control orders should not be affected since the code is upward compatible. However, any other users of the c_chars structure may be affected since the size of the character array has been changed.
B- 2. The print_terminal_type command now takes a starname option of the specific terminal type names to print. This has caused an incompatible syntax change. The display_ttt command now allows starnames for either the -terminal_type or -table options. It also allows a like definition to be completely expanded.

PRICE SOFTWARE PRODUCTS

C Compiler

C- 1. The Multics C include file varargs.h has been modified to be compatible with System V varargs.h. This is an incompatible change. Multics programs written to use the older version of varargs.h will require changes to remove the extra level of indirection or be recompiled using "-def Multics_Obsolete_Varargs".

Executive Mail

D- 1. Added a new field labeled "Reply-to:" for the header built by the xmail send and reply editors. By editing this field, users may now designate a recipient of replies. The default recipient is the sender.

This change introduces a minor incompatibility between deferred messages created and referenced with MR12.2 xmail and those deferred in MR12.2, but referenced by previous versions of xmail. In order to adapt this feature to deferred messages which were created by pre-MR12.2 versions of xmail, the new "Reply-To:" line will be appended to all deferred messages. Deferred messages created or redeferred in MR12.2 and subsequently accessed by an earlier version of xmail will show the "Reply-To:" field appended to the end of the "Subject:" line. This problem can be overcome by editing the subject to remove the extraneous data.
APPENDIX A

COMMANDS AND SUBROUTINES

This is a partial listing of new commands for MR12.2. There are no new subroutines for MR12.2. A brief description of the command functionality is included. Refer to info segments or the appropriate manuals for more information.

**NEW COMMANDS**

*list_vol_attachment, lvat*
  to return a list of current attachment(s) to a LV, set of LVs, or all LVs that have attachments

*set_lisp_temp_dir*
  to specify a directory for temporary segments created during lisp environment

*detach_mowse, dtm*
  terminates the MOWSE I/O protocol communications and detaches the mowse_io_switch

*copy_liveproc*
  to dump contents of an active process directory for display by the analyze_multics (azm) subsystem

*request_info, rqi*
  to return specific information about requests queued in the absentee, output, retrieval, imft, or any other specific request type message queues
APPENDIX B

MULTICS PRICED SOFTWARE PRODUCTS

<table>
<thead>
<tr>
<th>PRODUCT NUMBER</th>
<th>TITLE</th>
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</thead>
<tbody>
<tr>
<td>SGS6800</td>
<td>Multics Operating System EXEC (see Note 1 below)</td>
</tr>
<tr>
<td>SGS6801</td>
<td>GCOS (III) Timesharing Environment Facility</td>
</tr>
<tr>
<td>SGS6803</td>
<td>FAST/DFAST (Fast Access System for Timesharing)</td>
</tr>
<tr>
<td>SGS6804</td>
<td>GCOS (III) Batch Environment Facility (see Note 1)</td>
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</table>

<table>
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<tr>
<th>OPERATING SYSTEM SOFTWARE EXTENSIONS</th>
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<tbody>
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<td>SGC6823</td>
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<td>SGE6800</td>
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<td>SGE6802</td>
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<tr>
<td>SGL6801</td>
</tr>
<tr>
<td>SGL6802</td>
</tr>
</tbody>
</table>

Priced Software: B-1

SRB12.2
SGL6803  COBOL-74 Compiler and Runtime Facility
SGL6805  MRPG (Report Generator) Facility
SGL6806  APL (Version 5.02)
SGL6807  Pascal Compiler and Runtime Facility
SGL6808  C Compiler and Runtime

OPERATING SYSTEM UTILITIES AND TOOLS

SGD6806  Executive Mail System
SGD6807  Format Document Facility
SGU6800  WORDPRO Comprehensive Facility
SGU6801  SORT/MERGE Facility
SGU6803  LISTER Facility
SGU6804  SPEEDTYPE Facility
SGU6805  Dictionary Tools
SGU6807  Extended Mail Facility
SGU6820  Compose Facility
SGU6833  TED (Text Editor)
SGU6834  Emacs Text Processing Facility
SGU6835  Offline Page Printing System Support Facility

DATA MANAGEMENT SOFTWARE

SGC6824  Multics Forum Facility
SGD6800  MRDS (Multics Relational Data Store)
SGD6801  LINUS (Logical Inquiry and Update System)
SGC6826  Multics Executive Forum Facility

APPLICATIONS SOFTWARE

AGS6801  Timesharing Library (see Note 3)
AGS6802  ISTAT (Interactive Statistics) (see Note 3)
AGS6803  Graphics Facility
AGS6805  SCICONIC Mathematical Programming Package
AGS6806  SCICONIC Matrix Generator Facility
SGH6801  Simplified Computing and Filing Facility
SGH6802  TEXTO Document Management System and LOGOTEL User Interface for TEXTO
SGH6804  MegaCalc Spread Sheet Package

Notes:

1. Licensed for use without separate charge to users acquiring a central processor system from Honeywell.
2. Class II - Maintained only.
3. Class III - Unsupported.

Priced Software B-2 SRB12.2
4. Required for normal Multics operation and to support any additional separately priced software products.
APPENDIX C

DOCUMENTATION CHANGES

CURRENT MULTICS DOCUMENTATION STATUS

A complete list of manuals (including current availability status) is provided in >doc>info>manuals.info as part of MR12.2. Subsequent to this release a SiteSA may obtain an updated list of available manuals at >doc>info>manuals.info on System M.

12.1 Documentation

The following new and updated publications support MR12.1.

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Document Title</th>
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<tbody>
<tr>
<td>AG92-06B</td>
<td>Multics Commands and Active Functions</td>
</tr>
<tr>
<td>AG93-05B</td>
<td>Multics Subroutines and I/O Modules</td>
</tr>
<tr>
<td>AK50-03B</td>
<td>Multics System Administration Procedures</td>
</tr>
<tr>
<td>AM81-04A</td>
<td>Multics System Maintenance Procedures</td>
</tr>
<tr>
<td>AW53-04E</td>
<td>Multics Relational Data Store Reference Manual</td>
</tr>
<tr>
<td>CC70-01E</td>
<td>Multics FORTRAN User’s Guide</td>
</tr>
<tr>
<td>CC75-02A</td>
<td>Multics Communications Administration</td>
</tr>
<tr>
<td>GB60-00A</td>
<td>Multics HASP Service and Utility Manual</td>
</tr>
<tr>
<td>GB61-01B</td>
<td>Operator’s Guide to Multics</td>
</tr>
<tr>
<td>GB64-00B</td>
<td>Multics Admin, Maint, and Operations Commands</td>
</tr>
<tr>
<td>GB66-00</td>
<td>Multics On-Line Work Station Env User’s Guide</td>
</tr>
<tr>
<td>HH07-00A</td>
<td>Multics C Compiler User’s Guide</td>
</tr>
</tbody>
</table>
For the convenience of new user sites, a complete list of Multics manuals, is provided below. For information about how to order manuals, type "help order_manuals," on your system.

AG90  Introduction to Programming on Multics
AG91  Multics Programmer's Reference Manual
AG92  Multics Commands and Active Functions
AG93  Multics Subroutines and Input/Output Modules
AG94  Multics PL/I Language Specification
AK50  Multics System Administration Procedures
AK95  Multics APL User's Guide
AL39  Multics Processor Manual
AM81  Multics System Maintenance Procedures
AM82  Multics BASIC
AM83  Multics PL/I Reference Manual
AN05  Multics GCOS Environment Simulator
AN50  Guide to Multics Manuals
AS40  Multics Graphics System
AS43  Multics COBOL User's Guide
AS44  Multics COBOL Reference Manual
AT58  Multics FORTRAN Manual
AT59  Multics DFAST Subsystem User's Guide
AU25  Multics FAST Subsystem Reference Guide
AU77  Multics Online Test and Diagnostics Reference Manual
AW17  Multics Commands and Active Functions Quick Reference Guide
AW32  Multics SORT/MERGE
AW53  Multics Relational Data Store Reference Manual
AZ49  Multics Logical Inquiry and Update System Reference Manual
AZ98  Multics WORDPRO Reference Manual
CC69  Multics Report Program Generator Reference Manual
CC70  Multics FORTRAN User's Guide
CC75  Multics Communications Administration
CG40  Multics qedx Text Editor User's Guide
CH23  Multics Extended Mail System User's Guide
CH24  New User's Introduction to Multics--Part I
CH25  New User's Introduction to Multics--Part II
CH27  Emacs Text Editor User's Guide
CJ52  Multics Emacs Extension Writer's Guide
CP31  Level 68 Introduction to Emacs Text Editor
CP50  Multics Text Editor (Ted) Reference Manual
CP51  Multics Menu Creation Facilities
CX20  Fundamentals of Multics Executive Mail
CX72  Executive Mail Editing Operations (Reference Card)
CY73  Inter-Multics File Transfer Facility Reference Guide
CY74  Multics Forum Interactive Meeting System User's Guide
DJ18  Guide to Multics WORDPRO for New Users
DU06  Fundamentals of Multics Forum Interactive Meeting System
DW19  Multics MegaCalc User's Guide

Documentation Changes                    C-2                     SRB12.2