

MULTICS
SOFTWARE RELEASE BULLETIN
AND
INSTALLATIONS INSTRUCTIONS
RELEASE MR12.4

PREPARED BY:
MULTICS SUPPORT

December 05, 1990

Worldwide
Information
Systems

Bull

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SECTION 1

INTRODUCTION

Multics Release 12.4 (MR12.4) is a supplemental release and assumes the prior installation of MR12.3. That is, the library tapes of MR12.3 a free standing release must be installed prior to installation of MR12.4.

This document includes descriptions of features included in Multics Release MR12.4. Both SRB and SIB are combined into this document, instructions for installing MR12.4 are included in Section 5.

Additional documentation, including a list of bugs fixed in MR12.4, is provided with the release tapes, as printable segments on the tape in a special directory >doc>MR12.4. or as errata info segments. Software Releases prior to MR12.1 are no longer supported. All sites running pre-MR12.3 software are strongly encouraged to upgrade to MR12.3 as soon as possible, then move to MR12.4.

SITE SUPPORT

System Representatives who support Multics should apply for registration on the SiteSA project maintained in Phoenix on System M.

The SiteSA project was created to allow sites to communicate with Support personnel on matters of site support. Only System Representatives who support a Multics site are authorized to use the project. They are authorized to use it only for site support activities which require communication of information to support personnel.

SiteSAs should maintain their site's info segments in >udd>SiteSA>site_info (>udd>ssa>si). Information on maintaining these segments is in the info segment, >udd>ssa>si>site_info.info.

In addition to normal telephone and Multics mail communications with support personnel, SiteSAs are encouraged to use the unusual_crash_log forum meeting to report any unusual problems encountered at their site. SiteSAs not familiar with forum can type "help forum" for usage information. Forum is a subsystem somewhat like the mail system in which an electronic meeting can be held. To invoke forum, type:

```
forum >udd>ssa>sa_meeting>uclog
```

Type ? to print a list of requests allowed by forum. Other forum meetings of interest to SiteSAs are:

PATHNAME	SHORT NAME
>udd>ssa>sa_meeting>install_instructions	ii
>udd>ssa>sa_meeting>hardware_problems	hwp
>udd>ssa>sa_meeting>critical_fixes	fixes

We would appreciate that sites as they complete installation of MR12.4 enter a transaction in the install_instructions (ii) forum meeting. This will allow other sites to see the amount of exposure the release is receiving and to communicate any problems encountered in the installation procedure.

Support also suggests, very strongly, that SiteSAs DO NOT attempt to reproduce site problems on System M which are known to crash the system at their site, cause processors to loop in ring 0, etc. Such problems should be reported via the Trouble Report system, and will be verified by support personnel using appropriate resources, so that System M service is not interrupted unnecessarily.

Problems encountered while installing this release, or problems of a critical nature to a customer site (for a definition of critical, type: help tr.priorities) should be reported to the list below:

NAME	AREA	USER ID	PHONE
Daniel Fudge	Mgr, ACTC		
	Release Prep	Fudge.sm	403/295-5900
Ward Anderson	Site Support	WAAAnderson.sm	403/295-5900
Dave Schroth	Site Support		
	Release Prep	Schroth.sm	403/295-5900

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

Section 2
describes significant software changes

Section 3
trs fixed in MR12.4

Section 4
describes significant fco and firmware status

Section 5
describes installation instructions

Appendix A
describes the associated documentation

Appendix B
module changes

SECTION 2

CONTENTS OF MR12.4

USER SOFTWARE

Commands

1. The undocumented procedure `canonicalize_` no longer terminates it's input pointer.
2. `Exec_com` has been modified to accept the literal `&CR`.
3. The subroutine entry point `'null_entry_'` has been added to the command `'nothing'`. This will enable programmers to perform the same function as calling the command `'nothing'` without using a name that can easily clash with the name of user segments.
4. The maximum number of components in a multi-segment `vfile_` has been raised from 900 to 1250.
5. The short name `'dfi'` has been added to the `'display_forms_info'` command.
6. The `working_dir`, `get_pathname`, and `equal_name` active functions now return quoted strings. Users may have to modify `exec_coms` to no longer use the double vertical bar convention `(|[...])` to suppress active function re-evaluation.

Date/Time Software

- A- 1. Dates are calculated using the "Pope Gregory XIII" method (after Oct 4, 1582). The full (normally 4 digit) year instead of the partial (1 or 2 digit) year is used in the header for the small calendars.

PRICED SOFTWARE PRODUCTS

C Language

- B- 1. The "c_compile" command has been modified to painlessly locate the other components of the c_compiler. Users will no longer have to change their search rules or forcibly initiate these programs (cop, ccom, le and main_).

Logical Inquiry Update System (LINUS)

- C- 1. All user data input or output through LINUS will be rounded to the precision of the target before storage or display.

Mrds

- D- 1. MRDS will now complain on attempts to open databases that require the use of Data_Management if Data_Management is not available.

PASCAL

- E- 1. Pascal's round operator now correctly rounds real numbers of the form -x.5 to the value -(x+1).0, rather than -x.0 as was done before.

SECTION 3

TRS_FIXED_IN_MR12.4

Site: MIT, Number: phx04118, Date Entered: 1979-11-12, State: submitted Area: pl1 Summary: bug in code generated with -optimize

Site: System, Number: phx08290, Date Entered: 1980-11-11, State: answered Area: library descriptors Summary: Can't make library descriptors do what I want them to do.

Site: System, Number: phx08357, Date Entered: 1980-11-15, State: answered Area: apl Summary: how is APL process overseer invoked?

Site: AFDSC, Number: phx09324, Date Entered: 1981-03-05, State: submitted Area: pl1 -optimize Summary: pl1 program runs correctly when not optimized

Site: System, Number: phx11423, Date Entered: 1981-09-01, State: submitted Area: ttydim Summary: edited mode output hangs on many nuls, seems to lose interrupt

Site: Ford, Number: phx14492, Date Entered: 1983-01-10, State: submitted Area: io_daemon Summary: Users should be able to cancel running dprint requests.

Site: MIT, Number: phx14552, Date Entered: 1983-01-21, State: submitted Area: ipc_fast \$block Summary: When printing in edited mode, it goes blocked and never wakes up.

Site: DND-H, Number: phx14618, Date Entered: 1983-02-01, State: needs_info Area: PL/1 27b compiler Summary: PL/1 27b compiler incorrectly uses register X6 in 'put skip' statement during optimization because pl1_operator 'put_field' sets it to zero. Causes illegal_procedure fault on EIS 'mvne'.

Site: AFDSC-T, Number: phx14897, Date Entered: 1983-03-22, State: submitted Area: Linus modify Summary: The linus modify request truncates fixed dec attributes, when it should round.

Site: System, Number: phx15479, Date Entered: 1983-06-27,
State: submitted Area: probe Summary: Can't get address of
defined or "based (addr" variables.

Site: System, Number: phx15692, Date Entered: 1983-08-01,
State: not_error Area: PL/1 Summary: Compiler fails with
null_pointer fault in the code generator.

Site: Site, Number: phx15784, Date Entered: 1983-08-15, State:
needs_info Area: pli I/O Summary: Standard pli I/O produces a
cryptic error message in the form of a transmit condition when
record_quota_overflow happens while converting a file to a
multi-segment file.

Site: Ford, Number: phx16077, Date Entered: 1983-10-03, State:
submitted Area: tty_ Summary: hangs on output of long line with
trailing blanks.

Site: System, Number: phx16291, Date Entered: 1983-11-04,
State: submitted Area: Communications (tty, ring0, etc)
Summary: I have a file that my process goes output blocked on
when printed.

Site: System, Number: phx16904, Date Entered: 1984-02-02,
State: submitted Area: probe 5.4 Summary: Silently fumbles
subscripted implicit base references.

Site: System, Number: phx16915, Date Entered: 1984-02-05,
State: needs_info Area: profile Summary: profile -first N
doesn't always print N lines.

Site: System, Number: phx16917, Date Entered: 1984-02-05,
State: answered Area: profile Summary: What unit is the TIME
column of the profile output in?

Site: System, Number: phx16920, Date Entered: 1984-02-06,
State: submitted Area: format_pl1 Summary: The teaching of
format_pl1 about pl1_macro controls is still incomplete.

Site: System, Number: phx17053, Date Entered: 1984-02-28,
State: not_error Area: >doc>is>find_source_file.info Summary:
There is no brief info available for this info file.

Site: Ford, Number: phx17327, Date Entered: 1984-04-11, State:
submitted Area: ibm2780_ Summary: gets "size" condition after
99 attaches.

Site: UC, Number: phx17444, Date Entered: 1984-05-07, State:
submitted Area: terminate_refname Summary: -bf no longer works

Site: MIT, Number: phx17501, Date Entered: 1984-05-15, State:
submitted Area: set_mailing_address Summary: it is possible to
set up a self-referencing mailing address

Site: System, Number: phx17841, Date Entered: 1984-07-06,
State: submitted Area: probe Summary: probe reports wrong
dimension size on a variable when dimension is specified by a
variable in a structure.

Site: Ford, Number: phx17971, Date Entered: 1984-07-31, State:
submitted Area: pl1 Summary: optimizer mishandles concatenation
of substrs.

Site: LUT, Number: phx18406, Date Entered: 1984-10-24, State:
submitted Area: answering service Summary: Does not identify
which directory is giving problems.

Site: AFDSC, Number: phx18486, Date Entered: 1984-11-06,
State: submitted Area: Terminal output Summary: Process hangs
trying to output large number of blanks at terminal.

Site: System, Number: phx18717, Date Entered: 1984-12-21,
State: submitted Area: emacs 12.4a Summary: comout (^X^E)
should make the file_output buffer modifiable before running

Site: System, Number: phx18864, Date Entered: 1985-01-17,
State: not_error Area: cds Summary: cds does pli on wrong
segment when -list is specified

Site: System, Number: phx19294, Date Entered: 1985-04-15,
State: submitted Area: condition handling "on" command Summary:
The on command maintains, erroneously, that recursive "quit"
condition signaling occurs, in particular following
program_interrupt.

Site: System, Number: phx19417, Date Entered: 1985-05-18,
State: submitted Area: CP51 documentation Summary: the
descriptor of the flags part of the capabilities_info structure
(window_io_get_capabilities control order) on page 7-7
(CP51-01c) is bogus.

Site: Site, Number: phx19429, Date Entered: 1985-05-22, State:
submitted Area: tty_write Summary: The line counter for
determining when EOP occurs cannot be reset except when the page
length is non-zero.

Site: System, Number: phx19451, Date Entered: 1985-05-28,
State: submitted Area: Info Segment - format_pl1.info Summary:
Not sure if this is an error. There are numerous occurrences of
what seems to be bad "/* format" lines. See details.

Site: Cardiff, Number: phx19485, Date Entered: 1985-06-10,
State: submitted Area: qedx documentation Summary: Minor
errors in addendum A for CG40-01 updating MR10.1 to MR10.2

Site: System, Number: phx19496, Date Entered: 1985-06-14,
State: submitted Area: tnr -bf Summary: -bf option seems to
have stopped working

Site: SOZAWA, Number: phx19551, Date Entered: 1985-07-03,
State: needs_info Area: COBOL Summary: Question about compile
error message.

Site: Ford, Number: phx19613, Date Entered: 1985-07-25, State:
submitted Area: probe Summary: incorrectly displays values of
Fortran parameter variables in bound objects.

Site: System, Number: phx19620, Date Entered: 1985-07-27,
State: submitted Area: cds Summary: Non-word-aligned level 2
elements in the structure given to create_data_segment_ will
cause bogus entrypoints to be generated.

Site: RAE, Number: phx19720, Date Entered: 1985-08-29, State:
submitted Area: Cobol Summary: Syntax error is not flagged.

Site: System, Number: phx19731, Date Entered: 1985-09-01,
State: submitted Area: documentation CP51 Summary: Description
of capabilities_info structure is wrong.

Site: System, Number: phx19870, Date Entered: 1985-10-27,
State: submitted Area: "create_data_segment" command Summary:
"cds" fails when "working_dir" is not in search rules.

Site: Ford, Number: phx19911, Date Entered: 1985-11-13, State:
submitted Area: MRDS Summary: If DM is not available when a DB
is opened MRDS does not let you know about it until its too late.

Site: System, Number: phx19960, Date Entered: 1985-11-26,
State: not_error Area: Data Management Summary:
file_manager_\$copy doesn't abide by the delete switch.

Site: IN, Number: phx20276, Date Entered: 1986-04-11, State:
submitted Area: bisync_ Summary: bisync_ crashes with an out of
bounds message

Site: SOZAWA, Number: phx20311, Date Entered: 1986-04-29,
State: submitted Area: cobol Summary: A cobol compile fails
the first time in a process but works after that.

Site: System, Number: phx20356, Date Entered: 1986-05-26,
State: submitted Area: pl1 and any_to_any_ Summary: PL/1 will
sometimes mess up conversions that include fixed bin numbers with
negative scale numbers.

Site: System, Number: phx20415, Date Entered: 1986-06-23,
State: submitted Area: sort_strings Summary: fails when one of
the arguments to be sorted contains a newline character.

Site: System, Number: phx20450, Date Entered: 1986-07-15,
State: submitted Area: COBOL compiler IF/THEN/ELSE Summary:
Extra "ELSE NEXT SENTENCE" clauses may not be diagnosed with
nested IF statements. This can cause compiler aborts, or simply
result in missing error diagnostics.

Site: Site, Number: phx20572, Date Entered: 1986-09-23, State:
submitted Area: calendar Summary: calendar does not properly
handle centuries other than 1900.

Site: System, Number: phx20645, Date Entered: 1986-10-29,
State: submitted Area: date_compiled Summary: prints more than
was asked for.

Site: System, Number: phx20666, Date Entered: 1986-11-12,
State: submitted Area: restructure_mrds_database Summary:
incorrect error code used.

Site: System, Number: phx20673, Date Entered: 1986-11-18,
State: submitted Area: enter_output_request (eor) Summary: If
you request that a file be indented when printed and that it
print with centered labels, the labels are also indented off
center.

Site: System, Number: phx20677, Date Entered: 1986-11-19,
State: submitted Area: pascal.changes.info Summary: refers to
an experimental version of Pascal.

Site: Cardiff, Number: phx20800, Date Entered: 1987-03-03,
State: submitted Area: format_document Summary: sdm gets
bounds fault under specific -and unusual- circumstances.

Site: System, Number: phx20914, Date Entered: 1987-07-09,
State: submitted Area: EXL C compiler Summary: Who can say.
Gets muddled with bit-twiddling, it looks like.

Site: Ford, Number: phx20931, Date Entered: 1987-07-27, State:
submitted Area: Fortran Summary: generates incorrect code for
INDEX intrinsic

Site: DAC, Number: phx20939, Date Entered: 1987-08-06, State:
submitted Area: Help Files Summary: The arguments section of
the iox_\$open_file help file is munged.

Site: System, Number: phx20971, Date Entered: 1987-08-29,
State: submitted Area: lg_ctl.pl1 Summary: This module does
not allow more than the first 24 characters of the "date_time"
format control string.

Site: System, Number: phx20972, Date Entered: 1987-08-29,
State: submitted Area: admin.pl1 Summary: The time stamp
displayed in shutdown messages which indicate the expected up
time only displays the hour/minute portion. This is obtained by

extracting the time information from the "date_time" format option.

Site: RAE, Number: phx20989, Date Entered: 1987-09-18, State: submitted Area: absentee Summary: scheduled system shutdown suffers from a problem where absentees are bumped at a random time due to an uninitialised value n_called.

Site: System, Number: phx21015, Date Entered: 1987-11-13, State: submitted Area: Linus Summary: The linus command create, usually FPE, when no data is found to satisfy the selection expression.

Site: System, Number: phx21025, Date Entered: 1987-12-01, State: submitted Area: value_list Writeup in AG92-06 Summary: has incorrect statement of defaults for -all control arg.

Site: System, Number: phx21051, Date Entered: 1988-01-06, State: submitted Area: mrds Summary: cmdb command doesn't process file-type ctl argument correctly

Site: SJU, Number: phx21060, Date Entered: 1988-01-21, State: submitted Area: bound_as_misc_operator_com_channel_cmds_ Summary: operator_com_channel_cmds.pl1 calls sys_log_\$command_error_log which does not exist.

Site: DODCSC, Number: phx21062, Date Entered: 1988-01-22, State: submitted Area: dialup_ Summary: dialup_ fails to check for "trusted_path_login" when user calls hcs_\$stop_process directly (without signaling the answering service).

Site: DAC, Number: phx21070, Date Entered: 1988-01-28, State: submitted Area: System Initialization (answering service) Summary: Mis-formatted error message when rebuilding the SAT hash table

Site: ENWGS, Number: phx21073, Date Entered: 1988-02-03, State: needs_info Area: probe Summary: probe can not handle a KST larger than 1024.

Site: System, Number: phx21075, Date Entered: 1988-02-04, State: submitted Area: set_mailing_address.info Summary: Talks about a -user control argument. It should refer to -entry, not -user.

Site: System, Number: phx21078, Date Entered: 1988-02-05, State: submitted Area: Pascal Summary: pascal_operators_.alm does not calculate round correctly for negative arguments.

Site: System, Number: phx21104, Date Entered: 1988-03-01, State: submitted Area: >doc>privileged>set_system_console.info Summary: Indicates that "ssc" is a short name for command which it is not.

Site: UC, Number: phx21110, Date Entered: 1988-03-04, State: not_error Area: probe Summary: Internal help in probe refers to "CROSS-SECTION" in "help value" and "list_help". It should refer to "CROSS_SECTION".

Site: System, Number: phx21113, Date Entered: 1988-03-12, State: submitted Area: pascal language Summary: warning message gives wrong value, but right value is used, for overrange real on input.

Site: System, Number: phx21129, Date Entered: 1988-03-29, State: submitted Area: forum (enter request) Summary: Unprocessed transaction was entered into wrong meeting.

Site: SJU, Number: phx21132, Date Entered: 1988-04-12, State: submitted Area: library_cleanup documentation Summary: Online info and manuals fail to mention that grace time is forced (over-ridden) to the time of bootload. The command doesn't mention it either, when it does over-ride.

Site: System, Number: phx21137, Date Entered: 1988-04-22, State: submitted Area: forum Summary: Blows out with a bad-area-format error when in the eve meeting.

Site: System, Number: phx21145, Date Entered: 1988-05-09, State: submitted Area: linus Summary: linus gets confused naming columns with certain selects.

Site: Ford, Number: phx21146, Date Entered: 1988-05-12, State: submitted Area: Data Management before_journal_meters command Summary: before_journal_meters command does not know how to properly reset when the -rr control arg is used.

Site: System, Number: phx21154, Date Entered: 1988-05-17, State: submitted Area: forum online documentation Summary: brief help garbled

Site: System, Number: phx21157, Date Entered: 1988-05-19, State: submitted Area: forum Summary: If you create an unprocessed transaction in meeting A, goto meeting B, use an apply request, goto meeting A and enter the transaction - forum enters the transaction in meeting B.

Site: SJU, Number: phx21167, Date Entered: 1988-06-07, State: submitted Area: pdt_copy safe_ppts Summary: pdt_copy doesn't copy the hash tables at the end of ppts having them.

Site: GM, Number: phx21188, Date Entered: 1988-07-15, State: submitted Area: metering Summary: error message from tune_disk is malformed.

Site: Site, Number: phx21192, Date Entered: 1988-08-04, State: submitted Area: Data_Management bound_mrds_ Summary: DM databases fail when using compiled selection expressions.

Site: Ford, Number: phx21194, Date Entered: 1988-08-08, State: submitted Area: vfile_ Summary: The max size of an indexed vfile is to small.

Site: System, Number: phx21195, Date Entered: 1988-08-12, State: submitted Area: documentation Summary: set_mailing_address documentation has wrong control argument

Site: System, Number: phx21198, Date Entered: 1988-08-18, State: submitted Area: links.info Summary: says links command/af accepts -chase/-no_chase. It does not.

Site: System, Number: phx21205, Date Entered: 1988-09-01, State: not_error Area: DSA Connection To Multics Summary: Somewhere, the backslash character is being deleted from my input stream.

Site: Ford, Number: phx21238, Date Entered: 1988-12-13, State: submitted Area: exec_com (v2) Summary: exhibits problem with variable names longer than two characters under special circumstances (&attached with ask_).

Site: System, Number: phx21243, Date Entered: 1988-12-23, State: submitted Area: history, hcom Summary: When invoked as an active function, history_comment does not return all the values requested for the get operation when a star name is specified for the pathname.

Site: ACTC, Number: phx21244, Date Entered: 1989-01-02, State: submitted Area: misc commands Summary: canonicalize_ subroutine entry terminates input segment

Site: System, Number: phx21248, Date Entered: 1989-01-16, State: submitted Area: mcs Summary: The datanet seems to lose data when sending large amounts of data over a number of multiplexed lines.

Site: System, Number: phx21263, Date Entered: 1989-02-08, State: submitted Area: C language Summary: erroneous truncation of negative floating-point values

Site: System, Number: phx21266, Date Entered: 1989-02-17, State: submitted Area: pascal compiler Summary: typo on error message WHITE for WRITE

Site: System, Number: phx21268, Date Entered: 1989-02-28, State: submitted Area: pascal compiler Summary: When outputting the real value -9.9999999999999997E+00 in the writeln

function form var, the sign is lost in the rounding and formatting process.

Site: System, Number: phx21271, Date Entered: 1989-03-08,
State: submitted Area: GCOS Summary: Cannot unload some files
from a GCOS save tape using gcos_fms.

Site: System, Number: phx21275, Date Entered: 1989-03-21,
State: needs_info Area: forum Summary: When in forum in a
meeting with "lots" of transactions, doing a ls with the -reverse
control argument will cause a blow up.

Site: System, Number: phx21279, Date Entered: 1989-04-07,
State: submitted Area: default_error_handler Summary:
Sometimes restartable errors such as record_quota_overflow cannot
be restarted resulting in an error message that states
"computation cannot be restarted".

Site: Site, Number: phx21280, Date Entered: 1989-04-11, State:
submitted Area: Data_Management Summary: Data_Management
retrieves the wrong data.

Site: IN, Number: phx21287, Date Entered: 1989-05-10, State:
submitted Area: bisync Summary: Crashes process

Site: IN, Number: phx21288, Date Entered: 1989-05-10, State:
submitted Area: HASP Summary: HASP fails to initialize drivers

Site: IN, Number: phx21289, Date Entered: 1989-05-10, State:
submitted Area: bound_spooler_util Summary: Crash on linkage
error

Site: IN, Number: phx21292, Date Entered: 1989-05-10, State:
submitted Area: wd and pwd Summary: wd or pwd with an argument
of 0 outputs garbage

Site: System, Number: phx21297, Date Entered: 1989-06-02,
State: submitted Area: online documentation Summary: missing
info seg

Site: IN, Number: phx21299, Date Entered: 1989-06-13, State:
submitted Area: abbrev (.lx command) Summary: .lx STR (STR is
limited to 8 characters)

Site: UC, Number: phx21300, Date Entered: 1989-06-14, State:
submitted Area: I/O daemon Summary: output of print_iod_tables
unacceptable to iodtc

Site: RAE, Number: phx21305, Date Entered: 1989-07-12, State:
submitted Area: absentee Summary: request to stop the
foreground queue stops q 1

Site: System, Number: phx21314, Date Entered: 1989-10-12, State: submitted Area: C compiler Summary: C compiler doesn't check return value of function correctly when function is declared as returning an enumerated type.

Site: GM, Number: phx21316, Date Entered: 1989-10-16, State: submitted Area: firmware and diagnostics Summary: deckfile_manager aborts in its first invocation because of a missing directory.

Site: System, Number: phx21321, Date Entered: 1989-11-22, State: not_error Area: calc Summary: calc returns incorrect results when handling expressions within parenthesis.

Site: System, Number: phx21322, Date Entered: 1989-11-28, State: not_error Area: bound_tolts_ Summary: test mtc is no longer considered valid; it is a very useful tandd.

Site: UC, Number: phx21323, Date Entered: 1989-11-29, State: submitted Area: disk error management Summary: missing error status can lead to ESD failure

Site: Cardiff, Number: phx21327, Date Entered: 1989-12-18, State: needs_info Area: copy command Summary: copy command gets bogus quota fault copying a MSF which contains nulled pages.

Site: Site, Number: phx21328, Date Entered: 1989-12-18, State: submitted Area: enter_abs_request Summary: Users, whose minimum authorization is greater than system_low are unable to submit absentee requests unless they specifically state the authorization level.

Site: System, Number: phx21329, Date Entered: 1989-12-18, State: needs_info Area: set_search_rules Summary: SSR: Search list has no default. <ssr_seg_name>

Site: Site, Number: phx21330, Date Entered: 1989-12-18, State: submitted Area: canonicalize_ Summary: In MR12.2, canonicalize_ terminates the reference name on the input ptr. This causes a problem if the output ptr is the same as the input ptr.

Site: Site, Number: phx21331, Date Entered: 1989-12-18, State: submitted Area: molts Summary: molts encounters an illegal opcode error when it is assigning alternate tracks.

Site: System, Number: phx21334, Date Entered: 1990-01-04, State: needs_info Area: STTY Command Summary: The -TTP control arg is BROKEN

Site: System, Number: phx21342, Date Entered: 1990-03-29, State: needs_info Area: communications Summary: Messages from as, i. e., This is your second login do not comply with the FTP protocol in TCP/IP.

Site: DAC, Number: phx21343, Date Entered: 1990-04-27, State: submitted Area: Answering Service (sc_init_) Summary: The emergency listener may not work.

Site: System, Number: phx21345, Date Entered: 1990-06-04, State: submitted Area: hardcore (lv_request_) Summary: Private attachment of a Logical Volume, when the LV requires mounting, causes the Initializer to go comatose.

Site: Site, Number: phx21346, Date Entered: 1990-06-25, State: submitted Area: volume_reloader Summary: A null pointer condition occurs when handling "short segments".

Site: System, Number: phx21347, Date Entered: 1990-07-06, State: submitted Area: Documentation Summary: The documentation for "an" and "dn" commands are incomplete.

Site: System, Number: phx21349, Date Entered: 1990-07-19, State: submitted Area: Documentation Summary: The 'get_bound_seg_info.info' segment has no explanation for the arguments of the subroutine, and does not pass info seg validation. It appears to have been truncated.

Site: System, Number: phx21351, Date Entered: 1990-07-30, State: submitted Area: C Compiler Summary: C problems with character parameters and comparisons.

Site: System, Number: phx21352, Date Entered: 1990-07-30, State: submitted Area: C Runtime Summary: C programs insert a condition wall that prevents invocation of other condition handlers.

Site: System, Number: phx21353, Date Entered: 1990-08-02, State: submitted Area: IO_Daemons Summary: display_forms_info is missing the addname "dfi".

Site: System, Number: phx21354, Date Entered: 1990-08-02, State: submitted Area: IO_Daemons Summary: display_forms_info with no arguments should either give a usage message or perform a default action.

Site: System, Number: phx21355, Date Entered: 1990-08-12, State: submitted Area: backup systems (volume_reloader) Summary: The reload_volume_module fails to update the file map for a vtoce in the vtoce buffer when depositing pages back in the file map. This results in addresses been duplicated in other vtoces.

Site: System, Number: phx21356, Date Entered: 1990-08-14, State: submitted Area: iox_ Documentation Summary: The infoseg for iox_ differs from the manual descriptions. Discrepancies should be resolved.

Site: System, Number: phx21357, Date Entered: 1990-08-24,
State: submitted Area: backup systems (volume reloader)
Summary: The reloader will skip a logical record(s) from a
volume dump if the record length recorded in the volume header
record does not reflect the actual size of the object it
describes, resulting in an incomplete reload.

Site: System, Number: phx21358, Date Entered: 1990-08-27,
State: submitted Area: Hardcore : salvage_dir directory
locking Summary: An error in dc_find\$dir_salvage can lead to a
directory locking deadly embrace as a result of using the
salvage_dir command (used by 'x repair salv...').

Site: System, Number: phx21359, Date Entered: 1990-09-07,
State: needs_info Area: ibm3270_mpx loosing messages Summary:
terminals are being put in a hung state. Somewhere they are
loosing messages that resets the keyboard. Also have been
reports that messages are being routed to the wrong terminal.
Entire screens of data are going to other terminals.

SECTION 4

FCO AND FIRMWARE STATUS

FIRMWARE

The firmware identification for MR12.4 is "IFAD D.6".

IFAD (Integrated Firmware and Diagnostics) tapes, are distributed to all sites having valid Field Engineering Hardware Maintenance contracts. The IFAD tape is no longer distributed as an FCO. It is now sent with the MR12.4 release tapes.

T&D (Test and Diagnostic) tapes, are distributed to all sites having valid Field Engineering Hardware Maintenance contracts. The T&D tape is distributed as FCO PHAFGA888, rev. B.2.

This version of IFAD, firmware, and T&D modules has been tested and exposed on System M in Phoenix. The modules are supplied as part of the MR12.4 release and can be found in >ldd>firmware as part of the LDD_STANDARD tape. When subsequent IFAD tapes become available, it is recommended that the site use the deckfile_manager, dfm, command to load the released IFAD tape into >system_library_tandd. The firmware modules should then be moved to >ldd>firmware and a new MST tape should be generated using generate_mst.

The MR12.4 release requires the following firmware revision levels.

Disc: DSC191 -- V1
DSC500 -- Y1
MSP800 -- L1

Tape: MTC0500 -- V1
MTP0601 -- T1
MTP0610 -- C2

Unit Record: Common -- A2
Reader/Punch -- B2
PRU1200/1600 -- M1

FIELD CHANGE ORDER LIST

The following list of FCOs should be thought of as a continuation of the similar list for MR12.3. Sites that are upgrading from MR12.3 will need to verify that FCOs for that release have been installed.

As FCOs are completed in Phoenix, they are sent out to the field sites. Some of the FCOs affect only site documentation while others may change the hardware to improve system reliability or maintainability. An example might be a change to improve the supply of cooling air to some boards so that the boards run cooler and are therefore less likely to fail. These types of FCOs are important to the long-term success of system operation. However, because these FCOs are not required to correct the results of any computer program, they are not listed in this SRB.

The purpose of this section is to identify those FCOs that are of utmost importance in the short term. This list includes only those FCOs needed to correct a program malfunction.

For those FCOs already sent to the field, the "FCO Kit Ship Date" column contains the approximate date when shipment of the FCO kits began.

One of the column headings in the tables on the following pages is "Round Robin". The implications of a "Yes" in this column for a particular FCO are as follows:

1. The FCO kit includes at least one board. The new board(s) is to replace the board(s) now in the equipment.
2. Enough FCO kits are put together for about 20% of the sites that are to take part in the Round Robin. Some FCOs result in a Round Robin for all sites. Other FCOs involve a Round Robin for some sites but not for other sites. For example, two of the factors that determine whether or not a particular site takes part in a Round Robin FCO are:
 - a. The date codes of certain integrated circuit chips on a board.
 - b. The board construction method -- wirewrap vs. multilayer.

3. The set of FCO kits are sent to the first set of sites. (For the remainder of this discussion, we will follow one kit as it makes its Round Robin journey.)
4. The site installs the FCO. When the site is satisfied that the FCO is satisfactory, the site returns the old board(s) to Phoenix.
5. If there is still equipment at other sites that have not had the FCO installed, the returned board(s) is reworked, tested, and another FCO kit is assembled in Phoenix and sent to the next site.
6. Since the length of time it takes a site to install an FCO and become satisfied that it is working correctly cannot be known in advance, there is no way to predict with accuracy how long it will be until the FCO has been installed at all sites.

The FCOs have been classified into the following categories:

CATEGORY_1 - The new software for this release will not run properly unless these FCOs are installed.

CATEGORY_2 - The new software for this release may or may not run properly if these FCOs are not installed. It is strongly recommended to have these FCOs installed to improve reliability of the system.

CATEGORY_3 - FCOs whose effects are program-visible, but do not fall into categories 1 or 2. Category 3 FCOs correct problems that are not uniquely related to this release.

CATEGORY_1_FIELD_CHANGE_ORDERS

FIELD CHANGE ORDERS VITAL TO THIS SOFTWARE RELEASE

FCO Number	Board	FCO Kit Ship Date	Round Robin	Est. Hours To Instl	FCO for Multics Release
-----	-----	-----	-----	-----	-----

No category 1 changes are required for MR12.4.

CATEGORY 2 FIELD CHANGE ORDERS

FIELD CHANGE ORDERS POSSIBLY NEEDED FOR THIS RELEASE

FCO Number	Board	FCO Kit Ship Date	Round Robin	Est. Hours To Instl	FCO for Multics Release
-----	-----	-----	-----	-----	-----

No category 2 changes are required for MR12.4.

CATEGORY 3 FIELD CHANGE ORDERS

FIELD CHANGE ORDERS INDEPENDENT OF A PARTICULAR RELEASE

FCO Number	Board	FCO Kit Ship Date	Round Robin	Est. Hours To Instl	FCO for Multics Release
------------	-------	----------------------	----------------	------------------------------	----------------------------------

-----DPSM CENTRAL PROCESSOR (Models 52M & 62M)-----

PHAFPS388	ETDAK	90 Jun	No	.5	MR12.4
-----------	-------	--------	----	----	--------

-----DPSM CENTRAL PROCESSOR (Model 70M)-----

PHAFPE517	ETCAK	90 Jun	No	.5	MR12.4
-----------	-------	--------	----	----	--------

-----INTEGRATED MULTIPLEXER UNIT (IMU)-----

PHAFXS868	WXGSC	90 Apr	No	.5	MR12.4
PHAFXS873	WXGJD	90 Nov	No	.1	MR12.4

-----FIPS DISK MSU 3380/3382, MSP 3880/1/4/5-----

PHAFFP565	01A-B3/4	90 Mar	No	.5	MR12.4
-----------	----------	--------	----	----	--------

-----T&D RELEASE REV. B.2-----

PHAFGA888	Tape	87 Mar	No	2.0	MR12.1
-----------	------	--------	----	-----	--------

-----MHAT MR12.0-----

PHAFPD998	Tape	87 May	No	2.0	MR12.0
-----------	------	--------	----	-----	--------

SECTION 5

INSTALLATION INSTRUCTIONS

The following installation instructions have been tested and verified at ACTC in Calgary.

Part 1 of the installation installs the changes to the hardcore and online executable libraries for MR12.4. Part 1 should be run from an existing MR12.3 system just prior to shutdown after all users and IO daemons have been logged out. At the completion of Part 1 the system should be shutdown and rebooted with the supplied MR12.4 System Tape.

Part 2 of the installation is designed to be executed while running normal service. It installs the LDD source and object libraries and the executable, source and object changes to PSP (unbundled) software. Part 2 should not be run while the system is heavily loaded because of the additional load these instructions place on the system.

The installation of MR12.4 has been made as automatic as possible through the use of the master installation exec_coms called 12.4.install_part1.ec and 12.4.install_part2.ec. These exec_coms assume privileged access and the availability of sufficient quota. It is the installer's responsibility to ensure that access and quota are available. Copies of the exec_coms used in this installation appear later in this section.

To ensure proper access, it is recommended that the installation be done by a SysDaemon or SysMaint process. These projects, by default, have access to the appropriate gates and directories to complete these installations. Sites that have changed default accesses must ensure these exec_coms are run from a process with sufficient access.

The total size of the MR12.4 release directories is up to 15000 records, depending upon PSP software purchased by a site. Not all PSPs are changed for MR12.4. In order to install all changed Standard and changed PSP products into the online libraries (step 4), a maximum of 30000 records could be needed under >ldd. This additional storage is temporary and may be deleted when the site is satisfied that reversion to MR12.3 is not necessary. Each exec_com can be run in parts to reduce overall storage requirements.

The time required to install MR12.4 is approximately two hours. If problems occur with these installation procedures contact:

Daniel Fudge 403-295-5907 or
Dave Schroth 403-295-5994

Step 1

While running under the current (MR12.3) system in normal service, login Retriever.SysDaemon, and type:

```
reload -nosetlvid -noquota
```

This causes the data on the MR12.4 tapes (12.4.exec, 12.4.ldd_standard, 12.4.unbundled, 12.4.misc) to be loaded into the directory:

```
>library_dir_dir>MR12.4.
```

The 12.4.misc tape should be loaded last.

Step 2

This step starts Part 1 of the installation.

The Part 1 exec_com installs the changed MR12.4 hardcore and online executable software.

Enter Special Session, ensuring all users and SysDaemons are logged out. Login as Repair.SysDaemon and type:

```
dsr working_dir  
cwd >ldd>MR12.4  
ec 12.4.install_part1
```

Respond to queries as appropriate. The exec_com is inter-active allowing Part 1 to be installed all at once or partially. There are no dependencies within sections in Part 1, but it is recommended that it be run in one pass.

Step 3

Shut down the system and reboot using the supplied MR12.4 System Tape.

Although MR12.4 source and object changes and unbundled software changes have not yet been installed normal service can be resumed at this time.

In the event it becomes necessary to revert the hardcore installation, reboot the system with the previous (MR12.3) system tape.

This step completes Part 1 of the MR12.4 installation.

Step 4

This step starts Part 2 of the installation and installs changes to the online source and object libraries and the unbundled libraries. The individual parts of this release are contained in separate directories subordinate to >ldd>MR12.4, (12.4.C COMPILER, 12.4.COBOL, 12.4.EXECUTABLE, 12.4.FORTRAN, 12.4.FORUM, 12.4.HARDCORE, 12.4.LDD, 12.4.LINUS, 12.4.LISTER, 12.4.MOWSE, 12.4.PASCAL and 12.4.RJE). Several of these directories contain changes to PSP products. Such PSP directories will not exist or will be empty if the site has not ordered the corresponding PSP product. Only those directories found to exist are installed. The directories 12.4.EXECUTABLE and 12.4.HARDCORE were installed in Part 1.

Login as Repair.SysDaemon and type:

```
dsr working_dir
cwd >ldd>MR12.4
ec 12.4.install_part2
```

This release is packaged in such a way that none of the parts installed in this step are dependent on another. This can be handy if quota is a problem and only one part of the release can be loaded out at a time. The 12.4.install_part2.ec may be repeated as many times as needed. For example it is not necessary to install 12.4.LDD in order to run MR12.4. If quota is a problem 12.4.LDD may be installed after all other parts have been installed and library cleanup (Step 5) completed.

Answer yes to install any part of the release that would not cause quota problems. Answer no to postpone the installation.

This step completes installation of all software changes for MR12.4.

Step 5

The following instructions should be executed when you are satisfied that the installed software is stable. Old release software replaced by the execution of the above instructions has been renamed with a screech name. Login Repair.SysDaemon and type:

```
cwd >ldd>MR12.4
ec 12.4.cleanup_library
```

Then type:

```
cwd <
dd MR12.4
```

to delete the installation libraries. At this time you will have recovered all quota used by the installation of MR12.4.

Step 6 REVERTING BACK TO OLD-RELEASE SOFTWARE

Note that these instructions are not valid if Step 5 above has been processed. In the event it becomes necessary to revert back to MR12.3 or part of MR12.3 the following instructions are recommended:

SOFTWARE INSTALLED IN PART 1.

Enter Special Session, ensure all users and SysDaemons are logged out. Login as Repair.SysDaemon and type:

```
cwd >ldd>MR12.4>12.4.EXECUTABLE
us de_install install_executable
cwd <12.4.HARDCORE
us de_install install_hardcore
```

Shutdown system and reboot with the MR12.3 system tape.

SOFTWARE INSTALLED IN PART 2.

Software installed in this part may be de-installed in whole or in part at the site's option. Without shutting the system down, login Repair.SysDaemon. For that portion of MR12.4 to be backed out, type:

```
cwd >ldd>MR12.4><name>
  (where name is 12.4.C_COMPILER, 12.4.COBOL, 12.4.EXECUTABLE,
  12.4.FORTRAN, 12.4.FORUM, 12.4.HARDCORE, 12.4.LDD, 12.4.LINUS,
  12.4.LISTER, 12.4.MOWSE, 12.4.PASCAL or 12.4.RJE)
us de_install <name>
  (where name is the name.io segment of the installation to be
  backed out i.e. install_ccompiler, install_cobol,
  install_executable, install_fortran, install_forum,
```

```
install_hardcore,install_ldd, install_linus, install_lister,  
install_mowse, install_pascal or install_rje)
```

Repeat this command for any other portions of MR12.4 to be reverted.

EXEC_COMS USED IN INSTALLATION OF MR12.4

*** 12.4.install_part1.ec ***

```
&version 2  
&trace off  
&print This is Part 1 of the automated installation of Multics  
&print Release MR12.4. This part of the installation is responsible  
&print for updating the hardcore and standard executable libraries.  
&print After these libraries are installed sites with local modifications  
&print to the system tape should generate a new tape to include the MR12.4  
&print hardcore changes. Sites that run with no local modifications to  
&print the system tape should shutdown and reboot with the supplied system  
&print tape following completion of this exec_com.  
&print  
&print Before continuing check that proper access has been set,  
&print that there is enough quota to complete the installation  
&print and that the software to be installed has been loaded  
&print into the sub-directories as shipped. If quota is a  
&print problem, load only one directory out at a time  
&print running this exec com as many times as needed until the  
&print entire installation is complete.  
&-  
&label DO_HARD  
&if [query "Do you want to install the hardcore library updates?"]  
&then &else &goto DO_EXEC  
cwd [wd]>12.4.HARDCORE  
ec install_hard  
cwd <  
&-  
&label DO_EXEC  
&if [query "Do you want to install the online executable library updates?"]  
&then &else &goto QUIT  
cwd [wd]>12.4.EXECUTABLE  
ec install_executable  
cwd <  
&-  
&label QUIT
```

*** 12.4.install_part2.ec ***

```
&version 2  
&trace off  
&print  
&print This is Part 2 of the automated installation of Multics  
&print Release MR12.4. This part of the installation is responsible
```

```

&print for updating the hardcore and standard source/object libraries.
&print This part is also responsible for updating the unbundled executable,
&print source and unbundled libraries for products you are authorized to
&print receive that were changed for this release.
&print
&print Before continuing check that proper access has been set,
&print that there is enough quota to complete the installation
&print and that the software to be installed has been loaded
&print into the sub-directories as shipped. If quota is a
&print problem, load only one directory out at a time
&print running this exec com as many times as needed until the
&print entire installation is complete.
&-
&label DO_STAN
&if [query "Do you want to install the online source and object library
updates?"]
&then &else &goto DO_FORT
cwd [wd]>12.4.LDD
ec install_ldd
cwd <
&-
&label DO_FORT
&if [not [exists dir 12.4.FORTRAN]] &then &goto DO_COBOL
&if [query "Do you want to install the fortran updates?"]
&then &else &goto DO_COBOL
cwd [wd]>12.4.FORTRAN
ec install_fortran
cwd <
&-
&label DO_COBOL
&if [not [exists dir 12.4.COBOLE]] &then &goto DO_RJE
&if [query "Do you want to install the cobol updates?"]
&then &else &goto DO_RJE
cwd [wd]>12.4.COBOLE
ec install_cobol
cwd <
&-
&label DO_RJE
&if [not [exists dir 12.4.RJE]] &then &goto DO_C_COMPILER
&if [query "Do you want to install the rje updates?"]
&then &else &goto DO_C_COMPILER
cwd [wd]>12.4.RJE
ec install_rje
cwd <
&-
&label DO_C_COMPILER
&if [not [exists dir 12.4.C_COMPILER]] &then &goto DO_PASCAL
&if [query "Do you want to install the C Compiler updates?"]
&then &else &goto DO_PASCAL
cwd [wd]>12.4.C_COMPILER
ec install_ccompiler
cwd <
&-
&label DO_PASCAL

```

```

&if [not [exists dir 12.4.PASCAL]] &then &goto DO_FORUM
&if [query "Do you want to install the Pascal updates?"]
&then &else &goto DO_FORUM
cwd [wd]>12.4.PASCAL
ec install_pascal
cwd <
&-
&label DO_FORUM
&if [not [exists dir 12.4.FORUM]] &then &goto DO_LINUS
&if [query "Do you want to install the forum updates?"]
&then &else &goto DO_LINUS
cwd [wd]>12.4.FORUM
ec install_forum
cwd <
&-
&label DO_LINUS
&if [not [exists dir 12.4.LINUS]] &then &goto DO_MOWSE
&if [query "Do you want to install the linus updates?"]
&then &else &goto DO_MOWSE
cwd [wd]>12.4.LINUS
ec install_linus
cwd <
&-
&label DO_MOWSE
&if [not [exists dir 12.4.MOWSE]] &then &goto DO_LISTER
&if [query "Do you want to install the mowse updates?"]
&then &else &goto DO_LISTER
cwd [wd]>12.4.MOWSE
ec install_mowse
cwd <
&-
&label DO_LISTER
&if [not [exists dir 12.4.LISTER]] &then &goto QUIT
&if [query "Do you want to install the lister (wordpro) updates?"]
&then &else &goto QUIT
cwd [wd]>12.4.LISTER
ec install_lister
cwd <
&-
&label QUIT
&print
&print Installation of Part 2 of the MR12.4 release is complete.
&print You may now shutdown your system and reboot for normal service.
&quit

```

*** 12.4.cleanup_library.ec ***

```

&version 2
&trace off
&-
&print Warning: Once this exec_com is run it will be impossible
&print           to revert to MR12.3.

```

```

&-
&if [query "Do you wish to continue? Type yes to delete old software."]
&then &else &quit
&print Beginning deletions. This ec may take a while to run. Be patient.
ldl >doc>info> *
ldl >doc>privileged> *
ldl >doc>ss>emacs> *
ldl >doc>ss>xforum> *
ldl >ldd>firmware> *
ldl >ldd>hard>execution> *
ldl >ldd>hard>object> *
ldl >ldd>hard>source> *
&print cleanup_libraries: About 30% complete.
ldl >ldd>sss>o> *
ldl >ldd>sss>s> *
ldl >ldd>t>o> *
ldl >ldd>t>s> *
&print cleanup_libraries: About 60% complete.
ldl >ldd>unbundled>o> *
ldl >ldd>unbundled>s> *
ldl >sl3p>cc>e> *
ldl >sl3p>cc>incl> *
ldl >sl3p>cc>o> *
ldl >sl3p>cc>s> *
&print cleanup_libraries: About 90% complete.
ldl >sss> *
ldl >tools> *
ldl >unb> *
&-
&print cleanup_library: Deletion of old software is complete.
&print To delete Installation Libraries type "dd >ldd>MR12.4".
&quit

```

TYPICAL INSTALLATION EXEC_COM

```

*** install_executable.ec ***

```

```

&version 2
&trace off
&if [exists segment install_executable.io] &then dl install_executable.io
us in install_executable
&print Beginning Installation of Online Executable and Info Segment software.
&if [exists segment >doc>info>add_name.info]
&then us rp add_name.info >doc>info>==
&else us add add_name.info >doc>info>==
&if [exists segment >tools>ask_]
&then us rp ask_ >tools>== -ss
&else us add ask_ >tools>== -ss
&if [exists segment >sss>bound_absentee_com_]
&then us rp bound_absentee_com_ >sss>== -ss
&else us add bound_absentee_com_ >sss>== -ss
&if [exists segment >sss>bound_active_function_]
&then us rp bound_active_function_ >sss>== -ss

```

```

&else us add bound_active_function_ >sss>== -ss
&if [exists segment >tools>bound_as_misc_]
&then us rp bound_as_misc_ >tools>== -ss
&else us add bound_as_misc_ >tools>== -ss
&if [exists segment >sss>bound_command_env_]
&then us rp bound_command_env_ >sss>== -ss
&else us add bound_command_env_ >sss>== -ss
&if [exists segment >sss>bound_command_loop_]
&then us rp bound_command_loop_ >sss>== -ss
&else us add bound_command_loop_ >sss>== -ss
&if [exists segment >tools>bound_dfm_]
&then us rp bound_dfm_ >tools>== -ss
&else us add bound_dfm_ >tools>== -ss
&if [exists segment >sss>bound_dm_]
&then us rp bound_dm_ >sss>== -ss
&else us add bound_dm_ >sss>== -ss
&if [exists segment >sss>bound_exec_com_]
&then us rp bound_exec_com_ >sss>== -ss
&else us add bound_exec_com_ >sss>== -ss
&if [exists segment >sss>bound_fs_util_]
&then us rp bound_fs_util_ >sss>== -ss
&else us add bound_fs_util_ >sss>== -ss
&if [exists segment >sss>bound_fscom1_]
&then us rp bound_fscom1_ >sss>== -ss
&else us add bound_fscom1_ >sss>== -ss
&if [exists segment >sss>bound_fscom2_]
&then us rp bound_fscom2_ >sss>== -ss
&else us add bound_fscom2_ >sss>== -ss
&if [exists segment >sss>bound_io_commands_]
&then us rp bound_io_commands_ >sss>== -ss
&else us add bound_io_commands_ >sss>== -ss
&if [exists segment >tools>bound_iodd_]
&then us rp bound_iodd_ >tools>== -ss
&else us add bound_iodd_ >tools>== -ss
&if [exists segment >sss>bound_kermit_]
&then us rp bound_kermit_ >sss>== -ss
&else us add bound_kermit_ >sss>== -ss
&if [exists segment >sss>bound_mail_system_]
&then us rp bound_mail_system_ >sss>== -ss
&else us add bound_mail_system_ >sss>== -ss
&if [exists segment >sss>bound_menu_]
&then us rp bound_menu_ >sss>== -ss
&else us add bound_menu_ >sss>== -ss
&if [exists segment >sss>bound_misc_commands_]
&then us rp bound_misc_commands_ >sss>== -ss
&else us add bound_misc_commands_ >sss>== -ss
&if [exists segment >tools>bound_misc_translatrs_]
&then us rp bound_misc_translatrs_ >tools>== -ss
&else us add bound_misc_translatrs_ >tools>== -ss
&if [exists segment >sss>bound_mrds_]
&then us rp bound_mrds_ >sss>== -ss
&else us add bound_mrds_ >sss>== -ss
&if [exists segment >sss>bound_pl1_]

```

```

&then us rp bound_pll_ >sss>== -ss
&else us add bound_pll_ >sss>== -ss
&if [exists segment >tools>bound_pnotice_]
&then us rp bound_pnotice_ >tools>== -ss
&else us add bound_pnotice_ >tools>== -ss
&if [exists segment >sss>bound_printing_cmds_]
&then us rp bound_printing_cmds_ >sss>== -ss
&else us add bound_printing_cmds_ >sss>== -ss
&if [exists segment >sss>bound_probe_]
&then us rp bound_probe_ >sss>== -ss
&else us add bound_probe_ >sss>== -ss
&if [exists segment >sss>bound_segment_info_]
&then us rp bound_segment_info_ >sss>== -ss
&else us add bound_segment_info_ >sss>== -ss
&if [exists segment >sss>bound_sort_routines_]
&then us rp bound_sort_routines_ >sss>== -ss
&else us add bound_sort_routines_ >sss>== -ss
&if [exists segment >sss>bound_ti_term_]
&then us rp bound_ti_term_ >sss>== -ss
&else us add bound_ti_term_ >sss>== -ss
&if [exists segment >tools>bound_tuning_]
&then us rp bound_tuning_ >tools>== -ss
&else us add bound_tuning_ >tools>== -ss
&if [exists segment >tools>bound_user_ctl_]
&then us rp bound_user_ctl_ >tools>== -ss
&else us add bound_user_ctl_ >tools>== -ss
&if [exists segment >sss>bound_vfile_]
&then us rp bound_vfile_ >sss>== -ss
&else us add bound_vfile_ >sss>== -ss
&if [exists segment >sss>bound_video_]
&then us rp bound_video_ >sss>== -ss
&else us add bound_video_ >sss>== -ss
&if [exists segment >doc>info>cancel_daemon_request.info]
&then us rp cancel_daemon_request.info >doc>info>==
&else us add cancel_daemon_request.info >doc>info>==
&if [exists segment >doc>info>cancel_output_request.info]
&then us rp cancel_output_request.info >doc>info>==
&else us add cancel_output_request.info >doc>info>==
&if [exists segment >doc>info>decode_definition.info]
&then us rp decode_definition.info >doc>info>==
&else us add decode_definition.info >doc>info>==
&if [exists segment >doc>info>delete_name.info]
&then us rp delete_name.info >doc>info>==
&else us add delete_name.info >doc>info>==
&if [exists segment >doc>info>display_forms_info.info]
&then us rp display_forms_info.info >doc>info>==
&else us add display_forms_info.info >doc>info>==
&if [exists segment >doc>info>dm_set_free_area.info]
&then us rp dm_set_free_area.info >doc>info>==
&else us add dm_set_free_area.info >doc>info>==
&if [exists segment >doc>info>exec_com.info]
&then us rp exec_com.info >doc>info>==
&else us add exec_com.info >doc>info>==

```

```

&if [exists segment >doc>ss>emacs>fundamental-mode.info]
&then us rp fundamental-mode.info >doc>ss>emacs>==
&else us add fundamental-mode.info >doc>ss>emacs>==
&if [exists segment >doc>info>get_bound_seg_info_.info]
&then us rp get_bound_seg_info_.info >doc>info>==
&else us add get_bound_seg_info_.info >doc>info>==
&if [exists segment >doc>info>get_pathname.info]
&then us rp get_pathname.info >doc>info>==
&else us add get_pathname.info >doc>info>==
&if [exists segment >doc>info>iox_.info]
&then us rp iox_.info >doc>info>==
&else us add iox_.info >doc>info>==
&if [exists segment >doc>info>kermit_modes.gi.info]
&then us rp kermit_modes.gi.info >doc>info>==
&else us add kermit_modes.gi.info >doc>info>==
&if [exists segment >doc>privileged>library_cleanup.info]
&then us rp library_cleanup.info >doc>privileged>==
&else us add library_cleanup.info >doc>privileged>==
&if [exists segment >doc>info>links.info]
&then us rp links.info >doc>info>==
&else us add links.info >doc>info>==
&if [exists segment >doc>info>menu_get_choice.info]
&then us rp menu_get_choice.info >doc>info>==
&else us add menu_get_choice.info >doc>info>==
&if [exists segment >tools>nothing]
&then us rp nothing >tools>== -ss
&else us add nothing >tools>== -ss
&if [exists segment >doc>info>nothing.info]
&then us rp nothing.info >doc>info>==
&else us add nothing.info >doc>info>==
&if [exists segment >doc>info>>null_entry_.info]
&then us rp null_entry_.info >doc>info>==
&else us add null_entry_.info >doc>info>==
&if [exists segment >doc>info>pascal.changes.info]
&then us rp pascal.changes.info >doc>info>==
&else us add pascal.changes.info >doc>info>==
&if [exists segment >doc>info>set_mailing_address.info]
&then us rp set_mailing_address.info >doc>info>==
&else us add set_mailing_address.info >doc>info>==
&if [exists segment >doc>privileged>set_system_console.info]
&then us rp set_system_console.info >doc>privileged>==
&else us add set_system_console.info >doc>privileged>==
&if [exists segment >doc>info>terminate_refname.info]
&then us rp terminate_refname.info >doc>info>==
&else us add terminate_refname.info >doc>info>==
&if [exists segment >doc>info>time_format.gi.info]
&then us rp time_format.gi.info >doc>info>==
&else us add time_format.gi.info >doc>info>==
&if [exists segment >doc>info>txn.info]
&then us rp txn.info >doc>info>==
&else us add txn.info >doc>info>==
&if [exists segment >doc>info>>window_io_.info]
&then us rp window_io_.info >doc>info>==

```



```
&else us add window_io_.info >doc>info>==
&if [exists segment >doc>info>working_dir.info]
&then us rp working_dir.info >doc>info>==
&else us add working_dir.info >doc>info>==
&if [exists segment >doc>ss>xforum>xforum_prompt.info]
&then us rp xforum_prompt.info >doc>ss>xforum>==
&else us add xforum_prompt.info >doc>ss>xforum>==
&if [query "Should installation of Online Executable be completed?
  Type yes if no error messages."] &then &else &goto QUIT
us install install_executable
&print MR12.4 Online Executable is now installed.
&label QUIT
&quit
```

APPENDIX A

DOCUMENTATION CHANGES

CURRENT MULTICS DOCUMENTATION STATUS

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

12.4 Documentation

There are no new or updated publications to support MR12.4. Updates to manuals are provided by errata info files found in >doc>info. Shown below are the errata, with add names, which have been created for MR12.4. Manual CY73 (IMFT Reference Manual) has been revised extensively for MR12.4. It does not fall under errata, and has been placed in >doc>MR12.4.

```
ag91.errata.info
  errata.ag91.info
  Programmer's_Ref_Manual.info
ag92.errata.info
  errata.ag92.info
  Commands_Active_Functions.info
ag93.errata.info
  errata.ag93.info
  Subroutines_I/O_Modules.info
ag94.errata.info
  errata.ag94.info
  PL/I_Language_Specification.info
am83.errata.info
  errata.am83.info
  PL/I_Reference_Manual.info
az49.errata.info
  LINUS_Ref_Manual.info
  errata.az49.info
cg40.errata.info
  errata.cg40.info
  qedx_User's_Guide.info
```

ch23.errata.info
 errata.ch23.info
 Extended_Mail_System_UG.info
ch27.errata.info
 errata.ch27.info
 Emacs_User's_Guide.info
cj52.errata.info
 errata.cj52.info
 Emacs_Extension_Writer.info
cp51.errata.info
 errata.cp51.info
 Menu_Creation_Facilities.info
dx71.errata.info
 errata.dx71.info
 Fundamentals_Exec_Forum.info
cc70.errata.info
 errata.cc70.info
 FORTRAN_User's_Guide.info
cp50.errata.info
 errata.cp50.info
 Ted_Reference_Manual.info
gb61.errata.info
 errata.gb61.info
 Operator's_Guide.info
gb64.errata.info
 errata.gb64.info
 Admin_Maint_Oper_Commands.info
hm28.errata.info
 errata.hm28.info
 MOWSE_Programmer's_Manual.info
gb58.errata.info
 errata.gb58.info
 Common_Commands.info
hh07.errata.info
 errata.hh07.info
 C_User's_Guide.info

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
AK51	Multics Project Administrator's Guide
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
CH26	Multics Error Messages: Primer and Reference Manual
CH27	Emacs Text Editor User's Guide
CJ52	Multics Emacs Extension Writer's Guide
CJ97	Multics Page Processing System Utility Manual
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

DX71 Fundamentals of Multics Executive Forum
GB58 Multics Common Commands
GB59 DPS 6/Multics Satellite 6M Reference Manual
GB60 Multics HASP Service and Utility Manual
GB61 Operator's Guide to Multics
GB62 Multics Pascal User's Guide
GB63 Multics Report Writer Reference Manual
GB64 Multics Administration, Maintenance, and Operations Cmds
GB65 Multics/Personal Computer File Transmission Facilities
GB66 Multics On-Line Work Station End User's Guide
GL71 Multics Simplified Computing and Filing Facility
GN08 Multics Emacs Reference Card
HH07 Multics C Compiler User's Guide

APPENDIX B

MODULE CHANGES FOR MR12.4

This appendix provides information about changes to the Multics operating system on a segment basis. The following information applies to changes made to the system for the MR12.4 release only.

This appendix is provided to help sites identify, to a segment level, changes they may have applied for emergency bug fixes or site dependent modifications to current system software.

Information is categorized as follows:

- new info segments (added to >doc>info unless otherwise noted)
- new segments
- new or modified include files
- deleted segments
- modified segments

NEW INFO SEGMENTS FOR MR12.4

```
add_name.info
cancel_daemon_request.info
cancel_output_request.info
decode_definition_.info
delete_name.info
display_forms_info.info
dm_set_free_area.info
errata.ag91.info
errata.ag92.info
errata.ag93.info
errata.ag94.info
errata.am83.info
errata.az49.info
errata.cc70.info
errata.cg40.info
errata.ch23.info
errata.ch27.info
errata.cj52.info
errata.cp50.info
errata.cp51.info
errata.dx71.info
errata.gb58.info
errata.gb61.info
errata.gb64.info
errata.hh07.info
errata.hm28.info
exec_com.info
get_bound_seg_info_.info
get_pathname.info
iox_.info
kermit_modes.gi.info
links.info
manuals.info
menu_get_choice.info
nothing.info
null_entry_.info
pascal.changes.info
pll.info
set_mailing_address.info
terminate_refname.info
time_format.gi.info
txn.info
window_io_.info
working_dir.info
>doc>privileged>library_cleanup.info
>doc>privileged>set_system_console.info
>doc>subsystem>ssu.ab.info
>doc>subsystem>emacs>fundamental_mode.info
>doc>subsystem>xforum>xforum_prompt.info
```

NEW SEGMENTS FOR MR12.4

There are no added modules for MR12.4.

NEW OR MODIFIED INCLUDE FILES FOR MR12.4

dfm_data.incl.pl1

DELETED SEGMENTS FOR MR12.4

There are no deleted modules for MR12.4.

MODIFIED SEGMENTS FOR MR12.4

abbrev	hcom_process_seg_
abs_io_expand_	ibm2780_
admin_	ibm3780_
any_to_any_	io_semantics
as_init_	kermit
ask_	kermit_send
before_journal_meters	linus_builtin_
bound_dir_control.bind	linus_eval_expr
bound_io_commands_.bind	linus_eval_scal_func
c_compile	linus_eval_set_func
calendar	linus_lila_build_expr_tab
cancel_abs_request	linus_lila_scal_fn
canonicalize	linus_modify
cat_op	linus_modify_build_expr_tab
cc_info.incl	linus_output
check_file_version	linus_print
cobol_rts_	linus_table
cobol_version	lister_compile_listin_
copy_	lister_format_parse_
create_data_segment	lv_request_
create_data_segment_	menu_create
create_seg_ptrs	mrds_dsl_init_res
date_compiled	nothing
dc_find	on
delete_	open_indx_file
dfm_	pascal_compiler_id
dfm_data.incl	pascal_io_
dfm_util_	pascal_operators_
dialup_	pll_version
directory_commands_	probe_get_value_
disk_control	punch_driver_
disk_error_data	ref_name_
display_forms_info	reload_volume_
do_prt_request_	restart
enter_abs_request	rldr_input_
equal_name	sc_init_
ext_code_generator	set_mailing_address
format_document_	sort_seg
fort_make_symbol_section	tc_io_
fort_optimizing_cg	terminate
fort_version_info	tty_
forum_input_requests_	tty_write
fs_get	tune_disk
fs_standard_object_.pll	validate
get_pathname	ws_packet_receiver_

Bull



Bull HN Information Systems Inc.

U.S.A.: Corporate Headquarters: Technology Park, Billerica, MA 01821-4199

Mexico: Hamburgo No. 64, Col. Juarez Delegacion Cuauhtemoc, 06600 Mexico, D.F.

U.K.: Great West Rd., Brentford, Middlesex TW89DH, England **Italy:** 32 Via Pirelli, 20124 Milano

Canada: 155 Gordon Baker Road, North York, Ontario M2H3P9 **New Zealand:** 14/16 Liverpool Street, Auckland 1

Asia: 4/F, Shui on Centre, 6-8 Harbour Rd. Wanchai, Hong Kong **Australia:** 124 Walker Street, North Sidney, N.S.W. 2060

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