To: Distribution

From: Joan Scott

Date: 7 September 76

Subject: Multics Change Requests

Enclosed are the Multics Change Requests which were approved from
16 August 76 through 31 August 76.

```
|                           |                          |              |              |
| Ver. 3                    |                          | MCR  2048    |              |
| 741022                    | MULTICS CHANGE REQUEST   |              |              |
```

TITLE: tape_mult_ extensions	STATUS	DATE
	Written	07/20/76
AUTHOR: Larry Johnson DRV	Status	7/27/8/7/76
	Expires	01/20/77

Planned for System: MR 5.0
Fixes Bug Number(s): not applicable
Documented in MTB: not applicable
Incompatible Change: no
User/Operations-visible Interface Change: no
Coded in: (■)PL/I ( )ALM ( )other-see below
Performance: ( )better (■)same ( )worse

CATEGORY (check one)
( )Lib. Maint. Tools
( )Sys. Anal. Tools
( )Sys. Prog. Tools
( )355
( )BOS
( )Salvager
( )Ring Zero
( )Ring One
( )SysDaemon/Admin
( )Runtime
(■)User Command/Subr

DOCUMENTATION CHANGES (specify one or more)
MPM (vol,sect)   MPAM (sect)
MOSN (sect)   MSAM (sect)
PLMs (AN#)
Info Segs
Other
None (reason)
OBJECTIONS/COMMENTS:

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

Summary

.dd some extensions to tape_mult_ for the new volume dumper and reloader.

Detailed Proposal

Make the following changes:

1. Handle segfaults during put_chars operations. This is so the dumper can handle a segment being deleted while it is being dumped. If a segfualt occurs copying data into the buffer, the operation will complete (supplying zeroes for the remaining characters) and the code error_table_$seg_fault_error.

2. Do not wait for rewinds to complete on close operations. A close call will return as soon as the rewind starts.

3. Implement a position operation. Only position type 3 will be implemented, which will skip the specified number of characters (in the forward direction only).

Usage

```
declare iox_$position entry (ptr, fixed bin, fixed bin(21), fixed bin(35));

call iox_$position (iocb_ptr, type, n, code);
```

where:

1. iocb_ptr points to the switch's control block. (Input)

2. type   identifies the type of positioning. (Input)
    -1   goes to the beginning of the file
    +1   goes to the end of the file
     0   skips newline characters or records
               records, or characters

3. n   '   is the number of lines, ~~or records~~ to be skipped (forward skip) or
               the negative of that number (backward skip)   It may be 0.
               (Input)   *or the absolute position.*

4. code   is an I/O system status code. (Output)

> 2   positions to an absolute character or record
>
> 3   skip characters (stream input only)

Notes

Absolute positioning moves the ~~of pointer~~ next byte ~~past~~ or record position to the location specified by n.

Skipping characters moves the next byte position forwards or backwards over the specified, n, number of characters. If the file contains too few characters, the next byte position will be at the end of file [forward skip] or beginning of file [backwards skip] and error_table_$end_of_info will be returned.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 2090

TITLE: Add header control arguments to print_link_info	STATUS	DATE
AUTHOR: Steve Webber (TVV)	Written	07/30/76
	Status	T/A As/17/76
	Expires	01/30/77

Planned for System: not applicable
Fixes Bug Number(s): not applicable
Documented in MTB: not applicable
Incompatible Change: yes
User/Operations-visible Interface Change: yes
Coded in: (■)PL/I ( )ALM ( )other-see below
Performance: ( )better (■)same ( )worse

DOCUMENTATION CHANGES (specify one or more)
MPM (vol,sect) Commands   MPAM (sect)
MOSN (sect)   MSAM (sect)
PLMs (AN#)
Info Segs   pending_changes
Other

CATEGORY (check one)
( )Lib. Maint. Tools
( )Sys. Anal. Tools
( )Sys. Prog. Tools
( )355
( )BOS
( )Salvager
( )Ring Zero
( )Ring One
( )SysDaemon/Admin
( )Runtime
(■)User Command/Subr

OBJECTIONS/COMMENTS:

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY:

Add the control arguments -header (-he) and -no_header (-nhe) to the print_link_info command.

REASONS:

It has been an oft requested feature.

IMPLICATIONS:

Users will not see as much output when specific control arguments are given.

DETAILED PROPOSAL:

It is proposed that the -no_header control argument suppress the printing of the header lines (which include name, date, date compiled, etc.) Further, if any of the -length, -entry, or -link control arguments are specified, the header is not, by default, printed. If the -header control argument is given, the header is printed no matter what.

TITLE: Add the -long control argument to print_link_info. AUTHOR: Steve Webber (TVV)		STATUS | DATE Written | 07/30/76 Status | A 8/17/76 Expires | 01/30/77

Planned for System: not applicable
Fixes Bug Number(s): not applicable
Documented in MTB: not applicable
Incompatible Change: no
User/Operations-visible Interface Change: yes
Coded in: (■)PL/I ( )ALM ( )other-see below
Performance: ( )better ( )same (■)worse

CATEGORY (check one)
( )Lib. Maint. Tools
( )Sys. Anal. Tools
( )Sys. Prog. Tools
( )355
( )BOS
( )Salvager
( )Ring Zero
( )Ring One
( )SysDaemon/Admin
( )Runtime
(■)User Command/Subr

DOCUMENTATION CHANGES (specify one or more)
MPM (vol,sect) Commands   MPAM (sect)
MOSN (sect)   MSAM (sect)
PLMs (AN#)
Info Segs   pending_changes
Other

OBJECTIONS/COMMENTS:

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY:

Add the -long (-lg) control argument to print_link_info. This contr
argument causes more information from the object segment's symbol section
to be printed when the header for the output is printed (i.e. the -header
control argument was given or applies by default).

REASONS:

It has been an oft requested feature.

DETAILED PROPOSAL:

See the attached output for an example of the additional information
printed.

```
print_link_info form_link_info_ -long -length

                    form_link_info_      07/30/76   1554.2 edt Fri


Object Segment >udd>m>w>s>form_link_info_
Created on 07/30/76   0010.1 edt Fri
by Webber.Multics.a
using Experimental PL/I Compiler of Thursday, July 29, 1976 at 21:38

Translator:           PL/I
Comment:              map table optimize
Source:
   07/30/76   0010.1 edt Fri      >user_dir_dir>Multics>Webber>source>form_link_i
   12/15/75   1338.1 edt Mon      >library_dir_dir>include>linkdcl.incl.pl1
   06/30/75   1657.7 edt Mon      >library_dir_dir>include>object_info.incl.pl1
   10/06/72   1206.8 edt Fri      >library_dir_dir>include>source_map.incl.pl1
   05/18/72   1512.4 edt Thu      >library_dir_dir>include>symbol_block.incl.pl1
   01/17/73   1551.4 edt Wed      >library_dir_dir>include>pl1_symbol_block.incl.
Attributes:           relocatable,procedure,standard

          Object    Text    Defs    Link    Symb   Static
Start          0       0    3450    3620    3656    3630
Length     11110    3450     150      36    5215       0


r 1556 14.718 478.890  4432
```

Also included:
  Severity   if non-zero
  Entry bound   if non-zero
  Text Boundary   if not 2
  Static Boundary   if not 2

```
-------------------------------------------------------------------------
! Ver. 3           !                            !                        !
! 741022           !    MULTICS CHANGE REQUEST  !  MCR__2101___          !
!------------------------------------------------!------------------------!
! TITLE:  New underline active function          ! _STATUS__!__DATE_____  !
!                                                ! _Written_! 07/29/76_   !
! AUTHOR: Gary C. Dixon              TW          ! _Status__!_8/0 A8/7/76 !
!------------------------------------------------! _Expires_! 01/29/77__  !
! Planned for  System:   MR 5.0                  !                        !
! Fixes Bug Number(s):   not applicable          ! _CATEGORY (check one)! !
! Documented  in  MTB:   not applicable          !( )Lib. Maint. Tools  ! !
! Incompatible Change:   no                      !( )Sys. Anal. Tools   ! !
! User/Operations-visible Interface Change:  yes !( )Sys. Prog. Tools   ! !
! Coded in: (B)PL/I ( )ALM ( )other-see below    !( )355                ! !
! Performance: ( )better (B)same ( )worse        !( )BOS                ! !
!_____!( )Salvager           ! !
! _DOCUMENTATION CHANGES (specify one or more)___ !( )Ring Zero         ! !
! MPM (vol,sect) Commands    MPAM (sect)         !( )Ring One           ! !
! MOSN (sect)                MSAM (sect)         !( )SysDaemon/Admin    ! !
! PLMs (AN#)                                     !( )Runtime            ! !
! Info Segs                                      !(B)User Command/Subr  ! !
! Other                                          !                      ! !
!_____!_____! !
! OBJECTIONS/COMMENTS:                                                   !
!                                                                       !
!                                                                       !
!_____!
```

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY: Install a command/active function which underlines each of its
input arguments. The command prints the input arguments on a single line,
separated by a space and underlined. The active function returns a similar
value as a single quoted string.

REASONS: This active function is used by the MPM runoff macros, and has
proved useful in other instances where an underliner is needed. Since it
may be of utility to general users, it should probably be documented in the
MPM Commands.

IMPLICATIONS: A new facility is provided. We are one step closer to
installing the MPM runoff macros in some macro tools library which is
maintained at MIT, in Phoenix, and wherever Honeywell needs MPM-type
macros.

DETAILED PROPOSAL:

        !   underline "Now is" the time "for all men."""
            Now is the time for all men."

MCR 2101

<u>Name</u>: underline

        The underline active function underlines each of its input
arguments.   Each input argument is underlined separately in the
return value, and this value is canonicalized.   Arguments
containing quotes or spaces are quoted in the return value of the
active function.

<u>Usage</u>

        [underline arguments]

where arguments are the values to be underlined and returned.

<u>Example</u>

        !   loa_ [underline "Now is" the time "for all men.""""]
            <u>Now is the time for all men.</u>"

TITLE: Fix pd_flush write waiting.	STATUS	DATE
	Written	08/09/76
AUTHOR: Bernard Greenberg NIM	Status	A 08/17/76
	Expires	02/09/77

Planned for System: MR 5.0	
Fixes Bug Number(s): not applicable	CATEGORY (check one)
Documented in MTB: not applicable	( )Lib. Maint. Tools
Incompatible Change: no	( )Sys. Anal. Tools
User/Operations-visible Interface Change: no	( )Sys. Prog. Tools
Coded in: (X)PL/I ( )ALM ( )other-see below	( )355
Performance: ( )better (X)same ( )worse	( )BOS
	( )Salvager
DOCUMENTATION CHANGES (specify one or more)	(X)Ring Zero
MPM (vol,sect) MPAM (sect)	( )Ring One
MOSN (sect) MSAM (sect)	( )SysDaemon/Admin
PLMs (AN#)	( )Runtime
Info Segs	( )User Command/Subr
Other n/a	

OBJECTIONS/COMMENTS:

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY: pc$pd_flush_all waits for I/O to quiesce by unmasking and looping. Although this allows disk interrupts to come through, this does not notice Paging Device I/O which may have completed. This causes the system to occasionally hang at shutdown time. Remove this code, and replace it by masked code which calls page$run, which will notice ALL completed I/O.

REASONS: Reliability, correct operation.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 2110

TITLE: Fix truncate fms propagation.	STATUS	DATE
	Written	08/09/76
AUTHOR: Bernard Greenberg *NIM*	Status	A 08/17/76
	Expires	02/09/77

Planned for System: MR 5.0	
Fixes Bug Number(s): not applicable	CATEGORY (check one)
Documented in MTB: not applicable	( )Lib. Maint. Tools
Incompatible Change: no	( )Sys. Anal. Tools
User/Operations-visible Interface Change: no	( )Sys. Prog. Tools
Coded in: (X)PL/I ( )ALM ( )other-see below	( )355
Performance: ( )better (X)same ( )worse	( )BOS
	( )Salvager
DOCUMENTATION CHANGES (specify one or more)	(X)Ring Zero
MPM (vol,sect) MPAM (sect)	( )Ring One
MOSN (sect) MSAM (sect)	( )SysDaemon/Admin
PLMs (AN#)	( )Runtime
Info Segs	( )User Command/Subr
Other n/a	

OBJECTIONS/COMMENTS:

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY: Directory date/time modified, which drives the current Dumper, which will be around for a while, is set for a path of directories up to the root when page control notices a page being modified. The file_modified_switch (fms) is set up the tree in this case. pc$truncate which also turns on fms when it simulates modification, fails to propagate it up. Make pc$truncate propagate this switch.

REASONS: Truncated segments in directories with no legitimately modified segments will be dumped.

Ver. 3		
741022	MULTICS CHANGE REQUEST	MCR 2111

TITLE: Changes to message coordinator for new MCS Interface AUTHOR: Robert S. Coren *TVV*	STATUS | DATE Written | 08/09/76 Status | A08/17/76 Expires | 02/09/77

Planned for System: MR 5.0	
Fixes Bug Number(s): not applicable	CATEGORY (check one)
Documented in MTB: not applicable	( )Lib. Maint. Tools
Incompatible Change: yes	( )Sys. Anal. Tools
User/Operations-visible Interface Change: no	( )Sys. Prog. Tools
Coded in: (■)PL/I ( )ALM ( )other-see below	( )355
Performance: ( )better (■)same ( )worse	( )BOS
	( )Salvager
DOCUMENTATION CHANGES (specify one or more)	( )Ring Zero
MPM (vol,sect) MPAM (sect)	( )Ring One
MOSN (sect) MSAM (sect)	(■)SysDaemon/Admin
PLMs (AN#)	( )Runtime
Info Segs	( )User Command/Subr
Other	
None (reason) no interface change	
OBJECTIONS/COMMENTS:	

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY: Make changes to Message Coordinator for compatibility with bootload of FNP from Multics.

REASONS: Message coordinator must not try to listen for dialups on lines configured on an FNP that is not running.

IMPLICATIONS: None.

DETAILED PROPOSAL: Alter various programs in bound_oprcons_ as follows:
    1. Use the CDT entry for each channel to hold the tty name, tty DIM device index, and tty "state" variable, instead of the "mc_anstbl" entry as at present.

    2. Change the place in mc_commands_$new_tty which does a "listen" order on a newly-accepted channel to do so only if the relevant FNP is up.

    3. Add a new entry, mc_commands_$listen_to_ttys, to be called by the Answering Service program that recognizes that an FNP has been successfully loaded. This entry will issue "listen" orders for all channels on that FNP that have been accepted by the Message Coordinator.

```
I Ver. 3                                          I                        I
I 741022            MULTICS CHANGE REQUEST        I  MCR_____2112_____   I
I_____I_____I
I TITLE!  Make message coordinator understand tty I STATUS  I DATE         I
I         DIM event types                         I Written I 08/09/76     I
I AUTHOR! Robert S. Coren               TVV       I Status  I A 08/17/76   I
I_____I Expires I 02/09/77     I
I Planned for  System!   not applicable 5.0       I_____  I
I Fixes Bug Number(s)!   not applicable           I CATEGORY (check one)!   I
I Documented in MTB!     not applicable           I( )Lib. Maint. Tools    I
I Incompatible Change!   yes                       I( )Sys. Anal. Tools     I
I User/Operations-visible Interface Change!  no    I( )Sys. Prog. Tools     I
I Coded in! (B)PL/I ( )ALM ( )other-see below      I( )355                  I
I Performance! ( )better (B)same ( )worse          I( )BOS                  I
I_____I( )Salvager             I
I DOCUMENTATION CHANGES (specify one or more)      I( )Ring Zero            I
I MPM (vol,sect)              MPAM (sect)          I( )Ring One             I
I MOSN (sect)                 MSAM (sect)          I(B)SysDaemon/Admin      I
I PLMs (AN#)                                       I( )Runtime              I
I Info Segs                                        I( )User Command/Subr    I
I Other                                            I                        I
I None (reason) no interface change                I_____I
I OBJECTIONS/COMMENTS!                             I                        I
I                                                  I                        I
I                                                  I                        I
I_____I_____I
```

Headings are! SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY! Change mc_tty_ to recognize the event message passed with wakeups from the ring-zero tty DIM (identifying the event as hangup, input arrived, output completed, etc.) and take appropriate action.

REASONS! This information is available, we might as well make use of it. The message coordinator currently wastes some time on such a wakeup trying to decide which of these events it probably represents.

IMPLICATIONS! None

```
 ----------------------------------------------------       ------------------------------
I Ver. 3                                              I     I                              I
I 741022            MULTICS CHANGE REQUEST            I     I  MCR_____2113_            I
I                                                     I     I----------------------------.
I---------------------------------------------------- I     I _SIAIUS__I_DAIE_____        I
I TITLE:  Modify write_log_ to copy ACL when          I     I _Written_I_08/07/76__         I
I              creating new log                       I     I _Status__I A08/17/76          I
I AUTHOR: VanVleck                            RM      I     I _Expires_I_02/07/77__         I
I----------------------------------------------------       I------------------------------I
I Planned for  System:   not applicable              I     I                              I
I Fixes Bug Number(s):   not applicable              I     I _CATEGORY_(check_one)         I
I Documented  in  MTB:   not applicable              I     I( )Lib. Maint. Tools          I
I Incompatible Change:   no                           I     I( )Sys. Anal. Tools           I
I User/Operations-visible Interface Change:  no      I     I( )Sys. Prog. Tools           I
I Coded in: (B)PL/I ( )ALM ( )other-see below         I     I( )355                        I
I Performance: ( )better (B)same ( )worse             I     I( )BOS                        I
I                                                     I     I( )Salvager                   I
I_DOCUMENIAIION_CHANGES_(specify_one_or_more)_____ I     I( )Ring Zero                  I
I MPM (vol,sect)               MPAM (sect)            I     I( )Ring One                   I
I MOSN (sect)                  MSAM (sect)            I     I(B)SysDaemon/Admin            I
I PLMs (AN#)         an66                              I     I( )Runtime                    I
I Info Segs                                           I     I( )User Command/Subr          I
I Other                                               I     I                              I
I---------------------------------------------------- I     I------------------------------I
I OBJECTIONS/COMMENTS:                                I     I                              I
I                                                     I     I                              I
I                                                     I     I                              I
I----------------------------------------------------------------------------------------- I
```

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY:

When write_log_ fills one log and creates a next log, cause it to copy the
ACL of the old log onto the new log.

REASONS:

Currently it is not possible to give anyone access to the initializer log
files without placing them on the initial ACL of >sc1, because when the log
overflows the new log gets a default ACL.

IMPLICATIONS:

Simpler access control for log files.

```
 ----------------------------------------------------------------------
| Ver. 3                                               |                    |
| 741022           MULTICS CHANGE REQUEST              |  MCR____2114_____  |
|------------------------------------------------------|--------------------|
| TITLE:  New commands copy_acl, copy_iacl_seg,        |_STATUS__|_DATE_____|
|         copy_iacl_dir                                |_Written_|_08/07/76__|
| AUTHOR: VanVleck                             RM      |_Status__|A 08/12/76 |
|------------------------------------------------------|_Expires_|_02/07/77__|
| Planned for  System:   not applicable                |--------------------|
| Fixes Bug Number(s):   not applicable                |_CATEGORY_(check_one)|
| Documented  in  MTB:   not applicable                |( )Lib. Maint. Tools |
| Incompatible Change:   no                            |( )Sys. Anal. Tools  |
| User/Operations-visible Interface Change:  no        |( )Sys. Prog. Tools  |
| Coded in: (X)PL/I ( )ALM ( )other-see below          |( )355               |
| Performance: ( )better (X)same ( )worse              |( )BOS               |
|_____|( )Salvager          |
|_DOCUMENTATION_CHANGES_(specify_one_or_more)_____ |( )Ring Zero         |
| MPM (vol,sect) cmd        MPAM (sect)                |( )Ring One          |
| MOSN (sect)               MSAM (sect)                |( )SysDaemon/Admin   |
| PLMs (AN#)                                           |( )Runtime           |
| Info Segs                                            |(X)User Command/Subr |
| Other                                                |                     |
|------------------------------------------------------|---------------------|
| OBJECTIONS/COMMENTS:                                 |                     |
|                                                      |                     |
|                                                      |                     |
|------------------------------------------------------|---------------------|
```

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY:

Create new commands copy_acl, copy_iacl_seg, and copy_iacl_dir.

REASONS:

It is sometimes necessary to copy the ACL from one segment or directory to
another. Only clumsy ways of doing this exist currently, although
subroutines exist for the purpose.

Name: copy_acl

This command copies the ACL from one segment or directory to another.

Usage: copy_acl path1i path2i ...

The star convention may be used in path1i.
The equals convention may be used in path2i.

Name: copy_iacl_seg   ..us

This command copies the segment initial ACL from one directory to another.

Usage: copy_iacl_seg path1i path2i ...

The star convention may be used in path1i.
The equals convention may be used in path2i.

Name: copy_iacl_dir

This command copies the directory initial ACL from one directory to
another.

Usage: copy_iacl_dir path1i path2i ...

The star convention may be used in path1i.
The equals convention may be used in path2i.

Note: The copied ACL's replace current ACL's or IACL's.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR___2116_____

TITLE: bind_fnp version stmt and bug fixes	STATUS	DATE____
	Written	08/05/76
AUTHOR: Mike Grady DRJ	Status	A 08/17/76
	Expires	02/05/77

Planned for System: MR5.0	
Fixes Bug Number(s): not applicable	CATEGORY (check one)
Documented in MTB: not applicable	( )Lib. Maint. Tools
Incompatible Change: yes	( )Sys. Anal. Tools
User/Operations-visible Interface Change: no	(X)Sys. Prog. Tools
Coded in: (X)PL/I ( )ALM ( )other-see below	( )355
Performance: ( )better (X)same ( )worse	( )BOS
	( )Salvager
DOCUMENTATION CHANGES (specify one or more)	( )Ring Zero
MPM (vol,sect) MPAM (sect)	( )Ring One
MOSN (sect) MSAM (sect)	( )SysDaemon/Admin
PLMs (AN#) AN85	( )Runtime
Info Segs	( )User Command/Subr
Other	

OBJECTIONS/COMMENTS:

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY

Add version statement to bind_fnp bind file and a -version control argument. The control arg will override the bind file as does the -sysid control arg to generate_mst.

Fix minor bugs in binder.

REASONS

It is convenient to be able to learn which version of MCS is running and to be able to specify the version for experimental systems.

DETAILED PROPOSAL

The bugs fixed are:

1) Fill in software communications region properly when using the -simulator control argument.

2) Build the correct iom table when using less than the maximum number of HSLAs.

```
--------------------------------------------------------------------
I Ver. 3                                          I                        I
I 741022            MULTICS CHANGE REQUEST        I    MCR_____2117___    I
I                                                 I                        I
I------------------------------------------------ I----------------------- 
I TITLE:  Cleanup FNP tools                       I_STATUS__I_DATE_____
I                                                 I_Written_I_08/05/76__I
I AUTHOR: Mike Grady              DRU             I_Status__IA 08/17/76_I
I_____ I_Expires_I_02/05/77__I
I Planned for  System:   MR5.0                    I_____
I Fixes Bug Number(s):   not applicable           I_CATEGORY_(check_one)I
I Documented  in MTB:    not applicable           I( )Lib. Maint. Tools I
I Incompatible Change:   no                        I( )Sys. Anal. Tools  I
I User/Operations-visible Interface Change:  no   I(X)Sys. Prog. Tools  I
I Coded in: (X)PL/I ( )ALM ( )other-see below     I( )355               I
I Performance: ( )better (X)same ( )worse         I( )BOS               I
I_____ I( )Salvager          I
I_DOCUMENTATION_CHANGES_(specify_one_or_more)_____ I( )Ring Zero         I
I MPM (vol,sect)            MPAM (sect)           I( )Ring One          I
I MOSN (sect)               MSAM (sect)           I( )SysDaemon/Admin   I
I PLMs (AN#)      AN85                            I( )Runtime           I
I Info Segs                                       I( )User Command/Subr I
I Other                                           I                     I
I_____ I_____
I OBJECTIONS/COMMENTS:                             I
I                                                 I
I                                                 I
I_____I
```

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY
       Cleanup two of the tools used for FNP assemblies and loading.

       The map355 command will put all of its temp segments in the process
directory instead of the working directory and cleanup better when
finished.

       The coreload command will be fixed to process the output of map355
(i.e., the object deck) rather than the simulator (a partially processed
object deck). This saves a processing step in the simulator, which is very
expensive.

REASONS
       Make these commands more reliable and easier to use.

TITLE:	Add linkage fault tracing to cumulative_page_trace	STATUS	DATE
AUTHOR:	J. Gintell BSG	Written	08/11/76

-Coded in: ☒PL/I ☐AIM ☐other-
 explain in DETAILED PROPOSAL
-Planned for System MR **5.0**
-Fixes Bug Number(s)_____
-Documented in MTB_____
-User/Operations-visible
 Interface change? ☒ yes ☐ no
-Incompatible change? ☐ yes ☒ no
-Performance: ☐ Better ☒ Same
 ☐ Worse
-Replaces MCR_____

Status	A 08/17/76
Expires	02/17/76

DOCUMENTATION CHANGES

Category (Check One)	
Lib. Maint. Tools	
Sys. Anal. Tools	
Sys. Prog. Tools	
355	
BOS	
Salvager	
Ring Zero	
Ring One	
SysDaemon/Admin.	
Runtime	
X	User Cmmd/Subr.

Document	Specify One or More
MPM (Vol, Sect.)	Commands
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	

Objections/Comments:

 Expand documentation

Info Segs	
Other (Name)	
None (Reason)	

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
                     Detailed Proposal.

SUMMARY:

 Add the ability to accumulate linkage faults (caller and
 callee) and subsequently print them out.

REASONS:

 Users frequently want to know exactly what they have linked to.

DETAILED PROPOSAL:

 1. The following control arguments will be used to control
    linkage fault tracing.

    -trace_linkage_faults

       accumulate linkage faults information at same time
       that page and segment fault information is accumulated.

    -print_linkage_faults

       print all accumulated linkage faults and hcs_$make_ptr
       calls.

Output will look like:

    proca|3741 referencing xxx$entry
or
    bound_segment_name: proca\36 referencing yyy$zzz

2. Add.the printout of the number of segment faults on each
    segment for the case where the -total control argument
    is used.

3. Fix the cleanup condition handler to work correctly.

TITLE:	Unimplement safety_sw check in vfile_	STATUS	DATE

AUTHOR: M. Asherman   SHW

	STATUS	DATE
Written		08/11/76
Status	A 08/10/76	
Expires		02/17/77

-Coded in: [X] PL/I [ ] ALM [ ] other-
 explain in DETAILED PROPOSAL
-Planned for System MR _____
-Fixes Bug Number(s) MPRF9689
-Documented in MTB _____
-User/Operations-visible
 Interface change? [X] yes [ ] no
-Incompatible change? [X] yes [ ] no
-Performance: [ ] Better [X] Same
  [ ] Worse
-Replaces MCR _____

Category (Check One)

Category		DOCUMENTATION CHANGES
	Lib. Maint. Tools	
	Sys. Anal. Tools	
	Sys. Prog. Tools	
	355	Document Specify One or More
	BOS	
	Salvager	MPM (Vol, Sect.)
	Ring Zero	PLMS (AN #)
	Ring One	
	SysDaemon/Admin.	MOSN (Sect.)
	Runtime	MPAM (Sect.)
X	User Cmmd/Subr.	
		MSAM (Sect.)

Objections/Comments: •

Info Segs	
Other (Name)	
None (Reason)	

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
                       Detailed Proposal.

SUMMARY:

   vfile_ currently uses the safety switch to determine whether
   a file opened for input_output will be truncated or extended.
   It is proposed that this feature be removed.

REASONS:

   This is a non-standard use of the safety switch. Alternative
   mechanisms exist to prevent accidental truncation, and it is
   not clear that there is any demand for this particular gimmick.

IMPLICATIONS:

   runoff users who set safety switch on runout segments will not
   have unexpected results (appending instead of replacement).

TITLE:	Fix edm line length bug	STATUS	DATE

TITLE: Fix edm line length bug

AUTHOR: R. Mullen   TVV

	STATUS	DATE
Written		08/11/76
Status	A 08/17/76	
Expires		02/17/77

-Coded in: [X] PL/I [ ] ALM [ ] other-
 explain in DETAILED PROPOSAL
-Planned for System MR 5.0
-Fixes Bug Number(s) MPRF9795
-Documented in MTB _____
-User/Operations-visible
 Interface change? [ ] yes [X] no
-Incompatible change? [ ] yes [X] no
-Performance: [ ] Better [X] Same
 [ ] Worse
-Replaces MCR _____

Category (Check One)

Category (Check One)	
	Lib. Maint. Tools
	Sys. Anal. Tools
	Sys. Prog. Tools
	355
	BOS
	Salvager
	Ring Zero
	Ring One
	SysDaemon/Admin.
	Runtime
X	User Cmmd/Subr.

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	
Info Segs	
Other (Name)	
None (Reason)	

Objections/Comments:

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
                      Detailed Proposal.

SUMMARY:

   Fix bug causing edm to overestimate the length of the
   final line of text if it does not end in newline.

REASONS:

   Currently prints garbage or takes OOB.

IMPLICATIONS:

   Make world safer for people who don't heed warnings.

TITLE:	Fix abbrev not to define useless abbreviations	STATUS	DATE

AUTHOR: S. Herbst   TVV

STATUS	DATE
Written	08/11/76
Status	A 08/17/76
Expires	02/17/77

-Coded in: [X] PL/I [ ] ALM [ ] other-
explain in DETAILED PROPOSAL
-Planned for System MR 5.0
-Fixes Bug Number(s) _____
-Documented in MTB _____
-User/Operations-visible
 Interface change? [X] yes [ ] no
-Incompatible change? [ ] yes [X] no
-Performance: [ ] Better [X] Same
 [ ] Worse
-Replaces MCR _____

Category (Check One)	
	Lib. Maint. Tools
	Sys. Anal. Tools
	Sys. Prog. Tools
	355
	BOS
	Salvager
	Ring Zero
	Ring One
	SysDaemon/Admin.
	Runtime
X	User Cmmd/Subr.

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	AG92
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	
Info Segs	
Other (Name)	
None (Reason)	

Objections/Comments:

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
                       Detailed Proposal.

SUMMARY

Change abbrev to not allow the user to define an abbreviation
containing break characters (.$>etc.) and not beginning with
a break character since such an abbreviation will never be
replaced during expansion.

IMPLICATIONS:

1. Abbreviations beginning with break characters are
    currently replaced and will still be allowed.
2. We are referring to the current set of break charac-
    ters, which can be changed by calling abbrev_$set_break
    and abbrev_$reset_break.

.la <letter]> ... <lettern>   list all abbreviations starting with the
                                specified letters. <letteri> is expected to be
                                a single character. If no letters are
                                specified, all abbreviations in the current
                                profile are listed.

.q   quit using the abbrev command processor. This
                                request resets the command processor to the
                                one in use before invoking abbrev and, hence,
                                prevents any subsequent action on the part of
                                abbrev until it is explicitly invoked again.

.r   enter a mode that remembers the last line
                                expanded by abbrev. See the .f and .s
                                requests.

.s <rest of line>   show the user how <rest of line> would be
                                expanded but do not execute it. The .s
                                request with no arguments shows the user the
                                last line expanded by abbrev and is valid only
                                if abbrev is remembering lines. See the .f
                                and .r requests.

.u <profile>   specify to abbrev the pathname of a profile to
                                use. <profile> becomes the current working
                                profile. The user needs "r" access to use the
                                profile and "w" access to add and delete
                                abbreviations.

.p   print the name of the profile being used.

.<space> <rest of line>   pass <rest of line> on to the normal command
                                processor without expanding it. Using this
                                request, the user can issue a command line
                                that contains abbreviations that are not to be
                                expanded.

Break Characters

    When abbrev expands a command line, it treats certain characters as special
or break characters. Any character string that is less than or equal to eight
characters long and is bounded by break characters is a candidate for expansion.
The string is looked up in the current profile and, if it is found, the expanded
form is placed in (a copy of) the command line to be passed on to the normal
command processor.

An abbreviation cannot contain
break characters, unless it begins
with a break character.

Multics Change Request

TITLE:	Convert abbrev to EIS	STATUS	DATE

AUTHOR: S. Herbst   TVV

	Written	08/11/76
	Status	A 08/17/76
	Expires	02/17/77

-Coded in: [X] PL/I [ ] AIM [ ] other-
 explain in DETAILED PROPOSAL
-Planned for System MR 5.0
-Fixes Bug Number(s)_____
-Documented in MTB_____
-User/Operations-visible
 Interface change? [ ] yes [X] no
-Incompatible change? [ ] yes [X] no
-Performance: [X] Better [ ] Same
 [ ] Worse
-Replaces MCR_____

Category (Check One)
Lib. Maint. Tools
Sys. Anal. Tools
Sys. Prog. Tools
355
BOS
Salvager
Ring Zero
Ring One
SysDaemon/Admin.
Runtime
X User Cmmd/Subr.

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	

Objections/Comments:

Info Segs	
Other (Name)	
None (Reason)	Doc. O.K.

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
                       Detailed Proposal.

SUMMARY:

1.   Make abbrev faster using EIS.

IMPLICATIONS:

No interface changes!

TITLE:	Fix header bug in mseg_		STATUS	DATE
AUTHOR:	S. Herbst	JW	Written	08/11/7
			Status	A 08/17/76
			Expires	02/17/77

-Coded in: ☒ PL/I ☐ AIM ☐ other-
explain in DETAILED PROPOSAL
-Planned for System MR   5.0
-Fixes Bug Number(s)_____
-Documented in MTB_____
-User/Operations-visible
 Interface change? ☐ yes ☒ no
-Incompatible change? ☐ yes ☒ no
-Performance: ☐ Better ☒ Same
 ☐ Worse
-Replaces MCR_____

Category (Check One)	
	Lib. Maint. Tools
	Sys. Anal. Tools
	Sys. Prog. Tools
	355
	BOS
	Salvager
	Ring Zero
X	Ring One
	SysDaemon/Admin.
	Runtime
	User Cmmd/Subr.

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	
Info Segs	
Other (Name)	
None (Reason)	doc. O. K.

Objections/Comments:

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
                       Detailed Proposal.

SUMMARY:

    Fix bug in mseg_ causing a message segment header to be
    only partially initialized for certain error exits, and
    thus causing later operations on that message segment to
    blow up.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 2098

		STATUS	DATE
TITLE: Add hcs_$make_entry		Written	08/03/76
AUTHOR: M. Weaver	RB	Status	[SO Aug/24/76
		Expires	02/03/77

Planned for System: MR 5.0
Fixes Bug Number(s):   not applicable
Documented in MTB: not applicable
Incompatible Change: no
User/Operations-visible Interface Change: no
Coded in: (B)PL/I ( )ALM ( )other-see below
Performance: ( )better ( )same ( )worse

DOCUMENTATION CHANGES (specify one or more)
MPM (vol,sect) Subroutine MPAM (sect)
MOSN (sect)   MSAM (sect)
PLMs (AN#)
Info Segs
Other

CATEGORY (check one)
( )Lib. Maint. Tools
( )Sys. Anal. Tools
( )Sys. Prog. Tools
( )355
( )BOS
( )Salvager
( )Ring Zero
( )Ring One
( )SysDaemon/Admin
( )Runtime
(B)User Command/Subr

OBJECTIONS/COMMENTS:

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY:

Add the subroutine hcs_$make_entry, which is just like hcs_$make_ptr except that it returns an entry value instead of a pointer.

REASONS:

Several interfaces in the system require (or should require) an entry value. Constructing an entry value from a pointer is awkward.

IMPLICATIONS: none

DETAILED PROPOSAL:

Add a new entrypoint to link_snap. Most of the code will be shared with the make_ptr entrypoint.

Name: hcs_$make_~~ptr~~ *entry*

The hcs_$make_~~ptr~~ *entry* entry point, when given a reference name and an entry point name, returns ~~a pointer to~~ *the value of* a specified entry point. If the reference name has not yet been initiated, the search rules are used to find a segment with a name the same as the reference name. The segment is made known and the reference name initiated.

Usage

    declare hcs_$make_~~ptr~~ *entry* entry (ptr, char(*), char(*), ~~ptr~~ *entry*, fixed bin(35));

    call hcs_$make_ptr (ref_ptr, entryname, entry_point_name, entry_point_~~ptr~~, code);

where:

1. ref_ptr.   is a pointer to the segment that is considered the referencing procedure. See "Notes" below. (Input)

2. entryname   is the entryname of the segment. (Input)

3. entry_point_name   is the name of the entry point to be located. *It must not be null.* (Input)

4. entry_point_~~ptr~~   is the *value of* ~~pointer to~~ the segment entry point specified by entryname and entry_point_name. (Output)

5. code   is a storage system status code. (Output)

Notes

The directory in which the segment pointed to by ref_ptr is located is used as the referencing directory for the standard search rules. If ref_ptr is null, then the standard search rule specifying the referencing directory is skipped. See "System Libraries and Search Rules" in Section III of the MPM Reference Guide. Normally ref_ptr is null.

The entryname and entry_point_name arguments are nonvarying character strings with a length of up to 32 characters. They need not be aligned and can be blank padded.

If a null string is given for the entry_point_name argument, then a pointer to the base of the segment is returned. In any case, the segment identified by entryname is made known to the process with the entryname argument initiated as a reference name. If an error is encountered upon return, the entry_point_ptr argument is null and an error code is given.

To invoke the procedure entry point pointed to by entry_point_ptr, use cu_$gen_call or cu_$ptr_call. (See the description of the cu_ subroutine in the MPM Subsystem Writers' Guide.)

TITLE:	RCP bug fixes	STATUS	DATE
AUTHOR:	B. Silver NIM	Written	08/19/76
		Status	A 08/24/76
		Expires	02/07/77

- Coded in: [X] PL/I [ ] AIM [ ] other- explain in DETAILED PROPOSAL
- Planned for System MR __4.0__
- Fixes Bug Number(s) _____
- Documented in MTB _____
- User/Operations-visible Interface change? [X] yes [ ] no
- Incompatible change? [ ] yes [X] no
- Performance: [ ] Better [X] Same [ ] Worse
- Replaces MCR _____

Category (Check One)

Category	
Lib. Maint. Tools	
Sys. Anal. Tools	
Sys. Prog. Tools	
355	
BOS	
Salvager	
Ring Zero	
Ring One	
SysDaemon/Admin.	
Runtime	
User Cmmd/Subr.	

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	
Info Segs	
Other (Name)	
None (Reason)	

Objections/Comments:

Use these headings: Summary of Proposal, Reasons for Proposal, Implications, Detailed Proposal.

SUMMARY:

Fix bug in RCP.

REASONS:

Access checking fails for private logical volumes.

IMPLICATIONS:

This change has been made in Phoenix on System M.

DETAILED PROPOSAL:

1. Fix bug that causes RCP to incorrectly interpret access to user disk drives.

```
!------------------------------------------------------------!-----------------------------!
! Ver. 3       !                                             !                             !
! 741022       !        MULTICS CHANGE REQUEST               !  MCR_____2107_____        !
!              !                                             !                             !
!_____!_____!_____!
! TITLE:  Implement varying size hash tables and             !_STATUS_!_DATE_____          !
!         name hash threads                                  ! Written ! 08/04/76           !
! AUTHOR: Susan Barr                                         ! Status  ! 08/24/76           !
!                                                   BSG      ! Expires ! 02/04/77           !
!_____!_____!
! Planned for  System:   MR 5.0                              !                             !
! Fixes Bug Number(s):   not applicable                      !_CATEGORY__(check_one)!       !
! Documented  in MTB:    293                                 !( )Lib. Maint. Tools !        !
! Incompatible Change:   yes                                 !( )Sys. Anal. Tools  !        !
! User/Operations-visible Interface Change:  no              !( )Sys. Prog. Tools  !        !
! Coded in: (8)PL/I (8)ALM ( )other-see below                !( )355               !        !
! Performance: (8)better ( )same ( )worse                    !( )BOS               !        !
!_____!( )Salvager          !       !
!_DOCUMENTATION_CHANGES_(specify_one_or_more)_____!(8)Ring Zero         !        !
! MPM (vol,sect)            MPAM (sect)                      !( )Ring One          !        !
! MOSN (sect)               MSAM (sect)                      !( )SysDaemon/Admin   !        !
! PLMs (AN#)       AN61                                       !( )Runtime           !        !
! Info Segs                                                  !( )User Command/Subr !        !
! Other                                                      !                             !
!_____!_____!
! OBJECTIONS/COMMENTS:                                        !                             !
!                                                             !                             !
!                                                             !                             !
!_____!_____!
```

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY:

Implement varying size hash tables and name hash threads for directory
searches as described in MTB 293. The initial sizes will be 61, 251, and
1021. Add a version number to the directory header.

REASONS:

The current hashing algorithm limits the number of names in a directory;
causes performance to degrade in a non-linear way for nearly full
directories; and wastes space in small directories that use only a fraction
of the fixed size hash table.

PROPOSAL:

Change directory control to use the new hash table formats and the salvager
to reconstruct them.

IMPLICATIONS:

A full salvage which rebuilds directories is necessary to install this
change.

Multics Change Request

TITLE: Change IMP DIM to not doubly wire temporary buffers

AUTHOR: D. M. Wells

STATUS	DATE
Written	76.08.17
Status	A 08/24/76
Expires	76.09.17

-Coded in xx PL/I xx ALM ☐ other-
explain in DETAILED PROPOSAL
-Planned for System MR
-Fixes Bug Number(s) Unreported
-Documented in MTB _____
-User/Operations-visible
 Interface change? ☐ yes xx no
-Incompatible change? ☐ yes xx no
-Performance: ☐ Better xx Same
 ☐ Worse
-Replaces MCR _____

Category (Check One)	
	Lib. Maint. Tools
	Sys. Anal. Tools
	Sys. Prog. Tools
	355
	BOS
	Salvager
xx	Ring Zero
	Ring One
	SysDaemon/Admin.
	Runtime
	User Cmmd/Subr.

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	
Info Segs	
Other (Name)	
None (Reason)	No change to interface

Objections/Comments:

Use these headings: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (Optional)

SUMMARY: Change the IMP DIM to not abs wire its temporary pages when they are already
wired. Change Host-Host allocation strategy slightly so that several fewer
pages are used when sending data to the local host -- i. e., "looping back"
to ourselves.

REASONS: A change to the absolute main memory management procedures on
Multics has caused an attempt to re-wire an already-wired page to
have random effects, as these procedures now assume that their
callers have already checked for this case. This cometimes cause
causes the system to crash.
A slight change in the Host-Host allocation policy will fewer small-buffer
messages to be sent out when transmitting data to ourselves. This will
reduce the need for space for small buffers, to hold untransmitted data.

IMPLICATIONS: Fewer crashes.

DETAILED PROPOSAL: Change the IMP DIM to not re-wire pages already wired. A later
MCR will propose a mechanism for unwiring pages no longer needed, but that
seems to be a minor performance change not worth waiting for, because

THIS IS AN EMERGENCY INSTALLATION

TITLE: Move translator search rules Commands to SSS	STATUS	DATE
	Written	08/17/76
AUTHOR: Dennis Capps JG	Status	A 08/24/76
	Expires	02/17/77

Planned for System: MR 5.0	
Fixes Bug Number(s): not applicable	**CATEGORY (check one)**
Documented in MTB: not applicable	( )Lib. Maint. Tools
Incompatible Change: no	( )Sys. Anal. Tools
User/Operations-visible Interface Change: yes	( )Sys. Prog. Tools
Coded in: (X)PL/I ( )ALM ( )other-see below	( )355
Performance: ( )better (X)same ( )worse	( )BOS
	( )Salvager
DOCUMENTATION CHANGES (specify one or more)	( )Ring Zero
MPM (vol,sect) Commands MPAM (sect)	( )Ring One
MOSN (sect) MSAM (sect)	( )SysDaemon/Admin
PLMs (AN#)	( )Runtime
Info Segs	(X)User Command/Subr
Other	

OBJECTIONS/COMMENTS:

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY:
     Move the existing commands print_translator_search_rules (ptsr) and set_translator_search_rules (stsr) from the system tools library to the standard service system.

REASONS:
     Several users of runoff have requested an explanation of how inserted files are located (runoff uses find_include_file_).
     Some reorganization of the system libraries with respect to include files is planned and thereafter it will be necessary to provide users with a way to change their translator search rules.
     A general search facility, on which there seems to be general agreement as the proper way to proceed with search rules, is languishing for lack of personnel, etc., and an interim solution is needed.
     If these programs, which already exist, are moved from tools into the standard system, they can be documented for users and user documentation can refer to them.

IMPLICATIONS: \
     These will become fully supported commands with Honeywell committed to their maintenance.

DETAILED PROPOSAL:
     Remove print_translator_search_rules and set_translator_search_rules from >system_library_tools>bound_search_tools_ and put them instead in >system_library_standard>bound_ti_term_ (where find_include_file_ resides).
     Move the documentation from the System Tools PLM to the MPM.

<u>Name</u>:   set_translator_search_rules, stsr

The   set_translator_search_rules   command   is   a   command
interface to the find_include_file_ subroutine which allows
manipulation of the search rules used to find include files by
the language translators.

<u>Usage</u>

set_translator_search_rules paths

where paths are pathnames that are to be searched, in the order
given, when searching for an include file. The default search
rules are:

```
working_dir
>user_dir_dir>Project_id>include
>library_dir_dir>include
```

The command recognizes the following keywords which can be
used instead of pathnames:

```
-working_dir
-home_dir
-referencing_dir
-default
```


<u>Example</u>

stsr >udd>m>include >ldd>bos>include >ldd>include

AN51

Name: print_translator_search_rules, ptsr

     The print_translator_search_rules command prints the current
translator search rules in effect for the calling process.

Usage

     print_translator_search_rules

Ver. 3		MCR __2127__
741022	MULTICS CHANGE REQUEST	

		STATUS	DATE
TITLE: Changes to Answering Service for Network File Transfer Protocol (FTP)		Written	8/19/75
AUTHOR: Roy P. Planalp (LCS-CSR) *TVV*		Status A 08/24/76	
		Expires	02/19/77

Planned for System: not applicable	
Fixes Bug Number(s): not applicable	CATEGORY (check one)
Documented in MTB: not applicable	( )Lib. Maint. Tools
Incompatible Change: yes	( )Sys. Anal. Tools
User/Operations-visible Interface Change: yes	( )Sys. Prog. Tools
Coded in: (X)PL/I ( )ALM ( )other-see below	( )355
Performance: ( )better (X)same ( )worse	( )BOS
	( )Salvager
DOCUMENTATION CHANGES (specify one or more)	( )Ring Zero
MPM (vol,sect) AG92 sec 4 MPAM (sect)	( )Ring One
MOSN (sect) MSAM (sect)	(X)Sys)aemon/Admin
PLMs (AN#)	( )Runtime
Info Segs pending_changes	( )User Command/Subr
Other	

OBJECTIONS/COMMENTS:

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY:

1.   Change the manner in which the Answering Service outputs messages to
     the user so that ftp_dialup_ and other Answering Service modules
     recognize that they are communicating with an FTP user, and generate
     messages in accordance with this protocol.

2.   Change Answering Service to refuse login if the user supplies a login
     argument such as -process_overseer, -home_dir, etc. and does not have
     the corresponding user attribute (vinitproc, vhomedir, etc.), instead
     of ignoring the argument and logging the user in anyway.

3.   Change Answering Service to not print out any messages associated with
     a successful login if the user logs in using -brief control argument,
     and to suppress all operator/system warning messages while logged in
     if the user logs in using -no_warning. Presently, some messages are
     printed in spite of the use of these arguments.

4.   Fix miscellaneous bugs.

REASONS:

1.   This finishes the work begun earlier to cease using the transmogrifier
     (see MCR 2039) presently used to implement the Network File Transfer
     Protocol.

2. Multics conventions dictate that if a control argument to a command
    is unacceptable, the command should not perform the action at all.

3. The documentation says that the Answering Service presantly functions
    in this manner. Also, this meaning of -brief is more in keeping wl
    its meaning for other commands.

IMPLICATIONS:

1. FTP server will be much more robust and flexible.

2. User has greater control over the circumstances under which he is
    logged in.

3. Software will operate as documented and be more consistent.

-no_warning, -nw   suppress even urgent system warning and
                              emergency messages from the operator, both at
                              login and during the user's session. Use of
                              this argument is recommended only for users
                              who are using a remote computer to simulate a
                              terminal, or are typing out long memoranda,
                              when the process output should not be
                              interrupted by even the most serious
                              messages.

-outer_module p, -om p   attach the user's terminal via the outer
                              module named p rather than the user's
                              registered outer module, if the user has the
                              privilege of specifying his outer module.

-terminal_type XX, -ttp XX   set the user's terminal type to XX, where XX
                              is a string acceptable to the -terminal_type
                              control argument of the set_tty command.
                              (See the description of the set_tty command
                              for a complete explanation of possible
                              devices.) This control argument overrides
                              the default terminal type.

-modes XX   set the I/O modes associated with the user's
                              terminal to XX, where the string XX consists
                              of modes acceptable to the tty_ I/O module.
                              (See the tty_ I/O module description in the
                              MPM Subroutines for a complete explanation of
                              possible modes.) The XX string is usually a
                              list of modes separated by commas; the XX
                              string must not contain blanks. (See
                              "Examples" below.)

Notes

     Several parameters of the user's process, as noted above, can be controlled
by the user's project administrator. The project administrator can allow the
user to override some of these attributes by specifying control arguments in his
login line.

-subsystem,
-outer-module) If the project administrator does not allow the user to specify the
                -home_dir, -process_overseer, or -ring control arguments or if he does allow one
                or more of these control arguments and they are incorrectly specified by the
                user, ~~these control arguments are ignored and the default values are used.~~
                a message is printed and the login is refused,

```
!-----------------------------------------------------------!------------------------------!
! Ver. 3                                                    !                              !
! 741022              MULTICS CHANGE REQUEST                ! MCR__ 2128 ____              !
!                                                           !                              !
!-----------------------------------------------------------!------------------------------!
! TITLE:  Provide message to user when his                  !_STATUS___!_DATE_____!        !
!         password is given incorrectly                     !_Written_!_08/16/76_!         !
! AUTHOR: Roy P. Planalp (LCS-CSR)            TVV           ! Status   !A 08/24/76          !
!_____!_Expires_!_02/16/77_!         !
! Planned for  System:  not applicable                      !                              !
! Fixes Bug Number(s):  not applicable                      !_CATEGORY_(check_one)!        !
! Documented in MTB:  not applicable                        !( )Lib. Maint. Tools !        !
! Incompatible Change:  no                                  !( )Sys. Anal. Tools  !        !
! User/Operations-visible Interface Change:  yes            !( )Sys. Prog. Tools  !        !
! Coded in: (Ø)PL/I ( )ALM ( )other-see below               !( )355               !        !
! Performance: ( )better (Ø)same ( )worse                   !( )BOS               !        !
!_____!( )Salvager          !        !
!_DOCUMENTATION_CHANGES_(specify_one_or_more)_____!( )Ring Zero          !        !
! MPM (vol,sect)              MPAM (sect)                    !( )Ring One           !        !
! MOSN (sect)                 MSAM (sect)                    !(Ø)SysDaemon/Admin    !        !
! PLMs (AN#)                                                 !( )Runtime            !        !
! Info Segs                                                  !( )User Command/Subr  !        !
! Other            AL40                                      !                              !
!_____!_____!
! OBJECTIONS/COMMENTS:                                                                      !
!                                                                                           !
!      must protect against write down                                                      !
!_____!
```

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY:

Have the Answering Service use the interuser message facility to
inform the user that his password is being given incorrectly.

REASONS:

Provides more information to the user, since each attempt will produce
a message giving type and identification of the offending terminal.
Also provides immediate notification if the user is logged in at the
time.

IMPLICATIONS:

Information from the Answering Service becomes more easily accessible
to the user. Greater aid in detecting attempted penetrations.

DETAILED PROPOSAL:

Text of message:

Password for user Smith.FooProj given incorrectly from <type>
terminal "<id>".

The Initializer will try to send the message to the user at the
project specified in the login line; failing that, at the user's
default project. If the message can not be sent at all, it is

retained to printed in the form

     Your password was given incorrectly xxx times recently.
     Last bad password at <date-time> from <type> terminal "<id>".

or

     Your password was given incorrectly at <date-time> from <type>
     terminal "<id>".

the next time the user logs in without using the "-brief" control
argument.

Multics then re...   ...ing on the user's
terminal, the printing of the password is either suppressed or hidden in a
string of cover-up characters typed by the system. It is essential that the
user keep his password secret to prevent unauthorized use of his programs and
data and his account. If the user feels that his password has been compromised,
he should notify his project administrator and immediately change his password.
If the user ever forgets his password, he must notify the system administrator
and request a new password. (Once a password is registered on the system, it is
encoded and cannot be decoded by anyone, including the system administrator.)

        If the user makes an error during the log-in procedure, the system informs
him of it and asks him to try again.

        Login incorrect
        Please try again or type "help" for instructions.
    !   login TSmith
        Password:

    !

(The help command referred to in the system-generated printout is described in
Section V.)

        Each Multics installation sets its own limit on how many attempts a user
may make to log in before the system automatically disconnects the line to the
terminal.

        Login incorrect
        hangup

        Project administrators may interpose another authentication procedure after
the user types his password. The format of this procedure is determined by the
individual project administrator.

        After the user has successfully typed his password, the system responds
with information regarding the user's last login.

        TSmith ProjA logged in 07/03/73 0937.5 mst Tue from terminal "234"
        Last login 07/02/73 1359.8 mst Mon from terminal "234"

        The log-in statistics can be used to detect unauthorized use of the user's
name and password on previous logins, since the user knows when he was last
logged in. ~~In addition, the log-in statistics inform the user of unsuccessful~~
~~attempts to gain access to the system through his password.~~ (Typing errors made
by the user also count as unsuccessful attempts; see Section V for how to
correct typing errors.)

In addition, the system informs the user via the interuser message facility of
unsuccessful ~~of~~ attempts to gain access to the system through his password.
    !   login TSmith
        Password:

    !

    ~~Your password has been given incorrectly 2 times since last correct use.~~
        TSmith ProjA logged in 07/03/73 0937.5 mst Tue from terminal "234"
        Last login 07/02/73 1359.8 mst Mon from terminal "234"

        From Initializer.SysDaemon (answering service):
        Password for user TSmith.ProjA given incorrectly from 2741 terminal
        "524".

```
I Var. 3                                              !                          !
I 741022         _  MULTICS CHANGE REQUEST            !  MCR__ 2129             !
I_____!_____!
I TITLE:  Provide new order calls for Network      !_STATUS__!_DATE_____!
I         Answering Service software               !_Written_!_08/13/76__!
I AUTHOR: Roy P. Planalp (LCS-CSR)          TVV    !_Status__!A 08/24/76!
I_____!_Expires_!_02/13/77__!
I Planned for  System:    not applicable           !_____!
I Fixes Bug Number(s):    not applicable           !_CATEGORY_(check_one)!
I Documented  in  MTB:    not applicable           I( )Lib. Maint. Tools !
I Incompatible Change:    no                        I( )Sys. Anal. Tools  !
I User/Operations-visible Interface Change:  no    I( )Sys. Prog. Tools  !
I Coded in: (B)PL/I ( )ALM ( )other-see below      I( )355               !
I Performance: ( )better (B)same ( )worse          I( )BOS               !
I_____I( )Salvager          !
I_DOCUMENTATION_CHANGES_(specify_one_or_more)_____I( )Ring Zero         !
I MPM (vol,sect)            MPAM (sect)            I( )Ring One          !
I MOSN (sect)              MSAM (sect)             I(B)SysDaemon/Admin   !
I PLMs (AN#)     AN64                              I( )Runtime           !
I Info Segs                                        I( )User Command/Subr !
I Other                                            I                     !
I_____!_____!
I OBJECTIONS/COMMENTS:                             !                          !
I                                                  !                          !
I                                                  !                          !
I_____!_____!
```

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY:

Provide "enable_xmog" and "disable_xmog" order call for Network
Answering Service software to turn on and off transmogrification on
channels being used by Network File Transfer Protocol (FTP).

REASONS:

Now that changes have been made to the Answering Service to talk FTP
language directly, the transmogrifier will not be needed. The code is
being retained temporarily to maintain compatibility between
differences in the Network software and standard system software at
RADC.

IMPLICATIONS:

Greater system robustness as the transmogrifier falls into disuse.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR **2130**

TITLE: Improve get_definition_ interface.	STATUS	DATE
	Written	08/16/76
AUTHOR: Richard Bratt *BSG*	Status	**A 08/24/76**
	Expires	02/16/77

Planned for System: not applicable
Fixes Bug Number(s):   not applicable
Documented in MTB: not applicable
Incompatible Change: yes
User/Operations-visible Interface Change: yes
Coded in: ( )PL/I (X)ALM ( )other-see below
Performance: ( )better (X)same ( )worse

DOCUMENTATION CHANGES (specify one or more)
MPM (vol,sect)   MPAM (sect)
MOSN (sect)   MSAM (sect)
PLMs (AN#)   tools
Info Segs
Other

CATEGORY (check one)
( )Lib. Maint. Tools
( )Sys. Anal. Tools
(X)Sys. Prog. Tools
( )355
( )BOS
( )Salvager
( )Ring Zero
( )Ring One
( )SysDaemon/Admin
( )Runtime
( )User Command/Subr

OBJECTIONS/COMMENTS:

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

Summary: Improve the interface to get_definition_.

Reasons: This module, which has recently become user callable, has a rather poor interface. Fortunately it has yet to be documented. While we still have control over the callers of this program we should improve its interface.

Implications: The fast run unit manager, the prelinker, and a few private tools will have to be trivially changed.

Detailed Proposal: Change arguments two and three from pointers to fixed length varying strings to character (*) varying. Add a fifth argument to return an error code. (see attached writeup)

TITLE: Fix trace bugs and inconsistencies	STATUS	DATE
AUTHOR: R.A. Barnes EDS	Written	08/11/76

	Category (Check One)	Status	A 08/24/76
-Coded in: X PL/I X ALM ☐ other explain in DETAILED PROPOSAL		Expires	02/24/77

-Coded in: X PL/I X ALM ☐ other
explain in DETAILED PROPOSAL
-Planned for System MR   5.0
-Fixes Bug Number(s) see below
-Documented in MTB _____
-User/Operations-visible
 Interface change? ☐ yes X no
-Incompatible change? ☐ yes X no
-Performance: ☐ Better X Same
 ☐ Worse
-Replaces MCR _____

Category (Check One)	
	Lib. Maint. Tools
	Sys. Anal. Tools
	Sys. Prog. Tools
	355
	BOS
	Salvager
	Ring Zero
	Ring One
	SysDaemon/Admin.
	Runtime
X	User Cmmd/Subr.

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	trace
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	
Info Segs	trace.info
Other (Name)	
None (Reason)	

Objections/Comments:

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
                       Detailed Proposal.

SUMMARY:

    Fix bugs and make trace's handling of -io_switch control argument
    consistent.

DETAILED PROPOSAL:

    1. Fix bug that causes trace to misbehave when given a pathname
    of greater than 32 characters (as in MCR 2035).

    2. Fix trace to call com_err_ with error_table_$bad_conversion
    when non-numeric argument given where a numeric argument was
    expected.

    3. Fix bug that caused trace to get incorrect statistics if
    metered procedure did a non-local goto.

    4. Fix bug in updating metering statistics.

    5. Change documentation to reflect the fact that %USAGE is based
    on (virtual) CPU time, not real time.

    6. Have -io_switch only affect output produced while monitoring
    (or tracing). Use ioa_ for output produced in responding to
    a request.

CPU time does not include the time spent in any traced procedure called by the procedure, but it does include time spent in called procedures that are not being traced. The local and global versions of real time and page faults are calculated in a similar manner. Metering is only done when the first, last, every, and depth tracing conditions are satisfied.

The control argument:

-meter on, -mt on

sets the metering switch in the TCT; any procedures added to the trace table or that have their table entries updated after this argument is used are metered.

The control argument:

-meter off, -mt off

turns off the metering switch in the TCT; any procedures currently being metered continue to be metered.

The control argument:

-total

causes trace to print the metering statistics of all procedures in the trace table. The output gives the number of calls (#CALLS), global CPU time (GCPU), global real time (GREAL), global page waits (GPWS), local CPU time (LCPU), local real time (LREAL), local page waits (LPWS), and the usage percentage (%USAGE) based on local ~~real~~ CPU time, of all the procedures being metered. The metering statistics are set to 0 after they are printed.

The control argument:

-subtotal, -stt

prints the same information as the -total control argument, but does not clear the statistics.

Changing Output Switch

All of the messages from the trace command that may be generated while actually monitoring procedures are normally written on the user_i/o switch so that trace can conveniently be used with procedures that change the attachment of the normal switch, user_output. The control argument:

    -io_switch XX

causes trace to write further *monitoring* output on the switch specified by XX, which must already be attached and opened for stream_output.

TITLE: Change access required to carry	STATUS	DATE

AUTHOR: Steve Herbst   JWG

		STATUS	DATE
		Written	08/11/76
		Status	A 08/24/76
		Expires	02/24/77

-Coded in: [X] PL/I [ ] ALM [ ] other-
 explain in DETAILED PROPOSAL
-Planned for System MR   5.0
-Fixes Bug Number(s)_____
-Documented in MTB _____
-User/Operations-visible
 Interface change? [X] yes [ ] no
-Incompatible change? [ ] yes [X] no
-Performance: [ ] Better [X] Same
   [ ] Worse
-Replaces MCR _____

Category (Check One)

	Category (Check One)
	Lib. Maint. Tools
	Sys. Anal. Tools
	Sys. Prog. Tools
	355
	BOS
	Salvager
	Ring Zero
	Ring One
	SysDaemon/Admin.
	Runtime
X	User Cmmd/Subr.

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	
Info Segs	carry.info
Other (Name)	
None (Reason)	

Objections/Comments:

Use these headings: Summary of Proposal, Reasons for Proposal, Implications, Detailed Proposal.

SUMMARY:

1. Require less access on entries to be carried, as follows:

    r   to the carry administrator(s) and user on all segments
    s   to the carry administrator(s) and user on all directories

2. Carry the requestors' Person-Project id's for all carry requests and compute the access needed by the requestor to load his request at the target site. Do not load if the requestor could not load it himself.

REASONS:

1. This is just the access needed by the administrator process in order to read everything onto the tape (r & s). Currently, carry enforces the following additional unnecessary access checks (described in MCR 1691):

    r   to the user on all segments
    s   to the user on all directories
    sma   to the user and the administrator(s) on the parent directory.

2. The user should not require access to the parent directory, since this is at best a poor approximation to his access to the parent at the target site. Carrying user id's makes it possible to compute the actual access to the target parent.

yes help -pn carry
(6 lines follow; 90 lines in segment)
Name: carry
The Multics Library command carry can be used to request that a copy of
a segment or a directory subtree be moved from one Multics system to
another. It can also be used to list or cancel pending carry requests.

Usage:
        carry pathname(s) -control_args-

1) pathname(s)   are one or more pathnames of segments or directory
                        subtrees to be carried. They can precede or follow
                        the control arguments.

2) control_arguments can be chosen from the following:
   -destination dest
   -ds dest   carry to (or list or cancel requests for) the
                        specified destination. Known destinations are:

                        PCO   System M in Phoenix (default at MIT)
                        CISL   MIT Service System (default at PCO)
                        MIT   a synonym for CISL
                        DEV   CISL Development Machine (from MIT only)

                        A destination argument is required if a destination
                        other than the default is to be used, or if there is
                        no default at the user's installation.

   -hold, -hd   do not delete the request from the message segment
                        when the carry tape is made. This will cause a copy
                        of the segment or subtree to be carried every time a
                        carry tape is made. This argument should be used
                        judiciously to avoid wasting resources with
                        unnecessary carries.

   -cancel   remove one carry request from the message segment
                        for the specified destination. This argument can be
                        used to cancel both normal and -hold requests. There
                        are two restrictions:

                        1) The full pathname of the segment or subtree must
                           be typed exactly as it is stored in the message
                           segment (see -list below). An absolute pathname
                           given in a carry request is stored exactly as
                           typed. However, a relative pathname usually
                           expands into an absolute pathname containing long
                           names for the superior directories.

                        2) Only one request can be canceled at a time. If
                           more than one pathname is typed, the last one
                           typed is canceled.

                        A message is typed, either verifying that the
                        request has been canceled, or warning that the
                        request was not found.

   -list, -ls   causes all the user's requests for the specified
                        destination to be typed on the terminal. The full
                        pathname of each request is typed. (These are
                        the pathnames that must be used in a -cancel
                        request.)

   -admin   causes -list and -cancel to look at all users'
                        requests for the specified destination. However,

most users will not have the necessary access to the
message segments to list or cancel other users'
requests.

Notes:
To obtain just totals, or requests for a specific user or specific
files, or to obtain usable copies of long, awkward-to-type pathnames for
use in -cancel requests, use of the file_output command is recommended.

Note that the process that makes the carry tapes removes requests from
the message segment several minutes before the tape is actually written.
Therefore it is not safe to modify or delete segments immediately after
carry requests for them disappear from the message segment.

Information on access required:
Access: In order for the entries being carried to be reloaded
           properly the following access requirements must be met:

           1) Carry.Multics.* and the requester.* must have 'sma'
              access to the parent directory of the entry being
              carried

           2) For single segment carries, Carry.Multics.* and the
              requester.* must have 'r' access to the segment.

           3) For directory subtree carries, Carry.Multics.* and the
              requester.* must have 's' access to all directories and
              'r' access to all segments in the subtree.

e\000\000

TITLE:	Streamline message segment facility	STATUS	DATE

AUTHOR: S. Herbst   JWG

	STATUS	DATE
Written		08/17/76
Status	A 08/24/76	
Expires		02/24/77

-Coded in ☒PL/I ☐ALM ☐other-
 explain in DETAILED PROPOSAL
-Planned for System MR 5.0
-Fixes Bug Number(s)
-Documented in MTB
-User/Operations-visible
 Interface change? ☐yes ☒no
-Incompatible change? ☐yes ☒no
-Performance: ☒Better ☐Same
  ☐Worse
-Replaces MCR

Category (Check One)

	Category (Check One)
	Lib. Maint. Tools
	Sys. Anal. Tools
	Sys. Prog. Tools
	355
	BOS
	Salvager
X	Ring Zero
	Ring One
	SysDaemon/Admin.
	Runtime
	User Cmmd/Subr.

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	

Objections/Comments:

Info Segs	
Other (Name)	
None (Reason)	doc OK

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
                       Detailed Proposal.

SUMMARY:

Improve the performance of the message segment facility by
making the following changes:

1. Change mailbox_$get_message_count_index and
message_segment_$get_message_count_index to return
error_table_$bad_segment if the message segment has been
salvaged since last read.
2. Change message segment programs to call hcs_$level_get
and hcs_$level_set instead of the corresponding cu_ entries.
3. Change the mail command not to close the user's own mailbox
and to keep its index in internal static.

REASONS:

1. Eliminates mail's call to mailbox_$check_salv_bit_index.
2. Fewer linkage faults. cu_ was used as an intermediary for
obsolete reasons.
3. Saves calling mailbox_$close always and calling mailbox_$open
after the first time, for operations on the user's own mailbox.

TITLE: Improve hardware fault logging mechanism

AUTHOR: Noel I. Morris   BSG

STATUS	DATE
Written	8/13/76
Status	A 08/24/76
Expires	2/24/77

-Coded in: [X]PL/I [X]ALM [ ]other- explain in DETAILED PROPOSAL

-Planned for System MR 5.0

-Fixes Bug Number(s) _____

-Documented in MTB _____

-User/Operations-visible Interface change? [X]yes [ ]no

-Incompatible change? [X]yes [ ]no

-Performance: [ ]Better [X]Same [ ]Worse

-Replaces MCR _____

Category (Check One)	
	Lib. Maint. Tools
	Sys. Anal. Tools
	Sys. Prog. Tools
	355
	BOS
	Salvager
X	Ring Zero
	Ring One
	SysDaemon/Admin.
	Runtime
	User Cmmd/Subr.

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	
Info Segs	
Other (Name)	
None (Reason)	

Objections/Comments:

Use these headings: Summary of Proposal, Reasons for Proposal, Implications, Detailed Proposal.

Reasons:
It is desired to get better information in the syserr log for certain faults induced by hardware malfunctions.

Summary:
Change the fault mechanism to log much more information on parity, startup, shutdown, and op-not-complete faults. Log all machine conditions (SCU data, PRs, regs, fault register, etc.) plus all history register data.

Proposal:
Replace the module parity_fault with the module hardware_fault. Minimize the amount of information printed online on the operator's console. Log all information which might be of use to programming satff and FED.

Implications:
The size of the largest binary message which can be logged via syserr$binary must be increased to 168 words.

The mechanism to attempt retry of a memory reference after a parity fault is removed. This mechanism never worked properly.

Programs which reference the syserr log for the faults mentioned above will have to be modified to recognize the new format.

TITLE: Fix bugs in rcp_init for tape

AUTHOR: Noel I. Morris   BSG

STATUS	DATE
Written	8/13/76
Status	A 08/24/76
Expires	2/24/77

-Coded in: ☒PL/I ☐AIM ☐other-
 explain in DETAILED PROPOSAL
-Planned for System MR 5.0
-Fixes Bug Number(s)_____
-Documented in MTB_____
-User/Operations-visible
 Interface change? ☐yes ☒no
-Incompatible change? ☐yes ☒no
-Performance: ☐Better ☒Same
 ☐Worse
-Replaces MCR_____

Category (Check One)

	Lib. Maint. Tools	
	Sys. Anal. Tools	
	Sys. Prog. Tools	
	355	
	BOS	
	Salvager	
X	Ring Zero	
	Ring One	
	SysDaemon/Admin.	
	Runtime	
	User Cmmd/Subr.	

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	
Info Segs	
Other (Name)	
None (Reason)	

Objections/Comments:

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
                       Detailed Proposal.

Summary:
rcp_init currently does not recognize certain density capability codes
in tape survey data. These codes are returned by certain MTH600 series
drives. rcp_init also assumes that tape survey data will contain
data for the tape drives in numerical order. This is not always so.

Proposal:
Make rcp_init recognize new density codes. Change rcp_init to serch
the survey data for the data pertaining to each drive. (The drive number
is encoded in the survey data.)

Implications:
Multics will work with 600 series handlers and GM will have fewer
problems when they reconfigure tape handlers via their peripheral
switch.

Multics Change Request

TITLE: Remove lot_maintainer from pre_linking path

AUTHOR: Noel I. Morris   BSG

STATUS	DATE
Written	8/13/76
Status	A 08/24/76
Expires	2/24/77

-Coded in: [X] PL/I [X] ALM [ ] other-
 explain in DETAILED PROPOSAL
-Planned for System MR 50
-Fixes Bug Number(s)
-Documented in MTB
-User/Operations-visible
 Interface change? [ ] yes [X] no
-Incompatible change? [ ] yes [x] no
-Performance: [X] Better [ ] Same
 [ ] Worse
-Replaces MCR

Category (Check One)

	Lib. Maint. Tools
	Sys. Anal. Tools
	Sys. Prog. Tools
	355
	BOS
	Salvager
	Ring Zero
	Ring One
	SysDaemon/Admin.
	Runtime
	User Cmmd/Subr.
⟨	Initialization

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	
Info Segs	
Other (Name)	
None (Reason)	

Objections/Comments:

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
                      Detailed Proposal.
Reasons:

Forthcoming changes to the linker will cause the lot_maintainer to
be replaced.   Thus, the only mechanism which would use the
ALM procedure, lot_maintainer, would be the initialization pre-linking
path. Most of the code used during initialization is straightforward
and could be done in line where needed.

Proposal:

Modify pre_link_1, segment_loader, and slt_manager to perform LOT
manipulation functions in line.

TITLE: Fix Bug in handling of Command Faults
AUTHOR: Noel I Morris   BSG

STATUS	DATE
Written	8/13/76
Status	A 08/24/76
Expires	8/24/77

-Coded in: [X] PL/I [X] ALM [ ] other-
 explain in DETAILED PROPOSAL
-Planned for System MR   5.0
-Fixes Bug Number(s)_____
-Documented in MTB _____
-User/Operations-visible
 Interface change? [ ] yes [X] no
-Incompatible change? [ ] yes [X] no
-Performance: [ ] Better [X] Same
   [ ] Worse
-Replaces MCR_____

Category (Check One)

	Category	
	Lib. Maint. Tools	
	Sys. Anal. Tools	
	Sys. Prog. Tools	
	355	
	BOS	
	Salvager	
X	Ring Zero	
	Ring One	
	SysDaemon/Admin.	
	Runtime	
	User Cmnd/Subr.	

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	
Info Segs	
Other (Name)	
None (Reason)	

Objections/Comments:

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
                      Detailed Proposal.

Summary:
A command fault which is not a packed pointer fault currently causes
the FIM to go into an infinite loop. Change the fault handling
mechanism to log a syserr message for such a fault in a manner
identical to the logging done for other hardware-induced faults
(e.g. parity).

Detailed Proposal:
Change the fim_table to have an additional entry for other command faults,
in a manner similar to IPR faults. Create a new SCT index for this
fault. Add code to hardware_fault to log this fault.

Implication:
This is not really an incompatible change since this fault cannot
be generated by a user, and therefore, a user should not need to set
an entry in the SCT for this fault.

MULTICS CHANGE REQUEST

MCR_ **2139**

TITLE: Fix bug in patch_fnp command

AUTHOR: Robert S. Coren

MJG

STATUS	DATE
Written	08/16/76
Status	A 08/24/76
Expires	02/16/77

Planned for System: MR 5.0
Fixes Bug Number(s):   not applicable
Documented in MTB: not applicable
Incompatible Change: no
User/Operations-visible Interface Change: no
Coded in: (X)PL/I ( )ALM ( )other-see below
Performance: ( )better (X)same ( )worse

CATEGORY (check one)
( )Lib. Maint. Tools
(X)Sys. Anal. Tools
( )Sys. Prog. Tools
( )355
( )BOS
( )Salvager
( )Ring Zero
( )Ring One
( )SysDaemon/Admin
( )Runtime
( )User Command/Subr

DOCUMENTATION CHANGES (specify one or more)
MPM (vol,sect)   MPAM (sect)
MOSN (sect)   MSAM (sect)
PLMs (AN#)
Info Segs
Other
None (reason) Bug fix

OBJECTIONS/COMMENTS:

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY: Fix bug in patch_fnp command such that an extra word was
sometimes patched with garbage.

REASONS: Code which was supposed to check and make sure that old contents
of even-odd word pair were obtained didn't always work.

IMPLICATIONS: None.

```
I------------------------------------------I----------------------------I
I Ver. 3                                    I                            I
I 741022             MULTICS CHANGE REQUEST I  MCR  2140                 I
I                                           I                            I
I------------------------------------------I----------------------------I
I TITLE:  Implement VIP 7700 interface in MCS I _STATUS__I_DATE_____I
I                                             I_Written_I_08/12/76__I
I AUTHOR: Robert S. Coren            MSG      I_Status__I A 08/24/76 I
I                                             I_Expires_I_02/12/77__I
I------------------------------------------I----------------------------I
I Planned for  System:   MR 5.0            I                            I
I Fixes Bug Number(s):    not applicable   I_CATEGORY_(check_one)I
I Documented in MTB:   not applicable      I( )Lib. Maint. Tools I
I Incompatible Change:   no                I( )Sys. Anal. Tools  I
I User/Operations-visible Interface Change:  no I( )Sys. Prog. Tools  I
I Coded in: ( )PL/I ( )ALM (X)other-see below I(X)355               I
I Performance: ( )better (X)same ( )worse  I( )BOS               I
I------------------------------------------I( )Salvager          I
I_DOCUMENTATION_CHANGES_(specify_one_or_more)__I( )Ring Zero         I
I MPM (vol,sect)            MPAM (sect)    I( )Ring One          I
I MOSN (sect)               MSAM (sect)    I( )SysDaemon/Admin   I
I PLMs (AN#)     AN85                      I( )Runtime           I
I Info Segs                                I( )User Command/Subr I
I Other                                    I                     I
I------------------------------------------I----------------------------I
I OBJECTIONS/COMMENTS:                     I                            I
I                                          I                            I
I                                          I                            I
I                                          I                            I
I------------------------------------------I----------------------------I
```

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY: Add control tables to FNP to run Honeywell VIP 7700 terminal in
non-polled mode.

REASONS: A customer (RADC) has a need for this feature, and others might
need it later. It is always good to support additional types of terminal
if reasonably feasible.

IMPLICATIONS: None.

DETAILED PROPOSAL: Add new module, vip_tables, to MCS core image, with
associated modifications to control tables interpreter. Allow "VIP" as an
acceptable value for the "line_type" keyword in the CMF.

NOTES: 1. Coded in 355map.

       2. This is the first stage toward eventual support of a particular
          poll-and-select interface.

From: Robert S. Coren

To: MCR Board

Date: 8/20/76

Subject: Documentation associated with MCR 2140

The accompanying documentation tells users what they need to know
about using the VIP terminal on Multics. It should probably be
incorporated somehow into the 5.0 SRB. Where it should ultimately
end up is a question I do not propose to answer.

Use of VIP Terminal On Multics

Multics Release 5.0 supports the Honeywell VIP (Visual Information Projection) Type 7705 Keyboard Display Station, a 2400-baud CRT/keyboard terminal. For a general description of this terminal, see the publication "7700 Series Visual Information Projection (VIP) Systems," Order No. AL29. As of MR5.0, the terminal is supported for non-polled operation only.

The following jumper options must be selected on the VIP 7705:

Option	State
Transmit Block Size	NO
Non-Polled Operation	YES
2-Wire Communication System	YES

CONNECTION TO MULTICS

The VIP terminal may be connected to an ASCII synchronous subchannel of an HSLA by means of a Bell 201C (or compatible) modem.

CMF SPECIFICATION

The VIP terminal should be defined by an entry in the Channel Master File of the following form:

```
name:      channel_name;        /* depends on HSLA subchannel selec
           line_type:    VIP;
           baud:         2400;
           terminal_type: ASCII;
           dataset:      201C;
           attributes:   hardwired; /* if appropriate */
```

USE OF THE VIP TERMINAL ON MULTICS

Transmission of Input

The VIP terminal does not transmit character by character, but rather sends an entire message when the TRANSMIT key is depressed. Pressing this key causes transmission of everything on the screen from the end of the most recent input or output message up to the present position of the entry marker (cursor), followed by a newline character. Normally, the user should use the TRANSMIT key at the end of each line of input, rather than the NEW LINE key.

The terminal's operation is strictly half duplex; input cannot be entered while output is being displayed.

Terminal Modes

The default modes for a terminal type of ASCII are suitable for the VIP terminal except that the line length may be set to 80 and the page length should be set to 23. Since the terminal clears its screen on receipt of a formfeed character, vertsp mode may be used. The delay timings should all be set to zero. The following command line should be entered early in the terminal session:

        set_tty -delay 0,0,0,0,0,0 -modes p123,ll80,vertsp

Clearing the Screen

Output which cannot fit on the screen is discarded. Accordingly, the page length should be set as described above; when the end-of-page warning appears on the screen, the CLEAR key should be depressed to clear the screen, and a formfeed should be entered by simultaneously pressing the CTR (control) and L keys, followed by any input (the terminal will not transmit the CTR-L combination without at least one visible character; the a character can be used for this purpose if the user does not wish to enter any input). The CLEAR key does not cause transmission of any characters.

Quit Signals

The terminal is not equipped with a break (interrupt, attention, etc.) key. In order to generate a quit signal, the user must input the combination CTR-Q, along with some visible input (which is discarded). It is not possible to quit while the terminal is displaying output (this can be circumvented by entering the quit sequence in response to the end-of-page warning).

Blanking

The BLANK key (with case shift) causes display of all succeeding characters up to the next space or the end of the line to be suppressed. It also transmits a tilde (~) character. Thus, in order to conceal a password, the user should type BLANK, the erase (#) character, and the password. Overstrike on the VIP terminal is destructive, so the password mask is ineffective.

Output of a tilde also causes the remainder of the line up to the next space to be suppressed.

Blinking

The BLINK key (no case shift) behaves like BLANK except that following characters, instead of being suppressed, will blink. The character transmitted is a circumflex (~). Similarly, output of a circumflex causes the following characters up to the next space or end-of-line to blink. the circumflex itself is displayed as a space. Additional circumflex characters within the blinking field are displayed as circumflexes.

```
| Ver. 3                                             |          |                    |
| 741022        MULTICS CHANGE REQUEST               |    MCR       2061         |
|----------------------------------------------------|--------------------------|
| TITLE:  Install general_ready                      | STATUS   | DATE          |
|                                               JWG  | Written  | 07/19/76      |
| AUTHOR: Cynthia W. Anderson (PDO)                  | Status   | P3/3 A08/31/76|
|----------------------------------------------------| Expires  | 01/19/77      |
| Planned for  System:   not applicable              |                          |
| Fixes Bug Number(s):   not applicable              | CATEGORY (check one)     |
| Documented  in  MTB:   113                         |( )Lib. Maint. Tools      |
| Incompatible Change:   no                          |( )Sys. Anal. Tools       |
| User/Operations-visible Interface Change:   yes    |( )Sys. Prog. Tools       |
| Coded in: (X)PL/I ( )ALM ( )other-see below        |( )355                    |
| Performance: ( )better (X)same ( )worse            |( )BOS                    |
|----------------------------------------------------|( )Salvager               |
| DOCUMENTATION CHANGES (specify one or more)        |( )Ring Zero              |
| MPM (vol,sect) commands,3 MPAM (sect)              |( )Ring One               |
| MOSN (sect)              MSAM (sect)               |( )SysDaemon/Admin        |
| PLMs (AN#)                                         |( )Runtime                |
| Info Segs      general_ready.info                  |(X)User Command/Subr      |
| Other                                              |                          |
|----------------------------------------------------|--------------------------|
| OBJECTIONS/COMMENTS:                                                          |
|                                                                               |
|                                                                               |
|                                                                               |
```

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY: Install General_ready.

REASONS: New command would allow user to set up a ready message
                containing values he specifies, in a format he specifies.

IMPLICATIONS: Increased flexibility in ready message format.

DETAILED PROPOSAL:
                See attached documentation.

Name: general_ready, gr

general_ready is a command/active function which allows the
user to produce a ready message containing specific values in a
user specified format. The program is designed to allow an
almost arbitrary format at no additional cost (relative to the
system's ready procedure) other than the cost associated with the
general_ready command which sets up the ready message. Once a
ready message has been specified, the ready_on, ready, and
ready_off commands will control the printing of the ready message
in the normal manner.

general_ready builds up an ioa_ control string from the
order of the keywords passed to it. The keywords specify which
values to output in the ready message. Virtual cpu usage, real
cpu usage, and dollar cost can be printed. Both incremental
usage (usage accrued since the last ready message produced by
general_ready) and total usage (usage accrued during this
process) can be in the same ready message with the precision of
the output (the number of decimal places to the right of the
decimal point) specified by the user. As a command,
general_ready can be used to either print a single ready message
or define the contents of the ready message printed by the ready
command (and after every command line if the ready_on command is
executed). When used as an active function, general_ready's
return value is the ready message specified by the active
function arguments.

Usage

general_ready   -prefix options-   -format options-
-control options-

The prefix options affect the format of the ready message but do
not specify the values printed in the ready message. The format
options specify both the values printed and their format in the
ready message. The control options do not affect the format of
the ready message, but instead control how the ready message and
other facilities provided by general_ready are used. Control
options may not be specified when general_ready is invoked as an
active function. The prefix options must occur before any format
options; while the control options may appear anywhere on the
command line.

Format Options

The format and content of the ready message is controlled by format options. These options include: keywords which identify values to be included in the ready message; optional arguments following these keywords which control the number of digits after the decimal point in numeric values; and literal character strings which are inserted in the ready message. The format options are combined in the order of their appearance in the general_ready command to form an ioa_ control string which controls the format of the ready message.

Six types of values may be used in a ready message: processor usage values (virtual and real cpu seconds); memory usage values (memory units); paging operations (both bulk store reads and demand page faults); usage cost values (dollar charges); command processor level numbers; and date/time values (date, time of day, day of the week, etc). Both total usage values (total usage accrued during this process) and incremental usage values (usage accrued since the last ready message printed by general_ready) can be output in the same ready message. The values are selected for use in the ready message by the format keywords which are given in the command. The format keywords are listed below by type.

1) processor usage values are selected from the following keywords. These keywords can be followed by an optional argument, a single numeric digit from 1 to 9, to indicate the number of digits which should appear to the right of the decimal point in the number which is output. The default is 3 digits. The output format of the value can be described by the ioa_ control string " ^.nf" where n is 3 by default.

   -ri
   -rcpui   incremental real cpu value

   -rt
   -rcput   total real cpu value

   -vi
   -vcpui   incremental virtual cpu value

   -vt
   -vcput   total virtual cpu value

2) memory usage values are selected by the following keywords. These keywords are used in the same manner as the keywords for processor usage values above.

-memoryi
-mui
-memi   incremental memory units

-memoryt
-memt
-mut   total memory units

3) usage cost values are selected by the following keywords.
These keywords are used in the same manner as the keywords for
processor usage values with the following differences. The
default number of digits following the decimal point is 2.
The output format of the value can be described by the ioa_
control string " $^.nf" where n is 2 by default.

-dollarsi
-$i   incremental cost charges

-dollarst
-$t   total cost charges

4) paging values are selected from the follwing keywords. These
keywords are output by the ioa_ control string " ^d+^d", where
the first number is the number of bulk store pages read
(formerly the number of pre-pages) and the second is the
number of demand page faults.

-pagesi
-pgi   incremental paging values

-pagest
-pgt   total paging values

5) command processor level numbers are selected by the following
keyword. This keyword indicates that the command processor
and stack frame level numbers should be included in the ready
message. No optional argument may be used to control the
number of digits. The level numbers are output by the ioa_
control string "^a", but the printed format can be described
by " level ^d,^d" where the first number is the number of
command processor invocations and the second is the stack
frame depth of the ready message procedure's stack frame. If
the command processor level is 1, the printed format is the
null string.

-level

    -lv   command processor level numbers

6) date values are selected by the following keywords. These
values can be described by the loa control string " ~a" except
for the -min, -day, and -year keywords which use the loa
control string "~a" (without a leading space). No optional
argument may be used to control the number of digits.

    -dt   date and time (mm/dd/yy hhmm.m zzz www)

    -date   8 character date (mm/dd/yy)

    -month 2 digit month (mm)

    -day   2 digit day (dd)

    -year   2 digit year (yy)

    -time
    -tm   6 digit time of day (hhmm.m)

    -hour   2 digit hour (hh)

    -minute
    -min   2 digit minute (mm)

    -dow   3 character day of week (www)

    -zone   3 character time zone (zzz)

    Note that all values except those date values mentioned
under 6 above are preceded by a space and none of the values are
suffixed by a space. Any non-keyword argument (other than a
single numeric digit following a floating point or dollar
keyword) is assumed to be a literal string which is inserted in
loa_ control string being built by general_ready. Refer to the
examples below.

Prefix Options

    There are two prefix options. These options must occur prior
to any of the format options described above. The two prefix
options allow the user to override the default formats for the
contents of the ready message, they are:

-string   allows the user to specify the character string at
-s   the beginning of the ready message. The argument
                 following this option is used instead of "r " at
                 the beginning of the ready message. Since it is
                 put into the ioa_ control string, "-/", "-R" and
                 "-B" may be used to cause new lines, red ribbon
                 shifts and black ribbon shifts, respectively.

-control   allows the user to specify the entire ioa_ control
-ctl   string used to format the ready message. The
                 string will be passed to ioa_$nnl without change
                 so it must contain specifications for each of the
                 various value to be included in the ready message.
                 The ioa_ control string formats for the various
                 values which can be inserted into the ready
                 message are given above for each type of value.
                 This argument overrides any format control options
                 which would normally affect the format of the
                 ready message. However, format keywords must
                 still be specified to indicate which values are to
                 be output and the order in which these values
                 correspond with the ioa_ control characters in the
                 control string.

Control Options

     The following control options affect the operation of
general_ready, but do not change the format of ready messages.

-set   causes general_ready to establish itself as the current
                 ready message procedure. The command processor will
                 then call general_ready to print a ready message after
                 each command line is complete. In addition, the system
                 commands, ready, ready_on, and ready_off, will affect
                 the operation of general_ready. This option also
                 causes general_ready to set an alarm timer to catch
                 shift changes.

-reset   causes general_ready to make the system ready proc the
-rs   current ready message procedure, and to reset any timer
                 alarms which were established to catch shift changes.

-prmsg
-pm   when used with the -set control option, causes
                 general_ready to call the print_messages (pm) program
                 after the completion of every command line. This

allows the user to defer messages queued by the
ipc_message_facility until each command line has
completed execution. Any queued messages are typed
just before the ready line, even if the ready_off
command has been called to turn off ready messages.

-call command-line
-cl command-line

when used with the -set control option, causes
general_ready to call the command processor to execute
command-line after the completion of every command
line. command-line is a single argument to
general_ready and therefore, it must be enclosed in
quotes if it contains any blanks. command-line is
executed even if the printing of ready messages has
been inhibited by executing the ready_off command.

The -set and -reset control options are mutually exclusive.
A general_ready command which includes -set does not print a
ready message. Instead, it saves the ioa_ control string built
from the format and prefix options in the command, and uses this
ioa_ string to control the format of ready messages printed when
command lines complete execution or when a ready command is
issued.

A general_ready command which includes -reset prints a
single ready message, only if format or prefix options appear in
the command with the -reset option. Otherwise, no ready message
is printed.

If neither -set nor -reset is given, then general_ready
prints one ready message according to the format and prefix
options given in the command.

Examples

The following examples illustrate some of general_ready's
facilities:

    gr -string READY -date ^xTIME -time ^xVCPU -vl -vcpu -set

The above command line establishes general_ready as the current
ready procedure since the -set keyword appeared. Each ready
message would have the format:

READY 01/15/74 TIME 1234.3 VCPU 3.456 23.349

If the -set keyword had not appeared, a single ready message
having the above format would be printed.

The loa_ control string which general_ready uses to generate the
above ready message would be:

    "READY ~a~xTIME ~a~xVCPU ~.3f ~.3f~2/"

The command line:

    gr -s READY -date -hour : -min ~xVCPUI -vcpul ~xVCPUT
-vcput 2

would result in a single ready message of the form:

    READY 01/15/74 09:46 VCPUI 2.345 VCPUT 34.21

using the loa_ control string:

    "READY ~a ~a:~a~xVCPUI ~.3f~xVCPUT ~.2f~2/"

The above ready message could have been specified by the command
line:

    gr -ctl "READY ~a ~a:~a VCPUI ~.3f VCPUT ~.2f~2/" -date
-hour -min -vcpul -vcput

Note

    The values for total virtual cpu time and total memory units
are valid across new processes. The value for dollars will be
valid unless a shift change occurred during a previous process.
When general_ready is invoked for the first time in a process,
the dollar cost of all usage (in that process) up to that point
in time is computed at the rates then in effect.
    Due to the manner in which ready message procedures and
procedures which set up alarm timers are invoked, such procedures
should not be terminated (by the terminate, terminate_refname,
etc. commands). If it is desired to terminate general_ready,
general_ready should be invoked with the -reset option before it
is terminated.

general_ready

Control arg changes

		abbrv?	
-vi →	-inc_vcpu	no	
-vt →	-total_vcpu	no	
-memoryi →	-inc_mem_units	no	
-memoryt →	-total_mem_units	no	
-dollarsi →	-inc_cost	no	
-dollarst →	-total_cost	no	
-pagei →	-inc_pf	no	
-pagest →	-total_pf	no	
-level →	-level	no	?
-date_time →	-date_time	no	
-date →	-date	-dt	

- month, -day, -year, -time (-tm), -hr, -minute (→ -min),
- day_name (→ -dn), -zone, -string (→ -str), -control (→ -ctl)

-revert (new)

-prmsg →	-print_messages	no

TITLE: Fix Bugs in Multics Data Base Manager	_STATUS_ _|_DATE_____
	Written|_08/20/76__
AUTHOR: O. Friesen	_Status_ _A 08/31/76_
	Expires|_02/20/77__

Planned for System: MR 4.0	
Fixes Bug Number(s): Unreported	_CATEGORY_(check_one)
Documented in MTB: not applicable	( )Lib. Maint. Tools
Incompatible Change: no	( )Sys. Anal. Tools
User/Operations-visible Interface Change: no	( )Sys. Prog. Tools
Coded in: (X)PL/I ( )ALM ( )other-see below	( )355
Performance: ( )better (X)same ( )worse	( )BOS
	( )Salvager

_DOCUMENTATION_CHANGES_(specify_one_or_more)_	( )Ring Zero
MPM (vol,sect) MPAM (sect)	( )Ring One
MOSN (sect) MSAM (sect)	( )SysDaemon/Admin
PLMs (AN#)	( )Runtime
Info Segs	( )User Command/Subr
Other	(X)Unbundled
None(reason)__Bug_fix_____	
OBJECTIONS/COMMENTS:	

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY:
1. Change MRDS bind file so that mrds_data_ entries are external for use by future utilities such as the end user facility.
2. Fix bugs in selection expression translator to:
   -properly parse a ">=<nonblank>" character string,
   -correct a looping situation in certain situations.
3. Fix bugs in data base search procedures to:
   -allow for duplicate existential variables within a selection expression,
   -correctly handle "<" and ">" relational operators between binary operands,
   -retrieve multiple tuple variables in certain cases,
   -retrieve tuples when no constant is specified in the selection expression.

IMPLICATIONS: Above bugs will be fixed.

Multics Change Request

TITLE:Change pℓl_abs to accept the -profile argument		STATUS	DATE
AUTHOR: Rick Kissel JWG		Written	8/25/76
		Status	A 08/31/76
		Expires	08/31/77

	Category (Check One)		DOCUMENTATION CHANGES
-Coded in:[X]PL/I [ ]ALM [ ]other- explain in DETAILED PROPOSAL		Lib. Maint. Tools	
-Planned for System MR 5.0		Sys. Anal. Tools	Document Specify One or More
-Fixes Bug Number(s)_____		Sys. Prog. Tools	
-Documented in MTB_____		355	
-User/Operations-visible		BOS	MPM (Vol, Sect.)
Interface change? [ ]yes [X]no		Salvager	
-Incompatible change?[ ]yes[X]no		Ring Zero	PLMS (AN #)
-Performance: [ ]Better[X]Same		Ring One	
[ ] Worse		SysDaemon/Admin.	MOSN (Sect.)
-Replaces MCR_____		Runtime	MPAM (Sect.)
	X	User Cmmd/Subr.	
			MSAM (Sect.)

Objections/Comments:	Info Segs
	Other (Name)
	None (Reason) none

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
                       Detailed Proposal.

Summary:

Fix MPRF 009400 which says pℓl_abs does not accept the -profile control
argument.

Reason:

Documentation specifies pℓl_abs should accept -profile. pℓl_abs currently
replies with: "Control argument not implemented."

Detailed Proposal:

delete use of variable compop_total and use instead lbound(opt_table, 1)
and hbound(opt_table, 1).

TITLE:	Make help accept pathnames		STATUS	DATE

TITLE: Make help accept pathnames

AUTHOR: S. Herbst   JWG

	STATUS	DATE
Written		8/25/76
Status	A 08/31/76	
Expires	02/31/77	

-Coded in: [X] PL/I [ ] AIM [ ] other-
 explain in DETAILED PROPOSAL
-Planned for System MR   5.0
-Fixes Bug Number(s) _____
-Documented in MTB _____
-User/Operations-visible
 Interface change? [X] yes [ ] no
-Incompatible change? [ ] yes [X] no
-Performance: [ ] Better [X] Same
 [ ] Worse
-Replaces MCR _____

Category (Check One)

	Category (Check One)
	Lib. Maint. Tools
	Sys. Anal. Tools
	Sys. Prog. Tools
	355
	BOS
	Salvager
	Ring Zero
	Ring One
	SysDaemon/Admin.
	Runtime
X	User Cmmd/Subr.

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	AG92
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	
Info Segs	
Other (Name)	
None (Reason)	

Objections/Comments:

MPM should show difference between help -pn
foo and help foo

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
                       Detailed Proposal.

Summary:

Change the help command to accept a relative or absolute pathname as the name
of a help file.

Reason:

Saves having to remember to type "-pn path" & is unambiguous. If the argument
contains > or < , it is a pathname, otherwise it is a name to be searched
for in the help directories.

Usage

        help -name- -control_args-

[Handwritten note in speech bubble:] If name contains a > or < character, it is the pathname of an info segment. Otherwise,

where:

1. name   specifies the info segment that the user wishes to
                                read. The command searches for the name first in
                                the installation-dependent information directory,
                                then in the system information directory. If name
                                does not have the info suffix, one is assumed.
                                The star convention may be used. (See "Notes"
                                below for information about the use of the star
                                convention with the help command.) The name
                                argument and the -pathname control argument
                                (described below) conflict -- only one can be
                                used.

2. control_args   work "forward" in the info segment. They take
                                effect at the header line and scan to the end of
                                the segment; no wraparound feature is employed.
                                The control arguments may be chosen from the
                                following:

    -pathname path,   specifies the info segment path that the user
    -pn path   wishes to read. The command does not search in
                                the installation-dependent or system information
                                directories. If path does not have the info
                                suffix, one is assumed. The star convention may
                                be used. The -pathname control argument and the
                                name argument (described above) conflict -- only
                                one can be used.

    -header, -he   prints only the heading line(s) (consisting of a
                                title, segment modification date, and line count)
                                of the info segment. The -header and -title
                                control arguments conflict -- only one can be
                                used.

    -title   prints only the section titles of the info
                                segment. The -title and -header control arguments
                                conflict -- only one can be used.

    -section SS,   searches the info segment for the section title SS
    -sc SS   and starts printing from that section. If the
                                section title SS is more than one word, it must be
                                enclosed in quotes. Printing continues only to
                                the end of the first paragraph of that section.
                                Then the user is asked if he wants more help.
                                (See "Requests" below for information about the
                                query and possible user responses to it.) If the
                                -section and -search control arguments are given,
                                the -section search is done first.

		STATUS	DATE
TITLE: Change location of default mailbox			
AUTHOR: S. Herbst JWG		Written	8/23/76
		Status	A 08/31/76
		Expires	02/31/77

-Coded in XX PL/I ☐ AIM ☐ other—
 explain in DETAILED PROPOSAL
-Planned for System MR 5.0
-Fixes Bug Number(s)_____
-Documented in MTB _____
-User/Operations-visible
 Interface change? [X] yes ☐ no
-Incompatible change? XX yes ☐ no
-Performance: ☐ Better [X] Same
  ☐ Worse
-Replaces MCR_____

Category (Check One)	
Lib. Maint. Tools	
Sys. Anal. Tools	
Sys. Prog. Tools	
355	
BOS	
Salvager	
Ring Zero	
Ring One	
SysDaemon/Admin.	
Runtime	
X	User Cmmd/Subr.

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	AG92
PLMS (AN #)	
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	
Info Segs	
Other (Name)	
None (Reason)	

Objections/Comments:

Pending changes notice required

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
 Detailed Proposal.

Summary:

Change the mail command to look in

>udd>Project_id>Person_id

rather than in the home directory for the user's own mailbox when reading
mail.

Reason:

Compatibility with accept_messages. Both mail and send_message send to
Person_id.Project_id.

Implication:

Incompatible change should not affect most users.

Name: mail, ml

The mail command allows the user to send a message to another user or to
print messages in any mailbox to which he has sufficient access. The extended
access used on mailboxes permits the creator of a mailbox to firmly control
other users' access to his mailbox. Adding, reading, and deleting messages are
independent privileges under extended access. For example, one user can be
given access to only add messages, and another user to add messages and also
read and delete only the messages he has added. For more information on
extended access, see "Creating a Mailbox" below. Mail sent to a user is placed
in the mailbox named >user_dir_dir>Project_id>Person_id>Person_id.mbx in his
home directory.

Usage

To send mail:

        mail path Person_id1 Project_id1 ... -Person_idn- -Project_idn-

where:

1.   path   is the pathname of a segment to be sent or is an asterisk (*)
                    to indicate that the user wishes to type a message to be sent
                    (see "Composing Mail" below).

2.   Person_idi   is the name of a person to whom mail is to be sent.

3.   Project_idi   is the name of a project on which Person_idi is registered.

To print mail:

        mail -path- -control_arg-

where:

1.   path   is the pathname of a mailbox. If the mbx suffix is not
                    given, it is assumed. If no path argument is given, the
                    contents of the default mailbox is printed (see "Creating a
                    Mailbox" below).

2.   control_arg   can be -brief or -bf so that only the total number of
                    messages in the mailbox is printed. If the mailbox is empty,
                    nothing is printed.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 2149

TITLE: FNP hardcore interface routines	STATUS | DATE
	Written | 08/20/76
AUTHOR: Mike Grady JW G	Status | A 08/31/76
	Expires | 02/20/77

Planned for System: MR5.0
Fixes Bug Number(s): not applicable
Documented in MTB: not applicable
Incompatible Change: no
User/Operations-visible Interface Change: no
Coded in: (X)PL/I ( )ALM ( )other-see below
Performance: ( )better ( )same ( )worse

CATEGORY (check one)
( )Lib. Maint. Tools
( )Sys. Anal. Tools
( )Sys. Prog. Tools
( )355
( )BOS
( )Salvager
(X)Ring Zero
( )Ring One
( )SysDaemon/Admin
( )Runtime
( )User Command/Subr

DOCUMENTATION CHANGES (specify one or more)
MPM (vol,sect)   MPAM (sect)
MOSN (sect)   MSAM (sect)
PLMs (AN#)   AN85
Info Segs
Other

OBJECTIONS/COMMENTS:

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY

Install a set of routines which understand the format of the CDT and the
interfaces to the ring-0 FNP load and dump routines. These routines run in
ring-4 and will live in bound_mcs_init_ on the tape, collection 3.

REASONS

These routines provide answering service support for FNP loading and
dumping.

DETAILED PROPOSAL

tty_init_ - will parse the cdt and call ring 0 to initialize tty_buf

load_fnp_ - will find the coreimage, parse the cdt' to determine
    configuration, patch the coreimage and call ring 0 to initiate the
    load. A wakeup will be sent to the caller with load completion status.

fdump_fnp_ - will create a segment in >dumps and call ring 0 to dump the
    FNP into it, IK at a time.

parse_tty_name_ - is a utility which will return an FNP number, adaptor
    type and number, and subchannel number given a tty name.
NOTES

tty_init_ and load_fnp_ report errors via sys_log_.

TITLE: Answering Service 9.0	STATUS	DATE

TITLE: Answering Service 9.0

AUTHOR: Tom Casey   MJG

	STATUS	DATE
	Written	08/24/76
	Status	A 08/31/76
	Expires	02/24/77

Planned for System: MR5.0
Fixes Bug Number(s):   not applicable
Documented in MTE: not applicable
Incompatible Change: no
User/Operations-visible Interface Change: yes
Coded in: (X)PL/I ( )ALM ( )other-see below
Performance: ( )better (X)same ( )worse

CATEGORY (check one)
( )Lib. Maint. Tools
( )Sys. Anal. Tools
( )Sys. Prog. Tools
( )355
( )BOS
( )Salvager
( )Ring Zero
( )Ring One
(X)SysDaemon/Admin
( )Runtime
( )User Command/Subr

DOCUMENTATION CHANGES (specify one or more)
MPM (vol.sect)   MPAM (sect)
MCSM (sect)   MSAM (sect) sect 4
PLMs (AN#)   AN66
Info Segs
Other   MOH

OBJECTIONS/COMMENTS:

A tool will be provided to convert CDT's. It will be documented in the
MR5.0 SRB. Installations must create ACS's for slave channels.

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY

Install Answering Service 9.0. This answering service contains the final
phase of support for Multics bootload of FNPs along with several bug fixes.

REASONS

This facility allows FNP crashes to be handled by Multics with the
answering service taking dumps and reloading the FNP. This should improve
the reliability and availability of Multics.

DETAILED PROPOSAL

Create a Version 2 CDT which contains the FNP configuration information
previously supplied in the config deck. Modify the answering service to
maintain this information. Modify as_init_ to bootload configured FNPs and
accept dialups from them when the bootload completes. Install a new routine
to handle FNP crashes by dumping and reloading the FNP.

The following points outline the major changes:

- add the baud and dataset statements to the channel entry and add an FNP
  entry consisting of several new statements to the CMF. Change cv_cmf to

translate the new statement types. See attached documentation for cv_cmf.

- add the fnp_manager_ routine to the answering service.

- modify as_init_ to do the following:

  - call fnp_manager_$fnp_manager_init to initialize the TTY DIM and start
    FNP loads.

  - start the message coordinator automatically.

  - turn on up_sysctl_ early, to allow table installations to be done. This
    may be necessary to correct problems which caused AS initialization
    failure (e.g., missing CDT).

- failure of FNP initialization will not be fatal, since users could login
  via the network or other FNPs if more than one is used.

- the "CDT not found" condition during as_init_ will be fatal (instead of
  creating a null CDT) since information used to initialize the hardcore
  and the FNPs would not be present. Proceeding with this initialization
  using an empty CDT would prevent use of any tty channels for the rest of
  the bootload.

- define new service types: INACTIVE (it's there, but don't use it) and
  ACTIVE (opposite of INACTIVE, but only for FNPs)

- have fnp_manager_init call fnp_manager_$fnp_load for each ACTIVE and
  configured FNP in the CDT, after verifying that the FNP is in the config
  deck.

- have fnp_manager_$fnp_wakeup_handler handle the following two wakeups:

  FNP_UP - fnp_manager_ will "listen" to all lines on the FNP which just
      came up, provided as_init_$go has been executed.

  FNP_DOWN - fnp_manager_ will take a dump of the FNP, and will start a
      reload of the FNP unless the FNP appears to be in a crash loop.

- have as_init_$go call fnp_manager_$fnp_go, to listen to lines on FNPs
  already up.

- modify up_cdt_ to add and delete FNPs and channels. Mark added FNPs as
  not usable until the next Multics bootload.

- make slave service type work. This is really needed now since the
  answering service will now own all FNP channels. Use acs segments to
  control access to slave channels.

- remove most line_type setting "features" from the operator attach
  command. These are not documented and are very non-standard.

- fix problems in dial_ctl_. Clean up dial_term and dial_broom entries.

- line_type statements will be required for ARDS lines on 202C6 modems.
  This eliminates complicated guessing code, and removes the requirement
  that the ARDS control tables be loaded by MCS in order to run any 1200
  baud terminal.

- install convert_cdt to translate version 1 CDTs to version 2. A correct CMF may be generated from the version 2 CDT by using "dump_cdt -cmf CMF".

- add the following operator commands:

load_fnp FNP_NO {-no_start -check}

    used to force the bootload of an FNP that was INACTIVE or got into a crash loop.

start_fnp FNP_NO

    to start answering phones on an FNP loaded by load_fnp -no_start

stop_fnp FNP_NO

    to stop answering phones on this FNP, and inhibit automatic bootloads of the specified FNP, by setting its current service type to INACTIVE.

fdump_fnp FNP_NO

    to force a dump of the specified FNP.

- add the bump-by-fnp option to the bump command. To bump all users on an FNP type "bump fnp a".

- make attach and detach be opposites, and make remove be a synonym for detach.

INSTALLATION PLAN

A three phase plan will be used for this answering service to become fully operational.

1) Install dummy interfaces to hardcore routines. (in 28-11)

2) Install AS9.0 in special session. Convert the CDT to version 2 and create a CMF from it.

3) Delete LD355 from runcoms and boot Multics 30-0.

4) Remove LD355 , B355 and MCS from BOS.

MCR 2150

MOH updates for new commands dealing with FNPs:

Error_Messages (to be inserted on page 6-16.2)

The commands that expect an FNP tag as one of their arguments will produce the following error messages, under the circumstances described:

admin: COMMAND error - No FNP tag specified.

    The FNP tag argument is missing.

admin: COMMAND error - Invalid FNP tag: TAG

    The FNP tag given is not one of the letters "a" through "h".

admin: COMMAND error - FNP TAG was missing from CONFIG deck or CDT at bootload time.

    The specified FNP is listed in the CDT. However, in order to be used, an FNP must have been in the CONFIG deck at Multics bootload time, and in the CDT when the startup or multics command was issued.

admin: COMMAND error - No CDT entry for FNP TAG

    The specified FNP is not listed in the CDT. Before it can be used, it must be added to the CDT, and then Multics must be shut down and rebooted.

fdump_fnp

This command forces an immediate FDUMP of the specified FNP.
This causes the FNP to crash, hanging up any users logged in
over its channels. Therefore, if there are any such users,
their number is printed, and the operator is asked if the
dump should still be taken. Any reply other than "yes"
causes the dump not to be taken, and the FNP to continue
running. Type:

    fdump_fnp TAG

to force an FDUMP of FNP TAG. TAG can be one of the letters
"a" through "h".

A message is printed, giving the pathname of the segment
containing the FDUMP. This is not a printable segment; its
contents can be examined and interpreted by a system
programmer, using the online_dump_fnp (od_fnp) command.

This command should only be used at the direction of the
system programming staff. The answering service
automatically dumps and then reloads an FNP if it crashes.

load_fnp

This command forces an immediate reload of the specified
FNP. Reloading a running FNP hangs up any users logged in
over its channels. Therefore, if there are any such users,
their number is printed, and the reload is refused. The FNP
should be stopped, and the users bumped, before the reload
can take place. (See the stop_fnp and bump commands.) Type:

        load_fnp TAG {-control_args}

to initiate a load of FNP TAG. TAG can be one of the letters
"a" through "h". The optional control arguments can be:

-no_start, -ns do not listen for calls on this FNP's
                channels, when the load completes. The
                default is to listen to the channels. (See
                the start_fnp command.)

-check, -ck   check consistency between channels listed in
                the CDT and channels actually configured on
                the FNP, reporting inconsistencies on the FNP
                console. Should be used after any change in
                channel configuration.

This command should only be used at the direction of the
system programming staff. The answering service loads FNPs
automatically, under normal circumstances.

Errors:

    admin: load_fnp error - unknown argument: ARG
    admin: ERROR_MESSAGE load_fnp

start_fnp

>   This command causes an FNP that is already UP (loaded) to be
>   made ACTIVE, and all the channels configured on it to be
>   listened to. This command can be used after a load_fnp
>   command that was issued with the -no_start argument, or
>   after a stop_fnp command, to reverse the effect of the
>   latter command. For an FNP that is not UP, the load_fnp
>   command must be issued. Type:

>   start_fnp TAG

>   to start FNP TAG. TAG can be one of the letters "a" through
>   "h". If the FNP is up but not running, no messages are
>   printed. If it is in the process of loading, the message:

start_fnp: FNP TAG will be started when its bootload (in
>   progress) completes.

>   is printed.

Errors:

>   admin: start_fnp error - FNP TAG has not been loaded.
>   admin: start_fnp error - FNP TAG is already up and running.
>   admin: ERROR_MESSAGE start_fnp

stop_fnp

This command causes the specified FNP to be made INACTIVE.
This makes the FNP stop listening for further calls on its
channels, if it is up and running; it inhibits the
listening to the channels after a bootload, if one is in
progress; and it prevents automatic reloading of the FNP if
it crashes (or is crashed by the dump_fnp command). Users
currently logged in over the FNP's channels are not
affected. Type:

    stop_fnp TAG

to stop FNP TAG. TAG can be one of the letters "a" through
"h".

Type:

    bump fnp TAG -MM- -MESSAGE-

to bump all users logged in over this FNP's channels (see
the bump command for more information). This sequence of
two commands is the recommended method of taking an FNP out
of service while Multics remains up.

The effect of the stop_fnp command can be reversed by
issuing the start_fnp command, provided that the FNP remains
UP during the time it is out of service. If it does not
remain UP, the load_fnp command must be used to return it to
service.

Messages:

    stop_fnp: FNP TAG will not be booted. (if issued before
              startup)
    stop_fnp: FNP TAG is down and will not be booted.
    stop_fnp: FNP TAG is booting but will not be started.
    stop_fnp: FNP TAG is up and running, but no longer accepting
              calls.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 2151

TITLE: Fix FAST to prevent E request in edm	STATUS	DATE
	Written	08/20/76
AUTHOR: Susan Barr *SAB*	Status	A 08/31/76
	Expires	02/20/77

Planned for System: MR 5.0	
Fixes Bug Number(s): not applicable	CATEGORY (check one)
Documented in MTB: not applicable	( )Lib. Maint. Tools
Incompatible Change: no	( )Sys. Anal. Tools
User/Operations-visible Interface Change: no	( )Sys. Prog. Tools
Coded in: (■)PL/I ( )ALM ( )other-see below	( )355
Performance: ( )better (■)same ( )worse	( )BOS
	( )Salvager
DOCUMENTATION CHANGES (specify one or more)	( )Ring Zero
MPM (vol,sect) MPAM (sect)	( )Ring One
MOSN (sect) MSAM (sect)	( )SysDaemon/Admin
PLMs (AN#)	( )Runtime
Info Segs	( )User Command/Subr
Other	(■)ss
None (reason) bug fix	
OBJECTIONS/COMMENTS:	

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY:

The FAST process overseer calls cu_$set_cp so that any attempt to reach
command level from edm will cause a FAST error message to be printed and a
return to be made. This call is made in the wrong location in the code
such that it does not always get executed.

REASONS:

FAST is a limited subsytem.

DETAILED PROPOSAL:

Move call to correct location.

Multics Change Request

TITLE: Install bound_fortran_	STATUS	DATE
AUTHOR: D. Levin RAB	Written	8/23/76

	Status	A 08/31/7~
	Expires	02/31/77

-Coded in: [X] PL/I [ ] ALM [ ] other-
explain in DETAILED PROPOSAL
-Planned for System MR 5.0
-Fixes Bug Number(s)_____
-Documented in MTB_____
-User/Operations-visible
  Interface change? [ ] yes [X] no
-Incompatible change? [ ] yes [X] no
-Performance: [X] Better [ ] Same
  [ ] Worse
-Replaces MCR_____

Category (Check One)

	Category	DOCUMENTATION CHANGES
	Lib. Maint. Tools	
	Sys. Anal. Tools	Document Specify One or More
	Sys. Prog. Tools	
	355	Document Specify One or More
	BOS	
	Salvager	MPM (Vol, Sect.) Vol. 2 Sect. 3
	Ring Zero	PLMS (AN #)
	Ring One	PLMS (AN #)
	SysDaemon/Admin.	MOSN (Sect.)
	Runtime	MPAM (Sect.)
	User Cmmd/Subr.	MPAM (Sect.)
X	Unbundled	MSAM (Sect.)

Objections/Comments:	Info Segs
	Other (Name)
	None (Reason)

Use these headings: Summary of Proposal, Reasons for Proposal, Implications,
Detailed Proposal.

Summary:

Install new copy of bound_fortran_ (the old fortran compiler).

Reasons:

1. New copy required to maintain compatibility with code generator. Parts
    of internal interface have changed.

2. Performance improvement. Compiler has been recompiled with MR5.0
    compiler, resulting in 4% reduction in records used by the compiler.

3. Implement new option "-new_fortran" to allow this compiler to assume
    that all double precision and complex data items are double word
    aligned. Normal mode for this compiler does not make that assumption.

Implications:

1. The old fortran compiler will continue to work in MR5.0.

2. Faster compilation.

3. Faster execution times possible using this new option.