

TO: Distribution
FROM: Joan Archer Scott
DATE: 15 October 75
RE: Multics Change Requests

Enclosed are copies of Multics Change Requests which were approved from 01 October through 15 October 75.

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TITLE: Add ring 1 AIM privileges for the Initializer		STATUS	DATE
AUTHOR: Jerold C. Whitmore		Written	04/26/75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3.0 -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 10/7/75
		Expires	04/7/76
		DOCUMENTATION CHANGES	
Category (Check One)		Document	Specify One or More
<input type="checkbox"/> Lib. Maint. Tools		MPM (Vol, Sect.)	
<input type="checkbox"/> Sys. Anal. Tools		PLMS (AN #)	
<input type="checkbox"/> Sys. Prog. Tools		MOSN (Sect.)	
<input type="checkbox"/> 355		MPAM (Sect.)	
<input type="checkbox"/> BOS		MSAM (Sect.)	
<input type="checkbox"/> Salvager		Info Segs	
<input type="checkbox"/> Ring Zero		Other (Name)	
<input type="checkbox"/> Ring One		None (Reason)	x
<input checked="" type="checkbox"/> SysDaemon/Admin.			
<input type="checkbox"/> Runtime			
<input type="checkbox"/> User Cmmd/Subr.			
Objections/Comments:			

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

Summary: Add a call to system_privilege \$ring1_priv on to system_startup_pll which will allow the initializer to read absentee requests from the queues for users of all authorizations.

Reasons: system_startup_ currently sets dir, ipc and soos privileges for the initializer. Ring 1 privileges was omitted by mistake.

Implications: Emergency fix for MR3.0.
(Already installed in Phoenix)

Multics Change Request

TITLE: Fix for bound_dumper_		STATUS	DATE	
AUTHOR: Jerold C. Whitmore		Written	09/26/75	
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3.0 -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)	Status	A 10/7/75	
		Lib. Maint. Tools	Expires	04/7/76
		Sys. Anal. Tools	DOCUMENTATION CHANGES	
		Sys. Prog. Tools	Document	Specify One or More
	355			
	BOS			
	Salvager	MPM (Vol, Sect.)		
	Ring Zero	PLMS (AN #)		
	Ring One	MOSN (Sect.)		
	<input checked="" type="checkbox"/> SysDaemon/Admin.	MPAM (Sect.)		
	Runtime	MSAM (Sect.)		
	User Cmmnd/Subr.			
Objections/Comments:		Info Segs		
		Other (Name)		
		None (Reason)	X	

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

Summary: One call to com_err_ in start_dump.pll uses an undefined code rather than the first half of the ios_status variable. Fix the reference.

Reasons: Stack garbage can cause com_err_ to take an out of bounds fault on the error_table_. This has been in the system for a long time, but first showed up during the installation of 2.2S at AFDSC.

Implications: Emergency fix for MR3.0.
(Already installed in Phoenix)

Multics Change Request

TITLE: Fix IO Daemon bugs for 3.0		STATUS	DATE
AUTHOR: Jerold C. Whitmore		Written	09/26/75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3.0 -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)		Status
		Lib. Maint. Tools	A 10/7/75
		Sys. Anal. Tools	Expires
		Sys. Prog. Tools	04/7/76
	355	DOCUMENTATION CHANGES	
	BOS	Document	Specify One or More
	Salvager	MPM (Vol, Sect.)	
	Ring Zero	PLMS (AN #)	
	Ring One	MOSN (Sect.)	
	<input checked="" type="checkbox"/> SysDaemon/Admin.	MPAM (Sect.)	
	Runtime	MSAM (Sect.)	
	User Cmmnd/Subr.		
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	X

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

Summary: Change the call to output request in the three driver modules (printer, punch, G115) to use an automatic variable for an error code rather than an undefined parameter. Change the number of elements for the punch error message to be correct.

Reasons: Output request will set its error code argument to zero. The undefined parameter causes stack garbage to be used as a pointer with unknown results.

Implications: Emergency fix for 3.0
(Already installed in Phoenix)

TITLE: General IO Daemon fixes		STATUS	DATE	
AUTHOR: Jerold C. Whitmore		Written	04/26/75	
-Coded in: <input checked="" type="checkbox"/> XPL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR _____ -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)	Status	A 10/07/75	
		Lib. Maint. Tools	Expires	04/07/76
		Sys. Anal. Tools	DOCUMENTATION CHANGES	
		Sys. Prog. Tools	Document	Specify One or More
	355			
	BOS	MPM (Vol, Sect.)		
	Salvager	PLMS (AN #)		
	Ring Zero	MOSN (Sect.)		
	Ring One	MPAM (Sect.)		
	<input checked="" type="checkbox"/> SysDaemon/Admin.	MSAM (Sect.)		
	Runtime			
	User Cmnd/Subr.			
Objections/Comments:		Info Segs		
		Other (Name)		
		None (Reason)	X	

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

Summary:

- 1) Change printer_driver to set the banner line length to the default device line length after a new_device command.
- 2) Correct synchronization of messages to the control terminal to avoid errors when the terminal is hung up.
- 3) Order a hangup to the control terminal before detaching by command.

Reasons:

Currently:

- 1) If the banner is set for 8x11 requests, switching back to normal requests still uses the narrow banner. (Bad)
- 2) If the control terminal is blocked for input and is hungup by the operator, the driver still tries to say "driver continuing" on the detached stream.
- 3) With all terminals now going through the answering service, a dialed terminal or an attached slave remains assigned to the process after an explicit detach by driver command. It should be hungup before detaching to return it to the answering service.

Multics Change Request

TITLE: Fix bug in full_find_command_		STATUS	DATE
AUTHOR: S. Herbst		Written	09/24/75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR _____ -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)		Status
		Lib. Maint. Tools	A 10/07/75
		Sys. Anal. Tools	Expires
		Sys. Prog. Tools	04/07/76
		355	DOCUMENTATION CHANGES
	BOS	Document	Specify One or More
	Salvager	MPM (Vol, Sect.)	
	Ring Zero	PLMS (AN #)	
	Ring One	MOSN (Sect.)	
	SysDaemon/Admin.	MPAM (Sect.)	
	Runtime	MSAM (Sect.)	
	X User Cmmd/Subr.		
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	no change

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

SUMMARY:

Change full_find_command_ to use its associative memory if the entry name portion of a given pathname, rather than the entire pathname, is 16 characters or less in length.

REASON:

Currently, if a pathname is longer than 16 characters, the associative memory is not updated even though it may already contain an entry for the same command name.

Example:

```
list (gets system copy)
>udd>m>tac>x>list (gets experimental copy)
list (gets system copy again;
           should get experimental copy)
```

TITLE: Fix tty to use word aligned pointers in
calls to hcs_\$tty_read
AUTHOR: Susan Barr

STATUS	DATE
Written	9/26/75
Status	A 10/07/75
Expires	04/07/76

-Coded in: PL/I ALM other-
explain in DETAILED PROPOSAL
-Planned for System MR _____
-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)
<input type="checkbox"/> Lib. Maint. Tools
<input type="checkbox"/> Sys. Anal. Tools
<input type="checkbox"/> Sys. Prog. Tools
<input type="checkbox"/> 355
<input type="checkbox"/> BOS
<input type="checkbox"/> Salvager
<input type="checkbox"/> Ring Zero
<input type="checkbox"/> Ring One
<input type="checkbox"/> SysDaemon/Admin.
<input type="checkbox"/> Runtime
<input checked="" type="checkbox"/> User Ccmd/Subr.

DOCUMENTATION CHANGES

Document	Specify One or More
	MPM (Vol, Sect.) subroutines tty
	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:

tty_ makes calls to the hardcore DIM to read and write using a pointer to the caller's buffer. This pointer may contain a bit offset. The hardcore DIM expects a word aligned pointer and a character offset. This causes errors on input in cases where the caller's buffer pointer is not word aligned and certain canonical editing is done, (i.e. a backspace followed by erase or kill characters).

PROPOSAL:

tty_ will call hardcore using a word aligned pointer and set offset to the character position as found in the bit offset portion of the pointer.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR <u>1437</u>
TITLE: Remove non-system ACLs from Gates on Hardcore Header		STATUS DATE
AUTHOR: R. A. Roach		Written 09/26/75
		Status A 10/2/75
		Expires 03/26/76
Planned for System: not applicable		CATEGORY (check one)
Fixes Bug Number(s): not applicable		() Lib. Maint. Tools
Documented in MTB: not applicable		() Sys. Anal. Tools
Incompatible Change: no		() Sys. Prog. Tools
User/Operations-visible Interface Change: no		() 355
Coded in: () PL/I () ALM (X) other-see below		() BOS
Performance: () better (X) same () worse		() 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 hardcore.header		
OBJECTIONS/COMMENTS:		

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

SUMMARY: Remove all but SysDaemon and SysAdmin)
ACL entries from gates on the hardcore header. All other entries
will be added via commands in system_start_up.ec.

REASON: To ease distribution problems and to centralize the granting of
such access.

IMPLICATIONS: Will have to implement a process for requesting access to
gates on the system tape to replace getting access by submitting
hardcore changes (probably a letter to IPC requesting to be added
to an ACL).

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1438
TITLE: Improvements to ring 4 syserr log	AUTHOR: L. Scheffler	STATUS: <u>DATE</u> Written: <u>09/29/75</u> Status: <u>A 10/7/75</u> Expires: <u>03/29/76</u>
Planned for System: MR 3.1	Fixes Bug Number(s): not applicable	CATEGORY (check one)
Documented in MTB: 103	Incompatible Change: no	() Lib. Maint. Tools
User/Operations-visible Interface Change: no	Coded in: (<input checked="" type="checkbox"/>) PL/I () ALM () other-see below	(<input checked="" type="checkbox"/>) Sys. Anal. Tools
Performance: (<input checked="" type="checkbox"/>) better () same () worse		() Sys. Prog. Tools
		() 355
		() BOS
		() Salvager
DOCUMENTATION CHANGES (specify one or more)		(<input checked="" type="checkbox"/>) Ring Zero
MPM (vol,sect)	MPAM (sect)	() Ring One
MOSN (sect)	MSAM (sect)	() SysDaemon/Admin
PLMS (AN#) AN65		() Runtime
Info Segs		() User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

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

- SUMMARY: 1) Maintain the time of the last syserr message copied from ring 0 in the ring 4 syserr log.
- 2) Append syserr messages copied from ring 0 to the latest ring 4 syserr log segment instead of creating a new ring 4 syserr log segment each time messages are copied from ring 0.
- 3) Make minor changes to utility procedure log_util_ that supports the ring 4 syserr log.

- REASONS: 1) The ring 4 syserr log exists as a complete and reliable (i.e., backed up) history of significant system events. Currently, syserr_log_man_ in ring 4 uses a parameter stored in the ring 0 syserr log to determine where to start copying messages into the ring 4 log. If the ring 4 log is backed up, or a problem (e.g., record quota overflow, crash) occurs after syserr messages have been copied out of ring 0 but before they are appended to the ring 4 log, the ring 4 log can be missing messages. If the time of the last syserr message copied is kept in the ring 4 log, it is backed up with the log. By always copying all messages in the ring 0 log that were created after the time kept in the ring 4 log, (messages in the ring 0 log are not deleted by copying), "holes" in the ring 4 log (caused by backup or problems during copying) will be filled automatically.
- 2) Currently, each time the answering service copies the syserr log from ring 0 (at every shutdown and occasionally while Multics is running), a new log segment is created in ring 4 to contain new messages. Experience has shown that these segments are typically short (average 6 pages on MIT service, 1-2 pages on CISL service). This

proliferation of small segments results in much page breakage.

3) Searching, adding, and date-deleting of messages in the ring 4 syserr log can be simplified with minor changes to log_util_.

IMPLICATIONS: The ring 4 syserr log will be more complete, will be more immune from crashes and bugs, will use less storage, and will require less code to manage. These changes will be fully upward compatible with existing ring 4 syserr logs.

DETAILED PROPOSAL: Make the following changes

perm_syserr_log.incl.pl1 - Add the structure

```
dcl 1 psl_head aligned based,  
    2 first_time fixed bin (71),  
    2 last_time fixed bin (71);
```

first_time and last_time are the times of the first and last messages in the ring 4 log. This information is kept in >sci>perm_syserr_log>log_address_seg.

syserr_log_copy\$init (hardcore) - Add a new parameter, the time of the last message already copied into ring 4. The ring 0 syserr log's last_copied parameter (used to decide when the ring 0 syserr log absolutely needs to be copied into ring 4) is set by this entry to the first message after that time. This resynchronizes the ring 0 and ring 4 logs at each answering service initialization.

hphcs_\$copy_syserr_log_init - Change from 2 to 3 arguments.

syserr_log_man_\$as_copy_init - Add code to obtain the time of the last syserr message copied (from the ring 4 log), and pass it to ring 0 via hphcs_\$copy_syserr_log_init.

syserr_log_man_\$as_copy_log - Replace code that automatically creates a new log segment each time the ring 0 log is copied with code to append messages to the end of the latest ring 4 log segment, and to create a new log segment only when the current one reaches 64K. Add code to maintain psl_head.first_time and psl_head.last_time.

syserr_log_man_\$tri# - Add code to really delete over-aged messages instead of rethreading around them, to save storage.

log_util_\$create_log - Change interface to take as a parameter the length in words of a header data region where the caller may store header information about the log. Return a pointer to this header data region instead of a pointer to the base of the log addressing segment.

log_util_ - Change all entries taking a pointer to a log addressing segment to take a pointer to the header data region.

log_util_\$seek - Change the interface definition to simplify searching of the ring 4 log.

Multics Change Request

TITLE: Fix bug in copy_acl_		STATUS	DATE	
AUTHOR: S. Herbst		Written	09/29/75	
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR _____ -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)		Status	
	<input type="checkbox"/>	Lib. Maint. Tools	Expires	
	<input type="checkbox"/>	Sys. Anal. Tools	DOCUMENTATION CHANGES	
	<input type="checkbox"/>	Sys. Prog. Tools	Document	Specify One or More
	<input type="checkbox"/>	355	MPM (Vol, Sect.)	
	<input type="checkbox"/>	BOS	PLMS (AN #)	
	<input type="checkbox"/>	Salvager	MOSN (Sect.)	
	<input type="checkbox"/>	Ring Zero	MPAM (Sect.)	
	<input type="checkbox"/>	Ring One	MSAM (Sect.)	
	<input type="checkbox"/>	SysDaemon/Admin.	Info Segs	
<input type="checkbox"/>	Runtime	Other (Name)		
<input checked="" type="checkbox"/>	User Cmmd/Subr.	None (Reason)	no change	
Objections/Comments:				

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

SUMMARY:

Fix bug in copy_acl_ that causes an acl entry for *.SysDaemon.* to be added when copying the acl of a segment.

Multics Change Request

TITLE: Change mailbox_\$update_message_index
AUTHOR: S. Herbst

STATUS
DATE

Written 9/29/75

Status A 10/07/75

Expires 04-07-76

-Coded in: PL/I AIM other-
explain in DETAILED PROPOSAL
-Planned for System MR _____
-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 #) 69
MOSN (Sect.)
MPAM (Sect.)
MSAM (Sect.)

Objections/Comments:

Info Segs
Other (Name)
None (Reason)

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

SUMMARY:

Change mailbox_\$update_message_index to accept a length argument smaller than the length of the message being updated.

REASONS:

Messages are composed of blocks that may be scattered in the message segment. The current update_message call requires rewriting the entire message, which for a long message can be time-consuming. The proposed feature makes it inexpensive to change the mail_format header of a message, for example to turn on the has_been_read bit.

6. dir_name Input

7. ent_name Input

Note

The caller must have read and delete extended access to the message segment.

REWRITING MESSAGES IN A QUEUE MESSAGE SEGMENT

Entry: message_segment_\$update_message_index
 message_segment_\$update_message_file

This entry point is used to rewrite ^{the first n bits of} an existing message in a queue message segment. _^

Usage

```
declare message_segment_$update_message_index
       entry (fixed bin, fixed bin(18), bit(72) aligned, ptr,
             fixed bin(35));
```

```
call message_segment_$update_message_index
     (index, message_length, message_id, messagep, code);
```

or:

```
declare message_segment_$update_message_file
       entry (char(*), char(*), fixed bin(18),
             bit(72) aligned, ptr, fixed bin(35));
```

```
call message_segment_$update_message_file
     (dir_name, ent_name, message_length, message_id,
      messagep, code);
```

1. index Input

2. message_length Input

3. message_id Input

is the number of bits of the message to be rewritten.

Multics Change Request

TITLE: RCP bug fixes		STATUS	DATE
AUTHOR: B. Silver		Written	09/29/75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3.0 -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 10/09/75
		Expires	04/07/76
		DOCUMENTATION CHANGES	
Category (Check One) <input type="checkbox"/> Lib. Maint. Tools <input type="checkbox"/> Sys. Anal. Tools <input type="checkbox"/> Sys. Prog. Tools <input type="checkbox"/> 355 <input type="checkbox"/> BOS <input type="checkbox"/> Salvager <input checked="" type="checkbox"/> Ring Zero <input checked="" type="checkbox"/> Ring One <input type="checkbox"/> SysDaemon/Admin. <input type="checkbox"/> Runtime <input type="checkbox"/> User Cmd/Subr.		Document	Specify One or More
Objections/Comments:		MPM (Vol, Sect.)	
		PLMS (AN #)	
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	
		Info Segs	
		Other (Name)	
		None (Reason)	X

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

SUMMARY:

Fix bugs in RCP that:

1. fail to reset validation level when leaving ring 1.
2. crashes system when detaching an Entry Model Console.

REASONS:

Returning to a higher ring with the validation level set to 1 allows a user to violate ring 1 security.

Fixing the console bug will allow TOLTS console tests to be run.

Multics Change Request

TITLE: vfile bug fixes		STATUS	DATE
AUTHOR: M. Asherman		Written	09/29/75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other - explain in DETAILED PROPOSAL -Planned for System MR _____ -Fixes Bug Number(s) <u>unreported</u> -Documented in MTB _____ -User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)		
	<input type="checkbox"/> Lib. Maint. Tools	DOCUMENTATION CHANGES	
	<input type="checkbox"/> Sys. Anal. Tools	Status	A 10/07/75
	<input type="checkbox"/> Sys. Prog. Tools	Expires	04/07/76
<input type="checkbox"/> 355	Document	Specify One or More	
<input type="checkbox"/> BOS	MPM (Vol, Sect.)		
<input type="checkbox"/> Salvager	PLMS (AN #)		
<input type="checkbox"/> Ring Zero	MOSN (Sect.)		
<input type="checkbox"/> Ring One	MPAM (Sect.)		
<input type="checkbox"/> SysDaemon/Admin.	MSAM (Sect.)		
<input type="checkbox"/> Runtime	Info Segs		
<input type="checkbox"/> User Cmmnd/Subr.	Other (Name)		
	None (Reason)		
Objections/Comments:			

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

SUMMARY:

- Fix four unreported bugs in vfile_:
- in indexed files -
1. false duplications may be introduced in large indices (generally >5000 entries);
 2. keys sometimes garbled on overflow in files which have been converted from old to new versions;
 3. total record length statistic in new and converted files may be incorrect.
- in sequential files -
4. spurious end of file descriptors may exist in multi-segment files.

IMPLICATIONS::

If (1) or (2) has occurred, the file should be salvaged.

The other errors will be handled automatically.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1444
TITLE: Fix refname bug in iox_\$attach_ioname	STATUS	DATE
AUTHOR: Larry Johnson	Written	9/29/75
	Status	A 10/02/75
	Expires	03/29/76
Planned for System: not applicable	CATEGORY (check one)	
Fixes Bug Number(s): not applicable	<input type="checkbox"/> Lib. Maint. Tools	
Documented in MTB: not applicable	<input type="checkbox"/> Sys. Anal. Tools	
Incompatible Change: no	<input type="checkbox"/> Sys. Prog. Tools	
User/Operations-visible Interface Change: no	<input type="checkbox"/> 355	
Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-see below	<input type="checkbox"/> BOS	
Performance: <input type="checkbox"/> better <input checked="" type="checkbox"/> same <input type="checkbox"/> worse	<input type="checkbox"/> Salvager	
DOCUMENTATION CHANGES (specify one or more)	<input type="checkbox"/> Ring Zero	
MPM (vol,sect) MPAM (sect)	<input type="checkbox"/> Ring One	
MOSN (sect) MSAM (sect)	<input type="checkbox"/> SysDaemon/Admin	
PLMs (AN#)	<input type="checkbox"/> Runtime	
Info Segs	<input checked="" type="checkbox"/> User Command/Suor	
Other		
None (reason)		
OBJECTIONS/COMMENTS:		

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

Summary

An error in handling reference names can cause iox_\$attach_ioname to find the wrong i/o module.

Detailed proposal

If iox_\$attach_ioname is given a pathname ioname argument, it will attempt to initiate the segment with a reference name the same as the i/o module name. If however, the code returned is error_table_\$namedup or error_table_\$segknwon, it is possible that some other segment remains initiated with this reference name. In this case, a subsequent call to hcs_\$make_ptr will return a pointer into the wrong segment.

iox_\$attach_ioname should be changed to terminate the reference name before attempting to initiate the segment. This is the only way it can be certain that the segment is initiated correctly.

TITLE: Eliminate inconsistencies in list command user interface		STATUS	DATE	
AUTHOR: T. Casey		Written	10/06/75	
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3.1 -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change <input checked="" type="checkbox"/> yes <input type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)		Status	
	Lib. Maint. Tools		Expires	
	Sys. Anal. Tools		DOCUMENTATION CHANGES	
	Sys. Prog. Tools		Document Specify One or More	
	355		MPM (Vol, Sect.) Commands	
	BOS		PLMS (AN #)	
	Salvager		MOSN (Sect.)	
	Ring Zero		MPAM (Sect.)	
	Ring One		MSAM (Sect.)	
	SysDaemon/Admin.		Info Segs	
Runtime		Other (Name)		
X User Cmnd/Subr.		None (Reason)		
Objections/Comments:				

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

SUMMARY:

1. Add -link_path (-lp) control argument to allow user to say explicitly that link pathnames should be printed.
2. Add the count (ct) column to the set of columns that can be sorted on.

REASONS:

1. The draft documentation currently says:

"There is no control argument to specify that link paths should be printed. They will be printed in all cases except the following..."

That was a poor design decision. There is a control argument for every other column, in addition to the defaults that operate when the arguments are not given. The link path column should not be treated differently from all the others.

2. The count column is the only one that cannot be sorted on. Aside from consistency arguments, it is occasionally useful to be able to sort by count. It will put all the

multiply-named entries first in the list. This can be used to see the names of multiply-named entries after having listed the directory with the -primary argument, without having to watch the whole directory being listed again, or doing a status -nm on each multiply named entry.

IMPLICATIONS:

A more complete and consistent interface.

DETAILED PROPOSAL:

See attached excerpts from MPM section

The following control arguments are used to specify which columns should be printed:

- name, -nm print the names column.
- record, -rec print the records column.
- mode, -md print the mode column.
- date_time_used,
-dtu print the date-time used column.
- date_time_modified,
-dtm print the date-time modified column.
- count, -ct print the count column (which gives the total number of names, for multiply-named entries only).
- link_path, -lp print the link path column.

The link path column is never printed for branches, and the records, mode, and date-time used columns are never printed for links.

The default is to print the names, records, and mode columns for branches, and the names and link path columns for links. However, if the -brief control argument, or any of the control arguments corresponding to the default columns, are given, then the defaults are overridden, and only the names column, plus those columns selected explicitly by control arguments, will be printed.

The following control arguments specify the order in which entries will be printed, within each entry type:

`-sort sort_key` sort entries according to either name, records, mode, date_time_used, date_time_modified, or count, as specified by the sort_key, or by the default described below.

The sort_key can be one of the following keywords:

name, nm sort entries by primary name.
record, rec sort entries by records used (largest first).
mode, md sort entries by mode.
date_time_used, dtu sort entries by date_time_used (most recent first).
date_time_modified, dtm sort entries by date_time_modified (most recent first).
count, ct sort entries by number of names (most names first).

If sort_key is omitted, the default column on which to sort is determined as follows: if neither date is being printed, sort by primary name; if one of the dates is being printed, sort by that date; if both dates are being printed, sort by date-time modified.

Links can only be sorted by name or date-time modified. When sorting by any other column is specified, links will remain in the order in which they are found in the directory.

If `-sort` is not given, entries will be printed in the order in which they are found in the directory.

`-reverse, -rv` This argument is used to reverse the order in which entries are printed. If `-sort` is also given, the sort will be reversed. Otherwise entries will be printed in the reverse of the order in which they are found in the directory.

TITLE: Add -first argument to list command		STATUS	DATE
AUTHOR: T. Casey		Written	10/06/75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3.1 -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)	Status	A 10/14/75
	Lib. Maint. Tools	Expires	04/14/76
	Sys. Anal. Tools	DOCUMENTATION CHANGES	
	Sys. Prog. Tools	Document	Specify One or More
	355	MPM (Vol, Sect.)	Commands
	BOS	PLMS (AN #)	
	Salvager	MOSN (Sect.)	
	Ring Zero	MPAM (Sect.)	
	Ring One	MSAM (Sect.)	
	SysDaemon/Admin.	Info Segs	
Runtime	Other (Name)		
X User Cmnd/Subr.	None (Reason)		
Objections/Comments:			

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

SUMMARY:

Add the control argument -first N (-ft N) to the list command, to allow users to specify the maximum number of entries of each type that will be printed. When this argument is used, the heading lines will contain the totals for all the entries that would have been printed if -first had not been given.

REASONS:

This is a straight-forward device to put a limit on the number of lines that will be printed by an invocation of the list command. It provides a clean way to accomplish the same thing as hitting QUIT after N lines have been printed. It is cheaper than hitting QUIT, and there are circumstances under which hitting QUIT is undesirable because of side affects other than cost. Other methods for limiting the amount of output, such as starnames or from-to dates are not suitable when one's object is to avoid tying up a terminal with a lot of printing, since one can only guess how many entries will match starnames or fall within given dates.

DETAILED PROPOSAL:

See attached except from MPM section.

-first N, -ft N list only the first N entries (after sorting, if specified) of each entry type being listed. The heading lines will contain the totals figures for all entries that would have been listed, if -first had not been given. This argument is useful to avoid tying up a terminal by listing a large directory, when only the first few entries are of interest.

TITLE: Fix ring alarm bug		STATUS	DATE	
AUTHOR: B. Silver		Written	10/02/75	
-Coded in: <input checked="" type="checkbox"/> PL/I <input checked="" type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR _____ -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input checked="" type="checkbox"/> Better <input type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)		Status	
		<input type="checkbox"/> Lib. Maint. Tools	Expires	A 10/14/75
		<input type="checkbox"/> Sys. Anal. Tools	DOCUMENTATION CHANGES	
		<input type="checkbox"/> Sys. Prog. Tools	Document	Specify One or More
		<input type="checkbox"/> 355	MPM (Vol, Sect.)	
	<input type="checkbox"/> BOS	PLMS (AN #)		
	<input checked="" type="checkbox"/> Ring Zero	MOSN (Sect.)		
	<input type="checkbox"/> Ring One	MPAM (Sect.)		
	<input type="checkbox"/> SysDaemon/Admin.	MSAM (Sect.)		
	<input type="checkbox"/> Runtime	Info Segs		
	<input type="checkbox"/> User Cmnd/Subr.	Other (Name)		
Objections/Comments:		None (Reason) X		

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

SUMMARY:

Fix a bug in the ring alarm mechanism that prevents it from successfully resetting the validation level.

REASONS:

The ring alarm mechanism is necessary to prevent returning to an outer ring with the validation level set to the lower ring. This can happen if an inner ring sets the validation level and then fails to reset it.

IMPLICATIONS:

Unwanted ring alarm faults will be eliminated. Bugs involving the setting of the validation level that are introduced into rings 0 and 1 will not result in a security hole. The ring alarm mechanism also protects user ring subsystems that operate on behalf of higher rings.

DETAILED PROPOSAL:

Change level and ring_alarm so that when setting the validation level the ring alarm register will be set to the new validation level plus one. It is currently set to the validation level.

Multics Change Request

TITLE: Fix bug in reconfigure_rcp		STATUS	DATE
AUTHOR: Bill Silver		Written	10/02/75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> AIM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3.0 -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 10/14/75
		Expires	04/14/76
		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) X	

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

SUMMARY:

Delete messages typed by the deldev and adddev operator commands. These messages say that a device is being added or deleted.

REASONS:

The user ring command program cannot know whether or not the delete or add operation was successful. It currently types a message in any case. If the operation is successful, RCP will type a similar message on the operator's console and thus make the message typed by the command redundant. If the add or delete operation was not successful then the message typed by the command is erroneous.

DETAILED PROPOSAL:

Modify rcp_reconfigure so that it no longer types a message saying that it is adding or deleting a device.

Note: This change has been made in Phoenix and is part of MR3.0

Multics Change Request

TITLE: Change abbrev_\$set_cp_ to abbrev_\$set_cp		STATUS	DATE
AUTHOR: Steve Herbst		Written	09/26/75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR _____ -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no -Incompatible change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)		
	<input type="checkbox"/> Lib. Maint. Tools	Status	A 10/14/75
	<input type="checkbox"/> Sys. Anal. Tools	Expires	04/14/70
	<input type="checkbox"/> Sys. Prog. Tools	DOCUMENTATION CHANGES	
	<input type="checkbox"/> 355	Document	Specify One or More
	<input type="checkbox"/> BOS	MPM (Vol, Sect.)	
	<input type="checkbox"/> Salvager	PLMS (AN #)	
	<input type="checkbox"/> Ring Zero	MOSN (Sect.)	
	<input type="checkbox"/> Ring One	MPAM (Sect.)	
	<input type="checkbox"/> SysDaemon/Admin.	MSAM (Sect.)	
<input type="checkbox"/> Runtime	Info Segs		
<input checked="" type="checkbox"/> User Cmmnd/Subr.	Other (Name)		
	None (Reason) PLM 67 ok		
Objections/Comments:			

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

SUMMARY:

Change the name of entry point abbrev_\$set_cp_ to abbrev_\$set_cp in conformance to standard.

REASONS:

There was no reason for the trailing underscore on this recently added entry point.

IMPLICATIONS:

Not currently called by the system.

A correction to the 3.0 SRB should be issued. (This entry was included in the SRB; it should not have been included.)