

To: Distribution  
From: Betsy  
Date: April 21, 1976  
Subject: MCR's

Attached are the MCR's which were approved from April 1 - 15, 1976.

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Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1732
TITLE: MCR for Changes in the Iss_login_responder_	JWG	STATUS   DATE
AUTHOR: Lyman R. Hazelton, Jr.		Written: 03/20/76 Status: 23/20/76 A4/76 Expires: 09/20/76
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: yes		( ) 355
Coded in: (X) PL/I ( ) ALM ( ) other-see below		( ) BOS
Performance: ( ) better (X) same ( ) worse		( ) Salvager
DOCUMENTATION CHANGES (specify one or more)		( ) Ring Zero
MPM (vol,sect) SWG AK92 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:**

Modifications of Iss\_login\_responder\_ have been made so that it calls listen\_ correctly and allows the use of the "brief" option in the login, as well as to invoke the start\_up.ec if there is one in the user's home directory and the user is allowed to have a start\_up. These modifications do not change the basic way that Iss\_login\_responder\_ works, but they do make it operate as advertized and correctly, as well as making its use easier and more convenient.

**REASONS:**

To make Iss\_login\_responder\_ more usable and desirable, as well as to correct the problem with listen\_.

**IMPLICATIONS:**

These modifications only make the limited service subsystem more useful and desirable to those who need such a system.

**DETAILED PROPOSAL:**

To re-install Iss\_login\_responder\_ as a part of the standard system.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1741
TITLE: Add limited hardcore process facility to the system.		STATUS : DATE
AUTHOR: Steve Webber		Written : 03/23/76
		Status : <b>Proposed</b>
		Expires : 09/23/76
Planned for System: MR 4.1		
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#) AN73		( ) Runtime
Info Segs		( ) User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Add the capability for the system to handle and run hardcore processes that require fewer resources than normal processes. The initial requirement is for a syserr logger HPROC (as they are called) for copying messages from the wired svcerr buffer into the paged syserr log.

REASONS:

The new reconfiguration code (proposed elsewhere) eliminates software interrupts from the system. For this reason, another mechanism is required to perform the copying that was triggered by the svcerr log interrupt.

In addition, the concept of hardcore processes provides for a simpler and cleaner way to implement several supervisor tasks.

IMPLICATIONS:

The syserr logger HPROC (and HPROC's in general) require resources in addition to what is otherwise required. In the current proposal, the svcerr logger HPROC would take up 1 APT entry, and several AST entries even though no messages are being logged. When logging does happen, two pages are wired (the DSEG and PDS), i.e. the process is loaded, and several other per-process pages are needed (stack pages, code pages...). The current proposal does not allow for KSTs within HPROC's, thereby making most storage system functions out of the capabilities of HPROC's.

DETAILED PROPOSAL:

Add the program "create\_hproc", callable from ring 0, to the system. This program allocates an APT entry, creates the process's PDS, fills in per-process items in the PDS, creates a descriptor segment and places the process into the blocked state. The program requires, as input,

1. the process group id to use
2. pointer to the initial procedure
3. an "always loaded" flag.

It returns a pointer to the APT entry for the HPROC (from which one can get the processid, etc.) and a status code.

The always loaded flag is used if it is thought that the HPROC should always remain loaded. This might be the case if the process is required to give fast response to wakeups from the other processes in the system.

Most HPROC's will use the standard IPC block and wakeup primitives, probably using special channels. The processes are awakened when there is something for them to do, or possibly, when a timer they have set goes off. The HPROC's are allowed to block in ring zero since it is assumed that they can successfully manage the system data bases without fear of losing eligibility or being "stopped".

A new procedure, "destroy\_hproc", is also provided for cleaning up HPROC's. This program should be called prior to shutdown for all HPROC's. The HPROC destruction mechanism is similar to normal process destruction. However, it is much simpler in that no process directory is involved. There should probably be a special event channel for wakeups to be processed by an HPROC prior to being destroyed, so that they can clean up any data bases.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1747
TITLE: NSS Bug Fixes, Round 2		STATUS
AUTHOR: Bernard Greenberg		DATE
	TVV	Written 03/25/76
Planned for System: MR 4.0		Status <del>09/25/76</del>
Fixes Bug Number(s): not applicable		Expires 09/25/76
Documented in MTB: not applicable		CATEGORY (check one)
Incompatible Change: no		( ) Lib. Maint. Tools
User/Operations-visible Interface Change: no		( ) Sys. Anal. Tools
Coded in: (X)PL/I ( )ALM ( )other-see below		( ) Sys. Prog. Tools
Performance: ( )better (X)same ( )worse		( ) 355
DOCUMENTATION CHANGES (specify one or more)		( ) BOS
MPM (vol,sect)	MPAM (sect)	( ) Salvager
MOSN (sect)	MSAM (sect)	(X) Ring Zero
PLMs (AN#) 61		( ) Ring One
Info Segs		( ) SysDaemon/Admin
Other		( ) Runtime
OBJECTIONS/COMMENTS:		( ) User Command/Subr

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

SUMMARY: Fix small and medium bugs in New Storage System.

REASONS/IMPLICATIONS: Improved reliability.

DETAILED PROPOSAL: Fix the following bugs.

1. Directory quota is randomly enforced. page\_fault should never check directory quota at all.
2. Certain cases of post-crash flushing of reconfigured paging devices fail, miscounting PD records.
3. The post-crash paging device unflushed record counter miscounts volumes: change its strategy to count more straightforwardly.
4. Segment\_mover contains an optimization to avoid segment moving if a certain minimum number of pages can be reclaimed from the segment. This is useful for vfile\_random access files, for instance. There are bugs involved in the cleanup of SDWs in this case.
5. Volumes other than the RPV (Root Physical Volume) are not marked as permanent in the PVT. Any volume containing a partition pointed to by a PART CONFIG card should be so marked.

Multics Change Request

TITLE: Fix to Server TELNET resetwrite function		STATUS	DATE
AUTHOR: D. M. Wells		Written	1976.03.25
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> AIM <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 type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR		Status	<u>A 04/06/76</u>
		Expires	<u>10/06/76</u>
		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 type="checkbox"/> Ring Zero <input type="checkbox"/> Ring One <input type="checkbox"/> SysDaemon/Admin. <input type="checkbox"/> Runtime <input type="checkbox"/> User Cmmnd/Subr. <input checked="" type="checkbox"/> Network		Document	Specify One or More
Objections/Comments:		MPM (Vol, Sect.)	
		PLMS (AN #)	
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	
		Info Segs	
		Other (Name)	
		None (Reason)	<u>No change in function</u>

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

**SUMMARY:** A new TIP system has changed an interface to the Multics resetwrite system. This change causes a resetwrite function (which is done after every QUIT) to cause all output to be discarded until the connection is closed. Thus, the user can not get any output from his/her process.

**REASONS:**  
This is an obvious imperfection in the user's communication with his/her process. Also, in this case, it seems easier to change Multics to not depend on this TIP feature(?) than to change the TIP system which has been released to approx. 30 TIPS.

**DETAILED PROPOSAL:**  
Change the Multics Server TELNET (ntw\_ IOSIM) to flush the local buffers rather than ask the foreign system to flush the output at its end. (Note that this feature has only been broken with the "old" TELNET functionality.)

**NOTE:** TIP stands for "Terminal Interface message Processor" and is a local terminal interface placed at various nodes in the ARPANET. Via the TIP, users can use the ARPANET without the requirement of having a large host computer.

THIS IS AN EMERGENCY INSTALLATION !!

TITLE: Install Emergency Fix to PL/I Compiler		STATUS	DATE
AUTHOR: R. Barnes		Written	3/31/76
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 4.0 -Fixes Bug Number(s) 1479 -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 04/10/76
		Expires	10/10/76
		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 type="checkbox"/> Ring Zero <input type="checkbox"/> Ring One <input type="checkbox"/> SysDaemon/Admin. <input type="checkbox"/> Runtime <input checked="" type="checkbox"/> User Cmnd/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) Bug Fix	

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

Summary: Fix bug 1479

Details: Fix bug 1479 in which, under certain circumstances, bad code can be produced for the assignment of a pointer valued builtin reference (such as addr, addrrel, etc.) to a based or nonlocal target. This bug was introduced in the recent PL/I installation.

Ver. 3	MULTICS CHANGE REQUEST	MCR 1750
741022		
TITLE: Add privileged operation to keep segments off the paging device.		STATUS   DATE
AUTHOR: VanVleck		Written   03/28/76
		Status   <del>04/06/76</del>
		Expires   09/28/76
Planned for System: MR 4.0		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: (X) PL/I ( ) ALM ( ) 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#) an61		( ) Runtime
Info Segs		( ) User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Permit system administrators to call

```
phcs_$set_tpd (dn, en, sw, 0, ec)
```

to make a segment "transparent to the paging device." This switch is a per-segment attribute stored in the branch. The standard dumper backs it up. If ON, the segment will never have any pages moved to the paging device. The fourth argument above is for later use if a "force" switch which can flush an active segment off the paging device is required; in the first implementation this argument must be zero.

REASONS:

Experience with large subsystems (ORAS at GM, in particular) suggests that some segments are moved to the PD and use up many PD records but are accessed infrequently. This change allows the installation management to advise the system's memory management programs about the expected use of certain segments.

IMPLICATIONS:

This change should improve the PD hit ratio at GM; it is currently much lower than MIT's. The interface is put into phcs\_ because casual use of it might not be appropriate.



## DETAILED PROPOSAL:

A new ASTE bit, "always\_gtpd," is defined. It is set from the branch at seg\_fault time.

The current vtoce.gtpd switch is abandoned, and a new switch, entry.gtpd, is defined. Gate entries are provided to backup and reload it.

Ver. 3	MULTICS CHANGE REQUEST	MCR 1751
741022		
TITLE: Charging tools for Directory Quota		STATUS   DATE
AUTHOR: VanVleck		Written   03/29/76
		Status   04/06/76
		Expires   09/29/76
Planned for System: 4.0		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: ( <input checked="" type="checkbox"/> ) PL/I ( ) ALM ( ) other-see below		( ) BOS
Performance: ( ) better ( <input checked="" type="checkbox"/> ) same ( ) worse		( ) Salvager
<u>DOCUMENTATION CHANGES (specify one or more)</u>		( ) Ring Zero
MPM (vol,sect)	MPAM (sect)	( ) Ring One
MOSN (sect)	MSAM (sect)	( <input checked="" type="checkbox"/> ) SysDaemon/Admin
PLMs (AN#) an66		( ) Runtime
Info Segs		( ) User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY: Modify system administration tools so that the system administrator can charge for directory pages.

REASONS: This change avoids a user-visible decrease in storage charge.

IMPLICATIONS: Further improvements ought to be made here so that the installation can set different charges for segment pages and directory pages, since they represent resources of different scarcity. Such a change is being investigated.

Ver. 3	MULTICS CHANGE REQUEST	MCR 1752
741022		
TITLE: Performance Improvements for interim dumper		STATUS   DATE
AUTHOR: VanVleck		Written   03/25/76
		Status   A 04/06/76
		Expires   09/25/76
Planned for System: MR 4.0		
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		( ) 80S
		( ) Salvager
DOCUMENTATION CHANGES (specify one or more)		( ) 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:

Add two new privileged operations to the supervisor,

```
phcs_$begin_dumping
phcs_$end_dumping
```

and modify the dumper to call them.

If a segment is already in use by the dumper or is used by any other process these calls have no effect. But for segments which are only activated by the dumper for the purpose of dumping, begin\_dumping will prevent the segment from being put onto the paging device; and end\_dumping will cause the rapid deactivation of the segment.

REASONS:

Some of the pressure on the AST lock can be alleviated by preventing the dumper from flushing the paging device and the AST.

IMPLICATIONS:

We estimate that keeping segments dumped by the dumper off the paging device should gain about 3-600 pages of paging device. The forced deactivation should decrease segment faults by about 7-10%, which in turn should decrease RMS traffic.

**DETAILED PROPOSAL:**

MCR-1752

Bits in the ASTE and KSTE are required to show that the segment is activated by the dumper. The ASTE bit is unset if any non-dumper process uses the segment. If the bit is on the segment is kept off the paging device and the end\_dumping call causes deactivation.

TITLE: Fix bug in syserr_log_man_		STATUS	DATE
AUTHOR: Lee Scheffler		Written	760325
		Status	A 04/06/76
		Expires	10/06/76
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL		Category (Check One)	
-Planned for System MR 4.0		Lib. Maint. Tools	
-Fixes Bug Number(s) unreported		Sys. Anal. Tools	
-Documented in MTB		Sys. Prog. Tools	
-User/Operations-visible		355	
Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		BOS	
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		Salvager	
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same		Ring Zero	
<input type="checkbox"/> Worse		Ring One	
-Replaces MCR		x SysDaemon/Admin.	
		Runtime	
		User Cmnd/Subr.	
		MPM (Vol, Sect.)	
		PLMS (AN #) AN65	
		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 syserr\_log\_man\_ to open ↗scl↗perm\_syserr\_log for update (instead of input) as the first step in initialization and log copying.

Reasons: vfile\_ openings for update fix inconsistencies in a file (such as lock left locked due to a crash). Openings for input do not.

Implications: Syserr logging will be more reliable.

Multics Change Request

TITLE: Change operation of nd_handler_		STATUS	DATE
AUTHOR: Steve Herbst		Written	3/24/76
JWG		Status	A 04/06/76
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL		Expires	10/06/76
-Planned for System MR		DOCUMENTATION CHANGES	
-Fixes Bug Number(s)		Document	Specify One or More
-Documented in MTB		MPM (Vol, Sect.)	
-User/Operations-visible		PLMS (AN #)	AN67
Interface change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no		MOSN (Sect.)	
-Incompatible change? <input type="checkbox"/> yes <input type="checkbox"/> no		MPAM (Sect.)	
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same		MSAM (Sect.)	
<input type="checkbox"/> Worse		Info Segs	
-Replaces MCR		Other (Name)	
		None (Reason)	
Objections/Comments:			

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

Summary:

- Change nd\_handler\_:
- To query "Do you want to delete the old directory foo?" as it does for links and segments, instead of saying "Directory foo not deleted."
  - To print the full pathname of the old duplicate entry in its query.

Implication: Number 1 is an incompatible change because commands running with a "yes" handler will delete directories that they did not delete before.

Multics Change Request

TITLE: Fix bug in add_search_rules		STATUS	DATE
AUTHOR: Steve Herbst		Written	3/24/76
		Status	A 04/06/76
		Expires	10/06/76
<input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL		Category (Check One)	
-Planned for System MR		<input type="checkbox"/> Lib. Maint. Tools	
-Fixes Bug Number(s)		<input type="checkbox"/> Sys. Anal. Tools	
-Documented in MTB		<input type="checkbox"/> Sys. Prog. Tools	
-User/Operations-visible		<input type="checkbox"/> 355	
Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		<input type="checkbox"/> BOS	
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		<input type="checkbox"/> Salvager	
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same		<input type="checkbox"/> Ring Zero	
<input type="checkbox"/> Worse		<input type="checkbox"/> Ring One	
-Replaces MCR		<input type="checkbox"/> SysDaemon/Admin.	
		<input type="checkbox"/> Runtime	
		<input checked="" type="checkbox"/> User Cmnd/Subr.	
Objections/Comments:		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 ok	

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

Summary:      Fix bug in add\_search\_rules that does not allow a directory to be added to the search rules if the user does not have status on its parent.

Detailed Proposal:      Suppress unicueness check by uid in this case.

TITLE: Implement && feature in exec_com		STATUS	DATE	
AUTHOR: Steve Herbst THVV		Written	3/29/76	
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> AIM <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)		Expires	
	<input type="checkbox"/> Lib. Maint. Tools	DOCUMENTATION CHANGES		
	<input type="checkbox"/> Sys. Anal. Tools	Document		Specify One or More
	<input type="checkbox"/> Sys. Prog. Tools	MPM (Vol, Sect.)		AG92
	<input type="checkbox"/> 355	PLMS (AN #)		
	<input type="checkbox"/> BOS	MOSN (Sect.)		
	<input type="checkbox"/> Salvager	MPAM (Sect.)		
	<input type="checkbox"/> Ring Zero	MSAM (Sect.)		
	<input type="checkbox"/> Ring One	Info Segs		
	<input type="checkbox"/> SysDaemon/Admin.	Other (Name)		
<input type="checkbox"/> Runtime	None (Reason)			
<input checked="" type="checkbox"/> User Cmmd/Subr.				
Objections/Comments:				

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

SUMMARY: Add mechanism to replace the string && in exec\_com's with a single &, as done currently by the do command.

REASON: Currently there is no way to specify the literal string "&l" in an exec\_com, useful for calling do from within the exec\_com.



### Argument Substitution

Strings of the form `&i` in the `exec_com` segment are interpreted as dummy arguments and are replaced by the corresponding argument to the `exec_com` command. For instance, `optional_arg1` is substituted for the string `&1` and `optional_arg10` is substituted for `&10`.

The character `&` should be followed by a number, `i`, or by the string `ec_name`. If no corresponding `optional_arg` is provided, `&i` is replaced by the null string. The string `&ec_name` is replaced by the entryname portion of the `exec_com` pathname without the `ec` suffix. The string `&0` is replaced by the pathname argument to `exec_com`, just as it was given to the command.

*Finally, the string `&` is replaced by a single `&`.*

Argument substitution can take place in command lines, input lines or in control statements, since the replacement of arguments is done before the check for a control statement.

### Control Statements

Control statements permit more variety and control in the execution of the command sequences. Currently the control statements are: `&label`, `&goto`, `&attach`, `&detach`, `&input_line`, `&command_line`, `&ready`, `&print`, `&quit`, `&if`, `&then`, and `&else`.

Control statements generally must start at the beginning of a line with no leading blanks. Exceptions to this rule are the `&then` and `&else` statements, that can appear elsewhere. Also when a control statement is part of a `THEN_CLAUSE` or an `ELSE_CLAUSE`, it does not have to start at the beginning of a line.

#### 1. `&label` and `&goto`

These statements permit the transfer of control within an `exec_com` segment.

`&label` location identifies the place to which a `goto` control statement transfers control. location is any string of 32 or fewer characters identifying the label.

`&goto` location causes control to be transferred to the place in the `exec_com` segment specified by the label location. Execution then continues at the line immediately following the label.

Multics Change Request

TITLE: Fix bug in cancel\_abs\_request  
AUTHOR: Steve Herbst JWG

STATUS	DATE
Written	3/23/76
Status	A 04/06/76
Expires	10/06/76

-Coded in:  XPL/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 Cmmnd/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: Fix bug in cancel\_abs\_request causing it to refuse to delete a request if the parent directory of the absin segment has been deleted.

TITLE: Fix bug in index_set		STATUS	DATE
AUTHOR: Steve Herbst		JWG	
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL		Written	3/23/76
-Planned for System MR		Status	A 09/06/76
-Fixes Bug Number(s)		Expires	10/06/76
-Documented in MTB		DOCUMENTATION CHANGES	
-User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		Document	Specify One or More
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		MPM (Vol, Sect.)	
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse		PLMS (AN #)	
-Replaces MCR		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: Fix bug in the index\_set active function that prevents it from working as a command.

TITLE: move get_temp_segments_ to stand alone		STATUS	DATE	
AUTHOR: in >sss Susan Barr JWG		Written	3/30/76	
-Coded in: <input type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR <u>3.1</u> -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	# 04/06/76	
		Lib. Maint. Tools	Expires	10/06/76
		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.)		
	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.

Reason:

bound\_fast\_ is currently installed in >sss. Since FAST will be unbundled, bound\_fast\_ should be moved to >unb. It currently contains one procedure, get\_temp\_segments\_ that should stay in >sss.

Proposal:

- 1) Have get\_temp\_segments\_ stand alone in >sss with the additional names: list\_temp\_segments\_ and release\_temp\_segments\_
- 2) Delete >sss > bound\_fast\_

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1760
TITLE: Install BOSTAP BOS Command		STATUS: Written
AUTHOR: Bernard Greenberg		DATE: 03/29/76
Planned for System: 4.0		Status: R 04/02/76
Fixes Bug Number(s): not applicable		Expires: 09/29/76
Documented in MTB: not applicable		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 checked="" 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 type="checkbox"/> User Command/Subr
Incompatible Change: no		
User/Operations-visible Interface Change: no		
Coded in: <input type="checkbox"/> PL/I <input checked="" type="checkbox"/> ALM <input type="checkbox"/> other-see below		
Performance: <input type="checkbox"/> better <input checked="" type="checkbox"/> same <input type="checkbox"/> worse		
DOCUMENTATION CHANGES (specify one or more)		
MPM (vol,sect)	MPAM (sect)	
MOSN (sect)	MSAM (sect)	
PLMs (AN#)		
Info Segs		
Other	MOH Sec 4	
OBJECTIONS/COMMENTS:		

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

SUMMARY: Install BOSTAP Command in BOS. This command gives the BOS environment the ability to produce a new BOS tape, which incorporates all changes to the BOS environment which have been made since BOS was loaded.

REASONS: CONFIG deck and runcom maintenance are very difficult at sites with no card readers. Even at sites with card readers, the use of punched cards is messy and error prone. The BOSTAP command allows BOS tapes, which now contain runcoms, CONFIG decks, and firmware, to be updated and corrected from the BOS environment. Combined with LOADDM and the recently approved excerpt\_mst, this is a very powerful tool for BOS tape creation and maintenance.

IMPLICATIONS: Greater ease in maintaining BOS variable data (runcoms and CONFIG decks) at sites. On the other hand, the ability to produce BOS tapes of no traceable origin, with no source information, is introduced. The use of this tool needs to be administratively controlled to prevent chaos. As with all powerful things, its misuse is a danger.

DETAILED PROPOSAL: See attached documentation.

## BOSTAP -control args-

The BOSTAP command generates a new BOS tape, which can be bootloaded or read by LOADDM as any other BOS tape. This tape contains all commands, runcoms, and CONFIG decks which have been loaded into the current BOS environment. All editing changes of SAVE'd CONFIG decks will appear on the new tape. All new versions of commands, etc., which may have been read in via LOADDM, or modified via PATCH, will appear that way on the new tape. If the RUNCOM control argument is given, only runcoms and CONFIG decks are written on the tape. A summary of what is being written and its length in words is written on the operator's console. If the BRIEF control argument is given, this summary is not printed.

## Usage:

BOSTAP n -BRIEF- -RUNCOM-

n specifies a tape drive. If n is not supplied, drive 1 is assumed.

BRIEF suppresses the tape listing, typed on the operator's console by default.

RUNCOM causes only runcoms and CONFIG decks to be written.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1761
TITLE: Change I/O interfacers to usurp disk channels dynamically		STATUS
AUTHOR: Bernard Greenberg		DATE
	NIM	Written 03/29/76
Planned for System: MR 4.0		Status <b>104/06/76</b>
Fixes Bug Number(s): not applicable		Expires 09/29/76
Documented in MTB: not applicable		
Incompatible Change: no		CATEGORY (check one)
User/Operations-visible Interface Change: no		( ) Lib. Maint. Tools
Coded in: (X)PL/I ( )ALM ( )other-see below		( ) Sys. Anal. Tools
Performance: (X)better ( )same ( )worse		( ) Sys. Prog. Tools
DOCUMENTATION CHANGES (specify one or more)		( ) 355
MPM (vol,sect)	MPAM (sect)	( ) BOS
MOSN (sect)	MSAM (sect)	( ) Salvager
PLMs (AN#) 65		(X) Ring Zero
Info Segs		( ) Ring One
Other		( ) SysDaemon/Admin
		( ) Runtime
		( ) User Command/Subr
OBJECTIONS/COMMENTS:		

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

SUMMARY: The I/O interfacers currently usurps disk channels from page control at system initialization time for the purpose of removable "I/O" disk packs. This is done only if user-removable packs are specified as being available on a configuration card. Change the I/O interfacers to usurp these channels for only that amount of time that "I/O" disks are actually attached.

REASONS: The new Storage System needs to perform I/O operations on Storage System packs outside of page control, such as unloading demountable packs. In order to use the I/O interfacers for this, disk channels usurped for "I/O" use must be available whether or not user-removable "I/O" packs are supported at a site. Rather than usurp these channels at initialization time, so that page control may never use them, the proposal is to usurp them only when "I/O" packs are actually attached (or the Storage System is treating a Storage System pack as such) so that page control (and VTOC management) can benefit from all the channels they can get.

IMPLICATIONS: Improved performance at sites with "I/O" disks. Improved operator interface and subsequent reliability due to the Operating System being able to manage demounting by itself.

DETAILED PROPOSAL: Change the I/O interfacers initialization procedures (rcp\_init\_disk\_sharing) not to usurp disk channels. Change the I/O interfacers assignment procedures to usurp disk channels from page control at the time a disk device is attached, if no channels have already been usurped for that subsystem. Hand the channels back at such time that no more IOI attachments to the disk subsystem are outstanding.

Multics Change Request

TITLE: Fix bug in 7punch card DIM		STATUS	DATE
AUTHOR: Noel I. Morris		Written	3/26/76
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL		Status	A 04/06/76
-Planned for System MR 4.0		Expires	10/06/76
-Fixes Bug Number(s) _____		DOCUMENTATION CHANGES	
-Documented in MFB _____		Document	Specify One or More
-User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		MPM (Vol, Sect.)	
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		PLMS (AN #)	
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse		MOSN (Sect.)	
-Replaces MCR _____		MPAM (Sect.)	
		MSAM (Sect.)	
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

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

Reasons:

A bug in viipunch\_dim causes an infinite loop when certain data is punched.

Proposal:

Repair the bug.



TITLE: Change configuration card for disk subsystems		STATUS	DATE
AUTHOR: Noel I. Morris		Written	3/26/76
-Coded in: <input checked="" type="checkbox"/> PL/I <input checked="" type="checkbox"/> AIM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 4.0 -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no -Incompatible change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 04/06/76
		Expires	10/06/76
Category (Check One)		DOCUMENTATION CHANGES	
<input type="checkbox"/> Lib. Maint. Tools		Document Specify One or More	
<input type="checkbox"/> Sys. Anal. Tools		MPM (Vol, Sect.)	
<input type="checkbox"/> Sys. Prog. Tools		PLMS (AN #)	
<input type="checkbox"/> 355		MOSN (Sect.)	
<input checked="" type="checkbox"/> BOS		MPAM (Sect.)	
<input type="checkbox"/> Salvager		MSAM (Sect.)	
<input checked="" type="checkbox"/> Ring Zero		Info Segs	
<input type="checkbox"/> Ring One		Other (Name) <b>MOH</b>	
<input type="checkbox"/> SysDaemon/Admin.		None (Reason)	
<input type="checkbox"/> Runtime			
<input type="checkbox"/> User Cmmnd/Subr.			
Objections/Comments:			

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

Summary:  
 The config card currently used to describe a disk subsystem is of the following format:  
 DISK DSKn  
 n is a letter designating the name of the disk subsystem. A new card is proposed:  
 PRPH DSKn  
 This card, except for its name, is to be identical to the currently used DISK card. A new card, the UDSK card, will be used in the future to describe parameters relating to the non-hardcore usage of a disk subsystem. This will be described in another MCR.

Reasons:  
 This change provides for a better uniformity of config cards and will allow an easier implementation of I/O disks in the future.

Implications:  
 This is an incompatible change. It should be done in four steps:

1. Install new config cards in the BOS config deck. Deck will then contain DISK DSKn cards and corresponding PRPH DSKn cards.
- 2 & 3. Install new BOS and new Multics (in either order).
4. Remove obsolete DISK DSKn cards.

Note: The format of the PRPH card for disk subsystems is slightly different from the format of other PRPH cards in that the nchan and model are interchanged.

TITLE: Make direct calls to process overseer work correctly in all cases.  
AUTHOR: I. Casey SHW  
STATUS: Written DATE: March 25, 1976

-Coded in <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-explain in DETAILED PROPOSAL -Planned for System MR 4.0 -Fixes Bug Number(s) 101, 8110 -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 <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 type="checkbox"/> Ring One <input checked="" type="checkbox"/> SysDaemon/Admin. <input type="checkbox"/> Runtime <input type="checkbox"/> User Cmmd/Subr.	Expires 10/06/76 DOCUMENTATION CHANGES Document Specify One or More MPM (Vol, Sect.) Commands PLMS (AN #) MOSN (Sect.) MPAM (Sect.) MSAM (Sect.)
	Objections/Comments:	

Info Segs  
Other (Name)  
None (Reason) no user interface change

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

Summary: Fix interface problem between answering service and ring zero, so that direct calls to the process overseer will work whether specified on the login line or in the PDT. Also, accept relative process overseer pathnames.

Reasons: Direct calls specified in the PDT do not work now, because init\_proc does not do the right thing.

Implications: Bug will be fixed, and typing of pathnames will be more convenient.

Detailed Proposal:

- This fix must be installed in three stages:
- 1) install init\_proc that always checks the switch, pit.dont\_call\_init\_admin, and also looks for, and discards the string ";direct" if it is in the process overseer pathname.
  - 2) install an answering service that checks for ",direct" and upon finding it, turns on the above switch and eliminates that string from the pathname
  - 3) remove the check for ",direct" from init\_proc.

Step 1 fixes the bug; steps 2 and 3 clean up the code.

If the argument to the -po control arg contains either a ">" or a "<" the argument is treated as a (possibly relative) pathname. Otherwise, it is treated as a reference name.

TITLE: Meter RWS overhead at deactivation		STATUS	DATE
AUTHOR: R. Mullen		TVV	
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL		Written	3/31/76
-Planned for System MR 4.0		Status	A 04/06/76
-Fixes Bug Number(s)		Expires	10/06/76
-Documented in MTB		DOCUMENTATION CHANGES	
-User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		Document	Specify One or More
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		MPM (Vol, Sect.)	
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse		PLMS (AN #)	
-Replaces MCR		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:

In pc\_cleanup, called at deactivation time, meter the number of RWS's generated as closely as possible, and the amount of real time required.

REASONS:

It is suspected that the fact that the AST is locked while the RWS's are completing leads to a significant fraction of AST lock contention.

IMPLICATIONS:

Currently the AST is locked about 40% of the time on a loaded system. If RWSing accounts for more than one-quarter of this time, then an attempt should be made to avoid deactivating segments with pages on the Bulk Store.

The command fsm will be modified to print this out.

TITLE: Fix bug in init_proc	SHW	STATUS	DATE
AUTHOR: T. Casey		Written	3/31/76

-Coded in:  PL/I  ALM  other-  
explain in DETAILED PROPOSAL  
-Planned for System MR 4.0  
-Fixes Bug Number(s) unreported  
-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 checked="" type="checkbox"/>	Ring Zero
<input type="checkbox"/>	Ring One
<input type="checkbox"/>	SysDaemon/Admin.
<input type="checkbox"/>	Runtime
<input type="checkbox"/>	User Cmd/Subr.

Status A 04/06/76  
Expires 10/06/76

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) <u>no interface charge</u>

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

SUMMARY: Fix bug which causes init\_proc to call the wrong initial procedure in some cases.

TITLE: Install if command / active function		STATUS	DATE
AUTHOR: Steve Herbst		Written	3/29/76
		Status	A 04/13/76
		Expires	10/13/76
-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 type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		JWG 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 Cmnd/Subr.	
Objections/Comments:		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)	

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

SUMMARY: Install the if command/active function in the standard system. Un-document the current keywords (documented now in Tools PLM) in favor of the new keywords "true" and "false", as returned by active functions:

<u>Current keyword</u>	<u>Active function replacement</u>
arg x	{exists argument x }
noarg x	{not [exists argument x ]}
is path	{exists branch path }
isnt path	{not [exists branch path ]}
isdir path	{exists directory path }
islink path	{exists link path }
isfile path	{exists file path }
isnzf path	{if [exists file path ] -then [greater [status bc path] 0 ] -else false }
day xxx	{or [equal xxx [day ]] [equal xxx [day_name ]] [equal xxx [substr [day_name] 1 3 ]]} }
argeq xxx yyy	{equal xxx yyy }
ask query_string	{query query_string }

REASON: Increased generality.

IMPLICATION: The replacement for isnzf above uses if as an active function and also uses the status active function, described in MCR 1768.

Name: if

This command provides conditional execution of a command line.

Usage:

```
if expression -then c1 --else c2-
```

where:

1. expression is "true" or "false". Usually, expression is an active string that the command processor evaluates to either "true" or "false".
2. c1 is a command line to be executed if expression is "true". If the command line contains blanks, it must be enclosed in quotes.
3. c2 is an optional command line to be executed if expression is "false". If the command line contains blanks, it must be enclosed in quotes.

Note:

If -else and c2 are omitted, no action is taken if expression is "false". If expression is neither "true" nor "false", no action is taken.

Example:

The following command line finds a segment foo under the directory dir:

```
find foo dir
```

where find is an abbreviation for:

```
do "ws &2 ""if [exists segment &l] -then pwd"" -bf"
```

Name: if

This active function returns one of several values depending on the value of a boolean expression.

Usage:

if expression -then r1 --else r2-

where:

1. expression evaluates to "true" or "false". Usually, expression is an active string.
2. r1 is the value to be returned if expression is "true".
3. r2 is an optional value to be returned if expression is "false".

Note:

If no return value is appropriate, the null string "" is returned.

TITLE: Install Emergency Fix to PL/I Compiler		STATUS	DATE
AUTHOR: R. A. Barnes		Written	4/7/76
<input checked="" type="checkbox"/> Coded in PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 4.0 -Fixes Bug Number(s) 1481 -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 04/13/76
		Expires	10/13/76
		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 type="checkbox"/> Ring Zero <input type="checkbox"/> Ring One <input type="checkbox"/> SysDaemon/Admin. <input type="checkbox"/> Runtime <input checked="" type="checkbox"/> User Cmnd/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)	Bug Fix

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

SUMMARY: Install fix to PL/I bug 1481.

DETAILED PROPOSAL:

In bug 1481 storage allocation can fail for a quick procedure that is owned by (uses the stack frame of) a non-ancestor block that follows it in the program. This bug was introduced in the 4.0 compiler.



Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1770
TITLE: Log MOS memory EDAC errors		STATUS   DATE
AUTHOR: Larry Johnson	NIM	Written   04/02/76
		Status   <del>04/13/76</del>
		Expires   10/02/76
Planned for System: MK 4.0		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: (X)PL/I (X)ALM ( )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                      Hardware diagnostic aids		
OBJECTIONS/COMMENTS:		

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

Summary

Periodically, the **maintenance** register of MOS memories should be interrogated to see if errors have occurred. If so, they will be logged in the syserr log.

Reasons

The information will be required for HEALS.

Detailed Proposal

The traffic controller will be modified to periodically call a new module that will check for, and log, MOS memory errors. A **privileged gate entry** will be provided that will do the same thing, and return the **maintenance** register contents. The interval between traffic controller calls will be self-adjusting, becoming more frequent if errors are found, and less frequent if they are not. A highly **privileged gate entry** will be provided to set the intervals, or turn off this feature entirely.

Implications

Until MR4.1, only the first memory on each SCU can be checked. A better way of implementing this would be a HEALS hproc. This will be investigated for MR4.1

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR <u>1771</u>
TITLE: Improve I/O error logging		STATUS: <u>written</u> DATE: <u>04/02/76</u>
AUTHOR: Larry Johnson NIM		Status: <u>AD913/76</u>
Expires: <u>10/02/76</u>		
Planned for System: MR 4.0		CATEGORY (check one)
Fixes Bug Number(s): not applicable		( ) Lib. Maint. Tools
Documented in MTB: not applicable		( ) Sys. Anal. Tools
Incompatible Change: yes		( ) Sys. Prog. Tools
User/Operations-visible Interface Change: no		( ) 355
Coded in: (X) PL/I ( ) ALM ( ) 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		
None (reason)		
OBJECTIONS/COMMENTS:		

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

### Summary

Make logging of I/O errors for HEALS more complete and uniform.

### Detailed Proposal

1. Log more information. The device and channel commands causing the error are required.
2. Provide a replication count for duplicate errors. An error often results in a burst of identical messages as the program tries to recover. A count of duplicate messages will save space in the log and reduce syserr overhead.
3. Greater selectivity over what errors are logged. Currently rcp\_ specifies to ioi\_ what major status are to be logged. This is not sufficient. With the next ioi\_ installation, ring 0 will have the device type in the ioi data base. Using this, ioi\_interrupt will examine the major and minor status to determine which status are to be logged.
4. Have the disk DIM and ocdcm write messages in the same format.

### Implications

Item 3 puts knowledge of specific devices back in ring 0, which is probably bad, but no other method yet proposed is as efficient for getting the right ata logged.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR <u>1772</u>
TITLE: Fix bug in trim_syserr_log		STATUS   DATE
AUTHOR: Larry Johnson	NIM	Written   04/02/76
		Status   <u>AD13/76</u>
		Expires   10/02/76
Planned for System: MR 4.0		CATEGORY (check one)
Fixes bug Number(s): not applicable		( ) Lib. Maint. Tools
Documented in MTB: not applicable		( <input checked="" type="checkbox"/> ) Sys. Anal. Tools
Incompatible Change: no		( ) Sys. Prog. Tools
User/Operations-visible Interface Change: no		( ) 355
Coded in: ( <input checked="" type="checkbox"/> ) PL/I ( ) ALM ( ) other-see below		( ) BOS
Performance: ( ) better ( <input checked="" type="checkbox"/> ) same ( ) worse		( ) 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)		
OBJECTIONS/COMMENTS:		

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

Summary

The trim\_syserr\_log command deletes old syserr messages from the permanent syserr log. All messages older than a specified number of days are deleted. The program, however, will break the log at an arbitrary point and may leave the first message in the log as an "=" message. It should not do this.

Reasons

No program will ever know what the message is.

Detailed proposal

Have trim\_syserr\_log not leave an "=" message as the first message in the log.

Implications

trim\_syserr\_log may delete slightly fewer messages than expected, but it is unlikely that the discrepancy will be more than a few minutes.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR <u>1773</u>
TITLE: Fix bug in daily_syserr_process		STATUS: <u>Written</u>
AUTHOR: Larry Johnson		LATE: <u>04/02/76</u>
	NIM	Status: <u>AC4/13/76</u>
Planned for System: MK 4.0		Expires: <u>10/02/76</u>
Fixes Bug Number(s): not applicable		CATEGORY (check one) <input type="checkbox"/> Lib. Maint. Tools <input checked="" 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 type="checkbox"/> User Command/Subr
Documented in MTb: not applicable		
Incompatible Change: no		
User/Operations-visible Interface Change: no		
Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-see below		
Performance: <input type="checkbox"/> better <input checked="" type="checkbox"/> same <input type="checkbox"/> worse		
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

If the first message daily\_syserr\_process encounters is an "=" message, it does not know the true text of the message and all message selection options work improperly.

Detailed Proposal

If daily\_syserr\_process should find an "=" as the first message it positions to, it will read backwards through the log until a non "=" message is found, so that the text of the first message is known. It will then re-position back to the first message, and continue normally. The print\_syserr\_log program already does this.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1774
TITLE: Fix locking bug in syserr_logger		STATUS
AUTHOR: Larry Johnson		DATE
	NIM	Written 03/30/76
Planned for System: MR 4.0		Status <b>A 04/18/76</b>
Fixes Bug Number(s): not applicable		Expires 09/30/76
Documented in MTB: not applicable		CATEGORY (check one)
Incompatible Change: no		( ) Lib. Maint. Tools
User/Operations-visible Interface Change: no		( ) Sys. Anal. Tools
Coded in: ( <input checked="" type="checkbox"/> ) PL/I ( ) ALM ( ) other-see below		( ) Sys. Prog. Tools
Performance: ( ) better ( <input checked="" type="checkbox"/> ) same ( ) worse		( ) 355
DOCUMENTATION CHANGES (specify one or more)		( ) BOS
MPM (vol,sect)	MPAM (sect)	( ) Salvager
MOSN (sect)	MSAM (sect)	( <input checked="" type="checkbox"/> ) Ring Zero
PLMs (AN#)		( ) Ring One
Info Segs		( ) SysDaemon/Admin
Other		( ) Runtime
None (reason)		( ) User Command/Subr
OBJECTIONS/COMMENTS:		

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

### Summary

syserr\_logger can encounter a mylock error if the initializer process attempts to handle a syserr\_log interrupt while the answering service has the log locked doing a log copy operation.

### Detailed Proposal

Have syserr\_logger check for a mylock error, and ignore the interrupt. Many interrupts are lost anyway, so losing one more does not create a problem.

### Implications

This is only an interim fix. It will not be required once syserr\_log interrupts are replaced by an hproc to perform the function.

TITLE: Add ordered field sort to sort_seg		STATUS	DATE
AUTHOR: Mike Grady		Written	4/2/76
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> AIM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 4.0 -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 checked="" type="checkbox"/> Better <input type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 09/13/76
		Expires	10/13/76
		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 type="checkbox"/> Ring Zero <input type="checkbox"/> Ring One <input type="checkbox"/> SysDaemon/Admin. <input type="checkbox"/> Runtime <input checked="" type="checkbox"/> User Cmmnd/Subr.		Document	Specify One or More
Objections/Comments:		MPM (Vol, Sect.)	Commands
		PLMS (AN #)	
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	
		Info Segs	
		Other (Name)	
		None (Reason)	

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

Summary: Add the ability to specify independent sort order (i.e., ascending or descending) for each field in the sort.

Also add a faster sort to sort\_items\_indirect\_

Reasons: These features and improvements were required for the USGS benchmark and have been used by others since then. It is an obvious extension to the sort\_seg routine.

Implications: The improved sort algorithm is not going to be put into sort\_items\_, since its low usage does not seem to warrant the additional work required.

Detailed proposal: See the attached MPM documentation to be added to sort\_seg

MPM Commands - sort\_seg

-ordered\_field field\_spec  
-ofl field\_spec

specifies a sort with independent ordering of the fields, i.e., mixed ascending and descending fields. Use of this control argument is incompatible with either the -ascending or -descending control arguments. The field specifications are as follows:

S<sub>1</sub> L<sub>1</sub> O<sub>1</sub> S<sub>2</sub> L<sub>2</sub> O<sub>2</sub> .... S<sub>n</sub> L<sub>n</sub> O<sub>n</sub>

where S<sub>i</sub> and L<sub>i</sub> are as in -field above, and O<sub>i</sub> can be either "asc" to indicate an ascending field or "dsc" to indicate a descending field. Note that the arguments to -ofl always come in triples.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR <u>1776</u>
TITLE: Log MPC Statistics in syserr_log		STATUS
AUTHOR: Larry Jonnson		DATE
	NIM	Written 04/04/76
Planned for System: MR 4.0		Status <b>A 04/13/76</b>
Fixes Bug Number(s): not applicable		Expires 10/04/76
Documented in MTB: not applicable		
Incompatible Change: no		CATEGORY (check one)
User/Operations-visible Interface Change: no		( ) Lib. Maint. Tools
Coded in: (X)PL/I ( )ALM ( )other-see below		(X) Sys. Anal. Tools
Performance: ( )better (X)same ( )worse		( ) Sys. Prog. Tools
DOCUMENTATION CHANGES (specify one or more)		( ) 355
MPM (vol,sect)	MPAM (sect)	( ) BOS
MOSN (sect)	MSAM (sect)	( ) Salvager
PLMs (AN#)		( ) Ring Zero
Info Segs		( ) Ring One
Other		( ) SysDaemon/Admin
None (reason)		( ) Runtime
		( ) User Command/Subr
OBJECTIONS/COMMENTS:		

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

summary

The answering service will periodically scan MPCs connected to the system and record statistics from them in the syserr log.

reasons

This information is useful to HEALS reporting.

Detailed Proposal

A new parameter will be added to installation\_parms, mpc\_scan\_time (mpc\_), which will control how often MPCs are to be scanned. The default of 0 implies never. A subroutine interface will be added to the dump\_mpc command that can be called by the answering service to read statistics. A new entry will be added to initializer\_gate\_ (\$syserr) to allow the answering service to log the statistics in the syserr log.



Ver. 3 741022	MULTICS CHANGE REQUEST	MCR <u>1777</u>
TITLE: Upgrade form_link_info_ and interpret_link_ for *system links.		STATUS
AUTHOR: Steve Webber		DATE
Planned for System: MR 4.0		Written
Fixes Bug Number(s): not applicable		Status
Documented in MTB: not applicable		Expires
Incompatible Change: no		04/05/76
User/Operations-visible Interface Change: yes		<del>04/13/76</del>
Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-see below		10/05/76
Performance: <input type="checkbox"/> better <input checked="" type="checkbox"/> same <input type="checkbox"/> worse		CATEGORY (check one)
DOCUMENTATION CHANGES (specify one or more)		<input type="checkbox"/> Lib. Maint. Tools
MPM (vol,sect)	MPAM (sect)	<input type="checkbox"/> Sys. Anal. Tools
MOSN (sect)	MSAM (sect)	<input type="checkbox"/> Sys. Prog. Tools
PLMs (AN#)		<input type="checkbox"/> 355
Info Segs		<input type="checkbox"/> BOS
Other		<input type="checkbox"/> Salvager
None (reason) no change		<input type="checkbox"/> Ring Zero
OBJECTIONS/COMMENTS:		<input type="checkbox"/> Ring One
		<input type="checkbox"/> SysDaemon/Admin
		<input type="checkbox"/> Runtime
		<input checked="" type="checkbox"/> User Command/Subr

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

SUMMARY:

Upgrade form\_link\_info\_ and interpret\_link\_ for \*system links. These subroutines should be changed to decode \*system links so that print\_link\_info will reflect them.

REASONS:

New feature (\*system links) will be better supported.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1778
TITLE: Fix bug in link_unsnap_ which does not unsnap links into <b>separate</b> static.		STATUS   DATE
AUTHOR: Steve Webber		Written   04/05/76
Planned for System: MR 4.0		Status   <del>04/07/76</del>
Fixes Bug Number(s): not applicable		Expires   10/05/76
Documented in MTB: not applicable		CATEGORY (check one)
Incompatible Change: no		( ) Lib. Maint. Tools
User/Operations-visible Interface Change: no		( ) Sys. Anal. Tools
Coded in: ( <input checked="" type="checkbox"/> ) PL/I ( ) ALM ( ) other-see below		( ) Sys. Prog. Tools
Performance: ( ) better ( ) same ( <input checked="" type="checkbox"/> ) worse		( ) 355
DOCUMENTATION CHANGES (specify one or more)		( ) BOS
MPM (vol,sect)	MPAM (sect)	( ) Salvager
MOSN (sect)	MSAM (sect)	( ) Ring Zero
PLMs (AN#)		( ) Ring One
Info Segs		( ) SysDaemon/Admin
Other		( ) Runtime
None (reason) no change		( <input checked="" type="checkbox"/> ) User Command/Subr
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Fix a bug in link\_unsnap\_ so that links snapped into the static of a program will be unsnapped when the segment is terminated. This does not currently work if the program has **separate** static.

REASONS:

Bug fix.

DETAILED PROPOSAL:

Each snapped link that is looked at when determining which links to unsnap must also be checked to see if it points into the static for the program being terminated. This is a slight performance loss in the case of **separate** static programs.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1779
TITLE: Add new procedure 'find_parm' to system for reading 'parm' config cards.		STATUS: Written
AUTHOR: Steve Webber		DATE: 04/05/76
Planned for System: MR 4.1		Status: <del>04/13/76</del>
Fixes Bug Number(s): not applicable		Expires: 10/05/76
Documented in MTB: not applicable		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 type="checkbox"/> Ring One <input type="checkbox"/> SysDaemon/Admin <input type="checkbox"/> Runtime <input type="checkbox"/> User Command/Subr
Incompatible Change: yes		
User/Operations-visible Interface Change: yes		
Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-see below		
Performance: <input type="checkbox"/> better <input checked="" type="checkbox"/> same <input type="checkbox"/> worse		
DOCUMENTATION CHANGES (specify one or more)		
MPM (vol,sect)                      MPAM (sect)		
MOSN (sect)                      several                      MSAM (sect)		
PLMs (AN#)		
Info Segs		
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Add a new program, find\_parm, to the system for reading PARM (parameter) configuration cards. The parm cards are intended to replace several other configuration cards including:

utbl  
debg

REASONS:

The use of multiple configuration cards is impinging on the current limit (64) of configuration cards allowed. The new proposal would allow multiple system parameters to be placed on a single card as is currently done with the DEBG card. Since the facility is becoming more general, the DEBG card is renamed PARM.

DETAILED PROPOSAL:

The new routine is called as follows

```
call find_parm (name, p);
```

where name is char (4) aligned and specifies the parameter desired. p is returned pointing to the place in the 'card' where the name was found. This allows several pseudo-cards to be place on one physical 'card'. The routine returns a pointer to the first occurence of the name in any of the PARM cards. There may be several PARM cards in the deck.

The DEBG (and other) cards will have to be updated when the system is released. Due to the current proposed design, care must be taken to make sure that an argument to a parameter on a PARM card not appear to be another parameter.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1780
TITLE: Install several area management utility routines. AUTHOR: Steve Webber		STATUS: Written DATE: 04/05/76 Status: <del>04/13/76</del> Expires: 10/05/76
Planned for System: MR 4.0 Fixes Bug Number(s): not applicable Documented in MTB: not applicable Incompatible Change: no User/Operations-visible Interface Change: yes Coded in: ( <input checked="" type="checkbox"/> )PL/I ( <input type="checkbox"/> )ALM ( <input type="checkbox"/> )other-see below Performance: ( <input type="checkbox"/> )better ( <input checked="" type="checkbox"/> )same ( <input type="checkbox"/> )worse		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 Command/Subr
DOCUMENTATION CHANGES (specify one or more) MPM (vol,sect)                    MPAM (sect) MOSN (sect)                        MSAM (sect) PLMs (AN#)                        AN51 Info Segs Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Install the following area management utility routines. The features of the area management mechanism have already been approved.

```
define_area_      for creating/initializing an area
area_info_       for getting information about an area
release_area_    for cleaning up a "defined" area
area_status      a command for status of areas
```

REASONS:

Useful interfaces for manipulating areas. There is currently no accepted way to enable many of the features of the new area mechanism.

DETAILED PROPOSAL:

Simple implementation of the routines described with the attached documentation.

define\_area\_

define\_area\_

Name: define\_area\_

This subroutine is used to initialize a region of storage as an area and to enable special area management features as well. The region being initialized may or may not consist of an entire segment or may not even be specified at all in which case a segment is acquired (from the free pool of temporary segments) for the caller.

Usage

```
declare define_area_ entry (ptr, fixed bin (35));  
call define_area_ (infop, code);
```

where:

1. infop points to the information structure described below. (Input)
2. code is a returned status code. (Output)

The structure pointed to by infop is the standard area\_info structure used by the various area management routines and is described by the following PL/I declaration:

```
dcl 1 area_info aligned based,  
    2 version fixed bin,  
    2 control,  
        3 extend bit (1) unaligned,  
        3 zero_on_alloc bit (1) unaligned,  
        3 zero_on_free bit (1) unaligned,  
        3 dont_free bit (1) unaligned,  
        3 no_freeing bit (1) unaligned,  
        3 pad bit (31) unaligned,  
    2 owner char (32) unaligned,  
    2 n_components fixed bin,  
    2 size fixed bin (18),  
    2 version_of_area fixed bin,  
    2 areap ptr,  
    2 allocated_blocks fixed bin,  
    2 free_blocks fixed bin,  
    2 allocated_words fixed bin (30),  
    2 free_words fixed bin (30);
```

---

define\_area\_

---

---

define\_area\_

---

where:

1. version is to be filled in by the caller and should be 1.
2. control are control flags for enabling or disabling features of the area management mechanism.
3. extend if ON indicates the area should be set up so that it is extensible. This feature should only be used for perprocess, temporary areas.
4. zero\_on\_alloc instructs the area management mechanism to clear blocks at allocation time.
5. zero\_on\_free instructs the area management mechanism to clear blocks at free time.
6. dont\_free is used during debugging to disable the free mechanism thereby not allowing reuse of storage within the area.
7. no\_freeing instructs the area management mechanism that no free requests will ever be made for the area and that, hence, a faster allocation strategy can be used.
8. owner is the name of the program that is requesting the area be defined. This is used for extensible areas only and is needed by the temporary segment manager.
9. n\_components is the number of components in the area. (This item is not used by the define\_area\_ subroutine).
10. size is the size, in words, of the area being defined.
11. version\_of\_area is 1 for current areas and 0 for old-style areas. (This item is not used by the define\_area\_ subsroutine).
12. areap is a pointer to the region to be initialized as an area. If this pointer is null, a temporary segment is acquired for the area and areap is set as a returned value. If areap is initially nonnull, it must point to a 0 mod 2 address.

define\_area\_

define\_area\_

13. `allocated_blocks` is the number of allocated blocks in the entire area. (This item is not used by the `define_area_` subroutine.)
14. `free_blocks` is the number of free blocks in the entire area (not counting virgin storage). (This item is not used by the `define_area_` subroutine.)
15. `allocated_words` is the number of allocated words in the entire area. (This item is not used by the `define_area_` subroutine.)
16. `free_words` is the number of free words in the entire area. (This item is not used by the `define_area_` subroutine.)

The above structure is defined by the system include file, `area_info.incl.pl1`.

#### Notes

See the writeup of `release_area_` in this manual for a description of how to free up segments acquired via this interface.



release\_area\_

release\_area\_

Name: release\_area\_

This subroutine is used to clean up an area after it is no longer needed. If the area is a segment acquired via define\_area\_ then the segment is released to the free pool via the temporary segment manager. If the area was not acquired (only initialized) via define\_area\_ then the area itself is reinitialized to the empty state. In any case, segments acquired to extend the area are released to the free pool of temporary segments.

usage

```
declare release_area_ entry (ptr);  
call release_area_ (areap);
```

where:

1. areap points to the area to be released. (Input)

area\_info\_

area\_info\_

Name: area\_info\_

This subroutine returns information about an area.

Usage

```
declare area_info_ entry (ptr, fixed bin (35));  
call area_info_ (infop, code);
```

where:

1. infop points to the structure described below.  
(Input)
2. code is a returned status code. (Output)

Notes

The structure pointed to by infop is described by the following PL/I declaration:

```
dcl 1 area_info aligned based,  
2 version fixed bin,  
2 control,  
3 extend bit (1) unaligned,  
3 zero_on_alloc bit (1) unaligned,  
3 zero_on_free bit (1) unaligned,  
3 dont_free bit (1) unaligned,  
3 no_freeing bit (1) unaligned,  
3 mbz bit (31) unaligned,  
2 owner char (32) aligned,  
2 n_components fixed bin,  
2 size fixed bin (30),  
2 version_of_area fixed bin,  
2 areap ptr,  
2 allocated_blocks fixed bin,  
2 free_blocks fixed bin,  
2 allocated_words fixed bin (30),  
2 free_words fixed bin (30);
```

area\_info\_

area\_info\_

where:

1. version is set by the caller and should be 1.
2. control are control bits describing the format and type of the area.
3. extend is ON if the area is extensible.
4. zero\_on\_alloc is ON if blocks are cleared at allocation time.
5. zero\_on\_free is ON if blocks are cleared at free time.
6. dont\_free is ON if free requests are disabled (for debugging).
7. no\_freeing is ON if the allocation method assumes no freeing will be done.
8. owner is the name of the program which created the area if the area is extensible.
9. n\_components is the number of components in the area.
10. size is the total number of words in the area.
11. version\_of\_area is 0 for (old) buddy system areas and 1 for standard areas.
12. areap is filled in by the caller and can point to any component of the area.
13. allocated\_blocks is the number of allocated blocks in the area.
14. free\_blocks is the number of free blocks in the area (not including virgin storage within components).
15. allocated\_words is the number of allocated words in the area.
16. free\_words is the number of free words in the area not counting virgin storage.

area\_info\_

area\_info\_

No information is returned about version 0 areas except the version number.

If the "no\_freeing" feature is enabled, the counts of free and allocated blocks are returned as 0.

---

area\_status

---

---

area\_status

---

Name: area\_status

The area\_status command is used to display certain information about an area.

Usage

area\_status area\_name -control\_args-

where:

1. area\_name is either a pathname or a segment number specifying the segment containing the area to be looked at.
2. control\_args are optional and may be selected from the following:
  - trace requests that a trace of all free and used blocks in the area be displayed.
  - offset n specifies that the area begins at offset n (octal) in the given segment.
  - long (-lg) specifies that the contents of each block be dumped in both octal and ASCII format.

Notes

If the area has internal format errors, these are reported. The command does not report anything about (old) buddy system areas **except that they are old areas.**

Multics Change Request

TITLE: Move get\_definition\_ to >sss

AUTHOR: M. Weaver

SHW

STATUS	DATE
Written	4/6/76
Status	A 04/13/76
Expires	10/13/76

- Coded in:  PL/I  ALM  other-explain in DETAILED PROPOSAL
- Planned for System MR 4.0
- 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)
<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 checked="" type="checkbox"/> Runtime
<input type="checkbox"/> 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, REASONS, IMPLICATIONS, DETAILED PROPOSAL (Optional)

SUMMARY: Move get\_definition\_ from bound\_prelinker\_ to bound\_segment\_info\_.

REASONS:

It is used by FAST runtime, but a prelinked FAST process doesn't want the rest of bound\_prelinker\_ static around.

Multics Change Request

TITLE: Retain entry full_command_processor_\$return_val		STATUS	DATE	
AUTHOR: Steve Herbst		Written	4/7/76	
		Status	A 04/13/76	
		Expires	10/13/76	
-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)		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 ok	
		Lib. Maint. Tools		
		Sys. Anal. Tools		
		Sys. Prog. Tools		
		355		
		BOS		
		Salvager		
		Ring Zero		
		Ring One		
		SysDaemon/Admin.		
Objections/Comments:		Runtime		
		X User Cmmd/Subr.		

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

SUMMARY: Retain the entry point full\_command\_processor\_\$return\_val, which is documented in the Tools PLM.