

To: Distribution  
From: Betsy Kerr  
Date: January 6, 1975  
Subject: Multics Change Requests

Enclosed are copies of Multics Change Requests which were approved during the month of December, 1974.

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Multics Change Request

TITLE: Modify adjust_bit_count_ on MSF!		STATUS	DATE	
AUTHOR: S. Herbst		Written	11/26/74	
		Status	A 12/10/74	
		Expires	6/10/75	
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> AIM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR _____ -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)		DOCUMENTATION CHANGES Document Specify One or More MM (Vol, Sect.) Command & Subr. PIMS (AN #) MOSN (Sect.) MPAM (Sect.) MSAM (Sect.) Info Segs Other (Name) None (Reason)	
		<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"/> POS		
		<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 Cmmd/Subr.			
Objections/Comments:				

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

SUMMARY: Fix adjust\_bit\_count\_ to adjust the bit count of an MSF to the last non-zero word (or character) of the whole MSF. (Currently, it looks only at the last component.)

REASONS: The adjust\_bit\_count command should operate sensibly on sequential MSF's.

DETAILED PROPOSAL: If the last component has something in it, call msf\_manager \$adjust with its computed bitcount and its component number. Otherwise, back up and compute the bit count of the previous component, and so forth.

MULTICS CHANGE REQUEST

MCR 895

TITLE: Fix gls bug which prevents tools source  
from being fetched when gls is used with  
no -sys arguments

STATUS | DATE

AUTHOR: A. J. Scherer

Written | 11/22/74

Approved | 6/10/75

Rejected |

SOURCE: (If external; e.g., "User", "Marketing")

Postponed |

Withdrawn |

Expires | 6/10/75

CLASSIFICATION | JUSTIFICATION |

Replaced by proposal MCR

Incompatible | Marketing

Change | Requirement

Implemented in System

Extension | to Standard

Objections/Comments:

Restriction | Increased

Performance | Consistency

Improvement | Simplification

Reliability |

Improvement | Generalization

(Unreported)

Bug Fix

REASON:

to incorrect specification of the dimensions of the libraries array in gls,  
tools library was being skipped when no argument "-sys t" was given. As a  
result the "Entry not found" error message was returned.

SUMMARY:

the bug by correcting the dimension of the array.

TITLE: Increase size of hardcore source archives

STATUS

DATE

AUTHOR: David M. Jordan

Written

11/26/74

Status

A 12/10/74

Expires

6/10/75

-Coded in:  PL/I  AIM  other-  
explain in DETAILED PROPOSAL

Category (Check One)

-Planned for System MR

Lib. Maint. Tools

-Fixes Bug Number(s)

Sys. Anal. Tools

-Documented in MFB

Sys. Prog. Tools

DOCUMENTATION CHANGES

-User/Operations-visible

355

Document

Specify One or More

Interface change?  yes  no

BOS

MPM (Vol, Sect.)

-Incompatible change?  yes  no

Salvager

PLMS (AN #)

-Performance:  Better  Same

Ring Zero

MOSN (Sect.)

Worse

Ring One

-Replaces MCR

SysDaemon/Admin.

MPAM (Sect.)

Runtime

MSAM (Sect.)

User Cmmd/Subr.

Objections/Comments: Use max length of source archive  
rather than 255K or sys\_info\$max\_seg\_size

Info Segs

Other (Name)

None (Reason) Documentation Unchar

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

SUMMARY:

Modify the hardcore updater to add segments to a source archive until the bit count reaches 2,000,000. (255 pages).

Reasons:

The hardcore updater limits the size of a source archive in order to prevent having to worry about an archive growing past the max seg size. Since the maximum size of a segment has been increased from 64K to 255K, the max size restriction imposed by the updater should be increased by a similar factor (from 450,000 to 2,000,000).

## Multics Change Request

MCR 897  
Page 1 of 1

TITLE: New Miscellaneous Charging Procedures		STATUS	DATE
AUTHOR: F. C. Smith		Written	11/27/74
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR <u>NA</u> -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 type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 12/10/74
		Expires	6/10/75
		DOCUMENTATION CHANGES	
		Category (Check One)	Document Specify One or More
		Lib. Maint. Tools	
		Sys. Anal. Tools	
		Sys. Prog. Tools	
		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.) 3
		User Cmnd/Subr.	
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

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

**SUMMARY:** Add the following commands for restricted system administrators:

1. "charge" to enter a miscellaneous charge. This will be equivalent to the present "misc" command.
2. "credit" to enter a credit. This is presently done by entering a negative charge.
3. "dmisc" to remove erroneous charges.

Modify the "pmisc" command to allow charges selected by project, date, or both to be printed. Change the output of this command to include the number of the entry printed.

Accept charges and credits as long as a project is in "projfile", even if it has been deleted.

**Reasons:** The command "misc" is inconvenient to use. Credits must be entered as negative charges, erroneous entries cannot be removed, it is not possible to examine entries in the miscellaneous charge file without printing the whole file, and charges cannot be entered after a project has been deleted.

**Implications:** Entering miscellaneous charges and credits should become easier, less prone to errors, and require fewer handwritten vouchers.

TITLE: Move hp ACL commands to tools		STATUS	DATE
AUTHOR: S. Herbst		Written	12/2/74
-Coded in: <input type="checkbox"/> PL/I <input checked="" type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL	Category (Check One)	Status	A 12/10/74
	Lib. Maint. Tools	Expires	6/10/75
-Planned for System MR	Sys. Anal. Tools	DOCUMENTATION CHANGES	
-Fixes Bug Number(s)	Sys. Prog. Tools	Document	Specify One or More
-Documented in MTB	355		
-User/Operations-visible	NOB		
Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Salvager		MFM (Vol, Sect.)
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Ring Zero		PLMS (AN #)
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same	Ring One		MCSN (Sect.)
<input type="checkbox"/> Worse	System/Admin.		MPAM (Sect.)
-Replaces MCR	Runtime		MSAM (Sect.)
	<input checked="" type="checkbox"/> User Cmnd/Subr.		
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	no interface change

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

SUMMARY: Install an ALM transfer vector in tools that maps the names of ACL commands and ring bracket commands

```

hp <acl_command> to set_acl$hp<acl_command> and
hpset_ring_brackets to set_ring_brackets$hpset_ring_brackets

```

REASONS: These highly privileged commands should be in tools but they can utilize common code in >sss>set\_acl and >sss>set\_ring\_brackets.

TITLE: emergency fix to FORTRAN compiler		STATUS	DATE
AUTHOR: D. S. Levin		Written	12/2/74
-Coded in: <input type="checkbox"/> PL/I <input checked="" type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 2.0 -Fixes Bug Number(s) <u>unreported</u> -Documented in MTR -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 _____		Status	A 12/10/74
		Expires	6/10/75
		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"/> SDE		MSAM (Sect.)	
<input type="checkbox"/> Salvager		Info Segs	
<input type="checkbox"/> Ring Zero		Other (Name)	
<input type="checkbox"/> Ring One		None (Reason)	
<input type="checkbox"/> SysDaemon/Admin.			
<input type="checkbox"/> Runtime			
<input type="checkbox"/> User Cmmd/Subr.			
<input checked="" type="checkbox"/> Lang.			
Objections/Comments:			

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

**SUMMARY:** Incoming transfer vector for bound\_cg did not have an entry required by FORTRAN. This resulted in a linkage fault whenever an I/O statement was compiled. Additional name added to transfer vector (cg\_alm).

**IMPLICATIONS:**

Compiler will not function without this fix.

Multics Change Request

REASON: Remove queued connect facility from

AUTHOR: I/O Interfacer  
Noel I. Morris

-Coded in  PL/I  AIM  other-  
explain in DETAILED PROFOSAL  
-Planned for System MR 2.1  
-Fixes Bug Number(s)  
-Documented in MPB  
-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  
 Ring One  
 SysDaemon/Admin.  
 Runtime  
 User Cmpd/Subr.  
 User Ring I/O

Written 12/3/74  
 Status A 12/10/74  
 Expires 6/10/75

DOCUMENTATION CHANGES  
 Document Specify One or More  
 MFM (Vol, Sect.)  
 PLMS (AN #) AN 45, AN 57  
 MOSN (Sect.)  
 MFAM (Sect.)  
 MSAM (Sect.)

Objections/Comments: In the future, IOI must support  
 queued marker status to permit asynchronous read-  
 ahead on tapes.

Info Segs  
 Other (Name)  
 None (Reason)

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

SUMMARY:

The facility for queuing connects in the I/O Interfacer is used by only one DIM. This feature creates a large overhead even when it is not used. The one DIM which uses it can be modified to use a DCW list patching scheme.

Implementation:

1. A new card reader DIM, crz, will be installed which uses a DCW list patching scheme instead of the queued connect feature.
2. The I/O Interfacer will be modified to remove the queued connect mechanism.

Implications:

All current users of the I/O Interfacer will experience a performance improvement. In addition, a smaller amount of wired-down memory will be required for the I/O Interfacer's data bases.



## Multics Change Request

MCR 901  
Page 1 of 1.

TITLE: Extend Memory Configuration Options AUTHOR: David A. Kayden		STATUS Written	DATE 12/04/74
-Coded in: <input checked="" type="checkbox"/> PL/I <input checked="" type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MK -Fixes Bug Number(s) unreported -Documented in MIB -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 checked="" 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 Cmnd/Subr.	Status Expires A 12/10/74 6/10/75
		DOCUMENTATION CHANGES Document Specify One or More MPM (Vol, Sect.) PLMS (AN #) MOSN (Sect.) MPAM (Sect.) MSAM (Sect.) Info Segs Other (Name) None (Reason) Bug fix	
Objections/Comments:			

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

## SUMMARY:

The port logic of the Multics processor can only be wired for system controller memory sizes of 32K, 64K, 96K, 128K, 256K, 512K, or 1024K words. Multics presently requires that the memory size specified on each MEM configuration card match the port logic memory size. The hardware requires this match for all but the high order memory port.

## PROPOSAL

1. Change Multics initialization to allow the MEM configuration card for the high order memory to specify less memory to be used than is wired in the port logic.
2. Change the BOS BOOT command to make a store fault while clearing memory nonfatal.

## REASONS

It will be possible to run catalog item CS6183, a 6180 central system with one system controller and 192K of memory.

## IMPLICATIONS

It will be possible to configure a Multics system with a memory size at any multiple of 1024 words.

Multics Change Request

TITLE: NPS as a front end for Multics		STATUS	DATE
AUTHOR: R. W. Franklin		Written	12/6/74
-Coded in: <input checked="" type="checkbox"/> XPL/I <input type="checkbox"/> AIM <input type="checkbox"/> other- explain in DETAILED PROPOSAL		Status	A 12/10/74
-Planned for System MR 2.0		Expires	6/10/75
-Fixes Bug Number(s) _____		DOCUMENTATION CHANGES	
-Documented in MTB 052		Document	Specify One or More
-User/Operations-visible Interface change? <input checked="" type="checkbox"/> yes <input 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 type="checkbox"/> Same <input type="checkbox"/> Worse		MOSN (Sect.)	X
-Replaces MCR _____		MPAM (Sect.)	
		MSAM (Sect.)	
Objections/Comments:		Info Segs	X
Investigate documentation of user interface changes.		Other (Name)	MOPS (Multics Operating Procedures)
		None (Reason)	

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

SUMMARY: To allow NPS to be used as a Multics Front end software package.

REASONS: See MTB 052, Section 20

IMPLICATIONS: The user interface is slightly changed prior to Multics log on.

- The Operator Interface is slightly changed.
- A PSI channel in the dn355 is required as is the dedication of 1 191 disc drive.
- The ARDS, MDS2400, & TN1200 will not be operable until MR2.1
- There is a limitation of approximately 30 to 50 simultaneous users until we upgrade to the NPS-2H version sometime next year.

This change "piggybacks" on MR2.0. The user will generate his own Multics/NPS MR2.0 tape.

DETAILED PROPOSAL:

- 8 segments in the TTYDIM have been changed.
- 2 Include files have been modified and one new include file has been added.
- 2 bind segments have been modified to accommodate new/deleted entry points.
- The user interface to the TTYDIM remains the same.
- The NPS Code has been modified so as not to affect existing NPS functions.

NOTE: Multics components changed to interface with NPS must be carefully monitored for changes to these components in future releases.

For System 3.0 the plan is to more properly integrate NPS with the rest of the system so that these components need not be changed. Multics will be able to run with either Front End system or both if the installation has more than one 355.

## Multics Change Request

MCR 903  
Page 1 of 1

TITLE: Fix brief bug in "progress"		STATUS	DATE
AUTHOR: M. A. Meer		Written	12/3/74
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> AIM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 2.0 -Fixes Bug Number(s) <u>lib00238</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 12/10/74</u>
		Expires	<u>6/10/75</u>
		DOCUMENTATION CHANGES	
Category (Check One)		Document	Specify One or More
<input type="checkbox"/> Lib. Maint. Tools		MFM (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)	
<input type="checkbox"/> SysDaemon/Admin.			
<input type="checkbox"/> Runtime			
<input checked="" type="checkbox"/> User Cmmd/Subr.			
Objections/Comments:			

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

SUMMARY: Fixes bug which causes the brief option not to be recognized.

IMPLICATIONS: None

## DETAILED

PROPOSAL: The number of ARGS was reset after being set in the brief code. This caused the option itself to be treated as part of the input string to be executed.

Multics Change Request

TITLE: Fix bug in calculating cpu time	STATUS	DATE
AUTHOR: P. Green	Written	12/4/74

-Coded in: <input type="checkbox"/> PL/I <input checked="" type="checkbox"/> AIM <input type="checkbox"/> other- explain in DETAILED PROPOSAL	Category (Check One)	Status	A 12/10/74
-Planned for System MR NA	<input type="checkbox"/> Lib. Maint. Tools	Expires	6/10/75
-Fixes Bug Number(s) 254(MIT)	<input type="checkbox"/> Sys. Anal. Tools	DOCUMENTATION CHANGES	
-Documented in MTB NA	<input type="checkbox"/> Sys. Prog. Tools	Document	Specify One or More
-User/Operations-visible	355		
Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	ROS		
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Salvager	MFM (Vol, Sect.)	
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same	<input checked="" type="checkbox"/> Ring Zero	PLMS (AN #)	
<input type="checkbox"/> Worse	Ring One	MOSH (Sect.)	
-Replaces MCR NA	SysDaemon/Admin.	MPAM (Sect.)	
	Runtime	MSAM (Sect.)	
	User Cmmd/Subr.		

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

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

SUMMARY: Prevent taking of interrupts during calculation of cpu time used.

REASONS: Users get incorrectly charged.

IMPLICATIONS: none. Fixes bug #254(MIT)

DETAILED PROPOSAL: Reassemble vclock.alm with several calculations of cpu time inhibited.

Multics Change Request

TITLE: Implement is_mail active function		STATUS	DATE	
AUTHOR: S. Herbst		Written	12/5/74	
-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 type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)		DOCUMENTATION CHANGES	
	<input type="checkbox"/> Lib. Maint. Tools	Document Specify One or More		
	<input type="checkbox"/> Sys. Anal. Tools	MFM (Vol, Sect.) Active functbns		
	<input type="checkbox"/> Sys. Prog. Tools	PLMS (AN #)		
	<input type="checkbox"/> 355	MOSN (Sect.)		
	<input type="checkbox"/> BOS	MPAM (Sect.)		
	<input type="checkbox"/> Salvager	MSAM (Sect.)		
	<input type="checkbox"/> Ring Zero	Info Segs		
	<input type="checkbox"/> Ring One	Other (Name)		
	<input type="checkbox"/> SysDaemon/Admin.	None (Reason)		
<input type="checkbox"/> Runtime				
<input checked="" type="checkbox"/> User Cmmd/Subr.				
Objections/Comments: 1. Should also work as a command. 2. Should return "true" if either old or new mailbox contains mail.				

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

**SUMMARY:** Add the entry "is\_mail" to the new mail command (see MCR 642). ismail is an active function that returns true if there is some mail in the user's default ring 1 mailbox and false if there is none.

**REASONS:** Such an active function can be used when new mail is installed in place of tools commands ("if isnzf") and uninstalled active functions used in exec\_com's to see if an old-style mailbox contains mail.

Multics Change Request

TITLE: Fix Salvager Bugs		STATUS	DATE
AUTHOR: A. Kobziar		Written	11/26/74
-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 type="checkbox"/> no -Performance: <input checked="" type="checkbox"/> Better <input type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 12/10/74
		Expires	6/10/75
		DOCUMENTATION CHANGES	
Category (Check One)		Document	Specify One or More
Lib. Maint. Tools		MPM (Vol, Sect.)	
Sys. Anal. Tools		PIMS (AN #)	
Sys. Prog. Tools		MOSH (Sect.)	
355		MPAM (Sect.)	
BOS		MSAM (Sect.)	
<input checked="" type="checkbox"/> Salvager		Info Segs	
Ring Zero		Other (Name)	
Ring One		None (Reason) no doc. change	
SysDaemon/Admin.			
Runtime			
User Cmmd/Subr.			
Objections/Comments:			

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

- SUMMARY:**
1. `salv_activator` initializes only a 15 level hierarchy; an attempted salvage of the 16th level will crash the salvager.
  2. `salv_initializer` does not wait for the operator's console to finish printing messages, which sometimes results in an incomplete "finished salvaging" message.

**DETAILED PROPOSAL:** Pick up the correct value for the hierarchy depth; wait until console finishes printing before returning to BOS.

Multics Change Request

TITLE: Changed Reloader Design for Access Isolation		STATUS	DATE	
AUTHOR: A. Kobziar		Written	11/26/74	
-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 type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR 829	Category (Check One)	Status	A 12/10/74	
		Lib. Maint. Tools	Expires	6/10/75
		Sys. Anal. Tools	DOCUMENTATION CHANGES	
		Sys. Prog. Tools	Document	Specify One or More
	355			
	POS			
	Salvager	MFM (Vol, Sect.)		
	X Ring Zero	PLMS (AN #) 75		
	Ring One	MOSN (Sect.)		
	SysDaemon/Admin.	MPAM (Sect.)		
	Runtime	MSAM (Sect.)		
	User Cmmd/Subr.			
Objections/Comments:		Info Segs		
		Other (Name)		
		None (Reason)		

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

**SUMMARY:**

- Change the handling of upgraded directories to the following:  
 The reloader will create an upgraded directory only if the immediate parent already exists. The retriever will not be able to create an upgraded directory; it must already exist on-line if segments at the higher access class are to be retrieved.
- Add a message to the backup map created by the dumper which contains the access class of a directory if the access class is higher than system low.

**IMPLICATIONS:** Tape order during a reload is important if missing upgraded directories are involved as there will be no automatic creation of missing parent directories.

Multics Change Request

TITLE: Modify GCOS Terminology		STATUS	DATE	
AUTHOR: R. H. Morrison		Written	11/15/74	
<input checked="" type="checkbox"/> Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL <input type="checkbox"/> Planned for System MR <input type="checkbox"/> Fixes Bug Number(s) _____ <input type="checkbox"/> Documented in MTB _____ <input type="checkbox"/> User/Operations-visible Interface change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> 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 <input type="checkbox"/> 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.)	
	BOS		PLMS (AN #)	
	Salvager		MOSH (Sect.)	
	Ring Zero		MPAM (Sect.)	
	Ring One		MSAM (Sect.)	
	SysDaemon/Admin.			
Runtime				
User Cmmd/Subr.				
X GCOS				
Objections/Comments:		Info Segs X		
		Other (Name) GCOS Manual		
		None (Reason)		

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

SUMMARY: Change the literals in the procedures and INCLUDE files.

REASONS: Console messages now refer to "gcos\_epa". This is changed to "gcos\_account\_id" which has meaning to an outside customer. The user manual already uses "gcos\_account\_id".

IMPLICATIONS: A more meaningful term to the customer is used.



Multics Change Request

TITLE: GCOS Simulator		STATUS	DATE
AUTHOR: R. H. Morrison		Written	11/15/74
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MK -Fixes Bug Number(s) <u>see below</u> -Documented in MIB -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 12/10/74
	<input type="checkbox"/> Lib. Maint. Tools	Expires	6/10/75
	<input type="checkbox"/> Sys. Anal. Tools	DOCUMENTATION CHANGES	
	<input type="checkbox"/> Sys. Prog. Tools	Document	Specify One or More
	<input type="checkbox"/> 355		
	<input type="checkbox"/> ROS		
	<input type="checkbox"/> Salvager	MPM (Vol, Sect.)	
	<input type="checkbox"/> Ring Zero	PLMS (AN #)	
	<input type="checkbox"/> Ring One	MOSN (Sect.)	
	<input type="checkbox"/> SysDaemon/Admin.	MPAM (Sect.)	
<input type="checkbox"/> Runtime	MSAM (Sect.)		
<input type="checkbox"/> User Cmmnd/Subr.			
<input checked="" type="checkbox"/> GCOS			
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	No interface change

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

- SUMMARY:
1. gcos\_control tables\_ extended to recognize all GCOS system options.  
(Bug #gcs0036p)
  2. gcos\_cc\_goto\_ extended to implement IF and WHEN control cards.  
(Bug #gcs0035p)
  3. Minor unreported bug fixes to gcos\_gein\_pass1\_ and gcos\_mme\_inos.

REASONS: Fix Bugs

IMPLICATIONS: Fewer jobs will require changes to the GCOS job deck.

Multics Change Request

TITLE: GCOS Daemon		STATUS	DATE
AUTHOR: R. H. Morrison		Written	11/15/74
-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) <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"/> ROS <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"/> GCOS		
	Status <b>D 12/10/74</b> Expires <b>6/10/75</b>		DOCUMENTATION CHANGES Document Specify One or More MPM (Vol, Sect.) PIMS (AN #) MOSN (Sect.) MPAM (Sect.) MSAM (Sect.)
Objections/Comments:		Info Segs Other (Name) None (Reason) No interface change	

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

SUMMARY: Change an entry in gcos\_daemon\_stat\_ from "rdr21" to "crz".

REASONS: The type code has been changed in the I/O software from "rdr21" to "crz". The daemon must be changed correspondingly.

IMPLICATIONS: The daemon cannot attach a card reader without this change.

## Multics Change Request

MCR 911  
Page 1 of 3

TITLE: Rewrite print_syserr_log		STATUS	DATE
AUTHOR: L. Scheffler		Written	12/3/74
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR <u>3.0</u> -Fixes Bug Number(s) _____ -Documented in MTB <u>103</u> -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 checked="" type="checkbox"/> Better <input type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR <u>880</u>		Status	<u>A 12/10/74</u>
		Expires	<u>6/10/76</u>
		DOCUMENTATION CHANGES	
		Document	Specify One or More
		MPM (Vol, Sect.)	
		PLMS (AN #)	
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	3
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

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

**SUMMARY:** Rewrite print\_syserr\_log to

1. add new necessary and/or useful command options;
2. make it know about permanent syserr log segments in the hierarchy;
3. use a gate other than phcs\_\$ring\_0\_peek to read the current syserr\_log;
4. use qedx ., \*, \$, and ^ conventions for string matching.

**REASONS:**

1. MCK-820 added a mechanism to keep permanent copies of the syserr\_log in the hierarchy. print\_syserr\_log should know about these.
2. With the increased use of the syserr\_log for normal operation monitoring data, the command interface needs to be improved and made more flexible.
3. The present print\_syserr\_log copies the log out of ring 0 before validating the command line. This is backwards.

**IMPLICATIONS:**

1. print\_syserr\_log will be more useful as a system analysis tool.
2. The new print\_syserr\_log will still be compatible with the current syserr\_log mechanism.
3. The new command interface will not be compatible with the current one. This may require some system administrators to change their abbrev's and exec\_com's.

## DETAILED PROPOSAL:

### 1. The command options will be as follows:

The next two command options take a single argument, which may be either an unsigned decimal integer (no decimal point), representing a `syserr_log` sequence number, or a date/time string acceptable to `convert_date_to_binary_`.

`-from,-fm X` If X is a sequence number, print `syserr` messages starting with the most recent message with sequence number X. If X is a time, print `syserr` messages from time X (inclusive). (`-from` may not appear with `-last`.)

`-to X` If X is a sequence number, print `syserr` messages up to and including the most recent message with sequence number X. If X is a time, print `syserr` messages up to and including time X. (`-to` requires `-from` because `syserr` logs may be kept permanently.)

`-time,-tm X` Interpret X as a date/time string argument to `-from` or `-to`. (This is for compatibility with possible future changes to `convert_date_to_binary_` to accept integer strings such as 741205 as valid dates.)

`-last,-lt N` print last N `syserr` messages (may not appear with `-from` or `-after` options)

`-no_header,-nhe` suppress printing of a header

`-class,-cl C1 C2 C3...` print messages in log sorting classes C1, C2, C3, ... ( $0 \leq C_i \leq 24$ )

`-match X1 X2 X3...` print `syserr` messages containing any of the strings  $X_i$ . ( $i \leq 15$ )  $X_i$  may be any `qedx` string-matching address string.

`-exclude,-ex X1 X2 X3...` do not print messages containing any of the strings  $X_i$ . ( $i \leq 15$ )  $X_i$  may be any `qedx` string-matching address string.

`-string,-st X` treat X as a non-option string argument to `-match` or `-exclude`

The `qedx` subroutine `get_addr_` will be used to do the string matching if a string contains a `.`, `*`, `$`, or `^`.

### 2. `print_syserr_log` will examine, in addition to the current log, all the permanent `syserr` log segments kept by `copy_syserr_log` in `system_control_dir>syserr_log_dir`.

3. Define a new gate, "audit\_gate\_", with ring brackets (0,0,5), and site-defined ACL. This gate will be a repository for programs that monitor system operation, access to which needs to be restricted to site-designated trusted users. Add the entry "audit\_gate\_\$syserr\_logger\_copy" to call syserr\_logger\$copy. Change print\_syserr\_log to use this entry instead of phcs\_\$ring\_0\_peek. Remove the entry phcs\_\$syserr\_logger\_copy from phcs\_.

Multics Change Request

TITLE: Install Deadline/Variable Quanta Scheduler		STATUS	DATE
AUTHOR: R. Mullen		Written	12/6/74
-Coded in: <input type="checkbox"/> PL/I <input checked="" type="checkbox"/> AIM <input type="checkbox"/> other- explain in DETAILED PROPOSAL		Status	A 12/10/74
-Planned for System MR		Expires	6/10/75
-Fixes Bug Number(s)		DOCUMENTATION CHANGES	
-Documented in MTB		355	Document Specify One or More
-User/Operations-visible		ROS	MPM (Vol, Sect.)
Interface change? <input type="checkbox"/> yes <input type="checkbox"/> no		Salvager	PLMS (AN #) 73, AN52
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		X Ring Zero	MOSN (Sect.)
-Performance: <input checked="" type="checkbox"/> Better <input type="checkbox"/> Same		Ring One	MPAM (Sect.)
<input type="checkbox"/> Worse		SysDaemon/Admin.	MSAM (Sect.)
-Replaces MCR		Runtime	Info Segs
		User Cmmd/Subr.	Other (Name)
			None (Reason)
Objections/Comments:			

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

SUMMARY: Install scheduler allowing longer quanta.

REASONS:  
The installed scheduler was designed to award longer eligibility quanta to processes that are more demanding of system resources. The feature has been disabled in practice by setting the maximum quantum(telast) to 1.0 sec. This is necessary because of the reduction in multiprogramming depth occuring with large amounts of main or bulk memory.

IMPLICATIONS: If the new features are not turned on, the default is identical to the installed scheduler.

DETAILED PROPOSAL:  
The addition of the following parameters and functions to the scheduler to allow the awarding of longer eligibility quanta, while still maintaining good response.

- 1.No long quantum would be awarded if the sum of the remaining eligibility times would be greater than a new parameter t<sub>fmax</sub>. This has the effect of limiting the commitment of eligibility to a maximum (virtual) time in the future.
2. In order to insure there will always be some core available, to run interactive processes, a certain fraction of core defined by the new parameter o<sub>core</sub>, is set aside for the use of interactive processes which have not been made eligible within the time t<sub>force</sub> (another new parameter) since receiving a wakeup.
3. In addition the management of the eligible queue may be changed by the parameter steh. There are three options, the first is used by the installed scheduler:
  - a. Add newly eligible processes to the tail of the eligible queue.
  - b. Add noninteracting processes to the tail and add interacting processes to the head, but after other interacting processes.
  - c. Add all processes to the head, but after interacting processes.
4. Add a parameter auto ws, which if turned on will normalize the working set estimate returned by page control for a process which has just completed a long quantum to a value closer to that which would have been obtained if the process had just completed a 1.0 sec quantum. This has the effect of providing a more reliable working set estimate in a variable quantum environment, as well as simplifying the tuning of the system with or without the proposed new features turned on.

Multics Change Request

MCR 913

Page 1 of 1

TITLE: Fix bug in printer code conversion		STATUS	DATE	
AUTHOR: Noel I. Morris		Written	12/11/74	
- Coded in: <input type="checkbox"/> PL/I <input checked="" type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL - Planned for System MR 2.1 - 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		Expires	
	Sys. Anal. Tools		DOCUMENTATION CHANGES	
	Sys. Prog. Tools		Document	Specify One or More
	355		MPM (Vol, Sect.)	
	BOS		PLMS (AN #)	
	Salvager		MOSN (Sect.)	
	Ring Zero		MPAM (Sect.)	
	Ring One		MSAM (Sect.)	
	SysDaemon/Admin.			
Runtime				
User Cmmnd/Subr.				
X User I/O				
Objections/Comments:		Info Segs		
		Other (Name)		
		None (Reason) no interface change		

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

SUMMARY:

The printer code conversion module fails to test for page overflow when processing the vertical tab character. In addition, the code produces skips to line 10, 20, ..... when it should produce skips to line 11, 21, .....

Proposal:

Correct the code.

Implications:

Vertical tabs will now be printed correctly in all (hopefully) circumstances.

Multics Change Request

TITLE: A "test" entry point for set_lock_		STATUS	DATE
AUTHOR: Jerry A. Stern		Written	12/06/74
-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 129 -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 12/12/74
		Expires	6/12/74
Category (Check One) <input type="checkbox"/> Lib. Maint. Tools <input type="checkbox"/> Sys. Anal. Tools <input checked="" type="checkbox"/> Sys. Prog. Tools		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)	

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

**SUMMARY:** Add a new entry point to set\_lock\_ (called set\_lock\_\$test) which determines if a lock is validly locked without actually locking it.

**Reasons:** This feature is needed by the IO Daemon and will be generally useful for other locking applications.

**Detailed Proposal:** The new entry point will copy the lock word into local storage and then attempt to lock the copy. The error code will indicate whether or not the lock was validly locked.



Multics Change Request

TITLE: IO Daemon Changes for the AIM Environment

STATUS

DATE

AUTHOR: Jerry A. Stern

Written

12/06/74

-Coded in:  PL/I  AIM  other-  
explain in DETAILED PROPOSAL

Category (Check One)

Status

A 12/17/74

-Planned for System MR 3.0

Lib. Maint. Tools

Expires

6/17/75

-Fixes Bug Number(s)

Sys. Anal. Tools

DOCUMENTATION CHANGES

-Documented in MTR 129

Sys. Prog. Tools

Document

Specify One or More

-User/Operations-visible

355

MPM (Vol, Sect.)

Interface change?  yes  no

BOB

-Incompatible change?  yes  no

Salvager

PLMS (AN #)

AN 58

-Performance:  Better  Same

Ring Zero

MOSN (Sect.)

Worse

Ring One

-Replaces MCR

Sys Daemon/Admin.

MPAM (Sect.)

Runtime

MSAM (Sect.)

User Cmnd/Subr.

Objections/Comments: Requires installation instructions

Info Segs

Other (Name) Installation instruction

None (Reason)

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

**SUMMARY:** A number of changes must be made to the IO Daemon in order for it to operate in a multiple access class system.

**Reasons:** Once the Access Isolation Mechanism controls have been installed in the storage system, IPC, and the message segment facility, new restrictions will be imposed. Therefore, changes must be made to insure that these new restrictions do not prevent IO Daemon operation in a multiple access class system.

**Detailed Proposal:** 1) Driver processes, which could have different authorizations currently test for the existence of a Coordinator process by attempting to set a lock. This means writing in a common segment. To avoid this problem, a new "test" entry will be added to set\_lock\_. (See accompanying MCR).

2) Each driver status segment must have an access class equal to the driver authorization. Therefore, instead of placing these segments in a single directory, they will each be placed in an upgraded subdirectory.

3) The Coordinator data segments holding requests read from message segments and associated request descriptors will be kept in a system-high subdirectory to adequately protect this information. Hence, it will be necessary for the Coordinator to copy each request into the appropriate driver status segment. (The request descriptor is already copied.)

Multics Change Request

TITLE: Handling of non-SysDaemon IO Drivers

AUTHOR: Jerry A. Stern

STATUS DATE

Written 12/06/74

Status A 12/17/74

Expires 6/12/75

- Coded in:  PL/I  AIM  other- explain in DETAILED PROPOSAL
- Planned for System MR 3.0
- Fixes Bug Number(s)
- Documented in MTB 129
- 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
- EOS
- Salvager
- Ring Zero
- Ring One
- SysDaemon/Admin.
- Runtime
- User Cmmnd/Subr.

DOCUMENTATION CHANGES

Document Specify One or More

MPM (Vol, Sect.)

PLMS (AN #) AN 58

MOSN (Sect.) X

MPAM (Sect.)

MSAM (Sect.)

Objections/Comments: Requires special installation instructions. Continue to interpret "project" keyword for interim upwards compatibility.

Info Segs

Other (Name)

None (Reason)

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

SUMMARY: Modify the IO Coordinator to handle non-SysDaemon drivers in a more flexible yet more secure manner.

Reasons: The current organization of IO Daemon assumes that all driver processes use the "IO" person ID. This implies that projects having their own private drivers cannot be given control of these drivers. Because the IO password cannot be disclosed, non-SysDaemon drivers must still be logged in by operations. This situation discourages the easy use of remote non-SysDaemon drivers. Despite this severe restriction, however, the IO Coordinator is still not secure against subversion by arbitrary user processes due to the fact that it cannot now securely determine the identity of a new driver process.

Detailed Proposal: 1) Change the "project" keyword in the IO Daemon parms file to "driver\_userid" to allow specification of both person and project IDs. The person ID can be "\*". If driver\_userid is not specified for a device class, the default will be IO.SysDaemon.

2) Require new drivers to add a message to a message segment reserved especially for this purpose. The process group ID and authorization of each process requesting to be a driver can then be determined securely and compared to the driver\_userid for the indicated device class.

3) Remove per-driver information on which the Coordinator depends from driver modifiable segments. Keep this information in the device table entry for the device associated with a given driver. This prevents a legitimate driver from harming the Coordinator or other drivers.

4) For wakeups sent to the Coordinator after the initial new driver wakeup, require that the event message contain the device table index of the device assigned to the driver. A quick comparison of the process ID obtained from the wakeup to a stored process ID in the device table can then validate the sender of the wakeup.

TITLE: Page Labels for Printed Output		STATUS	DATE	
AUTHOR: Jerry A. Stern		Written	12/06/74	
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR <b>3.0</b> -Fixes Bug Number(s) -Documented in MTB <b>129</b> -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	<b>A 12/17/74</b>	
		Lib. Maint. Tools	Expires	<b>6/17/75</b>
		Sys. Anal. Tools	DOCUMENTATION CHANGES	
		Sys. Prog. Tools	Document	Specify One or More
	355			
	ROS			
	Salvager	MPM (Vol, Sect.)		
	Ring Zero	PLMS (AN #)	<b>AN 58</b>	
	Ring One	MOSN (Sect.)		
	<input checked="" type="checkbox"/> SysDaemon/Admin.	MPAM (Sect.)		
	Runtime	MSAM (Sect.)		
	User Cmmnd/Subr.			
Objections/Comments: Permit different labels at top and bottom of page		Info Segs		
		Other (Name)		
		None (Reason)		

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

SUMMARY: Modify the IO Daemon to place header and footer page labels on each page of printed output as requested by the user. (See the accompanying MCR "New Control Arguments for the dprint Command.")

Reasons: This feature is required by Air Force Data Services Center and is generally useful at all sites.

Detailed Proposal: 1) Modify the printer DIM to accept a new order call which allows specification of a page label. Once page labels have been specified, they will be placed in the top and bottom margins of each page of output subsequently printed. Such labeling will not be performed when no endpage mode is enabled. Page labeling will be cancelled by an order call specifying a null label.

2) Modify the IO Daemon driver program to check each dprint request for the page label option and to make the above order call where necessary.

Multics Change Request

TITLE: Access Class Banners for Printed Output		STATUS	DATE
AUTHOR: Jerry A. Stern		Written	12/06/74
-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 MTR 129 -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 12/17/74
		Expires	6/17/75
		DOCUMENTATION CHANGES	
		Document	Specify One or More
		MPM (Vol, Sect.)	
		PLMS (AN #)	AN 58
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

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

**SUMMARY:** Modify the IO Daemon to place an access class banner on the head sheet and tail sheet of each printout.

**Reasons:** This feature is required by Air Force Data Services Center and will be generally useful at the sites that use the Access Isolation Mechanism.

**Detailed Proposal:** 1) The access class of a printout will normally be equal to the authorization of the process that requested the printout. If this access class is represented by a null string, then the access class banner will be omitted.

2) Add a new keyword to the IO Daemon parms file called "min-banner" which specifies the minimum access class banner for a given device class. If the printout access class as computed above is less than min-banner, the min-banner will be used instead. If min-banner is not specified, the default is the "min-access-class" for the device class.

3) Modify the head\_sheet\_and\_tail\_sheet\_programs to add the access class banner. The first component of the access class (i.e., the level or first category) will be printed in big letters. The full access class will be printed in regular type.

Multics Change Request

TITLE: Access Class Ranges for IO Daemon Device Classes	STATUS	DATE
AUTHOR: J.A. Stern	Written	12/06/74
	Status	A 12/17/74
	Expires	6/17/75

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

-Planned for System MR 3.0

-Fixes Bug Number(s) \_\_\_\_\_

-Documented in MTB 129

-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 checked="" type="checkbox"/> SysDaemon/Admin.
<input type="checkbox"/> Runtime
<input type="checkbox"/> User Cmmd/Subr.

DOCUMENTATION CHANGES

Document	Specify One or More
MPM (Vol, Sect.)	
PLMS (AN #)	AN 58
MOSN (Sect.)	
MPAM (Sect.)	
MSAM (Sect.)	

Objections/Comments:

Info Segs
Other (Name)
None (Reason)

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

SUMMARY: Modify the IO Coordinator to associate a range of access classes with each device class and to distribute requests to drivers in accordance with these ranges.

Reasons: This feature is required by Air Force Data Services Center and will be generally useful at other sites that use the Access Isolation Mechanism.

Detailed Proposal: 1) Add two new keywords to the IO Daemon parms file called "min\_access\_class" and "max\_access\_class". These keywords specify the access range for a device class. If min\_access class is not specified, the default is system low. If max\_access\_class is not specified, the default is min\_access\_class.

2) Add another new keyword called "queue\_group" that specifies the name of the group of queues that correspond to a given device class. This allows more than one device class to be associated with a single queue group and thereby makes it possible to partition requests from a given queue group into multiple access class ranges. If queue\_group is not specified, the default queue group name is taken to be the device class name (as it is today).

3) Modify the IO Coordinator to examine the access class of each request message read from a message segment and to assign this request to the device class having the appropriate access class range.



Multics Change Request

MCR 924

Page      of     

TITLE: Fix bug in check_mst		STATUS	DATE
AUTHOR: R F Mabee		Written	3 Dec 74
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR <u>N/A</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 _____		Status	<u>A 12/17/74</u>
		Expires	<u>6/17/75</u>
		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)	No change to spec.

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

SUMMARY:

The utility get\_deflth\_ doesn't work for all cases. get\_collection\_ is modified to use information in the object map instead of calling get\_deflth\_. get\_deflth\_ is deleted as no other module calls it.

REASONS:

get\_deflth\_ attempts to determine the length of a definitions section by following all threads in it. It miscalculates the length if the last item is a definition or name, causing subsequent searches to fail. This results in many spurious "not found" messages in the checker output. The information get\_deflth\_ works so hard to get is readily available from decode\_object\_.

IMPLICATIONS:

The checker should run somewhat faster, and produce correct output.



TITLE: Change trace control arguments		STATUS	DATE
AUTHOR: S. E. Barr		Written	12/10/74
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL	Category (Check One)	Status	A 12/17/74
	Lib. Maint. Tools	Expires	6/17/75
-Planned for System MR 3	Sys. Anal. Tools	DOCUMENTATION CHANGES	
-Fixes Bug Number(s)	Sys. Prog. Tools	Document	Specify One or More
-Documented in MTB 12	355		
-User/Operations-visible	POS		
Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Salvager	MPM (Vol, Sect.) Trace Command	
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Ring Zero	PLMS (AN #)	
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same	Ring One	MOSN (Sect.)	
<input type="checkbox"/> Worse	SysDaemon/Admin.	MPAM (Sect.)	
-Replaces MCR	Runtime	MSAM (Sect.)	
	<input checked="" type="checkbox"/> User Cmmd/Subr.		
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

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

**SUMMARY:** Change some of the trace control argument names as given in MTB 12 to new names and change the control argument format to be consistent with probe.

**PROPOSAL:** The current implementation:

- control argument format
  - control\_arg- optional\_arg

If the optional\_arg is present, it is assumed to be an entry and the control\_arg applies to that entry. If no optional\_arg is present, the control\_arg applies to all entries in the trace table.
- control arguments
  - status list the template
  - st
  - information list the parameters for a given procedure being traced (or for all procedures in the trace table)
  - print list all the procedures in the trace table.
  - pr

The proposed implementation:

- control argument format:
  - control\_arg- arg

If the arg is "\*" the control\_arg applies to all procedures in the trace table. Otherwise, arg is assumed to be a procedure name and the -control\_arg- applies only to it.

2. control arguments

-template		list the template
-tp		
-status *		list the procedures in the trace table
-st *		
-status entry_name		list the tracing parameters of entry_name.

Multics Change Request

TITLE: Modify cancel_abs_request error message.		STATUS	DATE
AUTHOR: Steve Herbst		Written	12/10/74
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-explain in DETAILED PROPOSAL		Status	A 12/17/74
-Planned for System MR		Expires	6/15/75
-Fixes Bug Number(s)		DOCUMENTATION CHANGES	
-Documented in MTB		Document	Specify One or More
-User/Operations-visible		MFM (Vol, Sect.)	X
Interface change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no		PLMS (AN #)	
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		MOSN (Sect.)	
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same		MPAM (Sect.)	
<input type="checkbox"/> Worse		MSAM (Sect.)	
-Replaces MCR		Info Segs	
Objections/Comments:		Other (Name)	
Also true for cdr.		None (Reason)	compatible change

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

SUMMARY: Change cancel\_abs\_request's error message:

cancel\_abs\_request: No request found.

to include the name of the absin segment and the queue searched (unless "-all" is used).

Multics Change Request

TITLE: Fix bug in syserr_logger		STATUS	DATE
AUTHOR: B. Silver		Written	12/06/74
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-explain in DETAILED PROPOSAL		Status	A 12/17/74
-Planned for System MR		Expires	6/17/75
-Fixes Bug Number(s) TROO21		DOCUMENTATION CHANGES	
-Documented in MTR		Document	Specify One or More
-User/Operations-visible		MPM (Vol, Sect.)	
Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		PLMS (AN #)	
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		MOSN (Sect.)	
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same		MPAM (Sect.)	
<input type="checkbox"/> Worse		MSAM (Sect.)	
-Replaces MCR		Info Segs	
Objections/Comments:		Other (Name)	
		None (Reason) no interface change	

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

**SUMMARY:** Fix bug in syserr\_logger that causes paged syserr\_log to get into an inconsistent state. The bug involves syserr\_logger referencing data in syserr\_log before it locks it.

Multics Change Request

TITLE: bug fix - io\_call  
AUTHOR: M. Grady

STATUS	DATE
Written	12/10/74
Status	A 12/17/74
Expires	6/12/75

-Coded in:  PL/I  ALM  other-  
 explain in DETAILED PROPOSAL  
 -Planned for System MR \_\_\_\_\_  
 -Fixes Bug Number(s) unreported  
 -Documented in MFB \_\_\_\_\_  
 -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"/>	ROS
<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) not required

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

SUMMARY: the io\_call command print\_iocb function does not work, due to a bug in the code. The bug should be fixed.

REASONS: It would be nice to have the print\_iocb function working.

IMPLICATIONS: None

DETAILED PROPOSAL: Fix the bug.

TITLE: file_dim performance improvement		STATUS	DATE
AUTHOR: M. Grady		Written	12/10/74
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 2.0 -Fixes Bug Number(s) _____ -Documented in MFB _____ -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 _____		Status	A 12/17/74
		Expires	6/12/75
		DOCUMENTATION CHANGES	
		Document	Specify One or More
			MPM (Vol, Sect.)
			PLMS (AN #)
			MOSN (Sect.)
			MPAM (Sect.)
			MSAM (Sect.)
Objections/Comments: Emergency fix for 2.0		Info Segs	
		Other (Name)	
		None (Reason) not required	

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

**SUMMARY:** The file\_dim, which is used by many system programs (esp. gcoss), uses a csl instruction to copy data from buffer to segment. In the two most common uses of file\_, the 9 and 36 bit element sizes, it would be much more efficient to use an mlr instruction.

**REASONS:** Performance improvement. Also the sys/m hardware sometimes fails on certain types of csl instructions.

**IMPLICATIONS:** Could be construed as programming around a hardware bug.

**DETAILED PROPOSAL:** Recode the file\_dim to special case the 9 + 36 bit element sizes.

Multics Change Request

TITLE: Fixes for handling cpu time

STATUS

DATE

AUTHOR: Paul A. Green

Written

12/13/74

Status

A 12/17/74

Expires

6/17/75

- Coded in:  PL/I  ALM  other-  
explain in DETAILED PROPOSAL
- Planned for System MR NA
- Fixes Bug Number(s) 301
- Documented in MTB NA
- 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
- Ring One
- SysDaemon/Admin.
- Runtime
- User Cmnd/Subr.

DOCUMENTATION CHANGES

Document Specify One or More

MPM (Vol, Sect.)

PLMS (AN #) AN70

MOSH (Sect.)

MPAM (Sect.)

MSAM (Sect.)

Objections/Comments:

Info Segs

Other (Name)

None (Reason)

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

SUMMARY: Fix bug #301 - erroneous discrepancy messages on initializer terminal  
Fix unreported bug in computation of gate meters.

Reasons: Bug Fixes

Implications: None

Detailed Proposal: Change init\_processor.alm to initialize pds\$cpu\_time and  
prds\$last\_recorded\_time for idle process.  
Change gate\_macros.incl.mexp to turn on inhibit bit while calculating  
cpu times. Change tc data and tc init to eliminate earlier attempt  
to fix bug #301 and eliminate movdef pseudo-op, respectively.  
(movdef requires old object segment format).

Ver. 3	MULTICS CHANGE REQUEST	MCR 932
741022		
TITLE: error_table_codes for tape_ansi_ I/O Module	STATUS: Written	DATE: 12/13/74
AUTHOR: Ross E. Klinger	Status: A	12/24/74
	Expires:	06/13/75
Planned for System: MR SR2.1	CATEGORY (check one)	
Fixes Bug Number(s): not applicable	<input type="checkbox"/> Lib. Maint. Tools	
Documented in MTB: MTB-127 tape_ansi_	<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 type="checkbox"/> PL/I <input type="checkbox"/> ALM <input checked="" 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	
	<input type="checkbox"/> Ring Zero	
DOCUMENTATION CHANGES (specify one or more)	<input type="checkbox"/> Ring One	
MPM (vol,sect) MPAM (sect)	<input type="checkbox"/> SysDaemon/Admin	
MOSN (sect) MSAM (sect)	<input type="checkbox"/> Runtime	
PLMs (AN#)	<input type="checkbox"/> User Command/Subr	
Info Segs	<input checked="" type="checkbox"/> error_table_	
Other		
None (reason) no documentation necessary		
OBJECTIONS/COMMENTS:		

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

SUMMARY: 1) Add 4 new codes to error\_table\_.  
 2) Remove 1 code from error\_table\_.  
 3) Change 1 error\_table\_ code message.

REASON: 1) The tape\_ansi\_ I/O Module reports errors which are not defined by existing codes.  
 2) The code not\_ascii\_subset, which was added to the error\_table\_ specifically for the I/O Module, is no longer required.  
 3) The existing codes bad\_valid and bad\_tapeid are currently multiple names for the same message, "Invalid volume identifier." As 3 identifying constructs are now used with tapes (volume name, slot id, and volume identifier), the message for bad\_tapeid should refer to the volume name.

IMPLICATIONS: 1) The I/O Module will be able to report all errors.  
 2) None - not\_ascii\_subset is, and will not be, used.  
 3) Distinction can be made between invalid volume name and invalid volume identifier. Neither code is presently used.



DETAILED PROPOSAL: 1) Add the following 4 codes to the error\_table\_:

discrepant\_block\_count: dsbkct, Read and recorded block counts do not agree.;

valid\_expiration: invexp, File expiration date exceeds that of file set.;

unexpired\_volume: unexpvl, Cannot continue processing an unexpired volume.;

uninitialized\_volume: uninitvl, Cannot continue processing an uninitialized volume.;

2) Remove the code not\_ascii\_subset from the error\_table\_.

3) Make the existing code bad\_tapeid a unique entry:

bad\_tapeid: badtpid, Invalid volume name.;

Multics Change Request

TITLE: Implement new Peripheral status reporting mechanism		STATUS	DATE
AUTHOR: Noel I. Morris		Written	12/18/74
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input checked="" type="checkbox"/> other-explain in DETAILED PROPOSAL -Planned for System MR NA -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 12/24/74
		Expires	6/24/75
		DOCUMENTATION CHANGES	
		Category (Check One)	Document Specify One or More
		Lib. Maint. Tools	
		Sys. Anal. Tools	
		Sys. Prog. Tools	
		355	
		BOS	
		Salvager	MPM (Vol, Sect.)
		Ring Zero	PLMS (AN #) AN 65
		Ring One	MOSN (Sect.)
		SysDaemon/Admin.	MPAM (Sect.)
		Runtime	MSAM (Sect.)
		User Cmmnd/Subr.	
		X user ring I/O	
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

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

SUMMARY:

Implement table-driven status reporting mechanism as described in MTB-145. Initially, implement the mechanism for printer, card reader, and card punch. At a later time, the mechanism can be extended for tape status reporting.

Implications:

The amount of code in the system for specialized device status reporting will decrease.

TITLE: Additions to the PIT

STATUS

DATE

AUTHOR: F. C. Smith

Written

12/12/74

Status

A 12/24/74

Expires

6/24/75

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

Category (Check One)

Lib. Maint. Tools

-Planned for System MR NA

Sys. Anal. Tools

-Fixes Bug Number(s) \_\_\_\_\_

Sys. Prog. Tools

-Documented in MFB \_\_\_\_\_

355

DOCUMENTATION CHANGES

-User/Operations-visible

Document

Specify One or More

Interface change?  yes  no

BOS

MPM (Vol, Sect.)

-Incompatible change?  yes  no

Salvager

PLMS (AN #) AN 72

-Performance:  Better  Same  
 Worse

Ring Zero

Ring One

MOSN (Sect.)

-Replaces MCR \_\_\_\_\_

SysDaemon/Admin.

MPAM (Sect.)

Runtime

User Cmmd/Subr.

MSAM (Sect.)

Objections/Comments: Don't install until another  
MCR on user\_info\_ is approved and new user\_info\_  
is ready to install.

Info Segs

Other (Name)

None (Reason) Transparent change

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

**SUMMARY:** Create entries in the PIT for the memory units and terminal I/O operations used by previous processes in the current session. Modify `cpg_` to copy the memory units for previous processes from `answer_table` to the PIT at process initialization.

**Reasons:** Procedures which supply users with information about usage by past processes in the current session or about usage totals for a session can currently obtain only the figure for CPU usage. They also need access to the total memory units, and when Multics starts to charge for terminal I/O, they will need the figures for terminal I/O operations.

**Implications:** Users will be able to obtain accurate usage figures for a session. Procedures which do not reference this information will not be affected.

TITLE: "if" command		STATUS	DATE 12-10-74
AUTHOR: C. C. Zethraeus		Written	12/18/74
-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 MTR _____ -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 12/24/74
		Expires	6/24/75
		DOCUMENTATION CHANGES	
		Document	Specify One or More
		Category (Check One)	
		<input type="checkbox"/> Lib. Maint. Tools	
		<input type="checkbox"/> Sys. Anal. Tools	
		<input checked="" type="checkbox"/> Sys. Prog. Tools	
		355	
		POS	
		Salvager	MPM (Vol, Sect.) Vol. 3, Sect. 9
		Ring Zero	PLMS (AN #) AN 51
		Ring One	
		SysDaemon/Admin.	MOSN (Sect.)
		Runtime	MPAM (Sect.)
		User Cmmd/Subr.	MSAM (Sect.)
Objections/Comments: We are hesitant to unleash this on the general user community at this time.		Info Segs	
		Other (Name)	
		None (Reason)	

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

**SUMMARY:** Add an "if" command to the supported Multics command repertory, which is analogous to the exec\_com "&if" control line.

**REASONS:** This command rounds out the facility provided by the "do" command.

**IMPLICATIONS:** In order to provide compatibility with the current, SPS-documented "if" command, the proposed "if" is implemented as an extension to the current "if". However, the proposed MPM write-up (attached) describes only the usage of "if" with logical active functions, for simplicity and consistency with exec\_com.

**DETAILED PROPOSAL:** See attached MPM write-up. The modified version of "if" is available for use in >udd>m>ccz>re>if on System M in Phoenix; the source is in >udd>m>ccz>pl1\_source.archive as the if.pl1 component. A help-file is in >udd>m>ccz>re>if.info. The MPM write-up is in >udd>m>ccz>re>if.runoff.

Command  
Standard Service System  
12/5/74

Name: if

This command provides conditional execution of one of two command lines. It may also be called as an active function.

Usage

if truth-value -then c1 -else c2

- 1) truth-value is either "true" or "false".
- 2) -then the literal character string.
- 3) c1 command line executed if truth-value is "true".
- 4) -else the literal character string.
- 5) c2 command line executed if truth-value is "false".

The "-then c1" portion and the truth-value must be supplied; all the other parts may be omitted. If truth-value is "true", then c1 is passed to the command processor. If truth-value is "false", then c2 is passed to the command processor. If the "-else c2" portion is omitted, and truth-value is "false", no action will be taken. If the "-else c2" portion is supplied, it must come after the "-then c1" portion. Command lines to be executed will be passed to the user's current command processor procedure via a call to cu\_sco. If either the c1 or the c2 argument is omitted, no action will result.

Usage as an Active Function

[if truth-value -then c1 -else c2]

Either c1 or c2 is selected as described above, and is returned as the value of the active function. If the selected string was not provided, a null string is returned. It is not required that c1 and c2 be command lines.

Example

If the user has an abbrev. CWD, for:

```
do "if [exists directory &1] -then ""cwd &1""  
    -else ""ioa_ No^xdirectory^x&1.""
```

then the following command line checks for errors before calling the change\_wdir command:

```
CWD fred
```

Note that the arguments to the command processor contain blanks and so are in quotes.

Multics Change Request

TITLE: Change to lpatch command		STATUS	DATE
AUTHOR: Larry Johnson		Written	12/16/74
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR NA -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	12/24/74
		Expires	6/24/75
		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)	not visible

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

SUMMARY: Recode l patch to use installation\_tools \$add\_acl\_entries instead of installation\_tools \$add\_acl

REASON:

installation\_tools \$add\_acl is obsolete

Multics Change Request

TITLE: Fix bug in ring_1_patch_		STATUS	DATE
AUTHOR: Larry Johnson		Written	12/16/74
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR <u>NA</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 _____		Status	A 12/24/74
		Expires	6/24/75
		DOCUMENTATION CHANGES	
Category (Check One)		Document	Specify One or More
<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			MPM (Vol, Sect.)
<input checked="" type="checkbox"/> Ring Zero			PLMS (AN #)
<input type="checkbox"/> Ring One			
<input type="checkbox"/> SysDaemon/Admin.			MOSN (Sect.)
<input type="checkbox"/> Runtime			MPAM (Sect.)
<input type="checkbox"/> User Cmnd/Subr.			MSAM (Sect.)
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason) not user-visible	

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

SUMMARY:

ring\_1\_patch\_ must change the ring number of the pointer to the area being patched to 1.



TITLE: Fix status reporting bug in I/O Interfacer

AUTHOR: Noel I. Morris

Written	12/18/74
Status	A 12/24/74
Expires	6/24/75

- Encoded in:  PL/I  ALM  other-  
explain in DETAILED PROPOSAL
- Planned for System MR 2.1
- Fixes Bug Number(s) Unreported
- Documented in MCB
- 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"/>	ROS
<input type="checkbox"/>	Salvager
<input checked="" type="checkbox"/>	Ring Zero
<input type="checkbox"/>	Ring One
<input type="checkbox"/>	Sys Daemon/Admin.
<input type="checkbox"/>	Runtime
<input type="checkbox"/>	User Cmd/Subr.

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

Objections/Comments:

Info Segs
Other (Name)
None (Reason) Not user visible

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

**SUMMARY:**

If a channel termination due to an error occurs when a DCW list is first connected, the DCW list offset reported to the user of the I/O Interfacer is incorrect. This condition is a special case since the first instruction DCW must be copied into a protected p[er]ce in the hardcore ring.

**Proposal:**

Modify the I/O Interfacer to recognize this special case and correctly report the DCW list offset.

Multics Change Request

TITLE: Fix I/O Interfacer Bug in computing DCW AUTHOR: list connect index Noel I. Morris		STATUS	DATE
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 2.1 -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 _____		Written	12/18/74
		Status	12/24/74
		Expires	6/24/75
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 Cmmnd/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) Not user visible			
Objections/Comments:			

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

SUMMARY:

Since connects in the I/O Interfacer are not done directly to the user's DCW list, a "special" list index must be computed for connecting to a user's DCW list. The connect is actually done to an IDCW which performs a reset status and continue operation. This IDCW is followed by a TDCW which transfers to the correct place in the user's DCW list and sets the relative addressing mode in the IOM channel. If the I/O Interfacer user's workspace buffer becomes wired down at a location that is greater than the location of the special IDCW/TDCW pair, a negative connect list index will be computed. This number should really be taken mod 256K to provide a proper addressing offset.

Implementation:

Correct the code to take the list index mod 256K.

Implication:

Certain unexplained "funnies" (e.g. the inability to mount tapes at certain times) may disappear.

TITLE: Fix bug preventing deletion of bootload CPU.

AUTHOR: S. Webber

STATUS

DATE

Written

12/20/74

Status

A 12/24/74

Expires

6/24/75

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

Category (Check One)

-Planned for System MR

-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

Lib. Maint. Tools

Sys. Anal. Tools

Sys. Prog. Tools

355

BOS

Salvager

X Ring Zero

Ring One

SysDaemon/Admin.

Runtime

User Cmmd/Subr.

DOCUMENTATION CHANGES

Document

Specify One or More

MPM (Vol, Sect.)

PLMS (AN #)

MOSN (Sect.)

MPAM (Sect.)

MSAM (Sect.)

Objections/Comments:

Info Segs

Other (Name)

None (Reason) not needed.

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

SUMMARY: Fix bug preventing deletion of bootload CPU. Small changes in the program init\_processor.

REASONS: It doesn't work.

Multics Change Request

TITLE: Zero unwanted interrupts in system controllers  
AUTHOR: Bernard S. Greenberg

STATUS	DATE
Written	12/20/74
Status	A 12/24/74
Expires	6/24/75

-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3 -Fixes Bug Number(s) undoc -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
	Lib. Maint. Tools Sys. Anal. Tools Sys. Prog. Tools 355 BOS Salvager Ring Zero Ring One SysDaemon/Admin. Runtime User Cmmd/Subr.	Document Specify One or More MPM (Vol, Sect.) PLMS (AN #) 71, 70 MOSN (Sect.) MPAM (Sect.) MSAM (Sect.)

Objections/Comments:

Info Segs
Other (Name)
None (Reason)

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

SUMMARY: Zero all interrupt cells in non-bootload memory controllers at system initialization time.

REASONS: Reliability. A frequent cause of reconfiguration failure is the existence of pending interrupts from previous bootloads in non-bootload system controllers. These interrupts causes random action by a CPU being added at the time EIMA switches are thrown.

IMPLICATIONS: Increased success rate of CPU reconfiguration.

DETAILED PROPOSAL: Change start\_cpu to issue SSCR instructions directed at all non-bootload controllers, zeroing their interrupt cells, at the time it now sets the masks in these controllers. Furthermore, have it check the EIMA switch setting on these controllers so that a syserr message stating the wrong EIMA switch will result instead of 'ATTEMPT TO TERMINATE INITIALIZER PROCESS' when an attempt to set these masks fails because of a wrongly set switch.