To: Distribution

From: M. S. Hodges

Date: May 31, 1974

Subject: Multics Change Requests

Enclosed are copies of Multics Change Requests which
were approved from May 16 - 31, 1974.

MULTICS CHANGE REQUEST		MCR 505	
		Page 1 of 1 Pages	
TITLE: Change DN355 Interrupt Assignments		STATUS	DATE
		Written	5/8
		Approved #	5/21/74
AUTHOR: Noel I. Morris		Rejected	
SOURCE: (if external) e.g., "User", "Marketing"		Postponed #	5/14/74
Internal		Withdrawn	
		Expires	11/21/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change	.	Marketing Requirement	Implemented in System _____
☒	Extension	☒	Conformance to Standard	Objections/Comments:
	Restriction	☒	Increased Consistency	
	Performance Improvement	☒	Simplification	
	Reliability Improvement	☒	Generalization	
			Bug Fix	

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

REASONS:
Currently, the DN355 routines send interrupts to the 6180 through
the use of interrupt levels which are not used by the IOM. These
interrupts are sent directly to the DN355 interrupt handler,
bypassing the iom_manager. Future IOMs will use more interrupt
levels, causing a conflict with the currently assigned DN355
interrupts. The iom_manager is perfectly capable of handling
interrupts generated by the DN355 and sending them on to the
DN355 interrupt handler.

Summary:
System initialization would be changed to avoid setting up special
interrupt cells for the DN355. The DN355 programs would be changed
to use interrupt levels currently used by the IOM. The DN355
interrupt handler would be changed to accept calls from the
iom_manager.

Implications:
This change will remove a potential conflict, and will free up
two interrupt cells (which will be used by future hardware).

MULTICS CHANGE REQUEST

MCR ___508___
Page 1 of 1 Pages

TITLE: **Addition of get_salv_bit function to Version 1 message facility**

AUTHOR: **Peter Haber**

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

STATUS	DATE
Written	5/10/74
Approved #	5/21/74
Rejected	
Postponed	
Withdrawn	
Expires	11/21/74

CLASSIFICATION		JUSTIFICATION	
	Incompatible Change		Marketing Requirement
x	Extension	•	Conformance to Standard
	Restriction		Increased Consistency
	Performance Improvement		Simplification
	Reliability Improvement		Generalization
			Unreported Bug Fix

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments: .

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

REASONS:

The check_salv_bit function is not currently callable as a Version 1 function. However iodc_ makes a call to check_salv_bit_ptr.

SUMMARY:

Add function to write_around

IMPLICATIONS:

Will be deleted when message segment calls on the system are converted to Version II

MULTICS CHANGE REQUEST

MCR	509	
Page 1 of 1 Pages		

TITLE: Bug fix for if Command	STATUS	DATE
	Written	5/10/
	Approved	5/21/74
AUTHOR: David S. Levin	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/21/74

Replaced by proposal MCR _____

Implemented in System _____

CLASSIFICATION		JUSTIFICATION		Objections/Comments:
	Incompatible Change		Marketing Requirement	
	Extension	•	Conformance to Standard	(Tool)
	Restriction		Increased Consistency	
	Performance Improvement		Simplification	
x	Reliability Improvement		Generalization	
		x	**unreported** Bug Fix	

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

REASONS:

The if command should allocate storage equal to the length of the command line to be executed rather than store this command line in a fixed length character string of 120 characters.

IMPLICATIONS:

If command will properly handle long command lines.

MULTICS CHANGE REQUEST	MCR 510
	Page 1 of 1 Pages

TITLE: **Fix remote device driver for new g 115_dim interface**	STATUS	DATE
	Written	5/13/74
AUTHOR: **Robert S. Coren**	Approved	5/21/74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/21/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change		Marketing Requirement	
	Extension	x	Conformance to Standard	Implemented in System _____
	Restriction		Increased Consistency	Objections/Comments:
	Performance Improvement	x	Simplification	
	Reliability Improvement		Generalization	
X	**Effect of redesign**		Bug Fix	

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

REASONS:

g 115 DIM has been changed so that all the various streams for I/O with the remote device can be attached through the same DIM, but with different modes.

SUMMARY:

Change calls to ios_$attach in remote_ to specify modes "printer", "punch", "reader", or "teleprinter", according to how the stream is to be used.

IMPLICATIONS:

Future remote DIMs can use the same attach entry point for all four streams, provided they examine the mode argument. On the other hand, separate DIMs (as specified in io_daemon_parms) are still usable.

MULTICS CHANGE REQUEST		MCR 511	
		Page 1 of 1 Pages	
TITLE: Fix Bug in BOS SAVE and RESTOR commands		STATUS	DATE
		Written	5/1/74
AUTHOR: Noel I. Morris		Approved #	5/21/74
		Rejected	
SOURCE: (if external) e.g., "User", "Marketing"		Postponed	
		Withdrawn	
Internal		Expires	11/21/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
X	Incompatible Change	X	Marketing Requirement	Implemented in System _____
X	Extension	X	Conformance to Standard	Objections/Comments:
	Restriction	X	Increased Consistency	
X	Performance Improvement		Simplification	
X	Reliability Improvement	X	Generalization	
		X	Unreported Bug Fix	

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

REASONS:

A special segment is created by the BOS SAVE and RESTOR commands to hold
the map of used secondary storage records. This segment is not large enough
to hold the free storage map for a system with large amounts of secondary storage.
When a SAVE is attempted on such a system, the SAVE command dies with an
illegal procedure fault on this segment.

Summary:

The bound of the special segment will be increased from 8K to 32K. This will
allow a system with up to four disk subsystems to perform a SAVE successfully.

Implications:

BOS will no longer be capable of operating in only 64K of memory. It will
require at least 96K of memory to perform a SAVE.

MULTICS CHANGE REQUEST

MCR _____ 512

Page 1 of 1 Pages

TITLE: **Fixes to Map355**

AUTHOR: R.B. Snyder

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

STATUS	DATE
Written	5/15/74
Approved #	5/21/74
Rejected	
Postponed	
Withdrawn	
Expires	11/21/74

CLASSIFICATION		JUSTIFICATION	
	Incompatible Change		Marketing Requirement
	Extension		Conformance to Standard
	Restriction		Increased Consistency
	Performance Improvement		Simplification
x	Reliability Improvement		Generalization
		x	**unreported** Bug Fix

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments:

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

REASONS:

Map355 currently tries to produce a gcos comdeck. It does this in an incorrect format and it really doesn't even need to produce a comdeck

SUMMARY:

Map355 will be changed to produce some different gcos control cards to cause gcos to read the ascii source file thereby eliminating the need to produce a comdeck.

IMPLICATIONS:

None

MULTICS CHANGE REQUEST

| MCR 513 |
| Page 1 of 1 Pages |

TITLE: **Fixes to 355 software**

AUTHOR: __R.B. Snyder__

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

local

STATUS	DATE
Written	5/15
Approved	5/21/74
Rejected	
Postponed	
Withdrawn	
Expires	11/21/74

CLASSIFICATION	JUSTIFICATION	
Incompatible Change	Marketing Requirement	Replaced by proposal MCR _____
Extension	Conformance to Standard	Implemented in System _____
Restriction	Increased Consistency	Objections/Comments:
x Performance Improvement	Simplification	
Reliability Improvement	Generalization	
	x **unreported** Bug Fix	

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

REASONS:

The 355 buffer manager currently schedules the deallocation of a buffer chain. If the 355 is very busy, this can be delayed for quite some time thereby causing a needless tie up of buffer space.

SUMMARY:

The deallocation will be done when requested rather than being done at a later date.

IMPLICATIONS:

Fewer crashes.

MULTICS CHANGE REQUEST	MCR __514__

TITLE: Improvements to console_report	STATUS	DATE
	Written	05/08/74
AUTHOR: VanVleck	Approved	5/21/74
	Rejected	
SOURCE: (if external: e.g., "User", "Marketing")	Postponed	
	Withdrawn	
	Expires	11/21/74

CLASSIFICATION	JUSTIFICATION	
		Replaced by proposal MCR ___
| Incompatible	| Marketing	
|_ Change	|_ Requirement	Implemented in System ___
|X|	| Conformance	
|_ Extension	|_ to Standard	Objections/Comments:
| |	| Increased	
|_ Restriction	|_ Consistency	
| Performance	| |	
|_ Improvement	|_ Simplification	
| Reliability	|X|	
|_ Improvement	|_ Generalization	
| |	| |	
|_|_____	|_ Bug Fix ____	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, and optionally
DETAILED PROPOSAL

REASONS:

The console_report program lists all terminals by ID code, and shows who
used the terminals and how many times. The report would be much more
useful for system management purposes if it also listed the total CPU and
connect time.

The old version of the program used to list connect time, but this facility
was lost when the program was converted from scanning the "accounting deck"
which the system used to produce to scanning the answering service log,
because sessions which began in one log and ended in another sounded like
they would be too difficult to handle. A simple solution to this
difficulty has been found.

SUMMARY:

Calculate connect and CPU time while scanning the answering service logs,
accumulate the total in the usage data bases, and show the totals on the
report. Totals for each terminal type will also be accumulated and
printed.

IMPLICATIONS:

It will be easier to distinguish between heavily-used and occasionally-used
terminals, and to identify the principal user of a terminal. The totals by

terminal type will assist the installation management in deciding how
allocate the terminal channels on the system between different baud rates,
and the information on network channel usage may help installations which
use this facility determine the amount of emphasis to place on it.

MULTICS CHANGE REQUEST	MCR _515____	
TITLE: Recompile message coordinator with EIS compiler	STATUS	DATE
	Written___	05/08/74
AUTHOR: VanVleck	Approved A	5/21/74
	Rejected__	
SOURCE: (if external: e.g., "User", "Marketing")	Postponed	
	Withdrawn_	
	Expires___	11/21/74

CLASSIFICATION	JUSTIFICATION	
		Replaced by proposal MCR____
Incompatible Change_____	Marketing Requirement___	Implemented in System___
_Extension____	X Conformance to Standard___	Objections/Comments:
_Restriction___	Increased Consistency___	
X Performance Improvement___		
Reliability Improvement___	_Simplification	
	_Generalization	
_____	Bug Fix_____	
_____		

Use these headings: REASONS, SUMMARY, IMPLICATIONS, and optionally
DETAILED PROPOSAL

REASONS:

The improved code generated by the EIS compiler should make the message
coordinator consume less of the system's resources.

SUMMARY:

Recompile message coordinator with EIS compiler. Make any obvious and easy
changes to take advantage of language features which are now more efficient
(e.g. verify BIF).

IMPLICATIONS:

System overhead should be reduced.

MULTICS CHANGE REQUEST	MCR __516___

TITLE: Recompile answering service with EIS compiler	STATUS	DATE
	Written	05/08/74
AUTHOR: VanVleck	Approved	5/21/24
	Rejected	
SOURCE: (if external: e.g., "User", "Marketing")	Postponed	
	Withdrawn	
	Expires	11/21/24

CLASSIFICATION	JUSTIFICATION	
		Replaced by proposal MCR _____
_ Incompatible Change	_ Marketing Requirement	Implemented in System _____
	X Conformance to Standard	Objections/Comments:
_ Extension		
	_ Increased	
_ Restriction	Consistency	
X Performance Improvement	_ Simplification	
_ Reliability Improvement	_ Generalization	
_	_ Bug Fix	
_	_	

Use these headings: REASONS, SUMMARY, IMPLICATIONS, and optionally
DETAILED PROPOSAL

REASONS:

The improved code generated by the EIS compiler should make the answering
service consume less of the system's resources.

SUMMARY:

Recompile answering service with EIS compiler. Make any obvious and easy
changes to take advantage of language features which are now more efficient
(e.g. verify BIF).

IMPLICATIONS:

System overhead should be reduced.

MULTICS CHANGE REQUEST		MCR 517
		Page 1 of 1 Page

TITLE: bug in tty_inter	STATUS	DATE
	Written	5/16/74
	Approved *A*	5/21/74
AUTHOR: R.B. Snyder	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/21/74

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
	Incompatible Change	Marketing Requirement	
	Extension	Conformance to Standard	Implemented in System _____
	Restriction	Increased Consistency	Objections/Comments:
	Performance Improvement	Simplification	
X	Reliability Improvement	Generalization	
		x	**unreported** Bug Fix	

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

REASONS:

   tty_inter manipulates a status queue without the global tty_dim lock being
   locked.

SUMMARY:

   tty_inter will set the lock before manipulating the queue and will clear it
   afterwards.

IMPLICATIONS:

   None

MULTICS CHANGE REQUEST

MCR	518
Page 1 of 1 Pages	

TITLE: Bug in archive

AUTHOR: Steve Herbst

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

STATUS	DATE
Written	5/15
Approved	5/21/74
Rejected	
Postponed	
Withdrawn	
Expires	11/21/74

CLASSIFICATION		JUSTIFICATION	
	Incompatible Change		Marketing Requirement
	Extension	•	Conformance to Standard
	Restriction		Increased Consistency
	Performance Improvement		Simplification
X	Reliability Improvement		Generalization
		X	**unreported** Bug Fix

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments:

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

REASONS:

An update operation with no component names may try to terminate a "component" through an unset pointer.

SUMMARY:

Move the statement that terminates a component if no work is to be done with it.

| MULTICS CHANGE REQUEST | MCR 519 |
| | Page 1 of 1 Pages |

TITLE: Attempt to fix lockup fault problem when returning from BOS	STATUS	DATE
	Written	5/16/74
AUTHOR: Steve Webber	Approved #	5/21/74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/21/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change		Marketing Requirement	
	Extension		Conformance to Standard	Implemented in System _____
	Restriction	x	Increased Consistency	Objections/Comments:
	Performance Improvement		Simplification	
	Reliability Improvement		Generalization	
		x	Bug Fix 214	

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

REASONS:

It is possible to take a lockup fault when returning to Multics. This fault causes problems at times.

SUMMARY:

Since the code is masked for the time BOS is entered, it is not necessary that it be inhibited as well. Change the code to uninhibit at the appropriate places thereby resetting the lockup fault timer which may have just about run out due to the work of BOS.

MULTICS CHANGE REQUEST

MCR   520
Page 1 of 1 Pages

TITLE: **Fix bug initiating segs with the copy switch on**

AUTHOR: **Steve Webber**

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

STATUS	DATE -
Written	5/16/
Approved	# 5/21/74
Rejected	
Postponed	
Withdrawn	
Expires	11/21/74

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments:

CLASSIFICATION		JUSTIFICATION	
	Incompatible Change		Marketing Requirement
	Extension	•	Conformance to Standard
	Restriction	x	Increased Consistency
	Performance Improvement		Simplification
	Reliability Improvement		Generalization
		x	Bug Fix **276**

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

REASONS:

The length of copied segments copied because of the copy switch mechanism is not always calculated correctly.

SUMMARY:

Put call to status_$long in program to get correct length. This will cause an update of the branch info which is often necessary for new segments.

MULTICS CHANGE REQUEST	MCR 521
	Page 1 of 1 Pages

TITLE: **Fix bug preventing all oc messages from coming out**	STATUS	DATE
	Written	5/16/74
AUTHOR: **Steve Webber**	Approved	5/21/74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/21/74

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
Incompatible Change	Marketing Requirement	
		Implemented in System _____
Extension	Conformance to Standard	Objections/Comments:
	Increased
Restriction	x Consistency	
Performance Improvement		
	Simplification	
Reliability Improvement		
	Generalization	
	unreported	
	x Bug Fix	

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

REASONS:

It is possible for messages to be typed on the operator's console to be
left unprinted in the hardware buffer. This can happen if a return to BOS
is made before all writes have been started. BOS will not start such writes.
(The mechanism depends on the completion of a previous write before issuing
the connect for the next write.)

SUMMARY:

Place calls in the shutdown code to the OC DCM (and also to the paging DIM's)
to make sure they have completed all I/O.

MULTICS CHANGE REQUEST

MCR 522
Page 1 of 1 Pages

TITLE: Remove entries initiate_seg + initiate_seg_count from hcs_	STATUS	DATE
	Written	5/16/
AUTHOR: Steve Webber	Approved	5/21/74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/21/74

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments:

CLASSIFICATION		JUSTIFICATION	
x	Incompatible Change		Marketing Requirement
	Extension		Conformance to Standard
	Restriction	x	Increased Consistency
	Performance Improvement		Simplification
	Reliability Improvement		Generalization
		x	**unreported** Bug Fix

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

REASONS:

The two entries initiate_seg + initiate_seg_count should be removed from hcs_ as they provide an entry into ring 0 that was not intended to be externally available. Calling the entries can cause this system to crash.

SUMMARY:

Change hcs_.mexp

IMPLICATIONS:

No one in the system calls these but users may. They are <u>not</u> official or documented in the MPM.

| MULTICS CHANGE REQUEST | MCR 523 |
| | Page 1 of 1 Pages |

TITLE: qedx: incorrect cleanup bug	STATUS	DATE
	Written	5/14/74
AUTHOR: M.A. Meer	Approved #	5/21/74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
Roach-MIT	Withdrawn	
TAVARES-AFSDC	Expires	11/21/74

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
Incompatible Change	Marketing Requirement	Implemented in System _____
Extension	Conformance to Standard	Objections/Comments:
Restriction	Increased Consistency	
Performance Improvement	Simplification	
Reliability Improvement	Generalization	
	X Bug Fix lib 0024P md 0019P	

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

REASONS:

Incorrect cleanup 1) can leave large segments in the user's process directory.
2) does not give "pending work will be lost" message on entry after a quit.

SUMMARY:

The switch indicating that qedx has been initialized was not set "on". When tested this indicated that nothing was present to be cleaned up.

IMPLICATIONS:

None

PROPOSAL:

Set the initialization switch properly.

MULTICS CHANGE REQUEST	MCR 524
	Page 1 of 2 Pages

TITLE: Handling out_of_bounds on stack	STATUS	DATE
	Written	5/16/74
AUTHOR: M. Weaver	Approved	H 5/21/74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/21/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change		Marketing Requirement	Implemented in System _____
X	Extension	X	Conformance to Standard	Objections/Comments:
	Restriction		Increased Consistency	
	Performance Improvement		Simplification	
	Reliability Improvement		Generalization	
			Bug Fix	

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

REASONS:

When a reference is made beyond the end of the stack, the process is terminated, thereby destroying the stack and making the cause of the fault all the more difficult to detect.

Summary:

When an out_of_bounds fault occurs on a non-ring 0 stack, have the fim extend the stack if possible and signal the storage condition. This would allow both debugging and restarting. There are no current plans to automatically reset the maximum length of the stack after usage of the extended portion is complete.

IMPLICATIONS:

This has already been advertised in the MPM and the most recent PL/I manual. However, the proposed implementation differs somewhat so that the manuals would have to be updated.

In particular, the stack condition was to be signalled first, which in turn would signal the storage condition. Now the preference is for a single condition even though it means that storage would be signalled sometimes because of a hardware fault and somtimes because of a software detection (it is signalled "when the system storage used to allocate controlled or based variables is full"). It is not difficult for handlers to tell the difference.

In addition the stack will be extended enough to allow for debugging, thus easing the advertised 4k restriction on stack usage by handlers.

DETAILED PROPOSAL:

The default maximum length of the stack is 64k. Change the fim to call a subroutine when there is an out_of_bounds fault on a non-ring 0 stack. That procedure will extend the maximum length of the stack by 48k (this length allows for 4 extensions to 256k) and call the signaller for the storage condition. If the length of the stack cannot be extended by 48k, the process will be terminated.

Fix default_error_handler to handle the storage condition correctly.

MULTICS CHANGE REQUEST		MCR 526
		Page 1 of 1 Page

TITLE: Alleviate problems in shutdown	STATUS	DATE
	Written	4/10/74
AUTHOR: E. Stone	Approved	# 5/28/74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/28/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change		Marketing Requirement	Implemented in System _____
	Extension	•	Conformance to Standard	Objections/Comments:
	Restriction		Increased Consistency	
	Performance Improvement		Simplification	
X	Reliability Improvement		Generalization	
		X	Bug Fix 273	

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

REASONS:

Problems have resulted during shutdown from the fact that tc_shutdown
calls deact_proc$destroy for each process which is neither idle nor
stopped.

SUMMARY:
1. Change shutdown to call deactivate_segs rather than deact_proc$destroy.
2. Change tc_shutdown to turn wait_enable on.
3. Delete the entry deact_proc$destroy and the unused entry in hphcs_
which calls it.

IMPLICATIONS:
The effect of calling deactivate_segs is to release disk records used
by the descriptor segment of such processes.

The effect of not calling deact_proc in this instance is to eliminate
waiting for notifys from the traffic controller that the process has
stopped.(Notifys are no longer sent when a process has stopped.) This
change will also be useful in cleaning up the occasional process that
the answering service was unable to remove.

Turning wait_enable on will mean that the process performing the shutdown
will be the only process running. This in turn means that an orderly
shutdown must be the normal operational procedure. If the system is
shutdown while processes (other than the initializer) are running, these
processes will not be stopped.

MULTICS CHANGE REQUEST

MCR   527
Page 1 of 1 Pages

TITLE:	STATUS	DATE
Fix bug in configuration of dual synchronous HSLA subchannels	Written	5/16/
	Approved H 5/28/74	
AUTHOR: M.J. Grady	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/28/74

CLASSIFICATION | JUSTIFICATION

Replaced by proposal MCR _____

CLASSIFICATION		JUSTIFICATION	
	Incompatible Change		Marketing Requirement
	Extension	•	Conformance to Standard
	Restriction		Increased Consistency
	Performance Improvement		Simplification
	Reliability Improvement		Generalization
		X	**unreported** Bug Fix

Implemented in System _____

Objections/Comments:

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

REASONS:

Due to slight differences in configuration status stored by general purpose and dual sync subchannels, gint refused to use the dual sync subchannel.

SUMMARY:

Fix gint.map355

IMPLICATIONS:

None, dual sync channels will work.

coded and tested.

| MULTICS CHANGE REQUEST | MCR 528 |
| | Page ___ of ___ Pages |

TITLE: **Fix bugs in basic**	STATUS	DATE
	Written	740517
AUTHOR: **Barry L. Wolman**	Approved H 5/28/74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/28/74

CLASSIFICATION	JUSTIFICATION		Replaced by proposal MCR _____
Incompatible Change		Marketing Requirement	Implemented in System _____
Extension		Conformance to Standard	Objections/Comments:
Restriction		Increased Consistency	
Performance Improvement		Simplification	
Reliability Improvement		Generalization	
	x	**(see below)** Bug Fix	

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

REASONS:
 SUMMARY: Install new basic that fixes the following bugs:
 1. Number 26 in which 0∧2.5 is not properly diagnosed.
 2. Number 27 in which the statement sequence
         scratch #n
         margin #n : m
   does not work properly when the file is already active as a random string file;
   the file pointer is not reset and the margin is not altered.
 3. Number 28 in which the statement sequence
         file #n ; "*"
         file #n : "foo"
   causes runtime error 97 to be issued.
 4. Number 29 in which the tst and val functions did not accept strings with embedded
   blanks, e.g. "1.0 e-12"
 5. Number 30 in which the command
         basic foo.basic -compile
   causes the source segment foo.basic to be truncated!

A version of basic in which all of these bugs are fixed is available in experimental
library and has been tested.

MULTICS CHANGE REQUEST

MCR 529
Page 1 of 1 Pages

TITLE: Reused addresses in FSDCT, ROOT	STATUS	DATE
	Written	5/16
	Approved H	5/28/74
AUTHOR: A. Kobziar	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/28/74

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments:

CLASSIFICATION		JUSTIFICATION	
	Incompatible Change		Marketing Requirement
	Extension		Conformance to Standard
	Restriction		Increased Consistency
	Performance Improvement		Simplification
x	Reliability Improvement		Generalization
		x	unreported Bug Fix

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

REASONS:

If the salvager detects a reused address on a page that (also) belongs to the ROOT or FSDCT it will zero that page. This may require a complete reload.

SUMMARY:

Award the page to the FSDCT if it is in the FSDCT file map, else award the page to the ROOT if it is in the ROOT file map. Otherwise zero the page.

IMPLICATIONS:

The probability of giving away information (i.e., the page actually did not belong to the FSDCT or ROOT) is very low because the ROOT and the FSDCT are always rebuilt by the salvager and information not corresponding to their structures is discarded. A great deal is gained if the page does belong to the FSDCT or ROOT and is not zeroed.

MULTICS CHANGE REQUEST

TITLE: **Change to archive_star_**

AUTHOR: **Steve Herbst**

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

STATUS	DATE
Written	5/17/74
Approved	H 5/28/7:
Rejected	
Postponed	
Withdrawn	
Expires	11/28/7:

CLASSIFICATION		JUSTIFICATION	
	Incompatible Change		Marketing Requirement
	Extension	x	Conformance to Standard
x	Restriction		Increased Consistency
	Performance Improvement		Simplification
	Reliability Improvement		Generalization
			Bug Fix

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments:

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

REASONS:

   archive_star_ calls freen_.

SUMMARY:

   Make it use pll "free."

MULTICS CHANGE REQUEST

MCR ___531___
Page _1_ of _1_ Pages

TITLE: **Change debug assignment to use data descriptors.**

AUTHOR: Susan Barr

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

STATUS	DATE
Written	5/10/
Approved #	5/28/74
Rejected	
Postponed	
Withdrawn	
Expires	11/28/74

CLASSIFICATION		JUSTIFICATION	
X	Incompatible Change		Marketing Requirement
	Extension		Conformance to Standard
	Restriction		Increased Consistency
	Performance Improvement		Simplification
X	Reliability Improvement		Generalization
			Bug Fix

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments:

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

REASONS:

The current version of debug determines the type of input from the format
of the input line. It does not check the descriptors. There are two
problems with this;

a) The user could accidently store a value that did not match the
descriptors for the variable. For example, a fixed binary number
could be stored where the program expected a floating point number
because the user forgot to type the decimal point.

b) Data can not be assigned to a packed variable easily because
debug assumes 1 word storage space for arithmetic program variables.

PROPOSAL:

I propose using the data descriptors in assigning data to program variables.

1. The "=" operator would be used to assign data using the data
descriptors.

2. The "==" operator would be used to assign data to a program
variable or word location using the current debug conventions.

MULTICS CHANGE REQUEST

TITLE: Change debug input default to decimal	STATUS	DATE
	Written	5/10/74
AUTHOR: Susan Barr	Approved H	5/28/7?
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/28/7

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
X	Incompatible Change		Marketing Requirement	Implemented in System _____
	Extension		Conformance to Standard	Objections/Comments: .
	Restriction	X	Increased Consistency	For a), implement for program variable; only; leave register and temporaries
	Performance Improvement		Simplification	unchanged.
	Reliability Improvement		Generalization	
			Bug Fix	

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

REASONS:

There are some inconsistencies in the current version of debug.

a) When assigning a value to a program variable or a temporary storage area the default is octal, but when printing out those values the default is decimal.

b) Subscripts are decimal but the repetition factor used for entering data is octal.

$$a(\underset{\uparrow}{10}) = (\underset{\uparrow}{12}) \text{ -\&d7}$$

decimal octal

sets a(10) through a(19) to -7

c) The break skip request uses a decimal number but the continue skip request uses an octal number.

```
.bsl 8          skip break 1 8 times
.c, 10          continue execution and skip the next 8 breaks
```

PROPOSAL:

I propose using a decimal default for assigning data to program variables and for all counting arguments. Pointers offsets and instructions would still have a default of octal for input and output.

The default would be changed to decimal in the following cases:

a) Assigning a value to a program variable, register or temporary storage area.

b) The repetition argument used for entering data.

MCR _532

Susan Barr

    c) The skip argument on the continue request.

    d) The argument specifying the number of items to print.

    e) The numbering of the temporary storage areas. (%1, %2, etc.)

The user could still enter an octal number by typing &o before the number.

MULTICS CHANGE REQUEST

MCR ___535___
Page _1_ of _1_ Pages

TITLE:	STATUS	DATE
Message segment check for Bad Header Data	Written	5/20/74
	Approved #	5/28/74
AUTHOR: Peter Haber	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/28/7

CLASSIFICATION		JUSTIFICATION	
	Incompatible Change		Marketing Requirement
	Extension		Conformance to Standard
	Restriction		Increased Consistency
	Performance Improvement		Simplification
	Reliability Improvement		Generalization
		x	Bug Fix #0011P

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments:

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

REASONS:

"Reused page" errors on message segments sometimes caused 1st or more pages of message segments to be overwritten by what appeared to be linkage section data. Primitives did not check validity of first and last message offsets in header causing them to take "oob" err when this condition was encountered.

SUMMARY:

Put offset checks in Version 1 and Version 2 primitives.

IMPLICATIONS:

Will prevent occurance of "oob" errors if first and/or last message offsets get dobbered for any other reason.

Fix is related to bug # HRD0011P (MCR #479)

MULTICS CHANGE REQUEST

MCR   538
Page   1 of 1 Pages

TITLE: Fix BOS RESTOR Problem

AUTHOR: Noel I. Morris

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

Roger Roach

STATUS	DATE
Written	5/2
Approved	5/28/74
Rejected	
Postponed	
Withdrawn	
Expires	11/28/74

CLASSIFICATION		JUSTIFICATION	
	Incompatible Change		Marketing Requirement
	Extension		Conformance to Standard
	Restriction	X	Increased Consistency
	Performance Improvement		Simplification
X	Reliability Improvement		Generalization
		X	Unreported Bug Fix

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments:

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

REASONS:
When a disk record cannot be reloaded during a BOS RESTOR for reason of
tape errors, the information contained in BOS's disk buffer is written
onto the disk even though it has not been copied from the tape buffer.
This means that if disk record n is in error, the information contained
in record n-32 will be loaded into record n. This is a security violation.

Summary:
The RESTOR command will be modified to zero the contents of all disk records
which cannot be reloaded.

MULTICS CHANGE REQUEST

MCR ___539___
Page __1__ of __1__ Pages

TITLE: **Minor bug fix in reset_use_totals**

AUTHOR: __J.L. Homan__

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

STATUS	DATE
Written	5/22/74
Approved	# 5/28/74
Rejected	
Postponed	
Withdrawn	
Expires	11/28/74

CLASSIFICATION		JUSTIFICATION		
	Incompatible Change		Marketing Requirement	Replaced by proposal MCR _____
	Extension		Conformance to Standard	Implemented in System _____
	Restriction		Increased Consistency	Objections/Comments: .
	Performance Improvement		Simplification	
	Reliability Improvement		Generalization	
		x	ans 0042c Bug Fix	

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

REASONS:

  Currently the CPU idle times in use_totals are not zeroed out because
  of missing lines of code.

SUMMARY:

  The code will be fixed.

| MULTICS CHANGE REQUEST | MCR 540 |
| | Page 1 of 1 Pages |

TITLE: Fix bug in BOS DUMP	STATUS	DATE
	Written	5/22/
AUTHOR: Noel I. Morris	Approved #	5/28/74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
Internal	Expires	11/28/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change	•	Marketing Requirement	Implemented in System _____
	Extension	☒	Conformance to Standard	Objections/Comments:
	Restriction	☒	Increased Consistency	
	Performance Improvement		Simplification	
	Reliability Improvement		Generalization	
		☒	Unreported Bug Fix	

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

REASONS:

The section of the BOS dumper involved with dumping from disk (or bulk)
fails to take into account the fact that on disk, the assignment of disk
sectors is discontiguous   (i.e., that there are several unused disk
sectors at the end of each disk cylinder). This causes erroneous information
to be printed when more than one Multics record is dumped from the disk.

Summary:
Modify the "devdump" section of the BOS dumper to recompute the starting disk
sector for each Multics record dumped.

MULTICS CHANGE REQUEST	MCR 541
	Page 1 of 1 Pages

TITLE: gcos daemon root directory change	STATUS	DATE
	Written	5/23/74
AUTHOR: B. Morrison	Approved	5/28/7
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	28/7

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change		Marketing Requirement	Implemented in System _____
	Extension	X	Conformance to Standard	Objections/Comments:
	Restriction		Increased Consistency	
	Performance Improvement		Simplification	
	Reliability Improvement		Generalization	
X	Security improvement		Bug Fix	

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

REASONS: Make gcos daemon conform to MTB-057.

SUMMARY: Change route directory from >ddd to >gdd for user files.
              Change default home directory for absentee jobs.

IMPLICATIONS: gcos batch jobs are isolated from rest of Multics
               hierarchy in >gdd.

MULTICS CHANGE REQUEST

MCR	542
Page 1 of 1 Pages	

TITLE: Bind debug with ioa_ and formline_

AUTHOR: Barry L. Wolman

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

STATUS	DATE
Written	740
Approved	5/20/74
Rejected	
Postponed	
Withdrawn	
Expires	11/28/74

CLASSIFICATION		JUSTIFICATION	
	Incompatible Change		Marketing Requirement
	Extension		Conformance to Standard
	Restriction		Increased Consistency
	Performance Improvement		Simplification
	Reliability Improvement		Generalization
X	Temporary Measure	X	Prevent bug Bug Fix

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments:

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

REASONS: The current version of the debug command does not work properly with new version of formline_. In order to facilitate the installation of the new formline_, we propose to install, as a temporary measure, a version of debug that is bound with the old versions of ioa_ and formline_. This would enable the new formline_ to be installed without requring a simultaneous change to debug. The new version of debug, which is not yet ready for installation, works properly with the new formline_; it will be installed without being bound with ioa_ and formline_.

SUMMARY: bind debug with ioa_ and formline_.

IMPLICATIONS: fewer linkage faults from debug command; probably more paging.

MULTICS CHANGE REQUEST

MCR 543
Page 1 of 1 Page

TITLE:

Bug in copy_out

AUTHOR: **R. Snyder**

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

local

STATUS	DATE
Written	5/23/74
Approved	5/28/74
Rejected	
Postponed	
Withdrawn	
Expires	11/28/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change		Marketing Requirement	Implemented in System _____
	Extension		Conformance to Standard	Objections/Comments:
	Restriction		Increased Consistency	
	Performance Improvement		Simplification	(Tool)
X	Reliability Improvement		Generalization	
		X	**(unreported)** Bug Fix	

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

REASONS:

Copy_out incorrectly computes the length of a segment to be copied (off by 16 words)

SUMMARY:

This bug will be fixed.

IMPLICATIONS:

None

MULTICS CHANGE REQUEST

MCR __544__
Page __1__ of __1__ Pages

TITLE:
Change system initialization to initialize all faults before creating a hierarchy

AUTHOR: __E. Stone__

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

STATUS	DATE
Written	5/23
Approved	5/28/74
Rejected	
Postponed	
Withdrawn	
Expires	11/28/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change		Marketing Requirement	Implemented in System _____
	Extension		Conformance to Standard	Objections/Comments:
	Restriction		Increased Consistency	
	Performance Improvement		Simplification	
	Reliability Improvement		Generalization	
		x	**(unreported)** Bug Fix	

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

REASONS:

The directory system_library_1 exceeded 4 pages in a system I was testing before boundfaults could be handled.

SUMMARY:

Move the call to initialize_faults$fault_init_two before the call to init_branches.

MULTICS CHANGE REQUEST

	MCR	546
	Page 1 of 1

TITLE:	STATUS	DATE
Fix bug in status_ primitive	Written	5/24/74
	Approved	5/28/74
AUTHOR: **E. Stone**	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	11/28/74

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments:

CLASSIFICATION	JUSTIFICATION
Incompatible Change	Marketing Requirement
Extension	Conformance to Standard
Restriction	Increased Consistency
Performance Improvement	Simplification
Reliability Improvement	Generalization
	x **Unreported Bug Fix**

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

REASONS:

This primitive takes incorrect action if the caller has non-null access to a segment but lacks access to both the parent and the parent's parent. In this case certain information should be returned.

IMPLICATIONS:

More commands will work properly in this rare instance.