DATE: December 3, 1973

TO: Distribution

FROM: M. S. Hodges

SUBJECT: Multics Change Requests

Attached are copies of Multics Change Requests which were approved
from November 16 through November 30, 1973

MULTICS CHANGE REQUEST		MCR 080	
		Page 1 of 1 Pages	
TITLE: Change to operator console software and syserr.		STATUS	DATE
		Written	10/10/73
		Approved H	11/27/73
AUTHOR: W. Silver		Rejected	
SOURCE: (if external) e.g., "User", "Marketing"		Postponed H	10/16/73
		Withdrawn	
		Expires	5/27/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change		Marketing Requirement	
X	Extension		Conformance to Standard	Implemented in System _____
	Restriction		Increased Consistency	Objections/Comments:
X	Performance Improvement		Simplification	MSB-108 should be updated and reissued as a MTB.
X	Reliability Improvement	X	Generalization	
		X	Bug Fix	

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

REASONS: 1. Provide a logging mechanism for syserr messages.
          2. Provide buffering for operator console messages.
          3. Provide a better user interface to the operator console.

IMPLICATIONS:

     Operations staff must be trained to use the new operator console interface.

MULTICS CHANGE REQUEST

TITLE: Hardcore Updater Modifications	STATUS	DATE
	Written	11/5/7
	Approved ✗	11/27/73
AUTHOR: David M. Jordan	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed ✗	11/18/73
	Withdrawn	
	Expires	5/27/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
X	Incompatible Change		Marketing Requirement	Implemented in System _____
	Extension	X	Conformance to Standard	Objections/Comments:
	Restriction	X	Increased Consistency	1. Clarification of access to libraries
	Performance Improvement		Simplification	2. Information about user interface
X	Reliability Improvement		Generalization	* * * * * * * * * * * * * * * * * * * *
			Bug Fix	1. Access issue has been resolved
				2. No important information is lost
				3. "User" documentation should be submitted

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

REASONS: 1: CACL's are being removed; 2: The MSL maintenance routines are becoming non-operable.

Summary: Modify the hardcore updater to 1) conform to new access control standards, 2) remove and partially replace the MSL, 3) convert to Version 2 PL/1, 4) generally cleanup.

Implications: 1) All hardcore (and salvager) library segments will have ACL's of r *.*.*, 2) some information previously kept in the MSL will be lost, but most will be obtainable through the Multics Installation System reporting procedures, 3) MSL maintenance procedures (bound_msl_ and bound_lsm_) may be deletable if no one else is using them.

Notes: A new procedure to maintain and retrieve information in a system id/update time corespondence data base will be written to replace most of the useful information contained in the MSL. The online system MIS reporting routines will be modified to make use of this information.

MULTICS CHANGE REQUEST	MCR 158
	Page 1 of 1 Pages

TITLE: Fix bug in print_aste _ptp when run on development	STATUS	DATE
	Written	11/9/73
AUTHOR: S. Webber	Approved H	11/20/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	5/20/74

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 (Unreported)	

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

REASONS: The tool print_aste_ptp has a constant wired into it which causes
the command to fail if run on development.

SUMMARY: Change the constant to a variable which can be set from a value in the
sst header.

IMPLICATIONS: None.

MULTICS CHANGE REQUEST

MCR 159
Page 1 of 1 Pages

TITLE: Fix bug in dump_segment_command	STATUS	DATE
	Written	11/8/73
AUTHOR: T. Casey	Approved ⫽	11/20/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	5/20/74

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 Unreported Bug Fix	

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

REASONS: Fix bug in implementation of short argument.

SUMMARY: Original implementation failed to print full address when it passed
through a valve ending in 100 octal, if the line having that address was
within a block of identical lines, printed as "=====".

IMPLICATIONS: None.

MULTICS CHANGE REQUEST	MCR 160
	Page 1 of 1 Pages

TITLE: Emergency installation of gcos simulator	STATUS	DATE
	Written	11/8/73
AUTHOR: T. Casey	Approved H	11/20/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	5/20/74

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: gcos simulator stopped working when 21.2 was installed because timer_manager_ was recompiled for that system. The code generated by the current compiler is more sensitive to bad input argument values than the old one was.

SUMMARY: The cpu time passed to timer_manager_$cpu_call was essentially garbage. The old timer manager set a timer for verify far in the future, which caused no real problem. The bug was found and fixed by reading code, some weeks ago, but not installed then because it was causing no problem. Subsequently, the source and object archives were modified, while the experimental bound segment was not. When the latest system caused it to stop working (timer runouts occurred before the return from timer_manager_$cpu_call) the bound segment was installed but source and archives were not.

IMPLICATIONS: Library source is no longer current. Planned installation in about two weeks will fix that problem.

MULTICS CHANGE REQUEST	MCR __161___	
TITLE: msa_manager_ bug fix	STATUS	DATE
	Written	11/03/73
AUTHOR: G. C. Dixon	Approved	11/20/73
	Rejected	
SOURCE: (if external: e.g., "User", "Marketing")	Postponed	
local	Withdrawn	
	Expires	5/20/74

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

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

REASON:
    When msa_manager_ attempts to load a non-initialized pointer
value using an epp5 pr6|140,* instruction, an illegal procedure
fault can occur if the contents of pr6|140 contains an illegal
modifier.

SUMMARY:
    Assign a null pointer value to the above location.

IMPLICATIONS:
    Random illegal procedure faults will no longer be caused by
msa_manager_.

MULTICS CHANGE REQUEST	MCR 162

TITLE: Fix bug in message coordinator.	STATUS	DATE
	Written	11/01/73
AUTHOR: T. H. Van Vleck	Approved	11/20/73
	Rejected	
SOURCE: (If external: e.g., "User", "Marketing")	Postponed	
	Withdrawn	
	Expires	5/20/74

CLASSIFICATION	JUSTIFICATION	
		Replaced by proposal 402
[ ] 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 #191	

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

REASONS:

When a wakeup signal is lost, the message coordinator may end up with a stack of un-routed messages in mc.message. Currently, one wakeup is required to cause each message to be routed. Thus, subsequent system execution appears normal, except that the initializer console remains a constant number of messages "behind". Wakeups may be lost for a variety of reasons, such as ITT overflow.

SUMMARY:

Modify message_coordr_$router to route up to 20 waiting messages to their virtual consoles on any wakeup. Extraneous wakeups are already ignored.

This will cause the coordinator to get back in synch after only a few successful wakeups.

IMPLICATIONS:

Eliminate a problem which has caused operational difficulties.

Ver. 2
7303131

MULTICS CHANGE REQUEST	MCR ___163___	
TITLE: Fix bug in ed_installation_parms.	STATUS	DATE
	Written	11/01/73
AUTHOR: VanVleck	Approved	11/20/73
	Rejected	
SOURCE: (if external: e.g., "User", "Marketing")	Postponed	
	Withdrawn	
	Expires	5/20/74

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

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

REASONS:

There is a bug in ed_installation_parms such that garbage is
printed instead of a category name, due to an incorrect call to
ioa_.

SUMMARY:

This is a one-line change to the call to ioa_.

IMPLICATIONS:

Fix bug.

MULTICS CHANGE REQUEST	MCR ___164___

TITLE: Prevent Initializer from looping if a process cannot be destroyed.	STATUS	DATE
	Written	11/01/73
AUTHOR: T. H. Van Vleck	Approved	11/20/73
	Rejected	
SOURCE: (if external: e.g., "User", "Marketing")	Postponed	
	Withdrawn	
	Expires	5/20/74

CLASSIFICATION	JUSTIFICATION	
		Replaced by proposal MCR _____
|_| Incompatible Change	|_| Marketing Requirement	
		Conformance	Implemented in System _____
|_| Extension	|_| to Standard	Objections/Comments:
		Increased	
|_| Restriction	|_| Consistency	
	Performance		
|_| Improvement	|_| Simplification	
|X| Reliability		
|_| Improvement	|_| Generalization	
		|X|	
|_| _____	|_| Bug Fix #163	
|_| _____	|_|	

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

REASONS:

The Initializer currently waits in ring 0 for a process to
destroy itself. If the process cannot be destroyed, for instance
becuase of a bug in ring 0 or damage to its PDS, the initializer
will wait forever, and the system will have to be crashed.

SUMMARY:

The change described in MCR-023 added the ability for the
Initializer to block in ring 4 waiting for the process to die.
This change adds a new "wait state" to the Initializer for each
process, which is entered when the process destruction is
requested. When the "stopstop" wakeup is sent by traffic control,
the initializer will complete the process destruction, and create
a new process or type a logout message as necessary.

Fairly substantial modifications were necessary to dialup_,
daemon_user_manager_ and absentee_user_manager_.

In the process of making this change it was convenient to split
the parsing of the login line into a separate program from the
rest of dialup_. This will come in handy if and when we allow
user requests for new_proc to be placed in a message segment and
to specify arguments like those at login.

IMPLICATIONS:

Eliminate occasional crashes.

MULTICS CHANGE REQUEST	MCR __165____	
TITLE: Remove installation-dependent ACL's from system tape.	STATUS	DATE
	Written	11/02/73
AUTHOR: VanVleck	Approved	11/20/74
	Rejected	
SOURCE: (if external; e.g., "User", "Marketing")	Postponed	
	Withdrawn	
	Expires	5/20/74

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, and optionally
DETAILED PROPOSAL

REASONS:

Supervisor gate segments are given their access control lists
when the system is loaded from the system tape. Currently, the
system tape contains many project names and user names in access
control lists which represent local MIT policies concerning who
may access specified gates. Most installations will not have,
for example, a project named "PDO"; or if they do, their PDO
project probably should not have access to phcs_.

SUMMARY:

A new facility has been added to the supervisor recently which
allows the Initializer to set the ACL of a ring-zero segment.
This facility will be used in the system_start_up.ec to set the
correct gate ACL's. The system tape header will be modified to
give access only to *.SysDaemon.* for those gates which are not
available to all users. (Remember, the Initializer's access name
will be changed to "Initializer.SysDaemon.z" as described in MCR
041.)

IMPLICATIONS:

The privileged call to set gate ACL's is already being used in
system_start_up.ec, so that the facility is known to work. The
system_start_up.ec has always been a sensitive segment; this
modification does not change the situation. It will no longer be
necessary to generate a new system in order to give some user
access to privileged gates or to clean up when a privileged user
has finished his project. By making the maintenance of these
privileged gates easier, installations will be encouraged to keep
their system secure.

MULTICS CHANGE REQUEST	MCR __166__

TITLE: Fix IO Daemon handling of multi-segment files.	STATUS	DATE
	Written	11/04/73
AUTHOR: VanVleck	Approved	11/20/73
	Rejected	
SOURCE: (If external: e.g., "User", "Marketing")	Postponed	
	Withdrawn	
	Expires	5/20/74

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, and optionally
DETAILED PROPOSAL

REASONS:

When the IO Daemon prints a multi-segment file, it often happens
that a line in the file is split across two segments. The
printer DCM, when called to write the first part of such a line,
has no way of telling that the next call will be a continuation
of the line, so it appends a new-line character. This action
means that an extraneous new-line character breaks every line
which is split across segment boundaries, destroying the lineup
of columns.

SUMMARY:

There is no reasonable way to explain to the printer DIM or DCM
what action is desired here, since neither module has any concept
of multi-segment file. Modifying the "file_" DIM and the PL/I
stream I/O mechanisms to prevent the splitting of a line across a
segment boundary would not catch all cases of multi-segment file
generation (e.g. PL/I listing files). The best place to fix this
peculiar problem seems to be in the IO daemon program, which does
know that it is processing a multi-segment file and can check for
this case.

The modification involves providing a buffer, which will be
filled with the two parts of the split line, and will be written

out by a special call in the IO daemon program.

Some reasonable maximum size for the buffer must be chosen -- say
512 characters. If the line which is split is longer than this,
then the daemon will act as it does today.

IMPLICATIONS:

Better-looking output will be produced. A little bit of extra
code will be executed for each multi-segment file break.

Ver. 2.
730919

| MULTICS CHANGE REQUEST | MCR __167__ |

TITLE: Fix bug in ARDS charging.	STATUS	DATE
	Written	11/02/73
AUTHOR: VanVleck	Approved	11/20/73
	Rejected	
SOURCE: (If external: e.g., "User", "Marketing")	Postponed	
	Withdrawn	
	Expires	5/20/74

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

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

REASONS:

Use of 1200-baud lines is currently charged incorrectly. A
missing line of code in "device_acct_" causes attached devices to
be charged connect timefrom the beginning of the session instead
of from the last update, so that the charges go 1,2,3,4,5,...
instead of 1,1,1,1,...

SUMMARY:

This is a one line fix to device_acct_.

IMPLICATIONS:

Charges will be correct.

	MULTICS CHANGE REQUEST	MCR __168____

	STATUS	DATE
TITLE: Modify disk accounting programs to use new quota primitives.		
	Written	11/02/73
AUTHOR: VanVleck	Approved	11/20/73
	Rejected	
SOURCE: (If external: e.g., "User", "Marketing")	Postponed	
	Withdrawn	
	Expires	5/26/74

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

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

REASONS:

When system 21.0 was installed, the time-page-product cell in the
directory was expanded from fixed bin (35) to fixed bin (71), to
avoid meter overflow in large directories. New
quota-manipulation entries were added to hcs_, which perform the
same function as the old ones but have a fixed bin (71) argument
for the time-page-product. The accounting system must be
modified to use the new hcs_ entries.

SUMMARY:

Two administrative tools are directly affected: these are sweep
and reset_disk_meters. These two programs will call the new hcs_
entries instead of the old ones.

The declaration of the segment "disk_stat", which contains the
disk usage meters, must be reformatted to hold the larger value.
This change will require recompilation of the programs
charge_disk and disk_stat_print.

The per-project disk usage totals in "projfile" and "use_totals"
is already fixed bin (71), so the rest of the accounting programs
will not be affected.

Because this problem has now happened three times in the history
of the system, and has required extraordinary efforts every time
to repair the damage, the disk usage measurement programs will be
modified to include an appropriate "gullibility test," which will
check that the charge increment for a directory is not wildly
inconsistent with the current occupancy and time since the last
run of the program. If the program detects any problems, it can
issue a warning message, which will alert us to the possibility
of a supervisor bug immediately.

IMPLICATIONS:

The "disk_stat" data base is completely re-created every night,
so that no installation problems should ensue.

MULTICS CHANGE REQUEST	MCR _169____	
TITLE: Set TIMAX for Initializer to 1 second Instead of 0.	STATUS	DATE
	_Written__	11/08/7
AUTHOR: VanVleck	_Approved_	11/20/73
	Rejected	
SOURCE: (If external: e.g., "User", "Marketing")	_Postponed_	
	Withdrawn	
	_Expires__	5/20/74

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

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

REASONS:

During problems with the Initializer (since fixed) we noticed
that its extremely high scheduling priority made it impossible
for any other process to get much done if the Initializer was in
a loop.   Sometimes, system programmers could have patched the
problem except that they could not get the CPU time necessary to
make the patch. Furthermore, the standard procedure in this case
is for the operator to enter BOS manually and use BLAST to tell
all users that the system will go down in one minute, and then to
issue a GO so that users may write out their editing; if the
Initializer is looping, users will not be able to finish their
writes.

It was also noted that, under heavy load, the TIMAX of 0 for the
Initializer   causes   the   scheduler   to   preempt any time the
Initializer was ready to run, and it was feared that this was
degrading response on a one-CPU system under heavy load.

SUMMARY:

We performed an experiment to see what would happen if the
Initializer's TIMAX was set to 1. A "set_timax 1" command was
added to system_start_up.ec so that the Initializer would have
its TIMAX set to 1 every time the system came up. There were no

observed negative effects: login didn't slow down noticeably,
nor did system performance change observably.

We are currently running with a TIMAX of 1 on the Initializer.

By changing one line in tc_init, we can have 1 second be the
default value. It looks like this won't do any harm and may help
if the system has problems.

IMPLICATIONS:

When this change is installed, one line from system_start_up.ec
can be removed, and one less message will be typed during system
startup.

| MULTICS CHANGE REQUEST | MCR 170 |
| | Page 1 of 1 Pages |

TITLE: Fix bug in truncate command when called with no arguments	STATUS	DATE
	Written	11/12/73
AUTHOR: C. T. Clingen	Approved	11/20/93
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	5/20/74

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 #210	

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

REASONS: When truncate is called with no arguments, it reports the error and then prints out garbage.

SUMMARY: A variable is not properly initialized; the fix is to initialize it to a blank character string and in one case, make an assignment to it before it is used.

IMPLICATIONS: None. This fix has been made and checked out.

MULTICS CHANGE REQUEST	MCR 171
	Page 1 of 1 Pages

TITLE: Fix bug in trace	STATUS	DATE
	Written	11/14/7
	Approved	11/20/73
AUTHOR: _____ M. J. Grady _____	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	5/20/74

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	Unreported Bug Fix	

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

REASONS: Fix a bug in trace which incorrectly computes the length of the line
             to be printed on PRT 300's.

SUMMARY: Change two lines of code on trace

IMPLICATIONS: None

MULTICS CHANGE REQUEST	MCR 172
	Page 1 of 1 Pages

TITLE: Implementation of the G115 remote computer interface	STATUS	DATE
	Written	11/14/73
	Approved	11/20/73
AUTHOR: M. J. Grady	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	5/20/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change	X	Marketing Requirement	Implemented in System _____
X	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: The capability to run remote I/O devices must be added to Multics.

SUMMARY: Design and code a ring 4 DIM and DCM to implement the remote computer interface, and modify the TTY DIM to run high-speed synchronous devices.

IMPLICATIONS AND

DETAILED PROPOSAL: See MSB-110. Note that the MSB does not describe the ring 4 code as both a DIM and DCM. The DCM was created because the answering service requires asynchronous I/O which is not supported by the ios_ interface. The DIM-DCM interface is similar to tw_ - tty DIM interface.

Ver. 2
7309191

MULTICS CHANGE REQUEST	MCR ___173___	
	STATUS	DAT
TITLE: Install new version of trace_stack.	Written 11/15/73	
	Approved H 11/21/73	
AUTHOR: T. H. Van Vleck	Rejected	
SOURCE: (If external: e.g., "User", "Marketing")	Postponed	
	Withdrawn	
	Expires 5/27/74	

CLASSIFICATION	JUSTIFICATION	
		Replaced by proposal MCR _____
|_| Incompatible Change	|_| Marketing Requirement	Implemented in System _____
|X|			Conformance	
|_| Extension	|_| to Standard	Objections/Comments:
		|X| Increased	
|_| Restriction	|_| Consistency	
|X| Performance	|X|	
|_| Improvement	|_| Simplification	
|X| Reliability	|X|	
|_| Improvement	|_| Generalization	
		|X| Unreported Bug Fix	
|_|	|_|	
		|X| Bug Fix	
|_|	|_| #138 (half)	

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

REASONS:

This version of trace_stack uses the new fault information
primitives created by Melanie Weaver and described in MCR-055.

The trace_stack command will perform more reliably in several
cases, and will be less vulnerable to system changes, since the
new fault information primitives embody much of the
implementation-dependent code.

SUMMARY:

All modules of bound_trace_stack_ change.

IMPLICATIONS:

Minor changes have been made to the output format. If a pointer
argument points to a character string longer than 4 characters,
the contents of the string will be printed in parentheses.

A new program called "extract_source_line_" has been added, which
is called by print_source_line_ and which could be called by
debug when it wishes to obtain a source line.

MULTICS CHANGE REQUEST	MCR 174
	Page 1 of 1 Pages

TITLE: Fix locking bug in find_	STATUS	DATE
	Written	11/16/73
	Approved #	11/27/73
AUTHOR: A. Kobziar	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	5/27/74

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	Bug Fix #207	

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

REASONS: If find_$ dir is called with a pathname of ">>...." it will leave the
root locked. Depending on the load on the system this can deteriorate
performance or even crash the system.

SUMMARY: Change find_ to return "argerr" for erroneous pathnames.

| MULTICS CHANGE REQUEST | MCR 175 |
| | Page 1 of 1 Pages |

TITLE: BOS should not set masks in memory controllers from which it is not receiving interrupts. AUTHOR: R. Mullen	STATUS	DATE
	Written	11/16/7
	Approved ℋ	11/27/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	5/27/74

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: BOS will hang if it attempts to read or set masks in memory controllers for which the running cpu is not the control processor.

SUMMARY: The memory on each cpu port can be tested with the rscr instruction to determine if the running cpu is the control processor.

IMPLICATIONS: None

DETAILED PROPOSAL: This check can be placed naturally in get port info where it will be executed whenever bos is entered or exited, before masks are read or set.

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730919.

MULTICS CHANGE REQUEST	MCR 177
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TITLE: Type message on printer error in BOS	STATUS	DATE
	Written	11/19/73
AUTHOR: N. I. Morris	Approved ⊬	11/27/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	5/27/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change		Marketing Requirement	Implemented in System _____
	Extension		Conformance to Standard	Objections/Comments: .
	Restriction		Increased Consistency	
X	Performance Improvement		Simplification	
X	Reliability Improvement		Generalization	
		X	Bug Fix #156	

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

REASONS: The printer can halt during BOS dumps with no indication of the malfunction on the operator's console.

SUMMARY: Print message when bad status is received from the printer.

MULTICS CHANGE REQUEST

MCR	178
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		STATUS	DATE
TITLE:	Fix "all 5's" bug in full_ipc_	Written	11/21/
		Approved #	11/27/73
AUTHOR: Robert Mullen		Rejected	
SOURCE: (if external) e.g., "User", "Marketing"		Postponed	
		Withdrawn	
		Expires	5/27/74

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 #140	

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

REASONS: Presently full_ipc_ does not verify that an event_channel_name is legal before copying itt messages, if the message is a device signal. The ensuing error creates an unnecessary answering service dump.

SUMMARY: This can be prevented by verifying the event_channel_name in all cases.

IMPLICATIONS: This fix has been tested on development machine and does not seem to have any further implications.

MULTICS CHANGE REQUEST

MCR   179
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TITLE: gcos_daemon bug fixes	STATUS	DATE
	Written	11/22/73
	Approved ⫽	11/27/73
AUTHOR: P. Haber	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	5/27/74

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	
	Reliability Improvement		Generalization .	
		X	Unreported Bug Fix	

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

REASONS:

1) Include file lost during installation retyped.
2) Default condition handler was established in a subroutine which returned.
3) References to unimplemented "gcos" bit in absentee include file detected.

SUMMARY:

a) Move default condition handler to main procedure.
b) Retype in missing include file.
c) Delete references to "gcos" bit in absentee include file.

IMPLICATIONS:

a) Will allow daemon to take faults w/o terminating.
b) Replacement of missing source
c) Avoids setting extraneous bit

Note: Change a) in summary already implemented in Phoenix.