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.

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# MULTICS CHANGE REQUEST

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<td>Incompatible Change</td>
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### 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).
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
**Title:** Bug fix for if Command

**Author:** David S. Levin

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

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**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.
Fix remote device driver for new g 115_dim interface

Robert S. Coren

(If external) e.g., "User", "Marketing"

Incompatible Change: Marketing Equipment

Extension: Standard

Restriction: Increased Consistency

Performance Improvement: Simplification

Reliability Improvement: Generalization

Effect of redesign: Bug Fix

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.
TITLE: Fix Bug in BOS SAVE and RESTOR commands

AUTHOR: Noel L. Morris

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

CLASSIFICATION | JUSTIFICATION | REPLACED BY PROPOSAL MCR | CLASSIFICATION
Incompatible Change | Marketing Requirement | Implemented in System
Extension | Conformance to Standard
Restriction | Increased Consistency
Performance Improvement | Simplification
Reliability Improvement | Generalization
Improvement | 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.
TITLE: Fixes to Map355

AUTHOR: R.B. Snyder

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

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 Improvement | unreported |
x Bug Fix |

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**

**TITLE:** Fixes to 355 software

**AUTHOR:** R.B. Spyder

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

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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

TITLE: Improvements to console_report

AUTHOR: VanVleck

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

CLASSIFICATION | JUSTIFICATION | Replaced by proposal MC3

| Incompatible | Marketing |
| Change | Requirement | Implemented in System |
| Extension | Conformance |
| Restriction | Consistency |
| Improvement | Simplification |
| Reliability | |
| 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 to 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

TITLE: Recompile message coordinator with EIS compiler

AUTHOR: VanVleck

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

CLASSIFICATION: JUSTIFICATION

Incompatible  Marketing
Change  Requirement  Implemented in System
Extension  to Standard  Objections/Comments:
Restriction  Consistency  
Performance  
Improvement  Simplification  
Reliability  
Improvement  Generalization  
       
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 RIF).

IMPLICATIONS:

System overhead should be reduced.

Page 1 of 1
**MULTICS CHANGE REQUEST**

| TITLE: | Decompile answering service with EIS compiler |
| STATUS | |
| AUTHOR: | VanVleck |
| SOURCE: | (if external: e.g., "User", "Marketing") |
| CLASSIFICATION: | |
| JUSTIFICATION: | Replaced by proposal MCR 516 |

**REASONS:**

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

**SUMMARY:**

Decompile 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.
**TITLE:** bug in tty_inter

**AUTHOR:** R.B. Snyder

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

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**CLASSIFICATION** | **JUSTIFICATION** | **REPLACED BY**
--- | --- | ---
Incompatible Change | Marketing Requirement | Implemented in System
Extension | Conformance to Standard | Objections/Comments:
Restriction | Increased Consistency | 
Performance Improvement | Simplification | 
Reliability Improvement | Generalization | 
**X** | unreported | Bus Fix

---

**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
TITLE: Bug in archive

AUTHOR: Steve Herbst

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

CLASSIFICATION | JUSTIFICATION | Replaced by proposal MCP
--- | --- | ---
Incompatible Change | Marketing Requirement | Implemented in System
Extension | Performance to Standard | Objections/Comments:
Restriction | Increased Consistency |
Performance Improvement | Simplification |
Reliability Improvement | Generalization |
\* Improvement | unreported |
\* Bug Fix |

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**

**TITCLE:** Attempt to fix lockup fault problem when returning from BOS

**AUTHOR:** Steve Webber

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

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

**AUTHOR:** Steve Webber

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

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*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.
**TITile:** Fix bug preventing all os messages from coming out

**AUTHOR:** Steve Webber

**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.

**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.)
**TITLE:** Remove entries `initiate_seg + initiate_seg_count` from `hcs`

**AUTHOR:** Steve Webber

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

**CLASSIFICATION** | **JUSTIFICATION** | **Replacing by proposal MCR**
---|---|---
Incompatible | Marketing Requirement | Implemented in System
Extension | Conformance to Standard | Objections/Comments:
Restriction | Consistency |  
Performance Improvement | Simplification |  
Reliability Improvement | Generalization |  
| Unreported |  
Panic Fix |  

**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 not official or documented in the MPM.
**TITLE:** qedx: incorrect cleanup bug

**AUTHOR:** M.A. Meer

**SOURCE:** (if external) e.g., "User", "Marketing"  
Roach-MIT  
TAVARES-AFSDC

**CLASSIFICATION** | **JUSTIFICATION** | **REPLACED BY PROPOSAL**
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Incompatible Change | Marketing Requirement | Implemented in System
Extension | Performance to Standard |
Restriction | Increased Consistency | Objections/Comments:
Performance Improvement | Simplification |
Reliability Improvement | Generalization |
\[\text{lib 0024P} \times \text{Bus Fix md 0019P}\]

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

**REASONS:**

1) Incorrect cleanup 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.
TITLE: Handling out_of_bounds on stack

AUTHOR: M. Weaver

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

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| Performance Improvernt | Simplification |
| Reliability Improvernt | Generalization |
|                     | Bur 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 MFM 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 sometimes 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.
Title: Alleviate problems in shutdown

Author: M. Stone

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

Classification: Incompatible

Justification: Marketing Proposal

Replacement by proposal MCP

Implementation in System

Objections/Comments:

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

Reasons:

Problems have resulted during shutdown from the fact that to 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$destroy.
2. Change to shutdown to turn wait_enable on.
3. Delete the entry deact_proc$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. (Notifyys 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.
TITLE: Fix bug in configuration of dual synchronous HSLA subchannels

AUTHOR: M.J. Grady

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

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IMPLICATIONS:

None, dual sync channels will work.

coded and tested.
TITLE: Fix bugs in basic

AUTHOR: Barry L. Wolman

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

CLASSIFICATION | JUSTIFICATION | Replaced by proposal MCR
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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)

Restriction:

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 test 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.
TITLE: Reused addresses in FSDCT, ROOT

AUTHOR: A. Kobziar

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

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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.
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**REASONS:**

archive_star_calls_freeen.

**SUMMARY:**

Make it use pll "free."
AUTHOR: Susan Barr

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

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

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 cannot 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.
**TITLE:** Change debug input default to decimal

**AUTHOR:** Susan Barr

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

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

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**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.

\[ a(10) = (12) - &d7 \]

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.

\[ .bsl 8 \] \[ .c, 10 \]

skip break 1 8 times 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.
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.
**Title:** Message segment check for Bad Header Data

**Author:** Peter Baber

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

**Classification:** Incompatible Change

**Justification:** Marketing Requirement

**Replacement:** Implemented in System

---

**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 occurrence of "oob" errors if first and/or last message offsets get dobered for any other reason.

Fix is related to bug # HRDO01LP (MCR #479)
**TITLE:** Fix BOS RESTOR Problem

**AUTHOR:** Noel I. Morris

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

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Objections/Comments:

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**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.
**Title:** Minor bug fix in reset_use_totals

**Author:** J.L. Homan

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

---

**Classification:**
- Incompatible Change
- Extension
- Restriction
- Performance Improvement
- Reliability Improvement

**Justification:**
- Marketing Requirement
- Conformance to Standard
- Increased Consistency
- Simplification
- Generalization
- ans 0042c
- Bug Fix

**Replacement by Proposal:** Implemented in Syntax

---

**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

TITIE: Fix bug in BOS DUMP

AUTHOR: Noel L Morris

SOURCE: Internal

CLASSIFICATION JUSTIFICATION Replaced by proposal MCR

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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**

**TITLE:** gcos daemon root directory change

**AUTHOR:** B. Morrison

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

**CLASSIFICATION**

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**DATE:** 5/23/74

**STATUS:**
- Written 5/23/74
- Approved 5/23/74
- Rejected _Rejected_
- Postponed
- Withdrawn
- Expires 2/28/74

**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.
## TITLE: Bind debug with ioa_ and formline_

**AUTHOR:** Barry L. Wolman

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

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<td>Prevent bug</td>
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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 requiring 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.
TITLE: Bug in copy_out

AUTHOR: R. Snyder

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

CLASSIFICATION

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

**AUTHOR:** E. Stone  

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

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

#### REASONS:

The directory system library exceeded 4 pages in a system I was testing before bound faults could be handled.

#### SUMMARY:

Move the call to initialize_faults$fault_init_two before the call to init_branches.
**TITLE:** Fix bug in status primitive

**AUTHOR:** E. Stone

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

**CLASSIFICATION:** Incompatible Change

**JUSTIFICATION:** Marketing Requirement

**REASON:**

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.