

DATE: February 20, 1974  
TO: Distribution  
FROM: M. S. Hodges  
SUBJECT: Multics Change Requests

Attached are copies of all Multics Change Requests which were approved from February 1 through February 15, 1974.

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## MULTICS CHANGE REQUEST

MCR 219

Page 1 of 1 Pages

TITLE: neted: A Common Editor for the ARPA Network

STATUS

DATE

Written

11/12/73

Approved #

2/5/74

Rejected

AUTHOR: M. Padlipsky

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

Postponed #

12/26/73

ARPA Network User Issues Working Group

Withdrawn

Expires

8/5/74

CLASSIFICATION

JUSTIFICATION

Replaced by proposal MCR \_\_\_\_\_

Incompatible  
ChangeMarketing  
Requirement

Implemented in System \_\_\_\_\_

X Extension

X Conformance to  
Standard

Objections/Comments:

Restriction

Increased  
Consistency

Awaiting design review.

Performance  
Improvement

Simplification

Reliability  
Improvement

Generalization

To be installed in Network Library.

Bug Fix

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

## REASONS:

In order to facilitate use of ARPA Network "server hosts", a common text editor has been agreed upon for implementation on all interested systems. The common editor is "eds" (MPM, Part I, Chapter 4), under the name "neted". A copy of the draft usage writeup was published in MTB-014; it will be published in the Network Users' Supplement to the MPM and in the Network Resource Notebook.

MULTICS CHANGE REQUEST		MCR 292 Page 1 of 1 Pages
TITLE: Warn users about unexpected disabling of ips interrupts.		STATUS
		DATE
AUTHOR: M. Weaver		Written 1/15/74
		Approved H 2/12/74
SOURCE: (if external) e.g., "User", "Marketing"		Rejected
		Postponed H 1/22/74
		Withdrawn
		Expires 8/12/74

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	Marketing Requirement	Implemented in System _____
<input checked="" type="checkbox"/> Extension	Conformance to Standard	Objections/Comments:  Message should be more explanatory.
<input type="checkbox"/> Restriction	Increased Consistency	
<input type="checkbox"/> Performance Improvement	Simplification	
<input type="checkbox"/> Reliability Improvement	Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Bug Fix #239	

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

**REASONS:** Occasionally a handler for an ips interrupt faults while it has most ips interrupts masked. This usually results in arriving at command level with interrupts disabled.

**Summary:** The standard system condition handler should detect when the current IPS mask has been recently changed and should warn users about any changes that involve disabling of interrupts.  
For example, a line might appear at the end of a message saying: quit, alm, cput disabled.

**Implications:** This is additional information to users and involves changes only to default error\_ handler.

**Detailed Porposal:** If the low order bit is on in ips\_temp in the machine conditions, that field contains the IPS mask used before being replaced by the auto mask. If this is the case, the appropriate bits in the current IPS mask should be compared with the corresponding bits in ips\_temp. If any interrupts are found to be newly disabled, a message should be printed.

MULTICS CHANGE REQUEST		MCR <u>313</u> Page <u>1</u> of <u>1</u> Pages
TITLE: Restrict system free area to be 64k.  AUTHOR: <u>E. Stone</u>  SOURCE: (if external) e.g., "User", "Marketing"	STATUS	DATE
	Written	1/28/74
	Approved <b>H</b>	<b>2/5/74</b>
	Rejected	
	Postponed	
	Withdrawn	
	Expires	<b>8/5/74</b>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	Marketing Requirement	Implemented in System _____
<input type="checkbox"/> Extension	Conformance to Standard	Objections/Comments:
<input checked="" type="checkbox"/> Restriction	Increased Consistency	
<input checked="" type="checkbox"/> Performance Improvement	Simplification	
<input type="checkbox"/> Reliability Improvement	Generalization	
<input type="checkbox"/>	Bug Fix	
<input type="checkbox"/>		

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

REASONS: After 22-0 was installed, allowing the size of a user's system free area to be `sys_info$ max_seg_ size` caused page 65 of this segment to be used.

This is turn caused abnormally heavy use of the 256k page table pool.

This restriction is a temporary change until a study of the area package can be made.

MULTICS CHANGE REQUEST		MCR <u>314</u> Page <u>1</u> of <u>1</u> Pages	
TITLE: <u>Fix error in bound_debug_</u>	STATUS	DATE	
	Written	7401	
AUTHOR: <u>Barry L. Wolman</u>	Approved	A 2/5/74	
	Rejected		
SOURCE: (if external) e.g., "User", "Marketing"	Postponed		
	Withdrawn		
	Expires	8/3/74	

CLASSIFICATION	JUSTIFICATION	REASON
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 Unreported Bug Fix	

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

REASONS:

When the debug command is asked to show or change a variable located in an outer block, it incorrectly walks back using the prev\_sp field in the stack frame instead of the display pointer. This causes the wrong location to be found when an internal procedure is called by means of an entry variable.

SUMMARY: Fix procedure db-sym as indicated above.

IMPLICATIONS: none

MULTICS CHANGE REQUEST

MCR 315  
Page 1 of 1 Pages

TITLE: fix to synchronize hangups with answering service

STATUS	DATE
Written	1/28/74
Approved #	2/5/74
Rejected	
Postponed	
Withdrawn	
Expires	8/5/74

AUTHOR: H.B. Snyder

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

CLASSIFICATION	JUSTIFICATION	
<input type="checkbox"/> Incompatible Change	Marketing Requirement	Replaced by proposal MCR _____
<input type="checkbox"/> Extension	Conformance to Standard	Implemented in System _____
<input type="checkbox"/> Restriction	Increased Consistency	Objections/Comments:
<input type="checkbox"/> Performance Improvement	Simplification	
<input checked="" type="checkbox"/> Reliability Improvement	Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> unreported bug Bug Fix	
<input type="checkbox"/>		

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

REASONS: If the answering service is running behind, a user can hangup, a new user can dial up, and the new user can get the previous user's logout message.

SUMMARY: tty\_ctl will be modified so that no more calls will be accepted on a line which has just hungup until the answering service has told it to accept calls again.

IMPLICATIONS: Get rid of security hole.

MULTICS CHANGE REQUEST		MCR 316 Page 1 of 1 Pages
TITLE: 22-0 cleanup		STATUS
AUTHOR: E. Stone		DATE
SOURCE: (if external) e.g., "User", "Marketing"		Written 1/29/74
		Approved # 2/5/74
		Rejected
		Postponed
		Withdrawn
		Expires 8/5/74

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	<input type="checkbox"/> Implemented in System _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input checked="" type="checkbox"/> Increased Consistency	
<input checked="" type="checkbox"/> Performance Improvement	<input checked="" type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> unreported Bug Fix	
<input type="checkbox"/>	<input type="checkbox"/>	

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

**REASONS:** Several modules should be changed as a consequence of the installation of system 22-0.

A. Change delete\_ and dl\_handler\_ to eliminate setting W on a segment to delete it and not to expect error\_table\_#moderr returned from hcs\_#delentry\_ file on hcs\_#delentry\_seg.

B. Convert compare\_ascii to version 2 so it will work on segments greater than 64k.

C. Change save\_dir\_info to eliminate listing the CAOL.

D. Make alm generate MST's properly. Currently 191k of each component is padded with null characters. This change involves converting 3 modules to version 2 and modifying the alm command to call tssi\_ rather than calling mst\_manager\_ directly in creating the listing file.

E. Convert sort\_file to version 2 so that it will work on segments larger than 64k. In addition make some improvements in the sorting algorithm to achieve a performance improvement; these enhancements originated with Jerry Stern. This Change should not conflict with the work of Ross Klinger in this area.

F. Change set\_max\_length to check that the new max length be a multiple of 16 words rather than a multiple of the page size. This removes a restriction which was present due to the presence of append attribute on segments.

MULTICS CHANGE REQUEST

MCR 317

TITLE: Recovery from ITT overflows.

STATUS | DATE

AUTHOR: VanVleck

Written 01/28/74

Approved # 2/5/74

Rejected

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

Postponed

Withdrawn

Expires 8/5/74

CLASSIFICATION | JUSTIFICATION |

Replaced by proposal MCR

Incompatible | Marketing |

Change | Requirement | Implemented in System

| 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

REASONS:

The answering service depends on interprocess communication for many of its functions. When interprocess messages are sent so fast that there is temporarily no room for them in the ITT, the message coordinator and the rest of the answering service stop working.

Until a new interprocess communication mechanism can be designed which does not require a wired-down, finite ITT, we will have occasional problems with ITT overflows when software bugs occur.

SUMMARY:

A cell in the header of tc\_data will be created which will contain the time of the last ITT overflow. system\_control\_ will sample this cell periodically, and if an ITT overflow has occurred since the last look, a restart wakeup will be sent to all device driver channels and to router and typer\_out. In addition, a restart entry in the answering service will be called to poll all terminal channels which are not listed as having a logged-in user.

IMPLICATIONS:

ITT overflow will become less fatal. If the process which filled the ITT can be stopped, the system will recover.



MULTICS CHANGE REQUEST		MCR 318
TITLE: Answering Service 7.5	STATUS	DATE
AUTHOR: VanVleck	Written	01/28/74
SOURCE: (if external; e.g., "User", "Marketing")	Approved	2/5/74
	Rejected	
	Postponed	
	Withdrawn	
	Expires	8/5/74
CLASSIFICATION	JUSTIFICATION	
		Replaced by proposal MCR
<input type="checkbox"/> Incompatible	<input type="checkbox"/> Marketing	
<input type="checkbox"/> Change	<input type="checkbox"/> Requirement	Implemented in System
<input checked="" type="checkbox"/> Extension	<input type="checkbox"/> Conformance	Objections/Comments:
	<input type="checkbox"/> to Standard	
	<input checked="" type="checkbox"/> Increased	
<input type="checkbox"/> Restriction	<input type="checkbox"/> Consistency	
<input checked="" type="checkbox"/> Performance	<input type="checkbox"/>	
<input type="checkbox"/> Improvement	<input type="checkbox"/> Simplification	
<input checked="" type="checkbox"/> Reliability	<input type="checkbox"/>	
<input type="checkbox"/> Improvement	<input type="checkbox"/> Generalization	
	<input checked="" type="checkbox"/>	
	<input type="checkbox"/> Bug Fix	

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

REASONS:

Changes should be made to the answering service to take advantage of new system features, to keep pace with new requirements, to remove obsolete code, and to fix several minor problems.

SUMMARY:

1. Remove obsolete procedure linkage\_trap\_ now that "linkage\_error" is no longer signalled for trap-before-first-reference.
2. Change as\_init\_ to return an error code to system\_control\_ so that initialization failure will prevent execution of system\_start\_up.ec (usually leads to faults and garbage messages).
3. change act\_ctl\_ to not charge consoleless daemon users for connect time. (Currently this requires a manual correction every month for IO.Multics.)
4. Remove "a" access from all ACL entries set by the answering service.
5. Prepare for the EIS compiler, which needs certain declarations modified in case the table exceeds 64K. Re-declare the SAT, PDT, and PNT.
6. Remove all references to the obsolete procedure not\_ascii\_ and use the verify 9IF instead.

7. Upgrade default handlers to ignore "cleanup" and to pass "stack" and "finish" conditions. Use condition\_ instead of default\_handler\_\$set.
8. Change all references to check\_fs\_errcode\_ to convert\_status\_code\_.
9. Remove obsolete procedure dhodh\_ and call hcs\_\$get\_user\_effmode in line.
10. Fix a bug in as\_meter\_ which sometimes does not read the whole configuration deck.
11. When the user gives an incorrect login word, repeat the word in the error message to aid in debugging terminal problems.
12. Fix a bug in the shutdown sequence (bug 185) which causes a "maxu auto" to restart absentee and then stop it again.
13. Allow specification of terminal restriction code in octal in the "accept" command.
14. Make several messages from text in as\_error\_table\_ rather than implementing them as constants in the program.
15. Remove obsolete daemon accounting code. New I/O daemon will no longer generate "io\_accounting" deck.
16. Remove use of reserved segment number option and complicated renaming in up\_sysctl\_.
17. Respect "nobump" bit in load\_ctl\_ and act\_ctl\_.
18. Print system\_up message earlier. Do before answering phones, not after.
19. Set ring brackets on whotab to 4,7,7.
20. Make init\_ring, user\_ring, user\_top\_ring be parameters in as\_data\_.
21. Improve parse of "lines" file.
22. Set ring brackets on user dir.
23. Eliminate spurious error msg from dialup.
24. Move checking of special login word to dialup\_ from lg\_ctl\_.
25. Allow specification of login args to daemon login.
26. Modify load control calculation to handle absentee and daemon load correctly. Prevent over-running of max units.
27. Allow project admin name to be "Name.\*" as well as "\*.Proj". "\*,\*" remains illegal.
28. Record process terminations in the log, with their reason.
29. Improve check for garbage data in absentee queues. Use verify BIF.
30. Provide more info on absentee list destruction bug.
31. Allow setting of shutdown time at any valid date/time.

#### IMPLICATIONS:

Maximum number of users on a project will change to 1019 from 255. Maximum number of registered persons will change from 1364 to 8158.

## MULTICS CHANGE REQUEST

MCR 319  
Page 1 of 1 Pages

TITLE: Correct bug in "&amp;if...&amp;then" part of process\_input\_string

STATUS DATE

Written 1/31/74

Approved # 2/5/74

Rejected

AUTHOR: Susan Barr

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

Postponed

Withdrawn

Expires 8/5/74

## CLASSIFICATION

## JUSTIFICATION

Replaced by proposal MCR \_\_\_\_\_

Incompatible  
ChangeMarketing  
Requirement

Implemented in System \_\_\_\_\_

Extension

Conformance to  
Standard

Objections/Comments:

Restriction

Increased  
ConsistencyPerformance  
Improvement

Simplification

Reliability  
Improvement

Generalization

x Bug Fix 144

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

REASONS: If the segment read by exec com contains an "&if...&then" command line that is split over 2 lines with the "&then" on the 2nd line, the line may not be interpreted correctly. Process\_input\_string copies only the 1st line to a work area and searches the entire work area (beyond the line) for the "&then" string.

SUMMARY: Process\_input\_string was corrected to search only the length of the first line for the "&then" and then get the 2nd line.

MULTICS CHANGE REQUEST		MCR <u>320</u> Page <u>    </u> of <u>    </u> Pages
TITLE: <u>Extend Arithmetic Active Functions</u>	STATUS	DATE
AUTHOR: <u>Barry L. Wolman</u>	Written	<u>740</u>
	Approved <u>#</u>	<u>2/5/74</u>
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	<u>8/5/74</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR <u>          </u>
Incompatible Change	Marketing Requirement	Implemented in System <u>          </u>
<input checked="" type="checkbox"/> Extension	Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input checked="" type="checkbox"/> Increased Consistency	
<input type="checkbox"/> Performance Improvement	Simplification	
<input type="checkbox"/> Reliability Improvement	<input checked="" type="checkbox"/> Generalization	
<input type="checkbox"/>	Bug Fix	

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

REASONS: The arithmetic active functions (plus, minus, times, divide, mod, min, and max) accept only decimal integers as inputs. The error message printed for the use plus 2.3 4.7 is plus: "2.3" is non-numeric. This error message is incorrect.

**SUMMARY:**

1. Change arithmetic active functions to deal with any valid PL/I real constant value and operate internally using fixed decimal(59) arithmetic. The result of the function would be in I, F, or E format as appropriate, depending on the value of the function.
2. Add the following functions: quotient, trunc, floor, ceil with the appropriate definitions.

IMPLICATIONS: All correct uses of current versions of these active functions would give same results with new functions.

MULTICS CHANGE REQUEST

MCR 321  
Page      of      Pages

TITLE: **Correct and Extend Comparison Active Functions**

STATUS                      DATE

Written                      **740130**

Approved **#** **2/5/74**

Rejected

AUTHOR: Barry L. Wolman

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

Postponed

Withdrawn

Expires **8/5/74**

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 comparison active functions (equal, less, greater) do not operate in a consistent manner. equal does only a string comparison of its two arguments; less and greater do a numeric comparison if both arguments are the character representations of single-precision binary integers and do a string comparison otherwise.

SUMMARY:

1. Change the less and greater active functions to do only string comparisons.
2. Add three new active functions (nequal, nless, ngreater) that accept as input any valid PL/I real constant and perform a numeric comparison using float decimal(59) arithmetic.

IMPLICATIONS: Some exec\_coms may have to be changed to use nless instead of less, etc. This should not be a problem.

MULTICS CHANGE REQUEST		MCR <u>322</u> Page <u>1</u> of <u>1</u> Pages
TITLE: Archive component names.	STATUS	DATE
	Written	1/31/74
AUTHOR: <u>Steve Herbst</u>	Approved <input checked="" type="checkbox"/>	2/5/74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	8/5/74

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Implemented in System _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	
<input checked="" type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input checked="" type="checkbox"/> Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Bug Fix 247	

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

REASONS: Archive can only keep track of 32 component names.

SUMMARY: Keep some space in the stack and if more is needed, create a segment in the process directory. Since in the global case no component paths have to be stored, we can put more names in the same space in this case.

MULTICS CHANGE REQUEST

MCR 323  
Page 1 of 1 Pages

TITLE: Fix bugs in reprint\_error

STATUS	DATE
Written	2/1/74
Approved <i>H</i>	<i>2/5/74</i>
Rejected	

AUTHOR: M. Weaver

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

Postponed	
Withdrawn	
Expires	<i>8/5/74</i>

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

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

REASONS: Reprint\_error still refers to default\_error\_handler\_frames when a more correct terminology should be condition frames; it does not recognize the new code returned by default\_error\_handler\_ to indicate no available information about an existing desired condition frame; it prints level n: which is confused with level n in the ready message.

SUMMARY: correct terminology in error messages; do not print further message if condition infor is not available (default\_error\_handler\_ will already have printed a message); print depth n: instead of level n: since \_depth is a control argument for the command.

IMPLICATIONS: None.

MULTICS CHANGE REQUEST		MCR <u>324</u> Page <u>1</u> of <u>1</u> Pages
TITLE: <u>Fix bugs in new condition mechanism</u>	STATUS	DATE
	Written	<u>2/1</u>
	Approved <u>#</u>	<u>2/5/74</u>
AUTHOR: <u>M. Weaver</u>	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	<u>8/5/74</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Implemented in System <u>23.0a</u>
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	
<input type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Unreported Bug Fix	
<input type="checkbox"/>	<input type="checkbox"/>	

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

REASONS: signal sometimes passes out garbage for the system fault conditions pointer on crawlouts. the reprint entry of default\_error\_handler does not properly diagnose error situations (such as when there is no condition info to print).

SUMMARY: Fix signal to always set wc\_ptr. Fix default\_error\_handler\_reprint\_error\_messages to always properly set its code argument.

IMPLICATIONS: After the change to default\_error\_handler, the command reprint\_error will print an additional, slightly confusing message for the very unusual case where the desired condition frame exists but the condition information does not. A change to reprint\_error has been submitted.

DETAILED PROPOSAL: The changes have been installed.



MULTICS CHANGE REQUEST		MCR <u>325</u> Page <u>1</u> of <u>1</u> Pages
TITLE: <b>Change in the implementation of the Network Host Activation List</b>	STATUS	DATE
	Written	01/29/74
AUTHOR: <u>Kenneth T. Pogran</u>	Approved <b>#</b>	<b>2/5/74</b>
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	<b>8/5/74</b>

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

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

**REASONS:** The Network `host_activation_list` is referenced by the program `network_exec` executing in the Network Daemon process to obtain the name or number of all the ARPA Network hosts with which Multics is to communicate. `network_exec` then calls an NCP entry point to enable communications with each of these hosts.

In the present implementation, `host_activation_list` is an ASCII data base, referenced by explicit pathname by `network_exec` and parsed using `parse_file`. The disadvantage of using an explicit pathname is obvious; in addition, the `host_activation_list` now contains approximately 64 entries, and processing it with `parse_file` is extremely inefficient and results in delays in NCP re-initialization when the system is heavily loaded.

**PROPOSAL:** `host_activation_list` will become an "external static" data base findable via search rules. It will be, very simply, a bit string of 256 bits; if bit i is 1, it is an indication that communications with host i are to be enabled. `network_exec` will be modified to use this new strategy. A new command will be provided so that privileged users (e. g. CompNet system programmers and system maintenance personnel) may easily turn bits in this table on and off as needed (by specifying the name of the host).

MULTICS CHANGE REQUEST		MCR <u>326</u>	
TITLE: Fix illegal pointers in submission-testing programs		STATUS	DATE
AUTHOR: Arlene J. Scherer		Written	01/25/74
SOURCE: (if external; e.g., "User", "Marketing")		Approved #	2/5/74
		Rejected	
		Postponed	
		Withdrawn	
		Expires	8/5/74

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, and optionally UNFAILED PROPOSAL.

**REASON:**

To make source and object tests work again with version two hardcore, and to eliminate calls to old acl primitives; also to add to the condition handler a check for the "finish" condition.

**SUMMARY:**

procedures submission\_test, source\_test\_ and object\_test\_ stopped working when 22-1 was installed due to the use of pointer registers for all pointer data in the newly converted v2 hardcore segments. There were several assignment statements of pointers to pointers (never to be used in that path) which were uninitialized. These were corrected. To comply with system standards, calls to hcs\_\$acl\_add1 were changed. To anticipate the upcoming changes, a check for the "finish" condition was added to the command\_error condition handler for the testing programs.

Ver. 2  
730911

MULTICS CHANGE REQUEST		MCR <u>327</u>
TITLE: Update approved_routines_ table for online installations		STATUS
AUTHOR: Arlene Scherer		DATE
SOURCE: (if external; e.g., "User", "Marketing")		Written <u>07/26/74</u>
		Approved # <u>2/5/74</u>
		Rejected
		Postponed
		Withdrawn
		Expires <u>8/5/74</u>
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	
	Bug Fix	

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

**REASON:**

To delete several obsolete interfaces from the table of approved routines. To add a number of new subroutine calls to the table of approved routines.

**SUMMARY:**

The entries to be deleted are:  
 alloc\_ free\_ freen\_  
 default\_handler\_\$set  
 establish\_cleanup\_proc\_

revert\_cleanup\_proc\_

The entries to be added are:  
 convert\_date\_to\_binary\_  
 hcs\_\$add\_dir\_inacl\_entries  
 hcs\_\$add\_inacl\_entries  
 hcs\_\$delete\_dir\_inacl\_entries  
 hcs\_\$delete\_inacl\_entries  
 hcs\_\$get\_max\_seg\_size  
 hcs\_\$get\_link\_target  
 hcs\_\$get\_safety\_sw\_seg  
 sys\_info\$default\_max\_length  
 sys\_info\$page\_size

hcs\_\$list\_dir\_inacl  
 hcs\_\$list\_inacl  
 hcs\_\$replace\_dir\_inacl  
 hcs\_\$replace\_inacl  
 set\_lock\_\$lock  
 set\_lock\_\$unlock  
 hcs\_\$get\_ring\_brackets  
 hcs\_\$high\_low\_seg\_count  
 sys\_info\$max\_seg\_size

MULTICS CHANGE REQUEST

MCR 328  
Page 1 of 2 Pages

TITLE: Install new numeric formatting function

STATUS	DATE
Written	740201
Approved <input checked="" type="checkbox"/>	2/5/74
Rejected	

AUTHOR: Barry L. Wolman

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

Postponed	
Withdrawn	
Expires	8/5/74

CLASSIFICATION	JUSTIFICATION	
Incompatible Change	Marketing Requirement	Replaced by proposal MCR _____
<input checked="" type="checkbox"/> Extension	Conformance to Standard	Implemented in System _____
<input type="checkbox"/> Restriction	<input checked="" type="checkbox"/> Increased Consistency	Objections/Comments:
<input checked="" type="checkbox"/> Performance Improvement	<input checked="" type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	Generalization	
<input type="checkbox"/>	Bug Fix	
<input type="checkbox"/>		

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

REASONS:

There are a number of inefficient numeric conversion routines installed in Multics. The new routine `numeric_to_ascii` (see attached description) separates the conversion and formatting operations performed by these routines; the conversion to float dec(59) is performed by the compiler as part of the calling sequence and `numeric_to_ascii` does only the formatting. `numeric_to_ascii` is a general routine that can replace the separate integer and floating point conversion routines now used, `convert_binary_integer_decimal_string`, `convert_binary_integer_long_decimal_string`, and cases where `ioa_decimal` is used to convert binary to ascii.

Name: numeric\_to\_ascii\_

This procedure formats a decimal floating point number in a manner appropriate to its value; integer, fractional, or exponential format is used, depending on the number being formatted. The value returned by this function is a varying character string that can contain an optional minus sign, from 1 to 59 decimal digits, and, in some cases, an exponent field. The caller can control the number of digits placed in the string.

Usage

```
dcl numeric_to_ascii_ entry(float dec(59), fixed bin)
returns(char(72) varying);
```

```
result = numeric_to_ascii_((value),precision);
```

- 1) value is the value to be formatted. The PL/I compiler converts to float dec(59) if the attributes of value are different. The extra pair of parentheses around value suppress the warning message about the conversion that would normally be generated. (Input)
- 2) precision controls the number of digits placed in the output string. If precision = 0, from 1 to 59 digits are placed in the result string depending on the value being formatted. If precision < 0, the decimal value is truncated to the specified number of digits. If precision > 0, the decimal value is rounded to the specified number of digits. In the cases where precision is non-zero, no more than the specified number of digits are placed in the output string. (Input)
- 3) result is the character string representation of value; it contains no blanks. (Output)

Note

If precision = 0, precision = 59 is used. Let  $P = \min(59, \text{precision})$ .

A number in integer format consists of a string of from 1 to P decimal digits without a decimal point. Integer format is used for integers whose absolute value is less than  $10^{**} P$ .

A number in fractional format consists of from 1 to P decimal digits with a decimal point. Trailing 0's in the fractional part are omitted; a number less than 1 has a 0 to the left of the decimal point. Fractional format is used for nonintegers that can be exactly represented in this format.

A number in exponential format appears as

$x e^{+y}$       or       $x e^{-y}$

where  $x$  is a number greater than 1 and less than 10 in fractional format and  $y$  is a power of 10 such that the numeric value being formatted is  $x * 10 ** y$ . Exponential format is used whenever integer or fractional format cannot be used.

MULTICS CHANGE REQUEST		MCR <u>329</u> Page <u>1</u> of <u>1</u> Pages	
TITLE: Bugs in archive command		STATUS	DATE
		Written	1/30/74
		Approved #	2/5/74
		Rejected	
AUTHOR: <u>Steve Herbst</u>		Postponed	
		Withdrawn	
		Expires <u>8/5/74</u>	
SOURCE: (if external) e.g., "User", "Marketing"		Expires	

CLASSIFICATION	JUSTIFICATION	REASON
<input type="checkbox"/> Incompatible Change	Marketing Requirement	Replaced by proposal MCR _____ Implemented in System _____
<input type="checkbox"/> Extension	Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	Increased Consistency	
<input checked="" type="checkbox"/> Performance Improvement	Simplification	
<input checked="" type="checkbox"/> Reliability Improvement	Generalization	
<input type="checkbox"/>	unreported & 248 Bug Fix	
<input type="checkbox"/>		

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

- REASONS:
1. Extended star convention is not implemented in the archive name.
  2. Archive can replace an archive into itself, and if delete force is in effect, delete it.
  3. udf can overflow the archive and delete the segment anyway.
  4. In a global replace operation, there is no message printed when user does not have access to an existing segment.

- SUMMARY:
1. Use check\_star\_name\_ instead of index (archive\_name, "\*").
  2. If the archive and segment pointers are equal, do nothing but print a message.
  3. Fix bug whereby wrong flag was set.
  4. After segment is initiated, test for mode error and print message.

MULTICS CHANGE REQUEST		MCR 330 Page 1 of 1 Pages	
TITLE: Fix teco bug		STATUS	DATE
AUTHOR: M. J. Grady		Written	1/2/74
SOURCE: (if external) e.g., "User", "Marketing"		Approved #	2/5/74
		Rejected	
		Postponed	
		Withdrawn	
		Expires	8/5/74

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

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

REASONS: In conversion to 2 PL1 a bug was introduced which caused incorrectly named temporary segments to be created in the process dir.

SUMMARY: 1. Fix bug in call to ioa\_\$rsnnl.

IMPLICATIONS: None



MULTICS CHANGE REQUEST

MCR 331  
Page 1 of 1 Pages

TITLE: Fix bugs in datmk routines used by linker

STATUS	DATE
Written	2/1/74
Approved <b>A</b>	2/12/74
Rejected	
Postponed	
Withdrawn	
Expires	8/12/74

AUTHOR: M. Weaver

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

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	<input type="checkbox"/> Implemented in System _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	
<input type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input checked="" type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Bug Fix 252, 253	
<input type="checkbox"/>	<input type="checkbox"/>	

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

REASONS: datmk subroutine in ring 0 depend on accuracy of linkage pointer in LOT; i.e., they will write into any segment specified if they can and they don't loop first.

SUMMARY: Fix datmk\_util\_ to check for loops. Fix rest\_of\_datmk to add validation level as ring number of linkage pointer before passing it to datmk\_util\_; this causes datmk\_util\_ to blow up on segments in lower rings than expected.

IMPLICATIONS: These changes solve only the immediately known problem. A more general solution could not be implemented at this time.

DETAILED PROPOSAL: The changes have already been coded and debugged.

MULTICS CHANGE REQUEST

MCR 332  
Page 1 of 1 Pages

TITLE: compare of zero length segments.

STATUS	DATE
Written	2/1/74
Approved #	2/12/74
Rejected	

AUTHOR: Steve Herbst

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

Postponed	
Withdrawn	
Expires	8/12/74

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	
	* unreported Bug Fix	

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

REASONS: compare gives no warning when one or both segments have zero length.

SUMMARY: If min (length 1, length 2) = 0, print a warning message.

MULTICS CHANGE REQUEST

MCR 333  
Page 1 of 1 Pages

TITLE: Changes to handle 1200 baud terminets

STATUS	DATE
Written	2/1/74
Approved <i>H</i>	2/12/74
Rejected	

AUTHOR: R. B. Snyder

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

Postponed	
Withdrawn	
Expires	8/12/74

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

Replaced by proposal MCR \_\_\_\_\_  
Implemented in System \_\_\_\_\_  
Objections/Comments:

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

REASONS: The tty control tables have to be changed to allow Vadic 1200 baud modems to work.

SUMMARY: The program tty\_ctl will be changed to allow it to differentiate between the Vadic modem (used for the Terminet 1200) and the 202C6 modem (used for ADRS) .

IMPLICATIONS: None

MULTICS CHANGE REQUEST		MCR 334 Page 1 of 1 Pages
TITLE: Fix to HSLA software	STATUS	DATE
	Written	2/14
	Approved <b>H</b>	<b>2/12/74</b>
AUTHOR: <u>R. B. Snyder</u>		Rejected
SOURCE: (if external) e.g., "User", "Marketing"  local		Postponed
		Withdrawn
		Expires <b>8/12/74</b>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	<input type="checkbox"/> Implemented in System _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	
<input type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input checked="" type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Bug Fix #157	
<input type="checkbox"/>	<input type="checkbox"/>	

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

REASONS: The HSLA software contains bugs causing it to lose output and input.

SUMMARY: These bugs have been found and will be fixed.

IMPLICATIONS: ARDS will work.

MULTICS CHANGE REQUEST		MCR <u>336</u> Page <u>1</u> of <u>1</u> Pages
TITLE: bugs in abbrev  AUTHOR: <u>S. Herbst</u>	STATUS	DATE
	Written	<u>2/6/74</u>
	Approved	<u># 2/12/74</u>
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	<u>8/12/74</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Implemented in System _____
<input type="checkbox"/> Extension	<input checked="" type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	
<input checked="" type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Unreported Bug Fix	

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

REASONS: 1) abbrev does not process characters after balanced quotes.  
 2) does not copy check info time when user's profile is reshaped.  
 3) conversion to PL/I VII and assorted small changes.

SUMMARY: 1) at the end of the line, process string even if we are still "inside quotes".  
 2) explicitly copy check\_info\_time from old to new profile.

MULTICS CHANGE REQUEST		MCR <u>337</u> Page <u>1</u> of <u>1</u> Pages
TITLE: Correcting maximum tree depth	STATUS	DATE
	Written	2/5/74
	Approved <b>H</b>	<b>2/12/74</b>
	Rejected	
AUTHOR: <u>A. Kobziar</u>	Postponed	
	Withdrawn	
	Expires	<b>8/12/74</b>
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	
	* unreported Bug Fix	

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

REASONS: Currently active `hardcore_data$max_tree` depth is set at 16. Both the system and salvager use the number "0" for the root and thus use numbers 0-15 for a 16 level hierarchy.

SUMMARY: Change `max_tree_depth` from 16 to 15.

MULTICS CHANGE REQUEST		MCR <u>338</u> Page <u>1</u> of <u>1</u> Pages	
TITLE: Fix bugs in IOM_manager's handling of overhead channels		STATUS	DATE
		Written	2/5/74
		Approved <i>H</i>	<i>2/12/74</i>
		Rejected	
AUTHOR: <u>N. Morris</u>		Postponed	
		Withdrawn	
		Expires <i>8/12/74</i>	
SOURCE: (if external) e.g., "User", "Marketing"		Expires	
		Postponed	
		Withdrawn	
		Expires	

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Implemented in System _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	
<input checked="" type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> unreported Bug Fix	

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

REASONS: Initialization for the com\_manager currently sets up the mailboxes for the system fault and special status channels incorrectly. The receipt of more than 16 status words over either channel could cause a system crash.

SUMMARY: The code in iom\_data\_unit will be fixed to correctly initialize these mailboxes.

IMPLICATIONS: These channels are currently not used heavily. The special status channel will get heavy usage with the MTS-500's.

MULTICS CHANGE REQUEST		MCR 339 Page 1 of Pages	
TITLE: Interpret "disposal" properly in "tw_" and "hcs_\$tty_detach".		STATUS	DATE
		Written	2/5/
AUTHOR: <u>M.G. Smith</u>		Approved <i>H</i>	<i>2/12/74</i>
		Rejected	
SOURCE: (if external) e.g., "User", "Marketing"		Postponed	
		Withdrawn	
		Expires	<i>8/12/74</i>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	Marketing Requirement	Implemented in System _____
<input checked="" type="checkbox"/> Extension	Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	Increased Consistency	
<input type="checkbox"/> Performance Improvement	Simplification	
<input type="checkbox"/> Reliability Improvement	Generalization	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Unreported Bug Fix	
<input type="checkbox"/>		

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

REASONS: Procedure "tty\_index.PL1" (accessible via the gate "hcs\_\$tty\_detach") does not interpret the "disposal" argument properly: (1) a user cannot detach his own teletype without receiving an error message (see MPRF 4347); and (2) when the boss-process of a teletype (its so-called "hproc") releases it, the teletype can never be attached again till the system is re-booted. Also, "rest\_of\_ttydim.PL1" (part of "tw\_") implements an undocumented "retain" disposal, but passes an incorrect code to the hardcore if it is used.

SUMMARY: Change "tty\_index.PL1" so that: (1) a user can always detach his own teletype without error--the "disposal" code is ignored in this case; and (2) the boss-process-id is cleared when the boss-process detaches a teletype without retaining it. Remove the undocumented and incorrect code from "rest\_of\_ttydim.PL1".

IMPLICATIONS: For users: an annoying error message is suppressed. For system control: system control must be aware that when it detaches a teletype without retention the channel is put up for grabs--since system control apparently never does this, there should be no problem. For other processes attaching to teletype-like devices not in the "lines" file: upon detachment such devices revert to their state prior to attachment, so they can be re-used without another system boot.



MULTICS CHANGE REQUEST

MCR 340  
Page 1 of 1 Pages

TITLE: Extend find\_operator\_name\_procedure

STATUS	DATE
Written	740205
Approved <i>H</i>	<i>2/12/74</i>
Rejected	
Postponed	
Withdrawn	
Expires	<i>8/12/74</i>

AUTHOR: Barry L. Wolman

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

CLASSIFICATION

JUSTIFICATION

Replaced by proposal MCR \_\_\_\_\_

Incompatible Change	Marketing Requirement
Extension	Conformance to Standard
Restriction	Increased Consistency
Performance Improvement	Simplification
Reliability Improvement	Generalization
	<i>x</i> Unreported Bug Fix

Implemented in System \_\_\_\_\_

Objections/Comments:

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

REASONS: The find\_operator\_name\_subroutine used by debug, trace\_stack, default\_error\_handler, and profile does not recognize the new math operators used by Version II PL/I.

SUMMARY: Extend find\_operator\_name\_ to recognize math operators, which are entered by the instruction  
                                   tsp3           pr0|op

MULTICS CHANGE REQUEST

MCR 341  
Page 1 of 1 Pages

TITLE: Fix bug in initialization tape\_reader

STATUS	DATE
Written	2/5
Approved <i>H</i>	<i>2/13/74</i>
Rejected	
Postponed	
Withdrawn	
Expires	<i>8/13/74</i>

AUTHOR: N. Morris

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

CLASSIFICATION	JUSTIFICATION	
<input type="checkbox"/> Incompatible Change	Marketing Requirement	Replaced by proposal MCR _____
<input type="checkbox"/> Extension	Conformance to Standard	Implemented in System _____
<input type="checkbox"/> Restriction	Increased Consistency	Objections/Comments:
<input checked="" type="checkbox"/> Performance Improvement	Simplification	
<input type="checkbox"/> Reliability Improvement	Generalization unreported	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Bug Fix	
<input type="checkbox"/>		

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

REASONS: A missing line of code in tape\_reader will cause the system to die during Multics initialization if a particular sequence of tape error occurs.

SUMMARY: The code will be repaired.

MULTICS CHANGE REQUEST

MCR 342  
Page 1 of 1 Pages

TITLE: Install indexed-file modules

STATUS	DATE
Written	2/6/73
Approved <b>X</b>	2/12/74
Rejected	

AUTHOR: M.D. MacLaren

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

Postponed	
Withdrawn	
Expires	8/12/74

CLASSIFICATION	JUSTIFICATION	
		Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	<input checked="" type="checkbox"/> Marketing Requirement	Implemented in System _____
<input checked="" type="checkbox"/> Extension	Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	Increased Consistency	
<input type="checkbox"/> Performance Improvement	Simplification	
<input type="checkbox"/> Reliability Improvement	Generalization	
<input type="checkbox"/>	Bug Fix	

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

REASONS: Provides indexed sequential files. Provides performance improvement over fm\_. (Currently, the improvement is by a factor of about 5, eventually the factor will be 10-20). Required to support keyed files under new I/O system.

SUMMARY: Add required procedures to bound\_yfile\_.

IMPLICATIONS: Users will be able to use indexed files when 1) the draft MPM documentation is available (it is being written now), or 2) the new PL/I and/or Fortran compilers and runtime routines are installed.

MULTICS CHANGE REQUEST		MCR <u>343</u> Page <u>1</u> of <u>1</u> Pages	
TITLE: recursion of archive command		STATUS	DATE
AUTHOR: <u>S. Herbst</u>		Written	<u>2/5/74</u>
SOURCE: (if external) e.g., "User", "Marketing"		Approved <u>H</u>	<u>2/12/74</u>
		Rejected	
		Postponed	
		Withdrawn	
		Expires	<u>8/12/74</u>

CLASSIFICATION	JUSTIFICATION	
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Replaced by proposal MCR _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Implemented in System _____
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	Objections/Comments:
<input checked="" type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input checked="" type="checkbox"/> Generalization	
<input type="checkbox"/>	<input type="checkbox"/> Bug Fix	
<input type="checkbox"/>	<input type="checkbox"/>	

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

REASONS: Want archive to be recursively callable.

SUMMARY: Replace "active" flag with level number. Generate a different temporary archive name for each level. The temp.archive for level 1 is truncated rather than deleted, as the only temp.archive used to be.

MULTICS CHANGE REQUEST		MCR 344 Page 1 of 1 Pages
TITLE: Convert LTS system for 256k		STATUS
AUTHOR: M. A. Meer		DATE
SOURCE: (if external) e.g., "User", "Marketing"		Written 2/6/74
		Approved # 2/12/74
		Rejected
		Postponed
		Withdrawn
		Expires 8/12/74
CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
Incompatible Change	Marketing Requirement	Implemented in System _____
Extension	Conformance to Standard	Objections/Comments:
Restriction	X Increased Consistency	
Performance Improvement	Simplification	
Reliability Improvement	X Generalization	
	Bug Fix	

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

REASONS: Allow use of LTS system with various values of sys\_info\$max\_length.

SUMMARY: The current LTS system assumes that tapes are written from segments of 64k or smaller. For multi-segment files the format on tape has the number of segments and the size of the last segment. There is neither a total count of words in a file nor the sys\_info\$max\_seg size at the time the tape was written.

- 1) On tape, multi-segment files are irrelevant.
- 2) To use tapes on systems with different sys.info\$max\_seg\_size, either the total number of words in a file or the sys\_info\$max\_seg\_size must be present on the tape.

In addition, when an end of reel is encountered while writing, the last write is repeated on the next reel. Accounting for this is the greatest difficulty in converting for use on systems of different max\_seg\_size.

Changes have been made to lts\_file\_, lts\_Dbuild, lts\_output\_ and lts\_tape\_ to keep and use both total count of words in the file being written and max\_seg\_size at the time of writing.

IMPLICATIONS: This is a compatible change.

MULTICS CHANGE REQUEST		MCR <u>345</u> Page <u>1</u> of <u>1</u> Pages
TITLE: <u>Fix bug in init_salv_fsdcts</u>  AUTHOR: <u>N. Morris</u>	STATUS	DATE
	Written	<u>2/6</u>
	Approved <u>H</u>	<u>2/12/74</u>
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"  internal	Postponed	
	Withdrawn	
	Expires	<u>8/12/74</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	Marketing Requirement	Implemented in System _____
<input type="checkbox"/> Extension	Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	Increased Consistency	
<input checked="" type="checkbox"/> Performance Improvement	Simplification	
<input type="checkbox"/> Reliability Improvement	Generalization	
<input type="checkbox"/>	Unreported	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Bug Fix	

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

REASONS: A bug was introduced in init\_salv\_fsdcts which caused the paging device ID in the SST to be set incorrectly.

IMPLICATIONS: This change has been submitted with the DSS-191 system.

MULTICS CHANGE REQUEST

MCR 346  
Page 1 of 1 Pages

TITLE: Improve & extend IOM manager

STATUS	DATE
Written	2/6/74
Approved #	2/12/74
Rejected	

AUTHOR: N. Morris

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

Postponed	
Withdrawn	
Expires	8/12/74

CLASSIFICATION	JUSTIFICATION	
		Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible Change	<input checked="" type="checkbox"/> Marketing Requirement	Implemented in System _____
<input checked="" type="checkbox"/> Extension	Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	Increased Consistency	
<input checked="" type="checkbox"/> Performance Improvement	Simplification	
<input type="checkbox"/> Reliability Improvement	Generalization	
<input type="checkbox"/>	Bug Fix	

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

REASONS: 1. Provide new IOM manager entries to allow IOM operation in relative mode for the I/O interfacers.  
2. The list\_connect\_pcw entry of the IOM manager always calls wire\_stack. This is wasteful if list\_connect\_pcw was called from a wired stack (as in the disk DIM).

SUMMARY: 1. New entries will be designed & documented to allow setting the LPW extension offset & bound fields before a connect is performed.  
2. A new entry will be provided called wired\_connect\_pcw. At a later time, those programs which can take advantage of this entry can be modified.