

TO: Distribution
FROM: M. S. Hodges
DATE: August 16, 1974
SUBJECT: Multics Change Requests

Attached are copies of Multics Change Requests approved from August 1 - August 15, 1974.

Multics Project internal working documentation. Not to be reproduced or distributed outside the Multics Project.

MULTICS CHANGE REQUEST		MCR <u>687</u> Page <u>1</u> of <u>1</u> Pages.
TITLE: Fix bug in wire_proc locking strategy	STATUS	DATE
	Written	7-29-74
AUTHOR: <u>Steve Webber</u>	Approved	8-6-74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	2-6-75

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 checked="" 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 287	

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

REASONS: **The program wire_proc violates several locking rules.
The program should be changed to call the standard lock/unlock primitives.**

MULTIPLE CHANGE REQUEST

MCR 688
Page 1 of 1

TITLE: Fix bug in pc_abs

STATUS	DATE
Written	7-29-74
Approved	8-6-74
Rejected	
Postponed	
Withdrawn	
Expires	2-6-75

AUTHOR: Steve Webber

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"/> Extension	<input type="checkbox"/> Conformance to Standard
<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 256
<input type="checkbox"/>	

Implemented in System _____

Objections/Comments:

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

REASONS: The minus 1 pages in core bug has been found.

SUMMARY: Fix it.

MULTICS CHANGE REQUEST		MCP <u>689</u> Page <u>1</u> of <u>1</u>
TITLE: <u>Change program parity_fault to log more information about op-not-completes</u>	STATUS	DATE
AUTHOR: <u>Steve Webber</u>	Written	<u>7-29-74</u>
SOURCE: (if external) e.g., "User", "Marketing"	Approved	<u>8-6-74</u>
	Rejected	
	Postponed	
	Withdrawn	
	Expires	<u>2-6-75</u>

CLASSIFICATION	JUSTIFICATION	REASON
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Replaced by proposal MCP _____
<input checked="" type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Implemented in System _____
<input type="checkbox"/> Restriction	<input type="checkbox"/> Increased Consistency	Objections/Comments:
<input 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 checked="" type="checkbox"/> Find hardware bug	

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

REASONS: The handler for op-not-complete faults in ring zero should record the history register data from op-not-completes.

SUMMARY: Possibly under control of a DEBG card option have the program parity_fault enter in the syserr log, but not online, the contents of the history registers at the time of the fault.

MULTICS CHANGE REQUEST		MCR <u>690</u> Page <u>1 of 1</u> Pages
TITLE: <u>Fix bugs in exists active function</u>	STATUS	DATE
	Written	7-29-74
AUTHOR: <u>Gordon Benedict</u>	Approved	8-6-74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	2-6-75

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 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 259	

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

REASONS: As reported in mprf 6043, if exists did not find a segment due to a "no_dir" report rather than "noentry" it bombed rather than returning "false". Many old programs have this problem.

In addition, grossly illegal PL/I involving addrel, etc. which would not have worked with v2 recompilation was replaced by new active function cu_ calls.

SUMMARY:

Fix bug.

IMPLICATIONS:

None: compatible change.

DETAILED PROPOSAL:

Coded and ready for submission.

MULTICS CHANGE REQUEST

MCR 691
Page 1 of 8 Pages

TITLE: Installation of word_list and related commands

STATUS	DATE
--------	------

AUTHOR: Jerry Stern

Written	7/29/74
Approved	8-6-74
Rejected	

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

Postponed	
Withdrawn	
Expires	2-6-75

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 type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input checked="" type="checkbox"/> new feature	<input type="checkbox"/> Bug Fix	
<input type="checkbox"/>	<input type="checkbox"/>	

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

REASONS: The word_list command, along with other related commands, has proven to be useful as a tool for proofreading text. It is desired that word_list be used by the documentation staff in preparing Multics documantation. For this purpose, it is required that word_list be installed and supported.

Summary: Install the following five commands in the tools library: word_list, format_word_list, find_word, update_dict, and reduce_word_list. Descriptions of these commands are attached. Since word_list is of general interest to all Multics users, it is suggested that these commands also be linked to from the author-maintained library.

Implications: Use of word_list for preparing Multics documentation can be officially sanctioned.

One of the modules called by word_list, named sort_lines, is a sorting command/subroutine similar to sort_file and sort_seg. However, sort_lines is substantially faster than either sort_file or sort_seg and provides a new capability for alphabetical sorting. The possibility of combining these three sorts to use the best sorting algorithm as implemented by a common subroutine should be investigated.

07/23/74

Name: word_list, wl

The word_list command is intended to aid the user in proofreading text stored on-line by helping to detect spelling errors, typographical errors, and other such mistakes. The program scans a text segment, produces a sorted list of words, and eliminates duplications. The resulting word list is saved in a segment having the name of the input text segment with the suffix ".wl" appended. The output segment is placed in the working directory.

Usage

word_list pname -control_arg-

- 1) pname is the pathname of the text segment from which a word list is to be generated.
- 2) -control_arg- may be the following control argument.
 - no_sort, -ns the word list is not sorted and hence duplications are not eliminated. (See Notes)

Notes

Word list output segments may be directly printed. The format of the output segment is simply a sequence of words separated by newlines. For large word lists, this format tends to be rather wasteful of paper. Therefore, a separate command called "format_word_list" is provided which will arrange a word list into multiple columns per page suitable either for terminal printing or dprinting. (See format_word_list)

The maximum size of a word appearing in a word list is limited to 95 characters. If a word exceeds 95 characters, it is truncated to 94 characters and a question mark ("?",) is appended.

Word lists are sorted into alphabetical order rather than ASCII order so that words of the same spelling appear together regardless of capitalization. If the user does not wish his word list to be sorted in this manner, the -no_sort control argument can be specified. In general this will result in larger word lists since duplications will not be eliminated. Furthermore, the dictionary commands (see below) will not work correctly and should not be used on a word list prepared with the -no_sort option.

After using the word_list command on several different text segments, it becomes painfully clear that a large percentage of words reappear in one document after another. Therefore, to minimize the number of words which the user must inspect for each

successive use of `word_list`, a program is provided to create and update "dictionaries". When the user has corrected all mistakes, he may employ the `update_dict` command to add new words to a dictionary. The next time the user produces a word list, he can then use the `reduce_word_list` command to remove from his word list those words which already appear (presumably correctly spelled) in his dictionary. (See `update_dict` and `reduce_word_list`)

Upon examination of a word list, a user may discover certain suspicious words which appear to be in error. In most cases these words can be quickly located within the text segment by use of an editor. In some cases, however, locating a suspicious word may not be quite so easy. For example, suppose the word "th" appeared in a word list. Since the consonant pair "th" is so common among English words, searching for "th" would most likely find many legitimate words before finding an isolated "th". Therefore, the `find_word` command is provided to help locate such words. (See `find_word`)

07/23/74

Name: format_word_list, fwl

The format_word_list command arranges a previously generated word list (see word_list) into a format suitable for either terminal printing or dprinting. By default, output is directed to the user's terminal.

Usage

format_word_list pname -control_arg-

- 1) pname is the pathname of the word list segment. If the suffix ".wl" is not present, it is assumed.
- 2) -control_arg- may be either of the following control arguments (but not both).
 - segment, -sm specifies that output is to be directed to a segment in the user's working directory. The name of the output segment is that of the input segment with the suffix changed from ".wl" to ".fwl".
 - replace, -rp specifies that the output is to replace the input, i.e. the output overwrites the input segment. The name of the input (output) segment is changed to have the ".fwl" suffix.

Notes

The maximum printing length of a word appearing in a formatted word list is 31 character positions. If a word exceeds 31 character positions, it is truncated to 31 character positions followed by a question mark ("?").

Words are arranged into columns of 20 character positions each. Segment output always uses six columns and is specifically designed for dprinting. When neither option is specified, output is directed to the user's terminal. As many columns as will fit within the terminal's line length (up to a maximum of six) are used.

07/23/74

Name: find_word, fwd

The find_word command locates all occurrences of a given word within a text segment. It is intended to be used in conjunction with the word_list command. (See word_list) Each occurrence of a given word is printed in context, i.e. with surrounding punctuation and delimiters. The context of the word should provide sufficient information to locate the word within the text segment using an editor.

Usage

find_word pname word

- 1) pname is the pathname of the text segment to be searched.
- 2) word is the word to be located.

Notes

The delimiters space, horizontal tab, newline, vertical tab, and form feed are printed as <SP>, <HT>, <NL>, <VT>, and <FF> respectively. The occurrence number precedes the printing of each word.

07/23/74

Name: update_dict, upd

The update_dict command adds words from a word list to a "dictionary". (See word_list) A dictionary is nothing more than a word list to which, with the user's care, only correctly spelled words have been admitted. A dictionary created by this command can be used to "reduce" a word list, i.e. to remove words from the list known to be correctly spelled. (See reduce_word_list)

Usage

update_dict wl_name dict_name -control_arg-

- 1) wl_name is the pathname of the word list. If the suffix ".wl" is not present, it is assumed.
- 2) dict_name is the pathname of the dictionary. If the suffix ".dict.wl" is not present, it is assumed. If the dictionary does not exist, it will be created.
- 3) -control_arg- may be the following control argument.
-no_verify, -nv specifies that no verification will be performed on words to be added to the dictionary. (See Notes)

Notes

Each word found in the word list which does not already exist in the dictionary is a candidate for admission to the dictionary. Normally, only words composed entirely of lower-case letters are added to the dictionary. Therefore, the user need not worry about excessive "garbage" being added to the dictionary.

Before updating a dictionary from a word list, the user must insure that all lower-case-only words are correctly spelled. Two approaches to correcting misspelled words are possible. First, the user can correct all misspelled words in the original text and then generate a new word list. This is probably the easiest approach, but not always the most efficient (especially when large text segments are involved). Second, the user can directly edit the word list. The user is strongly discouraged from attempting to correct words in the word list since a change in spelling might require a change in position within the sorted list. Instead, the user should simply delete all misspelled words and then update his dictionary. If desired, the user can create a new text segment containing just those deleted words (spelled correctly) and then generate a second, smaller word list

to update his dictionary. The user may occasionally wish to delete certain lower-case-only words not appropriate for inclusion in the dictionary.

By design, the `update_dict` command ignores words containing upper case letters, hyphens, apostrophes, and other non-lower-case characters to avoid filling the dictionary with "garbage" and duplications. However, the user may wish to include certain capitalized words, hyphenated words, etc. To do so, he should create a text segment containing just those special words and then generate a word list. He can update this word list into his dictionary by use of the `-no_verify` control argument. This control argument should not be used for arbitrary word lists unless the user wishes to admit arbitrary "garbage" into his dictionary.

It should be emphasized that dictionaries are themselves word lists. Hence, any operation which can be performed on a word list can also be performed on a dictionary. If, by mistake, a misspelled word is entered into a dictionary, it can be edited out. A dictionary can be formatted or reduced and one dictionary can be updated into another.

07/23/74

Name: reduce_word_list, rwi

The reduce_word_list command removes from a specified word list all words which appear in a specified dictionary. (See word_list and update_dict) The resulting reduced word list replaces the original word list.

Usage

reduce_word_list wl_name dict_name

- 1) wl_name is the pathname of the word list to be reduced.
- 2) dict_name is the pathname of the dictionary.

Notes

The reduce_word_list command attempts to recognize words which are not normally capitalized but which could be capitalized in a title, as the first word of a sentence, etc. If a word has its first letter capitalized and all other letters lower case, or if all letters of a word are upper case, the word will be removed from the word list if a corresponding all lower case word appears in the dictionary.

MULTICS CHANGE REQUEST		MCR <u>692</u> Page <u>1</u> of <u>1</u>
TITLE: <u>Remove 2 entries from the gate hcs_</u>	STATUS	DATE
	Written	<u>7-30-74</u>
AUTHOR: <u>R. Mullen</u>	Approved	<u>8-6-74</u>
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	<u>2-6-75</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input checked="" type="checkbox"/> Incompatible Change	<input checked="" 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 type="checkbox"/> Performance Improvement	<input checked="" type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input type="checkbox"/> Bug Fix	

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

REASONS: 1. the entries hcs_\$set_dates and hcs_\$set_dtd are obsolete.
 2. they are not called by any system program.
 3. no calls by user programs have been detected by recent meter_gate's.
 4. these entries provide for setting of dir_entry fields which should not be arbitrarily user settable.

SUMMARY: These entries should be deleted from hcs_

IMPLICATIONS: A warning period of about 2 weeks should be given to users.

MULTI-CHANGE PROJECT		MCR <u>693</u> Page <u>1</u> of <u>1</u>
TITLE: <u>Move 2 entries from hcs_ to hphcs_</u>	STATUS	DATE
AUTHOR: <u>R. Mullen</u>	Written	<u>7-30-74</u>
	Approved	<u>8-6-74</u>
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	<u>2-6-75</u>

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

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

REASONS:

1. The entries `hcs_$set_backup_dump_time` and `hcs_$set_backup_times` provide for setting of `dir_entry` fields which should not be arbitrarily user settable.
2. They are not called by any system programs other than those in the privileged dumper/reloader subsystem.

SUMMARY: These entries should be added to `hphcs_` and deleted from `hcs_` when the dumper/reloader have been changed to call through the highly privileged gate.

IMPLICATIONS:

A warning period should be given to users. The dumper will be changed to call the `hphcs_` entries unless it is running in "debug mode", in which case it will not attempt to set the various dates in the branch.

MULTIPLE CHANGE REQUEST		MCR <u>694</u> Page <u>1</u> of <u>1</u> Pages
TITLE: <u>Repair security hole in restart_fault_</u>		STATUS
AUTHOR: <u>Steve Webber</u>		Written <u>7-30-74</u>
SOURCE: (if external) e.g., "User", "Marketing"		Approved <u>8-6-74</u>
		Rejected
		Postponed
		Withdrawn
		Expires <u>2-6-75</u>

CLASSIFICATION	JUSTIFICATION	
<input type="checkbox"/> Incompatible Change	<input checked="" 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 checked="" type="checkbox"/> Increased Consistency	Objections/Comments:
<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 unreported	
<input type="checkbox"/>	<input type="checkbox"/>	

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

REASONS: A security hole exists in restart_fault. It should be repaired.

SUMMARY: Fix the bug by making a further check of the machine conditions being validated.

MULTICS CHANGE REQUEST		MCR <u>695</u> Page <u>1</u> of <u>1</u>
TITLE: Establish convention for user ring gate segments	STATUS	DATE
	Written	7-30-74
AUTHOR: <u>Steve Webber</u>	Approved	8-6-74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	2-6-75

CLASSIFICATION	JUSTIFICATION	
<input type="checkbox"/> Incompatible Change	<input type="checkbox"/> Marketing Requirement	Replaced by proposal MCR _____
<input checked="" type="checkbox"/> Extension	<input type="checkbox"/> Conformance to Standard	Implemented in System _____ Objections/Comments:
<input type="checkbox"/> Restriction	<input checked="" type="checkbox"/> Increased Consistency	
<input 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: In order to make user ring gate segments workable, it must be possible to set entry bounds on the gates. This proposal describes an interim solution to the problem.

SUMMARY: Establish a convention for naming a "segdef"d location in an object segment. The offset of this location will be the value the entry bound should assume if and when the command to set the entry bound in a branch is invoked.

A command should be provided which attempts to determine the value of the "segdef"d offset and pass the value to the hcs_ entry "set_entry_bound" which places the value in the branch for the segment (and causes a setfaults to force the use of the new entry bound value).

The name of the segdef is arbitrary but one possible choice (the one used currently in the hardcore) is "tv_end".

MULTICS CHANGE REQUEST		MCR <u>696</u> Page <u>1 of 1</u>
TITLE: <u>Fix to BUILD355</u>	STATUS	DATE
AUTHOR: <u>R.B. Snyder</u>	Written	<u>7-30-74</u>
	Approved	<u>8-6-74</u>
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing" <u>local</u>	Postponed	
	Withdrawn	
	Expires	<u>2-6-75</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 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	<input type="checkbox"/> Generalization	
<input checked="" type="checkbox"/> Improvement	<input type="checkbox"/> Unreported	
	<input checked="" type="checkbox"/> Bug Fix	

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

REASONS: build355 must be changed to generate a \$ LIMITS card with a 48K core limit to allow the interactive 355 simulator to work correctly.

SUMMARY: do it.

IMPLICATIONS: none

MULTICS CHANGE REQUEST		MCR <u>697</u> Page <u>1 of 1</u>
TITLE: <u>Problem in Terminate Proc</u>		STATUS
AUTHOR: <u>R.B. Snyder</u>		Written <u>7-30-74</u>
SOURCE: (if external) e.g., "User", "Marketing" <u>local</u>		Approved <u>8-6-74</u>
		Rejected
		Postponed
		Withdrawn
		Expires <u>2-6-75</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 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	
	Unreported	
	<input checked="" type="checkbox"/> Bug Fix	

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

REASONS: If the ttydim is passed a pointer of -2/-n, the user's process will terminate with a lock left locked. This will eventually crash the system.

SUMMARY: Terminate_proc will be changed to call tty_unlock.

IMPLICATIONS: One less way to crash Multics.

MUTATION CHANGE REQUEST		MCR <u>698</u> Page <u>1</u> of <u>1</u>
TITLE: Move hardcore printer interface to prt _{dc} m		STATUS
AUTHOR: <u>Jerold C. Whitmore</u>		Written <u>7/31/74</u> Approved <u>8-6-74</u> Rejected
SOURCE: (if external) e.g., "User", "Marketing"		Postponed Withdrawn Expires <u>2-6-75</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input type="checkbox"/> Incompatible (Class)	<input checked="" type="checkbox"/> Marketing Requirement	Implemented in System _____
<input type="checkbox"/> Extension	<input type="checkbox"/> Performance to Standard	Objections/Comments:
<input checked="" 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 type="checkbox"/> Bug Fix	

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

REASONS: Unprivileged users do not directly attach a line printer to their process and AFDSC must be able to prevent this. Until printer attachment can be controlled from ring 1 using ioi_, moving the primitives to prt_{dc}m will allow current operations to continue unchanged while still restricting access.

Summary:

1. Immediately add duplicate primitives to prt_{dc}m and install.
2. Convert printer_{dim} to call the prt_{dc}m entries and install.
3. Remove the hcs_{printer} primitives

Implications: Users without prt_{dc}m access will no longer be able to attach a line printer.

MULTI-CHANGE REQUEST		MCR <u>699</u> Page <u>1</u> of <u>1</u> Pages
TITLE: <u>Install extended_access_commands</u>		STATUS
AUTHOR: <u>Steve Herbst</u>		Written <u>8-2-74</u>
SOURCE: (if external) e.g., "User", "Marketing"		Approved <u>8-13-74</u>
		Rejected
		Postponed
		Withdrawn
		Expires <u>2-13-75</u>

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

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

REASONS: Commands exist to create, delete and manipulate acl's and names on queue message segments. These can be replaced by a single module (described in MTB-064) that performs all the same functions with no change in user interface, and also performs similar functions on mailboxes. Entries are named after the existing commands. The module is easily extendable to work on other kinds of message segments.

SUMMARY: Install extended_access_commands and delete the old commands.

IMPLICATIONS: None

MULTIPLY CHANGE REQUEST		MCR <u>700</u> Page <u>1</u> of <u>1</u>
TITLE: <u>Install find_common_acl_names_</u>		STATUS
AUTHOR: <u>Steve Herbst</u>		Written <u>8-2-74</u>
SOURCE: (if external) e.g., "User", "Marketing"		Approved <u>8-13-74</u>
		Rejected
		Postponed
		Withdrawn
		Expires <u>2-13-75</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCR _____
<input checked="" type="checkbox"/> Incompatible Change	Marketing Requirement	Implemented in System _____
<input type="checkbox"/> Extension	Conformance to Standard	Objections/Comments: 1. An MCR for the use of this new convention with the standard ACL commands is requested. 2. Behavior for the bizarre cases such as .. should be carefully specified and documented.
<input type="checkbox"/> Restriction	Increased Consistency	
<input type="checkbox"/> Performance Improvement	Simplification	
<input type="checkbox"/> Reliability Improvement	<input checked="" type="checkbox"/> Generalization	
<input type="checkbox"/>	Bug Fix	
<input type="checkbox"/>		

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

REASONS: A redefinition of the matching strategy for missing components in acl names was proposed in MTB-092.

SUMMARY: Install find_common_acl_names to do the component matching for extended_access_commands. The latter depends on the existence of the former. find_common_acl_names takes a name to be matched and returns all matching names according to the new convention described in MTB-092.

IMPLICATIONS: Change in user interface affects which acl entries are acted upon by commands to list or change extended access.

MULTICS CHANGE REQUEST		MCR <u>701</u>
TITLE: Add -lines option to tty_lines	STATUS	DATE
AUTHOR: R. A. Roach	Written	08/07/74
SOURCE: (if external; e.g., "User", "Marketing") MIT (PDC)	Approved	8-13-74
	Rejected	
	Postponed	
	Withdrawn	
	Expires	2-13-75

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 type="checkbox"/> Increased	
<input type="checkbox"/> Restriction	<input type="checkbox"/> Consistency	
<input type="checkbox"/> Performance		
<input type="checkbox"/> Improvement	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability	<input checked="" type="checkbox"/>	
<input type="checkbox"/> Improvement	<input type="checkbox"/> Generalization	
	<input checked="" type="checkbox"/> (Unreported)	
	<input type="checkbox"/> Bug Fix	

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

REASONS: It is useful at times when printing out the status of a tty channel (or all channels) to include the information stored as comments in the lines file (e.g. phone number).

SUMMARY: Add "-lines" option to tty_lines which will cause it to print the comment for the channel at the end of the normal data.

Also fix problem where for certain lines, the last terminal's ID is printed in the dialup count field (incomplete implementation of last change). Also, the "no." in the header is changed to "No." to be consistent with other items in the header. The duplicated copyright notice is removed.

IMPLICATIONS: If not used, output is the same.

MULTI-CHANGE REQUEST		MCR <u>702</u> Page <u>1</u> of <u>1</u> Pages
TITLE: Modify BOS to run with URMPC Peripherals	STATUS	DATE
	Written	8/7/74
AUTHOR: <u>Noel L. Morris</u>	Approved	8-13-74
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing" Internal	Postponed	
	Withdrawn	
	Expires	2-13-75

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	<input checked="" type="checkbox"/> Conformance to Standard	Objections/Comments:
<input type="checkbox"/> Restriction	Increased Consistency	
<input type="checkbox"/> Performance Improvement	Simplification	
<input type="checkbox"/> Reliability Improvement	<input checked="" type="checkbox"/> Generalization	
	Bug Fix	

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

REASONS:

1. All URMPC-driven peripherals require a device code of 1 in IDCW's.
2. The PRT303 printer requires its image buffer to be loaded in ASCII, not in BCD as with the PRT300 printer.

Summary:

1. Since common peripheral card reader and punch ignore the device code, wire a device code into the IDCW's for these devices so that either a common peripheral unit or a URMPC unit can be driven by the same program.
2. Change the 'getprt' subroutine in BOS to examine the configuration deck more closely. The model number of the printer will be checked. If it is "303", a device code of 1 will be set for the printer's IDCW's, the appropriate printer train image will be converted from BCD to ASCII in core, and the train image will be loaded with the appropriate command sequence for a PRT303.

Implications:

- 2/ If no PRPH cards can be found for either "PRTA" or "PRTB", BOS will continue to assume a default printer type of PRT300, with a type 1 train image. Therefore, in order to operate a PRT303 from BOS, a PRPH card describing the printer must exist in the configuration deck.

MULTICS CHANGE REQUEST		MCR <u>703</u> Page <u>1</u> of <u>1</u> Pages
TITLE: <u>Fix Lockup Fault Problem in BOS</u>		STATUS
		DATE
AUTHOR: <u>Noel I. Morris</u>		Written <u>8/7/74</u>
		Approved <u>8-13-74</u>
SOURCE: (if external) e.g., "User", "Marketing" <u>Internal</u>		Rejected
		Postponed
		Withdrawn
		Expires <u>2-13-75</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 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:

When BOS enters a Multics core image (e.g. during BOOT or CONTIN operation), there is a period of time when a lockup fault can occur with no lockup fault handler provided. This can cause a system crash or a bootload failure.

Summary:

The BOS toehold will be modified to wait for the actual occurrence of a lockup fault just before entering the Multics core image. After this fault occurs, 32 milliseconds can elapse before the next lockup fault happens. This should provide adequate time to set masks and turn off the inhibit bit.

MULTICS CHANGE REQUEST		MCR <u>704</u> Page <u>1</u> of <u>1</u> Pages
TITLE: <u>Fix numeric conversion problem in BOS</u>		STATUS: <u>Written</u> DATE: <u>8/7/74</u>
AUTHOR: <u>Noel I. Morris</u>		Approved: <u>8-13-74</u>
SOURCE: (if external) e.g., "User", "Marketing" <u>Internal</u>		Rejected: _____
		Postponed: _____
		Withdrawn: _____
		Expires: <u>2-13-75</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 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:

An arithmetic add instruction instead of a logical add instruction in the BOS subroutine "scan" causes an overflow when converting octal numbers that are negative.

Detailed Proposal:

Change the offending instruction.

MULTIPLE CHANGE REQUEST

MCR 705
Page 1 of 1 Pages

TITLE: Add tool check_sst to system

STATUS	DATE
--------	------

AUTHOR: Steve Webber

Written	8-7-74
---------	--------

Approved	8-13-74
----------	---------

Rejected	
----------	--

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

Postponed	
-----------	--

Withdrawn	
-----------	--

Expires	2-13-75
---------	---------

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"/>	Bug Fix	
<input type="checkbox"/>		

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

REASONS: A useful debugging and metering tool, check_sst, has been used for some time from a private directory. It should be installed in tools.

MULTIPLE CHANGE REQUEST		MCR <u>706</u> Page <u>1 of 1</u>
TITLE: <u>Changes to bcpl, runoff, and bcpl library</u>		STATUS: <u> </u>
AUTHOR: <u>R.F. Mabee</u>		Written: <u>8-5-74</u>
SOURCE: (if external) e.g., "User", "Marketing"		Approved: <u>8-13-74</u>
		Rejected: <u> </u>
		Postponed: <u> </u>
		Withdrawn: <u> </u>
		Expires: <u>2-13-75</u>

CLASSIFICATION	JUSTIFICATION	
Incompatible Change	Marketing Requirement	Replaced by proposal MCR _____
Extension	<input checked="" type="checkbox"/> 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, DETAILED PROPOSAL (Optional)

REASONS: PDO has requested a source-only change to the copyright notices in these programs.

SUMMARY: The components of bound_bcpl_, bound_runoff_, and bound_bcpl_library_ are recompiled (bootstrapped). Head files are also replaced.

IMPLICATIONS: As no bugs in bcpl or runoff have been reported to me, the only material changes will be to fix bugs that make themselves known in bootstrapping.

MULTICE CHANGE PROJECT		MCR <u>707</u> Page <u>1</u> of <u>1</u> Pages
TITLE: <u>New GCOS Simulator</u>	STATUS	DATE
	Written	<u>8-8-74</u>
AUTHOR: <u>T. Casey</u>	Approved	<u>8-13-74</u>
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	<u>2-13-75</u>

CLASSIFICATION	JUSTIFICATION	Replaced by proposal MCF _____
<input type="checkbox"/> Incompatible Change	<input checked="" type="checkbox"/> Marketing Requirement	Implemented in System _____
<input checked="" type="checkbox"/> Extension	<input checked="" 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 <u>see below</u>	

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

REASONS: Fix bugs and add features required for 355 software development, and other planned applications of the simulator.

SUMMARY: Install new `bound_gcos_`, `bound_gcos_utilities_`, and `execute_search_rules_`, to fix bug numbers 40, 56, 58, 61, 62, 63, 64 and several unreported bugs. Add ability to GECALL a module from a random system loadable file produced by SYSEdit (required for 355 work). Fix bugs related to very large (near 256K) output files, by changing the method of keeping track of file lengths, and making the use of a pool directory (instead of process directory) an option in sysprint conversion. Change meaning of `-brief` to suppress all terminal output except fatal error messages; make default terminal output a subset of what it currently is; add `-long` to request that maximum terminal output (the current default) be produced.

IMPLICATIONS: Fewer jobs will fail. Users will get less terminal output by default.

MULTICS CHANGE PROJECT		MCR <u>709</u> Page <u>1</u> of <u>1</u>
TITLE: Deleted Directory Quota	STATUS	DATE
AUTHOR: <u>A. Kobziar</u>	Written	8-2-74
	Approved	8-13-74
SOURCE: (if external) e.g., "User", "Marketing"	Rejected	
	Postponed	
	Withdrawn	
	Expires	2-13-75

CLASSIFICATION	JUSTIFICATION	REASON
<input type="checkbox"/> Incompatible Change	<input checked="" 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 type="checkbox"/> Performance Improvement	<input type="checkbox"/> Simplification	
<input type="checkbox"/> Reliability Improvement	<input type="checkbox"/> Generalization	
<input type="checkbox"/>	<input type="checkbox"/> Unreported	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Bug Fix	

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

REASONS: Deleting an upgraded directory in the AIM storage system would be prevented as follows:
 Working at the higher authorization, del_dir_tree "empties" the directory but is unable to move back the quota. At the lower authorization, delentry finds an empty directory, but refuses to delete it because quota \neq 0.

SUMMARY: Add quota restoration into delentry. Add an entry to quota, qmove_mylock that accepts mylock errors, since delentry has both directories locked at the time it is checking quota. (Delentry will be the only procedure calling qmove_mylock with the directories locked.)

IMPLICATIONS: This change can be installed today, as it is only a stylistic one. The quota\$qmove call will be left in del_dir_tree so no user changes are necessary.