DATE: January 2, 1974

TO: Distribution

FROM: Marilyn Hodges

SUBJECT: Multics Change Requests

Attached are copies of Multics Change Requests which were approved from
December 16,through December 31, 1973.

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|                                                           |              |
|             MULTICS CHANGE REQUEST                        | MCR ___188___ |
|_____|_____|
| TITLE:  Increase size of online installations             | STATUS  | DATE |
|                                                           |_____|_____|
|                                                           | Written  |11/19/73|
| AUTHOR: P. Kelley                                         | Approved |12/18/73|
|_____| Rejected |      |
| SOURCE: (if external; e.g., "User", "Marketing")          | Postponed |12/4/73|
|         local                                            | Withdrawn |      |
|_____| Expires   |6/18/74|
| CLASSIFICATION   | JUSTIFICATION    |                     |
|_____|_____| Replaced by proposal MCR _____|
| | Incompatible | | Marketing      |                     |
|_| Change      |_| Requirement    | Implemented in System _____|
|X|             | | Conformance    |                     |
|_| Extension   |_| to Standard    | Objections/Comments:                |
| |             |X| Increased      |                     |
|_| Restriction |_| Consistency    | Waiting review of status of "user"  |
| | Performance | |                | documentation.                      |
|_| Improvement |_|Simplification |                     |
| | Reliability | |                |                     |
|_| Improvement |_|Generalization |                     |
| |             | |                |                     |
|_|_____|_| Bug Fix       |                     |
| |             | |                |                     |
|_|_____|_|_____|_____|
```

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

Subject:
    Enhance the capability of the online updating tools to
update large modifications with a single installation.

Reasons:
    Currently, it takes at least three separate installations to
perform a major update of the v2pl1 compiler. During the time it
takes to perform these three installations the compiler is in an
inconsistant state.

Summary:
    Make changes to update_seg to handle installations the size
of a large compiler update.

Implications:
    This implementation would increase the number of segments
which the online updating tools can update in a single
installation. User interface will remain unchanged.

MULTICS CHANGE REQUEST	MCR 204
	Page 1 of 1 Pages

	STATUS	DATE
TITLE: REVISE approved_routines_ TABLE FOR NEW ACL PRIMITIVES		
	Written	12/11/
AUTHOR: SCHERER	Approved ǂ	12/18/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/18/74

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

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

REASONS:

   The approved_routines_ table is used by object_submission_test to check
   for illegal, obsolete or unapproved calls in procedures submitted for
   library installation.

   This change will delete the outmoded hcs_ acl calls and add the new acl
   primitives to the table so that we may begin to eliminate the outmoded
   entries from library programs.

   Entries to be deleted: Entries to be added:
   hcs_$acl_add,hcs_$acl_add1   hcs_$add_acl_entries
   hcs_$acl_delete   has_$add_dir_acl_entries
   hcs_$acl_list   hcs_$delete_acl_entries
   hcs_$acl_replace   hcs_$delete_dir_acl_entries
                                       hcs_$list_acl
                                       hcs_$list_dir_acl
                                       hcs_$replace_acl
                                       hcs_$replace_dir_acl

MULTICS CHANGE REQUEST	MCR 205
	Page 1 of 1 Pages

TITLE: REVISED APPROVED ROUTINES TABLE FOR EXTENDED STAR/ EQUALS CONVENTION	STATUS	DATE
	Written	12/11/73
AUTHOR: SCHERER	Approved ⊄	12/18/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/18/74

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

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

REASONS:

The table called approved_routines_ is used by object_submission_test to check for illegal or unapproved calls in procedures submitted for library installation.

This change will revise that table to reflect changes for the extended star and equals conventions.

Specifically, approved calls check_star_ and equal_ will be removed from the table.

New approved calls check_star_name_, match_star_name_ and get_equal_name_ will be added.

Implications:
Users shall be warned (via pc info) to change their calls to equal_ and check_star_

MULTICS CHANGE REQUEST

TITLE: Fix bug in IMP DIM initialization

AUTHOR: D. Wells

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

STATUS	DATE
Written	12/1?/73
Approved #	12/18/73
Rejected	
Postponed	
Withdrawn	
Expires	6/18/74

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

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

REASONS:

    This change fixes a bug which has caused crashes 397 & 408.

SUMMARY:

    This change should eliminate a software confusion during IMP
DIM initialization, wherein the interrupt handler was still active
when the call side thought that it was not.

    This change has been checked out on the Development machine.

MULTICS CHANGE REQUEST	MCR _207_

	STATUS	DATE
TITLE: Install tape reconfiguration command.		
	Written	12/05/73
AUTHOR: VanVleck	Approved #	12/18/73
	Rejected	
SOURCE: (If external: e.g., "User", "Marketing")	Postponed	
	Withdrawn	
	Expires	6/18/74

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

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

REASONS:

The MTS-500 tape subsystem does not permit the operator to
designate an arbitrary tape drive as a given tape unit number:
the correspondence is permanently established by the physical
cables.

When a particular physical drive becomes unusable, the software
drive-assignment mechanism must be informed that the drive cannot
be used, so that the supervisor will not request that a tape be
mounted on an inoperable drive.

SUMMARY:

An entrypoint in tdcm already supports this function, and
hphcs_$tdcm_add_drive exists and may be called to perform the
addition and deletion of drive numbers. The "addtape" and
"deltape" commands are already part of system_control_ and are
documented in MOSN 6.2.2.

A very small program has been written which will call
hphcs_$tdcm_add_drive correctly: this program should be added to
bound_reconfigure_.

IMPLICATIONS:

The system will work as documented. Lack of this facility has
not been crucial up to now as we are not yet using MTS-500's, but
it will be important when the new drives are put into the system.

MULTICS CHANGE REQUEST

MCR   208
Page 1 of 1 Pages

TITLE: Complete installation of EIS conversion routines	STATUS	DATE
	Written	12/1 3
AUTHOR: B. L. Wolman	Approved	12/18/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/18/74

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

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

REASONS: EIS versions of conversion routines are faster and more accurate than
             currently installed routines.

SUMMARY: The EIS conversion routines have been installed for some time now. We
             propose to add names to the write-around segment assign_ so that existing
             PL/1 programs will start using EIS conversion routines.

DETAILED PROPOSAL: Remove following names from >lang>bound plio2_ and add them to
                    >lang>assign_
                         arith_to_char_   char_to_auth_
                         arith_to_auth_   char_to_bit_
                         arith_to_bit_
                         bit_to_arith_
                         bit_to_char_

IMPLICATIONS: Until EIS PL/1 compiler is installed, different conversion routines
               (the old ones) will be used by PL/1 stream I/O program. This should
               not cause any difficulties.

MULTICS CHANGE REQUEST		MCR 209
		Page 1 of 2 Pages

TITLE: Install the set_cc command	STATUS	DATE
	Written	12/13/73
	Approved #	12/18/73
AUTHOR: Robert Freiburghouse	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
User (R. Daley)	Expires	6/18/74

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

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

REASONS: A FORTRAN user should not be required to write commands or PL/I
programs in order to use Multics to run FORTRAN jobs.

SUMMARY: The set_cc command sets the carriage-control mode of a
FORTRAN formatted file. The mode is either ON or OFF.
If ON, the file is written by the FORTRAN run-time I/O
system as a print-image file; otherwise, it is not.

IMPLICATIONS: None

DETAILED PROPOSAL: See attached MPM draft.

The command has been written and tested.

MULTICS CHANGE REQUEST	MCR 210 Page 1 of 1 Pages	
TITLE: Place traps in system looking for "lost notify's"	STATUS	DATE
	Written	12/12/73
	Approved ⊬	12/18/73
AUTHOR: _____ Steve Webber _____	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/18/74

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	
		X	Lay Trap	

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

REASONS: Place the following 2 traps in the system to help find the
"lost notify" problem:

1) check to see if a notify succeeded a short time after it
was done. This will be a simple check to see if a wait event
was successfully zeroed out. Crash if not zeroed.

2) keep a recent history of all (some) notifies in the system.'
This can be done via the system_trace mechanism.

SUMMARY: Minor changes to pxss

IMPLICATIONS: System crash if notify lost (as soon as it's lost).

NOTE: We could use a DEBG card to determine whether to crash the
system or retry the notify.

```
Name:                           set_cc
Usage:            set_cc filenn -control_arg
```

where: nn is number of fortran file, it is in the range 01 to 99.
And

where: control_arg is either -on or -off.

        set_cc turns on or off carriage control for tha fortran
file specified by filenn.
        If nn is out of range, an error message is printec.
        For example, set_cc file06 -off. Carriage control will
be turned off for fortran file 06.

MULTICS CHANGE REQUEST	MCR 211	
	Page 1 of 2 Pages	

TITLE: Add meters to page control.	STATUS	DATE
	Written	12/12/73
	Approved #	12/18/73
AUTHOR: Steve Webber	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/18/74

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

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

REASONS: As part of what will become a more intensive effort in a little while it is thought that some new meters are needed to help us gain insight into the performance problems of the system. The following new meters are proposed:

1) count page faults on directories (possibly as a function of page number)

2) count page faults in ring 0

3) count page faults in segments 1 level removed from the root. This will get the system libraries and some other random stuff

4) count page faults in process dirs

In addition, the following entries should be added to the system trace list which currently gives page faults, segfaults and bound faults.

1) linkage faults

2) scheduling

3) signalling/restarts

SUMMARY: The changes will be made to the following programs:

    1) link_snap

    2) pxss

    3) page_fault

    4) signaller

    5) restart_fault

    The include files

        trace_types.incl.(alm pll)

will also be changed.

    At our leisure we should upgrade the page_trace command to know about these new types. It will continue to work as is - printing a special message for the entries not currently recognized.

MULTICS CHANGE REQUEST	MCR 212	
	Page 1 of 1 Pages	

TITLE: More history register and associative memory data to the PRDS	STATUS	DATE
	Written	12/12/73
AUTHOR: Steve Webber	Approved ✗	12/18/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/18/74

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		Generalization	
			Bug Fix	

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

REASONS: Currently the processor saves its history registers and associative memories in the PDS for each fault. It is proposed that these data be placed in the PRDS instead thereby freeing up 256 words of each PDS which can be used for another 128 trace entries. This would allow the (page/system) trace list to grow from 190 to 318 entries. There seems to be no need for this data on a per-process basis (there is little need for the data at all).

SUMMARY: The following programs are affected:
      wired_fim
      fim
      pds
      prds

IMPLICATIONS: None. When the time comes that a user program will want to look at history registers (on-line T & D) some mechanism will have to be worked out for saving the history registers for the user.

MULTICS CHANGE REQUEST	MCR 213
	Page 1 of 1 Pages

TITLE: Fix to the "stars and bells" bug in the message coordinator.	STATUS	DATE
	Written	12/12/73
	Approved	# 12/18/73
AUTHOR: Dennis Capps	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/18/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change		Marketing Requirement	Implemented in System _____
.	Extension		Conformance to Standard	Objections/Comments: .
	Restriction		Increased Consistency	
x	Performance Improvement		Simplification	
x	Reliability Improvement		Generalization	
		x	Bug Fix bug 223	

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

REASONS: The message coordinator's device driver occasionally gets stuck trying to print an alarm message. Neither that message nor any other comes out on the device in question.

SUmmary: The variable designating the number of characters typed should be reset inside a loop rather than before entering the loop. Not to do so allows the number of characters from a previous iteration to be used in one rare circumstance.

IMPLICATIONS: None.

MULTICS CHANGE REQUEST

MCR	214
Page 1 of 1 Pages	

TITLE:	"%" bug in debug command	STATUS	DATE
		Written	12/12/73
AUTHOR: R. Coren		Approved ✗	12/18/73
		Rejected	
SOURCE: (if external) e.g., "User", "Marketing"		Postponed	
		Withdrawn	
		Expires	6/18/74

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

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

REASONS: There is a bug in debug whereby the "%" registers (dummy arguments) can get clobbered.

SUMMARY: Remove declaration from db_parse's automatic storage to main program.

IMPLICATIONS: None.

STATUS: Fix coded and tested.

MULTICS CHANGE REQUEST

	MCR 215
	Page 1 of 1 Pages

TITLE: Math Routines	STATUS	DATE
	Written	12/14
AUTHOR: D. S. Levin	Approved	12/18/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/18/74

CLASSIFICATION		JUSTIFICATION		
X	Incompatible Change		Marketing Requirement	Replaced by proposal MCR _____
X	Extension	•	Conformance to Standard	Implemented in System _____
	Restriction	X	Increased Consistency	Objections/Comments:
X	Performance Improvement		Simplification	No algorithms were changed, but rounding was done via the round builtin function, rather than by a subroutine call.
	Reliability Improvement		Generalization	
		X	Unreported Bug Fix	

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

REASONS: Bug fixes
        Improved coding-invoke builtin round func instead of external function.
        Many modules have not been compiled since 1969.

IMPLICATIONS: Must have EIS operators
        New routines may differ from the present routines by returning
        correct values.

| MULTICS CHANGE REQUEST | MCR 216 |
| | Page 1 of 1 Pages |

TITLE: bound_Fortran_io_	STATUS	DATE
	Written	12/14/73
AUTHOR: D. S. Levin	Approved #	12/18/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/18/74

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

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

REASONS: This is required by new Fortran compiler. Existing Fortran programs will
continue to work.

Several bug fixes are made
Namelist I/O is implemented
List-directed I/O is implemented
New entry points for the above are defined
Interfaces for close_file and set_cc are included
I/O conversions are done in-line by EIS code

IMPLICATIONS: EIS operators must be installed.

Slightly different results may be produced for output due to use
of improved conversion algorithms.

MULTICS CHANGE REQUEST		MCR 217
		Page 1 of 1 Pages

TITLE: Fortran compiler	STATUS	DATE
	Written	12/14
AUTHOR: D. S. Levin	Approved ⊬	12/18/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/18/74

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

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

REASONS: 1) A new Fortran compiler is needed to interface with the EIS call
generator. The existing compiler does not interface correctly.
2) The compiler must be extended to conform with the FORTRAN-Y language.

SUMMARY: This compiler must be installed concurrent with the EIS compiler. It must
be installed to implement the Fortran language requirement for the
standard product.

IMPLICATIONS: A new Fortran run-time and the EIS operators must be installed before this
installation. Existing user programs will continue to work.

MULTICS CHANGE REQUEST		MCR 218	
		Page 1 of 1 Pages	
TITLE: Install EIS version of PL/I Compiler		STATUS	DATE
		Written	12/14/73
		Approved #	12/18/73
AUTHOR: R. A. Barnes		Rejected	
SOURCE: (if external) e.g., "User", "Marketing"		Postponed	
		Withdrawn	
		Expires	6/18/74

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

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

REASONS: In order to improve system performance. Programs compiled with this compiler will run faster, and may be shorter. This compiler runs 15-20% faster than the currently installed compiler.

SUMMARY: The EIS compiler generates fast inline-code for string and decimal operations and builtin functions. It also implements pictures and picture formats, completely implements the bool builtin function, reimplements fixed finary scaled arithmetic, and generates faster (often inline) code for conversions. The compiler also fixes the starred bugs on the accompanying listing of V2pl1_status.info.

IMPLICATIONS: Requires previous installation of EIS version of pl1_operators_. Requires that EIS hardware works correctly. See pl1_eis.info for other implications and restrictions. The currently installed Fortran compiler will not work with this compiler, therefore, the new Fortran compiler must be installed simultaneously.

MULTICS CHANGE REQUEST

| MCR   220 |
| Page 1 of 1   Pages |

TITLE:	Deletion of obsolete subsystem from tools	STATUS	DATE
		Written	12/1 /3
		Approved # 12/26/73	
AUTHOR: Arlene Scherer		Rejected	
SOURCE: (if external) e.g., "User", "Marketing"		Postponed	
		Withdrawn	
		Expires	6/26/74

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

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

REASONS: To delete an unused portion of the Tools library.

SUMMARY: This installation MUST wait on the installation of the upcoming hardcore
updater, which still calls msl routines. After the updater has been
installed, however, bound_msl_ in Tools will no longer be needed. This
request will, if approved, encompass the deletion of components msl_util,
msl_util1, msl_add, msl_global_format, msl_short_format, msl_info,
msl_transmog and msl_ud. A request to delete the documentation will be
submitted if this MCR is approved.

MULTICS CHANGE REQUEST

TITLE:

Addition of -date option to the print_log command

AUTHOR: Kenneth T. Pogran

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

STATUS	DATE
Written	12/14/73
Approved	# 12/26/73
Rejected	
Postponed	
Withdrawn	
Expires	6/26/74

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

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

REASONS: The print_log command (in Tools) is used to examine network logs and system
logs. Often, especially in examining network logs, it is desirable to look
at all the log entries made after a particular date or time. While the
print_log command has features to select log entries for printing by number,
severity, or character string, there is no way to select log entries by date.
Currently, one must make a guess as to what log entry numbers were used on
that date, and print the log from that entry number onward.

SUMMARY: A -date option is added to print_log. The character string argument following
-date is converted to a clock time using convert_date_to_binary_, and this
clock time is compared with the clock time associated with each log entry;
if the log entry was made after the specified time, and if it also matches
whatever other selection criteria are in effect, it is printed.

IMPLICATIONS: Addition of this option does not affect the operation of print_log if
the option is not invoked.

STATUS: This new version of print_log has been coded and tested, and is in use in a
private library.(>udd>CompNet>lib).

MULTICS CHANGE REQUEST	MCR _222_	
TITLE: sort error_table_ alphabetically by entry name	STATUS	DATE
	Written	12/12/73
AUTHOR: Gary Dixon	Approved A 12/26/73	
	Rejected	
SOURCE: (If external: e.g., "User", "Marketing") local	Postponed	
	Withdrawn	5/26/74
	Expires	

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
DETAILED PROPOSAL

REASONS:
    Currently, the entries in error_table_ are not in any order,
and it is difficult for system programmers to find an existing
error code which to fit a particular error condition.

SUMMARY:
    Sort the entries in error_table_ by their entry name (e.g.,
error_table_$badstar would be sorted by the name, badstar).

IMPLICATIONS:
    Most error_table_ entry names begin with syllables which
characterize the semantic concept embodied by error message. For
example, the syllables bad-, illegal-, incorrect-, and invalid-
all characterize the concept of "badness". Sorting error_table_
messages into conceptual categories (similar to those of a
thesaurus) would simplify the task of finding an error message
which best describes a particular error condition. Finding a
message would then be a matter of determining the character (or
conceptual category) of the ideal error message, and searching
existing messages in that conceptual cotegory for the one which
best matches the ideal.
    However, because some codes would fall into more than one
category, and because of the difficulty of maintaining a list
sorted on such categories, I am proposing sorting on entry name
as a good approximation to this categorization. Such sorting

would allow quick scanning of the error_table_ to identify
prefixes which fall into the desired error message category, and
more careful scanning of the messages within matching categories
to find the best error message. The actual sorting could be done
by removing the "system" keyword from the beginning and "end"
keyword from the end of error_table_.et, and sorting the table
with sort_file.
     Such sorting might have implications   on   the   paging
characteristics of the error_table_, but because of the random
nature of the current error_table_, the effects of sorting are
not predictable (the paging characteristics might even be
improved by sorting).
     I have found a sorted error_table_ quite useful for locating
error messages which characterize a particular condition.

MULTICS CHANGE REQUEST	MCR ___223___

		STATUS	DATE
TITLE: accept star names containing ascii control characters			
		Written	12/14/73
AUTHOR: Gary Dixon		Approved #	12/26/73
		Rejected	
SOURCE: (If external: e.g., "User", "Marketing") local users		Postponed	
		Withdrawn	
		Expires	6/26/74

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

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

REASON:

According to the specifications published in MSB-103, names input to the extended Star Convention are not acceptable if they contain ascii control characters (i.e., \\000 through \\037). This means that names containing backspaces, among other characters, may not be used as input to storage system commands (e.g., status, create, delete, list, etc). This specification has been reconsidered in light of recent user experience with the extended Star Convention.

SUMMARY:

Accept star names which contain any ascii character (i.e., \\000 through \\177). Continue to reject star names which contain non-ascii characters (i.e., \\200 through \\777). This change should be installed with Phase Two of the extended Star Convention, which is scheduled for installation in MSS 21-8.

IMPLICATIONS:

This change relaxes the restrictions placed on the content of star names by the extended Star Convention. It should resolve the problems which users are having now with star name characters without introducing new problems. The forthcoming MPM revision includes specifications for the restricted star name character set, and will have to be revised.

MULTICS CHANGE REQUEST | MCR 224

TITLE: Remove 'a' segment access references from online installation tools.	STATUS	DAT
	Written	12/13/73
AUTHOR: P. Kelley	Approved	12/26/73
	Rejected	
SOURCE: (if external; e.g., "User", "Marketing") local	Postponed	
	Withdrawn	
	Expires	6/26/74

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

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

Reasons/Summary:

The procedures update_seg and upd_copy_seg_task_ will be changed to give the user 'rw' access (instead of 'rwa') when appending a branch; and, cv_mode_ will be changed to reject the 'a' segment access representation by returning an error code. (Currently, cv_mode_ ignores its presence rather than report an error.)

This modification will conform to the final phase of directory control changes.

MULTICS CHANGE REQUEST	MCR __228__

TITLE: accept equal names containing ascii control characters	STATUS	DATE
	Written #	12/14/73
AUTHOR: Gary Dixon	Approved #	12/26/73
	Rejected	
SOURCE: (If external; e.g., "User", "Marketing") local users	Postponed	
	Withdrawn	6/26/74
	Expires	

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

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

REASON:
According to the specifications published in MSB-103, names input to the extended Equal Convention are not acceptable if they contain ascii control characters (i.e., \\000 through \\037). This means that names containing backspaces, among other characters, may not be used as input to storage system commands (e.g., rename, addname, copy, move, etc). This specification has been reconsidered in light of recent user experience with the extended Equal Convention.

SUMMARY:
Accept equal names which contain any ascii character (i.e., \\000 through \\177). Continue to reject equal names which contain non-ascii characters (i.e., \\200 through \\777).

IMPLICATIONS:
This change relaxes the restrictions placed on the content of equal names by the extended Equal Convention. It should resolve the problems which users are having now with equal name characters without introducing new problems. The forthcoming MPM revision includes specifications for the restricted equal name character set, and will have to be revised.

MULTICS CHANGE REQUEST	MCR 229
	Page 1 of 1 Pages

TITLE: change basic_system to call new basic	STATUS	DATE
	Written	12/18
AUTHOR: B. Wolman	Approved #	12/26/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/26/74

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

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

REASONS: Current basic_system command is written in REPL and calls Dartmouth Version 5.
BASIC. It is slow.

SUMMARY: Convert to EIS Version II PL/I. Change to call new Multics Basic.

IMPLICATIONS: None

MULTICS CHANGE REQUEST		MCR 230	
		Page 1 of 1 Pages	
TITLE: Fix double freeing of an allocation in acl_commands		STATUS	DATE
		Written	12/18/73
AUTHOR: A. Kobziar		Approved H	12/26/73
		Rejected	
SOURCE: (if external) e.g., "User", "Marketing"		Postponed	
		Withdrawn	
		Expires	6/26/74

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

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

REASONS: Invoking deleteacl or listacl with a ". ." person name will cause an
allocation to be doubly freed. This may cause an out_of_bounds later
in the process on system_free_n_.

SUMMARY: Fix acl_commands not to doubly free, and do some cleanup that will speed
up proc slightly, and allow initial acl commands to work on the root.

IMPLICATIONS: User interface not affected.

MULTICS CHANGE REQUEST

MCR	231
Page 1 of 1 Pages	

TITLE: Checking author and bit_count author names for non-ascii in Salvager

AUTHOR: A. Kobziar

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

STATUS	DATE
Written	12/18/
Approved �#	12/26/73
Rejected	
Postponed	
Withdrawn	
Expires	6/26/74

CLASSIFICATION		JUSTIFICATION	
	Incompatible Change		Marketing Requirement
X	Extension	•	Conformance to Standard
	Restriction		Increased Consistency
	Performance Improvement		Simplification
	Reliability Improvement		Generalization
		X	Bug Fix 204

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments: .

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

REASONS: Salvager does not presently validate author and bit count author names
            for ascii.

SUMMARY: Change salv_rebuild_directory to check if the names contain valid ascii.
           If they do not then replace with the name "Salvager.SysDaemon.z".

IMPLICATIONS: Since salv_rebuild_directory will be changed when the system that
                removes cacls and segment append permission is installed, this
                change will be entered at that time. The only system that can be
                run after this salvager is a no cacl system.

| MULTICS CHANGE REQUEST | MCR 232 |
| | Page I of I Pages |

TITLE: Remove CACLs and segment "a" permission from Salvager	STATUS	DATE
	Written	12/18/73
AUTHOR: Andrew Kobziar	Approved ✕ 12/26/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/26/74

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

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

REASONS: Since CACLS are being purged from the system, the Salvager should not try to check CACLS.   (MCB-969 and MSB-111)

SUMMARY: Take out code from the Salvager which checks CACLS. Turn off append bit on all segments.

IMPLICATIONS:* A long salvage will leave the hierarchy without CACLS and append permission as all directories are rebuilt (and the salvager will not rebuild CACLs).

MULTICS CHANGE REQUEST	MCR 233	
	Page 1 of 1 Pages	

TITLE: Implement DSU-191s for Multics	STATUS	DATE
	Written	12/18
AUTHOR: N. Morris	Approved #	12/26/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
Internal	Expires	6/26/74

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

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

REASONS: Allow use of more than one disk subsystem to increase storage capacity and implement software to drive DSU-191 disks. See MTB-023.

IMPLICATIONS: The code to support DSU-170s and DSU-270s will be removed. Also, the code for software pre-seeking will be removed.

MULTICS CHANGE REQUEST	MCR 234
	Page 1 of 1 Pages

TITLE: Fix to tty_ctl	STATUS	DATE
	Written	12/19/73
AUTHOR: R. B. Snyder	Approved ⧸⧸	12/26/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/26/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change		Marketing Requirement	Implemented in System _____
	Extension	•	Conformance to Standard	Objections/Comments: .
	Restriction		Increased Consistency	
	Performance Improvement		Simplification	
X	Reliability Improvement		Generalization ·	
		X	Bug Fix #227	

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

REASONS: A stop_channel operation is needed on tty_ctl to correctly stop a channel
before hanging it up.

SUMMARY: A one line fix will be made.

IMPLICATIONS: None.

MULTICS CHANGE REQUEST

MCR	235
Page	1 of 1 Pages

TITLE: Establish cleanup handlers in ringo ttydim

AUTHOR: R. B. Snyder

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

STATUS	DATE
Written	12/19/
Approved $\not{H}$	12/26/73
Rejected	
Postponed	
Withdrawn	
Expires	6/26/74

CLASSIFICATION		JUSTIFICATION	
	Incompatible Change		Marketing Requirement
	Extension		Conformance to Standard
	Restriction		Increased Consistency
	Performance Improvement		Simplification
X	Reliability Improvement		Generalization
		X	Bug Fix #228

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments:

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

REASONS: As of system 21.6, gates no longer set up cleanup handlers and therefor the ring 0 ttydim must set up its own.

SUMMARY: tty_read, tty_write, and tty_index will set up tty_unlock as the condition handler for "cleanup".

IMPLICATIONS: Will prevent any more crashes (caused 4).

| MULTICS CHANGE REQUEST | MCR 236 |
| | Page 1 of 1 Pages |

TITLE: Centralization of debug card checking	STATUS	DATE
	Written	12/19/73
AUTHOR: R. B. Snyder	Approved #	12/26/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
local	Expires	6/26/74

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

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

REASONS: There are currently many programs that read the "debug" config card. This should only be done by "debug_check".

SUMMARY: Code that reads debug card will be removed from all programs and placed in debug check. In addition, ttydim will be changed to call system_trace only if debug card option is present.

IMPLICATIONS: None.

MULTICS CHANGE REQUEST

MCR 237
Page 1 of 1 Pages

TITLE: Fix bug which allows fsdct pages to get milled out

AUTHOR: S. Webber

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

STATUS	DATE
Written	12/ /73
Approved #	12/26/73
Rejected	
Postponed	
Withdrawn	
Expires	6/26/74

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

Replaced by proposal MCR _____

Implemented in System __21.6b (emergency)__

Objections/Comments:

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

REASONS: It is possible for page control to throw away one of the device address
           for the fsdct if the page is all zeros. This creates problems later on
           when page control wants to reference the page.

SUMMARY: Most of the work has already been installed. One minor change to
          initialize_dims.

MULTICS CHANGE REQUEST

TITLE: Fix bugs in compare command	STATUS	DATE
	Written	12/13/73
AUTHOR: Steve Herbst	Approved #	12/26/73
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/26/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change		Marketing Requirement	
		•	Conformance to Standard	Implemented in System _____
	Extension			Objections/Comments: .
	Restriction		Increased Consistency	
X	Performance Improvement		Simplification	
	Reliability Improvement		Generalization .	
		X	Bug Fix #221	
			and unreported	

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

REASONS: 1) When two segments to be compared are really the same segment, e.g.

> compare a path>a

where path>a is a link back to a, the message printed is "No discrepancies found." It is possible to get the mistaken impression that there are two copies of a segment.

2) If one segment has more words than the other within the range of the comparison, the extra words are ignored.

SUMMARY: 1) Add a check to see if two segment pointers point to the same place. If so, the message "Both are the same segment." is printed and compare returns.

2) Between the end of the smaller segment and the end of the search, the other segment's words are printed out and counted as discrepancies.

IMPLICATIONS: none

MULTICS CHANGE REQUEST	MCR 239
	Page 1 of 1 Pages

TITLE: Fix bugs in walk_subtree	STATUS	DATE
	Written	12/13'73
AUTHOR: Steve Herbst	Approved # 12/20/13	
	Rejected	
SOURCE: (if external) e.g., "User", "Marketing"	Postponed	
	Withdrawn	
	Expires	6/26/74

CLASSIFICATION		JUSTIFICATION		Replaced by proposal MCR _____
	Incompatible Change		Marketing Requirement	Implemented in System _____
	Extension		Conformance to Standard	Objections/Comments:
	Restriction		Increased Consistency	
X	Performance Improvement		Simplification	
X	Reliability Improvement		Generalization	
		XX	Bug Fix # 222	

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

REASONS:
1) walk_subtree copies the command line to be executed into a fixed length temporary of length 132. This truncates long command lines.

2) When executing in a directory to which there is no access, an extra message is printed (one by the executed command and one by walk_subtree when looking for subdirectories).

3) Update to Version II

SUMMARY:
1) Temporary becomes the same length as the command line.

2) Message when looking for subdirectories is omitted.

3) Updated to Version II PL/I

IMPLICATIONS: none

MULTICS CHANGE REQUEST		MCR 240	
		Page 1 of 1 Pages	
TITLE: Install procedure tracing program		STATUS	DATE
		Written	12/19/73
AUTHOR: B. Wolman		Approved ⫽	12/26/73
		Rejected	
SOURCE: (if external) e.g., "User", "Marketing"		Postponed	
		Withdrawn	
		Expires	6/26/74

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

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

REASONS: A procedure tracing program is a very useful debugging tool.

SUMMARY: Install the trace debugging package described in MTB-012.
           Trace has been in private use for some time.