

TO: Distribution

FROM: Joan Archer Scott

DATE: 29 September 75

RE: Multics Change Requests

Enclosed are copies of Multics Change Requests which were approved from 1 September 75 through 15 September 75.

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

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1361
TITLE: Modify card reading software		STATUS DATE
AUTHOR: Noel I. Morris		Written 08/22/75
		Status A 09/02/75
		Expires 02/22/76
Planned for System: not applicable		CATEGORY (check one)
Fixes Bug Number(s): not applicable		() Lib. Maint. Tools
Documented in MTB: not applicable		() Sys. Anal. Tools
Incompatible Change: yes		() Sys. Prog. Tools
User/Operations-visible Interface Change: no		() 355
Coded in: (X) PL/I () ALM () other-see below		() BOS
Performance: (X) better () same () worse		() Salvager
DOCUMENTATION CHANGES (specify one or more)		() Ring Zero
MPM (vol,sect) MPAM (sect)		() Ring One
MOSN (sect) MSAM (sect)		(X) SysDaemon/Admin
PLMs (AN#) AN 57		() Runtime
Info Segs		() User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY:

The card reading software will be recoded in EIS PL/1 to be more efficient and to remove several bugs, glitches, and design errors. Elements sizes used by the different card reading DIMS will be changed to reflect a proper elements size for each application. These are summarized below.

REASONS:

The current card reading software is essentially coded in REPL and is extremely inefficient. The element size used throughout is 1 bit, which is meaningless for such DIMS as raw and mcc. Some of the DIMS expect to be given an element count in characters, but they return a count of transmitted elements in bits! This is clearly confusing and should be illegal. The proposed recode will correct this problem.

IMPLICATIONS:

The card reading Daemon programs will have to be modified in order to correctly operate with the new element sizes supported by this new software. This is a minor change.

DETAILED PROPOSAL:

The mcc, viipunch, raw, and flipper DIMS will be rewritten. These DIMS will remain ios_ modules. They will handle an element size

appropriate to their function. These are tabulated below:

<u>DIM</u>	<u>elsize</u>
mcc	9
raw	960
viipunch	1
flipper	9

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1362
TITLE: Extensions to syserr		STATUS DATE
AUTHOR: Larry Johnson		Written 08/25/75
		Status <u>09/02/75</u>
		Expires 02/25/76
Planned for System: MR3.1		CATEGORY (check one)
Fixes Bug Number(s): not applicable		() Lib. Maint. Tools
Documented in MTB: 173		(<input checked="" type="checkbox"/>) Sys. Anal. Tools
Incompatible Change: yes		() Sys. Prog. Tools
User/Operations-visible Interface Change: no		() 355
Coded in: (<input checked="" type="checkbox"/>)PL/I (<input checked="" type="checkbox"/>)ALM () other-see below		() BOS
Performance: () better (<input checked="" type="checkbox"/>) same () worse		() Salvager
DOCUMENTATION CHANGES (specify one or more)		(<input checked="" type="checkbox"/>) Ring Zero
MPM (vol,sect)	MPAM (sect)	() Ring One
MOSN (sect)	MSAM (sect)	() SysDaemon/Admin
PLMs (AN#) AN65		() Runtime
Info Segs		() User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

Summary

Provide interfaces to place binary data in the syserr log, and to expand error_table_codes in the syserr message. These interfaces were originally described in MTB-173.

Reasons

1. Binary data (such as machine conditions or IOM status) is useful in reporting hardware problems. It is more efficiently handled if stored in binary instead of ASCII.
2. Several programs use syserr to print an error_table_code in octal. These messages would be more meaningful if the text of the message were included.

Detailed proposal

1. Add the entry point syserr\$binary called as follows:

```
dcl binary_syserr_data(data_len) bit(36) aligned based(data_ptr);
call syserr$binary (action_code, data_ptr, data_len, ctl_string,
                    arg1, ....., argn);
```

where data_ptr and data_len describe the binary data to be included in the syserr log message. This data would never be printed on the operator's console. Up to 128 words of data could be passed in this fashion.

2. Add the entry point `syserr$error_code` called as follows:

```
call syserr$error_code (action_code, error_table_$code, ctl_string,  
                        arg1, ....., argn);
```

The `error_table_` code will be expanded as `com_err_` does and appended to the end of the regular `syserr` message. This entry must not be used by procedures which are non-interruptable for page faults, since `error_table_` is not wired.

3. Change the format of the `syserr` log, both to accomodate the binary data, and to allow for future `syserr` extensions.
4. Add a version number to the `syserr` log header. Current `syserr` logs will be version 0; future logs will be version 1.
5. Modify `print_syserr_log` and `daily_syserr_process` to know about both `syserr` log formats. A new control argument, `-expand`, will be added to specify whether binary data is to be printed in octal or to be ignored.
6. The size of the wired `syserr` log will be increased from 150 to 400 words to allow for messages containing binary data. This will provide enough space for two full length messages (256 characters + 128 binary words).
7. Investigate lockless queueing techniques as used by `ioi_` for handling messages in the wired `syserr` log.

Implications

1. Programs which look at `syserr` logs will at least have to be recompiled to work correctly.
2. The `syserr` log must be reset before booting a system containing these features.

TITLE: Install any_to_any_ and dec_ops_ Bug Fixes
AUTHOR: R. A. Barnes

STATUS	DATE
Written	08.25.75
Status	A 09/02/75
Expires	08/02/76

-Coded in: PL/I ALM other-
explain in DETAILED PROPOSAL
-Planned for System MR 3.1
-Fixes Bug Number(s) 1118, 1297,
~~1301, 1398~~
-User/Operations-visible
Interface change? yes no
-Incompatible change? yes no
-Performance: Better Same
 Worse
-Replaces MCR _____

Category (Check One)
<input type="checkbox"/> Lib. Maint. Tools
<input type="checkbox"/> Sys. Anal. Tools
<input type="checkbox"/> Sys. Prog. Tools
<input type="checkbox"/> 355
<input type="checkbox"/> BOS
<input type="checkbox"/> Salvager
<input type="checkbox"/> Ring Zero
<input type="checkbox"/> Ring One
<input type="checkbox"/> SysDaemon/Admin.
<input checked="" type="checkbox"/> Runtime
<input type="checkbox"/> User Cmnd/Subr.

DOCUMENTATION CHANGES	
Document	Specify One or More
	MPM (Vol, Sect.)
	PLMS (AN #)
	MOSN (Sect.)
	MPAM (Sect.)
	MSAM (Sect.)

Objections/Comments:

Info Segs
Other (Name)
None (Reason) Bug Fix

Use these headings: Summary of Proposal, Reasons for Proposal, Implications, Detailed Proposal.

SUMMARY:

Fixes 4 PL/I bugs.

DETAILED PROPOSAL:

Fix the following bugs:

- 1118 in which bit to char and char to bit conversions fail for strings longer than 256.
- 1297 in which flt_dec3 = "8.23e-127" gets conversion condition rather than underflow.
- 1301 in which ".000000000e0b" gets underflow while being converted.
- 1398 in which some cases of the mod, trunc, ceil, and floor builtins fail with decimal arguments. This bug was caused by a misunderstanding of the hardware specifications for the truncation indicator.

TITLE: Remove Default Initialization of Varying Strings from pll		STATUS	DATE
AUTHOR: R. Barnes		Written	08.26.75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR _____ -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Incompatible change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no -Performance: <input checked="" type="checkbox"/> Better <input type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 09/02/75
		Expires	03/02/76
		DOCUMENTATION CHANGES	
		Category (Check One)	Document Specify One or More
		Lib. Maint. Tools	
		Sys. Anal. Tools	
		Sys. Prog. Tools	
		355	
		BOS	
		Salvager	MPM (Vol, Sect.)
		Ring Zero	PLMS (AN #)
		Ring One	MOSN (Sect.)
		SysDaemon/Admin.	MPAM (Sect.)
		Runtime	MSAM (Sect.)
		<input checked="" type="checkbox"/> User Cmmnd/Subr.	
Objections/Comments:		Info Segs pll varying string	
		changes.info	
		pending changes.info	
		None (Reason)	

Use these headings: Summary of Proposal, Reasons for Proposal, Implications, Detailed Proposal.

SUMMARY:

Change the PL/I compiler to only perform varying string initialization that has been explicitly specified by the user.

REASON:

The generated code will be better and the compiler will run minutely faster.

IMPLICATIONS:

Although this is an incompatible change, the nonstandard initialization was never documented, so most user programs should not depend upon it. Some programs may stop working when recompiled.

DETAILED PROPOSAL:

The PL/I compiler has given all varying strings default initialization to "" or ""b at allocation time. Remove this feature.

pll_varying_string_changes.info

08/26/75 143c.6 edit Tue

08/26/75

A non-standard feature of the PL/I compiler has been that a varying string is initialized to "" or ""b upon allocation, regardless of whether or not the programmer has specified any initialization for the string. This feature will be removed shortly. Programmers wishing to continue having their varying strings initialized upon allocation as above should add an initial attribute to the declaration of the string.

(END)

r 1438 0.289 1.722 38

TITLE: Add entry mailbox_\$update_message_index		STATUS	DATE
AUTHOR: S. Herbst		Written	08/27/75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR _____ -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 09/09/75
		Expires	03/09/76
		DOCUMENTATION CHANGES	
		Document	Specify One or More
		MPM (Vol, Sect.)	
		PLMS (AN #)	69
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

Use these headings: Summary of Proposal, Reasons for Proposal, Implications, Detailed Proposal.

SUMMARY:

Add update_message_index entry point to mailbox_gate. This entry point, analogous to message_segment_\$update_message_index, rewrites an existing message with another of equal length.

REASONS:

To make the message updating feature available. It is needed by the new mail and message sending commands.

IMPLICATIONS:

The code in ring 1 to perform message updating already exists but must be tested.

Multics Change Request

TITLE: Fix bug in copy_names		STATUS	DATE
AUTHOR: S. Herbst		Written	08/27/75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR _____ -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)		
	<input type="checkbox"/> Lib. Maint. Tools	Expires A 09/09/75	
	<input type="checkbox"/> Sys. Anal. Tools	Expires 03/09/76	
	<input type="checkbox"/> Sys. Prog. Tools	DOCUMENTATION CHANGES	
	355	Document	Specify One or More
	BOS	MPM (Vol, Sect.)	
	Salvager	PLMS (AN #)	
	Ring Zero	MOSN (Sect.)	
	Ring One	MPAM (Sect.)	
	SysDaemon/Admin.	MSAM (Sect.)	
	Runtime		
	<input checked="" type="checkbox"/> User Cmnd/Subr.		
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	doc OK

Use these headings: Summary of Proposal, Reasons for Proposal, Implications, Detailed Proposal.

SUMMARY:

Fix copy_names and move_names to tell how they are used when erroneously called with no arguments.

REASONS:

Currently, they return without doing anything when called this way.

TITLE: Make create_dir recognize bad control args		STATUS	DATE
AUTHOR: S. Herbst		Written	08/27/75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR _____ -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no -Incompatible change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 09/09/75
		Expires	03/09/76
		DOCUMENTATION CHANGES	
Category (Check One) <input type="checkbox"/> Lib. Maint. Tools <input type="checkbox"/> Sys. Anal. Tools <input type="checkbox"/> Sys. Prog. Tools <input type="checkbox"/> 355 <input type="checkbox"/> BOS <input type="checkbox"/> Salvager <input type="checkbox"/> Ring Zero <input type="checkbox"/> Ring One <input type="checkbox"/> SysDaemon/Admin. <input type="checkbox"/> Runtime <input checked="" type="checkbox"/> User Cmmnd/Subr.		Document	Specify One or More
Objections/Comments:			MPM (Vol, Sect.)
			PLMS (AN #)
			MOSN (Sect.)
			MPAM (Sect.)
			MSAM (Sect.)
		Info Segs	pending changes
		Other (Name)	
		None (Reason)	

Use these headings: Summary of Proposal, Reasons for Proposal, Implications, Detailed Proposal.

SUMMARY:

Change the create_dir command to complain about a misspelled control argument rather than create a directory by that name.

IMPLICATION:

Incompatible change.

PENDING CHANGES:

The create_dir command has been changed to complain about a misspelled control argument instead of creating a directory by that name.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1368
TITLE: Fix bug in set_lock_		STATUS: Written
AUTHOR: VanVleck		DATE: 08/26/75
Planned for System: not applicable		Status: A09/09/75
Fixes Bug Number(s): not applicable		Expires: 02/26/76
Documented in MTB: not applicable		CATEGORY (check one):
Incompatible Change: no		() Lib. Maint. Tools
User/Operations-visible Interface Change: no		() Sys. Anal. Tools
Coded in: (<input checked="" type="checkbox"/>) PL/I () ALM () other-see below		() Sys. Prog. Tools
Performance: () better (<input checked="" type="checkbox"/>) same () worse		() 355
DOCUMENTATION CHANGES (specify one or more)		() BOS
MPM (vol,sect)	MPAM (sect)	() Salvager
MOSN (sect)	MSAM (sect)	() Ring Zero
PLMs (AN#)		() Ring One
Info Segs		() SysDaemon/Admin
Other		() Runtime
None (reason) bug fix		(<input checked="" type="checkbox"/>) User Command/Subr
OBJECTIONS/COMMENTS:		

Headings are: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (optional)

SUMMARY: Change set_lock_ to avoid calling timer_manager_ if the IPS "alarm" is masked.

REASONS: The set_lock_ routine is sometimes called when the alarm IPS is masked, for instance during attachment through mrd_. If the lock is found locked, set_lock_ will attempt to call timer_manager_\$sleep, which will sleep forever. There is already code in set_lock_ to bypass calling timer_manager_ when running in ring 1; this change causes a check of the IPS mask and the bypassing of timer_manager_ if "alarm" is masked.

IMPLICATIONS: Daemon startup will be more reliable.

TITLE: Fix ips_masking bug		STATUS	DATE
AUTHOR: R. Mullen		Written	09/02/75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR _____ -Fixes Bug Number(s) _____ -Documented in MFB _____ -User/Operations-visible Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 09/09/75
		Expires	03/09/76
		DOCUMENTATION CHANGES	
		Document	Specify One or More
		MPM (Vol, Sect.)	
		PLMS (AN #)	
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason) none is affected	

Use these headings: Summary of Proposal, Reasons for Proposal, Implications, Detailed Proposal.

SUMMARY:

ring_zero_peek_ to establish handler for "linkage_error" only, not "any_other".

REASONS:

If "alm" or "cput" is signalled, that signal is lost so far as timer_manager_ is concerned. Typically an auto_ips_mask is set before these conditions are raised. Since ring_zero_peek_ does not reset the ips_mask, the process will never see another "quit", "alm", or "cput". If the process ever calls sleep, it will never wake up. This happens about once or twice a month to the Initializer.

IMPLICATIONS:

None.

TITLE: MCS bug fixes for 3.0		STATUS	DATE
AUTHOR: M. J. Grady		Written	09/02/75
-Coded in: <input type="checkbox"/> PL/I <input type="checkbox"/> ALM <input checked="" type="checkbox"/> other- explain in DETAILED PROPOSAL		Status	A 09/09/75
		Expires	03/09/76
-Planned for System MR 3.0		DOCUMENTATION CHANGES	
-Fixes Bug Number(s) <u>unreported</u>		Category (Check One)	
-Documented in MTB		<input type="checkbox"/> Lib. Maint. Tools	
-User/Operations-visible		<input type="checkbox"/> Sys. Anal. Tools	
Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		<input checked="" type="checkbox"/> Sys. Prog. Tools	Document Specify One or More
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		X 355	
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same		BOS	
<input type="checkbox"/> Worse		Salvager	MPM (Vol, Sect.)
-Replaces MCR		Ring Zero	PLMS (AN #)
		Ring One	MOSN (Sect.)
		SysDaemon/Admin.	MPAM (Sect.)
		Runtime	MSAM (Sect.)
		User Cmmnd/Subr.	
Objections/Comments:			Info Segs
			Other (Name)
			None (Reason) bug fixes

Use these headings: Summary of Proposal, Reasons for Proposal, Implications, Detailed Proposal.

SUMMARY:

Fix three problems in MCS:

- 1) Since private-line g115's always appear to be "dialed up", perform one more experiment before signalling Multics that the device is ready.
- 2) Fix a problem in hsla_man with a certain type of stop_channel while the exhaust condition exists for a particular channel.
- 3) Put in a test for zeroing low core, when we should not.

DETAILED PROPOSAL:

coded in 355map.

TITLE: Update system exec_com's for MR3.0		STATUS	DATE
AUTHOR: T. Casey		Written	2 September
-Coded in: <input type="checkbox"/> PL/I <input type="checkbox"/> ALM <input checked="" type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3.0 -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 09/09/75
		Expires	02/09/76
		DOCUMENTATION CHANGES	
		Document	Specify One or More
		MPM (Vol, Sect.)	
		PLMS (AN #)	
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

Use these headings: Summary of Proposal, Reasons for Proposal, Implications, Detailed Proposal.

SUMMARY:

Update several system exec_coms to be compatible with new software to be released in MR3.0.

REASONS:

Several interface changes to commands used in these exec_com's have caused the latter to stop working.

IMPLICATIONS:

System administrators will have to merge MR3.0 changes with those made locally (if any), before 3.0 will run properly. Therefore, listings of the new versions, and compare_ascii's of those with the old versions, should be included or referenced in the SRB, to allow updates to be made before 3.0 tapes are loaded.

DETAILED PROPOSAL:

Changes are required to:

(acct_start_up admin biller master system_start_up).ec

Rename the current versions of those exec_com's in >tools to:

MR2.2.<name>.ec

and install the new versions in >tools, adding the names :

MR3.0.<name>.ec to them.