

To: Distribution
From: Betsy Kerr
Date: November 5, 1974
Subject: Multics Change Requests

Enclosed are copies of Multics Change Requests which were approved from October 15 - 31, 1974.

r. 2
0919

MULTICS CHANGE REQUEST

MCR 821

| | | |
|--|------------------|-----------------|
| TITLE: Fix bug in alm | STATUS | DATE |
| AUTHOR: Alan Downing | <u>Written</u> | <u>10/11/74</u> |
| SOURCE: (if external; e.g., "User", "Marketing") | <u>Approved</u> | <u>10/22/74</u> |
| | <u>Rejected</u> | |
| | <u>Postponed</u> | |
| | <u>Withdrawn</u> | |
| | <u>Expires</u> | <u>4/22/75</u> |

| | | |
|---------------------|-----------------------|---------------------------------|
| CLASSIFICATION | JUSTIFICATION | |
| <u>Incompatible</u> | <u>Marketing</u> | <u>Replaced by proposal MCR</u> |
| <u>Change</u> | <u>Requirement</u> | <u>Implemented in System</u> |
| <u>Extension</u> | <u>Conformance</u> | Objections/Comments: |
| <u>Restriction</u> | <u>to Standard</u> | |
| <u>Performance</u> | <u>Increased</u> | |
| <u>Improvement</u> | <u>Consistency</u> | |
| <u>Reliability</u> | <u>Simplification</u> | |
| <u>Improvement</u> | <u>Generalization</u> | |
| | <u>(Bug No. 340)</u> | |
| | <u>Bug Fix</u> | |

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

Reasons:

The assembler currently takes illegal procedure faults when it encounters certain constructs after the dec pseudo-op. This is as a result of a change made several months ago to make the assembler use any_to_any_ for certain conversions. An example is dec -,-.

Since such constructs are believed to be illegal, the assembler will be modified to print a proper error message when such a construct is encountered.

MULTIPLY CHANGE REQUEST

MCR 822

Form _____

TITLE: Remove unnecessary names from the root

AUTHOR: John Gintell

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

| | |
|-----------|----------|
| STATUS | |
| Written | 10/11/74 |
| Approved | 10/22/74 |
| Rejected | |
| Postponed | |
| Withdrawn | |
| Expires | 4/22/75 |

| 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, DETAILED PROPOSAL (Optional)

REASONS:

There are some unnecessary names on the root that cause difficulty to system maintenance and documentation people.

SUMMARY: Each directory in the root should have two names, a long one and a short one.

IMPLICATIONS: Users who rely on some of these obsolete names or redundant abbreviations will have to change their exec_coms, etc.

DETAILED PROPOSAL: The following annotated listing of directories in the root describes the change. The names marked * should be deleted.

The name system_control_dir cannot be removed until some SysAdmin programs are changed to no longer use the name. No other names being removed are known to be required by any programs installed in the system.

The name s11 should be added to system_library_1.

The names system_library_languages and lang should be removed after the completion of the establishment of the unbundled library.

```

process_dir_dir
  pdl
system_library_1

daemon_dir_dir
  idu
  * DDD
library_dir_dir
  * LDD
  idd
user_dir_dir
  uid
  * UDD
documentation
  doc
api
system_control_1
  sci
  * system_control_dir
reload_dir
system_library_auth_maint
  am
  * auth_maint
  installation_maintained_library
  * IML
  iml
  * NET
  network
  system_library_network
  net
system_library_tools
  * tools
  t
  * system_library_languages
  * system_library_lang
  * lang
  * l
  * system_library_pli
  * pli
  * languages
  * LANG
  * system_library_unbundled
  * unbundled
  * unb
system_library_standard
  * standard
  * sss
  * system_library_dev
  * dev
  * system_library_development
  * SSS
jumps

```

| | |
|---|--|
| MULTIPLE CHANGE PROPOSAL | MCP 823 Date _____ |
| TITLE: Fix bug in move_quota | STATUS |
| AUTHOR: Steve Herbst | Written 10/14/74 Approved 10/22/74 Rejected Postponed Withdrawn Expires 4/22/75 |
| SOURCE: (if external) e.g., "User", "Marketing" | |

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

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

REASONS: Error messages from move_quota begin with "move_quot:"

SUMMARY: Change to "move_quota:"

TITLE: Fix bug in adjust_bit_count

AUTHOR: Steve Herbst

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

| | |
|-----------|----------|
| STATUS | |
| Written | 10/14/74 |
| Approved | 10/22/74 |
| Rejected | |
| Postponed | |
| Withdrawn | |
| Expires | 4/22/75 |

| CLASSIFICATION | JUSTIFICATION | |
|---------------------------|-------------------------|--------------------------------|
| Incompatible Change | Marketing Requirement | Replaced by proposal MCR _____ |
| Extension | Conformance to Standard | Implemented in System _____ |
| Restriction | Increased Consistency | Objections/Comments: |
| X Performance Improvement | Simplification | |
| Reliability Improvement | Generalization | |
| | X Bug Fix 341 | |
| | | |

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

REASONS: Adjust_bit_count_ is supposed to return a bit count of -1 when it has not tried to set the bit count. For some errors it does not and the adjust_bit_count command says:

"<error>- computed bit-count= <value>"

where <value> is a nonsense number.

Have adjust_bit_count_ initialize the bit count to -1 at the beginning.

| | | |
|---|-----------|---------------------------------|
| MULTIPLE CHANGE PERMIT | | MCP <u>825</u> Page <u>1</u> |
| TITLE: Provide feature for combined stack, lot and cls. | STATUS | |
| | Written | 10/14/74 |
| AUTHOR: <u>Steve Webber</u> | Approved | 10/22/74 |
| | Rejected | |
| SOURCE: (if external) e.g., "User", "Marketing" | Postponed | |
| | Withdrawn | |
| | Expires | 4/22/75 |

| CLASSIFICATION | JUSTIFICATION | |
|---|--|--------------------------------|
| <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 checked="" type="checkbox"/> Increased Consistency | Objections/Comments: |
| <input checked="" type="checkbox"/> Performance Improvement | <input type="checkbox"/> Simplification | |
| <input type="checkbox"/> Reliability Improvement | <input checked="" type="checkbox"/> Generalization | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> (Unreported) Bug Fixes | |
| <input type="checkbox"/> | <input type="checkbox"/> | |

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

REASONS: The ability to create a process with the stack, lot and combined linkage (or a combination thereof) initially combined into a single segment is needed for efficiency and better utilization of system resources - mainly core and the AST pools.

SUMMARY: Implement such a system with the initial organization of a process being derived from defaults in the (system-wide) template_pds but which may be overridden by variables in a user's PDT.

DETAIL PROPOSAL

The following features are being proposed:

1. The initial size of the lot for a ring is extracted by default from a system-wide array (in template_pds).
2. The initial size of the combined linkage for a ring is similarly decided.
3. The initial location of the lot and combined linkage in a ring is also decided - they may reside in a stand alone segment or in the stack.

4. Any of the above three decisions may be overridden by PDT variables.
5. A user will be allowed to grow his lot (or combined linkage) only if his process is allowed to as set up during process (and ring) initialization (by the template_pds variables or by the PDT overrider).
6. A process that attempts to overextend its lot or cls bound will either be terminated or an error code returned - whichever is appropriate.
7. The linker will be modified to recognize the new structure of lots and CLS. In particular the variable pds\$link_ptrs will be removed. The lot is found by looking in the stack header for a given ring. The CLS is found by looking in the (new) lot header.
8. A change will be made to the linker such that lot entries will be filled in only in the ring in which the linkage exists.
9. A change will be made to the linker such that all linkage sections will be combined-including gates.

Implication:

This implementation will have the side effect of fixing the security problem having to do with ring brackets on gate linkage segments.

Performance improvement.

MULTIPLE CHANGE REQUEST

MCR 826

Date: 10/15/74

TITLE: Convert absentee_dim_ to iox_ and other goodies.

AUTHOR: Steve Webber

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

| | |
|-----------|----------|
| STATUS | |
| Written | 10/15/74 |
| Approved | 10/22/74 |
| Rejected | |
| Postponed | |
| Withdrawn | |
| Expires | 4/22/75 |

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

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

REASONS: The current absentee I/O module (absentee_) is based on ios_ and hence unnecessarily complex interfaces exist as a result. The module should be replaced by an iox_ version (abs_) which is functionally equivalent with the exception of the setting of the bit count on absentee output segments.

SUMMARY: Replace abs_ so that it is no longer a write-around to absentee_. Implement the "set_bit_count" option in the module allowing the user to control whether or not the bit count on the absentee output segment is set after each line. (Full implementation will also require a change to the command ear).

DETAILED PROPOSAL:

Remove references to ios_ in the abs_ module. Change the "output_segment" and "argument_list" orders so their information is passed at attach time. Hence, change absentee_real_unit_admin_ to use iox_ and the new attachment scheme.

The ear command will be given a new control argument "-set_bit_count" which, if given, will cause the bit count to be set on the absentee output segment after each input and output line is placed therein. The default will be not to set the bit count. However, absentee_real_

init_admin_ will have a handler set to intercept any unexpected faults and close the absentee switch. (The finish handler provided by the system closes all switches and would therefore set the bit count in the normal case.)

IMPLICATIONS:

Users depending on having the bit count set should specify `-set_bit_count` in their ear command.

MULTIPLE CHANGE REQUEST

MCR 827
Page 01 of 01

TITLE: Fix bug in link_unsnap_

AUTHOR: Steve Webber

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

| | |
|-----------|----------|
| STATUS | |
| Written | 10/16/74 |
| Approved | 10/22/74 |
| Rejected | |
| Postponed | |
| Withdrawn | |
| Expires | 4/22/75 |

| 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 | |
| | X Unreported Bug Fix | |
| | | |

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

REASONS: The assumption is made in link_unsnap_ that the LOT (linkage offset table) is located at the beginning of a segment. This restriction is inconsistent with combining the stack, lot and combined linkage.

SUMMARY: Remove the restriction.

TITLE: Extend check_info_segs to accept long command lines with the "-call" option

AUTHOR: Susan Barr

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

| STATUS | |
|-----------|----------|
| Written | 10/16/74 |
| Approved | 10/22/74 |
| Rejected | |
| Postponed | |
| Withdrawn | |
| Expires | 4/22/75 |

| CLASSIFICATION | JUSTIFICATION | Replaced by proposal MCR _____ |
|-------------------------|---|--------------------------------|
| Incompatible Change | Marketing Requirement | Implemented in System _____ |
| Extension | <input checked="" type="checkbox"/> 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: The system allows the user to set any size command line length, but check_info_segs reserves only 120 characters for the command line entered with the "call" option.

SUMMARY: This problem could be solved by adding a begin block to CIS that would set the command line at runtime, using the length returned by cu_sarg_ptr.

MULTI-LEVEL CHANGE REQUEST

MCR 829

Form _____

TITLE: **Reloader/Retriever changes for Access Isolation**

| | |
|-----------|----------|
| Status | |
| Written | 10/17/74 |
| Approved | 10/22/74 |
| Rejected | |
| Postponed | |
| Withdrawn | |
| Expires | 4/22/75 |

AUTHOR: A. Kobziar

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

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

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

REASONS: The reloader/retriever must be modified to handle segments and directories of various access classes.

SUMMARY: A Reloader/Retriever process will run at system high authorization with directory exception. Any segment or directory reloaded from the tape will be created at the access class found in the preamble. If superior directories are missing, they will be created at this level also. If the containing directory already exists but is at a higher access class, an attempt will be made to lower the access class. (This would fail if another segment already exists in that directory). Copying of the body of a segment will be done via a privileged initiate of the segment (thus eliminating the need for segment exception).

IMPLICATIONS: Retrievals performed by users cannot lower the access class of a directory; thus the success of multi-level user retrieval will depend on the tape order of the objects.

DETAILED PROPOSAL: The entry "backup_load_dir_list\$build_tree" will be changed to take another argument, the access class. Add a new entry to append similar to \$branchx but with two additional arguments; access class and quota, or one with the same number of arguments except that bitcount and copy switch will be replaced with access class and quota. This allows build_tree to delegate access class checking to append rather than calling status_\$get_access_class on the parent directory and performing the checks internally. This eliminates a potential time window between the status_ and

append calls. (The procedure "create_upgraded_directory" will be eliminated). If append returns an access class error, an attempt will be made to lower the access class of the parent directory by calling "reclassify\$node, which may change the state of brothers which are directories to now be upgraded ones; if so then it will check and if necessary set a quota of 1 in them). After a successful reclassification, the branch will be appended.

MULTICS CHANGE REQUEST

MCR 830

Part 1 of 1

TITLE: Add the Command `priv_move_quota` to tools

STATUS

Written 10/04/74

AUTHOR: Jerold C. Whitmore

Approved 10/22/74

Rejected

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

Postponed

Withdrawn

Expires 4/22/75

| 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 | 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: The system security administrator (or system administrator) is the only user allowed to move quota from an upgraded directory back to its parent. (short of deleting the directory). We need a command which allows him to do this.

Summary: Add a new entry point (`priv_move_quota`, `pmq`) to `set_quota`. This entry will function exactly as the current `move_quota` entry, except that an attempt will be made to set directory system privileges before calling `hcs $quota_move` to do the work. Insufficient access to the `system_privilege_gate` will be handled like the `hphcs $set_quota` errors. `set_quota` will be split from the `get_quota/move_quota` module and put back into tools where it belongs.

Implications: none. Upwards compatible. It could be installed before the `system_privilege_gate` since it takes correct action on linkage error.

Documentation: This command will be documented specifically for the System Security Administrator and will not be part of the normal MPM.

MULTICS CHANGE REQUEST

MCR 831
Page 1 of 1 Pages

TITLE: New error_table_entries for the Access Isolation Mechanism

AUTHOR: Jerold C. Whitmore

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

| STATUS | DATE |
|-----------|----------|
| Written | 10/09/74 |
| Approved | 10/22/74 |
| Rejected | |
| Postponed | |
| Withdrawn | |
| Expires | 4/22/75 |

| CLASSIFICATION | JUSTIFICATION | |
|-------------------------|---------------------------|---|
| Incompatible Change | X Marketing Requirement | Replaced by proposal MCR _____ Implemented in System _____ |
| x Extension | X Conformance to Standard | Objections/Comments |
| Restriction | Increased Consistency | |
| Performance Improvement | Simplification | |
| Reliability Improvement | Generalization | |
| | X Bug Fix - lib0003P | |

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

REASONS: The Access Isolation Mechanism has created a need for five (5) error_table_entries. Existing error_table_entries could not be correctly adapted to the new error conditions.

SUMMARY: Add the following entries to error_table_ :

- \$ai_restricted: ai_stop, Improper access class/authorization to perform operation;
- \$ai_invalid_string: aibadstr, Unable to convert access class/authorization string to binary;
- \$ai_invalid_binary: aibadbin, Unable to convert binary access class/authorization to string;
- \$ai_above_allowed_max: ai_max, Specified access class/authorization is greater than allowed maximum;
- \$apt_full: aptfull, Active process table is full. Could not create process;

| | | |
|---|--|--------------------------------------|
| MULTICS CHANGE REQUEST | | MCR 832 Page _____ of _____ Pages |
| TITLE: IMP DIM PERFORMANCE IMPROVEMENT | | STATUS |
| AUTHOR: <u>R.K. Kanodia</u> | | DATE |
| SOURCE: (if external) e.g., "User", "Marketing" | | Written 10/17/74 |
| | | Approved 10/22/74 |
| | | Rejected |
| | | Postponed |
| | | Withdrawn |
| | | Expires 4/22/75 |

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

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

- REASONS:
- 1- Currently the IMP DIM write buffers are very small (less than 1024 bits each) and data transfer rates for file transfers is very low.
 - 2- The paged buffers on the read side of the IMP DIM are inefficiently utilised. This was done for compatibility with the ncp (The Network Control Program in ring zero.) However the ncp has recently been changed and now it is possible to change the IMP DIM to use these buffers more efficiently.
 - 3- The statistics gathered regarding Network traffic is inadequate.
 - 4 -Apparently some of the messages printed on the Operator's Console, when the Network connection is in trouble are confusing.
 - 5- Need more room in the link table.

Summary

- 1- Implement two types of buffers: small buffers (less than 1024 bits) for interactive traffic and large buffers (less than 8094 bits) for large file transfers. This will allow us to transmit larger messages and significantly increase the file transfer rate. Notice that these buffers are wired into the primary memory only when needed. These buffers are unwired after the messages have been sent.
- 2- Read buffers: At present each message read from the Network is stored in one paged buffer. This was necessary since the ncp to IMP DIM interface did not permit the ncp to keep track of the allocation information in any simple way. This interface was recently changed and ncp modified to use the new interface. The IMP DIM can now be modified to store multiple messages per buffer and thus improve performance. This change should reduce the number of page faults on the read side significantly.

TITLE: Place the contents of >system_library_lang in the correct places.

AUTHOR: John Gintell

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

| | |
|-----------|----------|
| STATUS | |
| Written | 10/18/74 |
| Approved | 11/22/74 |
| Rejected | |
| Postponed | |
| Withdrawn | |
| Expires | 4/22/75 |

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|-------------------------|---------------------------|---|
| CLASSIFICATION | JUSTIFICATION | Replaced by proposal MCR _____ |
| Incompatible Change | X Marketing Requirement | Implemented in System _____ |
| Extension | X Conformance to Standard | Objections/Comments: Requires fix to hash table algorithm (MCR 595). |
| Restriction | Increased Consistency | |
| Performance Improvement | Simplification | |
| Reliability Improvement | Generalization | |
| | Bug Fix | |

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

REASONS: The directory >system_library_lang contains programs that are in the standard system, are unbundled, are tools, or are now obsolete. They should be moved to the appropriate place.

SUMMARY: Move the programs to the appropriate place as indicated on the accompanying list. Since the lang directory will be renamed to the unbundled directory the programs marked unbundled need not actually be moved.

IMPLICATIONS: Some of the programs marked obsolete may still be used by a few users. If MIT desires, these programs may be moved into the installation maintained library or some other place that they designate.

DETAILED PROPOSAL: For the attached list the following code should be used:

- S Standard system
- U Unbundled library
- T Tool
- O Obsolete

- U fortran_error_messages_
- U fortran_version_
- U bound_fortran_io_
- U bound_fortran_
- U oncode_messages_
- U pli_error_messages_
- U pli_version_

```

bound_pll_runtime_
bound_display_
bound_plio2_
bound_cg_
bound_semant_
bound_lang_util_
bound_parse_
bound_bcpl_library_
tree_
pll_blast_
bound_plio_
bound_pll_signal_
assign_
bound_stu_
bound_math_
bound_basic_runtime_
bound_basic_
basic_version_
basic_error_messages_
bound_apl_
fortran_buffer_
profile
bound_alm_
bound_pll_cg_
bound_apl_commands_
instruction_data
fortran_blast_
error_messages
bound_pll_utility_
bound_pll_semant_
bound_pll_parse_

```

Within `bound_fortran_io_` are the obsolete commands, `endfile`, `set_char_cntrl`, and `omit_char_cntrl`, that should be deleted.

Within `bound_plio2` is the debugging command, `dnd`, that should be deleted.

NOTES: `bound_display_` is a tool that is used for the analysis of PL/1 compiler trees and need not be made generally available to users.

TITLE: Change cards_overseer_ to work with 24.1

AUTHOR: Robert E. Lutz

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

| STATUS | |
|-----------|----------|
| Written | 10/13/74 |
| Approved | 10/22 |
| Rejected | |
| Postponed | |
| Withdrawn | |
| Expires | 4/22/75 |

| CLASSIFICATION | JUSTIFICATION | |
|---|---|---|
| <input checked="" type="checkbox"/> Incompatible Change | Marketing Requirement | Replaced by proposal MCR _____ Implemented in System _____ |
| <input 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 | Generalization | |
| <input type="checkbox"/> | (Unreported) | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> Bug Fix | |

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

REASONS: As of System 24.1, the name of the card-reading DIM is changed from "rdr21" to "crz". In addition, cards_overseer_ erroneously returns rather than logging out if the attachment of the card reader fails.

SUMMARY: Change the name of the DIM used by cards_overseer_ to attach the card reader from "rdr21" to "crz", and fix the bug.

IMPLICATIONS: The "card Daemon" will not be usable with this version of cards_overseer_ on systems preceding 24.1.

| | |
|---|----------|
| MCR 835 | |
| Form 835 | |
| TITLE: Bug fix to tty_inter | |
| AUTHOR: M. J. Grady | |
| SOURCE: (if external) e.g., "User", "Marketing" | |
| STATUS | |
| Written | 10/21/74 |
| Approved | 10/29/74 |
| Rejected | |
| Postponed | |
| Withdrawn | |
| Expires | 4/29/75 |

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

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

REASONS: There is a bug in the queued status processing routine in tty_inter which may cause some queued status for a particular line to be processed out of order. The status queue is always processed from the top and any status found in the queue is processed only if that particular line's lock is unlocked. If the other processor should unlock the lock for some line while the queue is being scanned, later status may be processed first.

SUMMARY: Fix the bug by noting which lines have had status which has not been processed because their lock was locked, and use this information to skip all other status for this line until the next time thru the queue.

MULTICS CHANGE REQUEST

MCR 837
Page 1 of 1 Pages

TITLE: Add Access Class Data to the Status Command

| STATUS | DATE |
|-----------|----------|
| Written | 10/04/74 |
| Approved | 10/22/74 |
| Rejected | |
| Postponed | |
| Withdrawn | |
| Expires | 4/29/75 |

AUTHOR: Jerold C. Whitmore

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

| CLASSIFICATION | JUSTIFICATION |
|--|---|
| <input type="checkbox"/> Incompatible Change | <ul style="list-style-type: none"> • Marketing Requirement |
| <input checked="" type="checkbox"/> Extension | <input checked="" type="checkbox"/> Conformance to Standard |
| <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 type="checkbox"/> Bug Fix |
| <input type="checkbox"/> | |

Replaced by proposal MCR _____

Implemented in System _____

Objections/Comments:

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

REASONS: The status command should give the user all the access control data about a branch that he is allowed to read. (see MTB-123).

Summary: Add a call to get the access class of the branch. Convert the binary data to a character string as defined by the installation. (short string format). If this string is null, don't print anything. Otherwise, print the string after the title "access class:".

Implications: none. This cannot be installed until the hcs_get_access_class primitive is installed. (MCR 619)

MULTICS CHANGE REQUEST

MCR 838
Page _____ of _____ Pages

TITLE: Change hcs_\$star_list to return effective mode

| STATUS | DATE |
|-----------|----------|
| Written | 10/21/74 |
| Approved | 10/22/74 |
| Rejected | |
| Postponed | |
| Withdrawn | |
| Expires | 9/29/74 |

AUTHOR: J. C. Whitmore

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

| CLASSIFICATION | JUSTIFICATION |
|--|---|
| <input type="checkbox"/> Incompatible Change | <input type="checkbox"/> Marketing Requirement |
| <input type="checkbox"/> Extension | <input type="checkbox"/> Conformance to Standard |
| <input checked="" 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 |

Replaced by proposal MCR _____
Implemented in System _____
Objections/Comments _____

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

REASONS: The mode data should have the same meaning under all conditions of access control restrictions. (See MTB 124 for more detail.)

Summary: Change the ring 0 module "star" to call access_mode\$effective to obtain the data for the mode fields returned to the user.

Implications: The mode will now have a different meaning. Upward compatible.

| | | |
|---|--|---------------------------|
| MULTICS CHANGE REQUEST | | MCR 839 |
| | | Page _____ of _____ Pages |
| TITLE: Delete the "status" entry in hcs_ | | STATUS _____ DATE _____ |
| AUTHOR: J. C. Whitmore | | Written 10/21/74 |
| | | Approved 10/27/74 |
| | | Rejected _____ |
| SOURCE: (if external) e.g., "User," "Marketing" | | Postponed _____ |
| | | Withdrawn _____ |
| | | Expires 4/29/75 |

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

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

REASONS: This entry is no longer used. It is better to delete it rather than change it to be compatible with the Access Isolation Mechanism. (See MTB 124 for more detail.)

Summary: Delete the hcs_\$status entry and the ring 0 entry it calls.

Implications: Should be none.

MULTICS CHANGE REQUEST

MCR 840
Page _____ of _____ Pages

TITLE: Change status_ to return effective mode

| STATUS | DATE |
|-----------|----------|
| Written | 10/21/74 |
| Approved | 10/29/74 |
| Rejected | |
| Postponed | |
| Withdrawn | |
| Expires | 4/29/75 |

AUTHOR: J.C. Whitmore

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

| CLASSIFICATION | JUSTIFICATION | |
|-------------------------|-------------------------|--------------------------------|
| Incompatible Change | Marketing Requirement | Replaced by proposal MCR _____ |
| Extension | Conformance to Standard | Implemented in System _____ |
| X 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 mode data should have the same meaning under all conditions of access control restrictions. (See MTB 124 for more detail.)

Summary: Change the ring 0 module "status_" to call access_mode\$effective to obtain the mode data for the current "mode" fields in the structures for the "status_" and "status_long" entries. Add a raw mode return field to the "status_long" structure by using five (5) of the thirteen (13) pad bits immediately following the current "mode" data.

Implications: The mode data will now have a different meaning. Upward compatible.

| | | |
|---|--|-----------------------|
| MULTICS CHANGE REQUEST | | MCR 841 |
| | | Page ___ of ___ Pages |
| TITLE: Change hcs_\$list_dir to return effective mode | | STATUS |
| | | DATE |
| AUTHOR: J. C. Whitmore | | Written 10/21/74 |
| | | Approved 10/29/74 |
| | | Rejected |
| SOURCE: (if external) e.g., "User," "Marketing" | | Postponed |
| | | Withdrawn |
| | | Expires 4/29/75 |

| CLASSIFICATION | JUSTIFICATION | |
|-------------------------|-------------------------|--------------------------------|
| Incompatible Change | Marketing Requirement | Replaced by proposal MCR _____ |
| Extension | Conformance to Standard | Implemented in System _____ |
| X 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 mode data should have the same meaning for all the possible restrictions of the Multics Access Control Mechanisms. (See MTB 124 for more detail.)

SUMMARY: Change the ring 0 procedure "list_dir" to call access_mode\$effective to obtain the mode data returned in its structure.

IMPLICATIONS: None. Upward compatible.