TO: Distribution
FROM: Joan Archer
DATE: 28 April 75
RE: Multics Change Requests

Enclosed are copies of Multics Change Requests which were approved from 16 March 75 to 31 March 75.

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

Title: Total On-Line Test System (TOLTS) and Peripheral On-Line Test System (POLTS)

Author: A. A. Berglund for J. Rhodes

Planned for System: MR 2.1
Fixes Bug Number(s): not applicable
Documented in MTB: 
Incompatible Change: no
User/Operations-visible Interface Change: no
Coded in: (X)PL/1 (O)ALM (O)other-see below
Performance: (X)better (O)same (O)worse

Documentation Changes (specify one or more)

MPM (vol,sect) MPAM (sect)
MOSN (sect) MSAM (sect)
PLMs (AN#)
Info Segs

TOLTS Users Guide

Other

Objectives/Comments: "Approved in order to meet contractual commitments."
The MCRB recommends that the decision to emulate GCOS T&D interfaces be reconsidered before any more online T&D extensions are done for Multics.

Summary: Install bound_tolts_ ("Total On-Line Test System" TOLTS) into >system_library_tools.

Reasons: Scheduled Product Calendar Item for MR2.1 Release.

Detailed Proposal: This version of TOLTS/POLTS is scheduled to be released with MR2.1. The functional capabilities include:

Resource Allocation
Test Page Selection
Test Page Dispatching
Test Sequencing
Option Processing
Test and Diagnostic Language (TDL) Interpretation
I/O Set Up and Issue
Error Checking and Message Formatting
Test Page Termination
Resource De-Allocation

The TOLTS/POLTS package allows the testing of the following devices:

ASA 7-Track Magnetic Tape (AT7C)
ASA 9-Track Magnetic Tape (AT9A, AT9B)
MTS500 7-Track Magnetic Tape (T57A)
MTS500 9-Track Magnetic Tape (T59A, T59B, T59C)
CR20 Card Reader (R20C)
CR21 Card Reader (R21C)
CR2301 Card Reader (R34C)
CPZ201 Card Punch (P23C)
IMPLICATIONS: The TOLTS/POLTS package can be invoked by one of two ways. Either from "normal Multics command level" (type: "bound_tolts_stolts"), or by using the tolts_overseer_. Normal command level invocation is intended for use by "sophisticated" Engineers who have a good working knowledge of the overall Multics System. Use of the overseer (tolts_overseer_) is provided for Engineers who possess a limited knowledge of Multics and need to run in a more restricted and controlled environment.
MULTICS CHANGE REQUEST

TITLE: Install tolts_overseer_

AUTHOR: A. A. Berglund for J. Rhodes

Planned for System: MR 2.1
Fixes Bug Number(s): not applicable
Documented in MTB: no
Incompatible Change: no
User/Operations-visible Interface Change: no
Coded in: ( )PL/I  ( )ALM  ( )other-see below
Performance: ( ) better  ( ) same  ( ) worse

DOCUMENTATION CHANGES (specify one or more)

MFM (vol,sect) MPAM (sect)
MOSN (sect) MSAM (sect)
PLMs (AN#)
Info Segs
Other See MTB

OBJECTIONS/COMMENTS: "Approved in order to meet contractual commitments."

The MCRB recommends that the decision to emulate GCOS T&D interfaces be reconsidered before any more online T&D extensions are done for Mult.

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

SUMMARY: Install tolts_overseer_ (special on-line T&D overseer) into system_library_tools.

REASONS: Scheduled Product Calendar Item for MR2.1 Release.

DETAILED PROPOSAL: The tolts_overseer_ has been designed and implemented to establish a "conditioned" environment for users of the Multics "Total On-Line Test System" (TOLTS). With this overseer a user may login to Multics and run TOLTS without requiring a great deal of knowledge on the other features of Multics. Unlike the TOLTS package running on other systems, the Multics TOLTS (along with this overseer) provides the capability of accepting special TOLTS requests. These requests primarily deal with allowing the user to print configuration data, etc. For example:

```plaintext
???test pcd  (comment: prints formatted configuration data.)
```

```plaintext
configuration:

opc 01600 emc
prtb 01200 301 3
tape 018xx 500 1 7trks starting at 8 and 7 9trks starting at 1
prtc 01200 301 2
rdra 01001 301
punb 01500 201
rdrb 01400 201
puna 01101 301 prtd 00801 1600 600 136
prta 00901 1200 600 136
```
where:

\[
\begin{align*}
\text{prta} & = \text{Multics Device Name} \\
00901 & = \text{iom/channel/device in decimal} \\
1200 & = \text{device type} \\
600 & = \text{print train} \\
136 & = \text{number of print columns}
\end{align*}
\]

\[
\text{tape 018xx = iom #0 channel 18 device xx (handlers 01 or 02 etc.)}
\]

**IMPLICATION:** It is recommended that sites desiring to use this overseer register a project called Tolts specifying: "initproc: tolts_overseer;" as the initial process in the Project Definition Table (PDT) for Tolts.pdt. Also, placing the following commands in the system_start_up.ec.

```
setacl $hpsetacl > system_library_l > pio1_("", link) (re rew) *.Tolts.*
setacl $hpsetacl > system_library_l > phcs_("", link) (re rew) *.Tolts.*
```

**NOTE:** The above commands are required for any other user(s) running TOLTS regardless of whether or not they are using the overseer.
Multics Change Request

TITLE: Revise submission testing programs to use library_fetch.

AUTHOR: A. Scherer

Objections/Comments:

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

SUMMARY: Once library_fetch has been installed as a special entry for the use of the submission tests, then the submission tests should be changed to call it instead of get_library_segment.

This will eliminate the need for a command_error condition handler since library_fetch will return a code.

In addition library_fetch will be a more powerful and more reliable tool since it will not depend on the presence of a whole series of control segs to tell it where to find library entries.

Most important, there will be only one system library data base to which all library referencing programs will look for their information about library entries.
MULTICS PAGE REQUEST

TITLE: Make ESO more fail-safe.

AUTHOR: Paul Green (for Noel Morris)

Planned for System: not applicable
Fixes Bug Number(s): not applicable
Documented in MTB: not applicable
Incompatible Change: yes
User/Operations-visible Interface Change: no
Coded In: ( )PL/I ( )ALM ( )other-see below
Performance: ( )better ( )same ( )worse

DOCUMENTATION CHANGES (specify one or more)
( )MPM (vol,sect) ( )MPAM (sect)
( )MOSN (sect) ( )MSAM (sect)
( )PLHS (AN#)
( )Info Segs
( ) Multics Operator's Handbook

OBJECTIONS/COMMENTS:

SUMMARY:
Change the BOS ESD command to print an error message and return if it cannot find the segment number of emergency_shutdown, rather than using a default segment number of 13. The message will be (approx.) "Cannot find emergency_shutdown in SLT, ESO failed, run a SALV LONG."

REASONS:
The current operation is guaranteed to fail, since the default segment number ESO uses is 13, but emergency_shutdown is now segment 14. Rather than change the default to 14, it is proposed that ESD just quit; the fact that it couldn't find emergency_shutdown in the SLT means that the SLT has been clobbered, which probably means that the emergency shutdown would itself fail. By blundering on, as it now does, there is a great risk of clobbering the disks. By stopping before any damage is done, the worst that can happen is that some pages may not get written out, and that the long salvager should be run to check for reused or unprotected addresses, and to deactivate segments which were active.

IMPLICATIONS:
Fixes the bug, and should make ESO less likely to ruin the hierarchy.
### Title: GCOS Simulator

**Author:** R. H. Morrison  

**Status Date:** Coded in: XP/IX, ALM other - explain in DETAILED PROPOSAL  

**Planned for System MR 2.**

**Fixes Bug Number(s):** Documented in MPR.  

**Documented in MTB:** 355

**User/Operations-visible Interface change?** Yes  

**Incompatible change?** No  

**Performance:** Better

**Replaces MCR:** X; GCOS

**Objections/Comments:**

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

**SUMMARY:** Replace: gcoc_cc_activity_cards, gcoc_control_tables, gcoc_cleanup_files

**REASONS:**

1. Fix bug in the allocation of b* file for object decks.

2. Fix bug in the printing of file codes on the execution report.

**IMPLICATIONS:** Avoids changes to some GCOS job decks.
**SUMMARY:**
1. Install GCOS SR 1/G System Software (SF1 & SF2).
2. Install GCOS SR 1/G System Subroutine Library.

**REASONS:**
Update GCOS Simulator to GCOS SR1/G from SR E/7.

**IMPLICATIONS:**
The simulator will use SR 1/G versions of GCOS language compilers and other software.
**TITLE:** Fix reconfiguration mask setting bug  
**AUTHOR:** B. Greenberg

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**Objections/Comments:**
- Trivial bug fix

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

**SUMMARY:** 
reconfig fails to set proc required during certain mask setting operations, causing occasional reconfiguration crashes, and making 3-cpu configurations chancy at times.

**IMPLICATIONS:**
Reliability improvement: change declaration so that correct object code is generated.

**DETAILED PROPOSAL:**
Fix bug.
TITLE: Do not use user-ring modified machine conditions

AUTHOR: S. Webber

Do not use user-ring modified machine conditions. Rather, a very selective set of legal modifications will be allowed to a copy of the machine conditions that never leave ring 0.

SUMMARY: We cannot validate machine conditions today.

DETAILED PROPOSAL:

1. When a user-ring fault is signalled, the signaller places a copy of the SCU data and the Pointers and Lengths data (16 words total) in a buffer of such machine conditions located between the data area of the PDS and the ring 0 stack. The machine conditions are placed in this buffer after the ring 0 stack is abandoned. The machine conditions are left in ring 0 where they were copied. The ring 0 stack-begin-pointer and stack-end-pointer in the PDS header are thus different (after signalling the fault) from what they were before the fault occurred. Also, before signalling, the signaller places a unique 18 bit code (unique to the process -- for a while anyway) in an unused field of the ring 0 copy of the SCU data saved in the PDS. This same unique code is placed in the machine conditions structure passed to the user (although not in the SCU part).

2. When a user wants to restart machine conditions he does just what is done today, i.e., the user may or may not "diddle" them before "returning to the FIM" (restart_fault, really). The program restart_fault (executing in ring 0) copies the machine conditions into ring 0, validates any changes made to the SCU data, and if all is well, restores the control unit (after loading PRS, etc.). The Pointers and Lengths are not
copied from the user ring. Before restoring the control unit, however, the machine conditions set in the PDS with the same unique code is discarded and any "hole" left in the machine conditions region is filled in with the last set in the region. The stack-begin-pointer and stack-end-pointer are changed to reflect the fact that one fewer set of machine conditions are now being saved on the PDS. If the correct set of machine conditions are not found, "illegal_return" is signalled.

3. Every "signaller" frame in the user-ring stack must have a cleanup handler. This handler calls into ring 0 to release the set of machine conditions associated with the signaller frame. This will prevent an arbitrarily large number of sets of machine conditions from building up in ring 0.

4. The "validation" done in step 2 will be quite strict. The proposed rules are:

   a. If the MIF (mid-instruction-fault) indicator is ON, NO changes are allowed, and

   b. If the MIF indicator is OFF, the instruction fields may be arbitrarily changed.

NOTES

A simple stack mechanism for saving machine conditions in ring 0 will not suffice. A process doing any kind of "tasking" may very well not behave, on the whole, in a strict first-in-last-out manner. This is why when machine conditions are restarted, only that set is purged from the ring 0 buffer.

If a user tries to restart machine conditions that have been illegally modified, we may want to audit the fact.

The rules above for allowed diddling are strict. There may be valid modifications we decide later to allow. Until good evidence is given, though, we should prevent surprises.
SUMMARY: Put tests for zero divisor before every statement that contains division by a variable.

REASONS: system_monthly_report computes percentages involving pairs of values for the current month, and percentage changes from the previous month. At an installation that just started up, and has zero values for the previous month, or at which certain events did not occur during the current month, these computations result in attempted division by zero, which aborts the monthly billing run.
**TITLE:** Fix bugs in debug

**AUTHOR:** S. Barr

**STATUS**
- Written: 03/13/75
- Expires: 06/13/75

**CATEGORY (CHECK ONE):**
- Lib. Maint. Tools
- Sys. Maint. Tools
- Sys. Prog. Tools
- Other

**DOCUMENTATION CHANGES**
- Document: Specify One or More
- Inf. Segs
- Other (Name)
- None (Reason)

**Objections/Comments:**
- Use these headings: SUMMARY, REASONS, IMPLICATIONS, DETAILED PROPOSAL (Optional)

**SUMMARY:**

**PROPOSAL:**

1. Multiple assignment statement should be fixed. $(x = 1 2 3)$
   The current version only assigns the first number. This requires rewriting the main loop of db_assign.

2. The print request should be fixed:
   a. Character strings longer than 256 should be able to be printed and trailing blanks should not be suppressed. The current version calls ioa_ which limits strings to 256 characters. iox_sput_chars should be used instead.
   b. Instructions should be fixed to:
      1. Correctly print EIS descriptors when the procedure has been compiled without the table option.
      2. Interpret offsets in pll_operators_. The procedure should call find_operator_name_ to get the information.
      3. Print legal alm modifiers that are not used by pll.
c. The graphic output mode should be restored. It was removed in the last installation.

d. A request for an illegal print mode should not set the print mode.

e. If the value of a register is requested, debug should not create a new register. It should assume the user has mistyped the register name and give the error message "Register not defined."

3. A misleading error message that is printed when the stack threading pointers are invalid should be changed from "Can't trace the stack to depth N" to "Can't trace the stack past depth N-1".

4. A bug should be fixed that prevents a user from setting a break in the location following the current break in some cases. The instruction may already be loaded into the operand instruction register so the mem2 put into the text has no effect.

5. The break command syntax should be changed to be more reasonable. ".br 1" causes all the breaks in the current segment to be reset because the space terminates the break command. Debug should allow one or more spaces between the ".br" and the break number.
### SUMMARY:

Make `hcs$tty_order` return `error_table$bad_mode` if asked to change to an invalid mode, and `error_table$smallarg` if the character string argument is too small to hold the "old modes" string.

### REASONS:

Currently `hcs stutter` returns `error_table$undefined_order_request` in both these cases, which is inaccurate and misleading, and not in accordance with the MPM documentation for `iox$modes`.

### IMPLICATIONS:

`iox$modes` should be changed at some point to translate `error_table$smallarg` to a zero code (it already handles the actual situation correctly).

**Note:** The new answering service understands the codes properly, no other system program calls `hcs$sorder` for "modes" directly.
# Multics Change Request

**TITLE:** Add new modes for terminals

**AUTHOR:** Robert S. Coren

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**OBJECTIONS/COMMENTS:**

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

## SUMMARY:

Add the modes lfecho, tabecho, echoplex, and fulldpx to the list recognized by tty_index. See attached draft MPM documentation excerpts.

## REASONS:

The new 355 software permits the implementation of these modes, and they are potentially useful to users.

## IMPLICATIONS:

Character string required to hold complete list of modes will be longer (but still <128 characters). See MCR on new error codes returned by hcs_$tty_order.
This I/O module supports I/O from/to devices that can be operated in a typewriter-like manner, e.g., the user's terminal.

**Modes Operation**

The modes operation is supported when the I/O switch is open. The recognized modes are listed below. Some modes have a complement indicated by the circumflex character (^) that turns the mode off (e.g., ^echo). For these modes the complement is displayed along with the mode.

- **Ifecho, ^Ifecho**
  - Specifies that a line feed is to be echoed and inserted in the user's input stream when a carriage return is typed. (Default is off; the same restriction applies as for crecho.)

- **tabecho, ^tabecho**
  - Specifies that the appropriate number of spaces are to be echoed when a horizontal tab is typed. (Default is off; the same restriction applies as for crecho.)

- **echoplex, ^echoplex**
  - Specifies that all characters typed on the terminal are to be echoed. (Default is off; the same restriction applies as for crecho.)

- **fulldpx, ^fulldpx**
  - Specifies that the terminal is to be allowed to receive and transmit simultaneously. (Default is off; this mode is automatically turned on and off when echoplex is turned on and off.)
MULTICS Change Request

Title: Install pl1_operators_ and record_io_
Author: R. A. Barnes

- Coded in PL/I [X] AIM [ ] other-
- explain in DETAILED PROPOSAL
- Planned for System MP
- Fixes Bug Number(s) PL/I 1254,
- D355450004000100
- User/Operations-visible
- Interface change? [ ] yes [X] no
- Incompatible change? [ ] yes [X] no
- Performance: [X] Better [ ] Same
- Replaces MCR

Category (Check One)
Lib. Maint. Tools
Sys. Anal. Tools
Lib. Oper. Tools
Sys. Prog. Tools

Document Specify One or More

Expires 09/25/75

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

SUMMARY:

Replace pl1_operators_ and add record_io_ to bound_sss_wired_ to greatly improve performance of PL/I record I/O on unkeyed sequential files.

REASONS:

Improves performance of PL/I programs doing record I/O. Also fixes following bugs:

1254 in which return (char(*)) from inside a non_quick begin block faults in pl1_operators_.

1318 in which dcl str auto char(length(char_star_fun (length(b)))) fails.

PROPOSAL:

record_io_ runs in the caller's stack frame in the same manner as pl1_operators_. For simple read, write, and rewrite statements on unkeyed sequential files, record_io_ calls iox_ directly (using the entry variables in the icob) rather than the much slower plio2_recio_. If iox_ returns an error code, plio2_recio_ is entered at a special entry point to diagnose the error, and signal the proper condition. record_io_ must be bound with pl1_operators_ but need not be wired.
**TITLE:** Fix bug in link_unsnap caused by 25-3 linker  

**AUTHOR:** Steve Webber

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**DATE:** 3/18/75  
**STATUS:** A 03/25/76  
**Expires:** 6/28/76

**DOCUMENTATION CHANGES**

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**Objections/Comments:**

- None (Reason) No change

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

**SUMMARY OF PROPOSAL:**

Fix bug in link_unsnap caused by installation of 25-3 linker.

**REASONS AND JUSTIFICATION:**

The current link_unsnap does not handle variable size linkage offset tables correctly.
**SUMMARY:** Install `print_auth_names` (pan) and `print_proc_auth` (ppa) in the standard library in `bound_access_commands`.

**REASONS:** The `print_auth_names` command enables a user to determine the possible access class/authorization names which may be used with commands taking authorization or access class arguments (login, new_proc, dprint, create_dir, etc).

The `print_proc_auth` command prints the current authorization and maximum authorization of a user's process.

See the attached writeups for more complete information.
Name: print_auth_names, pan

The print_auth_names command will list the names of the sensitivity levels and access categories defined for the installation. Only the names which can be used to describe an access class or access authorization between system low and system high will be listed, unless the "-all" control argument is given.

Usage: print_auth_names -control_args

control_args may be any of the following optional arguments:

- level        list sensitivity levels (default)
- category, -cat list access categories (default)
- brief, -bf    suppress title and headings
- all, -a       list all possible names (above system high)

This command will list the names which are acceptable to the convert_authorization_ subroutine to define an access class or access authorization. (All commands and system interfaces which use a character string to describe an access class use this subroutine.) Both the long and short names are printed.
Name: print_proc_auth, ppa

This command causes the current process' access authorization and current system privileges (if any) to be printed on the terminal.

Usage

print_proc_auth -control_args-

The following optional arguments may be specified:

-long, -lg  Print the installation-defined long names (up to 32 characters) for the sensitivity levels and categories.

-all, -a    Print the maximum access authorization of this process.

Notes

If -long is not specified, the access authorization printed will be composed of the installation-defined short names (8 characters or less) for sensitivity levels and categories.

The maximum authorization printed for the -all control argument is the maximum authorization that this process could have been given at login, and corresponds to the maximum access class of upgraded directories that may be created by this process.
SUMMARY:
Fix several unreported bugs in convert_authorization_$to_string.

REASONS:
Null names (all blanks) were not being handled properly.

IMPLICATIONS:
Output will be correct in all cases.

DETAILED PROPOSAL:
Change already tested and coded.
SUMMARY: Modify daily_summary to sort the requisition status information it prints by project ID. Only the output will be resorted; the requisition file will not be changed.

Reasons: The summary will be more useful in this form.

Implications: User Accounts will be able to locate information about the accounting status of a project quickly and easily.
TITLE: Mailing pages for account bills.

AUTHOR: F. C. Smith

SUMMARY: Modify write_acct_bill to print mailing pages with one copy of the account bills.

Reasons: Copies of the account bills are mailed to project supervisors. If mailing pages are not printed, they must be written by hand.

Implications: User accounts will no longer have to handwrite mailing pages.
### MULTICS CHANGE REQUEST

**TITLE:** Change answering service to work with SIAH/S

**AUTHOR:** Paul Green

**Planned for Systems:** MR 3.0

**Fixes Bug Number(s):** not applicable

**Incompatible Change:** no

**User/Operations-visible Interface Change:** no

**Coded in:** ( ) PL/I ( ) ALM ( ) other-see below

**Performance:** ( ) better ( ) same ( ) worse

**DOCUMENTATION CHANGES:** (specify one or more)

- MPM (vol, sect)
- MOSN (sect)
- PLMs (AN#)
- Info Segs
- Other

**OBJECTIONS/COMMENTS:**

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### SUMMARY

Change answering service to perform several tasks that are no longer automatically performed by the ring 0 ttydim. These are reading the answerback, and determining the terminal type from it, and setting the initial modes and electronic tabs.

### REASONS

The answering service must be able to read and write on a terminal after it dials up, so it seems logical to have it do the initialization. The reading of the answerback must be done first, in order to handle Model 37 teletypes properly; therefore it must be done by the answering service.

### IMPLICATIONS

None. Only those changes necessary to preserve the present functions will be added to the answering service at this time. These changes are compatible with the present ring 0 ttydim, and can therefore be installed before MCS.

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Page 1 of 1
SUMMARY:
Change the read and write entries of tw_ to return a status code (instead of going blocked) if the terminal hangs up. Change the detach entry of tw_ to not return a status code if the terminal has already hung up (ring 0 has already detached the terminal, and returns a code indicating this).

REASONS:
These changes will make it possible for a process doing i/o to a dialed terminal to recover from hangups on that line.

IMPLICATIONS:
Programs which call io$read to get input from the terminal, and do not check the status code, but just check for "nelem < 1" or somesuch, will go into a loop if the terminal hangs up. Programs which use io$read_ptr will behave properly, since it will signal a condition in this case ("io_error"). The system programs I have checked (listen_, debug) behave properly.

DETAILED PROPOSAL:
Replace tw_alm, tw_write_pl1 and rest_of_ttydim_pl1. Split the termend 1200 output editing software into a separate program, to reduce the number of pages that the command loop occupies. Eliminate some obsolete alm transfer vectors in bound_command_loop_ (which are left over from the days of version 1 pl1).
and TTY35s, and 125 for TTY38s.)

old

specifies the length in lines of a page. When an attempt is made to exceed this length, an ARDS "DEL" character is printed; when the user types an erase character, the output continues with the next page. This mode is functional only for ARDS terminals. (Default page length is 50 for ARDS.)

hd1quit

specifies that when a quit is detected, a new line character is echoed and a resetread of the associated stream is performed. (Default is on.)

default

is a shorthand for erkl, can, ~rawi, ~rawo, and esc. The settings for other modes are not affected.

Returned Status

Only standard Multics error codes are returned as the first half of the status string. The first half of the status string being nonzero indicates an error. At present, none of the bits in the second half of the status string are meaningful.

Possible error codes are:

error_table $io_no_permission The telephone line connection of this device has been disconnected, and the process is no longer permitted to do I/O on this device. The only I/O System call permitted is to detach the I/O stream.

Order Requests

The following order requests are implemented by this DIM:

hangup
causes the telephone line connection of the terminal to be disconnected, if possible.

listen
cause a wakeup to be sent to the process if the line associated with this device ID is dialed up.

info
causes information about the device to be returned. The pointer argument should point to the following structure that is filled in by the call.
### Multics Change Request

**Title:** GCOS Daemon to Run Jobs in Ring 5  
**Author:** R. H. Morrison

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<td>AIM</td>
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<td>Explain in Detailed Proposal</td>
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<tr>
<td>-Planned for System MR 2.1</td>
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<td>-Fixes Bug Number(s)</td>
<td>355</td>
<td>BOS</td>
<td></td>
<td></td>
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<tr>
<td>-Documented in MTB</td>
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<tr>
<td>-User/Operations-visible interface change?</td>
<td>Yes</td>
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<td></td>
<td></td>
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<tr>
<td>-Incompatible change?</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>-Performance:</td>
<td>Better</td>
<td>Same</td>
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<tr>
<td>-Replaces MCR</td>
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</tbody>
</table>

**Objections/Comments:**

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

**SUMMARY:** Replace:
- `gcos_daemon_init_.pl1`
- `gcos_queue_job_.pl1`
- `gcos_read_.pl1`

**REASONS:** Allow absentee gcos jobs from the GCOS Daemon to run in ring 5.

**IMPLICATIONS:** The GCOS Environment Simulator manual section, "Installing the GCOS Daemon" must be changed to specify: ring numbers of 5,5 instead of 4,4 for Anonymous GCOS in the pmf; and ring 5 initial ACL's.

**DETAILED PROPOSAL:** The changes to the above procedures set ring brackets to 5,5,5 on the job deck and .absin segments created by the GCOS Daemon.
TITLE: Fix bug in stu.

AUTHOR: Jeff Broughton

SUMMARY:
Modify stu_ to return a pointer to the length word as the address of a varying string in all cases.

REASONS:
Fix a bug, common to probe, debug, and PL/1 get and put data statements, wherein variables that are parameter, non-member, varying strings are not accessed correctly. The problem is that for variables of this class and type, stu_ will return a pointer to the string part as the address. In all other cases, a pointer to the length word is returned. Changing stu_ will deal with the culprit directly and avoid compensating for the bug in several other locations.

IMPLICATIONS:
Debug has been modified to special case variables of this type. This modification would have to be removed.
**TITLE:** Fix bug in record_stream

**AUTHOR:** M. Asherman

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<th>Status</th>
<th>DATE</th>
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<tr>
<td>Sys. Anal. Tools</td>
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**Objectives/Comments:**

- MCR 1093

**SUMMARY:** Fix record stream bug preventing use of this module with already-opened switches, e.g., user I/o.
**SUMMARY:**

Fix bug causing `find_common_acl_names_` to match incorrectly a name containing no periods.

**REASONS:**

Matching the name `A` when `A.*.*` appears on the ACL results in no match. The first component of the name to be matched is incorrectly set to `A.*.*` instead of `A`. 
Multics Change Request

TITLE: change dprint total line

AUTHOR: Steve Herbst

Objections/Comments:

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

SUMMARY:

Make the dprint command print correct totals when there is more than one device class (request type) or queue specified on a line and at least one request is queued.

REASON:

When dprint is asked to enter requests in several queues, the total line says:

\[i \text{ requests signalled, j already queued}\]

where \(i\) is the total number of requests signalled by the command line and \(j\) is the number of requests in the last queue only.

DETAILED PROPOSAL:

Print a total line for each queue in which a request is entered. If there is more than one, each total line includes a device class (request type) and queue number. Print totals at the end unless user specifies -brief somewhere in the line. This change does not affect a line containing no pathnames. That case will operate as it does today, printing totals for the last queue specified.
**TITLE:** Make dprint query (as when entry not found) when asked to dprint a zero length segment or MSF.

**AUTHOR:** S. Herbst

**REASONS:**

It is better to be told at command time than to receive an error message as your printed output.