

TO: Distribution  
FROM: Joan Archer  
DATE: 1 August 75  
RE: Multics Change Requests

Enclosed are copies of Multics Change Requests which were approved from 15 July 75 through 31 July 75.

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Ver. 3		
741022	MULTICS CHANGE REQUEST	MCR 1261
TITLE: Install new program to validate info segments		STATUS: DATE
AUTHOR: VanVleck		Written: 05/27/75
		Status: 07/08/07/22/75
		Expires: 11/27/75
Planned for System: not applicable		01/22/76
Fixes Bug Number(s): not applicable		CATEGORY (check one)
Documented in MTB: 201		( ) Lib. Maint. Tools
Incompatible Change: no		( ) Sys. Anal. Tools
User/Operations-visible Interface Change: no		( <input checked="" type="checkbox"/> ) Sys. Prog. Tools
Coded in: ( <input checked="" type="checkbox"/> ) PL/I ( ) ALM ( ) other-see below		( ) 355
Performance: ( ) better ( <input checked="" type="checkbox"/> ) same ( ) worse		( ) BOS
		( ) Salvager
DOCUMENTATION CHANGES (specify one or more)		( ) Ring Zero
MPM (vol,sect) MPAM (sect)		( ) Ring One
MOSN (sect) MSAM (sect)		( ) SysDaemon/Admin
PLMs (AN#) ANxxx		( ) Runtime
Info Segs		( ) User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Install validate\_info\_seg, a program which issues diagnostics if the info segment it operates on does not meet certain system standards.

REASONS:

This program will be useful for insuring that info segments to be submitted meet the standards described in ANxxx, System Programming Standards.

In addition, validate\_info\_seg will be useful for finding those info segments which have not yet been converted to the new standards.

IMPLICATIONS:

none

Ver. 3	MULTICS CHANGE REQUEST	MGR 1262
741022		
TITLE: Install new version of help		STATUS   DATE
		Written   05/27/75
AUTHOR: VanVleck		Status   07/08 # 07/02/75
		Expires   11/27/75 01/28/76
Planned for System: not applicable		
Fixes Bug Number(s): not applicable		CATEGORY (check one)
Documented In MTB: <del>201</del> 201		( ) Lib. Maint. Tools
Incompatible Change: no		( ) Sys. Anal. Tools
User/Operations-visible Interface Change: no		( ) Sys. Prog. Tools
Coded in: ( <input checked="" type="checkbox"/> ) PL/I ( ) ALM ( ) other-see below		( ) 355
Performance: ( ) better ( <input checked="" type="checkbox"/> ) same ( ) worse		( ) BOS
		( ) Salvager
DOCUMENTATION CHANGES (specify one or more)		( ) Ring Zero
MPM (vol,sect) help MPAM (sect)		( ) Ring One
MOSN (sect) MSAM (sect)		( ) SysDaemon/Admin
PLMs (AN#)		( ) Runtime
Info Segs		( <input checked="" type="checkbox"/> ) User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Install a new version of help with the following features:

1. The star convention is supported.
2. Use of printer-on (006) character is discontinued. Instead, help will look for an empty line as a pause delimiter.
3. If a paragraph starts with a phrase followed by a colon, help assumes that this is the title of a section. The section title is used in the query, and can be searched for. An example of the new query format is:

7 lines titled Arguments follow. More help?

4. The user may request searching for any paragraph containing specified strings. If searching for both paragraphs and strings is requested, paragraph search is done first.
5. When the user is asked "more help?" the reply may be one of

yes  
no  
quit  
rest

search xxx yyy  
section SSS  
skip

#### REASONS:

The new version of help, together with stricter standards on the content of help segments, should enable the user to obtain the answers to his questions more quickly.

The star convention, together with the list and searching options, eliminate the need for the AML "list\_help" command and allow the user to look for information even when he's not sure where it is.

Dividing the contents of info segments into sections allows the user non-sequential access to the information on a topic.

#### IMPLICATIONS:

Old format info segments are handled compatibly, since special code checks for any 006 characters and uses 006 as the pause delimiter if any are found.

Installing this command and adopting the standards that go with it does mean that sooner or later, we will have to rewrite almost all of the info segments on the system.

TITLE: Install user command display_pll_file_error		STATUS	DATE
AUTHOR: R. Schoeman		Written	06.27.75
-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 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	P 07/08/75 A 7/23/75
		Expires	01/22/76
		DOCUMENTATION CHANGES	
Category (Check One)		Document	Specify One or More
<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			MPM (Vol, Sect.) AG92, Section 3
<input type="checkbox"/> Ring Zero			PLMS (AN #)
<input type="checkbox"/> Ring One			MOSN (Sect.)
<input type="checkbox"/> SysDaemon/Admin.			MPAM (Sect.)
<input type="checkbox"/> Runtime			MSAM (Sect.)
<input checked="" type="checkbox"/> User Cmmd/Subr.			
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

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

SUMMARY:

Install a command which will diagnose errors raised during pll i/o.

REASONS:

When an error is detected during PL/1 i/o a condition is signalled but no other information is given to the user. In order to understand the error he must know the description of the i/o operation he requested, the attributes of the file state block, and the specific error detected by iox\_. This command looks at the above mentioned sources of information, does some simple analysis, and tells the user sufficient relevant information to understand and correct the error.

DETAILED PROPOSAL:

Three sheets follow showing sample invocations of the command. The information it prints is dependent on the type of error it detects.

dpfe

There was no error raised during PL/1 i/o in this process.

r 1247 0.167 2.392 64

oop11

Error: transmit condition by >udd>m>rhs>test>oop11:76  
occurred while doing I/O on file user\_input

Data could not be reliably transmitted between file and some values in an I/O state  
system handler for error returns to command level

r 1234 0.282 6.480 38 level 2, 16

dpfe

I/O error on file user\_input

Title : vfile\_ user\_input

Attributes: open input notkeyed record sequential

Permanent attributes: input record

Last i/o operation attempted : read into

Last i/o error code for that file : Invalid I/O operation.

r 1235 0.162 1.212 46 level 2, 16

oop7

Error: undefinedfile condition by >udd>m>rhs>test>oop7:73  
occurred while doing I/O on file file2

system handler for error returns to command level

r 1248 0.623 13.321 170 level 3, 30

dpfe

I/O error on file file2

Title : vfile\_ file2

Attributes: output stream notkeyed sequential

Error in opening or closing file file2

Last i/o error code for that file : Incorrect access on entry.

r 1250 0.239 3.324 60 level 3, 30

oop8

Error: undefinedfile condition by >udd>m>rhs>test>oop8:66  
occurred while doing I/O on file file3

system handler for error returns to command level

r 1250 0.447 14.849 131 level 4, 44

dpfe

I/O error on file file3

Title : vfile\_ file3

Attributes: input stream notkeyed sequential

Permanent attributes: input

Error in opening or closing file file3

Last i/o error code for that file : Entry not found.

r 1251 0.160 0.992 22 level 4, 44

oop3

Error: error condition by >udd>m>rhs>test>oop3:125  
Statement conflicts with file attributes.  
r 1233 0.279 13.140 119 level 2, 13

dpfe

I/O error on file afile  
Title : vfile\_ afile  
Attributes: open input notkeyed record sequential  
Last i/o operation attempted : write from  
Attempted "write " operation conflicts with  
file "input " attribute.  
Attempted "from " operation conflicts with  
file "input " attribute.  
r 1233 0.188 0.561 13 level 2, 13

oop1

Error: key condition by >udd>m>rhs>test>oop1:115  
occurred while doing I/O on file pl  
key either does not exist in file  
or could not be added because it already exists

system handler for error returns to command level  
r 1233 1.181 22.052 142 level 3, 27

dpfe

I/O error on file pl  
Title : vfile\_ pl  
Attributes: open output record sequential keyed  
Last i/o operation attempted : write keyfrom from  
Last i/o error code for that file : Key out of order.  
r 1233 0.154 1.830 44 level 3, 27

oop2

Error: undefinedfile condition by >udd>m>rhs>test>oop2:105  
occurred while doing I/O on file xx

system handler for error returns to command level  
r 1234 0.300 9.506 69 level 4, 41

RL

r 1234 0.089 0.072 30

dpfe

I/O error on file xx  
Title : vfile\_ xx  
Attributes: input notkeyed record sequential  
Permanent attributes: record  
Error in opening or closing file xx  
Last i/o error code for that file : Entry not found.  
r 1234 0.158 0.074 14

oop5

Error: undefinedfile condition by >udd>m>rhs>test>oop5:67  
occurred while doing I/O on file file1

system handler for error returns to command level  
r 1230 0.988 10.940 106 level 2, 16

RHS>dpfe

I/O error on file file1  
Title : vfile\_ file1  
Attributes: input stream interactive environment  
Error in opening or closing file file1  
The interactive attribute conflicts with the input attribute.  
r 1230 0.207 2.014 40 level 2, 16

oop4

Error: undefinedfile condition by >udd>m>rhs>test>oop4:67  
occurred while doing I/O on file xxx

system handler for error returns to command level  
r 1231 0.258 7.574 61 level 3, 30

dpfe

I/O error on file xxx  
Title : vfile\_ xxx  
Attributes: input stream record  
Permanent attributes: input record  
Error in opening or closing file xxx  
The record attribute conflicts with the stream attribute.  
r 1231 0.147 0.940 37 level 3, 30

oop3

Error: record condition by >udd>m>rhs>test>oop3:140  
occurred while doing I/O on file afile

Record read by read statement is not the same size as the target.  
system handler for error returns to command level  
r 1232 0.768 15.500 138 level 4, 44

RL

r 1232 0.123 2.450 12

dpfe

I/O error on file afile  
Title : vfile\_ afile  
Attributes: open input notkeyed record sequential  
Last i/o operation attempted : read into  
Last i/o error code for that file : Record is too long.  
r 1232 0.217 1.822 77



MPM

display\_pll\_file\_error

Name: display\_pll\_file\_error, dpfe

The display\_pll\_file\_error command is intended to be invoked after the user has had an i/o error signalled while performing pll i/o, at which time it displays information about the most recent file on which a pll i/o error was raised and other diagnostic information about that error. The type of information displayed is dependent on the specific kind of error raised.

Usage:

display\_pll\_file\_error

Example:

The command

dpfe

might respond with the following display:

I/O error on file afile

Title: vfile\_afile

Attributes: open input notkeyed record sequential

Last i/o operation attempted: write from

Attempted "write" operation conflicts with  
file "input" attribute.

Attempted "from" operation conflicts with  
file "input" attribute.

Multics Change Request

TITLE: Install user command display_pllio_error		STATUS	DATE
AUTHOR: R. Schoeman		Written	7/14/75
-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 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	Status
	<input type="checkbox"/>	Sys. Anal. Tools	Expires
	<input type="checkbox"/>	Sys. Prog. Tools	DOCUMENTATION CHANGES
<input type="checkbox"/>	355	Document	Specify One or More
<input type="checkbox"/>	BOS	MPM (Vol, Sect.) AG92, Section 3	
<input type="checkbox"/>	Salvager	PLMS (AN #)	
<input type="checkbox"/>	Ring Zero	MOSN (Sect.)	
<input type="checkbox"/>	Ring One	MPAM (Sect.)	
<input type="checkbox"/>	SysDaemon/Admin.	MSAM (Sect.)	
<input type="checkbox"/>	Runtime	Info Segs	
<input checked="" type="checkbox"/>	User Cmmnd/Subr.	Other (Name)	
Objections/Comments:		None (Reason)	

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

SUMMARY:

Install a command which will diagnose errors raised during pll i/o.

REASONS:

When an error is detected during PL/1 i/o a condition is signalled but no other information is given to the user. In order to understand the error he must know the description of the i/o operation he requested, the attributes of the file state block, and the specific error detected by iox\_. This command looks at the above mentioned sources of information, does some simple analysis, and tells the user sufficient relevant information to understand and correct the error.

DETAILED PROPOSAL:

Two sheets follow showing sample invocations of the command. The information it prints is dependent on the type of error it detects.

dpe

There was no error raised during PL/I i/o in this process.  
r 1558 0.105 0.756 38

oop6

Error: undefinedfile condition by >udd>m>rhs>test>oop6:67  
occurred while doing I/O on file file1

system handler for error returns to command level  
r 1529 0.268 7.926 105 level 3, 30

pe

Error on file file1  
Title: vfile\_ file1  
Attributes: input stream stringvalue environment  
Error in opening or closing file1  
The stringvalue attribute conflicts with the stream attribute.  
r 1529 0.160 1.245 17 level 3, 30

oop7

Error: error condition by >udd>m>rhs>test>oop7:104  
Statement conflicts with file attributes.  
r 1529 0.373 15.064 162 level 4, 41

ape

Error on file file2  
Title: vfile\_ file2  
Attributes: open output stream notkeyed sequential  
Last i/o operation attempted: write from  
Attempted "write " operation conflicts with  
file "stream " attribute.  
Attempted "from " operation conflicts with  
file "stream " attribute.  
r 1529 0.199 1.560 73 level 4, 41

oop8

Error: undefinedfile condition by >udd>m>rhs>test>oop8:66  
occurred while doing I/O on file file3

system handler for error returns to command level  
r 1530 0.461 13.211 165 level 5, 55

RL

r 1530 0.122 3.056 110

dpe

Error on file file3, status code: Entry not found.  
Title: vfile\_ file3  
Attributes: input stream notkeyed sequential  
Permanent attributes: input  
Error in opening or closing file3  
r 1530 0.178 1.366 36

dpe

Error on file pl, status code: Key out of order.

Title: vfile\_pl

Attributes: open output record sequential keyed  
Last i/o operation attempted: write keyfrom from  
r 1524 0.268 5.280 84 level 2, 16

oop2

Error: undefinedfile condition by >uod>m>rhs>test>oop2:1105  
occurred while doing I/O on file xx

system handler for error returns to command level  
r 1525 0.473 15.765 240 level 3, 30

display\_pllio\_error

Error on file xx, status code: Entry not found.

Title: vfile\_xx

Attributes: input notkeyed record sequential

Permanent attributes: record

Error in opening or closing xx

r 1525 0.187 2.850 69 level 3, 30

oop3

Error: record condition by >udd>m>rhs>test>oop3:1140  
occurred while doing I/O on file afile

Record read by read statement is not the same size as the target.  
system handler for error returns to command level  
r 1525 0.679 15.730 228 level 4, 44

display\_pllio\_error

Error on file afile, status code: Record is too long.

Title: vfile\_afile

Attributes: open input notkeyed record sequential

Last i/o operation attempted: read into

r 1526 0.142 2.280 73 level 4, 44

oop3

Error: error condition by >uod>m>rhs>test>oop3:1125  
Statement conflicts with file attributes.

r 1527 0.369 13.993 164 level 5, 55

dpe

Error on file afile

Title: vfile\_afile

Attributes: open input notkeyed record sequential

Last i/c operation attempted: write from

Attempted "write " operation conflicts with  
file "input " attribute.

Attempted "from " operation conflicts with  
file "input " attribute.

r 1528 0.175 1.002 50 level 5, 55

TITLE: Changes to stu_		STATUS	DATE	
AUTHOR: J. M. Broughton		Written	07.11.75	
-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 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)	Status	A 07/22/75	
		Lib. Maint. Tools	Expires	01/22/76
		Sys. Anal. Tools	DOCUMENTATION CHANGES	
		Sys. Prog. Tools	Document	Specify One or More
		355		
		BOS		
		Salvager	MPM (Vol, Sect.)	
		Ring Zero	PLMS (AN #)	
		Ring One	MOSN (Sect.)	
		SysDaemon/Admin.	MPAM (Sect.)	
	<input checked="" type="checkbox"/> Runtime	MSAM (Sect.)		
	User Cmnd/Subr.			
Objections/Comments:		Info Segs		
		Other (Name)		
		None (Reason)	no changes	

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

SUMMARY:

1. Modify stu\_ to correctly handle variables in separate static.
2. Allow COBOL structure qualified label constants.
3. Use version 2 object\_info\_ structure.

REASONS:

1. This module is used by debugging routines and language I/O routines to access variables at runtime. Currently, the assumption is made that static variables reside in the linkage section. When separate static is available, this will not be true.
2. Currently, it is assumed that label constants have no structure qualification, and the code enforces this as a needless restriction. For debugging routines to properly work with COBOL, this restriction must be removed.
3. Conform to standard.

DETAILED PROPOSAL:

1. Modify components get\_runtime\_address, decode\_runtime\_value and remote\_format to access variables in static by fetching the static pointer from the ISOT. This works now because the

ISOT pointer presently points at the LØT.

2. Change find\_runtime\_symbol to remove the restriction.
3. Change find\_header to use new format.

TITLE: Support for IBM 015 (Correspondence) Type Ball		STATUS	DATE
AUTHOR: R. Coren		Written	07.11.75
-Coded in: <input checked="" 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 204 -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 07/22/75	
	Category (Check One)	Expires	01/22/76
	Lib. Maint. Tools	DOCUMENTATION CHANGES	
	Sys. Anal. Tools	Document	Specify One or More
	Sys. Prog. Tools	MPM (Vol, Sect.)	Com (set tty)
	355	<del>XXXXXXXXXX</del>	Sub (tty_)
	BOS	MOSN (Sect.)	
	Salvager	MPAM (Sect.)	
	X Ring Zero	MSAM (Sect.)	
	Ring One		
	SysDaemon/Admin.		
	Runtime		
	User Cmnd/Subr.		
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

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

SUMMARY:

Supply translation tables in tty DIM for Correspondence 2741 terminal with 015 type ball.

REASONS:

There are such terminals in the field, and Multics does not currently support them.

IMPLICATIONS:

None.

DETAILED PROPOSAL:

Add a set of tables to tty\_ctl.mexp to perform translation to/from correspondence code. Invent a new terminal type, "CØRR2741", for a 2741 terminal with correspondence code; this replaces the obsolete type "IBM2741", formerly used for "unmodified" 2741 terminals.

Note: A "-type" control argument to login will permit the user to specify terminal type at login time; at the same time a mechanism will be introduced to permit the Answering Service to recognize correspondence-type terminals. These changes are the subject of another MCR.

-----  
set\_tty  
-----

(excerpt)

-----  
set\_tty  
-----

Name: set\_tty, stty

The set\_tty command may be used to modify the type of the user's terminal and/or the modes associated with terminal I/O. The type as specified by this command is used for determining character conversion and delay timings, and has no effect on communications line control.

Usage

set\_tty -control\_args-

where control\_args may be chosen from the following control arguments:

-switch XX	specifies that the command is to be applied to the I/O switch whose name is XX. If this control argument is omitted, the user_i/o switch is assumed.
-type XX	causes the user's terminal type to be set to device type XX, which can be any one of the following:
1050	device similar to IBM Model 1050
2741	device similar to IBM Model 2741
CORR2741 or corr2741	device similar to IBM Model 2741 with Correspondence keyboard and type ball
TTY37 or tty37	device similar to Teletype Model 37
TTY33 or tty33	device similar to Teletype Models 33 or 35
TTY38 or tty38	device similar to Teletype Model 38
TN300 or tn300	device similar to GE TermiNet 300 or 1200
ARDS or ards	device similar to Adage, Inc. Advanced Remote Display Station (ARDS)
ASCII or ascii	device similar to a Computer Devices Inc. (COI) Model 1030 or Texas Instruments (TI) Model 725, or a device with an unrecognized answerback, or a device without an answerback (these devices are collectively termed "ASCII" devices)

The default modes for the new terminal type are turned on.



Name: tty\_

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.

info

causes information about the device to be returned. The info\_ptr should point to the following structure that is filled by the call:

```
dc| 1 info_structure    aligned,  
    2 id char(4)        unaligned,  
    2 reserved          char(8) unaligned,  
    2 type              fixed bin;
```

where:

1. id is the identifier of the specific device as told to Multics by the device when the device is initialized.

2. reserved is space reserved for compatibility purposes.

3. type identifies the type of device:

- 1 = device similar to IBM 1050
- 2 = device similar to IBM 2741
- 3 = device similar to Teletype Model 37
- 4 = device similar to TerminoNet 300
- 5 = device similar to ARDS
- 6 = device similar to IBM 2741 with correspondence keyboard and 015 type ball
- 7 = device similar to Teletype Models 33 or 35
- 8 = device similar to Teletype Model 38
- 9 = unused
- 10 = unused
- 11 = device similar to a CDII!Model!1030 or TI!Model!725, or a device with an unrecognized answerback, or a device without an answerback (these devices are collectively termed "ASCII" devices)

Multics Change Request

TITLE: "capo" mode for tty DIM		STATUS	DATE
AUTHOR: R. Coren		Written	07.11.75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 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 _____	Category (Check One)		Status
		Lib. Maint. Tools	A 07/22/75
		Sys. Anal. Tools	Expires
		Sys. Prog. Tools	01/22/76
		355	DOCUMENTATION CHANGES
	BOS	Document	Specify One or More
	Salvager	MPM (Vol, Sect.) Sub (tty )	
	<input checked="" type="checkbox"/> Ring Zero	PLMS (AN #)	
	Ring One	MOSN (Sect.)	
	SysDaemon/Admin.	MPAM (Sect.)	
	Runtime	MSAM (Sect.)	
	User Cmnd/Subr.	Info Segs	
Objections/Comments:		Other (Name)	
		None (Reason)	

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

SUMMARY:

Provide "capo" mode for terminal I/O, which will force all output to upper case.

REASONS:

FAST requires the capability to output in upper case to provide visual compatibility for users accustomed to seeing FORTRAN programs in caps.

IMPLICATIONS:

None.

DETAILED PROPOSAL:

In "capo" mode, all lower-case letters will be printed on the user's terminal in upper case. If the user is in "edited" mode as well, upper-case letters will be unaffected; in "^edited" mode, upper-case letters will be preceded by an escape character (e.g., \A). Input will not be affected.

Note: A control argument to login, "-capo", which will put the user's terminal in capo mode, is the subject of another MCR.

## 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., ^erkl). For these modes the complement is displayed along with the mode.

capo, ^capo specifies that all lower-case letters are to be output in upper case. If edited mode is on, upper-case letters will be preceded by an escape (\) character.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1287
TITLE: Fix problems with cutoff dates	Planned for System: MR 3.0	STATUS: DATE
AUTHOR: Paul Green and Tom Casey	Fixes Bug Number(s): unreported	Written: 07/07/75
	Documented in MTB: not applicable	Status: A 07/22/75
	Incompatible Change: no	Expires: 01/07/76
User/Operations-visible Interface Change: no	Performance: ( )better (X)same ( )worse	CATEGORY (check one)
Coded in: (X)PL/I ( )ALM ( )other-see below		( ) Lib. Maint. Tools
		( ) Sys. Anal. Tools
		( ) Sys. Prog. Tools
		( ) 355
		( ) BOS
		( ) Salvager
		( ) Ring Zero
		( ) Ring One
		(X) SysDaemon/Admin
		( ) Runtime
		( ) User Command/Subr
DOCUMENTATION CHANGES (specify one or more)		
MPM (vol,sect)	MPAM (sect) 3.3	
MOSN (sect)	MSAM (sect)	
PLMs (AN#)		
Info Segs		
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Fix unreported bug in adjust\_cutoff\_ causing it to work incorrectly in most cases.

REASONS:

Project Administrators are unable to give cutoff dates to more than one user due to a bug in adjust\_cutoff\_ that messes up the cutoff dates when called more than once with the same current time (which up\_pdt\_ does).

IMPLICATIONS:

Cutoff dates will work as documented in the Project Administrator's Manual.

TITLE: Fix 8-char. bug in abbrev		STATUS	DATE
AUTHOR: S. Herbst		Written	07.14.75
-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 07/22/75
		Expires	01/22/76
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 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) already corrected	

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

SUMMARY:

Fix abbrev to complain if the user tries to define an abbreviation longer than 8 characters.

REASONS:

Currently, there is no warning and the name of the abbreviation is truncated to 8 characters.

TITLE: Long Names in BOS for DUMP command		STATUS	DATE
AUTHOR: B. Greenberg		Written	07/14/75
<input type="checkbox"/> Coded in: <input type="checkbox"/> PL/I <input checked="" type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL <input type="checkbox"/> Planned for System MR <input type="checkbox"/> Fixes Bug Number(s) _____ <input type="checkbox"/> Documented in MTB _____ <input type="checkbox"/> User/Operations-visible Interface change? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> 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 <input type="checkbox"/> Replaces MCR _____		Status	A 07/22/75
		Expires	01/29/76
		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 checked="" 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 type="checkbox"/> User Cmnd/Subr.		Document	Specify One or More
Objections/Comments:		MPM (Vol, Sect.)	
		PLMS (AN #)	
		MOSN (Sect.)	MOH/BOS (Sect. 5)
		MPAM (Sect.)	
		MSAM (Sect.)	
		Info Segs	
		Other (Name)	
		None (Reason)	

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

**SUMMARY:** Have BOS SCAN provide EIS descriptors for arbitrary-length alphameric arguments. Change BOS DUMP to accept segment names for the SEG and STACK subcommands, using these descriptors.

**REASONS:** It is currently impossible to specify to BOS DUMP the name of a segment to be dumped. This means that system-independent RUNCOMS cannot be created to take dumps. Furthermore, much fumbling and potential error is involved in determining segment numbers of segments which one wants to dump.

**IMPLICATIONS:**

1. More operational flexibility, fewer operator errors following the current obscure instructions for dumping a given segment by name.
2. No hardcore segment may have capital letters in its name if it is to be dumped in this way. Currently, none do.

**DETAILED PROPOSAL:** Have the SEG and STACK subcommands of DUMP obtain their first argument, if alphameric from an EIS descriptor provided by BOS SCAN. The name pointed to by this descriptor will be converted to ASCII and searched for in the SLT. If found, the corresponding segment number will be used instead. Otherwise a diagnostic will be printed.

BOS SCAN will provide an array of EIS descriptors for all alphameric arguments, so that any command can use long names.

SEG s

Dumps segment only, where s is either a segment number or the name of a hardcore segment.

Example: SEG 55  
          SEG KST\_SEG

STACK seg offset

Dumps segment seg as stack frames (both forwards and backwards) starting from offset, where:

seg is either a segment number (used as a base), or the name of a hardcore segment.

offset is an octal offset (used as a stack pointer).

NOTE: If offset is missing, the location of the first stack frame is used. If no seg is specified, the contents of pointer register 6 in the machine conditions will be used.

Example: STACK 205 1760  
          STACK SHUTDOWN\_STACK

Alternatively,  
STACK RING n offset where n is a number from 0 to 7, dumps the ring n stack of the process that entered BOS.

Example: STACK RING 4

TITLE: BOS Stack dump by Ring		STATUS	DATE
AUTHOR: B. Greenberg.		Written	07.14.75
-Coded in: <input type="checkbox"/> PL/I <input checked="" type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR <u>asap</u> -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 07/22/76
		Expires	01/22/76
		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 checked="" 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 type="checkbox"/> User Cmmd/Subr.		Document	Specify One or More
Objections/Comments:		MPM (Vol, Sect.)	
		PLMS (AN #)	
		MOSN (Sect.) MOH Sect. 5	
		MPAM (Sect.)	
		MSAM (Sect.)	
		Info Segs	
		Other (Name)	
		None (Reason)	

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

SUMMARY:

Modify BOS DUMP to accept the command STACK RING n, where n is a small integer, as equivalent to

STACK (8\*dbr.stack + n)

REASON:

The ability to have system-independent RUNCOMS for producing dumps.

IMPLICATIONS: n/a

DETAILED PROPOSAL:

(See "SUMMARY"). Also, refuse to perform this transformation if dbr.stack is 0, indicating that initialization has not yet set up a multi-ring environment.



TITLE: Fix pc_contig out-of-service bug		STATUS	DATE
AUTHOR: B. Greenberg		Written	07.14.75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR <u>asap</u> -Fixes Bug Number(s) _____ -Documented in MTB _____ -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 checked="" type="checkbox"/> Better <input type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 07/22/75
		Expires	01/22/76
		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 checked="" type="checkbox"/> Ring Zero <input type="checkbox"/> Ring One <input type="checkbox"/> SysDaemon/Admin. <input type="checkbox"/> Runtime <input type="checkbox"/> User Cmnd/Subr.		Document	Specify One or More
		MPM (Vol, Sect.)	
		PLMS (AN #)	60
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	
		Info Segs	
		Other (Name)	
		None (Reason)	
		Objections/Comments:	

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

SUMMARY:

Restore pc\_contig's knowledge of his own ability to evict out-of-service and RWS'ing core frames.

REASON:

New conventions in 25-5 changed meaning of zero thread word in core map entry - small, heavily loaded systems can run out of core for I/O Interfacer usage if much core is out of service.

IMPLICATION:

Reliability.

TITLE: Implement start xmit hd and stop_xmit_hd for ARDS terminals		STATUS	DATE
AUTHOR: R. Coren		Written	07.15.75
<input checked="" 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 07/22/75
		Expires	01/22/76
		DOCUMENTATION CHANGES	
Category (Check One) <input type="checkbox"/> Lib. Maint. Tools <input type="checkbox"/> Sys. Anal. Tools <input type="checkbox"/> Sys. Prog. Tools <input checked="" type="checkbox"/> 355 <input type="checkbox"/> BOS <input type="checkbox"/> Salvager <input checked="" type="checkbox"/> Ring Zero <input type="checkbox"/> Ring One <input type="checkbox"/> SysDaemon/Admin. <input type="checkbox"/> Runtime <input type="checkbox"/> User Cmnd/Subr.		Document	Specify One or More
Objections/Comments:		MPM (Vol, Sect.)	subr (tty_)
		PLMS (AN #)	
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	
		Info Segs	
		Other (Name)	
		None (Reason)	

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

SUMMARY: Implement two new control operations for tty\_ which permit an ARDS terminal to remain in transmit mode until further notice.

REASONS: With MCS and the new user-ring graphics software, an ARDS which drops out of transmit mode between blocks of graphic output will drop out of graphics mode as well.

IMPLICATIONS: None.

DETAILED PROPOSAL:

Ring Zero tty DIM: Invent two new control operations ("orders") (start\_xmit\_hd and stop\_xmit\_hd) to be transmitted to the 355.

355: Set a flag when the start\_xmit\_hd order is received such that the HSLA subchannel will be held in transmit mode at the completion of output, until a stop\_xmit\_hd order is received. Once output has started in "xmit\_hd" mode, typed input will be ignored until after the stop\_xmit\_hd order.

---  
tty\_  
---

---  
tty\_  
---

`start_xmit_hold` causes the channel to remain in a transmitting state at the completion of the next block of output, rather than starting to accept input. The line will then remain in a transmitting state until the `stop_xmit_hold` control operation is requested. This operation is valid only for ARDS-like devices.

`stop_xmit_hold` causes the channel to resume accepting input from the terminal (after the completion of current output, if any). This operation is only valid for ARDS-like terminals, and is used only to counteract a preceding `start_xmit_hold` operation.

TITLE: Change linker to work with separate static		STATUS	DATE
AUTHOR: S. Webber		Written	07.15.75
-Coded in: <input checked="" type="checkbox"/> PL/I <input checked="" 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 07/22/75
		Expires	01/22/76
		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 checked="" type="checkbox"/> Salvager <input checked="" type="checkbox"/> Ring Zero <input type="checkbox"/> Ring One <input type="checkbox"/> SysDaemon/Admin. <input checked="" type="checkbox"/> Runtime <input type="checkbox"/> User Cmmnd/Subr.		Document	Specify One or More
Objections/Comments:		MPM (Vol, Sect.)	
		PLMS (AN #)	81
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	
		Info Segs	
		Other (Name)	Not yet written
		None (Reason)	

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

SUMMARY:

Change linker to work with separate static object segments.

REASONS:

Necessary before any separate static object segments can be installed or any translators that create them can be installed.

IMPLICATIONS:

1. The hardcore, initialization prelinker will not accept separate static initially.
2. User documentation on the ISOT should be made available (MPM (SWG) already in the mill).

DETAILED PROPOSAL:

Change callers of lot\_maintainer to pass virgin static pointers and expect in return a pointer to the copied static if the segment has separate static. The linker will be changed to use the new object\_info\_ structure.

Also change initialization to use same lot\_maintainer calls.

Multics Change Request

TITLE: Change print_gen_info to use new object_info_structure.		STATUS	DATE
AUTHOR: S. Webber		Written	07.15.75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-explain in DETAILED PROPOSAL		Status	A 07/22/75
-Planned for System MR		Expires	01/22/76
-Fixes Bug Number(s)		DOCUMENTATION CHANGES	
-Documented in MTB		Document	Specify One or More
-User/Operations-visible		MPM (Vol, Sect.)	
Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		PLMS (AN #)	
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		MOSN (Sect.)	
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same		MPAM (Sect.)	
<input type="checkbox"/> Worse		MSAM (Sect.)	
-Replaces MCR		Info Segs	
Objections/Comments:		Other (Name)	
		None (Reason) Documented in AN51	

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

SUMMARY:

Change print\_gen\_info to use new object\_info\_structure.

REASONS:

Part of changeover so the system is fully cognizant of separate static object segments.

TITLE: Update miscellaneous callers of object_info_		STATUS	DATE
AUTHOR: M. Weaver		Written	07.15.75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> AIM <input type="checkbox"/> other- explain in DETAILED PROPOSAL		Status	A 07/22/75
-Planned for System MR		Expires	01/22/76
-Fixes Bug Number(s)		DOCUMENTATION CHANGES	
-Documented in MTB 187		Document	Specify One or More
-User/Operations-visible		MPM (Vol, Sect.)	
Interface change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		PLMS (AN #)	
-Incompatible change? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no		MOSN (Sect.)	
-Performance: <input type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse		MPAM (Sect.)	
-Replaces MCR		MSAM (Sect.)	
		Info Segs	
Objections/Comments:		Other (Name)	
		None (Reason)	

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

SUMMARY:

Update all known callers of object\_info\_ not mentioned in other MCR's to use the version 2 object\_info\_ structure.

Delete obsolete program check\_object.

REASONS:

To improve system consistency.

IMPLICATIONS:

These changes are generally very minor.

DETAILED PROPOSAL:

The following programs are involved:

get_defname_	call_finder
upd_doc_task_	print_sample_refs
object_test_	make_lisp_listing
gcos_gain_	lisp_load_

Multics Change Request

TITLE: Revise programs that Get Linkage Information for a pointer		STATUS	DATE	
AUTHOR: M. Weaver		Written	07.15.75	
-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 187 -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 checked="" type="checkbox"/> Better <input type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)		Status A 07/22/75 Expires 01/22/76 DOCUMENTATION CHANGES Document Specify One or More MPM (Vol, Sect.) PLMS (AN #) 79 MOSN (Sect.) MPAM (Sect.) MSAM (Sect.) Info Segs Other (Name) None (Reason)	
	<input type="checkbox"/> Lib. Maint. Tools	<input type="checkbox"/> Sys. Anal. Tools		
	<input checked="" 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 Cmmd/Subr.			
Objections/Comments:				

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

SUMMARY:

The following programs are in bound\_debug\_util\_ and bound\_trace\_stack\_.

1. Rename find\_ls\_owner\_ to find\_owner\_ and change calling sequence to include section info.
2. Rename get\_link\_entry\_name\_ to find\_nonobject\_info\_ and change calling sequence to include additional useful output info obtained by the routine anyway.
3. Change interpret\_ptr\_ to use the version 2 object\_info\_ structure, and to call find\_nonobject\_info\_, obtaining better names in more nonobject cases.
4. Change get\_entry\_name\_ to call find\_nonobject\_info\_ instead of get\_link\_entry\_name\_ even though it doesn't need the extra info.
5. Delete is\_cls\_ (after default\_error\_handler\_ no longer calls it).

REASONS:

Make the routines work with separate static. Improve interfaces. is\_cls\_ was needed primarily because of entry sequences in the linkage section.

IMPLICATIONS:

No other programs are known to be affected by the interface changes. Some of trace\_stack's output will be slightly different. Information for certain faults by vl,pl1 programs will be less helpful.

DETAILED PROPOSAL:

See attached writeups of find\_owner\_ and find\_nonobject\_info\_. find\_owner\_ will use the linkage and static lengths in the linkage header to determine whether an offset is within a particular linkage or static section. interpret\_ptr\_ no longer needs to call is\_cls\_ or find\_ls\_owner\_ directly.



ADDENDUM to MCR 1296

Add a sixth argument to find\_owner\_:

b) ls\_ptr is a pointer to the beginning of the  
owner's linkage section.  
(Output)

This information is already available to find\_owner\_  
and is needed by its primary caller.

Name: find\_owner\_

This procedure obtains the segment number of the owner of an active linkage or static section pointed to by a given pointer.

Usage

```
declare find_owner_ entry (ptr, fixed bin(18),  
                           fixed bin(18), char(8) aligned, fixed bin);  
  
call find_owner_ (p, owner, section_offset, section, class);
```

- 1) p points to a nonobject segment. (Input)
- 2) owner is the segment number of the owner of the active linkage or static section that p points to; is -1 if p does not point to an active linkage or static section. (Output)
- 3) section\_offset is the offset of the beginning of the active linkage or static section that p points to. (Output)
- 4) section is the symbolic name of the logical section that p points to. It is either "linkage" or "static" or "". (Output)
- 5) class is the definition class of the physical section that p points to. It is 1 if owner was found through the LOT and is 4 if owner was found through the ISOT. (Output)

Name: find\_nonobject\_info\_

This procedure obtains some object segment related info, if possible, about a pointer that doesn't point to an object segment.

Usage

```
declare find_nonobject_info_ entry (ptr, char(*),
                                     fixed bin(18), char(8) aligned,
                                     fixed bin(18), fixed bin(35));

call find_nonobject_info_ (p, ename, segno, section,
                          adjusted_offset, code);
```

- 1) p points to a nonobject segment. (Input)
- 2) ename is the name from the definition if p points to a location that the linker might find. (Output)
- 3) segno is the segment number of the owner of the active linkage of static section that p points to. It is -1 if p does not point to an active linkage or static section. (Output)
- 4) section is the symbolic name of the logical section that p points to. It is either "linkage" or "static" or "text". (Output)
- 5) adjusted\_offset is the offset of p relative to the beginning of the section that p points to. (Output)
- 6) code is a standard status code and is nonzero if a name could not be found. (Output)

Multics Change Request

TITLE: Fix pi bug in sending mail		STATUS	DATE
AUTHOR: S. Herbst		Written	07.14.75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> AIM <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 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 07/22/75
		Expires	01/22/76
		DOCUMENTATION CHANGES	
		Lib. Maint. Tools	
		Sys. Anal. Tools	
		Sys. Prog. Tools	
		355	Document Specify One or More
		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 Cmd/Subr.	
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	ok

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

SUMMARY:

Fix bug in mail that produces a fault when the pi handler is invoked to save partially typed unsent\_mail.

Multics Change Request

TITLE: Fix bug in format_word_list		STATUS	DATE
AUTHOR: Jerry A. Stern		Written	7/16/75
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR <u>3.0</u> -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 07/22/75
		Expires	01/22/76
		DOCUMENTATION CHANGES	
		Category (Check One)	
		<input type="checkbox"/> Lib. Maint. Tools	
		<input type="checkbox"/> Sys. Anal. Tools	
		<input checked="" type="checkbox"/> Sys. Prog. Tools	
		355	Document Specify One or More
		BOS	
		Salvager	MPM (Vol, Sect.)
		Ring Zero	PLMS (AN #)
		Ring One	MOSN (Sect.)
		SysDaemon/Admin.	MPAM (Sect.)
		Runtime	MSAM (Sect.)
		User Cmmd/Subr.	
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	<input checked="" type="checkbox"/>

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

Summary: Change the format\_word\_list command to use the get\_line\_length subroutine to determine the appropriate width for output.

Reasons: The determination of the line length currently made by format\_word\_list relies on the uniqueness of the substring "ll" within the modes string for user-output. The introduction of "fullduplex" mode will cause this method to fail.

Implications: Once fullduplex mode is introduced, format\_word\_list will cease to work until this bug is fixed.

Ver. 3	MULTICS CHANGE REQUEST	MCR 1301
741022		
TITLE: Fix bugs in AIM answering service	STATUS	DATE
AUTHOR: Paul Green	Written	07/18/75
	Status	107/29/75
	Expires	01/18/76
Planned for System: not applicable	CATEGORY (check one)	
Fixes Bug Number(s): unnumbered	<input type="checkbox"/> Lib. Maint. Tools	
Documented in MTB: not applicable	<input type="checkbox"/> Sys. Anal. Tools	
Incompatible Change: no	<input type="checkbox"/> Sys. Prog. Tools	
User/Operations-visible Interface Change: no	<input type="checkbox"/> 355	
Coded In: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-see below	<input type="checkbox"/> BOS	
Performance: <input type="checkbox"/> better <input checked="" type="checkbox"/> same <input type="checkbox"/> worse	<input type="checkbox"/> Salvager	
<u>DOCUMENTATION CHANGES (specify one or more)</u>	<input type="checkbox"/> Ring Zero	
MPM (vol,sect) MPAM (sect)	<input type="checkbox"/> Ring One	
MOSN (sect) MSAM (sect)	<input type="checkbox"/> SysDaemon/Admin	
PLMs (AN#)	<input type="checkbox"/> Runtime	
Info Segs	<input checked="" type="checkbox"/> User Command/Subr	
Other		
<del>None (reason) or changes</del>		
OBJECTIONS/COMMENTS:		

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

**SUMMARY:**

Some bugs have been discovered in various programs modified for the Access Isolation mechanism. Fix them.

**REASONS:**

Bug fixes.

**IMPLICATIONS:**

Programs will work as documented.

**DETAILED PROPOSAL:**

1. cv\_pmf will allow dollar-signs in pathnames.
2. get\_line\_length\_ will work properly.
3. dialed terminals will work properly.
4. the authorization of the process will be printed at new\_proc time as well as at login time, if ls greater than system\_low.
5. generated passwords will be exactly 6 chars long, rather than from 6 to 8.

Multics Change Request

TITLE: Add feature to ioa_ to understand arrays.		STATUS	DATE
AUTHOR: S. Webber		Written	07.18.75
-Coded in: <input type="checkbox"/> PL/I <input checked="" 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 checked="" type="checkbox"/> Better <input type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR <u>1220</u>		Status	A 07/29/75
		Expires	01/29/76
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 Cmmd/Subr.		DOCUMENTATION CHANGES	
		Document	Specify One or More
		MPM (Vol, Sect.)	Subroutines
		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:

Allow ioa\_ to accept an array of items as one of the "substituted" arguments.

REASONS:

Useful extension. Permits more efficient coding of several programs.

IMPLICATIONS:

If any programs currently are passing an array and expecting only the first element to be used they will work differently. This was an illegal use of ioa\_.

DETAILED PROPOSAL:

See attached MPM documentation.

INSERT A:

### Array Parameters

The arguments that are edited into the control string by the ioa\_ subroutines may be arrays. If this is the case, ioa\_ selects elements from the array until all array elements are used up before going on to the next argument in the argument list. All conventions apply to elements of arrays that apply to simple scalar arguments. In particular, the ^s control code will skip the next element of an array if ioa\_ is currently in the process of selecting elements from an array. The arrays are scanned in the order that PL/I allocates the elements, i.e., row major order.

INSERT B:

Source: dcl a(2,2)fixed bin init(1,2,3,4);  
call ioa\_("^d ^s^d ^w",a);

Result: 1 3 000000000004

Source: dcl b(6:9)fixed bin init(6,7,8,9);  
call ioa\_("^v(^3d ^)",dim(b),1,b);

Result: 6 7 8 9



Multics Change Request

TITLE: Delete translate_gate program		STATUS	DATE
AUTHOR: S. Webber		Written	07.18.75
-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 07/29/76
		Expires	01/29/76
		DOCUMENTATION CHANGES	
Category (Check One) <input type="checkbox"/> Lib. Maint. Tools <input type="checkbox"/> Sys. Anal. Tools <input checked="" 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 type="checkbox"/> User Cmmd/Subr.		Document	Specify One or More
Objections/Comments:		MPM (Vol, Sect.)	
		PLMS (AN #)	
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	
		Info Segs	
		Other (Name)	
		None (Reason) undocumented	

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

SUMMARY:

Delete obsolete, unused program translate\_gate from system.

REASON:

Not used anymore. mexp has been used for years to create gate segments.

Multics Change Request

TITLE: Fix bug in record_stream_		STATUS	DATE
AUTHOR: M. Asherman		Written	07.18.75
-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) 8507 -Documented in MTB -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 07/29/75
		Expires	01/29/76
		DOCUMENTATION CHANGES	
		Lib. Maint. Tools	
		Sys. Anal. Tools	
		Sys. Prog. Tools	
		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	
		User Cmnd/Subr.	
Objections/Comments:		Info Segs	
Problem caused by "padded reference" bug in P11 compiler		Other (Name)	
		None (Reason)	

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

SUMMARY:

Fix bug causing spurious long records on sequential input through record\_stream\_ when record length is equal to input buffer in length.

TITLE: Changes to alm		STATUS	DATE
AUTHOR: E. Wiatrowski		Written	07.18.75
-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) 1 -Documented in MTB 169, 187 -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 07/29/75
		Expires	01/29/76
		DOCUMENTATION CHANGES	
		Category (Check One)	Document Specify One or More
		<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	MPM (Vol, Sect.) SWG, sec. 4
		<input type="checkbox"/> Ring Zero	PLMS (AN #)
		<input type="checkbox"/> Ring One	MOSN (Sect.)
		<input type="checkbox"/> SysDaemon/Admin.	MPAM (Sect.)
		<input type="checkbox"/> Runtime	MSAM (Sect.)
		<input checked="" type="checkbox"/> User Cmnd/Subr.	
Objections/Comments:		<input type="checkbox"/> Info Segs	
		<input type="checkbox"/> Other (Name)	
		<input type="checkbox"/> None (Reason)	

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

SUMMARY:

Prelinking changes, improvements and user interface changes to ALM.

DETAILED PROPOSAL:

Implement and install the following changes to alm, the standard Multics assembler:

1) Prelinking Changes

- a. The assembler will generate standard object segments with the new object map and optionally separate static sections.
- b. The "join" pseudo-op will recognize "/static/".
- c. The self-referencing symbol "\*static" will be recognized by alm.

2) Improvements

Add new pseudo-op "entrybound" to enable a simpler generation of entry bounds on gate segments.

3) user interface changes

- a) Change the "-quiet" control argument to "-brief" and remove the following four obsolete control arguments: new\_call, followon, new\_object and check\_code.
- b) Remove all opcodes of the 645- instructions no longer applicable to the 6180 hardware and the following three obsolete pseudo-ops: mastermode, executeonly and altreturn.
- c) Fix bugs: #1.

REASONS:

1) prelinking changes:

Currently both the nonsharable internal static storage area and the shareable data, the links, are put in the linkage section.

By allowing alm (and other translators) to generate object segments with separate static sections we can enable the different processes to share the invariant data in the (various) object segment(s).

2) improvements:

Presently the entry bounds on gate segments are generated in a rather unnatural way by the use of "segdef end\_of\_gates" type statements.

The new object map structure contains a field for the entry-bound , which the assembler will generate and put in the field upon encountering the new "entrybound" pseudo-op.

3) user interface changes:

The "-quiet" control argument to the assembler makes alm incompatible (in naming the same type of control arguments) with the rest of the translators which use "-brief".

All the control argument, 645 - opcodes and pseudo-ops being removed are obsolete.

IMPLICATIONS:

1) prelinking changes

- a) In the case of separate static two different pointer registers will be needed, one for the static and the other for the links, as opposed to one being used now.

Since as far as the assembler is concerned the programmer is responsible for the management of registers, this will require a reprogramming of all alm programs for the cases where object segments with separate static will be desirable.

For the case of separate static:

- b) Changing all statements of the type:

join /link/ <list of location counters' names>  
to join /static/ <list of location counters' names>

- c) changing some statements with references to the self-referencing symbol <\*link> to the self-referencing symbol <\*static>.

2) improvements

Changing statements of the type: "segdef end\_of\_gates"  
to "entrybound" at appropriate location.

3) user interface changes

Using "-brief" instead of "-quiet" control argument.

TITLE: fix get_password_		STATUS	DATE
AUTHOR: M. Grady		Written	07.21.75
<input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input 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 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 07/29/75
		Expires	01/29/76
		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	
		Other (Name)	
		None (Reason)	

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

SUMMARY:

Fix bug in get\_password\_. It used \006 and \025 to turn printer on and off.

REASONS:

This system-tool should work correctly.

IMPLICATIONS:

None.

Multics Change Request

TITLE: Update interpret_link_ for revised section type		STATUS	DATE
AUTHOR: M. Weaver		Written	07.22.75
-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 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)		Status
		Lib. Maint. Tools	A 07/29/75
		^ Sys. Anal. Tools	Expires
		^ Sys. Prog. Tools	01/29/76
	355	DOCUMENTATION CHANGES	
	BOS	Document	Specify One or More
	Salvager	MPM (Vol, Sect.)	SWG
	Ring Zero	PLMS (AN #)	
	Ring One	MOSN (Sect.)	
	SysDaemon/Admin.	MPAM (Sect.)	
	Runtime	MSAM (Sect.)	
	User Cmnd/Subr.		
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

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

SUMMARY:

Change interpret\_link\_ to recognize 4 rather than 3 as the static section indicator for types 1 and 5 links.

REASONS:

This will make object segments more consistent since the definition class for static is 4.

IMPLICATIONS:

None. Only pre-experimental versions of translators generate links to \*static.

Multics Change Request

TITLE: Update combined linkage section information command		STATUS	DATE
AUTHOR: M. Weaver		Written	07.22.75
-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 187 -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 type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____	Category (Check One)		
	<input type="checkbox"/> Lib. Maint. Tools	DOCUMENTATION CHANGES	
	<input type="checkbox"/> Sys. Anal. Tools	Document	Specify One or More
	<input type="checkbox"/> Sys. Prog. Tools	MPM (Vol, Sect.)	
<input type="checkbox"/> 355	PLMS (AN #)		
<input type="checkbox"/> BOS	MOSN (Sect.)		
<input type="checkbox"/> Salvager	MPAM (Sect.)		
<input type="checkbox"/> Ring Zero	MSAM (Sect.)		
<input type="checkbox"/> Ring One	Info Segs		
<input type="checkbox"/> SysDaemon/Admin.	Other (Name)		
<input type="checkbox"/> Runtime	None (Reason)		
<input checked="" type="checkbox"/> User Cmnd/Subr.			
Objections/Comments:			

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

SUMMARY:

Change dump\_ls and print\_linkage\_usage to merge the ISOT indices with the LOT indices. The output will change slightly to accommodate separate static sections.

REASONS:

When separate static sections are used, the LOT will no longer describe the entire combined linkage section and will not always lead to accurate static information.

DETAILED PROPOSAL:

The new header will contain:

segment\_name linkage size static size

thus providing for the static offset as well as size. The lines for the linkage and static of a segment may be completely independent.