

TO: Distribution
FROM: Joan Scott
DATE: 27 February 76
SUBJECT: Multics Change Requests

Enclosed are copies of Multics Change Requests which were approved from 16 February 76 through 29 February 76.

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Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1610
TITLE: Standardize Multics Input Canonicalization		STATUS: Written
AUTHOR: Robert S. Coren		DATE: 01/23/76
Planned for System: MR 4.0		Status: 2/3/76 A 2/17/76
Fixes Bug Number(s): not applicable		Expires: 07/23/76
Documented in MTB: 251		CATEGORY (check one)
Incompatible Change: yes-		() Lib. Maint. Tools
User/Operations-visible Interface Change: yes		() Sys. Anal. Tools
Coded in: (X) PL/I () ALM () other-see below		() Sys. Prog. Tools
Performance: () better () same () worse		() 355
DOCUMENTATION CHANGES (specify one or more)		() BOS
MPM (vol,sect)	MPAM (sect)	() Salvager
MOSN (sect)	MSAM (sect)	(X) Ring Zero
PLMs (AN#) AN85		() Ring One
Info Segs		() SysDaemon/Admin
Other		() Runtime
OBJECTIONS/COMMENTS:		() User Command/Subr

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

SUMMARY: Standardize canonicalization rules for Multics terminal input as described in MTB 251.

REASON: Current implementation of canonicalization is inconsistent, and no complete algorithm or set of rules is documented.

IMPLICATIONS: Some input strings may not produce the same results as at present.

DETAILED PROPOSAL:

1. Revise ring-0 tty DIM to enforce canonicalization rules described in MTB 251.
2. Publish the rules as a Multics standard (possibly replacing current MPM section).
3. Install a user-ring program that canonicalizes an arbitrary string.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR <u>1618</u>
TITLE: Fix bugs in get_temp_segments_		STATUS DATE
AUTHOR: Steve Webber		Written 01/29/76
		Status 01/07/76 A 2/17/76
		Expires 07/29/76
Planned for System: MR 3.1		CATEGORY (check one)
Fixes Bug Number(s): not applicable		() Lib. Maint. Tools
Documented in MTB: not applicable		() Sys. Anal. Tools
Incompatible Change: no		() Sys. Prog. Tools
User/Operations-visible Interface Change: no		() 355
Coded in: (X) PL/I () ALM () other-see below		() BOS
Performance: () better (X) same () worse		() Salvager
		() Ring Zero
DOCUMENTATION CHANGES (specify one or more)		() Ring One
MPM (vol,sect) MPAM (sect)		() SysDaemon/Admin
MOSN (sect) MSAM (sect)		() Runtime
PLMs (AN#)		(X) User Command/Subr
Info Segs		
Other		
None (reason) no change		
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Fix several bugs in the get_temp_segments_ programs that have arisen. These bugs include:

1. not zeroing an error code.
2. not nulling an input pointer at free time, and
3. changing the name of the temporary segment

REASONS:

Better interface which is easier to use.

IMPLICATIONS:

Users of the programs will be able to depend on the nullness of the input pointer as a means of determining if the segment has been freed. Users will be able to tell the segment number by looking at the name of the temporary segment.

Name: list_temp_segments

The list_temp_segments command lists the segments currently in the temporary segment pool managed by the get_temp_segments_ and release_temp_segments_ subroutines.

Usage

list_temp_segments -control_arg-

where control_arg may be the following:

-all, -a indicates that all temporary segments be listed. The normal mode is to list only those temporary segments currently assigned to some program.

Example

list_temp_segments -all

5 Segments, 2 Free

!BBBCdfghgffkkkl.temp.0246	qedx
!BBBCdffddfdffkl.temp.0247	qedx
!BBBCddffdfhfh.hh.temp.0253	(free)
!BBBCdgdgfhfgfsf.temp.0254	(free)
!BBBCvdvfgvdgvvv.temp.0321	edm

r 1541 .163 12.433 13

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FEB 18 1976

C. I. CLINGEN, CISL

release_temp_segments_

release_temp_segments_

Name: release_temp_segments_

The release_temp_segments_ subroutine is used to return temporary segments acquired with the get_temp_segments_ subroutine to the free pool of such segments.

Usage

```
declare release_temp_segments_ entry (char (*), (*) ptr,  
    fixed bin (35));  
  
call release_temp_segments_ (command_name, ptrs, code);
```

where:

1. command_name is the name of the command releasing the temporary segments. (Input)
2. ptrs is an array of pointers to the temporary segments being released. (Input/output)
3. code is a standard system status code. (Output)

Note

The status code is returned non-zero if any of the segments being released were not assigned to the given command program. See the writeup for get_temp_segments_ for a description of how to acquire temporary segments.

The pointers in the array "ptrs" above are set to the null value after the segments are successfully returned to the free pool. This fact can be used by callers to determine if a given temporary segment has already been released.

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FEB 16 1976

C. I. CLINGEN, CISL

get_temp_segments_

get_temp_segments_

Name: get_temp_segments_

The get_temp_segments_ subroutine is used to acquire temporary segments in the process directory for whatever purpose the caller may have. The segments returned are zero-length.

Usage

```
declare get_temp_segments_ entry (char (*), (*) ptr, fixed
    bin (35));
```

```
call get_temp_segments_ (command_name, ptrs, code);
```

where:

1. command_name is the name of the command requesting temporary segments. (Input)
2. ptrs is an array of returned pointers to the requested temporary segments. (Output)
3. code is a standard system status code. (Output)

Note

The subroutine will create new temporary segments and add them to its pool of such if there currently are not enough available to satisfy the request. The temporary segments are created in the process directory with a unique name including the suffix "temp.XXXX", where XXXX is the octal segment number of the segment. See the writeup for release_temp_segments_ for a description of how to return temporary segments to the free pool.

The number of segments returned to the caller is determined by the bounds of the array "ptrs" above.

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C. T. CLINGEN, CISL

TITLE: Reduce System Dependence on the DST		STATUS	DATE	
AUTHOR: N. I. Morris		Written	2 February 76	
-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 <u>4.0</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 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	<u>PA 10/76 A 2/17/76</u>	
		Lib. Maint. Tools	Expires	<u>8/17/76</u>
		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.)	
	Runtime		MEAM (Sect.)	
	User Cmd/Subr.			
Objections/Comments:			Info Segs	
			Other (Name)	
			None (Reason)	

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

SUMMARY:

Please see MTB-254 for a discussion of the motivation for this change.

PROPOSAL:

The following changes will be made at first:

- 1) The iom_manager will be modified.
- 2) IOI will stop using the DST.
- 3) The DISK DIM will stop using the DST.
- 4) All callers of the iom_manager will be modified.

At a later time, the following changes will be made:

- 1) The TTY software will stop using the DST.
- 2) The DST segment will be unwired.
- 3) dstm_ will be deleted.

IMPLICATIONS:

This incompatible change will not cause any problems since all callers of the iom_manager will be changed.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1631
TITLE: changes to copy_file specifications		STATUS: 1 DATE
AUTHOR: Ross E. Klinger		Written: 02/03/76
MDM		Status: RQ/17/76
Planned for System: 4.0		Expires: 08/03/76
Fixes Bug Number(s): not applicable		CATEGORY (check one)
Documented in MTB: not applicable		() Lib. Maint. Tools
Incompatible Change: yes		() Sys. Anal. Tools
User/Operations-visible Interface Change: no		() Sys. Prog. Tools
Coded in: (X) PL/I () ALM () other-see below		() 355
Performance: () better (X) same () worse		() BOS
DOCUMENTATION CHANGES (specify one or more)		() Salvager
MPM (vol,sect) copy_file MPAM (sect)		() Ring Zero
MOSN (sect) (Commands) MSAM (sect)		() Ring One
PLMs (AN#)		() SysDaemon/Admin
Info Segs copy_file		() Runtime
Other		(X) User Command/Subr
OBJECTIONS/COMMENTS:		

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

SUMMARY: 1) change short name from cf to cpf. cf is already used as short name for close_file.
2) specify valid open modes for already open I/O switches.

REASONS: 1) can't duplicate name in >sss.
2) copy_file should work in all meaningful circumstances, and the set of meaningful circumstances should be stated.

IMPLICATIONS: none

DETAILED PROPOSAL: see draft MPM documentation, attached.

copy_file

copy_file

Names: copy_file, cpf

This command copies records from an input file to an output file. The input and output file types must be structured. (See Unstructured Files, below, for an explanation of how this type of file may be copied.) The input file may be copied either partially, or in its entirety.

Usage

copy_file input_spec output_spec -control_args-

where:

1. input_spec specifies the input file from which records are read. It may be either an I/O switch name, or an attach description. (See Notes, below.)

-input_switch switchname

-isw switchname

specifies the input file by means of an already attached I/O switch name, switchname.

-input_description "XXX"

-ids "XXX"

specifies the input file by means of an attach description, XXX. The attach description string must be enclosed within quotes.

2. output_spec specifies the output file to which these records are written. It may be either an I/O switch name, or an attach description. (See Notes, below.)

-output_switch switchname

-osw switchname

specifies the output file by means of an already attached I/O switch name, switchname.

-output_description "XXX"

-ods "XXX"

specifies the output file by means of an attach description, XXX. The attach description string must be enclosed within quotes.

3. control_args may be one or more of the following optional control arguments. (See Notes, below.)

copy_file

copy_file

- keyed** specifies that both records and keys are copied from a keyed sequential input file to a keyed output file. The default is to copy records from an input file (either keyed or not) to a sequential output file. (See Keyed Files, below.)
- from I**
-fm I specifies that records are copied beginning with the Ith record of the input file. I must be a positive integer. The default is to begin copying with the "next record". (See Notes, below.)
- start XXX**
-sr XXX specifies that records are copied beginning with the record whose key is XXX. XXX must be 256 or fewer ASCII characters. The default is to begin copying with the "next record".
- to J** specifies that copying is performed until the Jth record has been copied, or the input file exhausted, whichever occurs first. If this control argument is specified, **-from** must also be specified. J must be a positive integer, greater than or equal to I. The default is to perform copying until the input file is exhausted.
- stop YYY**
-sp YYY specifies that copying is performed until the record whose key is YYY has been copied, or the input file is exhausted, whichever occurs first. YYY must be 256 or fewer ASCII characters. If **-start** is specified, YYY must be greater than or equal to XXX (according to the ASCII collating sequence). The default is to perform copying until the input file is exhausted.
- count N**
-ct N specifies that copying is performed until N records have been copied, or the input file exhausted, whichever occurs first. N must be a positive integer. The default is to perform copying until the input file is exhausted.

copy_file

copy_file

- all, -a specifies that copying is performed until the input file is exhausted. This is the default.
- brief, -bf specifies that an informative message indicating the number of records actually copied is suppressed.
- long, -lg specifies that an informative message indicating the number of records actually copied is printed. This is the default.

Unstructured Files

copy_file operates by performing record I/O on structured files. If it is desired to copy from/to an unstructured file, the record_stream_ I/O module may be used, e.g.:

```
cpf -ids "record_stream_ -target vfile_ pathname" -osw OUT
```

The effect is to take lines from the file specified by pathname via vfile_, transform them into records via record_stream_, and then copy them to the I/O switch named OUT.

Keyed Files

copy_file can copy a keyed sequential file either as such, or as though it were purely sequential. The former case is specified by the -keyed control argument; the output file is keyed, and both records and keys are copied. The latter case is defaulted to by omitting the -keyed control argument; the output file is sequential, and only records are copied. In either case, the -start and/or -stop control arguments may be used to delimit the range of records copied, as may the -to and/or -from control arguments. Copying is always performed in key order.

The copy command may also be used to copy both the records and keys of a keyed sequential storage system file; however, copy produces an exact duplicate of the input file, whereas copy_file produces an output file that has been restructured for maximum compactness. (See the MPM write-up of the copy command.)

Notes

If either the input or output specification is an attach description, it is used to attach a uniquely-named I/O switch to

copy_file

copy_file

the file. The switch is opened, the copy performed, and then the switch is closed and detached. Alternately, the input or output file may be specified by an I/O switch name. Either the `lo_call` command or `lox_subroutine` may be used to attach the file prior to the invocation of `copy_file`. (See the MPM write-ups of the `lo_call` command and `lox_subroutine`.)

If the input file is specified by an I/O switch name and the switch is not open, `copy_file` opens it for (keyed)sequential_input, performs the copy, and closes it. If the switch is already open when `copy_file` is invoked, the opening mode must be sequential_input, sequential_input_output, keyed_sequential_input, or keyed_sequential_update. The switch is not closed after the copy has been performed.

If neither the `-start` nor `-from` control argument is used to specify an absolute starting position within the input file, copying begins with the "next record". If the I/O switch is opened by `copy_file`, the next record is the first record of the file; otherwise, the next record is that record at which the file is positioned when `copy_file` is invoked.

If the output file is specified by an I/O switch name and the switch is not open, `copy_file` opens it for (keyed)sequential_output, performs the copy, and closes it. If the switch is already open when `copy_file` is invoked, the opening mode must be sequential_output, sequential_input_output, keyed_sequential_output, keyed_sequential_update, direct_output, or direct_update. (In update mode, output file records with keys that duplicate input file records are re-written.) The switch is not closed after the copy has been performed.

The `-brief` and `-long` control arguments are mutually exclusive. The informative message appears as follows:

345 records copied.

The `-from` and `-start` control arguments are mutually exclusive.

The `-to`, `-stop`, `-count`, and `-all` control arguments are mutually exclusive.

Examples

1) Copy an entire file from an already attached file to the segment `in_copy`:

copy_file

copy_file

```
cpf -lsw in -ods "vfile_in_copy"
```

2) Copy the first 13 records from a tape file to an output file. (This normally would result in their being printed on the user's console.)

```
cpf -ct 13 -lds "tape_ansi_887677 -name TEST21 -ret all"  
-ods "record_stream_user_output"
```

3) Copy 13 records from an already attached file to another already attached file, starting with the 56th record of the input file:

```
cpf -lsw in -osw out -from 56 -ct 13
```

4) Copy records 43 through 78 from an already attached file to an already attached file:

```
cpf -lsw in -osw out -from 43 -to 78
```

5) Copy all but the first 7 records from segment testdata.11 to an already attached file:

```
cpf -lds "vfile_testdata.11" -osw out -fm 8
```

6) Copy an entire keyed sequential file with keys:

```
cpf -lsw in -osw out -all -keyed
```

7) Copy 13 records of a keyed sequential file starting with the record whose key is ASD66 to a sequential output file. No keys are copied.

```
cpf -lsw in -osw out -sr ASD66 -ct 13
```

7) Copy the records and keys from a keyed sequential file up to and including the record whose key is bb"bb:

```
cpf -keyed -lsw in -osw out -sp "bb""bb"
```

Ver. 3	MULTICS CHANGE REQUEST	MCR 1632
741022		
TITLE: enhance tape_ibm_ VOL1 recognition and fix bug		STATUS DATE
AUTHOR: Ross E. Klinger		Written 02/05/76
		Status A 2/17/76
		Expires 08/05/76
Planned for System: 4.0		CATEGORY (check one)
Fixes Bug Number(s): not applicable		() Lib. Maint. Tools
Documented in MTB: not applicable		() Sys. Anal. Tools
Incompatible Changes: no		() Sys. Prog. Tools
User/Operations-visible Interface Change: no		() 355
Coded in: (X) PL/I () ALM () other-see below		() BOS
Performance: () better (X) same () worse		() Salvager
		() Ring Zero
DOCUMENTATION CHANGES (specify one or more)		() Ring One
MPM (vol,sect) MPAM (sect)		() SysDaemon/Admin
MOSN (sect) MSAM (sect)		() Runtime
PLMs (AN#) 57		(X) User Command/Subr
Info Seys		
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY: 1) certain IBM SL VOL1 labels are recorded with zeros where tape_ibm_ expects blanks. These labels were written on DOS installations, or on OS installations by a means other than IEHINIT, the standard volume labeler.

2) tape_ibm_ incorrectly handles the case of multi-volume non-labeled input files. These files are extremely rare, but still....

REASONS: 1) As tape_ibm_ is more widely used, more of these odd VOL1 labels will be encountered. Two have been found in the last 6 months at MIT, and currently tape_ibm_ cannot process these volumes as SL.

2) Incorrect operation must be fixed.

IMPLICATIONS: Increased reliability and flexibility.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1633
TITLE: Hardcore reliability improvements		STATUS: DATE
AUTHOR: VanVleck		Written: 02/04/76
		Status: 02/17/76
		Expires: 08/04/76
Planned for System: 4.0		
Fixes Bug Number(s): not applicable		CATEGORY (check one)
Documented in MTB: 239		() Lib. Maint. Tools
Incompatible Change: no		() Sys. Anal. Tools
User/Operations-visible Interface Change: no		() Sys. Prog. Tools
Coded in: (X) PL/I () ALM () other-see below		() 355
Performance: () better (X) same () worse		() BOS
		() Salvager
DOCUMENTATION CHANGES (specify one or more)		(X) Ring Zero
MPM (vol,sect) MPAM (sect)		() Ring One
MOSN (sect) MSAM (sect)		() SysDaemon/Admin
PLMs (AN#) AN61		() Runtime
Info Seys		() User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY: Improve system reliability and recovery from errors as follows:

1. If a device is marked inoperative, do not attempt to write on it.
2. Eliminate a window in boundfault which could cause the parent of a segment to be deactivated incorrectly.
3. Fix several bugs which would cause the salvager to crash if running in a system where system_high was not equal to system_low.
4. Fix the system not to crash if a fatal RWS error occurs: zero the page instead.
5. Fix emergency shutdown so that if ESD is attempted before the storage system is initialized, no damage will be done.

REASONS: All these fixes are part of the system error recovery and reliability plan described in MTB-239. They were not included in 28-0 due to lack of time.

IMPLICATIONS: More reliable operation.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1634
TITLE: Prewithdraw disk records for certain segments. AUTHOR: VanVleck		STATUS DATE Written 02/04/76 Status A 2/17/76 Expires 08/04/76
Planned for System: 4.0 Fixes Bug Number(s): not applicable Documented in MTB: not applicable Incompatible Change: no User/Operations-visible Interface Change: no Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-see below Performance: <input type="checkbox"/> better <input checked="" type="checkbox"/> same <input type="checkbox"/> worse		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 Command/Subr
DOCUMENTATION CHANGES (specify one or more) MPM (vol,sect) MPAM (sect) MOSN (sect) MSAM (sect) PLMs (AN#) AN61 Info Segs Other		
OBJECTIONS/COMMENTS: Alternative to item #3 is being sought.		

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

SUMMARY: Assign disk records for a whole segment when the segment is created instead of allowing the segment to grow one record at a time, for certain segments. This change will be made in three steps:

1. all deciduous segments
2. all hardcore segments
3. all PDS's

REASONS: Step 1 fixes a problem which causes the system to lose about 20 pages of RPV per bootload, until a volume salvage of the RPV is done.

Step 2 enables us to eliminate wired shutdown entirely.

Step 3 insures that the system will never crash due to a recursive segment-move fault. If a system with a multiple-volume RLV ever runs out of space on one volume of the RLV, the out-of-physical-volume condition is handled as a fault on the PDS; if this requires a process to grow its PDS, and a PDS resides on a volume which is out of space, the system will crash.

IMPLICATIONS: More reliable operation, simpler hardcore, and no loss of pages on each bootload.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1635
TITLE: Hardcore virtual mounting		STATUS DATE
AUTHOR: VanVleck		Written 02/04/76
		Status 02/17/76
		Expires 08/04/76
Planned for System: 40		CATEGORY (check one)
Fixes Bug Number(s): not applicable		() Lib. Maint. Tools
Documented in MTB: 229		() Sys. Anal. Tools
Incompatible Change: no		() Sys. Prog. Tools
User/Operations-visible Interface Change: no		() 355
Coded in: (X) PL/I () ALM () other-see below		() BOS
Performance: () better (X) same () worse		() Salvager
DOCUMENTATION CHANGES (specify one or more)		(X) Ring Zero
MPM (vol,sect) MPAM (sect)		() Ring One
MOSN (sect) MSAM (sect)		() SysDaemon/Admin
PLMs (AN#) AN61		() Runtime
Info Segs		() User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY: Distinguish logical volumes into public and private. Require that user processes perform a virtual mount before using segments on private logical volumes.

A new system data base, the logical volume table, is provided to list the logical volumes which are currently mounted. A per-process table in the KST will list the private volumes mounted by the process. Calls from ring 1 will be able to enter a logical volume ID in the KST, and to remove it and fault all SDW's for segments on the logical volume; and to enter and remove logical volume ID's in the table of public logical volumes.

Segfault, set, star_, delentry, truncate, and status_ will be modified to check that the user has the logical volume virtually mounted, as described in MTB-243.

REASONS: This change is required in order to support demountable logical volumes.

IMPLICATIONS: Processing time for the check mentioned above is very small. The LVT will also be small: rather than wasting a full page of pinned core, it will probably be more economical to wire a smaller database.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1636
TITLE: Automatic invocation of the hierarchy salvager AUTHOR: VanVleck		STATUS DATE Written 02/04/76 Status 02/17/76 Expires 08/04/76
Planned for System: H.O Fixes Bug Number(s): not applicable Documented in MTB: 221 Incompatible Change: no User/Operations-visible Interface Change: no Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-see below Performance: <input type="checkbox"/> better <input checked="" type="checkbox"/> same <input type="checkbox"/> worse		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 checked="" type="checkbox"/> Ring One <input type="checkbox"/> SysDaemon/Admin <input type="checkbox"/> Runtime <input type="checkbox"/> User Command/Subr
DOCUMENTATION CHANGES (specify one or more)		
MPM (vol,sect) MPAM (sect) MOSN (sect) A001 MSAM (sect) PLMs (AN#) AN61 Info Segs Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY: Include code in ring 1 so that the hierarchy salvager will automatically be invoked before the system does a startup, multics, or reload, if any physical volume of the RLV has been volume salvaged automatically during startup.

REASONS: If a volume which contains directories was not shut down normally, and so required volume salvaging, some directories on that volume may have been jamged. Until the full MTB-220 salvaging scheme is implemented, the system should make the conservative assumption that the whole hierarchy should be salvaged.

This change insures that the system recovery mechanisms are always invoked during unattended reboot.

IMPLICATIONS: The hierarchy salvager can still be invoked manually from ring 1, and if the operator desires he may manually invoke the volume salvager on all volumes of the RLV to forestall the automatic invocation of the hierarchy salvager.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1637
TITLE: Hardcore volume demounting	STATUS	DATE
AUTHOR: VanVleck	Written	02/04/76
	Status	A 2/17/76
	Exp/res	08/04/76
Planned for System: 4.0	CATEGORY (check one)	
Fixes Bug Number(s): not applicable	<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>		
MPM (vol,sect) MPAM (sect)	<input checked="" type="checkbox"/> Ring Zero	
MOSN (sect) MSAM (sect)	<input type="checkbox"/> Ring One	
PLMs (AN#) AN61	<input type="checkbox"/> SysDaemon/Admin	
Info Segs	<input type="checkbox"/> Runtime	
Other	<input type="checkbox"/> User Command/Subr	
OBJECTIONS/COMMENTS:		

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

SUMMARY: Provide a call from ring 1 which causes a physical volume to be shut down and removed from the PVT. All active segments on the volume will be deactivated, and further attempts to access the segments will cause a seg_fault_error with an appropriate code. VTOC operations directed at the volume will similarly fail; they will return with an error code which will be reflected to the user.

The calling sequence of all vtoc_man entrypoints must be changed. Some new and complicated operations must be added to segment control to insure that the demounting process is not interfered with by other page faults, segment faults, and VTOC operations.

REASONS: This operation is necessary in order to permit dynamic volume demounting.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1638
TITLE: Modify BOS SAVE to check that volume is salvaged	AUTHOR: VanVleck	STATUS: DATE Written: 02/04/76 Status: A 2/17/76 Expires: 08/04/76
Planned for System: H.O	Fixes Bug Number(s): not applicable	DOCUMENTATION CHANGES (specify one or more)
Documented in MTB: not applicable	Incompatible Change: no	MPM (vol,sect) MPAM (sect)
User/Operations-visible Interface Change: no	Coded in: (X)PL/I ()ALM ()other-see below	MOSN (sect) MSAM (sect)
Performance: ()better (X)same ()worse		PLMs (AN#) 005
		Info Segs
		Other
OBJECTIONS/COMMENTS:		

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

SUMMARY: If SAVE is invoked to save a volume which has not been shut down or salvaged normally, it will type a message of the form

VOLUME PV332 SHOULD BE SALVAGED.

unless ALL was specified as an argument to SAVE.

REASONS: Saving a volume whose bit map is not updated properly may cause some records which should be saved to be skipped, which will lead to loss of user data.

IMPLICATIONS: Prevents operator error.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1639
TITLE: Modify status command to print logical volume name	AUTHOR: VanVleck	STATUS DATE Written: 02/04/76 Status: A 2/17/76 Expires: 08/04/76
Planned for System: 4.0	Fixes Bug Number(s): not applicable	CATEGORY (check one)
Documented in MTB: 243	Incompatible Changes: no	() Lib. Maint. Tools
User/Operations-visible Interface Change: no	Code in: (X) PL/I () ALM () other-see below	() Sys. Anal. Tools
Performance: () better (X) same () worse		() Sys. Prog. Tools
		() 355
		() BOS
		() Salvager
DOCUMENTATION CHANGES (specify one or more)		() Ring Zero
MPM (vol,sect) status MPAM (sect)		() Ring One
MOSN (sect) MSAM (sect)		() SysDaemon/Admin
PLMs (AN#)		() Runtime
Info Segs		(X) User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY: Modify the status command to print the line

volume: public

In cases where the old command used to print the device ID. Also, for directories, print the lines

master directory: yes
sons volume: : private88

If the directory is a master directory.

REASONS: Users will wish to know which logical volume a segment resides on. This information should be available so that the user can call to mount a logical volume.

IMPLICATIONS: An internal interface must be provided to translate the 36-bit lvid returned by status_ into a 32-character lvname. This probably means that all lvnames should be declared public information.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1640
TITLE: Ring 1 command to force paging device enabling	AUTHOR: VanVleck	STATUS: <u>Written</u> DATE: <u>02/04/76</u> Status: <u>AO/17/76</u> Expires: <u>08/04/76</u>
Planned for System: <u>H.O</u>	Fixes Bug Number(s): not applicable	DOCUMENTATION CHANGES (specify one or more)
Documented in MTB: not applicable	Incompatible Change: no	() Lib. Maint. Tools
User/Operations-visible Interface Change: no	Coded in: (<input checked="" type="checkbox"/>) PL/I () ALM () other-see below	() Sys. Anal. Tools
Performance: () better (<input checked="" type="checkbox"/>) same () worse		() Sys. Prog. Tools
		() 355
		() BOS
		() Salvager
		(<input checked="" type="checkbox"/>) Ring Zero
		(<input checked="" type="checkbox"/>) Ring One
		() SysDaemon/Admin
		() Runtime
		() User Command/Subr
OBJECTIONS/COMMENTS:		

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

SUMMARY: Add a new command to the ring 1 environment to force the enabling of the paging device even if it is unflushed.

REASONS: Some system crashes may leave the system unable to purge all pages from the paging device back to the volume where they belong. For example, a crash in which the contents of a volume are completely destroyed, and the volume must be reloaded.

It is preferable to provide a system command to perform the operation of abandoning these pages rather than telling the operator to zero the paging device with the TEST command.

IMPLICATIONS: More understandable operator instructions in case of a crash.

Draft operator documentation:

force_pd_enable

This command is used to force the paging device to be enabled even though not all pages have been flushed. It is used ONLY when the volumes to which pages should be flushed have been destroyed. The system will respond

NEED 3 VOLS FOR 78 RECORDS.
DO YOU WISH TO ABANDON THESE RECORDS?

If the operator answers "yes" the system replies

ENABLED PD: 2048 RECORDS

the previous contents of the paging device are destroyed and the paging device is enabled for normal use. The system will then be able to start up.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1641
TITLE: Fix bug in dump_segment's handling of -offset control arg.		STATUS DATE
AUTHOR: Steve Webber		Written 02/06/76
		Status <u>AA/17/76</u>
		Expires 08/06/76
Planned for System: not applicable		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 Command/Subr
Fixes Bug Number(s): not applicable		
Documented in MTB: not applicable		
Incompatible Change: no		
User/Operations-visible Interface Change: no		
Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-see below		
Performance: <input type="checkbox"/> better <input checked="" type="checkbox"/> same <input type="checkbox"/> worse		
DOCUMENTATION CHANGES (specify one or more)		
MPM (vol,sect)	MPAM (sect)	
MOSN (sect)	MSAM (sect)	
PLMs (AN#)		
Info Segs		
Other		
None (reason) no change		
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Fix bug in dump_segment which uses a default offset of -1 instead of 0.

REASON:

Bug fix.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1642
TITLE: Fix bug in CPU deletion which allows the CPU to come back to life.		STATUS
AUTHOR: Steve Webber		DATE
Planned for System: not applicable		Written 02/06/76
Fixes Bug Number(s): not applicable		Status A 2/17/76
Documented in MTB: not applicable		Expires 08/06/76
Incompatible Change: no		CATEGORY (check one)
User/Operations-visible Interface Change: no		() Lib. Maint. Tools
Coded in: () PL/I (<input checked="" type="checkbox"/>) ALM () other-see below		() Sys. Anal. Tools
Performance: () better (<input checked="" type="checkbox"/>) same () worse		() Sys. Prog. Tools
DOCUMENTATION CHANGES (specify one or more)		() 355
MPM (vol,sect)	MPAM (sect)	() BOS
MOSN (sect)	MSAM (sect)	() Salvager
PLMs (AN#)		(<input checked="" type="checkbox"/>) Ring Zero
Info Segs		() Ring One
Other		() SysDaemon/Admin
None (reason) no change		() Runtime
		() User Command/Subr
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Fix bug in init_processor which uses an uninhibited DIS instruction to stop a processor. This should be an inhibited DIS so that timer runout faults do not go off in the processor after it is deleted. If a timer runout fault did go off it would use the standard system fault vector which is no longer valid with respect to the DBR still loaded in the deleted processor.

REASONS:

Bug fix.

TITLE: Fix bug in the mst generator		STATUS	DATE
AUTHOR: E. Stone		Written	4 February 76
-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>3.1</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 type="checkbox"/> Better <input checked="" type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A Q / 17 / 76
		Expires	8 / 17 / 76
Category (Check One) <input type="checkbox"/> Lib. Maint. Tools <input type="checkbox"/> Sys. Anal. Tools <input checked="" type="checkbox"/> Sys. Prog. Tools		DOCUMENTATION CHANGES	
<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 Cmd/Subr.		Document	Specify One or More
Objections/Comments:		MPM (Vol, Sect.)	
		PLMS (AN #)	AN51
		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:

The .list segment produced by the generator is appended to rather than truncated because of an incorrect call to iox_\$open.

REASONS:

For a period recently the io module vfile_ did not look at the extend argument to iox_\$open. The last installation of vfile_ corrected this and revealed an error in gm_util1_.

TITLE: Fix bugs in generate_mst		STATUS	DATE
AUTHOR: E. Stone		Written	5 February 76
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3.1 -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 2/17/76
		Expires	8/17/76
		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 Cmmnd/Subr.		Document	Specify One or More
Objections/Comments:		MPM (Vol, Sect.)	
		PLMS (AN #)	51
		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:

1. Change default density for msts from 1600 bpi to 800 bpi.
2. Change specification of density to include ,den=n and ,=n (where n is 800 or 1600) as well as ,n.

REASONS:

1. Although tape_mult_ changed the default density for tapes to 1600 bpi, BOS tapes that are booted by the tape controller must be 800 bpi. This change will prevent incorrect generation of BOS tapes if the density argument is forgotten. Tapes written using the io module tape_ did not have this problem as the default density is 800 bpi.
2. This allows compatibility with tape_ attachments.

Addendum to MCR 1644

Summary:

3. Change control information for .link segments to contain only the site.

Reasons:

3. These segments are only used during initialization now and some extraneous information will be eliminated from the mst.

TITLE: basic installation update		STATUS	DATE	
AUTHOR: M. Weaver		Written	6 February 76	
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3.1 -Fixes Bug Number(s) see below -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 2/17/76	
	Lib. Maint. Tools	Expires	3/17/76	
	Sys. Anal. Tools	DOCUMENTATION CHANGES		
	Sys. Prog. Tools	Document	Specify One or More	
	355	MPM (Vol, Sect.)		
	BOS	PLMS (AN #)		
	Salvager	MOSN (Sect.)		
	Ring Zero	MPAM (Sect.)		
	Ring One	MSAM (Sect.)		
	SysDaemon/Admin.	Info Segs		
Runtime	Other (Name)			
X User Cmnd/Subr.	None (Reason)			
Objections/Comments:				

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

SUMMARY:

Installation of basic will differ from MCR 1562 as follows:

- fixes bugs 057, 058, 059 (first two fixed in basic_ in >ldd>exl>0).
- keep the current basic_ entrypoint interface in ep basic_.
- change the other entrypoint interfaces in ep basic_ as necessary to implement the MCR board's decision about naming main entry points.
- Source segment names have been changed so that standard installation procedures work.

basic status, info

This file contains a list of all bugs in the Multics BASIC compiler.
Bugs marked with ! have been fixed in the installed basic.
Bugs marked with * have been fixed in the basic located in >ldd>exl>o.

052 next free number
061 75.12.08 gosub returns after on x gosub... cause error
060 75.11.21 sometimes use of complicated expressions in
output statements causes succeeding references
or functions in the statement to be incorrectly compiled
059 75.10.10 reset as first operation on existing file
gets confusing error message
056*75.07.30 for ... to s step ... gets compiler error message
057*75.07.10 local arrays in subprograms can't be accessed

Multics Change Request

TITLE: Change compare_mst to work with new format
AUTHOR: A. Kobziar

STATUS	DATE
Written	4 February 76
Status	A 2/17/76
Expires	8/17/76

-Coded in: PL/I ALM other-
explain in DETAILED PROPOSAL
-Planned for System MR 3.1
-Fixes Bug Number(s) unreported
-Documented in MTB
-User/Operations-visible
Interface change? yes no
-Incompatible change? yes no
-Performance: Better Same
 Worse
-Replaces MCR

Category (Check One)	
<input type="checkbox"/>	Lib. Maint. Tools
<input type="checkbox"/>	Sys. Anal. Tools
<input type="checkbox"/>	Sys. Prog. Tools
<input type="checkbox"/>	355
<input type="checkbox"/>	BOS
<input type="checkbox"/>	Salvager
<input type="checkbox"/>	Ring Zero
<input type="checkbox"/>	Ring One
<input type="checkbox"/>	SysDaemon/Admin.
<input type="checkbox"/>	Runtime
<input checked="" type="checkbox"/>	User Cmmd/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)	Bug fix
None (Reason)	

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

SUMMARY:

Change compare_mst's algorithm for getting a segment header's length to use the length in the header control word rather than calculating it from the structure information provided in the site.

REASONS:

For example, current compare_mst loses synchronization at the first segment that has a temporary linkage segment because the site no longer reflects that a pathname is included in the header.

Faster, simpler, and more reliable.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1648
TITLE: Expand volume salvager handling of reused address	AUTHOR: VanVleck	STATUS: Written DATE: 02/06/76 Status: A2/12/76 Expires: 08/06/76
Planned for System: 4.0	Fixes Bug Number(s): not applicable	CATEGORY (check one)
Documented in MTB: 220	Incompatible Change: no	() Lib. Maint. Tools
User/Operations-visible Interface Change: no	Coded in: (X)PL/I ()ALM ()other-see below	() Sys. Anal. Tools
Performance: ()better (X)same ()worse		() Sys. Prog. Tools
		() 355
		() BOS
		() Salvager
DOCUMENTATION CHANGES (specify one or more)		(X) Ring Zero
MPM (vol,sect)	MPAM (sect)	() Ring One
MOSN (sect)	MSAM (sect)	() SysDaemon/Admin
PLMs (AN#) AN61		() Runtime
Info Segs		() User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Change the volume salvager to prefer to award a reused address to a directory which salvages with no error.

REASONS:

This is the only case which allows us to determine to which segment a page really belongs. Once we have a directory salvager which can answer the question of validity without actually storing into the directory, we should take advantage of it.

IMPLICATIONS:

More reliable operation.


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| Ver. 3                                     | MCR_____1649_____ |
| 741022          MULTICS CHANGE REQUEST   |                       |
-----
| TITLE:  Fill in new salvager data items in | STATUS  | DATE   |
|         directory and VTOCE                | Writen  | 02/06/76 |
| AUTHOR:  VanVleck                          | Status  | A 2/17/76 |
|                                         | Expires | 08/06/76 |
-----
| Planned for System:  4.0                  |                       |
| Fixes Bug Number(s): not applicable        | CATEGORY (check one) |
| Documented in MTB:  220                   | ( ) Lib. Maint. Tools |
| Incompatible Change: no                   | ( ) Sys. Anal. Tools  |
| User/Operations-visible Interface Change: no | ( ) Sys. Prog. Tools  |
| Coded in:  (X)PL/I ( )ALM ( )other-see below | ( ) 355                |
| Performance: ( )better (X)same ( )worse    | ( ) BOS                |
|                                         | ( ) Salvager          |
|----- DOCUMENTATION CHANGES (specify one or more) -----| (X) Ring Zero         |
| MPM (vol,sect)          MPAM (sect)        | ( ) Ring One          |
| MOSN (sect)             MSAM (sect)        | ( ) SysDaemon/Admin   |
| PLMs (AN#)              AN61               | ( ) Runtime           |
| Info Segs               | ( ) User Command/Subr |
| Other                   |                       |
|-----
| OBJECTIONS/COMMENTS:                      |                       |
|-----

```

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

SUMMARY: Space has been provided in the new directory header, entry, link, and vtoce structures for items which can be used by the salvager for additional error recovery. These fields are not set in the initial version of the storage system. Fill them in.

REASONS: This step prepares for the introduction of much more powerful salvaging techniques and provides the hooks for future modifications to directory control for in-line consistency checking of directory data and in-line invocation of the salvager.

IMPLICATIONS: The system will take a few more instructions for the creation of entries and for renaming.

DETAILED PROPOSAL: The fields in question are standardized trailer information added to several substructures so that space recovery mechanism in the salvager will be able to determine what kind of item they are dealing with. Each such item has a type, checksum, size, and owner field. The following table shows the structures affected and the modules which set the new fields.

Declaration	Modules
dir_header	append
entry	append
link	append_link
acl	asd_, acl_, ex_acl
name	chname, append

vtoce

create_vtoce

The checksum field will not be maintained for all substructures at this time; only those structures which are never changed after allocation, namely name, will be checksummed.

Ver. 3	MULTICS CHANGE REQUEST	MCR 1650
741022		
TITLE: Modify salvager to check new directory fields		STATUS DATE
AUTHOR: VanVleck		Written 02/09/76
		Status 2/12/76
		Expires 08/09/76
Planned for System: 4.0		
Fixes Bug Number(s): not applicable		CATEGORY (check one)
Documented in MTB: 220		() Lib. Maint. Tools
Incompatible Change: no		() Sys. Anal. Tools
User/Operations-visible Interface Change: no		() Sys. Prog. Tools
Coded in: (X)PL/I ()ALM ()other-see below		() 355
Performance: ()better (X)same ()worse		() BOS
		() Salvager
DOCUMENTATION CHANGES (specify one or more)		(X) Ring Zero
MPM (vol,sect) MPAM (sect)		() Ring One
MOSN (sect) MSAM (sect)		() SysDaemon/Admin
PLMs (AN#) AN61		() Runtime
Info Segs		() User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY: Modify the salvager to check and repair the new type, size and owner fields, and to check the checksums on names

REASONS: More reliable salvaging.

IMPLICATIONS: A few more cases of damaged directories can be detected.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1651
TITLE: Force volume to be salvaged if any errors occur on RESTOR	AUTHOR: VanVleck	STATUS: Written DATE: 02/09/76 Status: B 2/17/76 Expires: 08/09/76
Planned for System: not applicable	Fixes Bug Number(s): not applicable	Documented in MTB: not applicable
Incompatible Change: no	User/Operations-visible Interface Change: no	Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-see below
Performance: <input type="checkbox"/> better <input checked="" type="checkbox"/> same <input type="checkbox"/> worse	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 Command/Subr	
DOCUMENTATION CHANGES (specify one or more)		
MPM (vol,sect)	MPAM (sect)	
MOSN (sect) a001	MSAM (sect)	
PLMs (AN#)		
Info Segs		
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY:

When BOS RESTOR detects read errors it currently prints a message. Cause RESTOR to set label.time_map_updated of the pack being restored to 0 if any error occurred on the pack. This will cause the automatic salvaging of the volume when it is next used.

REASONS:

Undetected errors on a VTOC record could lead to fatal reused addresses. If the volume contains directories, this change will also force the salvage of the directory hierarchy, thus insuring the integrity of the directories on the volume.

IMPLICATIONS:

About a minute extra is required to perform this salvage. Usually, operations does a complete salvage after a RESTOR anyway.

Eventually, we would like to pass the list of addresses which have had read errors to the salvager somehow, so that the volume salvager could set the out-of-service flag ON for all segments containing such a page; this step would prevent the system from handing a user a damaged page without warning.

TITLE: Modify operation of where command

AUTHOR: S. Herbst

STATUS	DATE
Written	2-11-76
Status	A 2/17/76
Expires	8/17/76

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

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

DOCUMENTATION CHANGES	
Document	Specify One or More
MPM (Vol, Sect.)	AG92
PLMS (AN #)	
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:

Change the where command:

1. not to initiate;
2. to implement the -all control argument to list all segments with the given refname findable by the search rules, in order, with the name of the search rule applied in each case and with error messages telling which ones the user does not have access to;
3. to be callable as an active function, minus -all.

REASONS:

1. Initiating is an unpleasant side-effect. If, for example, the user discovers that his search rules find the wrong segment, he has to explicitly terminate that copy before proceeding.
2. Additional information is useful to a user:
 - a. to whom several copies of a segment are available;
 - b. who does not have execute access to a particular copy that he is looking for.

Printing the search rule used for each pathname tells the user whether the segment is already initiated ("initiated segments") and whether it is in his working directory.

3. To enable the user to say:

initiate [where name]

where

where

Name: where, wh

The where command searches for a given reference name using the standard search rules, and ~~initiates the segment if found~~. (For a discussion of search rules see "The System Libraries and Search Rules" in Section III of the MPM Reference Guide.) It prints out the full pathname of that segment, using its primary name. If the segment is not in the search path, an error message is printed. ~~The segment remains known to the process after the where command is~~

Usage

where ref_names *--all-*

where ref_names are segment reference names. Each name can be a maximum of 32 characters.

Notes

The primary name of a segment is the name that is first in the list of names on a storage system directory entry.

~~If the ref_name is already known to the process, the segment is not initiated again.~~

If the optional control argument *-all-* is specified, where lists ^{the pathnames of} all segments findable by the search rules, & prints the name of the search rule (eg, "initiated segments") used to find each one. ~~It also gives segments~~ If the user does not have access to execute a given segment, an error message is printed.

ACTIVE FUNCTIONS

Name: where

Usage: [where refname]

where refname is a segment reference name, up to 32 characters in length. The string returned is the absolute primary pathname of the first segment by that name, found according to the search rules for object segments, to which the user has execute permission.

TITLE: Improvement changes to ALM		STATUS	DATE	
AUTHOR: E. Wiatrowski		Written	2-10-76	
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3.1 -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 _____	Category (Check One)		Status	
	Lib. Maint. Tools		Expires	
	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.)	
Runtime		MSAM (Sect.)		
<input checked="" type="checkbox"/> User Cmmnd/Subr.				
Objections/Comments:		Info Segs		
		Other (Name)		
		None (Reason)		

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

SUMMARY:

Implement the following changes in ALM:

- a) Replace the present symbol hashing algorithm in alm to a more effective one, like in PL/1 compiler.
- b) Replace a recursive subprocedure by an iterative one.

REASONS:

To improve performance of ALM in general and in certain cases in which it is presently unacceptable.

- a) The present hashing algorithm used now, uses only up to (first) four characters in the hashing schema which is usually not sufficient and at times provides no hashing at all.
- b) The subprocedure which walks a cross-reference tree is recursive and in cases when the cross-reference tree is highly unbalanced, the recursion level reached by the subprocedure can force the stack's size to exceed 64k, resulting in storage condition.

PROPOSAL:

- a) Replace the current hashing algorithm by the one used in the PL/1 compiler, which takes the "exclusive or" of n words ($1 < n < 8$) and then takes mod /hash_table_size of the result.
- b) Replace the present recursive subprocedure "tree_recurse" with an iterative procedure (and a stack).

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR <u>1656</u>
TITLE: Extend command processor to include concept of 'main' entry point.		STATUS DATE
AUTHOR: Steve Webber		Written 02/12/76
		Status <u>A 2/17/76</u>
		Expires 08/12/76
Planned for System: MR 3.1		CATEGORY (check one)
Fixes Bug Number(s): not applicable		() Lib. Maint. Tools
Documented in MTB: not applicable		() Sys. Anal. Tools
Incompatible Change: yes		() Sys. Prog. Tools
User/Operations-visible Interface Change: yes		() 355
Coded in: (<input checked="" type="checkbox"/>) PL/I (<input checked="" type="checkbox"/>) ALM () other-see below		() BOS
Performance: () better (<input checked="" type="checkbox"/>) same () worse		() Salvager
DOCUMENTATION CHANGES (specify one or more)		() Ring Zero
MPM (vol,sect) SWG	MPAM (sect)	() Ring One
MOSN (sect)	MSAM (sect)	() SysDaemon/Admin
PLMs (AN#)		(<input checked="" type="checkbox"/>) Runtime
Info Segs		() User Command/Subr
Other		
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Extend the command processor's search mechanism used when searching for a command entry point as described below.

REASONS:

The mechanism described below allows for a simple user interface within FAST/DFAST as well as having a consistent interpretation within Multics proper.

DETAILED PROPOSAL:

It is proposed that the FAST run unit manager, the DFAST run unit manager, and the Multics command processor all search for command entry points in the same way (assuming no dollar signs in the command name). The search strategy is a slight extension to the action taken today by the Multics command processor and appears to give a new, desirable feature as well as providing the necessary compatibility between Multics and FAST. The strategy is to perform a final search (in the definition search phase of the link resolution process) for the entry point named "main_". The actual details of the new search are:

1. Find the segment to be called by whatever means is appropriate for the system being used (reference name, segment name, etc.).
2. Search the definitions of the object segment found in step 1 for a class 3 (segname) definition with the same name as the command name. If none is found, goto step 3. If the segname definition is found,

search the associated definitions for the desired entry point -- that is, search for a normal definition with the name of the command. If no such definition is found, go to step 3.

3. Search the entire definitions section for a unique definition with the name of the command. (If more than one definition is found -- possible only in a bound segment -- report an error and abort the search.) If the search results in a single definition with the command name being found, return a pointer to the associated entry point. If the search fails to find any definitions in the definitions section with the command name go to step 4.
4. If a class 3 (segname) definition was found in step 2 above, search the associated definitions for a definition with the name "main_". If one is found (there can be only one in this search) return a pointer to the associated entry point. If none is found or no class 3 definition was found, search the entire definitions section for a unique definition named "main_". If more than one such entry is found (bound segments only) report an error and abort the search. If no such entry is found, abort the search saying the desired entry point could not be found. If one is found, return a pointer to the associated entry point.

Any command name including a dollar sign will not cause the search for the "main_" entry point to be made.

This strategy allows the FORTRAN and BASIC compilers to use the name "main_" only for the name of the main entry point to the program (rather than using the name of the source at the time of compilation) since the command processors will always be able to find the desired main entry point.

It also means that it will be possible, in full Multics, to rename commands with a main entry point and still have the command processor resolve a pointer to the entry given a simple (no dollar sign) name --- messages of the form:

Entry point list not found in segment new_list.

will be avoided in the large number of cases. In order to pull off this latter extension, the PL/I source programs must somehow indicate that an entry is main, either by explicitly adding an entry label called "main_" or possibly by extending the compiler to cause the desired effect with the "options (main)" attribute of an entry.

Note

The run unit managers used by FAST and DFAST will have to be changed to accept another argument which is the command name. This is in addition to what is currently proposed, namely a pointer to the object segment and its bit count. The command name is needed in the search of the class 3 (segname) definition.

The BASIC compiler, which currently uses the name of the source as the name of the main entry point, can not be changed, in the Multics environment, to use the name "main_" until the normal Multics command processor has been converted over to the new scheme.

TITLE: Install a new PL/I compiler		STATUS	DATE
AUTHOR: R. Schoeman		Written	2-13-76
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 4.0 -Fixes Bug Number(s) see below -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	Category (Check One)		
	<input type="checkbox"/>	Lib. Maint. Tools	DOCUMENTATION CHANGES
	<input type="checkbox"/>	Sys. Anal. Tools	
	<input type="checkbox"/>	Sys. Prog. Tools	
<input type="checkbox"/>	355		
<input type="checkbox"/>	BOS	Document	Specify One or More
<input type="checkbox"/>	Salvager	MPM (Vol, Sect.)	
<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 Cmmnd/Subr.		
Objections/Comments: -Fortran must also be installed. -MCR with solution for version number problem is forthcoming		Info Segs	
		Other (Name)	
		None (Reason)	

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

SUMMARY:

Replace the PL/I compiler.

REASONS:

Fix bugs and improve performance.

DETAILED PROPOSAL:

The new compiler:

- a) makes several optimizations--
 - Improves handling of logical expression in if statements and while clauses;
 - Improves handling of indicators so that code for if a<b then ...; else if a>b ... is improved;
 - Improves aq and pointer register management in expression evaluation;
 - Improves code for halfword offset and length references;
 - Simplifies offset expressions of the form (a+b) -a;
 - Implements the changes needed for quick "put list"s.

a) fixes the bugs listed below:

- 1458*76.01.30 rab index(reverse(str),char2) sometimes fails!
- 1457*75.01.16 rab compiler fails to properly recover from ERROR 306 while building runtime symbol table, thus leaving out symbols other than those that caused the error msg.
- 1456*76.01.14 rab improper relocation bits for array information in runtime symbol table.
- 1455*76.01.12 rab bad relocation bits are built in calling sequence for put data.
- 1454*76.01.12 rab unreferenced external vars not allocated even though they could be set from get data; stmt or -table option. These vars should be allocated if symbol table built.
- 1453*76.01.10 rab (EXL only) if bit1 ; (^ bit19 = "0"b) then return; causes illegal opcode at run time due to bad code.
- 1452*76.01.08 rab cc's image of machine state may become inconsistent, sometimes causing bad code, if control can reach a stmt from 2 or more stmts but control does not fall through to that stmt. Although this bug does exist in the installed compiler, it is easier to encounter in the EXL compiler at else clauses of if stmts with logical operators.
- 1451*76.01.01 rab rare cases of exponentiation fail because the operators improperly depend on the indicators being set a certain way.
- 1450*75.12.30 rab (exl only) some syntax errors in initial list are not caught. This bug was introduced when bug 1447 was fixed.
- 1449*75.12.29 rab (pll_operators_ bug): fixedoverflow not always properly signalled for double prec fixed binary multiplication.

- 1448*75.12.17 rab (recent bug): complicated nestings of builtins get FATAL ERROR 335. Recently introduced by change to simplify_offset (mprf 9098).
- 1447*75.12.17 rab dcl var fixed init((<expr>)); gets ERROR 20.
- 1446*75.12.10 rab unspec(ch(fb21)) may use an xreg when it should only be using the a or q (c80563).
- 1445*75.12.09 rhs (subscriptrange): put data(array); gets FATAL ERROR 310.
- 1444*75.12.03 rab some builtins like rel think that ptr exprs can only be evaluated in pr2. This has changed recently.
- 1443*75.12.03 rab optimize_if incorrectly optimizes if stmts containing logical operators that produce results of length other than 1.
- 1442*75.11.25 rab if a logical expr appears in an if statement, it already has been evaluated elsewhere, is in the a register, and some other operation has set the indicators, bad code may result.
- 1441*75.11.24 rhs when an e_format specifies a precision greater than 59 an error should be raised.
- 1440*75.11.24 rhs the message for the error raised when remote formats are nested too deeply comes out truncated.
- 1439*75.11.22 rab if a non_quick block precedes its owner and its owner's parent in the program, it may make its non-local references incorrect.
- 1438*75.11.19 rab put list(aggregate_star_fun()); fails at runtime due to bad code.
- 1437*75.11.11 rhs unspec(st), where st is a based structure WITHOUT an implicit qualifier, gets ERROR 305 instead of ERROR 66 if size(st) is the first reference to st.
- 1436*75.10.24 rab dcl l page(0:255) based, 2 word(0:1023) fixed; p -> page(i) = q -> page(i); fails because subscript for page ends up one too low.
- 1435*75.10.23 rab use of offset vars can cause FATAL ERRORS if -table used (mprf 8920).
- 1434*75.10.23 new compiler has window whereby cleanup handler can reference uninitialized vars (mprf 8921).
- 1433*75.10.23 rhs max or min of structure and scalar gets ERROR 313. (mprf 8914).
- 1432*75.10.23 rhs revert stmt with more than one condition name gets ERROR 1. (Note that signal stmt should only take one condition name.)
- 1431*75.10.22 rab varying string members of defined structures are addressed improperly.
- 1429*75.10.09 rhs put edit(a) (... , r (f_var)); where f_var is a format variable, faults in compile_formats (mprf 8855).

TITLE: Install a new pl1_operators_ and put_field_		STATUS	DATE
AUTHOR: R. Schoeman		Written	2-13-76
-Coded in: <input type="checkbox"/> PL/I <input checked="" type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 4.0 -Fixes Bug Number(s) see below -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 2/24/76
		Expires	8/24/76
		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 checked="" type="checkbox"/> Runtime <input 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:

Install a new pl1_operators_ and put_field_.

REASON:

Fix bugs and improve performance.

DETAILED PROPOSAL:

- a) Fixes bugs 1449, 1451 in pl1_status.info (see MCR 1657) and potential bugs in the math builtins which could be caused by invalid indicator states.
- b) Implements a subset of quick stream i/o, i.e., list directed output ("put list"), by changing the relevant sections of pl1_operators_ and incorporating a new module, put_field_, which produces calls to iox_ directly, rather than going through bound_plio2_.

Multics Change Request

TITLE: Install a new bound_plio2_ STATUS DATE

AUTHOR: R. Schoeman Written 2-13-76

-Coded in: PL/I ALM other- explain in DETAILED PROPOSAL Status A 2/24/76

-Planned for System MR 4.0 Expires 8/24/76

-Fixes Bug Number(s) see below

-Documented in MTB

-User/Operations-visible Interface change? yes no

-Incompatible change? yes no

-Performance: Better Same Worse

-Replaces MCR

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

DOCUMENTATION CHANGES

Document	Specify One or More
	MPM (Vol, Sect.)
	PLMS (AN #)
	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:

Replace bound_plio2_.

REASONS:

Fix bugs and improve performance.

DETAILED PROPOSAL:

Fixes bug 1441 in pl1_status.info (see MCR 1657), improves the user command display_plio_error so that it gives more information on errors during stream i/o, and enables the implementation of quick "put list"s.

TITLE: Change reloader to turn off copy switch		STATUS	DATE
AUTHOR: A. Kobziar		Written	2-11-76
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3.1 -Fixes Bug Number(s) unreported -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 2/24/76
		Expires	2/24/76
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 checked="" type="checkbox"/> Ring One <input type="checkbox"/> SysDaemon/Admin. <input type="checkbox"/> Runtime <input type="checkbox"/> User Cmnd/Subr.		DOCUMENTATION CHANGES	
Objections/Comments:		Document	Specify One or More
		MPM (Vol, Sect.)	
		PLMS (AN #)	
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	
		Info Segs	
		Other (Name)	
		None (Reason)	bug fix

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

SUMMARY:

Change reloader to turn a segment's copy switch off if necessary when the segment should be deleted.

REASON:

Reloader is unable to trim (delete) segments whose copy switch is on.

IMPLICATION:

Reloads of system releases will work correctly.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR <u>1661</u>
TITLE: Install command to summarize I/O errors		STATUS
AUTHOR: Larry Johnson		DATE
Planned for System: not applicable		Written
Fixes Bug Number(s): not applicable		Status
Documented in MTB: not applicable		Expires
Incompatible Change: no		
User/Operations-visible Interface Change: no		CATEGORY (check one)
Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other-see below		<input type="checkbox"/> Lib. Maint. Tools
Performance: <input type="checkbox"/> better <input checked="" type="checkbox"/> same <input type="checkbox"/> worse		<input checked="" type="checkbox"/> Sys. Anal. Tools
DOCUMENTATION CHANGES (specify one or more)		<input type="checkbox"/> Sys. Prog. Tools
MPM (vol,sect)	MPAM (sect)	<input type="checkbox"/> 355
MOSN (sect)	MSAM (sect)	<input type="checkbox"/> BOS
PLMs (AN#)		<input type="checkbox"/> Salvager
Info Segs		<input type="checkbox"/> Ring Zero
Other	Hardware Diagnostic Aids	<input type="checkbox"/> Ring One
		<input type="checkbox"/> SysDaemon/Admin
		<input type="checkbox"/> Runtime
		<input type="checkbox"/> User Command/Subr
OBJECTIONS/COMMENTS:		

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

Summary

Now that I/O errors are being logged in the syserr log, a command to summarize them in report form would be useful.

Detailed Proposal

Install the io_error_summary command described on the following page.

Implications

This command may possibly duplicate reports to be provided by HEALS at some time, but could be removed if it proves unnecessary.

io_error_summary

io_error_summary

Name: io_error_summary

The io_error_summary command scans the syserr lcg and summarizes I/O errors into a brief report.

Usage

io_error_summary -control_args-

where the control_args may be selected from the following:

- from date specifies the date/time to start scanning the log
- to date specifies the date/time to stop scanning the log
- for time specifies a relative time (such as "1 hour") used to compute the ending time from the starting time.
- device list specifies a list of devices for which information is required.

Notes

If -from is not specified, the scan will start with the earliest message in the syserr log. The ending time may be specified by using -for, or -to, but not both. If both are omitted, the scan terminates with the last message in the log. All dates and times must be in a format acceptable to the convert_date_to_binary_subroutine.

Arguments after -device may be device type or device name. For example, "prt" will report on all printers, and "prtb" will report only on prtb.

Access to audit_gate_ and/or the permanent syserr log is required to use this command.

This command will only report on devices handled by the I/O interfacier (ioi_). It will not report on errors on storage system disks, or the operators console.

Ver. 3 741022	MULTICS CHANGE REQUEST	MCR 1662
TITLE: Fix bugs in new area management routines.		STATUS
AUTHOR: Steve Webber		DATE
Planned for System: MR 3.1		Written 02/16/76
Fixes Bug Number(s): not applicable		Status A 2/24/76
Documented in MTB: not applicable		Expires 08/16/76
Incompatible Change: no		CATEGORY (check one)
User/Operations-visible Interface Change: no		() Lib. Maint. Tools
Coded in: () PL/I (<input checked="" type="checkbox"/>) ALM () other-see below		() Sys. Anal. Tools
Performance: () better (<input checked="" type="checkbox"/>) same () worse		() Sys. Prog. Tools
DOCUMENTATION CHANGES (specify one or more)		() 355
MPM (vol,sect)	MPAM (sect)	() BOS
MOSN (sect)	MSAM (sect)	() Salvager
PLMs (AN#) 84		() Ring Zero
Info Segs		() Ring One
Other		() SysDaemon/Admin
		(<input checked="" type="checkbox"/>) Runtime
		() User Command/Subr
OBJECTIONS/COMMENTS:		

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

SUMMARY:

Fix the following bugs in the new area management code:

1. The area_\$redef entrypoint was not retained in the bindfile.
2. The support bit was not turned ON by the area management routines.
3. The area_assign_ interface did not work -- it reported "bad_area_assignment" in a valid case.
4. The count of the number of free and used blocks (meters) were not being updated in the area header.

REASONS:

Bug fixes.

TITLE: Update System exec_coms for MR3.1		STATUS	DATE
AUTHOR: T. Casey		Written	2-16-76
-Coded in: <input type="checkbox"/> PL/I <input type="checkbox"/> ALM <input checked="" type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 3.1 -Fixes Bug Number(s) _____ -Documented in MTB _____ -User/Operations-visible Interface change? <input type="checkbox"/> yes <input type="checkbox"/> no -Incompatible change? <input type="checkbox"/> yes <input type="checkbox"/> no -Performance: <input type="checkbox"/> Better <input type="checkbox"/> Same <input type="checkbox"/> Worse -Replaces MCR _____		Status	A 2/24/76
		Expires	3/24/76
		DOCUMENTATION CHANGES	
		Document	Specify One or More
		MPM (Vol, Sect.)	
		PLMS (AN #)	
		MOSN (Sect.)	
		MPAM (Sect.)	
		MSAM (Sect.)	
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

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

SUMMARY:

Update the exec_coms: system_start_up.ec, admin.ec, master.ec, biller.ec, acct_start_up.ec, and make_sys_seg.ec by applying all of the changes made at MIT since MR3.0 to the first four of these, to the official copies, and then modify the last two (which generate the first four) to reflect those changes.

Also, remove some MIT-only code from the official copies.

TITLE: Add wait feature to assign_resource		STATUS	DATE
AUTHOR: M. A. Meer		Written	2-12-76
-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 2/24/76
		Expires	8/24/76
		DOCUMENTATION CHANGES	
		Lib. Maint. Tools	
		Sys. Anal. Tools	
		Sys. Prog. Tools	
		355	Document Specify One or More
		BOS	
		Salvager	MPM (Vol, Sect.) Com: assign_resou
		Ring Zero	PLMS (AN #)
		Ring One	MOSN (Sect.)
		SysDaemon/Admin.	MPAM (Sect.)
		Runtime	MSAM (Sect.)
		User Cmmnd/Subr.	
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

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

SUMMARY:

Add wait control argument to assign_resource.

REASONS:

Allows absentee jobs to wait if all resources are in use or reserved.

IMPLICATIONS:

None.

DETAILED PROPOSAL:

When assign_resource returns from rcp_\$check_assign, if it has an error code resource_unavailable or resource_reserved then it prints "waiting for assignment" and calls timer_manager_\$sleep to wait and try again. No message is printed after the first one. The total wait time is specified by the user; assign_resource subdivides this time into intervals at its discretion (currently 15 seconds).

assign_resource

-wait NN, -wt NN

or

-wait, -wt

specifies that the user's process is to wait for a maximum of NN minutes for the requested resource. The message "waiting for assignment" is printed if any waiting occurs. If NN is not specified the command will wait forever. The wait time is subdivided into a system defined interval and the assignment is attempted at the end of each interval.

(MCR 1664)

new control argument.

TITLE: backup fixes		STATUS	DATE
AUTHOR: M. Meer		Written	2-12-76
-Coded in: <input checked="" type="checkbox"/> PL/I <input type="checkbox"/> ALM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR 4.0 -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	7/24/76
		Expires	8/24/76
		DOCUMENTATION CHANGES	
		355	Document Specify One or More
		BOS	MPM (Vol, Sect.)
		Salvager	PLMS (AN #) MOH
		Ring Zero	MOSN (Sect.)
		Ring One	MPAM (Sect.)
		SysDaemon/Admin.	MSAM (Sect.)
		Runtime	Info Segs
		User Cmnd/Subr.	Other (Name)
			None (Reason)
Objections/Comments:			

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

SUMMARY:

-Fixes bugs in:

- backup_util
- backup_map_
- bk_arg_reader_

-Adds record quotas overflow handler to backup_load.

REASONS:

backup_util\$get_real_name did not set the length returned if "real name" was same as input name. Now it sets the returned length in all cases.

backup_map_\$beginning_line assumed that the control file string passed to it had no trailing blanks. It now checks for trailing blanks.

bk_arg_reader_ has been fixed to give correct error code if the -control argument is used with backup_dump. backup_load aborted on record quota overflow if quotas are being checked. It now truncates to zero the segment it was loading at the time of the record quota overflow and continues.

TITLE: Add name encode to code command		STATUS	DATE
AUTHOR: S. Herbst		Written	2-17-76
-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	A 2/24/76
	<input type="checkbox"/> Sys. Anal. Tools	Expires	8/24/76
	<input type="checkbox"/> Sys. Prog. Tools	DOCUMENTATION CHANGES	
	<input type="checkbox"/> 355	Document	Specify One or More
<input type="checkbox"/> BOS	MPM (Vol, Sect.) Com:	encode	
<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			
<input checked="" type="checkbox"/> User Cmmnd/Subr.			
Objections/Comments:		Info Segs	
		Other (Name)	
		None (Reason)	

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

SUMMARY:

Add the name encode to the code command.

REASON:

Better name, follows standard of command names being verbs or verb phrases. Old name code should eventually be removed.

TITLE: Fix bugs in any_to_any_		STATUS	DATE
AUTHOR: R. Barnes		Written	2-17-76
-Coded in: <input type="checkbox"/> PL/I <input checked="" type="checkbox"/> AIM <input type="checkbox"/> other- explain in DETAILED PROPOSAL -Planned for System MR -Fixes Bug Number(s) 1460, 1461 -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 2/24/76
	<input type="checkbox"/> Lib. Maint. Tools	Expires	8/24/76
	<input type="checkbox"/> Sys. Anal. Tools	DOCUMENTATION CHANGES	
	<input type="checkbox"/> Sys. Prog. Tools	Document	Specify One or More
	<input type="checkbox"/> 355	MPM (Vol, Sect.)	
	<input type="checkbox"/> BOS	PLMS (AN #)	
	<input type="checkbox"/> Salvager	MOSN (Sect.)	
	<input type="checkbox"/> Ring Zero	MPAM (Sect.)	
	<input type="checkbox"/> Ring One	MSAM (Sect.)	
	<input type="checkbox"/> SysDaemon/Admin.	Info Segs	
<input checked="" type="checkbox"/> Runtime	Other (Name)		
<input type="checkbox"/> User Cmmnd/Subr.	None (Reason)	bug fix	
Objections/Comments:			

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

SUMMARY:

Install any_to_any_ which fixes the following bugs:

1. 1460 in which conversion from float bin to fixed bin fails for numbers whose magnitude is greater or equal to 1e70b
2. 1461 in which bad rounding code causes underflow condition to be raised when converting 0 to packed float bin.