

TO: Distribution  
FROM: H. L. Goudy, R. A. Roach  
DATE: 30 May 1973  
SUBJECT: HELPFUL HINTS FOR MULTICS SYSTEM OPERATORS

CONTENTS IN THE ORDER OF THEIR APPEARANCE

ABS BUG (MIT ONLY)  
ABS STOP  
ABSENTEE NOT FILLING UP  
BOOTLOAD FOR PROGRAMMER (MIT ONLY)  
CLEAR TAPE CHANNEL  
CLEARING CORE  
COMPLETE DUMP RESTARTS  
CRIPPLE  
DETAILS IN REPORTING  
DUMP IS LARGER THAN PARTITION  
DUMPS, OLD  
ESD LOCKING ERROR  
ERRORS FROM DUMPER, RETRIEVER, ETC  
EXEC TRACE\_OFF  
FDUMPS  
FORCE REGULAR SALV  
HELP SKED  
INITIALIZER DIALED  
INITIALIZER HUNG  
INITIALIZER MAXU MODE  
INITIALIZER PROBLEMS  
INITIALIZER TTY LOSES LINES  
PROCESS HUNG  
PROCESSOR SWITCHES  
RESTOR RELOADS -- PARTIAL RESTOR OF HEIRARCHY NOT POSSIBLE  
RESTOR AND RELOADS -- USING SAVE TAPE  
RETRIEVE INTO >LDD (MIT ONLY)  
RETRIEVER, DUMPER, AND REPAIR  
REWRITE FATAL ERRORS  
SALVAGER CRASHES  
SHUTDOWNS WITH USERS STILL ON  
SPECIAL SESSIONS -- DESTRUCTION OF MULTICS HEIRARCHY  
SYSTEM FILES DUMP  
TAPE LABELS FOR RETRIEVALS  
TAPE PROBLEMS

This 110SN applies to Multics system operation on the Model 6180.

---

---

ABS BUG (MIT ONLY)

When the system is brought up before 0800 in the morning, "abs maxu" will set itself for third shift values. At 0800, "abs maxu" will not automatically change to first shift values. This must be changed manually. (This bug has been fixed on the G180 but not on the G45).

---

ABS STOP

Use "ABS STOP" only when shutting down the system (at a time 30 minutes before the intended shutdown).

---

ABSENTEE NOT FILLING UP

If users complain that absentee is not filling up all the available queue slots, issue the following:

```
EXEC ABS_DUMP
ABS STOP
ABS START
```

---

BOOTLOAD FOR PROGRAMMER (MIT ONLY)

When doing a bootload for a programmer, give him all available output, (from printers terminals and Operator's Console).

---

CLEAR TAPE CHANNEL

The operator may attempt recovery from a hung tape channel (if it is reasonably certain that the tape channel is hung), proceed as follows:

from admin mode on any daemon, type:

```
hphcs_$tape_channel_clear
```

---

CLEARING CORE

Many DOS commands destroy the contents of core when they are used. The operator should be very careful not to use one which destroys core before he has initiated a dump and performed the

ESD. In particular, SALV, TEST, SAVE, and RESTOR all use common core (i.e., destroy Multics core).

---

#### COMPLETE DUMP RESTARTS

Before restarting a complete dump, from a point other than the absolute beginning, make sure the map exists, is correct, and agrees with what segments the terminal on-line printout said was dumped.

---

#### CRIPPLE

If the occasion arises that it is necessary to perform a reload from a process other than the initializer, there is a command "cripple" which should be typed before the reload. The command "cripple" inhibits the initializer from attempting to respond to the login requests. (Some login requests under these conditions may attempt to terminate the initializer process).

---

#### DETAILS IN REPORTING

When Multics, SALV, BOS, or anything fails to work, please try to be descriptive as to exactly what happened. Please do not describe problems as: "the system died/bombed/crashes/etc as such. Try to be descriptive through the use of such phrases as:

returned to BOS (with or without message). (give any messages),  
went into a loop (specify if TTY dim accepting interrupts or not),  
the IOI bell rang,  
or hung on a DIS instruction.

---

#### DUMP IS LARGER THAN PARTITION

When the message, "DUMP IS LARGER THAN PARTITION" appears during an FDUMP, process the TAPE DUMP instead.

---

#### DUMPS, OLD

Only delete "old dumps" from the directory, >dumps. Other segments (files) in that directory are to be left there.

---

#### ESD LOCKING ERROR

If the ESD (Emergency SHUTDOWN) has a locking error, make sure a regular Salvager is run.

---

#### ERRORS FROM DUMPER, RETRIEVER, ETC

When errors are encountered while running processes like: retriever, dumper, etc; get a dump by typing:

```
hold
db
.t
$all
.q
new_proc
```

---

#### EXEC TRACE\_OFF

When you start getting manual accounting updates, while running absentee, type:

```
exec trace_off
```

This turns the tracing off and produces a dump for later analysis.

---

#### FDUMPS

On jll crashes, make sure the FDUMP Number is correct before the system is booted and brought up again.

---

#### FORCE REGULAR SALV

To force a regular SALV, either run the salvager twice or start a "LONG SALV" and then reset the switches after it has started.

---

## HELP SKED

Please use the Multics help command on sked.info after it has been edited to ensure that the breaks (where it asks if you want more help) are working properly. To use the help command in this manner, type:

```
help sked
```

---

## INITIALIZER DIALED

If using a non-hardwired terminal for the initializer, make sure the initializer is dialed in while booting Multics. If you get a busy signal, put the processor in STEP until you clear the line and dial-up the initializer. (otherwise a hacker could take over the system from outside the machine room).

---

## INITIALIZER HUNG

If the operator gets calls from users concerning possible phone problems (especially if they get a connect and nothing typed on their terminals), check the initializer first. If it is hung, it will act similar to phone problems.

---

## INITIALIZER MAXU MODE

The initializer is now in default "maxu auto" mode, which means that both "maxu" and "abs maxu" are set automatically when the shift changes. (Soon this will also be done whenever reconfiguration is done on the initializer console). This feature is turned OFF whenever the operator does a normal "maxu".

---

## INITIALIZER PROBLEMS

If using a non-hardwired terminal for the initializer, and if the initializer hangs up, try to dial it back in. If this fails after several tries, try using another terminal. The problem might be either the data set or the port. Try attaching one of the other data sets to the terminal (TTY-192 at IIT). If this still fails, it is necessary to bring the system down and turn it over to the field engineers (FE's). To bring the system down, in

this case, proceed as follows:

put the appropriate processor switch UP to prevent the CRASH RUNCOM from being entered (MIT only),  
call hphcs\_\$call\_bos from a SysDaemon,  
send a BLAST message warning users that you are having initializer problems and will manually shut down in 10 minutes,  
type CONTIN (or GO),  
wait ten minutes and then call BOS (as above),  
type ESD (unless an initializer dump is wanted).  
turn the machine over to the FE's to check out the LSLA.

---

#### INITIALIZER TTY LOSES LINES

The initializers terminal (TTY) occasionally loses the first couple of lines of output (i.e., "Basic Multics Administrative ..."). If the operator brings the system up and nothing gets typed on the initializer TTY, try typing a command which would normally be typed (e.g., startup). If the command works, everything should be OK; otherwise, return to BOS and initiate a dump.

---

#### PROCESS HUNG

Do not attempt to terminate or dump a hung process without the permission of the programming staff. This applies only if the user is hung to the point where he cannot get "QUIT" printed on his terminal. Try to determine what the cause of the hung process is from the user (if he knows). If he does not know, do not bump him, and make sure he doesn't either (1) hang-up or (2) turn the terminal off.

---

#### PROCESSOR SWITCHES

Make sure the processor DATA switches are all set correctly before doing CPU reconfiguration or a BOOT. Previous users or FED'S may have left such switches as "crawlout", "trace", etc in the UP position.

---

### RESTOR RELOADS -- PARTIAL RESTOR OF HEIRARCHY NOT POSSIBLE

Once Multics or the Salvager has been run, you cannot RESTOR just a portion of the heirarchy.

---

### RESTOR AND RELOADS -- USING SAVE TAPE

When a SAVE tape has to be used for RESTOR/RELOADS, the same tape handler should be used that the SAVE tape was created upon. If this cannot be done, note it for the programming staff.

---

### RETRIEVE INTO >LDD (HIT ONLY)

The following people have permission to retrieve into >ldd:

Scherer  
Jordan  
Kelley  
Rakip  
Roach

---

### RETRIEVER, DUMPER, AND REPAIR

Whenever the Retriever, Dumper, or Repair SysDaemons log-in, a message is printed. The operator should make sure he knows who is logging in and why. If he does not know, he should send a "warning" asking the user to call and identify himself. If there is no response in 90 seconds, bump the daemon. Perform the bump by tty id, as a bump by name/project probably will not work.

---

### REWRITE FATAL ERRORS

It is only necessary to rewrite fatal Multics errors on the disks. A RESTOR should not be done.

---

### SALVAGER ABORTS

Whenever the Salvager aborts (fails, dies, loops, etc), type ESD. An emergency shutdown of the Salvager will then take place.

### SALVAGER CRASHES

Whenever the Salvager crashes, initiate a dump; unless you are certain of the cause.

---

### SHUTDOWNS WITH USERS STILL ON

When a shutting down, if the operator gets a "users still on ..." message; issue the Multics "who" command and try to log out the users before you answer yes to the query made by the "users still on" message.

---

### SPECIAL SESSIONS -- DESTRUCTION OF MULTICS HEIRARCHY

If a programmer is running a special session, using the normal Multics heirarchy; call a system engineer before doing anything (or allowing him to do anything) that would destroy the heirarchy, such as: RESTORing from an earlier SAVE. This also includes the deletion of absentee queues, etc.

---

### SYSTEM FILES DUMP

There are two parts to the system file dump:

1. system\_files\_1 (sf1 or sf) -- used for creating the dev heirarchy -- contains:

- >sss
- >tools
- >auth\_maint
- >sys\_control\_1

2. system\_files\_2 -- used to dump the rest of the online system libraries -- contains:

- >apl
- >dartmouth\_heirarchy
- >daemon\_dir\_dir
- >documentation
- >libraries
- >dumps
- >languages



### TAPE LABELS FOR RETRIEVALS

When doing retrievals, double check the label on the tape to make sure it is still valid. In general, using the yearly saves is more likely to be the right tape. (There have been a number of cases where retrieval has failed due to the primary tape being reused).

Also please do not put more than 6-inches of maps into a single binder; it makes them too hard to handle.

---

### TAPE PROBLEMS

When tape problems occur, please check the following before writing a problem for the FE's (FE0)

1. If the problem is with a 7-track drive, make sure you have a 7-track tape on the drive. (9-track tape doesn't work too well!).
  2. On any drive, if it runs away while reading or writing; check the density switches. If they have inadvertently been mis-positioned, the tapes will "run away".
- 

(END)