M T S D I S T R I B U T I O N 4.0

August 1977

General Notes

Distribution 4.0 consists of 4 tapes at 6250 bpi or 10 tapes at 1600 bpi. Included in these are IBM TSS VAM2 format dump/restore tapes for a single 3330-1 pack MTS system designed to be used to get started (for new installations) or for conversion (for old installations). Instructions for these procedures are given in items 10003 and 10004 of the distribution documentation.

The remaining tapes (3 at 6250, 8 at 1600) contain source, object, command, data, and print files, and must be read using the *FS program. These tapes are volume label only (VLO) tapes.

Throughout the distribution, reference is made to the components of the distribution. Generally these references are made by a 3- or 4-digit component number, usually followed by a slash and a sub-component number. For example, the MTS accounting system has been assigned component number 104. However, the accounting system actually has many "pieces" and so it consists of components 104/1 through 104/110.

Component numbers 1 through 655 and 1000 through 1028 are compatible with the numbers used in distributions 3.0, 3.1 and 3.2; additional numbers are new components, or in some cases, old components which have been grouped under new numbers. Component numbers are assigned by each MTS installation in ranges. The number of a component doesn't necessarily indicate which installation is responsible for its maintenance (see the SHARE code for that), only which installation originally assigned the number. The installation assignment ranges are as follows:

Range	SHARE	Installation Name
0001-0999	UM	University of Michigan
1000-1199	UBC	University of British Columbia
2000-2199	UNE	University of Newcastle upon Tyne
3000-3199	UQV	University of Alberta
4000-4199	WSU	Wayne State University
4200-4399	RPI	Rensselaer Polytechnic Institute
4400-4599	SFU	Simon Fraser University

The FS tapes are generated by the MTS *FS program based on information contained in a data file (known as a driver file), each line of which describes a component (or sub-component) of the system. Each component has a name, sub-name, SHARE installation code, type (source, object, MTS commands, etc.), a location (where *FS is to obtain it from), a pointer to descriptive comments (in another file), a contact person for the component at the installation principally responsible for its

maintenance, and a locally responsible person. In the D4.0 driver file, the local persons, when given, are UM people for non-UM components -- each installation should fill in its own local names for components assigned to other installations. In this way a printout may be produced (using the *DEDIT program) for each staff member showing his or her subset of the D4.0 driver file information.

As *FS generated the D4.0 tapes, it added additional information to each line in the driver file including the distribution tape name and file number on which it wrote the component (tapes are named D4Tn), the FS name, information about the file size or tape blocking information if the component came from a non-FS tape, and the time and date when the file was saved. Components may be restored from these tapes using *FS either by reference to the FS name or to the file number.

Two versions of the distribution driver file are provided: 461/6 for the 6250 bpi tapes, and 461/7 for the 1600 bpi tapes. A printed copy of the appropriate driver file (6250 or 1600) is included in the distribution. Additional copies of this listing may be printed using the LIST command in *DEDIT. Note: the two versions of the driver file are identical except for the output tape names and file numbers since these are different at 6250 and 1600 bpi. Both driver files (MTS:D4DRIVER and MTS:D4DRIVER1600) are on the dump/restore pack along with the comment file (MTS:D4COMM).

A printed copy of the appropriate driver file index (6250 or 1600) is also included. Additional copies of the index may be printed by copying the appropriate file to *PRINT*. The 6250 index is component 461/14 (MTS:D4INDEX on the test pack); the 1600 index is component 461/15 (MTS:D4INDEX1600 on the test pack).

The tapes are as follows:

6250 bpi copy:

D4T1 *FS Format
1327 files -- components 001/1 to 498/85 except for 038/14, 387/30, 461/6 to 461/8, 461/11, 461/14, 461/15, and 468/3 to 468/5.

D4T2 *FS Format
1206 files -- components 500/1 to 672/31.

D4T3 *FS Format
777 files -- components 673/1 to 4000/5 plus 038/14, 387/30, 461/6 to 461/8, 461/11, 461/14, 461/15, and 468/3 to 468/5.

DUMP/RESTORE 1 IBM TSS VAM2 Dump/Restore Tape
Contains:
1. TSS DASDI (IPLable deck)
2. TSS DUMP/RESTORE (IPLable deck)
3. TSS VAM2 UTILITIES (IPLable deck)
tape mark
4. Dump/Restore data
tape mark
5. Dump/Restore trailer
tape mark
tape mark

1600 bpi copy:

D4T1 *FS Format
487 files -- components 001/1 to 163/20 except for 038/14.

D4T2 *FS Format
414 files -- components 164/1 to 360/2.

D4T3 *FS Format
426 files -- components 387/1 to 498/85 except for 387/30, 461/6 to 461/8, 461/11, 461/14, 461/15, and 468/3 to 468/5.

D4T4 *FS Format
388 files -- components 500/1 to 549/2.

D4T5 *FS Format
483 files -- components 551/1 to 619/28.

D4T6 *FS Format
335 files -- components 620/1 to 672/31.

D4T7 *FS Format
457 files -- components 673/1 to 1032/17.

D4T8 *FS Format
320 files -- components 1033/1 to 4000/5 plus 038/14, 387/30, 461/6 to 461/8, 461/11, 461/14, 461/15, and 468/3 to 468/5.

DUMP/RESTORE 1 IBM TSS VAM2 Dump/Restore Tape #1
(Same format as 6250 bpi DUMP/RESTORE tape -- see above.)

DUMP/RESTORE 2 IBM TSS VAM2 Dump/Restore Tape #2
Contains:
tape mark
1. Dump/Restore data
tape mark
2. Dump/Restore trailer
tape mark
tape mark

USE OF TSS DASDI AND DUMP/RESTORE

The IBM TSS (Release 2.0) DASDI, DUMP/RESTORE, and VAM2 UTILITIES programs are at the beginning of the distributed dump/restore tapes. Printed copies of the writeups for DASDI and DUMP/RESTORE are included in the distribution as item 10010.

The MTS DASDI program (598) (not stand-alone) may be used (if MTS is available) to initialize a pack in VAM2 format; use of this program is described in the MTS Operator's Manual (item 10013). The TSS DASDI (stand-alone) on the dump/restore tapes will initialize a pack in either VAM2 or SAM format; it has been modified at UM to accept device addresses as high as FFF. IPLing the dump/restore tape once will load TSS DASDI.

MTS file system volumes (such as the distributed dump/restore pack) must be VAM2 format and are normally labeled MTS001, MTS002, etc. The public volume number for the distributed pack must be 1. MTS packs should be VOLTYPE PUBLIC and the PAT should be placed on a cylinder boundary (the PATD STRTADR parameter should be evenly divisable by 57) near the middle of the pack. The following are

The following TSS DASDI control cards are for a 3330-1 with volume label MTS001. To DASDI a 3330-11, use TODEV=333B (instead of 3330) and STRTADR=23199 (instead of 11685).

```
JOB     INITIALIZE 3330-1 AS MTS001
MSG     TODEV=1052,TOADDR=23F
DADEF   TODEV=3330,TOADDR=340,FORMTYPE=VAM2,                X
        VOLID=SCRATCH,VOLTYPE=PUBLIC,PUBVOLNO=1
VLD     NEWVOLID=MTS001
PATD    STRTADR=11685
END
LASTCARD
```

If a paging disk is to be used, it should also be initialized as a VAM2 pack with VOLTYPE=PAGING and a volume label of PAG001. No PUBVOLNO keyword is required in this case.

The HASP spooling pack(s) should be initialized as SAM pack(s) with volume label(s) SPOOL1, SPOOL2, etc. The following are sample control cards (which have **not** been tried) for a HASP DASDI:

```
JOB     INITIALIZE 3330 AS SPOOL1
MSG     TODEV=1052,TOADDR=23F
DADEF   TODEV=3330,TOADDR=340,FORMTYPE=SAM,                 X
        VOLID=SCRATCH,FLAGTEST=NO
VLD     NEWVOLID=SPOOL1
VTOCD   STRTADR=1,EXTENT=1
END
LASTCARD
```

To load TSS DUMP/RESTORE, IPL from the distributed dump/restore tape and, when the tape stops, IPL again. The following are sample control cards for restoring the distributed dump/restore tape to a 3330-1 which has been initialized with the label MTS001. To restore to a 3330-11, use TODEV=333B (instead of 3330).

```
JOB     RESTORE MTS001 FROM TAPE
MSG     TODEV=1052,TOADDR=23F
RESTORE FROMDEV=2400,FROMADDR=581,TODEV=3330,                X
        TOADDR=340,FORMTYPE=VAM2,VOLID=MTS001,               X
        LABEL=RETAIN
END
```

After restoring the distributed dump/restore pack, you are ready to proceed with the installation of MTS. We have provided two writeups to assist in doing this, one for new installations (item 10003) and another for installations which have previously used MTS (item 10004).

LISTINGS IN THE DISTRIBUTION

Listings have been included on the FS tapes for the most important components of the system.

Comp. No.	Component Name	
0041/5	GETSPACE/FREESPAC	(370 listing)
0041/6		(360 listing)
0042/6	MTS	(370 listing)
0042/7		(360 listing)
0045/7	SUPERVISOR	(370 listing)
0045/8		(360 listing)
0046/7	CONFIG	(370 listing)
0046/8		(360 listing)
0198/5	GUINFO/CUINFO	(370 listing)
0198/6		(360 listing)
0354/5	LLXU	(370 listing)
0354/6		(360 listing)
0387/14	HASP	
0464/5	PLIMIT	(370 listing)
0464/6		(360 listing)
0539/5	TIMNTRP	(370 listing)
0539/6		(360 listing)
0578/5	RSF	(370 listing)
0578/6		(360 listing)
0635/5	FSUB	(370 listing)
0635/6		(360 listing)
0636/5	CMDS	(370 listing)
0636/6		(360 listing)
0637/5	DSRS	(370 listing)
0637/6		(360 listing)
0638/5	USUB	(370 listing)
0638/6		(360 listing)
0639/5	DSRI	(370 listing)
0639/6		(360 listing)
4000/4	GATE	(370 listing)
4000/5		(360 listing)

PATCHING THE SYSTEM

Patching shared memory:

Find out where the deck to be patched is loaded by checking a current map, by checking the file SEG2:S2MAP, or by using the LOADINFO CLS (enter the MTS command "#CLS W009:I" from a privileged user id, i.e., an id that can set PROT=OFF).

Use the System Status Routine (SSRTN) command

```
DISPLAY   loc[+disp[+disp ...]]  [n]
```

to display memory and the SSRTN command

```
MODIFY  loc[+disp[+disp ...]]  value[[,]value ...]
```

to change it. For example

```
DISPLAY 218500+6DBA

MODIFY  218500+6DBA  47F0
```

These SSRTN commands are legal from the 3270 operator's console when prefixed with a slash (/), as input to the JOBS job which may be run from any operator's console, or as input to the $SYSTEMSTATUS command when signed on using a privileged MTS user id. For a complete description of these and the other privileged SSRTN commands see the MTS Operator's Manual.

SDS may also be used to modify shared memory when used from a privileged id. In addition, the supervisor commands DIS and MOD may be used to display and modify routines loaded into unpaged memory (segment 0), but these commands are not legal when issued from a 3270 operator's console.

The IPLREADER has commands which allow a system to be patched at IPL time, see the IPLREADER description (item 10007) for more information.

Patching the System Object Deck:

Using RAMROD (MTS:RAMROD), CREATE a new system from the current system or GET a previously created system which has not yet been made current, but which will become the current system after the patches are made. Item 10008 contains a description of the use of RAMROD. Enter enough comments so that other people can tell what you've been up to. You will have been prompted for comments if you created a new system, otherwise you may use the ANNOTATE command to add comments.

Add REP cards to the deck(s) using the PATCH command.

RENAME the new system with the correct version name and make it CURRENT.

For example:

```
 # run mts:ramrod
 # EXECUTION BEGINS
   Using file "MTS:ROD"
   Proceed.
   list current
   UG117 created from UG057 23:06:01 08-11-77
      08-11 23:00 REPLACED UMMPS TO FIX BUG IN GETSTK/SETSTK
   create newsys from ug117
   Enter comments :
 ? 08-24 21:05 Just an example
 ?
   Done.
   patch taskstat
   Address Esdid Text <comments> :
 ? 30 01 58F0 just an example patch
 ?
   Enter comments :
 ? 08-24 just an example patch
 ?
    REP  000030  0158F0 just an example patch 21:15:25 08-24
   OK  ? ok
   Done.
   rename newsys ug247
   "NEWSYS" is a system.
   ** RENAME system "NEWSYS" as "UG247" :
   OK  ? ok
   Done.
   current
   There are 3 IPL files with prefix "*IPL.   "
   Loading system "UG247"
   LOAD: Resident: 1000-27D80 UMLOAD Psect: 58000 Pageable:
   Contents of IPL file "*IPL.2":
   UL177 ENTRY=26E08 PSECT=100008 VIRTUAL=58000...ACD90
   WRITTEN BY ID MTA. AT 06:24:38 07-17-77
   COM 07-14 20:00 CHANGED CONFIG.CARD TO GIVE MORE SPACE TO
   COM 07-14 21:59 REPLACE TASKSSTAT, MINOR CHANGES.
   COM 07-15 13:35 NEW TABLES TO ADD MORE JOB TABLES.
   COM 07-17 06:20 REPLACED PDP WITH WHAT I HOPE IS THE D4.0
   ** Write system "UG247" to IPL file "*IPL.2":
   OK  ? ok
   System "UG247" has been written to  IPL file "*IPL.2"
   IPL file stacked has been pushed.
   System "UG247" is now the current system.
   "UG247" : Released.
   System "UG247" has been Frozen.
   Done.
   stop
 # EXECUTION TERMINATED
```

Remember to Change the Source:

It seems almost silly to mention this, but ....

Patching Decks Loaded by PISTLE:

Decks loaded into shared VM by PISTLE (the post IPL system loader) can be patched in memory as described above. REP cards are added to the files from which PISTLE loads the object. It is a good idea to use PISTLE without specifying PAR=NOTEST to make sure the patched version will load.

PISTLE can also be used to load complete new versions of a deck into shared VM so long as all references to the module are made using a low core symbol table rather than external references that are already resolved, i.e., if the IPL option is not used to load it. PISTLE allows the automatic replacement of symbols in the low core symbol table LCSYMBOL, other low core symbol tables must be patched by hand.

CHANGES TO COPY SECTIONS AND MACROS

Since the previous distribution, many copy sections have been moved into macro libraries. The following list should help you figure out where things are. Most (but not all) of the copy sections used by MTS have become macros in COPY:MTS.MACROS or COPY:FILE.MACROS. There are many more macros which are not listed below, but which are available in these two files. There are also many other copy sections and libraries which are kept in files belonging to the user id COPY.

Macro Name in COPY:MTS.MACROS	Old Name	Older Name
CLSAREA	COPY:CLSAREA	MTS:CLSAREA
CLSPLAN	COPY:CLSPLAN	MTS:CLSPLAN
CLSTV	COPY:CLSVECTOR	MTS:CLSVECTOR
FCBDSCT	COPY:FCBDSECT	MTS:FCBDSECT
FDBDCT	COPY:FDUBDSECT	MTS:FDUBDSECT
LXDCT	COPY:MTS.LLXUDEFS	MTS:LLXUDEFS
MTSCTAB	COPY:MTS.CONTAB	MTS:CONTAB
MTSEQU	COPY:MTS.EQU	MTS:MTS.EQU
MTSEQU2	COPY:MTS.EQU2	MTS:MTS.EQU2
MTSTV	COPY:MTS.TV	---
RHTABLE	COPY:MTS.RHTABLE	MTS:MTS.RHTABLE
SUBTV	COPY:STANDARDTV	MTS:STANDARDTV
THEDSECT	COPY:MTS.DSECT	MTS:MTS.DSECT
UBCDSECT	COPY:UBCDSECTS	---
WOPTRDCT	COPY:WOPTRDSECT	MTS:WOPTRDSECT

Macro Name in COPY:FILE.MACROS	Old Name	Older Name
CATEQU	COPY:CATEQU	W045:NEWCATEQU
DSCBDSCT	COPY:DSCBDCT	W045:DSCBDSCT
DSKDSCT	COPY:DSKDSCT	W045:DSKDSCT
FCBEQU	COPY:FCBEQU	W045:NEWFCBEQU
ICEQU	COPY:ICEQU	W045:ICEQU
PATEQU	COPY:PATEQU	W045:PATEQU

Current Name	Old Name
COPY:JOBSTA	DBS:JOBSTA
COPY:LLMPSEQU	*LLMPSEQU
COPY:MTS.MACROS	MTS:MACROS
COPY:PCBDSECT	*PCBDSECT
COPY:PSA	MTA:PSA
COPY:STATDSECT	MTA:STATDSECT

PRINTED DOCUMENTATION IN THE DISTRIBUTION

The following lists all of the paper-copy documentation included in D4.0. An asterisk (*) in front of an item in the list below indicates that only a paper copy was shipped, otherwise there is a machine readable copy on the tapes and listed in the driver file. In addition, there are many more writeups on the tapes for which paper copies have not been shipped. Using the editor on the driver file to match for the letters "W" or "P" in column 45 will produce a complete list of all the machine readable documentation.

Since some items on the list below are not distribution components and do not appear on the FS tapes and hence don't have a component number, another number (the one in front of the entry below) was produced. This other number also facilitates the packing list. The component number for all items on tapes is given in parentheses after the items in the list. The paper copy that is sent with this distribution is stamped with both numbers (if applicable). [To make them readily distinguishable, distribution numbers are always given with a slash and are less than 10000; the other numbers start with 10000 and go up.]

No printed copies of the volumes of the UM MTS Manual have been included with the initial shipments of this distribution, but the TEXT360 master and print files are included on the FS tapes. If your installation needs a printed copy of any of the MTS volumes, send a request to:

The University of Michigan
Computing Center
ATTN: W. Scott Gerstenberger
1075 Beal Avenue
Ann Arbor, MI 48109
USA

The audio tapes of the 33 system lectures which were given for the UM staff during the spring and summer of 1973 have not been updated and are not included in the distribution, but are available on request. Finally the documentation for the QUIC (584) and KWIC (583) programs has not been included, but is available on request.

Distribution Documentation

This is documentation concerned with the installation of this distribution.

10000. General Notes, what you are reading now. (461/11)

10001A and 10001B. Driver file listing (LIST command to *DEDIT).

10002A and 10002B. Driver file index; a listing sorted by component names which serves as an index for 10001. (461/14 and 461/15)

10003. Installation instructions for New Installations. (461/9)
10004. Installation instructions for Old Installations. (461/10)
10005. Description of D4.0 System Object Deck (468/6)
10006. Tables writeup (004/3)
10007. Documentation for the IPLREADER and friends. (1021/9)
10008. Documentation for the RAMROD System Maintenance Utility. (1019/9)
10009. DECK GEN instructions (004/7)
* 10010. TSS DASDI and DUMP/RESTORE instructions.
* 10011. UM Machine Configuration Chart.

General

10012. Message Manual (555/5)

Operations

10013. MTS Operator's Manual (592)
10014. HASP Operator's Guide (387/26)
* 10015. HASP Remote 360/20 Operator's Guide
* 10016. HASP Remote 360/non-20 Operator's Guide
* 10017. HASP Remote 1130/1800 Operator's Guide
* 10018. HASP Remote System/3 Operator's Guide
* 10019. HASP 2780 Remote Workstation Operator's Guide

Installation Descriptions (Internals)

10020. HASP notes. (387/30)
* 10021. SDS Storage Allocation.

How-To-Use Information

For systems or administrative users:
10022. Printing jobdumps. (400/13)
* 10023. Modifying *LIBRARY.
* 10024. Specifying keywords for EREP/370 (IFCEREP0)

For general user:
10025. List of current CCMEMOs (461/16) and the CCMEMOs themselves.
* 10026. Computing Center Newsletter (v5n6 through v7n14)
10027. Computing Center Publications (711/1)

DESCRIPTION OF THE DRIVER FILE LISTING

The following is a description of the driver file listing produced by the LIST command in *DEDIT (461/1). A printed copy of the appropriate listing (for 6250 or 1600 bpi) is included in the distribution. For each component (or sub-component), two lines of output are printed, followed by any comments associated with the component.

LINE 1

Num - component number and sub-number (if any)
Component_Name - name of the component
Sub-name - name (if any) of the sub-component
Type - component type as follows:
- B - binary (non-360/370) object
- C - MTS commands
- D - data
- L - listing
- M - messages
- O - object (OC=cards, OE=link-edited, OL=library)
- P - printed output (PF=FORMAT, PT=TEXT360, PX=TEXTFORM)
- S - source code (SA=assembler, SF=FORTRAN, SG=GOM, SP=PL/I, SS=SNOBOL4, SM=assembler macros, SX=XPL, S3=PL360, S6=Algol68)
- U - update deck (UU=*UPDATE, UI=*IEBUPDAT, UE=$EDIT commands)
- W - writeup input (WF=FORMAT, WT=TEXT360, WX=TEXTFORM)

G - "goodness" code (G=good, O=OK, S=shakey (has bugs), B=bad (needs rewrite))
Seq ID - sequence id applied to component as it was saved
S - save control (blank means normal, "#" means not distributed, "@" means information incomplete, "=" means temporary hold, ">" means very large component)
Location - file or tape from which the component was obtained. For tapes, the first parameter is the rack number, the second and third are the volume name (if labeled) and the tape id (if different from the volume name), then follow keywords for the label type, blocking format, and DSNAME (if any).
File - the file number if the component was obtained from tape (optional for labeled or *FS tapes)

LINE 2

Tape - name of output tape on which the component was saved
File - *FS file number on output tape
Ver - *FS version number assigned to component as it was saved
Ftype - the file type (LINE or SEQ)
LRECL - the maximum record length of the component
Size - the size of the component (in pages if the DevT field is PAGE, in tracks if DISK)
DevT - the device type from which the component was obtained (PAGE for non-FS tapes and files, DISK for items obtained from older (before the page-formatted file system) *FS tapes)
SHARE - installation SHARE code for the installation responsible for maintenance
Person - the person responsible for the component at the installation given in the SHARE field
Local Per - the person responsible for the component at the local installation
Date and Time - date and time component was saved

PEOPLE LIST FOR THE UNIVERSITY OF MICHIGAN COMPUTING CENTER

The following is a list of UM Computing Center people whose names appear in the "person" field of the driver file listing. An asterisk (*) before a name means that the phone number is (313) 764-9595, otherwise it is (313) 764-2121. All correspondence should be addressed to:

The University of Michigan
Computing Center
1075 Beal Avenue
Ann Arbor, MI 48109
USA

	BODWIN	Bodwin, James M.
	BRILL	Brill, Robert C.
*	DWB	Boettner, Donald W.
*	EMERY	Emery, Allan R.
*	ENGLE	Engle, Charles F.
	FLANIGAN	Flanigan, Larry K.
	FRONCZAK	Fronczak, Edward J.
	GERSCH	Gersch, Joseph E.
	GOODRICH	Goodrich, Andrew C.
	H YOUNG	Young, Howard B.
	HANSEN	Hansen, James H.
	HARDING	Harding, Leonard J.
	HELFFRICH	Helffrich, George R.
*	K YOUNG	Young, Kathleen A.
*	LIFT	Lift, Gail H.
	LUBBERS	Lubbers, Clark E.
	MANUAL	(see SALISBURY)
	MERIT	(see OGDEN)
*	MTA	Alexander, Michael T.
	OGDEN	Ogden, Jeffrey C.
*	PIRKOLA	Pirkola, Gary C.
*	SALISBURY	Salisbury, Richard A.
	SHERRY	Sherry, Patrick M.
	STERKEN	Sterken, James J.
	SWARTZ	Swartz, Fred G.
	SWEET	Sweet, Elizabeth A.
	TIFFANY	Tiffany, L. Bernard
*	WSG	Gerstenberger, W. Scott

Correspondence related to the administration of the UM Computing Center should be sent to the director:

Dr. Robert C. F. Bartels, Director
The University of Michigan
Computing Center
1075 Beal Avenue
Ann Arbor, MI 48109

Telephone (313) 764-9572

DISTRIBUTION 4.0 INITIAL MAILING LIST

The following is a list of persons to whom the initial shipment of MTS Distribution 4.0 has been sent:

UBC	Computing Centre ATTN: John Hogg University of British Columbia Vancouver, B. C. V6T 1W5 CANADA	1600 bpi
UNE	Computing Laboratory ATTN: Program Librarian The University Newcastle upon Tyne NE1 7RU ENGLAND	1600 bpi
UQV	Computing Services ATTN: John Stasiuk The University of Alberta Edmonton, Alberta T6G 2H1 CANADA	6250 bpi
WSU	Computing and Data Processing ATTN: Henry Bodzin Wayne State University Detroit, MI 48202	1600 bpi
RPI	Office of Computer Services ATTN: Wilson Dillaway Rensselaer Polytechnic Institute Troy, NY 12181	1600 bpi
SFU	Computing Centre ATTN: Charlie Benet Simon Fraser University Burnaby, B. C. V5A 1S6 CANADA	6250 bpi
AMD	Amdahl Corporation ATTN: Bill Ehrman 1250 East Arques Avenue Sunnyvale, CA 94086	6250 bpi
VIK	Viktors Berstis 366 Elton Hills Drive Rochester, MN 55901	6250 bpi

INSTALLATION INSTRUCTIONS FOR OLD INSTALLATIONS

August 1977

This procedure will convert D3.2 MTS disk packs to the D4.0 format (allowing 32767 byte records in line files). It will produce new disk packs containing all files from the old packs that do not need to be changed for Distribution 4.0. Those files that need to change will be replaced with new versions. It is estimated that the conversion will take at least 2 hours per disk pack, and it will not be possible to run the version of MTS that is being converted for any other purpose while it is in progress from step 5 on. You should read this entire description and be familiar with it before you attempt to start the conversion process. Otherwise you may make mistakes that will be hard to undo.

Because this conversion procedure is complicated and has not been tried many times before, it is strongly recomended that you first use it to convert your current one pack system (which is presumably compatible with your production system) to Distribution 4.0 format. You are almost certain to find problems when you do this and this will give you a chance to avoid them when you convert the production system.

1. Restore the disk pack included with the distribution onto an extra disk pack. This pack should not be one of the regular MTS disk packs so that it can be used for setting up the new system without affecting the operation of the old system. Use the TSS DASDI (or MTS DASDI) and DUMP/RESTORE provided. On the distributed DUMP/RESTORE tapes, the volume label of the pack is TMTS02; this may be changed to any other desired label (with PVN 1) when the pack is restored, except that it is strongly recommended that the label be different from the label of any pack in your production system. If desired, you may use the LO (label only) option in MTS DASDI (598) to change the label after the conversion is complete.

2. Use the pack restored above to get the new version of MTS working to your satisfaction. This will require changing your TABLES to conform to Distribution 4.0 format (see writeup on TABLES), and adding any local modifications to the resident system. The TABLES Deck Generator Program can be used to produce a new TABLES (see the writeup on installing MTS at a new installation). The pack restored in step 1 contains almost all public and semi-public files, but not all the utility programs you might want. If additional programs are needed move them from the old packs by copying them to tape or cards. Do not attempt to use the the new MTS with the old packs and do not attempt to use the old version of FM to move things from the old system.

3. Use component 104/51, or a modification of it if you have changed the accounting file format, to generate Distribution 4 accounting files in private files in the old system. This program is a subroutine to be used with ACCRDWRT (104/25), see the comments in 104/25 for more information. Run it with the **old** ACCLIST and other accounting subroutines. Note that this program assumes that your accounting files are Distribution 3.2 format (not 3.1 or earlier); if this is not the case, you must first use the conversion programs from any previous distributions you have skipped. The project file format is unchanged from Distribution 3.2.

4. Move the new accounting files (which should **not** be in the regular accounting files yet) over to the Distribution 4.0 pack using file save in the old system and *RST in the new one. These should be put in private files on the test pack. After the files in the production system have been converted to the new format, these files will be moved back into the public files.

5. Save all old disk packs with stand-alone DUMP/RESTORE or Filesave. These tapes will probably not be used, but it would be foolish to proceed with the conversion without some back-up. From this point until the conversion is complete it will not be possible to run the MTS being converted, so be sure enough time is available to complete the conversion if the regular MTS is being converted.

6. The next step is to run the program to convert all line files to the new (long line) format. To do this IPL the Distribution 4.0 system. In order to be able to run more than one copy of the conversion program (to cut down on the time required) you must load a copy of VOLGET with a set of TABLES for the disk packs being converted into shared VM. Copy the appropriate TABLES to the end of W047:FCNV.VOLGET and use SEG2:S2L to load the result into shared VM. Then enter the run command:

```
RUN W047:FILECONV.O+W047:WRITPKG.O+W047:OLD.FILERTNS
    PROT=OFF PAR=pvn1,...
```

where pvn1,... is a list of public volume numbers. This will convert all files whose file descriptors exist on one of the given public volumes. If desired (and it is probably a good idea if more than one pack is being converted) more than one copy of this program can be run from different tasks. Make sure that no two of them are given the same pvn in their parameter list.

7. All of the files have now been converted to the new format and can be processed by the new file routines. However, many files on the converted pack(s) need to be updated to contain programs or data compatible with the new system. This will be done by using FM on the Distribution 4.0 pack to move the files back to the converted packs. The list of files affected by this is included with this writeup.

   Go through this list and decide which files you want to move (some are optional). You also will probably want to move some other files from the Distribution 4.0 pack to the regular packs to get the newer version (for example *CLSEDIT). Make a list in a file of all the files to be moved. This list should include the converted accounting files moved in step 4. Then enter the command:

   ```
   RUN FILE:FM+FILE:FILERTNS(1,99)+tables+sysdefs PROT=OFF
   ```

   where tables contains the TABLES for the converted pack(s) and sysdefs contains the loader records to reference SYSDEFS. This may reference one undefined symbol (the 2314 unit check routines) which should be IGNOREd. When FM reads from the terminal enter a $CONTINUE WITH line to read the list of files you produced above. FM will ask if it is ok to destroy some files, tell it OK or ALLOK.

8. You are now ready to IPL the converted system again.

9. Signon at the operator's console under userid MTS and enter:

   ```
   $RUN FILE:FILEUPD PKEY=DISASTER 0=*DUMMY* 1=-EMPTY
   ```

   This will update file storage records for all userids. It is important that this be done, since some userids may be incorrect. It may be necessary to change some of the file names on $CONTINUE WITH lines at the end of FILE:FILEUPD to correspond to the names used in your system.

10. Add any local modules to *LIBRARY. Do not simply replace the new *LIBRARY with your old one, but rather merge the two.

11. Add any local messages to *SMDS. Again, do not just replace the new file with your old one, as there are several new messages in it. If there are conflicts between our new messages and your added messages, the Message Manual (555) can be used to find out where each FMSG is issued in the Distribution 4.0 MTS.

11. Add any local changes to *SYSMAC. These must be merged with the Distribution 4.0 version of *SYSMAC.

The following files should be moved to the converted packs after the D4.0 conversion is done:

*ACCOUNTING1	move these
*ACCOUNTING2	files from
*ACCOUNTING3	the private
*ACCOUNTING4	file copies on
*ACCOUNTING5	the test pack
*ACCRESTORE	
*BNCHRTN	for @MAXLEN
*CCPOST	if UM plot support needed
*CCQUEUE	if UM plot support needed
*CKID	new accounting file format
*CLSACC	new accounting file format
*CLSFILESTATUS	
*CLSMOUNT	
*CLSPERMIT	
*CLSSDS	
*CLSSSTA	
*CNFGINFODSECT	
*DEDIT	new driver file format
*DYSSUB	
*FAKEOS	old one won't run with PROT=ON
*FS	new driver file format
*FSM	used by system initialization (INIT:INITCMD)
*GDINFODSECT	
*GFINFODSECT	
*INIT	
*IPL.DECKGEN	if desired
*IPL.D4	if desired
*IPL.D4.360	if desired
*IPL.0	
*IPL.1	
*IPL.2	
*LABEL	for protection
*LAR	
*LBL	for protection
*LIBRARY	add local components
*LOADINFODSECT	
*MNETRTN	for @MAXLEN
*MRXARTN	for @MAXLEN
*PDP8RTN	for @MAXLEN
*PERSUB	loaded by MTS
*PTPRRTN	for @MAXLEN
*RES	new online FILE SAVE
*RESTORE	new online FILE SAVE
*RST	
*SAV	new online FILE SAVE
*SENSEDSECT	
*SFSAVSUB	loaded by MTS
*SKEYSUB	loaded by MTS
*SMDS	add local changes
*SPRIVSUB	loaded by MTS
*STATUS	new accounting file format
*SYSMAC	add local changes

```
*S2L
*TAPECOPY          for new tape routines
*TAPERTN           for @MAXLEN
*VALIDATEFILE
*1052RTN           for @MAXLEN
*2260RTN           for @MAXLEN
*2501RTN           for @MAXLEN
*2741RTN           for @MAXLEN
*3066RTN           for @MAXLEN
*3270RTN           for @MAXLEN
ACC:ACCDISPLAY     new accounting file format
ACC:ACCERRORSCAN   new accounting file format
ACC:ACCFILCHARGE   new accounting file format
ACC:ACCLIB         new accounting file format
ACC:ACCLIST        new accounting file format
ACC:ACCLISTING     new accounting file format
ACC:ACCMAINT       new accounting file format
ACC:ACCSAVE        new accounting file format
ACC:CCREBATE       new accounting file format
ACC:FILEINFO       new accounting file format
ACC:PASSWORDS      new accounting file format
ACC:REBATE         new accounting file format
ACC:REBATESUBS     new accounting file format
ACC:REBATE1        new accounting file format
ACC:STAPROJECT     new accounting file format
COPY:ACCFORMAT     new accounting file format
COPY:BJPDSCT
COPY:CDCADSECT
COPY:CMDAREADSECT
COPY:DRDSECT
COPY:FILE.MACROS
COPY:GLOBALDEFS    make local changes
COPY:GLOBALSETS    make local changes
COPY:JOBSTA
COPY:LLMPSEQU
COPY:MTS.MACROS
COPY:PCBDSECT
COPY:RATEVEC
COPY:SETPARM
COPY:STATDSECT
ETC:BDAM           for new *FAKEOS
ETC:FAKEOS.EXCP    for new *FAKEOS
ETC:FIX.EXPLAIN    if new FIX moved
ETC:FIX.MESSAGES   if new FIX moved
ETC:FOS.IGG        for new *FAKEOS
ETC:FOS.OLTS       for new *FAKEOS
FILE:ACATSUB       for disaster recovery
FILE:CALLDR        for disaster recovery
FILE:CATL.O
FILE:CCATL.O       for disaster recovery
FILE:CHKVTOC
FILE:CHONID
FILE:DASDI
FILE:DASDI.360
FILE:DASDUC.O
```

```
FILE:DESVOLUME
FILE:DISKCOPY
FILE:DISKDUMP
FILE:DS.O
FILE:DSKMAN
FILE:DUP
FILE:FILERTNS
FILE:FILEUPD
FILE:FIXCAT
FILE:FIXEH
FILE:FIXSD
FILE:FLIN.O
FILE:FM
FILE:FSTEST
FILE:GETDSK.O
FILE:GETFINF.O
FILE:MOVE.O
FILE:OPEN.O
FILE:PM
FILE:READ.O
FILE:READL.O
FILE:RECATALOG
FILE:RESETCATREF
FILE:RWSEQ.O
FILE:STARFILES
FILE:TABLES.TEST
FILE:TABLMODMP.O
FILE:TABLRTN.O
FILE:TRAK.O
FILE:VAMREC
FILE:VNTD.O
FILE:VOLGET.O
FILE:WHATSLEFT
INIT:CNFGSOU       used by initialization and *S2L
INIT:ED.360        used by initialization
INIT:ED.370        used by initialization
INIT:FMT2305       used by initialization
INIT:GSETS.360     used by initialization, make local changes
INIT:GSETS.370     used by initialization, make local changes
INIT:IG.3270.360   used by initialization (delete this from
                     INITCMD if *IG not moved)
INIT:IG.3270.370   used by initialization (delete this from
                     INITCMD if *IG not moved)
INIT:INIT          used by initialization
INIT:INITCMD       used by initialization
INIT:INITLOG       used by initialization
INIT:TALLY.360     used by initialization
INIT:TALLY.370     used by initialization
INIT:USERS.360     used by initialization
INIT:USERS.370     used by initialization
INIT:VALIDATE.360  used by initialization
INIT:VALIDATE.370  used by initialization
MTA:PRINTDUMP      move to wherever PRINTDUMP is kept
MTA:UNITS.O
MTA:V370
```

```
MTA:V67
MTS:BNCH.ANAL.O     for new *BNCHRTN
MTS:BNCH.MONITOR    for new *BNCHRTN
MTS:BNCH.SEG2       for new *BNCHRTN
MTS:RAMROD          not compatible with old ROD file
MTS:RAMRODEXP       not compatible with old ROD file
MTS:ROD             not compatible with old ROD file
MTS:RRDMP
SYS:CCP             if UM plot support needed
RSTR:AMALGAMATE
RSTR:AUTOREST       new FILE SAVE
RSTR:CHKFILE
RSTR:DEADFILEDES
RSTR:DEADSAVE
RSTR:DEADUCATDES
RSTR:DIRTAPEOUT
RSTR:DSF
RSTR:FASTRESTORE
RSTR:FASTRSTR
RSTR:FILEDIR.MAS    empty file permitted R to PKEY=*RESTORE
RSTR:FILEDIR.NEW    empty file permitted R to PKEY=*RESTORE
RSTR:FILEDSCB
RSTR:FILESAVE
RSTR:FILESAVEOBJ
RSTR:FSLOG
RSTR:FSS
RSTR:FSTAPECOPY
RSTR:LFS.RESTART
RSTR:MERGE
RSTR:OLFSOBJ
RSTR:OPER*RESTORE
RSTR:RENAMEIT2
RSTR:RESTORE
RSTR:RST
RSTR:RSTFMT1
RSTR:RSTFMT0
RSTR:RSTFMT2
RSTR:SAVEFILE
RSTR:SVSTART        change for disk pack names
RSTR:TAPEDIR
RSTR:TAPEOUT
RSTR:TAPERECOVER
RSTR:TIMECFE
RSTR:VTOCREAD
SEG2:CFE            old name for this is no longer valid
SEG2:FIX            if desired
SEG2:FREAD          if desired
SEG2:GRAB3270
SEG2:HASP           or local version
SEG2:IF             if desired
SEG2:PRINTMAP
SEG2:SETTIME
SEG2:STDTV
SEG2:S2APL          old version won't run with PROT=ON
SEG2:S2FILES        make local changes if desired
```

```
SEG2:S2L
SEG2:TIME
SEG2:UNITS
SYS:CMDFDIR         initially empty
SYS:CMDPIKUP.O
SYS:CMDTAPE.O
SYS:MOUNTSTAT
SYS:PLOTDIR         if UM plot support needed
SYS:PLOTREBAT       if UM plot support needed
SYS:PLOTRECPT       if UM plot support needed
SYS:PLOT1           if UM plot support needed
SYS:PLOT2           if UM plot support needed
SYS:PLT             if UM plot support needed
SYS:STA
SYS:TLIMIT
TMTS:LOADMTS
```

INSTALLATION INSTRUCTIONS FOR NEW INSTALLATIONS

August 1977

1. DASDI a disk pack and restore the tape(s) provided using TSS DASDI and DUMPRESTORE. The D4.0 General Notes (item 10000) contain instructions on the use of these programs. The version of DASDI and DUMPRESTORE on the restore tape supports 3330s (and 7330s). This pack should be labeled xxxx01 where xxxx is any 4 characters (normally MTS0), and will be the "system residence pack" for MTS.

2. DASDI any other packs desired. Each should have a label of the form xxxxnn where xxxx is the same as above and nn goes from 2 on up sequentially. The public volume number of each pack should also be nn.

3. Run DECKGEN to prepare a set of TABLES for your machine. To load DECKGEN, IPL from the pack prepared in step 1. This will probably put the machine in wait state (unless you have a 3066 or 1052 compatable device at address 440). To get IPLREADER to talk to you, press "request" on a 1052 or "enter" on a 3066 (i.e., cause an attention interrupt). When it asks if you want to run the current system reply "NO" and enter the commands:

```
LOAD NAME=*IPL.DECKGEN
START
```

   See the DECKGEN writeup (item 10009) for information on how to proceed from here.

4. You are now ready to load MTS itself. IPL from the pack prepared in step 1, and again reply NO when asked if you want the current system. This time enter the commands:

```
LOAD NAME=*IPL.D4 (or LOAD NAME=*IPL.D4.360 if a 360)
REPLACE TABLES FROM xxx
(Reply to the prompt for a printer address for a map)
START
```

   where xxx is the address of the tape written by DECKGEN. D4.0 MTS should now be running.

5. Proceed with the start-up procedures described in the MTS operators' manual (item 10013). Some additional points not mentioned in the operators' manual are:

   A. The prompt for the time and date will always occur on a 360 but will occur on a 370 only if the TOD clock is not set. On a 360 you will not be asked to verify the time and date, nor will you be asked for a time zone.

B. On a 370, MTS keeps GMT in the TOD clock. Although this agrees with the standard set by IBM for the use of the TOD clock, very few IBM systems do this. This means that even if the clock is set, it probably will be off by a few hours if an IBM system was the last system used on the machine.

C. The D4.0 system will produce several messages on the operators' console as it updates various public files which change depending on whether the system is being run on a 360 or a 370; ignore these.

6. Prepare a correct IPL system containing the TABLES for your machine by signing on from some terminal and entering:

```
SIG MTS
password (see below)
RUN RAMROD
CREATE xxxxx FROM D4SYS ( or D4SYS.360 if a 360)
enter comments if desired
REPLACE TABLES.DUMMY FROM >Tyyy
enter comments if desired
enter null line or date when prompted for version
reply "OK" to confirmation request
DELETE SEG0.NCA.TABLES
reply "OK" to confirmation request
DELETE SEG1.NCA.TABLES
reply "OK" to confirmation request
RENAME TABLES.DUMMY TABLES
reply "OK" to confirmation request
CURRENT
reply "OK" to confirmation request
```

The passwords for all userids on the distributed test pack are the same as the userids, e.g., the password for MTS is MTS. The xxxxx on the CREATE command is a name for the new system, which normally would be the MTS "model number" for the date, e.g., UG157 for August 15, 1977. Tyyy is the name of the tape drive containing the tape written by DECKGEN. The next time you IPL you can reply "YES" when asked if you want to run the current system. See the RAMROD (item 10008) and IPLREADER (item 10007) writeups for more information.

7. You now have a working version of MTS (presumably) and can start to run user programs. There are several things that you will probably want to do to clean up a few loose ends, however. Some of these are:

A. Fix HASP for whatever local options you desire. See the description of these options (item 10020).

B. Fix TSFO to agree with whatever hardware is available. There are several assembly parameters described in the source.

C. Replace various other parts of the system object deck to use either the SLT RPQ or the second CPU on a 360 if they are available. See the TABLES (item 10006) and Object Deck (item 10005) descriptions for more information. Multiple CPU 370s are not supported by MTS yet. The 360 system on the disk pack supports a standard model 67 360 with a possible 3270 operators' console. To support a duplex system, the CSTMDL field in the PSA (at 785) must be changed from X'01' to X'02'. The 370 system supports any model 370 or Amdahl machine with virtual memory. It allows a 3066, 3270, or 1052 compatible operators console.

D. Change the files INIT:INITCMD and *S2L to not do the extra things that are required to IPL on either a 360 or a 370. Each of these runs a program (CNFGSOU) to select one of two sets of commands depending on the machine type. INIT:INITCMD also copies several files which are different on the two machine types. All of this can be deleted if desired.

E. Fix up the command statistics directory file SYS:CMDDIR for the appropriate tapes.

8. General things new installations should know.

A. How to sign on using the operators console.
1. Enter "MTS OPER" on the operators' console
2. It will come back immediately for input.
3. Enter the signon command.
4. You are now signed on if the ID exists. No password is required for signon from OPER and SIGFILEs are not active for signon from OPER. Also the "last signon" message and the "signed on at" message are not printed if MSOURCE is OPER.

B. A 2301 drum must have device name DRM1. If you have a second 2301, it must be named DRM2. Similarly, 2305s must be named FHF0 to FHF7 for the first one and FHF8 to FHFF for the second one.

C. A "privileged" ID is one with X'80' on in the second byte (byte 1) of the accounting record (set by accounting maintenance program on request). If the ID is privileged then no checking for maximum money, etc., is made. The expiration date and maximum file space, however, **are** checked. Also this bit allows the user to declare a program to be run with PROT=OFF, allows "public file privilege" (see next), and allows privileged SYSTEMSTATUS commands to be given.

D. A "public file privileged" ID is one with X'08' on in the second byte of the accounting record. This allows the user to create a public file.

E. A user with the ACCPUSE bit on in his accounting record can also declare a program to be run with PROT=OFF and can issue privileged SYSTEMSTATUS commands.

F. A user with either ACCTLB or ACCPLB on in his accounting record can set LSS (Limited-Service State) off even if the load is too high.

Distribution 4 consisted of 3 *FS tapes and a dump/restore tape. The 3 *FS tapes are in d4.0t1.aws through d4.0t3.aws as VLO labeled tapes with volume names D4T1 through D4T3. [A VLO tape is a tape that has a VOL1 label but otherwise looks like an unlabeled tape. Only MTS and lbltp support that format.] The dump/restore tape wasn't copied to a cartridge tape and I don't have a copy of it.

The driver file is in D4.DRIVER and there is a listing of it in D4.LIST. D4.INDEX is an index of the driver file sorted by component name. D4.NOTES contains a description of the distribution while D4.NEWSYS contains instructions for installing it on a new machine and D4.OLDSYS contains instructions for upgrading an existing installation. D4.MEMOS is a list of all the Computing Center Memos that existed at that time.

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