TOPS-10/TOPS-20 Software Update User's Guide

Electronically Distributed

This guide describes TOPS-10/TOPS-20 Software Update, a method for distributing updated versions of the software products developed for Digital Equipment Corporation's 36-bit operating systems, TOPS-10 and TOPS-20.

TOPS-10/TOPS-20 Software Update replaces the Automatic Patching Facility. This manual replaces the TOPS-10/TOPS-20 Autopatch Procedures/Reference Manual, order number AA-H729A-TK.

Operating Systems:	TOPS-10 Version 7.04 TOPS-20 Version 4.1, 7.0
Software:	TOPS-10 GALAXY Version 5.1 TOPS-20 GALAXY Version 4.2, 6.0

TOPS-20 Software Update Tape No. 1, January 1990
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TOPS-10/TOPS-20 Software Update differs from the Automatic Patching process in several significant areas.

Autopatch used a database to track updates to products. Patch files, which sometimes were complete product replacements, were applied and an updated product was built and installed. TSU replaces updated components in product sets that are based on the original distribution. The TSU process does not include the building, installation, or backup of any products; in most cases, the products are delivered "ready-to-run".

The TSU process is a static retrieval process based on the use of logical names. A logical name is used for each set of files that were distributed in a saveset on the product distribution tape. In most cases, these savesets distinguish the files as either associated documentation files, product source files, or product executable files.

Eliminating the product build process makes the update simpler and, in most cases, faster. If you do not need to rebuild any of the products, you can indicate that updated executable files only are to be restored. If, for any reason, you need to rebuild a product or products, you may indicate that source updates are desired and then use the build procedures that may be specific to your site.

If, for any reason, you do not want to use the original product distribution as the base for the TSU process, you may use your current Autopatched files on disk. Refer to Appendix B for instructions to do this.

CHAPTER 1

INTRODUCTION

TOPS-10/TOPS-20 Software Update (TSU) is a combination of software tools and operational procedures for easily installing pre-built sources, executables, and updates to the supported software products developed for DIGITAL's 36-bit operating systems, TOPS-10 and TOPS-20.

TSU is designed to be an automatic process. Once the software tools are installed at your site, you will be able to install the latest versions of DIGITAL's software with little effort.

The TSU process is based on the original distribution of TOPS-10 Version 7.04 and TOPS-20 Versions 4.1 and 7.0. The TSU update tape looks like an all-product distribution tape with the following exceptions:

- Only the files for those products that have changed since last product release are distributed.
- Unbundled product files are encrypted and must be decrypted using separately distributed keyfiles.
- Files that are new with each tape are duplicated in a single saveset near the beginning of the first tape.

Before installing and using the tools provided on the update tape, you should verify that you have the system requirements for updating at your site.

1.1 SYSTEM REQUIREMENTS

TSU can be used on all supported configurations of DECsystem-10 and DECSYSTEM-20 hardware that have sufficient on-line mass storage. Table 1-1 lists the minimum resources required in order to update your system using the procedures outlined in this guide.

Table 1-1: TSU Minimum Resource Requirements

Operating System	System Software	Hardware
DECsystem-10		
TOPS-10 V 7.04	GALAXY V 5.1 BACKUP	KS10, KL10 CPU 1 RP06 disk, in addition to the system disk 1 9-track tape drive, 1600 bpi
DECSYSTEM-20		
TOPS-20 V 4.1	GALAXY V 4.2 DUMPER	KS10 CPU 1 RP06 disk, in addition to the system disk 1 9-track tape drive, 1600 bpi
TOPS-20 V 7.0	GALAXY V 6.0 DUMPER	KL10 CPU 1 RP06 disk, in addition to the system disk 1 9-track tape drive, 1600 bpi

1.2 UPDATE TAPE STRUCTURE

The update tape is organized into several savesets. A saveset is a group of files on tape, stored as the result of one SAVE command to either BACKUP (TOPS-10) or DUMPER (TOPS-20).

1.2.1 Current Update Saveset

The first saveset contains files used by TSU and information about the current update. The most important files in this set are listed and described in Table 1-2. Unless otherwise noted, all files are provided for TOPS-10 and TOPS-20 systems.

Table 1-2: Contents of Current Update Saveset

File name	Contents
README.nn	Summary information about the Current Update Saveset. The filename follows the format README.nn where "nn" is the number of the current update tape. Print the README file and use it in conjunction with this guide.
BLDTSU.CTL	Build Control File. TOPS-20 only. Use this file to build the updating directories needed for the TSU process.
LODxxx.CTL	Distribution Retrieval Files. These files are named in the format LODxxx where "xxx" indicates a product name. For example, LODCBL.CTL is the Distribution Retrieval File for COBOL. Use these files to restore the software from the original product distribution tapes to disk.
COPYAP.CTL	Autopatch Retrieval File. This file is provided in the event that original product distribution tapes are not available for your use. It is recommended that you make every effort to use the software on the original product distribution tapes as the base for the TSU process. However, if this is not possible, you may use your current Autopatched files. Use this control file to copy the files from your Autopatching directories into the TSU directories.
TSU.NUL	Logical Definition File. This file is shipped with the extension .NUL to prevent rewriting an existing Logical Definition file. You will rename it with the extension .CMD (TOPS-20) or .MIC (TOPS-10) after restoring it from the update tape. Definitions in this file determine what software will be copied from the update tape.
BACKUP.EXE DUMPER.EXE	The versions of BACKUP (TOPS-10) and DUMPER (TOPS-20) used by the Retrieval Process Control files. Commands to these versions of BACKUP and DUMPER are included in the control files.
TSUNEW.CTX TSUALL.CTX	Retrieval Process Control Files. These files are shipped with the extension .CTX to prevent rewriting any existing Retrieval Process Control Files. You will rename them with the proper extensions (.CTL) after restoring them from the update tape. The Retrieval Process Control Files contain commands to BACKUP (TOPS-10) or DUMPER (TOPS-20) to restore the updated

	software, and to APUTIL to decrypt and verify the software.
APUTIL.EXE	APUTIL is a program that decrypts and verifies software. Commands to APUTIL to decrypt and verify the software are included in the Retrieval Process Control Files. APUTIL can also be used interactively. See Chapter 6 for information about APUTIL.

1.2.2 Subsequent Savesets

The savesets following the Current Update Saveset contain the updated files for those products that have changed since the last update tape. They are grouped together in one saveset. You can restore these files by using the Retrieval Process Control File TSUNEW.CTL.

All other savesets contain the files for all products that have changed since the last product release. You can restore these files by using the Retrieval Process Control File TSUALL.CTL.

1.3 DISTRIBUTION OF UPDATE TAPES

Additional update tapes will be made available to you periodically, as changes are made to the software. Each tape contains the latest versions of all software products, so that you can update any software product at any time.

1.4 THE UPDATE ENVIRONMENT

Before you can update the software on your system, you must first prepare an appropriate environment, consisting of several disk directories. Then you will restore the files from the original product distribution tapes. You only need to set up these directories and restore the original product distribution files once, because they are to be retained on disk and used whenever you want to update your software. Directions for preparing your system for the update process can be found in Chapter 2 if you are preparing a TOPS-10 system. If you are preparing a TOPS-20 system, you will find the TOPS-20 directions in Chapter 4.

1.4.1 Directory Requirements

We recommend that you dedicate a separate disk pack for the update

process so that you need to mount only one disk pack to have everything you need. Our examples refer to this disk structure as TSU:.

It is also recommended that you use the naming conventions used in the procedures, so that your names and those used by both TSU and the sample procedures shown in this guide will be compatible. Conforming to the naming conventions will allow you to update the software products in use at your site simply by executing the procedures as shown.

1.5 THE UPDATE PROCESS

The update process is initiated by using BACKUP (TOPS-10) or DUMPER (TOPS-20) to obtain the necessary files from the update tape. All activities are then controlled by either of the Retrieval Process Control Files.

1. Restore the files from the first saveset on the update tape to the updating directory on disk so that all the files needed for the automatic update process are accessible. Read README.nn.

2. Submit the appropriate Retrieval Process Control File to restore, decrypt, and verify the updated software.

3. Copy the updated files to their appropriate directories.

CHAPTER 2

PREPARING YOUR TOPS-10 SYSTEM

Before you can update the software on your system, you must prepare the appropriate environment. To prepare the appropriate environment, you will:

1. Run CREDIR to create the updating directory.

2. Mount the first update tape and restore the Current Update Saveset.

3. Print and read the README file, if you have not already done so.

4. Rename the Retrieval Process Control Files and the Logical Definition File.

5. Edit the Logical Definition File.

6. Restore the files from the original product distribution tapes to the TSU directories.

If you have already used TOPS-10/TOPS-20 Software Update once, or have already prepared your system, go on to Chapter 3.

In the steps that follow, anything that you are expected to type is underscored; anything that the system prints back to you is not underscored.

Step 1: Log in under [1,2].

Note: You must be logged in to [1,2] for the procedure to work.

```
.LOGIN 1,2<RET>
Password:xxxxxx<RET>
[LGNJSP Other Jobs Same PPN]
18:41    3-Aug-89         Thu
```

.

Step 2: Mount the updating structure.

Mount the structure to be used for all the operations involved in updating. To be consistent with our examples, call this structure TSU:. It should be a dedicated disk so that others can continue to use the system as you process new update tapes.

```
.MOUNT TSU:<RET>
[Mount request TSU queued, request #657]
[Structure TSU mounted]

.
```

Step 3: Make the updating structure the only structure your job is looking at.

```
.PATH/CREATE:TSU:<RET>

.
```

Step 4: Create the updating directory.

If you already have a User File Directory (UFD) established for the updating directory, skip this step. Otherwise, run CREDIR to create the UFD for the updating process. This directory will be TSU:[10,7].

```
.R CREDIR<RET>

Create directory: TSU:[10,7]<RET>
  Created TSU0:[10,7].UFD/PROTECTION:775
Create directory: <CTRL/C>

.
```

The Sub-File Directories (SFDs) for each product will be automatically created by BACKUP when you restore the files from the TSU tapes.

Step 5: Select a tape drive and SET it available.

Ensure that the tape drive you will use is available to the Mountable Device Allocator (MDA) by using the OPR command SET TAPE-DRIVE.

MTA0 is used in the following examples; if the update tape is on a different drive, use the correct physical device name.

```
.R OPR<RET>
```

```
OPR>SET TAPE-DRIVE MTA0: AVAILABLE<RET>
OPR>
13:37:19        Device MTA0  -- Available for use  --

OPR>EXIT<RET>

.
```

Step 6: Put the first update tape on drive MTA0 and MOUNT it.

There will be one or more update tapes, and they will be clearly labelled following the convention 1 of n, 2 of n, and so forth, where "n" is the total number of tapes.

The update tape is called TSUTAP.

```
.MOUNT MTA: TSUTAP:/NOWAIT/REELID:UPDATE<RET>
[Mount request MTA queued, request #691]

.
```

Step 7: Run OPR and IDENTIFY the tape drive with the request number given.

```
.R OPR<RET>

OPR>IDENTIFY MTA0: REQUEST-ID 691<RET>
OPR>
13:41:52        Device MTA0   -- Volume UPDATE reassigned --
                User: TSU-TEST [1,2] Job #30

OPR>EXIT<RET>

.
```

Step 8: Run BACKUP to RESTORE the Current Update Saveset to [1,2].

The Current Update Saveset is the first saveset on the tape. The files on the tape are restored from the directories on tape to the directories you have created on disk. Only one saveset is restored for each RESTORE command given. Each file restored is listed, until the end of the saveset is reached.

```
.R BACKUP<RET>

/TAPE TSUTAP:<RET>
/BLOCK 32<RET>
/FILES<RET>
/RESTORE TSU:[1,2]=DSKB:[10,7,TSU]*.*<RET>
```

```
!10,7   DSKB
   .
   .
filename
filename
filename
   .
   .
"Done

/REWIND<RET>
/EXIT<RET>

.
```

Step 9: DISMOUNT the update tape.

```
.DISMOUNT TSUTAP:<RET>

[MTA0:UPDATE Read(C/H/S) = 318400/0/0]
[MTA0 dismounted]

.
```

Step 10: PRINT the README file.

Print the documentation file README.nn., where "nn" is the number of the current update tape. This file contains summary information about the first saveset, and is to be printed and used in conjunction with this guide. In the following example .01 is used, but remember to use the number of the current update tape.

```
.PRINT README.01<RET>
[Printer job 1 queued, request #703, limit 1]

.
```

Step 11: RENAME the Retrieval Process Control Files and the Logical Definition File.

The Retrieval Process Control Files and the Logical Definition File are shipped with the file extensions .CTX and .NUL. These files are included in the Current Update Saveset, which you restored in Step 8. Rename these files to include the correct extension: .CTL for the Retrieval Process Control Files and and .MIC for the Logical Definition File.

Rename the control files:

```
.RENAME *.CTL=*.CTX<RET>
Files renamed:
TSU:TSUNEW.CTX
TSU:TSUALL.CTX

.
```

Rename the Logical Definition File:

```
.RENAME *.MIC=*.NUL<RET>
Files renamed:
TSU:TSU.NUL

.
```

Step 12: Edit the Logical Definition File (TSU.MIC).

The Logical Definition File contains directory definitions for each product that can be delivered on an update tape. As supplied, the Logical Definition File points all product files to a nonexistant area (NUL:). Edit this file to point to existing disk areas ONLY for the updated products you want.

Before editing, the Logical Definition File contains definitions that look like this:

```
.PATH/CREATE:NUL:

.ASSIGN NUL: TSU704:
.ASSIGN NUL: TSUDEC:
   ;
; If [10,7,*,*,*] is not where you want DECNET and the TOPS-10
; bundled components, a change is required to the
; TSUNEW.CTL and TSUALL.CTL files.
;
.PATH CBLSYS:=NUL:[10,7,CBLSYS]        ;COBOL executable files
.PATH CBLSRC:=NUL:[10,7,CBLSRC]        ;COBOL source files

        .
        .
        .

.PATH/LIST:ALL
```

Use the editor of your choice to edit the file to point to the product subdirectories for only those products that you want to update. You do not have to use the [10,7] PPN for the updating directory. If you want to use a different PPN, edit the file to include the PPN you want to use.

In the following example, the same locations shown above have been

defined. The locations that have been defined are underlined.

```
.PATH/CREATE:TSU:

.ASSIGN TSU: TSU704:
.ASSIGN TSU: TSUDEC:
   ;
; If [10,7,*,*,*] is not where you want DECNET and the TOPS-10
; bundled components, a change is required to the
; TSUNEW.CTL and TSUALL.CTL files.
;
.PATH CBLSYS:=TSU:[10,7,CBLSYS]        ;COBOL executable files
.PATH CBLSRC:=TSU:[10,7,CBLSRC]        ;COBOL source files

        .
        .
        .

.PATH/LIST:ALL
```

Now copy TSU.MIC to a structure listed in the standard login search list for [1,2].

Step 13: RESTORE files from the original product distribution tapes.

The original distribution provides the base for the new update process. Control files are provided to assist you in restoring the files from the distribution tapes. You restored these files when you restored the contents of the Current Update Saveset.

Note:

If, for any reason, you must use the files from the Autopatch areas, see Appendix B for an alternate method.

Table 2-1 lists each distribution tape, the name of the product contained on the tape, and the name of the control file that will restore the files. Refer to the table and, for each product that you want to restore, put the tape on drive MTA0: and submit the control file.

See Appendix A for an example of how to restore COBOL and SORT.

Table 2-1: Distribution Retrieval Files

Product Name	Distribution Tape	Control File
COBOL V12C/SORT V4D	BB-H580E-SB	LODCBL.CTL
SORT KEYS	BB-PANKA-BB	
7.04 CUSPS	BB-X128C-SB BB-FP63B-SB	LODCSP.CTL
7.04 Customer Supported	BB-X130C-SB	LODCUS.CTL
DECNET 7.04	BB-X116C-BB	LODDEC.CTL
FORTRAN V11	BB-D480G-SB	LODFTN.CTL
IBMCOM/ET V4	BB-J992D-SB	LODIET.CTL
IBMCOM ET KEYS	BB-PANJA-BB	
IBMCOM/HASP V1	BB-V552B-SB	LODIHS.CTL
IBMCOM HASP KEYS	BB-PANHA-BB	
7.04 MONITOR	BB-X140C-SB	LODMON.CTL
SORT V4D	BB-D489F-SB	LODSRT.CTL
SORT KEYS	BB-PANKA-BB	

The version of MX provided on the original distribution tapes has been superseded by another version, provided on the update tapes. Delete the version of MX that was restored:

```
.DELETE TSU:[10,7,DECMAI,MX]*.*<RET>
Files deleted:
        .
        .
        .
n blocks freed

.
```

Now that you have created the directories and restored the files from the original product distribution tapes, you are ready to restore the updated software from the TSU update tape. The steps for restoring the updated software are listed in Chapter 3.

CHAPTER 3

UPDATING TOPS-10 SOFTWARE

This chapter lists the steps you must follow to update your software. If you have just finished setting up your system for the first time, go to Step 10.

If your system is already set up for the TSU process, and you have used this process at least one other time, begin with Step 1.

Step 1: Log in under [1,2].

Note: You must be logged in to [1,2] for the procedure to work.

```
.LOGIN 1,2<RET>
Password:xxxxxx<RET>
[LGNJSP Other jobs same PPN]
08:15    7-Nov-1989       Tue

.
```

Step 2: MOUNT the disk structure TSU:.

```
.MOUNT TSU:<RET>
[Mount request TSU queued, request #657]
[Structure TSU mounted]

.
```

Step 3: Make the updating structure the only structure your job is looking at.

```
.PATH/CREATE:TSU:<RET>
.
```

Step 4: Run OPR, select a tape drive, and SET it AVAILABLE.

Ensure that the tape drive you will use is available to the Mountable Device Allocator (MDA) by using the OPR command SET TAPE-DRIVE.

MTA0 is used in the following examples; if the update tape is on a different drive, use the correct physical device name.

```
.R OPR<RET>
OPR>SET TAPE-DRIVE MTA0: AVAILABLE<RET>
OPR>
13:37:19        Device MTA0  -- Available for use --

OPR>EXIT<RET>

.
```

Step 5: Put the first update tape on drive MTA0 and MOUNT it.

There will be one or more update tapes, and they will be clearly labelled following the convention 1 of n, 2 of n, and so forth, where "n" is the total number of tapes.

The update tape is called TSUTAP.

```
.MOUNT MTA: TSUTAP:/NOWAIT/REELID:UPDATE<RET>
[Mount request MTA queued, request #691]

.
```

Step 6: Run OPR and IDENTIFY the tape drive with the request number given.

```
.R OPR<RET>

OPR>IDENTIFY MTA0: REQUEST-ID 691<RET>
OPR>
13:41:52        Device MTA0   -- Volume UPDATE reassigned --
                User: TSU-TEST [1,2] Job #30

OPR>EXIT<RET>

.
```

Step 7: Run BACKUP to RESTORE the Current Update Saveset to [1,2].

The Current Update Saveset is the first saveset on the tape. The files on the tape are restored from the directories on tape to the directories you have created on disk. Only one saveset is restored for each RESTORE command given. Each file restored is listed, until the end of the saveset is reached.

```
.R BACKUP<RET>

/TAPE TSUTAP:<RET>
/BLOCK 32<RET>
/FILES<RET>
/RESTORE TSU:[1,2]=DSKB:[10,7,TSU]*.*<RET>
!10,7   DSKB
   .
   .
filename
filename
filename
   .
   .
"Done

/REWIND<RET>
/EXIT<RET>

.
```

Step 8: DISMOUNT the update tape.

```
.DISMOUNT TSUTAP:<RET>

[MTA0:UPDATE Read(C/H/S) = 318400/0/0]
[MTA0 dismounted]

.
```

Step 9: PRINT the README file.

Print the documentation file README.nn, where "nn" is the number of the current update tape. This file contains summary information about the first saveset, and is to be printed and used in conjunction with this guide.

In the following example, .01 is used, but remember to use the number of the current update tape.

```
.PRINT README.01<RET>
[Printer job 1 queued, request #703, limit 1]

.
```

Step 10: Select the desired Retrieval Process Control file (TSUALL.CTL or TSUNEW.CTL) to restore updated software.

You are supplied with two batch control files but will only use one.

Use TSUNEW.CTL to retrieve updated software from the NEW saveset on the update tape. The NEW saveset contains only those files for products that are newly updated for the current update tape. Use TSUNEW.CTL only if you are up-to-date as of the previous update tape. Use the other control file, TSUALL.CTL, to restore the latest version of ALL products updated since the last product release.

Note:

If this is your first time using the TSU process and you have just finished restoring the original product distribution files, use the TSUALL.CTL control file.

Put the first update tape on drive MTA0: and submit the batch control file.

```
.SUBMIT TSUALL.CTL/TIME:1:00:00/NOTIFY:YES<RET>
[Batch job TSUALL queued, request #717, limit 1:00:00]

.
```

Run OPR and IDENTIFY the tape drive with the request number given.

```
.R OPR<RET>

OPR>IDENTIFY MTA0: REQUEST-ID 717<RET>
OPR>
14:33:23       Device MTA0:  -- Volume TSU reassigned --
               User: TSU-TEST [1,2] Job #34

OPR>
```

For each tape after the first (tape 1 of n), you will be notified that the mount request for the next tape (tape 2 of n, tape 3 of n, and so forth) is waiting in the queue. When you are notified, take the first tape off the drive and put the sceond tape on, and so forth. Then, tell OPR to RECOGNIZE the drive. Finally, IDENTIFY the tape drive with the request number given.

The mount request for the next tape is waiting in the queue:

```
OPR>
14:37:37         -- Magtape mount request #722 --
               User: TSU-TEST [1,2] Job #34
               Volume-set name: TSUTAP

               Volume-ID   Write   Labels  Track  Density
               ---------  -------  ------  -----  -------
               TSU2       Locked   No        9    1600
```

```
OPR>
```

Put the next tape on the drive and tell OPR to RECOGNIZE the tape drive:

```
OPR>RECOGNIZE MTA0:<RET>
OPR>
14:40:20        Device MTA0 -- Unlabeled volume mounted --
                Density 1600 BPI, write-locked

OPR>
```

Now IDENTIFY the tape drive with the request number given:

```
OPR>IDENTIFY MTA0: REQUEST-ID 722<RET>
OPR>
14:41:00        Device MTA0  -- Volume TSU2 reassigned --
                User: TSU-TEST [1,2] Job #34

OPR>EXIT<RET>

.
```

When the batch job has finished, you will be notified:

```
[From SYSTEM: Job TSUALL request #722 finished executing...]
.
```

Check the log file for errors. This file will be named TSUNEW.LOG or TSUALL.LOG, depending on the control file you used. If any errors have occurred, you can use APUTIL interactively to decrypt and verify a specific product. See Chapter 6 for a description of APUTIL.

Step 11: Build the TOPS-10 monitor.

Refer to the TOPS-10 Software Installation Guide, Chapter 9, for information on building your monitor. Chapter 9 describes how to build your monitor using the MONitor GENerator program, MONGEN.

Step 12: Rebuild software.

If you restored source files because your site uses nonstandard versions of the software, you must accomplish two steps in order to incorporate the changes specific to your site. First, you compare the updated sources with your site's edited sources. Then, merge the two sources together. After you have compared and merged the sources, you can rebuild the product. Use the procedures that are specific to your site or refer to the appropriate product manuals for instructions on building a specific product.

Step 13: Copy updated software to system areas.

The updated software is available in the updating directory and can be copied to the system areas. Refer to the TOPS-10 Software Installation Guide, Chapter 7, for instructions on copying the software.

Before copying it, however, you may want to try running it out of the updating directory to determine whether it performs to your satisfaction.

If you are going to copy the updated files now, you must be careful to avoid interfering with the work others are doing if your system is running under timesharing.

CHAPTER 4

PREPARING YOUR TOPS-20 SYSTEM

Follow the procedures in this chapter to prepare your system for the TSU process. Before you can update the software on your system, you must prepare the appropriate environment. To prepare the environment, you will:

1. Build the updating directory.
2. Mount the first update tape and restore the Current Update Saveset.
3. Print and read the README file, if you have not already done so.
4. Rename the Retrieval Process Control Files and the Logical Definition File.
5. Edit the Logical Definition File.
6. Build the updating subdirectories.
7. Restore the files from the original product distribution tapes to the TSU directories.

If you have already used TOPS-10/TOPS-20 Software Update once, or have already prepared your system, go on to Chapter 5.

In the steps that follow, anything that you are expected to type is underscored; anything that the system prints back to you is not underscored.

Step 1: Log in to a privileged account.

You may log in to any account having WHEEL or OPERATOR access privileges. Once you have logged in, enable these privileges.

@LOGIN WHEEL password<RET>

```
 Job 57 on TTY21 03-Aug-89  08:22:01
@ENABLE <RET>
$
```

Step 2: Prepare a disk structure to be used for all updating operations.

To be consistent with our examples, call this structure TSU:. It should be a dedicated disk so that you can continue to update your system as new update tapes are distributed. First, you must declare TSU: a domestic structure. If you are updating the software on a KL, you will run OPR; if you are updating the software on a KS, you must edit your PS:<SYSTEM>MOUNTR.CMD file. If you plan to use an existing domestic structure for updating, you can skip this step.

For KL:

```
$OPR<RET>
OPR>SET STRUCTURE TSU: DOMESTIC<RET>
OPR>
14:59:32          -- Set Structure Command --
                 Structure TSU: set DOMESTIC
OPR>EXIT<RET>
$
```

For KS:

Before you can edit MOUNTR.CMD, you must connect to the directory where it is located, PS:<SYSTEM>.

```
$CONNECT PS:<SYSTEM><RET>
$
```

Type out your MOUNTR.CMD file. A sample MOUNTR.CMD file is shown below.

```
$TYPE MOUNTR.CMD<RET>
!MOUNTR COMMAND FILE
DOMESTIC STRUCTURE CBL79:
DOMESTIC STRUCTURE SUPT:
$
```

Use the editor of your choice to add the line below to your MOUNTR.CMD file. This line declares TSU: as a domestic structure.

```
DOMESTIC STRUCTURE TSU:
```

Step 3: Mount the disk structure TSU:.

```
$MOUNT STRUCTURE TSU:<RET>
```

```
Structure TSU: mounted
$INFORMATION STRUCTURE TSU:<RET>
Status of structure TSU:
Mount count: 1, open file count: 0, units in structure: 1
Domestic
Users who have MOUNTed TSU: WHEEL
No users are ACCESSing TSU:
No users CONNECTed to TSU:
$
```

Step 4: BUILD the updating directory.

The updating directory is called TSU:<UPDATE>. There are two different examples below, one for a KL and one for a KS. The number of permanent and working pages for the KL is set to INFINITE. INFINITE cannot be specified on the KS but the same effect can be achieved by using 1 billion (1 and nine zeroes).

For KL:

```
$BUILD TSU:<UPDATE><RET>
[New]
$$PERMANENT INFINITE<RET>
$$WORKING INFINITE<RET>
$$MAXIMUM-SUBDIRECTORIES 40<RET>
$$USER-GROUP 10<RET>
$$DIRECTORY-GROUP 10<RET>
$$SUBDIRECTORY-USER-GROUP 10<RET>
$$
$
```

For KS:

```
$BUILD TSU:<UPDATE><RET>
[New]
$$PERMANENT 1000000000<RET>
$$WORKING 1000000000<RET>
$$MAXIMUM-SUBDIRECTORIES 40<RET>
$$USER-GROUP 10<RET>
$$DIRECTORY-GROUP 10<RET>
$$SUBDIRECTORY-USER-GROUP 10<RET>
$$
$
```

Step 5: CONNECT to the updating directory.

```
$CONNECT TSU:<UPDATE><RET>
$
```

Step 6: Select a tape drive and SET it available.

Ensure that the tape drive you will use is available to MOUNTR by using the OPR command SET TAPE-DRIVE.

MTA0 is used in the following examples; if the update tape is on a different drive, use the correct physical device name.

```
$OPR<RET>
OPR>SET TAPE-DRIVE MTA0: AVAILABLE<RET>
OPR>
17:01:41       -- Tape Drive Set Available --
            MTA0: set available for assignment by MOUNTR
OPR>EXIT<RET>
$
```

Step 7: Put the first update tape on drive MTA0 and MOUNT it.

There will be one or more update tapes, and they will be clearly labelled following the convention 1 of n, 2 of n, and so forth, where "n" is the total number of tapes.

The update tape is called TSUTAP.

```
$MOUNT TAPE TSUTAP:/NOWAIT/NOUNLOAD<RET>
[Mount request TSUTAP queued, request #38]
$
```

Step 8: Run OPR and IDENTIFY the tape drive with the request number given.

```
$OPR<RET>

OPR>IDENTIFY MTA0: REQUEST-ID 38<RET>
OPR>
12:09:52         -- MTA0: Given To Request 38 --
                Volume TSUTAP now in use by
                User WHEEL, Job 146, Terminal 331, Account E0H
OPR>EXIT<RET>
[Tape set TSUTAP, volume TSUTAP mounted]
[TSUTAP: defined as MT0:]
$
```

Step 9: Run DUMPER to RESTORE the Current Update Saveset.

The Current Update Saveset is the first saveset on the tape. The files on the tape are restored from the directories on tape to the directories you have created on disk. Only one saveset is restored for each RESTORE command given. Each file restored is listed, until the end of the saveset is reached.

```
$DUMPER<RET>
DUMPER>TAPE TSUTAP:<RET>
DUMPER>SET BLOCK 8<RET>
DUMPER>FILES<RET>
DUMPER>RESTORE TSU:<*>*.* TSU:<UPDATE>*.*<RET>
CURRENT saveset 14-Sep-89 0958
 Loading files into TSU:<UPDATE>
   .
   .
filename
filename
filename
   .
   .
DUMPER>EXIT<RET>
$
```

Step 10: DISMOUNT the update tape.

```
$DISMOUNT TAPE TSUTAP:<RET>
[Tape dismounted, logical name TSUTAP: deleted]
$
```

Step 11: PRINT the README file.

Print the documentation file README.nn, where "nn" is the number of the current update tape. This file contains summary information about the first saveset, and is to be printed and used in conjunction with this guide. In the following example .01 is used, but remember to use the number of the current update tape.

```
$PRINT README.01<RET>
[Job README Queued, Request-ID 20, Limit 27]
$
```

Step 12: RENAME the Retrieval Process Control Files and the Logical Definition File.

The Retrieval Process Control Files and the Logical Definition File are shipped with the file extensions .CTX and .NUL. These files are included in the Current Update Saveset, which you restored in Step 9. Rename these files to include the correct extension: .CTL for the Retrieval Process Control Files, and .CMD for the Logical Definition File.

Rename the control files:

```
$RENAME *.CTX *.CTL<RET>
 TSUALL.CTX.1 => TSUALL.CTL.1 [OK]
```

```
 TSUNEW.CTX.1 => TSUNEW.CTL.1 [OK]
$
```

Rename the Logical Definition File:

```
$RENAME *.NUL *.CMD<RET>
 TSU.NUL.1 => TSU.CMD.1 [OK]
$
```

Step 13: Edit the Logical Definition File (TSU.CMD).

The Logical Definition File contains directory definitions for each product that can be delivered on an update tape. As supplied, the Logical Definition File points all product files to a nonexistant area (NUL:). Edit this file to point to existing disk areas ONLY for the updated products you want.

Before editing, the Logical Definition File contains definitions that look like this:

```
DEFINE BP2SYS: NUL:<UPDATE.BP2SYS>        ;BASIC executable files
DEFINE CBLSYS: NUL:<UPDATE.CBLSYS>        ;COBOL executable files
        .
        .
        .
```

Use the editor of your choice to edit the file to point to the product subdirectories for only those products that you want to update.

In the following example, the same locations shown above have been defined. The locations that have been defined are underlined.

```
DEFINE BP2SYS: TSU:<UPDATE.BP2SYS>   ;BASIC executable files
DEFINE CBLSYS: TSU:<UPDATE.CBLSYS>   ;COBOL executable files
        .
        .
        .
```

Step 14: Submit BLDTSU.CTL to create the updating subdirectories.

The Build Control File BLDTSU.CTL is provided to assist you in creating the updating subdirectories. BLDTSU.CTL contains commands to the monitor to create the subdirectories, set the number of permanent and working pages, and designate the directory group.

For TOPS-20 KL systems, BLDTSU.CTL uses the definitions made in the Logical Definition File (TSU.CMD). The TOPS-20 KS system's BUILD command, however, does not recognize logical names. Therefore, if you are preparing a KS system for updating, you must edit BLDTSU.CTL to include real structure names. For those products that you want to

| update, replace XXX: with the real name of the structure you are using for the update process. In this guide, the structure name that is being used is TSU:.

The updating subdirectories are named following the convention

TSU:<UPDATE.subdirectory>

where "subdirectory" is the name of each product saveset.

Table 4-1 lists the subdirectories that are built when the control file is submitted.

The subdirectories are created with the number of working and permanent pages set to INFINITE on the KL and 1 billion on the KS. These values were chosen based on the use of a dedicated disk pack. If you do not dedicate a disk pack to the update process, you may be interested in the number of pages required for each product. The approximate numbers of permanent and working pages required for each product are also listed in Table 4-1. The values listed are somewhat higher than the actual requirements for the product in order to allow additional space for temporary files created during the update process.

Table 4-1: Updating Subdirectories

Subdirectory	KL Pages Working/Permanent Approximate Values	KS Pages Working/Permanent
<UPDATE.BP2SYS>	400	400
<UPDATE.CBLSYS>	1600	6000
<UPDATE.CBLSRC>	6000	4000
<UPDATE.DBMALL>	2000	2000
<UPDATE.DECMCB>	1200	
<UPDATE.DECSRC>	1000	
<UPDATE.DECSYS>	1800	
<UPDATE.FTNCSR>	5600	5600
<UPDATE.FTNOSR>	3600	3600
<UPDATE.FTNSYS>	1600	1600
<UPDATE.GALSRC>	4600	
<UPDATE.GALSYS>	1400	
<UPDATE.IETSRC>	1600	
<UPDATE.IETSYS>	1000	
<UPDATE.IHSSRC>	1600	
<UPDATE.IHSSYS>	1400	
<UPDATE.LNGSRC>	4000	4000
<UPDATE.SRTSRC>	1200	1200

<UPDATE.SRTSYS>	400	400
<UPDATE.T20SRC>	20000	10000
<UPDATE.T20SUB>	9200	8000
<UPDATE.T20SYS>	4000	4000
<UPDATE.TCPSRC>	8000	
<UPDATE.TCPSUB>	600	
<UPDATE.TCPSYS>	1000	
<UPDATE.T20DIL>		2000
<UPDATE.T20EDT>		2000

Step 15: RESTORE files from the original product distribution tapes.

The original distribution provides the base for the new update process. Control files are provided to assist you in restoring the files from the distribution tapes. You restored these files when you restored the contents of the Current Update Saveset.

Note:

If, for any reason, you must use the files from your most recent Autopatch areas, see Appendix B for an alternate method.

Table 4-2 lists each distribution tape, the name of the product contained on the tape, the name of the control file that will restore the files, and whether the product is KL or KS specific. Refer to the table and, for each product that you want to restore, put the tape on drive MTA0: and submit the control file.

Three of the control files contain a logical definition for the structure and directory used in the examples. If you are using a structure and directory other than TSU:<UPDATE>, you must edit these files. The files that contain this definition are indicated with an *.

See Appendix A for an example of how to restore BASIC-Plus-2.

Table 4-2: Distribution Retrieval Files

System Type	Product Name	Distribution Tape		Control File
KL, KS	BASIC-Plus-2 V2A	BB-5543F-BM		LODBP2.CTL
KL, KS	BASIC-Plus-2-KEYS	BB-PANMA-BM		LODBP2.CTL
KL	COBOL V13/SORT V5	BB-Z759A-SM	*	LODCBL.CTL
KS	COBOL V12C/SORT V4D	BB-H506E-SM	*	LODCBL.CTL
KL	SORT V5	BB-Z761A-SM	*	LODSRT.CTL
KS	SORT V4D	BB-4160G-SM	*	LODSRT.CTL
KL, KS	DBMS V6.1	BB-4148F-BM		LODDBM.CTL
KL, KS	DBMS Keys	BB-PAM0A-BM		LODDBM.CTL
KL	DECnet V4	BB-H240E-BM	*	LODDEC.CTL
KL, KS	FORTRAN V11	BB-4157J-SM		LODFTN.CTL
KL	IBMCOM E/T	BB-D351C-SM		LODIET.CTL
KL	IBMCOM E/T Keys	BB-PALZA-BM		
KL	IBMCOM HASP	BB-J724B-SM		LODIHS.CTL
KL	IBMCOM HASP Keys	BB-PANNA-BM		
KL	TOPS-20 V7.0 Installation	BB-H137F-BM		LODT2I.CTL
KL	TCP/IP	BB-EV83B-BM		LODTCP.CTL
KL	TOPS 20 V7.0 Distribution 1/2	BB-H138F-BM		LODTD1.CTL
KL	TOPS-20 V7.0 Distribution 2/2	BB-LW55A-BM		LODTD2.CTL
KS	TOPS-20 V4.1 Distribution 1/2	BB-D868E-BM		LODT2D.CTL
KS	TOPS-20 V4.1 Distribution 2/2	BB-V895A-BM		LODT2D.CTL
KS	TOPS-20 V4.1 Update # 5	BB-R775E-BM		LODT2U.CTL
	Note: The TOPS-20 V4.1 Update tape, BB-R775E-BM, must be restored AFTER the TOPS-20 V4.1 Distribution tapes. Restore the tapes in the same order as they are listed.			

Now that you have created the directories and restored the files from the original product distribution tapes, you are ready to restore the

updated software from the TSU update tape. The steps for restoring the updated software are listed in Chapter 5.

CHAPTER 5

UPDATING TOPS-20 SOFTWARE

This chapter lists the steps you must follow to update your software. If you have just finished setting up your system for the first time, go to Step 10.

If your system is already set up for the TSU process, and you have used this process at least one other time, begin with Step 1.

Step 1: Log in to a privileged account.

You may log in to any account having WHEEL or OPERATOR access privileges. Once you have logged in, enable these privileges.

```
@LOGIN WHEEL password<RET>
 Job 57 on TTY21 03-Aug-89  08:22:01
@ENABLE <RET>
$
```

Step 2: MOUNT the disk structure TSU:.

```
$MOUNT STRUCTURE TSU:<RET>
Structure TSU: mounted
$
```

Step 3: CONNECT to the updating directory.

```
$CONNECT TSU:<UPDATE><RET>
$
```

Step 4: Select a tape drive and SET it AVAILABLE.

Ensure that the tape drive you will use is available to MOUNTR by using the OPR command SET TAPE-DRIVE.

MTA0 is used in the following examples; if the update tape is on a different drive, use the correct physical device name.

```
$OPR<RET>
OPR>SET TAPE-DRIVE MTA0: AVAILABLE<RET>
OPR>
17:01:41       -- Tape Drive Set Available --
             MTA0: set available for assignment by MOUNTR
OPR>EXIT<RET>
$
```

Step 5: Put the first update tape on drive MTA0 and MOUNT it.

There will be one or more update tapes, and they will be clearly labelled following the convention 1 of n, 2 of n, and so forth, where "n" is the total number of tapes.

The update tape is called TSUTAP.

```
$MOUNT TAPE TSUTAP:/NOWAIT/NOUNLOAD<RET>
[Mount request TSUTAP queued, request #38]
$
```

Step 6: IDENTIFY the tape drive with the request number given.

```
OPR>IDENTIFY MTA0: REQUEST-ID 38<RET>
OPR>
12:09:52          -- MTA0: Given To Request 38 --
                 Volume TSUTAP now in use by
                 User WHEEL, Job 146, Terminal 331, Account E0H
OPR>EXIT<RET>
[Tape set TSUTAP, volume TSUTAP mounted]
[TSUTAP: defined as MT0:]
$
```

Step 7: Run DUMPER to RESTORE the Current Update Saveset.

The Current Update Saveset is the first saveset on the tape. The files on the tape are restored from the directories on tape to the directories you have created on disk. Only one saveset is restored for each RESTORE command given. Each file restored is listed, until the end of the saveset is reached.

```
$RUN DUMPER<RET>
DUMPER>TAPE TSUTAP:<RET>
DUMPER>SET BLOCK 8<RET>
DUMPER>FILES<RET>
DUMPER>RESTORE TSU:<*>*.* TSU:<UPDATE>*.*<RET>
CURRENT saveset 14-Sep-89 0958
```

```
 Loading files into TSU:<UPDATE>
      .
      .
      .
 End of Saveset.
      .
      .
      .
DUMPER>EXIT<RET>
$
```

Step 8: DISMOUNT the update tape.

```
$DISMOUNT TAPE TSUTAP:<RET>
[Tape dismounted, logical name TSUTAP: deleted]
$
```

Step 9: PRINT the README file.

Print the documentation file README.nn, where "nn" is the number of the current update tape. This file contains summary information about the first saveset, and is to be printed and used in conjunction with this guide.

In the following example .01 is used, but remember to use the number of the current update tape.

```
$PRINT README.01<RET>
[Job README Queued, Request-ID 20, Limit 27]
$
```

Step 10: Select the desired Retrieval Process Control file (TSUALL.CTL or TSUNEW.CTL) to restore updated software.

You are supplied with two batch control files but will only use one. Use TSUNEW.CTL to retrieve updated software from the NEW saveset on the update tape. The NEW saveset contains only those files for products that are newly updated for the current update tape. Use TSUNEW.CTL only if you are up-to-date as of the previous update tape. Use the other control file, TSUALL.CTL, to restore the latest version of ALL products updated since the last product release.

Note:

If this is your first time using the TSU process and you have just finished restoring the original product distribution files, use the TSUALL.CTL control file.

Put the first update tape on drive MTA0: and submit the batch control file.

```
$SUBMIT TSUALL.CTL/TIME:1:00:00/NOTIFY:YES<RET>
[Batch job TSUALL queued, request # 42, limit 1:00:00]
$
```

Run OPR and wait to be notified of your mount request.

```
$OPR<RET>
OPR>
12:09:32         -- Tape Mount Request # 42 --
                Mount volume TAPE1, READ-ONLY
                User WHEEL, Job 147, Terminal 242, Account E0H
OPR>
```

IDENTIFY the tape drive with the request number given.

```
OPR>IDENTIFY MTA0: REQUEST-ID 42<RET>
OPR>
12:09:52         -- MTA0: Given To Request 42 --
                Volume TAPE1 now in use by
                User WHEEL, Job 147, Terminal 242, Account E0H
OPR>
```

If there is more than one update tape, you will be notified that the mount request is waiting in the queue.

```
16:03:56         -- Tape Mount Request # 46 --
                Mount Unlabeled volume TAPE2, 9-TRACK, READ-ONLY
                User WHEEL, Job 147, Terminal 242, Account E0H
```

Take the first tape off the drive, put the second tape on and IDENTIFY the tape drive with the request number given:

```
OPR>IDENTIFY MTA0: REQUEST-ID 43<RET>

16:04:56         -- MTA0: Unlabeled tape mounted --
OPR>
16:05:03         -- MTA0: Given To Request 46 --
                Volume TAPE2 now in use by
                User WHEEL, Job 147, Terminal 242, Account E0H
OPR>EXIT<RET>
$
```

When the batch job has finished, you will be notified:

```
OPR>
16:03:56         -- Tape Drive Released By User --
                MTA0: Tape Being Unloaded
```

Check the log file for errors. This file will be named TSUNEW.LOG or

TSUALL.LOG, depending on the control file you used. If any errors have occurred, you can use APUTIL interactively to decrypt and verify a specific product. See Chapter 6 for a description of APUTIL.

If you restored product executable files, go on to Step 12.

Step 11: Rebuild updated software.

If your site uses nonstandard versions of the software, you must accomplish two steps in order to incorporate the changes specific to your site. First, compare the updated sources with your site's edited sources. Then, merge the two sources together. After you have compared and merged the sources, you can rebuild the product. Use the procedures that are specific to your site or refer to the appropriate product manuals for instructions on building a specific product.

Step 12: Copy updated software to system areas.

The updated software is available in the updating directory and can be copied to the system areas. Before copying it, however, you may want to try running it out of the updating directory to determine whether it performs to your satisfaction.

If you are going to copy the updated files now, you must be careful to avoid interfering with the work others are doing if your system is running under timesharing.

CHAPTER 6

REFERENCE

6.1 THE APUTIL PROGRAM

APUTIL is a program for decrypting and verifying the files provided on the TOPS-10/TOPS-20 Software Update Tapes. Commands to APUTIL to decrypt and verify software are contained in the Retrieval Process Control Files that are supplied for the TSU update procedure. APUTIL may also be used interactively.

TSU uses the tape utilities BACKUP (TOPS-10) and DUMPER (TOPS-20) to restore the files into directories created for the update process. This operation is controlled by the Retrieval Process Control File. The unbundled product files are encrypted and must be decrypted, using special key files, after they are restored. The command to decrypt is included in the Retrieval Process Control File, so the decryption is done automatically as the files are restored. Each directory in a product saveset contains a Verify File (.VFY), and each .VFY file contains the file specifications and checksums of all files in that directory. The key file is supplied with each product release tape, or as a separate key file distribution.

APUTIL has five commands: HELP, READ, DECRYPT, VERIFY, and EXIT. When used with the Retrieval Process Control File, commands to APUTIL within the file direct APUTIL to READ the .VFY file for each product and to DECRYPT all files listed there with the product's associated key file. Then, the file is closed. It is closed with the same file specification as the original file, including the same version number and creation date. The original encrypted files are not preserved. After the file is closed, a command to VERIFY compares the checksums of all files to the checksums in the .VFY file in order to verify the integrity of the files.

The .VFY file is a checksummed directory listing. There is one .VFY file for each directory in the product savesets. The .VFY file includes products not changed since distribution.

6.1.1 The READ Command

The READ command closes any previously opened .VFY file and then reads the .VFY file in the specified directory. If no directory is specified, the default is the connected directory. The default file extension is .VFY. The .VFY file must be READ before the DECRYPT or VERIFY operation can be performed.

The arguments to the READ command are: the device, directory and name of the .VFY file. If the device and directory have been assigned a logical name, the logical name may be used in place of the device and directory the logical name represents.

The READ command has the following form:

```
     APUTIL>READ device:filename.vfy[directory]
or
     APUTIL>READ logicalname:filename.vfy
```

If you wanted to read the .VFY file for the IBMCOM/ET executable files, you would type:

For TOPS-10:

```
     APUTIL>READ TSU:IETSYS.VFY[10,7,IETSYS]
```

For TOPS-20:

```
     APUTIL>READ TSU:<UPDATE.IETSYS>IETSYS.VFY
```

Or, for both TOPS-10 and TOPS-20:

```
     APUTIL>READ IETSYS:IETSYS.VFY
```

After you issue the command to read IETSYS.VFY, APUTIL sends a message to the terminal:

```
     [Reading TSU:IETSYS.VFY[10,7,IETSYS]]
```

6.1.2 The DECRYPT Command

The DECRYPT command uses the product key file to decrypt all files for a specific product. The files to be decrypted are listed in the verify file for the product. Then, the file is closed, with the same file specification as the original file, including the same version number and creation date, and the original, encrypted files are not preserved.

The arguments to the DECRYPT command are: the device, directory, and name of the .KEY file. If the device and directory have been assigned

a logical name, that name may be used in place of the device and directory as long as the logical name points to only one directory.

If no directory is specified, DECRYPT uses the directory specified in the previous READ command as the default, and the previously specified .VFY file name as the default for the key file, with .KEY as its extension. In most cases the key file name will be the same as the previously specified .VFY file name. If it is different, the switch /KEY must be used to specify the key file name. APUTIL sends a message to the terminal to show which files are being decrypted.

The DECRYPT command has the following form:

```
     APUTIL>DECRYPT device:[directory]
or
     APUTIL>DECRYPT logicalname:
```

Optionally, if the key file name is different from the .VFY file name used in the previous read command:

For TOPS-10:

```
     APUTIL>DECRYPT device:/KEY:keyfilename.key[directory]
or
     APUTIL>DECRYPT logicalname:/KEY:keyfilename.key
```

For TOPS-20:

```
     APUTIL>DECRYPT device:[directory]/KEY:keyfilename.key
or
     APUTIL>DECRYPT logicalname:/KEY:keyfilename.key
```

To decrypt the IBMCOM/ET executable files that have been encrypted:

```
     APUTIL>DECRYPT IETSYS:
     [Decrypting TSU:[10,7,IETSYS]]
      D60SPD.EXE has been decrypted
      D6LQ3.BIN has been decrypted
          .
          .
          .
```

6.1.3 The VERIFY Command

The VERIFY command computes a standard 18-bit folded (sequential) checksum for each file in the specified directory and compares it with the checksum provided in the .VFY file.

VERIFY compares the checksums of the files listed in the .VFY file last read with the checksums of files in the specified directory.

Files must be decrypted before using the VERIFY command, otherwise the checksums will not match. Error messages are issued if any file is missing or if the checksums do not match. The default is the directory specified in the READ or DECRYPT command, whichever is the most recent.

The VERIFY command has the following form:

```
     APUTIL>VERIFY device:[directory]
or
     APUTIL>VERIFY logicalname:
```

To VERIFY the IBMCOM/ET files just decrypted:

```
     APUTIL>VERIFY TSU:[10,7,IETSYS]
     [Verifying TSU:[10,7,IETSYS]]
      D60SPD.EXE has been verified
      D6LQ3.BIN has been verified
          .
          .
          .
     [Successfully verified n of n files, n errors, n checksum errors]
```

6.1.4 The HELP Command

HELP prints out the help file HLP:APUTIL.HLP on the terminal. The HELP command followed by a keyword will print out the help text for just that keyword.

For help on all commands, the HELP command has the following form:

```
     APUTIL>HELP
```

For help on just one command, HELP accepts the command name as a keyword:

```
     APUTIL>HELP commandname
```

6.1.5 The EXIT Command

The EXIT command closes all opened files and exits to the monitor. An alternate form of EXIT is <CTRL/Z>. This is the standard method for terminating a program on TOPS-10, but this feature is not allowed on TOPS-20.

6.2 APUTIL ERROR MESSAGES

The following table lists error messages and an explanation of the cause.

Table 6-1: APUTIL Error Messages

Error Message:	When:
A READ command must precede "command"	A READ command was not issued before a DECRYPT or VERIFY command.
Does not match file or user name	The directory name specified by the user for a DECRYPT or VERIFY command does not exist.
File not found: "dir:filename.ext"	The .VFY file or key file specified by the user for the READ command does not exist, or the file is not found in the .VFY file.
File checksum mismatch; "dir:filename.ext"	The checksum of this file in this directory does not match the checksum in the .VFY file.
Mismatch checksums, file "filename.ext" not decrypted	The checksum of a decrypted file does not match the checksum for that file, as listed in the .VFY file.
Syntax error in line of file "filename.ext"	A syntax error is found while reading a line from the .VFY file.

APPENDIX A

USING THE DISTRIBUTION RETRIEVAL FILES

This appendix contains examples showing you how to use the Distribution Retrieval Files. If you are updating a TOPS-10 system, continue with Section A.1. If you are updating a TOPS-20 system, go on to Section A.2.

A.1 RESTORING COBOL V12C/SORT V4D

LODCBL.CTL is the Distribution Retrieval File that contains commands to restore the files for the products COBOL and SORT from the original distribution tapes (BB-H580E-SB and BB-PANKA-BB) to the TSU directories CBLSYS:, CBLSRC:, SRTSYS:, and SRTSRC:.

Briefly, the control file contains commands to the monitor to mount the first tape (BB-H580E-SB) with the reel ID "TSU," and to run BACKUP. It also contains commands to BACKUP to restore files to specific directories, to rewind the tape and to exit to monitor level. Once the files from the first tape are restored, commands are given to the monitor to dismount the first tape and to mount the second tape (BB-PANKA-BB), also with the reel ID "TSU." Again, BACKUP is run and commands are given to restore files to specific directories, to rewind the tape, and to exit to monitor level. After the files from the second tape are restored, commands are given to the monitor to dismount the tape, and the procedure is complete.

Example A-1: Using LODCBL.CTL

1. Put the distribution tape numbered BB-H580E-SB on MTA0.

2. Submit the COBOL/SORT control file LODCBL.CTL:

```
.SUBMIT LODCBL.CTL/TIME:00:30:00/NOTIFY:YES<RET>
[Batch job LODCBL queued, request # 22, limit 0:30:00]
```

3. Run OPR and IDENTIFY the tape drive with the request number given.

```
.R OPR<RET>

OPR>IDENTIFY MTA0: REQUEST-ID 22<RET>
OPR>
12:09:52        Device MTA0:  -- Volume TSU reassigned --
                User TSU-TEST [1,2] Job # 22

OPR>EXIT<RET>
```

4. After the files have been restored from the first tape, you will be notified of the mount request for the second tape.

```
OPR>
12:09:32          -- Magtape mount request # 62 --
                User: TSU-TEST [1,2] Job # 22
                Volume-set name: TSUTAP
OPR>
                Volume-ID   Write   Labels   Track   Density
                ---------  -------  ------   -----   -------
                TSU        Locked   No         9     1600

OPR>
```

Take the first tape off the drive and put on the second tape, BB-PANKA-BB. The key files for SORT are on tape BB-PANKA-BB.

Tell OPR to RECOGNIZE the tape drive:

```
OPR>RECOGNIZE MTA0:<RET>
OPR>
12:32:20         Device MTA0 -- Unlabeled volume mounted --
                 Density 1600 BPI, write-locked
OPR>
```

IDENTIFY the tape drive with the request number given.

```
OPR>IDENTIFY MTA0: REQUEST-ID 62<RET>
OPR>
12:09:52         Device MTA0  -- Volume TSU reassigned --
                 User: TSU-TEST [1,2] Job #22
OPR>EXIT<RET>
$
```

A.2 RESTORING BASIC-PLUS-2

LODBP2.CTL is the Distribution Retrieval File that contains commands to restore the files for the product BASIC-Plus-2 from the original distribution tape BB-5543F-BM to the TSU directory BP2SYS:.

LODBP2.CTL also contains commands to restore the BASIC-Plus-2 key file from the original distribution tape, BB-PANMA-BM.

Briefly, the control file contains commands to the monitor to mount the first tape (BB-5543F-BM) and to run DUMPER. It also contains commands to DUMPER to restore files to specific directories, to rewind the tape and to exit to monitor level. Once the files from the first tape are restored, commands are given to the monitor to dismount the first tape and to mount the second tape (BB-PANMA-BM). Again, DUMPER is run and commands are given to restore files to specific directories, to rewind the tape, and to exit to monitor level. After the files from the second tape are restored, commands are given to the monitor to dismount the tape, and the procedure is complete.

Example A-2: Using LODBP2.CTL

1. Put the distribution tape numbered BB-5543F-BM on MTA0.

2. Submit the BASIC-Plus-2 control file LODBP2.CTL:

```
$SUBMIT LODBP2.CTL/TIME:00:10:00/OUTPUT:NOLOG/NOTIFY:YES<RET>
[Batch job LODBP2 queued, request # 22, limit 0:30:00]
```

3. Run OPR and IDENTIFY the tape drive with the request number given.

```
$OPR<RET>
OPR>IDENTIFY MTA0: REQUEST-ID 22<RET>
OPR>
12:09:52          -- MTA0: Given To Request 22 --
                Volume TAPE now in use by
                User WHEEL, Job 101, Terminal 242, Account E0H
OPR>
```

4. After the files have been restored from the first tape, take tape BB-5543F-BM off the drive and put on the second tape, BB-PANMA-BM. The key file for BASIC-Plus-2 is on tape BB-PANMA-BM. You will be notified of your mount request.

```
OPR>
12:09:32          -- Tape Mount Request # 62 --
                Mount volume TAPE2, READ-ONLY
                User WHEEL, Job 141, Terminal 242, Account E0H
OPR>
```

IDENTIFY the tape drive with the request number given.

```
OPR>IDENTIFY MTA0: REQUEST-ID 62<RET>
OPR>
12:09:52          -- MTA0: Given To Request 62 --
                Volume TAPE2 now in use by
```

```
                User WHEEL, Job 141, Terminal 242, Account E0H
OPR>EXIT<RET>
$
```

APPENDIX B

USING COPYAP.CTL

The information in this Appendix is provided for those of you who choose to use your current Autopatched files on disk as the base for the TSU process. In order to use your Autpatched files you must copy them from the old Autopatching directories into the new TSU directories. The control file COPYAP.CTL is provided in the Current Update Saveset to facilitate this task. COPYAP.CTL contains commands to copy all the files from the Autopatching directories into the TSU directories.

Important:

> Please be advised that some of the files that were included in the original product distribution were not required for Autopatch. This may result in error messages when verifying decrypted files. It is likely that the missing files will not prevent the decryption or operation of the affected products, but you may want to bypass TSU VERIFY processing. To do this, edit the Retrieval Process Control File (TSUNEW.CTL or TSUALL.CTL) before submitting it for batch processing.

There are two tables provided to show you the correspondance between the old Autopatch directories and the TSU directories. If you are setting up a TOPS-10 system, refer to Table B-1; if you are setting up a TOPS-20 system, refer to Table B-2.

Table B-1: TOPS-10 -- Correspondance of Autopatch Directories to TSU Directories

To TSU Directory:	From Autopatch Directories:
TSU704:[10,7,ACCT]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,ACTSYM]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,ANF10]	DSKP:[7,6,ANF]
TSU704:[10,7,BACKUP]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,BOOT]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,BUILD]	DSKP:[7,6,INS]
TSU704:[10,7,COMPIL]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,CREDIR]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,CREF]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,CRSCPY]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,CTHNRT]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,D60JSY]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,DAEMON]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,DDT]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,DDT11]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,DECLAR]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,DECMAI]	DSKP:[7,6,INS]
TSU704:[10,7,RSX20F,DECTAP]	DSKP:[7,6,INS]
TSU704:[10,7,DELFIL]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,DIL,DILBLD]	DSKP:[7,6,INS]
TSU704:[10,7,DIL,DILDOC]	DSKP:[7,6,INS]
TSU704:[10,7,DIL,DILICS]	DSKP:[7,6,INS]
TSU704:[10,7,DIL,DILSRC]	DSKP:[7,6,INS]
TSU704:[10,7,DIL,DILSYS]	DSKP:[7,6,INS]
TSU704:[10,7,DIRECT]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,DSKLST]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,DSKRAT]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,DTELDR]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,F11]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,FAL]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,FE]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,FEFILE]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,FELOAD]	DSKP:[7,6,INS]
TSU704:[10,7,FILCOM]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,FILDAE]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,RSX20F,FLOPPY]	DSKP:[7,6,INS]
TSU704:[10,7,GALAXY,BATCON]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,GALAXY,CATLOG]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,GALAXY,CDRIVE]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,GALAXY,GLXLIB]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,GALAXY,LPTSPL]	DSKP:[7,6,INS], DSKP:[7,6,CSP]

Table B-1, continued

To TSU Directory:	From Autopatch Directories:
TSU704:[10,7,GALAXY,NEBULA]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,GALAXY,OPERAT]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,GALAXY,PLEASE]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,GALAXY,PULSAR]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,GALAXY,QUASAR]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,GALAXY,QUEUE]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,GALAXY,SPRINT]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,GLOB]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,HELP]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,HELPER]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,INITIA]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,JOBDAT]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,KDPLDR]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,KSU]	DSKP:[7,6,INS]
TSU704:[10,7,LINK]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,LOGIN]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,LP20]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,MACDLX]	DSKP:[7,6,INS]
TSU704:[10,7,MACRO]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,MACSYM]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,MACTEN]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,MAKLIB]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,MIC]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,MON]	DSKP:[7,6,INS], DSKP:[7,6,MON]
TSU704:[10,7,MON,CTLS]	DSKP:[7,6,MON]
TSU704:[10,7,MONDIR]	DSKP:[7,6,INS]
TSU704:[10,7,MON,KL]	DSKP:[7,6,INS]
TSU704:[10,7,MONSYM]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,DECMAI,MS]	DSKP:[7,6,INS]
TSU704:[10,7,DECMAI,MX]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,NCPTAB]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,NETLDR]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,NETWOR]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,NFT]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,OPSER]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,PATH]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,PIP]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,PROJCT]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,QUOLST]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,RMS10]	DSKP:[7,6,INS]
TSU704:[10,7,RMS10,RMSSRC]	DSKP:[7,6,CSP]

Table B-1, continued

To TSU Directory:	From Autopatch Directories:
TSU704:[10,7,RSX20F]	DSKP:[7,6,INS]
TSU704:[10,7,RSXT10]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,RUNOFF]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,SCAN]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,SCDSET]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,SETSRC]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,SMFILE]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,SOUPR]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,SPEAR]	DSKP:[7,6,INS]
TSU704:[10,7,SWIL]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,SYSDPY]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,SYSTAT]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,SYSTEM]	DSKP:[7,6,INS]
TSU704:[10,7,TECO]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,TGHA]	DSKP:[7,6,INS]
TSU704:[10,7,UFDPRM]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,UNSMON]	DSKP:[7,6,MON]
TSU704:[10,7,UUOSYM]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSU704:[10,7,WILD]	DSKP:[7,6,INS], DSKP:[7,6,CSP]
TSUDEC:[10,7]	DSKP:[7,6,INS]
TSUDEC:[10,7,MCB]	DSKP:[7,6,DECNET]
TSUDEC:[10,7,NETGEN]	DSKP:[7,6,INS], DSKP:[7,6,DECNET]
TSUDEC:[10,7,NIPGEN]	DSKP:[7,6,INS], DSKP:[7,6,DECNET]
TSUDEC:[10,7,NML]	DSKP:[7,6,INS]
TSUDEC:[10,7,TKB36]	DSKP:[7,6,INS]
TSUDEC:[10,7,VNP36]	DSKP:[7,6,INS]
CBLSRC:	DSKP:[7,6,CBL]
CBLSYS:	DSKP:[7,6,INS]
FTNCMP:	DSKP:[7,6,FTN]
FTNOTS:	DSKP:[7,6,FTN]
FTNSYS:	DSKP:[7,6,INS]
IETSRC:	DSKP:[7,6,IBMET]
IETSYS:	DSKP:[7,6,INS]
IHSSRC:	DSKP:[7,6,IBMHSP]
IHSSYS:	DSKP:[7,6,INS]
SRTSRC:	DSKP:[7,6,SRT]
SRTSYS:	DSKP:[7,6,INS]

Table B-2: TOPS-20 -- Correspondance of Autopatch Directories to TSU Directories

From Autopatch Directory:	To TSU Directory:
AP20:<AUTOPATCH.INS>	BP2SYS:
AP20:<AUTOPATCH.CBL13>	CBLSRC:
AP20:<AUTOPATCH.INS>	CBLSYS:
AP20:<AUTOPATCH.DBMS>	DBMALL:
AP20:<AUTOPATCH.CBL13>	DBMALL:
AP20:<AUTOPATCH.INS>	DBMALL:
AP20:<AUTOPATCH.DECNET>	DECMCB:
AP20:<AUTOPATCH.DECNET>	DECSRC:
AP20:<AUTOPATCH.INS>	DECSYS:
AP20:<AUTOPATCH.FORTRAN>	FTNCSR:
AP20:<AUTOPATCH.FORTRAN>	FTNOSR:
AP20:<AUTOPATCH.INS>	FTNSYS:
AP20:<AUTOPATCH.TOPS-20>	GALSRC:
AP20:<AUTOPATCH.INS>	GALSYS:
AP20:<AUTOPATCH.IBMET>	IETSRC:
AP20:<AUTOPATCH.INS>	IETSYS:
AP20:<AUTOPATCH.IBMHSP>	IHSSRC:
AP20:<AUTOPATCH.INS>	IHSSYS:
AP20:<AUTOPATCH.TOPS-20>	LNGSRC:
AP20:<AUTOPATCH.SRTV5>	SRTSRC:
AP20:<AUTOPATCH.INS>	SRTSYS:
AP20:<AUTOPATCH.TOPS-20>	T20SRC:
AP20:<AUTOPATCH.TOPS-20>	T20SRC:
AP20:<AUTOPATCH.MS>	T20SRC:
AP20:<AUTOPATCH.INS>	T20SUB:
AP20:<AUTOPATCH.INS>	T20SYS:
AP20:<AUTOPATCH.TOPS-20>	TCPSRC:
AP20:<AUTOPATCH.INS>	TCPSUB:
AP20:<AUTOPATCH.INS>	TCPSYS: