

**VAX-11/725 and  
VAX-11/730  
Software Installation Guide**

Order No. AA-M546C-TE

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software



**VAX-11/725 and  
VAX-11/730  
Software Installation Guide**

Order No. AA-M546C-TE

**December 1983**

This document contains detailed instructions for installing and maintaining the VAX/VMS operating system on VAX-11/725 and VAX-11/730 processors.

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## PREFACE

### MANUAL OBJECTIVES

This document provides you with step-by-step procedures for installing the operating system on VAX-11/725 and VAX-11/730 processors. Three types of software installation tasks are described:

- Installing VAX/VMS on a newly purchased system
- Installing optional software to enhance a system
- Installing maintenance updates to an operating system

### INTENDED AUDIENCE

This manual is intended for anyone who has the responsibility for installing operating systems on VAX-11/725 and VAX-11/730 processors.

### STRUCTURE OF THIS DOCUMENT

This manual is divided into the following chapters and appendixes:

- Chapter 1, Overview of Software Installation, describes the process of bootstrapping and installing an operating system. It also describes the parts of the console subsystems and the processor operating controls that you use to install the software.
- Chapter 2, Building a System Disk, describes the procedures for restoring system software to a bootable disk for a new installation.
- Chapter 3, Site-specific Modifications to VAX/VMS, provides some suggestions for customizing the operating system for your particular operating environment.
- Chapter 4, The VMSINSTAL Command Procedure, describes how to use VMSINSTAL.COM to add maintenance updates and optional software products to a system.
- Chapter 5, The System After Installation, instructs you on some of the tasks that you should do after installation. These include (1) backing up the system disk, (2) building and bootstrapping stand-alone BACKUP, (3) backing up the console medium, (4) selecting an appropriate default bootstrap command procedure.
- Chapter 6, Tailored Systems, describes the use of tailoring for the IDC-based VAX-11/730. It also provides information unique to the dual-RL02 configuration.

## PREFACE

- Appendix A, The Files of the VMS Operating System, lists the DIGITAL-supplied directories on the system disk and their contents.
- Appendix B, VMSUPDATE: Installing Optional Software Products, describes how to use VMSUPDATE.COM to install some optional software products.
- Appendix C, Stand-alone BACKUP Qualifiers, lists the subset of BACKUP qualifiers that can be used with stand-alone BACKUP.
- Appendix D, DCL Command/Activated Image Table, lists each DCL command, the image it activates, and the tailoring file group in which the image is located.
- Appendix E, Tailoring Facility Error Messages, lists the error messages issued by the Tailoring facility.
- Appendix F, Optional Distribution Disk Files, lists the files of the VMS operating system that are installed from the optional distribution disk.
- Appendix G, VMSINSTAL Error Messages, describes the error messages issued by the VMSINSTAL command procedure.

## ASSOCIATED DOCUMENTS

There is no prerequisite reading to use this document, but DIGITAL recommends you look through the VAX/VMS Release Notes - versions 3.0 through 3.5, before you install the software kit.

In addition, an understanding of the information presented in the VAX/VMS Summary Description and Glossary and the VAX/VMS Command Language User's Guide may prove helpful.

The following documents, which are referred to in this manual, provide the information needed to manage the day-to-day operation of the VMS system once it is initialized:

- VAX/VMS System Management and Operations Guide
- VAX-11 Utilities Reference Manual

For a complete list and description of VAX-11 documents, including optional software product documents, see the VAX-11 Information Directory and Index.

Documentation on installing optional software products is included with each optional software product and is not covered in this guide.

## CONVENTIONS USED IN THIS DOCUMENT

The following conventions are used in this document:

### Convention Meaning

- \$ The DCL command prompt. It is used in the general examples in this document.
- n A signed (+ or -) or unsigned decimal (0-9) number.

## PREFACE

- x           A specific parameter.
- UPPERCASE   Uppercase letters are used to express command keywords when they appear in text.
- CTRL/P      Hold down the CTRL key and press the P key at the same time.
- Dates       The dates used in the examples are for illustration purposes only. These dates will vary in actual installations, as will all example times.
- >>> B DQ1   In command examples, system prompts and messages are shown in black letters. User-entered commands are shown in red letters.



## SUMMARY OF TECHNICAL CHANGES

The following technical changes have been made to this document to support installation of Version 3.5 of the operating system:

- The entire document has been revised to include installation instructions for the VAX-11/725 and VAX-11/730 UNIBUS Disk Adapter (UDA) configurations.
- Miscellaneous changes have been made to provide clarification and to include comments received from users of the document.



## CHAPTER 1

### OVERVIEW OF SOFTWARE INSTALLATION

You install software onto the VAX processors by restoring the software from a transportable form on magnetic tape or disk to a form that can be bootstrapped from a disk and executed on a processor.

This book instructs you on how to install software on VAX-11/730 systems configured with an Integrated Disk Controller (IDC), VAX-11/730 systems configured with a UNIBUS Disk Adapter (UDA), and on VAX-11/725 systems. The IDC-configured VAX-11/730 systems include R80/RL02 and dual-RL02 systems. UDA-configured VAX-11/730 systems include a UDA kernel and one of the load/system configurations shown in Table 1-1.

Table 1-1: VAX-11/730 UDA Configurations

Load Device	System Device
Magnetic Tape	RA60 Disk
Magnetic Tape	RA80 Disk
Magnetic Tape	RA81 Disk
RA60 Disk	RA60 Disk
RA60 Disk	RA80 Disk
RA60 Disk	RA81 Disk

This book describes three kinds of VMS software installation:

- Installing a newly purchased VMS system
- Installing optional VMS files to enhance your operating system
- Installing maintenance updates to your operating system

This chapter describes the console subsystems and processor controls for the VAX-11/725 and VAX-11/730 processors, and for the RC25 disk drive. The RC25 disk drive is integral to the VAX-11/725.

You are also given a brief summary of an operating system installation.

#### 1.1 CONSOLE SUBSYSTEMS

The VAX-11/725 and VAX-11/730 console subsystems each include a console terminal, two block storage devices, and an optional remote diagnostics port. The remote diagnostic port is not used to install software and so is not described here.

## OVERVIEW OF SOFTWARE INSTALLATION

VAX-11 console subsystems run in two mutually exclusive modes: program mode and console mode. One of the modes is active at all times that power is applied to the system.

During installation, you use the program mode for interactive communication with the stand-alone BACKUP utility program and with the operating system as you enter DCL commands and receive appropriate installation messages and prompts.

You use the console mode to boot software into the CPU; first the stand-alone BACKUP utility and then the restored VMS operating system. The subsystem is in console mode when the CPU is halted while power is applied to the system.

### 1.1.1 The Console Terminal

The console terminal is a hardcopy terminal that you use as a control station during the installation. You apply power to the console terminal by pushing the console power switch to the ON position.

You use the terminal to input all commands and to read all output messages and prompts during the installation. Be sure you have an adequate supply of paper in the terminal printer before you begin the installation.

You put the system into console mode by pressing CTRL/P on the console terminal keyboard to halt the CPU. The system indicates that it is in console mode by printing the console program prompt (>>>) on the terminal printer. When a bootstrap function is completed, the console program returns the system to program mode automatically.

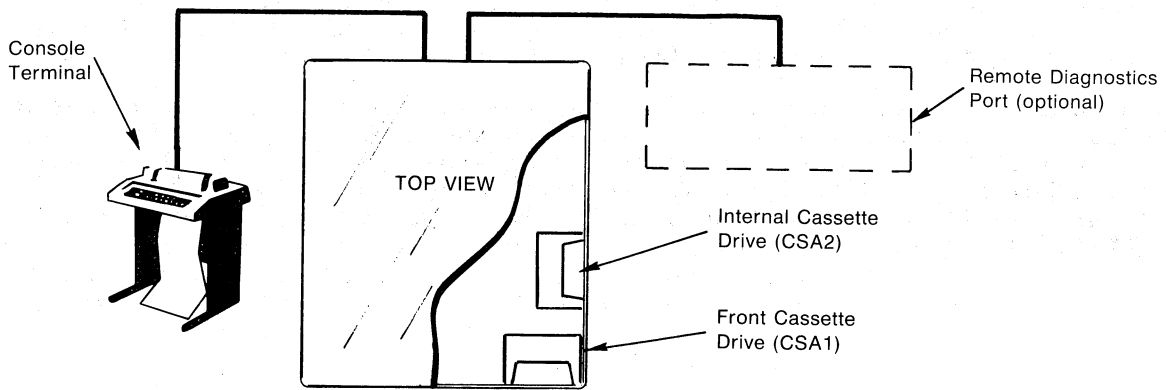
### 1.1.2 Block Storage Devices

Both of the console subsystem block storage devices are TU58 cartridge drives that are assigned device names CSA1 and CSA2 respectively. (See Section 2.2 for more information about device names.)

CSA1 is used to load updates and layered products from TU58 cartridges into memory, and to boot stand-alone BACKUP from magnetic tape distribution kits. CSA2 is used to boot the console program from the console TU58.

**1.1.2.1 IDC-configured VAX-11/730** - On the IDC-configured VAX-11/730, CSA1 is located at the front of the CPU cabinet above the processor control panel. The other TU58 drive, CSA2, is internal. Figure 1-1 illustrates the locations of the TU58 drives for the VAX-11/730 using a cutaway top view of the CPU cabinet.

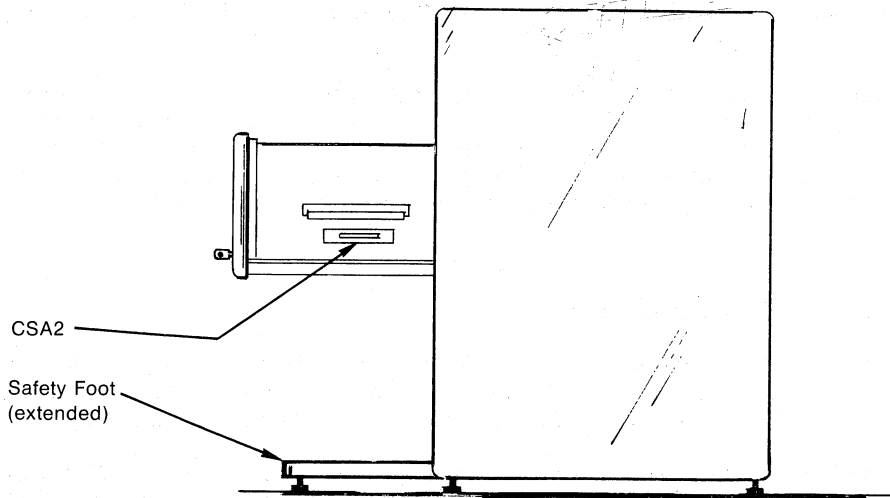




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Figure 1-1: The IDC-configured VAX-11/730 Console Subsystem

CSA2 is located on the right side of the CPU and is accessible only by sliding the CPU out from the CPU cabinet (See Figure 1-2).



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Figure 1-2: Access to the Internal TU58 Drive

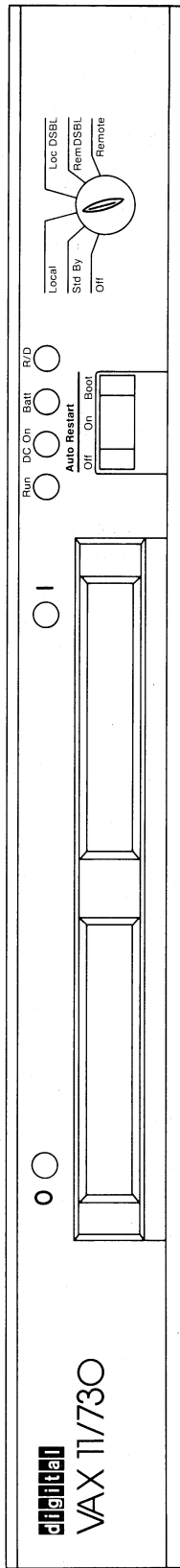
**CAUTION**

If you have to slide out the processor, be sure to extend the safety foot located under the cabinet first.

## OVERVIEW OF SOFTWARE INSTALLATION

There is a small light on either side of the CSA1 drive. When lit, the left-hand light indicates that the front drive (CSA1) is active. When the right-hand light is lit, the internal drive (CSA2) is active.

On the UDA-configured VAX-11/730 processors, both TU58 drives are located at the front of the CPU and both are readily accessible. CSA1 is located at the left side of the front panel and is labeled 0. CSA2 is labeled 1 and is found at the right side of the front panel. See Figure 1-3 for the locations of the TU58 drives on UDA-configured VAX-11/730 systems.



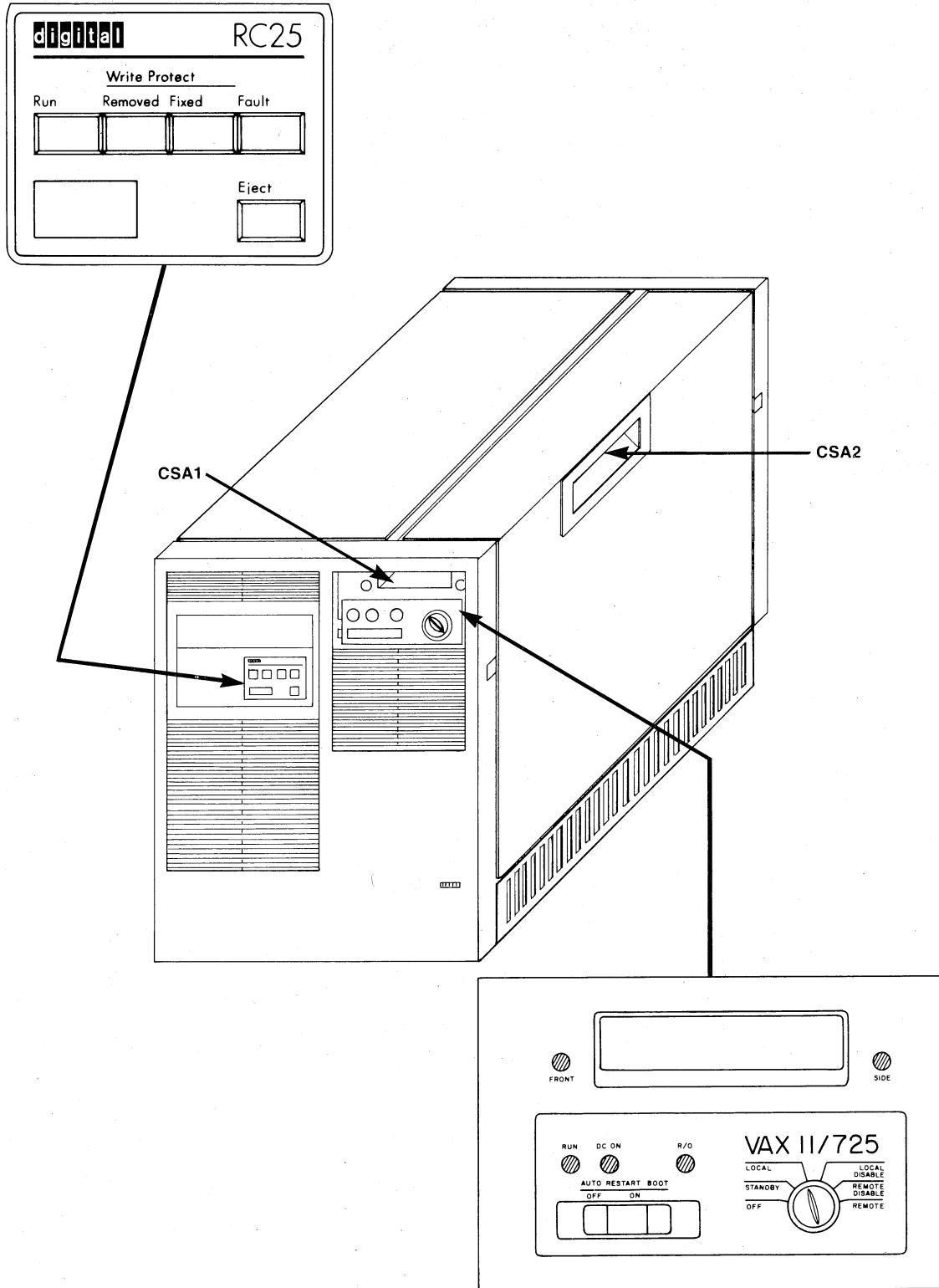
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Figure 1-3: Front Panel for the UDA-Configured VAX-11/730

## OVERVIEW OF SOFTWARE INSTALLATION

1.1.2.2 VAX-11/725 - On the VAX-11/725 system, CSA1 is located at the front of the CPU cabinet and CSA2 is located at the right side of the cabinet, in positions similar to those used for the IDC-configured VAX-11/730. The difference here is that CSA2 is readily accessible through a cutout in the side of the cabinet.

Activity indicators, labeled 0 for CSA1 and 1 for CSA2, are located at each side of CSA1. Figure 1-4 locates the TU58 drives on the VAX-11/725.



ZK-1272-83

Figure 1-4: TU58 Drive Locations on VAX-11/725

## OVERVIEW OF SOFTWARE INSTALLATION

### 1.2 PROCESSOR CONTROL PANEL

The processor control panel is nearly identical on the VAX-11/725 and the VAX-11/730 processors. The only exception is that there is no BATT (battery) indicator for the VAX-11/725 because the system does not include a battery backup feature.

The panel includes several indicator lights, an AUTO RESTART/BOOT switch, and a keylock rotary switch. These switches and indicator lights reflect the current state of the system and dictate how the system will react to initial bootstrapping, shutdowns, and restarts.

Figure 1-5 presents a diagram of the processor control panel. A brief description of the indicator lights and switches follows.

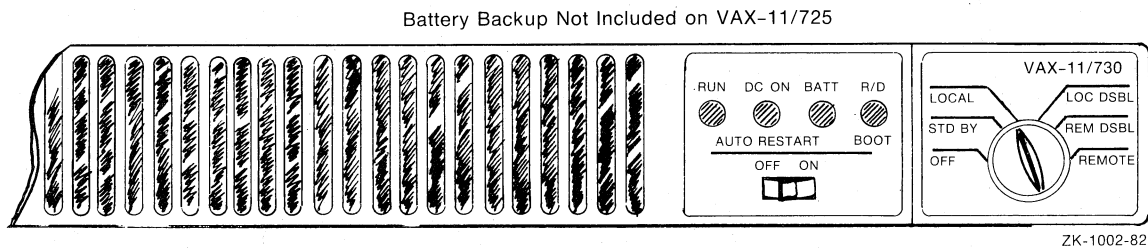


Figure 1-5: Processor Control Panel

#### 1.2.1 Indicator Lights

The following are the processor control panel indicator lamps and their respective functions.

**RUN** When lit, this light indicates that the processor is running in program mode.

**DC ON** When lit, this light indicates that DC power is present in the processor, and that the keylock rotary switch (see Section 1.2.3) is not in the OFF position.

**BATT** When steadily lit, this light indicates that the backup battery is at greater than 90 percent of full power. (This indicator is not included on the VAX-11/725 processor control panel.)

When flashing slowly (less than once every second), this light indicates that the battery is at less than 90 percent of full power and is charging.

When flashing quickly, this light indicates that the battery is at less than 90 percent of full power and is discharging.

When the light is out, the battery is dead or not present.

**R/D** When lit, this light indicates that remote diagnostic procedures are being performed on the system.

### 1.2.2 The AUTO RESTART/BOOT Switch

The AUTO RESTART/BOOT switch has two functions. It instructs the processor what to do when halt conditions occur, and it bootstraps the system. The switch has three positions, AUTO RESTART ON, AUTO RESTART OFF, and BOOT.

The first two positions, AUTO RESTART ON and AUTO RESTART OFF, control the action of the processor in the following situations:

- During initial power-up
- After a momentary power failure
- When the microprogram detects an error halt condition (for example, a HALT instruction executed in kernel mode)

If the switch is in the AUTO RESTART ON position when these conditions occur, the system restarts automatically. If the switch is in the AUTO RESTART OFF position, a console prompt (>>>) appears at the console terminal and no action is taken by the processor.

The BOOT position is spring loaded. When the switch is momentarily pushed to the BOOT position, it bootstraps the system, using the default bootstrap command procedure. (For more information about the default bootstrap command procedure, see Section 3.2.)

During installation, the AUTO RESTART switch must be set to the AUTO RESTART OFF position. During normal operation, the switch should be left in the AUTO RESTART ON position. This position permits the most comprehensive system recovery procedure. (For more information about automatic restart, see Section 5.3.3.)

### 1.2.3 The Keylock Rotary Switch

The keylock rotary switch has the following six positions:

OFF	Power is off.
STD BY	In this position, power is applied to the WCS module and main memory, only.
LOCAL	Processor can respond to console commands from the local console, and the remote diagnostics line is disabled.
LOC DSBL	Processor cannot respond to console commands, but the console terminal is usable as a standard terminal. The remote line is disabled. The BOOT position of the AUTO RESTART/BOOT switch is ignored.
REM DSBL	Processor cannot respond to console commands from remote line terminals, but the remote terminal is usable as a standard terminal. The local console is disabled.
REMOTE	Processor can respond to console commands from a remote line terminal. The local terminal is disabled.

## OVERVIEW OF SOFTWARE INSTALLATION

### 1.3 RC25 CONTROLS AND INDICATORS

The RC25 control panel includes five switch/indicators briefly described here.

**RUN** You use this switch to either bring the drive spindle up to operating speed or to spin it down. When you press the switch to bring the spindle up to speed, the indicator flashes as the spindle is coming up to speed and then remains lit steadily when the spindle is at operating speed.

When you use the switch to spin down the spindle, the indicator flashes as the spindle speed is reducing and remains unlit when the spindle is stopped. Simultaneously, the EJECT switch/indicator will light to indicate it is safe to remove the cartridge.

**EJECT** You use this switch to open the cartridge receiver door when you want to insert or remove the removable cartridge. The EJECT indicator lamp is lit only when it is safe to open the door.

**WRITE PROTECT** You use these switches to write lock the appropriate head, either the FIXED or the REMOVABLE. When you write lock a head, the corresponding indicator lights.

**FAULT** This indicator lights to indicate a fault. When you press the lit switch, all five indicators will flash an error code that identifies the failing component.

### 1.4 OVERVIEW OF SOFTWARE INSTALLATION

The operating system software can be installed on a new system by anyone authorized to do it. To install optional products or maintenance updates, you must have access to the system manager's account, SYSTEM.

The following is a summary of how operating system software is installed on VAX-11/725 and VAX-11/730 processors:

1. Boot stand-alone BACKUP into the processor.
2. Using stand-alone BACKUP, restore the save set required for a bootable system from the distribution kit to a bootable disk.
3. Boot the partially restored system from the bootable disk.
4. Restore the rest of the operating system to the bootable disk.
5. Boot the system.
6. Run the User Environment Test Package (UETP).
7. Modify the operating system to fit site-specific requirements.
8. Select a default bootstrap command file.

Steps 1 and 2 are described in detail in Chapter 2; steps 3 through 5 are described in Chapter 3; and step 6 is described in the VAX/VMS UETP User's Guide. If you have an IDC-configured VAX-11 /730 system, read Section 6.3.1 before running the UETP.



## CHAPTER 2

### BUILDING A SYSTEM DISK

The information in this chapter applies only to users who are doing new installations of Version 3.5. If you are updating a system currently running under Version 3.4, refer to VAX/VMS Release Notes Version 3.5 and Chapter 4 of this manual.

Version 3.5 is distributed to VAX-11/730 users in one of three distribution kits:

- Magnetic tape distribution kit
- RA60 disk distribution kit
- RL02 disk distribution kit

VAX-11/725 users receive Version 3.5 on an RC25 distribution kit.

The operating system is shipped on disk or tape in a form referred to as save sets. The save sets that make up a complete operating system include:

Required The VMS files that make up a partially built bootable system

Library VMS library files

Optional Optional library files including compatibility mode files, source files for installing BLISS, programming files, and programming examples

Your distribution kit also includes a save set that contains the EDT computer-assisted instruction course (EDTCAI). EDTCAI is not part of the operating system.

#### NOTE

EDTCAI is included on the optional distribution kit for VAX-11/730 users with IDC-based system configurations.

Save sets are convenient for shipping, but are not usable until they are restored to a bootable form on a system disk. The objective of your installation is to restore the appropriate save sets to a bootable system disk.

## BUILDING A SYSTEM DISK

### 2.1 OVERVIEW OF BUILDING A SYSTEM DISK

There are four steps in building a system disk:

1. First, check the contents of the installation kit against the bill of materials to be sure the kit is complete. If your kit is incomplete, notify the DIGITAL Software Distribution Center and request priority shipment of the missing component(s).
2. Next, you must boot stand-alone BACKUP into memory. If you have magnetic tape distribution media, stand-alone BACKUP is on two TU58 cassette cartridges that are part of the distribution kit. If you have disk distribution media, stand-alone BACKUP is stored on the distribution disk.

#### NOTE

All of the examples used in this document presume that stand-alone BACKUP displays the current date and time when it is booted. However, you should be aware that during installation stand-alone BACKUP is likely to prompt for the date and time if it suspects the console clock is in error or if you do the installation from a cold start. The time and a portion of the date you enter is subsequently used by the installed operating system.

If you are prompted for it, enter the date and time (24-hour clock) using the DD-MMM-YYYY HH:MM format. For example, if it is December 1, 1983 at 3:15 PM, you would enter the date and time as follows:

01-DEC-1983 15:15

3. When stand-alone BACKUP runs in memory, it restores the Required save set from the distribution kit to the new system volume (the disk that you are building). This creates a partially built, bootable operating system.
4. Next, the partially built operating system boots and runs in memory to restore the Library and Optional (if applicable) save sets from the distribution kit to the system volume.

In order to install Version 3.5, you need to know how to specify device names and how to power up the system. Sections 2.2 and 2.3 give you this information.

### 2.2 SPECIFYING DEVICE NAMES

You are prompted for device names several times during the installation. For example, various BACKUP commands require that you type the device name of the drive that holds the distribution media and the device name of the drive that holds the new system volume. Such device names use the format ddcu:

- In the device name format, dd represents the device type. For example, an RL02 disk drive is device type DQ, an RA60 disk drive is device type DU, and a TE16 magnetic tape drive is device type MT. See Table 2-1.

- The letter c represents the drive controller. DIGITAL recommends you install using drives attached to the first drive controller, specified by the letter A in the device name. For example, if you are installing Version 3.5 on a dual-RA60 system, the distribution disk should be mounted on device DUA1, and the new system volume should be mounted on DUA0.
- The letter u represents the unit number assigned to each drive on a drive controller. You can assign unit numbers on many of the drives by inserting a logical address plug with the unit number inscribed on its face. The logical address plug is a mechanical device that, when you insert it, automatically activates the address switches that correspond to the logical number engraved on the plug face.

Some examples of device names are:

Name    Device

DQA1    RL02 disk on IDC controller A, unit 1  
 MTA0    TE16 magnetic tape on controller A, unit 0  
 DUA7    RA81 disk on UDA controller A, unit 7

You also use device names when you initiate bootstrap operations. However, you are required to omit the controller (c) part of the device name when you specify the bootstrap device. For example, to boot the operating system from the first RA60 disk drive on UDC controller A, you use the format ddu as shown in the following example:

>>>B DU0

Here, the device type (dd) is DU and the unit (u) is 0, but the controller (c) is omitted.

Table 2-1 lists the device-type codes that you may be asked for when you install Version 3.5.

Table 2-1: Device-Type Codes

Code	Device Type
CS	Console Storage Device (TU58)
DQ	RL02 Disk, R80 Disk
DU	RA60, RA80, RA81 and RC25 Disks
MF	TU78 Magnetic Tape
MS	TS11, TU80, TU81 Magnetic Tapes
MT	TE16, TU45, TU77 Magnetic Tapes

## BUILDING A SYSTEM DISK

### 2.3 POWERING UP THE SYSTEM

Before you apply power to the system, be sure the console TU58 is installed in CSA2. (See Figure 1-2.)

#### NOTE

CSA2 is located at the right side of the console front panel in UDA-based VAX-11/730 systems.

When you apply power to the system, the console program automatically boots from the TU58 cartridge in CSA2.

To power up the system, position the following switches as indicated:

1. The **AUTO RESTART/BOOT** switch on the processor control panel:  
**OFF**
2. The keylock rotary switch on the processor control panel:  
**LOCAL**

Check that the **DC ON** indicator on the processor control panel is on.

When power is applied, it takes several minutes for the console program to boot, and while it is booting the console terminal prints several messages. When the boot is completed, the system is put in console mode, the console terminal prints the console prompt (**>>>**), and you are ready to boot stand-alone **BACKUP**.

The rest of this chapter includes five sections:

- Building a System Disk from a Magnetic Tape Distribution Kit (See Section 2.4.)
- Building a System Disk from an RA60 Distribution Kit (See Section 2.5.)
- Building a Standard System (R80/RL02) from an RL02 Distribution Kit (See Section 2.6.)
- Building a Tailored System (Dual RL02) from an RL02 Distribution Kit (See Section 2.7.)
- Building a System on the VAX-11/725 (See Section 2.8.)

These sections provide you with procedures for installing Version 3.5 on your system. The procedures include examples of the message and command interchanges that are used during the installations. Please note that dates, times, process identifications, and other variable data used in the installation examples are for illustration only.

#### NOTE

The times given for system responses are approximate and may vary under different installation conditions by up to 50 per cent. For example, if a procedure step says that the console terminal will print a message in 10 minutes, the actual response may be anywhere from 5 to 15 minutes.

You should now go directly to the section that relates to the type of installation you are doing.

## 2.4 BUILDING A SYSTEM VOLUME FROM A MAGNETIC TAPE DISTRIBUTION KIT

This section tells you how to build a bootable operating system on a UDA-based VAX-11/730 from a magnetic tape distribution kit. The process is divided into four tasks, each described in a distinct section:

1. Checking the contents of the distribution kit
2. Booting stand-alone BACKUP
3. Restoring the Required save set to the new system volume
4. Booting the partially built operating system and restoring the library files

### 2.4.1 Checking the Contents of the Magnetic Tape Distribution Kit

The magnetic tape software distribution kit contains the following materials. If your kit is incomplete, notify the DIGITAL Software Distribution Center and request priority shipment of the missing component(s).

- Version 3.5 distribution tape
  - Part number: BB-D782G-BE
  - Part description: VAX/VMS V3.5 BIN 16MT9
- Two TU58 cartridges that contain stand-alone BACKUP
  - Part number: BE-M757C-BE
  - Part description: V3.3 S/A BKUP T58 1/2
  - Part number: BE-M758C-BE
  - Part description: V3.3 S/A BKUP T58 2/2
- One blank TU58 cartridge to be used in creating a new console TU58
  - Part number: 36-15809-00
  - Part description: Blank TU58 Cassette

### 2.4.2 Booting Stand-Alone BACKUP from a Magnetic Tape Distribution Kit

You boot stand-alone BACKUP from two of the TU58 cartridges in your distribution kit: first the one labeled V3.3 S/A BKUP T58 1/2, and then the one labeled V3.3 S/A BKUP T58 2/2.

1. Be sure the console TU58 is inserted into CSA2 and the computer is powered up.
2. Load the distribution tape onto a magnetic tape drive.
3. Put the tape drive on line.

## BUILDING A SYSTEM DISK

4. Insert the TU58 cartridge labeled VAX/VMS V3.3 S/A BKUP T58 1/2 into the TU58 drive located at the left side of the processor control panel (CSA1).

### NOTE

This drive has a LED activity indicator labeled 0 above it. (See Figure 1-3.)

5. At the console, enter:

```
>>>B CSI
```

You will know that the information on the TU58 tape is being read when the activity indicator labeled 0 intermittently blinks or stays lit. After a few minutes, the program responds with the following prompt:

```
Please mount first stand-alone system diskette or cartridge and press the
return key.
```

Press the RETURN key on the console keyboard. In approximately 15 to 20 minutes, the console terminal prints a series of messages, including the following:

```
VAX/VMS Version V3.3 11-APR-1983 16:21
```

```
Please mount second stand-alone system diskette or cartridge and press the
return key.
```

6. Replace the first stand-alone BACKUP TU58 with the stand-alone BACKUP TU58 labeled VAX/VMS V3.3 S/A BKUP T58 2/2, and press the RETURN key.

It takes approximately 5 to 10 minutes for the second stand-alone BACKUP TU58 to boot. You know the boot is completed when the console terminal prints the following message:

```
%BACKUP-I-IDENT, Stand-alone BACKUP, Version 3.3; the date is 20-DEC-1983 13:10:21.03
$
```

You may continue with the installation, but do not remove the second BACKUP TU58 from the cassette drive until you have restored the Required save set.

### 2.4.3 Restoring the Required Save Set to the New System Volume

This section tells you how to restore the Required save set to a new system volume from a magnetic tape distribution kit. The illustrative example used assumes the distribution tape is mounted on a TU77 magnetic tape drive designated MTA0, and the new system volume is mounted on an RA80 disk drive designated DUA0. When you use this procedure, substitute the appropriate device names for your installation environment. (See Section 2.2 if you need information on how to specify device names.)

1. If you are using a removable system volume, place it in the appropriate drive. Note that the example installation used here includes a nonremovable (RA80) system volume.

- Bring the new system volume up to operating speed by pressing the RUN/STOP switch on the disk drive.

The RUN/STOP switch-indicator turns on when you press the switch and remains on until you subsequently stop the drive. When the drive is at operating speed, the READY indicator turns on and you may continue to the next step.

- Begin the restoration process by entering the following BACKUP command:  
`‡BACKUP/VERIFY MTAO:REQUIRED/SAVE DUA0:`

It is important to type the command exactly as shown, except that you substitute the appropriate device names for the drive holding the distribution tape and the drive holding the new system volume. (See Section 2.2 if you need information on how to specify device names.)

During this process, the red "0" above the TU58 in CS1 is intermittently blinking or lit.

The /VERIFY qualifier directs BACKUP to compare the distribution tape with the new system volume to ensure the integrity of the new system volume. You may also use the /LOG qualifier to have BACKUP print a list of restored files on the console terminal.

#### NOTE

The BACKUP command creates a system disk with a DIGITAL-provided set of volume parameters, including a cluster factor of 1. Most of these parameters, except for the cluster factor, can be modified after installation with the DCL command SET VOLUME. To alter the cluster factor, however, you must back up the system disk, using the /NOINITIALIZE qualifier, to another volume that has been initialized with the desired values.

After approximately ten minutes, the console terminal prints out a message like the following:

```
‡BACKUP-I-STARTVERIFY, starting verification pass
```

The program now checks that no errors were made during restoration. The verification pass takes approximately ten minutes, and it is complete when the console terminal prints a message like the following:

```
‡BACKUP-I-IDENT, Stand-alone BACKUP, Version 3.3; the date is 20-DEC-1983 13:10:21.03
‡
```

- Next, halt the processor and terminate stand-alone BACKUP using CTRL/P. At this point, you may remove the TU58 stand-alone BACKUP cartridge from CSA1.

## BUILDING A SYSTEM DISK

### 2.4.4 Booting the Partially Built System and Restoring the Library Files

To boot the partially built operating system and restore the remaining save sets, proceed as follows:

1. At the console terminal, boot the partially built operating system from the new system volume by typing:

```
>>>B DUO
```

The program responds with a message like the following:

```
VAX/VMS Version V3.5 18-OCT-1983 16:21
%OPCOM, 20-DEC-1983 13:45:22.43, logfile initialized by operator OPAO
      logfile is SYS$MANAGER:OPERATOR
      Login quotas - Interactive limit=64,
      Current interactive value=0
PLEASE ENTER DATE AND TIME (DD-MMM-YYYY HH:MM)
```

2. Enter the date and time in the twenty-four hour clock format, then press the RETURN key.

For example, if it is 1:50 P.M. on December 20, 1983, type:

```
20-DEC-1983 13:50
```

The system now prompts you for the name of the drive holding the distribution tape. In this example, the distribution tape is mounted on a TU77 tape drive designated MTA0, so the response is:

```
Enter drive holding distribution kit (DDCU):MTA0
```

The installation procedure uses this information to restore the Library and Optional save sets.

The following messages will appear as the Library and Optional save sets are being restored. This part of the procedure takes approximately 45 minutes; you may notice that the magnetic tape winds frequently during this time.

```
%MOUNT-I-MOUNTED,VMS035  mounted on MTA0
```

```
Restoring library save set.
```

```
%BACKUP-I-STARTVERIFY, starting verification pass
```

```
Restoring optional save set.
```

```
%BACKUP-I-STARTVERIFY, starting verification pass
```

```
Running AUTOGEN -- Please wait.
```

As AUTOGEN runs, the console terminal prints a list of files that have been either created or extended. When AUTOGEN ends, the console terminal prints a message like the following:

```
%OPCOM, 20-DEC-1983 13:45:22.43, message from user SYSTEM
%SYSGEN-I-WRITECUR, CURRENT system parameters modified by process ID
00010033 into file SYS$SYSROOT:[SYSEXE]SYS.EXE;1
```

System shutting down to allow boot of complete V3.5 system.  
You must manually reboot the system after it halts.



While the system shuts down, the console terminal prints a group of shutdown messages. When the system is shut down, the console terminal prints the following message:

SYSTEM SHUTDOWN COMPLETE - USE CONSOLE TO HALT SYSTEM

3. Halt the processor using CTRL/P.
4. You now have an operating system that can be booted from the new system volume by typing:

>>>B DUO

5. Remove the distribution kit and store it in a safe place.

You should now run the User Environment Test Package (UETP) to verify the installation. (See the VAX/VMS UETP User's Guide.) After you run the UETP, refer to the VAX/VMS System Management and Operations Guide for instructions on customizing and using your system.

## 2.5 BUILDING A SYSTEM VOLUME FROM AN RA60 DISTRIBUTION KIT

This section tells you how to build a bootable operating system on a UDA-based VAX-11/730 from an RA60 distribution kit. The process is divided into four tasks, each described in a distinct section:

1. Checking the contents of the distribution kit
2. Booting stand-alone BACKUP
3. Restoring the Required save set to the new system volume
4. Booting the partially built system and restoring the remaining save sets

Each section presumes the previous section has been completed and that the installation process is continuous. For example, if a disk drive is brought up to operating speed in one section, the following section is written as though the state of the drive has not changed.

### 2.5.1 Checking the Contents of an RA60 Distribution Kit

This section tells you what is included in an RA60 distribution kit. If your kit is incomplete, notify the DIGITAL Software Distribution Center and request priority shipment of the missing component(s). The VAX-11/730 RA60 software distribution kit contains the following:

- The RA60 Version 3.5 distribution disk
  - Part number: BD-V214B-BE
  - Part description: VAX/VMS V3.5 BIN RA60
- Three blank TU58 cartridges: two to be used in creating a stand-alone BACKUP kit, and one to be used in backing up your console program TU58.
  - Part number: 36-15809-00
  - Part description: Blank TU58 Cassette

## BUILDING A SYSTEM DISK

### 2.5.2 Booting Stand-Alone BACKUP from an RA60 Disk

To boot stand-alone BACKUP from an RA60 disk, proceed as follows:

1. Place the distribution disk in the RA60 disk drive designated DUAL. (See Section 2.2 if you need information on how to specify device names.)
2. Write protect the distribution disk by pressing the WRITE PROT switch on the drive. The switch will light in the ON position.
3. Bring the drive up to operational speed by pressing the RUN/STOP switch.

The RUN/STOP switch-indicator turns on when you press the switch and remains on until you subsequently stop the drive. When the drive is at operating speed, the READY indicator turns on and you may continue to the next step.

4. At the console, begin the stand-alone BACKUP boot by entering:

```
>>>B DUL
```

The console terminal prints a series of boot commands followed by this message:

```
VAX/VMS Version V3.3    11-APR-1983 16:21
```

Shortly after this, the completion of the stand-alone BACKUP boot is heralded by a message like the following:

```
%BACKUP-I-IDENT, Stand-alone BACKUP, Version 3.3; the date is 20-DEC-1983 13:10:21.03  
$
```

### 2.5.3 Restoring the Required Save Set to the New System Volume

This section tells you how to restore the Required save set to the new system volume from an RA60 distribution kit. The example used here assumes the distribution disk is mounted on an RA60 disk drive designated DUAL and the system volume is mounted on an RA80 disk drive designated DUA0. When you use this procedure, substitute the appropriate device names for your installation environment. (See Section 2.2 if you need information on how to specify device names.)

1. If you are using a removable system volume, place it in the appropriate drive. Note that the example installation used here includes a nonremovable (RA80) system volume.
2. Bring the system volume up to operating speed by pressing the RUN/STOP switch on DUA0.

The RUN/STOP switch-indicator turns on when you press the switch and remains on until you subsequently stop the drive. When the drive is at operating speed, the READY indicator turns on and you may continue to the next step.

3. Begin the restoration by typing:

```
$BACKUP/VERIFY DUAL:REQUIRED/SAVE DUA0:
```

Be sure you type the command exactly as shown, except that you should substitute the appropriate device names for the disk drives. (See Section 2.2 if you need information on how to specify device names.)

The /VERIFY qualifier directs stand-alone BACKUP to compare the distribution disk with the restored software on the system volume to ensure its integrity. You may also include the /LOG qualifier if you want a list of restored files printed on the console terminal.

## NOTE

The BACKUP command creates a system disk with a DIGITAL-provided set of volume parameters, including a cluster factor of 1. Most of these parameters, except for the cluster factor, can be modified after installation with the DCL command SET VOLUME. To alter the cluster factor, however, you must back up the system disk, using the /NOINITIALIZE qualifier, to another volume that has been initialized with the desired values.

In approximately two minutes, the console terminal prints out the following message:

```
%BACKUP-I-STARTVERIFY, starting verification pass
```

The program is checking to be sure that there were no errors made during restoration. The verification pass takes about two minutes and when it is completed, the console terminal prints a message like the following:

```
%BACKUP-I-IDENT, Stand-alone BACKUP, Version 3.3; the date is 20-DEC-1983 13:10:21.03
$
```

4. Halt the processor and terminate stand-alone BACKUP using CTRL/P.

#### 2.5.4 Booting the Partially Built System and Restoring the Library Files

To boot the partially built operating system and restore the remaining save sets, proceed as follows:

1. At the console terminal, boot the partially built operating system from the new system volume by typing:

```
>>>B DUO
```

In approximately two minutes, the program responds with a message like the following:

```
VAX/VMS Version V3.5 10-DEC-1983 14:05

%OPCOM, 20-DEC-1983 13:45:22.43, logfile initialized by operator OPA0
  logfile is SYS$MANAGER:OPERATOR
  Login quotas - Interactive limit=64,
  Current interactive value=0
  PLEASE ENTER DATE AND TIME (DD-MMM-YYYY HH:MM)
```

## BUILDING A SYSTEM DISK

2. Enter the date and time in the twenty-four hour clock format, and press the RETURN key.

For example, if it is 1:50 P.M. on December 20, 1983, type:

```
20-DEC-1983 13:50
```

The system now prompts you for the name of the drive holding the distribution disk. The distribution disk is mounted on an RA60 disk drive designated DUAL in this example, so the response is:

```
Enter drive holding distribution kit (DDCU): DUAL
```

During the next 15 minutes, the following messages will appear as the Library and Optional save sets are being restored.

```
%MOUNT-I-MOUNTED,VMS035 mounted on DUAL
```

```
Restoring library save set.
```

```
_%BACKUP-I-STARTVERIFY, starting verification pass
```

```
Restoring optional save set.
```

```
%BACKUP-I-STARTVERIFY, starting verification pass
```

```
Running AUTOGEN -- Please wait.
```

As AUTOGEN runs during the next several minutes, the console terminal prints a list of files that have been either created or extended. When AUTOGEN ends, the console prints a message like the following:

```
%OPCOM, 20-DEC-1983 13:45:22.43, message from user SYSTEM  
%SYSGEN-I-WRITECUR, CURRENT system parameters modified by process ID  
00010033 into file SYS$SYSROOT:[SYSEXE]SYS.EXE;1
```

```
System shutting down to allow boot of complete V3.5 system.  
You must manually reboot the system after it halts.
```

As the system shuts down, a group of shutdown messages print out on the console. When the system is shutdown, the console terminal prints the following message:

```
SYSTEM SHUTDOWN COMPLETE - USE CONSOLE TO HALT SYSTEM
```

3. Next, halt the processor using CTRL/P.
4. You now have an operating system that can be booted from the RAB0 system volume by typing:

```
>>>B DUO
```

5. Remove the distribution kit and store it in a safe place.

Refer to Chapter 3 for site-specific modifications that should be made to the system.

You should now run the User Environment Test Package (UETP) to verify the installation. (See the VAX/VMS UETP User's Guide.) After you run the UETP, refer to the VAX/VMS System Management and Operations Guide for instructions on customizing and using your system.

## 2.6 BUILDING A STANDARD SYSTEM VOLUME FROM AN RL02 DISTRIBUTION KIT

Two types of IDC systems can be built on a VAX-11/730 from an RL02 distribution kit: a standard system configuration made up of an R80 and RL02 disk drive configuration or a tailored system made up of a dual-RL02 disk drive configuration.

This section tells you how to build a standard (nontailored) system volume from an RL02 distribution kit. In the standard IDC-based system, the save sets are restored to a nonremovable disk on an R80 drive designated DQA0. The distribution disks (primary and optional) are alternately mounted on an RL02 disk drive designated DQA1.

The installation process is divided into four tasks, each described in a distinct section:

1. Checking the contents of the distribution kit
2. Booting stand-alone BACKUP
3. Restoring the Required save set
4. Booting the partially built system and restoring the remaining save sets

Each section presumes the previous section has been completed and that the installation process is continuous. For example, if a disk drive is brought up to operating speed in one section, the following section is written as though the state of the drive has not changed.

### 2.6.1 Checking the Contents of the RL02 Distribution Kit

This section tells you what is included in an RL02 distribution kit. If your kit is incomplete, notify the DIGITAL Software Distribution Center and request priority shipment of the missing component(s).

- A primary distribution disk containing the Required save set and the Library save set
- The optional distribution disk that includes the optional library files save set and the EDTCAI save set.

#### NOTE

EDTCAI is not a part of the operating system.  
See Section 2.9 for instructions on how to install EDTCAI.

This section presumes you have elected to restore the Required save set and the Library save set from the primary distribution disk and the Optional save set from the optional distribution disk. If you choose to install the Optional save set at a later date using VMSINSTAL, see Section 2.6.4 for instructions.

To restore the files required for a bootable system and the VMS library files, you need the following:

- The Version 3.5 primary distribution disk
  - Part number: BC-M761C-BE
  - Part description: VAX/VMS V3.5 REQUIRED RL2

## BUILDING A SYSTEM DISK

- Three blank TU58 cartridges are provided: two for building stand-alone BACKUP, and one for copying the console media:

Part number: 36-15809-00

Part description: Blank TU58 Cassette

To restore the optional VMS files or to install EDTCAI, you need the following:

- The Version 3.5 optional distribution disk

Part number: BC-M762C-BE

Part description: VAX/VMS V3.5 OPTIONAL RL2

### 2.6.2 Booting Stand-Alone Backup

This section tells you how to boot the stand-alone version of the Backup Utility (BACKUP) from the primary RL02 distribution disk.

1. Place the primary distribution disk onto the RL02 disk drive designated DQA1. (See Section 2.2 if you need information on how to specify device names.)
2. Write protect the distribution disk by pressing the **WRITE PROT** switch on the drive. The switch will light in the **ON** position.
3. Bring the drive up to operating speed by pressing the **LOAD** switch.

The **LOAD** switch-indicator turns off when you press the switch and it remains off until you subsequently spin down the drive to unload the disk. When the logical address plug indicator lamp lights, the drive is up to speed and you may continue on to the next step.

4. At the console, begin the stand-alone BACKUP boot by typing:

```
>>>B DQ1
```

The console terminal prints a series of boot commands followed by this message:

```
VAX/VMS Version V3.3    11-APR-1983 16:21
```

As the boot progresses, the console terminal continues to print a series of bootstrap messages. When the boot is completed, the console terminal prints a message like the following:

```
%BACKUP-I-IDENT, Stand-alone BACKUP, Version 3.3; the date is 20-DEC-1983 13:10:21.03  
$
```

### 2.6.3 Restoring the System to the R80 Disk

This section tells you how to restore the operating system to the R80 disk. The examples assume that you will alternately mount the distribution disks on an RL02 disk drive designated DQA1 and the new system volume is on a nonremovable disk in the R80 disk drive designated DQA0.

1. Bring the R80 disk up to operating speed by pressing the RUN/STOP switch on the drive.

The RUN/STOP switch-indicator turns on when you press the switch and remains on until you subsequently stop the drive. When the drive is at operating speed, the READY indicator turns on and you may continue to the next step.

2. Use this command to restore the Required save set to the R80 system disk:

```
$BACKUP/VERIFY DQA1:REQUIRED/SAVE DQA0:
```

It is important to type the command exactly as shown. The /VERIFY qualifier directs BACKUP to compare the distribution disk with the new system volume to ensure the integrity of the new system volume. You may also use the /LOG qualifier to have BACKUP print a list of restored files on the console terminal.

#### NOTE

The BACKUP command creates a system disk with a DIGITAL-provided set of volume parameters, including a cluster factor of 1. Most of these parameters, except for the cluster factor, can be modified after installation with the DCL command SET VOLUME. To alter the cluster factor, however, you must back up the system disk, using the /NOINITIALIZE qualifier, to another volume that has been initialized with the desired values.

In response to the BACKUP command, the console terminal prints out the following message:

```
%BACKUP-I-STARTVERIFY, starting verification pass
```

The program is checking to be sure that there were no errors made during restoration. The verification pass is completed when the console terminal prints a message like the following:

```
%BACKUP-I-IDENT, Stand-alone BACKUP, Version 3.3; the date is 20-DEC-1983 13:10:21.03  
$
```

3. Halt the processor using CTRL/P.

The R80 disk now has a partially built operating system that is bootable and able to restore the rest of the VMS files. At the console terminal, boot the partially built operating system by typing:

```
>>>B DQO
```

The program responds to the boot command with several boot messages followed a message like the following:

```
VAX/VMS Version V3.5 10-DEC-1983 14:05  
%OPCOM, 20-DEC-1983 13:45:22.43, logfile initialized by operator OPA0  
logfile is SYS$MANAGER:OPERATOR  
Login quotas - Interactive limit=64,  
Current interactive value=0  
PLEASE ENTER DATE AND TIME (DD-MMM-YYYY HH:MM)
```

## BUILDING A SYSTEM DISK

4. Enter the date and time in the twenty-four hour clock format, and press the RETURN key.

For example, if it is December 20, 1983, at 1:50 P.M., enter:

```
20-DEC-1983 13:50
```

The system now prompts you for the name of the drive holding the distribution disk. The distribution disk is mounted on DQAL in this example, so the proper response is:

```
Enter drive holding distribution kit (DDCU):DQAL
```

The installation procedure uses this information to restore the Library save set.

During the next 10 minutes, the following messages will appear as the library files are being restored.

```
%MOUNT-I-MOUNTED,VMS035  mounted on DQAL
```

```
Restoring library save set.
```

```
_%BACKUP-I-STARTVERIFY, starting verification pass
```

```
Do you wish to install the optional distribution kit [NO]?
```

5. If you want to restore the Optional save set now, type the letter Y and press the RETURN key. If you want to restore the Optional save set later, just press the RETURN key. (See Section 2.6.4 for instructions on installing the optional save set later.)

Assuming that you enter Y, the console terminal prints the following prompt:

```
Dismount the Primary distribution kit from drive DQAL. Place the Optional distribution kit in drive DQAL, and press the return key when you are ready to continue.
```

6. Spin down DQAL by pressing the LOAD switch.

When you press the LOAD switch, the logical address switch indicator lamp turns off. When the drive stops, the LOAD switch indicator turns on to indicate that you may remove the disk.

7. Remove the primary distribution disk mounted in DQAL and replace it with the optional distribution disk.
8. Write protect the optional distribution disk by turning on the WRITE PROT switch on DQAL. (The switch lights up in the ON position.)
9. Bring DQAL to operating speed by pressing the LOAD switch.

The LOAD switch-indicator turns off when you press the switch, and it remains off until you subsequently spin down the drive to unload the disk. When the logical address plug indicator lamp lights, the drive is up to speed and you may continue on to the next step.



10. Press the RETURN key to tell the system you are ready to install the optional distribution disk.

As the system is installing the Optional save set over the next 10 minutes, the console terminal prints out a series of messages beginning with:

```
MOUNT-I-MOUNTED,VMS350  mounted on _DQAL:

Restoring optional save set.
%BACKUP-I-STARTVERIFY, starting verification pass

Running AUTOGEN -- Please wait.
```

As AUTOGEN runs, the console terminal prints a list of files that have been either created or extended. When AUTOGEN ends, the console prints a message like the following:

```
%OPCOM, 20-DEC-1983 13:45:22.43, message from user SYSTEM
%SYSGEN-I-WRITECUR, CURRENT system parameters modified by process ID
00010033 into file SYS$SYSROOT:[SYSEXE]SYS.EXE;l

System shutting down to allow boot of complete V3.5 system.
You must manually reboot the system after it halts.
```

While the system shuts down, the console terminal prints a group of shutdown messages. When the system is shut down, the console terminal prints the following message:

```
SYSTEM SHUTDOWN COMPLETE - USE CONSOLE TO HALT SYSTEM
```

11. Next, halt the processor using CTRL/P.
12. You now have an operating system that can be booted from the R80 disk by typing:

```
>>>B DQ0
```

13. Remove the distribution kit and store it in a safe place.

Refer to Chapter 3 for site-specific modifications that should be made to the system.

You should now run the User Environment Test Package (UETP) to verify the installation. (See the VAX/VMS UETP User's Guide.) After you run the UETP, refer to the VAX/VMS System Management and Operations Guide for instructions on customizing and using your system.

#### 2.6.4 Installing the Optional Save Set on R80 Disk Using VMSINSTAL

This section tells you how to install the Optional save set on an R80 system disk using the VMSINSTAL command procedure. The Optional save set includes the four groups of optional library files listed below:

The optional library files are divided into four groups:

- BLISSREQ - source files used to generate compile-time libraries during VAX-11 BLISS language installation. These files may be deleted after language installation is complete. (1900 blocks)
- EXAMPLES - programming examples for various VMS applications, along with the system map. These examples are also reproduced in the microfiche source listings. (1500 blocks)

## BUILDING A SYSTEM DISK

- OBSOLETE - files superseded by other facilities in the operating system. They are included in the system for reasons of compatibility with previous releases. (200 blocks)
- RSX - files that include utility support for the development of compatibility mode (PDP-11) programs in the RSX-11M programming environment. They include the compatibility mode assembler and task builder. This group is not necessary for the execution of compatibility mode programs. (3100 blocks)

### NOTE

Be sure to read Section 4.2 before using VMSINSTAL.

This description presumes you have already placed the optional distribution disk in an RL02 disk drive designated DQAL and that the system disk is mounted on an R80 disk drive designated DQA0.

1. Write protect the optional distribution disk by pressing the WRITE PROT switch on the RL02 drive. (The switch lights up in the ON position).
2. Bring the RL02 drive to operating speed by pressing the LOAD switch.

The LOAD switch-indicator turns off when you press the switch, and it remains off until you subsequently spin down the drive to unload the disk. When the logical address plug indicator lamp lights, the drive is up to speed and you may continue on to the next step.

3. Bring the system disk to operating speed by pressing the RUN/STOP switch on the R80 disk drive.

The RUN/STOP switch-indicator turns on when you press the switch and remains on until you subsequently stop the drive. When the drive is at operating speed, the READY indicator turns on and you may continue to the next step.

4. Boot your system and then log in as the system manager by performing the following steps at the console terminal:
  - a. Press the RETURN key.
  - b. In response to the system's request for your user name, type **SYSTEM**.
  - c. In response to the system's request for your password, type the system manager password.

The console terminal prints the following message:

```
Welcome to VAX/VMS Version 3.5
$
```

5. Set your default directory to SYS\$UPDATE by typing:

```
$ SET DEFAULT SYS$UPDATE
```
6. When the system responds with the dollar-sign prompt (\$), type:

```
$@VMSINSTAL VMSOPT
```

This invokes the VMSINSTAL command procedure, which then prompts you for the name of the device holding the optional distribution disk.

7. Assuming the disk is on DQA1, the proper response is:

Enter drive holding distribution kit: **DQA1**

VMSINSTAL responds with:

%MOUNT-I-MOUNTED, VMS350 mounted on DQA1

8. The command procedure then asks for the name of the drive holding the system disk. In this example, the proper response is:

Enter the device to which the optional save set should be restored (DDCU): **DQA0**

When you enter DQA0, the system responds:

Restoring optional files.

After approximately five minutes, the following message appears on the terminal:

%BACKUP-I-STARTVERIFY, starting verification pass

After approximately five more minutes, the console terminal prints the following message:

OPTIONAL file set restoration complete.  
Kit installation complete.

The Optional save set is now restored to your system disk. Dismount the Optional distribution kit and store it for future use.

## 2.7 BUILDING A TAILORED SYSTEM FROM AN RL02 DISTRIBUTION KIT

This section tells you how to build a tailored -IDC-based VAX-11/730 system from the primary distribution disk in an RL02 distribution kit. It also includes instructions on how to restore optional library file groups in the Optional save set from the optional distribution disk.

See Section 2.9 for instructions on how to install EDTCAI.

A tailored system includes two volumes: you restore the Required save set to a system volume, and you restore the Library save set to a library volume. You may also choose to restore optional library file groups from the Optional save set to your library volume if you have enough space.

The installation process is divided into four tasks, each described in a distinct section:

1. Checking the contents of the distribution kit
2. Booting stand-alone BACKUP
3. Restoring the Required save set to the new system volume
4. Booting the partially built system and restoring the library files

## BUILDING A SYSTEM DISK

Each section presumes the previous section has been completed and that the installation process is continuous. For example, if a disk drive is brought up to operating speed in one section, the following section is written as though the state of the drive has not changed.

### 2.7.1 Checking the Contents of the RL02 Distribution Kit

This section tells you what is included in an RL02 distribution kit. If your kit is incomplete, notify the DIGITAL Software Distribution Center and request priority shipment of the missing component(s).

- A primary distribution disk containing the Required save set and the Library save set
- Optionally, the optional distribution disk that includes the optional library files save set and the EDTCAI save set.

#### NOTE

EDTCAI is not a part of the operating system. See Section 2.9 for instructions on how to install EDTCAI.

**2.7.1.1 The Primary Software Distribution Disk -** To restore the files required for an IDC-based system, you need the following:

- The Version 3.5 primary distribution disk  
Part number: BC-M761C-BE  
Part description: VAX/VMS V3.5 REQUIRED RL2
- Three blank TU58 cartridges:  
Part number: 36-15809-00  
Part description: Blank TU58 Cassette Cartridge

Two of the three blank TU58 cartridges are used for building a backup copy of stand-alone BACKUP. The other is used to back up the console TU58. These operations are described in Chapter 5.

**2.7.1.2 The Optional Software Distribution Disk -** To restore the optional VMS files or to install EDTCAI, you need the following:

- The Version 3.5 optional distribution disk  
Part number: BC-M762C-BE  
Part description: VAX/VMS V3.5 OPTIONAL RL2

### 2.7.2 Booting Stand-Alone Backup

This section tells you how to boot the stand-alone version of the Backup Utility (BACKUP) from the primary RL02 distribution disk.

1. Place the primary distribution disk onto the RL02 disk drive designated DQAL. (See Section 2.2 if you need information on how to specify device names.)
2. Write protect the distribution disk by pressing the WRITE PROT switch on the drive. The switch will light in the ON position.
3. Bring DQAL up to operating speed by pressing the LOAD switch.  
The LOAD switch-indicator turns off when you press the switch, and it remains off until you subsequently spin down the drive to unload the disk. When the logical address plug indicator lamp lights, the drive is up to speed and you may continue on to the next step.
4. At the console, begin the stand-alone BACKUP boot by entering:

```
>>>B DQ1
```

The console terminal prints a series of console commands followed by this message:

```
VAX/VMS Version V3.3    11-APR-1983 16:21
```

As the boot progresses, the console terminal continues to print a series of bootstrap messages. When the boot is completed, the console terminal prints a message like the following:

```
%BACKUP-I-IDENT, Stand-alone BACKUP, Version 3.3; the date is 20-DEC-1983 13:10:21.03
$
```

### 2.7.3 Restoring the Primary RL02 Disk In a Tailored IDC System

This section tells you how to restore the Required save set and the Library save set in a tailored IDC system configuration.

1. Label an RL02 disk "LIBRARY" and mount it in the RL02 disk drive designated DQA0.
2. Bring DQA0 to operating speed by pressing the LOAD switch.

The LOAD switch-indicator turns off when you press the switch and it remains off until you subsequently spin down the drive to unload the disk. When the logical address plug indicator lamp lights, the drive is up to speed and you may continue on to the next step.

3. Begin the restoration process by typing the following BACKUP command:

```
$BACKUP/VERIFY DQAL:LIBRARY/SAVE DQA0:
```

It is important to type the command exactly as shown. The /VERIFY qualifier directs stand-alone BACKUP to compare the Library save set on the distribution disk with the restored library files on the new library disk. You may also use the /LOG qualifier to have the console terminal print a list of the restored library files.

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In response to the BACKUP command, the console terminal prints out the following message:

```
%BACKUP-I-STARTVERIFY, starting verification pass
```

The program is checking to be sure that there were no errors made during restoration. The verification pass is completed when the console terminal prints a message like the following:

```
%BACKUP-I-IDENT, Stand-alone BACKUP, Version 3.3; the date is 20-DEC-1983 13:10:21.03  
$
```

4. Spin down DQA0 by pressing the LOAD switch.

When you press the LOAD switch, the logical address switch indicator lamp turns off. When the drive stops, the LOAD switch indicator turns on to indicate that you may remove the disk.

5. Remove the library disk from DQA0.
6. Label an initialized RLO2 disk "SYSTEM" and place it in DQA0.
7. Bring the system disk to operating speed by pressing the LOAD switch on DQA0.

The LOAD switch-indicator turns off when you press the switch, and it remains off until you subsequently spin down the drive to unload the disk. When the logical address plug indicator lamp lights, the drive is up to speed and you may continue on to the next step.

8. Begin the restoration process by typing the following BACKUP command:

```
$BACKUP/VERIFY DQA1:REQUIRED/SAVE DQA0:
```

It is important to type the command exactly as shown. The /VERIFY qualifier directs stand-alone BACKUP to compare the Required save set on the distribution disk with the restored files on the new system volume. You may also use the /LOG qualifier to have the console terminal print a list of the files restored to the new system volume.

### NOTE

The BACKUP command creates a system disk with a DIGITAL-provided set of volume parameters, including a cluster factor of 1. Most of these parameters, except for the cluster factor, can be modified after installation with the DCL command SET VOLUME. To alter the cluster factor, however, you must back up the system disk, using the /NOINITIALIZE qualifier, to another volume that has been initialized with the desired values.

In response to the BACKUP command, the console terminal prints out the following message:

```
%BACKUP-I-STARTVERIFY, starting verification pass
```

The program is checking to be sure that there were no errors made during restoration. The verification pass is completed when the console terminal prints a message like the following:

```
%BACKUP-I-IDENT, Stand-alone BACKUP, Version 3.3; the date is 20-DEC-1983 13:10:21.03
$
```

9. Halt the processor and terminate stand-alone BACKUP using CTRL/P.
10. Spin down DQAL by pressing the LOAD switch.

When you press the LOAD switch, the logical address switch indicator lamp turns off. When the drive stops, the LOAD switch indicator turns on to indicate that you may remove the disk.

11. Remove the primary distribution disk from DQAL.
12. Place the restored library disk into DQAL.
13. Bring the library disk to operating speed by pressing the LOAD switch on DQAL.

The LOAD switch-indicator turns off when you press the switch, and it remains off until you subsequently spin down the drive to unload the disk. When the logical address plug indicator lamp lights, the drive is up to speed and you may continue on to the next step.

14. Boot the partially built operating system by typing the following command on the console terminal:

```
>>>B DQ0
```

The program responds to the boot command with several boot messages followed by a message like the following:

```
VAX/VMS Version V3.5 10-DEC-1983 14:05
%OPCOM, 20-DEC-1983 13:45:22.43, logfile initialized by operator OPA0
  logfile is SYS$MANAGER:OPERATOR
  Login quotas - Interactive limit=64, Current interactive value=0
PLEASE ENTER DATE AND TIME (DD-MMM-YYYY HH:MM)
```

15. Enter the date and time in the twenty-four hour clock format, and press the RETURN key.

For example, if it is December 20, 1983, at 1:50 P.M., enter:

```
20-DEC-1983 13:50
```

16. After you enter the date, the program prompts you for the name of the drive holding the library disk. This information is needed to tailor additional software to the system disk. Since the library disk is mounted on DQAL, the response is:

```
Enter drive holding LIBRARY kit (DDCU):DQAL
```

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17. When you enter the name of the drive holding the library disk, the console terminal prints a series of messages like:

```
%MOUNT-I-MOUNTED, VAXVMSLB3 mounted on _DQAL
Tailoring DEVELOP and MANAGER groups to _system disk
Running AUTOGEN -- Please wait.
%SYSGEN-I-EXTENDED, SYS$$SYSROOT:[SYSEXE]PAGEFILE.SYS extended
%SYSGEN-I-CREATED, SYS$$SYSROOT:[SYSEXE]SWAPFILE1.SYS;1 created
%OPCOM, 20-DEC-1983 13:45:22.43, message from user SYSTEM
%SYSGEN-I-WRITECUR, CURRENT system parameters modified by process ID
00010033 into file SYS$$SYSROOT:[SYSEXE]SYS.EXE;1
```

```
System shutting down to allow boot of complete V3.5 system.
You must manually reboot the system after it halts.
```

18. While the system is shutting down, the console terminal prints a series of shutdown messages. When the following message prints out, the shutdown is complete.

```
SYSTEM SHUTDOWN COMPLETE - USE CONSOLE TO HALT SYSTEM
```

```
To halt the system, press CTRL/P.
```

19. Next, halt the processor using CTRL/P.
20. You now have an operating system that can be booted from the new system volume by typing:

```
>>>B DQO
```

21. Remove the distribution kit and store it in a safe place.

Refer to Chapter 3 for site-specific modifications that should be made to the system.

You should now run the User Environment Test Package (UETP) to verify the installation. (See the VAX/VMS UETP User's Guide.) After you run the UETP, refer to the VAX/VMS System Management and Operations Guide for instructions on customizing and using your system.

### 2.7.4 Installing Optional Library Files in a Dual-RL02 Configuration

This section tells you how to install optional library files from the optional distribution disk to your library volume in a dual-RL02 system configuration.

Limited disk space in a dual-RL02 system configuration requires you to tailor your system if you want to restore any part of the Optional save set to your library volume from the optional distribution kit. The Optional save set is made up of four groups of optional library files:

- BLISSREQ - source files used to generate compile-time libraries during VAX-11 BLISS language installation. These files may be deleted after language installation is complete. (1900 blocks)
- EXAMPLES - programming examples for various VMS applications, along with the system map. These examples are also reproduced in the microfiche source listings. (1500 blocks)



- OBSOLETE - files superseded by other facilities in the operating system. They are included in the system for reasons of compatibility with previous releases. (200 blocks)
- RSX - files that include utility support for the development of compatibility mode (PDP-11) programs in the RSX-11M programming environment. They include the compatibility mode assembler and task builder. This group is not necessary for the execution of compatibility mode programs. (3100 blocks)

The tailoring command **INSTALL** is used to restore optional library file groups from the optional distribution disk to the library disk. You may use the **INSTALL** command to restore any of the optional file groups. However, lack of space prohibits all the optional file groups from being installed at any one time.

The following procedure presumes a tailored IDC system where the system disk is an RL02 mounted in a disk drive designated DQA0 and that the library disk is an RL02 mounted in a disk drive designated DQA1.

To install optional library file groups to the library disk, proceed as follows:

1. Perform an orderly shutdown of the system using the following command:

```
$ @SYS$SYSTEM:SHUTDOWN.COM
```

The shutdown procedure asks you for the number of minutes until system shutdown, the reason for the shutdown, and whether to spin down the disks. Respond to each of these questions by simply pressing the RETURN key.

As the shutdown continues, the console terminal prints several shutdown messages. When the console terminal prints the following message, shutdown is nearly completed:

```
SHUTDOWN COMPLETE - USE CONSOLE TO HALT SYSTEM
```

2. Next, halt the processor using CTRL/P.
3. Spin down the RL02 disk drive containing the system disk (DQA0) by pressing the LOAD switch on the drive.

When you press the LOAD switch, the logical address switch indicator lamp turns off. When the drive stops, the LOAD switch indicator turns on to indicate that you may remove the disk.

4. Remove the system disk from DQA0 and replace it with the optional distribution disk.
5. Write protect the optional distribution disk by pressing the **WRITE PROT** switch on DQA0. (The switch lights up in the ON position.)
6. Bring the drive up to operating speed by pressing the **LOAD** switch.

The **LOAD** switch-indicator turns off when you press the switch, and it remains off until you subsequently spin down the drive to unload the disk. When the logical address plug indicator lamp lights, the drive is up to speed and you may continue on to the next step.

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7. In order to copy files to the library disk, you must remove the write protection from the disk. You do this by pressing the WRITE PROT switch on DQAl. (The switch indicator is unlit in the OFF position.)
8. Press the RETURN key to tell the system you are ready to install the optional distribution disk.
9. Boot the optional distribution disk by typing the following:

```
>>>B DQO
```

Several messages will print out followed by the tailoring prompt:

```
Tailor>
```

10. Mount the library disk as writeable, using the following command:

```
Tailor>MOUNT/WRITE DQAl
```

11. When the console terminal prints the tailoring prompt, you may use the appropriate INSTALL command to specify the file group you want to install. The following command example installs the RSX file group:

```
Tailor>INSTALL RSX/LOG
```

With the /LOG qualifier, the console terminal prints a list of the files that are being installed.

12. When the console terminal prints the tailoring prompt, dismount the library disk by typing:

```
Tailor>DISMOUNT
```

13. Then exit the Tailoring Facility by typing:

```
Tailor>EXIT
```

As the system automatically does an orderly shutdown, you receive the following messages:

```
Optional file group installation complete.  
Halt the system, remove the optional kit,  
replace the system disk and reboot.
```

```
SYSTEM SHUTDOWN COMPLETE - USE CONSOLE TO HALT SYSTEM
```

14. Press CTRL/P to halt the system, replace the optional distribution disk with the system disk, and continue with operations. Optional file groups can now be copied from the library disk to the system disk using the Tailoring Facility. See chapter 6 for more detail on tailoring.

### 2.8 BUILDING A SYSTEM ON THE VAX-11/725

Use these procedures only if you are installing Version 3.5 onto a VAX-11/725. Before you install the software on your system, your hardware must be installed and checked for proper operation.

When you install the operating system on your VAX-11/725, the distribution medium is a removable RC25 disk cartridge used to build a bootable operating system on the fixed RC25 disk. After you have installed the system, you have the option of keeping the bootable operating system on the fixed disk, or putting it on the removable disk. Your decision depends on how you plan to use your VAX-11/725.

If you plan on giving many users access to the system using their individual data disk cartridges, it is advantageous to keep the operating system on the fixed disk. On the other hand, if a limited number of users is to have access to the system, it is to your advantage to put the operating system on a removable disk cartridge and the data files on the fixed disk, which is much easier to back up. (See Section 5.1.6 for instructions on how to do disk backups.)

The installation process is divided into five tasks, each described in a separate section:

1. Checking the contents of the distribution kit
2. Designating device names
3. Booting stand-alone BACKUP
4. Restoring the Required save set to the fixed disk
5. Booting the partially built system and restoring the library files

### 2.8.1 Checking the Contents of a VAX-11/725 Distribution Kit

This section tells you what is included in a VAX-11/725 distribution kit. If your kit is incomplete, notify the DIGITAL Software Distribution Center and request priority shipment of the missing component(s). The VAX-11/725 software distribution kit contains the following:

- The RC25 Version 3.5 distribution disk  
Part number: BK-Y851A-BE  
Part description: VAX/VMS V3.5 BIN RC25
- Three blank TU58 cartridges.  
Part number: 36-15809-00  
Part description: Blank TU58 Cassette Cartridge

### 2.8.2 RC25 Device Names

On all VAX-11/725 systems, the removable disk is assigned the device name DUA0 and the fixed disk is assigned the device name DUA1.

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### 2.8.3 Booting Stand-Alone BACKUP from an RC25 Disk

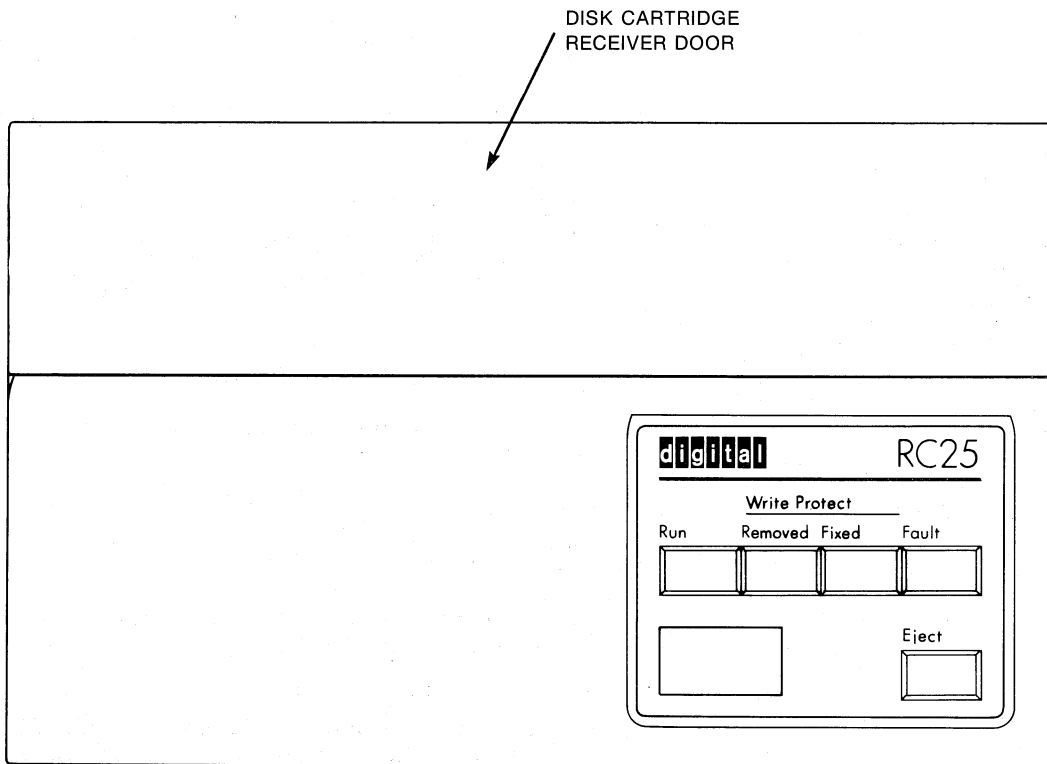
To boot stand-alone BACKUP from an RC25 distribution cartridge, proceed as follows:

1. If you have not already done so, insert the console TU58 into the cassette drive located at the side of the VAX-11/725 as shown in Figure 1-4.

#### NOTE

Be sure you use the console TU58 for the VAX-11/725 (labeled BE-T173F-ME VAX 11725/730 CONSOLE).

2. Be sure the disk drive is stopped by checking that the EJECT switch/indicator is lit. If the drive is not stopped, press the RUN switch. As the drive comes to a halt, the RUN indicator will flash until the drive is stopped. When the RUN indicator goes out, the EJECT indicator will light.
3. Press the EJECT switch to open the receiver door. (See Figure 2-1.)



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Figure 2-1: Access to RC25 Cartridge Receiver

4. Insert the distribution disk cartridge through the receiver door on the RC25 and into the cartridge receiver.

5. Verify that neither the distribution disk cartridge nor the fixed disk are write protected. The WRITE PROTECT/REMOVE and the WRITE PROTECT/FIXED indicator lamps should be turned off. If either is lit, press the associated switch to turn the indicator off.
6. Bring the RC25 disk drive to operating speed by pressing the RUN switch. The RUN indicator flashes as the drive is coming up to operating speed. When the drive is at operating speed, the indicator will remain lit steadily.
7. Press CTRL/P to put the system in console mode. When the console terminal prints the console prompt (>>>), enter the following command to boot stand-alone BACKUP from the distribution cartridge:

```
>>>B DUO
```

As stand-alone BACKUP boots, the red LED indicator labeled SIDE on the front of the VAX-11/725 processor control panel will light. The console terminal will print several console commands, identify the operating system, and print the DCL prompt(\$) when the boot is completed:

```
>>>@DD1:DUOBOOT.CMD
.
.
VAX/VMS Version V3.5 18-OCT-1983 16:21
BACKUP-I-IDENT, Stand-alone BACKUP, Version 3.3; the date is 20-DEC-1983 13:10:21.03
$
```

With stand-alone BACKUP booted, you may proceed to restore the Required save set to the fixed disk.

#### 2.8.4 Restoring the Required Save Set to the Fixed Disk

This section tells you how to restore the Required save set from the distribution cartridge to the fixed disk.

1. Enter the following DCL command:

```
$BACKUP/VERIFY/IMAGE DUA0:REQUIRED/SAVE DUAL:
```

Be sure you type the command exactly as shown, using uppercase letters on the console terminal.

The /VERIFY qualifier directs stand-alone BACKUP to compare the distribution disk with the restored files on the fixed disk to ensure their integrity. You may also want to include the /LOG qualifier to get a list of the restored files printed on the console terminal.

#### NOTE

The BACKUP command creates a system disk with a DIGITAL-provided set of volume parameters, including a cluster factor of 1. Most of these parameters, except for the cluster factor, can be modified after installation

with the DCL command SET VOLUME. To alter the cluster factor, however, you must back up the system disk, using the /NOINITIALIZE qualifier, to another volume that has been initialized with the desired values.

In approximately two minutes, the console terminal prints out the following message:

```
%BACKUP-I-STARTVERIFY, starting verification pass
```

The program is checking to be sure that there were no errors made during restoration. When the verification pass is completed, the console terminal prints a message like the following:

```
%BACKUP-I-IDENT, Stand-alone BACKUP, Version 3.3; the date is 20-DEC-1983 13:45  
$
```

2. Type CTRL/P to halt the processor and terminate stand-alone BACKUP.

#### 2.8.5 Booting the Partially Built System and Restoring the Remaining Save Sets

1. At the console terminal, boot the partially built operating system from the fixed disk by entering the following command:

```
>>>B DU1
```

The console responds with a series of console commands followed by a message like the following:

```
VAX/VMS Version V3.5 18_OCT-1983 16:21  
%OPCOM, 20-DEC-1983 13:45:22.43, logfile initialized by operator OPAO  
logfile is SYS$MANAGER:OPERATOR  
Login quotas - Interactive limit=64,  
Current interactive value=0  
PLEASE ENTER DATE AND TIME (DD-MMM-YYYY HH:MM)
```

2. Enter the date and time in the twenty-four hour clock format. For example, if it is December 20, 1983, at 1:50 P.M., enter:

```
20-DEC-1983 13:50
```

3. The system now prompts you for the name of the drive holding the distribution kit. You respond by entering DUA0 as shown in the following example:

```
Enter drive holding distribution kit (DDCU) DUA0
```

The system mounts the distribution disk, restores the library save set, and verifies the restoration.

```
%MOUNT-I-MOUNTED,VMS035 mounted on DUA1  
_%BACKUP-I-STARTVERIFY, starting verification pass
```

4. When this operation is completed, the system asks if you want to now restore the Optional save set.

Do you wish to install the OPTIONAL save set [NO]?

If you choose not to install the Optional save set now, simply press the RETURN key and the system proceeds immediately to run AUTOGEN. See Section 2.8.6 for instructions on how to install the optional save set at a later time using the VMSINSTAL command procedure.

If you want to restore the Optional save set now, enter Y The system will then restore the Optional save set, verify it, and then run AUTOGEN.

#### NOTE

If you choose not to restore the Optional save set, you will get an additional 7000 blocks of free space on your system disk. However, you may not be able to implement various layered products if you do not restore the Optional save set. See the VAX-11 Layered Products Cross Reference Table to determine what optional files are needed to support the various layered products.

As the Optional save set is restored, the following messages are printed on the console terminal:

```
%BACKUP-I-STARTVERIFY, starting verification pass
Running AUTOGEN -- Please wait.
```

As AUTOGEN runs during the next several minutes, the console terminal prints a list of files that have been either created or extended. When AUTOGEN ends, the system begins to do an orderly shut down so that you can boot the entire system. This is heralded by the following messages:

```
System shutting down to allow boot of complete V3.5 system,
with generated site-specific parameters and installed images.
You must manually reboot the system after it halts.
```

As the system shuts down, the console terminal prints a series of shutdown messages. The following message indicates shutdown is completed:

```
SYSTEM SHUTDOWN COMPLETE - USE CONSOLE TO HALT SYSTEM
```

At this point, a bootable operating system is installed on your fixed disk. Use CTRL/P to put the system into console mode and boot the operating system from the fixed disk by entering the following command:

```
>>> B DU1
```

When you get a message like this, the operating system is running:

```
VAX/VMS Version V3.5 18-OCT-1983 16:21

%OPCOM 20-DEC-1983 13:45, logfile initialized by operator OPA0
logfile is SYS$MANAGER:OPERATOR.LOG
Login quotas - Interactive limit=64, Current interactive value=0
SYSTEM      job terminated at 20-DEC-1983 13:46
```

## BUILDING A SYSTEM DISK

Your operating system includes a capability for writing crash dumps to the system disk when a serious hardware or software problem occurs. In small-disk systems, crash dumps are written to the system paging file. Normally these dumps are overwritten each time you boot your system; however, you can preserve and analyze crash dumps by setting the `SAVEDUMP` parameter and saving the dump for analysis. (See Chapter 6 for details.)

If you wish, you may create a `DUMP` file; however, be aware that this will take space away from your system disk.

You should now run the User Environment Test Package (UETP) to verify the installation. (See the VAX/VMS UETP User's Guide.) After you run the UETP, refer to the VAX/VMS System Management and Operations Guide for instructions on customizing and using your system.

### 2.8.6 Installing the Optional Save Set on a VAX-11/725 Using VMSINSTAL

This section tells you how to install the Optional save set on an RC25 fixed disk using `VMSINSTAL`.

The Optional save set includes optional library files divided into four groups:

- `BLISSREQ` - source files used to generate compile-time libraries during VAX-11 BLISS language installation. These files may be deleted after language installation is complete. (1900 blocks)
- `EXAMPLES` - programming examples for various VMS applications, along with the system map. These examples are also reproduced in the microfiche source listings. (1500 blocks)
- `OBSOLETE` - files superseded by other facilities in the operating system. They are included in the system for reasons of compatibility with previous releases. (200 blocks)
- `RSX` - files that include utility support for the development of compatibility mode (PDP-11) programs in the `RSX-11M` programming environment. They include the compatibility mode assembler and task builder. This group is not necessary for the execution of compatibility mode programs. (3100 blocks)

#### NOTE

Be sure to read Section 4.2 before using `VMSINSTAL`.

Proceed as follows:

1. Insert the distribution disk cartridge through the receiver door on the RC25 and into the cartridge receiver.
2. Verify that neither the distribution disk cartridge nor the fixed disk are write protected. The indicator lamps located in the center of the `WRITE PROTECT/REMOVE` and the `WRITE PROTECT/FIXED` switches should be turned off. If either is lit, press the associated switch to turn the indicator off.
3. Bring the disk drive to operating speed by pressing the `RUN` switch. The `RUN` indicator flashes as the drive is coming up to operating speed. When the drive is at operating speed, the indicator will remain lit steadily.



4. Boot your system and then log in as the system manager by performing the following steps at the console terminal:
  - a. Press the RETURN key.
  - b. In response to the system's request for your user name, type **SYSTEM**.
  - c. In response to the system's request for your password, type the system manager password.

The console terminal prints the following message:

```
Welcome to VAX/VMS Version 3.5
$
```

5. Set your default directory to SYS\$UPDATE by typing:

```
$ SET DEFAULT SYS$UPDATE
```

6. When the system responds with the dollar-sign prompt (\$), type:

```
$@VMSINSTAL VMSOPT
```

This invokes the VMSINSTAL command procedure, which then prompts you for the name of the device holding the optional distribution disk.

7. You respond by entering DUA0.

```
Enter drive holding distribution kit:DUA0
```

VMSINSTAL responds with:

```
%MOUNT-I-MOUNTED, VMS350 mounted on _DUA0:
```

8. The command procedure then asks for the name of the drive holding the system disk. Your response is DUA1, the head disk drive.

```
Enter the device to which optional save set should be
restored(DDCU):DUA1
```

When you enter DUA1, the system responds:

```
Restoring optional files.
```

After approximately five minutes, the following message appears on the terminal:

```
%BACKUP-I-STARTVERIFY, starting verification pass
```

After approximately five more minutes, the console terminal prints the following message:

```
OPTIONAL file set restoration complete.
Kit installation complete.
```

The optional library files are now restored to your system disk. Dismount the distribution disk and store it for future use.

## 2.9 INSTALLING EDTCAI

The installation of EDTCAI uses a version of VMSINSTAL without options that does not attempt to recover from a system failure during the installation. To install the EDTCAI course, perform all the steps described in Section 4.2, then proceed as follows:

1. Mount your distribution disk.
2. Type the following command to begin the installation of EDTCAI:

```
$ @SYS$UPDATE:VMSINSTAL EDTCAI
```

3. You will receive the following request:

Enter drive holding distribution kit:

You must type your response in the format ddcu:, where dd is the device code, c is the controller letter, and u is the unit number.

You will then see the following message text at the terminal:

```
This procedure will install the EDTCAI course on your system. This course will work on either the VT52 or a VT100 compatible terminal. However, the display library for each terminal type is over 500 blocks, and if you do not have a particular terminal type on your system, you might wish to save disk space by not installing that particular library.
```

4. You will receive the following query:

Do you wish to install the display library for VT52 terminals?:

Respond YES or NO.

5. Next, you are prompted with the next question:

Do you wish to install the display library for VT100 terminals?:

Answer YES or NO. You must install at least one of the two library files for the EDTCAI course to run on your system.

6. Approximately two minutes after answering YES to at least one of the two preceding questions, you receive this message:

Added course EDT, the EDTCAI Primer

7. If you have upgraded from a previous version of EDTCAI, at this point you will be asked:

Do you wish to copy student records from EDTCAI V1 to this version?:

Answer YES or NO. If you answer YES, the names of the students will be displayed as they are copied.

8. When all the names have been copied, the following will be displayed:

Now that the student records are copied, you may delete the old records to save disk space.

Do you wish to delete the old student records (Y or N):

Answer YES or NO. If you answer YES, the following will be displayed:

The old student records have been deleted.

If you answer NO, the following will be displayed:

The old student records have not been deleted.

When the installation of the EDTCAI course is completed, you will receive this message:

Kit installation complete.



## CHAPTER 3

### SITE-SPECIFIC MODIFICATIONS TO VAX/VMS

Now that your operating system is installed, you may want to customize it to your particular operating environment. Areas that you may want to consider include:

- Selecting a default bootstrap command procedure
- Building your site-specific start-up command procedure
- Adjusting your system parameters, if necessary

Further information on customizing your operating system can be found in the VAX/VMS System Management and Operations Guide.

#### 3.1 LOGGING INTO THE SYSTEM

To customize your system, you must boot it and then log in to the system manager's account, **SYSTEM**. When you boot the system, it announces itself with the following message:

```
VAX/VMS Version 3.5 18-OCT-1983 16:21

%OPCOM, 20-DEC-1983 16:36:29.58, logfile initialized by operator OPAO
  log file is SYS$MANAGER:OPERATOR.LOG
  Login quotas - Interactive limit=64, Current Interactive value=0
SYSTEM job terminated at 20-DEC-1983 16:36;31.41
```

#### NOTE

Please note that all dates and times used in the message examples are for illustration only.

Use the following procedure to log in to the system as the system manager:

1. Press the RETURN key on the console terminal.
2. In response to the system's request for your username, type **SYSTEM**.
3. In response to the system's request for your password, type **MANAGER**, unless you have already changed the password.

#### NOTE

To maintain system security, you should change the system manager account password as soon as you can. If you need help in changing the password, see the description of the SET PASSWORD command in the VAX/VMS Command Language User's Guide.

## SITE-SPECIFIC MODIFICATIONS TO VAX/VMS

When you enter the proper password, the system prints the following message on the console terminal:

```
Welcome to VAX/VMS Version 3.5
```

When the console terminal prints the DCL prompt (\$), you can begin customizing your system using the instructions in the following sections.

### 3.2 SELECTING A DEFAULT BOOTSTRAP COMMAND PROCEDURE

If you do not explicitly specify a bootstrap command procedure when you boot the system (for example if you momentarily activate the BOOT switch), the system executes a default bootstrap command procedure called DEFBOO.CMD. DEFBOO.CMD also runs if the system cannot restart after a power failure (assuming the AUTO RESTART/BOOT switch on the processor control panel is in the ON position).

When you install your system, DEFBOO.CMD is a copy of the nonstop boot command procedure that is appropriate for booting the system from the first disk drive on your first disk controller. For example, if you have a UDA-based VAX-11/730, DEFBOO.CMD is a copy of DUOBOO.CMD.

When your system is installed, you may want to select a different default bootstrap command procedure from the set of bootstrap command procedures available on your console TU58. The available selection of bootstrap command procedures lets you boot from various disk drives and gives you the option of using either a nonstop bootstrap command procedure or a conversational bootstrap command procedure. Table 3-1 lists the boot command procedures on the console TU58.

Table 3-1: Bootstrap Command Procedures

Boot Procedure	Description	VAX System
DQ0BOO.CMD	Nonstop boot from drive 0	IDC-based VAX-11/730
DQ1BOO.CMD	Nonstop boot from drive 1	IDC-based VAX-11/730
DQ2BOO.CMD	Nonstop boot from drive 2	IDC-based VAX-11/730
DQ3BOO.CMD	Nonstop boot from drive 3	IDC-based VAX-11/730
DQ0GEN.	Conversational boot from drive 0	IDC-based VAX-11/730
DQ1GEN.	Conversational boot from drive 1	IDC-based VAX-11/730
DQ2GEN.	Conversational boot from drive 2	IDC-based VAX-11/730
DQ3GEN.	Conversational boot from drive 3	IDC-based VAX-11/730
DUOBOO.CMD	Nonstop boot from drive 0	UDA-based VAX-11/730 or VAX-11/725
DU1BOO.CMD	Nonstop boot from drive 1	UDA-based VAX-11/730 or VAX-11/725
DUOGEN.CMD	Conversational boot from drive 0	UDA-based VAX-11/730 or VAX-11/725
DU1GEN.CMD	Conversational boot from drive 1	UDA-based VAX-11/730 or VAX-11/725

The system recognizes a short form of the file names for the nonstop bootstrap command procedures (those with file names ending in BOO). To use the short form, include only the first three characters in the file name. For example, the short form for DQOBOO.CMD is DQO.

Generally, you will want to operate with a nonstop bootstrap command procedure if you want the system to do an unattended reboot after a fatal system error or a power failure. If you want to make system parameter changes while booting your system, you must use a conversational bootstrap.

### 3.2.1 Changing the Default Bootstrap Command Procedure

If you decide to change the default bootstrap command procedure for your system, you must copy the selected procedure to the console cartridge in CSA2, renaming it DEFBOO.CMD. The operating system provides a command procedure named SETDEFBOO.CMD that simplifies this task for you. To use SETDEFBOO.CMD, enter the following DCL command:

```

$@SYS$UPDATE:SETDEFBOO

```

#### NOTE

If you have installed a tailored system, you must have the MANAGER file group tailored to the system disk for this operation. See Chapter 6 for tailoring instructions.

When you invoke SETDEFBOO, it asks you to indicate when the console TU58 is ready to be mounted:

```

Please place the system console medium in the console drive.
Is the system console storage medium ready to be mounted? (Y/N):

```

Note that you can only write to a TU58 cassette cartridge if the write protect tab (RECORD ->) is set to record (positioned in the direction of the arrowhead engraved on the tab).

When you enter the letter Y, the procedure logically mounts the console TU58 cassette tape and requests the name of the new default bootstrap command procedure:

```

%MOUNT-I-MOUNTED, CONSOLE mounted on CSA2:
Enter name of default boot command file:

```

Enter the name of the default bootstrap command procedure you want from the list in Table 3-1. When you enter your selection, for example, DQ1BOO.CMD, SETDEFBOO copies the selected bootstrap command procedure to DEFBOO.CMD on the console cartridge. When it finishes the copying operation, SETDEFBOO issues the following message:

```

Default boot command replaced with DQ1BOO.CMD.

```

The procedure then asks:

```

Are you satisfied with this file as the default
boot command file? (Y/N):

```

If you type N, the procedure lets you specify a different default file. If you type Y, the procedure is completed and the next boot will use the new default boot command procedure.

## SITE-SPECIFIC MODIFICATIONS TO VAX/VMS

Be sure you write protect the console TU58 by sliding the write protect tab to the nonrecord position (opposite to the direction of the arrowhead).

### NOTE

You can permanently write protect the console TU58 by removing the write protect tab after you have positioned it to the nonrecord position. Simply grasp the tab, lift it out of the cassette body, and store it in a safe place.

### 3.2.2 Customizing a Bootstrap Command Procedure

In the previous section, you were instructed on how to choose a default bootstrap command procedure from one of those available on the console TU58. However, you may wish to customize a bootstrap procedure before making it your default procedure. In order to customize a bootstrap command procedure, you must first copy it from the console TU58 to your default disk directory, because files cannot be edited while on the TU58. After you make the changes, copy the modified procedure back to the console TU58.

Use the DXCOPY command procedure to copy a bootstrap command procedure from the console TU58 to your default disk directory.

1. Invoke DXCOPY by typing:

```
Ⓕ@SYSⒻUPDATE:DXCOPY
```

The command procedure asks whether the console TU58 is mounted:

```
Is the system console storage medium mounted (Y/N)?:
```

2. Insert the console TU58 into CSA1 and type N. Ignore the procedure's request to mount the console TU58 in the console cassette drive (CSA2); just press the RETURN key.

### NOTE

The console TU58 is normally mounted in CSA2 but for this procedure it must be in the CSA1 drive.

3. DXCOPY now asks whether the copy operation is from the console TU58 to the disk or from the disk to the console TU58:

```
Copy from console medium (Y/N)?:
```

Type Y to indicate you want to copy a file from the console TU58 to your default directory on the disk.

4. Next, the command procedure requests the name of the file to be copied from the console TU58. Type the name of the file and press the RETURN key.

DXCOPY responds by copying the specified file to your default directory where you can edit it.



When you have edited the file, copy it back to the console TU58 by using the following procedure:

1. Invoke DXCOPY by typing:

```
$ @SYS$UPDATE:DXCOPY
```

2. When DXCOPY asks you whether the console TU58 is mounted, type Y. Again, ignore the procedure's request to mount the console TU58 in CSA2; simply press the RETURN key.
3. When DXCOPY asks whether the copy operation is from the console TU58, type N and press the RETURN key. This response tells DXCOPY you want to copy the file from your default directory back to the console TU58.
4. When the command procedure requests the name of the file to be copied from your default directory, type the name of the file and press the RETURN key.

DXCOPY responds by copying the edited file to the console TU58 to complete the customizing procedure.

### 3.3 MODIFYING SYSTEM PARAMETERS

When you first boot your system, the AUTOGEN command procedure generates system parameters that are suitable for your hardware. However, you may need to modify the system parameters if you have an unusual hardware configuration or special workload requirements.

The file SYS\$SYSTEM:PARAMS.DAT contains the system parameters and can be edited to suit your needs. For detailed information about system parameters refer to the VAX/VMS System Management and Operations Guide.

After editing PARAMS.DAT, invoke the AUTOGEN command procedure again with the command:

```
$ @SYS$UPDATE:AUTOGEN
```

When AUTOGEN runs, your changes are established as part of the current system parameter values, and any parameters that are affected by your changes are automatically adjusted.

### 3.4 MODIFYING SMALL-DISK SYSTEMS TO HANDLE CRASH DUMPS

This section applies to the VAX-11/725 and VAX-11/730 systems configured for dual-RL02 operation.

Small-disk systems do not provide a dump file for handling crash dumps. However, these systems can utilize the paging file for crash dumps (see Section 6.3.3), but only if the paging file has at least 1000 more blocks than the number of physical pages of memory on the system, and the swapping file has at least 1000 blocks.

You may need to enlarge the size of these files in a small-disk system because AUTOGEN creates paging and swapping files of minimal size in order to conserve space. To change the size of these files, refer to the VAX/VMS System Management and Operations Guide.

### 3.5 OTHER SITE-SPECIFIC MODIFICATIONS

You may want to make several other site-specific modifications while you are logged in as system manager. These include setting up your site-specific start-up command procedure, creating user authorization files, and redefining your line printer, if necessary. See the VAX/VMS System Management and Operations Guide for details on these subjects.

#### 3.5.1 Site-specific Start-up Command Procedure

The system is installed with two start-up command procedures, a site-independent procedure named SYS\$SYSTEM:STARTUP.COM and a blank start-up command procedure named SYS\$MANAGER:SYSTARTUP.COM. When the system is booted, SYS\$SYSTEM:STARTUP.COM runs, and it then invokes SYS\$MANAGER:SYSTARTUP.COM.

You will want to customize the blank start-up command procedure to your particular start-up environment. For example, SYSTARTUP.COM can be used to initialize and start your print queues and batch queues. To customize SYSTARTUP.COM, use your editor to make applicable entries into the file.

#### 3.5.2 Customizing User Authorization Files

To better control access to system resources for your particular operating environment, you may want to customize the user authorization files (UAF) and create user file directories. You do this using the Authorize Utility described in the VAX-11 Utilities Reference Manual.

#### 3.5.3 Redefining the Line Printer on a VAX-11/730 System

Line printer device names on VAX-11/730 and VAX-11/725 processors that use a DMF32 board are defined as LC. All other line printer names are defined as LP. To avoid problems with programs and procedures that use the LP designation, it is recommended that the line printer device name be redefined by adding the following commands to your site-specific SYSTARTUP.COM command procedure:

```
$ DEFINE/SYSTEM LP LCA0:  
$ DEFINE/SYSTEM LPO LCA0:  
$ DEFINE/SYSTEM LPA LCA0:  
$ DEFINE/SYSTEM LPA0 LCA0:
```

### 3.6 INSTALLING THE MODIFICATIONS

You should shut your system down and then reboot it to be sure that all the modifications you make are installed in the system. The following orderly shutdown procedure is suggested:

1. Type the following command:

```
$ @SYS$SYSTEM:SHUTDOWN
```

This shutdown command procedure asks you for the number of minutes until system shutdown, the reason for the shutdown,

## SITE-SPECIFIC MODIFICATIONS TO VAX/VMS

and whether to spin down the disks. You may either provide specific answers to these questions, or simply press the RETURN key to enter default values.

When you see the following message, the system is ready to shut down:

```
SYSTEM SHUTDOWN COMPLETE - USE CONSOLE TO HALT SYSTEM
```

2. Use CTRL/P to halt the system.

When the console terminal prints the console prompt (>>>), the system is shut down.

To reboot the system, either type B on the console terminal, or momentarily position the AUTO RESTART/BOOT switch on the processor control panel to BOOT.

The system responds with a message similar to this:

```
VAX/VMS Version 3.5 18-OCT-1983 16:21
```

```
%OPCOM, 20-DEC-1983 16:36;31.41, logfile initialized by operator OPA0  
logfile is SYS$MANAGER:OPERATOR.LOG  
Login quotas - Interactive limit=64, Current interactive value=0  
SYSTEM Job terminated at 20-DEC-1983 16:36;31.44
```

The system is now installed with your site-specific modifications.



## CHAPTER 4

### THE VMSINSTAL COMMAND PROCEDURE

VMSINSTAL is a command procedure you use to install system maintenance updates and some optional software products. Some optional software products will continue to be installed using the VMSUPDATE command procedure (see Appendix B) until they are adapted for VMSINSTAL installation.

This chapter tells you the following:

- What to look for in an optional software product distribution kit
- How to prepare for installing optional software products
- How to invoke VMSINSTAL
- How to choose the installation procedure appropriate to your need
- What to do if the system fails during installation

This chapter does not include specific installation procedures for each update and product. The questions, prompts, and information that you receive during installation differ from product to product. For specific installation details, refer to the installation guide that comes with each maintenance update or optional software product.

For explanations of the error messages you may receive from VMSINSTAL during the installation, see Appendix G.

#### 4.1 EXAMINING THE DISTRIBUTION KITS

Your distribution kit includes the TU58 cassettes or magnetic tape containing the optional software product(s) or system maintenance update that is to be installed. Each distribution kit also includes the installation guide specific to the product or update being installed.

Each cassette, disk, or tape is labeled with a unique name and serial number listed on the bill of materials that describes the contents of the kit. Use the bill of materials to verify that your distribution kit is complete.

## THE VMSINSTAL COMMAND PROCEDURE

### 4.2 PREPARING TO USE VMSINSTAL

Before you run VMSINSTAL, do the following:

1. Back up your system disk, and then use the copy for doing the installation. If you back up your system disk to magnetic tape, you will have to restore the tape to a Files-11 disk to get a working copy. The working copy has more contiguous space than the original system disk because of the way BACKUP creates the copy. This additional contiguous space may be very useful during the installation.

If you have either an IDC-based VAX-11/730 system configuration or a VAX-11/725, see Chapter 5 for instructions on backing up your system disk with stand-alone BACKUP. If you have a UDA-based VAX-11/730, refer to the VAX-11 Utilities Reference Manual for details on how to use the Backup Utility for backup operations.

If the system fails during installation, your working disk is left in an unknown state because VMSINSTAL may delete the older version of a product before it installs the newer version. You will usually have to start the installation from the beginning if a failure occurs. Restarting the installation requires you to make a new working copy of the system disk before continuing.

2. Log in at the console terminal under the system manager's account, SYSTEM.

#### NOTE

If the SYSGEN parameters MOUNTMSG or DISMOUMSG at your site have been set to 1, you will receive a message from OPCOM each time a disk or tape is mounted or dismounted. These messages are normally disabled, but if they are not disabled and you are installing from an operator's terminal, they will appear within thirty seconds of each mount or dismount.

3. Be sure that all users are logged out and that all batch jobs are completed.
4. Keep users off the system with the following command:

```
$ SET LOGINS/INTERACTIVE=0
```

5. Shut down DECnet-VAX (if your system includes it) by entering:

```
$ RUN SYS$SYSTEM:NCP
```

6. When the console terminal prints the NCP prompt (NCP>), type the following command:

```
NCP> SET EXECUTOR STATE SHUT
```

DECnet-VAX will perform an orderly shutdown and the OPCOM facility will notify you when DECnet-VAX is off. Exit from the NCP by typing EXIT at the prompt.

7. Be sure the following limits in the SYSTEM account authorization record are equal to or greater than those specified here:

```
Buffered byte count quota (BYTLM) = 20480
Enqueue quota (ENQLM) = 20
Direct I/O limit (DIOLM) = 12
Buffered I/O limit (BIOLM) = 12
Open file quota (FILLM) = 20
AST limit (ASTLM) = 20
```

To check these limits, run the Authorize Utility by typing the following command:

```
$ RUN SYS$SYSTEM:AUTHORIZE
```

8. When the system responds with the UAF prompt (UAF>), type the following command:

```
UAF> SHOW SYSTEM
```

AUTHORIZE responds by displaying the current limits of the SYSTEM account.

9. If the current limits need to be modified, use the UAF command MODIFY to make the change. For example, to set the DIOLM limit to 12, you use the following command:

```
UAF> MODIFY SYSTEM/DIOLM=12
```

10. When you have completed the modifications, return to DCL command level by typing:

```
UAF> EXIT
```

Note that the modification will not take effect until you log out and log in again. See the VAX-11 Utilities Reference Manual for a detailed description of the Authorize Utility.

11. If you are installing on a dual-RL02 system, place the LIBRARY disk onto a drive before starting.
12. Physically mount the distribution media containing the software product(s).

#### 4.3 INVOKING VMSINSTAL

This section tells you generally how to invoke the VMSINSTAL command procedure, and Section 4.4 describes options that can be used when invoking VMSINSTAL. However, you should refer to your specific update or product installation guide before you invoke VMSINSTAL.

Use a command with the following format to initiate installation using VMSINSTAL:

```
@SYS$UPDATE:VMSINSTAL product-list ddcu:
```

If the required conditions described in Section 4.2 are not met when you enter this command, you will get a warning message explaining the problem together with a prompt asking if you wish to continue. DIGITAL strongly recommends that you correct these conditions before you try again to invoke VMSINSTAL. If you continue without making the required corrections, the resulting installation may not be supported by DIGITAL.

## THE VMSINSTAL COMMAND PROCEDURE

### product-list

The list of the product(s) you want to install from the distribution volume. If you use a wildcard character (\*) as the product-list parameter, all versions and updates of all products on the distribution volume will be installed in chronological order.

#### NOTE

Currently, DIGITAL generally distributes only a single version of a product per distribution volume.

If you want to specify multiple items in the product list, you must separate the items using commas and no intervening spaces. The format for the product list is:

facvvu

In this format,

fac is the facility name (1-6 alphanumeric characters).

vv is the major version number (2 digits).

u is the update number (1 digit).

For example, if you update your operating system to VAX/VMS Version 3.5, the facility name (fac) is VMS, the major version (vv) is 03, and the update number (u) is 5. Therefore the product-list parameter is:

VMS035

Using this format, you can install a specific version and update of a product from a distribution volume containing several versions and updates. If you specify only the facility name with no version or update number, then all versions and updates present on the volume are installed in chronological order.

If you omit the product-list parameter, you will be prompted for it. The list of products on your distribution volume is included with the bill of materials for the distribution kit. If the list is not available, do a DIRECTORY command on the distribution volume to find the products that are included.

### ddcu:

The device name of the drive on which the distribution volume for the optional software product or maintenance update is to be mounted. You will be prompted for this parameter if you omit it.

You will also be asked if you are satisfied with the backup of your system disk (see Section 4.2). Here, the procedure is giving you an opportunity to back up your system disk before continuing. If you enter N, the procedure returns you to DCL command level to do the backup. When you are ready to continue, you must reinvoked VMSINSTAL.

If you are satisfied that your system disk is backed up, enter Y and proceed directly with the next step.

When you continue, you will receive several prompts and messages that direct and explain the installation. These prompts and messages differ depending on the update or software product you are installing.



Consult the installation documentation that comes with the update or software product for specific instructions. If you need assistance during an installation, typing a question mark (?) at a prompt will give you an explanation of the acceptable responses to that prompt.

At the end of an installation, VMSINSTAL will do one of two things, depending on the requirements of the update or product. It will either perform an automatic shutdown of the system and instruct you to manually reboot, or it will simply return you to the DCL command level.

Finally, after installing the update or optional software product(s), you should back up the updated system disk.

#### 4.4 CHOOSING VMSINSTAL OPTIONS

The VMSINSTAL command procedure permits the use of three options: Auto-answer, File Log, and Alternate Root. These options perform the following functions:

##### Auto-answer

The Auto-answer option makes it easier for you to reinstall a product or a system update by providing responses to VMSINSTAL questions and prompts during the reinstallation. The Auto-answer option is used most often for reinstalling products when you upgrade the system.

If you specify the Auto-answer option when you first install a product, it creates an answer file (SYS\$UPDATE:filename.ANS) to record your responses to questions and prompts from VMSINSTAL. The filename is the same as the product-list parameter you include in the command that calls VMSINSTAL. For example, to install a product named BANKER with the Auto-answer option, you would use the following command to call VMSINSTAL:

```
$@SYS$UPDATE:VMSINSTAL BANKER ddcu: OPTIONS A
```

By including the letter A following the keyword OPTIONS, you direct VMSINSTAL to store your responses to questions and prompts in an answer file named BANKER.ANS. When you subsequently reinstall the product, (typically after upgrading your operating system), and specify the Auto-answer option, VMSINSTAL reads the answer file instead of prompting you for responses. Note that you must abbreviate the Auto-answer option to the letter A when you specify the option.

If you want to create a new answer file when you reinstall a product, you must first delete the existing answer file.

##### File Log

Logs all file activity to the terminal during installation. File activity is defined as any action that alters the disposition of a file, such as creating a new file, updating a library, or deleting a file.

##### Alternate Root

Permits you to install the product to a system root other than that of the running system if the following conditions are met:

## THE VMSINSTAL COMMAND PROCEDURE

- The operating system in the alternate root where you install the product must be complete and at the same version/update level as the running system.
- All files and software products that are referenced by the product installation must be present in the alternate root.
- The product must be installable in an alternate root.

### NOTE

Some products cannot be installed in an alternate root. You should check the documentation for the product you are installing to be sure it can be installed to an alternate system root.

The format for invoking VMSINSTAL with these options is as follows:

```
@SYS$UPDATE:VMSINSTAL product-list ddcu: OPTIONS option-list [root]
```

### OPTIONS

This keyword is required when you specify one or more options in order to protect you from accidentally invoking an option. If you enter an option-list and the OPTIONS parameter is not entered, you will receive an error message and the installation will be terminated.

### option-list

A list of the options requested. This list consists of one letter option abbreviations separated by commas, with no spaces. The abbreviations are: A for Auto-answer, L for File Log, and R for Alternate Root. You may specify any option or all three. However, if you specify Alternate Root, you must also specify the root parameter.

### root

The alternate system root to which you wish to install the product(s). It must be of the format:

```
__ddcu:[SYSn.]  
(Note that two leading underscores are required.)
```

In this format:

ddcu is the device on which the alternate root resides.

[SYSn.] is the top-level directory of the alternate root.

If you wish, you may specify a previously defined logical name for the alternate root.

The following is an example of using VMSINSTAL with options:

```
$ @SYSUPDATE:VMSINSTAL VMS035 CSA1: OPTIONS L,R __DQA1:[SYS0.]
```

This sample command is used to install Version 3.5 of the VAX/VMS operating system to an alternate root directory [SYS0.] on DQA1, and all installation file activity is being logged.

## 4.5 RECOVERING FROM SYSTEM FAILURE

If you experience a system failure during installation of an update or optional software product, VMSINSTAL will attempt to automatically continue the installation upon rebooting. Depending on the point in the installation at which the system failed, one of three conditions will exist:

1. The system disk was not altered before the system failure. In this case, VMSINSTAL will instruct you to restart the installation.
2. The system disk or a library used by the installation has been corrupted. In this case, VMSINSTAL instructs you to restore either the system disk or the corrupted library from the backup copy (see Section 4.2) and restart the installation.
3. VMSINSTAL continues the installation. In this case, VMSINSTAL performs most of the installation and then informs you that there may be some tasks you must perform manually to complete the installation. If VMSINSTAL instructs you to do so, reboot the system, log in as system manager, and perform the following tasks:

- Manually purge all files that have been replaced, even if you requested an automatic purge. To purge all system files, use the following command:

```
$ PURGE/LOG SYS$SYSROOT:[*...]*.*
```

- If you have a dual-RL02 system, you must restore all library files to the system disk because VMSINSTAL removes them during the installation. To restore the library files, mount the library disk and use the following command to make a copy request:

```
$ @SYS$UPDATE:VMSTAILOR COPY VMIORIG
```

After the copy command is executed, delete the tailoring file by typing:

```
$ DELETE SYS$UPDATE:VMIORIG.TLR;*
```

Both commands are necessary to return your system disk to its previous state when a failure occurs during an installation.



## CHAPTER 5

### THE SYSTEM AFTER INSTALLATION

There are several tasks you should perform after you install your system, including the following:

- Back up your system disk.
- Back up the console TU58.
- Build stand-alone BACKUP on TU58 cartridges (if applicable) and on disks that are to be backed up (if there is enough disk space).
- Try booting your system using the various bootstrap command procedures available to you.

After you install your system, make a backup copy of the system disk to protect yourself against loss or corruption of the original. When you start operating, you should include full backups and incremental backups as part of your operations.

#### NOTE

If you have a VAX-11/725, you should do full backups only.

You should back up your console TU58 to a blank TU58 cartridge from your distribution kit. (See Section 5.2 for information on how to back up the console TU58.)

If you received your distribution kit on a disk, the disk includes the stand-alone Backup Utility. If you have an IDC-based system that uses an R80 system disk and RL02 user disk, you can save time doing full backups by putting stand-alone BACKUP on the disk that is being backed up. However, to do back up operations on an RL02 system disk, you must build stand-alone BACKUP on TU58 tape cartridges.

If you have a VAX-11/725 system, you must put stand-alone BACKUP on each disk that is being backed up, both fixed and removable disks. See 5.1.2 for instructions on building stand-alone BACKUP on disk.

As part of your post-installation activities, you should determine which of the the various boot command procedures available to you is most appropriate for your system, and then make that option your default boot command procedure. The boot command procedures are described in Section 5.3.

## THE SYSTEM AFTER INSTALLATION

### 5.1 BACKUP PROCEDURES FOR SMALL-DISK SYSTEMS

This section tells you how to do full backups and incremental backups on IDC-based VAX-11/730 systems. It also includes instructions for doing full backups on VAX-11/725 systems. If you have a UDA-based VAX-11/730 system, see the VAX-11 Utilities Reference Manual for instructions on doing backups.

If you have either an IDC-based VAX-11/730 system or a VAX-11/725, you have to use stand-alone BACKUP to do backups. Stand-alone BACKUP, a stand-alone version of the Backup Utility, uses a subset of the BACKUP qualifiers and can be booted from either a TU58 cartridge or from a Files-11 disk. Stand-alone BACKUP qualifiers are listed in Appendix C of this guide.

Section 5.1.3 tells you how to do backups on an R80/RL02 system. Backup procedures for dual-RL02 systems are described in Section 5.1.5. See Section 5.1.6 for doing full backups on the VAX-11/725 system.

The next section tells you how to build and boot stand-alone BACKUP.

#### 5.1.1 Using Stand-Alone BACKUP on TU58 Cartridges

If you have an IDC-based VAX-11/730, you may build a copy of stand-alone BACKUP either on two blank TU58 cartridges, on the R80 disk, or on RL02 user disks. You cannot build stand-alone BACKUP on an RL02 system disk. If you have a VAX-11/725, you must build stand-alone BACKUP on each disk that you want to back up.

If you have an IDC-based VAX-11/730, you will find the backup process is much faster if you run stand-alone BACKUP from the disk you are backing up. See Section 5.1.2 for instructions on building stand-alone BACKUP on disk. If you do not have enough space on the disk that you are backing up, build stand-alone BACKUP on two blank TU58's from your distribution kit using the procedure given in Section 5.1.1.1.

**5.1.1.1 Building a Stand-Alone BACKUP Kit on TU58 Cartridges - Use the following procedure to build a stand-alone BACKUP kit on TU58 cartridges.**

#### NOTE

If you have a tailored system, you will need access to the MANAGER library file group to do this procedure. See Chapter 6 for details on tailoring your system with the MANAGER file group.

1. Label two blank TU58 cartridges VAX11 S/A BACKUP TU58 1/2 and VAX11 S/A BACKUP TU58 2/2, respectively.
2. Log in to the SYSTEM account.
3. Type the following command at the console terminal:

```
$ @SYS$UPDATE:STABACKIT
```

## THE SYSTEM AFTER INSTALLATION

When the system asks for the target device, enter CSA1 as shown in this example:

```
Build a standalone BACKUP kit.  
Specify target device (DDCU:): CSA1
```

4. CSA1 is the cassette drive used to build the kit. The system responds by asking you to physically place the TU58 into the drive:

```
Please place the first TU58 in drive CSA1:.  
Press return when ready to continue:
```

5. Place the cartridge labeled VAX11 S/A BACKUP TU58 1/2 in the CSA1 drive and press the RETURN key.

As the first TU58 cartridge is being built, the console terminal prints a series of messages relating to the build, and the activity indicator for CSA1 flashes periodically. When the build is completed, (it takes approximately 20 minutes), the console terminal prints:

```
Please place the second TU58 in drive CSA1:.  
Press return when ready to continue:
```

6. Replace the cartridge labeled VAX11 S/A BACKUP TU58 1/2 in CSA1 with the cartridge labeled VAX11 S/A BACKUP TU58 2/2, and press the RETURN key.

As the second cartridge is being built, the console terminal prints build messages, and the activity indicator flashes periodically. Approximately 20 minutes later, the console terminal prints the following announcing that the stand-alone BACKUP kit is completely built:

```
Kit is complete.  
The console TU58 will be mounted /NOWRITE for protection.  
Press return when ready to continue:
```

7. Press the RETURN key to get back to command level.

5.1.1.2 Bootstrapping Stand-Alone BACKUP from TU58 Cartridges - To boot stand-alone BACKUP from the TU58 cartridges, perform the following procedure:

1. Check that the console TU58 is in the CSA2 drive.
2. If the processor is not in console mode, press CTRL/P.
3. When the console terminal prints the console mode prompt (>>>), type the following command:

```
>>> B CS1
```

Approximately three minutes later, the console terminal prints the following prompt:

```
Please mount the first standalone system diskette or cartridge and press return
```

## THE SYSTEM AFTER INSTALLATION

4. Insert the TU58 cartridge labeled VAX11 S/A BACKUP TU58 1/2 into the CSA1 drive and press the RETURN key.

In approximately 20 minutes, the console terminal will announce the operating system and request the second TU58 cartridge:

Please mount second standalone system diskette or cartridge and press return

5. Replace the cartridge in CSA1 with the cartridge labeled VAX11 S/A BACKUP TU58 2/2 and press the RETURN key.

In approximately three minutes, the console terminal prints a dollar sign and you are ready to use stand-alone BACKUP.

### NOTE

Do not remove the second cartridge from the CSA1 drive until you have finished using stand-alone BACKUP.

When your backups are completed, press CTRL/P to halt the processor and terminate stand-alone BACKUP.

### 5.1.2 Using Stand-Alone BACKUP on Disk

Using stand-alone BACKUP on TU58 cartridges is a relatively slow process compared with using stand-alone BACKUP on disk. This section tells you how to install stand-alone BACKUP on disk using an alternate system directory root. It also tells you how to subsequently boot stand-alone BACKUP from the alternate system root.

You can use stand-alone BACKUP in an alternate disk directory root to back up your system disk or to save, restore or copy other disks. You cannot restore a save set to a disk that contains stand-alone BACKUP. That is, the disk that contains stand-alone BACKUP cannot be a target disk for restoring VMS. If you try to restore a save set to the disk from which you boot stand-alone BACKUP, the results are unpredictable and usually fatal.

The rest of this section explains the following:

- How to install stand-alone BACKUP in an alternate system directory root
- How to create a bootstrap command procedure that will let you boot stand-alone BACKUP from an alternate system directory root
- How to boot stand-alone BACKUP from an alternate system directory root

**5.1.2.1 Installing Stand-alone BACKUP on Disk** - You can install stand-alone BACKUP in any available disk directory root from SYS1 through SYSE; however, DIGITAL has established SYSE as the standard alternate system directory root for stand-alone BACKUP. (Directory root SYS0 contains the complete VMS system, and directory root SYSF is reserved for use during system upgrades.)



To install stand-alone BACKUP in an alternate disk directory root on your system disk, log in to the SYSTEM account and invoke the STABACKIT command procedure with the following command:

```
$ @SYS$UPDATE:STABACKIT SYS$SYSDEVICE:[SYSE.SYSEXE]
```

If you want to install stand-alone BACKUP on a data disk, use the logical name of the data disk as the source parameter in the command line instead of SYS\$SYSDEVICE. For example, to install stand-alone BACKUP to a data disk logically named USER\$DISK, use the following command line:

```
$ @SYS$UPDATE:STABACKIT USER$DISK:[SYSE.SYSEXE]
```

**5.1.2.2 Creating a Command Procedure to Boot Stand-alone BACKUP** - You can create a command procedure for booting stand-alone BACKUP from an alternate disk directory root by modifying an existing bootstrap command procedure. In order to modify an existing bootstrap command procedure, you must copy it from the console TU58 onto your default disk directory in order to edit it. You may choose any unused name of the form xxxBOO.COMD for the command procedure you create. However, DIGITAL suggests you use a file name identical to the copied file, except that you change the first letter to an X.

For example, if you want to boot stand-alone BACKUP from an alternate disk directory root on the drive named DUA0, create a bootstrap command procedure by modifying DU0BOO.COMD, and naming the new file XU0BOO.COMD.

If you want to use a modified form of the default bootstrap command procedure (DEFBOO.COMD), name the created file XTBB00.COMD. The following procedure presumes you will use a file named XTBB00.COMD and tells you how to modify the file.

Proceed as follows:

1. Insert the console TU58 into CSA2.
2. Invoke the DXCOPY command procedure to copy the default bootstrap command procedure to your default disk directory by typing:

```
$ @SYS$UPDATE:DXCOPY
```

When the command procedure asks whether the console storage medium is mounted, type the letter Y as shown in the following example:

```
DXCOPY>Is the system console storage medium mounted
(Y/N)? : Y
```

3. When DXCOPY asks if you want to copy a file from the console storage medium (to your default directory), type Y as shown:

```
DXCOPY>Copy from console medium (Y/N)? : Y
```

4. When DXCOPY prompts you for it, type the name of the file you want to copy to your default directory. For example, if you are copying DEFBOO.COMD, you would type:

```
DXCOPY>Name of file to be copied?: DEFBOO.COMD
```

## THE SYSTEM AFTER INSTALLATION

5. Exit from DXCOPY with the following command:

```
DXCOPY> EXIT
```

You can now edit and rename the default bootstrap command procedure file while it resides in your default directory.

6. Use the following command to rename the file:

```
$ RENAME DEFBOO.CMD XTBBOO.CMD
```

7. Invoke an editor to modify the following line in the command procedure:

```
D/G/L 5 0
```

8. Modify the line as shown:

```
D/G/L 5 E0000000
```

The hexadecimal digit E represents the alternate disk directory root (SYSE) where you have stored stand-alone BACKUP.

9. Invoke DXCOPY to copy the modified procedure back to the console storage medium by typing:

```
$ @SYS$UPDATE:DXCOPY
```

10. When the command procedure asks whether the console storage medium is mounted, type the letter Y as shown in the following example:

```
DXCOPY>Is the system console storage medium mounted  
(Y/N)?: Y
```

11. When DXCOPY asks whether you want to copy from the console medium, type N as shown:

```
DXCOPY>Copy from console medium (Y/N)?: N
```

The negative response tells DXCOPY you want to copy the file from your default directory to the console storage medium.

12. When the command procedure asks for it, type the name of the file to be copied from your default directory to the console storage medium. In this example, you type XTBBOO.CMD:

```
DXCOPY>Name of file to be copied?: XTBBOO.CMD
```

DXCOPY responds by copying the modified file to the console TU58.

13. Exit from DXCOPY.

5.1.2.3 Booting Stand-alone BACKUP from Disk - To boot stand-alone BACKUP from an alternate disk directory root, shut the system down with the following command:

```
$ @SYS$SYSTEM:SHUTDOWN.COM
```

The shutdown procedure asks you for the number of minutes until system shutdown, the reason for the shutdown, and whether to spin down the disks. Respond to each of these questions by simply pressing the RETURN key.

As the shutdown continues, the console terminal prints several shutdown messages. When the console terminal prints the following message, shutdown is completed:

```
SHUTDOWN COMPLETE - USE CONSOLE TO HALT SYSTEM
```

At this point, halt the processor using CTRL/P. When the console terminal prints the console mode prompt (>>>), type the the following command to boot stand-alone BACKUP from the alternate disk directory root:

```
>>> B XTB
```

If you are not using a modified version of the default bootstrap command procedure to boot stand-alone BACKUP, use the first three characters in the name of the bootstrap command procedure you created. For example, if you are using XU0BOO.CMD, type the following command:

```
>>> B XUO
```

### 5.1.3 Backup Procedures for the R80/RL02 Configuration

Because an R80 disk has a much greater storage capacity than an RL02 disk, it is usually necessary to back up the contents of an R80 disk to a group of RL02 disks that are referred to as the backup volume set. This procedure is described in the VAX/VMS System Management and Operations Guide.

There are two types of backup procedures: full backups for entire volumes, and incremental backups for selected parts of volumes.

#### 5.1.3.1 Full Backup of an R80 Disk - To do a full backup of an R80 disk:

1. Boot stand-alone BACKUP.
2. Assign device name DQA0 to the drive containing the R80 disk being backed up, and be sure DQA0 is write protected.
3. Assign device name DQA1 to the RL02 drive that will hold the scratch disks, that is, the disks you are using to back up the R80.
4. Place a scratch RL02 disk in DQA1.
5. Specify the name and file type of the save set you are creating:

```
$ BACKUP/VERIFY DQA0: DQA1:filename.type/SAVE_SET
```

When stand-alone BACKUP is ready for the next scratch disk, it will prompt you with the following message:

```
%BACKUP-I-READYWRITE, Mount Volume 2 on _DQA1: for writing
Press RETURN when ready:
```

## THE SYSTEM AFTER INSTALLATION

6. Place the next RL02 scratch disk (volume 2 of the backup volume set) in the drive and press the RETURN key.

Each time you receive the prompt for another volume, repeat this step. When the volume set is completed, you are returned to command level as indicated by the DCL prompt (\$).

### 5.1.3.2 Full Backup of an RL02 Data Disk - To perform a full backup of an RL02 data disk:

1. Place the data disk in the RL02 drive designated DQA1.
2. Be sure there is enough space on the R80 system disk to hold a save set of the RL02. To check this, use the following procedure:
  - a. Use the DCL command SHOW DEVICES to determine the amount of free space on the RL02.
  - b. Subtract the amount of free space from 20000 to determine the amount of used space on the RL02.
  - c. Use the SHOW DEVICES command to determine the amount of free space on the R80. If the amount of free space on the R80 is at least 20 percent greater than the amount of used space on the RL02, you have sufficient space to back up the RL02.
3. Create a save set of the RL02 on the R80, with the following command:

```
BACKUP/IMAGE/VERIFY DQA1: DQA0:[0,0]filename.type/SAVE_SET
```

4. Dismount the RL02 data disk being backed up and replace it with a scratch RL02 disk.
5. Mount the scratch disk with the following command:

```
$ MOUNT/FOREIGN DQA1:
```

6. Restore the RL02 data disk save set to the scratch disk with the following command:

```
$ BACKUP/IMAGE/VERIFY DQA0:[0,0]filename.type/SAVE_SET DQA1:
```

The disk in the DQA1 drive is now the backup disk. Delete the save set on the R80 disk with the DCL command DELETE:

```
$ DELETE DQA0:[0,0]filename.type.*
```

### 5.1.4 Incremental Backups

You should establish a consistent policy for doing incremental backups on your system. Refer to the BACKUP chapter of the VAX-11 Utilities Reference Manual before you try to do incremental backups.

When doing incremental backups, be sure you specify the /RECORD qualifier and the /SINCE=BACKUP qualifier to ensure complete file protection.

5.1.4.1 Incremental Backup of an R80 System Disk - To perform an incremental backup of an R80 system disk:

1. Place a scratch disk in the RL02 drive designated DQA1.
2. Mount the scratch disk in DQA1 with the following command:

\$ MOUNT/FOREIGN DQA1:

3. Enter the following command:

\$ BACKUP/SINCE=BACKUP/RECORD/INITIALIZE DQA0:[\*...] DQA1:filename.type/SAVE\_SET

If more than one scratch disk is needed to do the incremental backup, the utility prompts with this message when it is ready for the next disk:

%BACKUP-I-READYWRITE, Mount Volume 2 on \_DQA1: for writing  
Press RETURN when ready:

4. Mount the next volume and press the RETURN key.

Several volumes may be necessary, depending on the contents of the R80. Repeat this step, when prompted, until you receive the DCL prompt signaling the end of the incremental backup.

This volume set, plus all other incremental volume sets since the most previous full backup, and the full backup itself, are your the backup copy of the R80 disk.

5.1.4.2 Incremental Backup of an RL02 Data Disk - To perform an incremental backup of an RL02 data disk:

1. Be sure there is enough space on the system disk to hold a save set of the RL02.
2. Place the RL02 data disk in the RL02 drive designated DQA1.
3. Enter the following command to create a save set of the RL02 data disk on the R80:

\$ BACKUP/SINCE=BACKUP/RECORD DQA1:[\*...] DQA0:[0,0]filename.type/SAVE\_SET

4. Replace the RL02 data disk with an initialized RL02 disk mounted as a Files-11 volume.
5. Copy the save set to the initialized RL02 disk with the following command:

\$ COPY DQA0:[0,0]filename.type DQA1:[000000]

The RL02 disk in the DQA1 drive is now the backup disk. Delete the save set file from DQA0 with the following command:

\$ DELETE DQA0:[0,0]filename.type

5.1.5 Backup Procedures for the Dual-RL02 Configuration

This section provides instructions for the various backup procedures used with the dual-RL02 system configuration. Note that you cannot do incremental backups of the data disk on the dual-RL02 configuration.

## THE SYSTEM AFTER INSTALLATION

5.1.5.1 Full Backup of the RL02 System Disk - To perform a full backup of the RL02 system disk:

1. Physically load the system disk in the RL02 drive designated DQA0.
2. Write protect DQA0.
3. Boot stand-alone BACKUP from the TU58 cartridges. (For details on building a stand-alone BACKUP kit on TU58 cartridges, see Section 5.1.1.)
4. Place a scratch disk in DQA1.
5. Back up the system disk to the scratch disk with the following command:

```
$ BACKUP/IMAGE/VERIFY DQA0: DQA1:
```

Use the newly created disk in DQA1 as the system disk to verify its correctness. Treat the original as the backup disk.

5.1.5.2 Full Backup of the RL02 Data Disk - To perform a full backup of a data disk:

1. If space permits, build stand-alone BACKUP on the data disk. (See Section 5.1.2 for information on building stand-alone BACKUP on a disk.)
2. Place the data disk in the drive designated DQA1.
3. Write protect the data disk, and bring DQA1 to operating speed.
4. Place a scratch disk in the RL02 drive designated DQA0, and bring the drive to operating speed.
5. Boot stand-alone BACKUP.
6. Back up the data disk with the following command:

```
$ BACKUP/IMAGE/VERIFY DQA1: DQA0:
```

The disk in DQA0 is now the backup data disk.

5.1.5.3 Incremental Backup of the System Disk - You should establish a consistent policy for doing incremental backups of your system. Before performing any incremental backups, refer to the section on BACKUP in the VAX-11 Utilities Reference Manual.

When doing incremental backups, be sure you include the /RECORD qualifier and the /SINCE=BACKUP qualifier to ensure complete file protection.

To perform an incremental backup of the RL02 system disk:

1. Place a scratch disk in the RL02 drive designated DQA1 and then mount it with the following command:

```
$ MOUNT/FOREIGN DQA1:
```

2. Enter the following BACKUP command:

```
$ BACKUP/SINCE=BACKUP/RECORD DQA0:[*...] DQA1:/SAVE_SET
```

The disk in DQA1 is now an incremental backup copy of your system disk.

#### 5.1.6 How to Back Up VAX-11/725 Disks

You need not be concerned with doing incremental backups on the VAX-11/725 because you can do full backups just as quickly and easily.

There are four types of full backup used on the VAX-11/725:

- Backing up a removable data disk
- Backing up a fixed system disk
- Backing up a fixed data disk
- Backing up a removable system disk

In each case you must boot stand-alone BACKUP one or more times from either or both disks. This procedure presumes that you have copied stand-alone BACKUP to alternate root directory SYSE on both disks, and that you have provided boot command procedures to boot stand-alone BACKUP from the disks. (See Section 5.1.2 for instructions on how to build and boot stand-alone BACKUP on disk.)

In order to simplify the instructions provided here, it is assumed that you have provided a boot command procedure named XU1BOO.COM on your console TU58 to boot stand-alone BACKUP from the fixed disk. It also assumes that you have provided a boot command procedure named XU0BOO.COM on your console TU58 to boot stand-alone BACKUP from the removable disk.

When you are instructed to boot stand-alone BACKUP from the fixed disk, press CTRL/P to put the system in console mode and enter the following command:

```
>>> B XU1
```

When you are instructed to boot stand-alone BACKUP from the removable disk, press CTRL/P to put the system in console mode and enter the following command:

```
>>> B XU0
```

You should now go to the section that describes the backup procedure you want to do.

## THE SYSTEM AFTER INSTALLATION

5.1.6.1 Backing Up a Removable Data Disk - Use the following procedure to back up a removable data disk when the system disk is fixed:

1. Replace the removable data disk (the disk you want to back up) with a removable scratch disk.

2. Boot stand-alone BACKUP from the fixed disk:

```
>>> B XU1
```

3. When you get the DCL prompt, back up the fixed system disk to the removable scratch disk by typing:

```
$ BACKUP/IMAGE/VERIFY DUA1: DUA0:
```

The removable disk is a backup of the fixed system disk. Put it aside until you are instructed to use it for restoring the system disk.

4. Mount the original removable data disk.

5. Boot stand-alone BACKUP from the removable data disk by typing:

```
>>> B XU0
```

6. When you get the DCL prompt, back up the removable data disk to the fixed disk by typing:

```
$ BACKUP/IMAGE/VERIFY DUA0: DUA1:
```

The fixed disk is now a backup of the removable data disk.

7. Replace the the original removable data disk with another removable scratch disk.

8. Boot stand-alone BACKUP from the fixed disk:

```
>>> B XU1
```

9. When you get the DCL prompt, back up the fixed disk to the removable disk by typing:

```
$ BACKUP/IMAGE/VERIFY DUA1: DUA0:
```

The removable disk is a backup for the original removable data disk. Put it aside and replace it with the removable disk that was used to back up the fixed system disk in step 3.

10. Boot stand-alone BACKUP from the removable disk by typing:

```
>>> B XU0
```

11. When you get the DCL prompt, back up the removable disk to the fixed disk by typing:

```
$ BACKUP/IMAGE/VERIFY DUA0: DUA1:
```

The fixed disk is restored to its original state as the system disk.

12. Boot the fixed system disk.

```
$ B DU1
```



5.1.6.2 Backing Up a Fixed System Disk - Use the following procedure to back up a fixed system disk:

1. Replace the removable data disk with a removable scratch disk.
2. Boot stand-alone BACKUP from the fixed disk:

>>> B XU1

3. When you get the DCL prompt, back up the fixed system disk to the removable scratch disk by typing:

\$ BACKUP/IMAGE/VERIFY DUAL: DUA0:

The removable disk is a backup of the fixed system disk.

5.1.6.3 Backing Up a Fixed Data Disk - Use the following procedure to back up a fixed data disk:

1. Replace the removable system disk with a removable scratch disk.
2. Boot stand-alone BACKUP from the fixed disk:

>>> B XU1

3. When you get the DCL prompt, back up the fixed data disk to the removable scratch disk by typing:

\$ BACKUP/IMAGE/VERIFY DUAL: DUA0:

The removable disk is a backup of the fixed data disk.

4. Replace the removable disk with the original removable system disk.
5. Boot the removable system disk by typing:

>>> B DU0

5.1.6.4 Backing Up a Removable System Disk - Use the following procedure to back up a removable system disk:

1. Replace the removable system disk (the disk you want to back up) with a removable scratch disk.
2. Boot stand-alone BACKUP from the fixed disk:

>>> B XU1

3. When you get the DCL prompt, back up the fixed data disk to the removable scratch disk by typing:

\$ BACKUP/IMAGE/VERIFY DUAL: DUA0:

The removable disk is a backup of the fixed data disk. Put it aside until you are instructed to use it for restoring the fixed disk.

## THE SYSTEM AFTER INSTALLATION

4. Mount the original removable system disk.
5. Boot stand-alone BACKUP from the removable system disk by typing:  

```
>>> B XUO
```
6. When you get the DCL prompt, back up the removable system disk to the fixed disk by typing:  

```
$ BACKUP/IMAGE/VERIFY DUA0: DUA1:
```

The fixed disk is a backup of the removable system disk.
7. Replace the the original removable system disk with another removable scratch disk.
8. Boot stand-alone BACKUP from the fixed disk:  

```
>>> B XU1
```
9. When you get the DCL prompt, back up the fixed disk to the removable disk by typing:  

```
$ BACKUP/IMAGE/VERIFY DUA1: DUA0:
```

The removable disk is a backup of the original removable system disk. Put it aside and replace it with the removable disk that was used to back up the fixed data disk in step 3.
10. Boot stand-alone BACKUP from the removable disk by typing:  

```
>>> B XUO
```
11. When you get the DCL prompt, back up the removable disk to the fixed disk by typing:  

```
$ BACKUP/IMAGE/VERIFY DUA0: DUA1:
```

The fixed disk is restored to its original state as the data disk.
12. Replace the removable disk with the original removable system disk.
13. Boot the removable system disk.  

```
$ B DUO
```

### 5.2 BACKING UP THE CONSOLE MEDIUM

It is important, in case of console corruption, that you have a backup copy of the console medium. To back up the console medium, do the following:

1. Log in under the system manager's account, SYSTEM.
2. Check that the console TU58 is in CSA2.
3. Place a blank cartridge in CSA1. Be sure that the write protect tab on the TU58 cartridge is set to permit writing, that is, slid in the direction of the arrow inscribed on it.

4. At the DCL prompt (\$), enter the following:

```
$ RUN SYS$SYSTEM:SYSGEN
```

The system will respond with a SYSGEN prompt (SYSGEN>).

5. At the SYSGEN prompt, enter the following:

```
SYSGEN> CONNECT CONSOLE
```

6. Exit SYSGEN as using the exit command:

```
SYSGEN> EXIT
```

7. When the system returns the DCL prompt, mount CSA1 with the following command :

```
$ MOUNT/FOREIGN CSA1
```

8. When you receive the message confirming the mount and the console terminal prints the command level prompt, mount CSA2 with the following command:

```
$ MOUNT/FOREIGN/NOWRITE CSA2
```

9. When you receive a message confirming the mount, back up the contents of CSA2 to CSA1 with the following command:

```
$ BACKUP/PHYSICAL/VERIFY CSA2: CSA1:
```

10. When you get the command level prompt, after approximately half an hour, dismount the two cartridge drives with the following commands:

```
$ DISMOUNT CSA1
```

```
$ DISMOUNT CSA2
```

The console medium backup is completed when the console prints the DCL prompt (\$). You should use the newly created console cartridge as your console TU58 to verify its correctness. Treat the original as the backup copy.

### 5.3 BOOTSTRAP OPTIONS

During installation, a default bootstrap command is used to ensure an initial bootstrap on all configurations. However, once the system has been installed, you can perform several types of bootstrapping operations: a nonstop bootstrap, rebooting the system stopping in the system bootstrap program SYSBOOT, or rebooting using the default bootstrap.

#### 5.3.1 Nonstop Bootstrap

To perform a nonstop bootstrap operation, enter the name of the following command procedure:

```
>>> @dduBOO.COMD
```

## THE SYSTEM AFTER INSTALLATION

In this command, the following conventions are used:

@ Indicates that the rest of the line contains the name of a command procedure that is located on the console cartridge (CSA2).

dd Indicates the device name of the drive holding the system disk.

u Specifies the unit number of the drive containing the system disk.

Note that you can type a command in the following format to perform a nonstop bootstrap operation:

```
>>> B ddu
```

For example, B DU0 is equivalent to @DU0BOO.CMD.

If you request a boot of DU0, the console program responds with the following printout:

```
>>>@DD1:DU0BOO.CMD
>>>I
>>>D/G/L 0 00A80003
>>>D/G/L 1 3
>>>D/G/L 2 FFFB86
>>>D/G/L 3 0
>>>D/G/L 4 0
>>>D/G/L 5 0
>>>E SP
G 0000000E 00000200
>>>L/P/S:@ VMB.EXE
>>>S @
```

```
VAX/VMS Version 3.5 10-DEC-1983 14:54:30.58
```

```
%OPCOM, 15-DEC-1983 14:54:31.41, logfile initialized by operator OPA0
logfile is SYS$MANAGER:OPERATOR.LOG
Login quotas - Interactive limit=64, Current interactive value=0
SYSTEM Job terminated at 15-DEC-1983 14:54:54.13
```

### 5.3.2 Conversational Bootstrap

You may want to try doing a conversational bootstrap after you have installed your system. A conversational bootstrap lets you make changes to system parameters as part of the boot. This is done by having the system secondary bootstrap program, SYSBOOT.EXE, prompt you for configuration commands as it is running.

With a conversational bootstrap operation, you can do the following:

- Designate the name of the file that contains system parameter values
- Set and show individual parameter values
- Specify an alternate start-up procedure

## NOTE

Changes made using SYSBOOT are in effect only until the next time you run AUTOGEN. If you want to make the changes permanent, edit the file SYS\$SYSTEM:PARAMS.DAT to reflect the changes you want. (See the VAX/VMS System Management and Operations Guide for help with editing SYS\$SYSTEM:PARAMS.DAT.)

Use the following procedure to do a conversational bootstrap operation:

1. Do an orderly system shutdown by invoking the shutdown command procedure:

```
$ @SYS$SYSTEM:SHUTDOWN
```

This command procedure issues a series of prompts and messages, ending with:

```
SYSTEM SHUTDOWN COMPLETE - USE CONSOLE TO HALT SYSTEM
```

2. Halt the processor and obtain the console prompt (>>>) by pressing CTRL/P.
3. Boot the system with a conversational boot command of the following form:

```
>>> @dduGEN
```

The letters dd represent the disk device name, and the letter u represents the unit number of the drive containing the system disk.

4. When SYSBOOT prompts, you may use any of the subset of SYSGEN commands listed in Table 5-1 to examine or modify the system.

Table 5-1: SYSBOOT Commands

Command	Description
CONTINUE	Resumes the bootstrap procedure
DISABLE CHECKS	Inhibits checking of parameter values specified with the SET command
ENABLE CHECKS	Permits checking of parameter values specified with the SET command
HELP	Displays a summary of the SYSBOOT commands at your terminal
SET (parameter value)	Establishes the value of a system generation parameter
SET/STARTUP (procedure)	Specifies the start-up command procedure to be executed after SYSBOOT
SHOW	Displays specific parameters
USE	Specifies the parameter file to be used as a source of values

## THE SYSTEM AFTER INSTALLATION

Here is a sample sequence taken from a conversational bootstrap:

```
SYSBOOT> USE CURRENT
SYSBOOT> SET WSMAX 512
SYSBOOT> CONTINUE
```

In this example, SYSGEN is told to use the current parameter file as a source for values, WSMAX, the maximum working set, is set to 512, and the bootstrap operation is then ordered to continue. When VMS announces itself, the new parameter values you designate are in effect until you again run AUTOGEN. More information about these SYSGEN commands can be found in the SYSGEN chapter of the VAX-11 Utilities Reference Manual.

### 5.3.3 Rebooting Using The Default Bootstrap

During normal system operation, you do not need to use the conversational bootstrap because your system parameters are established. Rather, you can bootstrap the system using the default bootstrap command procedure that you copied to the file DEFBOO.COM (Chapter 3). To do so, proceed as follows:

1. Shut down the system by executing the following command procedure:

```
$ @SYS$SYSTEM:SHUTDOWN
```

This command procedure issues a series of prompts and messages, ending with:

```
SYSTEM SHUTDOWN COMPLETE - USE CONSOLE TO HALT SYSTEM
```

2. Halt the processor and obtain the console prompt (>>>) by pressing CTRL/P.
3. Either enter B or momentarily position the AUTO RESTART/BOOT switch to BOOT.

Your VAX processor is designed for unattended, continuous operation. It is able to restart or reboot itself in the event of power failure and recovery or any processor halt condition. To enable the automatic restart feature, set the AUTO RESTART/BOOT switch to AUTO RESTART ON. Automatic restarting should be disabled during installation, but should be enabled once the installation procedure is completed.

When automatic restart is enabled and a power failure and recovery or halt occurs, the processor deposits the contents of the program counter (PC) and the processor status longword (PSL) at the time of the halt into registers R10 and R11, and deposits a code giving the reason for the restart into the argument pointer (AP). The processor then passes control to a restart program in the console's read-only memory (ROM). Following a power recovery, the restart ROM program checks to determine whether the contents of memory are still valid and whether the VMS restart routine can be located.

#### NOTE

Memory can only be preserved during a power failure if you have battery backup. Therefore, this feature does not apply to the VAX-11/725 or to VAX-11/730 systems without battery backup. For systems without battery backup, restart is limited to system reboot.

## THE SYSTEM AFTER INSTALLATION

If both conditions are satisfied, the restart ROM program passes control to the VMS restart routine; otherwise, the system is rebooted using DEFBOO.COMD.

Any condition other than a power recovery results in a VMS fatal bugcheck and an automatic rebooting of the system using DEFBOO.COMD, providing that the automatic restart switch is enabled.

Note that if you do not have battery backup and you enable the AUTO RESTART switch, the system prompts you for the date and time when a restart is attempted. If your system is usually unattended and you want automatic restart capability, set the SYSGEN parameter TIMEPROMPTWAIT to a positive number. This number represents the number of seconds the processor will wait for you to enter the time and date before rebooting. By default, TIMEPROMPTWAIT is set to a negative number and will not allow an automatic reboot.

### CAUTION

If a system without battery backup reboots without the time prompt being answered, the system uses a time stored on the system disk. The stored time is either the time of the last bootstrap or the last SET TIME command, whichever is more recent. This may not be desirable, depending on your site's requirements for accurate time recording.





## CHAPTER 6

### TAILORED SYSTEMS

VAX-11/730 systems with dual-RL02 disk drive configurations are small-disk systems supported by the Tailoring Facility to provide maximum disk space efficiency. This chapter describes the use of tailoring on these systems, and includes information on special considerations for small-disk system configurations.

#### NOTE

Tailoring is not presently supported on any other system configurations.

Tailoring lets you customize your operating system for specific applications. In this way, you can get additional space for user files on the system disk.

In a tailored system, you use a library disk to support the system disk. At any instant, the system disk need include only the portions of the operating system that are necessary to do a particular task. When you want to tailor your system disk for a different task, you copy the appropriate operating system files from the library disk to the system disk, and you remove operating system files from the system disk that are not needed.

Because the library disk serves as source of operating system files, be sure to write protect it when you are copying from it to ensure that your operating system files are not corrupted.

An alternative to tailoring the system disk is to directly access the files you want while they reside on the library disk. This mode of operation requires you to have the library disk on line and is described in Section 6.2.

The next section tells you how operating system files are grouped on the library disk and how you can create your own file groups.

#### 6.1 FILE GROUPS

Operating system files are grouped to accommodate tailoring your system for various tasks. These files groups include the operating system file groups that DIGITAL provides, and file groups that you may create for your own particular needs.

## TAILORED SYSTEMS

### 6.1.1 DIGITAL-Supplied File Groups

The operating system files that DIGITAL provides you on the library disk are divided into task-related groups of files to help you tailor your system disk. For example, the operating system files that are used to manage queues are grouped in a file group called QUEUES. When you want queue management capability, you specify QUEUES as the parameter in a tailoring COPY command. The Tailoring Facility then copies each of the files in the QUEUES file group from the library disk to the system disk.

Conversely, if you do not want a particular operating system function, you simply remove the related file group from the system disk. For example, after you run the User Environment Test Package, you can remove the operating system files that support this function by specifying UETP as the parameter in a tailoring DELETE command.

File groups fall into two classes, the system file group that includes only the required system files, and a set of library files that can be tailored to the system disk as needed. The system disk may include any combination of file groups if the disk has sufficient space.

The system files must always reside on the system disk. The BLISSREQ, EXAMPLES, OBSOLETE, and RSX files are distributed on an optional distribution disk and must be restored to the library disk before they can be tailored to the system disk. See Section 2.7.4 for instructions on how to install optional software file groups on a dual-RL02 system configuration.

A listing and a brief description of the DIGITAL-supplied file groups follow. The approximate size of each group, in blocks, is included in the listing to help you make tailoring decisions.

- SYSTEM FILE GROUP

- REQUIRED - files needed to boot the VMS operating system and to perform basic file manipulations, such as COPY, RENAME, and TAILORING, and to provide all the features of the VMS executive. Support for all standard VAX-11 processors and devices is included. These files should not be removed from the system disk. (3300 blocks)

- LIBRARY FILE GROUPS

- DECNET - files that give the system a local networking capability. However, you must purchase a separate kit and license to gain multinode networking capability. (800 blocks)
- DEVELOP - files used for the development of application programs. They include the EDT editor, VAX-11 MACRO assembler, VMS Librarian, VAX-11 Linker, VAX-11 Symbolic Debugger, and the libraries that they use. Help text for these utilities is also included. (5300 blocks)
- FILETOOLS - utilities used to analyze and dump files and to create and modify ISAM files. (600 blocks)
- HELP - help text displayed by the VMS HELP command and various system utilities. (2300 blocks)
- LIBRARY - libraries used during the assembly, linking, and compilation of programs. (3600 blocks)

- **MANAGER** - files used to perform system management functions. They include accounting, disk quota, volume preparation and maintenance, and user authorization functions, as well as command procedures used by the system manager. (1100 blocks)
- **MISCTOOLS** - system programming support tools, tools for analyzing crash dumps, and other miscellaneous tools. (1900 blocks)
- **QUEUES** - files that are used to initialize, start, and stop the batch and device queues, and to submit jobs. (100 blocks)
- **TEXTTOOLS** - files used for text editing and text formatting. They include all editors and DIGITAL Standard Runoff. (700 blocks)
- **UETP** - User Environment Test Package files that provide a variety of tests to ensure that your VMS system is operating properly. (1800 blocks)
- **BLISSREQ** - source files used to generate compile-time libraries during VAX-11 BLISS language installation. These files may be deleted after language installation is complete. (1900 blocks)
- **EXAMPLES** - programming examples for various VMS applications, along with the system map. These examples are also reproduced in the microfiche source listings. (1500 blocks)
- **OBSOLETE** - files superseded by other facilities in the VMS operating system. They are included in the system for reasons of compatibility with previous releases. (200 blocks)
- **RSX** - files that include utility support for the development of compatibility mode (PDP-11) programs in the RSX-11M programming environment. They include the compatibility mode assembler and task builder. This group is not necessary for the execution of compatibility mode programs. (3100 blocks)

Two file groups are copied to the system disk by default during the initial bootstrap of a small-disk system: the **MANAGER** file group and the **DEVELOP** file group. The **MANAGER** group contains files you use during system installation. After you complete the installation you may want to delete this group if system management functions are no longer required. The **DEVELOP** group is used to support the creation, editing, assembling, and testing of user programs, as well as a comprehensive help facility. If you do not plan to do program development on your system, or if you need additional disk space, you may wish to delete all or part of the **DEVELOP** group. In particular, deleting the main system help library frees a substantial amount of space.

### 6.1.2 Creating Your Own File Groups

You can create file groups of your own by following the same format that the DIGITAL-supplied file groups use. Be sure however, not to modify the file groups that are provided by DIGITAL.

## TAILORED SYSTEMS

A file group is a file that lists each file in a particular group using the format:

```
[directory]name.type.
```

Typically, you might use this command to get a listing of files in the TEXTTOOLS file group:

```
$ DIRECTORY SYS$UPDATE:TEXTTOOLS.TLR
```

This is the listing of files in the TEXTTOOLS group:

```
[SYSEXE]DIFF.EXE  
[SYSEXE]EDT.EXE  
[SYSEXE]RUNOFF.EXE  
[SYSEXE]SEARCH.EXE  
[SYSEXE]SLP.EXE  
[SYSEXE]SOS.EXE  
[SYSEXE]SUMSLP.EXE  
[SYSEXE]TCX.EXE  
[SYSEXE]TECO.EXE  
[SYSEXE]TOC.EXE
```

### CAUTION

Do not modify or relocate the file groups provided by DIGITAL, because they are used for system updates and upgrades and optional software product installations.

You may use any text editor to create a file that lists a file group. If you create a new file group by modifying a copy of a DIGITAL-supplied file group, be sure to assign a new file name to the file you create, and be careful not to modify the DIGITAL-supplied file. For example, if you want to create your own text-processing file group by editing SYS\$UPDATE:TEXTTOOLS.TLR with the EDT editor, the following command will ensure that the new file has a new name and that the DIGITAL-supplied file is not altered:

```
EDIT /OUTPUT=new_file_name SYS$UPDATE:TEXTTOOLS.TLR
```

DIGITAL-supplied file groups reside in the SYS\$UPDATE directory on the system disk and have the file type TLR. Therefore, you do not have to include the device, directory, or file type when you refer to them in tailoring commands.

If you want to put the file groups you create in a different directory or on a different device, you will have to be explicit in specifying the files in the tailoring commands. For example, if you create a file group named SPECIAL.TLR and store it in directory [USER.JOBS] on device USER\$DISK, the command to copy it to the system disk would look like this:

```
TAILOR> COPY USER$DISK:[USER.JOBS]SPECIAL
```

### 6.1.3 How to Use the Tailoring Facility

The Tailoring Facility provides a set of commands and qualifiers you use to tailor your system disk. The key to tailoring is knowing which file groups you need to support your system operations, and then copying only those groups to the system disk.

There are two ways to use tailoring. You can either invoke the tailoring procedure and enter tailoring commands at the tailoring command level, or you can invoke tailoring and specify a particular tailoring function with a single command from DCL level.

To work from the tailoring command level, use the following procedure:

1. Log in at the console terminal under the system manager's account (described in Section 3.1).
2. When you get the DCL prompt (\$), enter:

```
$ @SYS$UPDATE:VMSTAILOR
```

The system responds with the following prompt to indicate that you are at the tailoring command level:

```
Tailor>
```

When you want to return to DCL command level, use the tailoring command EXIT.

If you want to tailor from the DCL command level, enter a single-line DCL command to invoke tailoring and specify the tailoring function you want. For example, if you are at DCL level and you want to copy the TEXTTOOLS file group to the system disk, be sure the library disk has been mounted with the tailoring command MOUNT, then enter:

```
$ @SYS$UPDATE:VMSTAILOR COPY TEXTTOOLS
```

DCL invokes the Tailoring Facility, then the Tailoring Facility executes the command and returns you to DCL level.

#### 6.1.4 Tailoring Commands

This section describes the tailoring commands available to you. Table 6-1 summarizes the commands, and command syntax is expanded in the text following the table.

When you use tailoring commands, be sure to observe the following rules:

1. The commands that use file group names as parameters accept any unique abbreviation of the name. However, if you have created a file group that resides in a device and directory other than SYS\$UPDATE, you will have to be explicit in identifying the device and directory when you specify the file group name as a parameter.
2. In order to execute the COPY, DELETE, INSTALL, and RECORD commands, the library disk must be mounted with the tailoring command MOUNT.
3. The library disk should be used as a read-only source of VMS file groups. In order to support system upgrades and updates, its contents should not be altered. The only time a library disk is mounted with the /WRITE qualifier is when optional library file groups are being restored to the library disk from the optional software distribution kit in a dual-RL02 system configuration, or when you are running the UETP.

## TAILORED SYSTEMS

4. The /LIBRARY qualifier is reserved for use by the command procedures that are used to do updates and upgrades. You should never use this qualifier when you are tailoring your system.

### CAUTION

If you alter your library disk, you will produce an unsupported software configuration that may result in incorrect system operation.

Table 6-1: Tailoring Command Summary

Command	Function
COPY file-group[,...]	Copies the specified file group(s) from the library disk to the system disk
DELETE file-group[,...]	Deletes previously copied file group(s) from the system disk
DIRECTORY file-group[,...]	Gives a directory of the files in the specified file groups
DISMOUNT [ddcu:]	Dismounts the library disk from the specified device
EXIT	Exits from the Tailoring Facility
HELP [topic] [subtopic]	Explains the specified tailoring commands and qualifiers
INSTALL file-group[,...]	Installs file groups from the optional distribution disk to the library disk
MOUNT ddcu: [label]	Mounts the library disk on the specified device
RECORD match [revised]	Creates a file listing all VMS files found on the library disk that have a match on the system disk
SEARCH file-spec	Locates the file group(s) in which the specified file resides

6.1.4.1 COPY Command - Copies files in the specified file groups from the library disk to the system disk. The copied files replace any older versions. The COPY command takes the form:

```
COPY file-group[,...]  
    /CONFIRM  
    /FILE  
    /LIBRARY  
    /LOG
```

file-group

Specifies the name of a file group to be copied.

/CONFIRM

Asks you to confirm that you want each file in the group copied. If you respond with N, the associated file is not copied. If you reply Y or press the RETURN key, the file is copied.

/FILE

Indicates that an individual file is to be copied instead of a file group. You must use a file specification in place of the file group parameter when using this qualifier. A default device and directory of LIB\$SYSROOT:[SYSEXE] is used with a default file type of EXE when copying a file to the system disk. When the /LIBRARY qualifier is used with the /FILE qualifier, a default device and directory of SYS\$SYSROOT:[SYSEXE] is used with a default file type of EXE. Wildcards are allowed in the file specification, but lists of file specifications are not.

/LIBRARY

This qualifier is reserved for use by update and upgrade command procedures to copy files from the system disk to the library disk. Do not use this qualifier when you are using tailoring commands.

/LOG

Displays the name of each file that is copied.

Here is an example of the command you would use to copy files in the QUEUES and FILETOOLS groups from the library disk to the system disk and displays the name of each file at the terminal.

Tailor> COPY/LOG QUEUES, FILETOOLS

The facility responds by listing the files that are copied:

```
%COPY-S-COPIED, LIB$SYSROOT:[SYSEXE]INPSMB.EXE;1 copied to SYS$SYSROOT:[SYSEXE]INPSMB.EXE;1 (20
blocks)
%COPY-S-COPIED, LIB$SYSROOT:[SYSEXE]PRTSMB.EXE;1 copied to SYS$SYSROOT:[SYSEXE]PRTSMB.EXE;1 (21
blocks)
%COPY-S-COPIED, LIB$SYSROOT:[SYSEXE]QUEMAN.EXE;1 copied to SYS$SYSROOT:[SYSEXE]QUEMAN.EXE;1 (15
blocks)
%COPY-S-COPIED, LIB$SYSROOT:[SYSEXE]SUBMIT.EXE;1 copied to SYS$SYSROOT:[SYSEXE]SUBMIT.EXE;1 (24
blocks)
%COPY-S-COPIED, LIB$SYSROOT:[SYSEXE]ANALYZOBJ.EXE;1 copied to
SYS$SYSROOT:[SYSEXE]ANALYZOBJ.EXE;1 (75 blocks)
%COPY-S-COPIED, LIB$SYSROOT:[SYSEXE]ANALYZRMS.EXE;1 copied to
SYS$SYSROOT:[SYSEXE]ANALYZRMS.EXE;1 (87 blocks)
%COPY-S-COPIED, LIB$SYSROOT:[SYSEXE]CONVERT.EXE;1 copied to SYS$SYSROOT:[SYSEXE]CONVERT.EXE;1
(11 blocks)
%COPY-S-COPIED, LIB$SYSROOT:[SYSEXE]CREATEFDL.EXE;1 copied to
SYS$SYSROOT:[SYSEXE]CREATEFDL.EXE;1 (5 blocks)
%COPY-S-COPIED, LIB$SYSROOT:[SYSEXE]DUMP.EXE;1 copied to SYS$SYSROOT:[SYSEXE]DUMP.EXE;1 (28
blocks)
%COPY-S-COPIED, LIB$SYSROOT:[SYSEXE]EDF.EXE;1 copied to SYS$SYSROOT:[SYSEXE]EDF.EXE;1 (293
blocks)
%COPY-S-COPIED, LIB$SYSROOT:[SYSEXE]RECLAIM.EXE;1 copied to SYS$SYSROOT:[SYSEXE]RECLAIM.EXE;1
(7 blocks)
```

## TAILORED SYSTEMS

```
%COPY-S-COPIED, LIB$$SYSROOT:[SYSEXE]UNLOCK.EXE;1 copied to SYS$$SYSROOT:[SYSEXE]UNLOCK.EXE;1 (8
blocks)
%COPY-S-COPIED, LIB$$SYSROOT:[SYSLIB]CONVSHR.EXE;1 copied to SYS$$SYSROOT:[SYSLIB]CONVSHR.EXE;1
(76 blocks)
%COPY-S-COPIED, LIB$$SYSROOT:[SYSLIB]FDLSHR.EXE;1 copied to SYS$$SYSROOT:[SYSLIB]FDLSHR.EXE;1 (27
blocks)
```

If the system disk does not have enough space to copy a file group, you receive the following message:

```
%COPY-E-OPENOUT, error opening SYS$$SYSROOT:[directory]name.type; as output
-RMS-F-FUL, device full (insufficient space for allocation)
%COPY-W-NOTCOPIED, LIB$$SYSROOT:[directory]name.type;1 not copied
```

If this happens, you may want to remove unnecessary files from the system disk using the DELETE command, and then try copying again.

**6.1.4.2 DELETE Command** - Deletes all versions of each file in the specified file groups from the system disk. The command checks for a backup copy on the library disk (or on the system disk when the /LIBRARY qualifier is used) before doing the deletion.

The DELETE command takes the form:

```
DELETE file-group[,...]
```

```
/CONFIRM
/FILE
/LIBRARY
/LOG
/OVERRIDE
```

file-group

Specifies the name of a file group to be deleted from the system disk. The REQUIRED file group cannot be deleted using this command.

/CONFIRM

Asks for confirmation before deleting each file. If you enter N or press the RETURN key, the file is not deleted. If you enter Y, the file is deleted.

/FILE

Indicates that an individual file is to be deleted instead of a file group. You must use a file specification in place of the file group parameter when using this qualifier. A default device and directory of LIB\$\$SYSROOT:[SYSEXE] is used with a default file type of EXE when deleting a file from the system disk. A default device and directory of SYS\$\$SYSROOT:[SYSEXE] is used with a default file type of EXE when deleting a file from the library disk with the /LIBRARY qualifier. Wildcards are allowed in the file specification, but lists of file specifications are not.

/LIBRARY

This qualifier is reserved for use by update and upgrade command procedures to delete files from the library disk. Do not use this qualifier when you are using tailoring commands.



/LOG

Displays the name of each file that is deleted.

/OVERRIDE

Overrides the check for a backup copy before deleting. This qualifier permits you to delete files on the system disk without having to mount the library disk.

The following sample command deletes the files in the LIBRARY group from the system disk if you confirm the deletion by entering Y.

Tailor> DELETE/CONFIRM LIBRARY

The facility then displays the name of each file that you may elect to delete:

```
SYS$SYSROOT:[SYSEXE]DCLDEF.STB;1 delete? (Y or N) : Y
SYS$SYSROOT:[SYSEXE]IMGDEF.STB;1 delete? (Y or N) : Y
SYS$SYSROOT:[SYSEXE]MP.STB;1 delete? (Y or N) : Y
SYS$SYSROOT:[SYSEXE]NETDEF.STB;1 delete? (Y or N) : Y
SYS$SYSROOT:[SYSEXE]RMSDEF.STB;1 delete? (Y or N) : Y
SYS$SYSROOT:[SYSEXE]SYS.STB;1 delete? (Y or N) : Y
SYS$SYSROOT:[SYSEXE]SYSDEF.STB;1 delete? (Y or N) : Y
SYS$SYSROOT:[SYSLIB]FORDEF.FOR;1 delete? (Y or N) : Y
SYS$SYSROOT:[SYSLIB]FORIOSDEF.FOR;1 delete? (Y or N) : N
SYS$SYSROOT:[SYSLIB]IMAGELIB.OLB;1 delete? (Y or N) : N
SYS$SYSROOT:[SYSLIB]LIB.MLB;1 delete? (Y or N) : N
SYS$SYSROOT:[SYSLIB]LIBDEF.FOR;1 delete? (Y or N) : N
SYS$SYSROOT:[SYSLIB]MTHDEF.FOR;1 delete? (Y or N) : N
SYS$SYSROOT:[SYSLIB]SIGDEF.FOR;1 delete? (Y or N) : N
SYS$SYSROOT:[SYSLIB]STARLET.MLB;1 delete? (Y or N) : N
SYS$SYSROOT:[SYSLIB]STARLET.OLB;1 delete? (Y or N) : N
SYS$SYSROOT:[SYSLIB]XFDEF.OLB;1 delete? (Y or N) : N
```

6.1.4.3 DIRECTORY Command - Lists the contents of the specified file groups. The DIRECTORY command takes the form:

DIRECTORY file-group[,...]

```
/GROUPS
/OUTPUT=file-spec
/SIZE
```

file-group

Specified file group.

/GROUPS

Lists all the file groups available in the SYS\$UPDATE directory. When this qualifier is specified, no parameters are allowed.

/OUTPUT=file-spec

Requests that the output listing be written to the specified file rather than to the current SYS\$OUTPUT device.

/SIZE

Requests that the size of each file be displayed along with its name.

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The following directory command lists the files in the HELP and REQUIRED groups in an output file called HELREQ.LIS.

```
Tailor> DIRECTORY/OUTPUT=HELREQ HELP,REQUIRED
```

**6.1.4.4 DISMOUNT Command** - Dismounts the library disk from the specified device and deassigns the logical names that parallel the VMS system directory structure. (See Section 6.2 for more information on the use of logical names.)

The DISMOUNT command takes the form:

```
DISMOUNT [ddcu:]
```

ddcu:

The name of the drive from which you want to dismount the library disk. The logical name LIB\$SYSDEVICE: is used as the default device if no device is specified.

**6.1.4.5 EXIT Command** - Terminates the Tailoring Facility and returns you to DCL command level. The EXIT command takes the form:

```
EXIT
```

**6.1.4.6 HELP Command** - Gives detailed descriptions of all the tailoring commands and qualifiers. The HELP command takes the form:

```
HELP [topic] [subtopic]
```

topic

A topic in the help command can be any of the commands, plus the additional topic of GROUPS.

subtopic

A subtopic in the help file is a qualifier when used with a command topic, and a group name when used with the GROUP topic.

The following command displays information about the DEVELOP file group.

```
Tailor> HELP GROUPS DEVELOP
```

If you type only HELP, you will receive an explanation of the HELP command and a list of the other topics described in the help file.

**6.1.4.7 INSTALL Command** - The command is used to restore file groups from the optional distribution disk to the library disk. (See Section 2.7.4 for examples of how the INSTALL command is used to restore optional files.)

The INSTALL command has a single qualifier (/LOG) and uses the following syntax:

```
INSTALL file-group[,...]  
/LOG
```

file-group

This command is used to install one or more of the optional library file groups available on the optional distribution disk. The optional library file groups are described in Section 6.1.1.

/LOG

Displays the name of each file that is installed with the INSTALL command.

**6.1.4.8 MOUNT Command** - Mounts the library disk on the specified disk drive, and defines a set of logical names that parallels the VMS system directory structure. (See Table 6-2 for a list of these logical names and their definitions.) The library disk must be mounted with the tailoring MOUNT command to use the COPY, DELETE, INSTALL, and RECORD commands. The MOUNT command takes the form:

MOUNT ddcu: [label]

/WRITE

ddcu:

The name of the drive on which you wish to mount the library disk.

label

The label of the library disk you wish to mount. VAXVMSLB3 is the default label.

/WRITE

Lets you write to the library disk.

**CAUTION**

If you alter your library disk, you will produce an unsupported software configuration, and you may adversely affect system operation.

Use the /WRITE qualifier only if you are installing optional software in a tailored system configuration, or if you want to run the UETP. Your library disk should be treated carefully as a read-only source of operating system files. It is write protected by default.

This is an example of the tailoring MOUNT command you use to mount the library disk in the DQAL drive.

Tailor> MOUNT DQAL:

**6.1.4.9 RECORD Command** - You use this command when you want to create a file group that lists all of the VMS files on the library disk that currently have a match on the system disk. With this command, you can save a record of a unique group of files for later use. The RECORD command takes the form:

RECORD match-file-group [revised-file-group]

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### match-file-group

You use this parameter to provide a name for the match-file group you want to create. The match-file group will include a list of the VMS files currently on the library disk that have a match on the system disk. Both the name and revision date of a file must match for it to be listed in this file group. If multiple versions of a file exist, only the latest version is compared and listed.

### revised-file-group

You use this parameter to provide a name for the revised-file group you want to create. The revised-file group will include a list of the files on the system disk that have a match on the library disk but have a different revision date. If you do not specify a revised-file-group and there are revised files on the system disk, you receive an error message for each revised file.

A RECORD command would typically be followed by a DELETE command to allow another software configuration to be created on the system disk. Then, the file group created by the RECORD command can be copied back to the system disk at a later date, restoring the old configuration.

For example, to list the current tailored software configuration in a file group called MYCONFIG, invoke tailoring, mount the library disk using the tailoring mount command, and issue the following RECORD command:

```
Tailor> RECORD MYCONFIG
```

Then delete MYCONFIG from the system disk, with the DELETE command.

```
Tailor> DELETE MYCONFIG
```

You can then build a new system disk configuration by copying other file groups to the system disk. For example, if you wish to create an environment in which system management functions can be performed, you would issue the following command:

```
Tailor> COPY MANAGER
```

You can then dismount the library disk with the tailoring DISMOUNT command, and perform system management operations. When you want to restore the previous configuration, remount the library disk and type the following commands:

```
Tailor> DELETE MANAGER  
Tailor> COPY MYCONFIG
```

**6.1.4.10 SEARCH Command** - Locates the file group(s) in which a specified file resides. The SEARCH command takes the form:

```
SEARCH file-spec
```

### file-spec

Specifies the name of a file to be located. No wildcards are allowed.

## 6.2 ALTERNATIVE TO TAILORING

As an alternative to tailoring, you may use logical names for temporary access to files on the library disk. When you use the tailoring command MOUNT to mount the library disk, a set of logical names is defined for you. These names are parallel to the VMS directory structure, but begin with the prefix LIB\$ instead of SYS\$.

You may use these parallel logical names to gain access to a directory on the library disk without having to tailor the files to your system disk. For example, you can gain access to help files located on the library disk by redefining SYS\$HELP:

```
$ DEFINE SYS$HELP LIB$HELP:
```

The operating system is now pointed to the LIB\$HELP directory on the library disk instead of the SYS\$HELP directory on the system disk.

Logical names may also be defined for individual files on the library disk. For example, SYE, the system error log analyzer, can be invoked directly from the library disk by redefining the logical name SYE:

```
$ DEFINE SYE LIB$SYSTEM:SYE
```

After you redefine SYE, the command RUN SYE will execute SYE.EXE from the library disk instead of SYE.EXE on the system disk.

For a more thorough discussion of the features and restrictions of logical names, see the VAX/VMS Command Language User's Guide. Table 6-2 lists the logical names defined by tailoring.

Table 6-2: Library Disk Logical Name Definitions

Logical Name	Definition
LIB\$SYSDEVICE	= __ddcu:
LIB\$TOPSYS	= SYS0
LIB\$SYSROOT	= __ddcu:[SYS0.]
LIB\$ERRORLOG	= LIB\$SYSROOT:[SYSERR]
LIB\$HELP	= LIB\$SYSROOT:[SYSHLP]
LIB\$LIBRARY	= LIB\$SYSROOT:[SYSLIB]
LIB\$MAINTENENCE	= LIB\$SYSROOT:[SYSMAINT]
LIB\$MANAGER	= LIB\$SYSROOT:[SYSMGR]
LIB\$MESSAGE	= LIB\$SYSROOT:[SYSMMSG]
LIB\$SHARE	= LIB\$SYSROOT:[SYSLIB]
LIB\$SYSTEM	= LIB\$SYSROOT:[SYSEXE]
LIB\$TEST	= LIB\$SYSROOT:[SYSTEST]
LIB\$UPDATE	= LIB\$SYSROOT:[SYSUPD]

## 6.3 SPECIAL CONSIDERATIONS FOR SMALL DISK SYSTEM CONFIGURATIONS

The space limitations imposed on you by a small-disk system require you to perform certain operations differently than you would in a large-disk environment. The following sections describe considerations that must be taken when performing these operations.

### 6.3.1 Preparing to Run the UETP

The User Environment Test Package (UETP) tests your hardware and software to verify that your system has been properly installed. The UETP can be run in one of two ways, either from the library disk, or after being copied to the system disk. The two methods are described in the next two sections.

**6.3.1.1 Running the UETP from the Library Disk** - If you plan to run the UETP from your library disk, use the following procedure to alter the default device in the SYSTEST user authorization record to LIB\$SYSROOT. This procedure lets the UETP write to your library disk.

If you decide to run the UETP from the system disk at some future time, you will have to reset the device field for the SYSTEST account to SYS\$SYSROOT before doing so.

1. Log in under the system manager account.
2. Issue the following command:

```
$ RUN SYS$SYSTEM:AUTHORIZE
```

3. When you get the UAF> prompt, type:

```
UAF> MODIFY SYSTEST/DEVICE=LIB$SYSROOT  
UAF> EXIT
```

4. Place the library disk in DQAL.
5. Invoke tailoring and mount the library disk as writeable with the following command:

```
$ @SYS$UPDATE:VMSTAILOR MOUNT/WRITE DQAL:
```

Read Section 6.3.1.3 before running the UETP.

**6.3.1.2 Preparing the System Disk** - If you plan to run the UETP from your system disk, you must first mount the library disk with the tailoring command MOUNT, and then copy the UETP file group to your system disk.

1. Place the library disk in the drive designated DQAL.
2. Invoke tailoring with the following command:

```
$ @SYS$UPDATE:VMSTAILOR
```

3. Enter the following sequence of tailoring commands:

```
Tailor> MOUNT ddcu:  
Tailor> COPY UETP  
Tailor> EXIT
```

Read Section 6.3.1.3 before running the UETP.

**6.3.1.3 Necessary Files** - Both methods of running the UETP require you to tailor additional files to the system disk before running the UETP. Use the following command to tailor your system with these files:

```
$ @SYS$UPDATE:VMSTAILOR COPY DEVELOP, FILETOOLS, -
  TEXTTOOLS, MISCTOOLS
```

If you do not have sufficient space to copy all of the file groups you may instead copy the required individual files. To do so, invoke tailoring with the following command:

```
$ @SYS$UPDATE:VMSTAILOR
```

Now enter the following sequence of tailoring commands:

```
Tailor> COPY /FILE CONVERT
Tailor> COPY /FILE DIFF
Tailor> COPY /FILE PIP
Tailor> COPY /FILE SEARCH
Tailor> COPY /FILE SORT32
Tailor> COPY /FILE [SYSLIB]CONVSHR
Tailor> COPY /FILE [SYSLIB]FDLSHR
Tailor> COPY /FILE [SYSHLP]HELPLIB.HLB
Tailor> EXIT
```

In addition, if you are running the RSX-11 librarian (SYS\$SYSTEM:LBR.EXE), the UETP will attempt to test other compatibility mode utilities including the Files-22 Dump Utility, the Object Module Patch Utility, the SORT-11 Utility, the Source File Editing Utility, and the SOS text editor.

To get these files to the system disk, use the following tailoring commands:

```
Tailor> COPY /FILE DMP
Tailor> COPY /FILE PAT
Tailor> COPY /FILE SRT
Tailor> COPY /FILE SLP
Tailor> COPY /FILE SOS
```

When you have completed these preparations, run the UETP according to the instructions in the VAX/VMS UETP User's Guide.

The error message "JBC-E-SYMBDSAB, symbiont manager is disabled" may appear during execution of the load test phase of the UETP if you have not enabled job queues on your system. This message can be ignored. See Section 6.3.2 for more information about enabling job queues.

### 6.3.2 Job Queues

In small-disk systems, job queues are disabled to conserve disk space. If you wish to create queues, you must copy the QUEUES tailoring group to your system disk, modify the SYSGEN parameter JOBQUEUES, and reboot your system before issuing any queue commands. To copy the QUEUES file group, issue the following commands:

```
$ @SYS$UPDATE:VMSTAILOR
Tailor> MOUNT ddcu
Tailor> COPY QUEUE
Tailor> EXIT
```

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Invoke SYSGEN with the following command:

```
$ RUN SYS$SYSTEM:SYSGEN
```

Modify the JOBQUEUES parameter by typing the following commands at the successive SYSGEN prompts:

```
SYSGEN> USE CURRENT
SYSGEN> SET JOBQUEUES 1
SYSGEN> WRITE CURRENT
SYSGEN> EXIT
```

Shut down and reboot as described in Section 3.6.

Approximately 250 blocks are required to create the system queue file (SYS\$SYSTEM:JBCTSYSQUE.EXE). See the VAX/VMS System Management and Operations Guide for more information about creating and managing queues.

### 6.3.3 Analyzing System Failures

The VMS operating system includes a capability for writing crash dumps to your system disk when a serious hardware or software problem occurs. Usually a dump file (SYS\$SYSTEM:SYSDUMP.DMP) equal in size to the number of pages of physical memory on your system plus four blocks is required. However, in small-disk systems, crash dumps are written instead to the system paging file (SYS\$SYSTEM:PAGEFILE.SYS). Normally these dumps are overwritten each time you boot your system; however, you can preserve and analyze crash dumps by setting the SAVEDUMP parameter and saving the dump for analysis. These two steps are described in the following sections.

**6.3.3.1 Setting the SAVEDUMP Parameter -** The SYSGEN parameter SAVEDUMP controls whether crash dumps are preserved during bootstrapping. For small-disk systems, this parameter is off by default. You must set this parameter to 1 if you wish to preserve crash dumps. If your system fails and the parameter is set to 0, you may still preserve the dump by stopping in SYSBOOT when you reboot your system and setting the SAVEDUMP parameter to 1. See Section 5.3.2 for instructions on booting and stopping in SYSBOOT.

To set the SAVEDUMP parameter while running interactively, invoke SYSGEN as follows:

```
$ RUN SYS$SYSTEM:SYSGEN
```

Modify the SAVEDUMP parameter by typing the following commands at the successive SYSGEN prompts:

```
SYSGEN> USE CURRENT
SYSGEN> SET SAVEDUMP 1
SYSGEN> WRITE CURRENT
SYSGEN> EXIT
```

Shut down and reboot as described in Section 3.6.



6.3.3.2 Saving the Dump for Analysis - Since a large portion of your paging file becomes unavailable when a dump is saved, it is advisable to free this space as quickly as possible. Your system may perform very slowly, or even fail again, when only a small amount of paging file space is available. If less than 1000 blocks of paging file remain, the SAVEDUMP parameter is ignored, and the dump is released immediately.

The following commands can be placed in your site-specific start-up command procedure (SYS\$MANAGER:SYSTARTUP.COM) to copy the dump to another disk and free the space in the paging file. These commands assume the presence of a data disk on device DQAL with a volume label USERDISK and a directory of [CRASH].

```
$ MOUNT DQAL: USERDISK
$ ANALYZE /CRASH SYS$SYSTEM:PAGEFILE.SYS
SDA> COPY DQAL:[CRASH]SYSDUMP.DMP;1
SDA> EXIT
```

The above commands utilize the following features of the system dump analyzer (SDA) to manage a crash dump:

1. SDA exits immediately when invoked from the start-up command procedure if one of the following is true:
  - a. The dump file contains no valid dump.
  - b. The dump has been previously analyzed.
  - c. The dump is the result of an operator-requested shutdown.
2. SDA frees the paging file space for immediate use at the successful completion of a COPY operation.
3. When the dump is copied to an already existing file, it replaces that file rather than creating a new one. By explicitly specifying a version number of 1, each new crash dump replaces any older crash dump already saved on the user disk.

If you cannot boot or successfully copy a crash dump, you may boot another system disk, mount the system disk containing the dump as a data disk, and then analyze the crash dump.

#### 6.3.4 Installed Files

The library files listed in Table 6-3 must be installed with privileges on small-disk systems for proper operation:

Table 6-3: Installed Files

File	File Group
CLEDITOR.EXE	MISCTOOLS
INIT.EXE	MANAGER
MAIL.EXE	MISCTOOLS
MCR.EXE	MISCTOOLS
MCRTABLES.EXE	MISCTOOLS
MONITOR.EXE	MISCTOOLS
NMLSHR.EXE	DECNET
PHONE.EXE	MISCTOOLS
RTPAD.EXE	DECNET
SUBMIT.EXE	QUEUES

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If you boot your system with these files tailored to your system disk, they will be installed automatically. If you tailor them to your system disk after booting, you can install them in one of two ways:

1. You may shut your system down using `SYS$SYSTEM:SHUTDOWN` and reboot as described in Section 3.6.
2. You may invoke the DIGITAL image installation procedure with the command:

```
    $ @SYS$MANAGER:VMSIMAGES INSTALL VMSIMAGES
```

For further information about installed images, see the VAX/VMS System Management and Operations Guide.

## APPENDIX A

### FILES OF THE VMS SYSTEM

This appendix contains the names and brief descriptions of the files provided by DIGITAL on the VMS system distribution medium. The files on this medium are cataloged in ten directories. The names of the directories and descriptions of their contents follow.

1. [SYSCBI]

This directory is reserved for EDTCAI files.

2. [SYSERR]

This directory is reserved for the error log file (ERRLOG.SYS).

3. [SYSEXE]

As shown in Table A-1, this directory contains commonly used executable images of the operating system.

4. [SYSHLP]

As shown in Table A-2, this directory contains text libraries for the Help Utility and other components.

Table A-8 lists the contents of the subdirectory, [SYSHLP.EXAMPLES]. This subdirectory contains sample driver programs, user-written system service programs, and other source code examples of interest.

5. [SYSLIB]

As shown in Table A-3, this directory contains various macro and object libraries as well as other files used for general reference.

6. [SYSMAINT]

This directory is reserved for system hardware diagnostic programs.

7. [SYSMGR]

As shown in Table A-4, this directory contains files used in managing the operating system. This directory is the default directory for the system manager's account.

8. [SYSMSG]

As shown in Table A-6, this directory contains system message text files.

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9. [SYSTEST]

As shown in Table A-6, this directory contains files used to run the User Environment Test Package (UETP).

10. [SYSUPD]

As shown in Table A-7, this directory contains files used in applying system updates.

Table A-1: Files Contained in Directory [SYSEXEXE]

File Name	Description
ACC.EXE	Accounting Utility
ANALYZOBJ.EXE	ANALYZE/IMAGE and ANALYZE/OBJECT image
ANALYZRMS.EXE	ANALYZE/RMS FILE image
AUTHORIZE.EXE	User authorization program
AUTOGEN.PAR	Parameter file for the AUTOGEN command procedure
BACKTRANS.EXE	Back translator of DCL into MCR commands
BACKUP.EXE	Backup Utility
BAD.EXE	Bad Block Locator Utility
BADBLOCK.EXE	Dynamic bad block Files-11 ACP subprocess
BCK.EXE	RMS-11 backup utility
BOOT58.EXE	Reserved for future use
BOOTBLOCK.EXE	Reserved for future use
CANCEL.EXE	CANCEL command
CHECKSUM.EXE	Used during installation of VMS updates
CHKSUM.CLD	Used during installation of VMS updates
CLEDITOR.EXE	Command Definition Utility
CNDRIVER.EXE	DECnet CI datalink driver
CNV.EXE	RMS-11 file conversion utility
CNVACC.EXE	Convert V3.0 account file to V2.0 format
CONFIG.DAT	Data file for configuration
CONINTERR.EXE	Connect-to-Interrupt driver
CONVERT.EXE	Convert Utility
COPY.EXE	File copy utility
CRDRIVER.EXE	Card reader driver
CREATE.EXE	File and directory creation utility
CREATEFDL.EXE	CREATE/FDL image
CRF.EXE	Compatibility mode cross-reference utility
DBDRIVER.EXE	RP05 and RP06 disk driver
DCL.EXE	Command interpreter
DCLDEF.STB	Global definitions for DCL structures
DDDRIVER.EXE	TU58 driver
DEF.EXE	RMS-11 interactive file definition utility
DELETE.EXE	File deletion/purge utility
DFN.EXE	RMS-11 noninteractive file definition utility
DIFF.EXE	File compare utility
DIRECTORY.EXE	Directory utility
DISKQUOTA.EXE	Disk Quota Utility
DISMOUNT.EXE	Volume dismount utility
DLDRIVER.EXE	RL02 disk driver
DMDRIVER.EXE	RK07 disk driver
DMP.EXE	RSX-11 File dump utility
DQDRIVER.EXE	RB730 driver
DRDRIVER.EXE	RM03 disk driver
DSC1.EXE	Files-11 Structure Level 1 disk save and compress utility

(continued on next page)

Table A-1 (Cont.): Files Contained in Directory [SYSEXE]

File Name	Description
DSC2.EXE	Files-11 Structure Level 2 disk save and compress utility
DSP.EXE	RMS-11 file attribute display utility
DTR.COM	DTRECV.EXE server initiating procedure
DTRECV.EXE	DTSEND server
DTSEND.EXE	DECnet logical links test program
DUDRIVER.EXE	UDA disk driver
DUMP.EXE	Dump Utility
DXDRIVER.EXE	RX01 console floppy diskette driver
DYDRIVER.EXE	RX02 floppy diskette driver
DZDRIVER.EXE	DZ11 port driver
EDF.EXE	File definition language editor
EDI.EXE	RSX-11M text editor
EDT.EXE	EDT text editor
ERRFMT.EXE	Error logging facility
EVL.EXE	DECnet event logging program
EVL.COM	Command file used by DECnet error logging
F11AACP.EXE	Files-11 Structure Level 1 ancillary control process
F11BACP.EXE	Files-11 Structure Level 2 ancillary control process
FAL.COM	FAL start-up procedure
FAL.EXE	DECnet file access listener
FLX.EXE	File Transfer Utility
HEXZAP.EXE1	Hexadecimal image patching utility
HLD.COM	Command procedure used by HLD.EXE
HLD.EXE	Downline task loading program
IFL.EXE	RMS-11 utility index load program
IMGDEF.STB	Global definitions for image activator structures
INILOA.EXE	System initialization program
INIT.EXE	Disk device initialization utility
INPSMB.EXE	Card reader input symbiont
INSTALL.EXE	Utility that installs known images
JBCSYSQUE.EXE	Queuing facility
JOBCTL.EXE	Job controller/symbiont manager
LADRIVER.EXE	LPA-11 driver
LALOAD.EXE	Accepts commands from or sends requests to LALOADER to load LPA-11 microcode
LALOADER.EXE	Loads LPA-11 microcode upon power recovery or upon request from LALOAD
LBR.EXE	RSX-11M librarian
LCDRIVER.EXE	DMF-32 lineprinter driver
LIBRARIAN.EXE	Librarian Utility
LINK.EXE	Linker
LOGINOUT.EXE	Login/logout utility
LPDRIVER.EXE	Line printer driver
MAC.EXE	MACRO-11 assembler
MACRO32.EXE	VAX-11 MACRO assembler
MAIL.EXE	Mail Utility
MAIL.COM	Command procedure used by DECnet mail
MAILEDIT.COM	Default MAIL editing command procedure
MBXDRIVER.EXE	Shared memory mailbox driver
MCR.EXE	MCR command interpreter
MERGE.EXE	Merge Utility
MESSAGE.EXE	Message compiler
MIRROR.COM	MIRROR start-up procedure
MIRROR.EXE	DECnet node loopback server

(continued on next page)

Table A-1 (Cont.): Files Contained in Directory [SYSEXEC]

File Name	Description
MONITOR.EXE	Monitor Utility
MP.EXE	VAX-11/782 multiprocessing code
MP.STB	Symbol table for MP.EXE
MTAAACP.EXE	Magnetic tape ancillary control process
NCP.EXE	Network control program
NETACP.EXE	DECnet ancillary control process
NETDEF.STB	Symbol table for network definition
NETDRIVER.EXE	DECnet logical link driver
NML.COM	NML server start-up procedure
NML.EXE	DECnet network management listener
NOTICE.TXT	Text file that can contain announcements to system users
OPCCRASH.EXE	System shutdown utility
OPCOM.EXE	Operator communications utility
PADRIVER.EXE	CI780 port driver
PAGEFILE.SYS	System paging file
PARAMS.DAT	Data file for parameter values
PAT.EXE	RSX-11M object module patch utility
PATCH.EXE	VAX-11 image file patch utility
PHONE.COM	PHONE start-up procedure
PHONE.EXE	Phone Utility
PIP.EXE	RSX-11M peripheral interchange utility
PRTSMB.EXE	Print symbiont
PUDRIVER.EXE	CI UDA port driver
QUEMAN.EXE	Queue managing utility
RECLAIM.EXE	CONVERT/RECLAIM image
REMACP.EXE	Remote device ACP
RENAME.EXE	File rename utility
REPLY.EXE	Message broadcasting facility
REQUEST.EXE	Operator request facility
RMS.EXE	Record Management Services
RMSDEF.STB	Global definitions for VAX-11 RMS structures
RMSSHARE.EXE	File sharing utility program
RST.EXE	RMS-11 file restoration utility
RSX.EXE	RSX-11M application migration executive main program
RTB.EXE	Utility that writes an RT-11 bootstrap on disk
RTPAD.EXE	Remote terminal command interface
RTTDRIVER.EXE	Remote terminal driver
RUNDET.EXE	Facility that runs detached images
RUNOFF.EXE	Text formatting utility
SCSDEF.STB	Symbol table for loadable routines
SCSLOA.EXE	Loadable routines used by SCS
SDA.EXE	System Dump Analyzer Utility
SEARCH.EXE	File search utility
SECDMC.SYS	DECnet downline secondary loader for DMC11
SECDP.SYS	DECnet downline secondary loader for DP11
SECDQ.SYS	DECnet downline secondary loader for DP11
SECDU.SYS	DECnet downline secondary loader for DQ11
SECDUP.SYS	DECnet downline secondary loader for DUP11
SECDUV.SYS	DECnet downline secondary loader for DUV11
SET.EXE	SET command processor
SETPO.EXE	SET MESSAGE command processor
SHOW.EXE	SHOW command processor
SHUTDOWN.COM	System shutdown command procedure
SLP.EXE	RSX-11M source file editing utility
SORT32.EXE	SORT command processor

(continued on next page)

Table A-1 (Cont.): Files Contained in Directory [SYSEXE]

File Name	Description
SOS.EXE	SOS text editor
SRT.EXE	SORT-11 utility
STABACKUP.EXE	Stand-alone Backup Utility
STARTUP.COM	System start-up command procedure
STARTUP.MIN	System minimum start-up command procedure
STASYSGEN.EXE	Stand-alone System Generation Utility
STOPREM.EXE	Stop REMACP utility
SUBMIT.EXE	Batch job submission utility
SUMSLP.EXE	Source file editor
SWAPFILE.SYS	System swap file
SYE.EXE	Utility that formats the error log file
SYS.EXE	Operating system image file
SYS.MAP	Map of the operating system
SYS.STB	Global symbol table of operating system
SYSBOOT.EXE	System bootstrap utility
SYSDEF.STB1	Global definitions for executive structures
SYSDUMP.DMP	System dump file
SYSGEN.EXE	System Generation and Configuration Utility
SYSINIT.EXE	Operating system initialization image
SYSLOA730.EXE	VAX-11/730 system image file
SYSLOA750.EXE	VAX-11/750 system image file
SYSLOA780.EXE	VAX-11/780 system image file
SYSUAF.DAT	User authorization data file
SYSUAF.RL2	Unmodified copy of SYSUAF.DAT
TCX.EXE	Runoff indexing utility
TECO.EXE <sup>1</sup>	TECO text editor
TERDMC.SYS	DECnet downline tertiary loader
TERDP.SYS	DECnet downline tertiary loader
TERDQ.SYS	DECnet downline tertiary loader
TERDU.SYS	DECnet downline tertiary loader
TERDUP.SYS	DECnet downline tertiary loader
TERDUV.SYS	DECnet downline tertiary loader
TFDRIVER.EXE	TU78 driver
TKB.EXE	RSX-11M task builder
TMDRIVER.EXE	Magnetic tape driver
TOC.EXE	Runoff table of contents utility
TSDRIVER.EXE	TS11 Magnetic tape driver
TTDRIVER.EXE	Terminal driver
TTRDVFY.EXE	Auxiliary terminal driver module
TYPE.EXE	Type utility
UFD.EXE	User file directory creation utility
UNLOCK.EXE	File unlock utility
VERIFY.EXE	ANALYZE/DISK STRUCTURE image
VMB.EXE	VMS primary bootstrap
VMOUNT.EXE	Volume mount utility
VMSHELP.EXE	Help Utility
WRITEBOOT.EXE	System volume bootblock writing utility
XADRIVER.EXE	Reserved for future use
XDDRIVER.EXE	DECnet DMP-11 datalink driver)
XFDRIVER.EXE	DR32 system interconnect interface driver
XFLOADER.EXE	DR32 microcode loader utility
XGDRIVER.EXE	DECnet DMF datalink driver
XMDRIVER.EXE	DMC-11 Synchronous Communications Line Interface driver
XWDRIVER.EXE <sup>1</sup>	DUP-11 device driver
YCDRIVER.EXE	DMF32 asynchronous port driver
ZAP.EXE	RSX-11M task/file octal patch utility

1. Not supported by DIGITAL.

Table A-2: Files Contained in Directory [SYSHLP]

File Name	Description
ANLRMSHLP.HLB	Help library for ANALYZE/RMS_FILE command
DEBUG.HLB	Debugger help library
DISKQUOTA.HLB	Help library for Disk Quota Utility
EDFHLP.HLB	Help library for FDL
EDTHELP.HLB	EDT help library
EDTVT100.DOC	EDT keypad layout for VT100
EDTVT52.DOC	EDT keypad layout for VT52
EXAMPLES.DIR	Examples directory
HELPLIB.HLB	Default (DCL) help library
INSTALHLP.HLB	Help library for Install Utility
MAILHELP.HLB	Mail Utility help library
NCPHELP.HLB	Help library for NCP
PATCHHELP.HLB	Help library for PATCH
PHONEHELP.HLB	Help library for PHONE
SDA.HLB	System Dump Analyzer help library
SYSGEN.HLB	Help library for SYSGEN
TECO.HLB	TECO help library
UAFHELP.HLB	Help library for user authorization file
VMSTLRHLP.HLB	Help library for the tailoring facility

Table A-3: Files Contained in Directory [SYSLIB]

File Name	Description
CDDSHR.EXE	Dummy CDD image for layered products)
CLIMAC.REQ	Structure definitions for BLISS programs interfacing with the command language interpreter
CONVSHR.EXE	CONVERT, CONVERT/RECLAIM shareable image
CRFSHR.EXE	Cross-reference shareable image
DCLTABLES.EXE	DCL command tables
DEBUG.EXE	VMS Debugger
DELTA.EXE	DELTA multimode debugging tool image
DELTA.OBJ	Alternate debugging tool
DISMNTSHR.EXE	DISMOUNT shareable image
FDSLHR.EXE	FDL parsing shareable image
FORDEF.FOR	FORTRAN INCLUDE file: FOR\$ symbols
FORIOSDEF.FOR	FORTRAN INCLUDE file: IOSTAT error codes
IMAGELIB.OLB	System default shareable image library
LBRSHR.EXE	Librarian shareable image
LIB.MLB	Operating system macro library
LIB.REQ	Structure definitions of executive internals for use by BLISS programs
LIBDEF.FOR	FORTRAN program utility INCLUDE files
MCRTABLES.EXE	MCR command tables
MOUNTSHR.EXE	MOUNT shareable image
MTHDEF.FOR	FORTRAN INCLUDE files: MATH\$ symbols
NMLSHR.EXE	DECnet management listener shareable image
ODT.OBJ	RSX-11M debugging tool
RMS11.ODL	RMS-11 sample overlay description
RMS11S.ODL	RMS-11 overlay descriptor
RMS11X.ODL	RMS-11 overlay descriptor
RMS12X.ODL	RMS-11 overlay descriptor
RMSLIB.OLB	RMS-11 object library

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Table A-3 (Cont.): Files Contained in Directory [SYSLIB]

File Name	Description
RMSMAC.MLB	RMS-11 macro library
RSXMAC.SML	RSX-11M compatibility mode macro library
RSXSHR.EXE	Shareable image of RSX-11M application migration executive
RSXUSR.EXE	Shareable image of RSX-11M application migration executive
RTLVECTOR.OBJ	VMSRTL.EXE vector (reserved for DIGITAL use)
SCRSHR.EXE	RTL terminal screen procedures shareable image
SIGDEF.FOR	FORTRAN program utility INCLUDE files
STARLET.MLB	System macro library
STARLET.OLB	System object library and Run-Time Library
STARLET.REQ	User interface structures for use by BLISS programs
SUMSHR.EXE	Source update merge shareable image
SYSLIB.OLB	RSX-11M object library
TPAMAC.REQ	Structure definitions for BLISS programs using TPARSE
TRACE.EXE	VMS error traceback facility
VMSRTL.EXE	Run-Time Library shareable image
XFDEF.FOR	Definitions available for programs using DR780 support routines

Table A-4: Files Contained in Directory [SYSMGR]

File Name	Description
ACCOUNTING.DAT	Accounting data file
CHARTYPE.DAT	Line printer characteristics for print symbiont
FORMSTYPE.DAT	Line printer forms description for print symbiont
LPAll1STRT.COM	LPAll site-specific start-up command procedure
NETICP.COM <sup>1</sup>	DECnet checkout procedure
OPERATOR.LOG	Operator message log file
RTTLOAD.COM	Remote terminal loader
STARTNET.COM	DECnet start-up procedure
SYSHUTDOWN.COM	Site-specific system shutdown command procedure
SYSTARTUP.COM	Site-specific system start-up command procedure
VMSIMAGES.COM	Invoked at start-up to install known images
VMSIMAGES.DAT	Data file for VMSIMAGES.COM

Table A-5: Files Contained in Directory [SYSMSG]

File Name	Description
QIOSYM.MSG	RSX-11M compatibility mode QIO message file
SOS.HLP	Help file for SOS text editor
SYSMSG.EXE	System message file
SYSMSG.TLB	System message file text library

1. Requires DECnet-VAX optional product for use.

Table A-6: Files Contained in Directory [SYSTEST]

File Name	Description
APPEND.PIP	Tests PIP append function
DMPASRC.DMP	Master file to test ASCII mode in DMP
DMPBYOC.DMP	Master file to test byte octal format in DMP
DMPDATA.DMP	Good input file for DMP test
DMPDCWD.DMP	Master file to test decimal word format in DMP
MCLBR1.MAC	Macro to test LBR utility
MCLBR2.MAC	Macro to test LBR utility
MCLBR3.MAC	Macro to test LBR utility
OBJLBR1.OBJ	Object module to test LBR utility
OBJLBR2.OBJ	Object module to test LBR utility
OBJLBR3.OBJ	Object module to test LBR utility
PATCHED.PAT	Tests PAT utility
PATCHPAT.OBJ	Patch file to test PAT utility
PIPDATA.PIP	Good input file for PIP test
RANDOM.FLX	Tests FLX utility
SATSSSF01.EXE	Tests for event flag services and \$SETEXV service
SATSSSF02.EXE	Tests for event flag services
SATSSSF03.EXE	Tests for logical name services
SATSSSF04.EXE	Tests for time services
SATSSSF05.EXE	Tests for process control services
SATSSSF06.EXE	Tests for process control services
SATSSSF07.EXE	Tests for process control services
SATSSSF08.EXE	Tests for \$CMEEXEC and \$GETMSG services
SATSSSF09.EXE	Tests for I/O services
SATSSSF10.EXE	Tests for send system services
SATSSSF11.EXE	Tests for I/O services
SATSSSF12.EXE	Tests for memory management services
SATSSSF13.EXE	Tests for memory management services
SATSSSF14.EXE	Tests for memory management services
SATSSSF15.EXE	Tests for handler services and \$ADJ
SATSSSF16.EXE	Tests for \$FAO services and \$SNDERR
SATSSSF17.EXE	Tests for \$INPUT, \$OUTPUT, \$QIO, and \$QIOW services
SATSSSF18.EXE	Tests for \$CREPRC, \$SETPRV, and \$UNWIND services
SATSSS01.EXE	Tests for I/O services
SATSSS05.EXE	Tests for send message services
SATSSS07.EXE	Tests for \$CREMBX, \$DELMBX services
SATSSS08.EXE	Tests for \$BRDCST service
SATSSS09.EXE	Tests for \$FAO, \$FAOL SERVICES
SATSSS10.EXE	Tests for \$GETMSG and \$PUTMSG services
SATSSS22.EXE	Tests for condition handling services
SATSSS26.EXE	Tests for timer and AST services
SATSSS30.EXE	Tests for logical name services
SATSSS35.EXE	Tests for \$CREPRC service
SATSSS36.EXE	Tests for \$DELPRC service
SATSSS37.EXE	Tests for \$SUSPND service
SATSSS38.EXE	Tests for \$RESUME service
SATSSS39.EXE	Tests for \$HIBER service
SATSSS40.EXE	Tests for \$WAKE service
SATSSS41.EXE	Tests for \$EXIT service
SATSSS42.EXE	Tests for \$FORCEX service
SATSSS43.EXE	Tests for exit- and change mode-handling services
SATSSS44.EXE	Tests for \$SETPRN service

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Table A-6 (Cont.): Files Contained in Directory [SYSTEST]

File Name	Description
SATSSS45.EXE	Tests for \$SETPRI service
SATSSS46.EXE	Tests for \$SETRWM service
SATSSS47.EXE	Tests for \$SETPRV service
SATSSS50.EXE	Tests for \$ASCEFC, \$DACEFC services
SATSSS52.EXE	Tests for \$DLCEFC service
SATSSS53.EXE	Tests for \$SETEF service
SATSSS54.EXE	Tests for \$CLREF service
SATSSS55.EXE	Tests for \$READEF service
SATSSS56.EXE	Tests for wait services
SATSSS60.EXE	Tests for time conversion services
SATSSS61.EXE	Tests for \$SCHDWK, \$CANWAK services
SATSSS70.EXE	Tests for \$EXPREG service
SATSSS71.EXE	Tests for \$CNTREG service
SATSSS72.EXE	Tests for \$CRETVA service
SATSSS73.EXE	Tests for \$DELTV service
SATSSS74.EXE	Tests for global section services (currently disabled)
SATSSS78.EXE	Tests for \$LKWSET, \$ULWSET services
SATSSS79.EXE	Tests for \$LCKPAG, \$ULKPAG services
SATSSS80.EXE	Tests for \$PURGWS service
SATSSS81.EXE	Tests for \$ADJWSL service
SATSSS82.EXE	Tests for \$SETPRT service
SATSSS83.EXE	Tests for \$SETSWM service
SATSSS90.EXE	Tests for change mode services
SATSSS91.EXE	Tests for \$ADJSTK service
SATSUT01.EXE	Utility module for SATSSF05, SATSSF18, and SATSSS35
SATSUT04.EXE	Utility module for SATSSS50
SATSUT05.EXE	Utility module for SATSSS38
SATSUT06.EXE	Utility module for SATSSS40
SATSUT07.EXE	Utility module for SATSSS61
SATSUT08.EXE	Utility module for SATSSS37, SATSSS45
SATSUT09.EXE	Utility module for SATSSS41
SATSUT10.EXE	Utility module for SATSSS52
SATSUT11.EXE	Utility module for SATSSS56
SATSUT12.EXE	Utility module for abort feature
SATSUT13.EXE	Utility module for SATSSS42
SATSUT14.EXE	Utility module for SATSSS36
SLPDATA.SLP	Input data to test SLP utility
SLPLIST.SLP	Good output file for SLP test
SLPOUT.SLP	Good output file for SLP test
SMFILE1.DAT	Master data file for VAX-11 SORT test
SMFILE2.DAT	Master data file for VAX-11 SORT test
SMFILE3.DAT	Master data file for VAX-11 SORT test
SMFILE4.DAT	Master data file for VAX-11 SORT test
SORT.DAT	Input data file for VAX-11 SORT tests
SORTED.FLX	Tests FLX utility
TST01A.EXE	Test for QIO, QIOW (RSX-11M directive)
TST01B.EXE	Test for QIO, QIOW (RSX-11M directive)
TST02A.EXE	Test for event flags (RSX-11M directive)
TST03A.EXE	Test for GET TIME, MARK TIME, RUN (RSX-11M) directive
TST03B.EXE	Test for GET TIME, MARK TIME, RUN (RSX-11M) directive
TST06A.EXE	Test for MCR command line, specify SST vector table (RSX-11M directive)
TST07A.EXE	Test for AST services (RSX-11M directive)

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Table A-6 (Cont.): Files Contained in Directory [SYSTEST]

File Name	Description
TST11A.EXE	Test for SUSPEND, RESUME (RSX-11M directive)
TST11B.EXE	Test for SUSPEND, RESUME (RSX-11M directive)
TST12A.EXE	Test for ABORT, EXIT-IF (RSX-11M directive)
TST12B.EXE	Test for ABORT, EXIT-IF (RSX-11M directive)
TST15A.EXE	Test for ASSIGN LUN, GET LUN (RSX-11M) directive
TST16A.EXE	Test for CANCEL SCHEDULED requests (RSX-11M) directive
TST16B.EXE	Test for CANCEL SCHEDULED requests (RSX-11M) directive
TST16C.EXE	Test for CANCEL SCHEDULED requests (RSX-11M) directive
TST17A.EXE	Test for CANCEL MARK TIME request (RSX-11M) directive
TST17B.EXE	Test for CANCEL MARK TIME request (RSX-11M) directive
TST20A.EXE	Test for GET TASK PARAMS, REQUEST, RUN (RSX-11M directive)
TST20B.EXE	Test for GET TASK PARAMS, REQUEST, RUN (RSX-11M directive)
UETCOMP00.COM	Main script for compatibility mode utility tests
UETCOMP00.DAT	Data file for compatibility mode utility test
UETCOMP02.COM	Main script for RSX-11M executive directive test
UETCOMS00.EXE	DMC and DMR test file
UETCSOS01.DAT	Data file for SOS test
UETCSOS02.CMD	Commands for SOS test
UETCSOS03.DAT	Known good data after SOS editing
UETDISK00.EXE	Disk device test
UETDMPF00.EXE	DMP and DMF32 test file
UETDNET00.COM	Command procedure for DECnet test
UETDNET00.DAT	Data file for DECnet test
UETDR1W00.EXE	DR11W device test
UETDR7800.EXE	DR780 device test
UETFORT01.DAT	FORTRAN data file used by UETFORT01
UETFORT97.EXE	Compiled version of UETFORT01 for load test
UETFORT98.EXE	Compiled version of UETFORT02 for load test
UETFORT99.EXE	Compiled program for load test
UETINIT00.EXE	Gets VMS configuration and builds UETINIDEV.DAT
UETINIT01.EXE	Quick checks all devices for testability
UETLOAD00.DAT	Controls load test with various numbers of users
UETLOAD02.COM	User script for load test
UETLOAD03.COM	User script for load test
UETLOAD04.COM	User script for load test
UETLOAD05.COM	User script for load test
UETLOAD06.COM	User script for load test
UETLOAD07.COM	User script for load test
UETLOAD08.COM	User script for load test
UETLOAD09.COM	User script for load test
UETLOAD10.COM	User script for load test
UETLOAD11.COM	User script for load test
UETLOCK00.EXE	Local lock manager test file
UETLPAK00.EXE	LPAll-K test file
UETMA7800.EXE	MA780 test file
UETMEMY01.EXE	Tests high page faulting rates in load test
UETNATV00.DAT	Script that runs VMS system service tests
UETNETS00.EXE	DECnet counter test file
UETNRMS00.COM	Main script for VAX-11 RMS tests
UETNRMS00.DAT	VAX-11 RMS test data file
UETNRMS01.EXE	Test program to exercise VAX-11 RMS functions

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Table A-6 (Cont.): Files Contained in Directory [SYSTEST]

File Name	Description
UETNUTLOO.DAT	Native mode utility data file
UETNUTLOO.COM	Native mode utilities command procedure
UETP.COM	Main command procedure for entire UETP
UETPHAS00.EXE	Phase controller test file
UETSSMM00.EXE	Memory management system service test file
UETSUPDEV.DAT	Supported device data file
UETTAPE00.EXE	Tests magnetic tapes on one controller
UETTTY00.EXE	Tests terminals for one controller

Table A-7: Files Contained in Directory [SYSUPD]

File Name	Description
AUTOGEN.COM	Command procedure to determine parameter values
BLISSREQ.TLR	List of files in the BLISS tailoring group
BOOTBLDR.COM	Multiprocessing console floppies command procedure
BOOTUPD.COM	Command procedure to update VMS bootstrap file on console floppy diskette
CONSCOPY.COM	Command procedure that copies console floppy diskette
DECNET.TLR	List of files in the DECnet tailoring group
DEVELOP.TLR	List of files in the DEVELOP tailoring group
DXCOPY.COM	Command procedure that copies files from console floppy diskette and restores files to floppy diskette
EXAMPLES.TLR	List of files in the EXAMPLE tailoring group
FILETOOS	List of files in the TOOLS tailoring group
HELP.TLR	List of files in the HELP tailoring group
LIBRARY.TLR	List of files in the LIBRARY tailoring group
LINEPAGE.COM	Command procedure to change number of lines per page
LINEPAGE.DAT	Datafile used by LINEPAGE.COM
MANAGER.TLR	List of files in the MANAGER tailoring group
MISCTOOLS.TLR	List of files in the MISCTOOLS tailoring group
OBSOLETE.TLR	List of files in the OBSOLETE tailoring group
QUEUES.TLR	List of files in the QUEUES tailoring group
REQUIRED.TLR	List of files in the REQUIRED tailoring group
RSX.TLR	List of files in the RSX tailoring group
SETDEFBOO.COM	Command procedure that sets default boot command file
STABACKIT.COM	Command procedure that builds stand-alone BACKUP to media
SWAPFILES.COM	Command procedure that creates swapping, paging, and system dump files of appropriate size for system being installed
TEXTTOOLS.TLR	List of files in the TEXTTOOLS tailoring group
UETP.TLR	List of files in the UETP tailoring group
VMSINSTAL.COM	Command procedure to install EDTCAI and maintenance updates
VMSKITBLD.COM	Command procedure that builds and copies VMS distribution disk
VMSKITBLD.DAT	List of files in VMS system that drives VMSKITBLD.COM
VMSTAILOR.COM	Tailoring facility command procedure (supported) only on VAX-11/730
VMSUPDATE.COM	System update command procedure

Table A-8: Files Contained in Directory [SYSHLP.EXAMPLES]

File Name	Description
ADDRIVER.MAR	Example device driver for AD11-K
CONNECT.COM	Command procedure that connects device for LABIO system
DRCOPY.PRM	Parameter file for DRCOPY routines
DRCOPYBLD.COM	Command procedure to build DRCOPY.EXE
DRMAST.MAR	VAX-11 RMS interface for DRMASTER.FOR
DRMASTER.FOR	Master subroutines for DRCOPY
DRSLAVE.FOR	Slave subroutines for DRCOPY
DRSLV.MAR	VAX-11 RMS interface for DRSLAVE.FOR
GBLSECUFO.MAR	Opens file that is to be used as a global section for LABIO system
LABCHNDEF.FOR	Defines information associated with each A/D for LABIO system
LABIO.OPT	Linker options file for linking modules to be used in LABIO
LABIOACQ.FOR	Acquires data for LABIO system
LABIOCIN.MAR	Contains connect-to-interrupt call for LABIO system
LABIOCIN.OPT	Linker options file for linking LABIO DATA ACQ
LABIOCOM.FOR	Attaches a LABIO user program to the LABIO system modules of the LABIO system
LABIOCOMP.COM	Command procedure to compile and assemble the modules of the LABIO system
LABIOCON.FOR	Handles user requests and modifies the database for LABIO system
LABIOLINK.COM	Command procedure to link LABIO system
LABIOPEAK.FOR	Samples channel for peak data in LABIO system
LABIOSAMP.FOR	Samples channel in intervals, reporting date, time, and average value on logical device for LABIO system
LABIOSEC.FOR	Places LABIO_SECTION on page boundary
LABIOSTAT.FOR	Displays A/D channel status for LABIO system
LABIOSTRT.COM	Command procedure to start LABIO system
LABMBXDEF.FOR	Defines mailbox block for LABIO system
LBRDEMO.COM	Command procedure to create Librarian DEMO.EXE
LBRDEMO.FOR	Librarian demo (first part)
LBRMAC.MAR	Librarian demo (second part)
LPATEST.FOR	LPAll-K test program
LPMULT.B32	Example program for line printer
PEAK.FOR	Peak selection routine in LABIO system
SCRFT.MAR	Optional screen package (SCR\$.in RTL) extension to handle foreign terminals
TDRIVER.MAR	Template for user-written driver
TESTLABIO.FOR	Tests LABIO system
USSDISP.MAR	Sample user system service dispatch and service examples
USSLINK.COM	Link command procedure for USSDISP
USSTEST.MAR	Sample program to invoke one of the example user services implemented in USSDISP
USSTSTLNK.COM	Link command procedure for USSTEST
XADRIVER.MAR	DR-11 driver
XALINK.MAR	Sample DR11W to DR11W link program
XAMESSAGE.MAR	DR-11 test program
XATEST.COM	Used to set up XALINK.MAR
XATEST.FOR	Companion program for XAMESSAGE
XIDRIVER.MAR	Example driver for parallel port on DMF32

## APPENDIX B

### INSTALLING OPTIONAL SOFTWARE PRODUCTS ON VAX-11/730

The procedure for performing optional software installations is automated, and thus requires little involvement on your part beyond (1) setting up the proper conditions for the installation and (2) responding to queries and prompting messages displayed as the installation proceeds.

The VMSUPDATE.COM procedure drives optional software installations. Once invoked it uses command procedures contained in the distribution media. These command procedures direct the installation procedure by means of queries and instructions sent to the terminal. Most queries require simple Yes or No answers. You respond with Y or N, as appropriate.

#### B.1 DISTRIBUTION KITS

Optional software installations for the VAX-11/730 are distributed on TU58 cartridges (one or more depending on the installation).

Each TU58 is labeled with both a name and a serial number that differentiates it from others in the distribution kit. Check that your kit contains all the cartridges listed in the bill of materials.

#### B.2 PREPARING FOR AN OPTIONAL SOFTWARE INSTALLATION

To prepare for the installation, do the following:

1. Prevent users from gaining access to the system by executing the SHUTDOWN.COM command procedure. Then reboot the system.
2. Set the login quota to 0 by typing:  

```
§ SET LOGINS/INTERACTIVE = 0
```
3. Back up your system disk (see Section 5.1). Optional software products may delete older product versions before installing new ones, so it is advisable to back up your system disk before attempting any software installation. Also, a system failure at a critical point of the installation could leave the system files corrupted and unusable.
4. Log in at the console terminal under the system manager's account. If the SYSGEN parameters MOUNTMSG or DISMOUMSG have been set to 1 at your installation site, you will receive a message from OPCOM each time a disk, tape, or TU58 is mounted

or dismantled. These messages are normally disabled, but if they have been activated and you are installing from a console terminal, they will appear from one to thirty seconds after each mount or dismount.

5. Be sure that you have set your default to the disk that is to receive the update. This is typically the system disk with the logical name SYS\$SYSROOT.

If you are installing optional software on a system disk other than the disk from which you booted, you must define a logical name for the target disk. For example, if you are installing software on an RL02 disk on the first drive, issue the following commands:

```
$ DEFINE TARGET _DQ1:[SYSO.]
$ SET DEFAULT TARGET:[SYSUPD]
```

Note that not all optional software kits allow installation to a device other than the system disk. Consult the documentation that came with the optional software kit.

6. Establish the following defaults:

```
$ SET UIC [1,4]
$ SET DEFAULT [SYSUPD]
```

At this point, you are ready to install.

### B.3 INSTALLING OPTIONAL SOFTWARE PRODUCTS

Type the following command to initiate the installation:

```
$ @VMSUPDATE
```

You will receive the following message text at the terminal:

VMS Update Procedure

This command procedure performs VAX/VMS optional software installations for VAX/VMS Release 3.

Please place the first cartridge in the console drive

After placing the TU58 in the CSA1 drive, you will receive the following query:

Are you ready to continue?:

If you type Y, the installation proceeds.

If you type N, the request to insert the cartridge in the drive and the query "Are you ready to continue?" will be repeated.

Continuation of the update is indicated by the display of the messages:

```
%MOUNT-I-MOUNTED, (label) mounted on _CSA1:
```

These messages are followed by questions and prompts, the content of which depend on the product.



## B.3.1 Installing Optional Software On A Dual RL02

When using this procedure with a dual RL02 system the library disk must be mounted. Before being prompted for the first optional software volume, you will receive the following messages:

```
The library disk must be mounted and writeable.
Check that "WRITE PROTECT" is disabled.
```

```
Enter drive holding the library disk (DDCU:) or "EXIT":
```

Upon entering the drive you will receive the following messages describing tailoring operations:

```
%MOUNT-I-MOUNTED, VAXVMSLB3  mounted on _DQA1
Recording tailored software configuration
23 library files recorded in SYS$SYSROOT:[SYSUPD]SITE.TLR;.
0 revised library files recorded in SYS$SYSROOT:[SYSUPD]SITEREVD.TLR;.
Deleting tailored software configuration.
```

The tailored software will be restored at the end of this procedure. If an error occurs the configuration can be manually restored by issuing this command:

```
$ @SYS$UPDATE:VMSTAILOR COPY SITE
```

The number of library files recorded depends on the number of library files on your customized system disk. There should be no revised library files recorded. If there are, refer to Section B.3.1.1. The rest of the installation proceeds as described in Section B.3 and Section B.4 with the addition of a tailoring message that announces the restoration of the original software configuration.

After the installation, if you do not have enough space left on your system disk to restore the original software configuration, you will receive the message:

```
Only x of the y blocks necessary to restore the original
tailored software configuration are available on _DQA0:. The
saved configuration has been recorded in the group "SITE" and may
be manually restored after sufficient disk space has been freed.
```

Here, x and y are the number of free blocks on the system disk after installation and the total number of blocks in the original software configuration respectively.

In this case, you should free enough space on the system disk to fit the total software configuration, and then restore it with the Tailoring command:

```
Tailor> COPY SITE
```

You may alternately choose to reconfigure a new system disk that fits the available disk space. See Chapter 6 for more information about the tailoring facility.

**B.3.1.1 Handling Revised Files Detected During Installation - Revised files should not be detected during most optional software installations. However, if revised files are found, you will receive the following message and prompt:**

```
*** WARNING -- REVISED FILES *** _____  
<list of revised files>
```

The preceding list of files on your system disk have revision dates different from their copies on the library disk. These files will be deleted from your system disk if you continue this installation. You may chose to copy them to the library disk before deleting them or you may stop this installation by typing EXIT. See your "VAX-11 Software Installation Guide" for more information.

Do you wish to copy [Y]?

This message notifies you of library files on the system disk that have been modified in some way, and now have no backup copy on the library disk.

At this point, you can do one of three things:

1. If you do not wish to keep the modified versions of the library files, type N at the prompt. The modified versions will be deleted. Upon completion of installation the unmodified library versions will be copied to the system disk.
2. If you wish to keep the modified versions of the library files, type Y or press RETURN. The modified versions will be copied to the library disk. Upon completion of installation the modified versions will be copied back to the system disk. The files will be purged after copying them to the library disk, so the original, unmodified versions of these files will be deleted if you choose this action.
3. If you do not know how or why these files were modified, you should type EXIT, determine whether or not you wish to keep the modified copies, and reexecute the VMSUPDATE procedure.

#### B.4 COMPLETING INSTALLATION

When the installation is completed, control is returned to the command procedure VMSUPDATE.COM, which sends the following messages to the terminal:

Are there more kits to process?:

If you type Y, you will receive the following request, and the installation procedure begins again.

Please place the first cartridge in the console drive.

If you have no further installations, type N. You then receive the following message and DCL prompt:

```
Requested update sequence complete.  
$
```

The procedure is now complete.

To transfer control of the system to the updated version of VAX/VMS, halt the processor and reboot the system.

Finally, after installing an optional software product, you should back up the system disk.



## APPENDIX C

### STAND-ALONE BACKUP QUALIFIERS

This appendix lists the Backup Utility qualifiers that work with stand-alone BACKUP. Note that BACKUP input file selection qualifiers and BACKUP output file qualifiers do not work with stand-alone BACKUP.

BACKUP operations are only valid if you use the /IMAGE or /PHYSICAL command qualifiers. The default for stand-alone BACKUP commands is /IMAGE. Refer to the VAX-11 Utilities Reference Manual for detailed descriptions of the Backup Utility.

#### BACKUP Command Qualifiers

##### Qualifiers Defaults

/BRIEF	/BRIEF
/COMPARE	
/FULL	/BRIEF
/IMAGE	/IMAGE
/[NO]INITIALIZE	/INITIALIZE
/LIST[=file-spec]	
/PHYSICAL	/IMAGE
/RECORD	
/[NO]TRUNCATE	/NOTRUNCATE
/VERIFY	
/VOLUME	

#### BACKUP Input Save-set Qualifiers

##### Qualifiers Defaults

/[NO]CRC	/CRC
/[NO]REWIND	/REWIND
/SAVE_SET	

# STAND-ALONE BACKUP QUALIFIERS

## BACKUP Output Save-set Qualifiers

### Qualifiers Defaults

```
/BLOCK SIZE=n  
/COMMENT=string  
/[NO]CRC           /CRC  
/DENSITY=n  
/GROUP_SIZE=n     /GROUP_SIZE=10  
/LABEL=string  
/[NO]REWIND       /REWIND  
/OWNER UIC  
/PROTECTION  
/SAVE_SET
```

## APPENDIX D

### THE DCL COMMAND/ACTIVATED IMAGE TABLE

Each DCL command activates a related VAX/VMS image. In a dual RL02 environment, you may invoke a DCL image that is not presently tailored into your system environment. If this happens, you will receive one of the following error messages:

- %DCL-W-ACTIMAGE, error activating image <name>  
-CLI-E-IMAGEFNF, image file not found <image name>
- %RSX-E-OPEN, error opening <file\_specification> as input  
-RMS-E-FNF, file not found

This appendix lists each DCL command, the image it activates, and the file group in which the image is present.

The list also shows how command qualifiers may change the image call. For example, the DCL command LIBRARY normally calls the image LIBRARIAN. However, if you use the /RSX qualifier with the LIBRARY command, the image LBR is called.

Note that the following files are used to execute many DCL commands, but are not listed here because they are in the REQUIRED file group which is always accessible to your system.

- BACKTRANS.EXE
- LBRSHR.EXE
- SCRSHR.EXE
- VMSRTL.EXE

#### NOTE

This cross-reference of DCL commands and invoked images is specific to Version 3.2 of the VAX/VMS operating system and is provided only as a guide for tailoring your system disk. You should avoid writing programs or procedures that depend on this cross-reference, because the relationship between some commands and images changes from release to release.

THE DCL COMMAND/ACTIVATED IMAGE TABLE

Table D-1: DCL Command/Activated Image

DCL Command	Activated Image(s)	File Group
ACCOUNTING	ACC	MANAGER
ALLOCATE	DCL	REQUIRED
ANALYZE	ANALYZOBJ	FILETOOLS
/CRASH_DUMP	SDA <sup>1</sup>	MISCTOOLS
/DISK_STRUCTURE	VERIFY	MANAGER
/IMAGE	ANALYZOBJ	FILETOOLS
/RMS_FILE	ANALYZRMS	FILETOOLS
/SYSTEM	SDA <sup>1</sup>	MISCTOOLS
APPEND	COPY	REQUIRED
ASSIGN	DCL	REQUIRED
/MERGE	QUEMAN	QUEUES
/QUEUE	QUEMAN	QUEUES
ATTACH	DCL	REQUIRED
BACKUP	BACKUP	REQUIRED
CANCEL	CANCEL	MISCTOOLS
CONVERT	CONVERT, CONVSHR	FILETOOLS
/RECLAIM	RECLAIM, CONVSHR	FILETOOLS
CLOSE	DCL	REQUIRED
CONTINUE	DCL	REQUIRED
COPY	COPY	REQUIRED
CREATE	CREATE	REQUIRED
/FDL	CREATEFDL, CONVSHR	FILETOOLS
DEALLOCATE	DCL	REQUIRED
DEASSIGN	DCL	REQUIRED
/QUEUE	QUEMAN	QUEUES
DEBUG	DCL, DEBUG	DEVELOP
DEFINE	DCL	REQUIRED
DELETE	DELETE	REQUIRED
/ENTRY	QUEMAN	QUEUES
/QUEUE	QUEMAN	QUEUES
/SYMBOL	DCL	REQUIRED
DIFFERENCES	DIFF	TEXTTOOLS
DIRECTORY	DIRECTORY	REQUIRED
DISMOUNT	DISMOUNT, DISMNTSHR	REQUIRED
DUMP	DUMP	FILETOOLS
EDIT	EDT	TEXTTOOLS
/SLP	SLP	TEXTTOOLS
/SOS	SOS	TEXTTOOLS
/SUM	SUMSLP, SUMSHR	TEXTTOOLS
/FDL	EDF, FDLSHR	FILETOOLS
HELP	HELP <sup>2</sup>	REQUIRED
INITIALIZE	INIT	MANAGER
/BATCH	QUEMAN	QUEUES
/BURST	QUEMAN	QUEUES
/FLAG	QUEMAN	QUEUES
/GENERIC	QUEMAN	QUEUES
/JOB_LIMIT	QUEMAN	QUEUES
/QUEUE	QUEMAN	QUEUES
/PRIORITY	QUEMAN	QUEUES

1. To run this image you also need the SYS.STB file (LIBRARY file group).

2. To run this image you also need the HELPLIB.LIB file (HELP file group).

(continued on next page)



Table D-1 (Cont.): DCL Command/Activated Image

DCL Command	Activated Image(s)	File Group
/QUEUE	QUEMAN	QUEUES
/DISABLE SWAPPING	QUEMAN	QUEUES
/CHARACTERISTICS	QUEMAN	QUEUES
/TERMINAL	QUEMAN	QUEUES
/WSQUOTA	QUEMAN	QUEUES
/WSDEFAULT	QUEMAN	QUEUES
/CPUMAXIMUM	QUEMAN	QUEUES
/CPUDEFAULT	QUEMAN	QUEUES
/PROCESS	QUEMAN	QUEUES
/WSEXTENT	QUEMAN	QUEUES
LIBRARY	LIBRARIAN	DEVELOP
/RSX11	LBR	RSX <sup>2</sup>
LINK	LINK <sup>1</sup>	CRFSHR
/RSX11	TKB	RSX <sup>2</sup>
/CONCATENATED	TKB	RSX <sup>2</sup>
/EXIT	TKB	RSX <sup>2</sup>
/OVERLAY	TKB	RSX <sup>2</sup>
/POSITION	TKB	RSX <sup>2</sup>
/SEQUENTIAL	TKB	RSX <sup>2</sup>
/TKB OPTIONS	TKB	RSX <sup>2</sup>
/POST MORTEM	TKB	RSX <sup>2</sup>
LOGOUT	DCL	REQUIRED
MACRO	MACRO32 <sup>3</sup> ,SUMSHR	DEVELOP
/RSX11	MAC	RSX <sup>2</sup>
MAIL	MAIL	MISCTOOLS
MERGE	MERGE	MISCTOOLS
MESSAGE	MESSAGE	MISCTOOLS
MONITOR	MONITOR	MISCTOOLS
MOUNT	VMOUNT, MOUNTSHR	REQUIRED
OPEN	DCL	REQUIRED
PATCH	PATCH	MISCTOOLS
PHONE	PHONE	MISCTOOLS
PRINT	SUBMIT	QUEUES
PURGE	DELETE	REQUIRED
READ	DCL	REQUIRED
RENAME	RENAME	REQUIRED
REPLY	REPLY	REQUIRED
REQUEST	REQUEST	REQUIRED
RUN	DCL	REQUIRED
/ACCOUNTING	RUNDET	REQUIRED
/BUFFER LIMIT	RUNDET	REQUIRED
/DELAY	RUNDET	REQUIRED
/ERROR	RUNDET	REQUIRED
/FILE LIMIT	RUNDET	REQUIRED
/INPUT	RUNDET	REQUIRED

1. To run this image you also need the STARLET.OLB and IMAGELIB.OLB files (LIBRARY file group).

2. The RSX file group is distributed on the optional distribution disk.

3. To run this image you also need the STARLET.MLB file (LIBRARY file group).

(continued on next page)

THE DCL COMMAND/ACTIVATED IMAGE TABLE

Table D-1 (Cont.): DCL Command/Activated Image

DCL Command	Activated Image(s)	File Group
/INTERVAL	RUNDET	REQUIRED
/OUTPUT	RUNDET	REQUIRED
/PAGE_FILE	RUNDET	REQUIRED
/PRIORITY	RUNDET	REQUIRED
/PRIVILEGES	RUNDET	REQUIRED
/PROCESS	RUNDET	REQUIRED
/QUEUE_LIMIT	RUNDET	REQUIRED
/RESOURCE_WAIT	RUNDET	REQUIRED
/SCHEDULE	RUNDET	REQUIRED
/SERVICE_FAILURE	RUNDET	REQUIRED
/SUBPROCESS_LIMIT	RUNDET	REQUIRED
/SWAPPING	RUNDET	REQUIRED
/TIME_LIMIT	RUNDET	REQUIRED
/UIC	RUNDET	REQUIRED
RUNOFF	RUNOFF	TEXTTOOLS
SEARCH	SEARCH	TEXTTOOLS
SET	SET	REQUIRED
	DEFAULT	DCL
	HOST	RTPAD
	MESSAGE	SETPO
	ON	DCL
	DEF_PROT	DCL
	UIC	DCL
	VERIFY	DCL
	COMMAND	CLEDITOR
SHOW	SHOW	REQUIRED
	DAYTIME	DCL
	DEFAULT	DCL
	PROTECTION	DCL
	SYMBOL	DCL
	TRANSLATION	DCL
	STATUS	DCL
	QUOTA	DCL
SORT	SORT32	MISCTOOLS
/RSX11	SRT	RSX <sup>1</sup>
/BLOCK_SIZE	SRT	RSX <sup>1</sup>
/DEVICE	SRT	RSX <sup>1</sup>
SPAWN	DCL	REQUIRED
START	QUEMAN	QUEUES
/QUEUE	QUEMAN	QUEUES
STOP	DCL	REQUIRED
/QUEUE	QUEMAN	QUEUES
SYNCHRONIZE	QUEMAN	QUEUES
TYPE	TYPE	REQUIRED
UNLOCK	UNLOCK	FILETOOLS
WRITE	DCL	REQUIRED

1. The RSX file group is distributed on the optional distribution disk.

## APPENDIX E

### TAILORING FACILITY ERROR MESSAGES

This appendix lists the error messages issued by the Tailoring Facility. Each message consists of an abbreviation followed by a text message.

AMBIGWRD, 'word' is an ambiguous word

**Explanation:** The indicated command or qualifier is ambiguous.

**User Action:** Reissue the command specifying a long enough spelling to resolve the ambiguity.

AMBIGRP, 'group-name' is an ambiguous group name

**Explanation:** The group-name as entered has too few characters to make it unique.

**User Action:** Reenter the command with a unique group name.

BADCOMMA, invalid comma in command

**Explanation:** A comma has been detected preceding the first parameter in a command.

**User Action:** Correct the command and reissue.

CTRLY, function aborted by CTRL/Y

**Explanation:** The function in progress has been interrupted by pressing the CTRL and Y keys simultaneously.

**User Action:** None.

DEVICEREQ, device must be specified

**Explanation:** A device name must be specified with this command.

**User Action:** Reenter the command specifying a device name.

DISMOUNT, device dismounted

**Explanation:** Indicates that the library disk has been dismounted.

**User Action:** None.

## TAILORING FACILITY ERROR MESSAGES

EXPNOTFND, expected file 'filename' not found

**Explanation:** A file with the specified name could not be found during an open operation.

**User Action:** Examine the referenced directory to check for the existence of the named file. Check the spelling of the file specification.

FILENAMEREQ, a filename must be specified

**Explanation:** A file name must be specified with this command.

**User Action:** Reissue the command, specifying a file name.

GROUPREQ, a group must be specified

**Explanation:** A group name must be specified with this command.

**User Action:** Reissue the command, specifying a group name.

HELPGROUPS, type DIR/ GROUPS for a list of tailoring groups

**Explanation:** This is an informational message issued when an invalid group name is used.

**User Action:** Use the DIRECTORY /GROUPS command to obtain a list of valid group names.

HELPVERB, type HELP 'command'

**Explanation:** This is an information message issued when a command is improperly used.

**User Action:** Use the HELP command to obtain more information.

HLPMOUNTWRT, type HELP MOUNT/WRITE

**Explanation:** Issued following a write-lock error.

**User Action:** Use the indicated HELP command to obtain more information about mounting disks writeable.

LIBNOTMOUNT, the LIBRARY disk must be mounted

**Explanation:** A command has been issued that requires the library disk.

**User Action:** Mount the library disk and reissue the command.

LIBPROTECT, the LIBRARY disk must be writeable

**Explanation:** Issued when a write-lock error occurs on the library disk as the result of a command directing the tailoring facility to write to the library disk.

**User Action:** Check that write protect is disabled, mount the library disk writeable, and reissue the command.

NOBACKUP, no backup copy on device 'device'

**Explanation:** A request to delete a file has been ignored because the file has no backup copy on the library disk (or on the system disk if the /LIBRARY qualifier has been specified).

**User Action:** Check that the file exists on the backup disk, and that it has been properly spelled.

NOHELP, help not available

**Explanation:** Either the Help utility or the Tailoring help library could not be located on the system disk nor, if mounted, on the library disk.

**User Action:** Mount the library disk and reissue the command. If the library disk is already mounted, then this error indicates that files have been improperly deleted from one or both disks.

NONZEROREF, open files on device, not dismounted

**Explanation:** Indicates that the library disk cannot be dismounted because of open channels to the device.

**User Action:** Investigate the list of files displayed using the process ID field to determine what users or batch jobs have files open. Close the files and reissue the dismount command.

NOQUAL, no qualifiers allowed on the 'command' command

**Explanation:** No qualifiers are allowed on the indicated command.

**User Action:** Check the typing of the command. Type HELP to obtain more information about the syntax of the command.

NOSEARCH, SEARCH not available

**Explanation:** The SEARCH.EXE file could not be located on the system disk nor, if mounted, on the library disk.

**User Action:** Mount the library disk and reissue the command. If the library disk is already mounted, this error indicates that files have been improperly deleted from one or both disks.

NOSUCHDEV, no such device as 'device'

**Explanation:** The specified device does not exist.

**User Action:** Check the spelling of the device name. Use the DCL command SHOW DEVICES to obtain a list of legal devices.

NOSUCHDIR, expected directory 'directory' not found

**Explanation:** The specified directory was not found.

**User Action:** Check the spelling of the file specification used in the command. If correct, use the DCL command DIRECTORY to check if the directory exists.

## TAILORING FACILITY ERROR MESSAGES

NOSUCHFILE, no files matching the specification 'file-name' were found

**Explanation:** No files could be located that matched the indicated file specification.

**User Action:** Check the spelling of the file name. Use the DCL DIRECTORY command to look for the indicated files.

NOSUCHGROUP, group file 'group-name' not found

**Explanation:** The specified group could not be found.

**User Action:** Check the spelling of the group name. Use the DIRECTORY /GROUP command to obtain a list of groups.

NOTDELETED, 'file-name' not deleted

**Explanation:** The indicated file name was not deleted. This is an informational message that accompanies an error message explaining the reason for the delete failure.

**User Action:** Investigate the associated error message.

NOWILDCARDS, wildcards not allowed in group names

**Explanation:** Wildcards (\* and %) are not allowed in the specification of group names.

**User Action:** Reissue the command with an explicit group name.

NOWRITE, device is not write enabled

**Explanation:** An attempt to mount the library disk /WRITE has failed.

**User Action:** Check that the disk is not write protected. Retry the command.

OPENIN, error opening 'file-name' as input

**Explanation:** The indicated input file could not be opened.

**User Action:** Check that the file exists and that you have read access to it.

OPENOUT, error opening 'file-name' as output

**Explanation:** The indicated output file could not be opened.

**User Action:** Check that the directory exists and that you have write-access to it.

REISSUE, correct the situation and reissue the command

**Explanation:** This informational message is issued in conjunction with other error messages.

**User Action:** Address the problem described by the associated error message and reissue the command.

## TAILORING FACILITY ERROR MESSAGES

REQNOTALLOWED, the REQUIRED file group cannot be deleted

**Explanation:** An attempt was made to delete the REQUIRED file group.

**User Action:** The REQUIRED file group is needed to boot the system and cannot be deleted.

TOOMANYPARM, too many parameters

**Explanation:** More than the maximum number of parameters have been given on a command line.

**User Action:** Check the spelling of the command. If correct, then break the command into several simpler commands having fewer parameters.

UNRECCMC, 'command' is an unrecognized command

**Explanation:** The indicated command is not a valid command.

**User Action:** Use the HELP command to obtain a list of valid commands.

USEHELP, type HELP for more information

**Explanation:** This informational message is issued in association with various error messages.

**User Action:** Use the HELP command to obtain more information about the command you are using. For example, if an error occurs on a COPY command, then type HELP COPY.

UNRECQUAL, 'qualifier' not valid for this command

**Explanation:** The specified qualifier is not valid for the command issued.

**User Action:** Check the spelling of the qualifier and the command. Use the HELP command to obtain the proper spellings. Note that the Tailoring facility checks the entire spelling of keywords, unlike DCL, which checks only the first four characters.

USEEXIT, type EXIT to exit

**Explanation:** Issued when an invalid attempt to terminate tailoring is made.

**User Action:** Use the EXIT command to exit.





## APPENDIX F

### RL02 OPTIONAL DISTRIBUTION DISK FILES

The following is a list of the VAX/VMS operating system files installed from the optional distribution disk. These files are listed in tailoring file groups for the convenience of dual-RL02 users. See Appendix 1 for descriptions of each file.

#### BLISSREQ file group

[SYSLIB]CLIMAC.REQ  
[SYSLIB]LIB.REQ  
[SYSLIB]STARLET.REQ  
[SYSLIB]TPAMAC.REQ

#### EXAMPLES file group

[SYSEXE]SYS.MAP  
[SYSHLP.EXAMPLES]ADDRIVER.MAR  
[SYSHLP.EXAMPLES]CONNECT.COM  
[SYSHLP.EXAMPLES]DRCOPY.PRM  
[SYSHLP.EXAMPLES]DRCOPYBLD.COM  
[SYSHLP.EXAMPLES]DRMAST.MAR  
[SYSHLP.EXAMPLES]DRMASTER.FOR  
[SYSHLP.EXAMPLES]DRSLAVE.FOR  
[SYSHLP.EXAMPLES]DRSLV.MAR  
[SYSHLP.EXAMPLES]GBLSECUFO.MAR  
[SYSHLP.EXAMPLES]LABCHNDEF.FOR  
[SYSHLP.EXAMPLES]LABIO.OPT  
[SYSHLP.EXAMPLES]LABIOACQ.FOR  
[SYSHLP.EXAMPLES]LABIOCIN.MAR  
[SYSHLP.EXAMPLES]LABIOCIN.OPT  
[SYSHLP.EXAMPLES]LABIOCOM.FOR  
[SYSHLP.EXAMPLES]LABIOCOMP.COM  
[SYSHLP.EXAMPLES]LABIOCON.FOR  
[SYSHLP.EXAMPLES]LABIOLINK.COM  
[SYSHLP.EXAMPLES]LABIOPEAK.FOR  
[SYSHLP.EXAMPLES]LABIOSAMP.FOR  
[SYSHLP.EXAMPLES]LABIOSEC.FOR  
[SYSHLP.EXAMPLES]LABIOSTAT.FOR  
[SYSHLP.EXAMPLES]LABIOSTRT.COM  
[SYSHLP.EXAMPLES]LABMBXDEF.FOR  
[SYSHLP.EXAMPLES]LBRDEMO.COM  
[SYSHLP.EXAMPLES]LBRDEMO.FOR  
[SYSHLP.EXAMPLES]LBRMAC.MAR  
[SYSHLP.EXAMPLES]LPATEST.FOR  
[SYSHLP.EXAMPLES]LPMULT.B32  
[SYSHLP.EXAMPLES]PEAK.FOR  
[SYSHLP.EXAMPLES]SCRFT.MAR  
[SYSHLP.EXAMPLES]TDRIVER.MAR  
[SYSHLP.EXAMPLES]TESTLABIO.FOR  
[SYSHLP.EXAMPLES]USSDISP.MAR

RL02 OPTIONAL DISTRIBUTION DISK FILES

[SYSHLP.EXAMPLES]USSLNK.COM  
[SYSHLP.EXAMPLES]USSTEST.MAR  
[SYSHLP.EXAMPLES]USSTSTLNK.COM  
[SYSHLP.EXAMPLES]XADRIVER.MAR  
[SYSHLP.EXAMPLES]XALINK.MAR  
[SYSHLP.EXAMPLES]XAMESSAGE.MAR  
[SYSHLP.EXAMPLES]XATEST.COM  
[SYSHLP.EXAMPLES]XATEST.FOR  
[SYSHLP.EXAMPLES]XIDRIVER.MAR

OBSOLETE file group

[SYSEXE]CNVACC.EXE  
[SYSEXE]DMP.EXE  
[SYSEXE]DSC1.EXE  
[SYSEXE]DSC2.EXE

RSX group

[SYSEXE]BCK.EXE  
[SYSEXE]CNV.EXE  
[SYSEXE]CRF.EXE  
[SYSEXE]DEF.EXE  
[SYSEXE]DFN.EXE  
[SYSEXE]DSP.EXE  
[SYSEXE]EDI.EXE  
[SYSEXE]IFL.EXE  
[SYSEXE]LBR.EXE  
[SYSEXE]MAC.EXE  
[SYSEXE]PAT.EXE  
[SYSEXE]RST.EXE  
[SYSEXE]SRT.EXE  
[SYSEXE]TKB.EXE  
[SYSEXE]UFD.EXE  
[SYSEXE]ZAP.EXE  
[SYSLIB]ODT.OBJ  
[SYSLIB]RMS11.ODL  
[SYSLIB]RMS11S.ODL  
[SYSLIB]RMS11X.ODL  
[SYSLIB]RMS12X.ODL  
[SYSLIB]RMSLIB.OLB  
[SYSLIB]RMSMAC.MLB  
[SYSLIB]RSXMAC.SML  
[SYSLIB]SYSLIB.OLB  
[SYSUPD]LINEPAGE.COM  
[SYSUPD]LINEPAGE.DAT

## APPENDIX G

### VMSINSTAL ERROR MESSAGES

This appendix lists the error messages issued by the VMSINSTAL command procedure. Each message consists of an abbreviation followed by a text message.

**ACCOUNT**, This installation creates an account named 'name'.

**Explanation:** The product being installed has created (or updated) an account with the specified name. The User Authorization File (UAF) has been updated accordingly.

**ACTIVE**, The following processes are still active:

**Explanation:** VMSINSTAL checks to ensure that no user processes are active when an installation is begun. This check has failed, and VMSINSTAL lists those processes that are still active.

**User Action:** You will be asked if you want to continue the installation. It is recommended that you remedy this situation before continuing.

**AUTOSYNC**, Auto-answer file is not synchronized to the current question

**Explanation:** You have specified the Auto-answer option, and VMSINSTAL is using the answers from an existing answer file. The question being asked by the installation procedure does not coincide with the next question and answer in the answer file.

**User Action:** The installation procedure must have changed. Delete the existing answer file and begin the installation again.

**BADCONDEV**, Please specify an existing console device.

**Explanation:** You have specified a console device on which the console is to be mounted, but the device specified is not a console device.

**User Action:** Specify an existing console device.

**BADDISDEV**, Please specify a disk or tape device.

**Explanation:** You have specified a device on which the distribution volumes are to be mounted, but the device is neither a disk nor a tape.

**User Action:** Specify a disk or tape device.

## VMSINSTAL ERROR MESSAGES

BADDISDIR, Directory 'directory' does not exist.

**Explanation:** You are trying to restore the distribution kit from a non-existent directory.

**User Action:** Specify the correct directory when you invoke VMSINSTAL.

BADGETDEV, Device 'device' must be mounted and ready

**Explanation:** Using the GET option, you are trying to to copy the product saveset from a device that is not mounted and ready.

**User Action:** Mount and ready the device before you invoke VMSINSTAL.

BADGETDIR, Directory 'directory' does not exist.

**Explanation:** You are trying to copy the specified product saveset to a non-existent directory.

**User Action:** Specify the proper directory when you invoke VMSINSTAL.

BADLIBDEV, Please specify an explicit disk drive.

**Explanation:** For Dual RL02 installations, you have specified a device on which the library disk is to be mounted, but the device is not a disk.

**User Action:** Specify a disk device.

BADSPEC, File specification 'specification' cannot be parsed using default specification 'specification'

**Explanation:** VMSINSTAL cannot locate file because of invalid specification.

**User Action:** If you can determine the problem and resolve it, then simply install the product again. Otherwise, contact your local DIGITAL support representative.

CTRL/Y, Installation cancelled via CTRL/Y.

**Explanation:** You have cancelled the installation by entering a CTRL/Y.

**User Action:** None, this message is informational.

DECNET, Your DECnet network is up and running.

**Explanation:** VMSINSTAL checks to ensure that your DECnet network has been shut down when an installation is begun. This check has failed.

**User Action:** You will be asked if you want to continue the installation. It is recommended that you remedy this situation before continuing.

INTEGER, Please enter an integer value.

**Explanation:** VMSINSTAL asked a question which must be answered with an integer number.

**User Action:** Answer the question again, specifying an integer.

INVOPTIONS, To specify options, parameter 3 must be the word OPTIONS.

**Explanation:** If you are specifying VMSINSTAL options, the third parameter to VMSINSTAL must be the word OPTIONS.

**User Action:** Invoke VMSINSTAL again, specifying the options in the correct format.

IVPFAIL, The IVP for 'product' has failed.

**Explanation:** VMSINSTAL has invoked the Installation Verification Procedure (IVP) for the specified product, and the IVP has failed.

**User Action:** If you can determine the problem and resolve it, then simply install the product again. Otherwise, contact your local DIGITAL support representative.

LIBDIFF, The following system and library disk files do not match.  
LIBDIFF2, You must resolve these differences before you continue.

**Explanation:** The following system and library disk files do not match. You must resolve these differences before continuing. For dual-RL02 systems, VMSINSTAL temporarily removes all nonessential system files from the system disk. Before doing this, however, it checks to ensure that the copies of these files on the system disk match those on the library disk. This check has failed, and the offending files are listed.

**User Action:** You must resolve the differences before reinvoking VMSINSTAL.

LOWQUOTA, One or more account quotas may be too low.

**Explanation:** VMSINSTAL checks to ensure that your process quotas are valid when an installation is begun. This check has failed.

**User Action:** You will be asked if you want to continue the installation. It is recommended that you remedy this situation before continuing. See Section 4.2 in this guide.

MOVEFILES, Files will now be moved to their target directories.

**Explanation:** If sufficient disk space is available at the beginning of an installation, VMSINSTAL builds new files in a working directory for the optional product or update. After all the files are built, they are moved to their target directories.

**User Action:** None, this message is informational.

## VMSINSTAL ERROR MESSAGES

NEXTVOL, The next volume will be mounted to try again.

**Explanation:** VMSINSTAL is attempting to restore a product save set with the Backup utility. The required save set was not located on the currently mounted distribution volume, so VMSINSTAL will examine the next volume.

**User Action:** This message will be preceded by various serious BACKUP messages, which can be ignored. You will be asked to mount the next distribution volume.

NOCONSOLE, Unknown CPU type number. Console volume cannot be remounted.

**Explanation:** While attempting to remount the console volume, VMSINSTAL could not determine what type of CPU you have.

**User Action:** Contact your local DIGITAL support representative.

NOFILE, [new] file 'file' does not exist.

**Explanation:** VMSINSTAL is attempting to locate an existing (or perhaps new) file with the given name, but the file cannot be found.

**User Action:** If you can determine the problem and resolve it, then simply install the product again. Otherwise, contact your local DIGITAL support representative.

NOLIBDISK, Library disk could not be mounted.

**Explanation:** You were asked to mount the library disk so that an installation could be performed on a Dual RL02 system. For some reason, the library disk could not be mounted.

**User Action:** Correct the situation that prevented mounting the library disk and begin the installation again.

NOPRINT, File 'file' cannot be printed.

**Explanation:** The product installation required the printing of one or more files, but the files could not be queued for printing.

**User Action:** This error is most likely caused by the fact that a SYS\$PRINT queue is not defined at your site. If you do not care that the files could not be printed, then you can ignore this message. Otherwise, define a SYS\$PRINT queue and perform the installation again.

NOPROC, The kit installation procedure is missing.

**Explanation:** The main installation procedure for the product could not be located on the distribution volumes.

**User Action:** Contact your local DIGITAL support representative.

NOPRODS, None of the specified products were found.

**Explanation:** You have specified one or more products to be installed from the distribution volumes, but none of the products exist on the volumes.

**User Action:** Specify products which exist on the volumes.

NOREINSTALL, Image 'image' could not be reinstalled.

**Explanation:** VMSINSTAL was attempting to use the INSTALL utility to make an image known to the system. The INSTALL utility failed.

**User Action:** This message should be preceded by a message from the INSTALL utility explaining the problem. Correct the problem and begin the installation again.

NOSAVESET, Required saveset 'letter' does not exist.

**Explanation:** The product save set with the specified letter, which is required for the installation, does not exist on the distribution volumes.

**User Action:** Contact your local DIGITAL support representative.

NOSETPRV, You are not running on an account with SETPRV privilege.

**Explanation:** VMSINSTAL checks to ensure that your account has SETPRV privilege when an installation is begun. This check has failed.

**User Action:** You will be asked if you want to continue the installation. It is recommended that you remedy this situation before continuing.

NOSPACE, There are not enough blocks to restore the system disk.

**Explanation:** After installation on a dual RL02 system, VMSINSTAL attempts to restore your system disk to its original tailoring configuration. However, there are not enough free blocks left on the system disk.

**User Action:** VMSINSTAL tells you how many additional free blocks are required. You must make more space on the system disk by purging and/or deleting files. Once this is accomplished, you can restore the original tailoring configuration, as described in Section 4.5.

NOTSYSTEM, You are not logged in to the SYSTEM account.

**Explanation:** VMSINSTAL checks to ensure that you are logged in to the SYSTEM account when an installation is begun. This check has failed.

**User Action:** You will be asked if you want to continue the installation. It is recommended that you remedy this situation before continuing.

## VMSINSTAL ERROR MESSAGES

PEAKUTIL, This product requires 'number' blocks during installation.

**Explanation:** The installation procedure for the product has determined that there are not enough free blocks on the system disk to install the product.

**User Action:** Make more space on the system disk by purging and/or deleting files, and then install the product again.

PRODSKIP, Products that have not been installed will be skipped.

**Explanation:** You have requested that multiple products be installed, but one of these products requires that the system be rebooted after its installation. In order to accomplish this, the remaining uninstalled products must be skipped.

**User Action:** Reinstall the remaining products after the system is rebooted.

REBOOT, This product requires that the system be rebooted.

**Explanation:** The product that was just installed requires that the system be rebooted to complete the installation.

**User Action:** Reboot the system after shutdown completes.

RECORDANS, Auto-answer file will be recorded.

**Explanation:** The Auto-answer options was specified when VMSINSTAL was invoked. No answer file exists for the product about to be installed, so one will be recorded.

**User Action:** Answer the prompts and questions as usual. Your answers will be recorded.

RECOVER, 'product' was being installed when the system crash ed.

**Explanation:** The specified product was being installed when the system crashed due to a power failure or other problem.

**User Action:** You will receive additional instructions on how to proceed.

RESTORE, Restoring product saveset 'letter'...

**Explanation:** The specified product save set is about to be restored from the distribution volumes by the Backup utility.

**User Action:** This message is purely informational.

RETAILOR, Your original tailoring environment will now be restored.

**Explanation:** The tailoring files that were removed from your system disk for installation, will be copied back to the system disk.

**User Action:** None, this message is informational.



REWIND, The tape will be rewound to try again.

**Explanation:** VMSINSTAL is attempting to restore a product save set with the Backup utility. The required save set was not located on the currently mounted distribution tape, but VMSINSTAL will rewind the tape in case the savesets were not recorded in order.

**User Action:** This message will be preceded by various serious BACKUP messages, which can be ignored.

SMALLDISK, This is a small disk system.

**Explanation:** VMSINSTAL has determined that you are running a dual RL02 system. It will temporarily remove all nonessential files from the system disk in order to make room for the installation.

**User Action:** You will receive additional instructions as to how to proceed.

FAIL, STEP9FAIL

**Explanation:** The installation of the product has failed due to some unrecoverable error.

**User Action:** Additional messages should precede this one. These messages will explain the problem in greater detail. If you can remedy the situation, then simply install the product again. Otherwise, contact your local DIGITAL support representative.

SYSDIR, This product creates system directory 'directory'.

**Explanation:** The product being installed creates the specified system directory.

**User Action:** This message is purely informational.

SYSDISK, This product creates system disk directory 'directory'.

**Explanation:** The product being installed creates a directory on the system disk.

**User Action:** This message is purely informational.

TAMPER, File 'file' has been tampered with.

**Explanation:** VMSINSTAL is attempting to update a system text file, but the file has been modified locally. The update cannot be performed.

**User Action:** If you modify system text files, then they cannot be updated by DIGITAL software installations.

## VMSINSTAL ERROR MESSAGES

UNEXPECTED, Installation terminated due to unexpected event.

**Explanation:** Some unexpected event has caused the immediate termination of VMSINSTAL. This message should be preceded by other messages that explain the problem in greater detail.

**User Action:** If you can determine the problem and resolve it, then simply install the product again. Otherwise, contact your local DIGITAL support representative.

UPDATED, File 'file' is already updated.

**Explanation:** VMSINSTAL is attempting to update a system text file, but the file has already been updated successfully.

**User Action:** This message is purely informational.

USEANS, Auto-answer file will be used.

**Explanation:** The Auto-answer options was specified when VMSINSTAL was invoked. An answer file exists for the product about to be installed, so the recorded answers will be used.

**User Action:** You will not have to answer prompts and questions displayed by the product. If you want to record new answers, then you must delete the answer file and install the product with the Auto-answer option.

VMIORIG, VMIORIG.TLR still exists; please see your documentation.

**Explanation:** When performing an installation on a Dual RL02 system, VMSINSTAL records the current tailoring configuration and then removes it from the system disk temporarily. The configuration is recorded in the file SYS\$UPDATE:VMIORIG.TLR. After installation, VMSINSTAL restores the configuration and deletes VMIORIG.TLR. If, however, the system crashes during the installation, then you must restore the configuration and delete the file, manually. See Section 4.5.

**User Action:** Because VMIORIG.TLR still exists, VMSINSTAL assumes that you have not restored your tailoring configuration. You must do so, and then delete VMIORIG.TLR.

YESNO, Please enter YES or NO.

**Explanation:** VMSINSTAL asked a question which must be answered with YES or NO.

**User Action:** Answer the question again, specifying YES or NO. You may abbreviate these as Y or N.

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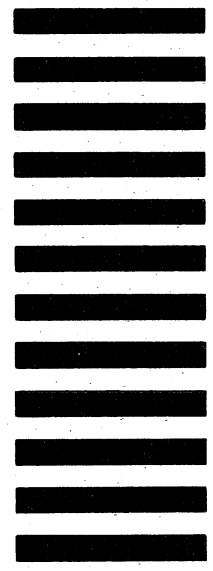
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