



OpenVMS Systems Operations Guide:
VAX 8530, 8550, 8810, 8820-N Systems

EK-V8588-OG. A01

February, 1993

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About This Guide

This document is a quick reference guide of basic systems operations for VAX 8500 and VAX 8800 systems. It summarizes such system tasks as booting and console operation as they relate to VAX 8500 and VAX 8800 systems.

Intended Audience

This guide is designed primarily for the following:

- System software support personnel
- Digital Services personnel
- System managers
- Instructors and participants in certain OpenVMS operating system courses:
 - Systems Troubleshooting
 - System and Network Management I, II, and III

Document Scope

This guide describes various aspects of VAX 8500 and VAX 8800 systems operations including:

- Console subsystem overview
- Operators control panel
- Console command language
- System power-up and power-down procedures
- System boot and backup procedures

1

Console Subsystem Overview

1.1 Introduction

The console subsystem provides the means to control and monitor systems operations and to examine and deposit data in memory or processor registers. The console subsystem consists of the following:

- PDP-11 microcomputer
- Console terminal and optional printer
- Console fixed disk drive
- Console dual-diskette drive
- Console command language

1.2 Console Terminal

The console terminal is the video terminal attached to the console microcomputer. It is named OPA0. The console terminal is the only terminal on the system that can execute all the console mode commands. Use it to control and monitor system operations. You can also set up logical console terminals.

Remote Console

A Digital diagnostics center uses a *remote console terminal* (located at the diagnostics center) to control system operations during diagnostic testing. A remote console terminal is named OPA5. It can execute a subset of the console commands.

Tracking System Operations

During the OpenVMS installation procedure, Digital recommends that you keep track of system operations. There are two ways to keep track of system operations:

- View the console log file on the terminal
- Send the information to a printer

Console Log File

The console terminal keeps a record of system operations in a *console log file*. For example, information that has scrolled off the terminal screen is stored in the console log file. To view the contents of this file, enter the SHOW LOGFILE command.¹ You can then use the following commands and key combinations to move through the console log file:

- PREV SCREEN — Enables you to move up in the file
- NEXT SCREEN — Enables you to move down in the file
- Arrow keys — Move the cursor in the indicated direction
- Ctrl/C — Enables you to exit from the log file and return to console mode

Console Printer

Another way to keep track of system operations is to attach a printer to the console subsystem. The printer can then record the terminal display. To send the terminal display to the printer, enter the following command and press Return:

```
>>> ENABLE PRINTER
```

To stop sending the terminal display to the printer, enter the following command and press Return:

```
>>> DISABLE PRINTER
```

¹ On a VAX 8820-N (8800) processor, the SHOW LOGFILE command displays the log file for the CPU to which the terminal is currently connected.

1.3 Console Fixed Disk Drive

The console fixed disk is the primary storage device for the console subsystem and contains the console software. The console fixed disk is referred to as CSA3. The OpenVMS operating system has only read access to the console fixed disk. The console operating system (P/OS) has full access.

1.4 Console Dual-Diskette Drive

The console dual-diskette drive is the secondary storage device for the console subsystem. It consists of two diskette drives on the front of the microcomputer. The diskette drive located on the top (in some models it is on the left) is referred to as CSA1. The diskette drive located on the bottom (in some models it is on the right) is referred to as CSA2. These drives hold the RX50 diskettes that do the following tasks:

- Install updates and optional products
- Install standalone BACKUP

1.5 Console Modes

The console subsystem runs in five different modes. Most of the time the system runs in either program mode or console mode.

- **Program mode** — When the console subsystem is in program mode, the OpenVMS operating system is running and the dollar sign prompt (\$) is displayed. In program mode, you can enter DCL commands, run programs, and receive system messages.

You can press **Ctrl/P** to suspend program mode temporarily and go to console mode. To return to program mode when the CPU is running, enter the SET TERMINAL PROGRAM command. To get back to program mode when the CPU is stopped, enter the CONTINUE command.

- **Console mode** — When the console subsystem is in console mode, the OpenVMS operating system is not running and the console-mode prompt (>>>) is displayed. In console mode, you control and monitor system operations. The CPU can be running or it can be stopped. When the CPU is running, it responds to a limited number of console commands. When the CPU is stopped, it responds to most console commands.

To go from console mode to program mode while the CPU is running, enter the SET TERMINAL PROGRAM command.

From console mode, you can access three other modes. Choose the appropriate mode for the function you want.

- **P/OS-DCL mode** — Used to modify files on the console fixed disk using standard DCL commands. To go to P/OS-DCL mode, enter the EXIT command at the console-mode prompt (>>>). To return to console mode from P/OS-DCL mode, enter the RUN CONTROL command at the P/OS-DCL prompt (\$).
- **P/OS mode** — Used to modify files on the console fixed disk using menu-driven commands. To go to P/OS mode, enter the EXIT command at the P/OS-DCL prompt (\$). A menu item returns you directly to console mode from P/OS mode.
- **Micromonitor mode** — Used to run diagnostics. For more information, see the *Console User's Guide*. To return to console mode from micromonitor mode, enter the EXIT command at the micromonitor prompt (MIC>).

1.6 Console Command Language

The console subsystem on VAX 8500 systems is different from other VAX computers. It does not have a control panel with lights and switches. Instead, the console command language controls all functions. The console command language lets you do the following tasks:

- Turn on the system
- Boot the system
- Provide information on the operational state of the CPU and other system components
- Dictate how the system reacts to initial booting, shutdowns, and restarts

Table 1-1 describes some of the commonly used commands. You can use these commands when the system is in console mode.

Table 1–1 Console Commands

Command	Definition
BOOT	Boots the system. During the installation procedure use the abbreviation, B, for the BOOT command. The following example uses the boot command procedure DEFBOO.COM to boot the system: <pre>>>> B</pre>
ENABLE/DISABLE AUTO BOOT	In combination with AUTO RESTART, determines how the system reacts after one of the following events: • The system is initialized • A power failure occurs • An error halt after a restart attempt fails For example, the following commands cause the system to automatically reboot after any of the events listed above: <pre>>>> DISABLE AUTO RESTART >>> ENABLE AUTO BOOT</pre> The following command prevents the system from automatically rebooting after any of the events listed above: <pre>>>> DISABLE AUTO BOOT</pre>
ENABLE/DISABLE AUTO POWERON	Determines what happens when power is restored after a power failure. For example, the following command automatically applies power to the CPU when power is restored after a power failure. <pre>>>> ENABLE AUTO POWERON</pre> The following command prevents the automatic application of power to the CPU when power is restored after a power failure: <pre>>>> DISABLE AUTO POWERON</pre>

Table 1-1 (Continued) Console Commands

Command	Definition
ENABLE/DISABLE AUTO RESTART	In combination with AUTO BOOT, determines what happens after a power failure or an error halt. For example, the following command causes automatic restart after a power failure or an error halt: <pre>>>> ENABLE AUTO RESTART</pre> The following command prevents automatic restart after a power failure or an error halt: <pre>>>> DISABLE AUTO RESTART</pre> AUTO RESTART takes precedence over AUTO BOOT. If AUTO RESTART and AUTO BOOT are both enabled, the system first tries to restart. If the system is unable to restart, it tries to reboot.
HALT	Halts the CPU execution of macro instructions. Use the HALT command to stop the CPU, as follows: <pre>>>> HALT</pre> Note that if you halt the system <i>before</i> a boot completes, you must also enter the CLEAR RESTART_FLAGS command to clear the WARM_RESTART and COLD_RESTART flags (see your hardware manuals for more about these commands). For example: <pre>>>> HALT >>> CLEAR RESTART_FLAGS</pre> Clearing these flags prevents the automatic boot and restart procedures from looping indefinitely when you enter the next BOOT command. Do <i>not</i> use the HALT command for a system shutdown.

Table 1-1 (Continued) Console Commands

Command	Definition
POWER	Changes the state of the power system. For example, the following command turns on power for the entire system (except for the EMM, which is already on): <pre>>>> POWER ON</pre> The following command turns off power for all components of the system except the EMM and memory. The contents of memory are preserved. <pre>>>> POWER STANDBY</pre> The following command turns off power for the entire system except the EMM (the only time power is off for the EMM is when a power disruption occurs or the circuit breaker that controls power to the system is tripped): <pre>>>> POWER OFF</pre>
ENABLE/DISABLE REMOTE CONSOLE	In combination with REMOTE USER, determines the status of a remote console terminal. For example, the following command allows a remote terminal (connected to the communications port of the console) to enter console mode and function as a remote console terminal: <pre>>>> ENABLE REMOTE CONSOLE</pre> The following command prevents a remote terminal connected to the communications port of the console from entering console mode and functioning as a remote console terminal: <pre>>>> DISABLE REMOTE CONSOLE</pre> Disabling the remote console automatically enables the remote user.

Table 1-1 (Continued) Console Commands

Command	Definition
ENABLE/DISABLE REMOTE USER	Causes a remote console terminal to operate as an ordinary terminal. The terminal cannot enter console mode. Pressing Ctrl/P has no effect.
SHOW CPU	Displays the operational state of the CPU. On a VAX 8820-N (8800) computer, this command displays the operational state of both CPUs.

Table 1-2 lists some commands you can use when the system is in console mode and the CPU is stopped.

Table 1-2 Console Commands Requiring the CPU to Be Stopped

Command	Definition
CONTINUE	Resumes execution of macro instructions and switches the console back to program mode.
DEPOSIT	Puts a value in the specified register or memory location.
EXAMINE	Displays the contents of a specified address.
INITIALIZE	Sets selected and available CPUs or memory to a defined initial state.

2

System Shutdown Procedures

2.1 Orderly Shutdown with SHUTDOWN.COM

To use the SHUTDOWN command procedure, log in to the SYSTEM account and enter the following command:

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

To halt the system after the procedure completes, press **Ctrl/P**.

2.2 Emergency Shutdown with CRASH Commands

The CRASH command procedure causes the system to fail, resulting in immediate shutdown.

NOTE

Use CRASH only if the system is hung and you cannot log in to the SYSTEM account to use SHUTDOWN or OPCCRASH.

To force the system to fail with CRASH, perform the following:

1. Press **Ctrl/P** to stop the system. At the console-mode prompt (>>>), enter the following command and press Return:

```
>>> HALT
```

2. Enter the following command and press Return:

```
>>> @CRASH
```

2-2 System Shutdown Procedures

CRASH displays a fatal bugcheck message, as well as additional messages and information. The procedure examines the program counter (PC), the processor status longword (PSL), and the stack pointers. It then deposits values in the PC and PSL to cause an exception condition that sends the contents of memory to the dump file on the system disk. Later you can read the dump file to determine add why the system did not respond.

3. CRASH halts the system, displays the contents of the program counter, and displays the console-mode prompt (>>>).

If AUTO BOOT is enabled, the system reboots after CRASH runs. If the system does not automatically reboot, enter the BOOT command at the console-mode prompt (>>>).

4. After the system reboots, you can examine the dump file. To examine the dump file, log in to the SYSTEM account. Enter the following commands and press Return after each one:

```
$ ANALYZE/CRASH SYS$SYSTEM:SYSDUMP.DMP
SDA> SHOW CRASH
```

For more information about the System Dump Analyzer (SDA), see the *VMS System Dump Analyzer Utility Manual*.

3

System Boot Operations

3.1 Introduction

VAX 8500 and VAX 8800 systems use command procedures to boot the operating system from the system disk into memory. Boot command procedures perform the following:

- Set up the system environment
- Deposit values in registers
- Indicate the controller type and drive unit number of the system disk
- Loads the OpenVMS operating system into memory
- Starts the CPU

3.2 Boot Devices and Command Procedures

The instructions for booting the system vary slightly for each type of controller. Therefore, there is a boot command procedure for each type of controller that the system supports.

For example, the procedures BCIBOO.COM, BCIGEN.COM, and BCIXDT.COM let you boot from disk drives connected to a CIBCI or a CIBCA controller. All boot command procedures are stored on the console fixed disk (CSA3). To view the contents of the console fixed disk, enter the DIRECTORY command at the P/OS-DCL prompt.

If you have a VAX 8820-N (8800) computer, you can set certain SYSGEN parameters to control how many CPUs are activated at boot time and the character of the multiprocessing system. In a multiprocessing system, the primary CPU is always booted. By default, all available CPUs are also booted. If you want to change this, you can set the SYSGEN

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parameter SMP_CPUS to tell the system which secondary CPUs to boot. For information on SYSGEN parameters that affect multiprocessing, see the *VMS System Generation Utility Manual*.

3.3 Booting with DEFBOO.COM

The most direct way to boot the system is to type the BOOT command and press Return. By default, DEFBOO.COM is used to boot the system. To boot the system with DEFBOO.COM, use the following procedure:

1. If the OpenVMS operating system is not running, go to step 2.

If the OpenVMS operating system is running, log in to the SYSTEM account. Enter the following command and press Return:

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

The procedure displays several questions that you must answer to complete the shutdown. When the procedure asks if an automatic system reboot should be performed, press Return for NO. When the procedure is finished, it displays the following message:

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

2. Press **Ctrl/P**. At the console-mode prompt (>>>), enter the following command and press Return:

```
>>> HALT
```

3. Enter the following command and press Return:

```
>>> B
```

3.4 Booting from Another System Disk

To boot the system from a drive other than the one specified in DEFBOO.COM, use the following procedure:

1. If the OpenVMS operating system is not running, go to step 2.

If the OpenVMS operating system is running, log in to the SYSTEM account. Enter the following command and press Return:

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

The procedure displays several questions that you must answer to complete the shutdown. When the procedure asks if an automatic system reboot should be performed, press Return for NO. When the procedure is finished, it displays the following message:

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

2. Press **Ctrl/P**. At the console-mode prompt (>>>), enter the following command and press Return:

```
>>> HALT
```

3. Enter the BOOT command in the following format:

```
>>> B dddn
```

Substitute BCI, BDA, or UDA for *ddd*. Substitute the unit number of the drive holding the system disk for *n*.

For example, suppose the system disk is on a CIBCI controlled drive and the unit number is 6. Enter the following command and press Return:

```
>>> B BCI6
```

3.5 Booting from a Different Directory on the System Disk

The OpenVMS operating system is installed on the system disk in the root directory named [SYS0]. You can use VMSKITBLD, described in the *Guide to Setting Up a VMS System*, to put a copy of the OpenVMS operating system in another root directory on the system disk.

To boot the system from a directory other than [SYS0], use the following procedure:

1. If the OpenVMS operating system is not running, go to step 2.

If the OpenVMS operating system is running, log in to the SYSTEM account. Enter the following command and press Return:

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

The procedure displays several questions that you must answer to complete the shutdown. When the procedure asks if an automatic system reboot should be performed, press Return for NO. When the procedure is finished, it displays the following message:

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

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2. Press **Ctrl/P**. At the console-mode prompt (>>>), enter the following command and press Return:

```
>>> HALT
```

3. Enter the BOOT command in the following format:

```
>>> B dddn /R5:nnnnnnnn
```

Substitute BCI, BDA, or UDA for *ddd*. Substitute the unit number of the drive holding the system disk for *n*. Use *nnnnnnnn* to identify the root from which you want to boot.

For example, suppose the system disk is on a CIBCI controlled drive, the unit number is 6, and you want to boot from SYS3. Enter the following command and press Return:

```
>>> B BCI6 /R5:30000000
```

3.6 Booting from SYSF During an Upgrade

To boot the system from SYSF, use the following procedure:

1. If the OpenVMS operating system is not running, go to step 2.

If the OpenVMS operating system is running, log in to the SYSTEM account. Enter the following command and press Return:

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

The procedure displays several questions that you must answer to complete the shutdown. When the procedure asks if an automatic system reboot should be performed, press Return for NO. When the procedure is finished, it displays the following message:

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

2. Press **Ctrl/P**. At the console-mode prompt (>>>), enter the following command and press Return:

```
>>> HALT
```

3. Enter the BOOT command in the following format:

```
>>> B dddn /R5:F0000000
```

Substitute BCI, BDA, or UDA for *ddd*. Substitute the unit number of the drive holding the system disk for *n*.

For example, if you are booting from SYSF and the system disk is on a CIBCI controlled drive and the unit number is 6, enter the following command and press Return:

```
>>> B BCI6 /R5:F0000000
```

3.7 Conversational Boot

A conversational boot is most commonly used in research and development environments and during software upgrades. Perform a conversational boot when you want to stop the boot process before it completes. The boot process stops after it loads SYS\$SYSTEM:SYSBOOT.EXE and displays the SYSBOOT> prompt. At the SYSBOOT> prompt, you can enter certain SYSGEN commands to do the following:

- Look at system parameter values
- Change system parameter values
- Specify another parameter file
- Specify another system startup command procedure
- Select the default system parameter file if you modified system parameters to values that render the system unbootable
- Specify a minimum startup

There are two ways to perform a conversational boot. The following procedure is the most direct way:

1. If the OpenVMS operating system is not running, go to step 2.

If the OpenVMS operating system is running, log in to the SYSTEM account. Enter the following command and press Return:

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

The procedure displays several questions that you must answer to complete the shutdown. When the procedure asks if an automatic system reboot should be performed, press Return for NO. When the procedure is finished, it displays the following message:

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

2. Press **Ctrl/P**. At the console-mode prompt (>>>), enter the following command and press Return:

```
>>> HALT
```

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3. To begin the conversational boot, enter the BOOT command in the following format:

```
>>> B dddn /R5:1
```

Substitute BCI, BDA, or UDA for *ddd*. Substitute the unit number of the drive holding the system disk for *n*. The /R5:1 qualifier deposits one in register 5 (R5).

For example, suppose the system disk is on a CIBCI controlled drive and the unit number is 2. Enter the following command and press Return:

```
>>> B BCI2/R5:1
```

This command tells the console to boot with BCIBOO.COM, deposit 2 in register 3 (R3), and deposit one in register 5 (R5).

If you want to perform a conversational boot from a root directory other than SYS0 (SYS3, for example), enter the command as follows:

```
>>> B BCI2 /R5:30000001
```

4. At the SYSBOOT> prompt, you can enter any of the SYSGEN commands. For more information about these SYSGEN commands, see the *VMS System Generation Utility Manual*.
5. When you finish using the SYSGEN commands, enter the CONTINUE command to complete the boot process.

4

System Backup Procedures

4.1 Introduction

Digital recommends that you use standalone BACKUP to back up your system disk. Standalone BACKUP is a version of the Backup Utility that runs without the support of the entire OpenVMS operating system.

You should back up the system disk for the following reasons:

- In case a problem occurs during a OpenVMS upgrade or update, or during the installation of other software products. *Before* you attempt any of these procedures, you should back up the system disk. If a problem occurs, you can restore the backup copy of the system disk.
- To prevent loss of system files if they are accidentally deleted. *After* you install or upgrade the OpenVMS operating system, or any other software products, you should back up the system disk. If a system file is deleted and renders the system disk inoperable, you can restore the backup copy and continue to use the system.
- In case the drive that holds the system disk malfunctions. If you have a backup copy of the OpenVMS operating system, you can restore it to a functioning disk and continue to use the system.
- To eliminate disk fragmentation, which happens when files are stored noncontiguously on the disk. The BACKUP command creates a copy on which files are stored contiguously.
 - If the system disk is removable, eliminating disk fragmentation is a one-step process. Use the backup copy as the new system disk. Store the old system disk in a safe place.

- If your system disk is fixed, back it up to a disk or magnetic tape. Then restore the files to the original system disk.

4.2 Standalone BACKUP Overview

The OpenVMS Backup Utility lets you create and restore backup copies of files, directories, and user disks. Because the Backup Utility copies only what is on the disk and ignores sections of any open files contained in memory, you should use it to back up user disks, not the system disk. If you use the Backup Utility to back up the system disk, portions of the files that were in memory and data about files not yet written back to the disk (cache) will not be recorded on the resulting backup copy.

Use standalone BACKUP to make a complete backup of the system disk. Standalone BACKUP is a version of the Backup Utility that runs without the support of the entire OpenVMS operating system. Before you use standalone BACKUP, you must shut down the OpenVMS operating system. The shutdown procedure sends the contents of the caches back to the disk and closes any open files. By shutting the system down and using standalone BACKUP, you can make an exact copy of the system disk.

You can keep standalone BACKUP on the system disk, RX50 floppy diskettes, or any other media that your system supports. Digital recommends that you keep standalone BACKUP on both the system disk and the floppy diskettes. (Although you usually boot standalone BACKUP from the system disk because it saves time, you should also keep a copy of standalone BACKUP on floppy diskettes in case the system disk becomes damaged.)

4.3 Installing Standalone BACKUP on the System Disk

You can install standalone BACKUP in any available root directory on the system disk from [SYS1] to [SYSE]. However, Digital has established [SYSE] as the standard directory for standalone BACKUP.

To install standalone BACKUP in [SYSE], use the following procedure:

1. Log in to the SYSTEM account.
2. Enter the following command and press Return:

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

The procedure places the files in the directories [SYSE.SYSEXE] and [SYSE.SYS\$LDR] on the system disk. It lists the files as they are copied. When the procedure finishes, it displays the following message:

The kit is complete.

3. Create a boot command procedure that lets you boot standalone BACKUP from [SYSE].

4.4 Booting Standalone BACKUP from the System Disk

You need a special boot command procedure to boot standalone BACKUP from the system disk. Digital recommends that you modify an existing boot command procedure. Ideally, this should be the default boot command procedure, DEFBOO.COM.

You can choose any unique name in the form xxxBOO.COM for the command procedure you create. However, Digital suggests you use an existing file name and change the first letter to an X. For example, if you use a copy of DEFBOO.COM, name the new file XEFBOO.COM.

To create a boot command procedure that boots standalone BACKUP from [SYSE], use the following procedure. The procedure assumes you are making a copy of DEFBOO.COM and renaming it XEFBOO.COM.

1. Put the console subsystem in P/OS-DCL mode.
2. To make a copy of DEFBOO.COM and rename it XEFBOO.COM, enter the following command and press Return:

```
$ COPY DEFBOO.COM XEFBOO.COM
```

If you have a VAX 8820-N (8800) computer, enter the following command and press Return:

```
$ COPY [8800]DEFBOO.COM [8800]XEFBOO.COM
```

3. Enter the RUN EDT command and press Return. At the EDT> prompt, enter XEFBOO.COM and press Return. For example:

```
$ RUN EDT
EDT> XEFBOO.COM
```

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If you have a VAX 8820-N (8800) computer, specify the [8800] directory, as follows:

```
$ RUN EDT
EDT> [8800]XEFBOO.COM
```

The contents of XEFBOO.COM are displayed on the screen.

4. Change the line that contains the BOOT command so that it tells the system to boot from the [SYSE] directory. For example:

```
BOOT BCI12 /R5:E0000000
```

5. When you have finished editing XEFBOO.COM, press Ctrl/Z. At the asterisk prompt (*), enter the EXIT command and press Return. The modified version of XEFBOO.COM is saved and you see the P/OS-DCL prompt (\$).

Use the following procedure to boot standalone BACKUP from [SYSE]:

1. If the OpenVMS operating system is not running, go to step 2.

If the OpenVMS operating system is running, log in to the SYSTEM account. Enter the following command and press Return:

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

Answer the questions. When the procedure asks if an automatic system reboot should be performed, press Return for NO. When the procedure is finished it displays the following message:

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

2. Press Ctrl/P to put the system in console mode.
3. At the console-mode prompt (>>>), enter the following command and press Return:

```
>>> HALT
```

4. Enter the following command and press Return:

```
>>> @XEFBOO
```

5. The procedure asks you for the date and time. Enter the date and time using the 24-hour clock format and press Return. For example:

```
VAX/VMS Version V5.4 Major version id = 1 Minor version id = 0
PLEASE ENTER DATE AND TIME (DD-MMM-YYYY HH:MM) 19-JUN-1990 13:00
```

6. The procedure displays a list of the local devices on your system and, if you have them, HSC and MSCP served devices. For example:

```
Available device MINE$DJA3:    device type RA60
Available device MINE$DJA2:    device type RA60
```

Check the list of devices. If the list is incomplete, make sure that all the drives are properly connected to the system. See your hardware manuals for details.

7. When standalone BACKUP finishes booting, it displays an identification message followed by the dollar sign prompt (\$):

```
%BACKUP-I-IDENT, standalone BACKUP V5.4; the date is
19-JUN-1990 15:00
$
```

4.5 Installing Standalone BACKUP on Floppy Diskettes

Digital recommends that you keep standalone BACKUP on floppy diskettes in case the system disk becomes damaged. You should have received standalone BACKUP on floppy diskettes as part of your OpenVMS distribution kit. If the original floppy diskettes become damaged or if you want to make extra copies, use the following procedure:

1. Obtain the required number of RX50 floppy diskettes, based on the number you received with the distribution kit. The procedure will ask you to place those floppy diskettes (five, in this example) successively in the console drive. To keep the floppy diskettes properly labeled and organized during the procedure, affix a paper label to each one and use a soft, felt-tip pen (a hard pencil or ballpoint pen may damage the floppy diskette) to write a name on each label. Label the floppy diskettes as follows, where *n* is the version of the OpenVMS operating system:

```
VMS V5.n S/A BKUP RX50 1/5
VMS V5.n S/A BKUP RX50 2/5
VMS V5.n S/A BKUP RX50 3/5
VMS V5.n S/A BKUP RX50 4/5
VMS V5.n S/A BKUP RX50 5/5
```

A paper label is the label affixed to a diskette. The procedure displays a volume label, not the paper label, in messages. A volume label is the name the OpenVMS operating system uses to refer to a floppy diskette.

2. Log in to the SYSTEM account.

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3. Enter the following command and press Return:

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

4. The procedure asks you for the name of the target device. Type CSA1 and press Return. For example:

```
%STABACKIT-I-SYMDEL, all global symbols deleted
```

```
Enter the name of the device on which to build the kit: CSA1
```

5. The procedure displays the following messages. Press Return (for YES) after each question.

SYSGEN CONNECT CONSOLE was used to make the console device available.

The standalone kit requires five floppy diskettes. The first four floppy diskettes contain the standalone OpenVMS system files, the last floppy diskette contains the BACKUP application image.

The system kit and the application kit can be built separately.

Do you want to build the system kit? [Yes/No, default Yes]:

Do you want to build the application kit? [Yes/No, default Yes]:

6. The procedure gives you two options that you can use to verify the reliability of the standalone BACKUP kit. First, it asks if you want to use the ANALYZE/MEDIA utility to check for bad blocks on the target floppy diskette. Next, it asks if you want to verify each file that it copies. In this case, neither operation is necessary for RX50 floppy diskettes. Therefore, press Return when the procedure asks the following question:

Do you want to scan for bad blocks? [Yes/No, default No]:

The procedure displays the following message:

Do you want to verify copies? [Yes/No, default No]:

Press Return (for NO). Copy verification is only relevant for tape media.

7. The procedure displays the following messages:

Sysgen parameters for standalone VMS have been placed in file
SYS\$SYSROOT:

```
<SYSUPD>  
VAXVMSSYS.PAR-TEMP-00000084;1
```

Please place the first system floppy diskette in drive _CSA1:.
This volume will receive the volume label SYSTEM_1.

Enter "YES" when ready:

8. Insert the floppy diskette labeled S/A BKUP RX50 1/5 in the console diskette drive. When you are ready to continue, type Y and press Return.

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9. The procedure mounts the floppy diskette, copies a set of system files, and displays a number of informational messages. For example:

```
%MOUNT-I_MOUNTED, SYSTEM_1    mounted on _CSA1:
%CREATE-I-CREATED, _CSA1:

<SYS0.SYSEX>
created
%CREATE-I-CREATED, _CSA1:

<SYS0.SYS$LDR>
created
.
.
.
```

10. When the last file is copied, the procedure asks you to insert the next floppy diskette. Remove the floppy diskette labeled S/A BKUP RX50 1/5. Insert the floppy diskette labeled S/A BKUP RX50 2/5. When you are ready to continue, type Y and press Return. For example:

Please place the second system floppy diskette in drive _CSA1:.
This volume will receive the volume label SYSTEM_2.

Enter "YES" when ready: Y

11. Repeat steps 8 through 10 for each floppy diskette until the procedure asks you for the last floppy diskette, as follows:

Please place the application floppy diskette in drive _CSA1:.
This volume will receive the volume label BACKUP.

Enter "YES" when ready: Y

12. Remove the floppy diskette labeled S/A BKUP RX50 4/5. Insert the floppy diskette labeled S/A BKUP RX50 5/5. When you are ready to continue, type Y and press Return.
13. After the files are copied to the last floppy diskette, the procedure displays the following message:

The console volume will be mounted /NOWRITE for protection.
Please make sure that the original console floppy diskette
is in the drive CSA1:.

14. Remove the floppy diskette labeled S/A BKUP RX50 5/5 from diskette drive CSA1. Insert the console RX50. When you are ready to continue, type Y (for YES) and press Return. When the procedure finishes, it displays the following message:

The kit is complete.

4.6 Booting Standalone BACKUP from Floppy Diskettes

If the system disk containing standalone BACKUP should become unusable, you can boot standalone BACKUP from the RX50 floppy diskettes containing standalone BACKUP (either the set you received with your distribution kit or the set you created yourself). They are labeled as follows, where x is the total number of floppy diskettes included with your distribution kit and n is the version of the OpenVMS operating system:

Paper Label ¹	Volume Label ²
VMS V5.n S/A BKUP RX50 1/x	SYSTEM_1
VMS V5.n S/A BKUP RX50 2/x	SYSTEM_2
VMS V5.n S/A BKUP RX50 3/x	SYSTEM_3
.	.
.	.
.	.
VMS V5.n S/A BKUP RX50 x/x	BACKUP

¹A paper label is the label affixed to a floppy diskette.

²A volume label is the name the OpenVMS operating system uses to refer to a floppy diskette. During installation the procedure displays the volume label, not the paper label, in messages.

Regardless of how many floppy diskettes you need to boot standalone BACKUP, note that the last floppy diskette always has the volume label, *BACKUP*. If, for example, you use five floppy diskettes containing standalone BACKUP, they will be labeled as follows:

Paper Label	Volume Label
VMS V5.n S/A BKUP RX50 1/5	SYSTEM_1
VMS V5.n S/A BKUP RX50 2/5	SYSTEM_2
VMS V5.n S/A BKUP RX50 3/5	SYSTEM_3
VMS V5.n S/A BKUP RX50 4/5	SYSTEM_4
VMS V5.n S/A BKUP RX50 5/5	BACKUP

4-10 System Backup Procedures

As you boot standalone BACKUP, you place those floppy diskettes (five, in this example) successively in the console drive, as follows:

1. Insert the floppy diskette labeled S/A BACKUP RX50 1/5 in the CSA1 diskette drive.
2. To boot standalone BACKUP, enter the following command and press Return:

```
>>> @CSB00
```

The procedure displays the following messages:

```
SET VERIFY
! CSB00.COM
```

```
·
·
·
```

```
VAX/VMS Version V5.n Major version id = 1 Minor version id = 0
```

```
Please remove the volume "SYSTEM_1" from the console device.
```

```
Insert the next standalone system volume and enter "YES" when ready:
```

3. Remove the S/A BKUP RX50 1/5 floppy diskette and insert the floppy diskette labeled S/A BKUP RX50 2/5 in the drive. When you are ready to continue, type Y and press Return. The procedure displays the following message:

```
Resuming load operation on volume "SYSTEM_2", please stand by...
```

```
Please remove the volume "SYSTEM_2" from the console device.
```

```
Insert the next standalone system volume and enter "YES" when ready:
```

4. Remove the S/A BKUP RX50 2/5 floppy diskette and insert the floppy diskette labeled S/A BKUP RX50 3/5 in the drive. When you are ready to continue, type Y and press Return. The procedure displays the following message:

```
Resuming load operation on volume "SYSTEM_3", please stand by...
```

5. The procedure asks you for the date and time. Enter the date and time using the 24-hour clock format and press Return. For example:

```
PLEASE ENTER DATE AND TIME (DD-MMM-YYYY HH:MM) 19-JUN-1990 15:00
```

6. The procedure displays the following messages:

Please remove the volume "SYSTEM_3" from the console device.
Insert the next standalone volume and enter "YES" when ready:

7. Remove the S/A BKUP RX50 3/5 floppy diskette and insert the floppy diskette labeled S/A BKUP RX50 4/5 in the drive. When you are ready to continue, type Y and press Return. The procedure displays a message and a list of the local devices on your system and, if you have them, HSC and MSCP served devices. For example:

Available device MINE\$DJA3: device type RA60
Available device MINE\$DJA2: device type RA60

Check the list of devices. If the list is incomplete, make sure that all the drives are properly connected to the system. See your hardware manuals for details.

8. The procedure displays the following messages:

Please remove the volume "SYSTEM_4" from the console device.
Insert the standalone application volume and enter "YES" when ready:

9. Remove the S/A BKUP RX50 4/5 floppy diskette and insert the floppy diskette labeled S/A BKUP RX50 5/5 in the drive. When you are ready to continue, type Y and press Return. The procedure displays the following message:

Resuming load operation on volume "BACKUP", please stand by...

10. When standalone BACKUP finishes booting, it displays an identification message followed by the dollar sign prompt (\$):

%BACKUP-I-IDENT, standalone BACKUP V5.n; the date is
19-JUN-1990 15:00
\$

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