DEC SoftPC

User's Guide for the VMS Operating System

Order Number: AA–PXCDA-TE

Digital Equipment Corporation
Maynard, Massachusetts

May 1993

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This document is available on CD–ROM.

ML–S2124

This document was prepared using VAX DOCUMENT, Version 2.1.

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Preface

DEC SoftPC is a software program that allows your Digital workstation or terminal to emulate an IBM PC. With DEC SoftPC software on your system, you can use PC and MS-Windows applications.

Purpose of This Guide

This guide describes how to use the DEC SoftPC software, Version 4.0, on a Digital VT220 terminal or on Digital workstations that use the VMS operating system.

Who Should Use This Guide

This manual is intended for Digital system users who want to use MS–DOS applications. You should be familiar with MS–DOS software and with Motif software.

Structure of This Guide

This guide contains the following chapters and appendixes:

- Chapter 1 describes the features and benefits of DEC SoftPC.
- Chapter 2 describes how to start DEC SoftPC and open a DEC SoftPC window on a workstation.
- Chapter 3 describes the emulated hard disks, C: and D: and the emulated networked drives, E: through Z:.
- Chapter 4 explains how to load application software into DEC SoftPC.
- Chapter 5 describes how to use floppy disks on your workstation.
- Chapter 6 explains how to add printers and modems to your system and how to print DEC SoftPC files.

- Chapter 7 discusses graphics interfaces and both expanded and extended memory.
- Chapter 8 describes file sharing between the MS–DOS and VMS operating systems.
- Chapter 9 describes how to configure a terminal to run DEC SoftPC and how to use DEC SoftPC on that terminal.
- Chapter 10 has hints on using DEC SoftPC and answers to frequently asked questions.
- Appendix A contains step-by-step instructions for installing DEC SoftPC for VMS.
- Appendix B lists and explains the messages you could receive from MS–DOS and DEC SoftPC.
- Appendix C lists and describes each file in the Insignia subdirectory under DEC SoftPC.
- Appendix D describes serial port emulation for communications packages and printers.
- Appendix E discusses file protection on VMS systems.
- Appendix F illustrates how Digital workstation keys are mapped to a PC. It also explains how the Digital mouse is equivalent to the PC mouse.

For More Information

For more information on DECwindows and the MS–DOS operating system, you can order the following manual through DECdirect. Call 1-800-DIGITAL.

- *MS–DOS Reference Manual* (Order Number: AA–LB–62A–TE). This manual describes the MS–DOS operating system and commands.

Conventions

The following conventions are used in this manual:

Return	In examples, a key name is shown enclosed to indicate that you press a named key on the keyboard.
Ctrl/x	A sequence such as Ctrl/x indicates that you must hold down the key labeled Ctrl while you press another key or a pointing device button.
Note	Notes provide general information about the current topic.
mouse	The term *mouse* refers to any pointing device, such as a mouse, a puck, or a stylus.
MB1, MB2, and MB3	MB1 indicates the left mouse button. MB2 indicates the middle mouse button. MB3 indicates the right mouse button.
Color	Text in color indicates user input.
$	The VMS prompt.
>	The DOS prompt.
UPPERCASE	DOS commands.

1
Overview

DEC SoftPC is a software program that lets your workstation or terminal run DOS applications as though the workstation or terminal were an IBM Personal Computer (PC). No special hardware is required.

DEC SoftPC software uses the Motif or the VT220 user interface to the VMS operating system.

DEC SoftPC System

With DEC SoftPC you get a system that feels like a PC, including:

- Keyboard
- Mouse
- Screen display: CGA, Hercules, EGA, VGA, or Super VGA mode on a graphics workstation and MDA mode for a VT220 terminal
- C: and D: Winchester drives of variable sizes up to 300 Mbytes
- COM1, COM2, COM3, COM4, LPT1, LPT2, and LPT3 communications ports
- 80287 floating-point coprocessor

What DEC SoftPC Can Do

With DEC SoftPC you can:

- Execute MS–DOS commands
- Cut and paste between MS–DOS windows and Motif windows
- Share files with other users on the network
- Transfer files between MS–DOS and the VMS operating system and vice versa

- Run MS–DOS and Windows applications
- Simultaneously work with applications based on MS–DOS in one window and applications based on VMS in other windows
- Network with other workstations running DEC SoftPC
- Run multiple DEC SoftPC windows

Features

DEC SoftPC is a software emulation of an IBM PC AT with an Intel 80286 CPU and an Intel 80827 math coprocessor. DEC SoftPC has the following features:

- Freeze option

  The Freeze option allows you to put an MS–DOS application on hold, release the CPU to return to the VMS environment, and then run an VMS application. With a few mouse clicks you can resume your MS–DOS application.

- VGA compatibility

  The DEC SoftPC screen can emulate a VGA-compatible display.

  If you are installing applications software on a VT220, you must enter MDA.

- Access to 32 Mbytes of memory

  DEC SoftPC emulates the LIM Expanded Memory System through the EM_DRVR.SYS driver. MS–DOS applications such as Lotus 1-2-3, Microsoft Windows, and DESQview can access a block of memory containing up to 32 Mbytes.

- Nonvolatile RAM emulation

  The PC AT holds nonvolatile RAM on a low-power consumption CMOS chip. DEC SoftPC emulates this feature with a file, SPCCMOS.RAM. This file includes information about the size and density of disks, the amount of LIM memory, and the real-time clock. If DEC SoftPC does not find a SPCCMOS.RAM file in your home directory, it creates a default version.

  Note

  DEC SoftPC may create a CMOS.RAM file in your home directory.

DEC SoftPC Version 4.0 Enhancements

DEC SoftPC Version 4.0 has the following enhancements:

- Motif-based user interface
- Support for protected-mode operation (this also means support of Windows Version 3.1 Standard Mode)
- Super VGA (256 colors)
- Autoflush availability (flushing occurs 1 to 50 seconds after the buffer is loaded)
- FPU emulator (ability to turn on and off the hardware floating-point emulation)
- Menu-driven keyboard mapping
- Extended and expanded memory
- Support for Microsoft CD–ROM extensions
- Multiple window sizes
- Support for both A: and B: floppy drives
- Support for hard disks up to 300 Mbytes
- Support for MS–DOS 5.0

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Using DEC SoftPC on a Workstation

This chapter describes how to:

- Start DEC SoftPC
- Use the pull-down menus
- Save files and exit DEC SoftPC
- Increase the DEC SoftPC window size
- Use the mouse in an MS–DOS window
- Use the mouse in a VMS window
- Cut and paste
- Perform a full MS–DOS reboot
- Stop the MS–DOS process
- Switch the sound on and off
- Switch the FPU Emulation on and off

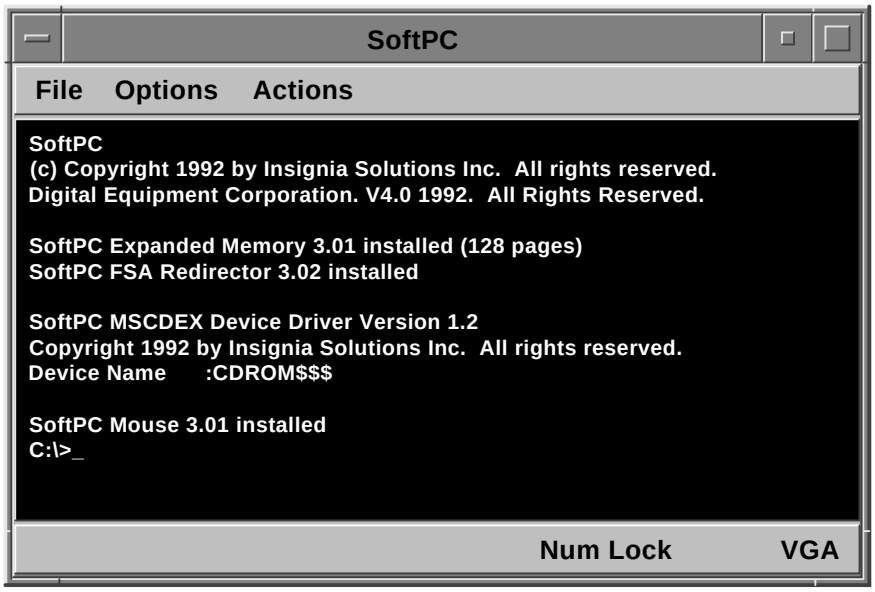
DEC SoftPC installation instructions are in Appendix A.

Start DEC SoftPC

To start DEC SoftPC from the VMS prompt, enter:

```
$ SoftPC
```

Result: The DEC SoftPC window is displayed.



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(You can also install DEC SoftPC to run as a Motif menu item.)

Note

If you are using DEC SoftPC with a floppy disk drive and start DEC SoftPC without a physical floppy disk in the drive, some versions of VMS appear to stall. DEC SoftPC might take up to 75 seconds to start.

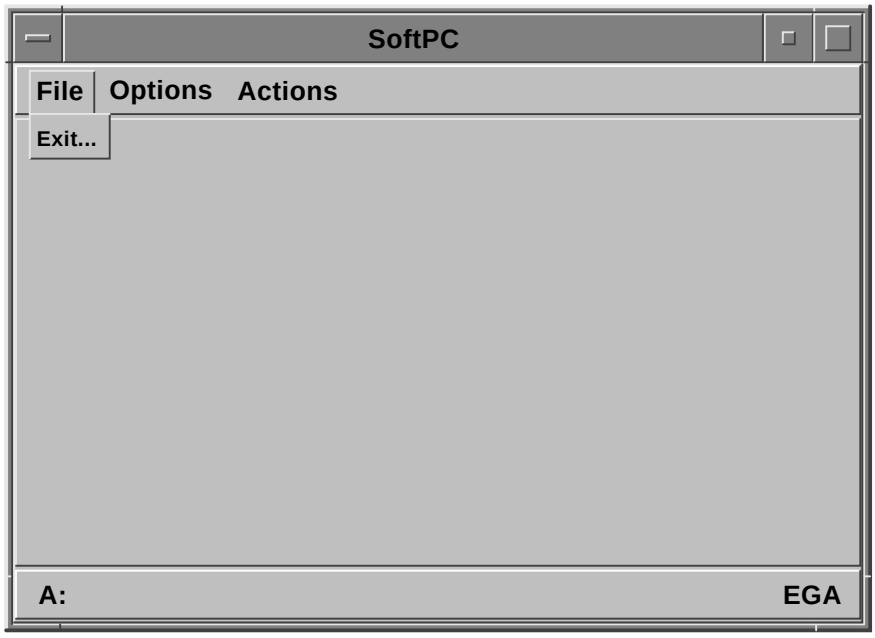
Use the Pull-down Menus

The menu bar at the top of the window contains the words: File, Options, and Actions. Each word represents a pull-down menu that you display by using the mouse.

There are two ways to use a pull-down menu:

- Drag method: Point to the menu you want, press MB1, drag the pointer to highlight the desired function, and release MB1.
- Click method: Point to the menu you want, click once to display the menu, point to the desired function, and click again.

If you decide not to choose a function after the menu is displayed, move your cursor off the menu and click.



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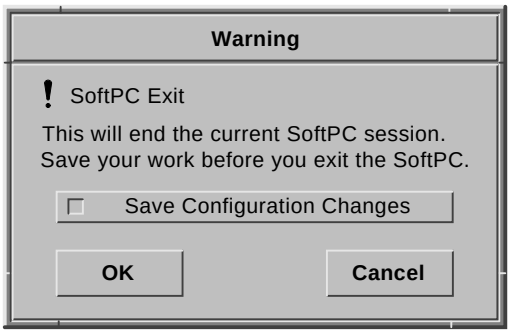
Save Files and Exit DEC SoftPC

Exiting DEC SoftPC is like turning off a PC. To save your configuration file and exit:

1. From the File menu, select Exit.

   Result: This warning is displayed.

2. Click on OK. Or, if you do not want to save your files, click on Save Configuration Changes to remove the default.



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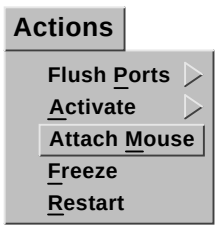
Enlarge the DEC SoftPC Window

To increase the size of the DEC SoftPC window to 1 1/2 or 2 times the size of the original window:

- Place the cursor on the edge of your window, hold down MB1, and drag the window, either horizontally or vertically, as desired.

If you have problems enlarging the DEC SoftPC window, you may need to change the pixel display.

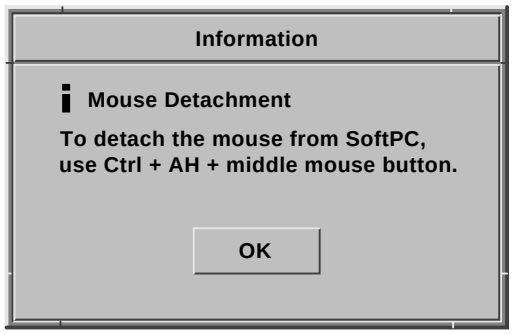
Use the Mouse in an MS–DOS Window



To use the mouse in an MS–DOS window:

- From the Actions menu, select Attach Mouse.

If you are not using a DOS mouse-based application, your cursor disappears. To restore your cursor, simultaneously press Ctrl/Alt/MB2. (Depending on your Digital keyboard, Alt may be Compose Character or left Alt.)



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Use the Mouse in a VMS Window

To use the mouse in an VMS window:

- Simultaneously press Ctrl/Alt/MB2. (Depending on your Digital keyboard, Alt may be Compose Character or left Alt.)

Cut and Paste

To cut and paste between windows:

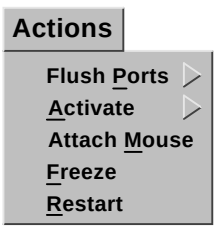
1. Place the cursor at the start of the text you wish to cut, hold down MB1, and drag the cursor to the end of the desired text.

   Result: The text will be highlighted.

   Release MB1.

2. Move the cursor to the exact place in another window where you want to paste the text. Click on MB2 to paste.

Perform a Full MS–DOS Reboot



Some MS–DOS applications do not provide a software exit but expect the user to either reboot the PC by pressing Ctrl/Alt/Del or to switch the PC power off and on again. To perform a full MS–DOS reboot with DEC SoftPC:

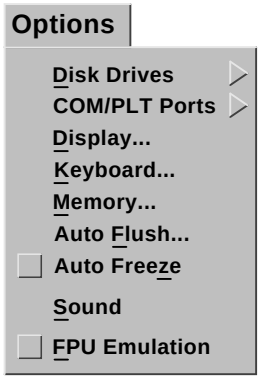
- From the Actions menu, select Restart.
- Or, from the DOS prompt, simultaneously press Ctrl/Alt/Del for a conventional DOS restart.

Stop the MS–DOS Process with Auto Freeze or Freeze

Auto Freeze and Freeze save processing time if you run several window sessions simultaneously. Both permit you to stop the DEC SoftPC window from using CPU cycles and allow a second application to continue running.

The difference between Auto Freeze and Freeze is that Auto Freeze stops the process when you select another window and Freeze stops the process immediately.

Auto Freeze

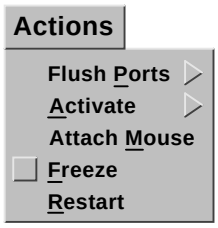


Consider using Auto Freeze if your workstation is slow when you use multiple windows. The reason may be that DEC SoftPC does not always detect when a PC application is idle. You could also check the CPU usage to see if DEC SoftPC is running continuously. This is very important when running MS-Windows.

To stop running an application when you leave a window:

- From the Options menu, select Auto Freeze.

Freeze



To stop running an application immediately:

- From the Actions menu, select Freeze.

Switch the Sound On and Off

A Digital workstation does not have the sound capabilities of a PC. To suppress the sound that some applications may have:

- From the Options menu, select Sound.

Switch the FPU Emulation On and Off

A Digital workstation has 64-bit floating-point hardware while a PC has 80-bit hardware. DEC SoftPC can compensate for this hardware difference.

If your application requires 80 bits, turn the FPU (hardware) Emulation off. This allows DEC SoftPC to emulate 80 bits.

If your application does not require 80 bits, turn the FPU Emulation on. This will greatly increase the speed of DEC SoftPC.

If your application does not require floating point emulation, you can turn the FPU Emulation either on or off.

- From the Options menu, select FPU Emulation.

3

Hard Disks and Drives

Background

Users typically copy MS–DOS applications from floppy disks onto a hard disk because hard disks are faster and larger. This chapter shows how to use the emulated C: and D: hard disk drives or Drives E: through Z:.

You can create or copy as many hard disk container files as your file system space permits, but you can use only two (C: and D:) at a time, plus the File Sharing Architecture (FSA) drives, E: through Z:.

Names of MS–DOS Drives

Disks are identified by their drive letters. You must use the drive letter to access the disk as shown below.

Drive Name	Disks Accessed
C: and D:	Emulated hard disks
E: through Z:	Emulated networked disk drives

Drives C: and D:

DEC SoftPC represents hard disks as large container files on Drives C: and D:. DEC SoftPC handles these emulated disks (C: and D:) as though they were PC AT internal hard disks. You must be in DEC SoftPC to access the MS–DOS files contained on an emulated hard disk. They cannot be seen individually by using the VMS DIR command.

Drive C:

Drive C: is a file that initially represents 3 Mbytes of hard disk (including MS–DOS). You can, however, have a drive C: up to 300 Mbytes. You do this by making a new hard disk. See Creating a New Hard Disk later in this chapter for instructions. The name of the original file is 3MB.HDF. This file contains MS–DOS, GW BASIC, and Insignia utilities and drivers.

Drive D:

Drive D: does not initially exist. You must create Drive D: if you need it. See Creating a New Hard Disk later in this chapter for instructions.

Drives E: through Z:

DEC SoftPC has software known as FSA that allows you to use Drives E: through Z:. Each drive is similar to a networked drive on a real PC, but in fact is a VMS directory. These drives look like regular hard disks to MS–DOS.

Files in E: through Z: can be shared between native VMS and PC applications. The drives can be local or remote. Drives E: through Z: are called FSA Root Directory on the options menu.

CD–ROM Drive

DEC SoftPC provides the ability to attach a CD–ROM drive (RRD42). To use a CD–ROM drive, the Microsoft Extension MSCDEX.EXE must be used. See Using the CD–ROM later in this chapter for more information.

Sharing Files

Be careful when simultaneously sharing hard disk files between workstations. DOS does not handle simultaneous file sharing in a foolproof manner. Sharing files might lead to corrupted files. There is no problem if your intended useage is read-only.

Creating a New Hard Disk Container File

You can create a new C: or D: hard disk by:

- Copying an existing hard disk
- Creating an empty hard disk and formatting it. (You can put MS–DOS on the disk.)

Copying is easier, but your disk size is limited to the size of the original disk. Creating a new disk allows you to adjust the size to your requirements.

Copying an Existing Hard Disk

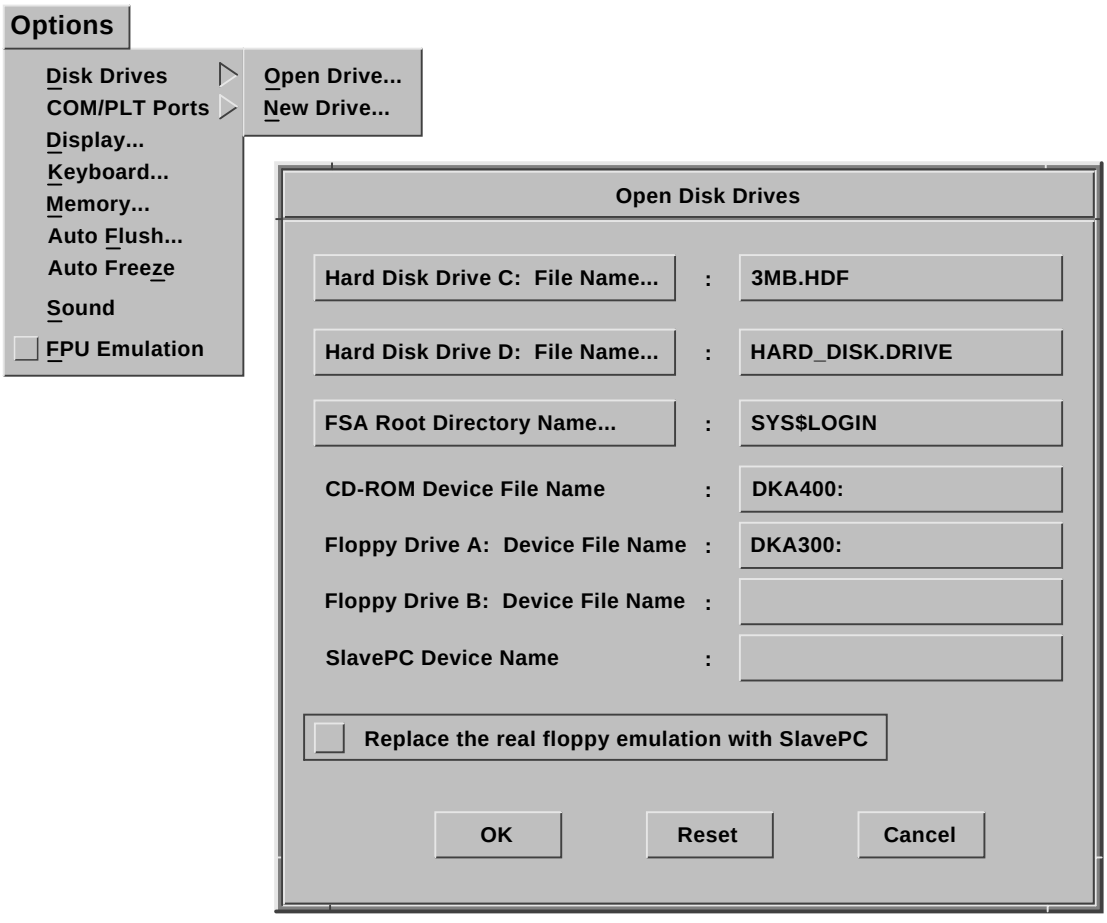
Enter:

```
$ COPY HARD.DISK NEWHARD.DISK
```

Checking Your Current Disks

- From the Options menu, select Disk Drives, then New Drive.

  Result: These menus are displayed. In this example, there is a C: drive named 3MB.HDF, a D: drive named HARD_DISK.DRIVE, the E: drive points to SYS$LOGIN, the CD–ROM device is named DKA 400:, and the floppy drive A: is named DKA300:. Your file names may differ.



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The remainder of this chapter describes how to create or change your current hard disks.

Creating a New Hard Disk

Hard disks can be bootable or non-bootable. You determine which type you need.

- A bootable disk contains the MS–DOS operating system and other files. It is known as Drive C:.
- A non-bootable disk contains application programs. It is known as Drive D:.

Do not make a new C: drive using system files from a C: drive that contained a previous version of DEC SoftPC.

Step	Action
1	Select the size for your new disk.
2	Partition the disk.
3	Choose to create a bootable or non-bootable disk.

Step 1: Select the disk size

1. From the Options menu, select Disk Drives, then New Drive.

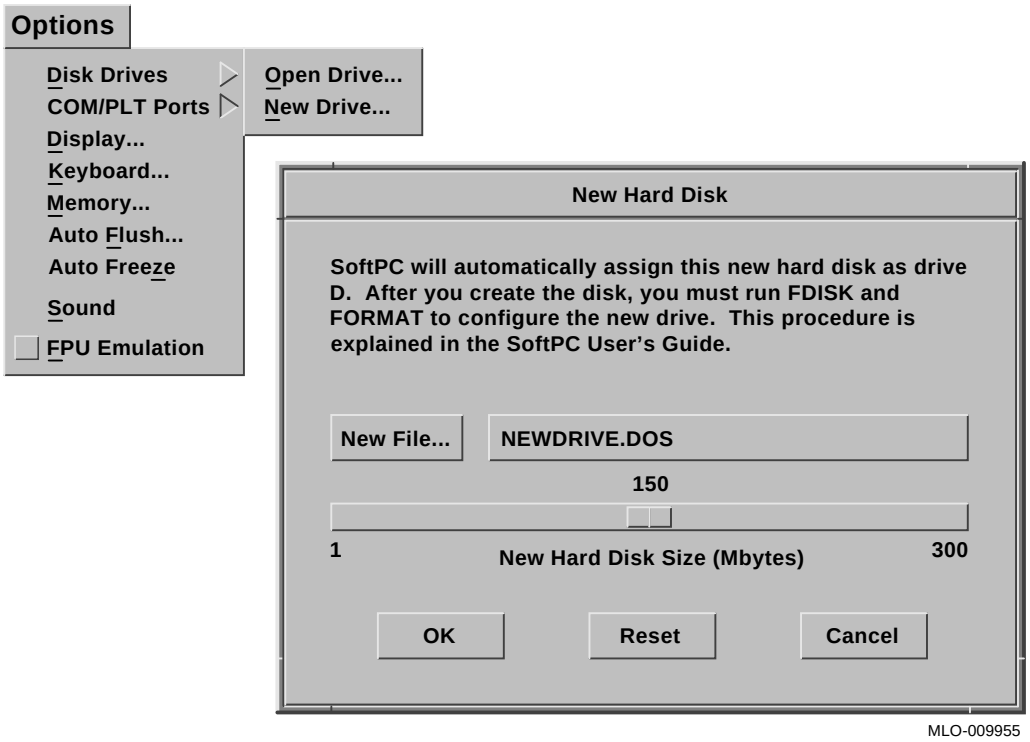
   Result: These menus are displayed.

2. Enter the name of the disk. (If you enter a file name, it is placed in the directory you were in when you invoked DEC SoftPC. If you enter a full path name, that is where the new drive [file] is installed.)

3. Place your cursor on the slide bar and move the marker to the desired size. Click on OK.

   The example shown creates a 150 Mbyte container file named NEWDRIVE.DOS.

   Result: The file is created and DEC SoftPC restarts with NEWDRIVE.DOS installed as your D: drive.


Options
Disk Drives
COM/PLT Ports
Display...
Keyboard...
Memory...
Auto Flush...
Auto Freeze
Sound
FPU Emulation
Open Drive...
New Drive...
New Hard Disk
SoftPC will automatically assign this new hard disk as drive D. After you create the disk, you must run FDISK and FORMAT to configure the new drive. This procedure is explained in the SoftPC User's Guide.
New File...
NEWDRIVE.DOS
150
1
New Hard Disk Size (Mbytes)
300
OK
Reset
Cancel

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Step 2: Partition the disk

1. At the DOS prompt, enter:

   ```
   FDISK Return
   ```

   Result: The FDISK program is displayed.

2. Enter Option 5 from the FDISK menu for your second hard disk.

   ```
   Enter choice [5] Return
   ```

   Result: (DOS Version 5.0 only) The disks on your system are displayed.

3. (DOS Version 5.0 only) Enter the disk number with 0% usage. Return

4. Enter Option 1 to create an MS–DOS partition.

5. Then, from the following menu, enter Option 1 for a primary partition.

6. Enter Y to use the whole disk as a standard MS–DOS partition, unless you have special requirements.

7. Press Esc to return to FDISK options.

8. Press Esc again to exit FDISK.

9. Press any key.

   Result: DEC SoftPC will reboot.

Step 3: Choose to create a bootable or non-bootable disk

Choose to create a bootable or non-bootable disk, and then enter the following commands: (The C: drive must be a released version of DEC SoftPC Version 4.0.)

Step	Bootable	Non-bootable
1	`FORMAT D:/S`	`FORMAT D:`
2	`Y` Return	`Y` Return
3	`XCOPY C: D:/S`	
4	`MAKEBOOT 1`	

Optional Method to Create a Bootable Disk

The `XCOPY` command shown in Step 3 copies all files from your existing DEC SoftPC V4.0 C: drive to your newly created D: drive. If you do not need to copy the entire disk, you may copy only the following essential files from C: disk to D: disk. To do this, substitute the following commands for Step 3. Then go to Step 4.

1. `mkdir d:\dos` Return
2. `mkdir d:\insignia` Return
3. `copy c:\dos\*.* d:\dos\*.*` Return
4. `copy c:\insignia\*.* d:\insignia\*.*` Return
5. `copy c:config.sys d: *.*` Return
6. `copy c:autoexec.bat d: *.*` Return

Using Drives E: through Z:

You can use Drives E: through Drive Z: as emulated disk drives; they can be local or remote.

To do this:

- The DOS CONFIG.SYS files must contain the line LASTDRIVE=(ID of last drive to be used). Example:

  ```
  LASTDRIVE=G
  ```

- Your AUTOEXEC.BAT can contain the drive ID and the VMS directory path. Example:

  ```
  NET USE F: SOFTPC$SYSTEM
  ```

  You can also enter this at the DOS prompt.

To detach a drive, enter:

```
NET USE(DRIVE ID):/D
```

Example:

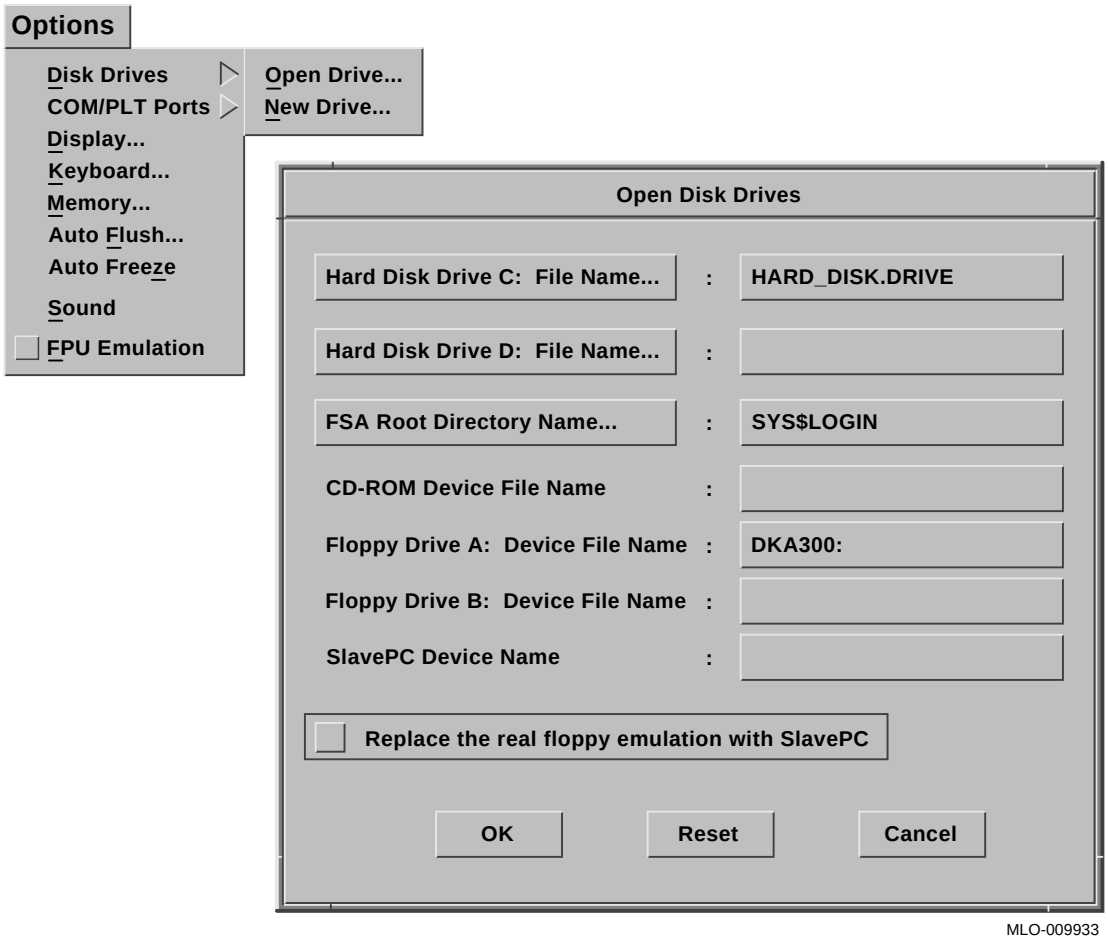
```
NET USE F: /D
```

To list current drives, enter:

```
NET USE
```

Using the CD–ROM

1. From the Options menu, select Disk Drives, then Open Drive.
   Result: These menus are displayed.



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2. Enter the name of the CD–ROM: Example, DKA400.

   If you do not know the name of the CD–ROM, enter:

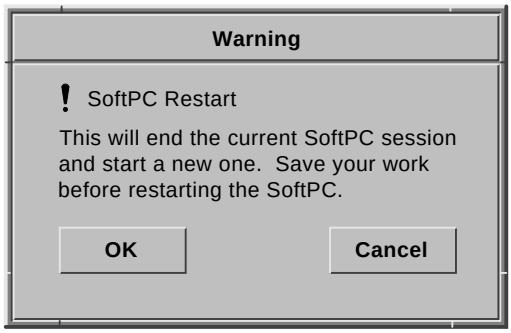
   ```
   $ SHOW DEV D/FULL Return
   ```

   The system will display information similar to this:

```
Disk DKA400:, device type RRD42, is online, file-oriented device,
shareable, error logging is enabled.
```

   CD–ROM drives have a device type of RRD42. In this example, the name of the CD–ROM is DKA400.

   Result: This warning is displayed.



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3. Click on OK.

   Result: The screen goes blank and the system restarts. The DOS prompt(>) is displayed.

4. At the DOS prompt, enter:

   ```
   MSCDEX /D:CDROM$$$ /L:E /M:8 /V  Return
   ```

   Result: This command allows DOS to recognize the CD–ROM as a single logical drive letter. If desired, you can include this command in the AUTOEXEC.BAT file so the CD–ROM is available when the system is booted.

   Format of MSCDEX.EXE:

   ```
   MSCDEX.EXE /D:<device_name> /L:<drive_letter> /M:xx /V
   ```

The terms of the previous command are explained in the table below.

Term	Explanation
/D:	The device name that is the same as in CONFIG.SYS (CD–ROM$$$ in the previous example).
/L	The logical drive letter that will be assigned to the CD–ROM drive.
/M	The number of cache buffers (8–15) for MSCDEX.EXE. Each uses 2048 bytes of RAM; the default is 10.
/V	Displays information about MSCDEX.EXE during the boot.

Default Hard Disk

The default hard disk has a directory, Insignia, which contains:

- The mouse driver
- Support for Drive E:
- Microsoft Windows 3.0 drivers for display and mouse
- Insignia versions of the MS–DOS files, CONFIG.SYS, and AUTOEXEC.BAT, which establish the necessary drivers and programs
- LIM driver

The CONFIG.SYS file must contain the following lines that allow the use of VMS files with Drive E; and allow the use of LIM expanded memory.

```
DEVICE = C:\INSIGNIA\HOST.SYS

DEVICE = C:\INSIGNIA\EM_DRVR.SYS
```

If you have a CD–ROM, add the following lines to your CONFIG.SYS file:

```
DEVICE = C:\INSIGNIA\CDROM.SYS
DEVICE = C:\DOS\SETVER.EXE
```

The AUTOEXEC.BAT file should contain the following lines for the mouse, FSA, and the CD–ROM:

```
C:\INSIGNIA\MOUSE.COM
C:\INSIGNIA\FSADRIVE  E:
MSCDEX \D:CDROM$$
```

4

Installing Applications

DOS applications are typically sold on floppy disks which users then install (load) into a floppy disk drive on their PC. Your Digital workstation may or may not have a floppy disk drive. This chapter describes how to install applications or data using DEC SoftPC with or without a floppy disk drive.

Initially, all DOS applications must be installed. Once installed, applications can be copied except for those that are hardware-specific.

IF you have . . .	GO to this section . . .
a floppy disk drive on your workstation	Installing from a Floppy Disk
a workstation with DEC SoftPC and a floppy disk drive on your network	Copying over a Network
a real PC and Pathworks on your network	How to Use a PC and Pathworks
no floppy disk available	How to Use SlavePC

Installing from a Floppy Disk

Follow the instructions on your application software.

Copying over a Network

You can copy any application that has been already installed on another DEC SoftPC over a network. Do this by copying the container file.

You can copy files from, and share files with, other DEC SoftPCs. Files contained on an FSA drive can be shared by multiple DEC SoftPCs using the host networking software.

Alternatively, you can copy files to a DEC SoftPC on a standalone workstation.

Do not share a DEC SoftPC hard disk; only copy it. A shared hard disk file can be corrupted.

How to Use File Transfer

You can copy an existing hard disk file to a workstation not on a network by using any convenient file transfer method, such as tape. Note that a hard disk drive file is a single file under VMS; you cannot access the MS–DOS files separately.

Notes

Users are responsible for complying with licensing requirements when copying container files that contain licensed applications software.

When transferring files using Kermit, set the file type to either "fixed" or "block" before doing the transfer. Otherwise, the transferred file will not be usable.

Copying from a PC

You can use a PC networking package such as PC NFS and the Insignia filesharing capability to transfer files, the DECnet–DOS Network File Transfer (NFT) program, or the Pathworks file service.

To do this:

1. Copy files from Drive C: of the PC to an intermediate directory in VMS.
2. Give DEC SoftPC access to the files by setting up the File Sharing Architecture (FSA) drive to be the intermediate VMS directory. (See Chapter 8 for more information on FSA.)

Be aware of the restrictions on using Drive E:. Copy-protected applications and some DOS commands may not work.

About copy-protected applications

The hardware interface on Digital workstations does not allow you to install copy-protected applications. You can install copy-protected applications on Digital workstations by:

- Installing the application on a real PC on your network, then copying that application to your workstation
- Using SlavePC

How to Use a PC and Pathworks

If you have both a real PC and Pathworks on your network, you can install applications using the File Services portion of Pathworks.

DEC SoftPC can read and write to the Pathworks file services directory. You may, however, have simultaneous access problems because Pathworks does not have byte-range record locking. This means one user might be reading a record while a second user is updating or deleting that record.

Follow these steps to install applications using a portion of Pathworks:

Step	Action
1	Transfer a file from the PC to your VMS directory.
2	Go to Drive E: or other FSA drive on DEC SoftPC.
3	From the Options menu, select Open Drive.

4	Enter the name of the FSA Root Directory using the standard VMS file-naming conventions.
	`$ PCCOMMON:[DIRECTORY]`
	Example:
	`$SYSTEM::PCCOMMON:[DIRECTORY]`
	Then, using the DOS copy command, copy the document "filename.doc from your Drive E: to Drive C:."
	Example:
	`D> copy E:filename.doc C:*.*`

Drives A: and B:

Description

The floppy disk drive is called either Drive A: or Drive B:. Generally these drives are used to install PC applications from floppy disks, to store individual programs, and to make floppy disk copies of or backup PC files.

Drives A: and B: access:

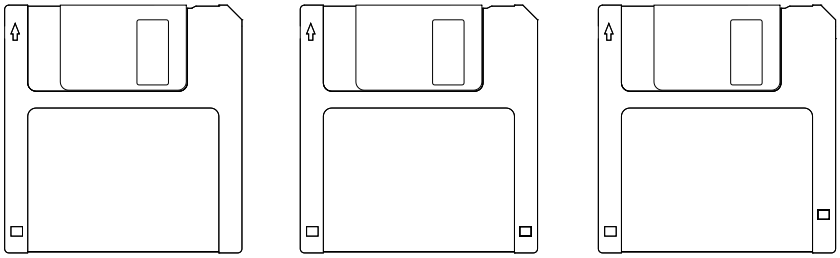
- RX23 floppy disk
- RX26 floppy disk
- RX33 floppy disk
- SlavePC

Specifications

The RX23, RX26, and RX33 follow standard MS–DOS formats.

Device	Density	Disk Size	Storage Size	Functions
RX23	DD (double)	3.5 in.	720 Kbyte	Read-write
			1.4 Mbyte	Read-read
RX26	DD (double)	3.5 in.	720 Kbyte	Read-write
RX26	HD (high)	3.5 in.	1.4 Mbyte	Read-write
RX26	ED (high)	3.5 in.	2.88 Mbyte	Read-write
RX26	ED (extended)	3.5 in.	2.8 Mbyte	Read-write
RX33	DD (double)	5.25 in.	720 Kbyte	Read-write
RX33	HD (high)	5.25 in.	1.4 Mbyte	Read-write

Figure 4–1 Disk Types



Notes

Q–bus floppy disk drives are not reliable unless formatted on your drive; therefore, DEC SoftPC does not support Q–bus floppy disk controllers and drives.

If you cannot read a floppy disk that has been formatted on another system, reformat the failing disk on the DEC SoftPC system and use the reformatted disk as the medium of exchange.

What Is SlavePC?

SlavePC allows you to use a floppy drive on a connected PC. SlavePC cannot be used as a remote PC.

Since SlavePC allows the floppy disk in a real PC to act as Drive A: or B: on your Digital workstation, you use SlavePC if your workstation lacks Drive A: or B:, or if you want to use a differently formatted floppy disk as Drive A: or B:.

SlavePC supports copy-protection schemes that rely on nonstandard floppy disk operations or formatting.

You can use SlavePC to perform any floppy disk operation. This includes:

- Copying the contents of floppy disks to Drive C:
- Running copy-protected software directly from the PC floppy drive

- Writing to floppy disks from files in DEC SoftPC

How to Use SlavePC

Follow these steps to use SlavePC:

1. **On the workstation**, SlavePC connects to either communications port, TTA2: or TTA3:. Make sure that the port has read/write permissions for all users.
   - To determine the protection, enter:

     ```
     $ SHOW DEVICE TTA2:/FULL
     ```

   - If the port has the correct protection, the response includes the line:

     ```
     Dev Prot S:RWLP,O:RWLP,G:RWLP,W:RWLP
     ```

     If the port lacks the required protection, RWLP is missing from G: and W:.

     If the protection is incorrect, your system administrator should change the read/write protection.
2. Connect the workstation to the PC with a SlavePC cable. Refer to Appendix D for details on cabling. Check your machines before making up the cable because different connectors can be installed.

IF your workstation has a...	USE a...
MMJ connector	H8571-J
25-pin connector	H8571-C connected to a H8571-J

3. **On the PC**, insert the SlavePC disk.
4. **On the PC**, verify that you are on Drive A: or go to Drive A: by entering:

   ```
   C:> A: Return
   ```

5. **On the PC**, start SlavePC from Drive A:. Enter a command in the following format:

   ```
   A:> slavepc /bbaud_rate /drive_type Return
   ```

As you enter this command, note the following:

- Substitute the appropriate names for *baud_rate* and *drive_type*.
- Make sure you put a *b* before the *baud_rate*.
- The *baud_rate* can be 19200 or the default, 9600.

IF your drive is . . .	ENTER this *drive_type* . . .
high-density 5.25	h5
low-density 5.25	l5
high-density 3.5	h3
low-density 3.5	l3

Example: If you have a baud rate of 9600 using a high-density, 5.25-inch drive, enter the following command:

```
C:> a:slavepc /b9600 /h3 Return
```

Result: On the PC, the SlavePC menu displays:

```
SLAVEPC
(version 2.42)
Copyright Insignia Solutions Inc.
1989-1991
Detached from SoftPC
Press Ctrl-Break to exit
```

6. **On the PC**, remove the SlavePC floppy from the drive.

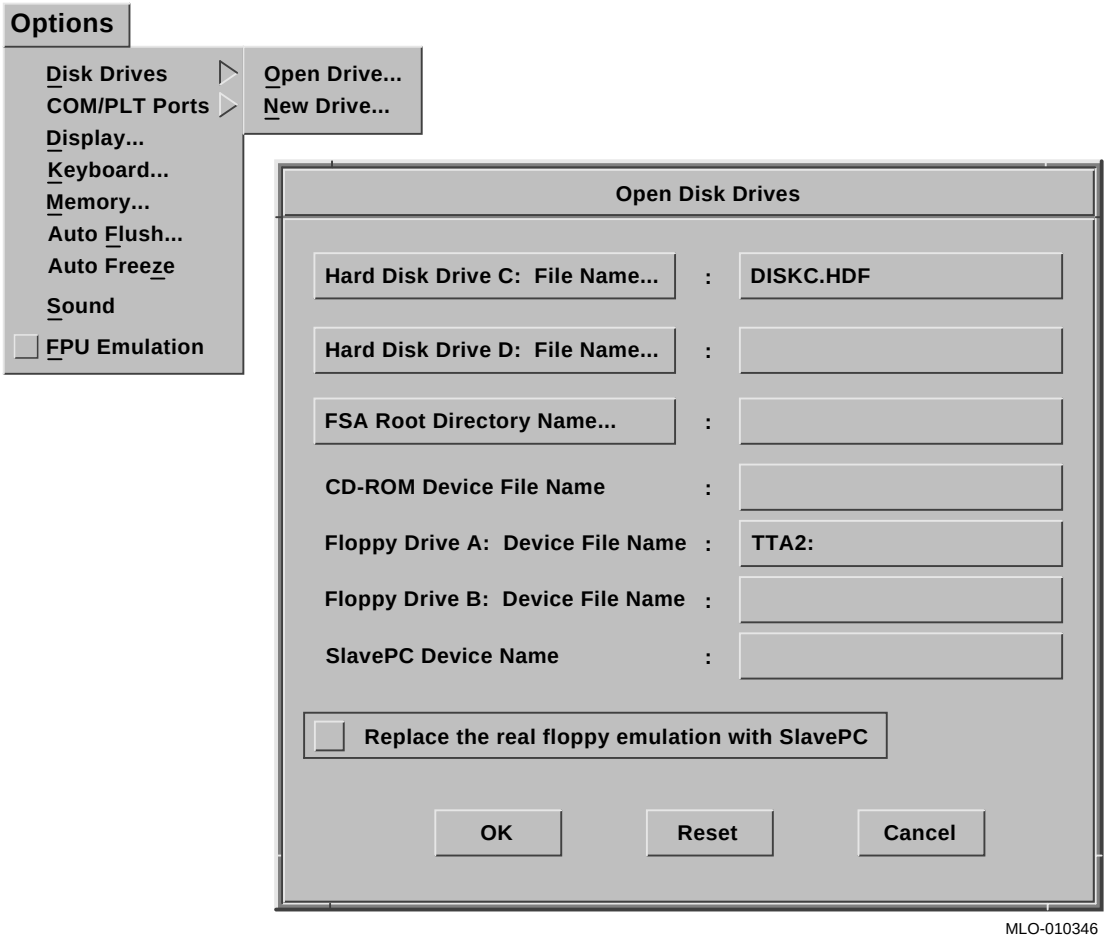
7. **On the workstation**, attach SlavePC to DEC SoftPC.

   a. From the Options menu, select Disk Drives, then Open Drive.

      Result: The menus are displayed.

   b. Click on *Replace the real floppy emulation with SlavePC.*

   c. Click on OK.



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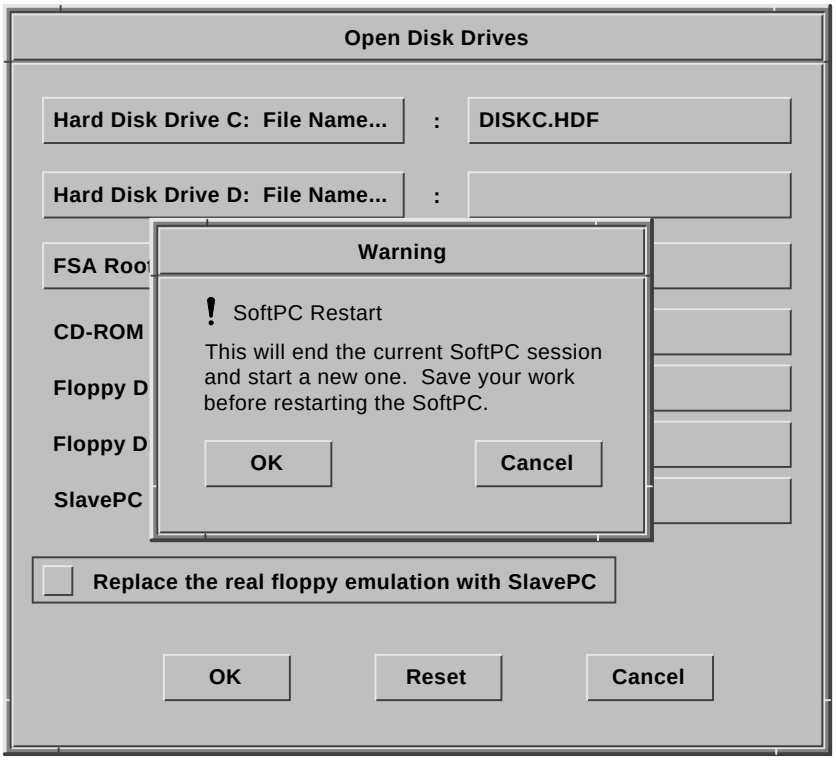
d. Click on OK again for the SoftPC Restart.



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Note

Attaching or detaching SlavePC causes DEC SoftPC to reboot.

Result: On the workstation, DOS restarts.

On the PC, the line that reads "Detached from SoftPC" changes to "Attached to SoftPC", and the floppy light comes on.

SlavePC is ready to use.

To stop SlavePC

1. **On the workstation**:
   a. From the Options menu, select Disk Drives, then Open Drive.

      Result: The menus are displayed.

   b. Click on *Replace the real floppy emulation with SlavePC*.

   c. Click on OK.

   d. Click on OK again for the SoftPC Restart.

   Result: On the workstation, DEC SoftPC restarts.

   On the PC, the message changes to "Detached from SoftPC."

2. **On the PC**, press Ctrl/break.

   Result: On the PC, DOS restarts.

3. Disconnect the SlavePC cable between the PC and the workstation.

When SlavePC runs, it controls the PC. You cannot use the PC keyboard except to exit with Ctrl/Break. Limitations in the workstation hardware and software mean that the RS-232 link between the workstation and the PC runs at 9600 baud and passes 512-byte blocks. Thus, SlavePC is relatively slow.

5
Floppy Disks

This chapter describes how to use floppy disks on your workstation. You can designate either Drive A: or Drive B:, or both, as your floppy disk drive.

How to Use a Floppy Disk on Your Workstation

Follow these steps:

Step	Action
1	Determine device name for Drive A: or B: and enter it on the Open Disk Drives menu
2	Format the disk under VMS
3	Attach the disk to DOS
4	Format the disk under DOS

Step 1: Determine the Device Name for Drive A: or B:

Determine the device name and number for Drive A: or B: by entering:

```
$ SHOW DEVICE D/FULL
```

The system lists all your disks. For example:

```
Disk DKA400: (DICKNS), device type RX26, is online,
file-oriented device, shareable, available to cluster, error logging is
enabled.
```

In this example, the floppy disk device type is RX26. The disk name precedes the device type so the floppy device name is DKA400.

To attach (activate) Drive A: or B:.

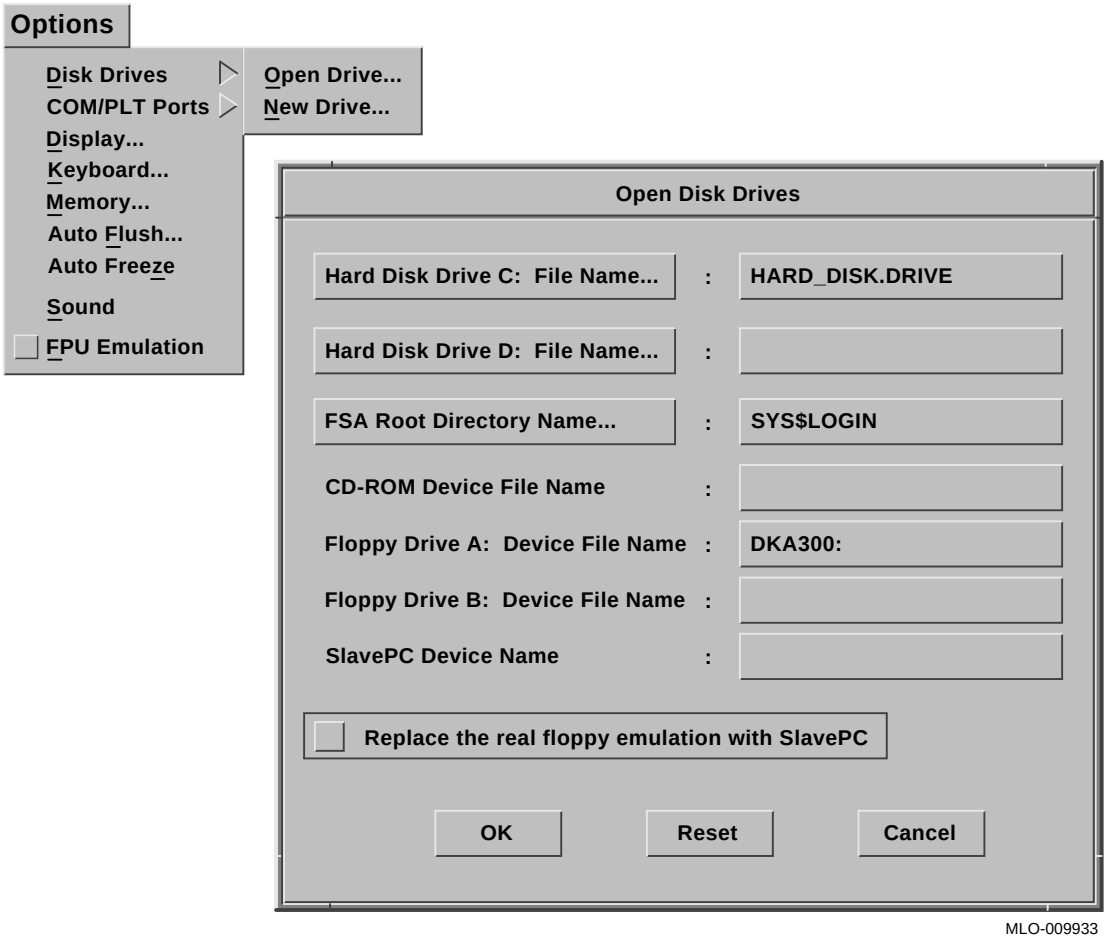
1. Put the floppy disk into the drive.

2. From the Options menu, select Open Drive.

   Result: These menus are displayed.

3. Enter the name of the floppy disk drive. For example, DKA300:.

   Click on OK.



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Step 2: Format the Disk Under VMS

Floppy disks must be formatted or organized before they are used.

You can format floppy disks on a real PC or on your workstation. (Formatting floppy disks may take from 2 to 10 minutes each.)

To format a disk on a Digital workstation, enter:

```
$ INIT/DENSITY=DOUBLE DKA400: SHEEP
$ INIT/DENSITY=SINGLE DKA400: SHEEP
$ INIT/DENSITY=ED DKA400: SHEEP
```

Result: This command formats the floppy disk as a 1.44-Mbyte device and writes a volume label SHEEP on it. The volume label is required but not used under DOS.

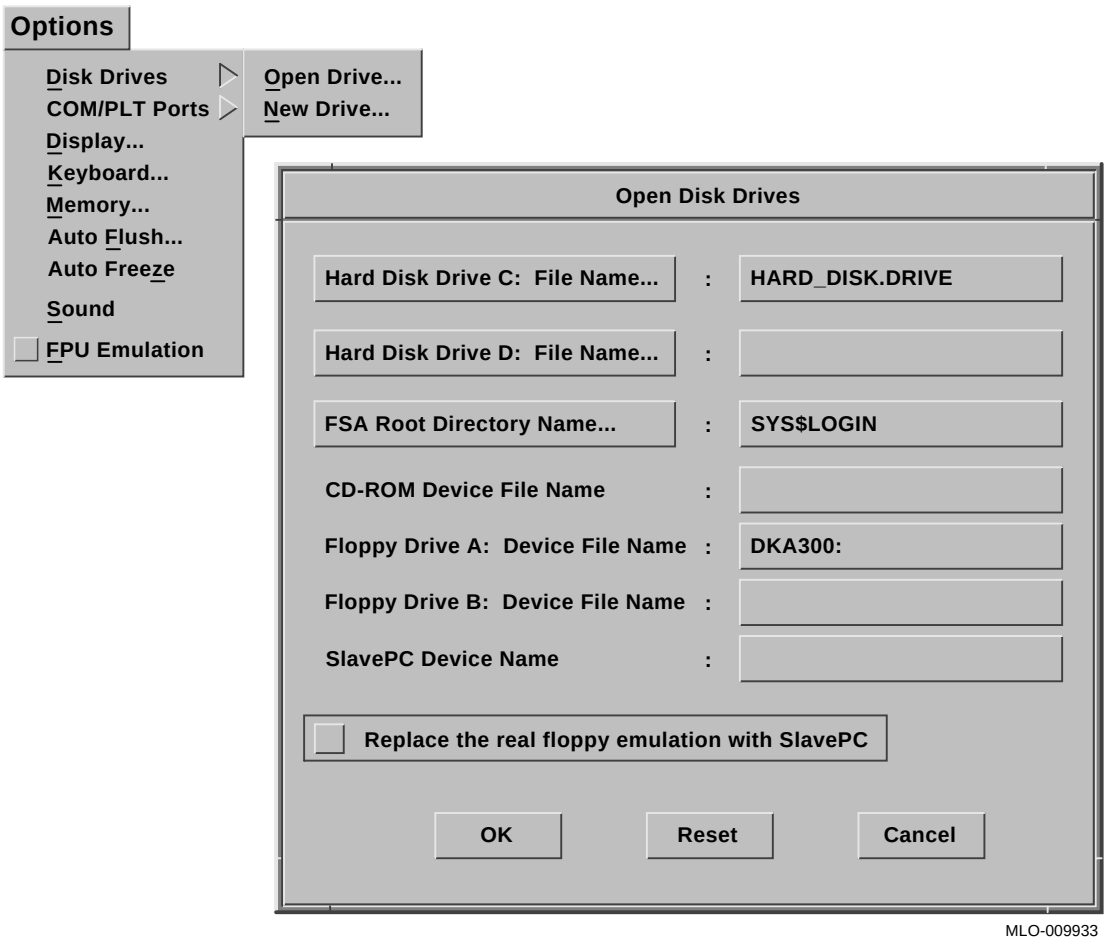
Step 3: Attach the Disk to DOS

To attach (activate) Drive A: or B:

1. Put the floppy disk into the drive.
2. From the Options menu, select Open Drive.

   Result: These menus are displayed.
3. Enter the name of the floppy disk drive, for example, DKA300:. If you do not know the floppy device name, open a second window and follow the instructions in Step 1: Determine the Device Name for Drive A: or B:.

   Click on OK.



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Note

Drive A: can be used only by one DEC SoftPC window at a time; DEC SoftPC attaches Drive A: to the first DEC SoftPC window that is opened. If you are running more than one DEC SoftPC window at a time, use the Actions menu to change the window to which Drive A: is attached.

Step 4: Format the Disk Under DOS

Format the disk under DOS using the standard FORMAT command.

```
C:> FORMAT A:
```

The floppy disk is now ready for use.

If you have problems, enter:

```
C:> HELP FORMAT
```

If You Forget to Remove the Floppy Disk

If you leave a VMS disk in the floppy drive when when you boot DEC SoftPC, the result may be a black screen and a runaway cursor. To solve this problem, open the door and restart.

DEC SoftPC bootstraps MS–DOS from the floppy drive in preference to the hard disk, much like a real PC AT. If your drive contains a nonbootable floppy disk, you will get an error message. If this happens, open the drive door and press any key. This forces DEC SoftPC to boot from the emulated hard disk.

If a DEC SoftPC Error Panel displays, stating that an invalid instruction has been encountered, open the drive door and click on Reset. An error panel normally appears when you boot an incompatible floppy diskette.

6

Printers and Modems

DOS systems have a serial (COM) port for modems, plotters, and laptop links and a parallel (LPT) port for directly connected printers and external disk drives.

Like a PC, DEC SoftPC provides emulation for both serial and parallel ports. (Most DOS applications use LPT1 or COM1 ports and do not use LPT2 and COM2 ports.) This chapter describes how to connect printers and other communications devices to your system and how to print DEC SoftPC files.

Print Options

You can print from DEC SoftPC in three ways:

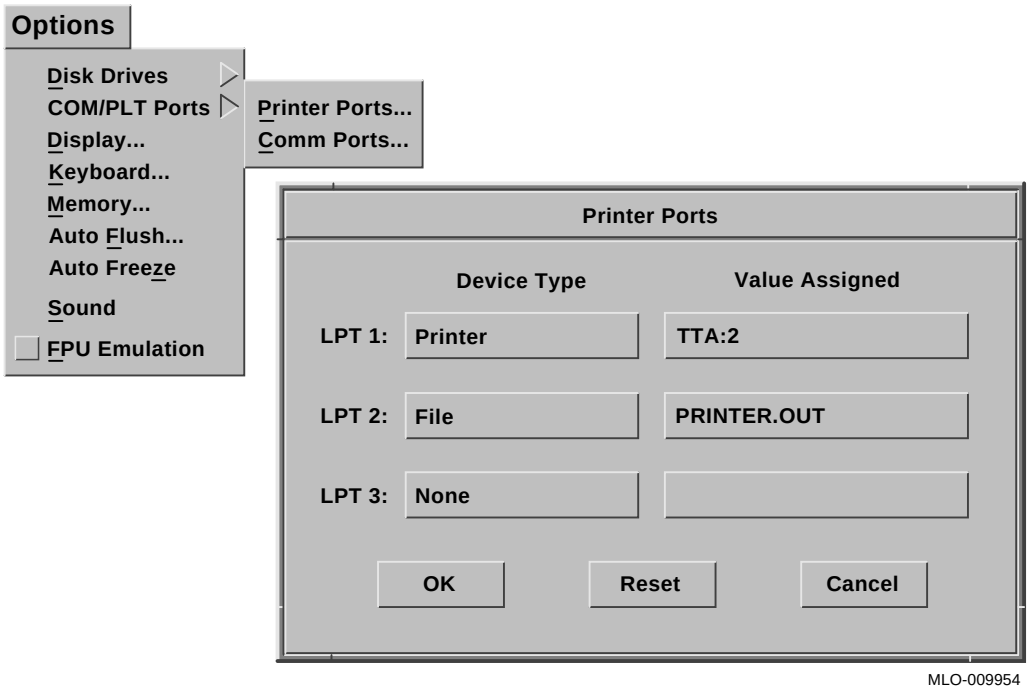
- Using a printer directly connected to a workstation
- Using a VMS print queue
- Saving a file and then printing it

Printing or Connecting Communications Devices

To either print or connect other communications devices, follow these steps.

1. Physically connect the cable from your printer, modem, or plotter to your workstation. Make sure that the serial port is available.
2. From the Options menu, select COM/LPT Ports, then either Printer Ports or Comm Ports.

   Result: This pull-down menu, and either the Printer Ports or Comm Ports menu, is displayed.



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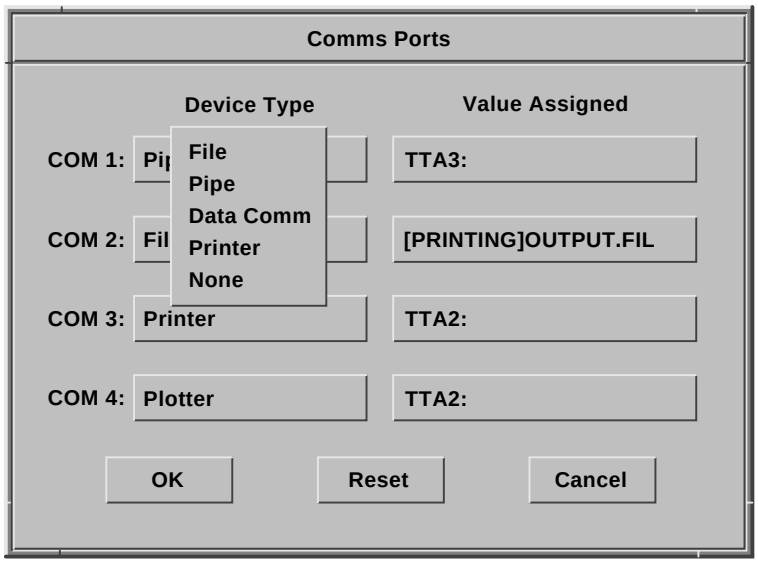
3. Select the desired port.

   Result: This submenu displays with the defaults shown under Value Assigned.



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4. Use the defaults by clicking on OK, or type in a different device name, then click on OK.

   Result: The default device name or your chosen device name displays.

Flushing the Print Buffers

The operating system stores information in its buffers. This information must be flushed (released) if you print to a print queue or a file. The following table provides information on the various devices.

Device	Flush	Comment
VMS print queue	Yes	A large print job might fill the buffer so you must flush more than once, causing unwanted page breaks. To solve this problem, print to a file, then print the file using the DOS COPY command. Do not use the DOS PRINT utility. Use the /B qualifier on the COPY command if the print file contains 8-bit data used by certain printers. Example: COPY /B print-file-name LPT1:.
File	Yes	You can use the print file to mail, copy, or send to a remote system for printing.
Directly connected printer	No	Neither the native host system nor another DEC SoftPC can use the printer when printing from DEC SoftPC.

There are two ways to flush the print buffers:

IF you select . . .	THEN the buffer flushes . . .
Auto Flush	automatically 1 to 50 seconds after it is loaded.
Flush ports	manually and immediately. This is useful for background printing.

Using Auto Flush

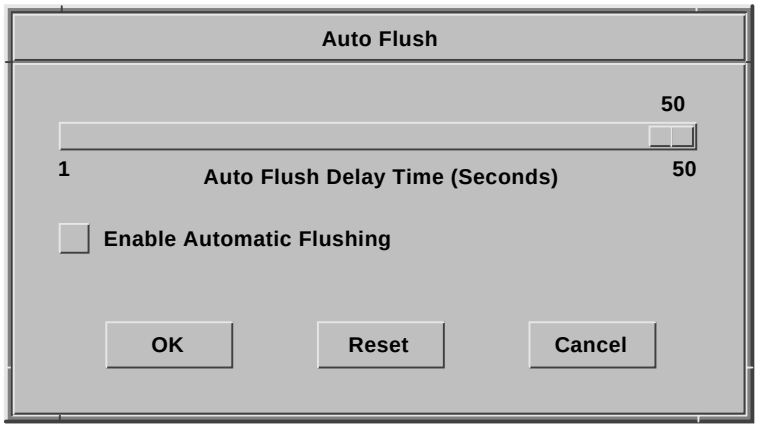
To flush the buffers automatically, follow these steps.

1. From the Options menu, select Auto Flush.

   Result: These menus are displayed.

2. Place the cursor on the slide bar and move to the desired delay time. The timing starts after the last character enters the buffer.

   Click on Enable Automatic Flushing. Click on OK.



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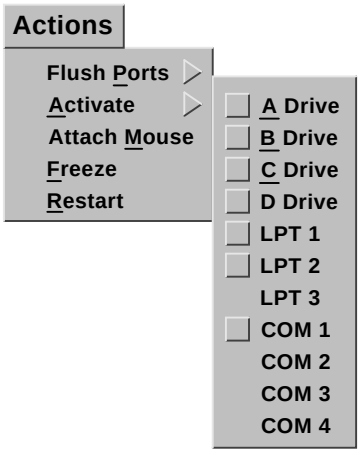
Using Flush Ports

To flush the buffers manually:

- From the Actions menu, select Flush Ports, then the desired port.

  Result: This menu is displayed.



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7

Changing the Graphics Option and Increasing Memory

Your DOS applications may require various graphics options or expanded or extended memory. DEC SoftPC provides emulated graphic interfaces for:

- VGA or Super VGA
- EGA
- CGA
- Hercules

Graphics Options

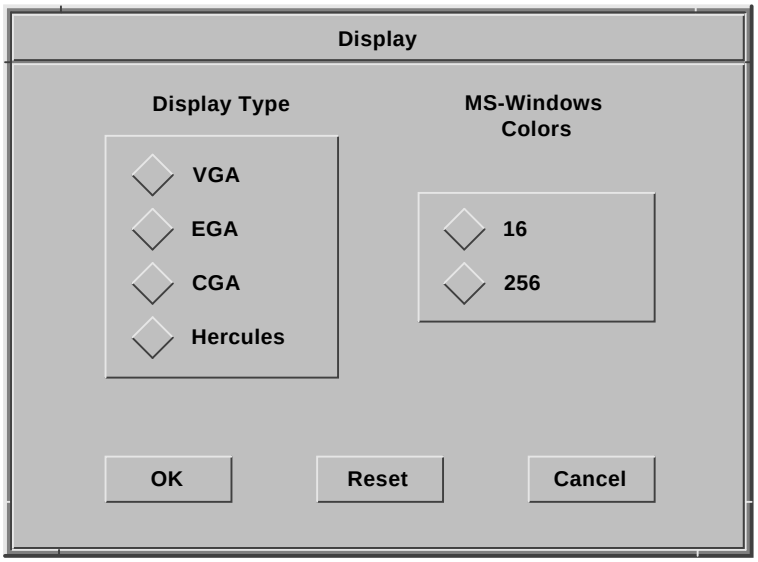
To choose a graphics display:

1. From the Options menu, select Display.

   Result: The Display menu is displayed.

2. Click on the desired display type. (Click on VGA for both VGA and Super VGA.)

   Click on OK.



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DEC SoftPC automatically switches from VGA to Super VGA if your application uses Super VGA. You need do nothing.

Expanded and Extended Memory

Some DOS applications require either expanded or extended memory. DEC SoftPC provides up to 32 Mbytes of expanded memory and up to 16 Mbytes of extended memory. To use expanded or extended memory:

1. From the Options menu, select Memory.

   Result: The Memory menu is displayed.

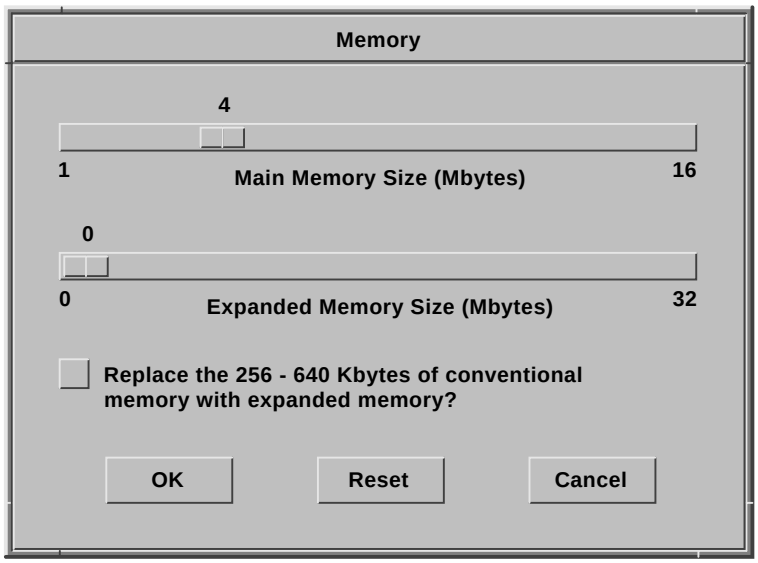
2. Place your cursor on the Main Memory (extended) or Expanded Memory slide bar and move the marker to the desired memory size.

   Click on OK.

3. If your application requires that you replace conventional memory with expanded memory, click on the box. (Applications rarely require this.)

   Click on OK.

   Result: The DEC SoftPC window restarts.



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8

Sharing Files Between MS–DOS and VMS

This chapter describes how to access MS–DOS files using DEC SoftPC's File Sharing Architecture (FSA) which can be located on Drives E: through Z:.

File Sharing Architecture

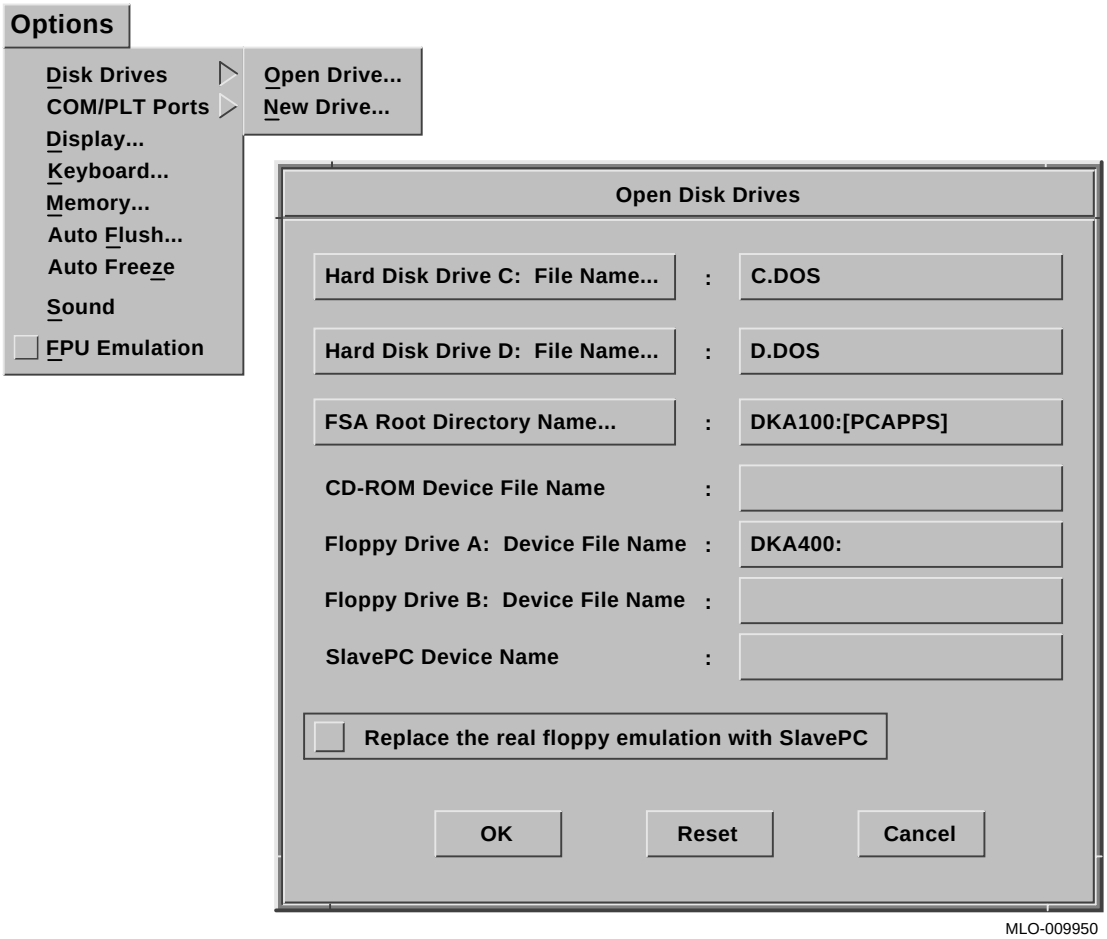
FSA is software that allows MS–DOS files to be stored in the VMS file system as individual files and accessed as though they were on an MS–DOS disk. This allows the user to:

- Access more storage than is available on a PC hard disk drive
- Copy files from system to system using the normal Network File System (NFS) or DECnet copy commands

Accessing MS–DOS Files in VMS

You access a directory in VMS by naming the FSA Root Directory.

1. From the Options menu, select Disk Drives, then Open Drive.
   Result: These menus are displayed.
2. Enter the FSA root directory name.
3. Click on OK.



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Networked Drive Restrictions

An FSA drive has the same restrictions in the operations it supports as does an MS–DOS networked drive. MS–DOS commands such as DISKCOPY or SYS do not work because they operate on low-level disk hardware that does not exist on a networked drive.

Generally, commands marked with the "Network Not Allowed" symbol in the *MS–DOS User's Manual* do not work on an FSA drive.

You cannot install copy-protected programs onto an FSA drive because most copy-protection schemes attempt to program the disk hardware at a low level. To install copy-protected software, use one of the hard disk drives, C: or D:.

To share files between programs running under MS–DOS and VMS processes, or between multiple systems across a network, the files should reside on network drives. Hard disks can also be shared across a network, but you must be aware of possible conflicts with simultaneous access.

Be sure you understand the implications of sharing Drives E: through Z:. Storing files on these drives imposes a large overhead on DEC SoftPC. You may experience a noticeable delay when opening files or doing a directory. Executing a directory command, for example, requires accessing each remote file. Since performance is dependent on the number of files in each directory, it is advisable to keep directories small.

Sharing Data

If an application running under VMS uses an identical file format when it runs under MS–DOS, you can share data between the two implementations of the application. You cannot, however, share data if the storage methods differ. Although Drives E: through Z: access the VMS file system, the operating system may use a different file format than does MS–DOS.

Converting File Formats in VMS

Two commands allow you to convert text files between MS–DOS and VMS.

To copy an MS–DOS file to a VMS format text file, use:

```
$ SOFTPC/DOS_TO_VMS DOSFILE.DAT VMSFILE.DAT
```

To copy a VMS file to an MS–DOS file, enter:

```
$ SOFTPC/VMS_TO_DOS VMSFILE.DAT DOSFILE.DAT
```

Drives E: through Z: Naming Conventions

You can use the same file names in MS–DOS and in VMS if you follow MS–DOS conventions. However, DEC SoftPC treats VMS file names that do not fit MS–DOS conventions in the following way:

- VMS file names with more than eight characters are truncated to eight characters and the filetype changes. Thus, the VMS file name LONG$NAME.LIS appears in MS–DOS as LONG$NAM.HM^.
- VMS filetypes longer than three characters are replaced by a specially encoded form. Thus, the VMS file name FILENAME.LONG appears in MS–DOS as FILENAME.@Y7.
- If multiple versions of a VMS file exist, only the file with the highest version number appears under MS–DOS.

Invalid MS–DOS File Names

Some file names are not valid under VMS. These are treated as follows:

- MS–DOS file names that contain characters considered illegal under VMS are replaced by a specially encoded form. Thus, the MS–DOS file name {WP}.TMP becomes SOFTPC$7B57507D2E544D50 under VMS.
- MS–DOS filetypes that include characters considered illegal under VMS are replaced by a specially encoded form. Thus, the MS–DOS file name NAME.%%% becomes SOFTPC$4E414D452E252525 under VMS.

9

Using DEC SoftPC on a VT220 or Equivalent Terminal

This chapter describes how to configure a VT220 or equivalent terminal to run DEC SoftPC and how to use DEC SoftPC on that terminal. The chapter has four sections:

- Essential files and restrictions
- Using DEC SoftPC on a terminal
- Editing DEC SoftPC's configuration file
- Configuring the terminal

Essential Files and Restrictions

Essential Files

The VMS installation procedure automatically copies the essential files into the file, SOFTPC$SYSTEM:.

Restrictions

The following restrictions exist when you use DEC SoftPC on a terminal:

- The terminal must be a VT220 or compatible with a VT220.
- You can run only Monochrome Display Adaptor (MDA) applications. You cannot run CGA, EGA, VGA, or Hercules applications.
- You cannot use a mouse.
- You cannot freeze DEC SoftPC.

Using DEC SoftPC on a Terminal

To start DEC SoftPC on a VT220 terminal, enter:

```
$ SoftPC /INTERFACE=CHARACTER_CELL Return
```

Result: SoftPC comes up in character cell (also called serial terminal) mode.

Specifying "/KEY_DEFINITIONS=keymap-file" forces DEC SoftPC to use a keymap file other than the default file for the VT220 terminal. The default is DEC SoftPC$SYSTEM:TERM.KEY for Serial Terminal mode.

The first time DEC SoftPC starts, you are asked if you want to accept the system defaults or quit. Choose the defaults (which include the configuration file) and the MS–DOS prompt (C:\>) appears. You can now use MS–DOS or run DOS applications.

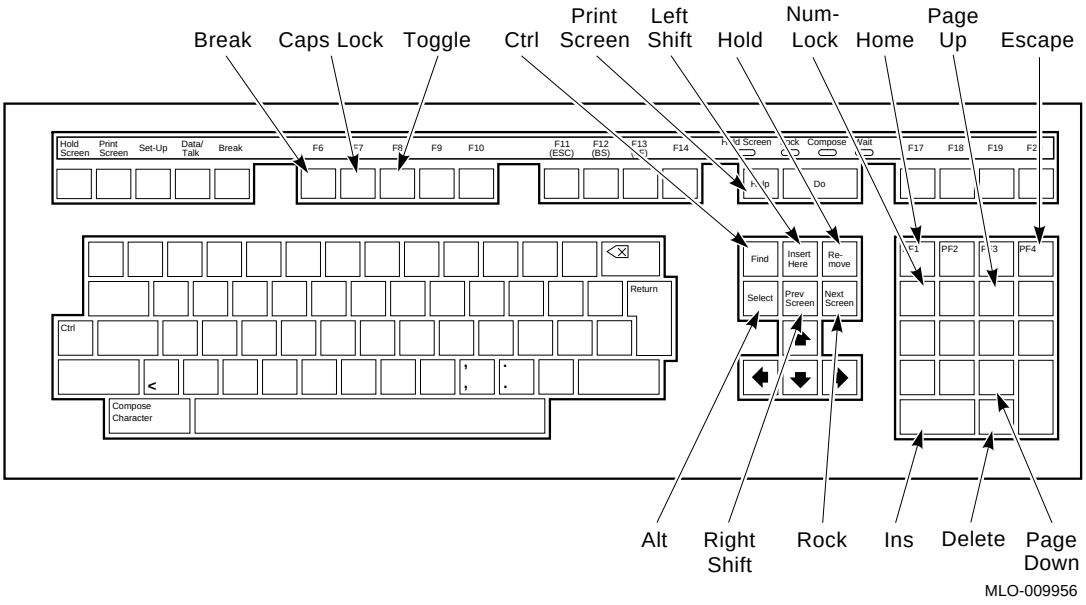
To quit, press the key sequence F8, Ctrl[, and 0.

To change the configuration file, see Editing DEC SoftPC's Configuration File later in this chapter.

Using the VT220 Terminal Keyboard

Figure 9–1 shows the VT220 terminal keyboard with some keys mapped. Appendix F has additional information about key mapping.

Figure 9–1 VT220 Terminal Keyboard



The table below shows the equivalent DOS and VT function keys.

DOS	VT
F1	F11
F2	F12
F3	F13
F4	F14
F5	F17
F6	F18
F7	F19
F8	F20
F9	F9
F10	F10

Toggle

When you start a DEC SoftPC session, the keys have Digital key assignments. You activate DEC SoftPC key assignments by pressing Toggle. This key toggles the keyboard between DEC SoftPC mode and Digital mode.

ROCK

A PC uses 25 lines while most terminals use 24 lines. You use the Rock key to toggle the 25th line on and off the screen display or C:\INSIGNIA\ROCKSCR.COM for batch jobs.

HOLD

Some software applications require an auto-repeat function which is generated when a key is held down. You emulate this by simultaneously pressing HOLD and the key that is to auto-repeat. If the key is a character key, the character repeats on your screen. If you press HOLD again, this function is cancelled.

Key Sequences in VT220 Mode

Use the following key sequences:

1. Toggle (if you are in Digital mode).
2. Press Ctrl/[.
3. Press Escape and the appropriate main keyboard key shown in the following table:

For this action...	Press this key...
To attach or detach a floppy disk on Drive A:	3
To attach or detach a floppy disk on Drive B:	4
To attach or detach a floppy disk on SlavePC	5
To attach or detach a currently active port	6
To flush the communications ports (print)	1
To refresh the screen	2
To exit DEC SoftPC	0

The following actions do not require the Toggle and Ctrl/[sequence:

For this action...	Press...
To display settings for drives and ports	Help
To invoke a text editor (vi) for the configuration file	DO
To reset DEC SoftPC	Ctrl/Alt/Del[1]

[1]These keys are Find and Select on the arrow keypad and period on the numeric keypad.

Using .COM Commands

- FLATOG.COM allows you to toggle the floppy disk port for Drive A: on or off; FLABOG.COM allows you to toggle the floppy disk port for Drive B: on or off.
- TOGCOM.COM allows you to toggle communications ports on or off.

  Example: TOGCOM

Editing DEC SoftPC's Configuration File

The configuration file is set up automatically the first time you use DEC SoftPC in terminal mode. It is created in the directory in which you started DEC SoftPC and called SPCCONFIG.INI. You can use the default configuration file or you can edit the file to fit your needs.

A configuration file on a terminal allows you to select hard disks, to attach flexible disk drives, and to perform other DEC SoftPC functions.

The configuration file sets up your terminal for DEC SoftPC each time you start a session. To edit the configuration file, use a text editor such as EDIT/EDT. Changes you make in the configuration file take effect the next time you start DEC SoftPC. Be sure to save your edits. A sample configuration file is shown in Chapter 10.

Attaching Drive A: and B:

If a floppy disk drive is connected when you start a DEC SoftPC session, you must specify if DEC SoftPC should use Drive A: or B:. See Key Sequences in VT220 Mode earlier in this chapter.

Setting Up Devices

Edit the line in the configuration file for COM type and COM port. The lines for type and port must correspond. For type, use one of the following: File, Datacomm, Printer, Plotter, Pipe, or None.

In the SoftPC file, the corresponding entries could be:

```
COM_PORT_1_TYPE         Datacomm
COM_PORT_1              TTA2:
```

Display Type

You cannot change the display type. It defaults to Monochrome Display Adapter (MDA). The DISPLAY_GRAPHICS_ADAPTER parameter in the configuration file sets the display type, but DEC SoftPC ignores the line when running on a serial terminal.

Setting Up Memory

You can increment the MEMORY_EXPANDED_SIZE parameter up to 32 Mbytes and the MEMORY_EXTENDED_SIZE up to 16 Mbytes.

To set the conventional 640-Kbyte memory for MS–DOS, verify that the SPCCONFIG.INI file reads as follows:

```
MEMORY_EXPANDED_BACK_FILL       NO
```

Setting Drive Names

Edit the following parameters to set the appropriate drive file names.

For example:

```
DRIVE_CDROM_DEVICE_NAME
DRIVE_FLOPPY_A_DEVICE_NAME      DKA100:
DRIVE_FLOPPY_B_DEVICE_NAME
DRIVE_C_FILE_NAME               DKB100:[DOS]C.DRIVE.HDF
DIRVE_D_FILE_NAME               DKB100:[APPS]D_DRIVE.HDF
DRIVE_FSA_ROOT_DIRECTORY        SYS$LOGIN
```

where Drive C: is named C_DRIVE.HDF; Drive D: is named D_DRIVE.HDF; and Drive E: is named SYS$LOGIN.

Creating an Empty Hard Disk

To create an empty hard disk file for a VT220 or equivalent terminal, use the SOFTPC/HARD_DISK_CREATE command.

```
$ SOFTPC/HARD_DISK_CREATE new-disk-name size
```

where new-disk-name is the file name of the container file to be created and size is the number of Mbytes in the container file (1 to 300).

Edit the line DRIVE_D_FILE_NAME, in the SoftPC configuration file to select the new container file as Drive D:.

Finally, start up SoftPC and prepare the new hard disk file for SoftPC as described in Chapter 3.

Configuring the Terminal

System Administrator Tasks

The system administrator should do the following tasks:

1. Connect the terminal using the RS232 interface. Follow the instructions in your terminal's user's guide.
2. Determine your terminal name by entering:

   ```
   $ SHOW DEVICE TT
   ```

   The system responds with a list. Usually a VAXstation is TTA2: or TTA3:.

User Tasks

Use the cursor keys to move to the Keypad option. Use Enter to toggle between the Application and Numeric settings.

After you set the keypad to Application, change the communication settings to match the following table:

Baud Rate	Parity	Data Bits	Stop Bits	Xon Xoff	Term	Mode
9600	None	8	1	Enabled	VT200	7 Bit

Next, move the cursor to Save and press Enter. These settings are used each time you start DEC SoftPC.

If you have problems:

1. Verify that the connections are secure.
2. Check that the terminal's communications settings are correct.
3. Make sure that the keys are not sticking, dirty, or broken.
4. Verify that the device has the correct permissions.

Your terminal should now be configured and ready to use.

10
Helpful Hints

This chapter includes hints on using DEC SoftPC and answers to frequently asked questions.

How can I increase performance?

To increase the performance of DEC SoftPC, carefully read the documentation that comes with your application software. Any information on optimizing your application applies equally to optimizing that application's performance on DEC SoftPC.

How can I increase the speed of Windows?

You can increase the speed of Windows by at least 200 percent if you install the native-mode drivers which DEC SoftPC provides.

1. Remove any previous installation of Windows. (You cannot use the drivers if you do an upgrade installation.)
2. Place the Microsoft Windows disk #1 into Drive A:.
3. At the A:> prompt, enter

   SETUP Enter.
4. From the menu, select complete installation.
5. In the Windows Setup screen, select Display.
6. Move the cursor to the end of the option list and select Other. (This option requires a disk provided by a hardware manufacturer such as Insignia.)
7. Enter

   C:\INSIGNIA.

   Only one item will be on the list, DEC SoftPC Display.
8. Press Enter.

9. Select Mouse.
10. Move to the end of the option list and select Other. (This option requires a disk provided by a hardware manufacturer.)
11. Enter

    C:\INSIGNIA.

    Only one item will be on the list, DEC SoftPC Mouse.
12. Press Enter.
13. At the Main Menu, press Enter.

    Now continue your normal Windows installation procedure.

Why am I getting font errors?

You might get font errors if you did not reboot the system after the installation.

The installation procedure copies the SoftPC fonts to the DECwindows font directories, but the DECwindows server does not recognize the DEC SoftPC fonts until the server is restarted.

How can I use a client-server configuration?

You must load Motif and the correct Motif license on the client.

How can I run SlavePC?

Some PCs are incompatible with SlavePC. The following PCs, plus those that are 100% compatible with these listed PCs, work with SlavePC:

- IBM PC
- IBM PC/AT
- IBM PS/2 model 30
- COMPAQ
- Vectra
- DECstation

How do I edit the configuration file?

The configuration file, SPCCONFIG.INI, is created the first time you start DEC SoftPC. This file (also called the initialization file) stores your changes when using the DEC SoftPC menus. The current version of the file is read each time a SoftPC window is started. If the contents of the file are incorrect or inconsistent, error messages appear.

Normally, you should not edit SPCCONFIG.INI. You may need to, however, if errors occur. Be careful to change only the values on the right; do not change the names on the left.

This is a sample configuration file. Callouts explain each line.

```
1  MEMORY_EXTENDED_SIZE              4
1  MEMORY_EXPANDED_SIZE              0
2  MEMORY_EXPANDED_BACK_FILL         No
3  DRIVE_CD–ROM_DEVICE_NAME
4  FPU_EMULATION                     No
5  DRIVE_C_FILE_NAME                 SOFTPC$SYSTEM:3MB.HDF
6  DRIVE_FSA_ROOT_DIRECTORY          SYS$LOGIN
6  DRIVE_FLOPPY_A_DEVICE_NAME
6  DRIVE_FLOPPY_B_DEVICE_NAME
6  DRIVE_SLAVEPC_DEVICE_NAME
7  DISPLAY_GRAPHICS_ADAPTER          VGA
8  DISPLAY_SIZE                      1.5
9  DISPLAY_MSWIN_WIDTH               884
10 DISPLAY_MSWIN_HEIGHT              490
11 DISPLAY_MSWIN_COLORS              16
12 LPT_PORT_1_TYPE                   File
12 LPT_PORT_2_TYPE
12 LPT_PORT_2_TYPE
12 LPT_PORT_1
12 LPT_PORT_2
12 LPT_PORT_2
12 COM_PORT_1_TYPE
```

12 COM_PORT_2_TYPE
12 COM_PORT_3_TYPE
12 COM_PORT_4_TYPE
12 COM_PORT_1
12 COM_PORT_2
12 COM_PORT_3
12 COM_PORT_4
13 SOUND Yes
13 AUTO_FREEZE No
13 AUTO_FLUSH No
14 AUTO_FLUSH_DELAY 50
15 KEYBOARD_MAP_FILE_NAME SOFTPC$SYSTEM:XKBDMAP.KEY

1 This selects expanded memory size, depending on your available memory.

2 Indicates that a portion of the 640–MByte base memory is to be replaced by expanded memory.

3 Points to the CD–ROM device name.

4 Indicates whether DEC SoftPC is emulating floating-point hardware.

5 This is the pointer to your system disk (C: drive) using the standard file format.

6 This is a pointer to a specific directory.

7 Enter CGA, VGA, Hercules, or EGA, depending on your application's requirements.

8 This is your DEC SoftPC window size: 1, 1.5, or 2.

9 This is your Windows width.

10 This is your Windows height.

11 This is the number of colors used with Windows.

12 These are the actual defaults for each communications (COM) or printer (LPT) port. For additional information, see the following table.

13 Indicates whether this function is on (yes) or off (no).

14 Indicates the delay in seconds between flushes.

15 Indicates the name of the xkeyboard map.

COM Type and COM Port Entries

The line for COM type and COM port must correspond when you edit the configuration file, as shown in the following table:

If printing directly to a printer	You enter
LPT_PORT_1_TYPE	printer name
LPT_PORT_1	TTA2:
If printing to a file	**You enter**
LPT_PORT_1_TYPE	standard VMS file name
LPT_PORT_1	standard VMS file name
If printing to a system print queue	**You enter**
LPT_PORT_1_TYPE	print queue name
LPT_PORT_1	system printer name

A

VMS Installation

This appendix describes how to install DEC SoftPC on the VMS operating system. File protection for the VMS operating system is discussed in Appendix E.

Definitions: Real floppy and SlavePC

A real floppy is a floppy disk on your Digital workstation. In contrast, SlavePC is software that allows you to use a floppy disk on a real PC connected to your Digital system via a serial communications line. Either configuration allows you to load and unload software.

Note

During the installation you are asked if you wish to use a real floppy device and you are asked for the name of this device. You need this device name before starting installation. To find the name, enter:

```
$SHO DEV D Return
```

You are also asked about SlavePC. Then you are asked to specify which communications port is being used to connect to the real PC. You need this communications port name before starting the installation (it will be either TTA2 or TTA3). To find out the communications port, consult the user's manual for your system.

Preparing to Install SoftPC Under VMS

Your bills of material (BOM) and indented bills report (BIL) specify the number and contents of your media. Be sure to check the contents of your kit against this information. If your kit is damaged or if you find that parts of it are missing, call your Digital sales representative.

Distribution media must be mounted in numerical order. The installation procedure prompts you to mount the volumes. For more information on how to mount distribution media, see your processor-specific installation/operations guide, which also details several options to the installation procedure.

Accessing the Online Release Notes

SoftPC provides online release notes. The prompt to display or print the release notes during the installation appears in step 5 of the installation procedure when you invoke VMSINSTAL with the OPTIONS N parameter.

To obtain the release notes after the installation, type or print the file SYS$HELP:SOFTPC040.RELEASE_NOTES. After the installation, type the following command:

```
$ TYPE SYS$HELP:SOFTPC040.RELEASE_NOTES Return
```

Installation Procedure Requirements

The installation takes 10 to 20 minutes, depending on the type of media and your system configuration. Before installing SoftPC, you must have the following privileges and resources:

- VMS operating system, Version 5.5.
- SETPRV privileges, or CMKRNL, WORLD, and SYSPRV privileges.
- A minimum of 20,000 blocks of free disk space during installation; approximately 20,000 blocks after installation.
- An additional 21,000 blocks for each 10-Mbyte increment of hard disk that you configure.

- A minimum of 10 free global sections at installation.

Note

You must ensure that your system has the necessary global page and global section SYSGEN quotas for the installation. Failure to do so could corrupt the DCL tables.

To determine the number of available global pages on your system, invoke the VMS Install Utility:

```
$ INSTALL :== $INSTALL/COMMAND_MODE Return
$ INSTALL Return
```

Then enter the following command:

```
INSTALL> LIST/GLOBAL/SUMMARY Return

        Summary of Local Memory Global Sections

189 Global Sections Used,  11964/18036 Global Pages Used/Unused

INSTALL> EXIT Return
```

The system displays a summary of the number of global sections used. Write down the number of global sections used. To exit from the VMS Install Utility, type EXIT.

To determine the number of available global sections, invoke SYSGEN:

```
$ RUN SYS$SYSTEM:SYSGEN Return

SYSGEN>SHOW GBLSECTIONS Return

SYSGEN>EXIT Return
```

The number displayed under Current Used is the number of global sections in use. Compare this number to the number of global sections in use displayed by the VMS Install Utility.

SoftPC requires 10 global sections.

Therefore, if the number of global sections used plus 10 exceeds the maximum number of global sections, you must increase the number of available global sections before you can install SoftPC.

To increase the number:

1. Use SYSGEN to increase the GBLSECTIONS system parameter.
2. Edit the file SYS$SYSTEM:MODPARAMS.DAT.
3. Invoke the SYS$UPDATE:AUTOGEN.COM procedure.

For more information on the AUTOGEN.COM procedure, see your processor-specific installation/operations guide.

User Account Quotas and Privileges

To use SoftPC, each account must have TMPMBX and NETMBX privileges and the following requirements:

- Working set quota (WSquo) 2048 (minimum)
- Working set extent (WSextent) 4096 (minimum)
- Paging file quota (Pgflquota) 70,000 pages (minimum)
- Working set size (WSdef) 1,200 pages (minimum)

Use the VMS Authorize Utility (AUTHORIZE) to compare the current values of these quotas with the requirements for SoftPC. For example, the account used below is the SYSTEM account:

```
$  SET DEFAULT SYS$SYSTEM Return
$  RUN AUTHORIZE Return
UAF>  SHOW SYSTEM Return
```

The following example shows how to change the values of these quotas:

```
$  SET DEFAULT SYS$SYSTEM Return
$  RUN AUTHORIZE Return
UAF>  MODIFY SYSTEM/WSQUO= 2048 Return
UAF>  MODIFY SYSTEM/WSEXTENT=4096 Return
UAF>  MODIFY SYSTEM/PGFLQUOTA=70,000 Return
UAF>  MODIFY SYSTEM/WSDEF=1200 Return
```

VMS License Management Facility

The VMS License Management Facility (LMF) is available with Version 5.5 of the VMS operating system. If you are installing SoftPC on a VMS system, you must register your SoftPC software license.

The license registration information you need is contained in the Product Authorization Key (PAK) shipped with SoftPC. The PAK is a paper certificate that contains information about your license to run a particular piece of software.

During the installation, you are asked if you have registered the SoftPC license and loaded the appropriate authorization key. You must register and load your license for SoftPC *before* you start the installation in order to use the software.

To register a license under VMS, first log in to the system manager's account, SYSTEM. You then have a choice of two ways to perform the registration:

- Invoke the SYS$UPDATE:VMSLICENSE.COM procedure. When it prompts you for information, respond with data from your Product Authorization Key (PAK).
- Issue the LICENSE REGISTER DCL command with the appropriate qualifiers that correspond to information on the PAK.

For complete information on using LMF, see the manual on the License Management Utility in the VMS documentation set.

Using VMSINSTAL

You can log in to the system account to install SoftPC; invoke VMSINSTAL, the command procedure that installs this product. An example of this procedure is shown in steps 1 and 2 of the Installing SoftPC section later in this appendix.

The VMSINSTAL command procedure has the following syntax:

```
$ @SYS$UPDATE:VMSINSTAL SOFTPC ddcu: [OPTIONS N]
```

ddcu:
Represents a device name where the distribution volumes will be mounted for the SoftPC installation media, where *dd* is the device code, *c* is the controller code, and *n* is the unit number. It is not necessary to use the console drive to install SoftPC. However, if you do use the console drive, you should replace any media you removed from the drive. MUA0: is the device name used in examples in this document.

OPTIONS N
Is an optional parameter you should provide if you want to be prompted to display or print the release notes. If you do not include the OPTIONS N parameter, VMSINSTAL does not prompt you to display or print the release notes. VMSINSTAL permits the use of several other options. For more information on the other options, see your processor-specific installation/operations guide.

If you do not supply the first two parameters, VMSINSTAL prompts you for the product and device names. If you wish to be prompted for the product and device names and to display or print the release notes, enter the following:

```
$  @SYS$UPDATE:VMSINSTAL Return
```

When you invoke VMSINSTAL, it checks the following:

- Whether you are logged in to a privileged account. Digital recommends that you install software from the system manager's account with your default device and directory set to SYS$UPDATE.
- Whether you have adequate quotas for installation. VMSINSTAL checks for the following quota values:
  - ASTLM = 24
  - BIOLM = 18
  - BYTLM = 18,000
  - DIOLM = 18
  - ENQLM = 30
  - FILLM = 20

VMSINSTAL then checks whether the following conditions exist:

- DECnet is up and running
- Any users are logged in to the system

If VMSINSTAL detects either of these conditions, you are asked whether you want to continue the installation. If you want to continue, type YES. If you want to stop the installation, press Return. If you stop, you must discontinue the conditions before resuming the installation procedure.

Installing SoftPC

This section contains excerpts from the installation procedure and explains each step. Defaults appear in brackets throughout the installation procedure.

To abort the installation procedure at any time, press Ctrl/Y. When you press Ctrl/Y, the installation procedure deletes all files it has created up to that point and then returns you to DCL level. If you want to retry the installation procedure after pressing Ctrl/Y, you must proceed from step 2.

Step 1: Log in to the system account and set your default device and directory to SYS$UPDATE.

```
Return
Username:  SYSTEM  Return
Password:          Return
$  SET DEFAULT SYS$UPDATE  Return
```

Step 2: Invoke VMSINSTAL.

```
$  @VMSINSTAL SOFTPC040 MUA0: OPTIONS N  Return

      VAX/VMS Software Product Installation Procedure VX.X


It is dd-mmm-yyyy at hh:mm.
Enter a question mark (?) at any time for help.

* Are you satisfied with the backup of your system disk
[YES]?  Return
```

If you are satisfied with the backup of your system disk, press Return. Otherwise, type N and press Return to discontinue the installation.

Step 3: Insert the first installation kit volume.

```
Please mount the first volume of the set on MUA0:.
* Are you ready? YES  Return
The following products will be processed:

  SOFTPC V4.0


    Beginning installation of SOFTPC V4.0 at hh:mm

%VMSINSTAL-I-RESTORE, Restoring product saveset A...
```

To indicate that you want to continue the installation, mount volume 1, type YES, and press Return.

Step 4: Select a release notes option.

This step applies only if you specified OPTIONS N in step 2.

```
Release Notes Options:

    1. Display release notes
    2. Print release notes
    3. Both 1 and 2
    4. Copy release notes to SYS$HELP
    5. Do not display, print or copy release notes

* Select option [3]: Return
```

If you select option 1, VMSINSTAL displays the release notes on line immediately. You can terminate the display at any time by pressing Ctrl/C.

If you select option 2, VMSINSTAL prompts you for a queue name. Either type a queue name or press Return to send the file to the default output print device.

```
* Queue name [SYS$PRINT]: Return
```

If you select option 3, VMSINSTAL displays the release notes on line immediately. You can terminate the display at any time by pressing Ctrl/C. VMSINSTAL then prompts you for a queue name. Either type a queue name or press Return to send the file to the default output print device. The SoftPC release notes are then copied to SYS$HELP:SOFTPC040.RELEASE_NOTES.

If you select option 4, VMSINSTAL copies the release notes to SYS$HELP immediately.

If you select option 5, VMSINSTAL does not display, print, or copy the release notes; typically this option is selected when the user wants to terminate the installation. If you select release note option 5, which specifies that the release notes are not copied to SYS$HELP, you cannot access the release notes without installing the product kit again.

Note

This version of the release notes file installed by VMSINSTAL is labeled with the current product name and version number. Take care not to delete release notes for previous versions of SoftPC.

Next, VMSINSTAL displays the following prompt:

```
* Do you want to continue the installation [N]?: Y Return
%VMSINSTAL-I-RELMOVED, The product release notes have been successfully
    moved to SYS$HELP.
```

If you want to continue the installation, type YES and press Return. If you type NO or press Return, VMSINSTAL discontinues the installation. In either case, VMSINSTAL moves the release notes to SYS$HELP.

Step 5: Select installation options.

```
* Do you want to purge files replaced by this installation
[YES]? Return
```

The directories SYS$COMMON:[SOFTPC], SYS$HELP, SYS$LIBRARY, SYS$MANAGER, and SYS$SYSTEM may contain previous versions of SoftPC files. These files are replaced during the installation with new files, but the old files are not automatically purged. Purging is recommended. In response to the purging prompt, press Return to purge the files or type NO to keep them.

```
* Do you want to run the IVP after the installation
[YES]? Return
```

The Installation Verification Procedure (IVP) runs tests to check whether the installation procedure was successful. Press Return to run the IVP after the installation. If you do not want to run the IVP, type NO in response to the prompt.

Step 6: Respond to license registration queries.

SoftPC supports the VMS LMF. The installation procedure displays license information about your product and then asks if you have registered and loaded your authorization key for SoftPC. The following is an example of such information:

```
Product:      SOFTPC
Producer:      DEC
Version:       4.0
Release Date:  dd-mmm-yyyy

* Does this product have an authorization key registered and loaded?
```

If you have not registered and loaded your authorization key, you must answer NO to this question. You have to register and load your PAK to successfully complete the installation.

During the installation procedure, the SoftPC LMF key is invoked.

Step 7: Read informational messages.

The SoftPC installation procedure produces a number of informational messages that report on the progress of the installation.

If the installation procedure is successful, the new or modified files are moved to their target directories.

SYS$HELP:HELPLIB.HLB and SYS$LIBRARY:DCLTABLES.EXE files are updated to include the new versions of the SOFTPC HELP text.

If you typed YES in response to the prompt that requests a file purge at step 5, previous versions of the SoftPC files are now purged.

Step 8: Observe the installation verification procedure.

If you chose to run the IVP in step 5, VMSINSTAL now calls the IVP to verify that SoftPC was installed successfully.

Step 9: End the installation procedure.

```
Installation of SoftPC V4.0 completed at 11:22
SoftPC IVP completed with 0 errors
VMSINSTAL procedure done at 11:35
```

Quit your session.

When the product installation procedure is complete, you can choose to install more products or to log out. If you removed any media from the console drive before beginning the installation, you should replace it now.

System Manager's Notes

You must perform the following steps:

Step 1: Add the SoftPC startup procedure.

The installation procedure must add a SoftPC startup procedure to the SYS$STARTUP directory. This file sets up system-wide information for SoftPC such as the location of your floppy device. It must be executed by SYSTEM when VMS starts up. Add:

```
@SYS$STARTUP:SOFTPC$STARTUP.COM
```

to

```
SYS$COMMON:[SYSMGR]SYSTARTUP_V5.COM
```

and delete it from:

```
SYS$COMMON:[SYSMGR]SYSLOGIN.COM
```

Step 2: Set up possible devices for your floppy and SlavePC.

SOFTPC$STARTUP.COM sets up _NL: default assignments for the SOFTPC$FLOPPY and SOFTPC$SLAVEPC device names. If you wish to use a real diskette drive or a SlavePC diskette drive with SoftPC, edit the SOFTPC$FLOPPY and SOFTPC$SLAVEPC logical names with the appropriate device name.

SoftPC Fonts

The installation procedure copies the SoftPC fonts to the DECwindows font directories; however, the DECwindows server does not recognize the SoftPC fonts until it reloads the fonts when you reboot the system.

To display the SoftPC output on a remote X system, you must the copy the fonts to that system and make them known to the remote Xserver.

SoftPC Help Text

Help text for the SOFTPC command is released with SoftPC and added to the DCL help library.

SoftPC Floppy Configuration File

SoftPC reads the configuration file SOFTPC$SYSTEM:RFLOPPY.DAT to determine the mapping between VMS device type numbers and PC drive types. The file includes comments describing the required data format so the knowledgeable system manager can change the configuration.

Step 3: You must restart the windows server when the installation is complete. Otherwise, the SoftPC fonts are not known to the system.

To do this, enter:

```
$  SET DEF SYS$MANAGER Return
$  @DECW$STARTUP RESTART Return
```

Installing SoftPC on a VAXcluster

If you want to run SoftPC on multiple nodes of a VAXcluster, first check to see that you have the appropriate software license. Then, follow these steps after installing SoftPC:

1. Issue the LICENSE LOAD command to activate the license on each node in the VAXcluster on which SoftPC is to be executed.
2. Run SYS$STARTUP:SOFTPC$STARTUP.COM on each node of the cluster that has a software license.
3. To use the product on other nodes in the VAXcluster, you must replace the version of the DCL tables that is installed on the other VAXcluster nodes. To do this, perform the following steps:

   a. Log in to a node on the cluster.

   b. Run INSTALL and enter the following command at the INSTALL> prompt:

   ```
   INSTALL>  REPLACE SYS$LIBRARY:DCLTABLES.EXE Return
   ```

4. Repeat steps a and b for each node of the cluster.

Installing the SoftPC License

Any existing SoftPC license must be disabled before the new SoftPC license and SoftPC software can be installed. To do this, enter the following command:

```
$> LICENSE LIST SOFTPC/FULL Return
```

A list of existing SoftPC licenses is displayed. For each existing license, copy the string following "Authorization" in the display, then disable the license by entering the following commands (replacing xx with the authorization code):

```
$> LICENSE UNLOAD SOFTPC Return
```

```
$> LICENSE DISABLE SOFTPC/AUTH=xx Return
```

Repeat the commands for each enabled license listed in the database. Once this is done, the new license can be registered (refer to the installation instructions for SoftPC). The new license must be loaded before SoftPC is installed by issuing the following command:

```
$> LICENSE LOAD SOFTPC Return
```

Setting File Protections

The files in SYS$COMMON:[SOFTPC] are set to "world" read and execute when SoftPC is installed. The 3MB.HDF file can be set to "world" read, write, and execute protection by issuing the following command from the SYSTEM account:

```
$> SET PROTECTION=W:RWE SYS$COMMON:[SOFTPC]3MB.HDF Return
```

As an alternative, the file can be copied into each SoftPC user's directory.

SoftPC is now installed and can be invoked by all users with the SoftPC command.

The installation procedure modifies the DCL command table so that the SoftPC command is recognized and processed. However, the previous command table is still in effect for those users who are currently logged in. All logged-in users who want to use the SoftPC command must log out of the system and log in again.

Running the Installation Verification Procedure Separately

The Installation Verification Procedure (IVP) is usually run at installation. If you want to run the IVP separately to ensure the integrity of installed files if system problems occur, execute the following command:

```
$  @SYS$TEST:SOFTPC$IVP.COM Return
```

If the IVP fails for any reason, the failed files are marked. (The IVP may fail if you modified the 3MB.HDF after installation. This is not a bug.)

If the installation fails, you must restart the installation procedure from step 2. If the installation fails due to an IVP failure, contact your Digital Services representative.

Maintenance Updates

Digital may periodically issue maintenance updates of SoftPC. Each update consists of an installation kit. You should install this kit as described in this document or in any document that accompanies the maintenance update.

Each time a maintenance update is released, the version number changes. For example, if the current version is 1.0, the version number of the first maintenance update will be 1.1. In addition, each maintenance update includes new release notes. The release notes describe the changes that have been made to SoftPC since the previous release.

The update release notes are provided on line. You should read the release notes when you first install SoftPC; they are also accessible at any time after the product is installed. For information on reading the release notes when you install SoftPC, follow the installation procedure through step 5. To locate the release notes after SoftPC is installed, display or print the file SYS$HELP:SOFTPC040.RELEASE_NOTES.

Determining and Reporting Problems

If an error occurs while you are using SoftPC and you believe that the error is caused by a problem with SoftPC, do one of the following:

- If you purchased SoftPC within the past 90 days and you think the problem is caused by a software error, submit a Software Performance Report (SPR).
- If you have a Basic or DECsupport Software Agreement, call your Customer Support Center. With these services, you receive telephone support that provides high-level advisory and remedial assistance. For more information, contact your local Digital representative.
- If you have a Self-Maintenance Software Agreement, submit an SPR.

If you find an error in the SoftPC documentation, fill out and submit a Reader's Comments form from the back of the document in which the error was found. Include the section and page number where the error was found.

Sample Installation

This section contains a sample installation of SoftPC. Note that this is only a sample. Sometimes the installation procedure is modified in maintenance updates of this product.

```
 Welcome to VAX/VMS V5.5-2

Username: SYSTEM
Password:
 Welcome to VAX/VMS version V5.5-2 on node F350
    Last interactive login on Monday,  3-MAY-1993 08:32
    Last non-interactive login on Monday,  3-MAY-1993 08:33

$ @sys$update:vmsinstal
 VAX/VMS Software Product Installation Procedure V5.5-2

It is 7-MAY-1993 at 09:39.

Enter a question mark (?) at any time for help.
* Are you satisfied with the backup of your system disk [YES]?
* Where will the distribution volumes be mounted: DKB300:[SOFTPCBUILD.VAXFINAL]

Enter the products to be processed from the first distribution volume set.

* Products: *
* Enter installation options you wish to use (none):

The following products will be processed:

  SOFTPC V4.0

Beginning installation of SOFTPC V4.0 at 09:40

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.
* Do you want to purge files replaced by this installation [YES]?
* Do you want to run the IVP after the installation [YES]?

 SoftPC 4.0 requires VMS 5.5 & later and if you are running on
 a workstation - then you need MOTIF 1.1 & later

%SOFTPC-I-COMMENCE, SoftPC V4.0 installation is commencing ...
%SOFTPC-I-CHECKVMS, Checking for VMS version 5.5 or greater ...

      Product:      SOFTPC
      Producer:     DEC
      Version:      4.0
      Release Date: 26-APR-1993

* Does this product have an authorization key registered and loaded? YES

 All the questions regarding the installation have
 now been asked.  The installation will now continue
 for another 10 minutes.
```

```
%VMSINSTAL-I-RESTORE, Restoring product save set B ...
%SOFTPC-I-COPYFILES, Copying images and required files ...
%SOFTPC-I-COPY75DPI, Copying 75 dpi fonts ...
%SOFTPC-I-COPY75DPI, Copying 75 dpi font sources ...
%SOFTPC-I-COPY100DPI, Copying 100 dpi fonts ...
%SOFTPC-I-COPYUTIL, Copying utilities ...
%SOFTPC-I-COPYHDIMG, Copying hard disk image ...
%SOFTPC-I-ADDHELP, Adding DCL help text ...
%SOFTPC-I-ADDDCL, Adding DCL commands ...
%SOFTPC-I-COPYSTARTUP, Copying startup script ...

 A startup procedure for SoftPC has been added to the SYS$STARTUP
 directory. This file sets up system wide information for SoftPC
 and must be executed by SYSTEM when VMS starts up using:

        @SYS$STARTUP:SOFTPC$STARTUP.COM

 SoftPC V4.0 Installation is completed.

 IMPORTANT NOTE:

 Before using SoftPC V4.0, your windows must
 be restarted to properly set up the font path.

  To do this you must say

  $ set def sys$manager
  $ @decw$startup restart


%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
%VMSINSTAL-I-FONTS, Updating font directories
45 fonts loaded
Creating sys$common:[sysfont.decw.user_75dpi]DECW$FONT_DIRECTORY.DAT
45 fonts loaded
Creating sys$common:[sysfont.decw.user_100dpi]DECW$FONT_DIRECTORY.DAT

Beginning SoftPC V4.0 installation verification procedure (IVP) on  7-MAY-1993
09:49:29.16
```

```
SYS$COMMON:[SOFTPC]softpc.exe ..................................... OK
SYS$COMMON:[SYSMSG]softpcmsg.exe .................................. OK
SYS$COMMON:[SOFTPC]vmstodos.exe ................................... OK
SYS$COMMON:[SOFTPC]dostovms.exe ................................... OK
SYS$COMMON:[SOFTPC]mkhd.exe ....................................... OK
SYS$COMMON:[SOFTPC]3mb.hdf ........................................ OK
SYS$COMMON:[SOFTPC]SOFTPC.CLD ..................................... OK
SYS$STARTUP:softpc$startup.com ..................................... OK
SYS$COMMON:[decw$defaults.user]softpc.dat .......................... OK
SYS$COMMON:[SOFTPC]sys.spcconfig ................................... OK
SYS$COMMON:[SOFTPC]ega.rom ......................................... OK
SYS$COMMON:[SOFTPC]v7vga.rom ....................................... OK
SYS$COMMON:[SOFTPC]softpc.cld ..................................... OK
SYS$COMMON:[SOFTPC]rfloppy.dat ..................................... OK
SYS$COMMON:[SOFTPC]spckeys010.a .................................... OK
SYS$COMMON:[SOFTPC]XKBDMAP.INT ..................................... OK
SYS$COMMON:[SOFTPC]VT200.INT ....................................... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0808E.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0808V.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0814E.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0814H.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0814B.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0814S.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0816C.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0816S.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0816B.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0828S.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1212E.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1212V.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1221E.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1221H.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1221V.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1221B.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1224C.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1224B.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1224S.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1242S.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1608E.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1614E.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1616C.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1616E.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1616B.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1628B.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1628E.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1628H.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1632B.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1632C.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1656S.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC2412E.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC2421E.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC2424C.DECW$FONT ............ OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC2424B.DECW$FONT ............ OK
```

```
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC3216E.DECW$FONT ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC3228E.DECW$FONT ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC3232B.DECW$FONT ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC3232C.DECW$FONT ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0816V.DECW$FONT ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1224V.DECW$FONT ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1616V.DECW$FONT ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1632V.DECW$FONT ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC2424V.DECW$FONT ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC3232V.DECW$FONT ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0808E.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0808V.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0814E.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0814H.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0814B.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0814S.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0816C.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0816S.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0816B.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0828S.DECW$bdf ..... OK
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SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1221B.DECW$bdf ..... OK
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SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1224B.DECW$bdf ..... OK
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SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1242S.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1608E.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1614E.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1616C.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1616E.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1616B.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1628B.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1628E.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1628H.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1632B.DECW$bdf ..... OK
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SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC3232C.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC0816V.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1224V.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1616V.DECW$bdf ..... OK
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SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC1632V.DECW$bdf ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_75DPI]SPC2424V.DECW$bdf ..... OK
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SYS$COMMON:[SYSFONT.DECW.USER_100DPI]SPC1632V.DECW$FONT ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_100DPI]SPC2424V.DECW$FONT ..... OK
SYS$COMMON:[SYSFONT.DECW.USER_100DPI]SPC3232V.DECW$FONT ..... OK
SYS$COMMON:[SOFTPC]BIOS1.ROM ..... OK
SYS$COMMON:[SOFTPC]BIOS2.ROM ..... OK
SYS$COMMON:[SOFTPC]TERM.KEY ..... OK
SYS$COMMON:[SOFTPC]XKBDMAP.KEY ..... OK
```

```
SoftPC IVP completed with 0 error(s).

 IMPORTANT NOTE:

 Before using SoftPC V4.0, your windows must be restarted to properly set up
 the font path.

   To do this you must say

   $ set def sys$manager
  $ @decw$startup restart

 Installation of SOFTPC V4.0 completed at 09:51

Enter the products to be processed from the next distribution volume set.
* Products:
VMSINSTAL procedure done at 09:58

$ lo
  SYSTEM       logged out at  7-MAY-1993 09:58:38.78
```

B
Messages

If DEC SoftPC detects an error condition, an error panel similar to that shown below displays. The error panel suggests one or more options. Dimmed options are unavailable. Click MB1 on the desired action.

MLO-009949

A continuous RESET state has been entered.

Explanation: An attempt was made to hold the reset line of the 80286 high. This locks up a real IBM PC/AT.

User Action: Select Reset to reboot SoftPC.

A configuration file entry is duplicated or there is an unrecognized entry. You may select Default to ignore this entry, or type a correct entry name and value, then select Continue.

An installation file required by SoftPC is missing, execution must terminate.

Could not allocate 16 colors for Windows. You can try stopping other applications to free color resources, then press "Continue", or use another colormap by pressing "Default".

Could not allocate 256 colors for Windows. You can try stopping other applications to free color resources, then press "Continue": or try to allocate 16 colors by pressing "Default."

Device needed by communications adapter is already being accessed by another user or is non-local.

User Action: Allocate a different device.

Drive C: & Drive D: cannot be the same file.

User Action: Use a different file for Drive D: or delete Drive D:.

Extended Memory has not been configured.

Explanation: You tried to use non-existent Extended Memory.

User Action: Configure Extended Memory as described in Expanded and Extended Memory.

Failure to allocate the requested number of Expanded Memory pages.

Explanation: SoftPC allocates memory from the operating system to support its LIM expanded memory emulation. The parameters you used to specify the amount of LIM memory are correct, but the operating system cannot provide sufficient memory.

User Action: Reduce the amount of memory requested.

File needed by communications adapter is already being accessed by another user or is non-local.

User Action: Try a different device.

Floppy drive problem. SoftPC cannot access the floppy device.

User Action: Mount a floppy disk drive as described in Chapter 5.

Floppy drive problem. The drive is already in use, so it cannot be used by SoftPC.

User Action: Dismount the floppy drive from another application.

Illegal drive specification.

User Action: Redefine the device. Be sure to include the directory, for example, `DKA300:`.

Internal error in SoftPC procedure.

Explanation: This is a fatal error.

User Action: Reload DEC SoftPC from the distribution tape. If DEC SoftPC still fails, report the problem as a Software Performance Report (SPR).

Invalid Auto Flush Delay.

Explanation: The time must be between 1 and 50 seconds.

User Action: Reset the time to a valid number.

Invalid Expanded Memory size.

User Action: Change the Expanded Memory size. See Chapter 7 for instructions.

Invalid Extended Memory size.

User Action: Change the Extended Memory size. See Chapter 7 for instructions.

Serial Terminal problem. Graphics mode not available.

Explanation: An attempt was made to run a CGA, EGA, VGA, or Hercules graphics program. In terminal mode, you can run only MDA.

User Action: Select an MDA graphics program.

Serial terminal problem. Communications error while writing to terminal.

User Action: Check your hardware connection.

Serial terminal problem. SoftPC cannot open the terminfo file to get the information for $TERM.

Explanation: The terminal environment is set incorrectly.

User Action: Use the command, PRINTENV, to verify all the environmental parameters.

Serial terminal problem. The port to which your serial terminal is trying to attach is already in use.

User Action: Try a different device or dismount the device.

Serial terminal problem. The serial terminal port could not be opened.

User Action: Make sure the device has read and write privileges.

SlavePC problem. Cannot connect to the PC running SlavePC. Check the hardware (cable and remote PC) and the settings (baud rate, parity, etc.) of the SoftPC port you are using.

SlavePC problem. SoftPC cannot use the specified port to communicate with the remote PC.

Explanation: The communications device cannot be opened because the port is in use or is being used by another process.

SlavePC problem. SoftPC could not reset the SlavePC program on the remote PC.

Explanation: SlavePC cannot make connections with the remote PC.

User Action: Verify that you are using the proper cables and that they are connected.

SlavePC problem. The port device specified is already in use as a communications port.

User Action: Specify another port.

SoftPC cannot continue due to insufficient resources from the Native Language Support message catalogue.

Explanation: DEC SoftPC has been installed incorrectly or LANG has been defined for another product.

SoftPC does not have access to the CD–ROM device name.

User Action: Set protection on the CD–ROM device.

SoftPC does not support a ROM BASIC.

Explanation: DOS is trying to boot from a non-bootable C: drive.

User Action: You forgot to issue the command "MAKEBOOT 1" on that drive. Make it your D: drive and issue MAKEBOOT 1.

The %c: drive is already in use.

Explanation: The FSA device is already in use.

User Action: Use a different FSA drive or release the one in use.

The %c: drive is not a network drive.

Explanation: The FSA drive selected is not a network drive.

The %c: drive is being used.

Explanation: You are attempting to delete a drive that is not present.

The CMOS file SPCCMOS.RAM could not be created. (The CMOS will not be updated.)

User Action: The directory from which you are running DEC SoftPC must have write privilege.

The CMOS file SPCCMOS.RAM could not be updated. (Continuing will attempt to create the file in SYS$LOGIN.)

User Action: Click on Continue.

The SoftPC CPU has encountered an illegal instruction.

User Action: DEC SoftPC has been corrupted. Reload DEC SoftPC from the distribution media.

The communications name is invalid.

User Action: Enter the proper communications name.

The configuration file entry shown below has an invalid value. You may select Default to replace it with the system default value, or type a correct value and select Continue.

The configuration file entry shown below is empty. Select Default to use the system default value, or type a correct value and select Continue.

The configuration file in your home directory cannot be written to by SoftPC.

Explanation: You are either out of disk space or you do not have write privileges in the directory.

User Action: Increase your disk space or obtain write privileges.

The configuration file in your home directory has an option with a bad value.

User Action: Check your configuration file and change the incorrect value. See Chapter 9.

The configuration file is missing from your home directory. Select Default and a copy will be made from the system defaults.

The date has been set backward. The PC date may be incorrect.

Explanation: DEC SoftPC was idle during the day change at midnight so the date did not change.

User Action: Restart DOS or DEC SoftPC.

The date was set forward, or the system was frozen for a period. The PC date may be incorrect.

Explanation: DEC SoftPC has been frozen during the day change at 12:00 p.m.

User Action: Restart DOS or DEC SoftPC.

The file named below is not accessible to SoftPC.

User Action: Check the file protection.

The font files could not be opened by SoftPC.

User Action: Reboot the system.

The hard disk cannot be accessed—please check file name and permissions.

User Action: Change the file protection, if necessary.

The hard disk file cannot be found.

User Action: Verify that the file name is correctly entered and present in the directory.

The hard disk file cannot be found.

User Action: Verify that the directory name is correctly entered and present in the system.

The hard disk file is not a valid hard disk—disk geometry incorrect.

Explanation: You are trying to access a file that is not a DEC SoftPC container file.

The hard disk is read only. Another user may be accessing it. If not, check the permissions.

The hard disk path name is invalid.

User Action: Reenter the path name.

The host computer has no floppy drive that SoftPC can access.

The host filesystem directory cannot be found.

Explanation: The directory name you entered could not be found.

User Action: Reenter the directory name.

The host filesystem directory must be a directory.

User Action: Reenter with directory name.

The host filesystem directory must have read access.

User Action: Change the protection.

The host filesystem must have read access.

User Action: Set protection to give read access.

The host filesystem name must be a directory.

User Action: Reenter using a directory name.

The keyboard file named below cannot be opened.

User Action: Correct the file name or choose a different file.

The memory resources needed by SoftPC could not be allocated. Select Continue to retry.

Explanation: The requested extended or expanded memory exceeds the physical memory available.

User Action: Reduce the requested memory size.

The new hard disk file could not be created.

Explanation: There is not enough disk space available or you lack write privilege.

User Action: Reduce the requested disk size. Increase the disk quota. Change privilege to allow writing.

The port device specified is already in use as the SlavePC port.

User Action: Select a different device.

The sound hardware cannot be accessed. SoftPC will continue with sound turned off.

User Action: None.

The system default configuration file has a duplicate or unrecognized entry.

User Action: Correct the configuration file. See Chapter 9.

The system default configuration file has a missing entry.

User Action: Correct the configuration file. See Chapter 9.

The system default configuration file has an invalid value.

User Action: Correct the configuration file. See Chapter 9.

The window manager is not configured to display the requested video mode.

Explanation: The graphics option requested is not supported by DEC SoftPC.

Unable to communicate with the terminal.

User Action: Make sure the correct device path name is specified and that the device is connected.

Unable to open the SlavePC device.

User Action: Check the protection and make sure the full path name is given, for example, TTA3:.

Unable to select the terminal.

User Action: Check the protection and the proper device path name.

Usage: <file name> <size>

Explanation: Incorrect file specification given.

User Action: Use the template example shown.

X Windows System compatibility problem. The visual class is other than StaticGray, GrayScale, or PseudoColor.

Explanation: DEC SoftPC does not support the graphics mode of your system.

User Action: None. Your graphics mode is not supported.

mkhd: size must be between 1 and 300.

Explanation: DEC SoftPC supports hard drives from 1 to 300 Mbytes only.

User Action: Enter a size between 1 and 300.

mkhd: unable to create file.

Explanation: File creation failed. You may not have enough disk space.

User Action: Reduce the size of the drive or delete some files to increase space.

C
Insignia Directory Files

This appendix describes the function of each file in the Insignia directory.

AUTOEXEC.BAT
This .BAT file defines the path name and initiates some SoftPC programs.

CD–ROM.SYS
This is the driver required for CD–ROMs.

CONFIG.SYS
This is an example of a CONFIG.SYS file that could be used in the root directory. It is also a copy of the file used on the disk.

EM_DRVR.SYS
This is the driver for the LIM Expanded Memory System.

FLATOG.COM
This file is used in terminal mode to attach a floppy disk to Drive A:.

FLBTOG.COM
This file is used in terminal mode to attach a floppy disk to Drive B:.

FLUSHPTS.COM
This file is used to flush the communications ports.

FSADRIVE.COM
This file allocates a drive letter, usually in AUTOEXEC.BAT, for FSA drives.

HOST.SYS
This is the driver required for FSA drives.

MAKEBOOT.COM
This file permits you to make a hard disk bootable under DOS V5.0.

MOUSE.COM
This file installs the Insignia emulation of the Microsoft bus mouse driver.

OEMSETUP.INF
This is required for adding drivers to Windows V3.1.

ROCKSCR.COM
A PC uses 25 lines while most terminals use 24. This file permits toggling the 25th line on and off the screen display.

SLAVEPC.EXE
This is a copy of the file on the SlavePC disk in case the original is damaged or lost.

SPC_EXIT.COM
This file causes you to exit DEC SoftPC.

SPCMSWD
This is the driver set required to run Windows drivers in native mode.

TOGCOM.COM
This file toggles the communications ports.

TOGSLV.COM
This file toggles SlavePC.

D

DEC SoftPC's Serial Port Emulation

This appendix describes the serial port emulation for communications packages and printers that DEC SoftPC provides. Communication packages that use the Hayes protocols and TX/RX can be used successfully. Serial connection to printers is supported if the driver uses, and the printer supports, XON/XOFF. Some communication packages that have been tested are:

- SmartComm II
- SmarTerm 220
- Hyperaccess
- Chitchat
- Datatalk
- Procomm
- Crosstalk XVI

Printers that can be used successfully are:

- Apple Laserwriter Plus
- Apple Imagewriter II
  (MS–DOS does not inherently support graphics output.)
- Epson FX-105
- Epson SQ-2500
- Epson LQ-2500
- IBM Graphics Printer
  (with XON/XOFF)

Troubleshooting the Serial Port Emulation

The most likely causes of problems with devices and packages used with DEC SoftPC are described below.

- Devices that do not use RD.

  Devices that do not use RD to report their state on the emulated serial port adapter may cause problems.

  This occurs, for example, with an IBM Graphics Printer fitted with a serial card that does not support XON/XOFF. Because the IBM Graphics Printer is a relatively slow device, DEC SoftPC may send characters faster than they can be handled. The printer does not recognize this condition because the serial card does not send a detectable response. Using a low baud rate may help.

- Packages that do not examine RD.

  Packages that do not examine RD on the emulated adapter to detect the state of the device may cause problems.

  For example, Crosstalk XVI ignores Hayes responses from the modem. As a result, the package indicates "connected" as soon as you start dialing, and the subsequent modem responses appear as on-screen text rather than being processed by the package. If you wait for the remote system to respond, the package should transfer data correctly.

- Hardware devices.

  Hardware devices designed to prevent misuse of applications that depend on accurate timing of signals through the serial port may not work.

  This occurs because the time interval between a transition on a serial port line and the resulting change of state of the software signals from the operating system depends on other activity. These critical times cannot be determined with sufficient resolution to satisfy the tight time constraints enforced by some hardware copy protection devices.

- Interaction between the operating system and DEC SoftPC.

  At some speeds, the interaction between the operating system and DEC SoftPC causes unreliable operation. If this happens, reduce the line speed.

Serial Port Emulation Limitations

DEC SoftPC does not fully emulate the IBM PC AT serial port because of limitations in the device drivers that determine the state of the serial port.

Generally, these limitations:

- Prevent the detection of some types of errors by packages, particularly those using DSR (data set ready).
- Prevent DEC SoftPC from recognizing when a device responds to RTS (ready to send).
- Restrict the range of line disciplines you can use.

Figure D–1 diagrams how DEC SoftPC's serial port emulation handles the various signals.

Figure D–1 Serial Port Emulation

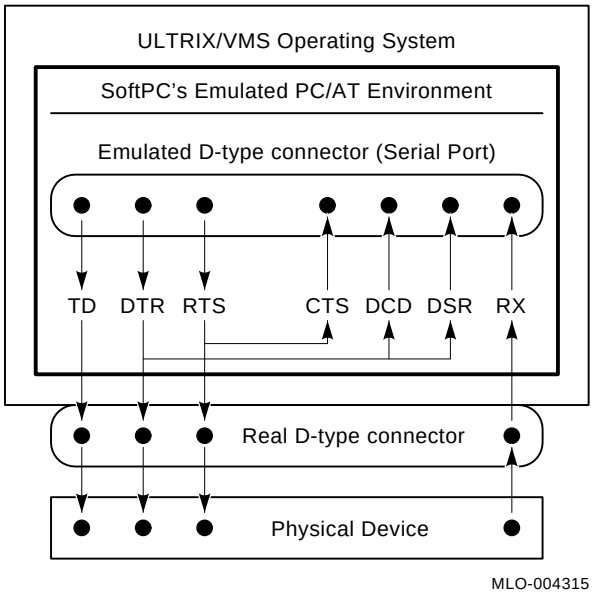


Figure D–2 and Figure D–3 illustrate how to make two physical connections.

Figure D–2 25-pin to 25-pin Physical Connection

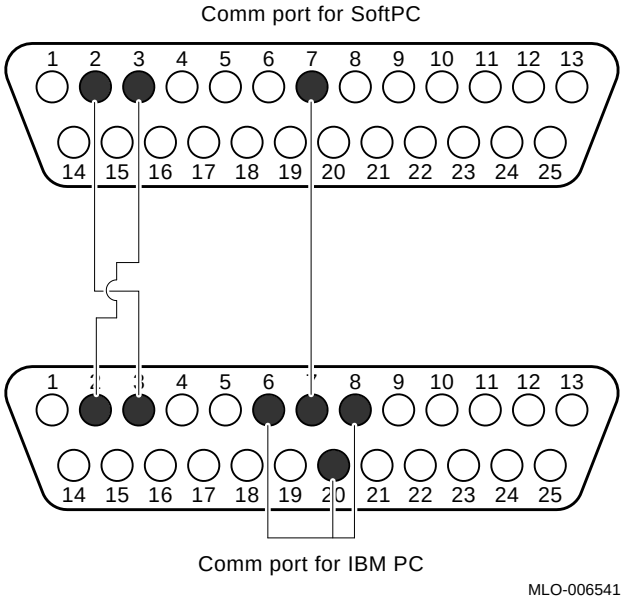
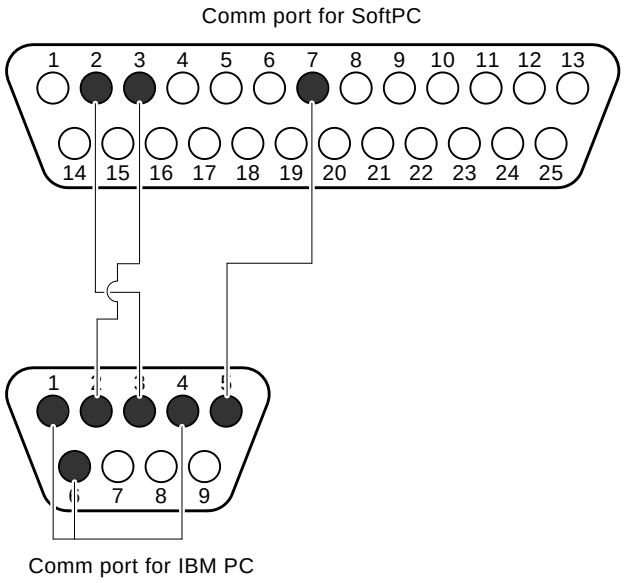


Figure D–3 25-Pin to 9-Pin Physical Connection



Note:

- The DTR (data terminal ready) modem output signal loops back into DSR (data set ready) by software. This means that devices can detect DTR, but a response from the device through DSR cannot be detected in DEC SoftPC.
- The RLSD/DCD (received line signal detect/data carrier detect) modem input signal cannot be detected. The DTR (data terminal ready) modem signal loops back into RLSD/DCD by software.
- The RTS (ready to send) modem output signal loops back by software into CTS (clear to send). This means that devices can detect RTS, but a response from the device through CTS cannot be detected by DEC SoftPC.
- The CTS modem input signal cannot be detected. The RTS modem output signal loops back into this signal by software.
- The RI (ring indicator) modem input signal cannot be detected; it is forced OFF by software.
- The 2000, 3600, and 7200 baud rates are not available.

- The line disciplines available in DEC SoftPC are:

Data Bits	Parity	Stop Bits
8	no	1
7	no	2
7	1 bit	1

(The port in a PC AT can go down to 5 bits with parity.)

On some Digital workstation serial ports, software cannot change the speed, parity, and number of data bits. DEC SoftPC, however, behaves as if the request has succeeded, so the application continues to work. If this happens, you may need to change the line characteristics manually.

- You cannot detect input overrun and framing errors in the hardware.
- You cannot detect the existence of an input break condition.

Cabling Guidelines

Connecting a Workstation to a Printer, Terminal, or Other Computer

A Digital workstation behaves like Data Terminal Equipment (DTE). You usually need a DTE-DTE cable to connect a Digital workstation to a printer, terminal, or another computer. This cable has the data lines crossed over. This means data output from one side arrives at the input pin on the other side, and vice versa. Modem control signals are usually crossed over in a similar manner.

If both the Digital workstation and the serial device have plug 25-pin D-type connectors, a suitable Digital cable is BC22D or equivalent. The BC22E cable is a DTE-DCE (straight through) cable.

Connecting a Workstation to a Modem

While most standard modems work with Digital workstations, cabling can vary from system to system. Table D–1 shows the cables and adapters needed for various systems.

Table D–1 Connectors

If your workstation has a...	Use a...
MMJ	H8571-J
25-pin adapter	H8571-C connected to a H8571-J

See your *Owner's Manual* or the *Digital Terminal and Printers Handbook* for additional information.

E

VMS File Protection

This appendix discusses file protection for VMS.

Protection codes are based on four categories of users: system, owner, group, and world. Table E–1 lists the user categories and access codes.

Table E–1 Users and Protection Codes—VMS

User Category	Type of User
Owner	The user who created the file.
Group	All users, including the owner, who have the same group number in their user identification codes.
World	All users.
System	All users with system privilege.

Access Type	Type of Access
READ	The right to examine, print, or copy a file.
WRITE	The right to write (modify) a file.
EXECUTE	The right to execute (run) a file.
DELETE	The right to delete a file.

Until you, the owner, change a protection code, the system default protection code is in effect. The system default protection code follows:

```
SYSTEM=RWED  OWNER=RWED  GROUP=RWED  WORLD=RE
```

In the above example, the system, owner, and group have READ, WRITE, EXECUTE, and DELETE access. World users are permitted READ and EXECUTE access only.

To find out the protection code for the file MESSAGE.TXT, use the DIRECTORY/PROTECTION command:

```
$ DIRECTORY/PROTECTION  MESSAGE.TXT [RETURN]
Directory USER:[SMITH]
MESSAGE.TXT;3  (RD,RWED,RW,R)
Total of 1 file.
```

In the above example, the system has READ and DELETE access; the owner has READ, WRITE, EXECUTE, and DELETE access; the group has READ and WRITE access; and the world has only READ access.

To change the protection code, use the SET PROTECTION command:

```
$ SET PROTECTION=(SYSTEM:RWE,OWNER:RWED,GROUP:RE) MESSAGE.TXT [RETURN]
```

In the above example, you have given the system READ, WRITE, and EXECUTE access; you the owner READ, WRITE, EXECUTE, and DELETE access; the group READ and EXECUTE access; and the world no access. Note that a space must precede your file name.

It is generally good practice to restrict access of your files to system and owner. Usually, world access is given only to public files where many people need to read or copy (READ) files.

F

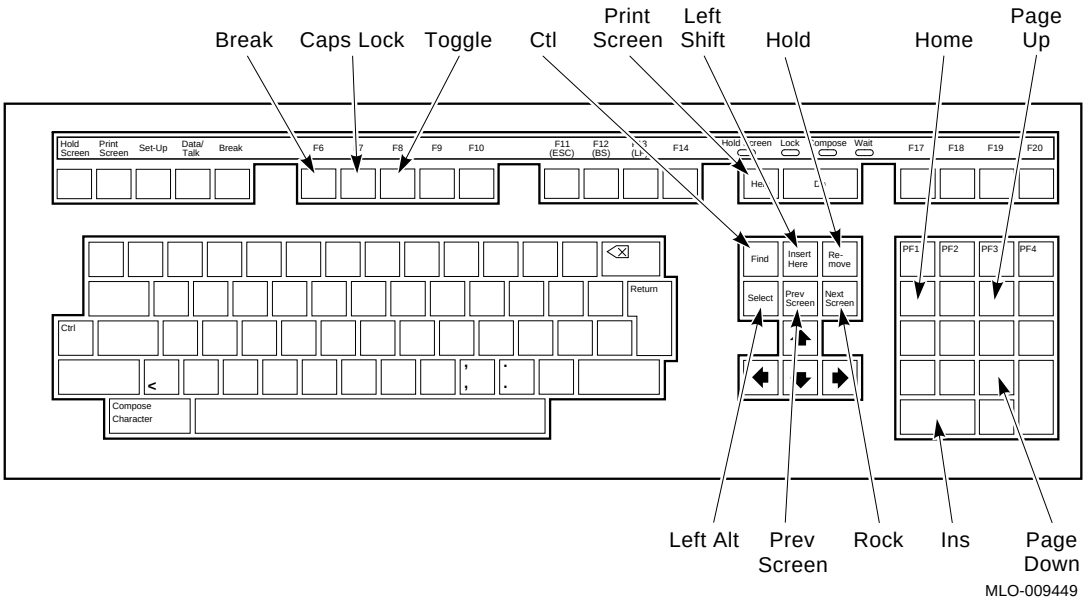
Keyboard Mapping

This appendix describes the differences in how the keys are mapped between your Digital workstation or VT220 terminal keyboard and a PC keyboard. It also explains how to use the Digital mouse with DEC SoftPC.

The Keyboard

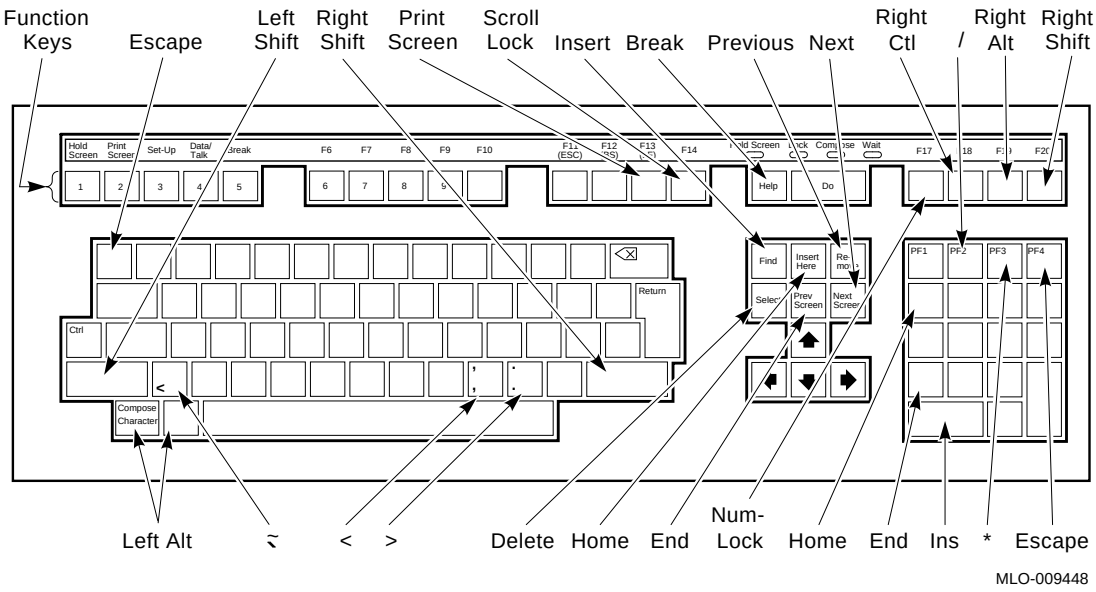
When you use DEC SoftPC, you must use the Digital terminal keyboard (Figure F–1) or workstation keyboards (Figure F–2), (Figure F–3) as though they were a PC keyboard. This section describes which Digital keys change functions to emulate PC key functions.

Figure F–1 Digital VT220 Terminal Keyboard



MLO-009449

Figure F–2 Digital LK201 Workstation Keyboard



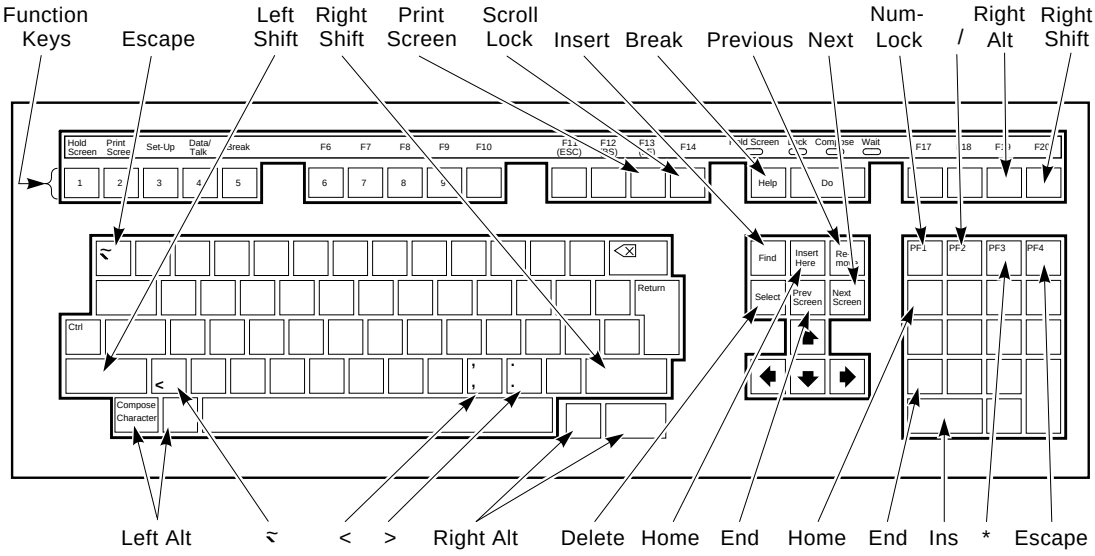
Motif Retains Control of the Left ALT Key

Motif retains control of the left ALT key on the LK201 and LK401 keyboards. This may be a problem if you use Windows because Windows uses the left ALT key in key sequences such as ALT + F5 and ALT + F7.

LK201 solution: Use the Motif Window Manager to disable Motif so that all keystrokes go directly to DEC SoftPC.

LK401 solution: Use the left Compose Character key for left ALT functions or use the Motif Window Manager to disable Motif so that all keystrokes go directly to DEC SoftPC.

Figure F–3 Digital LK401 Workstation Keyboard



Keyboard Mapping—PC to a Digital Workstation or Terminal

Table F–1 compares the Digital workstation keys and terminal keyboard keys that function differently with DEC SoftPC.

Table F–1 Key Assignments

PC Keyboard	Digital Workstation	Digital VT220 Terminal
Break	Help	F6
Down arrow	2 (keypad)	2 (keypad)
End	1 (keypad)	1 (keypad)
Escape	PF4	PF4
F1	F1	F11
F2	F2	F12
F3	F3	F13
F4	F4	F14
F5	F5	F17
F6	F6	F18
F7	F7	F19
F8	F8	F20
F9	F9	F9
F10	F10	F10
Greater than(>)	Shift + 9	Shift + 9

(continued on next page)

Table F–1 (Cont.) Key Assignments

PC Keyboard	Digital Workstation	Digital VT220 Terminal
Home	7 (keypad)	7 (keypad)
Insert	0 (keypad)	0 (keypad)
Left arrow	4 (keypad)	4 (keypad)
Less than (<)	Shifted comma	Shift +, (main keyboard)
Left shift	Shift	Insert here
Num lock	PF1	PF1
Page down	3 (keypad)	3 (keypad)
Page up	9 (keypad)	9 (keypad)
Print screen	F13	Help
Right arrow	6 (keypad)	6 (keypad)
Right shift	F20	Prev screen
Scroll lock	F14	Do
Slash (/)	PF2	PF2

Keyboard Mapping—Digital Workstation to PC

Table F–2 shows the Digital workstation keyboard keys mapped to the PC keyboard in increasing Digital scan code order.

Table F–2 Key Assignments for Digital Workstations

Digital Workstation	PC Keyboard
F1	F1
F2	F2
F3	F3
F4	F4
F5	F5
F6	F6
F7	F7
F8	F8
F9	F9
F10	F10
F11	F11
F12	F12
F13	Print Screen
F14	Scroll Lock
Help	Break
F17	F17
F18	Right Control
F19	Right Alt
F20	Right Shift
Find	Insert
Insert	Home
Remove	Page Up
Select	Delete
Prev	End
Next	Page Down

(continued on next page)

Table F–2 (Cont.) Key Assignments for Digital Workstations

Digital Workstation	PC Keyboard
Numeric Keypad	
0	Insert
.(period)	Delete
Enter	Enter
1	End
2	Down Arrow
3	Page Down
4	Left Arrow
5	5
6	Right Arrow
,(comma)	+
7	Home
8	Up Arrow
9	Page Up
–	-
PF1	Num Lock
PF2	/
PF3	*
PF7	escape
Cursor Keys	
Left Arrow	Left Arrow
Right Arrow	Right Arrow
Down Arrow	Down Arrow
Up Arrow	Up Arrow

(continued on next page)

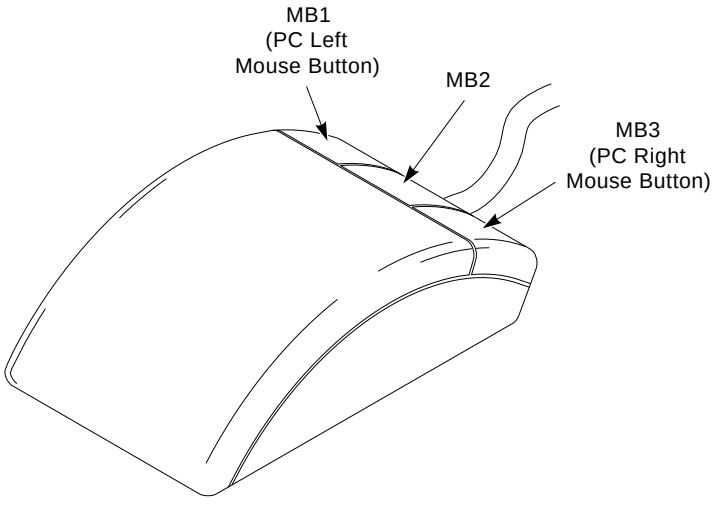
Table F–2 (Cont.) Key Assignments for Digital Workstations

Digital Workstation	PC Keyboard
Special Control Keys	
Shift	Left Shift
Control	Left Control
Lock	Caps Lock
Compose	Left Alt
Del	Erase

The remaining keys on the Digital workstation and PC keyboard are identical.

The Mouse

MB1 is equivalent to the PC left mouse button. MB2 is used to paste text in another window. MB3 is equivalent to the PC right mouse button.



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