VAX Pascal Installation Guide

Order Number: AA–J181K–TE

December, 1989

This document contains instructions for installing VAX Pascal on the VMS operating system. It also explains how to read the online release notes before or after installing the product. This document applies to VAX Pascal Version 4.0 and all maintenance updates throughout that version.

Revision/Update Information:	This revised manual supersedes the *VAX Pascal Installation Guide* (Order Number AA-J181J-TE).
Operating System and Version:	VMS Version 5.2 or higher. Future maintenance releases may require higher versions.
Software Version:	VAX Pascal Version 4.0.

digital equipment corporation
maynard, massachusetts

First Printing, November 1979
Revised, December 1989

The information in this document is subject to change without notice and should not be construed as a commitment by Digital Equipment Corporation. Digital Equipment Corporation assumes no responsibility for any errors that may appear in this document.

The software described in this document is furnished under a license and may be used or copied only in accordance with the terms of such license.

No responsibility is assumed for the use or reliability of software on equipment that is not supplied by Digital Equipment Corporation or its affiliated companies.

Restricted Rights: Use, duplication, or disclosure by the U.S. Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013.

© Digital Equipment Corporation 1979, 1989.

All Rights Reserved.
Printed in U.S.A.

The postpaid Reader's Comments forms at the end of this document request your critical evaluation to assist in preparing future documentation.

The following are trademarks of Digital Equipment Corporation:

CDA	MASSBUS	VAX RMS
DDIF	PrintServer 40	VAXstation
DEC	Q-bus	VMS
DECnet	ReGIS	VT
DECUS	ULTRIX	XUI
DECwindows	UNIBUS	
DIGITAL	VAX	
LN03	VAXcluster	digital™

The following are third-party trademarks:

PostScript is a registered trademark of Adobe Systems, Inc.

ZK5071

Contents

Preface v

Chapter 1 Preparing to Install VAX Pascal

1.1 Required Operating System Components 1–1

1.2 Optional Software 1–2

1.3 License Registration 1–2

1.4 Installation Procedure Requirements 1–3
1.4.1 Privileges and Disk Space 1–3
1.4.2 System Parameters 1–4
1.4.2.1 Calculating the Values for GBLPAGES and GBLSECTIONS 1–4
1.4.2.2 Changing System Parameter Values with AUTOGEN 1–5
1.4.3 VMSINSTAL Requirements 1–6
1.4.4 Backing Up Your System Disk 1–6

Chapter 2 Installing VAX Pascal

2.1 The Installation Procedure 2–1

2.2 Error Recovery 2–7

Chapter 3 After Installing VAX Pascal

3.1 Running the Installation Verification Procedure Separately 3–1

3.2 Editing the System Files 3–1

3.3 VAXcluster Considerations 3–2

3.4 Enhancing VAX Pascal Performance 3–2
3.4.1 Tuning Your System 3–3
3.4.2 Installing VAX Pascal as a Shared Image 3–3

3.5 Determining and Reporting Problems 3–3

Appendix A Sample Installation

Appendix B Files and Logical Names Installed on Your System

Tables

1–1 Optional Software 1–2
1–2 Disk Space Requirements 1–3
1–3 Required System Parameter Values 1–4

Preface

This document describes how to install VAX Pascal on the VMS operating system. It is intended for system managers. This document applies to VAX Pascal Version 4.0 and all maintenance updates in that version. A major version number is represented by the digits to the left of the decimal point, and the maintenance update version number is indicated by the digits to the right of the decimal point.

Keep this document with your distribution kit. You will need it to install maintenance updates or to reinstall VAX Pascal for any other reason.

At the back of this document are two Reader's Comments forms. If you have any comments about this document, please fill out a form and mail it; your comments will be considered for the next revision of the installation guide.

For more information about installing VAX Pascal on VMS systems, see your processor-specific installation/operations guide.

The installation procedure is described step by step and is, for the most part, self-explanatory. The system prompts you to answer questions and to change volumes, and waits for you to tell it to continue.

Defaults appear in brackets ([ ]) throughout the installation procedure. Text you type is indicated in red.

Chapter 1

Preparing to Install VAX Pascal

This chapter discusses the preparations and requirements necessary for installing VAX Pascal.

This manual applies to Version 4.0 of VAX Pascal and all subsequent maintenance releases up to the next major product release.

Your bill of materials (BOM) and indented bills report (BIL) specify the number and contents of your media. Be sure to verify the contents of your kit with this information. If your kit is damaged or if you find that parts of it are missing, contact your Digital representative.

VAX Pascal provides online release notes. Digital strongly recommends that you read the release notes before proceeding with the installation. For information on accessing the online release notes, see Section 2.1.

1.1 Required Operating System Components

The VMS operating system comes with a variety of support options, or classes. Classes include such features as networking and RMS journaling. To use VAX Pascal, your system should be running a version of VMS that includes the following classes:

- Programming support
- Utilities

For a complete list of the required classes, see the Software Support Addendum (SSA), which comes with the Software Product Description (SPD).

1.2 Optional Software

Table 1–1 provides information on optional software that you can use together with VAX Pascal. The System Software Addendum (SSA) contains a complete list of optional software and their required version numbers.

Table 1–1: Optional Software

Optional Products
VAX Language Sensitive Editor (LSE) Version 3.0
VAX Common Data Dictionary (CDD) Version 3.4
VAX CDD/Plus Version 4.0 or 4.1
VAX Source Code Analyzer (SCA) Version 2.0

1.3 License Registration

You must register the VAX Pascal license through the VMS License Management Facility (LMF) in accordance with the license agreement signed by your site. The license registration information you need is contained in the Product Authorization Key (PAK) that is shipped with VAX Pascal. The PAK is a paper certificate that contains information about the license to run a particular piece of software.

During the installation, the system asks whether you have registered the VAX Pascal license and loaded the appropriate PAK. You must register and load your license for VAX Pascal *before* you start the installation in order to run the Installation Verification Procedure (IVP) and 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 PAK.
- At the DCL prompt, enter the LICENSE REGISTER command with the appropriate qualifiers that correspond to PAK information.

If you plan to use VAX Pascal on more than one node in a VAXcluster, you will need to perform a license load on the other nodes after you complete this installation. See Section 3.3.

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

1.4 Installation Procedure Requirements

This section and those that follow discuss various requirements for installing VAX Pascal.

The installation takes approximately 5 to 45 minutes, depending on your type of media and your system configuration.

Installing VAX Pascal and running the Installation Verification Procedure (IVP) on a standalone VAXstation 3100 Model 40 takes 18 minutes.

1.4.1 Privileges and Disk Space

To install VAX Pascal, you must be logged in to an account that has SETPRV or at least the following privileges:

- CMKRNL
- WORLD
- SYSPRV

Note that VMSINSTAL turns off BYPASS privilege at the start of the installation.

VAX Pascal's requirements for free disk storage space are different during installation and after installation. Table 1–2 summarizes the storage requirements.

Table 1–2: Disk Space Requirements

Kit	Blocks During Installation	Blocks After Installation
VAX Pascal Version 4.0	3500	3000
VAX Pascal STARLET files	7000	6000
VAX Pascal Examples	100	100

To determine the number of free disk blocks on the current system disk, enter the following command at the DCL prompt:

```
$ SHOW DEVICE SYS$SYSDEVICE
```

1.4.2 System Parameters

Installing VAX Pascal requires certain system parameter settings. Table 1–3 lists the minimum required system parameter values for the installation.

Table 1–3: Required System Parameter Values

System Parameter	Value
GBLPAGES [1]	n + 1300
GBLSECTIONS[1]	n + 1

[1]The values listed for these system parameters represent the number of free contiguous global pages and global sections required for the installation, not the total number you need to run your system and other software.

The following sections show you how to:

- Calculate values for the GBLPAGES and GBLSECTIONS system parameters
- Change parameter values with the VMS AUTOGEN command procedure

1.4.2.1 Calculating the Values for GBLPAGES and GBLSECTIONS

To install and run VAX Pascal, you must have sufficient free contiguous global pages and free global sections. You must first find out how many free contiguous global pages and free global sections you have on your system. Then use AUTOGEN if you need to increase the GLBPAGES and GBLSECTIONS system parameters.

You can use the WRITE command with the F$GETSYI lexical function to find the number of free contiguous global pages and free global sections. The following example shows how to get this information at your terminal (the default for SYS$OUTPUT):

```
$ WRITE SYS$OUTPUT F$GETSYI("CONTIG_GBLPAGES")
15848
$ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLSECTS")
24
```

If the values displayed by the system are greater than the values in Table 1–3, you do not need to increase the values for these parameters. If the value of free contiguous global pages or free global sections is less than the value in Table 1–3, you must increase the system parameter setting.

Section 1.4.2.2 describes the procedures for increasing these values using AUTOGEN.

1.4.2.2 Changing System Parameter Values with AUTOGEN

Use the AUTOGEN command procedure to change system parameters. AUTOGEN automatically adjusts values for parameters that are associated with the values you reset manually. To change system parameters with AUTOGEN, edit the following file:

```
SYS$SYSTEM:MODPARAMS.DAT
```

Use an editor to access the file. To change a parameter value listed in this file, delete the current value associated with that parameter and enter the new value.

To add a new parameter, add a line to the file that includes both the name of the parameter and its value. For example:

```
WSMAX = 1024
```

To modify incremental parameters such as GBLPAGES and GBLSECTS, use ADD_. The following example increases the global page setting by 2000:

```
ADD_GBLPAGES = 2000
```

Note that when you set the page file quota, do not use a value that exceeds the amount of page file space available on the system.

After you make all your changes, exit from the editor and execute the AUTOGEN procedure to recalculate your system parameters. Enter the following command at the DCL prompt:

```
$ @SYS$UPDATE:AUTOGEN GETDATA REBOOT
```

When you specify REBOOT, AUTOGEN performs an automatic system shutdown and then reboots the system. Any users logged on to the system are immediately disconnected during the shutdown. The automatic reboot puts the new parameter values into effect.

The AUTOGEN Utility automatically adjusts some of the SYSGEN parameters based on the consumption of resources since the last reboot. If you do not want to take advantage of this automatic adjustment, include the NOFEEDBACK qualifier on the AUTOGEN command line.

For more information about using AUTOGEN, see the VMS System Management Subkit.

1.4.3 VMSINSTAL Requirements

When you invoke VMSINSTAL, it checks the following:

- Whether you have set your default device and directory to SYS$UPDATE
- Whether you are logged in to a privileged account
- Whether you have adequate quotas for installation
- Whether any users are logged in to the system

Note that the VMSINSTAL requires that the installation account have a minimum of the following quotas:

```
ASTLM = 24
BIOLM = 18
BYTLM = 18,000
DIOLM = 18
ENQLM = 30
FILLM = 20
```

If VMSINSTAL detects any problems during the installation, it notifies you and asks if you want to continue the installation. In some instances, you can enter YES to continue. To stop the installation process and correct the situation, enter NO or press RETURN. Then correct the problem and restart the installation.

1.4.4 Backing Up Your System Disk

At the beginning of the installation, VMSINSTAL asks if you have backed up your system disk. Digital recommends that you do a system disk backup before installing any software.

Use the backup procedures that are established at your site. For details on performing a system disk backup, see the section on the Backup Utility in the VMS System Management Subkit.

Chapter 2

Installing VAX Pascal

This chapter explains how to install VAX Pascal. Section 2.1 contains a step-by-step description of the installation procedure.

The last section covers postinstallation procedures.

2.1 The Installation Procedure

The VAX Pascal installation procedure consists of a series of questions and informational messages. See Appendix A for a sample installation.

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 exits. You can then start the installation again.

1. **Invoke VMSINSTAL.**

   @SYS$UPDATE:VMSINSTAL saveset-name device-name OPTIONS N

   To start the installation, invoke the VMSINSTAL command procedure from a privileged account, such as the SYSTEM account. VMSINSTAL is in the SYS$UPDATE directory. The following list defines the elements of the VMSINSTAL command procedure:

   saveset-name
   The installation name for the component. For VAX Pascal, use the following installation name:

   ```
   PASCAL040
   ```

device-name

The name of the device on which you plan to mount the media. For example, MTA0: is the device name for a tape drive. It is not necessary to use the console drive for this installation. However, if you do use the console drive, you should replace any media you removed once the installation is complete.

OPTIONS N

An optional parameter that indicates you want to see the question on release notes. If you do not include the OPTIONS N parameter, VMSINSTAL does not ask you about the release notes. You should review the release notes before proceeding with the installation in case they contain additional information about the installation. If you are restarting the installation and have already reviewed the release notes, you do not need to specify OPTIONS N.

Note that there are several other options you can select when you invoke VMSINSTAL.

- Auto_answer option (A): Initially creates a file that contains your answers to VMSINSTALL questions and prompts. You can then use the option (and the answer file) to save time during a reinstallation (typically after upgrading your system).
- Get save set option (G): Lets you store product save sets temporarily on a magnetic tape or in a disk directory.
- File log option (L): Logs all activity to the terminal during installation.
- Alternate root option (R): Lets you install the product to a system root other than that of the running system.

See the VMS documentation on software installation in the VMS System Management Subkit for detailed information on these options. If you specify more than one option, separate the options with commas (OPTIONS A,N).

The following example invokes VMSINSTAL to install VAX Pascal from tape drive MTA0: and shows the system response. This example uses the OPTIONS N release note parameter.

```
$ @SYS$UPDATE:VMSINSTAL PASCAL040 MTA0: OPTIONS N

      VAX/VMS Software Product Installation Procedure V5.2


It is 03-SEP-1989 at 20:00
Enter a question mark (?) at any time for help.
```

If you do not supply the product name, the device name, or the options, VMSINSTAL prompts you for this information later in the installation procedure.

2. **Confirm system backup.**

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

VMSINSTAL asks if you are satisfied with your system backup. You should always back up your system disk before performing an installation. If you are satisfied with the backup of your system disk, press RETURN. Otherwise, enter NO to discontinue the installation. After you back up your system disk, you can restart the installation.

3. **Mount the media.**

```
Please mount the first volume of the set on MTA0:.
* Are you ready? YES
%MOUNT-I-MOUNTED, PASCAL MOUNTED ON _$$MTA0:  (NODE 1)
The following products will be processed:
  PASCAL V4.0

    Beginning installation of PASCAL V4.0 at 20:01

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

You should now mount the first distribution volume on the device you specified when you invoked VMSINSTAL. The device name appears in the line preceding the question. VMSINSTAL then asks you if you are ready to continue with the installation.

If you respond YES to indicate that you are ready, VMSINSTAL displays a message that the media containing VAX Pascal has been mounted on the specified device and that the installation has begun.

If you entered the wrong device name when you invoked VMSINSTAL and need to restart the installation, enter NO in response to the ''Are you ready?'' question. To abort the installation for other reasons, press CTRL/Y.

4. **Select a release notes option.**

```
Release notes included with this kit are always copied to SYS$HELP.

Additional Release Notes Options:

 1.  Display release notes
 2.  Print release notes
 3.  Both 1 and 2
 4.  None of the above

* Select option [2]:
```

If you specified OPTIONS N when you invoked VMSINSTAL, you are

now asked to choose one of the four options for reviewing the release notes.

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

If you select option 2, VMSINSTAL prompts you for the name of the print queue that you want to use:

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

You can press RETURN to send the file to the default output print device or you can enter another queue name.

If you select option 3, VMSINSTAL displays the release notes immediately on the console terminal and then prompts you for a queue name for the printed version.

Select option 4 if you have already reviewed the release notes and are restarting the installation.

Next, VMSINSTAL displays the following question:

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

To continue the installation, enter YES. Otherwise, press RETURN. In either case, the release notes are copied to a file in the SYS$HELP directory:

```
SYS$HELP:PASCAL040.RELEASE_NOTES
```

NOTE

The name of the release notes file installed by VMSINSTAL consists of the current product name and version number. Do not delete release notes for previous versions of VAX Pascal.

5. **Mount additional media volumes.**

```
%BACKUP-I-READYREAD, mount volume 2 on _MTA0: for reading

Enter "YES" when ready:
```

If your installation kit contains more than one volume, VMSINSTAL prompts you to mount the additional volumes and then asks you to indicate that you are ready for the installation to proceed.

6. **Install Compiler.**

```
* Do you want to install the VAX Pascal compiler [YES]?
```

The VAX Pascal V4.0 kit contains the compiler, message files, command line definition, DECwindows interface, and help files.

7. **Install STARLET.**

```
* Do you want to install the VAX Pascal definition files [YES]?
```

The VAX Pascal V4.0 kit contains definition files for VAX/VMS System Services and several Run-Time Library Facility codes.

These system definition files are built using information shipped with the VMS operating system. We suggest that you reinstall the system definition files after each VMS ugrade to reflect any changes made by VMS.

8. **Install Examples.**

```
* Do you want to install the VAX Pascal example programs [YES]?
```

The VAX Pascal V4.0 kit contains a set of example programs using many features of VAX Pascal and VAX/VMS.

9. **Purge files.**

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

You have the option to purge files from previous versions of VAX Pascal that are superseded by this installation. Purging is recommended; however, if you need to keep files from the previous version, enter NO in response to the question.

10. **Choose the Installation Verification Procedure (IVP) option.**

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

The installation procedure now asks if you want to run the IVP. The IVP for VAX Pascal checks to be sure that the installation is successful. It is recommended that you run the IVP.

After VAX Pascal is installed, you can run the IVP independently to verify that the software is available on your system. You might need to run the IVP after a system failure to make sure that users can access VAX Pascal.

11. **Respond to license registration queries.**

```
Product:       PASCAL
Producer:      DEC
Version:       4.0
Release Date:  15-DEC-1989

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

The installation procedure displays license information about your product and then asks if you have registered and loaded your Product Authorization Key (PAK).

If you have not registered and loaded your PAK, you must answer NO to this question. You have to register and load your PAK to successfully complete the installation. If you have not done so, you should stop the installation, register and load your PAK, and then restart the installation.

12. **Install DECwindows Interface.**

```
* Do you want to install the VAX Pascal DECwindows Compiler Interface [YES]?
```

VAX Pascal V4.0 also contains a DECwindows interface to invoke the compiler from FileView. This interface includes a dialog box to choose compiler options when compiling programs.

13. **Read informational messages.**

At this point, the installation procedure displays a number of informational messages that report on the progress of the installation. There are no further questions. If the installation procedure has been successful up to this point, VMSINSTAL moves the new or modified files to their target directories, updates help files, and updates DCL tables, if necessary. If you chose to have files purged, that work is done now. The following messages are displayed:

```
%VMSINSTAL-I-MOVEFILES, files will now be moved to their target
                                directories...
```

14. **Observe the installation Verification Procedure (IVP).**

If you chose to run the IVP, VMSINSTAL runs it now. When the IVP runs successfully, you see the following messages displayed:

```
** Successful Installation of VAX Pascal V4.0-1 on 03-SEP-1989 at 20:19 **

** Successful Installation of VAX Pascal STARLET Libraries **
```

15. **End the installation procedure.**

```
   Installation of VAX Pascal V4.0 completed at 20:19

   VMSINSTAL procedure done at 20:20
```

The previous messages indicate that the entire installation procedure is complete.

You can now log out of the privileged account:

```
$ LOGOUT
SYSTEM     logged out at 03-SEP-1989 20:20:02
```

Note that VMSINSTAL deletes or changes entries in the process symbol tables during the installation. Therefore, if you are going to continue using the system manager's account and you want to restore these symbols, you should log out and log in again.

2.2 Error Recovery

If errors occur during the installation itself or when the Installation Verification Procedure (IVP) is running, VMSINSTAL displays failure messages. If the installation fails, you see the following message:

```
%VMSINSTAL-E-INSFAIL, The installation of VAX Pascal V4.0 has failed.
```

If the IVP fails, you see these messages:

```
The VAX Pascal V4.0 Installation Verification Procedure failed.

%VMSINSTAL-E-IVPFAIL, The IVP for VAX Pascal V4.0 has failed.
```

Errors can occur during the installation if any of the following conditions exist:

- The operating system version is incorrect.
- A prerequisite software version is incorrect.
- Quotas necessary for successful installation are insufficient.
- System parameter values for successful installation are insufficient.
- The VMS help library is currently in use.
- The product license has not been registered and loaded.

For descriptions of the error messages generated by these conditions, see the VMS documentation on system messages, recovery procedures, and VMS software installation. If you are notified that any of these conditions exist, you should take the appropriate action as described in the message. For information on installation requirements, see Chapter 1.

Chapter 3

After Installing VAX Pascal

The following tasks take place after installing VAX Pascal:

- Running the Installation Verification Procedure separately.
- Editing the system startup and shutdown files.
- Making the product usable on a VAXcluster.
- Enhancing performance.
- Reporting problems.

3.1 Running the Installation Verification Procedure Separately

You usually run the Installation Verification Procedure (IVP) during installation. If you want to run the IVP separately to ensure the integrity of installed files should system problems occur, execute the following command procedure:

```
$ @SYS$TEST:PASCAL$IVP
```

3.2 Editing the System Files

You can edit the system startup file to provide for automatic startup of VAX Pascal when your system is rebooted. Use the optional startup file to define the PASCAL$EXAMPLES logical name and to install VAX Pascal as a shared image (see Section 3.4).

Add the following command line to the system startup file, SYS$MANAGER:SYSTARTUP_V5.COM:

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

3.3 VAXcluster Considerations

When installing VAX Pascal on a VAXcluster, consider the following:

- You must ensure that a valid license is loaded on each node in the VAXcluster that will use VAX Pascal. To do this, use the SYSMAN Utility as follows:

  ```
  $ RUN SYS$SYSTEM:SYSMAN
  SYSMAN> SET ENVIRONMENT/CLUSTER
  SYSMAN> DO LICENSE LOAD PASCAL
  SYSMAN> EXIT
  ```

- You must ensure that the DCLTABLES updated during the installation are updated on each node in the VAXcluster that will use VAX Pascal.

  Make sure that there are sufficient contiguous GBLPAGES on each node in the VAXcluster, then use the SYSMAN Utility as follows:

  ```
  $ RUN SYS$SYSTEM:SYSMAN
  SYSMAN> SET ENVIRONMENT/CLUSTER
  SYSMAN> DO INSTALL REPLACE SYS$LIBRARY:DCLTABLES
  SYSMAN> EXIT
  ```

- If you have VAX Pascal installed as a known image, you must ensure that each node in the VAXcluster is updated to use the newly installed compiler. To do this, use the SYSMAN Utility as follows:

  ```
  $ RUN SYS$SYSTEM:SYSMAN
  SYSMAN> SET ENVIRONMENT/CLUSTER
  SYSMAN> DO @SYS$STARTUP:PASCAL$STARTUP
  SYSMAN> EXIT
  ```

3.4 Enhancing VAX Pascal Performance

This section includes information on system tuning and explains how to install VAX Pascal as a shared image.

3.4.1 Tuning Your System

If you intend to use many VAX Pascal environment files, you can increase the compilation speed by modifying the FILLM quota of those processes that run the compiler. The VAX Pascal compiler will keep more than one environment file open during the compilation (with a maximum of 50 environment files). If you inherit more than 50 environment files, the compiler will close some of them in order to open other files.

3.4.2 Installing VAX Pascal as a Shared Image

If you expect VAX Pascal to be used extensively on your system, you can reduce the system overhead and memory requirements by installing it as a shared image. To install VAX Pascal as a shared image on a system that is currently running, use the optional VAX Pascal startup file (SYS$STARTUP:PASCAL$STARTUP.COM). It is recommended that you install VAX Pascal as shared on a system that has been rebooted recently because the available space in the global page table is less likely to be fragmented.

Add the following line to the appropriate system startup command file so that VAX Pascal is available as a shared image each time the system is started. (If your site has modularized its startup procedures, be sure you add the lines to the correct file.) The default startup command file for Version 5.0 is SYS$MANAGER:SYSTARTUP_V5.COM.

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

3.5 Determining and Reporting Problems

If you encounter a problem while using VAX Pascal, report it to Digital. Depending on the nature of the problem and the type of support you have, you can take one of the following actions:

- Call Digital if your software contract or warranty agreement entitles you to telephone support.
- Submit a Software Performance Report (SPR).
- Fill out and submit a Reader's Comments form if the problem has to do with the VAX Pascal documentation. There are Reader's Comments forms at the back of each manual. Use the form from the manual in which you found the error. Include the section and page number.

Review the Software Product Description (SPD) and Warranty Addendum for an explanation of warranty. If you encounter a problem during the warranty period, report the problem as indicated above or follow alternate instructions provided by Digital for reporting SPD nonconformance problems.

Appendix A

Sample Installation

This appendix contains a sample installation of VAX Pascal. This sample was run on a system that had no previous version of VAX Pascal installed. Depending on which version of layered products or which version of VMS you have on your system, you might see additional messages and questions when you perform your installation.

The sample installation assumes that DECnet has been shut down, that no users are logged on to your system, and that OPTIONS N is specified to print the release notes. The Installation Verification Procedure (IVP) runs at the end of the installation.

Sample VAX Pascal Installation

```
$ SET DEFAULT SYS$UPDATE RETURN
$ @VMSINSTAL PASCAL040 MUA0: OPTIONS N RETURN

         VAX/VMS Software Product Installation Procedure V5.3

It is 31-OCT-1989 at 14:43.

Enter a question mark (?) at any time for help.

* Are you satisfied with the backup of your system disk [YES]? Y RETURN

Please mount the first volume of the set on MUA0:
* Are you ready? Y  RETURN
```

```
The following products will be processed:

  PASCAL V4.0

Beginning installation of PASCAL V4.0 at 14:44

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

    Release notes included with this kit are always copied to SYS$HELP.

    Additional Release Notes Options:

                1.   Display release notes
                2.   Print release notes
                3.   Both 1 and 2
                4.   None of the above

* Select option [2]: 4 RETURN
* Do you want to continue the installation? [NO] Y RETURN
$VMSINSTAL-I-RELMOVED, The product's release notes have been successfully moved
 to SYS$HELP.

      *------------------------------------------------------------*
      *            Installation Command Procedure for              *
      * VAX Pascal V4.0 compiler, definition files, and examples *
      *------------------------------------------------------------*

  The VAX Pascal V4.0 kit contains the compiler, message files,
  command line definition, DECwindows interface, and help files.
  These files require 3500 blocks during installation and will
  occupy 3000 blocks after installation.

* Do you want to install the VAX Pascal compiler [YES]? RETURN

  The VAX Pascal V4.0 kit contains definition files for VAX/VMS
  System Services and several Run-Time Library Facility codes.
  The definition files require 7000 blocks during installation
  and will occupy 6000 blocks after installation.

* Do you want to install the VAX Pascal definition files [YES]? RETURN

  The VAX Pascal V4.0 kit contains a set of example programs using
  many features of VAX Pascal and VAX/VMS.  The example files require
  100 blocks during installation and will occupy 100 blocks
  after installation.

* Do you want to install the VAX Pascal example programs [YES]? RETURN
* Do you want to purge files replaced by this installation [YES]? RETURN
* Do you want to run the IVP after the installation [YES]? RETURN

                Product :      PASCAL
                Producer :     DEC
                Version :      4.0
                Release Date : 15-DEC-1989

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

  VAX Pascal V4.0 also contains a DECwindows interface to invoke the compiler
  from FileView.  This interface includes a dialog box to choose compiler
```

```
  options when compiling programs.

* Do you want to install the VAX Pascal DECwindows Compiler Interface [YES]? RETURN

  This kit contains a file summarizing the new features, changes,
  restrictions, and compatibility issues in this release of VAX
  Pascal.  This file is named PASCAL040.RELEASE_NOTES and has been
  placed in SYS$HELP:.  This file contains information valuable to
  VAX Pascal programmers.  Please inform your user community of this
  file's existence.

  This kit will construct the following definition files:

     SYS$LIBRARY:STARLET.PAS/PEN
     SYS$LIBRARY:PASCAL$DTK_ROUTINES.PAS/PEN
     SYS$LIBRARY:PASCAL$LIB_ROUTINES.PAS/PEN
     SYS$LIBRARY:PASCAL$MTH_ROUTINES.PAS/PEN
     SYS$LIBRARY:PASCAL$NCS_ROUTINES.PAS/PEN
     SYS$LIBRARY:PASCAL$OTS_ROUTINES.PAS/PEN
     SYS$LIBRARY:PASCAL$PPL_ROUTINES.PAS/PEN
     SYS$LIBRARY:PASCAL$SOR_ROUTINES.PAS/PEN
     SYS$LIBRARY:PASCAL$SMG_ROUTINES.PAS/PEN
     SYS$LIBRARY:PASCAL$STR_ROUTINES.PAS/PEN

  For compatibility with existing programs, symbols in previous
  versions of STARLET.PAS will remain in STARLET.PAS even though the
  symbols might be associated with a run-time library.  For example,
  the SMG$K_* symbols are still in STARLET.PAS instead of
  PASCAL$SMG_ROUTINES.PAS, while the SMG$ entry points and the SMG message
  numbers are in PASCAL$SMG_ROUTINES.PAS.

  This kit provides several examples in SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL].
  The names of the files reflect the topic being demonstrated by the programs.

  The IVP (Installation Verification Procedure) will be left in
  SYS$TEST:PASCAL$IVP.COM.  After the installation is complete, you
  can invoke the command file at any time to reverify that VAX Pascal
  is installed and working correctly.

  An optional startup file has been placed in SYS$STARTUP:PASCAL$STARTUP.COM.
  The file installs the VAX Pascal compiler, Run-Time Library, and
  message files as shared images to improve the performance of using
  the VAX Pascal compiler or applications written in VAX Pascal.
  If you wish to use this file, add the folllowing DCL command to
  SYS$MANAGER:SYSTARTUP_V5.COM:

    $ @SYS$STARTUP:PASCAL$STARTUP.COM

  All questions regarding the installation have now been asked.
  The installation of VAX Pascal V4.0 will now continue for 5
  to 45 minutes depending on your configuration and the options
  requested.

  Installing VAX Pascal compiler...
%VMSINSTAL-I-RESTORE, Restoring product saveset B...

  Installing VAX Pascal definition files...
%VMSINSTAL-I-RESTORE, Restoring product saveset C...
```

```
  Generating STARLET.PAS/PEN...
      Generating PASCAL$DTK_ROUTINES.PAS/PEN...
      Generating PASCAL$LIB_ROUTINES.PAS/PEN...
      Generating PASCAL$MTH_ROUTINES.PAS/PEN...
      Generating PASCAL$NCS_ROUTINES.PAS/PEN...
      Generating PASCAL$OTS_ROUTINES.PAS/PEN...
      Generating PASCAL$PPL_ROUTINES.PAS/PEN...
      Generating PASCAL$SMG_ROUTINES.PAS/PEN...
      Generating PASCAL$SOR_ROUTINES.PAS/PEN...
      Generating PASCAL$STR_ROUTINES.PAS/PEN...

  Installing VAX Pascal example programs...
%VMSINSTAL-I-RESTORE, Restoring product saveset D...

  Your VMS system will now be updated to include the following new and
  modified files:

     SYS$COMMON:[SYSTEST.PASCAL]PASCAL$IVP.PAS                    [new]
     SYS$HELP:HELPLIB.HLB                                         [modified]
     SYS$HELP:PASCAL040.RELEASE_NOTES                             [new]
     SYS$LIBRARY:DCLTABLES.EXE                                    [modified]
     SYS$LIBRARY:LIBDEF.PAS                                       [new]
     SYS$LIBRARY:MTHDEF.PAS                                       [new]
     SYS$LIBRARY:PASDEF.PAS                                       [new]
     SYS$LIBRARY:PASSTATUS.PAS                                    [new]
     SYS$LIBRARY:SIGDEF.PAS                                       [new]
     SYS$MESSAGE:PASCALER1.EXE                                    [new]
     SYS$MESSAGE:PASCALER2.EXE                                    [new]
     SYS$STARTUP:PASCAL$STARTUP.COM                               [new]
     SYS$SYSTEM:PASCAL.EXE                                        [new]
     SYS$TEST:PASCAL$IVP.COM                                      [new]
     VUE$LIBRARY:PASCAL$DWCI.EXE                                  [new]
     VUE$LIBRARY:PASCAL$DWCI.UID                                  [new]
     VUE$LIBRARY:PASCAL$PROFILE.VUE$DAT                           [new]
     VUE$LIBRARY:PASCAL$DWCI.HLB                                  [new]
     SYS$COMMON:[SYSTEST.PASCAL]PASSTR$IVP.PAS                    [new]
     SYS$LIBRARY:STARLET.PAS                                      [new]
     SYS$LIBRARY:STARLET.PEN                                      [new]
     SYS$LIBRARY:PASCAL$DTK_ROUTINES.PAS                          [new]
     SYS$LIBRARY:PASCAL$DTK_ROUTINES.PEN                          [new]
     SYS$LIBRARY:PASCAL$LIB_ROUTINES.PAS                          [new]
     SYS$LIBRARY:PASCAL$LIB_ROUTINES.PEN                          [new]
     SYS$LIBRARY:PASCAL$MTH_ROUTINES.PAS                          [new]
     SYS$LIBRARY:PASCAL$MTH_ROUTINES.PEN                          [new]
     SYS$LIBRARY:PASCAL$NCS_ROUTINES.PAS                          [new]
     SYS$LIBRARY:PASCAL$NCS_ROUTINES.PEN                          [new]
     SYS$LIBRARY:PASCAL$OTS_ROUTINES.PAS                          [new]
     SYS$LIBRARY:PASCAL$OTS_ROUTINES.PEN                          [new]
     SYS$LIBRARY:PASCAL$PPL_ROUTINES.PAS                          [new]
     SYS$LIBRARY:PASCAL$PPL_ROUTINES.PEN                          [new]
     SYS$LIBRARY:PASCAL$SMG_ROUTINES.PAS                          [new]
     SYS$LIBRARY:PASCAL$SMG_ROUTINES.PEN                          [new]
     SYS$LIBRARY:PASCAL$SOR_ROUTINES.PAS                          [new]
     SYS$LIBRARY:PASCAL$SOR_ROUTINES.PEN                          [new]
     SYS$LIBRARY:PASCAL$STR_ROUTINES.PAS                          [new]
     SYS$LIBRARY:PASCAL$STR_ROUTINES.PEN                          [new]
     SYS$LIBRARY:PASCAL$D_FLOAT.PAS                               [new]
     SYS$LIBRARY:PASCAL$D_FLOAT.PEN                               [new]
     SYS$LIBRARY:PASCAL$G_FLOAT.PAS                               [new]
```

```
     SYS$LIBRARY:PASCAL$G_FLOAT.PEN                                  [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]CONSTRUCTOR_1.PAS            [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]FUNCTION_CALLS.PAS           [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]HANDLER.PAS                  [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]HELLOWORLD.PAS               [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]IMPLEMENTATION_MODULE.PAS    [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]INITIAL_STATE_1.PAS          [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]INITIAL_STATE_2.PAS          [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]INTERFACE_MODULE.PAS         [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]LIB$FIND_FILE.PAS            [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]MAIN_PROGRAM.PAS             [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]RFA_READ.PAS                 [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SCHEMA_PARAMETERS.PAS        [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SMG_EXAMPLE.PAS              [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$ASCTIM_AND_GETTIM.PAS    [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$CHECK_ACCESS.PAS         [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$DCLEXH.PAS               [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$DEVICE_SCAN.PAS          [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$FAO.PAS                  [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$GETDVI.PAS               [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$GETJPI.PAS               [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$GETQUI.PAS               [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$GETSYI.PAS               [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$GETUAI.PAS               [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$PROCESS_SCAN.PAS         [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$PUTMSG.PAS               [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$SNDJBC.PAS               [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]SYS$TRNLNM.PAS               [new]
     SYS$COMMON:[SYSHLP.EXAMPLES.PASCAL]USE_XABDAT.PAS               [new]

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...


         *-----------------------------------------*
         * Installation Verification Procedure     *
         *          for VAX Pascal                 *
         *-----------------------------------------*


** Successful Installation of VAX PASCAL V4.0-1 on 31-Oct-1989 at 14:59 **


         *-----------------------------------------*
         * Installation Verification Procedure for *
         *      VAX PASCAL STARLET libraries       *
         *-----------------------------------------*


** Successful Installation of VAX PASCAL STARLET libraries **

        Installation of PASCAL V4.0 completed at 14:59

Enter the products to be processed from the next distribution volume set.
* Products:  Exit

        VMSINSTAL procedure done at 15:00
```

Appendix B

Files and Logical Names Installed on Your System

The VAX Pascal installation procedure installs a number of files on your system and defines some logical names. The file names are listed at the end of the installation procedure.

The PASCAL$EXAMPLES logical name is entered into the system logical name table when the PASCAL$STARTUP.COM command file is invoked. This name points to the location of the optional VAX Pascal examples.