VDE
VDE Installation and New Features Guide

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This is the installation guide and the new features manual for the OpenVMS Development Environment (VDE) source code control and source code builder package.

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Contents

PREFACE ix

CHAPTER 1 PREPARING FOR THE VDE INSTALLATION 1–1

1.1 REQUIRED OPERATING SYSTEM COMPONENTS 1–1

1.2 PREREQUISITE AND OPTIONAL HARDWARE 1–1

1.3 PREREQUISITE AND OPTIONAL SOFTWARE 1–1
1.3.1 PCSI Software Registration 1–2
1.3.1.1 Product Registration Kits • 1–2
1.3.1.2 PCSI$REGISTER_PRODUCT • 1–3

1.4 UPGRADES FROM PREVIOUS VDE VERSIONS 1–3

1.5 LICENSE REGISTRATION 1–4

1.6 VMSCLUSTER INSTALLATION CONSIDERATIONS 1–4

1.7 INSTALLATION PROCEDURE REQUIREMENTS 1–4
1.7.1 Privileges and Disk Space 1–4
1.7.2 System Parameters 1–5
1.7.2.1 Changing System Parameter Values with AUTOGEN • 1–5
1.7.2.2 Setting Dynamic System Parameter Values • 1–6
1.7.3 Process Quotas and Privileges 1–6
1.7.4 Backing Up Your System Disk 1–7

CHAPTER 2 INSTALLING OPENVMS DEVELOPMENT ENVIRONMENT 2–1

2.1 THE PCSI SEQUENTIAL KIT 2–1

2.2 THE INSTALLATION PROCEDURE 2–1

Contents

2.3 INSTALLING THE ONLINE DOCUMENATION 2–2

CHAPTER 3 AFTER INSTALLING OPENVMS DEVELOPMENT ENVIRONMENT 3–1

3.1 RUNNING THE INSTALLATION VERIFICATION PROCEDURE SEPARATELY 3–1

3.2 EDITING THE SYSTEM FILES 3–1

3.3 TAILORING THE SYSTEM 3–1

3.4 VMSCLUSTER CONSIDERATIONS 3–2

3.5 USER ACCOUNT REQUIREMENTS 3–2
3.5.1 Privileges 3–2
3.5.2 User Account Quotas 3–2

3.6 ADDING VMS_MENU TO SYLOGIN 3–3

3.7 UPLOADING CMS INTO VDE 3–3

3.8 DETERMINING AND REPORTING PROBLEMS 3–3

3.9 INSTALLATION VERIFICATION PROCEDURE 3–3

APPENDIX A NEW FEATURES A–1

APPENDIX B EXAMPLE INSTALLATIONS B–1

B.1 EXAMPLE VDE INSTALLATION B–1

B.2 EXAMPLE VDEDOC INSTALLATION B–1

INDEX

TABLES

1–1	Prerequisite and Optional Software	1–1
1–2	Disk Space Requirements	1–4
3–1	Required Minimum Quotas	3–2
A–1	VDE New and Changed Features	A–1

Preface

Intended Audience

This manual is intended for users who want to know how to install OpenVMS Development Environment.

Document Structure

This document contains installation information for the OpenVMS Development Environment (VDE) source code control and source code build environment.

This manual contains the following information:

- Chapter 1 describes the preparations for the VDE installation process.
- Chapter 2 describes the steps involved in the VDE installation process.
- Chapter 3 provides a full description of all changes required after the VDE installation has been performed.
- Appendix A outlines the new and changed features.

Associated Documents

- Guide to Using VDE
- VDE Reference Manual

Conventions

In this manual, every use of OpenVMS Alpha means the OpenVMS Alpha operating system, every use of OpenVMS VAX means the OpenVMS VAX operating system, and every use of OpenVMS means both the OpenVMS Alpha operating system and the OpenVMS VAX operating system.

The following conventions are used in this manual:

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.
PF1 *x*	A sequence such as PF1 *x* indicates that you must first press and release the key labeled PF1, then press and release another key or a pointing device button.
GOLD *x*	A sequence such as GOLD *x* indicates that you must first press and release the key defined GOLD, then press and release another key. GOLD key sequences can also have a slash (/), dash (-), or underscore (_) as a delimiter in EVE commands.

Return	In examples, a key name enclosed in a box indicates that you press a key on the keyboard. (In text, a key name is not enclosed in a box.)
. . .	A horizontal ellipsis in examples indicates one of the following possibilities: • Additional optional arguments in a statement have been omitted. • The preceding item or items can be repeated one or more times. • Additional parameters, values, or other information can be entered.
. . .	A vertical ellipsis indicates the omission of items from a code example or command format; the items are omitted because they are not important to the topic being discussed.
( )	In format descriptions, parentheses indicate that, if you choose more than one option, you must enclose the choices in parentheses.
[ ]	In format descriptions, brackets indicate optional elements. You can choose one, none, or all of the options. (Brackets are not optional, however, in the syntax of a directory name in an OpenVMS file specification, or in the syntax of a substring specification in an assignment statement.)
{ }	In format descriptions, braces surround a required choice of options; you must choose one of the options listed.
boldface text	Boldface text represents the introduction of a new term or the name of an argument, an attribute, or a reason. Boldface text is also used to show user input in Bookreader versions of the manual.
italic text	Italic text emphasizes important information, indicates variables, and indicates complete titles of manuals. Italic text also represents information that can vary in system messages (for example, Internal error *number*), command lines (for example, /PRODUCER=*name*), and command parameters in text.
UPPERCASE TEXT	Uppercase text indicates a command, the name of a routine, the name of a file, or the abbreviation for a system privilege.
-	A hyphen in code examples indicates that additional arguments to the request are provided on the line that follows.
numbers	All numbers in text are assumed to be decimal, unless otherwise noted. Nondecimal radixes—binary, octal, or hexadecimal—are explicitly indicated.
mouse	The term *mouse* refers to any pointing device, such as a mouse, a puck, or a stylus.
MB1, MB2, MB3	MB1 indicates the left mouse button, MB2 indicates the middle mouse button, and MB3 indicates the right mouse button. (The buttons can be redefined by the user.)
PB1, PB2, PB3, PB4	PB1, PB2, PB3, and PB4 indicate buttons on the puck.

SB, SB	SB and SB indicate buttons on the stylus.

1 Preparing for the VDE Installation

This chapter discusses the preparations and requirements necessary for installing OpenVMS Development Environment (VDE). (VDE is sometimes confusingly referred to as VSC or as VTSC. These are synonyms for the VDE package.)

This manual applies to Version 1.5-0 of VDE.

VDE 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 2.2.

1.1 Required Operating System Components

The OpenVMS operating system comes with a variety of support options, or tailoring classes. Tailoring classes include such features as networking and RMS journaling. To use VDE, your system should be running a version of OpenVMS that includes at least the following class:

- BASE

1.2 Prerequisite and Optional Hardware

VDE does *not* require any particular hardware for product installation.

1.3 Prerequisite and Optional Software

Table 1–1 provides information on the software you *must* have installed on your system prior to VDE installation. The table also includes information about optional software that you can use together with VDE.

Table 1–1 Prerequisite and Optional Software

Prerequisite Software	Purpose
OpenVMS V6.2	Base operating system
DEC CMS V3.6-10[1]	Code Management System
Oracle Rdb7 (née DEC Rdb) V6.0	Database management software
DEC Notes V2.5	Conferencing system; used to hold SCT entries
DECwindows Motif V1.2-4	X Windows Motif interface software
NMAIL V9.3	OpenVMS Mail extension

[1] VDE V1.5-0 is *required* for use with DEC CMS Version 3.7 or greater.

Note: Some prerequisite products may have additional requirements. For example, a newer version of Oracle Rdb7 is required for use

on OpenVMS Alpha V7.*n*. Please consult the appropriate operating system and layered product documentation for more information.

All prerequisite layered products *must* be installed *prior* to the VDE installation. Installation of VDE does not require a system reboot.

Caution: If any updates are made to any of the prerequisite software or to VDE itself, the running version of VDE must be shut down.

PCSI is available in OpenVMS V6.1 and later, though not all prerequisite products may be installed with it. See Section 1.3.1 for information on registering OpenVMS products via PCSI.

1.3.1 PCSI Software Registration

PCSI installation kits for various prerequisite products may not yet be available, and thus PCSI may not have information on these products. There are two ways one can register products, with a product registration kit, or with the PCSI$REGISTER_PRODUCT procedure.

The registration for a particular prerequisite product need only be performed once, but it must be performed anew whenever a new version of the prerequisite product is loaded. (See Table 1–1 for a list of the prerequisite products.)

For more information on PCSI or the PCSI commands shown here, see the PCSI manuals.

1.3.1.1 Product Registration Kits

Some products, such as OpenVMS VAX V6.1, include ‘‘type 6’’ PCSI registration kits. While OpenVMS VAX V6.1 does not use PCSI to install, it does contain a registration kit. In particular, the OpenVMS product *must* have been installed via PCSI (on versions of OpenVMS where this option is available), or the OpenVMS registration kit must have been registered via PCSI.

These PCSI kits typically reside in SYS$MANAGER:*-6.PCSI* or (more commonly) in SYS$UPDATE:*-6.PCSI*.

```
$ DEFINE/NOLOG PCSI$SOURCE SYS$UPDATE:
$ PRODUCT REGISTER PRODUCT VMS
The following product has been selected:
DEC VAXVMS VMS V6.1     [Available]
Do you want to continue? [YES] YES
The following product will be registered:
DEC VAXVMS VMS V6.1
Portion Done: 0%...10%...20%...30%...40%...50%...60%...70%...100%
The following product has been registered:
DEC VAXVMS VMS V6.1
$
```

When registering the product using the above-mentioned command, PCSI may ask different or additional questions depending on the particular ‘‘type 6’’ kits present.

Should errors occur during the installation on the HELP libraries or DCLTABLES, it is likely that the OpenVMS ‘‘type 6’’ kits have not been registered.

1.3.1.2 PCSI$REGISTER_PRODUCT

If the products have not been registered with PCSI and do not have product registration kits, you must manually register them with PCSI. To register products, you can use the following command:

```
$ @SYS$UPDATE:PCSI$REGISTER_PRODUCT
```

Failure to perform this registration can lead to errors during the VDE installation. One error that may indicate that the OpenVMS images have not been registered involves a %PCSI-E-PARUDF error on DCLTABLES.

The following example displays how to register version V3.6 of the DEC Code Management System (CMS) Product with PCSI:

```
$ @SYS$UPDATE:PCSI$REGISTER_PRODUCT
Product name: CMS
Version: V3.6
Producer [DEC]: DEC

The following product has been selected:
DEC AXPVMS CMS V3.6

Do you want to continue? [YES] YES
The following product will be registered:
DEC AXPVMS CMS V3.6
Portion Done: 0%...100%
The following product has been registered:
DEC AXPVMS CMS V3.6
```

The product registration process need only be performed once for any particular product.

The current contents of the PCSI database can be displayed with the command:

```
$ PRODUCT SHOW HISTORY *
```

1.4 Upgrades from Previous VDE Versions

This version of VDE supports upgrades from all previous versions of VDE, and this version is directly compatible with the library format used in the VDE V1.3-*n* and X1.2-*n* releases. Libraries created by VDE versions prior to X1.2 can be upgraded to the library format used by X1.2-*n*, V1.3-*n* and V1.5-0 releases of VDE using the built-in library format conversion tools. (For further information on this topic, see the CONVERT LIBRARY command in *VDE Reference Manual*.)

Caution: Prior to the installation of VDE, disable the automatic library format conversion on each library using a MODIFY LIBRARY /NOAUTOCONVERT command. This command must be issued against each VDE library present on the system or VMScluster. This step will prevent an unintentional or unexpected library format conversion.

1.5 License Registration

VDE does not require a license.

1.6 VMScluster Installation Considerations

If VDE is to be installed in a VMScluster or mixed-architecture VMScluster environment, all prerequisite software products must be installed and operating on all nodes in the VMScluster.

Also, all versions of all prerequisite products must be compatable across all nodes in the VMScluster.

1.7 Installation Procedure Requirements

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

The installation takes approximately 3 minutes, depending on your type of media and your system configuration.

Installing VDE and running the Installation Verification Procedure (IVP) on a standalone DEC 7000-610 system takes approximately 5 minutes.

1.7.1 Privileges and Disk Space

Digital recommends you perform the installation from the SYSTEM username. To install VDE, you must be logged in to an account that has SETPRV or at least the following privileges:

- CMKRNL
- WORLD
- SYSPRV

The VDE product has different requirements for free disk storage space 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
VDE for OpenVMS Alpha V1.5-0	28,000	28,000
VDE for OpenVMS VAX V1.5-0	12,500	12,500
VDE V1.5-0 Documentation Kit	17,000	17,000

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

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

1.7.2 System Parameters

VDE does not require particular system parameter settings for product installation, other than those specified in *OpenVMS System Manager's Manual: Essentials* for PCSI product installations in general.

System parameters may be adjusted after installation of VDE and any prerequisite products for tuning purposes. See *OpenVMS System Manager's Guide: Tuning, Monitoring, and Complex Systems* for more information on system tuning.

1.7.2.1 Changing System Parameter Values with AUTOGEN

Should any system parameters require changing, whether for installation or for system tuning while running VDE, use the AUTOGEN command procedure to do so. 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 proper minimum or maximum value. For example:

```
MIN_WSMAX = 1024
MAX_WSMAX = 2048
```

Note: Use of the AUTOGEN *MIN_*, *MAX_* and *ADD_* prefixes is recommended over specification of an explicit value.

To modify incremental parameters such as GBLPAGES and GBLSECTS, use the prefix *ADD*. The following example increases the global page limit by 2000 pages:

```
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. To determine the amount of page file space presently available, use the following command:

```
$ SHOW MEMORY/FILES/FULL
```

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 FEEDBACK
```

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

The AUTOGEN Utility automatically adjusts various of the system parameters based on the consumption of resources since the last reboot. If you do not want to take advantage of this automatic adjustment, use the NOFEEDBACK parameter on the AUTOGEN command line.

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

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

1.7.2.2 Setting Dynamic System Parameter Values

Use the System Management Utility (SYSMAN) to set dynamic system parameters. Dynamic parameters changed with the SYSMAN PARAMETERS WRITE ACTIVE command become active immediately without any need to reboot your system. In fact, rebooting returns dynamic system parameter values to their saved settings. The following example shows how set the dynamic parameter CLISYMTBL using SYSMAN:

```
$ RUN SYS$SYSTEM:SYSMAN
SYSMAN> PARAMETERS USE ACTIVE
SYSMAN> PARAMETERS SET CLISYMTBL 300
SYSMAN> PARAMETERS WRITE ACTIVE
SYSMAN> EXIT
```

1.7.3 Process Quotas and Privileges

The account you use to install VDE must have sufficient quotas and privileges to enable you to perform the installation. VDE requires no particulur process quotas for product installation, other than those required for any PSCI installation. For information on PCSI installation and process quotas, reference *OpenVMS System Manager's Manual: Essentials*.

Note: The above statement only applies to the installation account. See Table 3–1 for the quota values required for the individual accounts of users performing operations within VDE.

User account quotas are stored in the system authorization database file. Use the OpenVMS Authorize Utility (AUTHORIZE) to verify and change user account quotas. To use AUTHORIZE, log into a privileged username and set your default directory to SYS$SYSTEM, then run AUTHORIZE:

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

At the UAF> prompt, enter the SHOW command with an account name to check a particular account. For example:

```
UAF> SHOW HOFFMAN
```

To change a quota, enter the MODIFY command. The following example changes the FILLM quota and the default and authorized privileges for the HOFFMAN account; it then exits from the utility:

```
UAF> MODIFY HOFFMAN /FILLM=50 /DEFPRIVILEGES=TMPMBX /PRIVILEGES=TMPMBX
%UAF-I-MDFYMSG, user record(s) updated
UAF> EXIT
$
```

After you exit from the utility, the system displays messages indicating which parts, if any, of the system authorization database were modified. Once the changes have been made, all processes under the username must log out and log in again for the new quota values to take effect.

For more information on modifying account quotas, see the description of the Authorize Utility in the OpenVMS System Management documentation.

1.7.4 Backing Up Your System Disk

Caution: If a version of VDE is installed on and running on the system, it must be shut down prior to performing the backup, and must remain shut down when performing the VDE upgrade.

At the beginning of the installation, PCSI asks if you have backed up your system disk. *Digital recommends that you perform a system disk backup prior to any software installation.*

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 OpenVMS System Management documentation.

2 Installing OpenVMS Development Environment

This chapter explains how to install OpenVMS Development Environment (VDE). Section 2.2 contains a step-by-step description of the installation procedure.

2.1 The PCSI Sequential Kit

You should have received the VDE kit as a PCSI sequential kit. Copy the PCSI kit for the appropriate platform into SYS$SCRATCH:.

- OpenVMS Alpha: **DEC-AXPVMS-VDE-V0105–1**
- OpenVMS VAX: **DEC-VAXVMS-VDE-V0105–1**

2.2 The Installation Procedure

The VDE installation procedure consists of a series of questions and informational messages.

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.

- **Invoke PCSI using the PRODUCT INSTALL command.**

```
PRODUCT INSTALL VDE/SOURCE=SYS$SCRATCH:
```

PSCI will automatically install the appropriate kit for the current platform (OpenVMS Alpha or OpenVMS VAX).

If you have not installed the PCSI transition kits for the Oracle Rdb7, DEC CMS and/or DEC Notes products, or if you have not already brute-force-registered these pesky prerequisite products via the OpenVMS @SYS$UPDATE:PCSI$REGISTER_PRODUCT, but you are certain you have the correct product versions installed on the system, you can safely ignore the following dire-sounding warning messages and can safely continue with the OpenVMS Development Environment installation:

```
%PCSI-W-SFTREFWRN, referenced product DEC VAXVMS RDB not found
for product DEC VAXVMS VDE V1.5-0
Terminating is strongly recommended.  Do you want to terminate? [YES] n

%PCSI-W-SFTREFWRN, referenced product DEC VAXVMS CMS not found
for product DEC VAXVMS VDE V1.5-0
Terminating is strongly recommended.  Do you want to terminate? [YES] n
```

The above messages may be displayed twice during installation.

An example installation is included in Appendix B.

2.3 Installing the Online Documenation

Online documentation for the OpenVMS Development Environment (VDE) is available in Bookreader and/or Postscript formats in a separate PCSI kit. To install the documentation, copy the documentation kit for the appropriate platform into SYS$SCRATCH:.

- OpenVMS Alpha: **DEC-AXPVMS-VDEDOC-V0105–1**
- OpenVMS VAX: **DEC-VAXVMS-VDEDOC-V0105–1**

The VDE documentation kit installs using a similar command as is used to install the VDE utility. There are no prerequisite product requirements.

- **Invoke the PCSI PRODUCT INSTALL command.**

```
PRODUCT INSTALL VDEDOC/SOURCE=SYS$SCRATCH:
```

Note: Two documentation kits exist to facilitate PCSI installation from either platform (OpenVMS Alpha or OpenVMS VAX), but the documentation installed is the same for either kit.

3 After Installing OpenVMS Development Environment

The following tasks are required after installing OpenVMS Development Environment (VDE):

- Editing the system startup file.
- Modifying user quotas.
- Making the product usable on a VMScluster.
- 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$TEST:VDE$IVP
```

3.2 Editing the System Files

You must edit the system startup and shutdown files to provide for automatic startup and shutdown of VDE when your system is rebooted.

Make certain the command line used to start VDE has been added to the system startup file, SYS$SYSTEM:SYSTARTUP_VMS.COM. The following example shows the VDE startup command line:

```
$ ! SYS$SYSTEM:SYSTARTUP_VMS.COM Site-Specific Startup
$ ! Start VDE
$ @SYS$STARTUP:VDE$STARTUP.COM
    .
    .
    .
```

3.3 Tailoring The System

You can edit the site-specific VDE startup DCL command procedure, SYS$STARTUP:VDE$SYSTARTUP.COM, to provide local definitions for the default VDE libraries visible to users. This procedure is invoked from within the SYS$STARTUP:VDE$STARTUP.COM procedure.

A template of the SYS$STARTUP:VDE$SYSTARTUP.COM procedure is included in the distribution as SYS$STARTUP:VDE$SYSTARTUP.TEMPLATE. Users should not modify the SYS$STARTUP:VDE$SYSTARTUP.TEMPLATE nor the SYS$STARTUP:VDE$STARTUP.COM procedures.

For details on the customizations possible, see the comments in the SYS$STARTUP:VDE$SYSTARTUP.TEMPLATE procedure.

3.4 VMScluster Considerations

If you are installing VDE on a cluster, you should execute the following commands:

```
$ RUN SYS$SYSTEM:SYSMAN
SYSMAN> SET ENVIRONMENT/CLUSTER
SYSMAN> DO INSTALL REPLACE SYS$SHARE:DCLTABLES
SYSMAN> DO @SYS$STARTUP:VDE$STARTUP.COM
SYSMAN> EXIT
$
```

This will make the VDE command available to all nodes in the cluster without requiring a system (or cluster) reboot.

3.5 User Account Requirements

To work with VDE, user accounts on your system must have certain privileges and quotas. The next two sections contain information on these requirements.

3.5.1 Privileges

To use VDE, each username must have at least the TMPMBX and NETMBX privileges. Use the OpenVMS Authorize Utility to determine whether users have the required privileges.

VDE internally includes a set of VDE privileges. Users with the OpenVMS privilege BYPASS can override the assigned VDE privileges and can gain all VDE privileges. For information, see the VDE command SET PRIVILEGE.

3.5.2 User Account Quotas

Table 3–1 contains the minimum process quotas required for VDE.

Table 3–1 Required Minimum Quotas

Quota	Minimum	Description
ASTLM	275	AST Limit
BIOLM	165	Buffered I/O Limit
BYTLM	70400	Buffered I/O Buffer Limit
DIOLM	165	Direct I/O Limit
ENQLM	5000	Lock Enqueue Limit
FILLM	165	File Limit
JTQUOTA	10240	Job Logical Name Table Quota
PGFLQUOTA	102000	Page File Quota

Table 3–1 (Cont.) Required Minimum Quotas

Quota	Minimum	Description
PRCLM	10	Process Creation Limit
TQLM	330	Timer Queue Quota

See Section 1.7.3 for a description of how to verify and change account quotas and privileges. If VDE detects a value that is below the specified minimum value, an informational message will be issued and VDE will attempt to continue.

3.6 Adding VMS_MENU to SYLOGIN

If you wish to allow users access to the VDE menu interface, you will likely want to edit the system-wide login command procedure SYS$MANAGER:SYLOGIN.COM, and add the following line:

```
$ VMS_MENU :== @VDE$EXAMPLES:VMS_MENU.COM
```

If you wish to customize the provided menu interface command procedure, you will need to relocate the procedure into a different non-VDE directory, as it is expected that the provided example procedure will see various updates in subsequent VDE releases.

3.7 Uploading CMS into VDE

Example procedures that can be used to upload existing CMS libraries into VDE are provided in VDE$EXAMPLES:, and documentation on this process is provided in the *Guide to Using VDE*; see *CMS library, populating facilities from* in that manual's index.

3.8 Determining and Reporting Problems

Comments on VDE can be submitted to vde@star.zko.dec.com. There is no support for this package.

3.9 Installation Verification Procedure

The installation verification procedure tests the local components of the VDE software; it does not include any network testing. To run the IVP, use the following command.

```
$ @SYS$TEST:VDE$IVP
```

A New Features

Table A–1 describes the various new and changed features present in the VDE V1.5-0 release.

Table A–1 VDE New and Changed Features

Feature	Description
New/Changed Features for VDE V1.5-0	
VDE Database Format	VDE V1.5-0 continues to use VDE library format 25. Versions of VDE that also support library format 25 can coexist with VDE V1.5-0. (Currently, these are releases X1.2-*n*, V1.3-*n*, V1.4-*n*, and V1.5-0.) Versions of VDE using older or newer formats can not coexist and require a database conversion. To determine the format of an existing library, use the SHOW LIBRARY/FULL command. *Do not use a newer version of VDE on a library created under a previous VDE version—specifically any VDE library with the autoconvert option enabled—if an automatic library format conversion is not desired.*
Support for Aging	VDE V1.5-0 includes a tool to notify users that are have pending reservations and/or folds, reservations or folds that have been outstanding for an extended time. See the documentation of VDE/AGE for further details.
Default SCT Conference Names	When VDE determines that a user does not have the identifier specified on the target VDE library, VDE is no longer left in a confused state. Previously, one had to exit and restart VDE to recover from this situation.

Table A–1 (Cont.) VDE New and Changed Features

Feature	Description
New/Changed Features for VDE V1.4-*n*	
VDE Database Format	VDE V1.5-0 uses library format 25. Versions of VDE that also support library format 25 can coexist with VDE V1.5-0. (Currently, these are releases X1.2-*n*, V1.3-*n* and V1.5-0.) Versions of VDE using older or newer formats can not coexist and require a database conversion. To determine the format of an existing library, use the SHOW LIBRARY/FULL command. *Do not use a newer version of VDE on a library created under a previous VDE version—specifically any VDE library with the autoconvert option enabled—if an automatic library format conversion is not desired.*
Support for DEC CMS V3.7+	VDE V1.5-0 includes changes that allow VDE to avoid a compatibility problem introduced in DEC CMS V3.7. Earlier versions of VDE do not function correctly with CMS versions 3.7 or greater.
Default SCT Conference Names	When determining the default SCT conference name for a stream, VDE now translates any character that is not an alphanumeric, "$" or "_" character into a "-" (hyphen). This change allows an SCT Notes conference to be configured for stream names, such as "V3.4", that contain a character such as a period. In this case, VDE will choose the name "SCT-V3-4" as the default SCT conference, which is a legal Notes conference name.
Notification Performance	VDE Handling of event notifications (Mail to users and/or notes posted to Notes conferences) has been improved for reliability and performance. Minor changes have also been made to messages displayed during notification.
VDE /WHEREIS	This is a new qualifier to the DCL-level VDE command (not available at the VDE> prompt). This tool allows command procedure to locate key components and/or obtain a list of available databases. Information is returned as local symbols or process logical names, as specified by the caller. Example usage: $ VDE/WHEREIS /LIBRARY=*vde-libname*/RETURN=LOGICAL_NAMES $ VDE/WHEREIS /INDEX=*vde-libindex* /RETURN=SYMBOLS For further information, see the information on the VDE$WHEREIS_* symbols/logical names.

Table A–1 (Cont.) VDE New and Changed Features

Feature	Description
New/Changed Features for VDE V1.4-*n*	
Quota Checks	The minimum quota values used for VDE's quota checks have been raised for ASTLM, BYTLM, JTQUOTA and TQLM for V1.5-0. VDE will display a warning message and attempt to continue should one or more insufficient quota values be detected. See the VDE/READ_UAF command for assistance in updating user quotas in the system authorization database (SYSUAF) and updating user entries in the VDE database.
SETCMS/SETVDE	The SETCMS, SETVSC and SETVDE commands are obsolete and all references to these commands have been removed from the command tables and the OpenVMS Development Environment documentation. These commands provided an access control mechanism for the VDE components. More flexible access control capabilities are now available via standard VDE security features such as subsystem identifiers.
Message Text	The text of various messages output by VDE has been improved for clarity. The associated documented recovery steps have been improved as well.
New/Changed Features from VDE V1.3-*n*	
Documentation	The documentation now calls out the similarities and the differences between the VSC and the VDE command interfaces. Several chapters have been added to the *Guide to Using VDE* to detail various common tasks, and information on managing a VDE library has been expanded. The format of the manual has been improved. An Error Messages and Recovery section has been added to *VDE Reference Manual*. An installation guide has been added. The various indices are now rather larger. Various appendicies have been added, including one containing various VDE logical names.

Table A–1 (Cont.) VDE New and Changed Features

Feature	Description
New/Changed Features from VDE V1.3-*n*	
	Implicit assumptions on various points of arcane process knowledge—and on knowledge of terms such as “Master Pack” and “Yellow”, etc—have been reduced or eliminated from the VDE documentation. Whenever possible, terminology has been made consistent across both the OpenVMS VAX and the OpenVMS Alpha development environments.
Motif Interface	
	VDE V1.3-*n* and later versions contain a Motif-based user interface, and associated hyper-help. Invoke the VDE command specifying the qualifier /INTERFACE=DECwindows. The Motif interface includes support for FETCH, RESERVE, REPLACE and UNRESERVE commands, as well as HELP and a few other Motif-related commands. VDE target library selection is currently via static resource file entries (made visible and selected via a cascade menu loaded at run-time), but may be made dynamic in an upcoming release.
CREATE LIBRARY/NOAUTO_CONVERT	
	Automatic library format conversion is now disabled by default as the /NOAUTO_CONVERT qualifier is now the default. Previous versions of VDE defaulted to allowing automatic conversion. Libraries presently marked for automatic conversion are not affected by this change. All VDE libraries should be reviewed to determine if an automatic conversion should be permitted.
Architecture Support	
	The VDE commands for managing ARCHITECTUREs are partially documented. *This capability introduced in V1.3-n is not fully implemented.*
OpenVMS Alpha Support	
	As of V1.3-0, VDE is available for OpenVMS VAX and OpenVMS Alpha; Releases V1.3-*n* and V1.5-0 operate in mixed-architecture VMSclusters.
PCSI Installation	
	VDE is now installed via the PCSI utility.
Quota Check	
	VDE V1.3 and later releases check for various minimum quota values. VDE displays a warning message and attempts to continue should one or more insufficient quota values be detected. See the VDE/READ_UAF command for assistance in updating user quotas in the system authorization database (SYSUAF) and updating user entries in the VDE database.

Table A–1 (Cont.) VDE New and Changed Features

Feature	Description
New/Changed Features from VDE V1.3-*n*	
SET PRIVILEGE/OVERRIDE	Allows a user that has the OpenVMS BYPASS privilege enabled to override the VDE privilege settings and to set all VDE privileges. An informational message is generated when the privilege is used, and privilege auditing is performed.
SET LIBRARY	The SET LIBRARY command now allows a user that has the OpenVMS BYPASS privilege enabled to override a restricted VDE user authorization database, and to access the library. This is intended to allow privileged VDE users to perform VDE database maintenance when necessary. An informational message is generated when the privilege override is used, and a privilege audit message is generated. The SET LIBRARY command now correctly processes library specifications incorrectly include the library file name, the library file extension, and/or the library file version—these components are now ignored. Previous versions of VDE permitted only the device and directory specifications, and an error was generated when additional components were specified. The SET LIBRARY command now allows the specification of either an explicit library specification, or a mnemonic shorthand for the desired library. Mnemonics and the associated translations are established via logical names, and can be tailored for individual users, for groups, or on a system-wide basis. For further information, see the information on the VDE$LIBRARY_DEFAULTS, VDE$LIBRARY_DEFAULTS_LABELS, VDE$LIBRARY_DEFAULTS_CMS, and VDE$LIBRARY_DEFAULTS_MNEMONICS logical names. When no parameter is specified on the SET LIBRARY command, an error message is (still) generated, and a site-configurable list of the available VDE libraries is now displayed. When the VDE$LIBRARY_DEFAULTS_MNEMONICS logical name is defined, the SET LIBRARY command is available via keyboard definitions for the F17 through F20 keyboard keys. The first four libraries listed in the translation(s) of VDE$LIBRARY_DEFAULTS_MNEMONICS are selected by the *default* key state, the second four by the *gold* state, and the third four by the *blue* state.
SHOW DEVELOPER	This command is now partially documented.
SHOW REPLACEMENT/ACCEPTED	This is a new qualifier. This displays all replacement component modules that have been marked as accepted.

Table A–1 (Cont.) VDE New and Changed Features

Feature	Description
New/Changed Features from VDE V1.3-*n*	
SHOW REPLACEMENT/IN_REVIEW	This is a new qualifier, and displays all replacement component that are presently under review.
SHOW REPLACEMENT/NOT_REVIEWED	This is a new qualifier and displays all replacement component modules that have not yet been reviewed.
SHOW REPLACEMENT/REJECTED	This is a new qualifier and displays replacement component modules that have been rejected.
VDE$ENABLE_AUDIT	A system logical name defined in executive mode that enables OpenVMS system-level auditing of various VDE operations. Use of this option requires that the VDE image be installed with or run with the OpenVMS AUDIT privilege enabled.
CREATE MODULE/INPUT	This command is no longer accepted on streams marked for queued replacements. Any attempt to perform this operation on a stream marked for queued replacements will be rejected with the error VDE$_INCNOTVAL.
VDE$MARKER marker-file directories	VDE now creates the [.VDE$MARKER] marker-file subdirectory when initializing a library.
MODIFY LIBRARY/LOCK	VDE now supports a limited capability to maintain a write-lock on a library. This capability is intended primarily for the maintenance and consistency of shadow or reference VDE libraries.
MODIFY MODULE/NAME Obsoleted	The /NAME qualifier has been removed, as there is no reliable way to handle the rename operation at the CMS level, nor a reasonable way to handle copying the various possible source files, object files and similar. Users wishing to perform a rename must delete the old module and recreate it under the new name, specifying the appropriate generations to create.
Kept Subprocesses	Erroneous attempts to directly attach to a kept subprocess, via lib$attach or the DCL ATTACH command, no longer cause the kept subprocess to exit. The kept subprocess now uses a unique process name; previous versions used a process name based on the username.

Table A–1 (Cont.) VDE New and Changed Features

Feature	Description
New/Changed Features from VDE V1.3-*n*	
Calling Interface	VDE now includes a callable interface allowing listings of libraries, and fetches. The interface supports remote access via an IP network, and is implemented as a shareable image. This interface directly supports the VDE WWW server. A future release of VDE may add support for reservations, unreservations, and replacements. Contact VDE support for information *before* using this interface—a few incompatible changes to the interface are currently expected.
VDE$LIBRARY_LABEL	VDE now defines a process logical name VDE$LIBRARY_LABEL whenever a connection is made to a library. This logical name contains the remark associated with the library, and is intended for use within procedures based on the VDE utilities.
VDE$LIBRARY_MNEMONIC	VDE now defines a process logical name VDE$LIBRARY_ MNEMONIC whenever a connection is made to a library. This logical name contains the library name or, when known, the mnemonic name associated with the current library, and is intended for use within procedures based on the VDE utilities.
VDE$NOTES_LIBRARY	A logical name that allows a user to change the default Notes conference file specification for SCT Notes conferences accessed by VDE. If this logical name is not defined, the default value of "NOTES$LIBRARY:.NOTE" is used.
Script Enhancements	A new script type, CREATE_FACILITY, has been added. This optional script is invoked when a new facility is created. See *VDE Reference Manual* for details. The execution context of the script has been changed, and scripts now correctly tolerate an EMIT of an EXIT DCL command; scripts also recover from various abnormal terminations of script. Scripts do *not* correctly recover from the complete deletion of the subprocess. This will wedge the current operation, and still require the user to enter a CTRL/Y to free the process. The « and » characters can now be used to quote strings used in the EMIT script command. A new script function, $SCRATCH, has been added. When invoked, this function returns the device and directory specification for the VDE scratch directory. This directory is useful for scripts that need temporary storage.

Table A–1 (Cont.) VDE New and Changed Features

Feature	Description
New/Changed Features from VDE V1.3-*n*	
Statistics Collection	VDE now optionally collects replacement statistics. See the MODIFY LIBRARY/STATISTICS, REPLACE/REASONS and REPLACE/DEFECTS_CORRECTED commands for details.
Changes to the REPLACE command	Existing REPLACE prompts have been changed, new prompts have been added, and new qualifiers have been added. Changes involve the syntax surrounding the reason for the change, how the SCT information is processed, and the collection of statistics. Some of this work is part of the statistics collection work mentioned above, some reduces the number of seperate steps required to enter a change, and some is intended to allow for the optional automatic generation of the SCT entry in a future release of VDE. The new REPLACE/DEFECTS_CORRECTED qualifier allows direct entry of the number of defects corrected by the replacement. This qualifer operates in conjunction with the statistics collection process, the MODIFY LIBRARY/STATISTICS command, and the /REASONS qualifier. The new REPLACE/NOTE qualifer allows direct entry of the SCT note number. If this qualifer is specified, the default SCT Notes conference name is assumed. If both /SCT and /NOTE are specified, /NOTE takes precedence. REPLACE/REASONS allows direct entry of the reason for the replacement. This qualifer operates in conjunction with the statistics collection process, the MODIFY LIBRARY/STATISTICS command, and the /DEFECTS_CORRECTED qualifier. Part of this change is in support of the statistics collection work mentioned above, and part is the foundation that will allow for the optional automatic generation of the SCT entry in an unspecified future release of VDE. The new REPLACE/SCT qualifer allows direct entry of a filename containing the SCT note text. If this is specified, the default SCT Notes conference name is assumed, and VDE loads the specified file into the SCT Notes conference, using the replacement remark text as the title of the note. If both /SCT and /NOTE are specified, /NOTE takes precedence. The new MODIFY GENERATION/NOTE qualifer allows direct entry of the SCT note number. If this qualifer is specified, the default SCT Notes conference name is assumed. If both /SCT and /NOTE are specified, /NOTE takes precedence.

Table A–1 (Cont.) VDE New and Changed Features

Feature	Description
New/Changed Features from VDE V1.3-*n*	
	The new MODIFY GENERATION/SCT qualifer allows direct entry of a filename containing the SCT note text. If this is specified, the default SCT Notes conference name is assumed, and VDE loads the specified file into the SCT Notes conference, using the replacement remark text as the title of the note. If both /SCT and /NOTE are specified, /NOTE takes precedence.
Changes to the CREATE FACILITY command	
	As mentioned above, a new script type, CREATE_FACILITY, has been added. This optional script is invoked when a new facility is created. See *VDE Reference Manual* for details.
	The CREATE FACILITY command now sends notification messages for the newly created facility to the individuals that have asked for stream-level notifications.
Longer CLDs accepted	
	VDE accepts both nine and ten character CLD numbers: both the original XXX-NNNN and the longer XXX-NNNNN CLD formats are now accepted.
New Examples	
	VDE includes example command procedures and associated files used to upload an existing set of CMS libraries into a new VDE library, and an example of a menu interface. All examples are located in the VDE$EXAMPLES: directory.

B Example Installations

B.1 Example VDE Installation

The following is an example VDE installation. The PCSI kit is assumed to be a sequential kit, and is assumed to reside in SYS$SCRATCH:. In this case, all prerequisite products not installed via PCSI have been registered using PCSI$REGISTER_PRODUCT.COM.

```
$ PRODUCT INSTALL VDE/SOURCE=SYS$SCRATCH:

The following product has been selected:
DEC AXPVMS VDE V1.5-0

Do you want to continue? [YES]

*** DEC AXPVMS VDE V1.5-0: DEC VDE For OpenVMS Alpha, Version V1.5-0

    Copyright Digital Equipment Corp 1997.  All rights reserved.

    VDE was produced by Digital Equipment Corporation

    This product is for DIGITAL INTERNAL USE ONLY

    Do you want all the default values for this product? [YES]

    Prerequisite Products

    Do you want to view the values? [NO]

%PCSIUI-I-DONEASK, execution phase starting
The following product will be installed:
DEC AXPVMS VDE V1.5-0
%PCSI-I-VOLINFO, estimated space information for volume DISK$ALPHASYS
-PCSI-I-VOLSPC, 27532 required; 1091910 available; 1064378 net
Portion Done: 0%...10%...20%...40%...60%...70%...90%...100%
The following product has been installed:
DEC AXPVMS VDE V1.5-0

*** DEC AXPVMS VDE V1.5-0: DEC VDE For OpenVMS Alpha, Version V1.5-0

    VDE Startup File

    Insert the following lines in SYS$MANAGER:SYSTARTUP_VMS.COM:
        @SYS$STARTUP:VDE$STARTUP.COM
$
```

B.2 Example VDEDOC Installation

The following is an example VDEDOC installation. The PCSI sequential kit is assumed to reside in SYS$SCRATCH:.

```
$ PRODUCT INSTALL VDEDOC/SOURCE=SYS$SCRATCH:

The following product has been selected:
DEC AXPVMS VDEDOC V1.5-0

Do you want to continue? [YES] Y

*** DEC AXPVMS VDEDOC V1.5-0: DEC VDEDOC For OpenVMS Alpha, Version V1.5-0

    Copyright Digital Equipment Corporation 1997.  All rights reserved.

    VDEDOC was produced Digital Equipment Corporation
```

```
    This product is for DIGITAL INTERNAL USE ONLY

    Do you want all the default values for this product? [YES]

    Do you want to view the values? [NO]

%PCSIUI-I-DONEASK, execution phase starting
The following product will be installed:
DEC AXPVMS VDEDOC V1.5-0
%PCSI-I-VOLINFO, estimated space information for volume DISK$ALPHASYS
-PCSI-I-VOLSPC, 16834 required; 1062936 available; 1046102 net
Portion Done: 0%...30%...50%...90%...100%
The following product has been installed:
DEC AXPVMS VDEDOC V1.5-0
$
```

Index

A

ASTLM • A–3
Auditing • A–6
Authorize • 3–2
AUTOGEN • 1–5

B

BYTLM • A–3

C

Changing System Parameters • 1–5
CLD • A–9
CMS • 1–1, A–9
  See also DEC CMS
  compatibility • A–2
Conversion
  Automatic • A–1, A–2, A–4
CREATE MODULE command • A–6
CREATE_FACILITY • A–7, A–9

D

Database Format • A–1, A–2
DCLTABLES • 1–2, 1–3
DEC CMS
  See also CMS
  version required • 1–1
DEC Notes
  See also Notes
  version required • 1–1
DECwindows Motif
  version required • 1–1
Directories • A–6

E

Error
  during installation: DCLTABLES • 1–2
  during installation: HELP libraries • 1–2
Examples
  Menu • 3–3, A–9
  Upload • A–9

F

F17 key • A–5
F18 key • A–5
F19 key • A–5
F20 key • A–5
Facility notification • A–9

H

HELP libraries • 1–2

J

JTQUOTA • A–3

L

Logical Name
  VDE$ENABLE_AUDIT • A–6
  VDE$LIBRARY_LABEL • A–7
  VDE$LIBRARY_MNEMONIC • A–7
  VDE$NOTES_LIBRARY • A–7

M

Mail
  CREATE FACILITY • A–9
  notification • A–2
Marker-file subdirectory • A–6
Menu Example • 3–3, A–9
MODIFY GENERATION command
  /NOTE qualifer • A–8
  /SCT qualifer • A–9
MODIFY MODULE/NAME command • A–6
MODPARAMS.DAT • 1–5
Motif • A–4
  See also DECwindows Motif

N

NMAIL
  version required • 1–1
Notes • 1–1
  See also DEC Notes
  notification • A–2
Notes Conferences • A–2, A–7, A–8, A–9
Notification • A–2

O

OpenVMS
  version required • 1–1
OpenVMS Alpha • A–4
OpenVMS VAX • A–4
Oracle Rdb7
  See Rdb

P

PCSI • 1–2, 1–3, A–4
  “Type 6” kits • 1–2
PCSI$REGISTER_PRODUCT • 1–3
%PCSI-E-PARUDF • 1–3
Prerequisites
  Software
    Optional • 1–1
    Required • 1–1
Privilege
  AUDIT • A–6
  BYPASS • 1–4, 3–2, A–5
  CMKRNL • 1–4
Privilege (cont’d)
  NETMBX • 3–2
  Override • A–5
  SETPRV • 1–4
  SYSPRV • 1–4
  TMPMBX • 1–7, 3–2
  WORLD • 1–4
PRODUCT REGISTER PRODUCT • 1–2
PRODUCT SHOW HISTORY • 1–3

Q

Quota
  FILLM • 1–7
Quotas • A–3, A–4

R

Rdb
  version required • 1–1
REPLACE command
  /NOTE qualifer • A–8
  prompting change • A–8
  /REASONS qualifer • A–8
  /SCT qualifer • A–8

S

Scripts
  Stuck • A–7
Script Types
  CREATE_FACILITY • A–7, A–9
SCT • 1–1
Security • A–6
SET PRIVILEGE command • 3–2
SHOW LIBRARY command • A–1, A–2
Software
  Optional • 1–1
  Required • 1–1
Statistics Collection • A–8
SYS$STARTUP:VDE$STARTUP.COM • 3–1
SYS$STARTUP:VDE$SYSTARTUP.COM • 3–1
SYS$STARTUP:VDE$SYSTARTUP.TEMPLATE • 3–1
SYS$UPDATE:PCSI$REGISTER_PRODUCT • 2–1

System Authorization Database • A–3, A–4
System Parameters • 1–5
SYSUAF • A–3, A–4

T

TQLM • A–3
Tuning • 1–5
Type 6 PCSI kits • 1–2

U

Upload Example • A–9

V

VDE$ENABLE_AUDIT logical name • A–6
VDE$EXAMPLES logical name • 3–3, A–9
VDE$LIBRARY_DEFAULTS logical name • A–5
VDE$LIBRARY_DEFAULTS_CMS logical name • A–5
VDE$LIBRARY_DEFAULTS_LABELS logical name • A–5
VDE$LIBRARY_DEFAULTS_MNEMONICS logical name • A–5
VDE$LIBRARY_LABEL logical name • A–7
VDE$LIBRARY_MNEMONIC logical name • A–7
VDE$MARKER • A–6
VDE$NOTES_LIBRARY logical name • A–7
VDE$STARTUP.COM • 3–1
VDE$SYSTARTUP.COM • 3–1
VDE$SYSTARTUP.TEMPLATE • 3–1
VDE$WHEREIS_BACKUPS_AFTER_IMAGE symbol/logical name • A–2
VDE$WHEREIS_BACKUPS_ARCHIVE symbol/logical name • A–2
VDE$WHEREIS_BACKUPS_CURRENT symbol/logical name • A–2
VDE$WHEREIS_BACKUP_FULL symbol/logical name • A–2
VDE$WHEREIS_BACKUP_INCR symbol/logical name • A–2
VDE$WHEREIS_CMS symbol/logical name • A–2
VDE$WHEREIS_DATABASE symbol/logical name • A–2
VDE$WHEREIS_LABEL symbol/logical name • A–2
VDE$WHEREIS_MNEMONIC symbol/logical name • A–2
VDE$_INCNOTVAL • A–6
VDE/AGE • A–1
VDE/READ_UAF Command • A–3, A–4
VMScluster • A–4

W

/WHEREIS qualifier • A–2