VAX CDD/Plus Installation Guide

Order Number: AA–L630N–TE

February 1991

This guide explains how to install VAX CDD/Plus.

Revision Update Information:	This guide supersedes the VAX CDD/Plus Installation Guide (Order No. AA–L630M–TE).
Operating System and Version:	VMS Version 5.3 or higher
Software Version:	VAX CDD/Plus Version 4.3

digital equipment corporation
maynard, massachusetts

February 1991

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Contents

Preface vii

Chapter 1 Preparing to Install VAX CDD/Plus

1.1 Required Operating System Components 1–1

1.2 Prerequisite Hardware 1–2

1.3 Prerequisite and Optional Software 1–2

1.4 License Registration 1–3

1.5 Special Requirements for Installing VAX CDD/Plus 1–3
1.5.1 If VAX CDD/Plus Is Installed 1–4
1.5.2 Backing Up Dictionary Databases 1–4
1.5.3 Backing Up Dictionaries 1–5
1.5.4 Check Access Privileges for Previous Versions 1–5
1.5.5 Confirm DECnet Status 1–6

1.6 Installation Procedure Requirements 1–6
1.6.1 Privileges and Disk Space 1–7
1.6.1.1 Privileges 1–7
1.6.1.2 Disk Space 1–8
1.6.2 Process Account Quotas 1–9
1.6.3 System Parameters 1–10
1.6.3.1 Checking System Parameter Values 1–11
1.6.3.2 Calculating the Values for GBLPAGES and GBLSECTIONS 1–11
1.6.3.3 Changing System Parameter Values with AUTOGEN 1–12
1.6.3.4 Setting Dynamic System Parameter Values 1–13
1.6.4 VMSINSTAL Requirements 1–14

1.6.5 Backing Up Your System Disk 1–14

Chapter 2 Installing VAX CDD/Plus

2.1 The Installation Procedure 2–1
2.1.1 Invoke VMSINSTAL 2–1
2.1.2 Confirm System Backup 2–3
2.1.3 Mount the Media 2–3
2.1.4 Select a Release Notes Option 2–4
2.1.5 Respond to License Registration Queries 2–5
2.1.6 Answer Questions About VAX Rdb/VMS on Your System 2–5
2.1.7 Check Need for Database Conversion 2–6
2.1.8 Confirm VAX Rdb/VMS Backups 2–6
2.1.9 Specify the Location of the CDD Root Dictionary File 2–7
2.1.10 Confirm the Location of the Compatibility Dictionary 2–9
2.1.11 Confirm the Location of the Template Dictionary 2–10
2.1.12 Select Programming Support Files 2–11
2.1.13 Choose the Installation Verification Procedure (IVP) Option . . . 2–11
2.1.14 Enter Password for RDB$REMOTE Account 2–12
2.1.15 Purge Files 2–13
2.1.16 Read Informational Messages 2–13
2.1.17 Observe the Installation Verification Procedure (IVP) 2–14
2.1.18 End the Installation Procedure 2–14

2.2 Error Recovery 2–14

Chapter 3 After Installing VAX CDD/Plus

3.1 Run the Installation Verification Procedure Separately 3–1

3.2 Edit the System Files 3–2

3.3 Modify System Parameters 3–2

3.4 Make VAX CDD/Plus Available on a VAXcluster 3–3

3.5 User Account Requirements 3–4
3.5.1 Privileges 3–4
3.5.2 User Account Quotas 3–4

3.6 Upgrade Protocols 3–5

3.7 Convert VAX Rdb/VMS Databases 3–6

3.8 Tailor Your System 3–7
3.8.1 Managing Lock Conflicts with CDD$WAIT 3–7
3.8.2 Assigning an Identifier to Prevent Disk Quota Errors 3–7

3.9 Enhance VAX CDD/Plus Performance 3–9
3.9.1 Tuning the Lock-Related Parameters 3–9

3.10 Determine and Report Problems 3–10

Chapter 4 Installation Verification Procedure

4.1 Running the IVP 4–2

4.2 Sample IVP Log 4–3

Appendix A Sample Installation

Appendix B Files and Logical Names Installed on Your System

B.1 File Names B–1

B.2 Logical Names B–3

Tables

1–1 Required User Privileges 1–7
1–2 Disk Space Requirements 1–8
1–3 Process Account Quotas for the Installing Account 1–9
1–4 Minimum Required System Parameter Values 1–10
1–5 Required Dynamic Parameter Values 1–13
3–1 User Account Quotas for Using VAX CDD/Plus 3–5
3–2 Values for Lock Parameters for Using VAX CDD/Plus 3–9

Preface

This guide explains how to install VAX CDD/Plus Version 4.3.

Intended Audience

This guide is intended for the system manager who will install VAX CDD/Plus Version 4.3.

Operating System Information

For information about the versions of the operating systems and related software that are compatible with this version of VAX CDD/Plus, see the System Support Addendum (SSA) that comes with the Software Product Description (SPD).

Structure

This guide consists of four chapters and two appendixes:

Chapter 1	Explains how to prepare your system before the actual installation can begin.
Chapter 2	Provides step-by-step instructions for the installation.
Chapter 3	Describes actions and considerations after the installation.

Chapter 4	Describes the Installation Verification Procedure (IVP) and contains a sample log of an IVP run.
Appendix A	Contains a sample installation.
Appendix B	Lists the files and logical names installed by VAX CDD/Plus.

Related Documents

For further information on the topics covered in this guide, see the following manuals:

- *VMS System Manager's Manual*

  Describes the overall process of software installation for the base system (VMS).
- *VMS Backup Utility Manual*

  Describes the options and procedures for backing up disks and tapes.
- *VMS Guide to Setting Up a VMS System*

  Explains how to change SYSGEN parameters, user parameters, and quotas.

The VAX CDD/Plus documentation set consists of the following manuals:

- *VAX CDD/Plus User's Guide*

  Provides tutorial material for creating and maintaining VAX CDD/Plus dictionaries.
- *VAX CDD/Plus Common Dictionary Operator Reference Manual*

  Provides reference material and syntax for all CDO commands.
- *VAX Common Data Dictionary Data Definition Language Reference Manual*

  Describes the VAX Common Data Dictionary Data Definition Language Utility (CDDL), which manipulates definitions in DMU dictionaries.
- *VAX Common Data Dictionary Utilities Reference Manual*

  Describes the Dictionary Management Utility (DMU) and the Dictionary Verify/Fix Utility (CDDV), which manipulate DMU dictionaries.
- *VAX CDD/Plus Call Interface Manual*

  Provides reference material for the system administrator on CDO dictionary architecture. This manual is not part of the regular VAX CDD/Plus documentation set, but you can order it separately.

Conventions

The following symbols are used in this guide:

Convention	Meaning
RET	This symbol indicates the RETURN key.
Ctrl/x	This symbol indicates to press the Ctrl (control) key and hold it down while pressing the specified letter key.
$	The dollar sign is used to indicate the DCL prompt. This prompt may be different on your system.
`$ SYS$UPDATE:VMSINSTAL`	In interactive examples, user input is printed in red.
. . .	Vertical ellipsis in an example means that information not directly related to the example has been omitted.
file-spec, . . .	Horizontal ellipsis indicates that additional parameters, values, or information can be entered.
[logical-name]	Square brackets indicate that the enclosed item is optional. (Square brackets are not, however, optional in the syntax of a directory name in a file specification or in the syntax of a substring specification in an assignment statement.)
UPPERCASE TEXT	Uppercase letters indicate the name of a command, a file, a parameter, a procedure, or a utility.

Chapter 1

Preparing to Install VAX CDD/Plus

This chapter discusses the preparations and requirements necessary for installing VAX CDD/Plus.

This guide applies to Version 4.3 of VAX CDD/Plus.

Your Bill of Materials (BOM) and Indented Bill 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 CDD/Plus 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

You can install the VAX CDD/Plus Version 4.3 kit on systems running VMS Version 5.3 and 5.4.

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 CDD/Plus, your system should be running a version of VMS that includes the following classes:

- VMS required saveset
- Network support
- Programming support
- System 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 Prerequisite Hardware

Please see the Software Product Description (SPD).

1.3 Prerequisite and Optional Software

This section describes the software you must install on your system before installing VAX CDD/Plus and also includes information about software that you can use with VAX CDD/Plus. Please see the System Software Addendum (SSA) for a complete list of compatible products and their required version numbers. The SSA is part of the Software Product Description (SPD).

VAX CDD/Plus Version 4.3 requires either the full development kit or Run-Time Only (RTO) kit of VAX Rdb/VMS Version 3.1A or higher. If one of these versions of VAX Rdb/VMS is not installed on your system, the VAX CDD/Plus installation procedure installs the RTO kit of VAX Rdb/VMS Version 3.1B.

This means that if you have an earlier version of VAX Rdb/VMS, this installation of VAX CDD/Plus will replace the version of VAX Rdb/VMS on your system. The RTO kit of VAX Rdb/VMS Version 3.1B does not include the Relational Database Operator (RDO) Utility.

If you plan to install the full development kit of VAX Rdb/VMS Version 3.1A or higher, install it *before installing VAX CDD/Plus Version 4.3* to save time.

If, after installing VAX CDD/Plus, you find that the VAX Rdb/VMS RTO kit is inadequate for your needs, you can install a full development kit of VAX Rdb/VMS Version 3.1B to replace the RTO kit.

If you intend to use the VAX Language-Sensitive Editor/Source Code Analyzer (LSE/SCA) with the Data Definition Language Utility (CDDL), you must install it before installing VAX CDD/Plus Version 4.3.

You do *not* need to install previous versions of VAX CDD/Plus before you install this version of VAX CDD/Plus.

1.4 License Registration

If you are installing VAX CDD/Plus Version 4.3 on a newly licensed node or cluster, you must first register a License Product Authorization Key (License PAK) using the License Management Facility (LMF). The License PAK may be shipped along with the kit if you ordered the license and media together; otherwise, it is shipped separately to a location based on your license order.

If you are installing VAX CDD/Plus Version 4.3 as an update on a node or cluster licensed for this software, you must register the Service Update PAK (SUP) that is included in your Service Update Kit. If you registered a License PAK or a SUP for this product on this node or cluster, you do not need to register the SUP.

If you are installing an update of VAX CDD/Plus but lack a service contract, call your Digital representative for instructions on how to get a License PAK.

You must register and load your license for VAX CDD/Plus *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$UPDATE:VMSLICENSE.COM procedure. When it prompts you for information, respond with data from your License PAK.
- At the DCL prompt ($), enter the LICENSE REGISTER command with the appropriate qualifiers that correspond to License PAK information.

NOTE

If you plan to use VAX CDD/Plus 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 3.4.

For complete information on using LMF, see the *VMS License Management Utility Manual*.

1.5 Special Requirements for Installing VAX CDD/Plus

This section describes special requirements for installing VAX CDD/Plus.

1.5.1 If VAX CDD/Plus Is Installed

If your system has a version of VAX CDD/Plus installed, you must perform the following steps:

1. Run the startup procedure, CDDSTRTUP.COM, before you reinstall to define the CDD logicals. To run CDDSTRTUP before installing VAX CDD/Plus Version 4.3, enter the following command:

   ```
   $ @SYS$STARTUP:CDDSTRTUP
   ```

2. Shut down the Rdb/VMS monitor that tracks database activity. It is active whenever CDD/Plus or Rdb/VMS is in use. The installation procedure terminates if the Rdb/VMS monitor is running.

   You must have CMKRNL, SYSNAM, and WORLD or SETPRV privilege.

   Before starting the installation, make sure that there are no active Rdb/VMS users. Invoke the RMONSTOP.COM command procedure as follows:

   ```
   $ @SYS$MANAGER:RMONSTOP
   ```

   In VAXcluster environments, invoke RMONSTOP.COM on each node.

3. VAX CDD/Plus Version 4.3 creates new startup and shutdown files. To avoid duplication of files, delete the following files if they exist before installation:

   - SYS$COMMON:[SYSMGR]CDDSTRTUP.COM
   - SYS$COMMON:[SYSMGR]CDDSHUTDOWN.COM

   For example:

   ```
   $ DELETE/CONFIRM SYS$COMMON:[SYSMGR]CDDSTRTUP.COM;*
   ```

1.5.2 Backing Up Dictionary Databases

If your system has an installed VAX Rdb/VMS version prior to Version 3.1A, you must back up all dictionary databases *before* you install VAX CDD/Plus.

If you have other VAX Rdb/VMS databases, you must back them up according to the directions in the *VAX Rdb/VMS Installation Guide*. Then install the VAX Rdb/VMS Version 3.1A development kit *before* you install VAX CDD/Plus Version 4.3.

If you are presently using a VAX Rdb/VMS development kit for a version prior to Version 3.1A and you wish to replace the development kit with the VAX Rdb/VMS Version 3.1B Run-Time Only (RTO) kit that comes with VAX CDD/Plus Version 4.3, you should disable VAX Rdb/VMS before you attempt to install VAX CDD/Plus Version 4.3.

CAUTION

You must back up databases *before* you install VAX Rdb/VMS Version 3.1B *or* VAX CDD/Plus Version 4.3, which installs a Run-Time Only kit of VAX Rdb/VMS Version 3.1B. Once VAX Rdb/VMS Version 3.1B has been installed, you cannot back up a database created by a version before Version 3.1.

1.5.3 Backing Up Dictionaries

You should back up all dictionaries on your system *before* you install VAX CDD/Plus Version 4.3 by performing the following steps:

1. Verify the compatibility dictionary with the VERIFY/DIR/FIX command. If the VERIFY command returns error messages, you should then issue a VERIFY/REBUILD command.
2. Back up your existing dictionary databases, including the compatibility dictionary and all user dictionaries, using the RDO EXPORT command. If you do not back up your dictionaries and you run into errors during conversion, you will not be able to restore the dictionaries.
3. If you have other VAX Rdb/VMS databases, back them up according to the directions in the *VAX Rdb/VMS Installation Guide*.

1.5.4 Check Access Privileges for Previous Versions

If you have previously installed CDD or CDD/Plus on your system, you must have the following access privileges at CDD$TOP:

- EXTEND
- GLOBAL_DELETE
- PASS_THRU (or CONTROL)

To check the access privileges, use the following DMU command:

```
$  DMU
DMU>  LIST/PROTECTION CDD$TOP
   [*,*], Username: "SHANE"
   Grant - EGPX, Deny - none, Banish - none
   [234,234], Username: "GUEST"
   Grant - none, Deny - CDEFGHMPRSUWX, Banish - none
   [*,*], Username: "LAWNER"
   Grant - CDHPSX, Deny - none, Banish - none
```

To assign or change privileges, enter the following command:

```
DMU>  SET PROTECTION/EDIT CDD$TOP
```

You must have control privilege at CDD$EXAMPLES, a CDD directory created by the Installation Verification Procedure (IVP). If CDD$EXAMPLES does not exist, you need CONTROL privilege at CDD$TOP. For more information, see the *VAX Common Data Dictionary Utilities Reference Manual*.

1.5.5 Confirm DECnet Status

The DECnet network must be up and running if you are installing the following two products:

- VAX Rdb/VMS Version 3.1B Run-Time Only (RTO) kit
- SQL

1.6 Installation Procedure Requirements

This section and those that follow discuss various requirements for installing VAX CDD/Plus.

The installation procedure takes approximately 25 minutes on a VAX–11/780 computer with magnetic tape. Creating the compatibility dictionary, if necessary, requires an additional 15 minutes. If VAX Rdb/VMS Version 3.1A or higher is not installed on your system, installing the Run-Time Only (RTO) VAX Rdb/VMS Version 3.1B kit adds 35 minutes to the installation time. The Installation Verification Procedure (IVP) takes less than 15 minutes.

1.6.1 Privileges and Disk Space

This section describes the privileges and process quotas needed by the account used to install VAX CDD/Plus. See Section 3.5.2 for information on setting VAX CDD/Plus user process quotas.

1.6.1.1 Privileges

To install VAX CDD/Plus, you must be logged in to an account that has SETPRV or at least the privileges shown in Table 1–1.

Table 1–1: Required User Privileges

Name	Privilege Granted
CMKRNL	Change to kernel mode
EXQUOTA	Allow disk space to exceed established quotas
NETMBX	Allow user to perform network-related functions
OPER	Perform operator functions
SETPRV	Enable any privilege
SYSNAM	Insert system logical names in the name table
SYSPRV	Access resources as if the process has a system UIC
TMPMBX	Create temporary mailbox
WORLD	Allow access to other processes

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

To check the default privileges of the SYSTEM account, log in as SYSTEM, and enter the following command:

```
$ SHOW PROCESS/PRIVILEGES
```

If the default privileges of the SYSTEM account that this command shows include all those listed in Table 1–1, proceed to Section 1.6.1.2.

If the SYSTEM account lacks SETPRV, you cannot finish the installation successfully. You have the following two options:

- Ask your system manager to use the VMS Authorize Utility (AUTHORIZE) to modify the default privileges of the account to include SETPRV.

- Run AUTHORIZE and make the changes yourself, if your account has SYSPRV.

Changes that you make using AUTHORIZE will not take effect until you log out and log in again.

If the SYSTEM account has SETPRV but lacks other required privileges, you can temporarily change the account's privileges with the DCL command SET, as shown in the following example:

```
$  SET PROCESS/PRIVILEGES=(CMKRNL,SYSGBL)
```

1.6.1.2 Disk Space

VAX CDD/Plus 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

File Name	System Logical Name	Blocks Required
VAX CDD/Plus root dictionary	CDD$DICTIONARY	150
VAX CDD/Plus compatibility dictionary	CDD$COMPATIBILITY	7500
VAX CDD/Plus dictionary template	CDD$TEMPLATE	7500

If VAX Rdb/VMS Version 3.1A or higher is installed on your system, the VAX CDD/Plus installation requires 26,000 available blocks on your system disk. If VAX Rdb/VMS Version 3.1A or higher is not installed on your system, the VAX CDD/Plus installation requires 34,000 available blocks on your system disk.

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

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

1.6.2 Process Account Quotas

The account you use to install VAX CDD/Plus must have sufficient quotas to enable you to perform the installation. Table 1–3 summarizes the process quotas required for the installation account.

Table 1–3: Process Account Quotas for the Installing Account

Account Quota	Value
ASTLM	24
BIOLM	80
BYTLM	25000
DIOLM	40
ENQLM	2000
FILLM	60
PGFLQUO	40000
PRCLM	10
WSDEF	256[1]

[1]The values for WSEXT and WSQUO must be equal to or greater than the WSDEF value.

User account quotas are stored in the file SYSUAF.DAT. Use the VMS Authorize Utility (AUTHORIZE) to verify and change user account quotas. First, set your directory to SYS$SYSTEM and 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 SMITH
```

To change a quota, enter the MODIFY command. The following example changes the FILLM quota for the SMITH account and then exits from the utility:

```
UAF>  MODIFY SMITH /FILLM=60
UAF>  EXIT RET
```

After you exit from the utility, the system displays messages indicating whether or not changes were made. Once the changes have been made, you must log out and log in again for the new quotas to take effect.

For more information on modifying account quotas, see the AUTHORIZE description in the *VMS System Management Subkit*.

1.6.3 System Parameters

Installing VAX CDD/Plus requires certain system parameter settings. Table 1–4 lists the minimum required system parameter values for the installation. Depending on the programs and applications running at your site, you might need higher values for some settings.

Table 1–4: Minimum Required System Parameter Values

System Parameter	Minimum Value
CLISYMTBL[1]	250 pages
CTLPAGES	32 pages
GBLPAGES[2]	n + 2120 pages
GBLPAGFIL	12200 pages
GBLSECTIONS[2]	n + 106 sections
LOCKIDTBL_MAX[3]	2048 entries
MAXBUF[3]	1200 bytes
NPAGEDYN	900096 bytes
PAGEDYN	1000448 bytes
RESHASHTBL	512 entries
SRPCOUNT	1024 packets
SRPCOUNTV	2048 packets
VIRTUALPAGECNT	80000 pages

[1]The CLISYMTBL dynamic system parameter must be set to a minimum value of 250 during the installation procedure. You can change the setting to its original value once the installation is finished.
[2]The values listed for these system parameters represent the number of free global pages and global sections required for the installation, not the total number you need to run your system and other software.
[3]These dynamic system parameters must be set permanently to values equal to or greater than the values listed. Do not lower these values after the installation.

NOTE

Table 1–4 shows the *minimum* system parameters for the installation account. If the values of the installation account parameters

currently exceed the values in the table, no changes are necessary; do *not* lower existing values to the values shown in Table 1–4.

The following sections show you how to:

- Check system parameter values
- Calculate values for the GBLPAGES and GBLSECTIONS system parameters
- Change parameter values with the VMS AUTOGEN command procedure
- Set dynamic parameters (such as CLISYMTBL) with the VMS System Generation Utility (SYSGEN)

1.6.3.1 Checking System Parameter Values

To check the current values of your system parameters, enter the following command to invoke the VMS System Generation Utility (SYSGEN):

```
$  RUN SYS$SYSTEM:SYSGEN
SYSGEN>
```

At the SYSGEN> prompt, enter the SHOW command to display the value of a system parameter. The values displayed should equal or exceed the value of each system parameter listed in Table 1–4. To display the value for the GBLPAGFIL system parameter, enter the following command:

```
SYSGEN>  SHOW GBLPAGFIL
```

After checking the parameters with the SHOW command, enter the EXIT command at the SYSGEN> prompt to return to DCL level ($).

1.6.3.2 Calculating the Values for GBLPAGES and GBLSECTIONS

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

If you are installing VAX CDD/Plus on a VMS Version 5.2 system, you can use the WRITE command with the F$GETSYI lexical function to find the number of free global pages and global sections. The following example shows you how to get this information at your terminal (the default for SYS$OUTPUT):

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

If the values displayed by the system are greater than the values in Table 1–4, you do not need to increase the values for these parameters. If the value of free global pages or global sections is less than the value in Table 1–4, you must increase the system parameter setting.

Section 1.6.3.3 describes the procedures for increasing these values using AUTOGEN.

1.6.3.3 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:

```
GBLPAGFIL = 12200
```

To modify incremental parameters such as GBLPAGES and GBLSECTIONS, 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 your changes, exit from the editor and execute AUTOGEN to recalculate your system parameters by entering the following command:

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

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

The AUTOGEN procedure 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*.

1.6.3.4 Setting Dynamic System Parameter Values

Use the VMS System Generation Utility (SYSGEN) to set dynamic parameters. Dynamic parameters changed with the SYSGEN WRITE ACTIVE command become active immediately without any need to reboot your system. In fact, rebooting returns dynamic system parameter values to their previous settings.

Once you change dynamic parameter values, you should complete the installation before rebooting the system. After you finish with the installation, you can reset the dynamic parameters to their previous values or let them be reset automatically when you next reboot your system.

VAX CDD/Plus requires the dynamic parameter values listed in Table 1–5.

Table 1–5: Required Dynamic Parameter Values

Dynamic Parameter	Value
CLISYMTBL	250 pages
LOCKIDTBL_MAX	2048 entries
MAXBUF	1200 bytes

If the dynamic parameter values on your system are less than the values previously listed, use the following series of commands to change the values. This example changes the CLISYMTBL value to 250.

```
$  RUN SYS$SYSTEM:SYSGEN
SYSGEN>  USE ACTIVE
SYSGEN>  SET CLISYMTBL 250
SYSGEN>  WRITE ACTIVE
SYSGEN>  EXIT
```

1.6.4 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 DECnet is running
- Whether any users are logged in to the system

Note that 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 `y` to continue. To stop the installation process and correct the situation, enter `n` or press the RETURN key. Then correct the problem and restart the installation.

1.6.5 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 back up your system disk before installing any software.

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

Chapter 2

Installing VAX CDD/Plus

This chapter explains how to install VAX CDD/Plus. Section 2.1 contains a step-by-step description of the installation procedure. Section 2.2 explains what to do if errors occur.

2.1 The Installation Procedure

The VAX CDD/Plus 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.

2.1.1 Invoke VMSINSTAL

To start the installation, invoke the VMSINSTAL command procedure from a privileged account, such as the SYSTEM account. The format of the command is:

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

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 CDD/Plus, use the following installation name:

```
CDD043
```

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 about 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 reviewed the release notes, you do not need to specify OPTIONS N.

You can select several other options when you invoke the VMSINSTAL command procedure.

- Auto_answer option (A): Initially creates a file that contains your answers to VMSINSTAL 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 the VMSINSTAL command procedure to install VAX CDD/Plus from tape drive MTA0: and shows the system response. This example uses the OPTIONS N release note parameter.

```
$  @SYS$UPDATE:VMSINSTAL CDD043 MTA0: OPTIONS N

      VAX/VMS Software Product Installation Procedure V5.3


It is 19-NOV-1990 at 13:14.
Enter a question mark (?) at any time for help.
```

If you do not supply either the product name or the device name, VMSINSTAL prompts you for this information later in the installation procedure. VMSINSTAL does not prompt you for any options, so be sure to include OPTIONS N on the VMSINSTAL command line to access the release notes during the installation.

2.1.2 Confirm System Backup

VMSINSTAL asks if you are satisfied with your system backup.

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

You should always back up your system disk before performing an installation. If you are satisfied with the backup of your system disk, press the RETURN key. Otherwise, enter `n` to discontinue the installation. After you back up your system disk, you can restart the installation.

2.1.3 Mount the Media

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

```
Please mount the first volume of the set on MTA0:.
* Are you ready?  YES RET
%MOUNT-I-MOUNTED, VAX CDD/Plus MOUNTED ON _$$MTA0:  (NODE 1)
The following products will be processed:
  VAX CDD/Plus Version 4.3

    Beginning installation of VAX CDD/Plus Version 4.3 at
13:01

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

If you respond `y` to indicate that you are ready, VMSINSTAL displays a message that the media containing VAX CDD/Plus 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 `n` in response to the ''Are you ready?'' question. To abort the installation for other reasons, press Ctrl/y.

2.1.4 Select a Release Notes Option

If you specified OPTIONS N when you invoked the VMSINSTAL command procedure, you are now asked to choose one of the four options for reviewing the release notes.

```
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 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 the RETURN key 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 reviewed the release notes and are restarting the installation.

Note that hardcopy release notes are not included with the documentation set for VAX CDD/Plus.

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

```
SYS$HELP:CDD043.RELEASE_NOTES
```

After the installation, you can enter the following command to review the release notes through the Help facility:

```
$ HELP CDD_PLUS 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 CDD/Plus.

2.1.5 Respond to License Registration Queries

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

```
Product:      CDD-PLUS
Producer:     DEC
Version:      4.3
Release Date: 01-JUL-1990

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

If you have not registered and loaded your PAK, you must answer `n` 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. See Section 1.4 for more information.

2.1.6 Answer Questions About VAX Rdb/VMS on Your System

After you confirm your Product Authorization Key (PAK), the installation procedure informs you that the VAX CDD/Plus kit requires VAX Rdb/VMS Version 3.1A or higher and displays the version number of VAX Rdb/VMS installed on your system.

If VAX Rdb/VMS is not installed on your system, the installation procedure will install the Run-Time Only (RTO) kit of VAX Rdb/VMS Version 3.1B. If the version of VAX Rdb/VMS installed on your system is a version prior to 3.1B, the installation procedure *replaces your kit* with an RTO kit of VAX Rdb/VMS Version 3.1B. If the installation procedure needs to install the VAX Rdb/VMS RTO kit, it gives you a message to this effect.

```
    ************************************************************

    This kit requires RUN TIME ONLY (RTO) Rdb/VMS V3.1A.

    This kit will install RTO Rdb/VMS V3.1B because it
    is not present on your system.

    The installed version of Rdb/VMS is: Rdb/VMS V3.0.

    ************************************************************
```

2.1.7 Check Need for Database Conversion

Next, the installation procedure provides information about the need to convert existing databases.

```
    ************************************************************

        Due to the installation of Rdb/VMS V3.1B you may need to
        convert any Rdb/VMS databases present on
        your system. This should be done once this installation
        completes but before using any databases.

    Use RMU/CONVERT rdb_database_pathname to convert RDB databases

    ************************************************************
* Do you still want to proceed with this installation [YES]?
```

If you type `y`, the installation procedure continues.

2.1.8 Confirm VAX Rdb/VMS Backups

If you intend to continue using databases created by versions of VAX Rdb /VMS prior to Version 3.1, and you have not backed them up, you should type `n` to stop the installation. Back up your databases according to the instructions in Section 1.5.2, and begin the installation procedure again.

```
%VMSINSTAL-I-RESTORE, Restoring product save set B ...

    ************************************************************

    The currently installed version:

        "Rdb/VMS V3.0"

    will be replaced by this installation.

    ************************************************************

* Do you want to proceed [NO]:  y RET

    ************************************************************

             Before You Install Rdb/VMS Software

    As a precaution, you should perform the following tasks before
    proceeding:
```

```
    - Use the RDO EXPORT command to export each Rdb/VMS database
      including any VAX CDD/Plus dictionaries with your currently
      installed version of Rdb/VMS.

    - Backup each database with the VMS Backup Utility.

  After installing Rdb/VMS Version 3.1B, you will need to do
  the following:

    - If you have databases or VAX CDD/Plus dictionaries which were
      created under the following versions of Rdb/VMS:

      VAX Rdb/VMS Version 3.0
      VAX Rdb/VMS Version 3.0A
      VAX Rdb/VMS Version 3.0B

      use RMU/CONVERT, RMU/RESTORE or RDO IMPORT to ready the
      database for use under Rdb/VMS 3.1B.  This is necessary
      because the on-disk structure of Rdb/VMS database files
      changed between Rdb/VMS Version 3.0 and Version 3.1B, and
      databases created under Rdb/VMS Version 3.0B or earlier
      are incompatible with Rdb/VMS Version 3.1B.

  ************************************************************

* Have you backed up your Rdb/VMS databases [NO]:
```

At this point, the CDD/PLUS installation procedure checks the status of the VAX Rdb/VMS monitor. If the VAX Rdb/VMS monitor is operating, the installation displays the following error message and stops the installation.

```
*******************************************
You must shutdown the Rdb/VMS monitor before
installing VAX CDD/Plus, please follow the
instructions in the installation guide
*******************************************
```

2.1.9 Specify the Location of the CDD Root Dictionary File

The root dictionary file for the DMU format dictionaries is identified by the system logical name CDD$DICTIONARY. If VAX CDD/Plus or CDD has been previously installed and this logical name has been defined, the installation procedure displays the current translation of CDD$DICTIONARY and asks if this is the correct location for the new root dictionary.

```
  ************************************************************

  Following are questions about the location of system
  dictionaries.

  Please take note that the following terms are used by this
  procedure in referring to system dictionaries:

'CDD root dictionary'  The system dictionary for the
                       pre-V 4.0 CDD product.
```

```
    'VAX CDD/Plus root dictionary'    The system's VAX CDD/Plus
                                      compatibility dictionary.

    'VAX CDD/Plus template  The VAX CDD/Plus dictionary used
    dictionary'            to create other dictionaries.

    Together, the CDD root dictionary and the VAX CDD/Plus root
    dictionary form one logical system dictionary, although
    they must reside in different physical locations.

    The VAX CDD/Plus template dictionary is used to create
    VAX CDD/Plus dictionaries.
    ************************************************************

* Is this the correct location for your system's CDD root
  dictionary file [YES]?
```

If you type `y`, the root dictionary for the new version of VAX CDD/Plus will be in the same physical location.

If you type `n`, the installation procedure asks you for the new translation of the CDD$DICTIONARY logical name.

```
    ************************************************************

    The CDD$DICTIONARY  system logical name is used to identify
    the location of the CDD root dictionary file.

    CDD$DICTIONARY is currently defined to be:
    SYS$COMMON:[SYSEXE].

    ************************************************************

* Is this the correct location for your system's CDD root dictionary
file [YES]?
```

You can then type in a new file specification for the location of the root dictionary file. (For example, you might want to create a new root dictionary file if there is insufficient space on the specified device.)

When you type in the new file specification, you must include both a device name and directory name. You should pick a directory on a device that is permanently mounted. The new directory must exist on your system.

VAX CDD/Plus does not run if either the device or directory name is missing. The default file name for the root dictionary file is CDD.DIC; the default directory name is SYS$COMMON.

If you define CDD$DICTIONARY to be SYS$SYSTEM, the installation procedure automatically changes the definition to SYS$COMMON.

You can also specify a search list for CDD$DICTIONARY. If you did not create CDD$DICTIONARY (by installing a previous version of VAX CDD /Plus), VAX CDD/Plus places the root dictionary file in the first location in the search list.

WARNING

If you choose to type in a new translation for CDD$DICTIONARY, you *must* move your root dictionary file to the new file location *before* you run the IVP. If you neglect to do this, the IVP creates a new root dictionary file for you, and you will *not be able to access your existing dictionary*.

Perform the following steps to move your root dictionary file:

1. Use the COPY command, specifying your root dictionary file as the source and a directory that exists as the target:

```
$  COPY/READ/WRITE  DISK1:[SMITH.DICTIONARY]CDD.DIC -
_$  CDD$DISK:[TAYLOR.DICTIONARY]CDD.DIC
```

2. The installation creates a new SYS$SYSTEM:CDDSTRTUP.COM so that the logical name CDD$DICTIONARY points to the new anchor directory. This will go into effect the next time you reboot.
3. Define the logical name CDD$DICTIONARY for users on the current system so that it points to the new anchor directory:

```
$ DEFINE/SYSTEM/EXEC CDD$DICTIONARY CDD$DISK:[TAYLOR.DICTIONARY]
```

2.1.10 Confirm the Location of the Compatibility Dictionary

The system logical name CDD$COMPATIBILITY identifies the location of the compatibility dictionary. The installation procedure displays the default translation of CDD$COMPATIBILITY and asks you to confirm that this is correct.

```
************************************************************

 The CDD$COMPATIBILITY system logical name is used to identify
 the location of the VAX CDD/Plus root dictionary.

 CDD$COMPATIBILITY is currently defined to be:
 SYS$COMMON:[CDDPLUS].

 ************************************************************

* Is this the correct location for your system's VAX CDD/Plus root
dictionary [YES]?
```

If you type `n`, the installation procedure asks you for the new translation of the CDD$COMPATIBILITY logical name in order to create the VAX CDD/Plus root dictionary in the new location.

```
    ************************************************************

    If you are changing the location of the VAX CDD/Plus root
    dictionary, you must remember to move the VAX CDD/Plus root
    dictionary to its new location, or create a new VAX CDD/Plus
    root dictionary.  Be certain to do this before you try to
    run the Installation Verification Procedure (IVP). Otherwise
    the IVP will fail to locate the VAX CDD/Plus root dictionary
    when it is run.

    ************************************************************

* Enter the VAX CDD/Plus root dictionary file's device
  and directory: [SYS$COMMON:[CDDPLUS]]:
```

You can then type in a new directory specification for the location of the root dictionary file. The new directory specification must include both a device name and directory name. You should pick a directory on a device that is permanently mounted.

2.1.11 Confirm the Location of the Template Dictionary

The system logical name CDD$TEMPLATE identifies the location of the VAX CDD/Plus template dictionary. The installation procedure displays the current translation of CDD$TEMPLATE and asks you to confirm that this is the correct location.

```
    ************************************************************

    The CDD$TEMPLATE system logical name is used to identify
    the location of the VAX CDD/Plus template dictionary.


    This procedure will delete all files in the current template
    dictionary directory and re-create the template dictionary.
    The template dictionary directory should have no other files.

    CDD$TEMPLATE is currently defined to be:
    SYS$COMMON:[CDD$TEMPLATE].

    ************************************************************

* Is this the correct location for your system's VAX CDD/Plus template
dictionary [YES]?
```

Type `y` to use the default location. If you type `n`, the system prompts you to supply the name of a permanently mounted device and a directory that can be used exclusively by VAX CDD/Plus.

```
    ************************************************************

    If you are changing the location of the VAX CDD/Plus template
    dictionary, you must remember to delete the old VAX CDD/Plus
    template dictionary.

    ************************************************************
```

```
* Enter the VAX CDD/Plus template dictionary file's device
  and directory: [SYS$COMMON:[CDD$TEMPLATE]]:
```

2.1.12 Select Programming Support Files

The VAX CDD/Plus installation provides description files that you must call the VAX CDD/Plus Version 4.3 programming interface. The installation procedure asks whether or not you want the new language support files installed.

If you answer `y` to this question, the procedure installs support files for Ada, BLISS, BASIC, C, FORTRAN, MACRO, PASCAL, and PL/I. If you answer `n` to this question, the procedure prompts you to specify which language files you want to install. If you choose to install no files, *you cannot use the VAX CDD/Plus call interface*. After you specify the language files you want, the installation procedure lists them and asks for verification, as in the following example.

```
************************************************************

This installation provides description files that are needed
when using the VAX CDD/Plus V4.3 programming interface.

************************************************************

* Would you like all the description files provided [YES]? y RET

************************************************************

The following languages have been chosen:
(ADA,BLISS,BASIC,C,FORTRAN,MACRO,PASCAL,PLI)

************************************************************

* Is this OK [YES]?
```

2.1.13 Choose the Installation Verification Procedure (IVP) Option

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

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

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

If you type y, VMSINSTAL.COM asks you the following question:

```
* Do you want to print the log file from the IVP [NO]?
```

Type y if you want VMSINSTAL.COM to submit the IVP log file to SYS$PRINT. Press the RETURN key if you do not want to print the log file. VMSINSTAL.COM also asks:

```
* Do you want to save the log file from the IVP [NO]?
```

Type y if you want VMSINSTAL.COM to save a copy of CDDIVP.LOG. The log file is stored in SYS$SYSROOT:[SYSTEST.CDD]. Type n if you do not want a copy of the log file.

Chapter 4 describes the purpose and functions of the Installation Verification Procedure and includes a sample IVP log file.

2.1.14 Enter Password for RDB$REMOTE Account

The password for the RDB$REMOTE account must match the password for the RDBSERVER object.

```
    ************************************************************

    RDB$REMOTE account found but RDBSERVER object is not found in
    the network database.  To be sure the password for the RDB$REMOTE
    account matches the password for the RDBSERVER object, this
    installation will:

           1. Prompt you for a new password for the RDB$REMOTE account
           2. Update the RDB$REMOTE account and insert a new
              RDBSERVER object into the network database

    ************************************************************

* Please enter carriage return to continue:


    ************************************************************

    The entire installation will FAIL if you do not enter a valid
    password for the RDB$REMOTE account.  You will be given
    3 chances to verify your password.  This installation
    procedure requires at least 6 characters for the
    RDB$REMOTE password.  Valid characters for a password are:

       A through Z
       a through z
       0 through 9
       $ (dollar sign)
       _ (underscore)
```

```
    As with the DCL SET PASSWORD command, your input will not
    appear on the terminal.  And to protect against typing errors
    that are not seen when entering the password, you must enter
    the password twice.

    ************************************************************

* Please enter PASSWORD to be used for RDB$REMOTE account:


* Please verify the PASSWORD entered for RDB$REMOTE:
```

2.1.15 Purge Files

You have the option to purge files from previous versions of VAX CDD/Plus that are superseded by this installation.

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

Purging is recommended. However, if you need to keep files from the previous version, enter `n` in response to the question.

2.1.16 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. If you are installing VAX CDD/Plus on a VAX–11/780 computer, the following messages are displayed:

```
    To complete the installation on a standalone VAX-11/780
    will take approximately:

        1 hour to install
        15 minutes to run the IVP

    All required questions have been asked.
    You can terminate the installation procedure at this time.

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

2.1.17 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 display:

```
**********************************
VAX CDD/Plus V4.3
IVP COMPLETED SUCCESSFULLY
**********************************

IVP completed for: VAX CDD/Plus V4.3
```

See Chapter 4 for a detailed description of the IVP's output.

2.1.18 End the Installation Procedure

```
Installation of CDD V4.3 completed at 15:59
VMSINSTAL procedure done at 15:00
```

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

You can now log out of the privileged account:

```
$ LOGOUT RET
SYSTEM     logged out at 19-NOV-1990 15:00:36.12
```

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 CDD/Plus Version 4.3
has failed.
```

If the IVP fails, you see the following messages:

```
The VAX CDD/Plus Version 4.3 Installation Verification Procedure failed.
%VMSINSTAL-E-IVPFAIL, The IVP for VAX CDD/Plus Version 4.3 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.
- The account from which you invoked VMSINSTAL does not have the right privileges.
- There is not enough disk space on the system disk.
- The VAX Rdb/VMS monitor is running.
- CDD$TEMPLATE could not be created.
- The CDD$TEMPLATE system logical name was not defined.
- CDDSTRTUP.COM has not run on all cluster nodes.
- 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.

Chapter 3

After Installing VAX CDD/Plus

You must perform the following tasks after installing VAX CDD/Plus:

- Run the Installation Verification Procedure separately if installation failed.
- Edit the system startup and shutdown files.
- Modify system parameter settings.
- Make the product usable on a VAXcluster.
- Set user account quotas and privileges.
- Reinstall products that use VAX CDD/Plus.
- Upgrade dictionary protocols.
- Convert existing VAX Rdb/VMS databases.
- Convert user dictionaries to use new protocols.
- Convert definitions from DMU to CDO format, if desired.
- Tailor your system.
- Tune your system to enhance performance.
- Report problems.

3.1 Run 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$SYSROOT:[SYSTEST.CDD]CDD$IVP
```

3.2 Edit the System Files

You must edit the system startup and shutdown files to provide for automatic start up and shut down of VAX CDD/Plus when your system is rebooted.

Add the command line that starts VAX CDD/Plus to the system startup file, SYS$MANAGER:SYSTARTUP_V5.COM. VAX CDD/Plus cannot start until after the network has started, so add this new command line *after* the line that invokes the network startup command procedure. If you use VAX Rdb/VMS with VAX CDD/Plus, Digital recommends that you run the VAX Rdb/VMS startup command procedure *before* the VAX CDD/Plus startup command procedure.

The following example shows the network startup command line followed by the VAX CDD/Plus startup command line:

```
$  @SYS$MANAGER:STARTNET.COM
      .
      .
      .
$  @SYS$STARTUP:CDDSTRTUP
```

Add the following command line to the system shutdown file, SYS$MANAGER:SYSHUTDOWN.COM:

```
$  @SYS$MANAGER:CDDSHUTDOWN
```

If you are using VAX Rdb/VMS with VAX CDD/Plus, Digital recommends that you run the VAX CDD/Plus shutdown command procedure *before* the VAX Rdb/VMS shutdown command procedure.

3.3 Modify System Parameters

The installation for VAX CDD/Plus requires that you raise the values of the CLISYMTBL and CTLPAGES system parameters. Once the installation is complete, lower these values to ensure efficient system performance. Table 1–4 contains the values for the parameters under normal operations.

3.4 Make VAX CDD/Plus Available on a VAXcluster

If you are installing VAX CDD/Plus on a processor that is a member of a VAXcluster, you need to take the following steps to make VAX CDD/Plus available to other cluster members:

1. Check that you have a software license to run VAX CDD/Plus for each node. Load the license on each node licensed to use VAX CDD/Plus. See Section 1.4 for information about loading the software license.
2. The VAX CDD/Plus startup procedure (CDDSTRTUP.COM) executes automatically on the system from which the IVP runs but not on other nodes of the cluster. You must run the CDDSTRTUP.COM procedure *from each node that will be accessing the dictionary*.
3. After running the startup procedure, you can optionally run the IVP on all other cluster members to verify that VAX CDD/Plus is accessible from each node. See Chapter 4 for information about running the IVP.
4. Edit the system startup and shutdown file of each cluster member on which you want to run VAX CDD/Plus so that they invoke the VAX CDD /Plus startup and shutdown procedures. See Section 3.2 for information about editing the startup and shutdown files.
5. Make sure the VMS System Generation Utility (SYSGEN) parameters listed in Section 1.6.3 are properly set.
6. Enable remote database access for each node in the cluster by running the RDBSERVER_NCP.COM procedure.

   RDBSERVER.EXE is the image supplied by VAX Rdb/VMS to manage remote database access. During the installation, you entered a password for this account if VAX CDD/Plus installed VAX Rdb/VMS. If the RDB$REMOTE account exists on your system, the installation does not modify the UIC and password. The installation procedure assigns the same password to RDB$REMOTE and RDBSERVER.EXE *only* on the node from which the installation takes place. You must insert the RDBSERVER object in each remaining VAXcluster node's permanent DECnet object database to enable remote database access on all nodes that share this cluster common directory by performing the following steps:

   a. Log in to each node.
   b. Invoke the procedure SYS$COMMON:[SYSMGR]RDBSERVER_ NCP.COM.
   c. Answer the questions asked by the procedure.

The RDBSERVER_NCP.COM procedure prompts for the password to assign to the RDBSERVER object. Assign the password entered during the VAX CDD/Plus installation procedure.

As with the SET PASSWORD command, your password does not appear on the terminal. To protect against typing errors that you cannot see when you enter the password, you must enter the password twice. If you are not able to verify the password correctly after three attempts, the RDBSERVER_NCP.COM procedure fails and the RDBSERVER object is not inserted into the node's DECnet object database.

You only need to execute RDBSERVER_NCP.COM once for each VAXcluster node.

3.5 User Account Requirements

To work with VAX CDD/Plus, 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 VAX CDD/Plus, each account must have at least the TMPMBX and NETMBX privileges. Use the VMS Authorize Utility (AUTHORIZE) to determine whether users have the privileges they require.

3.5.2 User Account Quotas

You must make sure that the appropriate user accounts have sufficient quotas to be able to use VAX CDD/Plus. Table 3–1 summarizes the required user account quotas.

The values suggested are *minimum* settings; the settings required by users on your system might be higher if they use many layered products. You should add the values shown in Table 3–1 to those required for other VMS layered products and modify the values for each user as needed.

Table 3–1: User Account Quotas for Using VAX CDD/Plus

Account Quota	Value
ASTLM	24
BIOLM	80
BYTLM	25000
DIOLM	40
ENQLM	2000
FILLM	60
PGFLQUO	40000[1]

[1]For large applications, you may need to raise the value of this quota to 80,000 depending on memory requirements.

See Section 1.6.2 for information about verifying and changing account quotas.

3.6 Upgrade Protocols

If you are upgrading from a version prior to VAX CDD/Plus Version 4.2, the installation of VAX CDD/Plus Version 4.3 introduces new protocols. You must upgrade the protocols in your existing dictionaries, or you cannot use any CDO commands except VERIFY. The installation automatically upgrades the protocols in the CDD$TEMPLATE dictionary, and the IVP procedure automatically upgrades the protocols in the CDD$COMPATIBILITY dictionary.

To upgrade protocols in other dictionaries on your system, enter the following commands:

- $ RMU/CONVERT of the dictionary database file (CDD$DATABASE.RDB) to update the VAX Rdb/VMS on-disk structure. (You must have SYSPRV to run RMU/CONVERT.)
- $ DICTIONARY OPERATOR CONVERT/DICTIONARY [anchor_ directory] to upgrade the protocols.
- $ DICTIONARY OPERATOR VERIFY/FIX/ALL [anchor_directory] to correct hidden corruption in the directory system.

If any of these commands encounters an error, you will need to restore your dictionary database using the RDO IMPORT command and attempt the conversion again.

The anchor is the VMS directory that contains your dictionary files. For example:

```
CDO>  CONVERT/DICTIONARY DISK1:[JONES]
```

When you use the CONVERT/DICTIONARY command, CDO asks if you are satisfied with the back up of your dictionary. If you have *not* backed up your dictionary, type `n`. Exit from CDO and back up your dictionary. (See Section 1.5.3 for instructions on backing up a dictionary.) If you are satisfied with the back up of your dictionary, type `y`.

After VAX CDD/Plus successfully upgrades the protocols in your dictionary, the following message appears, followed by the CDO> prompt:

```
%CDO-I-UPGRADE_SUCCEED, dictionary successfully upgraded to new
protocols
CDO>
```

If the protocols in a dictionary need to be upgraded, all attempts to use this dictionary (except for the VERIFY command) return the following error message:

```
-CDD-F-NO_AUTOMATIC_UP, upgrade protocols using CONVERT/DICTIONARY
CDO>
```

If you issue the VERIFY command followed by the CONVERT/DICTIONARY command in the same CDO session, VAX CDD/Plus *does not* upgrade the protocols in your dictionary, even though it displays the success message. You must exit CDO.

3.7 Convert VAX Rdb/VMS Databases

Once the installation completes, you must convert existing databases so that they have the correct format for VAX Rdb/VMS Version 3.1B or higher, if you have not done so. To convert databases, use the RMU/CONVERT command to invoke the RMU utility. The format for the command is:

```
$ RMU/CONVERT DEVICE:[DIRECTORY]FILENAME
```

For example:

```
$ RMU/CONVERT DISK1:[JONES]PERSONNEL.RDB
```

3.8 Tailor Your System

This section provides information about special system arrangements and cleanup procedures that you can perform after installing VAX CDD/Plus.

3.8.1 Managing Lock Conflicts with CDD$WAIT

The logical name CDD$WAIT controls how VAX CDD/Plus handles lock conflicts. VAX CDD/Plus pauses when a directory locks. You can control concurrent access to the dictionary by defining the CDD$WAIT logical with one of the following options:

- YES or PROTECTED—VAX CDD/Plus places write access requests in queue allowing one write access and multiple read accesses.
- EXCLUSIVE—VAX CDD/Plus places all access requests in queue allowing only one access at a time.

If you wish to take advantage of queued locking, define CDD$WAIT as ''YES'' in the appropriate logical name table:

```
$  DEFINE CDD$WAIT "YES"
```

3.8.2 Assigning an Identifier to Prevent Disk Quota Errors

Using the VMS System Management Utility (SYSMAN), you can create disk quota files to limit disk consumption. The quota file records the current usage and the maximum disk consumption for all users.

If disk quotas are set on the disk where the compatibility dictionary or any Common Dictionary Operator (CDO) dictionary resides, but a VAX CDD/Plus user does not have a disk quota enabled on that disk, that user receives an error when attempting to define something in a dictionary on that disk.

```
$  DICTIONARY OPERATOR
CDO>  DEFINE FIELD LAST_NAME
cont>  DATATYPE IS TEXT
cont>  SIZE IS 20.
%CDO-E-ERRDEFINE, An error occurred while trying to define something.
%CDD-F-NOJNLCRE, VAX CDD/Plus was unable to create its journal file in
the given anchor
-RMS-E-OCRE, ACP FILE CREATE FAILED
-NONAME-W-NOMSG MESSAGE NUMBER 00000000
```

To prevent this problem, perform the following steps:

1. Use the VMS Authorize Utility (AUTHORIZE) to create a rights identifier called CDD_USER. (For more information about AUTHORIZE, see the *VMS System Manager's Manual*.) Create the CDD_USER identifier with the RESOURCE attribute so that holders of the identifier can charge resources to it.

```
$  SET DEFAULT SYS$SYSTEM
$  RUN AUTHORIZE
UAF>  ADD/IDENTIFIER CDD_USER/ATTRIBUTES=RESOURCE
UAF>  EXIT RET
```

2. Grant the CDD_USER identifier the same quotas as any other user of VAX CDD/Plus. To prevent problems with running out of journal file space, you should allow CDD_USER the amount of disk space equal to the amount of disk space you want the dictionary to take up. Any user holding the CDD_USER identifier can use this disk space. Since an empty dictionary takes up approximately 5000 blocks, Digital recommends that you allow between 20,000 and 100,000 blocks, depending on how much the dictionary is used. To add the entry for the CDD_USER rights identifier, execute the following commands:

```
$  SET DEFAULT SYS$SYSTEM:
$  RUN SYSMAN
SYSMAN>  DISKQUOTA ADD CDD_USER/DEVICE=YOURDISK/PERMQUOTA=50000
```

3. Create the dictionary's anchor with the CDD_USER identifier as the owner. For example, if your compatibility dictionary's anchor is SYS$SYSROOT:[000000]CDDPLUS.DIR, execute the following command:

```
$  CREATE/DIRECTORY/OWNER=CDD_USER SYS$SYSROOT:[000000]CDDPLUS.DIR
```

4. Grant the CDD_USER identifier with the resource attribute to all users of the dictionary.

```
$  SET DEFAULT SYS$SYSTEM:
$  RUN AUTHORIZE
UAF>  GRANT/IDENTIFIER CDD_USER/ATTRIBUTE=RESOURCE user-name
UAF>  EXIT RET
```

If you follow these steps, the CDD_USER identifier owns all the space allocated to the dictionary files in the compatibility dictionary, so individual users do not need quotas on the system disk. Only users with the CDD_ USER identifier and users with quotas explicitly set for them on the compatibility dictionary's disk can use the dictionary.

For more information about setting disk quotas, see the *Guide to VMS System Security*.

3.9 Enhance VAX CDD/Plus Performance

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

3.9.1 Tuning the Lock-Related Parameters

During the first few weeks that VAX CDD/Plus is installed, check the actual number of locks your system is using by invoking the VMS Monitor Utility (MONITOR):

```
$ MONITOR LOCK
```

This displays the maximum number of locks outstanding during the monitor period. You can use this value to tune the LOCKIDTBL_MAX and RESHASHTBL parameters according to the guidelines shown in Table 3–2.

Table 3–2: Values for Lock Parameters for Using VAX CDD/Plus

Parameter	Value
LOCKIDTBL_MAX	This quota must be at least as high as the highest ENQLM setting in the system authorization file (SYSUAF.DAT). A larger LOCKIDTBL_MAX is recommended to allow for several processes simultaneously using VAX CDD/Plus.
RESHASHTBL	As a general guideline, there should be one resource hash table entry for every 4 locks in the system, so you should set the resource hash table parameter equal to the value of LOCKIDTBL_MAX divided by 4.

For a complete description of the MONITOR Utility, see the *VMS Monitor Utility Manual*. For more tuning information, see the *Guide to VMS Performance Management*.

3.10 Determine and Report Problems

If you encounter a problem while using VAX CDD/Plus, 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 CDD/Plus 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.

(See the release notes for VAX CDD/Plus for information on how to submit an SPR.)

Chapter 4

Installation Verification Procedure

The VAX CDD/Plus kit includes an Installation Verification Procedure (CDDIVP.COM), which takes approximately 15 minutes to run. The IVP runs each component to make certain the installation is successful. The IVP:

- Checks each executable image
- Creates the root dictionary file if it does not exist
- Upgrades the protocols in the CDD$COMPATIBILITY dictionary
- Tests the Data Definition Language Utility (CDDL) by creating the sample dictionary structure in a directory named CDD$EXAMPLES
- Tests the CDO utility by creating CDD$EXAMPLES and CDD_PLUS$EXAMPLES directories and defining fields and records in them
- Reports whether or not the installation is successful

As the IVP tests each component of VAX CDD/Plus, it creates a log file in SYS$COMMON:[SYSTEST.CDD]. The log file, CDDIVP.LOG, describes each of the four tests and whether it passed or failed.

If the IVP fails, you can inspect the log file to help diagnose the problem. However, the IVP is not a comprehensive test package. Its sole purpose is to verify that CDD/Plus is installed correctly.

4.1 Running the IVP

To run the IVP, you need the following privileges:

- VMS privileges

  CMKRNL
  PRMGBL
  SYSGBL
  SYSNAM
  SYSPRV

- VAX CDD/Plus privileges

  CONTROL privileges to entities at CDD$TOP and CDD$TOP.CDD$EXAMPLES

The installation procedure asks you if you want to run the IVP. If you type `y`, the installation procedure runs the IVP automatically and sends the output to the file CDDIVP.LOG. You can also run the IVP at any time from the DCL command level with the following command:

```
$  SYS$SYSROOT:[SYSTEST.CDD]CDDIVP
```

When you run the IVP with this command, your terminal displays the output from the procedure, as shown in Section 4.2.

When the IVP runs, it may generate error messages such as the following:

```
%CDO-E-ERRDELETE, error deleting object
-CDO-E-NOTFOUND, entity _CDD$TOP.CDD_PLUS$EXAMPLES.SALES.SALES_
RECORD;* not found in dictionary
%CDO-E-ERRDELETE, error deleting object
-CDO-E-NOTFOUND, entity _CDD$TOP.CDD_PLUS$EXAMPLES.SALES.JONES.LEADS_
RECORD;* not found in dictionary
```

These messages appear because a cleanup procedure is running. The IVP will complete successfully in spite of these messages, and you do not need to take any corrective action.

To avoid conflicts, it is best to run the IVP when no one else is using VAX CDD/Plus or a product that uses it.

4.2 Sample IVP Log

```
                              VAX Common Data Dictionary/Plus
                                       Version  4.3

                             Installation Verification Procedure

   6-DEC-1990 15:01:37.87

  This command file is used to assure that the installation of
  VAX CDD/Plus 4.3 succeeded.  It runs each component of the
  product to see if it functions properly.

  This is NOT a comprehensive test package.  It merely assures that
  the installation produced a working copy of VAX CDD/Plus 4.3.

************************************************************************
************************************************************************
******                                                            ******
******         Begin Installation Verification Procedure          ******
******                                                            ******

Test 1.

    Verify that SYS$SYSTEM:DMU.EXE executes.  Initialize the
    root dictionary file if it does not already exist.

DMU  Version: 4.3-2

    Test 1 succeeded.

Test 2.

    Verify that SYS$SYSTEM:CDDV.EXE executes.

CDDV Version: 4.3-2

    Test 2 succeeded.

Test 3.

    Verify that SYS$SYSTEM:CDDL.EXE executes.

    This test will place sample record definitions into
    the dictionary (CDD) using CDDL.


    Test 3 succeeded.

Test 4.

    Verify that SYS$SYSTEM:CDO.EXE executes.

    This test will place sample record definitions into
    the dictionary using CDO.


    RMU/CONVERT of cdd$compatibility dictionary to Rdb/VMS 3.1A.
    Please ignore possible error messages

        %RMU-F-DB_NOTCVT, database not converted
        -RMU-I-DB_CURVER, database CDD$COMPATIBILITY:CDD$DATABASE's version
                                is 3.1
        %RMU-F-SEVERDET, a severe error was detected
```

```
%RMU-I-LOGCONVRT, database root converted to current structure level
%RMU-W-NOCVTCOM, COMMIT or ROLLBACK of CONVERT not possible for
                              SYS$COMMON:[CDDPLUS]CDD$DATABASE.RDB;1

    Upgrading cdd$compatibility dictionary.

    This upgrade will take about 40 minutes on a VAX-11/780

Welcome to CDO V1.3
The CDD/Repository V4.3 User Interface
Type HELP for help
%CDO-I-UPGRADE_SUCCEED, dictionary successfully upgrade to new protocols
Welcome to CDO V1.3
The CDD/Repository V4.3 User Interface
Type HELP for help
Definition of record ADDRESS
|   Contains field           STREET
|   Contains field           CITY
|   Contains field           STATE
|   Contains record          ZIP_CODE

Definition of record INVENTORY
|   Contains record          STOCK

Definition of record EMPLOYEE
|   Contains field           ID
|   Contains record          NAME
|   Contains record          ADDRESS
|   Contains field           DEPT_CODE

%CDD-I-CVT_NOTALL, some DTR attributes could not be converted
Definition of record SALARY
|   Contains field           EMPLOYEE_ID
|   Contains record          PAY

Definition of record ADDRESS_RECORD
|   Description              /* This record contains the standard format for
                               addresses. */
|   Contains field           STREET
|   Contains field           CITY
|   Contains field           STATE
|   Contains record          ZIP_CODE

Definition of record EMPLOYEE_LIST
|   Description              /* This record contains the master list of all
                               employees. */
|   Contains field           ID
|   Contains record          NAME
|   Contains record          ADDRESS_RECORD
|   Contains field           DEPT_CODE
```

```
Definition of record PRODUCT_INVENTORY
|   Description              /* This record is the primary location of
                                inventory status information. */
|   Contains field           RECORD_IDENTIFIER
|   Contains variants
|   |   Variant
|   |   Expression is (RECORD_IDENTIFIER IN PRODUCT_INVENTORY EQ "S")
|   |   |   IN_STOCK
|   |   End variant
|   |   Variant
|   |   Expression is (RECORD_IDENTIFIER IN PRODUCT_INVENTORY EQ "B")
|   |   |   BACK_ORDER
|   |   End variant
|   |   Variant
|   |   Expression is (RECORD_IDENTIFIER IN PRODUCT_INVENTORY EQ "O")
|   |   |   OUT_OF_STOCK
|   |   End variant
|   End variants

Definition of record SALARY_RANGE_REC
|   Description              /* This record stores minimum salaries. */
|   Contains field           SALARY_RANGE_FIELD

Definition of field SALARY_RANGE_FIELD
|   Datatype                 unsigned numeric 8 digits scale 2
|   Column_major array          1:150 1:5

Definition of record SALARY_RECORD
|   Description              /* This is the record containing salary
                                information for all employees. */
|   Contains field           EMPLOYEE_ID
|   Contains record          PAY

Definition of record SALARY_RECORD
|   Description              /* This is the record containing salary
                                information for all employees. */
|   Contains field           EMPLOYEE_ID
|   Contains record          PAY

Definition of record CUSTOMER_RECORD
|   Description              /* This record is of primary use to the
                                marketing department. */
|   Contains field           NAME
|   Contains field           ACCOUNT_NUMBER
|   Contains record          ADDRESS_RECORD
|   Contains record          TELEPHONE

Definition of record LEADS_RECORD
|   Description              /* This record contains information about
                                prospective customers and revenues. */
|   Contains field           CONTACT_NAME
|   Contains field           COMPANY
|   Contains record          ADDRESS_RECORD
|   Contains record          TELEPHONE
|   Contains field           POTENTIAL_ANN_SALES

Definition of record SALES_RECORD
|   Contains field           CUSTOMER_NAME
|   Contains field           ACCOUNT_NUMBER
|   Contains field           TRANSACTION_COUNT
|   Contains record          TRANSACTION
```

```
Welcome to CDO V1.3
The CDD/Repository V4.3 User Interface
Type HELP for help
Directory SYS$COMMON:[CDDPLUS]CDD_PLUS$EXAMPLES.SALES
SALES_RECORD;1                                          RECORD
   ADDRESS_RECORD;1 <CDD$RECORD>
   EMPLOYEE_LIST;1 <CDD$RECORD>
   PRODUCT_INVENTORY;1 <CDD$RECORD>
   SALARY_RECORD;2 <CDD$RECORD>
   SALARY_RECORD;1 <CDD$RECORD>

    Test 4 succeeded.


******                                                                  ******
****** Installation Verification Procedure Successfully Completed  ******
******                                                                  ******
************************************************************************
************************************************************************
```

Appendix A

Sample Installation

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

The sample installation assumes that DECnet is up, that no users are logged in 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.

```
$ set default sys$update
$ @vmsinstal

        VAX/VMS Software Product Installation Procedure V5.3

It is 6-DEC-1990 at 14:39.
Enter a question mark (?) at any time for help.

* Are you satisfied with the backup of your system disk [YES]? Y RET
* Where will the distribution volumes be mounted: DISK1:[SYSMGR.CDD]

Enter the products to be processed from the first distribution volume set.
* Products: cdd043
* Enter installation options you wish to use (none): RET
The following products will be processed:
  CDD V4.3
        Beginning installation of CDD V4.3 at 14:40

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED , The product's release notes have been successfully
                                    moved to SYS$HELP.
        Product:      CDD-PLUS
        Producer:     DEC
        Version:      4.3
        Release Date: 01-JUL-1990
* Does this product have an authorization key registered and loaded? y
```

```
*********************************************************

 Skipping saveset B.  It is not needed for installation

*********************************************************

    ************************************************************

    Following are questions about the location of system
    dictionaries.

    Please take note that the following terms are used by this
    procedure in referring to system dictionaries:

    'CDD root dictionary'        The system dictionary for the
                                 pre-V4.0 CDD product.

    'CDD/Plus root dictionary'   The system's CDD/Plus
                                 compatibility dictionary.

    'CDD/Plus template        The CDD/Plus dictionary used
    dictionary'              to create other dictionaries.


    Together, the 'CDD root dictionary' and the 'CDD/Plus root
    dictionary' form one logical 'system' dictionary, although
    they must reside in different physical locations.

    The 'CDD/Plus template dictionary' is used to create
    CDD/Plus dictionaries.
    ************************************************************

    ************************************************************

    The CDD$DICTIONARY  system logical name is used to identify
    the location of the CDD root dictionary file.

    CDD$DICTIONARY is currently defined to be:
    SYS$COMMON:[SYSEXE].

    ************************************************************

* Is this the correct location for your system's CDD root dictionary
                                    file [YES]? RET

    ************************************************************

    The CDD$COMPATIBILITY system logical name is used to identify
    the location of the CDD/Plus root dictionary.

    CDD$COMPATIBILITY is currently defined to be:
    SYS$COMMON:[CDDPLUS].

    ************************************************************

* Is this the correct location for your system's CDD/Plus root
                                    dictionary [YES]? RET

    ************************************************************

    The CDD$TEMPLATE system logical name is used to identify
    the location of the CDD/Plus template dictionary.
```

```
    This procedure will delete all files in the current template
    dictionary directory and re-create the template dictionary.
    The template dictionary directory should have no other files.

    CDD$TEMPLATE is currently defined to be:
    SYS$COMMON:[CDD$TEMPLATE].

    ************************************************************

* Is this the correct location for your system's CDD/Plus template
                                      dictionary [YES]? RET

    ************************************************************

    This installation provides description files that are needed
    when using the VAX CDD/Plus 4.3 programming interface.

    ************************************************************

* Would you like all the description files provided [YES]? RET

    ************************************************************

    The following languages have been chosen:
        (ADA,BLISS,BASIC,C,FORTRAN,MACRO,PASCAL,PLI)

    ************************************************************

* Is this OK [YES]? RET

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

    ************************************************************

    When you run the IVP from VMSINSTAL, the IVP creates the log
    file CDD$IVP.LOG.  After the IVP runs successfully the log
    file is deleted, unless you explicitly request that it be
    saved.  If an error occurs while running the IVP, the log
    file is saved in SYS$COMMON:[SYSTEST.CDD].

    ************************************************************

* Do you want to print the log file from the IVP [NO]? RET

* Do you want to save the log file from the IVP [NO]? y

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

    To complete the installation on a standalone VAX-11/780
    will take approximately:

        25 minutes to install
        15 minutes to run the IVP

    All required questions have been asked.
    You can terminate the installation procedure at this time.

* Do you want to continue the installation [YES]? RET
%VMSINSTAL-I-RESTORE, Restoring product save set C ...

******************************************************

 Skipping saveset D.  It is not needed for installation

******************************************************
```

```
%VMSINSTAL-I-RESTORE, Restoring product save set E ...
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
                                    VMI$ROOT:[SYSTEST.CDD].
%CREATE-I-EXISTS, VMI$ROOT:[SYSTEST.CDD] already exists
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
                                    SYS$COMMON:[CDDPLUS].
%CREATE-I-EXISTS, SYS$COMMON:[CDDPLUS] already exists
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
                                    SYS$COMMON:[CDD$TEMPLATE].
%CREATE-I-EXISTS, SYS$COMMON:[CDD$TEMPLATE] already exists

CDD$REMOTE has been placed in the DECnet object database as number 0.

    ************************************************************

    SYSTEM MANAGER:

    If your DECnet object database is not configured to be in
    the cluster common directory, then you will need to perform
    the following:

    In order to have remote access on another node which shares
    this cluster common root directory, you must insert
    SYS$SYSTEM:CDD$REMOTE.COM into that node's DECnet object database by:

        a) Logging into that node, and
        b) Invoking SYS$COMMON:[SYSMGR]CDD$REMOTE_NCP.COM.

    This command procedure inserts CDD$REMOTE into the node's
    permanent DECnet object database.  This procedure only needs
    to be executed ONCE per node.

    ************************************************************


    ************************************************************

    A startup file, CDDSTRTUP.COM, has been placed in the system
    directory SYS$STARTUP:. This command procedure will
    need to be invoked every time a system is rebooted. This is
    most easily done by adding the line

        $  @SYS$STARTUP:CDDSTRTUP

    to SYS$STARTUP:SYSTARTUP_V5.COM

    ************************************************************


    ************************************************************

    A shutdown file, CDDSHUTDOWN.COM, has been placed in the
    system directory SYS$STARTUP. This command procedure
    will need to be invoked every time a system is shut down.
    This is most easily done by adding the line

        $  @SYS$STARTUP:CDDSHUTDOWN

    to SYSHUTDWN.COM.

    ************************************************************
```

```
    ************************************************************

    The VAX CDD/Plus 4.3 Installation Verification Procedure
    (IVP) has been provided and can be run after the installation
    is complete.  It is invoked as follows:

        $  @SYS$COMMON:[SYSTEST.CDD]CDD$IVP

    ************************************************************


    Providing the following LSE language(s):

        CDDL

************************************************************

 Creating the CDD$SYSTEM identifier in the rights database

   If the CDD$SYSTEM identifier exists then an error
     message will follow. Ignore this error message.

************************************************************

%UAF-E-RDBADDERRU, unable to add CDD$SYSTEM value: [000000,000000] to rights
                                    data base
-SYSTEM-F-DUPLNAM, duplicate name
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target
                        directories...
Rdb/VMS monitor (RDMS_MONITOR) started
SQL: Assigning System-wide SQL Logicals

    ************************************************************

    The CDD/Plus template dictionary is now being created.

    ************************************************************


    Executing IVP for: VAX CDD/Plus 4.3

******************************************************

    Ignore possible error message

        %RMU-F-SEVRRDET, a severe error was detected

    This message appears when your dictionary has already
    been converted to Rdb/VMS 3.1

******************************************************

%CDO-I-UPGRADE_SUCCEED, dictionary successfully upgrade to new protocols

    ***********************************

    VAX CDD/Plus 4.3

    IVP COMPLETED SUCCESSFULLY

    ***********************************
```

```
    IVP completed for: VAX CDD/Plus 4.3

        Installation of CDD V4.3 completed at 15:11

Enter the products to be processed from the next distribution volume set.
* Products: Ctrl/z
        VMSINSTAL procedure done at 15:13
```

Appendix B

Files and Logical Names Installed on Your System

The VAX CDD/Plus installation procedure installs a number of files on your system and defines some logical names. Section B.1 tells where you can find the list of installed files. Section B.2 lists the logical names that are added to the system logical name table.

B.1 File Names

The installation procedure writes a file to your system that lists all the files VAX CDD/Plus installed on your system. For a copy of this list, print (DCL PRINT) or display (DCL TYPE) the following file after installation:

```
SYS$COMMON:[SYSMGR.VAXINFO$PRODUCTS]CDD043_FILES.DAT
```

An installed VAX CDD/Plus facility consists of:

- The root dictionary file

  The CDD$DICTIONARY system logical name you define in the VAX CDD/Plus startup procedure (CDDSTRTUP.COM) identifies the root dictionary file.

  The root dictionary file cannot be a top-level directory (such as dev:[000000]) or a top-level directory of a concealed rooted logical name (such as SYS$COMMON:[000000]).

- The compatibility dictionary files

  The CDD$COMPATIBILITY system logical name you define in the VAX CDD/Plus startup procedure (CDDSTRTUP.COM) identifies the anchor directory containing the files for the compatibility dictionary.

- The dictionary template

  The CDD$TEMPLATE system logical name identifies the anchor directory containing the files that VAX CDD/Plus uses as a template when you define a new dictionary.

- An internal program interface providing access to the dictionary files

  This program interface consists of a protected, shared image named CDDSHR.EXE, provided by the installation procedure.

- The Common Dictionary Operator Utility (CDO)

  This utility enables you to create, manage, and modify definitions in a VAX CDD/Plus dictionary.

- The Dictionary Management Utility (DMU)

  This utility enables you to create, manage, and modify the directory hierarchy of dictionaries created without CDO (DMU format dictionaries).

- Assorted subdictionary files (optional)

  You can create these subdictionary files by using the Dictionary Management Utility (DMU).

- The Dictionary Verify/Fix Utility (CDDV)

  This utility lets you verify, repair, and reorganize DMU format dictionary and subdictionary files.

- The Data Definition Language Utility (CDDL)

  This utility enables you to insert data definitions into the DMU format dictionary.

- The startup procedure (CDDSTRTUP.COM)

  This is a DCL command procedure to install CDDSHR.EXE, to define VAX CDD/Plus logical names, and to run RMONSTART AND RPC$STARTUP. You have to invoke CDDSTRTUP.COM each time you boot your system, so you should run the procedure from your system manager's SYSTARTUP_V5.COM file. CDDSTRTUP.COM is built by the installation procedure.

- The shutdown procedure (CDDSHUTDOWN.COM)

  This is a DCL command procedure that is invoked by the site-specific shutdown procedure, SYSHUTDOWN.COM, to run RMONSTOP.

- Database support files

  These files make up the VAX Rdb/VMS Version 3.1B Run-Time Only (RTO) kit. Without these files, the installation fails.

- Remote support files

  These files allow you to access definitions in VAX CDD/Plus dictionaries across a network.

- The Installation Verification Procedure (IVP) files—CDDIVP.COM and CDD$IVP.COM

  The IVP creates or opens the dictionary and checks to make sure that the installation was successful.

See Section 1.6.1.2 for free storage disk space requirements needed to install VAX CDD/Plus files.

B.2 Logical Names

The following logical names are entered into the system logical name table when VAX CDD/Plus is installed. These names are stored in the product's startup file. They are automatically entered into the system logical name table whenever the system reboots or whenever the software is invoked.

- CDD$CALLBACK_VALIDATION
- CDD$COMPATIBILITY
- CDD$DICTIONARY
- CDD$TEMPLATE