Compaq C++

Installation Guide for OpenVMS VAX

Order Number: AA–PNAMF–TE

December 1999

This guide contains instructions for installing *Compaq C++ for OpenVMS VAX*. It also explains how to read the online release notes before or after installing the product.

This guide also contains instructions for installing a version of the OpenVMS Version 6.0 Debugger that supports debugging of *Compaq C++* programs. This debugger is packaged as a separate installation kit but is included on the same media as the *Compaq C++* compiler.

Revision/Update Information:	This is a revised guide.
Operating System & Version:	OpenVMS VAX Version 5.5-2 or higher.
Software Version:	*Compaq C++ for OpenVMS VAX* Version 5.6C or higher *Compaq C++* Class Library Version 1.2 or higher

Compaq Computer Corporation
Houston, Texas

First Printing, September 1992
Revised, November 1999

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

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

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

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

© Digital Equipment Corporation 1992-1999. All Rights Reserved.

Compaq, the Compaq logo, Alpha, DEC, DECwindows, DIGITAL, OpenVMS, VAX, VMS are registered in the U.S. Patent and Trademark Office.

The following are third-party trademarks:

Motif is a registered trademark of Open Software Foundation Incorporated.

PostScript is a registered trademark of Adobe Systems Incorporated.

Other product names mentioned herein may be the trademarks of their respective companies.

This document is available on CD–ROM.

ZK6036

This document was prepared using DECdocument, Version 3.2-1n.

Contents

Preface v

1 Preparing for *Compaq C++ for OpenVMS VAX* Installation

1.1 License Registration 1–1
1.2 Required Operating System Components and Software 1–2
1.3 Installation Procedure Requirements 1–3
1.3.1 Deassigning DECset Debugger Logical Names 1–4
1.3.2 Process Privileges 1–4
1.3.3 Process Account Quotas 1–4
1.3.4 System Parameters 1–5
1.3.5 Disk Space 1–7
1.3.6 Backing Up Your System Disk 1–7
1.3.7 Additional System Maintenance Procedures 1–8
1.3.7.1 Checking System Parameter Values 1–8
1.3.7.2 Calculating the Values for Global Pages and Global Sections 1–8
1.3.7.3 Changing System Parameter Values with AUTOGEN . . . 1–9
1.3.7.4 Setting Dynamic System Parameter Values 1–10

2 Installing *Compaq C++ for OpenVMS VAX*

2.1 Installing the OpenVMS Version 6.0 Debugger 2–1
2.2 Installing the *Compaq C++ for OpenVMS VAX* Compiler 2–6
2.3 Error Recovery 2–13

3 After Installation

3.1 Running the Installation Verification Procedures Separately 3–1
3.2 Editing and Organizing System Files 3–2
3.3 VMScluster Considerations 3–3
3.4 User Account Requirements 3–4
3.4.1 User Privileges 3–4
3.4.2 User Account Quotas 3–4
3.5 Getting Help and Reporting Problems 3–4

A Sample Installations

B Files and Logical Names Installed on Your System

B.1 File Names B–1
B.2 Logical Names B–1

C Recovering from Errors

C.1 Failures During *Compaq C++* Installation C–1
C.2 Problems During *Compaq C++* Use C–2

Examples

A–1 Sample OpenVMS Version 6.0 Debugger Installation on OpenVMS VAX A–2
A–2 Sample *Compaq C++ for OpenVMS VAX* Installation A–4

Tables

1 Conventions Used in the Guide vii
1–1 Optional Software 1–3
1–2 Process Account Quotas for the Installing Account 1–5
1–3 Minimum Required System Parameter Values for the OpenVMS Version 6.0 Debugger 1–6
1–4 Minimum Required System Parameter Values for the *Compaq C++* Version 5.6C for OpenVMS VAX Compiler 1–6
1–5 Disk Space Requirements 1–7
1–6 Contiguous GBLPAGE Count Requirements 1–9

Preface

This guide describes how to install *Compaq C++* on VAX processors running the OpenVMS operating system. It is intended for system managers. Keep this guide with your distribution kit in case you need it to reinstall *Compaq C++ for OpenVMS VAX* for any reason.

If you have any comments about this document, send them to Compaq. your comments will be considered for future revisions of the installation guide.

You may send comments or suggestions concerning this guide, or any *Compaq C++ for OpenVMS VAX* document, by electronic mail to the following Internet address:

cxx_docs@zko.dec.com

Document Structure

This guide contains three chapters and two appendixes:

- Chapter 1 describes how to prepare for *Compaq C++ for OpenVMS VAX* installation.
- Chapter 2 describes how to install the OpenVMS Version 6.0 Debugger and the *Compaq C++ for OpenVMS VAX* compiler.
- Chapter 3 describes postinstallation procedures.
- Appendix A shows a sample installation.
- Appendix B discusses the files and logical names installed on your system.
- Appendix C provides information to help you with failures.

Associated Documentation

In addition to this guide, the *Compaq C++ for OpenVMS VAX* Version 5.6C documentation set includes the following books:

- Stroustrup, Bjarne. *The C++ Programming Language, 3nd Edition*. Reading, Massachusetts: Addison-Wesley, 1997.
- Musser, David R. and Atul Saini. *STL Tutorial and Reference Guide*. Reading, Massachusetts: Addison-Wesley, 1996.
- *Using Compaq C++ for OpenVMS VAX*
- *Compaq C++ Class Library Reference Manual*
- *Compaq C Run-Time Library Reference Manual for OpenVMS Systems*
- *Compaq C/C++ Run-Time Components for OpenVMS VAX Reference and Installation Guide*

For information on the *Compaq C++ for OpenVMS VAX* online release notes, see Chapter 1.

For general information on OpenVMS system management, see the *OpenVMS* operating system documentation set.

For help understanding OpenVMS system error messages, see the *OpenVMS System Messages and Recovery Procedures Reference Manual* or the online HELP/MESSAGE facility.

Conventions

Table 1 lists the conventions used in this guide.

Table 1 Conventions Used in the Guide

Convention	Meaning
UPPERCASE TEXT	Uppercase text indicates the name of a command, a file, a parameter, a procedure, or a utility.
$ **@SYS$UPDATE:VMSINSTAL**	In interactive examples, prompts or displayed text appears in a monospace font. User input appears in bold monospace font.
Ctrl/X	In interactive examples, a sequence such as Ctrl/X indicates that you must hold down the key labeled Ctrl while you press another key or a pointing device button; for example, Ctrl/C or Ctrl/Z.
[YES]	Square brackets indicate that the enclosed item is a default value in a VMSINSTAL prompt. Also, square brackets serve as delimiters for a directory name in a file specification.

1

Preparing for *Compaq C++ for OpenVMS VAX* Installation

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

Compaq C++ for OpenVMS VAX and the OpenVMS Version 6.0 Debugger both provide online release notes, which are copied to SYS$HELP during installation. Compaq strongly recommends that you read the release notes before proceeding with the installation. For information on accessing the online release notes for the *Compaq C++* compiler, see step 5 in Section 2.2. For information on accessing the online release notes for the OpenVMS Version 6.0 Debugger, see step 4 in Section 2.1.

1.1 License Registration

Before you install and run *Compaq C++ for OpenVMS VAX* 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 *Compaq C++ for OpenVMS VAX* as an update on a node or cluster already licensed for this software, you have already completed the License PAK registration requirements.

If you are installing prerequisite or optional software along with *Compaq C++ for OpenVMS VAX*, review the PAK status and install the PAKs for any prerequisite or optional software before you install *Compaq C++ for OpenVMS VAX*.

The OpenVMS Debugger does not support the LMF, so there are no PAKs to register to run the debugger with *Compaq C++ for OpenVMS VAX*.

Preparing for *Compaq C++ for OpenVMS VAX* Installation
1.1 License Registration

You must register and load your license for *Compaq C++ for OpenVMS VAX* before you start the installation to run the Installation Verification Procedure (IVP) and use the software.

Log in to the system manager's account, SYSTEM. You have a choice of two ways to register a license:

- 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.

If you plan to use *Compaq C++ for OpenVMS VAX* on more than one node in a VMScluster, you will need to perform a license load on the other nodes after you complete this installation. See Section 3.3.

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

1.2 Required Operating System Components and Software

Compaq C++ Version 5.6C for OpenVMS VAX requires the following components:

- OpenVMS VAX operating system Version 5.5-2 or higher.

  Future *Compaq C++ for OpenVMS VAX* releases may require higher versions of the operating system, as described in the online release notes or the *Read Before Installing or Using Compaq C++ Version 5.6C for OpenVMS VAX* letter.

- Compaq C/C++ Run-Time Components Version 6.0 for OpenVMS VAX kit.

  Components of this kit include newer versions of existing shareable image OpenVMS run-time components, as well as the Compaq C++ Class Library and shareable image components that are new to the Compaq C Run-Time Library.

The OpenVMS VAX operating system comes with a variety of support options or components. Components include such features as networking and RMS journaling. To use *Compaq C++ for OpenVMS VAX*, your system should be running a version of OpenVMS VAX that includes the base component and the following:

- Programming support
- Utilities

The Compaq C/C++ Run-Time Components kit is distributed on the same media with the *Compaq C++* kit, and comes with its own installation instructions. You can redistribute the Compaq C/C++ Run-Time Components kit and its documentation to remote sites that develop applications written in *Compaq C++* Version 5.6C for OpenVMS VAX. See the *Compaq C/C++ Run-Time Components for OpenVMS VAX Reference and Installation Guide* for detailed installation and redistribution instructions.

Note

Although they are both on the same media, you cannot install both the OpenVMS Version 6.0 Debugger kit and the *Compaq C++* Version 5.6C OpenVMS VAX kit with a single invocation of VMSINSTAL. The *Compaq C++ for OpenVMS VAX* kit causes VMSINSTAL to check to ensure that the OpenVMS Version 6.0 Debugger installation is complete so that the Installation Verification Procedure (IVP) can test C++ debugging capabilities. If you try to install both kits with the same VMSINSTAL command, the *Compaq C++ for OpenVMS VAX* kit installs before the OpenVMS Version 6.0 Debugger kit because the compiler kit files (CXX05*n*) alphabetically precede the debugger kit files (DBG060). Requests to install the debugger kit first, by specifying DBG060 before CXX05*n* on the command line, are ignored.

Table 1–1 provides information about optional software that you can use together with *Compaq C++ for OpenVMS VAX*.

Table 1–1 Optional Software

Optional Product	Purpose
Compaq Language-Sensitive Editor (LSE) Version 4.0 or higher	Formatted language constructs simplify editing source programs. Support for Compaq C++ requires that LSE be installed before the compiler is installed.

1.3 Installation Procedure Requirements

This section discusses the settings that you should check to be sure that your system is ready for the installation of *Compaq C++ for OpenVMS VAX* to proceed.

1.3.1 Deassigning DECset Debugger Logical Names

Although carrying out the procedure in Section 2.1 updates the system version of the OpenVMS Debugger, it does not modify any auxiliary version of the OpenVMS Debugger that may also exist on your system, such as the version supplied with DECset Version 11 or supplied with older versions of *Compaq C++ for OpenVMS VAX*. If they exist, executable images of these alternative versions of the debugger are activated using system logical names. To install this *Compaq C++ for OpenVMS VAX* kit properly, you must remove the following logical names before installing the OpenVMS Version 6.0 Debugger on this *Compaq C++ for OpenVMS VAX* kit. Use the `DEASSIGN/SYSTEM` or `DEASSIGN/SYSTEM/EXEC` command to remove them:

DEBUG	DBGTBKMSG	DBG$UIHELP
DEBUGSHR	VMSDEBUGUIL	DEBUGAPPCLASS
DEBUGUISHR	DBG$HELP	

1.3.2 Process Privileges

To install *Compaq C++ for OpenVMS VAX*, you must be logged in to an account that has SETPRV or at least the following privileges:

- CMKRNL
- WORLD
- SYSPRV

VMSINSTAL turns off BYPASS privileges at the start of the installation.

1.3.3 Process Account Quotas

VMSINSTAL requires that the installation account have minimum quotas as shown in Table 1–2.

Table 1–2 Process Account Quotas for the Installing Account

Account Quota	Value
ASTLM	190
BIOLM	160
BYTLM	99,000
DIOLM	160
ENQLM	4000
FILLM	300
JTQUOTA	4096
PGFLQUOTA	20,000

Use the OpenVMS Authorize Utility to verify and change process quotas for the installation account in the user authorization file (UAF). (Some sites may restrict the use of the OpenVMS Authorize Utility to certain accounts or people.) For instance, to change the BYTLM quota for the *account-name* installation account, you might enter the following command sequence:

```
$ RUN SYS$SYSTEM:AUTHORIZE
UAF> MODIFY account-name /BYTLM = 99000
UAF> SHOW account-name
UAF> EXIT
$ LOGOUT
```

After the quotas for the installation account have been changed, log out of the installation account and log in again for the new quotas to take effect. You can then proceed with the installation.

User account quotas are stored in the file SYSUAF.DAT. For more information on modifying account quotas, see the description of the Authorize Utility in the OpenVMS System Management Subkit.

1.3.4 System Parameters

Table 1–3 lists the minimum required system parameter values for installing the OpenVMS Version 6.0 Debugger. Depending on the kinds of programs and applications running at your site, you might need higher values for some settings.

Table 1–3 Minimum Required System Parameter Values for the OpenVMS Version 6.0 Debugger

System Parameter	Minimum Value	Default Value
CLISYMTBL[1]	500	500
GBLPAGES[2]	6750	6750
GBLPAGFIL	6750	6750
GBLSECTIONS[2]	8	10

[1]The CLISYMTBL dynamic system parameter must be set to a minimum value of 500 during the installation procedure. You can change the setting to its original value after the installation is finished.

[2]These values 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.

Table 1–4 lists the minimum required system parameter values for installing the *Compaq C++ for OpenVMS VAX* Version 5.6C compiler.

Table 1–4 Minimum Required System Parameter Values for the *Compaq C++* Version 5.6C for OpenVMS VAX Compiler

System Parameter	Minimum Value	Default Value
CLISYMTBL[1]	500	500
GBLPAGES[2]	2500	2500
GBLPAGFIL	2500	2500
GBLSECTIONS[2]	3	3

[1]The CLISYMTBL system parameter must be set to a minimum value of 500 during the installation procedure. You can reset the value after the installation is finished.

[2]These values 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.

Note

Remember to use SYS$SYSTEM:MODPARAMS.DAT and AUTOGEN when changing these settings. For example, to set GBLSECTIONS to 10, use `ADD_GBLSECTIONS=10` or `MIN_GBLSECTIONS=currentvalue+10`. Also remember to account for other usage of system parameters. Slightly overconfiguring OpenVMS operations or memory usage settings by 10% to 20%, or more is unlikely to incurr any performance penalty. For the specific overhead involved with increasing these settings, see the performance manual.

1.3.5 Disk Space

Requirements for free disk storage space are different during installation and after installation. Table 1–5 summarizes the storage requirements.

Table 1–5 Disk Space Requirements

Kit	Blocks During Installation	Blocks After Installation
Compiler kit	29,000	19,500
OpenVMS Debugger kit	22,000	1000
Run-Time Components kit	15,000	5000

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

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

1.3.6 Backing Up Your System Disk

At the beginning of the installation, VMSINSTAL asks if you have backed up your system disk. Compaq 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 performing a system disk backup, see the section on the Backup Utility in the OpenVMS System Management Subkit.

1.3.7 Additional System Maintenance Procedures

This section explains how to use the System Generation Utility (SYSGEN) and the AUTOGEN Utility to prepare your system for an installation of *Compaq C++*. AUTOGEN uses system configuration data to automatically set system parameters.

1.3.7.1 Checking System Parameter Values

To check the values of your system parameters, enter the following command:

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

At the SYSGEN> prompt, enter the SHOW command to display the value of a system parameter. The following example displays the value for the WSMAX system parameter:

```
SYSGEN> SHOW WSMAX
```

After checking the parameters with the SHOW command, enter the EXIT command at the SYSGEN> prompt to return to DCL level. For information on setting dynamic system parameter values, see Section 1.3.7.4.

1.3.7.2 Calculating the Values for Global Pages and Global Sections

To install and run *Compaq C++ for OpenVMS VAX*, you must have sufficient free global pages, global sections, and contiguous global pages. 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 global pages and global sections system parameters.

Enter the following DCL command to determine the number of global pages required by SYS$LIBRARY:DCLTABLES.EXE:

```
$ DIR/SIZE SYS$LIBRARY:DCLTABLES.EXE
```

This command returns the size (in blocks) of SYS$LIBRARY:DCLTABLES.EXE. As an approximation, use this figure as the number of global pages for the file.

Table 1–6 lists the requirements for the number of contiguous global pages needed during installation. Note that the values represent the number of pages required for installation, not the number you need to run your system and other software.

Table 1–6 Contiguous GBLPAGE Count Requirements

Product Installation	Minimum Value	Default Value
OpenVMS Version 6.0 Debugger	900	95
Compaq C++ Version 5.6C	900	95

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

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

If the values displayed by the system are greater than the values in Tables 1–3, 1–4, and 1–6, 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 1–3 or Table 1–4, you must increase the system parameter setting.

Section 1.3.7.3 describes the procedures for increasing these values using AUTOGEN.

1.3.7.3 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:

```
WSMAX = 8096
```

To modify incremental parameters such as free global pages and global sections, use ADD_GBLPAGES or ADD_GBLSECTS. The following example increases the global page setting by 2000:

```
ADD_GBLPAGES = 2000
```

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

After you make all your changes, exit from the editor and execute the AUTOGEN procedure to recalculate your system parameters. The following command recalculates your system parameters and reboots the system:

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

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

AUTOGEN 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 system management documentation for your operating system.

1.3.7.4 Setting Dynamic System Parameter Values

Use SYSGEN to set dynamic parameters. Dynamic parameters changed with the SYSGEN command WRITE ACTIVE become active immediately without any need to reboot your system. Rebooting returns dynamic system parameter values to their previous settings.

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

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 500:

```
$ RUN SYS$SYSTEM:SYSGEN
SYSGEN> USE ACTIVE
SYSGEN> SET CLISYMTBL 500
SYSGEN> WRITE ACTIVE
SYSGEN> EXIT
```

2

Installing *Compaq C++ for OpenVMS VAX*

After you register and load the License Product Authorization Key (License PAK), the installation takes approximately 5 to 30 minutes depending on your system configuration and the kit components chosen.

2.1 Installing the OpenVMS Version 6.0 Debugger

This section explains how to install the OpenVMS Version 6.0 Debugger on systems running OpenVMS VAX Version 5.5-2. This procedure does not apply to systems already running OpenVMS VAX Version 6.0 or higher.

The OpenVMS Version 6.0 Debugger has its own installation kit stored on the same media as the *Compaq C++* installation kit and must be installed as a separate step before installing the compiler if the installing system is running a version of OpenVMS VAX lower than Version 6.0. If your installation medium is tape, install the OpenVMS Debugger before the *Compaq C++* compiler to avoid errors when installing the compiler kit.

Note

If you try to install the OpenVMS Version 6.0 Debugger kit on a system running Version 6.0 or higher, the installation will fail.

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

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

1. **Log in to a privileged account and set your default device and directory to SYS$UPDATE.**

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

2. **Invoke VMSINSTAL.**

   This example invokes VMSINSTAL to install the OpenVMS Version 6.0 Debugger using the N option and shows the system response.

```
$ @VMSINSTAL DBG060 MUA0: OPTIONS N

      OpenVMS VAX Software Product Installation Procedure Vn.n

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

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

   If you are satisfied with the backup of your system disk, press Return. Otherwise, type NO and press Return to discontinue the installation.

3. **Insert the installation kit volume.**

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

  DBG V6.0

    Beginning installation of DBG V6.0 at hh:mm

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

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

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

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

```
Release Notes Options:

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

* Select option [2]:
```

   If you select option 1, VMSINSTAL displays the release notes on line immediately. To terminate the display at any time, press Ctrl/C.

If you select option 2 (the default), VMSINSTAL prompts you for a queue name. You can then type a queue name or press Return, which sends the file to the default output print device.

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

If you select option 3, VMSINSTAL displays on line the release notes immediately. To terminate the display at any time, press Ctrl/C. VMSINSTAL prompts you for a queue name for printing the release notes. Either type a queue name or press Return to send the file to the default output print device. The OpenVMS Version 6.0 Debugger release notes are then copied to SYS$HELP:DBG060.RELEASE_NOTES.

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

If you select option 5, VMSINSTAL does not display, print, or copy the release notes, but moves them to SYS$HELP. Typically, you select this option when you want to end the installation.

Next, VMSINSTAL displays the following prompt:

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

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

5. **Select the Installation Verification Procedure (IVP) options.**

   You are asked two questions about running the IVP. The first allows you to run the IVP for the character-cell debugger. The second allows you to run the DECwindows Motif IVP.

   ```
   * Do you want to run the IVP after the installation [YES]?
   * Do you want to run the interactive DECwindows Motif IVP [NO]?
   ```

   The purpose of the IVP is to verify that the installation was successful. If the IVP determines that you have insufficient quotas to run the IVP, you are notified about which quotas need to be increased. The procedure then asks if you want to complete the installation without running the IVP. Press Return to run the IVP after the installation. If you do not want to run the IVP, type NO and press Return.

   The DECwindows Motif IVP defaults to NO. If you want to run this IVP, type YES and press Return.

6. **Select installation options.**

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

The directories SYS$HELP, SYS$LIBRARY, SYS$MESSAGE, SYS$STARTUP, and SYS$SYSTEM contain older versions of OpenVMS Debugger files. Some of these files are replaced during the installation with new files, and the following files are deleted because they would prevent the OpenVMS Version 6.0 Debugger from working:

SYS$HELP:DBG$DSHELP.HLB
SYS$HELP:DBG$DSUIHELP.HLB

The old files are not automatically purged. Purging is recommended. To purge the old files, press Return at the prompt. If you want to keep the old files, type NO and press Return.

7. **Read the informational messages.**

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 is succeeding, VMSINSTAL moves new or modified files to their target directories.

A successful installation is indicated by the following message:

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

If you typed YES in response to the prompt that requests a file purge at step 6, previous versions of the OpenVMS Version 6.0 Debugger files are now purged.

8. **Observe the IVP.**

If you chose to run the IVP in step 5, VMSINSTAL calls the IVP to verify that the OpenVMS Version 6.0 Debugger was installed successfully.

```
******************************************************************************
*                                                                            *
*           Beginning the Debug V6.0 Verification Procedure                  *
*                                                                            *
******************************************************************************

******************************************************************************
*                                                                            *
*                  Debug verification procedure successful                   *
*                                                                            *
******************************************************************************
```

If you chose in step 5 to run the interactive DECwindows Motif IVP by answering YES, the procedure first checks to see that a suitable DISPLAY is defined and available on which to bring up the windows. It then displays the following message and instructions:

```
*****************************************************************************
*                                                                           *
*           Beginning the Debug V6.0 Verification Procedure                 *
*            using the Motif Windows User Interface                         *
*                                                                           *
*****************************************************************************
%DBG-I-IVP, The IVP will display on _WSA1:

    When the windows come up, do the following:
    -  Go to the command window and click on the STEP button twice.
    -  Pull down the FILE menu and click on EXIT.
    -  Click the OK button to exit the debugger.
```

When you complete the final step from the previous example, the IVP completes and displays the following message:

```
%DBG-S-IVP, The IVP has completed.

        Installation of DBG V6.0 completed at hh:mm
```

If a DISPLAY is not available, the following message appears and the IVP exits:

```
This machine is not a workstation.  Skipping display-oriented tests.
```

9. **End the installation procedure.**

```
   Installation of DBG V6.0 completed at hh:mm

   VMSINSTAL procedure done at hh:mm

$ LOGOUT
SYSTEM     logged out at dd-mmm-yyyy hh:mm
```

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

The file DEBUG$STARTUP.COM contains commands to install the OpenVMS Version 6.0 Debugger images.

OpenVMS Version 6.0 Debugger Files

The installation procedure puts the following files in the following directories on the system:

Directory	File Name
SYS$LIBRARY	DEBUG.EXE DEBUGSHR.EXE DEBUGUISHR.EXE TRACE.EXE DEBUGUIL.UID
SYS$HELP	DBG$HELP.HLB DBG$DW$HELP.HLB
SYS$MESSAGE	DBGTBKMSG.EXE
SYS$TEST	DBG$IVP.COM IVP_IMAGE.PAS IVP_IMAGE.EXE IVP_SCRIPT.TST IVP_SCRIPT.OUT_OLD

2.2 Installing the *Compaq C++ for OpenVMS VAX* Compiler

If it is not already inserted, place the compact disc (CD–ROM) media into the CD–ROM drive.

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.

When the system prompts you with a question during the installation procedure, the default answer is often listed in brackets ([ ]).

1. **Log in to a privileged account and set your default device and directory to SYS$UPDATE.**

```
Username: SYSTEM
Password:
```

2. **Invoke VMSINSTAL.**

   @SYS$UPDATE:VMSINSTAL saveset-name device-name option-list

To start the installation, invoke the VMSINSTAL command procedure from a privileged account, such as the SYSTEM account. VMSINSTAL is in the SYS$UPDATE directory. The elements that you specify when you invoke the VMSINSTAL command procedure are as follows:

saveset-name

The installation name for the component. For *Compaq C++ for OpenVMS VAX*, use the following installation name:

CXX05*n*

n represents the minor (point) release number for *Compaq C++ for OpenVMS VAX*.

To obtain the save-set name, enter a DIRECTORY command specifying the directory file from the previous command:

```
$ DIRECTORY DKA400:[CXX05n.KIT]CXX05n.A
```

n represents the minor release of *Compaq C++ for OpenVMS VAX*.

device-name

The name of the device on which you plan to mount the media and the directory containing the *Compaq C++ for OpenVMS VAX* save set. For example, DKA400: is the device name used in examples in this guide. The directory is [CXX05*n*], where *n* is the minor release number.

To specify the device name on the @VMSINSTAL command line, enter:

DKA400:[CXX05*n*]

option-list

The word OPTIONS followed by one or more of the following option designators—A, G, L, N, R:

- 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.

- Display or print the release notes (N)

  Indicates that you want to see the installation question on release notes. If you do not include the N option, VMSINSTAL does not ask you about the release notes. You should review the release notes before proceeding with the installation in case they contain additional information about the installation.

  If you are restarting the installation and have already reviewed the release notes, you do not need to specify the N option. (Even if you omit the N option when you invoke VMSINSTAL, the *DEC C++ for OpenVMS VAX Release Notes* are copied automatically to the SYS$HELP directory.)

- Alternative root option (R)

  Lets you install the product to a system root other than that of the running system.

For detailed information on these software installation options, see the OpenVMS operating system documentation. If you specify more than one option, separate the options with commas, such as OPTIONS A,N.

The following example invokes VMSINSTAL to install *Compaq C++ for OpenVMS VAX* and shows the system response. This example uses the OPTIONS N release note option.

```
$ @SYS$UPDATE:VMSINSTAL CXX05n DKA400:[CXX05n] OPTIONS N

      OpenVMS VAX Software Product Installation Procedure V6.1

It is dd-mmm-yyyy at hh:mm.
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.

When you invoke VMSINSTAL, it checks the following:

- Whether you are logged in to a privileged account. Compaq recommends that you install software from the system manager's account with your default device and directory set to SYS$UPDATE.
- Whether you have adequate quotas for installation. VMSINSTAL checks for the quota values shown in Table 1–2.

VMSINSTAL then checks to determine whether any users are logged in to the system. If users are logged in, VMSINSTAL asks whether you want to continue the installation:

```
* Do you want to continue anyway [NO]?  YES
```

If you want to continue, enter YES. If you want to stop the installation, press Return.

3. **Confirm system backup.**

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

If you are satisfied with the backup of your system disk, press Return. Otherwise, enter NO to discontinue the installation. After you back up your system disk, you can restart the installation.

If you omitted the device name on the VMSINSTAL command line, the following prompt appears:

```
* Where will the distribution volumes be mounted: DKA400:[CXX05n]
```

If this prompt appears, enter the name of the distribution (media) device and directory that contains the *Compaq C++ for OpenVMS VAX* kit (save set). For example, if the media is contained on a CD–ROM located on unit DKA400:, enter DKA400:[CXX05*n*] in reply to this question (where *n* is the minor version number).

If you entered the wrong device name when you invoked VMSINSTAL and need to restart the installation, or if you want to abort the installation for any other reason, press Ctrl/Y.

4. **Verify the product being installed**.

```
 The following products will be processed:
   CXX V5.n
     Beginning installation of CXX V5.n at hh:mm
   %VMSINSTAL-I-RESTORE, Restoring product save set A...
```

The product name and version are displayed. This save set (A) is restored to a subdirectory of SYS$UPDATE:.

%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.

The release notes are copied to the following files in the SYS$HELP directory (where *n* is the minor version number):

```
SYS$HELP:CXX05n.RELEASE_NOTES
SYS$HELP:CXX05n_RELEASE_NOTES.PS
```

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

```
$ HELP CXX RELEASE_NOTES
```

Note

The name of the release notes file (installed by VMSINSTAL) consists of the current product name and version number.

5. **Purge files.**

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

The directories SYS$HELP, SYS$LIBRARY, SYS$MESSAGE, SYS$SYSTEM, and SYS$TEST may contain previous versions of *Compaq C++* files. These files are replaced during the installation with new files, but the old files are not automatically purged. Purging is recommended. In response to the purging prompt, press Return or enter YES and press Return to purge the files. To keep the files, enter NO and press Return.

6. **Respond to license registration queries.**

The *Compaq C++ for OpenVMS VAX* compiler component supports the OpenVMS License Management Facility (LMF). If you entered YES to install the compiler component, the installation procedure displays license information about *Compaq C++ for OpenVMS VAX*. It asks whether you have registered and loaded your PAK for each product. The following is an example of the information and the queries presented by the installation procedure:

```
    Compaq C++ requires a Product Authorization Key (PAK) be registered and
    loaded.  Answer the following question with YES if at least one PAK with
    the specified product name and a date equal to or later than the date
    shown is registered and loaded, otherwise answer NO.

      Product:      CXX-V, CXX-V-USER, CXX-V-G
      Producer:     DEC
      Version:      5.n
      Release Date: dd-mmm-yyyy

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

If you have not registered and loaded your PAK, you must answer NO to this question. You have to register and load your PAKs to successfully complete the installation (see Section 1.1). If you have not done so, you should stop the installation, register and load your PAKs, and then restart the installation.

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

   If you have chosen to install the compiler component, the installation procedure now asks if you want to run the IVP.

```
    This kit contains an Installation Verification Procedure
    (IVP) to  verify the correct  installation of the Compaq C++
    compiler.  The IVP will be placed in:

               SYS$TEST:CXX$IVP.COM

    After the installation is complete, you can invoke the
    command file at any time to reverify that Compaq C++ is
    installed and working correctly.

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

   After the *Compaq C++ for OpenVMS VAX* compiler is installed, you can run the IVP independently to verify that the software is available on your system. You might need to run the IVP after a system failure to make sure that the users can access the *Compaq C++ for OpenVMS VAX* compiler.

8. **Read informational messages.**

   The installation procedure now 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. The new files include the following:

```
    SYS$HELP:CXX056.RELEASE_NOTES                          [new]
    SYS$HELP:CXX056_RELEASE_NOTES.PS                       [new]
    SYS$SYSTEM:CXX$COMPILER.EXE                            [new]
    SYS$MESSAGE:CXX$MSG_SHR.EXE                            [new]
    SYS$SYSTEM:CXX$DEMANGLE.EXE                            [new]
    SYS$SYSTEM:CXX$LINK.EXE                                [new]
    SYS$SYSTEM:CXX$LINK_MSG.EXE                            [new]
    SYS$HELP:HELPLIB.HLB                                   [modified]
    SYS$COMMON:[SYSHLP.CXX$HELP]*.*                        [new]
    SYS$LIBRARY:DCLTABLES.EXE                              [modified]
    SYS$LIBRARY:DECC$RTLDEF.TLB                            [new]
    DECC$LIBRARY_INCLUDE:*.H                               [new]
    SYS$LIBRARY:CXXL$DEF_H.TLB                             [new]
    SYS$LIBRARY:CXXL$DEF_HXX.TLB                           [new]
    CXX$LIBRARY_INCLUDE:*.H,*.HXX                          [new]
    SYS$TEST:CXX$IVP.COM                                   [new]
    SYS$STARTUP:CCXX$STARTUP.COM                           [new]
    SYS$LIBRARY:CXXL$ANSI_DEF.TLB                          [new]
    SYS$LIBRARY:LIBCXXSTD.OLB                              [new]
    SYS$LIBRARY:DECC$CRTL.OLB                              [new]
    SYS$LIBRARY:DECC$CRTL.EXE                              [new]
    SYS$LIBRARY:DECC$CRTL.README                           [new]
```

The SYS$HELP:HELPLIB.HLB and SYS$LIBRARY:DCLTABLES.EXE files are updated to include the new versions of the *Compaq C++ for OpenVMS VAX* help text (module CXX$HELP.HLP) and the CXX command-line definition.

The end of the installation is indicated by the following message:

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

If *Compaq C++ for OpenVMS VAX* was installed successfully, the IVP displays the following:

```
Compaq C++ V6.2 Installation Verification Procedure completed successfully

Installation of CXX V5.n completed at hh:mm

VMSINSTAL procedure done at hh:mm
```

Depending on whether you specified parameters on the VMSINSTAL command line, the * Products: prompt or the DCL prompt ($) may appear. If the * Products: prompt appears, you can return to the DCL prompt by pressing Ctrl/Z.

If you removed any media from the console drive before beginning the installation, you should replace it now.

VMSINSTAL deletes or changes entries in the process symbol tables during the installation. Therefore, if you are going to continue using the installation account (such as SYSTEM) and you want to restore these symbols, you should log out and log in again.

2.3 Error Recovery

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

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

```
%VMSINSTAL-E-INSFAIL, The installation of Compaq C++ for OpenVMS VAX
Version 5.n has failed.
```

If the IVP fails, it displays these messages:

```
The Compaq C++ for OpenVMS VAX Version 5.n Installation Verification
Procedure failed.

%VMSINSTAL-E-IVPFAIL, The IVP for Compaq C++ for OpenVMS VAX
Version 5.n has failed.
```

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

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

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

Installing *Compaq C++ for OpenVMS VAX*
2.3 Error Recovery

If the installation fails, you must restart the installation procedure from step 2. For an explanation of any system messages, see the *OpenVMS System Messages and Recovery Procedures Reference Manual* or the online HELP/MESSAGE facility. If the installation fails due to an IVP failure, contact a Compaq field service representative.

3
After Installation

Compaq C++ for OpenVMS VAX is now installed and can be invoked by all users with the `cxx` command.

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

```
$ SET COMMAND /TABLES=SYS$LIBRARY:DCLTABLES
```

The following tasks can be performed after *Compaq C++ for OpenVMS VAX* is installed:

- Running the Installation Verification Procedure (IVP) separately
- Editing the system startup and shutdown files
- Modifying system parameter settings
- Making the product usable on a VMScluster
- Setting user account quotas
- Reporting problems

The following sections describe these tasks in detail.

3.1 Running the Installation Verification Procedures Separately

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

```
$ @SYS$TEST:DBG$IVP.COM
$ @SYS$TEST:DBG$DW$IVP.COM
$ @SYS$TEST:CXX$IVP.COM
```

If an IVP fails for any reason, the following message is displayed:

Compaq C++ for OpenVMS VAX VERSION V5.*n* TEST FAILED

3.2 Editing and Organizing System Files

To provide for automatic startup of *Compaq C++* when your system is rebooted, add the command line that starts *Compaq C++ for OpenVMS VAX* to the system startup file, SYS$MANAGER:SYSTARTUP_VMS.COM. *Compaq C++ for OpenVMS VAX* cannot start until after the network has started. You must position this new command line after the line that invokes the network startup command procedure. The following example shows the network startup command line followed by the *Compaq C++ for OpenVMS VAX* startup command line:

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

You must invoke this command procedure to define the logical names that the compiler needs to find the Compaq C++ Class Library header source files.

Note

SYS$STARTUP:CCXX$STARTUP.COM starts the *Compaq C++ for OpenVMS VAX* compiler only. To activate the OpenVMS Version 6.0 Debugger you must execute SYS$STARTUP:DEBUG$STARTUP.COM. To invoke the Compaq C/C++ Run-Time Components, execute SYS$STARTUP:CRT$STARTUP.COM.

If you have a system logical name or one or more options files that point to the old linker and the old run-time libraries (RTLs) that resided in *dev*:[CXX$LIBRARY.SYSTEM]LINK.EXE and *dev*:[DECC$LIBRARY.CRTL]*.*, you should remove them. That linker is obsolete and the RTLs are made obsolete by the new Compaq C/C++ Run-Time Components Version 6.0 for OpenVMS VAX kit (or by your OpenVMS VAX system Version 6.0 or higher).

To let system users use the newly installed OpenVMS Version 6.0 Debugger kit, deactivate alternative versions of the OpenVMS Debugger that might have been installed by layered product kits. Remove the startup file, SYS$STARTUP:DEBUG$STARTUP.COM from the system startup file, SYS$STARTUP:SYSTARTUP_V5.COM. Also delete the following files to remove the obsolete DECset Debugger product from your system:

```
SYS$HELP:DBG$DSHELP.HLB
SYS$HELP:DBG$DSUIHELP.HLB
DECW$SYSTEM_DEFAULTS:DSDEBUG.DAT
SYS$MESSAGE:DSDBGTBKMSG.EXE
SYS$LIBRARY:DSDEBUG.EXE
SYS$LIBRARY:DSDEBUGSHR.EXE
SYS$LIBRARY:DSDEBUGUISHR.EXE
SYS$LIBRARY:DSDEBUGUIL.UID
SYS$STARTUP:DEBUG$STARTUP.COM
SYS$STARTUP:DEBUGSETUP.COM
```

The OpenVMS Version 6.0 Debugger .DAT file is VMSDEBUG.DAT. If your system has a customized DEBUG.DAT file used to configure the OpenVMS Debugger, copy DEBUG.DAT to SYS$LOGIN:VMSDEBUG.DAT so that the customizations are reflected upon starting up the Motif interface to the debugger.

3.3 VMScluster Considerations

After completing the initial installation, if you want to install *Compaq C++ for OpenVMS VAX* on multiple nodes in a cluster you must run INSTALL on each of the other nodes and enter the following commands:

```
INSTALL>  REPLACE SYS$LIBRARY:DCLTABLES.EXE
INSTALL>  REPLACE SYS$LIBRARY:DEBUG.EXE
INSTALL>  REPLACE SYS$LIBRARY:DEBUGSHR.EXE
INSTALL>  REPLACE SYS$LIBRARY:TRACE.EXE
INSTALL>  REPLACE SYS$MESSAGE:DBGTBKMSG.EXE
```

Execute CCXX$STARTUP.COM on all single-architecture (VAX only) clusters, that have a *Compaq C++* license. To invoke OpenVMS Version 6.0 Debugger, execute DEBUG$STARTUP.COM. To invoke the Compaq C/C++ Run-Time Components, execute SYS$STARTUP:CRT$STARTUP.COM.

If you are using a dual-architecture (VAX and Alpha systems) heterogeneous cluster, before executing these commands, make sure the appropriate logical names have been set to define the scope of the SYSMAN DO commands. For more information, see the *OpenVMS System Manager's Manual*.

3.4 User Account Requirements

Many products cannot be used unless certain privilege and quota requirements are met by user accounts. The following sections describe the privilege and quota requirements needed to work with *Compaq C++ for OpenVMS VAX*.

3.4.1 User Privileges

To use *Compaq C++ for OpenVMS VAX*, each account must have at least the TMPMBX and NETMBX privileges. Use the OpenVMS Authorize Utility to determine whether users have the privileges they require.

3.4.2 User Account Quotas

To use *Compaq C++ for OpenVMS VAX*, a user account does not need to meet any special quota requirements. However, for users who will be compiling very large programs (many program units compiled together), consider adjusting the working set (WSDEF, WSQUOTA, WSEXTENT) and pagefile (PGFLQUOTA) account quotas to improve performance.

See Section 1.3.3 for a description of how to verify and change account quotas.

3.5 Getting Help and Reporting Problems

If an error occurs while *Compaq C++ for OpenVMS VAX* is in use and you believe the error is caused by a problem with the product, please report it to Compaq.

If you have a Software Product Services Support Agreement, contact your Customer Support Center (CSC) by telephone or by using the electronic means provided with your support agreement (such as DSNlink). The CSC provides telephone support for high-level advisory and remedial assistance. When you initially contact the CSC, indicate the following:

- The name and version number of the operating system you are using
- The version number of *Compaq C++ for OpenVMS VAX* you are using
- The hardware system you are using (such as a model number)
- A brief description of the problem (one sentence if possible)
- How critical the problem is

Whether you submit information electronically or contact the appropriate support specialist by telephone, please take the following steps:

1. Describe as accurately as possible the circumstances and state of the system when the problem occurred. Include the description and version

number of the *Compaq C++ for OpenVMS VAX* compiler being used. Demonstrate the problem with specific examples.

2. Reduce the problem to as small a size as possible.
3. Remember to include listings of any command files, INCLUDE files, or relevant data files, and so forth.
4. Provide a listing of the program.
5. If the program is longer than 50 lines, submit a copy of it on machine-readable media (diskette or magnetic tape). If necessary, also submit a copy of the program library used to build the application.
6. Report only one problem per report. This will facilitate a faster response.
7. Mail the problem report to Compaq.

If the problem is related to *Compaq C++ for OpenVMS VAX* documentation, you can report the problem to the CSC (if you have a Software Product Services Support Agreement and the problem is severe); otherwise, send your comments about *Compaq C++ for OpenVMS VAX* documentation to the following Internet address:

cxx_docs@zko.dec.com

To obtain information about purchasing a Compaq Software Product Services Support Agreement or other support services, please contact your local sales representative.

A
Sample Installations

This appendix contains sample installations for each of the components on the *Compaq C++ for OpenVMS VAX* kit. These are only samples. Sometimes the installation procedure is modified in maintenance updates of this product.

Be sure to read the *Read Before Installing or Using Compaq C++ Version 5.6C for OpenVMS VAX* letter before you install this product. This letter notes any significant changes to the installation sample shown here. Such information also appears in the online release notes.

The following samples were installed on an OpenVMS VAX system. Depending on which layered products you have on your system, you might see additional messages and questions when you perform your installation.

These sample installations assume that DECnet has been shut down, 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.

Example A–1 shows a sample installation of the OpenVMS Version 6.0 Debugger on an OpenVMS VAX system.

Sample Installations

Example A–1 Sample OpenVMS Version 6.0 Debugger Installation on OpenVMS VAX

```
@sys$update:vmsinstal dbg060 $disk1:[install_test.kits] options i

 VAX/VMS Software Product Installation Procedure V5.5-2

It is 2-NOV-1999 at 15:12.

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

%VMSINSTAL-W-NOTSYSTEM, You are not logged in to the SYSTEM account.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
The following products will be processed:

  DBG V6.0

 Beginning installation of DBG V6.0 at 15:13

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.

      This kit installs Debug version V6.0C-000.  Note that it requires
      at least OpenVMS VAX V5.4 and, at most, OpenVMS VAX V5.5-2.  If the
      debugger's graphical user interface is to be used, it also requires
      Motif V1.0 or later.

     ******************************************************************
     *                                                                *
     *                                                                *
     *  THIS INSTALLATION WILL REPLACE YOUR CURRENT VMS SYSTEM DEBUGGER! *
     *                                                                *
     *                                                                *
     ******************************************************************

      You should insure that you have saved the current version of the
      system debugger by backing up the following files:

                SYS$LIBRARY:DEBUG.EXE
                SYS$LIBRARY:DEBUGSHR.EXE
                SYS$LIBRARY:DBGSSISHR.EXE
                SYS$LIBRARY:DEBUGUIL.UID
                SYS$HELP:DBG$HELP.HLB
                SYS$HELP:DBG$DWHELP.HLB
                SYS$LIBRARY:TRACE.EXE
                SYS$MESSAGE:DBGTBKMSG.EXE

* Do you want to run the IVP after the installation [YES]?
* Do you want to run the interactive DEC Windows Motif IVP? [NO]:
* Do you want to purge files replaced by this installation [YES]? no
%DBG-I-DONEASK, No further questions will be asked during this installation.
```

(continued on next page)

Example A–1 (Cont.) Sample OpenVMS Version 6.0 Debugger Installation on OpenVMS VAX

```
%DBG-I-ENDRESTORE, All Debugger savesets have been restored.
%DBG-I-LINKDONE, DEBUGSHR has been linked.
%DBG-I-LINKDONE, DEBUG has been linked.
%DBG-I-LINKDONE, TRACE has been linked.
%DBG-I-LINKDONE, DEBUGUISHR has been linked.
%DBG-I-CLEANUP, Cleanup has been performed.
%DBG-I-PROHELP, Providing Debugger Help files...
%DBG-I-PRORES, Providing Resource file for Debugger visuals...
%DBG-I-PROMSG, Providing Debugger message image...
%DBG-I-PROEXE, Providing Debugger files...
%DBG-I-PROIVP, Providing test files for IVP...
*******************************************************************************
*                                                                             *
*  The Debugger IVP has been moved to the SYS$TEST directory.  To run         *
*  the IVP after installation, enter @SYS$TEST:DBG$IVP.COM for the character  *
*  cell IVP.  If DECWindows Motif has been installed on your system, enter    *
*  @SYS$TEST:DBG$DW$IVP.COM for the interactive DECWindows Motif IVP.         *
*                                                                             *
*******************************************************************************
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
*******************************************************************************
*                                                                             *
*            Beginning the Debug V6.0 Verification Procedure                  *
*                                                                             *
*******************************************************************************
*******************************************************************************
*                                                                             *
*                  Debug verification procedure successful                    *
*                                                                             *
*******************************************************************************

 Installation of DBG V6.0 completed at 15:21

 VMSINSTAL procedure done at 15:21
```

Sample Installations

Example A–2 shows a sample installation of the *Compaq C++ for OpenVMS VAX* compiler Version 5.6C on an OpenVMS VAX system.

Example A–2 Sample *Compaq C++ for OpenVMS VAX* Installation

```
$ @sys$update:vmsinstal

        OpenVMS VAX Software Product Installation Procedure V7.1

It is 2-NOV-1999 at 17:07.

Enter a question mark (?) at any time for help.
* Are you satisfied with the backup of your system disk [YES]? YES
* Where will the distribution volumes be mounted: DKA400:[CXX056]

Enter the products to be processed from the first distribution volume set.
* Products: CXX056
* Enter installation options you wish to use (none): N
The following products will be processed:
  CXX V5.6

        Beginning installation of CXX V5.6 at 17:07

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.

    Compaq C++ Version V5.6 for OpenVMS VAX Systems

  Copyright (c) Digital Equipment Corporation 1993, 1999.  All rights reserved.

  Restricted Rights: Use, duplication, or disclosure by the U.S.
  Government is subject to restrictions as set forth in subparagraph
  (c) (1) (ii) of DFARS 252.227-7013, or in FAR 52.227-19, or in FAR
  52.227-14 Alt. III, as applicable.

  This software is proprietary to and embodies the confidential
  technology of Digital Equipment Corporation. Possession, use, or
  copying of this software and media is authorized only pursuant to a
  valid written license from Digital or an authorized sublicensor.

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

    Compaq C++ requires a Product Authorization Key (PAK) be registered and
    loaded.  Answer the following question with YES if at least one PAK with
    the specified product name and a date equal to or later than the date
    shown is registered and loaded, otherwise answer NO.

        Product:      CXX-V,CXX-V-USER,CXX-V-G
        Producer:     DEC
        Version:      5.6
        Release Date: 2-NOV-1999

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

(continued on next page)

Example A–2 (Cont.) Sample *Compaq C++ for OpenVMS VAX* Installation

```
    This kit contains an Installation Verification Procedure
    (IVP) to  verify the correct  installation of the Compaq C++
    compiler.  The IVP will be placed in:

                SYS$TEST:CXX$IVP.COM

    After the installation is complete, you can invoke the
    command file at any time to reverify that Compaq C++ is
    installed and working correctly.

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

    All questions regarding the installation of Compaq C++ have been
    asked.  The installation will now continue for 10 to 40 minutes
    depending on your CPU type and the installation options you have chosen.

    Providing  command support and HELP files

    Providing compiler and message images

    Providing .h headers in DECC$LIBRARY_INCLUDE:

    Providing class library .h and .hxx headers in CXX$LIBRARY_INCLUDE:

    File selection portion of installation is completed.

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

(continued on next page)

Example A–2 (Cont.) Sample *Compaq C++ for OpenVMS VAX* Installation

```
    SYS$HELP:CXX056.RELEASE_NOTES                                   [new]
    SYS$HELP:CXX056_RELEASE_NOTES.PS                                [new]
    SYS$SYSTEM:CXX$COMPILER.EXE                                     [new]
    SYS$MESSAGE:CXX$MSG_SHR.EXE                                     [new]
    SYS$HELP:HELPLIB.HLB                                            [modified]
    SYS$COMMON:[SYSHLP.CXX$HELP]*.*                                 [new]
    SYS$LIBRARY:DCLTABLES.EXE                                       [modified]
    SYS$LIBRARY:DECC$RTLDEF.TLB                                     [new]
    DECC$LIBRARY_INCLUDE:*.H                                        [new]
    SYS$LIBRARY:DECC$RTLDEF_HXX.TLB                                 [new]
    SYS$LIBRARY:CXXL$DEF.TLB                                        [new]
    SYS$LIBRARY:CXXL$DEF_HXX.TLB                                    [new]
    CXX$LIBRARY_INCLUDE:*.H,*.HXX                                   [new]
    SYS$TEST:CXX$IVP.COM                                            [new]
    SYS$STARTUP:CCXX$STARTUP.COM                                    [new]
    SYS$HELP:CXX056.RELEASE_NOTES                                   [new]
    SYS$HELP:CXX056_RELEASE_NOTES.PS                                [new]
    SYS$SYSTEM:CXX$COMPILER.EXE                                     [new]
    SYS$MESSAGE:CXX$MSG_SHR.EXE                                     [new]
    SYS$SYSTEM:CXX$DEMANGLE.EXE                                     [new]
    SYS$SYSTEM:CXX$LINK.EXE                                         [new]
    SYS$SYSTEM:CXX$LINK_MSG.EXE                                     [new]
    SYS$HELP:HELPLIB.HLB                                            [modified]
    SYS$COMMON:[SYSHLP.CXX$HELP]*.*                                 [new]
    SYS$LIBRARY:DCLTABLES.EXE                                       [modified]
    SYS$LIBRARY:DECC$RTLDEF.TLB                                     [new]
    DECC$LIBRARY_INCLUDE:*.H                                        [new]
    SYS$LIBRARY:CXXL$DEF_H.TLB                                      [new]
    SYS$LIBRARY:CXXL$DEF_HXX.TLB                                    [new]
    CXX$LIBRARY_INCLUDE:*.H,*.HXX                                   [new]
    SYS$TEST:CXX$IVP.COM                                            [new]
    SYS$STARTUP:CCXX$STARTUP.COM                                    [new]
    SYS$LIBRARY:CXXL$ANSI_DEF.TLB                                   [new]
    SYS$LIBRARY:LIBCXXSTD.OLB                                       [new]
    SYS$LIBRARY:DECC$CRTL.OLB                                       [new]
    SYS$LIBRARY:DECC$CRTL.EXE                                       [new]
    SYS$LIBRARY:DECC$CRTL.README                                    [new]

    Please add the SYS$STARTUP:CCXX$STARTUP.COM to the system startup
    procedure (SYS$STARTUP:SYSTARTUP_V5.COM or SYSTARTUP_VMS.COM).

    To use Compaq C++ for OpenVMS VAX on other VAX nodes of a VMScluster,
    from a privileged account on each such node enter the command
    "$ @SYS$STARTUP:CCXX$STARTUP.COM".  This will install images and
    define system-wide logical names.

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

(continued on next page)

Example A–2 (Cont.) Sample *Compaq C++ for OpenVMS VAX* Installation

```
    Beginning Compaq C++ Combined Installation Verification Procedure

    Copyright (c) Digital Equipment Corporation, 1995, 1999.  All rights reserved.

    Restricted Rights: Use, duplication, or disclosure by the U.S.
    Government is subject to restrictions as set forth in subparagraph
    (c) (1) (ii) of DFARS 252.227-7013, or in FAR 52.227-19, or in FAR
    52.227-14 Alt. III, as applicable.

    This software is proprietary to and embodies the confidential
    technology of Digital Equipment Corporation. Possession, use, or
    copying of this software and media is authorized only pursuant to a
    valid written license from Digital or an authorized sublicensor.

    Test compiler operation and error messages...

    Test Class library headers...

    Test Class Library operation...

    Compaq C++ V6.2 Installation Verification Procedure completed successfully

 Installation of CXX V5.6 completed at 17:26

Enter the products to be processed from the next distribution volume set.
* Products: ^Z
        VMSINSTAL procedure done at 17:27
```

B

Files and Logical Names Installed on Your System

The *Compaq C++* 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 kit for the *Compaq C++* compiler includes a list of all the files created on your system when this product is installed.

B.2 Logical Names

Some or all of the following logical names are entered into the system logical name table when you install *Compaq C++ for OpenVMS VAX*. 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.

- CXX$LIBRARY
- CXX$LIBRARY_INCLUDE
- CXX$LIBRARY_SYSTEM
- DECC$LIBRARY
- DECC$LIBRARY_INCLUDE

C
Recovering from Errors

This appendix provides information to help you with failures or errors that might occur during product installation or product use.

C.1 Failures During *Compaq C++* Installation

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

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

```
%VMSINSTAL-E-INSFAIL, The installation of Compaq C++ for OpenVMS VAX
Version 5.6 has failed.
```

If the IVP fails, it displays these messages:

```
The Compaq C++ for OpenVMS VAX Version 5.6 Installation Verification
Procedure failed.

%VMSINSTAL-E-IVPFAIL, The IVP for Compaq C++ for OpenVMS VAX
Version 5.6 has failed.
```

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

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

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

For information on installation requirements, see Chapter 1.

C.2 Problems During *Compaq C++* Use

If you encounter a problem while using *Compaq C++*, see the *Release Notes*. If the problem is unresolved, report it to Compaq. Depending on the type of support you have and the nature of the problem, take one of the following actions:

- If you have a Software Product Services Support Agreement, contact your Compaq Customer Support Center (CSC), either by telephone or using the electronic means provided with your support agreement (such as DSNlink). The CSC provides telephone support for high-level advisory and remedial assistance. When you initially contact the CSC, please indicate the following:
  - The name (*OpenVMS Alpha*) and the version number of the operating system you are using
  - The product name (*Compaq C++*) and the version number of *Compaq C++* you are using
  - The hardware system you are using, such as a model number
  - A very brief description of the problem (one sentence if possible)
  - How critical the problem is

  When you submit information electronically or are speaking on the phone to the appropriate *Compaq C++* support specialist, you can provide more detailed information. The information should include the specific commands used to compile and link the program, the error messages displayed, and relevant detailed information (possibly including source program listings). Please attempt to narrow the cause of the problem to a specific module or lines of code.

  CSC personnel might ask for additional information, such as listings of any command files, INCLUDE and COPY files, relevant data files, and so forth. If the program is longer than 50 lines, submit a copy of it electronically or provide machine-readable media (floppy diskette or magnetic tape).

- If you want to comment on the *Compaq C++* documentation or if you should find errors in this manual, please send the manual title, order number, and your comments to the following address:

  `cxx_docs@zko.dec.com`