MACRO–64 Assembler for OpenVMS AXP Systems

Installation Guide

Order Number: AA–PT9LA–TE

November 1992

This document contains instructions for installing MACRO–64 Assembler for OpenVMS AXP Systems on the OpenVMS AXP operating system.

Revision/Update Information:	This is a new manual.
Software Version:	MACRO–64 Assembler for OpenVMS AXP Systems V1.0
Operating System and Version:	OpenVMS AXP Version 1.0

Digital Equipment Corporation
Maynard, Massachusetts

November 1992

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.

All Rights Reserved.

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

The following are trademarks of Digital Equipment Corporation: Alpha AXP, AXP, Digital, OpenVMS, OpenVMS AXP, PALcode, VAX, VAX DOCUMENT, VMS, and the DIGITAL logo.

The following are third-party trademarks: Ada® is a registered trademark of the U.S. Government, Ada Joint Program Office.

This document is available on CD-ROM.

This document was prepared using VAX DOCUMENT, Version 2.1.

Contents

Preface v

1 Preparing for MACRO–64 Installation

1.1 Required Operating System Components 1–1
1.2 Associated Software 1–1
1.2.1 Language-Sensitive Editor 1–2
1.3 License Registration 1–2
1.4 VMS Cluster Considerations 1–2
1.5 Installation Procedure Requirements 1–2
1.5.1 Privileges and Resources 1–3
1.5.1.1 Changing System Parameter Values with AUTOGEN . . . 1–4
1.5.2 Process Account Quotas 1–5
1.5.3 VMSINSTAL Requirements 1–6
1.5.4 Backing Up Your System Disk 1–7

2 Installing MACRO–64

2.1 The Installation Procedure 2–1
2.2 Error Recovery 2–7

3 After Installing MACRO–64

3.1 Running the Installation Verification Procedure Separately 3–1
3.2 Installing MACRO–64 on a VMS Cluster 3–1
3.3 User Account Requirements 3–2
3.4 Installing MACRO–64 as a Shared Image 3–2
3.5 Determining and Reporting Problems 3–3

A Sample Installation

A.1 Sample Installation A–1

B Files Installed on Your System

B.1 File Names B–1

Tables

1–1 Process Account Quotas for the Account Installation 1–5

Preface

Purpose of This Guide

This guide describes how to install the MACRO–64 Assembler for OpenVMS AXP Systems on AXP processors that are running the OpenVMS AXP operating system.

Keep this document with your distribution kit. You will need it to install maintenance updates or to reinstall the MACRO–64 for any other reason.

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

Intended Audience

The audience for this guide is the system manager who installs the MACRO–64 software.

Document Structure

This guide is organized as follows:

- Chapter 1 describes the operating system and hardware requirements for the MACRO–64 installation and related procedures that you complete before installing the MACRO–64.
- Chapter 2 describes the step-by-step instructions for the installation.
- Chapter 3 describes actions and considerations after the installation.
- Appendix A contains sample listings for the MACRO–64 installation.
- Appendix B describes files used by the MACRO–64.

Associated Documents

- *MACRO–64 Assembler for OpenVMS AXP Systems Reference Manual*
- *MACRO–64 Assembler for OpenVMS AXP Systems Release Notes*
- *Alpha AXP Architecture Reference Manual*
- *Alpha AXP Architecture Handbook*
- *Alpha AXP Architecture Quick Reference Guide*
- *OpenVMS Calling Standard*
- *OpenVMS License Management Utility Manual*
- *OpenVMS System Management Subkit*
- *OpenVMS System Messages and Recovery Procedures Reference Manual*

Conventions

The following conventions are used in this guide:

UPPERCASE TEXT	Uppercase text indicates a command, the name of a routine, the name of a file, or the abbreviation for a system privilege.
`$ @SYS$UPDATE:VMSINSTAL`	In interactive examples, user input is printed in boldface text.
$	The dollar sign is used to indicate the DCL prompt. This prompt may be different on your system.
. . .	A vertical ellipsis indicates the omission of items from a code example or command format; the items are omitted because they are not important to the topic being discussed.

file-spec, . . .	A horizontal ellipsis in examples indicates one of the following possibilities: • Additional optional arguments in a statement have been omitted. • The preceding item or items can be repeated one or more times. • Additional parameters, values, or other information can be entered.
[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.)
VMS, OpenVMS, OpenVMS AXP	The terms VMS, OpenVMS, and OpenVMS AXP refer to the same operating system.
MACRO–64	MACRO–64 refers to MACRO–64 Assembler for OpenVMS AXP Systems.

1
Preparing for MACRO–64 Installation

This chapter discusses the preparations and requirements necessary for installing the MACRO–64.

This manual applies to Version 1.0 of the MACRO–64 and all subsequent maintenance releases up to the next major product release.

Your bill of materials (BOM) specifies 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.

MACRO–64 provides online release notes. Digital strongly recommends that you read the release notes before proceeding with the installation. For information on accessing the online release notes, see Section 2.1.

1.1 Required Operating System Components

The OpenVMS AXP operating system comes with a variety of support options, or classes. To use MACRO–64, your system should be running a version of OpenVMS AXP that includes at minimum the following classes:

- OpenVMS saveset
- OpenVMS 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 Associated Software

This sections describes software used with the MACRO–64 assembler.

1.2.1 Language-Sensitive Editor

MACRO–64 does not require the Language-Sensitive Editor (LSE) to work properly. However, if you plan to use MACRO–64 with LSE, you must register and load the license PAK and install the LSE software prior to installing the MACRO–64 Assembler. Otherwise, the MACRO–64 installation procedure does not install the MACRO–64 language template for use with LSE.

1.3 License Registration

You must register and load your license for the MACRO–64 *before* you start the installation in order to run the Installation Verification Procedure (IVP) and use the software.

To register a license under OpenVMS AXP, 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.

If you plan to use MACRO–64 on more than one node in a VMS cluster, you will need to perform a license load on the other nodes after you complete this installation. For more information on how to install MACRO–64 on a VMS cluster, see Section 3.2.

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

1.4 VMS Cluster Considerations

To install MACRO–64 on each node of the cluster, your account must have the following privileges: OPER and CMKRNL

For more information on how to install MACRO–64 on a VMS cluster, see Section 3.2.

1.5 Installation Procedure Requirements

This section, and the following, discuss various requirements for installing MACRO–64.

The installation takes approximately 2 to 5 minutes using compact disc (CD) media.

1.5.1 Privileges and Resources

Before installing MACRO–64, your account must have the following privileges and system resources:

- SETPRV, or CMKRNL, WORLD, and SYSPRV privileges.
- At least 12,000 blocks of free disk space during the installation; of these, 10,000 blocks remain in use after the installation is complete.

  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
  ```

- At least 512K bytes of physical memory.
- At least 20 free global pagelets plus the size (in number of disk blocks) of the SYS$LIBRARY:DCLTABLES.EXE at installation.
- At least 2 free global sections at installation.

NOTE

You must ensure that your system has the necessary global pagelets and global section SYSGEN quotas for the installation. Failure to do so could cause the DCL tables to become corrupted in some situations. Note that VMSINSTAL turns off BYPASS privilege at the start of the installation.

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

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

To determine the size of SYS$LIBRARY:DCLTABLES.EXE, enter the following command:

```
$ directory/size sys$library:dcltables.exe
```

This command displays the following information:

```
Directory SYS$COMMON:[SYSLIB]

DCLTABLES.EXE;299       857

   Total of 1 file, 857 blocks.
```

During and after installation, MACRO–64 requires 20 global pagelets. In addition, the installation procedure updates SYS$LIBRARY:DCLTABLES.EXE and requires a free global pagelet for each disk block used by SYS$LIBRARY:DCLTABLES.EXE. In this example, the size of SYS$LIBRARY:DCLTABLES.EXE is 857 disk blocks. Thus, the total requirement for installation of MACRO–64 in this example is 20+857, or 1057. Because in this example there are 15,848 global pagelets free, there is no need to increase the number of global pagelets.

In addition, MACRO–64 requires two global sections both during and after installation. Because in this example there are currently 24 global sections free, there is no need to increase the number of global sections.

Section 1.5.1.1 describes the procedures for increasing these values using AUTOGEN.

1.5.1.1 Changing System Parameter Values with AUTOGEN

You can use the AUTOGEN command procedure to change system parameters if the number of free global pagelets (GBLPAGES) and global sections (GBLSECTS) determined in Section 1.5.1 is insufficient. AUTOGEN automatically adjusts values for parameters that are associated with the values you reset manually. To change system parameters with AUTOGEN, edit the following file:

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

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

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

```
WSMAX = 1024
```

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

```
ADD_GBLPAGES = 2000
```

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

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

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

When you specify REBOOT, AUTOGEN performs an automatic system shutdown and then reboots the system. Any users logged in to the system are immediately disconnected 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 *OpenVMS System Management Subkit*.

1.5.2 Process Account Quotas

The account you use to install MACRO–64 must have sufficient quotas to enable you to perform the installation. Since VMSINSTAL verifies these quotas, it is not necessary that you verify these quotas prior to installing MACRO–64. Table 1–1 summarizes the process quotas required for the installation account.

Table 1–1 Process Account Quotas for the Account Installation

Account Quota	Minimum Value
ASTLM	24
BIOLM	18
BYTLM	20,480
DIOLM	18
ENQLM	30
FILLM	20
PRCLM	Number required by user
WSDEF	300 pages minimum[1]

[1]The values for WSEXT and WSQUO must be equal to or greater than the WSDEF value (500-700 optimal).

User account quotas are stored in the file SYSUAF.DAT. You can use the OpenVMS AXP Authorize Utility (AUTHORIZE) to verify and change user

account quotas. To do this, 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=50
UAF> EXIT
```

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 description of the Authorize Utility in the *OpenVMS System Management Subkit*.

1.5.3 VMSINSTAL Requirements

When you invoke VMSINSTAL, it checks the following:

- Whether you have set your default device and directory to SYS$UPDATE
- Whether you are logged in to a privileged account
- Whether you have adequate quotas for installation, as shown in Table 1–1
- Whether DECnet is running
- Whether any users are logged in to the system

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

1.5.4 Backing Up Your System Disk

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

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

2
Installing MACRO–64

This chapter explains how to install MACRO–64. Section 2.1 contains a step-by-step description of the installation procedure.

2.1 The Installation Procedure

MACRO–64 installation procedure consists of a series of sequential questions and informational messages. See Appendix A for a sample installation.

If it is not already inserted, place the compact disk (CD) media into the CD 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.

1. Invoke VMSINSTAL.

   VMSINSTAL is in the SYS$UPDATE directory. To start the installation, invoke the VMSINSTAL command procedure from a privileged account, such as the SYSTEM account using the following syntax:

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

   The following list defines the elements of the VMSINSTAL command line:

   saveset-name
   The installation name for the component. For the Version 1.0 of MACRO–64, use the following installation name:

   ```
   ALPHA_MACRO64010
   ```

   Note the three digit version at the end of the saveset name (010). For updated versions, adjust the version accordingly. For example, to install MACRO–64 Version 1.1, you would enter ALPHA_MACRO64011.

device-name
The name of the device on which you plan to mount the media. For example, DUB1: is a device name for a drive. It is not necessary to use the console drive for this installation. However, if you do use the console drive, you should replace any media you removed once the installation is complete.

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

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

- Auto_answer option (A): Initially creates a file that contains your answers to 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.

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

The following example invokes VMSINSTAL to install MACRO–64 from drive DUB1: and shows the system response. This example uses the OPTIONS N release note parameter.

```
$ @SYS$UPDATE:VMSINSTAL ALPHA_MACRO64010 DUB1: OPTIONS N

  OpenVMS AXP Software Product Installation Procedure V1.0


It is 12-OCT-1992 at 14:10.
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. Confirm system backup.

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

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

3. Mount the media.

```
Please mount the first volume of the set on DUB1:.
* Are you ready? YES
%MOUNT-I-MOUNTED, CONDIST MOUNTED ON
                                    _$$DUB1:  (NODE 1)
The following products will be processed:
  ALPHA_MACRO64 V1.0

    Beginning installation of ALPHA_MACRO64 V1.0 at 14:15

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

When you receive the prompt to mount the first volume of the saveset, you should mount the distribution volume on the device you specified when you invoked VMSINSTAL. The device name appears in the line preceding the question. VMSINSTAL then asks if you are ready to continue with the installation.

If you respond YES to indicate that you are ready, VMSINSTAL displays a message that the media containing MACRO–64 has been mounted on the specified device and that the installation has begun.

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

4. Select a release notes option.

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

Additional Release Notes Options:

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

* Select option [2]:
```

If you 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:

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

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

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

If you select option 4, VMSINSTAL does not display or print the release notes. Note that VMSINSTAL always copies the release notes to the system help directory.

Next, VMSINSTAL displays the following question:

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

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

```
SYS$HELP:MACRO64010.RELEASE_NOTES
```

After the installation, you can enter the following command to locate the release notes through the help facility:

```
$ HELP MACRO/ALPHA 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 MACRO–64.

5. Purge files.

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

   You have the option to purge files from previous versions of MACRO–64 that are superseded by this installation. Purging is recommended; however, if you need to keep files from the previous version, enter NO in response to the question.

6. Choose the Installation Verification Procedure (IVP) option.

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

   The installation procedure now asks if you want to run the IVP. The IVP for MACRO–64 checks to be sure that the installation is successful. It is recommended that you run the IVP.

   After MACRO–64 is installed, you can run the IVP independently to verify that the software is available on your system. You might need to run the IVP after a system failure to make sure that users can access MACRO–64.

7. Respond to license registration queries.

```
Product:       MACRO64
Producer:      DEC
Version:       V1.0
Release Date:  dd-mmm-yyyy

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

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

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

8. Read informational messages.

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

```
No further questions will be asked.
Installation will take 2-5 minutes to complete.


%VMSINSTAL-I-SYSDIR, This product creates system directory
 [SYSTEST.MACRO64$IVP].

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

9. Observe the Installation Verification Procedure (IVP).

   If you chose to run the IVP, VMSINSTAL runs it now. If the IVP runs successfully, the following message is displayed:

```
%MACRO64$IVP-I-PASSED, MACRO-64 Assembler for OpenVMS AXP Systems V1.0
IVP has PASSED.
```

10. End the installation procedure.

```
   Installation of ALPHA_MACRO64010 V1.0 completed at 14:21

   VMSINSTAL procedure done at 14:22
```

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

    You can now log out of the privileged account:

```
$ LOGOUT
SYSTEM     logged out at 12-OCT-1992 14:25:12.01
```

    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 MACRO-64 Assembler for
 OpenVMS AXP Systems V1.0 has failed.
```

If the IVP fails, the following message is displayed:

```
MACRO64$IVP-F-FAILURE, MACRO-64 Assembler for OpenVMS AXP Systems V1.0
 IVP has failed.
```

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

- The operating system 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.
- The Language-Sensitive Editor (LSE) is not installed. If you choose to use LSE, it must be installed prior to installing MACRO–64. If you do not intend to use LSE, you may ignore this message.

For descriptions of the error messages generated by these conditions, see the *OpenVMS Systems Messages and Recovery Procedures Reference Manual*. 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 of this manual.

3
After Installing MACRO–64

The following tasks can be performed after installing MACRO–64:

- Running the Installation Verification Procedure separately.
- Making the product usable on a VMS cluster.
- Setting user account quotas.
- Reporting problems.

3.1 Running the Installation Verification Procedure Separately

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

```
$ @SYS$TEST:MACRO64$IVP.COM
```

If the IVP runs successfully, the following message will be displayed:

```
%MACRO64$IVP-I-PASSED, MACRO-64 Assembler for OpenVMS AXP Systems V1.0
 IVP has PASSED.
```

3.2 Installing MACRO–64 on a VMS Cluster

After installing MACRO–64 using VMSINSTAL, you can then install it on each node of the cluster. Perform the following steps.

1. Add the privileges OPER and CMKRNL for your process. Enter the following command:

   ```
   $ SET PROCESS/PRIVILEGE=(OPER,CMKRNL)
   ```

2. Invoke the System Management Utility. Set the environment to the entire cluster and allow 10 seconds or longer for the command to execute. Enter the following commands:

```
$ MCR SYSMAN
SYSMAN> SET ENVIRONMENT/CLUSTER
SYSMAN> SET TIMEOUT 00:00:10
```

3. Replace the DCL tables with the new copy on all nodes in the cluster. Enter the following command:

```
SYSMAN> DO INSTALL REPLACE SYS$LIBRARY:DCLTABLES.EXE
            /OPEN/HEADER/SHARE
```

4. Exit from the System Management Utility and reset the process privileges. Enter the following commands:

```
SYSMAN> EXIT
$ SET PROCESS/PRIVILEGE=(NOOPER,NOCMKRNL)
```

3.3 User Account Requirements

To use the MACRO–64, each account must have at least the TMPMBX and NETMBX privileges. Use the OpenVMS AXP Authorize Utility to determine whether users have the privileges they require.

3.4 Installing MACRO–64 as a Shared Image

If MACRO–64 will be used extensively on your system, you can reduce system overhead and memory requirements by installing it as a shared image. If you want to perform the installation on a system that is currently running, use the OpenVMS AXP Install Utility while you are logged in to a privileged account. If errors occur, see the *OpenVMS System Messages and Recovery Procedures Reference Manual*.

To install MACRO–64 as a shared image, perform the following steps:

1. Determine the number of available global pages and global sections on your system. See Section 1.5.1 for information on how to do this.

2. Invoke the OpenVMS AXP Install Utility and install MACRO-64 as a shared image, as follows:

```
$ INSTALL ADD SYS$SYSTEM:MACRO64.EXE /OPEN /SHARED
```

   If you wish to install MACRO–64 as a shared image on each node of a VMS cluster, you need to perform steps 3 through 6. If not, then proceed to step 7.

3. Add the privileges OPER and CMKRNL for your process. Enter the following command:

```
$ SET PROCESS/PRIVILEGE=(OPER,CMKRNL)
```

4. Invoke the System Management Utility. Set the environment to the entire cluster and allow 10 seconds or longer for the command to execute. Enter the following commands:

```
$ MCR SYSMAN
SYSMAN> SET ENVIRONMENT/CLUSTER
SYSMAN> SET TIMEOUT 00:00:10
```

5. Install MACRO–64 on all nodes in the cluster. Enter the following command:

```
SYSMAN> DO INSTALL ADD SYS$SYSTEM:MACRO64.EXE
            /OPEN/HEADER/SHARED
```

6. Exit from the System Management Utility and reset the process privileges. Enter the following commands:

```
SYSMAN> EXIT
$ SET PROCESS/PRIVILEGE=(NOOPER,NOCMKRNL)
```

7. Update the system start-up file to install MACRO–64.

   To insure that MACRO–64 is installed as a shared image each time the system is bootstrapped, include the following lines in the site-specific start-up file found in the SYS$MANAGER directory.

```
$ INSTALL ADD SYS$SYSTEM:MACRO64.EXE /OPEN /SHARED
```

3.5 Determining and Reporting Problems

If you encounter a problem while using MACRO–64, 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:

- If your software contract or warranty agreement entitles you to telephone support, call Digital.
- Submit a Software Performance Report (SPR).
- If the problem has to do with MACRO–64 documentation, fill out and submit a Reader's Comments form. There is a Reader's Comment form at the back of each manual. Use the form from the manual in which you found the error. Include the section and page number.

After Installing MACRO–64
3.5 Determining and Reporting Problems

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 previously indicated or follow alternate instructions provided by Digital for reporting SPD nonconformance problems.

See MACRO–64 Version 1.0 cover letter for information on how to submit an SPR.

A
Sample Installation

This appendix contains a sample installation of MACRO–64. This sample was run on a system that had a previous version of MACRO–64 installed. Depending on the version of OpenVMS AXP you are using and 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 has been shut down
- No users are logged in to your system
- OPTIONS N is specified
- The installation is not done from the SYSTEM account
- The Installation Verification Procedure (IVP) is executed at the end of the installation
- The logical name, MACRO64_KIT, is assigned to the device and the directory of the installation media.

A.1 Sample Installation

This a sample log file from a MACRO–64 installation.

```
$ @sys$update:vmsinstal alpha_macro64010 macro64_kit: options N

 OpenVMS AXP Software Product Installation Procedure V1.0

It is 24-AUG-1992 at 13:16.

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

%VMSINSTAL-W-NOTSYSTEM, You are not logged in to the SYSTEM
        account.

* Do you want to continue anyway [NO]? yes
* Are you satisfied with the backup of your system disk [YES]?

The following products will be processed:
```

A.1 Sample Installation

```
  ALPHA_MACRO64 V1.0

 Beginning installation of ALPHA_MACRO64 V1.0 at 13:16

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

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

    Additional Release Notes Options:

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

* Select option [2]: 4

* Do you want to continue the installation [NO]? yes
%VMSINSTAL-I-RELMOVED, Product's release notes have been
moved to SYS$HELP.

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

  This kit contains a file summarizing the new features, changes,
  restrictions, and compatibility issues in this release of
  MACRO-64.  This file is named MACRO64010.RELEASE_NOTES
  and will be placed in SYS$HELP:.

  The release notes contains information valuable to MACRO-64
  users.  Please inform MACRO-64 users of this file's
  existence.


  This kit also contains an Installation Verification Procedure (IVP)
  which can be used at any time to verify the installation of MACRO-64.
  You can invoke the IVP after installation with the following command:

      $ @SYS$TEST:MACRO64$IVP

  If you wish, you can also run the IVP automatically when the
  installation procedure completes.

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

        Product:      MACRO64
        Producer:     DEC
        Version:      1.0
        Release Date: dd-mmm-yyy

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

 No further questions will be asked.
 Installation will take 2-5 minutes to complete.
```

```
%VMSINSTAL-I-SYSDIR, This product creates system directory
[SYSTEST.MACRO64$IVP].
%CREATE-I-EXISTS, VMI$COMMON:[SYSTEST.MACRO64$IVP] already exists

The MACRO-64 installation procedure cannot install MACRO-64 language
support for use with the Language Sensitive Editor (LSE) because LSE is
not installed on your system.  If you want MACRO-64 language support for
use with LSE, you must:

   1.  Install LSE.
   2.  Re-install MACRO-64.

If you do not use LSE or you do not need MACRO-64 language
support for LSE, there is no problem with your installation
of MACRO-64.

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

%MACRO64-I-SUMMARY, Completed with 0 error(s), 0 warning(s), and
0 informational messages
%MACRO64$IVP-I-PASSED, MACRO-64 Assembler for OpenVMS AXP Systems V1.0
IVP has PASSED
 Installation of ALPHA_MACRO64 V1.0 completed at 13:17

    Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY

    Creating installation data file:
                VMI$ROOT:[SYSUPD]ALPHA_MACRO64010.VMI_DATA

 VMSINSTAL procedure done at 13:18


$ logout
  ASM          logged out at 24-AUG-1992 13:18:21.45
```

B

Files Installed on Your System

MACRO–64 installation procedure installs a number of files on your system. Section B.1 lists the files installed.

B.1 File Names

This section lists the names of all files created on your system when MACRO–64 is installed.

- SYS$SYSTEM:MACRO64.EXE

  MACRO–64 executable image.

- SYS$MESSAGE:MACRO$MSG.EXE

  MACRO–64 assembler messages.

- SYS$HELP:MACRO64010.RELEASE_NOTES

  MACRO–64 release notes.

- SYS$TEST:MACRO64$IVP.COM

  MACRO–64 Installation Verification Program command file.

- SYS$SYSROOT:[SYSTEST.MACRO64$IVP]MACRO64$IVP.M64

  MACRO–64 Installation Verification Program source file.

- SYS$SYSROOT:[SYSTEST.MACRO64$IVP]MACRO64$IVP.OBJ

  MACRO–64 Installation Verification Program object file.

- SYS$LIBRARY:MACRO64.MLB

  MACRO–64 library of supplied macros.

- SYS$EXAMPLES:MACRO64$HELLO.M64

  MACRO–64 example program.