VAX FORTRAN Installation Guide

August 1989

This manual contains instructions for installing VAX FORTRAN on the VMS operating system. It also explains how to display or print the online release notes before or after installing the product. This manual applies to VAX FORTRAN Version 5.4 and all future maintenance updates to that version.

(This online version of the Installation Guide is more current than the latest hardcopy version. Hardcopy versions are revised only when a new version of the product is issued (for example, Version 5.0) or when major changes to the installation procedure are made between point releases of the product (for example, between Version 5.2 and Version 5.3).)

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Preface

This manual describes how to install VAX FORTRAN on the VMS operating system.

This manual is intended for system managers. It applies to VAX FORTRAN Version 5.4 and all future maintenance updates to that version. A major version number is represented by the digits to the left of the decimal point, and the maintenance update version number is indicated by the digits to the right of the decimal point.

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

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

For more information about installing VAX FORTRAN on VMS systems, refer to your processor-specific installation/operations guide.

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

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

Preparing to Install VAX FORTRAN

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

Distribution media must be mounted in numerical order. The installation procedure prompts you to mount the volumes. For more information on how to mount distribution media, refer to your processor-specific installation/operations guide. This guide also details several options to the installation procedure.

Prerequisite Software

VAX FORTRAN Version 5.4 requires VMS Version 5.2 or higher.

The VMS operating system comes with a variety of support options, or classes. Classes include such features as networking and RMS journaling. To use VAX FORTRAN, your system should be running a version of VMS that includes the classes listed in the Software Support Addendum (SSA), which comes with the Software Product Description (SPD).

Accessing the Online Release Notes

VAX FORTRAN provides online release notes. The prompt to display or print the release notes before installation appears in step 5 of the installation procedure when you invoke VMSINSTAL with the OPTIONS N parameter.

To obtain the release notes after the installation, type or print the file SYS$HELP:FORT05n.RELEASE_NOTES, where n is the maintenance update number associated with your VAX FORTRAN distribution kit.

Online help also directs you to the release notes. After the installation, type the following DCL command:

```
$ HELP FORTRAN RELEASE_NOTES RETURN
```

Installation Procedure Requirements

Installing VAX FORTRAN should take approximately 5 minutes to 120 minutes, depending on the type of media, your system configuration, and the kit components chosen. Before starting the installation, you must have the following privileges and resources:

- SETPRV privilege, or CMKRNL, WORLD, and SYSPRV privileges.
- A minimum of 10,000 blocks of free disk space during the installation of the full VAX FORTRAN kit. (When the installation is completed, the installed software uses approximately 4650 blocks of disk space.) Disk space usage can be reduced by omitting certain components of VAX FORTRAN during installation. See the section Installing VAX FORTRAN for more information.

  Note that the space requirements specified in this installation guide may vary slightly from the amounts required for an actual installation. Refer to the messages printed out by the installation procedure for precise information on space requirements associated with the installation kit and its various components.
- The minimum number of free global pages and global sections depends on whether SYS$SYSTEM:FORTRAN.EXE was previously installed as a shared known image:
  - — If not previously installed as shared—1 global section and a sufficient number of contiguous free global pages to contain the file SYS$LIBRARY:DCLTABLES.EXE
  - — If previously installed as shared—2 global sections and approximately 600 contiguous free global pages plus a sufficient number of contiguous free global pages to contain the file SYS$LIBRARY:DCLTABLES.EXE

NOTE

You must ensure that your system has the necessary global page and global section SYSGEN quotas for the installation. Failure to do so could cause the DCL tables to be corrupted in some situations.

To determine the number of global pages required by SYS$LIBRARY:DCLTABLES.EXE, type the following DCL command:

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

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

To determine the number of contiguous free global pages and free global sections, type the following DCL commands:

```
$ WRITE SYS$OUTPUT F$GETSYI("CONTIG_GBLPAGES") RETURN
  12345
$ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLSECTS") RETURN
  12
```

If you do not have enough free global pages to install VAX FORTRAN, you can either delete an existing known image using the VMS Install Utility or increase the GBLPAGES system parameter using the VMS System Generation Utility (SYSGEN). Using the SYSGEN utility to increase the GBLPAGES parameter involves the following steps:

1. Editing the file SYS$SYSTEM:MODPARAMS.DAT
2. Invoking the AUTOGEN command procedure (SYS$UPDATE:AUTOGEN.COM)

For more information on using the AUTOGEN command procedure, refer to your processor-specific installation/operations guide.

If you do not have enough free global sections to install the compiler, you must make a sufficient number available by increasing the GBLSECTIONS system parameter. (You can increase the GBLSECTIONS system parameter using the same method used to increase the GBLPAGES system parameter.)

User Account Quotas

To use VAX FORTRAN, each account must have the following minimum quota requirements:

- AST limit (ASTLM) = 24
- Buffered I/O quota (BIOLM) = 18
- Buffered I/O byte count quota (BYTLM) = 18000
- Direct I/O quota (DIOLM) = 18
- Enqueue quota (ENQLM) = 30
- Open file limit (FILLM) = 20

Use the VMS Authorize Utility (AUTHORIZE) to compare the current values of these quotas with the requirements for VAX FORTRAN. For example, the account used in the following example is the SYSTEM account:

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

To change the values of these quotas, use the VMS Authorize Utility's MODIFY command. For more information, see the VMS Authorize Utility Manual.

VMS License Management Facility

The VMS License Management Facility (LMF) was incorporated in Version 5.0 of the VMS operating system. You must register your VAX FORTRAN software license with LMF when you install VAX FORTRAN.

The license registration information you need is contained in the Product Authorization Key (PAK) that is shipped with VAX FORTRAN. The PAK is a paper certificate that contains information about the license you have to run a particular piece of software.

During the installation, you are asked if you have registered the VAX FORTRAN license and loaded the appropriate authorization key. You must register and load your license for VAX FORTRAN *before* you start the installation in order to run the Installation Verification Procedure (IVP) and use the software.

To register a license, 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 Product Authorization Key (PAK).
- Issue the DCL command LICENSE REGISTER with the appropriate qualifiers that correspond to information on the PAK.

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

Using VMSINSTAL

After you log in to a privileged account, set the default directory to SYS$UPDATE: and then invoke VMSINSTAL, the command procedure that installs VAX FORTRAN. An example of this procedure is shown in steps 1 and 2 of the section Installing VAX FORTRAN.

The VMSINSTAL command procedure has the following syntax:

```
$ @VMSINSTAL FORT05n ddcu: [OPTIONS N] RETURN
```

n

Represents the maintenance update of VAX FORTRAN. Refer to the label on the VAX FORTRAN distribution kit or the VAX FORTRAN BOM or BIL for the maintenance update number of your kit.

ddcu:

Represents the name of the device on which the distribution volumes will be mounted for the VAX FORTRAN installation media, where *dd* is the device code, *c* is the controller code, and *u* is the unit number. It is not necessary to use the console drive to install VAX FORTRAN. If you do use the console drive, you should replace any media that you removed from the drive. CSA1: is the device name used in examples in this document. (Note that the device name CSA1: is not appropriate for the VAX 8600, 8650, or 8800.)

OPTIONS N

Is an optional parameter you should provide if you want to be prompted to display or print the release notes. If you do not include the OPTIONS N parameter, VMSINSTAL does not prompt you to display or print the release notes. Note that VMSINSTAL permits the use of several other options. For more information on these options, see your processor-specific installation/operations guide.

If you do not supply the first two parameters, VMSINSTAL prompts you for the product and device names. If you wish to be prompted for the product and device names and prompted to display or print the release notes, type the following:

```
$ @VMSINSTAL "" "" OPTIONS N RETURN
```

When you invoke VMSINSTAL, it checks the following:

- Whether you logged in to a privileged account. Digital 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 following quota values:

  ASTLM = 24
  BIOLM = 18
  BYTLM = 18000
  DIOLM = 18
  ENQLM = 30
  FILLM = 20

VMSINSTAL then checks to determine whether any users are logged in to the system. If users are logged in, you will be asked whether you want to continue the installation. If you want to continue, type YES. If you want to stop the installation, press RETURN.

Installing VAX FORTRAN

This section contains excerpts from the installation procedure and explains each step. Note that 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 returns you to DCL level. If you want to retry the installation procedure after pressing CTRL/Y, you must proceed from step 2.

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

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

Step 2: Invoke VMSINSTAL.

```
$ @VMSINSTAL FORT05n CSA1: OPTIONS N RETURN

      VAX/VMS Software Product Installation Procedure VX.X


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.

Step 3: Insert the first installation kit volume.

```
Please mount the first volume of the set on CSA1:.
* Are you ready? YES RETURN
The following products will be processed:

  FORT V5.n


    Beginning installation of FORT V5.n at hh:mm

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

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

Step 4: Insert the subsequent installation kit volumes.

```
%BACKUP-I-READYREAD, mount volume 2 on _CSA1: for reading

Enter "YES" when ready: YES RETURN
```

VMSINSTAL prompts you to insert the next volume and waits for you to type YES after inserting it. If you type NO, VMSINSTAL displays the prompt again. This prompt is displayed only if your installation kit contains more than one volume.

Step 5: Select a release notes option.

This step applies only if you specified OPTIONS N in step 2. (The OPTIONS N parameter is described in the section Using VMSINSTAL.)

```
    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]: RETURN
```

The effects of these options are as follows:

- If you select option 1, VMSINSTAL displays the release notes immediately on your screen. You can terminate the display at any time by pressing CTRL/C.
- If you select option 2, VMSINSTAL prompts you for a queue name.

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

  Either type a queue name or press RETURN to send the file to the default output print device.
- If you select option 3, VMSINSTAL displays and prints the release notes.
- If you select option 4, VMSINSTAL does not print or display the release notes in this step.

Next, VMSINSTAL displays the following prompt:

```
Do you want to continue the installation [NO]?: YES RETURN
%VMSINSTAL-I-RELMOVED, The product's 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 and press RETURN, VMSINSTAL discontinues the installation.

If you continue the installation, VMSINSTAL always copies the release notes to SYS$HELP, regardless of which release notes option you select.

NOTE

The version of the release notes file copied by VMSINSTAL is labeled with the current product name and version number.

Take care not to delete the release notes for previous versions of VAX FORTRAN.

Step 6: Select installation options.

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

The directories SYS$HELP, SYS$LIBRARY, SYS$MESSAGE, SYS$SYSTEM, SYS$TEST, and VUE$LIBRARY may contain previous versions of VAX FORTRAN 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 to purge the files or type NO to keep them.

The installation procedure allows you to select the components of the kit that you want to install. The choices are as follows:

- VAX FORTRAN compiler
- VAX FORTRAN help files
- System definition file, FORSYSDEF.TLB
- DECwindows Compiler Interface

The installation procedure gives you information about the space requirements of each component as well as the number of disk blocks available on your system.

Select the components you wish to install by answering YES or NO to the following questions. If you want a more detailed description of any component, type a question mark (?). After the explanation is displayed, you will be prompted again for a response.

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

If you do not want to install the VAX FORTRAN compiler, type NO. If you type NO, skip to the question on installing VAX FORTRAN help. If you type YES, continue with the next question.

```
* Do you want to install the command and language help [YES]? RETURN
```

If you have enough space, we suggest that you always install the larger version of VAX FORTRAN online help, which provides help for both the FORTRAN command line and the VAX FORTRAN language.

```
* Do you want to build a new FORSYSDEF.TLB [YES]? RETURN
```

SYS$LIBRARY:FORSYSDEF.TLB is a library of VMS system interface definitions that can be used by FORTRAN programs. FORSYSDEF.TLB is built from a master set of definitions that is provided with VMS, and contains declarations of VMS system services, Run-Time Library routines, structures, and constants.

Because FORSYSDEF.TLB is generated from VMS definitions, you do not need to rebuild it unless this is a new installation or you have installed a new version of VMS since the last time you installed VAX FORTRAN. (The installation procedure will make a recommendation on whether FORSYSDEF.TLB should be rebuilt.)

If you type YES, the installation procedure builds a new system definition file, FORSYSDEF.TLB, based on the system definitions for the version of VMS being installed on.

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

The DECwindows Compiler Interface (DWCI) for VAX FORTRAN allows you to use a window-style interface to select compiler options when you compile a FORTRAN program. See the VAX FORTRAN Release Notes for more information on DWCI.

The DWCI option requires that the FileView directories [VUE$LIBRARY.SYSTEM] and [VUE$LIBRARY.USER] be present on the target disk. For more information on FileView, see the *VMS DECwindows User's Guide*.

The installation procedure then displays the components you have selected and issues the following prompt:

```
* Is this correct [YES]? RETURN
```

If you type NO, the installation procedure reissues the prompts for selecting components.

Step 7: Respond to License Registration Queries.

VAX FORTRAN supports the VMS License Management Facility (LMF). The installation procedure displays license information about your product and then asks if you have registered and loaded your authorization key for VAX FORTRAN. The following is an example of such information:

```
     Product:      FORTRAN
     Producer:     DEC
     Version:      5.n
     Release Date: dd-mmm-yyyy

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

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

Step 8: Respond to prompt controlling Installation Verification Procedure.

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

The Installation Verification Procedure (IVP) runs several tests to check whether the installation procedure was successful. Press RETURN to run the IVP after the installation. If you do not want to run the IVP, type NO in response to the prompt.

Step 9: Read informational messages.

The VAX FORTRAN installation procedure produces informational messages that report on the progress of the installation.

```
All questions  regarding the installation of VAX FORTRAN
have been asked. Depending upon your configuration, time
estimates for the installation(s) have been provided.

VAX FORTRAN compiler:   1  to  10 minutes
FORTRAN HELP:           1  to  15 minutes
FORSYSDEF.TLB:          5  to  30 minutes
DWCI support:           1  to  2 minutes


+-----------------------------------------------------+
|       Installing the VAX FORTRAN V5 Compiler        |
+-----------------------------------------------------+
```

```
+-----------------------------------------------------+
|              Installing VAX FORTRAN HELP            |
+-----------------------------------------------------+

+-----------------------------------------------------+
|              Installing FORSYSDEF.TLB               |
+-----------------------------------------------------+

+-----------------------------------------------------+
|       Installing DECwindows Compiler Interface      |
+-----------------------------------------------------+
```

If the installation procedure is successful, the new and modified files are moved to their target directories and the following messages are displayed:

```
Your  VMS  system  will now be updated  to  include  the
 following new and modified file(s):

 SYS$HELP:FORT05n.RELEASE_NOTES                  [new]
 SYS$SYSTEM:FORTRAN.EXE                          [new]
 SYS$MESSAGE:FORTERR1.EXE                        [new]
 SYS$MESSAGE:FORTERR2.EXE                        [new]
 SYS$LIBRARY:FORTV5CLD.CLD                       [new]
 SYS$LIBRARY:DCLTABLES.EXE                       [modified]
 SYS$TEST:FORTRAN$IVP.COM                        [new]
 SYS$HELP:HELPLIB.HLB                            [modified]
 SYS$LIBRARY:FORSYSDEF.TLB                       [new]
 VUE$LIBRARY:FORTRAN$DWCI.EXE                    [new]
 VUE$LIBRARY:FORTRAN$DWCI.UID                    [new]
 VUE$LIBRARY:VUE$COMPILE.COM                     [new]
 SYS$HELP:FORTRAN$DWCI.HLB                       [new]
```

The SYS$HELP:HELPLIB.HLB and SYS$LIBRARY:DCLTABLES.EXE files are updated to include the new versions of the VAX FORTRAN help text and the FORTRAN command line definition.

Also, if you typed YES in response to the prompt that requests a file purge at step 6, previous versions of the VAX FORTRAN files are now purged.

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

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

Step 10: Observe the Installation Verification Procedure

If you chose to run the IVP in step 8, VMSINSTAL now invokes the IVP to verify that VAX FORTRAN was installed successfully.

```
Beginning VAX FORTRAN Installation Verification Procedure

Compiler image identification is FORT V5.n-eee

Test compiler operation and error messages...

Compile, link, and run program with parallel processing features...

Test FORSYSDEF.TLB system definitions...

Test I/O and Run-Time Library operation...
```

If VAX FORTRAN was installed successfully, the IVP displays the following:

```
VAX FORTRAN V5.n-eee TEST PASSED

End of VAX FORTRAN Installation Verification Procedure
```

Step 11: End the installation procedure.

```
   Installation of VAX FORTRAN V5.n completed at hh:mm

   VMSINSTAL procedure done at hh:mm

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

When the installation is complete, you can choose to install more products or to log out (as shown here). If you removed any media from the console drive before beginning the installation, you should replace it now.

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.

Installing VAX FORTRAN on a VAXcluster

If you want to run VAX FORTRAN on multiple nodes of a VAXcluster, first check to see that you have the appropriate software license. Then, perform the following steps after you install VAX FORTRAN:

1. Issue the LICENSE LOAD command to activate the license on each node in the VAXcluster on which VAX FORTRAN is to be executed as described in the *VMS License Management Utility Manual*.
2. Determine whether FORTRAN.EXE was installed using the VMS Install Utility (as described in the section Installing VAX FORTRAN as a Shared Image). If INSTALL was used, perform all of the following steps. If INSTALL was not used, omit step 4b.
3. Log in to a node on the cluster.
4. Run the VMS Install Utility as described in the section Installing VAX FORTRAN as a Shared Image, with the following exceptions:
   a. After invoking the VMS Install Utility, type the following command:

      ```
      INSTALL> REPLACE SYS$LIBRARY:DCLTABLES.EXE RETURN
      ```

      This command updates the DCL tables.
   b. Then, if FORTRAN.EXE was installed using the Install Utility, type the following command:

      ```
      INSTALL> REPLACE SYS$SYSTEM:FORTRAN.EXE RETURN
      ```

      This command replaces the INSTALL entry for FORTRAN.EXE.
5. Repeat steps 3 and 4 for each node of the cluster.

After the Installation

VAX FORTRAN is now installed and can be invoked by all users with the FORTRAN command.

The installation procedure modifies the DCL command table so that the FORTRAN 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 FORTRAN command must log out and log in again.

If VAX FORTRAN will be used extensively on your system, you can reduce system overhead and memory requirements by installing it as a shared image using the VMS Install Utility. For more information, see the section Installing VAX FORTRAN as a Shared Image.

Running the Installation Verification Procedure Separately

The Installation Verification Procedure (IVP) is usually run at installation. If you want to run the IVP separately—for example, to ensure the integrity of installed files when system problems occur—execute the following command procedure:

```
$ @SYS$TEST:FORTRAN$IVP.COM. RETURN
```

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

```
VAX FORTRAN VERSION 5 TEST FAILED
```

Error Conditions

If the installation procedure fails for any reason, the following message is displayed:

```
%VMSINSTAL-E-INSFAIL, The installation of VAX FORTRAN V5.n has failed.
```

An error during the installation can occur if one or more of the following conditions exist:

- Operating system version is incorrect.
- Quotas necessary for successful installation are sufficient (see the section Installation Procedure Requirements).
- Process quotas required by VMSINSTAL are incorrect (see the section Using VMSINSTAL).
- The VMS help library is currently in use.
- The product was registered incorrectly or not registered.

For descriptions of the error messages generated by these conditions, see the *VMS System Messages and Recovery Procedures Reference Volume*, your processor-specific installation/operations guide, or the *VMS License Management Utility Manual*.

If you are notified that any of these conditions exist, you should take the appropriate action as described in the message. You may need to change a system parameter or increase an authorized quota value. For information on requirements, see the material provided in the section Installation Procedure Requirements and the section Using VMSINSTAL.

If the installation fails, you must restart the installation procedure from step 2. If the installation fails due to an IVP failure, contact a Digital field service representative.

Installing VAX FORTRAN as a Shared Image

If VAX FORTRAN will be used extensively on your system, you can reduce the system overhead and memory requirements by installing it as a shared image. To perform the installation on a system that is currently running, use the VMS Install Utility while you are logged in to a privileged account. If errors occur, see your processor-specific installation/operations guide.

You should perform the following steps on a system that has just been bootstrapped because the available space in the global page table is less likely to be fragmented. If errors occur, see the *VMS System Messages and Recovery Procedures Reference Volume*.

First, determine the number of available global pages and global sections on your system. See the section Installation Procedure Requirements for information on how to do this.

Then, invoke the VMS Install Utility and install VAX FORTRAN as a shared image by typing the following commands:

```
$ INSTALL RETURN
INSTALL> ADD SYS$SYSTEM:FORTRAN.EXE/OPEN/SHARED/HEADER_RESIDENT RETURN
INSTALL> EXIT RETURN
```

Then, update the system startup file to install VAX FORTRAN.

To ensure that VAX FORTRAN is installed as a shared image each time the system is bootstrapped, include the following lines in SYS$MANAGER:SYSTARTUP_V5.COM (the site-specific startup file):

```
$ INSTALL
ADD SYS$SYSTEM:FORTRAN.EXE/OPEN/SHARED/HEADER_RESIDENT
EXIT
```

In addition, if you are installing the VAX FORTRAN compiler with privileges, then all shareable images used must also be installed. The shareable images include the callable interface to the VAX Common Data Dictionary (CDD), CDDSHR.EXE, and the two message files, FORTERR1.EXE and FORTERR2.EXE. This is a VMS security feature that prevents a user from activating a private (noninstalled) image with privileges. Likewise, if your system already has the callable interface

to the VAX Common Data Dictionary, CDDSHR.EXE, installed as a protected image, then the two message files FORTERR1.EXE and FORTERR2.EXE must be installed as well.

To install the message files, use the following commands:

```
$ INSTALL RETURN
INSTALL> ADD SYS$MESSAGE:FORTERR1.EXE RETURN
INSTALL> ADD SYS$MESSAGE:FORTERR2.EXE RETURN
INSTALL> EXIT RETURN
```

Maintenance Updates

Digital may periodically issue maintenance updates of VAX FORTRAN. Each update consists of an installation kit. You should install this kit as described in this manual or in any documentation that may accompany the maintenance update.

Each time a maintenance update is released, the version number changes. For example, if the current version is 5.3, the version number of the next maintenance update will be 5.4. In addition, the maintenance update includes new release notes. The release notes describe the changes that have been made to VAX FORTRAN since the previous release.

VAX FORTRAN provides release notes for each maintenance update. You should read the release notes before you install VAX FORTRAN. For information on accessing the release notes before VAX FORTRAN is installed, follow the installation procedure through step 5. The release notes are also accessible at any time after the product is installed. To access the release notes after VAX FORTRAN is installed, display or print the file SYS$HELP:FORT05n.RELEASE_NOTES.

Updating FORSYSDEF

As with the previous major version of VAX FORTRAN (Version 4), the mechanism for building FORSYSDEF.TLB for Version 5 is to process the master description of some of the system definition modules from STARLETSD.TLB during each installation. STARLETSD.TLB is shipped with all VMS releases.

FORSYSDEF.TLB should be built during the initial VAX FORTRAN installation on a system. It does not need to be installed with succeeding VAX FORTRAN updates, but should be installed after a VMS update is performed on the system. In this way, the FORSYSDEF modules are automatically updated to reflect any changes to the VMS system definitions in a release of VMS.

The installation process allows the FORSYSDEF.TLB component of the compiler kit to be installed separately.

Determining and Reporting Problems

If an error occurs while you are using VAX FORTRAN and you believe that the error is caused by a problem with VAX FORTRAN, take one of the following actions:

- If you purchased VAX FORTRAN within the past 90 days and you think the problem is caused by a software error, you can submit a Software Performance Report (SPR).
- If you have a Basic or DECsupport Software Agreement, you should call your Customer Support Center. With these services, you receive telephone support that provides high-level advisory and remedial assistance. For more information, contact your local Digital representative.
- If you have a Self-Maintenance Software Agreement, you can submit a Software Performance Report (SPR).

If you find an error in the VAX FORTRAN documentation, you should fill out and submit a Reader's Comments form from the back of the manual in which the error was found. Include the section and page number where the error was found.

Sample Installation

This section contains a sample installation of each of the components on the VAX FORTRAN kit. Note that this is only a sample. Sometimes the installation procedure is modified in maintenance updates of this product. Because this installation guide is not usually revised for maintenance updates, be sure to read the *Read Before Installing or Using VAX FORTRAN* letter before you install this product. This letter

notes any significant changes in the installation that vary from this sample.

Sample VAX FORTRAN Installation:

```
$ @sys$update:vmsinstal fort054 mua0: options n

        VAX/VMS Software Product Installation Procedure V5.3


It is 5-DEC-1989 at 11:59.

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

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

Please mount the first volume of the set on  MUA0:.
* Are you ready? y
%MOUNT-I-MOUNTED, FORT mounted on _MUA0:
The following products will be processed:

  FORT V5.4

        Beginning installation of FORT V5.4 at 12:01

%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]? y
%VMSINSTAL-I-RELMOVED , The product's release notes have been successfully
moved to SYS$HELP.

                        VAX FORTRAN V5.4

  Copyright © Digital Equipment Corporation. 1978, 1989.  All rights reserved.


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

    The VAX FORTRAN kit is provided as a set of components from which
    you may select those you wish to install. For each component listed
    below, a peak disk block usage and a net disk block usage is shown.
    Peak usage is the number of blocks that must be available for installation.
    Net usage is the number of blocks that remain after installation.
```

```
      Component                       Peak blocks          Net blocks
      ------------------------------------------------------------------
      Base kit (required)               2000                  200
      Compiler, messages, IVP            600                  750
      FORTRAN command help               200                   50
      FORTRAN language help             1200                  600
      FORSYSDEF.TLB                     6700                 2700
      DECwindows Compiler Interface        0                  350

      Complete kit                     10000                 4650
      (Peak block usage for complete kit is less than sum of components,
      due to overlap in disk usage.)

    There are currently 36755 disk blocks available.

    Please select the components you wish to install by answering YES or NO
    to the following questions.  If you want a more detailed description of
    any component, answer with a question mark "?"; after the explanation is
    displayed, you will be prompted again for a response.

* Do you want to install the compiler [YES]? yes
* Do you want to install both the command and language help [YES]? yes

    FORSYSDEF.TLB, which provides VMS interface definitions for
    FORTRAN applications, is not present and therefore should be
    created.  For more information on FORSYSDEF.TLB, enter a
    question mark "?" at the following prompt.

* Do you want to create a new FORSYSDEF.TLB [YES]? yes
* Do you want to install the DECwindows Compiler Interface [YES]? yes

    You have selected the following components:
      Compiler
      Command and language help
      FORSYSDEF.TLB
      DECwindows Compiler Interface

* Is this correct [YES]? yes


       Product:      FORTRAN
       Producer:     DEC
       Version:      5.4
       Release Date: 1-AUG-1989


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

    This kit contains an Installation Verification Procedure
    (IVP) to  verify  the  correct  installation of the  VAX
    FORTRAN compiler.  The IVP will be left in:
                SYS$TEST:FORTRAN$IVP.COM.
    After the  installation is  complete, you can invoke the
    command file at any time to reverify that VAX FORTRAN is
    installed and working correctly.

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

```
    All questions  regarding the installation of VAX FORTRAN
    have now been asked.  Depending upon your configuration,
    time estimates for the installation(s) have been provided.

    VAX FORTRAN compiler:   1  to  10 minutes
    FORTRAN HELP:           1  to  15 minutes
    FORSYSDEF.TLB:          5  to  30 minutes
    DWCI support            1  to  2  minutes

    +-----------------------------------------------------+
    |       Installing the VAX FORTRAN Compiler           |
    +-----------------------------------------------------+

    +-----------------------------------------------------+
    |              Installing VAX FORTRAN HELP            |
    +-----------------------------------------------------+

    +-----------------------------------------------------+
    |             Installing FORSYSDEF.TLB                |
    +-----------------------------------------------------+

    +-----------------------------------------------------+
    |       Installing DECwindows Compiler Interface      |
    +-----------------------------------------------------+

    Your  VMS  system  will now be updated  to  include  the
    following new and modified file(s):

    SYS$HELP:FORT054.RELEASE_NOTES      [new]
    SYS$SYSTEM:FORTRAN.EXE              [new]
    SYS$MESSAGE:FORTERR1.EXE            [new]
    SYS$MESSAGE:FORTERR2.EXE            [new]
    SYS$LIBRARY:FORTV5CLD.CLD           [new]
    SYS$LIBRARY:DCLTABLES.EXE           [modified]
    SYS$TEST:FORTRAN$IVP.COM            [new]
    SYS$LIBRARY:FORSYSDEF.TLB           [new]
    SYS$HELP:HELPLIB.HLB                [modified]
    VUE$LIBRARY:FORTRAN$DWCI.EXE        [new]
    VUE$LIBRARY:FORTRAN$DWCI.UID        [new]
    VUE$LIBRARY:VUE$COMPILE.COM         [new]
    SYS$HELP:FORTRAN$DWCI.HLB           [new]
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...

    Beginning VAX FORTRAN Installation Verification Procedure

    Compiler image identification is FORT V5.4-79

    Test compiler operation and error messages...

    Compile, link and run program with parallel processing features...

    Test FORSYSDEF.TLB system definitions...
```

```
Test I/O and Run-Time Library operation...
VAX FORTRAN V5.4-79 IVP PASSED
End of VAX FORTRAN Installation Verification Procedure
    Installation of FORT V5.4 completed at 12:12
    VMSINSTAL procedure done at 12:12
```