VAX FORTRAN Installation Guide

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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 5.0 and all maintenance updates throughout that version.

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Preface

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

It also describes how to install DEBUG MP, the configuration of the VMS Debugger that supports multiprocess debugging.

This manual is intended for system managers. It applies to VAX FORTRAN Version 5.0 and all maintenance updates in 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 you should type during the installation process 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.

VAX FORTRAN Version 5.0 requires VMS Version 5.0–1 or higher.

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:FORT050.RELEASE_NOTES. Online help also directs you to the release notes. After the installation, enter the following DCL command:

```
$ HELP FORTRAN RELEASE_NOTES RETURN
```

Installation Procedure Requirements

VAX FORTRAN installation should take approximately 5 minutes to 120 minutes, depending on the type of media, your system configuration, and kit components chosen. Installing DEBUG MP should take approximately 5 minutes to 4 hours. Before starting the installation you must have the following privileges and resources:

- SETPRV privileges, or CMKRNL, WORLD, and SYSPRV privileges.
- A minimum of 9000 blocks of free disk space during the installation of the VAX FORTRAN kit. (When the installation is completed, the installed software uses approximately 4000 blocks of disk space.)

- A minimum of 4000 blocks of free disk space during the installation of the DEBUG MP kit. (When the installation is completed, the installed software uses approximately 3000 blocks of disk space.)
- A sufficient number of contiguous free global pages to contain the file SYS$LIBRARY:DCLTABLES.EXE.
- Approximately 600 contiguous free global pages and one global section if you are installing the VAX FORTRAN compiler as a shared known image.
- Approximately 210 contiguous free global pages and 5 global sections when the DEBUG MP kit is installed. Three components of the DEBUG MP kit must be installed as shared known images.

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 available global pages on your system, you can use the VMS Install Utility:

```
$ INSTALL RETURN
INSTALL> LIST/GLOBAL/SUMMARY RETURN
        Summary of Local Memory Global Sections
 315 Global Sections Used,  26170/13830 Global Pages Used/Unused
INSTALL> EXIT RETURN
```

When you issue these commands, the system displays a summary of the number of global sections used, the number of global pages used, and the number of global pages unused. To exit from the VMS Install Utility, enter the EXIT command.

VAX FORTRAN requires approximately 600 contiguous global pages and the debugger requires approximately 210 contiguous global pages. If there are fewer than 810 unused global pages and you are installing the compiler and the debugger, you can delete an existing known image with the VMS Install Utility, or you can increase the GBLPAGES system parameter with the VMS System Generation Utility (SYSGEN) by editing the file SYS$SYSTEM:MODPARAMS.DAT and then invoking the AUTOGEN command procedure (SYS$UPDATE:AUTOGEN.COM). For more information on using the AUTOGEN command procedure, refer to your processor-specific installation/operations guide.

You can determine the number of available global sections by invoking SYSGEN as follows:

```
$ RUN SYS$SYSTEM:SYSGEN [RETURN]
SYSGEN> USE CURRENT [RETURN]
SYSGEN> SHOW GBLSECTIONS [RETURN]
SYSGEN> EXIT [RETURN]
```

The first number displayed is the current number of global sections. Compare this to the number of global sections in use (as displayed by the VMS Install Utility). VAX FORTRAN requires 1 global section and the debugger requires 5 global sections. Therefore, if the number displayed plus 6 exceeds the current number of global sections, you must increase the number of available global sections before you can install VAX FORTRAN and DEBUG MP. To increase the number, you must increase the GBLSECTIONS system parameter with SYSGEN by editing the file SYS$SYSTEM:MODPARAMS.DAT and then invoking the SYS$UPDATE:AUTOGEN.COM procedure. For more information on the AUTOGEN.COM procedure, refer to your processor-specific installation/operations guide.

If the number displayed plus 6 is less than the system maximum, you can exit from SYSGEN and continue.

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*.

Special Requirements

VAX FORTRAN Version 5.0 requires VMS Version 5.0–1 or higher.

Before you install VAX FORTRAN, you must register the product using the Product Authorization Key (PAK) provided in the VAX FORTRAN kit. See the *VMS License Management Utility Manual* for registration instructions.

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.

```
$ SET DEFAULT SYS$UPDATE RETURN
$ @VMSINSTAL FORTO5n ddn: [OPTIONS N] RETURN
```

The command parameters are described in the next paragraphs. 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, enter the following:

```
$ @SYS$UPDATE:VMSINSTAL "" "" 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.

ddn:

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 and *n* is the unit number. It is not necessary to use the console drive to install VAX FORTRAN. If you use the console drive, you should replace any media you removed from the drive. CSA1: is the device name used in examples in this manual. (Note that the device name CSA1: is not appropriate for the VAX 8600 or 8650.)

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, refer to your processor-specific installation/operations guide.

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 whether the following conditions exist. If so, discontinue the conditions before resuming the installation procedure.

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

If VMSINSTAL detects either of these conditions, you will be asked whether you want to continue the installation. If you want to continue, enter 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 FORTO5n 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.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
* Do you want to continue anyway [NO]? YES  RETURN
* 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, enter 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, enter 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 enter YES after inserting it. If you enter 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 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]: 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. When you have finished, VMSINSTAL copies the release notes to SYS$HELP.
- If you select option 2, VMSINSTAL prompts you for a queue name.

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

  Either enter a queue name or press RETURN to send the file to the default output print device. When printing has finished, VMSINSTAL copies the release notes to SYS$HELP.
- If you select option 3, VMSINSTAL displays the release notes, prints them, and then copies them to SYS$HELP.
- If you select option 4, VMSINSTAL copies the release notes to SYS$HELP, but does not print or display them.
- If you select option 5, VMSINSTAL does not print, display, or copy the release notes in this step. However, the release notes will be copied to SYS$HELP later during the installation procedure.

Next, VMSINSTAL displays the following prompt:

```
Do you want to continue the installation [NO]?: YES RETURN
%VMSINSTAL-I-RELMOVED, The products release notes have been
                       successfully moved to SYS$HELP.
```

NOTE

This version of the release notes file installed 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.

If you want to continue the installation, enter YES and press RETURN. If you enter NO and press RETURN, VMSINSTAL discontinues the installation.

Step 6: Respond to licensing prompt.

```
    Product:      FORTRAN
    Producer:     DEC
    Version:      5.n
    Release Date: 20-JUN-1988

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

This prompt refers to the Product Authorization Key (PAK) provided in the FORTRAN kit. You must verify that VAX FORTRAN has been registered correctly. If you have registered VAX FORTRAN using the PAK, enter YES and press the RETURN key. If you have not, enter NO or press RETURN, and the installation will be discontinued. See the *VMS License Management Utility Manual* for registration instructions.

Step 7: 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, and SYS$TEST 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 enter 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:

1. The VAX FORTRAN compiler
2. The VAX FORTRAN help file
3. The system definition file, FORSYSDEF.TLB

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

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

```
* 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, enter NO in response to the prompt.

The next option concerns the installation of the VAX FORTRAN help files. If you have enough space, we suggest that you always install the large version of VAX FORTRAN online help.

```
* Do you want to install FORTRAN help [YES]? RETURN

        This kit contains two separate help files, a large
        version (approximately 650 blocks) including information
        on FORTRAN language features, and a smaller version
        (approximately 50 blocks) describing only the FORTRAN
        command.

* Do you want to install the larger version of FORTRAN help [YES]? RETURN
```

The next option concerns the building of the system definition file, FORSYSDEF.TLB.

```
        In order to build your FORSYSDEF library, this procedure
        requires at least 8000 blocks of available disk space,
        most of which is used for temporary work files. The
        FORSYSDEF library itself will take approximately 2500
        blocks of disk space upon completion of this procedure
        and will be placed in your SYS$LIBRARY area.

                                NOTE

        Before installing FORSYSDEF, read the information in the
        section Updating FORSYSDEF in the installation guide.
        It explains when a new FORSYSDEF should be built.

* Do you want to build a new FORSYSDEF.TLB [NO]?YES RETURN
```

If you enter 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.

Step 8: 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:   3  to  10 minutes
        FORSYSDEF.TLB:          10 to 60 minutes
        FORTRAN help:           1  to  15 minutes
```

```
%VMSINSTAL-I-SYSDIR, This product creates system disk
                     directory VMI$ROOT:[SYSTEST.FORTRAN].

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

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

        +-----------------------------------------------------+
        |              Installing VAX FORTRAN Help            |
        +-----------------------------------------------------+
```

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$HELP:FORT050.RELEASE_NOTES                  [new]
SYS$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$HELP:FORTRANFIXES050.MEM                    [new]
SYS$SYSROOT:[SYSTEST.FORTRAN]FORTRAN$IVP.COM    [new]
SYS$LIBRARY:FORSYSDEF.TLB                       [new]
SYS$SYSROOT:[SYSTEST.FORTRAN]FORSYSDEFTST.COM   [new]
SYS$HELP:HELPLIB.HLB                            [modified]
```

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

Also, if you entered YES in response to the prompt that requests a file purge (step 7), 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 9: The Installation Verification Procedure.

If you chose to run the IVP in step 7, VMSINSTAL now invokes the IVP to verify that VAX FORTRAN was successfully installed.

```
+-----------------------------------------------------+
|          Verification Command Procedure for         |
|                      VAX FORTRAN                    |
+-----------------------------------------------------+
```

If VAX FORTRAN has been successfully installed, the IVP displays the following message:

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

Step 10: 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 product 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 DEBUG MP

This section contains excerpts from the installation procedure for the DEBUGMP kit provided with VAX FORTRAN Version 5.0 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 then 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 DEBUGMP05n 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.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
* Do you want to continue anyway [NO]? YES  RETURN
* 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, enter 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:

  DEBUGMP V5.n


    Beginning installation of DEBUGMP V5.n at hh:mm

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

To indicate that you want to continue the installation, mount volume 1, enter 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 enter YES after inserting it. If you enter 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 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]: 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. When you have finished, VMSINSTAL copies the release notes to SYS$HELP.
- If you select option 2, VMSINSTAL prompts you for a queue name.

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

  Either enter a queue name or press RETURN to send the file to the default output print device. When printing has finished, VMSINSTAL copies the release notes to SYS$HELP.
- If you select option 3, VMSINSTAL displays the release notes, prints them, and then copies them to SYS$HELP.
- If you select option 4, VMSINSTAL copies the release notes to SYS$HELP, but does not print or display them.
- If you select option 5, VMSINSTAL does not print, display, or copy 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 products release notes have been
                       successfully moved to SYS$HELP.
```

NOTE

This version of the release notes file installed by VMSINSTAL is labeled with the current product name and version number. Take care not to delete the release notes for previous versions of the debugger.

If you want to continue the installation, enter YES and press the RETURN key. If you enter NO or press the RETURN key, VMSINSTAL discontinues the installation.

Step 6: Select installation options.

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

The directories SYS$HELP, SYS$LIBRARY, SYS$MESSAGE, and SYS$MANAGER may contain previous versions of debugger 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 enter NO to keep them.

Step 7: Read informational messages.

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 modified to include the
following new and modified files:

SYS$LIBRARY:DEBUG.EXE              [new]
SYS$LIBRARY:DEBUGSHR.EXE           [new]
SYS$MESSAGE:DBGTBKMSG.EXE          [new]
SYS$HELP:DBG$HELP.HLB              [new]
SYS$MANAGER:DEBUGSTART.COM         [new]
SYS$HELP:DEBUG050MP.RELEASE_NOTES [new]

If your VAX is part of a VAXcluster, you *must* manually
invoke the file SYS$MANAGER:DEBUGSTART.COM on all the member
nodes of your VAXcluster, after this installation completes.

It will use the INSTALL utility to make the new images known
to the system on each node. This is done automatically by
VMSINSTAL on your local VAX. If you fail to do this, DEBUG and
TRACE will not operate properly. You should also add these
commands to SYS$MANAGER:SYSTARTUP.COM if they are not already
there.

The file DEBUGSTART.COM contains the following commands:

$ INSTALL:=$SYS$SYSTEM:INSTALL/COMMAND
$ INSTALL
REPLACE/OPEN/HEADER/SHARED   SYS$LIBRARY:DEBUG.EXE
REPLACE/OPEN/HEADER/SHARED   SYS$LIBRARY:DEBUGSHR.EXE
REPLACE/OPEN/HEADER/SHARED   SYS$LIBRARY:DBGTBKMSG.EXE
EXIT
```

If you entered YES in response to the prompt that requests a file purge, previous versions of debugger 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 8: Verify successful installation.

The installation procedure now invokes the Installation Verification Procedure (IVP) to verify that DEBUG MP was successfully installed. If DEBUG MP was successfully installed, the IVP displays the following message:

```
Beginning DEBUG IVP

     ************************************************************
     *                                                          *
     *   I N S T A L L A T I O N   V E R I F I C A T I O N      *
     *                                                          *
     *    P R O C E D U R E  h a s  S u c c e e d e d  !        *
     *                                                          *
     ************************************************************
```

Step 9: End the installation procedure.

```
   Installation of DEBUGMP 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 product installation is complete, you can choose to install more products or 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.

If you performed the installation on a cluster common system disk and you will not be rebooting the cluster after completing the installation, you must invoke the file SYS$MANAGER:DEBUGSTART.COM on each node of the cluster.

NOTE

An appendix in the *VAX FORTRAN User Manual* provides important information on tuning your system for DEBUG MP.

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.

To ensure that the debugger will operate properly, check that DEBUGSTART.COM is invoked by SYS$MANAGER:SYSTARTUP_V5.COM. If it is not already invoked by the site-specific startup procedure, edit SYS$MANAGER:SYSTARTUP_V5.COM to invoke DEBUGSTART.COM.

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.

Installing VAX FORTRAN on a VAXcluster

If you want to run VAX FORTRAN or the multiple-processor debugger on multiple nodes of a VAXcluster, first check to see whether you have the appropriate software license. Then, perform the following steps after you install VAX FORTRAN and DEBUG MP:

1. Run SYS$MANAGER:DEBUGSTART.COM on each node of the cluster.
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 Installing VAX FORTRAN as a Shared Image, with the following exceptions:
   a. After invoking the VMS Install Utility, enter the following command at the INSTALL> prompt:

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

      This command updates the DCL tables.

b. Then, if FORTRAN.EXE was installed using the INSTALL utility, enter the following command at the INSTALL> prompt:

```
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.

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:

```
$ @SYS$SYSROOT:[SYSTEST.FORTRAN]FORTRAN$IVP.COM. [RETURN]
```

If the IVP fails for any reason, the following messages are 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 (see the section Installation Procedure Requirements) are insufficient.
- Process quotas required by VMSINSTAL (see the section Using VMSINSTAL) are incorrect.
- 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, refer to 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, as follows:

```
$ 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 meant as a security feature in VMS to prevent 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.

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 5.0, the version number of the first maintenance update will be 5.1. 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 reading 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 locate 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 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 that 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.

The sample installation shown here is divided into two segments:

- A sample VAX FORTRAN installation
- A sample DEBUG MP installation

Sample VAX FORTRAN Installation:

```
$ @vmsinstal FORT050 SYS$UPDATE OPTIONS N

        VAX/VMS Software Product Installation Procedure V5.0

It is 6-JUN-1988 at 22:03.
Enter a question mark (?) at any time for help.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
* 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:

  FORT V5.0

        Beginning installation of FORT V5.0 at 22:03

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

    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]:
* Queue name [SYS$PRINT]:
Job FORT050 (queue xxx_PRINT, entry nnn) started on node_LPA0

* Do you want to continue the installation? YES

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

        Product:      FORTRAN
        Producer:     DEC
        Version:      5.0
        Release Date: 1-FEB-1988

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

* Do you want to purge files replaced by this installation [YES]?
* Do you want to install the VAX FORTRAN compiler [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$SYSROOT:[SYSTEST.FORTRAN]FORTRAN$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]?
```

```
        This kit contains a file summarizing the new features,
        changes, restrictions, and compatibility issues in this
        release of VAX FORTRAN.  The name of this file is
        FORT050.RELEASE_NOTES and it is placed in SYS$HELP:.

        This file contains information valuable to VAX FORTRAN
        programmers.  Please inform your user community of this
        file's existence.

* Do you want to install FORTRAN help [YES]?

        This kit contains two separate HELP files, a large
        version (approximately 650 blocks) including information
        on FORTRAN language features, and a smaller version
        (approximately 50 blocks) describing only the FORTRAN
        command.

* Do you want to install the larger version of FORTRAN help [YES]?

        In order to build your FORSYSDEF library, this procedure
        requires at least 8000 blocks of available disk space,
        most of which is used for temporary work files.  The
        FORSYSDEF library itself will take approximately 2500
        blocks of disk space upon completion of this procedure
        and will be placed in your SYS$LIBRARY area.

                                NOTE

        Before installing FORSYSDEF, read the information in the
        section Updating FORSYSDEF in the installation guide.
        It explains when a new FORSYSDEF should be built.

* Do you want to build a new FORSYSDEF.TLB [NO]? 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:   3  to  10 minutes
        FORSYSDEF.TLB:          10 to  60 minutes
        FORTRAN HELP:           1  to  15 minutes

%VMSINSTAL-I-SYSDIR, This product creates system disk
                     directory  VMI$ROOT:[SYSTEST.FORTRAN].

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


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


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

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

        SYS$HELP:FORTO50.RELEASE_NOTES                  [new]
        SYS$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$SYSROOT:[SYSTEST.FORTRAN]FORTRAN$IVP.COM    [new]
        SYS$LIBRARY:FORSYSDEF.TLB                       [new]
        SYS$SYSROOT:[SYSTEST.FORTRAN]FORSYSDEFTST.COM   [new]
        SYS$HELP:HELPLIB.HLB                            [modified]

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

        +-------------------------------------------------------+
        |           Verification Command Procedure for          |
        |                      VAX FORTRAN                      |
        +-------------------------------------------------------+

VAX FORTRAN T5.0-48 TEST PASSED
        Installation of FORT V5.0 completed at 22:22

        VMSINSTAL procedure done at 22:22
```

Sample DEBUG MP Installation:

```
$ @vmsinstal DEBUGMPO50 SYS$UPDATE OPTIONS N

        VAX/VMS Software Product Installation Procedure V5.0

It is 6-JUN-1988 at 22:23.
Enter a question mark (?) at any time for help.
%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
* 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:

  DEBUGMP V5.0

        Beginning installation of DEBUGMP V5.0 at 22:23

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

    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]:
* Queue name [SYS$PRINT]:
Job DEBUG050MP (queue xxx_PRINT, entry nnn) started on node_LPA0
* Do you want to continue the installation? YES
%VMSINSTAL-I-RELMOVED , The product's release notes have been
                        successfully moved to SYS$HELP.
* Do you want to purge files replaced by this installation [YES]?

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

    SYS$LIBRARY:DEBUG.EXE              [new]
    SYS$LIBRARY:DEBUGSHR.EXE           [new]
    SYS$LIBRARY:TRACE.EXE              [new]
    SYS$MESSAGE:DBGTBKMSG.EXE          [new]
    SYS$HELP:DBG$HELP.HLB              [new]
    SYS$MANAGER:DEBUGSTART.COM         [new]
    SYS$HELP:DEBUG050MP.RELEASE_NOTES [new]


    If your VAX is part of a VAXcluster, you *must* manually
    invoke the file SYS$MANAGER:DEBUGSTART.COM on all the member
    nodes of your VAXcluster, after this installation completes.

    It will use the INSTALL utility to make the new images known
    to the system on each node. This is done automatically by
    VMSINSTAL on your local VAX. If you fail to do this, DEBUG and
    TRACE will not operate properly. You should also add these
    commands to SYS$MANAGER:SYSTARTUP.COM if they are not already
    there.

    The file DEBUGSTART.COM contains the following commands:

    $ INSTALL:=$SYS$SYSTEM:INSTALL/COMMAND
    $ INSTALL
    REPLACE/OPEN/HEADER/SHARED  SYS$LIBRARY:DEBUG.EXE
    REPLACE/OPEN/HEADER/SHARED  SYS$LIBRARY:DEBUGSHR.EXE
    REPLACE/OPEN/HEADER/SHARED  SYS$MESSAGE:DBGTBKMSG.EXE
    REPLACE/OPEN/HEADER/SHARED  SYS$LIBRARY:TRACE.EXE
    EXIT

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

Beginning DEBUG IVP

     ************************************************************
     *                                                          *
     *    I N S T A L L A T I O N    V E R I F I C A T I O N    *
     *                                                          *
     *     P R O C E D U R E   h a s   S u c c e e d e d !      *
     *                                                          *
     ************************************************************

        Installation of DEBUGMP V5.0 completed at 22:28
        VMSINSTAL procedure done at 22:29
```

Reader's Comments

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AA–H953F–TE

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Thank you for your assistance.

I rate this manual's:	Excellent	Good	Fair	Poor
Accuracy (software works as manual says)	☐	☐	☐	☐
Completeness (enough information)	☐	☐	☐	☐
Clarity (easy to understand)	☐	☐	☐	☐
Organization (structure of subject matter)	☐	☐	☐	☐
Figures (useful)	☐	☐	☐	☐
Examples (useful)	☐	☐	☐	☐
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Organization (structure of subject matter)	☐	☐	☐	☐
Figures (useful)	☐	☐	☐	☐
Examples (useful)	☐	☐	☐	☐
Index (ability to find topic)	☐	☐	☐	☐
Page layout (easy to find information)	☐	☐	☐	☐

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