Digital Extended Math Library for VMS Installation Guide

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This document contains instructions for installing the Digital Extended Math Library for VMS on VAX processors running the VMS operating system. It also explains how to read the online release notes before or after installing the product.

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Contents

PREFACE vii

CHAPTER 1 PREPARING TO INSTALL DXML 1–1

1.1 PREREQUISITE HARDWARE 1–1

1.2 PREREQUISITE SOFTWARE 1–2

1.3 OPTIONAL HARDWARE 1–2

1.4 INSTALLATION TIME 1–2

1.5 VAX LICENSE MANAGEMENT FACILITY (LMF) 1–2

1.6 SYSTEM REQUIREMENTS 1–3
- **1.6.1 Privileges** 1–3
- **1.6.2 Disk Space** 1–4
- **1.6.3 System Parameters** 1–5
  - 1.6.3.1 Checking System Parameter Values • 1–6
  - 1.6.3.2 Calculating the Values for GBLPAGES and GBLSECTIONS • 1–6
  - 1.6.3.3 Changing System Parameter Values with AUTOGEN • 1–7
  - 1.6.3.4 Setting Dynamic System Parameter Values • 1–8
- **1.6.4 Process Account Quotas** 1–9
- **1.6.5 VMSINSTAL Requirements** 1–10

1.7 BACKING UP YOUR SYSTEM DISK 1–10

CHAPTER 2 INSTALLING DXML 2–1

2.1 THE INSTALLATION PROCEDURE 2–1

2.2 ERROR RECOVERY 2–8

CHAPTER 3 AFTER INSTALLING DXML 3–1

3.1 RUNNING THE INSTALLATION VERIFICATION PROCEDURE SEPARATELY 3–1

3.2 EDITING THE SYSTEM STARTUP FILE 3–2

3.3 INSTALLING DXML ON A VAXcluster 3–2

3.4 TRANSFER VECTOR TEST PROGRAMS 3–3

CHAPTER 4 SOLVING DXML PROBLEMS 4–1

4.1 REPORTING PROBLEMS TO DIGITAL 4–1

4.2 SUPPORTING INFORMATION YOU WILL NEED 4–2

APPENDIX A FILES INSTALLED A–1

APPENDIX B SAMPLE INSTALLATION B–1

INDEX Index–1

TABLES

1–1 Required Privileges 1–4
1–2 Disk Space Requirements 1–4
1–3 Minimum Required System Parameter Values 1–5
1–4 Required Dynamic Parameter Values 1–8
1–5 Process Account Quotas for the Installing Account 1–9

Preface

This manual describes how to install the Digital Extended Math Library for VMS (DXML) on VAX processors running the VMS operating system.

Before the installation of DXML, you can print the *DXML Online Release Notes*. Also, during the installation, the *DXML Online Release Notes* are transferred from the installation kit to your system.

NOTE

All DXML installers should read the release notes before installing the product. All application developers should read the release notes before using the product. The release notes contain important information about the product that you need to know.

Intended Audience

This manual is intended for anyone who is responsible for any of the following tasks:

- Planning the installation of DXML and preparing your system
- Installing DXML
- Changing your system by adjusting parameters, startup files, and privileges required for running DXML

To install the software, you must

- Be familiar with VMSINSTAL, the command procedure used to install software products in the VMS environment. To locate the description of VMSINSTAL, see the master index of the VMS documentation set.
- Have access to the SYSTEM account on your machine or to an account with the user privilege SETPRV.

If you are responsible for installing DXML on your system, read this entire manual before you begin the installation. This manual helps you understand the procedures necessary for installing DXML.

Operating System Information

Information about the operating system and related software that is compatible with this version of DXML is included in Chapter 1 of this manual. This information is also available in the DXML media kit or the *Read Before Installing DXML Letter*.

For information on the compatibility of other software products with this version of DXML, refer to the System Support Addendum (SSA) that comes with the Software Product Description (SPD). You can use the SPD and SSA to verify which versions of your operating system are compatible with this version of DXML.

Structure of This Manual

This manual includes four chapters and two appendixes:

- Chapter 1, Preparing to Install DXML, explains how to plan the installation and prepare your system for the installation.
- Chapter 2, Installing DXML, explains how to install the software.
- Chapter 3, After Installing DXML, explains how to change your VMS system by adjusting the characteristics required for running DXML.
- Chapter 4, Solving DXML Problems, explains how to detect, solve, and report problems you might encounter after installing DXML.
- Appendix A, Files Installed, lists the files transferred by the installation of DXML.
- Appendix B, Sample Installation, presents the log of a sample installation of DXML.

Associated Documents

For more information about DXML, refer to the following documents:

- *Guide to the Digital Extended Math Library* — Describes DXML and its use, and is a reference for the subprograms in the library.
- *DXML Online Release Notes* — The online release notes describe problems and workarounds for this version of DXML.

For more information on certain topics covered in this manual, refer to the following manuals:

- *Guide to VAX/VMS Software Installation*
- *VAX/VMS System Manager's Reference Manual*
- *Guide to Networking on VAX/VMS*

Conventions Used in This Manual

This manual uses the following conventions:

Convention	Meaning
Ctrl/x	The slash in the key name indicates that you press the two keys simultaneously. In this sequence, hold down the Ctrl key and then press the character key.
. . .	Vertical ellipses in an example indicate that irrelevant information has been omitted.
$	The dollar sign is used to indicate the DCL prompt, which can differ on your system.

Chapter 1

Preparing to Install DXML

Chapter 1 discusses the preparations and requirements necessary for installing DXML.

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

NOTE

DXML 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 Prerequisite Hardware

DXML runs on most VAX, MicroVAX, VAXstation, and VAXserver processors. For a complete list of supported processors, see the *DXML System Support Addendum*.

DXML does not run on the VAX–11/725, VAX–11/782, MicroVAX I, VAXstation I, and VAXstation 8000 processors.

Installing DXML requires at least 4 megabytes of memory on your VAX system. DXML applications provide better response if given additional memory.

1.2 Prerequisite Software

DXML requires VMS Version 5.4 or higher. VMS Version 5.4 includes the VAX Vector Instruction Emulator Facility (VVIEF), which enables the execution of vector instructions on a scalar VAX processor.

To compile, link, and run a DXML application program written in a high-level language, you need the programming language compiler and a linker.

The System Support Addendum (SSA) contains a complete list of prerequisite software and required version numbers.

1.3 Optional Hardware

DXML supports the vector processing hardware on both the VAX 9000 and the VAX 6000 Model 400 processors. These processors execute vector instructions quickly.

Applications that are linked with the DXML vector libraries run less efficiently on scalar VAX processors because VVIEF executes vector instructions more slowly.

1.4 Installation Time

The installation takes less than 10 minutes, depending on your type of media and your system configuration.

Installing DXML and running the Installation Verification Procedure (IVP) on a standalone VAXstation 3500 system takes 5 minutes.

1.5 VAX License Management Facility (LMF)

Before you install and run DXML Version 1.0 on a newly-licensed node or cluster, you must first register a License Product Authorization Key (License PAK) using the License Management Facility (LMF). The License PAK may be shipped along with the kit if you ordered the license and media together; otherwise, it is shipped separately to a location based on your license order. If you are installing DXML as an

update on a node or cluster already licensed for this software, you have already completed the License PAK registration requirements.

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

To register a license under VMS, first log in to the system manager's account, SYSTEM. You then have a choice of two ways to perform the registration:

- Invoke the SYS$UPDATE:VMSLICENSE.COM procedure. When it prompts you for information, respond with data from your License PAK.
- At the DCL prompt, enter the LICENSE REGISTER command with the appropriate qualifiers that correspond to License PAK information.

If you plan to use DXML on more than one node in a VAXcluster, you will need to load the license on the other nodes after you complete this installation. See Section 3.3.

1.6 System Requirements

There are a number of system requirements necessary for installing DXML: certain privileges, disk storage space, specific system parameters, process account quotas, and VMSINSTAL requirements.

1.6.1 Privileges

The account you use to install DXML must have the user privilege SETPRV. As one of the first actions, the VMSINSTAL command procedure grants all privileges (except BYPASS) to the process that invokes it. This command succeeds only if the account has SETPRV.

On most systems, the SYSTEM account has SETPRV and is used to install software. The procedures described in this installation guide refer to the SYSTEM account, but they are the same for any account with SETPRV.

Before you start the VMSINSTAL command procedure, you might need to prepare your system for the installation. For example, you might have to run SYSGEN or AUTHORIZE. Some of these preparations require that your account have specific user privileges, which might not be among default privileges assigned to your account.

Table 1–1 shows you what privileges you need for various installation tasks.

Table 1–1: Required Privileges

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

To check the privileges of the installing account, use the SHOW PROCESS/PRIVILEGES command. If the SYSTEM account does not have the privileges listed in Table 1–1, use AUTHORIZE to grant them permanently or SET PROCESS/PRIVILEGES to grant them for this installation.

1.6.2 Disk Space

DXML's requirements for free disk storage space are the same both during and after installation. Table 1–2 summarizes the storage requirements.

Table 1–2: Disk Space Requirements

Blocks During Installation	Blocks After Installation
55700	55700

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

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

1.6.3 System Parameters

Installing DXML requires the default system parameter settings. Table 1–3 lists the minimum required system parameter values for the installation.

Table 1–3: Minimum Required System Parameter Values

System Parameter	Minimum Value
CLISYMTBL	250
GBLPAGES	10000
GBLPAGFIL	1024
GBLSECTIONS	250
LOCKIDTBL	200
LOCKIDTBL_MAX	65535
RESHASHTBL	64
VIRTUALPAGECNT	8192

The values listed for the GBLPAGES and GBLSECTIONS parameters represent the number of free global pages and global sections required for the installation. These values are the default system values for VMS. These values are not the total number you need to run your system and other software.

The following sections show you how to:

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

1.6.3.1 Checking System Parameter Values

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

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

At the SYSGEN> prompt, enter the SHOW command to display the value of a system parameter. The values displayed should equal or exceed the value of each system parameter listed in Table 1–3. The following example displays the value for the VIRTUALPAGECNT system parameter:

```
SYSGEN>  SHOW VIRTUALPAGECNT
```

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

1.6.3.2 Calculating the Values for GBLPAGES and GBLSECTIONS

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

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

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

If the values displayed by the system are greater than the values in Table 1–3, you do not need to increase the values for these parameters. If the value of free global pages or global sections is less than the value in Table 1–3, you must increase the system parameter setting.

To display a summary of global section and global page usage on the system, for local and shared memory global sections, you can also use the following INSTALL command:

```
$  INSTALL LIST/GLOBAL/SUMMARY
```

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

1.6.3.3 Changing System Parameter Values with AUTOGEN

Use the AUTOGEN command procedure to change system parameters. AUTOGEN automatically adjusts values for parameters that are associated with the values you reset manually. To change system parameters with AUTOGEN, edit the following file:

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

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

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

```
VIRTUALPAGECNT = 19000
```

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

```
ADD_GBLPAGES = 2000
```

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

After you make 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 on to the system are immediately disconnected during the shutdown. The automatic reboot puts the new parameter values into effect.

The AUTOGEN Utility automatically adjusts some of the SYSGEN parameters based on the consumption of resources since the last reboot. If you do not want to take advantage of this automatic adjustment, include the NOFEEDBACK qualifier on the AUTOGEN command line.

For more information about using AUTOGEN, see the VMS System Management Subkit.

1.6.3.4 Setting Dynamic System Parameter Values

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

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

DXML requires the following default dynamic parameter values:

Table 1–4: Required Dynamic Parameter Values

Dynamic Parameter	Value
CLISYMTBL	250
LOCKIDTBL	200

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

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

1.6.4 Process Account Quotas

The account you use to install DXML must have sufficient quotas to enable you to perform the installation. Table 1–5 shows the process quotas required for the installing account. Except for PGFLQUOTA, all the process quotas are the default values.

Table 1–5: Process Account Quotas for the Installing Account

Account Quota	Minimum for DXML
BYTLM	32768
ENQLM	200
FILLM	40
WSQUOTA	512
WSEXTENT	2048
PGFLQUOTA	48000

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

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

At the UAF> prompt, enter the SHOW command with an account name to check a particular account. For example:

```
UAF>  SHOW OCONNOR
```

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

```
UAF>  MODIFY OCONNOR /FILLM=60
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 VMS System Management Subkit.

1.6.5 VMSINSTAL Requirements

When you invoke VMSINSTAL, it checks whether you have done the following:

- Set your default device and directory to SYS$UPDATE
- Logged in to a privileged account
- Set adequate quotas for installation

VMSINSTAL also checks to see whether DECnet is running and whether any users are logged in to the system.

Note that VMSINSTAL requires that the installation account have a minimum of the following quotas:

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

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

1.7 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 VMS System Management Subkit.

Chapter 2

Installing DXML

Chapter 2 explains how to install the Digital Extended Math Library for VMS. Section 2.1 contains a step-by-step description of the installation procedure.

2.1 The Installation Procedure

The VMSINSTAL command procedure is used when you install software that runs on the VMS operating system. The VMSINSTAL command procedure moves the software from the distribution media to your system disk.

The DXML installation procedure consists of a series of questions and informational messages. See Appendix B for a sample installation.

To abort the installation procedure at any time, press Ctrl/y. When you press Ctrl/y, the installation procedure deletes all files it has created up to that point and exits. You can then start the installation again.

To install DXML Version 1.0 on your VMS system, take the following steps:

1. **Run VMSINSTAL.**

   To start the installation, run the VMSINSTAL command procedure from a privileged account, such as the SYSTEM account. VMSINSTAL is in the SYS$UPDATE directory.

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

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

save-set-name
The save-set name for DXML is DXML010.

device-name
The name of the device on which you plan to mount the media.

For example, MTA0: is the device name for a tape drive. It is not necessary to use the console drive for this installation. However, if you do use the console drive, you should replace any media you removed once the installation is complete.

OPTIONS N
An optional parameter that causes VMSINSTAL to prompt you about the release notes later in the installation procedure.

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 VMSINSTALL questions and prompts. You can then use the option (and the answer file) to save time during a reinstallation (typically after upgrading your system).
- Get save set option (G): Lets you store product save sets temporarily on a magnetic tape or in a disk directory.
- File log option (L): Logs all activity to the terminal during installation.
- Alternate root option (R): Lets you install the product to a system root other than that of the running system.

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

The following example invokes VMSINSTAL to install DXML from tape drive MTA0: and shows the system response. This example uses the OPTIONS N release note parameter.

```
$  @SYS$UPDATE:VMSINSTAL DXML010 MTA0: OPTIONS N

        VAX/VMS Software Product Installation Procedure V5.4


It is 01-AUG-1990 at 13:15.
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.**

   VMSINSTAL asks if you are satisfied with your system backup.

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

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

3. **Mount the media.**

   VMSINSTAL prompts you to mount the distribution volume on the device you specified when you invoked VMSINSTAL. You should now mount the distribution volume. VMSINSTAL then asks you if you are ready to continue with the installation.

   ```
   Please mount the first volume of the set on MTA0:.
   * Are you ready?  YES
   ```

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

```
%MOUNT-I-MOUNTED, DXML MOUNTED ON MTA0:.
The following products will be processed:
  DXML V1.0

        Beginning installation of DXML V1.0 at 13:15

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

If you entered the wrong device name when you invoked VMSINSTAL and need to restart the installation, type 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.**

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

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

Additional Release Notes Options:

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

* Select option [2]:
```

   If you select option 1, VMSINSTAL displays the release notes immediately on the console terminal. You can terminate the display at any time by pressing Ctrl/c.

   If you select option 2, VMSINSTAL prompts you for the name of the print queue that you want to use:

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

   You can press 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.

Select option 4 if you have already reviewed the release notes and are restarting the installation.

Next, VMSINSTAL displays the following question:

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

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

```
SYS$HELP:DXML010.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 DXML.

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

   The installation procedure now asks if you want to run the IVP after the installation is finished. The IVP for DXML checks to ensure that the installation is successful.

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

   It is recommended that you choose to run the IVP after the installation. After DXML is installed, you can also 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 DXML. See Section 3.1 for more information.

6. **Purge files.**

   You now have the option to purge files from previous versions of DXML that are superseded by this installation.

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

   Purging is recommended; however, if you need to keep files from the previous version, type No in response to the question.

7. **Respond to license registration queries.**

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

```
Product:       EXT-MATH-LIB
Producer:      DEC
Version:       1.0
Release Date:  23-AUG-1990

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

   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.

   If you have registered and loaded your PAK, answer Yes to this question. VMSINSTAL then tells you that there are no more questions.

```
All questions have been answered. No more questions will be asked.
```

8. **Check any system requirements error messages.**

   VMSINSTAL now performs several checks of system requirements:

   - The number of blocks available on your system disk.
   - The VMS version your system is running.
   - The current value of process quotas.
   - The current value of system parameters.

   If any system requirement does not meet the minimum value, VMSINSTAL aborts the installation. You must correct the problem and begin again at step 1.

9. **Read informational messages.**

   At this point, the installation procedure displays a number of informational messages that report on the progress of the installation. VMSINSTAL creates a new directory [SYSTEST.DXML] if one does not already exist. If the installation procedure has been successful up to this point, VMSINSTAL moves the new or modified files to their target directories, and updates DCL tables, if necessary. If you chose to have files purged, that work is done now.

```
%VMSINSTAL-I-SYSDIR, This product creates system directory [SYSTEST.DXML]

    If you intend to execute this layered product on other nodes in your
    VAXcluster, and you have the appropriate software license, you must
    prepare the system-specific roots on the other nodes by issuing the
    following command on each node (using a suitably privileged account):

    $ CREATE /DIRECTORY SYS$SPECIFIC:[SYSTEST.DXML]

    The primary installation phase has completed.  Be sure to read the
    release notes.
```

10. **Check the file transfer messages.**

    The installation procedure displays messages telling you what it is doing as it continues. The procedure displays these messages when the files for the product are transferred from the distribution medium to your system.

    You see the following message:

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

11. **Observe the Installation Verification Procedure (IVP).**

    VMSINSTAL now runs the IVP.

```
Beginning DXML Version 1.0 Installation Verification Procedure
```

    When the IVP runs successfully, you see the following display:

```
The installation verification of DXML Version 1.0 has completed successfully

Completed DXML Version 1.0 Installation Verification Procedure
```

NOTE

If you answered No to the question

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

the IVP will not be run. However, the IVP command file will be put into SYS$COMMON:[SYSTEST], and may be run once you register the authorization key.

If you run the IVP separately, remember to log in to the SYSTEM account or an account that has SYSPRV (see Chapter 3).

12. **End the installation procedure.**

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

```
Installation of DXML V1.0 completed at 13:20

VMSINSTAL procedure done at 13:20
```

You can now log out of the privileged account:

```
$  LOGOUT
SYSTEM     logged out at 1-AUG-1990 13:21:17
```

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 DXML V1.0 has failed.
```

If the IVP fails, you see these messages:

```
The DXML V1.0 Installation Verification Procedure failed.

%VMSINSTAL-E-IVPFAIL, The IVP for DXML V1.0 has failed.
```

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

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

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

Chapter 3

After Installing DXML

Chapter 3 describes the tasks that take place after installing DXML:

- Running the Installation Verification Procedure separately
- Editing the system startup file
- Making the product usable on a VAXcluster

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$TEST:DXML$IVP.COM
```

The IVP takes a few minutes to run because it must link test programs with the library. When the IVP runs successfully, you see the following display:

```
The installation verification of DXML Version 1.0 has completed successfully
```

3.2 Editing the System Startup File

After installing DXML, you must edit the system startup file to allow automatic startup of DXML when your system is rebooted. If you do not edit the system startup file, DXML logical names are not defined for your system.

Add the following command line to the system startup file, SYS$MANAGER:SYSTARTUP_V5.COM.

```
$  @SYS$STARTUP:DXML$STARTUP.COM
```

This command line invokes DXML$STARTUP. You must edit SYSTARTUP_V5.COM on all nodes that run DXML. If you do not do this, DXML will not be available when the system is rebooted.

3.3 Installing DXML on a VAXcluster

If you want to run DXML on multiple nodes of a VAXcluster, first check to see that you have the appropriate software license. Refer to the *VMS License Management Utility Manual* for directions on how to load the license on nodes licensed to use DXML.

To install DXML on a VAXcluster, log in to the SYSTEM account or an account that has SYSPRV and repeat the following steps on each node in the cluster licensed to run DXML:

1. Make sure that the SYSGEN parameters listed in Table 1–3 are properly set.
2. Issue the LICENSE LOAD command to activate the VMS license.
3. Replace the DCLTABLES image using the INSTALL utility as follows:

   ```
   $  INSTALL REPLACE SYS$SHARE:DCLTABLES
   ```

4. Execute the DXML startup file as follows:

   ```
   $  @SYS$STARTUP:DXML$STARTUP
   ```

5. Execute the Installation Verification Procedure (IVP) as follows:

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

3.4 Transfer Vector Test Programs

When you install DXML, transfer vector test programs are transferred to your system. When the IVP runs either during the installation or after, executable images of these test programs are created in SYS$TEST.

Do not run these executable images. They will not run.

Chapter 4

Solving DXML Problems

Chapter 4 explains the procedure to follow if problems arise after installing DXML. The chapter discusses the following information:

- How to report a problem to the Customer Support Center.
- Supporting information you need when you report a problem.

4.1 Reporting Problems to Digital

Make sure you know your access number before you call the Customer Support Center (CSC), and use the access number to identify yourself when you call. Treat the access number and the telephone numbers of the CSC confidentially. You should designate CSC contact people in your organization, and only these people should know the CSC access numbers.

The contact people you designate can speak directly with a CSC team specialist. The CSC specialist calls a contact person directly to deliver a solution, request more information, or confirm a solution previously delivered.

The CSC can respond faster and more accurately if you have complete information available when you call. Preparing a statement of the problem and thinking through the sequence of events that led to its occurrence can eliminate the need for the CSC to gather more information. The specialist can focus immediately on isolating and analyzing the problem, rather than on defining it.

4.2 Supporting Information You Will Need

The following list of questions helps you collect supporting information that is often overlooked, but is essential to understanding a problem in its context. Try to write down an answer to each question and have the list of answers ready when you call the CSC.

1. What DXML kit is installed on your system?
2. What related software are you running and what are the version numbers (VMS operating system, prerequisite software, and any optional software)? Are these the most current versions available?
3. In what environment or under what conditions does the problem occur (for example, interactive, network, loaded or single user system)?
4. Have any changes occurred with the software or its usage that might correlate with the incidence of the problem, such as:
   - Installing new prerequisite or optional software?
   - Upgrading existing software?
5. Can you reproduce the problem with a short example? This helps the CSC team specialist to reproduce the problem.

Appendix A
Files Installed

When you install DXML, the following files are transferred to your system:

```
SYS$HELP:DXML010.RELEASE_NOTES        Online release notes

SYS$STARTUP:DXML$STARTUP.COM          Startup command procedure

SYS$TEST:DXML$IVP.COM                 IVP command procedure

SYS$LIBRARY:DXML.OLB                  Object library
SYS$LIBRARY:DXMLDEF.FOR               Signal processing error code definitions
SYS$LIBRARY:DXML$FDS.OLB              F and D floating scalar transfer vector
SYS$LIBRARY:DXML$FDV.OLB              F and D floating vector transfer vector
SYS$LIBRARY:DXML$FGS.OLB              F and G floating scalar transfer vector
SYS$LIBRARY:DXML$FGV.OLB              F and G floating vector transfer vector
SYS$LIBRARY:DXML$FDS_DX.OLB           F and D floating scalar transfer vector
SYS$LIBRARY:DXML$FDV_DX.OLB           F and D floating vector transfer vector
SYS$LIBRARY:DXML$FGS_DX.OLB           F and G floating scalar transfer vector
SYS$LIBRARY:DXML$FGV_DX.OLB           F and G floating vector transfer vector
SYS$LIBRARY:DXML$FDS.EXE              F and D floating scalar sharable image
SYS$LIBRARY:DXML$FDV.EXE              F and D floating vector sharable image
SYS$LIBRARY:DXML$FGS.EXE              F and G floating scalar sharable image
SYS$LIBRARY:DXML$FGV.EXE              F and G floating vector sharable image

SYS$SYSROOT:[SYSTEST.DXML]FFT_TRANS_TEST.OBJ      Transfer vector test program
SYS$SYSROOT:[SYSTEST.DXML]BLAS1E_TRANS_TEST.OBJ   Transfer vector test program
SYS$SYSROOT:[SYSTEST.DXML]BLAS2_TRANS_TEST.OBJ    Transfer vector test program
SYS$SYSROOT:[SYSTEST.DXML]BLAS3_TRANS_TEST.OBJ    Transfer vector test program
```

When you install DXML, the following files are created during the installation procedure:

```
SYS$TEST:FFT_TRANS_TEST.EXE                       Transfer vector test program
SYS$TEST:BLAS1E_TRANS_TEST.EXE                    Transfer vector test program
SYS$TEST:BLAS2_TRANS_TEST.EXE                     Transfer vector test program
SYS$TEST:BLAS3_TRANS_TEST.EXE                     Transfer vector test program
```

Appendix B
Sample Installation

Appendix B illustrates a sample installation of DXML. Your own installation might differ from this example, because you can make different choices during the procedure.

This example shows a complete installation of DXML.

```
$ @SYS$UPDATE:VMSINSTAL DXML010 MTA0: OPTIONS N

        VAX/VMS Software Product Installation Procedure V5.4

It is 01-AUG-1990 at 16:00.

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  MTA0:.
* Are you ready? Y
%MOUNT-I-MOUNTED, DXML mounted on _MTA0:
The following products will be processed:
  DXML V1.0

        Beginning installation of DXML V1.0 at 16:01

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

Job DXML (queue HPSQ11, entry 658) started on HPSQ11
* Do you want to continue the installation [NO]? Y
%VMSINSTAL-I-RELMOVED , The product's release notes have been
successfully moved to SYS$HELP.

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

```
* Do you want to purge files replaced by this installation [YES]?
          Product:      EXT-MATH-LIB
          Producer:     DEC
          Version:      1.0
          Release Date: 23-AUG-1990

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

All questions have been answered. No more questions will be asked.

%VMSINSTAL-I-SYSDIR, This product creates system directory [SYSTEST.DXML]

    If you intend to execute this layered product on other nodes in your
    VAXcluster, and you have the appropriate software license, you must
    prepare the system-specific roots on the other nodes by issuing the
    following command on each node (using a suitably privileged account):

    $ CREATE /DIRECTORY SYS$SPECIFIC:[SYSTEST.DXML]

        The primary installation phase has completed.  Be sure to read the
        release notes.

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

Beginning DXML Version 1.0 Installation Verification Procedure

   The installation verification of DXML Version 1.0 has completed successfully

Completed DXML Version 1.0 Installation Verification Procedure

        Installation of DXML V1.0 completed at 16:08

        VMSINSTAL procedure done at 16:09
```

Index

A

Aborting installation • 2–1, 2–6
Accessing release notes • 2–2
  See Release notes
AUTHORIZE utility • 1–4, 1–9
AUTOGEN command procedure • 1–7

B

Backing up system disk • 1–10, 2–3
BIL • 1–1
Bill of materials
  See BOM
BOM • 1–1

C

Calculating global pages • 1–6
  See Global pages
Calculating global sections • 1–6
  See Global sections
Changing dynamic parameters • 1–8
Changing global pages • 1–7
  See Global pages
Changing global sections • 1–7
  See Global sections
Changing privileges • 1–4
Changing process account quotas • 1–9
Changing system parameters • 1–7
Checking privileges • 1–4
Checking system parameters • 1–6
Checking system requirements • 2–6
Command for installing • 2–1
Contents of kit • 1–1
Customer Support Center • 4–1

D

Damage to kit • 1–1
Device name • 2–2
Disk space
  required for installation • 1–4
Displaying global pages • 1–7
  See Global pages
Displaying global sections • 1–7
  See Global sections
Displaying release notes • 2–4
DXML
  problems • 4–1
  saveset • 2–2, 2–4
Dynamic parameters
  setting • 1–8

E

Editing startup file • 3–2
Error messages • 2–9
Errors during installation • 2–8

F

Failed installation • 2–8
Files • A–1
Free disk space • 1–4

G

GBLPAGES parameter • 1–5
  See Global pages
GBLSECTIONS parameter • 1–5
  See Global sections
Global pages • 1–5
  calculating • 1–6
  changing • 1–7
  displaying • 1–7
  modifying • 1–7
Global sections • 1–5
  calculating • 1–6
  changing • 1–7
  displaying • 1–7
  modifying • 1–7
Granting privileges • 1–4

H

Hardware
  optional • 1–2
  required for installation • 1–1

I

Indented bills report • 1–1
Installation
  aborting • 2–1, 2–6
  command • 2–1
  device name • 2–2
  disk space • 1–4
  failed • 2–8
  files created • A–1
  files transferred • A–1
  instructions • 2–1
  media • 2–3
  memory • 1–1
  moving of files • 2–7
  on a cluster • 3–2
  options • 2–2
  privileges required • 1–4
  procedure • 2–1 to 2–8
  process account quotas • 1–9
  purging files • 2–5
Installation (Cont.)
  registering PAK • 2–6
  requirements • 1–3 to 1–10
  sample log • B–1
  save-set name • 2–2
  stopping • 2–1, 2–6
  system parameters • 1–5
  time • 1–2
Installation guide
  associated documents • ix
  audience • vii
  conventions • x
  structure • ix
Installation log • B–1
Installation procedure
  See VMSINSTAL
Installation Verification Procedure
  See IVP
Installer privileges • 1–4
IVP
  command procedure file • A–1
  failure • 2–8
  question during installation • 2–5
  requirement for running • 1–3
  running separately • 3–1
  successful completion • 2–7
  time with installation • 1–2

L

Length of time for installation • 1–2
License Management Facilty
  See LMF
LMF • 1–2
Log file of installation • B–1

M

Media • 2–3
Memory required for installation • 1–1
Modifying global pages • 1–7
  See Global pages
Modifying global sections • 1–7
  See Global sections
Mounting the media • 2–3
Moving of files during installation • 2–7

O

Object library file • A–1
Operating system • viii
Optional hardware • 1–2
Options for installation • 2–2
OPTIONS N parameter • 2–2

P

PAK
  before installation • 1–2
  registered and loaded • 2–6, 2–8
Parameters
  system • 1–5
Postinstallation procedure • 3–1 to 3–2
Preparing account for installation • 1–3
Prerequisite hardware • 1–1
Prerequisite software • 1–2
Printing release notes • 2–4
Privileges
  changing • 1–4
  checking • 1–4
  required for installation • 1–3
Problems
  how to report to Digital • 4–1
  supporting information • 4–2
Process account quotas • 1–9
Product Authorization Key
  See PAK
Purging files • 2–5, 2–7

Q

Quotas
  installation account • 1–10
  process account • 1–9

R

Rebooting the system • 1–7, 3–2
Registering a license • 1–3
Registering a PAK • 1–2, 2–6
Release notes
  accessing • 2–2
  copied to SYS$HELP • 2–5
  displaying • 2–4
  name of file • 2–5, A–1
  OPTIONS N parameter • 2–2, 2–3
  printing • 2–4
  reading • vii, 1–1
Reporting problems • 4–1
Required disk space • 1–4
Required hardware • 1–1
Required privileges • 1–4
Required software • 1–2
Running the IVP • 2–5, 2–7, 3–1
Running VMSINSTAL • 2–1

S

Sample installation log • B–1
Saveset
  name • 2–2
  restoring • 2–4
Scalar processor • 1–2
Selecting installation options • 2–2
SETPRV privilege • 1–3
Setting dynamic parameters • 1–8
Shareable image files • A–1
Shutting down system • 1–7, 3–2
Software
  required for installation • 1–2
Software Product Description
  See SPD
SPD • viii
Specifying installation options • 2–2
SSA • viii, 1–2
Startup command procedure
  file name • A–1
Stopping installation • 2–1, 2–6
SYSGEN utility • 1–4, 1–6, 1–8
System account • 1–3
System disk
  backup • 1–10, 2–3
System parameters
  changing • 1–7
  checking • 1–6
  required for installation • 1–5
System requirements • 1–3 to 1–10, 2–6
System shutdown • 1–7, 3–2

System startup file
editing • 3–2
System Support Addendum
See SSA

T

Time for installation • 1–2
Transfer vectors
file names • A–1
test programs • 3–3

V

VAXcluster
installing DXML on • 3–2
Vax Vector Instruction Emulator Facility
See VVIEF
Vector processor • 1–2
Verifying process account quotas • 1–9
VMSINSTAL
before you start • 1–4
installation account quotas • 1–10
options • 2–2
requirements • 1–10
running • 2–1
VVIEF • 1–2