DECelms Installation

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This guide describes how to install and verify DECelms (DEC Extended LAN Management Software) on a VMS system.

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Operating System and Version:	VMS Versions 5.2 - 5.3
Software Version:	DECelms, Version 1.0

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Preface

This manual explains how to install and verify DECelms (DEC Extended LAN Management Software) on a VMS system.

Intended Audience

This manual is for system managers, network managers, or anyone responsible for installing and maintaining DECelms.

Document Structure

This manual consists of four chapters and two appendixes, which explain the installation procedure for DECelms.

Chapter 1	Contains preinstallation information.
Chapter 2	Describes the DECelms installation procedure.
Chapter 3	Describes the DECelms Installation Verification Procedure (IVP).
Chapter 4	Explains postinstallation procedures.
Appendix A	Shows a sample DECelms installation.
Appendix B	Lists the files created by the DECelms installation.

The postage-prepaid Reader's Comments form on the last page of this manual is for your critical evaluation to assist us in preparing future documentation.

Related Documentation

The following documents contain additional information:

- *DECelms Use*

  Describes how to use DECelms to configure, monitor, and control the bridges and wiring concentrators in an extended LAN.

- *DECelms Reference*

  Provides alphabetical reference descriptions of the DECelms commands.

- *Bridge and Extended LAN Reference*

  Presents conceptual information on bridge operation, configuration, management, and troubleshooting.

- *FDDI System Level Description*

  Outlines the FDDI standard and Digital's implementation of the standard. Also describes the operation of FDDI adapters, bridges, and wiring concentrators.

- DECelms Release Notes (on line)

  Provide information and updates that are not included in the DECelms manuals. The release notes are delivered on line as part of the software distribution kit.

- DECelms Help Text (on line)

  Describes the DECelms commands in a menu-oriented format. This information is available at both the DCL prompt ($) and within DECelms.

Conventions Used in This Manual

The following conventions are used in this manual:

Convention	Meaning
`Special Type`	This special type indicates examples of system output or user input. System output is in black type; user input is in red type.
UPPERCASE	Uppercase letters in commands and examples indicate that you should enter the exact characters shown. However, you may enter them in either uppercase or lowercase.
lowercase italics	Lowercase italics in commands and examples indicate variables for which either the user or the system supplies a value.
[ ]	Brackets contain default answers to questions VMSINSTAL asks throughout the installation procedure. To accept the default answer to a question, simply press Return.
key	Indicates that you should press the specified key. Ctrl/*x* indicates that you should hold down Ctrl while you press the *x* key, where *x* is a letter. Note that, unless otherwise specified, you terminate every command line by pressing Return.

1
Before Installing DECelms

This chapter presents information about the requirements that you must satisfy before installing DECelms (DEC Extended LAN Management Software).

1.1 Checking the Contents of the Kit

DECelms is available on a variety of distribution media. Your Bill of Materials (BOM) specifies the quantity and contents of your media. Contact your Digital customer service representative if any components of the kit are missing.

1.2 Required System Configurations

The System Software Addendum (SSA) lists the VMS systems on which you can install DECelms.

1.3 Required Disk Space

The disk space requirements for DECelms are:

- 2700 disk blocks for installation
- 2500 disk blocks for permanent use

These requirements refer to the disk space required on the system disk (system disk block cluster size = 1). This disk space requirement is an approximation; actual sizes may vary, depending on your system environment, configuration, and software options selected.

1.4 Required Global Pages and Global Sections

In order to install DECelms, your system must have at least 500 unused global pages (GBLPAGES) and 3 unused global sections (GBLSECTIONS). The following sections first describe how to check the current values of GBLPAGES and GBLSECTIONS and then give instructions for changing the values with the VMS AUTOGEN command procedure. For more information on the VMS utilities described in this section, refer to the VMS documentation on system management and operations.

1.4.1 Checking the Number of Unused Global Pages and Global Sections

This section describes how to check the number of unused global pages and global sections available on your system, so that you can determine if you need to increase the values for the GBLPAGES and GBLSECTIONS parameters. Perform the following steps:

1. Enter the following command to invoke the VMS Install utility (INSTALL):

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

   This command displays a summary of global pages and global sections used by your system, as well as the current number of unused global pages. For example:

   ```
                  Summary of Local Memory Global Sections

   258 Global Sections Used,  22580/3420 Global Pages Used/Unused
   ```

   If the number of unused global pages (3420 in this example) is less than 500, you must increase the value of the GBLPAGES parameter, as described in Section 1.4.2.

2. Recheck the display to note the number shown for Global Sections Used (258 in this example).

3. Invoke the SYSGEN utility and enter SHOW GBLSECTIONS to display the number of global sections allocated:

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

   Parameter Name     Current   Default   Minimum   Maximum Unit  Dynamic
   --------------     -------   -------   -------   ------- ----  -------
   GBLSECTIONS            512       250        20      4095 Sections
   ```

4. Subtract the number that you noted in step 2 from the number shown in the Maximum Unit field of the SYSGEN display. (The Maximum Unit field shows the number of global sections allocated.) The difference is the number of unused global sections. If the number of unused global sections is less than 3, you must increase the value of the GBLSECTIONS parameter, as described in Section 1.4.2.

   In this example, there are 4095 global sections allocated and 258 currently used, leaving 3837 unused global sections. The GBLSECTIONS parameter value does not need to be increased because more than 3 unused global sections are available.

1.4.2 Adjusting the Number of Global Pages or Global Sections

To change the values for the GBLPAGES and GBLSECTIONS parameters, you must edit the file SYS$SYSTEM:MODPARAMS.DAT and then run the AUTOGEN command procedure to establish the new values. AUTOGEN automatically adjusts the values of related parameters.

For example, to increase the number of global pages by 2000 and the number of global sections by 1000, add the following lines to the file SYS$SYSTEM:MODPARAMS.DAT:

```
ADD_GBLPAGES = 2000
ADD_GBLSECTIONS = 1000
```

To establish the new values, enter this command to run the AUTOGEN procedure:

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

AUTOGEN performs a system shutdown and then reboots the system, making the new parameter values take effect.

1.5 Prerequisite Software Products

To install and run DECelms, you must have a valid version of VMS software installed. The valid version numbers are specified in the SSA. The required classes of VMS are also listed in the SSA.

1.6 Required Privileges

To install DECelms, you must have the VMS privileges shown here. (Digital recommends that you install DECelms from the SYSTEM account because it has all of these privileges by default.)

- NETMBX — The privilege to assign a channel to the network device
- PHY_IO — The privilege to modify the network device characteristics
- PRMMBX — The privilege to create a permanent mailbox
- SYSNAM — The privilege to create systemwide logical names
- BYPASS — The privilege to bypass UIC checking

NOTE

Once DECelms is installed, you do **not** need all the privileges listed here to run the program.

1.7 Approximate Time Required for Installation

It takes approximately 10 minutes to install DECelms, depending on your processor type and system load. If you decide to run the Installation Verification Procedure (IVP), the installation will require an additional few minutes to complete.

1.8 License Requirements

The VMS License Management Facility (LMF) became available with Version 5.0 of the VMS operating system. To install and operate DECelms on a VMS system, you must register your software license.

The license registration information that you need is contained in the Product Authorization Key (PAK) or Service Update PAK (SUP) that is shipped with DECelms. The DECelms\RBMS SUP is valid for RBMS customers who are upgrading to DECelms. The PAK and SUP are written proof of license that contain information about the license you have to operate DECelms. You need either a SUP or a PAK to register your DECelms license with the License Management Facility (LMF).

It is best to register your DECelms license before you perform the installation. During the installation, the VMS installation procedure, VMSINSTAL, asks whether you have registered the DECelms license and loaded the appropriate authorization key. If you have not already done so, you can complete the installation, but you will not be able to run the Installation Verification Procedure (IVP) or use DECelms. Once you perform the license registration and load an authorization key, you can run the IVP and use DECelms.

To register a license, first log in to the system manager's account, SYSTEM. There are two ways to perform the registration:

- Invoke the SYS$UPDATE:VMSLICENSE.COM procedure. When it prompts you for information, respond with data from your PAK or SUP.

  or

- Issue the LICENSE REGISTER DCL command with the appropriate qualifiers that correspond to information on the PAK or SUP.

For complete information on using LMF, including an explanation of all error messages, see the *VMS License Management Utility Manual*.

2
Installing DECelms

This chapter explains how to install DECelms (DEC Extended LAN Management Software) with VMSINSTAL, the standard VMS installation procedure.

2.1 Preparing to Run the Installation Procedure

Before installing DECelms, ensure that:

- A valid version and class of VMS is installed on the system. See the System Software Addendum (SSA) for the required version number and class.
- Sufficient free disk blocks are available on the system disk. See Section 1.3 for additional information.
- Sufficient global pages and global sections are available on the system. See Section 1.4 for more information.
- You are installing DECelms from the SYSTEM account or another account that has the proper privileges. See Section 1.6 for more information.
- The DECelms license is registered and loaded on the target system. If you do not register and load the license before starting the installation, you will not be able to run the Installation Verification Procedure (IVP) or use DECelms. (However, you can install DECelms without registering the license.) The DECelms PAK or DECelms/RBMS SUP contains license information. See Section 1.8 for more information. Refer to the *VMS License Management Utility Manual* for information about registering your license.

- You have read the *VMS System Manager's Manual* for information regarding the proper use of VMSINSTAL.
- DECnet is started (if you plan to use it).

2.2 Aborting the Installation

To abort the installation procedure at any time, type Ctrl/Y. When you type Ctrl/Y, the installation procedure deletes all the files it created up to that point and returns you to the DCL prompt ($). You can then start the installation again. The *VMS System Manager's Manual* contains complete instructions on using VMSINSTAL.

2.3 Running the Installation Procedure

To install DECelms, perform the following steps:

1. Log in to the system manager's account, SYSTEM.
2. Invoke VMSINSTAL by entering:

   ```
   $ @SYS$UPDATE:VMSINSTAL ELMS010 device-identifier OPTIONS N
   ```

   Entering ELMS010 instructs VMSINSTAL to install DECelms. The *device-identifier* indicates the device on which the distribution media are mounted. If you do not supply the product name and the device name, VMSINSTAL prompts you for this information later in the installation procedure.

   Entering OPTIONS N instructs VMSINSTAL to prompt you later in the installation procedure 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. Digital recommends that you read the release notes during the installation procedure. VMSINSTAL has several other options; for more information, see the *VMS System Manager's Manual*.

   After you invoke VMSINSTAL, it displays the following banner:

   ```
        VAX/VMS Software Product Installation Procedure V5.2-43V

   It is date at time.
   Enter a question mark (?) at any time for help.
   ```

3. VMSINSTAL then checks your system environment and notifies you if any other processes are running. For example, VMSINSTAL might display:

```
%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
        MAIL_69723
        SERVER_2300
* Do you want to continue anyway [NO]?
```

   This display is informational and does not indicate that you should not continue. However, if you answer NO (or simply press Return), VMSINSTAL terminates and returns you to the DCL prompt ($).

4. If you answer YES (the usual response), VMSINSTAL displays the following prompt:

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

   If you answer NO, VMSINSTAL terminates and returns you to the DCL prompt.

5. If you answer YES (or press Return), VMSINSTAL displays one of the following prompts:

   a. If you entered the device on which your distribution media are mounted when you invoked VMSINSTAL, the procedure displays the following message, where *ddcu:* is the name of the device:

```
Please mount the first volume of the set on ddcu:
* Are you ready?
```

      Mount the distribution media and, when you are ready, enter YES. VMSINSTAL displays the following message:

```
%MOUNT-I-MOUNTED, ELMS010 mounted on _ddcu:
```

   b. If you did not enter the device on which your distribution media are mounted, VMSINSTAL displays the following prompt:

```
* Where will the distribution volumes be mounted:
```

      Enter the appropriate device identification; for example, _MFA0:.

   In either case, the installation continues with the following display:

```
The following products will be processed:

   ELMS V1.0

          Beginning installation of ELMS V1.0 at time

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

6. If you specified OPTIONS N when invoking the installation procedure, VMSINSTAL displays four options for reviewing the release notes:

   ```
   Release Notes Options:

       1. Display Release Notes
       2. Print Release Notes
       3. Both 1 and 2
       4. None of the above

   * Select option [2]:
   ```

   Option 1 instructs VMSINSTAL to display the release notes immediately on the console terminal. You can terminate the display at any time by typing Ctrl/C. After displaying the release notes, VMSINSTAL displays the following prompt:

   ```
   * Do you want to continue the installation [NO] ?
   ```

   Enter YES to continue the installation or press Return to abort the installation and return to the DCL prompt.

   Option 2 instructs VMSINSTAL to prompt you for the name of the print queue that you want to use:

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

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

   Option 3 instructs VMSINSTAL to display the release notes immediately on the console terminal and then prompts you for a queue name for the printed version.

   Option 4 allows you to proceed without displaying, printing, or copying the release notes.

   The installation procedure places the release notes file, ELMS010.RELEASE_NOTES, in SYS$HELP.

   NOTE

   Digital strongly recommends that you read the release notes before proceeding with the installation.

7. VMSINSTAL then asks whether you registered and loaded your authorization key for DECelms and prints out information about the particular license:

```
        Product:        DECELMS
        Producer:       DEC
        Version:        1.0
        Release Date:   30-MAY-1990

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

If you did not register and load your authorization key, you should answer NO to this question. You will not be able to run the Installation Verification Procedure (IVP) or use DECelms. Be certain that you register and load your authorization key before you proceed with the installation. For instructions on registering and loading an authorization key, see the *VMS License Management Utility Manual*.

At this point, VMSINSTAL displays an informational message that reports on the progress of the installation:

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

If you are installing DECelms for the first time on your system, VMSINSTAL provides the following information:

```
%VMSINSTAL-I-SYSDIR, This product creates system directory [ELMS$DIRECTORY].

    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$SPECIFIC:[ELMS$DIRECTORY]
          /PROTECTION=(SYSTEM:RWE,OWNER:RWE,GROUP:RE,WORLD:RE)
```

8. VMSINSTAL displays the following information and prompt, indicating that you can convert your RBMS directory into the DECelms registry during the installation procedure. Answer NO if you are not upgrading from RBMS or if you do not want to convert your RBMS directory during the installation.

```
    You can convert your RBMS directory (if one exists) into
    the DECelms registry at any time with the following command:

    $ RUN SYS$MANAGER:ELMS$CONVERT.EXE

     There are the following restrictions:

     o The RBMS detached process, NMS_RBMS$BMLPRC, must be running.

     o The DECelms detached process, ELMS$NIMUX, cannot be running.

     This install procedure can perform both these operations,
     if requested.

* Do you want to convert your RBMS database during the installation [YES]?
```

9. If you answer YES, VMSINSTAL displays the following additional prompt. You must answer YES to perform the conversion procedure.

```
* Do you want to start RBMS so that your database can
      be converted [YES]?
```

10. If RBMS is already running, VMSINSTAL displays the following additional prompt. Answer NO, because there is normally no need to restart RBMS.

```
RBMS is already running. Do you want to restart? [yes]:
```

    VMSINSTAL displays the following message:

```
   You may ignore ELMS$CONVERT status messages such as:
        "The current bridge that is selected -
         did not respond to message"
```

    When the conversion is complete, VMSINSTAL displays:

```
   Your RBMS database has been converted to a DECelms database.
```

11. VMSINSTAL then prompts you to stop RBMS if it is running:

```
   RBMS is running. You must stop RBMS if you want to perform the
   following tasks during the installation procedure:

     o Start DECelms

     o Run the Installation Verification Procedure (IVP)

*  Do you want to stop RBMS [YES]?
```

12. Next, VMSINSTAL displays the following information and prompt:

```
   The ELMS$NIMUX (Network Multiplexer) module of DECelms must run as a
    permanent detached process.  The installation procedure normally starts
    the ELMS$NIMUX process.  If you wish, you may defer starting this process
    until a later time. DECelms cannot be run until this is done.
    The command to manually start the ELMS$NIMUX process is:

    $  @SYS$STARTUP:ELMS$STARTUP

   Also, if the ELMS$NIMUX process is not started by the installation
   procedure, the installation verification procedure cannot be run.
   Any time after the ELMS$NIMUX process has started, the verification
   procedure can be manually run by typing the following command:

   $  @SYS$COMMON:[SYSTEST]ELMS$IVP

   If you let this installation procedure start the  ELMS$NIMUX process
   the installation procedure can verify the installation
   automatically. Note that the installation verification procedure
   does not require a bridge to be installed on the network.

*  Do you want to start ELMS [YES]?
```

If this is an upgrade installation and DECelms is already running, VMSINSTAL also displays the following question:

```
* ELMS$NIMUX is already running. Do you want to restart [Y/N]?
```

13. If you decided to start DECelms during the installation procedure, VMSINSTAL displays the following information and prompt:

```
   Most products provide an Installation Verification Procedure (IVP)
   which verifies the completeness and accuracy of the installation.
   You may wish to run the IVP immediately after installation.
* Do you want to run the IVP after the installation [YES]?
```

14. If you decided to start DECelms during the installation procedure, VMSINSTAL prompts you about starting the device listener function:

```
   You can start the device listener function during the DECelms
   installation. The device listener function enters devices in the
   DECelms registry by listening to MOP system ID messages. At any
   time after the installation, you can control the device listener
   function with the DECelms commands START LISTENER and STOP
   LISTENER, as described in the DECelms documentation.

                           NOTE

       The device listener function conflicts with
       other applications, such as NMCC/VAX ETHERnim,
       that use the MOP Remote Console channel in
       shared default mode. The device listener function
       will not start if one of these applications is
       running.

* Do you want to start the device listener function [YES]?
```

15. If you decided to start DECelms during the installation procedure, VMSINSTAL next prompts you about starting the background poller function:

```
   You can start the background poller function during the DECelms
   installation. The background poller function polls the devices
   listed in the DECelms registry. When it detects a change in device
   state, it displays an event message and logs an event code in the
   event log. At any time after the installation, you can control the
   background poller function with the DECelms commands START POLLER
   and STOP POLLER, as described in the DECelms documentation.
* Do you want to start the background poller function [YES]?
```

16. The last question in the interactive part of the installation is preceded by this information:

```
During this installation, new files will be provided to replace existing
versions.  You may purge these older versions to save disk space, or keep
them if you feel they may be of use.  Purging is recommended.
* Do you want to purge files replaced by this installation [YES] ?
```

17. VMSINSTAL then displays the following messages:

```
**************************************************************
The interactive part of the installation is over. There are no
more operator questions.
**************************************************************

Placing files in their final destinations...

   Files ELMS$NIMUX.EXE, ELMS$BCP.EXE, ELMS$DISPLAYS.BIN,
   ELMS$BCPPRS.BIN installed in SYS$COMMON:[SYSEXE].
   File ELMS$HELP.HLB installed in SYS$HELP.
   File ELMS$STARTUP.COM installed in SYS$STARTUP.
   File ELMS$SHUTDOWN.COM installed in SYS$COMMON:[SYSMGR].
   File ELMS$CONVERT.EXE installed in SYS$COMMON:[SYSMGR].
   File ELMS$IVP.COM installed in SYS$SYSTEST.
   ELMS$HELP_DCL.HLP inserted into system command table.
   Logical name ELMS$UNA defined as Ethernet adapter device id.
   Logical name ELMS$NIMUX_MBX defined as mbx number.
   Logical name ELMS$BCPPRS defined as SYS$COMMON:[SYSEXE]
   Logical name ELMS$DISPLAYS defined as SYS$COMMON:[SYSEXE]
   Logical name ELMS$HELP defined as SYS$HELP:ELMS$HELP.HLB
   Logical name ELMS$HOME defined as SYS$COMMON:[ELMS$DIRECTORY]

**************************************************************

                POST INSTALLATION RECOMMENDATIONS

It is suggested that a call to the ELMS startup command procedure
SYS$STARTUP:ELMS$STARTUP.COM be added to the site specific startup
command procedure SYS$MANAGER:SYSTARTUP_V5.COM as shown below. Be
sure to place this command after the commands that start DECnet and LAT.

$ @SYS$STARTUP:ELMS$STARTUP  !Extended LAN Mgt startup procedure

Note that the ELMS_LAN_MANAGEMENT command will not take effect until
a user logs on after the installation is complete.

Note that DECelms and the older product "RBMS" cannot be run on the
same system at the same time.

 *****************************************************************

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

If you decided to run the DECelms Installation Verification Procedure during the installation (see Step 13), you will see the following display:

```
   Starting DECelms V1.0 verification procedure ...
   Passed DECelms V1.0 installation verification test.
```

The VMSinstall procedure concludes with this display:

```
Installation of ELMS V1.0 completed at time

VMSINSTAL procedure done at time
```

NOTE

A minute or so may elapse between the appearance of the last two lines displayed. This is quite normal on a system with an average load.

The installation and verification of DECelms is complete. You can run the Installation Verification Procedure at any time to check DECelms. Chapter 3 describes how to run the IVP independently of the installation.

3 Installation Verification

The DECelms (DEC Extended LAN Management Software) kit contains a command procedure that verifies the correct installation of the product. This procedure, ELMS$IVP.COM, is placed in the SYS$COMMON:[SYSTEST] directory by the installation procedure. The Installation Verification Procedure (IVP) tests the major functional components of DECelms. Successful completion of the IVP indicates that the DECelms software was installed correctly.

You can run the IVP as part of the installation procedure (see Section 2.3) or any time after you have installed and started DECelms. To run the IVP independently of the installation procedure, enter:

```
$ @SYS$COMMON:[SYSTEST]ELMS$IVP
```

The system displays one of the following messages:

```
Starting ELMS verification procedure...
Passed ELMS installation verification test...
```

or

```
Starting ELMS verification procedure...
Failed ELMS installation verification test...
```

The latter message indicates that the installation procedure did not install all the required files. Ensure that you have all the prerequisite hardware and software products specified in the System Software Addendum (SSA). Repeat the installation procedure, following the instructions carefully. If the problem persists, contact your Digital customer service representative.

NOTE

You can delete the DECelms IVP without any adverse effect on DECelms. (The two software modules are independent.)

4
After Installing DECelms

This chapter describes procedures that you should perform after installing DECelms (DEC Extended LAN Management Software). It explains how to:

- Edit the system startup file to provide for DECelms startup
- Assign users the account quotas that they need to run DECelms
- Assign users the privilege that they need to run DECelms
- Implement DECelms privilege modes to restrict the full use of DECelms to privileged users
- Protect DECelms with an access control list (ACL)
- Use DECelms in a VAXcluster environment

4.1 Editing the System Startup File

You must edit the system startup file to provide for automatic startup of DECelms when your system is rebooted. Add the command shown below to the system startup file, SYS$MANAGER:SYSTARTUP_V5.COM. Be sure to place this command after the commands that start DECnet and LAT.

```
$ @SYS$STARTUP:ELMS$STARTUP
```

The account from which SYS$STARTUP:ELMS$STARTUP.COM is run must have the following privileges. (The system startup file is usually run from the SYSTEM account, which normally has all of the required privileges.)

- NETMBX—The privilege to assign a channel to the network device

- PHY_IO—The privilege to modify the network device characteristics
- PRMMBX—The privilege to create a permanent mailbox
- SYSNAM—The privilege to create systemwide logical names
- BYPASS—The privilege to bypass UIC checking

4.2 Setting Account Quotas for DECelms Users

Users must have sufficient account quotas to use DECelms. Table 4–1 summarizes the required user account quotas.

Table 4–1: User Account Quotas for DECelms

Account Quota	Value
ASTLM	24
BIOLM	18
BYTLM	12000
DIOLM	18
ENQLM	30
FILLM	20
PRCLM	2
WSDEF	300 *
TQELM	20
JTQUOTA	1024

*The values for WSEXTENT and WSQUO must be equal to or greater than the WSDEF value.

The Authorize utility verifies and modifies user account quotas, which are stored in the file SYSUAF.DAT. First set your directory to SYS$SYSTEM and then run AUTHORIZE:

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

At the AUTHORIZE prompt (UAF>), enter the SHOW command with an account name to check a particular account; for example:

```
UAF>  SHOW SMITH
```

To change a quota, enter the MODIFY command at the AUTHORIZE prompt. This command has the following format:

MODIFY *account-name /quota-name=nnnn*

The following example modifies the file limit (FILLM) quota for the SMITH account and then returns you to the DCL prompt ($):

```
UAF>  MODIFY SMITH /FILLM=20
UAF>  EXIT
$
```

After you exit from the Authorize utility, the VMS system displays messages indicating whether changes were made. After you make the changes, the users must log out and log in again for the new quotas to take effect. For more information on modifying account quotas, see the *VMS Authorize Utility Manual*.

4.3 Setting the User Privilege for DECelms

All DECelms users must have the following VMS privilege:

- TMPMBX—The privilege to create a temporary mailbox

The following example shows how to use AUTHORIZE to grant this privilege. The user name in this example is BUTCH.

```
$ SET DEFAULT SYS$SYSTEM
$ RUN AUTHORIZE
UAF> MODIFY BUTCH/PRIV=TMPMBX
%UAF-I-MDFYMSG, user record(s) updated
UAF> EXIT
%UAF-I-DONEMSG, system authorization file modified
%UAF-I-NAFNOMODS, no modifications made to network authorization file
%UAF-I-RDBNOMODS, no modifications made to rights database
$
```

4.4 Protecting Your Network with DECelms Privilege Modes

You can implement a privileged and a nonprivileged mode for DECelms by adding the ELMS$RIGHTS_ID rights identifier to the system and granting it to privileged users. If ELMS$RIGHTS_ID is present on the system, only those users who are granted ELMS$RIGHTS_ID can use the DECelms commands that modify the DECelms registry or device characteristics. These include commands such as SET, ADD, REMOVE, MODIFY, INITIALIZE, ENABLE, and DISABLE. Nonprivileged users can use only the SHOW, LIST, and MONITOR commands.

This section explains how to implement DECelms privilege modes and assign privileged DECelms users with AUTHORIZE, a VMS utility that sets user privileges. For more information on modifying user privileges, see the *VMS Authorize Utility Manual*.

4.4.1 Implementing DECelms Privilege Modes

To implement DECelms privilege modes on your system, use the Authorize utility to add the ELMS$RIGHTS_ID rights identifier to the system, as shown below.

```
$ SET DEFAULT SYS$SYSTEM
$ RUN AUTHORIZE
UAF> ADD/IDENT/VALUE=IDENT:%x80222 ELMS$RIGHTS_ID
%UAF-I-RDBADDMSG, identifier ELMS$RIGHTS_ID value: %X80080222
    added to RIGHTSLIST.DAT
UAF> EXIT
%UAF-I-DONEMSG, no modifications made to system authorization file
%UAF-I-NAFNOMODS, no modifications made to network authorization file
%UAF-I-DONEMSG, rights database modified
```

4.4.2 Allowing Privileged Use of DECelms

Privileged DECelms users must have the TMPMBX privilege required for all DECelms users as well as the ELMS$RIGHTS_ID rights identifier. The following example shows the commands to give the user, BERTHA, privileges to use the full functionality of DECelms. First, give BERTHA the TMPMBX privilege required by all DECelms users:

```
$ SET DEFAULT SYS$SYSTEM
$ RUN AUTHORIZE
UAF> MODIFY BERTHA/PRIV=TMPMBX
%UAF-I-MDFYMSG, user record(s) updated
```

Then, grant BERTHA the ELMS$RIGHTS_ID rights identifier that allows her to use SET and all the other privileged DECelms commands. In this example, 300 is BERTHA's group user identification code and 015 is her user identification code (UIC).

```
UAF> GRANT/IDENTIFIER ELMS$RIGHTS_ID [300,015]
%UAF-I-MDFYMSG, user record(s) updated
```

Terminate the Authorize utility when the changes are complete.

```
UAF> EXIT
%UAF-I-DONEMSG, system authorization file modified
%UAF-I-NAFNOMODS, no modifications made to network authorization file
%UAF-I-DONEMSG, rights database modified
```

4.5 Protecting DECelms with an Access Control List

To allow only certain users to run DECelms, set an access control list (ACL) to protect the DECelms executable images, ELMS$NIMUX.EXE and ELMS$BCP.EXE. You should also protect the DECelms registry files, ELMS$DATABASE.DNE and ELMS$DATABASE.DSE. (For a full description of ACLs, refer to the VMS documentation on system management and operations.) Note that the ACL limits who can access DECelms. Users still need the ELMS$RIGHTS_ID rights identifier, if it is present on the system, to use the full functionality of DECelms.

To set an ACL to protect DECelms, follow this procedure:

1. Move to the SYS$SYSTEM directory:

   ```
   $ SET DEFAULT SYS$SYSTEM
   ```

2. Invoke the Authorize utility (see the *VMS Authorize Utility Manual* for more information):

   ```
   $ RUN AUTHORIZE
   UAF>
   ```

3. Add an identifier for users who are allowed to run DECelms. In this example, the identifier is given the number x80222 and the name ELMS_USERS:

   ```
   UAF> ADD/IDENT/VALUE=IDENT:%x80222 ELMS_USERS
   %UAF-I-RDBADDMSG, identifier ELMS_USERS value: %X80080222
       added to RIGHTSLIST.DAT
   ```

4. Assign the identifier to each user who will be allowed to use DECelms. In this example, the ELMS_USERS identifier is assigned to the user BERTHA:

```
UAF> GRANT/IDENT ELMS_USERS BERTHA
%UAF-I-GRANTMSG, identifier ELMS_USERS granted to BERTHA
```

5. After you assign the identifier to all the DECelms users, exit from the Authorize utility:

```
UAF> EXIT
$
```

The system displays the following messages showing that the changes were made. The users must log out and log in again for the new rights to take effect.

```
%UAF-I-NOMODS, no modifications made to system authorization file
%UAF-I-RDBDONEMSG, rights database modified
```

6. Move to SYS$COMMON:[SYSEXE], where the DECelms executable images are stored:

```
$ SET DEFAULT SYS$COMMON:[SYSEXE]
```

7. Set the file protection on ELMS$NIMUX.EXE and ELMS$BCP.EXE to remove group and world access:

```
$ SET FILE/PROT=(G,W) ELMS$NIMUX.EXE
$ SET FILE/PROT=(G,W) ELMS$BCP.EXE
```

8. Move to SYS$COMMON:[ELMS$DIRECTORY], where the DECelms registry files are stored:

```
$ SET DEFAULT SYS$COMMON:[ELMS$DIRECTORY]
```

9. Set the file protection on ELMS$DATABASE.DNE and ELMS$DATABASE.DSE to remove group and world access:

```
$ SET FILE/PROT=(G,W) ELMS$DATABASE.DNE
$ SET FILE/PROT=(G,W) ELMS$DATABASE.DSE
```

10. Enter the following command to stop DECelms. You must stop DECelms before protecting it with ACLs.

```
$ @SYS$COMMON:[SYSMGR]ELMS$SHUTDOWN
```

11. Set an ACL for ELMS$NIMUX.EXE, ELMS$BCP.EXE, ELMS$DATABASE.DNE, and ELMS$DATABASE.DSE. Give the users who have the ELMS_USERS identifier full rights to these files:

```
$ SET ACL/ACL=(IDENT=ELMS_USERS,ACCESS=READ+EXECUTE -
_$ +CONTROL) ELMS$NIMUX.EXE
$ SET ACL/ACL=(IDENT=ELMS_USERS,ACCESS=READ+EXECUTE -
_$ +CONTROL) ELMS$BCP.EXE
$ SET ACL/ACL=(IDENT=ELMS_USERS,ACCESS=READ+WRITE+EXECUTE -
_$ +CONTROL) [ELMS$DIRECTORY]ELMS$DATABASE.DNE
$ SET ACL/ACL=(IDENT=ELMS_USERS,ACCESS=READ+WRITE+EXECUTE -
_$ +CONTROL) [ELMS$DIRECTORY]ELMS$DATABASE.DSE
```

12. Enter DIR/ACL to check the ACLs:

```
$ DIR/ACL

Directory SYS$COMMON:[SYSEXE]

ELMS$NIMUX.EXE;1
          (IDENTIFIER=ELMS_USERS,ACCESS=READ+EXECUTE+CONTROL)
ELMS$BCP.EXE;1
          (IDENTIFIER=ELMS_USERS,ACCESS=READ+EXECUTE+CONTROL)
                                 .
                                 .
                                 .
```

13. Enter the following command to restart DECelms:

```
$ @SYS$STARTUP:ELMS$STARTUP
```

4.6 Using DECelms in a VAXcluster Environment

To use DECelms in a VAXcluster environment, you must:

1. Perform a license load on each node in the VAXcluster that is to run DECelms.
2. Install DECelms on a common disk. (This is the only place where you need to install DECelms.)
3. Prepare system-specific roots on the nodes other than the one on which you installed DECelms. On each node, issue the following command, preferably from the SYSTEM account:

```
$ CREATE /DIRECTORY SYS$SPECIFIC:[ELMS$DIRECTORY] -
_$ /PROTECTION=(SYSTEM:RWE,OWNER:RWE,GROUP:RE,WORLD:RE)
```

4. Enter the following command on each node:

```
$ @SYS$STARTUP:ELMS$STARTUP
```

A
Sample DECelms Installation

This appendix contains a sample DECelms (DEC Extended LAN Management Software) installation dialog. This sample depicts the installation of Version 1.0. Your screen displays will reflect the version of DECelms that you are installing.

```
$ @SYS$UPDATE:VMSINSTAL ELMS010 DUA1: OPTIONS N

    VAX/VMS Software Product Installation Procedure V5.3-1

It is 30-MAY-1990 at 14:26.
Enter a question mark (?) at any time for help.

%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
        NMCC$KERNEL
        NMCC_SERVER_1_0
        _RTA3:
        NMCC_SERVER_2_0
* Do you want to continue anyway [NO]? YES
* Are you satisfied with the backup of your system disk [YES]? YES

Please mount the first volume of the set on DUA1:.
* Are you ready? YES

%MOUNT-I-MOUNTED, ELMS010 mounted on _DUA1:
The following products will be processed:
  ELMS V1.0

       Beginning installation of ELMS V1.0 at 14:26

%VMSINSTAL-I-RESTORE, Restoring product saveset 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]: Return
* Queue name [SYS$PRINT]: Return
%VMSINSTAL-I-RELMOVED, The product's release notes have been successfully
 moved to SYS$HELP.

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    DECelms (DEC Extended LAN Management Software) Installation Procedure.

             VMS Version 5.2 or greater required.


    You may answer YES to the following authorization confirmation,
    if you have a valid authorization key for the Digital product
    RBMS V2.0.


        Product:      ELMS
        Producer:     DEC
        Version:      1.0
        Release Date: 30-MAY-1990
* Does this product have an authorization key registered and loaded? YES
%VMSINSTAL-I-RESTORE, Restoring product save set B ...
%VMSINSTAL-I-SYSDIR, This product creates system directory [ELMS$DIRECTORY].

    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$SPECIFIC:[ELMS$DIRECTORY]
         /PROTECTION=(SYSTEM:RWE,OWNER:RWE,GROUP:RE,WORLD:RE)


    You can convert your RBMS directory (if one exists) into
    the DECelms registry at any time with the following command:

    $ RUN SYS$MANAGER:ELMS$CONVERT.EXE

    There are the following restrictions:

    o The RBMS detached process, NMS_RBMS$BMLPRC, must be running.

    o The DECelms detached process, ELMS$NIMUX, cannot be running.

    This install procedure can perform both these operations,
    if requested.

* Do you want to convert your RBMS database during the installation [YES]? NO
```

```
   The ELMS$NIMUX (Network Multiplexer) module of DECelms must run as a
   permanent detached process.  The installation procedure normally starts
   the ELMS$NIMUX process.  If you wish, you may defer starting this process
   until a later time. DECelms cannot be run until this is done.
   The command to manually start the ELMS$NIMUX process is:

   $  @SYS$STARTUP:ELMS$STARTUP

   Also, if the ELMS$NIMUX process is not started by the installation
   procedure, the installation verification procedure cannot be run.
   Any time after the ELMS$NIMUX process has started, the verification
   procedure can be manually run by typing the following command:

   $  @SYS$COMMON:[SYSTEST]ELMS$IVP

   If you let this installation procedure start the  ELMS$NIMUX process
   the installation procedure can verify the installation
   automatically. Note that the installation verification procedure
   does not require a bridge to be installed on the network.

*  Do you want to start ELMS [YES]? YES
%RUN-S-PROC_ID, identification of created process is 000000AC


    Most products provide an Installation Verification Procedure (IVP)
    which verifies the completeness and accuracy of the installation.
    You may wish to run the IVP immediately after installation.
* Do you want to run the IVP after the installation [YES]? YES

     You can start the device listener function during the DECelms
     installation. The device listener function enters devices in the
     DECelms registry by listening to MOP system ID messages. At any
     time after the installation, you can control the device listener
     function with the DECelms commands START LISTENER and STOP
     LISTENER, as described in the DECelms documentation.

                          NOTE

        The device listener function conflicts with
        other applications, such as NMCC/VAX ETHERnim,
        that use the MOP Remote Console channel in
        shared default mode. The device listener function
        will not start if one of these applications is
        running.

* Do you want to start the device listener function [YES]? NO

    You can start the background poller function during the DECelms
    installation. The background poller function polls the devices
    listed in the DECelms registry. When it detects a change in device
    state, it displays an event message and logs an event code in the
    event log. At any time after the installation, you can control the
    background poller function with the DECelms commands START POLLER
    and STOP POLLER, as described in the DECelms documentation.

* Do you want to start the background poller function [YES]? NO
```

```
    During this installation, new files will be provided to replace existing
    versions.  You may purge these older versions to save disk space, or keep
    them if you feel they may be of use.  Purging is recommended.
* Do you want to purge files replaced by this installation [YES]? YES

   **************************************************************
   The interactive part of the installation is over. There are no
   more operator questions.
   **************************************************************


   Placing files in their final destinations...

   Files ELMS$NIMUX.EXE, ELMS$BCP.EXE, ELMS$DISPLAYS.BIN,
   ELMS$BCPPRS.BIN installed in SYS$COMMON:[SYSEXE].
   File ELMS$HELP.HLB installed in SYS$HELP.
   File ELMS$STARTUP.COM installed in SYS$STARTUP.
   File ELMS$SHUTDOWN.COM installed in SYS$COMMON:[SYSMGR].
   File ELMS$CONVERT.EXE installed in SYS$COMMON:[SYSMGR].
   File ELMS$IVP.COM installed in SYS$SYSTEST.
   ELMS$HELP_DCL.HLP inserted into system command table.
   Logical name ELMS$UNA defined as Ethernet adapter device id.
   Logical name ELMS$NIMUX_MBX defined as mbx number.
   Logical name ELMS$BCPPRS defined as SYS$COMMON:[SYSEXE]
   Logical name ELMS$DISPLAYS defined as SYS$COMMON:[SYSEXE]
   Logical name ELMS$HELP defined as SYS$HELP:ELMS$HELP.HLB
   Logical name ELMS$HOME defined as SYS$COMMON:[ELMS$DIRECTORY]

   ******************************************************************
            POST INSTALLATION RECOMMENDATIONS

   It is suggested that a call to the ELMS startup command procedure
   SYS$STARTUP:ELMS$STARTUP.COM be added to the site specific startup
   command procedure SYS$MANAGER:SYSTARTUP_V5.COM as shown below. Be
   sure to place this command after the commands that start DECnet and LAT.

   $ @SYS$STARTUP:ELMS$STARTUP  !Extended LAN Mgt startup procedure

   Note that the ELMS_LAN_MANAGEMENT command will not take effect until
   a user logs on after the installation is complete.

   Note that DECelms and the older product "RBMS" cannot be run on the
   same system at the same time.

   ***********************************************************************

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

   Starting DECelms V1.0 verification procedure ...
   Passed DECelms V1.0 installation verification test.

 Installation of ELMS V1.0 completed at 14:33

 VMSINSTAL procedure done at 14:33
```

B

Files Created or Modified by the DECelms Installation Procedure

The DECelms (DEC Extended LAN Management Software) installation procedure creates the following files:

Files installed in SYS$COMMON:[SYSEXE]

ELMS$NIMUX.EXE
ELMS$BCP.EXE
ELMS$DISPLAYS.BIN
ELMS$BCPPRS.BIN

Files installed in SYS$HELP:

ELMS$HELP.HLB
ELMS010.RELEASE_NOTES

File installed in SYS$STARTUP:

ELMS$STARTUP.COM

Files installed in SYS$COMMON:[SYSMGR]

ELMS$SHUTDOWN.COM
ELMS$CONVERT.EXE

File installed in SYS$COMMON:[SYSTEST]

ELMS$IVP.COM

Files created by DECelms at run time in SYS$COMMON:[ELMS$DIRECTORY]

ELMS$DATABASE.DNE
ELMS$DATABASE.DSE
ELMS$LOGFILE
ELMS$STATE_CHANGE.LOG

Table B–1 shows the logical names defined by the installation procedure:

Table B–1: Logical Names Defined by the Installation Procedure

Logical Name	Defined for:
ELMS$UNA	Ethernet adapter device ID
ELMS$NIMUX_ MBX	Mailbox device created by DECelms
ELMS$BCPPRS	SYS$COMMON:[SYSEXE]
ELMS$DISPLAYS	SYS$COMMON:[SYSEXE]
ELMS$HELP	SYS$HELP:ELMS$HELP.HLB
ELMS$HOME	SYS$COMMON:[ELMS$DIRECTORY]