VMS/ULTRIX Connection Installation Guide

AA–LU49C–TE

July 1990

This guide contains instructions for installing the VMS/ULTRIX Connection on the VMS operating system. It also explains how to read the online release notes before or after installing the product. This guide applies to VMS/ULTRIX Connection Version 1.3 and all maintenance updates throughout that version.

This guide also includes information on how to install DECrpc Version 1.0 on VMS operating systems.

Revision/Update Information:	This revised manual supersedes the information in the *VMS/ULTRIX Connection Installation Guide* (Order No. AA–LU49B–TE).
Operating System and Version:	VMS Version 5.3 or higher. Future maintenance releases may require higher versions.
Software Version:	VMS/ULTRIX Connection Version 1.3

digital equipment corporation
maynard, massachusetts

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

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Preface

This guide describes how to install the VMS/ULTRIX Connection software on VMS operating systems. It also provides information on how to install DECrpc Version 1.0 on VMS operating systems.

Keep this guide with your distribution kit. You will need it to install maintenance updates or to reinstall the Connection for any other reason.

If you have any comments about this document, please fill out and mail the Reader's Comments forms at the back of this guide; we will consider your comments for the next revision of the Connection.

Structure of This Document

This manual contains the following sections:

- Section 1 describes preinstallation requirements and planning.
- Section 2 describes information needed to install the Connection. It describes the installation procedure itself, including appropriate responses to the VMSINSTAL prompts, informational messages, possible error messages, and suggested recovery procedures.
- Section 3 describes postinstallation procedures including modifying SYSGEN parameters, setting up the Internet configuration, starting the NFS server, and installing DECrpc Version 1.0.
- Section 4 describes the Connection Installation Verification Procedure (IVP). It also covers possible IVP error messages and suggested recovery procedures.
- Section 5 describes the procedure to install maintenance updates of the Connection.

- Section 6 shows the files affected by the Connection installation and the DECrpc installation.
- Section 7 shows a sample Connection installation dialog and provides samples of other postinstallation tasks.

Intended Audience

The *VMS/ULTRIX Connection Installation Guide* is intended for system managers who are responsible for installing and configuring the VMS/ULTRIX Connection software and DECrpc on their systems.

Associated Documents

The VMS/ULTRIX Connection documentation set also includes the following books:

- The *VMS/ULTRIX Connection System Manager's Guide* is intended for the experienced VMS system manager who must perform the function of an NFS server manager.
- The *VMS/ULTRIX Connection Programming Manual* is intended for the experienced VMS programmer who intends to write Internet network applications by using the $QIO and C socket programming interfaces.
- The *VMS/ULTRIX Connection User's Guide* provides user information on FTP, Telnet, and NFS.

The following Digital remote procedure call (DECrpc) manuals are included with the VMS/ULTRIX Connection documentation:

- *Guide to the Location Broker*
- *DECrpc Programming Guide*

You can also order *Internetworking With TCP/IP: principles, protocols, and architecture* by Douglas Comer through Digital. This book provides an introduction and overview of Internet concepts as well as an explanation of the various protocols, Internet addressing, and other Internet concepts you may need to understand to manage the VMS/ULTRIX Connection software.

Conventions Used in This Document

The following conventions are used throughout this manual:

Convention	Meaning
Ctrl/C	A slash separating two key names indicates that you hold down the first key while you press the second key. For example, the key combination CTRL/C indicates that you hold down the key labeled CTRL while you press the key labeled C.
$ SHOW TIME 05-JUN-1988 11:55:22	In examples, system output (what the system displays) is shown in black. User input (what you enter) is shown in red.
$ TYPE MYFILE.DAT . . .	In examples, a vertical ellipsis means either that not all the data that the system would display in response to a command is shown or that not all the data a user would enter is shown.
input-file, . . .	In command syntax or examples, a horizontal ellipsis indicates that additional parameters, values, or other information can be entered, that preceding items can be repeated one or more times, or that optional arguments in a statement have been omitted.
[logical-name]	Brackets indicate that the enclosed item is optional. (Brackets are not, however, optional in the syntax of a directory name in a file specification or in the syntax of a substring specification in an assignment statement.)

1 Preparing to Install the VMS/ULTRIX Connection

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

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

1.1 Accessing the Online Release Notes

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

To obtain the release notes after the installation, type or print the file SYS$HELP:UCX013.RELEASE_NOTES.

1.2 Installation Procedure Requirements

The installation takes approximately 5 to 15 minutes, depending on the type of media and your system configuration. Before installing the Connection, you must have the following privileges and resources:

- SYSPRV, OPER, NETMBX, and TMPMBX privileges.
- A minimum of 5400 blocks of free disk space during installation; the number of blocks used after installation depends on site-specific database files.
- A minimum of 1800 free global pages to install and start the software. A small number of global pages are used to update the file SYS$LIBRARY:DCLTABLES.EXE during the installation. The rest of the global pages are required after the installation to start the software.
- A minimum of 27 global sections after installation to start the software.

Note *The Connection programming interface requires VMS Version 5.2 or higher*

DECwindows support requires VMS Version 5.3 or higher.

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

During the installation the VMS/ULTRIX Connection software checks the global page and global section SYSGEN quotas. If there is not enough space available, you receive a message to that effect. At that point, you are given a choice either to continue or to abort the installation. It is recommended that you abort the installation and increase the number of global pages and global sections before continuing the installation.

You can check the number of available global pages and global sections using a WRITE command with the F$GETSYI lexical function as follows:

```
$ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLPAGES")
6656
$ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLSECTS")
189
```

In this example, the F$GETSYI lexical function returns the number of available free global pages and free global sections and displays them on your screen. If they are smaller than the required numbers, you must increase them.

To increase the global pages and global sections, edit the file SYS$SYSTEM:MODPARAMS.DAT and add the statements that increase the values of the SYSGEN parameters GBLPAGES and GBLSECTIONS. Then invoke the AUTOGEN command procedure to reset parameter values. Finally, reboot the system to have the new parameter values take effect.

1.2.1 DECrpc Requirements The DECrpc installation takes approximately 5 to 15 minutes, depending on the type of media and your system configuration. If you are planning to install DECrpc, you must have the following privileges and resources available:

- VMS Version 5.2, or higher.
- SYSPRV, OPER, NETMBX, and TMPMBX privileges.
- A minimum of 2900 blocks of free disk space during installation; the number of blocks used after installation depends on site-specific database files.
- A minimum of 160 free global pages to install the software.
- A minimum of 3 global sections.

Additionally, you must install the Connection and its Product Authorization Key (PAK) prior to installing DECrpc.

1.3 Special Requirements

The Connection uses the License Management Facility (LMF) for licensing and therefore requires manual registration with a Product Authorization Key (PAK). To ensure the Connection installs successfully, register the Connection's PAK before you start the installation procedure.

If your kit does not include a PAK, you can still install the Connection; however, you will have limited functionality.

For more information on LMF, see step 6 of Section 2.

1.3.1 Installing the TCP/IP Component for Use With DECwindows Applications If you are running VMS DECwindows Version 5.3 or higher, you can use the Transmission Control Protocol and Internet Protocol (TCP/IP) component of the Connection to display DECwindows applications on a remote host.

If your kit includes a PAK, you will be able to install the Connection and use all the functional components. If your kit does not include a PAK, you can only use the TCP/IP component of the Connection for use with DECwindows applications.

For more information on performing the installation refer to the Section 2.

1.3.2 Postinstallaion Tasks Required to Run DECwindows Applications

Once you have installed the Connection, you must perform the following postinstallation tasks to be able to use the Connection with DECwindows applications:

- Modify the non-paged pool and other parameters.
- Edit the system startup and site-specific command files.
- Set up the host Internet configuration.
- Start the Internet software.
- Define the network databases.
- Edit the DECwindows command procedure.

If your installation does not include a license, you will not be able to start Network File System (NFS) or install DECrpc Version 1.0.

For more information on postinstallation tasks, see Section 3.

1.4 Using VMSINSTAL

After you log in to a privileged account to install the Connection, set the default to SYS$UPDATE and then invoke VMSINSTAL, the command procedure that installs this product. The VMSINSTAL command procedure has the following syntax:

```
@VMSINSTAL UCX013 ddcu: [OPTIONS N]
```

UCX013

The product name. If you want to be prompted for the product name, type a pair of quotation marks (" ") instead of UCX013.

Because your media also includes DECrpc Version 1.0, note the following:

- You must install the Connection prior to installing DECrpc.
- You cannot use an asterisk instead of UCX013.
- If you invoke VMSINSTAL without specifying UCX013, you must enter only UCX013 when VMSINSTAL prompts you for the names of the products you want to install. When you complete the Connection installation, VMSINSTAL prompts you for the names of other products you want to install. You can then enter RPC010 to install DECrpc.

ddcu:

Represents a device name where the distribution volumes for the media will be mounted, where *dd* is the device name, *c* is the controller name, and *u* is the unit number (ddcu: is the default device name used in various examples throughout this document). It is not necessary to use the console drive to install the Connection. If you do use the console drive, replace any media you removed from the drive.

If you type a pair of quotation marks (" ") instead of a device name, you are prompted for the information.

OPTIONS N

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

When you invoke VMSINSTAL, it checks the following:

- Whether you are logged in to a privileged account. Digital recommends that you install software from the system manager's account with your default device and directory set to SYS$UPDATE.

- Whether you have adequate quotas for installation. VMSINSTAL checks for the following quota values:
  - ASTLM = 24
  - BIOLM = 18
  - BYTLM = 18000
  - DIOLM = 18
  - ENQLM = 30
  - FILLM = 20

VMSINSTAL then checks whether the following conditions exist:

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

If VMSINSTAL detects either of these conditions, you are asked whether you want to continue the installation. If you want to continue, type YES. If you want to stop the installation, press the Return key.

The Connection uses the VMS License Management Facility (LMF) for licensing. Register the information contained in the PAK that is shipped with the Connection software by using either the VMS License command procedure (VMSLICENSE) or the LICENSE REGISTER command, as described in the *VMS License Management Utility Manual.*

2 Installing the Connection

The VMS/ULTRIX Connection has two major components: the Internet Network Software (Internet) and the Network File System (NFS) server software. The standard VMS installation procedure is used to install both of these components. The use of the NFS software requires the installation of the Internet component. If you plan to use only the Internet software, you may want to regain disk space occupied by the NFS software after the Connection installation is complete by deleting the NFS software (see Section 3.12).

VMSINSTAL asks a series of questions to which you must provide appropriate responses. For help on any of the questions, type a question mark (?). Default responses appear in brackets ([ ]). Press the Return key to accept the default response.

To abort the installation procedure at any time, press Ctrl/Y. When you press Ctrl/Y, the installation procedure deletes all files it has created up to that point and then exits. If you want to retry the installation procedure after pressing Ctrl/Y, you must proceed from step 2.

To save a copy of the VMSINSTAL session for future reference, use the following command:

```
$  SET HOST 0/LOG
```

To install the Connection, perform the following steps:

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

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

Step 2: Invoke VMSINSTAL.

Enter the following command line:

```
$  @VMSINSTAL UCX013 ddcu: OPTIONS N
```

The following banner appears on the screen:

```
      VAX/VMS Software Product Installation Procedure VX.X


It is dd-mmm-yyyy at hh:mm.
Enter a question mark (?) at any time for help.

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

If you are satisfied with the backup of your system disk, press the Return key. Otherwise, type NO and press the Return key to discontinue the installation.

Step 3: Mount the first installation kit volume.

You are now prompted to mount the distribution volume. Mount the volume and ensure that the device is in the ready state. Type YES and press the Return key when you are ready. A confirmation message says that the media is mounted.

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

  VMS/ULTRIX Connection Version 1.3


    Beginning installation of VMS/ULTRIX Connection
Version 1.3 at hh:mm

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

If the license for the Connection software has not been installed, you will now see the following message:

```
The license for this product has not been installed. If you only intend
to use the TCP/IP component to display DECwindows applications on a remote
host, then you do not need a product authorization key. However, if you
intend to use any of the Digital supplied applications or if you intend
to develop your own applications, you must install a product authorization
key. The installation of the VMS/Ultrix Connection will continue now.
```

Step 4: Select a release notes option.

If you chose the OPTIONS N parameter, you now see the following menu:

```
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 line. You can terminate the display at any time by pressing Ctrl/C.

If you select option 2, VMSINSTAL prompts you for a queue name. Either type a queue name or press the Return key to send the file to the default output print device. VMSINSTAL then displays a message indicating where the file is being printed.

If you select option 3, VMSINSTAL displays the release notes immediately on line, then prompts you for a queue name, then displays a message indicating where the file is being printed.

After you select one of the four options, the release notes are copied to SYS$HELP:UCX013.RELEASE_NOTES.

It is recommended that you read the release notes before installing the Connection.

Next, VMSINSTAL displays the following prompt:

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

Type YES or NO as appropriate. If you type YES, the procedure continues with this message:

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

Note *The release notes file installed by VMSINSTAL consists of the current product name and version number. Take care not to delete release notes for previous versions of the Connection.*

Step 5: Select installation options.

VMSINSTAL asks you whether or not you want to purge files replaced during the installation process. If you want to purge the old files, press the Return key. If you want to retain the old copies, answer NO.

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

If the Connection is already active in your system, whether it is standalone or in a cluster, and you want to purge the old Connection files, shut down the Connection first. If you are installing the Connection in a cluster, and the Connection is active on other hosts of the cluster, you should answer YES to eliminate the old version of the Connection software.

The following directories contain previous versions of Connection files:

- SYS$HELP
- SYS$LIBRARY
- SYS$MANAGER
- SYS$COMMON:[SYSTEST.UCX]
- SYS$COMMON:[SYSHLP.EXAMPLES.UCX]
- SYS$SYSTEM
- SYS$TEST

Step 6: Respond to the LMF query.

This product uses the VMS License Management Facility (LMF) for licensing. For more information on LMF, see the *VMS License Management Utility Manual*.

During the installation procedure the Connection is invoked and the following question is asked:

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

This step allows you to indicate whether or not your LMF license for the Connection is registered and loaded.

If you plan to use any of the applications supplied with the Connection (such as Telnet, File Transfer Protocol (FTP), and NFS) or if you plan to develop your own applications using the User Datagram Protocol (UDP), TCP, or IP, you must have a product authorization key. You must also have a PAK for the Connection to install DECrpc Version 1.0. It is strongly recommended that you install the PAK for the Connection before installing the product. You will not be able to start the Connection applications or execute the full Installation Verification Procedure until you install the PAK.

If you will only be using the TCP/IP component of the Connection to display DECwindows applications on a remote host, you do not need a PAK. Therefore, you can answer either YES or NO to this question and continue with the installation.

Step 7: Read informational messages.

VMSINSTAL produces a number of informational messages that report on the progress of the installation. The following message indicates it is installing the Connection software:

```
%UCX-I-DONEASK, No further questions will be asked during this
installation.
%VMSINSTAL-I-RESTORE, Restoring product saveset B...
```

VMSINSTAL now displays a list of the installed files.

```
*****************************************************************
            This installation will add the following files . . .
*****************************************************************

        SYS$COMMON:[SYSEXE]BGDRIVER.EXE
        SYS$COMMON:[SYSEXE]TNDRIVER.EXE
        SYS$COMMON:[SYSEXE]UCX$CONVERT.COM
        SYS$COMMON:[SYSEXE]UCX$CONVERT.FDL
        SYS$COMMON:[SYSEXE]UCX$FTP.EXE
        SYS$COMMON:[SYSEXE]UCX$FTPC.EXE
        SYS$COMMON:[SYSEXE]UCX$FTPD.EXE

        SYS$COMMON:[SYSEXE]UCX$FTPSERVER.COM
        SYS$COMMON:[SYSEXE]UCX$INETACP.EXE
        SYS$COMMON:[SYSEXE]UCX$INET_ROUTING.EXE
```

```
SYS$COMMON:[SYSEXE]UCX$SERVER_NFS.EXE
SYS$COMMON:[SYSEXE]UCX$TELNET.EXE
SYS$COMMON:[SYSEXE]UCX$UCP.EXE

SYS$COMMON:[SYSHLP]UCX013.RELEASE_NOTES
SYS$COMMON:[SYSHLP]UCX$FTP_HELP.HLB
SYS$COMMON:[SYSHLP]UCX$TELNET_HELP.HLB
SYS$COMMON:[SYSHLP]UCX$UCP_HELP.HLB
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$IOCTL_ROUTINE.C
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$TCP_CLIENT_IPC.C
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$TCP_CLIENT_QIO.C
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$TCP_CLIENT_QIO.MAR
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$TCP_SERVER_IPC.C
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$TCP_SERVER_QIO.C
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$TCP_SERVER_QIO.MAR
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$UDP_CLIENT_IPC.C
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$UDP_CLIENT_QIO.C
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$UDP_CLIENT_QIO.MAR
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$UDP_SERVER_IPC.C
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$UDP_SERVER_QIO.C
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$UDP_SERVER_QIO.MAR

SYS$COMMON:[SYSLIB]UCX$ACCESS_SHR.EXE

SYS$COMMON:[SYSLIB]UCX$CFS_SHR.EXE
SYS$COMMON:[SYSLIB]UCX$IPC_SHR.EXE
SYS$COMMON:[SYSLIB]UCX$IPC.OLB
SYS$COMMON:[SYSLIB]UCX$INETDEF.FOR
SYS$COMMON:[SYSLIB]UCX$INETDEF.H
SYS$COMMON:[SYSLIB]UCX$INETDEF.MAR
SYS$COMMON:[SYSLIB]UCX$INETDEF.PAS
SYS$COMMON:[SYSLIB]UCX$INETDEF.PLI
SYS$COMMON:[SYSLIB]UCX$INETDEF.R32

SYS$COMMON:[SYSMGR]UCX$CONFIG.COM
SYS$COMMON:[SYSMGR]UCX$FTPD_SHUTDOWN.COM
SYS$COMMON:[SYSMGR]UCX$FTPD_STARTUP.COM
SYS$COMMON:[SYSMGR]UCX$INET_SHUTDOWN.COM
SYS$COMMON:[SYSMGR]UCX$INET_STARTUP.COM
SYS$COMMON:[SYSMGR]UCX$NFS_SHUTDOWN.COM
SYS$COMMON:[SYSMGR]UCX$NFS_STARTUP.COM
SYS$COMMON:[SYSMGR]UCX$REMOTE_TTY_STARTUP.COM
SYS$COMMON:[SYSMGR]UCX$SHUTDOWN.COM
SYS$COMMON:[SYSMGR]UCX$STARTUP.COM
SYS$COMMON:[SYSMGR]UCX$UCP_STARTUP.COM

SYS$COMMON:[SYSMSG]UCX$MSG.EXE

SYS$COMMON:[SYSTEST.UCX]UCX$INET_IVP.EXE
SYS$COMMON:[SYSTEST]:UCX$IVP.COM
```

If you responded YES to the prompt that requests a file purge, previous versions of the Connection files are now purged. The end of the installation is indicated by the following message:

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

Step 8: Read the instructions for completing the installation.

If the Internet is not up and running during the installation, VMSINSTAL displays the following information:

```
******************************************************************
  Instructions for Completing VMS/ULTRIX Connection Installation
******************************************************************

            All files have been copied from the installation kit.
            If you are installing this product for the first time,
            or you want to run the IVP, you must execute the
            following command procedure:

            SYS$MANAGER:UCX$CONFIG.COM

            If you would like this product to be started when your
            VMS system is started, modify your system startup command
            file (SYS$MANAGER:SYSTARTUP_V5.COM) to invoke the VMS/ULTRIX
            Connection startup command file:

            SYS$MANAGER:UCX$STARTUP.COM


            NOTE: If you are re-installing UCX, then you must
            reboot your system.


            For information on the postinstallation steps, see the
            VMS/ULTRIX  Connection Installation Guide (Section 3).

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target
directories...
        Installation of UCX V1.3 completed at hh:mm

        VMSINSTAL procedure done at hh:mm
```

If the Internet is up and running, VMSINSTAL displays the following information:

```
******************************************************************
  Instructions for Completing VMS/ULTRIX Connection Installation
******************************************************************

     The Connection product is already active on your system.

     You must reboot your system before continuing
     with the postinstallation.
```

```
     For information on the postinstallation steps, see the
     VMS/ULTRIX  Connection Installation Guide (Section 3).


%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target
directories...
 Installation of UCX V1.3 completed at hh:mm
```

Step 9: End the installation procedure.

The following message means that the VMSINSTAL has successfully completed installation and verification of the Connection software. If VMSINSTAL reports a failure, review the installation prerequisites.

```
   Installation of VMS/ULTRIX Connection 1.3 completed at hh:mm

   VMSINSTAL procedure done at hh:mm
```

At this point the installation is complete and you can log out.

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

Note that VMSINSTAL deletes or changes entries in the process symbol tables during the installation. Therefore, if you are going to continue using the system manager's account and you want to restore these symbols, you should log out and log in again.

If you removed any media from the console drive before beginning, replace them now.

2.1 Installation Error Messages

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

```
%VMSINSTAL-E-INSFAIL, The installation of UCX V1.3 has failed.
```

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

- The operating system version is incorrect
- The prerequisite software version is incorrect
- Quotas necessary for successful installation are inadequate
- Process quotas required by VMSINSTAL are inadequate (see Section 1.4)
- The VMS Help library is currently in use

If you receive any error message beginning with %VMSINSTAL, refer to the *Guide to VAX/VMS Software Installation* for an explanation and possible solution to the problem.

IVP error messages are described in Section 4. Most Connection messages have the same format as standard VMS system messages: %UCX-E-IDENT, text.

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

3 Performing Postinstallation Tasks

This section briefly describes the postinstallation tasks that you need to perform. The steps are as follows:

1. Modify the non-paged pool and other parameters.
2. Edit the system startup and site-specific command files.
3. Set up the host Internet configuration.
4. Start the Internet software.

In addition to these steps, you can optionally perform the following steps:

- Run the Installation Verification Procedure (see Section 4).
- Define the network databases.
- Start the NFS server.
- Make the online documentation available.
- Edit DECwindows command procedure.
- Install DECrpc.

For more detailed information on most of these tasks, see the *VMS/ULTRIX Connection System Manager's Guide*.

3.1 Modifying the Non-Paged Pool Size and Other Parameters

For the Connection to function properly, you must increase the size of the non-paged dynamic pool (the SYSGEN parameters NPAGEDYN and NPAGEVIR). NPAGEVIR defines the maximum size to which NPAGEDYN can be increased. Unless you are sure that NPAGEVIR is already high enough, you should add the same number to both parameters. Digital recommends adding at least 342,000 bytes of non-paged pool, which is the default maximum number of non-paged pool needed by the Internet software.

To do this, you must edit the SYS$SYSTEM:MODPARAMS.DAT file and add statements that increase the values of the SYSGEN parameters NPAGEDYN and NPAGEVIR. Then invoke the AUTOGEN command procedure to reset parameter values. Finally, reboot the system to have the new parameter values take effect.

Edit the SYS$SYSTEM:MODPARAMS.DAT file as follows:

```
! add some non-paged pool for Connection software
!
ADD_NPAGEDYN=342000
ADD_NPAGEVIR=342000
```

You can also calculate how much additional non-paged pool your system needs by using the following formula:

$$nonpaged\ pool = socket * 1280 + dbuf * 1792 + cbuf * 256 + mtusers * 700 + mrusers * 700$$

The symbols *socket*, *dbuf*, and *cbuf* are the maximum number of sockets, data buffers, and control buffers that you want to have on the system. The symbols *mtusers* and *mrusers* are the maximum number of Telnet and rlogin users.

If you increase the cache size of the host in the future, Digital recommends that you increase the host's non-paged pool size again.

You can improve the Connection's performance after the installation by adjusting certain Connection and SYSGEN parameters (such as, CHANNELCNT and WSMAX).

For more information on performance, see the *VMS/ULTRIX Connection System Manager's Guide*.

3.2 Editing the System Startup and Site-Specific Command Procedures

To have the system start up the Connection software automatically, you must edit your local system startup command procedure (SYSTARTUP_V5.COM) so that it invokes the Connection startup command procedure. To do this, add the following line to the system command procedure after the DECnet startup procedure:

```
@SYS$MANAGER:UCX$STARTUP
```

You can also do the same with the Connection shutdown procedure, by adding the following line to your site-specific shutdown procedure (SYSHUTDOWN.COM):

```
@SYS$MANAGER:UCX$SHUTDOWN
```

3.3 Setting Up the Internet Configuration

Before starting the Internet software, you must set up an Internet configuration for your system. You do this by executing the UCX$CONFIG.COM command procedure. This procedure prompts you for information about the Internet configuration. Without executing this command procedure, you cannot start the Internet software.

The UCX$CONFIG.COM command procedure performs the following major tasks:

- Defines any interfaces for each Ethernet controller on the system, supplying an Internet address, network mask, and broadcast mask.
- Creates the Connection databases.
- Configures the Berkeley Internet Name Domain (BIND) resolver.
- Configures dynamic routing.

It also creates the following two files in the SYS$MANAGER directory:

- UCX$INET_SET_INTERFACES.COM — This file contains the Ethernet controller definitions and Internet addresses. If you select the BIND resolver and dynamic routing options, this file also includes the commands to enable these options. This file must be present for Internet to run.
- UCX$NFS_SET_FS.COM — This file contains the prototype commands to bind file systems. You are instructed to edit this file in Section 3.6.

It is recommended that you run the UCX$CONFIG.COM command procedure immediately following the installation to create the database files, even if the files may already have been created. If these database files have already been created, then running UCX$CONFIG.COM will have no effect on them. However, each time you run UCX$CONFIG.COM, a new UCX$INET_SET_INTERFACES.COM is created.

Before executing this procedure you must know the following information:

- The host names and Internet addresses for each Internet interface (Ethernet controller) on your system.
- If you use subnets, you must know the network mask.
- To configure and enable the BIND resolver, you must know the name of the BIND domain your system will reside in and the names and addresses of the BIND servers that will service your system.
- To enable dynamic routing, you must know whether you want your system to provide routing information to the network and whether you want it to supply the default route.

The following steps show a sample execution of the UCX$CONFIG.COM command procedure. If your host is a multi-homed host (has more than one Internet address) or belongs to a VAXcluster, see the *VMS/ULTRIX Connection System Manager's Guide*.

Step 1: Execute UCX$CONFIG from a privileged account.

You can run the UCX$CONFIG.COM command procedure from the same directory you did the installation by typing the following command line:

```
$ @SYS$MANAGER:UCX$CONFIG.COM
```

Step 2: Start the network after the configuration.

The command procedure asks if you want the network started after the configuration.

```
                VAX Internet Network Configuration Procedure

        This procedure will help you define the parameters needed to get
        VAX Internet running on this machine.

Start network after configuration [YES] ?
```

If you want to start the network after the configuration, press the Return key. If you do not want to start the network, type NO and press RETURN. If you answer NO to this prompt you will must start the network by executing the SYS$MANAGER:UCX$INET_STARTUP.COM. command procedure.

Step 3: Run the IVP program

The command procedure asks if you want to run the IVP program after the configuration.

```
Run the IVP after the configuration [NO] ? YES
```

It is recommended that you run the IVP program after the configuration. To do this, type YES and press the Return key.

Step 4: Create the database and NFS prototype files.

The command procedure then creates the database files.

```
        Creating initial UCX Internet and NFS database files.

        Creating SYS$COMMON:[SYSEXE]UCX$HOST.DAT
        Creating SYS$COMMON:[SYSEXE]UCX$NETWORK.DAT
        Creating SYS$COMMON:[SYSEXE]UCX$ROUTE.DAT
        Creating SYS$COMMON:[SYSEXE]UCX$EXPORT.DAT
        Creating SYS$COMMON:[SYSEXE]UCX$PROXY.DAT
        Creating SYS$COMMON:[SYSMGR]UCX$NFS_SET_FS.COM
```

If a previous version of the Connection is installed on your system, the following question asks if you want to convert the UCX$ROUTE database:

```
This version of VMS/ULTRIX Connection requires a different
UCX$ROUTE file format than earlier versions.  This change was
required for dynamic routing support.

A V1.2 or earlier UCX$ROUTE database has been found on your
system.

A new UCX$ROUTE database will be created as:
SYS$COMMON:[SYSEXE]UCX$ROUTE.DAT

You may choose to have this procedure populate this new
file with your existing UCX$ROUTE database.

Your old UCX$ROUTE database will be renamed with an extention
of .OLD

Do you want to convert your UCX$ROUTE database [YES] ? YES
```

Step 5: Entering the Internet interface information.

At this point, the command procedure asks you to provide information on the Internet interfaces on your system. You must have an Internet address for each interface that communicates over the netowrk.

```
The Ethernet device(s) on your system are: XEA0:

WARNING - the Internet host name is case sensitive.
Lowercase host names must be  enclosed  in  quotes.
For example:
                "bridge"

Start of configuration questions for Internet interface DE0.
DE0 is the ethernet device XEA0
```

```
Enter host name:                                  "whale"
Enter Internet address for whale:          128.23.23.172
Enter Internet network mask for whale     [255.255.0.0]:
Enter broadcast mask for whale         [128.23.255.255]:
```

When the procedure requests a host name, enter the name of the current system on which you are installing the software. The command procedure then asks for the Internet address, Internet network mask, and broadcast mask for that host. The command procedure provides defaults for the broadcast and network masks. If your site uses subnet addressing, these defaults will not be correct.

This step is repeated for each Ethernet interface on your system.

If you do not want to configure an interface, press RETURN at the prompt.

Step 6: Confirm the information.

This step asks you to confirm the information.

```
        The following parameters will be used to define the Internet
        device DE0:

                Host name:          whale
                Internet address:   128.23.23.172
                Network mask:       255.255.0.0
                Broadcast mask:     128.23.255.255

        Is the above correct? YES

        End of configuration questions for Internet interface DE0
```

Step 7: Enable the BIND resolver

This step asks if you want to enable the BIND resolver. Answering YES to this question, configures your system as a BIND client. Therefore, you must make certain that there is a BIND server on your network.

```
 UCX supports the Berkeley Internet Name Domain (BIND) client.
 BIND is a network service that enables clients to name
 resources or objects and share information with other objects
 on the network.

 Before configuring your system as a  BIND Client, you should
 first be sure that there is at least one system on the network
 configured as either a BIND primary or secondary server for
 this domain.

Do you want to enable the BIND resolver [YES] ? YES
```

If you answer YES to this question, you must provide a domain name. If you answer NO to this question, proceed to step 10.

Step 8: Provide the BIND domain name

This step asks you to provide the name of the BIND domain for your local environment.

```
  WARNING - BIND domain and server names are case sensitive.
 Lowercase names must be enclosed in quotes.


 You must know the BIND domain name on which your system
 will be a BIND client, in order to configure BIND. This
 information should be available from your Internet network
 adminstrator.

Enter the default domain name: "xyz.abc.com"
```

Step 9: Provide the remote BIND server name

This step asks you to provide the name of the remote BIND servers for your client. You can use either the server's name or its Internet address.

You can enter a number of servers. When you have entered all the servers you want, press Return at the prompt.

```
 The BIND server may be specified by its address or name;
 however, if specified by name, there must be an entry
 for it in the UCX$HOST database.

        You will be asked one question for each server.  Enter a
        <CR> at the prompt to terminate the list.

Enter the remote BIND server : 128.23.23.175
Enter the remote BIND server : "servra"
Enter the remote BIND server :
```

When you enter the server, the command procedure checks to see if the server is listed in the local host database. If it is, the procedure asks you for the name of the next server.

If you entered the server by name and the server is not in the local host database, the procedure asks you for the server's Internet address as follows:

```
Enter remote BIND server: MYSRVR
        MYSRVR is not in the local host database.

Enter Internet address for MYSRVR: 130.180.12.12
```

If you entered the server by address and the server is not in the local host database, the procedure asks you for the server's name as follows:

```
Enter remote BIND server: 130.180.12.13

        130.180.12.13 is not in the local host database.
        If you want to enter the server in the local host
        database, enter the server name. Otherwise, enter <CR>.

Enter remote BIND server name []: YOSRVR
```

Step 10: Enable dynamic routing

This step asks if you want to enable dynamic routing.

If you answer YES to this question, this host will receive dynamic routing information form other hosts on the network.

```
 If you enable dynamic routing, this host will listen
 for all dynamic routing information coming from other
 hosts to update its internal routing tables.
 It will also supply its own Internet addresses to
 routing requests made from remote hosts.


Do you want to enable dynamic routing [YES] ? YES
```

If you answer NO to this question, no other questions are asked.

Step 11: Supply routing information

This step asks if you want this host to supply its routing information to other hosts on the network.

```
 If you enable the 'supply' option of dynamic routing,
 this host will supply dynamic routing information to
 other hosts on the network whether it is acting as an
 internetwork gateway or not.

Do you want this host to supply its dynamic routing information [NO]? YES
```

Step 12: Supply the default route

This step asks if you want this host to supply the default route. If you answer YES to this question, this host will supply the default route.

```
        There can be one and only one host on your network
        which defines a default network route.

        If you want this host to supply the default network route,
        then all packets which cannot be routed to their
        destination host or network will be routed via this host.

Do you want this host to supply the default network route [NO] ? NO
```

Unless this host is going to be dedicated to routing, it is suggested that you answer NO to this question.

After you have entered the necessary information to define the network configuration, you can optionally start the Internet and run the Installation Verification Procedure (IVP) through UCX$CONFIG.COM.

At this point in the postinstallation procedure, you must define your network databases (for example, remote hosts). If you are installing the VMS/ULTRIX Connection into an existing ULTRIX network, you can copy the database files from an ULTRIX host and use the UCX CONVERT commands to convert the ULTRIX-formatted databases to VMS-formatted database files. For more information, see Section 3.5.

3.4 Starting the Internet Software

Once you have installed the Connection and set up the host Internet configuration, you can start the Internet software. You can start the software by entering the following command:

```
$  @SYS$MANAGER:UCX$INET_STARTUP.COM
```

Alternatively, you can choose to have the software started automatically when you perform the host Internet configuration or when you run the IVP command procedure.

3.5 Defining Network Databases

If you have hosts in your network that support the Internet protocol, you want to copy the following databases to your VMS host:

- */etc/hosts*
- */etc/networks*

If your installation included a PAK, you can use FTP to copy the files to your VMS system (see the *VMS/ULTRIX Connection System Manager's Guide*). If you cannot use FTP to copy the files, you may have to enter the files manually. However, if your network contains an ULTRIX host running DECnet, you can copy the use DECnet to copy the databases.

Once you have copied the databases to your VMS host, you can use the UCX CONVERT/VMS commands to format the */etc/hosts* and */etc/networks* files for use with the Connection.

3.6 Starting the NFS Server

Perform the following steps to start the Network File System (NFS) server. Unless you are an experienced NFS system manager, you should read the *VMS/ULTRIX Connection System Manager's Guide* before attempting this procedure.

If you will only be using the TCP/IP component of the Connection to display DECwindows applications, you do not have to perform this task.

1. Create proxy accounts for NFS clients using the UCX ADD PROXY command. There must be proxy accounts for the ULTRIX clients root (UID = 0, GID = 1) and nobody (UID = –2, GID = –2) to be able to do root-level mounts of any file systems. You can generate a proxy file from an ULTRIX password file by using the UCX CONVERT command.
2. Define any Connection VMS file systems that will be accessed by NFS clients using the UCX BIND command.
3. Convert VMS text files to STREAM_LF with the SYS$SYSTEM:UCX$CONVERT.COM command procedure.
4. Export VMS file systems/directories to appropriate clients using the UCX ADD EXPORT command.
5. Create, define, and export Connection ULTRIX file systems, if any. For this step you use the UCX CREATE CONTAINER and UCX BIND commands.
6. Tune the NFS startup parameters by editing the UCX$NFS_STARTUP.COM command procedure.

The NFS server represents time relative to Greenwich Mean Time (GMT). As such, you must modify the logical name UCX$NFS_TIME_DIFFERENTIAL to contain the correct GMT differential. For example, Eastern Standard Time (U.S.A.) is five hours west of Greenwich Mean Time. To change the time differential to Eastern Standard Time, change UCX$NFS_TIME_DIFFERENTIAL to 5. Negative numbers indicate hours east of GMT.

7. Edit the SYS$MANAGER:UCX$NFS_SET_FS.COM command procedure to include the proper bind definitions (the definitions you established in steps 2 and 5 of this procedure) using the UCX BIND command.
8. Start the NFS server by executing either the UCX$STARTUP.COM or the UCX$NFS_STARTUP.COM procedure. (UCX$NFS_STARTUP.COM is automatically invoked by UCX$STARTUP.COM.)

If the Internet has not been started on your system, execute the UCX$STARTUP.COM procedure.

If the Internet is started on your system, you must shut down NFS and restart it.

To shut down NFS, execute the SYS$MANAGER:UCX$NFS_SHUTDOWN.COM procedure.

To restart NFS, execute the SYS$MANAGER:UCX$NFS_STARTUP.COM procedure.

An example of starting NFS is provided in Example 3.

3.7 Making Online Documentation Available

The Connection provides online documentation for the UNIX workstation user. This documentation describes what the UNIX user needs to know about accessing VMS files on a VMS server.

If you will only be using the TCP/IP component of the Connection to display DECwindows applications, you do not have to perform this task.

To make the documentation available to the UNIX user, perform the following steps:

1. Copy the online documentation (SYS$HELP:UCX$VMS_FILES.DOC) to a public directory.
2. Rename the online documentation (UCX$VMS_FILES.DOC) to a valid UNIX file name (a file name without a dollar sign).
3. Export the public directory so that the UNIX workstation users can mount the directory with the *mount* command and have access to its files.

3.8 Modifying the DECwindows Command Procedure

For DECwindows to load the TCP/IP transport and to set up the appropriate logical name in the DECW$SERVER0_TABLE logical name table, you must modify the DECW$PRIVATE_SERVER_SETUP.COM command procedure (which is located in SYS$MANAGER) to define the TCP/IP transport as follows:

```
$ DECW$SERVER_TRANSPORTS == "DECNET,LOCAL,TCPIP"
```

If DECNET is running on the same machine, DECNET must be started first.

For more information, see the *VMS Upgrade and Installation Procedures Manual*.

3.9 Installing DECrpc

DECrpc Version 1.0 is included on the same media with the Connection software kit. You can install DECrpc using VMSINSTAL. How to use VMSINSTAL is described in Sections 1.4 and 2.

DECrpc provides online release notes. If you use VMSINSTAL with the OPTIONS N parameter, you can display and print the release notes before installation.

To obtain the release notes after the installation, type or print the file SYS$COMMON:[SYSHLP]RPC010.RELEASE_NOTES.

A sample installation of DECrpc is provided in Example 4.

When installing DECrpc, the installation differs from the Connection in the following ways:

- When you invoke VMSINSTAL, substitute RPC010 as the product name in the VMSINSTAL command line as follows:

  ```
  $  @VMSINSTAL RPC010 ddcu: [OPTIONS N]
  ```

  The parameters are defined in section Section 1.4.

Note *You must install the Connection before installing DECrpc. Because of this you cannot use an asterisk instead of RPC010.*

If you have not installed the Connection and you invoke VMSINSTAL without providing the UCX013, you must only enter UCX013 when VMSINSTAL prompts you for the names of the products you want to install.

When you complete the Connection installation, VMSINSTAL prompts you for the names of other products you want to install. You can then install DECrpc.

- The prompts and messages you receive refer to DECrpc.

- The files affected during the installation are specific to DECrpc (see Section 6.2.
- The instructions for completing the installation (step 8) are specific to DECrpc. The text of these instructions is included in the sample DECrpc installation in Example 4.
- DECrpc has it's own installation verification program (RPC$IVP.COM). To verify the installation, execute the following command:

  ```
  $  @SYS$TEST:RPC$IVP
  ```

When you install DECrpc, note the following:

- DECrpc Version 1.0 does not require you to register the product with the LMF facility. Therefore, when you are asked if the product's PAK is registered and loaded, answer YES.
- You must decide which system on your network is going to run the Global Location Broker and then edit the RPC$UCX_STARTUP.COM command procedure.
- DECprc utilites use foreign commands. To make the commands available system wide, you must define the following symbols in SYS$MANAGER:SYSLOGIN.COM:
  - LB_ADMIN :== RPCEXE:RPC$LB_ADMIN
  - UUID_GEN :== RPCEXE:RPC$UUID_GEN
  - STCODE :== RPCEXE:RPC$STCODE
  - NIDL :== RPCEXE:RPC$NIDL

  The logical name RPC$EXE is defined in the RPC$UCX_STARTUP.COM command procedure.
- DECrpc client programs use broadcast messages to find servers. To enable these programs to send broadcast messages without special privileges, you must disable the privilege checking with the UCX command SET COMMUNICATION/BROADCAST. To make this command permanent, you can include it in the UCX$INET_SET_INTERFACES.COM command procedure.

If DECrpc Version 2.0 is already installed on your system, the installation fails and displays the following messages:

```
%VMSINSTAL-I-RESTORE, Restoring product saveset A ...
%VMSINSTAL-I-RELMOVED , The product's release notes have been successfully
moved to SYS$HELP.
%RPC-E-V2CONFLICT, The DECrpc V2.0 has already been installed; V1.0 will not
be installed
%VMSINSTAL-E-INSFAIL, The installation of RPC V1.0 has failed.
```

```
VMSINSTAL procedure done at hh:mm
```

3.10 Reinstalling the Connection

There may be occasions when you will want to reinstall the VMS/ULTRIX Connection software, such as when you are upgrading to higher VMS software release. If you are reinstalling the Connection, you must reboot the system.

3.11 Migrating to Full Functionality

If you installed the Connection without a PAK and later decide to migrate to the full functionallity of the product, you have to purchase a license and install the PAK; you do not have to reconfigure the Internet.

If you have deleted any of the Connection software, you will have to reinstall the Connection to ensure full functionality.

If you want to use the NFS component or DECrpc, you must start the NFS server and install the DECrpc software. How to perform these tasks is discussed earlier in this section.

3.12 Deleting the Network File Server

The installation procedure always copies the NFS and Internet software to your disk. The Internet software can run independently while the NFS software can run only with the Internet software installed and started. If you want to free up disk space by removing the NFS software, delete the following files:

- SYS$SYSTEM:UCX$SERVER_NFS.EXE
- SYS$SYSTEM:UCX$PROXY.DAT
- SYS$SYSTEM:UCX$EXPORT.DAT
- SYS$MANAGER:UCX$NFS_STARTUP.COM
- SYS$MANAGER:UCX$NFS_SHUTDOWN.COM

4 Verifying the Installation

The VMS/ULTRIX Connection kit includes the Installation Verification Procedure; it is a command procedure that verifies the installation and operation of the Internet software.

This section describes the Installation Verification Procedure (IVP), including possible errors and what to do about them.

4.1 Running the Installation Verification Procedure

The IVP, called UCX$IVP.COM, is placed in the SYS$TEST directory when you install the Connection. If a product authorization key has been loaded, the IVP verifies that the complete Internet software has been installed correctly. If a product authorization key has not been loaded, the IVP only verifies that the TCP/IP component of the Connection has been installed correctly to ensure that TCP/IP DECwindows will work correctly.

You can run the IVP at any time after you have successfully executed the configuration procedure UCX$CONFIG.COM, which also provides an option to run the IVP after successful setup of the network configuration.

To run the IVP, you need the account privileges SYSPRV, OPER, NETMBX, and TMPMBX, or the privilege SETPRV (to set the other privileges).

To run the IVP independent of UCX$CONFIG.COM, type the following command:

```
$  @SYS$TEST:UCX$IVP
```

Note *The UCX$IVP.EXE image file is independent of the VMS/ULTRIX Connection software and can be deleted without any adverse effect on the Connection. However, it is strongly recommended that you keep the file, in case you need to run the IVP again.*

4.2 Installation Verification Procedure Messages

IVP messages have the same format as standard VMS system messages, as follows:

UCX-E-IDENT, text.

The IVP program tests the TCP/IP protocols and, optionally, tests the UDP/IP and IP protocols if the product authorization key has been installed. It transfers device-socket packets between a sender and a receiver.

These packets are continuously varying in size. The UDP/IP and TCP/IP packets start at 8 bytes and increase to 8195 bytes, and the IP packets start at 8 bytes and increase to 2048 bytes. The received packets are compared with the sent packets, and if corrupted data or invalid length is detected, an error message is displayed.

Note that the IVP does not measure the Internet performance or system performance.

The IVP program may display the messages described in the following sections.

4.2.1 Informational Messages The starting IVP message has the following format:

```
%%% VMS/ULTRIX Connection Internet IVP started at 'system time' %%%
```

The completion IVP message has the following format:

```
%%% VMS/ULTRIX Connection Internet IVP completed at 'system time' %%%


'protocol' test started at 'system time'

        - communication protocol IVP completion

'protocol' test ended at 'system time'
'protocol' transferred successfully in 'time interval' seconds 4198400
bytes
```

The following is an example of a successful execution of the IVP, if you have a product authorization key installed. If a PAK is not installed the messages are be slightly different.

```
%%% VMS/ULTRIX Connection Internet IVP started at dd-mmm-yyy
hh:mm:ss.cc %%%

UDP/IP test started at dd-mmm-yyyy hh:mm:ss.cc
UDP/IP test ended at dd-mmm-yyyy hh:mm:ss.cc
UDP/IP transferred successfully in 30 seconds 4198400 bytes

TCP/IP test started at dd-mmm-yyyy hh:mm:ss.cc
TCP/IP test ended at dd-mmm-yyyy hh:mm:ss.cc
TCP/IP transferred successfully in 148 seconds 4198400 bytes

RAW_IP test started at dd-mmm-yyyy hh:mm:ss.cc
RAW_IP test ended at dd-mmm-yyyy hh:mm:ss.cc
RAW_IP transferred successfully in 3 seconds 251000 bytes
%%% VMS/ULTRIX Connection Internet IVP completed at dd-mmm-yyyy
hh:mm:ss.cc %%%
```

The time of execution depends on your hardware configuration.

4.2.2 Error Messages All errors detected by the IVP are fatal. When an error is detected, an error message is displayed and the IVP exits.

Error messages have the following format:

```
%%% VMS/ULTRIX Connection Internet IVP error 'error message'
'system time' %%%
```

An error message can be one of the following:

- Internet (BG0:) Device Assign
- Local Host Not Found
- Local Host Name Not in Hosts Database
- Create and Bind Sender Device-Socket

- Create and Bind Receiver Device-Socket
- Connect on Device-Socket
- Listen on Device-Socket
- Accept on Device-Socket
- Sender Device-Socket
- Receiver Device-Socket
- Invalid Length
- Data Corruption
- Send Shutdown on Device-Socket
- Receive Shutdown on Device-Socket
- Close Sender Device-Socket
- Close Receiver Device-Socket
- Deassign Sender Device-Socket
- Deassign Receiver Device-Socket

If you receive one of these errors, it means one of the following:

- The network configuration was performed incorrectly and needs to be redone.
- The startup failed and the server needs to be shut down and restarted. You may have to increase SYSGEN parameters before the network can be started correctly.
- The installation kit is bad and needs to be replaced.

If none of these solutions corrects the problem, submit a Software Performance Report (SPR) to Digital.

4.3 Determining and Reporting Problems

If an error occurs while you are using the Connection and you believe that the error is caused by a problem with the Connection software, submit a Software Performance Report.

When you prepare to submit an SPR, please do the following:

- Provide as complete a description of the problem as possible, trying not to overlook any relevant detail. Include in the description the version numbers of the Connection and VMS software.
- Reduce the problem to the lowest level possible, preferably to a single command.

- Include listings of any output from the Connection.
- Save a SHOW LOGICAL listing of all the Connection definitions and save the listings produced by the relevant UCX SHOW commands.
- Include listings of the log file, UCX$NFS_LOGFILE.DAT, which is output to the operator's console and the security console used by NFS.

5 Installing Maintenance Updates

Digital may periodically issue maintenance updates of the VMS/ULTRIX Connection software. Each update consists of an installation kit. Install this kit as described in this document or in any documentation that may accompany the maintenance update.

Each time a maintenance update is released, the version number changes. For example, if the current version is 1.0, the version number of the first maintenance update will be 1.1. In addition, the maintenance update includes new release notes. The release notes describe the changes that have been made to the Connection since the previous release.

The update release notes are provided on line. Read the release notes before you install Connection software; they are also accessible at any time after the product is installed. For information on reading the release notes before the Connection software is installed, follow the installation procedure through step 5. To locate the release notes after the Connection is installed, display or print the file SYS$HELP:UCX013.RELEASE_NOTES.

Note *If you reinstall the VMS/ULTRIX Connection, you must reboot the system after the installation.*

6 Files Affected by the Installation

This section describes the files produced or changed during the Connection and DECrpc installations.

6.1 Files Affected by Installing the Connection

This section describes the files produced or changed during the Connection installation.

Files	Function
SYS$COMMON:(SYSEXE) Files	
BGDRIVER.EXE	Connection Internet device driver
TNDRIVER.EXE	Telnet and rlogin secure application

Files	Function
SYS$COMMON:(SYSEXE) Files	
UCX$CONVERT.FDL	File definition required for the UCX$CONVERT.FDL
UCX$CONVERT.COM	Connection command procedure to assist in converting files to STREAM_LF
UCX$INETACP.EXE	Ancillary control process for the Internet device driver
UCX$INET_ROUTING.EXE	Connection Internet dynamic routing
UCX$FTPD.EXE	Connection FTP control command server
UCX$FTPC.EXE	Connection FTP data server
UCX$FTP.EXE	Connection client FTP
UCX$FTPSERVER.COM	Connection command procedure to start an FTP child process.
UCX$INET_ROUTING.EXE	Connection routing server
UCX$SERVER_NFS.EXE	Connection NFS server
UCX$TELNET.EXE	Connection Telnet client
UCX$UCP.EXE	Connection management software
SYS$COMMON:(SYSLIB) Files	
UCX$ACCESS_SHR.EXE	Connection database access routines
UCX$CFS_SHR.EXE	Connection CFS run-time library
UCX$IPC_SHR.EXE	Connection IPC run-time library
UCX$IPC.OLB	Connection IPC object library
UCX$INETDEF.H	Connection Internet C interface
UCX$INETDEF.R32	Connection Internet BLISS interface
UCX$INETDEF.MAR	Connection Internet MACRO interface
UCX$INETDEF.PAS	Connection Internet Pascal interface
UCX$INETDEF.FOR	Connection Internet FORTRAN interface
UCX$INETDEF.PL1	Connection Internet PL/I interface

Files	Function
SYS$COMMON:(SYSHLP) Files	
UCX$FTP_HELP.HLB	Connection FTP help library
UCX$TELNET_HELP.HLB	Connection Telnet help library
UCX$UCP_HELP.HLB	Connection management software help library
UCX013.RELEASE_NOTES	Connection release notes
SYS$COMMON:(SYSHLP.EXAMPLES.UCX) Files	
UCX$IOCTL_ROUTINE.C	Programming example
UCX$TCP_CLIENT_IPC.C	Programming example
UCX$TCP_CLIENT_QIO.C	Programming example
UCX$TCP_CLIENT_QIO.MAR	Programming example
UCX$TCP_SERVER_IPC.C	Programming example
UCX$TCP_SERVER_QIO.C	Programming example
UCX$TCP_SERVER_QIO.MAR	Programming example
UCX$UDP_CLIENT_IPC.C	Programming example
UCX$UDP_CLIENT_QIO.C	Programming example
UCX$UDP_CLIENT_QIO.MAR	Programming example
UCX$UDP_SERVER_IPC.C	Programming example
UCX$UDP_SERVER_QIO.C	Programming example
UCX$UDP_SERVER_QIO.MAR	Programming example
SYS$COMMON:(SYSMGR) Files	
UCX$STARTUP.COM	Connection startup command procedure
UCX$SHUTDOWN.COM	Connection shutdown command procedure
UCX$CONFIG.COM	Connection Internet configuration procedure
UCX$INET_STARTUP.COM	Connection INET startup command procedure
UCX$INET_SHUTDOWN.COM	Connection INET shutdown command procedure
UCX$NFS_STARTUP.COM	Connection NFS startup command procedure
UCX$NFS_SHUTDOWN.COM	Connection NFS shutdown command procedure

Files	Function
SYS$COMMON:(SYSMGR) Files	
UCX$UCP_STARTUP.COM	Connection UCP startup command procedure
UCX$REMOTE_TTY_STARTUP.COM	Connection Telnet and rlogin server startup command procedure
UCX$FTPD_STARTUP.COM	Connection FTP Server startup command procedure
UCX$FTPD_SHUTDOWN.COM	Connection FTP Server shutdown command procedure
SYS$COMMON:(SYSMSG) File	
UCX$MSG.EXE	Connection message file
SYS$COMMON:(SYSTEST.UCX) File	
UCX$INET_IVP.EXE	Connection Internet IVP testing program
SYS$COMMON:(SYSTEST) File	
UCX$IVP.COM	Connection IVP command procedure

6.2 Files Affected by Installing DECrpc

This section describes the files produced or changed during the DECrpc installation.

Files	Function
SYS$COMMON:(SYSEXE) Files	
RPC$NRGLBD.EXE	DECrpc golbal location broker
RPC$LLBD.EXE	DECrpc local location broker
RPC$LB_ADMIN.EXE	DECrpc administration utility
RPC$UUID_GEN.EXE	DECrpc UUID generation utility
RPC$NIDL.EXE	DECrpc NIDL stub generator
RPC$STCODE.EXE	DECrpc status code interpretor
RPC$STCODE.DAT	DECrpc status code database

Files	Function
SYS$COMMON:(SYSLIB) Files	
RPC$LIBNCK.EXE	DECrpc run-time shared image
RPC$LIBNCK.OPT	Linker option file to link with RPC$LIBNCK.EXE
SYS$COMMON:(RPC$INCLUDE) Files	
BASE.IDL	Base IDL file
CONV.IDL	IDL file
FAULT.IDL	IDL file
GLB.IDL	Global location broker IDL file
LB.IDL	Location broker IDL file
LLB.IDL	Local location broker IDL file
NBASE.IDL	IDL file
NCASTAT.IDL	IDL file
RPC.IDL	DECrpc IDL file
RPROC.IDL	IDL file
RRPC.IDL	IDL file
SOCKET.IDL	VAX C socket routines IDL file
TIMEBACE.IDL	IDL file
UUID.IDL	UUID IDL file
BASE.H	Base DECrpc VAX C include file
CAL.H	DECrpc VAX C include file
ERROR.H	Error DECrpc VAX C include file
GLB.H	Global location broker DECrpc VAX C include file
IDL_BASE.H	DECrpc VAX C include file
LB.H	Location broker VAX C include file
LLB.H	Local location broker VAX C include file
NBASE.H	DECrpc VAX C include file
NCSTAT.H	DECrpc VAX C include file
PBASE.H	DECrpc VAX C include file
PFM.H	DECrpc VAX C include file
PPFM.H	DECrpc VAX C include file
RPC.H	DECrpc VAX C include file

Files	Function
SYS$COMMON:(RPC$INCLUDE) Files	
RRPC.H	DECrpc VAX C include file
SOCKET.H	DECrpc VAX C socket routines include file
STD.H	DECrpc VAX C include file
TIMEBASE.H	DECrpc VAX C include file
UCX$IFDEF.H	DECrpc VAX C include file
UCX$TYPEDEF.H	DECrpc VAX C include file
UUID.H	UUID DECrpc VAX C include file
SYS$SPECIFIC:(SYS$STARTUP) Files	
RPC$UCX_STARTUP.COM	DECrpc startup file
SYS$SPECIFIC:(SYSMGR) Files	
RPC$UCX_SHUTDOWN.COM	DECrpc shutdown file
SYS$COMMON:(SYSTEST.RPC) Files	
RPC$IVP.COM	DECrpc installation verification program
RPC$IVP_SERVER.EXE	DECrpc server installation verification program
RPC$IVP_CLIENT.EXE	DECrpc client installation verification program
SYS$COMMON:(SYSHLP) Files	
RPC010.RELEASE_NOTES	DECrpc release notes
SYS$COMMON:(SYSHLP.EXAMPLE.RPC.BANKS)	
BANK.C	DECrpc demonstration program
BANKD.C	DECrpc demonstration program
BUILD.COM	DECrpc demonstration program
BANKS_README.	DECrpc demonstration program
BAYBANKS.	DECrpc demonstration program

Files	Function
SYS$COMMON:(SYSHLP.EXAMPLE.RPC.BANKS)	
SHAWMUT.	DECrpc demonstration program
UTIL.C	DECrpc demonstration program
UTIL.H	DECrpc demonstration program
UUIDBIND.C	DECrpc demonstration program
SYS$COMMON:(SYSHLP.EXAMPLE.RPC.BINOP)	
BINOP.C	DECrpc demonstration program
BINOP_BUILD.COM	DECrpc demonstration program
BINOP_README.	DECrpc demonstration program
CLIENT.C	DECrpc demonstration program
SERVER.C	DECrpc demonstration program
SYS$COMMON:(SYSHLP.EXAMPLE.RPC.BINOP.IDL_D)	
BANK.IDL	DECrpc demonstration program
BINOP.IDL	DECrpc demonstration program

7 Sample Installations and Configurations

This section contains sample installations of the VMS/ULTRIX Connection and DECrpc software. It also provides a sample run of the Internet configuration command procedure and a sample NFS startup. Note that these are only samples, sometimes the procedures are modified in maintenance.

Example 1 provides a sample installation of the Connection.

Example 1 Sample Installation of the Connection

```
$ SET DEFAULT SYS$UPDATE
$ @VMSINSTAL UCX013 MUA0: OPTIONS N
        VAX/VMS Software Product Installation Procedure V5.X-x
        It is dd-mmm-yyyy at hh:mm.
        Enter a question mark (?) at any time for help.
%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
        _OPA0:
* Do you want to continue anyway [NO]? YES
* Are you satisfied with the backup of your system disk [YES]?
Please mount the first volume of the set on  MUA0:.
* Are you ready? YES
%MOUNT-I-MOUNTED, UCX mounted on _WHALE$MUA0:
The following products will be processed:
  UCX V1.3
        Beginning installation of UCX V1.3 at hh:mm

%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]:
* Queue name [SYS$PRINT]:
JOB UCX013 (queue SYS$PRINT, entry 1024) started on SYS$PRINT
%VMSINSTAL-I-RELMOVED , The product's release notes have been successfully
moved to SYS$HELP.
* Do you want to purge files replaced by this installation [YES]?
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSTEST.UCX].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSHLP.EXAMPLES.UCX].

        Product:      UCX
        Producer:     DEC
        Version:      1.3
        Release Date: dd-mmm-yyy

* Does this product have an authorization key registered and loaded? YES
%UCX-I-DONEASK, No further questions will be asked during this installation.
%VMSINSTAL-I-RESTORE, Restoring product saveset B ...
```

(continued on next page)

Example 1 (Cont.) Sample Installation of the Connection

```
*************************************************************************
            This installation will add the following files . . .
*************************************************************************

                SYS$COMMON:[SYSEXE]BGDRIVER.EXE
                SYS$COMMON:[SYSEXE]TNDRIVER.EXE
                SYS$COMMON:[SYSEXE]UCX$CONVERT.COM
                SYS$COMMON:[SYSEXE]UCX$CONVERT.FDL
                SYS$COMMON:[SYSEXE]UCX$FTP.EXE
                SYS$COMMON:[SYSEXE]UCX$FTPC.EXE
                SYS$COMMON:[SYSEXE]UCX$FTPD.EXE

                SYS$COMMON:[SYSEXE]UCX$FTPSERVER.COM

                SYS$COMMON:[SYSEXE]UCX$INETACP.EXE
                SYS$COMMON:[SYSEXE]UCX$INET_ROUTING.EXE
                SYS$COMMON:[SYSEXE]UCX$SERVER_NFS.EXE
                SYS$COMMON:[SYSEXE]UCX$TELNET.EXE
                SYS$COMMON:[SYSEXE]UCX$UCP.EXE

                SYS$COMMON:[SYSHLP]UCX012.RELEASE_NOTES
                SYS$COMMON:[SYSHLP]UCX$FTP_HELP.HLB
                SYS$COMMON:[SYSHLP]UCX$TELNET_HELP.HLB
                SYS$COMMON:[SYSHLP]UCX$UCP_HELP.HLB
                SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$IOCTL_ROUTINE.C
                SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$TCP_CLIENT_IPC.C
                SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$TCP_CLIENT_QIO.C
                SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$TCP_CLIENT_QIO.MAR
                SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$TCP_SERVER_IPC.C
                SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$TCP_SERVER_QIO.C
                SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$TCP_SERVER_QIO.MAR
                SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$UDP_CLIENT_IPC.C
                SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$UDP_CLIENT_QIO.C
                SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$UDP_CLIENT_QIO.MAR
                SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$UDP_SERVER_IPC.C
                SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$UDP_SERVER_QIO.C
                SYS$COMMON:[SYSHLP.EXAMPLES.UCX]UCX$UDP_SERVER_QIO.MAR

                SYS$COMMON:[SYSLIB]UCX$ACCESS_SHR.EXE

                SYS$COMMON:[SYSLIB]UCX$CFS_SHR.EXE
                SYS$COMMON:[SYSLIB]UCX$IPC_SHR.EXE
                SYS$COMMON:[SYSLIB]UCX$IPC.OLB
                SYS$COMMON:[SYSLIB]UCX$INETDEF.FOR
                SYS$COMMON:[SYSLIB]UCX$INETDEF.H
                SYS$COMMON:[SYSLIB]UCX$INETDEF.MAR
                SYS$COMMON:[SYSLIB]UCX$INETDEF.PAS
                SYS$COMMON:[SYSLIB]UCX$INETDEF.PLI
                SYS$COMMON:[SYSLIB]UCX$INETDEF.R32
```

(continued on next page)

Example 1 (Cont.) Sample Installation of the Connection

```
                SYS$COMMON:[SYSMGR]UCX$CONFIG.COM
                SYS$COMMON:[SYSMGR]UCX$FTPD_SHUTDOWN.COM
                SYS$COMMON:[SYSMGR]UCX$FTPD_STARTUP.COM
                SYS$COMMON:[SYSMGR]UCX$INET_SHUTDOWN.COM
                SYS$COMMON:[SYSMGR]UCX$INET_STARTUP.COM
                SYS$COMMON:[SYSMGR]UCX$NFS_SHUTDOWN.COM
                SYS$COMMON:[SYSMGR]UCX$NFS_STARTUP.COM
                SYS$COMMON:[SYSMGR]UCX$REMOTE_TTY_STARTUP.COM
                SYS$COMMON:[SYSMGR]UCX$SHUTDOWN.COM
                SYS$COMMON:[SYSMGR]UCX$STARTUP.COM
                SYS$COMMON:[SYSMGR]UCX$UCP_STARTUP.COM

                SYS$COMMON:[SYSMSG]UCX$MSG.EXE

                SYS$COMMON:[SYSTEST.UCX]UCX$INET_IVP.EXE
                SYS$COMMON:[SYSTEST]UCX$IVP.COM

*************************************************************************
     Instructions for Completing VMS/ULTRIX Connection Installation
*************************************************************************
            All files have been copied from the installation kit.
            If you are installing this product for the first time,
            or you want to run the IVP, you must execute the
            following command procedure:

            SYS$MANAGER:UCX$CONFIG.COM

            If you would like this product to be started when your
            VMS system is started, modify your system startup command
            file (SYS$MANAGER:SYSTARTUP_V5.COM) to invoke the VMS/ULTRIX
            Connection startup command file:

            SYS$MANAGER:UCX$STARTUP.COM

            NOTE: If you are re-installing UCX, then you must
            reboot your system.

            For information on the postinstallation steps, see the
            VMS/ULTRIX  Connection Installation Guide (Section 3).

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
        Installation of UCX V1.3 completed at hh:mm

        VMSINSTAL procedure done at hh:mm
```

Example 2 provides a sample of how to configure the Internet.

Example 2 Sample Internet Configuration

```
$ @SYS$MANAGER:UCX$CONFIG

                VAX Internet Network Configuration Procedure

        This procedure will help you define the parameters needed to get
        VAX Internet running on this machine.

Start the network after the configuration [YES] ? YES
Run the IVP after the configuration [NO] ? YES

        Creating initial UCX Internet and NFS database files.


        Creating SYS$COMMON:[SYSEXE]UCX$HOST.DAT
        Creating SYS$COMMON:[SYSEXE]UCX$NETWORK.DAT
        Creating SYS$COMMON:[SYSEXE]UCX$ROUTE.DAT
        Creating SYS$COMMON:[SYSEXE]UCX$EXPORT.DAT
        Creating SYS$COMMON:[SYSEXE]UCX$PROXY.DAT
        Creating SYS$COMMON:[SYSMGR]UCX$NFS_SET_FS.COM
        The Ethernet device(s) on your system are: XEA0:

        WARNING - the Internet host name is case sensitive.
        Lowercase host names must be  enclosed  in  quotes.
        For example:

        "bridge"

        Start of configuration questions for Internet interface DE0.
        DE0 is the Ethernet device XEA0

Enter host name: "whale"
Enter Internet address for whale: 128.23.23.172
Enter Internet network mask for whale  [255.255.0.0]:
Enter broadcast mask for whale [128.23.255.255]:

        The following parameters will be used to define the Internet
        device DE0:

                Host name:          whale
                Internet address:   128.23.23.172
                Network mask:       255.255.0.0
                Broadcast mask:     128.23.255.255

        Is the above correct? YES

        End of configuration questions for Internet interface DE0

 UCX supports the Berkeley Internet Name Domain (BIND) client.
 BIND is a network service that enables clients to name
 resources or objects and share information with other objects
 on the network.

 Before configuring your system as a  BIND Client, you should
 first be sure that there is at least one system on the network
 configured as either a BIND primary or secondary server for
 this domain.
```

(continued on next page)

Example 2 (Cont.) Sample Internet Configuration

```
Do you want to enable the BIND resolver [YES] ? YES

        WARNING - BIND domain and server names are case sensitive.
        Lowercase names must be enclosed in quotes.


 You must know the BIND domain name on which your system
 will be a BIND client, in order to configure BIND. This
 information should be available from your Internet network
 adminstrator.

Enter the default domain name: xyz.abc.com

 The BIND server may be specified by its address or name;
 however, if specified by name, there must be an entry
 for it in the UCX$HOST database.

        You will be asked one question for each server.  Enter a
         <CR> at the prompt to terminate the list.

Enter remote BIND server: 128.23.23.175
Enter remote BIND server: "servera"
Enter remote BIND server:

 If you enable dynamic routing, this host will listen
 for all dynamic routing information coming from other
 hosts to update its internal routing tables.
 It will also supply its own Internet addresses to
 routing requests made from remote hosts.


Do you want to enable dynamic routing [YES] ? YES

 If you enable the 'supply' option of dynamic routing,
 this host will supply dynamic routing information to
 other hosts on the network whether it is acting as an
 internetwork gateway or not.

Do you want this host to supply its dynamic routing information [NO]? YES

        There can be one and only one host on your network
        which defines a default network route.

        If you want this host to supply the default network route,
        then all packets which cannot be routed to their
        destination host or network will be routed via this host.


Do you want this host to supply the default network route [NO] ? NO
```

(continued on next page)

Example 2 (Cont.) Sample Internet Configuration

```
        The Internet parameters have been defined successfully in
        the command file  SYS$MANAGER:UCX$INET_SET_INTERFACES.COM

        For information on the  Internet  configuration, see the
        VMS/ULTRIX Connection System Manager's Guide (Chapter 3).

        For information on  starting  the  NFS  server,  see  the
        VMS/ULTRIX Connection System Manager's Guide (Chapter 5).

%RUN-S-PROC_ID, identification of created process is 0000009A
The Internet driver and ACP were successfully loaded.
%RUN-S-PROC_ID, identification of created process is 0000009B
The UCX$FTPD server has been started.
%%% VMS/ULTRIX Connection Internet IVP started at dd-mmm-yyyy hh:mm:ss.cc %%%

UDP/IP test started at dd-mmm-yyyy hh:mm:ss.cc
UDP/IP test ended at dd-mmm-yyyy hh:mm:ss.cc
UDP/IP transferred successfully in 24 seconds 4198400 bytes

TCP/IP test started at dd-mmm-yyyy hh:mm:ss.cc
TCP/IP test ended at dd-mmm-yyyy hh:mm:ss.cc
TCP/IP transferred successfully in 146 seconds 4198400 bytes

RAW_IP test started at dd-mmm-yyyy hh:mm:ss.cc
RAW_IP test ended at dd-mmm-yyyy hh:mm:ss.cc
RAW_IP transferred successfully in 2 seconds 251000 bytes
%%% VMS/ULTRIX Connection Internet IVP completed at dd-mmm-yyyy hh:mm:ss.cc %%%
```

Example 3 provides a sample of how you start up NFS. To make the example more useful, it includes comments.

Example 3 Sample NFS Startup

```
$ ! Create proxy accounts for the NFS clients.
$ !
$ ! Suppose there is a VMS account created in the authorization
$ ! file called NFS_SUPER, as well as a VMS account called NOBODY.
$ ! NFS_SUPER will be setup as a privileged account. NOBODY will be
$ ! setup as a non-privileged account.
$ !
$ ! Note: In this example, the sever is configured to support both
$ ! user and root level mounts. It is recommended that you restrict
$ ! your system to user level mounts, if possible. ULTRIX supports
$ ! user level mounts.
$ !
$ ! There must be proxy accounts for the ULTRIX client root (UID=0)
$ ! and nobody (UID=-2). In this example, we will also setup a
$ ! proxy account for a single user, SMITH.
$ !
$
$ UCX
UCX> SHOW PROXY
%UCX-W-NORECORD, Information not found
-RMS-E-RNF, record not found
UCX> !
UCX> ADD PROXY NFS_SUPER /UID=0/GID=1/HOST=*
UCX> ADD PROXY NOBODY /UID=-2/GID=-2/HOST=*
UCX> ADD PROXY SMITH/UID=1006/GID=10/HOST=*
UCX> !
UCX> !
UCX> ! Use the SHOW PROXY to see the defined proxy accounts.
UCX> !
UCX> SHOW PROXY

VMS User_name               User_ID     Group_ID  Host name

NFS_SUPER                         0            1  *
NOBODY                           -2           -2  *

SMITH                          1006           10  *

UCX> !
```

(continued on next page)

Example 3 (Cont.) Sample NFS Startup

```
UCX> ! Now we define the VMS files systems to be accessed by NFS clients.
UCX> !
UCX> BIND DUA0: "/dua0"
UCX> !
UCX> ! Now we export every directory on DUA0: to the NFS client "foobar".
UCX> !
UCX> ADD EXPORT "/dua0" /HOST="foobar"
UCX> !
UCX> ! Now we want to create a CFS ULTRIX file system and export it
UCX> ! to NFS client "foobar".
UCX> !
UCX> CREATE CONTAINER DUA0:[unix]/root=777
%UCX-S-CONTACREATE, Container   created
-UCX-S-DIRCREATE, Directory ROOT created
-UCX-I-VMSUSER, VMS user: NFS_SUPER
-UCX-I-ULTRIXID, UID: 0, GID: 1
UCX> BIND DUA0:[unix] "/unix"
UCX> CREATE DIRECTORY "/unix/smith"/OWNER=SMITH
UCX> ADD EXPORT "/unix" /HOST="foobar"
UCX> !
UCX> ! Now we look at the exported file systems...
UCX> !
UCX> SHOW EXPORT

Filesystem                              Host name

/dua0                                   foobar
/unix                                   foobar
UCX> !
UCX> ! Take a look at the current file system definitions...
UCX> !
UCX> SHOW BIND *

Logical filesystem                      Pathname

_ADZZZZ$DUA0:[UNIX]                     /unix
DUA0:                                   /dua0
UCX> EXIT
$ !

$ ! Now adjust some of the NFS parameters by editing the file
$ ! SYS$MANAGER:UCX$NFS_STARTUP.COM (see the VMS/ULTRIX
$ ! Connection System Manager's Guide).  For example, change
$ ! the UCX$NFS_TIME_DIFFERENTIAL to contain the correct
$ ! GMT differential. If you are going to support root level
$ ! mounts, you must change the UID and GID logicals as follows:
$ ! UCX$NFS00000000_UID to 0 and  UCX$NFS00000000_GID to 1.
```

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Example 3 (Cont.) Sample NFS Startup

```
$ !
$ ! After adjusting the parameters, edit the file
$ ! SYS$MANAGER:UCX$NFS_SET_FS.COM to make the binding
$ ! definitions permanent and delete the "warning"line.
$ ! To view the file, enter the following command:
$ !
$ TYPE SYS$MANAGER:UCX$NFS_SET_FS.COM
   .
   .
   .
$ !+
$ !   UCX$NFS_SET_FS.COM
$ !
$ !     Prototype UCX Filesytem SETUP procedure
$ !-
$ ON CONTROL_Y THEN GOTO EXIT
$ SET NOON
$ !
$ @SYS$MANAGER:UCX$UCP_STARTUP
$ !
$ ! Define each filesystem,  such as the following:
$ !
$ ! 1. VMS filesystem example
$ IF F$GETDVI ( "DUA0:", "EXISTS") THEN UCX BIND DUA0: "/DUA0"
$ !
$ ! 2. UNIX filesystem example --
$ IF F$SEARCH ("DUA0:[UNIX]UNIX.CONTAINER") .NES. "" THEN -
$       UCX BIND DUA0:[UNIX] "/unix"
$EXIT:
$ EXIT
$ !
$ ! Now we start the NFS server.
$ ! Note: If the NFS server is up, make sure you
$ ! shut it down and restart it.

$ !@SYS$MANAGER:UCX$NFS_SHUTDOWN

$ @SYS$MANAGER:UCX$NFS_STARTUP
%RUN-S-PROC_ID, identification of created process is 00000032
$
```

At this point the root and Smith should be able to NFS mount file systems from UNIX systems on the network. You can test the NFS setup by logging in to a UNIX system on the network as root and Smith and entering the mount commands. From root, you would enter the following command:

```
%mount vmshost:/dua0 /mnt
```

(continued on next page)

Example 3 (Cont.) Sample NFS Startup

From the Smith account, you would enter the following command:

```
%mount vmshost:/dua0/smith /mnt
```

Example 4 provides a sample installation of DECrpc.

Example 4 Sample DECrpc Installation

```
$ SET DEFAULT SYS$UPDATE
$ @VMSINSTAL RPC010 MUA0: OPTIONS N
        VAX/VMS Software Product Installation Procedure V5.X-x
        It is dd-mmm-yyyy at hh:mm.
        Enter a question mark (?) at any time for help.
%VMSINSTAL-W-DECNET, Your DECnet network is up and running.
%VMSINSTAL-W-ACTIVE, The following processes are still active:
        _OPA0:
* Do you want to continue anyway [NO]? YES
* Are you satisfied with the backup of your system disk [YES]?
Please mount the first volume of the set on  MUA0:.
* Are you ready? YES
%MOUNT-I-MOUNTED, RPC mounted on _WHALE$MUA0:
The following products will be processed:
  RPC V1.0
        Beginning installation of RPC V1.0 at hh:mm

%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]:
* Queue name [SYS$PRINT]:
JOB RPC010 (queue SYS$PRINT, entry 1024) started on SYS$PRINT
%VMSINSTAL-I-RELMOVED , The product's release notes have been successfully
moved to SYS$HELP.
* Do you want to purge files replaced by this installation [YES]?
```

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Example 4 (Cont.) Sample DECrpc Installation

```
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSTEST.RPC].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[RPC$INCLUDE].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSHLP.EXAMPLES.RPC].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSHLP.EXAMPLES.RPC.BANKS].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSHLP.EXAMPLES.RPC.BANKS.IDL_D].
* Do you want to run the IVP after the installation [YES]?
%RPC-I-DONEASK, No further questions will be asked during this installation.
%VMSINSTAL-I-RESTORE, Restoring product saveset B ...

****************************************************************************
            This installation will add the following files . . .
****************************************************************************

            SYS$COMMON:[SYSEXE]RPC$NRGLBD.EXE
            SYS$COMMON:[SYSEXE]RPC$LLBD.EXE
            SYS$COMMON:[SYSEXE]RPC$LB_ADMIN.EXE
            SYS$COMMON:[SYSEXE]RPC$UUID_GEN.EXE
            SYS$COMMON:[SYSEXE]RPC$NIDL.EXE
            SYS$COMMON:[SYSEXE]RPC$STCODE.EXE
            SYS$COMMON:[SYSEXE]RPC$STCODE.DAT

            SYS$COMMON:[SYSLIB]RPC$LIBNCK.EXE
            SYS$COMMON:[SYSLIB]RPC$LIBNCK.OPT
            SYS$COMMON:[SYSLIB]RPC$LIBNCK.OLB

            SYS$COMMON:[RPC$INCLUDE]BASE.IDL
            SYS$COMMON:[RPC$INCLUDE]CONV.IDL
            SYS$COMMON:[RPC$INCLUDE]FAULT.IDL
            SYS$COMMON:[RPC$INCLUDE]GLB.IDL
            SYS$COMMON:[RPC$INCLUDE]LB.IDL
            SYS$COMMON:[RPC$INCLUDE]LLB.IDL
            SYS$COMMON:[RPC$INCLUDE]NBASE.IDL
            SYS$COMMON:[RPC$INCLUDE]NCASTAT.IDL
            SYS$COMMON:[RPC$INCLUDE]RPC.IDL"
            SYS$COMMON:[RPC$INCLUDE]RPROC.IDL
            SYS$COMMON:[RPC$INCLUDE]RRPC.IDL
            SYS$COMMON:[RPC$INCLUDE]SOCKET.IDL
            SYS$COMMON:[RPC$INCLUDE]TIMEBASE.IDL
            SYS$COMMON:[RPC$INCLUDE]UUID.IDL
            SYS$COMMON:[RPC$INCLUDE]BASE.H
            SYS$COMMON:[RPC$INCLUDE]CAL.H
            SYS$COMMON:[RPC$INCLUDE]ERROR.H
            SYS$COMMON:[RPC$INCLUDE]GLB.H
```

(continued on next page)

```
SYS$COMMON:[RPC$INCLUDE]IDL_BASE.H
SYS$COMMON:[RPC$INCLUDE]LB.H
SYS$COMMON:[RPC$INCLUDE]LLB.H
SYS$COMMON:[RPC$INCLUDE]NBASE.H
SYS$COMMON:[RPC$INCLUDE]NCASTAT.H
SYS$COMMON:[RPC$INCLUDE]PBASE.H
SYS$COMMON:[RPC$INCLUDE]PFM.H
SYS$COMMON:[RPC$INCLUDE]PPFM.H
SYS$COMMON:[RPC$INCLUDE]RPC.H
SYS$COMMON:[RPC$INCLUDE]RRPC.H
SYS$COMMON:[RPC$INCLUDE]SOCKET.H
SYS$COMMON:[RPC$INCLUDE]STD.H
SYS$COMMON:[RPC$INCLUDE]TIMEBASE.H
SYS$COMMON:[RPC$INCLUDE]UCX$IFDEF.H
SYS$COMMON:[RPC$INCLUDE]UCX$TYPEDEF.H
SYS$COMMON:[RPC$INCLUDE]UUID.H

SYS$COMMON:[SYS$STARTUP]RPC$UCX_STARTUP.COM
SYS$COMMON:[SYSMGR]RPC$UCX_SHUTDOWN.COM
SYS$COMMON:[SYSTEST.RPC]RPC$IVP.COM
SYS$COMMON:[SYSTEST.RPC]RPC$IVP_SERVER.EXE
SYS$COMMON:[SYSTEST.RPC]RPC$IVP_CLIENT.EXE

SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BANKS]BANK.C
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BANKS]BANKD.C
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BANKS]BANKS_BUILD.COM
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BANKS]BANKS_README.
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BANKS]BAYBANKS.
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BANKS]SHAWMUT.
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BANKS]UTIL.C
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BANKS]UTIL.H
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BANKS]UUIDBIND.C
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BINOP.IDL_D]BLANK.IDL
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BINOP]BINOP.C
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BINOP]BINOP_BUILD.COM
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BINOP]BINOP_README.
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BINOP]CLIENT.C
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BINOP]SERVER.C
SYS$COMMON:[SYSHLP.EXAMPLES.RPC.BINOP.IDL]BINOP.IDL
```

(continued on next page)

Example 4 (Cont.) Sample DECrpc Installation

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

      Beginning the DEC RPC V1.0 Installation Verification Procedure
%RUN-S-PROC_ID, identification of created process is 000000A1

       DEC Rpc V1.0 Installation Verification Procedure completed successfully

********************************************************************
        The DEC Rpc Installation Verification Procedure (IVP)
        has been provided in SYS$COMMON:[SYSTES]. The DEC Rpc IVP
        may be invoked at any time by using the following commands:

        $SET DEFAULT SYS$COMMON:[SYSTEST]
        $@RPC$IVP

*********************************************************************
        VMSINSTAL procedure done at hh:mm
```

If DECrpc has previously been installed on your system, the following messages do not appear:

```
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSTEST.RPC].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[RPC$INCLUDE].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSHLP.EXAMPLES.RPC].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSHLP.EXAMPLES.RPC.BANKS].
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
VMI$ROOT:[SYSHLP.EXAMPLES.RPC.BANKS.IDL_D].
```