DEC TCP/IP Services for OpenVMS

Installation and Configuration

Part Number: AA-LU49G-TE

November 1994

This manual describes the installation and configuration of the DEC TCP/IP Services for OpenVMS (UCX) software.

Documentation Comments

If you have comments or suggestions for this manual or any of the DEC TCP/IP Services for OpenVMS documents and you have access to the INTERNET, mail your comments electronically to the DEC TCP/IP Services for OpenVMS writing group within Digital at the following address:

doc_quality@lkg.mts.dec.com

Revision Information: This is a revised manual.

Operating System: OpenVMS VAX™ Versions 5.5, 6.0, 6.1
OpenVMS AXP™ Versions 1.5, 6.1

Software Version: DEC TCP/IP Services for OpenVMS VAX™ Version 3.2
DEC TCP/IP Services for OpenVMS AXP™ Version 3.2

Contents

A Examples

B Installed Files

Index

Examples

Figures

Tables

Preface

This manual explains the installation and configuration of the DEC™ TCP/IP Services for OpenVMS™ software.

Intended Audience

This manual is for OpenVMS system managers or network managers who install and configure networking software.

This manual assumes that you have an understanding of TCP/IP networks and terminology. A glossary of terms is provided at the end of *DEC TCP/IP Services for OpenVMS Concepts and Planning* for some networking, TCP/IP, and DEC TCP/IP Services for OpenVMS product terms.

About This Manual

This manual contains three chapters and two appendixes.

- Chapter 1 describes preparations for UCX installation and configuration.
- Chapter 2 provides details about installing the UCX files.
- Chapter 3 describes the initial configuration of UCX communications software and services software.
- Appendix A provides examples of UCX installation and initial configuration.
- Appendix B shows the locations on your OpenVMS system of the files installed by UCX.

Conventions

The documentation set for UCX uses the documentation conventions shown in Table 1.

Table 1 Documentation Conventions

Convention	Meaning
[ ]	In command syntax, indicates that the enclosed values are optional. (Do not type the brackets.)
{ }	In command syntax, indicates that you must specify either one, some, or all of the enclosed values. (Do not type the braces.)
`...` or . . .	In examples, indicates a missing portion, which is omitted because it is not relevant to the example.
♦	Indicates the end of hardware-platform-specific information.
THIS TYPE and `THIS TYPE`	Indicates: • OpenVMS system output or user input. • Names of OpenVMS and UCX commands, options, and utilities. • Names of OpenVMS files and directories. • Names of OpenVMS hosts and users. **Example:** On host CANARY, issue the UCX SHOW PROXY command. **Example:** To connect to host OSPREY, type: `TELNET> CONNECT OSPREY`

this type and `this type`	`Indicates:`
	• `UNIX system output or user input.`
	• `Names of UNIX commands, options, files, directories, and utilities.`
	• `Names of UNIX hosts and users.`
	Example: User `lark` on UNIX NFS Server `thrush` exports the directory `/warbler/song.bird` for an OpenVMS NFS client to mount.
	Example: To copy a UNIX file, type:
	`FTP> get /usr/waders/stork`

(continued on next page)

Table 1 (Cont.) Documentation Conventions

Convention	Meaning
this_type	*Indicates a variable.* **Example:** Specify the group identifier, /GID*n*, on the ADD PROXY command line. The following variables frequently appear in command syntax and examples. They are used in the documentation to mean: *host* — Host name or IP address *node* — Node name *user* — User name *file* — File name *directory* — Directory specification *path* — UNIX or UNIX-style path specification *domain* — Domain name *port* — Port number *n* — Decimal number value or integer *h* — Hexadecimal value
IP addresses	In examples, represent fictitious addresses.
Return	In examples, indicates that you press the Return key (shown only in examples that might cause confusion).
Ctrl/*key*	Indicates that you simultaneously press the Ctrl key and the illustrated key.
VAX	Calls out information specific to DEC TCP/IP Services for OpenVMS VAX.
ALPHA	Calls out information specific to DEC TCP/IP Services for OpenVMS AXP.

Terminology

This manual uses the following terminology:

- Abbreviations for the products' names
  - **DEC TCP/IP Services for OpenVMS** is used to mean both:

    The DEC TCP/IP Services for the OpenVMS AXP™ Operating System product

    The DEC TCP/IP Services for the OpenVMS VAX™ Operating System product
  - **UCX** is used to mean both products.
- Software components
  - **Auxiliary Server** is used to mean the UCX implementation of the `inetd` function, system security, and other features.
  - **NFS**™ means the UCX implementation of the Network File System (NFS) protocols, including NFS Server, NFS Client, and PC-NFS™.
  - **IBM 3270TE** means IBM 3270 model Terminal Emulator software.
- UNIX™ operating system

  UNIX refers to UNIX Version 4.3 of the Berkeley Software Distribution (BSD). The Digital ULTRIX™ and DEC OSF/1™ Operating Systems are fully compatible with UNIX BSD Version 4.3.
- Networking terms
  - **Host** and **node** both mean a system connected to an internet.
  - The term **Internet** means the network, as defined by RFC 1208, consisting of large networks that use the TCP/IP protocol suite; provides universal connectivity, reaching the Defense Advanced Projects Research Agency (DARPA) Internet, MILNET, NSFnet, CREN, and many worldwide universities, government research labs, military installations, and business enterprises.

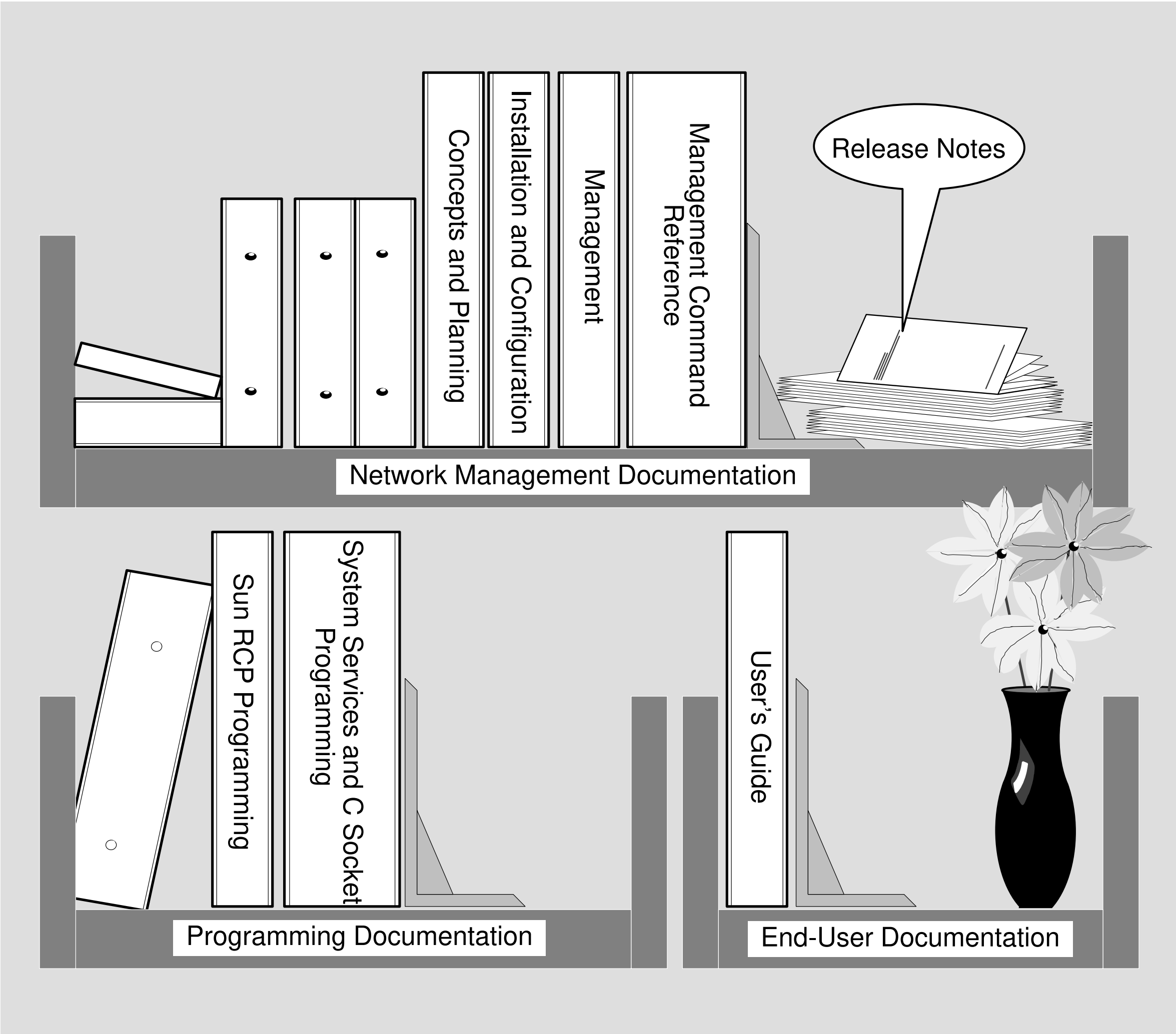
    The term **internet** means interconnected networks using the TCP/IP protocols, functioning as one, virtual network.
  - A **VAXcluster™** system is made up of all VAX™ systems.

    A **VMScluster™** system can be made up of either all AXP™ systems or a mix of VAX systems and AXP systems.

Product Documentation Set

The DEC TCP/IP Services for OpenVMS documentation set contains the documents shown in Figure 1.

Figure 1 The DEC TCP/IP Services for OpenVMS Documentation Set



Related Documents

You might find these documents useful:

- *Internetworking with TCP/IP: Principles, Protocols, and Architecture*, by Douglas Comer (order number ER–TCPIP–TM–001)
- Requests for Comment (RFCs) are available in the public area:

  `decwrl::"/pub/net/info/etc/rfcn.txt")`

Product Licenses

To use the DEC TCP/IP Services for OpenVMS product, you need one of two available licenses:

- DEC TCP/IP Services for OpenVMS

  Provides all the software components

- DEC TCP/IP Client for OpenVMS

  Provides the same software components excluding:

  - Remote Boot Server (BOOTP)
  - BIND Server
  - NFS™ Server
  - PC-NFS™ Server

You receive the complete documentation set with both licenses.

A license is not required to use the software only for displaying DECwindows™ applications on remote hosts.

1

Preparing to Install and Configure

The DEC TCP/IP Services for OpenVMS (UCX) installation and configuration consists of these tasks:

1. Checking out requirements and pre-requisites (Section 1.1).
2. Gathering and recording the information you need to install and configure UCX (Section 1.4).
3. Running the installation procedure (Chapter 2 and Appendix A).
4. Running the configuration procedure (Chapter 3 and Appendix A).

Section 1.4 contains a series of checklists intended to provide a convenient way to organize and record information.

1.1 Getting Ready for Installation and Configuration

Before you begin the installation and configuration of the UCX software, ensure that your system meets all the requirements and that you have the information needed to answer the prompts. Use the checklists in Section 1.4. Follow these steps:

1. Back up the system disk.

   Digital recommends that you do a system disk backup before installing any software.

   Use the backup procedures that are established at your site. For details on performing a system disk backup, see the section on the Backup Utility in the "OpenVMS System Management Subkit."

2. Check that you have the privileges to run the installation, configuration and IVP procedures.

   Use the checklists to read about and check off each requirement (see Section 1.4).

3. Ensure that your system meets the requirements for:

   - Software
   - Disk space
   - Quota
   - Memory for the BIND Server software (if you will configure it)
   - Global pagelets and global sections

Time needed for:

– Installation procedure (about five minutes)

– Configuration procedure (about 15 minutes)

Use the checklists to read about and check off each requirement (see Section 1.4).

1.2 Configuring VMS for UCX

Before you start configuring UCX, you should set SYSGEN parameters for:

- Global Pagelets and Global Sections
- Nonpaged Dynamic Pool
- Interrupt Stack Pages (If you are using PWIP)

Note

Do not reboot the system until you have set all SYSGEN parameters. See Section 1.2.4.

1.2.1 Global Pagelets and Global Sections

UCX requires 42 global sections and 8100 global pagelets (see Section 1.4.1). To check or change the number of global pagelets and global sections, follow these steps:

1. Issue WRITE commands with the F$GETSYI lexical functions to check the number of available global pagelets and global sections:

   ```
   $ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLPAGES")
   1234
   $ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLSECTS")
   189
   ```

2. Increase the global pagelets and global sections. Follow these steps:

   a. Edit SYS$SYSTEM:MODPARAMS.DAT.

      Add statements that increase the values of SYSGEN parameters GBLPAGES and GBLSECTIONS (see *Guide to Setting Up an OpenVMS System* or *OpenVMS System Generation Utility*).

1.2.2 Increase the Nonpaged Dynamic Pool

Add at least 342,000 bytes of nonpaged dynamic pool. This is the default maximum size for UCX.

Follow these steps:

1. Log in to the SYSTEM account.
2. Identify the amount of additional nonpaged pool your system requires. Use a default initial value of 342,000 or use the following formula and table to calculate the amount of NPAGEDYN required:

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

Variable	Means
socket	Maximum number of sockets. (A socket system call creates an endpoint for communication.)
dbuf	Maximum number of data buffers.
cbuf	Maximum number of control buffers.
mtusers	Maximum number of TELNET users.
mrusers	Maximum number of Remote Login users.

   For more information on nonpaged dynamic pool, see the *DEC TCP/IP Services for OpenVMS Management*

3. Edit SYS$SYSTEM:MODPARAMS.DAT to modify, as calculated, the NPAGEDYN and NPAGEVIR parameters.

   NPAGEVIR defines the maximum size to which NPAGEDYN can be dynamically increased.

   Unless you are sure that NPAGEVIR is large enough, add the same amount to both parameters.

Example:

```
! Add some nonpaged pool for UCX.
!
ADD_NPAGEDYN=342000
ADD_NPAGEVIR=342000
```

1.2.3 Interrupt Stack Pages (VAX Only)

If you are using PWIP, it is recommeded that you increase the number of Interrupt Stack Pages (INTSTKPAGES) to ten or more. This will avoid warnings at system startup and system crashes.

Note

For information about PATHWORKS, see the PATHWORKS documentation. For a list of PATHWORKS files that the UCX installation procedure installs, see Table B–2.

---

1. Increase the number of INTSTKPAGES. Follow these steps:
   - Edit SYS$SYSTEM:MODPARAMS.DAT.

     Add statements that increase the values of SYSGEN parameters INTSKPAGES (see *Guide to Setting Up an OpenVMS System* or *OpenVMS System Generation Utility*).

1.2.4 Invoke AUTOGEN

Invoke the AUTOGEN command procedure if you have finished configuring all the SYSGEN parameters. Run AUTOGEN.COM. Issue:

```
$ @SYS$UPDATE:AUTOGEN [start-phase] [end-phase
```

Exit AUTOGEN, then reboot the system.

For information about running AUTOGEN, type:

```
$ @SYS$UPDATE:AUTOGEN HELP
```

1.3 License Registration

Before you install on a newly licensed node or cluster, first register a License Product Authorization Key (License PAK) using the License Management Facility (LMF). Without a PAK, you can use only these components:

- DECwindows TCP/IP Transport software
- PATHWORKS IP (PWIP) Driver

The PAK is shipped with the kit if you ordered the license and media together. Otherwise, it is shipped separately to the location specified on your license order. If you are installing UCX as an update on a node or cluster already licensed for this software, you have already completed the License PAK registration requirements.

If you are installing pre-requisite or optional software along with UCX, review the PAK status and install the PAKs for any prerequisite or optional software before you install UCX.

To register a license, follow these steps:

1. Log in to the system manager's account, SYSTEM.
2. Do one of the following steps:
   - Run SYS$UPDATE:VMSLICENSE.COM and enter the data from your License PAK.
   - At the DCL prompt, issue the LICENSE REGISTER command with the appropriate qualifiers that correspond to License PAK information.
   - To run UCX on multiple cluster nodes, perform a license load on those nodes.

For complete information about LMF, see the *OpenVMS License Management Utility Manual*.

1.4 Installation and Configuration Checklists

Before you start the installation and configuration procedures, use the checklists provided at the end of this chapter to record:

- Requirements for installation and configuration
- Individual software components you want to configure
- Information you need to answer installation questions
- Information you need to answer configuration questions

You can use the checklists at the end of this chapter to plan your UCX configuration.

1.4.1 Pre-Installation Checklist

Operating system	
OpenVMS VAX V.5.5	☐
OpenVMS VAX V.6.1	☐
OpenVMS AXP V.1.5	☐
OpenVMS AXP V.6.1	☐
Privileges	
SYSTEM account, or:	☐
SYSPRV SYSNAM OPER DETACH BYPASS CMKRNL ALTPRI	
Disk space	
During installation: 17,000 blocks	☐
During use: 16,000 blocks, depending on site-specific databases	☐
Global pagelets 8,100	☐
Global sections 42	☐
Quotas	
ASTLM 24	☐
BIOLM 18	☐
BYTLM 32768	☐
DIOLM 18	☐
ENQLM 200	☐
FILLM 100	☐
Memory: BIND Server (guidelines)	
Server with small databases:	
Peak working set size: 2912 pagelets	☐
Peak virtual size: 12288 pagelets	☐
Memory usage once running: 182 pages	☐
Master Server with several large databases (about 920 blocks long with about 15,500 records:)	
Peak working set size: 5680 pagelets	☐
Peak virtual size: 14976 pagelets	☐
Memory usage once running: 355 pages	☐

1.4.2 Configuration Checklist: Interfaces

Fill in the answers you need to configure the OpenVMS system's internet interface or interfaces.

Each FDDI Interface (example, CF0:)	☐ ________
Each Ethernet Interface (example, SE0:)	☐ ________
Each Token Ring Interface (example, IC0)	☐ ________

Host: Fill in the information below for the above interfaces that you are configuring.

Name	☐ ________
Internet address	☐ ________
Internet network mask	☐ ________
Broadcast mask	☐ ________

1.4.3 Configuration Checklist: Core Environment

Fill out the information you need for the core environment configuration.

IP address	☐ ________
Host name (no quotation marks)	☐ ________
IP address	☐ ________
Host name (no quotation marks)	☐ ________
IP address	☐ ________
Host name (no quotation marks)	☐ ________
Single node or VMScluster?	☐ ________
Cluster alias (1 or more)	☐ ________
Node names (2 or more)	☐ ________
Run dynamic routing?	YES NO
Supply routing info to network?	YES NO

1.4.4 Configuration Checklist: Routing

Fill in the options for the dynamic routing software.

Configure a default route?	YES NO
Default gateway	
Host name	☐ ________________
Address	☐ ________________
Enter the default gateway in the local Hosts Database?	YES NO
Disable dynamic routing upon startup?	YES NO
Supply dynamic routing information to other hosts?	YES NO
Supply the default network route to other hosts?	YES NO

1.4.5 Configuration Checklist: IVP

Fill in the information you need to run the IVP.

Run the IVP?	☐ ______________
PAK number	☐ ______________

2 Installation

The DEC TCP/IP Services for OpenVMS (UCX) installation copies the distribution files to the appropriate directory.

Appendix B lists the names of the files that are installed.

2.1 The VMSINSTAL Procedure

VMSINSTAL, an OpenVMS layered product installation procedure:

- Creates directories for the new software.
- Copies the distribution files.
- Prints or displays the Release Notes.
- Copies the Release Notes file into SYS$HELP.
- Checks that:
  - You are logged in to a privileged account.
  - Quotas for installation are sufficient.
  - Users are all logged out.

The UCX distribution media is either the OpenVMS Consolidated Software Distribution CD, a TK50 cartridge, or a magnetic tape.

2.1.1 Conventions

At the end of each question or prompt, either a colon (:) or a question mark (?) appears. Respond in one of the following ways:

- Type your response immediately after the colon or question mark and press Return.
- Press Return to choose a default value. Default values, if they exist, appear in brackets ([ ]) after questions.
- Type a question mark to get help after a question. After the help text, the question repeats.

2.1.2 Creating Log Files

To create a log of the VMSINSTAL session, use one of these methods:

- Run VMSINSTAL at a hardcopy terminal.
- Before beginning the installation, log in a second time to the same system:

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

  Run the installation at this second process. The system creates a log file in your working directory.

2.2 If You Are Re-installing UCX

If another version of UCX exists on your system, follow these steps:

1. Shut down UCX. Issue:

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

2. Run VMSINSTAL.
3. If UCX is active on other hosts of a cluster, do not answer YES to the prompt that asks if you want to purge the old version of UCX. You will need to manually purge later.

   These directories contain previous versions of UCX files:

   SYS$HELP
   SYS$LIBRARY
   SYS$MANAGER
   SYS$COMMON:[SYSTEST.UCX]
   SYS$COMMON:[SYSHLP.EXAMPLES.UCX]
   SYS$SPECIFIC:[SYSEXE]
   SYS$COMMON:[SYSEXE]
   SYS$TEST

4. Re-configure all the application software that was configured.
5. Reboot your system.

2.2.1 Renamed Files

During re-installation, the procedure checks to see if old versions of the UCX$LPD_STARTUP.COM and UCX$LPD_SHUTDOWN.COM files exist. If so, the procedure renames them.

Old Name	New Name
UCX$LPD_STARTUP.COM	UCX$LPD_STARTUP.OLD
UCX$LPD_SHUTDOWN.COM	UCX$LPD_SHUTDOWN.OLD

After the installation, edit the new files to add the necessary user printer queue information from the old files.

2.3 Starting and Running the Installation Procedure

Follow these steps to install the UCX software (using the console is not required):

1. Ask users to log off the system.
2. Shut off the TCP/IP DECwindows Transport.

   (One method: Comment out the DECwindows startup command in your system startup file and restart your system.)

3. Log in to the SYSTEM account.
4. Set the default directory to SYS$UPDATE.
5. Start VMSINSTAL in one of the following ways:

Consolidated Distribution compact disc (CD)

ALPHA

```
$ @VMSINSTAL ALPHA_UCX032 disc-drive:[ALPHA_UCX032.KITS] OPTIONS N ♦
```

VAX

```
$ @VMSINSTAL UCX032 disc-drive:[UCX032.KITS] OPTIONS N ♦
```

where:

disc-drive	Drive where the CD with the UCX save sets are mounted.
OPTIONS N	Prompts you about displaying and printing the Release Notes.

TK50 cartridge or 9-track magnetic tape

VAX

```
$ @VMSINSTAL UCX032 ddcu: OPTIONS N ♦
```

where:

ddcu:	Device where you mounted the distribution media. The fields are: *dd* — device name *c* — controller name *u* — unit number
OPTIONS N	Prompts you about displaying and printing the Release Notes.

6. Read the Release Notes.

   You can:

   - Read them online.
   - Print them, stop VMSINSTAL, read them, and restart the procedure without OPTIONS N.
   - Read them after the installation. They are copied to:

     SYS$HELP:UCX032.RELEASE_NOTES

7. Select purge options.

   If UCX is active on your system, either stand-alone or in a cluster, do not answer YES to purging. You will need to manually purge later.

8. Answer the product authorization key (PAK) query.

   You can install the PAK either during the installation procedure or after you run it.

   If you plan to use UCX only for displaying DECwindows applications using TCP/IP on remote hosts, you do not need to install a PAK.

2.4 Stopping the Installation

To stop the installation at any time, press Ctrl/Y.

The installation procedure deletes all the files created up to that point and exits.

2.5 Unsuccessful Installation

Installation failure produces an error message. An error during installation can occur because:

- The operating system version is incorrect.
- The prerequisite software version is incorrect.
- Quotas are inadequate.
- Process quotas are inadequate.
- The OpenVMS Help library is currently in use.

If VMSINSTAL reports a failure:

1. Review the installation prerequisites.
2. Check the error messages to identify the problem.
3. Run the procedure again.

2.6 Next Steps

1. To continue using the system manager's account and restore the process symbol tables, log out and log in again. (VMSINSTAL deletes or changes entries in the process symbol tables during the installation.)
2. Run the configuration procedure (see Chapter 3).

3 Configuration

To prepare for and run the DEC TCP/IP Services for OpenVMS configuration procedure, following these steps:

1. Complete the configuration checklists (Section 1.4).
2. Select UICs (Section 3.2).
3. Run the configuration command procedure (Section 3.3).

Immediately after you exit the VMSINSTAL procedure, perform a few post-configuration tasks (see Section 3.4) to make the software available to local and remote network users.

3.1 Step 1: Complete the Checklists.

Gather the information you need for the configuration procedure. Complete the configuration checklists (see Section 1.4), which:

- List all the pertinent information you need
- Provide space for you to record the information

3.2 Step 2: Assign the UIC.

Accounts for the services you will configure might already exist.

- If they exist, the configuration procedure uses the existing group **User Identification Code** (**UIC**).
- If they do not exist, the default UIC group number for the service accounts is 375 (octal).
- If this is a first-time configuration but the procedure detects that 375 is in use, it prompts you for a new UIC group number.
  - Before you assign a new group number, check that it is not already in use. Issue (type the brackets):

    ```
    $ RUN SYS$SYSTEM:AUTHORIZE
    UAF> SHOW /BRIEF [your_group_number,*]
    UAF> SHOW /IDENTIFIER /VALUE=UIC:[your_group_number,*]
    ```

  - To specify your own UIC group number instead of using the default, assign the value TRUE to the logical name UCX$ASK_GROUP_UIC. The configuration procedure then prompts you for a group UIC.

3.3 Step 3: Run the Configuration Procedure.

There are two methods to configure UCX: display the configuration menus or type in the commands to set the parameters. Advance users who need to perform multiple installations and want to by pass the configuration menus can follow these steps:

1. Log in to the SYSTEM account or another account with the following privileges:

   SYSPRV
   SYSNAM
   OPER
   DETACH
   BYPASS
   CMKRNL
   ALTPRI

2. Decide on the appropriate command syntax. The following command format lines display the options you can specify. If you are not sure which options you want, then you can invoke UCX$CONFIG with no parameters and the procedure will provide the menu selections.

   - You can enter at your option one or more command words from those listed in brackets ([ ]).
   - You must choose one and only one of the command words listed in braces ({ }).
   - You must enter the command words that are neither in braces nor brackets.

   For example, you could enter the following command:

   ```
   $ @SYS$MANAGER:UCX$CONFIG CLIENT ENABLE CLUSTER.
   ```

   This command configures and enables the client components on a clusterwide basis.

Format

```
                                 ┌ ALL         ┐
                                 │ CLIENT      │  ┌ ENABLE  ┐
@SYS$MANAGER:UCX$CONFIG          │ SERVER      │  └ DISABLE ┘
                                 │ MINIMUM     │
                                 └ WORKSTATION ┘
```

or

Format

```
                                 ┌ ALL         ┐
                                 │ CLIENT      │  ┌ ENABLE  ┐
@SYS$MANAGER:UCX$CONFIG          │ SERVER      │  { DISABLE }   CLUSTER
                                 │ WORKSTATION │
                                 └ MINIMUM     ┘
```

where

Parameter	Description
ALL	Configures every component and every service
CLIENT	Configures all client components and related software
SERVER	Configures all server components and related software
WORKSTATION	Configures the BIND Resolver, the domain, dynamic routing, the internet interfaces, the time zone, Remote Login, Remote Shell, Remote Executive, FTP Client, FTP Server, TELNET Client, TELNET Server, SMTP
MINIMUM	Configures the internet interfaces, Remote Login, FTP Client, FTP Server, TELNET Client, TELNET Server
ENABLE	Enables all the configured components
DISABLE	Disables all the configured components
CLUSTER	Configures all selected components clusterwide **Exception:** The only components that you cannot configure clusterwide are BIND Server and SMTP. If you configure at least one cluster interface, the procedure automatically enables IP forwarding.

Note

The procedure performs 2 levels of enabling and disabling: clusterwide and single node (except for BIND Server and SMTP, which are configured and enabled node-specific only).

```
TCP/IP Services for OpenVMS CLIENT Components Configuration Menu

Configuration options:

        1 - FTP               Enabled
        2 - LPR/LPD           Enabled
        3 - NFS Client        Enabled
        4 - REXEC and RSH     Enabled
        5 - RLOGIN            Enabled
        6 - SMTP              Enabled
        7 - TELNET            Enabled

        A  - Configure options 1 - 7
       [E] - Exit menu

Enter configuration option: 1


FTP CLIENT Configuration

Service is enabled on specific node.

FTP CLIENT configuration options:

        1 - Disable service on this node

        E - Exit FTP_CLIENT configuration

Enter configuration option:

The FTP SERVER is enabled.

* Do you want to configure FTP SERVER [NO] ?
```

3. Start the procedure.

   Depending on the exact command line you issue to start the procedure, it either automatically prompts for any information required, and continues without menu prompting.

   For example, with no parameters on the command line, the procedure displays the main menu as shown in Example 3–1.

4. Type a selection and press Return.

   If a default value is available, it appears in brackets ([ ]).

   To select a default, press Return.

   If you started the configuration procedure with the ALL parameter, or if you now specify option, `Core environment`, the procedure displays the Core Configuration Menu (see Example 3–2).

Example 3–1 UCX Configuration: Main Menu

```
TCP/IP Services for OpenVMS Configuration Menu

Configuration options:

        1 - Core environment
        2 - Client components
        3 - Server components
        4 - Optional components

        5 - Shutdown TCP/IP Services for OpenVMS
        6 - Startup TCP/IP Services for OpenVMS
        7 - Run tests

        A - Configure options 1 - 3
      [E] - Exit configuration procedure

Enter configuration option:
```

Example 3–2 UCX Configuration: Core Environment Menu

```
TCP/IP Services for OpenVMS CORE ENVIRONMENT Configuration Menu

Configuration options:

        1 - BIND Resolver
        2 - Domain
        3 - Routing
        4 - Interfaces
        5 - Time Zone

        A - Configure options 1 - 5
      [E] - Exit menu

Enter configuration option:
```

The exact look of each sub-menu depends on the selections you make and, if you are re-installing, your current configuration. Example 3–3 shows how the menu for the server components might look.

Example 3–3 UCX Configuration: Server Component Menu

```
TCP/IP Services for OpenVMS SERVER Components Configuration Menu

Configuration options:

        1 - BIND
        2 - BOOTP
        3 - TFTP
        4 - FTP
        5 - LPR/LPD
        6 - NFS
        7 - PC-NFS
        8 - PORTMAPPER
        9 - TELNET
        10 - SNMP

        A - Configure options 1 - 10
        [E] - Exit menu

        Enter configuration option: ?
```

Example 3–4 shows two ways that the menu for the client components might look.

Example 3–4 UCX Configuration: Client Component Menu

```
TCP/IP Services for OpenVMS CLIENT Components Configuration Menu"

Configuration options:

        1 - FTP
        2 - LPR/LPD
        3 - NFS Client
        4 - REXEC and RSH
        5 - RLOGIN
        6 - SMTP
        7 - TELNET

        A - Configure options 1 - 7
      [E] - Exit menu

Enter configuration option:

TCP/IP Services for OpenVMS CLIENT Components Configuration Menu

Configuration options:

        1 - FTP                            Enabled
        2 - LPR/LPD                        Enabled
        3 - NFS Client                     Enabled
        4 - REXEC and RSH                  Enabled
        5 - RLOGIN                         Enabled
        6 - SMTP
        7 - TELNET                         Enabled

        A - Configure options 1 - 7
      [E] - Exit menu

Enter configuration option:
```

Example 3–5 shows the menu that appears if you choose optional components from the main menu.

Example 3–5 UCX Configuration: Optional Components Menu

```
TCP/IP Services for OpenVMS Optional Components Menu

Configuration options:

        1 - Configure PWIP Driver
        2 - Configure SRI QIO Interface
        3 - Set up Anonymous FTP Account and Directories
      [E] - Exit menu
```

To review and record your answers for the questions asked during the configuration for dynamic routing, see Section 1.4.4.

5. Run the **Internet Installation Verification Procedure (IVP)**.

   Before you run the IVP be sure that UCX is started and you have SYSPRV, OPER, NETMBX, and TMPMBX privileges. You can also use SETPRV to set the other privileges.

   The IVP performs the following tests:

   - Verifies that the lower-layer software and the Portmapper Service are correctly installed if you loaded the Product Authorization Key (PAK).
   - Verifies that UCX is correctly installed for DECwindows to display TCP/IP applications if you did not load the PAK.
   - Transfers device-socket packets, continuously varying in size, between a sender and a receiver to compare the received packets with the sent packets.
   - Tests the Portmapper Service with a pair of client-server programs. It reports the amount of time it took to run the test to SYS$OUTPUT.

3.3.1 IVP: During Configuration

Start the UCX software. Then select **Option 7**, Run Tests, at the main configuration menu.

```
TCP/IP Services for OpenVMS Configuration Menu

Configuration options:

        1 - Core environment
        2 - Client components
        3 - Server components
        4 - Optional components

        5 - Shutdown TCP/IP Services for OpenVMS
        6 - Startup TCP/IP Services for OpenVMS
        7 - Run tests

        A - Configure options 1 - 3
        E - Exit configuration procedure

 Enter configuration option:
```

3.3.2 IVP: After Configuration

To run the IVP any time after exiting the configuration procedure, issue:

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

3.3.3 IVP: Errors

All IVP errors are fatal. They use the same format as system messages:

%UCX-E-IDENT, *text*

Possible error messages:

```
Internet (UCX$DEVICE) 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
```

Table 3–1 shows the possible causes for IVP errors and what you can do to try to fix the problem.

Table 3–1 Correcting IVP Errors

Problem	Corrective Action
Network configuration is incorrect.	Shut down the UCX software and rerun the configuration procedure.
Startup fails.	Check the SYSGEN parameters and increase them if necessary. Shut down and restart UCX.
The installation kit is defective.	Request a replacement kit.
None of these actions corrects the problem.	Submit a Software Performance Report (SPR).
The IVP fails because the PAK is missing.	Without a PAK, you can use only the DECwindows TCP/IP Transport software. If you want to run all the software, purchase a UCX PAK.

3.4 Step 4: Complete the Post-Configuration Steps.

After the configuration procedure, do the tasks described in the following sections, if applicable to your environment.

3.4.1 Step 4a: Edit the System Startup and Shutdown Procedures.

For automatic startup of UCX, add the following line to your system startup procedure, after the command line that starts the DECnet/OSI startup procedure (if you run DECnet/OSI):

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

Table 3–2 lists the names of the startup procedures for the platforms on which UCX can run.

Table 3–2 System Startup Files

Platform:	File to Edit
OpenVMS AXP Version 1.5	SYS$MANAGER:SYSTARTUP_VMS.COM
OpenVMS AXP Version 6.1	SYS$MANAGER:SYSTARTUP_VMS.COM
OpenVMS VAX Version 5.5	SYS$MANAGER:SYSTARTUP_V5.COM
OpenVMS VAX Version 6.0, 6.1	SYS$MANAGER:SYSTARTUP_VMS.COM

For automatic shutdown of UCX upon system shutdown, add the following line to SYSHUTDOWN.COM:

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

3.4.2 Step 4b: Verify SYLOGIN.COM Protections.

For the services to start after you log in, the OpenVMS systemwide log-in procedure SYS$MANAGER:SYLOGIN.COM must be world-readable and world-executable.

To display its current privileges, type:

```
$ DIRECTORY SYS$MANAGER:SYLOGIN.COM /PROTECTION
```

If protections are not *W:RE*, issue:

```
$ SET PROTECTION=(W:RE) SYS$MANAGER:SYLOGIN.COM
```

3.4.3 Step 4c: Populate Relevant Databases.

Add entries to the databases related to the services you configured (see the *DEC TCP/IP Services for OpenVMS Management* and *UCX Management Command Reference* manuals).

If UNIX hosts exist on your network, you can copy the information in the following databases:

- `/etc/hosts`
- `/etc/networks`
- `/etc/passwd`
- `/etc/bootptab`

For details, see the *DEC TCP/IP Services for OpenVMS Management* manual or the *UCX Management Command Reference* manual.

3.4.4 Step 4d: Set up DECwindows for the TCP/IP Applications

To use DECwindows for TCP/IP applications, add the following line to the SYS$MANAGER:DECW$PRIVATE_SERVER_SETUP.COM command procedure:

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

Restart DECwindows with the following:

```
$ @SYS$STARTUP:DECW$STARTUP RESTART
```

If DECnet or DECnet/OSI runs on the same system, start DECnet first.

To display TCP/IP applications via DECwindows on a remote host (DECwindows client) from your system (DECwindows server), do the following:

1. Set up security on the remote host.
2. Put the remote client in the local UCX Hosts Database.
3. Edit SYS$MANAGER:DECW$PRIVATE_SERVER_SETUP.COM as explained above.
4. Set the display for the applications to the remote host:

   ```
   $ SET DISPLAY/CREATE/NODE=remote_host/TRANSPORT=TCPIP
   ```

3.4.5 Step 4e: Refine and Complete the NFS Server Configuration.

To make the Network File System (NFS) available to users on remote systems running NFS Client, follow these steps:

1. If you are unfamiliar with the management of the NFS Server software, or this is the first time you are running it on OpenVMS, see the *DEC TCP/IP Services for OpenVMS Concepts and Planning* and *DEC TCP/IP Services for OpenVMS Management* manuals for conceptual and management details.
2. Bind disk devices.

   The following command illustrates binding the disk devices to UNIX-style names:

   ```
   UCX> BIND DISK$USER3: "/usr3"
   ```

   You can add this command to the UCX$NFS_SET_FS command procedure.
3. Export file systems.

   The following command illustrates exporting:

   ```
   UCX> ADD EXPORT "/usr3" /HOST="unix.xyz.com"
   ```
4. Add proxies.

   The following commands add proxies:

   ```
   UCX> ADD PROXY JONES /HOST="unix.xyz.com" /UID=271 /GID=15
   UCX> ADD PROXY UCX$NOBODY /HOST=* /UID=-2 /GID=-2
   UCX> ADD PROXY UCX$NOBODY /HOST=* /UID=0 /GID=1
   ```
5. Monitor mounting.

   Watch the OPCOM Messages to confirm mounting (see the following example:)

   ```
   $ REPLY /ENABLE=NETWORK
   unix# mount openvms:/usr3 /usr3
   ```
6. Configure container file systems.

The following commands configure a container file system:

```
UCX> CREATE CONTAINER DISK$USER3:[CONTAINER]
UCX> BIND DISK$USER3:[CONTAINER] "/cont"
UCX> ADD EXPORT "/cont" /HOST="unix.xyz.com"
```

7. Modify root mapping.

   The following command changes default root mapping:

   ```
   UCX> SET NFS /UID=0 /GID=1
   ```

3.4.6 Step 4f: Refine and Complete the NFS Client Configuration.

To request the NFS Service, follow these steps:

1. If you are unfamiliar with the management of the NFS Client software, or this is the first time you are running it on OpenVMS, see the *DEC TCP/IP Services for OpenVMS Concepts and Planning* and *DEC TCP/IP Services for OpenVMS Management* manuals for conceptual and management details.
2. Add proxies.

   The necessary proxies may already exist. To check, use the following commands:

   ```
   UCX> ADD PROXY JONES /HOST="unix.xyz.com" /UID=271 /GID=15
   UCX> ADD PROXY UCX$NOBODY /HOST=* /UID=-2 /GID=-2
   ```
3. Mount devices.

   The following command illustrates mounting the devices:

   ```
   UCX> MOUNT DNFS10: /HOST="unix.xyz.com" /PATH="/usr/exports/public"
   ```

   You can add this to your system startup procedure.
4. Access files.

   The following command illustrates accessing files as though they were local:

   ```
   $ TYPE DNFS10:[JONES]MYFILE.TXT
   ```

3.4.7 Step 4g: Make Available the NFS Online Documentation.

For remote NFS Client users, UCX includes online NFS documentation. It describes how to remotely access files that reside on a system running UCX and offering the NFS Service.

To make this documentation available to remote NFS users:

1. Copy the SYS$HELP:UCX$VMS_FILES.DOC to a public directory.
2. Rename UCX$VMS_FILES.DOC to a UNIX file name.
3. Export the public directory so that remote users can mount it.

3.4.8 Step 4h: Create Additional BIND Server Files.

If you selected to configure the BIND Server, the configuration procedure creates two files for it, NAMED.CA and NAMED.LOCAL.

- Depending on the type of server functions your host will perform, you might need to create additional files (see the *DEC TCP/IP Services for OpenVMS Management* manual for details).
- If you have not yet designed your BIND namespace hierarchy, see the *DEC TCP/IP Services for OpenVMS Concepts and Planning* manual for guidelines.

Example: Configuring as the primary server for domain RHEA.LAB.UBIRD.EDU.

```
UCX> SET CONFIGURATION BIND -
_UCX> /PRIMARY=(DOMAIN:RHEA.LAB.UBIRD.EDU)
```

Example: Configuring as a secondary server for domain JACANA.LAB.UBIRD.EDU and names the boot file JACANA.DB.

Omitting the file name would default to file JACANA.LAB.UBIRD.DB.

```
UCX> SET CONFIGURATION BIND -
_UCX> /SECONDARY=(DOMAIN:JACANA.LAB.UBIRD.EDU,FILE:JACANA.DB,HOST=MARSHY)
```

Example: Configuring as a secondary server for the reverse lookup domain for addresses that have the form of 192.0.*.*.

The boot file name defaults to 0_192_IN-ADDR_ARPA.DB and the host copies this file from the host WEBBED.

```
UCX> SET CONFIGURATION BIND -
_UCX> /SECONDARY=(DOMAIN=0.192.IN-ADDR.ARPA,HOST=WEBBED)
```

3.5 Step 5: Configure the SRI $QIO Programming Interface.

If you run or develop applications that use the Standard Research Institute (SRI) QIO API, you can configure the interface using UCX$CONFIG (see Example 3–5). Alternatively, you can load it with the following command:

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

3.6 Ongoing Steps: Tune the Network.

To improve network performance, modify, as needed:

- UCX parameters
- The SYSGEN parameters CHANNELCNT and WSMAX

Issue UCX management commands. For complete information, see the following UCX manuals:

- *DEC TCP/IP Services for OpenVMS Management* for descriptions of management tasks and tuning performance
- *UCX Management Command Reference* for descriptions and syntax of management commands

A Examples

This appendix show examples of an installation and several configuration scripts.

A.1 Installation

This example:

- Installs DEC TCP/IP Services for OpenVMS (UCX) onto an OpenVMS VAX V6.1 system.
- Assumes that:
  - You checked the disk space and all other pre-installation requirements listed in the Installation Checklist in Chapter 1.
  - You completed the installation tasks listed in Chapter 1.
  - You filled out the Interface Checklist in Chapter 1.
  - You received the UCX distribution kit online and copied it into a directory SYS$SYSDEVICE:[UCX32].
  - You ran VMSINSTAL prior to this with OPTIONS N until the prompt asking for your choice of a Release Notes option.
  - You printed the Release Notes.
  - You aborted VMSINSTAL to read the Release Notes.
  - You ran VMSINSTAL for a second time without options.

For a complete list of files copied by the procedure, see Appendix B.

```
$ @sys$update:vmsinstal

        OpenVMS VAX Software Product Installation Procedure V6.1

It is 26-SEP-1994 at 13:23.

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

* Are you satisfied with the backup of your system disk [YES]?
* Where will the distribution volumes be mounted: sys$sysdevice:[ucx32]

Enter the products to be processed from the first distribution volume set.
* Products: UCX
* Enter installation options you wish to use (none):

The following products will be processed:

  UCX V3.2

        Beginning installation of UCX V3.2 at 13:25

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.
* Do you want to purge files replaced by this installation [YES]? yes

        Product:      UCX
        Producer:     DEC
        Version:      3.2
        Release Date: NOV-1994

* Does this product have an authorization key registered and loaded? y
%UCX-I-DONEASK, No further questions will be asked during this installation.
%VMSINSTAL-I-RESTORE, Restoring product save set B ...
%VMSINSTAL-I-RESTORE, Restoring product save set C ...
%VMSINSTAL-I-RESTORE, Restoring product save set D ...
****************************************************************************
        This installation will add the following files . . .
****************************************************************************

        SYS$COMMON:[SYSEXE]UCX$SNMP_AGENT.EXE
        SYS$COMMON:[SYSEXE]UCX$VERSIONS.EXE
        SYS$COMMON:[SYSEXE]UCX$UCP.EXE
        SYS$COMMON:[SYSEXE]UCX$PING.EXE
        SYS$COMMON:[SYSLIB]UCX$IPC_SHR.EXE
        .

        .

        .

        SYS$COMMON:[SYSEXE]UCX$BIND_SERVER.EXE
        SYS$COMMON:[SYSEXE]UCX$BIND_SERVER_XFER.EXE
        SYS$COMMON:[SYSHLP]UCX$FTP_HELP.HLB
        SYS$COMMON:[SYSHLP]UCX$TELNET_HELP.HLB
        SYS$COMMON:[SYSHLP]UCX$NSLOOKUP_HELP.HLB
        SYS$COMMON:[SYSEXE]UCX$ENCODE.COM
        SYS$COMMON:[SYSEXE]UCX$DECODE.COM
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
******************************************************************************
   Instructions for Completing DEC TCP/IP Services for OpenVMS Installation
******************************************************************************

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

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

```
            If you would like this product to start when your
            OpenVMS VAX system is started, modify your system
            startup command file (SYS$MANAGER:SYSTARTUP_V5.COM)
            to invoke the DEC TCP/IP Services for OpenVMS startup
            command file:

            SYS$MANAGER:UCX$STARTUP.COM
            NOTE: If you are reinstalling DEC TCP/IP Services for OpenVMS,
            then you must reboot your system.

            For information on the postinstallation steps, see this manual:
            "DEC TCP/IP Services for OpenVMS Installation and Configuration."

Registering DEC TCP/IP Services for OpenVMS privileged images

%REGISTER-I-ADDED added UCX$INETACP to registry
%REGISTER-I-SUMMARY  images examined: 1, dependent images: 1
%REGISTER-I-SUMMARY  images examined: 1, dependent images: 0
%REGISTER-I-ADDED added UCX$PWIPDRIVER to registry
%REGISTER-I-SUMMARY  images examined: 1, dependent images: 1
%REGISTER-I-DUP UCX_TRACE, (UCX_TRACE, UCX V3.0-00) already in registry
%REGISTER-I-SUMMARY  images examined: 1, dependent images: 1

        Installation of UCX V3.2 completed at 13:27
```

A.2 Configuration

The UCX configuration procedure looks the same when you run it on OpenVMS AXP systems and OpenVMS VAX systems. However, the following things are determined by the command line you use to start the procedure and, if you are reconfiguring, your current configuration.

- Menus that appear
- Questions you are asked
- Display of the current configuration information
- Flow from sub-menu to sub-menu
- Movement between client and server components

A.2.1 Configuration: Client Components

This example:

- Runs UCX$CONFIG.COM from an OpenVMS VAX system
- Assumes that this is an update installation
- Specifies the CLIENT parameter
- Shows how the procedure configures components one-by-one.
- Shows how the procedure moves from component to component. The menu includes and displays:
  - FTP CLIENT Configuration
  - LPD CLIENT Configuration
  - NFS CLIENT Configuration
  - RSH SERVER Configuration
  - REXEC SERVER Configuration
  - RLOGIN SERVER Configuration
  - SMTP SERVER Configuration
  - TELNET SERVER Configuration
- Shows how the procedure moves from the client configuration to the server configuration for those facilities which include client and server components.

```
$ set default sys$manager
$ @ucx$config client enable

  TCP/IP Network Configuration Procedure

 This procedure helps you define the parameters required
 to run DEC TCP/IP Services for OpenVMS on this system.

The 'configure all client' option is selected.

The 'silent mode' ENABLE  option is also selected.

        Checking TCP/IP Services for OpenVMS configuration database files.
```

```
        No new database files were created.

FTP CLIENT Configuration


LPD CLIENT Configuration

Service is defined in the SYSUAF.
  Nonprivileged user access is not enabled.

By default DEC TCP/IP Services for OpenVMS configures
LPD such that nonprivileged users cannot modify queue entries.

        DEC TCP/IP for OpenVMS supports Line Printer Daemon Protocol
        (RFC 1179) LPD requires the following:
           - Name of the local queue
           - Name of the remote queue
           - Name of the remote host
           - Spooling directory for the local queue

        To add or delete printers in the UCX PRINTCAP database use the
        $RUN SYS$SYSTEM:UCX$LPRSETUP command


NFS CLIENT Configuration


RSH SERVER Configuration

Service is defined in the SYSUAF.
Service is defined in the UCX$SERVICE database.

REXEC SERVER Configuration

Service is defined in the SYSUAF.
Service is defined in the UCX$SERVICE database.

RLOGIN SERVER Configuration

Service is defined in the UCX$SERVICE database.

SMTP SERVER Configuration

Service is defined in the SYSUAF.
Service is defined in the UCX$SERVICE database.
Configuration is defined in the UCX$CONFIGURATION database.
```

```
TELNET SERVER Configuration

Service is defined in the UCX$SERVICE database.



TCP/IP Services for OpenVMS Configuration Menu

Configuration options:

        1 - Core environment
        2 - Client components
        3 - Server components
        4 - Optional components

        5 - Shutdown TCP/IP Services for OpenVMS
        6 - Startup TCP/IP Services for OpenVMS
        7 - Run tests

        A - Configure options 1 - 3
        E - Exit configuration procedure

Enter configuration option:

.
.
.
```

A.2.2 Configuration: Routing

This section shows an example of using the configuration menus to configure the dynamic routing.

```
TCP/IP Services for OpenVMS Configuration Menu

Configuration options:

        1 - Core environment
        2 - Client components
        3 - Server components
        4 - Optional components

        5 - Shutdown TCP/IP Services for OpenVMS
        6 - Startup TCP/IP Services for OpenVMS
        7 - Run tests

        A - Configure options 1 - 3
        E - Exit configuration procedure

Enter configuration option: 1

TCP/IP Services for OpenVMS CORE ENVIRONMENT Configuration Menu

Configuration options:

        1 - BIND Resolver
        2 - Domain
        3 - Routing
        4 - Interfaces
        5 - Time Zone

        A - Configure options 1 - 5
      [E] - Exit menu

Enter configuration option: 3

DYNAMIC ROUTING Configuration

        Dynamic routing has not been configured.

        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 configure dynamic routing [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] ?
```

```
TCP/IP Services for OpenVMS CORE ENVIRONMENT Configuration Menu

Configuration options:

        1 - BIND Resolver
        2 - Domain
        3 - Routing
        4 - Interfaces
        5 - Time Zone

        A - Configure options 1 - 5
      [E] - Exit menu

Enter configuration option: e

TCP/IP Services for OpenVMS Configuration Menu

Configuration options:

        1 - Core environment
        2 - Client components
        3 - Server components
        4 - Optional components

        5 - Shutdown TCP/IP Services for OpenVMS
        6 - Startup TCP/IP Services for OpenVMS
        7 - Run tests

        A - Configure options 1 - 3
        E - Exit configuration procedure

Enter configuration option: e
```

A.2.3 Configuration: BIND Server

This section shows an example of using the configuration menus to configure the local host's BIND Server.

```
TCP/IP Services for OpenVMS Configuration Menu

Configuration options:

        1 - Core environment
        2 - Client components
        3 - Server components
        4 - Optional components

        5 - Shutdown TCP/IP Services for OpenVMS
        6 - Startup TCP/IP Services for OpenVMS
        7 - Run tests

        A - Configure options 1 - 3
        E - Exit configuration procedure

Enter configuration option: 3
```

```
TCP/IP Services for OpenVMS SERVER Components Configuration Menu

Configuration options:

        1 - BIND          Enabled
        2 - BOOTP         Enabled
        3 - TFTP          Enabled
        4 - FTP           Enabled
        5 - LPR/LPD       Enabled
        6 - NFS           Enabled
        7 - PC-NFS        Enabled
        8 - PORTMAPPER    Enabled
        9 - TELNET        Enabled
       10 - SNMP          Disabled

        A - Configure options 1 - 10
      [E] - Exit menu

Enter configuration option: 1
```

```
BIND SERVER Configuration

Service is defined in the SYSUAF.
Service is defined in the UCX$SERVICE database.
Service is enabled on specific node.

BIND SERVER configuration options:

        1 - Disable service on this node

        E - Exit BIND configuration

Enter configuration option: e



TCP/IP Services for OpenVMS SERVER Components Configuration Menu

Configuration options:

        1 - BIND          Enabled
        2 - BOOTP         Enabled
        3 - TFTP          Enabled
        4 - FTP           Enabled
        5 - LPR/LPD       Enabled
        6 - NFS           Enabled
        7 - PC-NFS        Enabled
        8 - PORTMAPPER    Enabled
        9 - TELNET        Enabled
       10 - SNMP          Disabled

        A - Configure options 1 - 10
       [E] - Exit menu

Enter configuration option: e



TCP/IP Services for OpenVMS Configuration Menu

Configuration options:

        1 - Core environment
        2 - Client components
        3 - Server components
        4 - Optional components

        5 - Shutdown TCP/IP Services for OpenVMS
        6 - Startup TCP/IP Services for OpenVMS
        7 - Run tests

        A - Configure options 1 - 3
        E - Exit configuration procedure

Enter configuration option: e
```

B
Installed Files

The UCX installation procedure copies all the distribution files built for your operating system.

If you are re-installing UCX, the procedure renames the Configuration Database, in SYS$COMMON:[SYSEXE], from UCX$CONFIGURATION.DAT to UCX$CONFIGURATION.OLD.

B.1 UCX Files

Table B–1 lists and describes the UCX files installed onto your system. Table B–2 lists the UCX file used by PATHWORKS.

Table B–1 UCX Files Installed

File	Description
SYS$COMMON:[SYS$LDR]	
UCX$BGDRIVER.EXE	Internet Device Driver
UCX$TNDRIVER.EXE	TELNET and Remote Login Drivers
UCX$DNFSDRIVER_V5.EXE†	VMS V5 NFS CLIENT DRIVER
UCX$DNFSDRIVER_V6.EXE†	VMS V6 NFS CLIENT DRIVER
UCX$DNFSDRIVER.EXE	AXP image
UCX$INETDRIVER.EXE	SRI QIO Driver
UCX$INTERNET_SERVICES.EXE†	Internet software
UCX$INTERNET_SERVICES_V6.EXE†	Internet software
SYS$COMMON:[SYSEXE]	
UCX$INETACP.EXE	Network ancillary control process (NETACP) for the Internet device driver
UCX$INETACP.STB	Global symbol definitions for UCX$INETACP.EXE
UCX$INTERNET_SERVICES_V6.STB†	Global symbol definitions for UCX$INTERNET_SERVICES_V6.EXE
UCX$INTERNET_SERVICES_V6_SEC.STB†	Global symbol definitions for UCX$INTERNET_SERVICES_V6_SEC.EXE
UCX$INTERNET_SERVICES.STB	Global symbol definitions for UCX$INTERNET_SERVICES.EXE
UCX$INTERNET_SERVICES_SEC.STB	Global symbol definitions for UCX$INTERNET_SERVICES_SEC.EXE

†OpenVMS VAX-specific

(continued on next page)

Table B–1 (Cont.) UCX Files Installed

File	Description
SYS$COMMON:[SYSEXE]	
UCX$INET_ROUTING.EXE	Dynamic routing
UCX$INET_ROUTING.STB	Global symbol definitions for UCX$INET_ROUTING.EXE
UCX$NET_GLOBALS.STB	Global symbol definitions for UCX Data Structures
UCX$CONVERT.FDL	File definition used by UCX$CONVERT.COM
UCX$CONVERT.COM	Procedure for converting files to STREAM_LF
UCX$BIND_SERVER.EXE	BIND Server
UCX$BIND_SERVER_XFER.EXE	BIND Server's zone transfer
UCX$BOOTP.EXE	Remote Boot Server
UCX$ENCODE.COM	Procedure to execute UUENCODE program
UCX$DECODE.COM	Procedure to execute UUDDCODE program
UCX$FTP.EXE	FTP Client
UCX$FTPC.EXE	FTP Server
UCX$FTPD.EXE	FTP Control Command Server (daemon)
UCX$FTPSERVER.COM	Procedure that starts an FTP child process
UCX$LPD_RCV.EXE	Print receiver
UCX$LPD_SMB.EXE	Print symbiont
UCX$LPRM.EXE	LPRM command
UCX$LPRSETUP.EXE	Setup utility for network printing
UCX$LPQ.EXE	LPQ command
UCX$NSLOOKUP.EXE	`nslookup` Utility
UCX$SERVER_NFS.EXE	NFS Server (daemon)
UCX$PCNFSD.EXE	PC-NFS Server (daemon)
UCX$PING.EXE	PING command image
UCX$PORTMAPPER.EXE	Program that maps processes to ports
UCX$RLOGIN.EXE	Remote Login Client
UCX$RPCINFO.EXE	SHOW PORTMAPPER command
UCX$RSH.EXE	Remote Shell
UCX$SMTP_RECEIVER.EXE	SMTP receiver

(continued on next page)

Table B–1 (Cont.) UCX Files Installed

File	Description
SYS$COMMON:[SYSEXE]	
UCX$SMTP_SYMBIONT.EXE	SMTP symbiont
UCX$SNMP_AGENT.EXE	SNMP agent
UCX$TELNET.EXE	TELNET Client
UCX$TELNETSYM.EXE	TELNET print symbiont
UCX$TFTP.EXE	TFTP Server (daemon)
UCX$UCP.EXE	UCX Management control program (UCP)
UCX$UUENCODE.EXE	UUEncode Program image
UCX$UUDECODE.EXE	UUDecode Program image
UCX$VERSIONS.EXE	Image for the SHOW VERSION command
UCX$EXE.ADF	
UCX$HLB.ADF	
UCX$MLB.ADF	
UCX$OBJ.ADF	
UCX$OLB.ADF	
UCX$STB.ADF	
UCX$TLB.ADF	
UCX$DNFSMOUNT_V5.EXE	VAX image
UCX$DNFSMOUNT_V6.EXE	VAX image
UCX$DNFSDISMOUNT_V5.EXE	VAX image
UCX$DNFSDISMOUNT_V6.EXE	VAX image
UCX$DNFSACP_V5.EXE	VAX image
UCX$DNFSACP_V6.EXE	VAX image
UCX$DNFSACP.EXE	ACP image
SYS$COMMON:[SYSLIB]	
UCX$ACCESS_SHR.EXE	Database access routines
UCX$CFS_SHR.EXE	Container File System runtime library
UCX$INETDEF.ADA	Internet Ada definitions file
UCX$INETDEF.FOR	Internet FORTRAN definitions file
UCX$INETDEF.H	Internet C definitions file
UCX$INETDEF.MAR	Internet MACRO definitions file
UCX$INETDEF.PAS	Internet Pascal definitions file
UCX$INETDEF.PL1	Internet PL/1 definitions file

(continued on next page)

Table B–1 (Cont.) UCX Files Installed

File	Description
SYS$COMMON:[SYSLIB]	
UCX$INETDEF.R32	Internet BLISS definitions file
UCX$IPC_SHR.EXE	IPC runtime library
UCX$IPC.OLB	IPC object library
UCX$LPD_SHR.EXE	Shared library for printing processes
UCX$SMTP_MAILSHR.EXE	SMTP shared library
UCX$SMTP_PARSESHR.EXE	SMTP parsing routines
UCX$RPCXDR.H	Sun RPC header file
UCX$RPCXDR_SHR.EXE	Sun RPC routines library
SYS$COMMON:[SYSHLP]	
UCX031.RELEASE_NOTES	Release Notes
UCX$UCP_HELP.HLB	Online help for management commands
UCX$VMS_FILES.DOC	Online information about file restrictions for UNIX users of NFS Server
UCX$FTP_HELP.HLB	FTP online help
UCX$TELNET_HELP.HLB	TELNET online help
UCX$NSLOOKUP_HELP.HLB	`nslookup`online help
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]	
UCX$INTERNET_SERVICES_V6_SEC.EXE†	Internet software with security for OpenVMS V6
UCX$INTERNET_SERVICES_V5_SEC.EXE	Internet software with security for OpenVMS V5
BUILD_UCX_SECURITY_DRIVER.COM	Example file to build the security driver
UCX$IOCTL_ROUTINE.C	Programming example
TN3270DEF.MAR	For IBM 3270TE; translation table template that you edit to modify the translation tables.
TRACEROUTE.EXE	Traceroute facility
UCX$TRACE.EXE	Protocol trace facility

†OpenVMS VAX-specific

(continued on next page)

Table B–1 (Cont.) UCX Files Installed

File	Description
SYS$COMMON:[SYSHLP.EXAMPLES.UCX]	
UCX_SECURITY_DRIVER.MAR	Security driver source sample
UCX$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_IPC_AUXS.C	C programming example
UCX$TCP_SERVER_QIO.C	Programming example
UCX$TCP_SERVER_QIO.MAR	Programming example
UCX$TCP_SERVER_QIO_AUXS.C	C programming example
UCX$UDP_CLIENT_IPC.C	C programming example
UCX$UDP_CLIENT_QIO.C	C programming example
UCX$UDP_CLIENT_QIO.MAR	MACRO programming example
UCX$UDP_SERVER_IPC.C	C programming example
UCX$UDP_SERVER_QIO.C	C programming example
SYS$COMMON:[SYSMGR]	
UCX$BIND_STARTUP.COM	BIND Server startup procedure
UCX$BIND_SHUTDOWN.COM	BIND Server shutdown procedure
UCX$BOOTP_STARTUP.COM	Remote boot server startup procedure
UCX$BOOTP_SHUTDOWN.COM	Remote boot server shutdown procedure
UCX$CALLBACKS.COM	Configuration utilities
UCX$CONFIG.COM	Configuration procedure
UCX$FIXUP.COM	V1 configuration fixup
UCX$FTPD_STARTUP.COM	FTP Server startup procedure
UCX$FTPD_SHUTDOWN.COM	FTP Server shutdown procedure
UCX$INET_STARTUP.COM	Internet startup procedure
UCX$INET_SHUTDOWN.COM	Internet shutdown procedure
UCX$LOAD_INETDRIVER.COM	Command file that loads the SRI QIO programming interface

(continued on next page)

Table B–1 (Cont.) UCX Files Installed

File	Description
SYS$COMMON:[SYSMGR]	
UCX$REGISTER.COM	Command file that registers privileged UCX images for OpenVMS V6.n
UCX$LPD_RCV_STARTUP.COM	Print receiver startup procedure
UCX$LPD_STARTUP.COM	Print Server startup procedure
UCX$LPD_SHUTDOWN.COM	Print Server shutdown procedure
UCX$NFS_STARTUP.COM	NFS Server startup procedure
UCX$NFS_SHUTDOWN.COM	NFS Server shutdown procedure
UCX$DNFS_SHUTDOWN.COM	NFS Client shutdown procedure
UCX$NFS_SERVER_STARTUP.COM	
UCX$PCNFSD_STARTUP.COM	PC-NFS Server startup procedure
UCX$PCNFSD_SHUTDOWN.COM	PC-NFS Server shutdown procedure
UCX$PORTM_SHUTDOWN.COM	Portmapper shutdown procedure
UCX$PORTM_STARTUP.COM	Portmapper startup procedure
UCX$PRINTCAP.DAT	Printcap Database
UCX$REMOTE_TTY_STARTUP.COM	TELNET and Remote Login Server startup procedure
UCX$STARTUP.COM	UCX startup procedure
UCX$SHUTDOWN.COM	UCX shutdown procedure
UCX$SERVICE_SETUP.COM	UCX Services set up procedure
UCX$RSHD_STARTUP.COM	Remote Shell startup procedure
UCX$REXECD_STARTUP.COM	Remote Executive startup procedure
UCX$SMTP_STARTUP.COM	SMTP queue startup procedure
UCX$SMTP_SHUTDOWN.COM	SMTP queue shutdown procedure
UCX$SMTP_RECV_STARTUP.COM	SMTP receiver startup procedure
UCX$SNMP_STARTUP.COM	SNMP startup procedure
UCX$SNMP_SHUTDOWN.COM	SNMP shutdown procedure
UCX$SNMPD_MIR.DAT	SNMP dictionary of MIB variables

(continued on next page)

Table B–1 (Cont.) UCX Files Installed

File	Description
SYS$COMMON:[SYSMGR]	
UCX$SYMBOLS.COM	Configuration logical names
UCX$TFTP_STARTUP.COM	TFTP startup procedure
UCX$TFTP_SHUTDOWN.COM	TFTP shutdown procedure
TELNET_SHUTDOWN.COM	
UCX$UCP_STARTUP.COM	Management control program startup
SYS$COMMON:[SYSMSG]	
UCX$MSG.EXE	UCX message file
SYS$COMMON:[SYSTEST.UCX]	
UCX$INET_IVP.EXE	Auxiliary Server IVP
UCX$RPCIVP_CLIENT.EXE	RPC Client routines IVP
UCX$RPCIVP_SERVER.EXE	RPC Server routines IVP
SYS$COMMON:[SYSTEST]	
UCX$IVP.COM	UCX IVP

B.2 Files Installed for PATHWORKS Systems

Table B–2 lists and describes the files for PATHWORKS systems that are installed by the UCX installation procedure.

Table B–2 PATHWORKS Files

File	Description
SYS$COMMON:[SYS$LDR]UCX$PWIPDRIVER.EXE	PATHWORKS IP driver
SYS$COMMON:[SYSEXE]UCX$PWIPACP.EXE	PATHWORKS IP ACP
SYS$COMMON:[SYSEXE]UCX$PWIPDRIVER.STB	Global symbol definitions for UCX$PWIPDRIVER.EXE
SYS$COMMON:[SYSEXE]UCX$PWIPSYM.STB	Global symbol definitions for UCX$PWIPSYM.EXE
SYS$COMMON:[SYSMGR]UCX$PWIP_STARTUP.COM	PATHWORKS IP driver startup
SYS$COMMON:[SYSMGR]UCX$PWIP_ SHUTDOWN.COM	PATHWORKS IP driver shutdown
SYS$COMMON:[SYSEXE]UCX$PWIPSHUT.EXE	

Index